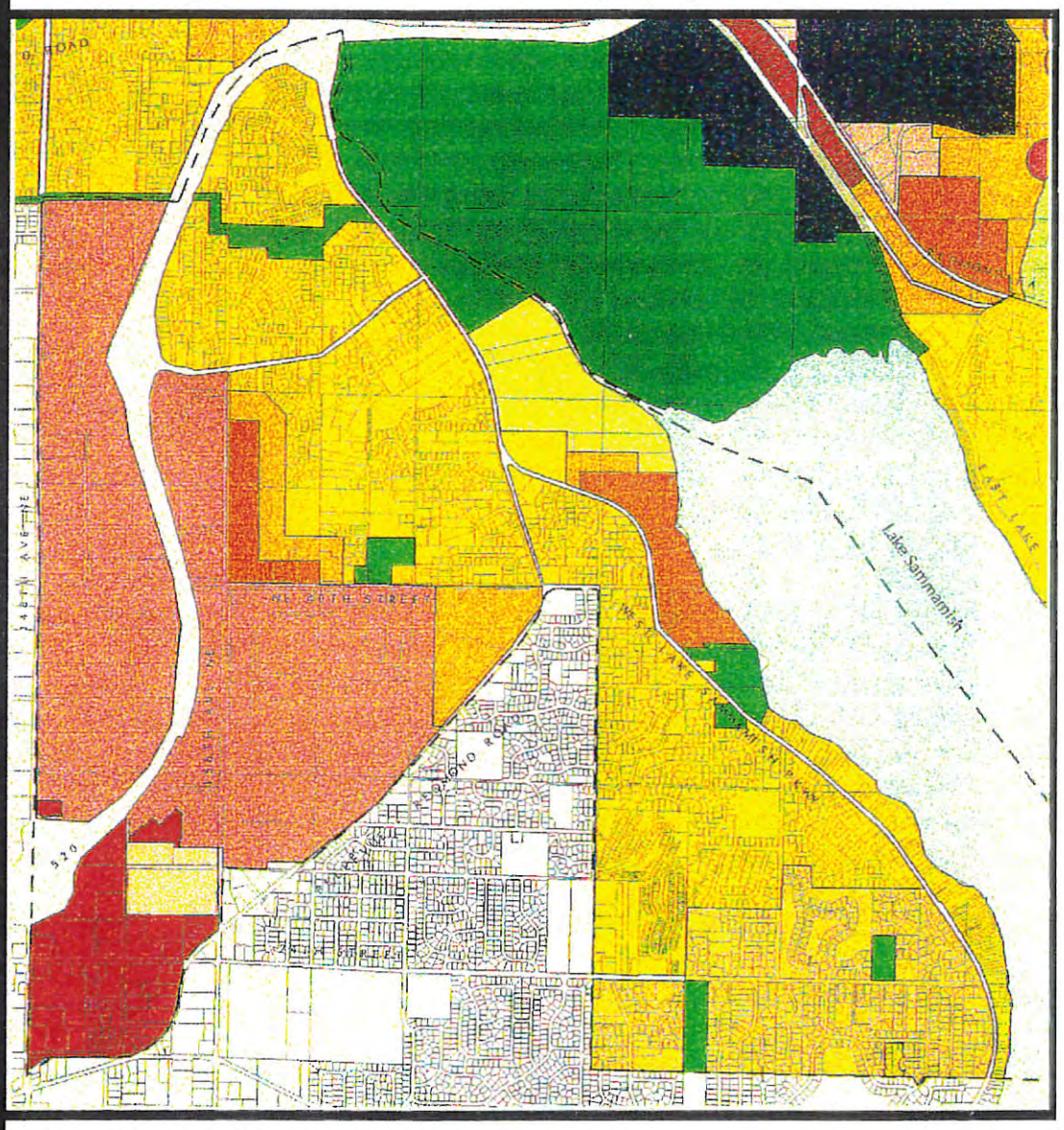
Overlake Neighborhood Plan and Bellevue-Redmond Overlake Transportation Study Update



Integrated GMA Document and
Final Environmental Impact Statement

May 1999

DAVID EVANS AND ASSOCIATES, INC.

FINAL
ENVIRONMENTAL IMPACT STATEMENT

THE CITY OF REDMOND
OVERLAKE NEIGHBORHOOD PLAN

CITIES OF BELLEVUE AND REDMOND
BEL-RED/OVERLAKE TRANSPORTATION STUDY

Prepared for the Review and Comments of Citizens,
Citizens' Groups, Governmental Agencies, and Indian Nations and Tribes

in compliance with

The State Environmental Policy Act (SEPA)
Chapter 43.21C of the Revised Code of Washington

SEPA Rules
Chapter 197-11, Washington Administrative Code

Bellevue Environmental Procedures Code
Chapter 22.02 of the Bellevue City Code

and

Redmond Community Development Guide
Chapter 20F.30, SEPA Environmental Procedures

Date of Issue of Draft EIS: April 21, 1998
Deadline for Comments: 5:00 p.m., June 5, 1998
Date of Issue of Final EIS: May 14, 1999

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May 7, 1999

Dear EIS Recipient:

This letter is to inform you that the cities of Redmond and Bellevue have issued a Final Environmental Impact Statement (FEIS) on the Overlake Neighborhood Plan and the Bellevue-Redmond Overlake Transportation Study Update (BROTS Update). The Overlake Neighborhood Plan is a new neighborhood land use plan for the Redmond portion of the Overlake area. The BROTS Update is a transportation facility plan intended to serve the transportation needs of the Redmond-Overlake employment area, as well as in Redmond's Grass Lawn neighborhood. The BROTS Update facilities will also serve the Bellevue neighborhoods of Overlake, Bel-Red/Northup, and Bridle Trails.

In April 1998, a Draft Environmental Impact Statement (DEIS) was issued which examined a variety of environmental impacts, including impacts to land use, transportation, light and glare, air quality, noise, water quality, wetlands, and public facilities. The DEIS examined different land use alternatives in Redmond-Overlake, and different transportation alternatives in the BROTS study area, which includes parts of Redmond and Bellevue. The two alternatives contained in the DEIS analysis are the "No Action Alternative" and the "Preferred Alternative."

The Overlake Neighborhood Plan and BROTS FEIS includes an analysis of the environmental impacts and a compilation of public comments on the DEIS, and responses to those comments. Redmond and Bellevue city staff prepared the FEIS responses, with assistance from the consulting firm of David Evans and Associates, Inc. These are contained in Chapter 5 of the FEIS.

Additional copies of the FEIS may be obtained from Terry Marpert, City of Redmond Planning Department, 425-556-2428, or Jonathon Dong, City of Bellevue Transportation Department, 425-452-4894.

Sincerely,

Roberta Lewandowski

Roberta Lewandowski
City of Redmond
Department of Planning &
Community Development

Cristina Van Valkenburg
City of Bellevue
SEPA Coordinator

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Appendix A-1

Scoping Notice and Comments: The scoping notice satisfies the SEPA requirement for public notice and request for agency and public input on the scope of the EIS for the Overlake Neighborhood Plan and Bel-Red/Overlake Transportation Study. This section contains copies of the public and agency comments on the scope of the EIS.

Appendix A-2

Citizen Advisory Committee Meeting Notes: The Citizen Advisory Committee (CAC) was formed by Redmond to provide advice on the ONP. The Meeting Notes document the CAC's discussions.

Appendix A-3

Transportation Review Group Meeting Notes: The Transportation Review Group (TRG) was formed by Redmond and Bellevue to provide public review of the traffic studies done for BROTS. The Meeting Notes document the TRG's discussions.

Appendix B-1

Overlake Neighborhood Plan, Existing Conditions Report (March 1996): This document provides details on the existing land uses, trends in development, demographic changes, community opinions on land use, sensitive areas, and key public facilities and services in the Overlake Neighborhood. The report provided a foundation for evaluating future development in Overlake. All of this document is reproduced in Chapter 2 of this FEIS.

Appendix B-2

Comprehensive Plan Policies Relevant to the Proposed Overlake Neighborhood Plan: This provides a list of Redmond and Bellevue Comprehensive Plan policies that relate to the creation of an Overlake Neighborhood Plan.

History of Coordination Between Redmond and Bellevue: This table provides a chronology of the history of coordination between the jurisdictions regarding land uses in the Overlake Neighborhood.

Appendix B-3

Overlake Neighborhood Plan, Issues and Alternatives: This paper listed the issues and opportunities that were raised during the planning process and presented alternatives to address the issue or opportunity. The alternatives were evaluated by the Citizen Advisory Committee (CAC) and City staff, and used as the basis for development of the policies and regulations.

Appendix B-4

Overlake Neighborhood Plan, Issues, Alternatives, and Recommendations, Part 1 (June 1996): This was a follow-up paper to the Issues and Alternatives, presenting recommendations on the alternatives to address specific issues. The alternatives were rated for their compliance with GMA, Countywide Planning Policies, and the City of Redmond Comprehensive Plan.

Appendix B-5

Overlake Neighborhood Plan Issues, Alternatives, and Recommendations, Part 2: This issue paper evaluated issues and alternatives related to transportation including facilities, transportation demand management, facility adequacy and timing, traffic management, transit facilities and non-motorized transportation facilities

Appendix B-6

Overlake Neighborhood Plan, Issues, Alternatives and Recommendations, Part 3 (Parks and Open Space): Similar to Part 1, this paper followed up on issues and alternatives related to parks and recreation facilities that were identified in previous Issues and Alternatives papers.

Appendix B-7

Overlake Neighborhood Plan, Issues, Alternatives and Recommendations, Part 4, Design (June 1996): This paper continued the discussion of design issues and alternatives raised in previous Issues and Alternatives papers, and rated proposed policies for their compliance with GMA, Countywide Planning Policies, and the City of Redmond Comprehensive Plan.

Appendix B-8

Existing and Projected Land Uses by TAZ for the Cities of Redmond and Bellevue: This appendix provides the city-wide data for Bellevue and Redmond on land uses in each Transportation Analysis Zones. Data include square footage of non-residential uses, number of dwelling units and employment figures.

Appendix B-9

Draft Planned Action Ordinance: This draft ordinance allows Redmond to use the environmental review conducted for the ONP and BROTS as the SEPA review for certain impacts and projects that are proposed in the future within the ONP and BROTS areas. The projects must conform to the environmental analysis performed in the EIS and must be consistent with the ONP and BROTS.

Appendix B-10

Lists Pipeline Projects (also known as Development Applications). This list shows the Overlake Development projects that are in the permit pipeline as of April 1998.

Appendix C-1

BROTS Technical Memorandum #1, 1995 Model Valuation Process: This technical memo describes how the transportation model (the Bellevue, Kirkland, and Redmond (BKR) model) was used to provide a 1995 roadway network that reasonably represented the PM peak hour traffic conditions in the BROTS area.

Appendix C-2

BROTS Technical Memorandum #2, Existing Transportation Conditions: This paper explores the relationship of the BROTS study to the Bellevue and Redmond Comprehensive Plans, reviews the chronology of development in Overlake, summarizes the existing land uses and presents existing conditions with respect to traffic volumes, levels of service, transit service, non-motorized facilities, and planned improvements, among others. Portions of this document are excerpted in Chapter 3 of the FEIS.

Appendix C-3

BROTS Technical Memorandum #3, 2010/2012 Baseline Conditions: This memorandum documents the development and evaluation of 2010/2012 Baseline roadway conditions in the BROTS study area. Two scenarios were run in the transportation model, both using low land use estimates and a series of transportation projects. In Scenario 2, transportation projects from Scenario 1 were supplemented with mitigation projects that resulted in the creation of roadway network"B". Network B plus the low land use estimates provided the No-Action Alternative in this EIS. The results consist of levels of service at intersections and roadway sections. The results of the model showing potential impacts on levels of service are reported in Chapter 4 of the FEIS.

Appendix C-4

BROTS Technical Memorandum #4, Non-Roadway 2010/2012 Baseline Conditions: The non-roadway baseline conditions in 2010/2012 were evaluated in this memorandum, including a projected scenario for mode split, and a description of transit, transportation demand management, and pedestrian and bicycle conditions. The mode split established in this memo was used in all model runs to determine automobile volumes on the roadway, under different build-out scenarios.

Appendix C-5

BROTS Technical Memorandum #5, Analysis of Alternative Land Use/Networks: This memo documented the results of three model runs (Scenarios 3, 4 and 5) using the BKR model. As with Scenarios 1 and 2, a mode split, series of transportation projects, and land use estimates were the inputs. The results consist of levels of service at intersections and roadway sections.

Appendix C-6

BROTS Technical Memorandum #6: This document describes a projected scenario for non-roadway conditions in 2010 with the Preferred Alternative for BROTS. The paper discusses the mode split, transit needs, transportation demand management programs, and pedestrian and bicycle facilities.

Appendix C-7

BROTS Technical Memorandum #7 Analysis of Preferred Land Use/Road Network: This document presents the results of the transportation model when a moderate level of build-out is added to a series of transportation projects that make up roadway network "E". The results consist of levels of service at intersections and roadway sections. Portions of the reports conclusions are presented in Chapter 4 of the FEIS.

Appendix C-8

Project Evaluation Spreadsheet: Each transportation project was evaluated against a set of criteria, to determine which projects had acceptable potential impacts. These sheets show the rating that the TRG assigned to each project.

Appendix C-9

1997 Concurrency Report for Redmond Projects: This appendix shows the LOS for some of the development applications in the Overlake Transportation Management District. The table shows the concurrency status for the various projects. Also, the appendix contains the concurrency test report for the Sunnyhill Development.

Appendix C-10

City of Redmond Neighborhood Traffic Calming Program: This appendix consists of the brochure developed by Redmond explaining their Traffic Calming Program.

Appendix D-1

Wetlands Report: This report defines wetlands and their functions, discusses federal, state and local regulations, and identifies the potential impacts on existing wetlands in the study area. The document also proposes general mitigation measures that would likely be required. A comprehensive list of the wetlands that could be impacted by land use and roadway development is included. A summary of the impacts and mitigation measures are excerpted in Chapter 4 of the FEIS.

Appendix D-2

Water Quality Report: This report discusses existing conditions, impacts and mitigation measures for the following chapters of the EIS: stormwater, water quality (Lake Sammamish and local streams), sanitary sewer capacity, water supply, and parks. Excerpts of this report are presented in Chapter 4 of the FEIS.

Appendix D-3

Air Quality Report: The No-Action and Preferred Alternatives were modeled and the results evaluated for potential impacts on the level of air quality in the BROTS study area. The methodology for the modeling is also explained. Appendix D-3a, a supplemental air quality report was prepared November 13, 1998, to examine the Preferred Land Use Alternative with transportation Network B. Appendix D-3b, an addendum to the supplemental air quality report was prepared April 5, 1999, to include dispersion modeling to evaluate the potential carbon monoxide impacts that could result from the alternatives being considered.

Appendix D-4

Noise Report: The transportation projects under each alternative were evaluated for the potential impacts on regulated noise levels in the BROTS study area. The methodology and results are discussed in detail, with general impacts reported in Chapter 4 of the FEIS.

Fact Sheet

Document Title:

Overlake Neighborhood Plan and Bellevue-Redmond Overlake Transportation Study Update

Description of Proposal:

The City of Redmond is preparing an Overlake Neighborhood Plan (ONP) for adoption by its City Council as required by the 1995 Comprehensive Plan. The ONP will establish land uses and development regulations within the Overlake planning area. The Cities of Bellevue and Redmond are jointly updating the Bellevue-Redmond Overlake Transportation Study (BROTS) to reflect the land uses proposed in the ONP. The transportation facilities recommended in the BROTS will mitigate the potential traffic impacts generated by the ONP. Both Cities will review the proposed transportation facilities for inclusion in their respective transportation capital facilities plans. The Cities reviewed several land use alternatives for the ONP and associated transportation network scenarios as part of the SEPA alternatives analysis. The land use alternatives focused on varying the amount of square footage allowed for retail/commercial/office development within the planning area and specifically within the Advanced Technology Center.

Proposal Proponents:

City of Bellevue
City of Redmond

Lead Agencies:

The City of Redmond is Lead Agency for environmental review of the Overlake Neighborhood Plan. The Cities of Redmond and Bellevue are co-lead agencies for environmental review of the Bel-Red Overlake Transportation Study (BROTS) Update. The Cities have agreed to designate Redmond as the nominal lead agency under WAC 197-11-926 for the BROTS environmental review.

Responsible Officials/Redmond:

Roberta Lewandowski, Director of Planning and Community Development
Carol Osborne, Director of Public Works

Responsible Officials/Bellevue:

Christina Van Valkenberg, Environmental Coordinator

Licenses, Permits and Approvals Required:

Overlake Neighborhood Plan (Redmond City Council).
Bellevue-Redmond Overlake Transportation Study Update (Bellevue and Redmond City Councils).

Authors and Principal Contributors:

This FEIS has been prepared under the direction of the Redmond Department of Planning and Community Development and the Bellevue Planning and Community Development Department. Land use, water quality, wetlands and public services analyses, cost estimates and document preparation analysis were done by:

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Date of Issuance of Draft Environmental Impact Statement:

April 21, 1998

Date Comments were Due on Draft EIS:

June 5, 1998

Date and Location of Public Meeting to Receive Comments on the Draft EIS:

May 13, 1998, at 7:00 p.m. in the Bellevue Senior Center, 4063 148th Avenue NE, Bellevue, Washington.

Date of Issuance of Final Environmental Impact Statement:

May 14, 1999

Date of Final Action by the Lead Agency:

The Cities of Bellevue and Redmond have not determined the date of final action on the ONP and BROTS.

Subsequent Environmental Review:

Individual transportation projects approved by the Cities in the BROTS Update may require additional environmental review. Redmond is proposing that development projects in the ONP area that meet certain qualifications will be reviewed as "planned actions" under WAC 197-11-172. This regulation requires verification that significant adverse impacts have been adequately addressed in this EIS. If a project does not meet the criteria for a "planned action," a threshold determination is required. This will be obviated by the Planned Action.

Location of Background Reports and Reference Materials:

City of Bellevue City Hall
11511 Main Street
Bellevue, Washington

City of Redmond Planning Department
15670 NE 85th Street
Third Floor City Hall
Redmond, Washington

1. Introduction

1.1 Integrated SEPA/GMA Document

Recent amendments to the State Environmental Policy Act (SEPA) Rules (Chapter 197-11 WAC) encourage jurisdictions planning under the Growth Management Act (GMA) (Chapter 36.70A RCW) to integrate the environmental analysis required under SEPA with the planning conducted pursuant to GMA. The intent of these amendments is "to ensure that environmental analyses under SEPA can occur concurrently with and as an integral part of the planning and decision making under GMA" (WAC 197-11-210).

The Cities of Bellevue and Redmond have undertaken a joint study of the land use and transportation issues in the Overlake Neighborhood. The City of Redmond has prepared an Overlake Neighborhood Plan (ONP) as required under its 1995 *Comprehensive Plan.* Both Cities are updating the Bellevue Redmond Overlake Transportation Study (BROTS) to reflect the land uses proposed in the ONP. To comply with SEPA, the Cities have elected to integrate the neighborhood plan, development regulations, and transportation plan with the required environmental impact statement.

The SEPA rules for integrated documents state that while there is no standard format for an integrated GMA document, there are minimum content requirements (WAC 197-11-235). This document is structured in the following way with SEPA requirements underlined:

Chapter 1: Introduction, Description of Alternatives, Public Involvement, <u>Environmental Summary</u>

Chapter 2: Overlake Neighborhood Plan and Development Regulations

Chapter 3: BROTS Update

Chapter 4: <u>Analysis of Environmental Impacts of Alternatives</u>

Chapter 5: <u>Comments and Responses</u> and <u>Technical Supporting Record: Appendices</u>

All documents, including the Technical Appendices, are available to the public for review.

1.2 The ONP and BROTS Update

The ONP is a neighborhood plan (or subarea plan) and proposed development regulations for the Overlake Neighborhood, located in Redmond. The City of Redmond's *Comprehensive Plan* (1995) specifically directs the City to develop a plan for Overlake, considering a variety of alternatives relating to environmental conservation, transportation, public facilities and services, neighborhood protection, design, and other areas to guide development in the Overlake Neighborhood to the year 2012. The City of Redmond's *Comprehensive Plan* also set a range of development intensity to be considered as part of the Overlake Neighborhood Plan. A Citizens Advisory Committee (CAC), appointed by the City of Redmond and consisting of neighborhood residents, property owners, residents of nearby neighborhoods, and the City of Bellevue developed the vision and policy statements that make up the proposed ONP. Redmond staff prepared the proposed development regulations based on the policies and provided the CAC with an opportunity to comment on the regulations.

The Redmond Planning Commission has reviewed the ONP and has recommended minor revisions. Chapter 2 contains the Planning Commission's recommended ONP.

BROTS is an update to the original transportation facilities study completed in February 1986. The BROTS Update is the result of modeling the transportation impacts of the range of development being considered for the ONP, as well as growth anticipated in the Bellevue part of the BROTS study area. A Transportation Review Group (TRG), consisting of representatives from local neighborhoods, businesses, and property owners, evaluated the results of a series of computer models, which used different land use densities from the ONP, added transportation improvements to mitigate the increased traffic impacts, and determined the net traffic impacts to the local road network. Level of service standards adopted by Bellevue and Redmond were used to evaluate the model results. The TRG Recommended Network of transportation mitigation projects was prepared in response to the proposed land uses in the ONP and other growth in the region. This recommended network along with transportation policies and underlying assumptions form the BROTS Update.

1.3 Location of Study Areas

Figure 1-1 shows the general location of the ONP and BROTS study areas while Figures 1-2 and 1-3 show the specific study areas covered by the ONP and BROTS. The two study areas overlap but are not identical, as the BROTS study area extends into Bellevue neighborhoods.

The Overlake Neighborhood is in the southwest corner of Redmond. The western boundary is 148th Avenue NE; the northern boundary is NE 60th Street and State Route (SR 520); the eastern boundary is Lake Sammamish. The boundary then follows the south city limits westward (just south of an alignment with NE 20th Street). At 172nd Avenue NE, the boundary turns north to NE 40th Street, then west to the Bellevue-Redmond Road, then southwest along the Bellevue-Redmond Road and NE 20th Street to 148th Avenue NE.

The Redmond portion of the BROTS Update study area contains all or part of the Overlake Neighborhood, Evergreen Highlands Subarea, and the Grass Lawn Neighborhood. The Bellevue portion of the BROTS Update study area contains all or part of the Bridle Trails, Bel-Red/Northup, Wilburton, Crossroads, Northeast Bellevue, and Evergreen Highlands Subareas.

1.4 Relationship of the ONP and BROTS

Land use is the connection between the ONP and BROTS. The basic land uses within a city are established by the *Comprehensive Plan.* When a subarea plan like the ONP is proposed, it implements the general land uses established by the *Comprehensive Plan* by providing additional policy guidance and planning. The ONP will set the intensity of development within the adopted framework of land uses in the *Comprehensive Plan.* The BROTS Update is a transportation facilities plan that provides mobility and access for the land uses in the subarea plan. It identifies the transportation improvements that are necessary to keep the roads within the planning area operating at acceptable levels given the proposed intensity of development in the subarea plan.

It is important to understand that the proposed land use densities in the ONP and the transportation network in the BROTS are the result of an iterative process. The City of Redmond's *Comprehensive Plan* established a range of densities to be considered for the subarea plan. In order to determine the optimal combination of land use densities and transportation

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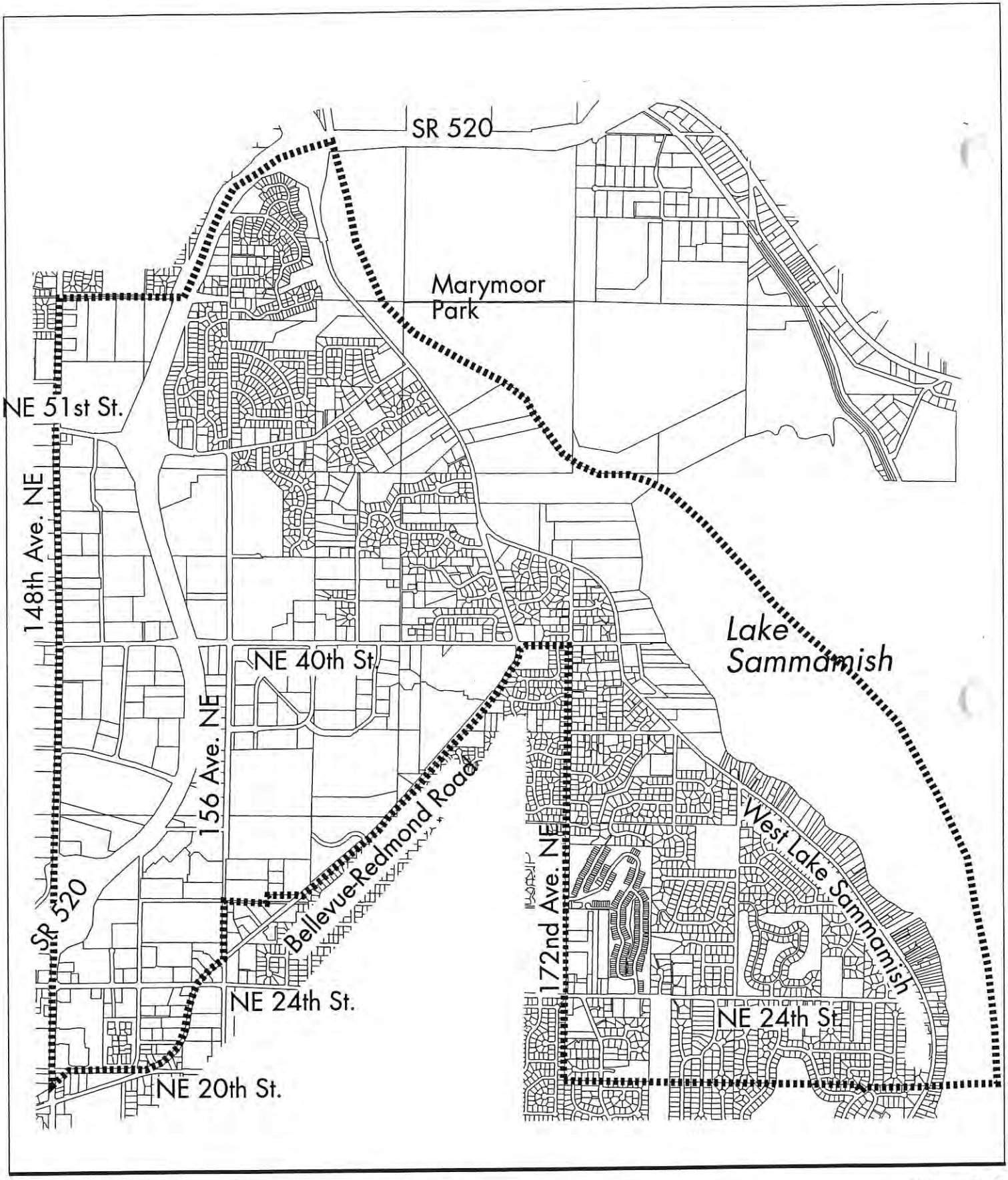

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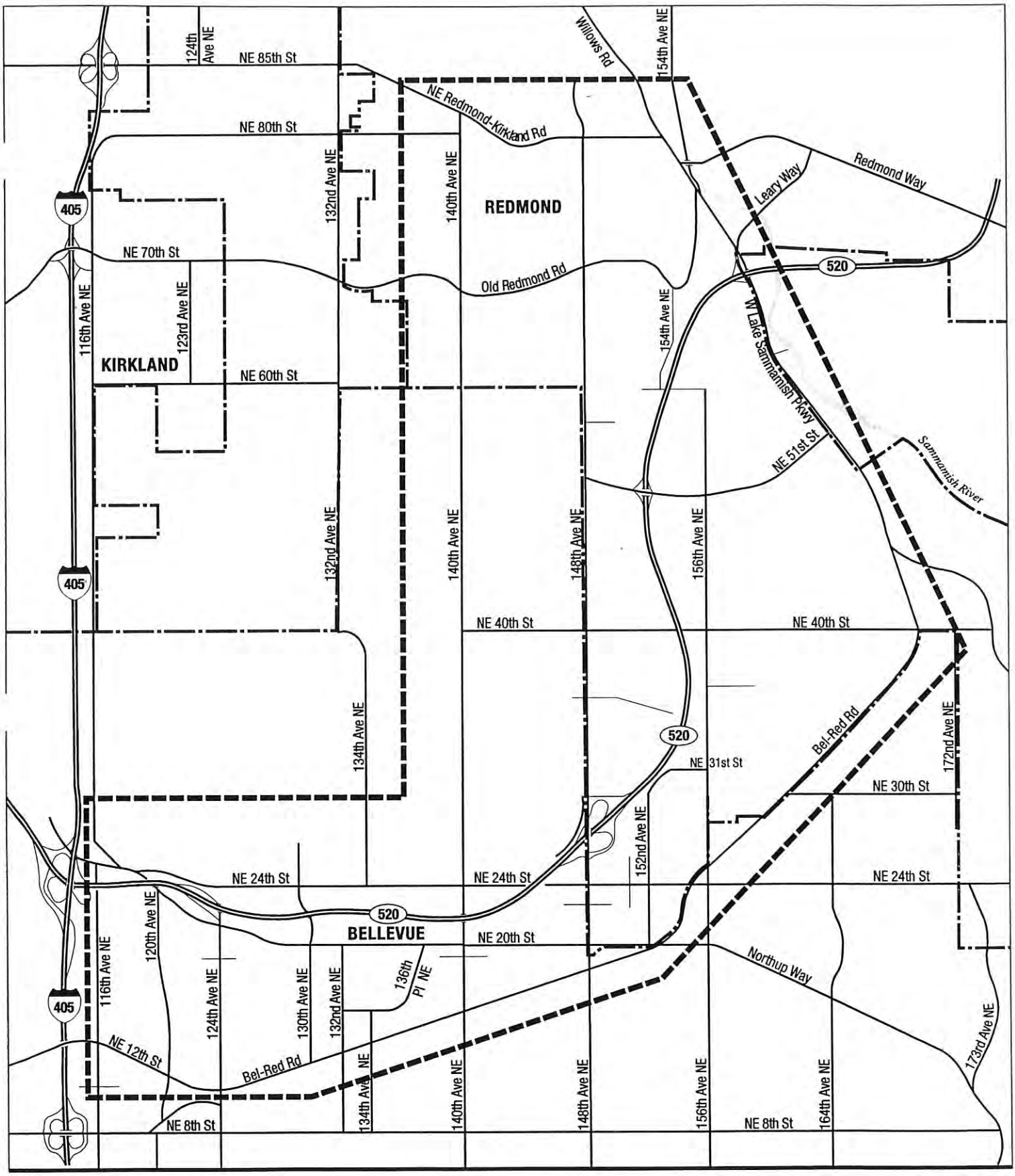
Overlake Neighbrhood Study Area Boundary

Figure 1-2
ONP Study Area



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Scale in Feet

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Study area boundary

City limits

Figure 1-3

BROTS Study Area

projects, six transportation models were run, using six different combinations of land use densities and road projects. The flowchart in Figure 1-4 illustrates the iterative process used in evaluating the land use and transportation Alternatives. The TRG rated the six scenarios according to criteria such as potential impacts on residents and businesses, consistency with adjacent land uses, regional access, levels of service on arterials, support for public transit and HOV facilities and safety. In the end, the sixth scenario, containing a target buildout of 15.4 million square feet of non-residential development and transportation Network E, had the best overall result.

Therefore, the BROTS Plan is a companion study to the ONP. The ONP identifies the preferred future land use intensities and BROTS determines the preferred future transportation network. Both of these are linked to the *Comprehensive Plan* by the recommended land uses and transportation system.

1.5 Relationship to the Comprehensive Plans

1.5.1 The ONP

The City of Redmond *Comprehensive Plan* specifically mandates the development of a subarea plan for the Overlake neighborhood:

LU-53:

> *Redmond shall prepare a neighborhood plan in consultation with area residents, property owners, and businesses; the City of Bellevue and other affected agencies. The neighborhood plan shall be coordinated with the update of the Bellevue-Redmond Overlake Transportation System (BROTS) Plan.*

The reason for a separate subarea plan is rooted in the Redmond *Comprehensive Plan*'s Neighborhoods Chapter and in recognition of the role neighborhood plans can play in helping to maintain and enhance Redmond's quality of life. In particular, Overlake is noted in the Plan as a major employment center, notably for the high technology sector. Redmond's *Comprehensive Plan* supports this role by designating part of the neighborhood as an Advanced Technology Center. This designation was developed by King County as a Countywide Planning Policy. As an incentive to encourage development in the area, the *Plan* explicitly states:

> *Lengthy and uncertain development and environmental review can inadvertently delay or discourage growth from an area where it is meant to be encouraged...In addition, development within the Advanced Technology Centers that is consistent with the Comprehensive Plan will not need to duplicate the SEPA analysis within the Comprehensive Plan's EIS and the EIS prepared for the Overlake Neighborhood Plan (Comprehensive Plan at page 53).*

The *Plan* identifies areas that the subarea plan should address: intensity of development; growth phasing; infrastructure needs; neighborhood protection; updated neighborhood policies; development standards; and, housing.

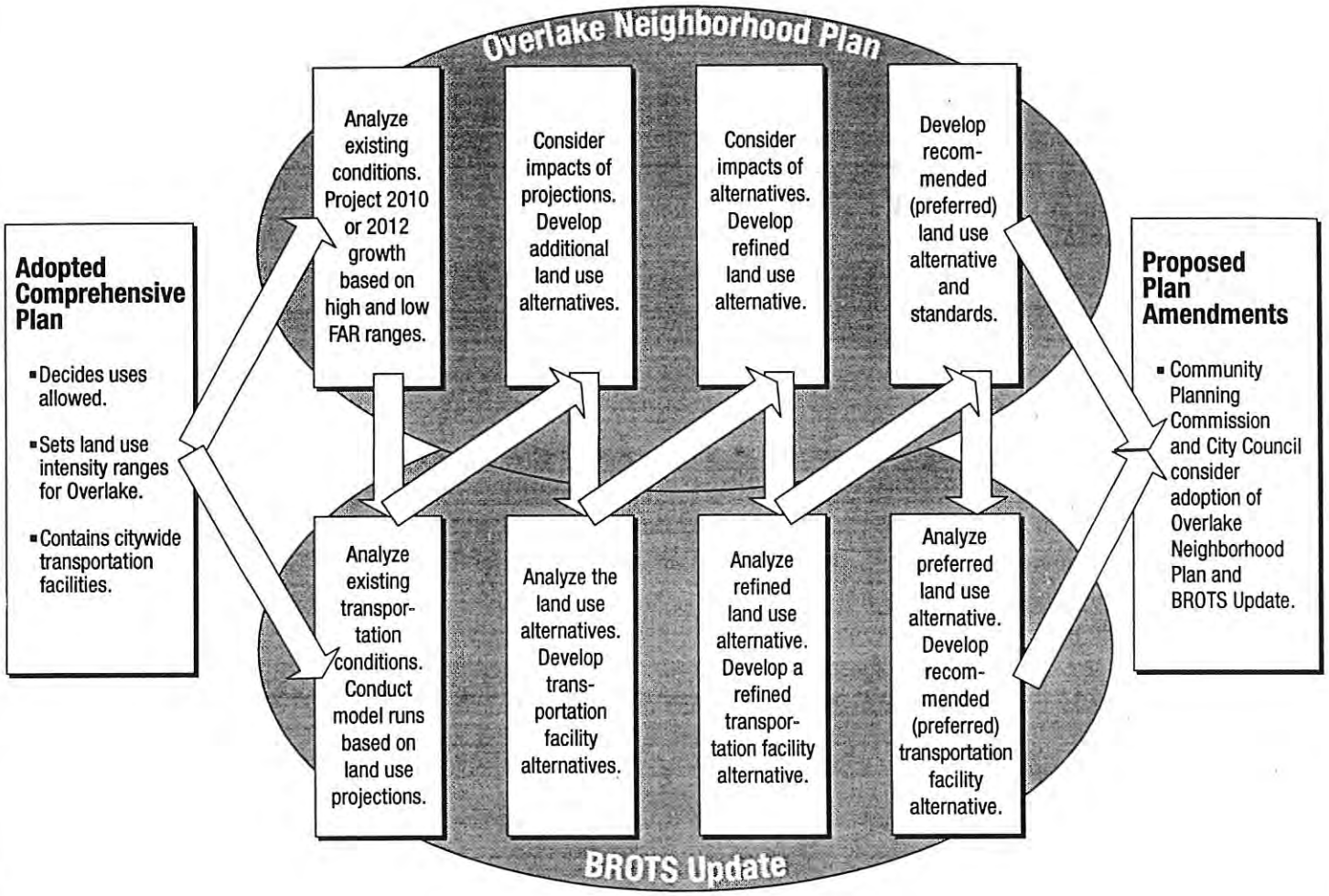


Figure 1-4

Flowchart of ONP & BROTS Update

Relationship between the Overlake Neighborhood Plan and the BROTS Update

1.5.2 The BROTS Update

The City of Redmond's *Comprehensive Plan* also contains policies on the update of BROTS:

LU-56:

> *Redmond and Bellevue shall jointly update the Bellevue-Redmond Overlake Transportation System Plan in consultation with area residents, property owners, businesses, and other affected agencies and organizations.*

There have been significant changes in the study area since the original plan was first adopted in 1986. Rapid population and employment growth have resulted in serious impacts to the local road network. Although the area-wide transportation system has not yet exceeded the adopted standards in Bellevue and Redmond, additional transportation facilities are needed to address current problems and the transportation demands of future growth. In addition, there are projects originally recommended in BROTS that have not been built for a variety of reasons, such as costs, impacts to neighborhoods, etc. The BROTS Update analyzes the current and projected transportation issues in the Redmond and Bellevue parts of the Overlake neighborhood and puts forth a recommended transportation network to address current and future transportation problems.

The Redmond portion of the BROTS Update study area contains all or part of the Overlake, Evergreen Highlands, Grass Lawn, and Viewpoint neighborhood planning areas. The Bellevue portion of the BROTS Update study area contains all or part of the Bridle Trails, Bel-Red/Northup, Wilburton, Crossroads, Northeast Bellevue, and Evergreen Highlands Subareas.

A December 1993 *Analysis of Land Use and Transportation in the Overlake Area* noted:

> "The jurisdictional boundaries between the cities of Redmond and Bellevue run through the heart of Overlake, dividing it both physically and politically. Over the years, the cities have worked together to develop consistent and complementary land use and transportation plans. Evergreen Highlands Design District is an example of such cooperation."

The Transportation Chapter of the Redmond *Comprehensive Plan* begins with four "Framework Policies" that set the tone for the development of the transportation chapter. These policies address:

- The relationship between land use and transportation;
- The need to provide mobility for citizens and workers, including reductions in single-occupant vehicles;
- The need to provide choices in transportation mode; and
- The need to provide adequate funding which distributes costs and benefits equitably.

The Transportation Chapter of the Bellevue *Comprehensive Plan* highlights the following Framework Goals:

- Protect the natural environment;
- Assure mobility of people and goods; and
- Provide needed community services and facilities.

These Framework Goals, expressed as a vision of the community for 2010/2012, define the Bellevue role in the BROTS Update effort. They include a vision of a strong commitment to environmental stewardship, the design of a transportation system based on moving people and goods rather than moving cars, and infrastructure that meets growth needs and corrects deficiencies. Resources to support transportation service and facility needs must be balanced with acceptable service and funding levels.

It is the goal of the Transportation Chapter of the Bellevue *Comprehensive Plan* to maintain mobility for residents and businesses through a balanced system of transportation alternatives that:

- reduces auto dependency;
- supports the City's land use vision; and
- protects neighborhoods from transportation impacts.

Success in carrying out this goal will produce the following positive outcomes:

- Desired Land Use - achievement of the City's land use vision, through a transportation system that supports the land use vision, and in turn, a land use pattern that reduces auto-dependency;
- Reduced Use of the single-occupant vehicle (SOV) - a shift in behavior away from excessive reliance on the SOV, through effective transportation demand management;
- Viable Travel Options - a broad based transportation system that provides an array of travel choices to meet a variety of needs;
- Adequate and Fair Financing - a balanced funding structure that meets needs for multiple travel modes and allocates costs fairly among users;
- Protection of the Environment and Quality of Life - a healthier environment than would occur without this plan; and
- Effective Interjurisdictional Coordination - ongoing and cooperative solutions to problems that span jurisdictional boundaries.

The development of a transportation plan update for the BROTS Update area should be based on the common goals of the two cities.

1.6 Use of the ONP and the BROTS Update

Both plans are expected to be used by Redmond and Bellevue to guide land use development and transportation projects to 2010/2012. The City of Redmond will amend its *Comprehensive Plan* to include the ONP in the Plan's Neighborhoods Chapter as required by Policy NP-8:

> *After adoption, neighborhood plans shall be integrated into this chapter.*

Adoption of the ONP by Redmond does not require a parallel action by Bellevue because the ONP planning area is entirely within the jurisdictional boundaries of Redmond. However, the GMA requires that adjoining jurisdictions coordinate their planning efforts and therefore Bellevue may amend or modify some of its planning documents to incorporate changes caused by the ONP.

Both Cities will amend their long-range transportation plans to incorporate the recommendations of the BROTS Update. The Cities are preparing a long-range financing plan to pay for the identified transportation facilities. As the time comes to implement the transportation facilities, the Cities will amend their six-year transportation capital facility plans to incorporate the projects in the BROTS Update.

1.7 Description of Alternatives

The land use alternatives considered in the ONP arose from the Redmond *Comprehensive Plan* requirements that the Overlake Neighborhood plan set development intensities for each of Overlake's zoning districts. The development intensities were to be derived from a range of floor area ratios (FARs) contained in Policy LU-54. As noted earlier, the BROTS Update is directly affected by the intensity of development proposed for adoption in the ONP because the intensity of development that would be allowed in each district (i.e., the FARs) has a corresponding impact on the local transportation network. In order to determine which FARs would be most appropriate, a series of land use and transportation network alternatives had to be evaluated through an iterative process, using a computer model. The model tested four alternative land use scenarios against six transportation networks. The goal was to determine the most appropriate combination of land use scenario and transportation network, so that future land uses will be supported by an adequate transportation infrastructure.

The process for evaluating the land use alternatives started with each jurisdiction making projections about possible future growth in Overlake. Because the BROTS Update includes areas of Bellevue, projections for growth in both Bellevue and Redmond were made. However, the projections for Bellevue are not part of the ONP, which only concerns the Redmond portion of Overlake. Bellevue's projections were based on its city-wide land use projection which estimates the amount of development likely to occur by 2010/2012 by considering existing land use code regulations and an economic analysis of lands likely to develop and redevelop. Bellevue's projections remained constant through the iterative process. On the other hand, the City of Redmond developed a range of land use projections for the Overlake area based on the range of intensities provided for in the 1995 *Comprehensive Plan*. The floor area ratios (FARs) used were defined in Comprehensive Plan Policy LU-54 as follows:

Designation	*Maximum FAR*
Advanced Technology Center	*0.45 to 0.7*
Business and Advanced Technology	*0.35 to 0.6*
Commercial Area	*0.3 to 0.5*
Design District	*1.1 (may be modified by design district regulations)*

The Redmond *Comprehensive Plan* also includes a projected land use "target" which was adopted by the City as the basis for infrastructure planning. The projections were estimates of future growth based on a variety of factors, including existing and proposed land use regulations, market trends and demands for various uses, land ownership patterns, and the availability of vacant or underutilized land. It should be noted that projections are possible future land use scenarios and can be adopted by the jurisdiction for planning purposes, in which case the projections are then called a "target". Projections and targets should also be distinguished from estimates of "buildout" which is the maximum allowable development based only on existing land use regulations, and excluding other factors such as market trends or land availability.

The buildout for the existing land use regulations in the Redmond ONP area is derived by multiplying the maximum FAR in the land use districts by the amount of land area in each district. In areas where FAR is not included in the regulations, the buildout would be

determined by calculating the maximum building size allowed by the dimensional standards, such as lot coverage and height. Buildout is generally not used as the basis for infrastructure planning, because the amount of time needed to achieve full buildout extends beyond the planning period for transportation facilities. For the Preferred Alternative (the CAC Recommended ONP) the buildout proposed under the ONP and associated land use regulations is the same as the projection of 15.4 million square feet of floor area for retail, office and manufacturing space and will likely be achieved by 2012.

As part of the planning process, another land use projection was calculated, which was based on all development applications currently submitted for approval within the Redmond ONP area. This projection is named the Development Application as of October 1998. Although all of the applications may not be approved or result in construction, the projection illustrates development trends in the area.

For the Redmond Overlake area, the existing target in the *Comprehensive Plan* is 11.4 million square feet of retail, commercial, office, and manufacturing space. Using the above FARs as a basis for the projections, the City of Redmond projected four future growth scenarios: Low, High, Market-Constrained and Modified Market-Constrained. The land use projections developed by the Cities and used for analysis are shown below in Table 1-1.

Table 1-1:
Projected Land Use Scenarios - BROTS Study Area

	Office, Retail, & Industrial (sq. ft.)					
City	Low	High	Market-Constrained	Modified Market-Constrained	Single Family (# of units)	Multi-Family (# of units)
Bellevue	11,684,700[a]	11,684,700[a]	11,684,700[a]	11,684,700[a]	2,370[a]	6,775[a]
Redmond	11,402,900	19,394,700	16,828,700	15,419,902	3,145[a]	4,350[a]
Totals	23,087,600	31,079,400	28,513,400	26,645,000	5,515	11,125

Source: BKR Model
[a] These figures remained constant through all scenarios.

These four Redmond scenarios were combined with the future growth projections for Bellevue and tested against the six transportation networks, labeled as follows: 2010/2012 Baseline Network (also called Network A), Network B, Network C, Network D, Network D*, and Network E (the TRG Recommended Network). The transportation networks were developed by the TRG, staff, and consultants. Networks B through E included the 2010/2012 Baseline Network, which was the existing arterial network, plus projects in the Bellevue Capital Improvement Program (CIP), the Redmond Transportation Improvement Program (TIP) and selected projects in the Redmond Transportation Facilities Plan (TFP). Table 1-2 shows the various combinations of networks and land use scenarios. Details of the results of the model tests can be found in Appendixes C-2 through C-7.

Table 1-2:
Land Use and Transportation Scenarios

Land Use Plan	Networks					
	A	B	C	D	D*	E
Low	Scenario 1	Scenario 2				
Market-Constrained				Scenario 4		
Modified Market-Constrained					Scenario 5	Scenario 6
High			Scenario 3			

Table 1-3 compares the non-residential square footage by Traffic Analysis Zone (TAZ) for existing conditions, full development under existing zoning, the No-Action Alternative and the Preferred Alternative. The non-residential square footage differs slightly from the office/retail/ industrial square footage with the addition of 497,382 square feet of special-use square footage. Comparing the existing target for the Overlake Neighborhood of 11.4 million square feet with the existing (1995) conditions including development applications of 12.5 million square feet illustrates how much growth has occurred since the adoption of the target in 1995.

During the update of Redmond's land use database in 1998, some errors were discovered in the existing 1995 land use data shown in the draft environmental impact statement (DEIS) and used in the base year transportation modeling. This final environmental impact statement (FEIS) uses the corrected 1995 estimates. The corrected estimates differ from those used in transportation modeling for the 1995 base year by 193,247 square feet. This difference was judged not to be significant by the Lead Agencies for development of the FEIS on the Bel-Red/Overlake Transportation Study (BROTS) Update.

1.7.1 No-Action Alternative

The No-Action Alternative generally consists of the Redmond *Comprehensive Plan* target of 11.4 million square feet together with transportation Network B. The transportation impact analysis for Network B used a slightly higher land use of 11.9 million square feet than the *Comprehensive Plan* target of 11.4 million square feet. Transportation Network B consists of the facilities identified in the Transportation Facilities Plan (TFP) of both Cities which are the 12- to 14-year planned improvements (see Figure 1-6). The *Comprehensive Plan* land use target and the facilities identified in the Facilities Plans generally represent the expected conditions in the year 2012 unless further action is taken by either City. For this reason, they were selected as the No-Action Alternative.

The City of Bellevue *Comprehensive Plan* and the City of Redmond *Comprehensive Plan* (*Plans*) establish goals and policies for the Cities to use in evaluating future land use decisions. The *Plans* govern the physical development of the Cities for approximately 20 years from their adoption. As the *Plans* were evaluated under SEPA and are already adopted, the projections for future growth and the resulting impacts are the No-Action Alternative. Future development anticipated in the *Plan* is understood to be accounted for and mitigated to the extent possible in the *Plan* or in other measures that implement the *Plan*, such as regulations.

Evaluation of the No-Action Alternative therefore requires an examination of goals and policies in the *Plans* that relate to the Overlake Neighborhood. The Conservation, Land Use, Transportation, Utilities, and Neighborhoods Chapters of the City of Redmond *Comprehensive Plan* contain policies that are specifically directed at development in the Overlake Area.

Table 1-3:
Non-residential Square Footage by TAZ for Existing Conditions, No-Action Alternative, and Preferred Alternative

	A	B	C	D	E	F	G	H	I
TAZ & Primarily Comprehensive Plan Designation	June 1995 Employment Develop.	Development Applications as of Oct. '98	1995 Total Plus Development Applications as of Oct. '98)	Buildout: Development Potential Based on Existing Zoning	No-Action Alternative	Difference Between No-Action and Column C	Preferred Alternative: Modified Market Constrained Land Use	Difference Between Preferred Alternative and Column C	Difference Between No-Action & Preferred Alternative
371: Commercial	319,630	37,835	357,465	3,735,192	400,227	42,762	310,831	-46,634	-89,396
372: Commercial	357,762	48,690	406,452	5,522,348	405,844	-608	503,228	96,776	97,384
373: Commercial	460,560	350	460,910	3,350,105	479,716	18,806	593,263	132,353	113,547
374: Commercial + Design District	742,806	422,894	1,165,700	15,109,742	1,572,678	406,978	1,792,189	626,489	219,511
375: Business & Technology	0	314,758	314,758	303,751	241,000	-73,758	340,000	25,242	99,000
376: Business & Technology	348,846	649,733	998,579	1,978,503	471,892	-526,687	998,075	-504	526,183
377: Business & Technology	827,288	690,574	1,517,862	3,313,084	1,116,216	-401,646	1,473,739	-44,123	357,523
378: Business & Technology	0	589,426	589,426	3,063,628	816,968	227,542	620,000	30,574	-196,968
379, 380: Business & Technology	2,029,924	1,088,127	3,118,051	2,693,810	2,627,358	-490,693	4,325,959	1,207,908	1,698,601
381: Business & Technology	1,326,227	230,626	1,556,853	4,215,434	1,495,277	-61,576	2,100,000	543,147	604,723
382: Business & Technology	619,039	724,670	1,343,709	2,506,736	1,087,373	-256,336	1,133,191	-210,518	45,818
385: Business & Technology	0	684,668	684,668	2,927,232	1,200,000	515,332	1,267,258	582,590	67,258
Total	7,032,082	5,482,351	12,514,433	48,719,565	11,914,549	-599,884	15,457,733	2,943,300	3,543,184

Note: The Redmond TAZ boundaries are shown on Figure 4-2, TAZs.

Several Bellevue subarea plans address parts of the Bel-Red/Overlake study area and abut Redmond's Overlake neighborhood. On the west of Overlake are the Bel-Red/Northup and Bridle Trails neighborhoods, and to the east and southeast are the Evergreen Highlands, Northeast Bellevue, and Crossroads neighborhoods. Bellevue has adopted policies for each of these subareas in addition to its citywide *Comprehensive Plan* policies. Both Bellevue and Redmond adopted a subarea plan for Evergreen Highlands when the neighborhood was still in King County because it was unclear which city would annex which part of Evergreen Highlands. In the end, portions of the Evergreen Highlands were annexed by both cities. Neither Redmond nor Bellevue has the authority to adopt plans for the other's jurisdiction.

Table 1-4:
No Action (Low) Land Use Estimate for Year 2010/2012 - BROTS Study Area

City	Office[a]	Retail[a]	Industrial[a]	Special Uses	Total Non-Residential	Single-Family[b]	Multi-Family[b]
Bellevue	4,842,300	2,789,400	4,053,000		11,684,700	2,370	6,775
Redmond	8,890,700	875,600	1,636,600	497,382	11,900,282[c]	3,145	4,350
Totals	13,733,000	3,665,000	5,689,600		23,584,982	5,515	11,125

Source: BKR Model
[a]Square feet.
[B]dwelling units.
[c]The total square footage shown in Table 1-3 is slightly higher due to rounding.

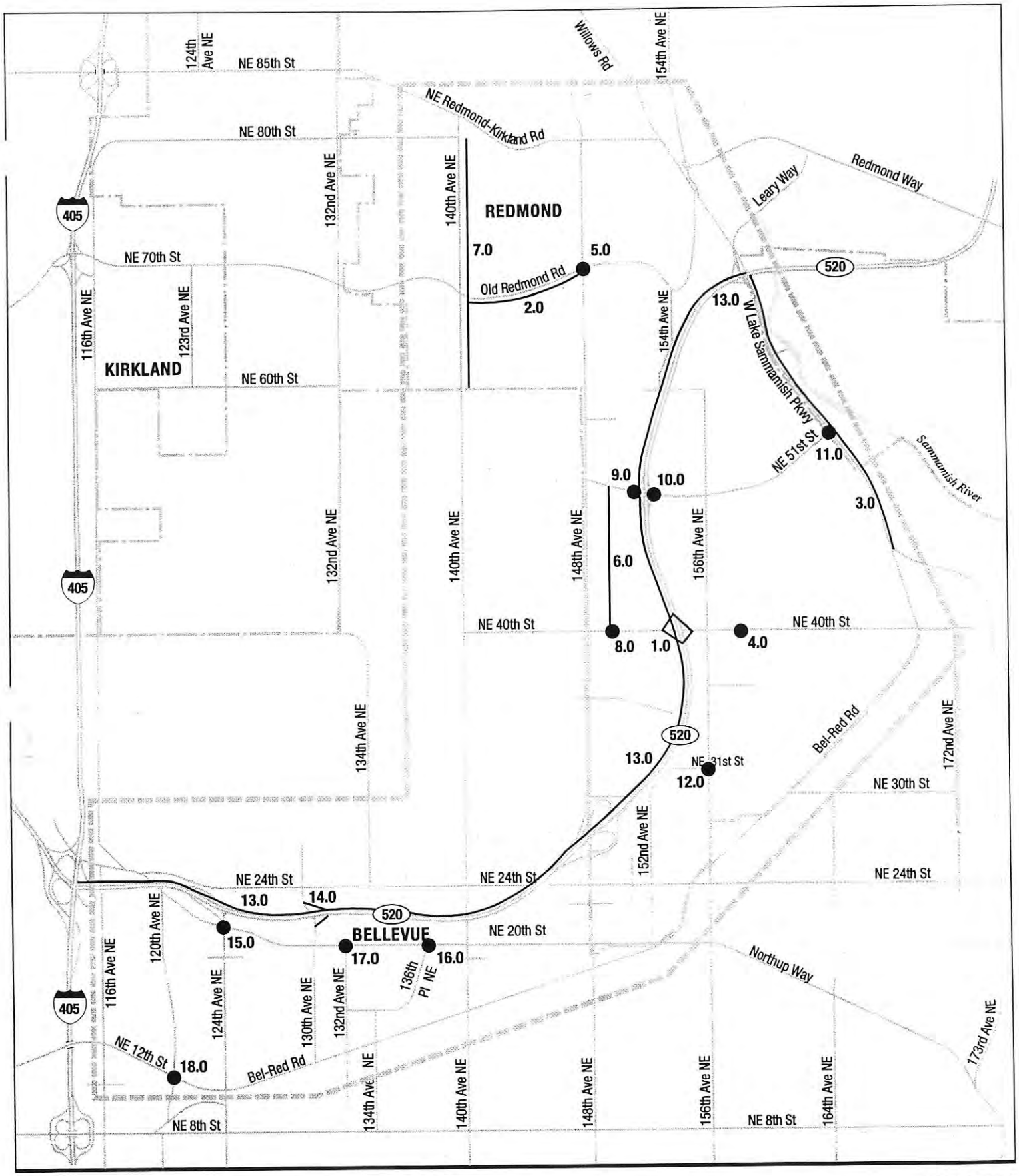
Table 1-4 shows the square footage for the low land use projection that was used in the traffic modeling. With special uses, total non-residential square footage is 11.9 million square feet.

The No-Action Alternative is designed to present a baseline for impacts likely to occur if the Bel-Red Overlake Transportation Study (BROTS) Update is not implemented. To cover the 2010/2012 time horizon two sets of transportation projects are included in the No-Action Alternative. The first set is the transportation projects in the Redmond Transportation Improvement Program (TIP) and the Bellevue Capital Improvement Program (CIP). These projects are generally funded and construction will be started in six years. These projects and few other Redmond projects that will be constructed in the next few years are included in Network A (Figure 1-5). The second set is the longer time horizon transportation projects included in Redmond's *Comprehensive Plan* and the Bellevue Transportation Improvement Facilities Plan. These long-term projects were added to the short-term projects in Network A to create Network B (Figure 1-6).

1.7.2 Preferred Alternative

The Preferred Alternative, referred to as the CAC Recommended ONP, consists of:

- The land uses in the proposed Overlake Neighborhood Plan: goals, policies and in particular the target of approximately 15.4 million square feet of office, retail, industrial, and special use space in Redmond; and the proposed development regulations; and
- The TRG Recommended transportation projects necessary to accommodate the land use projections (Network E), as well as the revised BROTS vision statements and goals.



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Scale in Feet

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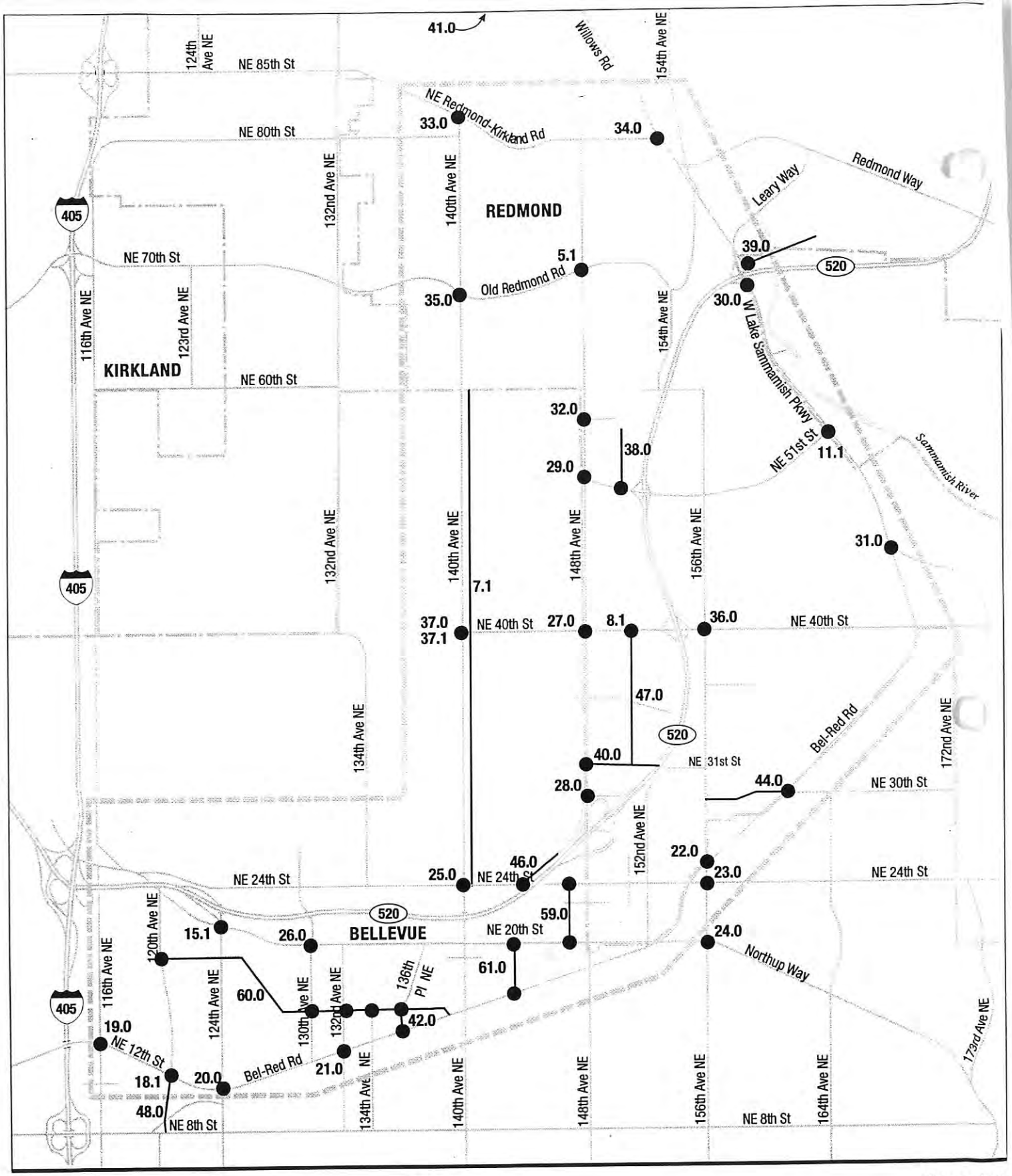
LEGEND

Study area boundary

City limits

Figure 1-5

Network A Projects



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Scale in Feet

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LEGEND

Study area boundary

City limits

Figure 1-6

Network B Projects

The CAC Recommended ONP is based on land use projections provided by the City of Redmond. To allow for this development, a set of FARs are proposed in the ONP development regulations. An overall non-residential target of 15.4 million square feet of floor area and residential targets for single and multi-family development are also proposed. These targets are shown in Table 1-5, along with the land use projections for Bellevue. Together, these projections were used in developing the transportation network.

Table 1-5:
Preferred (Moderate) Land Use Estimate - BROTS Study Area

City	Office[a]	Retail[a]	Industrial[a]	Special Uses	Total Non-Residential	Single Family[b]	Multi-Family[b]
Bellevue	4,842,300	2,789,400	4,053,000		11,684,700	2,370	6,775
Redmond	12,692,500	1,002,100	1,265,700	497,382	15,457,682[c]	3,145	4,350
Totals	17,534,800	3,791,500	5,318,700		27,142,382	5,515	11,125

Source: BKR Model
[a]Square feet.
[B]Dwelling units.
[C]The total square footage shown in Table 1-3 is slightly higher due to rounding.

The residential targets and Bellevue's projections for all uses are the same under both the No Action and CAC Recommended ONP.

The TRG Recommended Network (Network E) includes all of the transportation projects in the TIP and CIP, plus some projects from Redmond's TFP (Network A), plus other projects developed to address transportation needs in the study area. The list of recommended projects was based on deficiencies indicated by all of the computer modeling. Figure 1-7 shows the locations of the additional mitigation projects in Network E beyond Network A.

1.8 Public Involvement Process

Bellevue and Redmond conducted several community involvement efforts in connection with the development of the ONP and the BROTS Update. These efforts are summarized here.

1.8.1 Overlake Neighborhood Plan

1.8.1.1 Citizen Advisory Committee

The City of Redmond worked with the Overlake Neighborhood Plan Citizen Advisory Committee (CAC) and the public to prepare the ONP. The Mayor and City Council appointed the Redmond members of the CAC which included five residents of Redmond's Overlake Neighborhood, businesses and property owners. The Mayor and City Council also invited the City of Bellevue to appoint a city representative, a representative of the Bridle Trails Neighborhood, and a representative of the Sherwood Forest and Ardmore Neighborhoods. The CAC met for over a year and a half. Staff prepared CAC recommendations on the policies, land use buildout estimates, and development regulations. The CAC recommendations are to be considered by the City of Redmond Planning Commission and City Council.

