

SEATTLE PUBLIC UTILITIES
SEPA ENVIRONMENTAL CHECKLIST

This SEPA environmental review of Seattle Public Utilities' South Park Drainage and Roadway Partnership Project has been conducted in accord with the Washington State Environmental Policy Act (SEPA) (RCW 43.21C), State SEPA regulations [Washington Administrative Code (WAC) Chapter 197-11], and the City of Seattle SEPA ordinance [Seattle Municipal Code (SMC) Chapter 25.05].

A. BACKGROUND

1. Name of proposed project:

South Park Drainage and Roadway Partnership Project

2. Name of applicant:

Seattle Public Utilities (SPU)

3. Address and phone number of applicant and contact person:

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4. Date checklist prepared:

6/15/2020

5. Agency requesting checklist:

Seattle Public Utilities

6. Proposed timing or schedule (including phasing, if applicable):

Construction is anticipated to begin in Spring 2021 and continue for approximately 12 months (240 working days). Construction would be phased to minimize impacts to traffic.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Three problems cause chronic flooding in the northwest portion of the South Park neighborhood of the City of Seattle:

1. Some streets in the area have inadequate stormwater collection and drainage.
2. Many private properties in the area do not drain to the public drainage system.
3. The main drainage outfall to the Lower Duwamish Waterway is under water during high tide, so the existing public storm drainage system cannot drain.

SPU and the Seattle Department of Transportation have partnered in the South Park Drainage and Roadway Partnership Project to address the first two problems for several blocks of an industrial area in this neighborhood. The Partnership Project would install a formal drainage system that will allow private property owners to connect to a public system to address localized flooding on their property. The Partnership recognizes that other portions of this industrial area will require future improvements. However, the project described in this Environmental Checklist is the extent of work planned at this time.

To address the third problem, SPU is constructing the South Park Pump Station Project at the 7th Ave S street end. Substantial completion of that Project is expected in the Summer of 2021. SPU issued a SEPA Determination of Non-Significance (DNS) for the Pump Station Project on February 11, 2019. In addition, SPU is in the planning phase for the South Park Water Quality Facility (WQF) to clean the stormwater runoff collected from this area. The WQF will be constructed within a few blocks of the pump station but, at this time, the location for the WQF is not known. SPU would conduct a separate SEPA environmental review for that project at a future time.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- Environmental International, Ltd. 2015 (December 21). DRAFT Phase 1 Environmental Site Assessment South Park Conveyance Drainage Project. SPU Geotechnical Engineering. 2015 (October 5). Geotechnical Memorandum, Preliminary Geotechnical Study: South Park Conveyance Project.
- SPU Geotechnical Engineering. 2019 (August). 30% DRAFT Geotechnical Report: South Park Conveyance Project, Seattle, Washington.

Materials Not Available for Public Review

- Historical Research Associates, Inc. 2017 (January). DRAFT Summary Report of Cultural Resource Record Search for the South Park Drainage Conveyance Project, King County, Washington.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

SPU is not aware of any pending applications for government approvals of other proposals that directly affect the property covered by this proposal.

10. List any government approvals or permits that will be needed for your proposal, if known.

Implementation of this project may require some or all of the following permits and approvals:

- City of Seattle Department of Construction and Inspections (SDCI):
 - Exemption from the Shoreline Substantial Development Permit
 - Variance from the City of Seattle noise ordinance, if construction outside of authorized hours is necessary
- SDOT: Street Use Permit (Type 31, construction use)

- SPU: Side Sewer Connection Permits
- King County Wastewater Treatment Division: Industrial Waste Discharge Permit
- Washington State Department of Ecology (Ecology): National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit

11. Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

Due to low-lying topography and poor transportation and stormwater drainage infrastructure, the industrial area in the South Park neighborhood has experienced frequent flooding for decades. Most roads in this area are in poor condition and some are gravel-surfaced. Other roads have deteriorated paving and significant potholing. SPU and SDOT have partnered to address these long-standing needs by leveraging investments from both departments and initiating the South Park Drainage and Roadway Partnership Project, which is the subject of this Environmental Checklist.

The proposed project would construct street improvements, including paving (designed for industrial loads), sidewalks, lighting improvements, street trees, and landscaping. Drainage improvements include installation of curbs and gutters to direct runoff to catch basins and inlets that drain to a piped stormwater conveyance system. The conveyance system would drain to the South Park Pump Station and discharge to the Duwamish Waterway.

The project proposes full depth pavement replacement where the streets are currently paved and full roadway design and construction for streets that are currently gravel-surfaced. The project includes construction of Americans with Disabilities Act (ADA) compliant curb ramps and all pavement markings.

Temporary construction easements may be required at driveways. Construction phasing and any improvements at King County Metro bus stops would be coordinated with Metro.

In addition to the road and drainage improvements, SPU proposes to take advantage of the roadway reconstruction to replace the 8-inch diameter cast iron water main in S Chicago St, between 5th Ave S and 8th Ave S, with 12-inch diameter earthquake-resistant ductile iron pipe.

Specifically, the project includes:

Arterials

1. South Holden Street from 2nd Ave S to 5th Ave S (804 lineal feet [LF])
 - Street improvements, including
 - 2 drive lanes
 - 2 parking lanes
 - sidewalk on 2 sides
 - Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes
 - Right-of-way improvements including landscaping, lighting improvements, roadway markings, and signs

2. 5th Ave S from S Holden St to S Portland St (260 LF)
 - Street improvements, including
 - 2 drive lanes
 - 2 parking lanes
 - sidewalk on 2 sides
 - Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes
 - Right-of-way improvements including landscaping, lighting improvements, roadway markings, and signs

3. 5th Ave S from S Portland St to S Chicago St (260 LF)
 - Street improvements including
 - 2 drive lanes
 - 2 parking lanes
 - sidewalk on 2 sides
 - Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes
 - Right-of-way improvements, including landscaping, lighting improvements, roadway markings, and signs

4. 5th Ave S from S Chicago St to S Kenyon St (260 LF)
 - Street improvements including
 - 2 drive lanes
 - 2 parking lanes
 - sidewalk on 2 sides
 - Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes
 - Right-of-way improvements including landscaping, lighting improvements, roadway markings, and signs

