

APPENDIX S: WATER RESOURCES DISCIPLINE REPORT

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I-405, Bellevue to Lynnwood Improvement Project

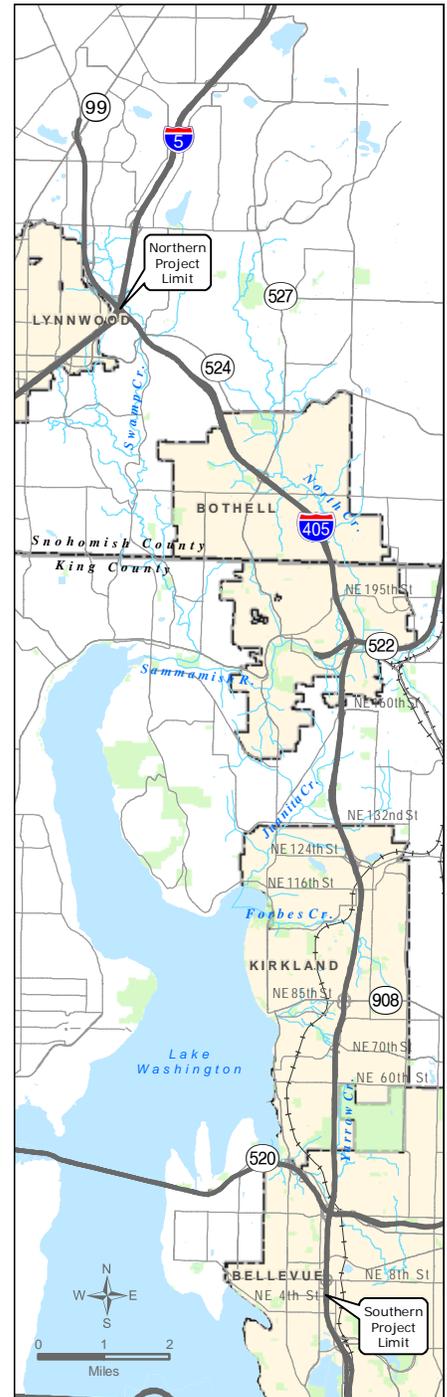


Corridor Program

Congestion Relief & Bus Rapid Transit Projects

WATER RESOURCES DISCIPLINE REPORT

April 2011





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SUMMARY

Study approach

Highway facilities can adversely affect water resources including surface water bodies, water quality, floodplains, and groundwater. Increased runoff caused by stormwater, and physical encroachment on natural drainages and floodplains by the facility infrastructure, are two factors that affect water resources. This report documents the I-405 Team's analyses on potential effects to water resources that could result from the I-405, Bellevue to Lynnwood Improvement Project (Bellevue to Lynnwood Improvement Project). We also identify appropriate water resource mitigation measures.

Analysts collected information from a variety of sources and used these data to assess and characterize the existing condition of water resources in the study area. We gathered and analyzed information about specific project elements to determine potential effects of the project on water resources. Water quality data for the existing water resources were compiled and assessed from several agencies including King County, Snohomish County, and the Washington State Department of Ecology. Additional information was obtained through a site visit, geographic information system (GIS) data analysis, and coordination with other agencies such as the Washington State Department of Health (DOH). Finally, we identified mitigation measures to avoid and minimize the potential effects of the project on water resources.

Baseline conditions

The Bellevue to Lynnwood Improvement Project is located in a highly urbanized area. As the population has grown in the study area, new infrastructure has been constructed to support that growth. This development has disturbed the landscape and affected the water resources and water quality.

I-405 intersects and/or discharges stormwater runoff to Sturtevant Creek, Yarrow Creek (KL1), Forbes Creek, Juanita Creek, Sammamish River, North Creek, Swamp Creek, and tributaries to these streams. These streams and rivers ultimately discharge to Lake Washington and are part of the Lake Washington/Cedar River Water Resource Inventory Area (WRIA).

No 100-year floodplains in the Bellevue to Lynnwood Improvement study area have been designated as Areas of Special Flood Hazard by the Federal Emergency Management Agency (FEMA). Floodplains occur downstream of I-405 near the mouths of Yarrow, Forbes, and Juanita Creeks. I-405 is elevated above the floodplains on the Sammamish River and North Creek.

The Bellevue to Lynnwood Improvement Project area is characterized by two general groundwater conditions. The lowland areas (Totem Lake area, Sammamish River Valley area, and the six creeks – Sturtevant, Yarrow, Forbes, and Juanita, North, and Swamp) are underlain by alluvium, where groundwater is generally shallow, on the order of 10 feet below the ground surface. In these areas, excavations below the groundwater can result in continuous and substantial flows.

In upland areas and underlain by glacial soils, groundwater depths are more variable. These areas consist of numerous perched groundwater zones within more permeable sand zones, which can vary seasonally.

Project effects

The stormwater treatment systems proposed as part of the Bellevue to Lynnwood Improvement Project will treat all the new impervious area, as well as some of the existing impervious area that currently is untreated. As a result, overall, water quality will be similar to, or better than, the No Build Alternative in the water bodies downstream of the study area. The project will add about 18.2 acres of new impervious area. This is about an eight percent increase compared to the No Build Alternative and it is a small amount relative to the scale of the entire watershed. Therefore, the project will have very little effect on groundwater resources.

The Washington State Department of Transportation (WSDOT) will implement measures to avoid or minimize effects of the project on water resources, both during construction and operation. Stormwater detention will be provided to minimize effects on surface water bodies and floodplains. We do not anticipate any substantial adverse effects on water resources to result from the project.

Measures to avoid or minimize effects

The project will be designed and constructed in compliance with WSDOT's and Washington State Department of Ecology's (Ecology's) technical guidance and federal, state, and local ordinances to protect water resources. Measures such as highway runoff control facilities and stormwater treatment facilities are an integral part of the project design.

Unavoidable adverse effects

We do not anticipate any substantial adverse effects to result from the project.

ACRONYMS AND ABBREVIATIONS

Term	Meaning
BMP	best management practice
BNSF	Burlington Northern Santa-Fe Railroad
BRT	bus rapid transit
Cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DOH	Washington State Department of Health
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ET	express toll
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIS	flood insurance study
GIS	geographic information system
HOV	high-occupancy vehicle
KCC	King County Code
MP	Milepost
MSL	mean sea level (NGVD is now used)
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
RCW	Revised Code of Washington
SOV	single-occupant vehicle
sq mi	square mile
TDA	threshold discharge area
TMDL	total maximum daily load
TSS	total suspended solids
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WRIA	water resource inventory area
WSDOT	Washington State Department of Transportation

GLOSSARY

Word	Meaning
100-year floodplain	An area of land that would be inundated by a flood having a one-percent chance of occurring in any given year.
advance outwash	Layered and sorted sediments (chiefly sand and gravel) washed out from an advancing glacier by melt-water streams and deposited beyond the margin of the glacier. The coarser material is deposited nearer to the glacier.
alluvial silts	Soils deposited through the action of rivers and streams. These soils lack horizons and are usually highly fertile.
aquifer	A geological stratum of saturated materials with the capability to yield useable quantities of groundwater on a long-term, sustainable basis.
Aquifer Protection Zone	Areas where special restrictions are imposed on activities that could contaminate groundwater supplies.
base flow	The volume of flow in a stream or river during dry conditions, as opposed to conditions influenced by storm runoff. Base flows discharge groundwater and water from upstream channels, wetlands, lakes, and ponds.
basin	An area of land that drains to a specific water body.
best management practice (BMP)	Innovative and improved environmental protection tools, practices, and methods that have been determined to be the most effective, practical means of avoiding or reducing environmental impacts.
channelization	Structural alteration made to straighten, widen, deepen, or otherwise modify a natural stream channel.
culvert	A pipe or box structure that drains open channels, swales, or ditches under a roadway or embankment.
design storm	A rainfall event of specific size and return frequency that is used to calculate the runoff volume and peak discharge rate to a stormwater facility.
detention	The temporary storage of stormwater runoff in a stormwater facility to control the discharge rates.
detention pond	A surface subbasin designed to reduce effects on stormwater runoff quality and/or quantity impacts by storing the increased runoff volume that results from development, then slowly releasing it at controlled runoff rates. Detention tanks and vaults are underground structures used to reduce peak stormwater flows.
discharge	Runoff leaving an area via overland flow, built conveyance systems, or infiltration facilities; a rate of fluid flow; or a volume of fluid passing a point per unit of time.
encroachment	Any action, including the placement of fill and the construction of piers and bridge abutments, that will occur within the limits of the regulatory floodplain; intrusion by roads or development into habitat areas that reduces the area available to wildlife or reduces the functions of the habitat area.

Word	Meaning
express toll lane	A limited-access freeway lane that is actively managed through a variable toll system to regulate its use and thereby maintain express travel speeds and reliability. Toll prices rise or fall in real time as the lane approaches capacity or becomes less used. This ensures that traffic in the express toll lane remains flowing at express travel speeds of 45 to 60 miles per hour. Transit vehicles and carpools will not pay a toll. See also: "managed lane."
FEMA Floodway	The federally designated channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be conveyed without substantial increases in flood heights. The floodways in the Federal Emergency Management Agency Flood Insurance Study are presented to local agencies as a minimum basis for additional floodway studies.
flood	An overflow or inundation that comes from a river, stream, tide, wave action, storm drain, or excess rainfall; any relatively high streamflow overtopping the natural or artificial banks in any reach of a stream.
floodplain	Any land area susceptible to being inundated by flood waters from any source. This is typically the flat or nearly flat land on the bottom of a stream valley or tidal area that is covered by water during floods, including the flood fringe and floodway.
floodway	The channel of the river or stream, and those portions of the adjoining floodplains that have been designated as reasonably required to carry and discharge the base flood flow without resulting in a backwater that exceeds flood hazard regulations.
high-occupancy vehicle (HOV)	High-occupancy vehicle is a special designation for a bus, carpool, or vanpool provided as an encouragement to increase ride-sharing. Specially designated HOV lanes and parking are among the incentives for persons to pool trips, use fewer vehicles, and make the transportation system more efficient. HOV lanes are generally inside (left-side) lanes, and are identified by signs and a diamond on the pavement. Currently, two or more (2+) occupants are required to use the I-405 HOV lanes. Motorcycles are allowed to use freeway HOV lanes as well.
impervious surface	Pavement, roofs, and other compacted or hardened areas that do not allow the passage of rainfall or runoff into the ground.
infiltration	The downward movement of water from the surface to the subsoil.
media filter drain	A stormwater treatment facility (previously referred to as an <i>ecology embankment</i>) typically constructed in the pervious shoulder area of a highway and consisting of a no-vegetation zone, a grass strip, a filter media mix, and a drain component (ditch or underdrain system) that keeps the facility free draining.
non-core salmon/trout	Core and non-core refer to the density of fish use of a river system. Non-core means the water body is used for migration and has moderate to low density of juvenile fish use.
outfall	The point of discharge for stormwater runoff; also the outlet or mouth of a drain pipe or culvert that discharges stormwater runoff.

Word	Meaning
outlet	The point of water disposal from a stream, river, lake, tidewater, or artificial drain.
peak flow	The maximum instantaneous rate of flow during a storm, usually in reference to a specific design storm event.
retention/detention pond	A drainage facility designed to reduce stormwater runoff quantity and quality effects either by holding the increased runoff volume that results from development for a considerable amount of time, allowing the suspended particles to settle out, and then slowly releasing it through natural means on site; or by holding the runoff for a short period of time and then releasing it to the stormwater management system for treatment and discharge.
riparian	Pertaining to anything connected with or immediately adjacent to the banks of a stream, river, or other water body.
riprap	A manmade armoring, facing layer, or protective mound of rocks placed to prevent erosion or sloughing of a stream bank or structure due to flow of surface and stormwater runoff.
runoff	Rainwater or snowmelt that directly leaves an area as a surface drainage.
single-occupant vehicle (SOV)	A vehicle having one occupant (i.e., the driver).
subbasin area	An area of land that drains to a specific water body. Synonymous with basin.
subbasin	A smaller portion, or subarea, of a watershed or subbasin area.
Water Resource Inventory Area (WRIA)	An administrative and planning area designated by the Washington State Department of Ecology for addressing water and aquatic resource management issues. Sixty-two WRIAs have been designated, corresponding to the state's major watershed basins. The terms WRIA and watershed are frequently used interchangeably, although a WRIA may include more than one watershed.

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SECTION 1 INTRODUCTION

What are the primary features of the I-405, Bellevue to Lynnwood Improvement Project?

The I-405, Bellevue to Lynnwood Improvement Project (Bellevue to Lynnwood Improvement Project) will add capacity, restripe existing pavement, and add transit shoulders. Although two build alternatives are being proposed, the additional pavement (footprints) for Build Alternatives 1 and 2 are the same. The difference between the two Build Alternatives is operational. These operational differences are implemented through different lane striping, and, in the case of Build Alternative 1, adding electronic equipment and signage to provide for tolling of the express toll lanes. Under both Build Alternatives, lanes that are not managed as express toll lanes or HOV (High-occupancy Vehicle) lanes will operate as general-purpose lanes.

