

**SEATTLE PUBLIC UTILITIES  
SEPA ENVIRONMENTAL CHECKLIST**

This SEPA environmental review of Seattle Public Utilities' 14th Avenue S and S Concord Street Combined Sewer Improvement 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:**

14th Avenue S and S Concord Street Combined Sewer System Improvement Project

**2. Name of applicant:**

Seattle Public Utilities (SPU)

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

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Seattle, WA 98124-4018  
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**4. Date checklist prepared:**

May 27, 2015

**5. Agency requesting checklist:**

Seattle Public Utilities (SPU)

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

Construction of the improvements in the public sewer system is anticipated to require approximately 120 working days and is expected to begin in late 2015 and/or early 2016. Installation of up to 33 backwater prevention devices on privately owned side sewers is anticipated to require about 100 working days. The specific locations and schedule for installation these sewer backup prevention devices have not yet been determined.

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

SPU currently has no plans for future additions or expansions related to the proposed project.

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

Aqualyze Inc. and Louis Berger. 2015 (March 27). 14th Avenue South and South Concord Combined Sewer Improvement Project—Draft Modeling Technical Memorandum. Prepared for Seattle Public Utilities.

Aspect Consulting, Inc. 2012 (May 30). Limited Phase I Environmental Site Assessment 14th Avenue South and South Concord Street Combined Sewer System Improvements Seattle, Washington. Final Report prepared for Seattle Public Utilities.

Historic Research Associates, Inc. (HRA, Inc.). 2014 (March). Cultural Resources Inventory for the 14th and Concord CSS Improvement Project, City of Seattle, King County, Washington. Final Report prepared for Seattle Public Utilities.

Kennedy Jenks Consultants. 2015 (April 23). Technical Memorandum: 14th and Concord Sewer Improvement Project Backwater Prevention System.

SAIC, Inc. January 2013. Options Analysis for the 14th Avenue South and South Concord Street Combined Sewer Project. Final Report prepared for Seattle Public Utilities.

Seattle Public Utilities, Geotechnical Engineering. 2014 (May). Geotechnical Report for 14th Avenue South And South Concord Street Combined Sewer System Project, Seattle, Washington.

Seattle Public Utilities, Geotechnical Engineering. 2014 (August 13). Geotechnical Memorandum, 14th Avenue South and South Concord Street Combined Sewer System Project, Additional Geotechnical Investigation.

Troost, K.G., D.B. Booth, A.P. Wisher, and S.A. Shimmel. 2005. Geologic map of Seattle. U.S. Geological Survey Open File Report 2005-1252. <http://pubs.usgs.gov/of/2005/1252/of2005-1252.pdf>

**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:

- SDOT, Major Utility Permit (type 51, major projects)
- SDOT, Street Use Permit (type 31, construction use)
- City of Seattle, Department of Planning and Development (DPD): Variance from the City of Seattle noise ordinance, if construction outside of authorized hours is necessary (see Section 7.b of the checklist).
- DPD, Side Sewer Connection Permits
- King County, Industrial Waste Discharge 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.**

The City of Seattle’s wastewater collection system includes separate, partially separated, and combined sewer areas. In separate sewer areas, stormwater runoff flows to a storm drainage system, while sanitary sewage and industrial wastewaters are conveyed through sewers to regional wastewater treatment facilities owned and operated by King County. In the partially separated areas of the City, storm drain separation projects were built during the 1960s and 1970s to divert street runoff to the storm drainage system while allowing rooftop and other private property drainage to continue flowing into sewers.

In the combined sewer areas of the City, sewage, industrial wastewater, and stormwater are conveyed in combined sewers to King County’s combined sewer system and wastewater treatment facilities. During storm events, the quantity of stormwater runoff flowing into the wastewater collection system sometimes exceeds the capacity of the sewer system. When this happens, the sewer system overflows. When these overflows occur on private property, they are called generally called sewer backups.

The purpose of this project is to address recurring surface flooding and sewer backups in the vicinity of 14th Avenue S and S Concord Street in the City of Seattle’s South Park neighborhood (Attachments A and B). This area is served by combined sewers, which collect sewage and stormwater runoff and convey it in 12 inch diameter sewers located under 14th Avenue S and S Donovan Street. The combined sewage is conveyed north along 14th Avenue S, west along S Donovan Street, and then north along 12th Avenue S to King County’s 8th Avenue S Regulator Station located at 8th Avenue S and S Portland Street.

During heavy rain, street flooding currently occurs on S Concord Street, both east and west of 14th Avenue S. Capacity limitations result in ponding in the street rights-of-way (with reported depths of up to 3.5 feet) and repeated flooding of private properties. Surface flooding at S Concord Street is of particular concern because it is a dead-end road and flooding can impede emergency access. Further, sewer backups have been reported in homes on S Concord, S Trenton, and S Donovan Streets between 12th and 14th Avenues S.

The proposed project would increase the capacity of the combined sewer system in this area and would reduce the frequency of street flooding. To provide this additional capacity, the proposed project includes installation of approximately 1,300 feet of 24 inch and 30 inch diameter parallel (bypass) pipe in 14th Avenue S between S Concord Street and S Donovan Street (approximately 625 feet of pipe) and in S Donovan Street between 14th Avenue S and 12th Avenue S (approximately 675 feet of pipe). The bypass pipes would be installed approximately 10 feet below the ground surface (bgs) and parallel to the existing 12 inch diameter combined sewer under 14th Avenue S and S Donovan Street. Pipe would be installed using conventional open-trench (cut and cover) methods. The project would also install approximately 10 maintenance hole structures and two catch basins along this alignment to connect the new pipes and existing sewers. High flows from the existing sewers and domestic sewage from properties along S Donovan Street would be diverted to the new bypass pipes via these new structures.

