Appendix A
Document Support Information

Appendix A1

References

Appendix A1

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Appendix A2

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Appendix A2

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Appendix A3

List of Recipients/Distribution List

Appendix A3

List of Recipients / Distribution List

A3.1 Federal Agencies

Advisory Council on Historic Preservation
Federal Highway Administration
Federal Motor Carrier Safety Administration
National Oceanic and Atmospheric Administration
U.S. Army Corps of Engineers
U.S. Bureau of Indian Affairs
U.S. Fish and Wildlife Service
U.S. Department of the Interior/National Park Service
U.S. Environmental Protection Agency (Region 10)

A3.2 Tribes

Confederated Tribes and Bands of the Yakama Nation
Muckleshoot Indian Tribe
Puyallup Tribe of Indians
Duwamish Tribe
Snohomish Tribe
Snoqualmie Indian Tribe
Stillaguamish Tribe of Indians of Washington
Suquamish Indian Tribe of the Port Madison Reservation

A3.3 State Agencies

Washington State Department of Ecology
Washington State Department of Fish and Wildlife
Washington State Department of Transportation
Washington State Department of Natural Resources
Washington State Department of Archaeology and Historic Preservation
Washington State Patrol

A3.4 Regional Agencies

Port of Seattle
Puget Sound Clean Air Agency
Puget Sound Regional Council

A3.5 County Agencies

King County

A3.6 Transit Agencies

King County Metro Transit
Pierce Transit

A3.7 Cities

City of SeaTac
City of Des Moines
City of Kent
City of Federal Way

A3.8 Libraries

King County Library System:

- Des Moines Library, 21620 11th Ave S, Des Moines
- Kent Library, 212 2nd Ave N, Kent
- Woodmont Library, 26809 Pacific Highway S, Des Moines
- Federal Way 320th Library, 848 S 320th Street, Federal Way
- Federal Way Library, 34200 1st Way S, Federal Way

Washington State Library: Point Plaza East, 6880 Capitol Boulevard SE, Tumwater

A3.9 Schools and Community Centers

Federal Way Public Schools
Highline College
Highline School District
Kent School District

A3.10 Utilities

Century Link
Comcast
Highline Water District
Lakehaven Utility District
Level 3 Communications
Midway Sewer District
Puget Sound Energy
Seattle Public Utilities

Appendix A4

Acronyms and Glossary

Appendix A4

Acronyms and Glossary

Acronyms and Abbreviations

µg/m^3	micrograms per cubic meter
ACS	American Community Survey
ADT	average daily traffic
APE	Area of Potential Effects
ARMTP	Archaeological Monitoring and Treatment Plan
AST	aboveground storage tank
B&O	Business and Occupation [tax]
BAT	business access and transit
BMP	best management practice
Board	Sound Transit Board of Directors
BPA	Bonneville Power Administration
BRT	bus rapid transit
Btu	British thermal unit
CAA	Clean Air Act of 1970
CAC	collision analysis corridor
CAL	collision analysis location
CALTRANS	California Department of Transportation
CD	compact disk
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CSZ	Cascadia Subduction Zone
DAHP	Department of Archaeology and Historic Preservation
dB	decibel
dBA	A-weighted decibel
DOT	U.S. Department of Transportation
Ecology	Washington State Department of Ecology
EDR	Environmental Data Resources, Inc.
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EMF	electromagnetic field
EMI	electromagnetic interference
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency

FGTS	Freight Goods Transportation System
FHWA	Federal Highway Administration
FR	Federal Register
FTA	Federal Transit Administration
FWLE	Federal Way Link Extension
GIS	geographic information system
GHG	greenhouse gas
GMA	Growth Management Act
HC	Highline College
HCDF	high-compliance direct-fixation
HCM	Highway Capacity Manual
HCT	high-capacity transit
HOV	high-occupancy vehicle
HSM	*Highway Safety Manual*
HSS	highway of state significance
I-5	Interstate 5
ID	identification
IDP	Inadvertent Discovery Plan
ITE	Institute of Transportation Engineers
KOP	key observation points
kV	kilovolt
lb/day	pounds per day
Ldn	day-night average sound level
LEED	Leadership in Energy and Environmental Design
LEP	limited English proficiency
Leq	equivalent sound level
LID	low-impact development
Lmax	loudest 1 second over a measurement period
Long-Range Plan	Regional Transit Long-Range Plan (Sound Transit, 2014)
LOS	level of service
LWD	large woody debris
MBTA	Migratory Bird Treaty Act
Metro	King County Metro Transit
MEV	million entering vehicles
mg/kg	milligrams per kilogram
MMBtu	million British thermal units
MOVES	Motor Vehicle Emission Simulator
mph	miles per hour
MSATs	mobile source air toxics
MTCA	Model Toxics Control Act
$MTCO_2e$	metric tons of carbon dioxide equivalent
MTP	Metropolitan Transportation Plan
MVMT	million vehicle miles traveled
MWh	megawatt hour

