

# BKR DOCUMENTATION REPORT

CITY OF BELLEVUE

DOWNTOWN BELLEVUE  
LIGHT RAIL ALTERNATIVES ANALYSIS

FEBRUARY 2010



## Table of Contents

Introduction and Purpose of Report.....	3
Sound Transit Board.....	3
Peer Review Panel.....	4
Evolving Downtown Light Rail Alternatives .....	5
Traffic Modeling Process – LRT Alternatives Analysis .....	6
BKR Overview.....	7
Land Use and Travel Demand Assumptions .....	11
The BKR TAZ Land Use Modified to PSRC 2006 Small Area FAZ Forecasts.....	11
Overall Downtown Bellevue Growth: 2008 - 2030.....	11
Land Use Forecasts .....	11
Travel Demand 2008 - 2030.....	12
Transportation System Roadway Network.....	14
Roadway Network 2008.....	15
Roadway Network 2030.....	15
Downtown Mid-Block Pedestrian Crossings.....	16
Methodology on Driveway Forecast Assumptions.....	17
Transportation System Transit Network.....	17
2030 Transit Network – Downtown Bellevue Routes and Headways .....	17
BKR Model Validation .....	19
Vehicle Trip Validation .....	19
Mode Choice Model Weight Factors .....	20
Attachments and Map Atlas List.....	21
Technical Appendix List.....	21

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effects on traffic and light rail operations issues of C4A and consider sensitivity analyses of reasonably foreseeable changes over time such as increases in light rail frequency. The Board also stipulated that if the City of Bellevue proceeds with current plans to perform a separate traffic analysis of C4A, a peer review of the City's analysis of that work should be conducted.

## Peer Review Panel

Following direction from the Board, Sound Transit and City of Bellevue staff worked to develop the membership of the peer review panel and its scope of work. The primary objective of the panel's work was to review the studies and analyses performed by Sound Transit and the City of Bellevue of the traffic, vehicular access and transit operational impacts of at-grade light rail in downtown Bellevue – which at the onset of the work, consisted of the C4A Couplet Alternative.

This peer review was intended to provide advice to Sound Transit and the City of Bellevue on the adequacy and completeness of on-going studies of the surface light rail and to recommend additional studies and possible modifications to the concept to improve its performance and/or reduce impacts on the transportation system and overall quality of the environment in downtown Bellevue.

Sound Transit convened a meeting of the 6-member East Link Peer Review Panel on October 19 and 20, 2009 in Bellevue, with which Bellevue staff also participated. The two-day event consisted of background presentations, field tours, workshops with planners and traffic modelers, and a session for documenting findings and developing recommendations. Comments and recommendations from the peer review panel included the following:

- The Panel commended Sound Transit and the City of Bellevue on their collaborative efforts, recognizing that both agencies have thought critically about how light rail transit can best serve the area, and that both were working closely to align key assumptions and inputs for both of their traffic modeling efforts.
- The Panel recommended that a comparison matrix of modeling inputs and assumptions be developed for the Sound Transit and City of Bellevue micro-simulation models. Both parties would develop joint modeling inputs and assumptions to provide a framework for model comparisons.
- The Panel believed that closer coordination and collaboration would be required at the technical staff level during the analysis and impact evaluation process in order to develop comparable information. While the Panel noted that Sound Transit and City of Bellevue staff had been in regular contact, the Panel recommended an increased level of coordination to develop comparative traffic analyses.



- The Panel recommended the City Bellevue and Sound Transit each complete then compare separate micro-simulations of the traffic and light rail operations for downtown Bellevue in 2030 for both the C4A Couplet Alternative and the C3T Tunnel Alternative.
- The Panel suggested that Sound Transit and the City of Bellevue consider a shorter surface alignment utilizing a two way operation on 108<sup>th</sup> Avenue NE or 110<sup>th</sup> Avenue NE from Main Street to NE 6<sup>th</sup> Street.

## Evolving Downtown Light Rail Alternatives

In November 2009 staff from Sound Transit and the City of Bellevue jointly refined potential light rail alternatives based on suggestions made by the peer review panel and value analysis panel earlier in the year. The Sound Transit Board approved of further analysis for two at-grade alternatives and one modified tunnel alternative described below and shown in Figure 2:

- **C9T** – a tunnel running under 110<sup>th</sup> Avenue NE with portals on Main Street and NE 6<sup>th</sup> Street. This is a shorter tunnel alternative than the C3T alternative that has portals on Main Street and NE 12<sup>th</sup> Street. Alternative C9T was intended to be illustrative of a grade-separated alternative.
- **C9A** – a two-way at-grade alternative running on Main Street, 110<sup>th</sup> Avenue NE and NE 6<sup>th</sup> Street
- **C11A** – a two way at-grade alternative running on Main Street, 108<sup>th</sup> Avenue NE and NE 6<sup>th</sup> Street

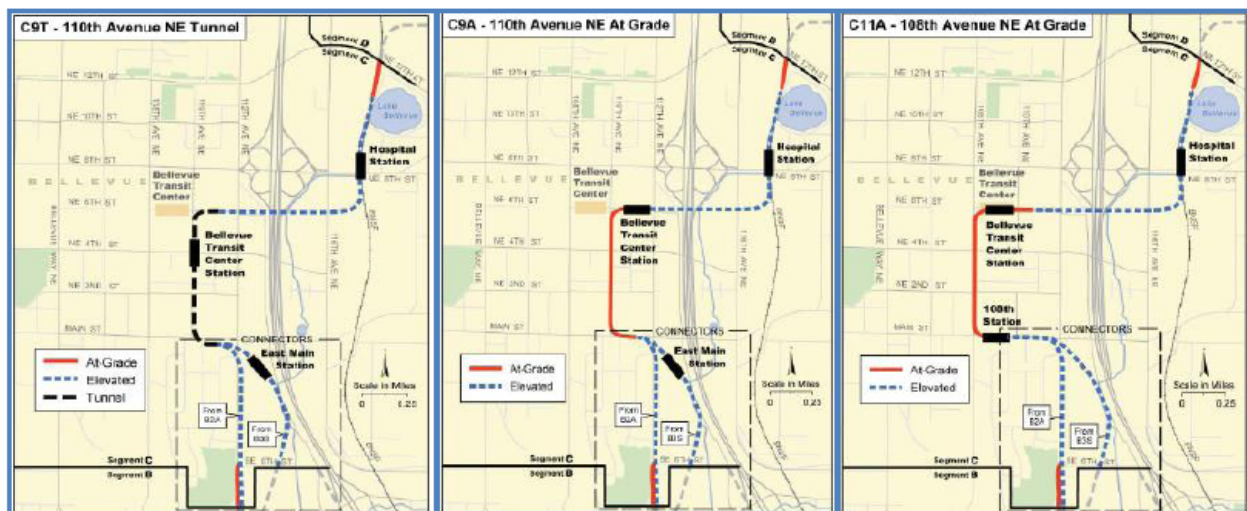


Figure 2 Downtown LRT Alternatives

Alternative C14E was added later for analysis at the request of the City of Bellevue. This is an elevated guideway running on the 114<sup>th</sup> Avenue NE corridor, as shown in Figure 3. For traffic analysis purposes, the C9T alternative would represent all grade-separated alternatives, including C14E.



Figure 3 Alternative C14E

### Traffic Modeling Process – LRT Alternatives Analysis

In consideration of the peer review panel’s recommendations, and significantly, on the reality of severe resource and time constraints in order to evaluate the new alternatives, Sound Transit and the City of Bellevue decided to abandon the parallel approach for each agency to develop and compare traffic modeling results, and instead embark on a collaborative approach to develop a joint VISSIM traffic model. Figure 6 illustrates this collaborative approach to traffic analysis.

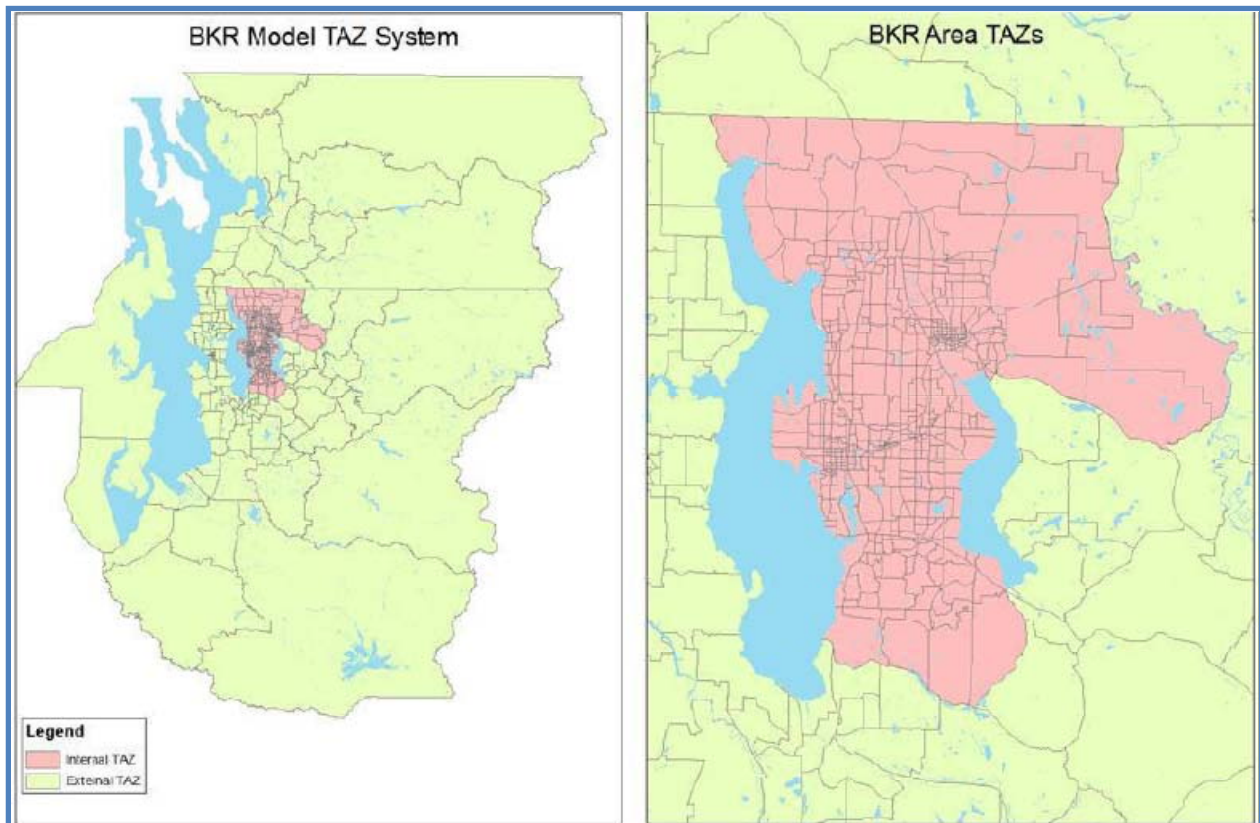
Through December 2009 and into early February 2010, Bellevue staff and Sound Transit staff and consultants from CH2MHill collaborated and worked side-by-side in Bellevue City Hall to build the VISSIM models for alternatives C9T, C9A and C11A. Weekly coordination meetings ensured that all key participants were kept informed of progress, provided direction, and reviewed results.

The jointly developed VISSIM models were based on the City of Bellevue BKR travel demand model which was updated to a base year of 2008 and a forecast year of 2030. This BKR documentation report provides an overview and documentation of the BKR model, and a companion report documents the VISSIM model process and output.

The VISSIM traffic analysis was then combined with other mutually agreed upon evaluation criteria in a report (*Downtown Bellevue Light Rail Alternatives Concept Design Report, February 2010*) that was prepared to help decision makers differentiate between the impacts and opportunities of the light rail alternatives to serve Downtown Bellevue.

## BKR Overview

The City of Bellevue Transportation Modeling and Forecasting Group develops existing and future travel demand model platforms to provide travel demand forecasts for the cities of Bellevue, Kirkland and Redmond (thus the BKR Model). This collaborative effort provides these cities with a credible source of travel demand forecasts. A unique Traffic Analysis Zone (TAZ) structure, as shown in Figure 4, is established for the BKR Model. This TAZ structure is



**Figure 4 BKR Traffic Analysis Zone (TAZ) Structure – Regional (left) and Local (right)**

increasingly more detailed in urban areas – often down to the block size in downtown areas. BKR uses the four-step travel demand forecasting procedure of trip generation, trip distribution, mode choice, and traffic assignment.

- Trip Generation: Computes daily motorized person trip productions and attractions based on land use characteristics and trip generation rates.
- Trip Distribution: Distributes daily motorized person trips between Traffic Analysis Zone [TAZ] pairs based on the Gravity Model using accessibility and attractiveness.
- Mode Split: Splits the daily zonal trip interchanges by mode of travel based on relative modal utilities.

- Trip Assignments: Assigns auto trips to the roadway network and transit person trips to transit routes. Three sub-processes are needed for trip assignment implementation.
  - Time of Day Factors: Breaks down daily motorized person trip tables into different time periods: A.M. peak hour: Mid-day off-peak hour: and P.M. peak hour
  - Multi-class Auto Traffic Assignment: Loads traffic on the roadway network based on user equilibrium principles and highway capacity constraints.
  - Multi-path Transit Assignments: Loads transit person trips on the transit routes based on the least weighted multi-path travel time, transit vehicle capacity constraints, and park and ride capacity constraints.

Post-processing of the raw BKR output refines model volumes to provide a more accurate forecast – these “post processed” travel demand volumes were used for micro-simulation modeling analysis.

The 2008 Base Year Modeling Platform was established as the base for the BKR forecasting models used to analyze the East Link LRT alternatives in Downtown Bellevue. The 2008 Base Year Model approximates the current conditions. Using the most current data, forecasting models were built to project 2030 travel demand for the Puget Sound region with a focus on the Eastside, and specifically for this purpose, Downtown Bellevue.

