Section 3.14

Utilities

This section documents the effected environment, impacts, mitigation measures, and significant unavoidable impacts of the public utilities that provide services to the study area. Utilities discussed in this section include the public wastewater system (including combined sewer), the stormwater drainage system, and the electrical system.

Impacts of the alternatives on utilities are considered significant if they:

- Are inconsistent with utility system planned growth and capital plans.
- Have the potential to require major new projects or initiatives for energy system upgrades to accommodate redevelopment.

Potable water is provided to the study area by Seattle Public Utilities (SPU). Seattle anticipated water service needs in its Final EIS for the Seattle Comprehensive Plan Update, May 5, 2016, hereby incorporated by reference. To plan for long-term needs and meet regulatory requirements, Seattle Public Utilities regularly updates its Water System Plan. The 2019 Water System Plan is the latest update. It describes near- and long-term plans for the regional water system. Through their water forecasting, asset management framework, and CIP, SPU employs a variety of strategies that allow them to anticipate and adjust to changing demands. Future developments would seek a water availability certificate (WAC) from SPU that confirms SPU water infrastructure exists to supply the parcel(s) (City of Seattle n.d.). The document identifies requirements, system improvements, and conditions necessary to provide water service to the parcel. With the Comprehensive Plan Final EIS, the current Water System Plan, and the WAC process, water services are addressed and not further considered in this EIS.

3.14.1 Affected Environment

Data & Methods

This section considers wastewater, stormwater, and power provider plans and studies. The section evaluates changes in population, dwelling units, and jobs and their effect on wastewater generation, the quantity of stormwater runoff, and electrical demand.

Service Providers

Seattle Public Utilities (SPU) manages the public wastewater and stormwater drainage in the City of Seattle. King County Wastewater Treatment Division (WTD) manages all the wastewater treatment plants and wet weather treatment facilities within the City of Seattle and surrounding King County. Together, SPU and WTD manage the combined sewer system. Seattle City Light (SCL) manages the electric power generation, transmission, and distribution services in the City of Seattle.

Wastewater & Combined Sewer

SPU Drainage and Wastewater Utility collects and conveys wastewater through a system of pipes, detention facilities, pump stations, outfalls, and treatment facilities. Most of the wastewater flows collected in the study area wastewater collection system are conveyed to King County for regional conveyance and treatment. The King County WTD operates the West Point Wastewater Treatment Plant (West Point) and Elliott West Wet Weather Treatment Facility (Elliott West), which serve the BINMIC and Greater Duwamish MICs and the subareas within. A small area in the southwest corner of the study area discharges to the Southwest Suburban Sewer District.

Exhibit 3.14-1 West Point Wastewater Treatment Plant Treatment Capacity

	Flow (mgd)
Dry Weather	90
Wet Weather	300[1]

[1] primary treatment and disinfection for flows between 300 to 440 mgd.
Source: Herrera, 2021.

As shown in **Exhibit 3.14-3**, the BINMIC has a combination of a partially separated and combined sewer system and the Greater Duwamish MIC has a combination of partially separated, combined sewer, and separated sewer systems. Both SPU and King County WTD operate combined sewer systems in the city. Combined sewer systems collect stormwater runoff and domestic wastewater in the same pipe and transport it to a wastewater treatment facility for treatment prior to discharge. In partially separated areas a portion of the runoff has been diverted in pipes to the separate drainage system. The primary objective of these separation projects was to reduce emergency overflows of untreated sewage into nearby waterbodies. **Exhibit 3.14-3** shows the partially separated areas in the study area. Areas of the system that were constructed as combined sewer but now function solely for wastewater conveyance have excess capacity because they were sized to convey stormwater, which no longer flows the system in these areas.

The installation of the combined sewer system is older; most pipes date back to the late 1800s and early 1900s. The partially separated system is more recent, with most pipes installed in the 1960s. The local collector pipes range from 8 to 12 inches in diameter and are primarily constructed of vitrified clay and concrete. As shown in **Exhibit 3.14-3**, wastewater lines primarily run north-south through the study area. During dry weather, the northern portion of the Elliott Bay Interceptor conveys wastewater from BINMIC to West Point via the Interbay Pump Station. Flow from the Greater Duwamish MIC is conveyed from either the West Duwamish Interceptor or the southern portion of Elliott Bay Interceptor via the Duwamish and Interbay Pump Stations to West Point.

During wet weather, combined wastewater and stormwater flows in combined sewer systems can exceed the system's capacity (**Exhibit 3.14-1**~~Exhibit 3-53-1~~). In the neighborhoods adjacent

to the BINMIC, these wet weather flows from the combined sewer systems are diverted to a 14-foot diameter storage tunnel under Mercer Street. The Mercer Street Tunnel can store up to 7.2 million gallons until the Elliott Bay Interceptor has the capacity to transport the wastewater to West Point. Depending on the severity of the storm, stored flow in the tunnel is conveyed to West Point or the Elliott West Wet Weather Treatment Facility (Elliott West) for treatment prior to discharge. During the largest storms—on average, once a year—flows may exceed pumping capacity of Elliott West and are discharged untreated. This untreated flow is known as a "combined sewer overflow" (CSO). CSOs from regulated outfalls are allowed at times, when the system reaches capacity, and as permitted by agreements with the Washington Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA). SPU and King County WTD have made significant upgrades to the conveyance and detention capacity of the combined sewer system to limit these overflows. As the combined sewer system was designed to convey both wastewater and stormwater, during dry weather there is not a capacity issue for wastewater flow alone. More information about CSOs can be found in **Section 3.14.3, Regulations & Commitments** (see King County & City of Seattle Guidelines, Regulations for Wastewater & Combined Sewer).