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act of 1966
NHTSA	National Highway Traffic Safety Administration
non-HSS	non-highway of state significance
NOx	nitrogen oxides
NPL	National Priorities List
NRHP	National Register of Historic Places
O_3	ozone
OCS	overhead catenary system
OMF	operations and maintenance facility
PCB	polychlorinated biphenyl
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PSCAA	Puget Sound Clean Air Agency
PSE	Puget Sound Energy
PSRC	Puget Sound Regional Council
RCA	resource conservation area
RCW	Revised Code of Washington
ROD	Record of Decision
RTIP	Regional Transportation Improvement Program
Sea-Tac Airport	Seattle-Tacoma International Airport
SEIS	Supplemental Environmental Impact Statement
SEPA	Washington State Environmental Policy Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
Sound Transit	Central Puget Sound Regional Transit Authority
Sound Transit Board	Sound Transit Board of Directors
SOV	single-occupancy vehicle
SR	State Route
SSMP	safety and security management plan
ST2	*Sound Transit 2: A Mass Transit Guide; The Regional Transit System Plan for Central Puget Sound* (Sound Transit, 2008)
ST3	*Sound Transit 3: The Regional Transit System Plan for Central Puget Sound* (Sound Transit, 2016)
TAZ	transportation analysis zone
TDA	tire-derived aggregate
TOD	transit-oriented development
TPSS	traction power substation
U.S.C.	United States Code

USDOT	U.S. Department of Transportation
USGS	U.S. Geological Survey
UST	underground storage tank
v/c	volume to capacity
VdB	velocity level in decibels
VHD	vehicle hours of delay
VHT	vehicle hours traveled
VMT	vehicle miles traveled
VOC	volatile organic compound
WAAQS	Washington Ambient Air Quality Standards
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WHR	Washington Heritage Register
WISAARD	Washington Information System for Architectural and Archaeological Records Data
WRIA	Water Resources Inventory Area
WSDOT	Washington State Department of Transportation

Glossary of Terms

Access time. The time required to walk, bicycle, or drive from the origin of the trip (for example, from home) to a (boarding) transit stop, plus the waiting time based on the frequency of transit service, and/or the transfer time and the walking or driving time from the transit (de-boarding) stop to the destination. For auto trips, it is the time required to walk to and from parking places, and delays within parking facilities, if any.

Accessibility. The ease by which an individual can reach desired activities in any location by use of the transportation system.

Air pollutant (also, Air Contaminant). Smoke, dust, fumes, or odors in the ambient air that have the potential for harmful effects.

Air quality maintenance area. Maintenance areas are geographic areas with a history of nonattainment of National Ambient Air Quality Standards (NAAQS) but which now consistently meet NAAQS. They have the potential to violate a federal or state ambient air quality standard, based on expected growth and development in the area.

Alignment. Horizontal geometric elements, which define the location of the light rail track or roadway.

Alignment option. An alternate route along a portion of an alternative's alignment. An alignment option does not include a station.

Alluvium. An unconsolidated, terrestrial sediment composed of sorted or unsorted sand, gravel, and clay that have been deposited by water.

Annualized capital cost. A one-time capital cost converted into an annual value that incorporates both the depreciation on the capital item and the foregone interest on the money invested in the project.

Archaeological sensitivity zone. An area where the potential for finding an archaeological resource is high. See **high probability areas.**

Area source. A general classification of the origin of an air pollutant (e.g., park-and-ride lots are area sources of carbon monoxide emissions).

Arterial. A major thoroughfare used mainly for through traffic rather than access to adjacent property. Arterials generally have greater traffic-carrying capacity than collector or local streets and are designed for continuously moving traffic.

Artifact. Any portable object used and/or modified by civilization (particularly during prehistoric times).

At-grade crossing. Any intersection of two or more flows of traffic at the same elevation (possibly involving more than one mode of transportation), such as road crossings by light rail.

At-grade profile. Where the light rail track is at the same grade (ground level) as the surrounding terrain.

Atmospheric stability. A measure of the capacity of the ambient air to disperse air pollutants.

Attainment area. An Attainment Area is an area considered to have air quality as good as or better than the national ambient air quality standards for specific pollutants as defined in the Clean Air Act.

Average annual megawatt. The average hourly demand for or supply of electricity measured in megawatts over a year.

Average daily traffic (ADT). The total volume of traffic during a given time period divided by the number of days in that time period, representative of average traffic in a one-day time period.

A-weighted sound level. To approximate the way humans interpret sound, a filter circuit with frequency characteristics similar to the human hearing system is built into sound measurement equipment. Measurements with this filter enacted are referred to as A-weighted sound levels, expressed in dBA. (See **decibel**.)

Background concentration. The pollutant level that would exist at a site in the absence of air pollution

sources in the neighborhood of the site (different from Modeled Concentration).

Ballasted track. A track structure consisting of rail, tie plates or fastenings, cross ties, and the ballast/subballast bed supported on a prepared subgrade. The subgrade may be a compacted embankment or fill section, an excavation or cut section, or a bridge structure. Ballasted track is generally the standard for light rail transit routes that are constructed on an exclusive right-of-way.

Baseline energy consumption. Energy consumption, usually for a no-build alternative, that is used as a reference against which energy consumption for a build alternative is compared.

Boarding. Term describing the arrival of passengers onto a bus or transit vehicle.

Boarding trips. A trip on a transit line or group of lines where each boarding of a transit vehicle is considered the start of a new trip. Number of trips boarding (entering) transit vehicles, regardless of whether the trip involves a transfer from another transit vehicle. A fare may or may not be collected for each boarding trip, depending on whether a transfer is used.

British thermal unit (Btu). An energy unit equal to the quantity of heat required to raise the temperature of 1 pound of water 1 degree Fahrenheit. One therm equals 1,000,000 Btu.

Capacity, person. The maximum number of persons that can be carried past a given location during a given time period under specified operating conditions without unreasonable delay, hazard, or restriction. Usually measured in terms of persons per hour.

Capacity, roadway. The maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway and traffic conditions.

