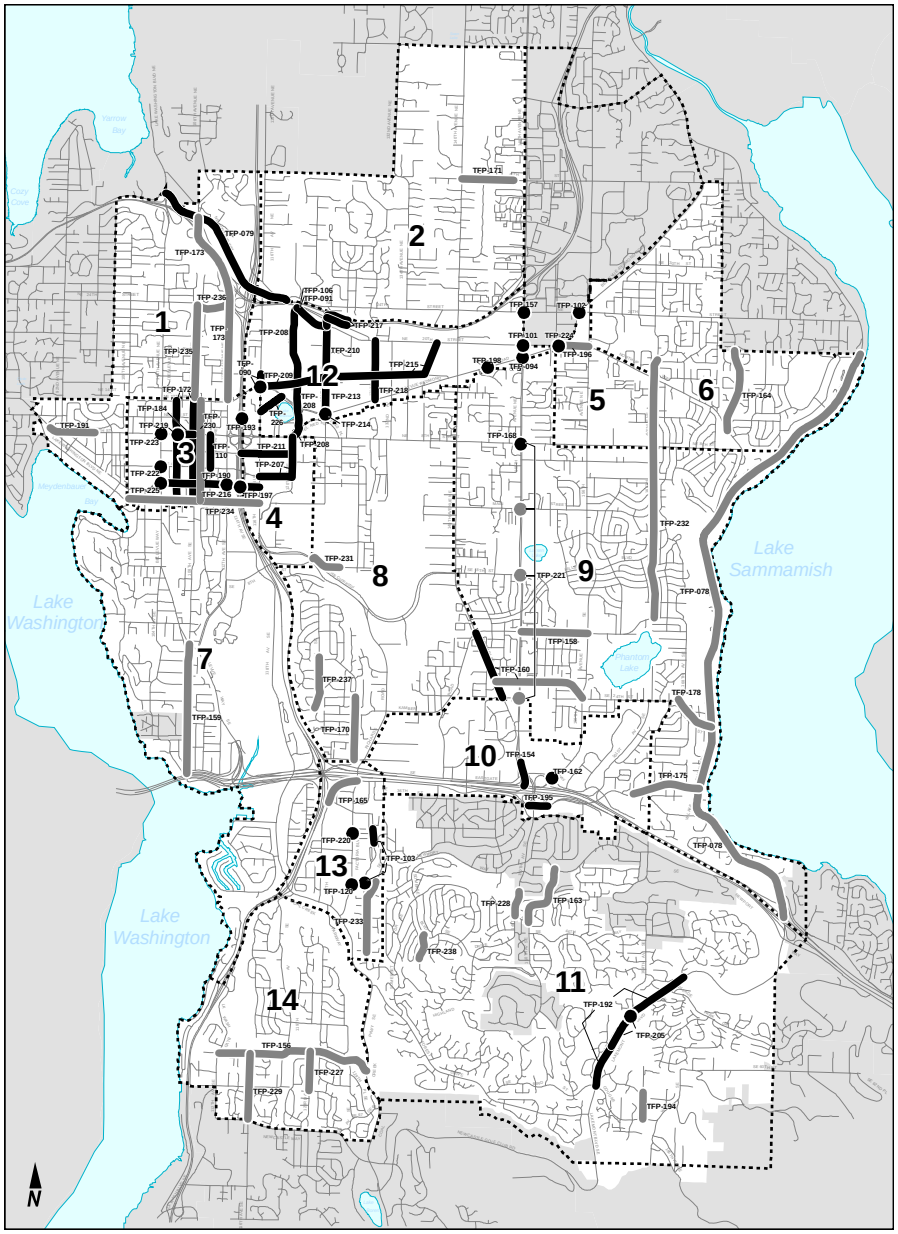
DRAFT ENVIRONMENTAL IMPACT STATEMENT

2009 – 2020 TRANSPORTATION FACILITIES PLAN



JANUARY 2009

City of Bellevue

Post Office Box 90012 ▪ Bellevue, Washington ▪ 98009 9012

January 22, 2009

TO: Recipients of the Draft Environmental Impact Statement for the City of Bellevue 2009-2020 Transportation Facility Plan

This Draft Environmental Impact Statement (DEIS) analyzes the potential citywide impacts of two alternatives for implementation of transportation facilities by the year 2020 to meet the City's Comprehensive Plan, Transportation Element, Mobility Management goals. This programmatic, or "non-project" DEIS is part of a phased environmental review as defined under the State Environmental Policy Act. Specific projects listed in the plan will undergo separate environmental review as they are funded for design and/or implementation.

Alternatives considered include:

Alternative 1, the "No Action" Alternative assumes no future investment in transportation facilities beyond those included in Bellevue's 2007-2013 Capital Investment Program or other funded regional or local agencies' plans.

Alternative 2, the Proposed 2009-2020 Transportation Facilities Plan (TFP) Alternative assumes additional funding for transportation facilities through 2020. The projects selected for this alternative were prioritized based on the following criteria (taken from the goals of the Comprehensive Plan):

- Level-of-Service (i.e. congestion reduction)
- Safety (vehicular and pedestrian/bicycle)
- Transit (improving service, facilities and/or access)
- Mode Split (serving alternative modes, such as transit, carpool, walking, bicycling, etc.)
- Regional coordination (whether project is consistent with regional transportation plans)
- Leveraging of funds (project's potential to receive grants or other outside funding)

Next Steps

Following the Environmental Impact Statement phase of the process, the Bellevue Transportation Commission, which guides the overall transportation facilities planning process, will forward recommendations to the City Council. The City Council is expected to adopt the 2009-2020 TFP in March 2009. Implementation of TFP projects will occur over the next 12 years. For further information about this planning process, please contact Michael Ingram, Senior Transportation Planner, 425-452-4166 or via e-mail at mingram@bellevuewa.gov

Sincerely,

Carol Helland

Carol V. Helland, Environmental Coordinator
Department of Development Services

Draft Environmental Impact Statement
2009–2020 Transportation Facilities Plan

Prepared for:

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January 2009

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Title VI Assurances

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Fact Sheet

Proposal Title

2009–2020 Transportation Facilities Plan (TFP)

Description of Proposal

Adoption of a program of transportation improvements to be implemented over the next 12 years and to provide the basis for the City of Bellevue's Transportation Impact Fees.

Proponent

City of Bellevue, Transportation Department

Location

Citywide

Lead Agency

City of Bellevue

Responsible Official

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Land Use Division Director
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EIS

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Required Licenses and Permits

City of Bellevue, City Council Adoption

Draft Environmental Impact Statement Authors and Principal Contributors

The Draft EIS for the City of Bellevue 2009–2020 Transportation Facilities Plan has been prepared under the direction of the City of Bellevue Transportation and Development Services Departments. Research, analysis, and document preparation were performed by the following departments and firms:

City of Bellevue Transportation Department
Implementation Planning Group
Transportation Forecasting and Modeling Group

City of Bellevue Development Services Department

ICF Jones & Stokes
710 Second Avenue Suite 550
Seattle, WA 98104

Date of Draft Environmental Impact Statement Issuance

January 22, 2009

Date Comments Due

February 23, 2009

Nature and Date of Final Action by City

Adoption of the 2009–2020 Transportation Facilities Plan
(Anticipated March 16, 2009).

Timing of Future Environmental Review

This EIS is part of a phased environmental review in accordance with WAC 197-11-060(5).

This document focuses on the impacts resulting from the adoption of the proposed plan including:

- broad policy implications of adoption of alternatives;
- the analysis of impacts on the general transportation system in the area;
- the analysis of impacts related to traffic such as air quality and noise; and
- general analysis of impacts on natural and human environments.

Specific projects listed in the plan will undergo separate project-level State Environmental Policy Act (SEPA) review as they are funded for design and/or implementation. Project-level review

may result in different procedural compliance for individual projects including Determinations of Significance, Mitigated Determinations of Nonsignificance, Determinations of Non-significance, adoption of this EIS, preparation of Supplemental EISs, preparation of new EISs, or review in compliance with the National Environmental Policy Act (NEPA).

Projects under the jurisdiction of the Washington State Department of Transportation (WSDOT) referenced in this EIS will undergo separate review by WSDOT as the lead agency under the authority of SEPA or NEPA.

It is anticipated that this EIS will be adopted for specific private development projects that generate trip demand consistent with the projections included in this analysis.

Location of Background and Supporting Documents

Data used during the preparation of this document may be viewed at one of the following locations:

City of Bellevue
Development Services Department
1st Floor West
Bellevue City Hall
450 110th Avenue NE
Bellevue, WA 98009

City of Bellevue
Transportation Department
2nd Floor East
Bellevue City Hall
450 110th Avenue NE
Bellevue, WA 98009

Cost to the Public

$5.00

Copies may be purchased at the Service First Desk on the first floor of City Hall, 450 110th Avenue NE, Bellevue, WA 98004. Electronic copies may also be downloaded at http://www.bellevuewa.gov.

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Appendix C. Land Use Projections

Appendix D. Transportation System Impact Analysis Methodology

Appendix E. Air Quality Analysis Methodology

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Acronyms and Abbreviations

BCC	Bellevue City Code
BKR	Bellevue-Kirkland-Redmond
BMPs	best management practices
BROTS	Bel-Red/Overlake Transportation Study
CAA	Clean Air Act
CAFE	Corporate Average Fuel Economy
CAT	Climate Action Team
CIP	Capital Investment Program
City	City of Bellevue
CO	carbon monoxide
CO2	carbon dioxide
CTR	Commute Trip Reduction
Ecology	Washington State Department of Ecology
EDNA	Environmental Designation for Noise Abatement
EIS	Environmental Impact Statement
EMFAC	Emissions FACtors

FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
GHG	greenhouse gas
GIS	geographic information services
GMA	Growth Management Act
HOV	high-occupancy vehicle
Hz	Hertz
I	Interstate
ICLEI	International Council for Local Environmental Initiatives
IPCC	Intergovernmental Panel on Climate Change
Leq	Equivalent Sound Level
LOS	level of service
MMA	Mobility Management Area
mph	miles per hour
MSATs	mobile source air toxics
NAAQS	National Ambient Air Quality Standards
NGPA	Native Growth Protection Area
NGPE	Native Growth Protection Easement
NO2	nitrogen dioxide
NOx	nitrogen oxides
Pb	lead
PHS	Priority Habitats and Species
PM10	particulate matter less than 10 micrometers in size
PM2.5	particulate matter less than 2.5 micrometers in size
ppm	parts per million
PSCAA	Puget Sound Clean Air Agency

PSRC	Puget Sound Regional Council
RCW	Revised Code of Washington
RPZ	Residential Permit Parking Zone
SEPA	State Environmental Policy Act
SO2	sulfur dioxide
SOV	single-occupant vehicle
SOx	sulfur oxides
SR	State Route
TDM	Transportation Demand Management
TFP	Transportation Facilities Plan
TIP	Transportation Improvement Program
TNM	Traffic Noise Model
V/C	volume to capacity ratio
VMT	vehicle miles traveled
VOC	volatile organic compounds
WAC	Washington Administrative Code
WASIST	Washington State Intersection Screening Tool
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

Chapter 1. Background and Summary

The City of Bellevue (City) is proposing to adopt its 2009–2020 Transportation Facilities Plan (TFP), which serves as the City's 12-year transportation implementation planning document. It comprises priority projects detailed in the long range facility plans and other projects that represent emerging transportation facility needs and opportunities. The City's first TFP for the years 1991–2002 was adopted by the Bellevue City Council in 1990. Subsequent plan updates were adopted for the years 1994–2005, 1996–2007, 1998–2009 (an interim plan), 2001–2012, 2004–2015, and 2006–2017. The 2009–2020 TFP will be available from the City in January 2009.

The Washington State Environmental Policy Act (SEPA) requires government officials to consider the environmental consequences of a Proposed Action. Under SEPA, the TFP is considered a Proposed Action. As such, this Draft Environmental Impact Statement (EIS) has been prepared. This Draft EIS will assist the public and agency decision–makers in considering the environmental effects of proposed changes to the City's current 2006–2017 TFP. The projects from the 2006-2017 TFP that have been completed, and additional projects that were not carried into the 2009–2020 TFP, are summarized in Appendix A.

1.1. Purpose of the Transportation Facilities Plan

The TFP serves as the city's 12-year, or intermediate-range, transportation planning document. It serves as a bridge between long range facility plans in the City's Comprehensive Plan and the fully-financed Capital Investment Program (CIP). More information about these plans and their relationship to each other is presented in Chapter 2 of this document. The TFP includes high-priority projects from the City's long-range plans that address future transportation and land use needs and opportunities. Projects included in the plan may address roadway/intersection capacity, safety/operations, walkway/bikeway mobility, and/or maintenance. Updated every two years, the TFP is a "financially constrained" plan; identified cost of the projects in the TFP is balanced with the City's transportation revenue projections for the 12-year planning period. Some

projects included do not have full funding for implementation; they have placeholder funding for initial design or property acquisition and will need additional funding in subsequent TFP updates. The TFP serves several functions:

- It provides the first level of project prioritization necessary to identify projects for funding in the adopted CIP. The CIP presents a schedule of major public facility improvements that will be implemented over the next seven years. Project design, land acquisition, construction costs and the projected means of financing these costs are integral components of the plan.
- It serves as the basis for the City's Impact Fee Program. The roadway and intersection capacity projects adopted in the TFP are used to calculate the impact fees charged to new land use developments. The fees cover a portion of the cost of capacity needed to serve the new development.
- It describes current and future environmental conditions through this EIS. Prepared in conjunction with each TFP update, this TFP EIS documents potential cumulative impacts to the environment and the citywide transportation system that may occur due to 12 years of projected land use growth and the implementation of the projects identified in the TFP.

1.2. Environmental Review

This Draft EIS provides qualitative and quantitative analysis of environmental impacts as appropriate to the general nature of this planning effort. The adoption of comprehensive plans or other long-range planning activities is classified by SEPA as a non-project (i.e., programmatic) action. A non-project action is defined as an action that is broader than a single site-specific project, and involves decisions on policies, plans, or programs. An EIS for a non-project proposal does not require site-specific analyses; instead, the EIS discusses impacts and alternatives appropriate to the scope of the non-project proposal and to the level of planning for the proposal (Washington Administrative Code (WAC) 197-11-442).

The adoption of the TFP is classified under SEPA as a non-project action. Consistent with SEPA, the City issued *Notice of Determination of Significance, Notice of Environmental Impact Statement Scoping Period, and Notice of Public Meeting* on September 18, 2008. Appendix B contains a copy of this notice, as well the comments that were submitted during the scoping period, and responses to those comments.

The analysis in this Draft EIS is not intended to satisfy individual project action SEPA requirements such as the review required for future land use or building permit applications. Additional detailed environmental review of development proposals and transportation projects will occur as specific projects are moved into the implementation phase.

1.2.1. Transportation Facilities Plan Non-Project Environmental Analysis

Based on comments received from the general public and decision-makers, the City determined that the scope of this environmental analysis should focus on potential impacts on the following resource areas:

- transportation;
- air quality;
- noise;
- land use and aesthetics; and
- the natural environment.

Chapters 3 through 7 of this document discuss potential impacts on these resources which may result from the Proposed Action. System-wide qualitative and quantitative analyses are presented in this document. Project-specific impacts are not addressed.

1.2.2. Previous Environmental Review

The final EIS for the Bel-Red Corridor Project was published on July 19, 2007. The EIS included an analysis of the preliminary preferred alternative and a comparison of its environmental impacts to those of four land use and transportation alternatives studied in the draft EIS. The Bel-Red Corridor is a 900-acre area that stretches between SR 520 and Bel-Red Road, extending from I-405 to 148th Avenue NE. The study area corresponds to Mobility Management Area 12 (described later in this document). Environmental assessment was completed in the areas of air quality, watershed processes, noise, environmental health, land use, recreation, population, housing and employment; aesthetics; transportation; and public services and utilities. The Final Environmental Impact Statement for the Bel-Red Corridor Project (City of Bellevue 2007) is incorporated by reference.

1.2.3. Relationship to Growth Projections

This EIS presents the potential citywide impacts that could occur if or when two things happen:

1. The City's 12-year land use growth projections are realized (See Appendix C); and
2. The City's transportation facilities are upgraded based on the projects identified in the City's adopted CIP and/or the proposed TFP.

City staff and developers rely on the TFP EIS for disclosure of the cumulative impacts of growth on the built and natural environment. This analysis is used for the review and approval of development applications. However, because this is a non-project EIS, it is not possible to predict the exact location or amount of new development between 2009 and 2020. In addition, new development may be permitted on parcels for which the land use estimates did not project sufficient growth; therefore, the analysis presented in this EIS must be regarded as a comparison of potential impacts rather than a strict projection. Actual land use growth and its impacts on the

transportation system and other elements of the built and natural environment are not likely to exceed the cumulative land use projections and impacts disclosed in this TFP EIS.

If future growth exceeds estimates used in this EIS analysis, the City can address these changes by one, or a combination of, the following options:

- Address the additional growth and impacts as part of a future TFP EIS. The TFP and its related EIS are updated approximately every two years. Updates area a crucial part of the process so that the reality of actual development patterns, updated land use growth projections, adjustments to the existing transportation network and the evolution of future transportation plans are reflected in the citywide impact analysis.
- Issue a supplement to the 2009–2020 TFP EIS to incorporate the additional land use growth and its associated impacts.
- Require the development to implement additional transportation system improvements, reduce the scope of the proposed development, or defer the development until the CIP and/or TFP are updated to include such improvements. Improvements required of developers as part of the development review process are included in subsequent TFP networks, once those improvements are guaranteed for implementation.

1.2.4. Next Steps in the Environmental Process

This Draft EIS will be circulated for a 30-day public review period to invite written comments from the general public, tribes, permitting agencies, and agencies with jurisdiction over the areas where the TFP projects may have potential environmental impacts. A Final EIS, which will provide responses to comments received during the Draft EIS comment period, will be prepared following the close of the30-day Draft EIS comment period. Following completion of the Final EIS, the Bellevue City Council will make its decision on the TFP.

1.3. Summary of Alternatives

Two alternatives are considered for the 2009–2020 TFP and are analyzed in this environmental document. These alternatives are described in detail in Chapter 2 of this Draft EIS.

1.3.1. No Action Alternative

The No Action alternative (Alternative 1) encompasses all of the projects that the City, along with its local jurisdiction and regional agency partners, has presently committed to fund and implement within the city limits. There are 17 projects proposed as part of the No Action alternative, of which nine are focused on pedestrian and bicycle improvements and eight are focused on roadway capacity improvements. The No Action alternative does not include the unfunded projects in the 2006–2017 TFP. Because this alternative is based on existing project plans with secured funding, it is considered a “no action” alternative. The Bellevue City Council is not required to take any additional action to implement the No Action alternative if it chooses

not to adopt the proposed 2009–2020 TFP. This is consistent with the No Action alternatives defined in the 2004–2015 TFP and the 2006–2017 TFP.

1.3.2. Proposed Action Alternative

The Proposed Action alternative (Alternative 2) contains all the projects included in the No Action alternative (17 projects) plus additional capacity, safety/operational and non-motorized projects. Revenue available to fund the additional projects is approximately 65% of the total available funding for the 12-year plan period. The additional 52 projects include 33 additional capacity projects, two safety/operational projects, and 17 additional pedestrian and bicycle projects. 33 of the 41 total capacity projects are designated as impact fee projects, as the improvement is expected to be implemented and open for use by 2020. Figure 1-1 shows the location of these proposed 2009–2020 TFP projects. The figure also indicates the Mobility Management Area (MMA) in which the proposed projects are located. An MMA is a geographic area used to analyze transportation systems. The City is divided into 14 MMAs, which are described further in Chapter 2 of this Draft EIS.

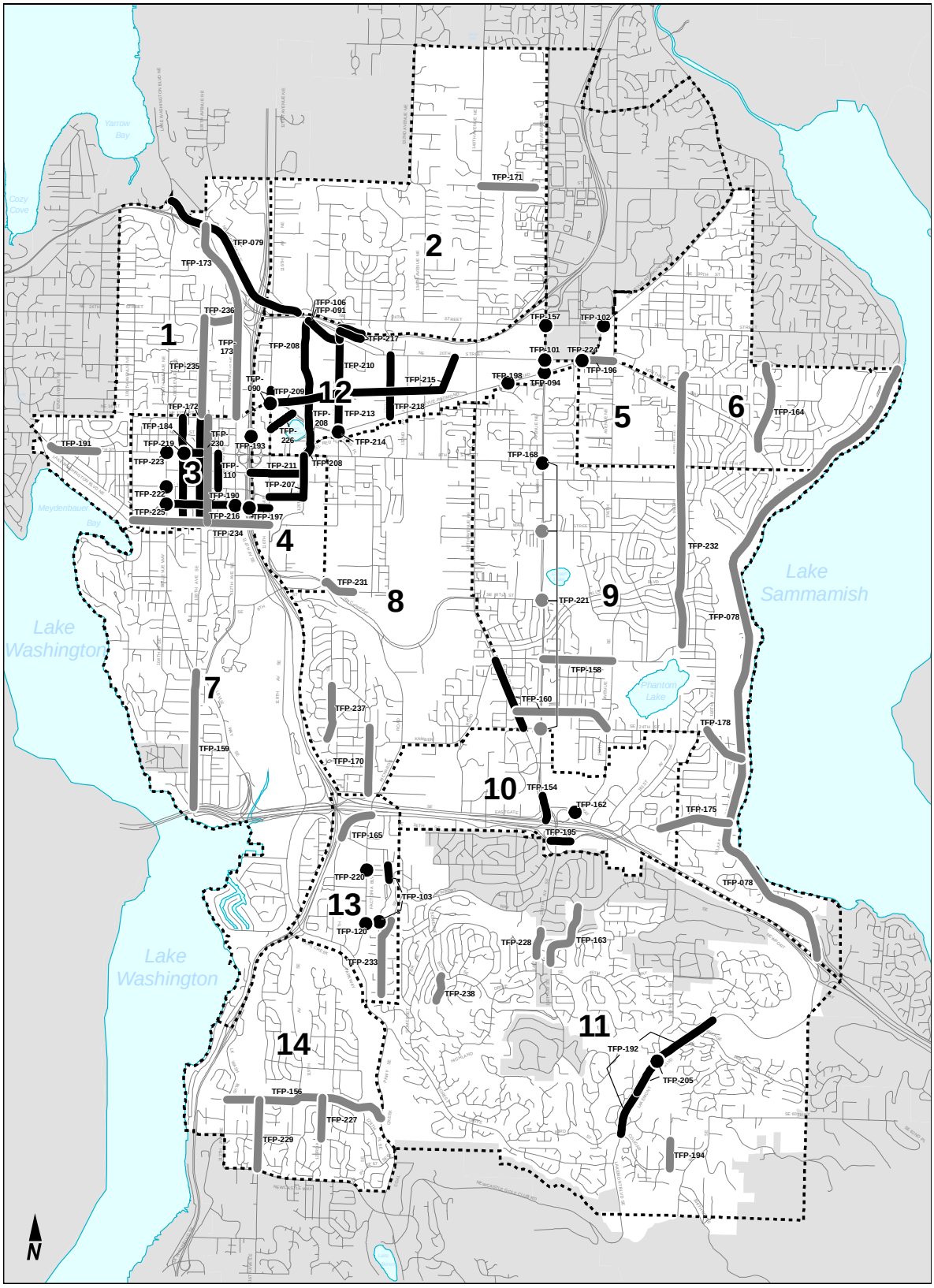


Figure 1-1. Proposed 2009-2020 Transportation Facilities Plan Projects

1.4. Summary of Potential Impacts and Mitigation Measures

The full text of the Affected Environment, Impacts, and Mitigation Measures section of the Draft SEIS is presented in Chapters 3 through 7. Summary statements presented in Table 1-1 are considerably abbreviated from the full discussion and do not include explanations of terminology. Summary statements of the potential impacts also appear here in the absence of the context of existing environmental conditions (the Affected Environment). For those reasons, readers are encouraged to review the more comprehensive discussion of issues of interest in Chapters 3 through 7 to formulate the most accurate impression of impacts associated with the Proposed Action and No Action alternatives.

Table 1-1. Summary of Potential Impacts of the No Action Alternative and Proposed Action Alternative

Subject	No Action Alternative	Proposed Action Alternative
Transportation		
Impacts	**System Performance** Volumes on arterials would increase at a rate consistent with the average over the next 12 years. As development, population, and traffic volumes increase, intersections in all Mobility Management Areas are predicted to operate at worsened LOS between now and 2020. Areas with the greatest increase in traffic volumes are the Downtown, Bel-Red/Northup and Bridle Trails MMAs. In Downtown, increases greater than 60% are projected on some roadways between now and 2020. In the Bel-Red area, increases at some locations are projected to exceed 100%. In the Bridle Trails area, traffic volumes at many locations are projected to range between 30% and 50%. In general, the change of 2020 roadway volumes over existing are projected to be within 5% of each other, under the No Action and the Proposed Action alternatives; with No Action volumes a little higher at some locations, and Proposed Action volumes a little higher at others. MMA 11 is forecasted to exceed its V/C standard of 0.80 under both the No Action and the Proposed Action alternatives, although it exceeds the standard by less under the Proposed Action. **Neighborhood Impacts** The proposed capacity projects under the No Action alternative and Proposed Action alternative do not directly respond to residents' concerns about	**System Performance** As described under the No Action alternative. **Neighborhood Impacts** Because there are more capacity projects under the Proposed Action alternative, it may reduce neighborhood cut-through traffic to a greater extent than the No Action alternative. **Safety** As described under No Action. Proposed action projects that address safety issues are TFP-196 (NE 20th St U-turn) and TFP 221 (148th Ave intersection safety and reliability). **Pedestrian/Bicycle Impacts** The greater number of projects included under the Proposed Action alternative may result in greater improvement to non motorized mobility than under No Action.

Subject	No Action Alternative	Proposed Action Alternative
	speeding on their neighborhood streets. Capacity projects can reduce spillover traffic onto local streets by improving the traffic flow on the City's main arterials Because there are fewer capacity projects than under the Proposed Action alternative, the No Action alternative may reduce neighborhood cut-through traffic to a lesser extent than the Proposed Action alternative. **Safety** The TFP identifies projects at specific locations to address inherent design or engineering deficiencies that may result in accidents. In some cases, capacity projects help resolve hazards resulting from traffic congestion; or projects such as the addition of turning lanes may improve safety by lowering the number of potential vehicle conflict points. Sidewalk and bicycle projects improve safety conditions for pedestrians and bicyclists by separating them from vehicular traffic. In addition, some projects are specifically designed to correct problems in high accident areas. **Pedestrian/Bicycle Impacts** Fewer projects are included under the No Action alternative, potentially leading to less improvement to non motorized mobility than under the Proposed Action.	
Mitigation Measures	Overall, the capacity, safety/operational and non-motorized projects included in both alternatives would reduce congestion, improve mobility, and improve safety for vehicular traffic, bicyclists and pedestrians. The Proposed Action alternative includes more projects than the No Action alternative, and thus is expected to improve overall safety and mobility conditions to a greater extent. Since the projects included in both alternatives would be expected to improve transportation conditions, no mitigation is recommended.	
Unavoidable Adverse Impacts	MMA 11 in South Bellevue is forecast to exceed its adopted level of service (LOS) standard of 0.80 V/C under both the No Action and the Proposed Action alternatives. No other significant unavoidable adverse impacts on the transportation system were identified as a result of either alternative.	
Air Quality		
Impacts	Future Mobile Source Air Toxic (MSAT) emissions likely to be lower in most cases. Compared to the Proposed Action alternative, the No Action alternative would result in fewer roadway and intersection widening improvements, resulting in a lower potential for localized areas of ambient concentrations of MSAT emissions.	Future MSAT emissions likely to be lower in most cases. The proposed roadway and intersection widening improvements in the Proposed Action alternative would move some traffic closer to homes and businesses; therefore, there may be localized areas where ambient concentrations of MSAT emissions could be higher with the Proposed Action alternative than under the No Action alternative.

Subject	No Action Alternative	Proposed Action Alternative
	Greenhouse Gases Estimated (Green House Gas) GHG Emissions: 607,129 metric tons/year **Construction Impacts** Potential construction impacts would be temporary and localized and could include dust; diesel, heavy truck, and equipment emissions; and odors. Construction equipment and materials hauling could also affect traffic flow on city streets, which could temporarily affect air quality. **Transportation Conformity Analysis** Modeled ambient carbon monoxide (CO) concentrations at all intersections are below the allowable federal limits under 2020 conditions. The No Action alternative would have no significant impacts on localized air quality.	**Greenhouse Gases** Estimated GHG Emissions: 606,764 metric tons/year **Construction Impacts** As described under No Action. **Transportation Conformity Analysis** Modeled ambient CO concentrations for the Proposed Action alternative are less than those for the No Action alternative. Modeled ambient CO concentrations at all intersections are below the allowable federal limits under 2020 conditions. The Proposed Action alternative would have no significant impacts on localized air quality.
Mitigation Measures	**Incorporated Plan Features** The City should require all construction contractors to implement air quality control plans for construction activities. The air quality control plans should include best management practices (BMPs) to control fugitive dust and odors emitted by diesel construction equipment. During construction, dust from excavation and grading could cause temporary, localized increases in the ambient concentrations of fugitive dust and suspended particulate matter. The City should adopted fugitive dust control measures specified in the brochure "Guide to Handling Fugitive Dust from Construction Project" published by the Washington Associated General Contractors of Washington. The following BMPs would be used to control fugitive dust. ▪ Use water sprays or other non-toxic dust control methods on unpaved roadways. ▪ Minimize vehicle speed while traveling on unpaved surfaces. ▪ Prevent track-out of mud onto public streets. ▪ Cover soil piles when practical. ▪ Minimize work during periods of high winds when practical. Typical mitigation measures to minimize air quality and odor issues caused by tailpipe emissions include the following: ▪ Maintain the engines of construction equipment according to manufacturers' specifications. ▪ Minimize idling of equipment while the equipment is not in use. ▪ Locate stationary equipment as far as practical from sensitive receptors. **Applicable Regulations and Commitments** As part of future project-specific SEPA and NEPA documentation for individual new roadway improvement projects, the City would be required to conduct CO hot-spot modeling (as required under WAC 173-420) to demonstrate that the projects would not cause localized impacts related to increased CO emissions from vehicle tailpipes at congested intersections. **Other Potential Reduction Measures** The City could identify GHG reduction measures in their projects, and explain why other measures are not included or are not applicable.	
Unavoidable Adverse Impacts	No significant unavoidable adverse impacts on regional or local air quality are anticipated. Temporary, localized dust and odor impacts could occur during the construction activities.	

Subject	No Action Alternative	Proposed Action Alternative
Noise		
Impacts	Construction of roadways would temporarily increase noise levels at residential locations in the vicinity of the construction site. Noise increases would result both from on-site construction activities, especially during site preparation, grading, and other earthmoving activities, as well as from construction-related vehicle traffic delivering materials to and from the construction site The increase in noise levels will be nearly the same (1 dB or less) for roadways under both alternatives, and potential impacts in year 2020 are predicted to be the same for both alternatives. Background growth between the years 2006 and 2020 is a more significant driver of traffic noise levels in the future than demand for specific projects. For all roadway segments, none of the traffic noise levels are predicted to increase by 5 dB or more due to implementation of the Proposed Action alternative. Traffic noise levels at residential locations are predicted to exceed the city threshold of 67 dBA Leq along certain arterial roadways under existing conditions as well as under the No Action or Proposed Action alternatives. Since noise levels are predicted to exceed city thresholds for arterial improvement projects along certain roadways, this impact is considered potentially significant, and a detailed acoustical analysis of the proposed projects affecting these roadways may be required.	
Mitigation Measures	**Construction Noise** Roadway construction occurring outside of exempt hours should follow noise-reducing construction practices ensuring that city noise ordinance standards are not exceeded. Measures to limit noise include, but are not limited to: ▪ locating equipment as far as practical from noise sensitive uses; ▪ using equipment that is quieter than standard equipment; ▪ selecting haul routes that affect the fewest number of people; ▪ using noise-reducing enclosures around noise-generating equipment; ▪ constructing barriers between noise sources and noise sensitive land uses; ▪ establishing a 24-hour complaint hotline; and ▪ in exceptionally loud cases where nighttime noise limits can't be achieved, offer temporary hotel rooms. **Traffic Noise** Noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Potential noise abatement measures include the following: ▪ Avoiding the impact by using design alternatives, such as altering the horizontal and vertical alignment of the project; ▪ Constructing noise barriers; ▪ Acquiring property to serve as a buffer zone; ▪ Using traffic management measures to regulate types of vehicles and speeds; and ▪ Acoustically insulating public-use or nonprofit institutional structures. Sound walls are generally the most common and effective measure to reduce noise levels. However, in the project area, sound walls may not be desirable because of their effects on community cohesion, safety, and aesthetics. "Quiet pavements", such as rubberized asphalt are sometimes considered as an effective measure to reduce traffic noise levels due to noise from the tire-pavement interface. Rubberized asphalt would be minimally effective for this project because since travel speeds on surface streets are lower than on highways, the primary source of vehicle noise is expected to be car and truck engines and exhaust, not tire noise. A detailed noise analysis would determine which, if any, mitigation measures would be acoustically effective. In order to meet approval, noise barriers should be studied	

Subject	No Action Alternative	Proposed Action Alternative
	in detail to determine that they do not conflict with existing utility and safety requirements.	
Unavoidable Adverse Impacts	The number of residential areas within the City predicted to be exposed to traffic noise levels exceeding 67 dBA Leq will increase from 2006 to 2020. Future traffic noise levels are basically equivalent between the two alternatives. Most residential areas within the City require access to the roadways where traffic noise impacts are predicted to occur under the either alternative. This access requirement would conflict with placement of a noise barrier as a potential mitigation measure for impacted residences that have driveway access to these roadways. Therefore, detailed analyses could conclude that future traffic noise impacts might be significant and unavoidable.	
Land Use and Aesthetics		
Impacts	**Land Use Patterns** During construction, short- term impacts could include vehicular and pedestrian detours, loud noise, and construction dust. These impacts could impact localized uses and activities over the short term. Long term land use impacts could result from the following: ▪ If traffic noise and pollution levels become intrusive for nearby structures, they could make affected buildings less desirable for tenants and/or could lead to the need for investment in abatement measures. ▪ Displacement of driveways, removal of parking areas, landscaping and public facilities may require reorienting entrances or similar features. ▪ Direct displacement or removal of parking spaces, especially parking areas located between streets and buildings. ▪ Acquisition of entire parcels or large parts of existing parcels for rights-of-way, especially for construction of new roadways. ▪ Two projects under both alternatives have the potential for right-of-way acquisition to affect buildings and land uses. **Plans and Policies** The No Action alternative projects are consistent with the City's vision statement and goals and policies of the land use and transportation elements of the Comprehensive Plan. **Aesthetics** The major impact would be the change in character of the roadway as perceived by an observer not on the roadway, or a change in character of the environment by the observer from the roadway. This can occur by adding	**Land Use Patterns** Impacts would be as described under No Action. However, the Proposed Action includes 51 projects not included in No Action, so greater potential for these impacts. Nine additional projects have the potential for right-of-way acquisition to affect buildings and land uses, as compared to No Action. **Plans and Policies** The transportation projects included in the Proposed Action alternative but not considered under the No Action alternative are consistent with the City's vision statement and the goals and policies of the City's land use and transportation elements of the Comprehensive Plan. **Aesthetics** Generally, the Proposed Action is expected to improve consistency and character by filling in missing segments of streetscape, sidewalk and/or bicycle lanes. May transform character from lower intensity suburban to the urbanized standard envisioned in the Comprehensive Plan.

Subject	No Action Alternative	Proposed Action Alternative
	elements of an urban environment to an area with a more rural character, reduce landscaping and change road configurations, or affect view corridors.	
Mitigation Measures	**Land Use Patterns** ▪ Prepare a relocation plan for displaced residential or commercial uses. ▪ Remove or relocate underground storage tanks and other hazardous materials if displacement of gas station occurs. ▪ Redesign and reconfigure parking areas to minimize the number of lost spaces. Potential parking lot redesign measures include: providing a greater area for compact car spaces with smaller dimensions, reducing aisle width by designing one-way circulation systems within the lots, and reducing the width of perpendicular spaces by using angled stalls. ▪ Where possible, minimize the loss of existing buildings and land uses in development of new transportation corridors and/or realignment of existing transportation corridors. ▪ Mitigate land acquisition impacts by combining parcels that are not used for sale with adjacent parcels and incorporating undeveloped parcels into roadway designs. ▪ Minimize the loss of landscaping and vegetation by shifting street alignments to avoid significant stands of vegetation; preserving significant specimen trees within sidewalk and planting strips by meandering sidewalks; preserving significant stands of vegetation adjacent to roadways by installing sidewalks on one side of the street, where pedestrian volumes and hazard potentials are low; and reducing the extent of cleared areas by using retention structures, where practical in place of long, fill slopes. **Plans and Policies** ▪ Any transportation facility projects not identified within the City's Comprehensive Plan or associated subarea plans should be included in a Comprehensive Plan amendment to maintain consistency between the 2009–2020 TFP and the City's Comprehensive Plan. **Aesthetics** ▪ Preserve natural vegetation to the greatest extent possible. ▪ Replace landscaping, including street trees when roadway widening or realignment removes landscaping and street trees. ▪ Design and align new transportation corridors and other improvements to minimize adverse aesthetic impacts, particularly in residential neighborhoods. ▪ Implement consistent streetscapes along roadway corridors by using common designs for streets and freeway structures and common landscaping and street trees to provide visual unity. ▪ Coordinate closely with adjacent land owners to identify significant features that should be considered for retention or replacement in design improvements. ▪ Relocate utility lines underground.	
Unavoidable Adverse Impacts	The areas most likely to be impacted by the 2009–2020 TFP are Downtown (MMA 3), Bel-Red (MMA 12) and Wilburton (MMA 4). These areas correspond to the major activity centers in the City. It is consistent with Comprehensive Plan policies that infrastructure improvements are focused in these areas. However, it is likely that any adverse impact generated by the projects in the Proposed Action alternative could be mitigated to be consistent with city policies. Permanent effects to buildings related to transportation projects are considered a potential significant adverse impact. Two projects under the No Action and Proposed Action alternatives, TFP-094 and TFP-184, have the potential for right-of-way acquisition to affect land uses. Under the Proposed Action alternative, nine additional projects have the potential to displace land uses by creating new roads and/or re-aligning existing. Four of these projects (TFP-197, TFP-207, TFP-211,	

Subject	No Action Alternative	Proposed Action Alternative
	and TFP-216) continue the Downtown street grid and/or provide access to/from I-405 to the northern portion of the Wilburton area. Five of these projects (TFP-193, TFP-208, TFP-209, TFP-215 and TFP-226) create a street grid or realign streets in the Bel-Red area, or make I-405 access improvements in support of anticipated growth and redevelopment of this area. All nine projects hold the greatest possibility for acquiring property for right-of-way which may result in displacing pre-existing buildings, on-site parking, and/or landscaping. No other significant unavoidable adverse impacts on land use and aesthetics were identified as a result of either alternative.	
Natural Environment		
Impacts	**Geology and Soils** Construction activity in potentially unstable ground could destabilize hillsides, if mitigating measures, such as groundwater interception, engineered retaining systems, or bridges, are not employed. Specific projects located in the vicinity of slopes greater than 40% included portions of TFP-159 and several segments of TFP-178. Additional areas may be identified during project-level review. **Wetlands** None of the proposed projects are anticipated to impact wetlands. **Aquatic Resources** Potential impacts resulting from implementation of proposed projects included under the No Action alternative will be the same as impacts associated with the Proposed Action alternative. Specific projects which may impact aquatic resources are TFP-078, TFP-079, TFP-091, TFP-106, TFP-156, TFP-163, and TFP-175. Additional areas may be identified during project-level review. Most of the proposed projects would result in an increase in impervious surface, specifically those that would provide additional lanes for traffic on existing roads, new road segments, and the construction of bicycle lanes and sidewalks. The potential for increased pollution from stormwater runoff is greater for those projects that would provide for additional motorized capacity (i.e. an increase in pollution generating surfaces). As there are fewer projects included in the No Action alternative, a lower level of impact related to increased impervious surface would result, as compared to the Proposed Action alternative. **Wildlife and Vegetation** Potential impacts resulting from implementation of proposed projects included under the No Action alternative will be the same as impacts associated with the Proposed Action alternative. TFP-159 could potentially impact bald	**Geology and Soils** As described under the No Action alternative. **Wetlands** Under the Proposed Action alternative, eleven proposed projects could potentially impact wetlands. These projects are TFP-158, TFP-168, TFP-171, TFP-173, TFP-197, TFP-208, TFP 210, TFP-221, TFP-231, TFP-234, and TFP-236. The actual extent of on-site wetlands, as well as wetland functions and values, would be assessed at the time of project-level environmental review for each of the proposed projects. **Aquatic Resources** As described under the No Action alternative. **Wildlife and Vegetation** As described under the No Action Alternative. **Shorelines** Project-level analysis will be conducted on individual projects to determine impacts on shorelines and whether a conditional use permit would be required for the proposed activity. Project TFP 221 is the replacement of traffic signals and so is unlikely to result in shoreline impacts. Project TFP-078 is being designed to allow for improvements to fish passage, water quality, and storm drainage and so may improve shoreline conditions. Cumulatively, the increase in impervious surface from the proposed projects may negatively impact shoreline functions by increasing run-off and associated pollutant loads to receiving water bodies. Stormwater treatment will be evaluated at the project level.

Subject	No Action Alternative	Proposed Action Alternative
	eagles. Additional areas may be identified during project-level review **Shorelines** Project-level analysis will be conducted on individual projects to determine impacts on shorelines and whether a conditional use permit would be required for the proposed activity. Project TFP 078 is being designed to allow for improvements to fish passage, water quality, and storm drainage and so may improve shoreline conditions.	
Mitigation Measures	**Geology and Soils** Site-specific earth resource impacts will be evaluated and mitigated through the environmental review process for individual projects. It is assumed that all road improvements proposed will conform to city policies and regulations, particularly in accordance with BCC 20.25H125. Roadway development in areas of potentially unstable slopes would be mitigated to ensure stability and safety during and after construction. As part of project-specific design and review, alternative alignments within the same basic corridors that reduce disturbance to critical areas would be examined. **Wetlands** If a project results in impacts on wetlands, performance standards described in BCC 20.25H.100 would be implemented. **Aquatic Resources** If a project results in impacts on aquatic resources, performance standards described in BCC 20.25H.080 would be implemented on sites with a Type S or F stream or associated buffer. **Wildlife and Vegetation** If it is found that a species of local importance, or potentially suitable habitat for a species of local importance, is present in a project area, performance standards described in BCC 20.25H.160 would be implemented. If performance standards cannot be met due to infeasibility, mitigation measures would be implemented, as described in BCC 20.25H.210 through 20.25H.225. This would require the development of a wildlife management plan in consultation with the WDFW. A habitat assessment consisting of an investigation of the site to evaluate the potential presence or absence of designated species of local importance or habitat for species of local importance would also be required. **Shorelines** No impacts on shorelines are anticipated at this time; therefore, no mitigation is suggested. However, if during project specific review, impacts on shorelines are identified, mitigation measures would be put in place. Project TFP-078 is being designed to allow for improvements to fish passage, water quality, and storm drainage and so may improve shoreline conditions. If other projects result in similar impacts, similar design features could be considered.	
Unavoidable Adverse Impacts	Significant adverse impacts will be avoided or minimized through implementation of mitigation measures as described in section 7.3. Although proposed projects will be designed to minimize or avoid adverse impacts, it is possible that such impacts may occur. Proposed projects would result in an increase in pollution generating impervious surfaces within the City, and would reduce the amount of vegetative cover available. Although stormwater would be treated to the extent possible, and current best management practices would be employed to reduce volumes of stormwater runoff from reaching streams or rivers, the increase in impervious surface would likely result in an increase in stormwater volumes entering streams and rivers, and a corresponding increase in associated pollutants and ongoing erosion and habitat impacts. If no feasible mitigation measures are identified during project-level environmental analysis to mitigate these effects, a significant unavoidable adverse impact would occur.	

Chapter 2. Description of Alternatives

This chapter describes the two alternatives considered in this EIS: the No Action alternative and the Proposed Action alternative. In addition, background information about the TFP, its relationship to the City's other plans, and potential funding sources are discussed.

2.1. Background

The TFP is a 12-year transportation program which includes a listing of planned improvements balanced with projected revenues. This program is one phase in the City's multi-phased approach to planning for future transportation improvements, which is illustrated in Figure 2-1.

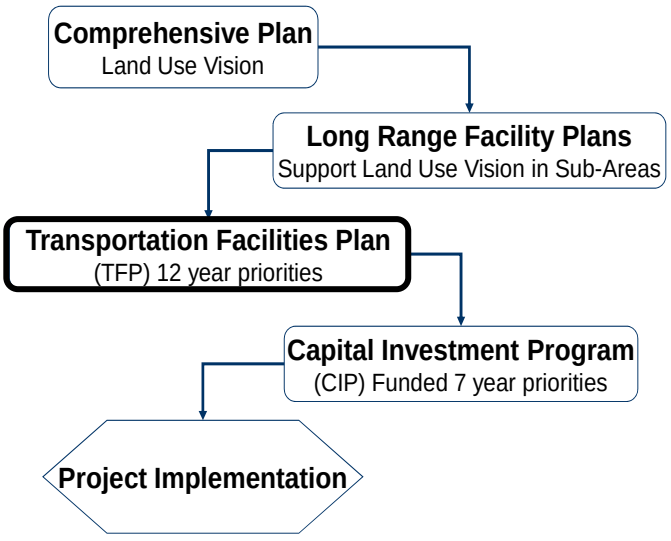


Figure 2-1. Transportation Planning Process

The components of the transportation planning process are described as follows:

- The Comprehensive Plan outlines the City's long-term (over 20 years) land use vision, and identifies the infrastructure and services needed to support that vision. It provides a broad statement of community goals and policies that direct the orderly and coordinated development of the City into the future. It serves as a guideline for designating land uses and infrastructure development as well as developing community services. The Comprehensive Plan is organized into two volumes: Volume 1 contains framework goals and general elements and Volume 2 contains subarea and long-range facility plans. The City updates its Comprehensive Plan in accordance with the Washington State Growth Management Act (GMA). (City of Bellevue 2008a)
- Long range facility plans, which are adopted into the Comprehensive Plan for various subareas of the city or for specific components of the transportation system, include a wide range of improvement projects designed to meet the mobility goals of the subarea (as established in the Comprehensive Plan). The Comprehensive Plan currently includes transportation facility plans for the Bel-Red/Overlake, Bridle Trails/Crossroads, Downtown, East Bellevue (including Factoria) and Newcastle areas. It also includes the Pedestrian and Bicycle Transportation Plan.
- The Transportation Facilities Plan (TFP) serves as the City's transportation implementation plan, constrained by identified City and other revenues that are projected for the next 12 years. The goal of the TFP is to identify the transportation facilities needed to implement the City's transportation policies in the Comprehensive Plan. The TFP is comprised of priority projects detailed in the long-range facility plans and other projects that represent emerging transportation facility needs and opportunities.
- The Capital Investment Program (CIP) provides a minimum six-year period (the City adopts a seven-year CIP every two years) for implementation of TFP projects that are likely to be needed in the short term. It also includes programs that are not in the TFP; this additional funding supports operational, safety, and maintenance needs identified by City staff, the public and other sources. The Bellevue City Council commits full or partial implementation funding to all CIP projects and programs through the City's biennial budget update process. The proposed 2009–2020 TFP is consistent with the recently adopted 2009-1015 CIP.

2.2. Funding Sources Supporting the Transportation Facilities Plan

2.2.1. City Revenue Sources

Over the next 12 years, the transportation projects in the TFP are projected to receive funding from a variety of sources, including:

- Transportation-dedicated taxes and fees such as fuel and real estate excise taxes.

- General CIP revenue comprised of that portion of the City's sales and business and occupation taxes dedicated to capital improvements.
- Grants and contributions from other agencies such as the federal government, the state, King County, and the City of Redmond (under the terms of the Bel-Red/Overlake Transportation Study [BROTS]).
- Impact fees and other developer contributions required from new development.
- Local Improvement Districts collect property assessments based upon an increase in property value attributable to specific transportation facility improvements.

During the late 1990s, the City spent about 55% of new transportation revenues on capacity projects and 45% on safety, maintenance, and other non-capacity projects such as walkways and bikeways. The distribution of funding began to shift with the 2001–2012 TFP, which saw a four percentage point increase in capacity spending. The focus on capacity funding continued with the 2004–2015 TFP with 66% of funding dedicated to capacity projects. This increase was due primarily to an emphasis on pre-design only funding for the non-capacity projects, while capacity projects received construction funding. In the proposed 2009–2020 TFP, the percentage of capacity funding remains higher than the historical average because the mix of projects has been prioritized to meet emerging capacity needs associated with the current development boom.

2.2.2. Developer Impact Fees

The Traffic Standards Code requires a developer to upgrade an intersection or make other capacity improvements when projected vehicle trips from a proposed development exceed a certain threshold and contribute to a substandard level of service. While the TFP is a 12-year program, the Code requires the approval of development projects be based on roadway improvements fully funded in the City's CIP. The City will construct the projects in the CIP without additional participation by the developer, except for payment of impact fees. For development approval, the developer must fund any other needed facility improvements that are not included in CIP. Facility improvements or the value of real property dedicated for improvements included in the TFP that are implemented or provided by a developer (roadway or intersection capacity projects only) may be credited against the impact fee owed by that developer. However, if the improvement is not in the TFP, the developer does not get a fee credit for its implementation.

All TFP capacity projects, including those funded in the CIP, provide the basis for the calculation and collection of impact fees. Therefore, alternative TFP strategies, in conjunction with the Code, can affect the cost of development in two ways:

1. If an alternative includes significant capacity improvements, there may be fewer requirements that developers provide their own congestion mitigation. In this scenario calculated impact fees will be higher to help fund the implementation of the TFP alternative.
2. If an alternative provides fewer capacity improvements, it can result in lower impact fees and may also reduce planned and funded road improvements that developers can count on to

mitigate transportation impacts, potentially increasing the mitigation requirements imposed directly on specific development projects.

The remaining discussion in this chapter focuses on the TFP project strategies analyzed in this Draft EIS.

2.3. Traffic and Land Use Forecasts

For the purpose of this Draft EIS, it is assumed that each alternative set of transportation projects will be built upon the transportation network that existed at the end of 2006. Future traffic counts were forecasted using the 2020 Bellevue-Kirkland-Redmond (BKR) model, which is based on the 2020 Land Use forecast provided by the Department of Planning and Community Development. Both alternatives have been evaluated using two land use scenarios: the 2008 existing land use distribution was used as a benchmark to test the 2020 land use projections. By using the same land use distributions, the effects of land use are assumed to be the same for both alternatives. Appendix C contains the land use projection tables.

2.4. Alternative Descriptions

Two alternatives are considered for the 2009–2020 TFP and are analyzed in this environmental document: the No Action alternative and the Proposed Action alternative. This section presents a description of each alternative and associated projects. The locations of the projects are shown in Figure 1-1. Capacity and non-motorized projects for each alternative are presented by Mobility Management Area (MMA), which is a geographic area the City uses to analyze transportation systems. The City is divided into 14 MMAs, which are shown in Figures 1-1 and D-1 (see Appendix D) and listed in Table 2-1.

Table 2-1. Mobility Management Areas

MMA Number	Geographic Area
1	North Bellevue
2	Bridle Trails
3	Downtown
4	Wiburton
5	Crossroads
6	Northeast Bellevue
7	South Bellevue
8	Richards Valley
9	East Bellevue
10	Eastgate
11	Newcastle
12	Bel-Red
13	Factoria
14	Newport Hills

Following the discussion of each alternative and its associated projects, Table 2-6 presents a list of full project descriptions. The table indicates the alternative, CIP number (if applicable) and whether the project is a capacity project, an impact fee project, or both. The table also indicates the project's MMA. Maps illustrating the location of the projects in each MMA follow the project descriptions at the end of this chapter.

2.4.1. No Action Alternative (Alternative 1)

The No Action alternative (Alternative 1) encompasses all the projects that the City, along with its local jurisdiction and regional agency partners, has presently committed to fund and implement within the City limits. There are 17 projects proposed as part of the No Action alternative, of which nine are focused on pedestrian and bicycle improvements and eight are focused on roadway capacity improvements (see Figure 2-2). It does not include the unfunded projects in the 2006–2017 TFP. Because this alternative is based on existing project plans with secured funding, it is considered a "no action" alternative. The City Council is not required to take any additional action to implement the No Action alternative if it chooses not to adopt the proposed 2009–2020 TFP. This is consistent with the No Action alternatives used in the 2004–2015 TFP and the 2006–2017 TFP.

The No Action alternative projects are primarily projects from the previous 2007–2013 CIP that have not yet been completed. All eight of the No Action capacity projects are designated as having an input into the City's impact fee calculations (i.e., projects with impact fee capacity elements). Figure 2-2 shows the distribution of those capacity elements among roadway widening projects and intersection projects. The remaining nine projects focus primarily on enhancing the pedestrian and bicycle networks. Figure 2-2 shows the distribution of non-motorized projects between walkway only and combined walkway/bikeway.

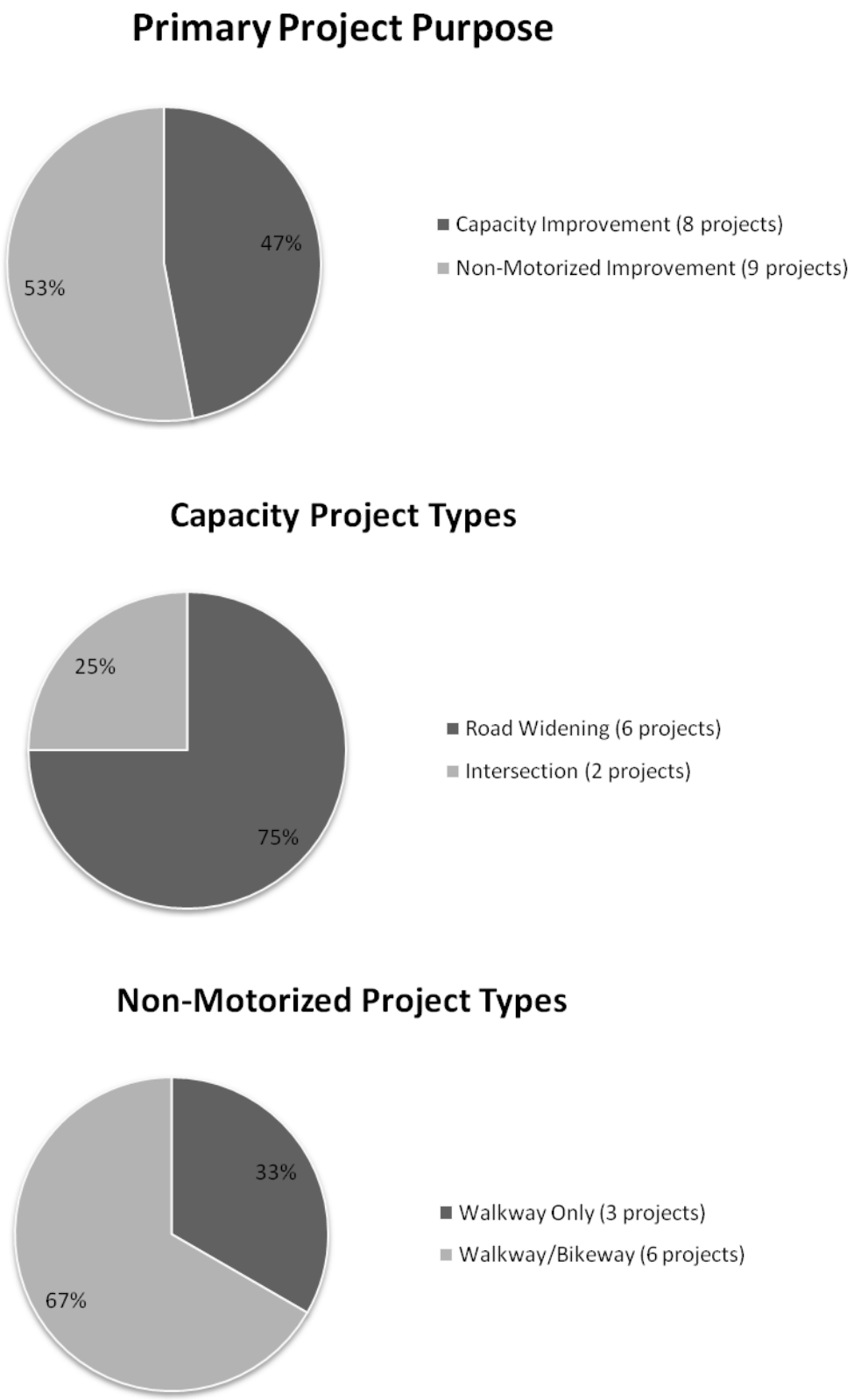


Figure 2-2. Distribution of Project Types under the No Action Alternative

Table 2-2 summarizes capacity projects by MMA under the No Action alternative. The table shows that capacity projects under the No Action alternative are primarily located in the Downtown and Bel-Red MMAs.