Non-Arterials

1. S Chicago St from 5th Ave S to 7th Ave S (660 LF)
 - Street improvements including
 - 2 drive lanes
 - 2 parking lanes
 - sidewalk on 1 side
 - Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes
 - Right-of-way improvements including landscaping, lighting improvements, roadway markings, and signs
 - Replace existing 8-inch diameter water main with 12-inch diameter water main

2. S Chicago St from 7th Ave S to 8th Ave S (630 LF)
 - Street improvements including
 - 2 drive lanes
 - 2 parking lanes
 - sidewalk on 1 side
 - Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes
 - Right-of-way improvement, including landscaping, lighting improvements, roadway markings, and signs
 - Replace existing 8-inch diameter water main with 12-inch diameter water main

3. 5th Ave S from S Austin St to S Holden St (260 LF)
 - Street improvements, including
 - 2 drive lanes
 - 2 parking lanes
 - sidewalk on 1 side
 - Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes
 - Right-of-way improvements including landscaping, lighting improvements, roadway markings, and signs

4. S Monroe St from 5th Ave S to 7th Ave S (660 LF)
 - Street improvements including
 - 2 drive lanes
 - 2 parking lanes
 - sidewalk on 1 side
 - Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes
 - Right-of-way improvements including landscaping, lighting improvements, roadway markings, and signs

Drainage Only

S Holden St from 5th Ave S to 7th Ave S (660 LF)

- Street improvements per Right of Way Opening and Restoration Rule (ROWORR)
- Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes

If budget is available

5th Ave S from S Kenyon St to S Monroe St (260 LF)

- Street improvements including
 - 2 drive lanes
 - 2 parking lanes
 - sidewalk on 1 side
- Drainage conveyance system consisting of pipes, inlets, catch basins, and maintenance holes
- Right-of-way improvements including landscaping, lighting improvements, roadway markings, and signs

- 12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

The project is in Section 29, Township 24N, Range 4E, W.M., in the City of Seattle's South Park neighborhood, roughly bounded by 2nd Ave S, W Marginal Way (SR 99), S Monroe St, 8th Ave S, S Riverside Dr, and S Austin St. Most improvements would be in street rights-of-way; minor amounts of grading/paving would extend onto private property.

B. ENVIRONMENTAL ELEMENTS

1. Earth

- a. General description of the site:** *[Check the applicable boxes]*

Flat Rolling Hilly Steep Slopes Mountainous
 Other:

- b. What is the steepest slope on the site (approximate percent slope)?**

The site is flat throughout the industrial area, with a slight slope down to the bank of the Duwamish Waterway, north of the project area.

- c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.**

The site is in the former Duwamish River estuary. The general geologic condition of Seattle is a result of glacial and non-glacial activity that occurred over the course of millions of years. The Geologic Map of Seattle (Troost *et al.*, 2005) indicates the site is underlain by Vashon-stade alluvium deposits of dense sand or soft to stiff silt, with varying amounts of gravels and cobbles. Estuarine deposits are primarily clay at various depths and thicknesses across the project area. However, urban development in this area over the last 100 years has resulted in a predominance of disturbed native soils/sediments, cut slopes, and placements of fill material. The entire project location and immediately surrounding area have been completely developed and disturbed in this way. The fill generally consists of loose to medium dense soils ranging from sand to silty sand with minor silt deposits. The project would remove or disturb soil due to trenching and grading. Backfill materials would include native soil materials, previously emplaced fill materials, and imported materials.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe:

The entire project area is in a liquefaction zone, as identified and mapped by SDCI at <http://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=f822b2c6498c4163b0cf908e2241e9c2>.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate the source of fill.

The project would disturb approximately 7.14 acres (311,000 square feet [SF]) with full depth pavement construction and street improvements throughout the area. This includes approximately 243,000 SF of replaced impervious surface and 15,500 SF of new landscaped area. Areas of road and sidewalk construction would generally require excavations up to 2 feet below ground surface (bgs). New and replaced landscaped areas would require excavations of up to 3 inches. There would be approximately 19,000 cubic yards (CY) of excavation material for the roadway, sidewalks, and landscaped areas.

Water main installation would generally require excavations of up to 10 feet bgs and excavate approximately 1,125 CY of material. Drainage system installation would generally require excavations to approximately 13 feet bgs and excavate approximately 8,400 CY of material. The project would require a total of approximately 5,700 CY of fill material, including 4,200 CY for roadway grading, 300 CY for the water main, and 1,200 CY for the drainage system. Because existing soils are not suitable for use as structural fill for drainage pipes and structures, imported fill material would be used as backfill material for all drainage work.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe:

Erosion and sedimentation could occur during construction, although the risk is very low because the project area is flat.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Drainage and roadway improvements would replace approximately 243,000 SF of impervious surface. Of this amount, approximately 26,600 SF would be new impervious surfaces. The project area is currently 98% impervious surface. Because the project would convert currently impervious surfaces to pervious surfaces, the project would result in a net reduction of total impervious surface to 93%.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

No filling would take place in or near watercourses or wetlands and best management practices (BMPs) would be used to protect the existing stormwater drainage system and to minimize off-site runoff. BMPs (as identified in the City of Seattle's Stormwater Code SMC 22.800 through 22.808, Director's Rule: SDCI 17-2017 / SPU DWW 200, and Volume 2 Construction Stormwater Control Technical Requirements Manual) would be used to manage stormwater runoff, construction disturbance, and erosion as needed during construction. Also, all work would be required to be performed with an approved

construction erosion and sedimentation control plan (CESCP), while also meeting NPDES stormwater permit requirements.

Once constructed, the project would reduce erosion by paving streets and installing catch basins to allow sediment to settle out of the stormwater before discharge to the Duwamish Waterway.

2. Air

- a. What types of emissions to the air would result from the proposal [e.g., dust, automobile, odors, industrial wood smoke, greenhouse gases (GHG)] during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.**

Volatile organic and odorous compounds would be generated during asphalt paving. This project would generate greenhouse gas (GHG) emissions in two ways: pipe/concrete/asphalt usage (embodied) and construction activity. Mobile and stationary equipment would be used to construct the proposed project, thus generating emissions due to the combustion of gasoline and diesel fuels (such as oxides of nitrogen, carbon monoxide, particulate matter and smoke, uncombusted hydrocarbons, hydrogen sulfide, carbon dioxide, and water vapor). Emissions during construction would also include normal amounts of dust from ground-disturbing activities and exhaust (that is, carbon monoxide, sulfur, and particulates) from construction equipment. These effects are expected to be minimal, localized, and temporary.

