

# **Project Health and Safety Plan Bothell Riverside Site Revision No. 1**

*Prepared for*

**City of Bothell**

9654 NE 182nd Street  
Bothell, Washington 98011

*Prepared by*

**Parametrix**

411 108th Avenue NE, Suite 1800  
Bellevue, WA 98004-5571  
T. 425.458.6200 F. 425.458.6363  
[www.parametrix.com](http://www.parametrix.com)

## **CITATION**

Parametrix. 2010. Project Health and Safety Plan  
Bothell Riverside Site  
Revision No. 1. Prepared by Parametrix, Bellevue, Washington.  
February 2010.

## TABLE OF CONTENTS

<b>1. INTRODUCTION.....</b>	<b>1</b>
<b>2. SCOPE OF WORK .....</b>	<b>5</b>
<b>3. HAZARD ANALYSIS.....</b>	<b>7</b>
3.1 PHYSICAL HAZARD ANALYSIS.....	7
3.2 CHEMICAL HAZARD ANALYSIS .....	8
<b>4. MONITORING OF CHEMICAL HAZARDS .....</b>	<b>9</b>
<b>5. PERSONAL PROTECTIVE EQUIPMENT.....</b>	<b>11</b>
<b>6. SITE CONTROL AND DECONTAMINATION .....</b>	<b>13</b>
<b>7. TRAINING.....</b>	<b>15</b>
7.1 PROJECT/EMERGENCY CONTACTS AND PROCEDURES .....	15
7.2 EMERGENCY ASSISTANCE.....	15
7.3 POTENTIAL INCIDENTS.....	15
7.4 ADVERSE WEATHER CONDITIONS .....	17
<b>8. REFERENCES.....</b>	<b>19</b>

## APPENDICES

- A Forms
- B Map and Directions to Hospital

## LIST OF FIGURES

- 1-1 Bothell Crossroads Project Vicinity Map .....3

## LIST OF TABLES

- 3-1 Physical Hazard Analysis for Project Activities, Bothell Riverside Site .....7
- 4-1 Air Monitoring and Action Levels.....9
- 4-2 Exposure Concentrations for Potential Chemicals of Concern.....10
- 7-1 Emergency Contacts ..... 15



## ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
COPCs	chemicals of potential concern
CFR	code of federal regulations
CPR	cardiopulmonary resuscitation
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operation
HEPA	high efficiency particulate air
HWA	HWA Geosciences Incorporated
HVOCs	halogenated volatile organic compounds
IA	Interim Action
mg/kg	milligrams per kilogram
mg/m <sup>3</sup>	milligrams per cubic meter
NIOSH	National Institute of Safety and Health
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million



# **1. INTRODUCTION**

The City of Bothell is implementing the environmental cleanup of several downtown Bothell properties which lie in the path of the Bothell Crossroads project including the Bothell Riverside Site. The goal is to implement cleanup as an Interim Action (IA) under the Agreed Order No. 6294 with the Department of Ecology to remove contaminated soil at the site in preparation for roadway realignment and construction to be initiated in the third quarter of 2010.

This Project Health and Safety Plan (HASP) presents project specific health and safety requirements for the remediation activities that will be conducted onsite near the intersection of State Route 527 and 522 (Figure 1-1). Work for this project is expected to commence in summer 2010.

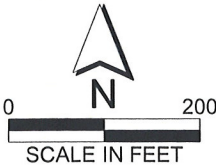
The health and safety requirements presented in this document are applicable to all persons working on the project or persons visiting the job site during remediation activities. Any modification or additions to this project HASP will be completed as an addendum.







**VICINITY MAP**



**Figure 1-1  
Bothell Crossroads RI/FS  
Site Locations**



## **2. SCOPE OF WORK**

Excavation and off-site disposal of contaminated media and confirmational monitoring sample collection. Proposed activities include:

- Observation of soil excavation by heavy equipment
- Collection of soil samples using hand tools
- Collection of groundwater samples

The overall hazard level associated with the above activities is expected to be low on a scale of low, moderate, and high. An analysis of potential hazards associated with the activities is presented in Section 3.



### 3. HAZARD ANALYSIS

A hazard analysis was conducted for the field activities described in Section 2 to identify potential health and safety concerns. The hazard analysis will be updated if additional project-related hazards are identified.

