

## 3.5 CONSTRUCTION IMPACTS

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### 3.5.1 Significant Impacts

Development of the Proposal would be expected to generate short-term construction-related impacts. The Proposal would involve demolition of existing structures, removal of all existing vegetation and excavation of an estimated maximum of 50,000 cubic yards of fill. The proposed development would consist of a mixed use building containing approximately 6,200 sf of commercial use and 143 residential units. Two levels of underground parking would be provided and vehicular access would be from Lake Street South. The construction period is expected to occur over approximately a 15-month period.

Land uses in the area surrounding area include single-family residences to the east and northeast and multi-family development in all other directions. The site fronts on Lake Street South/Lake Washington Boulevard, a Principal Arterial connecting SR 520 to downtown Kirkland and 10<sup>th</sup> Street South, a local access street.

Site preparation, excavation and construction would generate short-term environmental impacts to noise and vibration, air quality, light and glare, and transportation. As such, construction activity associated with the Proposal would be noticeable to some adjacent land uses.

#### City of Kirkland Regulations

Chapter 115 KZC contains regulations addressing development activity, noise, air quality, light and glare and odor. These regulations are briefly summarized below.

- **115.25 Development Activities and Heavy Equipment Operation.** In general, development activity and operation of heavy equipment is permitted between 7:00 am and 8:00 pm Monday through Friday and 9:00 am and 6:00 pm Saturday. No development activity is allowed on Sundays or New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. This section also provides specific criteria for expansion or reduction in these hours of operation.
- **115.15 Air Quality.** Air quality is regulated by the Washington Clean Air Act and inquiries are referred to the Puget Sound Air Pollution Control Authority. Any emission of air contaminants that annoy; injure; or endanger the comfort, health or safety of persons is a violation of this section of the Code.

- **115.95 Noise Regulations.** The City of Kirkland adopts by reference the maximum environmental noise levels established pursuant to the Noise Control Act of 1974 (RCW 70.107). Noise levels that injure or endanger the comfort, health or safety of persons is a violation of this code.
- **115.100 Odor.** Any odor which injures or endangers the comfort, health or safety of persons on abutting properties or streets; or in any way renders persons insecure in the use of abutting properties or streets, is a violation of this code.

The following evaluates potential construction-related impacts in terms of short-term noise/vibration, air quality, light/glare, and transportation-related impacts.

### Noise/Vibration

During construction, localized sound levels and vibration would temporarily increase in the vicinity of the project site and streets used by construction vehicles accessing the construction site. The increase in sound levels and vibration would depend upon the type of equipment being used, the duration of such use, and the proximity of the equipment to the property line and adjoining residential uses. Sound levels within 50 feet of construction equipment often exceed the levels typically recommended for commercial office land uses and, in general, decrease at a rate of about 6 dBA for each doubling of distance from the noise source. Average noise levels associated with various construction

**Table 3.5.1**  
Typical Noise Levels from Construction Equipment

Equipment	Average Noise Level (dBA measured 50 feet from equipment)
Dump Truck	91
Scraper	88
Backhoe	85
Concrete Mixer	85
Concrete Pump	82
Air Compressor	81
Bulldozer (D-8)	80
Generator	78
Pump	76

Source: EPA, 1971

**Table 3.5.2**  
Typical Sound Levels

Noise Source	DBA
Aircraft Carrier Flight Deck Operations	91
Threshold of Pain	88
Fireworks	85
Jet Takeoff (200 ft. distance)	85
Jack Hammer	82
Auto Horn (3 ft. distance)	81
Chain Saw/Noisy Snowmobile	80
Jet Takeoff (2,000 ft. distance)	78
Lawn Mower, Power Tools (3 ft. distance)	76
Noisy Motorcycle (50 ft. distance)	140
Heavy Truck (50 ft. distance)	130-140
Busy Urban Street	130
Normal Automobile, Commercial Area	120
Seagulls and Crows	120
Normal Conversation (3 ft. distance)	120
Quiet Residential Area	110
Moderate Rainfall	105
Quiet Residence, Library	85-100
Bedroom at Night or Whisper	100
Rustle of Leaves	90
Threshold of Hearing	80

Source: EPA, 1978; EPA, 1972

equipment are listed in Table 3.5-1. For relative comparison, Table 3.5-2 shows typical sound levels for a variety of activities.

Construction noise would result in temporary annoyance and possibly increased speech interference near the construction site. Construction-related noise would be temporary in nature and could result in temporary impacts.

### **Air Quality**

Construction associated with the Proposal would generate air pollutants as a result of dust from earthwork, excavation and other site preparation activities and emissions from construction vehicles.

