

## **APPENDIX H: ECONOMICS TECHNICAL MEMORANDUM**

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# I-405, Bellevue to Lynnwood Improvement Project



## Corridor Program

Congestion Relief & Bus Rapid Transit Projects

# ECONOMICS TECHNICAL MEMORANDUM

April 2011





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## SUMMARY

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### *What was the objective of this study?*

The objective of this Economics Technical Memorandum is to evaluate the potential effects of the proposed Bellevue to Lynnwood Improvement Project on local businesses and on the general economic conditions in the study area.

At a programmatic level, the *I-405 Corridor Program NEPA/SEPA EIS* (WSDOT, 2002a) provided an assessment of proposed I-405 Corridor Program improvements. The EIS addressed economic effects, looking closely at the effects that the corridor program will have on the I-405 corridor and the regional economy. The EIS did not, however, attempt to provide a detailed assessment of specific effects on businesses and jurisdictions associated with the Bellevue to Lynnwood Build Alternatives. This Economics Technical Memorandum is designed to complement the EIS programmatic assessment. This study incorporates, by reference, the regional and corridor-level economic assessment provided in the EIS, and extends the analysis to specifically address potential effects on businesses and the economic environment of the area immediately affected by Bellevue to Lynnwood Improvement Project activities.

### *What studies were completed?*

WSDOT evaluated the economic effects of the I-405, Bellevue to Lynnwood Improvement Project (Bellevue to Lynnwood Improvement Project) by: (1) reviewing available economic and demographic data; and (2) conducting spatial analysis of the project geographic information system (GIS) data. Our analysis included a review of the following: the Puget Sound Regional Council's (PSRC 2006) 2006 forecasts of employment, population, and housing; the Multiple Listing Service data retrieval system for property availability; and tax and revenue information from the Washington State Department of Revenue and the Office of the Washington State Auditor.

### *What is the affected environment?*

To describe current and anticipated conditions along I-405 between NE 6th Street and I-5, WSDOT used a group of 14 forecast analysis zones (FAZs) adjacent to I-405. FAZs are used by local and regional planners to track current economic conditions and to forecast economic, demographic, and land use conditions. This study area, which encompasses approximately 68 square miles, includes portions of the cities of Bellevue, Kirkland, Bothell, and Lynnwood and areas within unincorporated King and Snohomish counties. While there are some noticeable differences in the employment composition among the FAZs in the study area, the most striking feature is the dominance of the finance, insurance, real estate, and services sector in many areas.

***Will the proposed project have an effect on economic issues?***

During operation, the economic effects are expected to be positive. Improved mobility on I-405 will decrease the overall costs of doing business in the corridor, and will increase access to commercial businesses.

***Will there be any construction effects?***

Short-term traffic delays due to construction and traffic re-routing can make business access more difficult. These conditions may cause certain businesses to experience some degree of economic hardship. Depending on the attractiveness of the destination and the availability of suitable alternatives, reduced access may result in fewer visits to local businesses. In each case, the extent and duration of the interference, the location of competitors, and the type of affected business will influence the magnitude of potential economic effects during construction.

The proposed Bellevue to Lynnwood Improvement Project will have minor construction-related effects on specific businesses and commercial properties. Temporary inconveniences may include traffic delays, issues associated with maintaining accessibility to businesses, detours, and detractions.

Local jurisdictions will be affected during project construction. Sales tax on the value of construction labor and materials will be subject to state and local sales taxes, and will accrue to the local jurisdictions where construction occurs.

No residences or businesses will be displaced by the project; however, two parcels previously owned by the Lake Washington Christian Church were needed for this project and were purchased by WSDOT.

***What effects will result if the No Build Alternative were adopted?***

Traffic congestion would become an increasing problem on mainline I-405, pushing more commuter traffic onto the local road system. The economic costs of reduced mobility would discourage new and existing businesses from investing in the area and would reduce the size of the geographic area that can be conveniently served.

***What measures are proposed to avoid or minimize project effects?***

WSDOT will maintain access to businesses throughout construction by carefully planning construction activities and providing properties affected by the project with reasonable access during business hours. As part of construction management, WSDOT will prepare access maintenance measures that will be included in construction contract specifications.

Because it may be difficult to determine whether a business is open or how to access a business during the construction period, WSDOT will make provisions to post appropriate signs that communicate the necessary information to potential customers.

WSDOT will keep daytime street closures to a minimum to maintain access for businesses during regular business hours.

## 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;
- Small amounts of additional widening, between four and eight feet, at several locations for buffers, wider shoulders, enforcement areas and maintenance pull-outs; and
- Minor upgrades to pedestrian facilities in some areas.

Exhibit 1 shows the Bellevue to Lynnwood project vicinity. Exhibit 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

Exhibit 1: Project vicinity



one lane in each direction between NE 85th Street and NE 124th Street and opened to traffic in November 2007;

- NE 195th Street 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
- 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.

The Kirkland Nickel Stage 2 Project will reconfigure the NE 116th Street interchange, and 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 most analyses. 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 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 operations. 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 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 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 and the NE 8th Street to SR 520 Braided Ramps 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+).