Capacity, vehicle. The maximum number of vehicles that can be accommodated in a given time by a transit or highway facility.

Capital costs. Nonrecurring costs required to construct transit systems, including costs of right-of-way, facilities, rolling stock, power distribution and the associated administrative and design costs, and financing charges during construction.

Carbon monoxide (CO). A colorless, odorless, tasteless gas, and one of the criteria air pollutants released from automobile exhaust.

Carpool. A group of passengers and drivers organized to use one automobile on a regular basis, riding together, for the same trip purpose (generally the work trip).

Cathodic protection. Cathodic protection is an effective method of preventing stress-corrosion cracking. It is a technique used to control the corrosion of a metal surface by making that surface the cathode or terminal that transports the current.

Census tract. A Census tract is a small subdivision of an urban area used by the U.S. Census Bureau to identify population and housing statistics. Census blocks are subdivisions of census tracts and are the smallest unit of census geography for which the Census Bureau collects data. The boundaries of census blocks are generally streets or other notable physical features and often correspond to a city block. A census block group is a combination of census blocks, typically encompassing two to four city blocks. The Census collects some information at the block level, some at the block group level, and some at the tract level.

Channelization. The use of traffic markings or islands to direct traffic into certain paths. For example, a “channelized” intersection directs portions of traffic into a left turn lane through the use of roadway islands or striping that separates the turn lane from traffic going straight.

Circulation. The free movement or passage of a vehicle, pedestrian, bicycle, or other transportation mode through a given area.

Compensatory mitigation. The restoration (reestablishment or rehabilitation), establishment (creation), enhancement, and/or preservation of wetlands, streams and other aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after avoidance and minimization.

Concentration. A measure of the air pollutant in the ambient air, having the units of mass per volume.

Conformity. A process that ensures federal funding and approval goes to transportation activities consistent with federal air quality goals. The Federal Highway Administration and the Federal Transit Administration jointly determine that specific regions meet air quality standards.

Construction energy. In transportation analysis, the energy used to build stations, terminals, roadbeds, trackbeds, tunnels, vehicles, and other equipment and facilities. Construction energy includes the energy content of materials and the energy used to haul and place them.

Construction staging area. During construction, a site temporarily used for materials or equipment storage, assembly, or other temporary, construction-related activities.

Corridor. A general path from one point to another; the East Link study corridor begins in Seattle and travels to Redmond.

Couplet. A place where a two-way street changes temporarily into a one-way paired set of streets.

Criteria air pollutants. Those air pollutants that have been recognized by the U.S. EPA as potentially harmful and for which standards have been set to protect the public health and welfare. The criteria air pollutants are carbon monoxide, sulfur dioxide, particulates, nitrogen dioxide, ozone, hydrocarbons and lead.

Cumulative impact. Impacts on the environment resulting "from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 Code of Federal Regulations 1508.7)

Day night sound level (Ldn). Ldn, also abbreviated DNL, is a 24-hour equivalent continuous sound level (Leq), but with a 10-dB penalty assessed to noise events occurring at night. Nighttime is defined as 10 p.m. to 7 a.m. This strongly weights Ldn toward nighttime noise because most people are more easily annoyed by noise during the nighttime hours when background noise is lower and most people are sleeping.

***de minimis* impacts**. Section 4(f) *de minimis* impacts cannot "adversely affect the activities, features, and attributes" of a Section 4(f) resource. For public parks or recreation properties, a *de minimis* impact finding requires written concurrence from the agency with jurisdiction over the property. For historic and archaeological sites, a *de minimis* impact is allowed if FTA has determined "no adverse effect" in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA). When FTA has made a *de minimis* determination, the project is not required to analyze avoidance alternatives for that Section 4(f) property.

Decibel. The unit used to measure the loudness of noise.

Design year. The year 2035, for which ridership forecasts and volumes were estimated to determine the design features required for the proposed FWLE improvements.

Direct-fixation track. A "ballastless" track structure in which the rail is mounted on direct-fixation fasteners that in turn are anchored to an underlying concrete slab. Direct fixation is

generally the standard for light rail transit routes constructed on aerial structure. Direct-fixation track is also used for construction of at-grade track under unusual circumstances, such as when there is a relatively short segment of at-grade track between two direct-fixation track structure decks.

Displacement. A property acquisition that would require removing an existing use.

Disturbed habitat. A habitat in which naturally occurring ecological processes and species interactions have been significantly disrupted by the direct or indirect results of human presence and activity.

Drop-off zone. A station that provides temporary loading and unloading facilities for autos and/or buses. The station may be combined with feeder bus stations.

Ecologically sensitive area. An area, valued locally for its rare or sensitive habitat, existing in a relatively undisturbed, natural state and supporting indigenous species.

Elasticity. In economic analysis, the sensitivity of the demand or supply of a commodity to changes in another variable (e.g., the price elasticity of gasoline is the ratio of the percent change in consumption to percent change in price).

Elevated guideway. A guideway that is positioned above the normal activity level (e.g., elevated structure for light rail to cross over a street).

Embedded track. A track structure that is completely encased—except for the tops and gauge sides of the rails—within pavement. Embedded track is generally the standard for light rail transit routes constructed within public streets, pedestrian/ transit malls, or any area where rubber-tired traffic must operate.

Emission. Particulate, gaseous, noise, or electromagnetic byproducts of the transit system or vehicle.

Emission control. Method by which emissions are governed in an effort to minimize the pollutants and/or noise emitted.

