RESTORE OUR WATERS
SEATTLE PUBLIC UTILITIES
COMBINED SEWER OVERFLOW REDUCTION

Henderson Basin 44 CSO Reduction Project

Revised Final Environmental Impact Statement

September 2013

HDR CH2MHILL

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City of Seattle
Seattle Public Utilities

September 5, 2013

Dear Affected Agencies, Tribes, Organizations, and Interested Parties,

Seattle Public Utilities (SPU) issued the Henderson Basin 44 CSO Reduction Project Final Environmental Impact Statement (EIS) on January 3, 2013 (SPU 2013).

A local neighbors coalition (Seward Park Neighbors Coalition) appealed the adequacy of the Final EIS to the Seattle Hearing Examiner, pursuant to Chapter 25.05 of the Seattle Municipal Code. The Hearing Examiner conducted an appeal hearing on March 25, 2013. As documented in a decision dated April 8, 2013, the Hearing Examiner remanded the SPU Director's adequacy determination on the Final EIS on the sole issue of project-related operational noise (City of Seattle 2013a). In all other respects, the Hearing Examiner affirmed the determination of Final EIS adequacy.

This Revised Final EIS replaces the previous operational noise discussion from Chapter 13 of the January 2013 Final EIS, and includes a more complete description of this topic to address the Hearing Examiner's decision. It incorporates by reference all other information contained in the January 3, 2013, Final EIS, including all comments and responses, and is limited to only the information provided on operational noise, and a summary of the project description for reader context.

Thank you for your interest in the Henderson Basin 44 CSO Reduction Project.

Sincerely,

Betty Meyer

Betty Meyer
SEPA Responsible Official

Ray Hoffman, Director
Seattle Public Utilities
700 5th Avenue, Suite 4900
PO Box 34018
Seattle, WA 98124-4018

Tel (206) 684-5851
Fax (206) 684-4631
TDD (206) 233-7241
ray.hoffman@seattle.gov

http://www.seattle.gov/util

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Fact Sheet

Name of Proposal

Henderson Basin 44 Combined Sewer Overflow (CSO) Reduction Project

Proponent

Seattle Public Utilities (SPU)

Location

The proposed project would be located in Basin 44 in southeast Seattle. Basin 44 is the geographic area that contributes CSOs to Lake Washington via CSO Outfall 44 near Seward Park. The eastern boundary of Basin 44 is Lake Washington. Other Basin 44 boundaries are generally 52nd Avenue South to the west, South Hudson Street to the north, and South Morgan Street to the south. The 375-acre basin includes residential neighborhoods and Seward Park.

Most of the proposed project components would be located in Seward Park with some minor components at a site approximately one mile north of Seward Park near the intersection of Lake Washington Boulevard South and 53rd Avenue South.

Purpose

The proposed project consists of an underground storage tank to store excess sewage and stormwater flows from Basin 44 during heavy rains, associated infrastructure, and shoreline and landscape improvements. Once constructed, the project would reduce the number and volume of raw sewage and untreated stormwater overflows to Lake Washington, which would help protect public health and would improve water quality in the lake. The proposed project also is needed to bring the basin into compliance with state and federal regulations that limit the number of raw sewage overflows to a long-term average of no more than one per year.

Proposed Alternatives

SPU identified the following alternatives for evaluation in the Final EIS:

- Tennis Courts Alternative - Storage under Seward Park Tennis Courts (the preferred alternative)
- Parking Lot Alternative - Storage under Seward Park Parking Lot
- No Action Alternative - No reduction in sewage overflows

Tennis Courts and Parking Lot Alternatives: Both alternatives consist of the four main components listed below. Project components for the two alternatives would be similar; the main difference would be the location of the CSO storage tank and shoreline treatment. The project components for the Tennis Courts and Parking Lot Alternatives include the following:

- An underground, 2.4-million-gallon storage tank and associated infrastructure
- Shoreline treatment
- Replacement of the existing CSO outfall pipe into Lake Washington
- Transfer of National Park Service (NPS) Urban Park and Recreation Recovery (UPARR) grant protections and upland landscaping enhancements

The first three elements would be located in Seward Park. The fourth element would be located in a portion of Lake Washington Boulevard Park approximately one mile north of Seward Park near the intersection of Lake Washington Boulevard South and 53rd Avenue South.

No Action Alternative: Under the No Action Alternative, the CSO storage tank and associated infrastructure would not be built. The shoreline treatment next to the CSO storage tank and the transfer of UPARR grant protections also would not be implemented. The existing CSO outfall pipe would be replaced eventually because it is in poor condition and was previously recommended for replacement. The outfall replacement is expected to occur between 2015 and 2020, under the SPU Outfall Rehabilitation Program.

Implementation Date

If the project is approved, construction is anticipated to occur from mid-2015 to the end of 2017.

Final Action

The proposed project may not proceed unless the City Council approves the project pursuant to Ordinance 118477 (a.k.a., “Initiative 42”), and before permits and approvals are obtained from government agencies. The Council is expected to hold a public hearing regarding the proposed project, and decide whether to approve it, in early 2014. Decisions approving or denying permits and approvals are expected to occur in 2014. Construction is anticipated to occur from mid-2015 to the end of 2017.

Required Approvals or Permits

The table below lists the anticipated permits and approvals.

Agency/Jurisdiction	Permit/Approval
Federal	
National Park Service (NPS)	• Section 1010 UPARR Impact Mitigation Approval • Memorandum of Agreements (NPS, DAHP, Seattle Parks, and SPU) • National Environmental Policy Act (NEPA) Compliance
U.S. Army Corps of Engineers	• Rivers and Harbors Act Section 10/Clean Water Act Section 404 Permit
U.S. Fish and Wildlife Service/National Marine Fisheries Service	• Section 7 Endangered Species Act (ESA) Compliance and Magnuson-Stevens Fishery Conservation and Management (MSFCM) Act Compliance
State	
Washington Department of Ecology	• Facility Plan Approval • NPDES Construction Stormwater General Permit (CSGP) • NPDES CSGP Transfer of Coverage • 401 Water Quality Certification[1] • Coastal Zone Consistency Determination[1]
Washington Department of Fish and Wildlife	• Hydraulic Project Approval
Washington Department of Archaeology and Historic Preservation (DAHP)	• Section 106 National Historic Preservation Act Consultation Review
Local	
Seattle City Council	• Initiative 42 Approval (Park Lands Conversion) with • Partial Transfer of Jurisdiction via Ordinance
Seattle Department of Planning and Development	• Type V Council Land Use Decision – Concept Approval for City Facility[2] • Master Use Permit II – SEPA Conditioning Approval[2] • Master Use Permit II – Shoreline Substantial Development Permit[2] • Clear and Grade Permit • Construction Permit – Storage Tank and Facilities Vault • Construction Permit – Shoring • Electrical Permit • Plumbing Permit • Mechanical Permit
Seattle Design Commission	• Project Review
Seattle Department of Transportation	• Street Use Permit
Seattle Parks and Recreation	• Revocable Use Permit
Seattle Public Utilities	• Environmental Critical Areas (ECA) Exemption • State Environmental Policy Act (SEPA) Compliance
Public Health – Seattle & King County	• Health Permit (Air Gap)

[1]These may be included as part of a Corps of Engineers Permit.

[2]Applications processed concurrently.

Authors and Principal Contributors to this Revised Final EIS

This Revised Final EIS has been prepared under the direction of Seattle Public Utilities. HDR Engineering, Inc. provided associated research and analysis.

Project Proponent and Lead Agency

Seattle Public Utilities
Seattle Municipal Tower, Suite 4900
P.O. Box 34018
Seattle, WA 98124-4018

SPU SEPA Responsible Official

Betty Meyer
Seattle Public Utilities
Seattle Municipal Tower, Suite 4900
P.O. Box 34018
Seattle, WA 98124-4018
betty.meyer@seattle.gov

Project Information / Background Data Contact Person

Alan Lord, PE, SPU Project Manager
alan.lord@seattle.gov
Ph: (206) 233-1565

Date of Issuance of this Revised Final EIS

September 5, 2013

Availability of the Revised Final EIS and Background Materials

The Revised Final EIS is available for viewing at the following locations:

- Seattle Public Utilities, Director's Office Main Reception Area, Seattle Municipal Tower, Suite 4900, 700 Fifth Avenue, Seattle, Washington
- Seattle Central Library, Public Review Documents, Level 5 Reference
- Online at www.seattle.gov/cso/northhenderson

The Revised Final EIS can be downloaded for free from the www.seattle.gov/cso/northhenderson website or purchased on CD for $10 or in paper form for $50. Purchased copies will be mailed upon receipt of a check made payable to Seattle Public Utilities.

Additional background materials can be viewed on the www.seattle.gov/cso/northhenderson website. They also may be viewed in paper form by arranging a time with Alan Lord, PE, SPU Project Manager, at alan.lord@seattle.gov or (206) 233-1565.

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List of Acronyms

CSO	Combined Sewer Overflow
dBA	decibels (A-weighted)
EIS	Environment Impact Statement
FEIS	Final EIS
MG	million gallons
NPS	National Park Service
SEPA	State Environmental Policy Act
SMC	Seattle Municipal Code
SPU	Seattle Public Utilities
UPARR	Urban Park and Recreation Recovery

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1 Introduction

1.1 What is the purpose of this document?

This Revised Final Environmental Impact Statement (EIS) replaces the parts of Chapter 13 of the previously published Final EIS that addressed operational noise impacts related to the Henderson Basin 44 CSO Reduction Project. Seattle Public Utilities (SPU) is the lead agency for this project under the State Environmental Policy Act (SEPA).

SPU previously determined that the proposed project may have a significant adverse effect on the environment. Therefore, an EIS was prepared per Seattle Municipal Code (SMC 25.05.360). The Draft EIS was circulated in September 2012 for review by agencies and the public. SPU considered all formal review comments on the Draft EIS and incorporated responses to those comments in the Final EIS issued on January 3, 2013 (SPU 2013).

A local neighbors coalition (Seward Park Neighbors Coalition) appealed the adequacy of the Final EIS to the Office of the Hearing Examiner, pursuant to Chapter 25.05 of the Seattle Municipal Code. The Hearing Examiner conducted an appeal hearing on March 25, 2013. As documented in a decision dated April 8, 2013, the Hearing Examiner remanded the SPU Director's adequacy determination on the Final EIS on the sole issue of project-related operational noise (City of Seattle 2013a). The Hearing Examiner affirmed the SPU Director's Final EIS adequacy determination with respect to all other issues addressed in the appeal.

The Hearing Examiner decision stated that additional information regarding operational noise would be needed by the Seattle City Council for consideration in its decision on the project:

> "It is not clear from the FEIS that a noise analysis will be performed at final design; at what level project-generated noise, including tones, would be considered significant, or on what basis; and what steps would be taken, or mitigation required, if the analysis at that stage showed that operational noise levels would reach the level of environmental significance."

This Revised Final EIS addresses the Hearing Examiner's decision by providing a more complete analysis and description of operational noise impacts. It replaces the previous operational noise discussion from Chapter 13 of the January 2013 Final EIS in its entirety It incorporates by reference all other information contained in the January 3, 2013, Final EIS, including all comments and responses, and is limited to only the information provided on operational noise, and a summary of the project description for reader context.

1.2 What is the Henderson Basin 44 CSO Reduction Project and why is it needed?

Sewers in the project area carry raw sewage away from the neighborhood for treatment at King County's West Point and South treatment plants before discharge to Puget Sound. When it rains, these same sewers also carry untreated stormwater from neighborhood roofs, foundation drains, and some streets. During heavy rains, if the amount of raw sewage and untreated stormwater exceeds the sewer system capacity, the excess flows discharge into Lake Washington. The term for these overflows is "Combined Sewer Overflows," or CSOs, and they are a public health and environmental concern. The goal of the Henderson Basin 44 CSO Reduction Project is to reduce the number and volume of these sewage overflows from the project area. Basin 44 is in southeast Seattle along the western shoreline of Lake Washington (see Figure 1-1).