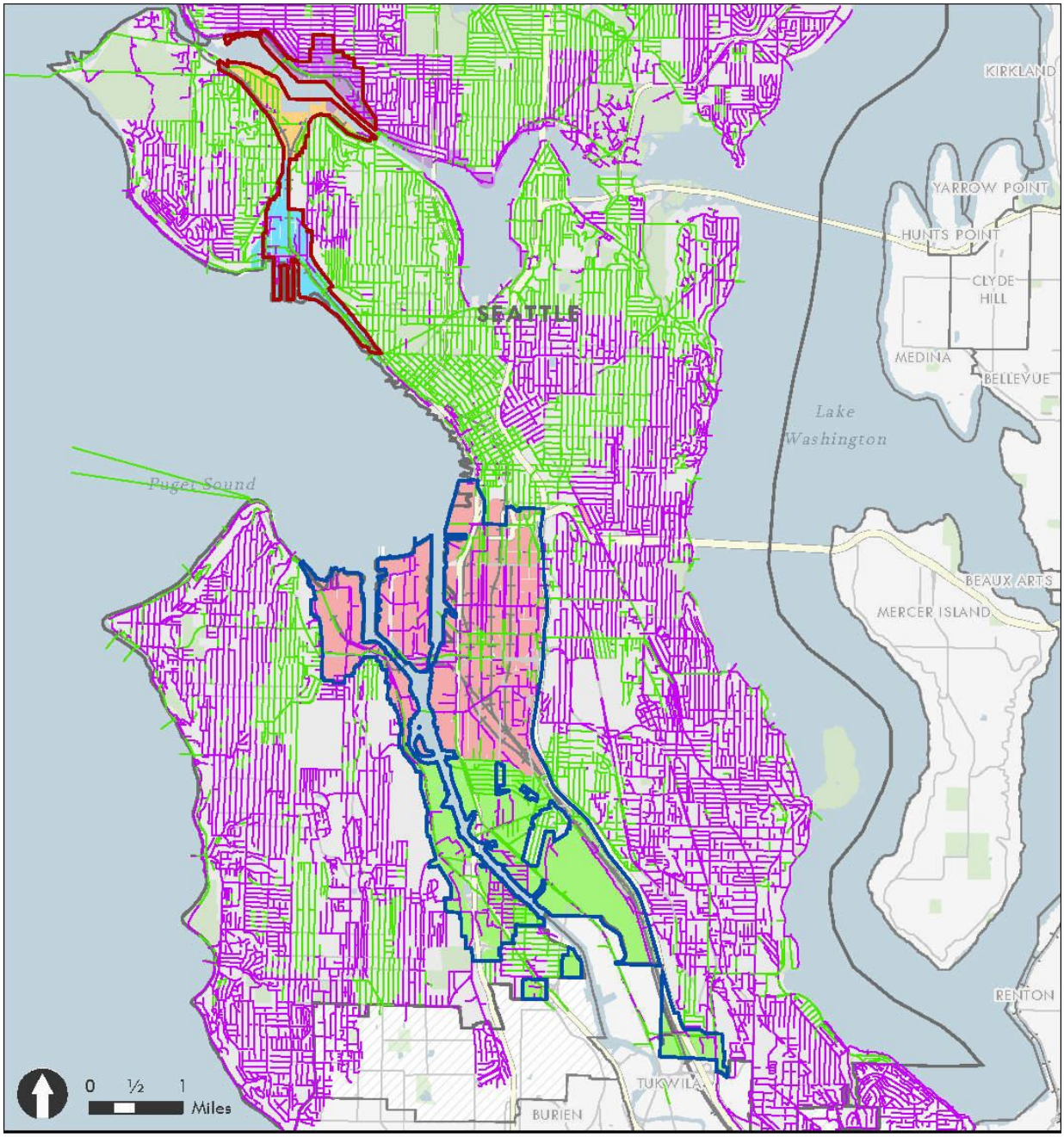
Exhibit 3.14-2 summarizes the length of the combined, sanitary, and total systems in each subarea.

Exhibit 3.14-2 Length of Wastewater Infrastructure

Subarea	Infrastructure Type	Total Pipe Length (ft)[1]
Ballard	Combined System	419
	Sanitary System	5,184
	Total System	5,604
Interbay Dravus	Combined System	4,492
	Sanitary System	310
	Total System	4,802
Interbay Smith Cove	Combined System	22,773
	Sanitary System	19,931
	Total System	42,705
SODO/Stadium	Combined System	21,719
	Sanitary System	46,897
	Total System	639,789
Georgetown/South Park	Combined System	15,291
	Sanitary System	18,733
	Total System	34,024

[1] Infrastructure within the City of Seattle Right of Way (ROW) were not included in the calculations.
Source: Herrera, 2021.

Exhibit 3.14-3 Wastewater and Combined Sewer System



Source: Herrera, 2021.

Stormwater

Stormwater runoff from impervious surfaces in the BINMIC and Greater Duwamish MICs is collected and conveyed from streets and properties, through the stormwater collection system. A portion of the system is managed by the Port of Seattle's Marine Stormwater Utility and much of the water is conveyed to receiving water bodies by the SPU storm drain system. This collection system includes the piping network, catch basins, and manholes that convey stormwater from the BINMIC and Greater Duwamish MICs to Elliott Bay (see **Exhibit 3.14-5**). Stormwater surrounding the MICs is collected and conveyed through SPU's combined and separated sewer systems. A small percentage of stormwater runoff from public rights-of-way is collected and conveyed in separate pipe networks within the partially separated portion of the surrounding neighborhoods (see **Exhibit 3.14-5**). The combined and partially separated systems are described in the wastewater discussion, above.

The stormwater drainage system within the partially separated areas includes a series of catch basins running along main drainage lines to take surface water runoff from roadways. In some areas, stormwater flows from these lines are conveyed back into the combined sewer system. In other areas, stormwater flows continue within the drainage system and discharge at outfalls to Elliott Bay. As with the wastewater system, SPU manages the storm drain system through asset-based management and operational standards.