Emission inventory. A listing by emission source of the amounts of air pollutants released into the atmosphere (generally, in tons or kilograms per day).

Emission source. The origin of an air pollutant (e.g., automobiles and trucks are sources of carbon monoxide, hydrocarbons, and nitrogen oxides).

Emission standards. A limitation on the release of an air contaminant into the ambient air (e.g., the federal government limits carbon monoxide, hydrocarbon, and oxides of nitrogen (NOx) emissions per mile of travel in new automobiles).

Endangered species. According to the Federal Endangered Species Act of 1973, an endangered species is any species in danger of extinction throughout all or a significant portion of its range, other than an insect determined by the Secretary of the Interior to constitute a pest whose protection under the provisions of this act would present an overwhelming and overriding risk to man.

Energy factor. A number that when multiplied by the appropriate usage units (e.g., vehicle miles, tons, dollars), yields a measure of energy consumption (e.g., 0.5 gallon per vehicle mile x 10 miles = 5.0 gallons consumed for propulsion).

Energy system. The network of major and minor routes, vehicles, facilities, and other energy-consuming entities that are considered in energy analysis.

Equity. The incidence of fairness and the distribution of benefits, costs, and impacts among population subgroups except as defined for subareas per allocations set out in Sound Move.

Equivalent sound level (Leq). Leq is a measure of sound energy over a period of time. It is referred to as the equivalent sound level because it is equivalent to the level of a steady sound which,

over a referenced duration and location, has the same A-weighted sound energy as the fluctuating sound.

Express service. Transit service where a very limited number of stops are made.

Facilities energy (also, station energy). A portion of the operational energy that includes the energy to operate parking lots, administration buildings, and other facilities. It does not include propulsion or maintenance energy.

Facility. The means by which a transportation mode is provided. For example, a sidewalk is a facility for pedestrians as is a highway is a facility for vehicles.

False-work. Temporary support structures used during construction of a structure not yet able to support itself.

Fare. The authorized amount (cash or token) paid or the valid transfer or pass, presented for a transit ride.

Fare box. A device that accepts and, in some cases, registers coins and tokens used by passengers as payment for rides.

Fare structure. The methodology of determining the fare that a passenger pays for service.

Feeder bus station. A station that provides lateral bus transportation service for riders to transfer to a light rail mode.

Feeder service. Local transit service that feeds trunkline (usually faster and at higher capacity) transit service.

Fixed route. Transit service provided on a repetitive, fixed-schedule basis along a specific route with transit vehicles stopping to pick and deliver passengers to specific locations.

Footprint. The *permanent* footprint of the project includes all of the area permanently converted to light rail uses, including guideway, stations, tail tracks, and other facilities. The *construction* footprint includes areas beyond the permanent footprint needed for construction access or staging.

Forest or woodland habitat. A habitat type generally dominated by Douglas fir, western red cedar, and western hemlock, frequently with a hardwood understory. The ground cover is generally lush. Birds and small mammals abound, and larger mammals are common in large stands.

Frequency, vehicle. Time rate of vehicle arrivals at a station stop or along a transit line.

Full acquisition. A type of property encroachment that would require the acquisition of the full parcel and displace the current use.

General-purpose lane. Term to describe a traffic lane on a highway that can be used by all types of vehicles including single occupant autos, carpools, trucks and motorcycles.

Grade-separated. Parallel or crossing lines of traffic that are vertically or horizontally physically separated from each other and do not share a common intersection.

Greenhouse gas (GHG). Greenhouse gases include CO_2, methane (CH_4), O_3, water vapor, nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These gas emissions are collectively leading to the greenhouse effect, trapping the sun's solar rays and leading to an increase in Earth temperature.

Groundborne noise. Noise that is transmitted through the ground, typically reported in decibels.

Groundborne vibration. A small but rapidly fluctuating motion transmitted through the ground, typically reported as velocity or acceleration.

Guideway. Specifically designed way traversed by transit vehicles constrained to the way.

Habitat function. Terrestrial plant communities, wetlands, and aquatic systems such as streams provide a variety of functions in the environment.

For instance, depending on the condition and location of a wetland, wetland functions might include water quality improvement, groundwater recharge, nutrient and sediment filtering, and habitat for a variety of animals, as well as education and recreation opportunities for people—the habitat function is one of several functions potentially performed by wetlands. Similarly, terrestrial and aquatic systems each also may perform many functions. When they provide habitat for animals, they are said to be performing or providing a "habitat function."

Habitat value. The value of plant community's function as determined by the habitat's ability to support the needs of biological species. High-value habitats are those that support or may support threatened, endangered, and/or sensitive species as determined by the federal, state, and local jurisdictions.

Headway. The headway between vehicles in public transit systems is the amount of time (usually in minutes) that elapses between two vehicles passing the same point traveling in the same direction on a given route.

Hide-and-ride. Parking by transit users in neighborhoods surrounding transit stations, generally caused by parking demand that exceeds supply at the transit station.

High-capacity transit (HCT). A system of public transportation services within an urbanized region operating principally on exclusive rights-of-way, examples include light rail transit or express buses on exclusive bus ways and their supporting services.

High-occupancy vehicle (HOV). Any passenger vehicle that meets or exceeds a certain predetermined minimum number of passengers, for example, more than two or three people per automobile. Typically includes carpools with two or more people, vanpools, and buses.

High probability areas (HPAs). Areas that have moderate, high, or very high probability of containing archaeological materials according to Washington Department of Archaeology and Historic Preservation's predictive model.

