

I-405 Bellevue Nickel Improvement Project I-90 to Southeast 8th Street



Corridor Program

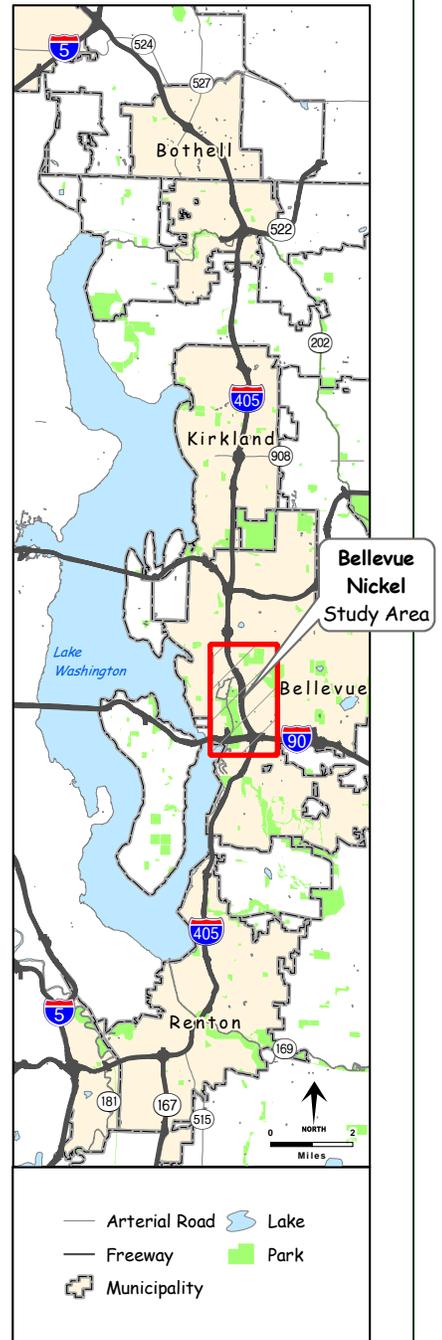
Congestion Relief & Bus Rapid Transit Projects

ECONOMICS DISCIPLINE REPORT

January 2006



I-405 Project Area



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Appendices

Appendix A. Avoidance and Minimization Measures

Glossary

best management practice (BMP)	BMPs are generally accepted techniques that, when used alone or in combination, prevent or reduce adverse effects of a project. Examples include erosion control measures and construction management to minimize traffic disruption. Please see Appendix A for a complete list of BMPs.
census tracts	Census tracts are small, fairly permanent subdivisions of a county. Their delineations are determined by a local committee of users of census data in order to present such data. They are designed to contain generally similar populations, living conditions, and economic characteristics. Census tracts average 4,000 inhabitants.
friction costs	In the context of transportation improvements, friction costs generally refer to the costs associated with congestion-induced delay in movement of goods and services.
general fund	The principal repository and source of operating revenues for the day-to-day operation of a city. 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).
sector	A categorical grouping of industries into types based on the standard industrial classification system. An industrial sector represents a high-level grouping of specific industries with common characteristics. As used in this document, all commercial activities are organized into six sectors: (1) construction/resources; (2) manufacturing; (3) wholesale trade, transportation, communication, and utilities (WTCU); (4) retail; (5) finance, insurance, real estate, and services (FIREs); and (6) government/education.
transportation analysis zone	A geographical unit that is used for data collection purposes and for forecasting/transportation modeling purposes by the Puget Sound Regional Council (PSRC). Transportation analysis zones are generally equivalent to two census tracts.

Acronyms and Abbreviations

BMPs	best management practices
BNSF	Burlington Northern Santa Fe
EA	environmental assessment
EIS	environmental impact statement
FEIS	final environmental impact statement
FHWA	Federal Highway Administration
FIRES	finance, insurance, real estate and services
GIS	geographic information system
HOV	high-occupancy vehicle
IMPLAN	Impact Analysis for Planning
I-405	Interstate 405
I-90	Interstate 90
NB	northbound
NEPA	National Environmental Policy Act
PSRC	Puget Sound Regional Council
ROD	record of decision
SB	southbound
SE	southeast
SR	state route
TAZ	transportation analysis zone
WSDOT	Washington State Department of Transportation
WTCU	wholesale trade, transportation, communications, and utilities

Introduction

In 1998, the Washington State Department of Transportation (WSDOT) joined with the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), Central Puget Sound Regional Transit Authority (Sound Transit), King County, and local governments in an effort to reduce traffic congestion and improve mobility in the Interstate 405 (I-405) corridor. In fall 2002, the combined efforts of these entities culminated in the *I-405 Corridor Program Final Environmental Impact Statement (EIS)* and *FHWA Record of Decision (ROD)*.

The ROD selected a project alternative that would widen I-405 by as many as two lanes in each direction throughout its 30-mile length. The ultimate configuration of the selected alternative includes buffers separating general-purpose lanes from parallel high-occupancy vehicle (HOV) lanes (potentially used by future high-capacity transit). The design also allows for expanded “managed lane” operations along I-405 that could include use of HOV lanes by other user groups, such as trucks.

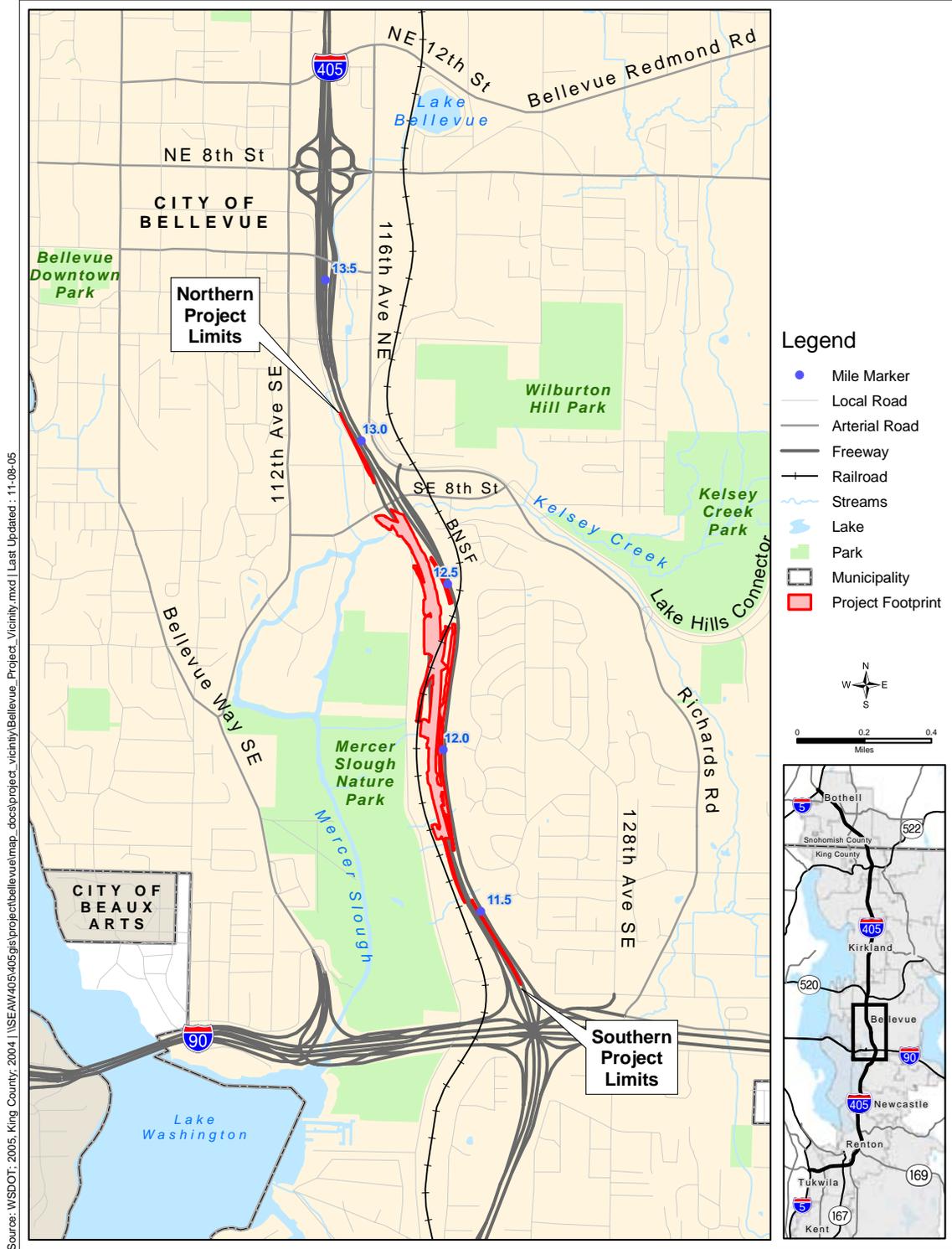
In 2003, the Washington State legislature approved a statewide transportation-funding plan called the “nickel package.” The nickel package provided funding for congestion relief projects in three critical traffic hotspots along the I-405 Corridor: Renton, Bellevue, and Kirkland. The Bellevue Nickel Improvement Project is one of several projects now moving forward as part of a phased implementation of the I-405 Corridor Program. Exhibit 1 shows the location of the Bellevue Nickel Improvement Project.

In 2003, the Washington State legislature approved a statewide transportation-funding plan called the “nickel package.” The nickel package provides funding for congestion relief projects in three critical traffic hotspots along the I-405 Corridor, including Bellevue.



Traffic moving along I-405

Exhibit 1. Project Vicinity Map



In keeping with the direction established in the Final EIS (FEIS) and ROD, we are preparing a National Environmental Policy Act (NEPA) Environmental Assessment (EA) that focuses on project-level effects of constructing and operating the Bellevue Nickel Improvement Project.

We will base the EA on the analysis in the *I-405 Corridor Program Final EIS*, and will describe any new or additional project changes, information, effects, or mitigation measures not identified and analyzed in the corridor-level FEIS. The project-level EA for the Bellevue Nickel Improvement Project will not reexamine the corridor-level alternatives, impacts, and mitigation measures presented in the corridor-level FEIS, or the decisions described in the ROD.

The Environmental Assessment will describe new project changes, information, effects, or mitigation measures, but the assessment will not revisit the alternatives, impacts, and mitigation measures evaluated in the corridor-level EIS or the decisions documented in the *Record of Decision*.

What alternatives do we analyze in this discipline report?

This discipline report is one of 19 environmental elements WSDOT will study to analyze the effects of the Bellevue Nickel Improvement Project. All of the discipline reports will analyze one build alternative and one “no build” or “no action” alternative. This approach is consistent with FHWA’s guidelines for preparing a NEPA EA.

What is the No Build Alternative?

NEPA requires us to include and evaluate the No Build Alternative in this discipline report. We use this approach to establish an existing and future baseline for comparing the effects associated with the Build Alternative. We assume the No Build Alternative will maintain the status quo: only routine activities such as road maintenance, repair, and safety improvements would occur within the corridor between now and 2030. The No Build Alternative does not include improvements that would increase roadway capacity or reduce congestion on I-405. We describe these improvements further in the Bellevue Nickel Improvement Project Traffic and Transportation Discipline Report.

We assume the No Build Alternative will maintain the status quo: only routine activities such as road maintenance, repair, and safety improvements would occur within the corridor between now and 2030.

What are the principal features of the Build Alternative?

The Bellevue Nickel Improvement Project will add one new general-purpose lane in each direction along a 2-mile section of I-405 between I-90 and SE 8th Street. We will generally use the

inside or “median” side of I-405 for construction. After we re-stripe the highway, the new lanes will occupy the outside of the existing roadway. The project also includes new stormwater management facilities and better drainage structures and systems.

Other project activities include developing off-site wetland mitigation as well as on-site stream mitigation areas to compensate for the loss of these resources within the project area. We expect project construction to begin in spring 2007 and the improved roadway to be open to traffic by fall 2009.

Improvements to Southbound I-405

We will add one lane in the southbound direction of I-405 from approximately SE 8th Street to I-90.

In the southbound (SB) direction, we plan to add one new travel lane from approximately Southeast (SE) 8th Street to I-90 (Exhibits 2, 3, and 4). In addition, the existing outside HOV lane at I-90 will be extended north so that it begins at the on-ramp from SE 8th Street. In order to add these lanes and maintain traffic flow during construction, we will shift approximately 3,000 feet of the SB roadway as much as 200 feet east into the existing median. The relocated SB roadway will connect to the existing SB travel lanes just north of the I-90 interchange, and south of the existing bridge over SE 8th Street.

We will build a new tunnel underneath the Burlington Northern Santa Fe (BNSF) railroad, just east of the existing Wilburton Tunnel, to accommodate the relocated and widened SB roadway. The existing tunnel does not have the capacity to accommodate additional lanes of SB traffic.

The existing SB travel lanes and the Wilburton Tunnel will remain open to traffic during construction of the new tunnel and the relocated/widened SB lanes. We will also build the new tunnel wide enough to accommodate additional lanes. The existing tunnel will remain after we complete the improvements.