Exhibit 2: Project improvements – sheet 1 of 17

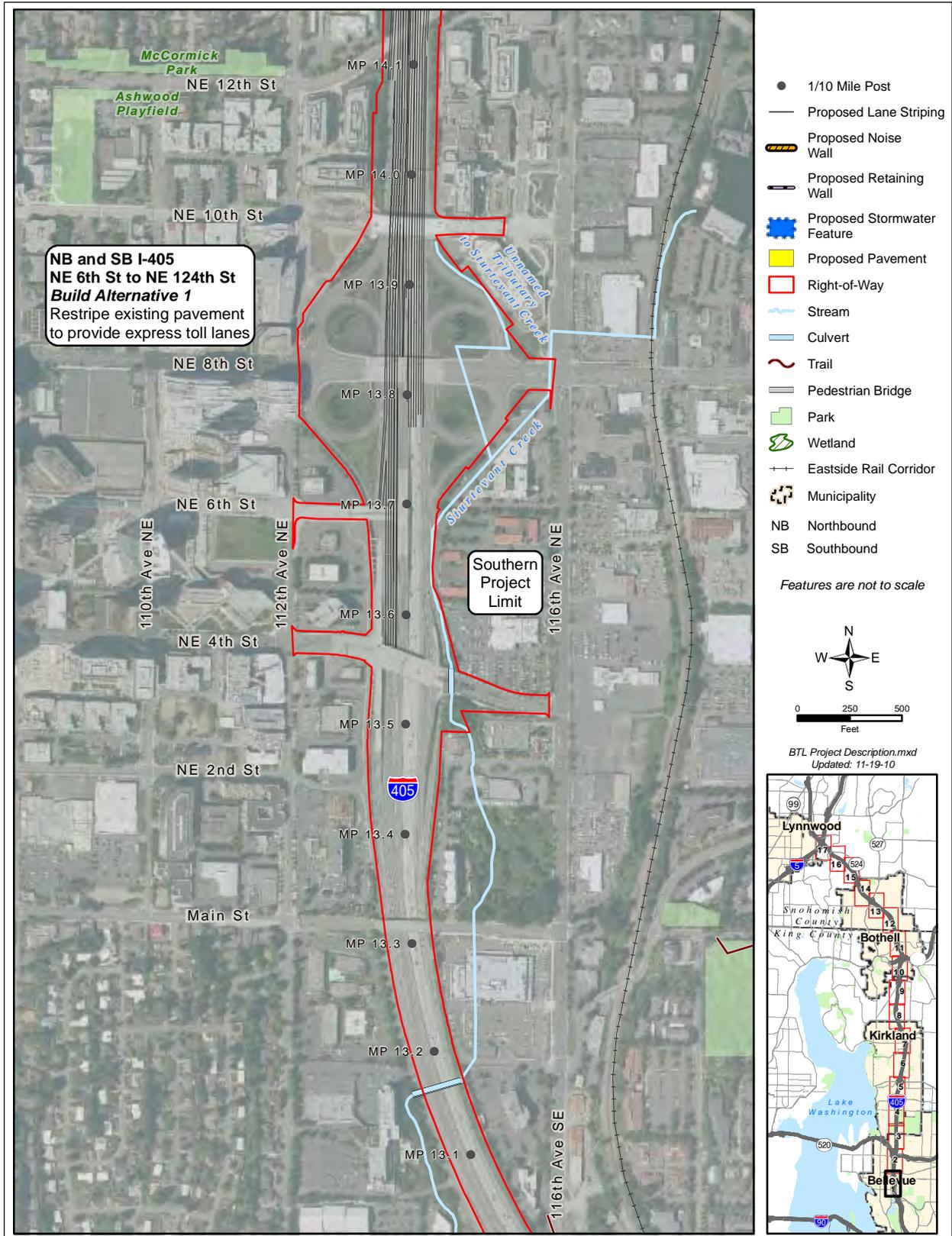


Exhibit 2: Project improvements – sheet 2 of 17

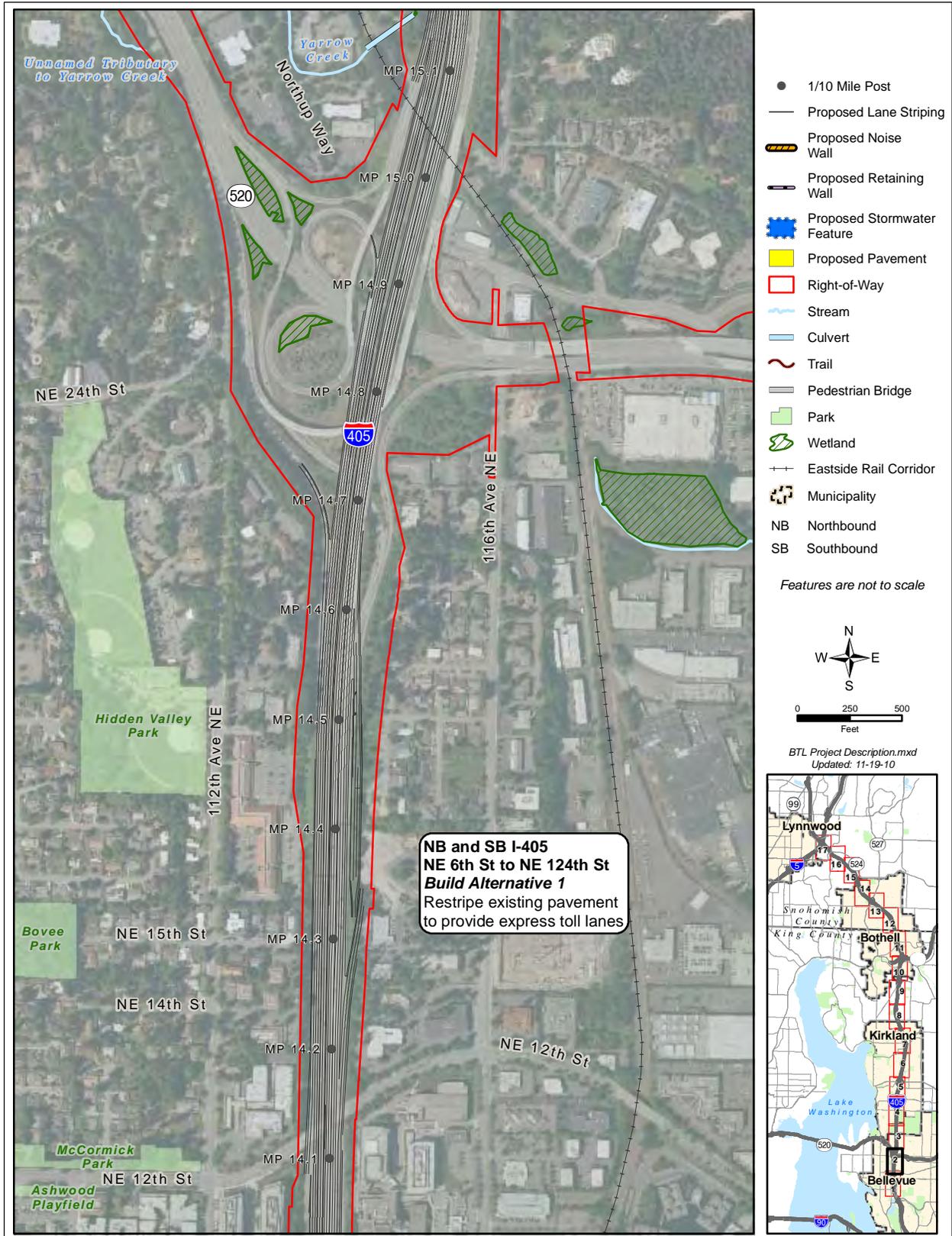


Exhibit 2: Project improvements – sheet 3 of 17

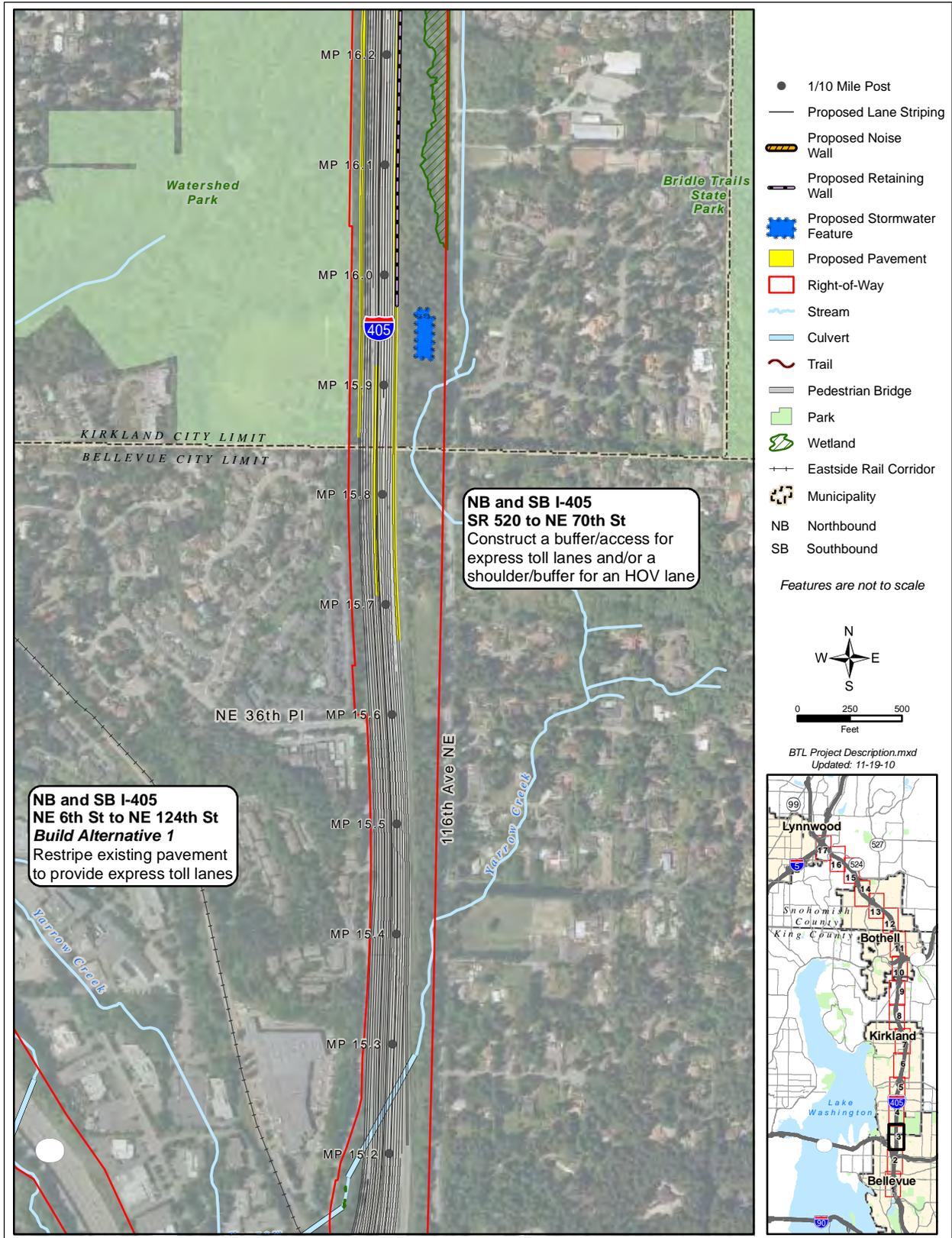


Exhibit 2: Project improvements – sheet 4 of 17

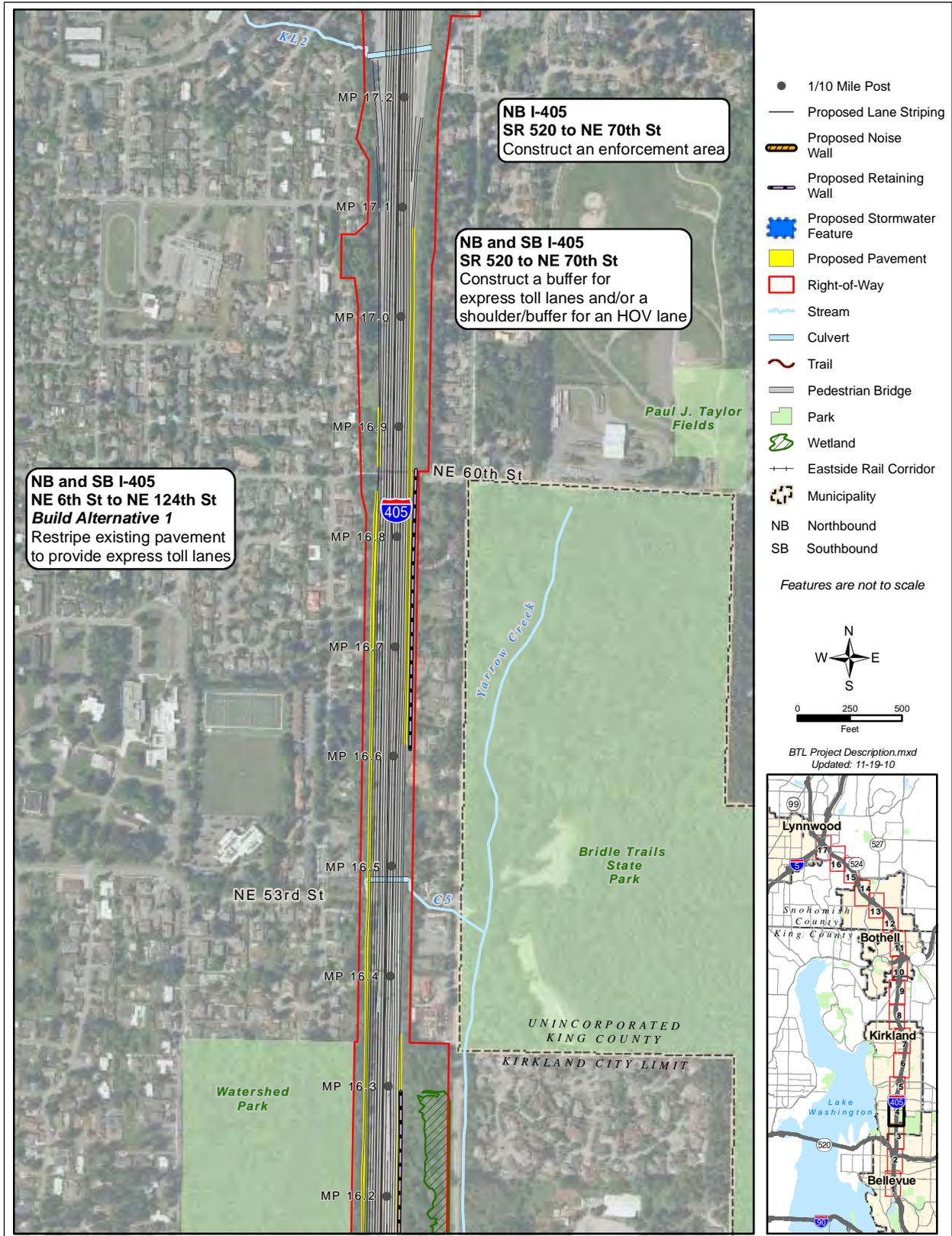


Exhibit 2: Project improvements – sheet 5 of 17

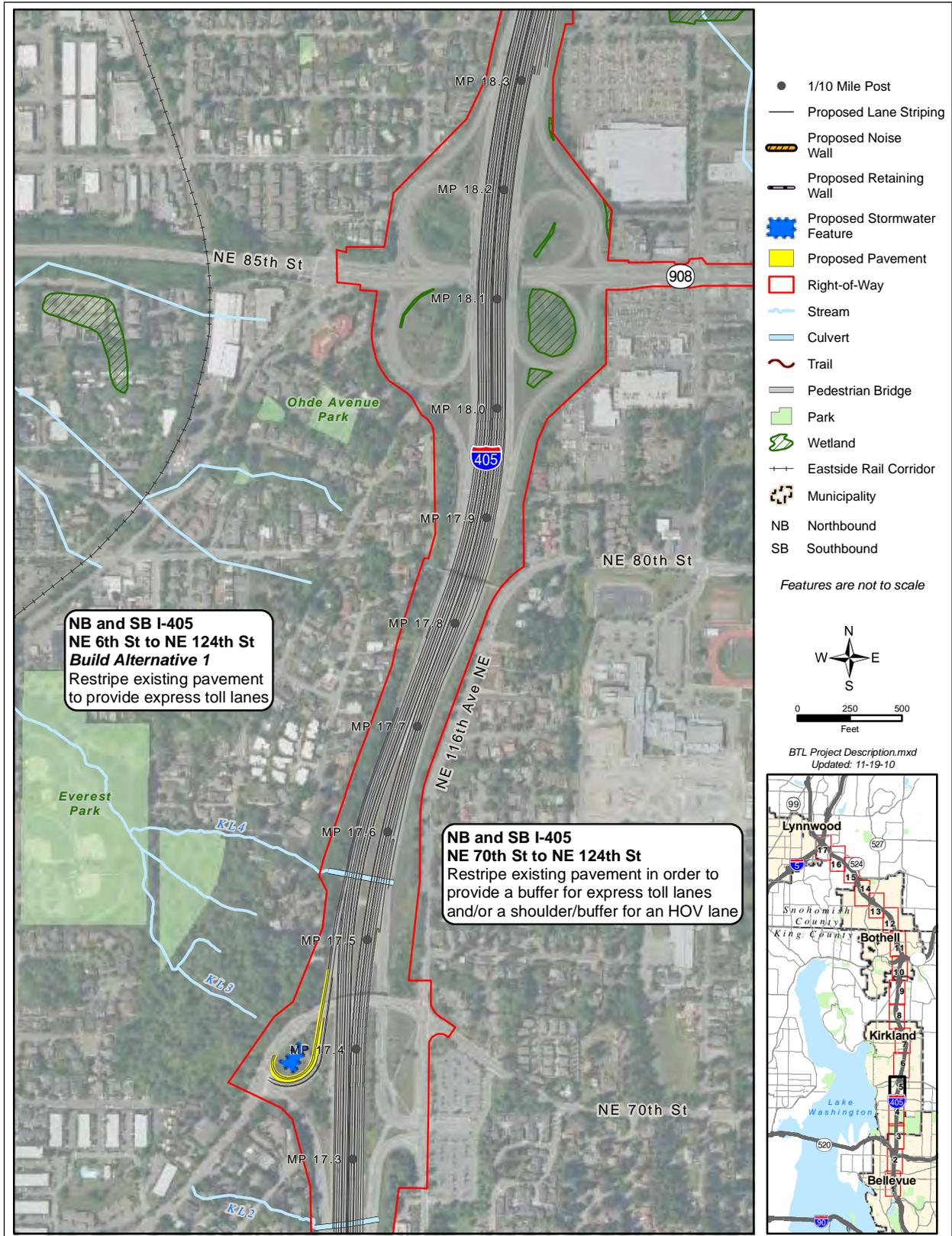


Exhibit 2: Project improvements – sheet 6 of 17