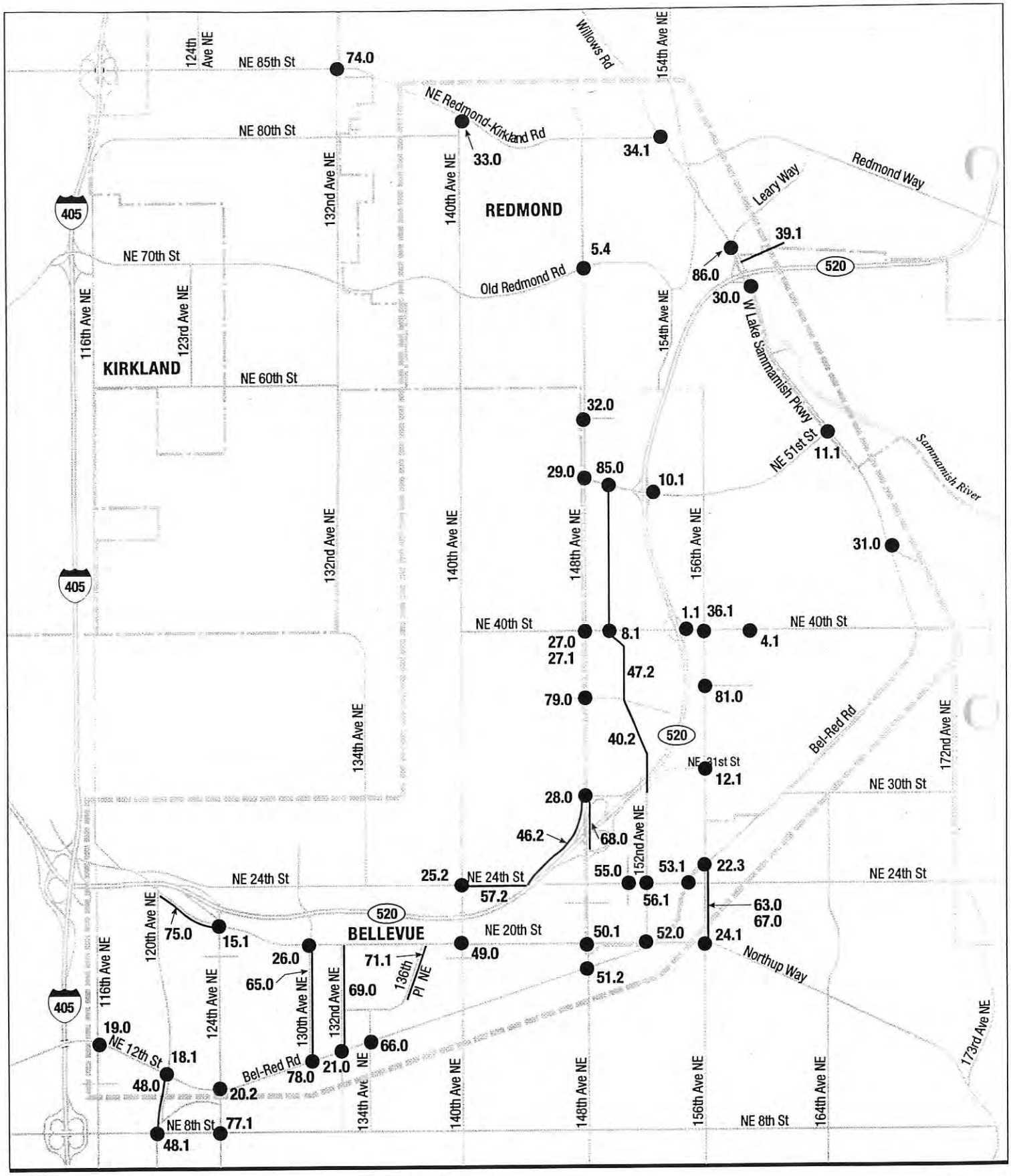

Figure 1-7
Network E Projects

All of the meetings were open to the public and a public comment was accepted at the beginning of the meetings. Written comments from the public were also provided to the CAC. Notice of the meetings were mailed to the CAC members and to anyone who asked to be included on the mailing list. Copies of the meeting minutes are in Appendix A-2.

1.8.1.2 News Articles and Public Notices

Notice was also mailed to local news media. As a result of these mailings, Eastside newspapers published news articles about the planning process and information on CAC meetings. An article on the neighborhood plan was included in the newsletter of the Audubon Elementary School, which is located in the neighborhood. Information about the ONP was published in several editions of the Redmond city newsletter *Focus*, that were mailed to all residents and businesses in the City. Some of the meetings were publicized on a recorded hotline that gave information about meeting dates, topics, and other events.

In June 1997, a flyer describing the study area, tentative recommendations, and how neighborhood residents, businesses, and property owners could comment on the neighborhood plan was sent to all residents and businesses in the neighborhood. Property owners in the retail trade and employment area were also sent copies of the flyer.

1.8.1.3 Open House, Cable Television, News Releases, Public Comment Cards

One of the methods of learning about and commenting on the recommendations was the Overlake Neighborhood Plan Open House held on July 9, 1997. People interested in the plan could drop in, learn about the plan, and submit comments. The open house was publicized in the June 1997, flyer, through notices on the Redmond City Television Cable Channel, a hotline message, and news releases. The flyer also invited residents and businesses to comment by mail, fax, and e-mail. Information on the neighborhood plan recommendations was also subsequently available at the BROTS Update Open House on September 17, 1997. The comments received were summarized and provided to the CAC.

1.8.1.4 Meetings with Interested Groups

Redmond staff briefed the Greater Redmond Chamber of Commerce Land Use and Transportation Committee on the neighborhood plan. Staff also actively sought to meet with other groups and organizations to explain the recommendations and how to comment on them.

1.8.1.5 Public Hearings and the Final Decision on the Overlake Neighborhood Plan

The Redmond Planning Commission and City Council will consider the ONP recommendations. The Planning Commission will hold public hearings and the City Council may as well.

1.8.2 BROTS Update

1.8.2.1 Transportation Review Group

The Cities of Bellevue and Redmond worked with an appointed advisory committee, the Transportation Review Group (TRG), and the public to prepare the BROTS Update. Seven members of the TRG were appointed by the Bellevue City Council and seven members were appointed by the Redmond Mayor and City Council. The members represented residents, property owners, and businesses. Staff prepared recommendations on the transportation facilities to be included in several transportation model runs. These recommendations were reviewed by the TRG. At the conclusion of the BROTS update, the TRG-recommended to the Cities of Bellevue and Redmond the transportation facilities that should be added to the Cities' *Comprehensive Plans* and the way in which facilities should be financed.

As of October 1997, the TRG had met 19 times, beginning in May 1996. All of the TRG meetings were held within the study area and were open to the public (copies of the meeting minutes are in Appendix A-3 of the Technical Supporting Record). Members of the public were given the opportunity to comment at the TRG meetings and written comments from the public were provided to TRG members. TRG meeting agendas were mailed to interested persons and organizations.

The TRG's tentative recommendations were summarized in a newsletter sent to all residents and businesses within the study area in August 1997. This newsletter also invited public comment.

1.8.2.2 Public Open House

A BROTS Update Open House was held on September 17, 1997, to provide the public with an opportunity to review and comment on the BROTS Update, including the proposed recommendations. Information on the preliminary BROTS recommendations was also available at an earlier Overlake Neighborhood Plan Open House on July 9, 1997.

1.8.2.3 Neighborhood and Community Group Meetings

Project staff held several neighborhood meetings on the BROTS update in different parts of the study area. A meeting was also held with the Bellevue Chamber of Commerce and the Greater Redmond Chamber of Commerce Land Use and Transportation Committee. Redmond staff has briefed the Greater Redmond Chamber of Commerce Land Use and Transportation Committee on the BROTS Update earlier in the process. Staff also actively sought to meet with other groups and organizations to explain the recommendations and how to comment on them.

1.8.2.4 Public Hearings and the Final Decision on the BROTS Plan

A series of three joint meetings on the BROTS Update will be held by the Redmond and Bellevue councils prior to taking final action on the BROTS Plan. Separately, the Bellevue Transportation Commission, Planning Commission, and City Council will consider the BROTS recommendations and conduct public hearings in 1998. The Redmond Planning Commission and City Council will also consider the BROTS recommendations and hold hearings at the same time. In order to be adopted, both the Redmond and Bellevue City Councils will need to approve the BROTS Plan.

1.8.3 SEPA/GMA Public Process

In addition to the public involvement opportunities presented during the development of the ONP and BROTS, the SEPA process provides two additional public comment opportunities, the scoping period and the Draft EIS comment period.

The City of Redmond is lead agency under SEPA for the ONP EIS and nominal lead for the BROTS Update. (Both Redmond and Bellevue share lead agency status with respect to the BROTS Update and are considered co-leads.) Redmond and Bellevue issued a Determination of Significance (DS) on April 8, 1997, and accepted written comments on the scope of the EIS until May 8, 1997. On April 23, 1997, a scoping meeting was held on the topics to be addressed by the environmental impact statement (EIS) being prepared for the BROTS Update and the ONP. One person attended the meeting and provided comments. Two letters on the scope of the EIS was received during the comment period. A 32-day public comment period was provided. Notice of the scoping meeting and comment period was published in the Washington State Environmental Policy Act (SEPA) Register and in the April 8, 1997, Eastside Edition of the *Seattle Times.* Copies of the scoping notice were mailed to state agencies, Indian Tribes, persons, and organizations on the Bellevue and Redmond SEPA mailing lists. Copies of the DS and Public Meeting Notice are in Appendix A-1.

The comment period for the Draft EIS began on April 21, 1998, and closed on June 5, 1998, for a total of 45 days. The comment letters that were received are in Chapter 5 of this FEIS. Oral comments were received at the public meeting held by the Redmond Planning Commission on May 13, 1998, at the Bellevue Senior Center.

The Draft and Final Integrated SEPA/GMA Documents will be sent to the Washington State Department of Community, Trade, and Economic Development (DCTED), the Washington State Department of Ecology, and other state agencies that have environmental expertise or who are on DCTED's list to receive Growth Management Act plans and regulations. The 60-day adoption notice accompanied the Draft Integrated SEPA/GMA Document. State agencies had 60 days to comment on the BROTS Update and the Overlake Neighborhood Plan policies and regulations. The comment period for the Draft EIS was 45 days.

1.9 Environmental Summary

1.9.1 SEPA Requirements

The SEPA Rules provide great flexibility in the format of an integrated SEPA/GMA document. As provided in WAC 197-11-235 the, "overriding consideration is the quality of information and analysis at the appropriate scope and level of detail for the particular GMA document, and not the format, length, or bulk of the document." At a minimum, the Rules require the following in an Integrated Plan/EIS document: 1) Environmental Summary and Fact Sheet; 2) Concise Analysis of the Alternatives; 3) Comments and Responses; and 4) Appropriate Technical and Other Materials.

The Environmental Summary should "highlight from an environmental perspective the main options that would be preserved or foreclosed by the proposed GMA action." (WAC 197-11-235(5)). The summary of the principal environmental impacts may be presented in chart or matrix form. The fact sheet precedes the summary and contains the information required in WAC 197-11-440(2).

The Alternative Analysis "focuses on a comparative evaluation of the environmental consequences of the principal alternative courses of action that are or have been under consideration in the GMA planning process." (WAC 197-11-235(6)). Descriptive material should be the minimum necessary to understand the alternative comparison.

The Comments and Responses section is included in the final integrated document after comments have been received on the draft document. Responses are prepared as required for any Draft EIS.

The Technical Supporting Record contains a list of the principal analytical documents and other materials that were prepared or used in developing the GMA plans. The following section contains the Environmental Summary.

1.9.2 Proposed Objectives

The ONP is a subarea plan to guide development in the Overlake Neighborhood until 2012. The ONP implements the City of Redmond *Comprehensive Plan* through vision statements, policies, and development standards that reflect the community's desires and objectives. The ONP is a response to specific mandates in Redmond's *Comprehensive Plan* and the GMA.

The BROTS Update responds to the land use changes proposed in the ONP by identifying a series of traffic improvements necessary to maintain level of service standards. Redmond and Bellevue will update their transportation capital facilities plans to include the projects recommended in the BROTS Update. GMA requires the Cities to maintain transportation facilities concurrently with growth so that levels of service do not fall below adopted levels. The BROTS Update will supply the Cities with the analysis necessary to meet this GMA mandate.

1.9.3 Summary of Environmental Impacts

The following matrix summarizes the significant impacts to the elements of the environment caused by the ONP and BROTS for the Preferred Alternative and No-Action Alternative. Suggested mitigation and unavoidable significant adverse impacts are also shown.

Table 1-6:
Summary of Environmental Impacts

SEPA Issue Area	Impacts	Mitigation	Significant Unavoidable Adverse Impacts
Land Use: Adopted Plans			
No-Action Alternative	Inconsistent with County-wide Planning Policy LU-58, requiring implementation strategies for Advanced Technology Centers. Not consistent with Redmond's Comprehensive Plan policies regarding creation of an Overlake Neighborhood Plan. Inconsistent with Redmond Policy LU-56 requiring update of BROTS, and inconsistencies exist between 1986 BROTS and current six-year plans.	None available.	Same as under impacts.
Preferred Alternative	Consistent with County-wide Policy LU-58 for Advanced Technology Centers and with employment creation of Policy LU-52 requiring 10,000 jobs. Consistent with Redmond Comprehensive Plan policies regarding a plan for the Overlake neighborhood and BROTS Update (Policies LU-53, -54, -56). Meets criteria for neighborhood plans in Policy NP-4. New growth target of 15.4 million square feet of non-residential space will allow more future development. Would make BROTS more consistent with transportation plans.	None required.	None.
Land Use: Density			
No-Action Alternative	Have nearly reached Comprehensive Plan target for development (11.4 million square feet of non-residential space) on which public facilities in Overlake were planned so new development may have difficulty meeting concurrency requirements, especially for transportation. Lower range of maximum FARs in manufacturing areas compared to Preferred Alternative. Less intensive neighborhood protection measures are available. More intense commercial development permitted than under Preferred Alternative, greater height and bulk allowed.	No remedy for restraints on development imposed by concurrency requirements. Existing development regulations provide some neighborhood protection measures.	May restrict future growth.
Preferred Alternative	Would set a new target for development, adding an additional 2.9 million square feet of non-residential space in Advanced Technology and commercial zones which would be the new basis for public facility planning; therefore, concurrency requirements more easily met. Higher maximum FARs in proposed OV zone, lower FARs and bulk in RC commercial zone. More comprehensive neighborhood protection measures in ONP development regulations, such as Neighborhood Protection Streets, Maximum Height and FAR Overlay, Transition Overlay.	No additional mitigation is proposed..	See impacts on surrounding uses.

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Table 1-6, continued

SEPA Issue Area	Impacts	Mitigation	Significant Unavoidable Adverse Impacts
Land Use: Cumulative Effects No-Action Alternative	Areas that have not been built to the Comprehensive Plan target are TAZs 371, 373, 374, 378, and 385. Impacts likely would consist of slower traffic speeds, increased congestion, noise, and light and glare. May be negative impacts on aesthetic values and air quality. Accumulated impacts can result in local residents' perception of a diminished quality of life. Affected areas would be surrounding residential neighborhoods: west of 148th Avenue NE, north of NE 60th Street and west of SR 520, north of NE 51st Street and east of 156th Avenue NE, north of NE 40th Street and east of Bel-Red road. Some neighborhood protection measures established in existing development standards would diminish these effects, but less than under Preferred Alternative.	None.	If new development occurs, could have greater unavoidable impacts on surrounding uses, due to fewer neighborhood protection measures than under the Preferred Alternative; could result in perception of diminished quality of life for residents. If little or no development can occur because of concurrency constraints, no significant, unavoidable impacts would occur.
Preferred Alternative	Areas that would be expected to experience growth under the new Comprehensive Plan targets are TAZs 372, 373, 374, 375, 378, 379, 380, 381, 382 and 385. Greatest potential for impacts would be in TAZ 379 and 380 (areas of most projected new growth). Impacts likely would consist of slower traffic speeds, increased congestion, noise, and light and glare. May be negative impacts on aesthetic values and air quality. Accumulated impacts can result in local residents' perception of a diminished quality of life. Most-affected would be surrounding residential neighborhoods: west of 148th Avenue NE, north of NE 60th Street and west of SR 520, north of NE 51st Street and east of 156th Avenue NE, north of NE 40th Street and east of Bel-Red road. Development standards include intensified buffers, increased setbacks, and specific transition and restricted height overlays between these residential neighborhoods and areas of impact. Represents greater neighborhood protection measures than under No Action, but also greater development means greater potential for impacts.	None.	Significant neighborhood protection measures in the ONP likely to result in few unavoidable, adverse impacts, but could include an increase in ambient light and noise, but fewer direct impacts.

Table 1-6, continued

SEPA Issue Area	Impacts	Mitigation	Significant Unavoidable Adverse Impacts
Transportation No-Action Alternative	Construction impacts would include increased noise, emissions to the air and inconvenience to uses adjacent to project sites. Transportation model indicates that growth in areas that have not reached their Comprehensive Plan targets for land use would increase traffic volumes to a level of service below adopted standard in the Bridle Trails and Grass Lawn transportation districts and on parts of SR 520.	Change adopted standard to allow lower levels of service in affected areas or develop additional transportation facilities to mitigate impacts.	Potential still exists to have sub-standard levels of service in two transportation districts and on parts of SR 520.
Preferred Alternative	Construction impacts would include increased noise, emissions to the air and inconvenience to adjacent uses. Transportation model indicates that increased targets for land use would increase traffic volumes to a level of service below the adopted standard in the Grass Lawn transportation district and on parts of SR 520. Although not part of the Preferred Alternative, the staff recommendation would result in Bridal Trails exceeding its level of service standard.	Change adopted standard to allow lower levels of service in affected areas, reduce projected land use target (to reduce traffic volumes) or develop additional transportation facilities to mitigate impacts.	Potential still exists to have sub-standard levels of service in one transportation district and on parts of SR 520.
Transportation - Land Use Impacts No-Action Alternative	Short-term impacts from construction, including re-routing traffic, noise, and emissions. Fewer long-term impacts such as acquisition of right-of-way would be anticipated, compared to Preferred Alternative.	During project design or review, mitigating measures may be identified.	Potential business relocation and inconvenience to residents and businesses could occur, depending on the individual project.
Preferred Alternative	Short-term impacts from construction, including re-routing traffic, noise, and emissions. Projects under this alternative were evaluated for impacts on adjacent land uses and general conclusions were that impacts were either neutral or negative. Five projects were found to have potential negative impacts by increasing neighborhood traffic. Forty projects would require acquisition of right-of-way, with one project requiring acquisition of a building. Several projects would eliminate parking spaces.	Same as under No Action.	Same as under No Action.
Light and Glare No-Action Alternative	Comprehensive Plan target assessed in EIS for the Plan. Comprehensive Plan policies require light impacts to be confined to the site in new developments.	None.	If development occurs, could be an increase in ambient light from new structures. None.

Table 1-6, continued

SEPA Issue Area	Impacts	Mitigation	Significant Unavoidable Adverse Impacts
Preferred Alternative	Most impacts consist of reflected light from new structures and increased ambient light from traffic, parking lot, security and street lighting. Greatest potential for impacts would be in TAZ 374, 379, 380, and 385 (areas of most projected new growth). ONP and existing Comprehensive Plan policies require light impacts to be confined to the site in new developments. ONP policies require taller buildings to be located away from residential areas. Neighborhood Protection Streets and Green Streets are located between areas of higher intensity and adjacent residential neighborhoods. These include wider setbacks and more intense buffer plantings to attenuate impacts from glare and light.	None.	Some increase in ambient light would occur.
Air Quality			
All Alternatives	Dust from excavation and grading during construction would contribute to ambient concentrations of suspended particulate matter. Some phases of construction would cause odors detectable to some people away from the activity, particularly during paving operations using tar and asphalt.	Water or other dust suppressants could be used on construction roadways or exposed soils. Truck wheels could be washed, and streets kept clean.	
11.9 msf Development/ Network B (No Action)	Slight increase in CO emissions at 5 of 7 intersections examined, but lower than existing CO concentrations at all but one intersection. Eight-hour CO level exceeding 8-hour standard at one intersection.	N/A	Not possible to determine at this point. Would be assessed using modeling based on design-quality information during project-level review required by air quality conformity rules.
15.4 msf Development/ Network B	Same as Network B but more development without transportation facilities, results in more impacts. Eight-hour CO levels reach or exceed standard at 4 of 7 intersections examined.	N/A	Same as for 11.9 msf Development/Network B Alternative.

Table 1-6, continued

SEPA Issue Area	Impacts	Mitigation	Significant Unavoidable Adverse Impacts
Preferred Alternative 15.4 msf Development / Network E	CO emissions higher than existing conditions at 4 of 7 intersections examined. Higher CO concentrations than 15.4/Network B at 4 of 7 intersections. CO concentrations reach or exceed 8-hour limits at 3 of 7 intersections.	Structural reconfiguration could mitigate CO concentrations to acceptable level at one intersection where 8-hour levels would otherwise exceed standards. No effective mitigation found at other two intersections where 8-hour levels would exceed standards.	Same as for 11.9 msf Development/ Network B Alternative.
Noise No-Action Alternative	Temporary increases in sound levels along the construction routes due to the use of heavy equipment and the hauling of construction materials. Slight noise impacts (increases less than 5 dBA) at the majority of locations compared with existing sound levels with the No-Action Alternative. Existing sound levels in some parts of the study area are already beyond generally acceptable levels according to most criteria and the alternative future actions would have little effect on traffic noise levels near most of the arterials examined.	Project-specific noise impact evaluations for major transportation facilities may be performed, and noise mitigation measures may be required, in accordance with noise regulations and policies in Bellevue and Redmond. Possible mitigation measures include noise barriers, speed reductions, truck routes, and building construction techniques and materials designed to reduce interior noise levels.	Project-specific analysis would be required to determine permanent unavoidable adverse impacts.
Preferred Alternative	Same impacts as in No-Action Alternative.	Same as the No-Action Alternative.	Project-specific analysis would be required to determine permanent unavoidable adverse impacts.

Table 1-6, continued

SEPA Issue Area	Impacts	Mitigation	Significant Unavoidable Adverse Impacts
Water Quality: Streams			
No-Action Alternative	New development could increase the risk of discharges during construction.	Mitigation for runoff addressed under Bellevue and Redmond Comprehensive Stormwater Plans for each project. Direct impacts during construction can be managed by the use of proper erosion control techniques.	With implementation of required stormwater facilities, no significant adverse impacts.
	Six transportation projects located near streams or drainages which could result in impacts from construction (increased turbidity) or increased runoff. Increased traffic volume likely to increase total amounts of pollutants from vehicles in runoff.		
	Unlikely that amount of runoff caused by new impervious building surfaces would be significant. Construction of eight transportation projects would increase impervious surface and therefore create increased runoff (with associated pollutants) and chance of erosion. Comprehensive Plan policies require limiting impervious surfaces on sites and Redmond and Bellevue have adopted regulations consistent with *Stormwater Management Manual for the Puget Sound Basin.* Fewer number of transportation projects than Preferred Alternative, so somewhat lower overall risk of impacts from these projects.	Project-specific mitigation will be developed for short-term and long-term potential impacts of erosion and increased runoff.	None.
Preferred Alternative	New development could increase the risk of discharges during construction. The greater amount of development under this alternative could increase the chances of sediment discharges during construction (therefore, relatively greater chances than under No-Action).	Same as No-Action Alternative. Revise the storm water regulations to address the cumulative impacts of small projects, such as not exempting projects under 5,000 square feet of impervious surface.	Same as under No-Action Alternative.
	Twenty transportation projects located near streams or drainages which could result in greater impacts from construction (increased turbidity) or increased runoff. Five TAZs contain small steams located within the project areas. Greater total impacts would be expected than under No-Action alternative, because of greater number of projects and traffic volumes, which would entail greater amounts of pollutants from runoff. Policies in the ONP mandate no downstream impacts from erosion.		

Table 1-6, continued

SEPA Issue Area	Impacts	Mitigation	Significant Unavoidable Adverse Impacts
Preferred Alternative (continued)	Addition of impervious surfaces from new building. Addition of impervious surface and construction impacts from 22 transportation projects and construction impacts from 38 other transportation projects, impacts as described under No Action, above. Increase in required landscaping in new buffer standards could increase use of chemicals associated with care of groundcovers, shrubs and trees, which could result in leaching into runoff. Projects under 5,000 square feet of impervious surface are exempt; therefore, could be an area-wide cumulative impact of pollutants in runoff from these areas. Policies in the ONP and Comprehensive Plan require all stormwater impacts to be mitigated.	Project-specific mitigation will be developed for short-term and long-term potential impacts of erosion and increased runoff. Do not exempt projects under 5,000 square feet of new impervious surface.	None.
Water Quality: Lake Sammamish No-Action Alternative	Little or no additional impervious surfaces from building construction expected; therefore no impacts. No transportation projects in Network A occur in drainage basins above Lake Sammamish; therefore, no significant direct impacts.	None required.	None.
Preferred Alternative	Minor impacts from increased impervious surfaces in TAZs 379 and 380, portions of which are in the West Lake Sammamish Basin.	New development and construction will be managed in accordance with the *Lake Sammamish Water Quality Management Plan* (1996). Erosion control for land clearing and treatment to remove phosphorus from storm water will be required.	None.
Wetlands No-Action Alternative	Five transportation projects would have low to high potential for impacting wetlands directly and indirectly. In general, impacts mitigated by compliance with existing regulations.	Special project-specific design consideration and construction techniques would be required. Existing Redmond and Bellevue regulations prohibit modification of some wetlands and require avoidance of all wetland impacts if possible.	Short-term impacts.
Preferred Alternative	Eleven transportation projects would have low to high potential for impacting wetlands directly and indirectly. Construction of buildings in TAZ 380 could impact a wetland. In general, impacts are mitigated by compliance with existing regulations, including compensatory mitigation.	Special project-specific design consideration or alignment consideration and construction techniques would be required. Existing Redmond regulations prohibit modification of some wetlands and require avoidance of all wetland impacts if possible.	Short-term impacts.

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Table 1-6, continued

SEPA Issue Area	Impacts	Mitigation	Significant Unavoidable Adverse Impacts
Public Facilities: Water Supply No-Action Alternative	Water supply is currently meeting the demand, although with some restrictions during drought conditions. Therefore, no significant adverse impacts are anticipated.	None required except to monitor demand.	None.
Preferred Alternative	The projected build-out for office, commercial and industrial space could result in significant impacts on the water supply if in 1998 the system is found to be near capacity. Policies in the Comprehensive Plan and ONP commit the City to provide needed public services for future development. Costs may be borne by the developer or parties that stand to benefit the most.	Update Water Facility Plan. Monitor new development to ensure supply is adequate.	None.
Public Facilities: Sewer No-Action Alternative	Redmond adopted new General Sewer Plan which identifies improvements needed to accommodate development in Overlake. Policy in the Comprehensive Plan indicates that needed public infrastructure costs may be borne by the developer or parties that stand to benefit the most.	Ongoing monitoring and replace pipes as needed. Update interlocal agreements to manage capacity.	None.
Preferred Alternative	Redmond adopted new General Sewer Plan which identifies improvements needed to accommodate projected development in Overlake according to the ONP. Policies in the Comprehensive Plan and ONP commit the City to provide needed public services for future development. Costs may be borne by the developer or parties that stand to benefit the most.	Same as under No Action.	None.
Public Facilities: Parks & Open Space No-Action Alternative	Parks, Recreation and Open Space Plan identifies two potential park areas.	None.	None.
Preferred Alternative	The ONP maintains the two designated parks and adds a third to serve the retail area.	None.	None.

2. Overlake Neighborhood Plan

The ONP, in combination with the City of Redmond *Comprehensive Plan*, is designed to guide development in the Overlake Neighborhood for the next 20 years. The ONP consists of vision statements, policies, and development standards. The environmental impact analysis of the ONP is in Chapter 4 and includes analysis of the policies and regulations.

The statements in the following section establish the community's vision of what they want the Overlake neighborhood to be like in the future. The policies in the next section are the tools with which the vision will be implemented. The Overlake Neighborhood Plan Citizen Advisory Committee unanimously recommended adoption of these policies on August 7, 1997. Figure 2-1 illustrates the generalized land use map for the Preferred Alternative. The City of Redmond Planning Commission has reviewed these proposed policies and has decided to recommend approval of the vision and policies with the changes shown below. The changes are shown by underlines for additions and strike throughs for deletions.

The Overlake Neighborhood, with its corporate campuses, shopping and residential areas, is located in the southwest corner of Redmond. The neighborhood is bounded on the west by 148th Avenue NE. The northern boundary is NE 60th Street and State Route (SR) 520. The eastern boundary is formed by Lake Sammamish. The neighborhood boundary then runs west following the south city limits line, which is just south of NE 20th Street (if extended). At 172nd Avenue NE, the city limits and neighborhood boundary turn north and go up to NE 40th Street. At NE 40th Street, the city limits and neighborhood boundary run west to the Bellevue-Redmond Road and then southwest along the Bellevue-Redmond Road and NE 20th Street to 148th Avenue NE. While the area commonly referred to as Overlake extends west into Bellevue, those areas are not part of the plan for Redmond's Overlake Neighborhood, although those areas were considered in preparing policies for Overlake.

2.1 Neighborhood Vision

- The southernmost part of Redmond's Overlake Neighborhood is part of larger vibrant commercial area with a mix of activities and uses. The role of the commercial area is to serve neighborhood residents and residents of other nearby areas, nearby businesses, commercial uses that sell large goods, such as furniture, or that require large or land extensive sites. It is also a major medical center with a hospital, clinics and medical offices. Redevelopment of the commercial area has brought retail storefronts closer to the street, making the area more hospitable to transit, pedestrians, and bicycling. As part of the redevelopment, residences have been built over retail commercial buildings. This area has a sense of activity that makes the area attractive for housing. Public services from conveniently located offices meet the needs of the neighborhood and nearby areas. Offices for other uses are located in this area too. Redmond and Bellevue work closely together to help maintain this popular commercial and residential area. This part of the Overlake Neighborhood is designated as an activity area by the Redmond *Comprehensive Plan*. Activity areas contain a mix of office, retail, and housing.

- The area between SR 520 and Bel-Red Road south of NE 40th Street has developed into a major corporate, office and high technology research and development center. The region recognizes this area as an Advanced Technology Center. Significant trees and tree clusters have been maintained, especially along the Bel-Red Road. These trees assist in a transition in

Figure 2-1 Study Area and
Generalized Existing Land Use: Overlake Neighborhood

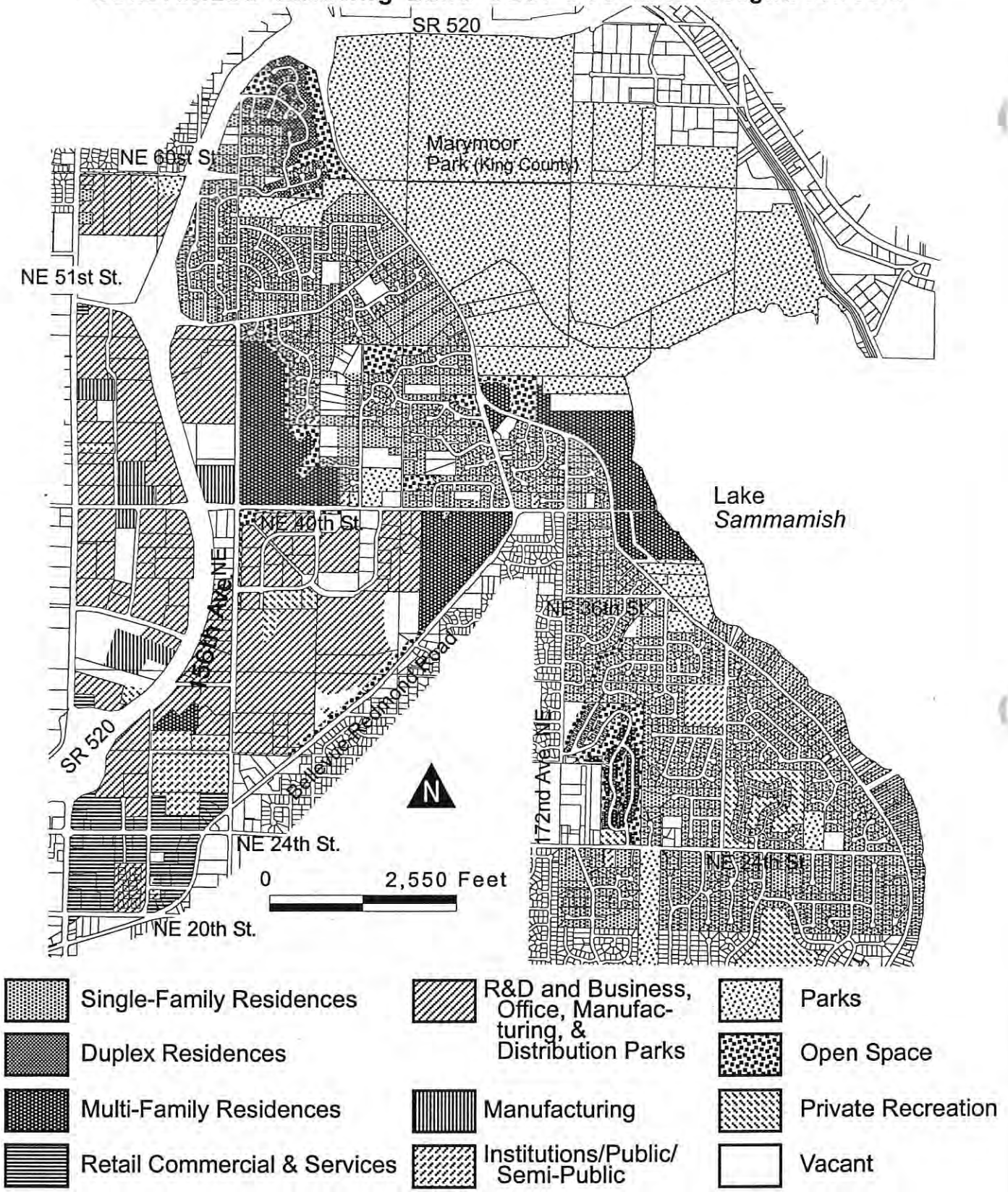

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Figure 2-1
Study Area and
Generalized Land Use Plan

intensity from the Advanced Technology Center designated areas to existing residential neighborhoods. They also maintain the campus-like feel of the Advanced Technology Center and the wooded feel of the Bel-Red Road, which is an important corridor linking Bellevue and Redmond..

- The area west of SR 520 contains corporate offices, research and development, light manufacturing and distribution uses.
- While intensively and efficiently developed, the employment areas retain their campus-like feel due to attractive landscaping and the protection of important natural features. The buildings are low to mid-rise in scale. Small scale shopping and services are available to serve the area's employees and nearby residents.
- The employment areas help meet city and regional economic development goals by providing for economic diversity and high wage employment.
- Redmond and Bellevue support balanced growth in the Overlake area. To do this they rely on countywide planning policies; local comprehensive plan policies guiding employment growth, the protection of the natural environment and neighborhood protection; interlocal agreements for mitigating the impacts of development; and information sharing between the jurisdictions on traffic modeling, land use forecasts, growth measures and discretionary land use reviews.
- The cities jointly work on identifying and constructing needed facilities.
- The residential areas, generally located in the eastern portion of the neighborhood, are attractive and well maintained. While predominately single-family, multi-family residences are located in nodes and duplexes, threeplexes and fourplexes are clustered in various locations in the neighborhood. Neighborhood schools, churches and parks serve the residential areas. The residential area includes four subareas.
- The neighborhood has four residential subareas: View Point, North Lake Sammamish Shore, North Overlake, and Overlake Park.
- View Point is located on the eastern part of the neighborhood both overlooking and lying along Lake Sammamish. It extends from 172nd Avenue NE to the lake. With its golf courses, lake and mountain views and shoreline access, it is an attractive and desirable residential address.
- North Lake Sammamish Shore is a multi-family housing node adjoining Lake Sammamish. It is located between Marymoor Park on the north and Idylwood Beach Park on the south and has not expanded beyond this area. Many of the residences front on the lake and have marinas. With its waterfront views and water-based recreational opportunities, this area is attractive and well maintained.
- North Overlake is located in the northeastern part of the neighborhood. It commands an east-facing slope with spectacular views of the Cascades, Marymoor Park and Lake Sammamish. This subarea includes a mix of single-family residences and duplexes. An easy walk from Overlake's employment area and adjacent to downtown, it is in high demand as a residential address.

- Overlake Park is a multi-family neighborhood located on the East Side of 152nd between NE 40th Street and 157th Ct. NE and in the triangle created by NE 40th Street, Bellevue-Redmond Road and the employment area to the west. The neighborhood helps provide housing close to employment. It is separated from its neighbors by forested ravines and greenbelts. This convenient housing is well maintained and much in demand.

- An appropriately scaled and well-distributed park system has been developed, meeting the recreational needs of employees and residents. Parks are included in the residential area, shopping/mixed-use area and employment area. A pedestrian system of sidewalks and connected trails provides for recreation and walking to schools, shopping and work.

- Convenient and frequent transit service, pedestrian walkways and bikeways have helped to improve mobility within the area and its ties to the region. Transit routes and facilities are well located to serve neighborhood. Improvements to streets and SR 520 have improved travel to and within the neighborhood. Development design has encouraged pedestrian and transit use. Development intensity is scaled and paced to meet the available transportation capacity. These changes and traffic management have contributed significantly towards reducing the adverse impact of traffic on the surrounding residential areas. The developed facilities plan protects those neighborhoods through which traffic passes to reach the Overlake area.

- Residential streets have little cut through traffic and cars travel at safe speeds. This has been accomplished by improvements that divert traffic away from residential neighborhoods, adequate enforcement of traffic laws, encouraging alternative travel modes, and providing transportation improvements to the city and regional transportation network.

- The area's boulevards, building and site design and community improvements give a sense of arriving when you reach the neighborhood. The design is coordinated, but provides a variety of styles. Urban design, building design, and site design are of high quality as are the materials used. As befitting Redmond's premier high technology address, urban design, building design and site design are of high quality as are the materials used.

Overall, the Overlake neighborhood is a good place to raise a family, work, develop a business or shop.

2.2 Neighborhood Policies

2.2.1 Conservation & Natural Environment Policies

The Redmond *Comprehensive Plan* includes a set of policies providing for environmental stewardship and protecting and enhancing the natural environment. These policies apply to the Overlake Neighborhood. They can be found in the Conservation & Natural Environment Chapter of the *Comprehensive Plan*.

The Overlake Neighborhood has several ravines with creeks located within it. These areas are heavily wooded. Protecting these creeks and the wooded slopes along them protects these water bodies and Lake Sammamish from siltation and water pollution. They also provide wildlife habitat, can connect habitats together by allowing the movement of wildlife to maintain healthy

populations, provide attractive green spaces and, in some cases, opportunities for trails. Many of these areas are protected by native growth protection easements or by other means. This protection should continue and be extended to other ravines.

N-OV-1. *Stream ravines and the wooded slopes abutting them shall be protected and maintained. Appropriately designed and sized trails may be included within the ravine where compatible with resource protection and nearby uses.*

Overlake faces important water quality issues. Lake Sammamish is sensitive to phosphorus pollution from runoff and other sources. Kelsey Creek is an important salmon stream in Bellevue and parts of Overlake contribute stormwater runoff to that creek. The water quality of these and other water bodies should be protected.

There are two major aspects to water quality protection from urban stormwater runoff. The first is the quality of the discharged stormwater. Treatment is often necessary to remove pollutants that runoff picks up from streets, parking lots, and the soil.

The second is the quantity of stormwater. This runoff is limited, both to reduce the potential for downstream flooding and to limit erosion which is also a pollutant. Stormwater quantity is limited by detention and retention. Detention captures stormwater and then allows it to flow out at a controlled rate. Retention also captures stormwater and then instead of discharging the water, it is percolated into the ground. Retained stormwater can be used to irrigate landscaping or to help recharge ground water. The method used will vary depending on the source of the runoff, the quality of the runoff, the quantity of the runoff and the soil conditions in an area.

N-OV-2. *The quality of stormwater runoff shall not degrade the water quality of Lake Sammamish, Kelsey Creek, the Sammamish River, or other creeks in the neighborhood. The quantity of runoff shall protect downstream properties, streambeds and receiving waters from erosion and other adverse impacts.*

In the View Point subarea south of Idylwood Beach Park are erosive soils and steep slopes near the water. These areas should be at the low end of the allowed density range to protect water quality and limit hazards.

N-OV-3. *South of Idylwood Beach Park, development along the Lake Sammamish shoreline shall be limited to a density of four units per acre to protect water quality and limit disturbance of the erosion hazard areas in the far southern part of the neighborhood.*

In addition to protecting the ravines and their wooded slopes, significant concentrations of trees should also be protected. This is particularly the case where other development limitations exist or where the wooded areas have the potential to screen commercial or employment areas from residential neighborhoods. In Overlake three areas meet these criteria: the steep slopes along the northern part of the West Lake Sammamish Parkway, the wooded slopes and terraces on the eastern part of the Microsoft Campus, and the forested buffer along Bellevue-Redmond Road, also on the Microsoft Campus. Redmond also has citywide tree protection policies and regulations that will be implemented in the neighborhood. Other areas may also meet these criteria. Trees along highways and streets should also be kept where other objectives can be accomplished.

N-OV-4. *Significant concentrations of trees should be retained. In Overlake, these areas include the wooded ravines, the steep slopes along the northern part of the West Lake Sammamish Parkway, the wooded slopes and terraces near the west side of Bellevue-Redmond Road, the forested buffer along Bellevue-Redmond Road and trees that have the potential to buffer or screen commercial and employment areas from residential areas.*

N-OV-5. *Trees located along highways and streets should be retained where consistent with accommodating allowed development and buffering residential areas.*

2.2.2 Residential Area Policies

The Land Use and Housing chapters of the Redmond *Comprehensive Plan* contain ~~policies which~~ policies that address the residential areas of the city including Overlake's residential neighborhoods. Other parts of the Overlake neighborhood policies also address issues of concern to the residential areas including transportation, neighborhood protection and parks and recreation.

The vision statement identifies the desired character of the various residential areas in Overlake. This character should be maintained and improved to achieve the vision. These improvements or enhancements may include improvements to streets, parks and other public facilities that make the area a better place to live.

N-OV-6. *The desirable character of Overlake's residential areas shall be maintained and the neighborhood's character and environment enhanced to achieve the vision for the Overlake Neighborhood.*

Given the high level of employment growth in Overlake, Redmond and the Eastside, it is important to maintain our existing residential areas. This will help protect our residential neighborhoods, provide a supply of land for residential uses, and encourage investment and reinvestment in residential uses and neighborhoods since it will be clear that these areas will remain residential.

N-OV-7. *The commercial, Overlake Business and Advanced Technology, Business Park, Manufacturing Park and similar Comprehensive Plan Designations in the Overlake Neighborhood shall not be extended into areas designated primarily for residential uses in the Redmond Comprehensive Plan.*

2.2.3 Shopping and Mixed-Use Area Policies

The shopping area centered on 148th Avenue NE south of SR 520 is a major retail commercial area. Its role is to serve nearby residents and businesses and provide opportunities for siting retail uses that require large sites. Existing businesses include supermarkets, department stores, clothing stores, furniture and appliance stores, restaurants and other shopping and personal services. This vibrant shopping area is shared by Redmond and Bellevue.

The portion of the Overlake shopping and mixed-use area in Redmond has been designated an activity area. Section F of the Land Use Chapter of the Redmond *Comprehensive Plan* describes the uses that will be encouraged and allowed in this area. The Economic Development chapter of the Redmond *Comprehensive Plan* also contains policies that ~~which~~ address the retail commercial areas of the city including Overlake. Other parts of the Overlake neighborhood policies also address issues of concern to the shopping and mixed-use area including transportation, parks and recreation and housing within this area.

The policies in this section address maintaining the economic health of this area. The following section describes efforts to encourage housing in this area.

An analysis of uses and taxable retail sales together with conversations from knowledgeable members of the retail community show that the Overlake retail area is doing well economically.

Redmond should continue to monitor the area to see that it will continue to be economically prosperous. The area should also be made more attractive to shoppers and to improve access to the area.

Redmond and Bellevue have undertaken joint efforts to improve this area, such the coordinated provision of public facilities. The joint reconstruction of 148th Avenue NE is an example of these efforts. The Cities also carry out independent but complementary actions that help maintain the economic health of the area. These actions include economic development planning and providing public facilities and services.

If additional actions are needed to address future changes, they could also be carried independently as complementary actions or together. Such actions may include strategically-planned out public investments to address future problems, targeted marketing activities, and targeted recruitment of retail businesses.

N-OV-8. *Redmond should periodically monitor the economic condition and economic trends affecting the Overlake retail area. Redmond should share this information with the City of Bellevue. Redmond and Bellevue should take coordinated steps to maintain the economic strength of the Overlake retail commercial area as the need arises.*

N-OV-9. *Redevelopment of the retail commercial and mixed-use area shall be encouraged. Redevelopment is encouraged to incorporate housing into this area. Redevelopment should make this area more functional and attractive. Building and site designs and improvements should encourage walking and biking to the area, between stores and shopping centers, and encourage travel by modes other than single-occupancy vehicles.*

N-OV-10. *Accessibility to the shopping area should be improved while continuing to focus on resolving transportation problems within the area.*

2.2.4 Housing Policies in the Shopping & Mixed-Use Area

2.2.4.1 Housing Emphasis Area

Housing has long been allowed in Overlake's shopping and mixed-use area. This area currently has the capacity for 2,300 housing units. Redmond's *Comprehensive Plan* includes construction of about 1,300 housing units in this area between 1993 and 2012. Encouraging housing in this area will help meet the need for housing generated by the quickly growing employment areas in Overlake. Housing close to jobs and shopping can help reduce traffic and the air and water pollution it brings.

However, encouraging housing in this area will be a significant challenge. While stand alone and mixed-use housing are already permitted within the Overlake shopping and mixed use area (shopping/mixed use area), market forces have not generated substantial housing development to date. A more progressive approach is warranted to encourage increased housing production by the market. Part of the retail commercial area should be targeted as a mixed-use residential living environment, emphasizing housing within redeveloped properties.

The design of individual projects and their resulting development pattern should foster a pedestrian-oriented relationship between the human functions of living, working, shopping and recreating. Transit services should support redevelopment by meeting neighborhood circulation needs,

particularly the commute needs of residents who live and work in the Overlake neighborhood. Trails and recreation facilities should be linked to the residential areas through designated pedestrian corridors. Reduced automobile dependency is a companion emphasis and is related to an intended reduction in parking.

N-OV-11. *When redevelopment takes place, it should include mixed-uses in the properties along 152nd Avenue NE south of NE 31st Street (the Housing Emphasis Area). The mix of uses should encourage people to live in the area in addition to working and shopping there.*

N-OV-12. *Along with the existing office and retail uses, the mix of uses at street level within the Housing Emphasis Area should include restaurants, retail commercial uses and professional office and service uses that attract shoppers after working hours. The upper floors should include residential or office uses. Buildings should be oriented to the streets and include design features that encourage pedestrians and biking. Parking shall be located beside, behind or underneath buildings. The d~~D~~evelopment regulations, including parking requirements, ~~shall~~ encourage this type of building and site design.*

Public investments are expenditures by Redmond on public facilities and services. Public facilities include streets, sidewalks, water lines, and sewer lines. Public services include police patrols, fire prevention, and the maintenance of streets and sidewalks. Public investments can provide incentives for private investment. Private developments also often provide public facilities and amenities, such as landscaping and sidewalks. Both public and private investments can make the area more attractive, drawing residents and shoppers.

N-OV-13. *Public investments, street improvements, landscaping, ample sidewalks with street trees and bikeways should reinforce the desired character. Transit routes and facilities should be located where they can effectively serve 152nd Avenue NE.*

A range of incentives should also be developed that encourage housing production and variety in housing types and rents. Incentives can include reduced parking requirements for housing and increases in the floor area allowed for housing. Encouraging housing production in the Overlake retail area will require a combination of regulatory and programmatic actions. Housing progress in Overlake should be monitored over time and adjustments made to the policies and regulations as needed.

N-OV-14. *The City should provide an assortment of incentives that encourage the construction of housing and variety in housing style, size and cost. The City should regularly monitor the number of housing units produced and the effectiveness of its regulations and incentives in achieving its housing objectives. If needed, regulations and strategies should be changed, or new strategies developed, if the desired number of housing units are not built or if there is insufficient choice in the style, size, or cost of housing.*

2.2.4.2 Parking

Reducing the number of parking spaces required can encourage the development of housing by improving its overall economic feasibility. In order to make a lower parking requirement work, the transit system must be located close enough to encourage people to get out of their cars and use the system to commute to work and travel to other destinations. Grocery shopping, retail services and recreation should be within convenient walking or biking distance and located adjacent or connected to designated pedestrian corridors. If these features are not already in place, there must be a commensurate commitment to improve both the alternate modes of transportation, the pedestrian

orientation of the area and recreational opportunities. The effects of reducing parking should be monitored to ensure adverse impacts do not occur.

N-OV-15. *~~Decrease t~~The parking required for multi-family housing located within the Overlake shopping/mixed use area shall be designed to encourage the use of transit. The City of Redmond and the development community and ~~shall work with~~ King County Metro shall work together to ensure ~~that~~ adequate transit service is available~~ to support this lower parking requirement~~.*

2.2.4.3 Height/Floor Area Ratio (FAR)

The development environment in Overlake has not resulted in a notable volume of housing in the retail commercial areas. One and two story commercial and office structures, which generate more economic value, have been constructed on nearly every parcel of land. In order to allow housing to reasonably compete with commercial and office construction, incentives need to be formulated which make housing a more appealing option when redevelopment takes place. Allowing a greater height or a higher floor area ratio (FAR) for the residential portion of structures, or having the FAR maximum apply only to commercial development in a mixed-use building, are examples of ways to increase the attractiveness of housing to prospective redevelopers.

N-OV-16. *Develop a combination of regulatory incentives that encourage multi-family housing when Overlake's shopping/mixed use area redevelops. Height and FAR regulations should provide incentives for including housing in mixed-use projects.*

2.2.4.4 Residential Design

Mixed-use development is well suited to the redevelopment of the Overlake retail commercial area and particularly to that part where increased pedestrian emphasis is desired. Mixed-use developments foster environments where people can live, shop and work in close proximity. Residents can walk to meet their shopping and retail service needs. They can also walk to work.

Vertical mixed-uses along streets, such as ground floor retail businesses with residences in the upper floors of buildings, make the area more attractive for pedestrians. Locating retail uses along the street gives pedestrians something to look at, attracts other pedestrians so that walking seems safer and allows for outside seating and other attractive amenities, rather than large parking lots and driveways along the street that can discourage pedestrians and biking. Awnings and other forms of weather protection for walkers and window shoppers can also encourage pedestrians. Residential design policies can be found in policies N-OV-50 through N-OV-52 in the design section of these policies.

2.2.4.5 Affordability

As housing costs continue to outpace household income, housing affordability is an increasingly important issue, particularly for low- and moderate-income households. While zoning and other regulatory incentives can help make housing affordable to moderate-income households, the level of affordability needed by low-income households commonly requires the additional incentive of direct public assistance — that may take the form of public funding programs, public land donations, development fee waivers and the like. Similarly, partnerships with other public agencies and the private sector can introduce more diverse resources, which can help fund affordable housing. An assortment of affordability measures, sensitive to Overlake's intended development signature, should be developed to support housing projects in Overlake.

N-OV-17. *The City should actively seek public and private sector partnerships to expand the resources which can be combined to make housing more affordable. Create an assortment of regulatory incentives and public funding measures to encourage multi-family development with housing units affordable to low- and moderate-income households.*

2.2.5 Employment Area Policies

The Land Use and Economic Development chapters of the Redmond *Comprehensive Plan* contain policies that address the employment areas of the City including the employment areas of Overlake. Of particular applicability to Overlake is Section F of the Land Use Chapter which addresses the Overlake Advanced Technology Center. Other parts of the Overlake neighborhood policies also address issues of concern to the employment areas including infrastructure.

Overlake is an important employment center, the home to firms and industries of regional, national, and international significance. These industries provide many high-wage jobs. Many of these industries also help to diversify the regional economy. Examples of these industries include insurance, software, medical equipment manufacturing, avionics, space science and distribution.

N-OV-18. *Overlake should continue as an important regional employment center. Industries that provide family wage jobs, export services or goods, or help diversify the regional economy should be encouraged to remain or locate in the area and grow consistent with adopted City policies.*

2.2.6 Policies for Convenient Stores & Services

Overlake's retail trade area provides a wide array of stores and services. These uses serve the neighborhood and the broader community. The residents and employees in the Overlake area provide an important market for these businesses.

As convenient as these services are, many who work in the employment area are one to two miles from these stores and services. This is too far to walk. Encouraging convenience retail stores and services; such as restaurants, convenience stores and dry cleaners; to locate together within the employment area can help meet the daily shopping needs of area employees and nearby residents. This can reduce automobile trips. When these stores and services are located near transit stops, they can help people run errands without the need to drive and encourage activity near transit stops, both of which can lead to greater transit use.

The objective is to locate retail stores and services within walking distance of most employees. Most people will walk a quarter- to a half-mile to convenience retail commercial and services areas. So the clusters of commercial and service uses should be located no closer than a half mile, which allows for a quarter mile radius between the groupings, or nodes. The term node refers to the fact that the commercial uses will be clustered in a specific location. The policies below address the location of retail and service uses and other issues. Additional policy guidance is included in Redmond *Comprehensive Plan* Policies NP-13 through NP-15.

N-OV-19. *Convenience commercial and convenience service uses should be permitted uses in the Overlake Business and Advanced Technology Designation. Such uses should be grouped together at intersections and where mid-block pedestrian connections are provided. These groupings or nodes shall not be located closer to each other than one-half mile measured on streets. If one of the nodes has more than two acres devoted to retail commercial and service uses, the nodes shall be at least one mile apart. The spacing criteria in Policy NP-12 shall not apply.*

N-OV-20. *For freestanding buildings containing just convenience commercial and convenience service uses, no more than forty percent of the development site may be used for convenience commercial and convenience service uses. If included in buildings with other uses, no more than seventy percent of the lot and building ground floor shall be used for convenience commercial and convenience service uses. In no case shall the land occupied by convenience commercial and convenience service uses exceed six acres. The portion of the lot used for parking and landscaping for convenience commercial and convenience service uses shall be included in the percentage and acreage limits.*

N-OV-21. *Sidewalks shall be provided linking employment uses and nearby residential neighborhoods with the nodes.*

N-OV-22. *The allowed convenience commercial and convenience service uses may include convenience grocery stores, supermarkets, sit down restaurants, dry cleaners, banks, post offices, recreational facilities, health clubs, day care facilities and similar commercial and service uses that meet the daily needs of employees within the area.*

N-OV-23. *Deliveries and outdoor maintenance activities shall take place during daylight and early evening hours when uses that generate this activity are located adjacent to predominately residential neighborhoods.*

2.2.7 Policies for Continuing Cooperative Efforts between Redmond & Bellevue

Redmond and Bellevue have a long history of cooperative planning and management of the Overlake area. The Cities have collaborated on land use and transportation planning. Representatives of the City of Bellevue and Bellevue neighborhoods were invited to participate in the development of this neighborhood plan. Redmond and Bellevue have jointly prepared a transportation facility plan for the area that includes part of the Overlake Neighborhood. They share transportation resources. For example, Redmond *Comprehensive Plan* Policies TR-17 through TR-19 call on Redmond to maintain memorandums of agreement with Bellevue and other jurisdictions to help fund transportation facilities in these other communities. Both jurisdictions have an interest in maintaining the economic health of the Overlake retail area which they both share. These efforts should continue.

N-OV-24. *Redmond and Bellevue should continue to cooperatively plan to address common problems and capitalize on common opportunities. The two cities should work together to implement jointly agreed plans and strategies.*

Redmond and Bellevue have identified an area in which the two Cities will notify each other of significant projects, comprehensive plan changes and zoning changes. This or a similar notice and comment process should continue to be used. The area should be expanded to include the former Evergreen Highlands Subarea and the same procedures used in both areas. The process should be integrated into each city's review procedures to avoid duplication. In addition, Redmond and Bellevue also have a process for reviewing transportation impacts of developments and sharing impact payments for transportation facilities.

N-OV-25. *Redmond and Bellevue should consult on significant development approvals, plan amendments and development regulations that may affect the other jurisdiction. The purpose of this consultation shall be to address mitigation of potential adverse impacts on the other jurisdiction. The notice area and process should be reviewed periodically to ensure it still fulfills the needs of the two jurisdictions. The citizens of both communities should be involved in the process.*

2.2.8 Transportation Policies

The Transportation Chapter of the Redmond *Comprehensive Plan* includes extensive policies on providing adequate transportation facilities. These policies require that transportation facilities and programs support the City's vision for the future. Transportation facilities are matched to future land uses. A wide range of alternatives to single-occupancy vehicles is encouraged, including two transit facilities in Overlake. In planning for and constructing transportation improvements, residential neighborhoods and the environment are to be protected. The citywide policies also ensure that adequate transportation facilities are available to accommodate growth. This section includes transportation policies and facilities specific to the Overlake Neighborhood.

Bellevue and Redmond share transportation facilities and transportation problems and opportunities in Overlake. The Cities have a history of common transportation problem solving. This should be formalized through regular joint meetings of the Cities' transportation resolution forums, through a body that represents the two jurisdictions, or through some other systematic means.

N-OV-26. *Bellevue and Redmond should systematically coordinate transportation facilities that impact both Cities and address transportation issues and opportunities in the Overlake area that affect them both.*

The need to provide transportation facilities to meet the demands of development and increased travel by existing residents and businesses must be balanced with the need to protect residential neighborhoods. The following policy guides decisions on transportation facilities within low to moderate density residential neighborhoods. Low to moderate density residential neighborhoods have densities of from less than one to 18 housing units per acre.

N-OV-27. *Regional and through motor vehicle traffic shall be directed away from residential neighborhoods. Street improvements in residential areas should provide access to residents, and discourage travel through the neighborhood.*

Another method of protecting neighborhoods from traffic is to encourage regional travel on regional facilities. This will also help provide for regional mobility by directing trips to appropriate transportation facilities.

N-OV-28. *To help minimize trips through residential neighborhoods, travel linking Overlake to other parts of the region should take place on SR 520, the identified high capacity transit/light rail corridor, and any other regional or state facilities that the region may identify.*

As development continues in Overlake and on the Eastside, traffic may seek to cut through residential neighborhoods. The Transportation Chapter provides for a traffic management program, which discourages cut-through traffic and addresses other adverse effects of traffic such as high speeds. The neighborhood and City should work together to identify traffic management needs and solutions.

N-OV-29. *The City shall prepare a priority list of traffic and safety problem areas with the involvement of the Overlake neighborhood. The list shall be updated periodically. Neighborhood residents, businesses, and other community members should be involved in identifying and carrying out solutions to the identified problem areas.*

Sidewalks, bikeways and trails can provide important transportation benefits. A good network of sidewalks allows children to walk safely to school. Well-connected sidewalks and trails allow residents to walk to work. Bikeways allow convenient bicycle commuting and trips to the store. All

of these facilities have important recreational roles as well. The neighborhood and city should work together to identify sidewalk, bikeway, and trail needs and solutions. Figure 2-2 identifies the Overlake Neighborhood Streets.

N-OV-30. *A priority list of sidewalks, bikeways and trails shall be prepared with the involvement of the Overlake neighborhood and be updated periodically.*

Overlake is currently served by transit and this service should be augmented. The transit needs in Overlake include providing service for residents within the neighborhood and the region, providing service to those who work in Overlake, some of whom live in the neighborhood, and providing service to Overlake shoppers. Overlake has a park and ride lot adjacent to the retail area and a transit center is under development at NE 40th Street and 156th Avenue NE. Light rail service to Overlake is included the Regional Transit Authority (RTA) Master Plan.

N-OV-31. *A full range of transit service should be provided to Overlake. Facilities to support these services should be furnished in locations that conveniently serve the neighborhood. As determined in collaboration with transit service providers, these facilities should include a transit center, one or more park and ride facilities, transit shelters at transit stops, and safe and convenient pedestrian connections.*

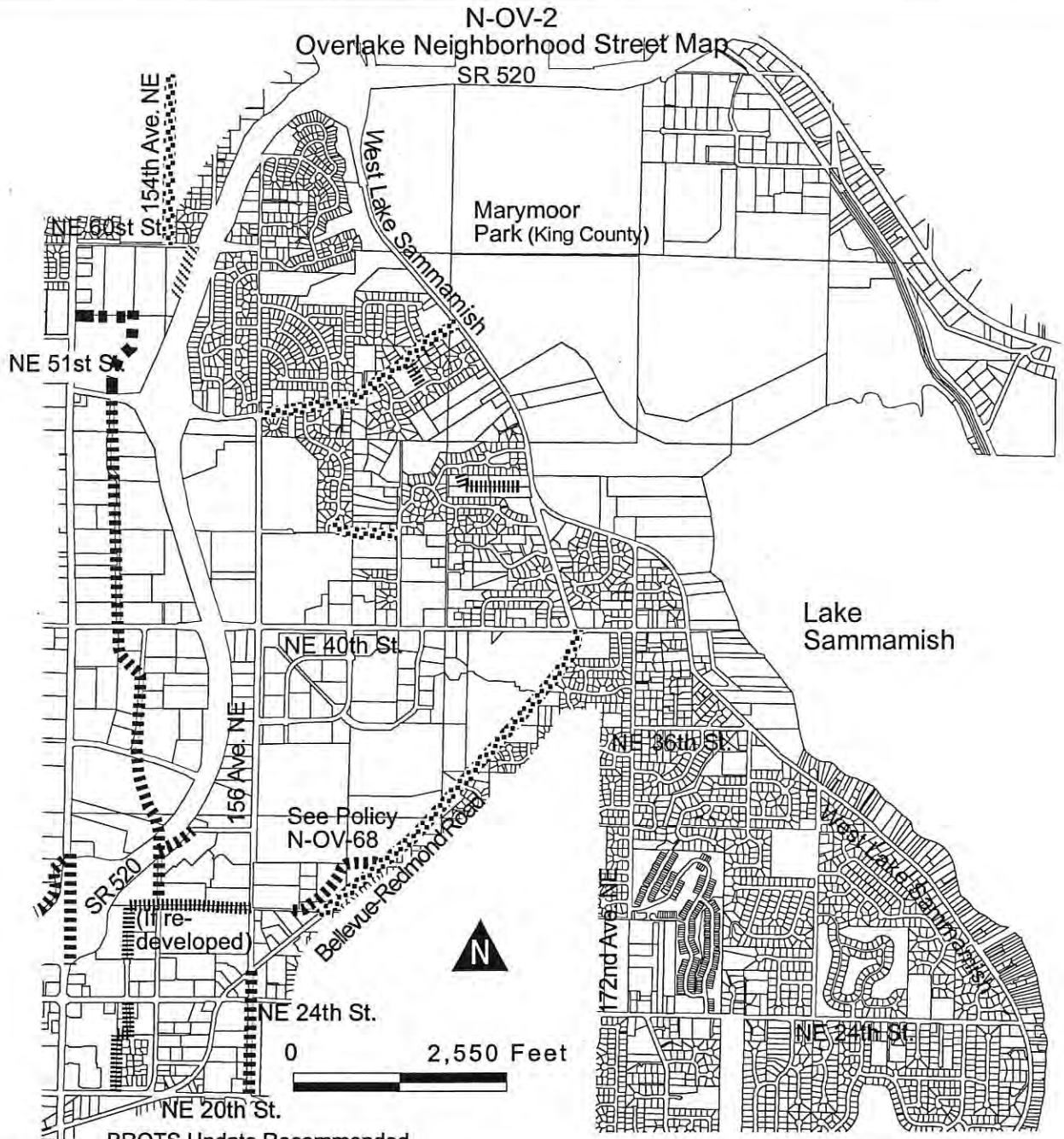
2.2.9 Public Facilities & Services Policies

The Utilities, Capital Facilities, Human Services and Parks & Recreation chapters of the Redmond *Comprehensive Plan* address public facilities and services for the entire city including Overlake. This section includes neighborhood specific policies related to public facilities and services. A separate section on Transportation in the Overlake Neighborhood precedes this section.

2.2.9.1 Police Services

During the development of the neighborhood plan, the Redmond Police Department made a presentation to the committee. Police services in Overlake are currently provided out of the Public Safety Building downtown. The Police Department will have a substation at Redmond Town Center downtown and asked the committee if a police substation should be established in the Overlake shopping/mixed-use area. The committee enthusiastically supported the idea.