Restoration of the intersection of 12th Avenue S and S Donovan Street would include new concrete panels, curb ramps, and traffic circle for the entire intersection, not just the area affected by the project installation. The project may also include a mobile art installation to screen portions of the rolling work zone during construction. The precise nature of that artwork is not known at this time.

This increased sewer capacity, if provided without the proposed backwater prevention devices, would also increase the potential for sewer backups into certain private properties in the project area and in areas both upstream and downstream of 12th Avenue S and S Donovan Street (Attachment C). To reduce the frequency of sewer backups on private properties, the project also would install sewer backup prevention devices (also known as backwater sewage valves) on the privately owned side sewers of impacted properties. The devices are typically installed near the point where the side sewer penetrates a building's foundation or footprint. The devices can be installed inside buildings or exterior to buildings, depending on the specific conditions.

Depending on the actual devices used, an electrical supply and connection may also need to be installed. Installation includes excavating a trench (usually about five feet wide by six feet long by five feet deep) above the side sewer, installing the device, backfilling the excavation, and then restoring disturbed soils and landscaping. A typical installation would require two laborers and about three days.

At this time, SPU anticipates that up to approximately 33 sewer backup prevention devices would be installed on privately owned side sewers for select properties within the project area and both upstream and downstream of the project area. The exact locations of those sewer backup prevention devices have not yet been identified. For this SEPA environmental analysis and checklist, the devices are presumed to be installed exterior to buildings.

- 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 sewer system improvements would be located in Seattle's South Park neighborhood, roughly bounded by 14th Avenue S and S Concord Street and 12th Avenue S and S Donovan Street (Attachments A and B). Most of these improvements would be located in improved street rights-of-way. The sewer backup prevention devices would be installed on up to approximately 33 privately owned side sewers both upstream and downstream of the sewer system improvements (Attachment C).

**B. ENVIRONMENTAL ELEMENTS**

**1. Earth**

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

Flat       Rolling       Hilly       Steep Slopes       Mountainous  
 Other: (identify)

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

The project area is generally flat along 14th Avenue S and slopes downward along S Donovan Street from an elevation of about 20 feet at the east to an elevation of about 16 feet at the west.

**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 general geologic condition of the Puget Sound region is a result of glacial and non-glacial activity that occurred over the course of millions of years. Review of the geologic map covering the project location (Troost et al. 2005, available at <http://pubs.usgs.gov/of/2005/1252/>) indicates the project area is underlain by Holocene alluvium and peat deposited by the Duwamish River. 14th Avenue S is an asphalt roadway with two lanes of traffic in each direction and commercial properties on both sides of the street. S Donovan Street is a concrete roadway with one lane of traffic in each direction and residential properties on both sides of the street. Urban development in this area over the last 100 years has resulted in a predominance of disturbed native soils/sediments, cut slopes, and large placements of fill material. The entire project location and immediately surrounding area have been completely developed and disturbed in this way.

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

The entire project area is located in a liquefaction zone, as identified and mapped by DPD.

**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.**

Work on the public sewer system would require the excavation of approximately 3,500 cubic yards of soil or material and backfilling with approximately 3,000 cubic yards of pipe bedding and other fill material. At this time, about 3,500 cubic yards of spoil are expected to be exported from the project area. Imported fill materials would be obtained from a commercial purveyor of such materials, licensed and permitted by the State of Washington. Excavated materials would be exported off the project site and either reused on other projects or disposed of in an approved upland disposal location per construction contract requirements.

Installation of the sewer backup prevention devices would require the excavation of an estimated additional 185 cubic yards of material. That excavated spoil would likely be used to backfill excavations, and so the cut materials would balance the fill materials; only minor quantities of materials, if any, would need to be imported or exported.

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

Erosion and sedimentation could occur as a result of this project, although the risk is very low because the project area is relatively flat.

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

The public sewer system improvements would demolish approximately 28,000 square feet of currently existing impervious surface and replace it with the same area of impervious surface (concrete and asphalt). There would be no new impervious surfaces. No currently pervious surfaces would be replaced with new impervious surfaces. Installation of the sewer backup prevention devices would typically disturb pervious surfaces such as lawns and landscape beds, and would not create any new impervious surfaces.

**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: 2009-004 SPU/16-2009 DPD, 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 (CESC), while also meeting NPDES stormwater permit requirements.

**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.**

Construction equipment would include hand-held power tools, gasoline and diesel-powered compressors and generators, and gasoline and diesel-powered vehicles to remove existing roadway infrastructure and build the new roadway improvements. These tools would generate greenhouse gas emissions (GHG) 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. Other emissions during construction would include dust and exhaust from construction vehicles. These effects are expected to be localized, temporary and minimized. The completed project may periodically generate odors typical of a sewage collection system.

The project would produce GHGs in three ways: embodied energy in materials to be installed on the project; energy expended through construction activity (especially as described above); and energy expended during regular operation, maintenance, and monitoring activities throughout the anticipated 100 year lifespan of the facility.

Total GHG emissions for the project are estimated to be 1,650.9 metric tons of carbon dioxide emission (MTCO<sub>2</sub>e). The GHG emissions calculations are shown in Attachment D and summarized in the table below. One metric ton is equivalent to 2,205 pounds.

The project would demolish and remove existing concrete and asphalt surfaces as well as install new concrete and asphalt surfaces. The estimated volume of new concrete and asphalt is approximately 520 cubic yards, which is estimated to embody 1,400 MTCO<sub>2</sub>e. Embodied energy in other materials (such as aggregate bedding, pipe material, and sewer backup prevention devices) used in this project has not been estimated as part of this SEPA environmental review due to the difficulty and inaccuracy of calculating those estimates.