Both Build Alternatives include the following improvements:

- Northbound lane between NE 124th Street and SR 522;
- Braided ramps between the I-405 northbound on-ramp from NE 160th and the northbound I-405 off-ramp to SR 522;
- Southbound transit shoulders between SR 522 and NE 160th Street and between SR 527 and NE 195th Street;
- New northbound and southbound structures over NE 132nd Street and a new northbound structure over the railroad for the I-405 northbound off-ramp to NE 124th Street;
- Small amounts of additional widening, between four and eight feet, at several locations for buffers, wider shoulders, enforcement areas and maintenance pull-outs;
- Minor upgrades to pedestrian facilities in some interchange areas.

Build Alternative 1

Build Alternative 1 will result in a two-lane express toll lane system in both directions between NE 6th Street and SR 522, transitioning to a one-lane express toll lane system in both directions between SR 522 and I-5 in Lynnwood.

Build Alternative2

Build Alternative 2 will retain the current one-lane HOV system in both directions throughout the project length from SR 520 to I-5.

Both build alternatives assume that the HOV lane occupancy requirement will change from 2+ to 3+ in response to current Washington State Department of Transportation (WSDOT) and Federal Highway Administration (FHWA) policy.

What is the purpose of this report?

The main purpose of Bellevue to Lynnwood Improvement Project Water Resources Discipline Report is to identify the potential effects on water resources that could result from the Bellevue to Lynnwood Improvement Project. In this report, we also identify mitigation measures that will avoid or minimize the effects on water resources.

What topics are included in this water resources discipline report?

This report includes analyses of the following water resources:

- surface water (including rivers, streams, and lakes);
- water quality;
- floodplains; and
- groundwater.

Why are water resources important to consider?

Highway facilities can adversely affect water resources including surface water bodies, water quality, floodplains, and groundwater. Increased runoff caused by stormwater, and physical encroachment on natural drainages and floodplains by the facility infrastructure, are two factors that affect water resources. Federal, state, and local ordinances apply to the Bellevue to Lynnwood Improvement Project, since it can affect water resources. Under the National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA), the Washington State Department of Transportation (WSDOT) is required to identify whether there are any substantial effects to these water resources, and to inform the public of those effects.

What studies were completed?

The I-405 Team collected information from a variety of sources, and used these data to assess and characterize the existing condition of water resources in the study area. We gathered and analyzed information about specific project elements to determine potential effects of the project on water resources. Finally, we identified mitigation measures to avoid and minimize the potential effects of the project on water resources.

What are the key messages from this report?

The key messages from this report are:

- The project will include new pollutant generating surface areas that will generate more contaminants in the highway runoff. However, WSDOT will collect the runoff from these areas and from a portion of existing impervious surface areas for water quality treatment. The I-405 Team looked at three pollutants: total suspended solids (TSS); total and dissolved zinc; and total and dissolved copper. For the two Build Alternatives, the annual amount of total load would be the same as or less than the No Build Alternative. The project will result in a negligible change to the water quality of the water bodies downstream of the project.
- The new impervious area will increase the volume and peak rate of storm runoff flows from the highway. The new higher peak runoff flow rates will be mitigated following the current WSDOT flow control requirements where applicable (the Sammamish River is exempt due to the timing of peak flows in that basin). Infiltration of highway runoff is being employed to the maximum extent possible.
- The project will not substantially change downstream floodplains or flooding characteristics.
- WSDOT will implement measures to avoid or minimize effects of the project, both during construction and operation. We anticipate no substantial adverse effects to result from the project.
- Benefits of the project include reducing erosion in a landslide-prone area near the project. By creating or

facilitating connections from new water conveyance facilities by others, the project will reduce sediment transport to the Sammamish River.

What measures are proposed to avoid or reduce effects?

The project will be designed and constructed in compliance with WSDOT and Washington State Department of Ecology (Ecology) technical guidance and federal, state and local ordinances to protect water resources. Highway stormwater runoff control facilities and water quality treatment facilities are an integral part of the project.

What will happen if we adopt the No Build Alternative?

There would be no effects on water resources associated with the No Build Alternative. With the No Build Alternative, the stormwater treatment improvements proposed as part of the Build Alternatives would not be implemented, and the baseline condition of water resources in the vicinity of the project would remain unchanged.

Any project benefits would not be realized in the No Build Alternative.

SECTION 2 PROJECT DESCRIPTION

What is the intent of the Bellevue to Lynnwood project and what are the improvements?

The Bellevue to Lynnwood Improvement Project is intended to improve safety and reduce congestion along I-405 between NE 6th Street in Bellevue and I-5 in Lynnwood. To accomplish this, WSDOT proposes the following improvements:

- Northbound lane from NE 124th Street to SR 522;
- Braided ramps between the I-405 northbound on-ramp from NE 160th Street and the northbound I-405 off-ramp to SR 522;
- Southbound transit shoulders between SR 522 and NE 160th Street and between SR 527 and NE 195th Street;
- New northbound and southbound structures over NE 132nd Street and a new northbound structure over the railroad for the I-405 northbound off-ramp to NE 124th Street; and
- Small amounts of additional widening, between four and eight feet, at several locations for buffers, wider shoulders, tolling equipment, enforcement areas and maintenance pull-outs; and
- Minor upgrades to pedestrian facilities in some interchange areas.

Exhibit 2-1 shows the Bellevue to Lynnwood project vicinity. Exhibit 2-2, sheets 1 through 17, shows more detail of the project improvements in the 17-mile long corridor.

Are there related projects?

The Bellevue to Lynnwood Improvement Project is designed to compliment other projects along I-405 including:

- Kirkland Nickel Stage 1 Project, which added one lane in each direction between NE 85th Street and NE 124th Street and opened to traffic in November 2007;
- NE 195th to SR 527 Auxiliary Lane Project, which added one northbound lane between NE 195th Street and SR 527 and opened to traffic in June 2010; and

What are braided ramps?

Braided ramps vertically separate movements with bridge structures to eliminate traffic conflicts between closely-spaced on-ramps and off-ramps.

What is a transit shoulder?

A transit shoulder is a freeway shoulder that is designated for use by buses during specific hours to avoid congestion in the general purpose lanes. Transit shoulders improve the appeal of transit by helping to maintain travel time and trip reliability. They also have a positive effect on the general purpose lanes, because buses cannot accelerate as quickly as vehicles and tend to slow traffic. Speeds for buses using the transit shoulder are usually restricted to ensure safety. Transit shoulders are always available as a refuge for disabled vehicles or incidents, which would close the transit shoulder to bus travel.

- NE 8th Street to SR 520 Braided Ramps Project, which creates new multi-level “braided” ramps to separate vehicles entering and exiting northbound I-405 between NE 8th Street and SR 520 and is anticipated to be open to traffic during the summer of 2012.

What are baseline conditions?

Baseline conditions for the Bellevue to Lynnwood Improvement Project represent what will exist in the future after the Kirkland Nickel Project and the NE 8th Street to SR 520 Braided Ramps Project are complete. Baseline conditions provide an important point of comparison for understanding the effects of the proposed build alternatives.

Kirkland Nickel Project Stage 2 improvements are a baseline condition for natural environmental analyses such as ecosystems, water resources, and soils and geology, but not for traffic and transportation analysis.

The Kirkland Nickel Stage 2 Project will reconfigure the NE 116th Street interchange, build northbound and southbound lanes between NE 70th Street and NE 85th Street, and a southbound lane between SR 522 and NE 124th Street, and between NE 70th Street and SR 520. The Kirkland Nickel Stage 2 project has been environmentally cleared and permitted, and, along with the other projects mentioned in this section, is considered part of the baseline conditions for this analysis (see “*What are baseline conditions?*” sidebar). The Bellevue to Lynnwood Improvement Project will be constructed at the same time.

What will the completed project provide?

The Bellevue to Lynnwood Improvement Project fills in the remaining gaps and allows WSDOT to provide an improved system on I-405 between NE 6th Street and I-5. WSDOT has designed this project to maximize the use of existing pavement and minimize the need for new pavement. In some areas, small amounts of widening of less than a lane width, together with narrower shoulders and lanes, will allow an additional lane. In other areas, narrowing the shoulders and lanes will allow an additional lane without any pavement widening.

Exhibit 2-3 shows the configuration in each of the project segments when this project and the related projects described above are complete.

How will this portion of I-405 be operated after the project is completed?

In this environmental document, WSDOT and FHWA are considering two operational alternatives: 1) Express Toll and General Purpose Lanes (ETL); and 2) High Occupancy Vehicle and General Purpose Lanes (HOV). Under both scenarios, the project footprint is the same. The occupancy requirement for HOVs in this portion of the I-405 corridor is the same. It is assumed the occupancy requirement, to maintain HOV performance standards under WSDOT’s HOV policy, will be

three or more people (HOV 3+). The difference is in how the roadway lanes would be managed.

Alternative 1: Express Toll and General Purpose Lanes (ETL)

This operational alternative will provide two express toll lanes in each direction between NE 6th Street in Bellevue and SR 522 in Bothell, and one express toll lane in each direction between SR 522 and I-5 in Lynnwood. The express toll lane system will be open toll free to all HOV traffic with three or more occupants and all transit vehicles. The express toll lane system will also be open to single occupant vehicles (SOVs) and HOVs with two occupants through tolling.

The southern end of the express toll lane system will be at the existing direct access ramps at NE 6th Street in Bellevue where one of the two northbound express toll lanes will begin and one of the two southbound express toll lanes will end. South of the NE 6th Street, the other express toll lanes will connect with the existing single northbound and southbound HOV lanes. The northern end of the system would be much like it is today with I-405 becoming SR 525. Access points will be at various locations along the mainline as shown in Exhibit 2-4. The express toll lanes will be separated from the general purpose (GP) lanes by a two- to four-foot wide buffer. At an access point, the buffer will open and a section of transition lane may be provided between the express toll and general purpose lanes to ease ingress and egress to the system.

Alternative 2: High Occupancy Vehicle and General Purpose Lanes (HOV)

This operational alternative will allow HOV users with three or more occupants and transit vehicles to use the single HOV lane, similar to today's operation. Access between the HOV lane and GP lanes will be allowed throughout the project, except northbound between NE 6th Street and SR 520 where access is not allowed under today's operation. The new northbound lane between NE 124th Street and SR 522 will be operated as a GP lane.

What are express toll lanes?

Express toll lanes preserve trip reliability for transit and HOV users, while providing a new option to other motorists who choose to pay a toll when lane capacity is available. Express toll lanes on I-405 would be similar to the express toll lanes on SR 167.

Express toll lanes have been successfully implemented in several locations around the U.S: State Route 91 in Orange County; I-15 in San Diego; I-25 in Denver; and I-394 in Minneapolis to name a few. WSDOT is working with engineers from these existing facilities to capture lessons learned.

What is WSDOT's HOV Policy?

WSDOT has established performance standards to ensure that the state's freeway HOV system provides reliable travel time and dependability for transit users and carpoolers. Speeds and reliability of the HOV system are monitored year-round.

It is WSDOT's current policy that vehicles in an HOV lane should be able to maintain an average speed of 45 mph or greater at least 90% of the time during the morning and afternoon rush hour.

What will conditions be like if the project is not built?

