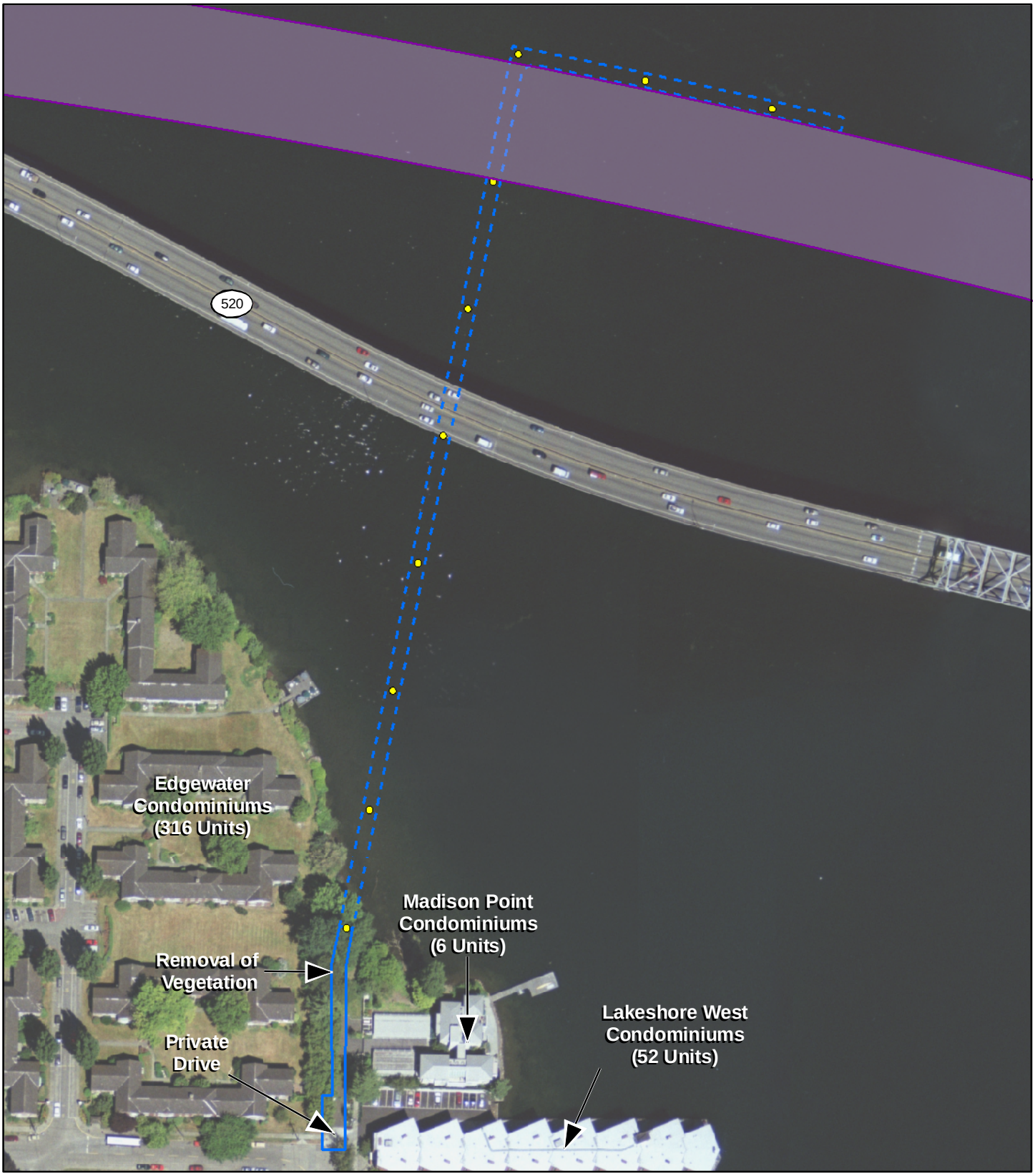


Source: City of Seattle (2003) Comprehensive Plan (Land Use); King County (2003) GIS Data (Streets and Waterbodies). Horizontal datum for all layers is NAD83(91), vertical datum for layers is NAVD88.

N

0 50 100 Feet

6-Lane Alternative Footprint

At-Grade

Elevated

Columns

Exhibit 7. **43rd Avenue East Option Effects on Cover Types**

SR 520 Bridge Replacement and HOV Project

Seattle regulations. The wetland mitigation would occur on the same mitigation site to be used for the SR 520 Bridge Replacement and HOV Project.

Shaded wetlands would be mitigated at a 1:1 ratio (filled wetlands constitute a permanent loss of wetland area, while shaded wetlands may only have a loss of vegetation structure and density). Thus, 0.03 acre of wetlands would be enhanced with native trees and shrubs at the University of Washington Center for Urban Horticulture to compensate for shading effects to wetlands.

43rd Avenue East Option

No wetland mitigation for 43rd Avenue East option would be required.

How will the project affect wildlife and wildlife habitat?

Noise and visual disturbance during construction of either of the bicycle/pedestrian path options would affect wildlife use and behavior, causing some animals to avoid the vicinity of construction activities. Construction would occur outside the nesting season that occurs in late summer and fall. Therefore, disturbance effects would be limited to wintering birds, mammals, reptiles, and amphibians.

The increased noise and visual disturbances from the recreational use of either option could affect wildlife use and behavior in the vicinity.

The open water habitats, however, in the vicinity of both options do not provide nesting habitat for any species, and consequently, the increased human activity might affect foraging animals (such as western grebes, buffleheads, scaups, and double-crested cormorants) but not nesting animals. Given the small area of potential disturbance relative to the availability of other open water habitat in Lake Washington, this effect with either option is expected to be negligible in terms of the overall foraging success and health of these animals.

The elevated bridge portion of either option would be a physical obstruction to flying birds. Actual effects on individual bird species would likely depend on the different hunting and flying styles of each species.