The project would generate GHG emissions during the construction period through the operation of diesel- and gasoline-powered equipment, and in the transportation of materials, equipment and workers to and from the site. The estimates provided are based on assumptions for typical numbers of vehicle operations to execute the work, see Attachment D for more information. Construction activities would generate an estimated 231.5 MTCO<sub>2</sub>e.

The project would also generate GHG emissions through the operation, maintenance, and monitoring of the project. The estimated emissions are based on an assumed life expectancy of 100 years. Sewer backup prevention devices are typically maintained by the building owners or residents; as a result, this analysis assumes that maintenance of the sewer backup prevention devices would not generate GHG emissions. The estimated average annual GHG emissions generated from operations, maintenance, and monitoring is 19.4 MTCO<sub>2</sub>e.

**Summary of Greenhouse Gas (GHG) Emissions**

Activity/Emission Type	GHG Emissions (pounds of CO <sub>2</sub> e) <sup>1</sup>	GHS Emissions (metric tons of CO <sub>2</sub> e) <sup>1</sup>
Buildings	not applicable	not applicable
Paving	3,087,000	1,400
Construction Activities (Diesel)	447,155	202.8
Construction Activities (Gasoline)	63,180	28.7
Long-term Maintenance (Diesel)	23,364	10.6
Long-term Maintenance (Gasoline)	19,440	8.8
<b>Total GHG Emissions</b>	<b>3,640,139</b>	<b>1,650.9</b>

<sup>1</sup>Note: 1 metric ton = 2,204.6 pounds of CO<sub>2</sub>e. 1,000 pounds = 0.45 metric tons of CO<sub>2</sub>e

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

No off-site sources of emissions or odors are known. The neighborhood is fully developed as single family residential.

**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.**

There are no surface water bodies on or near this project location. The Duwamish Waterway is more than 1,100 feet east of the main project.

- (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.**

There are no surface water bodies adjacent to (or within 200 feet of) this main project location.

- (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.**

Land use in the project drainage basin is predominantly residential, with some commercial land uses along 14th Avenue S. A formal drainage system exists in the project drainage basin. Storm runoff is currently collected in catch basins that connect to a combined sewer under 14th Avenue S and S Donovan Street. Combined sewage flows northward under 14th Avenue S and then westward under S Donovan Street. From there, flow is conveyed by a pipe northward along 12th Avenue S to King County's 8th Avenue S Regulator Station located at 8th Avenue S and S Portland Street. From that facility, flows are normally conveyed to the West Point Treatment Facility that discharges treated effluent to Puget Sound. During storm events, if the 8th Avenue S Regulator Station is unable to handle all flow, it overflows into the Duwamish Waterway. That Station currently is reported to meet the State performance standard for controlled basins—meaning that the number of combined sewer overflows (CSOs) from this facility has been reduced to an average of no more than one per year [WAC 173-245-020(22)].



The proposed project would not change the volume of currently collected surface water, but the flow pattern would change. As a result, flow regimes to King County's 8th Avenue Regulator Station would change. SPU would monitor post-construction flows to assist in modeling and understanding the potential impact to King County's downstream sewage collection operations. SPU would coordinate with King County Department of Natural Resources and Parks (DNRP) to determine potential impacts on the Station and whether improvements or adjustments are needed to enable the Station to continue to meet the State performance standard.

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

According to the Federal Emergency Management Agency's National Flood Insurance Program Flood Insurance Rate Map Number 53033C0636 (Preliminary as of February 1, 2013), the project area is located entirely within Other Areas, Zone X (Zone "Ten"), which has been determined to be outside the 0.2% annual chance floodplain.

**(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.**

The project would not change the volume of stormwater entering the sewer system, but the flow pattern would change. As a result, flow regimes to King County's 8th Avenue Regulator Station would change. Modeling has been conducted, with varying results. Some of the modeling suggests the proposed project would slightly increase the number and volume of CSOs from this Station. Other modeling suggests there would be no change in the number and volume of CSOs. Both models predict that the number of CSOs would remain within the State performance standard over the simulated 158 years. SPU would monitor post-construction flows to assist in modeling and understanding the potential impact to King County's downstream sewage collection operations. SPU would coordinate with King County DNRP to determine potential impacts on the Station and whether improvements or adjustments are needed to enable the Station to continue to meet the State performance standard.

**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.**

Previous geotechnical investigations have noted that depth to groundwater in this area has ranged from 3 to 20 feet bgs. Project construction is anticipated to require dewatering of excavations using standard collection and pumping methods and/or a series of well points. No groundwater would be withdrawn, discharged, or surcharged as a result of the constructed project. However, the completed project is anticipated to reduce flooding, which has the potential to permanently reduce the amount of stormwater infiltrating to groundwater tables.

- (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.

The project would not produce or discharge waste materials to groundwater.

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 concrete and asphalt road with curb and gutter, sidewalk, and driveway aprons. The remaining area, which includes the planting strips and the thin section of land between the back of sidewalk and right-of-way boundary, is pervious (i.e., lawn, landscape, and/or trees). Adjacent private parcels consist mostly of impervious surfaces (i.e., roofs, driveways, patios), with pervious areas covered by lawn, landscaping, and trees.

Currently, stormwater runoff from impervious surfaces is collected via inlets and conveyed via combined sewer to the King County wastewater treatment plant for treatment and discharge into Puget Sound. Combined sewage flows that exceed the capacity of the King County sewer system are discharged into the Duwamish River at King County's combined sewer overflow location.