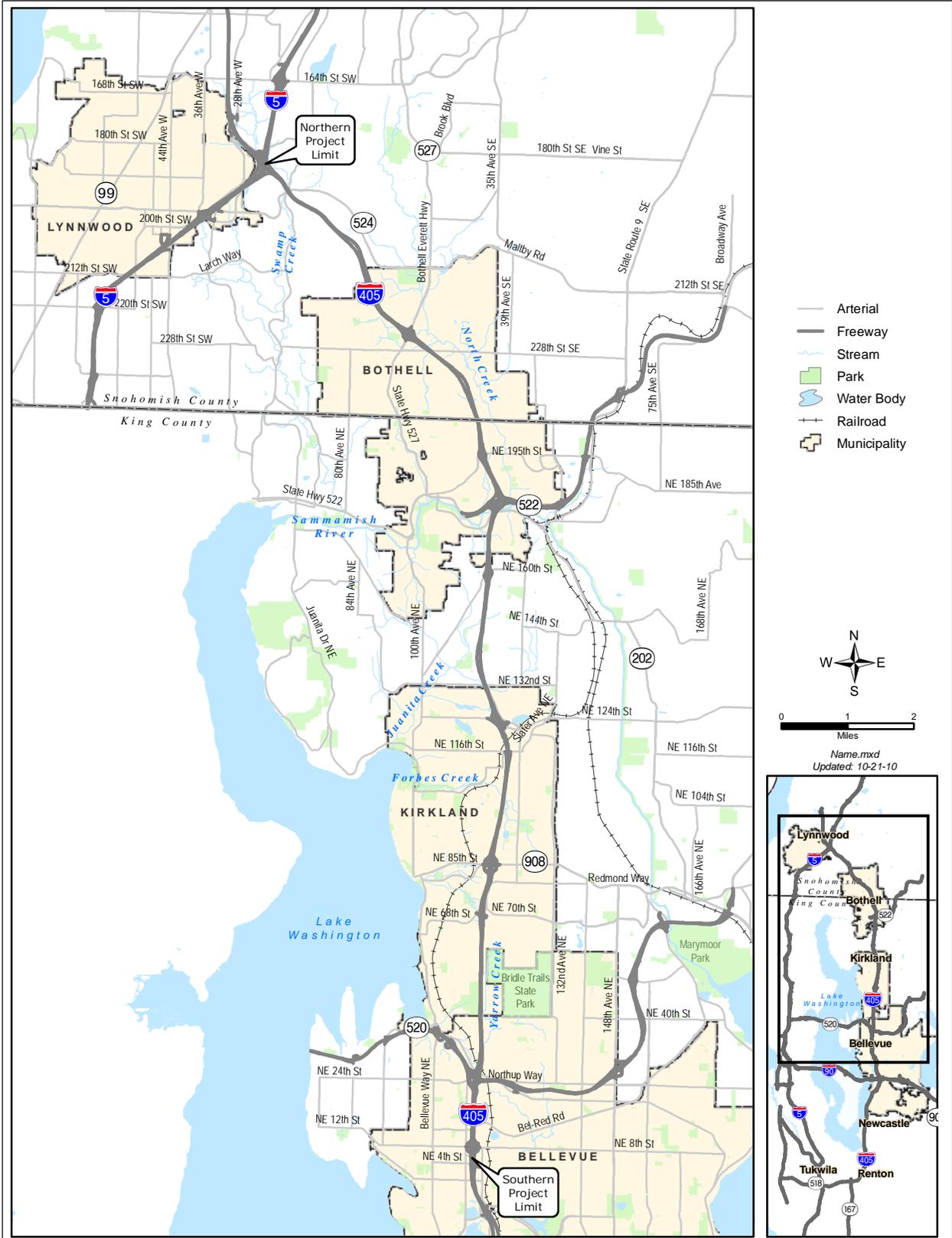
No Build Alternative

A No Build Alternative has been evaluated as the basis for comparing effects associated with the Build Alternatives. No new improvements would be made beyond those constructed as a part of the Kirkland Nickel Project Stage 2, the NE 8th Street to SR 520 Braided Ramps Project, and the NE 195th Street to SR 527 Auxiliary Lane Project.

The No Build Alternative does not include additional stormwater treatment or any roadway improvements that would increase roadway capacity, reduce congestion, or improve safety on I-405. Only routine activities such as road maintenance, repair, and minor safety improvements would occur. As with the two Build Alternatives, we assume that the occupancy requirement for HOVs in this portion of the I-405 corridor will be three or more people (HOV 3+).

I-405, BELLEVUE TO LYNNWOOD IMPROVEMENT PROJECT
 WATER RESOURCES DISCIPLINE REPORT

Exhibit 2-1: Project vicinity



I-405, BELLEVUE TO LYNNWOOD IMPROVEMENT PROJECT
 WATER RESOURCES DISCIPLINE REPORT

Exhibit 2-2: Project improvements – sheet 1 of 17

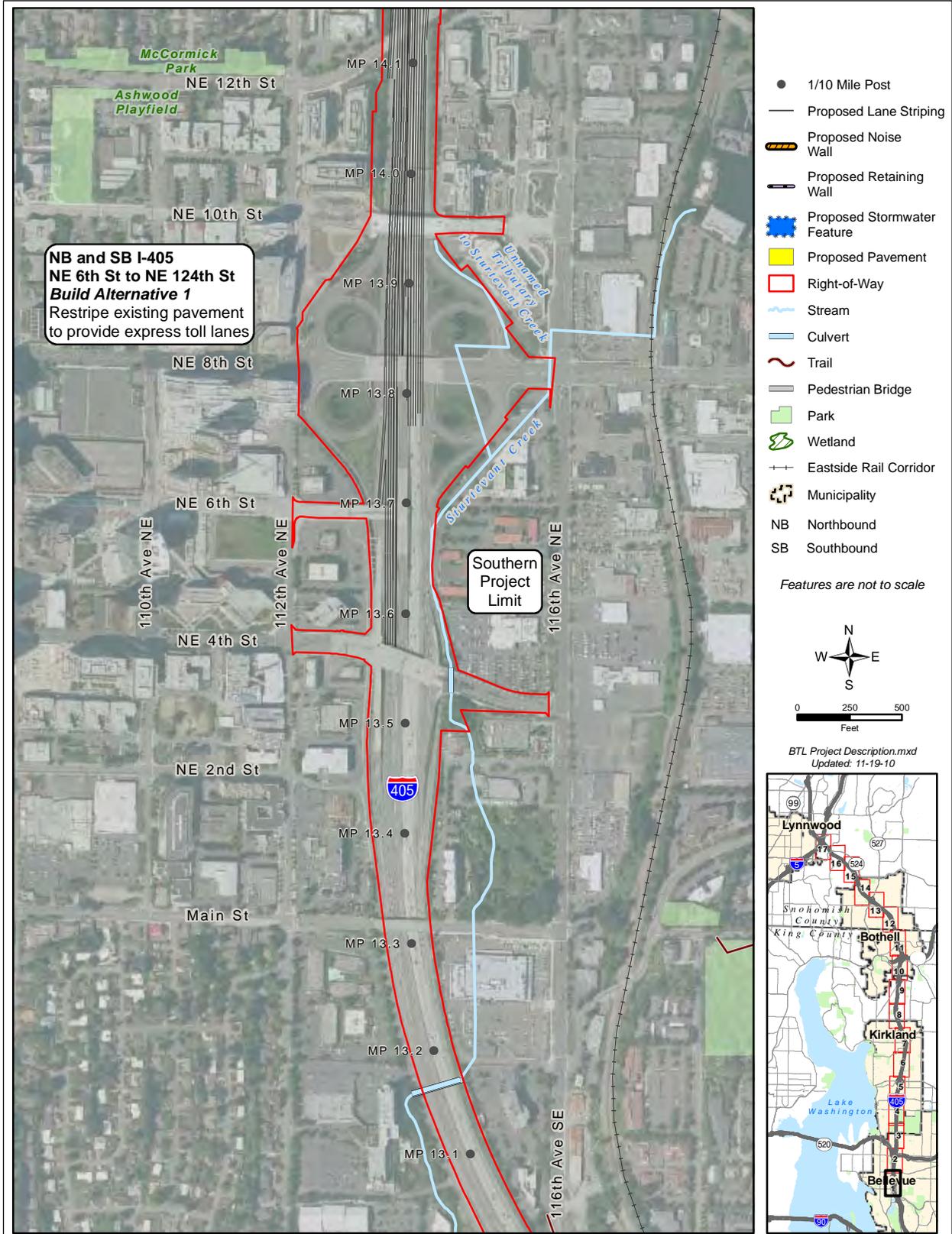
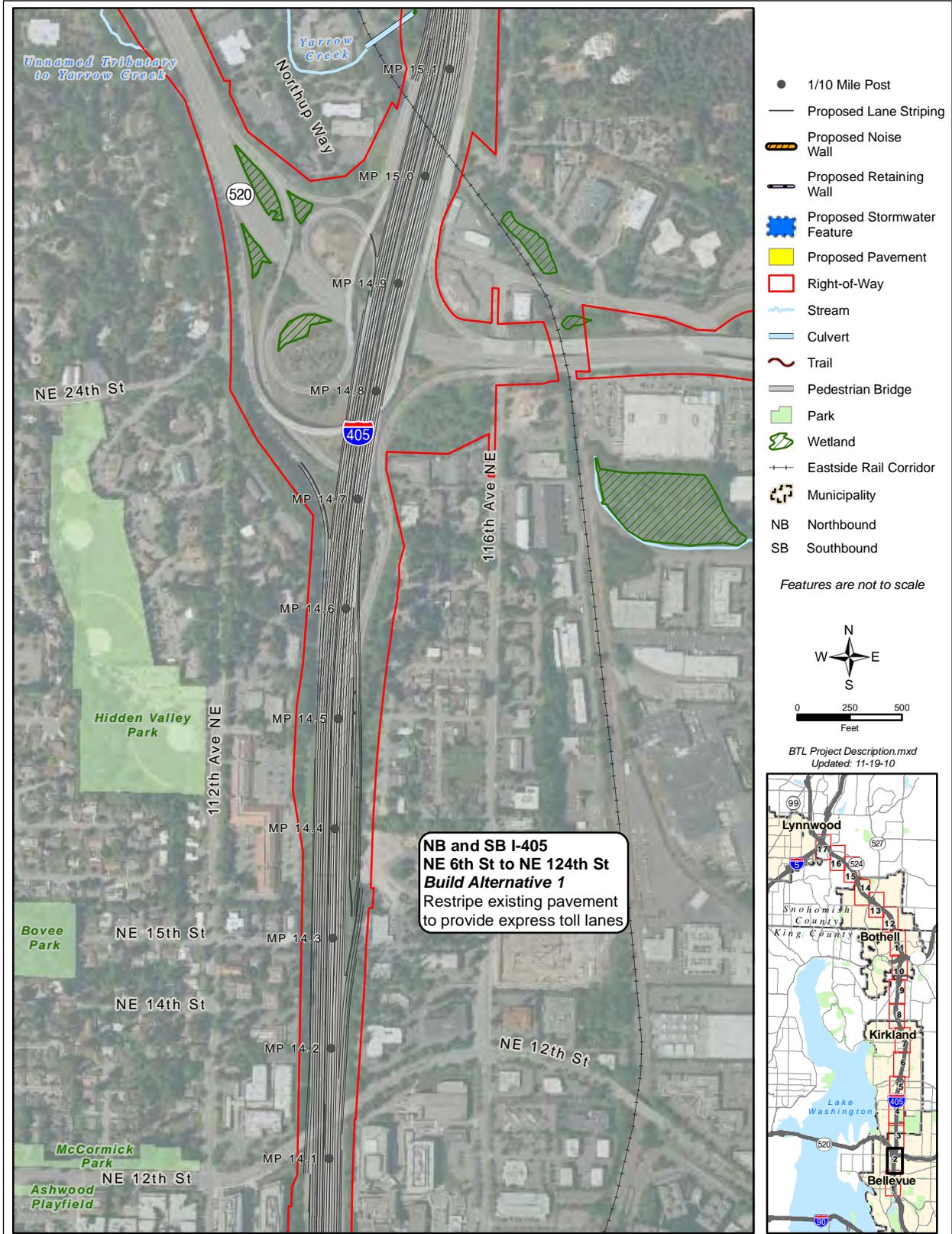