#### 3.1 PHYSICAL HAZARD ANALYSIS

Physical hazards that may be encountered at the site are presented below in Table 3-1.

**Table 3-1. Physical Hazard Analysis for Project Activities, Bothell Riverside Site**

Activity	Hazard	Mitigation
Heavy Equipment	Slip/Trips/Falls	<ul style="list-style-type: none"> <li>Keep work areas free of debris, etc.</li> <li>Clean up work areas following completion of activities.</li> <li>Watch for debris and other hazards that may be present from past site operations.</li> <li>Follow required safety procedures.</li> <li>Use proper illumination.</li> </ul>
	Flying Debris/Soil and Splashing Liquids	<ul style="list-style-type: none"> <li>Wear safety glasses or other applicable eye protection.</li> </ul>
	Drilling Rig	<ul style="list-style-type: none"> <li>Wear hardhat and steel-toed footwear.</li> <li>Know the location of drill emergency stop switch.</li> <li>Confirm the stop switch procedure with the driller.</li> <li>Maintain eye contact with driller.</li> <li>Don't move drill rig with mast up.</li> <li>Check minimum distance to power lines.</li> </ul>
	Pinch Points	<ul style="list-style-type: none"> <li>Identify pinch points prior to starting equipment.</li> <li>Be aware of equipment location and body placement.</li> <li>Know the location of drill emergency stop switch.</li> <li>Maintain eye contact with operator.</li> </ul>
	Noise	<ul style="list-style-type: none"> <li>Wear earplugs while equipment is operating.</li> </ul>
	Falling Objects	<ul style="list-style-type: none"> <li>Wear hardhat and steel-toed footwear.</li> </ul>
	Utility Contact	<ul style="list-style-type: none"> <li>Perform a utility locate prior to drilling.</li> <li>Keep at least three feet from utility markings.</li> </ul>
Heat or Cold Stress	<ul style="list-style-type: none"> <li>Wear several layers of clothing during cold weather</li> <li>Dress in cotton clothing during hot weather.</li> <li>Take frequent breaks to warm up in running vehicles during cold weather.</li> <li>Take frequent breaks to cool down in the shade during hot weather.</li> <li>Watch other workers on site for signs of heat or cold stress during the workday.</li> </ul>	

**Table 3-1. Physical Hazard Analysis for Project Activities, Bothell Riverside Site (continued)**

Activity	Hazard	Mitigation
Environmental Sampling	Slip/Trips/Falls	<ul style="list-style-type: none"> <li>Keep work areas free of debris, etc.</li> <li>Clean up work areas following completion of activities.</li> <li>Watch for debris and other hazards that may be present from past site operations.</li> <li>Follow required safety procedures.</li> </ul>
	Flying Debris/Soil and Splashing Liquids	<ul style="list-style-type: none"> <li>Wear safety glasses or other applicable eye protection.</li> </ul>
	Working Around Water	<ul style="list-style-type: none"> <li>Use buddy system.</li> <li>Wear shaded safety glasses to reduce glare from water.</li> <li>Do not enter or work over water unless wearing a personal floatation device.</li> </ul>
	Contact with Contaminated Media and Preservatives	<ul style="list-style-type: none"> <li>Collect and handle samples wearing appropriate PPE.</li> <li>Employ proper shipping and packing procedures.</li> </ul>
	Cuts/Abrasions	<ul style="list-style-type: none"> <li>Use proper cutting tools.</li> <li>Be careful with sharp objects.</li> <li>Do not cut towards yourself.</li> <li>Conduct sampling using proper operation of the sampling equipment.</li> </ul>
	Overhead	<ul style="list-style-type: none"> <li>Wear hardhat and steel toed footwear.</li> <li>Maintain eye contact with driller and other heavy equipment operators.</li> </ul>
	Lifting	<ul style="list-style-type: none"> <li>Use proper lifting equipment and techniques when moving equipment, tools, drums, etc.</li> </ul>

### 3.2 CHEMICAL HAZARD ANALYSIS

Heavy oil-range petroleum hydrocarbons, halogenated volatile organic compounds (HVOCs), and metals have been identified as potential chemicals of potential concern (COPCs) based on field investigations conducted on the site to characterize and delineate contamination in soil and groundwater (Parametrix 2009; HWA 2007).

Precautions will be taken by all persons conducting remedial activities at the site to minimize exposure to potential chemicals of concern. Information on reducing contact with potential chemicals of concern is presented in the following sections.