37th Avenue East Option

The 37th Avenue East option would likely remove one or more shoreline cottonwood trees and several other deciduous trees that make

up a contiguous large patch of trees at the Broadmoor Golf Club (**Exhibit 6**). This forest community currently provides high-quality wildlife habitat near the Lake Washington shoreline. Other trees along the existing 37th Avenue East may also need to be removed; however, these trees are not contiguous with any larger patches of native vegetation and consequently do not provide quality habitat for native wildlife.

The 37th Avenue East option would be elevated over 0.21 acre of wetlands and 0.02 acre of shoreline trees. However, because the path would be narrow and gain elevation quickly the area underneath the bridge should receive sufficient sunlight to support plant life and maintain existing wildlife habitat.

There is a beaver lodge near this path option route. Disturbance of the lodge could occur during construction.

Increased human activity along the 37th Avenue East option route may cause some sensitive wetland-associated wildlife, such as nesting birds (for example, yellow warbler, marsh wren, common yellowthroat), to avoid otherwise suitable habitat in the immediate bicycle/pedestrian path vicinity. Given the limited availability of other seldom-used wetland habitat in the vicinity, displaced animals might not find other undisturbed suitable nesting and foraging wetland habitat.

Federally Listed Species

Construction would occur outside the bald eagle nesting season, and therefore would not affect the Broadmoor nesting eagles. However, construction, especially pile driving, is expected to disturb wintering eagles that forage in the area. In addition, construction could result in the removal of at least one large cottonwood that provides a potential perch site and future nest site for bald eagles.

Given the existing noise levels and human activities in the general Lake Union and Lake Washington areas where bald eagles forage, increased human activity is not expected to affect or would have a negligible effect on foraging eagles. The presence of the elevated path could obstruct the path of flying bald eagles, but ecosystems team biologists don't know how this might affect eagles' behavior or foraging success.

43rd Avenue East Option

Effects to vegetation under the 43rd Avenue East option would be limited to shading and removing some ornamental vegetation on an existing residential lot (approximately 0.1 acre would be shaded and

approximately 0.11 acre of vegetation would be removed), as well as potentially removing existing trees along 43rd Avenue East (**Exhibit 7**). None of the potentially affected vegetation is connected to a larger patch of terrestrial wildlife habitat, and the vegetation that may be removed does not currently provide quality habitat for native wildlife.

Because the 43rd Avenue East option would not affect wetlands and their associated wildlife species, overall effects to wildlife from this option would be less than under the 37th Avenue East option. The 43rd Avenue East option would also avoid effects to the beaver lodge in the 37th Avenue East option vicinity.

Federally Listed Species

The type of disturbance effects to eagles would be the same with the 43rd Avenue East option as with the 37th Avenue East option. However, the 43rd Avenue East option would not cross the wetlands and relatively undisturbed areas that provide the higher-quality foraging habitat for bald eagles.

What can be done to avoid or minimize negative effects?

The following measures would be used to avoid or minimize effects on wildlife and habitat:

- Where feasible, modify the location and construction methods of the path to minimize effects to trees; for example, some trees may be saved by moving the path slightly or by trimming the tree limbs instead of removing the entire tree.
- Follow BMPs and other safety measures to minimize erosion and sedimentation and to minimize the risk of spilling contaminants.
- Replant temporarily affected areas with native vegetation.
- Plant native shade-tolerant vegetation in areas under the elevated bicycle/pedestrian path, where feasible and practical.
- Avoid construction during the bald eagle nesting period, which is January 1 to August 15.
- Avoid or minimize effects on the beaver lodge near the 37th Avenue East option, by shifting the path location if necessary.

Construction is expected to disturb wintering eagles. Although no known bald eagle nest trees would be removed, at least one large tree

that could potentially be used as perch or future nest trees may be removed for construction under the 37th Avenue East option.

How would the project affect fish resources?

Although both path options would have the same physical characteristics, their potential effects would differ because they would be constructed in areas that have quite different habitat characteristics.

37th Avenue East Option

The 37th Avenue East option would place nine 8-foot-diameter concrete support columns in the shallow water habitat. From the shoreline to the south side of the SR 520 bridge, five columns would fill about 250 square feet of shallow bottom that currently supports aquatic vegetation. This area does not likely produce many benthic invertebrates because of the dense aquatic vegetation. The remaining four columns would be in open water parallel and adjacent to the north side of the SR 520 bridge. These columns would fill approximately 200 square feet of lake bottom. Eurasian milfoil occurs in this area, but it is submerged and has not been mapped. The dense Eurasian milfoil provides poor quality habitat for fish.

Because of the dense aquatic vegetation that fills most of the shallow water along the 37th Avenue East option, juvenile salmonids (such as Chinook and sockeye) and bull trout are unlikely to use this area.

Shading of aquatic habitat would be minor due to the path's narrow width and moderate height (20 to 40 feet), together with its north-south orientation. The shadow beneath the path bridge would not be distinct or dark because it would substantially diffuse light reflected from adjacent areas. The shadow of the higher portions of the path bridge would also move rapidly over a substantial area during the course of the day, thereby shading specific locations for only a few hours. However, closer to the shoreline, the path would be less than 10 feet above the water and produce a more distinct and darker shadow that would remain for longer periods over a more limited area. Based on observations of vegetation growing under the low western approach of the existing Evergreen Point Bridge in the Arboretum, the shadow is not likely to prevent Eurasian milfoil growth along the shoreline, where juvenile salmon would migrate if the aquatic vegetation was not present.

43rd Avenue East Option

The 43rd Avenue East option would place ten 8-foot-diameter concrete support columns in the shallow water habitat between the shoreline and SR 520. These columns would fill about 502 square feet of shallow lake bottom, occupying more area and more productive habitat than the 37th Avenue East option. The area filled by the support columns would be lost for benthic invertebrate production.

Juvenile salmonids (such as Chinook and sockeye) and bull trout are likely to use the area crossed by this option**.** Young Chinook are likely to migrate and rear near the shoreline. This option would also cross open water at the edge of Union Bay, where young salmonids migrating from the southern end of Lake Washington are likely to cross. Construction in this area would occur during one season, preferably outside of the approved work window for fish resources in Lake Washington (July 16 through April 30). Because of this work schedule, no construction effects to migrating juvenile salmonids are expected from this option.