Exhibit 2-1: Project improvements – sheet 2 of 17



I-405, BELLEVUE TO LYNNWOOD IMPROVEMENT PROJECT
 WATER RESOURCES DISCIPLINE REPORT

Exhibit 2-2: Project improvements – sheet 3 of 17

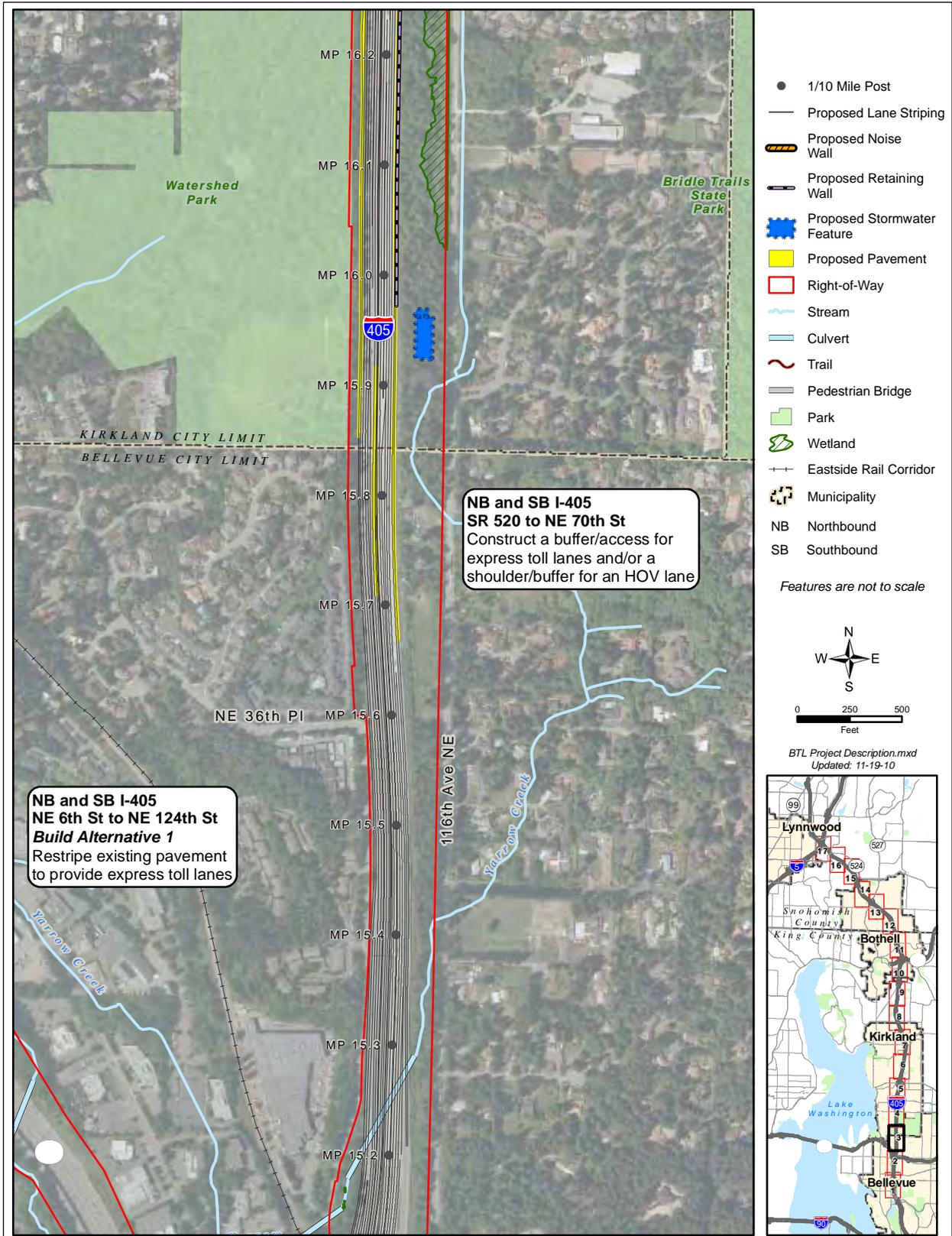


Exhibit 2-1: Project improvements – sheet 4 of 17

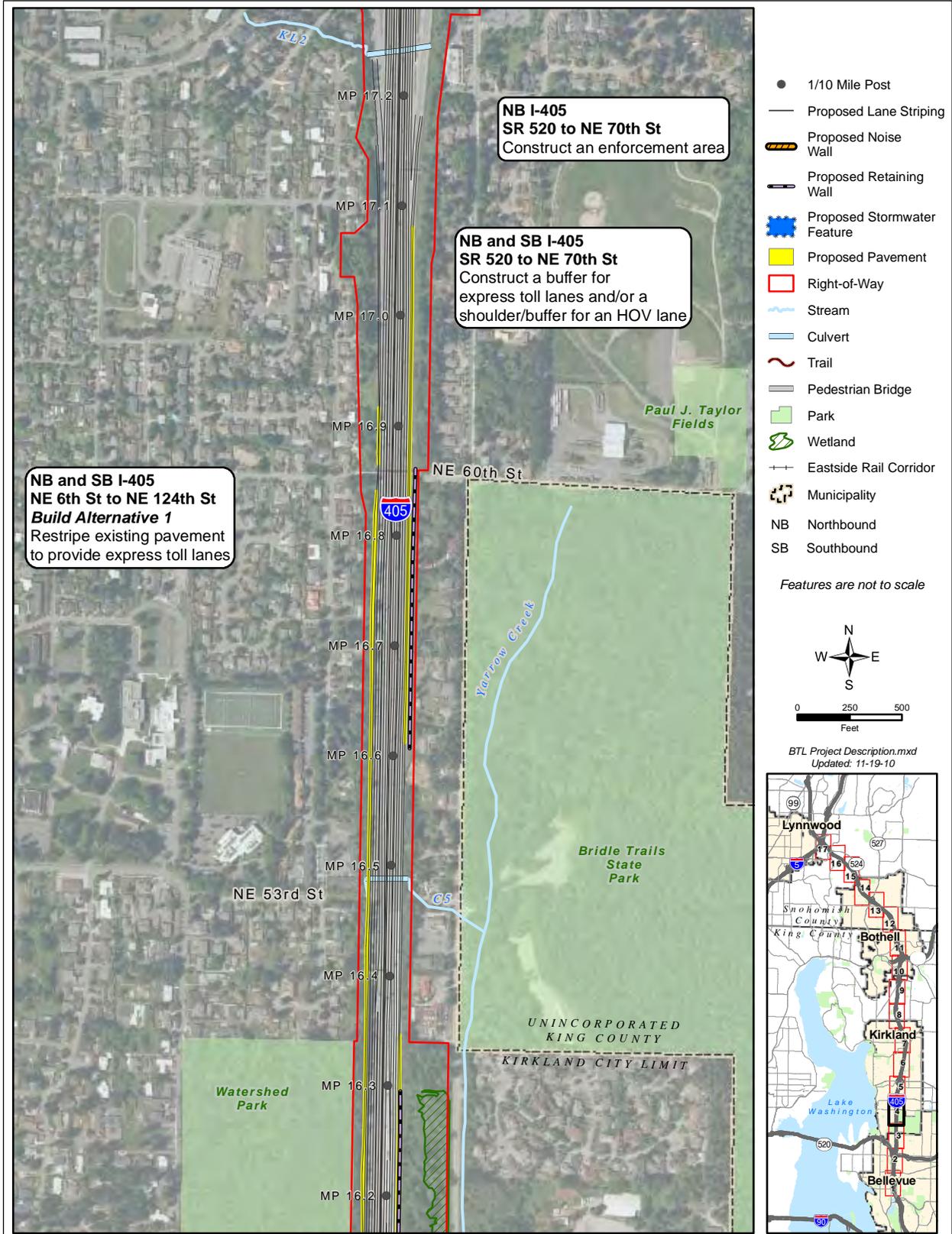
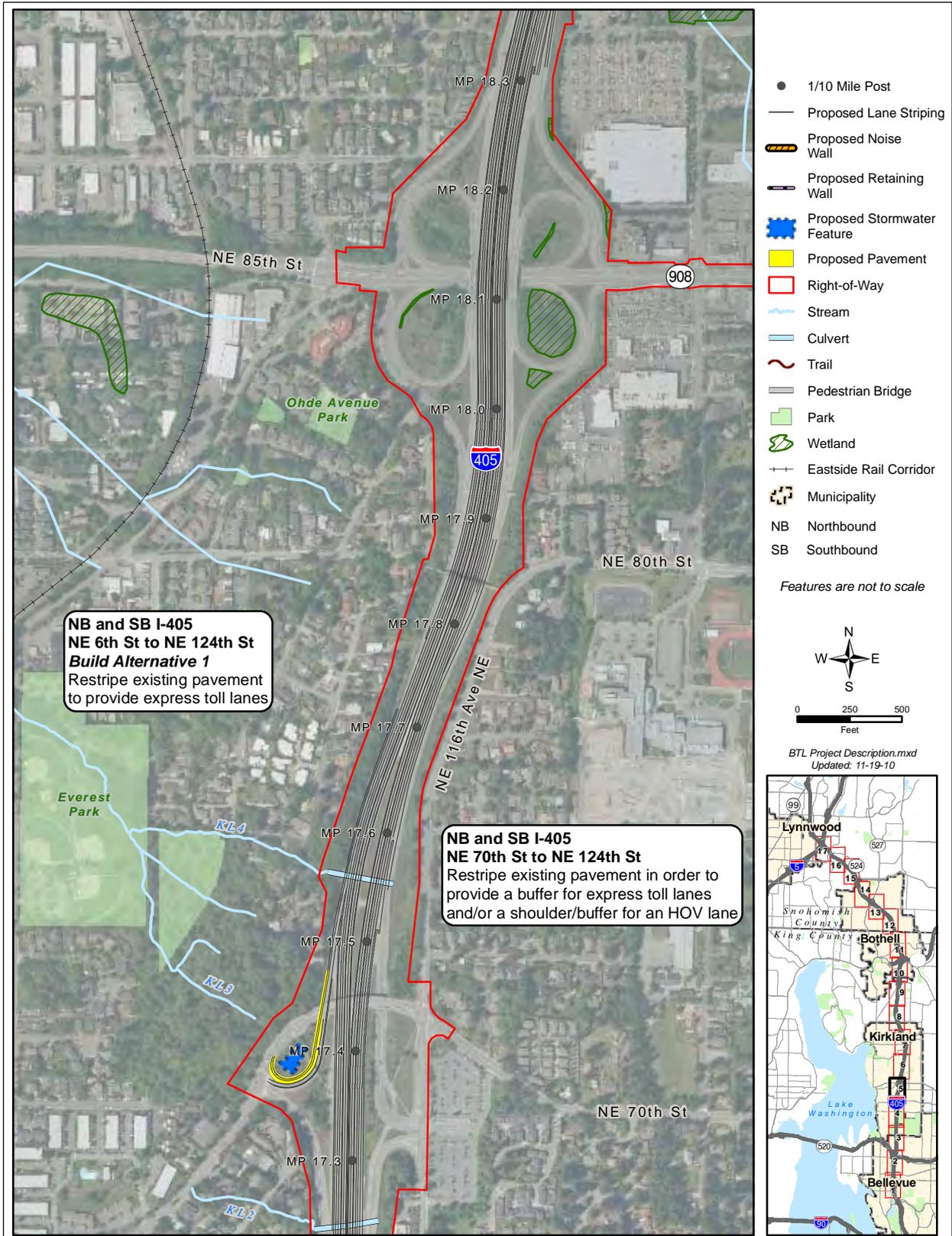