N-OV-32. *The Redmond Police Department should maintain a police substation in the shopping/mixed use area of Overlake. The substation location should have high visibility to help deter crime. If needed, police substations should be provided in other parts of the neighborhood.*



BROTS Update Recommended Link Facilities (Also see Transportation Facility Plan Map TR-3A)

BROTS Bike and Pedestrian Facilities in addition to BROTS motorized facilities (Also, BROTS Street projects will include planned pedestrian and bike facilities.)

Local Access Street (Project Improvements)

Required Access Points

Private Streets (For mixed ownerships)

Emergency Accesses

Notes:

1. All developments shall provide frontage improvements as required by 20D.210.20-150, *Required Off-Site Street Improvements*, whether the street is shown as a new or improved street by this map or not.

2. If existing large ownerships are divided, additional local access streets may be identified, constructed, and dedicated when the division occurs to serve existing and future development.
Developments shall provide internal public or private streets necessary to accommodate anticipated traffic and emergency access.

0 2550 Feet

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Figure 2-2
Overlake Neighborhood
Street Map

2.2.9.2 Water, Wastewater, Stormwater, Fire Services and Other Infrastructure Needs

While the water, wastewater, stormwater, fire prevention and suppression and other public facilities serving Overlake are generally in good shape, some deficiencies do need to be addressed. In addition, growth in Overlake will require expansion of some facilities. The following policy addresses these issues.

N-OV-33. *The water, wastewater, stormwater, fire prevention and suppression services, and related private infrastructure shall be provided to accommodate development in Overlake as developments are occupied. When additional time is necessary to construct public improvements, the improvements may be phased in over six years provided no adverse impacts will occur. Priority shall be directed towards providing facilities to meet the needs of existing development before providing for new growth.*

Comprehensive Plan Policy FC-3 provides that the cost of new capital facilities and capacity improvements should be borne by those who benefit most directly. This policy also provides that the cost of facilities that respond to and mitigate the impacts of growth should be borne by those generating that growth. Policy FC-3 is reaffirmed for the Overlake Neighborhood.

2.2.9.3 Human Services

Human services are provided to the Eastside, Redmond and Overlake by a variety of public and private agencies. The City of Redmond, in partnership with these agencies, works to identify services needs and provides supplemental funding for needed human services.

N-OV-34. *Public and private partnerships should be encouraged to serve the human services needs in the City as a whole and in Overlake.*

N-OV-35. *The City of Redmond and human service providers should anticipate and meet future human services needs. Redmond and human service providers should periodically evaluate human services needs at the neighborhood level. This evaluation should be done as part of neighborhood plans, the City's continuing evaluation of programs and emerging needs and when data, such as the decennial census, becomes available. During the preparation of neighborhood plans, human services staff should be consulted on the human services needs of that neighborhood.*

2.2.9.4 Library

Libraries in downtown Redmond and in Bellevue currently serve the Overlake Neighborhood. While other demands on library resources are recognized, the residential population and large of number of employees in the Overlake Neighborhood may someday warrant a library. The need for a library should be periodically evaluated. Opportunities for a public and private partnership to provide a library should also be considered.

N-OV-36. *The feasibility of a library in the Overlake area should be periodically evaluated. A library should be provided in the neighborhood when the need arises and resources are available.*

2.2.9.5 Parks and Recreation

The residential areas of Overlake are generally well served by parks. However, the retail commercial and mixed-use and employment areas have no parks. A park in the retail commercial and mixed-use area has been identified as the neighborhood's highest priority park and recreation need.

Shopping/Mixed-Use Area:

N-OV-37. *A park system shall be provided within Overlake's shopping/mixed-use area. The purpose of this system is to make the area more inviting. The system shall include open space, a park or parks and pedestrian corridors. This system is Overlake's highest priority park and recreation need.*

N-OV-38. *The open space and parks should be sized and designed to meet the needs of shoppers and those who work and live in the area. The facilities should include a place to gather, to rest, to eat and to engage in recreational activities that do not require large amounts of space. Trees and plants should be provided for shade and relief.*

N-OV-39. *The pedestrian corridors shall be designed and constructed to enhance pedestrian safety and pedestrian use of the area. The system should include sidewalks with landscaped planting strips and street trees separating the pedestrians from the street where feasible. The pedestrian system should connect businesses within the retail area with each other and with transit. Pedestrian corridors on public rights of way or public property should include street furniture, such as benches, to make them functional and inviting.*

N-OV-40. *Safe and attractive accesses through parking lots should connect retail trade and service businesses within Overlake.*

N-OV-41. *A pedestrian overpass across 148th Avenue NE should be considered to tie the shopping/mixed-use area on both sides of 148th Avenue NE together.* ~~*The overpass should be wide enough for plantings and to make it attractive to use.*~~

Employment Area:

N-OV-42. *The two special use parks identified in the Parks, Recreation and Open Space (PRO) Plan should be developed within the employment area. One park is proposed for the west side of SR 520. The other special use park is proposed for the east side of SR 520 south of NE 40th Street.*

The conceptual location of these parks is shown on Map N-OV-1 (Figure 4-1).

Residential Area and Neighborhood-Wide Policies:

N-OV-43. *Additional open spaces and recreational areas should be encouraged throughout the Overlake Neighborhood.*

N-OV-44. *Public and private partnerships should be encouraged to provide additional parks, open space and pedestrian corridors throughout the Overlake Neighborhood.*

Many of the businesses that call Overlake home are subject to rapid change. The physical development of Overlake has also occurred quickly. Park facilities and street furniture that are solidly built, such as stone benches or stone street accents, can help give the area a sense of permanence.

N-OV-45. *The design and construction of parks, open spaces and street furniture should have a sense of permanence.*

In all areas of the Overlake Neighborhood, there are gaps in trails and pedestrian corridors. The gaps should be filled.

N-OV-46. *The City should work with private land owners and easement holders who have trails, or where trails can be developed, to provide a connected multi-use trail, pathway and sidewalk network in the Overlake Neighborhood. Redmond trail development should focus on closing gaps in this system.*

The Bridle Crest Trail and the Sammamish River Trail pass through the Overlake Neighborhood. These trails are owned and maintained by King County. The trails connect Bridle Trails State Park, Westside Park and Marymoor Park. They also connect to the City of Redmond trail system. Through this system you can ride or walk to the Watershed Park and the extensive trail system east of Redmond. The Sammamish River trail runs north, linking Redmond with Woodinville, Bothell, Shoreline and Seattle. This far-reaching system of riding trails is an important asset for the Eastside, Redmond and the Overlake Neighborhood.

N-OV-47. *The equestrian and multi-use trails within the neighborhood should be maintained and protected. Where the trails cross streets or highways, the crossings should be designed for equestrian and pedestrian safety. The equestrian trail and multi-use trails that connect with them should include a soft surface trail for equestrians, walkers, runners and joggers.*

2.2.9.6 Community Improvements

Encouraging neighbors to work to together to improve parks, parking strips and other parts of the neighborhood can unite the community and help them become a part of their neighborhood. City programs, such as Redmond's Neighborhood Matching Fund Program, can help encourage such efforts.

N-OV-48. *Initiate and encourage community involvement to foster a positive civic and neighborhood image by establishing programs to physically enhance neighborhoods.*

2.2.10 Design Policies

Design refers to the form and structure of buildings and sites. The following policies guide building and site design in Overlake. The initial policies setout the design concepts for the various areas of the neighborhood. Later policies provide additional design guidance. In addition to these policies, the Land Use Chapter of the *Comprehensive Plan* includes policies on design. Redmond has an adopted set of design standards with which building and site design must comply. Map N-OV-1 (Figure 4-1) shows the areas to which the policies refer.

N-OV-49. *The design concept for the Shopping and Mixed-Use area is to maintain a low-rise suburban shopping and service district. Residences are also encouraged. Building and site design should provide for visibility and access for automobiles while encouraging pedestrian use, biking, and transit use. Buildings may be located along the street on NE 24th Street, 152nd Avenue NE, and Bellevue-Redmond Road. Street trees and landscaping shall~~should~~ provide green space between the buildings and the street.*

N-OV-50. *The design concept of the Housing Emphasis Area, part of the Shopping and Mixed-Use Area, is to provide a mix of residences, shops, services, and offices with the following characteristics.*

- *Both mixed use and single use buildings are allowed.*
- *Buildings that include housing should include traditional residential architectural design chapters as defined in Policy N-OV-52.*
- *Balconies overlooking streets and courtyards should be encouraged on residential buildings.*
- *Buildings along 152nd Avenue NE should be located close to the street, be well articulated, and minimize blank walls.*

- *Views should be attractive from the street and have visual interest to encourage pedestrian use.*
- *The scale of buildings should be three to five stories.*
- *Buildings that include housing shall include open space and recreational areas.*

Traditional residential architectural design chapters represent strong chapters of residential identification in Redmond and should be incorporated into all residential developments. Some design related policies refer to well articulated buildings. A building is well articulated if its walls and other exterior surfaces are divided into parts that are then organized into a coherent design for the whole building or development. By dividing the walls into parts, which, for example, may be made up of different surface depths or treatments, the apparent size and bulk of the building is reduced. By organizing the parts into a coherent design, the design is pleasing and does not result in a mish-mash of unrelated and, therefore, unattractive features.

N-OV-51. *Mixed-use projects with traditional residential architectural design elements should be encouraged in the redevelopment of the Overlake retail commercial area. Traditional residential architectural design features~~elements~~ include pitched roofs, ~~chimney forms,~~ clearly identifi~~ed~~able windows, modulated walls, ~~and balconies~~ and may include such other features as chimney forms, balconies, and other design features. Mixed-use developments should predominate in the housing emphasis area, particularly along pedestrian corridors, and be located close to transit facilities.*

N-OV-52. *The design concept for the Employment Area is for a moderate intensity research and development, office, high technology manufacturing, and distribution district. The scale of buildings should be from two to four stories. Where well separated from residential neighborhoods and where natural features and open space will be protected, five story buildings may be allowed. Building and site design should be well integrated with other buildings in the same complex and with nearby developments. Street trees, trees onsite, landscaping, open space, and recreational areas should provide a sense of openness for the site and the neighborhood.*

N-OV-53. *In the Moderate and High Density Residential Comprehensive Plan Designations, buildings and sites should have a residential character. Buildings should have pitched roofs, identifiable entrances, identifiable window frames, and may have a chimney form. Balconies overlooking streets and courtyards should be encouraged. Rooflines should be varied. Housing developments along Lake Sammamish should be designed so housing units have views of the lake. ~~Significant trees shall not be removed to create or enhance views. Site and building design should maintain views of the lake from public streets and nearby properties.~~*

N-OV-54. *Within the employment area, building and site design shall encourage pedestrians, biking, transit use, and other non-single-occupancy transportation modes. Examples of such measures are included in the Green Street policy, other comprehensive plan policies, and the design review standards. On-street parking should be allowed within the employment and commercial areas to encourage pedestrians.*

N-OV-55. *In all areas, building facades shall be varied and articulated to provide visual interest. Buildings shall not have a bulky or massive appearance.*

N-OV-56. *Urban design, building design and site design shall be of high quality. Developments should be designed for long-term use. Building and site materials shall also be of high quality.*

N-OV-57. *Neighborhood residents, property owners, area employees and the broader community should periodically evaluate design in the Overlake Neighborhood to ensure community objectives are being met through site and building design.*

Figure 2-3 identifies Green Streets and Neighborhood Protection Streets. The purpose of Green Streets is to encourage pedestrians, biking, and transit use and to provide for an attractive streetscape. The design and improvement of such streets is described in the following policy.

N-OV-58. *Green Streets shall be characterized by the following features:*

- *Buildings arranged on the site to minimize walking distances between other buildings in the complex and the street. Buildings on or near Green Streets should be located within 1,000 feet of a transit stop.*
- *Parking lots located to the side or rear of buildings that front on Green Streets for their entrances.*
- *Persons waiting for public transit are sheltered from the weather. Buildings should include lobbies from which occupants can see transit vehicles approaching the stop. Transit shelters shall be provided at transit stops on Green Streets.*
- *Ten~~Eight~~-foot wide sidewalks next to transit stops and six~~five~~-foot wide sidewalks in other areas. Where stores are located along streets, sidewalks should be eight~~six~~-feet wide.*
- *Pedestrian facilities, such as benches and streetlights, at transit stops.*
- *Street trees and adequately sized planting strips between the street and sidewalk. At transit stops, sidewalks should extend to the street.*
- *Transit stops every 2,000 feet along the street.*
- *Street treatments that enhance pedestrian crossings at intersections and transit stops.*
- *Shops and services sized to fit the area should be located at major transit stops.*

One of the most important factors in encouraging transit use is sufficient density to support frequent transit service. Frequent service makes riding transit more attractive. The area along 156th Avenue NE has the potential to provide for a concentration of uses that will support frequent transit service. This is also an area now served by all day transit service. A minimum building intensity should be required along this street to encourage transit. It will also help protect residential neighborhoods by encouraging the highest concentration of development away from residential areas.

N-OV-59. *Encourage higher intensity employment development within walking distance of 156th Avenue NE north of NE 31st Street and south of NE 40th Street and encourage lower intensity development near Bellevue-Redmond Road.*

2.2.11 Neighborhood Protection Policies

Overlake's employment and shopping and mixed-use areas abut residential neighborhoods on the south, east, north and west. These high quality neighborhoods help support retail and services uses. They also help make the area a desirable business location. Maintaining the high quality of these neighborhoods is an important community objective.

Five techniques will be used to maintain the high quality of these neighborhoods. First, policy N-OV-7 prohibits commercial and employment zones from expanding into primarily residential neighborhoods. This will help separate incompatible uses. Second, incompatible uses will be separated using transitional zones, transitional regulations, and site and building design. Third, transitional policies, transitional regulations, and building and site design will be used to make buildings visually compatible with nearby residential neighborhoods. Fourth, operational policies

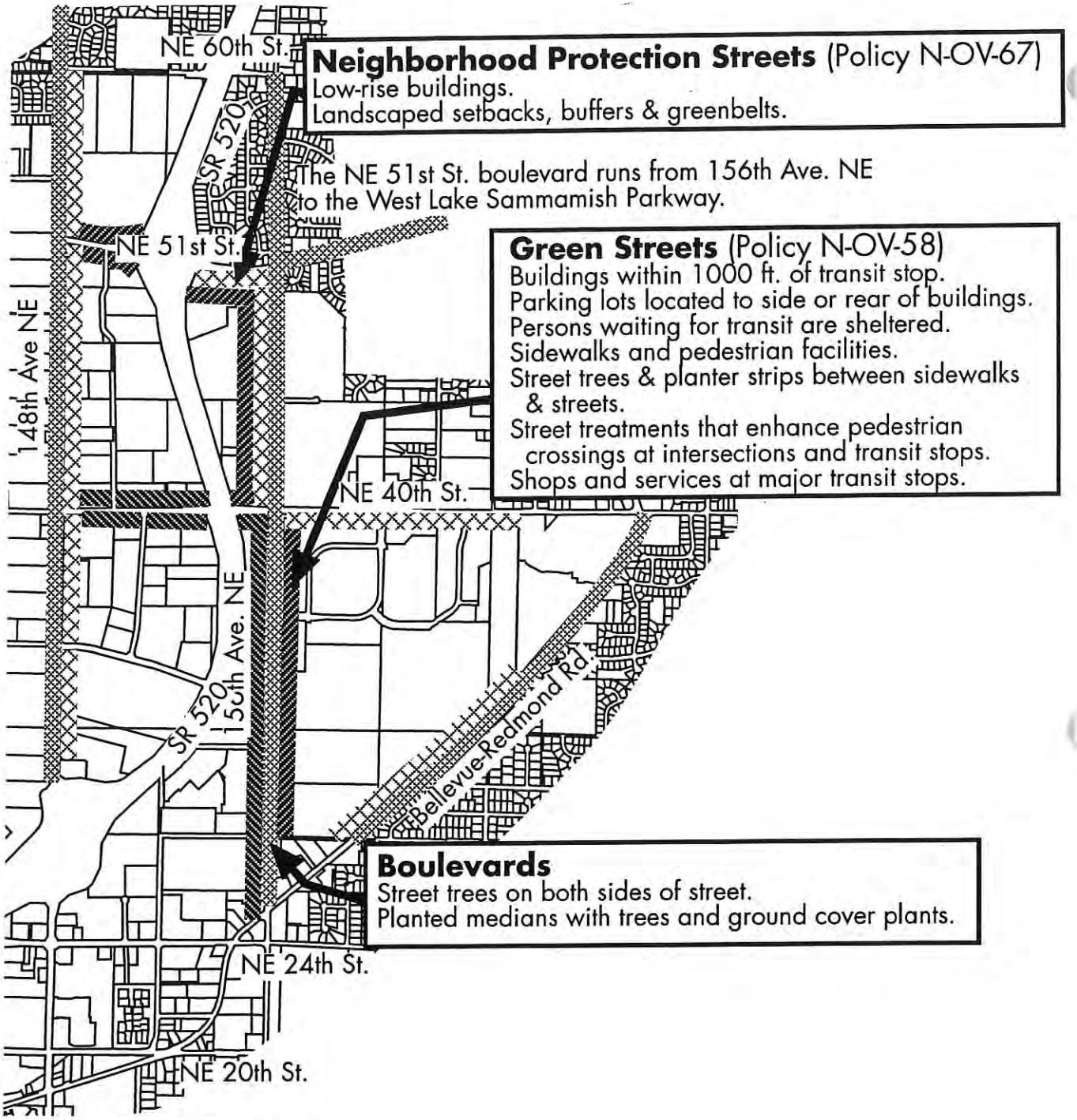

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Figure 2-3
Street Types

and regulations will limit adverse effects from noise and other adverse impacts of construction, operations, and maintenance. Fifth, adverse impacts from traffic will be lessened through transportation improvements to encourage traffic to use appropriate facilities and traffic management that discourages use of residential streets.

The policies related to transportation can be found in the transportation section of these neighborhood policies and the Transportation Chapter of the *Comprehensive Plan*. The policies related to the other techniques can be found in this and other chapters. For example, Land Use Chapter Policy LU-116 requires that uses on the edges of zones should be chosen to minimize adverse impacts on nearby sensitive uses. Land Use Chapter Policy LU-92 requires that building placement and landscaping should be used to separate potentially conflicting uses. Machinery, service areas, and loading docks are to be screened from less intense uses.

The neighborhood specific policies are setout below. The first policy establishes the overall policy on neighborhood protection. The balance of the policies address specific techniques.

N-OV-60. *Residential Neighborhoods in Bellevue and Redmond shall be protected from potentially adverse impacts of uses and activities from the shopping/mixed-use and employment areas of Overlake.*

The term "zone" refers to a zoning district, an area mapped on the official zoning map that regulates the uses that can occur in that area. Transitional zoning is the technique of placing a zone with less impacting uses between a zone with sensitive uses and a zone with uses that generate more impacts. In Overlake, this is done by placing multi-family zones between primarily single-family zones and employment zones such as the Overlake Business and Advanced Technology zone. The single-family zones include uses that are most sensitive to noise and other adverse impacts.

N-OV-61. *The existing multi-family residential comprehensive plan designations that act as transitional zones in the Overlake Neighborhood shall be retained.*

Policies and regulations can provide for transitional uses and design. Transitional uses refer to limiting uses abutting or near sensitive uses to those with less potential adverse impacts. Transitional design focuses on building and site design to minimize impacts on nearby uses.

N-OV-62. *Uses with impacts, such as noise and glare, that may adversely affect nearby uses shall be located on the site to minimize such conflicts.*

N-OV-63. *Site and building development requirements and other regulations should provide for transitional uses and transitional building and site design to protect nearby residential neighborhoods. Techniques used should include providing for height limits, directing taller buildings away from residential neighborhoods, limits on building bulk, limits on building placement, site and building lighting limits, requirements for landscaping, noise control and other appropriate measures.*

N-OV-64. *Transitional regulations that include a maximum floor area ratio (FAR) and a greenbelt and buffer shall be provided along the west side of Bellevue-Redmond Road between NE 28th Street and NE 40th Street.*

Poorly located driveways and streets can adversely impact residential neighborhoods through motor vehicle noise and headlight glare. Good locations and design can minimize or eliminate these impacts.

N-OV-65. *The location of driveways and streets should minimize through traffic on primarily residential streets and reduce other adverse impacts on residential neighborhoods.*

Even well selected and well designed and constructed uses can result in incompatibilities. For example, many site maintenance activities generate noise. These incompatibilities can be reduced by using equipment that generates less noise and conducting noisy activities during the day when that is feasible. Carefully selecting techniques that have the lowest impact and performing them during times when impacts will be minimized can reduce or eliminate these incompatibilities. Policies and regulations that address such incompatibilities are referred to as operational policies and regulations. They describe how a use operates.

N-OV-66. *Construction, operations, maintenance, service activities, and other disruptive actions in employment and retail areas shall be scheduled and conducted to minimize impacts on nearby residential uses.*

Figure 2-3 identifies Green Streets and Neighborhood Protection Streets. The designation applies to the side of the street on which it is shown. The purpose of neighborhood protection streets is to minimize adverse impacts on nearby residential neighborhoods. The design and improvement of such streets is described in the following policy.

N-OV-67. *Neighborhood Protection Streets shall have the character of boulevards with low rise buildings screened by lush landscaping and generous setbacks. Development on 148th Avenue NE shall also encourage transit use.*

New connections to Bellevue-Redmond Road in employment areas across the street from residential neighborhoods should be carefully designed and constructed to prevent cut-through traffic in nearby residential areas. Neighborhood residents should be involved in the design of any connections so that this issue is effectively addressed.

N-OV-68. *The design of any connection onto the Bellevue-Redmond Road shall be prepared in collaboration with the Sherwood Forest Neighborhood. To minimize pass through trips, any connection onto the Bellevue-Redmond Road east of 156th Avenue NE shall be designed and constructed to prevent through traffic from entering NE 30th Street and flowing to 164th Avenue NE.*

2.2.12 Redevelopment Policies

Overlake has seen substantial redevelopment. This will likely continue. Redevelopment is encouraged provided it meets community goals, policies and requirements.

N-OV-69. *Redevelopment that meets community goals, policies, and development regulations should be encouraged.*

N-OV-70. *Land devoted to surface parking lots should be reduced through redevelopment and construction of underground parking or parking structures. The layout and configuration of surface parking lots should accommodate future redevelopment. Incentives to encourage underground parking or structured parking should be provided.*

2.2.13 Attached Housing in the Low-Moderate Density Comprehensive Plan Designation

The Low-Moderate Density Comprehensive Plan Designation includes the R-4, R-5, and R-6 zones. In Overlake duplexes shall be conditionally allowed use on individual lots. Threeplexes and fourplexes shall be a conditionally allowed uses in new subdivisions where they are given special approval.

The policies use the term density. Density is the number of housing units allowed on each gross acre of land. Duplexes, threeplexes, and fourplexes are allowed to have higher densities than single-family homes, but the minimum density still requires these housing types to be sited on lots that are larger than the lots used to site single-family homes. For example, a duplex is allowed at a density that is 150 percent of the density of a single-family home. An R-4 zone allows four single-family homes on each acre of land, or one single-family home on approximately 10,000 square feet before certain reductions are made. A duplex can be on a lot that is approximately 15,000 square feet in the R-4 zone, not counting certain deductions.

N-OV-71. *Duplexes may be allowed on individual lots in the Overlake Neighborhood. A public hearing shall be conducted as part of the permitting process. The allowed density shall be 150 percent of the allowed density of a single-family home. The City shall review the site and building design to ensure its scale and materials fit the neighborhood. At the hearing, the design of the building shall be considered.*

N-OV-72. *Threeplexes and fourplexes may be allowed on lots in new short and long subdivisions specifically approved for these housing types. A public hearing shall be conducted as part of the permitting process. The City shall review the site and building design to ensure its scale and materials fit the neighborhood. At the hearing, the design of the building shall be considered. The allowed densities of threeplexes and fourplexes shall be 150 percent of the allowed density of single-family homes.*

N-OV-73. *Duplexes, threeplexes, and fourplexes shall have pitched roofs, identifiable entrances, and identifiable window frames. A chimney form should be encouraged. Porches and balconies overlooking streets should be encouraged.*

N-OV-74. *A density bonus shall be provided for duplexes, threeplexes, and fourplexes occupied by low- and moderate-income households.*

2.2.14 Growth and Development Policies

In mid-1995, buildings in Overlake occupied by retail, office, research and development, manufacturing, and distribution uses totaled 7~~9.3~~ million square feet. Redmond's *Comprehensive Plan* adopted a target of ~~11.6~~ 11.4 million square feet of building space for 2012. The Overlake Neighborhood Plan recommends that the 2012 target be increased to 15.4 million square feet.

N-OV-75. *The Overlake Neighborhood Plan allows a total development capacity of 15.4 million square feet of retail, office, research and development, manufacturing, and distribution uses within Redmond's Overlake Neighborhood. A trip cap should also be provided for and the additional development allowed under the trip cap should be accommodated if there is no increase in peak non-transit motor vehicle trips. The public facilities and services necessary to accommodate this growth are required by this neighborhood plan. As more transit services become available in Overlake or progress is made towards meeting non-single-occupancy vehicle travel objectives, the amount of development that can be accommodated should be reevaluated.*

The 2012 growth target will be served by the transportation capacity provided by the transportation facilities recommended in the Bel-Red/Overlake Transportation Study (BROTS) Update. The BROTS Update was a companion study to the neighborhood plan. Growth in new buildings shall be paced with the construction of the BROTS Update transportation facilities and the availability and use of non-single-occupancy vehicle travel modes. The word "pace" is meant to communicate that growth in buildings and transportation capacity would increase at roughly the same rate over several years. In one year building space may grow faster than transportation capacity. In the next year or two, transportation capacity would catch-up or even exceed the rate of growth in building space for the past two or three years as new transportation facilities are completed. In 1997 and 1998, Redmond had a citywide moratorium on non-residential development to allow the city to plan for future employment growth beyond the targets in the 1995 *Comprehensive Plan.* That is the moratorium referred to in policy N-OV-76.

N-OV-76. *Growth in Overlake shall pace the availability of transportation facilities and the expansion and use of transit and other non-single-occupancy vehicle travel modes. A mechanism to pace growth and transportation facilities shall be adopted before the current moratorium expires.*

2.2.15 FAR Ranges for Overlake in the Comprehensive Plan

The *Comprehensive Plan* for Redmond includes allowable densities for zones within the Redmond Overlake Neighborhood. The allowable densities can be extrapolated to predict an ultimate buildout scenario, a scenario that shows the maximum number of residential units and the maximum square feet of floor area for commercial, office and industrial uses that could be targeted to be built by 2010/2012. For Redmond, the extrapolation was based on a range of FARs established by the *Comprehensive Plan* as a basis for further study in developing the ONP. The FARs are as follows:

Comprehensive Plan Designation	Range of FARs
• Advanced Technology Center;	• 0.45 to 0.70 (except in Evergreen Highlands subarea where current FARs of 0.20, 0.30, and 0.40 will prevail);
• Overlake Business and Advanced Technology Center;	• 0.35 to 0.60;
• Commercial;	• 0.30 to 0.50;
• Design District.	• 1.10 (May be modified by Design District Regulations).

These figures were used as inputs into the transportation models that eventually resulted in the BROTS projects. Transportation is discussed more thoroughly in Chapter 3.

2.2.16 Recommended City-Wide Policies

2.2.16.1 Land Use Chapter (Amend Policy N-OV-132 as follows:)

N-OV-132. Design District Designation

Allowed Uses and Description. The Design District designation should allow for an appropriate mix of uses and structure types. Densities and intensities should be determined based on the suitability of the area for development. Design District designations shall support the preferred land use pattern identified in this plan and the other policies of this plan. As part of the process of approving new Design District designations, a specific development plan or site plan shall be prepared for the area. This development plan or site plan shall specify the allowed uses, the allowed intensity and any specific review requirements and standards that may be required to adequately manage the design district or mitigate adverse impacts on the community, neighborhood or environment. The plan shall include substantial public involvement from the neighborhood in which it is located. Where a Design District Designation is applied to an existing use or uses that do not have such a development plan or site plan, that use shall prepare a plan in five years or before approving a substantial change, whichever is later. During the time the plan is being prepared, the preexisting development regulations shall apply to that site unless policies or regulations apply other provisions to the site. The development plan or site plan shall be approved through the same process as a plan amendment, when establishing the Design Designation, or a rezone that is consistent with the Comprehensive Plan if the designation already is applied to the property. The development plan or site plan should contain a provision for periodic updates every five to 10 years.

2.2.16.2 Transportation Chapter

Currently, Redmond staff, the Planning Commission and the City Council all address transportation issues and opportunities in Redmond. Both the Planning Commission and City Council have many other duties. A forum that focuses on transportation issues and opportunities in Redmond would give them greater visibility and speed their resolution.

TR-XX. *The City should provide a forum to address and resolve transportation issues within Redmond.*

~~An approach to identifying traffic needs and solutions is to prepare a neighborhood traffic management plan. Such a plan can address traffic problems, safety hazards, potential solutions and improvements that encourage pedestrians and biking.~~

~~TR-XX. *For neighborhoods with significant traffic management problems, the City and neighborhood should prepare a neighborhood traffic management plan.*~~

The location of crosswalks can play an important role in encouraging pedestrians and transit use. Well-located street crossings can reduce walking distances, encouraging people to walk or take transit because transit stops are easy to reach. In Redmond, many blocks are quite long. Providing crossings only at intersections substantially increases walking distances. This can discourage pedestrians or encourage people to cross streets where no crosswalks exist. On arterials and collectors, this can be quite hazardous. Mid-block crossings can solve these problems. Mid-block crossings are particularly important where complimentary uses are located across collector or

arterial streets. For example, if a residential neighborhood is on one side of a collector and a school on the other, a properly located mid-block crossing may increase safety for school children. Similarly, where businesses will occupy buildings on opposite sides of the street, a mid-block crossing can discourage driving and encouraging walking. A mid-block crossing between a restaurant and a office can also encourage walking.

Crosswalks are the preferred type of crossing because they are more economical and people are more likely to use them. In limited locations, a grade-separated crossing may be justified. Perhaps the most effective way to increase the safety of crossing streets four or more lanes in width is to provide a raised median in the center of the street. This allows pedestrians to cross the street even when they think they can only get half way across. It also makes pedestrians more likely to cross because they only have to worry about traffic coming from one direction. They can stop and look the other way while in the protected median. A median refuge with its landscaping gives wide streets a more pedestrian scale, encouraging walking.

TR-47A. *Crosswalks or grade-separated crossings shall be provided across arterial and collector streets at a reasonable spacing. Crossings shall be located at intersections and mid-block locations where a crossing is needed.*

TR-47B. *Mid-block crossings should be provided on long blocks, to connect transit stops on opposite sides of the street, and to connect developments or buildings that are likely to have significant foot traffic between them because the uses are complimentary or they will be occupied by related firms. Mid-block crossings should only be located where a safe crossing will result.*

TR-47C. *Surface crossings of ~~wide~~ streets <u>or four more lanes wide</u> should include a raised median to provide a refuge for pedestrians.*

2.3 ONP Development Regulations

The Overlake Neighborhood Plan Development Regulations are in Chapter 9 of this FEIS.

3. BROTS Update

3.1 Introduction

The BROTS was originally developed in 1986 to address transportation issues in the Bellevue and Redmond Overlake area. The Study consisted of a set of policies and recommended transportation projects to alleviate congestion and promote alternative modes of transportation to reduce dependence on single-occupancy vehicles. Figure 1-3 shows the study area.

The original BROTS was adopted by the Cities in 1988. The status of the projects is shown in Table 3-1 and varies from being completed or under construction, to being partially completed, or to being eliminated from further consideration. Details of the eliminated and partially completed projects can be found in Technical Memorandum #2, Appendix C-2, page 5.

Existing transportation data has been assembled from the Cities of Redmond and Bellevue. These data were researched to form the foundation for development of the BROTS Update. Most existing conditions data are for 1995, the point at which the BROTS Update study began and are discussed in Chapter 4, Section 4.7, Existing Transportation Conditions. Background details on arterial classifications, speed limits, accident data and a lane and intersection inventory can be found in the Technical Supporting Record in Appendix C-2, Technical Memorandum #2.

3.2 BROTS Preferred Vision Statements and Policies

The vision statements describe the transportation system of the Study Area in the year 2010/2012 to show how the BROTS Update can help achieve Bellevue and Redmond's goals. This vision for the future of the study area guides transportation analysis and the development of the recommended improvement plan. The policies help to implement the vision, and both will be adopted into the existing *Comprehensive Plans* for Redmond and Bellevue. The citizens and business representatives who comprised the Transportation Review Group (TRG), adopted the Vision Statements.

3.2.1 Vision Statements

General

- The Bel-Red/Overlake area is recognized as a vibrant commercial and residential area with a mix of activities and uses.
- Alternatives to single occupant vehicles are highly used, such as public bicycles, electric mini-cars and transit shuttles.
- Congestion is recognized to accomplish goals in some areas, by encouraging walking bicycling, busing, rather than driving alone.

Table 3-1: Status of 1986 BROTS Projects

Number	Responsible Jurisdiction[d]	Project Name	Improvement Description	Status
A-1	B	116th Ave.. NE/NE 12th St.	Add turn lanes	Partially Completed
A-3	B	Northup Way: at NE 24th St. and at 120th Ave. NE	Median lane, signals	Completed
A-5	B	NE 18th Pl.: 116th Ave. NE - 132nd Ave. NE[a]	New 3-lane road	Not Completed
A-6	B	124th Ave. NE/Bel-Red Rd.	Add turn lanes	Partially Completed
A-7	B	140th Ave. NE/Bel-Red Rd.	Add turn lanes	Completed
A-8	B	140th Ave. NE/NE 24th St.	Turn pockets	Not Completed
A-9	B/R	140th Ave. NE: NE 24th St. - NE 70th St.	Add median turn lane	Not Completed/TFP[b]
A-10	B	140th Ave. NE/NE 40th St.	Turn pocket, 4-Way Stop	Not Completed/TFP
A-14	R	NE 70th St.: 132nd Ave. NE - 148th Ave. NE	Widen to 4 lanes[c]	Not Completed/TFP
A-15	B	146th Ave. NE: NE 20th St. - NE 24th St.	New 2-lane road	Not Completed
A-16	B/R	148th Ave. NE: Bel-Red Rd. - NE 24th St.	Boulevard with median, signals	Completed
A-18	B	NE 20th St./152nd Ave. NE/Bel-Red Rd.	Intersection revisions	Not Completed
A-20	R	NE 29th St.: 156th Ave. NE - Bel-Red Rd.	New 2-lane road	Not Completed/TFP
A-21	R	NE 29th St.: 152nd Ave. NE - 156th Ave. NE	New 2-lane road	Not Completed
A-22	B	NE 29th Pl.: NE 24th St. - 148th Ave. NE	New 2-lane road	Not Completed/TFP
A-24	R/W	NE 36th St. (Biotech Rd.) Bridge	New bridge over SR 520	Not Completed
A-25	R	148th Ave. NE/NE 51st St.	Add turn pockets	Partially Completed
A-26	R	156th Ave. NE/NE 51st St.	Add turn lanes	Partially Completed
A-27	W	SR 901 under SR 520	Widen to 5 lanes	Not Completed/TFP
A-28	W	Leary Way/SR 901	Add turn pockets	Partially Completed
A-29	R	NE 23rd St.: 152nd Ave. NE - Bel-Red Rd.	Upgrade alley to 2-lane road	Partially Completed
A-30	R/W	SR 901: south of SR 520	Widen to 5 lanes	Not Completed/TFP
A-31	R/W	SR 901: south of NE 51st St.	Widen to 3 lanes	Not Completed/TFP
A-33	B	NE 40th St.: 140th Ave. NE - 148th Ave. NE	Add median lane	Not Completed
AH-4a	B	124th Ave. NE/Northup Way	Turn pockets, HOV bypass	Completed
AH-4b	B	124th Ave. NE/Northup Way	NB-SB tunnel	Not Completed
AH-19b	B	156th Ave. NE: NE 24th St. - NE 31st St.	Add HOV curb lane SB	Not Completed
AH-23	R/W	NE 31st St.: 148th Ave. NE - 156th Ave. NE	New 3-lane road, HOV access	Not Completed
AH-32	R	156th Ave. NE/NE 31st St.	Add HOV bypass lane WB	Not Completed
F-1	W	SR 520/130th Ave. NE	Add ramps/weave lanes to east	Not Completed/TFP
F-2	W	SR 520/148th Ave. NE	Add EB off ramp	Not Completed
F-5	W	SR 520/Sammamish River Bridge	Add 2 lanes across river	Under Construction
F-6	W	SR 520: I-405 - 124th Ave. NE	Add weave lanes	Completed
FH-7	W	SR 520 corridor ramp metering	HOV-priority ramp metering	Not Completed
T-4	M	Subarea Transit Center	Near NE 24th/148th/SR 520	Not Completed
T-5	M	Move Park/Pool/Ride Lot	Near NE 40th St./SR 520	Not Completed/TFP
T-7	W	SR 520 Transit/HOV Facility	Preserve ROW for future	Completed

Source: Bel-Red/Overlake Transportation Study, June, 1986.

a) Between 120th Ave. NE and 132nd Ave. NE in Long Range Plan
b) Not completed but included in the Transportation Facility Plan
c) Revised to three (3) lanes - 6-Year Plan includes 140th to 148th
d) Responsible Jurisdiction: B=Bellevue, R=Redmond, W=Washington State Dept. of Transportation, M=Metro

Regional facilities

- Peak commute trips are effectively drawn to and from the regional system without adverse effects to the neighborhoods.
- SR 520 is a primary component of our regional transportation system, which is enhanced to ensure its efficiency, including grade separations.
- A transit system is well developed with urban service levels. The system provides access to rapid transit and other regional facilities. High frequencies and wide coverage are provided. Facilities support efficient transit circulation through residential and commercial neighborhoods.

Residential neighborhoods

- Transportation facilities in neighborhoods provide excellent pedestrian access. This includes pedestrian facilities that are separated by grade. The transportation facilities add to the attractiveness of neighborhoods.
- Neighborhoods are protected from adverse traffic by using various traffic calming techniques and design elements to discourage cut-through traffic. These elements include, but are not limited to; road narrowing, speed bumps, stop signs and traffic circles.
- Residents have good access to transit services and facilities and essential services such as shopping, schools, hospitals, etc.
- Neighborhoods are designed such that non-local traffic is impeded from entering into the residential neighborhoods.

Business and commercial neighborhoods

- Effective transportation demand measures are used to reduce automobile trips including parking management and pricing techniques, and encouraging flex-scheduling and flexible work days for employees. Many employees use telecommuting.
- Retail and commercial areas have a good arterial network. This includes a workable grid with connections over SR 520.
- Retail traffic circulates efficiently through the commercial neighborhoods. Good local access to businesses is provided.
- A well-developed pedestrian facility network is in place, including wide sidewalks, attractive landscaping, and bike lanes. The network also provides a safe environment for pedestrians and bicyclists.

Funding for transportation facilities

- As a regional employment center, federal, state and local resources are devoted to this area in order to support the area's activities which bring major benefits to the region.
- Economic development is an important means for achieving transportation improvements.

3.2.2 Non-motorized Transportation Policies

Transit Policies

In order to improve the transit system which serves the Bel-Red/Overlake area, the Cities of Redmond and Bellevue should:

- Continue to work with King County to enhance and modify transit services.
- Evaluate each proposed roadway improvement for opportunities to increase the speed and reliability of transit.
- Consider transit signal priority on all of the priority level one transit corridors, at priority movements and to and from transit hubs.
- Evaluate pedestrian access within one-quarter mile of transit priority corridors.
- Consider prioritizing roadway projects that increase the speed and reliability of transit on transit priority corridors.

3.3 TRG Recommended Network (Network E)

3.3.1 Development Of TRG Recommended Network

The 1995 level of service (LOS) analysis indicates that there are ten BROTS study area intersections that operate at LOS E and an additional six intersections that operate at LOS F. The remaining 35 intersections included in the analysis operated at LOS D or better in 1995.

The LOS standards established by Bellevue and Redmond are based on average volume/capacity ratios of specified intersections within analysis districts: Mobility Management Areas (MMA) in Bellevue and Transportation Management Districts (TMD) in Redmond. The BROTS study area includes three MMAs and two TMDs from the two cities. In 1995, the average volume/capacity ratios in four of the five analysis districts were within the standards set by the cities. However, the average volume/capacity ratio for intersections in the Grass Lawn TMD (Redmond) exceeded the standard in 1995.

Peak period transit service with 15-30 minute service frequency is provided on most major travel corridors in the BROTS Update study area. Generally, transit routes on SR 520 serve Redmond to Seattle commuter and express routes. Transit service on Bel-Red Road links the Bellevue and Redmond downtown areas. Transit service on 148th Avenue links the Overlake Park-and-Ride to the Eastgate Park-and-Ride and serves north-south movement across I-90. Transit service on NE 20th Street links downtown Redmond to the Bellevue Transit Center and Overlake Park-and-Ride to downtown Seattle.

The roadway system does not include a complete system of non-motorized facilities such as sidewalks or bicycle lanes. As an indication of the lack of sidewalks, the Bellevue State of Mobility Report in 1995 shows that the pedestrian system in the Bel-Red/Northup area was 62 percent complete. Both Bellevue and Redmond are currently updating their bicycle and pedestrian facilities inventory.

The BROTS Update first developed a Baseline roadway network that included existing facilities, projects funded in either Bellevue's CIP or Redmond's TIP, and several Redmond projects that are relatively sure of being built by 2010. This is called Network A.

The No-Action Alternative for the BROTS Update includes the existing system, plus the Baseline projects (Network A), plus several facilities included in the transportation facilities plans of the two cities and the Bellevue Transportation Facility Plan. These latter facilities are generally included in the comprehensive plans of the two cities. Together, these projects constitute Network B.

The Transportation Review Group (TRG) for the BROTS Update recommended a Preferred Alternative, which was developed through testing of several alternative roadway systems. These alternatives and the results of the analysis are detailed in the Technical Appendices C-1 through C-7. The Preferred Alternative is designated as the TRG Recommended Network, also called Network E.

The TRG Recommended Network was developed to accommodate growth anticipated in the ONP Preferred Land Use Plan. The TRG Recommended Network includes new projects in addition to all of the Baseline (Network A) projects (Baseline projects were included in all six BROTS scenarios). The level of service analysis of the TRG Recommended Network indicates that the average volume/capacity ratio for intersections in four of the five districts evaluated will meet the LOS standards set forth by the two cities. However, the average volume/capacity ratio for the Grass Lawn area will exceed the standard, as it did in 1995.

Table 3-2 lists all the projects that were evaluated in this study and identifies those that are included in Networks A (Baseline), B (No Action), and E (TRG Recommended Plan). Projects listed in Table 3-2 that are not included in these three Networks were included in Networks C, D, and/or D*. Figure 3-1 shows the location of projects in Network A (Baseline). Figures 3-2 and 3-3 show the location of the projects added to Network A to create Network B (No Action) and Network E (TRG Recommended Plan) respectively.

Table 3-2:
List of BROTS Projects by Network

Project Number	City	MMA/ TMD	Location	Limits	Description	Network A: 6-year Funded Projects	Network B: 12/19-year Transportation Facility Plan	Network E: TRG Recommended Plan
BEL-RED/NORTHUP (MMA 4)								
19.0	B	BRN	116th Ave. NE/NE 12th St.		Add northbound right turn lane		x	x
48.0	B	BRN	120th Ave. NE	NE 8th to 12th Sts.	Extend from NE 8th St. to Old Bel-Red Rd.; widen to 3 lanes from Old Bel-Red Rd. To NE 12th St.		x	x
48.1	B	BRN	120th Ave. NE/NE 8th St.		Provide three northbound approach lanes by converting one of two southbound lanes: L/LT/R configuration. Split phase N-S traffic signal			x
18.0	B	BRN	120th Ave. NE/NE 12th St.		Add northbound right turn, northbound left turn, and southbound left turn lanes	x	x	x
18.1	B	BRN	120th Ave. NE/NE 12th St.		Add southbound right turn lane		x	x
77.0	B	BRN	124th Ave. NE	NE 8th St. to Bel-Red Rd.	Widen to 5 lanes			

Table 3-2, continued

Project Number	City	MMA/ TMD	Location	Limits	Description	Network A: 6-year Funded Projects	Network B: 12/19-year Transportation Facility Plan	Network E: TRG Recommended Plan
77.1	B	BRN	124th Ave. NE/NE 8th St.		Add a northbound right turn lane			x
20.0	B	BRN	124th Ave. NE/Bel-Red Rd.		Add 2nd westbound left turn lane		x	
20.1	B	BRN	124th Ave. NE/Bel-Red Rd.		Add 2nd westbound left turn and southbound right turn lanes			
20.2	B	BRN	124th Ave. NE/Bel-Red Rd.		Add a southbound right turn lane			x
15.0	B	BRN	124th Ave. NE/Northup Way		Construct westbound right turn lane for HOVs	x	x	x
15.1	B	BRN	124th Ave. NE/Northup Way		Add northbound right turn, eastbound right turn, and eastbound through lanes; convert westbound right turn to westbound right turn/through		x	x
15.2	B	BRN	124th Ave. NE/Northup Way		Add northbound right turn, eastbound right turn, eastbound through, and 2nd eastbound left turn lanes; convert westbound right turn to westbound right turn/through			
65.0	B	BRN	130th Ave. NE	Bel-Red Rd. to NE 20th St.	Widen to 3 lanes			x
26.0	B	BRN	130th Ave. NE/NE 20th St.		Add southbound right turn and westbound right turn lanes		x	x
14.0	B	BRN	130th Ave. NE/SR 520		Construct ramps providing access to/from East	x	x	x
78.0	B	BRN	130th Ave. NE/Bel-Red Rd..		Add second southbound right turn lane and a westbound right turn lane			x
69.0	B	BRN	132nd Ave. NE	Bel-Red Rd. to NE 20th St.	Widen to 3 lanes; modify signals			x
21.0	B	BRN	132nd Ave. NE/Bel-Red Rd.		Add southbound right turn lane		x	x
21.1	B	BRN	132nd Ave. NE/Bel-Red Rd.		Add northbound and southbound right turn lanes			
17.0	B	BRN	132nd Ave. NE/NE 20th St.		Install signal	x	x	x
66.0	B	BRN	134th Ave. NE/Bel-Red Rd.		Install signal			x
42.0	B	BRN	136th Pl. NE	Bel-Red Rd. to NE 16th St.	Extend as 2-lane collector; provide signals at Bel-Red Rd. and NE 16th St.		x	
71.0	B	BRN	136th Pl. NE	NE 16th to 20th Sts.	Widen to 3 lanes			
71.1	B	BRN	136th Pl. NE	NE 16th to 20th Sts.	Upgrade to 2-lane urban standards			x
16.0	B	BRN	136th Pl. NE/NE 20th St.		Install signal	x	x	x
60.0	B	BRN	NE 18th St./NE 16th St.	120th Ave. NE to Bel-Red Rd.	Construct 3-lane collector; install signals at 120th, 130th, 132nd and 136th Aves NE		x	
75.0	B	BRN	Northup Way	120th to 124th Ave. NE	Add second eastbound lane			x

Table 3-2, continued

Project Number	City	MMA/ TMD	Location	Limits	Description	Network A: 6-year Funded Projects	Network B: 12/19-year Transportation Facility Plan	Network E: TRG Recommended Plan
13.0	B/R	BRN/ OL	SR 520	I-405 to W. Lake Samm Pkwy	Construct eastbound and westbound HOV lanes	x	x	x
BRIDLE TRAILS (MMA 2)								
70.0	B	BT	130th Ave. NE/NE 24th St.		Add westbound left turn, eastbound left turn, and northbound left turn lanes; install signal			
72.0	B	BT	134th Ave. NE/NE 24th St.		Install signal			
37.0	B	BT	140th Ave. NE/NE 40th St.		Install signal and add northbound and southbound left turn lanes		x	
37.1	B	BT	140th Ave. NE/NE 40th St.		Add westbound right turn lane		x	
37.2	B	BT	140th Ave. NE/NE 40th St.		Add westbound right turn and northbound right turn lanes			
7.1	B/R	BT/GL	140th Ave. NE	NE 24th St. to Redmond Way	Widen to 3 lanes		x	
CROSSROADS (MMA 5)								
24.0	B	CR	156th Ave. NE/NE 20th St.		Add eastbound through lane extended 300 feet east of 156th Ave. NE (plus transition)		x	
24.1	B	CR	156th Ave. NE/NE 20th St.		Add 2nd northbound left turn lane and eastbound through lane extended 800 feet east of 156th Ave. NE (plus transition)			x
DOWNTOWN REDMOND (TMD 1)								
30.0	R	DT	W. Lake Samm Pkwy/SR 520 eastbound Ramps		Add second eastbound left turn lane		x	x
39.0	R	DT	W. Lake Samm Pkwy/Town Center		Construct a 3-lane connector w/signal at W Lake Samm Pkwy		x	
39.1	R	DT	W/ Lake Samm Pkwy/Town Center		Construct a new 4-lane connector w/signal at W Lake Samm Pkwy			x
86.0	R	DT	W. Lake Samm Pkwy/Leary Way		Widen Leary Way approach to provide 4-lanes: left/left-thru/thru/right. Widen SR 520 on ramp to two lanes for 500 feet.			x
34.0	R	DT	Willows Rd./Redmond Way		Convert southbound lanes to provide left turn and left turn/through/right turn lanes		x	
34.1	R	DT	Willows Rd./Redmond Way		Convert southbound lanes to provide left turn and left turn/through/right turn lanes; add westbound right turn lane			x
GRASSLAWN (TMD4)								
73.0	R	GL	132nd Ave. NE/Old Redmond Road		Add northbound right turn lane			
74.0	R	GL	132nd Ave. NE/Redmond Way		Add westbound right turn lane			x
7.0	R	GL	140th Ave. NE	City limits to NE 80th St.	Widen to 3 lanes	x		x

Table 3-2, continued

Project Number	City	MMA/ TMD	Location	Limits	Description	Network A: 6-year Funded Projects	Network B: 12/19-year Transportation Facility Plan	Network E: TRG Recommended Plan
35.0	R	GL	140th Ave. NE/Old Redmond Rd.		Add eastbound right turn, eastbound through, westbound right turn and westbound through lanes		x	
35.1	R	GL	140th Ave. NE/Old Redmond Rd.		Add eastbound right turn, eastbound through, westbound right turn, westbound through, northbound through, and southbound through lanes			
33.0	R	GL	140th Ave. NE/Redmond Way		Add eastbound right turn and 2nd northbound left turn lanes		x	x
33.1	R	GL	140th Ave. NE/Redmond Way		Add second northbound left turn lane			
5.0	R	GL	148th Ave. NE/Old Redmond Rd.		Modify signal phasing and re-align approach lanes	x	x	x
5.1	R	GL	148th Ave. NE/Old Redmond Rd.		Add northbound right turn lane		x	
5.2	R	GL	148th Ave. NE/Old Redmond Rd.		Add northbound right turn and 2nd northbound left turn lanes			
5.3	R	GL	148th Ave. NE/Old Redmond Rd.		Add eastbound right turn, northbound right turn and 2nd northbound left turn lanes; widen 148th Ave. NE south of Old Redmond Road for 300+ feet			
5.4	R	GL	148th Ave. NE/Old Redmond Road		Improve eastbound right turn lane by increasing length and by channelization			x
41.0	R	GL	NE 100th St.	132nd Ave. NE to Willows Rd.	Extend as 3-lane minor arterial		x	
2.0	R	GL	Old Redmond Rd.	140th to 148th Aves NE	Widen to 3 lanes	x	x	x
2.1	R	GL	Old Redmond Rd.	132nd to 148th Aves NE	Widen to 4 lanes, extending thru intersections at 132nd and 148th Aves NE			
64.0	R	GL/DT	Redmond Way (Redmond-Kirkland Rd.)	I-405 to W. Lake Samm Pkwy	Widen to 7 lanes: General purpose			
OVERLAKE (MMA 12)(TMD 5)								
49.0	B	OL	140th Ave. NE/NE 20th St.		Add 2nd eastbound left turn, 2nd westbound left turn, and southbound right turn lanes			x
49.1	B	OL	140th Ave. NE/NE 20th St.		Add 2nd westbound left turn lane and a northbound right turn lane			
25.0	B	OL	140th Ave. NE/NE 24th St.		Add southbound through lane		x	
25.1	B	OL	140th Ave. NE/NE 24th St.		Add southbound through and 2nd westbound left turn lanes			
25.2	B	OL	140th Ave. NE/NE 24th St.		Add 2nd westbound left turn lane			x
76.0	B	OL	144th Ave. NE	NE 20th to NE 24th Sts.	Build new 2/3 lane minor arterial. Install signal at NE 20th St.			
84.0	B	OL	144th Ave. NE/NE 20th St.		Add 2nd southbound right turn lane			
59.0	B	OL	146th Ave. NE	NE 20th to NE 24th Sts.	Construct 3-lane collector; install signals at NE 20th and NE 24th Sts.		x	

Table 3-2, continued

Project Number	City	MMA/ TMD	Location	Limits	Description	Network A: 6-year Funded Projects	Network B: 12/19-year Transportation Facility Plan	Network E: TRG Recommended Plan
68.0	B	OL	148th Ave. NE	SR 520 eastbound off-ramp to SR 520 westbound on-ramp	Add northbound through lane; modify channelization and signals			x
51.0	B	OL	148th Ave. NE/Bel-Red Rd.		Add eastbound right turn and 2nd westbound left turn lanes; convert southbound right turn to through/right turn lane; widen 148th Ave. NE south of Bel-Red Road for 500+ feet			
51.1	B	OL	148th Ave. NE/Bel-Red Rd.		Add 2nd eastbound left turn and 2nd westbound left turn lanes; convert southbound right turn to through/right turn lane; widen 148th Ave. NE south of Bel-Red Road for 500+ feet			
51.2	B	OL	148th Ave. NE/Bel-Red Rd.		Add eastbound right turn lane and second westbound left turn lane			x
50.0	B	OL	148th Ave. NE/NE 20th St.		Add 2nd westbound left turn lane			
50.1	B/R	OL	148th Ave. NE/NE 20th St.		Add 2nd westbound left turn and 2nd eastbound left turn lanes			x
28.0	B/R	OL	148th Ave. NE/NE 29th Pl.		Add southbound through and 2nd westbound left turn lanes; channelize yield for westbound right turn lane; convert eastbound right turn to shared right turn/left turn lane		x	x
58.0	B/R	OL	148th Ave. NE/NE 31st St.		Add westbound right turn lane			
79.0	B/R	OL	148th Ave. NE/NE 36th St.		Add 2nd southbound left turn lane and 2nd westbound left turn lane			x
27.0	B/R	OL	148th Ave. NE/NE 40th St.		Add 2nd southbound left turn and northbound right turn lanes		x	x
27.1	B/R	OL	148th Ave. NE/NE 40th St.		Add second westbound right turn lane			x
29.0	B/R	OL	148th Ave. NE/NE 51st St.		Add 2nd southbound left turn lane; convert westbound lanes to provide shared left turn/through and two right turn lanes		x	x
32.0	B/R	OL	148th Ave. NE/NE 56th St.		Add northbound right turn lane		x	x
6.0	R	OL	150th Ave. NE	NE 40th to 51st Sts.	Uniformly construct 40' width, sidewalks, lighting	x	x	x
47.0	R	OL	150th Ave. NE	NE 31st to 40th Sts.	Construct 2-lane collector; install signal at NE 40th St.		x	
47.1	R	OL	150th Ave. NE	NE 36th to 40th Sts.	Construct 2-lane collector; install signal at NE 40th St.			
47.2	R	OL	150th Ave. NE	NE 36th to 40th Sts.	Construct 2-lane collector. Realign north end to form a four-leg intersection at NE 40th St..			x
8.0	R	OL	150th Ave. NE/NE 40th St.		Install signal	x	x	x
8.1	R	OL	150th Ave. NE/NE 40th St.		Add northbound right turn lane		x	x

Table 3-2, continued

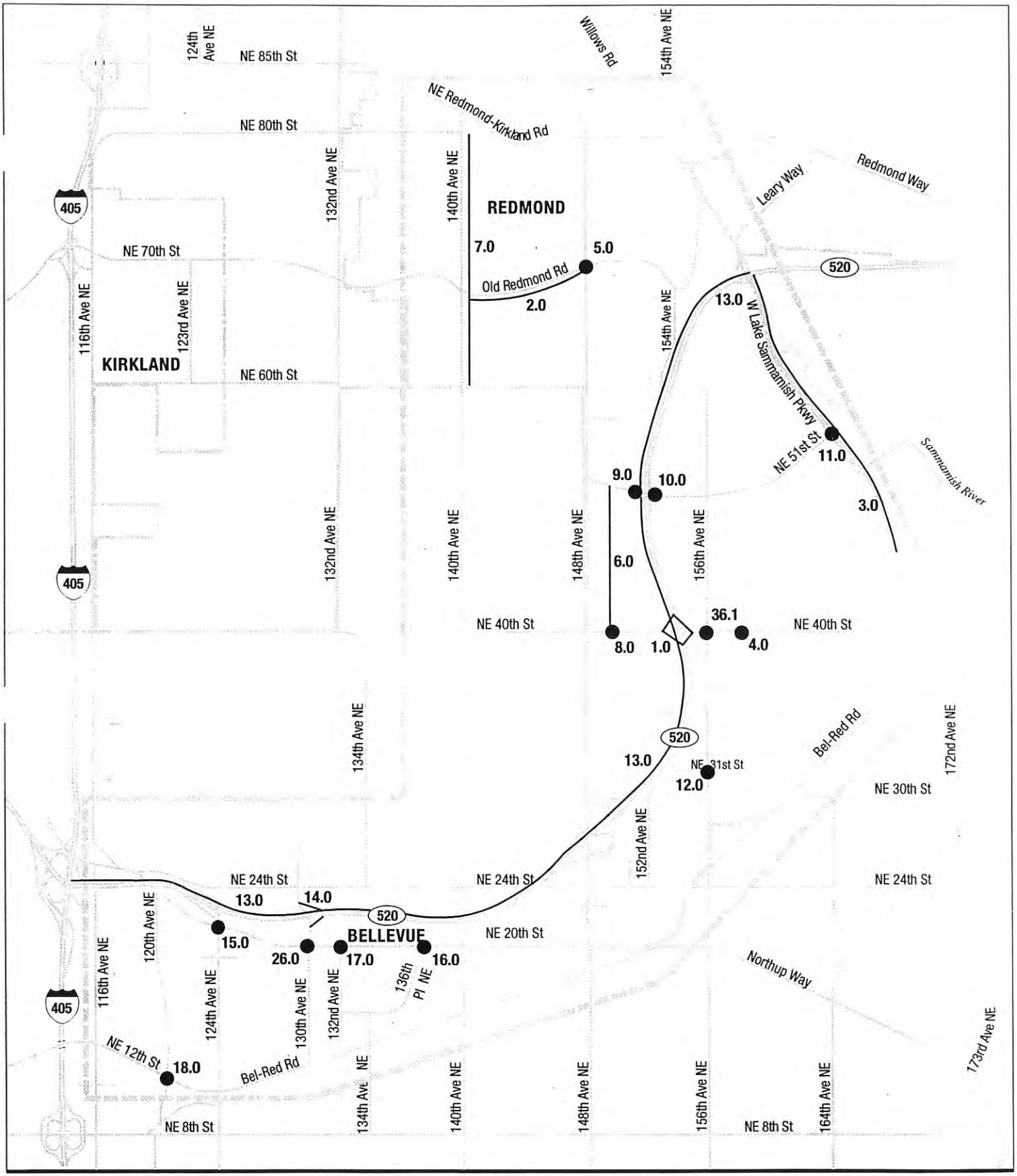
Project Number	City	MMA/ TMD	Location	Limits	Description	Network A: 6-year Funded Projects	Network B: 12/19-year Transportation Facility Plan	Network E: TRG Recommended Plan
85.0	R	OL	150th Ave. NE/NE 51st St.		Add north leg to intersection. Provide two southbound left turn lanes			x
85.1	R	OL	150th Ave. NE/NE 51st St.		Install Signal			
45.0	R	OL	151st Pl. NE	NE 20th to 24th Sts.	Construct 3-lane road; install signal at 151st Pl. NE/NE 20th St.			
55.0	R	OL	151st Pl. NE/NE 24th St.		Add westbound right turn lane			x
56.0	R	OL	152nd Ave. NE/NE 24th St.		Add southbound right turn lane			
56.1	R	OL	152nd Ave. NE/NE 24th St.		Add northbound and southbound approach lanes. Make northbound lanes: Left/Thru/Thru-Right. Make southbound lanes: Left/Thru/Right			x
56.2	R	OL	152nd Ave. NE/NE 24th St.		Add westbound right turn lane			
63.0	B	OL	156th Ave. NE	Bel-Red Rd. to NE 20th St.	Add a third southbound through lane			x
67.0	B	OL	156th Ave. NE	NE 20th to 24th Sts.	Add a two-way left turn lane			x
22.0	B	OL	156th Ave. NE/Bel-Red Rd.		Prohibit northbound left turn and southbound left turn		x	
22.1	B	OL	156th Ave. NE/Bel-Red Rd.		Prohibit northbound and southbound left turns; convert southbound left turn to through lane; add southbound right turn and 2nd westbound left turn lanes			
22.2	B	OL	156th Ave. NE/Bel-Red Rd.		Prohibit southbound left turn; convert southbound left turn to through lane; add southbound right turn and 2nd westbound left turn lanes			
22.3	B	OL	156th Ave. NE/Bel-Red Rd.		Add southbound right turn lane			x
23.0	B	OL	156th Ave. NE/NE 24th St.		Add eastbound right turn lane		x	
23.1	B	OL	156th Ave. NE/NE 24th St.		Add eastbound right turn and 2nd northbound left turn lanes			
12.0	R	OL	156th Ave. NE/NE 31st St.		Add second eastbound left turn lane and modify signal	x	x	x
12.1	R	OL	156th Ave. NE/NE 31st St.		Add southbound right turn lane			x
81.0	R	OL	156th Ave. NE/NE 36th St.		Add eastbound right turn lane and a 2nd westbound right turn lane			x
36.0	R	OL	156th Ave. NE/NE 40th St.		Add northbound right turn lane		x	
36.1	R	OL	156th Ave. NE/NE 40th St.		Add northbound right turn and 2nd southbound left turn lanes			x
80.0	R	OL	156th Ave. NE/NE 51st St.		Convert northbound Through-Left lane to northbound left turn lane and add northbound through lane			
4.0	R	OL	159th Ave. NE/NE 40th St.		Install signal	x	x	x

Table 3-2, continued

Project Number	City	MMA/ TMD	Location	Limits	Description	Network A: 6-year Funded Projects	Network B: 12/19-year Transportation Facility Plan	Network E: TRG Recommended Plan
4.1	R	OL	159th Ave. NE/NE 40th St.		Revise lanes to provide northbound left turn and shared northbound left turn/right turn lanes			x
52.0	B/R	OL	Bel-Red Rd./NE 20th St.		Add southbound right turn lane; convert westbound lanes to provide left turn, left turn/through and through/right turn lanes			x
52.1	B/R	OL	Bel-Red Rd./NE 20th St./152nd Ave. NE		Reconfigure to a 5-leg intersection. Modify signal to accommodate most movements			
53.0	B/R	OL	Bel-Red Rd./NE 24th St.		Add southbound right turn lane			
53.1	B/R	OL	Bel-Red Rd./NE 24th St.		Add southbound right turn lane and northbound left turn lane. Provide protected phasing for northbound left turns. Prohibit southbound left turns			x
54.0	B/R	OL	Bel-Red Rd./NE 40th St.		Add eastbound through lane; widen NE 40th ST east of Bel-Red for 500+ feet			
38.0	R	OL	Microsoft West/NE 51st St.		Construct new 2/3-lane street w/ signal at NE 51st St.		x	
61.0	R	OL	NE 21st Pl.	NE 20th St. to Bel-Red Rd.	Improve existing "access street"; install signals at NE 20th St. and Bel-Red Rd.		x	
44.0	B/R	OL	NE 28th St.	156th Ave. NE to Bel-Red Rd.	Construct 2-lane collector; prohibit eastbound through and westbound through at Bel-Red Rd.; install signal at NE 30 St./Bel-Red Rd.		x	
44.1	B/R	OL	NE 28th St.	156th Ave. NE to Bel-Red Rd.	Construct 2-lane connector; install signal at NE 30 St./Bel-Red Rd.			
46.0	B	OL	NE 29th Pl.	NE 24th St. to 145th Ave. NE	Extend as 2/3-lane road; install signal at NE 24th St..		x	
46.1	B	OL	NE 29th Pl.	NE 24th St. to 145th Ave. NE	Extend as 2/3-lane road; install signal at NE 24th St.; channelize southbound right turn lane; add westbound lane on NE 24th St. west of NE 29th Pl.; prohibit southbound left turn at NE 24th St.			
46.2	B	OL	NE 29th Pl.	NE 24th St. to 145th Ave. NE	Extend as 2/3-lane road; install signal at NE 24th Street. Provide two southbound right turn lanes at NE 24th St.. Prohibit southbound left turn at NE 24th St.			x
57.0	B	OL	NE 29th Pl./NE 24th St.		Add 2nd eastbound left turn lane			
57.1	B	OL	NE 29th Pl./NE 24th St.		Add 2nd eastbound left turn lane, a northbound right turn lane and a 2nd southbound through lane			
57.2	B	OL	NE 24th St.	NE 29th Pl. to 140th Ave. NE	Widen to four lanes from east of NE 29th Pl. to 140th Ave. NE. Provide two westbound lanes, one eastbound lane, and a two-way left turn lane			x