Embodied emissions in other materials used in this project (such as aggregate bedding, pipe materials, and so forth) and emissions generated by increased traffic congestion due to construction have not been estimated as part of this SEPA environmental review due to the difficulty and inaccuracy of calculating those estimates. . Once operational, the completed project is anticipated to generate the same emissions and air impacts as the existing condition, which is not evaluated here.

The project is estimated to result in approximately 12,512.6 metric tons of carbon dioxide equivalent (MTCO_{2e}). The GHG emissions calculations are shown in Attachment D and summarized in the table below.

Summary of Greenhouse Gas (GHG) Emissions

Activity/Emission Type	GHG Emissions (pounds of CO_{2e})¹	GHS Emissions (metric tons of CO_{2e})¹
Buildings	0	0
Paving	26,790,750	12,150
Construction Activities (Diesel)	778,021	353
Construction Activities (Gasoline)	21,214	9.6
Long-term Maintenance (Diesel)	0	0
Long-term Maintenance (Gasoline)	0	0
Total GHG Emissions	27,589,985	12,512.6

¹ Note: 1 metric ton = 2,204.6 pounds of CO_{2e}. 1,000 pounds = 0.45 metric tons of CO_{2e}

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

The project is in an industrial area. There are no known odors or sources of emissions from these facilities that are expected to affect the proposed project.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

During construction, impacts to air quality would be reduced and controlled through implementation of federal, state, and local emission control criteria and City of Seattle construction practices. These would include requiring contractors to use best management practices for construction methods, proper vehicle maintenance, and minimizing vehicle and equipment idling.

3. Water

a. Surface:

(1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If so, describe type and provide names. If appropriate, state what stream or river it flows into.

The Duwamish Waterway is approximately 200 feet from the project area (at 7th Ave S and S Holden St).

(2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If so, please describe, and attach available plans.

The project would not require any work over surface waters. The pipe installation and connection to the existing storm drainage pipe at 7th Ave S and S Holden St is approximately 200 feet from the Duwamish Waterway.

(3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands, and indicate the area of the site that would be affected. Indicate the source of fill material.

No fill or dredge material would be placed in or removed from surface waters or wetlands.

(4) Will the proposal require surface water withdrawals or diversions? If so, give general description, purpose, and approximate quantities if known.

Currently, stormwater runoff collects at low spots throughout the industrial area, leading to localized flooding. That water then either evaporates or finds its way via informal overland flow to the Duwamish Waterway. The project would collect storm runoff into a storm drainage system for discharge to the Duwamish Waterway. The total runoff to the receiving waters of the Duwamish Waterway in this area is not expected to change significantly, but the volumes and timing of those discharges are not known.

- (5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

Yes. See the FEMA Flood Insurance Rate Map (Attachment C).

- (6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

No. Source control measures will still apply to all businesses adjacent to the project. Sediment loading to the Duwamish Waterway would be reduced by paving the existing gravel-surfaced roads.

b. Ground:

- (1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.**

Nine groundwater monitoring wells were installed and analyzed (SPU Geotechnical Engineering 2019). Based on groundwater data provided in the summary logs of these explorations, groundwater is generally between 3 and 9 feet elevation (NAVD 88). Groundwater levels in the project area are influenced by both tidal and seasonal fluctuations. According to the National Oceanic and Atmospheric Administration (NOAA), tidal elevations in the Duwamish River range between 8.90 and 0 feet (NAVD 88). The monitoring wells will be left in place for the contractor's use and removed following construction.

Project construction is anticipated to require dewatering of excavations using standard collection and pumping methods and/or a series of well points. The volume of that collected water is unknown. The completed project is anticipated to reduce flooding, which has the potential to permanently reduce the amount of stormwater infiltrating to groundwater tables. The volume of that reduced infiltration is unknown.

- (2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals...; agricultural, etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

No waste material will be discharged into the ground as a part of this project.

c. Water Runoff (including storm water):

- (1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

The right-of-way consists mostly of impervious surfaces, including asphalt and gravel road and driveway aprons. Adjacent private parcels consist mostly of impervious surfaces (that is, roofs, driveways, parking and so forth), with occasional trees.

Currently, stormwater runoff from impervious surfaces ponds in depressions and low areas and generally flows slowly overland to the Duwamish Waterway. Undersized pipes in S Holden St and 5th Ave S drain to an existing 72-inch diameter trunk and outfall in 7th Ave S. All runoff from the project area drains to the Duwamish Waterway.

The completed project would replace impervious road surfaces currently surfaced with asphalt or gravel with concrete and asphalt. The project would not create a need to manage additional stormwater runoff beyond currently existing conditions. Instead, the project would formalize current flow paths. Runoff would reach the Duwamish Waterway more quickly through a piped conveyance system instead of the current slower overland flow.

The project would prepare and implement a CESC plan. BMPs (as identified in the City of Seattle's Stormwater Code SMC 22.800 through 22.808, Director's Rule: 17-2017/SPU DWW 200, and Volume 2 Construction Stormwater Control Technical Requirements Manual) would be used to manage stormwater runoff, construction disturbance, and erosion as needed during construction.

(2) Could waste materials enter ground or surface waters? If so, generally describe.

During construction, it is possible that erosion from the construction site could enter surface waters. However, a CESC plan using appropriate BMPs would be developed and implemented to avoid or minimize this risk.

(3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

The project formalizes the general flow of stormwater toward the Duwamish Waterway. For the streets included in the project area, runoff would be collected into a piped conveyance system and routed to the existing 72-inch diameter storm trunk in 7th Ave S. During low tides, the runoff will drain by gravity through the existing 72-inch outfall. When tides are high, runoff would be routed from the 72-inch diameter trunk in 7th Ave S to the South Park Pump Station and then discharge to the 72-inch diameter outfall.

d. Proposed measures to reduce or control surface, ground, runoff water, and drainage impacts, if any:

Typical construction methods are anticipated and no adverse impacts to surface or ground waters are expected. BMPs, as identified in the City of Seattle's Stormwater Code SMC 22.800 through 22.808, Director's Rule: 17-2017/SPU DWW 200, and Volume 2 Construction Stormwater Technical Requirements Manual would be used to control erosion and sedimentation during construction. The project would develop and implement a CESC.