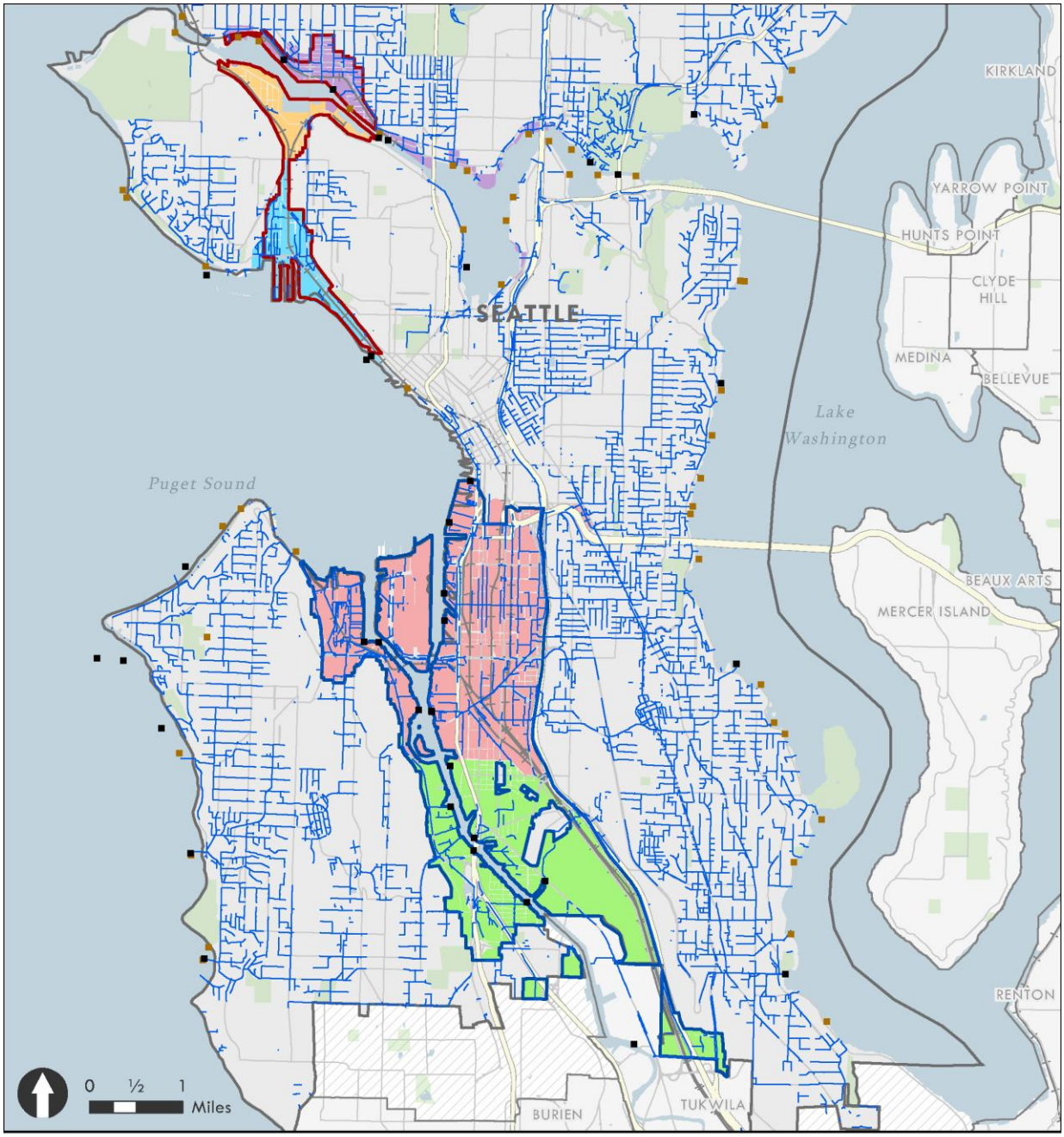
Exhibit 3.14-4 summarizes the length of stormwater infrastructure, including stormwater system mainlines managed by SPU and private stormwater mainlines managed by the Port of Seattle's Marine Stormwater Utility, and number of adjacent CSO outfalls in each subarea.

Exhibit 3.14-4 Length of Stormwater Infrastructure and Adjacent CSO Outfalls in the Study Area by Subarea

Subarea	Total Pipe Length (ft)[1]		Adjacent CSO Outfalls[2]
	Stormwater System Mainlines	Private Stormwater Mainlines	
Ballard	3,993	4,438	10
Interbay Dravus	183	2,864	0
Interbay Smith Cove	28,101	9,848	2
SODO/Stadium	90,661	16,062	11
Georgetown/South Park	22,371	51,283	6

[1] Infrastructure within the City of Seattle Right of Way (ROW) were not included in the calculations.
[2] King County and Seattle Public Utilities CSO outfalls within a 150-ft buffer of each subarea.
Source: Herrera, 2021.

Exhibit 3.14-5 Stormwater System in the Study Area



Source: Herrera, 2021.

Electrical Power

Seattle City Light (SCL), a municipal utility, supplies electrical power to customers in Seattle, including the BINMIC and Greater Duwamish MIC, and some portions of King County north and south of the city limits. Electric power infrastructure is shown in **Exhibit 3.14-7**. SCL's transmission system includes several high-voltage, 115.1-kilovolt (kV) and 230-kV transmission lines. These transmission lines run between electrical substations, which lower the voltage of the electricity before transferring it to the distribution lines. In the study area, the SCL system uses a combination of overhead and underground electrical transmission and distribution lines. The Broad Street Substation, located on 6th Avenue North between Broad Street and Thomas Street, is the electrical substation serving the BINMIC. The Massachusetts Substation, located on Utah Avenue S between Colorado Avenue S and S Massachusetts Street, is the electrical substation serving the Duwamish BIC.

SCL also has an ongoing program since 2007 to provide electrical service connections and related improvements within the Broad Street network areas. This program includes capacity additions work associated with service connections to customers. The program also replaces or installs network transformers, network protectors and specialty transformers, and performs other improvements. This program fluctuates with land use development (City of Seattle 2015b).

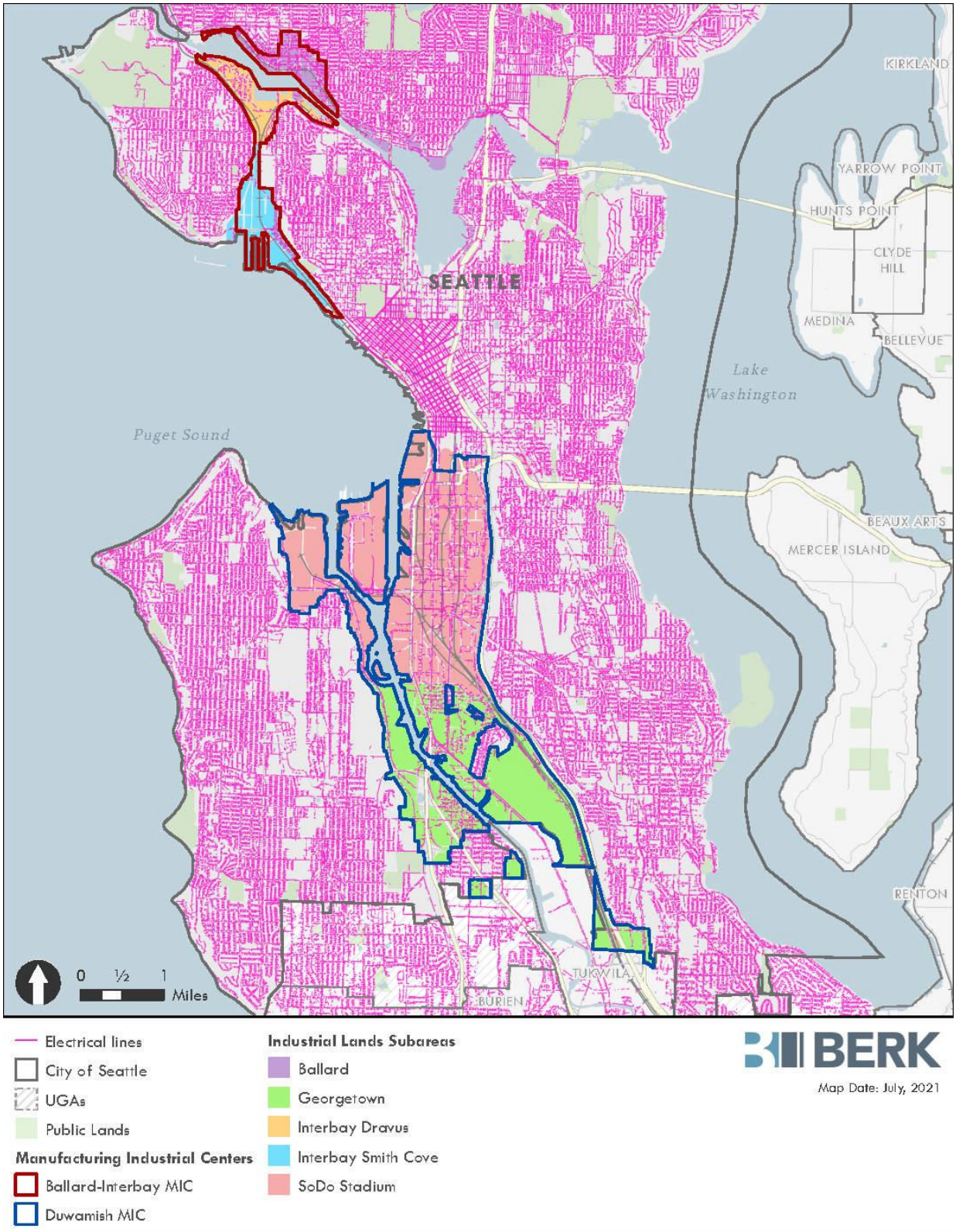
Exhibit 3.14-6 summarizes the approximate lengths of electrical lines in the subareas.