Highway clear zone. An unobstructed area beyond the edge of the traveled way that allows a driver to stop safely or regain control of a vehicle that leaves the traveled way.

Hours of service. The number of hours during the day between the start and end of service on a transit route, also known as the service span.

Hydrocarbon. Nonmethane hydrocarbon that contributes to the formation of photochemical oxidants (commonly known as smog), primarily ozone.

Impedance value. A factor used to weight the time spent waiting for transit. Often computed as 2.1 times the in-vehicle time.

Indirect impacts. Impacts caused by an action and later in time or farther removed in distance, but still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR § 1508.8).

Indirect energy. A term used to denote all energy inputs for the construction, operation, and maintenance of a system.

Indirect source. An entity that does not directly emit pollutants but attracts emission sources such as automobiles and trucks. Shopping centers, stadiums, and highways are examples of indirect sources.

Induced trips. Trips generated because of the construction of a new (transportation) facility. (Different from Shifted Trips).

Integration with other modes. Method by which a transit system interfaces with other modes of transportation.

Interchange. The system of interconnecting ramps between two or more intersecting roadways or guideways that are grade-separated.

Interim terminus. A station where the project would operate until the next portion of the project can be built. The terminus would typically include a station with tail tracks extending beyond the station for layover of trains.

Interslab subduction zone. Interslab subduction zone is the zone between the earth's crustal plates. This zone is the source of large earthquakes off the coast of Washington.

Joint development. Opportunities for the development or redevelopment of adjacent parcels (in station areas) in a manner that would support both the transit investment and the community objectives through the use of both public and private funds.

Key observation point (KOP). A view location used to describe existing visual conditions and to analyze

Lacustrine soils. A soil that has been formed in a lake bed.

Land development pattern. The use, types, and intensity of development. Land development patterns affect trip demand, average trip length, and therefore, energy consumption.

Landscaped habitat. A habitat in urban areas having limited native species. Vegetation generally consists of mowed lawns and exotic trees and bushes.

Ldn. The day/night average sound level.

Leq. The equivalent steady-state sound level that, in a specified time period, would contain the same acoustic energy as the varying sound level during the same period; considers volume capacity, travel speeds and delay.

Level of service (LOS). A qualitative measure that represents the collective factors of travel under a particular volume condition. A measure of traffic congestion.

Light rail transit (also light rail). A mode of mass transportation comprising light rail vehicles, which travel on steel tracks and are powered by electricity from overhead wires. This mode is characterized by its ability to operate in both at-grade and/or grade-separated environments.

Link. Sound Transit's light rail system.

Load factor. The average ratio of passengers to seats, during some specified period of operation of a public transit route.

Local service. A type of transit operation involving frequent stops and consequent low speeds, the purpose of which is to deliver and pick up transit passengers as close to their destinations or origins as possible.

Locally Preferred Alternative. Following the publication of a Draft EIS, the Sound Transit Board identifies a Preferred Alternative, consisting of routes and station preferences. This is known as a "locally" Preferred Alternative because FTA has not yet selected a Preferred Alternative.

Maintenance energy. A portion of operational energy that is applied to repair and maintenance of vehicles and buildings in the system. It does not include propulsion or facilities energy.

Median track alignment. In rail operations, a type of alignment where tracks are positioned in the median on the street, as opposed to being positioned on one side of the street.

Megawatt (MW). 1,000,000 watts.

Minimum turn radius. Generally assumed to be the minimum horizontal turn radius (tightest curve).

Minority residents. Those persons who, in responding to the 1990 U.S. Census, indicated their race to be something other than "White" or reported entries that the Bureau of the Census categorized as something other than "White."

Mobility. The ease of continuous movement along the transportation system.

Mobility-limited. As defined for 1990 U.S. Census data, persons who had a health condition (physical and/or mental) that had lasted for 6 or more months and which made it difficult to go outside the home alone.

Mode. A particular form or method of travel, such as pedestrian, bicycle, automobile, bus, or light rail.

Mode share. The percentage of travelers that travel either by SOV, HOV, or transit modes on a given roadway facility.

Mode split. Forecast of proportion of total person-trips that would use each of the various modes of transportation that include transit and cars.

Model Toxics Control Act. The Model Toxics Control Act Cleanup Regulation, WAC 173-340, implements the Model Toxics Control Act, RCW 70.105D, which addresses strict requirements for site discovery and reporting, site assessments, and site remediation. Most important, the regulation defines standard methods used to assess whether a site is contaminated or clean.

Modeled concentration. An air pollutant level, excluding the background level, predicted by a model (see background concentration).

National Ambient Air Quality Standards (NAAQS). Federal limits on levels of atmospheric contamination necessary to protect the public from adverse effects on health (primary standards) and welfare (secondary standards).

National Historic Preservation Act of 1966 (NHPA). The act that established the National Register of Historic Places and State Historic Preservation program and set forth guidelines and regulations for environmental review of projects involving federal funding.

National Register of Historic Places (NRHP). The official list of the nation's cultural resources determined to be worthy of preservation; the register is maintained by the National Park Service.

Network. A system of real or hypothetical interconnecting links that forms the configuration of transit routes and stops which constitute the total system.

No Build Alternative. The No Build Alternative includes the transportation system and environment as they would exist without the proposed project.

Nonattainment area. An area designated by the EPA as presently violating the National Ambient Air Quality Standards, based on archival air quality data.

NO_X. Oxides of nitrogen (nitrogen oxide and nitrogen dioxide). The pollutants released during high-temperature combustion of fossil fuels such as diesel.