Exhibit 2. Proposed Bellevue Nickel Project Improvements (Sheet 1 of 3)

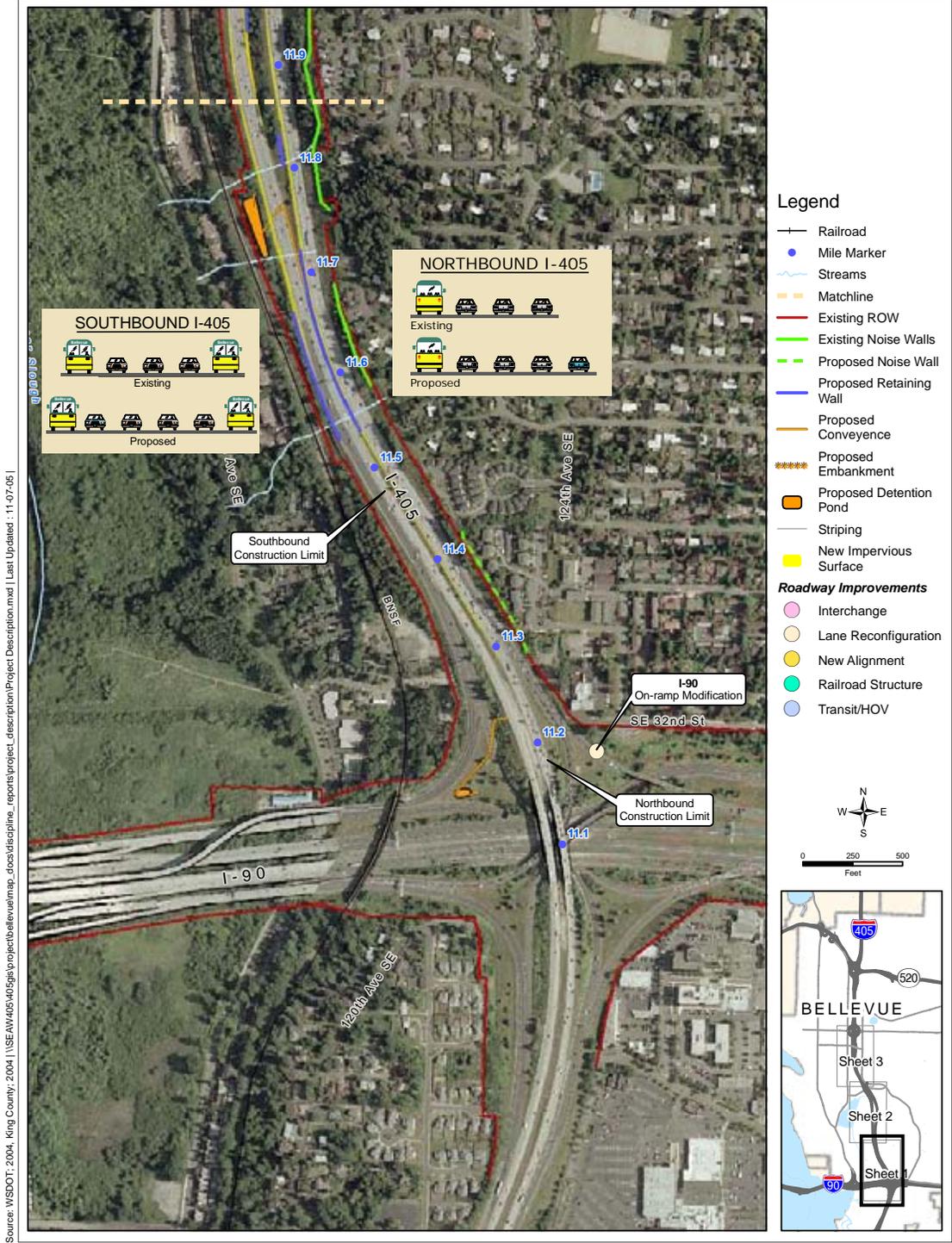


Exhibit 3. Proposed Bellevue Nickel Project Improvements (Sheet 2 of 3)

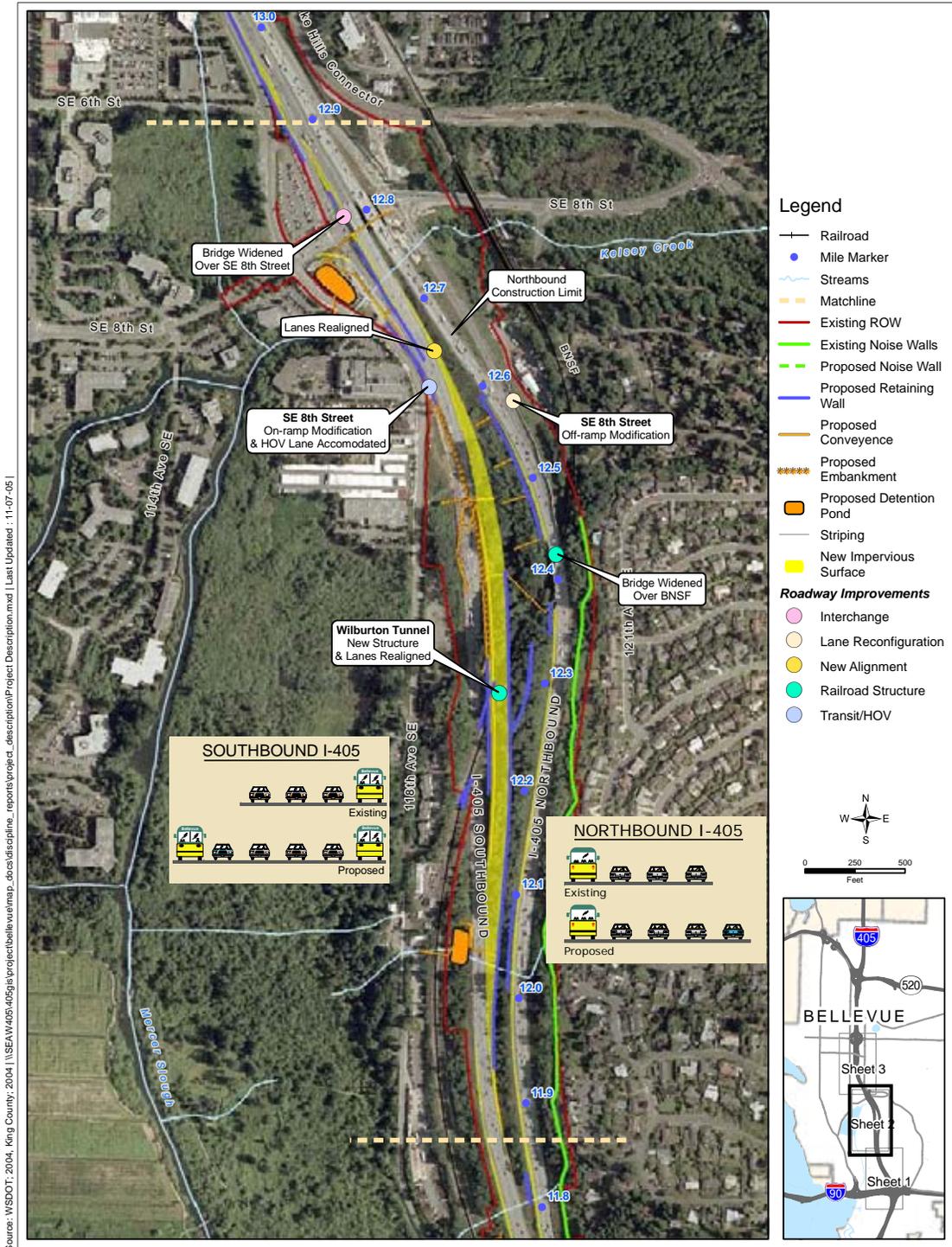
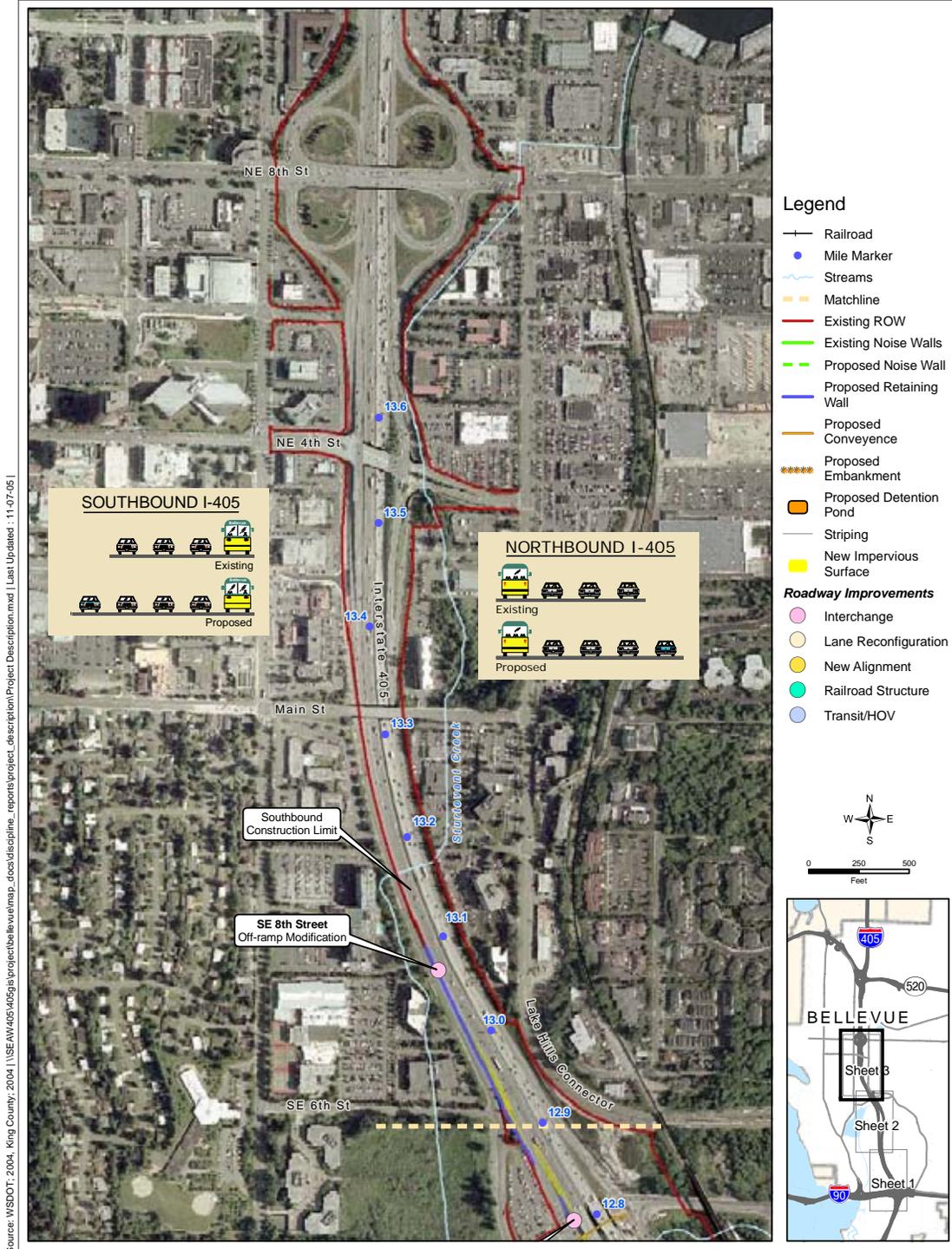


Exhibit 4. Proposed Bellevue Nickel Project Improvements (Sheet 3 of 3)



Source: WSDOT, 2004. King County, 2004. \\SE\AW\405\proj\bellevue\map_docs\discipline_reports\project_description\Project Description.mxd | Last Updated: 11-07-05

We will also include the following improvements in the Build Alternative:

- Modify the existing off-ramp at SE 8th Street to make room for an additional southbound lane on I-405. The off-ramp will then become a single-lane, optional off-ramp (i.e., the off-ramp will no longer be an “exit only” off-ramp).
- Build a retaining wall between the SB travel lanes and the off-ramp at SE 8th Street.
- Widen the existing bridge over SE 8th Street to the west to accommodate the new SB lane.
- Modify the existing on-ramp at SE 8th Street to tie into the relocated SB general-purpose travel lanes.
- Reconfigure the on-ramp at SE 8th Street to accommodate the extended outside HOV lane.
- Temporarily shift the existing BNSF railroad track from its current alignment to allow for continuous railroad operation during construction of the new tunnel.
- Construct retaining walls along the eastern edge of the relocated SB travel lanes.

Improvements to Northbound I-405

In the northbound (NB) direction, we plan to add one new travel lane from approximately I-90 to SE 8th Street (Exhibits 2, 3, and 4). We will add one new lane to the NB ramp from I-90. We will shift the NB lanes to allow all of the proposed widening to occur on the inside, or median side of the existing roadway.

Additional improvements include:

- Re-stripe the westbound/eastbound I-90 on-ramp to NB I-405 resulting in one lane becoming two lanes in the NB direction.
- Widen, shift, and re-stripe NB I-405 travel lanes north of I-90 to allow the westbound I-90 to NB I-405 on-ramp and the eastbound I-90 to NB I-405 on-ramp to enter I-405 without having to merge into a single lane.
- Construct several retaining walls needed for road widening in locations that allow for existing and future widening of I-405.

We will add one lane in the northbound direction of I-405 from approximately I-90 to SE 8th Street. All widening of the northbound mainline will occur on the inside (median side) of the existing roadway.

- Construct noise barrier approximately 725 feet long and 16 feet high (see Exhibit 2).
- Widen the existing bridge over the BNSF Railroad to the west to accommodate the new NB lane.
- Modify the NB off-ramp to SE 8th Street to make it a single-lane “exit-only” off-ramp.
- Transition the NB travel lanes back into the existing lane configuration before crossing over SE 8th Street.