Exhibit 3.14-6 Electrical Transmission Lines by Subarea

Subarea	Total Line Length (ft) [1]
Ballard	52,298
Interbay Dravus	18,787
Interbay Smith Cove	7,677
SODO/Stadium	118,042
Georgetown/South Park	85,752

[1] Infrastructure within the City of Seattle Right of Way (ROW) were not included in the calculations
Source: Herrera, 2021.

Exhibit 3.14-7 Power Infrastructure in Study Area



Source: Herrera, 2021.

3.14.2 Impacts

Impacts Common to All Alternatives

While demand for utilities is expected to be similar for all alternatives, future development could result in adverse impacts to localized portions of the utility system. Seattle Public Utilities (SPU), King County WTD, and Seattle City Light (SCL) currently employ a variety of strategies to anticipate and adjust to changing demands. Both potential impacts and strategies employed by the utilities to respond to changing demand are discussed below.

Wastewater & Combined Sewer

Development under any of the alternatives could result in greater demands on the local wastewater collection system and on the downstream conveyance and treatment facilities. Increased wastewater flow is related to increased water consumption. Flow from the Primary Study Area to West Point (operated by King County WTD) represents only a small portion of the total West Point service area population (**Exhibit 3.14-8**), so increases in wastewater generation within the Primary Study Area under any of the alternatives are small compared to projected increases in flow already accounted for by King County WTD planning documents (King County 2014a). However, as some redevelopment of industrial areas is expected under all alternatives, impacts to the wastewater system should be evaluated for specific industries during future system planning efforts to assess whether historical loading rates and assumptions apply. Individual industries are required to get authorization from King County before discharging wastewater to the sewer system, which may involve on-site pretreatment. As noted in the Mitigation Measures section, development under the proposed alternatives is not expected to alter permitted use of King County facilities.

Exhibit 3.14-8 Current and Future Wastewater Service Population in the West Point Wastewater Treatment Facility Service Area Compared to Population in the Study Area

Population Category		Residential[1]		Commercial Employment Population	Industrial Employment Population	Total Population
		Households	Population			
2018 Population Served by West Point[2]		343,902	705,000	580,000	37,000	1,322,000
2044 Population Served by West Point[2]		404,878	830,000	815,000	40,200	1,685,200
Existing Conditions	2018 Population[3]	413	847	44,000	54,500	99,347
	Percent[4]	0.1%	0.1%	7.6%	147.3%	7.5%
Alternative 1 No Action	2044 Population[3]	488	1,000	55,600	66,400	123,000
	Percent[5]	0.1%	0.1%	6.8%	165.2%	7.3%
Alternative 2	2044 Population[3]	493	1,011	53,500	79,400	133,911
	Percent[5]	0.1%	0.1%	6.6%	197.5%	7.9%

Population Category		Residential[1]		Commercial Employment Population	Industrial Employment Population	Total Population
		Households	Population			
Alternative 3	2044 Population[3]	2,101	4,307	72,400	83,500	160,207
	Percent[5]	0.5%	0.5%	8.9%	207.7%	9.5%
Alternative 4	2044 Population[3]	3,686	7,556	74,400	83,300	165,256
	Percent[5]	0.9%	0.9%	9.1%	207.2%	9.8%
Preferred Alternative	2044 Population[3]	3,422	7,015	63,192	70,853	141,060
	Percent[5]	0.9%	0.9%	7.8%	176.3%	8.4%

[1] Conversion between number of residential households and residential population assumes the 2020 citywide household size of 2.05 (CAI 2021; City of Seattle, 2021)
[2] Estimate of the total population served by the West Point Wastewater Treatment Plant in 2018 (Current Conditions) and 2044 (Future Conditions) (King County 2014a). These population assumptions represent the most recent publicly-available data. It is likely that King County is in the process of updating these projections to account for growth expected within the service area, including growth expected within the Primary Study Area as part of Alternative 1 No Action.
[3] Population served with the Primary Study Area
[4] Percent of the 2018 population served within the Primary Study Area when compared to the estimate of the total population served by the West Point Wastewater Treatment Plant in 2018 (King County 2014a).
[5] Percent of the 2044 population served within the Primary Study Area when compared to the estimate of the total population served by the West Point Wastewater Treatment Plant in 2044 (King County 2014a).
Source: Herrera, 2021.

Under all alternatives, increases in employment and/or residential populations in portions of the Primary Study Area are expected to result in greater wastewater generation, which could locally impact the wastewater collection system operated by SPU. Although there may be a greater overall need for wastewater system capacity with increased density, new development can reduce per-capita demand, as newer, low- or no-flow plumbing fixtures and equipment replaces older, less efficient, installations. This could help reduce overall impact. Consistent with SPU's guiding plans and asset management framework, SPU employs a variety of strategies to anticipate and adjust to changing demands.