Off-peak. Those periods of the day when demand for transit service is not at a maximum.

Operating costs. Recurring costs incurred in operating transit systems, including wages and salaries, maintenance of facilities and equipment, fuel, supplies, employee benefits, insurance, taxes, and other administrative costs. Amortization of facilities and equipment is not included.

Operating revenue. The gross income from operation of the transit system including fares, charter income, concessions, advertising, etc. Does not include interest from securities, nonrecurring income from sale of capital assets, etc.

Operational energy. The energy used for vehicle propulsion, facilities, and maintenance for a specified period, usually one year.

Originating ride (or trip). A one-way trip taken on a transit line or group of lines, where a transfer from one line to another is not considered to be the start of a new trip.

Overhead catenary system (OCS). Electrical transmission poles and lines that supply power to the light rail system.

Ozone. A gas consisting of three oxygen atoms formed in reactions of nonmethane hydrocarbons and nitrogen oxides in the presence of sunlight. Ozone is one of the Criteria Air Pollutants.

Park-and-ride lot. A lot that provides parking for patrons of a transit facility.

Parking utilization. The number of parking spaces being utilized at a given location; it is calculated as the total number of parking spaces occupied divided by the total parking supply at a given location.

Partial acquisition. A property that would be partially acquired in order to build and operate the light rail.

Passenger load/passenger load LOS. The number of passengers on a transit unit (vehicle or train) at a specified point.

Passenger mile. A measure of travel equivalent to one passenger traveling one mile.

Patronage. The number of person-trips carried by a transit system over a specified time period.

Peak hour. The hour of the day in which the maximum demand for service is experienced, accommodating the largest number of automobile or transit patrons.

Peak particle velocity. Specifications for allowable levels of vibration from blasting, pile-driving, and other construction processes with the potential of causing building damage are almost always expressed in terms of peak particle velocity since this is thought to be well correlated with maximum stresses in buildings. Peak particle velocity is the instantaneous positive or negative peak in the vibration signal.

Peak period. A time period or periods when travel activity is at its heaviest.

Pedestrian level of service. An overall measure of walking conditions on a route, path, or facility.

Person demand. The number of persons that use a specific roadway or highway facility, thus creating a demand for usage of the facility; it is often compared to roadway capacity to determine the level of congestion.

Person throughput. The amount of persons that can pass a point on a roadway or pass through an intersection over a specified period of time.

Person trip. A trip from a point of origin to a destination made by a person by any travel mode. Within transit, transfers are not counted. That is, a person traveling from home to work on a bus with one transfer creates only one-person trip.

Photochemical oxidants (smog). Gaseous pollutants formed from reactions of non-methane hydrocarbons and nitrogen oxides (NOx) in the presence of sunlight (e.g., ozone).

Platform hours. Elapsed time from when a transit bus or train pulls out of the garage into service to when it returns to the garage after completing its service.

Point source. A general classification of the origin of an air or water pollutant, usually characterized as smokestacks or outfalls.

Pollution-generating impervious surface. Impervious surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those subject to vehicular use, industrial activities (as defined in the Ecology Manual), or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or blow-in of rainfall.

Polychlorinated biphenyl (PCB). Hazardous environmental pollutants upon which the federal government has placed additional controls regulating disposal.

Potential additional station. The Alternatives Analysis process for the FWLE identified additional

station locations on SR 99. These stations could be added to the SR 99 alternatives but are not funded and would require additional approvals.

Potentially affected area. This is defined differently by each technical discipline. It includes the area that could be affected by the alternatives.

Poverty-level household. As used for 2000 U.S. Census data, the average poverty threshold for a family of four persons was $17,603 in 2000. The defined family poverty level threshold varied by total number of family members, number of children under 18 years, and number of persons over age 65. For a detailed discussion of the poverty definition, see U.S. Bureau of the Census, *Current Population Reports, Series P-60, No. 171, Poverty in the United States: 1988 and 1989.*

Profile. The vertical position of the track in relation to surrounding terrain. Light rail profile types are at-grade, elevated, trench, retained fill, and tunnel.

Preferred Alternative. Following publication of a Draft EIS, the Sound Transit Board identifies a Preferred Alternative, including route and station options. The Final EIS further evaluates the Preferred Alternative as well as other alternatives.

Propulsion energy (also, direct energy). In transportation analysis, a portion of operational energy that includes fuels and electricity to propel vehicles and provide lighting, heating, and air conditioning within them.

Queue. A line of vehicles, bicycles, or persons waiting to be served by the system in which the flow rate from the front of the queue determines the average speed within the queue. Slowly moving vehicles or people joining the rear of the queue are usually considered part of the queue. The internal queue dynamics can involve starts and stops. A faster-moving line of vehicles is often referred to as a moving queue or a platoon.

Reliability. How often transit service is provided as promised; affects waiting time, consistency of passenger arrivals from day to day, total trip time, and loading levels.

Retained fill profile. Where the trackway is built above the ground surface on fill with a retaining wall on one side or both sides.

Right-of-way. The corridor (horizontal and vertical space) owned by the transit agency for the transportation way.

Riparian habitat. A habitat type associated with stream and lake margins and characterized by dense vegetation consisting primarily of willow, alder, and cottonwood species, supporting a wide variety of waterfowl, songbirds, amphibians, and small mammals.

Route. The course followed by a transit vehicle as a part of the transit system.

Route miles. The length of a route measured in miles between its end points.