Exhibit 2-1: Project improvements – sheet 5 of 17



I-405, BELLEVUE TO LYNNWOOD IMPROVEMENT PROJECT
 WATER RESOURCES DISCIPLINE REPORT

Exhibit 2-2: Project improvements – sheet 6 of 17

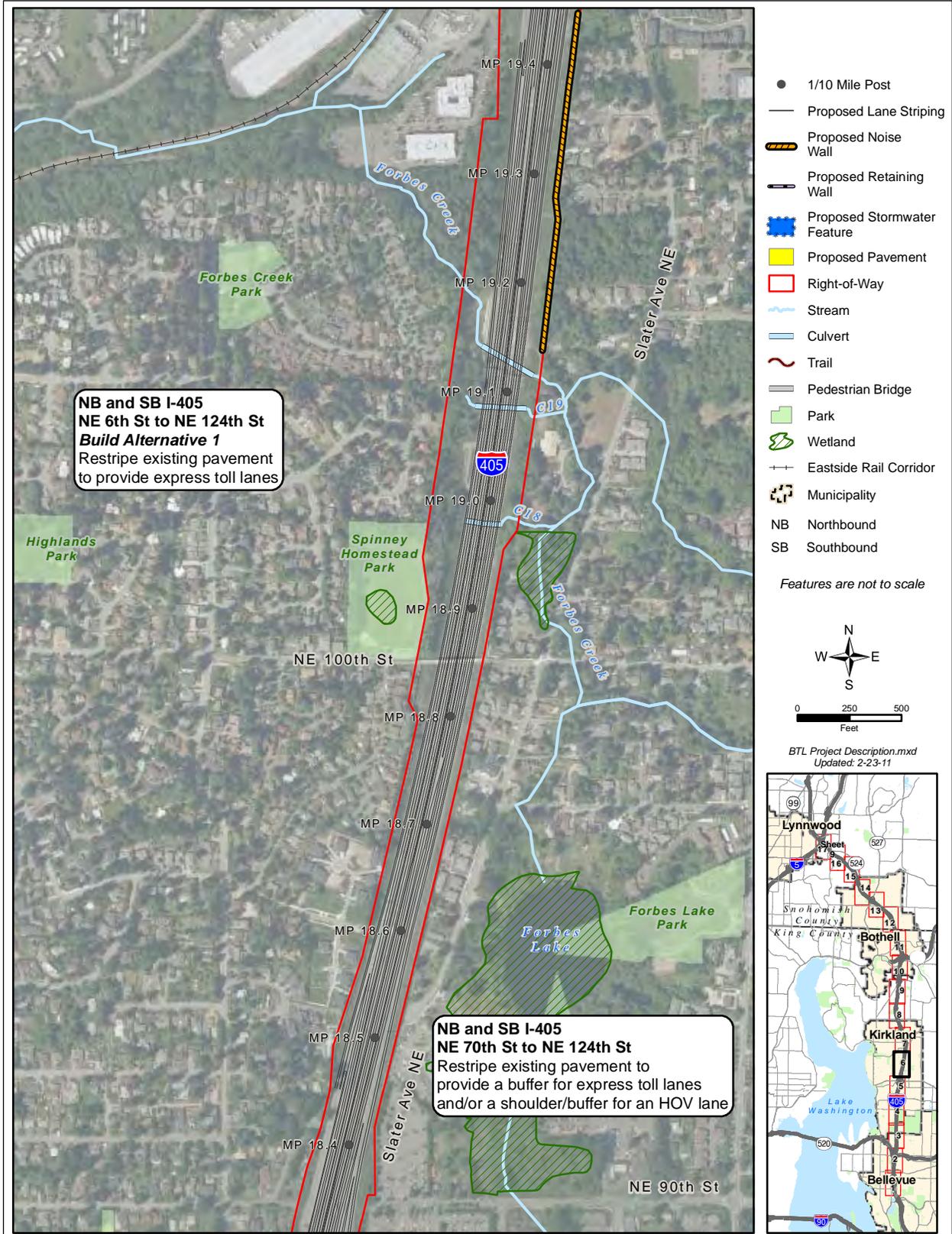


Exhibit 2-2: Project improvements – sheet 7 of 17

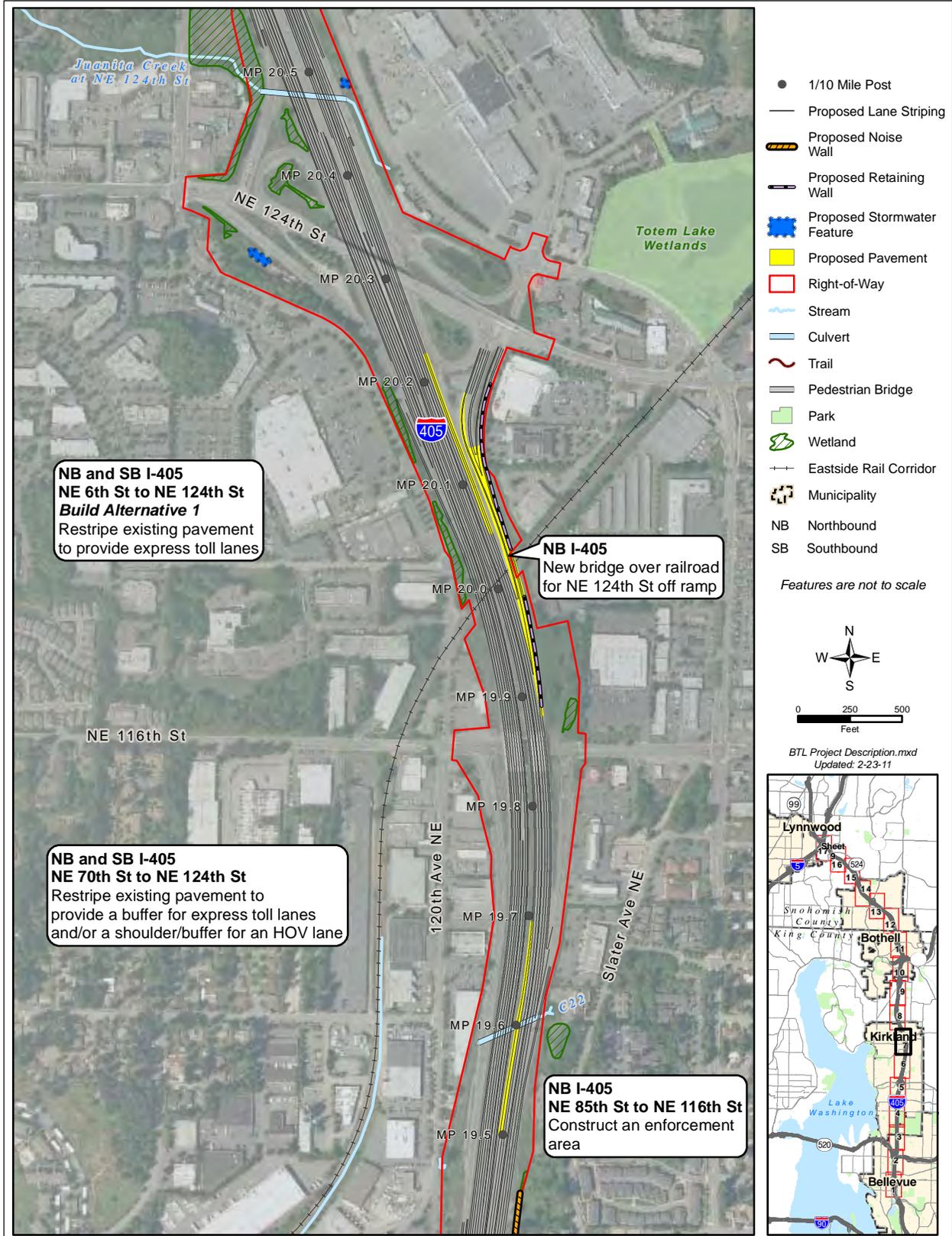
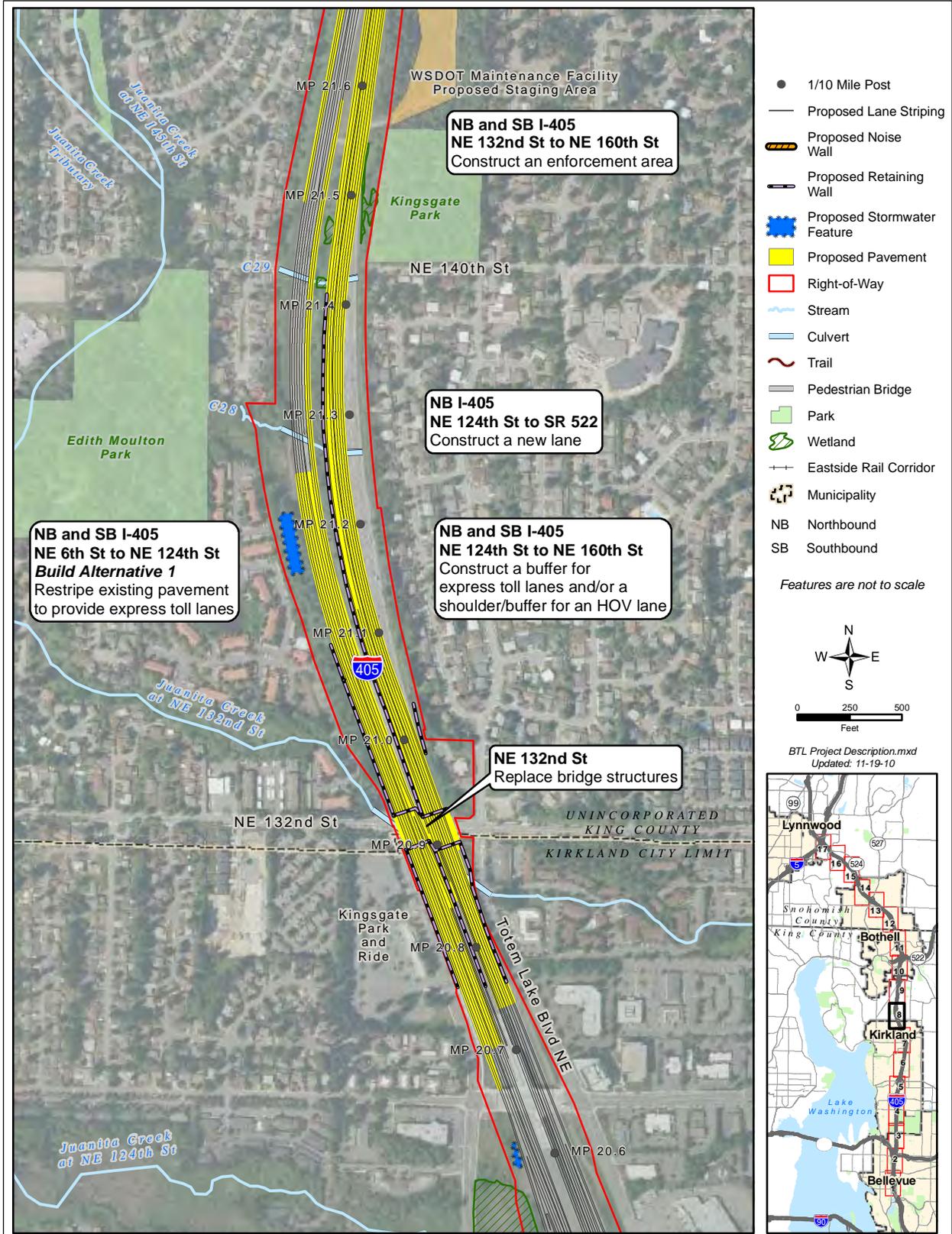


Exhibit 2-2: Project improvements – sheet 8 of 17



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 WATER RESOURCES DISCIPLINE REPORT