Table 3-2, continued

Project Number	City	MMA/ TMD	Location	Limits	Description	Network A: 6-year Funded Projects	Network B: 12/19-year Transportation Facility Plan	Network E: TRG Recommended Plan
40.0	B/R	OL	NE 31st St.	148th to 152nd Aves NE	Extend as 3-lanes across SR 520; install signal at 148th Ave. NE		x	
40.1	B/R	OL	152nd Ave. NE	NE 30th to NE 36th Sts.	Extend 152nd Ave. NE over SR 520 to the current terminus of NE 36th St. at SR 520. Provide connection from overcrossing to NE 31st St. east of SR 520.			
40.2	B/R	OL	152nd Ave. NE	NE 30th to NE 36th Sts.	Extend 152nd Ave. NE over SR 520 to the intersection of 150th Ave. NE/NE 36th St.. Provide connection from overcrossing to NE 31st St. east of SR 520			x
62.0	R	OL	NE 60th St.	148th to 152nd Aves NE	Construct 3-lane collector; install signal at 148th Ave. NE			
10.0	R	OL	SR 520 Eastbound Ramps/NE 51st St.		Install signal	x	x	x
10.1	R	OL	SR 520 Eastbound Ramps/NE 51st St.		Add 2nd eastbound right turn lane			x
9.0	R	OL	SR 520 westbound Ramps/NE 51st St.		Install signal	x	x	x
9.1	R	OL	SR 520 Westbound Ramps/NE 51st St.		Add 2nd westbound left turn lane			
1.0	R	OL	SR 520/NE 40th St.		Construct new interchange	x	x	x
1.1	R	OL	SR 520 Eastbound Ramps/NE 40th St.		Add 2nd eastbound right turn lane			x
31.0	R	OL	W. Lake Samm Pkwy/Bel-Red Rd.		Channelize to provide a yield for westbound right turn lane		x	x
11.0	R	OL	W. Lake Samm Pkwy/NE 51st St.		Add southbound right turn lane and modify signal	x	x	
11.1	R	OL	W. Lake Samm Pkwy/NE 51st St.		Convert eastbound lanes to provide left turn and shared left turn/right turn lanes; convert southbound lanes to provide through and through/right turn lanes; and add northbound through lane		x	x
3.0	R	OL/DT	W. Lake Samm Pkwy	Bel-Red Rd. to Leary Way	Widen to 3 lanes south of and 5 lanes north of NE 51st St.	x	x	x



0 2000 4000

Scale in Feet

N

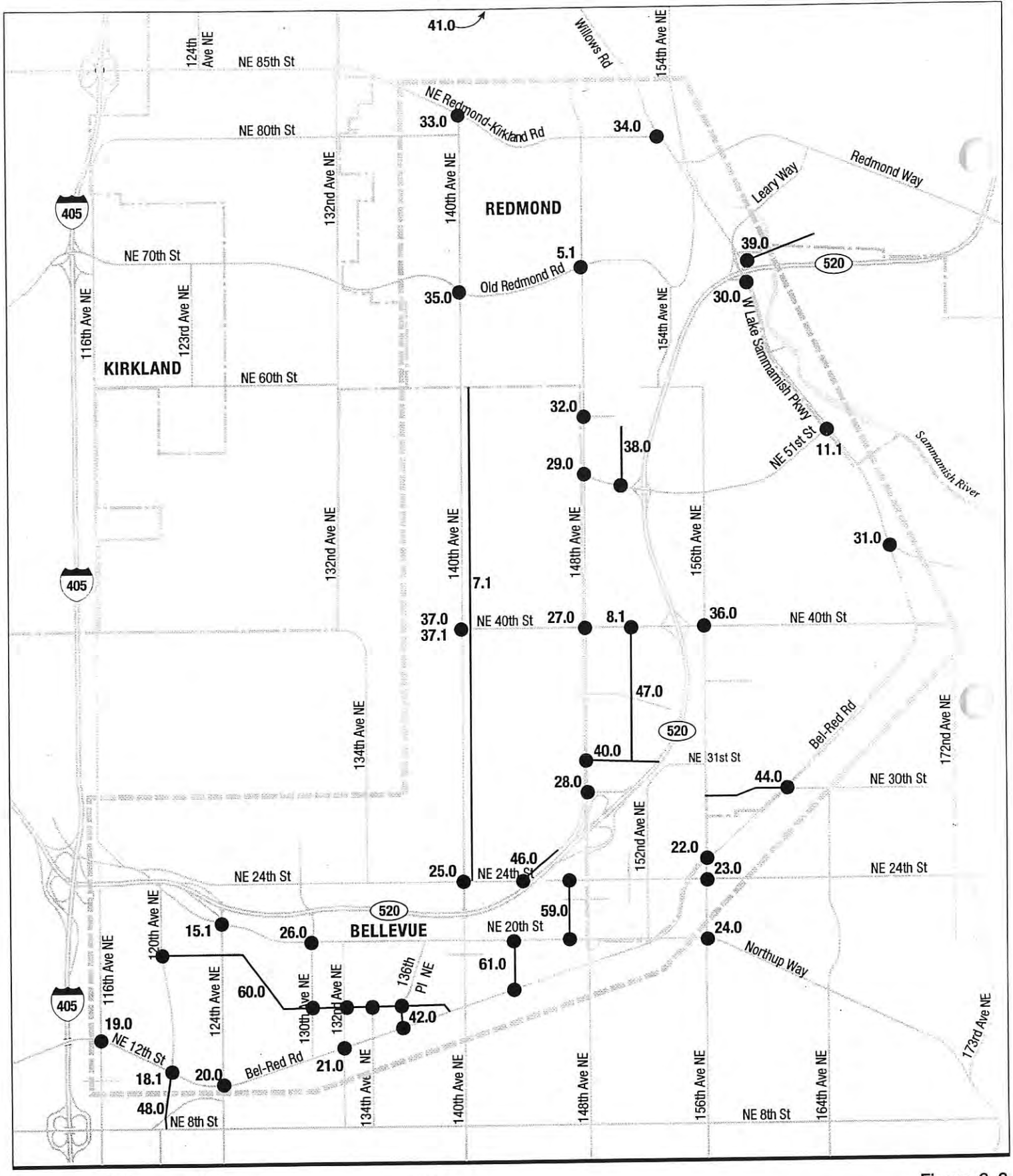
LEGEND

Study area boundary

City limits

Figure 3-1

Projects in 2010 Baseline Network Network A Projects



0 2000 4000

Scale in Feet

N

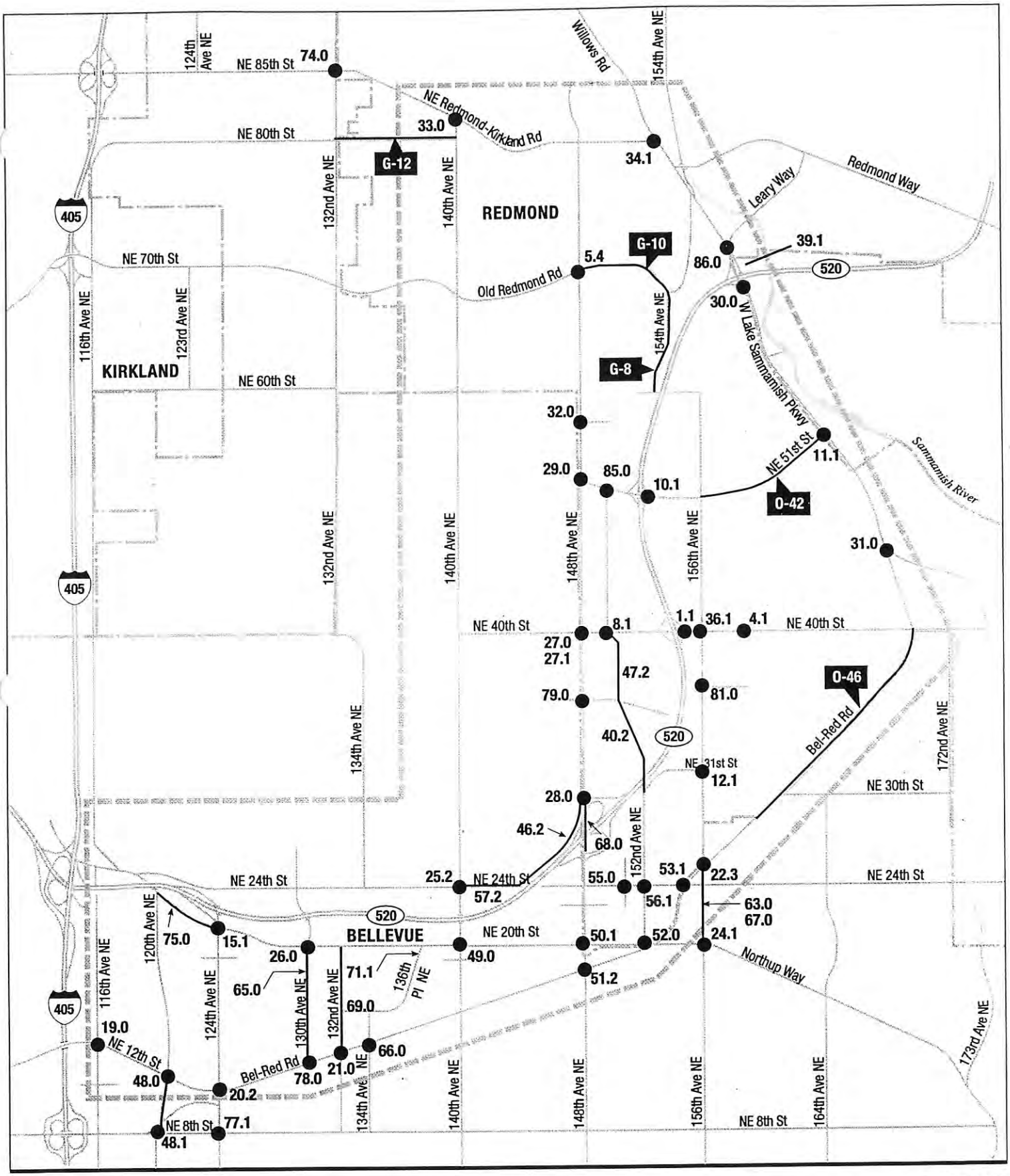
LEGEND

Study area boundary

City limits

Figure 3-2

Projects Added to 2010 Baseline Mitigation for Network B



0 2000 4000

Scale in Feet

N

LEGEND

Study area boundary

City limits

Figure 3-3

Projects Added to 2010 Baseline Mitigation for Network E

Major projects included in the TRG Recommended Network (Network E) are:

- The addition of a second eastbound lane on Northup Way, between 120th and 124th Avenues NE (75.0);
- The addition of a northbound lane on the 148th Avenue NE overcrossing of SR 520, between the eastbound off ramp and the westbound on ramp(68.0);
- The addition of a third southbound through lane on 156th Avenue NE, between Bel-Red Road and NE 20th Street (63.0);
- The extension of 152nd Avenue NE across SR 520 to connect NE 24th Street with NE 40th Street (40.2);
- The extension of NE 29th Place from 145th Avenue NE to NE 24th Street (46.2);
- Widening of NE 24th Street to four lanes, between NE 29th Place and 140th Avenue NE (57.2); and the construction of a four-lane bridge across the Sammamish River to connect Town Center with West Lake Sammamish Parkway NE (39.1).

Other projects to be included in the 2010/2012 Network E are intersection widenings and installation or modification of traffic signals.

The 2010/2012 Bicycle Facilities with the TRG Recommended Network include: planned bicycle facilities that would be constructed with a recommended roadway project and recommended bicycle projects within the City of Redmond. The City of Bellevue has an adopted Pedestrian and Bicycle Transportation Plan with facility classifications, projects, and costs identified. Any of those projects, not constructed with a BROTS roadway project, are not included with the 2010 Preferred Alternative for BROTS because of the high cost of those projects.

Table 3-3 presents a summary of Preferred Alternative non-motorized projects and their costs. The location of these projects is shown on Figure 3-3.

Table 3-3:
TRG Recommended Network Non-Motorized Projects[a]

Project Number	Location	Limits	Priority or Cost	Description
G-8	154th Avenue NE	NE 60th to Old Redmond Road	$676,000	Construct sidewalks with 15-foot curb lane for bicycles
G-10	Old Redmond Road	148th Avenue NE to 154th Avenue NE	$167,000	Complete sidewalks and construct bike lanes
G-12	NE 80th Street	132nd Avenue NE to 140th Avenue NE	$266,300	Construct bike lanes
O-42	NE 51st Street	156th Avenue NE to W. Lake Sammamish Parkway NE	$590,000	Complete sidewalks on south side, construct bike lanes
O-46	Bel-Red Road	NE 28th Street to NE 40th Street	$3,537,300	Construct sidewalk on east side and construct bike lanes

a) Note that all BROTS roadway projects will include planned pedestrian and bicycle facilities

3.3.2 Staff Recommendations

The City of Bellevue and City of Redmond staffs developed three projects and two policies that are recommended for addition to Network E, the TRG Recommended Network (Figure 3-4). Some of the additions were considered in other BROTS Update scenarios. Staff recommends the following policy:

3.3.2.1 Policy: Evaluation of 148th Avenue NE Improvement Project (Bel-Red Road to NE 29th Place)

The Bellevue and Redmond staffs shall perform an evaluation of 148th Avenue NE, between NE 29th Place NE and Bel-Red Road, to identify potential improvements for possible implementation prior to 2010. The improvements shall address additional roadway capacity as well as provisions for pedestrian safety. Additional roadway capacity could be added by widening of 148th Avenue to a full six/seven lane facility between Bel-Red Road and NE 29th Place, matching the current three-lane southbound roadway on portions of the corridor. Pedestrian safety shall be an integral part of the project due to the existing and future width of the street. Pedestrian features to be considered include (but are not limited to) pedestrian overpasses, median refuge islands, adequate sidewalk width, and other such measures.

3.3.2.2 Policy: Turn Lane Configuration Flexibility

In locations where the BROTS project list identifies a certain number of new turn lanes in a certain configuration at an intersection, the City may, without doing a Comprehensive Plan amendment or BROTS amendment, construct up to the same number of turn lanes in a different configuration, if future traffic flows and turn movements are significantly different from the BROTS predictions and if such changes can be made without a significantly worse total impact.

3.3.2.3 Bellevue Projects

Staff recommends that no additional projects be added to the Preferred Network.

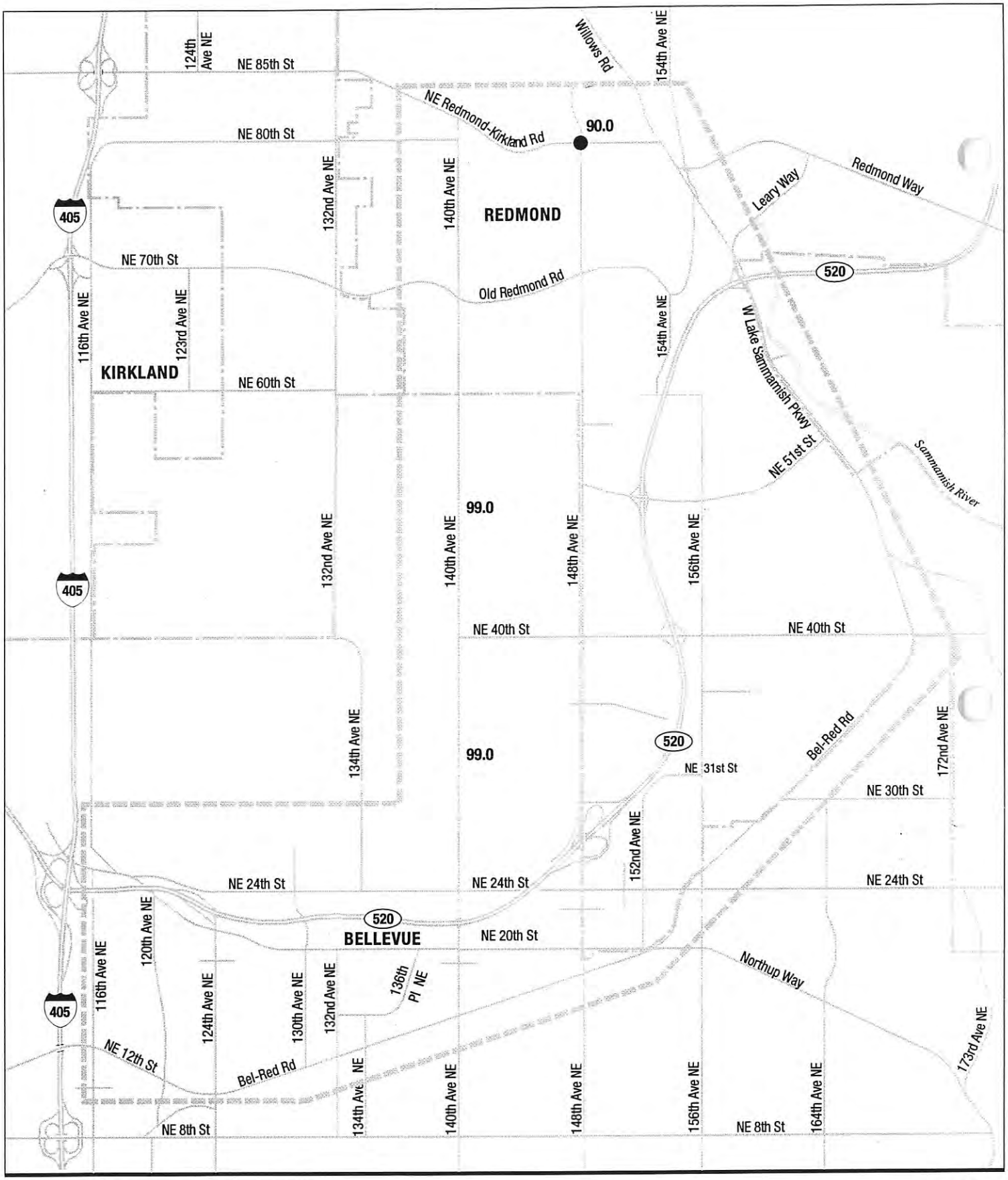
3.3.2.4 Redmond Project

The Redmond staff recommended the addition of one project to the TRG Recommended Network:

- Project 90.0: At 148th Avenue NE/Redmond Way: Add second eastbound and westbound left-turn lanes.

3.3.2.5 Summary

Project 90.0 rated "best" for arterial performance and generally had "positive" impacts for several other categories; however, the project was rated as a "negative" for impacts on non-motorized travel.



0 2000 4000

Scale in Feet

N

LEGEND

Study area boundary

City limits

Figure 3-4

Staff Recommended Modifications to Netwo E Projects

4. Analysis of Environmental Impacts of the Alternatives

4.1 SEPA Requirements

The SEPA Rules on integrated SEPA/GMA documents require a concise analysis of alternatives comparing the environmental consequences of the principal courses of action under consideration (WAC 197 11 235(6)). The analysis should allow decision makers and the public to determine if the proposed GMA action should be revised before adoption to avoid or reduce environmental impacts.

There are two GMA actions and respective alternatives under evaluation. The Overlake Neighborhood Plan and the Bellevue/Redmond Overlake Transportation Study Update are both GMA actions under WAC 197 11 220(4). While they are separate actions, they are interdependent. The land uses analyzed in the ONP directly impact the transportation network analyzed in the BROTS Update.

The elements of the environment identified by Redmond in the Scoping Document for analysis were land use, transportation, air quality, noise, water quality (Lake Sammamish and streams), wetlands, light and glare, and public services. Included in public services were water, sewer, electrical demand, and parks.

The environmental impact analysis evaluates the No Action and Preferred Alternatives.

The No-Action Alternative generally consists of the Redmond *Comprehensive Plan* target of 11.4 million square feet together with transportation Network B. The transportation impact analysis for Network B used a slightly higher land use of 11.9 million square feet than the *Comprehensive Plan* target of 11.4 million square feet. Transportation Network B consists of the facilities identified in the Transportation Facilities Plan (TFP) of both Cities which are the 12-14 -year planned improvements with certain additions. The *Comprehensive Plan* land use target and the facilities identified in the Facilities Plans generally represent the expected conditions in the year 2012 unless further action is taken by either City. For this reason, they were selected as the No-Action Alternative.

SEPA provides that where an environmental impact statement (EIS) on a neighborhood plan has adequately addressed the significant environmental effects of a development project, that EIS may be used as the SEPA analysis for the development project. One of the purposes of this EIS is to address the probable significant impacts of the development projects accommodated by the ONP.

The City of Redmond is proposing that a planned action be adopted for 3.5 million square feet of retail, office, research and development, manufacturing and distribution buildings accommodated by the ONP. If this Overlake SEPA Planned Action is approved, this EIS will be used as the SEPA environmental review document for any projects that comply as a planned action and no further SEPA environmental review will be required.

To qualify as a part of the Overlake SEPA Planned Action, the development project will have to comply with the Overlake Neighborhood Plan and all applicable development regulations including the floor area ratio limits in the neighborhood plan development regulations. Redmond will review each development project to verify if the ONP/BROTS EIS adequately analyzed the

significant environment impacts of the proposed development project. Any development projects in the Lake Sammamish Basin must treat their stormwater runoff to meet the Sensitive Lake Standard of the *Lake Sammamish Water Quality Management Plan* (1996). This requires removal of 50 percent of the phosphorus from the storm water that runs off from new development. The development must also provide all required offsite and onsite public facilities necessary to accommodate the development project, including transportation improvements.

While this EIS has analyzed the environment impacts of the transportation facilities proposed by the BROTS Update, the Overlake SEPA Planned Action does not include any of the major transportation facilities recommended by the update. The major BROTS facilities will go through separate project level environmental review, although that review can take into account the analysis in this EIS.

Redmond will monitor implementation of the Overlake Neighborhood Plan and the BROTS Update. If the BROTS Update transportation facilities are not constructed in a timely manner and substitute facilities or programs cannot be identified and implemented, Redmond can suspend, modify, or repeal the planned action. Similarly, the Overlake SEPA Planned Action can be suspended, modified, or repealed if its continued implementation would result in probable significant adverse environmental impacts. Redmond will evaluate the Overlake SEPA Planned Action at least once every five years to determine if it should be modified along with the City's five-year evaluation of the Overlake Neighborhood Plan.

The proposed Overlake SEPA Planned Action Ordinance which includes the findings required by state law is included in Appendix B-9.

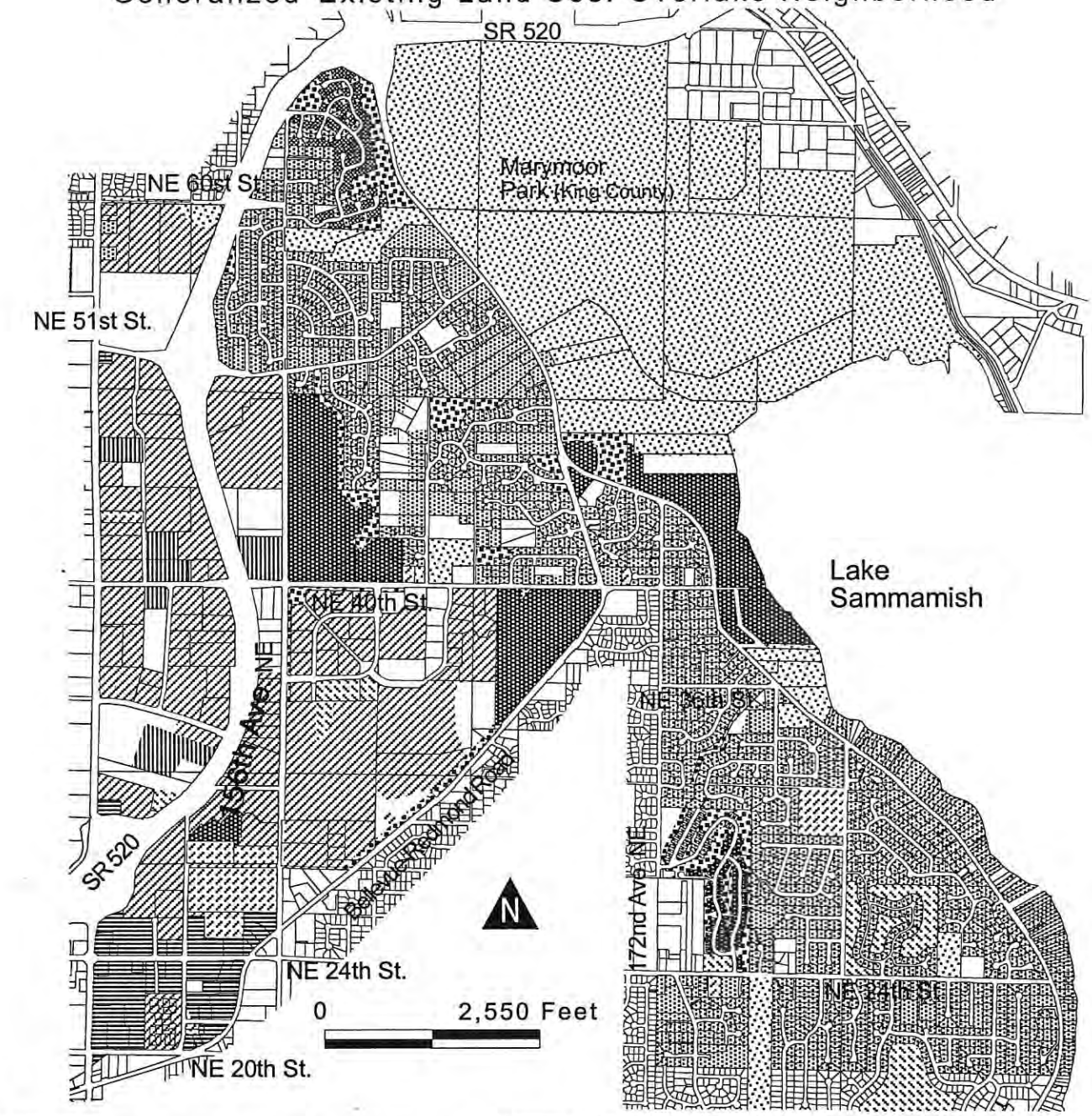
4.2 Existing Land Use Conditions

The existing land use data for the Overlake Neighborhood are shown in three ways. Figure 4-1 displays a generalized land use map for the Overlake area. Table 4-1 shows the acres of land devoted to various land uses. Data on residential uses and commercial, office and manufacturing uses are then considered. The following narrative generally describes the distribution of land uses in the Overlake Neighborhood. For a more detailed description of existing conditions (in 1995), including a discussion of vacancy rates and development trends, please refer to the *Overlake Neighborhood Plan Existing Conditions Report* (March 1996) which can be found in Appendix B-1 of the Technical Supporting Record.

4.2.1 Description of Existing Land Uses

Existing land use is important in the neighborhood planning process because it establishes a context. When deciding future land uses, the existing uses provide the base from which to build. It is also valuable to consider existing uses when considering whether future uses would be compatible with the existing development pattern. The broad patterns of use are illustrated on Figure 4-1, the Generalized Existing Land Use Map.

Figure 4-1 Study Area and Generalized Existing Land Use: Overlake Neighborhood



- Single-Family Residences
- Duplex Residences
- Multi-Family Residences
- Retail Commercial & Services
- R&D and Business, Office, Manufacturing, & Distribution Parks
- Manufacturing
- Institutions/Public/ Semi-Public
- Parks
- Open Space
- Private Recreation
- Vacant

0 3500 Feet

N

Figure 4-1
Study Area and Generalized Land Use Plan

The Overlake Neighborhood includes four areas of broad uses running from the southwest to the north and east. The first set of uses is located in the southwest part of the study area. This area contains primarily retail trade and service businesses. These uses are located along NE 20th Street, NE 24th Street, and 140th Avenue NE south of State Route (SR) 520. The Sears store on NE 148th Avenue NE is among the most prominent in this area, but there many other stores as well.

North of these uses on the east side of SR 520 is the second area. These are the institutions and professional offices associated with or near the Group Health East Hospital. These uses are found along 152nd Avenue NE and 156th Avenue NE.

North of these uses on both sides of SR 520 are located office, research and development, light manufacturing, and distribution uses. This is the third area. While most famous as the home of software firms, Overlake includes a wide variety of firms including distributors, many types of office uses including general offices and corporate headquarters, and light manufacturers. Examples of firms with facilities in Overlake include Allied-Signal Avionics, a designer and manufacturer of aircraft systems; Baxter Healthcare Corp., a distributor of hospital and medical supplies; Golder Associates, a geotechnical consulting firm; Nintendo of America, an importer and distributor of video game systems; The Safeco Insurance Company, an insurance firm whose regional offices are located at Overlake; Group Health Medical Cooperative which operates a hospital at Overlake; and the Microsoft Corporation, a computer software firm with their world headquarters at Overlake.

The fourth area of uses consists of residential neighborhoods. West of SR 520, residential uses start at NE 60th Street which is also the north neighborhood boundary. East of SR 520, the residential uses start north of NE 40th Street and east of Bel-Red Road south of NE 40th Street. Within this larger area, multi-family residential uses are clustered in three locations: (1) at the northeast intersection of 156th Avenue NE and NE 40th Street, (2) south of NE 40th Street along the east side the Bel-Red Road, and (3) along west side of West Lake Sammamish Parkway starting at its intersection with Bel-Red Road running south to Idylwood Park. A planned community north of NE 24th Street also includes some multi-family dwellings and the neighborhood north of Westside Park has some duplexes. The balance of the study area is occupied by predominately single-family neighborhoods. Included in the residential neighborhoods are schools, churches, and parks.

4.2.2 Acreage in Various Uses

Table 4-1 quantifies the various land uses in Overlake and the City of Redmond. These data are from Redmond's land use database and are generally current to July 1995. The manufacturing category does not include manufacturing and distribution uses located in office parks. These uses are listed under the office/business park category. Street and highway rights-of-way are estimates.

Offices and business parks make up the largest single use category in the Overlake Neighborhood. Overlake has 847 acres of land used for these purposes. This is 63 percent of the total land area in the City used for offices and business parks. This is a relatively large amount of land when you consider that Redmond has three times the land devoted to office and business park uses than in Kirkland[1]. The second highest category is single-family homes, with 755 acres. This is 31 percent of the Redmond land used for this purpose.

[1] Redmond Comprehensive Plan Update, *Land Use Technical Report*, 20 (January 1995). Two percent of Kirkland is used for office and service uses.

Table 4-1:
Existing Land Uses: Overlake and City of Redmond 1995

Land Use	Overlake Neighborhood Acres	Percentage of Overlake Neighborhood	Percentage of City Total for that Use	Total Citywide Acres	Percentage of City
Single-Family	755	28%	31%	2,446	23%
Mobile Home Parks	0	0%	0%	50	0%
Multi-Family	151	6%	23%	657	6%
Commercial	100	4%	26%	382	4%
Offices/Business Parks	847	32%	63%	1,341	13%
Manufacturing/Industrial	131	5%	12%	1,115	11%
Public/Institutions/Utilities	103	4%	21%	482	5%
Parks/Open Space	84	3%	7%	1,188	11%
Misc./Other*	8	0%	5%	167	2%
Agriculture	0	0%	0%	149	1%
Vacant	305	11%	16%	1,867	18%
Rights-of-Way (approximate)	199	7%	31%	648	6%
Total	2,683	100%	26%	10,492	100%

* Includes some rights-of-way.
Source: Redmond Land Use Database, 1995.

Overlake is close to the Redmond citywide average in a number of categories. These include multi-family dwellings, commercial uses, and public uses such as schools.

The Overlake neighborhood has less land used for parks and open space and vacant land than the city as whole. Some manufacturing uses are included in the office/business park category, however. Even taking this into account, it is likely that Overlake has less manufacturing and industrial land than the City as whole. Redmond tends to have a relatively high proportion of manufacturing land compared to other cities. For example, the percentage of land in Redmond used for manufacturing purposes is over twice the percentage in Kirkland used for this purpose.[2]

The land use classifications used in Table 4-1 are a subset of the categories included on the Generalized Land Use Map. Table 4-2 summarizes these classifications.

4.2.3 Residential Land Uses in the Overlake Neighborhood

The current Overlake Neighborhood is a combination of the previous Viewpoint Neighborhood and the Overlake Neighborhood. The part of the old Overlake Neighborhood that is excluded from the new neighborhood is north of NE 60th Street and east SR 520. The neighborhoods were changed to reflect their common identity. Since the changes were made after the 1990 Census, little comparative data is available for the new Overlake Neighborhood. Table 4-3 compares census data for the old Overlake and Viewpoint Neighborhoods. As is shown, the old Overlake Neighborhood grew substantially during the 1980s, while Viewpoint grew at a lower rate.

[2] Ibid. Three percent of Kirkland is used for manufacturing and industrial uses.

Table 4-2:
Definitions of Land Use Categories

Category	Uses Included
Single-Family Residences	Detached, one-family homes.
Mobile Home Parks	Areas designed for mobile homes or manufactured homes and occupied by them. There are no mobile home parks in the Overlake Neighborhood.
Duplex Residences	A structure with two housing units. These are included in the Multi-Family Residences category. Not all duplexes are identified on the Generalized Existing Land Use Map.
Multi-Family Residences	A structure with three or more housing units in it.
Commercial	Buildings and land used primarily for retail trade; such as stores and restaurants, personal services, and similar uses.
Office/Services	Buildings and land used primarily for offices and services. Generally applied to one or two buildings on a single lot. The Offices and Business Parks/Office Parks category have been combined.
Business Parks/Office Parks	Buildings and land that include more than two buildings within the same grounds and used for offices, research and development, light manufacturing, warehousing, or distribution.
Research & Development	Buildings and land used for technical research and product development. On the Generalized Existing Land Use Map, there was little effort to separate research and development from the office and business parks categories. These uses are included in the Offices/Business Parks category.
Light Industry	Buildings and land used for manufacturing within a building. This land is included in the Manufacturing/Industrial Category.
Industry	Buildings and land used for heavy manufacturing or fabrication. There is no land used by industry uses in the Overlake Neighborhood.
Industrial Parks	Buildings and land that include more than two buildings within the same grounds and used for manufacturing within a building. This land is included in the Manufacturing/Industrial Category.
Public/Semi-Public /Institutional/Utilities	Buildings and land used for public purposes, such as fire stations or schools; churches and other places of worship and private schools; public or private institutions such as colleges or charities (none in the study area), and utility substations, reservoirs, and similar uses. On the Generalized Land Use Map, small areas in this category may be included in other categories.
Parks	Publicly owned land used for recreation, open to the public, and where the activities primarily take place outdoors.
Commercial Agriculture	None is included in the study area.
Private Open Space	Privately owned land used for recreational uses or included in large greenbelts. Greenbelts in office parks and some residential developments are not identified on the Generalized Land Use Map.
Vacant	Land not permanently used for another purpose.
Water	Large rivers and lakes. In the Overlake Neighborhood this includes Lake Sammamish and the Sammamish River.
Rights-of-Way	Land used for public streets, highways, and public or private utility corridors. This is an estimated figure. Some rights of way are also included in the misc. (miscellaneous)/other category.

Table 4-3:
Change in Population: 1980-1990

	1980	1990	Change '80 to '90	
			Number	Percent
Overlake	3,712	7,194	3,482	92.80%
Viewpoint	5,113	5,858	745	14.57%
Redmond Total	23,318	35,800	12,482	52.53%
King County Total	1,269,749	1,507,319	237,570	18.71%

Source: 1980 and 1990 Censuses.

Residential areas remain predominately owner-occupied, but rental units grew faster than owner-occupied units, primarily due to the increase in multi-family units in parts of the two neighborhoods. Table 4-4 shows the estimated number of existing residences in the new Overlake Neighborhood and Redmond in 1995. Overlake contains about 28 percent of the City's housing units. Table 4-5 shows the level of housing growth that is planned to be accommodated by the neighborhood and the City between 1995 and 2012.

Table 4-4:
Existing Number of Residences in the Overlake Neighborhood and Redmond: 1995

Unit Type	Number of Units Overlake Total	Percent of Overlake Total	Percent of City for the Type	Number of Units City Total	Percent of City Total
Single-Family Residences	2,711	55%	31%	8,719	50%
Multi-Family Residences	2,244	45%	26%	8,523	48%
Mobile Homes		0%	0%	305	2%
Total	4,955	100%	28%	17,547	100%

Source: Redmond Land Use Database, 1995

Table 4-5:
Projected Increase in the Number of Residences in the Overlake Neighborhood and Redmond: 1995 to 2012

Unit Type	Overlake Neighborhood	City of Redmond Projected Increase in Number of Units
Single-Family Residences	292	4,415
Multi-Family Residences	1,136	4,433
Total	1,428	8,848

4.2.4 Commercial, Office, Wholesale, and Manufacturing Uses in the Overlake Neighborhood

Development in the commercial, office, and manufacturing areas has been characterized by a peak in 1975 to 1979 and then relatively stable development levels since then, at least until the mid-1990s. Peaks and valleys are typical in real estate, due to the cyclical natural of the economy and changes in interest rates. The cyclical nature of the economy affects the demand for new space because businesses often expand as the economy expands. Interest rates affect development because lower interest rates reduce the rents needed to make property development profitable.

This stability has been largely due to the influence first of the Koll Co. and then later by large corporations acting as owner-builders. Developers, such as Koll, usually try to time their construction based on interest rates and vacancy rates. Owner-builders, such as Safeco, Nintendo, and Microsoft, may take these factors into account, but build largely in response to their business needs. This results in a very different type of land market, a land market that responds to the needs of the owner-builders rather than development trends. The influence of these large owner-builders on the market can be illustrated by the fact that one company, the Microsoft Corporation, has built 37 percent (2,888,970 square feet) of the total non-residential building square footage in Redmond's Overlake area. This percentage does not include most of the buildings the Microsoft Corporation leased or purchased after construction.

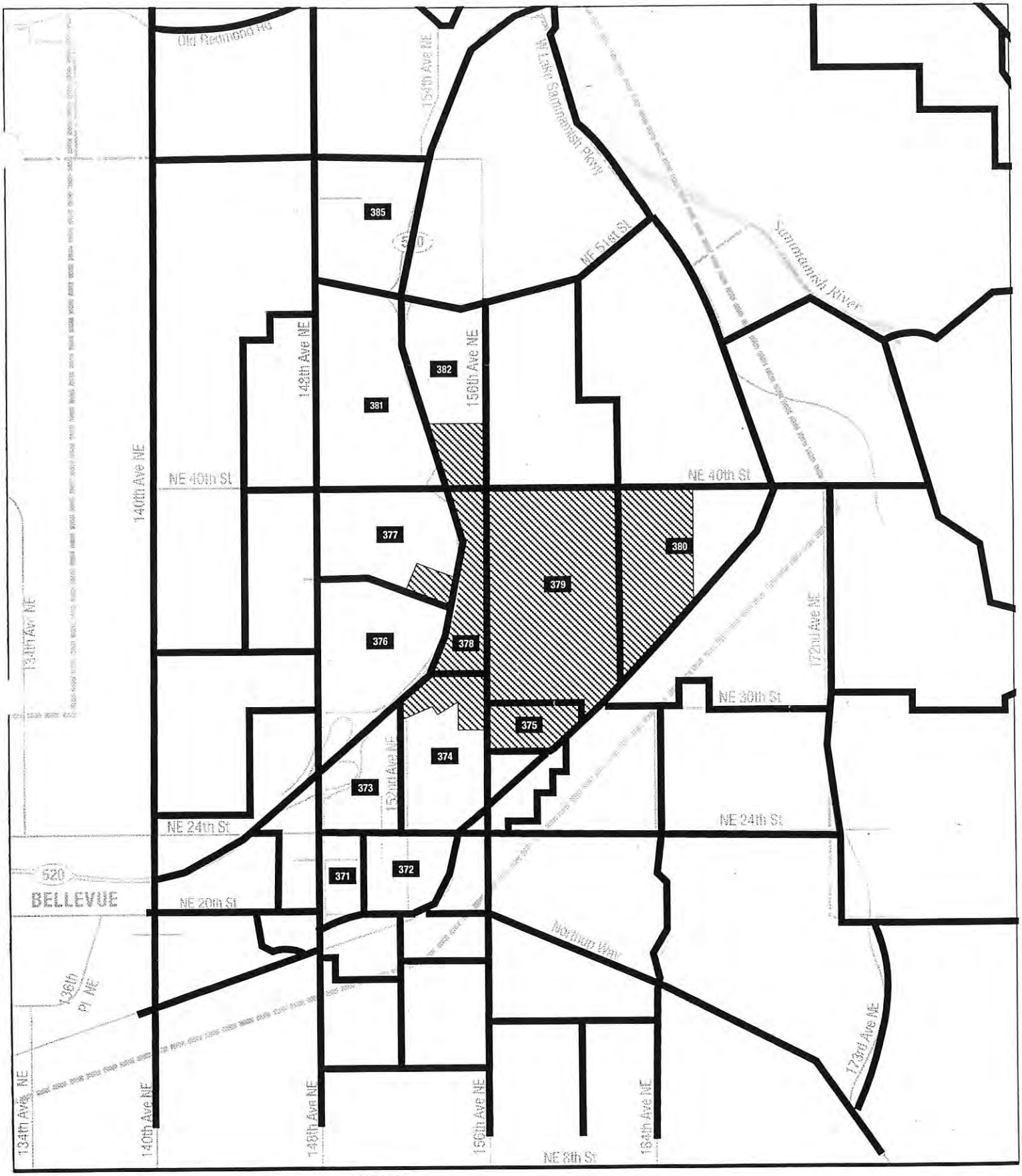
The second half of the 1990s may represent another boom in Overlake. In 1995 alone, more office space was constructed than in the previous five years.

4.2.5 Existing and Projected Development

As part of the combined study of the Overlake Neighborhood for the ONP and the BROTS Update, Redmond staff projected 2010/2012 land uses under four scenarios. The major assumptions were: 1) that residential growth would not occur beyond the *Comprehensive Plan* projections for dwelling units, and 2) that the employment growth would occur in the Advanced Technology Center designation (Figure 4-2) and the commercial areas to the south of it. The calculations were based on growth in the Traffic Analysis Zones (TAZ) within this general area, as shown on Figure 4-2. The reason for this is that the growth in each TAZ can be converted to automobile trips on the roadway network, and analyzed in the transportation model for BROTS.

Table 4-6 shows the estimated existing conditions, No Action and Preferred Alternative aggregated estimates, with details broken out only on the Preferred Alternative. Projections for TAZs in Redmond and Bellevue are in Chapter 10.

As is evident from the table, Redmond staff estimated that Overlake had (by 1995) 7,032,082 square feet of space in commercial, office, manufacturing, and institutional uses. With projects in the "pipeline" that were proposed to be built, that figure rose to 12,514,433 square feet, 599,884 square feet more than the projected 2012 target development in the *Comprehensive Plan* (No-Action Alternative). The Preferred Alternative would add approximately 3.5 million square feet of non-residential space over the No-Action Alternative.



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Scale in Feet

N

LEGEND

Study area boundary

City limits

372 TAZ boundary and number (not all TAZ numbers are shown)

Advanced Technology/ Manufacturing Center

Figure 4-2
TAZ

Table 4-6:
Commercial, Office, Retail and Industrial Space for Existing Conditions, No-Action Alternative and Preferred Alternative

TAZ & Primarily Comprehensive Plan Designation	June 1995 Employment Devel.	Development Applications as of Oct. '98	1995 Total Plus Development Applications as of Oct' 98	Buildout: Development Potential Based on Existing Zoning	No-Action Alternative	Preferred Alternative: Modified Market-Constrained Land Use								
						Total	Office	Retail	Industrial	Recrea-tion	Institutions	Single-Family (Units)	Multi-Family (Units)	Effective FAR
371: Commercial	319,630	37,835	357,465	3,735,192	400,227	310,831		310,831						0.33
372: Commercial	357,762	48,690	406,452	5,522,348	405,844	503,228	189,363	252,940		15,388	45,537		400	0.37
373: Commercial	460,560		460,910	3,350,105	479,716	593,263	368,263	225,000					450	0.41
374: Commercial + Design District	742,806	422,894	1,165,700	15,109,742	1,572,678	1,792,189	1,097,530	127,319	130,883		436,457		486	0.67
375: Business & Technology	0	321,605	314,758	303,751	241,000	340,000	340,000							0.42
376: Business & Technology	348,846	639,138	998,579	1,978,503	471,892	998,075	913,107	21,024	63,944					0.49
377: Business & Technology	827,288	497,367	1,517,862	3,313,084	1,116,216	1,473,739	1,032,772	25,000	415,967					0.47
378: Business & Technology	0	615,568	589,426	3,063,628	816,968	620,000	605,000	15,000						0.5
379, 380: Business & Technology	2,029,924	954,967	3,118,051	2,693,810	2,627,358	4,325,959	4,325,959					2	425	0.47
381: Business & Technology	1,326,227	339,864	1,556,853	4,215,434	1,495,277	2,100,000	1,645,000	25,000	430,000					0.52
382: Business & Technology	619,039	367,780	1,343,709	2,506,736	1,087,373	1,133,191	908,266	0	224,925					0.47
385: Business & Technology	0		684,668	2,927,232	1,200,000	1,267,258	1,267,258							0.45
TOTAL	7,032,082	4,245,708	12,514,433	48,719,565	11,914,549	15,457,733	12,692,518	1,002,114	1,265,719	15,388	481,994	2	1761	0.48

4.3 ONP Relationship to the Growth Management Act

The Growth Management Act of 1990 (GMA) created significant planning responsibilities for urban jurisdictions experiencing rapid growth rates. GMA requires that these jurisdictions adopt comprehensive plans that are consistent with state and county planning goals. The goals encourage development in urban areas, efficient multi-modal transportation systems, affordable housing, retention of open space, availability of public facilities and services to support development, and economic development.

The ONP, as a subarea plan, is a subset or an extension of Redmond's *Comprehensive Plan*. Like the *Comprehensive Plan*, the ONP must also be consistent with state and county goals and policies. This requirement has been amplified by state guidelines and decisions on comprehensive plan appeals. The requirement includes the following aspects:

- The neighborhood plan must be consistent with the comprehensive plan map;
- The physical aspects of the plan must be able to coexist on the available land;
- Features of the overall comprehensive plan and neighborhood must not be incompatible with each other;
- Policies must work together in a coordinated fashion to achieve a common goal; and
- The plan must be able to provide adequate public facilities when the impacts of development occur. (See RCW 36.70A.070, WAC 365-195-210, WAC 365-195-500, and *West Seattle Defense Fund v. Seattle I,* CPSGMHB Case No. 94-3-0016, GMHB 773, 788 [April 4, 1995].)

4.4 ONP Relationship to Countywide Planning Policies

As part of the comprehensive planning process in the early 1990s, King County and its incorporated cities developed a growth management plan known as the Countywide Planning Policies (CPPs). These policies were designed to help the 34 cities and King County to address growth management in a coordinated manner. The King County Countywide Planning Policies were prepared jointly and then adopted by the cities and County in 1994. Specific objectives of the Countywide Planning Policies include:

- Implementation of Urban Growth Areas;
- Promotion of contiguous and orderly development;
- Siting of public capital facilities;
- Establishing transportation facilities and strategies;
- Creating affordable housing plans and criteria; and,
- Ensuring favorable employment and economic conditions in the County.

The Growth Management Act requires that city and county comprehensive plans be coordinated and consistent with each other. This requirement was adopted by King County as CPP LU-37. The other CPPs directly relevant to the ONP are those involving population and employment

targets and the concept of Urban and Manufacturing/Industrial Centers (also called Advanced Technology Centers in Redmond). CPPs stipulate that King County's Growth Management Planning Council (GMPC) adopt 20-year target numbers for projected residential and employment populations. The GMPC assigns each city in the county specific household and employment growth figures. Each city must develop land use plans that demonstrate the ability to meet these targets. As the household targets in Redmond's *Comprehensive Plan* are not proposed to be changed by the ONP, they will not be affected by its adoption. Adoption of the Overlake Neighborhood Plan will increase the employment target for Redmond and Overlake. Its compliance with the Countywide Planning Policies is discussed below.

The Countywide Planning Policies also established criteria for the designation of specific areas for manufacturing centers. They are:

1. The center's location in the region must be suitable for a center, especially relative to existing and proposed transportation facilities and its potential for promoting a countywide system of Manufacturing/Industrial Centers.
2. The total number of centers need to meet projected needs for manufacturing land.
3. The commitment of the local government to meet manufacturing center goals. These include preserving and encouraging the aggregation of vacant or non-manufacturing land sized for manufacturing uses, discouraging incompatible land uses; accommodating 10,000 jobs; and discouraging non-advance technology office and retail uses.
4. Whether the community-wide plan focuses growth in the manufacturing center.
5. Whether the center is accessible to existing or planned transportation facilities.

Redmond's 1995 *Comprehensive Plan* found that part of Overlake meets the criteria for a manufacturing center and designated it as an Advanced Technology Manufacturing Center. Figure 4-2, TAZ, shows the area designated as an Advanced Technology Manufacturing Center.

In addition, CPP LU-58 mandates that the jurisdictions' comprehensive plans for regional Manufacturing/Industrial Centers demonstrate compliance with applicable criteria. In order to promote growth the subarea plan for such centers shall establish strategies to:

- Provide capital facility improvement projects which support the movement of goods and manufacturing/industrial operations;
- Coordinate planning with serving utilities to ensure that utility facilities are available to serve such Centers;
- Provide buffers around the center to reduce conflicts with adjacent land uses;
- Facilitate land assembly; and
- Attract the type of businesses that will ensure economic growth and stability.

4.5 ONP Relationship to Comprehensive Plans

As noted above, comprehensive plans originate with GMA. Prior to drafting or updating their comprehensive plans, many communities conducted a "visioning" process in which the public was invited to visualize and articulate a best or optimal vision of their community in the future.

The vision formed the basis for the comprehensive plan, whose main function was to set the goals and policies needed to achieve the vision. Comprehensive plans typically cover the elements specified in GMA, with other elements considered appropriate by each jurisdiction.

The creation of the ONP stems directly from a mandate in the City of Redmond *Comprehensive Plan*. In the Neighborhoods Chapter, policies recommend new plans for each Redmond neighborhood, with citizen, staff, and advisory board participation. Policy NP-4 establishes issues and opportunities that should be addressed, including implementation of the *Comprehensive Plan*, a vision for the neighborhood, land use, residential policies on attached units in subdivisions, neighborhood transportation, natural features and sensitive areas, parks and open space, neighborhood character and utilities. Further, Policy NP-7 requires that development regulations necessary to implement the plan be prepared concurrently. Section F of the Land Use Chapter deals specifically with Overlake as an Advanced Technology Center. In particular, Policy LU-54 describes the required elements of the ONP.

Several policies in the Bellevue *Comprehensive Plan* relate to the Overlake area, although Bellevue's *Plan* does not exercise jurisdiction over Redmond's portion of Overlake. There is also a long history of coordination between Bellevue and Redmond on development and transportation issues in the Overlake area, which is outlined in Appendix B-2 of the Technical Supporting Record. Both jurisdictions adopted the Evergreen Highlands Subarea Plan because this area was in unincorporated King County at the time and it was unclear who would annex what parts of the areas. Now, all of the Evergreen Highlands Subarea has been annexed by either Redmond or Bellevue. Bellevue's Evergreen Highlands Subarea applies to the portion of the subarea in Bellevue.

In addition, five Bellevue subareas abut Redmond's Overlake Neighborhood. They include Bel-Red/Northup and Bridle Trails on the west and on the east and southeast, Evergreen Highlands, Northeast Bellevue, and Crossroads. The City of Bellevue has adopted policies for each of these subareas in addition to its citywide comprehensive plan policies. In general, these policies provide for interjurisdictional agreements to protect residential neighborhoods and the compatibility of land uses near Bellevue.

4.6 Land Use Impacts

This section analyzes the land use impacts of the ONP Preferred Alternative. The ONP Preferred Alternative is the CAC Recommended Alternative and has 15.4 million square feet of non-residential space. The No-Action Alternative consists of the existing target in the *Comprehensive Plan* of 11.4 million square feet of office/retail/commercial space. The land use impacts of the projects proposed in the BROTS Update are discussed separately in section 4.9.1.7.

There are two types of potential impacts from both alternatives. The first is the potential for each alternative to be inconsistent with adopted plans, policies, and regulations which is discussed below. The second involves impacts of the alternatives on land use intensification, and the impacts on surrounding uses which stem from the intensification.

4.6.1 Consistency with Adopted Plans, Policies and Regulations

4.6.1.1 No-Action Alternative

Impacts under this alternative depend on whether the adoption of the ONP and BROTS Update would be inconsistent with the Growth Management Act, the Countywide Planning Policies, and the Bellevue and Redmond Comprehensive Plans.

Growth Management Act

The No-Action Alternative would be compatible or consistent with GMA, since no changes to the current Redmond Comprehensive Plan are proposed and the Comprehensive Plan was previously evaluated for consistency with GMA during its adoption process. However, with respect to concurrency requirements under GMA, with the No-Action Alternative, the Bridle Trails Mobility Management Area and Grass Lawn TMD will not meet their current level of service standard. The modeling that has been done for the BROTS Update is based on completing the planned development and planned transportation facilities in 2010/2012. If those facilities are in place by then, the transportation level of service standards will be met.

To ensure that the level of service standards are maintained as individual developments are constructed, both Bellevue and Redmond have adopted policies and regulations requiring that transportation facilities or strategies must be in place within six years of a development's occupancy. This is referred to as project level concurrency and major projects in Overlake must obtain concurrency approval before they can proceed.

Countywide Planning Policies

Overlake was designated as an Manufacturing Center through coordination between King County and Redmond. Redmond's *Comprehensive Plan* renamed the manufacturing center to Advanced Technology Center. This alternative would not alter that designation. However, the No-Action Alternative would not fulfill the mandate of CPP LU-58 which requires strategies for achieving the goals of the designation. While Redmond's Comprehensive Plan discusses Overlake's designation as an Advanced Technology Center, it delegates the responsibility for implementing the designation to a subsequent Neighborhood Plan. This Alternative would therefore not be consistent with CPP LU-58 and others that deal with achieving the goals for Advanced Technology Centers. Table 4-10 summarized how the No-Action Alternative addresses the policies on Advanced Technology Centers.

Comprehensive Plans

For Redmond, the No-Action Alternative would be inconsistent with its *Comprehensive Plan* because policies in the Neighborhood and Land Use Chapters mandate a new neighborhood plan for Overlake and this Alternative does not propose a new neighborhood plan. Whereas the proposed ONP addresses each of the required chapters for neighborhood plans in Policies NP-4 and LU-54 and is intended to satisfy the mandate in Policy LU-53, the No-Action Alternative does not. In addition, Policy LU-56 requires Bellevue and Redmond to update the BROTS Plan, which would not occur under this alternative. Furthermore, the *Comprehensive Plan* narrative states that the existing Overlake and Evergreen Highlands policies will not be used as the basis for the neighborhood plan. The existing policies would conflict with the intent of the *Comprehensive Plan*, which was to create a new neighborhood plan for Overlake.

Another potential impact of the No-Action Alternative would be the limitation on future development. The existing adopted target of 11.4 million square feet of non-residential floor area was the basis for the level and design of public services and infrastructure in Overlake. Although the development regulations would allow additional development, the fact that existing development has reached the target means that the infrastructure cannot support much more future development. Therefore, it will become increasingly difficult to achieve public facility and transportation concurrency, requirements of the Growth Management Act and the Redmond *Comprehensive Plan* (Policies TR-14 and UT-1). Therefore, a potential significant impact of the No-Action Alternative would be constraints on the growth of commercial and industrial development.

The *Comprehensive Plan* contains numerous policies on the Advanced Technology Center. An analysis of how the No-Action Alternative meets these policies is presented in Table 4-10.

The Bellevue subarea plan for Evergreen Highlands would remain in the Bellevue *Comprehensive Plan* under this Alternative. Since the subarea plan has no jurisdiction over the Redmond Overlake Neighborhood, there would be no impact.

The No-Action Alternative with respect to BROTS would be inconsistent with Policy 5 of the Bel-Red/Overlake Transportation Facility Plan which requires the progress of the Redmond TFP to be evaluated and coordinated every three years. In addition, there are projects listed in the 1986 BROTS which are not included in the Redmond or Bellevue TFP, creating inconsistencies between the documents. Retaining the current BROTS Plan without the update would continue the inconsistencies between the TFPs and BROTS where some projects in BROTS have been abandoned.

4.6.1.2 Preferred Alternative (CAC Recommended Alternative)

Growth Management Act

The ONP must be consistent with the procedural and substantive requirements of the GMA. Substantively, the ONP must be consistent with GMA, the Redmond *Comprehensive Plan*, Countrywide Planning Policies and internally consistent with the implementing development regulations. Procedurally, the development and adoption of the ONP must ensure adequate public participation.

The Overlake Neighborhood Plan meets the criteria for compliance with GMA discussed in Section 4.3. The land use plan map applies Residential, Design District, Commercial, and Overlake Business and Advanced Technology designations to Overlake Neighborhood. The plan is consistent with the *Comprehensive Plan* map and provides for policies to help implement the designations. In addition, the proposed development regulations implement the Overlake Business and Advanced Technology Comprehensive plan map Designation by proposing the Overlake Business and Advanced Technology Zone. It also implements the Commercial Comprehensive Plan Map Designation by proposing the Retail Commercial Zone.

The physical aspects of the plan and development regulations are able to coexist on the available land. The projections prepared as part of the neighborhood plan show that 15.4 million square feet of retail commercial, office, research and development, and manufacturing uses can be constructed in Overlake. This exceeds the 11.4 million square foot target adopted in the 1995 *Comprehensive Plan.* This increase in non-residential uses is consistent with the *Comprehensive Plan* because it is within the range allowed by the *Comprehensive Plan.* The housing floor area ratios allowed in Retail commercial zone will also provide for the 1,336 multi-family housing units assumed to be constructed in the employment and commercial areas of

Overlake. This housing is planned to be constructed during the redevelopment of this area. Policies and regulations are included to encourage construction of this housing in the upper floors of office and retail commercial buildings.

The policies and regulations are consistent and work together in a coordinated fashion to achieve the proposed Overlake Neighborhood vision. The retail commercial area is provided for by policies and regulations that encourage retail, office, and residential development in this area. Policies also provide for a park in this area. Policies and regulations provide for attractive streetscapes and adequate public facilities.

The high technology office, research and development, and manufacturing area is provided for by policies that encourage these uses and an Overlake Business and Advanced Technology Zone that allows these uses. Policies and regulations provide for adequate public facilities and protections for nearby residential uses. The height and bulk limits, required landscaping, and design standards maintain the desired appearance of the area identified in the vision statement.

Policies and regulations maintain the existing residential areas and protect them from adverse impacts from those zones. These provisions include a prohibition on expanding retail commercial and employment zones into residential areas and regulations on height, glare, signs, design, and driveway location.

The ONP policies and the overall comprehensive plan are also consistent. Many ONP policies are specific and apply general comprehensive plan policies to the neighborhood. Examples include the neighborhood plan's Conservation and Natural Environment policies that apply citywide policies more specifically to Overlake. Other policies clarify general policies or fill gaps not addressed by the *Comprehensive Plan*. The design policies are examples of the latter in that they identify specific design objectives for the neighborhood not included in the comprehensive plan. These policies, however, are consistent with the comprehensive plan policies that provide for high quality design.

The ONP is also able to provide adequate public facilities when the impacts of development occur. The Redmond *Comprehensive Plan* contains policies that require the provision of adequate public facilities when development occurs. The ONP also includes policies requiring adequate facilities. The Bel-Red/Overlake Transportation Study Update identified transportation facilities needed to accommodate growth. With the completion of the BROTS Update and the Water System Plan Update, the specific improvements needed to provide for public facility concurrency will be identified. Until the Water System Plan update is completed, needed water facilities will be identified during project review.

GMA documents like the ONP must be internally consistent with the implementing development regulations (RCW36.70A.040(3)(d). Table 4-7 summarizes each policy and identifies the regulations that implement the policy.

Table 4-7:
Summary of Overlake Neighborhood Plan Policies and How the Policies will be Implemented

Policy		How It will be Implemented	
Policy Number	Policy Summary	Regulation Section	Regulation/Program Summary
N-OV-1	Protected treed ravines and slopes.	20D.140 20D.80.10-060	Sensitive (Critical) Areas and [or new line:] Tree Protection (also being updated)
N-OV-2	Runoff should not degrade lake or stream water quality.	20E.90-10	Clearing, grading and stormwater management and control requirements. Also policies N-OV-1 and N-OV-3.
N-OV-3	Limit density on steep slopes along Lake Sammamish.	Zoning Map	R-4 zoning on the adopted zoning map.
N-OV-4	Retain significant concentrations of trees.	20D.80.10-060 20D.230.30-040	Tree Protection (also being updated) Buffers in transitional zones.
N-OV-5	Retain trees along streets.	20D.80.10-060	Tree Protection (also being updated)
N-OV-6	Maintain desirable character of residential areas.	Various 20D.230	Existing residential zones. Public investments Transitions between zones.
N-OV-7	Employment and commercial zones cannot expand into residential areas.		Review of comprehensive plan amendments and rezone applications.
N-OV-8	Monitor economic condition of Overlake retail area.		Annual and periodic economic monitoring and benchmarking.
N-OV-9	Redevelopment of retail area is encouraged and housing is encouraged as part of the redevelopment	20C.50	Retail Commercial Zone and Housing Redevelopment Overlay.
N-OV-10	Accessibility to the shopping area should be improved while resolving transportation problems.		BROTS transportation facility recommendations. Public and private investments.
N-OV-11	Housing should be included in retail redevelopment.	20C.50	Retail Commercial Zone and Housing Redevelopment Overlay.
N-OV-12	Mix of uses and design should be walkable to encourage housing in the Housing Overlay	20C.50	Retail Commercial Zone and Housing Redevelopment Overlay.
N-OV-13	Public investments should support this character		Public and private investments
N-OV-14	City should provide incentives for housing production.	20C.50	Retail Commercial Zone and Housing Redevelopment Overlay. Citywide incentives also will be developed
N-OV-15	Required parking should be decreased to encourage housing.	20D.130	Existing parking requirements meet this policy.
N-OV-16	Floor Area Ratios (FARs) and height limits should encourage housing production.	20C.50.25-090 20C.50.30-020(b)(2)(ii)	FAR is 2.86 for residences. Height limit for residences is 5 stories.
N-OV-17	The City should actively seek public and private partnerships to encourage the production of affordable housing.		City's work with ARCH and others.
N-OV-18	Overlake should continue as important regional employment center. Priority industries should be encouraged to grow consistent with city policies.	20C.60	BROTS transportation improvements. Public and private investment. OV zone provisions.

Note: The Regulations Sections are only listed for new regulations proposed as part of the Overlake Neighborhood Plan.