4. Plants

a. Types of vegetation found on the site:

<input checked="" type="checkbox"/> Deciduous trees:	<input type="checkbox"/> Alder	<input type="checkbox"/> Maple	<input type="checkbox"/> Aspen	<input checked="" type="checkbox"/> Other: Poplar
<input checked="" type="checkbox"/> Evergreen trees:	<input checked="" type="checkbox"/> Fir	<input type="checkbox"/> Cedar	<input type="checkbox"/> Pine	<input type="checkbox"/> Other:
<input type="checkbox"/> Shrubs				
<input checked="" type="checkbox"/> Grass				
<input type="checkbox"/> Pasture				
<input type="checkbox"/> Crop or grain				
<input type="checkbox"/> Orchards, vineyards, or other permanent crops				
<input type="checkbox"/> Wet soil plants:	<input type="checkbox"/> Cattail	<input type="checkbox"/> Buttercup	<input type="checkbox"/> Bulrush	<input type="checkbox"/> Skunk cabbage
<input type="checkbox"/> Other:				
<input type="checkbox"/> Water plants:	<input type="checkbox"/> water lily	<input type="checkbox"/> eelgrass	<input type="checkbox"/> milfoil	<input type="checkbox"/> Other:
<input type="checkbox"/> Other types of vegetation:				

b. What kind and amount of vegetation will be removed or altered?

The right-of-way consists mostly of impervious surfaces, including concrete, gravel, and asphalt road surfaces; gravel edges; and some concrete driveway aprons. The scant vegetation in street rights-of-way includes grasses, weeds, and a few small trees. Adjacent private parcels consist mostly of impervious surfaces (that is, roofs, driveways, and parking and storage areas). Apart from a few planter areas near business entries, vegetation in the project area is dominated by non-native, weedy species rooted in unpaved areas and cracks between paved surfaces. Poplar (*Populus spp.*), Himalayan blackberry (*Rubus armeniacus*), and perennial grasses and weeds are predominant species.

Most of the project would affect paved or graveled surfaces in street rights-of-way outside of tree canopy drip-lines and would disturb only small areas of shrubs and weedy vegetation. However, construction in the right-of-way would require removal of three white poplar (*Populus alba*) trees (12 to 14 inches in diameter at 4.5 feet above the ground surface [DSH]) in declining health, one red maple (*Acer rubrum*; less than 6 inches DSH), and one European weeping birch (*Betula pendula*; less than 6 inches DSH) at the northeast corner of 5th Ave S and S Portland St. None of these trees are considered Exceptional per SDCI's Director's Rule 16-2008. Three Douglas-fir trees (6 to 10 inches DSH) and two shore pines (*Pinus contorta*) on the southeast corner of that intersection would be retained and protected; the sidewalk layout has been modified to minimize impact to the trees' root zones. Replacement trees would be planted in landscaped planting strips throughout the project area.

c. List threatened or endangered species known to be on or near the site.

According to a review of the Washington Department of Natural Resources (WDNR) Natural Heritage Program's document called "Sections that Contain Natural Heritage Features, Current as of November 18, 2019" (accessed at www.dnr.wa.gov), there are no documented occurrences of sensitive, threatened, or endangered plant species at or near the project site. No federally-listed endangered or threatened plant species or State-listed

sensitive plant species are known to occur within Seattle’s municipal limits. The project site has been intensively disturbed by development and redevelopment over the last 100 years and has been extensively excavated, filled, paved, or occupied by street, utility, and other constructed features. There is no habitat for threatened or endangered plants.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The project would limit plant removal, pruning, and other disturbance to that required for project construction. Construction limits would be clearly and physically delineated by protective construction fencing to prevent unauthorized trespass and collateral damage to nearby vegetation. As described above, five trees would need to be removed to accommodate construction; however, more than twice that number of replacement trees would be planted as required by City of Seattle tree protection and replacement provisions that direct City departments to replace every tree removed from City property with two new trees.

e. List all noxious weeds and invasive species known to be on or near the site.

According to the King County Noxious Weed Program, giant hogweed (*Heracleum mantegazzianum* , a Class A noxious weed) and perennial pepperweed (*Lepidium latifolium*, a Class B noxious weed) are known from the project area (<https://gismaps.kingcounty.gov/iMap/>). Himalayan blackberry (Class C noxious weed) and Scotch broom (a Class B noxious weed) are also on or near the site.

5. Animals

a. List any birds and other animals that have been observed on or near the site or are known to be on or near the site:

Birds:	<input checked="" type="checkbox"/> Hawk	<input checked="" type="checkbox"/> Heron	<input checked="" type="checkbox"/> Eagle	<input checked="" type="checkbox"/> Songbirds
	<input checked="" type="checkbox"/> Other: crow, sparrow			
Mammals:	<input type="checkbox"/> Deer	<input type="checkbox"/> Bear	<input type="checkbox"/> Elk	<input type="checkbox"/> Beaver
	<input checked="" type="checkbox"/> Other: possum, raccoon, squirrel, rat, mice			
Fish:	<input type="checkbox"/> Bass	<input checked="" type="checkbox"/> Salmon	<input checked="" type="checkbox"/> Trout	<input type="checkbox"/> Herring
	<input type="checkbox"/> Shellfish	<input type="checkbox"/> Other:		

b. List any threatened or endangered species known to be on or near the site:

Based on a check of the Washington Department of Fish and Wildlife’s “Priority Habitat Species on the Web” database on June 3, 2020, the Duwamish Waterway contains habitat for Chinook salmon (*O. tshawytscha*), chum salmon (*O. keta*), coho salmon (*O. kisutch*), resident trout (*O. clarki*), bull trout (*Salvelinus malma*), and steelhead trout (*O. mykiss*). Chinook salmon, steelhead trout, and bull trout are federally listed as threatened under the Endangered species Act. The project site is known to be (but not mapped as being) within the habitat of bald eagle (*Haliaeetus leucocephalus*) and great blue heron (*Ardea herodias*)—priority species in Washington.

c. Is the site part of a migration route? If so, explain.