Improvements to the Stormwater Management System

Managing stormwater for the I-405 Bellevue Nickel Improvement Project involves the collection and treatment of rainfall runoff from the new project pavement consistent with the guidelines in the WSDOT Highway Runoff Manual.

Currently, we treat less than 5 percent of the existing runoff from paved surfaces in the project area before discharging it. We will improve this condition by treating 17 percent more area than the new paved surface area we create. By treating a greater area, we improve flow control and remove pollutants from a portion of the existing roadway as well as from newly constructed areas.

Reconfiguration and new construction associated with the SB lanes will mean that we need to replace much of the existing drainage system. We will continue to use open roadside ditches along the shoulders of the roadway shoulders where possible. We will use standard WSDOT catch basins and manhole structures to move the roadway runoff to a system of stormwater drain pipes. These features will transport runoff to treatment and flow-control facilities within the existing ROW.

We will construct three new stormwater ponds (detention ponds combined with stormwater treatment wetlands) as part of the project and enlarge the existing pond at SE 8th Street. Two of the new ponds will be located south of the Wilburton Tunnel between the SB lanes and the BNSF railroad ROW. We will construct the third new pond in the northwest quadrant of the I-90/I-405 interchange. The project will discharge treated stormwater following existing flow patterns to Mercer Slough or to the wetlands that surround it.

Avoidance Measures

WSDOT will use Best Management Practices (BMPs), WSDOT Standard Specifications, and design elements to avoid or minimize potential effects to the environment for the Bellevue

Best Management Practices (BMPs)

BMPs are generally accepted techniques that, when used alone or in combination, prevent or reduce adverse effects of a project. Examples include erosion control measures and construction management to minimize traffic disruption. Please see Appendix A for a complete list of BMPs.

WSDOT Standard Specifications

Guidelines and procedures established by WSDOT for roadway design and construction in a variety of design, engineering, and environmental manuals.

Nickel Improvement Project. Collectively, these measures to avoid or minimize potential effects to the environment are known as “avoidance measures.” We describe these measures in more detail in an Appendix A. If the project has additional effects not addressed in the avoidance measures, we will address these measures through mitigation.

Wetland and Stream Mitigation Sites

We will compensate for adverse effects to wetlands and their buffers by creating just over an acre of wetland within the boundaries of Kelsey Creek Park (Exhibit 5). The site is located north of the intersection of Richards Road and the Lake Hills Connector.

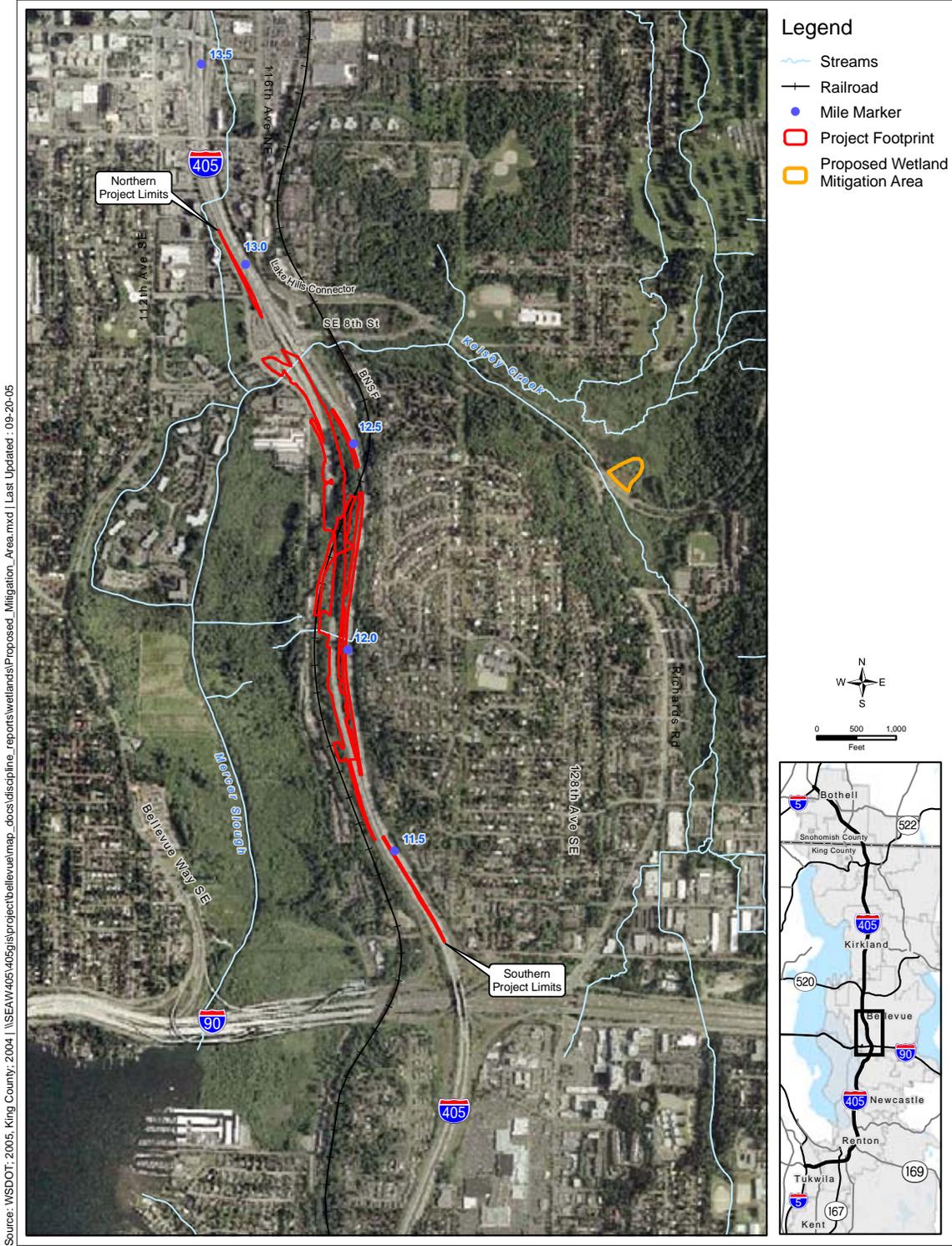
Our general concept will be to create an area that will transition from forested land beside the Lake Hills Connector to wetlands within Kelsey Creek Park. We will reshape the surface area to create favorable conditions for the necessary wetland aquatic characteristics, and we will replant and enhance habitat in the area by constructing habitats and replanting adjacent roadside areas with forest-type vegetation.

Similarly, we will compensate for unavoidable effects to “Median Stream,” the unnamed stream within the I-405 median. We have developed a conceptual stream mitigation plan that includes on-site habitat restoration and creation. The conceptual stream mitigation plan includes the following specific elements (See Exhibit 6):

- Connect the new Median Stream culvert under I-90 to the existing channel and wetland located west of SB I-405.
- Create approximately 500 linear feet of stream channel along the western slope of SB I-405.
- Buffer the created stream channel with approximately 16,000 square feet of native streamside vegetation.
- Enhance approximately 300 linear feet of riparian habitat west of SB I-405 by removing selected non-native invasive plant species and replacing with native streamside vegetation.

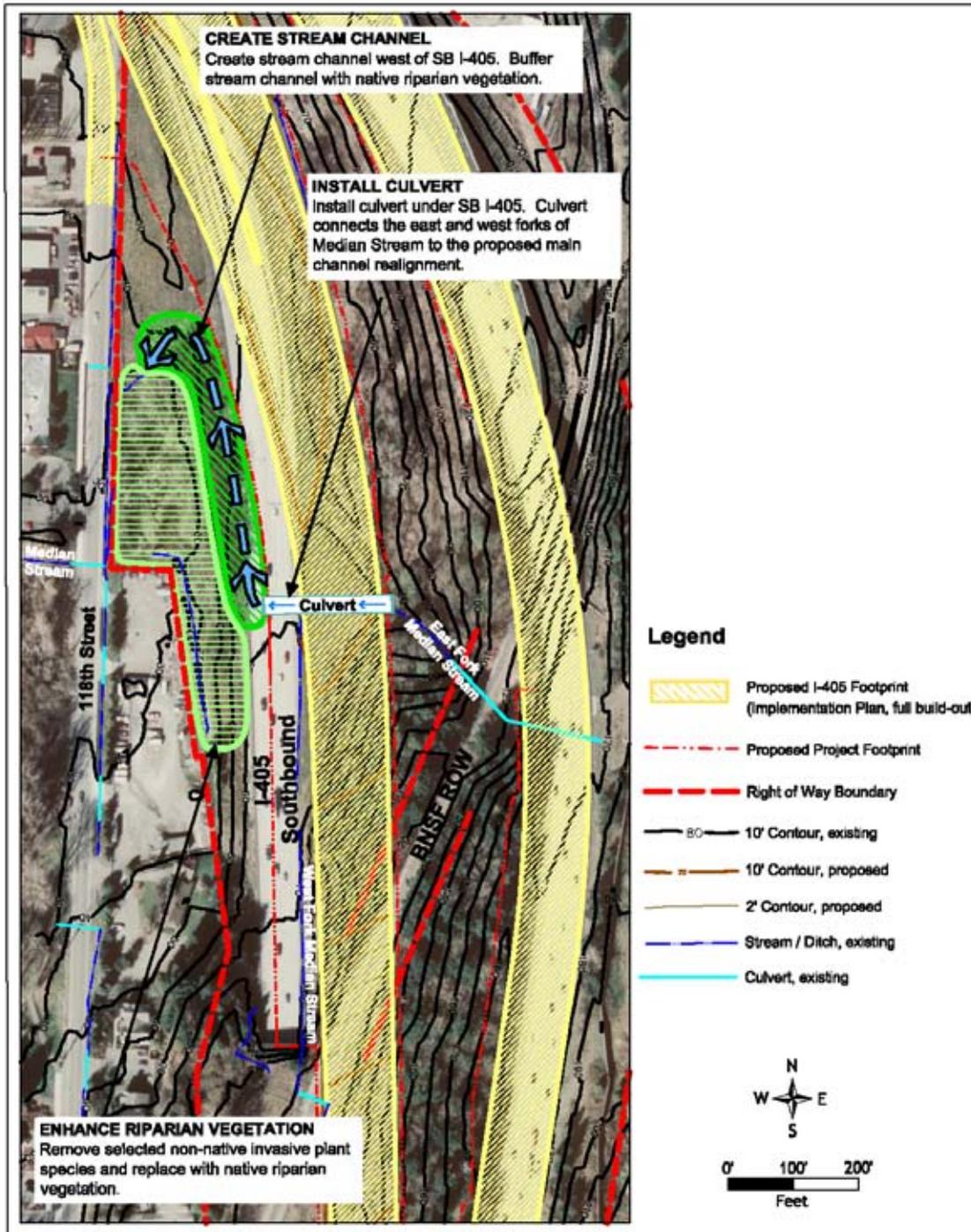
We provide more detailed information about mitigation efforts planned in conjunction with the Bellevue Nickel Improvement in the Surface Water, Floodplains, and Water Quality, and Wetlands Discipline Reports.

Exhibit 5. Proposed Wetland Mitigation Area



Source: WSDOT, 2005, King County, 2004 | \\SEAW405\405gis\project\bellevue\map_docs\discipline_reports\wetlands\Proposed_Mitigation_Area.mxd | Last Updated: 05-20-05

Exhibit 6. Conceptual Stream Mitigation Plan



Why do we consider economics as we plan this project?

At its core, economics is the science of allocating scarce resources. Economics concerns itself with the question: How does an existing or contemplated action contribute to society's wellbeing?

In the context of environmental assessment, economic analysis focuses on two issues:

- Overall efficiency: Is the contemplated action an effective way to make society, as a whole, better off?
- Effects on the patterns of commerce: How does an action affect the mechanisms by which people's needs are met through the exchange of goods and services?

The primary statutes and regulations that apply to Economics include:

- National Environmental Policy Act (NEPA), 42 USC 4231
- State Environmental Policy Act (SEPA) WAC 197-11 and WAC 468-12
- Title VI of the Civil Rights Act of 1964
- Federal Aid Highway Act of 1970
- Section 23 USC 128 ("Highways")
- Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended

According to the WSDOT Environmental Procedures Manual (September 2004), an Economic Elements Discipline Report should consider an area's general economic climate, business districts established in the study area, and any businesses related to transportation facilities. The "affected area" that should be considered must include, "overall economic climate, farm and business activity, employment, property values, and local economy."

Where there are anticipated economic effects, the Discipline Report should discuss the following points for each alternative:

- a. The economic effects on the regional and/or local economy such as development, tax revenues and public expenditures, employment opportunities, accessibility, and retail sales.

- b. Effects on the economic vitality of existing highway-related businesses (e.g., gasoline stations and motels) and the overall local economy.
- c. Effects of the proposed action on established business districts, and any opportunities to minimize or reduce such effects by the public and/or private sectors.

What are the key points of this report?

Overall, the Bellevue Nickel Improvement Project will have a positive effect on commercial activities in areas that rely on mobility in the Bellevue segment of the I-405 corridor.

Construction activities will be associated with jobs and wages earned in the Central Puget Sound area. In addition, local jurisdictions, including the City of Bellevue and King County, will benefit from tax revenues associated with construction.

Commercial activity in the area served by the Bellevue Nickel Improvement Project is most heavily concentrated in three areas:

- downtown Bellevue
- State Route (SR)-520/Bel-Red corridor
- Factoria, located near the I-90/I-405 interchange

Mobility along the I-405 corridor is important to each commercial sector for different reasons. Each sector benefits from increased mobility as a result of improvements in access to markets and access to labor and materials.