Table 2-2. Capacity Projects–No Action Alternative

MMA	TFP Number	CIP Number	Project Location
2 Bridle Trails	079	R-146	Northup Way / Bellevue Way NE—NE 24th Street
3 Dowtown	110	R-139	110th Ave NE / NE 4th Street—NE 8th Street
	190	R-150	NE 2nd Street / Bellevue Way NE—112th Avenue NE
	184	R-152	NE 8th Street / 108th Avenue NE—106th Avenue NE
9 East Bellevue	160	R-151	145th Place SE / SE 16th Street to SE 24th Street; and SE 22nd St / 145th Place SE—156th Avenue SE
12 Bel-Red	091/106	R-133	Northup Way / 120th Avenue NE—124th Avenue NE
	094	I-76	148th Avenue NE / Bel-Red Road
	101	I-78	148th Avenue NE / NE 20th Street

Table 2-3 summarizes non-motorized projects by MMA under the No Action alternative.

Table 2-3. Non-Motorized Projects–No Action Alternative

MMA	TFP Number	CIP Number	Project Location
1 North Bellevue	191	WB-73	NE 8th Street / Lake Washington Boulevard—96th Avenue NE
7 South Bellevue	159	WB-71	108th Avenue SE / Bellevue Way SE—I-90
8 Richards Valley	170	WB-76	128th Avenue SE / SE 25th Street—SE 32nd Street
9 East Bellevue	078	R-141	West Lake Sammamish Parkway / North city limit—I-90
	175	WB-75	SE 34th Street / 162nd Place—West Lake Sammamish Parkway
	178	WB-76	SE 26th Street / SE 24th Street—West Lake Sammamish Parkway
11 Newcastle	163	WB-74	152nd Avenue and SE 45th Street / SE 46th Street—SE Newport Way
	238	WB-76	Somerset Avenue SE / SE Somerset Boulevard—136th Place SE
14 Newport Hills	156	WB-72	SE 60th Street / Lake Washington Boulevard—Coal Creek Parkway

Often, non-motorized system enhancements are made in conjunction with other improvements. Under the No Action alternative, three capacity projects (TFP-079, TFP-091/106, and TFP-160) also include pedestrian and/or bicycle improvements.

2.4.2. Proposed Action Alternative 2009–2020 Transportation Facilities Plan (Alternative 2)

The Proposed Action alternative (Alternative 2) of the TFP contains all of the 17 projects included in the No Action alternative plus an additional 52 capacity, safety/operational, and non-motorized projects, for a total of 69 projects (see Figure 2-3). The additional 52 projects consist of 33 capacity projects, two safety/operational projects, and 17 pedestrian and bicycle projects. Twenty-five of the capacity projects are designated as impact fee projects, as the improvement is expected to be implemented and open for use by 2020.

Figure 2-3 shows the distribution of those capacity elements among roadway widening projects, intersection projects, and new or extended roads. The 26 non-motorized projects focus primarily on enhancing the pedestrian and bicycle networks. Figure 2-3 shows the distribution of non-motorized projects between walkway only, bikeway only, and combined walkway/bikeway.

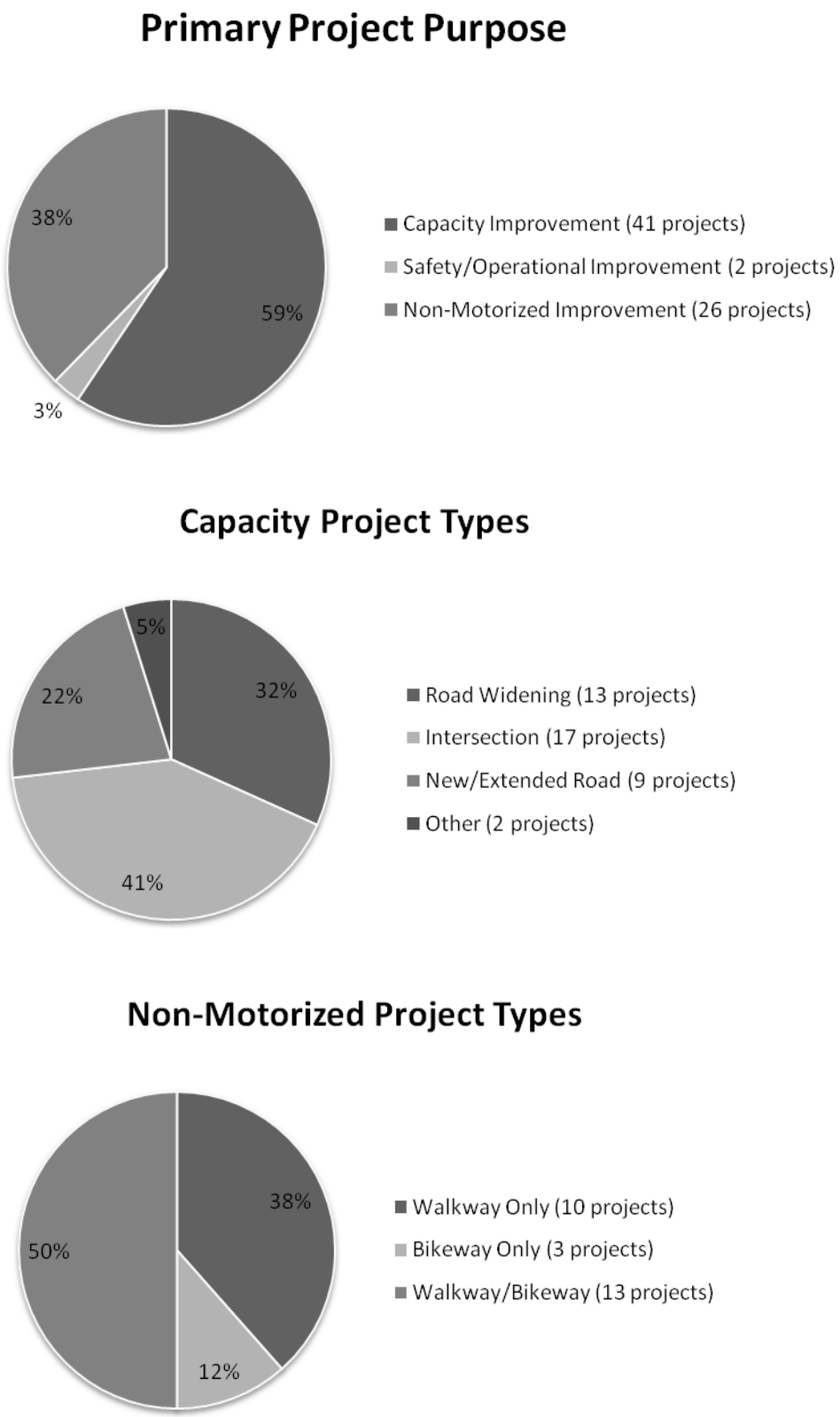


Figure 2-3. Distribution of Project Types under the Proposed Action Alternative

Table 2-4 summarizes capacity projects by MMA under the Proposed Action alternative. The table shows that capacity projects under the No Action alternative are primarily located in the Downtown and Bel-Red MMAs. The No Action alternative also includes funding for design reports for other roadway locations.

Table 2-4. Capacity Projects–Proposed Action Alternative

MMA	2009–2020 TFP#	Project Location	Also in No Action Alternative
2 Bridle Trails	079	Northup Way / Bellevue Way NE—NE 24th Street	X
3 Downtown	110	110th Avenue NE / NE 4th Street—NE 8th Street	X
	172	106th Avenue NE/108th Avenue NE One Way Couplet	
	184	NE 8th Street / 106th Avenue NE—108th Avenue NE	X
	190	NE 2nd Street / Bellevue Way NE—112th Avenue NE	X
	197[1]	NE 2nd Street and I-405 interchange	
	216[1]	112th Avenue / NE 2nd Street	
	219[1]	NE 8th Street / 106th Avenue	
	222[1]	Bellevue Way NE / NE 4th Street	
	223[1]	Bellevue Way NE / NE 8th Street	
	225[1]	Bellevue Way NE / NE 2nd Street	
3 Downtown, and 4 Wilburton	193[1]	NE 10th Street / I-405 interchange	
4 Wilburton	207	NE 4th Street / I-405 to 120th Avenue	
	211	NE 6th Street / I-405 to 120th Avenue	
5 Crossroads	224	Bel-Red Road / NE 20th Street	
9 East Bellevue	160	145th Place SE / SE 16th Street—SE 24th Street; and SE 22nd St / 145th Place SE—156th Avenue SE	X
	168	148th Avenue NE / NE 8th Street	
10 Eastgate	154	148th/150th Avenue SE / I-90 westbound on-ramp—westbound off-ramp	
	162	156th Avenue SE / Eastgate Way / I-90 off-ramp	
	195	150th Avenue SE / SE 37th Street / I-90 Off ramp widening	
11 Newcastle	192	Lakemont Boulevard SE / Cougar Mountain Way—Lewis Creek Park	
	205	Lakemont Boulevard SE / Lewis Creek Park—164th Avenue	
12 Bel-Red	090	116th Avenue NE / NE 12th Street—1600 block	
	091/106	Northup Way / 120th Avenue NE—124th Avenue NE	X
	94	148th Avenue NE / Bel-Red Road	X

MMA	2009–2020 TFP#	Project Location	Also in No Action Alternative
	101	148th Avenue NE / NE 20th Street	X
	102	Bel-Red Road / NE 24th Street	
	157	148th Avenue NE / NE 24th Street	
	198	Bel-Red Road / NE 20th Place	
	208	120th Avenue / NE 8th Street—Northup Way	
	209	NE 15th Street/NE 16th Street / 116th Avenue—124th Avenue NE	
	210	124th Avenue NE / NE 15th/16th Street—Northup Way	
	213[1]	124th Avenue NE / Bel-Red Road—NE 15th/16th Street	
	214	124th Avenue / Bel-Red Road / Old Bel-Red Road	
	215[1]	NE 15th Street/NE16th Street (Phase II) / 124th Avenue NE—136th Place NE; and 136th Place NE / NE 16th Street—NE 20th Street	
	217[1]	124th Avenue NE / SR 520 interchange	
	218[1]	130th Avenue NE / NE 20th Street—Bel-Red Road	
	226[1]	New NE 11th Street/NE 12th Street / Overlake Hospital—NE 12th Street	
13 Factoria	103[1]	129th Place SE / SE 38th Street—SE Newport Way	
	120[1]	Factoria Boulevard SE / SE Newport Way	
	220	Factoria Boulevard SE / SE 40th Lane	

[1] Projects that have placeholder funding only. Full implementation contingent upon additional funding from city or other sources and/or redevelopment of adjacent property.

The Proposed Action alternative includes only those Redmond Bel-Red/Overlake Transportation Study (BROTS) projects currently funded in the City of Redmond's adopted CIP and only those Bellevue BROTS projects that are a high priority and are likely to be implemented in the next 12 years. An update of the BROTS planning was underway in late 2008; outcomes of that process will be considered in the next TFP planning cycle.

The Proposed Action alternative provides added funding to more fully implement two capacity projects partially funded in the No Action alternative. It funds full implementation of TFP-190 NE 2nd Street/Bellevue Way to 112th Avenue NE, which also includes pedestrian improvements; and provides funding to implement phase 1 of TFP-079 Northup Way/Bellevue Way to NE 24th Street (phase 1 is the part east of NE 33rd Place), which also includes pedestrian and bicycle improvements. It also provides additional funding for implementation of TFP-078, improvements on Lake Sammamish Parkway.

Table 2-5 summarizes non-motorized projects included under the Proposed Action alternative.

Table 2-5. Non-Motorized Projects–Proposed Action Alternative

MMA	2009–2020 TFP#	Project Name, Location, and Limits	Also in No Action Alternative
1 North Bellevue	173	108th/112th Avenue NE / south of SR 520—NE 12th Street	
	191	NE 8th Street / Lake Washington Blvd—96th Avenue NE	X
	235	108th Avenue NE / NE 24th Street—NE 12th Street	
	236	NE 24th Street / 108th Avenue NE—112th Avenue NE	
2 Bridle Trails	171	NE 40th Street / 140th Avenue NE—14500 block	
3 Downtown	230	108th Avenue NE / NE 12th Street—Main Street	
	234	Main Street / 100th Avenue NE—116th Avenue NE	
6 Northeast Bellevue	164	173rd Avenue NE / Northup Way—north city limit	
7 South Bellevue	159	108th Avenue SE / Bellevue Way SE—I-90	X
8 Richards Valley	170	128th Avenue SE / SE 25th Street—SE 32nd Street	X
	231	SE 7th Place / Lake Hills Connector—culs-de-sac	
	237	123rd Avenue SE / SE 20th Street—SE 26th Street	
9 East Bellevue	078	West Lake Sammamish Parkway / north city limit—I-90	X
	158	SE 16th Street / 148th Avenue SE—156th Avenue SE	
	175	SE 34th Street / 162nd Place SE—West Lake Sammamish Parkway	X
	178	SE 26th Street / SE 24th Street—West Lake Sammamish Parkway	X
	232	164th Avenue NE/SE / NE 18th Street—SE 14th Street	
11 Newcastle	163	152nd Avenue SE / SE 45th Street/SE 46th Street—Newport Way	X
	194	164th Ave SE / SE Cougar Mountain Way—SE 63rd Street	
	228	148th Avenue SE / SE 44th Street—SE 46th Street	
	238	Somerset Ave SE / SE Somerset Boulevard—136th Place SE	X
13 Factoria	165	124th Avenue Bicycle Trail / SE 38th Street—I-90 Bicycle Trail	
	233	130th Place SE/130th Avenue SE / SE Newport Way—SE 47th Place	

MMA	2009–2020 TFP#	Project Name, Location, and Limits	Also in No Action Alternative
14 Newport Hills	156	SE 60th Street / Lake Washington Boulevard—Coal Creek Parkway	X
	227	123rd Avenue SE / SE 60th Street—SE 64th Place	
	229	116th Avenue SE / SE 60th Street—Newcastle Way	

Non-motorized improvements are also included as elements of TFP-079, TFP-091/106, TFP-157, TFP-160, TFP-192, TFP-198, TFP-205, TFP-207, TFP-208, TFP-209, TFP-210, TFP-211, TFP-213, TFP-214 and TFP-218 listed in Table 2-4.

Under the Proposed Action alternative, projects with operations and safety as their primary objective are TFP-196 (U-turn and access management on NE 20th Street in Crossroads) and TFP 221 (upgrade signals at four locations on 148th Ave). One non-motorized project, TFP-194 (placeholder funding for upgrading four blocks of 164th Ave SE from gravel to asphalt) has also been identified as having a safety objective.

Table 2-6 presents a list of full project descriptions. The table indicates the alternative, CIP number (if applicable) and whether the project is a capacity project, an impact fee project, or both. The table also indicates the MMA in which the project is located. Following Table 2-6, Figures 2-4 through 2-17 show the location of the projects in each of the MMAs (MMA 1 through MMA 14, respectively). Figure 1-1 also shows a citywide map with the locations of all of the TFP projects.

Table 2-6. Proposed 2009–2020 Transportation Facilities Plan Project List

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
078	West Lake Sammamish / north city limit—I-90	R-141	9	The ultimate project will provide a consistent 4-foot shoulder on the east side, a 10.5-foot northbound vehicle travel lane, a 10-foot southbound vehicle travel lane, a 10-foot-wide multi-purpose trail (8 feet wide in approximately 2% of the corridor due to constricted space) on the west side separated by a 1.5' shy distance space and a 2-foot- or 5-foot-wide landscaped buffer where space is available, a signal at SE 34th Street, pedestrian crossings at SE 26th Street, Northup Way, NE 24th Street and at five other locations along the parkway. The project will also make storm drainage, water quality and fish passage improvements throughout the corridor. Options for undergrounding existing overhead utilities and various project implementation phasing scenarios will be evaluated during the initial design process. The recommended funding allocation would significantly increase the existing CIP funding placeholder and make substantial progress toward implementation of corridor improvements ($6,560K is funded in the current 2007–2013 CIP).	X		
079	Northup Way / Bellevue Way NE—NE 24th Street	R-146	2	A Pre-Design process completed in 2008 has refined the project scope and implementation phasing options. Project elements include completion of sidewalks and bike lanes on both sides and a two-way center turn lane. The project may be divided in two phases: Phase 1, east of NE 33rd Place; and Phase 2, west of NE 33rd Place. The recommended funding allocation would fully fund Phase 1 only (A pre-design and implementation placeholder of $1,467K is funded in the current 2007–2013 CIP).	X	X	X
090	116th Avenue NE / NE 12th Street—1600 block	---	12	Widen to five lanes north of the existing intersection. Add a second eastbound left turn and northbound right turn at 116th Avenue NE and NE 12th Street. Project implementation will be coordinated with potential future private development in the immediate vicinity. The $5,000K funding allocation is a magnitude of cost estimate to be used until an engineer's estimate can be developed.		X	X

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
091/ 106	Northup Way / 120th Avenue NE—124th Avenue NE	R-133	12	Construct a second eastbound lane, and widen Northup Way/124th Avenue NE intersection to provide a northbound right turn lane and a second eastbound left-turn lane to the SR-520 ramp.	X	X	X
094	148th Avenue NE / Bel-Red Road	I-76	12	Construct an eastbound right turn lane and second westbound left turn lane. Scope and cost may be modified based on ongoing analysis and coordination with City of Redmond associated with development of a BROTS successor agreement.	X	X	X
101	148th Avenue NE / NE 20th Street	I-78	12	Construct second eastbound and westbound left turn lanes. Scope and cost may be modified based on ongoing analysis and coordination with City of Redmond associated with development of a BROTS successor agreement.	X	X	X
102	Bel-Red Road / NE 24th Street	---	12	Add southbound right turn and northbound left turn lanes. Scope and cost may be modified based on ongoing analysis and coordination with City of Redmond associated with development of a BROTS successor agreement.		X	X
103	129th Place SE / SE 38th Street—Newport Way	---	13	Extend 129th Place SE north to SE 38th Street. Investigate traffic operations at the intersection of 129th Place SE and SE Newport Way. Consider signalization and channelization improvements if warranted. Project implementation will be coordinated with potential future private development in the immediate vicinity. The $500K funding allocation is a placeholder that may be used to initiate project pre-design or early implementation.		X	
110	110th Avenue NE / NE 4th Street—NE 8th Street	R-139	3	Incomplete segment remains between NE 6th and NE 8th Streets. Funding allocation may be used to finalize project design only for a five-lane roadway section with sidewalks where missing. Project implementation will be coordinated with approved and potential future private development in the immediate vicinity.	X	X	X

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
120	Factoria Boulevard / SE Newport Way	---	13	Construct a second southbound left-turn lane at Newport Way and modify the channelization on the eastern leg of the Factoria Blvd/Newport Way intersection to receive the two lanes of turning traffic; reconfigure the intersection between Factoria Blvd and the access to Newport High School, including relocation of the Factoria Blvd access to St. Margaret's church to become an eastern leg of the intersection. The $500K funding allocation is a placeholder that may be used to initiate project pre-design or early implementation.		X	X
154	148th/150th Avenue SE / I-90 westbound on-ramp—I-90 westbound off-ramp	---	10	Widen by extending the third southbound lane on 148th Avenue SE from the on-ramp to westbound I-90 to south of Eastgate Way at the I-90 westbound off ramp. Scope and cost may be modified based on ongoing analysis and coordination with the WSDOT I-90 Corridor Study.		X	X
156	SE 60th Street / Lake Washington Boulevard—Coal Creek Parkway	WB-72	14	Construct bike lanes and sidewalks on both sides where missing; sidewalk on one side between Coal Creek Parkway and 129th Avenue SE.	X		
157	148th Avenue NE / NE 24th Street	---	12	Lengthen the westbound right turn lane on NE 24th Street and provide second westbound left turn lane; widen NE 24th Street to allow wide curb lanes for cyclists. Scope and cost may be modified based on ongoing analysis and coordination with City of Redmond associated with development of a BROTS successor agreement.		X	X
158	SE 16th Street / 148th Avenue SE—156th Avenue SE	---	9	Add 5 foot bike lanes outside of 11-foot vehicles lanes on both sides of SE 16th Street. Construct new curb, gutter and 6' sidewalk and 4' planter, on north side between 148th and 154th Avenues NE.			
159	108th Avenue SE / Bellevue Way SE—I-90	WB-71	7	Construct bike lanes on both sides and sidewalk on one side where missing, the side to be determined in the initial design process which will include community outreach/involvement facilitation.	X		

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
160	145th Place SE / SE 16th Street to SE 24th Street; and SE 22nd St / 145th Place SE—156th Avenue SE	R-151	9	Construct five foot bike lanes, curb, gutter and 6-foot sidewalk along both sides, a two-way center left-turn lane where needed, planted median islands and other landscaping where feasible on 145th Place SE from SE 16th Street (Kamber Road) to SE 24th Street. The project will modify the 145th Place SE/SE 24th Street intersection. This project will also provide curb, gutter and 6-foot sidewalks where missing along the north side SE 22nd from 145th Place SE to 156th Avenue SE. Other improvements include storm water drainage, detention and water quality treatment improvements, signing, striping, illumination enhancements, and irrigation.	X	X	X
162	156th Avenue SE / SE Eastgate Way (I-90 westbound off-ramp)	---	10	Widen the I-90 westbound off-ramp to provide two dedicated left turn lanes and a shared through/right lane with a channelized right turn. Scope and cost may be modified based on ongoing analysis and coordination with the WSDOT I-90 Corridor Study.		X	X
163	152nd Avenue SE / SE 45th Street/SE 46th Street—Newport Way	WB-74	11	Construct sidewalk on west side; perform roadway stabilization maintenance. Evaluate feasibility of wide curb lane for bikes on uphill segment.	X		
164	173rd Avenue NE / Northup Way—north city limit	---	6	Construct curb, gutter and 6-foot sidewalk on east side where missing; accommodate future bike lane.			
165	124th Avenue Bicycle Trail / SE 38th Street—I-90 Bicycle Trail	---	13	Construct a 10-foot wide multi-use trail connecting the north end of 124th Avenue SE near SE 38th Street to the existing Mountains to Sound Greenway trail along I-90. A midblock crossing on 124th Avenue SE, just south of SE 38th Street, will be constructed, including a small island for refuge.			
168	148th Avenue NE / NE 8th Street	---	9	Add second eastbound and westbound left turn lanes on NE 8th Street. All widening would be done to the north side of the roadway.		X	X

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
170	128th Avenue SE / SE 25th Street—SE 32nd Street	WB-76	8	Construct curb, gutter and 6-foot sidewalk on one side of the street from SE 25th Street to SE 32nd Street, side to be determined during the design phase which will include community outreach facilitation. Where feasible, construct planter strip between the curb and sidewalk and stripe shoulders on both sides to accommodate bicycles.	X		
171	NE 40th Street / 140th Avenue NE—14500 block		2	Construct curb, gutter and 6-foot sidewalk on north side of NE 40th Street from 140th Avenue NE to east of the 14500 block. Wide curb lanes. Planter strip where feasible.			
172	106th Avenue NE/108th Avenue NE One Way Couplet	---	3	Convert roadways to function as a one-way couplet. 106th Avenue will function as a northbound one-way street and 108th Avenue will function as a southbound one-way street. 108th will include a single northbound contraflow lane between NE 4th and NE 8th Streets for transit buses only. Widen sidewalks along 106th Avenue. The $200K funding allocation represents only a placeholder that may be used to initiate project pre-design or evaluate alternatives to the project scope developed through the DIP process.		X	
173	108th Avenue NE/112th Avenue NE / south of SR 520—NE 12th Street	---	1	Add 5-foot bike lanes on both sides of 108th/112th Avenue NE from Northup Way to NE 12th Street. Construct a 6 foot-wide sidewalk along the west side of 112th Avenue NE from end of transportation trail south to existing sidewalk 400 feet south of NE 24th Street. Widen for turn pockets at NE 24th Street intersection.			
175	SE 34th Street / 162nd Pl SE—West Lake Sammamish Pkwy	WB-75	9	Construct sidewalk on north side where missing; widen curb lanes.	X		
178	SE 26th Street / SE 24th Street—West Lake Sammamish Parkway	WB-76	9	Construct curb, gutter and 6-foot sidewalk on the south side; accommodate future bike lane(s). Construct planter strip between the curb and sidewalk where feasible. Project construction will be coordinated with a street pavement overlay planned for summer 2009.	X		

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
184	NE 8th Street / 106th Avenue NE—108th Avenue NE	R-152	3	Construct third westbound lane on NE 8th Street becoming right turn lane at 106th Avenue NE; no widening west of 106th Avenue NE. Sidewalks will be reconstructed adjacent to the new lane.	X	X	X
190	NE 2nd Street / Bellevue Way NE—112th Avenue NE	R-150	3	Widen from three lanes with parking and turn pockets to five lanes. The design will accommodate left turn movements with a center turn lane where needed and dedicated right-turn pockets are also possible at some intersections. ($7,454K is currently funded in the 2007–2013 CIP.)The final design will be consistent with the outcomes of a currently ongoing NE 2nd Street and Main Street Pre-Design process.	X	X	X
191	NE 8th Street / Lake Washington Boulevard—96th Avenue NE	WB-73	1	This project will design and construct curb, gutter, 6-foot sidewalk and three foot planter strip where missing on the north side. Include bus pads and an updated signal system at the NE 8th Street/92nd Avenue NE intersection.	X		
192	Lakemont Boulevard (Phase 1) / Cougar Mountain Way—Lewis Creek Park and 164th Avenue SE—171st Avenue SE	---	11	Install signal and turn lanes at Cougar Mtn. Way/Lakemont Blvd. intersection; construct northbound left turn lane on Lakemont Blvd. at SE 62nd Street; add sidewalk and bike lanes on east side between Cougar Mtn. Way and park; install planted medians where feasible.		X	X
193	NE 10th Street / I-405	---	3, 4	Add half interchange (ramps) to/from the north. (Northbound ramp funded through WSDOT Braided ramp project). This project would likely be a regional or outside agency-led effort in which the City may choose to participate financially. The $500K funding allocation is a placeholder that may be used to initiate project pre-design or early implementation.		X	
194	164th Avenue SE / SE Cougar Mountain Way—SE 63rd Street	---	11	Improve gravel road with pavement curb, gutter and sidewalk on one side. Cost estimate entails only placeholder funding for implementation. Consider cost sharing with benefiting property owners through the use of a Local Improvement District (LID). The $100K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.			

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
195	150th Avenue SE / SE 37th Street / I-90 off-ramp widening	---	10	Widen I-90 off-ramp 300 feet west of 150th Avenue SE and add a through lane. Widen SE 37th Street approximately 500 feet to the east of 150th Avenue SE to allow for a bypass lane on the right side of the street. Scope and cost may be modified based on ongoing analysis and coordination with the WSDOT I-90 Corridor Study.		X	X
196	NE 20th Street / Bel-Red Road—156th Avenue NE	---	5	Construct an east to west U-turn on NE 20th Street at 156th Avenue NE; provide access management along NE 20th Street.			
197	NE 2nd Street Extension and I-405 interchange	---	3	Extend NE 2nd Street across I-405 from 112th Avenue NE to 116th Avenue NE; add half interchange with I-405, to/from the south. This project would likely be a regional or outside agency-led effort in which the City may choose to participate financially. The $500K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.		X	
198	Bel-Red Road / NE 20th Place	---	12	Install signal, eastbound left turn pocket and pedestrian crossing.		X	X
205	Lakemont Boulevard (Phase 2) / Lewis Creek Park—164th Avenue SE	---	11	Install signal at 164th Ave SE/Lakemont Blvd; construct sidewalk and bike lane on east side; add planted medians where feasible.		X	X
207	NE 4th Street Extension / 116th Avenue NE—120th Avenue NE; and widening of 120th Avenue / NE 4th Street—NE 8th Street	---	4	The 4th Street Extension will consist of 5 vehicle lanes, bike lanes, sidewalks and will require construction of a sunken roadway and bridge(s) for BNSF RR tracks and Pedestrian over crossings. Neighborhood traffic mitigation will be evaluated to discourage cut through traffic on NE 5th Street east of 120th. 120th Avenue NE will be widened to five lanes with bike lanes between the 4th St. Ext. and NE 8th Street. This project does not included improvements to the intersection with NE 8th St. This project will be coordinated with potential private development in the immediate vicinity.		X	X

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
208	120th Avenue NE / NE 8th Street—Northup Way	---	12	Widen to five lanes with sidewalks and bike lanes. Extend/realign roadway between NE 8th Street and Old Bel-Red Rd. Key intersection improvements at NE 8th St, NE 12th St, the proposed 15th/16th St, and Northup Way.		X	X
209	NE 15th Street/NE 16th Street (Phase I) / 116th Avenue NE—124th Avenue NE	---	12	Construct a five-lane roadway from 116th Avenue NE to 124th Avenue NE. Key intersections at 116th, 120th and 124th Avenues NE. The overall roadway cross-section will also include a frontage road, parking strips, pedestrian/bike facilities, landscaping elements and an HOV transit corridor.		X	X
210	124th Avenue NE / NE 15th/16th Street Extension—Northup Way	---	12	Widen to five lanes with sidewalks. Key intersections at proposed NE 15th/16th Street (TFP # 209) and Northup Way.		X	X
211	NE 6th Street Extension	---	4	Extend NE 6th Street, as an HOV only facility, from the I-405 HOV interchange to the east over 116th Avenue NE, crossing BNSF right-of-way, and terminating at 120th Ave NE. Improvements include two lanes in each direction with left turn lanes at signalized intersections of I-405 and 120th Avenue NE, a 14-foot-wide non-motorized pathway adjacent to and along the south side of the extension between 112th Ave NE and 120th Ave NE, I-405 corridor design standards, illumination system, retaining walls, landscaping for at-grade locations, underground utilities, detention/water quality treatment, and provisions that do not preclude future regional trail or other improvements within the BNSF corridor.		X	X
213	124th Avenue NE / Bel-Red Road—NE 15th/16th Street Extension	---	12	Widen to five lanes with sidewalks between Bel-Red Road and proposed NE 15th/16th Street (TFP # 209). The $500K funding allocation is a placeholder that may be used to initiate project pre-design or early implementation.		X	X

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
214	124th Avenue NE / Bel-Red Road / Old Bel-Red Road	---	12	Project scope is currently being analyzed/refined through continued Bel-Red Corridor Plan work. Until completion of the continued analysis, the project scope may be defined as follows: Provide a second westbound left turn lane, a southbound right turn lane and widen 124th Avenue NE to provide a second southbound lane between Bel-Red Rd. and Old Bel-Red Rd; upgrade signal equipment; and provide new curb, gutter, and sidewalk adjacent to widening. The $3,000K funding allocation is a magnitude of cost estimate to be used until an engineer's estimate can be developed.		X	X
215	NE 15th Street/NE16th Street (Phase II) / 124th Avenue NE—136th Place NE; and 136th Place NE / NE 16th Street—NE 20th Street	---	12	Extend five lane roadway from 124th Avenue NE to 136th Place NE with a key intersection at 130th Avenue NE. Widen 136th Place NE five to three lanes between NE 16th Street and NE 20th Street (reduction occurs at the intersection); add a double westbound left turn on NE 20th Street. The $500K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.		X	
216	112th Avenue NE / NE 2nd Street	---	3	Straighten and realign NE 2nd Street between 112th and 114th Avenues NE, add dual southbound left turn lanes and a northbound right turn lane. Project implementation will be coordinated with potential future private development in the immediate vicinity. The $500K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.		X	X
217	124th Avenue NE / SR-520	---	12	Construct ramps to and from the east. This project would likely be a regional or outside agency-led effort in which the City may choose to participate financially. The $500K funding allocation is a placeholder that may be used to initiate project pre-design or early implementation.		X	

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
218	130th Avenue NE / NE 20th Street—NE Bel-Red Road	---	12	Construct turn lanes, shared bike lanes, on-street parking and sidewalks between NE 16th and NE 20th Streets and widen to three lanes with shared bike lanes and sidewalks between NE 16th Street and Bel-Red Road. Key intersections at NE 20th, NE 16th and Bel-Red Road. Project implementation will be coordinated with potential future private development in the immediate vicinity. The $500K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.		X	
219	NE 8th Street / 106th Avenue NE	---	3	Realignment of the roadway to the south will better utilize the new westbound travel lane (between 108th and 106th Avenues NE; funded in CIP) and preserve the existing large sequoia tree. This realignment will allow NE 8th Street three through lanes westbound from I-405 to Bellevue Way. Project implementation will be coordinated with potential future private development in the immediate vicinity. The $500K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.		X	X
220	SE 40th Lane / Factoria Boulevard	---	13	Lengthen the southbound to eastbound left turn lane and lengthen the westbound left turn lane.		X	X
221	148th Avenue NE / SE 24th Street, SE 8th Street, Main Street, and NE 8th Street	---	9	This project would improve the safety and reliability at four signalized intersections along the 148th Avenue corridor, including SE 24th Street, SE 8th Street, Main Street, and NE 8th Street. The project would remove and replace aging wiring and poles to increase reliability and reduce signal malfunctions at these intersections that have not had any major upgrades since their construction in 1975.			
222	Bellevue Way NE / NE 4th Street	---	3	Add a southbound right turn lane and a westbound right turn lane. Dual westbound left turn lanes. Project implementation will be coordinated with potential future private development in the immediate vicinity. The $500K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.		X	X

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
223	Bellevue Way NE / NE 8th Street	---	3	Add southbound right turn lane. Project implementation will be coordinated with potential future private development in the immediate vicinity. The $500K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.		X	X
224	Bel-Red Road / NE 20th Street	---	5	Add southbound right turn lane; convert westbound lanes on NE 20th Street to provide left turn, left turn/through and through/right turn lanes. Scope and cost may be modified based on ongoing analysis and coordination with City of Redmond associated with development of a BROTS successor agreement.		X	X
225	Bellevue Way NE / NE 2nd Street	---	3	Add a northbound right turn lane and a second southbound left turn lanes. Project implementation will be coordinated with potential future private development in the immediate vicinity. The $500K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.		X	X
226	NE 11th/12th Street—116th Avenue NE Connection (across from Overlake Hospital)	---	12	Construct new 4/5 lane connection. The $500K funding allocation represents only a placeholder that may be used to initiate project pre-design or early implementation.		X	
227	123rd Avenue SE / SE 60th Street—SE 64th Place	---	14	Construct curb, gutter and 6-foot sidewalk on west side where missing between SE 60th Street and SE 64th Place; sign bike route.			
228	148th Avenue SE / SE 44th Street—SE 46th Street	---	11	Construct curb, gutter and 6-foot sidewalk, 14-foot (15 feet uphill) travel lane on the west side of street. Connect to existing sidewalk north of SE 44th St (within King county) to existing sidewalk south of SE 46th St.			
229	116th Avenue SE / SE 60th Street—Newcastle Way	---	14	Construct curb, gutter and 6-foot sidewalk on the east side of the street. Curb 14 feet from center of roadway.			

TFP#	Project Location	CIP #	MMA	Project Description	Included in No Action Alternative	Capacity Project	Impact Fee Project
230	108th Avenue NE / NE 12th Street—Main Street	---	3	108th Avenue NE Downtown corridor enhancement consisting of Great Streets, Midblock Crossing, Pedestrian Corridor interface and bike lanes. This funding would cover the estimated shortfall and allow for the inclusion of bike lanes between NE 12th and NE 8th Streets and between NE 4th and Main Street.			
231	SE 7th Place / Lake Hills Connector — culs-de-sac	---	8	Construct curb, gutter and 6-foot sidewalk on one side, the side to be determined in the initial design process which will include community outreach/involvement facilitation.			
232	164th Avenue NE/164th Avenue SE / NE 18th Street—SE 14th Street	---	9	Designate bike shoulder on both sides between NE 18th Street and Northup Way and between NE 8th Street and SE 14th Street. Stripe and sign 5 foot bike lanes between Northup Way and NE 6th Street. Accommodate on-street parking on the east side of the street from NE 6th Street to SE 14th Street.			
233	130th Place SE/130th Avenue SE / Newport Way SE—SE 47th Place	---	13	Construct curb, gutter and 6-foot sidewalk, where missing, on the east side of the street.			
234	Main Street / 100th Avenue—116th Avenue	---	3	Funding to support pedestrian and bicycle facility components of Main Street project - currently in a pre-design process.			
235	108th Avenue NE / NE 24th Street—NE 12th Street	---	1	Add wide bike shoulder on both sides where not complete. Construct a 6-foot sidewalk on east side from NE 24th Street to north of NE 19th Street.			
236	NE 24th Street / 108th Avenue NE—112th Avenue NE	---	1	Add a wide bike shoulder on both sides of NE 24th from 108th to 112th Avenues NE.			
237	123rd Avenue SE / SE 20th Street—SE 26th Street	---	8	Construct curb, gutter and 5-foot sidewalk, place curb 14 feet from center of the roadway on the east side of the street. Parking bays where feasible.			
238	Somerset Avenue SE / SE Somerset Boulevard—136th Place SE	WB-76	11	Construct curb, gutter and 5-foot sidewalk on the west side; locate curb 12 feet from center of roadway.	X		

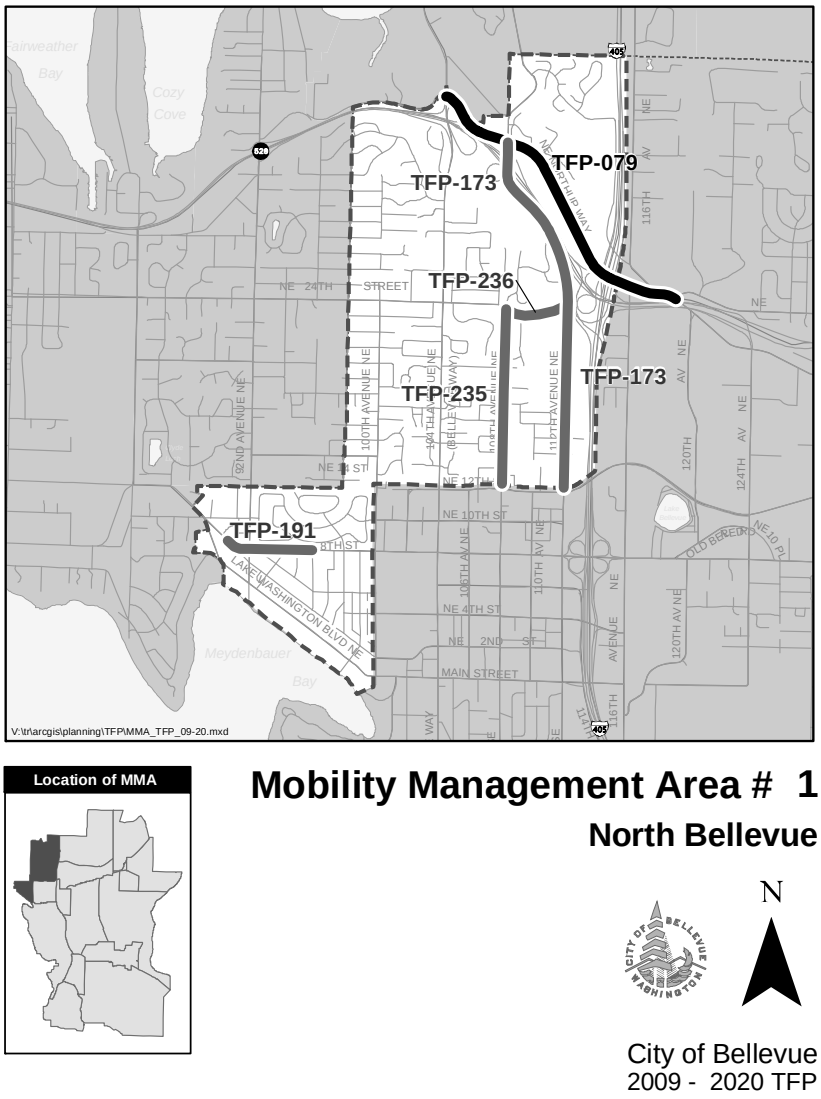
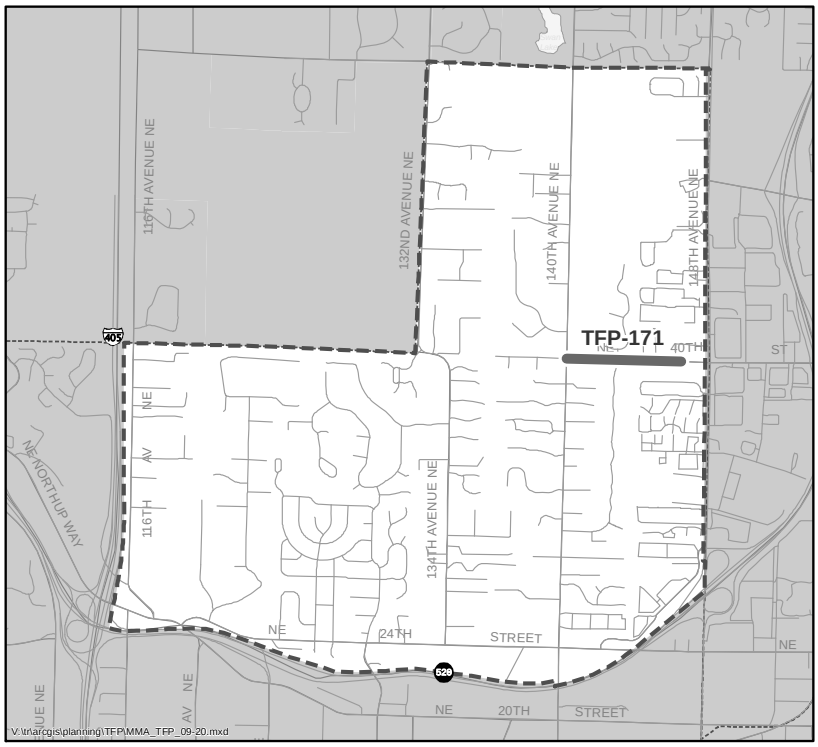
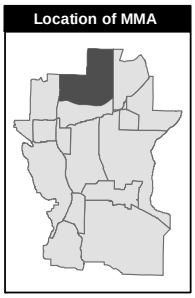


Figure 2-4. Transportation Facilities Plan Projects in MMA #1 (North Bellevue)





Mobility Management Area # 2

Bridle Trails

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City of Bellevue
2009 - 2020 TFP

Figure 2-5. Transportation Facilities Plan Projects in MMA #2 (Bridle Trails)

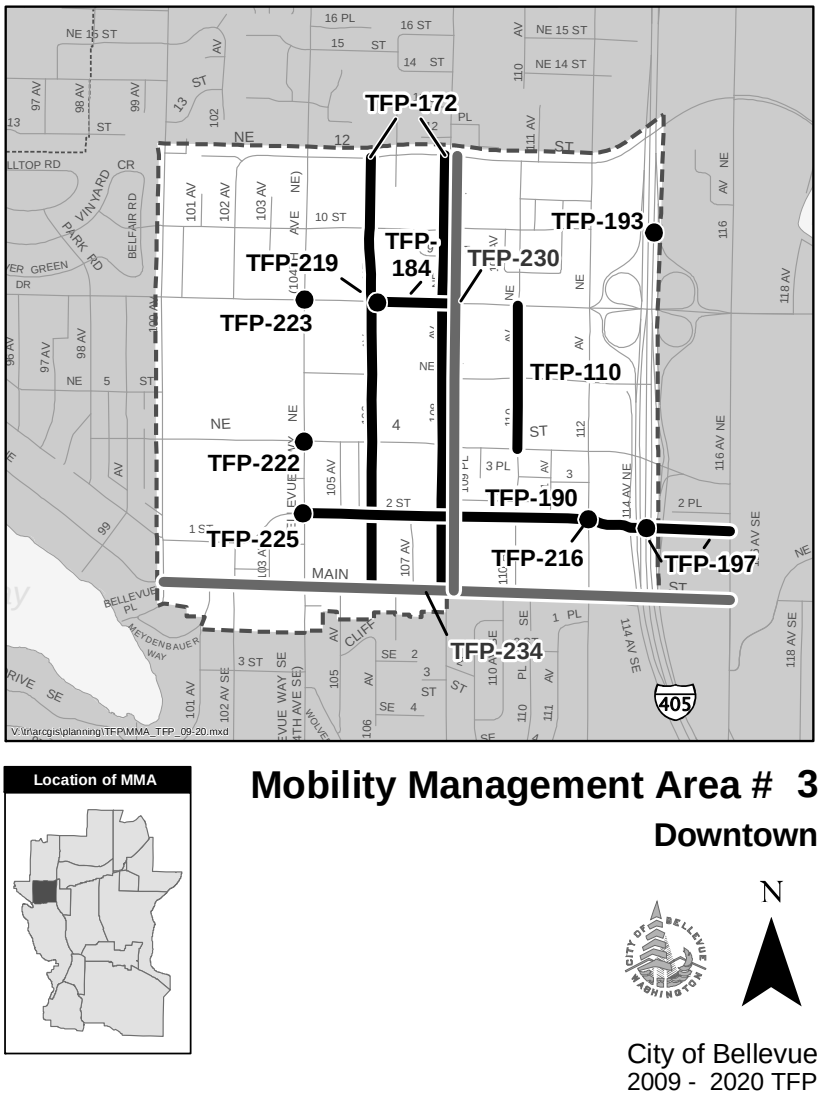


Figure 2-6. Transportation Facilities Plan Projects in MMA #3 (Downtown)

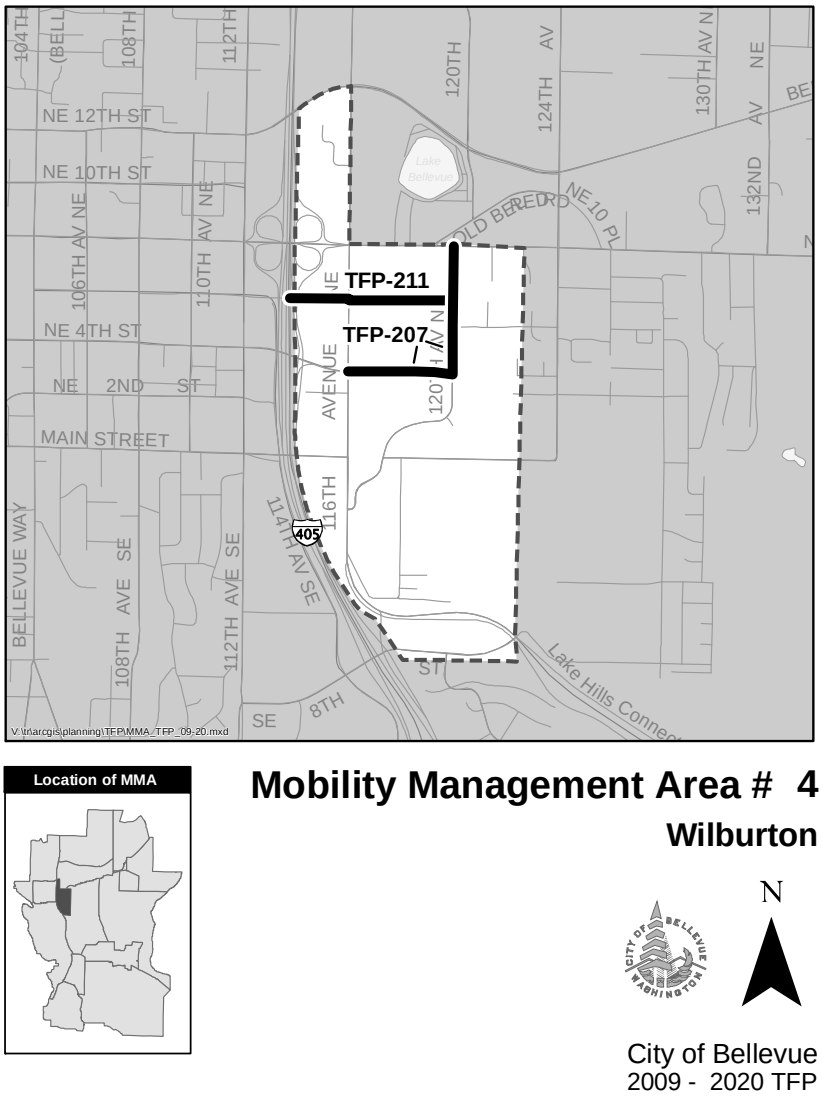


Figure 2-7. Transportation Facilities Plan Projects in MMA #4 (Wilburton)

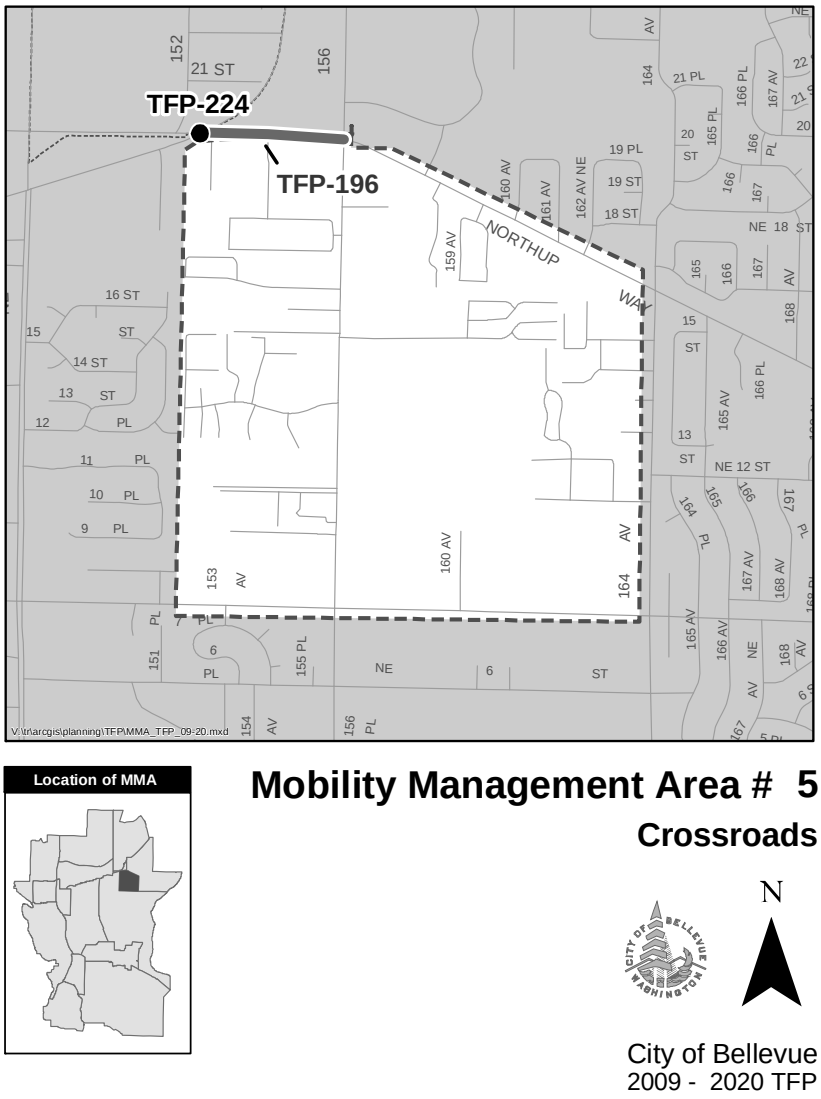
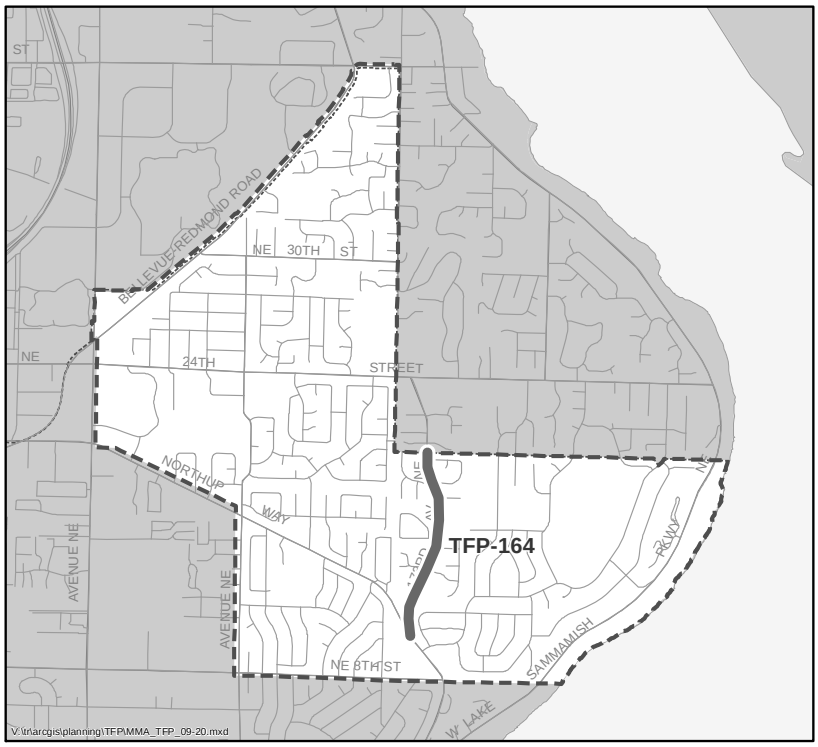
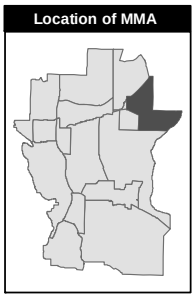


Figure 2-8. Transportation Facilities Plan Projects in MMA #5 (Crossroads)





Mobility Management Area # 6

Northeast Bellevue

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City of Bellevue
2009 - 2020 TFP

Figure 2-9. Transportation Facilities Plan Projects in MMA #6 (Northeast Bellevue)

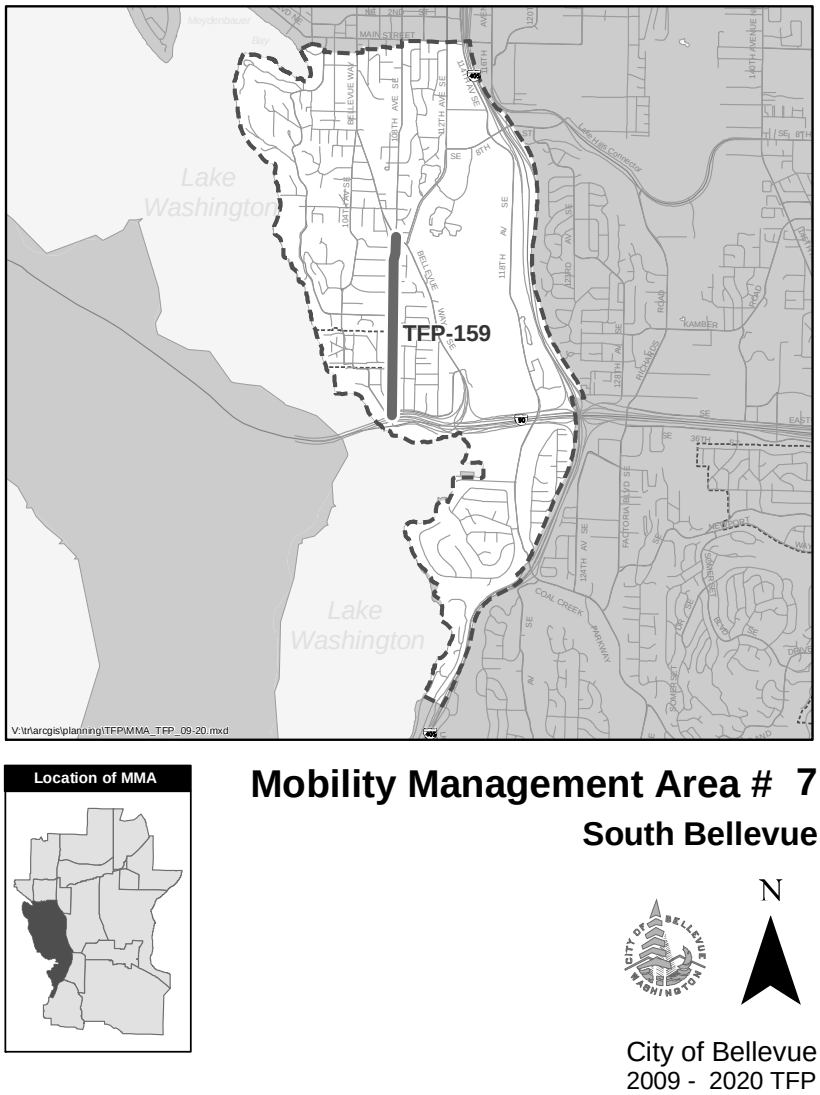
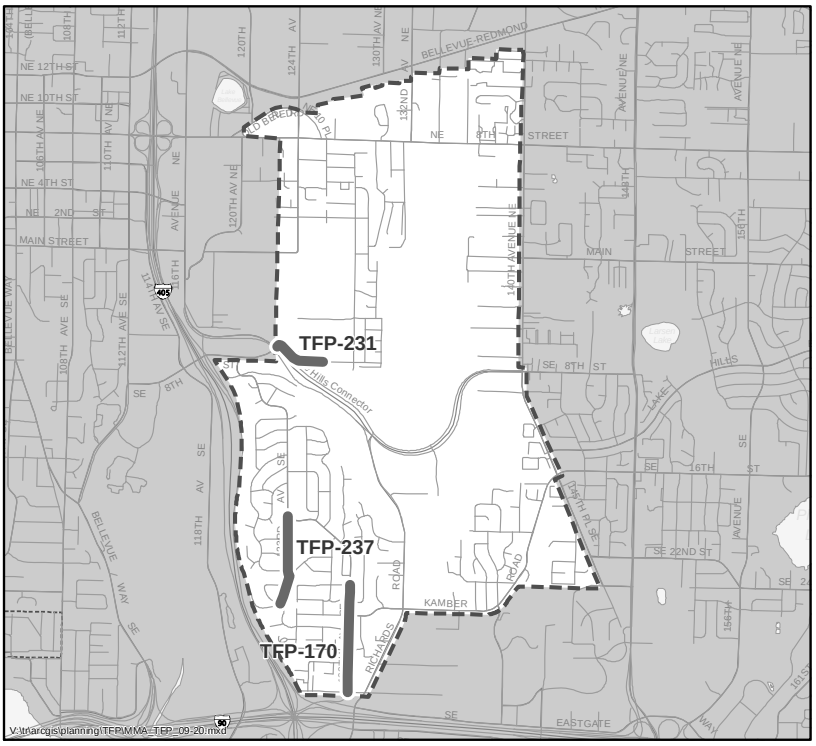
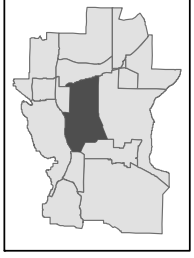