Runoff. The rainwater that directly leaves an area in surface drainage, as opposed to the amount that seeps out as groundwater.

Screenline. A screenline is an imaginary line across a section of freeways or arterials. Screenlines are often used in traffic analyses to determine how much volume is entering or exiting a particular area.

Section 106. Section 106 of the National Historic Preservation Act of 1966 established a procedure to review the potential effects on cultural resources by projects receiving federal funds.

Section 4(f). Section 4(f) of the Department of Transportation Act restricts the United States Department of Transportation's approval of projects affecting the following properties: publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge, or any land from a significant historic site.

Section 404. Section 404 of the Clean Water Act is a permit program administered by USACE under

guidelines by EPA to protect the nation's waters from dredged and fill sources.

Section 6(f). Section 6(f) of the Land and Water Conservation Act of 1965 established restrictions on, and replacement requirements for, the use of land acquired with funds authorized under the Land and Water Conservation Fund Act.

Sensitive receptor (auditory). A local area or site that supports activities easily disrupted by audio intrusions or distractions, such as a park, school, historic landmark, or residential neighborhood.

Sensitive view. A view that is identified by local jurisdictions as requiring protection.

Sensitive viewers. Viewers for which the landscape contributes to their enjoyment of their activity and aesthetic of their living environment. Park users or residents are more sensitive to change in the landscape than office workers or motorists.

Sensitivity analysis. A "what-if" type of analysis to determine the sensitivity of the outcomes to changes in parameters; if a small change in a parameter results in relatively large changes in the outcomes, the outcomes are said to be sensitive to that parameter.

Service frequency. The number of transit units (vehicles or trains) on a given route or line, moving in the same direction, that pass a given point within a specified interval of time, usually 1 hour.

Signal phasing. A group of three traffic signal timed intervals (green, yellow, red) that are assigned to an independent traffic movement or combination of movements.

Signal preemption. Traffic signal options that may modify normal traffic signal phasing for preferential treatment of transit vehicles.

Signal progression. A series of traffic signals timed and coordinated to optimize the flow of selected traffic movements.

Social interaction. Intra-neighborhood communication and circulation using street, sidewalk, and bikeway connections between residential areas and community facilities, retail businesses, and employment centers. Also includes verbal interaction and telecommunications facilities.

Sound Transit 2 (ST2) and Sound Transit 3 (ST3). Packages of HCT investments in the regional transit system. ST2 was adopted in July 2008. ST3 was submitted to the voters in November 2016.

Sound Transit District. Sound Transit's taxing district includes the most populated areas of King, Pierce, and Snohomish counties. The district generally follows the urban growth boundaries created by each county. For a district map see http://www.soundtransit.org/About-Sound-Transit/Taxing-district.

Sound wall. A barrier designed to protect residents or other sensitive receivers from high noise levels generated nearby, such as from a highway or light rail line.

Sounder. Sound Transit's commuter rail system, which travels from Everett to Lakewood, through Seattle.

SR 509 Extension Project. This project proposed by WSDOT would include extending the SR 509 freeway from South 188th Street/12th Place South to a connection with I-5 in the vicinity of South 210th Street; improving I-5 between South 210th and South 320th streets; improving southern access to and from Sea-Tac Airport by a new roadway; and improving related local traffic circulation patterns.

Staging area. Section of land near a construction site designated for equipment and truck storage, maintenance, and warm up prior to engagement in construction activities.

State Implementation Plan (SIP). A plan required of each state by the Clean Air Act that describes how the state will attain and maintain the National Ambient Air Quality Standards.

Station option. Alternate locations for each FWLE station area (Kent/Des Moines, S 272nd Street, and Federal Way Transit Center). Options for a station generally have the same station characteristics and serve the same population.

Stormwater detention. The temporary storage of stormwater runoff and subsequent release at a slower rate.

Stormwater treatment. Stormwater ponds and underground vaults are used to remove sediments and dissolved metals from stormwater. They collect sediments on the bottom of the pond or vault, where maintenance workers can clean them out on a regular basis.

Straddle bent. Light rail guideway support that extends across the width of the street.

Subarea. A unique portion of the Regional Transit Authority taxing district, one of five as defined in Sound Move (Snohomish County, North King County, East King County, South King County, and Pierce County).

Subduction zone. An area where one crustal plate is descending below another. The Puget Sound area is close to a subduction zone, which is formed by the Juan de Fuca plate descending below the North American plate. This action can cause significant seismic activity.

Sustainability Plan. Sound Transit's *Sustainability Plan* gives an overview of the agency's efforts in reducing energy use, greenhouse gases, and air pollution. Sound Transit has developed nine sustainability priorities to guide its long-term achievements. They focus on expanding transit services and ridership, improving stations and facilities, and deploying the most fuel-efficient, clean, and cost-effective vehicles.

Terminal. The terminating point of transportation routes with transfer facilities and, often, amenities for passenger convenience.

Terminus. A transit station located at the end of a transit (including light rail) line.

Threatened species. According to the Federal Endangered Species Act of 1973, any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Through route. Interconnected transit lines in the downtown area, or a transit center, that allow buses (or trains) entering downtown or the transit center on one line to pass through and exit on another line. This eliminates the need to turn transit vehicles around downtown or at the transit center and allows some passengers to continue without transferring.

Title 23, Code of Federal Regulations, Part 771 (23 CFR Part 771) (Revised 1987). Federal Highway Administration and Federal Transit Administration regulations governing the preparation of environmental impact statements and related documents.