Exhibit 2-2: Project improvements – sheet 9 of 17

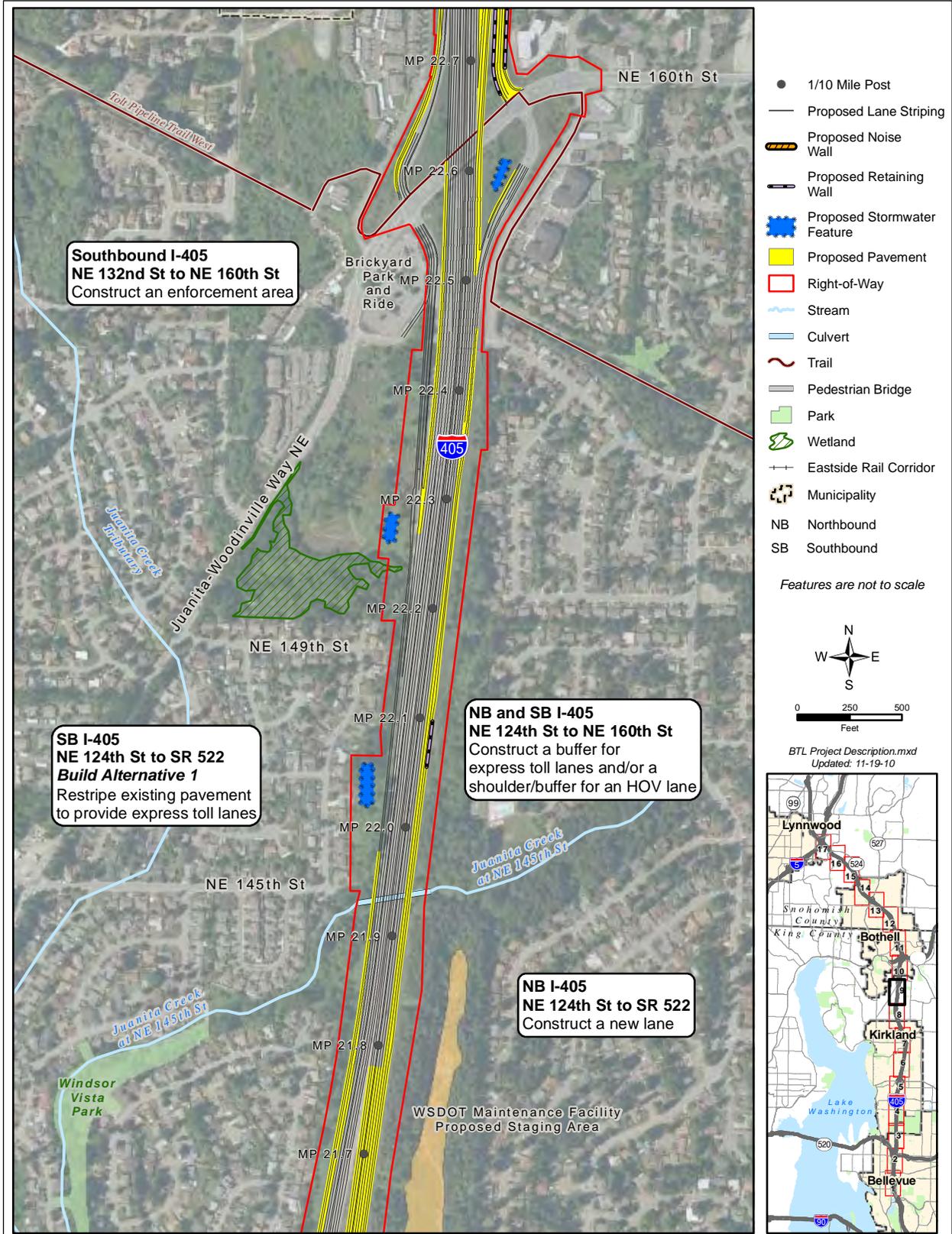


Exhibit 2-2: Project improvements – sheet 10 of 17

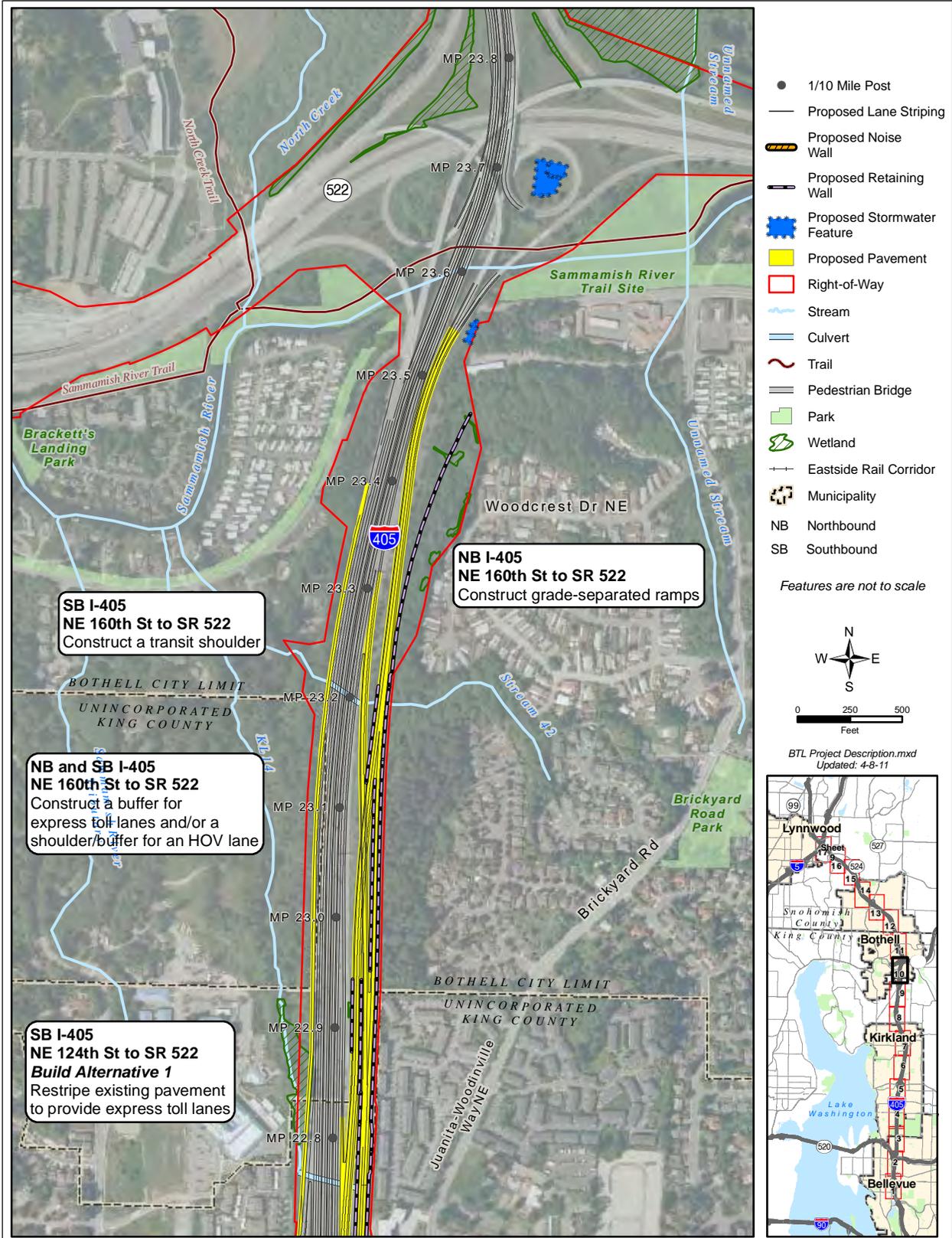


Exhibit 2-2: Project improvements – sheet 11 of 17

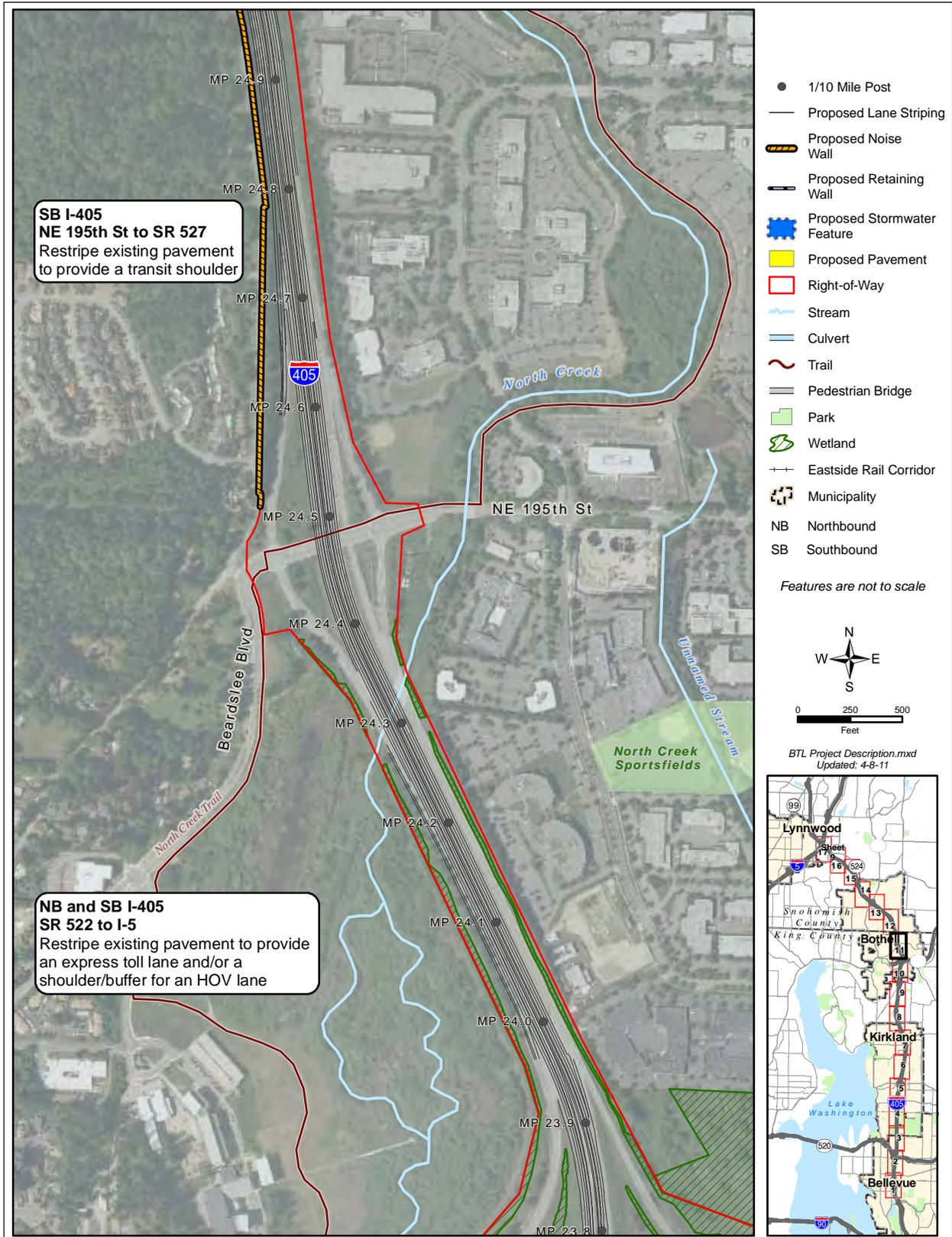
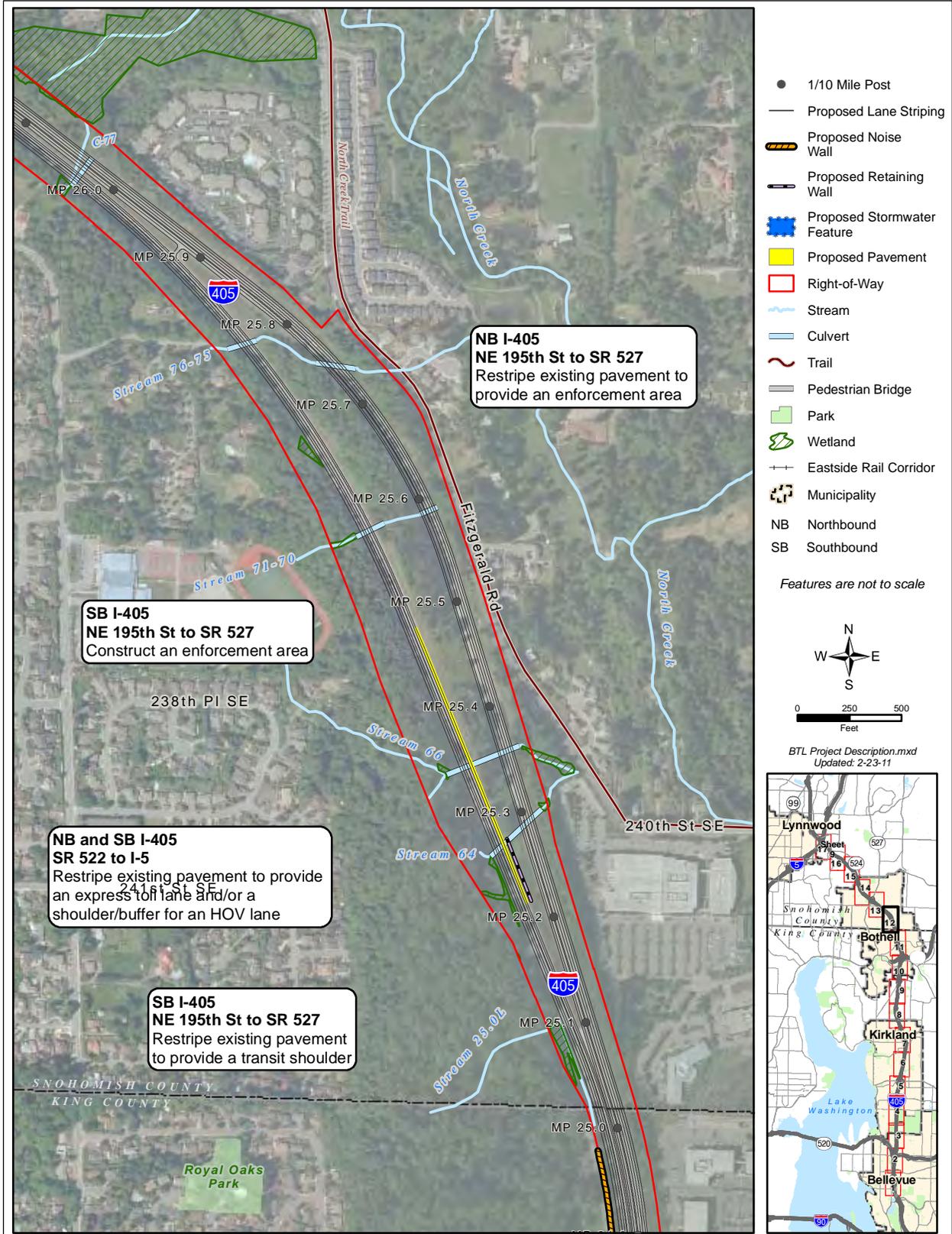


Exhibit 2-2: Project improvements – sheet 12 of 17



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 WATER RESOURCES DISCIPLINE REPORT