Seward Park is owned and managed by the Seattle Department of Parks and Recreation and is the site of the Henderson Basin 44 CSO Reduction Project. The proposed project consists of constructing a 2.4 million-gallon (MG) underground storage tank to store excess sewage and stormwater flows in Basin 44 during heavy rain events. The project also includes additional infrastructure, shoreline, and landscape improvements.

The proposed project would help protect public health, improve water quality in Lake Washington, and comply with regulations by reducing the number of CSO events in Basin 44 to a long-term average of no more than one untreated discharge per year per outfall.

1.3 What alternatives were evaluated in the Final EIS?

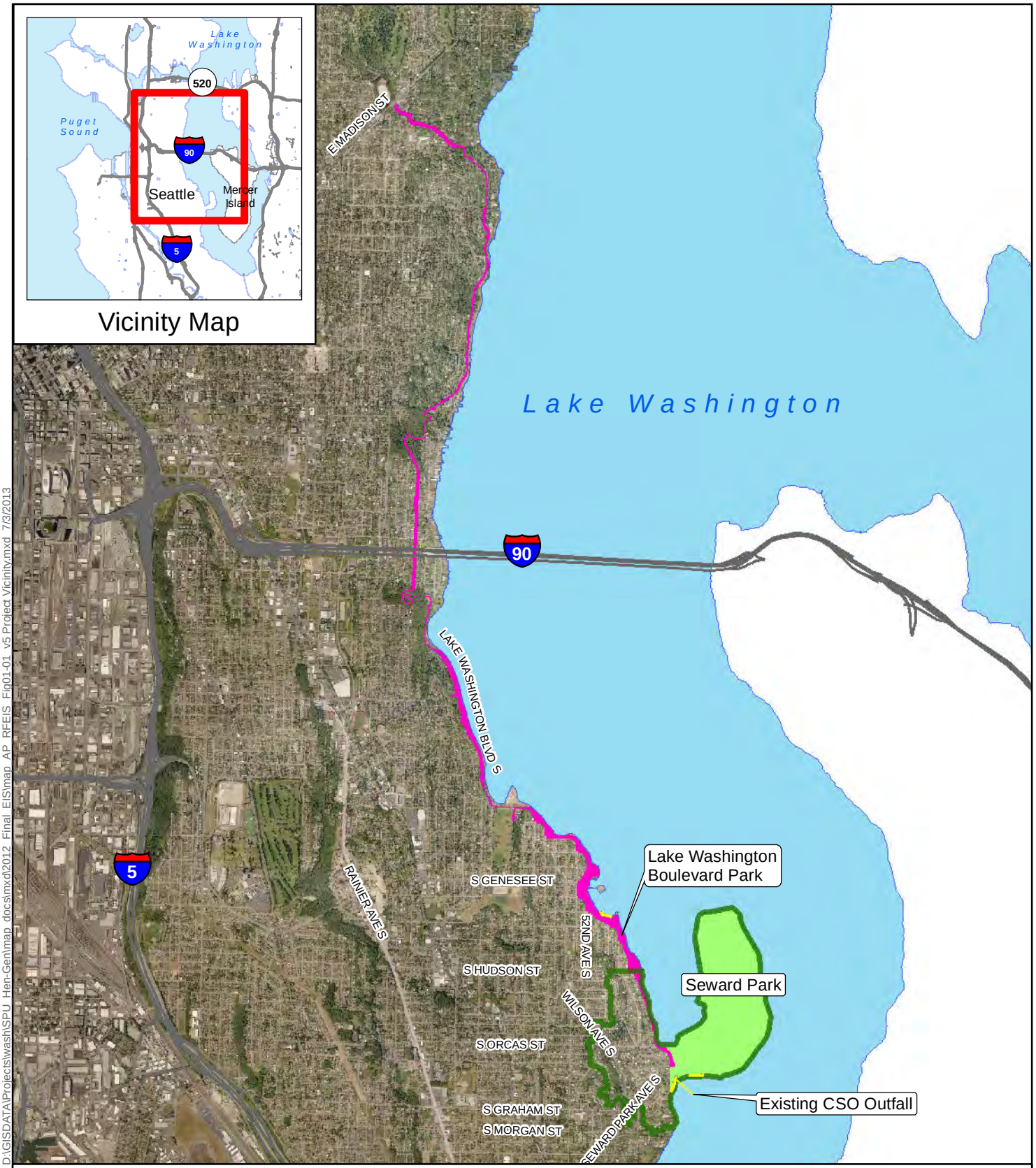
SPU identified the following alternatives for evaluation in the Final EIS:

- Tennis Courts Alternative - Storage under Seward Park Tennis Courts (the preferred alternative)
- Parking Lot Alternative - Storage under Seward Park Parking Lot
- No Action Alternative

The Tennis Courts and the Parking Lot Alternatives are similar with the main difference being the location of the CSO storage tank and shoreline treatment. The two alternatives consist of the following four main elements:

- An underground, 2.4 MG CSO storage tank and associated infrastructure
- Shoreline treatment
- Replacement of an existing CSO outfall pipe
- A transfer of National Park Service (NPS) Urban Park and Recreation Recovery (UPARR) grant protections and upland landscaping enhancements

The first three elements are located in Seward Park. Figure 1-2 shows these elements for the Tennis Courts Alternative and Figure 1-3 shows these elements for the Parking Lot Alternative. The fourth element is located in a portion of Lake Washington Boulevard Park approximately one mile north of Seward Park near the intersection of Lake Washington Boulevard South and 53rd Avenue South.



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Legend

- Lake Washington Blvd Park (to Madison St.)
- Seward Park
- Basin 44
- Potential Project Areas

0 1,500 3,000 6,000 Feet

Seattle Public Utilities

HENDERSON BASIN 44 CSO REDUCTION PROJECT
REVISED FINAL ENVIRONMENTAL IMPACT STATEMENT

PROJECT VICINITY

SEPTEMBER 2013 | **FIGURE 1-1**

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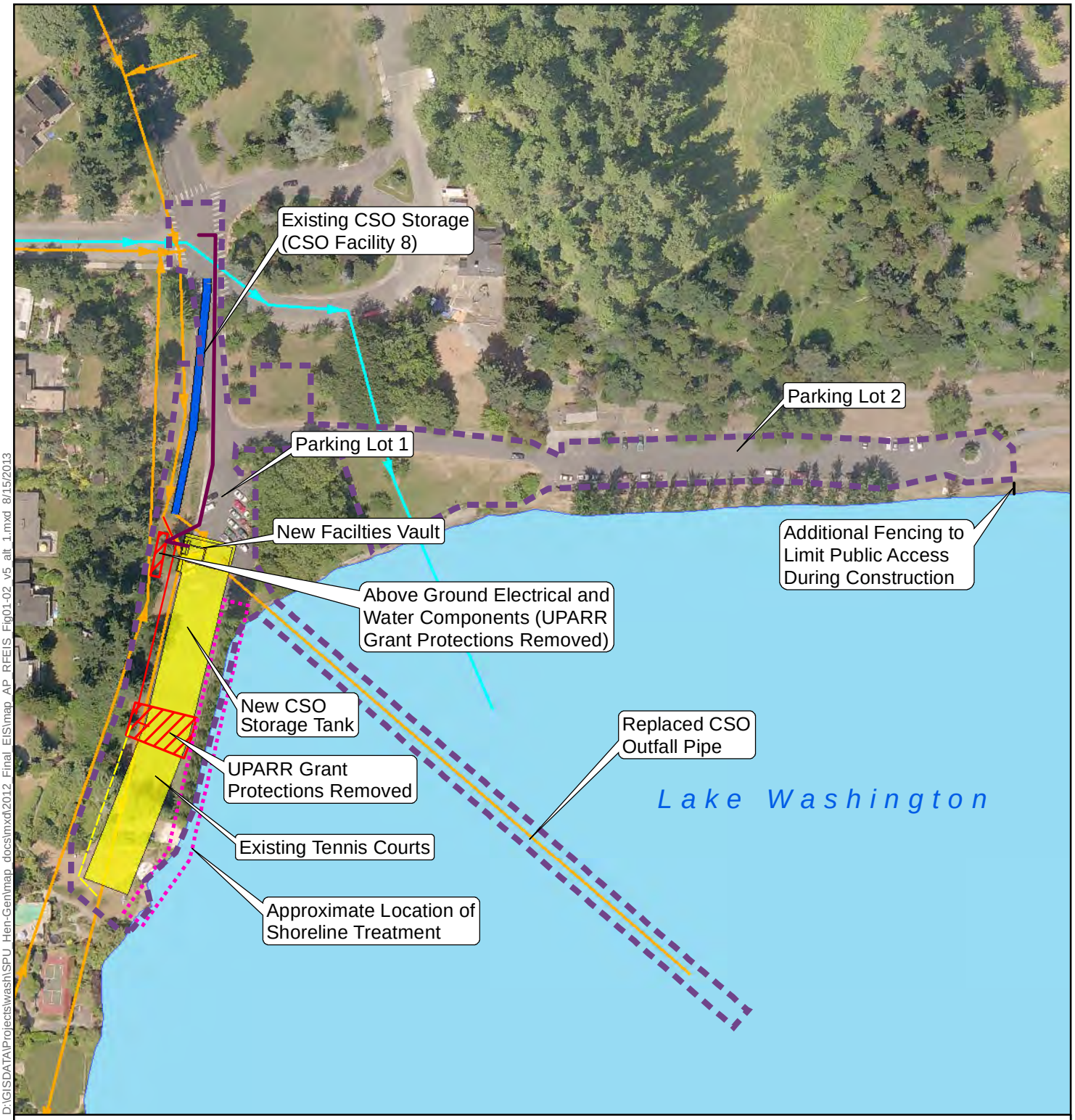

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Legend

- UPARR Grant Protections Removed
- Potential Limits of Construction
- Fence Outside Limits of Construction
- Existing CSO Storage
- Shoreline Treatment
- SPU Combined Sewer Pipe
- SPU Drainage Pipe
- New Combined Sewer Pipe
- Relocated Combined Sewer Pipe
- New Water Pipe