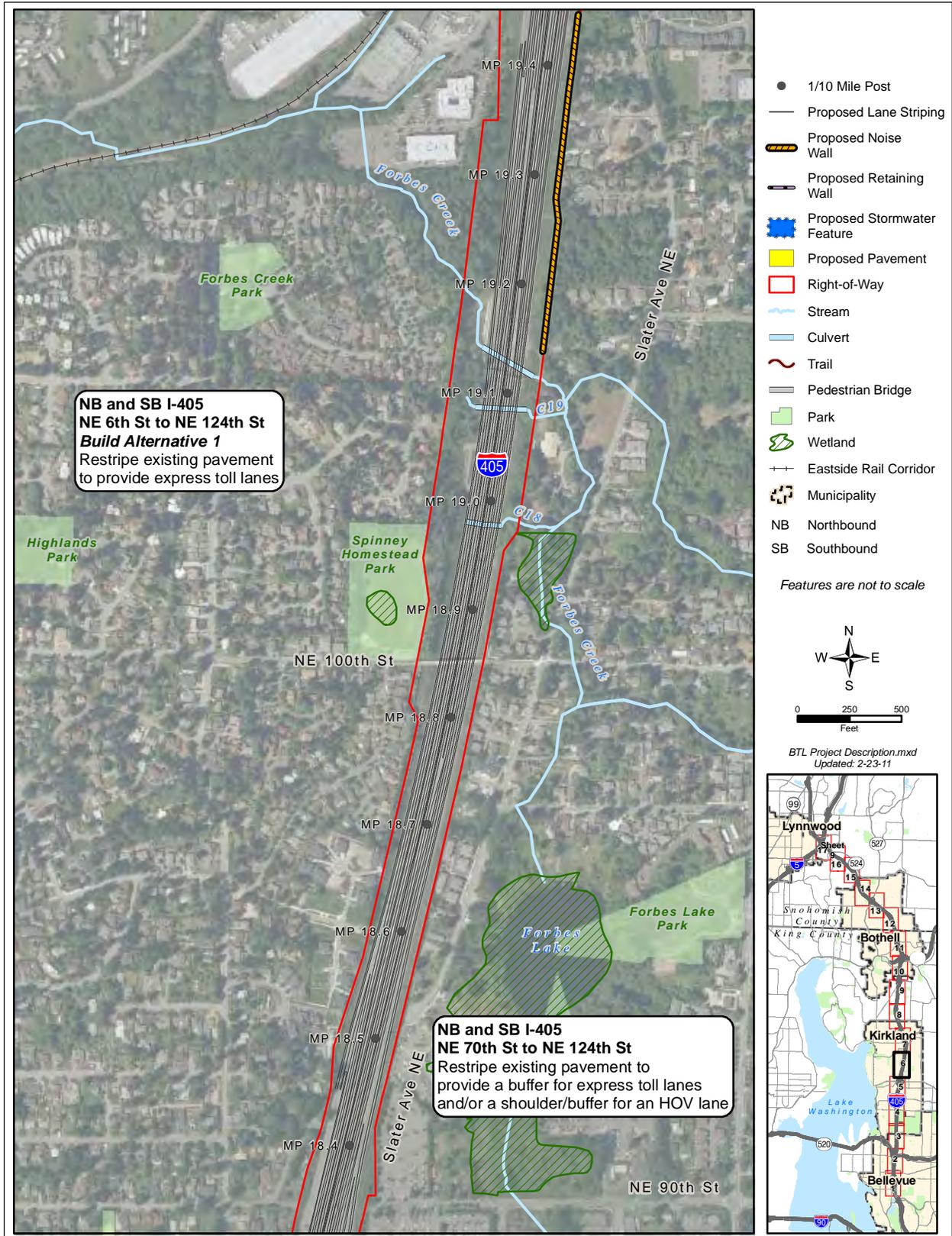


Exhibit 2: Project improvements – sheet 7 of 17

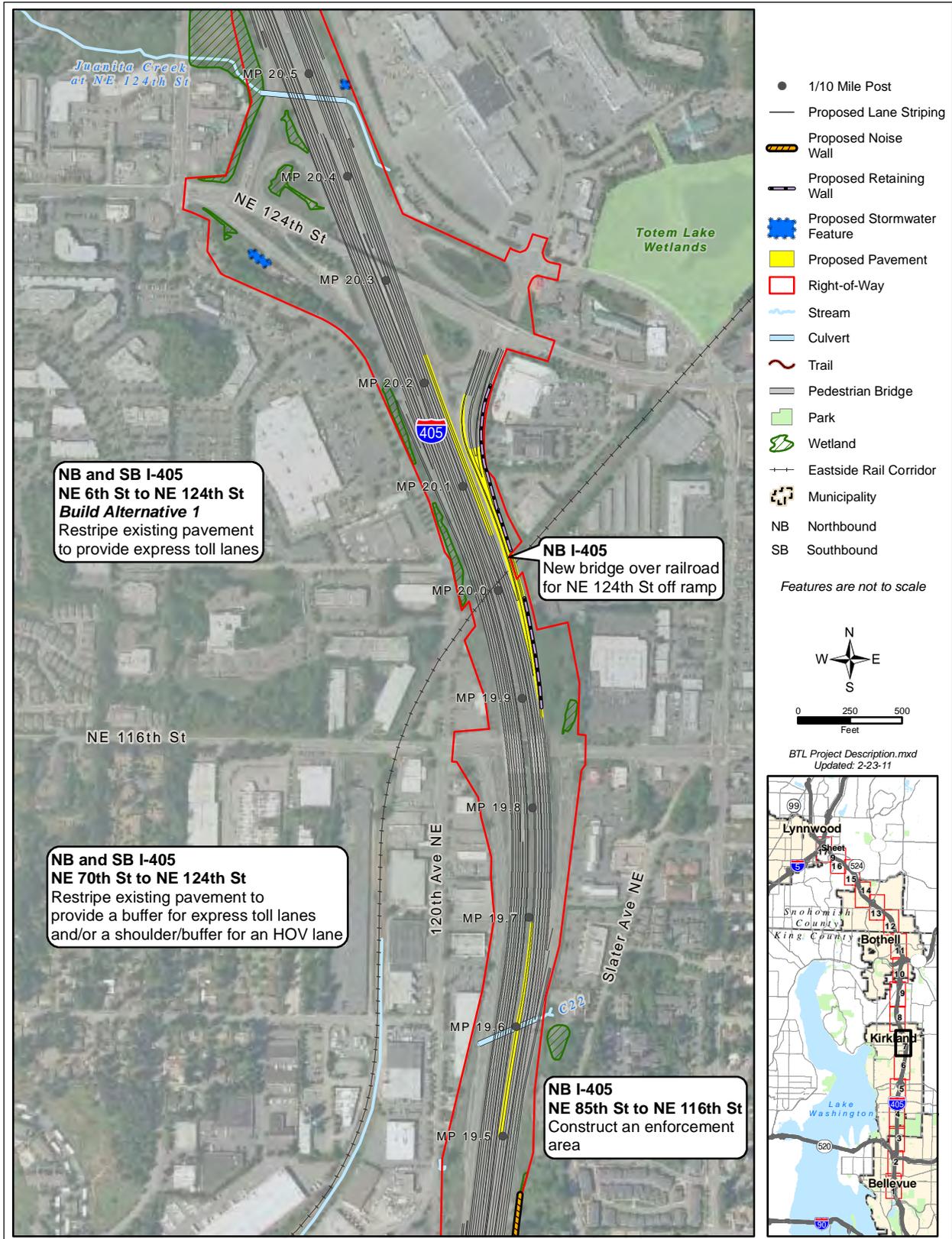


Exhibit 2: Project improvements – sheet 8 of 17

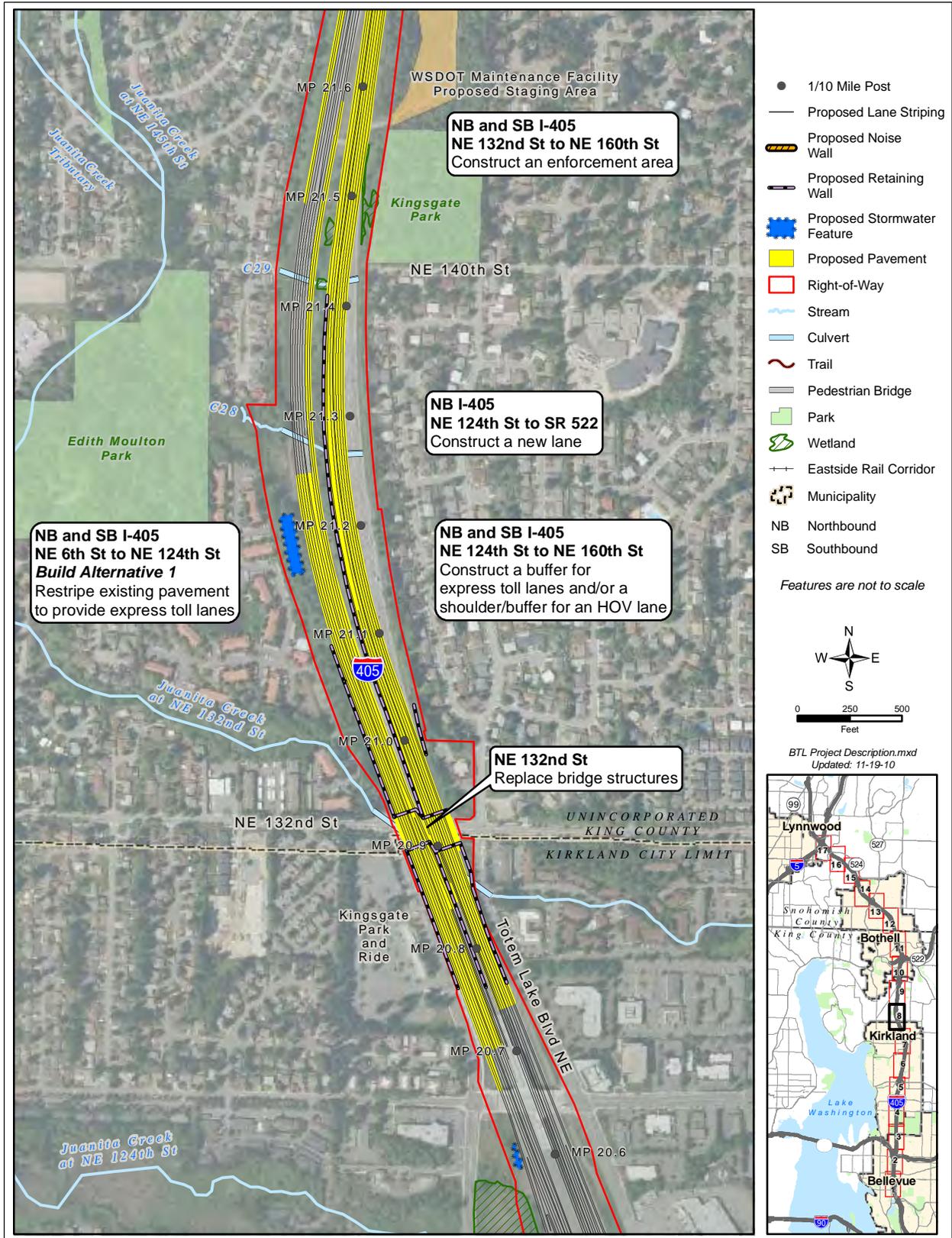


Exhibit 2: Project improvements – sheet 9 of 17

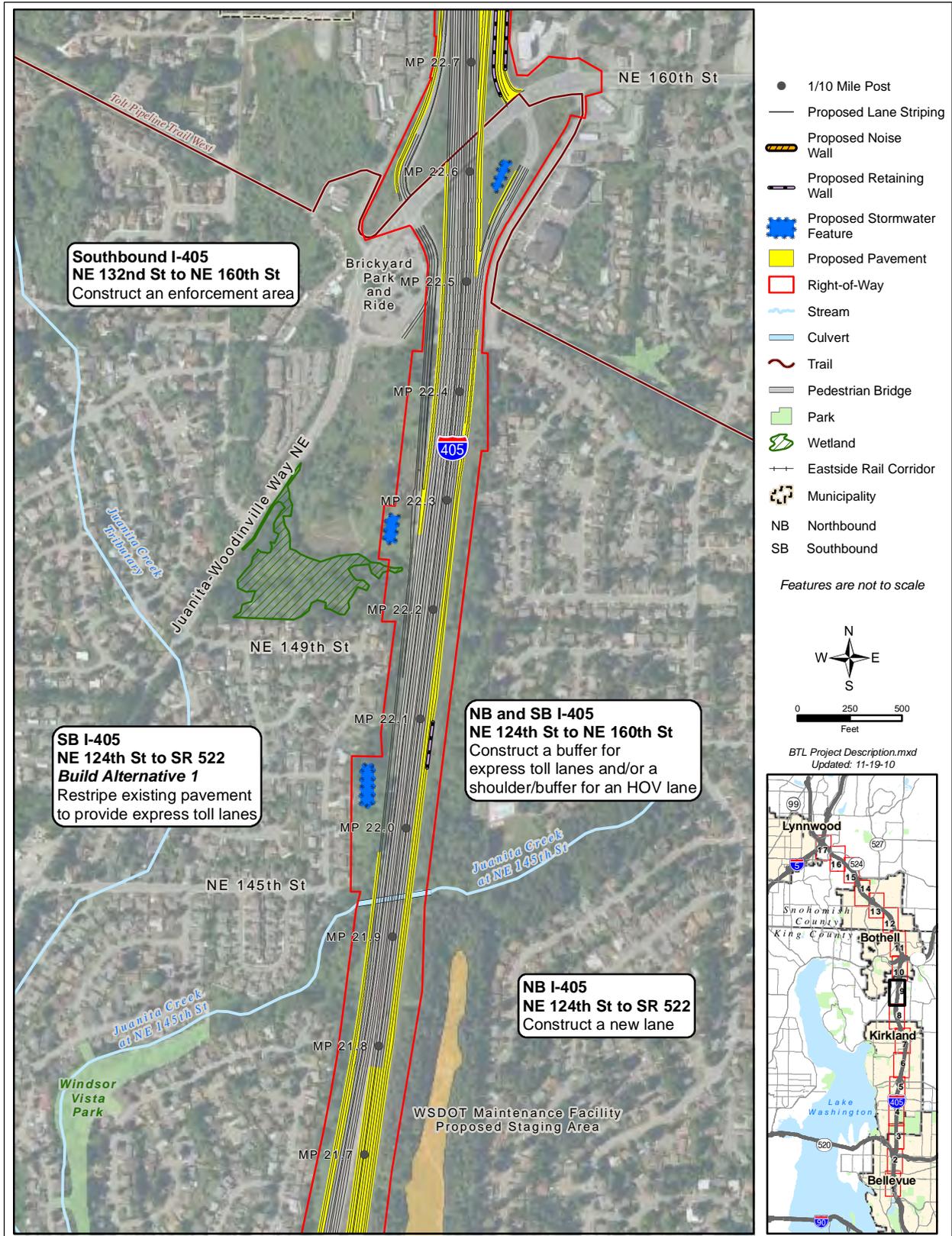


Exhibit 2: Project improvements – sheet 10 of 17

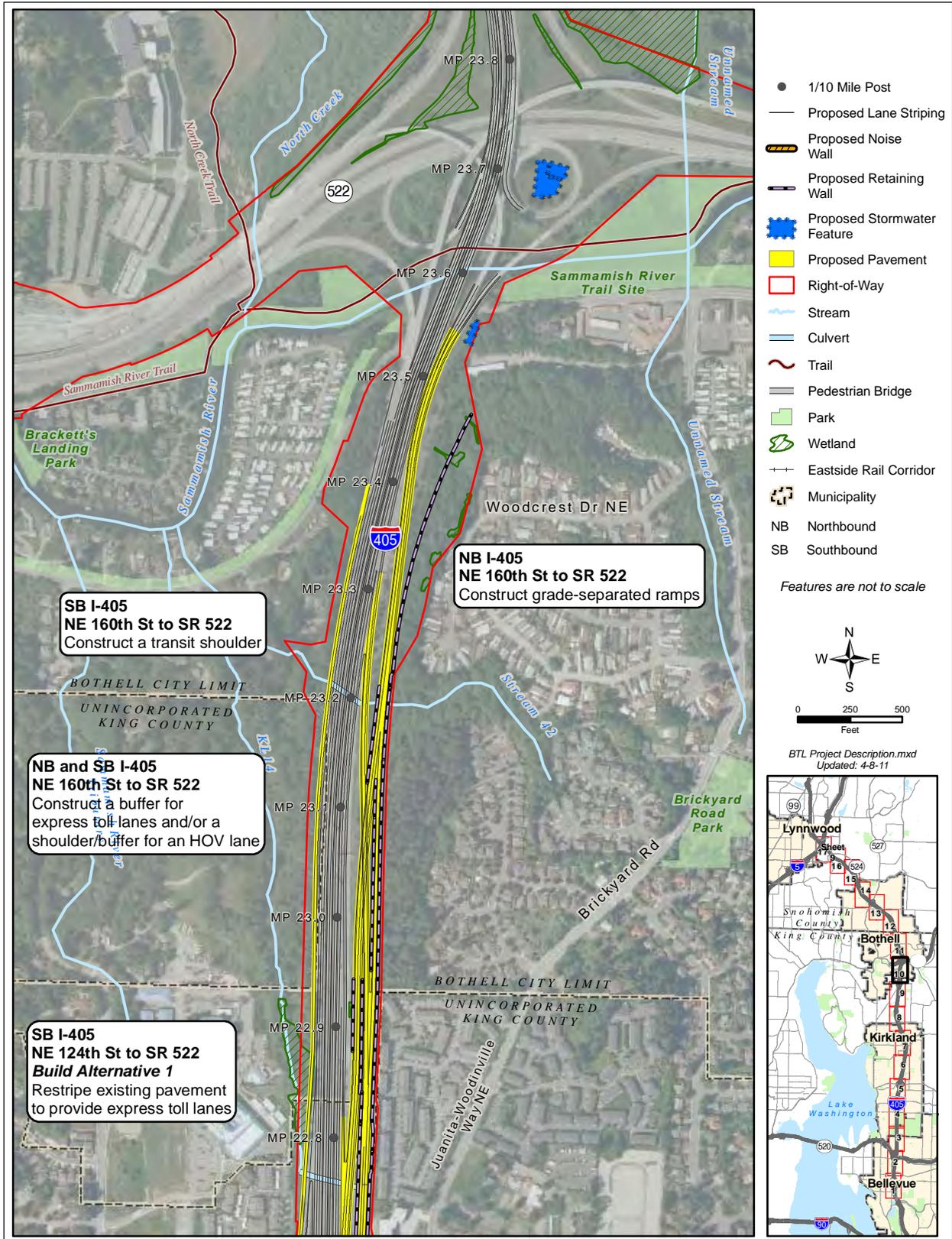


Exhibit 2: Project improvements – sheet 11 of 17

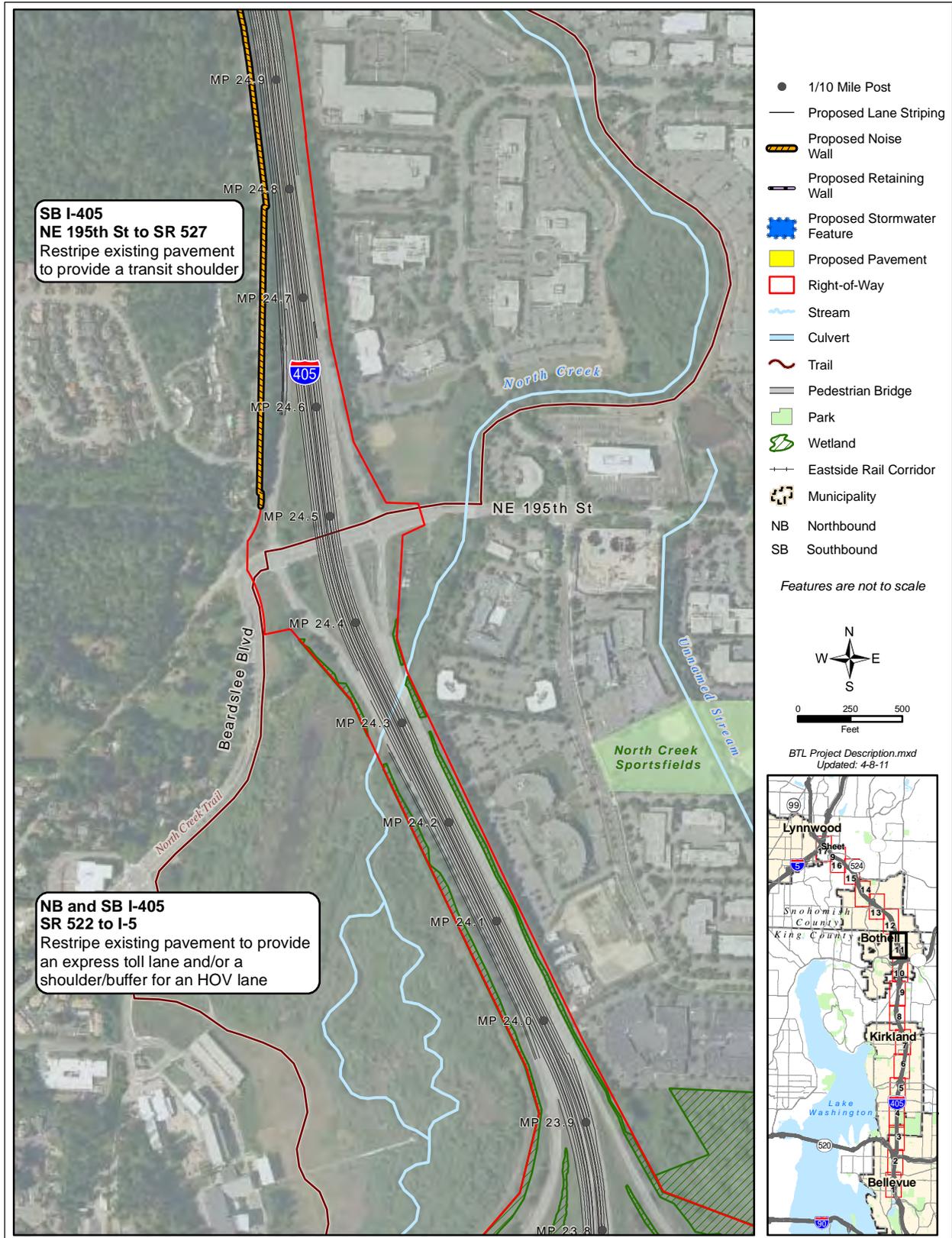


Exhibit 2: Project improvements – sheet 12 of 17