Seattle is within the migratory route of many birds and other animal species and is part of the Pacific Flyway, a major north-south route of travel for migratory birds in the Americas extending from Alaska to Patagonia. The Duwamish Waterway is between 200 to 1,200 feet northeast of different portions of the project area and is an important water migration route for many animal species.

d. Proposed measures to preserve or enhance wildlife, if any:

The proposed work would limit plant removal, pruning, and other vegetation disturbance to that required for project construction. Project construction would replace trees to be removed on a two- for-one basis or better. The project includes landscaping that would provide feeding, shelter, and nesting habitat for a wide variety of wildlife.

e. List any invasive animal species known to be on or near the site.

King County lists the European starling, house sparrow, Eastern gray squirrel, and fox squirrel as terrestrial invasive species for this area (<http://www.kingcounty.gov/services/environment/animals-and-plants/biodiversity/threats/Invasives.aspx>).

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The project would add additional electric streetlights to provide illumination along roadways.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The proposed project does not involve building structures or planting vegetation that would block access to the sun for adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

There are no conservation features or proposed measures to reduce or control energy impacts because there would be no such impacts.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe:

Small amounts of materials likely to be present during construction include gasoline and diesel fuels, hydraulic fluids, oils, lubricants, solvents, paints, and other chemical

products. A spill of one of these chemicals could potentially occur during construction as a result of either equipment failure or worker error.

Contaminated soils, sediments, or groundwater would likely be exposed during excavation. If disturbed, contaminated substances could expose construction workers and potentially other individuals in the vicinity through blowing dust, stormwater runoff, or vapors.

(1) Describe any known or possible contamination at the site from present or past uses.

Portions of the project location have had industrial and commercial land uses that may have resulted in contamination of soil materials. A Phase I environmental site assessment (Environmental International, Ltd. 2015) identified contaminated and potentially contaminated soil materials at discrete locations along the alignment of the main elements of the project. Arsenic, lead, petrochemical contaminants, and other constituents have been found in recent geotechnical borings (SPU Geotechnical Engineering 2019).

(2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

There are known instances of underground storage tanks formerly containing gasoline and diesel. Existing utilities in the project area include gas pipelines.

(3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

No toxic or hazardous chemicals would be stored, used, or produced during the project's construction, or at any time during the operating life of the project.

(4) Describe special emergency services that might be required.

No special emergency services would be required during construction or operation of the project. Fire or medic services may be required during project construction, as well as during maintenance of the completed project. However, the completed project would not demand higher levels of special emergency services than already exist at the project location. Typical emergency services required for medical emergencies are provided by the Seattle Fire Department. Typical security services are provided by the Seattle Police Department (and SPU's contractor during project construction).

(5) Proposed measures to reduce or control environmental health hazards, if any:

The construction contractor would be required to develop and implement a spill control plan to control and manage spills during construction. During construction, the contractor would use standard operating procedures and BMPs, as identified in the City of Seattle's Stormwater Code SMC 22.800-22.808, Director's Rule: 17-2017 / SPU DWW 200, and Volume 2 Construction Stormwater Control to reduce or control

any possible environmental health hazards. Soils contaminated by previous land uses or by spills during construction would be excavated and disposed of in a manner consistent with the level and type of contamination, in accordance with federal, state and local regulations, by qualified contractor(s) and/or City staff.

As required by the Washington Department of Labor and Industries (WAC 296-843), a Health and Safety Plan would be prepared by SPU or SPU's contractor prior to work commencing. The plan would address proper employee training, use of protective equipment, contingency planning, and secondary containment of hazardous materials.

b. Noise

(1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Noises that exist in the area would not affect the project.

(2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Noise levels in the vicinity of construction would temporarily increase during construction. Short-term noise from construction equipment would be limited to the allowable maximum levels of City of Seattle's Noise Control Ordinance [SMC Chapter 25.08.425—Construction and Equipment Operations]. Within the allowable maximum levels, SMC 25.08 permits noise from construction equipment between the hours of 7 a.m. and 10 p.m. weekdays, and 9 a.m. and 10 p.m. weekends and legal holidays; it is expected that the majority of construction would take place from 7 a.m. to 6 p.m. on weekdays. However, there may be a need for construction to implement a 7-day/week and 12+ hour/day work schedule. These longer days and/or work hours would be necessary to reduce the duration of work that severely negatively impacts local businesses, residences, or traffic mobility. The decision to allow longer days and/or hours would be based on minimizing such impacts to affected parties.

The completed project would generate occasional and periodic noise from equipment used for operation, maintenance, and monitoring; those noises would be limited to the hours allowed by the City of Seattle's Noise Control Ordinance.

(3) Proposed measures to reduce or control noise impacts, if any:

Construction equipment would be muffled in accordance with the applicable laws. SMC Chapter 25.08 (which prescribes limits to noise and construction activities) would be enforced while the project is being constructed and during operations, except for emergencies. A variance from the City of Seattle's noise ordinance would be obtained from SDCl in the event construction is required to implement a 7-day/week and/or 12+ hour/day work schedule.

8. Land and Shoreline Use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.**

The proposed roadway and drainage improvements would be primarily in street rights-of-way used for vehicle and pedestrian travel and parking. Adjacent property uses are largely industrial with some single-family residential uses. The proposal would reduce localized flooding and improve access through the area on arterials and to adjacent properties. Minor grading on adjacent parcels is proposed but should not affect current usages.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?**

Initially, the South Park neighborhood was a part of the estuary and floodplain of the meandering Duwamish River. Euro-asian settlement in this area began as rural/residential parcels and farms. When the Duwamish River was straightened in 1913, the South Park neighborhood gained more than 60 acres of arable and buildable land due to the filling in and drainage of tidal flats and the area quickly became industrialized. By the mid-1960s, the neighborhood was zoned industrial. No farmland or forest will be converted to other use.

- (1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how?**

The proposed project would neither be affected by nor affect surrounding working farm or forest land normal business operations because there are no such operations in the project area.

- c. Describe any structures on the site.**

The proposed roadways and public storm drainage system improvements are in street rights-of-way used for vehicle and pedestrian travel and parking. Adjacent property uses are primarily industrial (manufacturing, storage, parking, and office) with some single-family residential uses. Structures in the rights-of-way include utility poles, street lights and signs, fire hydrants, and underground utility pipes and structures.

- d. Will any structures be demolished? If so, what?**

The project would not demolish any structures. The following above- and below-ground utilities require relocation or removal: fire hydrants, utility poles, bus stops, stormwater and water service infrastructure.