This section will be updated if additional COPCs within the Riverside site are identified in the future.

## 4. MONITORING OF CHEMICAL HAZARDS

Air monitoring with a photoionization detector (PID) will be performed when sampling soil suspected of containing hydrocarbons or HVOCs to determine if the level of Personal Protective Equipment (Section 5) will need to be upgraded from Level D to Level C, which requires respiratory protection. Air monitoring and action levels are listed in Table 4-1, and exposure limits for potential contaminants of concern are shown in Table 4-2.

If a change in conditions (i.e., odor, etc.) indicates a need to upgrade personal protective equipment (PPE), the Project Health and Safety Officer will upgrade the PPE to Level C, and the Manager will be notified immediately. All air-monitoring and instrumentation-calibration data will be recorded in the field notebook. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications.

**Table 4-1. Air Monitoring and Action Levels**

Exposure	Method	Monitoring Description	Action Level	Action
Screening for organic and inorganic vapors	PID	A PID will be used to assess potential exposures to organic vapors.	>10 ppm sustained for 5 minutes	<ul style="list-style-type: none"> <li>• Terminate operation and move upwind</li> <li>• Ventilate area, as needed</li> <li>• Investigate cause</li> <li>• Upgrade to Level C Respirator with organic vapor/HEPA cartridge, if warranted</li> <li>• Wet area and screen with PID prior to resuming work</li> </ul>
Metals	Visual Observation	Exposure to airborne particulates which could contain metals will be assessed using visual observation methods	Visible emissions	Control with water spray

Notes: HEPA = high efficiency particulate air  
 PID = Photoionization Detector.  
 ppm = parts per million

**Table 4-2. Exposure Concentrations for Potential Chemicals of Concern**

Analyte	Time Weighted 8-Hour, Permissible Exposure Limit	Immediately Dangerous to Life and Health
Arsenic	0.2 mg m <sup>3</sup>	5 mg/m <sup>3</sup>
Lead	0.050 mg/m <sup>3</sup>	100 mg/m <sup>3</sup>
Trichloroethylene	50 ppm	1,000 ppm
Tetrachloroethylene	25 ppm	150 ppm
Vinyl Chloride	1 ppm	None Determined
Oil mist (particulate)	5 mg/m <sup>3</sup>	2,500 mg/ m <sup>3</sup>

Source: WAC 296-841 Table 3 (2007), NIOSH IDLH Program (1995), NIOSH 2005

Notes: mg/m<sup>3</sup> = micrograms per cubic meter

ppm = parts per million



## 5. PERSONAL PROTECTIVE EQUIPMENT

Based on available chemical information for the project sites, Level D PPE will be used for conducting sampling activities. If site conditions indicate a high level of protection is required, site personnel will be prepared to use Level C PPE. This level of protection generally includes:

### Level D

- Steel-toe/shank leather or rubber boots/shoes.
- Coveralls, polycoated Tyvek suit, or equivalent, as needed for working with contaminated soil and water.
- Nitrile surgical weight gloves to be used as inner gloves, as needed.
- Work gloves, nitrile gloves, or equivalent, to use as outer gloves, as needed.
- Hardhat.
- Safety glasses or goggles for general site work and with shading to control glare when working around water.
- Hearing protection for all activities in areas where it is necessary to shout to communicate, or as decided.

### Level C

- Steel-toe/shank leather or rubber boots/shoes.
- Tyvek, Saranex, poly coated Tyvek, or equivalent coveralls, as needed for working with contaminated soil and water.
- Nitrile surgical weight gloves to be used as inner gloves.
- Work gloves, nitrile gloves, or equivalent, to use as outer gloves, as needed.
- Hardhat.
- Safety glasses or goggles for general site work and with shading to control glare when working around water.
- Hearing protection for all activities in areas where it is necessary to shout to communicate, or as decided.
- Full face air-purifying respirator

At least one first aid kit and cellular phone will be available on-site in the company vehicle during onsite activities.



## 6. SITE CONTROL AND DECONTAMINATION

Work site controls will be established whenever soil disturbance may take place. Non-intrusive inspections and other similar activities do not need hazardous waste site controls; however, there may be other crews with site zones established, and these shall be respected and maintained. It is anticipated that cones with tape barriers will be set up around areas of contaminated soil prior to and during excavation activities.