Figure 2-10. Transportation Facilities Plan Projects in MMA #7 (South Bellevue)



Location of MMA



Mobility Management Area # 8

Richards Valley

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City of Bellevue
2009 - 2020 TFP

Figure 2-11. TFP Projects in MMA #8 (Richards Valley)

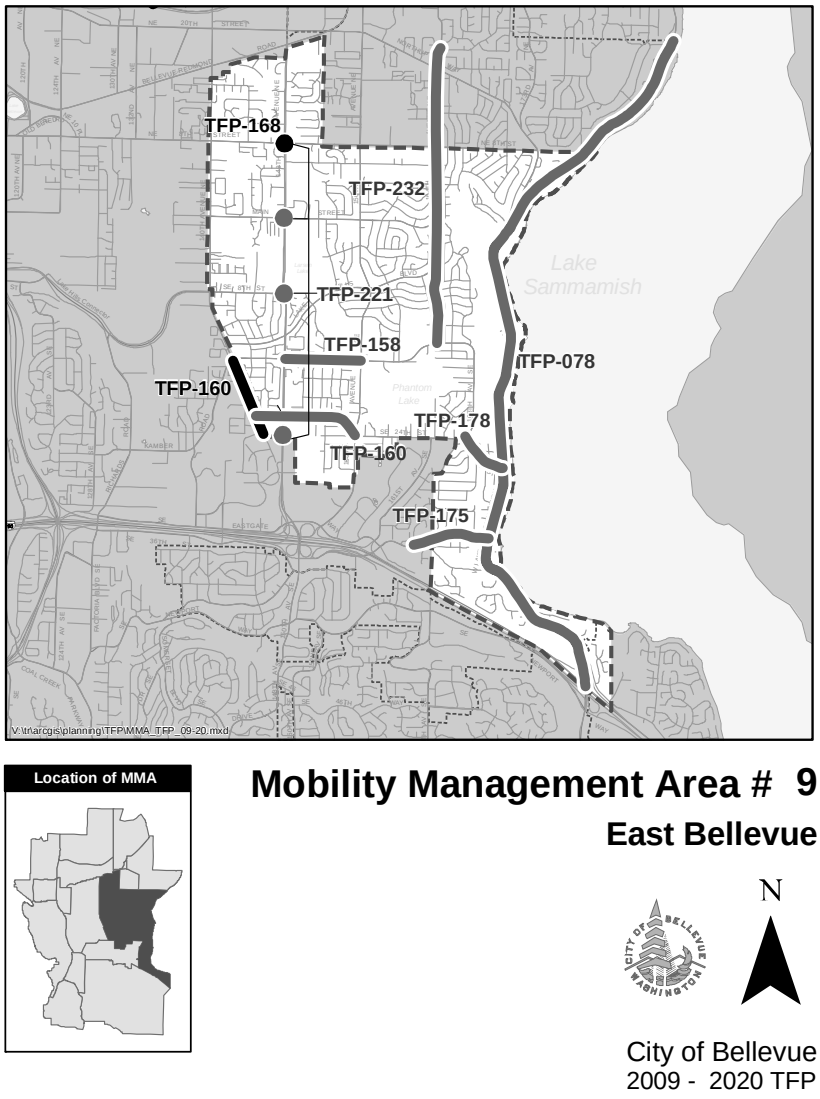


Figure 2-12. Transportation Facilities Plan Projects in MMA #9 (East Bellevue)

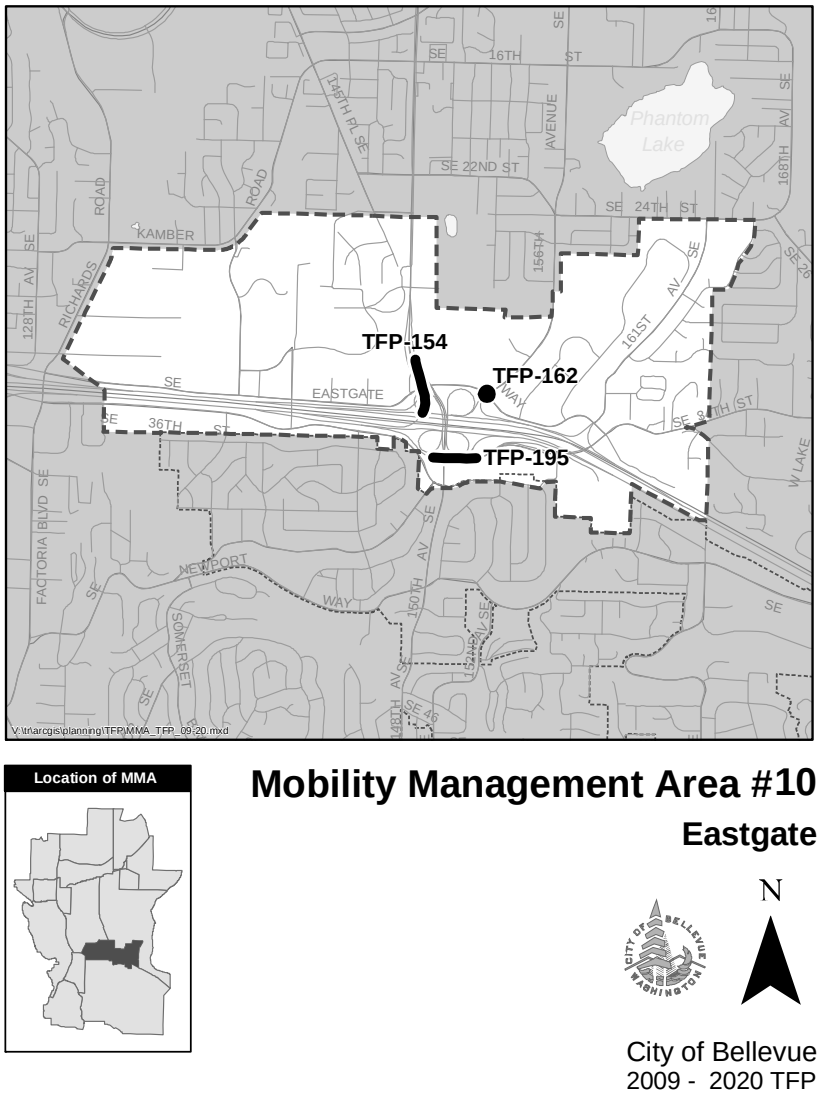


Figure 2-13. Transportation Facilities Plan Projects in MMA #10 (Eastgate)

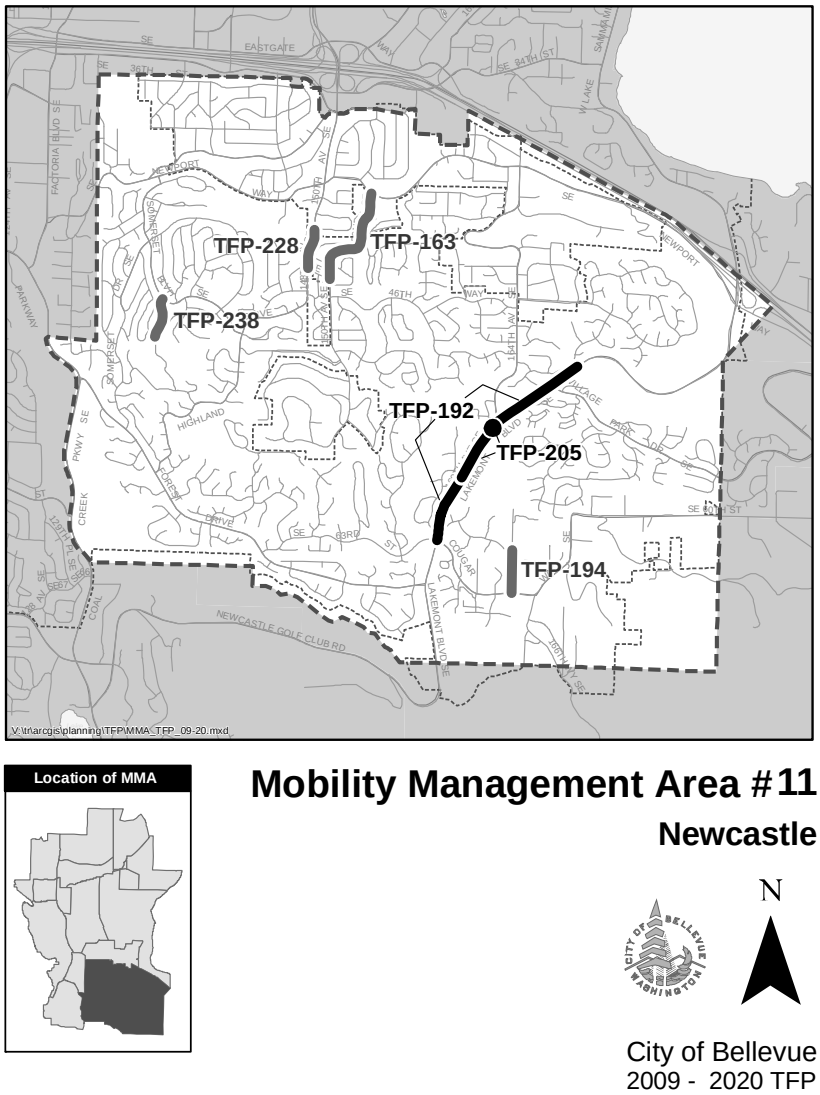
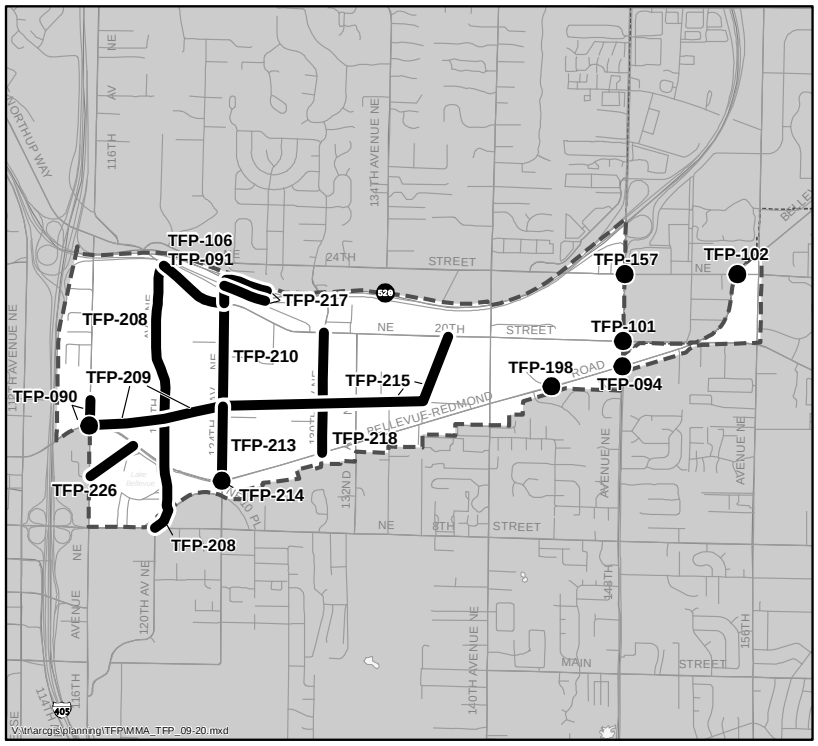
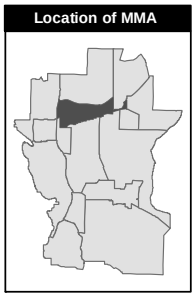


Figure 2-14. Transportation Facilities Plan Projects in MMA #11 (Newcastle)





Mobility Management Area #12

Bel-Red/Northup

N

City of Bellevue
2009 - 2020 TFP

Figure 2-15. Transportation Facilities Plan Projects in MMA #12 (Bel-Red/Northup)

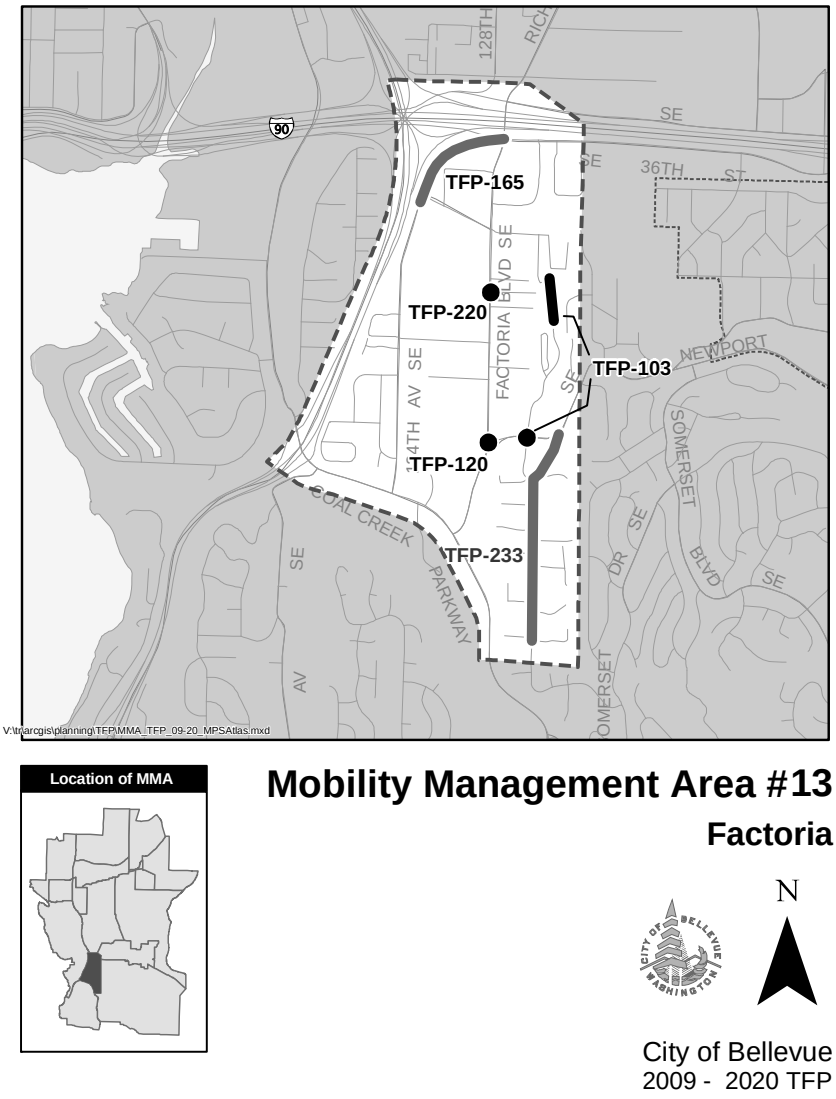
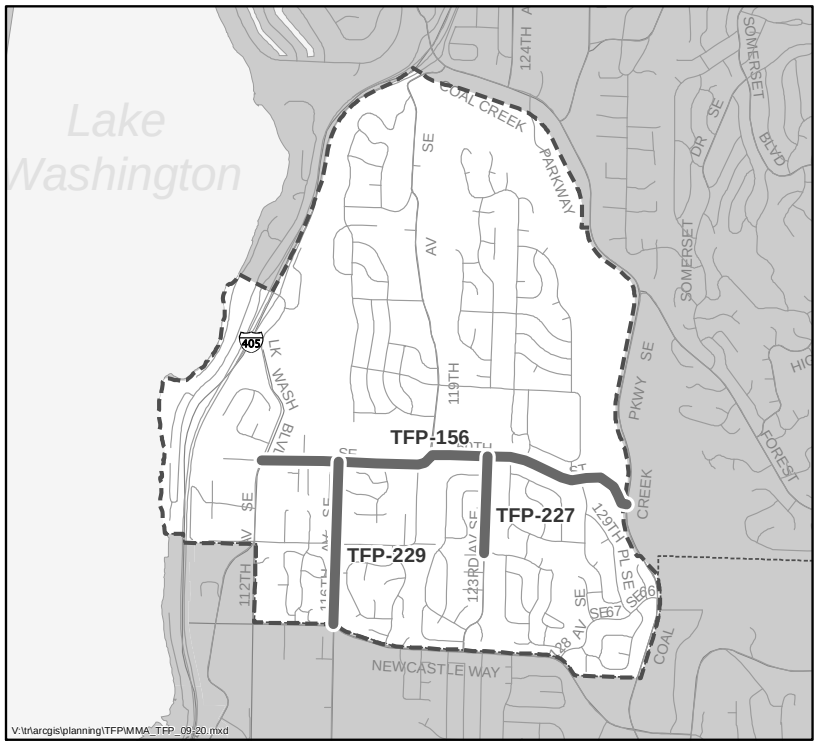


Figure 2-16. Transportation Facilities Plan Projects in MMA #13 (Factoria)



Location of MMA

Mobility Management Area #14

Newport Hills

N

City of Bellevue
2009 - 2020 TFP

Figure 2-17. Transportation Facilities Plan Projects in MMA #14 (Newport Hills)

2.5. Benefits and Disadvantages of Delaying the Proposed Action Alternative

SEPA Rules require that an EIS evaluate the benefits and disadvantages of delaying implementation of the Proposed Action alternative to some future time, compared with approval at this time. Particular attention is given to the potential for foreclosing future options by implementing the Proposed Action alternative. Delay would disrupt the sequential, orderly capital transportation planning process that the City uses, and would prevent the integration of new capacity project costs into the calculations for transportation impact fees.

2.6. Major Issues to be Resolved

The key environmental issues facing decision-makers are the effects of additional traffic on area roadways; effects on air quality, particularly short-term air quality during construction; effects of street widening projects on adjoining land uses; and increases in impervious surfaces and other effects on the natural environment resulting from the various transportation projects contained in this plan. These potential environmental issues are assessed in Chapters 3 through 7 of this Draft EIS.

Chapter 3. Transportation

This chapter reviews the existing conditions (2006) of the city's transportation system by subarea and identifies the potential impacts projected through 2020 of the No Action and Proposed Action alternatives.

3.1. Affected Environment

The affected environment for transportation includes infrastructure and services. This section describes the following elements of the city's transportation system:

- intersection and roadway operations;
- neighborhood conditions;
- traffic safety;
- travel alternatives; and
- pedestrian and bicycle systems.

3.1.1. Intersection and Roadway Operations

Roadways in the city are characterized according to their functional classification, which reflects the relative access and mobility functions they serve. The major classifications are described as follows.

- Major arterial. Major arterial streets provide efficient direct routes for long-distance auto travel within the region. Streets connecting freeway interchanges to major concentrations of commercial activities are classified as major arterials. Traffic on major arterials is given preference at intersections, and some access control may be exercised in order to maintain the capacity to carry high volumes of traffic.

- **Minor arterial.** Minor arterial streets provide connections between major arterials and concentrations of residential and commercial activities. The amount of through traffic is less, and there is more service to abutting land uses. Traffic flow is given preference over lesser streets.
- **Collector.** Collector arterial streets are two- or three-lane streets that collect (or distribute) traffic in a neighborhood and provide the connections to minor or major arterials. Collectors serve neighborhood traffic, and also provide access to abutting land uses. They do not carry much through traffic, and are designated to be compatible with residential neighborhoods and local commercial areas.
- **Local.** Local streets provide access to abutting land uses, and carry local traffic to the collector arterials. This classification includes both local and neighborhood collector streets as described in the City's Development Standards.

Figure 3-1 provides the functional classification of the main routes to and through the city (City of Bellevue 2008a).

Level of Service (LOS) is a qualitative measure of congestion that describes the quality of traffic conditions and takes into consideration the traffic volume on a facility compared to its carrying capacity (volume to capacity ratio [V/C]). LOS is represented by letter grades, A through F. LOS A and B reflect traffic flows with minimal delay; LOS C and D reflect moderate and stable traffic conditions; LOS E reflects conditions that approach capacity; and LOS F reflects congested conditions with potential for substantial delays.

The GMA requires that development cannot occur unless existing infrastructure either exists or is built concurrent with development (Revised Code of Washington [RCW] 36.70A). This is known as concurrency. LOS standards are used to evaluate the transportation impacts of long-term growth and concurrency. Jurisdictions adopt standards by which the minimum acceptable roadway operating conditions are determined. Deficiencies are identified if operations fall below these standards. Table 3-1 summarizes the LOS standards that have been defined by the City for each of the MMAs. These standards are applied to weekday PM peak hour volumes, which typically reflect most congested conditions.

The evaluation of transportation system performance is based on travel demand forecasting and analysis using the BKR Travel Demand Model. The model methodology and other analysis assumptions are described in Appendix D of this document. Table D-7 in Appendix D summarizes existing and future projected operations of the 92 system intersections, located throughout the city, by which it measures concurrency.

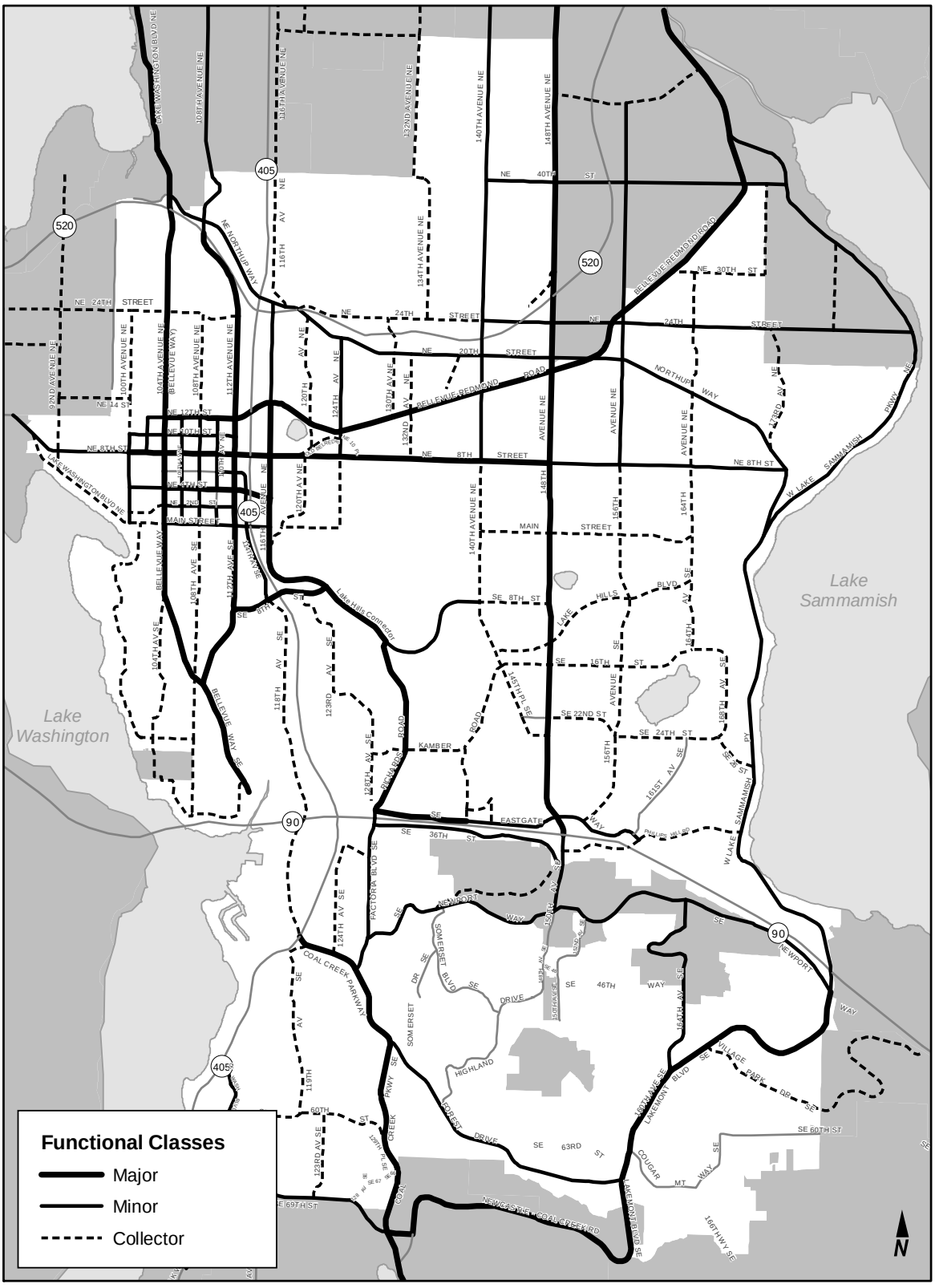


Figure 3-1. Roadway Classifications

Table 3-1. City of Bellevue Level of Service Standards

	MMA	LOS Standard	Maximum V/C
1	North Bellevue	D+	0.85
2	Bridle Trails	C	0.80
3	Downtown	E+	0.95
4	Wiburton	D	0.85
5	Crossroads	D-	0.90
6	Northeast Bellevue	C	0.80
7	South Bellevue	D+	0.85
8	Richards Valley	D+	0.85
9	East Bellevue	D+	0.85
10	Eastgate	D	0.90
11	Newcastle	C	0.80
12	Bel-Red	E+	0.95
13	Factoria	E+	0.95
14	Newport Hills	--[1]	--[1]

1. No system analysis intersections are located within this MMA, so no LOS standards have been defined.

Source: City of Bellevue 2008 (Excerpted from BCC 14.10.030 and modified to reflect anticipated revisions associated with the Bel-Red plan adoption)

Existing roadway operating conditions, as reflected by the existing LOS presented in Appendix D, is discussed in the following sections. In general, analysis indicates that most system intersections are currently operating at an acceptable LOS, with all except five locations operating within their respective standards. The few that are operating below LOS standards are often located within close proximity of interchanges with either State Route (SR) 520 or Interstate (I)-405. This indicates that high traffic volumes generated by the freeways are most likely to affect operations on the local roadways located near the interchanges.

North Bellevue/Bridle Trails

This area encompasses the North Bellevue (MMA 1) and Bridle Trails (MMA 2) subareas. Both MMAs have area-wide average LOS that is well below adopted standards. Of the 12 system intersections located in this area, 10 are operating within their respective LOS standards, and the following two intersections are operating at LOS levels that exceed their standards:

- (116) 115th Place NE / Northup Way – V/C of 0.82 (LOS D+) exceeds its V/C threshold of 0.80
- (188) 148th Avenue NE / NE 29th Place – V/C of 0.91 (LOS E+) exceeds its V/C threshold of 0.80

The latter intersection is located within close proximity to SR 520 ramps.

Downtown

This area encompasses the Downtown (MMA 3) subarea. Its area-wide average of LOS B is well within standards adopted for this MMA. Of the 13 system intersections located in this area, 12 are operating within their respective standards, and the following one intersection is operating at an LOS level that exceeds its standard:

- (26) 112th Avenue NE / NE 8th Street – V/C of 1.07 (LOS F) exceeds its V/C threshold of 0.95

This intersection is located in very close proximity to the interchange of NE 8th Street with I-405.

Bel-Red/Wilburton

This area encompasses all but the easternmost portion of the Bel-Red (MMA 12) subarea and Wilburton (MMA 4) subarea. Both MMAs have area-wide average LOS that is well below the LOS standard presented in Table 3-1. Of the 17 system intersections located in this area, all are operating within their respective LOS standards.

Overlake

This area encompasses the easternmost portion of the Bel-Red (MMA 12) subarea and the northernmost portion of the Crossroads (MMA 5) subarea. Both MMAs have area-wide average LOS that is well below adopted standards. Of the three system intersections located in this area, all are operating within their respective LOS standards.

Northeast Bellevue/Crossroads

This area encompasses the Crossroads (MMA 5) and Northeast Bellevue (MMA 6) subareas. Both MMAs have area-wide average LOS that is well below adopted standards. Of the 6 system intersections located in this area, all are operating within their respective LOS standards.

Central Bellevue

This area encompasses the South Bellevue (MMA 7), Richards Valley (MMA 8) and East Bellevue (MMA 9) subareas. All three MMAs have area-wide average LOS that is well below adopted standards. Of the 23 system intersections located in this area, 22 are operating within their respective standards, and the following one intersection is operating at an LOS level that exceeds its standard:

- (71) Lake Hills Connector/SE 8th Street/7th Street – V/C of 0.91 (LOS E) exceeds its V/C threshold of 0.85

Eastgate

This area encompasses the Eastgate (MMA 10) subarea. This MMA has an area-wide average LOS that is well below adopted standards. Of the eight system intersections located in this area, all are operating within their respective LOS standards.

Factoria

This area encompasses the Factoria (MMA 13) subarea. This MMA has an area-wide average LOS that is well below adopted standards. Of the eight system intersections located in this area, seven are operating within their respective standards, and the following one intersection is operating at an LOS level that exceeds its standard:

- (284) 124th Avenue SE/Coal Creek Parkway – V/C of 0.99 (LOS E-) exceeds its V/C threshold of 0.95

South Bellevue

This area encompasses the Newcastle (MMA 11) and Newport Hills (MMA 14) subareas. This area has an area-wide average LOS that is well below adopted standards. Of the three system intersections located in this area, all are operating within their respective LOS standards. (Note, no system intersections are located in MMA 14. All three are located in MMA 11).

3.1.2. Neighborhood Conditions

Although the City works at the regional and local levels to keep daily commuter traffic off its residential streets, residents continue to express concern about increased cut-through traffic and speeding. The City addresses transportation system impacts on its many neighborhoods through a number of programs, including: the Neighborhood Traffic Calming Program, Neighborhood Enhancement Program, and Residential Permit Parking Zone (RPZ) Program.

The Neighborhood Traffic Calming Program uses a two-phase process to address excessive vehicle speeds, non-local traffic, accidents, and spill-over parking that often result from traffic congestion on arterial streets. During the first year, Phase I, the city focuses on changing driver behavior through education and enforcement measures. Most often, these first-year measures are effective in addressing traffic concerns. However, if they are not, Phase II begins, and physical treatments such as speed humps and traffic circles are considered. These projects can include neighborhood entry treatments, medians, raised crosswalks and stationary radar signs to monitor and display speeds on local streets.

The Neighborhood Enhancement Program constructs improvements such as sidewalks and trails requested by residents in select neighborhoods (three to four per year). The program rotates through neighborhoods on a three-year cycle.

The RPZ Program effectively addresses neighborhood spillover parking. A Residential Permit Parking Zone is an area established by a city ordinance to restrict non-residential parking on neighborhood streets. A neighborhood may be eligible for zoned or general parking restrictions if it regularly experiences a significant amount of spillover parking from adjacent businesses, is within a three-block radius of downtown Bellevue or is near major generators of parked cars (high schools, shopping malls, etc.). RPZ restrictions require majority support from neighborhood residents, as well as City Council approval. The City has 16 designated permit parking zones.

3.1.3. Traffic Safety

The city serves as a model for the development and implementation of an active and consistently applied Accident Reduction Program, which annually identifies the intersections and mid-block corridors with the highest accident rates. A review of the highest accident intersections reveals that in 2007, no single intersection had an accident rate higher than two accidents per million entering vehicles and only six intersections had an accident rate greater than one accident per million entering vehicles.

The Annual Accident Study assesses the significance of police-investigated accidents in the city; recent findings include:

- Although the city has significantly grown in size and population from 1993–2007, the total number of reported accidents has not increased proportionately.
- The trend line for the number of total injuries resulting from traffic accidents reveals a general decrease.
- The number of traffic-related fatalities remains low, with an average of 2.4 fatalities per year in the period from 2003 through 2007. This is well below national average rates, which would put the total at approximately 17 annual fatalities for a city of Bellevue's size.

3.1.4. Travel Alternatives

Reliable and responsive alternatives to the single-occupant vehicle (SOV) are a vital component of the transportation system. The City has an aggressive Transportation Demand Management (TDM) program and a growing transit network. Following are some relevant data and facts:

- Recent mode split surveys indicate two (Bel/Red/Northup and Factoria) of the five commercial MMAs (Downtown, Bel-Red/Northup, Crossroads, Eastgate and Factoria) have exceeded their Comprehensive Plan mode-split target goals for 2005, meaning that more people than anticipated in these areas are choosing alternative modes of transportation for their daily commutes.
- During 2007, the City worked with 61 employers affected by the State Commute Trip Reduction (CTR) Act (sites with 100 or more employees) to implement commute trip reduction efforts; approximately 28,000 employees work at these affected worksites. Data show that worksites which have participated in the program since the start in 1993 have reduced their average SOV commute rate by 10%, from a baseline of 79% in 1993 to 69% in 2005. The City adopted an updated Commute Trip Reduction Plan in March 2008, to conform with requirements of the State of Washington CTR Efficiency Act.
- In March 2008, the City adopted a TDM plan for Downtown that has the objective of shifting 5,000 daily commute trips away from single-occupancy vehicle mode by the end of 2011. The plan, Connect Downtown, was developed pursuant to the Growth & Transportation Efficiency Center program of the Washington State Department of Transportation; implementation of the plan is funded by a State grant and local funds.

- Sound Transit and King County Metro play a key role in increasing non-SOV travel. In addition to providing transit service, they provide five permanent park and ride lots in Bellevue. These generally operate at or near capacity, although in late 2004, King County Metro opened a new parking garage at the Eastgate Park & Ride, which expanded capacity by 66% to 1,170 stalls. Sound Transit constructed dedicated HOV on- and off- ramps to I-90 at 142nd Avenue SE to serve the lot.
- The City collaborated with the Washington State Department of Transportation (WSDOT) and transit agencies to improve speed and reliability of transit through the Access Downtown project, including the I-405 high-occupancy vehicle (HOV) direct access ramps at NE 6th Street, which opened in late 2004, providing an efficient linkage to the Downtown Transit Center.

The Bellevue Transit Plan (2003) outlines a six-year strategy for transit operations within and around the city. Although implementation is not yet complete, certain service improvements occurred in 2007 and 2008, in conjunction with King County Metro's Transit Now initiative.

3.1.5. Pedestrian and Bicycle Systems

The City of Bellevue Pedestrian and Bicycle Transportation Plan Update (1999) identifies goals for accommodating walking and bicycling and specifies needed non-motorized transportation facilities. The City is making progress in implementing pedestrian and bicycle facility improvements along key routes throughout the city, as identified in the plan, although Pedestrian and especially Bicycle System completion in most MMAs falls short of targets in the Comprehensive Plan. As of the end of 2006, the adopted Pedestrian System route network is 60% complete and the Bicycle System route network is 31% complete. Identified inadequacies in non-motorized transportation facilities generally consist of:

- streets with no sidewalks or other pedestrian facilities;
- streets that have discontinuous sidewalks or pedestrian facilities, especially along arterial roadways and in areas that serve as primary walking routes for school children;
- streets with inadequate sidewalk widths, especially in commercial areas with high volumes of pedestrians;
- missing segments of planned trail links that will serve pedestrians and, in some cases, bicyclists; and
- bicycle system streets that carry heavy vehicle volumes and lack a wide curb lane, paved shoulder or bike lane.

The City started work on an updated Pedestrian and Bicycle Plan in 2006. The updated plan will be presented for adoption by the City Council in early 2009. The non-motorized projects in the 2009–2020 TFP address locations identified as deficient in the 1999 Pedestrian and Bicycle Transportation Plan and their selection was informed by the current planning process for the new Pedestrian and Bicycle Plan.

3.2. Impacts

This section assesses the potential impacts of the No Action and Proposed Action alternatives on the transportation system. As discussed in Chapter 2, the No Action alternative includes only the projects that are in the current CIP. The Proposed Action alternative includes adoption of the full list of 2009–2020 TFP projects summarized in Table 2-5.

Assessment of potential impacts of the No Action and Proposed Action alternatives was conducted in the following areas:

- overall system performance;
- intersection and arterial traffic operations;
- neighborhood impacts;
- safety; and
- pedestrian/bicycle impacts.

3.2.1. Overall System Performance

The locations of traffic volume analysis locations are shown in Figure 3-2. Table 3-2 summarizes the one-hour average of the two-hour PM peak arterial volumes for current (2006) and projected 2020 volumes under the No Action and Proposed Action alternatives at each of the analysis locations.

In general, volumes on arterials would increase at a rate consistent with the average over the next 12 years. As development, population, and traffic volumes increase, intersections in all Mobility Management Areas are predicted to operate at worsened LOS between now and 2020.

Areas with the greatest increase (i.e., worsening) in traffic volumes are the Downtown, Bel-Red and Bridle Trails MMAs. In Downtown, increases greater than 60% are projected on some roadways between now and 2020. In the Bel-Red area, increases at some locations are projected to exceed 100%. In the Bridle Trails area, traffic volume increases at many locations are projected to range between 30% and 50%.

In general, the change of 2020 roadway volumes over existing are projected to be within 5% of each other, under the No Action and the Proposed Action alternatives; with No Action volumes a little higher at some locations, and Proposed Action volumes a little higher at others. The following locations have larger discrepancies between the No Action and Proposed Action alternatives:

- Projected volumes on 130th Avenue NE, south of NE 24th Street (ID# 22), are lower under the Proposed Action alternative than No Action alternative, while volumes on 124th Avenue NE, south of Northup Way (ID# 23), are substantially higher. This is likely due to substantial improvement proposed on 124th Avenue NE, including a connection to SR 520, under the Proposed Action alternative.

- Projected volumes on 116th Avenue NE, north of NE 12th Street (ID# 33), are lower under the Proposed Action alternative than the No Action alternative. This is likely due to substantial improvement proposed on parallel routes under the Proposed Action alternative.
- Projected volumes on NE 4th Street west of 112th Avenue NE (ID# 42), are lower under the Proposed Action alternative than the No Action alternative. This is likely due to substantial improvement proposed on parallel downtown routes under the Proposed Action alternative.
- Projected volumes on NE 8th Street east of 140th Avenue NE (ID# 47), are higher under the Proposed Action alternative than the No Action alternative. This is likely due to improvement to the intersection of NE 8th Street and 148th Avenue NE, which would make NE 8th Street a more attractive route.
- Projected volumes on 116th Avenue SE, south of Main Street (ID# 60) and SE 8th Street, west of Lake Hills Connector (ID# 61) are lower under the Proposed Action alternative than the No Action alternative. This is likely due to new roadway connectors to the north under the Proposed Action alternative, that would draw traffic away from these roadways

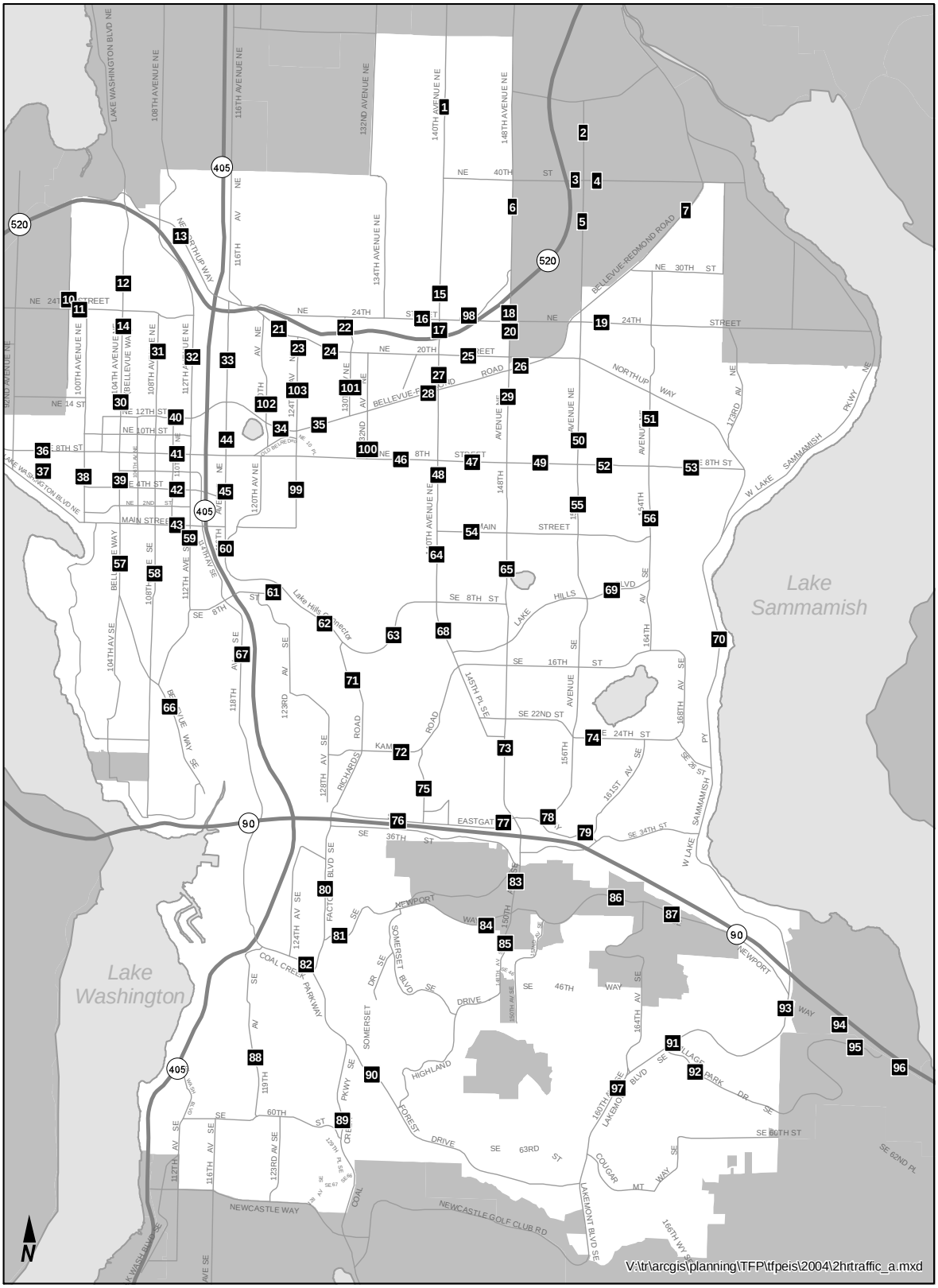


Figure 3-2. Traffic Volume Locations

Table 3-2. Existing and Projected Future Traffic Volumes

Roadway Location Index	Roadway Location	Mobility Management Area	Average Traffic Volume (vehicles per hour averaged over 2 hours in PM Peak)			% Change in No Action over Existing	% Change in Proposed Action over Existing
			Existing (2006 Observed)	Future (2020) No Action Network	Future (2020) Proposed Action Network		
1	140th Avenue NE, north of NE 40th Street	2	990	1,378	1,382	39%	40%
2	156th Avenue NE, north of NE 40th Street	0	1,267	1,589	1,596	25%	26%
3	NE 40th Street, west of 156th Avenue NE	0	2,545	3,158	3,131	24%	23%
4	NE 40th Street, east of 156th Avenue NE	0	1,632	2,383	2,386	46%	46%
5	156th Avenue NE, south of NE 40th Street	0	2,130	2,340	2,315	10%	9%
6	148th Avenue NE, south of NE 40th Street	2	1,770	2,556	2,541	44%	44%
7	Bel-Red Road, south of NE 40th Street	6	1,063	1,261	1,252	19%	18%
8	84th Avenue NE, north of NE 24th Street	0	1,181	1,395	1,395	18%	18%
9	NE 24th Street, east of 84th Avenue NE	0	404	518	517	28%	28%
10	98th Avenue NE, north of NE 24th Street	1	182	185	186	2%	2%
11	NE 24th Street, east of 98th Avenue NE	0	689	732	733	6%	6%
12	Bellevue Way NE, north of NE 24th Street	1	1,998	2,656	2,619	33%	31%
13	Northup Way, east of 108th Avenue NE	1	1,299	1,706	1,661	31%	28%
14	Bellevue Way NE, south of NE 24th Street	1	1,914	2,345	2,336	23%	22%

Roadway Location Index	Roadway Location	Mobility Management Area	Average Traffic Volume (vehicles per hour averaged over 2 hours in PM Peak)			% Change in No Action over Existing	% Change in Proposed Action over Existing
			Existing (2006 Observed)	Future (2020) No Action Network	Future (2020) Proposed Action Network		
15	140th Avenue NE, north of NE 24th Street	2	1,217	1,132	1,165	-7%	-4%
16	NE 24th Street, west of 140th Avenue NE	2	1,026	1,446	1,435	41%	40%
17	140th Avenue NE, south of NE 24th Street	2	1,897	2,149	2,135	13%	13%
18	148th Avenue NE, north of NE 24th Street	12	3,793	3,795	3,723	0%	-2%
19	NE 24th Street, east of 156th Avenue NE	12	1,113	1,274	1,280	14%	15%
20	148th Avenue NE, south of NE 24th Street	12	2,694	2,954	2,943	10%	9%
21	Northup Way, west of 124th Avenue NE	12	1,547	1,633	1,700	6%	10%
22	130th Avenue NE, south of NE 24th Street	2	573	606	518	6%	-10%
23	124th Avenue NE, south of Northup Way	12	653	1,371	1,656	110%	154%
24	Northup Way, east of 124th Avenue NE	12	2,317	2,951	2,980	27%	29%
25	NE 20th Street, east of 140th Avenue NE	12	2,140	2,630	2,685	23%	25%
26	Bel-Red Road, east of 148th Avenue NE	12	1,605	2,042	2,051	27%	28%
27	140th Avenue NE, north of Bel-Red Road	12	1,673	1,800	1,749	8%	5%
28	140th Avenue NE, south of Bel-Red Road	12	1,536	1,696	1,632	10%	6%
29	148th Avenue NE, south of Bel-Red Road	12	2,771	3,195	3,187	15%	15%
30	Bellevue Way NE, north of NE 12th Street	3	2,033	2,414	2,403	19%	18%

Roadway Location Index	Roadway Location	Mobility Management Area	Average Traffic Volume (vehicles per hour averaged over 2 hours in PM Peak)			% Change in No Action over Existing	% Change in Proposed Action over Existing
			Existing (2006 Observed)	Future (2020) No Action Network	Future (2020) Proposed Action Network		
31	108th Avenue NE, north of NE 12th Street	3	191	313	305	64%	60%
32	112th Avenue NE, north of NE 12th Street	3	1,187	1,272	1,261	7%	6%
33	116th Avenue NE, north of NE 12th Street	2	1,077	1,266	1,001	18%	-7%
34	NE 12th Street, west of 124th Avenue NE	12	2,057	2,025	1,970	-2%	-4%
35	Bel-Red Road, west of 130th Avenue NE	12	2,513	3,164	3,040	26%	21%
36	NE 8th Street, east of 92nd Avenue NE	1	569	730	731	28%	28%
37	Lake Washington Boulevard NE, east of 92nd Avenue NE	1	453	549	541	21%	19%
38	100th Avenue NE, south of NE 8th Street	3	896	1,214	1,198	35%	34%
39	Bellevue Way NE, south of NE 6th Street	3	2,053	2,715	2,705	32%	32%
40	NE 12th Street, west of 112th Avenue NE	3	1,955	2,622	2,608	34%	33%
41	NE 8th Street, west of 112th Avenue NE	3	2,867	3,358	3,374	17%	18%
42	NE 4th Street, west of 112th Avenue NE	3	1,843	2,628	2,510	43%	36%
43	Main Street, west of 112th Avenue	3	1,546	1,877	1,959	21%	27%
44	116th Avenue NE, north of NE 8th Street	4	1,905	2,855	2,948	50%	55%
45	116th Avenue NE, south of NE 8th Street	4	2,083	2,454	2,420	18%	16%
46	NE 8th Street, west of 140th Avenue NE	9	1,990	2,582	2,710	30%	36%

Roadway Location Index	Roadway Location	Mobility Management Area	Average Traffic Volume (vehicles per hour averaged over 2 hours in PM Peak)			% Change in No Action over Existing	% Change in Proposed Action over Existing
			Existing (2006 Observed)	Future (2020) No Action Network	Future (2020) Proposed Action Network		
47	NE 8th Street, east of 140th Avenue NE	9	1,636	1,970	2,089	20%	28%
48	140th Avenue NE, south of NE 8th Street	9	1,445	1,723	1,747	19%	21%
49	NE 8th Street, east of 148th Avenue NE	9	1,541	1,775	1,820	15%	18%
50	156th Avenue NE, north of NE 8th Street	5	1,948	2,256	2,252	16%	16%
51	164th Avenue NE, south of Northup Way	6	881	1,170	1,162	33%	32%
52	NE 8th Street, west of 164th Avenue NE	6	1,040	1,120	1,123	8%	8%
53	NE 8th Street, east of 164th Avenue NE	6	621	662	660	7%	6%
54	Main Street, east of 140th Avenue	9	493	597	609	21%	24%
55	156th Avenue NE, north of Main Street	9	1,337	1,615	1,608	21%	20%
56	164th Avenue NE, north of Main Street	9	829	1,088	1,077	31%	30%
57	Bellevue Way SE, south of SE 3rd Street	3	2,307	2,558	2,564	11%	11%
58	108th Avenue SE, south of SE 4th Street	3	379	557	573	47%	51%
59	112th Avenue SE, south of Main Street	3	1,976	2,523	2,616	28%	32%
60	116th Avenue SE, south of Main Street	4	2,142	2,819	2,527	32%	18%
61	SE 8th Street, west of Lake Hills Connector	8	1,540	1,833	1,524	19%	-1%
62	Lake Hills Connector, south of SE 8th Street	8	2,744	3,150	3,214	15%	17%

Roadway Location Index	Roadway Location	Mobility Management Area	Average Traffic Volume (vehicles per hour averaged over 2 hours in PM Peak)			% Change in No Action over Existing	% Change in Proposed Action over Existing
			Existing (2006 Observed)	Future (2020) No Action Network	Future (2020) Proposed Action Network		
63	Lake Hills Connector, east of Richards Road	8	1,004	1,441	1,409	44%	40%
64	140th Avenue SE, north of SE 8th Street	8	1,450	1,660	1,610	14%	11%
65	148th Avenue SE, south of Main Street	9	3,011	3,360	3,361	12%	12%
66	Bellevue Way SE, east of 112th Avenue SE	7	3,536	3,647	3,645	3%	3%
67	118th Avenue SE, south of SE 8th Street	7	901	1,055	1,061	17%	18%
68	145th Place SE, south of SE 8th Street	8	1,383	1,542	1,537	11%	11%
69	Lake Hills Boulevard, east of 156th Avenue SE	9	384	440	441	15%	15%
70	W Lake Sammamish Parkway, south of Northup Way	9	1,202	1,431	1,423	19%	18%
71	Richards Road, north of Kamber Road	8	1,962	2,253	2,278	15%	16%
72	Kamber Road east of Richards Road	8	775	856	855	10%	10%
73	148th Avenue SE, south of SE 24th Street	9	3,959	4,296	4,356	9%	10%
74	SE 24th Street, east of 156th Avenue SE	9	238	253	247	6%	4%
75	139th Avenue SE, south of Kamber Road	8	540	768	771	42%	43%
76	SE Eastgate Way, east of Richards Road	13	1,011	1,134	1,126	12%	11%
77	SE Eastgate Way, west of 150th Avenue SE	10	1,361	1,451	1,445	7%	6%
78	156th Avenue SE, north of SE Eastgate Way	10	1,352	1,531	1,524	13%	13%

Roadway Location Index	Roadway Location	Mobility Management Area	Average Traffic Volume (vehicles per hour averaged over 2 hours in PM Peak)			% Change in No Action over Existing	% Change in Proposed Action over Existing
			Existing (2006 Observed)	Future (2020) No Action Network	Future (2020) Proposed Action Network		
79	SE Eastgate Way, west of 161st Avenue SE	10	841	1,728	1,715	105%	104%
80	128th Avenue SE, north of SE 41st Street	0	2,130	2,149	2,149	1%	1%
81	SE Newport Way, east of 128th Avenue SE	13	1,214	1,257	1,275	4%	5%
82	Coal Creek Parkway, west of SE Newport Way	13	2,268	2,322	2,331	2%	3%
83	150th Avenue SE, north of SE Newport Way	11	1,609	2,335	2,353	45%	46%
84	SE Newport Way, west of 150th Avenue SE	11	664	841	856	27%	29%
85	150th Avenue SE, south of SE Newport Way	11	789	929	928	18%	18%
86	SE Newport Way, west of 164th Avenue SE	11	531	742	736	40%	39%
87	SE Newport Way, east of 164th Avenue SE	11	343	440	426	28%	24%
88	119th Avenue SE, north of SE 52nd Street	14	713	1,081	1,114	52%	56%
89	Coal Creek Parkway, south of Forest Drive SE	11	2,521	3,346	3,405	33%	35%
90	Forest Drive SE, east of Coal Creek Parkway	11	873	1,059	1,078	21%	23%
91	Lakemont Boulevard SE, east of Village Park Drive SE	11	1,188	1,211	1,235	2%	4%
92	Village Park Drive SE, south of Lakemont Boulevard SE	11	452	535	538	18%	19%
93	Lakemont Boulevard SE, south of SE Newport Way	11	1,411	1,459	1,474	3%	4%

Roadway Location Index	Roadway Location	Mobility Management Area	Average Traffic Volume (vehicles per hour averaged over 2 hours in PM Peak)			% Change in No Action over Existing	% Change in Proposed Action over Existing
			Existing (2006 Observed)	Future (2020) No Action Network	Future (2020) Proposed Action Network		
94	SE Newport Way, north of Village Park Drive SE	0	878	872	962	-1%	10%
95	Village Park Drive SE, west of SE Newport Way	0	344	382	773	11%	125%
96	SE Newport Way, south of Village Park Drive SE	0	772	964	1,016	25%	32%
97	Lakemont Boulevard SE, west of 164th Avenue SE	11	1,654	1,941	1,957	17%	18%
98	NE 29th Place, north of NE 24th Street	2	1,372	1,659	1,674	21%	22%
99	124th Avenue NE, south of NE 5th Street	8	495	734	803	48%	62%
100	132nd Avenue NE, north of NE 8th Street	8	319	654	656	105%	106%
101	130th Avenue NE, north of NE 15th/16th Street	12	746	1,052	706	41%	-5%
102	120th Avenue NE, south of NE 15th/16th Street	12	493	1,977	2,106	301%	327%
103	124th Avenue NE, north of NE 15th/16th Street	12	653	1,371	1,656	110%	154%

3.2.2. Intersection and Arterial Traffic Operations

Future roadway operating conditions under the No Action and Proposed Action alternatives, as reflected by the existing LOS presented in Table D-7 (see Appendix D), is discussed in the following sections.

North Bellevue/Bridle Trails

This area encompasses the North Bellevue (MMA 1) and Bridle Trails (MMA 2) subareas. Table 3-3 shows that one capacity project is proposed in this area. It is included in both the No Action and Proposed Action alternatives.

Table 3-3. TFP Projects for No Action and Proposed Action–North Bellevue/Bridle Trails

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
079	2	Northup Way / Bellevue Way NE—NE 24th Street	X	X

Table 3-4 summarizes intersection LOS at key locations within this area, under the No Action and Proposed Action alternatives. The table shows that operations under the Proposed Action alternative will be slightly better at some locations and slightly worse at others, compared to No Action. The Proposed Action alternative is expected to improve one location, 116th Avenue NE / Northup Way NE, to levels within the LOS standard of 0.80 for Bridle Trails. Overall, the area-wide V/C for this area is expected to improve under the Proposed Action alternative.