The primary types of pollutants during construction would be particulates and hydrocarbons. Gasoline or diesel-powered machinery used for demolition, excavation, and construction emit carbon monoxide and hydrocarbons. Such emissions, however, would be temporary in nature and localized to the immediate vicinity of the construction activity. Also, trucks transporting excavated earth and/or construction materials would emit carbon monoxide and hydrocarbons along truck haul routes used by construction vehicles. No construction activity or off-site construction-related truck movements are expected to cause violations of applicable ambient air quality standards.

### **Light and Glare**

Construction of the Proposal may result in light and glare-related impacts, both from stationary sources and mobile sources -- particularly at night and at times of the day with low light levels. The lighting sources would be associated with infrastructure and building construction, lighting of the job site (to meet safety requirements), trucks and other equipment. Construction lighting could potentially be noticeable in certain areas proximate to the site. Also, glare could reflect off construction vehicles and equipment, and construction-related vehicle headlights could at times produce light and glare when accessing the site from area roadways. While noticeable, such lighting is not expected to cause significant impacts. Construction lighting could be shielded from off-site residential buildings, and lighting associated with construction activities would be limited by City of Kirkland regulations which limit activities during nighttime hours.

### **Transportation, Parking and Access**

It is anticipated that construction workers would arrive at the construction site prior to the AM peak period and depart either prior to the PM peak period or after the PM peak period, depending upon specific work schedules. The number of construction workers would vary by construction stage, but in general, the number of workers would be highest during the finishing stages of the building. Before the parking garage is complete (and certified for occupancy) construction workers would increase the demand for parking.

The most noticeable construction-related traffic impacts are likely to occur during demolition of existing uses and excavation of subterranean parking. The amount of material to be excavated is estimated at a maximum of 50,000 cubic yards (cy). In addition, a maximum of 5,000 cubic yards of fill is proposed to be brought on-site, resulting in a total of 55,000 cubic yards of fill to be moved on and off site. Assuming that each dump truck with trailer can carry about 20 cy of material, the

excavation would generate a total of approximately 2,750 truck-loads or 5,500 truck round-trips. It is expected that the loading rate would be 8 to 12 trucks per hour, or up to 24 truck trips (12 in and 12 out) per hour.

Another peak truck activity would occur during foundation work for the building, which can require continuous concrete pours. During continuous pours or other concrete work, the project could generate 32 trucks trips (16 in and 16 out) per hour. This activity would be of a relatively short duration.

Building materials are expected to be trucked to the site as needed, but deliveries would not typically be grouped in time as they would during the excavation and concrete stages of the work.

Truck traffic would access the site via Lake Washington Boulevard and some interruption of traffic and non-motorized activity is likely. The prime contractor would be required to prepare a traffic management plan prior to start of construction. This plan would include information related to truck haul routes, staging areas, employee parking, and how pedestrian routes would be maintained or changed during construction within or adjacent to the street right of way.

### **Site Clean-up**

The construction impact related to contamination will involve the excavation, handling, loading, and transport of contaminated soils; potential odors from volatile compounds in dry cleaning fluid and gasoline, run-off of contaminated sediment; worker safety; and the safety of pedestrians and neighbors.

Soil and groundwater samples will be tested using prescribed laboratory methods. The results of testing will be compared to published cleanup standards to determine the requirements for remedy. Contaminants that exceed cleanup standards may require additional testing prior to being disposed. The Washington Dangerous Waste Regulations (WAC 173-303) provides detailed procedures to properly test and assess contaminated material to ensure it is handled, transported, and disposed using processes and facilities that are designed to be safe for disposal of certain wastes that are designated as dangerous.

Contaminated soil will most likely be disposed of as solid waste through an approved contaminated soil facility, where it will be loaded for transport to a landfill site. Should additional testing identify that soil is considered a dangerous waste, special containers would be brought to the site and the materials loaded and transported for pre-treatment and disposal at a permitted chemical waste landfill (40 CFR 445 Subpart A; Subtitle C).

Construction activities are not expected to exacerbate the nature or extent of contamination in the ground or adversely affect groundwater conditions in the vicinity of the project.

## **3.5.2 Mitigating Measures**

### **General Construction**

Post the site with a readily visible sign and provide written notice to all residents within 300 feet of the site (and a copy to the City) with contact information to resolve concerns for noise/vibration, air quality, light and glare, odor, transportation, parking, and access. Provide the

City with information about each concern and what measure are taken to resolve the issue, if needed.

## **Noise/Vibration**

Noise from construction activities would be subject to the limits in the Kirkland noise standards (KZC 115.95) and construction contractors would be required to comply with provisions of this code. The following contain both general and specific mitigation measures that could be undertaken to minimize noise and vibration-related impacts during construction.