N

0 60 120 240 Feet

Seattle Public Utilities

HENDERSON BASIN 44 CSO REDUCTION PROJECT
REVISED FINAL ENVIRONMENTAL IMPACT STATEMENT

TENNIS COURTS ALTERNATIVE
MAIN COMPONENTS IN SEWARD PARK

SEPTEMBER 2013 | **FIGURE 1-2**

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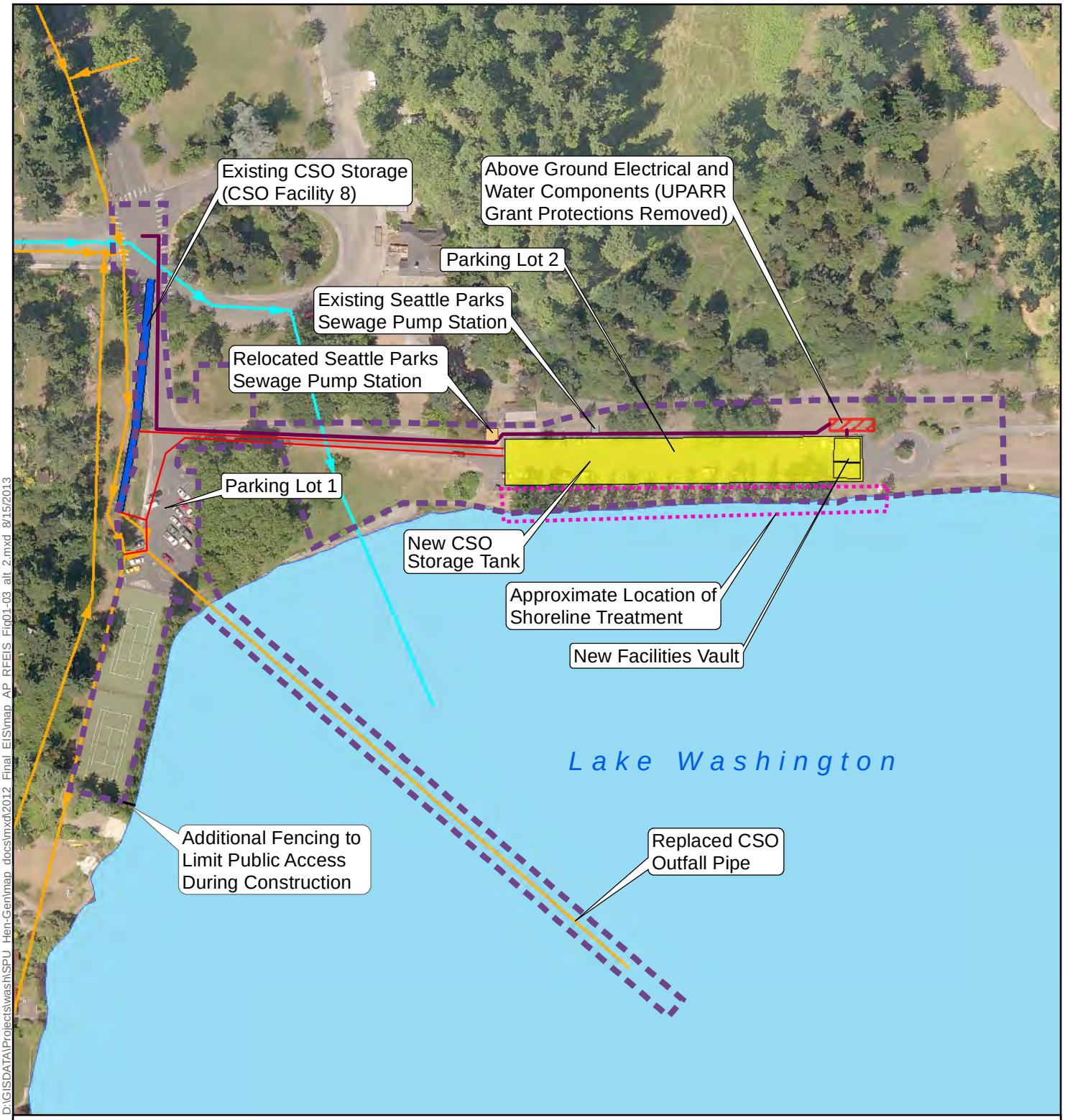

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Legend

- UPARR Grant Protections Removed
- Potential Limits of Construction
- Fence Outside of Limits Construction
- Existing CSO Storage
- Shoreline Treatment
- SPU Combined Sewer Pipe
- SPU Drainage Pipe
- New Combined Sewer Pipe
- New Water Pipe

N

0 60 120 240 Feet

Seattle Public Utilities

HENDERSON BASIN 44 CSO REDUCTION PROJECT
REVISED FINAL ENVIRONMENTAL IMPACT STATEMENT

PARKING LOT ALTERNATIVE
MAIN COMPONENTS IN SEWARD PARK

SEPTEMBER 2013 | **FIGURE 1-3**

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More detailed descriptions of the project elements can be reviewed in Section 3.1.1 of the Final EIS (SPU 2013). Because the scope of this Revised Final EIS is limited to operational noise, only the project elements that have a bearing on potential operational noise impacts are described in more detail below. Those project elements are the CSO storage tank and certain associated infrastructure, and they are the same as described in the Final EIS unless stated otherwise.

- **New CSO Storage Tank:** A new, underground 2.4 MG CSO storage tank would be built in the southwest corner of Seward Park, next to Lake Washington. The CSO storage tank would be located under the tennis courts and an adjacent parking lot (Parking Lot 1) for the Tennis Courts Alternative, and under a different parking lot (Parking Lot 2) for the Parking Lot Alternative. These two locations are approximately 300 feet apart.

  For the Tennis Courts Alternative, the exterior dimensions of the tank would be approximately 390 feet long by 50 feet wide by 30 feet deep. For the Parking Lot Alternative, the exterior dimensions of the tank would be approximately 375 feet long by 50 feet wide by 30 feet deep. The difference in length between the alternatives is due to site conditions that require a slight bend in the tank for the Tennis Courts Alternative.

  Access to the tank would be by hatches, which would be located between the two restored tennis courts for the Tennis Courts Alternative and in the parking lot for the Parking Lot Alternative. The size of the access hatches to the tank would range from approximately 2.5 to 3 feet wide by 6 feet long.

  The required capacity of the tank was determined based on computer modeling and monitoring data that determined the volume of flows needed to be controlled to limit future CSO events to a long-term average of no more than one untreated discharge per year.
- **New Facilities Vault:** An underground facilities vault attached to the CSO storage tank would contain odor control, mechanical, electrical, and operational control systems. The facilities vault would be attached to the northern end of the CSO storage tank for the Tennis Courts Alternative and to the eastern end of the CSO storage tank for the Parking Lot Alternative. Access to the vault would be by hatches and stairs from ground level in the respective parking lots. The size of the access hatches to the vault would range from approximately 2.5 to 4 feet wide by 14 feet long. The exterior dimensions of the facilities vault would be approximately 35 feet long by 50 feet wide. The depth from ground level to the vault floor would be approximately 10 feet.

- **New Aboveground Features:** An area approximately 50 feet long by 15 feet wide (750 square feet) would contain several aboveground features and would be screened with vegetation. This area would be just west of the facilities vault for the Tennis Courts Alternative and directly north of the facilities vault for the Parking Lot Alternative. The features would include the following, as described in the Final EIS:
  - An electrical cabinet approximately 3 feet long by 1.5 feet wide by 6 feet high.
  - An enclosure containing a reduced pressure backflow assembly associated with the potable water used to flush the tank, approximately 2.5 feet long by 1 foot wide by 1.5 feet high.
- **New Ground Level Features**
  - In the Final EIS, there were two aboveground air intakes proposed that were each approximately 3 feet long by 3 feet wide by 3 feet high and were located in the aboveground features area discussed above. These aboveground structures were connected to underground ductwork connecting to the underground facilities vault. The design has been modified since the Final EIS so that the two air intakes are combined into one structure that is located in an underground vent. As the air intake vent duct reaches ground level, it is covered by a grate approximately 4 feet long by 4 feet wide that is flush with the ground and screened with vegetation. Additionally, the air intake grate has been moved slightly outside of the aboveground features area.
  - In the Final EIS, there were two aboveground air exhausts and one aboveground odor control exhaust proposed that were each approximately 3 feet long by 3 feet wide by 3 feet high and were located in the aboveground features area discussed above. These aboveground structures were connected to underground ductwork connecting to the underground facilities vault. The design has been modified since the Final EIS so that these three structures have been combined into one structure that is located in an underground vent. As the vent duct reaches ground level, it is covered by a grate approximately 6 feet long by 4 feet wide that is flush with the ground and screened with vegetation. Additionally, the exhaust grate has been moved slightly outside of the aboveground features area.

2 Operational Noise

The original operational noise assessment for the project was conducted in 2012, based on planning-level (conceptual) design assumptions available at that time. Since the publication of the Final EIS in January 2013, the project design has advanced. While the overall project is at an approximate 30 percent complete level, the elements of the design that generate noise are further advanced. The odor control equipment, fans, fan silencer, pumps, and intake and exhaust air vents and grates have been sized and located. These design elements, and the noise they are expected to generate, are not expected to change as the overall project design is finalized. The operational noise assessment documented in this chapter of the Revised Final EIS is based on the increased level of design, and replaces the previous operational noise discussion from Chapter 13 of the January 2013 Final EIS in its entirety.

The sections below briefly describe noise characteristics, existing noise conditions, the City's noise regulations, noise design criteria established for the project, an assessment of operational noise impacts, and mitigation. The information in this section is based on a revised technical memorandum regarding operational noise (HDR 2013).

2.1 What are the characteristics of noise?

Sound (or noise) is vibration that travels through the air as waves of pressure fluctuations. Sounds are expressed in various units, depending on the purpose. The industry-preferred unit for environmental noise analysis is dBA (A-weighted decibel), which is a logarithmic scale that conveys how humans perceive noise. Most sounds consist of a broad range of frequencies. The human ear does not hear all frequencies equally; very low and very high frequencies are de-emphasized by the human ear. This scale puts more weight on the range of frequencies where the average human ear is most sensitive, and less weight on those frequencies we do not hear as well. Typical A-weighted noise levels for various types of sound sources are listed in Table 2-1.

Table 2-1. Sound Levels and Human Response

Sound Source	dBA	Response Descriptor
Carrier deck jet operation	140	
	130	Painfully loud Limit amplified speech
Jet takeoff (200 feet) Auto horn (3 feet)	120	
Riveting machine	110	Maximum vocal effort
Jet takeoff (2,000 feet) Shout (0.5 foot)	100	
New York subway station Heavy truck (50 feet)	90	Very annoying Hearing damage (8-hour exposure)
Pneumatic drill (50 feet)	80	Annoying
Freight train (50 feet) Freeway traffic (50 feet)	70	Telephone use difficult
Air conditioning unit (20 feet)	60	Intrusive
Light auto traffic (50 feet)	50	Quiet
Living room Bedroom	40	
Library Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Threshold of hearing

Source: Adapted from Council on Environmental Quality 1970

Under normal listening conditions, people typically cannot detect increases of 1 to 2 dBA, some people can detect increases of 3 dBA, and most people can detect increases at 5 dBA. People generally perceive a 10 dBA increase as a doubling of loudness. (California Department of Transportation 2009.)

Noise levels are affected by various factors, including distance from the noise source; topographic features and structural barriers that absorb, reflect, or scatter sound waves; and atmospheric conditions such as wind speed and direction, humidity levels, and temperatures. As a result, the existing noise environment can be highly variable depending on local conditions.

Some noises have tonal characteristics, where noise emissions in particular frequency ranges are more prominent than others. These are called prominent discrete tones and are distinctly audible because the tone stands out from the background noise. Some of these tones are desirable (e.g., back-up beepers); however, others are not desirable. Identifying the presence of prominent discrete tones is based on a time-averaged sound pressure level measured in 1/3 octave bands. If the sound level in any frequency band is a certain number of decibels higher

than its adjacent frequency bands, then a prominent discrete tone is present. The number of decibels difference varies by frequency band as follows: [ISO 1996-2:2007(E)]

- Low frequency 1/3 octave bands (25 Hz to 125 Hz): 15 dBA level difference
- Middle frequency 1/3 octave bands (160 Hz to 400 Hz): 8 dBA level difference
- High frequency 1/3 octave bands (500 Hz to 10,000 Hz): 5 dBA level difference

2.2 What are the existing conditions for noise in the project area?

To characterize existing noise conditions, outdoor noise levels were measured at ten locations near the Tennis Courts Alternative and the Parking Lot Alternative sites in Seward Park. Daytime noise levels were measured at nine monitoring locations between 10:00 a.m. and 1:00 p.m. on Wednesday June 15, 2011 (10-minute measurements at each location). Nighttime noise levels were measured at one monitoring location in Seward Park between 2:00 a.m. and 4:00 a.m. on Thursday May 2, 2013. Monitoring locations are listed in Table 2-2 and shown in Figure 2-1.

Table 2-2 summarizes the average noise levels detected during monitoring at each site. Existing noise levels within Seward Park are relatively low because of low vehicular traffic volumes in the park and the absence of other major noise sources, such as industrial facilities. Measured noise levels at residential locations outside of the park are somewhat higher due to occasional pass-by traffic on Lake Washington Boulevard South, Seward Park Avenue South, and Lakeshore Drive South.

The measured daytime noise levels at Seward Park are considered representative of the noise in the park because they were measured in the middle of the day during the week in late spring / early summer. While noise levels may be higher during the weekend and peak of summer, modeling the impacts using the measured daytime noise levels is a more conservative approach because it predicts greater noise increases than would be predicted using higher background noise levels.

The measured nighttime noise level at the Seward Park location is assumed representative of nighttime noise levels at nearby residences, property lines, and elsewhere throughout the study area. This assumption is appropriate because the nighttime monitored noise level (23 dBA) was measured between 2:00 a.m. and 4:00 a.m. and there is no reason to believe it would be any quieter at other times of the day or night or at the nearby residences or elsewhere in the study area.