Table 3-4. 2020 Level of Service under No Action and Proposed Action–North Bellevue/Bridle Trails

		No Action Alternative		Proposed Action Alternative		
ID#	Intersection	V/C	LOS	V/C	LOS	V/C Difference
69	Bellevue Way NE / NE 24th Street	0.944	E+	0.939	E+	-0.005
64	140th Avenue NE / NE 24th Street	0.917	E+	0.923	E+	+0.006
79	148th Avenue NE / NE 40th Street	0.867	D-	0.870	D-	+0.003
114	116th Avenue NE / Northup Way	0.852	D-	0.712	C	-0.140
116	115th Place NE / Northup Way	1.068	F	0.916	E+	-0.152
188	148th Avenue NE / NE 29th Place	0.989	E-	0.929	E+	-0.060

Downtown

This area encompasses the Downtown (MMA 3) subarea. Table 3-5 shows that ten capacity projects are proposed in this area under the Proposed Action alternative. Of these, three projects are also included under the No Action alternative.

Table 3-5. TFP Projects for No Action and Proposed Action–Downtown

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
110	3	110th Avenue NE / NE 4th Street—NE 8th Street	X	X
172	3	106th/108th One Way Couplet		X
184	3	NE 8th Street / 106th Avenue NE—108th Avenue NE	X	X
190	3	NE 2nd Street/Bellevue Way—112th Avenue NE	X	X
197	3	NE 2nd Street Extension and I-405 interchange		X
216	3	112th Avenue NE / NE 2nd Street		X
219	3	NE 8th Street / 106th Avenue NE		X
222	3	Bellevue Way NE / NE 4th Street		X
223	3	Bellevue Way NE / NE 8th Street		X
225	3	Bellevue Way NE / NE 2nd Street		X

Table 3-6 summarizes intersection LOS at key locations within this area, under the No Action and Proposed Action alternatives. The table shows that one intersection, 112th Avenue NE / NE 8th Street, is projected to exceed the LOS standard of 0.95 for Downtown, under both No Action and Proposed Action. Overall, operations under the Proposed Action alternative are generally projected to be better in this area than they are under the No Action alternative. Overall, the area-wide V/C for this area is expected to improve under the Proposed Action alternative.

Table 3-6. 2020 Level of Service under No Action and Proposed Action–Downtown

		No Action Alternative		Proposed Action Alternative		
ID#	Intersection	V/C	LOS	V/C	LOS	V/C Difference
7	Bellevue Way NE / NE 8th Street	0.823	D+	0.822	D+	-0.001
9	Bellevue Way / Main Street	0.874	D-	0.817	D+	-0.057
21	108th Avenue NE / NE 8th Street	0.941	E+	0.927	E+	-0.014
25	112th Avenue NE / NE 12th Street	0.920	E+	0.871	D-	-0.049
26	112th Avenue NE / NE 8th Street	1.238	F	1.211	F	-0.027
36	112th Avenue / Main Street	0.935	E+	0.928	E+	-0.007

Bel-Red/Wilburton

This area encompasses all but the easternmost portion of the Bel-Red (MMA 12) subarea and Wilburton (MMA 4) subarea. Table 3-7 shows that 14 capacity projects are proposed in this area under the Proposed Action alternative. Of these, one project is also included under the No Action alternative.

Table 3-7. TFP Projects for No Action and Proposed Action–Bel-Red/Wilburton

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
193	3, 4	NE 10th Street / I-405		X
207	4	NE 4th Street Extension / 116th Avenue NE—120th Avenue NE; and widening of 120th Avenue / NE 4th Street—NE 8th Street		X
211	4	NE 6th Street Extension		X
090	12	116th Avenue NE / NE 12th Street—1600 block		X
091 / 106	12	Northup Way / 120th Avenue NE—124th Avenue NE	X	X
208	12	120th Avenue NE / NE 8th Street—Northup Way		X
209	12	NE 15th/16th Street (Phase I) / 116th Avenue at NE 12th Street to 124th Avenue NE		X
210	12	124th Avenue NE / NE 15th/16th Street —Northup Way		X
213	12	124th Avenue NE / Bel-Red Road—NE 15th/16th Street		X
214	12	124th Avenue NE / Bel-Red Road / Old Bel-Red Road		X
215	12	NE 15th Street/NE16th Street (Phase II) / 124th Avenue NE—136th Place NE; and 136th Place NE / NE 16th Street—NE 20th Street		X
217	12	124th Avenue NE / SR-520		X
218	12	130th Avenue NE / NE 20th Street—NE Bel-Red Road		X
226	12	NE 11th/12th Street—116th Avenue NE Connection (across from Overlake Hospital)		X

Table 3-8 summarizes intersection LOS at key locations in this area, under the No Action and Proposed Action alternatives. The table shows that operations under the Proposed Action alternative will be slightly better at some locations and slightly worse at others, compared to No Action alternative. The Proposed Action alternative is expected to improve three locations to levels within LOS standards: 116th Avenue NE / Main Street is forecasted to be under the Wilburton V/C standard of 0.85; 120th Avenue NE / NE 12th Street and 148th Avenue NE / NE 24th Street are forecast to under the Bel-Red area V/C standard of 0.95. The Proposed Action

alternative includes a project to extend NE 4th Street east of 116th Avenue; adding the new roadway link improves overall mobility, but degrades performance at the 116th Avenue NE / NE 4th Street intersection because of the added movements involved with the new east leg of the intersection. Overall, the area-wide V/C for this area is expected to improve under the Proposed Action alternative.

Table 3-8. 2020 Level of Service under No Action and Proposed Action–Bel-Red/Wilburton

		No Action Alternative		Proposed Action Alternative		
ID#	Intersection	V/C	LOS	V/C	LOS	V/C Difference
30	116th Avenue NE / NE 8th Street	1.069	F	0.913	E+	-0.156
73	116th Avenue / Main Street	0.972	E-	0.793	C	-0.179
131	116th Avenue SE / SE 1st Street	0.792	C	0.633	B	-0.159
139	116th Avenue NE / NE 4th Street	0.755	C	0.869	D-	+0.114
233	120th Avenue NE / NE 8th Street	0.901	D-	0.907	E+	+0.006
29	116th Avenue NE / NE 12th Street	0.911	E+	0.866	D-	-0.045
32	120th Avenue NE / NE 12th Street	1.374	F	0.865	D-	-0.509
37	130th Avenue NE / Bel-Red Road	0.782	C	0.669	B	-0.113
39	140th Avenue NE / NE 20th Street	0.841	D+	0.862	D-	+0.021
40	140th Avenue NE / Bel-Red Road	0.822	D+	0.792	C	-0.030
81	148th Avenue NE / NE 24th Street	0.976	E-	0.898	D-	-0.078
88	124th Avenue NE / Northup Way NE	0.878	D-	0.845	D+	-0.033
117	120th Avenue NE / NE 20th Street	0.915	E+	0.741	C	-0.174

Overlake

This area encompasses the easternmost portion of the Bel-Red (MMA 12) subarea and the northernmost portion of the Crossroads (MMA 5) subarea. Table 3-9 shows that six capacity projects are proposed in this area under the Proposed Action alternative. Of these, two projects are also included under the No Action alternative.

Table 3-9. TFP Projects for No Action and Proposed Action–Overlake

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
224	5	Bel-Red Road / NE 20th Street		X
094	12	148th Avenue NE / Bel-Red Road	X	X
101	12	148th Avenue NE / NE 20th Street	X	X

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
102	12	Bel-Red Road / NE 24th Street		X
157	12	148th Avenue NE / NE 24th Street		X
198	12	Bel-Red Road / NE 20th Place		X

Table 3-10 summarizes intersection LOS at key locations within this area, under the No Action and Proposed Action alternatives. The table shows that operations under the Proposed Action alternative will be slightly better at some locations and slightly worse at others, compared to the No Action alternative. Three locations (148th Avenue NE / Bellevue-Redmond Road, Bellevue-Redmond Road / NE 24th Street, and 156th Avenue NE / NE 24th Street) are projected to exceed the Bel-Red standard of 0.95 under both the No Action and Propose Action alternatives. At each of these three locations, the Proposed Action is projected to slightly worsen operations compared to the No Action alternative. The Proposed Action alternative includes a project to add a northbound to westbound left turn lane at Bel-Red Road / NE 24th Street and allow peak hour turns (currently, they are forbidden); adding the turn lane and allowing this movement improves overall mobility, but degrades performance at the intersection because this is a critical movement.

Table 3-10. 2020 Level of Service under No Action and Proposed Action–Overlake

		No Action Alternative		Proposed Action Alternative		
ID#	Intersection	V/C	LOS	V/C	LOS	V/C Difference
47	148th Avenue NE / NE 20th Street	0.944	E+	0.872	D-	-0.072
48	148th Avenue NE / Bel-Red Road	0.953	E-	0.970	E-	+0.017
59	Bel-Red Road / NE 24th Street	0.994	E-	1.165	F	+0.171
60	156th Avenue NE / Bel-Red Road	0.919	E+	0.806	D+	-0.113
61	156th Avenue NE / NE 24th Street	1.075	F	1.080	F	+0.005

Northeast Bellevue/Crossroads

This area encompasses the Crossroads (MMA 5) and Northeast Bellevue (MMA 6) subareas. The only capacity project in these MMAs is TFP-224, which is located in the Overlake area and described above.

Table 3-11 summarizes intersection LOS at key locations within this area, under the No Action and Proposed Action alternatives. The table shows that operations under the Proposed Action alternative will be slightly better at some locations and slightly worse at others, compared to the No Action alternative. Two locations are projected to exceed their respective standards under both the No Action and Propose Action alternatives: 156th Avenue NE / Northup Way is projected to exceed the Crossroads standard of 0.90, and 164th Avenue NE / NE 8th Street is

projected to exceed the Northeast Bellevue standard of 0.80. At each of these three locations, the Proposed Action is projected to slightly worsen operations compared to the No Action alternative. Overall, the area-wide V/C for this area is expected to be approximately the same between the No Action alternative and Proposed Action alternative.

Table 3-11. 2020 Level of Service under No Action and Proposed Action–Northeast Bellevue/Crossroads

		No Action Alternative		Proposed Action Alternative		
ID#	Intersection	V/C	LOS	V/C	LOS	V/C Difference
58	Bel-Red Road / NE 20th Street	0.665	B	0.658	B	-0.007
62	156th Avenue NE / Northup Way	0.913	E+	0.938	E+	0.025
63	156th Avenue NE / NE 8th Street	0.763	C	0.773	C	0.010
75	164th Avenue NE / NE 24th Street	0.757	C	0.755	C	-0.002
76	164th Avenue NE / Northup Way	0.767	C	0.766	C	-0.001
87	164th Avenue NE / NE 8th Street	0.907	E+	0.908	E+	0.001

Central Bellevue

This area encompasses the South Bellevue (MMA 7), Richards Valley (MMA 8) and East Bellevue (MMA 9) subareas. Table 3-12 shows that two capacity projects are proposed in this area under the Proposed Action alternative. Of these, one project is also included under the No Action alternative.

Table 3-12. TFP Projects for No Action and Proposed Action–Central Bellevue

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
160	9	145th Place SE / SE 16th Street to SE 24th Street; and SE 22nd St / 145th Place SE—156th Avenue SE	X	X
168	9	148th Avenue NE / NE 8th Street		X

Table 3-13 summarizes intersection LOS at key locations within this area, under the No Action and Proposed Action alternatives. All intersections listed in the table are projected to exceed the LOS standard of 0.85 (the standard is the same for all three MMAs) under both the No Action and Proposed Action alternatives. The table shows that operations under the Proposed Action alternative will be slightly better at some locations and slightly worse at others, compared to the No Action alternative. LOS at the 124th Avenue NE / NE 8th Street intersection is expected to degrade under the Proposed Action alternative due to the additional traffic attracted by improvements to 124th Avenue farther north, in the Bel-Red area.

Table 3-13. 2020 Level of Service under No Action and Proposed Action–Central Bellevue

		No Action Alternative		Proposed Action Alternative		
ID#	Intersection	V/C	LOS	V/C	LOS	V/C Difference
102	118th Avenue SE / SE 8th Street	0.865	D-	0.853	D-	-0.012
35	124th Avenue NE / NE 8th Street	0.853	D-	1.005	F	0.152
71	Lake Hills Connector / SE 8th Street / 7th Street	1.114	F	1.101	F	-0.013
41	140th Avenue NE / NE 8th Street	0.966	E-	1.012	F	0.046
49	148th Avenue NE / NE 8th Street	1.058	F	0.918	E+	-0.140
50	148th Avenue NE / Main Street	0.911	E+	0.914	E+	0.003
51	148th Avenue SE / Lake Hills Boulevard	0.958	E-	0.960	E-	0.002
52	148th Avenue SE / SE 16th Street	0.954	E-	0.961	E-	0.007

Eastgate

This area encompasses the Eastgate (MMA 10) subarea. Table 3-14 shows that three capacity projects are proposed in this area under the Proposed Action alternative. Of these, no projects are included under the No Action alternative.

Table 3-14. TFP Projects for No Action and Proposed Action–Eastgate

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
154	10	148th/150th Avenue SE / I-90 westbound on-ramp—I-90 westbound off-ramp		X
162	10	156th Avenue SE / SE Eastgate Way (I-90 westbound off-ramp)		X
195	10	150th Avenue SE / SE 37th Street / I-90 off-ramp widening		X

Table 3-15 summarizes intersection LOS at key locations within this area, under the No Action and Proposed Action alternatives. The table shows that operations under the Proposed Action alternative will be slightly better at some locations and slightly worse at others, compared to the No Action alternative. The Proposed Action alternative is expected to improve one location, 150th Avenue SE/SE Eastgate Way, within the Eastgate LOS standard of 0.90. Overall, the area-wide V/C for this area is expected to improve under the Proposed Action alternative.

Table 3-15. 2020 Level of Service under No Action and Proposed Action–Eastgate

		No Action Alternative		Proposed Action Alternative		
ID#	Intersection	V/C	LOS	V/C	LOS	V/C Difference
86	156th Avenue SE / SE Eastgate Way	0.868	D-	0.799	C	-0.069
92	161st Avenue SE / SE Eastgate Way	0.681	B	0.683	B	0.002
101	150th Avenue SE / SE Eastgate Way	0.993	E-	0.891	D-	-0.102
174	150th Avenue SE / SE 38th Street	0.845	D+	0.867	D-	0.022
227	150th Avenue SE / I/90 eastbound off-ramp	0.883	D-	0.908	E+	0.025
272	139th Avenue SE / SE Eastgate Way	0.424	A	0.411	A	-0.013

Factoria

This area encompasses the Factoria (MMA 13) subarea. Table 3-16 shows that three capacity projects are proposed in this area under the Proposed Action alternative. Of these, no projects are included under the No Action alternative.

Table 3-16. TFP Projects for No Action and Proposed Action–Factoria

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
103	13	129th Place SE / SE 38th Street—Newport Way		X
120	13	Factoria Boulevard / SE Newport Way		X
220	13	SE 40th Lane / Factoria Boulevard		X

Table 3-17 summarizes intersection LOS at key locations within this area, under the No Action and Proposed Action alternatives. The table shows that operations under the Proposed Action alternative will be slightly better at some locations and slightly worse at others, compared to No Action alternative. One location, 124th Avenue SE / Coal Creek Parkway is projected to the Factoria LOS standard of 0.95 under both the No Action and Propose Action alternatives. At this location, the Proposed Action is projected to slightly improve operations compared to the No Action alternative. Overall, the area-wide V/C for this area is expected to improve under the Proposed Action alternative.

Table 3-17. 2020 Level of Service under No Action and Proposed Action–Factoria

		No Action Alternative		Proposed Action Alternative		
ID#	Intersection	V/C	LOS	V/C	LOS	V/C Difference
202	Factoria Boulevard / SE Newport Way	0.668	B	0.632	B	-0.036
203	SE Newport Way / Coal Creek Parkway	0.721	C	0.729	C	0.008
204	Factoria Boulevard / SE 36th Street	0.861	D-	0.849	D+	-0.012
220	I-405 northboud ramps / Coal Creek Parkway	0.797	C	0.796	C	-0.001
221	I-405 southbound ramps / Coal Creek Parkway	0.929	E+	0.931	E+	0.002
284	124th Avenue SE / Coal Creek Parkway	1.003	F	0.999	E-	-0.004

South Bellevue

This area encompasses the Newcastle (MMA 11) and Newport Hills (MMA 14) subareas. Table 3-18 shows that two capacity projects are proposed in this area under the Proposed Action alternative. Of these, no projects are included under the No Action alternative.

Table 3-18. TFP Projects for No Action and Proposed Action–South Bellevue

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
192	11	Lakemont Boulevard (Phase 1) / Cougar Mountain Way—Lewis Creek Park and 164th Avenue SE—171st Avenue SE		X
205	11	Lakemont Blvd (Phase 2) / Lewis Creek Park—164th Ave SE		X

Table 3-19 summarizes intersection LOS at key locations within this area, under the No Action and Proposed Action alternatives. All intersections listed in the table are projected to exceed the Newcastle (MMA 11) LOS standard of 0.80 under both the No Action and Proposed Action alternatives. The table shows that operations under the Proposed Action alternative will be slightly better at some locations and slightly worse at others, compared to the No Action alternative. Although the area-wide V/C for 2020 is projected to exceed the standard of 0.80, the level is closer to standard under the Proposed Action alternative (0.813) than under the No Action alternative (0.989).

Table 3-19. 2020 Level of Service under No Action and Proposed Action–South Bellevue

		No Action Alternative		Proposed Action Alternative		
ID#	Intersection	V/C	LOS	V/C	LOS	V/C Difference
98	Coal Creek Parkway / Forest Drive	1.160	F	1.197	F	0.037
133	150th Avenue SE / SE Newport Way	0.965	E-	0.719	C	-0.246
228	Lakemont Boulevard SE / SE Newport Way	0.842	D+	0.933	E+	0.091

3.2.3. Neighborhood Impacts

A major concern of city residents in neighborhoods served by the major arterials is cut-through traffic, i.e., drivers attempting to bypass congested arterials on their way to the regional freeway system or other eastside destinations, by traveling on local streets. The City's Neighborhood Traffic Calming Program will continue to address those needs by slowing traffic entering neighborhoods and discouraging cut-through routes using a combination of education, enforcement, and physical facilities.

The proposed capacity projects under the No Action alternative and Proposed Action alternative do not directly respond to residents' concerns about speeding on their neighborhood streets. However, capacity projects can reduce spillover traffic onto local streets, by improving the efficiency and traffic flow on the city's main arterials. Most of the capacity projects in the No Action and Proposed Action alternatives either directly or indirectly address this concern. However, since there are more capacity projects proposed under the Proposed Action alternative, it is expected to address the issue of cut-through traffic to a greater extent than the No Action alternative.

For example, the installation of new roadways and ramp connections in the Downtown and Bel-Red areas would facilitate the through movement of traffic to the I-405 and SR 520 corridors. Similar enhancements are expected by projects proposed in the Eastgate area.

3.2.4. Safety

The turn lane projects referenced throughout this chapter improve capacity, but also enhance safety by providing a dedicated "environment" for turning movements from major arterials onto side streets.

One of the purposes of the TFP is to identify projects at specific locations to address inherent design or engineering deficiencies that may result in accidents. In some cases, capacity projects help resolve hazards resulting from traffic congestion; or projects such as the addition of turning lanes may improve safety by lowering the number of potential vehicle conflict points. Sidewalk and bicycle projects improve safety conditions for pedestrians and bicyclists by separating them from vehicular traffic.

In addition, some projects are specifically designed to correct problems in high accident areas. Projects included in the Proposed Action alternative that address vehicular safety and operational issues are NE 20th Street / Bel-Red Road to 156th Avenue NE (TFP-196), Bel-Red Road / NE 20th Street signal (TFP 198) and the 148th Avenue Intersection Safety and Reliability project (TFP-221).

3.2.5. Pedestrian/Bicycle Impacts

Table 3-20 summarizes the bicycle and pedestrian improvement projects included in the No Action and Proposed Action alternatives. These projects primarily provide increased mobility for non-motorized travel and complete missing links in the citywide pedestrian and bicycle networks. The table shows that 26 projects are included in the Proposed Action alternative, and nine projects are included in No Action alternative. The greater number of projects included under the Proposed Action alternative is expected to result in greater improvement to non-motorized mobility than what would be expected under the No Action alternative.

Table 3-20. Bicycle and Pedestrian Projects–No Action and Proposed Action

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
173	1	108th/112th Avenue NE / south of SR 520—NE 12th Street		X
191		NE 8th Street / Lake Washington Boulevard—96th Avenue NE	X	X
235		108th Avenue NE / NE 24th Street—NE 12th Street		X
236		NE 24th Street / 108th Avenue NE—112th Avenue NE		X
171	2	NE 40th Street / 140th Avenue NE—14500 block		X
230	3	108th Avenue NE / NE 12th Street—Main Street		X
234		Main Street / 100th Avenue—116th Avenue		X
164	6	173rd Avenue NE / Northup Way—north city limit		X
159	7	108th Avenue SE / Bellevue Way SE—I-90	X	X
170	8	128th Avenue SE / SE 25th Street—SE 32nd Street	X	X
231		SE 7th Place / Lake Hills Connector—culs-de-sac		X
237		123rd Avenue SE / SE 20th Street—SE 26th Street		X
078	9	West Lake Sammamish Parkway / north city limit—I-90	X	X
158		SE 16th Street / 148th Avenue SE—156th		X

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
		Avenue SE		
175		SE 34th Street / 162nd Place SE—West Lake Sammamish Parkway	X	X
178		SE 26th Street / SE 24th Street—West Lake Sammamish Parkway	X	X
232		164th Avenue NE/SE / NE 18th Street—SE 14th Street		X
163	11	152nd Avenue SE / SE 45th Street/SE 46th Street—Newport Way	X	X
194		164th Ave SE / SE Cougar Mountain Way—SE 63rd Street		X
228		148th Avenue SE / SE 44th Street—SE 46th Street		X
238		Somerset Ave SE / SE Somerset Boulevard—136th Place SE	X	X
165	13	124th Avenue Bicycle Trail / SE 38th Street—I-90 Bicycle Trail		X
233		130th Place SE/130th Avenue SE / SE Newport Way—SE 47th Place		X
156	14	SE 60th Street / Lake Washington Boulevard—Coal Creek Parkway	X	X
227		123rd Avenue SE / SE 60th Street—SE 64th Place		X
229		116th Avenue SE / SE 60th Street— Newcastle Way		X

Table 3-21 summarizes capacity projects that also include pedestrian and/or bicycle elements under the No Action and Proposed Action alternatives. The table shows that 16 capacity projects under the Proposed Action alternative also include non-motorized improvements; while three projects under the No Action alternative include them. The greater number of projects included under the Proposed Action alternative capacity projects are expected to result in greater improvement to non-motorized mobility than what would be expected under the No Action alternative.

Table 3-21. Capacity Projects that Include Bicycle and/or Pedestrian Projects–No Action and Proposed Action

2009–2020 TFP#	MMA	Project Location	No Action Alternative	Proposed Action Alternative
079	2	Northup Way / Bellevue Way NE—NE 24th Street	X	X
184	3	NE 8th Street / 106th Avenue NE—108th Avenue NE		X
207	4	NE 4th Street Extension / 116th Avenue NE—120th Avenue NE; and widening of 120th Avenue / NE 4th Street—NE 8th Street		X
211		NE 6th Street Extension		X
160	9	145th Place SE / SE 16th Street to SE 24th Street; and SE 22nd St / 145th Place SE—156th Avenue SE	X	X
192	11	Lakemont Boulevard (Phase 1) / Cougar Mountain Way—Lewis Creek Park and 164th Avenue SE—171st Avenue SE		X
205		Lakemont Boulevard (Phase 2) / Lewis Creek Park—164th Avenue SE		X
091/106	12	Northup Way / 120th Avenue NE—124th Avenue NE	X	X
157		148th Avenue NE / NE 24th Street		X
198		Bel-Red Road / NE 20th Place		X
208		120th Avenue NE / NE 8th Street—Northup Way		X
209		NE 15th Street/NE 16th Street (Phase I) / 116th Avenue NE—124th Avenue NE		X
210		124th Avenue NE / NE 15th/16th Street Extension—Northup Way		X
213		124th Avenue NE / Bel-Red Road—NE 15th/16th Street Extension		X
214		124th Avenue NE / Bel-Red Road / Old Bel-Red Road		X
218		130th Avenue NE / NE 20th Street—Bel-Red Road		X

3.3. Mitigation Measures

Overall, the capacity, safety/operations, and non-motorized projects included in both alternatives would reduce congestion, improve mobility, and improve safety for vehicular traffic, bicyclists and pedestrians. The Proposed Action alternative includes more projects than the No Action alternative, and thus is expected to improve overall safety and mobility conditions to a greater extent. Since the projects included in both alternatives would be expected to improve transportation conditions, no mitigation is recommended.

3.4. Significant Unavoidable Adverse Impacts

MMA 11 in South Bellevue is forecast to exceed its adopted LOS standard of 0.80 V/C under both the No Action and the Proposed Action alternatives. No other significant unavoidable adverse impacts on the transportation system were identified as a result of either alternative.

Chapter 4. Air Quality

This section addresses air quality impacts associated with the implementation of the TFP. This study includes a discussion of existing air quality conditions, a summary of local policies and regulations related to air quality, and an analysis of the environmental impacts of the No Action alternative and the Proposed Action alternative.

4.1. Affected Environment

This section presents an overview of current air quality and associated regulations in the TFP project area. The affected environment provides the foundation by which impacts are assessed.

4.1.1. Regulatory Overview

The Clean Air Act (CAA), as amended in 1990, is the federal law that governs air quality in the United States. Its counterpart in Washington State is the Washington Clean Air Act of 1991. These laws set standards for the concentration of pollutants that can be in the air. At the federal level, the Environmental Protection Agency (EPA) administers the CAA. The Washington Clean Air Act is administered by the Washington State Department of Ecology (Ecology) at the state level and by local clean air agencies at the regional levels. The TFP area and surrounding areas are located in the Puget Sound region, in which the Puget Sound Clean Air Agency (PSCAA) has local jurisdiction over the project area of the proposed TFP.

Ambient Air Quality Standards

EPA and Ecology have established regulations designed to limit emissions from air pollution sources and to minimize concentrations of pollutants in the outdoor ambient air. Although their regulations are similar in stringency, each agency has established its own standards. Unless the state or local jurisdiction has adopted more stringent standards, EPA standards apply.

Table 4-1 lists both the national and Washington State ambient air quality standards for six criteria pollutants: carbon monoxide (CO), ozone, particulate matter less than 10 micrometers in size (PM10), particulate matter less than 2.5 micrometers in size (PM2.5), lead (Pb), sulfur dioxide (SO2), and nitrogen dioxide (NO2). The National Ambient Air Quality Standards (NAAQS) consist of primary standards designed to protect public health and secondary standards designed to protect public welfare (e.g., preventing air pollution damage to vegetation). Ecology has established additional ambient standards for total suspended particulates and SO2, which are more stringent than the federal requirements.

Table 4-1. National and Washington State Ambient Air Quality Standards

Pollutant	Federal		State
	Primary	Secondary	
Carbon Monoxide			
8-hour average[a]	9 ppm	No standard	9 ppm
1-hour average[a]	35 ppm	No standard	35 ppm
Ozone[2]			
8-hour average[b,c]	0.075 ppm	0.075 ppm	0.075 ppm
Total Suspended Particles			
Annual average	No standard	No standard	60 µg/m^3
24-hour average[a]	No standard	No standard	150 µg/m^3
Particulate Matter - PM10			
24-hour average[a]	150 µg/m^3	150 µg/m^3	150 µg/m^3
Particulate Matter - PM2.5			
Annual average	15 µg/m^3	15 µg/m^3	15 µg/m^3
24-hour average[a]	35 µg/m^3	35 µg/m^3	35 µg/m^3
Lead			
Quarterly average	1.5 µg/m^3	1.5 µg/m^3	1.5 µg/m^3
Sulfur Dioxide			
Annual average	0.03 ppm	No standard	0.02 ppm
24-hour average[a]	0.14 ppm	No standard	0.10 ppm
3-hour average[a]	No standard	0.50 ppm	No standard
1-hour average[d]	No standard	No standard	0.40 ppm
Nitrogen Dioxide			
Annual average	0.05 ppm	0.05 ppm	0.05 ppm

Notes: Annual standards are never to be exceeded. Short-term standards are not to be exceeded more than once per year unless noted. ppm = parts per million; PM10 = particles 10 microns or less in size; PM2.5 = particles 2.5 microns or less in size; µg/m3 = micrograms per cubic meter

[a] Not to be exceeded on more than 1 day per calendar year as determined under the conditions indicated in Chapter 173 475 WAC.

[b] In March 2008, EPA lowered the federal standard for 8-hour ozone from 0.08 parts per million (ppm) to 0.075 ppm to better protect public health.

[c] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm.

[d] 0.25 ppm are not to be exceeded more than two times in seven consecutive days.

Source: Chapter 173, Sections 470 to 475 Washington Administrative Code (WAC).

Attainment Status Designation

Ecology maintains a network of air quality monitoring stations throughout the state. These stations are placed in areas where there may be air quality problems, usually in or near urban areas or close to large air pollution sources. A limited number of additional stations are located in remote areas to provide an indication of regional background air pollution levels.

Based on monitoring information collected over a period of years, EPA and Ecology designate regions as being attainment or nonattainment areas for regulated air pollutants. Attainment status indicates that air quality in an area meets the federal, health-based ambient air quality standards, and nonattainment status indicates that air quality in an area does not meet those standards. If the measured concentrations in a nonattainment area improve so they are consistently below the federal standards, Ecology and EPA can reclassify the nonattainment area to a maintenance area. In that case, Ecology and PSCAA are required to implement maintenance plans to ensure ongoing emission reductions and continuous compliance with the federal standards.

The Puget Sound region (including the TFP area) is currently designated as a maintenance area for CO and an attainment area for all other air pollutants. However, in March 2008, the EPA lowered its 8-hour ozone standard from 0.08 parts per million (ppm) to 0.075 ppm to better protect public health. Under the new standard, the 3-year average (2006–2008) concentration measured at the Enumclaw station in King County exceeded the 8-hour ozone standard. The PSCAA will work with Ecology to make recommendations to EPA about ozone designations. Therefore, the region will be designated as a nonattainment area for ozone starting in 2010. Until then, the region is still designated an attainment area for ozone.

Transportation Conformity Regulations

Regionally significant transportation projects (regardless of the source of funding) proposed for construction within nonattainment areas or maintenance areas are subject to the Transportation Conformity regulations specified under federal regulations (EPA 40 CFR Parts 51 and 93) and state regulations (Chapter 173-420 of WAC). Regionally significant projects include construction or widening of new roadways, and widening of signalized intersections. The intent of these regulations are to ensure that transportation projects, plans, and programs affecting regional and local air quality will conform to existing plans and time tables for attaining and maintaining federal health based air quality standards. The City must demonstrate transportation conformity by the following steps:

- The City must conduct a regional air quality analysis (and confirm the findings with the Puget Sound Regional Council [PSRC]) to include in its long-range transportation plan and in PSRC's regional air quality modeling for their required periodic Air Quality Conformity Analysis; and confirm that the regional emissions (including the proposed TFP) are within the allowable emission budget specified by Ecology.
- The City must conduct a project-level CO hot-spot analysis to model the worst-case concentrations at the most heavily congested intersections, and confirm that the modeled CO concentrations are below the NAAQS.

The preceding air quality demonstrations must be included in SEPA and/or NEPA documentation for the proposed future roadway improvement projects.

Mobile Source Air Toxics Regulations

The mobile source air toxics (MSATs) are compounds emitted from highway vehicles and non-road mobile equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. The EPA has identified six priority MSATs: benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene.

The EPA has issued a number of regulations that will dramatically decrease MSATs by mandating the use of cleaner fuels and cleaner engines. The MSAT regulations were issued under the authority in Section 202 of the Clean Air Act. In its regulations, EPA examined the impacts of existing and newly promulgated mobile source control programs, including the reformulated gasoline program, national low emission vehicle standards, Tier 2 motor vehicle emissions standards, gasoline sulfur control requirements, proposed heavy-duty engine and vehicle standards, and on-highway diesel fuel sulfur control requirements. According to a Federal Highway Administration (FHWA) analysis, even if nationwide VMTs increase by 64%, reductions of 57% to 87% in MSATs are projected from 2000 to 2020 (Federal Highway Administration 2006).

Greenhouse Gas and Climate Change Issues

The issue of how emissions from human activities may affect the global climate has been the subject of extensive international research during the past several decades. There is now a broad consensus among atmospheric scientists that emissions caused by humans have already caused measurable increases in global temperature and are expected to result in significantly greater increases in temperature in the future. However, there is still considerable uncertainty about the exact magnitude of future global impacts and the best approach to mitigate the impacts.

Global Climate Change Initiatives

The United Nations' Intergovernmental Panel on Climate Change (IPCC) published its most recent sets of 5-year progress reports summarizing worldwide research on global climate change between 2001 and 2007 (Intergovernmental Panel on Climate Change 2007). These reports indicated that some level of global climate change is likely to occur and that there is a significant possibility of adverse environmental effects. Several alternative mitigation measures were evaluated by the worldwide scientific community to reduce global emissions, including the first round of worldwide reductions in greenhouse gases (GHGs), as prescribed by the Kyoto Protocol.

Global climate change is a cumulative issue related to worldwide GHG emissions rather than emissions from any individual facility. No single project emits enough GHG to influence global climate change by itself. GHG emitted anywhere on the planet remains active for roughly

100 years and eventually disperses throughout the world. Therefore, future climate change in Washington State would be influenced as much by, for example, new industrial activity in China as it would be by the future improvements of the city's roadway system.

State of Washington GHG Initiatives

In response to growing worldwide concerns, Washington State Governor Christine Gregoire issued Executive Order 07-02 in February 2007. The Executive Order established following GHG reduction goals to:

- reduce emissions to 1990 levels by 2020 and 50% below 1990 levels by 2050;
- increase Green Economy jobs to 25,000; and
- reduce expenditures on fuel imported into the State by 20% by 2020 (Washington State Department of Ecology 2008a).

In 2008, ESHB 2885, an act to create a frame work to reduce GHG emissions in Washington State, codified the GHG reduction goals of Executive Order 07-02, and also added a fourth requirement to help achieve the GHG reduction targets: 4) decrease the annual per capita vehicle miles traveled (VMT) 18% by 2020, 30% by 2035, and 50% by 2050.

In order to achieve these goals, the Washington Climate Action Team (CAT) was formed to develop a full range of state-level policy recommendations, including mitigation strategies, policies, and programs. In 2008, the CAT has refined these recommendations in its report (Washington State Department of Ecology 2008a) to provide the "most promising" strategies and opportunities to move forward for consideration by the Legislature and Governor in 2009 and beyond to meet the goals. If enacted, these recommendations can enable significant reduction of GHG emissions and per capita VMT, result in transformational shifts, and strengthen Washington's economy.

These final recommendations focus on four areas: the built environment, transportation, reducing the waste stream, and the role of SEPA in climate change. The recommended actions build a future in which citizens and goods move more efficiently with less pollution; infrastructure investments and good planning create transportation choices and sustainable communities; buildings are constructed and operated with less energy; energy is produced and used more efficiently and with less carbon; solid waste is reduced and more materials are recycled; natural ecological systems are healthier and store carbon more effectively; the impacts of development on the environment are analyzed to maximize the effectiveness of mitigating climate change and avoid needless litigation; and government, business, labor, and environmental advocates work together to support entrepreneurial creativity and economic opportunities for all. (Washington State Department of Ecology 2008a) The recommended actions to reduce transportation-related GHG emissions are summarized below:

- Expand and enhance transit, rideshare, and commuter choice.
- Encourage compact and transit oriented development.

- Use GHG/VMT as criteria for funding and pursue new revenue sources to support transportation choices.
- Use transportation pricing to reduce per capita VMT and GHG emissions, raise revenue, and manage the system for better efficiency and reliability.
- Pursue additional non-VMT actions to reduce GHG emissions from the transportation sector, including rail use, diesel engine improvements, transportation systems management, plug-in hybrid and electric vehicles, and a low-carbon fuel standard.

King County GHG Initiatives

King County has developed its Climate Plan (King County 2007), mandating significant reductions in countywide GHG emissions. While the City is not currently subject to the emission-reduction goals described in King County's Climate Plan or Ecology's GHG regulations, the recent state and county goals illustrate the importance of local action to reduce GHG emissions.

City GHG Initiatives

In 2007, the City adopted a community-wide target to reduce GHG emissions to 7% below their 1990 level by 2012. While this goal, articulated by Resolution 7517, applied to community-wide emissions, the base majority of signatories to the U.S. Mayors' Climate Protection Agreement also strive to meet or exceed this target for municipal operations.

- In February 20, 2007, the Bellevue City Council passed Resolution 7517, which adopted the goal of reducing GHG emissions to 7% below 1990 levels by 2012
- In August 2007, the City became a signatory to the U.S. Mayor's Climate Protection Agreement, joining over 800 communities in all 50 states to affirm its commitment to reduce GHG emissions in a manner consistent with the international targets set by the Kyoto Protocol.
- In order to implement these resolutions, the City joined more than 400 U.S. local governments and 1,000 local governments worldwide in the International Council for Local Environmental Initiatives (ICLEI) Cities for Climate Projection Campaign. In partnering with ICLEI, the City has committed to ICLEI's Five Milestone Process to fight global warming:
    - Milestone 1 – Conduct a baseline emissions inventory and forecast;
    - Milestone 2 – Adopt an emissions reduction target;
    - Milestone 3 – Develop a Climate Action Plan for reducing emissions;
    - Milestone 4 – Implement policies and measures; and
    - Milestone 5 – Monitor and verify results.

The City completed its initial emissions inventory in 2007, and updated the inventory in 2008. (City of Bellevue 2008b) The City's proposed Climate Action Plan was completed in September 2008. (City of Bellevue 2008c)

Table 4-2 presents a summary of the city's historical municipal and community emissions output, and projected future emissions with and without the targeted reductions. In order to meet the 7% reduction target:

- Municipal emissions must be reduced by 42% from the 'business as usual' trend by 2012, and reduced by 49% by 2020; and
- Community emissions must be reduced by 33% from the 'business as usual' trend by 2012, and reduced by 39% by 2020.

Table 4-2. Overview of Municipal and Community Emissions and Reduction Targets

	Municipal Analysis CO_2e (Metric Tons)	Community Analysis CO_2e (Metric Tons)
Emissions Target: 7% below 1990 Emissions Level	11,485	1,300,309
1990 – Back-cast Year Emissions	12,349	1,398,182
2001 – Base Year Emissions	14,716	1,692,197
2006 – Interim Year Emissions	18,423	1,775,479
2012 – Emissions Projection from 2006 Trends	19,865	1,930,230
2020 – Emissions Projection from 2006 Trends	22,455	2,122,211
Volume of Emissions Reduction Needed to Meet Target in 2012	8,380	629,921
Volume of Emissions Reduction Needed to Meet Target in 2020	10,970	821,902

Source: City of Bellevue 2008c.

City Air Quality Policies

The City's air quality policies are found in the Comprehensive Plan and focus on coordinating with other agencies in developing long-term strategies to address many contributors to air pollution (Policies EN-78, 82). Other policies to reduce air quality emissions include reduction of vehicle trip growth (Policy EN-79), growth management strategies to reduce auto dependency (Policy EN-85), and development of Transportation Improvement Program (TIP) measures that not only reduce congestion but also provide air quality benefits at problem locations (Policies EN-80, 81). (City of Bellevue 2008a)

4.1.2. Existing Air Quality

Typical air pollution sources in the city include vehicular traffic, commercial and retail businesses, light industrial, and residential wood-burning devices. While many types of pollutant sources are present, the single largest contributor to most criteria pollutant emissions is on-road mobile sources. Of the various vehicular emissions for which there are ambient air quality standards, CO is the pollutant emitted in the largest quantities. Therefore, for the transportation

plans that could redistribute or result in additional vehicular traffic, CO is the major concern among the criteria pollutants.

Other pollutants generated by vehicular traffic include the ozone precursors: volatile organic compounds (VOC) and nitrogen oxides (NOx), which will be important in the future as a result of the upcoming re-designation to nonattainment status for ozone. Particulate matter (PM10 and PM2.5) also is emitted in vehicle exhaust and generated by tire action on pavement (or unpaved areas). However, the amounts of PM10 and PM2.5 generated by individual vehicles are small compared with other sources (e.g., wood-burning stoves). Sulfur oxides (SOx) and NO2 also are emitted by motor vehicles, but concentrations of these pollutants are usually not high, except near large industrial facilities.

The following paragraphs describe the key criteria pollutants considered for this analysis.

Carbon Monoxide

CO is a product of incomplete combustion generated by mobile sources, residential wood combustion, and industrial fuel-burning sources. CO is a concern related to on-road mobile sources because it is the pollutant emitted in the greatest quantity for which short-term health standards exist. CO is a pollutant whose impact is usually localized, and CO concentrations typically diminish within a short distance of roads. The highest ambient concentrations of CO usually occur near congested roadways and intersections during wintertime periods of air stagnation.

The TFP area is located in the Puget Sound region, where CO nonattainment area was designated by EPA until the early 1990s. As older, more polluting cars have been replaced with new, highly efficient cars, no monitoring stations have recorded violations of the air quality standards in recent years. In 1996, EPA re-designated the region as attainment for CO. The region remains an air quality maintenance area for CO, but there have been no measured violations of the standards in many years. Measured CO levels at the 148th Avenue NE station have also been below ambient air quality standards since its monitoring began in 2002.

Ozone

Ozone is a highly reactive form of oxygen created by atmospheric chemical reaction of NOx and VOC, both of which are emitted directly from industrial sources and mobile sources. Ozone problems tend to be regional in nature because the atmospheric chemical reactions that produce ozone occur over a period of time, and because during the delay between emission and ozone formation, ozone precursors can be transported far from their sources. Transportation sources like automobiles and trucks are some of the sources that produce ozone precursors.

In the past due to violations of the federal ozone standards, the Puget Sound region was designated as nonattainment for ozone until early 1990s. After which date, more stringent emission limits on mobile sources and industrial facilities greatly reduced emission rates for the NOx and VOC precursors. In 1996, having met the federal standards for several years, the region was re-designated by the EPA as a maintenance area for ozone. In 2005, EPA eliminated the

1-hour ozone standard; since then ozone compliance is based solely on the 8-hour standard. Because the region had always complied with the 8-hour ozone standard, EPA re-classified the region as an attainment area for ozone.

As discussed previously in the Attainment Status Designation section, the region will be designated as a nonattainment area starting in 2010. Until then, the region is still designated an attainment area for ozone.

Particulate Matter (PM10 and PM2.5)

Particulate matter is generated by industrial emissions, residential wood combustion, motor vehicle tailpipes, and fugitive dust from roadways and unpaved surfaces. When first regulated, particle pollution was based on "total suspended particulate," which included all size fractions. As sampling technology has improved and the importance of particle size and chemical composition have become more clear, ambient standards have been revised to focus on the size fractions thought to be most dangerous to people. At present, there are standards for PM10 and PM2.5, because they contribute the most to human health effects, regional haze, and acid deposition. The highest ambient concentrations generally occur near the emission sources. PM2.5 has a greater impact than PM10 at locations far from the emitting source because it remains suspended in the atmosphere longer, and travel farther.

The Puget Sound region has been below the daily and annual federal standards for PM 10 and PM2.5 since the early 1990s. In 2001, EPA designated the region in attainment for PM10 and PM2.5. In 2006, EPA revoked the annual PM10 standard due to a lack of evidence linking health problems to long-term exposure to PM10 pollution. Since then the PSCAA ceased all PM10 monitoring and has focused its efforts on PM2.5 monitoring.

In 2006, the EPA also lowered its daily PM2.5 standard from 65 micrograms per cubic meter (µg/m3) to 35 µg/m3 to better protect public health. Under the new standard, the Bellevue Way station measured an exceedance or near exceedance of the new PM2.5 daily standard but measured concentrations decreased in the following years to below-standard levels.

4.2. Impacts

This section presents potential impacts which may occur as a result of if either alternative is implemented. Since both alternatives contain potential projects, impacts will be similar. However, because the Proposed Action alternative contains more potential projects, it is anticipated that impacts would be greater than the No Action alternative.

Since all components of the No Action alternative are included as part of the Proposed Action alternative, this impacts section discusses impacts that are common to both alternatives.

4.2.1. Mobile Source Air Toxics

According to traffic data provided by the City, the future VMT would be higher than existing levels. However, the magnitude of the EPA-projected MSAT emissions reductions is so great (even after accounting for VMT growth) that MSAT emissions in the project area are likely to be lower in the future in nearly all cases.

The proposed roadway and intersection widening improvements contemplated as part of the Proposed Action alternative would have the effect of moving some traffic closer to nearby homes and businesses; therefore, there may be localized areas where ambient concentrations of MSAT emissions could be higher with the Proposed Action alternative than under the No Action alternative. However, the magnitude and the duration of these potential increases compared to the No Action alternative cannot be accurately quantified due to the inherent mathematical and validation deficiencies of current emission models. In sum, when a roadway is widened and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Proposed Action alternative could be higher relative to the No Action alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). However, on a regional basis, EPA's vehicle and fuel regulations, coupled with ongoing future fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

4.2.2. Greenhouse Gas Emissions

GHG emissions were estimated and evaluated as part of this SEPA analysis. This section presents these findings.

Estimated GHG Emissions

To estimate GHG emissions produced from motor vehicles on city streets, the City provided traffic data for all roadway segments in the TFP area. The traffic data included average travel speed, segment length, and PM peak hour traffic volume for both the Proposed Action and the No Action alternatives (for design year 2020).

GHG emissions include a variety of compounds, predominantly Carbon Dioxide (CO2), methane, and nitrous oxide, each of which exhibits its own GHG potency. However, for on-road tailpipe emissions, CO2 is by far the dominate contributor to GHG emissions. For purposes of comparing GHG emissions from various scenarios with other published GHG inventories, the overall GHG emissions associated with the No Action alternative and the Proposed Action alternative were assumed to consist entirely of CO2. The CO2 emissions were calculated from the fuel usage of vehicles traveling on city streets based on fuel economy data (i.e., miles per gallon of fuel). The CO2 emissions factors are then applied to the calculated total fuel usage to get the CO2 emissions emitted from motor vehicles traveling on the city streets. The detailed analytical approach and analysis are presented in the Appendix E.

The average fuel economy corresponding to the average travel speed along each segment was estimated using published fuel economy versus speed profiles derived using the California

Emissions FACtors (EMFAC) tailpipe emission model (Urban Land Institute 2008). The use of California fuel economy data is valid for this analysis because Washington State plans to adopt the California fuel economy standards. The assumed fleet-average fuel economy for existing conditions was 25 miles per gallon based on historical fleet-average fuel economy data over the past 10 years (National Highway Traffic Safety Administration 2008). The assumed future fleet-average fuel economy for year 2020 was set at 35 miles per gallon, corresponding to the recently-proposed update for the Corporate Average Fuel Economy (CAFE) fuel economy standard. Based on a previous GHG study in the region (ICF Jones & Stokes 2008), it was assumed fuel used by the vehicle fleet along the city streets is 50% gasoline and 50% diesel. The CO2 emission factors were assumed 19.6 pounds per gallon for gasoline and 22.4 pounds CO2 per gallon for diesel (Energy Information Administration 2008).

Based on the preceding assumptions, the estimated GHG emissions produced from city streets for both the No Action and Proposed Action alternatives are listed in Table 4-3. The table shows that GHG emissions produced from all roadway segments in the city are nearly the same under both alternatives in the year 2020 conditions.

Table 4-3. Estimated Greenhouse Gas Emissions for Transportation Facilities Plan

Scenario	Greenhouse Gas Emission Rate (Metric Tons of CO2)
2020 No Action emissions	607,129 metric tons/year
2020 Proposed Action emissions	606,764 metric tons/year
King County GHG Emissions in 2007[a]	23 million metric tons/year

Source: King County 2007.

SEPA Impact Evaluation for GHG Emissions

To date, no national or state regulations have been established regarding GHG emissions, and neither EPA nor Ecology have established environmental impact thresholds for GHG emissions. As discussed in the Regulatory Overview section, the CAT provided the final recommendations in November 2008 for consideration by the Legislature and Governor in 2009 and beyond to meet the GHG emission targets. If enacted, these recommendations can enable significant reduction of GHG emissions. Until then, no regulations are established for evaluating GHG impacts.

The GHG emissions produced from city streets under both the No Action and Proposed Action alternatives would be a small fraction of county-wide GHG emissions contributing to global climate change. Table 4-3 compares the forecast emissions generated by the roadway segments within the City to the county-wide emissions. For example, the estimated 2020 GHG emissions with the proposed TFP are 0.6 million metric tons per year, which would be only 3% of the current county-wide emissions rate of 23 million metric tons per year (King County 2007). However, because global climate change is recognized to be a significant evolving cumulative impact, this small relative amount of GHG emitted from city streets is acknowledged to be a contributor to cumulative global emissions. At this time neither EPA nor Ecology has developed any regulations or guidelines to define SEPA thresholds of significance for GHG emitted by roadway projects. Therefore, there is no mechanism to determine if the GHG emissions forecast

for the No Action and Proposed Action alternatives would constitute a significant contributor to the global cumulative impact. However, the slightly lower emissions projection under the Proposed Action alternative would contribute to meeting the City's target of 7% reduction below 1990 levels by 2012.

4.2.3. Construction Emissions

Air quality impacts could occur during construction of roadway improvement projects. Dust from construction activities would contribute to ambient concentrations of suspended particulate matter. Construction contractor(s) would have to comply with the PSCAA regulations requiring all reasonable precautions be taken to minimize fugitive dust emissions (Regulation I, Section 9.15).

Construction activities would likely require the use of diesel-powered, heavy trucks and smaller equipment such as generators and compressors. These engines would emit air pollutants that could slightly degrade local air quality in the immediate vicinity of the activity. However, these emissions would be temporary and localized, and the resulting construction emissions would likely be far outweighed by emissions from existing traffic around the construction area.

Some construction activities could cause odors detectible to some people in the vicinity of the activity, especially during paving operations using tar and asphalt. Such odors would be short-term and localized. Stationary equipment used for the construction activities must comply with PSCAA regulations requiring the best available measures to control the emissions of odor-bearing air contaminants (Regulation I, Section 9.11). In addition, no slash burning would be permitted in association with either alternative.

Construction equipment and material hauling can affect general traffic flow on city streets adjacent to a construction area. If construction delays traffic enough to significantly reduce travel speeds in the area, general traffic-related emissions would increase. Given that there is heavy traffic during some periods of the day, scheduling haul traffic during off peak times (e.g., between 9 a.m. and 4 p.m.) would have the least affect on other traffic and would minimize indirect increases in traffic related emissions.

4.2.4. Transportation Conformity Analysis

Cars and trucks traveling on city streets would be the major source of air pollutant emissions associated with implementation of the proposed projects for either alternative. Potential air quality impacts caused by increased tailpipe emissions are divided into two general categories: regional photochemical smog caused by combined emissions throughout the Puget Sound region; and CO hot-spots caused by localized emissions at heavily-congested intersections.

Regional Air Quality Conformity

Regional air quality conformity analysis is performed for the Puget Sound region by the PSRC in its periodic air quality conformity analyses, which forecast regional transportation emissions produced by the region's long-range transportation plan and the regional Transportation

Improvement Program. Projects in the TFP are included in Transportation Improvement Program documents the City periodically submits to the PSRC for its regional air quality analysis. The vehicle emissions caused by proposed TFP are included in the regional emissions and would not cause or contribute to regional exceedances of the federal standards.

Proposed Action Alternative: Project-Level CO Hot-Spot Concentration

Project-level CO hot-spot analysis is required for future project-level SEPA/NEPA documentation because the city is located in a CO maintenance area. The analysis was performed based on the guidance document entitled Guidebook for Conformity (KJS Associates 1995) prepared for WSDOT in accordance with EPA guidance (Environmental Protection Agency 1992). Based on these guidelines, signalized intersections within the TFP area were screened to identify the most heavily congested signalized intersections for the CO hot-spot analysis. According to EPA, the congested signalized intersections are those intersections operating at LOS D or worse.

To establish which intersections to consider, the City provided the traffic data for system intersections within the TFP area, which is divided into 14 MMAs. The intersection traffic data include PM peak hour traffic volume, LOS, and V/C) ratio for 2006 existing year and 2020 design year (No Action alternative and Proposed Action alternative). The intersections were ranked twice based on forecast traffic data for the proposed TFP: 1) ranking traffic volumes for intersections with LOS E or worse; 2) ranking intersection LOS. The three signalized intersections with the worst LOS and the three intersections with the highest traffic volumes were selected. The detailed analytical approach and analysis are presented in the Appendix E. The following six signalized intersections were selected for CO hot-spot analysis to represent the most congested intersections during the PM peak hour (see Figure 4-1).

1. 112th Avenue NE / NE 8th Street (Downtown)
2. 116th Avenue NE / NE 8th Street (Wilburton)
3. Lake Hills Connector / SE 8th Street/7th Place (Richards Valley)
4. 148th Avenue NE / NE 8th Street (East Bellevue)
5. Coal Creek Parkway / Forest Drive (Newcastle)
6. 148th Avenue NE / Bel-Red Road (Bel-Red)

Project-level CO hot-spot analyses for the selected intersections were conducted using the Washington State Intersection Screening Tool (WASIST) (Washington State Department of Transportation 2005). WASIST is a computerized screening model used to estimate worst-case CO concentrations near signalized intersections. The results from WASIST are based on inputs from EPA-approved vehicle emission and dispersion models, Mobile 6 version 2.03 and CAL3QHC.

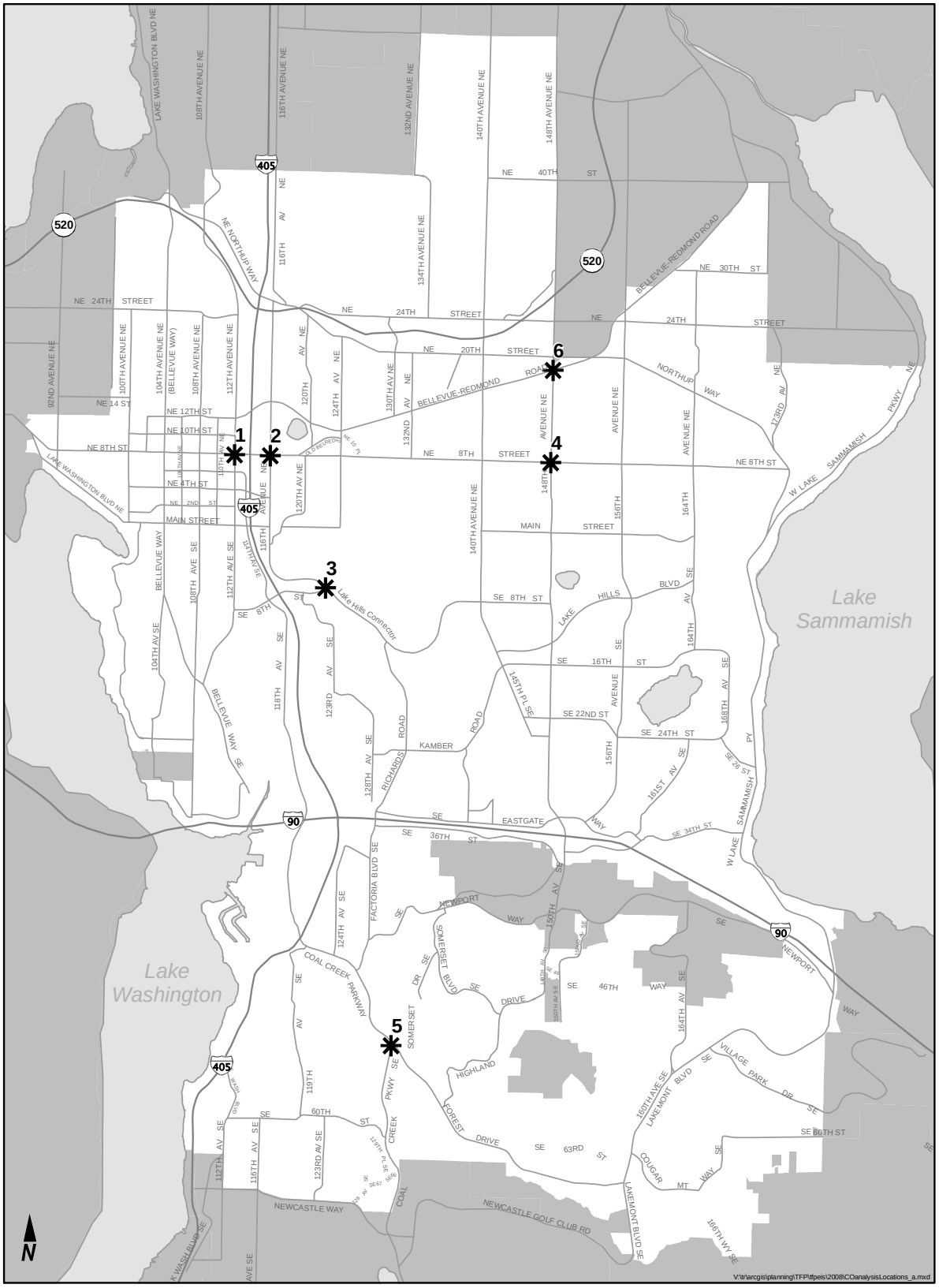


Figure 4-1. CO Hot Spot Analysis Locations

General inputs required for WASIST to describe the analysis intersections include analysis year, background concentration, county name, name of CO maintenance area, and land use type surrounding the intersection. Traffic input parameters required to describe the analysis intersections include lane configurations, traffic volumes, approach speeds, and signal timing of each intersection. Receptor inputs required to describe the receptor positions include number of receptors and distance from the edge of roadways. A receptor is the position where the CO concentration is estimated. The WASIST was run with the following input values:

- The Project is located in the King County, Puget Sound CO maintenance area.
- Worst-case modeling receptors were placed on the sidewalks adjacent to each intersection. The CO concentrations at other locations (e.g., at outdoor use areas at businesses near the intersections) were expected to be lower than the concentrations forecast at the sidewalks.
- The CO hot-spot modeling was performed for the 2006 existing year and the 2020 design year.
- Background CO concentrations of 3 ppm were used for one-hour and 8-hour averaging periods as specified in the WASIST User's Manual (Washington State Department of Transportation 2005). The modeled one-hour CO concentration was converted to an estimated 8-hour concentration by applying a 0.7 scale factor.
- Land use types surrounding the analysis intersections were based on existing land uses at each intersection.
- The approach speed at intersections was 5 miles per hour (mph) as suggested in the WASIST User's Manual.
- PM peak hour traffic volume of each analysis intersection was provided by the City for 2006 existing conditions and 2020 design year conditions.
- Existing lane configurations at analysis intersections were applied to existing conditions and the 2020 No Action alternative conditions. With the proposed TFP, the proposed future lane configurations were applied to intersections where TFP improvements are proposed.