The 2008 Base Year Model reflects current land use and the transportation network. For the 2030 forecast year, both land use and the transportation network were projected. Transportation forecasts for both roadway and transit service attributes were included.

Validation of the 2008 Base Year Model was made by comparing model results to observed data including auto traffic counts, transit data, and household travel surveys. This critical validation step ensured that the 2008 Base Year Model produced an accurate picture of current conditions upon which to base the 2030 forecast. Screen-line data was used to summarize the travel volume produced by the 2008 Base Year Model and was compared with actual count data for autos and transit for those same locations. This test of the base year predictability ensured that the model produced credible future forecasts. That effort is addressed in the section of this report titled “Model Validation”.

The EMME/3 software platform was used to run the travel demand model and it was operated on a Windows operating hardware platform.





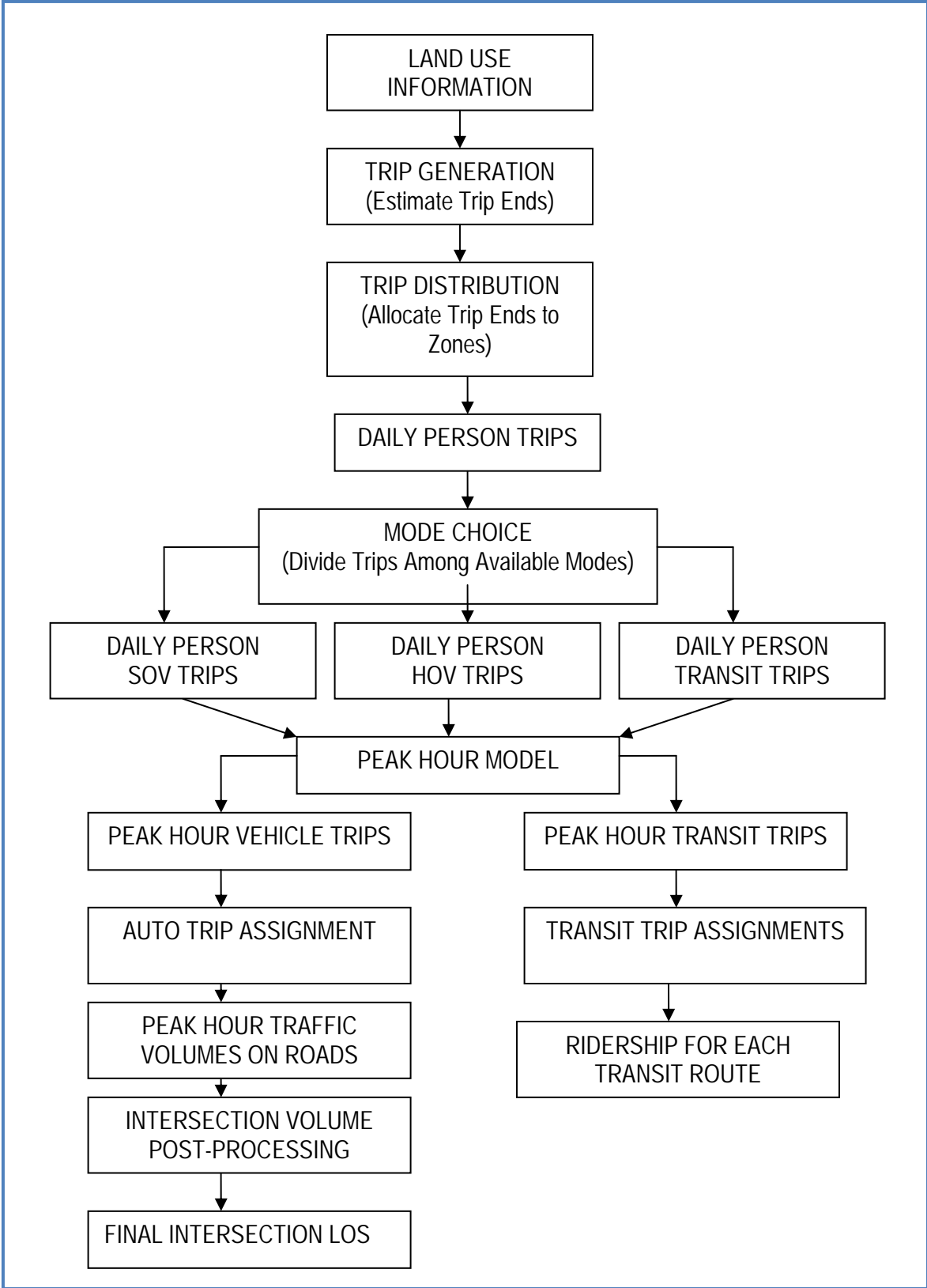


Figure 5 BKR Travel Demand Model Structure

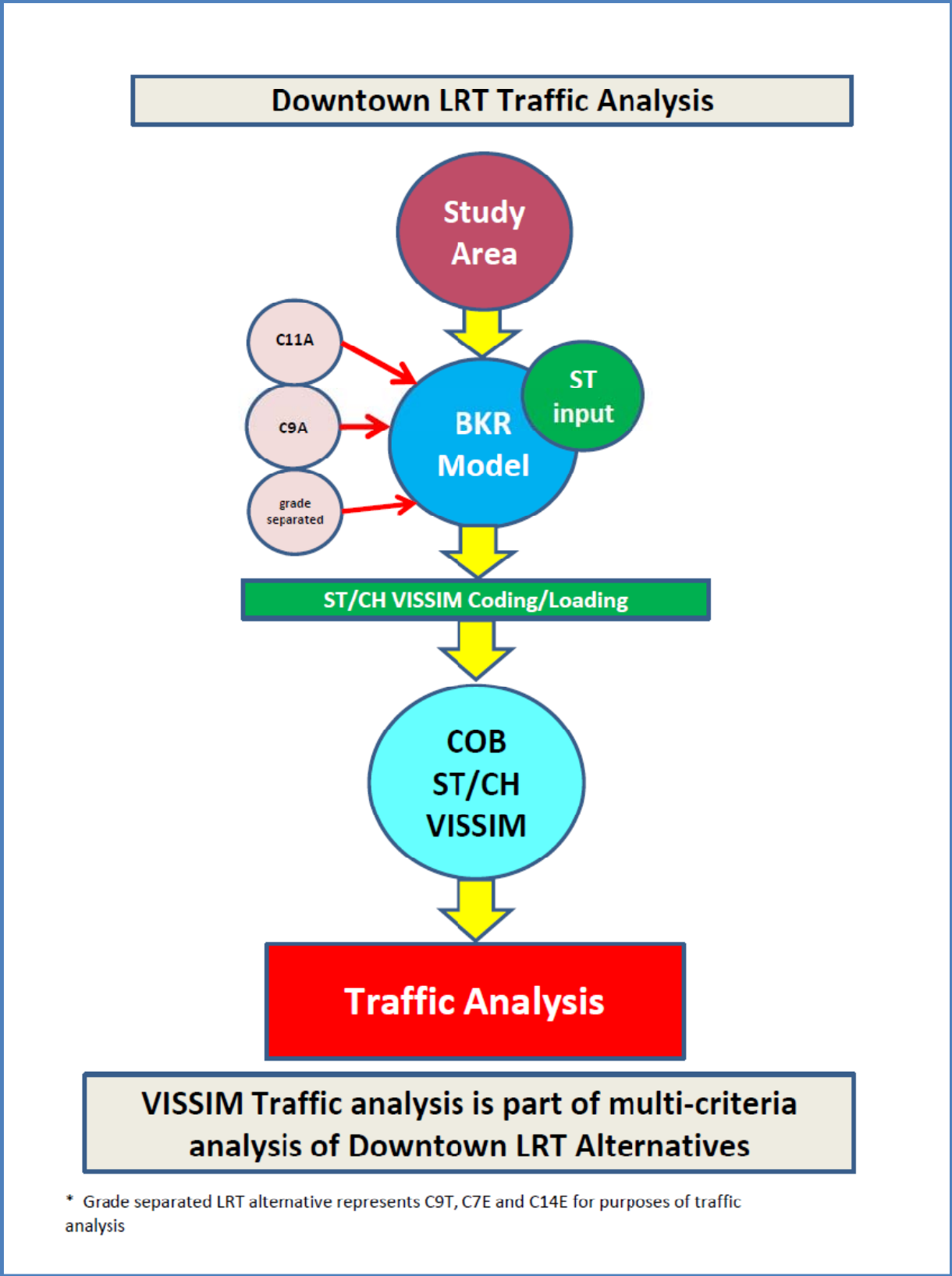


Figure 6 Downtown Bellevue LRT Traffic Analysis Diagram - Joint Bellevue, Sound Transit and CH2MHill Development of the VISSIM Traffic Analysis



## Land Use and Travel Demand Assumptions

### The BKR TAZ Land Use Modified to PSRC 2006 Small Area FAZ Forecasts

In order to maintain comparability with work done on the East Link DEIS, the analysis of Downtown Bellevue LRT alternatives utilized a modified BKR traffic analysis zone (TAZ) structure for future land use assumptions. Future land use was distributed according to the Puget Sound Regional Council (PSRC) Forecast Analysis Zone (FAZ) totals. Also, several FAZs within the BKR area were changed from the DEIS - to match the direction from PSRC to Sound Transit - to acknowledge new land use forecasts for the Overlake and Bel-Red areas where recent land use planning will accommodate more growth than the DEIS had assumed. Please refer to Attachment 15 for a table of the BKR land use forecasts used for this Downtown LRT analysis.

### Overall Downtown Bellevue Growth: 2008 - 2030

Both the number of employees and the households in Downtown Bellevue are expected to more than double during the time frame for this analysis - 2008 to 2030, refer to Table 1 for current and projected land use. Filling its regional role as a designated Urban Center, Downtown Bellevue will accommodate its share of regional growth in employment and households as described in PSRC VISION 2040 and the Bellevue Comprehensive Plan.

**Table 1**

	<b>2008</b>	<b>2030</b>	<b>Growth</b>
<b>Employment</b>	34,000	79,000	2.3/132%
<b>Households</b>	4,500	14,600	3.2/224%

### Land Use Forecasts

- Bellevue revised the city 2030 BKR TAZ-based forecasts so that they added up to the PSRC 2030 forecast for Households and Jobs for each of the model's FAZs. In earlier versions (and likely future versions) of the BKR model, Bellevue is not exactly consistent at an FAZ level with PSRC, although, as noted below, the variance for the BKR area is very slight. The PSRC forecast for each FAZ was the control total for finer-grained forecasts for purposes of the analysis of light rail in Downtown Bellevue only.
- PSRC has a more broad-based, regional approach to forecasting than does the City of Bellevue. With local knowledge, Bellevue incorporates variables such as amount of developable/buildable land, zoning capacity, and known developer interest when performing city forecasts. Bellevue TAZ-level numbers typically vary to some degree when aggregated for comparison to PSRC FAZ-level forecasts. Bellevue has a higher confidence in these numbers for most travel demand forecasting done to support local planning efforts.



- The overall variation between BKR forecasts and PSRC forecasts is very small. The difference in 2030 total households between BKR and PSRC for the overall BKR study area varied by 0.8%. The difference for 2030 total jobs (BKR vs. PSRC) was 0.5%.
- Adjustments for the Downtown Bellevue FAZ (4900) were made to be in-line with PSRC,
  - Reduced the city TAZ-based forecast by 1,773 households (or roughly 12.5%) - while the higher number is appropriate based on actual trends, Bellevue adjusted numbers to be in line with PSRC forecasts that the city believes are too low for 2030. Adjustments to other FAZs near the light rail alignment had less significant variation between BKR and PSRC forecasts.
- Bellevue and Sound Transit concur that it is of utmost importance that both agencies use the City’s adjusted land use forecasts at the BKR TAZ level. This provides the most accurate distribution of future land use, while also being consistent with PSRC regional forecasts at the FAZ level.

### Travel Demand 2008 - 2030

Table 2 provides a snapshot of the current and the expected growth in vehicle trips – both SOV and HOV - in Downtown Bellevue. Compared to the land use growth shown in Table 1, the growth for vehicle trips is somewhat lower. This reflects the tendency of trips to become more efficient as land use density/intensity increases. This efficiency is accounted for by a higher rate of HOV and transit use, plus more non-motorized trips – walking and bicycling – although these non-motorized trips are not directly reflected in Table 2.

**Table 2**

<b>PM Peak Hour Auto Trips</b>	<b>2008</b>	<b>2030</b>	<b>Growth</b>
All Trips to Downtown	6,956	12,099	1.74/74%
All Trips out of Downtown	11,439	19,229	1.68/68%

Figures 7 and 8 portray the growth in daily person trips - in motorized modes - in Downtown Bellevue, categorized by the type of trip. Note that the growth factor for daily person trips (1.99/99%) is greater than the growth factor for vehicle trips but less than the growth factor shown in Table 1 for households (2.3 /132%) and employment (3.2 /224%). This statistic captures the fact that as the development intensity increases and there is a greater diversity of land uses, more people will be walking and bicycling in Downtown Bellevue to work, shopping, recreation and entertainment. It should be noted that Figure 7 shows all daily trips to, from and within Downtown, as opposed to Table 2 which indicates only PM Peak (one hour) trips to or from Downtown.