Improved travel speeds and increased trip volumes on I-405 will lower cost of business by improving access to labor and materials; increasing the accessibility of businesses to their customers; and decreasing the costs of getting manufactured goods to market.

The value of construction labor and materials to make the improvements will be subject to state and local sales tax for the duration of the construction of the Bellevue Nickel Improvement Project.

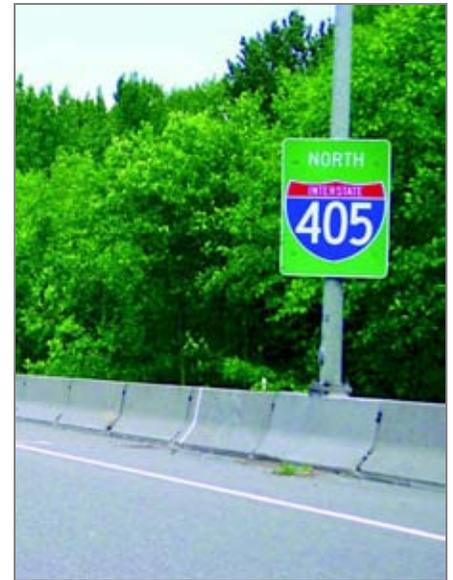
Construction of the Bellevue Nickel Improvement Project Build Alternative is expected to cost approximately \$70.5 million (in 2005 dollars) and take approximately 3 years. From Bellevue's perspective, these expenditures represent roughly 0.5 percent of the City's taxable retail sales.

In the near term (through 2014), the Build Alternative will improve the speed and the number of trips accommodated.

WSDOT will need to maintain access to businesses during the construction period by carefully planning construction activities and providing adjacent properties with reasonable access during business hours. We will also need to make provisions for posting appropriate signs that communicate the necessary information to potential customers.

We may avoid potential access restrictions involving delivery and storage of equipment and materials through careful planning and staging.

WSDOT will minimize daytime street closures to provide access for businesses during regular business hours.



I-405 plays a critical role in the regional movement of people and freight.

Existing Conditions

How did we collect information on economic conditions?

We collected information for this report by reviewing inventories of current commercial conditions from local and regional planners, and by reviewing the findings of regional real estate research firms. We also performed spatial analyses of raw data from King County and Washington State that describe current conditions in the study area.

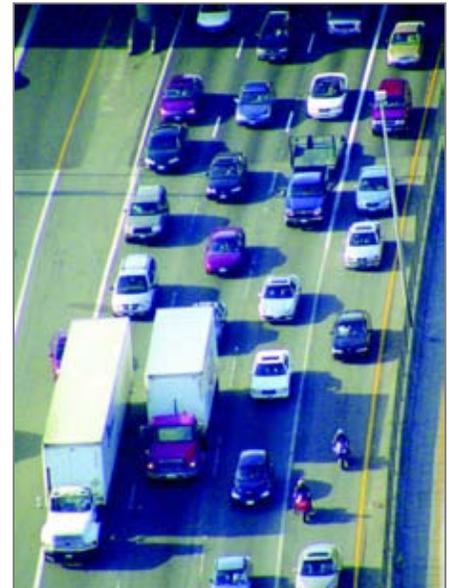
We determined the existing conditions by considering:

(1) current and forecasted employment levels in the study area; (2) the relative mix of industrial categories represented in that overall number (e.g., the portion of study area employment that is tied to retail versus manufacturing sector activity); (3) areas in which specific types of businesses are concentrated relative to the regional economy; and (4) the extent to which different commercial areas in the study area serve different roles in the local economy (e.g. Is an area a retail node, a center of warehousing and manufacturing, or a center of services employment?). We then assessed the ways in which the local economy is expected to change in coming decades.

Our assessment of existing patterns in the study area (and current expectations about the future) defined the economic landscape within which the Build Alternative will have its effects. Each commercial sector is affected differently by changes in accessibility. Consequently, when we assess the effects of the

What is spatial analysis?

Spatial analysis is the process of incorporating and assessing the geographic (or spatial) distribution of information.



Congestion building along the I-405 corridor

What is GIS?

As defined by the National Center of Geographic Information and Analysis, GIS is a system of hardware, software, and procedures to facilitate the management, manipulation, analysis, modeling, representation, and display of mapped data to solve complex problems regarding planning and management of resources.

What is ES202 data?

ES202 data are commonly referred to as "covered" employment, which refers to jobs covered by the State's unemployment insurance program. Covered employment serves as the most readily accessible and useful set of employment data for spatial analysis of current employment. This important data set is maintained by the Washington State Employment Security Department in cooperation with the Puget Sound Regional Council and other government agencies throughout the state.

What is a TAZ?

A transportation analysis zone (TAZ) is a geographical unit used to track demographic information. On average, it is roughly half the size of a census tract (census tracts are small subdivisions of a county, averaging 4,000 inhabitants).

Planners in the Puget Sound region use TAZs for modeling the regional transportation system. As a result, TAZs are one of the few geographical units for which forecasts of population and employment are readily available.

Build Alternative, we need to know the scale and distribution of each category of commercial use.

Having evaluated where the local economy is now and what it is expected to be like in the future, we then set the baseline against which the Build or No Build Alternatives would be measured.

We analyzed spatial data using a variety of GIS data, including jurisdictional boundaries; King County Assessors Office data extracts; Washington State Employment Security Division ES202 data (as geographically coded by the Puget Sound Regional Council [PSRC]); regional and small area employment forecasts (as developed by the PSRC), and 2000 census data. We extracted other data from the I-405 Corridor EIS and ROD and concurrent Bellevue Nickel Improvement Project discipline reports. In particular, we based our assessment on the findings of the Bellevue Nickel Improvement Project Traffic and Transportation Discipline Report.

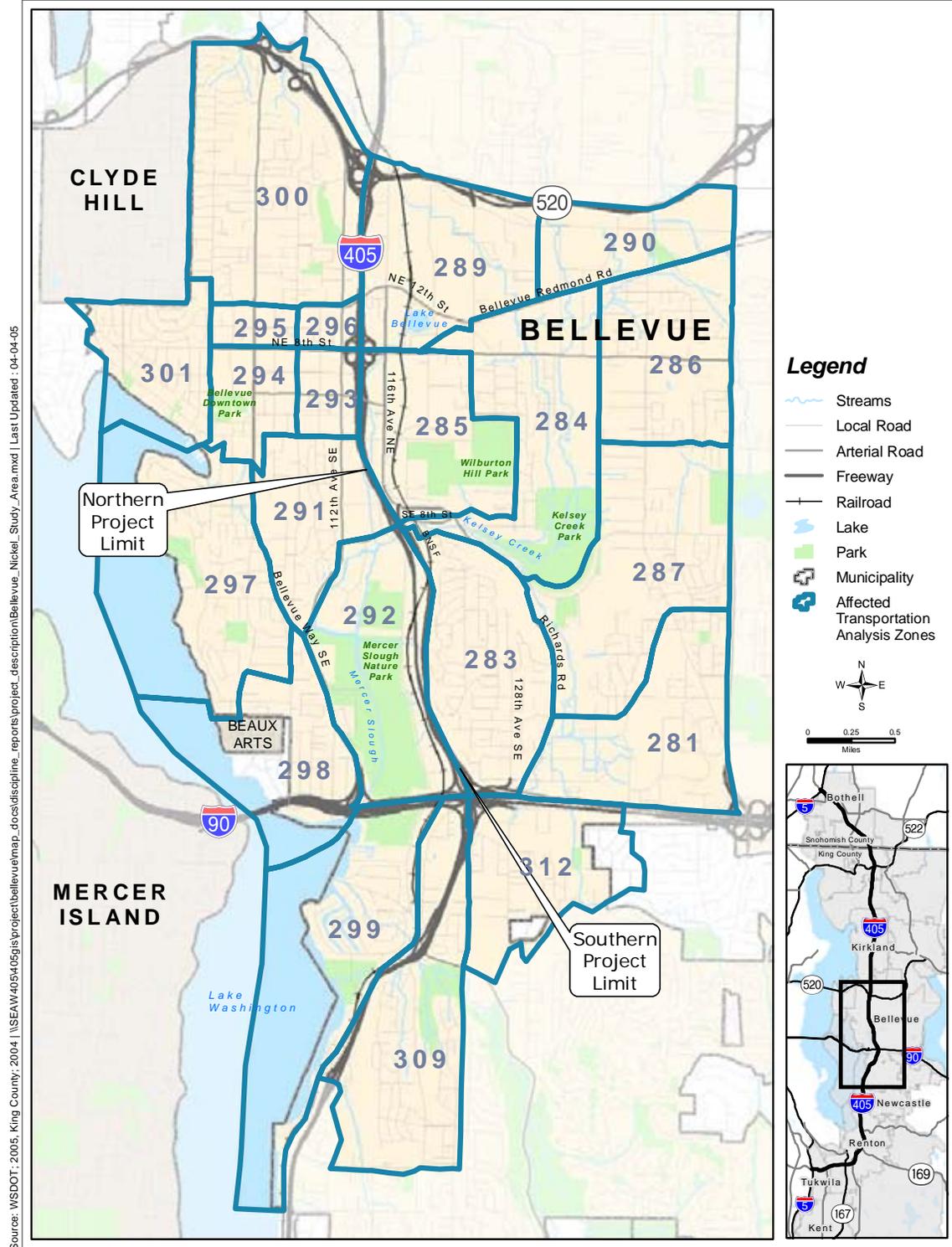
We acquired most of the data described above in raw form. We then viewed the data in relation to one another in order to develop an understanding of the economic environment as a whole. We also made use of regional forecasts developed by the PSRC and comprehensive planning and zoning policies developed by the City of Bellevue.

In addition to relying on data from public entities, we also relied on real estate market information drawn from news articles in the Puget Sound Daily Journal of Commerce, quarterly market research reports from area real estate brokerage firms, and information gathered directly from local real estate brokers familiar with conditions in the study area. Readers can find additional information about the project's potential effects on businesses and communities in the Social Elements, Environmental Justice, and Traffic and Transportation Discipline Reports.

What is the study area for this analysis?

The Bellevue Nickel Improvement Project will affect much of the western area of the City of Bellevue. Taking into consideration the NEPA requirements that the "affected area" must include both the general and local economies, business activity, and employment, we assessed an area of approximately 16 square miles surrounding the Project. This area is composed of 21 transportation analysis zones (TAZs) (shown in Exhibit 7). We assessed the commercial patterns within the area and the role the area plays within the regional economy.

Exhibit 7. Study Area for Economic Assessment



Source: Puget Sound Regional Council 2002.

What are the population and housing trends in the study area?

The Bellevue Nickel Improvement Project study area encompasses areas that are dominated by suburban development patterns and the downtown Bellevue area, which is rapidly transitioning to a denser urban pattern of land use. The area still offers some opportunities for infill development and redevelopment of residential and commercial land uses, but offers few opportunities for large-scale development of raw land.

The 16-square-mile study area was home to 44,988 people in 2000, representing 1.4 percent of the total population in the Central Puget Sound region (King, Kitsap, Pierce, and Snohomish counties, hereafter referred to as the region) (Exhibit 8). Between 2000 and 2030, a population increase of 18,547 is projected in the study area. This estimate represents roughly 1.5 percent of forecasted regional growth.

Exhibit 8. Current and Forecasted Population

	Bellevue Nickel Improvement Project Study Area	Total for King, Kitsap, Pierce, and Snohomish Counties	Bellevue Nickel Improvement Project Area Share of Regional Total
2000	44,988	3,275,847	1.4%
2030 Forecast	63,535	4,535,087	1.4%
Forecasted Annual Growth Rate	1.4%	1.3%	
Forecasted Growth	18,547	1,259,240	1.5%

Source: Puget Sound Regional Council 2003 Small Area Forecasts by TAZ

What is the study area's commercial character?

The Bellevue Nickel Improvement Project study area is a major center of commercial activity in the Puget Sound Region, with a strong base in the Finance, Insurance, Real Estate, and Services (FIRES) sector. (Services include a wide variety of business and personal services, healthcare, software, automobile maintenance, etc.) The area is also strong in the retail sector, including

important regional retail centers, and the Wholesale Trade, Communications, and Utility (WTCU) sector.

Commercial activity in the area is most heavily concentrated in three areas: downtown Bellevue, the SR-520/Bel-Red corridor, and Factoria, located near the I-90/I-405 interchange.

Mobility along the I-405 corridor is important to many of the commercial sectors for different reasons.

The manufacturing sector values access to production inputs (including access to labor force and materials), as well as the ability to move its finished products to the broader market. Likewise, the WTCU industry places a great deal of emphasis on access to the region's broader highway network.

The retail sector, on the other hand—particularly large, regional retail centers—rely heavily on the accessibility of their centers to large numbers of potential shoppers.

The FIRES sector is principally concerned with access to labor markets and to a lesser extent, to customers and clients.

What role does commerce in the study area play in the regional economy?

One way to measure an area's mix of commercial activity is through the use of location quotients. The concept of location quotients can be applied to an area of any size, from a neighborhood to a state, and is a useful mechanism for identifying the extent to which the area in question serves as a center of one or more types of commercial activity (see side bar).

A location quotient greater than 1.0 for a given sector means that local commercial activity is more heavily concentrated in that sector. Conversely, a location quotient of less than 1.0 means the sector in question has a weaker presence in the local area than one would typically expect.