Table 4-4 shows the CO hot-spot analysis results for existing conditions, the No Action alternative and the Proposed Action alternative. The table shows that modeled 8-hour average CO concentrations exceed NAAQS limits for the existing year at all of the sidewalks at analysis intersections. Apart from this modeled exceedance for existing conditions, the table shows that the modeled future 1-hour average and 8-hour average CO concentrations with the proposed TFP in the 2020 design year are lower than the allowable NAAQS limit. The model indicates that CO concentrations would decrease from 2006 to 2020, even though the traffic volumes were projected to increase during that same period. The net improvement in ambient concentrations is due to the expected continuous improvement in emissions from individual vehicles, which more than offsets the increase in traffic volume. Thus, the exceedance of the NAAQS standard in the existing year would not affect the significant conclusions regarding air quality impacts.

The modeled concentrations in Table 4-4 apply to the PM peak-hour period. CO impacts for the AM peak were not modeled, because traffic volumes for the AM peak period are expected to be lower compared to the PM peak period. Therefore, the maximum CO impacts during the AM peak period would also be lower than the NAAQS limits.

In general, the modeled ambient CO concentrations for the Proposed Action alternative are less than those for the No Action alternative. The modeled ambient CO concentrations at all intersections are below the allowable federal limits under 2020 conditions for the Proposed Action alternative. Therefore, the Proposed Action alternative would have no significant impacts on localized air quality.

Table 4-4. Carbon Monoxide Hot-Spot Modeling Results

MMA	Intersection	Alternative	Concentrations (ppm)	
			1-Hour Interval	8-Hour Interval
Federal CO Limits (NAAQS)			**35**	**9**
3 Downtown	112th Avenue NE / NE 8th Street	2006 Existing	15.1	11.5
		2020 No Action	9.9	7.8
		2020 Action	9.8	7.8
4 Wilburton	116th Avenue NE / NE 8th Street	2006 Existing	15.2	11.5
		2020 No Action	11.3	8.8
		2020 Action	10.1	8.0
8 Richards Valley	Lake Hills Connector / SE 8th Street/7th Place	2006 Existing	15.2	11.5
		2020 No Action	9.9	7.8
		2020 Action	9.6	7.6
9 East Bellevue	148th Avenue NE / NE 8th Street	2006 Existing	14.1	10.8
		2020 No Action	9.5	7.5
		2020 Action	9.6	7.6
11 Newcastle	Coal Creek Parkway / Forest Drive	2006 Existing	15.3	11.6
		2020 No Action	10.1	8.0
		2020 Action	10.1	8.0
12 Bel-Red	148th Avenue NE / Bel-Red Road	2006 Existing	13.7	10.5
		2020 No Action	9.7	7.7
		2020 Action	9.4	7.5

Note: All listed values include background concentrations.

No Action Alternative: Project-Level CO Hot-Spot Concentration

Methodology and approach for the project-level CO hot-spot analysis are described in the previous section for the Proposed TFP Alternative. The CO hot-spot analysis results at the

analysis intersections for the No Action alternative are shown in Table 4-4. The table shows that modeled 1-hour average and 8-hour average CO concentrations at all intersections are below the NAAQS under 2020 conditions for the No Action alternative. Therefore, the No Action alternative would have no significant impacts on localized air quality.

4.3. Mitigation Measures

The following discussion presents mitigation measures that should be implemented for proposed projects – whether they are part of the No Action alternative or the Proposed Action alternative.

4.3.1. Incorporated Plan Features

The City should require all construction contractors to implement air quality control plans for construction activities. The air quality control plans should include best management practices (BMPs) to control fugitive dust and odors emitted by diesel construction equipment.

During construction, dust from excavation and grading could cause temporary, localized increases in the ambient concentrations of fugitive dust and suspended particulate matter. The City should adopt fugitive dust control measures specified in the brochure "Guide to Handling Fugitive Dust from Construction Project" published by the Washington Associated General Contractors of Washington. The following BMPs would be used to control fugitive dust.

- Use water sprays or other non-toxic dust control methods on unpaved roadways.
- Minimize vehicle speed while traveling on unpaved surfaces.
- Prevent track-out of mud onto public streets.
- Cover soil piles when practical.
- Minimize work during periods of high winds when practical.

Mobile construction equipment and portable stationary engines would emit air pollutants including NOx, CO, and highly toxic diesel particulate matter. These emissions would be temporary and localized. It is highly unlikely that the temporary emissions would cause ambient concentrations at adjoining parcels to approach the federal ambient air quality limits. Typical mitigation measures to minimize air quality and odor issues caused by tailpipe emissions include the following:

- Maintain the engines of construction equipment according to manufacturers' specifications.
- Minimize idling of equipment while the equipment is not in use.
- Locate stationary equipment as far as practical from sensitive receptors.

Burning of slash or demolition debris would not be permitted without express approval from PSCAA. No slash burning is anticipated for any construction projects in the project area.

4.3.2. Applicable Regulations and Commitments

As part of future project-specific SEPA and NEPA documentation for individual new roadway improvement projects, the City would be required to conduct CO hot-spot modeling (as required under WAC 173-420) to demonstrate that the projects would not cause localized impacts related to increased CO emissions from vehicle tailpipes at congested intersections.

4.3.3. Other Potential Reduction Measures

Table 4-5 lists a variety of additional mitigation measures that could reduce GHG emissions caused by transportation facilities (Washington State Department of Ecology 2008b). The table lists potential GHG reduction measures, and indicates where the emission reductions might occur. The City could identify the reduction measures in their projects, and explain why other measures are not included or are not applicable.

Table 4-5. Potential Greenhouse Gas Reduction Measures

Reduction Measures	Comments
Size parking capacity to not exceed local parking requirements and, where possible, seek reductions in parking supply through special permits or waivers.	Reduced parking discourages auto dependent travel, encouraging alternative modes such as transit, walking, biking etc. Reduces direct and indirect VMT
Develop and implement a marketing/information program that includes posting and distribution of ridesharing/transit information.	Reduces direct and indirect VMT
Subsidize transit passes. Reduce employee trips during peak periods through alternative work schedules, telecommuting, and/or flex-time. Provide a guaranteed ride home program.	Reduces employee VMT
Provide bicycle storage and showers/changing rooms.	Reduces employee VMT
Utilize traffic signalization and coordination to improve traffic flow and support pedestrian and bicycle safety.	Reduces transportation emissions and VMT
Apply advanced technology systems and management strategies to improve operational efficiency of local streets.	Reduces emissions from transportation by minimizing idling and maximizing transportation routes/systems for fuel efficiency.
Develop shuttle systems around business district parking garages to reduce congestion and create shorter commutes.	Reduces idling fuel emissions and direct and indirect VMT

Source: Washington State Department of Ecology 2008b.

4.4. Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts on regional or local air quality are anticipated. Temporary, localized dust and odor impacts could occur during the construction activities.

Chapter 5. Noise

This section addresses noise impacts associated with construction and added vehicle traffic associated with the implementation of the TFP. This study includes a discussion of existing conditions, a summary of applicable policies and regulations related to noise levels in the community, and an analysis of the direct environmental impacts of the No Action and Proposed Action alternatives.

5.1. Affected Environment

This section presents an overview of current noise conditions in the city and the TFP project area. The affected environment provides the foundation by which impacts are assessed.

5.1.1. Noise Terminology

The following are brief definitions of acoustical terms used in this discussion:

- Sound. A vibratory disturbance created by a vibrating object which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism such as the human ear or a microphone.
- Noise. Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- Ambient noise. The composite of noise from all sources near and far in a given environment, exclusive of particular noise sources to be measured.
- Decibel (dB). A unitless measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- A-Weighted Decibel (dBA). An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear. Typical A-weighted noise levels for various types of noise sources are shown in Table 5-1.

- **Equivalent Sound Level (Leq).** L_{eq} represents the average of sound energy occurring over a specified interval of time. In effect, L_{eq} is the steady-state sound level over a given time interval that contains the same amount of acoustical energy as the time-varying sound that actually occurs during that time interval. For example, the one-hour A-weighted equivalent sound level (L_{eq}[1h]), is the energy average of the varying A-weighted sound levels occurring during a one-hour period.

Table 5-1. Typical A-Weighted Sound Levels

Sound Source	Sound Level (dBA)	Typical Experience or Response
Carrier deck jet operation	140	Painfully loud
Limit of amplified speech	130	
Jet takeoff (200 feet) Auto horn (3 feet)	120	Threshold of feeling and pain
Riveting machine Jet takeoff (2,000 feet)	110	Very annoying
Shout (0.5 foot) New York subway station	100	
Heavy truck (50 feet) Pneumatic drill (50 feet)	90	Hearing damage (8-hour exposure)
Passenger train (100 feet) Helicopter (in flight, 500 feet) Freight train (50 feet)	80	Annoying
Freeway traffic (50 feet)	70	Intrusive
Air conditioning unit (20 feet) Light auto traffic (50 feet)	60	
Normal speech (15 feet) Quiet Urban daytime	50	Quiet
Living room Bedroom Library	40	
Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Threshold of hearing

Source: Federal Transit Administration 2006.

A doubling of acoustical energy from a noise source results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hertz [Hz] to 8,000 Hz) range. It is widely accepted that people are able to begin to detect sound level changes of 3 dB for typical noisy environments, in those cases where the new intruding noise is similar in nature to the existing background (e.g., an

increase in traffic noise compared to existing traffic noise). However, for cases where the intruding noise has a character different from the background (e.g., construction equipment operating in an otherwise quiet rural area) most people can clearly discern the new intruding noise even if increases in the overall noise level are less than 1 dB.

5.1.2. Surrounding Noise-Sensitive Land Uses

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Noise-sensitive land uses typically include residences, hospitals, schools, guest lodging, libraries, parks, and places of worship and certain types of recreational uses. Single-family and multi-family residences including areas of frequent outdoor use, such as residential back yards and neighborhood parks would be affected by increases in traffic noise due to implementation of the TFP.

5.1.3. Ambient Noise Environment

Within most of the city, local motor vehicle traffic is the dominant noise source for dwellings and businesses within 500 feet of a major arterial or freeway. High volumes of traffic on SR 520, I-405, and I-90 contribute significantly to background noise levels in residential areas. Other sources contributing to ambient, or background outdoor noise levels include equipment noise and general aviation aircraft over-flights. Typical background noise levels in downtown urban environments generally fall in the range of 60 to 70 dBA. Noise levels near suburban residential streets are quieter, generally within the range of 50 to 60 dBA.

5.1.4. Noise Monitoring

In order to characterize the existing noise environment, short-term measurements of 15 minutes in duration were conducted at various locations in the project area. The City utilized noise measurements that were previously taken for the 2006-2017 TPF EIS (City of Bellevue 2006), and supplemented that data with measurements taken at five additional sites.

Existing daytime sound levels were measured at a total of 28 locations representing potentially sensitive areas where the noise environment could be affected by the proposed projects. These included short-term measurements (i.e., 15 minutes) during various daytime hours on May 31, June 8, June 14, June 15, and June 19, 2006.

For the 2006 measurements, locations were selected by first screening the 2006-2017 TFP for projects that would shift or alter a roadway alignment, potentially affecting the degree to which traffic noise would be heard at nearby receivers. A list of these projects was generated and then evaluated in the field to identify those projects that would be close to potentially sensitive receiving locations (i.e., a home, park, school, etc). Those locations where future projects would not adversely impact sensitive receivers were not considered for sound level measurements. The remaining locations were plotted on a map to determine the degree to which they would reflect representative noise-sensitive areas. Additional sound level measurement locations were then added to create a data set that represented the entire city. (City of Bellevue 2006)

For the 2009–2020 TFP update, the City selected five additional noise monitoring sites. Sites were selected to document existing ambient noise levels at representative locations where noise-sensitive land uses are currently located, and at locations where future development is anticipated.

Short-term monitoring was conducted on Monday November 10, 2008, using a Larson-Davis Model 812 Precision Type 1 sound level meter (serial number 0239). The meter was positioned on a tripod at a microphone height of 1.5 meters (5 feet) above the ground. Sound levels and audible noise sources were recorded on field data sheets in order to characterize the noise environment at each position.

Traffic was the dominant noise source observed during all five short-term noise measurement periods. Aircraft over-flights and neighborhood landscaping noise was audible during the measurements, but these sources were overshadowed by traffic noise during vehicle pass-bys. Measured L_{eq} noise levels for the measurement periods at each site ranged from 60.1 dBA at the intersection of 130th Avenue NE and NE 24th Street, to 69.3 dBA on the segment of 156th Avenue NE south of NE 24th Street. Temperature and wind speed were recorded manually during monitoring from data obtained by a Kestrel 3000 portable weather station. Skies varied from mostly cloudy to partly cloudy during the short-term monitoring, with wind speeds typically in the range of 2 to 8 mph. Temperatures were in the range of 51 to 58 °F, with relative humidity on the range of 80% to 90%.

Figure 5-1 shows the locations of the noise monitoring locations. The locations that were measured in 2006 are labeled 1 through 28. The additional locations that were measured in 2008 to supplement this data are labeled 29 through 33.

The information gathered during the short-term monitoring conducted in 2006 is summarized in Table 5-2. The information gathered during the additional short-term monitoring conducted in 2009 is summarized in Table 5-3.

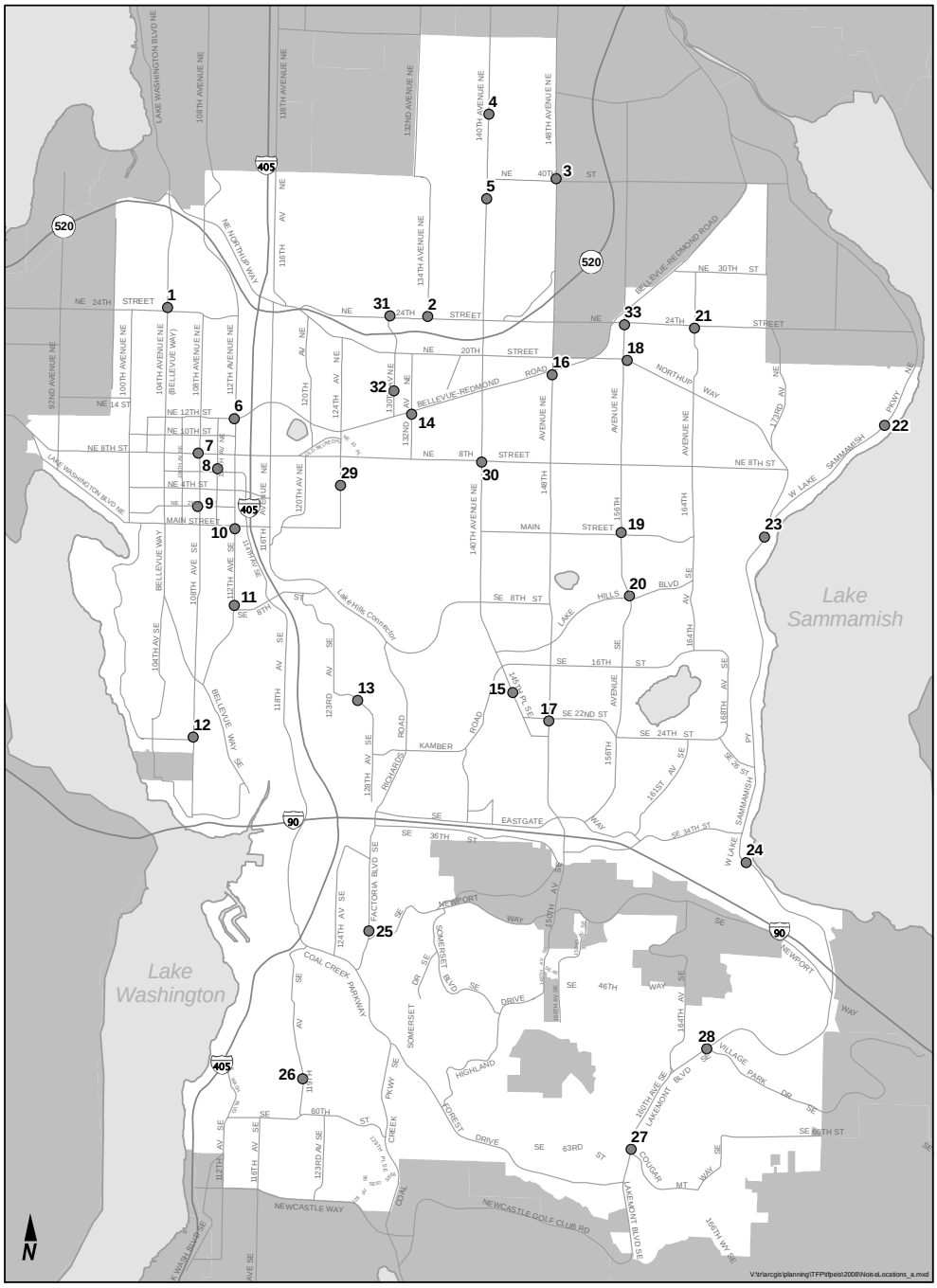


Figure 5-1. Short-Term Noise Measurement Positions

Table 5-2. Summary of Short-Term Sound Level Measurements in the City of Bellevue–May 31 to June 19, 2006

Monitor Site	Monitor Location	Date, Measurement Start Time	Duration of Measurement (minutes)	Measured Sound Level, dBA L_{eq}, all noise sources
1	Bellevue Way, north of NE 24th Street	5/31/06, 11:56	15	66.7
2	134th Avenue NE, north of NE 24th Street	5/31/06, 15:52	15	60.5
3	148th Avenue NE, north of NE 40th Street	6/14/06, 11:44	15	66.3
4	140th Avenue NE, at NE 48th Place	6/19/06, 13:54	15	63.6
5	140 Avenue NE, north of NE 36th Place	6/19/06, 14:45	15	66.3
6	NE 12th Street, west of 112th Avenue NE	6/15/06, 13:14	15	65.2
7	NE 8th Street, west of 108th Avenue NE	6/15/06, 13:47	15	65.0
8	110th Avenue NE, north of NE 6th Street	6/19/06, 16:04	15	65.1
9	NE 2nd Street, west of 108th Avenue NE	6/19/06, 15:33	15	61.3
10	112th Avenue SE, south of Main Street	5/31/06, 12:50	15	69.1
11	112th Avenue SE, north of SE 8th Street	5/31/06, 12:50	15	68.2
12	108th Avenue SE, north of SE 25th Street	6/14/06, 12:50	15	59.9
13	SE 20th Place, east of 127th Avenue SE	6/15/06, 10:59	15	56.2
14	132nd Avenue NE, south of Bel-Red Road	5/31/06, 15:16	15	53.1
15	145th Place SE, west of 144th Avenue SE	6/14/06, 14:26	15	61.1
16	148th Avenue NE, south of Bel-Red Road	5/31/06, 15:16	15	69.3
17	148th Avenue SE, south of SE 22nd Street	6/15/06, 12:11	15	67.6
18	Northup Way, east of 156th Avenue NE	6/8/06, 13:41	15	62.8
19	156th Avenue SE, north of Main Street	6/8/06, 14:45	15	64.0
20	156th Avenue SE, north of Lake Hills Boulevard	6/8/06, 15:16	15	63.1

Monitor Site	Monitor Location	Date, Measurement Start Time	Duration of Measurement (minutes)	Measured Sound Level, dBA L_{eq}, all noise sources
21	164th Avenue NE, south of NE 24th Street	6/8/06, 13:13	15	59.7
22	W Lake Sammamish Parkway, south of NE 15th Place	6/14/06, 12:40	15	62.4
23	W Lake Sammamish Parkway, south of Northup Way	6/8/06, 16:40	15	69.3
24	W Lake Sammamish Pkwy, south of SE 38th Street at Vasa Park	6/8/06, 16:10	15	63.8
25	Factoria Boulevard SE, north of Newport Way	6/14/06, 11:55	15	66.5
26	119th Avenue SE, south of SE 54th Street	6/14/06, 13:33	15	60.7
27	Lakemont Boulevard, north of SE 63rd Street	6/14/06, 13:16	15	63.9
28	Lakemont Boulevard, west of Village Park Drive	6/14/06, 13:41	15	65.5

Table 5-3. Summary of Short-Term Sound Level Measurements in the City of Bellevue–November 10, 2008

Monitor Site	Monitor Location	Measurement Start Time	Duration of Measurement (minutes)	Measured Sound Level, dBA L_{eq}, all noise sources	Noise Sources Observed
29	124th Avenue NE / NE 4th Place	4:00 p.m.	15	60.8	Local traffic, helicopter, sirens, aircraft, lawnmower
30	140th Avenue NE across from NE 6th Place	12:08 p.m.	15	69.2	Local traffic, high altitude aircraft
31	130th Avenue NE / NE 24th Street	12:45 p.m.	15	60.1	Traffic on NE 24th Street, turboprop aircraft
32	130th Avenue NE / NE 15th Place	1:10 p.m.	15	62.8	Local traffic, heavy trucks
33	156th Avenue NE, south of NE 24th Street	3:12 p.m.	15	69.3	Local traffic

5.1.5. Regulatory Setting

A summary of applicable city noise regulations is described in this section. Capacity-increasing TFP projects built with state funding may also be subject to WSDOT traffic noise regulations and noise abatement evaluation protocols under 23 CFR 772.

City of Bellevue Noise Regulations

Noise Limits for Stationary Industrial and Commercial Sources

Chapter 9.18 of the Bellevue City Code (BCC) establishes limits on the levels and durations of noise crossing property boundaries. Maximum allowable sound levels at a receiving land use depend on the district zoning of both the source and receiving properties. The land use zones are classified by Environmental Designation for Noise Abatement (EDNA) as follows:

- Class A EDNA. Residential land use districts
- Class B EDNA. Commercial land use districts
- Class C EDNA. Industrial land use districts

Permissible noise limits are shown in Table 5-4.

Table 5-4. Maximum Permissible Noise Levels at Receiving Property Line

EDNA of Sound Source	Permissible Noise Level in dBA EDNA of Receiving Source			
	Class A		**Class B**	**Class C**
	Daytime	Nighttime	All hours	All hours
Class A	55 dBA	45 dBA	57 dBA	60 dBA
Class B	57 dBA	47 dBA	60 dBA	65 dBA
Class C	60 dBA	50 dBA	65 dBA	70 dBA

Bellevue City Code: Section 9.18.030.

For noise levels that exceed the above levels for short durations, maximum permissible sound levels are presented in Table 5-5.

Table 5-5. Adjustment to Maximum Permissible Noise Levels at Receiving Property Line, for Noises of Short Duration

Duration of Sound Level within a One-Hour Interval	Add Amount to Maximum Permissible Sound Level
15 minutes	+ 5 dB
5 minutes	+ 10 dB
1.5 minutes	+ 15 dB

Bellevue City Code: Section 9.18.030.

The following sounds are exempt, at all times, from the maximum permissible sound levels established in BCC Section 9.18.030, including but not limited to:

- Sounds originating from aircraft in flight.
- Warning devices or alarms.
- Sounds created by construction equipment at temporary construction sites, between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, and 9:00 a.m. and 6:00 p.m. on Saturdays. Noise from construction sites on Sundays, legal holidays, or during hours outside of exempt work hours described above are prohibited under BCC 9.18.040, unless expanded hours of operation are authorized by the applicable city department director.
- Traffic noise originating from vehicles traveling on public roads, when such vehicles are regulated by Washington Administrative Code (WAC 173-62). However, the City may require an acoustical analysis if traffic noise exceeds city standards for arterial improvement projects (see below).

Standards for Arterial Improvement Projects (TFP projects)

For the purposes of studying environmental traffic noise, arterial improvement projects considered here do not include minor widening (widening projects that do not increase capacity), addition of bicycle lanes, or walkways. The City will require a noise analysis component for an arterial improvement project that passes through a residential area (Class A EDNA), if any of the following conditions are met:

- The existing exterior peak-hour traffic noise level exceeds 67 dBA Leq (1 hour),
- The future exterior peak-hour traffic noise level is predicted to exceed 67 dBA Leq (1 hour) due to resulting future traffic demands as a result of the arterial improvements, or
- The exterior peak-hour noise level is expected to increase by 5 dB or more because of future traffic demands predicted to result from arterial improvements (i.e., predicted increase under the Proposed Action alternative compared to the No Action alternative).

The location of exterior noise exposure under these standards is 5 feet above existing grade at a distance of 60 feet from arterial centerline.

In cases where traffic noise levels are predicted to exceed these thresholds, mitigation may be considered if the average L_{dn} could be reduced to 60 dBA or lower.

An acoustical analysis for a given arterial improvement project should include feasible alternatives for noise mitigation and expected noise reduction for each mitigation alternative, where noise impacts are predicted.

The Traffic Noise Model

The Traffic Noise Model Lookup program, a spreadsheet adaptation of the FHWA Traffic Noise Model (TNM) Version 2.5, was the noise model used for this project. The noise propagation factors described above are included in the algorithms integral to TNM noise level calculations. Inputs to TNM include the locations of roadways, traffic volumes and speeds, noise barriers, ground type, and receiver distance to the roadway. TNM is a computer model based on two FHWA reports: FHWA-PD-96-009 and FHWA-PD-96-010 (Federal Highway Administration 1996; Federal Highway Administration 1998).

5.2. Impacts

This section presents potential impacts which may occur as a result of if either alternative is implemented. First impacts common to both alternatives is presented, followed by a discussion of potential impacts associated with the Proposed Action alternative.

Since all components of the No Action alternative are included as part of the Proposed Action, this section discusses impacts that are common to both alternatives.

5.2.1. Exposure of Noise-Sensitive Land Uses to Noise during Construction Activities

Construction of roadways would temporarily increase noise levels at residential locations in the vicinity of the construction site. Noise increases would result both from on-site construction activities, especially during site preparation, grading, and other earthmoving activities, as well as from construction-related vehicle traffic delivering materials to and from the construction site.

Table 5-6 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 15 meters (50 feet), and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

As described previously, construction activity is prohibited in the city at night or on Sundays or legal holidays, unless special approval is issued by the City. Construction noise that occurs outside of the exempt daytime hours is therefore considered to be potentially significant, and must comply with the allowable noise limits described in Section 5.1.5.

Table 5-6. Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level 50 feet from Source (dBA)
Air Compressor	81
Backhoe	80
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76

Bulldozer	85
Excavator/Shovel	82
Generator	81
Grader	85
Loader	85
Scraper	89
Truck	88

Source: Federal Transit Administration 2006.

5.2.2. Exposure of Noise-Sensitive Land Uses to Increased Traffic Noise

Traffic noise from increased vehicle demand for public roadways will result in increased noise levels along roadway locations throughout the city.

Modeled existing and future traffic noise levels and potential noise impacts are based on traffic volumes provided by the City. Table 5-7 summarizes potential traffic noise impacts on roadways where traffic noise levels are predicted to exceed 67 dBA Leq under one or more TFP alternatives. Potentially impacted roadways are listed by their corresponding MMA (see Figure 1-1). Table F-1 (see Appendix F) provides results for all roadways studied in the TFP, including the 33 locations where noise monitoring was conducted. Table 5-7 presents a subset of the full information provided in Appendix F, as only roadways potentially impacted by the Proposed Action alternative are shown in this table.

The comparison between future Proposed Action alternative conditions and existing conditions gives an indication of the cumulative increase in noise associated with the project and background growth. The comparison between future Proposed Action alternative conditions and No Action alternative conditions indicates the increase in noise caused directly by projects under the Proposed Action alternative.

The increase in noise levels will be nearly the same (1 dB or less) for all roadways shown in Table 5-7 under both alternatives, and potential impacts in year 2020 are predicted to be the same for both alternatives. Therefore, background growth between the years 2006 and 2020 is a more significant driver of traffic noise levels in the future than demand for specific projects.

For all roadway segments, none of the traffic noise levels are predicted to increase by 5 dB or more due to implementation of the Proposed Action alternative.

Traffic noise levels at residential locations are predicted to exceed the city threshold of 67 dBA L_{eq} along certain arterial roadways under existing conditions as well as under the No Action or Proposed Action alternatives.

Since noise levels are predicted to exceed city thresholds for arterial improvement projects along certain roadways, this impact is considered potentially significant, and a detailed acoustical analysis of the proposed projects affecting these roadways may be required. The applicable criteria for potential noise impacts due to arterial improvement projects are described in Section 5.1.5.

Table 5-7. Roadway Segments Predicted to Exceed 67 dBA L_{eq} under Both Alternatives

MMA	Segment Locations within MMA Predicted to exceed 67 dBA Leq in 2020[1]	Existing (2006) dBA Leq	No Action Alternative (2020) dBA Leq	Proposed Action Alternative (2020) dBA Leq	TFP Increase over Existing dB	TFP Increase over No Action dB[2]
1	Bellevue Way NE, north of NE 24th Street	67	68	68	+ 1	0
	Bellevue Way NE, south of NE 24th Street	67	68	68	+ 1	0
	Bellevue Way, north of NE 24th Street	67	68	68	+ 1	0
2	148th Avenue NE, south of NE 40th Street	66	68	68	+ 2	0
	140th Avenue NE, south of NE 24th Street	67	67	67	0	0
	148th Avenue NE, north of NE 40th Street	67	68	68	+ 1	0
3	Bellevue Way NE, north of NE 12th Street	67	68	68	+ 1	0
	Bellevue Way NE, south of NE 6th Street	67	68	68	+ 1	0
	NE 12th Street, west of 112th Avenue NE	67	68	68	+ 1	0
	NE 8th Street, west of 112th Avenue NE	69	69	69	0	0
	NE 8th Street, west of 108th Avenue NE	67	68	68	+ 1	0
	NE 4th Street, west of 112th Avenue NE	67	68	68	+ 1	0
	NE 2nd Street, west of 108th Avenue NE	63	67	67	+ 4	0
	Main Street, west of 112th Avenue	66	67	67	+ 1	0
	Bellevue Way SE, south of SE 3rd Street	68	68	68	0	0
	112th Avenue SE, south of Main Street	67	68	68	+ 1	0
	NE 12th Street, west of 112th Avenue NE	67	68	68	+ 1	0
4	116th Avenue NE , north of NE 8th Street	67	69	69	+ 2	0
	116th Avenue NE, south of NE 8th Street	67	68	68	+ 1	0

MMA	Segment Locations within MMA Predicted to exceed 67 dBA Leq in 2020[1]	Existing (2006) dBA Leq	No Action Alternative (2020) dBA Leq	Proposed Action Alternative (2020) dBA Leq	TFP Increase over Existing dB	TFP Increase over No Action dB[2]
	116th Avenue SE, south of Main Street	67	69	68	+ 1	- 1
5	156th Avenue NE, north of NE 8th Street	67	68	68	+ 1	0
6	None	N/A	N/A	N/A	N/A	N/A
7	Bellevue Way SE, east of 112th Avenue SE	70	70	70	0	0
	112th Avenue SE, north of SE 8th Street	66	67	67	+ 1	0
8	Lake Hills Connector, south of SE 8th Street	68	69	69	+ 1	0
	Richards Road, north of Kamber Road	67	68	68	+ 1	0
9	NE 8th Street, west of 140th Avenue NE	67	68	68	+ 1	0
	NE 8th Street, east of 140th Avenue NE	66	67	67	+ 1	0
	NE 8th Street, east of 148th Avenue NE	66	67	67	+ 1	0
	148th Avenue SE, south of Main Street	69	69	69	0	0
	148th Avenue SE, south of SE 24th Street	70	70	70	0	0
	148th Avenue SE, south of SE 22nd Street	69	69	69	0	0
10	None	N/A	N/A	N/A	N/A	N/A
11	150th Avenue SE, north of SE Newport Way	66	68	68	+ 2	0
	Coal Creek Parkway, south of Forest Drive SE	68	69	69	+ 1	0
	Lakemont Boulevard SE, west of 164th Avenue SE	66	67	67	+ 1	0
12	148th Avenue NE, north of NE 24th Street	70	70	70	0	0
	148th Avenue NE, south of NE 24th Street	68	69	69	+ 1	0
	Northup Way, east of 124th Avenue NE	68	69	69	+ 1	0

MMA	Segment Locations within MMA Predicted to exceed 67 dBA Leq in 2020[1]	Existing (2006) dBA Leq	No Action Alternative (2020) dBA Leq	Proposed Action Alternative (2020) dBA Leq	TFP Increase over Existing dB	TFP Increase over No Action dB[2]
	NE 20th Street, east of 140th Avenue NE	67	68	68	+ 1	0
	Bel-Red Road, east of 148th Avenue NE	66	67	67	+ 1	0
	148th Avenue NE, south of Bel-Red Road	68	69	69	+ 1	0
	NE 12th Street, west of 124th Avenue NE	67	67	67	0	0
	Bel-Red Road, west of 130th Avenue NE	68	69	69	+ 1	0
	120th Avenue NE, south of NE 15th/16th Street	61	67	67	+ 6	0
	156th Avenue NE, south of NE 24th Street.	67	68	68	+ 1	0
13	Coal Creek Parkway, west of SE Newport Way	68	68	68	0	0
	Factoria Boulevard SE, north of Newport Way	67	67	67	0	0
	128th Avenue SE , north of SE 41st Street	67	67	67	0	0
--	NE 40th Street, west of 156th Avenue NE	68	69	69	+ 1	0
--	NE 40th Street, east of 156th Avenue NE	66	68	68	+ 2	0
--	156th Avenue N , south of NE 40th Street	67	68	68	+ 1	0

Notes:

1. Only roadways potentially impacted by the Proposed Action alternative are shown in this table. Appendix F contains a complete table of all modeled noise levels for all roadways studied in the TFP.
2. None of the TFP projects are predicted to result in a traffic noise level increase of 5 dB over the No Action alternative.

5.3. Mitigation Measures

Potential noise impacts and mitigation measures may be studied through project-level acoustical analysis, when a proposed project affecting one or more of the noise-impacted roadway segments identified above in Table 5-6 reaches the design stage.

5.3.1. Construction Noise

Roadway construction occurring outside of exempt hours should follow noise-reducing construction practices ensuring that city noise ordinance standards are not exceeded. Measures to limit noise include, but are not limited to:

- locating equipment as far as practical from noise sensitive uses;
- using equipment that is quieter than standard equipment;
- selecting haul routes that affect the fewest number of people;
- using noise-reducing enclosures around noise-generating equipment;
- constructing barriers between noise sources and noise sensitive land uses;
- establishing a 24-hour complaint hotline; and
- in exceptionally loud cases where nighttime noise limits can't be achieved, offer temporary hotel rooms.

5.3.2. Traffic Noise

Noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Potential noise abatement measures include the following:

- Avoiding the impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise barriers;
- Acquiring property to serve as a buffer zone;
- Using traffic management measures to regulate types of vehicles and speeds; and
- Acoustically insulating public-use or nonprofit institutional structures.

Sound walls are generally the most common and effective measure to reduce noise levels. However, in the project area, sound walls may not be desirable because of their effects on community cohesion, safety, and aesthetics. "Quiet pavements", such as rubberized asphalt are sometimes considered as an effective measure to reduce traffic noise levels due to noise from the tire-pavement interface. Rubberized asphalt would be minimally effective for this project

because since travel speeds on surface streets are lower than on highways, the primary source of vehicle noise is expected to be car and truck engines and exhaust, not tire noise.

A detailed noise analysis would determine which, if any, mitigation measures would be acoustically effective. In order to meet approval, noise barriers should be studied in detail to determine that they do not conflict with existing utility and safety requirements.

5.4. Significant Unavoidable Adverse Impacts

The number of residential areas within the city predicted to be exposed to traffic noise levels exceeding 67 dBA L_{eq} will increase from 2006 to 2020. Future traffic noise levels are basically equivalent between the two alternatives.

Most residential areas within the city require access to the roadways where traffic noise impacts are predicted to occur under the either alternative. This access requirement would conflict with placement of a noise barrier as a potential mitigation measure for impacted residences that have driveway access to these roadways. Therefore, detailed analyses could conclude that future traffic noise impacts might be significant and unavoidable.

Chapter 6. Land Use and Aesthetics

This chapter presents information related to land use and aesthetics and the potential impacts that may result due to implementation of the No Action alternative or the Proposed Action alternative. This analysis includes a review of existing land use patterns and compatibility, consistency with the City's plans and policies as represented by the City's Comprehensive Plan, and the visual quality of the current natural and built environment. Impacts analysis identifies how existing conditions could change with implementation of either alternative.

Also presented in this chapter is a discussion of potential mitigation measures. Mitigation includes the features incorporated into the alternative that are designed to mitigate impacts, applicable regulations and commitments that will apply to future development allowed by the alternatives, and other potential mitigation measures that may further reduce the significant environmental impacts of the alternatives.

6.1. Affected Environment

This section presents an overview of current land uses in the city. In addition, aesthetics and visual quality along transportation corridors and neighborhoods is also discussed. The affected environment provides the foundation by which impacts are assessed.

6.1.1. Land Use Patterns

Existing land use patterns in the city consist of large areas of single-family residential development surrounding five major commercial and mixed-use centers. Pursuant to the City's Land Use Plan, new growth and development is targeted for the following five areas:

- Downtown (MMA 3);
- Bel-Red (MMA 12);
- Wilburton (MMA 4 and northeast MMA 7);

- Eastgate/Factoria (MMA 10 and north MMA 13); and
- Crossroads (MMA 5).

(City of Bellevue 2008a)

Land use capacity analyses performed by the City show that with little vacant land, the vast majority of future development and growth in the city will occur through redevelopment and infill. Much of this redevelopment and infill will occur in the areas listed above.

Downtown (MMA 3) is the city's central urban area. Most new buildings in Downtown are multi-story with a mix of uses, including office, retail, and in some cases, residential. Streetscapes are generally urban in nature with wide sidewalks connecting to building entrances. Landscaping consists of street trees in gratings or in some cases planter strips between the curb and the sidewalk. Portions of the Downtown that have not experienced recent redevelopment have a more suburban character that includes narrower sidewalks and surface parking that generally separates a building from the streetscape. Older buildings are more likely to be single-story.

The remaining four commercial and mixed-use centers are also transforming to a more urban land. However, in these areas, building heights tend to be lower with more surface parking (than in Downtown). However, these areas are witnessing more of a shift to structured parking, given the increased cost of land in these areas. The five commercial/mixed-use hubs are predominately surrounded by single-family detached residential buildings which are set back from the street with yards and landscaping. Mixed in among these neighborhoods are small-scale neighborhood commercial centers. Pockets of multi-family buildings are located along arterials. These areas are characterized by parking and landscaping separating the buildings from the street.

The City, in its Bel-Red Corridor Project Final EIS, reviewed potential growth and redevelopment scenarios for the Bel-Red/SR 520 subarea. These scenarios included review of current and proposed plans and policies, including future transportation projects and infrastructure requirements. The proposed projects identified in the 2009–2020 TFP are consistent with the findings and recommendations in the Bel-Red Corridor Final EIS. (City of Bellevue 2007)

6.1.2. Land Use Plans and Policies

The City's Comprehensive Plan guides long-term growth, and provides the framework for land use and transportation decisions for the City. The GMA requires comprehensive plans to be internally consistent across subjects. For purposes of this Draft EIS, the Land Use and Transportation Elements are addressed, as well as policy direction that comes from the City's 14 subarea plans.

The Comprehensive Plan is guided by its vision of a "City in a Park." As part of this vision, a primary goal is for the city to be "the Eastside's transportation hub, offering an array of mobility choices." Other goal statements envision the City as:

- a dedicated steward of environmental quality, where key natural features are preserved and restored;
- a model of superior design and "people places";
- a regional economic center with a strong and diverse economy; and
- a city served by outstanding facilities and services.

The City's vision and goal statements are reinforced through many land use and transportation policies presented in the Comprehensive Plan's various elements.

Land Use Element

The Comprehensive Plan land use element directs that the City:

- maintain and strengthen the vitality of its residential neighborhoods;
- support the Downtown Urban Center and the other commercial and mixed-use areas serving the City and the larger region, and
- support and be supported by a variety of mobility options.

These themes permeate the City's Land Use element and provide guidance for future transportation projects. Key policies related to transportation projects include:

- Policy LU-3. Accommodate growth targets of 10,117 additional households and 40,000 additional jobs for the 2001–2022 period. These targets represent the City's commitment to developing the zoning and infrastructure to accommodate this level of growth.
- Policy LU-10. Access high-traffic-generating land uses from arterials whenever possible. If this is not possible, provide mitigation to address access impacts.
- Policy LU-18. Adopt and maintain policies, codes, and land use patterns that promote walking in order to increase public health.
- Policy LU-28. Support Downtown Bellevue's development as an Urban Center, maintaining it as a financial, retail, and business hub of the Eastside.
- Policy LU-31. Encourage and foster economic development in areas designated for commercial uses.

Transportation Element

The goal of the Comprehensive Plan transportation element is to maintain and enhance mobility for residents and businesses through the creation and maintenance of a balanced system of transportation alternatives that:

- provides a wide range of travel choices;
- supports the land use vision of the City;
- protects our neighborhoods from adverse transportation impacts;

- reflects the regional role of the City in transportation issues; and
- reduces the overall dependency on automobiles throughout the city.

A further goal of the transportation element is to:

- implement a fully multi-modal transportation system that supports the land use vision of the Comprehensive Plan and the role of Downtown Bellevue as the Eastside urban center; and
- reduce the use of SOVs, by creating a land use pattern that allows for shorter vehicle trips and the use of alternative travel options.

The transportation element strengthens the integration of land use and transportation planning in the City. It supports the City's land use vision as expressed in the land use element and Future Land Use Map.

Most of the transportation policies contained in the transportation element are relevant to the TFP. Several of the transportation policies direct the City's transportation investments to support its land use vision and urban growth strategy. Other policies support the vision of making Downtown the major urban center of the east side by creating an area with pedestrian emphasis and providing alternatives to the SOV.

The transportation element directs the reader to the City's CIP; the TFP; Pedestrian and Bicycle Transportation Plan; Transit Plan; and six subarea transportation plans for further information detail and guidance on the City's transportation plans and investment.

6.1.3. Aesthetics

The city's aesthetic character is derived from visual quality of the environment. It has areas characterized by urban high-rise development (e.g. MMA 3 – Downtown) and areas that are characterized by low-density suburban residential development surrounding natural areas (e.g. MMA 2 – Bridle Trails). As a transportation facility is developed, it can either make a transportation corridor feel more like the predominant character of an area, or it might transform an area from one type of area to another (i.e., create more of an urban feel in an otherwise low-intensity suburban environment).

Much of a city's aesthetic quality is influenced by community character and design. The urban design element of the Comprehensive Plan includes guidance for the design quality of future city development—both private and public. Of particular importance for the TFP are the City's "Public Places and Connections" design policies because they relate to design of streets, parks, and other public facilities.

The City's policies related to street corridors include policies that:

- promote development of visually appealing connections in the community;
- advocate for development of boulevards as an attractive and distinct form of connection in the city;

- develop special streetscapes at gateways; and
- incorporate dramatic and imaginative landscape and art features when reconstructing streets or sidewalks.

As the City continues to grow, implementation of these policies will become more critical to ensure the City meets its vision of becoming a "City in a Park."

6.2. Impacts

This section presents potential impacts which may occur as a result of if either alternative is implemented. Since all components of the No Action alternative are included as part of the Propose Action, this impacts section discusses impacts that are common to both alternatives and then presents impacts associated with the Proposed Action alternative.

6.2.1. Impacts Common to Both Alternatives

This section presents potential impacts which may result from implementation of either the No Action alternative or the Proposed Action alternative.

Land Use Patterns

The implementation of projects in either alternative being evaluated in this Draft EIS could potentially impact existing land uses located within close proximity to the specific project. Some impacts could be permanent in nature, while others are only short term or temporary.

Short-Term Impacts

During construction of any project, short-term impacts are typical. Impacts could range from vehicular detours to loud noises, such as:

- construction noise and dust, near project areas or construction staging areas; and
- changes in access or detours for pedestrians, motorists, and building occupants in the project area.

Although short-term inconvenience may result during construction, project amenities such as lighting, landscaping, crosswalks, sidewalks, and bicycle lanes will enhance the pedestrian environment, which could increase pedestrian usage and generally enhance adjacent land uses.

Permanent Impacts

Table 6-1 identifies the projects that are included in the No Action and Proposed Action alternatives. This table also indicates which projects are more likely to affect land use patterns.

For purposes of analysis, impacts are identified by whether a proposed transportation project has the potential to require total acquisition of parcels of land and/or to displace one or more building as part of the project ("Potential acquisition affecting buildings/land uses"), or whether the project has the potential to affect some amount of on-site parking, on-site landscaping, or formal

streetscape improvements through implementation of the project ("Potential acquisition affecting on-site parking and/or landscaping"). Projects that do not contain an "X" in either of these columns may also require removal of landscaping or other features, but are considered less likely to do so, based on a windshield survey of the project areas and follow up review of King County IMap.

Following completion of any project, there is a potential that existing land uses and associated structures could be permanently impacted. Depending on the type of project being implemented, impacts could include:

- If traffic noise and pollution levels become intrusive for nearby structures, they could make affected buildings less desirable for tenants and/or could lead to the need for investment in abatement measures.
- In some cases, displacement of driveways, removal of parking areas, landscaping and public facilities may require reorienting entrances or similar features.
- Direct displacement or removal of parking spaces, especially parking areas located between streets and buildings. In many cases, widening a street by one lane reduces the depth of a standard parking stall that is perpendicular to the street by approximately two-thirds. (This assumes that the required landscaping between the street or sidewalk and parking area is restored.) This parking configuration is typical for commercial and multi-family development throughout the city. The severity of the impact of the loss of existing parking spaces will vary from site to site, based on parking capacity, layout design and vehicular circulation within the parking area. Generally, the loss of parking more severely affects small sites where the amount of displaced parking area is a relatively high proportion of the total area available and where the size of the parking area limits redesign options.
- Acquisition of entire parcels or large parts of existing parcels for rights-of-way, especially for construction of new roadways. Where roadways are proposed, potential alignments will typically fall on property lines, which generally divide the burden of acquisition between parcels, resulting in less severe impact on any one parcel. However, most of the proposed improvements consist of widening streets or intersections by one or two lanes and/or adding sidewalks, most of which can be done within the existing rights-of-way, and do not require extensive acquisition from any single parcel.
- Two projects under the No Action alternative, TFP-094 and TFP-184, have the potential for right-of-way acquisition to affect buildings and land uses.

Table 6-1. Summary of TFP Projects with Potential Land Use Impacts

2009–2020 TFP Project #	Included in No Action Alternative	Potential Acquisition Affecting On-Site Parking and/or Landscaping	Potential Acquisition Affecting Buildings and Land Uses
078	X		
079	X	X	
090		X	
091/106	X	X	
094	X	X	X
101	X	X	
102		X	
103		X	
110	X		
120		X	
154			
156	X	X	
157		X	
158			
159	X		
160	X	X	
162			
163	X		
164			
165			
168		X	
170	X		
171			
172			
173			
175	X		
178	X		
184	X	X	X
190	X	X	
191	X		
192		X	
193		X	X

2009–2020 TFP Project #	Included in No Action Alternative	Potential Acquisition Affecting On-Site Parking and/or Landscaping	Potential Acquisition Affecting Buildings and Land Uses
194			
195		X	
196			
197		X	X
198		X	
205		X	
207		X	X
208		X	X
209		X	X
210		X	
211		X	X
213		X	
214		X	
215		X	X
216		X	X
217			
218		X	
219			
220			
221			
222		X	
223		X	
224		X	
225		X	
226		X	X
227			
228			
229			
230			
231			
232		X	
233			
234			

2009–2020 TFP Project #	Included in No Action Alternative	Potential Acquisition Affecting On-Site Parking and/or Landscaping	Potential Acquisition Affecting Buildings and Land Uses
235			
236			
237			
238	X		

Aesthetics

Construction of the new transportation facilities proposed in either the No Action alternative or the Proposed Action alternative could result in a variety of impacts on the visual quality of the project area.

The major impact from any of the proposed projects would be the change to the roadway as perceived by an observer not on the roadway, or a change of the environment by the observer from the roadway (driver, bicyclist, pedestrian). Of primary concern is whether the project alters the existing character of the area. This can occur by adding elements of an urban environment to an area with a more rural character, reduce landscaping and change road configurations, or affect view corridors.

Other minor impacts on the overall aesthetics of a neighborhood or area could result from a reduction in landscaping, and the appearance of new facilities (especially utilities, wider streets, and lighting posts).

6.2.2. Proposed Action Alternative

The previous section presented potential impacts which could occur regardless of alternative. This section focuses only on potential impacts which could result if the Proposed Action alternative is implemented.

Land Use Patterns

All projects included in the Proposed Action alternative involve some form of construction activity that would have the potential to temporarily disrupt traffic and/or create pedestrian or motorist detours during construction. There are 52 projects included in the Proposed Action alternative that are not included as part of the No Action alternative. Most of the new projects are located in the commercial/mixed-use Downtown (MMA 3), Bel-Red (MMA 12) and northern Wilburton (MMA 4) areas. The No Action alternative includes 17 projects.

In addition to the two projects identified under the No Action alternative, nine projects under the Proposed Action alternative have the potential to displace land uses by creating new roads and/or re-aligning existing. Four of these projects (TFP-197, TFP-207, TFP-211, and TFP-216) continue the Downtown street grid and/or provide access to/from I-405 to the northern portion of the

Wilburton area. Five of these projects (TFP-193, TFP -208, TFP -209, TFP -215 and TFP -226) create a street grid or realign streets in the Bel-Red area, or make I-405 access improvements in support of anticipated growth and redevelopment of this area, which is currently characterized by low-rise office, warehouse, and auto-related uses. All nine projects hold the greatest possibility for acquiring property for right-of-way which may result in displacing pre-existing buildings, on-site parking, and/or landscaping. One additional project will require vacant land to connect to two existing street ends in the Factoria area (TFP-103). However, this project is not anticipated to displace pre-existing land uses.

Other projects in the Proposed Action alternative may require acquisition of smaller amounts of land to widen existing roadways or to bring roadways up to urban standards. These projects may not displace existing land uses, but may remove required on-site parking, require re-alignment of required parking, or may require removal and replacement of existing landscaping. Eleven of the new projects under the Proposed Action alternative have the potential to remove or re-align on-site parking, and/or to require replacement of on-site landscaping. These projects are generally required to bring city roadways up to urban standards, and to improve traffic conditions to accommodate expected future growth.

Plans and Policies

The transportation projects that are part of the Proposed Action alternative but were not considered under the No Action alternative are consistent with the City's vision statement and the goals and policies of the City's land use and transportation elements of the Comprehensive Plan.

The projects included in the proposed 2009–2020 TFP support the City's ability to meet its population and employment targets by providing capacity not just for automobile travel, but also for pedestrian and bicycle travel in many of the city's fastest growing subareas. The projects included in the Proposed Action alternative are consistent with the City's land use, transportation, and transportation-related subarea goals and policies. Similarly, the projects contained in the 2009–2020 TFP are either specifically listed in a plan policy or subarea transportation facility plan, or are supported by more general land use and transportation policies related to mobility, access, and design.

The majority of projects in the proposed 2009–2020 TFP are located within Downtown (MMA 3), Bel-Red (MMA 12), and Wilburton (MMA 4).

The Downtown projects include many of the new roadway and freeway access projects in the Proposed Action alternative. These projects comply with the City's Downtown subarea goals of providing regional access to Downtown and mobility between the Downtown and other parts of the city. These projects will help accommodate the additional 28,000 jobs and 10,000 residents that are expected in the Downtown subarea by 2020.

The proposed new roadways in the Wilburton area are consistent with Wilburton/NE 8th Street Subarea Policy S-WI-25:

> ***Policy S-WI-25.*** *Improve local access, street system connectivity and traffic flow by providing additional east-west transportation connections, including an arterial street connection at NE 4th Street between NE 116th and 120th Avenues and HOV and non-motorized access at NE 6th Street between Downtown and 120th Avenue NE.*

New roadways proposed in the Bel-Red area are consistent with Bel-Red/Northup Subarea policy S-BR-19 which encourages the City to develop a safe circulation system that accommodates both motorized and non-motorized users.

New streets and roadways, as well as improved streets and roadways will comply with the City's Urban Design standards for streetscapes and transportation corridors. In most cases, improvements contained in the Proposed Action alternative extend or fill in gaps in existing streetscapes that comply with these policies and guidelines.

Aesthetics

Implementation of the projects included in the Proposed Action alternative could affect the character of a neighborhood or corridor; however, the majority of them provide consistency of character by filling in missing segments of streetscape, sidewalks, and/or bicycle lanes where they are missing. Other improvements such as those found in the Downtown (MMA 3) or Bel-Red (MMA 4) areas transform the character of a particular segment of a street or transportation corridor from a lower-intensity suburban standard that formerly dominated the neighborhood to a more urbanized standard that is envisioned in the Comprehensive Plan.

Projects included within the Proposed Action alternative that propose creation of new roadway corridors or realignment of existing roadways have the potential to impact aesthetics by creating new publicly-accessible corridors that may create new view corridors. These projects will be required to adhere to the City's streetscape design standards to help ensure continuity of surrounding streetscapes.

Overall, because the City has strict streetscape standards that require appropriate landscape elements and pedestrian amenities, it is not anticipated that any of the projects that are included in the Proposed Action alternative will have a negative impact on aesthetics.

6.3. Mitigation Measures

If an adverse impact is anticipated due to one of the TFP projects found in the Proposed Action alternative, one or more of the following mitigation measures could be implemented:

Land Use Patterns

- Prepare a relocation plan for displaced residential or commercial uses.
- Remove or relocate underground storage tanks and other hazardous materials if displacement of gas station occurs.
- Redesign and reconfigure parking areas to minimize the number of lost spaces. Potential parking lot redesign measures include: providing a greater area for compact car spaces with smaller dimensions, reducing aisle width by designing one-way circulation systems within the lots, and reducing the width of perpendicular spaces by using angled stalls.
- Where possible, minimize the loss of existing buildings and land uses in development of new transportation corridors and/or realignment of existing transportation corridors.
- Mitigate land acquisition impacts by combining parcels that are not used for sale with adjacent parcels and incorporating undeveloped parcels into roadway designs.
- Minimize the loss of landscaping and vegetation by shifting street alignments to avoid significant stands of vegetation; preserving significant specimen trees within sidewalk and planting strips by meandering sidewalks; preserving significant stands of vegetation adjacent to roadways by installing sidewalks on one side of the street, where pedestrian volumes and hazard potentials are low; and reducing the extent of cleared areas by using retention structures, where practical in place of long, fill slopes.

Plans and Policies

- Any transportation facility projects not identified within the Comprehensive Plan or associated subarea plans should be included in a Comprehensive Plan amendment to maintain consistency between the 2009–2020 TFP and the Comprehensive Plan.

Aesthetics

- Preserve natural vegetation to the greatest extent possible.
- Replace landscaping, including street trees when roadway widening or realignment removes landscaping and street trees.
- Design and align new transportation corridors and other improvements to minimize adverse aesthetic impacts, particularly in residential neighborhoods.
- Implement consistent streetscapes along roadway corridors by using common designs for streets and freeway structures and common landscaping and street trees to provide visual unity.
- Coordinate closely with adjacent land owners to identify significant features that should be considered for retention or replacement in design improvements.
- Relocate utility lines underground.

6.4. Significant Unavoidable Adverse Impacts

The areas most likely to be impacted by the 2009–2020 TFP are Downtown (MMA 3), Bel-Red (MMA 12) and Wilburton (MMA 4). These areas correspond to the major activity centers in the city. It is consistent with Comprehensive Plan policies that infrastructure improvements are focused in these areas. However, it is likely that any adverse impact generated by the projects in the Proposed Action alternative could be mitigated to be consistent with City policies.