The object of site control is to assure that only qualified personnel enter potentially hazardous locations and to effectively control the spread of contamination. As a minimum, a “hot” zone, extending approximately 10 feet from the work, should be established. If the sampling personnel are reasonably certain that untrained, unprotected people will not enter the “hot” zone, then demarcation may not be necessary.

Barrier tape and cones will be used to demarcate contaminated soil prior to and during excavation activities. Only personnel with a current 40-hour Hazardous Waste Operation (HAZWOPER) certification and up-to-date refresher course will be allowed inside the restricted areas.

The following items will be followed when establishing site control:

- Site control measures shall be established prior to beginning any work that disturbs potentially contaminants soils.
- Personnel will not enter vehicles with dirty boots, boot covers, or in dirty coveralls. Set the job up to keep the sediments in their original location on the site.
- The work area shall be protected from public intrusion.
- It is up to each sampling crew to establish site control based on potential hazards and on the crew’s planned activities. Make it practical and useful.
- All tools used for sampling will be properly decontaminated after each use.

Any potentially contaminated personnel will decontaminate prior to getting into vehicles, vessels, eating lunch, or leaving the site.

For all personnel working within a “hot” zone, decontamination will be conducted to remove gross contamination that may have accumulated on workers, equipment, and sampling supplies during site activities and to prevent the migration of contaminants from the site. Decontamination may consist of brushing with a stiff brush to remove dry particles and, if necessary, washing with household soap or an Alconox solution and rinsing with clean water. All water used for decontamination by personnel will be containerized and disposed of following the established site waste handling procedures.



## 7. TRAINING

All personnel conducting sampling activities on the project site must be HAZWOPER trained per the federal requirement 29 CFR 1910.120 and be current with their annual eight hour refresher course. All personnel should have proof of currency with HAZWOPER training requirements available on the project site.

All personnel working at the project site will be briefed on potential site hazards, health and safety procedures, site construction rules and requirements, and sampling procedures. Following completion of this training, all personnel will be required to sign an acknowledgement form verifying that they have completed the project-specific health and safety training. A sample Project-Specific Training Acknowledgement Form is included in Appendix A.

The Site Health and Safety Officer will conduct a tailgate safety meeting will be conducted each morning prior to the start of daily field activities. Each employee and, as appropriate, subcontractor personnel will attend the tailgate safety meeting and sign the daily tailgate meeting log. A Daily Tailgate Meeting Log is included in Appendix A.

### 7.1 PROJECT/EMERGENCY CONTACTS AND PROCEDURES

The project and emergency contacts will be provided as an addendum to this document upon commencement of the remediation work.

### 7.2 EMERGENCY ASSISTANCE

Table 7-1 provides a list of emergency telephone numbers. This list is to be in the possession of the Site Health and Safety Officer.

**Table 7-1. Emergency Contacts**

Contact	Phone Number
Emergency (fire, accident, etc.)	911
Evergreen Hospital	(425) 899-1000
Poison Control Center	(800) 222-1222

At least one cell phone will be available onsite at all times during sampling activities. In the event of an emergency, 911 will be called immediately. If a non-emergency injury occurs that requires treatment, refer to the map and directions to the nearest hospital (Evergreen Hospital) in Appendix B.

### 7.3 POTENTIAL INCIDENTS

Although considered unlikely, the following situations could occur and would require an emergency response action:

- Sudden release of hazardous vapors/combustible gases
- Problems due to contacting utility lines (gas, electric, water)
- Fire
- Medical emergency
- Overt exposure (skin contact, inhalation, ingestion)

## **Release of Hazardous Vapors/Combustible Gases**

In the event of a sudden release of hazardous vapors or gases constituting a potentially hazardous situation (e.g., adequate respiratory protection is unavailable, atmospheres are immediately dangerous to life or health or explosive, there is an imminent public health and safety hazard), the Site Health and Safety Officer will suspend operations and evacuate the site, and call 911. All personnel will be required to evacuate to a pre-designated safe area upwind of the release.

The Field Health and Safety Officer, in consultation with the emergency response agencies, fire department, and facility or system owner/operator, will attempt to control or secure the spread of contamination whenever possible.

## **Utilities**

If aboveground or underground utilities are damaged or contacted, call 911 to notify the local fire department. If injury occurs, see Medical Emergency section below.

## **Fire**

In the event of a fire, call 911.