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: 2009-004 SPU/16-2009 DPD, and Volume 2 Construction Stormwater Control Technical Requirements Manual) would be used to manage stormwater runoff, construction disturbance, and erosion as needed during construction.

The completed project would be re-covered with concrete and asphalt, but would not create a need to manage additional stormwater runoff beyond currently existing conditions. Stormwater would follow current (pre-construction) pathways. The current volume, timing, and duration of these stormwater flows are not known.

Installation of sewer backup prevention devices would typically disturb pervious surfaces such as lawns and landscape beds, and would not create any new impervious surfaces. Stormwater would follow current (pre-construction) pathways at those locations.

- (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 completed project would be re-covered with concrete and asphalt, but would not create a need to manage additional stormwater runoff beyond currently existing conditions. Stormwater would follow current (pre-construction) pathways. The current volume, timing, and duration of these stormwater flows are not known.

Installation of sewer backup prevention devices would typically disturb pervious surfaces such as lawns and landscape beds, and would not create any new impervious surfaces. Stormwater would follow current (pre-construction) pathways at those locations.

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

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: 2009-004 SPU/16-2009 DPD, 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: [check the applicable boxes]**

<input checked="" type="checkbox"/> Deciduous trees:	<input type="checkbox"/> Alder	<input checked="" type="checkbox"/> Maple	<input type="checkbox"/> Aspen	<input checked="" type="checkbox"/> Other: catalpa; hawthorn
<input type="checkbox"/> Evergreen trees:	<input checked="" type="checkbox"/> Fir	<input checked="" type="checkbox"/> Cedar	<input type="checkbox"/> Pine	<input type="checkbox"/> Other:
<input checked="" 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 and asphalt road with curb and gutter, sidewalk, and driveway aprons. The remaining area, which includes planting strips and the thin section of land between the back of sidewalk and right-of-way boundary, is planted with lawn and/or ornamental landscape plantings. Adjacent private parcels consist mostly of impervious surfaces (i.e., roofs, driveways, patios), with pervious areas covered by lawn, landscaping, and trees. Publicly and privately planted street trees are located sporadically in the right-of-way landscape, with few areas of species continuity. Most street trees are species or cultivated varieties of maple (*Acer*).

Most of the project would be located on paved surface in the street right-of-way outside of street tree canopy drip-lines and would disturb no vegetation. However, construction would require removal of one Washington hawthorn (*Crataegus phaenopyrum*; approximately 7 inches in diameter at breast height) in a traffic circle at the intersection of 12th Avenue S and S Donovan Street.

Installation of sewer backup prevention devices would typically disturb pervious surfaces such as lawns and landscape beds, and would not create any new impervious surfaces. The exact locations of those sewer backup prevention installations have not yet been identified. As a result, a more precise understanding of impacts to vegetation from installation of the sewer backup prevention devices is not known at this time.

**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 September 24, 2014” (accessed at [www.dnr.wa.gov](http://www.dnr.wa.gov)), there are no documented occurrences of sensitive, threatened, or endangered plant species in this Section. No federally-listed endangered or threatened plant species or State-listed sensitive plant species are known to occur within the municipal limits of the City of Seattle. The project location has been intensively disturbed by development and redevelopment over the last 100 years. The project area has been extensively excavated, filled, paved, or occupied by street and other built structures. 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.

One street tree would need to be removed to accommodate construction. However, twice that number of replacement trees would be planted as required by City of Seattle Tree Protection provisions, including Executive Order 03-05 directing City departments to replace every tree removed from City property with two new trees. SPU would consult with SDOT in determining the species selection and exact placement for those replacement trees.

Installation of sewer backup prevention devices would typically disturb pervious surfaces such as lawns and landscape beds. While the exact locations of those sewer backup prevention installations have not yet been identified, the project would restore disturbed soils and cultivated vegetation.

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

No noxious weeds or invasive species are known to be 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:** [check the applicable boxes]

<b>Birds:</b>	<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, pigeon			
<hr/>				
<b>Mammals:</b>	<input type="checkbox"/> Deer	<input type="checkbox"/> Bear	<input type="checkbox"/> Elk	<input type="checkbox"/> Beaver
	<input checked="" type="checkbox"/> Other: possum, raccoon, squirrel			
<hr/>				
<b>Fish:</b>	<input type="checkbox"/> Bass	<input type="checkbox"/> Salmon	<input 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:**

No such species are known to be present on or near the project site based on a check of the Washington Department of Fish and Wildlife’s “Priority Habitat Species on the Web” database on April 1, 2015. The project location 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 located 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 more than 1,100 feet to the east and is an important water migration route for many animal species.

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

The project is not proposing measures to preserve or enhance wildlife because there are no anticipated impacts to animals.

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

No such species are known to be present on or near the project site.

**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 main improvements of the completed project would not require any energy to operate. Certain types of sewer backup prevention devices require an electrical supply to operate. While the number of and types of sewer backup prevention installations have not yet been identified, it is possible that some of those devices would use small amounts of electrical energy.

- 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. Though unlikely, contaminated soils, sediments, or groundwater could also 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 (Aspect Consulting, Inc. 2012) identified contaminated and potentially contaminated soil materials at discrete locations along the alignment of the main elements of the project.

- (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 no known hazardous chemicals or conditions that might affect project development and design.

- (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. Possible fire or medic services could be required during project

construction, as well as possibly 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: 2009-004 SPU/16-2009 DPD, and Volume 2 Construction Stormwater Control Technical Requirements Manual 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 7 p.m. weekdays, and 9 a.m. and 7 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 DPD 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 public sewer system improvements would be located in improved public rights-of-way used for vehicle and pedestrian travel and parking. Adjacent property uses are single-family residential (some of which may contain home-based occupations) and commercial. Installation of sewer backup prevention devices would occur on privately owned side sewers on privately owned parcels. The exact locations of those sewer backup prevention installations have not yet been identified.