Permanent effects to buildings related to transportation projects are considered a potential significant adverse impact. Two projects under the No Action and Proposed Action alternatives, TFP-094 and TFP-184, have the potential for right-of-way acquisition to affect buildings and land uses. Under the Proposed Action alternative, nine additional projects have the potential to displace buildings by creating new roads and/or re-aligning existing. Four of these projects (TFP-197, TFP-207, TFP-211, and TFP-216) continue the Downtown street grid and/or provide access to/from I-405 to the northern portion of the Wilburton area. Five of these projects (TFP-193, TFP-208, TFP-209, TFP-215 and TFP-226) create a street grid or realign streets in the Bel-Red area, or make I-405 access improvements in support of anticipated growth and redevelopment of this area, which is currently characterized by low-rise office, warehouse, and auto-related uses. All nine projects hold the greatest possibility for acquiring property for right-of-way which may result in displacing pre-existing buildings, on-site parking, and/or landscaping.

No other significant unavoidable adverse impacts on land use and aesthetics were identified as a result of either alternative.

Chapter 7. Natural Environment

This chapter describes the natural environment in the City, natural resources that are known to occur, and the potential effects to these resources from the projects included in either alternative.

Information on natural resources in this section is based upon review of the following data sources:

- the City of Bellevue Information Technology Department, Geographic Information Services (GIS) Critical Areas Maps (City of Bellevue 2008d);
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database (Washington Department of Fish and Wildlife 2008);
- the final environmental impact statement for the City of Bellevue 2006–2017 Transportation Facilities Plan (City of Bellevue 2006); and
- a partial driving reconnaissance survey focusing on the projects located near critical areas identified on the City of Bellevue Critical Areas Maps (City of Bellevue 2008d), conducted by an ICF Jones & Stokes biologist on November 22, 2008 (ICF Jones & Stokes 2008).

7.1. Affected Environment

This section presents an overview of current natural environment features in the city, including critical areas, geology and soils, wetlands, aquatic resources, vegetation and wildlife, and shorelines. The affected environment provides the foundation by which impacts are assessed.

7.1.1. Critical Areas

Bellevue City Code (BCC), Part 20.25, regulates development in Critical Areas Overlay Districts. Critical Area Overlay Districts include "any site that is in whole or in part designated as a critical area or critical area buffer." The function of the overlay district is to recognize natural conditions which affect the use and development of property. The City designates and classifies ecologically

sensitive and hazard areas and regulates development of these areas to protect the functions and values of these areas and to protect public health, safety, and welfare, while allowing reasonable use of private property.

The City regulates the following as critical areas:

- streams,
- wetlands,
- shorelines,
- geologic hazard areas,
- habitat associated with species of local importance, and
- areas of special flood hazard.

The Critical Areas Overlay District does not apply to the Downtown subarea. (Ord. 5680, 6-26-06, § 3)

7.1.2. Geology and Soils

The city's geology is characterized by pronounced north–south orientation of ridges and valleys that resulted from glacial actions ending about 11,000 years ago. The underlying geology of the area is comprised of glacial till with some areas of glacial outwash. Glacial till is an unsorted mixture of clay- to boulder-sized materials, while outwash tends to be more stratified and is generally sand- to gravel-sized materials. Soils in the city are predominantly of the Alderwood association, consisting primarily of moderately well drained, undulating to hilly, gravelly, loam soils. These soils have very dense, very slowly permeable glacial till at a depth of 20 to 40 inches. This relatively shallow, underlying till creates areas of seasonal high groundwater. In general, Alderwood soils are suitable for roadway construction without the use of specialized construction techniques. Recent soil mapping by the City has determined that additional soil types exist and suggests that there may be a higher incidence of glacial outwash soil types within the city than currently mapped. Outwash soils have relatively high permeability therefore may facilitate low impact development. Soil types will be evaluated at the project-level analysis for consideration in construction design.

7.1.3. Wetlands

The City classifies wetlands into four categories, depending upon a variety of factors, and regulates buffers adjacent to wetlands. Where there are existing easements on a site, specifically Native Growth Protection Area (NGPA) or Native Growth Protection Easement (NGPE), the regulatory buffer is assumed to be included within these areas and the site is considered to be developed for regulatory purposes and no additional buffer is required (BCC 20.25H). The range of buffer widths for each wetland category on undeveloped sites is shown in Table 7-1.

Table 7-1. Wetland Buffer Width Ranges by Wetland Type

Wetland Type	Buffer (feet)
Category I	75-225
Category II	75-225
Category III	60-110
Category IV over 2,500 square feet	40

Source: City of Bellevue Land Use Code Part 20.25.

Wetland buffer modification, including averaging, is allowed. In addition, if an established right-of-way, such as a road, is located within a wetland buffer the buffer is reduced to the edge of the developed right-of-way if the portion of the buffer located on the opposite side of the right-of-way does not contribute significant biological or hydrological function in relation to the portion of the buffer adjacent to the wetland.

Several projects included in the transportation facilities plan project list would be located within a wetland or a wetland buffer. These projects are listed by MMA in Table 7-2.

Table 7-2. Mapped Wetlands or Wetland Buffers Located in Potential Project Areas

MMA	Transportation Facility Plan Project Number(s)
1 North Bellevue	TFP-173, TFP-236
2 Bridle Trails	TFP-171
4 Wilburton	TFP-197, TFP-234
8 Richards Valley	TFP-281
9 East Bellevue	TFP-158, TFP-168, TFP 221
12 Bel-Red	TFP-208, TFP-210

Note: Only those MMAs with the potential to impact mapped wetlands or wetland buffers are included.

The category of each of these wetlands, and buffer associated with each, will be determined during project specific analysis for each of the projects.

Based upon a reconnaissance level review, the wetland adjacent to TFP-197 is a forested wetland with open water habitat. Overstory tree species include Douglas-fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*), bigleaf maple (*Acer macrophyllum*), and red alder (*Alnus rubra*), with an understory of Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*) and reed canarygrass (*Phalaris arundinacea*).

There are wetlands located on both sides of 148th Avenue NE on the north side of NE 8th Street, in the vicinity of TFP-168. These also have a forested overstory or edge, with Douglas-fir and red alder present. Shrub and ground cover species observed include Himalayan blackberry, Japanese knotweed (*Polygonum cuspidatum*), osoberry (*Oemleria cerasiformis*), common snowberry (*Symphoricarpos albus*), sword fern (*Polystichum munitum*), and reed canarygrass. Ornamental shrubs and trees are also present along the edges of the wetland.

Only a portion of TFP-221 is adjacent to a wetland, the intersection of 148th Avenue SE and SE 8th Street. The wetland in this vicinity is dominated by red alder in the overstory, with black cottonwood (*Populus balsamifera* spp. *trichocarpa*) also occurring, and the understory in primarily Himalayan blackberry.

The wetland in the vicinity of TFP-208 has an overstory of red alder, with willow (*Salix* sp) and western red cedar underneath. The shrub layer is predominantly Himalayan blackberry. The wetland in the vicinity of TFP-210 also contains red alder, with black cottonwood also occurring and Douglas-fir near the edges and Himalayan blackberry in the understory.

There are likely additional wetlands present in the project areas, and these would be identified during project specific review.

Wetlands perform a variety of important functions on the landscape, including water storage, water filtration, and providing habitat for fish and wildlife. During periods of high water, wetlands can store water that otherwise might run off to streams and rivers, contributing to potential flooding. Wetlands often also retain water during dry periods, providing a water source for terrestrial wildlife and habitat for aquatic species. Water stored in wetlands may move through the soil and contribute to flows in streams or rivers. Wetland soils filter many of the pollutants potentially contained in this water, thereby providing cleaner water for river and streams. This method of stream or river recharge is much slower than direct runoff, and helps to modulate flows. Wetlands also provide habitat for a variety of species of fish, amphibians, birds, and mammals. Species that may inhabitat wetlands in the city include juvenile salmonids, Pacific chorus frog (*Pseudacris regilla*), northwestern salamander (*Ambystoma gracile*), long toed salamander (*Ambystoma macrophyllum*), watrerfowl including mallard *(Anas platyrhynchos*) and Canada goose (*Branta canadensis*) and mammals such as muskrat (*Ondatra zibethicus*) The individual functions and values of wetlands potentially impacted by the proposed projects will be evaluated at the project level using the Washington State Department of Ecology (Ecology) wetland rating system for Western Washington (Hruby 2004).

7.1.4. Aquatic Resources

The City classifies streams into four types, depending upon a variety of factors, and regulates buffers adjacent to streams. Buffer widths vary by stream type and depending upon whether the stream is located on an undeveloped or a developed site. Open segments of the West Tributary of Kelsey Creek have separate buffer requirements (BCC 20.25H). Buffer widths of each of the open steam types are shown in Table 7-3. Closed stream segments, defined as segments of streams located in underground culverts, are regulated separately.

Table 7-3. Standard Stream Buffer Widths for Open Streams per Bellevue Land Use Code Part 20.25

Stream Type[1]	Buffer, Undeveloped Site (feet)	Buffer, Developed Site[2](feet)	West Tributary, Kelsey Basin (feet)
Type S	100	50	50
Type F	100	50	50
Type N	50	25	50
Type O	25	25	50

[1]Type S Streams are those designated shorelines of the State; Type F waters are those that are not Type S waters that contain fish or fish habitat; Type N waters are those that are not type S or F waters and are physically connected to a type S or F water by an above ground channel system, stream, or wetland; Type O waters are those that are not type S, F, or N waters and that are not physically connected to type S, F, or N waters by an aboveground channel system, stream, or wetland (BCC 20.25H.075.B).

[2] The actual buffer is the greater of the buffer width shown in this table or the buffer established with the existing NGPE/NGPA.

Stream buffer modification, with specific constraints, is allowed. In addition, if an established right-of-way, such as a road, is located within a stream buffer the buffer is reduced to the area between the right-of-way and the stream only if the portion of the buffer located on the opposite side of the right-of-way does not contribute significant biological or hydrological function in relation to the portion of the buffer adjacent to the stream.

The proposed projects are located in Water Resource Inventory Area (WRIA) 8, Cedar/Sammamish (Ecology 2008). Each stream within a WRIA is given a unique identifying number. Several projects included in the transportation facilities plan project list would either cross mapped streams or would potentially be located within stream buffers. These projects, the mapped stream type, stream name and WRIA number are listed by MMA in Table 7-4.

Table 7-4. Mapped Streams or Streams Buffers Located in Potential Project Areas

MMA[1]	TFP Project Number(s)	Stream Type	Stream Name	WRIA
1 North Bellevue	TFP-079, TFP-173	F	Yarrow Creek	08-0252
2 Bridle Trails	TFP-171	F	Valley Creek	08-0266
4 Wilburton	TFP 211, TFP 216, TFP-234	F F	Sturtevant Creek	08-0260
8 Richards Valley	TFP-231	F	Kelsey Creek	08-0259
9 East Bellevue	TFP-078, TFP-175	F	Vasa Creek,	08-0156
			Phantom Creek	08-0154
			South Sammamish Northern Stream	08-0160
			South Sammamish Middle Stream	None assigned
			South Sammamish Southern Stream	08-0161
	TFP 078	N	Wilkins Creek	08-0151
			Unnamed tributaries to Lake Sammamish	None assigned

MMA[1]	TFP Project Number(s)	Stream Type	Stream Name	WRIA
11 Newcastle	TFP-192, TFP 205	F	Lewis Creek	08-0162
	TFP-163,TFP-192, TFP-194, TFP-228	N	Vasa Creek headwaters,	08-0156
			Lewis Creek headwaters,	08-0162
12 Bel-Red	TFP-215	F	Goff Creek	None assigned
			Kelsey Creek	08-0259
	TFP-091, TFP 106, TFP-208, TFP-210, TFP-215, TFP-218	N	West Tributary,Kelsey Creek	08-0264
14 Newport Hills	TFP-156, TFP-229	N	Lakehurst, Northern Stream	08-0281

[1]Only those MMAs with the potential to impact mapped streams or stream buffers are included.

Type F waters are those that are not designated as shorelines of the state (type S waters) and which contain fish or fish habitat. Type N waters are those that are not type S or F waters but are physically connected to a type S or F waters by an above ground channel system, stream or wetland (BCC 20.25H 075 B).

Fish species documented in streams in the city are Chinook salmon (*Oncorhynchus tshawytshca*), coho salmon (*Oncorhynchus kisutch*), sockeye salmon (*Oncorhynchus nerka*), Lake Sammamish kokanee (*Oncorhynchus nerka*), steelhead trout (*Oncorhynchus mykiss*), coast resident cutthroat trout (*Oncorhynchus clarki clarki*), and rainbow trout (*Oncorhynchus mykiss*) (WDFW 2008). Figure 7-1 illustrates the location of these streams. Fish presence and use by stream within the city is shown in Table 7-5.

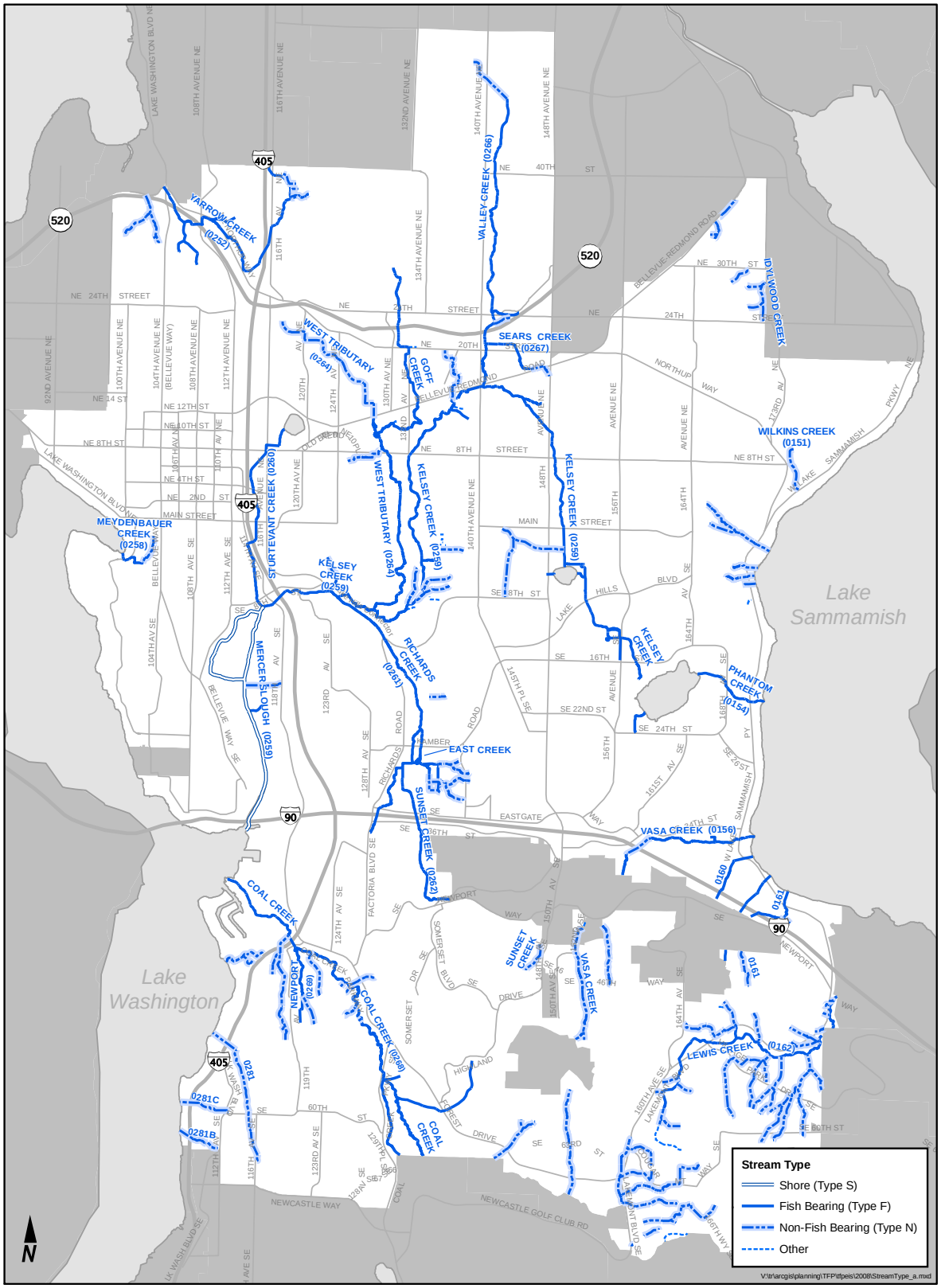


Figure 7-1. Bellevue Streams

Table 7-5. Fish Species and Use by Stream

Stream Name (WRIA Number)	Fish Species	Fish Use
Richards Creek (08-0261)	Chinook salmon	Rearing and migration
	Coho salmon	Spawning and rearing
	Sockeye salmon	Migration
	Coast resident cutthroat	Migration
Vasa Creek (08-0156)	Coho salmon	Rearing and migration
	Kokanee	Migration
	Sockeye salmon	Migration
	Coast resident cutthroat	Migration
Sturtevant Creek (08-0260)	Coho salmon	Migration
	Coho salmon	
	Sockeye salmon	
	Coast resident cutthroat	
Lewis Creek (08-0162)	Coast resident cutthroat	Migration
Coal Creek (08-0268)	Chinook salmon	Migration
	Coho salmon	Spawning and migration
	Sockeye salmon	Spawning and migration
	Steelhead trout	Migration
	Coast resident cutthroat	Migration
Kelsey Creek (08-0259)	Chinook salmon	Migration
	Coho salmon	Spawning
	Sockeye salmon	Spawning
	Coast resident cutthroat	Migration
Goff Creek (No WRIA # assigned)	Chinook salmon	Migration
	Coho salmon	Migration
	Sockeye salmon	Spawning
	Coast resident cutthroat	Migration
Sunset Creek (08-0262)	Coho salmon	Rearing and migration
Mercer Slough (08-0259)	Chinook salmon	Rearing and migration
	Coho salmon	Rearing and migration
	Sockeye salmon	Migration
	Coast resident cutthroat	Migration
	Rainbow trout	Migration
Newport Creek (08-0269)	Coho salmon	Rearing and migration
	Coast resident cutthroat	Migration
Yarrow Creek (08-0252)	Coho	Rearing
	Coast resident cutthroat	Migration
Coal Creek Tributary (08-0268)	Coast resident cutthroat	Migration
Sunset Creek Tributary (08-262)	Coast resident cutthroat	Migration

Stream Name (WRIA Number)	Fish Species	Fish Use
East Creek (No WRIA # Assigned)	Coast resident cutthroat	Migration
Sears Creek (08-0267)	Coast resident cutthroat	Migration

The City has conducted an inventory of culverts within the city limits and has evaluated each for its potential to act as a barrier to fish passage. This inventory is in the process of being updated.

BCC 20.25H.055C.3.e requires that any new culverts be designed according to guidelines contained in the Design of Culverts for Fish Passage Manual (WDFW 2003). Depending on the individual transportation project, existing culverts may be extended in length, rather than replaced; however, they are considered a new culvert and so are subject to the guidelines, if they meet the following criteria:

- There are fish present downstream.
- There is potential fish habitat upstream.
- The benefits of so designing the culvert are substantial when compared to expanding the culvert based on it then-existing design.

In addition, new or expanded public rights of way that have demonstrated no technically feasible alternative with less critical area impact are prohibited from disturbing habitat used for salmonids rearing or spawning (or by any species of local importance), unless no other technically feasible location exists (BCC 20.25H.055.C.2b). Similarly, any crossings over a stream must be designed to minimize stream and stream buffer aerial coverage and disturbance, and be the minimum width necessary to accommodate the function/objective (BCC 20.25H.055.C.2b). Minimizing aerial coverage and disturbance can reduce impacts to riparian forest habitat and large woody debris recruitment into streams from such habitats.

Crossings are also required to have no significant adverse impact on overall peak flows, duration or volume or flood storage capacity, or hydroperiod (BCC 20.25H.055.C.2b). Such hydraulic requirements can be met by bridging stream channels,

Typically relocation of a stream channel or closing a stream channel in a culvert or pipe are not allowed under the City's Critical Area Ordinance. However, as an allowed use under BCC 20.25H.055, new or expanded public rights of way projects can be allowed to relocate an open stream channel or close a channel in a culvert or pipe (20.25H.080B), through a Critical Areas Report process. The Critical Areas Report process requires that projects demonstrate that the proposal leads to equivalent or better protection of critical area functions (e.g. stream functions) than would occur under the standard application of the code (i.e. no relocation or piping allowed).

Project specific analysis will be conducted for each transportation facilities plan project in light of these requirements. Bridging and the WDFW culvert design guidelines will be applied as appropriate.

7.1.5. Wildlife and Vegetation

Wildlife species expected to be present in the city include those typically associate with urban environments, including mammals such as raccoon (Procyon lotor) and eastern gray squirrel (*Sciurus carolinensis*) and birds such as American robin (*Turdus migratorius*) and American crow (*Corvus brachyrhynchos*). As a result of large patches of undeveloped wildlife habitat in the city, primarily in the vicinity of Mercer Slough and the large wetland complex that extends from NE 8th Street to Larsen and Phantom Lakes, and the presence of large conifer and hardwood trees throughout many of the residential neighborhoods, species that are less common in urban environments may also occur. Species expected to occur include coyote (*Canis latrans*), beaver (*Castor canadensis*), red-tailed hawk (*Buteo jamaicensis*), and pileated woodpecker (*Dryocopus pileatus*). Species that have been documented in the city include bald eagle (*Haliaeetus leucocephalus*) and peregrine falcon (*Falco peregrinus*) (WDFW 2008).

The City has identified 23 species as Species of Local Importance, and habitat for these species is regulated under BCC 20.25H. Species of local importance are listed in Table 7-6.

Table 7-6. Species of Local Importance

Common Name	Scientific Name	Common Name	Scientific Name
Bald eagle	*Haliaeetus leucocephalus*	Western big-eared bat	*Plecotus townsendii*
Peregrine falcon	*Falco peregrinus*	Keen's myotis	*Myotis keenii*
Common loon	*Gavia immer*	Long-legged myotis	*Myotis volans*
Pileated woodpecker	*Dryocopus pileatus*	Long-eared myotis	*Myotis evotis*
Vaux's swift	*Chaetura vauxi*	Oregon spotted frog	*Rana pretiosa*
Merlin	*Falco columbarius*	Western toad	*Bufo boreas*
Purple martin	*Progne subis*	Western pond turtle	*Clemmys marmorata*
Western grebe	*Aechmophorus occidentalis*	Chinook salmon	*Oncorhynchus tshawytscha*
Great blue heron	*Ardea herodias*	Bull trout	*Salvelinus confluentus*
Osprey	*Pandion haliaetus*	Coho salmon	*Oncorhynchus kisutch*
Green heron	*Butorides striatus*	River lamprey	*Lampetra ayresi*
Red-tailed hawk	*Buteo jamaicensis*		

Source: City of Bellevue Land Use Code Part 20.25H.

Of the species in Table 7-6, only the bald eagle and peregrine falcon have been documented as occurring by the WDFW (WDFW 2008), although there is a high probability that most of the species do occur in areas of suitable habitat for them within the city. Potential habitat for species

of local importance will be identified during project-level analysis for each of the projects included in the TFP.

There are two bald eagle nesting territories in the city. One is located near TFP-159. And the other is not located near any of the proposed projects. A peregrine falcon aerie has been documented on a building in downtown Bellevue, in the vicinity of projects TFP-172, TFP-184, and TFP-110.

Many residential neighborhoods in the city, particularly those developed in the 1950s and 1960s are characterized by relatively large lot sizes and numerous residual trees, including both conifers and hardwoods. Douglas fir is a common conifer in residential neighborhoods, with western red cedar and variety of ornamental species also occurring. These trees, and an abundance of shrubs associated with private yards and gardens as well as public spaces, provide habitat for birds and small mammals in the city. Pileated woodpeckers occur in urban habitats, including Bellevue, utilizing remnant habitat patches and individual trees. Pileated woodpeckers nest and forage in large conifers, and remnant conifers within the city provide habitat for them. They also forage in smaller coniferous and deciduous trees, down logs, and stumps (Lewis and Azerrad 2003). Larger patches of suitable habitat for pileated woodpecker occur in city parks and green belts containing forested habitat and forested wetlands, however remaining trees in residential and commercial areas of Bellevue also provide habitat for this species.

The City also designated naturally occurring ponds that are less than 20 acres in size as a critical area, with a 35-foot buffer also designated (BCC 20.25H). No naturally occurring ponds that are less than 20 acres in size have been identified near the proposed projects; however project-level review may result in such ponds being identified in the future.

7.1.6. Shorelines

The Shoreline Overlay District includes lakes that are 20 acres in size or greater and streams with a mean annual water flow exceeding 20 cubic feet per second; the lands underlying them; the lands extending landward for 200 feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward 200 feet from such floodways associated with such streams and lakes; and marshes, bogs, swamps and river deltas associated with such streams and lakes. Where steep slopes are located adjacent to streams, the stream bank may be wider than a standard buffer width and based on the location of the top of the bank instead. BCC 20.50 defines this as:

- The point closest to the boundary of the active floodplain of a stream where a break in the slope of the land occur such that he grade beyond the break is flatter than 3:1 at any point for a minimum distance o 50 feet measured perpendicularly from the break; and
- For a floodplain area not contained within a ravine, the edge of the active floodplain of a stream where the slope of the land beyond the edge is flatter than 3:1 at any point for a minimum distance of 50 feet measured perpendicularly from the edge.

Within the city, the following are specifically included in the district:

- Lake Washington (including Mercer Slough upstream to I-405). The lake waters, underlying lands and the area 200 feet landward of the ordinary high water mark, plus associated floodways, floodplains, marshes, bogs, swamps, and river deltas;
- Lake Sammamish. The lake waters, underlying lands and the area 200 feet landward of the ordinary high water mark, plus associated floodways, floodplains, marshes, bogs, swamps and river deltas;
- Lower Kelsey Creek. The creek waters, underlying lands, and territory between 200 feet on either side of the top of the banks, plus associated floodways, floodplains, marshes, bogs, swamps and river deltas; and
- Phantom Lake. The lake waters, underlying lands and the area 200 feet landward of the ordinary high water mark, plus associated floodways, floodplains, marshes, bogs, swamps and river deltas.

Portions of two proposed projects are located in shoreline areas, with portions of TFP-221 located in the shoreline buffer for Phantom Lake and portions of TFP-078 located within shoreline buffer for Lake Sammamish.

7.2. Impacts

This section presents potential impacts which may occur as a result of if either alternative is implemented. New or expanded public rights-of-way are an allowable use within critical areas under BCC 20.25H.055.B, however they must meet the specific performance standards described in BCC 20.25.H.055.C. Under these performance standards, right-of-way corridors may be located or expanded in critical areas or critical area buffers only where there is no technically feasible alternative with less impact on the critical area and buffer. A determination of technical feasibility must consider:

- The location of existing infrastructure;
- The function or objective of the proposed new or expanded facility or system;
- Demonstration that no alternative or configuration outside of the critical area or critical area buffer achieves the stated function or objective, including construction of new or expanded facilities or systems outside the critical area;
- Whether the cost of avoiding disturbance is substantially disproportionate as compared to the environmental impact or proposed disturbance; and
- The ability of both permanent and temporary disturbance to be mitigated.

Specific mitigation for potential impacts to each critical area is discussed in Section 7.3.

7.2.1. Geology and Soils

Potential impacts on geology and soils that may result from implementation of proposed projects included in the No Action and Proposed Action alternatives are discussed in this section.

No Action Alternative

Potential impacts resulting from implementation of proposed projects included under the No Action alternative will be the same as impacts associated with the Proposed Action alternative (see following section). As discussed under the Proposed Action alternative, construction activity in potentially unstable ground could destabilize hillsides, if mitigating measures, such as groundwater interception, engineered retaining systems, or bridges, are not employed. Specific projects located in the vicinity of slopes greater than 40% include portions of TFP-078 and TFP-163. Additional areas may be identified during project-level review.

Proposed Action Alternative

While some individual projects could extensively disturb surface soils, most improvements would occur where soils are already highly disturbed by previous urbanization and paving. If not properly mitigated, clearing, excavation, grading and filling activities required for roadway construction could result in erosion and sedimentation of exposed soils. Soils normally protected by vegetation or pavement could be worn away when exposed to wind and rain during earthwork operations. These eroded soils then become sediments entering surface waters (streams, wetlands and lakes) and could damage both physical and biological functions of the water body.

Construction activity in potentially unstable ground could destabilize hillsides, if mitigating measures, such as groundwater interception, engineered retaining systems, or bridges, are not employed. Moderate amounts of excavation and fill would be required for most of the roadway widening projects and intersection improvements proposed. In most cases, the earthwork volumes are not anticipated to be significant.

Specific projects located in the vicinity of slopes greater than 40% include portions of TFP-078, TFP-163, and TFP-228. Additional areas may be identified during project-level review.

Landslide hazard areas and slopes of 40% or more are designated as critical areas under BCC 20.25H. On undeveloped sites, buffers from landslide hazard areas and steep slopes are 50 feet from the top of slope; structure setbacks of 75 feet are required from the toe of the slope, where mass slope movement has occurred or could occur. As described in Section 7.2 above, new or expanded public rights-of-way are an allowable use within critical areas under BCC 20.25H.055.B, subject to the specific performance standards described in BCC 20.25.H.055.C. If no technically feasible alternative with less impact on a critical area or critical area buffer exists, then compliance with applicable measures contained in BCC 20.25.055.C.2.b. are required. For landslide hazard areas and steep slopes, applicable requirements include:

- Location and design shall result in the least impacts on the critical area or critical area buffer;

- Disturbance of the critical area and critical areas buffer, including disturbance of vegetation and soils, shall be minimized;
- All work shall be consistent with applicable City codes and standards;
- Associated parking and other support functions, including , for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists;
- Areas on new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of BCC 20.25H.210.

Site-specific earth resource impacts will be evaluated and mitigated through the environmental review process for individual projects. It is assumed that all road improvements proposed will conform to city policies and regulations. Roadway development in areas of potentially unstable slopes would be mitigated to ensure stability and safety during and after construction. As part of project-specific design and review, alternative alignments within the same basic corridors that reduce disturbance to critical areas would be examined.

7.2.2. Wetlands

Potential impacts on wetlands that may result from implementation of proposed projects included in the No Action and Proposed Action alternatives are discussed in this section.

No Action Alternative

None of the proposed projects included in the No Action alternative would impact wetlands.

Proposed Action Alternative

Under the Proposed Action alternative, eleven proposed projects could potentially impact wetlands. These projects are TFP-158, TFP-168, TFP-171, TFP-173, TFP-197, TFP-208, TFP-210, TFP-221, TFP-231, TFP-234, and TFP-236. The actual extent of on-site wetlands, as well as wetland functions and values, would be assessed at the time of project-level environmental review for each of the proposed projects. Development in a wetland or buffer would result in the direct filling and subsequent loss of the resource. Development outside of the wetlands and buffers would likely result in some indirect impacts on the wetlands. Indirect impacts on wetlands could include sedimentation from stormwater runoff, increased nutrient loading from road and lawn runoff, changes in the amount or time water is in the wetland, and associated changes to wetland vegetation and habitat. Development would also increase the probability of nonnative plant species invading the wetland and buffer vegetation communities.

As described in Section 7.2 above, new or expanded public rights-of-way are an allowable use within critical areas under BCC 20.25H.055.B, subject to the specific performance standards described in BCC 20.25.H.055.C. If no technically feasible alternative with less impact on a

critical area or critical area buffer exists, then compliance with applicable measures contained in BCC 20.25.055.C.2.b. are required. For wetlands, applicable requirements include:

- Location and design shall result in the least impacts on the critical area or critical area buffer;
- Disturbance of the critical area and critical areas buffer, including disturbance of vegetation and soils, shall be minimized;
- Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists;
- Any crossing over of a wetland or a stream shall be designed to minimize critical area and critical area buffer coverage and critical areas and critical area buffer disturbance, for example by using a bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area buffer than multiple intrusions into the critical area or critical area buffer;
- All work shall be consistent with applicable City codes and standards;
- The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume of flood storage capacity, or hydroperiod;
- Associated parking and other support functions, including , for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists;
- Areas on new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of BCC 20.25H.210.

7.2.3. Aquatic Resources

Potential impacts on aquatic resources that may result from implementation of proposed projects included in the No Action and Proposed Action alternatives are discussed in this section.

No Action Alternative

Potential impacts resulting from implementation of proposed projects included under the No Action alternative will be the same as impacts associated with the Proposed Action alternative (see following section). Potential exceptions are TFP-078 and TFP-079, which are funded for a lesser scope of implementation under the No Action alternative than under the Proposed Action alternative. Specific projects which may impact aquatic resources are TFP-078, TFP-079, TFP-091, TFP-106, TFP-156, TFP-163, and TFP-175. Additional areas may be identified during project-level review. Most of the proposed projects would result in an increase in impervious surface, specifically those that would provide additional lanes for traffic on existing roads, new

road segments, and the construction of bicycle lanes and sidewalks. The potential for increased pollution from stormwater runoff is greater for those projects that would provide for additional motorized capacity (i.e. an increase in pollution generating surfaces). As there are fewer projects included in the No Action alternative, a lower level of impact related to increased impervious surface would result, as compared to the Proposed Action alternative.

Proposed Action Alternative

A number of streams could potentially be impacted by various projects included as part of the Proposed Action alternative. Table 7-7 lists these projects and the impacted streams.

Table 7-7. Streams Potentially Impacted by the Proposed Action Alternative

MMA	Transportation Facility Plan Project Number(s)	Stream Name	WRIA Number
1 North Bellevue	TFP-079, TFP-173	Yarrow Creek	08-0252
2 Bridle Trails	TFP-171	Valley Creek	08-0266
4 Wilburton	TFP-197, TFP 211, TFP-234	Sturdevant Creek	08-0260
8 Richards Valley	TFP-231	Kelsey Creek	08-0259
9 East Bellevue	TFP-078, TFP-175	Vasa Creek	08-0156
		Phantom Creek	08-0154
		South Sammamish Northern Stream	08-0160
		South Sammamish Middle Stream	None Assigned
		South Sammamish Southern Stream	08-0161
	TFP-078	Wilkins Creek	08-0151
		Unnamed tributaries to Lake Sammamish	None Assigned
11 Newcastle	TFP-192, TFP 205	Lewis Creek	08-0162
	TFP-163,TFP-192, TFP-194, TFP-228	Vasa Creek headwaters	08-0156
12 Bel-Red	TFP-215	Goff Creek	None Assigned
		Kelsey Creek	08-0259
	TFP-091, TFP 106, TFP-208, TFP-210, TFP-213, TFP-214, TFP-215, TFP-218	West Tributary, Kelsey Creek	08-0264
14 Newport Hills	TFP-156, TFP-229	Lakehurst, Northern Stream	08-0281

The proposed projects would result in a greater impervious surface area than under the existing condition. Because impervious surfaces can result in increased stormwater runoff, watersheds

with significant impervious surface areas typically show some impairment of fish habitat due to alterations in hydrology, sediment quality and dynamics, or pollutant loads, compared to undeveloped watersheds. The threshold level at which impervious surfaces contribute to an impaired fish habitat condition varies depending on the specific conditions in a given watershed. In addition, the peak flows resulting from increased stormwater runoff are typically stronger, last longer, and occur with a different timing. This can result in concentrated flows, increased stream channel and bank erosion and a concentration of pollutants being transported into streams.

Most of the proposed projects would result in an increase in impervious surface, specifically those that would provide additional lanes for traffic on existing roads, new road segments, and the construction of bicycle lanes and sidewalks. The potential for increased pollution from stormwater runoff is greater for those projects that would provide for additional motorized capacity (i.e. an increase in pollution generating surfaces).

Although bicycle lanes and sidewalks would increase impervious surface and so may increase the amount of stormwater runoff, these surfaces do not generate pollutant loads like roadways, and so contribute comparably less to pollutants entering the landscape. Many of the proposed projects include plans to create a vegetated median or to provide a planted strip between new sidewalks and existing roadways. Such features would provide pervious surface areas that could infiltrate stormwater, which could off-set (albeit minimally) increases in impervious surfaces created by the projects.

Potential project impacts from increased stormwater runoff would be minimized through implementation of the City's Stormwater Management Program, consistent with its permit obligations under the National Pollutant Discharge Elimination System. In addition, BCC 24.06.130 requires that all new facilities and expansion of existing facilities of 5,000 square feet or more incorporate design features to limit the amount of runoff and minimize pollutants in the runoff. Project-level analysis would identify potential impacts from the generation of additional stormwater runoff and would identify appropriate avoidance or minimization measures, in consultation with regulatory agencies.

Proposed projects that would potentially have direct impacts on streams or stream buffers could have direct impacts on salmonids species and other fish species. Direct impacts may result from changes in water temperature due to removal vegetation, changes in water quality due to stormwater runoff, and changes in sedimentation from construction and maintenance activities. Project-level analysis would identify potential impacts and appropriate avoidance or minimization measures would be determined at that time, in consultation with regulatory agencies.

Projects that include bridges or new culverts, as defined in Section 7.1.4 above, may benefit fish species by removing barriers to passage. This could increase the amount of habitat available in a watershed, and may help to increase productivity of the watershed. Bridges and improved culvert design may also improve habitat in the stream system by facilitating the transport of wood, water, and sediment within the system. Project-level analysis would assess the feasibility of bridging streams and would also identify culverts that would be replaced or improved, and would identify mitigation measures necessary for culverts extended.

As described in Section 7.2 above, new or expanded public rights-of-way are an allowable use within critical areas under BCC 20.25H.055.B, subject to the specific performance standards described in BCC 20.25.H.055.C. If no technically feasible alternative with less impact on a critical area or critical area buffer exists, then compliance with applicable measures contained in BCC 20.25.055.C.2.b. are required. For aquatic resources, applicable requirements include:

- Location and design shall result in the least impacts on the critical area or critical area buffer;
- Disturbance of the critical area and critical areas buffer, including disturbance of vegetation and soils, shall be minimized;
- Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists;
- Any crossing over of a wetland or a stream shall be designed to minimize critical area and critical area buffer coverage and critical areas and critical area buffer disturbance, for example by using a bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area buffer than multiple intrusions into the critical area or critical area buffer;
- All work shall be consistent with applicable City codes and standards;
- The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume of flood storage capacity, or hydroperiod;
- Associated parking and other support functions, including , for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists;
- Areas on new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of BCC 20.25H.210.

Potential impacts to individual wetlands and changes in the functions and values of these wetlands from the proposed projects will be evaluated at the individual project level

7.2.4. Wildlife and Vegetation

Potential impacts on wildlife and vegetation that may result from implementation of proposed projects included in the No Action and Proposed Action alternatives are discussed in this section.

No Action Alternative

Potential impacts resulting from implementation of proposed projects included under the No Action alternative will be the same as impacts associated with the Proposed Action alternative (see following section). TFP-159 is also included in the No Action alternative, implementation of

which could potentially impact bald eagles. Additional areas may be identified during project-level review.

Proposed Action Alternative

Vegetation in the city that may be impacted by the proposed projects includes wetland vegetation, vegetated stream and wetland buffers, and trees and shrubs located adjacent to roads. Wetland, streams, and buffers for each are discussed above. Vegetation removal would result in the loss of habitat for wildlife species in the city. Where vegetated medians and planting strips between new sidewalks and existing roads are provided, some replacement habitat would be created. Several of the projects would, however, result in the loss of large residual trees such as Douglas-fir and western red cedar, and it is unlikely that these would be replaced due to their size when mature. These native species that attain large size are important habitat for a variety of species, including bald eagles that often use them as nest trees.

Direct impacts on bald eagles could occur in the vicinity of TFP-159 if large trees in the vicinity of a nest tree are removed. Prior to construction, project-level analysis would be conducted to determine the proximity of any vegetation alteration and its potential impacts on bald eagles.

Impacts on peregrine falcons are not expected as the existing aerie is located on a building ledge in Downtown Bellevue and so it is assumed that the peregrine falcons associated with it are accustomed to noise and activity associated with construction activities.

Removal of large trees, particularly conifers, would reduce the amount of habitat available for pileated woodpecker and would further fragment existing habitat. Removal of large conifers may impact other cavity nesting birds as well, reducing the amount of habitat available for them.

Project-level analysis would also be conducted to determine the presence or potential presence of other species of local importance within areas that would be impacted by the proposed projects, and appropriate avoidance or minimization measures would be determined at that time.

As described in Section 7.2 above, new or expanded public rights-of-way are an allowable use within critical areas under BCC 20.25H.055.B, subject to the specific performance standards described in BCC 20.25.H.055.C. If no technically feasible alternative with less impact on a critical area or critical area buffer exists, then compliance with applicable measures contained in BCC 20.25.055.C.2.b. are required. For species of local importance, applicable requirements include:

- Location and design shall result in the least impacts on the critical area or critical area buffer;
- Disturbance of the critical area and critical areas buffer, including disturbance of vegetation and soils, shall be minimized;
- Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists;
- Any crossing over of a wetland or a stream shall be designed to minimize critical area and critical area buffer coverage and critical areas and critical area buffer disturbance, for

example by using a bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area buffer than multiple intrusions into the critical area or critical area buffer;

- All work shall be consistent with applicable City codes and standards;
- The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume of flood storage capacity, or hydroperiod;
- Associated parking and other support functions, including , for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists;
- Areas on new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of BCC 20.25H.210.

7.2.5. Shorelines

Potential impacts on shorelines that may result from implementation of proposed projects included in the No Action and Proposed Action alternatives are discussed in this section.

No Action Alternative

Project-level analysis will be conducted on individual projects to determine impacts on shorelines and whether a conditional use permit would be required for the proposed activity. Project TFP-078 is being designed to allow for improvements to fish passage, water quality, and storm drainage and so may improve shoreline conditions.

Proposed Action Alternative

Project-level analysis will be conducted on individual projects to determine impacts on shorelines and whether a conditional use permit would be required for the proposed activity. Project TFP-221 is the replacement of traffic signals and so is unlikely to result in shoreline impacts. Project TFP-078 is being designed to allow for improvements to fish passage, water quality, and storm drainage and so may improve shoreline conditions. Cumulatively, the increase in impervious surface from the proposed projects may negatively impact shoreline functions by increasing run-off and associated pollutant loads to receiving water bodies. Stormwater treatment will be evaluated at the project level.

As described in Section 7.2 above, new or expanded public rights-of-way are an allowable use within critical areas under BCC 20.25H.055.B, subject to the specific performance standards described in BCC 20.25.H.055.C. If no technically feasible alternative with less impact on a

critical area or critical area buffer exists, then compliance with applicable measures contained in BCC 20.25.055.C.2.b. are required. For shorelines, applicable requirements include:

- Location and design shall result in the least impacts on the critical area or critical area buffer;
- Disturbance of the critical area and critical areas buffer, including disturbance of vegetation and soils, shall be minimized;
- Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists;
- Any crossing over of a wetland or a stream shall be designed to minimize critical area and critical area buffer coverage and critical areas and critical area buffer disturbance, for example by using a bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area buffer than multiple intrusions into the critical area or critical area buffer;
- All work shall be consistent with applicable City codes and standards;
- The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume of flood storage capacity, or hydroperiod;
- Associated parking and other support functions, including , for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists;
- Areas on new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of BCC 20.25H.210.

7.3. Mitigation

Where unavoidable impacts to critical areas are identified in association with a project, mitigation is required per BCC 20.25H.210 through 20.25H.225. Priorities for mitigation are to avoid the impact if possible, by not constructing the project; minimizing impacts by limiting the degree or magnitude of the project or using other measure to reduce the impact; and finally performing the following mitigation activities:

- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operation during the life of the action; or
- Compensating for the impact by replacing, enhancing, or providing substitute resources or environments.

Lastly, monitoring and taking remedial action as needed may be employed.

If unavoidable impacts are identified, a mitigation and restoration plan must be prepared. This plan must identify plan phases; provide the mitigation and restoration plan details, provide the timing of the work; and include a monitoring program, contingency plan, and assurance dev ices.

Temporary impacts must also be mitigated for but a mitigation and restoration plan may not be required.

If an adverse impact is anticipated due to one of the TFP projects found in the Proposed Action alternative, one or more of the following mitigation measures could be implemented:

7.3.1. Geology and Soils

Site-specific earth resource impacts will be evaluated and mitigated through the environmental review process for individual projects. It is assumed that all road improvements proposed will conform to city policies and regulations, particularly in accordance with BCC 20.25H125.. Roadway development in areas of potentially unstable slopes would be mitigated to ensure stability and safety during and after construction. As part of project-specific design and review, alternative alignments within the same basic corridors that reduce disturbance to critical areas would be examined.

7.3.2. Wetlands

If a project results in impacts on wetlands, performance standards described in BCC 20.25H.100 would be implemented. Performance standards applicable to transportation projects include:

- directing lights away from wetlands;
- routing toxic runoff away from wetlands;
- potentially allowing treated runoff to enter the wetland buffer;
- planting the outside edge of buffer with dense vegetation to limit pet or human use; and
- applying pesticides, insecticides, and fertilizers within 150 feet of the edge of the buffer per the City of Bellevue Environmental Best Management Practices.

Direct impacts on wetlands would be mitigated according to BCC 20.25H.105, with mitigation selected in the following order of preference:

1. restore wetlands on upland sites that were formerly wetlands;
2. create wetlands on disturbed upland sites such as those supporting primarily nonnative vegetation, in areas where existing hydrology would support a wetland; and
3. enhance significantly degraded wetlands.

Direct impacts on wetland buffers would be mitigated in the following order of preference:

1. on-site, through replacement of lost critical area buffer;

2. on-site, through enhancement of the functions and values of remaining critical area buffer;
3. off-site, through replacement or enhancement, in the same sub-drainage basin; or
4. off-site, through replacement or enhancement, out of the sub-basin drainage basin but in the same drainage basin.

Mitigation ratios for wetlands directly impacted are shown in Table 7-8. These ratios may be increased if where the proposed mitigation would result in a lower category of wetland or reduced functions compared to the wetland being impacted.

Table 7-8. Wetland Mitigation Ratios

Wetland Category	Acreage impacted	Replacement Acreage
Category I	1	6
Category II	1	3
Category III	1	2
Category IV	1	1.5

Source: Bellevue City Code 20.25H.105.C.1.

7.3.3. Aquatic Resources

If a project results in impacts on aquatic resources, performance standards described in BCC 20.25H.080 would be implemented on sites with a Type S or F stream or associated buffer. Performance standards applicable to transportation projects include:

- Lights shall be directed away from the stream;
- Toxic runoff from new impervious area shall be routed away from the stream;
- Treated water may be allowed to enter the stream critical area buffer;
- The outer edge of the stream critical area buffer shall be planted with dense vegetation to limit pet or human use;
- use of pesticides, insecticides, and fertilizers within 150 feet of the edge of the stream critical area buffer shall be in accordance with the City of Bellevue's "Environmental Best Management Practices ", now or hereafter amended (Ordinance 5680).

Direct impacts on streams must be mitigated, and a mitigation plan is required. Direct impacts on streams or associated buffers would be mitigated in the following order of preference, as required by BCC 20.25H.085:

- on-site, through replacement of lost critical area buffer;
- on-site, through enhancement of the functions and values of remaining critical area buffer;
- off-site, through replacement or enhancement, in the same sub-drainage basin; or

- off-site, through replacement or enhancement, out of the sub-basin drainage basin but in the same drainage basin.

The replacement ratio of streams and stream buffers is 1:1.

7.3.4. Wildlife and Vegetation

Project-level analysis would also be conducted to determine the presence or potential presence of other species of local importance within areas that would be impacted by the proposed projects, and appropriate avoidance or minimization measures would be determined at that time. The potential presence would be determined by the presence of potentially suitable habitat for these species, even if the species itself is not documented. If it is found that a species of local importance, or potentially suitable habitat for a species of local importance, is present in a project area, performance standards described in BCC 20.25H.160 would be implemented. If performance standards cannot be met due to infeasibility, mitigation measures would be implemented, as described in BCC 20.25H.210 through 20.25H.225. This would require the development of a wildlife management plan in consultation with the WDFW.

A habitat assessment consisting of an investigation of the site to evaluate the potential presence or absence of designated species of local importance or habitat for species of local importance would also be required. A habitat assessment includes preparation of a critical areas report assessing habitat for species of local importance, including the following site- and proposal-related information at a minimum:

- a detailed description of vegetation on and adjacent to the site;
- identification of any species of local importance that have a primary association with habitat on or adjacent to the site, and assessment of potential project impacts on the use of the site by the species;
- a discussion of any federal, state, or local special management recommendations, including WDFW habitat management recommendations, that have been developed for species or habitats located on or adjacent to the site;
- a detailed discussion of the direct and indirect potential impacts on habitat by the project, including potential impacts on water quality;
- a discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed use or activity and to be conducted in accordance with the mitigation sequence set forth in BCC20.25H.215; and
- a discussion of ongoing management practices that will protect habitat after the site has been developed, including proposed monitoring and maintenance programs. (Ordinance 5680).

Additional species may be added to the list of species of local importance prior to project-level analysis for individual transportation facilities plan projects. Habitat assessments prepared for individual projects will use the most current list available in BCC 20.25H for analysis purposes.

7.3.5. Shorelines

No impacts on shorelines are anticipated at this time; therefore, no mitigation is suggested. However, if during project specific review, impacts on shorelines are identified, mitigation measures would be put in place. Project TFP-078 is being designed to allow for improvements to fish passage, water quality, and storm drainage and so may improve shoreline conditions. If other projects result in similar impacts, similar design features could be considered.

7.4. Significant Unavoidable Adverse Impacts

Significant adverse impacts will be avoided or minimized through implementation of mitigation measures as described in section 7.3. Although proposed projects will be designed to minimize or avoid adverse impacts, it is possible that such impacts may occur. Proposed projects would result in an increase in pollution generating impervious surfaces within the city, and would reduce the amount of vegetative cover available. Although stormwater would be treated to the extent possible, and current BMPs would be employed to reduce volumes of stormwater runoff from reaching streams or rivers, the increase in impervious surface would likely result in an increase in stormwater volumes entering streams and rivers, and a corresponding increase in associated pollutants. If no feasible mitigation measures are identified during project-level environmental analysis to mitigate these effects, a significant unavoidable adverse impact would occur.

Chapter 8. References

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Chapter 9. Distribution List

A notice of availability, a compact disk, or a copy of the Draft EIS was sent to the following agencies and organizations. A notice of availability was also published in the City's Weekly Permit Bulletin. The Bulletin is posted on the City website at http://www.bellevuewa.gov/weekly_permit_bulletin.htm. An alert email is sent to those who sign up for the alert service when a new Bulletin is posted, and the City mails hard copies of the Bulletin to anyone who requests to be on the City's permit mailing list.

Federal Agencies

U.S. Environmental Protection Agency, Region 10

Federal Highway Administration, Division Administration

U.S. Department of Housing and Urban Development, Region 10

Tribal, State, and Regional Agencies

Muckleshoot Indian Tribe/Fisheries Department

The Tulalip Tribes

Washington State Department of Community, Trade and Economic Development

Washington State Department of Ecology

Washington State Department of Fish and Wildlife

Washington State Department of Social and Health Services

Washington State Department of Transportation

Puget Sound Clean Air Agency

Puget Sound Partnership

Sound Transit

Puget Sound Regional Council

Puget Sound Energy

County Agencies

King County Department of Development and Environmental Services

Office of the King County Executive

King County Department of Transportation

King County Transit Division

Cities and Towns

City of Issaquah

City of Kirkland, Planning Department

City of Medina

City of Mercer Island

City of Newcastle

City of Redmond, Planning Department

City of Renton

Town of Clyde Hill

Town of Hunts Point

Beaux Arts Village

Seattle Chamber of Commerce

Libraries and School Districts

Bellevue Regional Library, Main Branch

Lake Hills Library

Newport Way Library

Seattle Public Library, Documents Unit

University of Washington College of Architecture and Urban Planning Library

Bellevue School District

Issaquah School District

City Associations

Bellevue Chamber of Commerce

Bellevue Downtown Association

East Bellevue Community Council

Media

Daily Journal of Commerce

Seattle Times

Seattle Post Intelligencer

Appendix A

Completed or Deleted Projects from the Previous 2006–2017 Transportation Facilities Plan

Tables A-1 and A-2 summarize the projects that were included in the previous 2006–2017 Transportation Facilities Plan (TFP) but are not included in the proposed 2009–2020 TFP. Table E-1 lists projects that have been completed since the adoption of the 2006–2017 TFP. Table A-2 lists projects that were not completed but are not proposed for inclusion in the Proposed 2009–2020 TFP update.

Table A-1. Completed 2006–2017 TFP Projects

TFP #	CIP #	Project Name/Location
TFP-002	PW-R-57	Lakemont Boulevard SE/171st Avenue SE to Newport Way
TFP-011	PW-R-105	150th Avenue SE/SE 36th Street to Newport Way
TFP-024	PW-I-70	Bel-Red Road at NE 30th Street
TFP-030	PW-I-88	112th Avenue SE at SE 6th Street
TFP-043	PW-R-118	SE 16th Street/145th Place SE to 148th Avenue SE
TFP-075	PW-W/B-64	119th Avenue SE/SE 60th Street to Lake Heights Street
TFP-081	PW-R-128	Forest Drive/Coal Creek Parkway to SE 63rd Street
TFP-083	PW-W/B-69	NE 24th Street/Northup Way to 130th Avenue NE
TFP-153	PW-M-14	NE 10th Street/176th Avenue NE/NE 13th Street/183rd Avenue - Northup Way to NE 15th Place
TFP-155	PW-I-89	Lakemont Boulevard at Village Park Drive
TFP-186	PW-W/B-70	140th Avenue NE/NE 40th Street to the north city limits
TFP-187	PW-M-13	148th Avenue SE/150th Avenue SE – SE 28th Street to SE 36th Street
TFP-188	PW-I-90	148th Avenue SE at Lake Hills Boulevard
TFP-189	PW-R-149	NE 10th Street Extension
TFP-206	PW-M-16	97th Avenue SE/Bellevue Way to I-90

Table A-2. Deleted 2006–2017 TFP Projects

TFP #	CIP #	Project Name/Location
TFP-039	PW-R-122	130th Avenue NE/Bel-Red Road to NE 20th Street
TFP-076	--	Eastgate Way/Richards Road to 148th Avenue SE
TFP-089	PW-I-91	124th Avenue NE at Bel-Red Road
TFP-092	--	156th Avenue NE at Northup Way
TFP-095	PW-I-83	156th Avenue NE at Bel-Red Road (Microsoft to construct based on developer agreement with the City of Redmond)
TFP-176	--	148th Avenue NE at SR 520
TFP-199	--	Lake Hills Boulevard/143rd Avenue SE to 148th Avenue SE
TFP-200	--	124th Avenue SE north of SE 41st Place to connect with I-90 Trail
TFP-201	--	SE 36th Street/Factoria Boulevard/I-90 Trail intersection
TFP-202	--	SE 36th Street east of Factoria Boulevard to 142nd Avenue SE
TFP-203	--	156th Avenue NE/SE - NE 8th Street to Lake Hills Boulevard
TFP-204	--	Sunset Elementary School to 132nd Avenue SE

Appendix B

Scoping Notice, Comments, and Responses

The Weekly Permit Bulletin

September 18, 2008

Providing official notice of land use applications, meetings, decisions, recommendations, hearings, and appeals of land use decisions within the City of Bellevue

GENERAL INFORMATION REGARDING USE OF OPTIONAL DNS PROCESS

When the **SEPA** field indicates a **Determination of Nonsignificance (DNS)** is expected, the optional DNS process is being used and a DNS is likely. This may be the only opportunity to comment on the environmental impacts of the proposal. The proposal may include mitigation measures under applicable codes and the project review process may incorporate or require mitigation measures regardless of whether an Environmental Impact Statement (EIS) is prepared. A copy of the subsequent Threshold Determination for the proposal may be obtained upon request. The Threshold Determination will also be noticed in a subsequent issue of this Weekly Permit Bulletin.