## **Medical Emergency**

At least one onsite worker will have current certification in first aid and cardiopulmonary resuscitation (CPR). In the event of a serious injury or illness, call 911 immediately. For non life threatening injuries that do not impair driving ability, site personnel will drive to Evergreen Hospital in Kirkland. Appendix B illustrates the route to the hospital.

A first aid kit will be available at the site for use in case of minor injuries. First aid responders should protect themselves from contact with blood and other human body fluids by wearing latex gloves or establishing an equivalent barrier. Any contact with blood should be reported to the Site Health and Safety Officer.

## **Exposure**

In the event of respiratory exposure, dermal or eye contact, or ingestion, the following procedures will be followed:

- Respiratory Exposure (Inhalation). Move to fresh air. Summon paramedics and notify facility or system owner/operator. Any loss of consciousness or exposure to elevated levels of known toxic contaminants, even if the individual appears to have fully recovered, will require immediate treatment and/or surveillance by a qualified physician.
- Dermal Contact. Flush area with copious amounts of soap and water. Wash/rinse affected area for at least 15 minutes. Decontaminate and provide medical attention.
- Eye Contact. Flush eye(s) for a period of 15 minutes and transport worker to the nearest emergency medical facility. Treatment and/or surveillance by a qualified physician are required.
- Ingestion. Notify the local Poison Control Center and/or emergency medical facility and immediately transport to the facility.

## **7.4 ADVERSE WEATHER CONDITIONS**

In the event of adverse weather conditions, the Field Health and Safety Officer will determine if sampling activities can continue without endangering field personnel. Some of the conditions to be considered prior to determining if activities should continue are as follows:

- Potential for thermal stress (e.g., heat or cold stress) and related injuries.
- Dangerous weather related working conditions that would preclude working from a boat (e.g., high winds, rain, snow, fog, lightning, etc.).
- Limited visibility.
- Potential for electrical storms. No outside activities will be permitted during electrical storms.





## **8. REFERENCES**

- HWA Geosciences, Inc. 2008a. Phase II Environmental Site Assessment: Riverside Property, Bothell, Washington. Prepared for the City of Bothell. July 28, 2008.
- HWA Geosciences, Inc. 2008b. Phase II Environmental Site Assessment: Giannola Property/Parcel No. 9457200072, Bothell, Washington. Prepared for City of Bothell. April 30, 2008.
- National Institute for Occupational Safety and Health (NIOSH). 1994. Documentation for Immediately Dangerous to Life or Health Concentrations (IDLH): NIOSH Chemical Listing and Documentation of Revised IDLH Values (as of 3/1/1995). <http://www.cdc.gov/niosh/idlh/intridl4.html>
- National Institute of Safety and Health (NIOSH). 2005. Pocket Guide to Chemical Hazards. September 2005. [www.cdc.gov/niosh/npg](http://www.cdc.gov/niosh/npg)
- Parametrix, 2003. Parametrix Health and Safety Manual. Prepared for EPA Region X. March 2003.
- Parametrix. 2009. Bothell Riverside, Remedial Investigation/Feasibility Study, Revision 1. Prepared for City of Bothell. December 2009.
- Washington Administrative Code 296-841. Department of Labor and Industries, Division of Occupational Safety and Health. Airborne Contaminants. April 2007 Edition.