Like the 37th Avenue East option, the shading affects of the 43rd Avenue East option would be minor over most of its path due to the combination of its narrow width and moderate height (20 to 40 feet) as well as its north-south orientation. The shadow beneath the bicycle/pedestrian path bridge would receive substantial indirect light reflected from adjacent areas. The shadow of the higher portions of the path bridge would also move rapidly over a substantial area during the course of the day, thus shading specific locations for only a few hours. However, at the shoreline the path bridge would be less than 10 feet above the water and produce a darker shadow over a narrower area. The darkest portion of the shadow would occur near the shoreline where juvenile Chinook are most likely to migrate.

What can be done to avoid or minimize negative effects to fish resources?

The behavioral response of juvenile Chinook and other young salmon to the bridge shadow is indicated by recent Lake Washington research. Young salmon will avoid very dark shadows such as those cast by floats and docks just above the water surface (Tabor et al. 2006). However, they will also migrate through lighter shadows cast by narrow structures well above the water surface. Tabor et al. (2006) observed schools of juvenile Chinook migrating under the pier at McClellan Street. This 8-foot-wide pier is about 1.5 feet above the lake

surface. The young Chinook typically migrated along the shore in water 5 to 7 feet deep and then moved offshore a short distance to pass under the pier where the lake was about 7 to 15 feet deep.

The height of the proposed bicycle/pedestrian path options bridges above the water (10 feet at shoreline, greater over open water) and the narrow width of these bridges (14 feet) would produce a wider but less dark shadow than that cast by the McClellan Street pier. Juvenile Chinook migrating along the Madison Park shoreline would be about 400 feet from the shoreline if they were migrating in water depths 6 feet or greater, which would be similar to the depths where they passed under the McClellan Street pier. At this point offshore, the bridge would be about 20 feet above the lake surface.

Water Resources

Affected Environment

How was information collected?

The water resources discipline team reviewed the engineering drawings and conducted a visual survey of the Madison Park neighborhood to understand how the bicycle/pedestrian path options would affect water resources.

What is the quality of surface water bodies in the project area?

Lake Washington is the second largest natural lake in the state, with a surface area of 21,500 acres and a watershed of 472 square miles. Overall, almost two-thirds of the land use in the Lake Washington watershed has been converted to residential, commercial, or industrial uses (King County 2004).

The water in Lake Washington is replaced about every 3 years (Emery et. al. 1973), which is only about half of its historical replacement rate (Chrzastowski 1983). This replacement time accelerated when the Lake Washington Ship Canal system was built and the Cedar River was diverted into the lake.

In the early 1960s the water quality in Lake Washington was poor with high levels of algal growth and corresponding drops in oxygen levels in the water (termed eutrophication). These issues occurred partially from increased nutrients entering the lake from direct discharges of treated sewage (Edmondson 1991, King County 2001). The former Municipality of Metropolitan Seattle (Metro, now King County Metro) began diverting sewage from the lake between 1963 and 1967, and water quality in the lake quickly improved. Nutrient levels decreased and caused the associated blue green algae to disappear and the water to become clearer (Edmondson 1991).

The water in Lake Washington is considered high quality for most parameters (dissolved oxygen, temperature, pH, conductivity, metals, and nutrients) important to fish, wildlife, and human uses. However, Lake Washington is listed on the Ecology 303(d) list of impaired water bodies because it exceeds the fecal coliform criterion (Ecology 2004). Potential pollutant sources include those typical of urbanized basins such as residential, commercial, and industrial neighborhoods and roads.

Project Effects

How would the project affect surface water bodies?

37th Avenue East Option

The impervious surface that would be created by the 37th Avenue East option would consist of a paved path. The south end of the path would also serve as a driveway for a maintenance vehicle parking lot and residence access. The portion of the path used for maintenance vehicles would have a footprint of 4,025 square foot. The paved path north of the parking lot would be used only by pedestrians and bicyclists.

All new impervious surfaces added with the 37th Avenue East option would be considered non-pollutant generating, according to the definition of non-pollutant generating impervious surface (NPGIS). According to WSDOT's *Highway Runoff Manual* (WSDOT 2004), the definition of a NPGIS is "a surface that, based on its use, is an insignificant or low source of pollutants in stormwater runoff." Among other types of surfaces, the *Highway Runoff Manual* specifically identifies "paved bicycle pathways and pedestrian sidewalks that are separated from and not subject to drainage from roads for motor vehicles" and

"infrequently used maintenance access roads" as being surfaces with insignificant or low sources of pollutants in stormwater runoff.

Water from both the land and overwater sections of the 37th Avenue East option would discharge to Lake Washington. The lake is listed in the *Highway Runoff Manual* as flow-control exempt—in other words, flow control is not required for stormwater runoff entering the lake. No stormwater treatment or flow control facilities would be necessary as part of adding this option because any effects on surface waters (e.g., Lake Washington) or groundwater would be insignificant.

43rd Avenue East Option

The impervious surface added by the 43rd Avenue East option would consist of a paved path (the private drive used to access Madison Park condominiums) directly north of the intersection of 43rd Avenue Northeast and East McGilvra Street. The pavement north of the parking lot would be used only by pedestrians and bicyclists. The portion of the path to be used by maintenance vehicles would have a footprint of 900 square feet.

As with the 37th Avenue East option, all new impervious surface added with the 43rd Avenue East option would be considered non-pollutant generating, in accordance with the definition of NPGIS in the *Highway Runoff Manual* (WSDOT 2004). Stormwater from both the land and bridge sections of the 43rd Avenue East option would discharge to Lake Washington, which the *Highway Runoff Manual* identifies in as not requiring flow control. No stormwater treatment or flow control facilities would be necessary.

What can be done to avoid or minimize negative effects on water resources?

No mitigation measures are proposed to protect water resources.

Geology and Soils

Affected Environment

How was information collected?