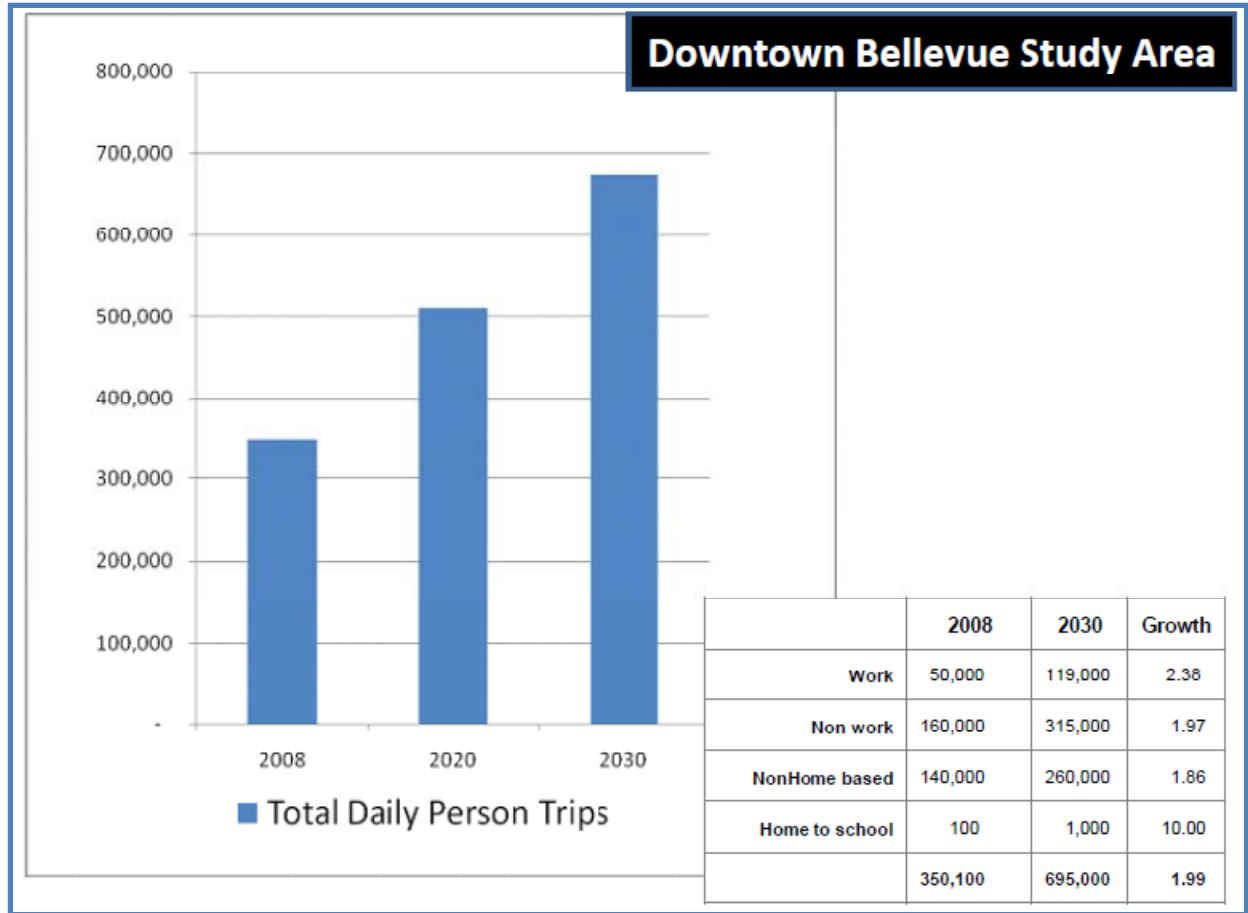


Figure 7 Downtown Bellevue Study Area Forecast Travel Demand

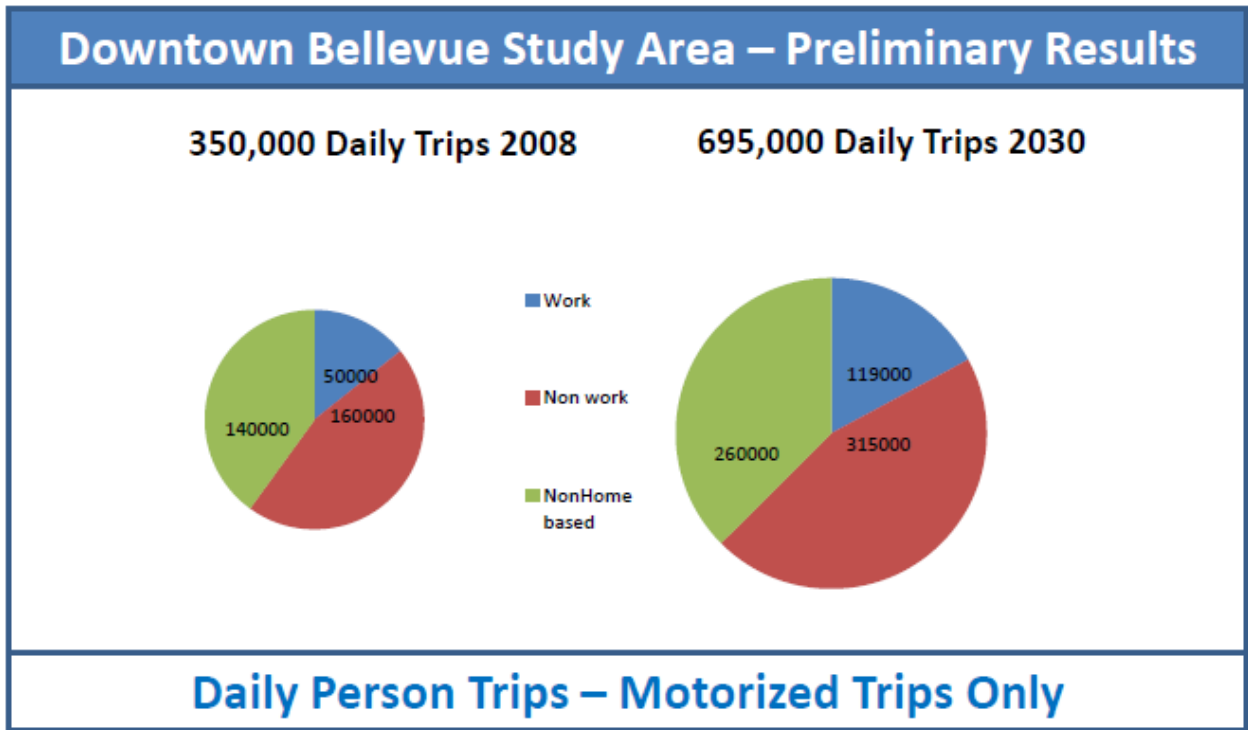


Figure 8

**Transportation System Roadway Network**

The transportation system roadway network in the parlance of BKR traffic modeling, is comprised of a set of roadway links and roadway attributes. The BKR is a “macro model” meaning that it covers a broad geographic area. Specific networks and zones are generally within the Bellevue, Kirkland, Redmond municipal boundaries, plus associated fringe areas. This are comprises the “internal” geography. The balance of the PSRC four-county region is considered the “external” geography. Refer to Figure 4 for maps of the BKR geographic areas. BKR is a link impedance model, in which driving travel time and accessibility are represented in the direction, capacity and relative speed as a function of the lanes that comprise the roadway network. Both nodes (intersections) and links (roadways) are defined in the network at the macro level, but the capacities are attributed only at the link level. Therefore, it is important to base travel demand forecasts on an accurate base year model plus planned or projected roadway features that would be added to the network by the forecast year.



## Roadway Network 2008

The 2008 BKR network reflects the existing roadway network at the end of 2007. This network includes regional highways, Bellevue roadways, Redmond and Kirkland roadways, and other roadways in the region.

## Roadway Network 2030

The assumed 2030 roadway network includes a variety of projects and proposals in Bellevue, adjacent cities and the broader Central Puget Sound Region. The assumed projects consist primarily of funded or committed actions by the State, regional and local agencies, combined with other projects that are considered to be “reasonably foreseeable” by 2030 – Attachments 1 and 2. The “reasonably foreseeable” project list was the agreed-upon result of discussions and negotiations between the City of Bellevue, Sound Transit and the Washington State Department of Transportation. New roadway network links assumed to be built between 2008 and 2030 are shown as a “difference plot” in Attachment 5. Total roadway network links with the number of roadway lanes in Downtown Bellevue are shown in Attachment 6 for 2008 and Attachment 7 for 2030.

Attachment 1 provides the list of regional and local projects that were assumed in the Sound Transit No-Build alternative for the East Link FEIS, and Attachment 2 is the list of intersection projects. For the BKR travel demand modeling purpose, these projects represent the base 2030 roadway network for each LRT alternative. This list of roadway and intersection projects was included in the Sound Transit East Link FEIS Methodologies and Assumptions Report (August 2008). That report updated the methods and assumptions for analyzing the local, corridor and region wide transportation impacts associated with East Link for the FEIS. For purposes of the East Link EIS, the Methodologies and Assumptions Report included a “No Build” alternative that is intended to differentiate from “Build” alternative that assumed light rail. From Bellevue’s perspective, “No Build” is not an actual alternative because of the November, 2008 voter-approved ST2 light rail extensions. However, to be consistent with the East Link EIS documentation, transportation projects Attachments 1 and 2 refer to the “No Build” roadway and intersection projects. These projects comprise the 2030 forecast year additions to the 2008 transportation network for BKR purposes – they are, the “2030 No Build Baseline”.

The 2030 regional roadway network is comprised of projects funded through the 2003 Transportation Nickel Package, 2005 Transportation Partnership Account (TPA) package, American Recovery and Reinvestment Act (ARRA) and selected projects included in the Puget Sound Regional Council’s Destination 2030 plan. Within King County these funding packages support major regional projects such as the Alaskan Way Viaduct and Seawall Replacement



Project, SR 520 Bridge Replacement and HOV Project and the I-405 Corridor Program. Local roadway projects listed in local agency comprehensive plans are also included.

While several roadway improvements in Bellevue are assumed in the 2030 model network, that assumed roadway network does not include several key mobility projects that are adopted in the Bellevue Comprehensive Plan. While these are significantly important projects to enhance vehicular circulation, they were deemed to be not “reasonably foreseeable” within the 2030 timeframe due to budget constraints. These projects are excluded from the 2030 roadway network for this analysis and include the following:

- NE 6<sup>th</sup> Street extension across I-405 to 120<sup>th</sup> Avenue NE
- NE 2<sup>nd</sup> Street extension to I-405 with ramps to and from the south
- Southbound off-ramp from I-405 to NE 10<sup>th</sup> Street
- Full interchange on SR 520 @ 124<sup>th</sup> Avenue NE to add ramps to and from the east

### Downtown Mid-Block Pedestrian Crossings

Mid-block pedestrian crossings in Downtown Bellevue – as defined in the Downtown Subarea Plan - will help make pedestrian mobility easier in an environment of 600-foot superblocks. These signalized crossings will be installed at locations where there is a strong pedestrian demand – shown in Figure 9. While mid-block crossings are significant enhancements for the pedestrian network, there may be a traffic operations consequence that must be understood and acknowledged. Traffic operations impacts were considered in Downtown Bellevue traffic modeling – these crossings were treated as nodes (intersections) in the BKR model and were factored into the VISSIM traffic operations analysis.



Figure 9 Downtown Bellevue Planned Mid-Block Signalized Pedestrian Crossings



## **Methodology on Driveway Forecast Assumptions**

In most applications the macro level BKR model applies connection links – driveways - to deliver and receive traffic to a building in the geographic area represented by a zone. In Downtown Bellevue the zones almost always encompass one city block. For this level of forecast the preliminary macro connections were tailored to be consistent with the assumed future driveways and volumes that would be simulated in the micro level model. The City of Bellevue evaluated the future development potential along specific streets to determine the assumed location for future driveways and generalized 2030 forecast traffic volumes for future driveways and higher loaded existing driveways - as shown in Attachment 13 - and generalized forecast traffic volumes that they would carry. The volumes were factored to be consistent with the overall traffic forecasts for traffic entering/exiting the network on specific streets in Downtown Bellevue.

## **Transportation System Transit Network**

The Downtown Bellevue transit network reflected in the 2008 Base Year Model, was based on the Fall 2007 service changes from Metro, Sound Transit, Community Transit, and Pierce Transit. Park and ride capacities and surveyed usage reflected the 2007 conditions.

For the 2030 forecast year model, the bus transit network is derived from the East Link Transit Integration documentation from Sound Transit, November 2007. This transit network was assumed for all LRT alternatives.

## **2030 Transit Network – Downtown Bellevue Routes and Headways**

Transit service was also represented in the BKR model with information about the frequency, type of coach, dwell and layover times, and route number, which are updated annually to reflect service changes. The BKR Model included transit service for the AM Peak (a 3-hour transit service peak), mid-day and PM Peak (a 3-hour transit service peak) time periods.



**Table 3 Select King County Metro and Sound Transit routes serving Downtown Bellevue**

Route	2008 Headways			2030 Headways			Route Description
	Peak 3	Rev 3	Midday	Peak 3	Rev 3	Midday	
111	20	--	--	20	--	--	Renton - Bellevue
114	35	--	--	30	--	--	Renton - Bellevue
222	30	30	30	30	30	30	Eastgate - Bellevue
231	--	--	--	15	15	15	Kirkland - Issaquah
233	30	30	30	30	30	30	Redmond - Bellevue
234	30	30	30	15	15	30	Kenmore - Bellevue
237	45	--	--	30	--	--	Woodinville - Bellevue
240	30	30	30	15	15	15	Renton - Bellevue
243	45	--	--	30	--	--	Jackson Park - Bellevue
249	30	30	60	30	30	30	Bvue/S Kirk – Overlk TC
253	30	30	30	9	9	10	Redmond - Bellevue
271	15	15	30	15	15	20	Bellevue - Univ Dist
342	30	--	--	30	--	--	Shoreline - Renton
532	12	30	--	20	20	--	Everett - Bellevue
535	30	30	30	15	15	30	Lynnwood - Bellevue
555	--	30	--	30	30	30	Issq Highl - Bellevue
560	30	30	30	30	30	30	Bellevue – W. Seattle
564	20	30	60	20	20	60	South Hill - Bellevue
565	20	60	60	20	20	60	Federal Way - Bellevue
921	30	60	60	30	30	30	Eastgate - Bellevue



## BKR Model Validation

Screenline analysis was used to validate the results of both auto and transit forecasts. Screenlines are imaginary lines that cross a defined geographic area for macro-level traffic analysis purposes. As described here, and shown in Attachment 14, the screenlines were drawn cross all roadway corridors in the north-south and east-west directions so that the total traffic in one direction (on multiple streets) was captured. The screenline analysis compared the total model volumes with the total traffic counts in both directions at each screenline.