Table 4-7, continued

Policy		How It will be Implemented	
Policy Number	Policy Summary	Regulation Section	Regulation/Program Summary
N-OV-19 Through N-OV-23	Convenience commercial uses should be allowed in the OV zone subject to certain protections.	20C.60.30-070	Convenience Commercial Cluster provisions in the OV zone.
N-OV-24	Redmond and Bellevue should continue cooperative planning.		Ongoing programs.
N-OV-25	Redmond and Bellevue should continue to consult on plan amendments, development regulation amendments, and significant development approvals.	20C.70.035-050	Process for interjurisdictional review and cooperation.
N-OV-26	Redmond and Bellevue should coordinate transportation facilities and planning.	20C.70.035-050	Ongoing and periodic activities. Process for interjurisdictional review and cooperation.
N-OV-27	Direct regional and through motor vehicle traffic away from neighborhoods.		BROTS improvements. Traffic calming programs. Other ongoing activities.
N-OV-28	Encourage trips on regional facilities.	20D.230.30-050	BROTS improvements. Traffic calming programs. Improvements to regional facilities. Parking and vehicle use area standards. Traffic demand management (TMD) and other activities.
N-OV-29	The city should maintain a priority list of transportation facility improvements.		Capital facility budgeting.
N-OV-30	The city should maintain a priority list of sidewalks, bikeways, and trails.		Capital facility budgeting.
N-OV-31	A full range of transit services should be provided to Overlake.		Ongoing transportation planning and implementation activities. Public and private investments.
N-OV-32	The Redmond Police should maintain a Police substation in Overlake.		Police Department implementation.
N-OV-33	Adequate public facilities should be provided in Overlake.		Development review. City adequate public facility requirements. Public facility planning. Public and private investment.
N-OV-34	Public and private partnerships should be encouraged to serve human services needs.		Ongoing human services programs.
N-OV-35	Human services needs should be periodically evaluated at the neighborhood level.		Ongoing human services programs. Needs assessments are done periodically.
N-OV-36	Periodically evaluate the need for a library in Overlake.		Ongoing neighborhood planning efforts.
N-OV-37 N-OV-38	Provide for a park and pedestrian system in the retail area.		Ongoing park land acquisition programs. Development review.
N-OV-39 N-OV-40	Provide for pedestrian ways and accesses between uses in the retail area.	20C.50.25-110	Public and private investments. Pedestrian Standards.
N-OV-41	Consider a pedestrian overpass across 148th Avenue NE to tie the retail commercial area together.		Ongoing street and sidewalk improvement capital planning. Public and private investments. BROTS Update proposes a facility plan for 148th Avenue NE south of SR 520 that will evaluate such an over crossing as part of a facility analysis.

Table 4-7, continued

Policy		How It will be Implemented	
Policy Number	Policy Summary	Regulation Section	Regulation/Program Summary
N-OV-42	Acquire and construct two special use parks in the employment area.		Ongoing parks planning and implementation. Development review.
N-OV-43	Encourage additional open spaces and recreation areas throughout the neighborhood.		Ongoing parks planning and implementation. Development review.
N-OV-44	Public and private partnership should be encouraged to provide for parks and open space throughout the neighborhood.		Ongoing parks planning and implementation. Development review.
N-OV-45	Park improvements and street furniture should have a sense of permanence.		Ongoing parks planning and implementation. Ongoing street and sidewalk improvement capital planning. Development review.
N-OV-46	The city should work with landowners to provide a comprehensive and connected trail system.		Ongoing parks planning and implementation. Development review.
N-OV-47	Maintain the equestrian and pedestrian trails in the neighborhood and provide for sage crossings where they cross streets.		Ongoing parks and recreation maintenance. Carefully planning and implementing transportation improvements. Evaluate adoption of an equestrian overlay or equestrian policies.
N-OV-48	Initiate and encourage community involvement by establishing programs to physically enhance neighborhoods.		Ongoing program such as Redmond's Neighborhood Matching Fund Program.
N-OV-49	Design concept for the shopping and mixed-use area is a lower-rise suburban shopping and service district.	20C.50	Retail Commercial Zone. Design review. Staff is evaluating whether additional design guidance is needed.
N-OV-50	Design concept for the Housing Emphasis Area as a mixed-use pedestrian oriented shopping, services, and housing area.	20C.50	Retail Commercial Zone and Housing Redevelopment Overlay. Design review. Staff is evaluating whether additional design guidance is needed.
N-OV-51	Mixed use and housing projects should use traditional architectural design elements.		Design review. Staff is evaluating whether additional design guidance is needed.
N-OV-52	Design concept for employment area is for moderate intensity, low to moderate scale buildings with significant open spaces and landscaping.	20C.60	OV zone development standards. Design review. Staff is evaluating whether additional design guidance is needed.
N-OV-53	In moderate- and high-density residential areas, housing projects should use traditional architectural design elements.		Design review. Staff is evaluating whether additional design guidance is needed.
N-OV-54	Building and site design in the employment area should encourage alternative travel modes.	20D.240.20-010	Transit supportive development standards.
N-OV-55	Building facades shall be varied and articulated.		Design review. Design Standards.
N-OV-56	Urban design, building design, and site design should be of high quality.		Design review. Design Standards.
N-OV-57	Neighborhood residents, property owners, ant the community should periodically evaluate design in Overlake.		Neighborhood Plans. Periodic updates of Design Standards

Table 4-7, continued

Policy		How It will be Implemented	
Policy Number	Policy Summary	Regulation Section	Regulation/Program Summary
N-OV-58	Green streets should encourage alternative travel modes such as walking, biking, and transit. Specific improvements are identified.	20D.240.20-010 20D.240.20-020	Transit supportive design development standards. Green street regulations.
N-OV-59	Encourage higher intensity development along 152nd Avenue NE and lower intensities along Bel-Red Road.	20C.70.035-040	FAR and height overlays.
N-OV-60	Residential neighborhood should be protected from potentially adverse impacts of non-residential uses.	20D.230	Transitions between Zones.
N-OV-61	Transition zones should be retained.	Zoning map.	Zoning map.
N-OV-62	Uses that may impact residences should be located away from residential areas.	20D.230.30-060	Location of uses and site operations provisions.
N-OV-63	Site and building development should provide for transitional uses and building and site design to protect residences.	20D.230.60-060 20D.230.30	Location of uses and site operations provisions. Transition overlay development standards.
N-OV-64	A maximum floor area and greenbelt shall be provided along Bel-Red Road	20C.70.035-020 20C.70.035-040	Supplemental buffer requirements. FAR and height overlays.
N-OV-65	The location of driveways and streets should minimize through traffic and other impacts.	20D.230.30-050	Parking and vehicle use area standards.
N-OV-66	Disruptive activities should be scheduled to minimize impacts on adjacent uses.	20D.230.30-060 20D.100	Location of uses and site operations. Noise control regulations.
N-OV-67	Neighborhood protection streets shall have the appearance of boulevards, with low rise buildings and generous setbacks.	20D.230	Transitions between Zones.
N-OV-68	The design of any connections onto Bel-Red Road involve Sherwood Forest residents and be designed and constructed to prevent through traffic from entering the neighborhood.	20D.230.30-050	Ongoing street and sidewalk improvement capital planning. Development review. Parking and Other Vehicle Use Areas.
N-OV-69	Redevelopment should be encouraged.		BROTS facilities. Public and private investments.
N-OV-70	Underground parking and parking structures are encouraged. Incentives should be provided.	20D.230.30-20	Maximum building height includes an incentive.
N-OV-71	Policies on allowing duplexes.	20C.70.035-030	Supplemental regulations for 2- to 4-plexes.
N-OV-72	Policies on allowing 3- and 4-plexes.	20C.70.035-030	Supplemental regulations for 2- to 4-plexes.
N-OV-73	Design policies on allowing 3- and 4-plexes.	20C.70.035-030	Supplemental regulations for 2- to 4-plexes.
N-OV-74	Affordable housing density bonus for 2- to 4-plexes.	20C.30.70-030(4)	Multiplex affordable housing bonus.
N-OV-75	The Neighborhood Plan allows for a total development capacity of 15.4 million square feet of retail, office, research and development, manufacturing, and distribution uses in Redmond's Overlake Neighborhood. Additional development may be allowed if additional trips are generated. This target should be reevaluated when more transit is available or non-SOV travel modes increase.	20C.50 20C.60 20C.210.60	Retail Commercial (RC) Zone Floor Area Ratio (FAR) of 0.41. Overlake Business and Advanced Technology (OV) Zone FAR of 0.47. Trip Cap
N-OV-132	Design District designations shall support the preferred land use pattern identified in this plan and the other policies of this plan		Implemented when Design District, that is site specific zoning, is developed.

Procedurally, local governments must provide for early and continuous public participation in the development of neighborhood plans and regulations (RCW 36.70A.140). The requirements include preparing and broadly disseminating a public participation program identifying public involvement procedures. Working with the Overlake Neighborhood Plan Citizen Advisory Committee (CAC), staff prepared a public participation program and provided it free to interested persons and organizations, including all members of the CAC.

Techniques included in the public participation program included a CAC representing neighborhood residents, property owners, residents of neighboring neighborhoods, and the City of Bellevue. The CAC identified issues, considered alternatives, and then worked with staff to draft the neighborhood plan vision and policies. The CAC was also given the opportunity to review the draft regulations. All of these materials were widely disseminated to members of the public through a mailing list, a hot line, and at a neighborhood workshop. A mailing describing the neighborhood plan and key issues was mailed to all neighborhood residents and businesses. It was also mailed to many property owners. The public was also invited to attend CAC meetings and speak to the committee. Letters, faxes and other written materials were provided to the committee, as were summaries of oral comments. More detail on the public involvement process is provided in Section 1.8.

During the scoping process for the draft EIS, a comment requested that the Preferred Alternative's compliance with the Growth Management Act's goal of avoiding sprawl be analyzed. The Growth Management Act calls for reducing the inappropriate conversion of undeveloped land into sprawling, low-density development. While there is no commonly accepted definition of sprawl, some yardsticks do exist. As will be noted below, the portion of Overlake designated as an Advanced Technology/Manufacturing Center exceeds the employment capacity target in the Countywide Planning Policies for Advanced Technology/Manufacturing Centers. In addition, the zoning capacity for the Advanced Technology/Manufacturing Center is 68 employees per gross acre. This is well above the 50 to 60 employees per acre commonly cited as the threshold for efficient local bus service. See for example Sno-Tran, *A Guide to Land Use and Public Transportation, Volume 1* 3-6 (July 1991). For the Overlake Business and Advanced Technology (OV), Design District, and the Retail Commercial (RC) zones combined, the projected 2012 employment, which is also capacity, averages to 54 employees per gross acre. In addition, high density residential development is included in the Retail Commercial zone, which is also an Activity Area. Based on this data, it does appear that the Overlake Neighborhood Plan reduces sprawl.

However, as was discussed above, the level of development allowed by the Overlake Neighborhood Plan does not meet anticipated market demands. If businesses chose to locate in the region and in Urban Centers, Advanced Technology/Manufacturing Centers, or Activity Areas, these choices may help to reduce sprawl since intensities in these areas are generally above those recognized as sprawl, although in some of these locations 2012 employment intensities will be lower than in Overlake. If they choose to locate on vacant land sites and develop at low densities, it may increase urban sprawl and the adverse social and environmental impacts that result from sprawl. These impacts include more traffic, air pollution from traffic, and water pollution from increased storm water.

Countywide Planning Policies

Since subarea plans are part of a city's comprehensive plan, the Overlake Neighborhood Plan must not conflict with Countywide Planning Policies. Since the ONP was developed as a result of directives stemming from the CPPs regarding Manufacturing/Industrial Centers, this alternative does not conflict with the CPPs. In particular, the proposed ONP fulfills the mandate of planning for employment in the area by establishing a maximum FAR of 0.47, which is projected to accommodate approximately 21,565 employees.

In 1995, Redmond adopted an employment target of 29,509 net new jobs. The Countywide Planning Policy range is 29,509 to 34,700 net new jobs. The 1995 *Redmond Comprehensive Plan* allocated 14,593 net new jobs to Overlake. The Overlake Neighborhood Plan will increase the Overlake target to 26,735 net new jobs, an increase of 12,143. The following table compares the current and proposed employment target for the Overlake Neighborhood.

Table 4-8:
Employment Targets for Overlake
1995 Comprehensive Plan and Proposed Neighborhood Plan

	1993 Employment	Increase	2012 Total
1995 Comprehensive Plan Target for Overlake	20,130	14,593	34,722
Neighborhood Plan Target for Overlake	20,130	26,735	46,865

Of the 46,865 total jobs in Overlake 2012, it is projected that 43,408 jobs would be in office and research and development sectors, 1,634 would in the retail trade sector, and 1,823 would be in manufacturing sectors.

The increase in the employment target will increase the citywide employment target to 41,652 net new jobs. This is outside the range in the Countywide Planning Policies. However, the Countywide Planning Policy targets are floors and not ceilings. The Overlake Neighborhood Plan is consistent with the target since it will accommodate more employment than the target and the target is a minimum and not a maximum. (See *West Seattle Defense Fund v. Seattle I*, CPSGMHB Case No. 94-3-0016, GMHB 773, 806-807 [April 4, 1995].)

The King County Countywide Planning Policies include four requirements for zoning for manufacturing centers, such as the Overlake Advanced Technology Center. First, the zoning must preserve and encourage the aggregation of vacant or non-manufacturing industrial land parcels sized for manufacturing/industrial uses. The proposed Overlake Business and Advanced Technology (OV) zone is proposed for the Overlake Advanced Technology Center. The proposed 1.5-acre minimum lot size will preserve such parcels. The zoning would also encourage aggregation of parcels by providing that the zoning regulations apply to the entire ownership, not just individual parcels.

Second, the zoning is to discourage land uses that are not compatible with manufacturing, industrial, and advanced technology uses. The land uses in the OV zone were carefully selected to be compatible with manufacturing and high technology uses. Uses, that may be incompatible in certain locations require site-specific review and can be denied for incompatibility. In addition, the largest number of allowed uses fall into manufacturing, distribution, and high technology categories.

Third, the zoning must accommodate a minimum of 10,000 jobs. Using the FARs included in the proposed OV zone, the area within the Advanced Technology Center can accommodate 21,500 employees.

Fourth, the size of offices and retail uses must be limited unless they are an accessory use. In the Advanced Technology Center most offices are accessory to advanced technology uses. Retail uses are limited in type and location. The proposed FARs also limit the size of all offices and retail uses.

The CAC Recommended Alternative, therefore, fulfills the mandate of the King County CPPs for Overlake.

Comprehensive Plans

Redmond's *Comprehensive Plan* Policy NP-4 requires neighborhood plans to address specific issues. Table 4-9 illustrates how the proposed ONP meets the requirements.

Table 4-9:
Comparison of the Proposed ONP with Requirements for Neighborhood Plans

Redmond Comprehensive Plan, Policy NP-4: Required Components of an Overlake Neighborhood Plan	Proposed Overlake Neighborhood Plan
Issues and opportunities raised by neighborhood residents, businesses, property owners and other interested groups and individuals.	The Citizen Advisory Committee (CAC) provided a forum for these groups to raise and resolve specific issues. The CAC unanimously recommended adoption of these policies on August 7, 1997. Please refer to Public Involvement, Section 1.8, for more information.
Implementation of the citywide Comprehensive Plan.	The narrative portion of the Overlake Neighborhood Plan discusses how Redmond's Comprehensive Plan is implemented through the ONP.
The vision for the neighborhood.	Vision statements can be found in Section 2.1.2
Land use.	Background narrative and policies regarding land uses can be found in the sections of the ONP on conservation and natural environment, residential areas, shopping and mixed-use areas, housing, convenient stores and services, public facilities and services, neighborhood protection, redevelopment, attached housing, growth and development, and transportation.
Whether duplexes, three-plexes, four-plexes and townhouses may be allowed in new subdivisions within the neighborhood.	Background narrative and policies on this issue can be found in the policy section on Attached Housing in the Low-Moderate Density Comprehensive Plan Designation.
Neighborhood transportation, including transit service, pedestrian, bicycling and equestrian paths and traffic management.	Background narrative and policies can be found in the policy sections on Transportation, Neighborhood Protection, and Recommended Citywide Policies.
Natural features and sensitive areas.	Background narrative and policies can be found in the policy section on Conservation and Natural Environment.
Parks, open space and community facilities.	Background narrative and policies can be found in the policy section on Public Facilities and Services.
Neighborhood character.	Background narrative and policies can be found in the sections on Residential Area Policies, Housing Policies in the Shopping & Mixed Use Area, Community Improvements, Design Policies, Neighborhood Protection Policies, Attached Housing in the Low-Moderate Density Comprehensive Plan Designation, and Growth and Development Policies .
Utilities and energy conservation.	Utilities and energy conservation policies are those of the Redmond Comprehensive Plan, unless otherwise contained in the section on Policies for Public Facilities and Services.

In addition, the CAC Recommended Alternative is consistent with, and would satisfy the mandates in other policies in Redmond's *Comprehensive Plan* pertaining to Overlake, specifically Policies LU-53, LU-54, and LU-56. Policy LU-53 mandates a new neighborhood plan for Overlake. The proposed ONP addresses each of the required chapters for neighborhood plans in Policy LU-54. The CAC Recommended Alternate fulfills the requirement of Policy LU-56, stipulating an update of BROTS.

This alternative would also relieve existing conditions wherein the target for development in Overlake has already been exceeded and the infrastructure may not support further development. The existing adopted target of 11.4 million square feet of non-residential floor area would be changed to 15.4 million square feet, thus forming a new basis for infrastructure planning for the next two decades. Therefore, the ability of future development to achieve public facility and transportation concurrency will be less difficult and development would be less constrained by the concurrency requirements.

For the City of Bellevue, this alternative would be consistent with the intent of *Comprehensive Plan* policies recommending coordination between Redmond and Bellevue. As the ONP has no jurisdiction over areas within Bellevue, there would be little direct impact in that area. With respect to projected development in Bellevue, the CAC Recommended Alternative does not change the intensity of land uses, so there would be no impact on density or intensity of land uses.

Under the Preferred Alternative, the BROTS update would be incorporated into the TIP, CIP and TFP, thereby making BROTS consistent with these plans. The vision statements and goals in the Update would also reinforce policies in both *Comprehensive Plans* that encourage alternative modes of transportation and residential neighborhood protection from traffic impacts.

In addition to the planning policies discussed above, the Redmond *Comprehensive Plan* contains specific policies for the Advanced Technology Center in the Overlake Planning area.

Table 4-10 summarizes how the No Action and CAC Recommended Alternatives accommodate the Advanced Technology Center policies of the Redmond Comprehensive Plan.

4.6.2 Development Intensities

Table 4-11 compares the net additional development that is projected under the No Action and Preferred Alternative within each traffic analysis zone (TAZ) in Redmond's Overlake Neighborhood. The 1995 development totals includes projects already in the "pipeline" based on applications received, all of which may not be built. The potential impacts from both alternatives can be assessed by looking at the proposed development target and its potential effect on existing land uses. Figure 4-3 graphically displays the changes in intensity by TAZ.

The existing zoning in Overlake is also presented in the Table to show the difference between the potential full development that could occur. Under existing zoning regulations, full development is much greater than that allowed by the growth targets.

Table 4-10:
Compliance of Both Alternatives with Advanced Technology Center Policies

Overlake Advanced Technology Center Policies (policies are paraphrased to conserve space)	No-Action Alternative: Existing Comprehensive Plan	CAC-Recommended Alternative: the Proposed ONP
LU-42: Transit planning should provide for adequate service levels to the Overlake Advanced Technology Center. Site design for the center shall be supportive of transit service and its patrons.	Supported by TR-32 (high-capacity transit to Overlake), TR-35 through TR-42 (adopted Transit Development Plan, Transit/HOV Capital Facility Plan); LU-100 (design features to support alternatives modes).	Same Comprehensive Plan Policies, PLUS: N-OV-30 (pedestrian connectivity), N-OV-31 (transit service), the BROTS Update (non-motorized system projects), and amendments to the Comprehensive Plan (TR-47A, TR-47B, and TR-47C, and ONP development regulations for transit supportive development, which applies city-wide).
LU-43: Plan designations, neighborhood planning policies and development regulations should provide for an appropriate range of uses within the center. Advanced technology uses shall be protected from incompatible uses within the Advanced Technology Center.	Existing policies for Overlake in Comprehensive Plan (N-OV-1 through N-OV-16) only include the range of densities to be considered in a future plan. LU-131: Overlake Business and Advanced Technology Designation description requires that existing zoning Business Park (BP), Community Office (CO), and Community Business (CB) remains in place until ONP and BROTS are completed. Therefore, existing zoning & Comprehensive Plan uses not consistent and Advanced Technology Center uses not specifically identified (or protected).	Range of uses in Retail Commercial (RC) zone are similar to range of uses in GC zones, except that uses requiring large areas and/or outdoor storage or display, such as auto or boat sales, furniture sales/rental, utilities and outlet malls are conditional uses; and includes a Housing Redevelopment Overlay which encourages residential development. Range of uses in Overlake Business and Advanced Technology (OV) zone have similar recreation and entertainment uses as in BP zone, but allows convenience commercial uses (with limiting provisions). Permitted manufacturing uses are similar to BP uses, being restricted to high-value-added industries such as pharmaceuticals, biotechnology, computer software and hardware, medical equipment, and instruments. Also permits service uses similar to BP zones, such as research and development, photography, corporate/regional offices, business services and warehousing and distribution. Unlike BP, allows churches as a conditional use and requires conditional use permit for commercial parking lots or structures.
LU-44: Development within the Overlake commercial, advanced technology, and business areas shall mitigate impacts on nearby residential neighborhoods.	Policy NP-15 has restrictions on impacts of neighborhood commercial on residential areas; Policies LU-64, LU-78, LU-90, LU-92 deal with limiting impacts on adjacent uses, providing for transition between uses.	Same protections as under existing Comprehensive Plan, PLUS: ONP Policies N-OV-49 to N-OV-58 (Design) and N-OV-60 to N-OV-68 (Neighborhood Protection). Development regulations include: • Max. Height and FAR Overlay. • Transition Overlay. • Neighborhood Protection Streets.

Table 4-10, continued

Overlake Advanced Technology Center Policies (policies are paraphrased to conserve space)	No-Action Alternative: Existing Comprehensive Plan	CAC-Recommended Alternative: the Proposed ONP
LU-45: Development standards, including capital facility level of service standards, should be set so that development will be accommodated with the Advanced Technology Center consistent with existing and planning infrastructure capacity.	Existing development standards and capital facility levels of service are designed to accommodate 11.4 million square feet of non-residential office space. Since target has already been exceeded, this alternative could limit future development due to difficulty of meeting capital facility concurrency requirements.	Proposed ONP would set new target of 15.4 million square feet of office space as basis for capital facilities planning; BROTS Update is designed to accommodate target in proposed ONP. Therefore, this alternative would accommodate proposed growth in the Advanced Technology Center.
LU-46: Overlake should develop in a manner that maintains the transportation service standards and concurrency requirements of both Redmond and Bellevue, consistent with policy TR-17.	Projected development and 12-year transportation plans under this alternative is predicted to result in nine more signalized intersections operating at LOS F by 2010/2012 in BROTS study area. Mitigation measures are proposed as part of this EIS. Maintains LOS standards except in Grass Lawn and Bridle Trails.	Projected development in the proposed ONP and transportation projects in BROTS Update are predicted to result in 13 more signalized intersections operating at LOS F by 2010/2012 in BROTS study area. Mitigation measures are proposed as part of this EIS. TRG recommendation maintains LOS standards except in Grass Lawn. Staff recommendation maintains LOS standards except in Grass Lawn and Bridle Trails.
LU-54 The Overlake Neighborhood Plan shall address the following issues: 1. The intensity of development appropriate for Overlake. FARs: Advanced Technology Center: 0.45 to 0.7 Business and Advanced Technology: 0.35 to 0.6 Commercial Area: 0.3 to 0.5 Design District: 1.1 The intensities determined by the plan shall be consistent with the available and planned infrastructure, transportation level of service standards, capital facility level of service standards, and available financing.	Not addressed.	Effective FARs in proposed ONP: Business and Advanced Technology Center areas range from 0.42 to 0.47. Commercial areas range from 0.36 to 0.0.41. For the retail commercial area, an FAR bonus of 2.5 is proposed for housing. BROTS Update proposes transportation improvements to accommodate projected development.
Growth Phasing: Development regulations shall implement the growth phasing policies. The plan shall identify infrastructure needs, how those needs should be addressed, and financing methods. Transportation infrastructure planning shall be coordinated with BROTS update.	Capital facility and infrastructure needs addressed for Redmond as a whole in Comprehensive Plan. Overlake not specifically addressed, but infrastructure planned to accommodate only 11.4 million square feet of non-residential space, which has been reached. Original BROTS plan outdated.	Water, Wastewater, Stormwater, Fire Services and other infrastructure needs are addressed in the proposed ONP. Utilities and other capital facilities for Overlake are addressed in the Comprehensive Plan. BROTS Update will address transportation needs. The transportation concurrency system will be used to match transportation facilities to growth.

Table 4-10, continued

Overlake Advanced Technology Center Policies (policies are paraphrased to conserve space)	No-Action Alternative: Existing Comprehensive Plan	CAC-Recommended Alternative: the Proposed ONP
Neighborhood Protection: Measures shall be developed to implement the neighborhood plan and protect residential neighborhoods from the impacts of allowed development, including transportation impacts.	See policies under "mitigate impacts on residential neighborhoods", above. Otherwise, not specifically addressed for Overlake Neighborhood.	See policies under "mitigate impacts on residential neighborhoods", above. Specifically addressed under ONP Policies, and development standards (please refer to separate table on Neighborhood Protection).
Updated Neighborhood Policies: The policies updated shall include changes to the Evergreen Highlands policies.	No update would occur.	Evergreen Highlands will be updated with proposed ONP.
Development standards: Development standards to implement the neighborhood plan and consistent with existing and planned infrastructure shall be prepared as part of the neighborhood planning process.	No new development standards would be adopted.	New development standards would be adopted. Refer to "Overlake Use Regulations".

4.6.2.1 No-Action Alternative

The difference between the No-Action Alternative and existing conditions plus the development applications is a net *existing* over-development of approximately 599,884 square feet. That is, Overlake has approximately 599,884 square feet of non-residential space in the development applications stage beyond what was planned in the Redmond *Comprehensive Plan* for the neighborhood. Since public facilities were planned to support only the target development in the *Comprehensive Plan*, additional development could be restricted by difficulties in meeting the concurrency requirements of GMA.

The distribution of intensity differs between existing conditions and the No-Action Alternative. The No-Action Alternative would result in an estimated increase in commercial development of approximately 1,211,420 square feet.

This new development would occur mostly in TAZs #371 (northeast of 148th Avenue NE and Bel-Red Road), #374 (between 152nd Avenue NE and 156th Avenue NE and south of NE 31st Street) #378 (between SR 520 and 156th Avenue NE and north of NE 31st Street and south of NE 40th Street), and #385 (between NE 148th Street and SR520 and north of NE 51st Street and south of NE 60th Street extended). A little additional development would occur in TAZ #373 (southeast of SR 520 and 148th Avenue NE).

There would be an increase of approximately 1.4 million square feet in office uses and light industrial (high technology research and development) uses in the areas with the Business and Technology designation, in TAZs #378, and #385. This encompasses the areas south of NE 40th Street and east of SR 520, and the area north of NE 51st Street and west of SR 520. New development would occur either as extensions of existing developments, or as infill in currently vacant (but appropriately zoned) land. TAZ 385 has adjacent low-moderate density residential areas separated by a major street to the west and a trail to the south.

Some business areas under this alternative have already exceeded the No Action projections. These include: TAZ #375 which exceeds its projection by 73,758 square feet; and TAZs #376, #377, #381 (between 148th Avenue NE and SR 520, south of NE 51st Street) and #382 between SR 520 and 156th Avenue NE and between NE 40th Street and NE 51st Street) which exceed their projections by approximately 1.7 million square feet.

There would be a projected increase of 2,196 new housing units in the entire neighborhood between 1993 and 2012, including 1,336 multi-family units in the commercial areas of Overlake.

4.6.2.2 Preferred Alternative

The main impact under this alternative would be new non-residential development of approximately 2.9 million square feet beyond the 1995 total plus development applications as of October 1998, and 3.5 million square feet more than proposed under the No-Action Alternative and any impacts on uses from the new development. Therefore, one major difference between this alternative and the No-Action Alternative is that new development would be encouraged by raising the development target. This alternative redistributes the potential development compared to the No-Action Alternative. In some areas of Overlake, no new development beyond existing conditions is targeted, regardless of whether the area is above or below the 1985 *Comprehensive Plan* target. In other areas, the new target exceeds the 1995 total plus development applications as of October 1998, and the 1995 target. The projected development (and the

Table 4-11:
Non-Residential Square Footage by TAZ for Existing, No Action, and Preferred

	A	B	C	D	E	F	G	H	I
TAZ & Primarily Comprehensive Plan Designation	June 1995 Employment Devel.	Development Applications as of Oct. '98	1995 Total Plus Development Applications as of Oct. '98)	Buildout: Development Potential Based on Existing Zoning	No-Action Alternative	Difference Between No-Action and Column C	Preferred Alternative: Modified Market Constrained Land Use	Difference Between Preferred Alternative and Column C	Difference Between No-Action & Preferred Alternative
371: Commercial	319,630	37,835	357,465	3,735,192	400,227	42,762	310,831	-46,634	-89,396
372: Commercial	357,762	48,690	406,452	5,522,348	405,844	-608	503,228	96,776	97,384
373: Commercial	460,560	350	460,910	3,350,105	479,716	18,806	593,263	132,353	113,547
374: Commercial + Design District	742,806	422,894	1,165,700	15,109,742	1,572,678	406,978	1,792,189	626,489	219,511
375: Business & Technology	0	314,758	314,758	303,751	241,000	-73,758	340,000	25,242	99,000
376: Business & Technology	348,846	649,733	998,579	1,978,503	471,892	-526,687	998,075	-504	526,183
377: Business & Technology	827,288	690,574	1,517,862	3,313,084	1,116,216	-401,646	1,473,739	-44,123	357,523
378: Business & Technology	0	589,426	589,426	3,063,628	816,968	227,542	620,000	30,574	-196,968
379, 380: Business & Technology	2,029,924	1,088,127	3,118,051	2,693,810	2,627,358	-490,693	4,325,959	1,207,908	1,698,601
381: Business & Technology	1,326,227	230,626	1,556,853	4,215,434	1,495,277	-61,576	2,100,000	543,147	604,723
382: Business & Technology	619,039	724,670	1,343,709	2,506,736	1,087,373	-256,336	1,133,191	-210,518	45,818
385: Business & Technology	0	684,668	684,668	2,927,232	1,200,000	515,332	1,267,258	582,590	67,258
Total	7,032,082	5,482,351	12,514,433	48,719,565	11,914,549	-599,884	15,457,733	2,943,300	3,543,184

Note: Numbers in parenthesis represent negative numbers

Comprehensive Plans, once the projections are adopted) would be more consistent with existing conditions, as the target would be adjusted to eliminate current over-development. Again, Figure 4-3 illustrates the distribution of new development.

The Preferred Alternative would result in a new development target in commercially-designated areas (TAZs #372, #373 and #374) of approximately 2.9 million square feet. This compares to the No-Action Alternative target of approximately 2.5 million square feet for the same area. One difference between the two alternatives in these areas is that the Preferred Alternative would essentially hold retail development steady in the area northeast of the intersection of Bel-Red Road and 148th Avenue NE. Most of the growth would be expected in TAZs #373 and #372 in combined office, and retail, and residential buildings.

Projecting future growth for small areas is difficult. Differences from the targets are very likely to occur between now and 2012.

In the areas designated for Business and Technology uses, most of the growth would be targeted for TAZs #375, #378, #379, #380, #382 and #385. TAZs #376, #377, and #382 would not be targeted for new development beyond existing and development applications.

TAZs #379 and #380 would receive the most new development under the Preferred Alternative, with approximately 4.3 million square feet, a gain of approximately 1.7 million square feet over the No-Action Alternative. The targeted level of development in TAZs #375, #378, and #385 would be similar to the target under the No-Action Alternative, but just slightly higher.

The residential targets are the same as under the No-Action Alternative.

Redmond's existing zoning regulations alone would allow over 30 million more square feet of non-residential space than the Preferred Alternative. TAZs #379 and #380, east of 156th Avenue NE and south of NE 40th Street, have nearly as much development (2.4 million square feet) as is allowed under existing zoning (2.7 million square feet), which is similar to the No-Action target of 2.6 million square feet, but is the only area where zoning allows *less* development than what is being proposed in the ONP, which is 4.3 million square feet.

In the commercial areas northwest of Bel-Red Road and southeast of SR 520 (TAZs 371, 372, 373 and 374), approximately 27.7 million square feet would be allowed under the zoning regulations which is nine times the target under the Preferred Alternative (2.9 million square feet), eleven times the target under the No-Action Alternative (2.5 million), and ten times greater than existing development.

Another notable difference is in the manufacturing area west of 156th Avenue NE and south of 40th Street NE (TAZs 376, 377, and 378) where the zoning would allow approximately 8.4 million square feet compared to 3.1 million under the Preferred Alternative, 2.4 million under the existing Comprehensive Plan target and 2.9 million square feet of existing development. For the other TAZs (381, 382 and 385) north of NE 40th Street and west of 156th Avenue NE, the development allowed under the zoning regulations would be approximately twice as much as is proposed in the ONP, three times as much as is allowed under the No Action target, and three times the existing developed square footage.

In short, with the exception of TAZs 379 and 380, the existing zoning allows considerably more development than is being proposed by the targets under either alternatives.

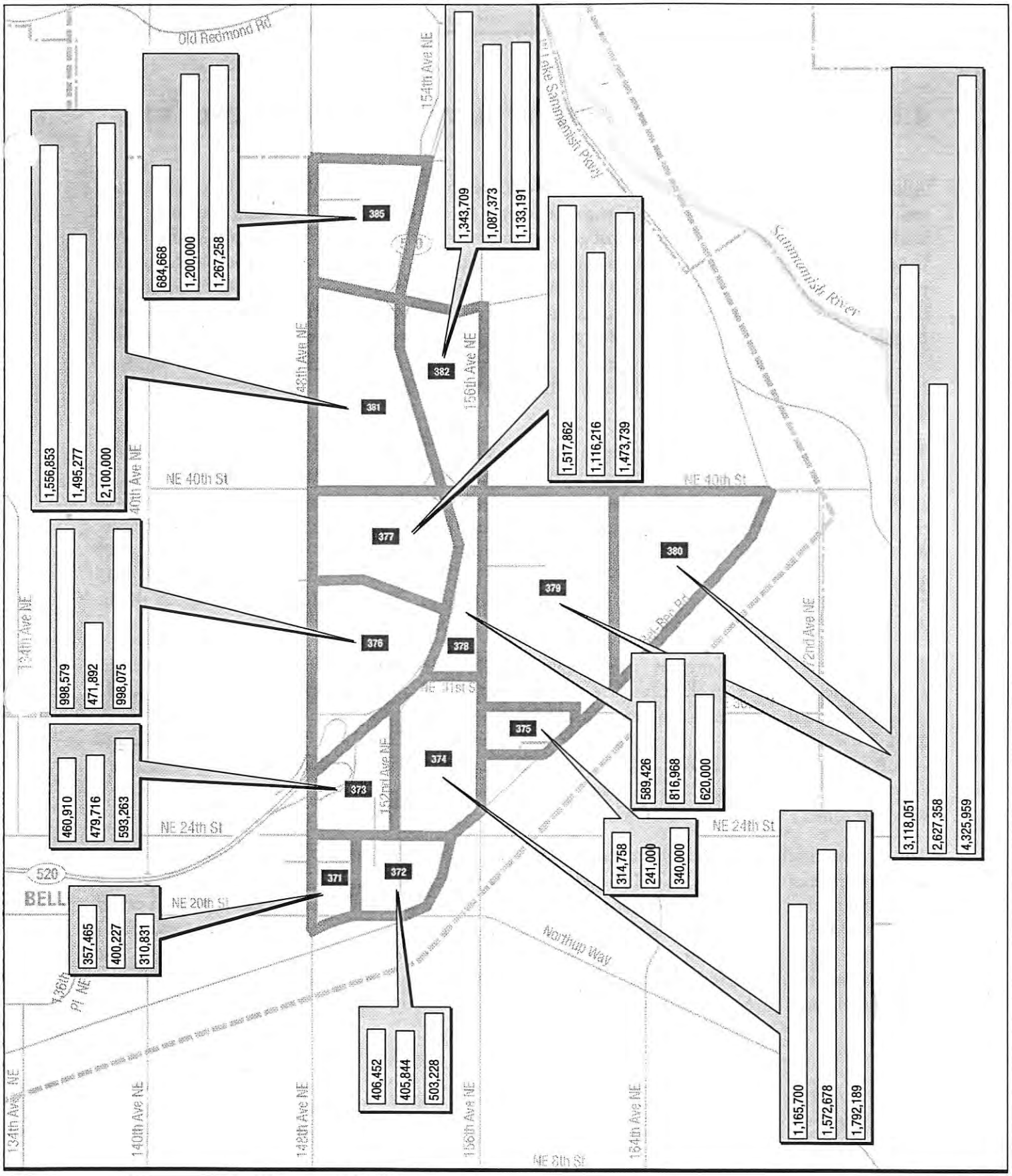


Figure 4-3
Existing & Projected Development, by TAZ

4.6.3 Cumulative Impacts on Surrounding Land Uses of Both Alternatives

Additional development under each alternative will add to noise, traffic volumes and congestion, and can generate traffic that may have a negative impact on air quality. The development may affect aesthetics. These impacts are typically of greatest concern when they affect residential neighborhoods, but can also have a deleterious effect on commercial businesses. Cumulatively, such impacts can affect people's perception of the livability of a neighborhood, or of the potential success of locating a business in a congested area. Based on the targeted areas for new development, the surrounding residential neighborhoods would be: west of 148th Avenue NE (in particular, north of 51st Street); north of 60th Street and west of SR 520; north of 51st Street and east of 156th Avenue NE; north of NE 40th Street; and, east of Bel-Red Road. The affected commercial and mixed-use areas would be in TAZs 373 and 374.

There are measures available to reduce or prevent negative impacts where incompatible uses meet. These can consist of comprehensive plan policies and development standards such as landscaping and buffer requirements maximum height and bulk, site design considerations, etc. An analysis of the relative impacts of each alternative must compare the availability and effectiveness of these protection measures. Such "neighborhood protection" measures that are available under each alternative are discussed below and described for each alternative in Table 4-12. Table 4-13 compares the development standards that affect the residential neighborhoods adjacent to the non-residential zones in Overlake.

The following table compares the neighborhood protection measures for each residential neighborhood adjacent to the Overlake non-residential area. The TAZs that are adjacent to the residential neighborhoods and are most likely to experience growth are currently zoned as follows: TAZ 378 - CO (southern portion) and BP (northern portion); TAZ 379 - PA-C and PA-B; TAZ 380 - PA-B and R12; TAZ 382 - BP; and, TAZ 385 - BP/C (BP with conditions). Under the ONP, areas currently zoned CO or CB will be changed to RC and the remainder (BP, PA-B, PA-C and PA-C) will be rezoned to OV, some with overlays.

The biggest difference in policies under the two alternatives that affects neighborhood protection is that while existing Policies LU-148 and HO-41 are intended to lessen the impacts of expansion of commercial or industrial neighborhoods into adjacent residential neighborhoods, the proposed Policies N-OV-6 and N-OV-7 prevent the extension of commercial, manufacturing, and other business designations from encroaching on designated residential areas. Therefore, the CAC Recommended Alternative offers more protection from conversion to non-residential uses than the No-Action Alternative, which does not prevent intrusion.

Table 4-12:
Neighborhood Protection Measures

Measure	No-Action Alternative: Existing Plans and Regulations	CAC Recommended Neighborhood Plan and Development Regulations
Commercial and employment zones prohibited from expanding into residential neighborhoods.	No, but compensating residential capacity is required under Comprehensive Plan Policy HO-41, which requires the City to not approve proposals that result in a reduction in residential capacity without first approving another rezone to replace the proposed loss of capacity. LU-148 requires the City to consider whether proposed plan amendments are compatible with nearby uses; and especially whether the amendment complies with Policy HO-41.	Yes. Policy N-OV-7 states that commercial and industrial zones in Overlake shall not be extended into areas designated primarily for residential uses.
Transitional zones used.	Main features are: • Site design requirements for Evergreen Highlands Design Districts (EH-B, EH-C and EH-D). (20C.65.55-020). • EH-B and EH-D provide for lower intensity of development, these correspond to zones PA-B and PA-D which abut residential uses to the south, east and north. • EH-C corresponds to zone PA-C and provides for more intense FAR and higher buildings, especially to the interior of the zone .	Main features are: • A Height Overlay and Transition Overlay that apply to development on the edges of zones that differ in intensity or primary uses, including OV and RC zones and single-family and multi-family zones in an abutting jurisdiction; • Development in Transition Overlay has reduced max. height, minimum land-scaped setbacks geared to height of building, landscaped buffers on streets abutting any protected zone, parking areas to be located away from residential areas, signs limited to monument and wall types. (20D.230.30); • Maximum height reduced in Height Overlay along 156th Ave. NE, Bel-Red Road and NE 40th Street (abuts residential areas). (20C.70.035-040).
Transitional zones used.		• Neighborhood Protection Street designation provides for special setbacks, low-rise buildings and greenbelts on Bel-Red Road, NE 148th Avenue NE, NE 40th Street and 156th Avenue NE, and • However, proposal does not include the two lower intensity zones in Evergreen Highlands.
Transitional policies and regulations.	Setbacks: 50' front on NE 40th St., 156th Ave. NE and Bel-Red Road (no modifications allowed); 20' other streets; 25' rear and 15' side; Minimum pervious surface: 50% (EH-A), 45% (EH), 30 % (EH-C and EH-D) (20C.65.55-020).	OV & RC zones required to comply if abuts residential zones. (20D.230.20-020) Requires either a 150-ft or 300-ft wide transitional zone. (20D.230.20-020) Sets max. building height for transitional zones in OV & RC, may be modified under certain conditions. (20D.230.30-020) Min. setbacks apply to properties bordering a protected zone or are across a street from a such a zone (20 ft to 30 ft, depending on building height). (20D.230.30-030) Parking lots adjoining 152nd Avenue NE (Housing Emphasis Area) must have a 10-ft-wide landscaped area between the street and lot. (20C.50.25-080)

Table 4-12, continued

Measure	No-Action Alternative: Existing Plans and Regulations	CAC Recommended Neighborhood Plan and Development Regulations
Transitional policies and regulations.		In commercial zones, no mechanical structures or equipment are allowed in a required setback or buffer abutting a residential zone. (20C.50.20-040(2)) Duplexes, three-plexes and four-plexes are allowed in Low-Moderate zones through a public hearing process. (20C.70.035-030)
Buffers required.	100-ft-wide buffer along Bel-Red Road abutting Performance Areas A, B, and C. (20C.65.55-080) 200-ft-wide buffer along 148th Avenue NE between NE 60th Street and NE 51st Street. Reduced maximum height within 150 feet of R12, on the east border of the PA-B zone.	Code section 20C.70.035-020: 100-ft-wide (sight obscuring) buffer on Bel-Red Road. 200-ft-wide buffer along 148th Avenue NE between NE 60th Street and NE 51st Street. 75-Ft-wide (mostly) buffer with berms along NE 60th Street r/w between 148th Avenue NE and SR 520. 50-ft-wide buffers required along NE 28th Street and NE 40th Street. 20-ft-wide buffers on the balance of NE 148th Avenue NE, part of NE 51st Street and part of 156th Avenue NE.
Buffers required.		Code section 20C.70.035-030: Design requirements of 20C.30A.5820(c) *Multiplex* must be met for duplex, three-plex and four-plex. Code section 20D.230.30-040: 20-ft-wide buffers on all property lines bordering a protected zone, along street frontages where any portion of the street bordering the development site, including RC-zoned sites, borders a R-1 through R-6 zone.
Standards for buffer plantings.		Code section 20D.230.30-040: All setbacks, open spaces and buffers must be landscaped. Significant trees within 15 feet of property line where a buffer is required must be retained. No more than 40% deciduous trees; 5-gal evergreen shrubs (# equals 1/3 buffer frontage); living ground cover to cover the ground within 3 years; lawns can be substituted. Where RC zone borders a residential zone on an interior property line, a 3-foot evergreen hedge must be planted. Buffers can be placed in required setbacks. Code section 20C.70.035-030: Design requirements of 20C.30A.5820(c) *Multiplex* must be met for duplex, three-plex and four-plex.

Table 4-12, continued

Measure	No-Action Alternative: Existing Plans and Regulations	CAC Recommended Neighborhood Plan and Development Regulations
Floor area ratios to provide intensity transitions.	Max. FAR 0.20 (EH-B), 0.46 (EH-C), 0.43 (EH-D) (20C.65.55-020).	Code section 20C.70.035-040: Map OV-2 creates a 300-ft-wide Height and FAR Overlay along the west side of Bel-Red Road, south side of NE 40th Street and a connecting strip along the east boundary of the Business & Advanced Technology Center zone, that has a reduced FAR (0.30) and max. height (45 feet). (The FAR increases to a min. 0.35 for buildings in an adjacent 1000-ft-wide overlay strip along 156th Avenue NE between NE 342nd St. And NE 40th St. but the lower FAR and height limits prevail where there is an overlap.)
Limits on heights to provide intensity transitions.	Max. height in feet/stories: 45' or 3 stories (EH-B, with 35-foot limitation on buildings within 150 feet of Performance Area A), 45' or 3 stories (EH-C, can increase to 75'/6 if located in interior of performance area and floor size <25,000, over 45' requires view intrusion analysis), 45' or 3 stories (EH-D) (20C.65.55-020).	In Transition Overlay, max. height is 35 feet near lower density residential zones, exclusive of bonuses. (20D.230.30-020) Max. building height in OV zones is reduced to from 52' to 45' (or three stories) when within 300 feet of a Neighborhood Protection Street. (20C.60.20-080) Max. building height in Height Overlay area is 45 feet/3 stories. (20C.70.035-040)
Taller buildings directed away from residential areas.	All buildings within 150 feet of the R12 zone on Bel-Red Road are limited to 35 feet in height.	Policy N-OV-63 states that building development requirements should provide for placement of taller buildings away from residential neighborhoods. Height restrictions in FAR and Height Overlay zone prevents tall buildings close to residential areas (20C.70.035-040 (1)(a)) and Transition Overlay buffers adjacent residential from commercial, office and industrial uses. (20D.230.30-020).
Special setbacks to provide transitions.		On 152nd Avenue NE in RC zone and on Green Streets: min is 15 feet, max. is 25'. At least 50% of front facade of building must be within maximum setback; alternative minimum setback available with compensating amenities. (20C.50.25-040) In RC zone, 0' minimum rear and side yard setbacks are increased to 10' when abutting residential zone; setback must be landscaped. (20C.50.25-120) Setbacks along Neighborhood Protection Streets are geared to building height: up to 20 feet high, setback is 20 feet; 21 to 40 feet or more, setback is 30 feet. (20C.60.25-050)

Table 4-12, continued

Measure	No-Action Alternative: Existing Plans and Regulations	CAC Recommended Neighborhood Plan and Development Regulations
Special setbacks to provide transitions.		Along portion of Bel-Red Road identified as a Neighborhood Protection Street, setback is 120 feet. (20C.60.25-050) Landscaped buffers 20 feet wide are required along property lines which border a protected zone, along streets having a portion in R-1 through R-6 zones; and along street frontages where land zoned RC, GC, MP or I is on a street that also borders R-1 through R-30 zone. (20D.230.30-030)
Limitations on parking and other vehicle use areas adjacent to residential uses.		Deliveries and outdoor maintenance activities in Convenience Commercial Clusters must occur during the daytime when abutting residential neighborhoods. (20C.60.30-070) Above ground vehicle use areas, including parking lots, should be located away from residential zones; parking & loading areas must be screened. (20D.230.30-050) Policy N-OV-27 requires regional and through traffic to be directed away from residential neighborhoods.
Limits on signs adjacent to residential uses.		Code section: 20D.230.30-070: Within the Transition Overlay, only monument and wall signs are permitted; on neighborhood protection streets, monument signs must be perpendicular to the street and not oriented to residential zones across the street; signs shall be indirectly lit; for the area bounded by NE 40th St., Bel-Red Rd. and 156th Ave. NE, only business complex signs may be oriented to these streets, and only one per entrance.
Limits on uses and operations adjacent to residential uses.	Government, professional, and business services typically permitted in Evergreen Highlands are prohibited when abutting or oriented to NE 40th Street, 156th Avenue NE or Bel-Red Road. Restaurants in EH zone cannot be located within 600 feet of Performance Area A, NE 40th Street and Bel-Red Road.	Policy N-OV-66 Code section 20D.230.30-060: Within Transition Overlay, uses must be located on a site in a way that minimizes adverse impacts on protected zones; maintenance and testing activities must occur during daylight hours; refuse collection and recycling areas should be away from protected zones and screened.
Intense uses directed away from transitional areas.	More intense uses are allowed in Performance Area C, than in Areas B and D which are across Bel-Red Road from lower density residential areas.	Uses must be located on a site so as to minimize adverse impacts on protected zones. (20D.230.30-060)
Limits on exterior and parking lot lighting adjacent to residential uses.		Within Transition Overlays, exterior lighting and interior parking lot and parking garage lighting must be designed and constructed to not fall onto protected zones. ; (20D.230.30-090)

Table 4-12, continued

Measure	No-Action Alternative: Existing Plans and Regulations	CAC Recommended Neighborhood Plan and Development Regulations
Special building design criteria in transitional areas.		Code section 20D.230.30-100: Building surfaces bordering residential zones should be clad with materials similar to or compatible with surrounding uses and which minimize reflected light.
Special building design criteria in transitional areas.		Materials and colors used on exterior surfaces should be compatible with nearby residential buildings and environment.
Streets and driveways to be located to minimize traffic on residential streets and other adverse impacts on residential neighborhoods.		Policy N-OV-27: Traffic directed away from residential neighborhoods. Code section 20D.230.30-100 (1)(a): Vehicular accesses should be designed and located so that traffic is not directed through a nearby protected zone. Vehicle use areas shall be designed and located to minimize noise and lighting impacts on nearby residential uses. Nearby topography, vegetation, street patterns, parking configuration, building mass and site design should be considered in developing a new site.
Design review required for office, retail, and manufacturing buildings.	Yes. Design Review Board reviews all applications requiring building permits, with some exceptions. (20F.10.120 (2)(a)) For the special review areas, review and comment on design by both Redmond and Bellevue is provided for.	Yes. Design Review Board reviews all applications requiring building permits, with some exceptions. (20F.10.120 (2)(a)) Also, Overlake Special Review Area will require review and comment on design by both Redmond and Bellevue. (20C.70.035-050)

Table 4-13:
Existing Development Standards for Overlake Zones That Can Affect Surrounding Residential Neighborhoods

Adjacent Neighborhood	Development Standards	
Residential	BP, PA-B, PA-C, or PA-D zones	OV zone
West of 148th Avenue NE.	BP zone: 200 ft buffer required along 148th Avenue NE between NE 51st Street and NE 60th Street. Maximum height in BP zone is 40' or 3 stories 75 ft front setback.	200-ft-wide landscaped buffer along 148th Avenue NE between NE 51st Street and NE 60th Street. 300-ft-wide Transition Overlay area with reduced bulk (FAR of 0.30), building height to 35' and minimum setbacks (geared to height, up to 30' depth to 35' height), vehicle uses away from residential areas, restrictions on signs. Neighborhood Protection Street (between SR 520 interchange and NE 60th Street).
North of 60th Street and west of SR 520.	Maximum height in BP is 40' or 3 stories.	300-ft-wide Transition Overlay area with reduced bulk (FAR) building height and minimum setbacks, ensures vehicle uses away from residential areas, puts restrictions on signs. 50- to 75-ft landscaped buffer along NE 60th Street between 148th Avenue NE and SR 520.
North of 51st Street along 156th Avenue NE.		300-ft-wide Transition Overlay area with reduced bulk (FAR) building height and minimum setbacks.
East of 156th Avenue NE.	More intense residential development creates transition to R4 residential zone to the east.	150-ft-wide Transition Overlay area with reduced bulk (FAR) building height and minimum setbacks, ensures vehicle uses away from residential areas, puts restrictions on signs. Neighborhood Protection Street.
North of NE 40th Street, abutting R30 and R12 zones.	R30 and R12 create transition between intense uses in BP zone to the west and R4 zone. Maximum FAR in PA-C is 0.46. Minimum setback 50'on NE 40th Street. Maximum height is 45 feet or 3 stories; can be increased to 75 feet if located to interior of zone (requires view analysis to assess intrusion into residential views). Maximum impervious surface is 70%; all pervious surface to be landscaped.	R30 and R12 create transition between intense uses in OV and R4 zone Maximum FAR in OV is 0.47 Maximum height is 52', but reduced to 45' when within 300 feet of a Neighborhood Protection Street. 50-ft-wide landscaped buffer required along NE 40th Street. Portion in Transition Overlay between 152nd Avenue NE and R12 zone with reduced bulk (FAR .30) building height (45 feet) and minimum setbacks, ensures vehicle uses away from residential areas, puts restrictions on signs. NE 40th Street is a Neighborhood Protection Street.
North of NE 40th Street, abutting R4 zone.	Maximum FAR is 0.2 in PA-B. Minimum setback 50'on NE 40th Street. Maximum height is 45' or 3 stories. Maximum impervious surface is 55%; all pervious surfaces to be landscaped.	Maximum FAR and Height Overlay applies to 300' strip along NE 40th Street, limiting height to 45' and FAR to 0.3. Neighborhood Protection Street. Same general development standards for OV zone as in above cell.
Between PA-B and R12 zones (office and residential areas) at the intersection of NE 40th and Bel-Red Road.	Max. height reduced to 35 ft within 150 ft of R12 zone FAR 0.20 in PA-B zone.	Maximum FAR and Height Overlay applies to 300' strip, limiting height to 45' and FAR to 0.30.

Table 4-13, continued

Adjacent Neighborhood	Development Standards	
Residential	BP, PA-B, PA-C, or PA-D zones	OV zone
South and east of NE 28th Street between 156th Avenue NE and Bel-Red Road.	PA-D provides transition between more intense PA-C and adjacent zones. Maximum FAR is 0.43 (less than PA-C). Maximum height is 45'. Maximum impervious surface is 70%; all pervious surfaces to be landscaped.	50-Ft-wide buffer. Portion in Transition Overlay with reduced bulk (FAR) building height and minimum setbacks, ensures vehicle uses away from residential areas, puts restrictions on signs.
East of Bel-Red Road southwest of intersection with 156th Avenue NE.	Minimum 100' greenbelt buffer (where not feasible, can propose alternative, e.g. vegetated berm) Minimum 50' setback. No minimum open space or pervious surface.	Reduced FAR (0.30) and maximum height (45') of buildings in Maximum FAR & Height Overlay, west of Bel-Red Road. 300-ft-wide Transition Overlay with reduced building bulk (FAR=0.30) and height, minimum setbacks, vehicle uses away from residential areas, restrictions on signs. 100-ft-wide and 50-ft-high sight-obscuring landscaped buffer along Bel-Red Road. 120-ft minimum setback on Neighborhood Protection portion of Bel-Red Road.
Commercial and mixed-use areas	CB & CO zones	RC zone
East of Bel-Red Road where abuts CB or CO zone.	No maximum lot coverage, or minimum setbacks Maximum height 4 stories (CB) or 6 stories (CO).	15' front setbacks. Lot Coverage 85%. Maximum height 4 stories or 52', whichever is less. Maximum FAR is 0.36 (without TDRs or residential bonuses). Transition Overlay reduces height and sets landscaped buffer standards for developments on streets that abut a protected zone. Land between building and street in RC zone must be landscaped to L1 standard.

There are several major differences between the two alternatives in terms of development standards that will affect potential bulk and buffering of future development. The first notable difference is that the OV designation west of the R12 area will allow a greater intensity of development with a minimum FAR of 0.47, than is currently allowed in the PA-B zone (FAR 0.20). Second, the ONP RC zone proposes greater limits on building bulk by imposing FAR and lot coverage restrictions that the existing CO and CB zones do not have. Third, the ONP proposes four means of intensifying neighborhood protection measures as follows:

- Additional buffer requirements for Bel-Red Road, NE 28th Street, NE 40th Street and 148th Avenue NE.
- A Maximum FAR and Height Overlay reducing the FAR to 0.3 and height to 45 feet in a 300-ft-wide strip that runs north along Bel-Red Road from NE 28th Street to the R12 zone, then north to NE 40th Street and then west to 158th Avenue NE.
- A Transition Overlay that sets development standards for all development within the Overlay. A chart establishes how wide the overlay is, depending on the complying zone and the protected zone, from a minimum of 150' to a maximum of 300'. The overlay applies in Overlake where RC and OV zones abut residential zones. The transition overlay areas reduce the maximum height allowed, increase setbacks according to building height, and have certain site and building design requirements, such as locating parking areas away from residential areas, locating uses on a site to minimize off-site impacts and restricting types of signs where they abut residential neighborhoods.
- Neighborhood Protection Streets identified in the ONP Policies that implement increased landscaped setbacks and other measures.

Compared to the No-Action Alternative, the CAC Recommended Alternative establishes more comprehensive measures to protect residential neighborhoods from the impacts of non-residential uses, on a city-wide basis, by providing specific regulations for transition areas between incompatible uses. While the existing Comprehensive Plan does have some provisions in place to protect adjacent neighborhoods in Overlake, as seen in Table 4-13, the proposed development regulations in the ONP provide, for example, a deeper setback and a sight-obscuring buffer along Bel-Red Road, a 300-foot-wide strip of land between OV and the adjoining residential area and R12 with a maximum height of 45 feet, rather than a 150-foot-wide strip in the PA-B zone, specific site and building design regulations, buffer planting regulations and other stipulations designed to increase protection of adjacent neighborhoods. Therefore, although one area will allow greater intensity of development based on maximum FAR, the additional buffering and landscaping requirements, including the reduced maximum heights, should mitigate any potential additional impacts to adjacent residential areas.

These additional requirements will add considerably to mitigate the cumulative potential impacts that can affect perceptions of livability. It is clear that the CAC Recommended Alternative will result in greater traffic volumes than under No Action, although some degradation of traffic flow and speed will also occur. Since the average levels of service in the roadway system would meet the Cities' minimum standards (with the exception of the Bridle Trails and Grass Lawn districts under No Action, and Grass Lawn under the Preferred Alternative), the impacts are considered to be acceptable (or at least, able to be mitigated). Nevertheless, increased traffic volume is expected to cause rising noise levels and carbon monoxide emissions which could be perceived to diminish livability.

Whether the gradual increase in noise and emissions would directly translate to this perception cannot be known, but must be noted. Because air quality in the Puget Sound region is an ongoing issue, it may not be directly attributed to additional development in Overlake and may not therefore affect the perception of livability specifically in Overlake. With respect to noise, the noise study indicated that there would not be much difference between the increased levels of noise under each alternative. Only one location, near 148th Avenue NE and NE 29th Street, would experience noticeably greater noise impacts under the CAC Recommended Alternative than under No Action.

With respect to potential aesthetic impacts, the most sensitive residential areas will be protected under the CAC Recommend Alternative by restrictions on height and minimum setbacks that should prevent shadowing and drastic changes in the views, since the setbacks will nearly equal the height of the buildings in most cases (30 feet), except where the setbacks are much greater, along Bel-Red Road and 148th Avenue NE or where the buildings are to the interior of the site. This is compared to some similar restrictions on height and FAR adjacent to sensitive residential areas in the No-Action Alternative, but without the intensified buffer and landscaping requirements. In general, the variety and intensity of the proposed ONP regulations should provide better protection for aesthetic values than under the No Action, unless no further development occurs in Overlake under No Action.

4.6.4 Mitigation for Impacts on Land Use

4.6.4.1 No-Action Alternative

To address the inconsistency of the No-Action Alternative with the Redmond *Comprehensive Plan*, the latter would have to be revised to eliminate references to a new Overlake Neighborhood plan.

There would be no mitigation available to remedy the fact that existing development goes beyond the City of Redmond's targeted development in the *Comprehensive Plan*.

No further mitigation measures are proposed.

4.6.4.2 Preferred Alternative

This alternative is consistent with adopted plans, policies, and regulations; therefore, no mitigation measures are required regarding inconsistency.

No additional mitigation measures (beyond those noted in the ONP, above) are proposed.

4.6.5 Potential Unavoidable Adverse Impacts

4.6.5.1 No-Action Alternative

It may be difficult to completely mitigate the inconsistency with the Redmond *Comprehensive Plan*, because the Overlake Advanced Technology Center zoning designation was based on the assumption that a new Neighborhood plan for Overlake would be implemented. Therefore, inconsistency with the *Comprehensive Plan* to some extent could be an unavoidable impact.

New development in the Overlake Neighborhood may have difficulty in meeting concurrency requirements, and, therefore, obtaining permits, as overall development in the neighborhood has exceeded the target on which public facilities planning was based. However, the lack of a mechanism in the existing land use regulations to prevent development from exceeding the Comprehensive Plan land use target is an unmitigated impact. If development does occur, some increased congestion and adverse impacts on aesthetics would be unavoidable impacts on surrounding uses, as the existing measures to prevent such as impacts are not as extensive as those under the CAC Recommended Alternative. Therefore, the perception by adjacent residents of a diminished quality of life could be an unavoidable adverse impact.

Potential inconvenience to residents and businesses during construction of transportation projects and/or new development would be an unavoidable impact.

4.6.5.2 Preferred Alternative

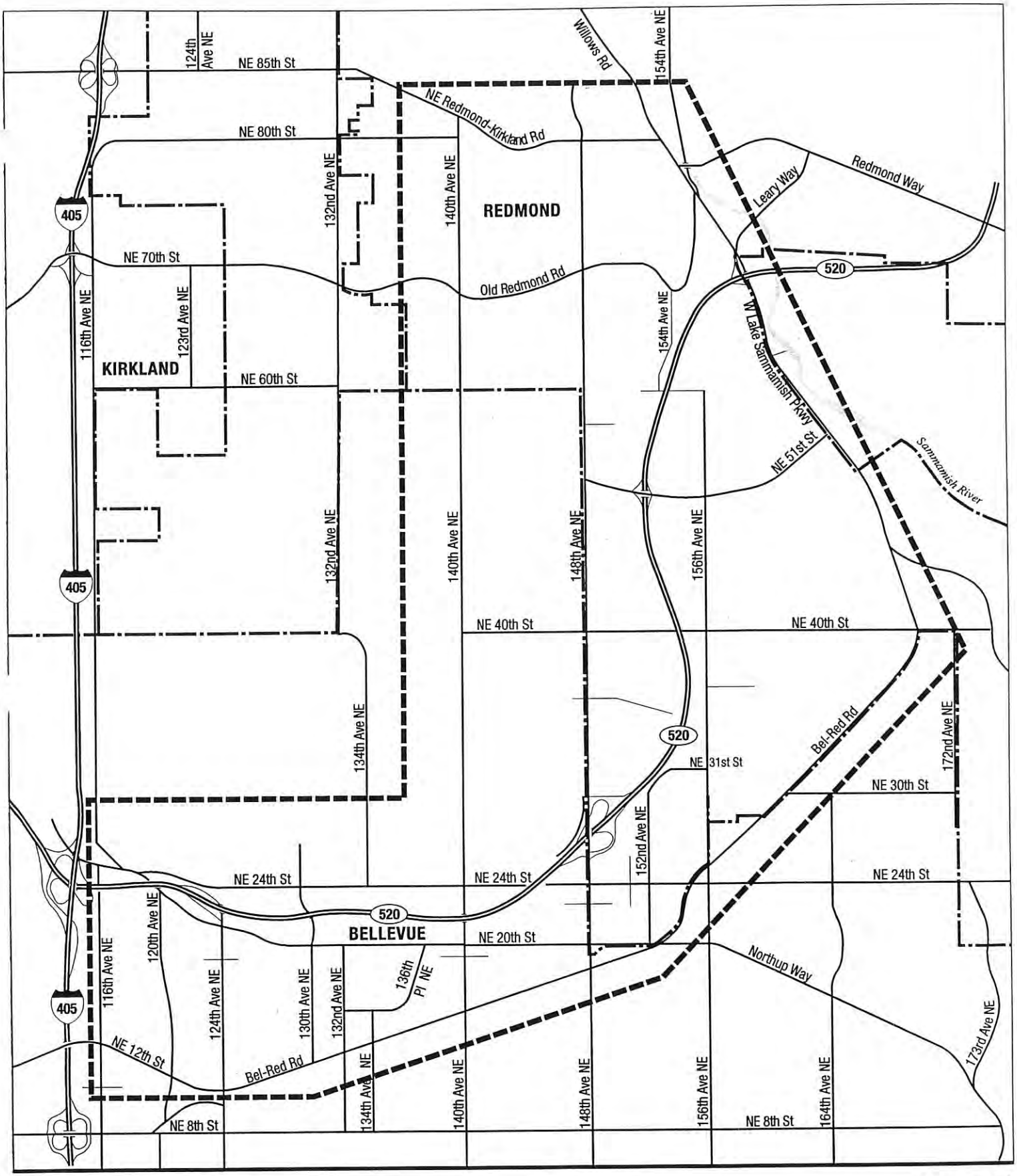
Due to the greater neighborhood protection measures in the ONP, most, if not all, adverse impacts on aesthetics would be minimized. Some increased congestion would be unavoidable. Therefore, the perception by adjacent residents of a diminished quality of life to the extent it is based on traffic congestion, would be an unavoidable adverse impact.