To analyze effects of the Madison Park bicycle/pedestrian path options, the geology and soils discipline team relied on information collected for

the SR 520 Bridge Replacement and HOV Project. This information includes various archives, databases, and maps containing geologic and geotechnical information for the project area. The team reviewed the engineering drawings and conducted a site visit to determine how the options would affect geology and soils.

What are the geologic units in the project area?

Near-surface geologic units that would be crossed by the two bicycle/pedestrian path options include Vashon till and younger alluvium (see **Exhibit 8**). This alluvium is typically weak, compressible, and potentially liquefiable, which makes it unsuitable for bridge foundation support. Bridge structures would have to be founded on driven or drilled piles that extend through the weak upper materials and into the very dense Vashon till.

What are the geologic hazards in the project area?

Exhibit 8 shows the mapped extent of onshore liquefaction hazard areas. However, until the stratigraphy is more thoroughly defined by careful examination of existing borings and supplemented by a subsurface exploration program, the geology and soils discipline team considers all of the non-till areas (all of the offshore and everything onshore not mapped as glacial till) as having some depth of potentially liquefiable or strain-softening (meaning they lose strength during earthquake shaking) sediments.

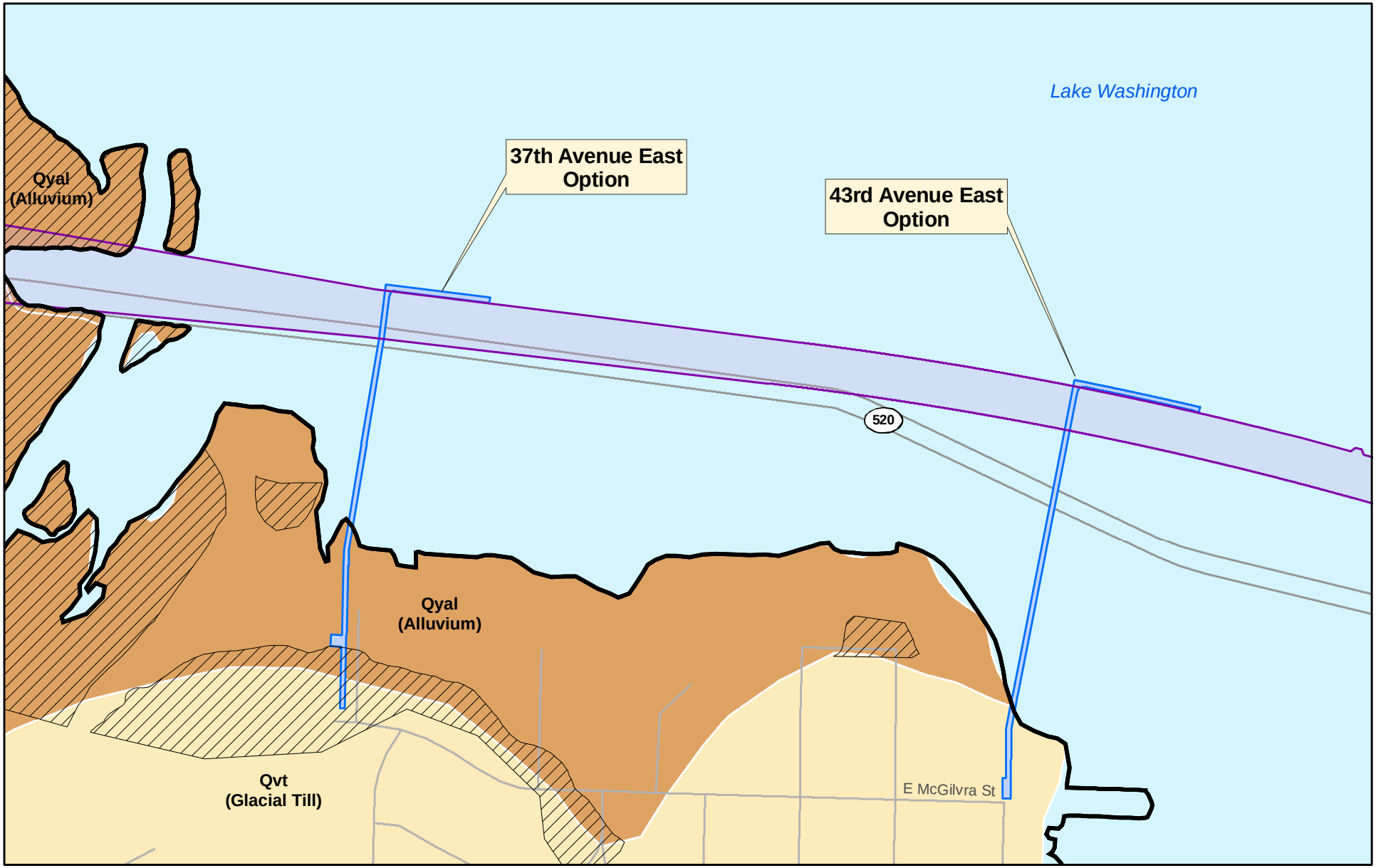
At all on-land portions of both options, groundwater would be very near the ground surface.

Project Effects

How would the geology and soils of the area affect the project?