## **APPENDIX A**

### **Forms**













## **APPENDIX B**

### **Map and Directions to Hospital**





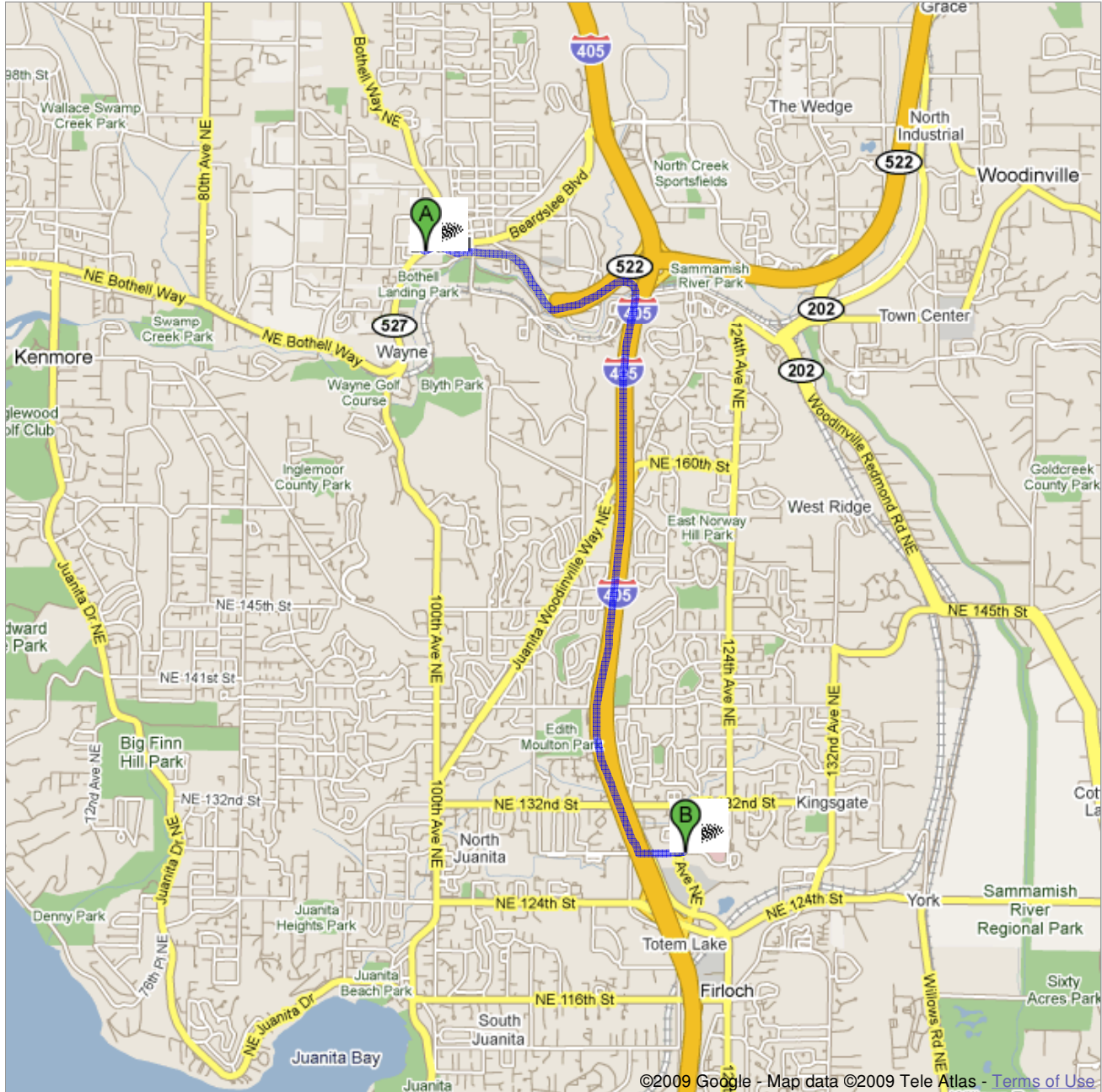

### Directions to Evergreen Hospital


12040 NE 128th Street, Kirkland, WA 98034 - (425)





899-1000

4.5 mi – about 8 mins – up to 15 mins in traffic

**Save trees. Go green!**  
Download Google Maps on your phone at [google.com/gmm](http://google.com/gmm)



 18120 Bothell Way NE, Bothell, WA 98011

- 
- |                                                                                   |                                                                                                                                                  |                           |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
|  | 1. Head <b>northeast</b> on <b>Bothell Way NE/WA-522/WA-527</b> toward <b>WA-522/Woodinville Dr</b><br>Continue to follow WA-522<br>About 2 mins | go 1.0 mi<br>total 1.0 mi |
|  | 2. Take the exit onto <b>I-405 S</b> toward <b>Bellevue</b><br>About 4 mins                                                                      | go 3.2 mi<br>total 4.2 mi |
|  | 3. Take the exit on the <b>left</b> toward <b>NE 128th St</b><br>About 1 min                                                                     | go 397 ft<br>total 4.2 mi |
|  | 4. Turn <b>left</b> at <b>NE 128th St</b><br>Destination will be on the left<br>About 2 mins                                                     | go 0.2 mi<br>total 4.5 mi |

 Evergreen Hospital  
12040 NE 128th Street, Kirkland, WA 98034 - (425) 899-1000

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2009 , Tele Atlas