Exhibit 2-2: Project improvements – sheet 13 of 17

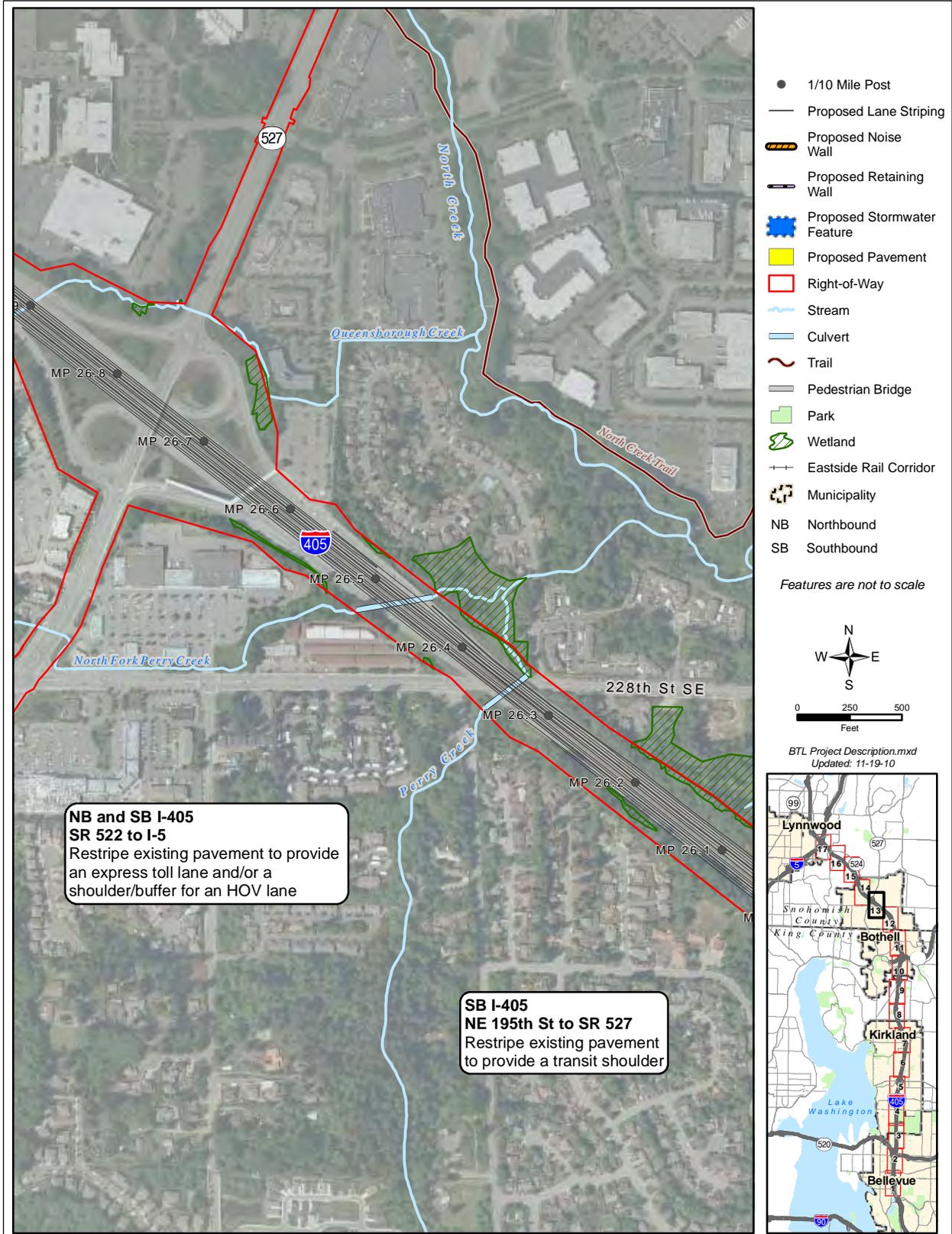
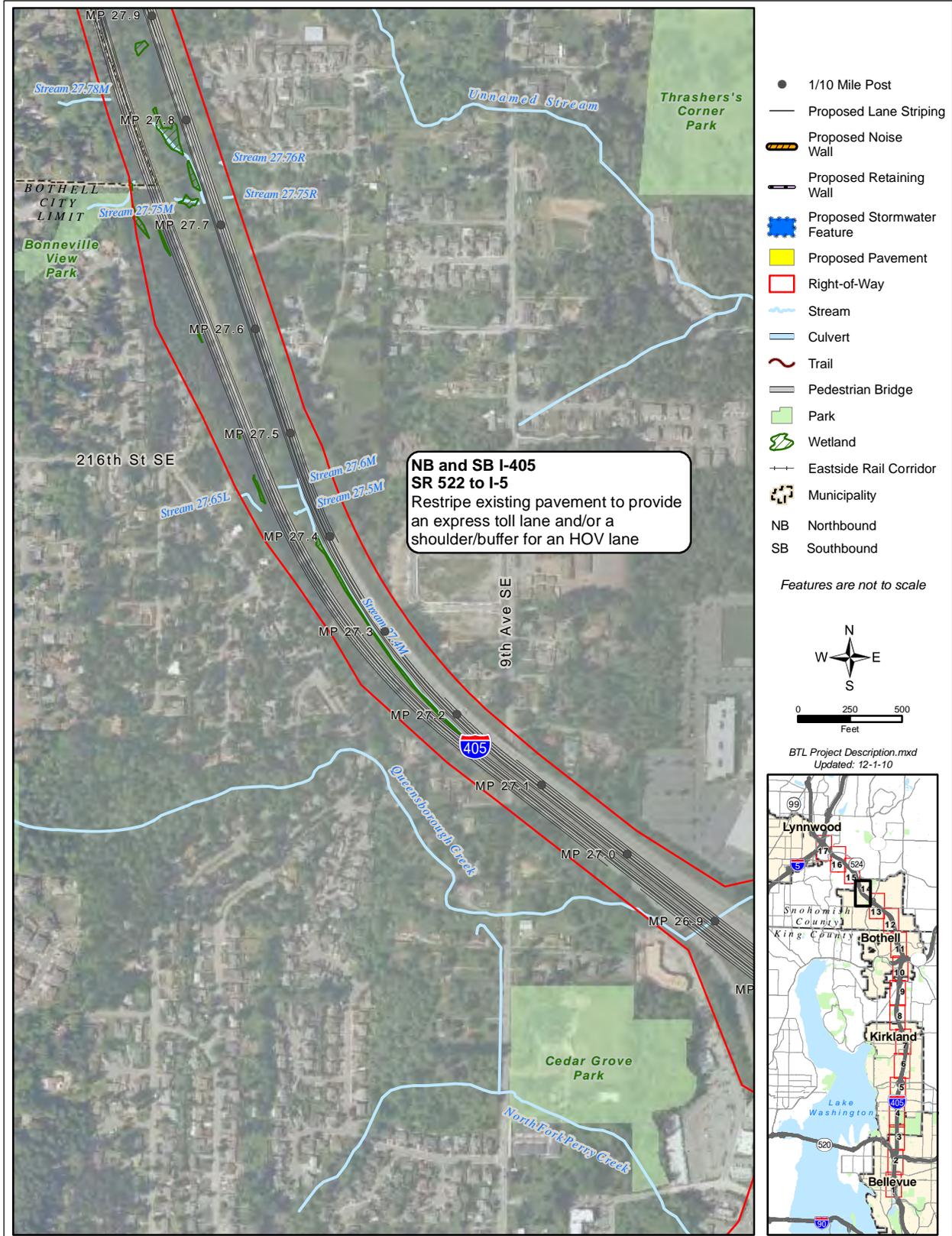
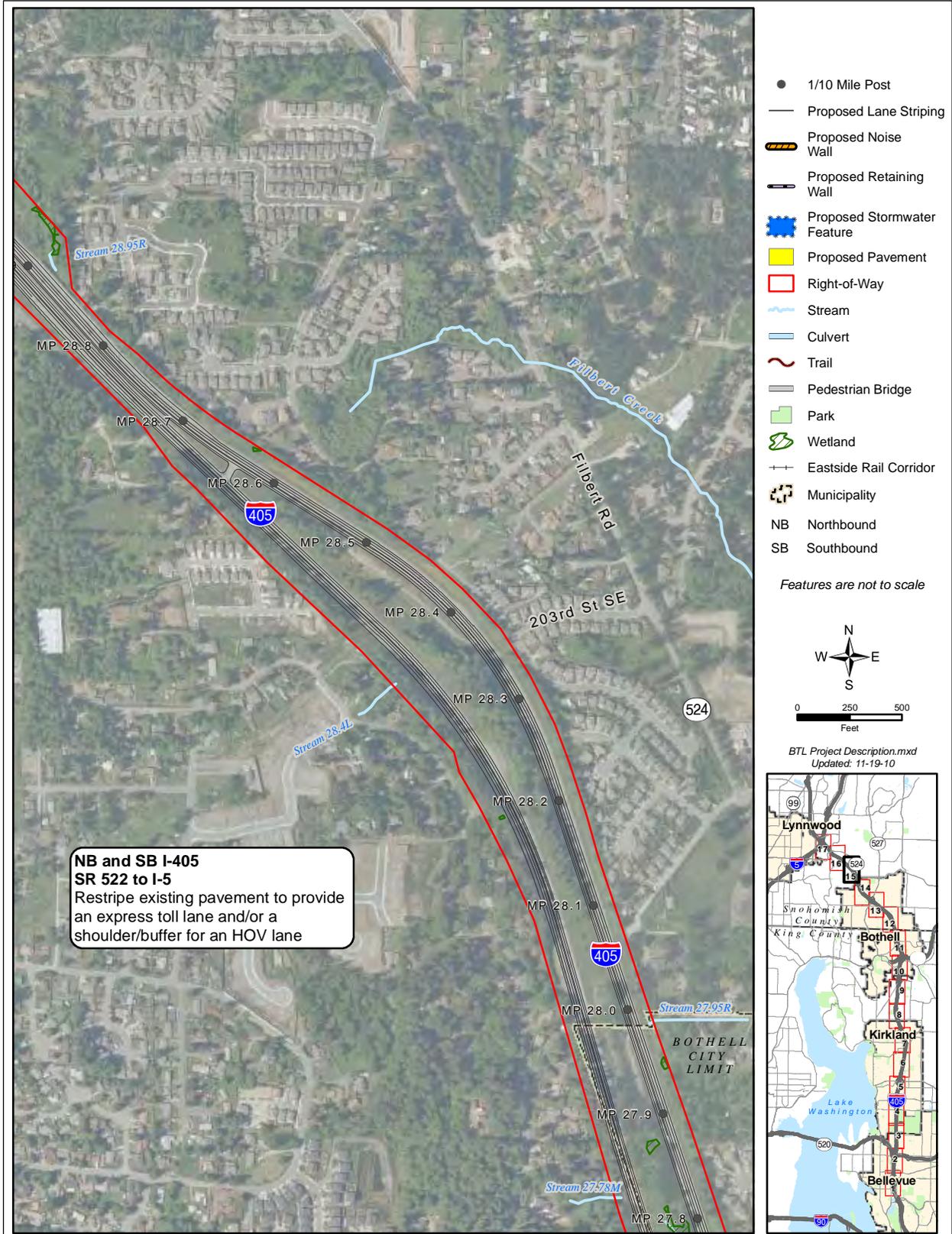


Exhibit 2-2: Project improvements – sheet 14 of 17



I-405, BELLEVUE TO LYNNWOOD IMPROVEMENT PROJECT
 WATER RESOURCES DISCIPLINE REPORT

Exhibit 2-2: Project improvements – sheet 15 of 17



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 WATER RESOURCES DISCIPLINE REPORT