37th Avenue East Option

The entire length of the 37th Avenue East option would cross over soft, compressible, and potentially liquefiable soils. Foundations for the entire 750 foot length of the 37th Avenue East option bridge would have to be driven through the alluvium and into the denser till materials beneath. Most of the path bridge length would be over low ground or water less than 5 feet deep, as shown in **Exhibit 9**. The



Liquefaction Zone

Shoreline

Qvt Glacial Till

Qyal Alluvium

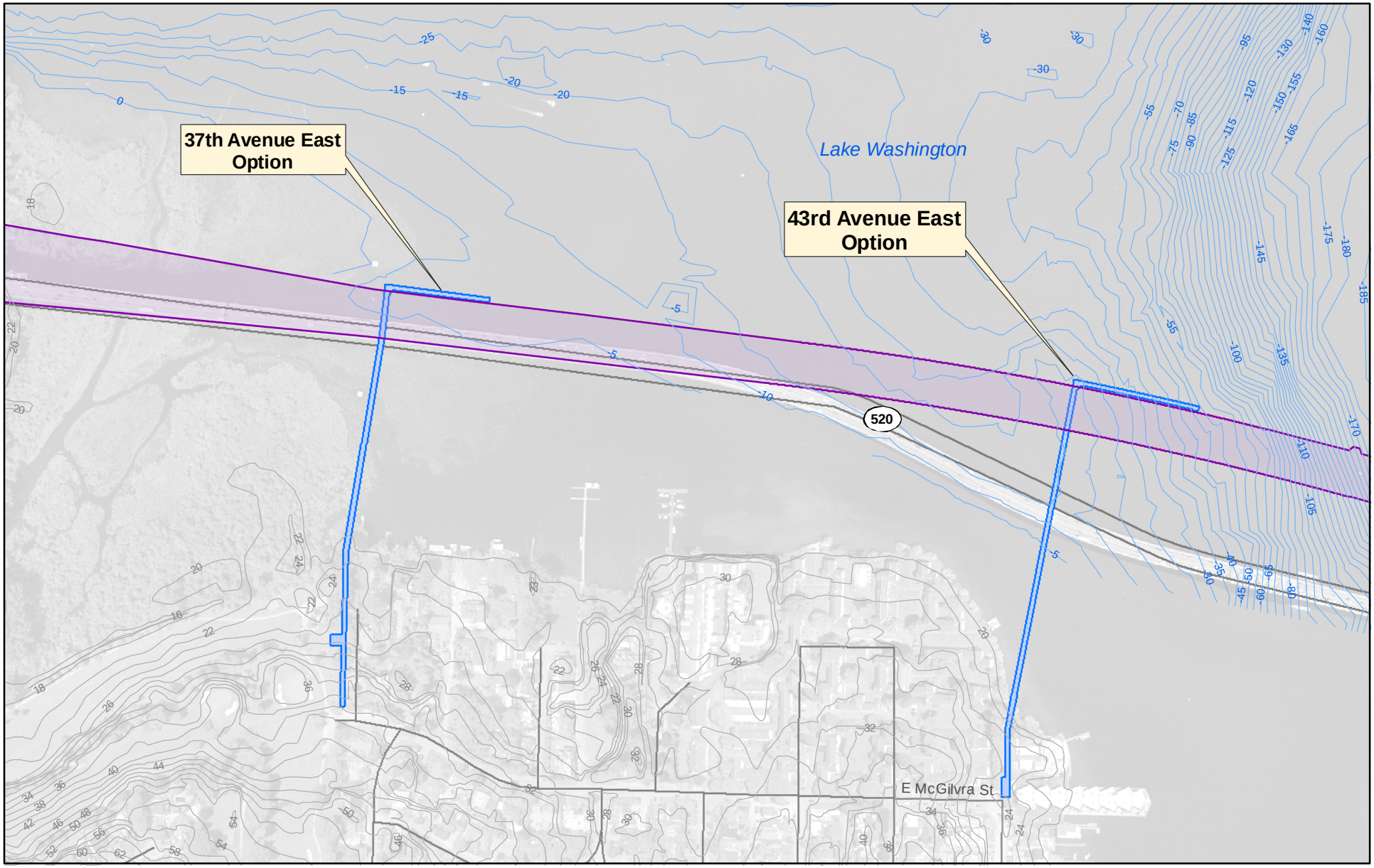
N

0 125 250 500 Feet

Exhibit 8. **Geological Hazard Areas and Surficial Geology**

SR 520 Bridge Replacement and HOV Project

File Path: \\Simba\proj\Parametrix\168395\180171 SR 520 Bridge Replacement\GIS\Layouts\MadisonPark\Geology\Surficial_Geology.mxd, Date: April 28, 2006



*Shallow areas have no Bathymetry lines

2ft Contour

5ft Bathymetry

Madison Park Pedestrian/Bicycle Path

N

0 125 250 500 Feet

Exhibit 9. **Topography/Bathymetry**

SR 520 Bridge Replacement and HOV Project

File Path: \\Simba\proj\Parametrix\168395\180171 SR 520 Bridge Replacement\GIS\Layouts\MadisonPark\Geology\Topo_bath.mxd, Date: April 28, 2006

underwater slope is relatively flat, less than 1 percent. Under the 37th Avenue East option, an additional 400 feet of at-grade path would pass over loose alluvium, and the last 100 feet of path would be over the very dense glacial till.

Drilled or driven piles would need to extend through these upper materials and far enough into the underlying, very dense Vashon till to develop axial and lateral capacity. The piles may have to be designed to withstand the lateral loads from the upper loose soils if they are liquefiable and could move laterally during an earthquake.

Because the 37th Avenue East option bridge would be entirely over water that is less than 5 feet deep or low-lying marshy areas, it would need to be constructed from a separate pile-supported work bridge. The work bridge would probably be supported by temporary piles driven on 20- to 30-foot centers. The effects of building the work bridge would be additional noise, brush and tree cutting, and a small amount of soil disturbance where the piles would penetrate the ground.

It is possible that the subgrade soils may be too weak to support construction equipment or the full height of embankment. This potential problem is commonly overcome by constructing the embankment atop a reinforcing geotextile or grid that both spreads out the load and provides tensile strength to the subgrade.

The bridge portion of the path would be built to avoid collapse and sustain only reparable damage during an earthquake; lateral and vertical loads from liquefiable soil would be considered in the bridge foundation design. The at-grade portions would not be constructed to resist liquefaction. If the soils beneath the path are liquefiable, which is likely, lateral movement and settlement of the path could occur. However, this damage would not endanger human life and be relatively easy to repair.