While there would be increased demand on the wastewater system under any of the alternatives, existing programs, such as SPU's asset management framework and the capital improvement program (CIP), are in place to identify and implement projects to address system capacity issues and to incorporate improvements and repairs in association with major redevelopment and projects. As a result of these ongoing programs and current planning, increased demand for wastewater service under any of the alternatives is not considered a significant impact.

Because combined sewers receive both wastewater and stormwater runoff during wet weather, impacts to the combined system result from changes to both wastewater generation and stormwater runoff. Redevelopment governed by current Stormwater Code standards would help control peak rates of stormwater through the local combined sewer systems and reduce the risk of combined sewer overflows. This could potentially result in less usage of King County's CSO treatment facilities, such as West Point and Elliott West for the Ballard and Interbay subareas and the future Georgetown Wet Weather Station in the Georgetown/South

Park and SODO/Stadium subareas. More information about the impact of the current Stormwater Code is discussed in greater detail in the Stormwater section below.

Stormwater

In general, increases in impervious area result in higher peak flows and total runoff, but because the majority of the Primary Study Area is impervious, redevelopment expected under all alternatives is not expected to significantly increase total impervious area. As described in **Section 3.14.3 Mitigation Measures**, the 2021 Stormwater Code requires on-site stormwater management to infiltrate, disperse, and retain stormwater runoff to the maximum extent feasible. Where the developed site's stormwater flow is expected to exceed the allowable flow levels, stormwater flow control is required. As a result of these requirements, given that some of the existing development predates modern stormwater requirements, it is expected that there would be a reduction in uncontrolled runoff in the Primary Study Area under all of the alternatives where new construction is anticipated.

The 2021 Stormwater Code also supports incentives for retrofitting existing development, such as opportunities for property owners to reduce their drainage rate if they install flow control and/or treatment facilities designed per the Code, which can include reducing impervious surfaces. Redevelopment that replaces existing impervious surface and provides flow control can reduce runoff rates even below current levels.

Under all scenarios, including Alternative 1 No Action, implementation of on-site stormwater management and continuation of retrofit incentives would continue to reduce adverse impacts on both the combined sewer system and the drainage system. This would be true even if future rainfall patterns are more intense than historic rainfall patterns. No significant adverse location-specific impacts are identified in this review.

Electrical Power

Under all alternatives, including the No Action Alternative, future growth and development would increase demand for electrical energy. With the completion of the Denny Substation project in 2018 described in **Section 3.14.3 Mitigation Measures**, the existing Broad Street Substation and transmission infrastructure is expected to meet future needs through at least 2035.

Under any alternative, the local distribution system may need improvements or reconfiguration to meet future growth needs. Seattle City Light is actively planning to increase infrastructure along the central waterfront and in portions of both MIC areas to support conversion of cargo and cruise vessels to the use of shore power. Specific improvements would be addressed on a project-by-project basis. Currently, Seattle City Light is installing public electric vehicle charging stations in the Ballard and Georgetown/South Park subareas. No significant adverse impacts have been identified for any of the alternatives.

Equity & Environmental Justice Considerations

Under all alternatives, minor impacts to utility services could occur during construction of individual development projects. Construction could disturb existing utility lines; however, any disruptions would be temporary because the construction contractor would be required to establish connections to prevent any disruptions prior to construction and be required to communicate the disruptions to the public in advance. These temporary disruptions could be disproportionately felt by low income and other underserved populations in the study area.

All alternatives are likely to lead to utility improvements in the study area. There is no indication that the improvements are likely to cause adverse impacts to low income and other underserved populations in the study area as long as the utility improvements avoid displacement of these populations. Utility improvements could potentially benefit low income and other underserved populations in the study area, such as in portions of the SODO/Stadium and Georgetown/South Park subareas.

Impacts of Alternative 1 No Action

Wastewater & Combined Sewer

Impacts resulting from Alternative 1 No Action would be the same as described in the discussion of **Impacts Common to All Alternatives**. Compared to the Action Alternatives, there is likely to be less redevelopment in the Primary Study Area and the least amount of increased wastewater service demand and the least reduction in the rate of stormwater runoff to the combined sewer system during wet weather.

Stormwater

Impacts resulting from Alternative 1 No Action would be the same as described in the discussion of **Impacts Common to All Alternatives**. Stormwater runoff in the Primary Study Area would continue to be collected and directed through the stormwater drainage system for discharge to existing outfalls. Potential impacts of future, specific development proposals would be addressed through implementation of the regulations and project-specific environmental review as appropriate. As sites redevelop, implementation of on-site stormwater management required under the 2021 Stormwater Code would continue to reduce adverse impacts that would otherwise occur under existing conditions. However, there would potentially be less redevelopment and less implementation of on-site stormwater management under Alternative 1 No Action, resulting in less reduction of peak flows and total runoff compared to other alternatives.

Electrical Power

Impacts resulting from Alternative 1 No Action would be the same as described in the discussion of **Impacts Common to All Alternatives**. Even without changes to current

Comprehensive Plan policies, development standards, or zoning maps, the demand on the electrical system is likely to increase over time. However, compared to the Action Alternatives, there is likely to be less redevelopment pressure in the Primary Study Area resulting in the least change to electricity demand compared to the other alternatives.

Impacts of Alternative 2

Wastewater & Combined Sewer

There is likely to be a greater increase in wastewater service demand for this Alternative compared to Alternative 1 No Action due to the greater increase in industrial employment. Compared to alternatives 3 and 4, there is likely to be less redevelopment, resulting in less increases in wastewater generation and less reductions of the rate of stormwater runoff to the combined sewer system in the Primary Study Area.

Stormwater

Alternative 2 includes greater change and densification of industrial zones than Alternative 1 which could result in increased implementation of on-site stormwater management. Source control practices will need to be reevaluated by developers and City reviewers as land uses change to ensure that adequate treatment is occurring. Compared to alternatives 3 and 4, there is likely to be less redevelopment resulting in less reduction of the rate of stormwater runoff to the separated stormwater system.

Electrical Power

Assuming greater change and densification of industrial zones than Alternative 1, the demand on the electrical system is likely to be greater under Alternative 2 than Alternative 1, but less than alternatives 3 and 4.