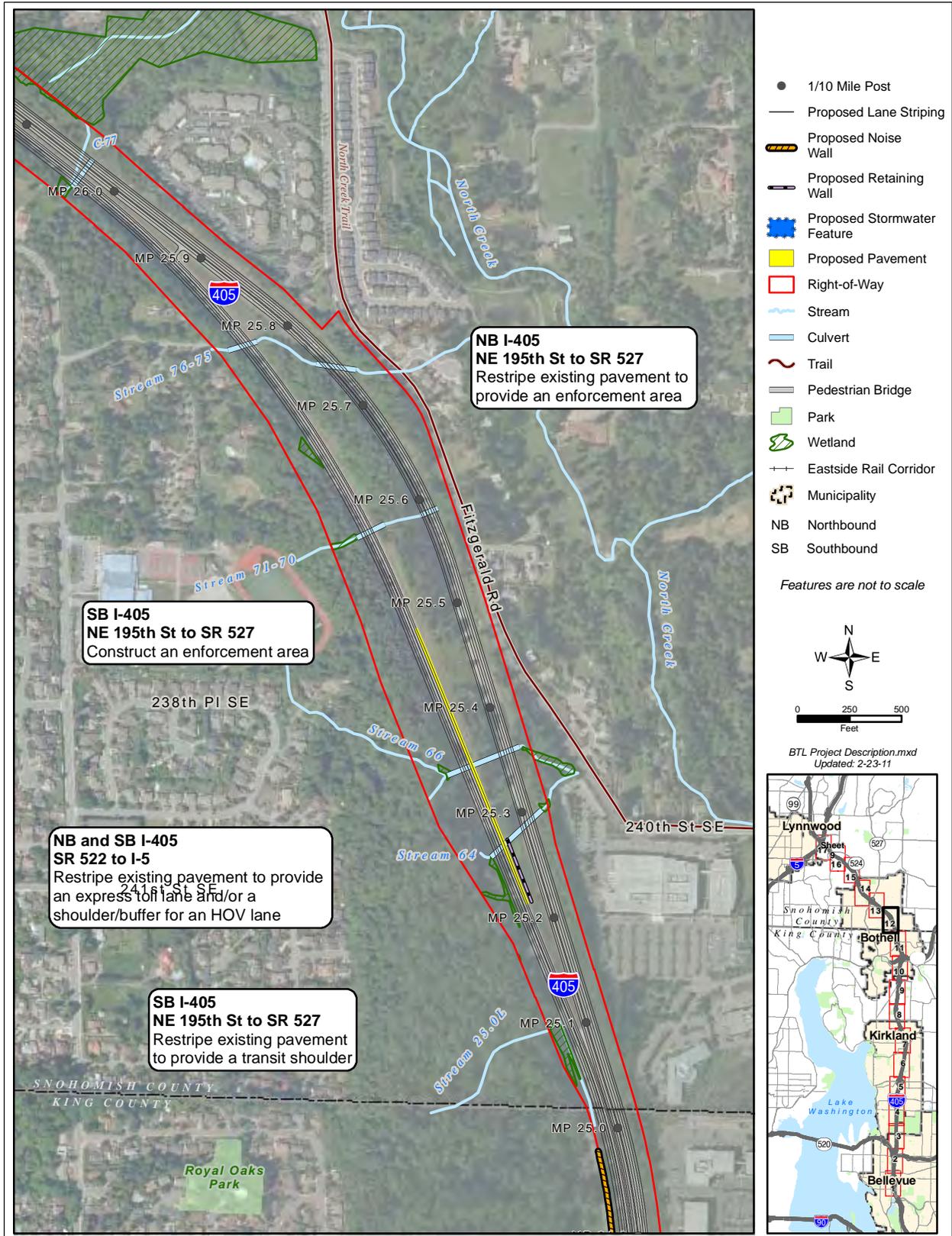


Exhibit 2: Project improvements – sheet 13 of 17

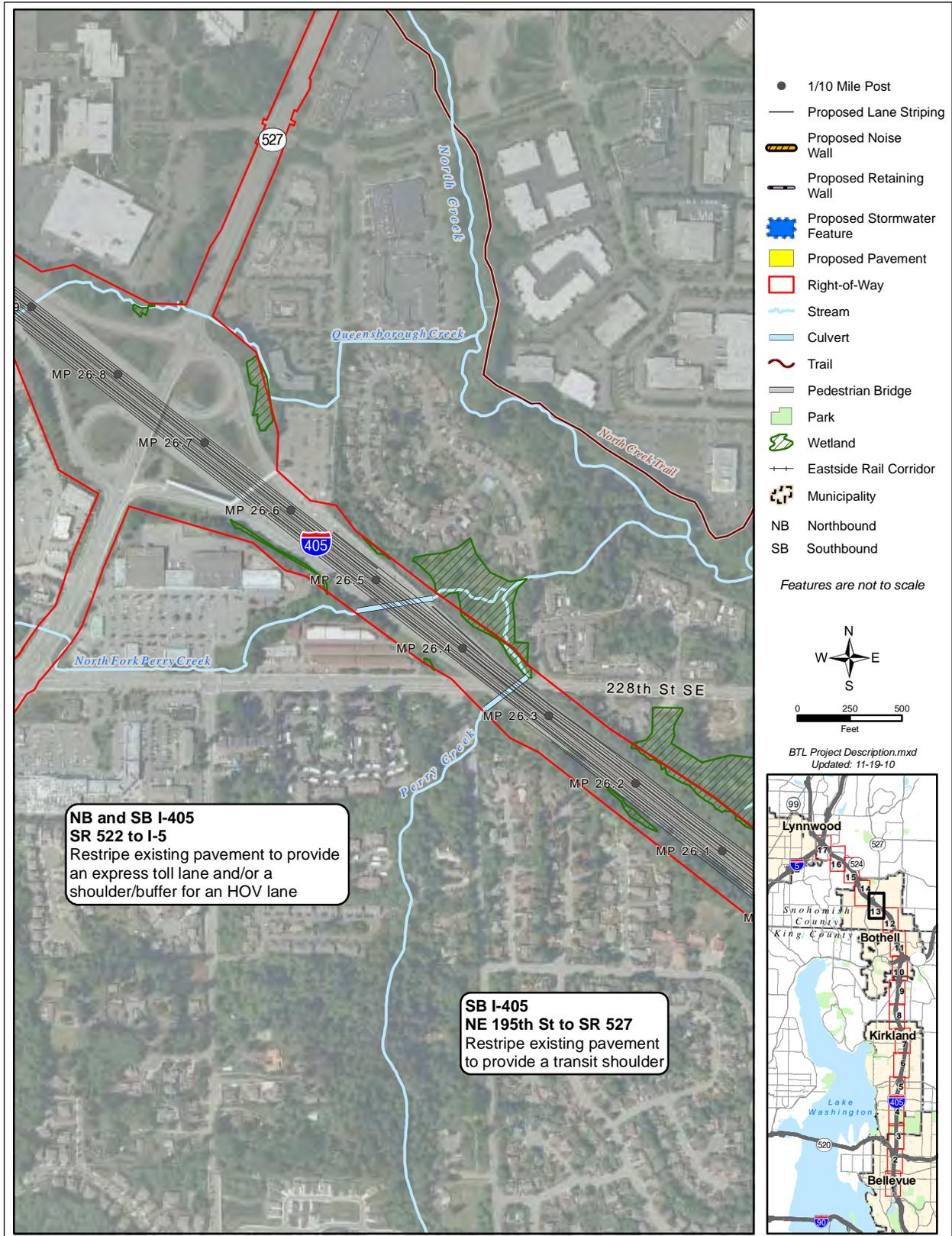


Exhibit 2: Project improvements – sheet 14 of 17

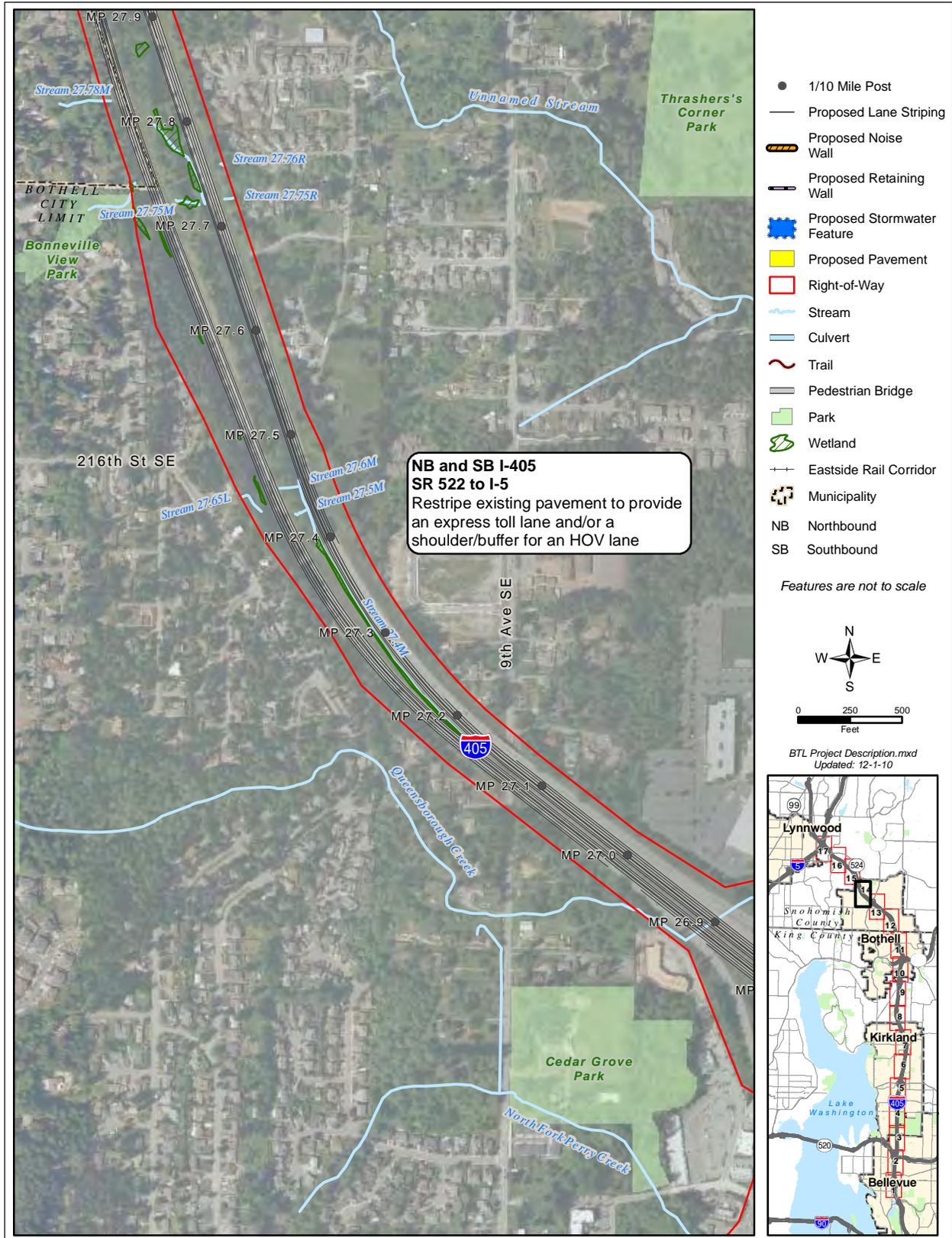


Exhibit 2: Project improvements – sheet 15 of 17

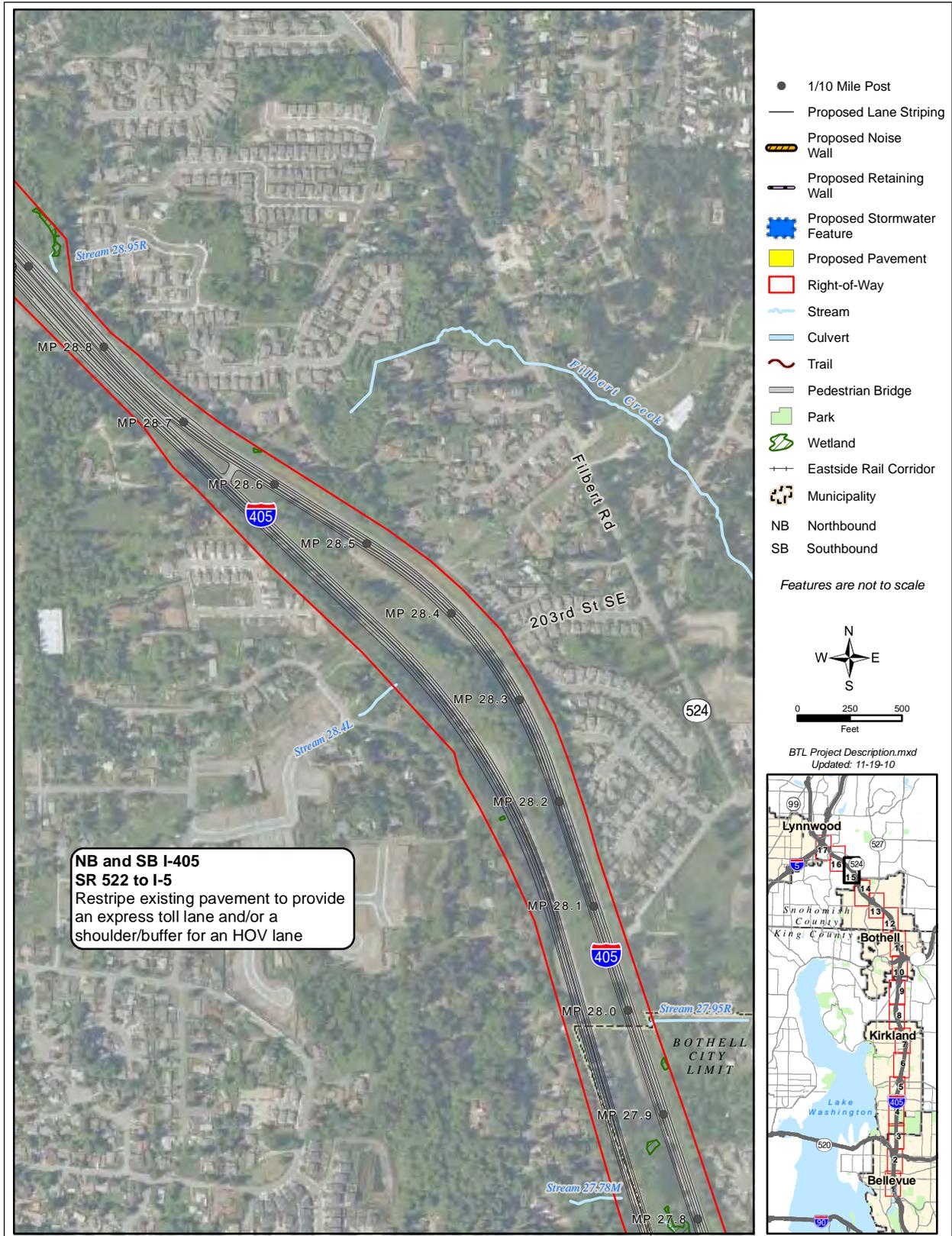


Exhibit 2: Project improvements – sheet 16 of 17

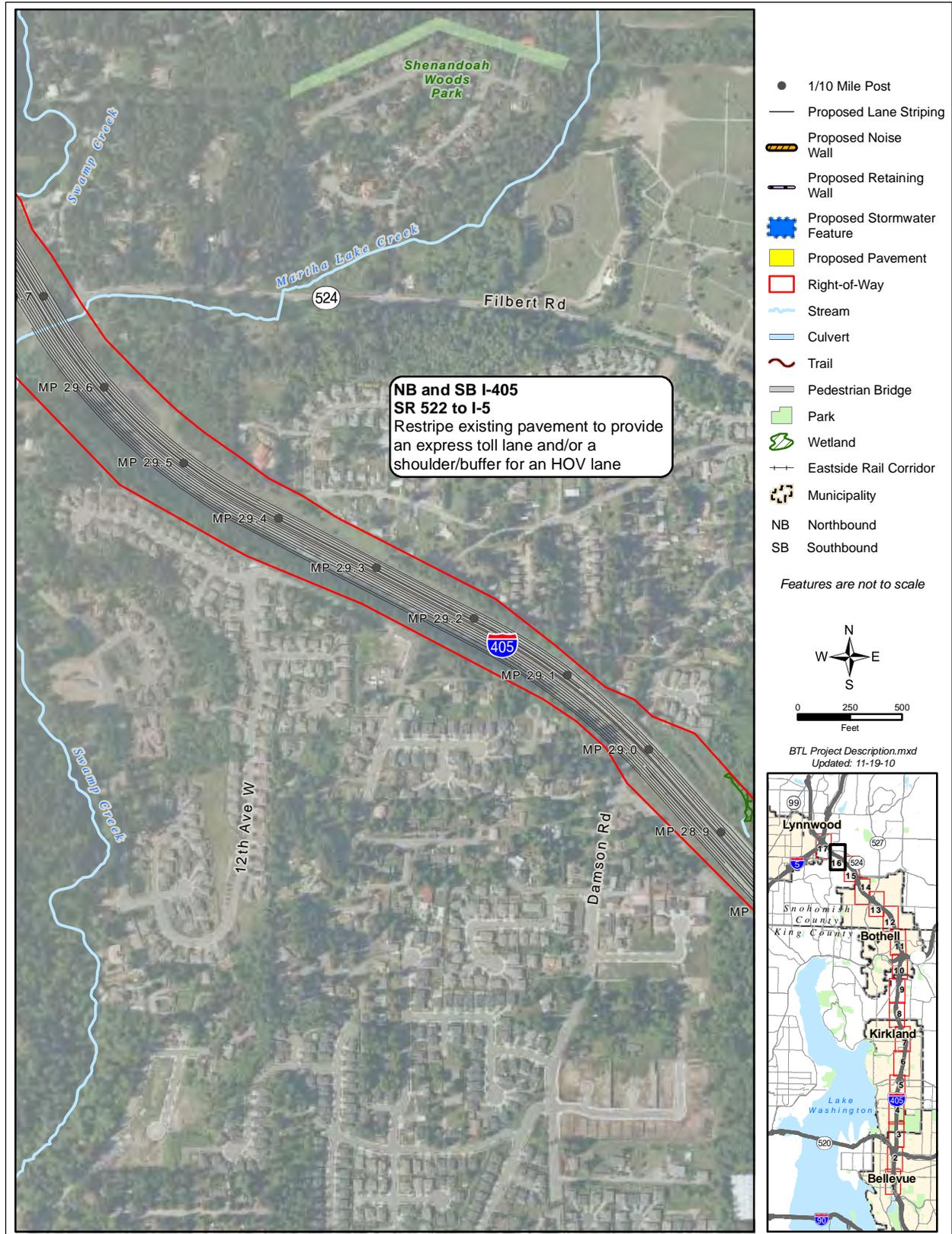
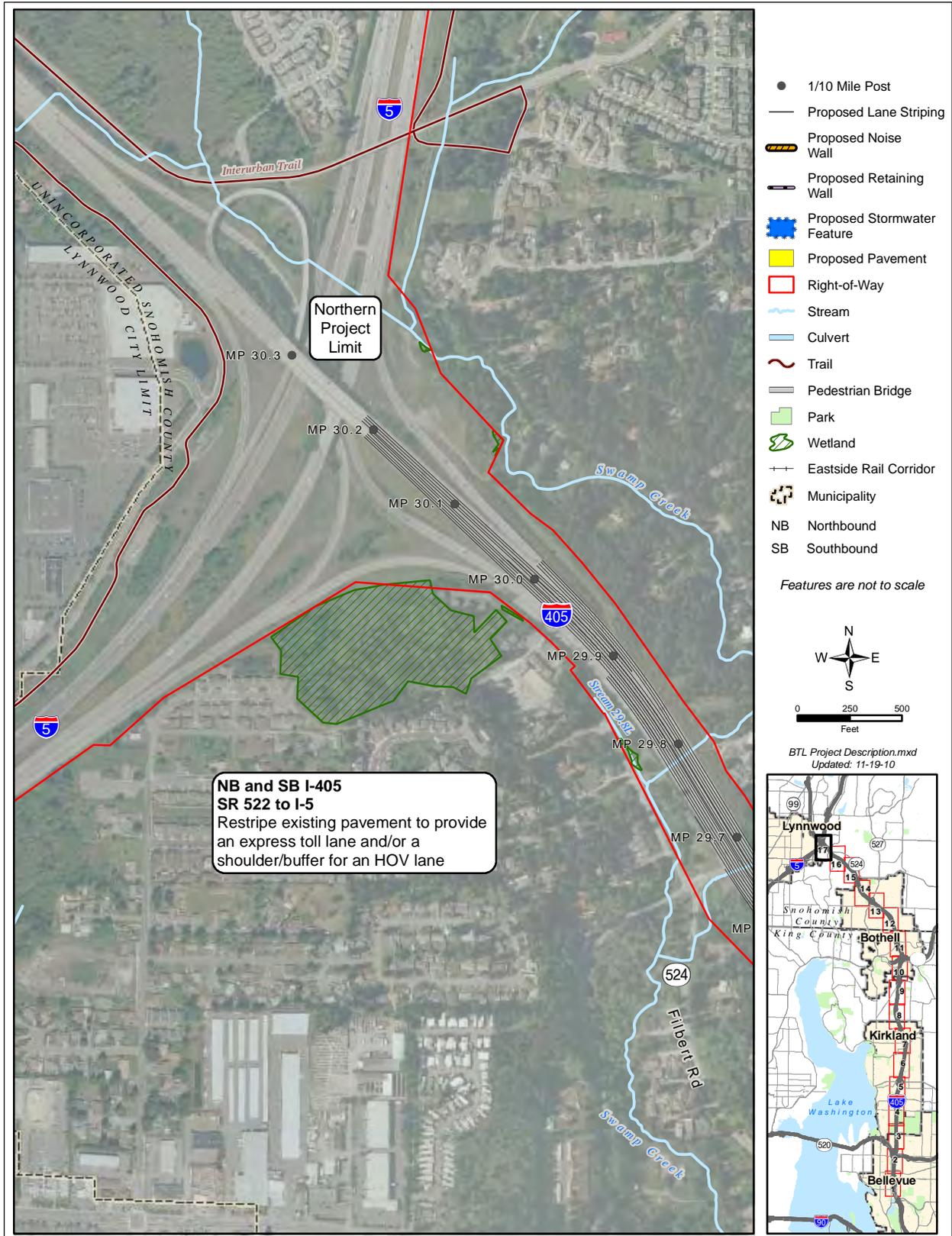
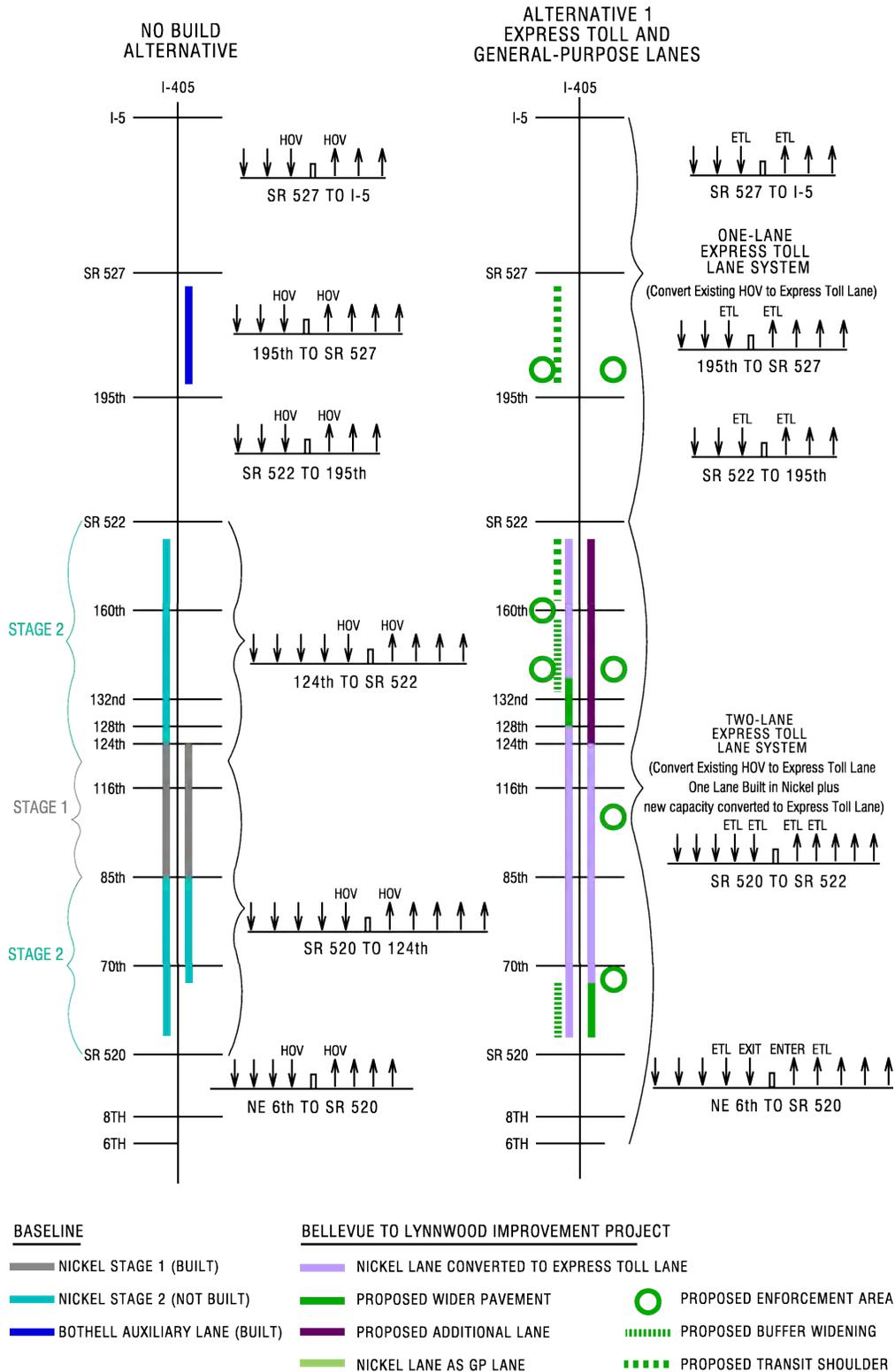