Table 2-2. Noise Monitoring Data

Monitoring Location	Site Description	Date	Day or Night	Average Noise Level (dBA)
ML-1	East of Parking Lot 2	6/15//2011	Day	46
ML-2	Picnic Shelter 1, north side of Parking Lot 2	6/15/2011	Day	37
ML-3	Northeast corner of Lake Washington Boulevard South and Parking Lot 2 entrance	6/15/2011	Day	37
ML-4	South end of tennis courts	6/15/2011	Day	37
ML-5	West side of tennis courts	6/15/2011	Day	42
ML-6	Southwest corner of Seward Park Avenue South and South Juneau Street	6/15/2011	Day	60
ML-7	Seward Park Avenue South	6/15/2011	Day	60
ML-8	Southwest corner of Seward Park Avenue South and Lakeshore Drive South	6/15/2011	Day	62
ML-9	Lake Shore Drive	6/15/2011	Day	55
ML-10	West of Parking Lot 1	5/2/2013	Night	23

2.3 What are the noise regulations in the project area?

The Seattle Municipal Code (SMC 25.08) establishes limits on the levels and durations of noise crossing property boundaries. Allowable maximum sound levels depend on the land use zoning designation of the noise source and the zoning designation of the receiving property. The SMC noise limits are shown in Table 2-3. It is important to note that the sounds created by motor vehicles, such as traffic on Lake Washington Boulevard South or Seward Park Avenue South and other roads near the alternative sites, are exempt from the noise limits specified in Table 2-3 (SMC 25.08.480).

Table 2-3. Seattle Municipal Code Exterior Sound Levels

District of Noise Source	Average Noise Level (dBA)		
	District of Receiving Property		
	Residential Day/Night [a]	Commercial	Industrial
Residential	55/45	57	60
Commercial	57/47	60	65
Industrial	60/50	65	70

Source: SMC, Chapter. 25.08.410 Exterior Sound Level Limits at the property line

Note a: Nighttime is defined as 10:00 p.m. to 7:00 a.m. on weekdays, but extends to 9:00 a.m. on Saturday and Sunday, according to SMC 25.08.420

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Legend

- Monitoring Location
- Modeled Receptor
- Proposed Underground Storage Tank

0 100 200 400 Feet

Seattle Public Utilities

HENDERSON BASIN 44 CSO REDUCTION PROJECT
REVISED FINAL ENVIRONMENTAL IMPACT STATEMENT

NOISE MONITORING AND RECEPTOR LOCATIONS

SEPTEMBER 2013 | **FIGURE 2-1**

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Applying the noise code to residential receptors in the project area (i.e., the adjacent homes) is straightforward. Because both the noise source and the receiving property are zoned residential and the noise would cross a residential property boundary, the noise limits are 55 dBA during the day and 45 dBA at night.

However, applying the noise code to receptors in the park is not a straightforward matter. This is because the noise would not cross a property boundary. The noise source and the receptor(s) would both be located in the park. This creates ambiguity in applying the noise code in this case.

2.4 What noise-related design criteria were used for the project?

For this project, SPU has analyzed differences between existing noise levels and modeled project-related operational noise levels, and has set project design criteria as described below. These design criteria are specific to the circumstances of this project, such as the Seward Park location, the buried facility design, the proximity to adjoining residential properties, the proximity to park users, the existing noise levels, and other details, and should not be construed to apply to any other CSO reduction, SPU, or City project.

- **Daytime Design Criterion for Residences and Park Users:** This design criterion applies to nearby residences, park users at key sensitive park sites discussed in the EIS (i.e., tennis courts, Picnic Shelter 1, play area, and Audubon Center), as well as park users participating in active and passive park activities elsewhere in the park. This design criterion is a modeled noise increase of no more than 5 dBA over the existing daytime noise levels documented in Table 2-4 and Table 2-5 (see Section 2.5).

  This design criterion was selected because existing background noise levels are relatively low and, as discussed earlier, a change of 3 dBA is barely perceptible and a change of 5 dBA is the threshold at which most people perceive a change. Note that if higher background noise levels (such as the noise levels that might occur during peak summer usage) were used for model input, the model-predicted noise increase would be smaller.
- **Daytime Design Criterion for Transitory Park Users:** This design criterion applies to park users who are not engaged in active or passive park activities, but rather are in transition from parking lots to areas in the park where they would engage in active or passive park activities. This design criterion is to ensure that the model-predicted noise levels that would be experienced by transitory park users (people who are transitioning from parking their cars to other park areas) in the immediate vicinity of the intake/exhaust vents are roughly equivalent to or lower than the strictest noise limit in the code (55 dBA during the day).

This design criterion was developed to address noise levels at the air intake and exhaust vents, which are located in or near parking lots. It is less restrictive than the first design criterion described above, is appropriate because park users do not expect noise levels to be quiet for transitory areas such as in or near parking lots, compared to areas where park users engage in active or passive park activities. Park users understand that parking lots and their vicinity are relatively noisy locations with noises such as the starting of vehicle engines, the opening and closing of vehicle doors, and vehicles entering and exiting the parking lots. Additionally, park users are not recreating in these transition areas; they are simply passing through them to reach areas used for recreation. A higher level of increase over existing noise levels in these locations (as compared with the level of increase over existing noise set in the design criteria for residences and non-transitory park users) does not pose a concern in these circumstances. It should also be noted that the level of increase over existing noise levels will fall off as one moves away from the immediate vicinity of the intake/exhaust vents. The selected design criterion is an appropriate method of addressing the foregoing factors related to noise experienced in the immediate vicinity of the intake/exhaust vents.

- **Nighttime Design Criterion for Residences:** This design criterion applies to the residential property lines adjacent to the park at night. The park is closed at night, so this criterion does not apply for park users. This design criterion is a modeled noise increase of no more than 5 dBA over the existing nighttime noise levels documented in Table 2-4 and Table 2-5 (see Section 2.5).

  This design criterion was selected because the existing background noise level is very low (23 dBA is considered quieter than a soft whisper, as shown in Table 2-1) and, as discussed earlier, a change of 3 dBA is barely perceptible and a change of 5 dBA is the threshold at which most people perceive a change.
- **Design Criterion for Tones:** This design criterion is that no audible prominent discrete tones would be present. As described earlier, prominent discrete tones are discrete-frequency sounds that stand out from other sounds and have the potential to cause annoyance. This design criterion translates into the following thresholds, which vary depending on the frequency band:
  - **Low frequency 1/3 octave bands (25 Hz to 125 Hz):** The sound level would be less than 15 dBA higher than the adjacent frequency bands.
  - **Middle frequency 1/3 octave bands (160 Hz to 400 Hz):** The sound level would be less than 8 dBA higher than the adjacent frequency bands.
  - **High frequency 1/3 octave bands (500 Hz to 10,000 Hz):** The sound level would be less than 5 dBA higher than the adjacent frequency bands.

2.5 How would the project affect noise after construction is complete?

2.5.1 Direct Impacts

The proposed facility, and its associated noise sources, would be located underground. However, noise would be introduced into the environment through the air intake and exhaust ducts that are part of the ventilation system.

Noise-generating sources from the project would include the following for either the Tennis Courts or the Parking Lot Alternative:

- **Fans:** Four fans would be located in the facilities vault. One fan is associated with the odor control system and three fans are for the heating, ventilation, and air conditioning system. These noise sources are generally characterized as a steady continuous sound. The fans would operate 24 hours a day, 7 days a week. These four fans are the primary noise-generating sources.
- **Tipping Buckets:** After a storage event, the storage tank would be flushed with clean water that is spilled from tipping buckets at both ends of the storage tank, one at a time. This noise source is characterized as an intermittent sound. The tipping buckets would only be used when a storage event occurs, which is anticipated to be approximately 16 times per year. Noise would be generated when the tipping buckets tip and spill the water. Most of the acoustic energy associated with the tipping buckets would be contained by the heavy, sealed hatches to the concrete storage tank.
- **Pumps:** The facility would include ten pumps as detailed below. Generally pumps are characterized as steady, intermittent sound sources in that they generate sound on an intermittent basis, and each time they generate approximately equal levels of acoustic energy per pump. Most of the acoustic energy associated with the pumps would be contained within the facility vault or the storage tank.
    - There would be three drain pumps in the center of the storage tank. These would only be used after a storage event occurs, which is anticipated to occur an average of 16 times per year.
    - There would be two pumps in the facilities vault that would provide water supply to the tipping buckets. These would only be used after a storage event occurs, which is anticipated to occur an average of 16 times per year.
    - There would be one pump in the facilities vault associated with water supply to hose bibs. This would be used periodically during maintenance. The most frequent regular maintenance activities are anticipated to occur quarterly.
    - There would be four sump pumps in the facilities vault. These would be used in the event of groundwater seeping into the vault.

- **Maintenance Activities:** Maintenance activities would generate some noise; however, those activities would be infrequent and occur during daytime hours. The most frequent regular maintenance activities are anticipated to occur quarterly.

The fans were determined to be the primary contributor to project-generated noise on a day-to-day basis. The fans are a continuous noise source with an airborne sound-path through the underground ductwork and the intake and exhaust vents. These sources were the primary consideration in the quantitative prediction of sound levels.

The tipping buckets and pumps are intermittent sounds that largely would be contained within the enclosed facility vault and storage tank. However, in the case where a small amount of sound energy from tipping buckets or pumps exits the facility vault or storage tank, it would be reduced in level and would be intermittent and infrequent. These effects would have a negligible effect on the overall sound exposure to receptors (residences or park users). For this reason, as well as a lack of specific measured noise emission data for this equipment, these noise sources were evaluated qualitatively and not included in the quantitative prediction of sound levels.

Noise was taken into account when designing the facility and the following strategies were incorporated into the facility design to minimize noise levels:

- **Fan Selection:** Fan models were selected to minimize noise.
- **Fan Operation:** The odor control fan would have a variable frequency drive motor to allow running the fan at reduced speeds during nighttime hours to reduce noise. It is anticipated that the fan would run at approximately 50 percent speed during the nighttime. The fan would run at 100 percent speed during daytime hours when temperatures rise (higher temperatures can contribute to increased odor).
- **Fan Silencer:** A dissipative silencer would be located downstream of the odor control fan, the fan with the greatest noise emission levels.
- **Duct Layout:** The duct layout would provide sound attenuation due to lengths of straight duct runs and duct turns.
- **Exhaust Plenum Design:** The dimensions of the exhaust plenum were engineered to reduce sound at low frequencies.
- **Exhaust Plenum Location:** The location of the exhaust plenum was selected to reduce noise by considering environmental features. For example, the location of the exhaust plenum for the Tennis Courts Alternative is at the base of the small hill, which would provide a measure of shielding between the outlet and the residential receptors. The plenum for the Parking Lot Alternative was located as far as practical from potential receptors, taking advantage of sound attenuation over distances.
- **Hatches:** Facilities vault access hatches were designed to be relatively thick and to have seals at the perimeters to contain the noise within the vault.

The analysis of noise generated by the facility was multi-pronged and included an evaluation of predicted noise levels generated by operation of the facility, a separate analysis related to tones, and an assessment of how maintenance activities would impact noise.

The evaluation of predicted noise levels generated by operation of the facility was conducted using two acoustical models. The first model, the Trane Acoustical Program, calculates the sound pressure levels at the outlets of the intake and exhaust vents. The model takes into account the facility design, including the fan noise levels, size and length of duct runs, and other design elements. The second model, Cadna-A, calculates outdoor sound pressure levels at locations beyond the footprint of the proposed facility. The model takes into account the elevation at the noise sources, the location of nearby homes and park facilities, property lines, and the slope of the nearby terrain. As noted in Chapter 1, this assessment is based on the current design level of project facilities.

The noise level analysis results are shown in Table 2-4 for the Tennis Courts Alternative and in Table 2-5 for the Parking Lot Alternative. For each residential and park receptor, the tables show the modeled existing noise level, the model-predicted noise level from the proposed project, the model-predicted total noise level, and the model-predicted increase over the existing noise level.