Impacts of Alternative 3

Wastewater & Combined Sewer

There is likely to be a greater increase in wastewater service demand for Alternative 3 compared to alternatives 1 and 2 due to the greater increase in employment and housing, but due to greater redevelopment expected, the rate of stormwater runoff to the combined sewer system is likely to decrease due to the implementation of improved stormwater controls, and less wet weather flow in the combined system. Compared to Action Alternative 4, there is likely to be less increase in wastewater generation and less reduction of stormwater runoff in the Primary Study Area, which could reduce the frequency of CSO events. While increases in residential population are greater for this Alternative than for alternatives 1 and 2, particularly in the Ballard and SODO/Stadium subareas, the total residential population accounts for less

than 1% of the expected residential population served by West Point in 2044 (**Exhibit 3.14-8**~~Exhibit 3-58~~) and small when compared to the projected job increases in any given Subarea or the Study Area as a whole. Compared to Action Alternative 4, there is likely to be less increase in wastewater generation and less reduction of the rate of stormwater runoff to the combined sewer system.

Stormwater

Alternative 3 includes increased industrial and non-industrial redevelopment, which could result in increased implementation of on-site stormwater management compared to alternatives 1 and 2. This is likely to decrease the rate of discharge to the stormwater system relative to alternatives 1 and 2, but not as much as Alternative 4.

Electrical Power

Assuming greater change and densification of industrial zones than Alternative 1 and increased non-industrial land used compared to Alternative 2, the demand on the electrical system is likely to be greater for Alternative 3 than alternatives 1 and 2, but less than Alternative 4.

Impacts of Alternative 4

Wastewater & Combined Sewer

The greatest increase in wastewater service demand is expected for Alternative 4 due to the greater increase in employment and housing. Additionally, because the greatest redevelopment is expected under this alternative, the greatest improvements to stormwater flow rates to the combined sewer system are expected, resulting in the greatest reductions to wet weather flow in the combined system when compared to other alternatives. As with Alternative 3, though increases to the residential population are expected, particularly in the Ballard and SODO/Stadium subareas, the total residential employment population accounts for less than 1% of the expected residential population served by West Point in 2044 (**Exhibit 3.14-8**~~Exhibit 3-58~~) and small when compared to the projected job increases in any given Subarea or the Study Area and a whole.

Stormwater

Alternative 4 includes the greatest expected redevelopment, which could result in the most implementation of on-site stormwater management compared to the other alternatives. As discussed above, this is likely to decrease the rate of discharge to the stormwater system.

Electrical Power

The demand on the electrical system is likely to be the greatest for Alternative 4 compared to other studied alternatives.

Impacts of the Preferred Alternative

Wastewater & Combined Sewer

Under the Preferred Alternative, increases in employment are expected to be similar to Alternative 2, while increases in housing are expected to be similar to alternatives 3 and 4. Therefore, the increase in wastewater service demand expected for this Alternative is expected to be less than alternatives 3 and 4 and greater than Alternative 2. Redevelopment under this alternative, which is expected to reduce stormwater flow rates to the combined sewer system, is expected to reduce wet weather flow in the combined system more than Alternative 2 and less than alternatives 3 and 4. Though increases to the residential population are expected, the total residential population accounts for just under 1% of the expected residential population served by West Point in 2044 (**Exhibit 3.14-8**) and, as with alternatives 3 and 4, is small when compared to the projected job increases in any given Subarea or the Study Area and a whole.

Stormwater

The Preferred Alternative includes more redevelopment than Alternative 2 and less redevelopment than alternatives 3 and 4, and is expected to result in implementation of on-site stormwater management. As discussed above, this is likely to decrease the rate of discharge to the stormwater system.

Electrical Power

The demand on the electrical system is likely to be greater than Alternative 2 and less than alternatives 3 and 4 compared to other studied alternatives.

3.14.3 Mitigation Measures

Incorporated Plan Features

The Industrial and Maritime Strategy includes policy concepts relevant to Power and Air Quality/GHG:

- Introduce new or strengthened policies into chapters of the Comprehensive Plan that may include the Transportation, Environment, or Container Port elements encouraging transitions to clean fuels and decarbonization of industrial and maritime activities.
- Seattle Municipal Code (SMC 23.50.012) currently permits the use of currently zoned industrial areas for utility services by the King County Department of Natural Resources and Parks (DNRP). The proposed changes would not alter or prohibit currently permitted uses for these DNRP utility services.

Regulations & Commitments

Wastewater & Combined Sewer

SPU Drainage and Wastewater Utility and King County WTD are guided by several federal and state regulations as well as City of Seattle policies, programs, and plans. Regulations and guidance specific to wastewater are described below.

Federal Guidelines & Regulations

Federal guidelines for wastewater include the Clean Water Act (CWA). The 1977 CWA gave the EPA the authority to implement pollution control programs such as setting wastewater standards and regulating point discharges of pollutants. The EPA has the authority to delegate enforcement to the states, where state regulations are required to be at least as strict as federal regulations. The EPA has established minimum requirements for states to use in enacting regulations for wastewater reuse and reclamation. In the State of Washington, Ecology administers and enforces the CWA.

State of Washington Guidelines & Regulations

All wastewater treatment plants (WWTPs) in the State of Washington are regulated by Ecology. Ecology issues wastewater discharge permits, which regulate how WWTPs treat, control, and operate their facilities. WWTPs are required to control the quantity and quality of their discharges into surface or groundwater. These waters of the state include rivers, streams, bays, lakes, and aquifers. Chapter 173-221 of the Washington Administrative Code (WAC) defines WWTP discharge standards in further detail.

As discussed in previous sections, the BINMIC and Greater Duwamish MICs are served by the West Point WWTP. This facility is regulated under the National Pollutant Discharge Elimination System (NPDES) permit No. WA0029181. The permit requires that the West Point facility must not exceed the following design criteria:

- **Maximum Month Design Flow (MMDF):** 215 mgd
- **BOD_5 Influent Loading for Maximum Month:** 201,000 lbs/day
- **Total Suspended Solids Influent Loading for Maximum Month:** 218,000 lbs/day

As part of the renewal process, King County submits a CSO Control Plan approximately every 5 years. Under WAC 173-245, the plan must update Ecology on program achievements, CSO control projects for the next NPDES permit phase, and plan amendments.

King County & City of Seattle Guidelines, Regulations, & Commitments

Regulations on the local level consist of King County Code, King County Public Rules, and SPU's Side Sewer Code. Title 28 of King County Code regulates the disposal of industrial waste into

the sewer system. King County Public Rules PUT 8-13 – 8-16, 8-22, and 8-24 cover the following subjects:

- Local discharge limits
- Construction dewatering
- Discharge of contaminated groundwater to the sewer
- Discharge of cooling water to the sewer

SPU's Side Sewer Code regulates the design, construction, and permitting of privately-owned sewer pipe systems within private property and/or the right-of-way. To work on a side sewer project, SPU requires a Side Sewer Permit. This permit has fees dependent on the scope of work being performed.