The 2008 Base Year Model was validated by comparing the model link auto volumes with 2008 actual average traffic counts made in the three BKR jurisdictions as well as in King County and by the Washington State Department of Transportation. Table 5 summarizes the overall results of auto screenline validations.

## Vehicle Trip Validation

Three levels of screenlines were designated to validate model volumes - as shown in Table 5.

- Level one screenlines frame the study area boundary of the Bellevue, Kirkland and Redmond area. This validation presents a macroscopic picture of traffic flow into and out of the Eastside study area. The comparison between model volumes and actual counts show an overall fit of 105%, which is a 5% variation.
- Level two screenlines are regional screenlines that cut through the Eastside at various locations. The comparison shows an overall fit of 107%, a 7% variation.
- Level three screenlines are local for Bellevue city boundaries as well as the major arterials of the city. In Bellevue, the model shows an overall 102% fit, a 2% variation.
- All Levels: For the entire BRK region, the model shows an overall fit of 1.06, a 6% variation.

**Table 4**

BKR Validation Screenlines				
		Observed and Modeled 2008 Volumes		
		PM Peak Hour Traffic		
Level One		Actual	Model	Model/Actual Ratio
	BKR Area boundaries	86,210	90,512	1.05 (5%)
Level Two		Actual	Model	Model/Actual
	Internal BKR	307,132	329,802	1.07 (7%)
Level Three		Actual	Model	Model/Actual
	Bellevue City	173,895	178,142	1.02 (2%)
All Levels		Actual	Model	Model/Actual
	BKR Region	567,237	598,456	1.06 (6%)



As shown in Table 5, among the screenlines analyzed, all are within plus/minus 10%. The whole system has a goodness-of-fit ratio (R-square value) of 0.97 when the model volumes are compared to the actual counts. This indicates that the auto traffic forecasting model is statistically valid for use in forecasting specifically for the Bellevue, Kirkland and Redmond model area.

### **Mode Choice Model Weight Factors**

In all modes the time between zones was based on a skim or inter-zonal computation of the times to traverse the applicable modes network to get directionally from one zone to any other during a peak or midday period. For auto modes the access period was referred to as the terminal time and the times were not factored.

To compare the likelihood of using transit versus any vehicular mode, the transit travel time has an overall travel time made up of several components. Typically the wait time for a route is equal to half the headway. In addition the time components in the model forecast were represented as having the sense of being longer by various weighting factors. The BKR model used the following weighting factors:

- Wait time=2.8
- Auxiliary time (walk time)=2.1

These measures are specific to the BKR calibrated model for transit trips.



## Attachments and Map Atlas List

1. “No Build” Transportation Projects – From FEIS Methods and Assumptions Report (8/09)
2. “No Build” Intersection Projects – From FEIS Methods and Assumptions Report (8/09)
3. PSRC FAZ Map
4. PSRC FAZ Map with BKR Zones for Downtown Bellevue BKR
5. BKR Roadway Lane Configuration Changes Downtown Bellevue and Vicinity 2008-2030
6. BKR Downtown Bellevue Roadway Lane Existing Conditions 2008
7. BKR Downtown Bellevue BKR 2030 Roadway Lane Assumptions
8. BKR Traffic Volume Alternative C9T
9. BKR Traffic Volume Alternative C9A
10. BKR Traffic Volume Alternative C11A
11. BKR 2030 Traffic Volume Difference C9A – C9T
12. BKR 2030 Traffic Volume Difference C11A – C9T
13. Downtown Bellevue 2030 “No Build” Driveway Assumptions
14. BKR Screenline Map
15. BKR 2008/2030 Land Use Forecasts

## Technical Appendix List

1. FHWA Screenline Standard Chart
2. Screenline Map\_2008
3. Screenline Table
4. Trip Length Frequency Curves Home Based Other
5. Trip Length Frequency Curves Home Based Work
6. Trip Length Frequency Curves Non Home Based
7. Trip Length Frequency Curves School
8. East Link Bus Integration TRANSIT
9. BKR Model Platform Releases



**No-Build Transportation Projects** (italicized projects indicate they have been completed)

Facility	Project Detail	2020	2030	Source
<b>King County Interstate and State Routes</b>				
I-405	1 lane each direction from I-5 to SR 181	X	X	Nickel Package
	1 lane NB from SR 181 to SR 167	X	X	Nickel Package
	1 lane SB from SR 169 to SR 167	X	X	Nickel Package
	1 lane NB from SR 167 to SR 169	X	X	TPA
	SR 515 half-diamond interchange (Talbot Rd)	X	X	TPA
	1 GP lane NB from 112th Ave SE to SE 8th	X	X	Nickel Package
	1 GP lane and one outside HOV SB from I-90 to SE 8th	X	X	Nickel Package
	NE 10th overcrossing	X	X	TPA
	NB Braided crossing from NE 8th to SR 520	X	X	TPA
	1 lane NB from NE 70th to NE 124th	X	X	Nickel Package
	1 lane NB from NE 124th to NE 160th	X	X	TPA
	1 lane SB from SR 522 to SR 520	X	X	Nickel Package
	2 NB lanes Braided Crossing from NE 160th to SR 522	X	X	TPA
	NE 132nd St Interchange	X	X	TPA
	<i>Totem Lake Freeway Station NE 128th</i>	X	X	Sound Transit
	<i>Totem Lake Transit Center</i>	X	X	Sound Transit
	NB/SB SR 167 to I-405 HOV Direct Connect		X	Destination 2030
	1 lane each direction SR 169 to SR 900 (Sunset Blvd)		X	Destination 2030
	2 lanes both directions Sunset to Park Drive		X	Destination 2030
	HOV Direct Access N 8th		X	ST/Destination 2030
3 lanes both directions from Park Dr to NE 30th		X	Destination 2030	
2 lane NB NE 30th to SE 52nd Ave SE		X	Destination 2030	
3 lanes SB from Coal Creek to NE 30th		X	Destination 2030	
3 lanes both directions from Coal Creek to I-90 (Braids for I-90 to I-405)		X	Destination 2030	
I-90	Two-way Transit/HOV from Seattle to Mercer Island (Stage 1, 2, and 3)	X	X	TPA (Only Stages 1 and 2) , ST/WSDOT Stage 3.
	<i>Eastgate Access / 142nd Ave SE</i>	X	X	Sound Transit
SR 519	New ramp at South Atlantic Street and grade separated crossing over Royal South Royal Brougham Way	X	X	Nickel Package
SR 520	Widen to 8 lane including auxiliary and HOV lanes from W Lake Sammamish to SR 202	X	X	Nickel Package
	6 lane (2 GP, 1 HOV) facility Between I-405 and Mountlake Blvd (This assumes the Eastside Transit and HOV Project and the tolling strategies documented in the EIS.)	X	X	Destination 2030
SR 167	1 SB lane from I-405 to SW 41st	X	X	TPA
	1 HOV lane SB from 15th NW to 15th SW	X	X	Nickel Package
	Add HOV both directions from 15th St SW to Pierce Co. Line	X	X	TPA
	Extend HOV lane from 8th St SW to 15th Street NW – HOV	X	X	Nickel Package
I-5	1 NB lane NE 175th to NE 205th	X	X	Nickel Package
	Complete HOV from Pierce Co. Line to Tukwila	X	X	Nickel Package
SR 509	Phase 1: 180th to I-5		X	Destination 2030
SR 900	Add 1 lane both directions from SE 78th to I-90	X	X	Nickel Package
	Add HOV lanes both directions from park-and-ride lot to I-90	X	X	Nickel Package
SR 522	Business/Transit Lane (Bothell-Kenmore areas)	X	X	Various sources
	UWBCC campus access: new interchange	X	X	Nickel Package
SR 518	Add 1 EB GP lane from airport access to I-5	X	X	TPA
SR 161	Widen to 5 Lanes from Jovita Blvd to S 360th St	X	X	Nickel Package
SR 99	Aurora Ave N Corridor Transit/HOV Lanes (N 105th to N 200th)	X	X	Nickel Package
	Replace viaduct	X	X	Destination 2030
SR 18	1 lane both directions Maple Valley to Issaquah Hobart Rd	X	X	Nickel Package



**No-Build Transportation Projects** (italicized projects indicate they have been completed)

Facility	Project Detail	2020	2030	Source
	1 lane both directions Issaquah Hobart Rd to I-90		X	Destination 2030
<b>Snohomish County Interstate and State Routes</b>				
I-5	<i>HOV lanes from SR 526 to US 2</i>	X	X	<i>Nickel Package/TPA</i>
	New ramp SB I-5 to WB SR 525	X	X	TPA
SR 522	4-lane widening from Snohomish River to US 2	X	X	Nickel Package
SR 9	Stages 1 and 2 from SR 522 to 176th St SE	X	X	Nickel Package
I-405	1 lane NB NE 195th to SR 527	X	X	TPA
SR 527	Additional lanes from 164th SE to 112th SE	X	X	Nickel Package
<b>Pierce County Interstate and State Routes</b>				
I-5	HOV lanes from S 48th (Tacoma) to King/Pierce Co. Line	X	X	Nickel Package
SR 161	Corridor improvements from 176th to 234th	X	X	Nickel Package
	Additional lanes from 36th to Jovita	X	X	Nickel Package
SR 16	<i>HOV Improvements from Olympic View Dr to I-5</i>	X	X	<i>Nickel Package</i>
	<i>Tacoma Narrows Bridge: new bridge and approaches. Toll on bridge (EB only)</i>	X	X	<i>Bond/Toll</i>
SR 410	Additional lanes from 214th to 234th	X	X	Nickel Package/TPA
<b>Bellevue Arterials</b>				
150th Ave SE	<i>Widen to 7 lanes from SE 36th to Newport Way; add turn lanes</i>	X	X	<i>TFP-011</i>
Northup Way	1 EB lane from 120th to 124th Avenues NE, intersection improvements at Northup Way and 124th	X	X	TFP-091, TFP-106
Northup Way	Provide sidewalks and bike lanes on both sides and a two-way center turn lane between Bellevue Way and NE 24th Street.		X	TFP-079
110th Ave NE	Widen to 5 lanes between NE 4th and NE 8th	X	X	TFP-110
NE 10th St	Extend from 112th Ave NE across I-405 and through the OHMC campus to connect with 116th Ave NE	X	X	TFP-189
NE 8th Street/106th Avenue NE	<i>Add westbound lane from 106th to 108th Ave NE becoming right turn lane at 106th Ave NE.</i> Realign the roadway to the south to better utilize the new westbound travel lane (between 108th and 106th Avenues NE; funded in CIP) and preserve the existing large sequoia tree.	X	X	<i>TFP-184</i> <i>TFP-219</i>
NE 12th Street	Widen bridge across I-405 to five lanes. Provide additional turn pockets at 112th and 116th intersections	X	X	Bel-Red Corridor FEIS
NE 10th St at I-405	Add on-ramp to the north connecting to SR 520.	X	X	TFP-193
NE 2nd St	Widen the existing roadway from 3 lanes with parking and turn pockets to 5 lanes from Bellevue Way to 112th Ave NE		X	TFP-190
130th Ave NE	Construct a two-way left-turn lane from Bel-Red Rd to NE 20th St		X	TFP-039/TFP-218, R-122, TIP-15
148th/150th Ave SE	Widen by extending the third SB lane from the ramp to WB I-90 to south of Eastgate Way at the I-90 WB off Ramp		X	TFP-154
129th Ave SE	Extend 129th Ave SE from SE 38th St to Newport Way		X	TFP-103
NE 4th Street Extension	Extend 4th Street to 120th Avenue NE will consist of 5 vehicle lanes, bike lanes, sidewalks and will require construction of a sunken roadway and bridge(s) for BNSF RR tracks and Pedestrian over crossings. 120th Avenue widened between NE 4th and NE 8th streets.	X	X	TFP-207
120th Avenue NE	Widen to five lanes with sidewalks and bike lanes. Extend/realign roadway between NE 8th and Old Bel-Red Rd.		X	TFP-208
NE 15th/16th Street (Phase I)	Construct a five lane roadway from 116th Avenue NE to 124th Avenue NE.	X	X	TFP-209
124th Avenue NE/Proposed NE	Widen to five lanes with sidewalks. Key intersections at NE 15th/16th Street		X	TFP-210