Applications

NOTICE OF APPLICATION
Woxland Residence Deck Addition
Location: 4505 172nd Avenue SE
Neighborhood: Eastgate/Cougar Mountain
File Number: 08-132157-LO
Description: Application for Critical Areas Land Use Permit approval to demolish an existing wood staircase and construct a new 228 sq. ft. wood deck and stairs, and a 16 sq. ft. concrete landing pad within a Critical Areas/Steep Slope Buffer. The proposed project will include mitigation in the form of 600 sq. ft. of new native landscape plantings.
Approvals Required: Critical Areas Land Use Permit and ancillary permits and approvals.
SEPA: Exempt
Minimum Comment Period Ends: October 2, 2008, 5 p.m. Refer to page one for information on how to comment on a project.
Date of Application: August 29, 2008
Completeness Date: September 11, 2008
Applicant Contact: Frank Neel, The Showplace, Inc, 425-885-1595 ext. 41
Planner Email: spnichols@bellevuewa.gov
Planner: Sally Nichols, 425-452-2727

NOTICE OF APPLICATION
Kurth Shoreline Substantial Development Permit
Location: 408 W Lake Sammamish Pkwy SE
Neighborhood: Sammamish/East Lake Hills
File Number: 08-132518-WG
Description: Application for a Shoreline Substantial Development Permit for a floating dock and boatlift on Lake Sammamish. The dock is approximately 528 square feet in area.
Approvals Required: Shoreline Substantial Development Permit, Concurrency Determination and ancillary permits and approvals.
SEPA: Determination of Nonsignificance (DNS) is expected. Refer to page one General Information Regarding Use of Optional DNS Process.
Minimum Comment Period Ends: October 20, 2008, 5 p.m. Refer to page one for information on how to comment on a project.
Date of Application: September 5, 2008
Completeness Date: September 11, 2008
Applicant: Johnathan Kurth, 206-954-5200
Planner Email: lhyatt@bellevuewa.gov
Planner: Leah Hyatt, 425-452-6834

RENOTICE OF APPLICATION
8th St. Properties Commercial Office Building
Location: 10833 NE 8th St.
Neighborhood: West Bellevue
File Number: 07-144354-LD
Reason for renotice: To notice new location of building on proposed site.
Description: Application for Design Review approval to construct a 32-story office tower on a 2.87 acre site in the Downtown-Office District 1. Proposal includes a landscaped plaza, single level of service retail and 5 levels of underground parking. Revisions include moving the office tower building approximately 32 feet to the west and approximately 10 feet to the north, reducing the width of the tower podium building along the eastern façade by approximately 20 feet, and moving the mid-block vehicular connection to the north so that it is entirely on the proposal site.
Approvals Required: Design Review approval, Concurrency Determination, and ancillary permits and approvals.
SEPA: Determination of Nonsignificance (DNS) is expected. Refer to page one General Information Regarding Use of Optional DNS Process.
Minimum Comment Period Ends: October 2, 2008, 5 p.m. Refer to page one for information on how to comment on a project.
Date of Application: December 27, 2007
Completeness Date: January 17, 2008

Applicant Contact: Todd Stine, Ruffcorn Mott Hinthorne Stine, 206-405-4443
Planner Email: spnichols@bellevuewa.gov
Planner: Sally Nichols, 425-452-2727

NOTICE OF APPLICATION
East Creek Rehabilitation
Location: 13541 SE 27th Place
Neighborhood: Woodridge
File Number: 08-129544-LO
Description: Application for a Critical Areas Land Use Permit with a SEPA Threshold Determination for the rehabilitation of a portion of East Creek, a Type "F" stream, by removing 120 feet of culvert, regarding the streambed for positive slope and revegetation of stream buffer. The stream was placed in a culvert without permits, prompting enforcement action # 07-131972-EA
Approvals Required: Critical Areas Land Use Permit, Clear and Grade and ancillary permits and approvals.
SEPA: Determination of Nonsignificance (DNS) is expected. Refer to page one General Information Regarding Use of Optional DNS Process.
Minimum Comment Period Ends: October 2, 2008, 5 p.m. Refer to page one for information on how to comment on a project.
Date of Application: August 21, 2008
Completeness Date: September 9, 2008
Applicant: Paul Vedmed, A & M Auto/Truck Repair/M
Applicant Contact: Jim Shannon, David Evans & Assoc Inc, 425-586-9798
Planner Email: kleclair@bellevuewa.gov
Planner: Kevin LeClair, 425-452-2928

NOTICE OF APPLICATION
108th Preliminary Short Plat
Location: 1215 108th Ave SE
Neighborhood: West Bellevue
File Number: 08-114727-LN
Description: Application for Preliminary Short Plat approval to subdivide one single family lot (0.49 acres) into two single family lots. The existing house will remain.
Approvals Required: Preliminary Short Plat approval, Concurrency Determination, and ancillary permits and approvals.
SEPA: Exempt
Minimum Comment Period Ends: October 2, 2008, 5 p.m. Refer to page one for information on how to comment on a project.
Date of Application: April 24, 2008
Completeness Date: July 31, 2008
Applicant Contact: Richard Chan, 206-949-5595
Planner Email: csaari@bellevuewa.gov
Planner: Carol Saari, 425-452-2731

NOTICE OF APPLICATION
Vuemont South Open Space- Tract L Hazard Tree Removal
Location: Tract L of Vuemont South
Neighborhood: Eastgate/Cougar Mountain
File Number: 08-131890-GH
Description: Application for a clearing and grading permit in a wetland critical area for the removal of 11 hazardous cottonwood trees and restoration of the area with a mixture of native plan species.
Approvals Required: Clearing and Grading Permit, Transportation –Right of Way Use Permit and ancillary permits and approvals.
SEPA: Determination of Nonsignificance (DNS) is expected. Refer to page two General Information Regarding Use of Optional DNS Process.
Minimum Comment Period Ends: October 2, 2008, 5 p.m. Refer to page one for information on how to comment on a project.
Date of Application: August 25, 2008
Completeness Date: September 9, 2008
Applicant Contact: Chris Vandall, City of Bellevue Parks and Community Development, 425-452-7679
Planner Email: kleclair@bellevuewa.gov
Planner: Kevin LeClair, 425-452-2928

Decisions

NOTICE OF DECISION
Godsey Residence Deck and Dining Room Addition
Location: 643 154th Ave SE
Neighborhood: West Lake Hills
File Number: 08-123661-LO
Description: Critical Areas Land Use approval to expand into the critical area structure setback of a Category I wetland.
Decision: Approval with Conditions.
SEPA: Exempt
Concurrency Determination: N/A
Appeal Deadline Ends: October 2, 2008 5 p.m.
Date of Application: June 27, 2008
Completeness Date: July 24, 2008
Notice of Application Date: August 7, 2008
Applicant Contact: Bridget Smith, Bridget Smith Consulting, 206-781-8404
Planner Email: corr@bellevuewa.gov
Planner: Carol Orr, 425-452-2896

NOTICE OF DECISION
Griffith Residence
Location: 15340 SE 53rd St.
Neighborhood: Eastgate/Cougar Mountain
File Number: 08-125437-LO
Description: Critical Areas Land Use permit approval to modify a critical area buffer to construct a 650 sq. ft. pervious deck and 400 sq. ft. of landscaping within the top of slope critical area buffer. No construction or

plantings are proposed within the steep slope critical area.
Decision: Approval with conditions
SEPA: Determination of Nonsignificance
Appeal Deadline Ends: October 2, 2008 5 p.m.
Date of Application: July 1, 2008
Completeness Date: July 29, 2008
Notice of Application Date: August 7, 2008
Applicant Contact: Dan Yarger, Daniel R Yarger Design & Construction, 206-325-4425
Planner Email: mcross@bellevuewa.gov
Planner: Mark Cross, 425-452-6938

NOTICE OF DECISION
Crossroads Bible Church Parking Lot Expansion and Reconfiguration
Location: 15815 SE 37th Street
Neighborhood: Eastgate/Cougar Mountain
File Number: 08-113042-LO
Description: Application for a Critical Areas Land Use Permit to modify the 75ft toe-of-slope structure setback to allow the construction of a retaining wall structure that enables the creation of 99 new parking stalls serving the existing church use. The total amount of on-site parking would be increased to 701 stalls resulting from the reconfiguration of the existing parking lot and the new expansion proposed as a result of the toe-of-slope structure setback modification request.
Decision: Approval with Conditions
SEPA: Determination of Non-Significance
Concurrency Determination: N/A
Appeal Deadline Ends: October 2, 2008, 5 p.m.
Date of Application: March 21, 2008
Completeness Date: August 14, 2008
Notice of Application Date: August 21, 2008
Applicant Contact: Greg Ransom, Taylor Gregory Butterfield Architects, 425-778-1530
Planner Email: rpittman@bellevuewa.gov
Planner: Reilly Pittman, 425-452-4350

NOTICE OF DETERMINATION OF SIGNIFICANCE, NOTICE OF ENVIRONMENTAL IMPACT STATEMENT SCOPING PERIOD, AND NOTICE OF PUBLIC MEETING
2009-2020 Transportation Facility Plan
Location: City Wide
File Number: 08-132179-LE
Description: The City of Bellevue Transportation Department is proposing to update the existing 2006-2017 Transportation Facility Plan (TFP). The TFP entails a program of transportation improvements to be implemented over the next 12 years and provides the basis for the City's Transportation Impact Fee Program. The TFP serves as the City's intermediate-range transportation facility planning document.
EIS Required: The City of Bellevue (Lead Agency) has determined that this proposal is likely to have probable significant environmental impacts and an EIS is required.
Approvals required: City Council Adoption
SEPA EIS Scoping and Comment Deadline Ends: October 9, 2008, 5 p.m. Comments are invited on the scope of the referenced Environmental Impact Statement pursuant to WAC 197-11-408. Comments on the scope of the impacts to be analyzed may be submitted in writing through October 9, 2008, and should be addressed to the Lead Agency contact below. Agencies, affected tribes, and members of the public are invited to comment. Comments on the scoping of the EIS may address reasonable alternatives; probable significant adverse impacts; mitigation measures and impacts that are not significant and may be eliminated from detailed study. Areas of analysis preliminarily identified by the Lead Agency include transportation, air quality, land use, noise, aesthetic and elements of the natural environment.
Public Meeting/Open House: No scoping meeting scheduled.
Applicant Contact: Michael Ingram, City of Bellevue Transportation Dept., 425-452-4166
Applicant Contact Email: mingram@bellevuewa.gov
Lead Agency Contact: Matthews Jackson, 425-452-2729
Lead Agency Contact Email: mjackson@bellevuewa.gov

SUMMARY OF ISSUES RAISED DURING SCOPING

2009 – 2020 Transportation Facilities Plan

Scoping for this Environmental Impact Statement was initiated by public notice provided on September 18, 2008. One comment was received on the scope of the EIS from Ms Karen Walter of the Muckleshoot Indian Tribe Fisheries Division. No comments were received on the scope of the EIS from other individuals or agencies.

Ms. Walter's comments were received by email, as reproduced below; the City's response follows.

> **From:** Karen Walter [mailto:Karen.Walter@muckleshoot.nsn.us]
> **Sent:** Thursday, October 09, 2008 4:48 PM
> **To:** Jackson, Matthews
> **Subject:** City of Bellevue's 2009–2020 Transportation Facility Plan, Notice of Determination of Significance, Notice of Environmental Impact Statement Scoping Period and Notice of Public Meeting
>
> Matt,
>
> The Muckleshoot Indian Tribe Fisheries Division has reviewed the Notice of Determination of Significance, Notice of Environmental Impact Statement Scoping Period, and Notice of Public Meeting for the 2009–2020 Transportation Facility Plan. The Draft Environmental Impact Statement for this project should analyze the following topics:
>
> - Culverts that block salmonid passage (both adults and juveniles) and/or the transportation of wood, water, and sediment necessary to create fish habitat and the impact these structures have on salmonid distribution and productivity. As part of this analysis, the DEIS should discuss the mitigation measures that will be implemented to address these impacts.
> - The impacts that may occur to salmonids as a result of stormwater discharges from roads within the planning area. These impacts may include displacement, loss of feeding opportunities, increase stress and disease, increase predation, etc.
> - The impacts that may occur to riparian areas and their ability to create and sustain salmonid habitat as a result of road projects covered by the plan.
>
> We appreciate the opportunity to comment on this proposal. Please call me at 253-876-3116 should you have any questions.
>
> Karen Walter
> Watersheds and Land Use Team Leader
> Muckleshoot Indian Tribe Fisheries Division
> 39015 172nd Ave SE
> Auburn, WA 98092

Following is the City's response:

The Transportation Facilities Plan is a 12-year plan for transportation infrastructure. It provides a financially-constrained list of priority projects and provides the basis for calculation of transportation impact fees that apply to certain development projects. The environmental review for this plan is a "non-project" (or programmatic) under SEPA and involves review of the impacts of a "no-action" package of previously-approved transportation projects and a package of additional proposed transportation projects. With either alternative, additional, project-specific environmental analysis of particular projects will be evaluated as each moves into the implementation phase.

Following are responses to the particular points raised:

1. "Culverts that block salmonid passage (both adults and juveniles) and/or the transportation of wood, water, and sediment necessary to create fish habitat and the impact these structures have on salmonid distribution and productivity. As part of this analysis, the DEIS should discuss the mitigation measures that will be implemented to address these impacts."

   Response: City code requires that new culverts be designed according to the Washington State Department of Fish and Wildlife "Design of Road Culverts for Fish Passage" document. Culvert expansions are treated as new when the expansion is associated with a project increasing vehicular capacity and (i) there are fish present downstream; (ii) there is potential fish habitat upstream, and (iii) the benefits of so designing the culvert are substantial when compared to expanding the culvert based on its then-existing design (BCC 20.25H.055.C.3). Chapter 7, the analysis of natural environment impacts, identifies fish species present in Bellevue streams and TFP projects that cross or fall within the buffer areas of streams.

2. "The impacts that may occur to salmonids as a result of stormwater discharges from roads within the planning area. These impacts may include displacement, loss of feeding opportunities, increase stress and disease, increase predation, etc."

   Response: The City has a Stormwater Management Program (see www.bellevuewa.gov/pdf/Utilities/Bellevue_2008_NPDES_Stormwater_Management_Program_(SWMP).pdf), consistent with its permit obligations under the National Pollutant Discharge Elimination System. Projects in the Transportation Facilities Plan will introduce additional impervious surface. City code requires that new facilities and expansion of existing facilities of 5000 square feet or more incorporate design features to limit the amount of runoff and minimize pollutants in the runoff (BCC 24.06.130). Chapter 7, the analysis of natural environment impacts, includes discussion of runoff and impervious surfaces related to the TFP projects.

3. “The impacts that may occur to riparian areas and their ability to create and sustain salmonid habitat as a result of road projects covered by the plan.”

   Response: The City’s Critical Areas regulations designate buffer areas along riparian zones, specify performance standards and indicate the mitigation and restoration requirements associated with any impingement into the buffer zone (BCC 20.25H). Chapter 7, the analysis of natural environment impacts, identifies TFP projects that may cross streams or impinge on stream buffer zones and shoreline buffer zones.

Appendix C

Land Use Projections

Figures C-1 and C-2 illustrate the Transportation Analysis Zones (TAZs) that have been defined for the City of Bellevue transportation analysis.

Table C-1 presents existing (2008) and projected 2020 land use that has been allocated to each TAZ. For each TAZ:

- Existing (2008) land use is presented in the unshaded row
- Projected 2020 land use is presented in the shaded row

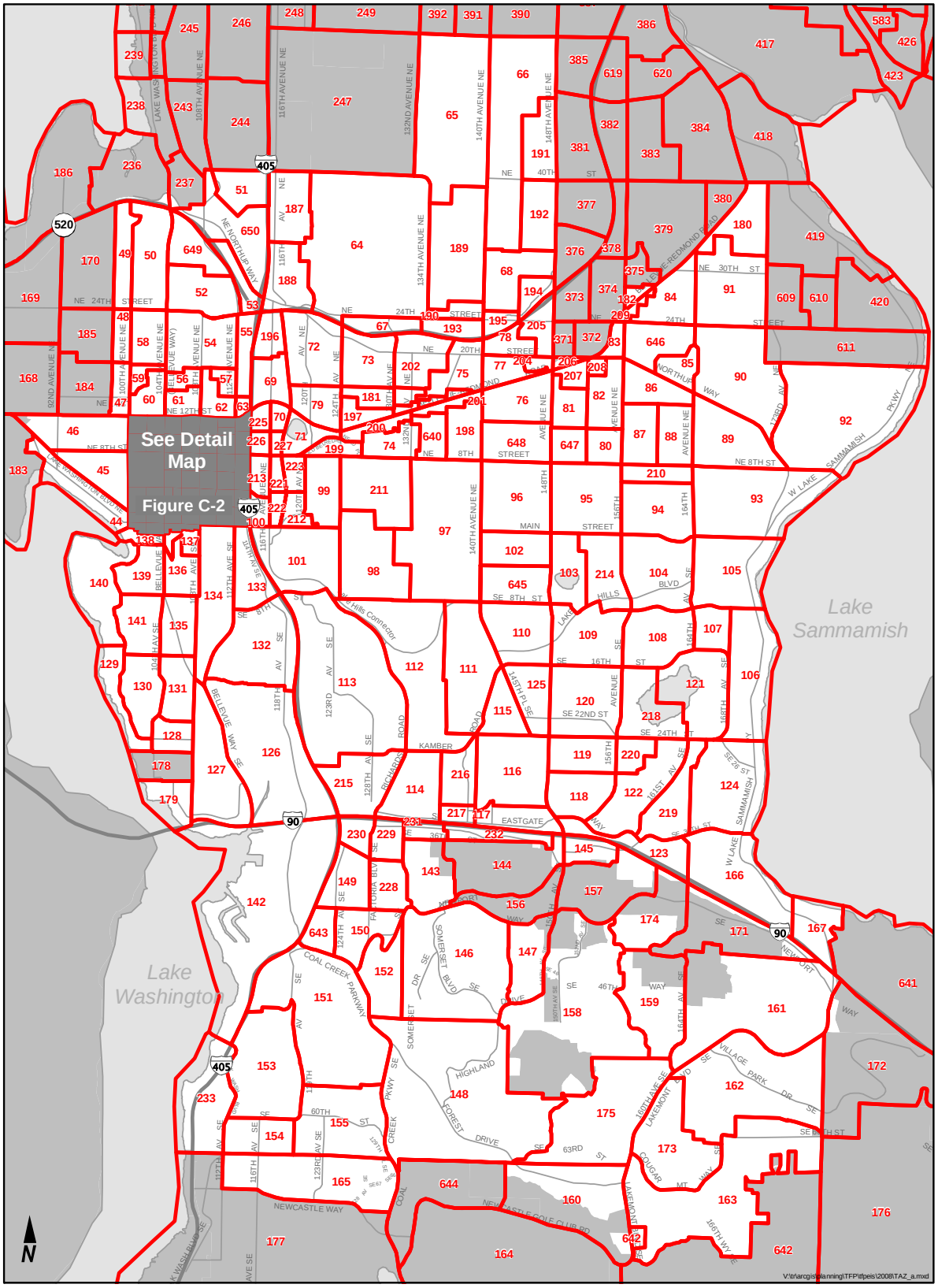

Figure C-1. Citywide Transportation Analysis Zones

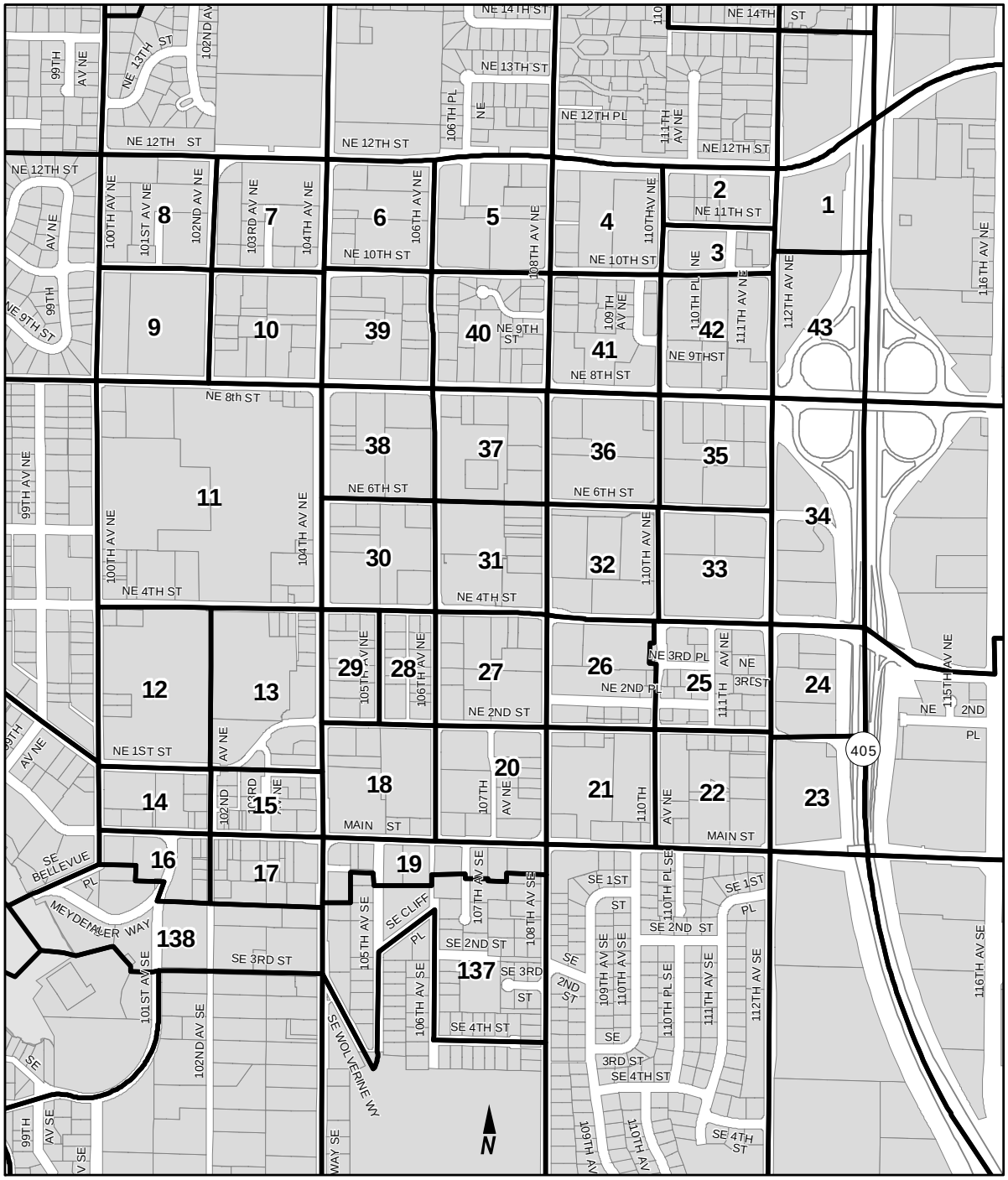

Figure C-2. Downtown Transportation Analysis Zones (Detail from Figure C-1)

Table C-1. Existing (2008) and Projected Future (2020) Land Use

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2008	1	481,383	-	-	-	-	-	-	-
2020	1	481,383	-	-	-	-	-	-	-
2008	2	1,750	8,520	-	-	-	-	361	-
2020	2	1,750	10,520	-	-	-	-	413	-
2008	3	22,139	2,400					202	-
2020	3	22,139	4,900	-	-	-	-	282	-
2008	4	16,210	1,199	-	82,001	-	-	159	-
2020	4	18,500	9,450	-	216,351	-	-	205	-
2008	5	25,480	8,632	-	-	41,080	1	366	100
2020	5	22,715	34,132	-	-	86,080	-	799	210
2008	6	6,000	99,883	-	-	-	-	-	-
2020	6	6,000	83,653	-	-	-	-	327	-
2008	7	9,408	52,520	22,398	55,950	-	-	-	-
2020	7	24,408	72,520	22,398	55,950	-	-	-	-
2008	8	13,605	7,005	-	-	-	2	129	-
2020	8	13,605	22,005	-	-	-	-	129	-
2008	9	-	99,675	-	-	-	-	79	-
2020	9	-	119,675	-	-	-	-	179	-
2008	10	16,270	154,879	-	-	-	-	-	-
2020	10	16,270	184,879	-	-	-	-	400	-
2008	11	16,457	1,534,994	-	-	-	-	-	-
2020	11	16,457	1,784,994	-	-	100,000	-	35	200
2008	12	-	1,295	-	14,660	-	-	19	-
2020	12	-	1,295	-	14,660	-	-	19	-
2008	13	-	59,788	-	-	-	-	-	-
2020	13	15,000	67,870	-	-	-	-	40	-
2008	14	10,633	20,603	4,253	-	-	-	404	-
2020	14	10,633	35,603	4,253	-	-	-	466	-
2008	15	5,063	80,788	-	-	-	-	71	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2020	15	5,063	121,533	-	-	-	-	71	-
2008	16	-	9,625	5,050	-	-	-	129	-
2020	16	-	21,125	2,950	-	-	-	209	-
2008	17	15,082	51,951	7,200	-	-	-	140	-
2020	17	45,082	95,284	7,200	-	-	-	278	-
2008	18	-	149,724	4,064	-	-	-	-	-
2020	18	-	189,724	4,064	-	-	-	800	-
2008	19	49,999	46,875	-	-	-	-	-	-
2020	19	49,999	67,575	-	-	-	-	217	-
2008	20	248,119	78,083	-	-	-	1	341	-
2020	20	258,119	98,083	-	-	-	-	498	-
2008	21	2,825	99,074	-	-	-	-	-	-
2020	21	2,825	119,074	-	-	-	-	400	-
2008	22	368,705	38,283	-	-	-	-	417	-
2020	22	373,705	38,283	-	-	-	-	457	-
2008	23	-	-	-	-	95,074	-	-	180
2020	23	-	-	-	-	149,074	-	-	300
2008	24	108,083	-	-	4,625	-	-	-	-
2020	24	158,083	-	-	4,625	-	-	-	-
2008	25	89,653	19,130	-	1,200	-	1	196	-
2020	25	89,653	61,630	-	1,200	189,000	-	604	378
2008	26	499,779	25,129	-	-	-	-	248	-
2020	26	799,779	25,129	-	-	-	-	248	-
2008	27	444,174	65,354	-	-	-	-	-	-
2020	27	792,174	85,354	-	-	-	-	250	-
2008	28	3,400	57,178	3,120	2,855	-	-	-	-
2020	28	33,400	77,178	3,120	2,855	-	-	350	-
2008	29	10,021	115,551	34,700	-	-	-	134	-
2020	29	-	90,000	-	-	-	-	368	-
2008	30	46,200	77,093	-	39,044	-	-	-	-
2020	30	1,071,200	370,000	-	39,044	157,500	-	200	200

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2008	31	369,427	279,163	-	-	-	-	-	-
2020	31	369,427	296,163	-	-	-	-	506	-
2008	32	1,587,583	-	-	28,284	-	-	-	-
2020	32	1,587,583	-	-	28,284	-	-	-	-
2008	33	238,833	-	-	-	-	-	-	-
2020	33	238,833	-	-	125,000	90,000	-	-	300
2008	34	143,265	13,790	-	-	-	-	-	-
2020	34	143,265	13,790	-	-	-	-	-	-
2008	35	-	37,056	-	300,000	-	-	-	5
2020	35	733,000	266,000	-	500,000	-	-	456	-
2008	36	211,352	25,990	-	28,625	-	-	-	-
2020	36	1,681,352	55,990	-	28,625	-	-	-	-
2008	37	947,895	118,013	-	-	-	-	-	-
2020	37	1,447,895	138,013	-	-	-	-	-	-
2008	38	793,019	331,894	-	12,182	137,162	-	140	303
2020	38	793,019	331,894	-	12,182	137,162	-	148	337
2008	39	542,763	68,354	-	-	312,242	-	-	382
2020	39	1,016,617	93,354	-	210,000	457,000	-	150	654
2008	40	35,023	57,930	-	-	-	-	-	-
2020	40	500,000	70,000	-	-	-	-	576	-
2008	41	514,230	-	-	-	-	3	209	-
2020	41	514,230	-	-	-	-	-	396	-
2008	42	169,035	30,117	-	-	144,783	-	789	249
2020	42	169,035	30,117	-	-	144,783	-	1,100	249
2008	43	-	-	-	-	61,350	-	-	211
2020	43	30,000	-	-	-	-	-	-	-
2008	44	36,092	-	-	12,162	-	121	206	-
2020	44	36,092	-	-	12,162	-	112	200	-
2008	45	-	24,031	-	17,200	-	162	270	-
2020	45	-	24,031	-	17,200	-	162	290	-
2008	46	-	-	-	-	-	288	-	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2020	46	-	-	-	-	-	288	-	-
2008	47	-	-	-	-	-	104	-	-
2020	47	-	-	-	-	-	104	-	-
2008	48	-	-	-	7,735	-	80	-	-
2020	48	-	-	-	7,735	-	80	-	-
2008	49	-	-	-	-	-	174	-	-
2020	49	-	-	-	-	-	174	-	-
2008	50	-	-	-	-	-	251	-	-
2020	50	-	-	-	-	-	290	-	-
2008	51	-	-	-	-	-	111	108	-
2020	51	-	-	-	-	-	111	108	-
2008	52	25,524	62,260	-	29,093	-	200	-	-
2020	52	25,524	62,260	-	29,093	-	200	-	-
2008	53	175,449	-	-	-	-	-	-	-
2020	53	175,449	-	-	-	-	-	-	-
2008	54	222,383	-	-	53,625	-	135	36	-
2020	54	222,383	-	-	53,625	-	135	36	-
2008	55	364,125	3,218	-	-	-	1	-	-
2020	55	364,125	3,218	-	-	-	1	-	-
2008	56	-	-	-	-	-	69	6	-
2020	56	-	-	-	-	-	69	6	-
2008	57	-	-	-	-	-	59	-	-
2020	57	-	-	-	-	-	59	-	-
2008	58	4,396	-	-	118,044	-	167	41	-
2020	58	4,396	-	-	185,165	-	167	41	-
2008	59	-	-	-	-	-	38	17	-
2020	59	-	-	-	-	-	38	17	-
2008	60	-	-	-	-	-	43	527	-
2020	60	-	-	-	-	-	43	527	-
2008	61	-	-	-	-	-	60	229	-
2020	61	-	-	-	-	-	60	229	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2008	62	-	-	-	-	-	95	-	-
2020	62	-	-	-	2,000	-	95	-	-
2008	63	139,050	-	-	-	-	-	-	-
2020	63	139,050	-	-	-	-	-	-	-
2008	64	-	-	-	46,400	-	790	72	-
2020	64	-	-	-	46,400	-	790	72	-
2008	65	-	-	-	-	-	256	-	-
2020	65	-	-	-	-	-	256	-	-
2008	66	-	-	1,250	22,616	-	199	75	-
2020	66	-	-	1,250	22,616	-	199	75	-
2008	67	210,345	-	-	21,122	-	16	24	-
2020	67	210,345	-	-	21,122	-	18	24	-
2008	68	-	-	-	5,782	-	91	643	-
2020	68	-	-	-	5,782	-	91	643	-
2008	69	385,780	-	-	36,460	-	26	-	-
2020	69	617,280	-	-	121,460	-	26	-	-
2008	70	195,198	-	-	-	-	-	-	-
2020	70	355,000	30,000	-	-	-	-	-	-
2008	71	226,082	204,620	37,235	-	-	-	70	-
2020	71	226,082	204,620	37,235	-	-	-	70	-
2008	72	289,487	135,165	584,852	-	-	-	-	-
2020	72	489,487	135,165	509,852	-	-	-	650	-
2008	73	220,758	84,440	636,213	-	-	-	-	-
2020	73	220,758	140,440	236,213	-	-	-	600	-
2008	74	-	-	-	-	-	65	201	-
2020	74	-	-	-	-	-	65	201	-
2008	75	212,772	339,509	411,109	-	-	1	-	-
2020	75	212,772	412,509	361,109	-	-	1	125	-
2008	76	100,000	-	-	-	-	141	-	-
2020	76	100,000	-	-	-	-	154	-	-
2008	77	65,803	151,615	5,100	19,125	-	-	-	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2020	77	65,803	181,615	-	19,125	-	-	200	-
2008	78	166,048	181,303	65,590	5,310	-	-	-	-
2020	78	166,048	186,303	65,590	5,310	-	-	-	-
2008	79	75,000	95,000	1,100,100	-	-	-	-	-
2020	79	2,575,000	140,000	200,100	-	-	-	600	-
2008	80	50,893	-	-	-	-	2	589	-
2020	80	50,893	-	-	-	-	2	609	-
2008	81	-	-	-	-	-	141	-	-
2020	81	-	-	-	-	-	141	-	-
2008	82	47,125	61,670	-	-	-	3	1,139	-
2020	82	47,125	61,670	-	-	-	3	1,159	-
2008	83	-	134,101	-	-	-	-	-	-
2020	83	19,000	160,000	-	-	200,000	-	300	400
2008	84	14,750	-	-	-	-	245	-	-
2020	84	14,750	-	-	-	-	245	-	-
2008	85	-	-	-	4,707	-	103	-	-
2020	85	-	-	-	4,707	-	109	-	-
2008	86	-	9,300	1,100	39,031	-	17	949	-
2020	86	-	9,300	1,100	39,031	-	17	949	-
2008	87	16,537	781,190	5,020	18,545	-	-	70	-
2020	87	16,537	831,190	5,020	18,545	100,000	-	470	200
2008	88	3,435	9,140	52,000	50,736	-	-	453	-
2020	88	13,074	9,140	52,000	50,736	-	-	453	-
2008	89	-	-	-	47,400	-	462	88	-
2020	89	-	-	-	47,400	-	462	88	-
2008	90	-	-	-	60,200	-	770	69	-
2020	90	-	-	-	65,611	-	770	69	-
2008	91	-	-	-	57,772	-	463	-	-
2020	91	-	-	-	57,772	-	465	-	-
2008	92	-	-	-	42,675	-	862	3	-
2020	92	-	-	-	42,675	-	866	3	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2008	93	-	-	-	-	-	602	122	-
2020	93	-	-	-	-	-	603	122	-
2008	94	-	-	-	110,110	-	315	-	-
2020	94	-	-	-	110,110	-	315	-	-
2008	95	3,750	28,717	-	106,479	-	280	177	-
2020	95	6,484	32,425	-	106,479	-	287	202	-
2008	96	9,937	17,125	-	175,370	-	200	572	-
2020	96	9,937	20,379	-	175,370	-	201	574	-
2008	97	7,138	10,313	-	49,800	-	199	140	-
2020	97	7,138	10,313	-	49,800	-	201	140	-
2008	98	-	-	-	168,679	-	205	-	-
2020	98	-	-	-	168,679	-	204	-	-
2008	99	384,575	9,930	37,625	1,180	-	59	262	-
2020	99	384,575	9,930	37,625	1,180	-	59	290	-
2008	100	694	2,469	-	30,000	66,675	-	-	162
2020	100	694	18,846	-	30,000	66,675	-	-	162
2008	101	436,261	68,002	23,845	69,158	-	9	336	-
2020	101	436,261	68,002	23,845	69,158	-	9	336	-
2008	102	-	-	-	296,149	-	-	754	-
2020	102	-	-	-	296,149	-	-	754	-
2008	103	49,413	150,188	-	-	-	4	-	-
2020	103	49,413	180,187	-	-	-	4	-	-
2008	104	-	-	-	9,625	-	573	33	-
2020	104	-	-	-	9,625	-	573	33	-
2008	105	-	-	-	-	-	293	-	-
2020	105	-	-	-	-	-	311	-	-
2008	106	-	-	-	-	-	183	-	-
2020	106	-	-	-	-	-	184	-	-
2008	107	-	-	-	-	-	173	-	-
2020	107	-	-	-	-	-	173	-	-
2008	108	-	-	-	297,049	-	225	-	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2020	108	-	-	-	297,049	-	226	-	-
2008	109	10,600	-	-	30,000	-	262	170	-
2020	109	13,696	-	-	30,000	-	262	170	-
2008	110	6,875	75,854	-	85,475	-	340	61	-
2020	110	6,875	75,854	-	85,475	-	340	80	-
2008	111	-	2,000	5,625	11,072	-	255	325	-
2020	111	-	2,000	5,625	11,072	-	264	325	-
2008	112	25,268	-	7,200	-	-	98	642	-
2020	112	25,268	-	7,200	-	-	111	668	-
2008	113	-	-	3,400	156,078	-	887	-	-
2020	113	-	-	3,400	156,078	-	892	-	-
2008	114	191,504	34,775	748,306	50,150	-	-	-	-
2020	114	191,504	70,275	748,306	50,150	-	-	-	-
2008	115	-	4,223	-	-	-	136	52	-
2020	115	-	4,223	-	-	-	136	52	-
2008	116	216,276	2,100	1,442	652,860	-	42	359	-
2020	116	216,276	2,100	1,442	718,416	-	42	359	-
2008	117	346,654	8,195	89,037	-	5,202	-	-	181
2020	117	346,654	8,195	89,037	-	170,500	-	-	341
2008	118	396,958	165,824	3,000	205,918	29,791	-	-	108
2020	118	396,958	165,824	3,000	205,918	54,000	-	-	108
2008	119	-	-	-	75,578	-	125	-	-
2020	119	-	-	-	75,578	-	126	-	-
2008	120	19,206	7,900	-	86,675	-	355	162	-
2020	120	19,206	7,900	-	86,675	-	355	162	-
2008	121	-	-	-	-	-	324	-	-
2020	121	-	-	-	-	-	324	-	-
2008	122	1,027,270	2,920	887,357	-	263,760	1	4	240
2020	122	1,655,160	2,920	887,357	-	263,760	1	4	240
2008	123	-	-	-	-	-	9	256	-
2020	123	-	-	-	-	-	20	256	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2008	124	-	5,668	-	42,550	-	578	29	-
2020	124	-	5,668	-	42,550	-	578	29	-
2008	125	-	4,700	-	31,940	-	180	142	-
2020	125	-	4,700	-	31,940	-	180	142	-
2008	126	71,054	2,700	39,974	2,600	-	1	311	-
2020	126	72,454	2,700	58,734	20,878	-	1	381	-
2008	127	-	-	-	14,700	-	419	-	-
2020	127	-	-	-	14,700	-	419	-	-
2008	128	-	-	-	54,112	-	76	-	-
2020	128	-	-	-	54,112	-	76	-	-
2008	129	-	-	-	-	-	81	-	-
2020	129	-	-	-	-	-	81	-	-
2008	130	-	-	-	44,750	-	173	-	-
2020	130	-	-	-	44,750	-	173	-	-
2008	131	-	9,000	-	-	-	167	10	-
2020	131	-	9,000	-	-	-	167	10	-
2008	132	710,678	69,808	57,775	-	-	-	50	-
2020	132	822,927	69,808	90,455	-	-	-	50	-
2008	133	388,992	211,385	-	-	645,870	-	-	535
2020	133	388,992	211,385	-	-	884,615	-	-	766
2008	134	56,201	2,400	600	55,690	-	352	157	-
2020	134	56,201	2,400	600	55,690	-	352	157	-
2008	135	5,250	3,550	550	60,252	-	150	67	-
2020	135	5,250	3,550	550	60,252	-	150	77	-
2008	136	28,900	-	-	178,216	-	25	171	-
2020	136	28,900	-	-	178,216	-	25	171	-
2008	137	10,900	-	-	-	-	31	174	-
2020	137	10,900	-	-	-	-	35	174	-
2008	138	21,083	8,325	-	30,220	-	1	203	-
2020	138	21,083	13,825	-	30,220	-	1	259	-
2008	139	-	-	-	22,797	-	76	698	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2020	139	-	-	-	22,797	-	76	754	-
2008	140	-	1,900	9,983	25,375	-	168	116	-
2020	140	-	1,900	9,983	25,375	-	170	134	-
2008	141	-	-	-	-	-	146	-	-
2020	141	-	-	-	-	-	146	-	-
2008	142	3,250	813	4,063	750	-	566	109	-
2020	142	3,250	813	4,063	750	-	595	109	-
2008	143	1,861	-	7,861	101,700	12,182	114	10	81
2020	143	1,861	-	7,861	101,700	12,182	114	10	81
2008	144	7,070	5,112	-	-	-	521	14	-
2020	144	7,070	5,112	-	-	-	521	14	-
2008	145	-	100,219	-	4,745	-	-	-	-
2020	145	-	100,219	-	4,745	-	-	-	-
2008	146	-	-	9,240	124,571	-	1,012	-	-
2020	146	-	-	9,240	124,571	-	1,012	-	-
2008	147	-	-	-	34,917	-	153	-	-
2020	147	-	-	-	34,917	-	153	-	-
2008	148	3,560	-	-	65,410	-	1,213	-	-
2020	148	3,560	-	-	65,410	-	1,213	-	-
2008	149	-	646,577	31,050	12,036	-	-	288	-
2020	149	15,000	682,577	31,050	12,036	-	-	828	-
2008	150	-	-	-	384,439	-	14	395	-
2020	150	-	-	-	384,439	-	14	395	-
2008	151	-	-	-	4,692	-	633	34	-
2020	151	-	-	-	4,692	-	644	34	-
2008	152	3,901	-	-	12,955	-	199	2	-
2020	152	-	-	-	12,955	-	203	2	-
2008	153	14,698	24,477	-	3,420	-	339	-	-
2020	153	14,698	24,477	-	81,400	-	425	-	-
2008	154	-	-	-	-	-	231	2	-
2020	154	-	-	-	-	-	241	2	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2008	155	-	66,614	-	40,000	-	380	442	-
2020	155	3,800	70,414	-	40,000	-	384	442	-
2008	156	12,879	-	-	-	-	190	116	-
2020	156	12,879	-	-	-	-	190	116	-
2008	157	97,870	-	34,450	39,764	61,614	290	52	126
2020	157	97,870	-	34,450	39,764	61,614	290	52	126
2008	158	-	-	-	40,000	-	1,165	75	-
2020	158	-	-	-	40,000	-	1,165	75	-
2008	159	-	-	-	11,682	-	480	4	-
2020	159	-	-	-	11,682	-	480	4	-
2008	160	-	-	-	-	-	330	-	-
2020	160	-	-	-	-	-	330	-	-
2008	161	-	5,806	-	8,387	-	1,010	4	-
2020	161	-	5,806	-	58,921	-	1,010	4	-
2008	162	21,948	54,450	-	-	-	490	400	-
2020	162	21,948	54,450	-	-	-	490	400	-
2008	163	-	-	-	65,450	-	442	216	-
2020	163	-	-	-	65,450	-	551	216	-
2008	164	-	-	-	59,783	-	1,031	232	-
2020	164	-	-	-	59,783	-	1,031	232	-
2008	165	-	88,500	-	-	-	1,939	154	-
2020	165	-	88,500	-	-	-	1,939	154	-
2008	166	-	1,670	-	-	-	342	-	-
2020	166	-	1,670	-	-	-	342	-	-
2008	167	7,896	5,909	-	64,428	-	1,040	334	-
2020	167	7,896	5,909	-	64,428	-	1,040	334	-
2008	168	-	-	-	21,830	-	440	-	-
2020	168	-	-	-	21,830	-	440	-	-
2008	169	-	-	-	51,566	-	698	-	-
2020	169	-	-	-	51,566	-	698	-	-
2008	170	-	-	-	-	-	322	-	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2020	170	-	-	-	-	-	322	-	-
2008	171	-	-	-	-	-	148	-	-
2020	171	-	-	-	-	-	148	-	-
2008	172	-	-	-	-	-	247	431	-
2020	172	-	-	-	-	-	247	431	-
2008	173	2,150	-	988	1,992	-	188	-	-
2020	173	2,150	-	988	1,992	-	191	20	-
2008	174	-	-	-	-	-	300	19	-
2020	174	-	-	-	-	-	300	19	-
2008	175	-	-	-	8,768	-	443	174	-
2020	175	-	-	-	8,768	-	457	174	-
2008	176	-	-	-	11,800	-	587	470	-
2020	176	-	-	-	11,800	-	587	470	-
2008	177	20,652	90,300	-	132,717	-	2,231	534	-
2020	177	20,652	90,300	-	132,717	-	2,231	534	-
2008	178	-	-	-	-	-	124	-	-
2020	178	-	-	-	-	-	124	-	-
2008	179	-	-	-	-	-	121	-	-
2020	179	-	-	-	-	-	121	-	-
2008	180	-	-	-	-	-	333	-	-
2020	180	-	-	-	-	-	333	-	-
2008	181	20,000	25,000	295,000	-	-	-	-	-
2020	181	20,000	100,000	50,000	-	-	-	200	-
2008	182	73,060	-	-	35,400	39,609	-	-	81
2020	182	73,060	-	-	35,400	39,609	-	-	81
2008	183	16,813	4,609	-	115,783	-	572	-	-
2020	183	16,813	4,609	-	115,783	-	572	-	-
2008	184	-	-	-	118,590	-	157	-	-
2020	184	-	-	-	118,590	-	157	-	-
2008	185	7,735	-	-	155,052	-	106	-	-
2020	185	7,735	-	-	155,052	-	106	-	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2008	186	-	-	-	-	-	745	-	-
2020	186	-	-	-	-	-	745	-	-
2008	187	-	-	-	-	-	49	-	-
2020	187	-	-	-	-	-	55	-	-
2008	188	219,633	21,828	19,350	26,000	-	35	-	-
2020	188	219,633	21,828	19,350	26,000	-	35	-	-
2008	189	-	-	-	-	-	198	2	-
2020	189	-	-	-	-	-	198	2	-
2008	190	99,093	-	-	171,505	-	3	-	-
2020	190	99,093	-	-	171,505	-	3	-	-
2008	191	12,100	385,961	12,161	25,266	-	-	989	-
2020	191	12,100	385,961	12,161	60,057	-	-	1,009	-
2008	192	6,375	-	-	-	-	-	1,371	-
2020	192	6,375	-	-	-	-	-	1,388	-
2008	193	10,170	90,250	6,780	-	-	-	-	-
2020	193	10,170	90,250	6,780	-	-	-	-	-
2008	194	215,740	-	-	-	80,544	-	-	416
2020	194	215,740	-	-	-	80,544	-	-	416
2008	195	21,892	67,190	7,300	-	-	-	-	-
2020	195	21,892	67,190	7,300	-	-	-	-	-
2008	196	178,784	-	47,377	-	-	33	-	-
2020	196	278,784	-	47,377	-	-	33	-	-
2008	197	6,064	86,730	332,752	-	-	-	-	-
2020	197	31,564	92,730	332,752	-	-	-	-	-
2008	198	15,655	-	-	-	-	-	1,191	-
2020	198	15,655	-	-	-	-	-	1,191	-
2008	199	188,410	10,537	-	-	-	-	340	-
2020	199	188,410	10,537	-	-	-	-	350	-
2008	200	318,140	4,875	-	6,490	-	-	-	-
2020	200	318,140	4,875	-	6,490	-	-	50	-
2008	201	153,515	-	-	4,800	-	-	-	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2020	201	153,515	-	-	4,800	-	-	50	-
2008	202	639,175	178,925	346,520	-	-	-	-	-
2020	202	647,625	258,925	20,000	-	-	-	300	-
2008	203	43,525	78,991	129,040	17,700	-	-	-	-
2020	203	43,525	78,991	129,040	17,700	-	-	-	-
2008	204	-	92,621	-	-	-	-	-	-
2020	204	-	122,621	-	-	-	-	125	-
2008	205	71,755	288,792	7,820	-	-	-	-	-
2020	205	71,755	299,292	7,820	-	-	-	-	-
2008	206	-	18,150	7,800	22,675	-	-	-	-
2020	206	-	18,150	7,800	22,675	-	-	-	-
2008	207	12,028	3,250	-	108,700	-	4	122	-
2020	207	12,028	3,250	-	108,700	-	4	122	-
2008	208	18,795	-	-	-	-	2	117	-
2020	208	18,795	-	-	-	-	2	117	-
2008	209	56,980	8,600	-	67,306	-	-	-	-
2020	209	56,980	8,600	-	67,306	-	-	-	-
2008	210	109,875	20,625	-	18,565	-	25	102	-
2020	210	109,875	20,625	-	18,565	-	25	102	-
2008	211	-	-	-	15,230	-	349	77	-
2020	211	-	-	-	15,230	-	349	77	-
2008	212	237,922	95,000	52,097	472,826	-	-	-	-
2020	212	237,922	95,000	52,097	472,826	-	-	-	-
2008	213	98,732	63,347	-	19,950	98,137	-	-	180
2020	213	98,732	123,347	-	19,950	98,137	-	-	180
2008	214	-	81,726	-	86,775	-	263	-	-
2020	214	7,600	81,726	-	86,775	-	263	90	-
2008	215	71,816	-	-	30,804	-	168	502	-
2020	215	71,816	-	-	30,804	-	168	502	-
2008	216	226,554	2,100	8,700	56,947	-	-	48	-
2020	216	226,554	2,100	8,700	56,947	-	6	148	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2008	217	559,114	100,528	-	31,742	-	-	-	-
2020	217	559,114	100,528	-	31,742	127,056	-	-	160
2008	218	-	1,750	-	-	-	76	-	-
2020	218	-	1,750	-	-	-	82	-	-
2008	219	88,000	-	-	42,550	-	167	151	-
2020	219	88,000	-	-	42,550	-	180	151	-
2008	220	-	-	-	-	-	74	-	-
2020	220	-	-	-	-	-	74	-	-
2008	221	-	83,988	-	-	-	-	-	-
2020	221	-	125,000	-	-	-	-	-	-
2008	222	-	16,377	-	-	-	-	-	-
2020	222	-	146,377	-	-	-	-	-	-
2008	223	-	145,000	-	-	-	-	-	-
2020	223	-	145,000	-	-	-	-	-	250
2008	224	-	-	-	-	-	-	-	-
2020	224	80,000	55,000	80,000	-	-	-	100	-
2008	225	175,679	-	-	669,083	-	-	-	-
2020	225	175,679	-	-	669,083	-	-	-	-
2008	226	62,918	26,473	-	-	-	-	-	-
2020	226	62,918	26,473	-	-	-	-	-	-
2008	227	-	140,180	-	-	-	-	-	-
2020	227	-	140,180	-	-	-	-	-	-
2008	228	149,298	59,719	-	43,286	-	29	435	-
2020	228	149,298	64,769	-	43,286	-	36	572	-
2008	229	943,262	151,752	22,306	-	-	1	-	-
2020	229	943,262	151,752	22,306	-	-	1	-	-
2008	230	331,359	72,820	22,902	-	-	-	-	-
2020	230	331,359	72,820	22,902	-	-	-	-	-
2008	231	146,302	13,848	-	-	-	-	-	-
2020	231	146,302	13,848	-	-	-	-	-	-
2008	232	297,679	-	-	-	-	-	-	-

Year	TAZ	Square Footage					Dwelling Units		
		OFFICE	RETAIL	INDUSTRIAL	INSTITUT (Gov+Hosp +Edu)	HOTEL	SFDU	MFDU	HOTEL Rooms
2020	232	297,679	-	-	-	-	-	-	-
2008	233	-	-	-	-	-	172	-	-
2020	233	-	-	-	-	-	172	-	-
2008	234	-	-	-	-	-	-	-	-
2020	234	-	-	-	-	-	-	-	-
2008	235	-	-	-	-	-	-	-	-
2020	235	-	-	-	-	-	-	-	-
2008	640	-	-	-	-	-	39	-	-
2020	640	-	-	-	-	-	62	-	-
2008	641	-	-	-	-	-	59	160	-
2020	641	-	-	-	-	-	59	160	-
2008	642	-	-	-	-	-	6	-	-
2020	642	-	-	-	-	-	6	-	-
2008	643	-	-	-	-	-	86	-	-
2020	643	-	-	-	-	-	86	-	-
2008	644	400	-	-	100,950	-	-	-	-
2020	644	400	-	-	100,950	-	-	-	-
2008	645	6,995	17,180	-	-	-	28	30	-
2020	645	6,995	17,180	-	-	-	30	30	-
2008	646	320,100	-	-	246,718	-	-	-	-
2020	646	320,100	-	-	246,718	-	-	-	-
2008	647	-	-	-	-	-	111	-	-
2020	647	-	-	-	-	-	111	-	-
2008	648	265,406	2,100	-	110,522	-	120	87	-
2020	648	265,406	2,100	-	110,522	-	120	87	-
2008	649	370,000	-	-	-	-	-	344	-
2020	649	370,000	-	-	-	-	-	344	-
2008	650	393,972	16,725	173,850	31,574	-	-	476	-
2020	650	408,972	20,725	173,850	31,574	-	-	726	-

Appendix D

Transportation System Impact Analysis Methodology

This appendix supports Chapter 3, Transportation, and contains background on existing conditions and the results of the transportation system analysis.

Background on the Analysis

The analysis of transportation system impacts includes consideration of number of factors pertaining to each of the alternatives:

- Changes in arterial traffic volumes;
- Changes in intersection operating conditions;
- Use of high occupancy vehicles.

The analysis of impacts is based on a comparison of conditions expected in 2020 with and without the different sets of transportation improvements included in the Transportation Facilities Plan (TFP) alternatives. Rather than predicting future conditions, the analysis compares the differences in impacts between the alternatives. This analysis recognizes that the context in which future impacts occur will be defined by a combination of three factors: economic development, investment in infrastructure, and transportation operating conditions.

Economic development in the region and within Bellevue will generate trip demand, that is, the type and number of trips using the transportation system. Economic development is represented in the transportation model by land use projections. The projections include residential dwelling units – where people live – and industrial, office, and commercial land uses – where people work. Commercial and service uses are also used to determine the destinations for other types of trips. All together, these projections are used in the transportation model to estimate the trip demand between these various locations of economic activity. The model produces trip tables that project the destinations for trips of various types, such as home-to-work trips, home-to-service trips (such as shopping), and non-home-based trips, such as trips from one business to another.

Investment in infrastructure includes the planned and committed investments in transportation improvements by the City, the State Department of Transportation and other entities. It also includes investments in transit and programs to encourage alternatives to the automobile. Together, these investments provide the circulation system on which trips are made.

Transportation operating conditions are commonly measured by level of service (LOS). This is a measure of performance of the transportation system based on driver perceptions of acceptable delay. LOS standards have been adopted by various agencies and jurisdictions to measure the adequacy of transportation system operations. The standards for levels of service adopted by the City of Bellevue in its Comprehensive Plan and Traffic Standards Code are expressed in terms of volume (of traffic) to capacity (of the roadway) ratios. Using volume/capacity (v/c) ratios allows measuring the extent to which a facility is operating close to its theoretical capacity. This EIS presents v/c ratios following the process set out in the Highway Capacity Manual and described below.

These three factors are closely interrelated. The decision to maintain a given level of service may affect economic development, as economic activities tend to avoid areas where traffic congestion is severe. The cost of development and economic returns enjoyed may also be affected by regulations that tend to restrict growth in congested areas or increase the cost of development through transportation impact fees. For this analysis, economic conditions have been held constant among the alternatives so that the results could reflect the extent to which differences in the circulation system affect future operating conditions.

Travel Demand Model

The City of Bellevue travel demand model used for this analysis was calibrated to match 2006 traffic counts. The model is known as the Bellevue-Kirkland-Redmond (BKR) Transportation Model and is maintained under terms of an interlocal agreement between those three cities. The BKR model includes land use projections from the Puget Sound Regional Council (PSRC) for King, Snohomish, Pierce, and Kitsap counties, but the focus of the model is King County in general and, specifically, the three cities.

The first step in forecasting travel demand is the identification of land use information for transportation analysis zones (TAZs) in the study area.[1] The land use information for each TAZ is translated from square feet of office, commercial, residential and other land uses to trips, using different trip generation rates for each type of land use. A table with Bellevue's land uses by TAZ can be found in Appendix C.

The next step in transportation modeling is to distribute trip production (origins) with trip attractions (destinations). This is accomplished with a gravity model that uses survey data about where people live and how far they travel for work, shopping, school, etc. The survey information comes from the PSRC's traffic model.

The model then determines how many trips are made by each motorized travel mode (single-occupant vehicle, carpool, transit, etc.) between each pair of transportation analysis zones in the study area. People choose a particular mode for each trip based on a variety of factors including convenience, cost, travel time, household income, number of autos available, etc. The BKR model predicts the number of motor vehicle trips using each mode (mode split) based on formulae that reflect regional trends and are consistent with PSRC's traffic model. (The BKR model does not represent trips made by walk or bike modes.)

PSRC's survey data also provide information about the proportions of trips made during peak periods and the balance of the day, for different trip purposes and travel modes. These data are used to construct a PM peak-hour trip table. The traffic model is used to determine route choices for trips made between zone pairs. This procedure also considers delay due to congestion on each section of roadway.

[1] TAZs are defined based on population and are thus small where densities are high and larger in suburban and rural areas. Maps of Bellevue's TAZs can be found in Appendix C.

At this point the model is tested using a series of comparisons with screenline traffic count data. This process compares the actual 2006 volumes on a number of arterials crossing an imaginary north-south or east-west line, a screenline[2], with the modeled results. (The 2006 base year volumes were established by field counts.) The model is validated to closely match the total volumes traveling across each screenline, rather than matching the volumes on specific roadway segments. This process provides an acceptable level of accuracy for forecasting vehicle demand on the roadway system in the Bellevue, Kirkland, and Redmond areas.[3] For this EIS analysis, base year level of service calculations are presented for 2006 conditions, which is the latest year for which traffic counts are available at time of model development and the base year for model calibration.