Capital Improvement Programs

King County

Implementing capacity expansion projects at each of the County's regional treatment facilities would be initiated as required to meet population growth. Projects at West Point will have the greatest impact on the BINMIC and Greater Duwamish MIC, including near-term (by 2030) improvements to solids digestion.

City of Seattle

Guidance from SPU Drainage and Wastewater Utility includes SPU's *2015 Plan to Protect Seattle's Waterways* and the utilities' *2015–2010 Strategic Business Plan* (Seattle Public Utilities, 2015a) (Seattle Public Utilities, 2015b). The overriding goals of these plans is to construct and maintain facilities that:

- Reduce the frequency of flooding and sewer backups for customers
- Improve water quality and habitat in the environment
- Reduce sewage overflows and the impacts of stormwater pollution

Within SPU's asset management framework, SPU regularly inspects, repairs, and replaces pipe. As needed, new development may be required to make system improvements (Kelleher, 2016). SPU's Drainage and Wastewater CIP is the vehicle for identifying major projects and programs to rehabilitate, replace, improve, and expand system infrastructure (City of Seattle, 2015b). Projects are ranked based on a set of criteria to establish priority. This includes "level of service" criteria that address the provision of services to customers, including projects that address system capacity needs. Current Drainage and Wastewater CIP projects within the BINMIC include the Ballard Locks Improvements and the Ship Canal Water Quality Project (SCWQP). Flow from the Greater Duwamish MIC also impacts the SCWQP.

Within the CIP, SPU has an ongoing program, the Wastewater Capacity Improvement Program, to enhance sanitary sewer service to Seattle customers by addressing current and projected capacity limitations of the wastewater system through structural improvements. Such

improvements may include infiltration and inflow (I/I) reduction, increased conveyance capacity, and individual customer measures to reduce the risk that customers would experience backups of sewage into their homes and businesses during storm events.

As part of another ongoing program in the CIP, the Shared Cost Project Program, SPU works take better advantage of opportunities to incorporate improvements and repairs to the drainage and wastewater systems with major redevelopment and projects undertaken by others (e.g., private developers, other city departments, regional and state agencies). Due to increased project costs ($5.4 million) in Waterfront CSO projects, the Shared Cost Projects budget was reduced by an overall $9.2 million in 2021.

Stormwater

SPU Drainage and Wastewater Utility and the Port of Seattle's Marine Stormwater Utility are guided by several federal and state regulations as well as City of Seattle policies, programs, and plans. Regulations and guidance specific to stormwater are described below.

Federal Guidelines & Regulations

Federal guidelines for stormwater include the Federal Endangered Species Act (ESA). The ESA is intended to protect threatened or endangered species from extinction. The ESA prohibits the "take" of all listed species, including a take that could result from the Port's stormwater facility operations or private development stormwater management activities that are permitted by the Port.

State of Washington Guidelines & Regulations

The State of Washington requirements for stormwater management for the City of Seattle are described in the Western Washington NPDES Phase I Municipal Stormwater Permit (Phase I Permit) (Ecology 2019). The 2019-2024 Phase I Permit, issued by Ecology on July 1, 2019, and effective on August 1, 2019, addresses a variety of issues associated with stormwater runoff and requires the City to develop several distinct stormwater management program (SWMP) components:

- Municipal separate storm sewer system (MS4) permit mapping and documentation
- Public involvement and participation
- Controlling runoff from new development, redevelopment, and construction sites
- Stormwater planning
- Structural Stormwater Controls Program
- Source Control Program for Existing Development
- Illicit discharge detection and elimination (IDDE)
- Operations and Maintenance Program
- Education and Outreach Program
- Compliance with Total Maximum Daily Load (TMDL) requirements

- Monitoring and assessment
- Reporting requirements

The Port of Seattle is a secondary permittee under the Phase I Permit due to its ownership and operation of its stormwater system within the City of Seattle that drains to the Ship Canal, Shilshole Bay, Duwamish River, and Elliot Bay. The following requirements apply to the Port of Seattle:

- Education Program
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management for New Development and Redevelopment
- Operation and Maintenance Program
- Source Control in Existing Developed Areas
- Monitoring Program
- Compliance with TMDL requirements
- Monitoring and assessment
- Reporting requirements

Most of the Port's property is leased to commercial and industrial tenants. Approximately 70% of these properties are covered by an NPDES Industrial Stormwater General Permit, which includes additional requirements beyond those in the Phase I Permit. Maritime tenants play a crucial role in protecting water quality in Puget Sound. Any polluting activity has direct effects on the nearshore waters and Puget Sound. The Port is actively working with tenants to improve operations and manage stormwater runoff to protect the natural environment.

City of Seattle Guidelines & Regulations

As described in the Wastewater & Combined Sewer section above, SPU is guided by several federal regulations, City policies, and plans that address wastewater and stormwater drainage. SPU manages stormwater programs in the combined sewer area to improve water quality and habitat in the environment by reducing sewage overflows and the impacts of stormwater pollution. SPU also implements rules governing management of stormwater on private and public property through its current stormwater code (2021 Stormwater Code). The City's NPDES permit, issued in December 2005, requires implementation of stormwater pollution prevention programs in the combined sewer areas and is described in the section above (the permit was last modified issued on August 1, 2019).

Starting in 2009 and continuing with the 2021 Stormwater Code, Seattle has required on-site stormwater management (formerly green stormwater infrastructure) when feasible, as part of stormwater mitigation for all development and redevelopment projects. Examples of on-site stormwater management include permeable pavement, rainwater harvesting, rain gardens, infiltration facilities, bioretention facilities, and vegetated roofs. Individual projects are required

to manage on-site stormwater runoff in accordance with City requirements to ensure that a development properly regulates its stormwater runoff.

It also should be noted that as described above, both SPU and King County WTD are required by agreements with Ecology and the EPA to reduce combined sewer overflows, of which stormwater is a component.

Capital Improvement Programs

King County

King County's 2018 CSO Control Program Update (King County 2018) presents a series of projects to control King County's remaining uncontrolled CSO locations in collaboration with SPU. The plan includes projects that would be built in the BINMIC and others that would be built in the Greater Duwamish MIC.

King County entered a consent decree with the U.S. Department of Justice and EPA (filed July 3, 2013) that ensures its CSO Control Plan (King County 2012a) is completed by 2030. King County had already committed to limiting CSOs to one per year at each outfall by 2030 through its adopted policies and a 2011 Agreement with Ecology.