- e. What is the current zoning classification of the site?**

Most of the site is zoned Industrial General 2. The northern fringe of the project area is zoned Industrial General 1.

f. What is the current comprehensive plan designation of the site?

The Comprehensive Plan includes the site as a part of the Duwamish Manufacturing/Industrial Center.

g. If applicable, what is the current shoreline master program designation of the site?

A small portion of the site, at the most eastern end of S Holden St, is in an Urban Industrial (UI) Shoreline Environment.

h. Has any part of the site been classified as an “environmentally critical” area? If so, specify.

All or part of the project area is mapped as having flood-Prone, historic landfill, and liquefaction environmentally critical areas.

i. Approximately how many people would reside or work in the completed project?

No people would reside or work in the completed project. Adjacent businesses and residences would remain unchanged as a result of the completion of this project.

j. Approximately how many people would the completed project displace?

The project would not displace any people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

There would be no displacement impacts.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The project would be compatible with existing and projected land uses and plans.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

There are no nearby agricultural and forest lands of long-term commercial significance.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

The proposed project would not construct any housing units.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

The proposed project would not eliminate any housing units.

c. Proposed measures to reduce or control housing impacts, if any:

No measures are proposed because there would be no housing impacts.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas? What is the principal exterior building material(s) proposed?**

No such structures are proposed or included in the project.

- b. What views in the immediate vicinity would be altered or obstructed?**

No views in the immediate vicinity would be altered or obstructed. Street trees planted in the right-of-way could partially obscure neighborhood and territorial views when they attain full height and maturity. To the maximum extent practicable, precise siting of replacement street trees would be coordinated with adjacent property owners.

- c. Proposed measures to reduce or control aesthetic impacts, if any:**

To the maximum extent practicable, precise siting of street trees would be coordinated with adjacent property owners.

11. Light and Glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?**

The constructed project would replace existing street lights with new, Light Emitting Diode (LED) energy efficient fixtures. The proposed street lighting meets the City of Seattle's Right-of-Way Lighting Level Design Guidelines to determine average illuminance and uniformity standards. During construction, if an emergency situation calls for after-dark work, the construction contractor may deploy portable lights that temporarily produce light and glare.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?**

Safety would be improved with the proposed lighting. No views would be impacted.

- c. What existing off-site sources of light or glare may affect your proposal?**

There are no existing off-site sources of light and glare that would affect the proposal.

- d. Proposed measures to reduce or control light and glare impacts, if any:**

Lighting improvements are proposed to meet uniformity requirements (reduces potentially hazardous effects of light). If an emergency requires after-dark work during construction, portable lighting would be adjusted as feasible to minimize glare.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?**

There are no parks or other designated recreational opportunities in the immediate vicinity. The project is in a predominantly industrial area, which limits the use of street rights-of-way for informal recreational activities such as dog-walking, walking, jogging, and bicycling.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The proposed project would not displace any existing recreational uses.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No measures are proposed to control impacts on recreation.

13. Historic and Cultural Preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

There are no places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site. To determine if National Register or State of Washington Heritage properties are located in or adjacent to the project area, the project location was checked against the following registers as a part of the DRAFT Summary Report of Cultural Resource Record Search for the South Park Drainage Conveyance Project, King County, Washington (Historical Research Associates, Inc, 2017).

- Seattle Department of Neighborhoods Landmarks List
http://www.cityofseattle.net/neighborhoods/preservation/landmarks_listing.htm
- Washington Information System for Archaeological and Architectural Records Data (WISAARD) <https://dahp.wa.gov/project-review/wisaard-system>

No architectural inventory is required for this project because no structures would be demolished or altered.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

SPU conducted a Cultural Resource Record Search (DRAFT Summary Report of Cultural Resource Record Search for the South Park Drainage Conveyance Project, King County, Washington, Historical Research Associates, Inc, 2017). This review noted the following:

- Three sites within 0.5 miles of the project area contained prehistoric middens. All three sites were southeast of the project and would have been on the shoreline of an abandoned oxbow/ meander of the Duwamish River prior to channelization.
- Three historic period sites within 0.5 miles of the project site, containing a wagon wheel, some glazed whitewear ceramic, brick and ash and a wooden stave pipe.
- Two historic period structures are included in the report: The 14th Avenue S South Park Bridge that was replaced in 2012-13 and the Georgetown Steam Plant which is approximately 0.3 miles northeast of the project area, on the east side of the Duwamish Waterway.

Research indicates a high probability for prehistoric, ethnographic, and historic Native American cultural resources in previously undisturbed areas below the ground surface. However, there are no known landmarks, features, or other evidence of Indian or historic use or occupation at or immediately adjacent to the project site.

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the Department of Archaeology and Historic Preservation, archaeological surveys, historic maps, GIS data, etc.**

See responses for Section 13.a and 13.b for the methodology used in the reports. There has been no specific consultation with the tribes or other organizations.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.**

A cultural resources inventory for this project identified the project location as having a high probability for prehistoric, ethnographic, and historic Native American cultural resources in previously undisturbed areas below the ground surface (Historical Research Associates, Inc, 2017). As a result, the project will commit to having a professional archaeologist monitor construction in previously undisturbed soils and soil sediments. Prior to construction, the professional archaeologist would prepare a Monitoring and Inadvertent Discovery Plan (MIDP). Should evidence of cultural remains, either historic or prehistoric, be encountered during construction, work in the immediate area would be suspended and the find would be examined and documented by the archaeologist as per procedures identified in the MIDP. Decisions regarding appropriate mitigation and further action would be made at that time.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area, and describe proposed access to the existing street system. Show on site plans, if any.**

The project would occur in existing street rights-of-way for S Holden St, 5th Ave S, S Chicago St, and S Monroe St. S Holden St is an arterial between 2nd Ave S and 5th Ave S, as is 5th Ave S between S Holden St and S Kenyon St. S Chicago St, S Monroe St and 5th Ave S between S Austin St and S Holden St and 5th Ave S between S Kenyon St and S Monroe St are local access streets.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?**

King County Metro route 132 serves the project area, with stops at 5th Ave S; S Holden St and 5th Ave S; and S Kenyon St. The completed project would not affect routing of any bus routes. However, construction of the project may require temporary closures and/or relocations of bus stops. No two consecutive bus stops would be closed at the same time, as required by Metro. Temporary closures and relocations of bus stops would be coordinated with Metro.