**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 non-forest use?**

The project site has not been used for agricultural purposes.

**(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 public sewer system improvements are located in improved public rights-of-way used for vehicle and pedestrian travel and parking. Adjacent property uses are primarily single-family residential (some of which may include space for home-based occupations) and commercial. Utilities are located in the street rights-of-way. Installation of sewer backup prevention devices would occur on privately owned side sewers on privately owned parcels. The exact locations of those sewer backup prevention installations have not yet been identified.



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

The project would not demolish any structures.

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

Portions of the project location are zoned single family residential (SF 5000), commercial (C2-65), and Neighborhood Commercial (NC3-40).

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

The current comprehensive plan designation for the project area is single family residential and commercial.

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

The project area has no Shorelines of the State that are regulated under the City of Seattle's Shoreline Master Program.

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

The entire project location is located in a Liquefaction Area—an Environmentally Critical Area as mapped by DPD.

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

No people would reside or work in the completed 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 ensure the proposal is compatible with nearby 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. Replacement 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 will 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 replacement street trees would be coordinated with adjacent property owners. Also, the project may include a mobile art installation to screen portions of the rolling work zone during construction. The precise nature of that artwork is not known at this time.

**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 not produce light or glare. No new street lights are proposed or required. 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?**

The project would not create light or glare.

- 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:**

No measures are needed to reduce or control light and glare impacts because no impacts would occur. 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. However, the main improvements of the project are located in street rights-of-way used 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 permanently displace any existing recreational uses. Access to the streets affected by project construction would be more challenging, but the project contractor would be required to maintain safe pedestrian and vehicle access at all times. Temporary closures or detours affecting vehicle and pedestrian routes/access may be required.

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

Temporary closures or detours affecting vehicle and pedestrian routes/access may be required. The project would attempt to make those closures and detours as brief as possible. Project notifications through Website updates, emails, and mailings would provide local residents with limited advance notice regarding temporary street and sidewalk closures and detours.

**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 and are 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 on April 1, 2015.

- City of Seattle Landmarks  
[http://www.cityofseattle.net/neighborhoods/preservation/landmarks\\_listing.htm](http://www.cityofseattle.net/neighborhoods/preservation/landmarks_listing.htm)
- Washington Heritage Register and National Register of Historic Places and WISAARD database <http://www.dahp.wa.gov/learn-and-research/find-a-historic-place>

While the WISAARD database indicates numerous historic properties reports have been submitted for various structures near the project location, none of these registers recorded any places or objects formally listed on, or proposed for, national, state, or local preservation registers on or adjacent to the project location. 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 requested that the King County Historical Preservation Program conduct a basic cultural resources review of the project area. Their review noted the presence of three prehistoric shell midden sites, one reported find of human remains, and eight Native American place names within 1 mile of the project. The historic Marra-Desimone Farm and seven homestead claims are also located within 1 mile of the project. Also, a more formal cultural resources inventory for this project was completed in early 2014 (HRA, Inc. 2014). That 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.

- 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 (HRA, Inc. 2014). As a result, the project will commit to having a professional archaeologist monitor construction in previously undisturbed soils and soil sediments, including during installation of the sewer backup prevention devices. 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 within existing, improved street rights-of-way for 14th Avenue S and S Donovan Street. 14th Avenue S is a major arterial and connects with other arterials such as S Cloverdale Street. South Donovan Street is a residential street. Installation of sewer backup prevention devices would occur on privately owned side sewers on privately owned parcels. Access to those parcels would use public roadways; however, the exact locations of those sewer backup prevention installations have not yet been identified.

**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 routes 60, 121, and 132 serve the project location and travel on 14th Avenue S. The completed project would not affect routing of any bus routes. However, construction of the public sewer system improvements may require the temporary closure and/or relocation of bus stops for these routes, particularly in the southbound direction. No two consecutive bus stops will be closed at the same time, as required by Metro. Temporary closures and relocations of bus stops would be coordinated with Metro. Installation of sewer backup prevention devices would occur on privately owned side sewers on privately owned parcels. Access to those parcels would use public roadways; however, the exact locations of those sewer backup prevention installations have not yet been identified.

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

Because the public sewer system improvements of this project involve open trenching in the street right-of-way, construction would require temporary closures of parking as well as travel lanes on both 14th Avenue S and S Donovan Street. Parking associated with street rights-of-way in the project location is currently on-street, free parking managed by SDOT. Because construction would occur on the west side of 14th Avenue S, parking would be temporarily closed on the west side. The parking lane on the east side of 14th Avenue S may also be closed so that the lane can be used as a travel lane for vehicles, including bus traffic. Thus, there may be no or restricted parking on both sides of 14th Avenue S along the rolling construction zone. Project construction would temporarily eliminate up to approximately 20 on-street public parking spaces adjacent to the rolling construction zone to accommodate contractor vehicles, mobilization, construction, and local and through access. There are ample on-street parking spots available elsewhere in the project vicinity along 14th Avenue S and many of the adjacent business have their own off-street parking lots.

Due to the narrow nature of the street, all parking adjacent to the rolling construction zone on S Donovan Street would be closed. Project construction on S Donovan Street would temporarily eliminate up to approximately 40 on-street public parking spaces adjacent to the rolling construction zone to accommodate contractor vehicles, mobilization, construction, and local and through access. Because parking is limited along this street, SPU is contemplating leasing nearby private property to provide temporary parking for residents during construction. The decision for parking mitigation will be made once the construction schedule is finalized and a willing property owner is identified.