**No-Build Transportation Projects** (italicized projects indicate they have been completed)

Facility	Project Detail	2020	2030	Source
15th/16th Street Extension to Northrup Way				
124th Avenue NC	Widen to 5 lanes with sidewalks between Bel-Red Road to planned NE 15th/16th Street Extension.		X	TFP-213
NE 15th/16th Street (Phase II)	Extend five lane roadway from 124th Avenue NC to 136th Place NE with a key intersection at 130th Avenue NE. Widen 136th Place NE five to three-lanes between NC 16th Street and NC 20th Street (reduction occurs at the intersection); add a double westbound left turn on NE 20th Street.		X	TFP-215
130th Avenue NE	Construct turn lanes, shared bike lanes, on-street parking and sidewalks between NE 16th and NE 20th Streets and widen to three lanes with shared bike lanes and sidewalks between NE 16th Street and Bel-Red Road.		X	TFP-218/TFP-039
Bel-Red Corridor Preferred Alt.	Land use changes included in the preferred alternative from the Bel-Red Corridor Project will be included in the FEIS. The land uses were approved by PSRC and the City of Bellevue.	X	X	City of Bellevue
<b>Redmond Arterials</b>				
Novelty Hill Road	Road improvements to Union Hill Road in the vicinity of 196th Avenue NE, 196th/195th Ave NE from Union Hill Road NE to Novelty Hill Road and Novelty Hill Road at 196th Ave NE. Work includes the replacement of the Evans Creek Bridge. Redmond is a partner with King County	X	X	RED-CIP-C26
164th Avenue NE	Rechannelize street to one through lane in each direction, two-way left-turn lane and bike lanes.	X	X	RED-TIP-S34
166th Avenue NE	Rechannelize to a cross section that includes 1 through lane in each direction, a center two-way left-turn lane and bike lanes.	X	X	RED-TIP-S41
Union Hill Road	Widen Union Hill Rd from Avondale Rd to 178th Pl NE. Improvements include 2 through lanes and 1 right turn lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, underground power and utility pole relocation.	X	X	RED-TFP-049a
Union Hill Road	Widen Union Hill Rd from 178th Pl NE to 188th Ave NE. Improvements include 2 through lanes in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, underground power and utility pole relocation, right-of-way and easement acquisition. Construct permanent signal at 170th Place NE/Union Hill.	X	X	RED-TFP-049b
Union Hill Road	Widen Union Hill Rd from 188th Pl NE to east City Limits. Improvements include 2 through lanes in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, underground power and utility pole relocation, right-of-way and easement acquisition.	X	X	RED-TFP-049c
162nd Avenue NE (Bear Creek Parkway Extension, west)	Construct new arterial from 159th Pl NE to Leary Way. Improvements include 1 through lane in each direction, left turn lanes, curb, gutter, sidewalks, street lights, storm drainage, and right-of-way.	X	X	RED-TFP-050a
Redmond Way	Widen Redmond Way from SR 520 to 187th Ave NE. Improvements include 6-7 lanes from SR 520 to East Lake Sammamish Pkwy (ELSP) and 4-5 lanes from ELSP to 187th Ave NE, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, underground power.	X	X	RED-TFP-065
160th Avenue NE	Construct new 160th arterial from current terminus at approximately NE 99th St north to the intersection with Red Wood Rd and modify existing 160th arterial from NE 90th St north to current terminus. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, right of way and easement acquisition.	X	X	RED-TFP-072a
NE 116th Street	Widen NE 116th St from Red-Wood Rd to Avondale Rd. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, equestrian trail, street lights, storm drainage, underground power, right-of-way and easement acquisition. Project also includes construction of roundabout at 172nd Ave NE.	X	X	RED-TFP-105
188th Avenue NE	Construct new 188th Ave NE arterial from NE 68th Street to Union Hill Rd. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, right-of-way and easement acquisition.	X	X	RED-CIP-C52





**No-Build Transportation Projects** (italicized projects indicate they have been completed)

Facility	Project Detail	2020	2030	Source
188th Avenue NE	Complete 188th Ave NE arterial from Redmond Way to NE 68th Street. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb gutter, sidewalks, street lights, storm drainage, right-of-way and easement acquisition.		X	RED-TFP-117
185th Ave NE	Construct new 185th Ave NE arterial from NE 80th St to Union Hill Rd. Improvements include 1 through lane in each direction, left turn lanes, sidewalks, street lights, storm drainage, right-of-way, easements and traffic signal at Union Hill Rd.	X	X	RED-TFP-118
161st Ave NE	Construct new 161st Ave NE from Bear Creek Pkwy Extension to Redmond Way. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, parking, sidewalks, street lights, storm drainage, right of way, easements and traffic signals at Cleveland St and Bear Creek Pkwy.	X	X	RED-TMP-001
164th Ave NE	Construct new 164th Ave NE from NE 76th St to Cleveland St. Improvements include 1 through lane in each direction, bike lanes, parking, sidewalks, street lights, storm drainage, right-of-way and easements.	X	X	RED-TMP-002
NE 36th St/NE 31st St	Construct new NE 36th St and bridge over SR 520 in the vicinity of NE 36th St and NE 31st St. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, sidewalks, street lights, storm drainage, right-of-way and easements.	X	X	RED-TMP-004
172nd Ave NE	Construct new 172nd Ave NE from NE 172nd St to NE 124th St. Improvements include 1 through lane in each direction, sidewalks, street lights, traffic calming, storm drainage and easements.	X	X	RED-TMP-007
NE 85th St	Reconfigure NE 85th St from 154th Ave NE to 164th Ave NE to 1 through lane in each direction, center left turn lane, bike lanes, parallel parking and pedestrian amenities.	X	X	RED-TMP-009
164th Ave NE	Reconfigure 164th Ave NE from Redmond Way to NE 87th St to 1 through lane in each direction, center left turn lane, bike lanes and pedestrian amenities.	X	X	RED-TMP-010
Old Redmond Rd	Widen Old Redmond Road to three lanes from 132nd Ave NE to 136th Ave NE and rechannelize from 136th Ave NE to 140th Ave NE. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb gutter, sidewalks, street lights, storm drainage, underground power, right-of-way and easement acquisition.	X	X	RED-TMP-016
152nd Avenue NE, North	Implement a multi-modal pedestrian corridor concept on 152nd Avenue NE from NE 24th Street to NE 31st Street to create a lively and active signature street in the Overlake Village. Pending the results of the 152nd Ave NE Corridor Study, the proposed cross section for the improvements would include 1 through lane in each direction, accommodations for bus-based transit and its connections to light rail transit (LRT), left turn lanes, planted medians, bike lanes, parking, pedestrian supportive sidewalks, street lights, pedestrian amenities, storm drainage, right-of-way and easements. This corridor will also include the LRT line and an LRT station.	X	X	RED-OV-065a
Redmond Way and Cleveland Street	Convert Redmond Way from 160th Ave NE to Avondale Way to 1 through lane in each direction and center turn lane with west end having two westbound starting at 161st Ave NE and east end having two eastbound lanes starting at 163rd Ave NE. Convert Cleveland St to 1 through lane in each direction. Improvements include curb extensions, widened sidewalks, pedestrian amenities, gateway treatments and realignment of street at eastern and western ends to improve traffic flow.	X	X	RED-TMP-079
Redmond Way	Widen Redmond Way bridge at Bear Creek. Improvements would include 2 through lanes in each direction, 2 eastbound left turn lanes to NE 76th St, 1 eastbound right turn lane to westbound SR 520 onramp, sidewalks, Bear Creek and E Lake Sammamish Trail connections, street lights, storm drainage, right-of-way and easements.		X	RED-TMP-013
166th Ave NE	Reconfigure 166th Ave NE from NE 85th St to NE 104th St to 1 through lane in each direction, center left turn lane and bike lanes.	X	X	RED-TMP-019
NE 83rd Street	Widen NE 83rd St from 160th Ave NE to 161st Ave NE. Improvements include widened sidewalks, increased parking, street lights, pedestrian amenities and intersection modifications.	X	X	RED-TMP-061
NE 70th Street	Construct new NE 70th St from Redmond Way to 180th Ave NE. Includes 1	X	X	RED-TMP-029



**No-Build Transportation Projects** (italicized projects indicate they have been completed)

Facility	Project Detail	2020	2030	Source
	through lane in each direction, left-turn lanes and sidewalks			
NE 73rd St Extension	Construct new NE 73rd St for neighborhood access and circulation from 185th Ave NE to 188th Ave NE. Improvements include 1 through lane in each direction, left turn lanes, sidewalks, street lights, traffic control, storm drainage, right-of-way and easements.	X	X	RED-TIP-C51
	Extend improvements (from RED-TIP-C51) to 192nd Ave NE		X	RED-TMP-070
NE 76th St Extension	Construct new NE 76th St from 185th Ave NE to 188th Avenue NE. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, sidewalks, street lights, traffic control, storm drainage, right-of-way and easements.	X	X	RED-TIP-50
	Extend improvements (from RED-TIP-50) to 192nd Ave NE		X	RED-TMP-071
192nd Ave NE Extension	Construct new 192nd Ave NE for local access and circulation from NE 68th St to Union Hill Rd. Improvements include 1 through lane in each direction, left turn lanes, sidewalks, street lights, traffic control, storm drainage, right-of-way and easements.		X	RED-TMP-072
NE 40th Street Transit Center SR 520 Pedestrian Crossing	Provide a new direct pedestrian connection over SR 520 between the Overtake Transit Center and the Microsoft west campus (in the vicinity of the NE 38th Street alignment).		X	RED-OV-032
148th Avenue NE	Create third northbound through lane on 148th Ave NE from NE 22nd St to SR 520 westbound on-ramp using primarily existing right turn lanes and modify SR 520 westbound on-ramp to allow HOV access. At NE 24th St and 148th Ave NE intersection add second left turn lane on the eastbound and westbound approaches, add right turn lane on northbound approach, and extend right turn lane on westbound approach.	X	X	RED-TMP-078
Overtake Neighborhood Preferred Alt.	Land use changes included in the preferred alternative from the Overtake Neighborhood Plan will be included in the FEIS analysis. The land uses were approved by PSRC and the City of Redmond.	X	X	City of Redmond
<b>Kirkland Arterials</b>				
NE 120 St	Construct new 3-lane roadway with ped/bike facilities from Slater Ave to 124 Ave NE	X	X	R-21
<b>Seattle Arterials</b>				
Lander St	Overcrossing of BNSF railroad	X	X	Seattle
Spokane St	Addition of freeway ramps to 4th Avenue	X	X	Seattle
Alaskan Way Viaduct	New ramp connections at S Atlantic, South Royal Brougham, and King St		X	Destination 2030/Seattle
<b>King County Arterials</b>				
Military Road	From S 272nd to S 304th, widen to 4/5 lanes	X	X	CP-5
Issaquah Bypass	New facility		X	CP-7
Issaquah Hobart Rd	From Issaquah to SR 18, widen to 4 lanes	X	X	CP-6
Carr Road	Widen from SR 167 to Benson Road	X	X	CP-8
SE 212th/SE 208th	From SR 167 to SR 515 widen to 6 lanes (transit HOV priority lanes)	X	X	CP-14
Woodinville-Duvall Rd	Widen between 171st Ave NE and Avondale Road	X	X	CP-12
Avondale Road NE	From NE 155th to NE 168th, widen to 3 lanes	X	X	CP-13
<b>Transit Assumptions</b>				
Central Link	2020) Northgate to Stadium: 4-minute peak and 6-minute off peak. Stadium to S 200th 8 minute peak and 12 minute off peak 2030) Lynnwood to Stadium: 3.5 minute peak and 5 minute off peak Stadium to Redondo/Star Lake (272nd) 7 minute peak and 10 minute off peak	X	X	Sound Move
ST Express	2009 3IP	X	X	Sound Move



**No-Build Transportation Projects** (italicized projects indicate they have been completed)

Facility	Project Detail	2020	2030	Source
Souder	Everett to Seattle (4 peak period trips add Mukilteo Station), Tacoma to Seattle (9 peak period trips add S. Tacoma and Lakewood Station)	X	X	Sound Move
Street Car	Waterfront Street Car	X	X	King County Metro
	S. Lake Union street car	X	X	Seattle
	First Hill Streetcar	X	X	Sound Transit
Transit Service	Regional and local bus services operated by Sound Transit, King County Metro, Community Transit, Everett Transit and Pierce Transit. Sound Transit and King County Metro will be provide transit service integration plans for both No-Build and Build alternatives for 2020 and 2030 horizon years. The PSRC model assumes service provide by Kitsap Transit and the Washington State Ferries as well.	X	X	Agency service plans