As of 2000, the study area was underweighted in manufacturing and government/education employment, and had a location quotient of 1.07 in retail, while displaying higher concentrations of WTCU, and FIRES employment (Exhibit 9).

What is a location quotient?

A location quotient offers a way to identify the extent to which an area "specializes" in certain economic activities.

An area's location quotient for a given sector is calculated by comparing the area's share of regional employment in the sector with the area's share of regional employment across all sectors combined.

For instance, a location quotient of 1.0 in the retail sector for a given area means that the area has its "fair share" of retail employment. The area could have ten percent of the region's retail employment and ten percent of the region's total employment, which translates to a retail location quotient of 1.0 (10 percent retail share divided by 10 percent total share).

If, instead, the area had twenty percent of the region's retail employment, but only ten percent of the region's total employment, then the area's location quotient for retail would be 2.0 (twenty percent divided by ten percent), signaling the importance of retail in the area's local commercial base.

Exhibit 9. Current and Forecasted Employment Area by Sector

	Manufacturing	WTCU	Retail	FIRES	Government/ Education	Total
2000	4,870	14,579	19,675	55,534	5,672	100,333
Percent of Total Employment (2000)	5%	15%	20%	55%	6%	100%
2030 Forecast	4,276	22,455	29,200	92,508	9,445	157,884
Percent of Total Employment (2030)	3%	14%	18%	59%	6%	100%
Forecasted Annual Growth Rate	-0.4%	1.8%	1.6%	2.2%	2.2%	1.9%
Forecasted Growth	-594	7,876	9,525	36,971	3,773	57,555

Source: Puget Sound Regional Council 2003 Small Area Forecasts by TAZ

What are the existing and projected employment trends?

Exhibits 10 through 14 display the relative distribution of businesses in respective commercial sectors within the study area. These exhibits also highlight the differences among businesses in terms of the number of employees.

Construction and resources employment is spread throughout the study area, with larger employers clustered into three general groups that correspond to the major commercial areas mentioned previously: in and around the downtown Bellevue area; in the SR-520/Bel-Red corridor; and near the I-405/I-90 junction (Exhibit 10).

Manufacturing constitutes only 5 percent of all employment in the study area. It is dominated by larger firms primarily concentrated in the same three commercial areas as shown in Exhibit 11.

WTCU employment in the area is primarily focused in many small firms, with relatively small shares of medium- and large-sized firms. Businesses in the sector are more heavily

concentrated in the SR 520/Bel-Red corridor and downtown Bellevue, but businesses are located across more of the study area, with smaller firms spreading out from the main clusters (Exhibit 12).

Retail employment comprises 20 percent of total employment in the study area. As expected, downtown has a large cluster of small- and medium-sized retail outlets, along with a few large employers (Exhibit 13). The SR-520/Bel-Red corridor and Factoria largest retail employers (with the Factoria Mall) represent the second and third. Both of these areas include a mix of large, medium, and small retail outlets.

The FIRES sector is by far the largest sector of employment in the study area, consisting of 55 percent of total employment in the study area. Compared with other categories, many small FIRES sector firms are dispersed across the area. However, downtown Bellevue, the SR520/Bel-Red corridor, and the I-90 corridor all represent strong concentrations of FIRES activity (Exhibit 14).

Exhibit 10. Construction and Resources Sector Employment

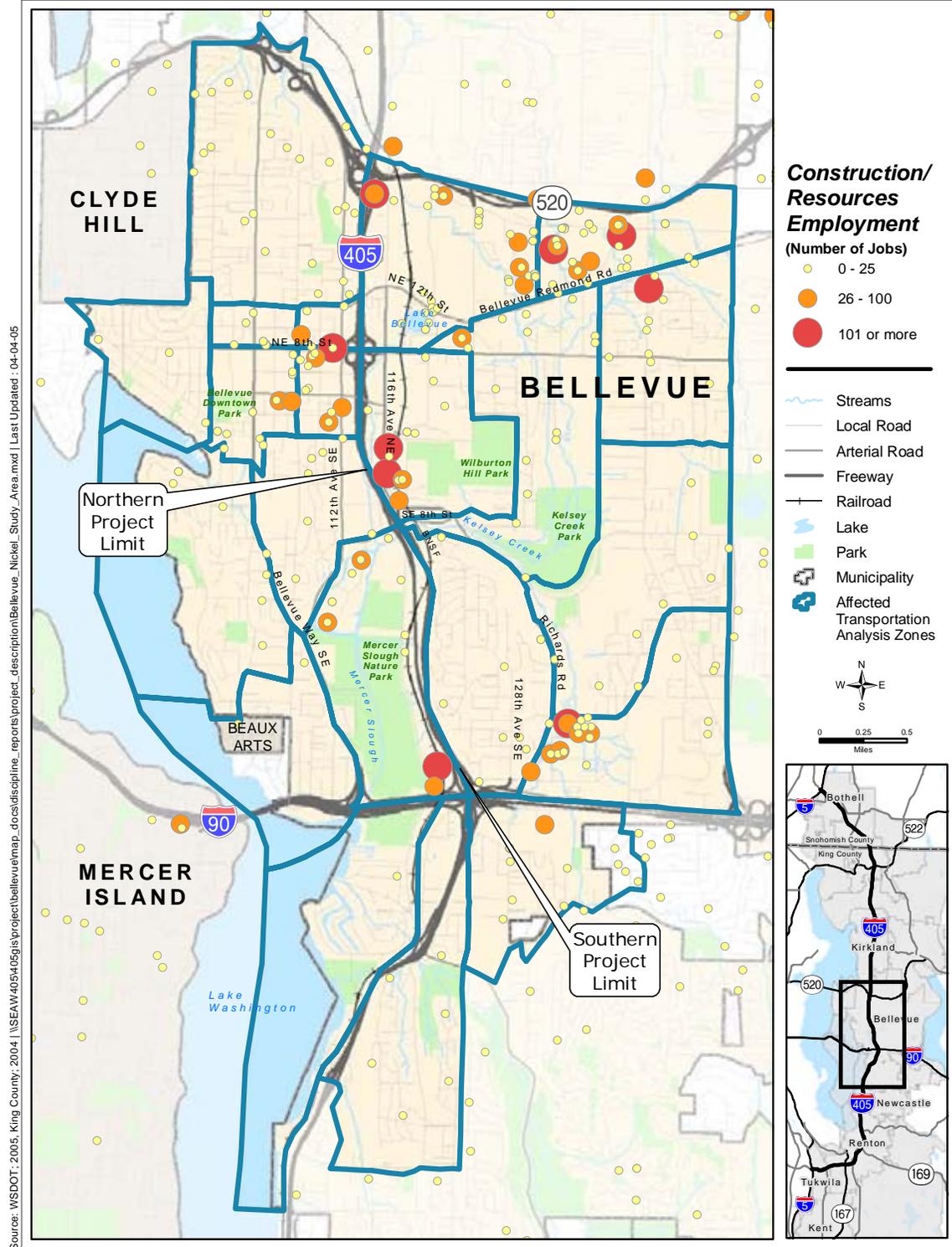


Exhibit 11. Manufacturing Sector Employment

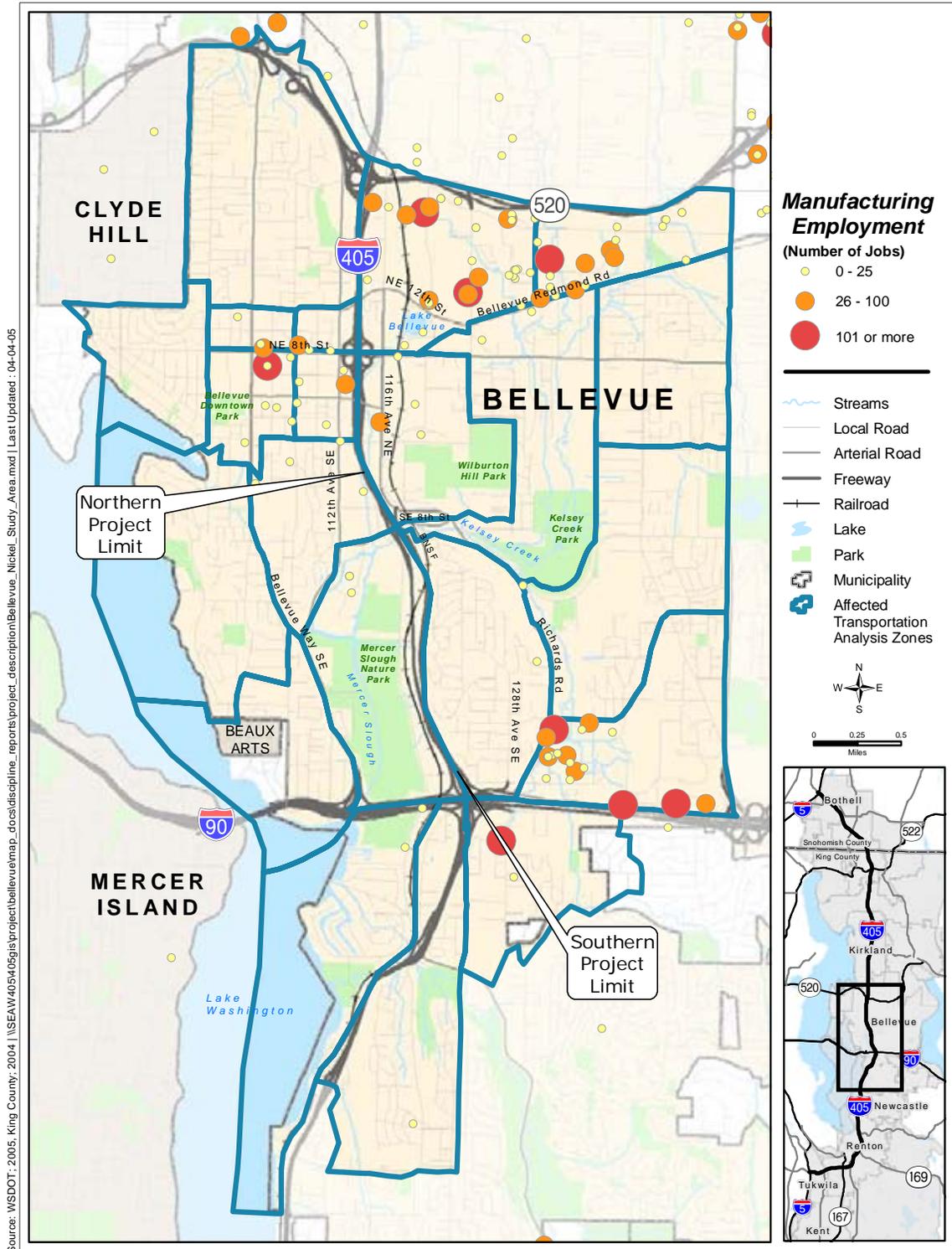


Exhibit 12. Wholesale Trade, Transportation, Communications, and Utilities (WTCU) Sector Employment