Potential inconvenience to residents and businesses could occur during construction, depending on the individual project and one business would be relocated due to street construction.

4.7 Existing Transportation Conditions

This section analyzes the BROTS update with respect to traffic impacts. The section compares the relative impacts of transportation Networks B/Low Land Use and E/ONP Preferred Alternative Land Use, which are the transportation portion of the No Action and Preferred Alternatives, respectively. As discussed earlier in Chapters 1 and 3, Network B represents planned transportation projects for the BROTS area in the TIP, CIP, TFPs for Bellevue and Redmond, plus additional mitigation projects. The TRG Recommended Network (Network E/ONP Preferred Alternative Land Use) represents projects in the TIP, CIP, TFPs plus many more transportation projects to address additional projected traffic volumes resulting from the new development target in the ONP. The main standard for comparing impacts is the degree of mobility in a geographical area, which is measured and expressed as a Level of Service (LOS). The study area is depicted on Figure 4-4.

Level of service (LOS) is used to denote intersection operating conditions and is represented on a scale ranging from "A" at the highest level to "F" at the lowest level. At Level of Service "A" drivers experience little delay and intersections operate under free-flow conditions. Levels of Service "B" through "E" represent increasing amounts of delay and increasing numbers of vehicles that must wait for more than one traffic light cycle. Level of Service "F" results from volumes in excess of capacity and is characterized by jammed conditions. The increased volume results in forced-flow, stop and go traffic with severe congestion and delay.



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Scale in Feet

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LEGEND

Study area boundary

City limits

Figure 4-4
Study Area

Volume-to-capacity (V/C) ratio is a term that is used to quantify the level of service ranges. It compares the volume actually being processed through an intersection to the theoretical maximum capacity of the location. If the volume exactly matches the capacity, the V/C ratio is 1.00 which falls at the upper end of LOS "E". If the volume is less than capacity, the V/C ratio is less than 1.00. If the volume is greater than capacity, the V/C ratio is greater than 1.00. The latter condition occurs when more traffic wants to pass through a location than can be handled by it, thereby resulting in the congestion and delay associated with LOS "F". Each LOS range is denoted by a V/C ratio range with the lower ratios denoting the better levels of service. Tables 4-14 and 4-15 describe the level of service standards for signalized and unsignalized intersections respectively. For more detailed description of LOS criteria, please refer to Technical Memorandum #2, Appendix C-2, page 25.

Table 4-14:
Description of Average Signalized Intersection Level of Service

LOS Categories	Definition (V/C Ratio)[1]	Description (Subjective Impression of User)
LOS A	Less than or equal to 0.600	Highest driver comfort. Little delay. Free flow.
LOS B	0.601 - 0.700	High degree of driver comfort. Little Delay.
LOS C	0.701 - 0.800	Some delays. Acceptable level of driver comfort. Efficient traffic operation.
LOS D+ (High D)	0.801 - 0.850	Some driver frustration. Efficient traffic operation.
LOS D- (Low D)	0.851 - 0.900	Increased driver frustration. Long cycle length.
LOS E+ (High E)	0.901 - 0.950	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	Break-down flow. Excessive delays.

1) Volume/Capacity ratio average

Table 4-15:
Description of Average Unsignalized Intersection Level of Service

LOS Categories	Definition (Average Delay-Sec) [1]	Description (Subjective impression of user)
LOS A	5 seconds or less	Highest driver comfort. Little delay. Free flow.
LOS B	5.01 - 10.0 seconds	High degree of driver comfort. Little Delay.
LOS C	10.01 - 20.0 seconds	Some delays. Acceptable level of driver comfort. Efficient traffic operation.
LOS D	20.01 - 30.0 seconds	Some driver frustration. Efficient traffic operation.
LOS E	30.01 - 45.0 seconds	Near capacity. Notable delays. Low driver comfort.
LOS F	more than 45 seconds	Break-down flow. Excessive delays.

1) Average seconds of delay per vehicle.

4.7.1 Mobility Management Standards

Both Cities cite the need to provide for the mobility of their citizens and employees, and both Cities have developed a system of evaluating mobility, based on districts within the city.

Redmond is divided into seven Transportation Management Districts (TMDs). Each district has three measures that define the mobility within the district: arterial intersection level of service (LOS) standard; transit level of service standard; and mode split targets. The latter two standards are discussed in other sections of this chapter, as is the methodology used to calculate signalized arterial intersection levels of service.

As required by the Growth Management Act, level of service standards are identified for each of the seven Transportation Management Districts, in terms of a letter value and a volume to capacity (v/c) ratio (measuring p.m. peak hour) for an average of all key arterial street intersections within the district. The v/c ratios included in the standard range from 0.85 to 0.95.

The Redmond *Comprehensive Plan* also includes a tabulation that describes the traffic conditions for each LOS letter value and v/c ratio. The portion of the BROTS Update study area that is within the City of Redmond is covered by three Transportation Management Districts: Grass Lawn, with a standard LOS of D+ and a maximum average v/c ratio of 0.85; the Overlake Area, with a standard LOS of E+ and a maximum average v/c ratio of 0.95; and the Downtown Area with a standard LOS of E+ and a maximum average v/c ratio of 0.95. Redmond's TMDs, within the BROTS Update study area, are shown on Figure 4-5.

For evaluation of mobility, the City of Bellevue has been divided into 14 Mobility Management Areas (MMAs). Measures of mobility have been established for the following: roadway area average level of service; transit; pedestrian system; bicycle system, and mode split. The description of roadway level of service standards and traffic conditions for each LOS letter value are identical for both Bellevue and Redmond. The portion of the BROTS Update study area that is within the City of Bellevue is covered by four Mobility Management Areas: Bridle Trails, with a standard LOS of C and a maximum average v/c ratio of 0.80; Bel-Red/Northup, with a standard LOS of D- and a maximum average v/c ratio of 0.90; the Overlake area, with a standard LOS of E+ and a maximum average v/c ratio of 0.95; and the Crossroads area with a standard LOS of D- and a maximum average v/c of 0.90. Bellevue's MMAs within the BROTS Update study area are also shown on Figure 4-5.

The existing (1995) LOS for these analysis areas has been calculated and the results are shown in section 4.7.3.

4.7.2 Traffic Volumes

Existing (1995) weekday daily traffic volumes and p.m. peak hour turning volumes at key intersections have been provided by the Cities of Redmond and Bellevue. Daily volumes on SR 520 were taken from the Washington State Department of Transportation (WSDOT) published traffic volume data. The 1995 weekday daily and p.m. peak hour volumes are shown on Figure 4-6. As shown, daily volumes on arterial streets range between 1,600 vehicles on 134th Avenue NE, just north of Bel-Red Road to 58,100 vehicles on the 148th Avenue NE bridge over SR 520.

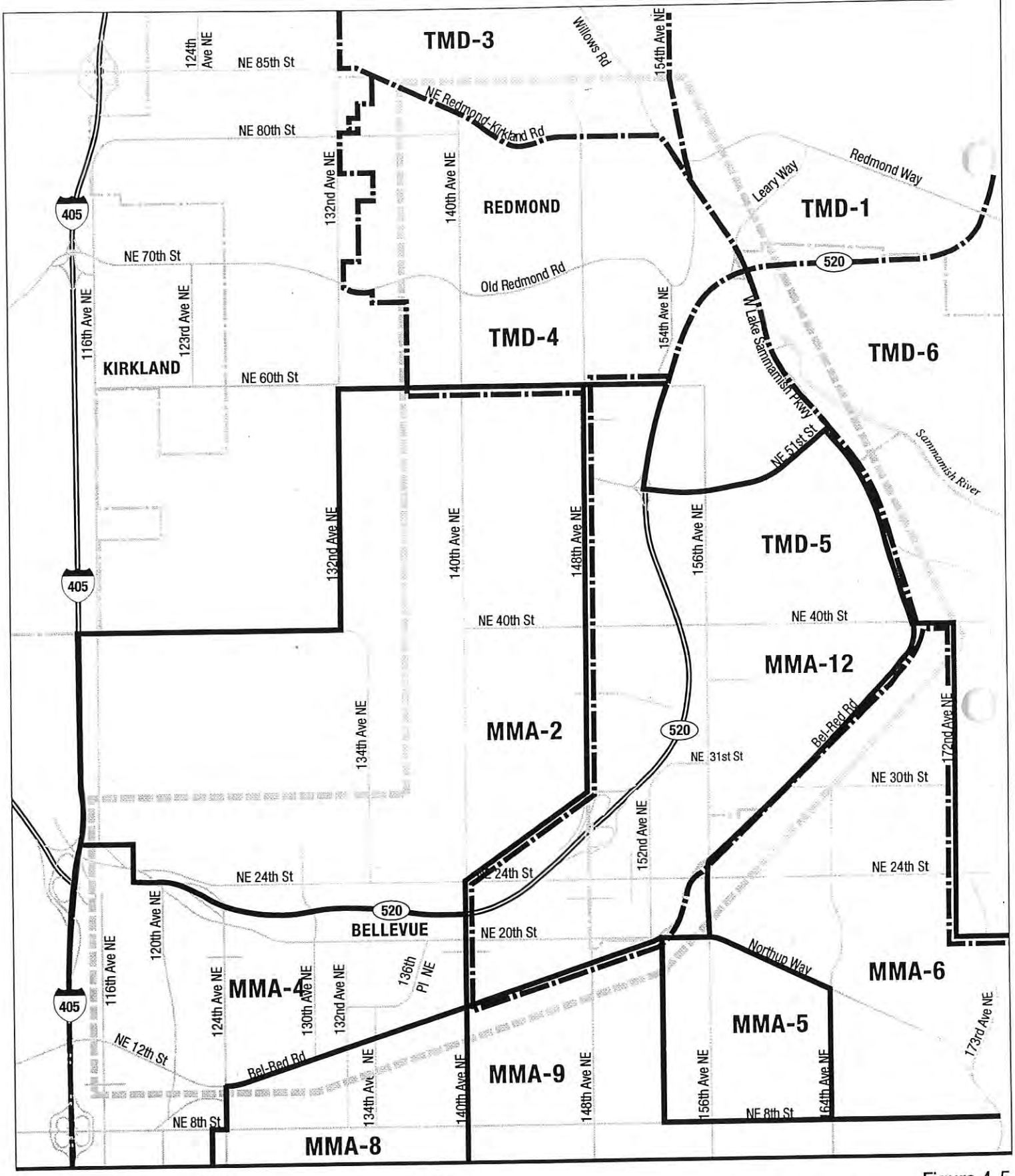
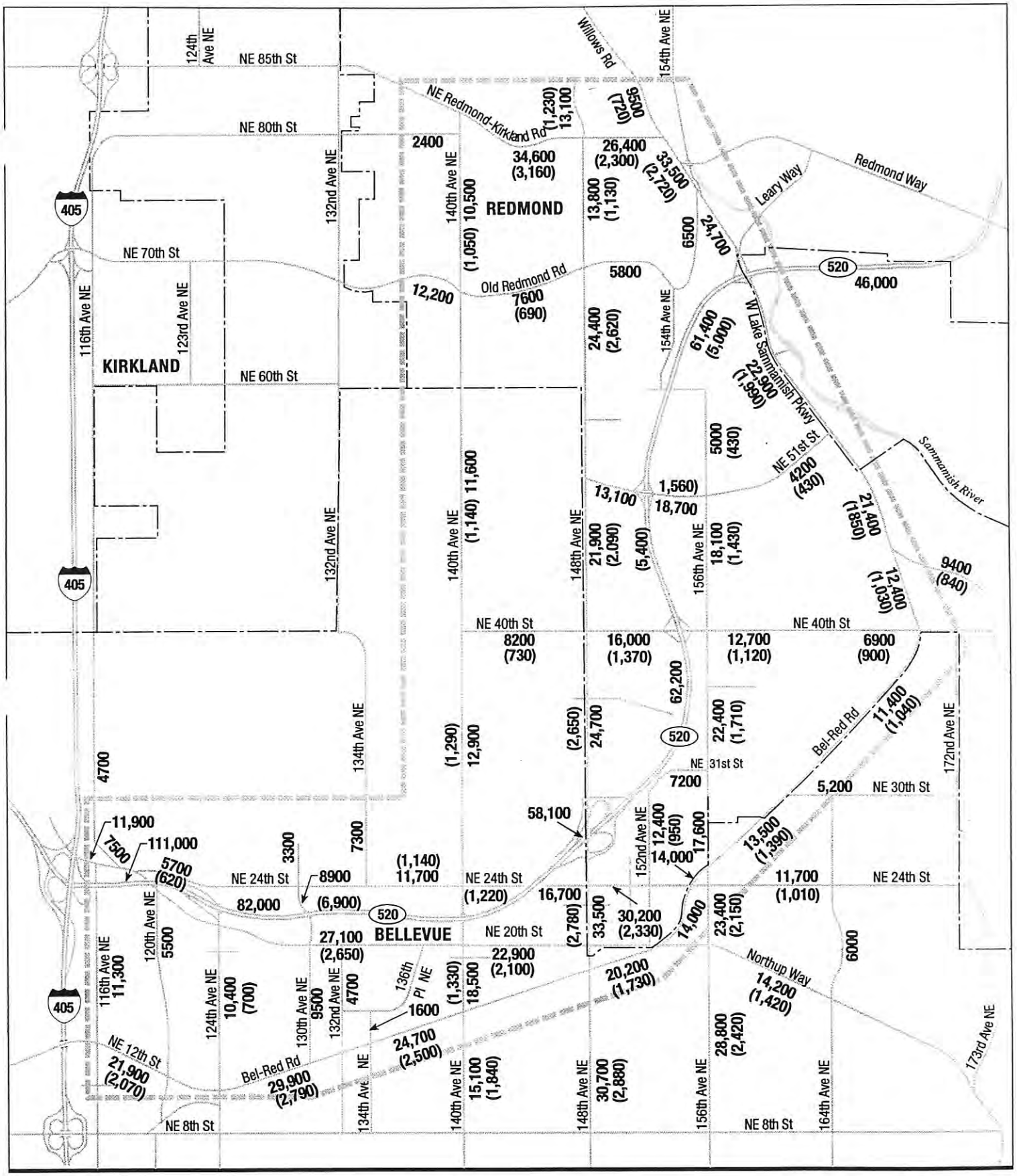


Figure 4-5
Redmond Transportation Management Districts (TMD)/ Bellevue Mobility Management Areas (MMA)



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Scale in Feet

N

LEGEND

Study area boundary

City limits

22,900 Daily volume

(2,500) P.M. peak hour volumes

Figure 4-6

1995 Traffic Volumes

4.7.3 Level of Service

The two Cities maintain data on intersection level of service (LOS) at arterial street intersections. Evening peak hour data have been provided for 1995. Figure 4-7 shows signalized intersections that have 1995 values in the LOS D or better, E, or F range. The intersections operating at LOS E or F are the intersections that are currently congested and can be expected to become more congested in future years.

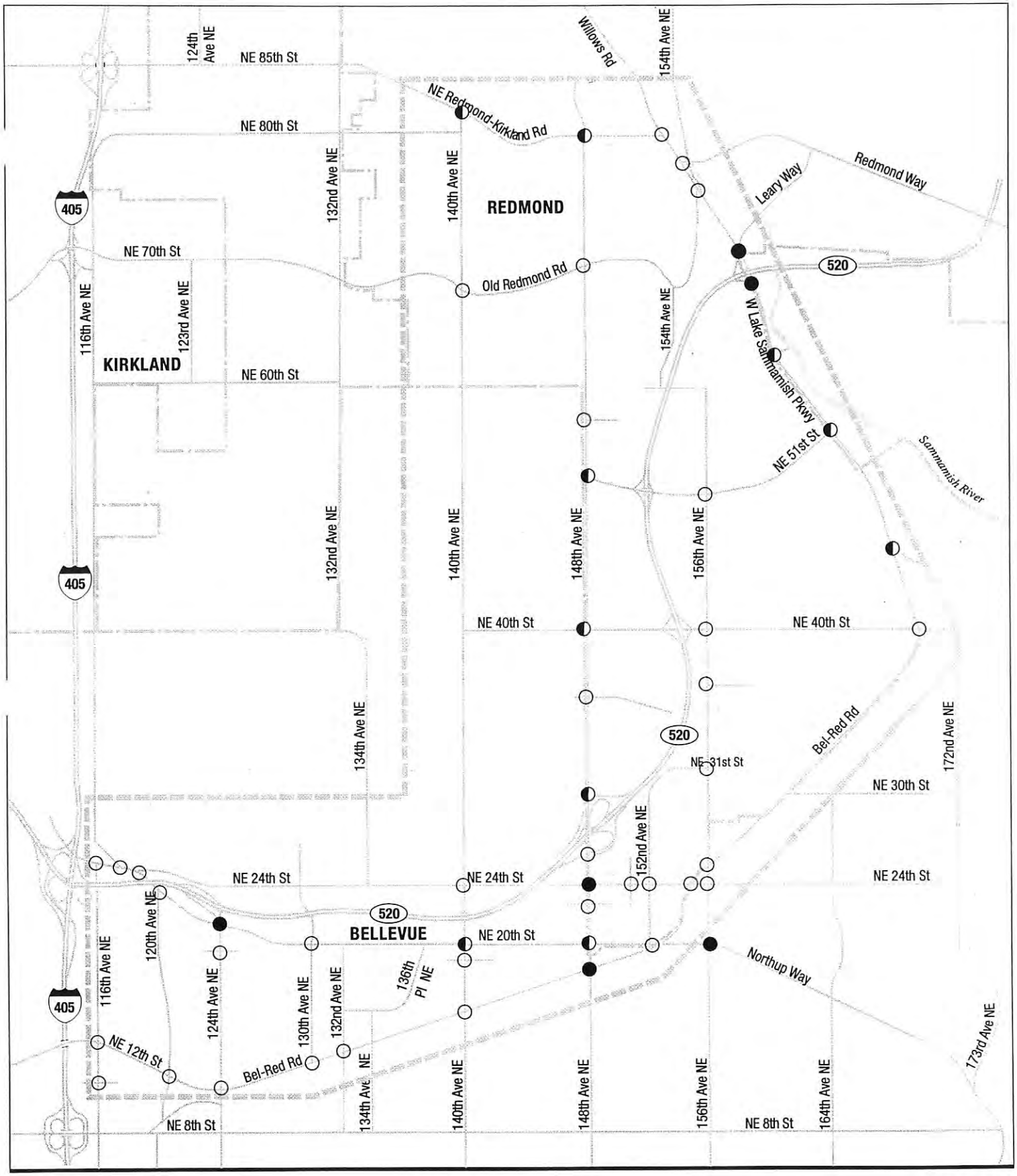
A total of ten signalized intersections in the study area currently (1995) operate at LOS E and an additional six intersections operate at LOS F. (Table 7 on page 28 of Technical Memorandum #2, Appendix C-2, lists the results of the LOS analysis for all signalized arterial intersections in the study area.) The remaining 35 intersections included in the study area currently operate at LOS D or better. The intersections operating at LOS E or F are fairly well distributed over the study area. Several of the intersections with LOS E or F are located along NE 20th Street/Northup Way, 148th Avenue NE, Redmond Way, and West Lake Sammamish Parkway.

Both Cities' approach to roadway LOS is to evaluate deficiencies on the basis of the average LOS for selected (system) intersections within a defined district. Only those intersections considered critical to system operations (e.g., excludes driveway signals) are included in the area-wide average level of service calculations. Not all intersections analyzed are considered system intersections. Two of Redmond's Transportation Management Districts and three of Bellevue's Mobility Management Areas are wholly contained within the BROTS Update study area. Based on current intersection LOS, the average values of system intersections have been calculated, and are listed in Table 4-16. The standard for the average LOS is also listed. As shown, the existing average LOS for all districts, except Grass Lawn, do not exceed the maximum standard LOS values.

Table 4-16:
1995 P.M. Peak Hour Level of Service By District[1]

DISTRICT	Standard		1995 Condition	
	LOS[2]	V/C[3]	LOS	V/C
Bridle Trails (MMA 2)	C	0.80	A	0.57
Bel-Red/Northup (MMA 4)	D	0.90	C	0.76
Overlake[4] (MMA 12)	E+	0.95	D	0.85
Overlake[5] (TMD 5)	E+	0.95	D	0.90
Grass Lawn (TMD 4)	D+	0.85	D	0.90

1) Transportation Management Districts in Redmond; Mobility Management Areas in Bellevue
2) Level of Service
3) Volume/Capacity Ratio
4) Bellevue Mobility Management Area
5) Redmond Transportation Management District



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Scale in Feet

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LEGEND

- Study area boundary
- ● Level of service F
- ◐ Level of service E
- ○ Level of service D or better

Figure 4-7

1995 Intersection Level of Service P.M. Peak Hour

The existing P.M. peak hour intersection LOS at eight unsignalized intersections, in most cases where signalization and/or channelization is programmed, were evaluated in Technical Memorandum #2 (page 31 of Appendix C-2 in the Technical Supporting Record). In summary, all of the unsignalized intersections analyzed are currently operating at LOS F. The unsignalized intersections are:

- 140th Avenue NE/NE 40th Street;
- NE 51st Street/SR 520 Northbound Ramps;
- NE 51st Street/SR 520 Southbound Ramps;
- Bel-Red Road/NE 30th Street;
- Bel-Red Road/134th Avenue NE;
- 136th Place NE/NE 20th Street;
- 134th Avenue NE/NE 24th Street; and
- 130th Avenue NE/NE 24th Street.

4.7.4 Alternative Modes of Transportation

With respect to transit service, most principal and minor arterials have a minimum of 30-minute transit service during peak commute periods. Transit service is provided on some collector arterials, as well. Transit travel times, and directness of routing often are not competitive with the personal automobile. The Overlake Park-and-Ride is located at 2650 - 152nd Avenue NE with utilization in the first quarter of 1996 was 32 percent, down 10 percent since 1993.

Most of the rideshare activities in the BROTS Update study area are coordinated by the Greater Redmond Transportation Management Association (GRTMA). The GRTMA is a private, non-profit corporation, directed and funded by 33 separate companies that currently includes nine companies located in the Overlake area. As of January 1, 1998, the GRTMA members employ just over 22,000 employees within the city limits, with 16,142 of their member employees located in Overlake. The purpose of the association is to reduce single occupant vehicle commute trips to the member worksites throughout the City, by providing a variety of quality transportation demand management and commute trip reduction products and services.

The GRTMA staff specializes in transportation and marketing. They provide members and their employees with products and services that serve to educate, motivate, and improve access to alternative forms of transportation. Some of those services include: an intranet-based ridematching program, GRTMA web page, shuttle bus service coordination, ridematch assistance, vanpool formation assistance, legislative liaison, Commute Trip Reduction Law support services, conducts transportation fairs and events, and direct marketing products.

As of March 1998, there are 97 vanpools servicing the Overlake area consisting of small five to seven passenger vans and large 15 passenger vans.

The existing roadway system does not include a complete system of non-motorized facilities such as sidewalks or bicycle lanes. As an indication of the lack of sidewalks, the Bellevue State of Mobility Report in 1995 shows that the pedestrian system in the Bel-Red/Northup area was 62 percent complete (1995 data). The bicycle system was zero percent complete. Mobility targets (Bellevue *Comprehensive Plan* Policy TR-20) for 2005 are 80 percent of the pedestrian system complete and 15 percent of the bicycle system. The Redmond *Comprehensive Plan* presents pedestrian and bicycle system plans, which are somewhat incomplete in the BROTS Update area.

A complete inventory of pedestrian and bicycle facilities is contained in *Pedestrian and Bicycle Transportation Plan*, Section II: Supporting Information, City of Bellevue Transportation Department, May 1993, and the Redmond *Comprehensive Plan*, May 1995. Both cities are currently updating their bicycle and pedestrian facilities inventory

4.7.5 Role of Mode Split and Transportation Demand Management

The ratio of people driving their cars alone to people using alternative modes of transportation such as public transit, carpools, bicycles and walking, is one factor that determines the overall level of traffic on the roadway system. A comprehensive transit system accompanied by "transportation system management" facilities such as high occupancy vehicle (HOV) lanes combined with "transportation demand management" (TDM) programs (such as the products offered by the GRTMA) can reduce the total number of automobiles on the roads. As part of the BROTS Update, the ratio of SOV (single-occupancy vehicles) to other transportation modes was researched for existing conditions and then projected to 2010/2012. This ratio was used as one of the inputs to the computer model used in the BROTS Update, and is referred to as the "mode split". In addition to providing the mode split ratio for the BROTS Update, the information on the existing transit service, carpooling, bike lanes and pedestrian sidewalks was used to create a program for improvements to these transportation facilities to be adopted as part of the BROTS Update.

The Commute Trip Reduction Law (CTR) requires surveys of major employers (greater than 100 employees arriving between 6:00 a.m. and 9:00 a.m.) to assess how much of the CTR goals they are able to achieve. The CTR survey data for 1995 and 1997 is summarized for affected employers within the greater Redmond Transportation Management Association (TMA). The total number of affected employees surveyed within the study area is 22,593 (of approximately 51,000 total employees). The 1995 survey data show that the SOV rate is 79 percent or 21 percent HOV. The 1997 survey data show that the SOV rate is 73 percent or 27 percent HOV. The data are shown in Tables 4-17 and 4-18.

Table 4-17:
Comparison of SOV Surveys

	1993	1995	Change From Previous Survey Year	1997	Change From Previous Survey Year
Affected Employees	13,619	18,474	4,855	20,194	1,720
SOV Rate	84%	79%	-5%	73%	-6%
SOV Employees	11,490	14,594	3,104	14,742	147
Reduction	2,129	3,880	1,751	5,452	1,573

Table 4-18:
Survey of Mode Splits

	1995	1997
2 Person Carpool	10%	11%
3 Person Carpool	1%	1%
4 Person Carpool	0%	1%
5 Person Carpool	0%	0%
6 Person Carpool	1%	0%
7+ Person Carpool	1%	1%
Bus/Transit	1%	3%
Bicycle	1%	1%
Walked	1%	1%
Telecommuted	1%	1%

The same CTR survey included a questionnaire asking for the reasons employees drive along. The response rate was 76 percent.

28% Need for vehicle
22% Flexibility of drive alone
21% Work hours vary
13% Bus/transit service not available
17% Saves time
11% No one to share ride
9% Need vehicle to drive children/daycare
7% Need vehicle for work-related tasks
6% Other
3% Free or discounted parking at or near work

Current Transportation Demand Management (TDM) programs include the following TDM measures:

- Covered bike parking
- Showers/lockers
- Priority parking for carpools and vanpools
- Discount parking
- Reduced single-occupancy vehicle parking
- Financial incentives including:
  - Transit subsidies
  - Carpool subsidies
  - Bicycle subsidies
  - Walking subsidies
- Alternate work schedules that reduce work trips such as:
  - Compressed work week
  - Flextime

- Guaranteed ride home program
- Fleet ridesharing
- Telecommuting
- Internal ride matching
- Shuttle/custom bus service
- On-site promotions
- Membership in the Greater Redmond TMA

Both cities have targeted decreased levels of travel by SOV and included Transportation Demand Management (TDM) as a part of their plans to accommodate future traffic growth.

Redmond has set out targets for both improved transit service, in terms of the percentage of areas that are within 0.25 mile of 30-minute peak hour transit service, and mode split percentages. These targets vary by area of the city (Transportation Management Districts), with higher targets in areas of higher employment or residential densities. The transit level of service standard for residential areas ranges from 30 percent (of land uses within 0.25 mile of transit service) in single-family residential areas to 100 percent in the downtown district. Redmond's mode split targets (percent of daily trips by modes other than SOVs) range between 10 and 18 percent for 1993 and between 18 and 30 percent for 2010/2012.

The Redmond *Comprehensive Plan* includes a section that identifies TDM as "an approach to solving transportation problems that focuses on reducing the demand for travel rather than increasing the system capacity for travel." The TDM plan supports the use of ridesharing, bicycles, and pedestrian linkages as ways to encourage more non-SOV use.

The Bellevue *Comprehensive Plan* also provides targets for increased travel by non-SOVs. In this case, the targets are established for the downtown area and for mixed commercial/residential areas, only, and are based on percentages of commute trips. The targets call for an increase to 30 percent by 1999 and to 40 percent by 2005 in the downtown area and to 15 percent and 20 percent in commercial/residential areas by 1999 and 2005, respectively. Bellevue's TDM goal is "... to reduce the use of single-occupant vehicles and vehicle-miles traveled, through a coordinated program of regulations, marketing, and provision of alternative travel options." The plan recognizes the need to coordinate with other jurisdictions to improve the TDM system. In addition to mode split targets, specific transit level of service targets are being developed for each area of the City (Mobility Management Areas).

Bellevue's *Comprehensive Plan* acknowledges that the City can no longer afford to provide capacity improvements to maximize the speed and convenience of SOV travel. A strong transit system as well as improved pedestrian, bicycle, and rideshare systems are also identified in the Bellevue plan to provide needed travel options.

The Commute Trip Reduction Law (CTR) requires surveys of major employers (greater than 100 employees arriving between 6 a.m. and 9:00 a.m.) to assess how much progress toward the CTR goals they have been able to achieve. Employers affected by this law are required to make a good faith effort to develop and implement a CTR program that will encourage employees to reduce vehicle miles traveled (VMT) per employee and single occupancy vehicle (SOV) commute trips. These reductions are calculated as additions to a 1993 base year value (or SOV mode split) of 80 percent. Commute Trip Reduction Goals are: 15 percent by January 1, 1995, 20 percent by January 1, 1997, 25 percent by 1999 and 35 percent by January 1, 2006.

In April of 1997, 22,593 employees working at 37 affected sites (29 employers) were surveyed throughout the City. The average response rate was 76 percent with 20,194 employees responding. In 1995, survey data indicated that the SOV rate was 79 percent or 21 percent HOV. The 1997 survey data showed that the SOV rate was 73 percent or 27 percent HOV resulting in a six percent drop from the previous survey of affected employees. Nine of the affected sites achieved their 1997 CTR SOV goal. The data are shown in Tables 4-17 and 4-18.

4.7.6 Transportation Facility Plans

Based on policies included in the comprehensive plans, Bellevue and Redmond have adopted 12-year and 14-year, respectively, Transportation Facilities Plans (TFP), which are financially constrained documents (i.e., all projects could be funded), but only the first six years of projects have funding committed. The horizon years for the TFPs are: 2010 for Bellevue and 2012 for Redmond. The plans include multimodal transportation projects to be implemented from the present time to a future year: 2005 for Bellevue and 2012 for Redmond. The Bellevue plan identifies projects to be constructed over the next six years, which are then included in the City's Capital Investment Program (CIP). Redmond's six-year plan for projects is included in their Transportation Improvement Program (TIP). The CIP and TIP projects that have designated funding and are relatively sure of being implemented over the next six years constitute Network A. A list and graphic of these projects can be found in Table 3-2 and Figure 1-5 respectively.

4.7.7 Funding

The *Comprehensive Plans* for both Cities identify the need to provide adequate funding for the transportation facility plans and make a strong point that the beneficiaries of the system bear the costs in a proportionate manner. The finance plans also recognize that for certain projects state and federal funding will be available, in addition to local funds and development funds.

4.7.8 Neighborhood Traffic Control

The Bellevue *Comprehensive Plan* includes in its overall goal statement for the Transportation Chapter that neighborhoods are to be protected from transportation impacts. The Redmond *Comprehensive Plan* includes a section on neighborhood traffic protection, including policies to prevent intrusion.

The Cities of Bellevue and Redmond have ongoing programs for traffic calming designed to reduce traffic impacts on residential streets. Impacts typically addressed in neighborhood traffic control efforts are:

- traffic speed,
- cut-through traffic by passing freeways and arterials,
- accidents,
- vehicle noise, and
- pedestrians and bicyclists are uncomfortable using the street.

The initial activity to address identified problems is education, with measures such as neighborhood flyers and newsletters, the speed watch program and the radar speed trailer which provides a digital readout of vehicle speeds. These programs are largely aimed at educating local residents and users of streets. Physical devices such as speed bumps, circles, curb extensions medians and other means of lowering speeds, increasing awareness of pedestrians, or restricting entry to neighborhoods are also employed.

The Redmond Transportation Facility Plan includes an annual budget for neighborhood traffic control programs. These goals and policies will become a consideration in the development of transportation projects for the BROTS Update.

4.8 Transportation Impacts

This section analyzes the transportation impacts of the BROTS Update, a companion study to the ONP. The technical memoranda prepared for BROTS evaluated six transportation networks associated with different levels of development in the Overlake Neighborhood. Two networks were selected for the detailed analysis in this chapter: Network B/Low Land Use, the No-Action Alternative; and Network E/Preferred Alternative Land Use, the TRG Recommended Network.

Potential adverse impacts are evaluated for the projected increase in traffic as a result of the anticipated development under the No-Action and TRG Recommended Alternatives. The main transportation impact under both alternatives is on the level of service (LOS) in the transportation analysis areas, the Redmond TMDs and Bellevue MMAs. Potential project-specific impacts that could result from the construction of individual projects in Network B/Low Land Use or the TRG Recommended Network (Network E/ONP Preferred Alternative Land Use) will be assessed through the permit review process when those projects are proposed.

4.8.1 Transportation Modeling Assumptions and Methods

4.8.1.1 Factors Affecting Trip Generation

Type and Intensity of Land Use

Trip generation is directly affected by the type and intensity of land use. Different types of land use, such as residential, office, retail, and industrial all have different propensities to generate trips. The intensity of development also causes variations in trip generation: the more building development per unit of land (floor area ratios), the higher the number of trips generated on a specific parcel of land. Even with equal floor area ratios and the same type of land use, the trip generation for a specific parcel can vary because of the number of employees that occupy a building. That is, the number of employees that occupy a building can vary, depending on the type of activity taking place in the building and the higher the number of employees, the higher the number of trips generated.

The BKR transportation model, which was used for travel forecasting in BROTS builds in assumptions that tend to focus on averaging the above described variations. Input to the trip generation model is square feet of floor space for different commercial land use types and the number of dwelling units for residential land uses. The amount of floor space is converted to numbers of employees by applying vacancy factors and the average number of employees per 1,000 square feet of floor space. The assumption made in the modeling process is that for a traffic analysis zone, the average number of employees will fairly represent the mix in employment densities of the individual land use parcels.

Mode Split

The assumption made for mode split affects the number of vehicle trips that are generated by a given land use plan. Trip generation is estimated as person trips, and then vehicle trips are derived by applying a mode split factor, which takes into account the average number of person trips that are made as non-single occupant vehicles, such as passengers in automobiles, transit riders, bicycle trips, and pedestrians.

In the BROTS Update, the mode split factors were derived from the Bellevue/Kirkland/ Redmond (BKR) Transportation Model. These factors are developed based on information such as: availability of transit; convenience of transit (walking distance); cost of transit versus automobile (including fares, gas costs, parking costs, etc.); type of trip (work or non-work); and p.m. peak hour and off-peak travel times for transit and automobile modes. Basic research for the mode split factors was done by the Puget Sound Regional Council and adapted for use in the BKR model.

The mode split factors produced by the BKR model were first developed for Scenario 1, which included the low land use plan and Network A road projects. The BKR model was used to estimate mode choice factors for each of the five Mobility Management Areas/Transportation Management Districts that are included in the BROTS study area. The mode choice factors ranged from a low of 13 percent for Grass Lawn to a high of 22 percent for the Redmond/Overlake area. The average mode choice factor for the BROTS study area was 19 percent, which includes all non-SOV modes (transit, carpools, bicycle, and walk).

Although the BKR model can be used to develop separate mode split factors for each scenario tested in the BROTS Update, the Baseline values (average of 19 percent) were used for all alternatives. This methodology was used to be somewhat conservative in estimating the number of trips that would be made by non-SOV modes. If actual mode split factors prove to be higher throughout the planning period, it may be possible to eliminate some road projects from the TRG Recommended Plan.

Employer Work Schedules

Peak hour trip generation is also affected by policies of employers regarding the work schedule for their employees. By adopting flexible work hours, employers can affect the number of trips that arrive at and depart their facilities during the peak hours. This, in effect, spreads the trip generation peaks over more than one hour.

Some employers in the BROTS study area have flexible work hours. However, the assumptions made in the BROTS transportation model were not adjusted to reflect this type of operation. These adjustments were not made because they could not be justified during calibration of the model. One reason for this is that the BROTS road system accommodates many trips that are not generated by land uses in the study area and by employers with non-flexible work schedules. The relatively small amount of reduction in modeled trips as a result of flexible work hours by some employers does not significantly reduce the total number of trips on the road system.

Summary

In summary, there are several assumptions made in the BROTS transportation modeling that tend to average variations in trip generation that may actually occur. If these assumptions prove to be wrong, the actual trip generation caused by the ONP preferred alternative land use will be different than forecast.

4.8.1.2 ONP Trip Cap

The Trip Cap program is an element of the Overlake Neighborhood Plan Vision and Policies; detailed in Chapter 2. The Trip Cap regulations are in Division 20D.210.60 in Chapter 9. The area to which the Overlake Trip Cap would apply is coincidental with Transportation Management District (TMD) 5 in the City of Redmond. The purpose is to allow additional development in the Retail Commercial and Overlake Business and Advanced Technology zones above what would be normally allowed under development regulations if additional motor vehicle trips are not generated. Trips that are not otherwise generated could include: trip reductions from a Transportation Demand Management (TDM) program, a lower number of trips from the facility because the actual use generates less than would be generated by the land use zoning, or scheduled activities at the site generate fewer trips during the a.m. or p.m. peak hour, than would be estimated by standard land use trip generation rates.

The Trip Cap program also includes procedures to apply for trip credits. One trip credit is allowed for each trip reduced. Credits are only granted if the HOV mode split (all non-Single Occupant Vehicle (SOV) trips) at these sites exceeds 22 percent. The mode split ratio under baseline conditions for TMD 5 is also 22 percent. Trip credits may be used to increase density at the site (through increased floor area) or be transferred to another person. An applicant's trip cap must be monitored to ensure that the trip reduction is sustained. If it is not, the applicant must implement a fallback plan for reducing trips, vacate the space allowed under the program, or provide sufficient capacity to impacted roadways.

Transferring trip credits between properties in the same ownership could shift traffic volumes to different intersections than what has been documented for baseline or preferred alternative conditions. Whether or not this transfer impacts level of service as calculated and mitigated for the preferred alternative is unknown. While any transfer of trip credits will require transportation concurrency review, this review only takes into account existing and approved development. So if substantial future development is likely in the area, concurrency review may not accurately identify future long-term impacts on the transportation system. This impact could be addressed by requiring a long-term analysis of existing and potential future development in the transportation analysis zone and the transportation facilities planned under the BROTS Update where trip credits are transferred significant distances. Transfers from other owners are not allowed under the proposed regulations.

The proposed Trip Cap may result more single-occupancy vehicle trips than projected by the BROTS transportation model. This projection was used to analyze the transportation facilities proposed by the BROTS Update. If more trips are generated, traffic may be more congested than the BROTS Update modeling shows.

The additional single-occupancy vehicle (SOV) trips could result from developments that build out to their allowed floor area ratios and have greater trip generation due to a higher single-occupancy mode split than projected by the BROTS Update transportation model. It could also result from lower vacancies or higher employee densities than used in the BROTS Update transportation model. Since the mode split, vacancy, and intensity projections used in the BROTS Update model are an average, allowing developments that generate fewer trips to construct more building space would mean that they may not be able to compensate for developments that generate more trips than have been projected.

This potential impact will not occur if the average trip generation rates, including the additional development allowed under the Trip Cap, are consistent with those modeled in the BROTS Update. Perhaps the most significant factor that could lead to average trip generation rates at least as high as the BROTS Update model projected is the Washington State Commute Trip Reduction (CTR) law. This law requires that employers with 100 employees arriving during the morning peak period meet a series of non-single occupancy vehicle (non-SOV) mode split targets. The City of Redmond estimates that in 1997, 77 percent of the employees in Redmond's Overlake Neighborhood were covered by the CTR law. In 1997, CTR surveys completed by employees covered by the law show the average non-SOV mode split for Redmond's Overlake Neighborhood was 25 percent at the PM peak hour, which was the CTR target for that year. The 25 percent non-single-occupancy vehicle mode split was higher than the 22 percent non-single-occupancy vehicle mode split the BROTS Update model projected for all employers in this area in 2010/2012. For 2005, the CTR law sets a non-single-occupancy vehicle mode split goal of 35 percent.

Not all employers are required to comply with the CTR law. Those sites that do not have to comply with the CTR law are believed to have lower non-SOV mode splits than CTR employers. Redmond has a policy that the Overlake area achieve a 2012 non-SOV mode split of 30 percent. To help achieve this policy, Redmond has trip reduction programs directed at small employers. Redmond also requires transportation management plans for buildings that generate 25 peak hour trips. The goal for these transportation management plans is a 30 percent non-SOV mode split within two years of occupancy.

Other measures could also reduce the potential for adverse impacts from the proposed Trip Cap. They include monitoring traffic and trip generation in this area or limiting both floor space and trips through a trip limit applicable to all properties.

4.8.2 No-Action Alternative

The No-Action Alternative involves adoption of recommended transportation projects in Network B/Low Land Use, as well as Baseline projects in Network A/Low Land Use. The impacts consist of construction impacts, projected traffic volumes and levels of service. A summary of the results follows. For detailed tables of the impacts at each evaluated intersection and SR 520 link, please refer to the Technical Memoranda in the Technical Supporting Record (Appendix C-3).

4.8.2.1 Construction Impacts

These projects may result in short-term construction impacts, acquisition and relocation impacts, and traffic impacts. Short-term construction impacts include inconvenience, noise and dust for adjacent businesses and residents while new lanes are built, signals are installed, turn lanes are added or roads are re-striped. Acquisition of right-of-way for project 48.0 (extending 120th Avenue NE from NE 8th Street to Old Bel-Red road) will be required, which will result in relocation of one business. Implementation of the No-Action Alternative could also result in rerouting of existing traffic patterns.

4.8.2.2 Traffic Volumes

Estimated 2010/2012 p.m. peak hour traffic volumes for selected network links are shown on Figure 4-10. The highest traffic volumes are on Bel-Red Road, 148th Avenue NE, and Redmond Way. All three facilities are classified as Principal Arterials. Comparisons of volumes at key locations on the BROTS Update network are included in Table 4-20 in the discussion of the TRG Recommended Network (Section 4.8.3.2).

4.8.2.3 Level of Service - SR 520

A special LOS analysis was made for SR 520, including an evaluation of the mainline lanes, ramps, and the weaving section between I-405 and 124th Avenue NE. SR 520 locations with LOS E or LOS F are shown on Figures 4-8 for existing conditions (1995), and Figure 4-9 for the No-Action Alternative and TRG Recommended Network. The results of the LOS analysis for the No-Action and TRG Recommended alternatives are nearly identical. There are only two differences: 1) the mainline LOS for westbound traffic between 124th Avenue NE and I-405 is LOS D under the No-Action Alternative and LOS E under the TRG Recommended Network and 2) the LOS on the second eastbound off-ramp to 148th Avenue NE is LOS D under the No-Action Alternative and LOS E under the TRG Recommended Network.

4.8.2.4 Signalized Intersection Level of Service

Model results of the assignment of the No Action Land Use estimates to Network B/Low Land Use are shown in Figure 4-11. As shown, 10 intersections would operate at LOS E, and 14 at LOS F. This compares to the existing situation of ten signalized intersections operating at LOS E and six intersections at LOS F. The No-Action Alternative is predicted to result in eight more signalized intersections operating at LOS F by 2010/2012.

Sixteen of the 24 congested intersections are located on the principal arterials of Bel-Red Road, 148th Avenue NE and Redmond Way. The remaining eight congested intersections are located on minor arterials of NE 24th Street, NE 20th Street, 156th Avenue NE, and 140th Avenue NE. The volume/capacity ratio at the 24 congested intersections ranges between 0.90 at 156th Avenue NE/Northup Way and 1.37 at Leary Way/West Lake Sammamish Parkway NE.

4.8.2.5 Unsignalized Intersection Level of Service

All eight unsignalized intersections evaluated in the study area are currently operating at LOS F, according to the existing conditions discussed in Chapter 3. Four of these intersections would remain unsignalized by 2010/2012 under this alternative and would continue to operate at LOS F:

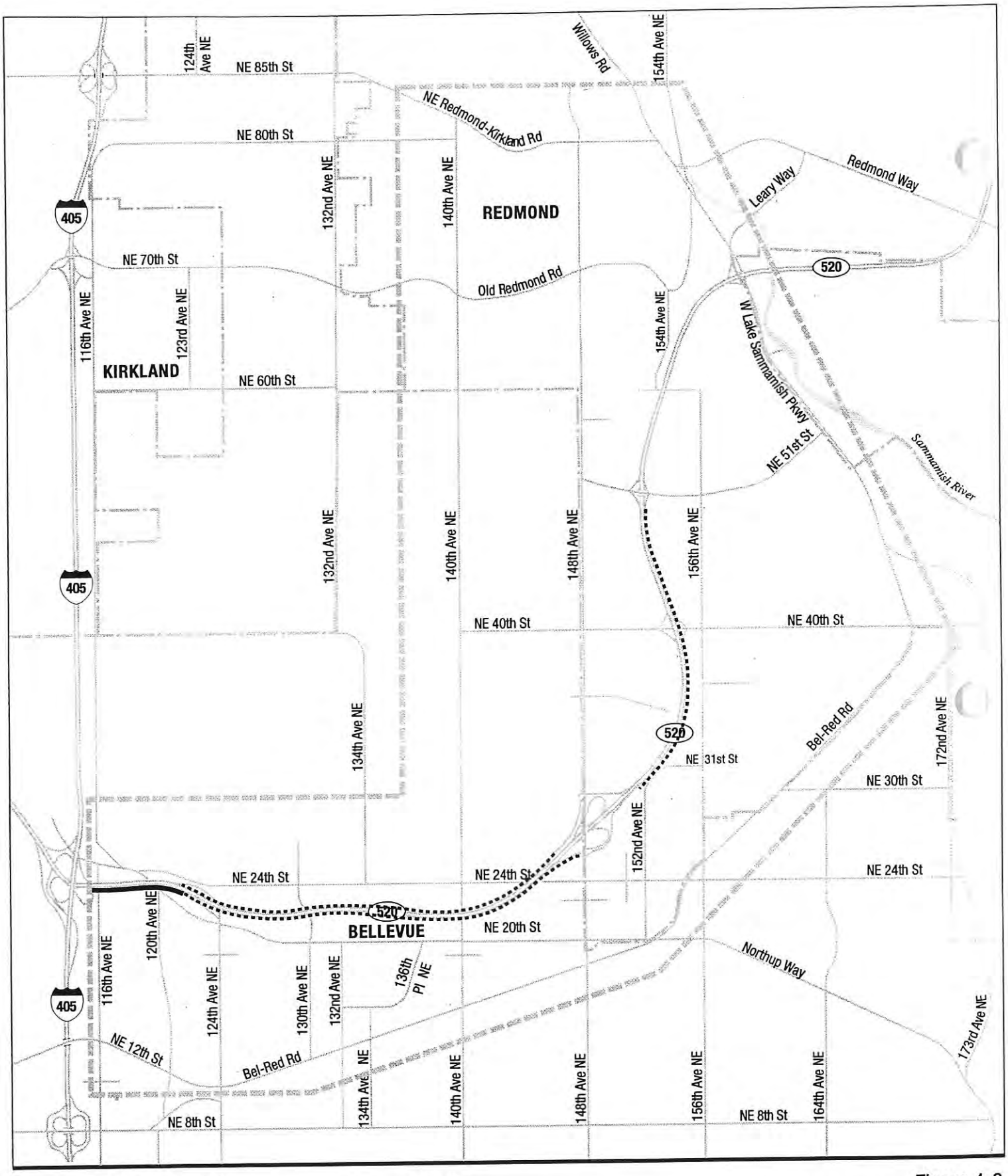
- 140th Avenue NE/NE 40th Street;
- 130th Ave. NE/NE 24th Street;
- 134th Avenue NE/ NE 24th Street; and
- Bel-Red Road/134th Avenue NE.

Therefore, there would be a reduction in the total number of deficient unsignalized intersections, but the remaining ones would still be at a substandard LOS.

4.8.2.6 Level of Service - Roadway Links

An output of the travel forecasting model is a designation of roadway links (between major intersections) that would have volume to capacity (v/c) ratios of 1.00 or more, indicating that the forecast travel demands are equal to or in excess of the available roadway capacity on the link.

The roadway link LOS is shown on Figure 4-12 for the No Action Network (Network B). The roadway links with a v/c greater than 1.00 are generally in the same location as the intersections with LOS E or F.



0 2000 4000

Scale in Feet

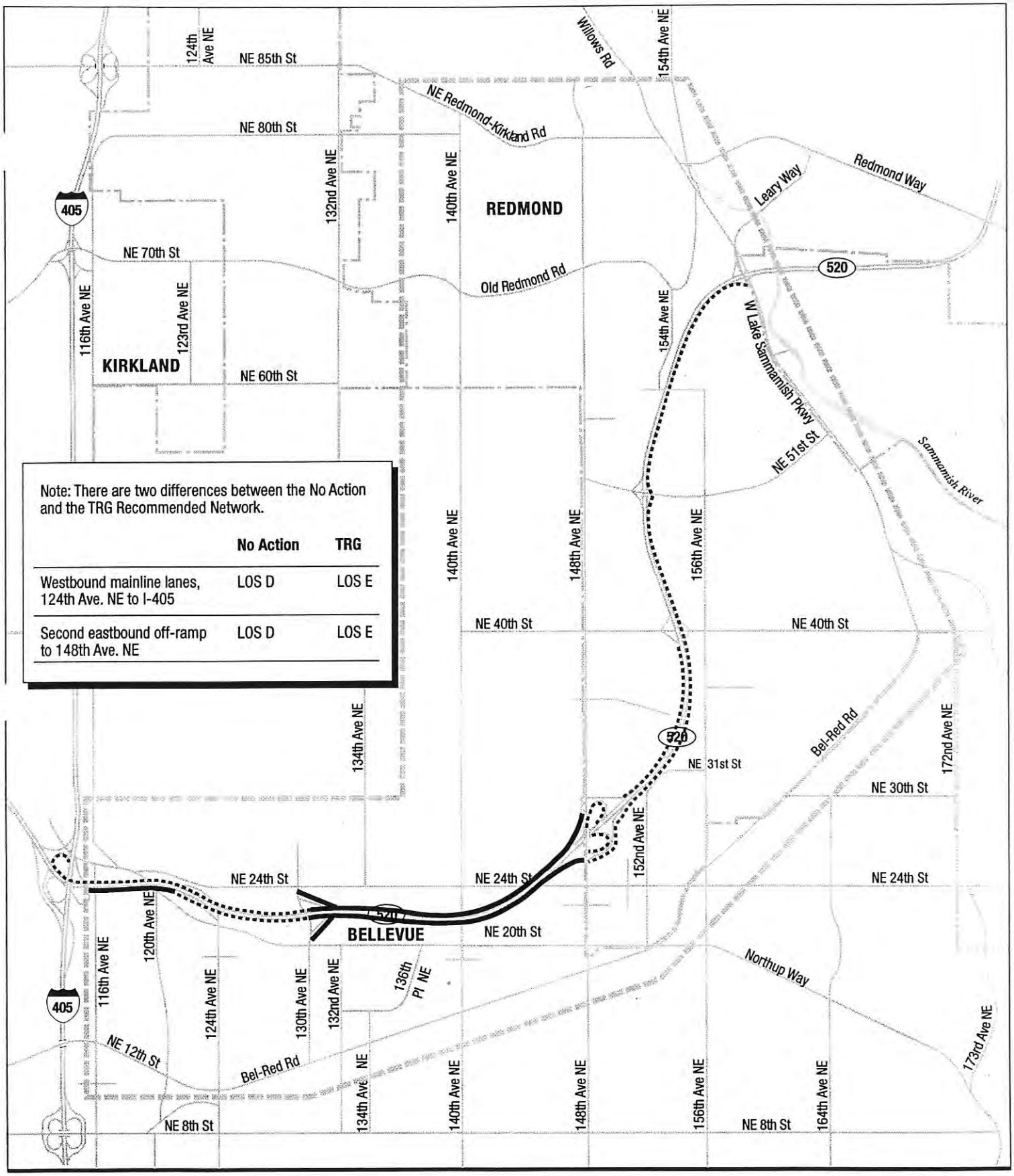
N

LEGEND

- Study area boundary
- City limits
- Level of Service F
- Level of Service E

Figure 4-8

SR 520 Level of Service: Existing (1995) Network



Note: There are two differences between the No Action and the TRG Recommended Network.

	No Action	TRG
Westbound mainline lanes, 124th Ave. NE to I-405	LOS D	LOS E
Second eastbound off-ramp to 148th Ave. NE	LOS D	LOS E

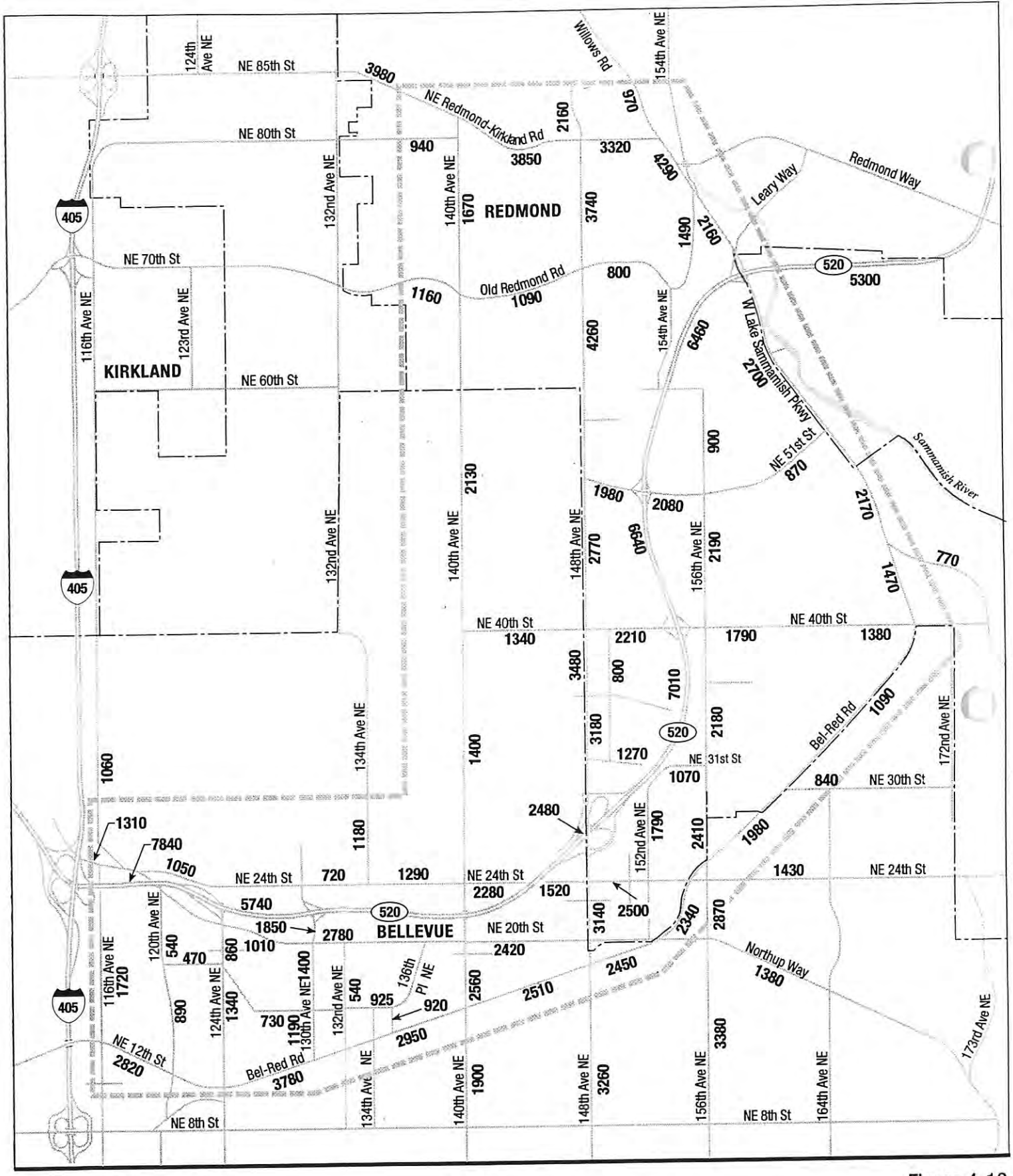
0 2000 4000
Scale in Feet

N

LEGEND

- Study area boundary
- City limits
- Level of Service F
- Level of Service E

Figure 4-9
SR 520 Level of Service: No Action and TRG Recommended Networks



0 2000 4000

Scale in Feet

N

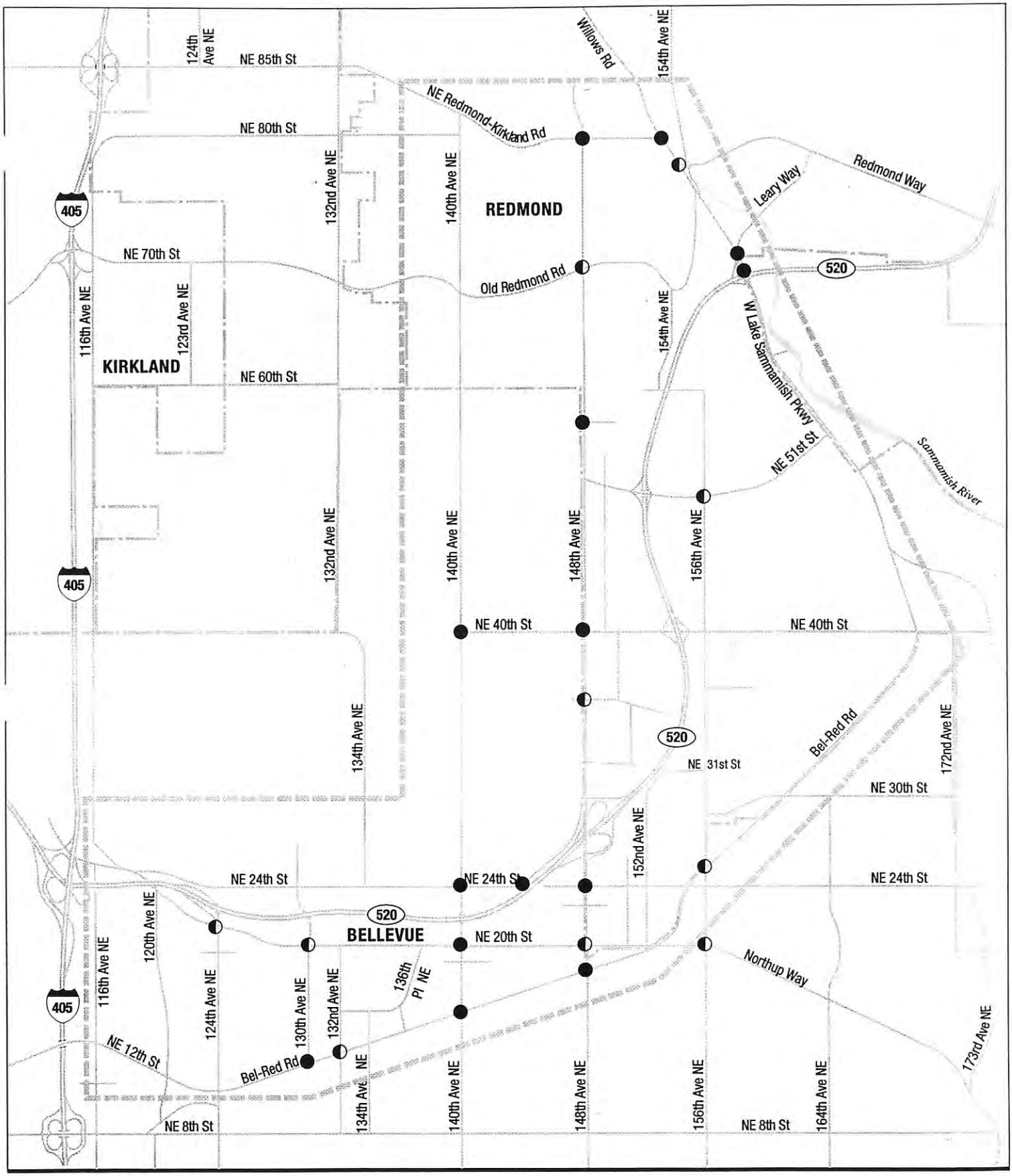
LEGEND

Study area boundary

City limits

Figure 4-10

Estimated 2010 P.M. Peak Hour Traffic Volumes Network B



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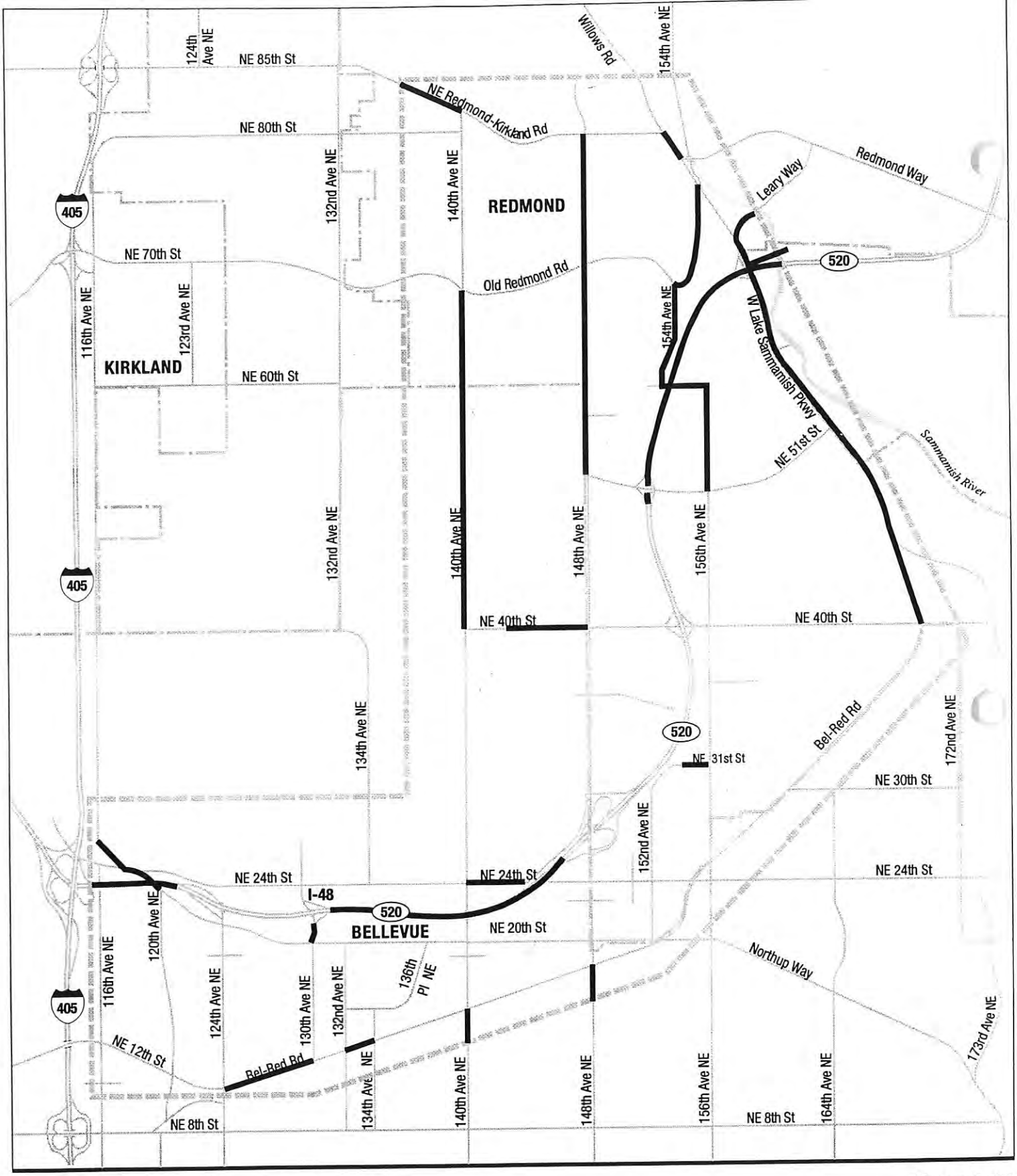
Scale in Feet

N

LEGEND

- Study area boundary
- City limits
- Level of service E
- Level of service F

Figure 4-11
2010 LOS
Network B



0 2000 4000

Scale in Feet

N

LEGEND

- Study area boundary
- City limits
- Volume/capacity ratio of 1.00 or higher

Figure 4-12

Level of Service on Roadway Links Network 3

4.8.2.7 Level of Service - District Averages

Transportation district averages are what Redmond and Bellevue use to test the capacity of the road network for concurrency purposes. Based on volume/capacity ratios, the average LOS values for each of the five study districts have been calculated and shown in Table 4-19. Two of the five districts under the No-Action Alternative would have average v/c ratios exceeding the standard: Bridle Trails (MMA 2) and Grass Lawn (TMD 4). The Grass Lawn district exceeded the standard in 1995 as well. Appendix C-3, Table 14, pages 30-32 lists all intersections used to calculate the district averages shown in Table 4-19.