43rd Avenue East Option

Although the 43rd Avenue East option bicycle/pedestrian path bridge would be about 250 feet longer than the 37th Avenue East option bridge, approximately half of the pile supports could be constructed from a floating barge or work bridges that would be used for construction of the SR 520 Bridge Replacement and HOV project; therefore, less of the near-waterline marshy areas would be disturbed than with 37th Avenue East option. Although the thickness of soft or loose sediments is probably less than along the 37th Avenue East option

route, the greater water depth along the 43rd Avenue East option route would probably offset this advantage. Under the 43rd Avenue East option, the pile lengths would probably be similar to those needed for the 37th Avenue East option.

Most of the 1,000 foot length of the 43rd Avenue East option bridge would be over water and roughly half of it would be in water less than 5 feet deep, as shown in **Exhibit 9**. The last pile supports for the bridge would be at the edge of an approximately 10 percent submarine slope. Although there are likely to be deposits of soft or loose recent alluvium, marsh deposits, and/or Vashon recessional lacustrine sediments at the lake bottom, the depths of these deposits is likely to be less than with the 37th Avenue East option. The remaining 300 feet of path would pass over material mapped as Vashon till.

The at-grade portion of the 43rd Avenue East option path would cross over material that is mapped as Vashon till. After stripping forest floor duff and loose, organic topsoil, the till should provide a good foundation for the path. Settlement, equipment support, and potential for liquefaction during an earthquake would not likely be problems (as they could be for the 37th Avenue East option).

What can be done to avoid or minimize geology and soils negative effects?

Silt curtains would be placed in the water around the work areas to keep turbid water from spreading into Union Bay. These curtains would also keep fish, which can be injured from the percussion of pile driving, away from the work area. Oil-absorbent booms and other emergency spill response supplies would be kept onsite to protect against an accidental fuel, hydraulic fluid, or lubricant release from construction machinery.

The at-grade portion of the 37th Avenue East option path would be constructed over soft, compressible sediments that would be likely to settle additionally over time. The geotechnical exploration program and analysis would reveal how much settlement to expect and approximately how long it would take for most of the settlement to occur. Methods for dealing with the settlement include:

- Constructing the fill, possibly with a slight overbuild to account for the predicted settlement; placing a temporary flexible surfacing such as gravel top course; then allowing most of the settlement to occur before completing the fine grading and paving

- Preloading, which is placing higher amounts of fill than are necessary; allowing the fill to settle approximately the amount predicted under the ultimate fill height (but occurring faster than if the fill was only built to the ultimate height); then removing the excess fill
- Constructing the fill of light-weight materials to minimize the load on the compressible soils

The first method is the least expensive and probably the most appropriate for the grade tolerances needed by a bicycle/pedestrian path.

Hazardous Materials

Affected Environment

How was information collected?

The hazardous materials discipline team relied on information collected as part of the SR 520 Bridge Replacement and HOV Project, including various archives, databases, and maps containing information for the project area. The discipline team collected additional information from multiple data sources, including the following:

- Environmental agency database records search
- Washington State Department of Ecology (Ecology) Northwest Regional Office site files
- Historical fire insurance maps (Sanborn Maps from 1905, 1917, 1950)
- Historical land use maps (Kroll Map Company from 1912-1920, 1939-1950, and 1960-1998)
- King County Tax Assessors tax records

The team reviewed the engineering drawings and conducted a site visit to determine how the Madison Park bicycle/pedestrian path options would affect hazardous materials. Based on this review the team determined whether there are any reasonably predictable or

substantially contaminated sites that could be affected by either of the path options.

Reasonably predictable sites are sites where the nature of the potential contamination is known based on existing investigation data or where it can be reasonably predicted based on best professional judgment. Examples of reasonably predictable sites include underground storage tanks (USTs), leaking USTs (LUSTs), or residential structures that may contain hazardous building materials such as asbestos or lead-based paint.

Substantially contaminated sites are sites that possess a potential for substantial contamination of environmental media (i.e., soil, groundwater, surface water, or sediment), contain contaminants that are persistent or expensive to manage, or lack information to predict remedial costs. Examples of substantially contaminated sites are large bulk petroleum terminals, wood-treating operations, or hazardous waste treatment facilities.

What are the results of the regulatory agency database search?

The 2002 environmental regulatory database search identified sites in or in the vicinity of both options that have a record of hazardous material, substance, or waste handling, or that have the potential to be contaminated or have been contaminated in the past. **Exhibit 10** lists the sites located within 1/2 mile of the Madison Park bicycle/ pedestrian path study area. Environmental Data Research, Inc. (EDR) assigned a map identification number (ID) to each site. These map IDs are shown in **Exhibit 11**.

Exhibit 10. Sites with Hazardous Materials, Hazardous Wastes, or Contaminated Material Within 1/2 Mile of the Project Area

Map ID	Site Name	Agency Lists	Cleanup Status[a]
84	Residence	ICR	Petroleum product in soil due to heating fuel tank. Final cleanup report by Ecology received as of 5/5/1994.
87	Broadmoor Golf Club	ICR, LUST, UST	Petroleum products in soil due to leaking UST. Tanks removed. Final cleanup report received by Ecology as of 11/25/1991.
90	Larson Property	ICR	Petroleum product in soil due to heating fuel tank. Interim cleanup report received as of 3/22/1993.

Exhibit 10. Sites with Hazardous Materials, Hazardous Wastes, or Contaminated Material Within 1/2 Mile of the Project Area

Map ID	Site Name	Agency Lists	Cleanup Status[a]
97	Worthy Property	ICR	Petroleum product in soil due to heating fuel tank. Final cleanup report received by Ecology as of 6/23/1993.
Landfill	Washington Park Abandoned Landfill (Arboretum)	Abandoned Landfill	Seattle-King County Department of Health concluded that the site posed low environmental health risk. No further study was recommended.

Databases Used and Their Definitions	
ICR = State Independent Cleanup Reports List	Cleanup action reports received by Ecology for review and approval. Cleanup actions are done without Ecology oversight.
LUST = State Leaking Underground Storage Tank List	Reported leaking underground storage tank (LUST) incidents.
UST = State Registered Underground Storage Tank List	Registered underground storage tanks (USTs). Registration is not required for residential heating oil USTs.