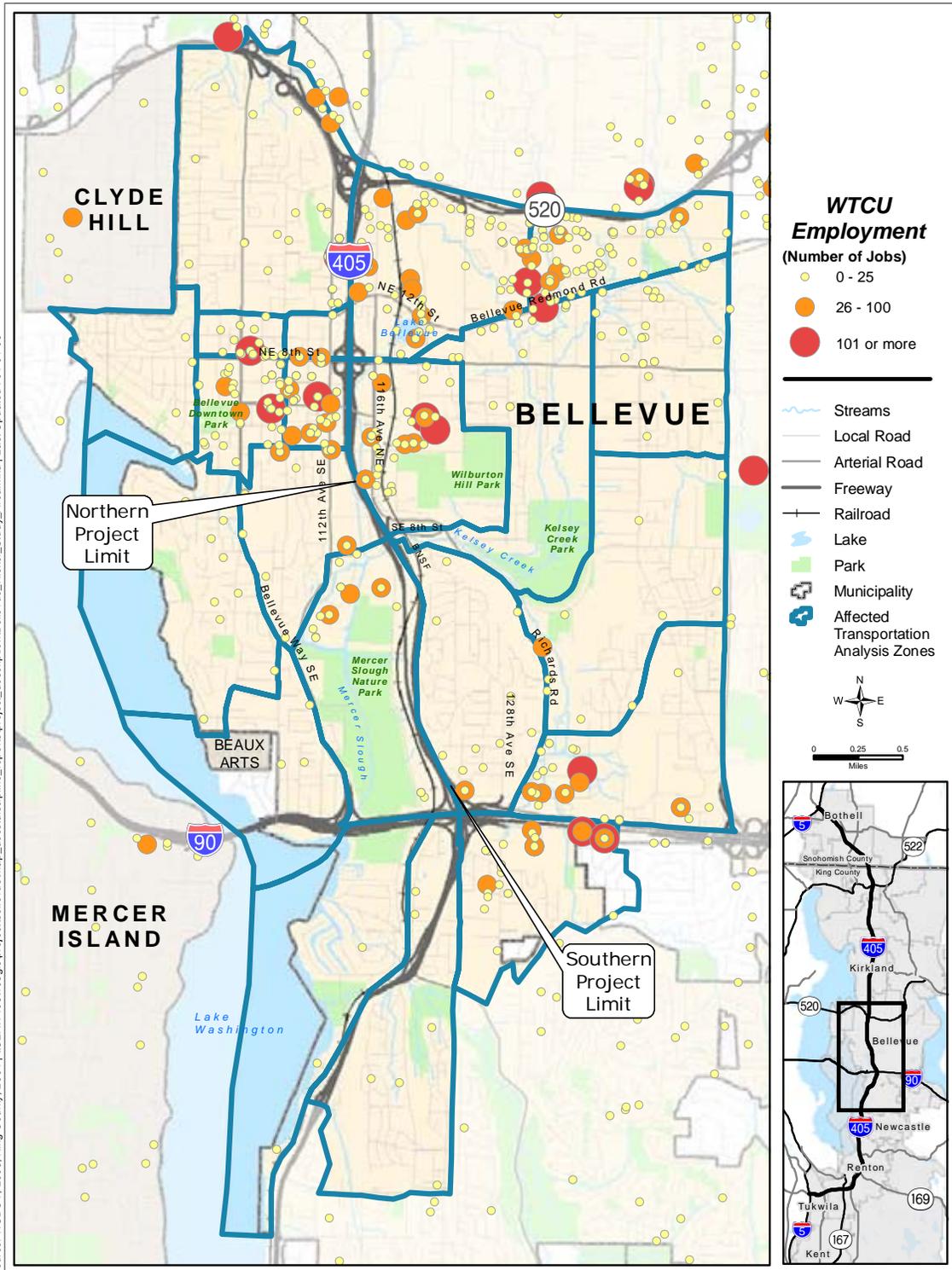


Exhibit 13. Retail Sector Employment

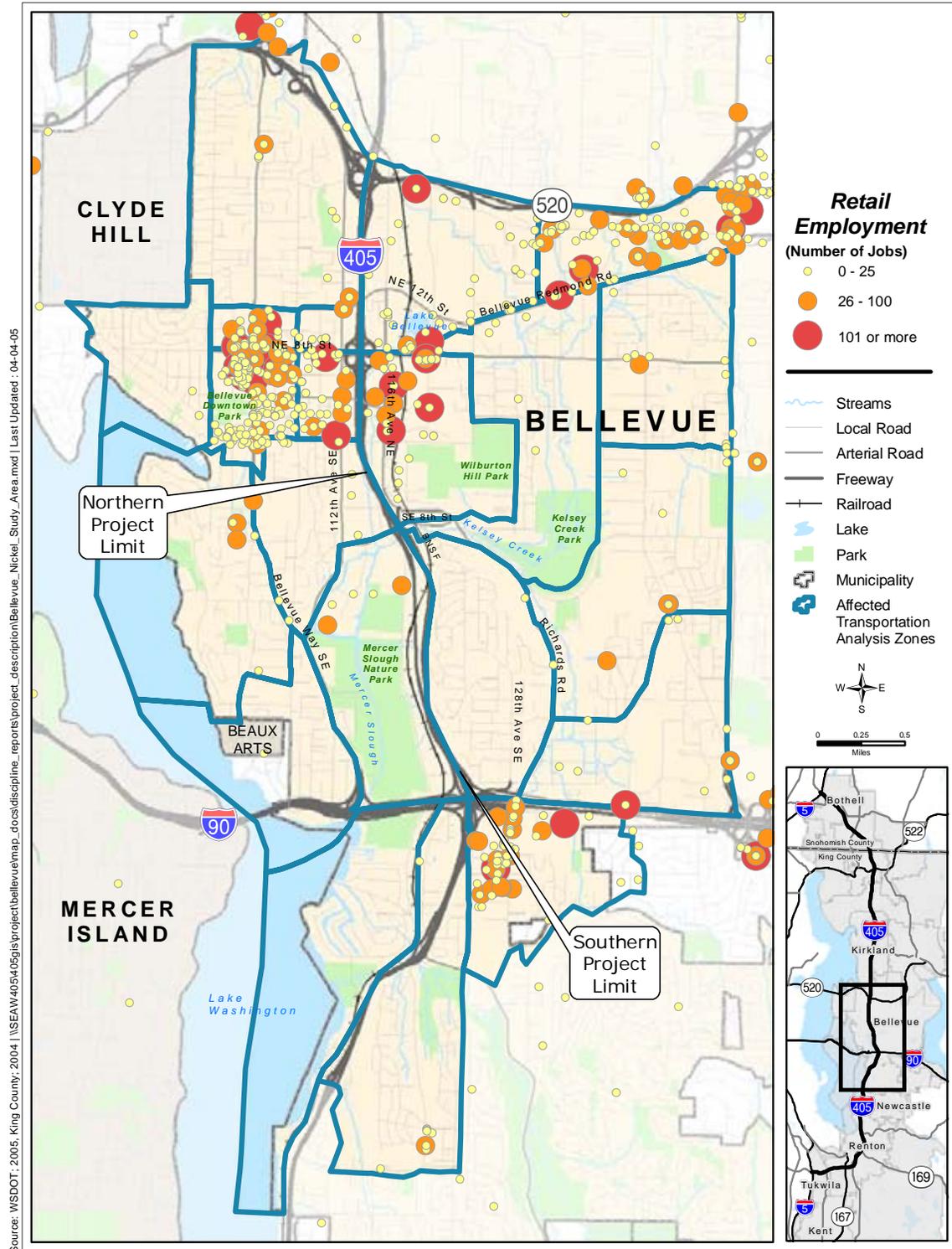
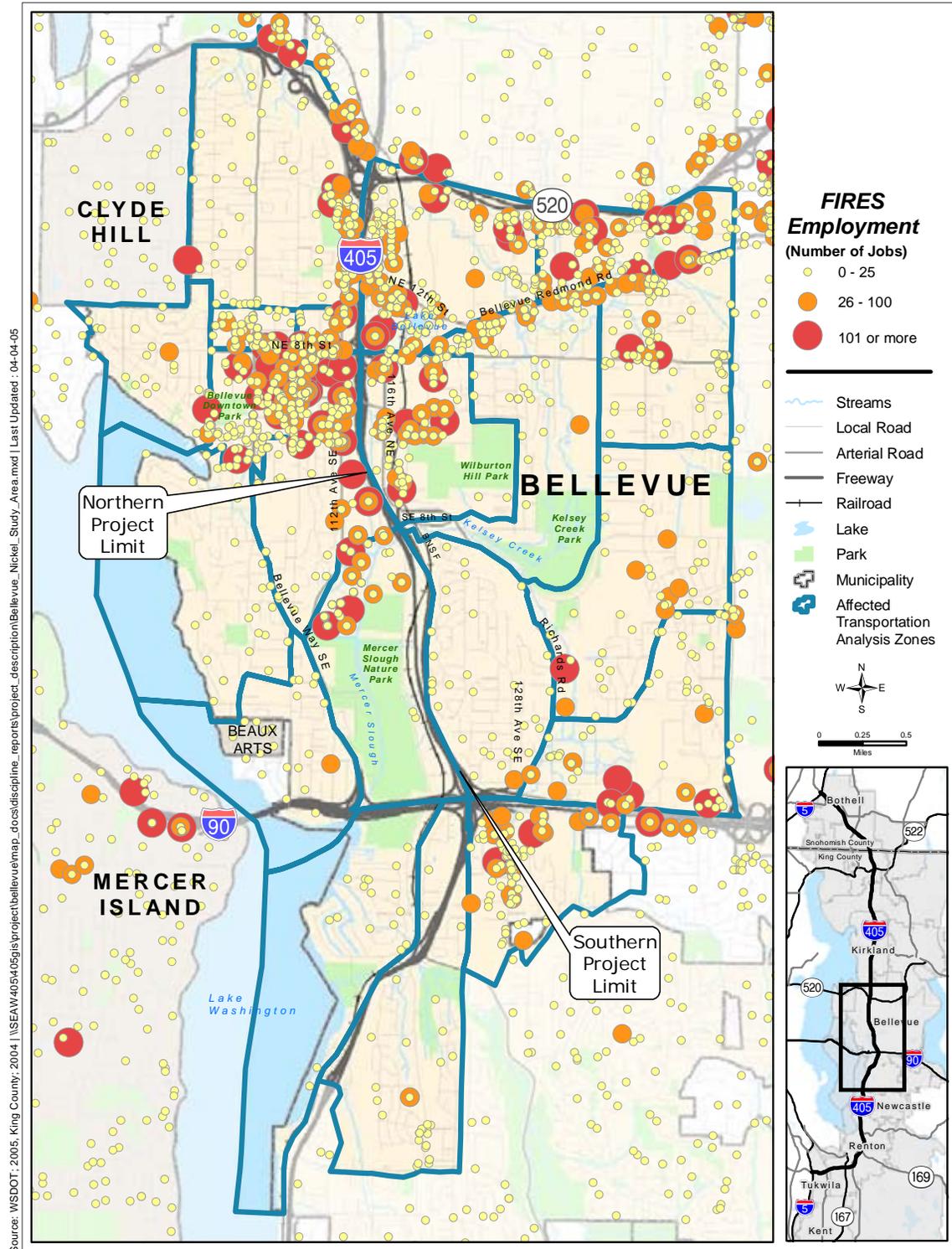


Exhibit 14. Finance, Insurance, Real Estate, and Services (FIRES) Sector Employment



Why is mobility important?

Manufacturing and WTCU sector activities in the study area heavily rely upon mobility on I-405 and local arterials for movement of finished goods to market and for access to labor and materials. Typically, most categories of large-scale industrial activity are much attuned to the accessibility of a site from the broader regional highway system. Warehouse and distribution firms and manufacturers who provide goods to regional or national markets need to be able to get truckloads of goods to their facilities in a cost-effective, predictable manner.

Regional retail centers in the study area also rely heavily on I-405 mobility for their success. Regional retail centers, like Bellevue Square, frequently rely on drawing customers from hundreds of thousands of households. As a consequence, the success of a center like Bellevue Square is dependent on very large areas of the east side (of Lake Washington) being able to make convenient trips to downtown Bellevue.

Finally, mobility on I-405 is important to FIRES sector employers because it provides them with access to residential areas that serve as pools of potential employees. Because FIRES employers do not typically transport a lot of physical goods, these employers are most interested in locating in an area that is convenient and accessible for potential employees.

Current projections show that the Bellevue Nickel Improvement Project study area will capture an increasing share of the region's overall employment. In 2000, estimated employment in the area represented 5.7 percent of the total employment in the region. By contrast, PSRC forecasts indicate that the area will receive 7.3 percent of the region's employment growth between 2000 and 2030, resulting in the Bellevue Nickel Improvement Project study area increasing its share to 6.2 percent of the region's total employment by 2030 (Exhibit 15). These forecasts of increased commercial activity are consistent with current development trends, with large-scale commercial development occurring in downtown Bellevue.

Although the overall share of regional employment will increase, employment in some market areas will diminish while others will grow. Specifically, regional forecasts anticipate that the area will see diminishing shares of employment in manufacturing, while capturing increasing shares in the WTCU, retail, FIRES, and government/education sectors of the economy (Exhibits 16 and 17).

Exhibit 15. Current and Forecasted Total Employment

	Bellevue Nickel Improvement Project Study Area	Total for King, Kitsap, Pierce, and Snohomish Counties	Bellevue Nickel Improvement Project Area Share of Regional Total
2000	100,330	1,748,793	5.7%
2030 Forecast	157,881	2,535,899	6.2%
Forecasted Annual Growth Rate	1.9%	1.5%	
Forecasted Growth	57,551	787,106	7.3%

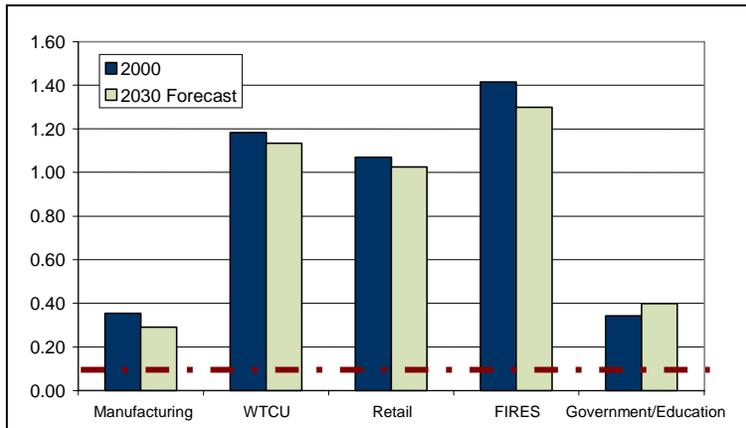
Source: Puget Sound Regional Council 2003 Small Area Forecasts by TAZ

Exhibit 16. Current and Forecasted Employment by Sector

	Manufacturing	WTCU	Retail	FIRES	Government/ Education
Region's employment 2000	240,068	215,040	320,575	684,630	288,480
Study area's share 2000	2.0%	6.8%	6.1%	8.1%	2.0%
Region's employment 2030	235,497	317,999	457,101	1,144,395	380,907
Study area's share 2030	1.8%	7.1%	6.4%	8.1%	2.5%

Source: Puget Sound Regional Council 2003 Small Area Forecasts by TAZ

Exhibit 17. Current and Projected Employment Location Quotients by Sector



A location quotient of 1.0 (represented by the dotted line above) in an employment sector for a given area means that the area has its "fair share" of employment in that sector.

What are the main tax revenues for the jurisdictions in the study area?