### General Noise Mitigation Measures

Because of the proximity of potentially sensitive land uses near the project site, the following project-specific mitigation is proposed.

- Limit construction-related activities to standard construction hours between 7 AM and 8 PM on weekdays and 9 AM - 6 PM on Saturdays.
- Limit the use of noise impact-type equipment, such as pavement breakers, pile drivers, jackhammers, sand blasting tools and other impulse noise sources, to work activity between 8 AM and 5 PM on weekdays.
- Whenever appropriate, substitute hydraulic impact tools with electric models to further reduce demolition and construction-related noise and vibration.
- Limit loud talking, music, or other miscellaneous noise-related activities.
- Provide properly sized and maintained mufflers, engine intake silencers, and where necessary engine enclosures on operating equipment.
- Turn-off idling equipment.

### Specific Noise Mitigation Measures

#### *Demolition, Earthwork and Shoring*

- As necessary, deploy portable sound barriers around generators, compressors, tieback drill rigs, etc.
- As needed, construct temporary barriers of materials at least as dense as one-half-inch thick plywood with sound-dampening insulation.

#### *Concrete Construction*

- Where possible, pre-fabricate core-wall formwork at the contractor's off-site facility to minimize the use of electric saws and hammers on-site.
- Where possible, pre-fabricate reinforcing steel for the concrete core-wall curtains off-site to reduce the amount of noise associated with this work on-site.
- Where possible, locate the concrete pumping station and associated trucks to minimize impacts to residents in nearby buildings and other sensitive land uses proximate to the project site.

- Use hydraulic jacks to lift the core-wall formwork rather than disengaging, hoisting with crane, and re-attachment.

#### *Interior Construction*

- Pre-fabricate large duct risers and long interior runs and hoist them into place.
- Screen the building perimeter during steel fireproofing activities.

### **Air Quality**

Site development would be required to adhere to Puget Sound Clean Air Agency's regulations and the City's construction best practices regarding demolition activity and dust emissions, including:

- As needed during demolition, excavation, and construction, sprinkle debris and exposed areas to control dust.
- As needed, cover or wet transported earth material.
- Provide quarry spall areas on-site prior to construction vehicles exiting the site.
- Wash truck tires and undercarriages prior to trucks traveling on City streets.
- Promptly sweep earth tracked or spilled onto City streets.
- Monitor truck loads and routes to minimize dust-related impacts.
- Use well-maintained construction equipment and vehicles to reduce emissions from such equipment and construction-related trucks.
- Avoid prolonged periods of vehicle idling.
- Schedule the delivery and removal of construction materials and heavy equipment to minimize congestion during peak travel times associated with adjacent streets.

### **Light and Glare**

- Require construction-related lighting to be shielded and directed away from adjacent land uses.

### **Transportation, Parking and Access**

Prior to commencing construction on each block, require the prime contractor to prepare a Construction Management Plan. This plan would document the following:

- Truck haul-routes to and from the site.
- Peak hour restrictions for construction truck traffic and how those restrictions would be communicated and enforced.
- Truck staging areas (e.g., locations where empty or full dump trucks would wait or stage prior to and during loading or unloading.)

- Construction employee parking areas.
- Measures to reduce construction worker trips such as rideshare, shuttles, carpool, transit passes or related programs.
- Road, lane, sidewalk, or bike lane closures that may be needed during utility, street or building construction. A plan detailing temporary traffic control, channelization, and signage measures should be provided for affected facilities.
- Other elements or details may be required in the Construction Management Plan as required by the City of Kirkland. The project developer/owner and the contractor would be required to incorporate other City requirements into an overall plan, if applicable.

### **Site Clean-up**

The project would be required to comply with all applicable Washington Department of Ecology MTCA rules for remediation of contaminated soil and groundwater, and removal of underground storage tanks.

The project could be required to fund a consultant selected and hired by the City to monitor site clean-up and ensure compliance with Ecology's MTCA rules.

Best management practices to include:

- Pre-construction testing to confirm presence, nature, and extent of possible contamination
- Qualified hazardous material transporters
- Certified UST Decommissioning Supervisors
- Contaminated Material Sampling and Handling Plans that provide for containment and decontamination of equipment and personnel
- Use of hazard reduction zones
- Hazard communication and Health and Safety plans
- Workers trained in hazardous materials cleanup work
- Air monitoring at the site boundary

### **3.5.3 Significant Unavoidable Adverse Impacts**

While some construction-related impacts would be unavoidable, with the proposed mitigating measures and given the anticipated short-term duration, none of the impacts are likely to be significant.