Exhibit 2-2: Project improvements – sheet 16 of 17

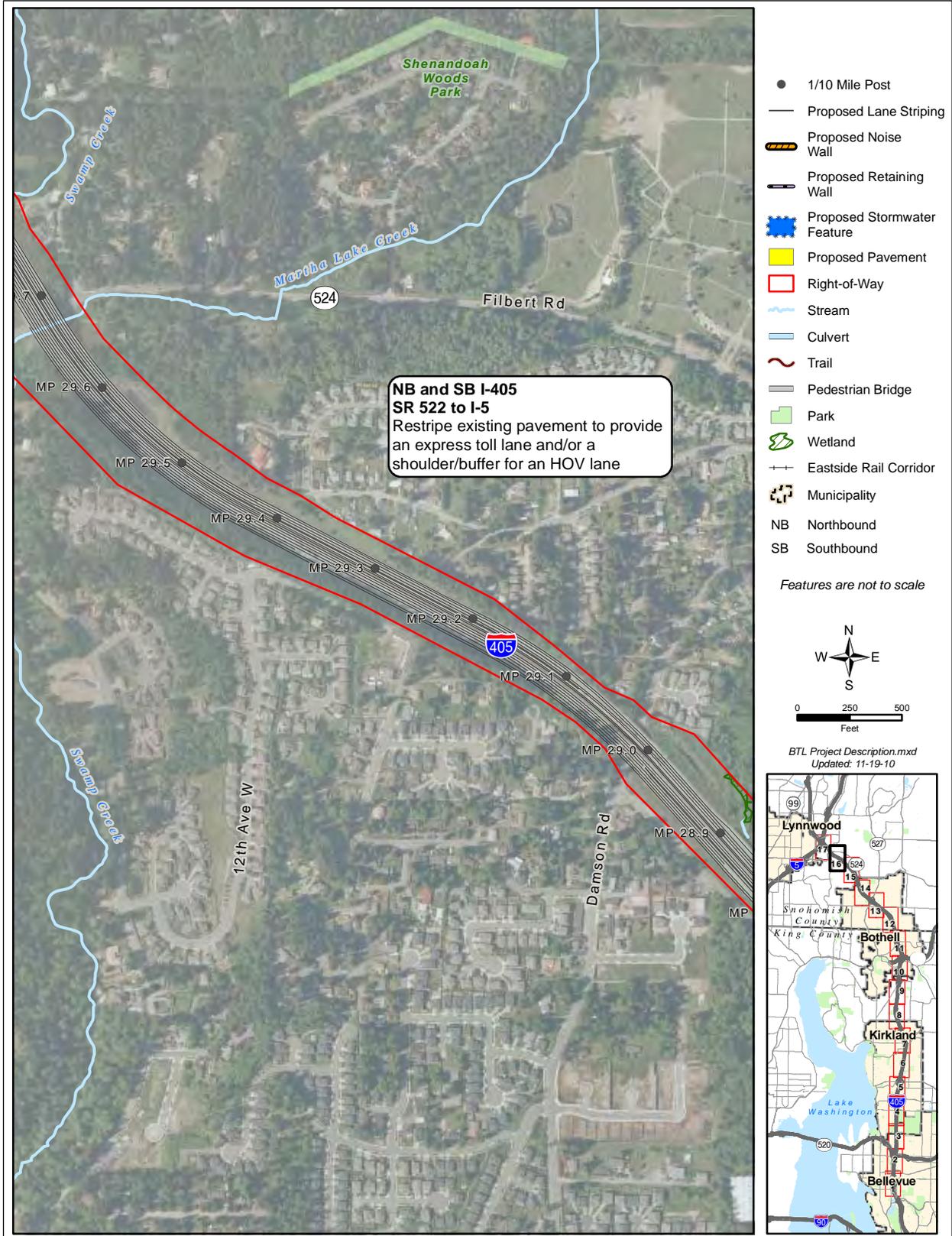


Exhibit 2-3: Project alternatives – sheet 1 of 2

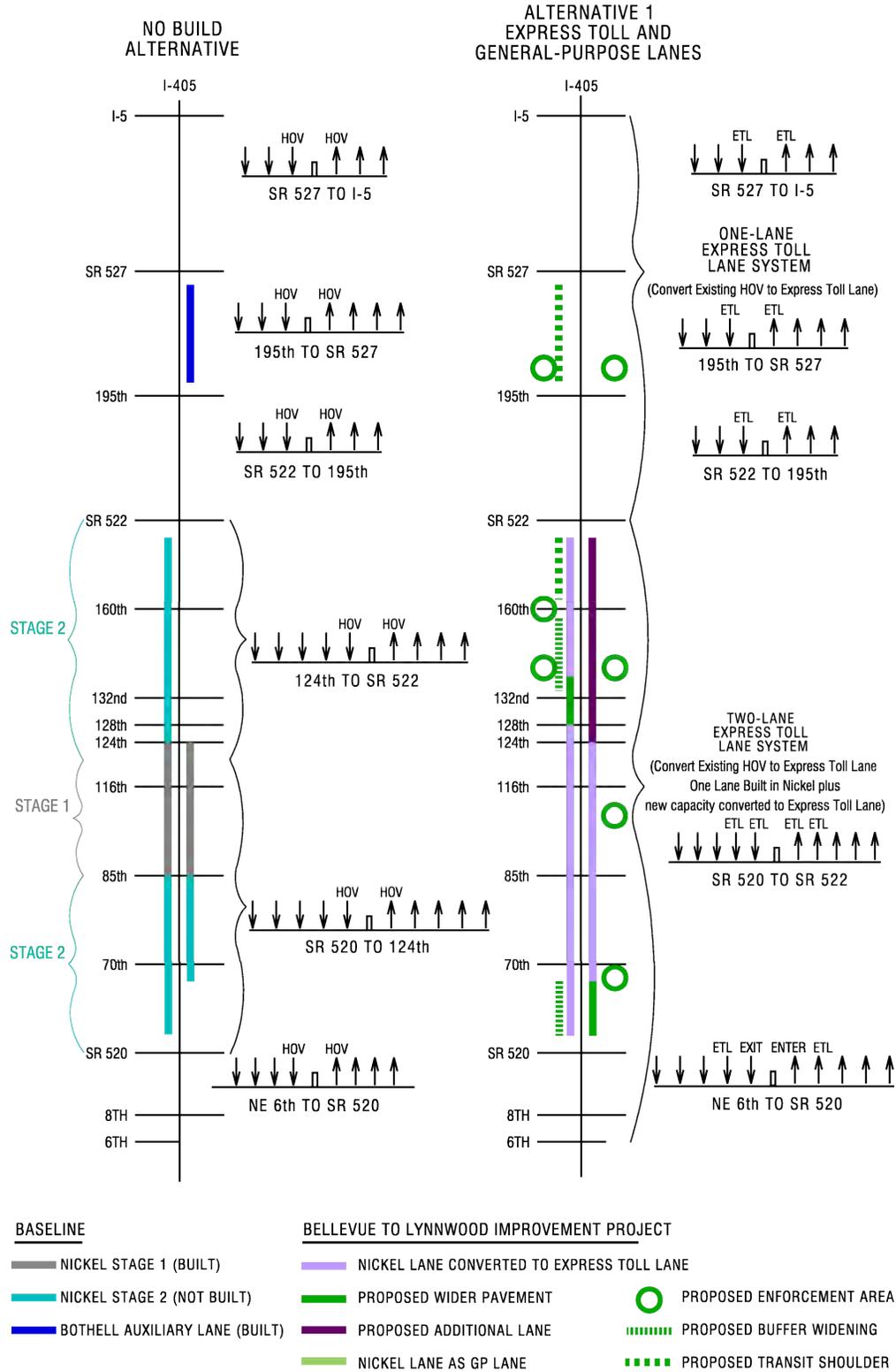


Exhibit 2-3: Project alternatives – sheet 2 of 2

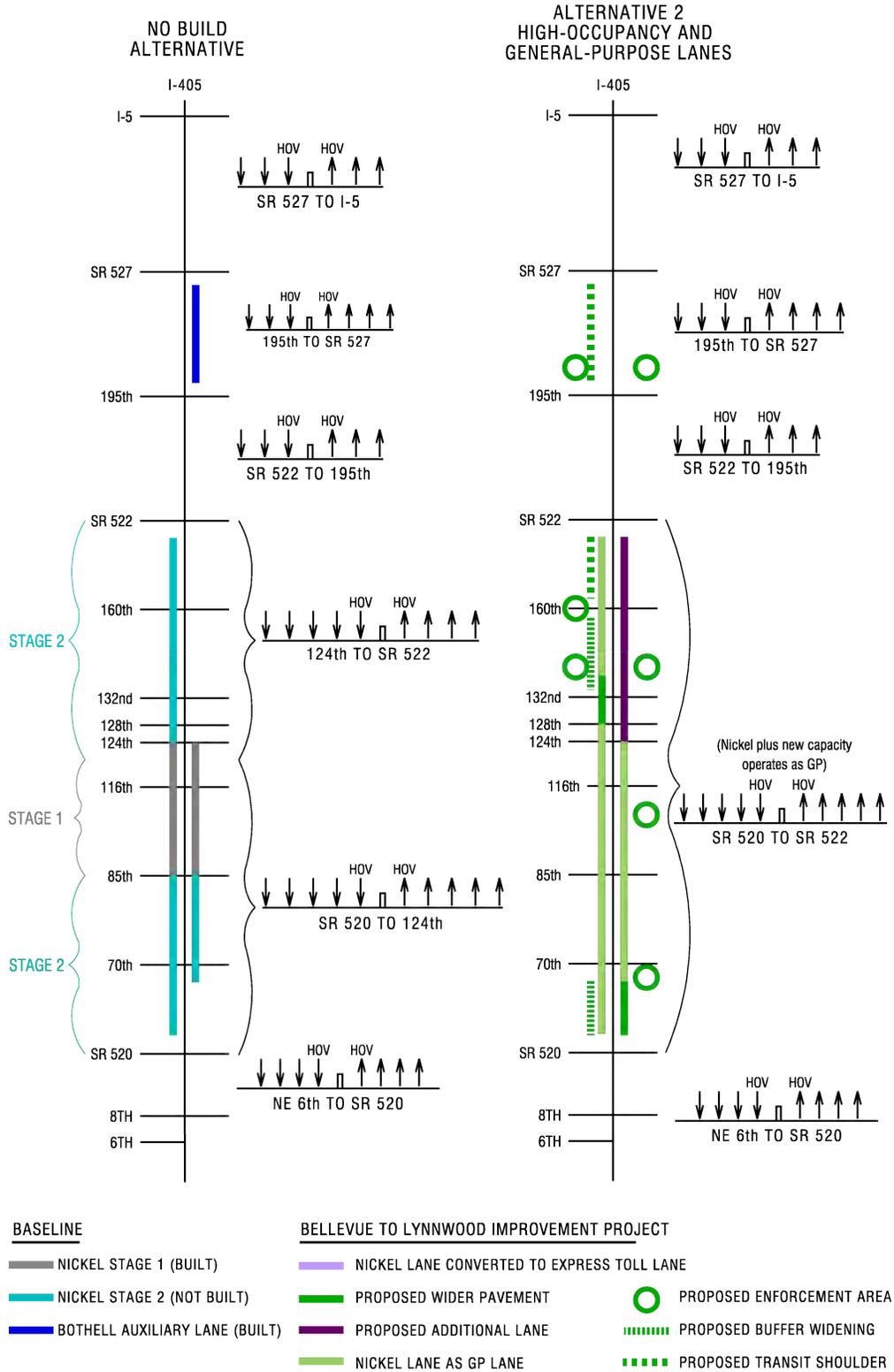
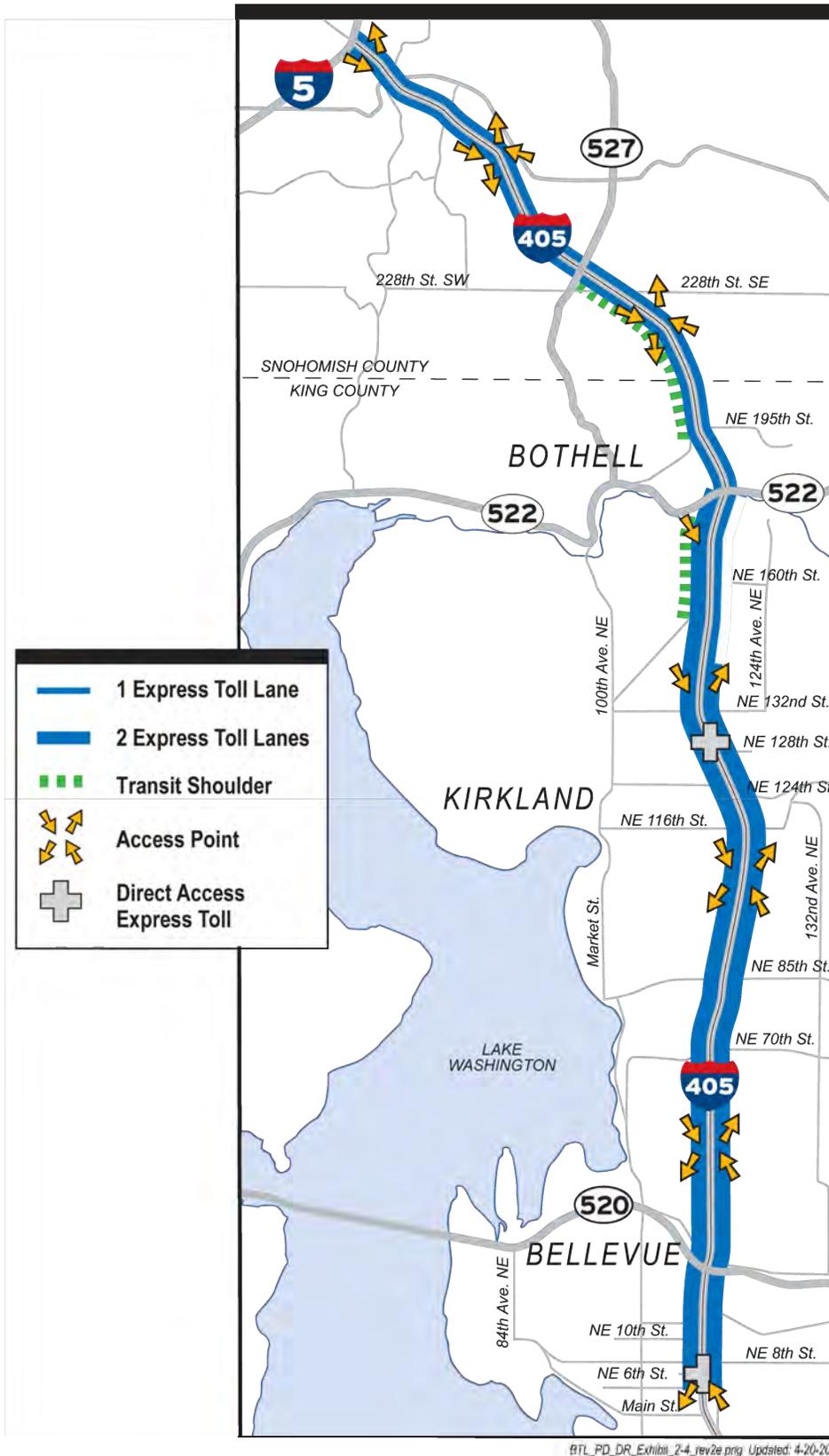


Exhibit 2-4: Express Toll Lanes access locations



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