City of Seattle

SPU is preparing a comprehensive strategy, The Plan to Protect Seattle's Waterways (Plan), to reduce CSOs and stormwater pollutants. The goals of the Plan are to protect public health and the environment while complying with federal and state regulations. The Plan is being developed under a Consent Decree agreement with EPA, Ecology, and the U.S. Department of Justice. The Consent Decree was entered in United States District Court for Western District of Washington on July 3, 2013. The Plan will define projects to control a significant source of contamination and when implemented, the Plan will bring the City into compliance with the State and Federal requirements for CSO discharges. Specifically, the Plan will:

- Identify areas of Seattle where projects are needed to reduce combined sewer overflows.
- Evaluate alternatives for reducing combined sewer overflows in these areas.
- Identify additional areas where projects to control and treat polluted stormwater runoff will improve water quality.
- Recommend a schedule for designing and constructing projects.
- Estimate program costs and associated impacts on Seattle Public Utilities customer bills.
- Consider public and stakeholder input.

The Plan includes an Executive Summary (Volume 1), the Long-term Control Plan (Volume 2), the Integrated Plan (Volume 3), and the Environmental Impact Statement (Volume 4).

The Long-term Control Plan (LTCP) includes a ranking of the uncontrolled CSO basins with the largest negative impact on receiving water bodies and human health. The following basins are included within the BINMIC and Greater Duwamish MIC:

- Basins 174 and 147. Fremont/Wallingford
- Basins 107 and 111. East Waterway and Duwamish

SPU selected the Shared West Ship Canal Tunnel Option as the recommended LTCP option to provide the greatest benefit to receiving waterbodies and human health. The City would be the lead agency for construction and operation of the facility under the terms of a joint project agreement to be executed with King County. This project would impact the Freemont/Wallingford basins within the study area, which include portions of the Ballard Subarea.

The Integrated Plan identifies LTCP projects to be deferred until after 2025 so that the City can focus available resources on implementing the proposed stormwater projects. The Integrated Plan consists of implementing three stormwater projects by 2025 and deferring construction completion of six candidate LTCP projects until 2030. The three stormwater projects are as follows:

- Natural Drainage Systems (NDS) Partnering
- South Park Water Quality (WQ) Facility
- Street Sweeping Expansion Arterials

NDS Partnering would entail reconstructing City rights-of-way to manage flow and provide water quality treatment for urban runoff using primarily the green infrastructure practice of bioretention (i.e., engineered rain gardens). The South Park WQ Facility would provide active basic treatment for roughly 74 million gallons per year of stormwater runoff from a largely industrial area that discharges to the Lower Duwamish Waterway, thereby reducing the potential for recontamination of sediment remediation areas. This affects the SODO/Stadium and Georgetown/South Park subareas. The Street Sweeping Expansion Arterials would expand the area, frequency, and duration of the City's current arterial street sweeping efforts within the Primary Study Area.

Electrical Power

At the federal level, all electrical utilities are regulated by the 2020 National Electric Code (NEC). The State of Washington has adopted the 2020 NEC as of November 1, 2020 and can be found in WAC 296-46B. In addition to the NEC, the WAC also includes the International Energy Conservation Code, as provided in RCW 19.27A,020. This code has been adopted by the State Building Code Council in Chapter 51-11C and 51-11R WAC.

The City of Seattle adopts the 2020 NEC as part of their 2020 Seattle Electrical Code and the International Energy Conservation Code as part of their Seattle Energy Code. This code generally states that the State of Washington energy code shall be designed to construct increasingly energy efficient homes and buildings that help achieve the broader goal of building zero fossil-fuel greenhouse gas emission homes and buildings by the year 2031, and to require new buildings to meet a certain level of energy efficiency.

Capital Improvement Programs

SCL has recently completed two projects which affect the Primary Study Area: the Denny Substation and the Broad Street improvements. The Denny Substation project was completed in 2018 in response to the high electrical load density caused by rapid redevelopment in the South Lake Union area over the past 15 years. In addition to serving the current and future needs of the South Lake Union area, the project frees up capacity at the Broad Street Substation, providing more system flexibility to accommodate current and future growth in the BINMIC.

SCL has an ongoing program since 2007 to provide electrical service connections and related improvements within the Broad Street network areas. This program includes capacity additions work associated with service connections to customers. The program also replaces or installs network transformers, network protectors and specialty transformers, and performs other improvements. This program fluctuates with land use development (City of Seattle, 2015b).

The Port of Seattle is increasing shore power available at terminals to reduce maritime emissions (Starcrest, 2018). Upcoming projects within the SODO/Stadium Subarea include planned shore power improvements in Terminal 15, Terminal 18, and possibly the electrification of Terminal 30 and the Coast Guard Station.

Other Potential Mitigation Measures

Wastewater & Combined Sewer

- **Water Conservation Measures:** Redevelopments may reduce per-capita water demand (and therefore, wastewater service demand) by using newer, low- or no-flow plumbing fixtures and equipment.

Stormwater

- No additional mitigation is proposed.

Electrical Power

- Future service system needs could be identified and evaluated through collaborative planning between Seattle's Office of Planning & Community Development and Seattle City Light.
- Installation of photovoltaic and other local generating technologies would reduce the demand on the public generating and distribution facilities.
- Construction and operation of LEED compliant (or similar ranking system) buildings would reduce the level of increase required in power systems.
- The use of passive systems, such as building design which utilizes layout and materials for transfer of heat rather than electrical systems, and modern power saving units would reduce the use of power in building heating and cooling. This could include, but is not limited to upgraded levels of insulation, reduced air infiltration, and selection of energy-efficient appliances.

3.14.4 Significant Unavoidable Adverse Impacts

Wastewater & Combined Sewer

No significant unavoidable adverse impacts on wastewater and combined sewer systems are anticipated. The levels of development proposed under all alternatives are expected to be managed through King County WTD and SPU's existing, ongoing processes for identifying CIP projects to address system capacity issues and reduce CSO frequency.

Stormwater

No significant unavoidable adverse impacts on the stormwater system are anticipated. New development allowed under any alternative would be required to meet City stormwater codes that would likely improve stormwater management (i.e., reduced flow rates and improved water quality) relative to existing conditions, and CIP projects identified in the Primary Study Area as part of SPU's asset management program would improve system capacity and performance.

Electrical Power

No significant unavoidable adverse impacts on the electrical system are anticipated. Recent SCL investments in the power system are anticipated to meet growth needs under all studied alternatives and development proposals the require specific improvements to the system would be addressed at a planning level through regular capital planning cycles as well as on a project-by-project basis.