Note that the model-predicted total noise level is not the arithmetic sum of the existing noise level and the model-predicted project-generated noise, and consequently the existing noise level is not always impacted by a project-generated noise. The logarithmic nature of the decibel scale means the existing noise level and the project-generated noise level cannot be simply added. Because of the way decibel levels are combined, the existing noise level is unaffected if the project-generated noise level is lower than the existing noise level by at least 10 dBA.

Table 2-4. Noise Level Analysis Results for Tennis Courts Alternative (dBA)

Receptor	Average Noise Level (dBA) (day/night [b])			
	Modeled Existing Noise [a]	Model-Predicted Project-Generated Noise	Model-Predicted Total Noise [c]	Model-Predicted Increase Over Existing Noise
R1 Residence	37/23	16/10	37/23	0/0
R2 Residence	37/23	19/12	37/23	0/0
R3 Residence	37/23	21/15	37/24	0/1
R4 Residence	37/23	22/13	37/23	0/0
R5 Residence	42/23	19/11	42/23	0/0
R6 Residence	42/23	17/9	42/23	0/0
R7 Residence	42/23	16/12	42/23	0/0
R8 Residence	42/23	14/9	42/23	0/0
R9 Residence	37/23	12/7	37/23	0/0
R10 Residence	37/23	11/7	37/23	0/0
R11 Tennis Courts	42/NA	29/NA	42/NA	0/NA
R12 Audubon Center	37/NA	19/NA	37/NA	0/NA
R13 Playground	37/NA	21/NA	37/NA	0/NA
R14 Picnic Shelter	37/NA	18/NA	37/NA	0/NA
R15 Beach Between Parking Lots 1 and 2	37/NA	23/NA	37/NA	0/NA
R16 Beach East of Parking Lot 2	46/NA	11/NA	46/NA	0/NA
R17 Air Exhaust Vent for Tennis Courts Alternative	37/NA	54/NA	54/NA	17/NA
R18 Air Intake Vent for Tennis Courts Alternative	37/NA	48/NA	48/NA	11/NA

Note a: Daytime levels are from the nearest representative daytime monitoring location; nighttime levels are from the nighttime monitoring location. See Table 2-2.

Note b: Seward Park facilities are closed at night, so the nighttime noise levels at Receptors R11 through R19 are not applicable (NA).

Note c: The model-predicted total noise level is not the arithmetic sum of the existing noise level and the model-predicted project-generated noise, and consequently the existing noise level is not always impacted by a project-generated noise. The logarithmic nature of the decibel scale means the existing noise level and the project-generated noise level cannot be simply added. Because of the way decibel levels are combined, the existing noise level is unaffected if the project-generated noise level is lower than the existing noise level by at least 10 dBA.

Table 2-5. Noise Level Analysis Results for Parking Lot Alternative (dBA)

Receptor	Average Noise Level (dBA) (day/night [b])			
	Modeled Existing Noise [a]	Model-Predicted Project-Generated Noise	Model-Predicted Total Noise [c]	Model-Predicted Increase Over Existing Noise
R1 Residence	37/23	11/4	37/23	0/0
R2 Residence	37/23	11/4	37/23	0/0
R3 Residence	37/23	12/4	37/23	0/0
R4 Residence	37/23	12/4	37/23	0/0
R5 Residence	42/23	12/4	42/23	0/0
R6 Residence	42/23	11/4	42/23	0/0
R7 Residence	42/23	11/4	42/23	0/0
R8 Residence	42/23	11/4	42/23	0/0
R9 Residence	37/23	11/4	37/23	0/0
R10 Residence	37/23	11/3	37/23	0/0
R11 Tennis Courts	42/NA	13/NA	42/NA	0/NA
R12 Audubon Center	37/NA	15/NA	37/NA	0/NA
R13 Playground	37/NA	15/NA	37/NA	0/NA
R14 Picnic Shelter	37/NA	18/NA	37/NA	0/NA
R15 Beach Between Parking Lots 1 and 2	37/NA	16/NA	37/NA	0/NA
R16 Beach East of Parking Lot 2	46/NA	28/NA	46/NA	0/NA
R19 Air Intake and Exhaust Vents for Parking Lot Alternative	46/NA	49/NA	51/NA	5/NA

Note a: Daytime levels are from the nearest representative daytime monitoring location; nighttime levels are from the nighttime monitoring location. See Table 2-2.

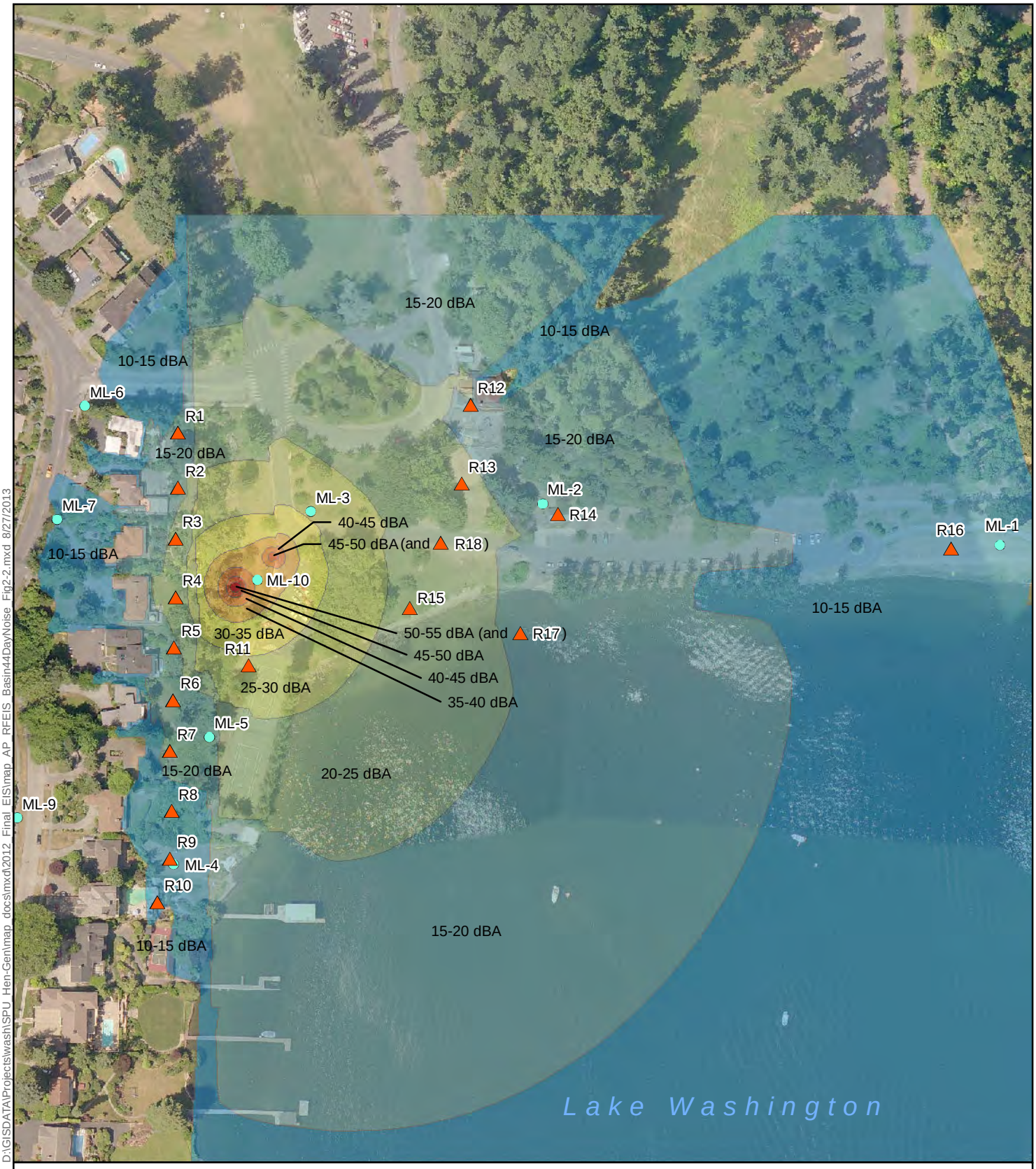
Note b: Seward Park facilities are closed at night, so the nighttime noise levels at Receptors R11 through R19 are not applicable (NA).

Note c: The model-predicted total noise level is not the arithmetic sum of the existing noise level and the model-predicted project-generated noise, and consequently the existing noise level is not always impacted by a project-generated noise. The logarithmic nature of the decibel scale means the existing noise level and the project-generated noise level cannot be simply added. Because of the way decibel levels are combined, the existing noise level is unaffected if the project-generated noise level is lower than the existing noise level by at least 10 dBA.

The model-predicted daytime and nighttime project-generated noise levels are shown in Figure 2-2 and Figure 2-3 for the Tennis Courts Alternative and in Figure 2-4 and Figure 2-5 for the Parking Lot Alternative. The figures show the locations of the project noise sources, the locations of the noise receptors, and the model-predicted project-generated noise contours.

The separate tone analysis was conducted to determine if prominent discrete tones would be present. The method to identify the presence of prominent discrete tones requires noise data in 1/3 octave bands. Unfortunately, noise emission data for mechanical equipment are provided by manufacturers in whole-octave frequency bands, rather than in 1/3 octave bands. However, the data did allow for analysis as to where in the frequency band a prominent discrete noise would occur, if one were generated by the equipment. The noise reduction design elements discussed earlier (e.g., the fan silencer) are effective at reducing sounds in the frequency of concern. Therefore, while it is uncertain whether the fans would produce prominent discrete tones, if they were generated, the noise controls incorporated into the facility design are expected to reduce any potential discrete tones to below audible levels, therefore meeting the design criteria of no audible prominent discrete tones.

The assessment of how maintenance activities would impact noise included a review of the type, frequency, and location of the maintenance activities. Maintenance activities would generate some noise, but those activities would be infrequent (quarterly at the most frequent) and would occur during daytime hours.