The specific timing and duration of parking and lane closures are not known at this time, but such closures would comply with relevant policies administered by SDOT as part of their Street Use permitting process. Transportation impacts related to the installation of sewer backup prevention devices are not known at this time because the exact locations of those installations have not yet been identified.

- 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 project would restore all demolished and damaged street panels, curbs, and traffic circles to pre-construction conditions or better. No new roads or streets would be constructed as part of the project.

- 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 would not use or occur near water, rail, or air transportation.

- 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 approximately 1,300 vehicle round-trips due to workers and materials being transported to and from the site during the estimated total 100 workday construction period for the public sewer system improvements and the 100 workday period for installation of the sewer backup prevention devices. 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 number of vehicular trips and peak volumes are not expected to change because of the completed project. However, the completed project would generate an estimated total of 430 vehicle round-trips related to the on-going routine and emergency operation, maintenance, and monitoring of the completed project over its 100 year lifespan. Sewer backup prevention devices are typically maintained by the building owners or residents; as a result, this analysis presumes that maintenance of the installed sewer backup prevention devices would not generate vehicular trips.

- 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 would require the contractor to use off-street areas for construction staging.
- 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 in both directions on 14th Avenue S would be maintained at all times and temporary lane closures would be minimized.
- Through access on S Donovan Street may not be available at all times during construction, but closures would be minimized and detour routes would be properly and clearly signed.
- 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]

Electricity    Natural gas    Water    Refuse service    Telephone  
 Sanitary sewer    Septic system    Other (fiber optic; cable TV)

- 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.**

The completed public sewer system improvements would increase the capacity of the local area's combined stormwater and sewage conveyance system and would be owned, operated, and maintained by SPU. During construction, the public sewer system improvements are 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.

Installed sewer backup prevention devices would be owned, operated, and maintained by the owners of the side sewers on which they are installed. The project anticipates minimal interruptions in sewer service during construction on the properties where these devices are installed.

**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

Date: 5/28/2015

Attachment A: Vicinity Map

Attachment B: Site Map for Public Sewer System Improvements

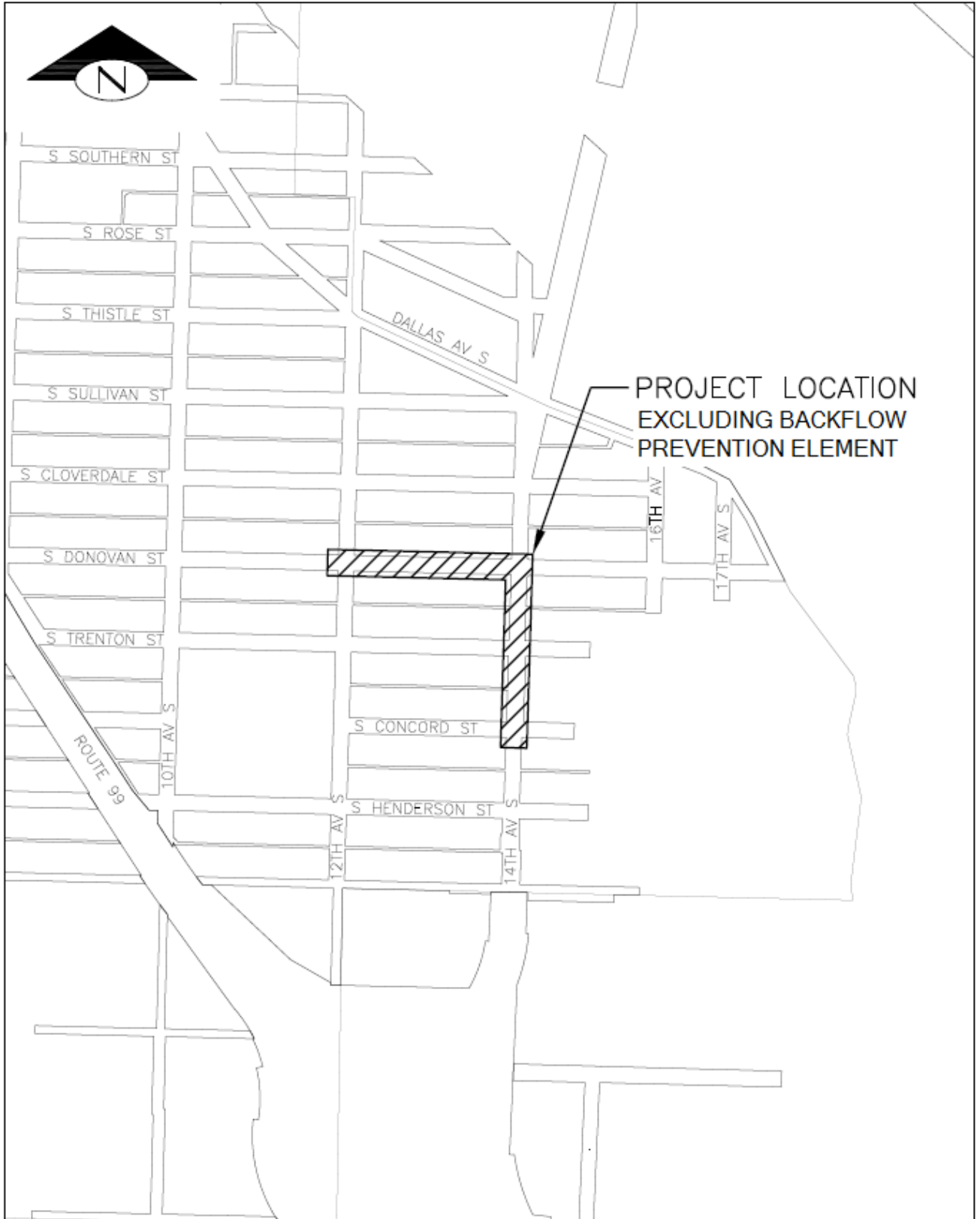
Attachment C: Site Map for Sewer Backup Prevention Element