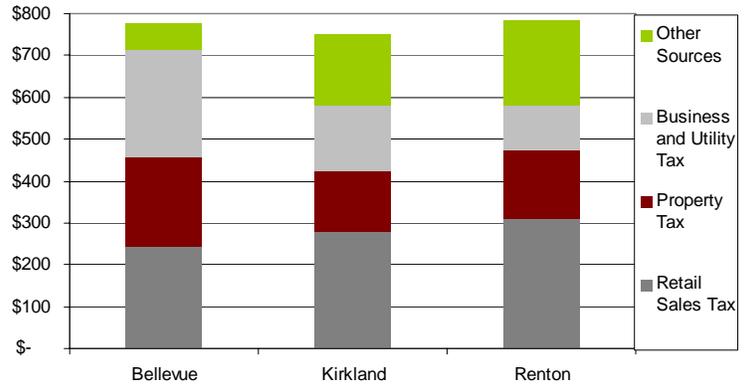
Retail sales tax, property tax, and business and utility tax generate the main tax revenues for the jurisdictions in the study area.

The City of Bellevue is the only city that will be directly affected by the Bellevue Nickel Improvement Project. However, in this section we included fiscal information about the cities of Kirkland and Renton in addition to Bellevue as points of comparison. Both of these cities are located on the same I-405 corridor and both compete as important centers of commercial activity.

All three of these cities are fiscally strong, generating (2003) general fund revenues per resident ranging from a high of \$784 (Renton) to a low of \$751 (Kirkland), with Bellevue at \$778. In comparison, the median city in Washington State generated approximately \$423 per resident in general fund revenues in the same year.

All three of these cities are in a strong financial position, although they receive different mixes of the three largest tax revenue sources (Exhibit 18).

Exhibit 18. Principal Sources of General Fund Revenue by City (2003 Revenues per City Resident)



Source: Washington State Auditor's Office, 2003

Potential Effects

How did we evaluate the potential economic effects of the project?

We evaluated long-term economic effects by examining two factors:

- The economic effect of changes in traffic patterns and patterns of commerce in the local business community; and
- Broader economic changes associated with the project, such as the effect that reduced congestion may have on businesses' ability to deliver goods and services, to access material inputs, and to access labor markets.

The Bellevue Nickel Improvement Project will affect much of the western area of the City of Bellevue.

Effects during Construction

We identified the following primary short-term construction effects:

- One-time local sales tax revenues on the value of construction;
- Temporary construction employment and other multiplier effects on the regional economy;
- Possible construction interference on business activity located near the project site; and,
- Increased traffic congestion and delays within the study area.



Factoria Mall is a large retail center south of Bellevue on the I-405 corridor.

multiplier effect

The introduction of new demand for local goods or services, such as an increase in tourist spending or an investment in infrastructure, generates additional purchases of goods and services from suppliers. It also causes the recirculation of dollars in the economy due to purchases made by wage earners.

What is IMPLAN?

IMPLAN (short for IMpact Analysis for PLANning) is an economic model that traces the ripple effects of a stimulus to the economy, like an investment in highway construction. Analysts use the model to track how an economic action like a highway investment ripples through a regional economy, creating revenue, jobs, and income in many different economic sectors.

Indirect jobs are those that are created when the industries receiving the direct money make purchases from other industries.

Induced jobs are those that are created when the new household income created by the direct money is spent in the marketplace and demand for other goods is increased.

We assessed employment effects from construction using the Impact Analysis for Planning (IMPLAN) input/output model estimates of economic effects associated with construction expenditures. We then compared these economic effects to the effects resulting from alternative uses of construction funds under the No Build Alternative.

How many jobs and how much income will construction of the project generate?

According to the IMPLAN input/output economic model, \$1 million of highway construction activity in the Puget Sound region in 2001 generated 9.6 direct jobs and an additional 6.2 indirect and induced jobs within the King, Kitsap, Pierce, and Snohomish County area.

Given the influence of the construction industry on regional jobs, in general, economic analysts assess employment effects in the following terms. If the direct construction cost of the Bellevue Nickel Improvement Project is roughly \$70.5 million, adjusting the cost estimates to 2001 (the most recent year for which effect analysis data are available), the project will result in the creation of roughly 637 direct jobs and 436 indirect and induced jobs (full-time equivalent years).

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 automatically be viewed as a new job to the region. Funds invested in the Bellevue Nickel Improvement Project generally enter the regional economy through other channels. They enter publicly, in the form of transportation or other investments, or they enter privately, in the form of dollars that remain in the hands of households and businesses to spend in other ways. In such circumstances, the job-creating effects of those funds may be similar to the effects associated with the project's construction.

In the end, the net job-creation effects of the Bellevue Nickel Improvement Project depend on the portion of the investment dollars that might be diverted away from the Puget Sound economy if the project is not built. Therefore, there clearly will be no adverse effects to construction-related employment as a result of the Build Alternative and there may be some positive employment effects.

How will construction-related traffic delays affect local businesses?

Construction activities are not expected to eliminate access to any businesses located in the study area.

No weekday daytime lane closures are anticipated for the construction of this project but the construction of a new Wilburton Tunnel on southbound I-405 may require temporary night and weekend lane closures to allow for transition back onto the existing alignment. Full freeway closures may be required at limited times to shift traffic between phases of construction.

These construction effects may cause certain businesses to experience a degree of economic hardship, (e.g., construction might make the trip to a particular business more difficult). Depending on the attractiveness of the destination and the availability of suitable alternatives, more difficult trips may result in fewer visits to local businesses. The extent and duration of the interference, the location of competitors, and the type of affected business may all influence the magnitude of economic effects resulting from construction interference.

How many businesses will we relocate?

The Bellevue Nickel Improvement Project is not expected to require the relocation of any businesses.

How will each alternative affect the regional and local economy?

No Build Alternative

The No Build Alternative involves no additional construction beyond what would occur during routine maintenance of the road. This means there would be no substantial economic effects compared to the existing conditions.

The No Build Alternative would have detrimental effects on the businesses and the economic landscape as a result of worsening traffic conditions and associated increases in friction-related losses on the free flow of economic goods and services. The No Build Alternative would likely increase the long-term costs and uncertainty associated with moving freight and delivering goods and services. It is likely that this alternative would also reduce the effective trade areas for retail nodes in Bellevue, and reduce the size of the labor pool that is conveniently accessible for most businesses in the area.

What are Friction Costs?

Friction costs are costs associated with conditions that hamper the free flow of goods and services, and reduce businesses' ready access to production inputs.

In the near-term, an increase in congestion and a decrease in the number of trips accommodated by the No Build Alternative would increase commute times and decrease the level of commercial activity in the area served by this Bellevue section of I-405. By reducing the accessibility of these centers, the No Build Alternative would increase the costs associated with congestion-induced delay in the movement of goods and services. Increases in the cost of doing business in the area will diminish the ability of businesses to generate income, increase the costs of goods and services, and/or decrease commercial investment in the area compared with the Build Alternative.

Build Alternative

Because the Bellevue Nickel Improvement Project Build Alternative is not expected to require the relocation or acquisition of property, there are no expected effects on property tax revenues.

The value of construction labor and materials to make the improvements will be subject to state and local sales tax for the duration of the Bellevue Nickel Improvement Project. The revenue from local sales tax on construction accrues to local jurisdictions based on the location of the construction activity. The sales tax will be levied on taxable retail sales within the project area at a total rate of 8.8 percent, of which the City component is roughly 0.85 percent. King County will receive 0.15 percent of all taxable activities that occur within county boundaries.

Construction of the Bellevue Nickel Improvement Project is expected to cost approximately \$70.5 million (in 2005 dollars) and take approximately 3 years. It is important to recognize that the design is still in the early stages. There are many aspects of the design that may, and likely will, change before it is finalized. For the purposes of this assessment, however, we have used the most recent estimate of construction costs and expected build time.

While not all construction costs will be subject to retail sales tax, a reasonable estimate, given statewide experience with construction activities, is that 90 percent of project costs will be subject to retail sales tax. If one assumes a 90% taxable portion, then the figures imply an average taxable activity of \$21.2 million per year. By comparison, the Washington State Department of Revenue reports that the City of Bellevue, in which the Bellevue Nickel Improvement Project is located, had taxable retail sales of \$4.3 billion in 2004 (generating \$36.1

million in sales tax revenues to the city), while the state as a whole had taxable retail sales of \$93 billion. From Bellevue's perspective, an additional \$21.2 million per year of taxable sales will represent roughly 0.5 percent of the City's 2004 taxable retail sales, thereby generating approximately \$180,000 in additional sales tax revenue. From the state's perspective, if the Bellevue Nickel improvements were not built, the funds would be invested in other projects in Washington State; therefore, the \$21.2 million per year would not represent new taxable sales to the state.

Improved travel speeds and increased trip volumes on I-405 will lower costs of business by improving access to inputs for production (labor and materials); increasing the accessibility of businesses to their customers; and decreasing the costs of getting manufactured goods to market.

Does the project have other effects that are delayed or distant from the project?

An effect is considered "indirect" when it occurs later in time or farther removed in distance from the original project action. Most of the economic effects associated with the Bellevue Nickel Improvement Project are indirect in nature. The improved mobility resulting from the additional lanes on I-405 will have a positive effect on commercial activities in areas that rely on mobility in the Bellevue segment of the I-405 corridor. Government funding of the project will pay the wages of construction workers and materials suppliers who in turn will make purchases and investments in the Central Puget Sound area. In addition, the value of construction labor and materials to construct the project will be subject to state and local sales tax, thereby benefiting local jurisdictions, including the City of Bellevue and King County.

Did we consider potential cumulative effects for the Build and No Build Alternatives?

Per FHWA guidance, cumulative effects analysis is discipline-specific and generally performed for the disciplines directly affected by the action (such as a transportation project) under study. However, not all of the disciplines directly affected by a project will require a cumulative effects analysis. Those subject to cumulative effects analysis should be determined on a case-by-case basis early in the NEPA process, generally as part of

early coordination or scoping. Consistent with the *I-405 Corridor Program Final EIS* and the results of scoping for the Bellevue Nickel Improvement Project, we did not analyze cumulative effects for this discipline.

Measures to Avoid or Minimize Project Effects

What will we do to avoid or minimize negative effects on economic conditions?

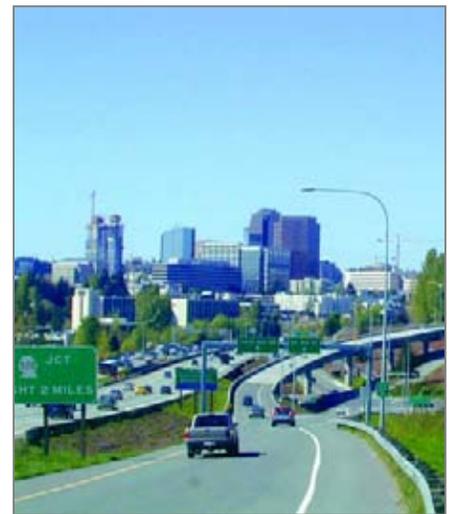
Because we expect the project to produce no negative effects on economic conditions, no mitigation measures are required.

How will we reduce or mitigate temporary (construction) effects on business owners?

We will avoid temporary construction effects to businesses by incorporating avoidance and minimization measures described in Appendix A.

How will the project mitigate unavoidable negative effects?

The project will not result in any unavoidable negative effects; therefore, no mitigation is required.



The Bellevue skyline from NB I-405

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Appendix A

Avoidance and Minimization Measures

Avoidance and Minimization Measures

The following sections describe the established design and construction practices that WSDOT will include to avoid or minimize effects to the various environmental resources during both the construction and operation phases of the project.

Project Measures to Avoid or Minimize Effects During Construction

Design elements, such as modifications to boundaries of areas that can be affected, have been incorporated into the project specifications, construction plans, and procedures, to help avoid or minimize most potential construction impacts. When appropriate, monitoring will be conducted to ensure that these design and construction measures are effective.

Measures for Geology, Soils, and Groundwater

- WSDOT will prepare and implement a Temporary Erosion and Sedimentation Control (TESC) plan consisting of operational and structural measures to control the transport of sediment. Operational measures include removing mud and dirt from trucks before they leave the site, covering fill stockpiles or disturbed areas, and avoiding unnecessary vegetation clearing. Structural measures are temporary features used to reduce the transport of sediment, such as silt fences and sediment traps.
- WSDOT will reduce degradation of moisture-sensitive soils by limiting major earthwork to the drier, late spring through early fall construction season; by maintaining proper surface drainage to avoid ponding of surface water or groundwater; by minimizing ground disturbance through limiting the use of heavy equipment, limiting turns, and/or not tracking directly on the subgrade; and by covering the final subgrade elevation with a working mat of crushed rock and/or geotextile for protection. Mixing a soil admix such as cement into the subgrade may also add strength and stabilize the ground.
- WSDOT will determine acceptable limits for off-site construction-related ground vibration before construction begins and demonstrate that off-site ground vibrations are within the limits set for the project through the use of vibration-monitoring equipment.
- WSDOT will identify areas subject to shaking from a large earthquake and will mitigate risks using ground modifications or other procedures identified in the WSDOT Geotechnical Design Manual.
- WSDOT will implement construction procedures identified in the geotechnical investigation to maintain or enhance slope stability in areas potentially underlain by landslide-prone soils.
- WSDOT will protect the Kelsey Creek aquifer from contamination by construction-related spills by development and implementation of BMPs and a Spill Prevention Control and

Countermeasures plan (SPCCP). The SPCC will specifically address fuel spills from vehicles and from spills of other chemicals commonly transported over I-405. Spill response equipment will be located at regular and specified intervals within the project area for minimizing countermeasure response times.