Total travel time. The total elapsed time between trip beginning and end, including travel, terminal, and waiting time.

Traction power substation (TPSS). Electrical station that provides the power needed to drive the trains. The substations are housed in either standalone structures, or within transit stations, typically within or adjacent to the right-of-way.

Transfer ratio. The number of boarding trips divided by originating trips.

Transfer time. The elapsed trip time required to change between modes (e.g., bus to light rail) or to transfer between routes of the same mode (e.g., bus to bus).

Transfer. The portion of a trip between two connecting transit lines, both of which are used for completion of the trip.

Transit. A transportation system principally for moving people in an urban area and made available to the public usually through paying a fare.

Transit center. A station with shelters where a large number of transit vehicles and passengers can be brought together with safety and convenience.

Transit-oriented development (TOD). The Transportation Research Board provides several definitions of transit-oriented development that emphasize high-quality walking environments, mixed land uses, and high-density developments linked to transit. Generally, transit agencies agree that what constitutes a transit-oriented development is a pattern of dense, diverse, pedestrian-friendly land uses, near transit nodes that, under the right conditions, translates into higher transit patronage.

Transit service reliability. Reliability is defined as the degree to which transit service can be counted on for consistent, on-time performance.

Transportation corridor (also, corridor). The group of travel movements (or travel flows) between two or more locations. A corridor might have components or subcorridors. A corridor includes all facilities, transit and highway, that might be used to accommodate the specified travel movement.

Travel time (in vehicle). The time required to travel between two points, not including terminal or waiting time.

Trench profile. Where the trackway is cut into the ground with a retaining wall on both sides.

Trip. The one-way movement of one person between his origin and his destination, including transfers and the walk to and from the means of transportation.

Trip demand. The number and type (public or private origin and destination) of trips measured, calculated, or forecasted in a specified area having a given land development pattern. Trip demand also depends on prevailing economic, behavioral, and attitudinal conditions.

Trip length. The number of miles per trip. This is usually an average number for a specified trip type, area and analysis year.

Turn pocket. Term used to describe a traffic lane that separates turning vehicles from thru lanes. For example, a left-turn pocket is also commonly known as a left-turn lane.

Unity. In visual analysis, the visual coherence and compositional harmony of the landscape.

Use of Section 4(f) land. According to regulations of the U.S. Department of Transportation, use of Section 4(f) land is defined as: (1) acquisition of title or easement to land, or (2) in unusual circumstances, serious indirect impacts, such as increase in noise, visual intrusion, or access obstruction.

Vegetation clear zone. The area extending 11 feet beyond the light rail guideway footprint where tall shrubs and trees are not allowed to grow in order to protect the light rail OCS lines and tracks.

Vehicle hours traveled (VHT). The total vehicle hours expended traveling on the roadway network in a specified area during a specified time period.

Vehicle mile. An amount of travel equivalent to one vehicle traveling one mile.

Vehicle miles traveled (VMT). The total number of vehicle miles traveled within a specific geographic area over a given period of time.

Vehicle occupancy. The number of persons per vehicle. Usually an average number for a specified trip type, area, and analysis year.

Vehicle throughput. The number of vehicles, usually on a highway, that get through a screenline over a short time period such as an hour.

Vibration propagation. The transfer of vibration through soil or other media.

Vibration propagation test. A test that provides an estimate of vibration levels as a function of distance from a vibration source, in this case the light rail vehicle. Tests are done on the surface to

evaluate propagation at-grade, or at the bottom of a bore hole for tunnel routes.

Vibration velocity. Vibration velocity is the basic measure of ground-borne vibration. It is a measure of the rate at which particles in the ground are oscillating relative to the equilibrium point.

Viewer sensitivity: The extent of the viewer's concern for a particular view or viewshed. Viewer sensitivity to the viewed environment is classified as low, average, or high.

Visual amenity. An object or element (such as buildings or vegetation) that enhances the visual character of a view or area.

Visual character. Visual character is an impartial description of the landscape in terms of dominance, scale, diversity, and continuity. Visual character-defining environments and features include landforms, vegetation, land uses, transportation facilities, overhead utilities, open spaces, water bodies, designated viewpoints, and views to the visual environment.

Visual encroachment. The imposition of an object, or objects, on a view such that the view is disrupted, obstructed, or otherwise modified from its original state.

Visual quality. Visual quality is an assessment of the visual character and is categorized as low, medium, or high, as follows:

- **Low visual quality.** Areas that have low visual quality may have features that seem visually out of place, lack visual coherence, do not have compositional harmony, and contain eyesores.
- **Medium visual quality**. These areas can be generally pleasant appearing, but may lack distinctiveness, memorability, drama, and compositional harmony, or may simply be very common and ordinary landscapes.
- **High visual quality.** These areas may be memorable, distinctive, unique (in a positive way), intact natural or park-like areas or urban areas with strong and consistent architectural and urban design features.

Volume to capacity (v/c) ratio. The ratio of demand flow rate to capacity for a highway or arterial facility; a v/c ratio below 1.0 means that traffic volumes are below the capacity of the roadway, when identified as greater than 1.0, the traffic volume has theoretically exceeded the carrying capacity of the roadway.

Washington State Department of Ecology 303(d) List. The federal Clean Water Act (CWA), adopted in 1972, requires states to restore their waters to be "fishable and swimmable." The CWA established a process to identify and clean up polluted waters. Every 2 years, all states are required to prepare a list of water bodies that do not meet water quality standards. This list is called the 303(d) list because the process is described in Section 303(d) of the CWA.

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