- c. How many additional parking spaces would the completed project or nonproject proposal have? How many would the project or proposal eliminate?**

Because this project involves open trenching in street rights-of-way, construction would require temporary closures of parking and travel lanes on all of impacted streets. Parking associated with street rights-of-way in the project location is currently on-street, free parking managed by SDOT. There are no formal (striped) parking spaces. The completed project would permanently eliminate approximately 21 parking spaces.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).**

The proposal would improve existing public roads, some of which are currently unpaved or with pavement in poor condition. The project would provide new pavement, curb and gutter, sidewalks, and planting areas. New crosswalks would be added at the intersection of 5th Ave S and S Holden St, 5th Ave S and S Portland St, and 5th Ave S and S Kenyon St. New curb ramps would be included at the intersection of 5th Ave S and S Holden St, 5th Ave S and S Portland St, 2nd Ave S and S Holden St, 5th Ave S and S Austin St, 5th Ave S and S Chicago St, 5th Ave S and S Kenyon St, 7th Ave S and S Chicago St, and 8th Ave S and S Chicago St.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

The proposed project is not in the vicinity of rail or air transportation. There is significant maritime industrial transportation in the Duwamish Waterway, which is several blocks from the proposed project. Trucks use local streets to transfer materials between barges used for water transport and the highway system for overland distribution.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?**

Project construction would generate about 3,100 vehicle round-trips due to workers and materials being transported to and from the site during the estimated total 240 working days. Most of those trips would occur during business hours (between 7 am and 6 pm) on weekdays (Mondays through Fridays) but trips may occur at other times including weekend days. The completed project would not generate additional vehicle round-trips beyond that normally occurring for the on-going and routine operation and maintenance of the municipal drainage and water systems in this area. No data or transportation models were used to make these estimates.

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.**

The proposal would not interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area.

h. Proposed measures to reduce or control transportation impacts, if any:

The following measures would be used to reduce or control transportation impacts:

- SPU and SDOT would require the construction contractor to submit a traffic control plan for approval and enforcement by SPU and SDOT.
- SPU would conduct public outreach before and during project construction to notify residents, businesses, local agencies, Metro, and other stakeholders of work progress and expected disruptions or changes in traffic flow.
- Through access would be maintained at all times and temporary lane closures would be minimized.
- Alternative routes for pedestrians, bicyclists, and those with disabilities would be identified and clearly signed.
- Upon further analysis, SPU may provide temporary parking via a property owner willing to lease such a location to SPU during construction.
- Bus stop closures and temporary relocations would be coordinated with SDOT and Metro; proposed and actual modifications to transit stops would be clearly signed.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

The proposed project would not create increased need for public services.

b. Proposed measures to reduce or control direct impacts on public services, if any.

No mitigation is being proposed because there would be no impacts on public services.

16. Utilities

a. Check utilities available at the site, if any: [check the applicable boxes]

- | | | | |
|---|--|---|--|
| <input type="checkbox"/> None | | | |
| <input checked="" type="checkbox"/> Electricity | <input checked="" type="checkbox"/> Natural gas | <input checked="" type="checkbox"/> Water | <input checked="" type="checkbox"/> Refuse service |
| <input checked="" type="checkbox"/> Telephone | <input checked="" type="checkbox"/> Sanitary sewer | <input type="checkbox"/> Septic system | |
| <input type="checkbox"/> Other: fiber optic and communication | | | |

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

None

The completed public drainage and roadway improvements would reduce flooding and extend the area served by the drainage system owned and maintained by SPU. During construction, the project is expected to relocate or reconstruct an undetermined number of existing utilities such as water and natural gas when conflicts with the project design are present. The project anticipates minimal interruptions in service during those utility relocations. However, if more than a short service disruption would occur during relocation, then temporary connections to

businesses and residences would be provided. Inadvertent damage to underground utilities could also occur during construction. While such incidents do not occur frequently, they could temporarily affect services to customers served by the affected utility while emergency repairs are made. In addition, some residents may need to place their curbside garbage and recycling containers in front of an adjacent neighbor's house on garbage pick-up days. No other interruptions to regular utility services are expected during construction.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____
Jason Sharpley, Project Manager

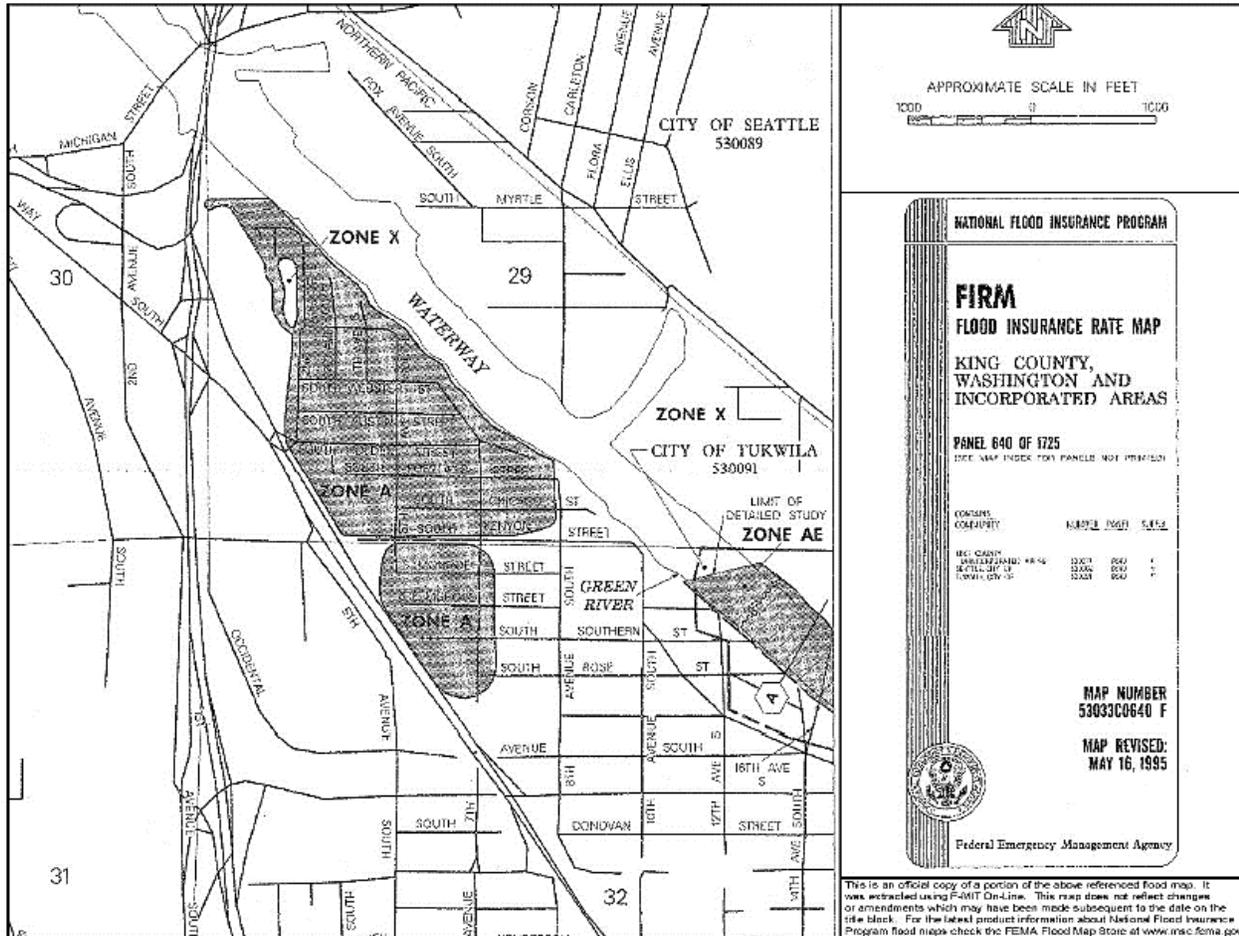
- Attachment A – Vicinity Map
- Attachment B – Site Map
- Attachment C – FEMA Flood Insurance Rate Map
- Attachment D – Greenhouse Gas Emissions Worksheet