Table 4-19:
Summary of LOS by MMA/TMD for No Action Network

DISTRICT	Standard		1995		2010 No-Action B	
	V/C	LOS	V/C	LOS	V/C	LOS
Bridle Trails (MMA 2)	0.80	C	0.57	A	0.89	D
Bel-Red/Northup (MMA 4)	0.90	D-	0.76	C	0.89	D
Overlake (MMA 12)	0.95	E+	0.85	D	0.93	E
Grass Lawn (TMD 4)	0.85	D+	0.90	D	1.07	F
Overlake (TMD 5)	0.95	E+	0.79	C	0.85	D

4.8.3 Preferred Alternative (TRG Recommended Network)

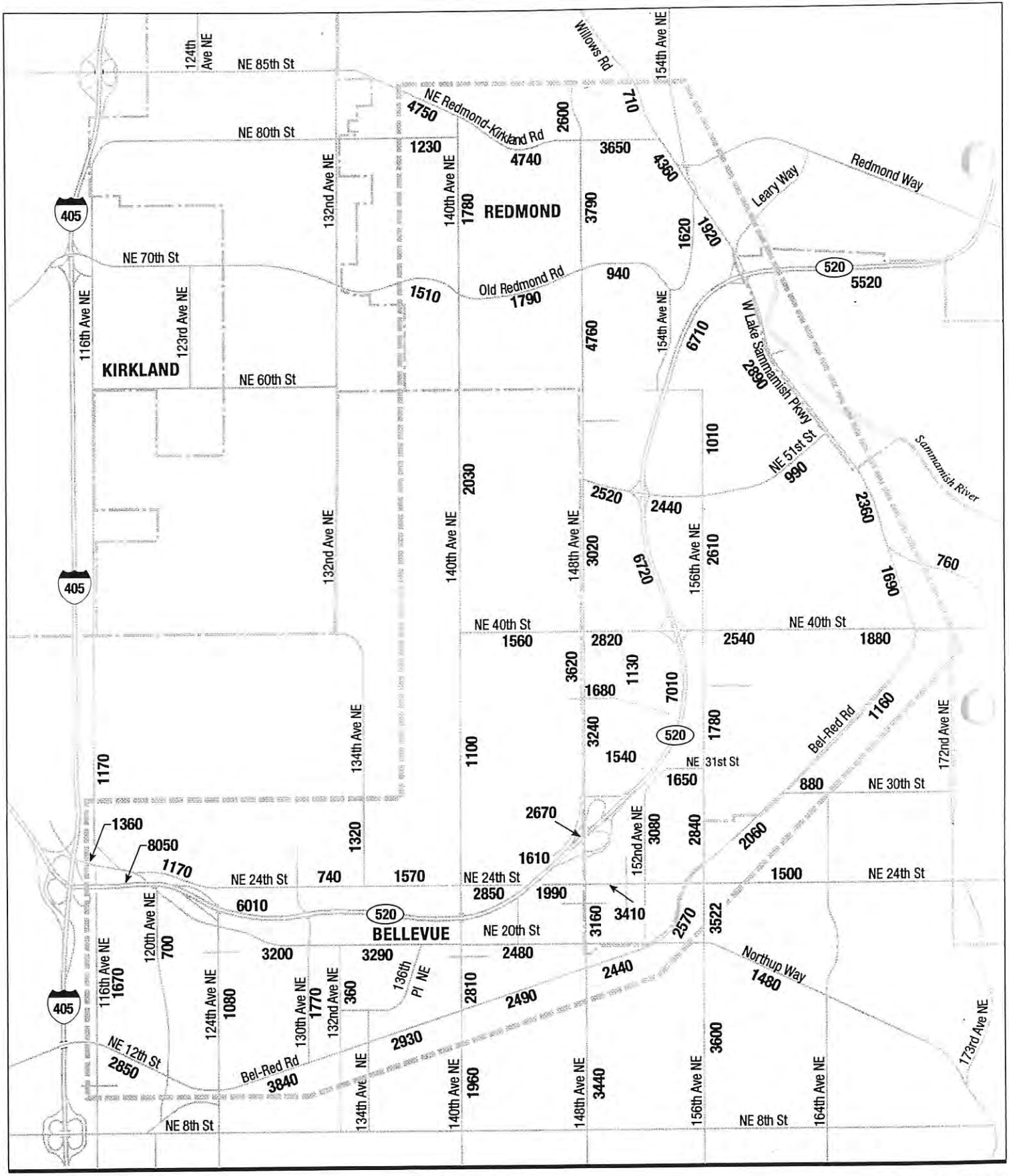
4.8.3.1 Construction Impacts

The TRG Recommended Network involves adoption of recommended transportation projects in Network E/ONP Preferred Alternative Land Use and Network A/Low Land Use (Baseline). These projects may result in short-term construction impacts, possible acquisition and relocation impacts, and traffic impacts. Short-term construction impacts include inconvenience, noise and dust for adjacent businesses and residents while new lanes are built, signals are installed, turn lanes are added or roads are re-striped. Acquisition of right-of-way for the widening of some roads will be required, which might result in relocation of residents or businesses. Therefore, there would be some loss of residential land to roadway uses, primarily in the list of roadway links, though this is not significant relative to overall land area. The new network could also result in rerouting of existing traffic patterns, as well as generally increased traffic from additional development. The same construction impacts as discussed in the No-Action Alternative would also occur under this alternative.

4.8.3.2 Traffic Volumes

Estimated 2010/2012 p.m. peak hour traffic volumes for selected network links are shown on Figure 4-13. The highest traffic volumes are on Bel-Red Road, 148th Avenue NE, and Redmond Way. All of these three facilities are classified as Principal Arterials.

A discussion of the general trends in traffic volumes under each alternative is useful for comparing the relative impacts. Table 4-20 summarizes 1995, 2010 No Action, and 2010 TRG Recommended Network p.m. peak hour traffic volumes at selected locations on the BROTS Update street network. Figure 4-14 shows the locations of selected counts. Generally, traffic volumes are projected to increase 1) between 1995 and the 2010 No-Action Alternative, due to anticipated growth in population and employment, and 2) between the 2010 No Action and 2010



0 2000 4000

Scale in Feet

N

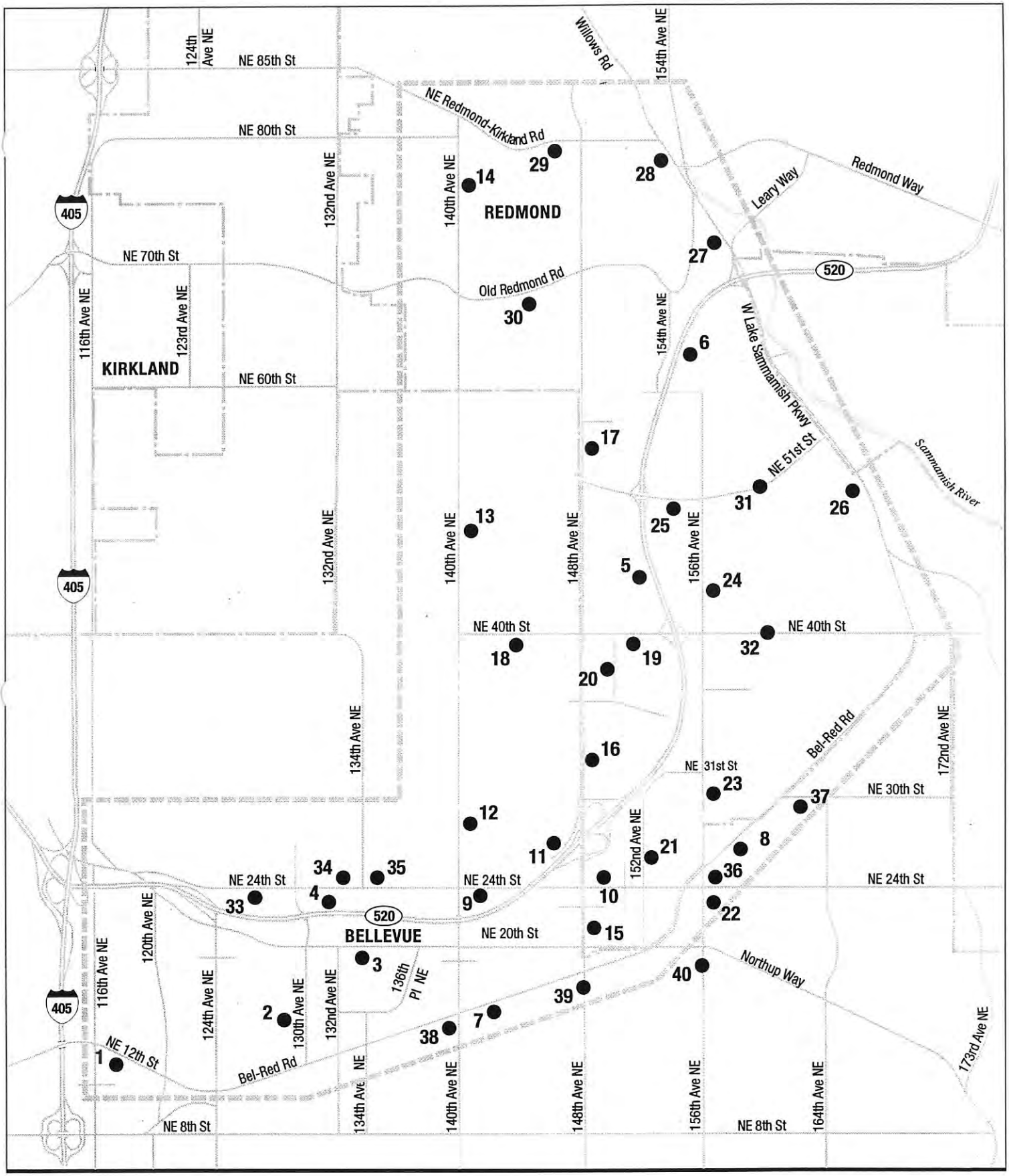
LEGEND

Study area boundary

City limits

Figure 4-13

Estimated 2010 PM Peak Hour Traffic Volumes Network E



0 2000 4000

Scale in Feet

N

LEGEND

Study area boundary

City limits

1 Selected count location & location number

Figure 4-14

Location of P.M. Peak Hour Volumes

Table 4-20:
Comparison of 1995 and 2010 Traffic Volumes[1]

Link	1995	Network B Vol.	Change From 1995[3]	Network E Vol.	Change From 1995	Change From Network B[3]
1. NE 12th St.: East of 116th Ave. NE	2,070	2,820	750/36%	2,850	780/38%	30/1%
2. NE 16th St.: West of 130th Ave. NE	NA	730	NA	NA	NA	NA
3. NE 20th St.: East of 132nd Ave. NE	2,650	2,780	130/5%	3,290	640/24%	510/18%
4. SR 520: East of 130th Ave. NE	6,900	7,350	450/7%	7,560	660/10%	210/3%
5. SR 520: South of NE 51st St.	5,400	6,640	1,240/23%	6,720	1,320/24%	80/1%
6. SR 520: North of NE 51st St.	5,000	6,460	460/9%	6,710	710/14%	250/4%
7. Bel-Red Rd. : East of 140th Ave. NE	2,130	2,510	380/18%	2,490	360/17%	(20)/>1%
8. Bel-Red Rd.: East of 156th Ave. NE	1,390	1,980	590/42%	2,060	670/48%	80/4%
9. NE 24th St.: West of SR 520	1,220	2,280	1,060/87%	2,850	1,630/134%	570/25%
10. NE 24th St.: East of 148th Ave. NE	2,330	2,500	170/7%	3,410	1,080/46%	910/36%
11. NE 29th Pl.: North of NE 24th St.	NA	1,600	NA	1,610	NA	10/>1%
12. 140th Ave. NE: North of NE 24th St.	1,290	1,400	110/9%	1,110	(180)/(14%)	(290)/(21%)
13. 140th Ave. NE: North of NE 40th St.	1,140	2,130	990/87%	2,030	890/78%	(100)/(5%)
14. 140th Ave. NE: South of NE 80th St.	1,050 (2)	1,670	620/59%	1,780	730/70%	110/7%
15. 148th Ave. NE: North of NE 20th St.	2,780	3,140	360/13%	3,160	380/14%	20/>1%
16. 148th Ave. NE: North of SR 520	2,650	3,180	530/20%	3,240	590/22%	60/2%
17. 148th Ave. NE: North of NE 51st St.	2,620	4,260	1,640/63%	4,760	2,140/82%	500/12%
18. NE 40th St.: East of 140th Ave. NE	730	1,340	610/84%	1,560	830/114%	220/16%
19. NE 40th St.: East of 148th Ave. NE	1,370	2,210	840/61%	2,820	1,450/106%	610/28%
20. 152nd Ave. NE: North of NE 24th St.	950	1,790	840/88%	3,080	2,130/224%	1,290/72%
21. 150th Ave. NE: South of NE 40th St.	430	800	370/86%	1,130	700/163%	330/41%
22. 156th Ave. NE: North of Northup Way	2,150	2,870	720/33%	3,520	1,370/64%	650/23%
23. 156th Ave. NE: South of NE 31st St.	1,630	2,410	780/48%	2,840	1,210/74%	430/18%
24. 156th Ave. NE: North of NE 40th St.	1,430	2,190	760/53%	2,610	1,180/83%	420/19%
25. NE 51st St.: East of SR 520	1,560	2,080	520/33%	2,440	880/56%	360/17%
26. W. Lk. Sammamish Pkwy NE: North of Bel-Red Rd.	1,850	2,170	320/17%	2,360	510/28%	190/9%
27. W. Lk. Sammamish Pkwy NE: North of Leary Way.	1,380	1,860	480/35%	1,920	540/39%	60/3%
28. Redmond Way: East of Willows Rd.	2,720	4,290	1,570/58%	4,360	1,640/60%	70/2%
29. Redmond Way: West of 148th Ave. NE	3,160	3,850	690/22%	4,740	1,580/50%	890/23%
30. Old Redmond Rd.: East of 140th Ave. NE	690	1,090	400/53%	1,790	1,100/159%	700/64%
31. NE 51st St.: East of 156th Ave. NE	430	870	440/102%	990	560/130%	120/14%
32. NE 40th St.: East of 156th Ave. NE	1,120	1,790	670/60%	2,540	1420/127%	750/42%
33. NE 24th St.; West of 130th Ave. NE	680	970	290/43%	1,020	340/50%	50/5%
34. NE 24th St.: East of 130th Ave. NE	1,050	720	(330)/(31%)	740	(310)/(30%)	20/3%
35. NE 24th St.: East of 134th Ave. NE	1,060	1,290	230/22%	1,570	510/48%	280/22%
36. NE 24th St.: East of 156th Ave. NE	1,010	1,430	420/42%	1,500	490/49%	70/5%
37. NE 30th St.: East of Bel-Red Rd.	460	840	380/83%	880	420/91%	40/5%
38. 140th Ave. SE: South of Bel-Red Rd.	1,840	1,900	60/3%	1,960	120/7%	60/3%
39. 148th Ave. SE: South of Bel-Red Rd.	3,140	3,260	120/4%	3,440	300/10%	180/6%
40. 156th Ave. SE: South of NE 20th St.	2,420	3,380	960/40%	3,600	1,180/49%	220/7%

1) P.M. peak hour volumes - both directions. 2) Estimated based on ten percent of daily volumes. 3) Numerical difference/percent change - numbers in parenthesis are negative.

TRG Recommended Network, due to a higher anticipated level of development for the modified market-constrained land use plan than for the low land use plan. However, in some cases, traffic volumes decrease, due to changes to the street network that are included in the No Action and the TRG Recommended Network. The volume changes are discussed following Table 4-20.

SR 520: Volumes on SR 520 increase due to the increased development that is anticipated.

148th Avenue NE: Volumes on 148th Avenue NE increase due to the increased development that is anticipated. The increased volumes on 148th Avenue NE may contribute to an increase in the number of accidents and the accident rate at three intersections that were identified as "1995 High Accident Locations": NE 20th Street; NE 24th Street; and Redmond Way.

NE 40th Street: Substantial increases in p.m. peak hour volumes are projected for NE 40th Street, both east of 140th Avenue NE and east of 148th Avenue NE. This increase is due to the proposed interchange with SR 520 at NE 40th Street and the increased density of land use that is projected in Overlake. Increased traffic volumes on NE 40th Street, east of 140th Avenue NE and east of 156th Avenue NE would be a negative impact on residential neighborhoods. The increased volumes on NE 40th Street may contribute to an increase in the number of accidents and the accident rate at one intersection that was identified as a "1995 High Accident Location": 156th Avenue NE/NE 40th Street.

NE 51st Street: P.M. peak hour volumes on NE 51st Street east of SR 520 are projected to increase under both the No Action and the TRG Recommended Network. These increased volumes are due to the increased density land use that is projected. The increased volumes on NE 51st Street may contribute to an increase in the number of accidents and the accident rate at three intersections that were identified as "1995 High Accident Locations": the SR 520 northbound and southbound ramp junctions and at West Lake Sammamish Parkway NE.

140th Avenue NE: Volumes on the south end of 140th Avenue NE (NE 24th Street to Old Redmond Road) increase under the No-Action Alternative because of increased capacity on 140th Avenue NE in that network and the increased level of development. However, volumes are lower for the TRG Recommended Network for two reasons: 1) the increased capacity on 140th Avenue NE was not included in the TRG Recommended Network and 152nd Avenue NE was assumed to be extended over SR 520, providing a new arterial corridor to take some of the travel demand. Volumes on the north end of 140th Avenue NE increased over 1995 volumes due to the increased capacity on that portion of 140th Avenue NE (in both the No Action and the TRG networks), and the increased level of development. Increased traffic volumes on 140th Avenue NE, north of NE 24th Street would be a negative impact on residential neighborhoods. The increased volumes on 140th Avenue NE may contribute to an increase in the number of accidents and the accident rate at two locations that were identified as "1995 High Accident Locations": the segment of 140th avenue NE between NE 20th Street and SR 520 and the intersection of 140th Avenue NE/Bel-Red Road.

156th Avenue NE: Volumes on the segment of 156th Avenue NE, just north of Northup Way are projected to increase due to the increased level of development. Between NE 31st and NE 40th Streets, the volume is projected to be lower for both 2010 network alternatives. This is likely due to a diversion of trips to use the new 152nd Avenue overcrossing of SR 520 (or the NE 31st Street overcrossing of SR 520 under the No-Action Alternative). The increased volumes on 156th Avenue NE may contribute to an increase in the number of accidents and the accident rate at two intersections that were identified as "1995 High Accident Locations": Bel-Red Road and NE 40th Street.

West Lake Sammamish Parkway NE: South of SR 520, p.m. peak hour volumes are projected to increase due to the increased level of density in 2010. The same is true for West Lake Sammamish Parkway NE, north of Leary Way, although the amount of increase in volume between the No Action and the TRG Recommended Network is only 60 p.m. peak hour vehicles. Increased traffic volumes on West Lake Sammamish Parkway NE, between Bel-Red Road and SR 520 would be a negative impact on residential neighborhoods. The increased volumes on West Lake Sammamish Parkway NE may contribute to an increase in the number of accidents and the accident rate at two intersections that were identified as "1995 High Accident Locations": NE 51st Street and Bel-Red Road.

Redmond-Kirkland Road: Volumes at both locations on Redmond-Kirkland Road/Redmond Way (west of 148th Avenue NE and east of Willows Road) have projected volumes that are expected to increase due to the increased level of density in 2010. Other alternatives included widening Redmond-Kirkland Road to seven lanes. The volumes on Redmond-Kirkland Road were significantly higher with this alternative. The increased volumes on Redmond-Kirkland Road/Redmond Way may contribute to an increase in the number of accidents and the accident rate at one intersection that was identified as a "1995 High Accident Location": 148th Avenue NE/Redmond Way.

Old Redmond Road: Projected volumes on Old Redmond Road, east of 140th Avenue NE increased due to the increased level of density in 2010 and the Baseline project to widen this facility to three lanes, between 140th and 148th Avenues NE. Increased traffic volumes on Old Redmond Road would be a negative impact on residential neighborhoods.

NE 24th Street: Projected 2010 volumes on NE 24th Street east of 148th Avenue NE increase due to the increased levels of density and the proposed project to extend 152nd Avenue NE over SR 520 and connect it with 150th Avenue NE, in the TRG Recommended Network. In the No-Action Alternative, the proposed overcrossing using NE 31st Street did not have as much impact on NE 24th Street volumes at this location. The increased volumes on NE 24th Street may contribute to an increase in the number of accidents and the accident rate at three locations that were identified as "1995 High Accident Locations": the segment of NE 24th Street, just west of 148th Avenue NE, and the intersections with 148th Avenue NE and 152nd Avenue NE.

Volumes on NE 24th Street west of SR 520 are also projected to increase in 2010. These increases are due to increased levels of density and the proposed project to extend NE 29th Place between 148th Avenue NE and NE 24th Street. Increased traffic volumes on NE 24th Street, west of SR 520 could be a negative impact on residential neighborhoods to the west of 140th Avenue NE, although proposed projects are included in the TRG Recommended Network to encourage these increased volumes to turn to/from the south on 140th Avenue NE.

NE 20th Street: Projected 2010 volumes on NE 20th Street east of 132nd Avenue NE are higher than 1995 volumes, due to increased density of development. The increased volumes on NE 20th Street may contribute to an increase in the number of accidents and the accident rate at three locations that were identified as "1995 High Accident Locations": the segment of NE 20th Street, between 140th and 148th Avenues NE, and the intersections with 148th Avenue NE and 130th Avenue NE.

Bel-Red Road: Volumes on Bel-Red Road, both east of 140th Avenue NE and east of 156th Avenue NE are projected to increase between 1995 and 2010. These increased are due to the increased density of development. The increased volumes on Bel-Red Road may contribute to an increase in the number of accidents and the accident rate at six locations that were identified as

"1995 High Accident Locations": the segment of Bel-Red Road, just west of 140th Avenue NE, and the intersections with 120th Avenue NE, 140th Avenue NE, 156th Avenue NE, NE 30th Street, and West Lake Sammamish Parkway NE.

4.8.3.3 Signalized Intersection Level of Service

Model results of assigning the CAC Recommended land use projections to the TRG Recommended Network are shown on Figure 4-15. As shown, a total of 33 intersections would have levels of service of E or F (18 at LOS F and 15 at LOS E).

Twenty-one of the 33 congested intersections are located on the principal arterials of Bel-Red Road, 148th Avenue NE and Redmond Way. The remaining 12 congested intersections are located on minor arterials of NE 24th Street, NE 20th Street, 156th Avenue NE, NE 40th Street, and 140th Avenue NE. The volume/capacity ratio at the 33 congested intersections ranges between 0.90 at 116th Avenue NE/NE 12th Street and 1.47 at 140th Avenue NE/Old Redmond Road. Eleven of the 33 congested intersections operate at LOS E or F at present.

As to Transportation impacts outside the study area, the City of Bellevue Traffic Task Force Recommendations FEIS, March 1998, is incorporated by reference.

4.8.3.4 Unsignalized Intersection Level of Service

Unsignalized intersection LOS for the TRG Recommended Network indicates that three unsignalized intersections would be deficient by 2010/2012, two of which are the same as under the No-Action Alternative. The three intersections with LOS F are:

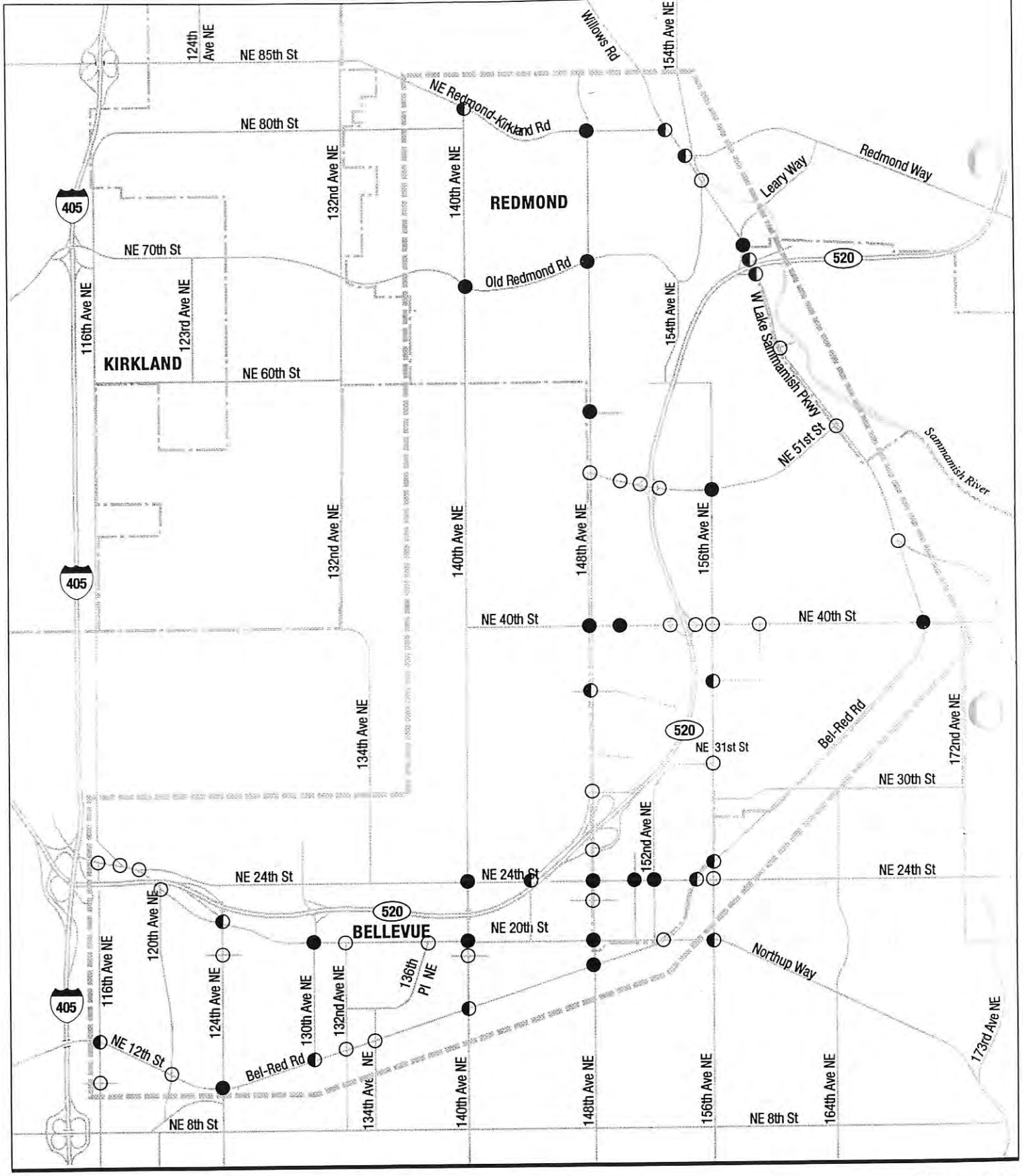
- 140th Avenue/NE 40th Street;
- 130th Avenue NE/NE 24th Street; and,
- 134th Avenue NE/NE 24th Street.

4.8.3.5 Level of Service - Roadway Links

The roadway link LOS for TRG Recommended Network is shown on Figure 4-16. The roadway links with a v/c greater than 1.00 are generally in the same location as the intersections with LOS E or F.

4.8.3.6 Level of Service - District Averages

Based on volume/capacity ratios (for Network E/ONP Preferred Alternative Land Use) the average LOS values for each of the five study districts have been calculated. One of the five districts would have average v/c ratios in excess of the standard: Grass Lawn (TMD 4). Therefore, this would be an improvement over the No-Action Alternative, because the Bridle Trails district would not have an average LOS that exceeded the standard. Table 4-21 summarizes the district LOS averages for 1995, No Action and the TRG Recommended Network. Appendix C-7, Table B-1 lists all intersections used to calculate the district averages shown in Table 4-21.



0 2000 4000

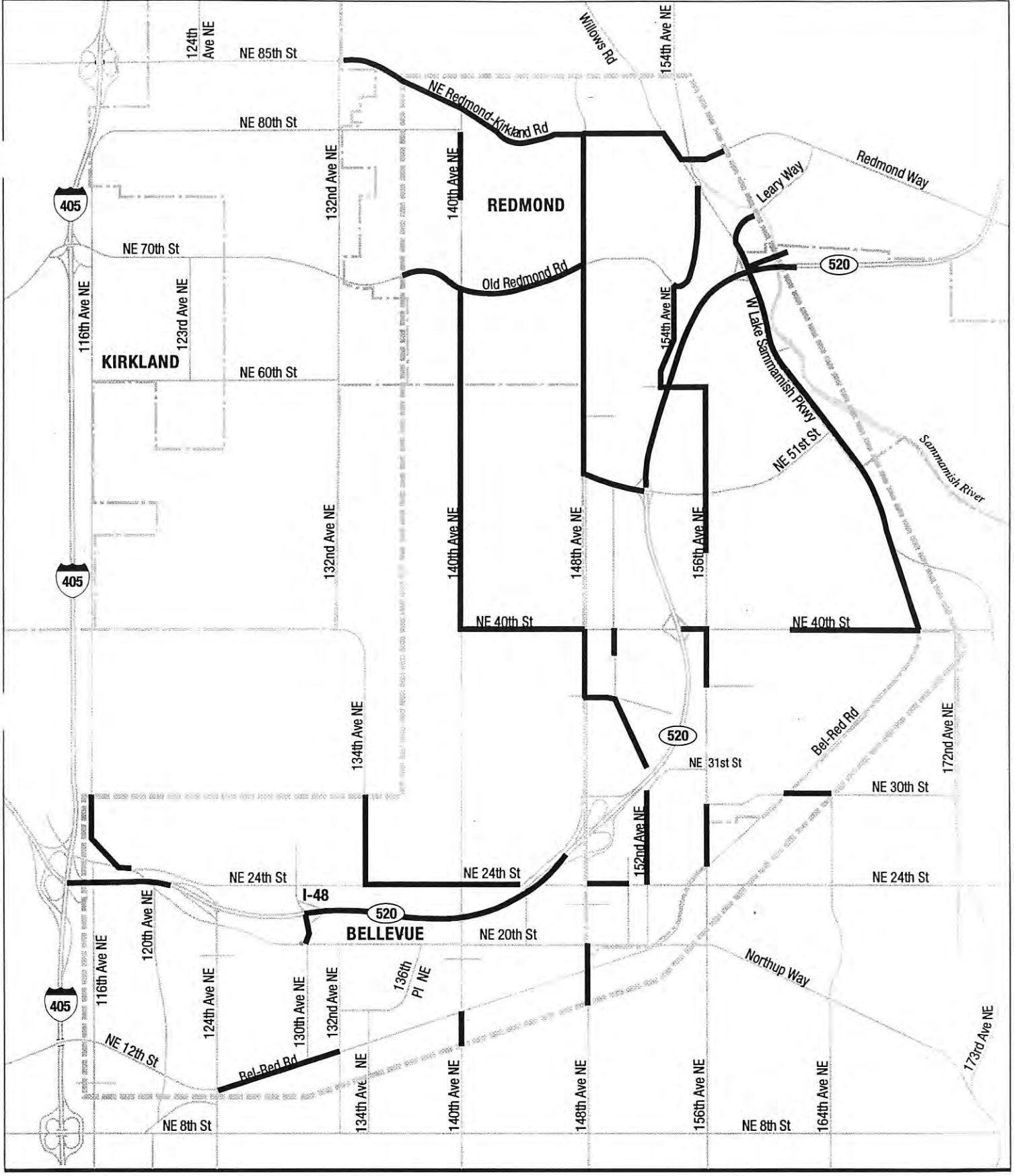
Scale in Feet

N

LEGEND

- Study area boundary
- City limits
- ○ Level of Service D or better
- ◐ Level of Service E
- ● Level of Service F

Figure 4-15
2010 LOS Network E



0 2000 4000

Scale in Feet

N

LEGEND

Study area boundary

City limits

Volume/capacity ratio of 1.00 or higher

Figure 4-16

Level of Service on Roadway Links Network E

Table 4-21:
Summary of LOS by MMA/TMD for TRG Recommended Network

DISTRICT	Standard V/C	Standard LOS	1995 V/C	1995 LOS	2010/2012 No Action 11.9 msf With Network B V/C	2010/2012 No Action 11.9 msf With Network B LOS	2010 TRG Recommended Network E 15.4 msf V/C	2010 TRG Recommended Network E 15.4 msf LOS
Bridle Trails (MMA 2)	0.80	C	0.57	A	0.89	D	0.78	C
Bel-Red/Northup (MMA 4)	0.90	D-	0.76	C	0.89	D	0.89	D
Overlake (MMA 12)	0.95	E+	0.85	D	0.93	E	0.95	E
Grass Lawn (TMD 4)	0.85	D+	0.90	D	1.07	F	1.30	F
Overlake (TMD 5)	0.95	E+	0.79	C	0.85	D	0.90	D

4.8.3.7 Evaluation of Ramps at 124th Avenue NE

An evaluation of changes in volumes and level of service (LOS) due to locating new SR 520 ramps to/from the east at 124th Avenue NE rather than at 130th Avenue NE was made under Scenario 5. Tables 4-22 and 4-23 present summaries of the impacts on volumes and LOS.

Table 4-22:
Differences in Volumes (SR 520 Interchange Location) (1)

Link	P.M. Peak Hour Volumes: Interchange at 130th Avenue NE	Interchange at 124th Avenue NE	Volume Difference (2)
NE 24th Street: West of 130th Avenue NE	940	760	-180
NE 24th Street: East of 130th Avenue NE	690	870	+180
Northup Way: West of 124th Ave. NE	1280	1990	+710
Northup Way: West of 130th Ave. NE	2960	2720	-240
NE 20th St.: East of 132nd Ave. NE	2950	3130	+180
130th Ave. NE: North of NE 20th St.	1750	770	-980
130th Ave. NE: South of NE 20th St.	1670	1310	-360
124th Ave. NE: South of Northup Way	960	1240	+280
120th Ave. NE: South of Northup Way	630	920	+290
116th Ave. NE: South of Northup Way	1670	1800	+130
Bel-Red Rd: West of 120th Ave. NE	2790	2820	+30
Bel-Red Rd: West of 124th Ave. NE	2890	2780	-110
Bel-Red Rd: West of 130th Ave. NE	3780	3470	-310
Bel-Red Rd: East of 130th Ave. NE	3030	3160	+130
SR 520: 130th Ave. NE - 148th Ave. NE	7450	7340	-110

(1) Based on BROTS Scenario 5.
(2) Difference of volume with interchange at 124th Avenue NE, with respect to volumes with interchange at 130th Avenue NE.

Table 4-23:
Comparison of Level of Service (SR 520 Interchange Location) (1)

Intersection	Interchange at 130th Avenue NE		Interchange at 124th Avenue NE	
	V/C	LOS	V/C	LOS
116th Ave. NE/NE 12th St.	0.83	D	0.90	E
124th Ave. NE/Bel-Red Rd.	1.02	F	1.03	F
130th Ave. NE/Bel-Red Rd.	0.99	E	0.89	D
124th Ave. NE/Northup Way	0.94	E	1.38	F
130th Ave. NE/NE 20th St.	1.00	F	0.92	E
140th Ave. NE/Bel-Red Rd.	1.00	F	0.92	E
140th Ave. NE/NE 24th St.	0.92	E	0.89	D
NE 29th Pl./NE 24th St.	1.56	F	1.56	F
148th Ave. NE/NE 29th Pl.	0.87	D	0.90	E
148th Ave. NE/NE 24th St.	1.16	F	1.16	F
148th Ave. NE/NE 20th St.	0.90	E	0.87	D
148th Ave. NE/Bel-Red Rd.	1.15	F	1.14	F

(1) Based on BROTS Scenario 5.

Table 4-22 shows that volumes on various roadways would increase or decrease in a logical way, according to which interchange location is chosen. The comparison of LOS, as summarized in Table 4-23, does not have wide variations (more than 0.09) in the V/C ratios except at 124th Avenue NE/Northup Way (0.44) and at 130th Avenue NE/Bel-Red Road (0.10).

4.8.3.8 Project Impacts on Land Use

All of the projects considered for the BROTS Update TRG Recommended Network were evaluated by the TRG for impacts on land use. Specific evaluation criteria for this effort included: Residential Neighborhood Impacts; Business and Commercial Area Impacts; and Consistency With Adjacent Land Uses. Table 4-24 summarizes the results of the TRG evaluation of these criteria for each of the projects included in the TRG Recommended Network.

Generally, project impacts on residential neighborhoods were either neutral or negative. The TRG assigned the negative ratings primarily because they believed that the project would encourage more traffic to use streets that have mostly residential land use. The project impacts on business and commercial areas were primarily neutral or positive, as the improved traffic flow due to implementation of the project was believed to benefit these areas. Ratings for consistency with adjacent land use were mixed, with about equal positive and negative ratings.

A total of 25 projects included in the BROTS Update were considered to have negative impacts on residential neighborhoods and were rejected. These projects do not appear in Table 4-22; however, they do appear in the Project Evaluation Spreadsheet, included as Appendix C-8 of the Technical Supporting Record.

Projects that are included in the TRG Recommended Network that are expected to have negative impacts on residential neighborhoods are discussed below. The potential adverse impacts may be mitigated by implementation of traffic calming measures through the neighborhood traffic control programs (See Section 4.7.8).

Table 4-24:
BROTS Project Impacts on Land Use

#	City	MMA/ TMD	Location	Limits	Description	Low Land Use, 6-yr Funded Projects (Network A)	Low Land Use, 12-yr Transportation Facilities Plan (Network B)	Market Constrained Land Use, TR6 Recommended Plan (Network E)	Evaluation		
									Residential Neighborhood Impacts	Business and Commercial Area Impacts	Consistent with Adjacent Land Uses
BEL-RED/NORTHUP (MMA 4)											
15.1	B	BRN	124th Ave. NE/ Northup Way		Add northbound right turn, eastbound right turn, and eastbound through lanes; convert westbound right turn to westbound right turn/through		x	x	None	Positive	None
18.1	B	BRN	120th Ave. NE/ NE 12th St.		Add southbound right turn lane		x	x	None	None	None
19.0	B	BRN	116th Ave. NE/ NE 12th St.		Add northbound right turn lane		x	x	None	Positive	None
20.2	B	BRN	124th Ave. NE/ Bel-Red Rd		Add a southbound right turn lane			x	None	Positive	None
21.0	B	BRN	132nd Ave. NE/ Bel-Red Rd		Add southbound right turn lane		x	x	None	Positive	None
26.0	B	BRN	130th Ave. NE/ NE 20th St.		Add southbound right turn and westbound right turn lanes		x	x	Negative	Positive	Positive
48.0	B	BRN	120th Ave. NE	NE 8th to 12th Sts.	Extend from NE 8th St to Old Bel-Red Rd; widen to 3 lanes from Old Bel-Red Rd to NE 12th St		x	x	None	Best	Positive
48.1	B	BRN	120th Ave. NE/ NE 8th St.		Provide three northbound approach lanes by converting one of two southbound lanes: L/LT/R configuration. Split phase N-S traffic signal			x	None	Positive	Positive
65.0	B	BRN	130th Ave. NE	Bel-Red Rd to NE 20th St.	Widen to 3 lanes			x	None	Positive	Positive
66.0	B	BRN	134th Ave. NE/ Bel-Red Rd		Install signal			x	Negative	None	None
69.0	B	BRN	132nd Ave. NE	Bel-Red Rd to NE 20th St.	Widen to 3 lanes; modify signals			x	None	Positive	Positive
71.1	B	BRN	136th Pl. NE	NE 16th. To 20th. Sts.	Upgrade to 2-lane urban standards			x	None	Positive	Positive
75.0	B	BRN	Northup Way	120th. to 124th. Ave. NE	Add second eastbound lane			x	None	Positive	Positive

Table 4-24, continued

#	City	MMA/ TMD	Location	Limits	Description	Low Land Use, 6-yr Funded Projects (Network A)	Low Land Use, 12-yr Transportation Facilities Plan (Network B)	Market Constrained Land Use, TR6 Recommended Plan (Network E)	Evaluation		
									Residential Neighborhood Impacts	Business and Commercial Area Impacts	Consistent with Adjacent Land Uses
77.1	B	BRN	124th Ave. NE/ NE 8th St.		Add a northbound right turn lane			x	None	None	Positive
78.0	B	BRN	130th Ave. NE/ Bel-Red Rd.		Add second southbound right turn lane and a westbound right turn lane			x	None	Positive	None
CROSSROADS (MMA 5)											
24.1	B	CR	156th Ave. NE/ NE 20th St.		Add second northbound left turn lane and eastbound through lane extended 800 feet east of 156th Ave. NE (plus transition)			x	Positive	None	Negative
DOWNTOWN REDMOND (TMD 1)											
30.0	R	DT	W. Lake Samm Pkwy/SR 520 eastbound Ramps		Add second eastbound left turn lane		x	x	None	Positive	Positive
34.1	R	DT	Willows Rd/Redmond Way		Convert southbound lanes to provide left turn and left turn/through/right turn lanes; add westbound right turn lane			x	None	None	None
39.1	R	DT	W/ Lake Samm Pkwy/Town Center		Construct a new 4-lane connector w/signal at W Lake Samm Pkwy			x	None	Positive	Positive
86.0	R	DT	W. Lake Samm Pkwy/Leary Way		Widen Leary Way approach to provide 4-lanes: left/left-thru/thru/right. Widen SR 520 on ramp to two lanes for 500 feet.			X	None	Positive	None
GRASSLAWN (TMD 4)											
33.0	R	GL	140th Ave. NE/ Redmond Way		Add eastbound right turn and second northbound left turn lanes		x	x	Negative	None	Negative
74.0	R	GL	132nd Ave. NE/ Redmond Way		Add westbound right turn lane			x	None	None	Negative
OVERLAKE (MMA 12 (TMD 5)											
1.0	R	OL	SR 520/NE 40th St.		Construct new interchange	x	x	x			
1.1	R	OL	SR 520 Eastbound Ramps/NE 40th St.		Add second eastbound right turn lane			x	None	None	Positive
4.0	R	OL	159th Ave. NE/ NE 40th St.		Install signal	x	x	x	Positive	Positive	Positive

Table 4-24, continued

#	City	MMA/ TMD	Location	Limits	Description	Low Land Use, 6-yr Funded Projects (Network A)	Low Land Use, 12-yr Transportation Facilities Plan (Network B)	Market Constrained Land Use, TR6 Recommended Plan (Network E)	Evaluation		
									Residential Neighborhood Impacts	Business and Commercial Area Impacts	Consistent with Adjacent Land Uses
4.1	R	OL	159th Ave. NE/ NE 40th St.		Revise lanes to provide northbound left turn and shared northbound left turn/right turn lanes			x	Positive	Positive	Positive
8.1	R	OL	150th Ave. NE/ NE 40th St.		Add northbound right turn lane		x	x	None	Positive	Positive
10.1	R	OL	SR 520 Eastbound Ramps/NE 51st St.		Add second eastbound right turn lane			x	None	None	Positive
11.1	R	OL	W. Lake Samm Pkwy/NE 51st St.		Convert eastbound lanes to provide left turn and shared left turn/right turn lanes; convert southbound lanes to provide through and through/right turn lanes; and add northbound through lane		x	x	None	None	None
12.1	R	OL	156th Ave. NE/ NE 31st St.		Add southbound right turn lane			x	None	None	None
22.3	B	OL	156th Ave. NE/ Bel-Red Rd		Add southbound right turn lane			x	None	Positive	None
25.2	B	OL	140th Ave. NE/ NE 24th St.		Add second westbound left turn lane			x	Positive	Positive	Positive
27.0	B/R	OL	148th Ave. NE/ NE 40th St.		Add second southbound left turn and northbound right turn lanes		x	x	Positive	Positive	None
27.1	B/R	OL	148th Ave. NE/ NE 40th St.		Add second westbound right turn lane			x	None	Positive	None
28.0	B/R	OL	148th Ave. NE/ NE 29th Pl.		Add southbound through and second westbound left turn lanes; channelize yield for westbound right turn lane; convert eastbound right turn to shared right turn/left turn lane		x	x	Positive	Positive	Negative
29.0	B/R	OL	148th Ave. NE/ NE 51st St.		Add second southbound left turn lane; convert westbound lanes to provide shared left turn/through and two right turn lanes		x	x	Positive	Positive	Positive
31.0	R	OL	W. Lake Samm Pkwy/Bel-Red Rd		Channelize to provide a yield for westbound right turn lane		x	x	None	None	None
32.0	B/R	OL	148th Ave. NE/ NE 56th St.		Add northbound right turn lane		x	x	None	Best	Positive

Table 4-24, continued

#	City	MMA/ TMD	Location	Limits	Description	Low Land Use, 6-yr Funded Projects (Network A)	Low Land Use, 12-yr Transportation Facilities Plan (Network B)	Market Constrained Land Use, TR6 Recommended Plan (Network E)	Evaluation		
									Residential Neighborhood Impacts	Business and Commercial Area Impacts	Consistent with Adjacent Land Uses
36.1	R	OL	156th Ave. NE/ NE 40th St.		Add northbound right turn and second southbound left turn lanes			x	Negative	Positive	Negative
40.2	B/R	OL	152nd Ave. NE	NE 30th to NE 36th Sts.	Extend 152nd Ave. NE over SR 520 to the intersection of 150th Ave. NE/NE 36th St. Provide connection from over-crossing to NE 31st St east of SR 520			x	None	Positive overall, may adversely impact nearby business.	Best
46.2	B	OL	NE 29th Pl.	NE 24th St. to 145th Ave. NE	Extend as 2/3-lane road; install signal at NE 24th Street. Provide two south-bound right turn lanes at NE 24th St. Prohibit southbound left turn at NE 24th St			x	Negative	None	None
47.2	R	OL	150th Ave. NE	NE 36th to 40th Sts.	Construct 2-lane collector. Realign north end to form a four-leg intersection at NE 40th St.			X	None	None	Best
49.0	B	OL	140th Ave. NE/ NE 20th St.		Add second eastbound left turn, second westbound left turn, and southbound right turn lanes			x	None	None	None
50.1	B/R	OL	148th Ave. NE/ NE 20th St.		Add second westbound left turn and second eastbound left turn lanes			x	None	None	Positive
51.2	B	OL	148th Ave. NE/ Bel-Red Rd		Add eastbound right turn lane and second westbound left turn lane			x	None	None	None
53.1	B/R	OL	Bel-Red Rd/ NE 24th St.		Add southbound right turn lane and northbound left turn lane. Provide protected phasing for northbound left turns. Prohibit southbound left turns			x	None	Positive	Positive
55.0	R	OL	151st Pl. NE/ NE 24th St.		Add westbound right turn lane			x	None	Positive	Positive
56.1	R	OL	152nd Ave. NE/ NE 24th St.		Add northbound and southbound approach lanes. Make northbound lanes: Left/Thru/Thru-Right. Make southbound lanes: Left/Thru/Right			x	None	Positive	Positive
57.2	B	OL	NE 24th St.	NE 29th Pl to 140th Ave. NE	Widen to four lanes from east of NE 29th Pl to 140th Ave. NE. Provide two west-bound lanes, one eastbound lane, and a two-way left turn lane			x	None	Positive	None

Table 4-24, continued

#	City	MMA/ TMD	Location	Limits	Description	Low Land Use, 6-yr Funded Projects (Network A)	Low Land Use, 12-yr Transportation Facilities Plan (Network B)	Market Constrained Land Use, TR6 Recommended Plan (Network E)	Evaluation		
									Residential Neighborhood Impacts	Business and Commercial Area Impacts	Consistent with Adjacent Land Uses
63.0	B	OL	156th Ave. NE	Bel-Red Rd to NE 20th St.	Add a third southbound through lane			x	None	Positive	Negative
67.0	B	OL	156th Ave. NE	NE 20th to 24th Sts.	Add a two-way left turn lane			x	None	Positive	Positive
68.0	B	OL	148th Ave. NE	SR 520 east-bound off-ramp to SR 520 west-bound on-ramp	Add northbound through lane; modify channelization and signals			x	None	Positive	Best
79.0	B/R	OL	148th Ave. NE/ NE 36th St.		Add second southbound left turn lane and second westbound left turn lane			x	None	Positive	Positive
81.0	R	OL	156th Ave. NE/ NE 36th St.		Add eastbound right turn lane and a second westbound right turn lane			x	None	Positive	Positive
85.0	R	OL	150th Ave. NE/ NE 51st St.		Add north leg to intersection. Provide two southbound left turn lanes			x	Positive	Positive	Positive

Several other projects included in the TRG Recommended Network would have negative impacts on land use in terms of right-of-way acquisition and/or elimination of parking spaces. These projects are listed in Table 4-25. A total of 40 projects would require acquisition of right-of-way. Only the extension of 120th Avenue NE between NE 8th Street and Old Bel-Red Road (Project 48.0) would cause a building to be removed. Several other projects would require the elimination of private parking spaces.

Impacts on Residential Neighborhoods

Project 26.0 - Intersection of 130th Avenue NE/NE 20th Street: Add southbound and westbound right turn lanes: The addition of these right turn lanes was identified as a negative impact because the added capacity and improved operations would attract more traffic into the Bridle Trails neighborhood.

Project 66.0 - Intersection of 134th Avenue NE/Bel-Red Road: Install a traffic signal: The installation of a traffic signal would attract more traffic through the residential neighborhood along 134th Avenue NE, between NE 8th Street and Bel-Red Road.

Project 33.0 - Intersection of 140th Avenue NE/Redmond Way: Add eastbound right turn lane and a second northbound left turn lane: The addition of these turn lanes was identified as a negative impact because the added capacity and improved operations would attract more traffic into and through the Grass Lawn and Bridle Trails neighborhoods.

Project 36.1 - Intersection of 156th Avenue NE/NE 40th Street: Add a northbound right turn lane and a second southbound left turn lane: The addition of these turn lanes was identified as a negative impact because the added capacity and improved operations would attract more traffic into and through the residential neighborhoods along NE 40th Street east of 156th Avenue NE.

Project 46.2 - Extension of NE 29th Place to Connect 148th Avenue NE and NE 24th Street: This extension was identified as a negative impact on the Bridle Trails neighborhood west of 140th Avenue NE, because it would divert more trips onto NE 24th Street.

4.8.3.9 Need For Monitoring

The ONP Preferred Alternative Land Use plan provides forecasts of floor area for the year 2010/2012. Current development activity in the Overlake area has resulted in a number of development projects that have already been vested through applications for development to the City of Redmond. These vested projects indicate that the rate of growth in land use development will be higher than average during the early part of the projection period, with much of the anticipated 2010 development being in place by 2002.

Because of this rapid development, it will be necessary for the cities of Bellevue and Redmond to carefully monitor the development of transportation facilities to avoid exceeding level of service standards prior to the BROTS target year of 2010/2012. To have transportation facilities keep pace with anticipated development, more projects than are currently included in the six-year plans of the two cities may be required.

Table 4-25:
BROTS Project Impacts on Adjacent Property

#	City	MMA/ TMD	Location	Limits	Description	Impacts: Right-of-way Required	Impacts: Private Parking Spaces Eliminated	Impacts: Acquisition of Buildings?	Impacts: Loss of Curb Parking?
BEL-RED Northup (MMA 4)									
15.1	B	BRN	124th Ave. NE/Northup Way		Add northbound right turn, eastbound right turn, and eastbound through lanes; convert westbound right turn to westbound right turn/through	x			
18.1	B	BRN	120th Ave. NE/NE 12th St.		Add southbound right turn lane	x	6-10		
19.0	B	BRN	116th Ave. NE/NE 12th St.		Add northbound right turn lane	x	20-30		
20.2	B	BRN	124th Ave. NE/Bel-Red Rd.		Add a southbound right turn lane	x	1-5		
21.0	B	BRN	132nd Ave. NE/Bel-Red Rd.		Add southbound right turn lane				
26.0	B	BRN	130th Ave. NE/NE 20th St.		Add southbound right turn and westbound right turn lanes	x	11-15		
48.0	B	BRN	120th Ave. NE	NE 8th to 12th Sts.	Extend from NE 8th St. to Old Bel-Red Rd.; widen to 3 lanes from Old Bel-Red Rd. to NE 12th St.	x		x	
48.1	B	BRN	120th Ave. NE/NE 8th St.		Provide three northbound approach lanes by converting one of two southbound lanes: L/LT/R configuration. Split phase N-S traffic signal	x			
65.0	B	BRN	130th Ave. NE	Bel-Red Rd. to NE 20th St.	Widen to 3 lanes				x
66.0	B	BRN	134th Ave. NE/Bel-Red Rd.		Install signal				
69.0	B	BRN	132nd Ave. NE	Bel-Red Rd. to NE 20th St.	Widen to 3 lanes; modify signals				x
71.1	B	BRN	136th Pl. NE	NE 16th to 20th Sts.	Upgrade to 2-lane urban standards				
75.0	B	BRN	Northup Way	120th to 124th Ave. NE	Add second eastbound lane	x			
77.1	B	BRN	124th Ave. NE/NE 8th St.		Add a northbound right turn lane	x	6-10		
78.0	B	BRN	130th Ave. NE/Bel-Red Rd.		Add second southbound right turn lane and a westbound right turn lane	x	6-10		

Table 4-25, continued

#	City	MMA/ TMD	Location	Limits	Description	Impacts: Right-of-way Required	Impacts: Private Parking Spaces Eliminated	Impacts: Acquisition of Buildings?	Impacts: Loss of Curb Parking?
CROSSROADS (MMA 5)									
24.1	B	CR	156th Ave. NE/NE 20th St.		Add 2nd northbound left turn lane and eastbound through lane extended 800 feet east of 156th Ave. NE (plus transition)	x			
DOWNTOWN REDMOND (TMD 1)									
30.0	R	DT	W. Lake Samm. Pkwy/SR 520 eastbound Ramps		Add second eastbound left turn lane				
34.1	R	DT	Willows Rd/Redmond Way		Convert southbound lanes to provide left turn and left turn/through/right turn lanes; add westbound right turn lane	x			
39.1	R	DT	W/ Lake Samm. Pkwy/Town Center		Construct a new 4-lane connector w/signal at W Lake Samm. Pkwy	x			
86.0	R	DT	W. Lake Samm Pkwy/Leary Way		Widen Leary Way approach to provide 4-lanes: left/left-thru/thru/right. Widen SR 520 on ramp to two lanes for 500 feet.	x			
GRASS LAWN (TMD 4)									
5.4	R	GL	148th Ave. NE/Old Redmond Rd.		Improve eastbound right turn lane by increasing length and by channelization				
33.0	R	GL	140th Ave. NE/Redmond Way		Add eastbound right turn and 2nd northbound left turn lanes	x			
74.0	R	GL	132nd Ave. NE/Redmond Way		Add westbound right turn lane	x			
OVERLAKE (MMA 12) (TMD 5)									
1.1	R	OL	SR 520 Eastbound Ramps/NE 40th St.		Add 2nd eastbound right turn lane	x			
4.1	R	OL	159th Ave. NE/NE 40th St.		Revise lanes to provide northbound left turn and shared northbound left turn/right turn lanes				
8.1	R	OL	150th Ave. NE/NE 40th St.		Add northbound right turn lane	x			

Table 4-25, continued

#	City	MMA/ TMD	Location	Limits	Description	Impacts			
						Right-of-way Required	Private Parking Spaces Eliminated	Acquisition of Buildings?	Loss of Curb Parking?
10.1	R	OL	SR 520 Eastbound Ramps/NE 51st St.		Add 2nd eastbound right turn lane	x			
11.1	R	OL	W. Lake Samm. Pkwy/ NE 51st St.		Convert eastbound lanes to provide left turn and shared left turn/right turn lanes; convert southbound lanes to provide through and through/right turn lanes; and add northbound through lane	x			
12.1	R	OL	156th Ave. NE/NE 31st St.		Add southbound right turn lane	x			
22.3	B	OL	156th Ave. NE/Bel-Red Rd.		Add southbound right turn lane	x	6-10		
25.2	B	OL	140th Ave. NE/NE 24th St.		Add 2nd westbound left turn lane	x			
27.0	B/R	OL	148th Ave. NE/NE 40th St.		Add 2nd southbound left turn and northbound right turn lanes	x			
27.1	B/R	OL	148th Ave. NE/NE 40th St.		Add second westbound right turn lane	x			
28.0	B/R	OL	148th Ave. NE/NE 29th Pl.		Add southbound through and 2nd westbound left turn lanes; channelize yield for westbound right turn lane; convert eastbound right turn to shared right turn/left turn lane	x			
29.0	B/R	OL	148th Ave. NE/NE 51st St.		Add 2nd southbound left turn lane; convert westbound lanes to provide shared left turn/through and two right turn lanes	x			
31.0	R	OL	W. Lake Samm. Pkwy/Bel-Red Rd.		Channelize to provide a yield for westbound right turn lane				
32.0	B/R	OL	148th Ave. NE/NE 56th St.		Add northbound right turn lane				
36.1	R	OL	156th Ave. NE/NE 40th St.		Add northbound right turn and 2nd southbound left turn lanes	x			
40.2	B/R	OL	152nd Ave. NE	NE 30th to NE 36th Sts.	Extend 152nd Ave. NE over SR 520 to the intersection of 150th Ave. NE/NE 36th St. Provide connection from over-crossing to NE 31st St. east of SR 520	x	Some future spaces would be lost.		

Table 4-25, continued

#	City	MMA/ TMD	Location	Limits	Description	Impacts: Right-of-way Required	Impacts: Private Parking Spaces Eliminated	Impacts: Acquisition of Buildings?	Impacts: Loss of Curb Parking?
46.2	B	OL	NE 29th Pl.	NE 24th St. to 145th Ave. NE	Extend as 2/3-lane road; install signal at NE 24th Street. Provide two southbound right turn lanes at NE 24th St. Prohibit southbound left turn at NE 24th St.	x			
47.2	R	OL	150th Ave. NE	NE 36th to 40th Sts.	Construct 2-lane collector. Realign north end to form a four-leg intersection at NE 40th St.	x	10-15		
49.0	B	OL	140th Ave. NE/NE 20th St.		Add 2nd eastbound left turn, 2nd westbound left turn, and southbound right turn lanes	x	20-30		
50.1	B/R	OL	148th Ave. NE/NE 20th St.		Add 2nd westbound left turn and 2nd eastbound left turn lanes	x	20-30		
51.2	B	OL	148th Ave. NE/Bel-Red Rd.		Add eastbound right turn lane and second westbound left turn lane	x			
52.0	B/R	OL	Bel-Red Rd./NE 20th St.		Add southbound right turn lane; convert westbound lanes to provide left turn, left turn/through and through/right turn lanes	x	6-10		
53.1	B/R	OL	Bel-Red Rd/NE 24th St.		Add southbound right turn lane and northbound left turn lane. Provide protected phasing for northbound left turns. Prohibit southbound left turns	x	16-20		
55.0	R	OL	151st Pl. NE/NE 24th St.		Add westbound right turn lane	x			
56.1	R	OL	152nd Ave. NE/NE 24th St.		Add northbound and southbound approach lanes. Make northbound lanes: Left/Thru/Thru-Right. Make southbound lanes: Left/Thru/Right	x			
57.2	B	OL	NE 24th St.	NE 29th Pl. to 140th Ave. NE	Widen to four lanes from east of NE 29th Pl. to 140th Ave. NE. Provide two westbound lanes, one eastbound lane, and a two-way left turn lane	x			
63.0	B	OL	156th Ave. NE	Bel-Red Rd. to NE 20th St.	Add a third southbound through lane	x	16-20		

Table 4-25, continued

#	City	MMA/ TMD	Location	Limits	Description	Impacts			
						Right-of-way Required	Private Parking Spaces Eliminated	Acquisition of Buildings?	Loss of Curb Parking?
67.0	B	OL	156th Ave. NE	NE 20th to 24th Sts.	Add a two-way left turn lane	x	1-5		
68.0	B	OL	148th Ave. NE	SR 520 eastbound off-ramp to SR 520 westbound on-ramp	Add northbound through lane; modify channelization and signals				
79.0	B/R	OL	148th Ave. NE/NE 36th St.		Add 2nd southbound left turn lane and 2nd westbound left turn lane	x	1-5		
81.0	R	OL	156th Ave. NE/NE 36th St.		Add eastbound right turn lane and a 2nd westbound right turn lane	x			
85.0	R	OL	150th Ave. NE/NE 51st St.		Add north leg to intersection. Provide two southbound left turn lanes	x			

4.8.3.10 Staff Recommendations

The staff from Bellevue and Redmond developed one project that is recommended for addition to the TRG Recommended Network.

Criteria for evaluating this project were the same as used for projects included in the BROTS Update scenarios, including the preferred alternative. The evaluation criteria were: arterial performance; residential neighborhood impacts; business and commercial area impacts; regional facility access; support for transit and HOV facilities; safety; impact on non-motorized travel; and consistency with adjacent land use. The evaluation of Project 90.0 was made by the Technical Advisory Committee, based on TRG evaluations of similar projects considered for other scenarios. Positive and negative aspects for pertinent criteria are discussed below.

Level of service (LOS) calculations, based on model results from Scenario 6, were made to identify the extent of the benefits of the staff recommended project described above. The calculations were made for Project 90.0, for the 2010 p.m. peak hour. Positive and negative evaluations for pertinent evaluation criteria for the staff recommended project is also discussed below. Following are the results of the analysis.

Project 90.0

Arterial Performance:

The 2010 LOS would improve from LOS F with a V/C ratio of 1.40 (without Project 90.0) to LOS F with a V/C ratio of 1.29 (with Project 90.0). The TAC rating for arterial performance was "best".

Other Considerations:

This project received "positive" ratings for residential neighborhood impacts, business and commercial area impacts; and regional facility access. The positive rating for residential neighborhood impacts was assigned since added capacity on primary arterials would tend to keep traffic out of neighborhoods. The project received a "negative" rating for impacts on non-motorized travel, due to the increased street width that pedestrians would need to cross. All other evaluation criteria received ratings of "neutral".

4.8.4 Mitigation for Traffic Impacts

4.8.4.1 No-Action Alternative

Standard construction practices should be used to limit construction impacts. These would consist of sprinkling the site to control dust, using equipment in sound working order, not idling equipment for extended periods to reduce emissions and noise, and restricting the hours of operation to between 7 a.m. and 6 p.m. A public involvement program should be implemented for each project that entails disruption to standard traffic patterns, to balance efficient construction with minimal disruption to residents and businesses.

The transportation projects in Network B are the mitigation measures for the traffic impacts identified in the Baseline Network (Network A). All potential transportation projects were selected or rejected based on criteria that considered potential impacts. Therefore, it is assumed

that no other transportation projects than those originally suggested would be necessary, based on the rating criteria. However, additional mitigation measures to address deficient LOS in the Grass Lawn (TMD 4) and Bridle Trails (MMA 2) areas and on SR 520 were not explored as part of this study. Therefore, additional mitigation could consist of one of the following:

- changing policies to allow lower LOS targets for Grass Lawn, Bridle Trails and SR 520;
- reduce trip generation from the Redmond/Overlake area either through lowering the intensity of land uses or changing the choice of transportation mode (i.e., reduce SOV use); or,
- develop additional transportation facilities to meet the existing level of service targets.