[a] Unless otherwise noted, cleanup status provided by EDR (2002).

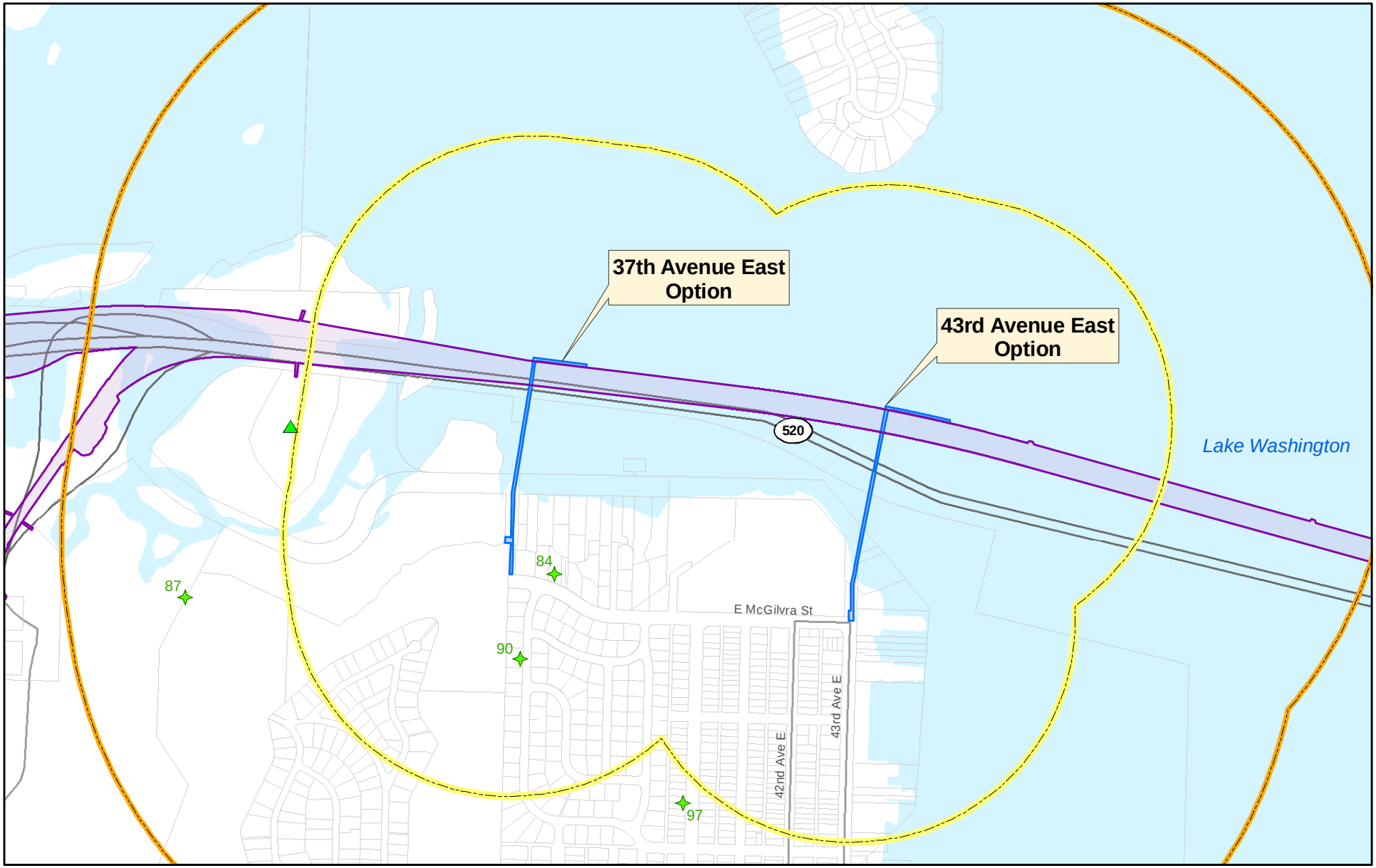
The hazardous materials discipline team requested the site file information for the Broadmoor Golf Club and the three residential properties listed in **Exhibit 10** from the Ecology Northwest Regional Office. The only site file available for review was for the Broadmoor Golf Clu, which identified one LUST was located between 1/4 and 1/2 mile from the path options. The reported release from this LUST occurred in 1991 and has reportedly been cleaned up.

What are the results of the historical records search?

The hazardous material discipline team reviewed historical records, including Sanborn fire insurance maps, Kroll Atlases, and King County Tax Assessor's records. This review did not reveal any sites with a history that would indicate the existence of a reasonably predictable or substantially contaminated site.

King County Tax Assessors

The King County Tax Assessor's records were reviewed for properties located immediately adjacent to the path options routes. This information was accessed to determine the age of the structures and the likelihood that heating oil tanks would be present.



Reasonably Predictable Sites:

- ICR
- Landfill

Area within 1/4 - Mile Radius of Project Area Centerline

Area within 1/2 - Mile Radius of Project Area Centerline

N

0 250 500 1,000 Feet

Exhibit 11. **Listed Sites**

SR 520 Bridge Replacement and HOV Project

File Path: \\Simba\proj\Parametrix\168395\180171 SR 520 Bridge Replacement\GIS\Layouts\MadisonPark\HazMat\Hazard_MP.mxd, Date: April 28, 2006

It is possible the property at 2520 37th Avenue East and the Edgewater Condominiums may still have a heating oil tank due to the age of the structure.

Washington Park Abandoned Landfill

A study of abandoned landfills in Seattle (Seattle-King County Department of Health 1984) identifies historical landfill sites in the Washington Park Arboretum area. However, based on the sample findings, the age of the landfill, and the relatively benign wastes, the study concluded that the historical landfills were a low environmental health risk. No further study was recommended by the Department of Health.

Are there any reasonably predictable sites located within the study area?

Four reasonably predictable sites were identified within a 1/2-mile radius of the path options. A summary of the cleanup status as provided by EDR is shown in **Exhibit 10**.