Attachment D: Greenhouse Gas Emissions Worksheet

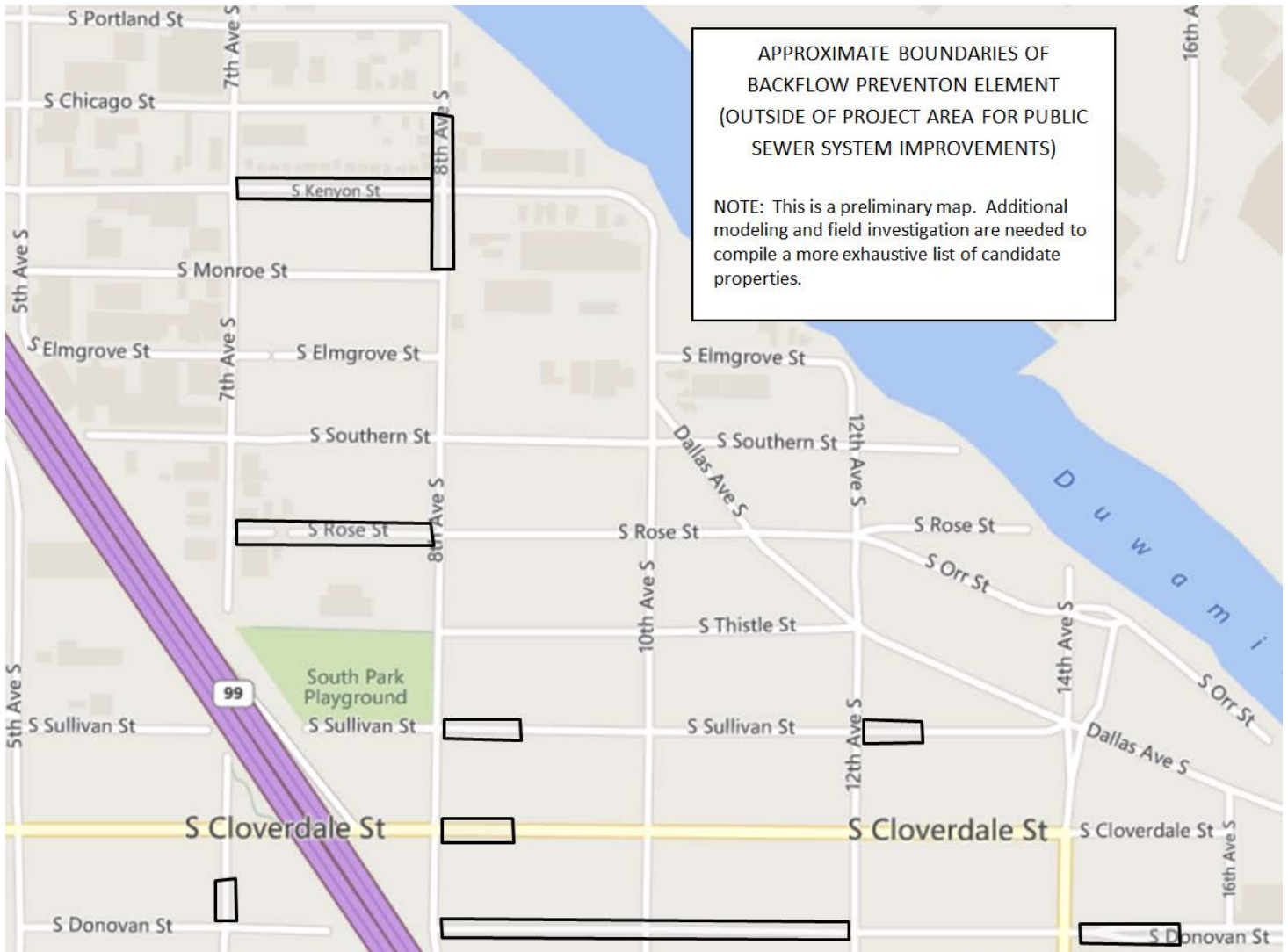




Attachment B: Site Map for Public Sewer System Improvements



Attachment C: Site Map for Sewer Backup Prevention Element



**14th Avenue South and South Concord Street Combined Sewer System Improvement Project  
SEPA Environmental Checklist**

**Attachment D: Greenhouse Gas Emissions Worksheet**

<b>Section I: Buildings</b>						
Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO <sub>2</sub> e)			Lifespan Emissions (MTCO <sub>2</sub> e)
			Embodied	Energy	Transportation	
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
<b>TOTAL Section I Buildings</b>						<b>0</b>

<b>Section II: Pavement</b>						
						Emissions (MTCO <sub>2</sub> e)
Pavement (sidewalk, asphalt patch)						
Concrete Pad (50 MTCO <sub>2</sub> e/1,000 sq. ft. of pavement at a depth of 6 inches)		28,000 sq ft, 6 inches thick (520 cubic yards)				1,400
<b>TOTAL Section II Pavement</b>						

<b>Section III: Construction</b>						
(See detailed calculations below)						Emissions (MTCO <sub>2</sub> e)
<b>TOTAL Section III Construction</b>						<b>231.5</b>

<b>Section IV: Operations and Maintenance</b>						
(See detailed calculations below)						Emissions (MTCO <sub>2</sub> e)
<b>TOTAL Section IV Operations and Maintenance</b>						<b>19.4</b>