As a final step, intersection LOS calculations are prepared in a “post processing” stage. Since it is not possible to calibrate a base year model to 100% accuracy due to the many model input files, processes and network tweaking (including locations of centroid loadings as well as representations of congested arterial speeds and capacity), one cannot just "read off" raw turning movement volumes simulated in a future model. Although volumes crossing calibration screenlines may be accurate to within + - 5% the same volumes dispersed / distributed down to the superblock or block level can be quite erratic. (One should bear in mind that this is a planning tool which produces general approximations and not an operational model which is detailed down to the feet and inches.) However, if one compares the base year model volumes to actual counts, the differences captured will represent the errors in calibrations. The closer these link differences approaches zero, the closer the model is to perfectly calibrated. In this way, it is possible to negate many "poorly" modeled areas. If a base year link has a "suspect" volume, the future year will also have a "suspect" volume. However, the difference in these results from base year to forecast year represent the changes we wish to capture.

In order to establish differences in intersection traffic volumes and turning movements, the following steps are taken:

- The change in volume attributable to changes in the roadway network is determined by modeling the 2020 roadway network on the 2006 base year land use.
- The change in volume attributable to changes in land use is determined by modeling the 2020 roadway network with the 2020 land use.

These differences or deltas in volume attributable to changes in the roadway network from base year to forecast year (resulting from arterial improvements, new roadway links, etc), and change in volume attributable to changes in land use (resulting from changes in density and changes in type of use) are captured and applied to the actual base year counts. This technique is referred to as "post-

[2] An example of the use of a screenline is the aggregate volume of north-south vehicles on 140th, 148th, 156th, 164th Avenues NE and W. Lake Sammamish Pkwy crossing an imaginary east-west line between Main and NE 8th.

[3] The validation effort for the base model on which the 2020 forecast model used in this TFP analysis is built included analysis of 2006 traffic volumes in each direction at 273 locations across 33 screenlines. The simulated traffic fell within +/- 10% of observed counts at nearly all screenlines. Overall, on a system-wide basis, the “goodness of fit ratio” (R^2) was computed to be 0.98, indicating an excellent fit (1.0 equals a perfect fit).

processing", and the final traffic projections are referred to as "post-processed" turning movements. The current model is calibrated to reflect 2006 existing conditions and the post-processing consequently used 2006 actual traffic data.

Land Use Projections

The land use projections used here distribute projected growth among the different geographic areas of the city, based on the “opportunity” for development. This is determined by assessing the difference between the potential for development under the Land Use Code—the existing code together with proposed changes in regulations for the Bel-Red area—and the current intensity of development. Parcels that are currently vacant are projected to have the highest potential for future development, followed by properties in which the difference between the current intensity of development and future potential intensity is the greatest. This procedure provides a reasonable basis for projecting the location of future development trends, but will not exactly match future development decisions made by specific property owners and developers.[4]

The land use projections used in this EIS are for the year 2020. The 2020 land use projections are applied to the TFP networks in both the No Action alternative (Alternative 1) and the Proposed Action alternative (Alternative 2) 2009–2020 TFP. Refer to Table D-1 for 2008 (existing) and Table D-2 and for the projected 2020 land use by major category for each Mobility Management Area. Table D-3 summarizes the projected change in land use in each Mobility Management Area between 2008 and 2020. See Figure D-1 for a map of Mobility Management Areas.

Table D-1. Land Use by Major Category–Year 2008

	2008 Square Footage				2008 Dwelling Units		
MMA	Office	Retail	Industrial	Others	Single Family	Multi-Family	Hotel Rooms
1 North Bellevue	1,730,991	106,234	173,850	269,433	2,158	2,260	0
2 Bridle Trails	795,348	565,229	46,841	318,691	1,637	3,176	416
3 Downtown	8,062,862	3,927,537	80,785	569,426	8	4,533	1,430
4 Wilburton	1,396,781	510,586	113,567	1,262,197	68	598	342
5 Crossroads	136,785	861,300	58,120	108,312	24	3,317	0
6 Northeast Bellevue	464,890	8,600	0	562,178	3,238	160	81
7 South Bellevue	1,296,308	309,881	112,944	489,462	2,677	2,066	535
8 Richards Valley	308,287	27,073	16,225	431,663	2,401	3,470	0
9 East Bellevue	601,981	424,362	0	1,735,990	7,303	2,897	0
10 Eastgate	3,496,311	430,509	1,737,842	1,044,912	293	818	529

[4] Land use projections by Traffic Analysis Zones (TAZ) are found in Appendix C. Projections outside Bellevue are based on Puget Sound Regional Council projections with additional detail provided by the staffs of Bellevue, Kirkland, and Redmond.

	2008 Square Footage				2008 Dwelling Units		
MMA	Office	Retail	Industrial	Others	Single Family	Multi-Family	Hotel Rooms
11 Newcastle	147,338	65,368	52,539	502,641	8,489	1,084	207
12 Bel-Red	3,267,884	2,240,016	4,006,508	112,560	60	70	0
13 Factoria	1,427,820	930,868	76,258	452,716	329	1,120	0
14 Newport Hills	14,698	179,591	0	48,112	3,694	632	0
Totals	**23,193,883**	**10,682,061**	**6,475,479**	**8,676,364**	**39,580**	**28,028**	**3,540**

Table D-2. Land Use by Major Category–Year 2020

	2017 Square Footage				2017 Dwelling Units		
MMA	Office	Retail	Industrial	Others	Single-Family	Multi-Family	Hotel Rooms
1 North Bellevue	1,745,991	110,234	173,850	338,554	2,188	2,524	0
2 Bridle Trails	795,348	565,229	46,841	353,482	1,645	3,213	416
3 Downtown	13,552,198	5,186,789	43,985	1,238,776	0	11,576	2,828
4 Wilburton	1,396,781	757,975	113,567	1,262,197	68	626	592
5 Crossroads	146,424	911,300	58,120	108,312	24	3,757	200
6 Northeast Bellevue	464,890	8,600	0	567,589	3,250	160	81
7 South Bellevue	1,409,957	315,381	164,385	507,740	2,712	2,276	766
8 Richards Valley	308,287	27,073	16,225	431,663	2,452	3,506	0
9 East Bellevue	615,411	461,323	0	1,735,990	7,354	3,033	0
10 Eastgate	4,124,201	466,009	1,737,842	1,110,468	323	918	849
11 Newcastle	147,338	65,368	52,539	553,175	8,615	1,104	207
12 Bel-Red	6,592,136	2,761,415	2,084,888	197,560	60	3,370	400
13 Factoria	1,438,919	971,918	76,258	452,716	340	1,797	0
14 Newport	18,498	183,391	0	126,092	3,805	632	0
Totals	**32,801,979**	**12,617,103**	**4,568,499**	**9,752,385**	**40,037**	**40,319**	**6,339**

Table D-3. Change in Land Use By Major Category–[Change from 2008 to 2020]

	Delta Square Footage				Delta Dwelling Units		
MMA	Office	Retail	Industrial	Others	Single-Family	Multi-Family	Hotel Rooms
1 North Bellevue	15,000	4,000	-	69,121	30	264	-
2 Bridle Trails	-	(269,811)	-	34,791	8	37	-
3 Downtown	5,489,336	1,259,253	(36,800)	669,350	(8)	7,043	1,398
4 Wilburton	-	247,389	-	-	-	28	250
5 Crossroads	9,639	50,000	-	-	-	440	200
6 Northeast Bellevue	-	-	-	5,411	12	-	-
7 South Bellevue	113,649	5,501	51,441	18,278	35	210	231
8 Richards Valley	1	1	-	-	51	36	-
9 East Bellevue	13,431	36,962	-	-	51	136	-
10 Eastgate	627,890	35,500	-	65,556	30	100	320
11 Newcastle	-	-	-	50,534	126	20	-
12 Bel-Red	3,324,252	521,400	(1,921,620)	85,000	-	3,300	400
13 Factoria	11,099	41,050	-	-	11	677	-
14 Newport	3,800	3,800	-	77,980	111	-	-
Totals	**9,608,096**	**1,935,042**	**(1,906,980)**	**1,076,021**	**457**	**12,291**	**2,799**

The analysis presented here must be regarded as a comparison of probable impacts of alternative transportation network improvements – rather than a strict prediction of future conditions – because of the following factors:

- The amount of development which occurs in the future may not exactly match projections;
- It is not possible to exactly predict the location of new development; and
- The potential amount of development allowed by land use codes is much greater than the demand projected for the future. (This may result in the location of development on parcels where growth was not predicted.)

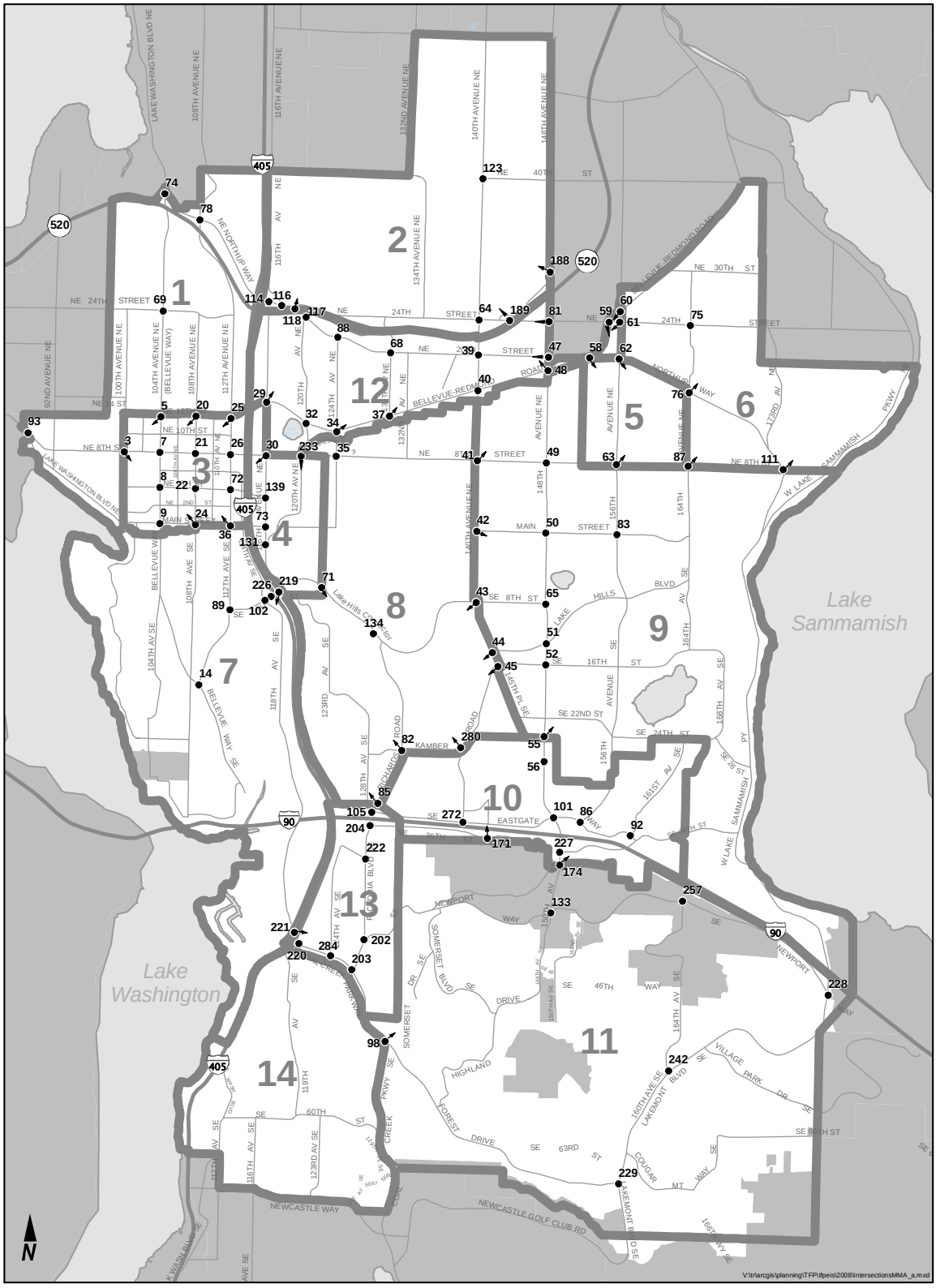

Figure D-1. Mobility Management Areas and System Intersections

Trip Generation/Mode Choice

As the first step in the traditional "four-step" transportation demand forecasting process, trip generation takes land use data as input and produces a number of trips (in a specific mode and purpose) entering and exiting a Traffic Analysis Zone (TAZ). Trip type categories are Home-based work trips, Home-base School trips, Home-based Other trips and Non-home based trips. Modes are walk, bike, bus, train, ferry, SOV and HOV. Only trips by motorized modes are modeled.

Because land use patterns differ in different parts of the city, mode choices and travel patterns differ. Thus Downtown Bellevue will have different trip generation/mode choice characteristics than more suburban employment centers.

Bellevue conducts periodic – every two to three years – surveys of commute trip mode choice to assess changes in commute trip mode use over time. The surveys look at both large employers (with 100 or more employees) and small employers (with fewer than 100 employees). The most recent mode "share" survey was conducted in 2005 in five Mobility Management Areas: Downtown, Bel-Red/Northup, Crossroads, Eastgate, and Factoria. Table D-4 summarizes the findings:

Table D-4. 2005 Mode Share[1]

Mobility Management Area[2]	Drive Alone	Carpool/ Vanpool	Bus	Other
Downtown (MMA-3)	71%	11%	14%	4%
Bel-Red/Northup (MMA-4)	74%	19%	4%	3%
Crossroads (MMA-5)	83%	11%	2%	4%
Eastgate (MMA-10)	77%	11%	4%	8%
Factoria (MMA-13)	79%	14%	4%	3%

1. Based on respondents report of "modes used during previous week".

2. The boundaries of the Bel-Red/Northup MMA 4 cited in this table have significant overlap with but some differences from the new "Bel-Red" MMA 12 district that was defined in the Bel-Red area planning process and which is used elsewhere in this document (see Figure B-A for the new Bel-Red MMA boundaries).

Data collection for a new Mode Share Survey is underway in late 2008 and the results are expected to be available in early 2009.

Traffic Operating Conditions

The City's methodology to measure mobility on roadways – or levels of service – is based on volume-to-capacity (v/c) ratios, as shown in Table D-5.

Table D-5. Average Intersection Levels of Service Definitions (Range of Volume-to-Capacity Ratios with User Impressions)

LOS Categories	Average Volume-to-Capacity Ratios	Description (Subjective Impression of User)
LOS A	Less than or equal to 0.600	Highest drive comfort. Little delay. Free flow.
LOS B	0.601 - 0.70	High degree of drive comfort. Little delay.
LOS C	0.701 - 0.80	Some delays. Acceptable level of driver comfort. Efficient traffic operation.
LOS D+ (High D)	0.801 - 0.85	Some driver frustration. Efficient traffic operation.
LOS D- (Low D)	0.851 – 0.90	Increased driver frustration. Long cycle length.
LOS E+ (High E)	0.901 - 0.95	Near capacity. Notable delays. Low driver comfort. Difficulty of signal progression.
LOS E- (Low E)	0.951 - 1.000	At capacity. High level of congestion. High level of driver frustration.
LOS F	Greater than or equal to 1.001	Breakdown flow. Excessive delays.

The City's standards for mobility on roadways are based on an average of LOS measurements at designated "system" intersections within each of 14 zones or "Mobility Management Areas" (MMAs). "System" intersections are a subset of the signalized intersections, selected for their critical function in the roadway network. (See Figure D-1 for a map of MMAs and locations of system intersections.) For each MMA, there are two parameters to the performance standard:

- An areawide average of the LOS level at the designated system intersections
- A limit on the number of system intersections permitted to exceed the designated LOS standard for the area. This is termed the "Congestion Allowance".

Table D-6 shows the Level of Service and Congestion Allowance levels for the MMAs in Bellevue:

Table D-6. Level of Service Standards and Congestion Allowances[1]

Mobility Management Area	Area-Average LOS Standard(Maximum v/c Ratio)	Congestion Allowance
Regional Center		
3 Downtown	0.950	9
Mixed Commercial/ Residential Areas		
12 Bel-Red	0.950	7
4 Wilburton	0.850	3
5 Crossroads	0.090	2
10 Eastgate	0.090	4

13 Factoria	0.950	5
Residential Group 1		
1 North Bellevue	0.850	3
7 South Bellevue	0.850	4
8 Richards Valley	0.850	5
9 East Bellevue	0.850	5
Residential Group 2		
2 Bridle Trails	0.800	3
6 Northeast Bellevue	0.800	2
11 Newcastle	0.800	3
14 Newport[2]	0.800	--[2]

1. Excerpted from BCC 14.10.030 and modified to reflect anticipated revisions associated with the Bel-Red plan adoption
2. No system intersections are currently identified in this mobility management area.

The intersection analysis presented in this report is based on the Highway Capacity Manual (HCM) 209/2-hour average method. This is the City's adopted LOS analysis procedure as outlined in the Traffic Standards Code (BCC 14.10). The City adopted this method in 1998. The operational method provides a complex set of procedures to analyze intersection-specific geometric, traffic and signal conditions for a performance rating, or level of service. Parameters used for the analysis include:

- Peak hour traffic by movement is calculated by dividing by 2 the two-hour volume for each movement between the hours of 4 PM and 6 PM, which generally represents the most congested traffic conditions.
- Uniform traffic demand is assumed over the two-hour period (as represented by a peak hour factor (PHF) of 1).
- Intersection utilization is reported as a ratio of critical movement volume to available intersection capacity (v/c).

For areawide analysis, the intersection v/c ratios are averaged for the System intersections in each MMA and then compared with the adopted standards for each MMA to estimate available reserve capacity. For each area, an additional check is made against the "congestion allowance", which is the maximum number of System intersections allowed to exceed the standard v/c ratio for that MMA.

Table D-7 provides information on existing and projected levels of service at all system intersections for one-hour average traffic in the two-hour PM peak period. Table D-7 also shows the applicable mobility targets (in terms of volume-to-capacity ratios) for each of the MMAs.

Table D-7. Existing and Projected Levels of Service (Two-Hour Averaged PM Peak)

ID No	Intersection	Existing (2006)		No Action (2020)		Proposed Action (2020)		% Change Over Existing	
		V/C	LOS	V/C	LOS	V/C	LOS	No Action	Proposed Action
MMA 1	**North Bellevue – LOS Standard D+ or V/C 0.85; Congestion Allowance: 3**								
69	Bellevue Way NE - NE 24th Street	0.754	C	0.944	E+	0.939	E+	25.2	24.5
74	Bellevue Way NE - Northup Way NE	0.759	C	0.811	D+	0.803	D+	6.9	5.8
78	108th Ave. NE - Northup Way NE	0.668	B	0.762	C	0.760	C	14.1	13.8
93	Lake Washington Blvd.- NE 1st/NE 10th	0.293	A	0.362	A	0.359	A	23.5	22.5
	Area-wide Average	0.619	B	0.720	C	0.715	C	16.3	15.5
MMA 2	**Bridle Trails – LOS Standard C or V/C 0.80; Congestion Allowance: 3**								
64	140th Ave NE – NE 24th Street	0.715	C	0.917	E+	0.923	E+	28.3	29.1
79	148th Ave NE – NE 40th Street	0.536	A	0.867	D-	0.870	D-	61.8	62.3
114	116th Ave NE – Northup Way NE	0.723	C	0.852	D-	0.712	C	17.8	-1.5
116	115th Place NE – Northup Way	0.823	D+	1.068	F	0.916	E+	29.8	11.3
118	Northup Way - NE 24th Street	0.532	A	0.727	C	0.821	D+	36.7	54.3
123	140th Ave. NE - NE 40th Street	-----	-----	-----	-----	-----	-----	-----	-----
188	148th Ave NE – NE 29th Place	0.910	E+	0.989	E-	0.929	E+	8.7	2.1
189	NE 29th Place – NE 24th Street	0.410	A	0.563	A	0.566	A	37.3	38.0
	Area-wide Average	0.664	B	0.855	D-	0.819	D+	28.8	23.3
MMA 3	**Downtown – LOS Standard E+ or V/C 0.95; Congestion Allowance: 9**								
3	100th Ave. NE - NE 8th Street	0.447	A	0.600	A	0.594	A	34.2	32.9
5	Bellevue Way NE - NE 12th Street	0.660	B	0.804	D+	0.801	D+	21.8	21.4
7	Bellevue Way NE - NE 8th Street	0.708	C	0.823	D+	0.822	D+	16.2	16.1
8	Bellevue Way NE - NE 4th Street	0.674	B	0.933	E+	0.930	E+	38.4	38.0
9	Bellevue Way - Main Street	0.758	C	0.874	D-	0.817	D+	15.3	7.8
20	108th Ave. NE - NE 12th Street	0.397	A	0.637	B	0.624	B	60.5	57.2
21	108th Ave. NE - NE 8th Street	0.695	B	0.941	E+	0.927	E+	35.4	33.4
22	108th Ave. NE - NE 4th Street	0.605	B	0.765	C	0.765	C	26.4	26.4
24	108th Ave. - Main Street	0.475	A	0.533	A	0.528	A	12.2	11.2
25	112th Ave. NE - NE 12th Street	0.711	C	0.920	E+	0.871	D-	29.4	22.5
26	112th Ave. NE - NE 8th Street	1.074	F	1.238	F	1.211	F	15.3	12.8
36	112th Ave. - Main Street	0.794	C	0.935	E+	0.928	E+	17.8	16.9

ID No	Intersection	Existing (2006)		No Action (2020)		Proposed Action (2020)		% Change Over Existing	
		V/C	LOS	V/C	LOS	V/C	LOS	No Action	Proposed Action
72	112th Ave. NE - NE 4th Street	0.587	A	0.815	D+	0.811	D+	38.8	38.2
	Area-wide Average	0.660	B	0.832	D+	0.823	D+	26.1	24.7
MMA 4	**Wilburton – LOS Standard D+ or V/C 0.85; Congestion Allowance: 3**								
30	116th Ave. NE - NE 8th Street	0.708	C	1.069	F	0.913	E+	51.0	29.0
73	116th Ave. - Main Street	0.680	B	0.972	E-	0.793	C	42.9	16.6
131	116th Ave. SE - SE 1st Street	0.724	C	0.792	C	0.633	B	9.4	-12.6
139	116th Ave. NE - NE 4th Street	0.578	A	0.755	C	0.869	D-	30.6	50.3
233	120th Ave. NE - NE 8th Street	0.699	B	0.901	D-	0.907	E+	28.9	29.8
	Area-wide Average	0.678	B	0.898	D-	0.823	D+	32.4	21.4
MMA 5	**Crossroads – LOS Standard D- or V/C 0.90; Congestion Allowance: 2**								
58	Bellevue-Redmond- NE 20th Street	0.511	A	0.665	B	0.658	B	30.1	28.8
62	156th Ave. NE - Northup Way	0.775	C	0.913	E+	0.938	E+	17.8	21.0
63	156th Ave. NE - NE 8th Street	0.704	C	0.763	C	0.773	C	8.4	9.8
	Area-wide Average	0.663	B	0.78	C	0.79	C	17.6	19.2
MMA 6	**Northeast Bellevue – LOS Standard C or V/C 0.80; Congestion Allowance: 2**								
75	164th Ave. NE - NE 24th Street	0.551	A	0.757	C	0.755	C	37.4	37.0
76	164th Ave. NE - Northup Way	0.609	B	0.767	C	0.766	C	25.9	25.8
87	164th Ave. NE - NE 8th Street	0.735	C	0.907	E+	0.908	E+	23.4	23.5
111	Northup Way - NE 8th Street	-----	-----	-----	-----	-----	-----	-----	-----
	Area-wide Average	0.632	B	0.810	D+	0.810	D+	28.2	28.2
MMA 7	**South Bellevue – LOS Standard D+ or V/C 0.85; Congestion Allowance: 4**								
14	112th Ave. SE - Bellevue Way SE	0.702	C	0.744	C	0.749	C	6.0	6.7
89	112th Ave. SE - SE 8th Street	0.570	A	0.495	A	0.495	A	-13.2	-13.2
102	118th Ave. SE - SE 8th Street	0.709	C	0.865	D-	0.853	D-	22.0	20.3
219	I-405 NB Ramps - SE 8th Street	0.515	A	0.662	B	0.575	A	28.5	11.7
226	I-405 SB Ramps - SE 8th Street	0.503	A	0.640	B	0.719	C	27.2	42.9
	Area-wide Average	0.600	A	0.681	B	0.678	B	13.5	13.0
MMA 8	**Richards Valley – LOS Standard D+ or V/C 0.85; Congestion Allowance: 5**								
35	124th Ave. NE - NE 8th Street	0.706	C	0.853	D-	1.005	F	20.8	42.4
43	140th Ave. SE - SE 8th Street	0.641	B	0.829	D+	0.793	C	29.3	23.7

ID No	Intersection	Existing (2006)		No Action (2020)		Proposed Action (2020)		% Change Over Existing	
		V/C	LOS	V/C	LOS	V/C	LOS	No Action	Proposed Action
44	145th Place SE - Lake Hills Blvd.	0.570	A	0.663	B	0.665	B	16.3	16.7
45	145th Place SE - SE 16th Street	0.648	B	0.787	C	0.770	C	21.5	18.8
71	Lake Hills Connect- SE 8th St./7th St.	0.905	E+	1.114	F	1.101	F	23.1	21.7
82	Richards Rd. - Kamber Rd.	0.588	A	0.682	B	0.676	B	16.0	15.0
85	Richards Rd. - SE 32nd Street	0.618	B	0.787	C	0.800	C	27.	29.4
134	Richards Rd. - Lake Hills Connector	0.480	A	0.583	A	0.588	A	21.5	22.5
280	139th Ave. SE - Kamber Road	0.336	A	0.365	A	0.372	A	8.6	10.7
	Area-wide Average	0.610	B	0.740	C	0.752	C	21.3	23.3
MMA 9	**East Bellevue – LOS Standard D+ or V/C 0.85; Congestion Allowance: 5**								
41	140th Ave. NE - NE 8th Street	0.794	C	0.966	E-	1.012	F	21.7	27.5
42	140th Ave. NE - Main Street	0.577	A	0.713	C	0.707	C	23.6	22.5
49	148th Ave. NE - NE 8th Street	0.888	D-	1.058	F	0.918	E+	19.1	3.4
50	148th Ave. NE - Main Street	0.776	C	0.911	E+	0.914	E+	17.4	17.8
51	148th Ave. SE - Lake Hills Blvd.	0.849	D+	0.958	E-	0.960	E-	12.8	13.1
52	148th Ave. SE - SE 16th Street	0.818	D+	0.954	E-	0.961	E-	16.6	17.5
55	148th Ave. SE - SE 24th Street	0.733	C	0.812	D+	0.820	D+	10.8	11.9
65	148th Ave. SE - SE 8th Street	0.706	C	0.812	D+	0.807	D+	15.0	14.3
83	156th Ave. - Main Street	0.602	B	0.756	C	0.761	C	25.6	26.4
	Area-wide Average	0.749	C	0.882	D-	0.873	D-	17.8	16.6
MMA 10	**Eastgate – LOS Standard D- or V/C 0.90; Congestion Allowance: 4**								
56	148th Ave. SE - SE 27th Street	0.474	A	0.517	A	0.531	A	9.1	12.0
86	156th Ave. SE - SE Eastgate Way	0.656	B	0.868	D-	0.799	C	32.3	21.8
92	161st Ave. SE - SE Eastgate Way	0.412	A	0.681	B	0.683	B	65.3	65.8
101	150th Ave. SE - SE Eastgate Way	0.789	C	0.993	E-	0.891	D-	25.9	12.9
171	142nd Ave. SE - SE 36th Street	0.456	A	0.559	A	0.552	A	22.6	21.1
174	150th Ave. SE - SE 38th Street	0.899	D-	0.845	D+	0.867	D-	-6.0	-3.6
227	150th Ave. SE - I-90 EB Off-Ramp	0.817	D+	0.883	D-	0.908	E+	8.1	11.1
272	139th Ave. SE - SE Eastgate Way	0.351	A	0.424	A	0.411	A	20.8	17.1
	Area-wide Average	0.607	B	0.721	C	0.705	C	18.8	16.1

ID No	Intersection	Existing (2006)		No Action (2020)		Proposed Action (2020)		% Change Over Existing	
		V/C	LOS	V/C	LOS	V/C	LOS	No Action	Proposed Action
MMA 11 Newcastle – LOS Standard C or V/C 0.80; Congestion Allowance: 3									
98	Coal Creek Parkway - Forest Drive	0.707	C	1.160	F	1.197	F	64.1	69.3
133	150th Ave. SE - SE Newport Way	0.726	C	0.965	E-	0.719	C	32.9	-1.0
228	Lakemont Blvd. SE- SE Newport Way	0.763	C	0.842	D+	0.933	E+	10.4	22.3
229	Lakemont Blvd. - Forest Drive	-----	-----	-----	-----	-----	-----	-----	-----
242	164th Ave. SE - Lakemont Blvd.	-----	-----	-----	-----	0.404	A	-----	-----
257	164th Ave. SE - SE Newport Way	-----	-----	-----	-----	-----	-----	-----	-----
	Area-wide Average	0.732	C	0.989	D+	0.813	D+	35.1	11.1
MMA 12 Bel-Red – LOS Standard E+ or V/C 0.95; Congestion Allowance: 7									
29	116th Ave. NE - NE 12th Street	0.634	B	0.911	E+	0.866	D-	43.7	36.6
32	120th Ave. NE - NE 12th Street	0.510	A	1.374	F	0.865	D-	169.4	69.6
34	124th Ave. NE - Bellevue-Redmond Rd..	0.796	C	0.914	E+	0.931	E+	14.8	17.0
37	130th Ave. NE - Bellevue-Redmond Rd.	0.574	A	0.782	C	0.669	B	36.2	16.6
39	140th Ave. NE - NE 20th Street	0.795	C	0.841	D+	0.862	D-	5.8	8.4
40	140th Ave. NE - Bellevue-Redmond Rd.	0.694	B	0.822	D+	0.792	C	18.4	14.1
47	148th Ave. NE - NE 20th Street	0.863	D-	0.944	E+	0.872	D-	9.4	1.0
48	148th Ave. NE - Bellevue-Redmond Rd.	0.923	E+	0.953	E-	0.970	E-	3.3	5.1
59	Bellevue-Redmond- NE 24th Street	0.649	B	0.994	E-	1.165	F	53.2	79.5
60	156th Ave. NE - Bellevue-Redmond Rd.	0.682	B	0.919	E+	0.806	D+	34.8	18.2
61	156th Ave. NE - NE 24th Street	0.759	C	1.075	F	1.080	F	41.6	42.3
68	130th Ave. NE - NE 20th Street	0.604	B	0.830	D+	0.731	C	37.4	21.0
81	148th Ave. NE - NE 24th Street	0.853	D-	0.976	E-	0.898	D-	14.4	5.3
88	124th Ave. NE - Northup Way NE	0.652	B	0.878	D-	0.845	D+	34.7	29.6
117	120th Ave. NE - NE 20th Street	0.575	A	0.915	E+	0.741	C	59.1	28.9
	Area-wide Average	0.704	C	0.942	E+	0.873	D-	33.8	24.0
MMA 13 Factoria – LOS Standard E+ or V/C 0.95; Congestion Allowance: 5									
105	Richards Rd. - SE Eastgate Way	0.721	C	0.813	D+	0.813	D+	12.8	12.8
202	Factoria Blvd. - SE Newport Way	0.618	B	0.668	B	0.632	B	8.1	2.3
203	SE Newport Way - Coal Creek Parkway	0.629	B	0.721	C	0.729	C	14.6	15.9
204	Factoria Blvd. - SE 36th Street	0.825	D+	0.861	D-	0.849	D+	4.4	2.9

ID No	Intersection	Existing (2006)		No Action (2020)		Proposed Action (2020)		% Change Over Existing	
		V/C	LOS	V/C	LOS	V/C	LOS	No Action	Proposed Action
220	I-405 NB Ramps - Coal Creek Parkway	0.713	C	0.797	C	0.796	C	11.8	11.6
221	I-405 SB Ramps - Coal Creek Parkway	0.880	D-	0.929	E+	0.931	E+	5.6	5.8
222	Factoria Blvd. - SE 38th Place	0.881	D-	0.927	E+	0.925	E+	5.2	5.0
284	124th Ave. SE - Coal Creek Parkway	0.986	E-	1.003	F	0.999	E-	1.7	1.3
	Area-wide Average	0.782	C	0.840	D+	0.835	D+	7.4	6.8
MMA 14	**Newport Hills – LOS Standard C or V/C 0.80; Congestion Allowance: 0**								
	No Analysis Intersections	-----	-----	-----	-----	-----	-----	-----	-----
	Area-wide Average	-----	-----	-----	-----	-----	-----	-----	-----

Appendix E

Air Quality Analysis Methodology

Approach for Greenhouse Gas Emission Estimation

To estimate GHG emissions produced from motor vehicles on City streets, the City provided traffic data for all roadway segments within the TFP area. The link traffic data included average travel speed, segment length, and PM peak hour traffic volume for both the Proposed Action and No Action alternatives in the 2020 design year. The PM peak hour volumes are factored up 10% to get the daily traffic volumes.

GHG emissions include a variety of compounds, predominantly Carbon Dioxide (CO2), methane, and nitrous oxide, each of which exhibits its own GHG potency. However, for on-road tailpipe emissions, CO2 is by far the dominate contributor to GHG emissions. For purposes of comparing GHG emissions from various scenarios with other published GHG inventories, the overall GHG emissions associated with the No Action alternative and the Proposed Action alternative were assumed to consist entirely of CO2. The CO2 emissions were calculated from the fuel usage of vehicles traveling on City streets based on fuel economy data (i.e. miles per gallon of fuel). The CO2 emissions factors are then applied to the calculated total fuel usage to get the CO2 emissions emitted from motor vehicles traveling on the City streets.

The average fuel economy corresponding to the average travel speed along each segment was estimated using published fuel economy versus speed profiles derived using the California EMFAC tailpipe emission model (Urban Land Institute 2008). The use of California fuel economy data is valid for this analysis because Washington State plans to adopt the California fuel economy standards. The assumed fleet-average fuel economy for existing conditions was 25 miles per gallon (mpg) based on historical fleet-average fuel economy data over the past 10 years (National Highway Traffic Safety Administration 2008). The assumed future fleet-average fuel economy for year 2020 was set at 35 miles per gallon, corresponding to the recently-proposed update for the Corporate Automobile Fuel Economy (CAFE) standard. Table E-1 shows the existing and future average fuel economy at each travel speed.

Table E-1. Fuel Economy versus Travel Speed

Speed	Average Fuel Economy (1965-2007) at 25 mpg CAFÉ	Future Fuel Economy at 35 mpg CAFÉ
5	8	11.4
10	11	15.9
15	14	19.3
20	18	24.7
25	20	28.5
30	23	31.8
35	26	36.4
40	26	37.1
45	27	38.4
50	26	37.1

Speed	Average Fuel Economy (1965-2007) at 25 mpg CAFÉ	Future Fuel Economy at 35 mpg CAFÉ
55	26	35.9
60	23	31.8
65	21	28.9

Based on the traffic data the City provided, the vehicle miles of travel (VMT) per day and fuel economy are calculated for each link. The daily fuel usage used by vehicles traveling on this link is then calculated by multiple daily VMT and fuel economy.

- Daily VMT = Link length (miles) * Daily traffic (vehicles per day)
- Fuel economy (miles per gallon) = Look up Table C-1 for specific travel speed
- Daly fuel usage (gallons per day) = Daily VMT * Fuel economy (miles per gallon)

The total gallons of daily fuel usage for vehicles traveling within City's street network are calculated by summing up the estimated fuel usage of each link.

- Total estimated daily fuel usage for 2020 TFP = 174,369 gallons per day
- Total estimated daily fuel usage for 2020 No Action = 174,473 gallons per day

Based on a previous GHG study in the region (ICF Jones & Stokes 2008), it was assumed fuel used by the vehicle fleet along the City streets is 50% gasoline and 50% diesel. The CO2 emission factors were assumed 19.6 pounds per gallon for gasoline and 22.4 pounds CO2 per gallon for diesel (Energy Information Administration 2008). Table E-2 shows the daily CO2 emissions produced from the City streets for both No Action and Proposed TFP Alternatives.

Table E-2. Estimated CO2 Emissions

Alternative	Estimated Fuel Usage (gallons/day)	Fuel Type	Fuel %	CO2 Emission Factor (lbs/gallon)	CO2 Emissions (lbs/day)	CO2 Emissions (tons/day)
2020 TFP	174,369	Gasoline	50%	19.6	1,705,675	282,987
		Diesel	50%	22.4	1,951,535	323,777
		Total CO2 Emissions			**3,657,210**	**606,764**
No Action	174,473	Gasoline	50%	19.6	1,706,700	283,157
		Diesel	50%	22.4	1,952,707	323,972
		Total CO2 Emissions			**3,659,407**	**607,129**

Approach for Project-Level CO Hot-Spot Analysis

The project-level CO hot-spot analysis was performed based on the guidance document entitled Guidebook for Conformity (KJS Associates 1995) prepared for WSDOT in accordance with EPA guidance (EPA 1992). Based on these guidelines, signalized intersections within the TFP area were screened to identify the most heavily congested signalized intersections for the CO hot-spot analysis. According to EPA, the congested signalized intersections are those intersections operating at level of service (LOS) D or worse.

To establish which intersections to consider, the City provided the traffic data for system intersections within the TFP area, which is divided into 14 mobility management areas (MMA). The intersection traffic data include PM peak hour traffic volume, LOS, and vehicle to capacity (v/c) ratio for 2006 existing year and 2020 design year (No Action and proposed TFP). The intersections were ranked twice based on forecast traffic data for the proposed TFP: 1) ranking traffic volumes for intersections with LOS E or worse; 2) ranking intersection LOS. The three signalized intersections with the worst LOS and the three intersections with the highest traffic volumes were selected. Table E-3 lists the intersection ranking by volumes and by LOS, and the intersection selected order. In order to present CO hot-spot conditions at congested intersections in different areas within the City, only one intersection was selected for each MMA.

Table E-3. Intersection Ranking for CO Hot-Spot Analysis

Intersection				TFP (2020)			Selected Order
No.	North-South Street	East-West Street	MMA	Volume	V/C	LOS	
Traffic Volume Ranking for Intersection LOS E or Worse							
30	**116th Ave NE**	**NE 8th St**	**4**	**6232**	**0.91**	**E+**	**1**
26	112th Ave NE	NE 8th St	3	5769	1.21	F	
233	120th Ave NE	NE 8th St	4	5653	0.91	E+	
48	**148th Ave NE**	**Bellevue-Redmond Rd**	**12**	**5316**	**0.97**	**E-**	**3**
81	148th Ave NE	NE 24th St	12	5463	0.90	E+	
49	**148th Ave NE**	**NE 8th St**	**9**	**5088**	**0.92**	**E+**	**5**
Intersection LOS Ranking							
26	**112th Ave NE**	**NE 8th St**	**3**	**5769**	**1.21**	**F**	**2**
98	**Coal Creek Pkwy**	**Forest Dr**	**11**	**3897**	**1.20**	**F**	**4**
59	Bellevue-Redmond Rd	NE 24th St	12	4488	1.17	F	
71	**Lk Hills Connector**	**SE 8th St/7th Pl**	**8**	**3947**	**1.10**	**F**	**6**
61	156th Ave NE	NE 24th St	12	3915	1.08	F	
41	140th Ave NE	NE 8th St	9	4056	1.01	F	

MMA 3 – Downtown; MMA 4 – Wilburton; MMA 8 - Richards Valley; MMA 9 - East Bellevue; MMA 11 – Newcastle; MMA 12 - Bel-Red.

The following six signalized intersections were selected for CO hot spot analysis to represent the most congested intersections during the PM peak hour.

- 112th Avenue NE and NE 8th Street (Downtown)
- 116th Avenue NE and NE 8th Street (Wilburton)
- Lake Hills Connector and SE 8th Street/7th Place (Richards Valley)
- 148th Avenue NE and NE 8th Street (East Bellevue)
- Coal Creek Parkway and Forest Drive (Newcastle)
- 148th Avenue NE and Bellevue-Redmond Road (Bel-Red)

Project-level CO hot-spot analyses for the selected intersections were conducted using the Washington State Intersection Screening Tool (WASIST) (Washington State Department of Transportation 2005). WASIST is a computerized screening model used to estimate worst-case CO concentrations near signalized intersections. The results from WASIST are based on inputs from EPA-approved vehicle emission and dispersion models, Mobile 6 version 2.03 and CAL3QHC.

General inputs required for WASIST to describe the analysis intersections include analysis year, background concentration, county name, name of CO maintenance area, and land use type surrounding the intersection. Traffic input parameters required to describe the analysis intersections include lane configurations, traffic volumes, approach speeds, and signal timing of each intersection. Receptor inputs required to describe the receptor positions include number of receptors and distance from the edge of roadways. A receptor is the position where the CO concentration is estimated. The WASIST was run with the following input values:

- The project is located in the King County, Puget Sound CO maintenance area.
- Worst-case modeling receptors were placed on the sidewalks adjacent to each intersection. The CO concentrations at other locations (e.g., at outdoor use areas at businesses near the intersections) were expected to be lower than the concentrations forecast at the sidewalks.
- The CO hot-spot modeling was performed for the 2006 existing year and the 2020 design year.
- Background CO concentrations of 3 ppm were used for one-hour and 8-hour averaging periods as specified in the WASIST User's Manual (Washington State Department of Transportation 2005). The modeled one-hour CO concentration was converted to an estimated 8-hour concentration by applying a 0.7 scale factor.
- Land use types surrounding the analysis intersections were based on existing land uses at each intersection. Land use type applied to each intersection is listed below:
    - 112th Avenue NE and NE 8th Street – Offices
    - 116th Avenue NE and NE 8th Street – Offices
    - Lake Hills Connector and SE 8th Street/7th Place – Deciduous Trees

  - 148th Avenue NE and NE 8th Street – Offices
  - Coal Creek Parkway and Forest Drive – Deciduous Trees
  - 148th Avenue NE and Bellevue-Redmond Road – Offices.

- The approach speed at intersections was 5 miles per hour (mph) as suggested in the WASIST User's Manual.
- PM peak hour traffic volume of each analysis intersection was provided by the City for 2006 existing conditions and 2020 design year conditions.
- The signal cycle length of 90 seconds was assumed at each intersection. Signal timing was automatically calculated based on the WASIST's "quick-and-easy" signal timing function.
- Existing lane configurations at analysis intersections were applied to existing conditions and the 2020 No Action conditions. With the proposed TFP, the proposed future lane configurations were applied to intersections where TFP improvements are proposed.

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Energy Information Administration. 2008. Emissions of Greenhouse Gases in the United States. U.S. Department of Energy. Washington, DC. December.

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ICF Jones & Stokes. 2008. Final Task 3 Report – Calculation of Greenhouse Gas Emissions. State Route 520 Bridge Replacement and High Occupancy Vehicle Project. Prepared for the Puget Sound Clean air Agency. November.

KJS Associates, Inc. 1995. Guidebook for Conformity on Project-Level Air Quality Analysis Assistance for Nonattainment Areas. September.

National Highway Traffic Safety Administration. 2008. Summary of Fuel Economy Performance. March. Available: http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.43ac99aefa80569eea57529cdba046a0/.

Washington State Department of Transportation. 2005. Washington State Intersection Screening Tool (WASIST) User's Manual, Version 1.0. October.

Urban Land Institute. 2008. Growing Cooler: Urban Development and Climate Change. May.

Appendix F

TNM Noise Modeling Results

Table F-1. City of Bellevue 2009-2020 TFP – TNM Modeling Results

Shaded cells indicate noise levels exceeding 67 dBA Leq.

Seg-ment#	Nearest Inter-section	MMA #	Segment Locations	Existing (dBA)	No Action (dBA)	TFP Action (dBA)	TFP Increase over Existing (dB)	TFP Increase over No Action (dB)
2	239	0	156th Ave NE, north of NE 40th St	65	66	66	+ 1	0
3	239	0	NE 40th St, west of 156th Ave NE	68	69	69	+ 1	0
4	239	0	NE 40th St, east of 156th Ave NE	66	68	68	+ 2	0
5	239	0	156th Ave NE, south of NE 40th St	67	68	68	+ 1	0
7	138	6	Bel-Red Rd, south of NE 40th St	64	65	65	+ 1	0
8	xxx	0	84th Ave NE, north of NE 24th St	65	65	65	0	0
9	192	0	NE 24th St, east of 84th Ave NE	60	61	61	+ 1	0
10	103	1	98th Ave NE, north of NE 24th St	57	57	57	0	0
11	103	1	NE 24th St, east of 98th Ave NE	62	63	63	+ 1	0
22	77	2	130th Ave NE, south of NE 24th St	62	62	61	- 1	- 1
36	94	1	NE 8th St, east of 92nd Ave NE	62	63	63	+ 1	0
37	100	1	Lk Washington Blvd NE, east of 92nd Ave NE	61	61	61	0	0
56	169	9	164th Ave NE, north of Main St	63	64	64	+ 1	0
69	84	9	Lk Hills Blvd, east of 156th Ave SE	60	60	60	0	0
70	120	9	W Lk Samm Pkwy, south of Northup Way	65	66	66	+ 1	0
74	97	9	SE 24th St, east of 156th Ave SE	58	58	58	0	0
80	282	13	128th Ave SE, north of SE 41st St	67	67	67	0	0
88	245	13	119th Ave SE, north of SE 52nd St	63	64	64	+ 1	0
91	274	11	Lakemont Blvd SE, east of Village Park Dr SE	65	65	65	0	0
92	274	11	Village Park Dr SE, south of Lakemont Blvd SE	61	61	61	0	0
94	273	0	SE Newport Way, north of Village Park Dr SE	63	63	64	+ 1	+ 1
95	273	0	Village Park Dr SE, west of SE Newport Way	59	60	63	+ 4	+ 3
96	273	0	SE Newport Way, south of Village Park Dr SE	63	64	64	+ 1	0
100	38	8	132nd Ave NE, north of NE 8th St	59	62	62	+ 3	0
SLM-2	80	2	134th Ave NE, north of NE 24th St	62	63	63	+ 1	0
SLM-7	16	3	NE 8th St, west of 108th Ave NE	67	68	68	+ 1	0

Segment#	Nearest Intersection	MMA #	Segment Locations	Existing (dBA)	No Action (dBA)	TFP Action (dBA)	TFP Increase over Existing (dB)	TFP Increase over No Action (dB)
SLM-8	124	3	110th Ave NE, north of NE 6th St	62	66	66	+ 4	0
SLM-9	23	3	NE 2nd St, west of 108th Ave NE	63	67	67	+ 4	0
SLM-12	109	7	108th Ave SE, north of SE 25th St	58	60	60	+ 2	0
SLM-13	207	8	SE 20th Pl, east of 127th Ave SE	58	60	61	+ 3	+ 1
SLM-14	38	8	132nd Ave NE, south of Bel-Red Rd	58	62	61	+ 3	- 1
SLM-17	53	9	148th Ave SE, south of SE 22nd St	69	69	69	0	0
SLM-20	84	9	156th Ave SE, north of Lake Hills Blvd	64	65	65	+ 1	0
SLM-22	120	6	W Lake Sammamish Pkwy, south of NE 15th Pl	62	63	63	+ 1	0
SLM-23	120	9	W Lake Sammamish Pkwy, south of Northup Wy	65	66	66	+ 1	0
SLM-24	246	9	W Lake Sammamish Pkwy, south of SE 38th St at Vasa Pk	64	65	65	+ 1	0
SLM-26	245	14	119th Ave SE, south of SE 54th St	63	64	64	+ 1	0
SLM-27	218	11	Lakemont Blvd, north of SE 63rd St	63	64	64	+ 1	0
ST-2	77	2	130h Ave NE, north of NE 24th St	57	60	60	+ 3	0
12	69	1	Bellevue Way NE, north of NE 24th St	67	68	68	+ 1	0
13	78	1	Northup Way, east of 108th Ave NE	65	66	66	+ 1	0
14	69	1	Bellevue Way NE, south of NE 24th St	67	68	68	+ 1	0
SLM-1	69	1	Bellevue Way, north of NE 24th St	67	68	68	+ 1	0
1	123	2	140th Ave NE, north of NE 40th St	64	65	65	+ 1	0
6	79	2	148th Ave NE, south of NE 40th St	66	68	68	+ 2	0
15	64	2	140th Ave NE, north of NE 24th St	65	65	65	0	0
16	64	2	NE 24th St, west of 140th Ave NE	64	66	66	+ 2	0
17	64	2	140th Ave NE, south of NE 24th St	67	67	67	0	0
33	114	2	116th Ave NE, north of NE 12th St	64	65	64	0	- 1
98	188	2	NE 29th Pl, north of NE 24th St	65	66	66	+ 1	0
SLM-3	79	2	148th Ave NE, north of NE 40th St	67	68	68	+ 1	0
SLM-4	123	2	140th Ave NE, at NE 48th PL	64	65	65	+ 1	0

Seg-ment#	Nearest Inter-section	MMA #	Segment Locations	Existing (dBA)	No Action (dBA)	TFP Action (dBA)	TFP Increase over Existing (dB)	TFP Increase over No Action (dB)
SLM-5	123	2	140 Ave NE, north of NE 36th Pl	64	63	64	0	+ 1
30	5	3	Bellevue Way NE, north of NE 12th St	67	68	68	+ 1	0
31	20	3	108th Ave NE, north of NE 12th St	57	59	59	+ 2	0
32	25	3	112th Ave NE, north of NE 12th St	65	65	65	0	0
38	3	3	100th Ave NE, south of NE 8th St	64	65	65	+ 1	0
39	7	3	Bellevue Way NE, south of NE 6th St	67	68	68	+ 1	0
40	25	3	NE 12th St, west of 112th Ave NE	67	68	68	+ 1	0
41	26	3	NE 8th St, west of 112th Ave NE	69	69	69	0	0
42	72	3	NE 4th St, west of 112th Ave NE	67	68	68	+ 1	0
43	36	3	Main St, west of 112th Ave	66	67	67	+ 1	0
57	9	3	Bellevue Way SE, south of SE 3rd St	68	68	68	0	0
58	24	3	108th Ave SE, south of SE 4th St	60	61	62	+ 2	+ 1
59	36	3	112th Ave SE, south of Main St	67	68	68	+ 1	0
SLM-6	25	3	NE 12th St, west of 112th Ave NE	67	68	68	+ 1	0
SLM-10	36	3	112th Ave SE, south of Main St	67	68	68	+ 1	0
44	30	4	116th Ave NE, north of NE 8th St	67	69	69	+ 2	0
45	30	4	116th Ave NE, south of NE 8th St	67	68	68	+ 1	0
60	73	4	116th Ave SE, south of Main St	67	69	68	+ 1	- 1
50	63	5	156th Ave NE, north of NE 8th St	67	68	68	+ 1	0
SLM-18	62	5	Northup Way, east of 156th Ave NE	64	65	65	+ 1	0
51	76	6	164th Ave NE, south of Northup Way	63	65	65	+ 2	0
52	87	6	NE 8th St, west of 164th Ave NE	64	65	65	+ 1	0
53	87	6	NE 8th St, east of 164th Ave NE	62	62	62	0	0
SLM-21	75	6	164th Ave NE, south of NE 24th St	62	64	64	+ 2	0
66	14	7	Bellevue Wy SE, east of 112th Ave SE	70	70	70	0	0
67	102	7	118th Ave SE, south of SE 8th St	64	64	64	0	0
SLM-11	89	7	112th Ave SE, north of SE 8th St	66	67	67	+ 1	0
61	71	8	SE 8th St, west of Lk Hills Connector	66	66	66	0	0

Seg-ment#	Nearest Inter-section	MMA #	Segment Locations	Existing (dBA)	No Action (dBA)	TFP Action (dBA)	TFP Increase over Existing (dB)	TFP Increase over No Action (dB)
62	71	8	Lk Hills Connector, south of SE 8th St	68	69	69	+ 1	0
63	134	8	Lk Hills Connector, east of Richards Rd	64	66	66	+ 2	0
64	43	8	140th Ave SE, north of SE 8th St	66	66	66	0	0
68	43	8	145th Pl SE, south of SE 8th St	65	66	66	+ 1	0
71	82	8	Richards Rd, north of Kamber Rd	67	68	68	+ 1	0
72	82	8	Kamber Rd , east of Richards Rd	63	63	63	0	0
75	280	8	139th Ave SE, south of Kamber Rd	61	63	63	+ 2	0
99	35	8	124th Ave NE, south of NE 5th St	61	63	63	+ 2	0
SLM-15	45	8	145th Pl SE, west of 144th Ave SE	63	64	64	+ 1	0
ST-5	35	8	124th Ave NE, south of NE 5th St	61	63	63	+ 2	0
46	41	9	NE 8th St, west of 140th Ave NE	67	68	68	+ 1	0
47	41	9	NE 8th St, east of 140th Ave NE	66	67	67	+ 1	0
48	41	9	140th Ave NE, south of NE 8th St	66	66	66	0	0
49	49	9	NE 8th St, east of 148th Ave NE	66	67	67	+ 1	0
54	42	9	Main St, east of 140th Ave	61	62	62	+ 1	0
55	83	9	156th Ave NE, north of Main St	65	66	66	+ 1	0
65	50	9	148th Ave SE, south of Main St	69	69	69	0	0
73	55	9	148th Ave SE, south of SE 24th St	70	70	70	0	0
SLM-19	83	9	156th Ave SE, north of Main St	65	66	66	+ 1	0
ST-2	41	9	140th Ave NE, south of NE 8th St	66	66	66	0	0
77	101	10	SE Eastgate Way, west of 150th Ave SE	65	66	66	+ 1	0
78	86	10	156th Ave SE, north of SE Eastgate Way	65	66	66	+ 1	0
79	92	10	SE Eastgate Way, west of 161St Ave SE	63	66	66	+ 3	0
83	133	11	150th Ave SE, north of SE Newport Way	66	68	68	+ 2	0
84	133	11	SE Newport Way , west of 150th Ave SE	62	63	63	+ 1	0
85	133	11	150th Ave SE, south of SE Newport Way	63	64	64	+ 1	0
86	257	11	SE Newport Way, west of 164th Ave SE	61	63	63	+ 2	0

Segment#	Nearest Intersection	MMA #	Segment Locations	Existing (dBA)	No Action (dBA)	TFP Action (dBA)	TFP Increase over Existing (dB)	TFP Increase over No Action (dB)
87	257	11	SE Newport Way, east of 164th Ave SE	59	60	60	+ 1	0
89	98	11	Coal Creek Parkway, south of Forest Dr SE	68	69	69	+ 1	0
90	98	11	Forest Dr SE, east of Coal Creek Parkway	63	64	64	+ 1	0
93	228	11	Lakemont Blvd SE, south of SE Newport Way	66	66	66	0	0
97	242	11	Lakemont Blvd SE , west of 164th Ave SE	66	67	67	+ 1	0
SLM-28	242	11	Lakemont Blvd, west of Village Park Dr	63	64	64	+ 1	0
18	81	12	148th Ave NE, north of NE 24th St	70	70	70	0	0
19	61	12	NE 24th St, east of 156th Ave NE	64	65	65	+ 1	0
20	81	12	148th Ave NE, south of NE 24th St	68	69	69	+ 1	0
21	88	12	Northup Way, west of 124th Ave NE	66	66	66	0	0
23	88	12	124th Ave NE, south of Northup Way	62	65	66	+ 4	+ 1
24	88	12	Northup Way, east of 124th Ave NE	68	69	69	+ 1	0
25	39	12	NE 20th St, east of 140th Ave NE	67	68	68	+ 1	0
26	48	12	Bel-Red Rd, east of 148th Ave NE	66	67	67	+ 1	0
27	40	12	140th Ave NE, north of Bel-Red Rd	66	66	66	0	0
28	40	12	140th Ave NE, south of Bel-Red Rd	66	66	66	0	0
29	48	12	148th Ave NE, south of Bel-Red Rd	68	69	69	+ 1	0
34	34	12	NE 12th St, west of 124th Ave NE	67	67	67	0	0
35	37	12	Bel-Red Rd, west of 130th Ave NE	68	69	69	+ 1	0
101	68	12	130th Ave NE, north of NE 15th/16th St	63	64	63	0	- 1
102	32	12	120th Ave NE, south of NE 15th/16th St	61	67	67	+ 6	0
103	88	12	124th Ave NE, north of NE 15th/16th St	62	65	66	+ 4	+ 1
SLM-16	48	12	148th Ave NE, south of Bel-Red Rd	68	69	69	+ 1	0
ST-3	68	12	130th Ave NE, north of NE 15th/16th St	63	64	63	0	- 1
ST-4	61	12	156th Ave NE, south of NE 24th St.	67	68	68	+ 1	0
76	105	13	SE Eastgate Way, east of Richards Rd	64	65	65	+ 1	0

Seg-ment#	Nearest Inter-section	MMA #	Segment Locations	Existing (dBA)	No Action (dBA)	TFP Action (dBA)	TFP Increase over Existing (dB)	TFP Increase over No Action (dB)
81	202	13	SE Newport Way, east of 128th Ave SE	65	65	65	0	0
82	203	13	Coal Creek Parkway, west of SE Newport Way	68	68	68	0	0
SLM-25	202	13	Factoria Blvd SE, north of Newport Wy	67	67	67	0	0