- WSDOT will ensure only clean fill is imported and placed for the project and will require documentation for fill brought onto the site from the supplier certifying that the fill does not exceed Washington State soil cleanup standards. If documentation is not available, testing of imported fill soils will be required prior to placement. Suspect soils encountered during project construction will be tested and, where necessary, removed from the site and disposed of in accordance with Washington State regulations.
- WSDOT will identify and develop staging areas for equipment repair and maintenance away from all drainage courses. Washout from concrete trucks will not be dumped into storm drains or onto soil or pavement that carries stormwater runoff. A wash down area for equipment and concrete trucks will be designated and the use of thinners and solvents to wash oil, grease, or similar substances from heavy machinery or machine parts will be prohibited.
- WSDOT will obtain a NPDES (National Pollutant Discharge Elimination System) permit and will conduct a regular program of testing and lab work to ensure that water encountered during construction meets the water quality standards specified in the NPDES permit.
- WSDOT will to meet the NPDES water quality standards prior to the discharge of the encountered water to a surface water body, such as Kelsey Creek. If necessary, water quality will be improved, such as by using sediment ponds to allow sediment to settle out prior to discharge.
- If it is necessary to install seepage drains to control seepage for retaining walls and fill embankments, WSDOT will include special provisions in the design to discharge drain flow back into affected areas, including wetlands.

Measures for Water Quality

In addition to measures for geology, soils, groundwater, and for hazardous materials that are protective of water quality, the following measures would be implemented for water quality.

- WSDOT will identify and develop staging areas for equipment repair and maintenance away from all drainage courses.
- Washout from concrete trucks will not be dumped into storm drains or onto soil or pavement that carries stormwater runoff.
- Thinners and solvents will not be used to wash oil, grease, or similar substances from heavy machinery or machine parts.
- WSDOT will designate a wash down area for equipment and concrete trucks.

Measures for Wetlands

- WSDOT will protect, preserve, and enhance wetlands in the project area during the planning, construction, and operation of transportation facilities and projects consistent with USDOT Order 5660.1A, Executive Order 11990, and Governor's Executive Orders EO 89-10 and EO 90-04.
- WSDOT's project-level design and environmental review has included avoidance, minimization, restoration, and compensation of wetlands. WSDOT will implement these measures prior to or concurrent with adverse effects on wetlands, to reduce temporal losses of wetland functions.
- WSDOT will follow guidance contained in the wetlands section of the WSDOT Environmental Procedures Manual (WSDOT 2004a), which outlines the issues and actions to be addressed prior to authorizing work that could affect wetlands.
- WSDOT will use high-visibility fencing to clearly mark wetlands to be avoided in the construction area.

Measures for Upland Vegetation and Wildlife

- WSDOT will ensure mitigation measures established in the I-405 Corridor EIS will be implemented on the Bellevue Nickel Improvement Project.
- WSDOT will prepare and implement a revegetation plan. In addition, areas with mixed forest will not be removed for temporary use (i.e., construction staging). If an area of mixed forest must be removed for roadway construction, it will be replaced with plantings of native tree and shrub species within the affected area.
- WSDOT will adhere to project conditions identified in the Biological Assessment and agency concurrence letters.
- WSDOT will limit construction activity to a relatively small area immediately adjacent to the existing roadway to minimize vegetation clearing and leave as many trees as possible.

Measures for Fisheries and Aquatic Resources

- WSDOT will implement construction BMPs (such as silt fencing or sedimentation ponds) to avoid disturbing sensitive areas during the development and use of any staging areas, access roads, and turnouts associated with resurfacing activities.
- WSDOT will not allow in-water work to occur except during seasonal work windows established to protect fish.
- WSDOT will require that all stormwater treatment wetland/detention facilities are sited and constructed at a sufficient distance from named and unnamed streams so no grading or filling in the streams or the streamside zones will be required.

Measures for Air Quality

- WSDOT will require preparation and implementation of a Fugitive Dust Control Plan in accordance with the Memorandum of Agreement between WSDOT and PSCAA Regarding Control of Fugitive Dust from Construction Projects (October 1999).
- During dry weather, exposed soil will be sprayed with water to reduce emissions of and deposition of particulate matter (PM₁₀).
- WSDOT will provide adequate freeboard (space from the top of the material to the top of the truck), cover truckloads, and, in dry weather, wet materials in trucks to reduce emission of and deposition of particulate matter during transport.
- WSDOT use wheel washers to remove particulate matter that would otherwise be carried offsite by vehicles to decrease deposition of particulate matter on area roadways.
- WSDOT will remove particulate matter deposited on public roads to reduce mud on area roadways.
- WSDOT will cover or spray with water any dirt, gravel, and debris piles during periods of high wind when the stockpiles are not in use to control dust and transmissions of particulate matter.
- WSDOT will route and schedule construction trucks to reduce travel delays and unnecessary fuel consumption during peak travel times, and therefore reduce secondary air quality impacts (i.e. emissions of carbon monoxide and nitrogen oxides) that result when vehicles slow down to wait for construction trucks.

Measures for Noise

- Noise berms and barriers will be erected prior to other construction activities to provide noise shielding.
- The noisiest construction activities, such as pile driving, will be limited to between 7 AM and 10 PM to reduce construction noise levels during sensitive nighttime hours.
- Construction equipment engines will be equipped with adequate mufflers, intake silencers, and engine enclosures.
- Construction equipment will be turned off during prolonged periods of nonuse to eliminate noise.
- All equipment will be maintained appropriately and equipment operators will be trained in good practices to reduce noise levels.
- Stationary equipment will be stored away from receiving properties to decrease noise.
- Temporary noise barriers or curtains will be constructed around stationary equipment that must be located close to residences.
- Resilient bed liners will be required in dump trucks to be loaded on site during nighttime hours.

- WSDOT use Occupational Safety and Health Administration (OSHA)-approved ambient sound-sensing backup alarms that would reduce disturbances during quieter periods.

Measures for Hazardous Materials

Known or Suspected Contamination within the Build Alternative Right of Way

- WSDOT will prepare an SPCCP that provides specific guidance for managing contaminated media that may be encountered within the right of way (ROW).
- WSDOT may be responsible for remediation and monitoring of any contaminated properties acquired for this project. WSDOT will further evaluate the identified properties before acquisition or construction occurs. Contamination in soils will be evaluated relative to the Model Toxics Control Act (MTCA).
- If WSDOT encounters an underground storage tank (UST) within the ROW, WSDOT will assume cleanup liability for the appropriate decommissioning and removal of USTs. If this occurs, WSDOT will follow all applicable rules and regulations associated with UST removal activities.
- WSDOT will conduct thorough asbestos-containing material/lead paint building surveys by an Asbestos Hazard Emergency Response Act (AHERA)-certified inspector on all property structures acquired or demolished. WSDOT will properly remove and dispose of all asbestos-containing material/lead-based paint in accordance with applicable rules and regulations.
- Construction waste material such as concrete or other harmful materials will be disposed of at approved sites in accordance with Sections 2-01, 2-02, and 2-03 of the WSDOT Standard Specifications.
- WSDOT may acquire the responsibility for cleanup of any soil or groundwater contamination encountered during construction (that must be removed from the project limits) within WSDOT ROW. Contamination will be evaluated relative to Model Toxics Control Act (MTCA) cleanup levels.
- WSDOT will consider entering into pre-purchaser agreements for purpose of indemnifying itself against acquiring the responsibility for any long-term cleanup and monitoring costs.
- All regulatory conditions imposed at contaminated properties (e.g., Consent Decree) associated with construction will be met. These conditions could include ensuring that the surrounding properties and population are not exposed to the contaminants on the site: i.e., WSDOT will ensure that the site is properly contained during construction so that contaminants do not migrate offsite, thereby protecting the health and safety of all on-site personnel during work at the site.

Known or Suspected Contamination Outside of the Right of Way

- Contaminated groundwater originating from properties located up-gradient of the ROW could migrate to the project area. WSDOT generally will not incur liability for groundwater contamination that has migrated into the project footprint as long as the agency does not

acquire the source of the contamination. However, WSDOT will manage the contaminated media in accordance with all applicable rules and regulations.

Unknown Contamination

- If unknown contamination is discovered during construction, WSDOT will follow the SPCCP as well as all appropriate regulations.

Worker and Public Health and Safety and other Regulatory Requirements

The WSDOT will comply with the following regulations and agreements:

- State Dangerous Waste Regulations (Chapter 173-303 WAC);
- Safety Standards for Construction Work (Chapter 296-155 WAC);
- National Emission Standards for Hazardous Air Pollutants (CFR, Title 40, Volume 5, Parts 61 to 71);
- General Occupational Health Standards (Chapter 296-62 WAC); and
- Implementing Agreement between Ecology and WSDOT Concerning Hazardous Waste Management (April 1993).

Hazardous Materials Spills During Construction

- WSDOT will prepare and implement a SPCCP to minimize or avoid effects on human health, soil, surface water and groundwater.

Measures for Traffic and Transportation

- WSDOT will coordinate with local agencies and other projects to prepare and implement a Traffic Management Plan (TMP) prior to making any changes to the traffic flow or lane closures. WSDOT will inform the public, school districts, emergency service providers, and transit agencies of the changes ahead of time through a public information process. Pedestrian and bicycle circulation will be maintained as much as possible during construction.
- Prior to and during construction, WSDOT will implement strategies to manage the demand on transportation infrastructure. These transportation demand management strategies will form an important part of the construction management program and will be aimed at increasing public awareness and participation in HOV travel. The major focus will be on expanding vanpooling and van-share opportunities. Other elements of the transportation demand management plan may include:
 - increased HOV awareness and public information, and
 - work-based support and incentives.

Measures for Visual Quality

- WSDOT will follow the I-405 Urban Design Criteria. Where the local terrain and placement of light poles allow, the WSDOT will reduce light and glare effects by shielding roadway lighting and using downcast lighting so light sources will not be directly visible from residential areas and local streets.
- WSDOT will restore (revegetate) construction areas in phases rather than waiting for the entire project to be completed.

Measures for Neighborhoods, Businesses, Public Services and Utilities

- WSDOT will prepare and implement a transportation management plan (TMP). If local streets must be temporarily closed during construction, WSDOT will provide detour routes clearly marked with signs.
- WSDOT will coordinate with school districts before construction.
- WSDOT will implement and coordinate the TMP with all emergency services prior to any construction activity.
- WSDOT will coordinate with utility providers prior to construction to identify conflicts and resolve the conflicts prior to or during construction. Potential utility conflicts within WSDOT ROW will be relocated at the utility's expense prior to contract award.
- WSDOT will prepare a consolidated utility plan consisting of key elements such as existing locations, potential temporary locations and potential new locations for utilities; sequence and coordinated schedules for utility work; and detailed descriptions of any service disruptions. This plan will be reviewed by and discussed with affected utility providers prior to the start of construction.
- WSDOT will field verify the exact locations and depths of underground utilities prior to construction.
- WSDOT will notify neighborhoods of utility interruptions by providing a scheduled of construction activities in those areas.
- WSDOT will coordinate with utility franchise holders and provide them with project schedules to minimize the effects of utility relocations (for example, equipment procurement times, relocation ahead of construction, etc.)
- WSDOT will notify and coordinate with fire departments for water line relocations that may affect water supply for fire suppression, and establish alternative supply lines prior to any breaks in service; and to ensure that fire departments can handle all calls during construction periods and to alleviate the potential for increased response times.
- WSDOT will notify and coordinate with police departments to implement crime prevention principles and to ensure that they have adequate staffing to provide traffic and pedestrian control.

- WSDOT will maintain access to businesses throughout the construction period through careful planning of construction activities and an awareness of the needs to provide adjacent properties with reasonable access during business hours. As part of construction management, WSDOT will prepare access measures. WSDOT will make provisions for posting appropriate signs to communicate the necessary information to potential customers.
- WSDOT will keep daytime street closures to a minimum to provide access for businesses during regular business hours.

Measures for Cultural Resources

- WSDOT will prepare an Unanticipated Discovery Plan for the project that WSDOT will follow. This will avoid or minimize unanticipated effects to historic, cultural, and archaeological resources.

Project Measures to Avoid or Minimize Effects During Project Operation

The following sections describe the measures that WSDOT will implement during project operation.

Measures for Surface Waters and Water Quality

- WSDOT will follow the Highway Runoff Manual for both the design and implementation of stormwater facilities. WSDOT is not required to manage flow where drainage is directly to Mercer Slough. Where drainage is to a tributary to Mercer Slough, WSDOT will construct a stormwater management system that does provide flow control.

Measures for Fisheries and Aquatic Resources

- WSDOT will compensate for adverse effects to fish habitat and aquatic resources by providing in-kind mitigation. This in-kind mitigation will take the form of on-site, off-site, or a combination of on- and off-site mitigation.
- Off-site mitigation could include planting native riparian vegetation outside of the study area in areas where restoring native riparian buffers may have a greater benefit to fish and aquatic species. Mitigation could be concentrated along streams with high fish use where important stream processes and functions related to riparian buffers (for example, large woody debris [LWD] recruitment levels, litter fall, and bank stabilization) are impaired.
- On-site/off-site mitigation could include installing in-stream habitat features (for example, boulders or LWD) in the streambed downstream of the project footprint to increase the habitat complexity of the affected waterbody.

- Ongoing maintenance (during and post-construction) of stormwater treatment and detention facilities by WSDOT will not include the application of any chemical weed control agents (e.g., herbicides).

Measures for Upland Vegetation and Wildlife

- WSDOT will replace areas of mixed forest that will be permanently removed for roadway construction with plantings of native tree and shrub species within the affected area.