## Attachment 2

FEIS Transportation Methodology and Assumptions Report

### No-Build Intersection Projects<sup>a</sup> (italicized projects indicate they have been completed)

Facility	Project Detail	2020	2030	Notes
<b>Bellevue Intersections</b>				
<i>Bel-Red Road at NE 30th Street</i>	<i>Will add a new traffic signal at the intersection.</i>	X	X	TFP-024, I-70
<i>112th Avenue SE at SE 6th Street</i>	<i>Will install a new traffic signal at the intersection.</i>	X	X	IHP-U30, I-98
<i>SE 16th Street/145th Place SE to 148th Avenue SE</i>	<i>Construct a new westbound right-turn lane at 145th Place NE and upgrade the traffic signal at the intersection.</i>	X	X	TFP-043, R-118
116th Avenue NE at NE 12th Street	Construct a northbound right turn lane, extend eastbound left turn lane.	X	X	TFP-090
Northrup Way/120th Avenue NE to 124th Avenue NE	Widen Northrup Way/124th Avenue NE intersection to provide a northbound right-turn lane and a second eastbound left-turn lane to the SR 520 ramp.	X	X	TFP-091, TFP-106, R-133
148th Avenue NE at Bel-Red Road	Construct eastbound right and second left-turn lanes and a second westbound left turn lane.		X	TFP-094, I-76, RED-OV-088
156th Avenue NE at Bel-Red Road	Construct a southbound right-turn lane. (Microsoft to construct)	X	X	TFP-095, TIP-53
148th Avenue NE at NE 20th Street	Construct second eastbound and westbound left turn lanes		X	TFP-101, I-78
Bel-Red Road at NE 24th Street	Construct southbound right-turn and northbound left-turn lanes.		X	TFP-102
129th Avenue SE/SE 38th Street to Newport Way	Extend 129th Place SE north to SE 38th Street. Consider signalization and channelization improvements if warranted.		X	TFP 103
Factoria Boulevard at Newport Way	Construct back-to-back double left-turn pockets northbound at the Newport High School entrance and southbound at Newport Way.	X	X	TFP-120
148th Avenue NE at NE 36th Street	Construct a second southbound left turn lane and second westbound left turn lane.	X	X	TFP-128
<i>Lakemont Boulevard at Village Park Drive</i>	<i>Install new signal and crosswalks.</i>	X	X	TFP-135, I-59
NE 24th Street at 148th Avenue NE	Lengthen the westbound right-turn lane on NE 24th Street and provide a second westbound left-turn lane.		X	TFP-157
145th Place SE	Construct center medians and left-turn pockets where needed from SE 6th to SE 24th.	X	X	TFP-160, NIS-1
156th Avenue SE at SE Eastgate Way (I-90 westbound off-ramp)	Widen the I-90 westbound off-ramp to provide two dedicated left-turn lanes and a shared through/right-lane with a channelized right turn.	X	X	TFP-162
NE 8th Street at 148th Avenue NE	Construct 2nd eastbound and westbound left-turn lanes on NE 8th Street.	X	X	TFP-168
<i>148th Avenue SE at Lake Hills Boulevard</i>	<i>Lengthen the westbound left-turn lane from Lake Hills Blvd to 148th Avenue SE from 75 feet to approximately 250 feet and/or convert the existing through/right-turn lane to a left/through/right-turn lane.</i>	X	X	TFP-188, I-90
Lakemont Blvd (Phase 1) Cougar Mountain Way to Lewis Creek Park	Install signal and turn lanes at Cougar Mtn. Way/ Lakemont Blvd ; construct northbound left turn lane on Lakemont Blvd. at SE 62nd Street. Add sidewalk and bike lanes.		X	TFP-192
150th Avenue SE/SE 37th Street/I-90 off-ramp	Widen I-90 off-ramp 300 feet west of 150th Avenue SE and add a right-turn lane. Widen SE 37th Street 500 feet to the east of 150th Avenue SE to allow for a bypass lane on the right side of the street.	X	X	TFP-195
NE 20th Street/Bel-Red Road to 156th Avenue NE	Construct an east-to-west U-turn on NE 20th Street at 156th Avenue NE; with access management along NE 20th Street.	X	X	TFP-196, TIP-61
Bel-Red Road at NE 20th Place	Install signal, eastbound left-turn pocket, and pedestrian crossing.		X	TFP-198
Lakemont Blvd (Phase 2)/Lewis Creek Park to 164th Ave SE	Install signal at 164th Ave SE/Lakemont Blvd, construct sidewalk and bike lane on east side; add planted medians where feasible.	X	X	TFP-205
SE 40th Lane/Factoria Boulevard	Lengthen the southbound to eastbound left turn lane and lengthen the westbound left turn lane.		X	TFP-220
NE 10th at I-405	Add on-ramp to the north connecting to SR 520.	X	X	TFP-189, TFP-193, R-149



**No-Build Intersection Projects<sup>a</sup>** (italicized projects indicate they have been completed)

Facility	Project Detail	2020	2030	Notes
Bellevue Way/NE 4th Street	Add a southbound right turn lane and a westbound right turn lane. Dual westbound left turn lanes.		X	TFP-222
Bellevue Way/NE 8th Street	Add southbound right turn lane.		X	TFP-223
Bellevue Way/NE 2nd Street	Add a northbound right turn lane and a second southbound left turn lanes.		X	TFP-225
NE 24th Street/156th Avenue NE	Construct an eastbound right turn lane.	X	X	TFP-239
<b>Redmond Intersections</b>				
124th Ave NE/Red-Wood Road	Construct eastbound through/right turn lane, a second northbound left-turn lane, and second westbound lane on the east leg of the intersection. Add sidewalk and bike lane on east leg.	X	X	RED-TIP-C41
NE 51st St/148th Ave NE	Improve traffic flow through intersection modifications and widening.	X	X	RED-TIP-C46
NE 31st St/156th Ave NE	Provide additional westbound left-turn lane.	X	X	RED-TIP-C47
NE 24th St/162nd PINE	Install traffic signal and add left-turn lanes on 124th Ave NE.	X	X	RED-TIP-S40
NC 90th St/151st Ave NC	Install traffic signal.	X	X	RED-TIP-S42
NE 76th St/185th Ave NE	Install traffic signal.	X	X	RED-TIP-S44
156th Avenue NE/Bel-Red Road	Add southbound right-turn lane on 156th Ave NE.	X	X	JOINT-BROTS-22.3
148th Ave NE/NE 29th Place	Add southbound through and second westbound left-turn lanes; channelize yield for westbound right-turn lane. Convert eastbound right-turn lane to shared right-turn/left-turn lane.	X	X	JOINT-BROTS-28
148th Ave NE/NE 20th St	Add second eastbound left-turn and second westbound left-turn lanes.		X	JOINT-BROTS-50.1
Bel-Red Road/NE 20th Street	Add southbound right-turn lane; convert westbound lanes to provide left turn, left-turn/through and through/right-turn lanes.		X	JOINT-BROTS-52
Bel-Red Road/NE 24th Street	Add southbound right-turn and northbound left-turn lanes.		X	JOINT-BROTS-53.1
148th Avenue NE/NE 36th Street	Add second southbound left-turn lane and second westbound left-turn lane.	X	X	JOINT-BROTS-79
159th Ave NE/NE 40th St	Revise lanes to provide northbound left-turn and shared northbound left-turn/right-turn lanes.	X	X	RED-BROTS-004.1
148th Ave NE/Old Redmond Rd	Extend the northbound left-turn lane by increasing length and channelization.	X	X	RED-BROTS-005.4
150th Ave NE/NF 40th St	Add northbound right-turn lane	X	X	RED-BROTS-008.1
W Lk Sam Pkwy NE/NE 51st St	Add southbound lane from NE 51st St to NE 50th St and then taper two southbound through lanes to one. Convert existing southbound right-turn only lane at NE 51st St to right/through lane.	X	X	RED-BROTS-011.1
W Lk Samm Pkwy NE/Bel-Red Rd	Removing exiting traffic signal. Install 2-lane roundabout at Bel-Red Road, West Lake Sammamish intersection and improve pedestrian facilities.	X	X	RED-BROTS-031/RED-TIP-C48
140th Ave NE/Redmond Way	Add second northbound left-turn lanes.	X	X	RED-BROTS-033
140th Ave NE/Redmond Way	Add eastbound right-turn lane.	X	X	RED-BROTS-033c
Willows Rd/Redmond Way	Convert southbound lanes to provide left-turn and left-turn/through/right-turn lanes; add westbound right turn lane.	X	X	RED-BROTS-034.1
150th Ave NE/NE 51st St	Add north leg to intersection. Provide two southbound left-turn lanes.	X	X	RED-BROTS-085
NE 83rd Street at 161st Avenue NE	Install new traffic signal and make intersection improvements at NE 83rd St and 161st Ave NE.	X	X	RED-IFP-801-19
NE 51st Street at 150th Ave NE	Install new traffic signal at intersection of NE 51st St and 150th Ave NE.	X	X	RED-TFP-805-04
Redmond Way/East Lake Sammamish Parkway at 180th Avenue NE	Reconstruct intersection of Redmond Way at East Lake Sammamish Pkwy and 180th Ave NE.	X	X	RED-TFP-807-02
Redmond Way at 187th Avenue NE	Install new traffic signal at intersection of Redmond Way and 187th Ave NE.	X	X	RED-TFP-807-03



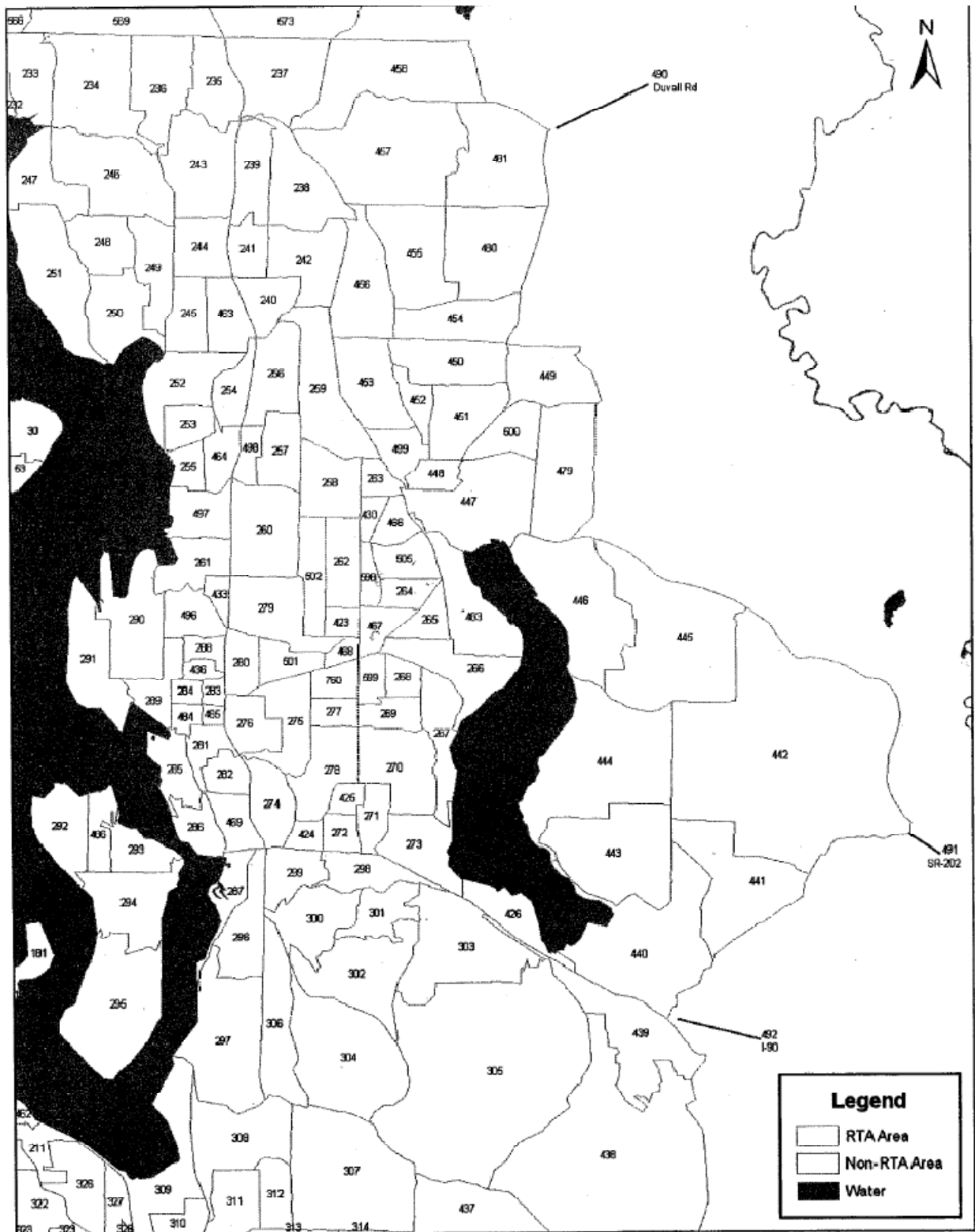
**No-Build Intersection Projects<sup>a</sup>** (italicized projects indicate they have been completed)

Facility	Project Detail	2020	2030	Notes
Union Hill Road at 188th Avenue NE	Reconstruct horizontal curve and install new traffic signal at intersection of Union Hill Rd and 188th Ave NE.	X	X	RED-TFP-807-05
Union Hill Road at Avondale Road	Intersection modification. Reconstruct intersection pavement and add one northbound free right-turn lane, one southbound left-turn lane, one southbound right-turn lane, one eastbound right-turn lane and one westbound left-turn lane.	X	X	RED-TFP-807-06
East Lake Sammamish Pkwy at 187th Ave NE	Install new traffic signal. Improvements include southbound left-turn lane and reconstruct grade separated trail crossing.	X	X	RED-TMP-020
Old Redmond Rd at West Lake Sammamish Way	Install new traffic signal. Improvements include modifications to better accommodate nonmotorized uses.	X	X	RED-TMP-042
148th Avenue NE/SR 520 Interchange	Modify channelization and signals, and provide wide multi-use trail that is separated from the roadway on the east side of 148th Ave NE from the westbound SR 520 ramps to the SR 520 Trail at the eastbound SR 520 ramps (148th Ave NE bridge over SR 520).	X	X	RED-TMP-081/RED-TIP-C27
Bel-Red Road and 148th Avenue NE	Work with the City of Bellevue to add eastbound and westbound left turn lanes and an eastbound right-turn lane.		X	RED-OV-088, BEL TFP-094
Redmond Way at NE 76th Street	Modify intersection. Add a southbound right turn lane on NE 76th St and add dual lefts on eastbound Redmond Way.	X	X	RED-TMP-062
<b>Mercer Island Intersections</b>				
27th & 77th and 27th & 78th	Install traffic signals	X	X	TIP 2009-2014 – Section B, project 3