Exhibit 2: Project improvements – sheet 17 of 17





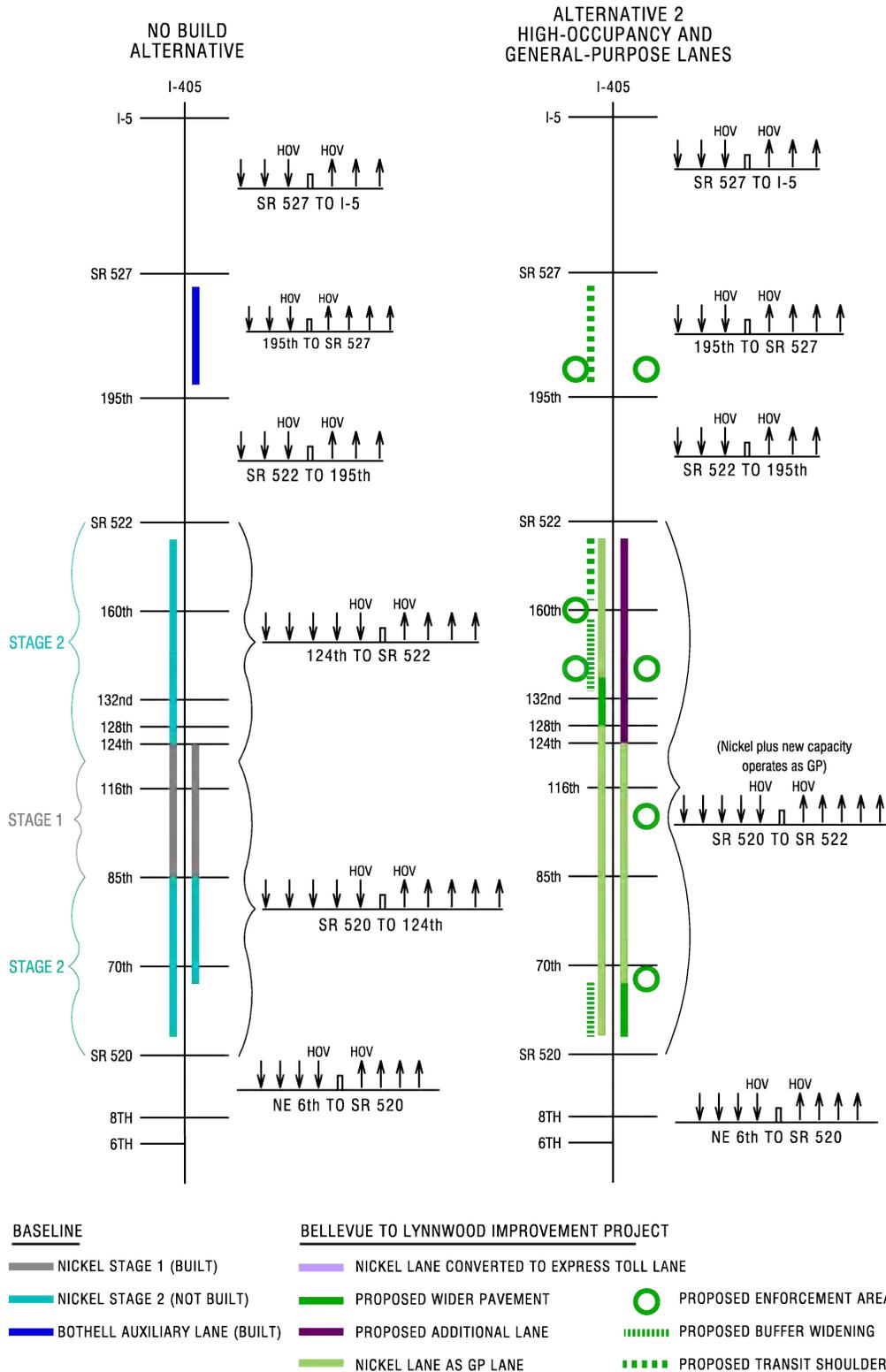
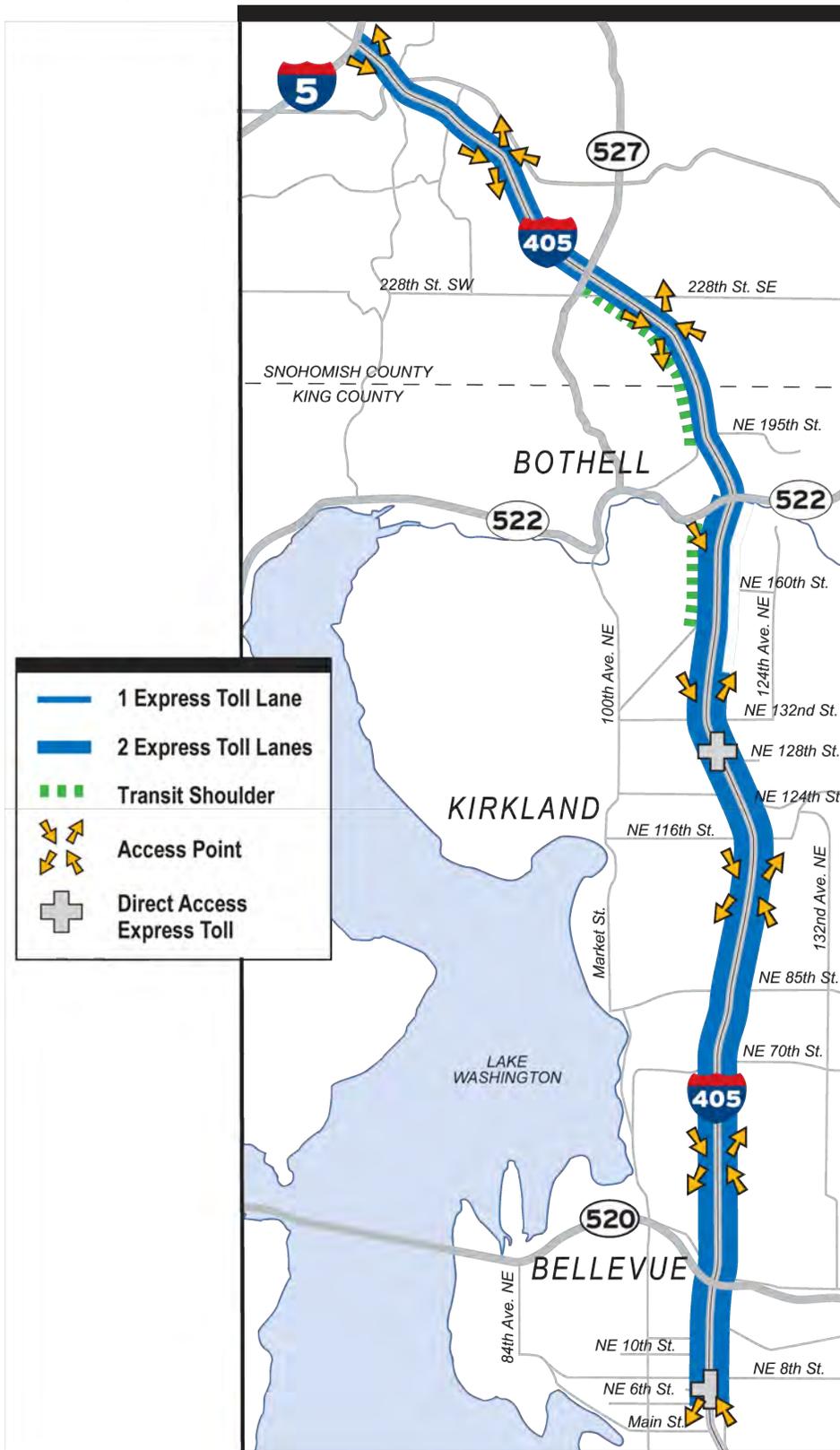


Exhibit 4: Express Toll Lanes access locations



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## BASELINE CONDITIONS

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In order to understand the economic effects of the proposed Bellevue to Lynnwood Improvement Project, we first analyzed the current economic characteristics of the area surrounding this section of the I-405 corridor.