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Legend

- Monitoring Location
- Modeled Receptor

dBA

10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 | 50-55

0 50 100 200 300 Feet

N

Seattle Public Utilities

HENDERSON BASIN 44 CSO REDUCTION PROJECT
REVISED FINAL ENVIRONMENTAL IMPACT STATEMENT

MODEL-PREDICTED DAYTIME PROJECT-GENERATED NOISE FOR TENNIS COURTS ALTERNATIVE

SEPTEMBER 2013 | **FIGURE 2-2**

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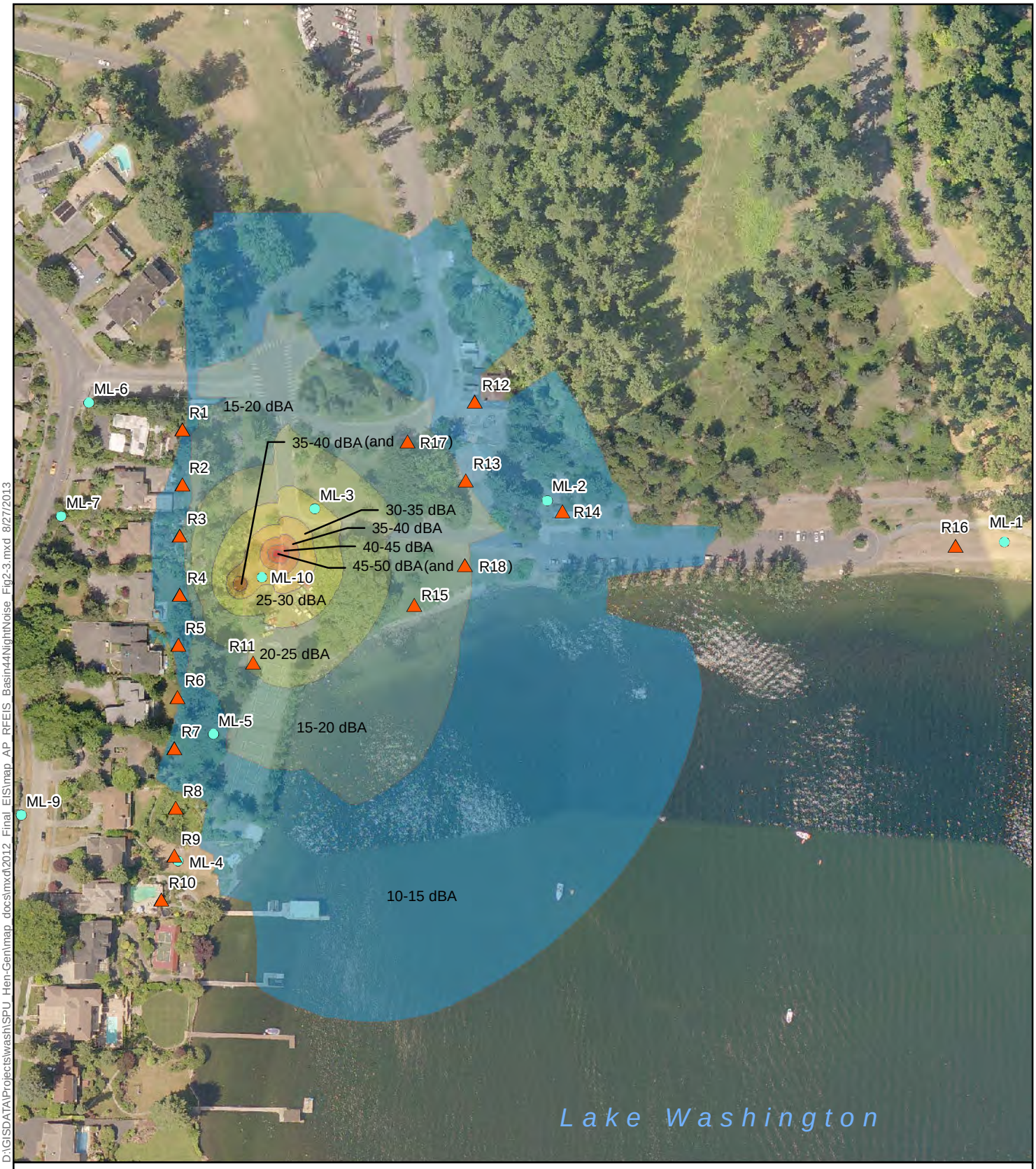

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Legend

- Monitoring Location
- Modeled Receptor

dBA

10-15	25-30	40-45	
15-20	30-35	45-50	
20-25	35-40		

0 50 100 200 Feet

N

Seattle Public Utilities

HENDERSON BASIN 44 CSO REDUCTION PROJECT
REVISED FINAL ENVIRONMENTAL IMPACT STATEMENT

MODEL-PREDICTED NIGHTTIME PROJECT-GENERATED NOISE FOR TENNIS COURTS ALTERNATIVE

SEPTEMBER 2013 | **FIGURE 2-3**

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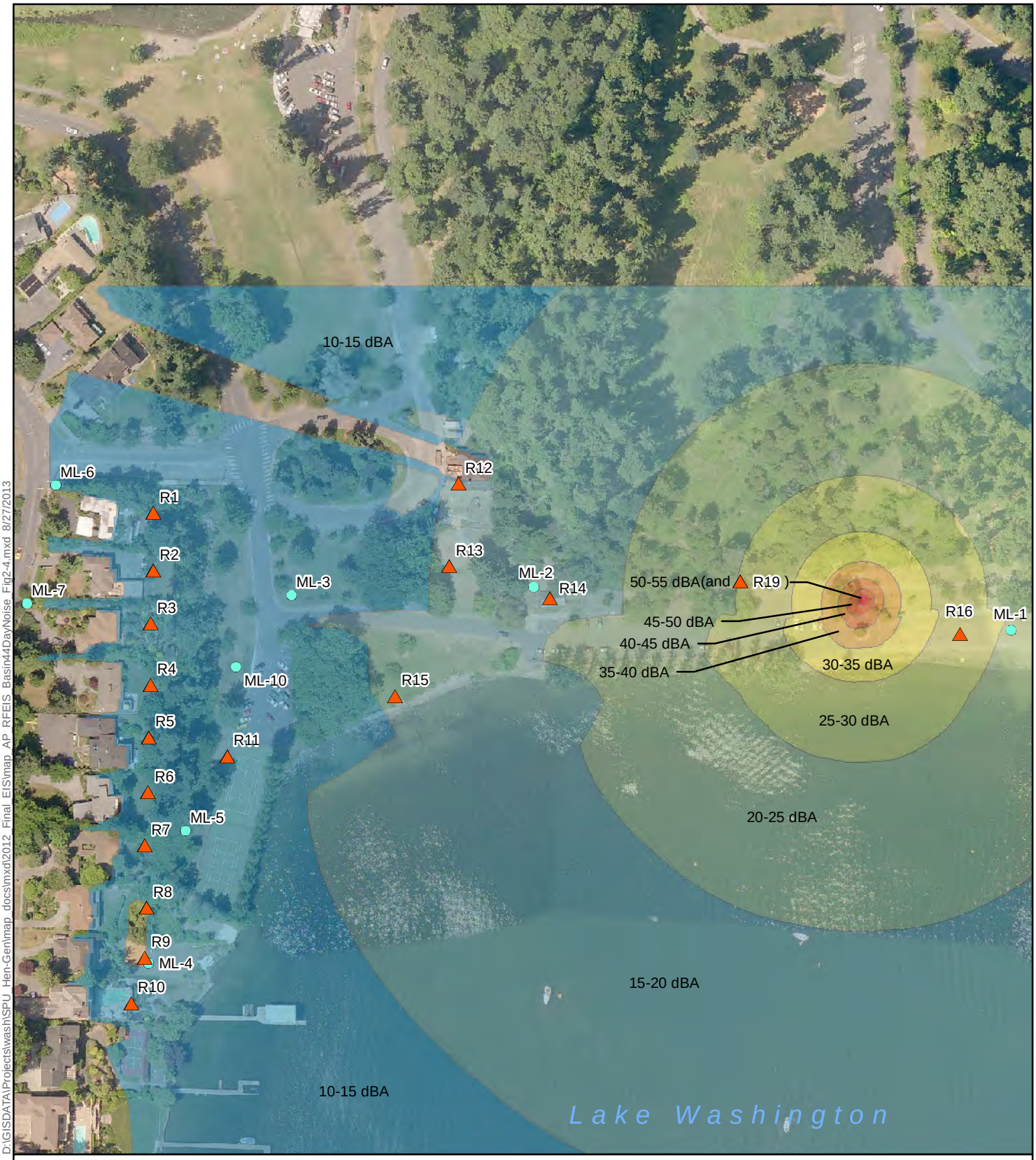

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Legend

- Monitoring Location
- Modeled Receptor

dBA

10-15	25-30	40-45
15-20	30-35	45-50
20-25	35-40	50-55

0 50 100 200 300 Feet

Seattle Public Utilities

HENDERSON BASIN 44 CSO REDUCTION PROJECT
REVISED FINAL ENVIRONMENTAL IMPACT STATEMENT

MODEL-PREDICTED DAYTIME PROJECT-GENERATED NOISE FOR PARKING LOT ALTERNATIVE

SEPTEMBER 2013

FIGURE 2-4

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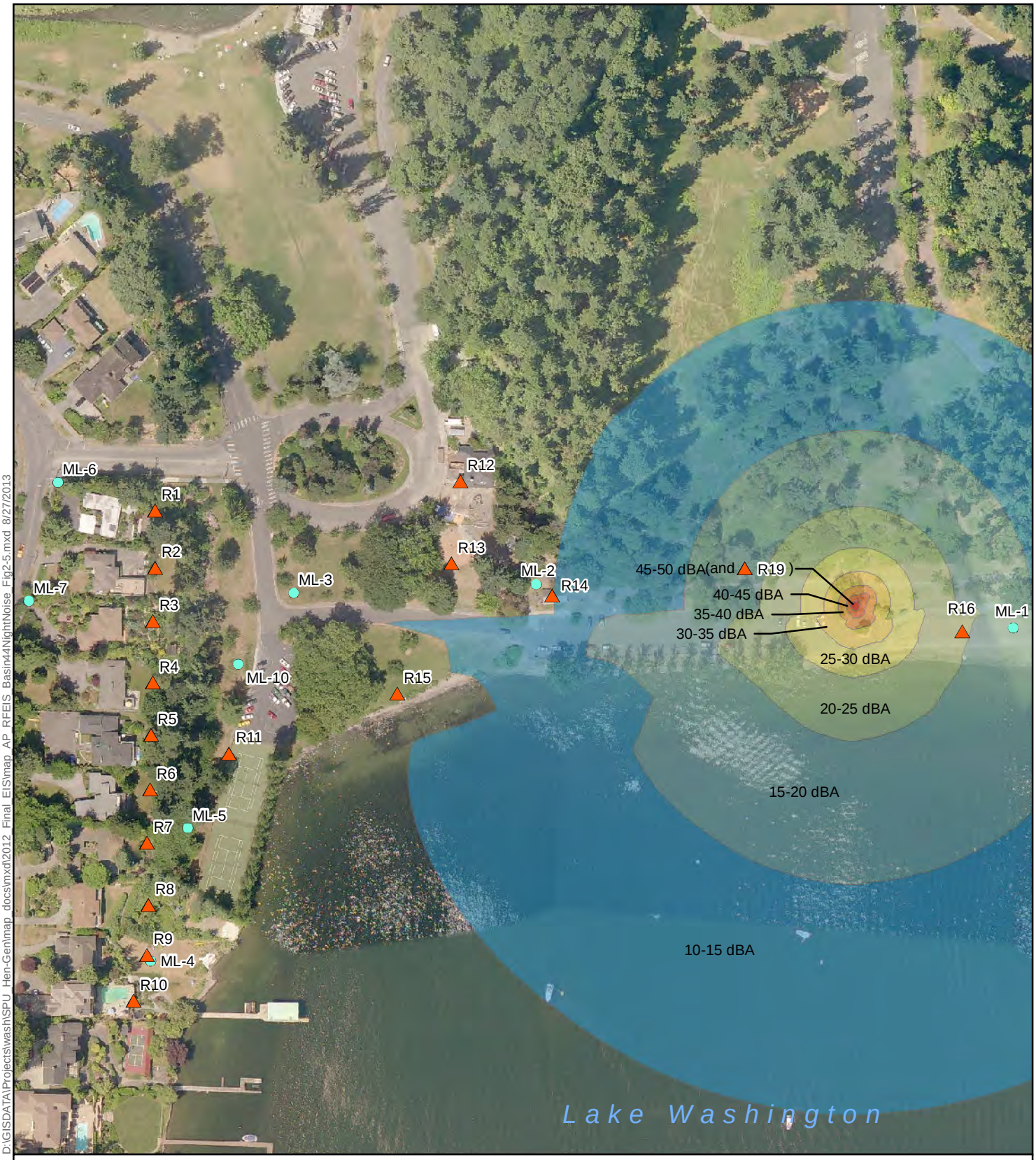

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Legend

- Monitoring Location
- Modeled Receptor

dBA

10-15	25-30	40-45
15-20	30-35	45-50
20-25	35-40	

0 50 100 200 300 Feet

N

Seattle Public Utilities

HENDERSON BASIN 44 CSO REDUCTION PROJECT
REVISED FINAL ENVIRONMENTAL IMPACT STATEMENT

MODEL-PREDICTED NIGHTTIME PROJECT-GENERATED NOISE FOR PARKING LOT ALTERNATIVE

SEPTEMBER 2013 | **FIGURE 2-5**

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The conclusions from the noise analysis are as follows:

- The acoustic modeling for noise levels shows no expected increase to existing daytime noise levels at residences, key sensitive park sites discussed in the EIS (i.e., tennis courts, Picnic Shelter 1, play area, and Audubon Center), as well as for park users participating in active and passive activities elsewhere in the park. This is true for both the Tennis Courts Alternative and the Parking Lot Alternative. This result meets the Daytime Design Criterion for Residences and Park Users, which is a modeled noise increase of no more than 5 dBA over the existing daytime noise levels documented in Table 2-4 and Table 2-5.
- The acoustic modeling for noise levels shows that the highest noise level at park transition areas is 54 dBA for the Tennis Courts Alternative and 51 dBA for the Parking Lot Alternative. These are the locations of the air intake and exhaust vents in or adjacent to parking lots. This result meets the Daytime Design Criterion for Transitory Park Users, which is to ensure that the model-predicted noise levels that would be experienced by transitory park users (people who are transitioning from parking their cars to other park areas) in the immediate vicinity of the exhaust intake/exhaust vents are roughly equivalent to or lower than the strictest noise limit in the code (55 dBA during the day). Also as noted earlier, this design criterion, which is less restrictive than the Daytime Design Criterion for Residences and Park Users, is appropriate because park users do not expect noise levels to be quiet for transitory areas such as in or near parking lots, compared to areas where park users engage in active or passive park activities.
- The acoustic modeling for noise levels shows no expected increase to existing nighttime noise levels at the residential property lines, except at one receptor for the Tennis Courts Alternative. Receptor 3 is anticipated to experience an increase of 1 dBA at the property line, which as described earlier would not be perceptible, resulting in a total expected noise level of 24 dBA. This result meets the Nighttime Design Criterion for Residences, which is a modeled noise increase of no more than 5 dBA over the existing nighttime noise levels documented in Table 2-4 and Table 2-5.
- The tonal analysis concluded that while it is uncertain whether the facility would produce prominent discrete tones, if they were generated the noise controls incorporated into the facility design are expected to reduce any potential discrete tones to below audible levels, therefore meeting the design criteria of no audible prominent discrete tones.
- The facility fans were determined to be the primary contributor to project-generated noise on a day-to-day basis, and the primary consideration in the quantitative prediction of sound levels. The tipping buckets and pumps are intermittent sounds that would be largely contained within the enclosed facility vault and storage tank. However, in the case where a small amount of sound energy from tipping buckets or pumps exits the facility vault or storage tank, it would be reduced in level and would be intermittent and infrequent. These effects would have a negligible effect on the overall sound exposure to receptors (residences or park users).

- The maintenance analysis concluded that maintenance activities would generate some noise, but those activities would be infrequent (quarterly at the most frequent) and would occur during daytime hours.

2.5.2 Indirect Impacts

No indirect impacts of operational noise were identified for the Tennis Courts Alternative or the Parking Lot Alternative.

2.6 What measures would reduce or eliminate potential impacts from operational noise?

SPU has incorporated project design features that noise modeling shows would avoid significant operational noise impacts. While the current design level for the overall project is considered a 30 percent design level, the design elements that affect noise are further advanced in design and are not anticipated to change as the overall project design moves toward final design. The odor control equipment, fans, fan silencer, pumps, and exhaust and intake air vents and grates have been sized and located. These design elements and their expected noise emission levels are not expected to change as the overall project design is finalized; therefore, SPU is not planning to re-run the noise modeling software at final design. In the unlikely event that the design changes and noise levels are anticipated to rise above the design criteria, SPU has committed to refining the design elements to ensure that the project meets the design criteria. Such design refinements may include one or a combination of the following measures:

- Re-designing ductwork, or refining or altering the location or design of the exhaust vents.
- Replacing planned equipment (e.g., fan type, fan silencer, pumps) with alternative models that would provide further noise reduction. This measure includes consideration of any new equipment types that may be developed and available at the time of final design.
- Revising the operation of the fans or speed of the variable frequency drives.

2.7 Would the project's operation have any significant unavoidable adverse impacts on noise?

Based on the analysis documented in this Revised Final EIS, no significant unavoidable adverse impacts from operational noise are anticipated.

3 References

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Appendix A Distribution List for Revised Final EIS

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REVISED FEIS DISTRIBUTION: JURISDICTIONAL LIST and INTERESTED PARTIES LIST
Henderson Basin 44 Combined Sewer Overflow (CSO)

Notice of FEIS	Notice + CD	Notice + FEIS	Notice + FEIS + Tech Memo	Agency or Name	Name or Address1	Name or Address2	Address3	City	State	Zip	Code
	✓		✓	**Washington State SEPA Unit**	**P.O. Box 47703**			**Olympia**	**WA**	**98504-7703**	
		✓		Allyson Brooks, PhD		WA State Dept of Archaeology and Historic Preservation	P.O. Box 48343	Olympia	WA	98504-8343	1 STATE
		✓		Larry Fisher	WDFW Area Habitat Biologist	1775 12th Ave NW	Suite 201	Issaquah	WA	98027	1 STATE
		✓		SEPA Coordinator	Habitat Management Division	WA State Dept of Fish.	P.O. Box 43155	Olympia	WA	98504	1 STATE
	✓				SEPA Center	WA State Dept of Natural Res.	P.O. Box 47015	Olympia	WA	98504-7015	1 STATE
	✓				SEPA Review	WA State Dept of Public Health	P.O. Box 47820	Olympia	WA	98504-7820	1 STATE
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✓					Planning Division	WA State Dept of Transportation	P.O. Box 330310	Seattle	WA	98133-9710	1 STATE
✓				Ramin Pazooki	WSDOT NW Region	15700 Dayton Ave N		Seattle	WA	98133	1 STATE
✓					WA Division Area Engineer	Federal Highway Administration	711 Capitol Way, Suite 501	Olympia	WA	98501-0943	2 FEDERAL
✓					Transportation Program Specialist	Federal Transit Administration	915 2nd Ave. Suite 3142	Seattle	WA	98174-1002	2 FEDERAL
		✓			SEPA Review	National Marine Fisheries Services	510 Desmond Drive SE	Lacey	WA	98503	2 FEDERAL
	✓					US Ad Council Historic Preservation	Old Post Office Bldg - 1100 Pennsylvania Ave NW	Washington	DC	20004	2 FEDERAL
		✓			Regulatory	US Army Corps of Engineers	P.O. Box C-3755	Seattle	WA	98124-3755	2 FEDERAL
		✓		Alisa Ralph	Seattle District	US Army Corps of Engineers	4735 E. Marginal Way S.	Seattle	WA	98134-2384	2 FEDERAL
	✓	✓		Heather Ramsay	National Park Service	State & Local Assistance Programs	909 First Avenue	Seattle	WA	98104-1060	2 FEDERAL
	✓			NEPA Review Unit	US Environmental Protection Agency	1200 Sixth Avenue	ETPA 088	Seattle	WA	98101	2 FEDERAL
		✓			Washington Fish & Wildlife Office	US Fish & Wildlife Service	510 Desmond Dr. SE Suite 102	Lacey	WA	98503-1263	2 FEDERAL
	✓			Jim Muck	USFWS & NOAA	US Fish & Wildlife Service	7600 Sandpoint Way	Seattle	W	98115	2 FEDERAL

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Henderson Basin 44 Combined Sewer Overflow (CSO)

Notice of FEIS	Notice + CD	Notice + FEIS	Notice + FEIS + Tech Memo	Agency or Name	Name or Address1	Name or Address2	Address3	City	State	Zip	Code
✓					Cascade Water Alliance	520 112th Ave NE	Suite 400	Bellevue	WA	98004	3 REGIONAL
✓				Paul Meyer	Manager, Environmental Permitting	Port of Seattle	P.O. Box 1209	Seattle	WA	98111	3 REGIONAL
	✓				SEPA Review	Puget Sound Clean Air Agency	1904 Third Ave Suite 105	Seattle	WA	98101-3417	3 REGIONAL
	✓			Environmental Planning-OAP	Wastewater Treatment Div.	KC Dept of Natural Resources	201 S Jackson St - MS KCS NR 0505	Seattle	WA	98104	4 KING CO
✓					Parks Environmental Review	KC Dept of Natural Resources	201 S. Jackson St	Seattle	WA	98104-3856	4 KING CO
✓					Land Use Services Division	KC Department of Permitting and Environmental Review	35030 SE Douglas St. Ste 210	Snoqualmie	WA	98065-9266	4 KING CO
✓				Rhonda Kaetzel	Environmental Health Svcs	Public Health - Seattle KC	401 5th Avenue, 11th Floor	Seattle	WA	98104-1818	4 KING CO
✓					Roads & Engineering	KC Dept of Transportation	201 S Jackson St - MS KCS 0313	Seattle	WA	98104	4 KING CO
✓				Gary Kriedt	Environmental Planning	KC Dept of Transportation	201 S. Jackson St - MS KSC TR 0431	Seattle	WA	98104-3856	4 KING CO
✓				Charlie Sundberg	Preservation Planner	KC Historic Preservation	201 S. Jackson St. KSC-NR-0700	Seattle	WA	98104	4 KING CO
	✓					KC Regional Water Quality Committee	201 S Jackson St	Seattle	WA	98104	4 KING CO
	✓			The Honorable Cecile Hansen	Chair	Duwamish Tribe	4705 W. Marginal Way SW	Seattle	WA	98106	5 TRIBES
	✓	✓		Karen Walter	Fisheries Division Habitat Program	Muckleshoot Tribe	39015 172nd Ave SE	Auburn	WA	98092-9763	5 TRIBES
		✓		Laura Murphy	Tribe Preservation Program	Muckleshoot Tribe	39015 172nd Ave SE	Auburn	WA	98092-9763	5 TRIBES
		✓		The Honorable Virginia Cross	Chair, Muckelshoot Tribal Council	Muckleshoot Tribe	39015 172nd Ave SE	Auburn	WA	98092	5 TRIBES
	✓			The Honorable Mike Evans	Chair, Snohomish Tribe	11014 19th Ave SE	Suite #8 PMB #101	Edmonds	WA	98208	5 TRIBES
	✓				SEPA Review	Snoqualmie Tribe	P.O. Box 969	Snoqualmie	WA	98063	5 TRIBES
	✓			The Honorable Bill Sweet	Chair, Snoqualmie Tribe of Indians	Snoqualmie Tribe	P.O. Box 280	Carnation	WA	98014	5 TRIBES
	✓			Earngy Sandstrom	Chair	Snoqualmoo Tribe	2613 Pacific St	Bellingham	WA	98226	5 TRIBES
	✓				SEPA Review	Suquamish Tribe	18490 Suquamish Way	Suquamish	WA	98392	5 TRIBES
	✓					Suquamish Tribe	P.O. Box 498	Suquamish	WA	98392	5 TRIBES
	✓			The Honorable Leonard Forsman	Chair, Suquamish Trible Council	Suquamish Tribe	P.O. Box 498	Suquamish	WA	98392	5 TRIBES

REVISED FEIS DISTRIBUTION: JURISDICTIONAL LIST and INTERESTED PARTIES LIST
Henderson Basin 44 Combined Sewer Overflow (CSO)