Attachment B: Site Map

a



Attachment C: FEMA Flood Insurance Rate Map



Attachment D: Greenhouse Gas Emissions Worksheet

Section I: Buildings						
			Emissions Per Unit or Per Thousand Square Feet (MTCO ₂ e)			
Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Embodied	Energy	Transportation	Lifespan Emissions (MTCO ₂ e)
Single-Family Home	0		98	672	792	0
Multi-Family Unit in Large Building	0		33	357	766	0
Multi-Family Unit in Small Building	0		54	681	766	0
Mobile Home	0		41	475	709	0
Education		0.0	39	646	361	0
Food Sales		0.0	39	1,541	282	0
Food Service		0.0	39	1,994	561	0
Health Care Inpatient		0.0	39	1,938	582	0
Health Care Outpatient		0.0	39	737	571	0
Lodging		0.0	39	777	117	0
Retail (Other than Mall)		0.0	39	577	247	0
Office		0.0	39	723	588	0
Public Assembly		0.0	39	733	150	0
Public Order and Safety		0.0	39	899	374	0
Religious Worship		0.0	39	339	129	0
Service		0.0	39	599	266	0
Warehouse and Storage		0.0	39	352	181	0
Other		0.0	39	1,278	257	0
Vacant		0.0	39	162	47	0
TOTAL Section I Buildings						0

Section II: Pavement						Emissions (MTCO ₂ e)
Pavement (sidewalk, asphalt patch) (MSF)						
Concrete Pad (50 MTCO ₂ e/1,000 sq ft of pavement at a depth of 6 inches) (MSF)		243				12,150
TOTAL Section II Pavement						12,150

Section III: Construction		Emissions (MTCO ₂ e)
(See detailed calculations below)		
TOTAL Section III Construction		362.6

Section IV: Operations and Maintenance		Emissions (MTCO ₂ e)
(See detailed calculations below)		
TOTAL Section IV Operations and Maintenance		0.00

TOTAL GREENHOUSE GAS (GHG) EMISSIONS FOR PROJECT (MTCO₂e)	12,512.6
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South Park Drainage and Roadway Partnership Project
SEPA Environmental Checklist

Section III Construction Details		
Construction: Diesel		
Equipment	Diesel (gallons)	Assumptions
Excavator	10,240	64 gal/day x 160 working days(2/3 time)
Dump Truck	13,728	20 miles/round trip (10 CY capacity)x 1,716 round trips ÷ 5 mpg x 2 (for excavation and backfill)
Loader	3,840	24 gal/day x 160 working days (2/3 time)
Concrete Truck	1,496	20 miles/round trip (10 CY capacity) x 374 round trips ÷ 5 mpg
Subtotal Diesel Gallons	29,304	
GHG Emissions in lbs CO₂e	778,021	26.55 lbs CO ₂ e per gallon of diesel
GHG Emissions in metric tons CO₂e	353	1,000 lbs = 0.45359237 metric tons

Construction: Gasoline		
Equipment	Gasoline (gallons)	Assumptions
Pick-up Trucks or Crew Vans	873	4 truck round trips/day x 240 working days x 20 miles round trip ÷ 22 mpg
Subtotal Gasoline Gallons	873	
GHG Emissions in lbs CO₂e	21,214	24.3 lbs CO ₂ e per gallon of gasoline
GHG Emissions in metric tons CO₂e	9.6	1,000 lbs = 0.45359237 metric tons

Construction Summary		
Activity	CO ₂ e in pounds	CO ₂ e in metric tons
Diesel	778,021	353
Gasoline	21,214	9.6
Total for Construction	799,235	362.6

Section IV Long-Term Operations and Maintenance Details		
Operations and Maintenance: Diesel		
Equipment	Diesel (gallons)	Assumptions
	0	
Subtotal Diesel Gallons	0	
GHG Emissions in lbs CO₂e	0	26.55 lbs CO ₂ e per gallon of diesel
GHG Emissions in metric tons CO₂e	0	1,000 lbs = 0.45359237 metric tons

Operations and Maintenance: Gasoline		
Equipment	Gasoline (gallons)	Assumptions
Subtotal Gasoline Gallons	0	
GHG Emissions in lbs CO₂e	0	24.3 lbs CO ₂ e per gallon of gasoline
GHG Emissions in metric tons CO₂e	0	1,000 lbs = 0.45359237 metric tons

Operations and Maintenance Summary		
Activity	CO ₂ e in pounds	CO ₂ e in metric tons
Diesel	0	0
Gasoline	0	0
Total Operations and Maintenance	0	0