At a programmatic level, the *I-405 Corridor Program NEPA/SEPA EIS* (WSDOT, 2002a) provided an assessment of proposed I-405 Corridor Program improvements. The EIS did not, however, attempt to provide a detailed assessment of specific effects on businesses and jurisdictions of the Bellevue to Lynnwood Improvement Project. This Economics Technical Memorandum complements the EIS programmatic assessment. This study incorporates, by reference, the regional and corridor-level economic assessment provided in the EIS, and extends the analysis to specifically address potential effects on businesses and the economic environment of the area immediately affected by the Bellevue to Lynnwood Improvement Project.

Within the framework of economic analyses, conditions of supply and demand often apply to an entire region. For example, although the two cities are on opposite ends of Lake Washington, market conditions in Lynnwood and Renton are related. As potentially-competing locations of commercial development around Seattle, a change in development conditions in one city will often affect the magnitude and/or likelihood of development in the other.

Despite the far-reaching nature of economic effects, we can better understand local economic effects by conducting a relatively focused assessment. Given this technical memorandum's goal of assessing more detailed, localized economic effects, the following discussions of current and projected economic conditions apply to an area surrounding the Bellevue to Lynnwood Improvement Project, comprising 14 regional forecast analysis zones (FAZs) (see Exhibits 5 and 6). In most cases, 2000 was used as the base year for analysis and forecasts, since the most comprehensive and accurate data are from the 2000 U.S. Census.

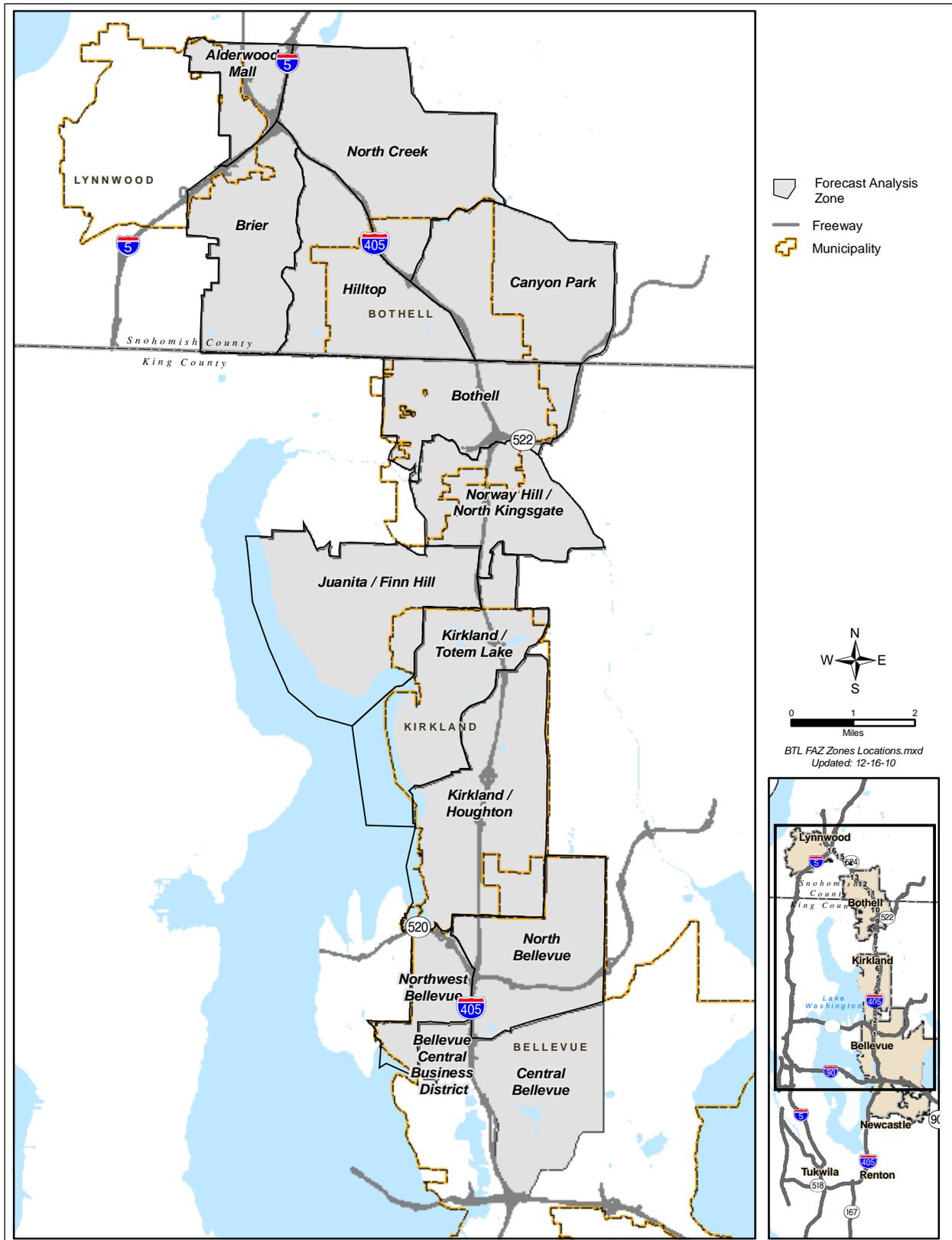
Based on data from the 2000 U.S. Census, the PSRC prepared the 2006 Small Area Forecasts by FAZ. An FAZ is a geographic unit developed by PSRC based on traffic analysis zones. Each FAZ typically contains several census tracts. It is important to note that the 2006 forecasts were developed prior to the start of the recession in December 2007. Current information from PSRC (2009) for the 4-county region suggests that current population estimates (3,674,854) are consistent with their 2006 FAZ forecast (3,695,516). However, the forecasts for employment are overstated given the current economic environment.

*Exhibit 5: Characteristics of forecast analysis zones in the Bellevue to Lynnwood study area*

| <b>FAZ number</b> | <b>Area descriptive name</b>       | <b>Area (square miles)</b> | <b>2000 Population</b> | <b>2000 Employment</b> |
|-------------------|------------------------------------|----------------------------|------------------------|------------------------|
| 4820              | Northwest Bellevue                 | 1.9                        | 6,915                  | 5,257                  |
| 4900              | Bellevue Central Business District | 0.7                        | 2588                   | 33,907                 |
| 5010              | Central Bellevue                   | 4.5                        | 18,196                 | 14,711                 |
| 5205              | North Bellevue                     | 4.8                        | 11,737                 | 30,965                 |
| 5305              | Kirkland/Houghton                  | 7.2                        | 22,801                 | 23,616                 |
| 5306              | Kirkland/Totem Lake                | 5.9                        | 21,208                 | 14,821                 |
| 5515              | Juanita/Finn Hill                  | 7.7                        | 23,677                 | 2,849                  |
| 5525              | Norway Hill/North Kingsgate        | 4.2                        | 12,195                 | 4,887                  |
| 5600              | Bothell                            | 4.3                        | 12,481                 | 10,506                 |
| 7315              | Brier                              | 4.9                        | 15,302                 | 2,019                  |
| 7316              | Hilltop                            | 5.5                        | 17,390                 | 1,695                  |
| 7320              | North Creek                        | 7.5                        | 21,016                 | 4,903                  |
| 7415              | Canyon Park                        | 6.4                        | 6,657                  | 8,532                  |
| 7515              | Alderwood Mall                     | 2.0                        | 3,375                  | 5,788                  |
| Totals            |                                    | 67.5                       | 195,538                | 164,456                |

*Source: Puget Sound Regional Council 2006 Small Area Forecasts by FAZ.*

Exhibit 6: Location of forecast analysis zones in the Bellevue to Lynnwood study area



FAZs are used by regional planners and economists to prepare long-range economic and demographic projections for the Central Puget Sound Region for the PSRC. As a result, FAZs are one of the few relatively small geographical units for which forecasts of population and employment are readily available. A FAZ is typically made up of one or more census tracts (census tracts are small subdivisions of a county with an average population of about 4,000 people). The FAZs surrounding the Bellevue to Lynnwood portion of the I-405 corridor comprise 67.5 square miles, or 1.8 percent of the area of King County and 1.2 percent of the area of Snohomish County.

## *Population and employment*

### **Population**

The 67.5-square-mile study area was home to 195,538 people in the year 2000, which represented 6 percent of the total population in the Central Puget Sound Region -- King, Kitsap, Pierce, and Snohomish counties (see Exhibit 7). The PSRC forecasts indicate that between 2000 and 2040, population in the area will increase by 130,680 people. This increase represents roughly 8 percent of forecasted regional growth.

*Exhibit 7: Historical and forecasted population*

| <b>Year</b> | <b>Bellevue to Lynnwood study area</b> | <b>4-County Central Puget Sound Region</b> | <b>Study area share of regional total</b> |
|-------------|--|--|---|
| 1980        | 130,862                                | 2,240,264                                  | 5.8%                                      |
| 2000        | 195,538                                | 3,275,809                                  | 6.0%                                      |
| 2020        | 263,925                                | 4,148,693                                  | 6.4%                                      |
| 2040        | 326,218                                | 4,988,135                                  | 6.5%                                      |

*Source: Puget Sound Regional Council 2006 Small Area Forecasts by FAZ*

Since 1980, the population of the study area has steadily increased, at least in part as a result of its location along I-405 and its accessibility to the regional job market. Exhibit 8 shows that the study area population grew by about 40,000 people between 1980 and 1990, but only grew by about 24,000 between 1990 and 2000. Population growth is anticipated to increase by over 30,000 people per decade through 2040 in the study area. In addition to localized growth, the study area is projected to receive an increasing share of the region's population growth, increasing from 5.8 percent of the population in 1980 to a projected share of 6.5 percent in 2040.

### **Employment**

Five major employment sectors are addressed in this analysis:

- Retail;
- Finance, insurance, real estate, and services (FIRES);

- Manufacturing;
- Wholesale trade, communication, and utilities (WTCU); and
- Government and education.

Historically, the Bellevue to Lynnwood Improvement Project study area provided a small share of the region’s jobs, accounting for only 5.4 percent in 1980 (see Exhibit 8). Current forecasts indicate that the study area will continue to attract new employment at a slightly faster pace than the region as a whole. The study area is expected to have a slightly larger share of regional employment, up from 9.2 percent in 2000 to 10.3 percent in 2040. The fact that the forecasted job growth in the study slightly outpaces that of regional employment growth while the study area’s portion of regional population remains stable, suggests that the study area has transitioned from a series of bedroom communities for the region’s economy to one with its own source of employment.

*Exhibit 8: Historical and forecasted total employment*

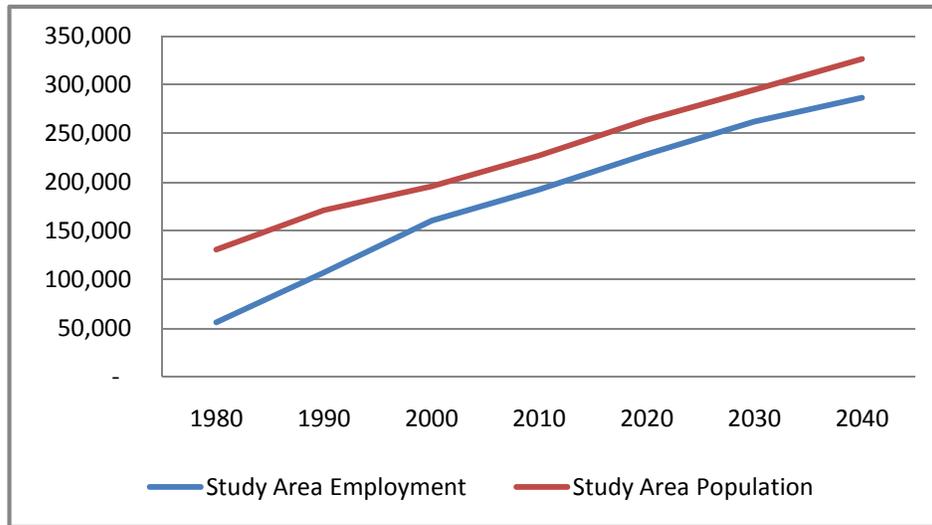
| <b>Year</b> | <b>Bellevue to Lynnwood study area</b> | <b>Total for King, Kitsap, Pierce, and Snohomish counties</b> | <b>Study area share of regional total</b> |
|-------------|--|---|---|
| 1980        | 56,147                                 | 1,033,407   | 5.4%                                      |
| 2000        | 160,340                                | 1,745,430   | 9.2%                                      |
| 2020        | 228,704                                | 2,224,597   | 10.3%                                     |
| 2040        | 286,722                                | 2,789,293   | 10.3%                                     |

*Source: Puget Sound Regional Council 2006 Small Area Forecasts by FAZ*

Exhibit 8 shows that the study area employment has become an increasing larger portion of the regional economy since 1980, and is anticipated to continue to do so into the future. From 1980 to 1990, employment grew by about 51,000 jobs, from 1990 to 2000 by nearly 53,000 jobs. Employment in the study area is anticipated to continue to increase through 2040, but at a slower rate of growth.

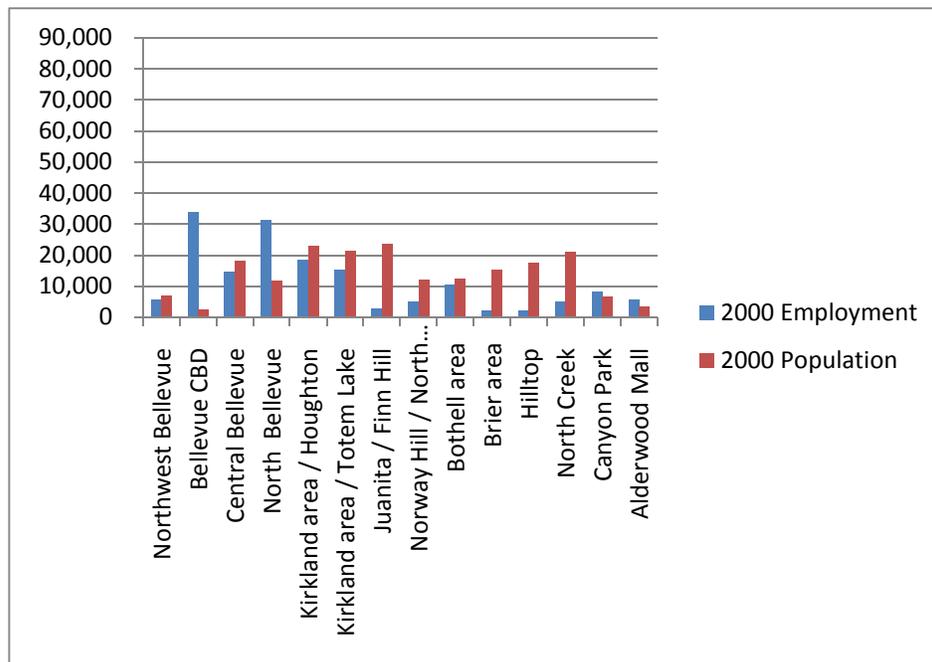
As Exhibit 9 shows, employment grew more quickly than population between 1990 and 2000. Between 2030 and 2040, population growth is anticipated to follow a consistent growth pattern, while the rate of employment growth may slow. However, in general, population and employment growth in the study area have kept pace with each other fairly well since 1980 and are anticipated to continue to do so into the future.