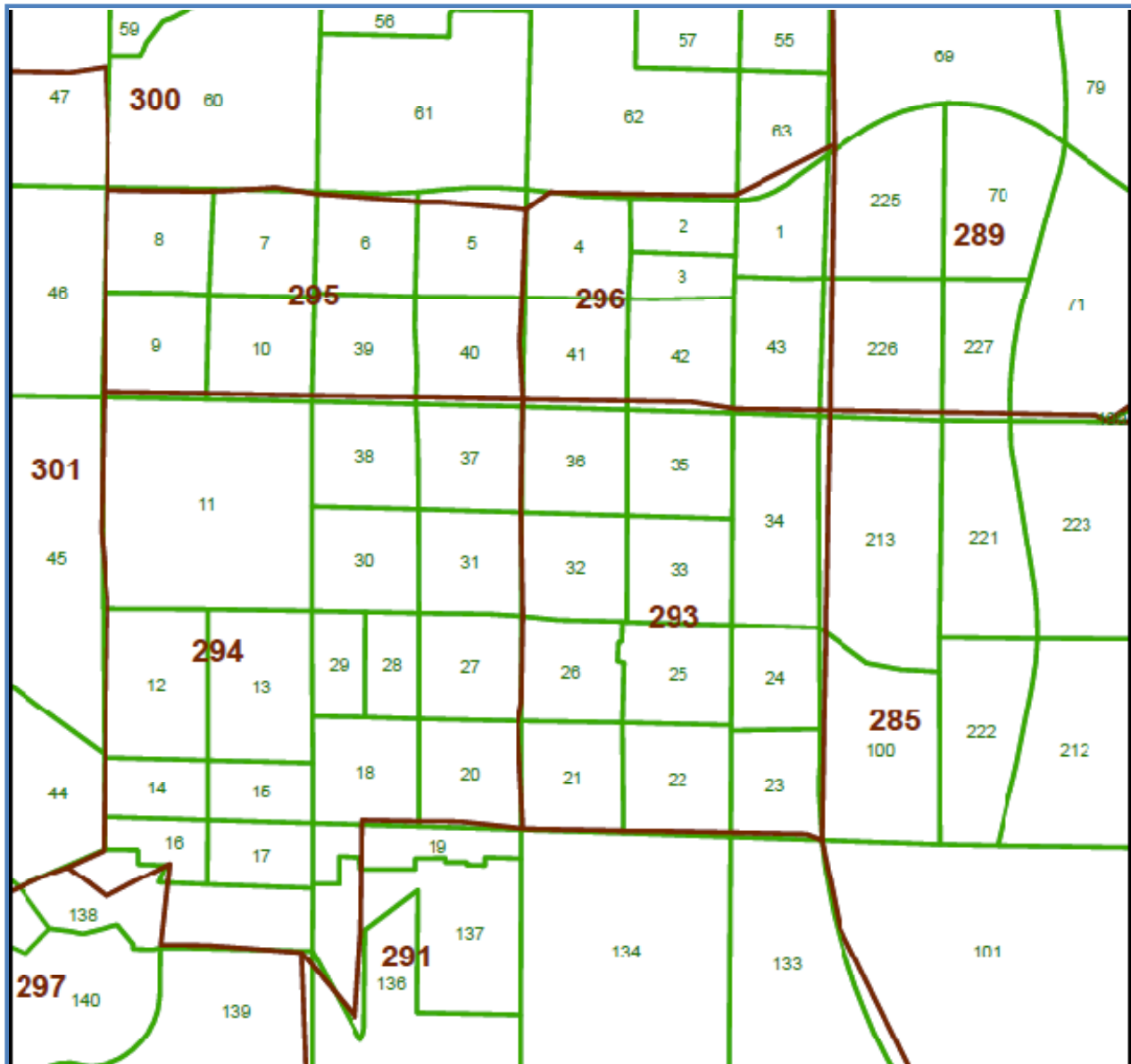
<sup>a</sup> Only the Cities of Bellevue and Redmond no-build intersection projects are presented in this table. Other jurisdictions do not have intersection improvements within the project study area.



Attachment 3 PSRC FAZ Map



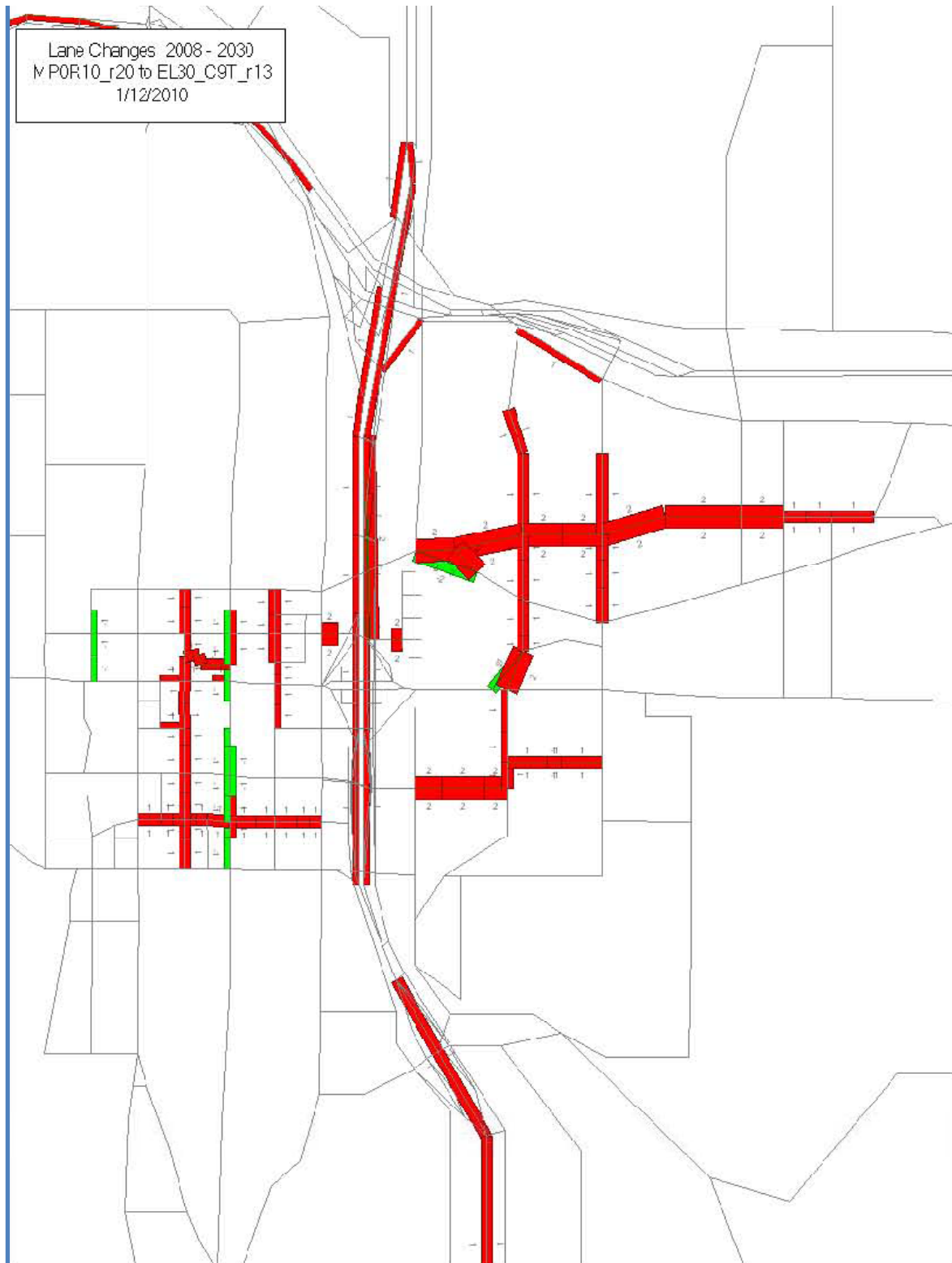
Attachment 4 PSRC FAZ Map with BKR Zones for Downtown Bellevue





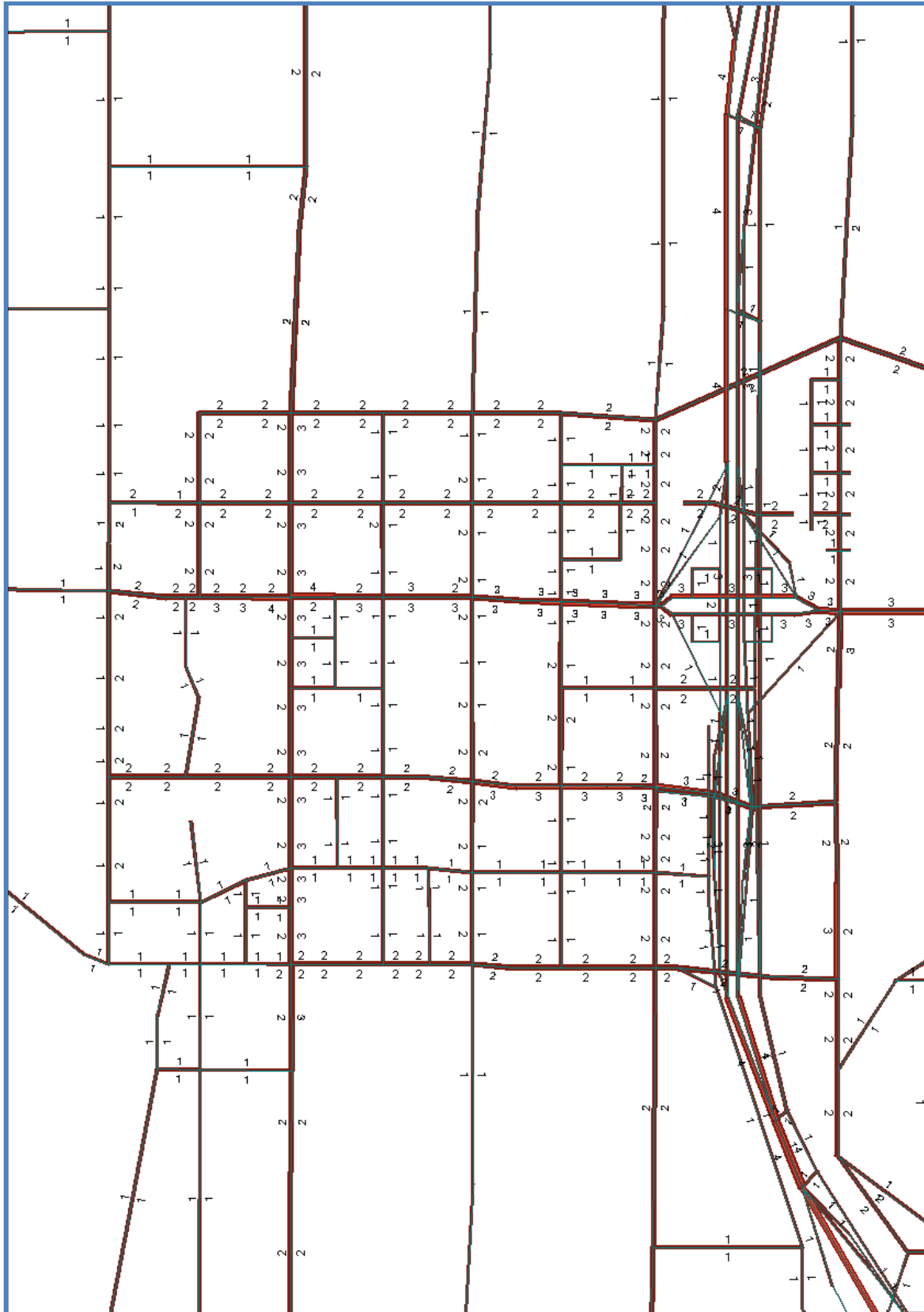
## Attachment 5 Roadway Lane Configuration Changes Downtown Bellevue and Vicinity 2008-2030.

Red (dark grey) lines indicate an increase in the number of lanes, and green (light grey) lines are a reduction in the number of lanes, with the actual change noted by the adjacent number.



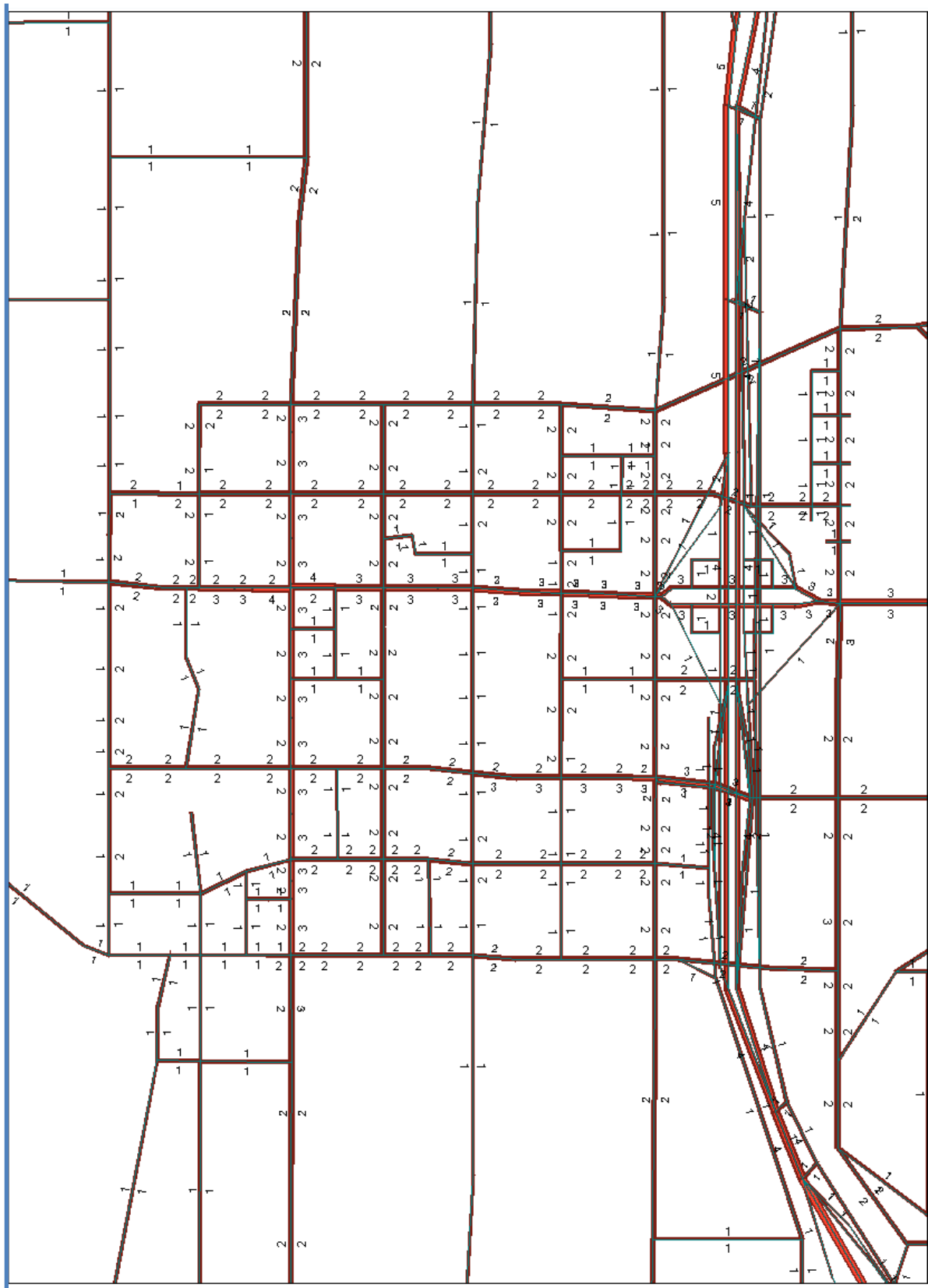
# Attachment 6 Downtown Bellevue Roadway Lane Existing Conditions 2008