However, revising the land use impacts downward is not likely to reduce the impacts to below the maximum standard LOS for Grass Lawn unless the LOS standard is changed, since the existing average LOS and the low land use LOS exceeds the standard and development currently approved nearly matches the low land use projections. Another available mitigation measure would be to update the transportation impact fees to cover some of the costs of new transportation facilities needed to accommodate projected growth.

4.8.4.2 Preferred Alternative

Standard construction practices should be used to limit construction impacts. These would consist of sprinkling the site to control dust, using equipment in sound working order, not idling equipment for extended periods to reduce emissions and noise, and restricting the hours of operation to between 7 a.m. and 6 p.m. A public involvement program should be implemented for each project that entails disruption to standard traffic patterns, to balance efficient construction with minimal disruption to residents and businesses.

Like the No-Action Alternative, the recommended transportation projects in the TRG Recommended Network are the mitigation measures for the traffic impacts. All potential transportation projects were selected or rejected based on criteria that considered potential impacts. Therefore, it is assumed that no other transportation projects than those originally suggested would be necessary, based on the rating criteria. However, additional mitigation measures to address deficient LOS in the Grass Lawn TMD and on SR 520 were not explored as part of this study. Additional mitigation could consist of one of the following:

- changing policies to allow lower LOS targets for Grass Lawn, and SR 520;
- reduce trip generation from the Redmond/Overlake area either through lowering the intensity of land uses or changing the choice of transportation mode (i.e., reduce SOV use); or,
- develop additional transportation facilities to meet the existing level of service targets.

It should be noted that revising the land use impacts downward is not likely to reduce the impacts to below the maximum standard LOS for Grass Lawn unless the standard is changed, since the existing average LOS and the low land use LOS exceeds the standard and development currently approved nearly matches the low land use projections. Another mitigation measure is updating transportation impact fees to cover some of the costs of new transportation facilities needed to accommodate projected growth.

A traffic monitoring program should be developed for the BROTS area to ensure traffic volumes remain within that forecast by the preferred alternative. The preferred alternative forecasts relied on land use data and mode split values to predict traffic volumes on the arterial system, so any changes to these base assumption that could occur with the trip cap program should be monitored.

Trip credits transferred will be required to meet localized level of service standards, or provide mitigation through the concurrency process.

Developments selling or receiving trips credits must establish a monitoring plan for site generated traffic and mode split. Also, as stated in the Overlake Neighborhood Plan, the monitoring plan should have a fallback plan that would be implemented if the development fails to achieve the planned trip reduction within two years after initial occupancy. The trip cap will be enforced through city review of the data obtained from the required monitoring plan, monitored under Redmond's Commute Trip Reduction ordinance.

Another mitigation is to make the CTR goals mandatory before allowing trip credits. The CTR goal would then become the effective trip cap.

The TRG believes that adding general purpose lanes on SR 520 in the BROTS area will draw traffic off some local arterials and generally improve traffic flow and level of service in the BROTs area. The TRG supports such lanes in concept.

Adding general purpose lanes on SR 520 would have impacts well beyond traffic in the BROTS area. For example, improved access on SR 520 could stimulate more rapid growth east of Redmond, causing increased traffic on Redmond arterials, such as Avondale Road, Union Hill Road, and Redmond-Fall City Road. This concept should be examined in a broader forum, such as the TransLake Study, before local governments are asked to adopt a formal policy on the addition of general purpose lanes on SR 520.

Traffic calming measures are used to reduce the impacts from cut-through traffic on surrounding residential neighborhoods like Bridle Trails. Some examples of such mitigation measures include:

- roadway narrowing;
- landscape bump-outs or curb extensions, landscape medians, and traffic circles;
- speed bumps, reductions in roadway speed limits, and enforcement;
- neighborhood entrance treatments and signage; and
- intersection improvements that discourage, not encourage cut-through traffic in neighborhoods.

For example, within the Bridle Trails neighborhood, some of the potential streets for which these measures may be considered include the following:

- NE 24th St. from 140th Ave. NE to Northup Way;
- NE 40th St. from 140th Ave. NE to 148th Ave. NE;
- 140th Ave. NE from NE 40th St. to NE 80th St.;
- 134th Ave. NE from NE 24th St. to NE 70th St.;
- 130th Ave. NE north of NE 24th St.; and
- NE 36th St. west of 134th Ave. NE.

Both Cities have Neighborhood Traffic Calming Programs. Redmond's program is highlighted in Appendix C-10.

Neighborhood Traffic Control

The City of Bellevue initiated the Neighborhood Traffic Control Program (NTCP) to reduce the traffic impacts on residential streets including:

- Traffic speeds - the highest neighborhood concern;
- Cut-through traffic - bypassing crowed freeways and arterials in favor of neighborhood streets;
- Accidents, and
- Vehicle Noise

Citizens play an integral role in the NTCP. Citizens help identify traffic concerns, develop plans to address those concerns, implement the plans, and evaluate the effectiveness of the plans. These plans utilize four methods to reduce traffic impacts:

- Psychological means by educating drivers on neighborhood driving (the picture shows one of these means -- the Speed Watch Trailer);
- Visual means such as signage and pavement marking;
- Restrictive measures and increased enforcement; and
- Physical devices such as speed bumps and traffic circles.

With regard to concurrency, the program may protect neighborhoods from cut-through traffic, thus keeping non-residential traffic on major arterials. To do this, the NTCP would incorporate into its existing program a strategy of neighborhood-wide planning.

Mitigation for impacts to non-motorized traffic are also possible. The City of Redmond planning process includes development of a circulation plan for bicycles throughout the City. This Plan is being coordinated with a similar plan developed by the City of Bellevue. Pedestrian safety improvements are usually factored into a project at the design phase, although specific projects may be proposed as part of each Cities' TFP.

Unavoidable Adverse Impacts

The trip cap program could reduce the ability for the City of Redmond to reach mode split goals of the Comprehensive Plan if monitoring is not done properly, trip cap limits are not met, or limits are not enforced.

4.8.5 Potential Unavoidable Adverse Impacts

4.8.5.1 No-Action Alternative

Some short-term construction impacts, particularly inconvenience and disruption, will be an unavoidable impact from implementing the transportation network. Unless some of the mitigation measures noted above are implemented, deficient levels of service on portions of SR 520 and in the Grass Lawn TMD and Bridle Trails MMA are predicted.

4.8.5.2 Preferred Alternative

None.

4.9 Light and Glare Existing Conditions

Light and glare can be an annoyance, such as when light from signs, street lamps, or automobile headlights shine into residences at night. Glare can be reflected sunlight from buildings with mirrored windows. On the other hand, sunlight and artificial light are also necessary for health, safety and security. Tall or bulky buildings can block sunlight from reaching residential areas of a city, which can impair public health. The livability of a city may be affected by both aspects of light and glare.

The Overlake area that is most affected by light and glare from building interiors and surfaces is the area most intensely developed with office and commercial uses. Residential areas next to highly-trafficked streets such as 148th Avenue NE, NE 40th Street and Bel-Red Road experience impacts from automobile headlights and from ambient light from street, buildings and parking lots during non-daylight hours. During daylight hours, there is the potential for reflected sunlight off mirrored-glass on office buildings to shine into adjacent areas.

The level of analysis for light and glare impacts resulting from the No-Action Alternative and the Preferred Alternative (the CAC Recommended Alternative) is qualitative in nature because future building types, lighting , and materials are not known. Each City will address light and glare impacts as part of the design review of new buildings and additions to existing buildings.

Several existing policies in the Redmond Comprehensive Plan deal with light and glare, such as NP-15, which states that signs and lighting should be regulated to prevent glare from spilling over into adjacent neighborhoods. NE-88 stipulates that night lighting should not spill over onto nearby properties and should be designed and constructed to minimize excessive glare. LU-78 requires zoning districts to include limits on building height, bulk, and placement in order to ensure adequate light. LU-89 recommends regulation of signs in each zoning district to minimize glare.

4.9.1 Potential Impacts from Light and Glare

4.9.1.1 No-Action Alternative

Since the No-Action Alternative proposes no changes from the development and transportation network (Network A) in the *Comprehensive Plans*, there would be no new impacts not previously addressed in environmental review for those *Plans*.

4.9.1.2 Preferred Alternative

Under the Preferred Alternative, (CAC Recommended Alternative) there will be a redistribution of development when compared to projected development under the No-Action Alternative. Since light impacts are associated with intensification of development, there may be a corresponding redistribution and net increase in the potential for impacts to occur. Some TAZs under this alternative would simply recognize the existing level of development. Therefore, no additional impacts beyond existing conditions would be expected. This would include TAZs 371, 376, and 377. TAZs 372, 373, 374, 376, 378, 379, 380, 381, 382, and 385 are projected to have

increased development beyond existing conditions, with most impacts occurring in TAZs 379, 380, 382, and 385. However, the projected growth in TAZs 382 and 385 is not significantly greater than under the No-Action Alternative, whose impacts were addressed in the EIS for the *Comprehensive Plan*. The remaining TAZs, 379 and 380, have the greatest potential for significant impacts from light from buildings and parking lots. These two TAZs have the most significant increase in targeted growth, 39% more than exists now, and 46% more than was projected under the No-Action Alternative. Although this area west of Bel-Red Road and south of NE 40th Street is already developed, there could be a significant increase in light in this area of Overlake.

Without specific design measures to mitigate potential impacts, significant new development in TAZs 379 and 380 could potentially affect adjacent residential neighborhoods east of Bel-Red Road, north of NE 40th Street and east of 156th Avenue. The CAC recommended Alternative includes policies and development regulations to protect residential neighborhoods from adverse impacts such as light and glare. Policies N-OV-55 through N-OV-63 deal specifically with neighborhood protection, but these transportation policies for greenways and landscaping also act to mitigate the impacts from light and glare. The ONP directly refers to light and glare in Policy N-OV-57. This policy requires that uses with "noise and glare" impacts that could adversely affect nearby uses restrict the impact to the site. Policy N-OV-58 refers to the placement of buildings on-site and provides for taller buildings to be placed further away from residential areas. This will help prevent buildings from blocking sunlight to residences. Policy N-OV-62 requires that buildings be located on the site in a way that minimizes noise and glare.

The ONP policies are implemented through the development regulations for Overlake that will help to protect adjacent residential neighborhoods from impacts of non-residential development. These include the buffer and landscaping requirements for specific streets, the Maximum Height and FAR Overlay, the Transition Overlay and identification of Neighborhood Protection Streets that were discussed under the neighborhood protection measures in the Land Use section. A portion of the Bellevue-Redmond Road, where the employment area is adjacent to the single-family neighborhood across the street, has been designated a Neighborhood Protection Street. The 100-foot-wide buffer along this portion is intended to provide a complete visual barrier by requiring plantings that block vision through the greenbelt from ground level to 40 feet above the ground. Buildings closest to the neighborhoods across Bel-Red Road would be subject to the regulations of the Transition Overlay, so their maximum height would be 35 feet if zoned OV, unless they had a height bonus. Even with the height bonus, the 40-foot high visual barrier, and an increased setback as well of 120 feet, should block most, if not all, of the potential impacts from light and glare on the adjacent neighborhood.

Neighborhood Protection Streets will help protect the neighborhoods that are west of 148th Avenue NE, north of NE 51st Street, east of 156th Avenue NE and north of NE 40th Street (between 156th Avenue NE and the west border of the Moderate and High Residential Area south of NE 40th Street) from impacts of light and glare. These border areas would also be within a Transition Overlay. The increased landscaping, buffers, setbacks, and the reduced height and bulk standards will help mitigate impacts from increased development in these areas. Also in the Transition Overlay, signs must be indirectly lighted and exterior lighting of structures and parking lots must not spill over onto protected zones. Vehicle use areas must be designed to minimize lighting impacts on residential uses.

In RC zones, the proposed regulations allow up to 85% lot coverage, compared to no maximum lot coverage or minimum Open Space in CO and CB zones. However, the border between these areas and less intensive uses would be subject to the regulations of the Transition Overlay, as described above, and in the land use discussion of neighborhood protection measures. This alternative is unlikely to result in more bulk and potential light and glare and shadowing effects on and around lots zoned RC, than under current regulations.

In OV zones, the proposed regulations allow 80% lot coverage, which is equal to the lot coverage maximums of 75% to 80% in BP zones. Therefore, the proposed ONP would be expected to create the same bulk as under the No-Action Alternative, with respect to individual developments. With this consideration, and the imposition of the Transition Overlay, this is not expected to create glare or shadowing effects on surrounding lots.

Green Street standards in the proposed ONP have additional requirements for setbacks and landscaping that will mitigate some of the impacts within the zones, as opposed to impacting adjacent residential neighborhoods.

The BROTS Update calls for transportation improvements that will alter the existing transportation network somewhat. However, the projects consist primarily of a mixture of changes to existing streets and circulation to improve anticipated increases in traffic. No new street networks will be added under this alternative, therefore no significant impacts will occur in currently undeveloped areas. However, where there will be new signal lights at some intersections, additional light from automobile headlights would be expected as cars wait to proceed through an intersection. Additional street lights may be added in some areas as well, increasing ambient light during non-daylight hours.

4.9.2 Mitigation

4.9.2.1 No-Action Alternative

No mitigation measures are required.

4.9.2.2 Preferred Alternative

No additional mitigation measures are proposed.

4.9.3 Potential Unavoidable Adverse Impacts

4.9.3.1 No-Action Alternative

None.

4.9.3.2 Preferred Alternative

Some increases in ambient light and glare from new buildings in employment areas and increased traffic volumes would be unavoidable.

4.10 Air Quality Existing Conditions and Impacts

4.10.1 Method of Analysis

The air quality analysis used data generated by the traffic models to examine air quality impacts resulting from the particular networks under each alternative. The air quality analyses conducted for the DEIS used a burden analysis to compile estimates of peak-hour CO emissions. It estimates total vehicular emissions of CO related to each alternative being considered. Burden analyses can be used to estimate emission trends, but cannot estimate pollutant concentrations that could result from these emissions.

Based on the inconclusive results of two previous burden analyses, the Cities of Bellevue and Redmond decided to conduct more specific analyses to evaluate potential CO concentrations. This type of analysis is called dispersion modeling. The estimated worst-case concentrations from the dispersion modeling can be compared with the regulatory health standards for CO. There are two air quality standards for CO; a 1-hour average concentration of 35 parts-per-million (ppm), and an 8-hour average concentration of 9 ppm. These limits may be exceeded once per year without violating the standard.

4.10.1.1 Burden Analysis

The burden analysis of each alternative focused on a comparison of estimated peak-hour carbon monoxide emissions. Examining the possible "emissions burden" is similar to the procedure used by the Puget Sound Regional Council (PSRC), the regional planning agency, to compare and contrast transportation plans and programs for planning purposes. An important difference is that the PSRC makes *regional* "conformity" determinations based on comparisons of expected daily emissions with an emissions budget included in state air quality plans. No such emissions budgets have been established for *subareas* like BROTS. Consequently, the emissions burden tabulation simply provides an indication of possible trends in peak-hour pollutant emissions that would be affected by the planning alternatives being considered and does not project whether air quality standards would be violated.

Modeling Results Qualifications - Due to limitations in both the transportation and the air quality modeling tools, results of this emission burden analysis should be viewed as a comparison of the potential effects of future alternative actions and not as definitive indications of future air quality conditions. Because the EMME/2 model is calibrated against approximate study area boundary traffic volumes rather than individual arterial or intersection volumes, and because any projections of future year conditions contain levels of uncertainty, resulting estimates of traffic volumes and speeds and intersection operations must be viewed as indefinite projections. Similar uncertainties derive from estimates of future vehicle emission rates based on expected regional vehicle fleet characteristics and average vehicle operational attributes.

4.10.1.2 Dispersion Modeling

The dispersion modeling for different alternatives focused on a comparison of estimated peak-hour carbon monoxide concentrations. The analysis examined CO for existing and future conditions, in 1995 and 2010, respectively. The dispersion modeling was conducted on seven intersections under three alternatives: the Preferred Land Use of 15.4 million square feet of commercial space with the Preferred Network E (15.4/Network E), the Preferred Land Use with the No-Action Alternative Network B (15.4/Network B), and the No-Action Alternative Land Use of 11.9 million square feet with the No-Action Network B (11.9/Network B).

Intersections Examined

Traffic-related CO impacts were evaluated at locations near seven signalized intersections in the study area using a network of road links. Consistent with EPA guidance, signalized intersections were selected for dispersion modeling by reviewing level of service (LOS) and total peak-hour volumes of all intersections in the study area (EPA 1992b). In consultation with the cities of Bellevue and Redmond, seven intersections were selected as those signalized intersections that would be most affected by the Preferred Alternative (Network E with 15.4 million square feet of commercial development). (See Figure 1 in Appendix D-3b).

The intersections selected for dispersion modeling were:

- the intersection of 156th Avenue NE with NE 40th Street
- the intersections of 148th Avenue NE with Redmond Way, NE 24th Street, NE 20th Street, and Bel-Red Road; and
- the intersections of 140th Avenue NE with NE 24th Street and NE 20th Street

These seven most affected intersections were selected to represent the "worst-case" impact locations of the alternatives considered. EPA guidance suggests that if no air quality impacts occur at these most affected locations, the proposed project would not result in significant air quality impacts. If impacts occur but can be mitigated through further design or operational considerations, similar mitigation measures would likely be possible at other intersections affected by project alternatives. If impacts occur that cannot be mitigated it could mean either that effective mitigation measures were not found within reasonable time and cost constraints of this planning-level analysis, or that effective mitigation may be very difficult to achieve. This analysis included all three types of results, pointing to the need for further "project level" analyses.

Emissions Near Affected Intersections

One means of comparing the potential air quality implications of the future alternative actions is by comparing peak-hour CO emissions. This approach, known as a burden analysis, was the method used in the previous analyses for the Draft EIS, in which emissions were calculated for the entire study area and for smaller subareas that were thought to potentially contain project "hot spots." (Refer to Appendix D-3a for further information regarding the previous overall study area and subareas.) It is also possible to examine emissions at a "micro" level by calculating the emissions near each signalized intersection considered in dispersion modeling. Such an analysis provides a more sensitive means for comparing emissions related to specific intersection operation, and CO emissions for this analysis were tabulated.

To determine current and future peak-hour emissions from the road links considered in the dispersion modeling, vehicle emission factors were multiplied by the peak-hour traffic volume and by the length of each free-flow road segment. For queue links representing vehicles stopped at intersections, the computation is based on the number of vehicles and the length of the delay during each signal cycle in the peak hour. Results of these calculations are displayed in Table 1, of Appendix D-3b. The implications of the emission burden tabulation are discussed below in conjunction with the discussion of the CAL3QHC dispersion modeling results.

Carbon Monoxide Concentrations

The CAL3QHC dispersion model (described more completely in Appendix D-3b) was used to compute peak-hour CO concentrations near seven affected intersections. Table 4-27 displays the results of the CAL3QHC dispersion modeling for 1995 existing conditions and the

15.4/Network E, 15.4/Network B, and 11.9/Network B alternatives in 2010. The reported 1-hour concentrations include a 3-ppm background concentration to account for emissions from other sources in the area. The calculated 1-hour concentrations were converted to represent 8-hour concentrations using a factor of 0.7 to reflect both meteorological and traffic variability over an 8-hour period. This is a conservative conversion factor based on EPA and local agency recommendations that may over estimate 8-hour CO concentrations in some situations. In the BROTS study area, this conversion factor is probably fairly representative of actual conditions. These calculated values can be compared with the national ambient air quality standards (NAAQS) for CO of 35 and 9 ppm for 1-hour and the 8-hour averaging times, respectively.

Due to increasingly stringent vehicle emission reduction requirements and a continuing vehicle Inspection and Maintenance program, the model estimates lower vehicle emission rates for the 2010 design year than under existing conditions. For example, by 2010 the idle CO emission factor is estimated to be 24 percent lower than in 1995. Consequently, all future alternatives benefit from this assumption. But as discussed below, increases in traffic and congestion can and are expected to offset these decreases in vehicle emission rates, to the possible detriment of air quality in certain locations.

4.10.2 Existing Conditions

In late 1996 EPA redesignated the Central Puget Sound region as being in attainment for CO, and approved the associated maintenance plan to insure continued compliance with the CO national ambient air quality standards (NAAQS). The BROTS area is included in the Puget Sound CO maintenance area.

There is a permanent CO monitoring station about 0.5 mile to the south and west of the BROTS area in downtown Bellevue, near the intersection of NE 8th Street and 108th Avenue NE. This monitor has been operating since 1994. Because this monitor is in the downtown central business district, background CO levels may be higher than in portions of the less densely developed BROTS study area. Therefore, measurements from this monitor may overstate conditions in the BROTS area. On the other hand, two short-term wintertime "bag sampling" studies that included sampling locations in the BROTS area have documented fairly high 8-hour CO levels.

A special purpose, short-term "bag-sampling" study conducted by the Department of Ecology (Ecology) during the winter of 1994-95 confirmed the potential for high 8-hour CO levels near congested roadways in the BROTS area (Ecology, 1995). On January 5, 1995, a sample from near the intersection of Bel-Red Road and 130th Avenue NE resulted in an 8-hour CO level of 6.9-ppm. On the same day, an 8-hour CO level of 6.3-ppm occurred near the intersection of NE 24th Street and 148th Avenue NE. Both these concentrations are far below the 9-ppm limit, but represent consumption of 74% and 70% of the standard.

A similar Ecology bag-sampling study during the winter of 1996-97 documented even higher levels (Ecology, 1997). A measurement on January 15, 1997 near NE 24th Street and 148th Avenue NE found an 8-hour CO concentration of 9.0-ppm. This was higher than the 8.6-ppm 8-hour concentration measured the same day at the automated sampling station at NE 8th Street and 108th Avenue NE in Bellevue. The second highest concentration at the bag sample site during this winter study was 6.8-ppm. These measurements strongly indicate that existing congested roadways in the BROTS area are sometimes causing fairly high carbon monoxide levels nearby.

Information regarding existing air quality with respect to particulate matter and ozone in the study area is available in Appendix D-3b.

4.10.3 Potential Air Quality Impacts During Construction

During construction of any of the transportation components of the two alternatives, dust from excavation and grading would contribute to ambient concentrations of suspended particulate matter. Construction of any transportation projects under either alternative will result in dust emissions, from excavation and grading, vehicle emissions from trucks and smaller equipment such as generators and odors, such as from asphalt. The construction contractors would have to comply with the PSAPCA regulations requiring the best available control measures to control the emissions of odor-bearing contaminants. Such odors would be short-term.

Construction equipment, material hauling, and detours for excavation and grading could affect traffic flow around construction activity. If construction delays traffic enough to significantly reduce travel speeds in the area, general traffic-related emissions would increase.

4.10.4 Potential Air Quality Impacts from Operation

4.10.4.1 No-Action Alternative

Burden Analysis

Overall BROTS Study Area - Table 4-26 shows that in the large BROTS study area, all transportation factors affecting CO emissions will increase by 2010/2012 under the No-Action Alternative. Expected peak-hour vehicle volumes increase by almost half a million (29% over existing vehicle numbers), while the average travel speed decreases about 7.5 miles per hour (-37%). The cumulative time spent on the roadway network (vehicle hours traveled) almost doubles (99% increase) from 13,000 to 25,000 hours. As a result, the No-Action Alternative would result in approximately a 14% increase peak-hour emissions of CO in the BROTS study area (i.e., a 1,235 kilogram increase over the existing emission rate).

Table 4-26:
Calculated Maximum Peak-Hour Carbon Monoxide Emissions

Analysis Area/ Parameter	Units/ Multiplier	1995 Existing Calculated Value	2010/2012 No- Action (11.9 MSF) With Network B			2010/2012 Preferred Alternative (15.4 MSF) With Network E				
			Calculated Value	Change from Existing		Calculated Value	Change from Existing		Change from No Action	
				Value	Pct		Value	Pct	Value	Pct
BROTS Study Area and Surrounding Vicinity										
VMT (Freeway/Ramps)	Miles (x 1000)	88	101	12	13.9%	102	14	15.4%	1	1.3%
VMT (Arterials)	Miles (x 1000)	116	153	37	32.3%	162	47	40.2%	9	6.0%
VMT (Collectors)	Miles (x 1000)	50	64	14	27.8%	67	16	31.8%	2	3.1%
VMT (Combined)	Miles (x 1000)	255	318	64	25.0%	331	76	29.9%	12	3.9%
Veh Hrs Traveled	Hours (x 1000)	13	25	12	98.5%	28	16	124.7%	3	13.2%
Total Length Rds	Miles	394	398	4	0.9%	402	8	2.0%	4	1.1%
Volumes	Total Vehicles	1,562,873	2,021,029	458,156	29.3%	2,099,881	537,008	34.4%	78,852	3.9%
Average Speed	MPH	20.3	12.8	-7.5	-36.9%	11.8	-8.5	-41.9%	-1.0	-7.8%
CO Emissions	Kilograms	8,690	9,925	1,235	14.2%	11,018	2,328	26.8%	1,093	11.0%

Dispersion Modeling

11.9/Network B – The No-Action Alternative consisted of 11.9 million square feet of commercial development and Network B. With this alternative, calculated peak-hour CO emissions increase at least slightly at all but two of the seven intersections evaluated due to increasing numbers of vehicles and/or congestion. At the same time, except for the slight increase near the intersection of 140th Avenue NE with NE 24th Street, the maximum calculated CO concentration near each intersection declines compared with existing conditions (Table 4-27). With one exception, by 2010/2012 all existing calculated violations of the 8-hour CO standard would be reduced to levels that would meet the 9-ppm limit; near the intersection of 148th Avenue NE with NE 20th Street, the worst-case 8-hour concentration would remain slightly above the 9-ppm standard.

Table 4-27:
Calculated Maximum Peak-Hour Carbon Monoxide Concentrations (ppm)

Signalized Intersection	Averaging Time	1995 Existing	2010 Alternatives Varying by Land Use and Transportation Network			
			11.9/ Network B	15.4/ Network B	15.4/ Network E	15.4/ Network E[a]
140th Ave NE with NE 24th St	1-Hour	10.3	10.7	10.6	10.6	
	8-Hour	7.2	7.5	7.4	7.4	
140th Ave NE with NE 20th St	1-Hour	13.4	11.2	11.4	12.5	
	8-Hour	**9.4**	7.8	8.0	8.8	
148th Ave NE with NE 24th St	1-Hour	14.5	12.5	13.9	12.4	
	8-Hour	**10.2**	8.8	**9.7**	8.7	
148th Ave NE with NE 20th St	1-Hour	15.7	13.0	13.4	13.9	13.6
	8-Hour	**11.0**	**9.1**	**9.4**	**9.7**	**9.5**
148th Ave NE with Bel-Red Rd	1-Hour	15.5	12.9	13.1	13.3	13.0
	8-Hour	**10.9**	**9.0**	**9.2**	**9.3**	**9.1**
148th Ave NE with Redmond Way	1-Hour	13.7	12.4	12.8	12.9	12.1
	8-Hour	**9.6**	8.7	**9.0**	**9.0**	8.5
156th Ave NE with NE 40th St	1-Hour	12.1	11.8	11.9	12.7	
	8-Hour	8.5	8.3	8.3	8.9	

Note: Bold values indicate CO concentrations reaching or exceeding the national ambient air quality standards (NAAQS) of 35 and 9 ppm for the 1-hour and 8-hour averaging times, respectively. Eight-hour concentrations were calculated from the modeled 1-hour CO concentration with a 0.7 persistence factor.

(a) This model run considered operational changes to provide mitigation for potential air quality impacts. The shaded boxes are where no operational changes were necessary because the computed concentrations fell below the CO standard.

It is worth noting that because the Network B considered in this analysis contains roadway links that are no longer considered likely, overall system traffic is likely to be worse than indicated by the transportation modeling that included these links. Consequently, estimated emissions and concentrations related to Network B are probably understated, at least at some intersections.

15.4/Network B -- Holding the transportation network constant but increasing commercial land use by 3.5 million square feet would further impact air quality. Compared with the 11.9 alternative, expected peak-hour emissions increase on the road network near each intersection, and calculated 1 and 8-hour CO concentrations increase at 6 of the 7 intersections examined (Table 4-27). Near all four intersections along 148th Avenue NE the maximum calculated 1-hour CO concentrations are below the 35-ppm 1-hour standard, but the 8-hour CO levels reach or exceed the 9-ppm ambient air quality standard. And as indicated above, both transportation congestion and related CO impacts are probably understated for Network B because it includes road system links that are not likely to be developed.

4.10.4.2 Preferred Alternative

Burden Analysis

Overall BROTS Study Area - The preferred land use plan and roadway network changes would increase all transportation factors affecting CO emissions compared with both existing conditions and with the No-Action Alternative (see Table 4-27). Expected peak-hour vehicles increase by more than half a million vehicles over existing numbers, and about 79,000 over No Action. The average travel speed would decrease about 8.5 miles per hour (-42%) below existing speeds, and about 1 mph below No Action. The cumulative time spent on the roadway network (vehicle hours traveled) more than doubles (125% increase = 28,000 hours) over existing conditions and about 3,000 hour over No Action. As a result, the Preferred Alternative would result in approximately a 27% increase over existing peak-hour emissions of CO in the BROTS study area (i.e., a 2,328 kilogram increase over the existing emission rate) and an 11 percent increase over the No-Action Alternative.

Dispersion Modeling

15.4/Network E -- With this alternative, calculated peak-hour CO emissions are higher than existing conditions at 4 of the 7 intersections examined. Calculated CO emissions also are the same or higher at 4 of the 7 intersections compared with the 15.4/Network B. The maximum calculated CO concentrations are lower than with 1995 existing conditions, except near the intersection of 140th Avenue NE with NE 24th Street and the intersection of 156th Avenue NE with NE 40th Street (Table 4-27). Compared with the 15.4/Network B Alternative, the 15.4/Network E Alternative would increase peak-hour CO concentrations at 4 of the 7 intersections examined. In other words, improving the Network to address transportation issues may result in worsening air quality.

In addition to increasing emissions and concentrations, modeling for the 15.4/Network E Alternative indicates that worst-case CO concentrations near two intersections would violate the 8-hour 9-ppm limit. The modeling also shows that CO levels near these two intersections, 148th Avenue NE with NE 24th Street and Bel-Red Road are worse than 11.9/Network B. Consequently, without mitigation, the 15.4/Network E Alternative in 2010 probably would not comply with air quality conformity requirements included in state and federal laws. The state and federal air quality conformity rules do not pertain in this assessment because this is a planning

level review. This assessment of the potential conflict with the conformity requirements is simply to provide reviewers with a reference point and to alert decision makers of the need for further project level analysis if these projects proceed.

Carbon monoxide concentrations are calculated based a number of variables, the most important being the idling time and number of vehicles in queues at an intersection. If an alternative increases the number of queues by adding lanes (to improve level-of-service) without significantly decreasing the number of vehicles in each queue, higher concentrations result. Calculated CO concentrations are higher with Network E compared with Network B because at some locations, additional lanes can "concentrate" vehicle queues into smaller areas, thereby increasing the strength of the CO emissions source near the modeling receptors. An illustration of this effect is included as Figure 2 in Appendix D-3b. In this example, a case with a better LOS but an additional queue lane is shown to result in higher CO concentrations at a nearby receptor.

4.10.5 Mitigation

4.10.5.1 Construction Impact Mitigation for Both Alternatives

Emissions from construction equipment and trucks can be reduced by using well-maintained equipment. Avoiding prolonged periods of vehicle idling and engine-powered equipment would also reduce emissions.

Trucking materials to and from a construction area could be scheduled to minimize congestion during peak travel times. This would minimize secondary air quality impacts caused by traffic having to travel at reduced speeds.

Dust produced by construction would be reduced by several techniques. Areas of exposed soils such as storage yards and construction roadways could be sprayed with water or other dust suppressants. Roads and other areas that might be exposed for prolonged periods could be paved, planted with a vegetation ground cover, or covered with gravel. The amount of soils carried out of the construction area by trucks would be reduced by wheel washing and covering dusty truck loads. Finally, soil that does escape the construction area on exiting vehicles would be reduced with an effective street-cleaning effort.

4.10.5.2 Operational Impact Mitigation for Both Alternatives

Potential mitigation measures were evaluated for the three intersections where dispersion modeling indicated potential 8-hour CO concentrations exceeding the standard with the 15.4/Network E Alternative. To assess the potential for mitigating future peak-hour CO levels, a limited set of alternate configurations and phasing changes were examined for the three 148th Avenue NE intersections with NE 20th Street, Bel-Red Road, and Redmond Way. For each intersection, these potential mitigation measures resulted in lower concentrations. But for two of the three intersections (148th Avenue NE with NE 24th Street and Bel-Red Road), predicted future CO concentrations still exceeded the 9-ppm standard and were worse than the 11.9/Network B Alternative. These intersections therefore probably would not pass a project-level air quality conformity test without additional mitigation measures.

Assessment of actual mitigation measure is not possible at this time because neither the design level configuration nor operational parameters will be available until actual projects are designed. But to assess the effectiveness of potential mitigation measures, several possible mitigation scenarios were examined in relation to both traffic operations and air quality impacts. Details of these air quality analyses examining potential mitigation are presented in Appendix D-3b, and summarized in Table 2 of the appendix.

Successful Mitigation Measure

At the intersection of 148th Avenue NE with Redmond Way, by converting the north and southbound right-turn lanes to free-moving lanes and adding collector lanes on the east and westbound departure lanes, maximum 8-hour CO concentration decreased by about 0.5 ppm. This reduced the calculated 8-hour CO level to below the 9-ppm limit.

Unsuccessful Mitigation Measures

From the limited set of mitigation measures assessed for the intersections of 148th Avenue NE with NE 24th Street and Bel-Red Road, CO concentrations were reduced most effectively using a total cycle time of 120 seconds instead of 140 seconds. Nonetheless, estimated 8-hour CO concentrations near these intersections still exceeded the ambient air quality standard and were worse than the 11.9/Network B Alternative.

Conclusions and Options for Further Analysis

The planning-level analysis performed for the FEIS illustrates the need for further project-level analysis to determine if effective mitigation measures are possible. Because the BROTS FEIS is a planning level and not a project level environmental analysis, air quality conformity rules do not pertain, and it is not necessary to mitigate all impacts before proceeding. Instead, the analysis conducted to this point demonstrates that mitigation of air quality at the most affected project intersections may be possible, and points to the need for more refined analyses as the individual projects progress. Both Cities are committed to conducting project-level air quality conformity analyses when individual projects are proposed.

The dispersion modeling is sensitive to changes in many of the input assumptions it uses. For this planning-level assessment, the assumptions about intersection operations probably do not represent intersection configurations or actual operating conditions in 2010. The mitigation modeling using different operating parameters (i.e., revised cycle time) demonstrates that there are options for mitigation measures that could reduce CO concentrations. As individual projects are developed in the detail required for actual design, the required air quality analyses could optimize operations and thereby reduce concentrations below the 8-hour standard. In addition, if there is a good reason for doing so, different assumptions about mode split could be applied to reduce the numbers of single occupancy vehicles using the transportation network, which also could improve air quality.

Finally, more refined future modeling (using a more refined version of the CAL3QHC model) could apply actual meteorological data from a nearby monitoring station to more realistically represent meteorological conditions in the study area. It is possible that applying actual atmospheric conditions would reduce or eliminate predicted CO standard violations.

Other analyses in the same study area will include more detailed considerations of air quality. For example, the Cities of Bellevue and Redmond intend to conduct a corridor analysis of 148th Avenue NE, and may decide to include an air quality component in this study. In addition, individual project components of the Network E transportation system will be subject to conformity review to satisfy the requirements of the state and federal Clean Air Acts. Each conformity analysis will examine in more detail the air quality impacts of each project. If a conformity assessment indicates that air quality standards may be exceeded as a result of a particular project, the design and/or operations of the project will need to be altered until compliance is achieved.

4.10.6 Potential Unavoidable Adverse Impacts

The CO dispersion modeling has demonstrated that without mitigation measures at 3 of the 7 most affected signalized intersections, the Preferred Alternative, comprised of Network E with 15.4 million square feet of commercial development, could result in CO concentrations exceeding allowed levels. This analysis further demonstrated that mitigation measures may be available to effectively mitigate these impacts to acceptable levels. Given the planning level nature of this assessment, it is not possible at this time to be more definitive, but it is clear that more detailed studies will be required as individual project components are designed and reviewed. Ultimately the potential air quality impacts of transportation projects will be determined through the transportation air quality conformity analysis in Chapter 173-420 WAC, Conformity of Transportation Activities to Air Quality implementation Plans.

4.11 Noise and Existing Conditions

The human ear responds to a very wide range of sound intensities. The decibel (dB) scale used to describe sound is a logarithmic rating system that accounts for the large differences in audible sound intensities. Using this scale, humans perceive a doubling of loudness as an increase of 10 dB. Therefore, a 70-dB noise source sounds twice as loud as a 60-dB source. Under ideal conditions, people generally cannot detect differences of 1 dB while differences of 2 or 3 dBs can be detected. In the outside environment such as near roads, a change of 2 or 3 dBs would not be noticeable to most people, while a 5-dB change would be expected to be perceived under normal listening conditions.

Because of the logarithmic scale used to describe noise, a *doubling* of the noise source strength (e.g., twice as much traffic on a road if other factors remain the same) produces a 3 dB increase in average roadway noise. Average sound levels due to sources such as traffic decrease with distance from the road at a rate of 3-4.5 dB per doubling of the distance. Peak sound levels from discrete events, such as from a single vehicle's brake screech or tire squeal, attenuate at 6 dB per doubling of the distance. Conversely, moving half the distance closer to a road increases sound levels by 3 dB and 6 dB for roadway and point sources, respectively.

When addressing the effects of noise on people, it is necessary to consider the frequency response of the human ear. Instruments that measure sounds are therefore designed to respond to, or ignore, certain frequencies. The frequency-weighting most often used to evaluate environmental noise is A-weighting, and measurements from instruments using this system are reported in "A-weighted decibels" or dBA. All sound levels in this evaluation are reported in A-weighted decibels.

Distance from the source, the frequency of the sound, the absorbency of the intervening ground, obstructions, and duration of the noise-producing event all affect the transmission and perception of noise. The degree of this effect also depends on who is listening and on existing sound levels. The variability in the way individuals react to noise makes it impossible to accurately predict how any one individual will respond to a given noise. However, when the community is considered as a whole, trends emerge which relate noise to annoyance. Two main types of health effects may potentially occur from excessive noise: auditory and non-auditory. Auditory impacts are caused by high noise levels which can potentially damage hearing and produce either partial or total deafness. Non-auditory health impacts include sleep and speech disturbance and may also involve human physiological (other than hearing damage) or behavioral effects. Traffic noise is generally not loud enough over a long-enough time period to cause hearing impairment and is generally more of a factor in non-auditory health impacts. Typical sound levels from some familiar noise sources and activities are presented in Table 4-28.

Table 4-28:
Sound Levels Produced by Common Noise Sources

Thresholds/ Noise Sources	Sound Level (dBA)	Subjective Evaluations	Possible Effects on Humans[a]
Human Threshold of Pain Carrier jet takeoff at 15 meters (50 ft)	140	Deafening	Continuous exposure to levels above 70 can cause hearing loss in majority of population
Siren at 30 meters (100 ft) Loud rock band	130		
Jet takeoff at 61 meters (200 ft) Auto horn at 0.9 meters (3 ft)	120		
Chain saw Noisy snowmobile	110		
Lawn mower at 0.9 meters (3 ft) Noisy motorcycle at 15 meters (50 ft)	100	Very Loud	
Heavy truck at 15 meters (50 ft)	90		
Pneumatic drill at 15 meters (50 ft) Busy urban street, daytime	80	Loud	
Normal automobile at 80 kph (50 mph) Vacuum cleaner at 0.9 meters (3 ft)	70		Speech Interference
Air conditioning unit at 6 meters (20 ft) Conversation at 0.9 meters (3 ft)	60	Moderate	
Quiet residential area Light auto traffic at 30 meters (100 ft)	50		Sleep Interference
Library Quiet home	40	Faint	
Soft whisper at 5 meters (15 ft)	30		
Slight rustling of leaves	20	Very Faint	
Broadcasting Studio	10		
Threshold of Human Hearing	0		

Note that both the subjective evaluations and the physiological responses are continuums without true threshold boundaries. Consequently, there are overlaps among categories of response that depend on the sensitivity of the noise receivers.

[a] Source EPA 1974

4.11.1 Long-term Sound Level Measurements (SLMs)

Existing sound levels were measured at a number of locations in the Bellevue, Redmond, and Overlake areas. The measurement locations were chosen in consultation with the cities of Redmond and Bellevue. These measurements reflect locations likely to be adversely affected by the proposed transportation projects or locations where citizens have expressed concern about traffic noise. The sound level measurements included both short-term and long-term measurements (15-minute and 24-hour, respectively) in the "subareas" of the study area. Figure 4-17 shows the locations of the sound level measurements (SLMs).

Five long-term (24-hour) sound level measurements were taken to represent various sound environments in the study area. The 24-hour SLMs were unattended, except during the setup and removal of the equipment. It is important to note that with all the 24-hour measurements, there is no way of knowing exactly what sources contributed to the measured sound levels during the majority of time when no one was observing. The noise sources described for each location are those observed as the meters were being set up or removed, or as the locations were being selected. Other sources that may have contributed to recorded sound levels are unknown. Details of each measurement are summarized in Table 4-29.

Traffic noise levels during peak traffic hours at all measurement locations exceeded the maximum allowable level of 57 dBA specified by Bellevue. All locations except L-1 experienced some off peak sound levels below this maximum level. Peak hour sound levels at L-1, L-2, and L-5 exceeded FHWA criterion of 67 dBA while all measured levels at L-3 and L-4 fall below this level. The L_{dn} at all locations was greater than the 55 dBA recommended by EPA for residential locations.

4.11.2 Short-term (15 minute) SLMs

Seventeen short-term (15-minute) sound level measurements were taken throughout the Bellevue-Redmond-Overlake study area. The meters were generally placed facing a major roadway, at setbacks typical of residences or other sensitive receptors along that road. The measurements were attended and both the dominant and secondary noise sources are noted in the detailed descriptions of each location. The measured sound levels and descriptions are shown in Table 4-30.

The noise study utilized numerous subareas to describe the noise impacts from transportation projects and issues in different neighborhoods in the BROTS area. The subareas studied were based upon the Redmond Transportation Management Districts (TMD) and the Bellevue Mobility Management Areas (MMA). Not all of the subareas identified in the traffic analysis were used in the noise analysis because the analysis focused on sensitive uses (i.e., residences and schools) while the traffic analysis tended to focus more on heavily congested commercial locations. The subareas used in the noise analysis are identified as TMD-3, TMD-4 (Grass Lawn), TMD-6, TMD-5/MMA-12 (Overlake), MMA-2 (Bridle Trails), MMA-6, and MMA-9.

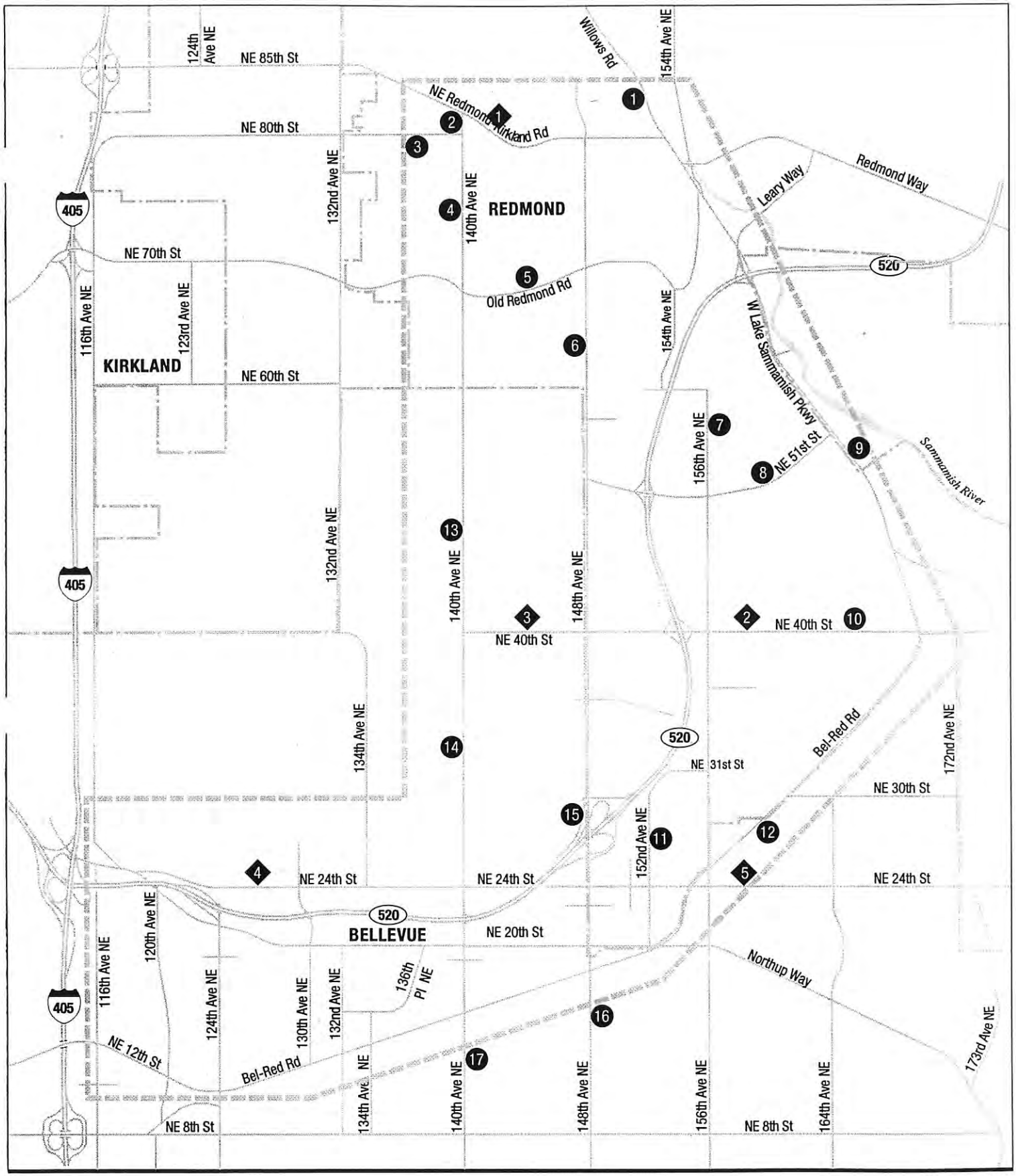


Figure 4-17
SLM Location Map

Table 4-29:
Summary of 24-hour SLMs (dBA)

Location (Subarea)	Time of Day	Date	Leq	L02	L08	L25	L90	Ldn
L-1	AM Peak		74	80	78	75	62	
(TMD-3)	PM Peak	4/24/97-4/25/97	74	79	77	75	66	75
	Daily Range		62-74	72-83	66-78	56-76	35-66	
L-2	AM Peak		69	76	74	70	55	
(TMD-5/	PM Peak	9/25/96-9/26/96	70	76	74	71	59	69
MMA-12)	Daily Range		53-72	62-77	50-74	44-71	41-59	
L-3	AM Peak		63	69	67	64	50	
(MMA-2)	PM Peak	9/24/96-9/25/96	62	68	66	64	48	62
	Daily Range		47-63	54-69	44-67	41-64	39-54	
L-4	AM Peak		65	71	69	66	57	
(MMA-2)	PM Peak	9/25/96-9/26-96	64	70	68	66	52	65
	Daily Range		50-65	55-71	53-69	50-66	44-57	
L-5	AM Peak		67	74	71	68	54	
(MMA-6)	PM Peak	9/25/96-9/26-96	66	73	70	68	53	67
	Daily Range		50-67	60-74	46-71	40-68	36-54	

L-1: This 24-hour SLM was taken in the backyard of the residence located on the NE corner of NE Redmond-Kirkland Road and 142nd Avenue NE and represents residences in the TMD-3 and TMD-4 (Grass Lawn) subareas. The meter was next to the fence in the backyard, overlooking NE Redmond-Kirkland Road. The dominant source of noise was traffic on NE Redmond-Kirkland Road.

L-2: Taken in the side yard of a residence on the corner of NE 40th Street and 159th Avenue NE in the TMD-5/MMA-12 (Overlake) subarea. The dominant noise source at this location was traffic noise on NE 40th Street. This location is representative of several residences on the north side of NE 40th Street. The sound level between 22:00 and 23:00 was unusually high (Leq of 93.6 dBA, Lmax of 131.5 dBA) and has been excluded from the summarized information in this table.

L-3: Taken at the Brandenwood Senior Residence at 14520-NE 40th Street in the MMA-2 (Bridle Trails) subarea. The meter was placed at the same setback as a porch used by the residents. This location is also representative of numerous other residences along NE 40th Street. The main source of noise at this location was traffic on NE 40th Street. Noise from children walking home from school also contributes to the sound environment.

L-4: Taken at 2400-127th Avenue NE in the MMA-2 (Bridle Trails) subarea. The meter was in the backyard of the residence, facing NE 24th Street. The location is representative of several residences along NE 24th Street. The dominant noise source at this location was traffic on NE 24th Street, but traffic noise from SR520 and other local roads provided a fairly constant background sound.

L-5: Taken at 2400-159th Avenue NE in the MMA-6 subarea. The meter was in the front yard of the residence, facing NE 24th Street, which is representative of several residences along NE 24th Avenue. However, most of the residences in the vicinity have tall wooden fences that would provide some traffic noise reduction. The main noise source at this location was traffic on NE 24th Avenue, with secondary sources being planes, birds, and activity associated with the two schools located across the road from the residence.

Table 4-30:
Summary of 15-minute SLMs (dBA)

SLM Location	Date	Time	Leq	L02	L08	L25	L90
TMD-3							
S-1	9/23/97	17:14	66	72	70	67	53
TMD-4 (Grass Lawn)							
S-2	9/17/96	16:00	65	71	69	67	54
S-3	9/23/97	16:45	60	67	64	61	49
S-4	9/17/96	16:25	62	68	67	64	46
S-5	9/17/96	16:55	58	63	61	59	52
S-6	9/17/96	17:18	65	71	69	66	55
S-6 (Second SLM)	9/24/96	16:42	67	74	71	69	52
S-7	9/17/96	16:09	58	65	63	59	47
S-8	9/17/96	16:38	62	68	66	63	48
TMD-6							
S-9	4/24/97	15:51	70	75	74	71	59
TMD-5/MMA-12 (Overlake)							
S-10	9/17/96	17:37	66	72	70	68	52
S-11	9/23/97	16:11	67	72	71	68	57
MMA-6							
S-12	9/24/96	17:46	68	74	72	70	55
MMA-2 (Bridle Trails)							
S-13	9/24/96	16:17	65	72	69	67	54
S-14	9/24/96	17:09	69	75	73	71	58
S-15	9/23/97	15:36	62	68	65	63	58
MMA-9							
S-16	9/23/96	17:13	60	64	62	61	57
S-17	9/23/96	16:45	66	70	69	67	60

S-1: Taken at the Scarborough Townhomes on Willows Road just north of Redmond-Kirkland Road in subarea TMD-3. The meter was at the setback of the apartments, many of which had outdoor patios. The dominant source of noise at this location was traffic on Willows Road. Secondary sources included cars in the apartment complex, HVAC noise from the commercial complex across Willows Road from the townhomes, car doors, voices, birds, and a distant back-up alarm. The measured sound level of 66 dBA would be defined as an impact using FHWA criteria.

S-2: Taken at 13921-NE Redmond-Kirkland Road in the TMD-4 (Grass Lawn) subarea. The meter was in the front yard at a location representative of approximately five houses. The dominant noise source at this location was traffic on NE Redmond-Kirkland Road and secondary noise sources at the time of the measurement were a car stereo and small aircraft. The measured sound level of 65 dBA does not approach or exceed the FHWA criterion for residential uses.

S-3: Taken on the lawn of the First Baptist Church of Rose Hill on NE 80th Street at 138th Avenue NE. This location is in the TMD-4 (Grass Lawn) subarea. The meter was at the setback of neighboring residences and representative of numerous residences on NE 80th Street. The dominant source of noise at this location was traffic traveling on NE 80th Street. Secondary sources included airplanes, distant lawn maintenance activity, and birds. The measured sound level of 60 dBA is below the FHWA criterion of 67 dBA.

S-4: Taken in the parking lot of the Strattonwood Swim Club on 140th Avenue NE near NE 74th Street. This location is in the TMD-4 (Grass Lawn) subarea. This location represents the swim club as well as numerous residences along 140th Avenue NE. The dominant source of noise was traffic on 140th Avenue NE. Secondary sources included jet aircraft, cars starting, birds, and a car stereo. The measured sound level of 62 dBA is below the FHWA criterion for residential and outdoor recreational uses.

S-5 Taken at Grass Lawn Park along Old Redmond Road in the TMD-4 (Grass Lawn) subarea. The meter was facing Old Redmond Road. The dominant source of noise at this location was traffic along Old Redmond Road and 148th Avenue NE. Secondary sources included voices of park users and small aircraft. The measured sound level of 58 dBA does not approach or exceed the FHWA criteria for residential and outdoor recreational uses.

S-6 Taken at 6203-148th Avenue NE in the TMD-4 (Grass Lawn) subarea. The meter was in the front yard of a residence, 50 feet from 148th Avenue NE for the first measurement and 30 feet from the road for the second measurement. This location represents several residences along 148th Avenue NE. The main source of noise at this location was traffic on 148th Avenue NE. Secondary sources included small aircraft, lawn maintenance activity, dogs, a distant airplane, and birds. At 50 feet from the roadway, the measured sound level did not approach or exceed the FHWA criterion of 67 dBA for residential uses. At 30 feet from the roadway, the measured sound level of 67 dBA reached the FHWA criterion of 67 dBA.

S-7 Taken in Westside Park on 156th Avenue NE in the TMD-4 (Grass Lawn) subarea. This location is representative of numerous residences along both sides of 156th Avenue NE in the vicinity of the park. The dominant source of noise at this location was traffic on 156th Avenue NE. Secondary noise sources included voices, distant airplanes, dogs, birds, crows, car radio, lawn maintenance activity, and traffic on SR520. The measured sound level of 57 dBA does not approach or exceed the FHWA criterion of 67 dBA.

S-8 Taken in the front yard of the residence at 15660-NE 51st Street in subarea TMD-4 (Grass Lawn). This location was representative of numerous houses along NE 51st Street between 156th Avenue NE and West Lake Sammamish Parkway. The dominant source of noise at this location was traffic on NE 51st Street. Secondary sources included crickets, traffic on 156th Avenue NE, a slamming door, nearby gardening activity, birds, a dog, and an airplane. The measured peak hour sound level of 62 dBA does not approach or exceed the FHWA criterion of 67 dBA.

S-9 Taken at 5050 West Lake Sammamish Parkway in subarea TMD-6, the meter was in the front yard of the residence with direct line-of-sight to the road and represents this and other nearby residences and a preserved native habitat wetland. The dominant source of noise during the measurement was traffic on West Lake Sammamish Parkway. Secondary noise sources included birds and distant airplane noise. The measured peak hour sound level of 70 dBA exceeds the FHWA criterion of 67 dBA.

S-10 Then in Cascade View Park facing NE 40th Street. This location is in subarea TMD-5/MMA-12 (Overlake). This location Is also representative of numerous residences, mostly multi-family residences, along NE 40th Street. The dominant source of noise at this location was traffic on NE 40th Street. Secondary sources included children playing, a car door, voices, airplanes, and a low, distant drone from a construction site down the road. The measured sound level of 66 dBA approaches the FHWA criterion of 67 dBA for residential and outdoor recreational uses.

S-11: Taken at the setback of Eastside Hospital facing 152nd Avenue NE in subarea TMD-5/MMA-12 (Overlake). The dominant source of noise at this location was traffic on 152nd Avenue NE. Secondary sources included bus activity at the nearby park and ride lot, vehicles in the hospital parking lot, airplanes, voices, and a car horn. The measured sound level of 60 dBA does not currently approach or exceed the FHWA criterion of 67 dBA for sensitive hospital uses.

S-12: Taken at 2701 Bel-Red Road in front of the Eton School in subarea MMA-6. This location is representative of numerous residences adjacent to Bel-Red Road. The main source of noise at this location was traffic on Bel-Red Road. Secondary sources included a car door, a distant back-up alarm, traffic on other local roads, an airplane, and a car in the school parking lot. The measured sound level of 68 dBA currently exceeds the FHWA criteria for residences and schools.

S-13: Taken in the front yard of 4445 140th Avenue NE in subarea MMA-2 (Bridle Trails). This location represents numerous residences adjacent to 140th Avenue NE between NE 60th Street and NE 40th Street. The main noise source at this location was traffic on 140th Avenue NE. Secondary sources included birds, light wind, distant back-up alarm, a distant dog, voices, and an airplane. The measured sound level of 65 dBA does not approach or exceed the FHWA criteria for residential uses.

S-14: Taken in front of 3251-140th Avenue NE in subarea MMA-2 (Bridle Trails). This location is representative of the numerous residences adjacent to 140th Avenue NE between NE 40th Street and NE 24th Street. The dominant noise source was traffic on 140th Avenue NE. Secondary sources included crickets, birds, and a car radio. The measured sound level of 69 dBA currently exceeds the FHWA criterion for residential uses.

S-15: Taken at the Kona Village Apartments on NE 29th Street in subarea MMA-2 (Bridle Trails) bordering the Overlake subarea. The meter was at the setback of the apartment complex and looked out over NE 29th Street and 148th Avenue NE. There are no outdoor recreational locations facing the roadway, but the windows of the apartments facing the roadway were open at the time of the measurement. The dominant noise source at this location was traffic on 148th Avenue NE and traffic on NE 29th Street. Secondary noise sources included cars in the apartment complex, airplanes, birds, and a car horn. The measured level of 62 dBA does not approach or exceed the FHWA criterion of 67 dBA.

S-16: Taken in the front yard of the residence at 1620-148th Avenue NE in subarea MMA-9. The meter was facing the roadway, but the residence was below the grade of the road and a natural berm gave some shielding from traffic noise. Other residences at grade along 148th Avenue NE are a similar distance from the road as this measurement. However, this is the only location that does not have a high fence obstructing the line-of-sight to the traffic. The dominant source of noise at this location was traffic on 148th Avenue NE with secondary sources including wind in trees, an airplane, and traffic on Bel-Red Road. The measured level of 60 dBA does not approach or exceed the FHWA criterion of 67 dBA for residential uses.

S-17: Taken behind the residence on the corner of 140th Avenue NE and NE 14th Street in subarea MMA-9. The meter was to face 140th Avenue NE and this location is representative of several houses adjacent to this road in both subareas MMA-8 and MMA-9. The dominant source of noise was traffic on 140th Avenue NE. Secondary sources of noise included traffic on NE 14th Street, an airplane, and wind in trees. The measured sound level of 66 dBA currently approaches the FHWA criterion of 67 dBA.

4.11.3 Construction Noise Impacts for Both Alternatives

During construction, there would be temporary increases in sound levels along the construction routes due to the use of heavy equipment and the hauling of construction materials. The increase in noise levels would depend on the type of equipment being used, and the amount of time it is in use.

Sound levels 15 meters (*50 feet*) from construction equipment exceed the levels recommended for residential land uses in Bellevue's and Redmond's noise ordinances. Some of the proposed transportation network projects in the BROTS area would require construction activities very close (< 15 meters) to existing residences, so at times, sound levels would very likely exceed the maximum permissible levels allowed in the cities of Bellevue and Redmond. However, temporary construction noise affecting residential receivers is exempt from the maximum permissible sound levels specified in Bellevue's noise ordinance on weekdays between 7 a.m. and 6 p.m. Temporary construction noise affecting residential receivers is exempt from the maximum permissible sound levels specified in Redmond's noise ordinance between 7 a.m. and 10 p.m. In both Redmond and Bellevue, construction noise emanating from temporary construction sites and affecting Class B or C Environmental Designation for Noise Abatement (EDNAs) are exempt at all times.

As there would be more projects under the Preferred Alternative than the No-Action Alternative, more short-term impacts from construction would be anticipated under the Preferred Alternative.

4.11.4 Operational Noise Impacts

4.11.4.1 No-Action Alternative

In 2010/2012 under the No-Action Alternative (Network A), traffic noise levels at all locations examined would continue to exceed the maximum allowable levels allowed by Redmond and Bellevue for commercial sources (i.e., traffic) affecting residential receptors. Sound levels in all of the subareas studied, though not at all of the receptors in each subarea, would approach or exceed the Federal Highway Administration (FHWA) criteria of 67 dBA for residences and other sensitive receptors.

Comparing 2010/2012 Network A (No Action) with 1995 Existing Conditions indicates implementing the existing comprehensive land use plan would increase traffic noise levels in 2010/2012 along most of the Bellevue-Redmond-Overlake arterials by 1-3 dBA. Such increases would probably not be discernible to most humans. Traffic sound levels on NE 80th Street just west of 140th Avenue NE (S-3) would increase about 4 dBA over existing conditions. Such an increase would be discernible to human listeners if it occurred instantaneously, but would be less discernible if it occurred over time (which would be the case). This increase would not be considered substantial according to Washington State Department of Transportation (WSDOT) interpretation of FHWA criteria and would be considered a *slight impact* using EPA guidelines. Traffic noise levels along Willows Road just north of Redmond-Kirkland Road (S-1) would increase about 5 dBA, resulting in an overall sound level of approximately 70 dBA. This increase would be considered *substantial* according to WSDOT interpretation of FHWA criteria and could cause *significant impacts* using Environmental Protection Agency (EPA) guidelines.

At locations where sound level measurements have documented peak-hour traffic noise levels that already exceed most of the guideline criteria for acceptable levels of noise, even slight increases would raise traffic noise further beyond the generally acceptable levels. For this reason, and because the Bellevue noise ordinance regulates residential development in areas with high noise levels, it will be particularly important to analyze potential traffic noise impacts of proposed road projects during detailed project or environmental review process associated with specific improvements.

4.11.4.2 Preferred Alternative

Projected traffic noise increases in 2010/2012 with the TRG Recommended Network (Network E) would increase from 0-2 dBA at most locations compared with No Action (Network A). Exceptions to this are on 140th Avenue NE south of NE 40th Street (S-14) which would experience a *decrease* of 2 dBA from No Action and on NE 29th Street (S-15) which could experience a traffic noise increase of up to 5 dBA over No Action.

Traffic noise levels with Network E in 2010/2012 would generally increase less than or equal to 3 dBA over 1995 Existing Conditions. Exceptions to this are on Willows Road (S-1), on NE 80th Street (S-3), and on NE 29th Street (S-15). These locations could see sound level increases up to 5 dBA over existing levels. The overall sound levels at S-1, S-3, and S-15 of 70 dBA, 65 dBA, and 67 dBA, respectively, would indicate that sound level increases of 5 dBA at these locations would be considered *substantial* using WSDOT interpretation of FHWA criteria. Also, sound level increases of 5 dBA can be considered significant impacts according to EPA guidelines.

As with No Action, even slight sound level increases or maintaining current sound levels would keep traffic noise levels in some locations higher than most pertinent guidelines governing acceptable levels of noise. Sound levels at all locations would exceed the 57 dBA maximum allowable level specified by Bellevue and Redmond for commercial sources affecting residential receptors. Overall sound levels at 15 of the 23 locations encompassing every subarea examined would approach or exceed the FHWA criteria of 67 dBA.

4.11.5 Mitigation for Noise Impacts for Both Alternatives

Due to the limitations of the approach used in this analysis, more detailed analytical techniques would need to be employed on a project basis to determine which transportation projects would actually cause significant noise impacts and require some form of noise mitigation.

The Bellevue noise ordinance requires consideration of potential noise mitigation from road improvement projects in residential areas if existing sound levels are high, when traffic noise from the project may exceed 67 dBA, or if traffic noise could increase by 5 dBA or more. In such situations, project-specific noise impact evaluations must be performed, and noise mitigation measures may be required. Possible mitigation measures include noise barriers, speed reductions, truck routes, and building construction techniques and materials designed to reduce interior noise levels.