Notice of FEIS	Notice + CD	Notice + FEIS	Notice + FEIS + Tech Memo	Agency or Name	Name or Address1	Name or Address2	Address3	City	State	Zip	Code
	✓				SEPA Review	Tulalip Tribes of WA	6406 Marine Drive	Tulalip	WA	98271	5 TRIBES
	✓			The Honorable Melvin Sheldon	Chair, Tulalip Board of Directors	Tulalip Tribes of WA	6406 Marine Drive	Tulalip	WA	98271	5 TRIBES
	✓					United Indians of All Tribes	P.O. Box 99100	Seattle	WA	98199	5 TRIBES
	✓				Governmental Publications	UW Library	P.O. Box 353900	Seattle	WA	98195-2900	6 LIBRARY
		✓		Steve Del Vecchio	Columbia Branch	Seattle Public Library	4721 Rainier Ave S	Seattle	WA	98118-1657	6 LIBRARY
		✓		Daria Cal	New Holly Branch	Seattle Public Library	7058 32nd Ave S	Seattle	WA	98118-6401	6 LIBRARY
		✓		Daria Cal	Rainier Beach Branch	Seattle Public Library	9125 Rainier Ave S	Seattle	WA	98118-5026	6 LIBRARY
		✓		**Public Review Documents**	**Quick Information Center**	**Seattle Public Library**	**LB-03-01**	**Seattle**	**WA**	**98104-1109**	**6 LIBRARY**
✓				David Folweiler	President	Groundswell Northwest	P.O. Box 17163	Seattle	WA	98127	7 COMMUNITY
✓						Central District Council	2301 S. Jackson St #208	Seattle	WA	98144	7 COMMUNITY
✓				Rob Martin		Columbia City Business Assoc	3827A So Edmunds St.	Seattle	WA	98118	7 COMMUNITY
	✓	✓		Jennifer Ott	Friends of Seattle's Olmsted Parks	P.O. Box 9884		Seattle	WA	98109-0884	7 COMMUNITY
	✓			Thatcher Bailey	Seattle Parks Foundation	105 S. Main St. #235		Seattle	WA	98104	7 COMMUNITY
✓				John Barber, Chairman	Friends of Street Ends	3421 E. Superior St.		Seattle	WA	98122-6557	7 COMMUNITY
✓				Rob Mattson	Coordinator, Ballard	North Region Team	5604 22nd Ave NW	Seattle	WA	98107	8 NBRHD SVC CTR
✓				Stan Lock	Coordinator, Central	Central Region Team	2301 S. Jackson St #208	Seattle	WA	98144	8 NBRHD SVC CTR
		✓		Steve Louie, Yun Pitre, Ed Pottharst	South Region Coordinators		2801 SW Thistle St.	Seattle	WA	98126	8 NBRHD SVC CTR
✓				Christa Dumpys	Coordinator, Central	Central Region Team	2301 S. Jackson St #208	Seattle	WA	98144	8 NBRHD SVC CTR
✓				Tim Durkan	Coordinator, Central	Central Region Team	2301 S. Jackson St #208	Seattle	WA	98144	8 NBRHD SVC CTR
✓				Thomas Whittemore	Coordinator, Lake City	North Region Team	12525 28th Ave NE (2nd Foor)	Seattle	WA	98125	8 NBRHD SVC CTR
✓				Karen Ko	Coordinator, U District	North Region Team	4534 University Way NE	Seattle	WA	98105-4511	8 NBRHD SVC CTR
✓				Mt. Baker Community Club			2811 Mr. Rainier Dr. S	Seattle	WA	98144	9 INTERESTED PARTY
✓				Lakewood Seward Park CC			4916 S. Angeline St.	Seattle	WA	98118	9 INTERESTED PARTY

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Notice of FEIS	Notice + CD	Notice + FEIS	Notice + FEIS + Tech Memo	Agency or Name	Name or Address1	Name or Address2	Address3	City	State	Zip	Code
✓				Dawn Hemminger	Groundswell Northwest		P.O. Box 17163	Seattle	WA	98127	9 INTERESTED PARTY
	✓	✓		Friends of Seward Park			5900 Lk Washington Blvd. S.	Seattle	WA	98118	9 INTERESTED PARTY
✓				Mariana Quarnstrom	Friends of Martha Washington Park		5767 S. Oaklawn Place	Seattle	WA	98118	9 INTERESTED PARTY
			✓	Paul S. Aleinikoff			6216 Lakeshore Drive S	Seattle	WA	98118-3040	9 INTERESTED PARTY
		✓		Flip O'Reilly			4847 Graham St South	Seattle	WA	98118	9 INTERESTED PARTY
		✓		Robert Smith			9835 Arrowsmith Ave S	Seattle	WA	98118	9 INTERESTED PARTY
			✓	Elizabeth & Dan Kinerk			5926 Seward Park Ave S	Seattle	WA	98118	9 INTERESTED PARTY
	✓			Julio Morgan, Jr.			4401 S Dawson St	Seattle	WA	98118	9 INTERESTED PARTY
			✓	John Bell	6036 Seward Park Ave S.			Seattle	WA	98118	9 INTERESTED PARTY
		✓		Gail Gatton, Director	Seward Park Audubon Center	5902 Lake Washington Blvd S		Seattle	WA	98118	9 INTERESTED PARTY
		✓		Tom and Christine O'Connor	5211 57th Ave S			Seattle	WA	98118	9 INTERESTED PARTY
			✓	Marcia Bartholme	5838 Seward Park Ave S			Seattle	WA	98118	9 INTERESTED PARTY
		✓		Maura Whalen	5215 S Orcas Street			Seattle	WA	98118	9 INTERESTED PARTY
		✓		Betina Simmons Blaine	5229 S. Mayflower St			Seattle	WA	98118	9 INTERESTED PARTY
			✓	Richard Ranhoffer	5912 Seward Park Ave S			Seattle	WA	98118	9 INTERESTED PARTY
			✓	Seward Park Neighbors Coalition	c/o Julie K. Ainsworth-Taylor	Attorney at Law	1001 4th Avenue Ste 3303	Seattle	WA	98154	9 INTERESTED PARTY
			✓	Elie and Miriam Levy	6006 Lake Shore Drive S			Seattle	WA	98118	9 INTERESTED PARTY
			✓	John W Westergaard	5902 Seward Park Ave S			Seattle	WA	98118	9 INTERESTED PARTY
			✓	Brian and Karen McManus	6040 Lake Shore Drive S			Seattle	WA	98118	9 INTERESTED PARTY

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			✓	Kenny Ho	6030 Lake Shore Drive S			Seattle	WA	98118	9 INTERESTED PARTY
			✓	Michael & Barbara Maher	6014 Lake Shore Drive S			Seattle	WA	98118	9 INTERESTED PARTY
	✓			Peter Olsen	Executive Director	Seward Park Clay Studio	5900 Lk Washington Blvd. S.	Seattle	WA	98118	9 INTERESTED PARTY
		✓		Paul Miyake	4848 S Graham St			Seattle	WA	98118	9 INTERESTED PARTY
			✓	Dr. Jeffrey Schouten/Daniel Sparler	5920 Seward Park Ave S			Seattle	WA	98118	9 INTERESTED PARTY
	✓			Mark Early	7738 34th Ave NW			Seattle	WA	98117	9 INTERESTED PARTY
	✓			Jeannie O'Brien	4224 51st Ave S			Seattle	WA	98118	9 INTERESTED PARTY
	✓			Paul Talbert	4601 S. Brandon St			Seattle	WA	98118	9 INTERESTED PARTY
			✓	Jacob Greenberg	6020 Lakeshore Dr S			Seattle	WA	98118	9 INTERESTED PARTY
		✓		Allan Smith	4709 S Orcas			Seattle	WA	98118	9 INTERESTED PARTY
			✓	Phillip Ginsberg	6034 Lakeshore Drive S			Seattle	WA	98118	9 INTERESTED PARTY
	✓			WA State Department of Natural Resources	Derrick Toba, Assistant Division Manager, Shoreline District Aquatics	S Puget Sound Region, 950 Farman Ave N		Enumclaw	WA	98022-9282	9 INTERESTED PARTY
	✓	✓		Betty Galarosa	SEPA PIC	City of Seattle	Dept of Planning & Development	SMT-18-62			11 CITY OF SEATTLE
		✓		David Graves	Planning & Development Division	City of Seattle	Dept of Parks and Recreation	PK-01-01			11 CITY OF SEATTLE
✓				Laurie Geissinger	Environmental Compliance	City of Seattle	City Light	SMT 00-28-22			11 CITY OF SEATTLE
✓				Bill Davis		City of Seattle	City Light	SMT 00-28-22			11 CITY OF SEATTLE
	✓			Margaret Duncan		City of Seattle	City Light	SMT 00-28-22			11 CITY OF SEATTLE
		✓		Cheryl Eastberg	Planning & Development Division	City of Seattle	Dept of Parks and Recreation	PK-01-01			11 CITY OF SEATTLE
	✓			Terry Dunning	Planning & Development Division	City of Seattle	Dept of Parks and Recreation	PK-01-01			11 CITY OF SEATTLE

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Henderson Basin 44 Combined Sewer Overflow (CSO)

Notice of FEIS	Notice + CD	Notice + FEIS	Notice + FEIS + Tech Memo	Agency or Name	Name or Address1	Name or Address2	Address3	City	State	Zip	Code
	✓			Michael Shiosaki	Budget & Administrative Services	City of Seattle	Dept of Parks and Recreation	PK-01-01			11 CITY OF SEATTLE
	✓			Kevin Stoops	Budget & Administrative Services	City of Seattle	Dept of Parks and Recreation	PK-01-01			11 CITY OF SEATTLE
	✓			Cristina VanValkenburgh	Mobility Programs	City of Seattle	Dept of Transportation	SMT-00-39-00			11 CITY OF SEATTLE
	✓			Dongho Chang	Traffic Operation	City of Seattle	Dept of Transportation	SMT-00-39-00			11 CITY OF SEATTLE
	✓			Sandy Gurkewitz	Environmental Management	City of Seattle	Dept of Transportation	SMT-00-39-00			11 CITY OF SEATTLE
	✓			Ron Borowski	Policy and Planning	City of Seattle	Dept of Transportation	SMT-00-39-00			11 CITY OF SEATTLE
	✓			Beverly Barnett	Street Use Division	City of Seattle	Dept of Transportation	SMT 00-39-00			11 CITY OF SEATTLE
	✓			Luke Korpi	Street Use Division	City of Seattle	Dept of Transportation	SMT 00-30-00			11 CITY OF SEATTLE
	✓				Environmental Review Office	City of Seattle	Dept of Transportation	SMT-00-39-00			11 CITY OF SEATTLE
		✓		Karen Gordon	Landmarks Preservation Board	City of Seattle	DON/HISTORICAL PROG.	SMT 00-17-00			11 CITY OF SEATTLE
	✓			Julie Tobin	Office of the Mayor	City of Seattle	Economic Development	CH-07-01			11 CITY OF SEATTLE
	✓			Brian Surrat		City of Seattle	Economic Development	SMT-57-52			11 CITY OF SEATTLE
	✓			Kyle Joyce		City of Seattle	Finance & Admin Svcs.	SMT-52-01			11 CITY OF SEATTLE
✓				Nikki Douce		City of Seattle	Fire Department	FD-44-04			11 CITY OF SEATTLE
	✓			Gregory Dean, Fire Chief	Office of the Chief	City of Seattle	Fire Department	FD-44-04			11 CITY OF SEATTLE
	✓			Russ Byrd	Sr Fire Protection Engineer	City of Seattle	Fire Marshall's Office	TM-02-04			11 CITY OF SEATTLE
✓				Quinnie Tan		City of Seattle	Office of Housing	SMT-57-00			11 CITY OF SEATTLE
			✓	Bob Tobin	Assistant City Attorney	City of Seattle	Office of the City Attorney	CH 00-04-01			11 CITY OF SEATTLE
			✓	Jeff Weber	Assistant City Attorney	City of Seattle	Office of the City Attorney	CH 00-04-01			11 CITY OF SEATTLE
	✓			Cliff Portman		City of Seattle	Planning & Development	SMT-18-00			11 CITY OF SEATTLE

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	✓			Sue Putnam		City of Seattle	Planning & Development	SMT-18-00			11 CITY OF SEATTLE
	✓			Diane Sugimura	Director	City of Seattle	Planning & Development	SMT-18-00			11 CITY OF SEATTLE
	✓			Michael Quinn	Deputy Chief of Staff	City of Seattle	Seattle Police	JC-05-01			11 CITY OF SEATTLE
	✓			Christy Gough		City of Seattle	Seattle Police	JC-05-01			11 CITY OF SEATTLE
	✓				City Council	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Sally Bagshaw	Councilmember	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Tim Burgess	Councilmember	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Sally Clark	Councilmember	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Richard Conlin	Councilmember	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Jean Godden	Councilmember	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Bruce Harrell	Councilmember	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Nick Licata	Councilmember	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Mike O'Brien	Councilmember	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Tom Rasmussen	Councilmember	City of Seattle	Legislative Dept	CH 02-10-00			11 CITY OF SEATTLE
		✓		The Honorable Mike McGinn	Mayor	City of Seattle	Mayor's Office	CH-00-07-01			11 CITY OF SEATTLE
✓				Mark Jaeger		City of Seattle	Seattle Public Utilities	SMT-49-00			11 CITY OF SEATTLE
✓				Paul Fleming		City of Seattle	Seattle Public Utilities	SMT-49-00			11 CITY OF SEATTLE
32	*56*	*40*	*17*	*Subtotal*							

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