**Exhibit 9: Study area population and employment trends – 1980 to 2040**



Source: Puget Sound Regional Council 2006 Small Area Forecasts by FAZ

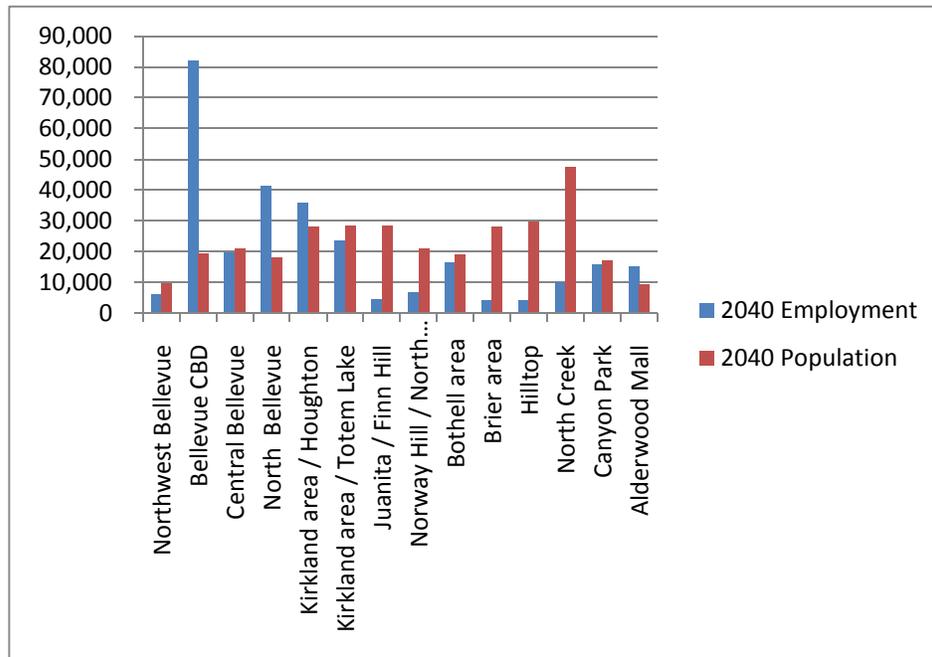
**Exhibit 10: Distribution of employment and population in study area by FAZ in 2000**



Source: Puget Sound Regional Council 2006 Small Area Forecasts by FAZ

Approximately 5 of the study area FAZs demonstrate a balance between employment and population. Exhibit 10 shows that in 2000 the Bellevue CBD and North Bellevue FAZ had a disproportionately large portion of the study area’s employment, paired with a relatively small portion of the population.

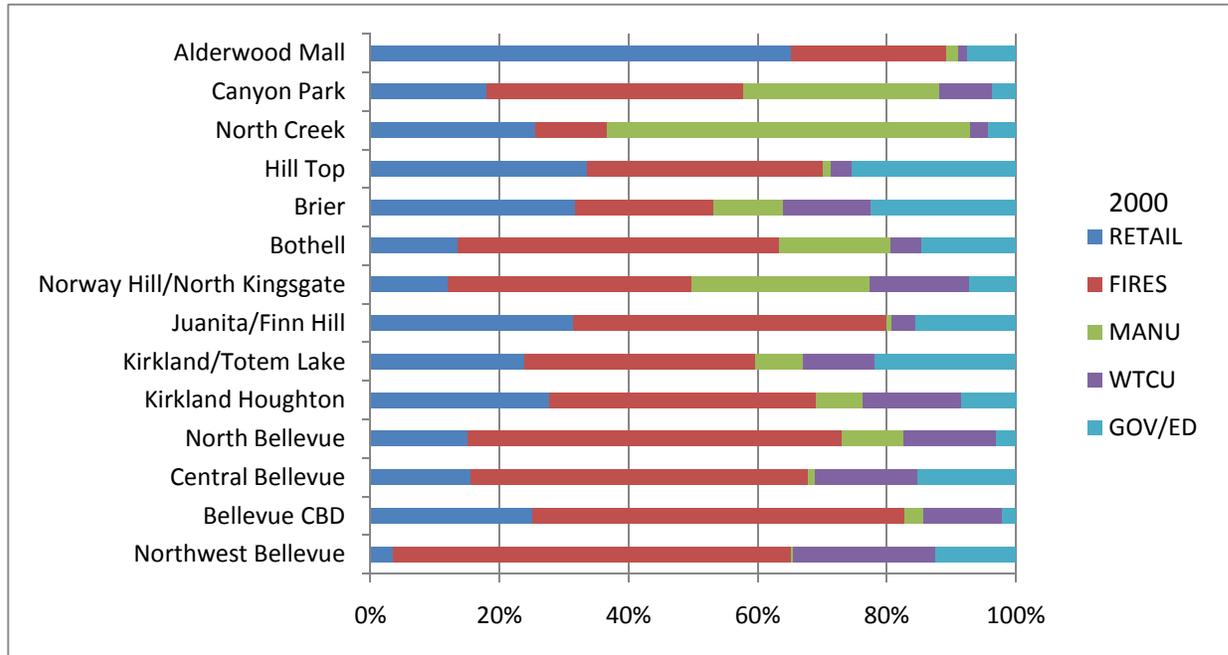
Exhibit 11: Distribution of employment and population in study area by FAZ in 2040



Source: Puget Sound Regional Council 2006 Small Area Forecasts by FAZ

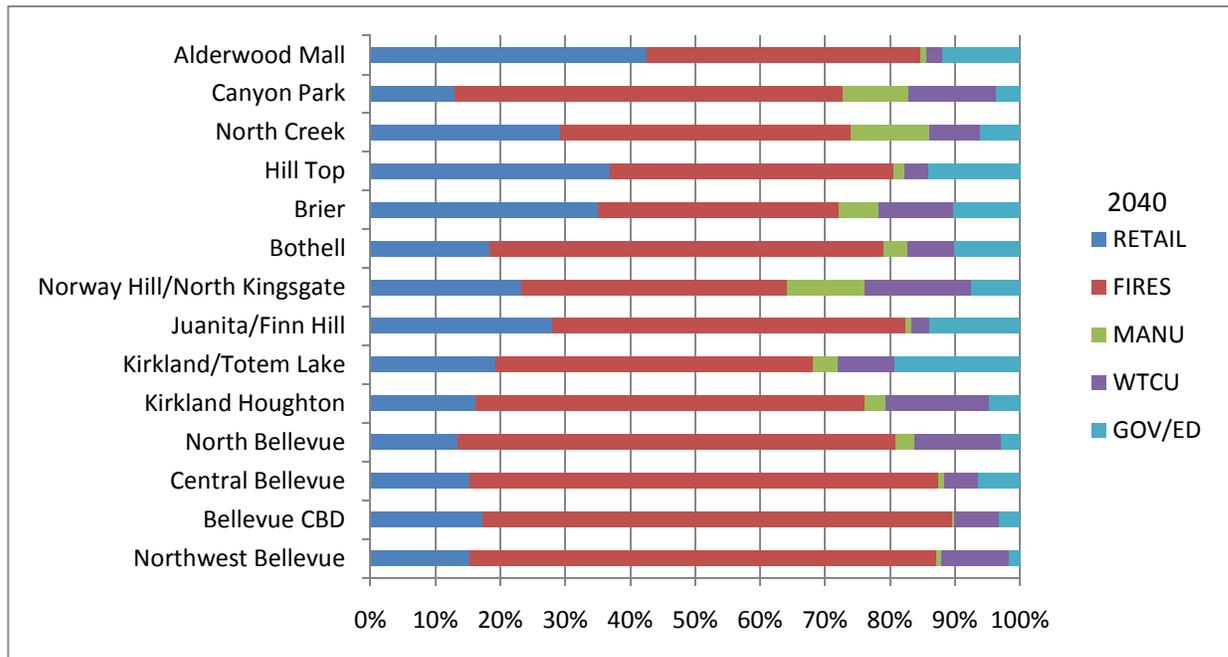
In comparing the distribution of employment and population of 2000 (Exhibit 10) with 2040 (Exhibit 11), Bellevue CBD and North Bellevue maintain much larger shares of employment relative to population. Likewise, Juanita/Finn Hill, Norway Hill, Brier, Hill Top and North Creek have been predominantly residential areas in the past, and that trend is anticipated to continue into the future.

Exhibit 12: Employment sector composition by FAZ – 2000



Source: Puget Sound Regional Council 2006 Small Area Forecasts by FAZ

Exhibit 13: Employment sector composition by FAZ – 2040



Source: Puget Sound Regional Council 2006 Small Area Forecasts by FAZ

Exhibits 12 and 13 present the relative employment sector composition of each FAZ in the study area in 2000 and 2040, respectively. While there are some noticeable differences in the employment composition among the FAZs in the study area, one of

the most striking features is the dominance of the FIRES sector in many areas. The importance of retail trade in the Alderwood Mall area and the large share of employment in manufacturing in the North Creek FAZ are also easily seen. Predictably, manufacturing throughout the project area has decreased.

When considering the changes between 2000 and the anticipated employment sector composition in 2040, employment in the FIRES sector increases in each analysis zone in the study area, while the manufacturing sector is anticipated to decrease across the board. Retail employment tends to level out in 2040 with half of the analysis zones experiencing a decrease in the retail sector. Similarly, WCTU, and the government and education sector are anticipated to decrease overall, with increases in both sectors focused in the North Creek, Canyon Park and Alderwood Mall analysis zones.

Analysts often use location quotients<sup>1</sup> to measure an area's mix of commercial activity relative to the broader region. Location quotients can be applied to an area of any size, from a neighborhood to a state. They offer a useful mechanism for identifying the extent to which a given area serves as a center of one or more types of commercial activity.

*Exhibit 14: Current and projected employment location quotients by sector*

| Year | FIRES | Retail | WTCU | Manufacturing | Government/<br>Education |
|------|-------|--------|------|---------------|--------------------------|
| 1980 | 1.31  | 1.63   | 1.04 | 0.55          | 0.49                     |
| 2000 | 1.29  | 1.18   | 0.97 | 0.67          | 0.49                     |
| 2040 | 1.26  | 1.09   | 0.84 | 0.39          | 0.44                     |

Exhibit 14 shows that the FIRES sector stands out as having greater representation in the study area relative to the Central Puget Sound Region historically and into the future. The Bellevue FAZs (4820, 4900, 5010 and 5205) are the primary factor in the high location quotient for the FIRES sector, with over 30 percent of the jobs in this sector in 2000.

### ***Tax base***

Exhibit 15 presents the principal sources of general fund revenues for each city along the I-405 corridor between SR 520 and I-5, and shows the relative importance of sales and use taxes and general property taxes to provide a baseline for evaluating project effects.

<sup>1</sup> We calculate the location quotient for a given sector by comparing the area's share of regional employment in an industrial sector with the area's share of total regional employment. For instance, a location quotient of 1.0 in the retail sector for a given city means that the city has its "fair share" of retail employment (e.g., the city may have 10 percent of the region's retail employment and 10 percent of the region's total employment, which will translate to a retail location quotient of 1.0 [10 percent retail share divided by 10 percent total share]). A location quotient greater than 1.0 in a given sector means that the area's employment is more heavily concentrated in that sector, relative to the region. Conversely, a location quotient less than 1.0 for a sector means that the area has a lower concentration of activity in that sector.

*Exhibit 15: Principal sources of city General Fund revenue by city*

| Jurisdiction | General Fund Revenues (\$ millions) | Sales and Use Taxes (\$ millions) | General Property Taxes (\$ millions) | Business and Utility Taxes (\$ millions) | Other Sources (\$ millions) | Percent Sales and Use Taxes | Percent General Property Taxes |
|--------------|-------------------------------------|-----------------------------------|--------------------------------------|--|-----------------------------|-----------------------------|--------------------------------|
| Bellevue     | \$111.5                             | \$34.2                            | \$28.1                               | \$41.0                                   | \$8.2                       | 31%                         | 25%                            |
| Kirkland     | \$43.8                              | \$12.8                            | \$9.4                                | \$12.6                                   | \$9.0                       | 29%                         | 21%                            |
| Bothell      | \$31.1                              | \$8.7                             | \$8.0                                | \$7.3                                    | \$7.1                       | 28%                         | 26%                            |
| Lynnwood     | \$35.3                              | \$14.4                            | \$7.2                                | \$1.6                                    | \$12.1                      | 41%                         | 20%                            |

*Source: Office of the Washington State Auditor. 2009. Local Government Financial Reporting System.*

## POTENTIAL EFFECTS

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### *Build Alternative 1 – Express Toll and General Purpose Lanes (ETL)*

#### Effects during construction

##### *One-time retail sales tax revenue*

For the duration of the Bellevue to Lynnwood Improvement Project, the value of construction labor and materials will be subject to state and local sales tax. The revenues from sales tax on construction will accrue to the local jurisdictions where the construction occurs. The sales tax will be levied on taxable retail sales within the project area at the sales tax rate at the time of construction. Sales tax rates are currently 9.5%, except in unincorporated Snohomish County, where it is 8.6%. Of the 9 ½ cents paid per \$1.00 purchase, 6 ½ cents go to the State of Washington and the remainder is distributed to city, county and other local taxing districts.

The project is expected to cost about \$280 million (2010 dollars) and take up to 4 years or more to build. While not all construction costs will be subject to sales tax, it is not unreasonable to assume that such taxes will be levied on 75 percent of project costs. Given the expected cost, construction timing, and taxable share, the project will likely generate taxable expenditures of about \$52 million per year during the 4-year construction period. This equates to average annual tax revenue of roughly \$5 million per year. For comparison, the Washington State Department of Revenue reports total taxable retail sales of \$8.9 billion were generated in Bellevue, Kirkland, Bothell and Lynnwood combined in 2009.

##### *Construction-related employment*

We typically consider construction-related employment (and employment in other sectors of the economy as well) to be made up of three components:

- Direct employment - project construction jobs and associated management jobs;
- Indirect employment - jobs supported through project purchases of goods and services;
- Induced employment - jobs produced in the rest of the economy due to employee (direct and indirect) household spending.

According to WSDOT's Strategic Assessment Office, \$1 million of construction spending can be anticipated to generate approximately 10.2 jobs. Since jobs associated with a specific project end when construction is completed, and some of the jobs last only part of a year, they are normally described in terms of full-time equivalent years that combine several part-time jobs to equal the hours associated with a full-time job. Of the total estimated construction cost of \$280 million, the peak year of expenditure of \$93

million is anticipated to occur in 2013 and will likely support approximately 950 jobs. Expenditures in other project years will be less, and consequently the associated jobs will be fewer than the peak year of 950 jobs (WSDOT 2010).

Having noted the relationship between construction expenditures and jobs, it should also be noted that, at a regional level, a job that is created by a transportation investment should not generally be viewed as a new job to the region. To the extent that funds invested in the Bellevue to Lynnwood Improvement Project would be put to work elsewhere in the region (either publicly, in the form of transportation or other investments, or privately, in the form of dollars that remain in the hands of households and businesses to spend in ways they see fit), then the job-creating effects of those funds is likely to be similar to the effects associated with Bellevue to Lynnwood Improvement Project construction.

In the end, the job-creation benefits of a transportation investment are driven by the portion of the investment that is funded by “outside” dollars (either from the state or federal level) that would not have been funneled to the region in the absence of the project. The more new dollars that flow into the region as a result of the project, the greater the share of employment benefits that can be counted as net new benefits to the region. Assuming that at least a portion of the improvements associated with this project will be funded by dollars that would have been spent in the region in the absence of the project, at least some portion of the job-creation benefits of construction should not be counted as an economic gain to the region.

#### *Construction interference*

Construction activities are not expected to eliminate access to any businesses for any substantial period of time.

Construction activity is likely to affect highway and interchange capacity, which can lead to changes in the level of congestion and increase the overall inconvenience and disruption of travel on the affected roads. These construction effects may affect businesses in a wide area around the I-405 corridor and cause certain businesses to experience some minor economic hardship. For example, construction might make getting to a particular business more difficult. Depending on the attractiveness of the destination and the availability of suitable alternatives, reduced access may result in fewer visits to some local businesses. Therefore, the extent and duration of the interference, the location of competitors, and the type of affected business will all influence the magnitude of economic effects resulting from construction interference.

#### *Property acquisition*

When a property must be acquired for project right-of-way, the purchase of the entire parcel and its structures is not always necessary. In many cases, a partial acquisition, such as the purchase of a linear strip of property adjacent to I-405, may be all that is needed. In that type of situation, the remainder of the property can be left intact and

function adequately as it did prior to the widening. In many such instances, the value of the property is based on the ability of the businesses to generate revenue. In cases where the partial acquisition does not substantially change the functional characteristics of the property, the acquisition will have little effect on the value of the property. WSDOT will not require any additional right-of-way to complete this project.

### **Effects during operation**

The project will have positive effects on accessibility of commercial areas within the project area. Access to the east and west sides of I-405 will improve. This will benefit businesses and residents alike.

As shown in Exhibit 9, the population and employment growth in the study area is anticipated to follow a consistent pattern. According to the I-405 Corridor Program EIS (WSDOT, 2002a), the I-405 Project will not affect regional population growth. However, the improved accessibility resulting from implementation of either Build Alternative may attract a larger share of the region's population growth to this area.