<b>TOTAL GREENHOUSE GAS (GHG) EMISSIONS FOR PROJECT (MTCO<sub>2</sub>e)</b>						<b>1,650.9</b>
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**14th Avenue South and South Concord Street Combined Sewer System Improvement Project  
SEPA Environmental Checklist**

**Attachment D: Greenhouse Gas Emissions Worksheet, continued**

<b>Section III Construction Details</b>		
<b>Construction: Diesel</b>		
<b>Equipment</b>	<b>Diesel (gallons)</b>	<b>Assumptions</b>
Two excavators	8,000	200 hours x 20 gallons/hour x 2 (345 hp engine)
Front end loader	5,600	800 hours x 7 gallons/hour (345 hp engine)
Vibratory / Static Roller	128	160 hours x 0.8 gallons/hour (185 hp engine)
Asphalt paver	720	160 hours x 4.5 gallons/hour (80 hp engine)
Asphalt truck	160	20 round trips x 40 miles/round trip ÷ 5 mpg
Two flatbed trucks	750	25 round trips x 75 miles/round trip x 2 ÷ 5 mpg
Four dump trucks (prob. no pups due to limited work area) (10 cubic yard/load)	720	15 round trips x 60 miles/round trip x 4 ÷ 5 mpg
Concrete truck (8 cubic yard/load)	104	52 round trips x 10 miles/round trip ÷ 5 mpg
Street sweeper	160	200 hours x 0.8 gallons/hour (185 hp engine)
Mini-excavator (backflow prevention)	300	300 hours x 1 gallon/hour x 1 excavator
Supply trucks (backflow prevention)	200	100 workdays x 2 trucks x 1 round-trip/day x 20 miles/round-trip ÷ 20 mpg
<b>Subtotal Diesel Gallons</b>	<b>16,842</b>	
<b>GHG Emissions in lbs CO<sub>2</sub>e</b>	<b>447,155</b>	26.55 lbs CO <sub>2</sub> e per gallon of diesel
<b>GHG Emissions in metric tons CO<sub>2</sub>e</b>	<b>202.8</b>	1,000 lbs = 0.45359237 metric tons

<b>Construction: Gasoline</b>		
<b>Equipment</b>	<b>Gasoline (gallons)</b>	<b>Assumptions</b>
Pick-up trucks or crew vans	2,000	100 workdays x 10 trucks x 1 round-trip/day x 40 miles/round-trip ÷ 20 mpg
Misc. hand equipment	600	100 workdays x 10 hours x 2 pieces of equipment x 0.3 gal/hour
<b>Subtotal Gasoline Gallons</b>	<b>2,600</b>	
<b>GHG Emissions in lbs CO<sub>2</sub>e</b>	<b>63,180</b>	24.3 lbs CO <sub>2</sub> e per gallon of gasoline
<b>GHG Emissions in metric tons CO<sub>2</sub>e</b>	<b>28.7</b>	1,000 lbs = 0.45359237 metric tons

<b>Construction Summary</b>		
<b>Activity</b>	<b>CO<sub>2</sub>e in pounds</b>	<b>CO<sub>2</sub>e in metric tons</b>
<b>Diesel</b>	447,155	202.8
<b>Gasoline</b>	63,180	28.7
<b>Total for Construction</b>	<b>510,335</b>	<b>231.5</b>

<b>Section IV Long-Term Operations and Maintenance Details</b>		
<b>Operations and Maintenance: Diesel</b>		
<b>Equipment</b>	<b>Diesel (gallons)</b>	<b>Assumptions</b>
Emergency Operation (truck)	40	10 events (once every 10 years for 100 years) x 1 round-trip/event x 20 miles/round-trip ÷ 5 mpg
Maintenance Operation (truck)	800	200 events (two times annually for 100 years) x 20 miles/round-trip x 1 round-trip/event ÷ 5 mpg
Vactor truck (pipe and catch basin cleaning)	40	20 events (once every 5 years for 100 years) x 1 round-trip/event x 10 miles/round-trip ÷ 5 mpg
<b>Subtotal Diesel Gallons</b>	<b>880</b>	
<b>GHG Emissions in lbs CO<sub>2</sub>e</b>	<b>23,364</b>	26.55 lbs CO <sub>2</sub> e per gallon of diesel
<b>GHG Emissions in metric tons CO<sub>2</sub>e</b>	<b>10.6</b>	1,000 lbs = 0.45359237 metric tons

**14th Avenue South and South Concord Street Combined Sewer System Improvement Project  
SEPA Environmental Checklist**

**Attachment D: Greenhouse Gas Emissions Worksheet, continued**

<b>Operations and Maintenance: Gasoline</b>		
<b>Equipment</b>	<b>Gasoline (gallons)</b>	<b>Assumptions</b>
Pick-up Truck or Crew Van	800	200 events (two times annually for 100 years) x 20 miles/round-trip ÷ 5 mpg
<b>Subtotal Gasoline Gallons</b>	800	
<b>GHG Emissions in lbs CO<sub>2</sub>e</b>	19,440	24.3 lbs CO <sub>2</sub> e per gallon of gasoline
<b>GHG Emissions in metric tons CO<sub>2</sub>e</b>	8.8	1,000 lbs = 0.45359237 metric tons

<b>Operations and Maintenance Summary</b>		
<b>Activity</b>	<b>CO<sub>2</sub>e in pounds</b>	<b>CO<sub>2</sub>e in metric tons</b>
Diesel	23,364	10.6
Gasoline	19,440	8.8
<b>Total Operations and Maintenance</b>	42,804	<b>19.4</b>