Are there any substantially contaminated sites located within the study area?

No substantially contaminated sites were identified within a 1/2-mile radius of either path option.

Project Effects

How would the project affect hazardous materials sites?

37th Avenue East Option

None of the hazardous materials and contaminated sites of concern in the study area are expected to have an effect on the proposed 37th Avenue East option. The 37th Avenue East option would not disturb or alter any hazardous material sites, identified contaminated sites, or potentially contaminated sites.

With the 37th Avenue East option, petroleum-affected soil from previously undiscovered LUSTS could possibly be encountered during ground-disturbing activities. Heating oil tanks may be present at the residential property located at 2520 37th Avenue East, based on the age of the structure.

43rd Avenue East Option

None of the hazardous materials and contaminated sites of concern in the study area are expected to have an effect on the 43rd Avenue East option. The 43rd Avenue East option would not disturb or alter any hazardous material sites, identified contaminated sites, or potentially contaminated sites.

During ground-disturbing activities, there is the possibility of encountering petroleum-affected soil from undiscovered LUSTs. Based on the age of the Edgewater Condominiums complex, heating oil tanks may be present immediately adjacent to the 43rd Avenue East option.

What can be done to avoid or minimize negative hazardous materials effects?

Mitigation measures for encountering potentially contaminated soil include requiring the construction contractor to have a soil construction contingency plan and to be familiar with Ecology's *Guidance for Remediation of Petroleum Contaminated Soils* (Ecology 1995). In addition, WSDOT's guidance for proper handling and removal of contaminated solids will be followed (WSDOT 2006). Both of these documents would help to identify procedures, chains of responsibility, and concentration levels requiring cleanup if contaminated soil was encountered.

Land Use

Affected Environment

How was information collected?

The land use discipline team consulted maps created in a geographic information system (GIS), including King County assessors data and land use and neighborhood plans. They also conducted a visual survey of the Madison Park neighborhood to identify land uses and neighborhood characteristics within or close to the project area. The City of Seattle's website also provides information about neighborhood characteristics and current and planned land uses in the project area.

What are the land uses and neighborhood characteristics of the project area?

The Madison Park neighborhood is defined by Parkside Drive which generally serves as the western boundary, Lake Washington Boulevard East as the southern boundary, and the shores of Union Bay to the north and Lake Washington to the east. The Madison Park neighborhood is buffered to the west by the green space of the Broadmoor Golf Club and, farther west, the Washington Park Arboretum (see **Exhibit 12**). Most of the homes are either near or overlooking Lake Washington to the east and Union Bay to the north.

As shown in **Exhibit 12**, the Madison Park neighborhood is made up of primarily single-family residences with some multifamily, commercial, and park land uses. Many of the single-family residences reflect stately turn-of-the-century architecture with mature, lushly landscaped properties. The multifamily residences are made up of condominium complexes, with the largest and oldest being the 316-unit Edgewater built in 1938. Other condominiums include Madison Point, Lakeshore West, and the Lake House, which were built in the 1960s and 1990s and are located along the shores of Union Bay to the north and Lake Washington to the east.

East Madison Street is the main arterial connecting Madison Park to other nearby neighborhoods, downtown Seattle, and I-5. The street is lined with neighborhood commercial uses, including various retail shops and restaurants. The Madison Park neighborhood also has a local business district at the east end of Madison Avenue.

Lake Washington Boulevard East is a collector arterial running through the Washington Park Arboretum that connects East Madison Street to SR 520 to the north. Lake Washington Boulevard and the Arboretum are key elements of Seattle's Olmstead-designed system of parks and boulevards. Other parks and recreational uses in the neighborhood are discussed under the *Recreation* section of this report.

Public facilities in the Madison Park neighborhood include a fire station at the corner of East Madison Street and Lake Washington Boulevard East, and a school at Garfield and East 28th Street. Madison Park (the public park) sits on the shoreline of Lake Washington near the end of East Madison Street. In the summer, Madison Beach attracts swimmers and sunbathers from outside the neighborhood. A children’s play area and tennis courts are across the street from the beach.

Single Family Residential
Multifamily Residential
Park, Open Space, and Recreation
Civic and Quasi-Public
Right-of-Way
Commercial
Industrial
Vacant
6-Lane Alternative Footprint

N

0 500 1,000 Feet

Exhibit 12. **Existing Land Uses**

SR 520 Bridge Replacement and HOV Project

Project Effects

How would the project affect land uses and neighborhood characteristics?

Better conditions for bicycling and walking would have an intangible benefit to the quality of life for surrounding neighborhoods. Bicycling and walking can be considered as an indicator of a community's livability—a factor that has a profound effect on attracting businesses and workers as well as tourism. In cities and towns where people can regularly be seen out bicycling and walking, there is a sense that these are safe and friendly places to live and visit.

37th Avenue East Option

The 37th Avenue East option would run through property currently owned by the City of Seattle and used for public shoreline access and access to two private residences (see the Shoreline Access Trail indicated in **Exhibit 13**). The construction of the bicycle/pedestrian path would not affect the use of this property. The recreation analysis indicates that those portions of the shoreline access property that are important to protect (the canoe launching dock and the access trail) would be preserved or replaced with similar or better equipment at a time and in a location that would result in no adverse effect to the recreational activity. In addition, the property would still continue to provide access to the adjacent residences.

Construction of the bicycle/pedestrian path would not affect the land uses on the adjacent properties, including the Broadmoor Golf Club located to the west of the 37th Avenue East option route. Residences on two of the three smaller residential lots to the east of the option route use a gravel drive for access onto their property. These residences currently have short driveways between the gravel drive and their driveways. No property would be acquired either on the west or east of the 37th Avenue East option and the existing access would be maintained.

43rd Avenue East Option

The 43rd Avenue East option would cross within a private drive owned by the Edgewater Condominiums and used by the Madison Point Condominiums for access (**Exhibit 14**). Currently this drive is signed for private use only. The construction of the bicycle/pedestrian path would require improvements along the private drive and would open