Exhibit 11, which shows the distribution of population and employment for 2040, indicates that the Bellevue-Kirkland area will continue to dominate the study area economy with notable population growth occurring in the northern portion of the study area. When compared to Exhibit 10, which shows the location of population and employment in 2000, one interesting development is the growth that is also forecasted to take place in the northern portion of the study area as growth nodes develop in the vicinity of Bothell and Lynnwood. This pattern of smaller service-oriented enterprises dispersed outside of major cities is consistent with emerging trends in the location and character of the economy (Beyers, 2002). The improved accessibility resulting from the project improvements will benefit growth of the economy, especially in the areas north of Bellevue and Kirkland, by improving the flow of people, goods, and services to and from the area.

One of the effects on employment noted in the I-405 Corridor Program EIS land use analysis was that by improving accessibility along the I-405 corridor, growth in economic activity and, consequently, population, would concentrate along the corridor where it can be more efficiently served by public utilities, infrastructure, transit, and transportation facilities.

### **Indirect effects**

Improved traffic flow on I-405 and improved performance at interchanges will improve commute times and reduce the inconvenience associated with accessing commercial centers in the project area. By improving access to these centers, the project will reduce friction costs, which are the costs associated with congestion-induced delay in movement of goods and services.

## ***Build Alternative 2 – High Occupancy Vehicle and General Purpose Lanes (HOV)***

### **Effects during construction**

Effects during construction for Build Alternative 2 would be similar to those for Build Alternative 1.

### **Effects during operation**

Effects during operation for Build Alternative 2 would be similar to those for Build Alternative 1.

### **Indirect effects**

Indirect effects for Build Alternative 2 would be similar to those for Build Alternative 1.

## ***No Build Alternative***

### **Effects during construction**

The No Build Alternative involves no additional construction other than that planned for and committed to within the corridor by the local jurisdictions and transit authorities. These construction activities would generate effects on businesses and economic activity independent of the Bellevue to Lynnwood Improvement Project. The effects from these projects would be addressed within the environmental documentation for the individual projects. Routine maintenance and safety improvements would take place along I-405 that would have minor economic effects.

We assume that funds not used for construction of the Bellevue to Lynnwood Improvement Project could be used for other purposes that would also generate employment and retail sales tax revenues in the region. Although, this would likely be at a lower level because some of the state and federal funding could go to projects outside the region.

### ***Construction interference***

The No Build Alternative would not cause construction interference.

### ***Property acquisition***

No property would need to be acquired for the No Build Alternative.

### **Effects during operation**

The No Build Alternative would have detrimental effects on the businesses and the economic landscape in the study area as a result of worsening traffic conditions and associated increases in friction-related losses on the free flow of economic goods and services. Within the immediate area of the Bellevue to Lynnwood Improvement Project, increased congestion associated with the No Build Alternative would increase the costs and uncertainty associated with moving freight and delivering goods and services.

Increased levels of congestion would also reduce the study area's accessibility to broader retail and labor markets. The employment that could occur as a result of construction of the Build Alternatives would take place at other locations throughout the region.

**Indirect effects**

Businesses that seek access to broader retail markets or larger pools of labor would be less likely to pursue development of vacant or underutilized commercial properties in the project area with the No Build Alternative because of worsening traffic conditions.

## **MEASURES TO AVOID OR MINIMIZE EFFECTS**

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### *Measures to avoid or minimize project effects during construction*

#### **Construction interference**

The following discussion identifies measures that can be taken to alleviate some construction effects:

- WSDOT will ensure that access to businesses will be maintained throughout the construction period by carefully planning construction activities and providing properties affected by construction with reasonable access during business hours.
- As part of construction management, WSDOT will prepare access maintenance measures that will be included in the construction contract specifications.
- Because it may be difficult to determine whether a business is open, or how to access a business during the construction period, WSDOT will make provisions for posting appropriate signs that communicate the necessary access information to potential customers.
- Through careful planning and efficient construction staging, WSDOT may be able to reduce potential access restrictions associated with delivery and storage of construction equipment and materials. For example, WSDOT may schedule these activities for off-peak travel and business hours to minimize the construction effect on surrounding properties.
- WSDOT will keep daytime street closures to a minimum to provide access for businesses during regular business hours.
- WSDOT will coordinate with business owners in the project area.

### *Measures to avoid or minimize project effects during operation*

No measures to avoid or minimize effects during operation are needed.

## **UNAVOIDABLE ADVERSE EFFECTS**

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Based on the methodologies and data analysis contained in this report, we anticipate no unavoidable adverse economic effects. This assessment is based on the Bellevue to Lynnwood Improvement Project design and implementation strategies, and comparison with the other Bellevue to Lynnwood Improvement Project discipline reports and technical memoranda. We made this determination based on the project's compatibility

with regional and local land use goals and policies, existing and future transit and circulation plans, and local commercial and economic conditions.

## ACRONYMS AND ABBREVIATIONS

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| <b>Acronym</b> | <b>Meaning</b>   |
|----------------|--|
| EIS            | environmental impact statement                                 |
| FAZ            | forecast analysis zone   |
| FHWA           | Federal Highway Administration                                 |
| FIRES          | finance, insurance, real estate, and services                  |
| GIS            | geographic information system                                  |
| IMPLAN         | Impact Analysis for Planning                                   |
| I/O            | Input/output analysis  |
| MLS            | Multiple Listing Service                                       |
| NEPA           | National Environmental Policy Act                              |
| PSRC           | Puget Sound Regional Council                                   |
| ROD            | record of decision   |
| SEPA           | State Environmental Policy Act                                 |
| SR             | state route  |
| WSDOT          | Washington State Department of Transportation                  |
| WTCU           | wholesale trade, transportation, communications, and utilities |

# GLOSSARY

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| <b>Word</b>                   | <b>Meaning</b>  |
|-------------------------------|---|
| displacement                  | Removal of a business, residence, or public facility from its existing location. In the context of transportation improvements, displacement is generally the result of (1) property acquisition for right-of-way expansion or (2) elimination of access to a property due to traffic revisions.  |
| 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 and carpools do not pay a toll. See also: "managed lane".   |
| forecast analysis zone (FAZ)  | A geographic area comprised of one or more census tracts and used for estimating future growth within that area.  |
| friction costs                | Social and economic costs associated with traffic congestion-induced delays in the movement of goods and services.  |
| general fund                  | The principle repository and source of operating revenues for the day-to-day operation of a municipality. The general fund is used to account for revenues and expenditures that are not accounted for through restricted-use funds (e.g., road funds, surface water management funds, or capital funds).   |
| general-purpose lane          | A freeway or arterial lane available for use by all traffic.  |
| 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. |
| peak period                   | The period of the day during which the maximum amount of travel occurs. It may be specified as the morning (AM) or afternoon or evening (PM) peak.  |
| single-occupant vehicle (SOV) | A vehicle having one occupant (i.e., the driver).   |

## REFERENCES

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### *GIS data sources*

#### Exhibit 6

WSDOT (Washington State Department of Transportation), Spatial Data Catalog, 2006, Forecast Analysis Zones from Puget Sound Regional Council, 2001.

### *Base data*

All GIS exhibits contain one or more of the following as base layers:

GDT (Geographic Data Technology, Inc.), April 2005. GDT – Dynamap Transportation.

King County Standard GIS Data Disk, extract June 2006:

2005. Trails in King County. Data updated by I-405 staff to match fieldwork, 2002 LiDAR and orthorectified aerial photography.

USGS (United States Geological Survey). June 2002. Color Aerial Photography.  
<http://edc.usgs.gov/products/aerial/hiresortho.html>

WSDOT (Washington State Department of Transportation). March 2001. Aerial photography program.

WSDOT (Washington State Department of Transportation), Spatial Data Catalog, 2006, City Limits.

WSDOT (Washington State Department of Transportation), Spatial Data Catalog, 1997, Railroads.

WSDOT (Washington State Department of Transportation), Spatial Data Catalog, 2006, Water.

WSDOT (Washington State Department of Transportation). 2006 – 2007. I-405 Staff; Parks. Merged data from King and Snohomish counties standard data and cities of Bellevue, Kirkland and Bothell standard data, 2006.

WSDOT (Washington State Department of Transportation). 2006 – 2007. I-405 Staff; Streams.

WSDOT (Washington State Department of Transportation). 2006 – 2007. I-405 Staff; Tenth Mile Posts.

### *Text references and verbal communications*

Beyers, William B. 2002. Services in the New Economy: elements of a research agenda. *Journal of Economic Geography*, 2, 1-29.

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Office of the Washington State Auditor. 2009. Local Government Financial Reporting System.

PSRC 2006 (Puget Sound Regional Council). Forecasts of Population, Households, and Employment, Version 2006.

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Washington State Department of Revenue. 2009. Taxable Retail Sales and Unit Count Calendar Year 2009.

WSDOT (Washington State Department of Transportation). 2002a. I-405 Corridor Program NEPA/SEPA Final Environmental Impact Statement.

WSDOT (Washington State Department of Transportation)—Strategic Assessment Office. 2010. Job Estimate: NEPA EA Portion of I-405/NE 6th St. to I-5 Widening and Express Toll Lanes Project (U40561B). July 15, 2010.

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## APPENDIX A METHODOLOGY

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### *Methods of analysis*

The Bellevue to Lynnwood Improvement Project study area includes businesses and neighborhoods within the cities of Bellevue, Kirkland, Bothell, and Lynnwood and portions of unincorporated King and Snohomish counties.

The purpose of this analysis was to evaluate the potential economic effects, both direct and indirect, that may result from proposed improvements to I-405 and related interchanges as part of the Bellevue to Lynnwood Improvement Project. We defined *direct effects* as those that result from actions taken by the agency or agencies, including effects from construction delays or business relocations made necessary by property acquisition. *Indirect effects* are those associated with independent actions that may occur as a result of the improvement project, but that are not under the control of project decision-makers. An example of an indirect effect is the possible change in commercial development patterns that results from improved access to a given site.

The following discussion outlines the methodology we used to evaluate economic effects.

### **Baseline economic conditions**

First, we evaluated baseline economic conditions within the Forecast Analysis Zones along I-405 from Bellevue to Lynnwood, also known as the study area (see Exhibit 4-2). This evaluation provided a context in which to analyze the economic effects of the proposed actions. We then evaluated potential economic effects in the study area, in terms of their effects on commercial activities that are, or are expected to be, in the surrounding environment. An evaluation of baseline economic conditions is included in Section 4.0 of this memorandum.

Our evaluation included assessing the environment affected by the Bellevue to Lynnwood Improvement Project by first establishing the current character of the economic landscape—identifying the role that the local economy plays in the broader regional economy, and establishing the nature of local commerce. The technical memorandum briefly discusses how the local economy is expected to change in coming decades (e.g., assessing the degree to which the local economy is expected to shift from a center of manufacturing to a more balanced center of commerce, sharing in the expected regional growth in services or retail employment).

Having established where the local economy is now and where it is expected to go, the foundation was then set to assess anticipated effects in the context of current conditions, and to assess effects relative to a baseline of anticipated future conditions.

## Effects during construction

This technical memorandum analyzes the following short-term construction effects:

- One-time local sales tax revenues on construction expenditures;
- Temporary construction employment and other multiplier effects on the regional economy;
- Relocation of businesses as a result of property acquisition;
- Possible construction interference in business activity located near the project site; and
- Increased traffic congestion and delays within the project area.

Changes in sales tax revenue effects were evaluated based on applying current state and local sales tax rates to estimates of the taxable value of expected project improvements. Tax effects on Woodinville and Lynnwood were used in lieu of all of unincorporated King and Snohomish counties, since they are closest to the largest unincorporated area.

Direct and indirect short-term construction employment effects were estimated using a jobs multiplier from the Impact Analysis for Planning input/output model (IMPLAN) (The Minnesota IMPLAN Group 2004). IMPLAN is an economic model that traces the ripple effects of a stimulus to the economy, like an investment in highway construction (essentially an input/output analysis [I/O] approach). The WSDOT Strategic Assessment Office was also consulted for assistance in developing a job creation forecast. These estimated effects were then compared with alternative uses of regional funds under a no-build scenario to determine the likely net effect of construction spending on regional employment.

Business relocations due to property acquisition were assessed based on the need for additional right-of-way as determined by the current project design.

## Effects during operation

Potential long-term economic effects were evaluated by assessing how the project will affect the area's current and anticipated future economic conditions. We accomplished this task by examining two key factors:

- The economic effect of changes in traffic patterns and access to local businesses; and
- Broader economic changes associated with the project, such as: reductions in congestion that affect the ability of businesses to deliver goods and services; access to raw materials and supplies; location of new business activity at nodes along the I-405 corridor; and access to labor markets.

## **Measures to minimize effects**

Where effects were identified, measures that could lessen or eliminate the effects have been proposed. In general, the most effective mitigation measures are usually associated with project design refinements that will remove the source of the effect. Likely measures focus on actions that can be taken to maintain access to businesses during construction.

## ***Data sources***

Methods used for gathering data for this technical memorandum included on-site visits, windshield surveys, and conversations with businesses. We also conducted spatial analysis using a variety of geographic information system (GIS) data including jurisdictional boundaries, King and Snohomish County Assessors' Office data extracts, Washington State Employment Security Division ES202 wage and salary employment data (as geographically coded by PSRC into FAZs), regional and small area employment forecasts as developed by PSRC, and census data.

Data were also extracted from prior I-405 corridor projects, and from concurrent Bellevue to Lynnwood Improvement Project discipline reports and technical memoranda. Specifically, supporting data were collected by reviewing related reports on social elements, environmental justice, transportation, and land use plans and policies.

Our analysis of property acquisitions and potential displacements was based on the current project right-of-way plan at the time this technical memorandum was prepared. Engineering drawings, aerial photographs, and the right-of-way plan were used to identify properties that will be directly affected by planned additions to WSDOT right-of-way.

## ***Studies and coordination***

Most of the data used in this analysis were acquired in raw data form, which included PSRC employment data and GIS layers describing characteristics of spatial data from a variety of sources. The integrated analyses of each of these data sets were used to develop assessments of the economic environment and affected sites.

Our assessments were also supported by PSRC regional forecasts, and comprehensive planning and zoning information developed by local jurisdictions in the project area.

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## APPENDIX B JOB ESTIMATE

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## **NEPA Environmental Assessment (EA) portion of: I-405/NE 6th St. to I-5 Widening and Express Toll Lanes Project (U40561B)**

- This portion of this project is expected to support approximately 950 jobs.
  - This job estimate is based on a peak year expenditure of approximately \$93.2 million occurring in FY 2013 and has been rounded down from 958 jobs for ease of communication.
  - This estimate includes direct, indirect, and induced jobs. The term “jobs” does not necessarily refer to FTE’s or individuals working full-time full-year schedules.
  - This job estimate is unique to this portion of this project valued at approximately \$280 million, based on information current as of 7/15/2010, and does not include other work or projects that are part of I-405 corridor.

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### **Background Information**

#### **How does WSDOT estimate the number of jobs created or saved?**

WSDOT worked with the Governor’s Office of Financial Management (OFM) economists to estimate the number of jobs created or saved for each Recovery Act highway construction project. OFM maintains a nationally recognized model that is based on state data—typically updated every 5-10 years—that can be used to estimate the employment impact of highway construction projects.

Expenditures and the number of jobs created vary with each phase of the project, such as:

- Preliminary engineering (planning, design, cost estimating)
- Right-of-way purchasing
- Construction

These phases can occur over a number of years and carry different job-creation multipliers that are updated periodically by OFM.

For multi-year projects, WSDOT based estimates on the year with the greatest expenditures and the job multipliers for the project phase(s) in that year. In other words, this is the peak expenditure-year job estimate. This number was used to avoid over- or double-counting jobs.

Smaller, single-season construction project employment estimates are based on the total project cost. This is sometimes called a “job-years” estimate. This approach was taken because the fiscal year ends on June 30th, which is in the middle of the highway construction season.

Any time a multiplier is used, it is important to remember that it is only an estimate. Using the job multiplier at the beginning of a project gives a statewide “ballpark” estimate of the total number of jobs created or saved.

#### **What types of jobs are included in the estimate?**

The estimate produced by the multiplier includes more than just direct, on-the project jobs. While it does include direct jobs, it also includes indirect and induced jobs,

- **Direct Jobs:** The actual jobs created or saved from the new investment in highway construction. Examples of these types of jobs include highway construction workers, and project engineers.
- **Indirect Jobs:** These are jobs created or saved in industries supporting the direct spending. Examples of these types of jobs include workers in industries supplying asphalt and steel.
- **Induced Jobs:** These are jobs created by the re-spending of worker income on consumer goods and services, including food, clothing, and recreation.