The total number of lanes in each direction is indicated by the number adjacent to the roadway link



# Attachment 7 Downtown Bellevue BKR 2030 Roadway Lane Assumptions

The total number of lanes in each direction is indicated by the number adjacent to the roadway link



# Attachment 8 2030 Traffic Volume Alternative C9T



EL30R5 - Eastlink Analysis 2030  
 Scenario 4: EL30 C9T\_r13 PMPK  
 2010-01-20 13:31  
 Transportation Department  
 Modeling and Analysis Group



# Attachment 9 2030 Traffic Volume Alternative C9A

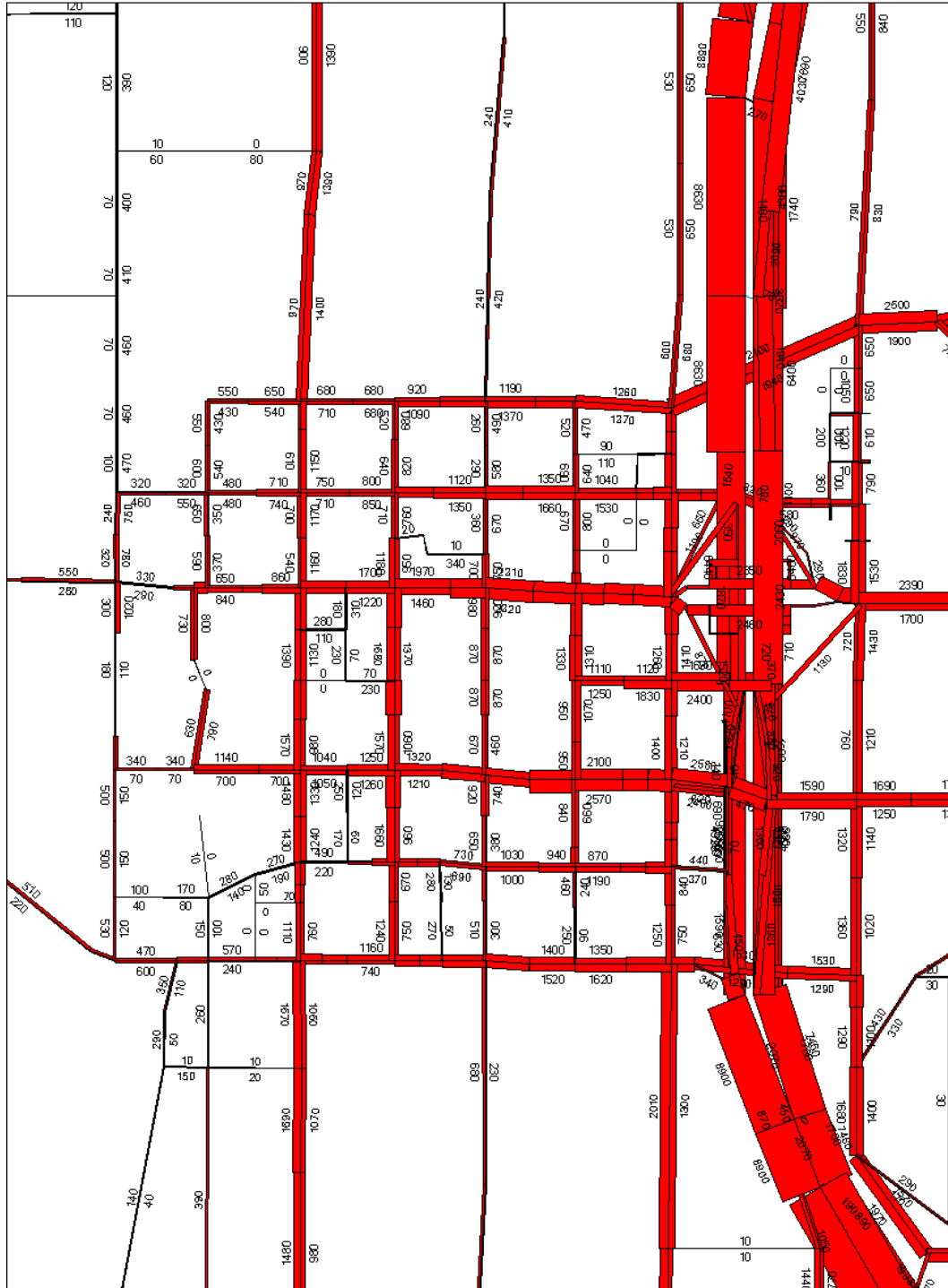


EL30R5 - Eastlink Analysis 2030  
 Scenario 4: EL30 C9A\_r3 PMPK  
 2010-01-20 13:29  
 Transportation Department  
 Modeling and Analysis Group



Attachment 10 2030 Traffic Volume Alternative C11A

PMPK Link Volumes

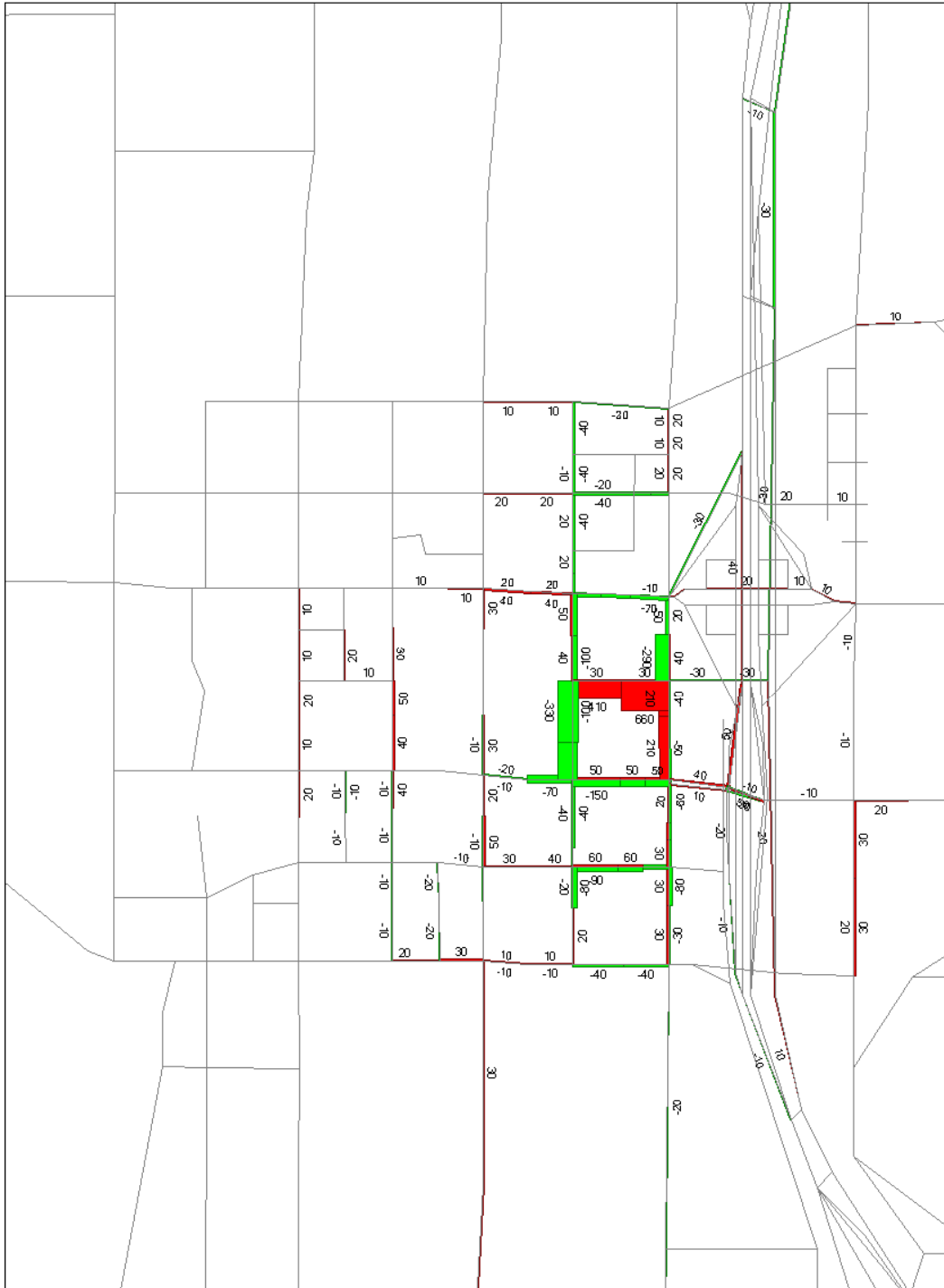


EL30R5 - Eastlink Analysis 2030  
Scenario 4: EL30 C11A\_r4 PMPK  
2010-01-20 13:28  
Transportation Department  
Modeling and Analysis Group



Attachment 11 2030 Traffic Volume Difference C9A – C9T

PMPK Link Volumes - C9A minus C9T [Scen. 4 - 1304]

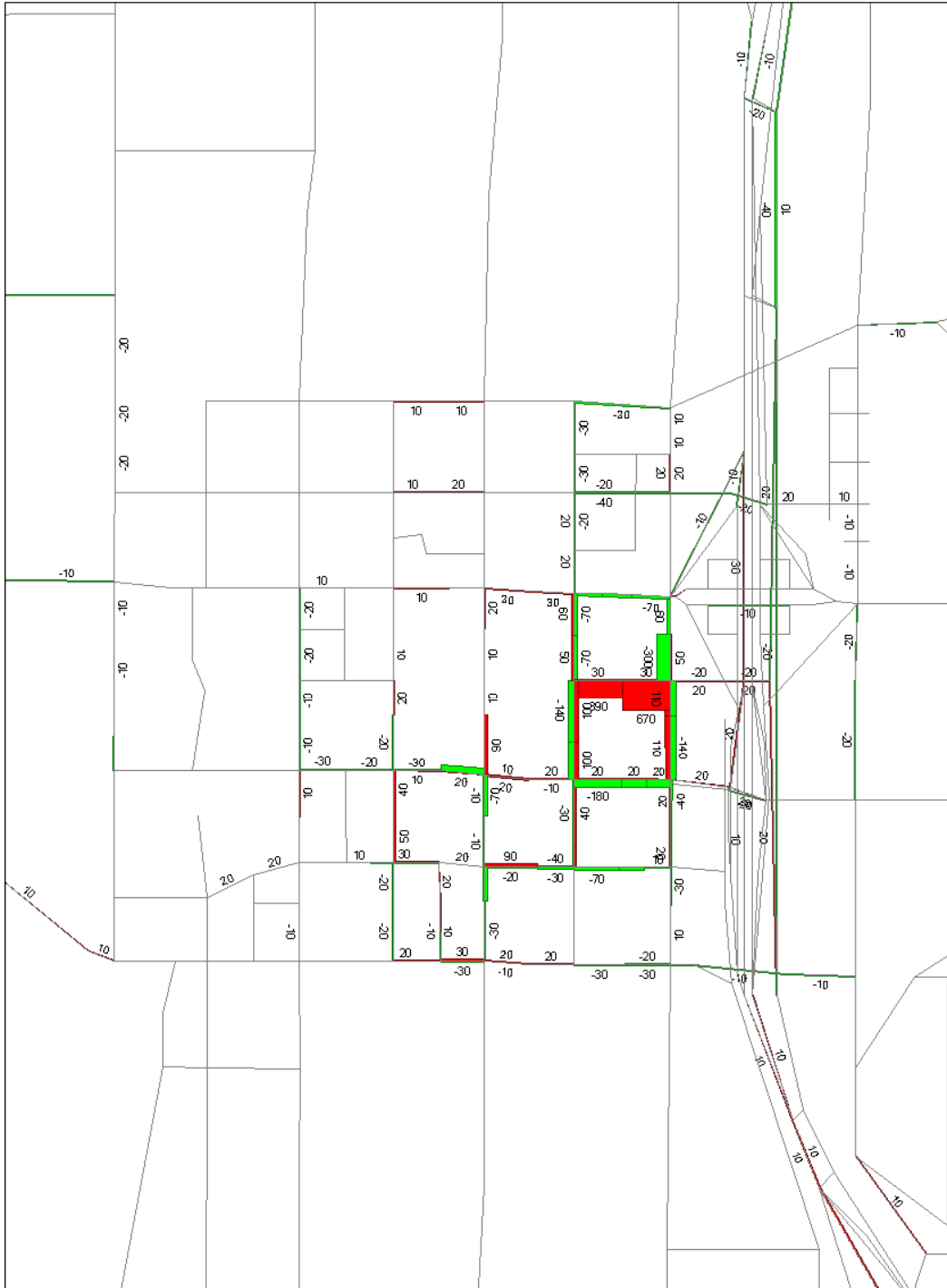


EL30R5 - Eastlink Analysis 2030  
Scenario 4: EL30 C9A\_r3 PMPK  
Scenario 1304: BACKUP PMPK RUN 13 C9T  
2010-01-20 13:30  
Transportation Department  
Modeling and Analysis Group



Attachment 12 2030 Traffic Volume Difference C9A – C9T

PMPK Link Volumes - C11A minus C9T [Scen. 4 - 1304]

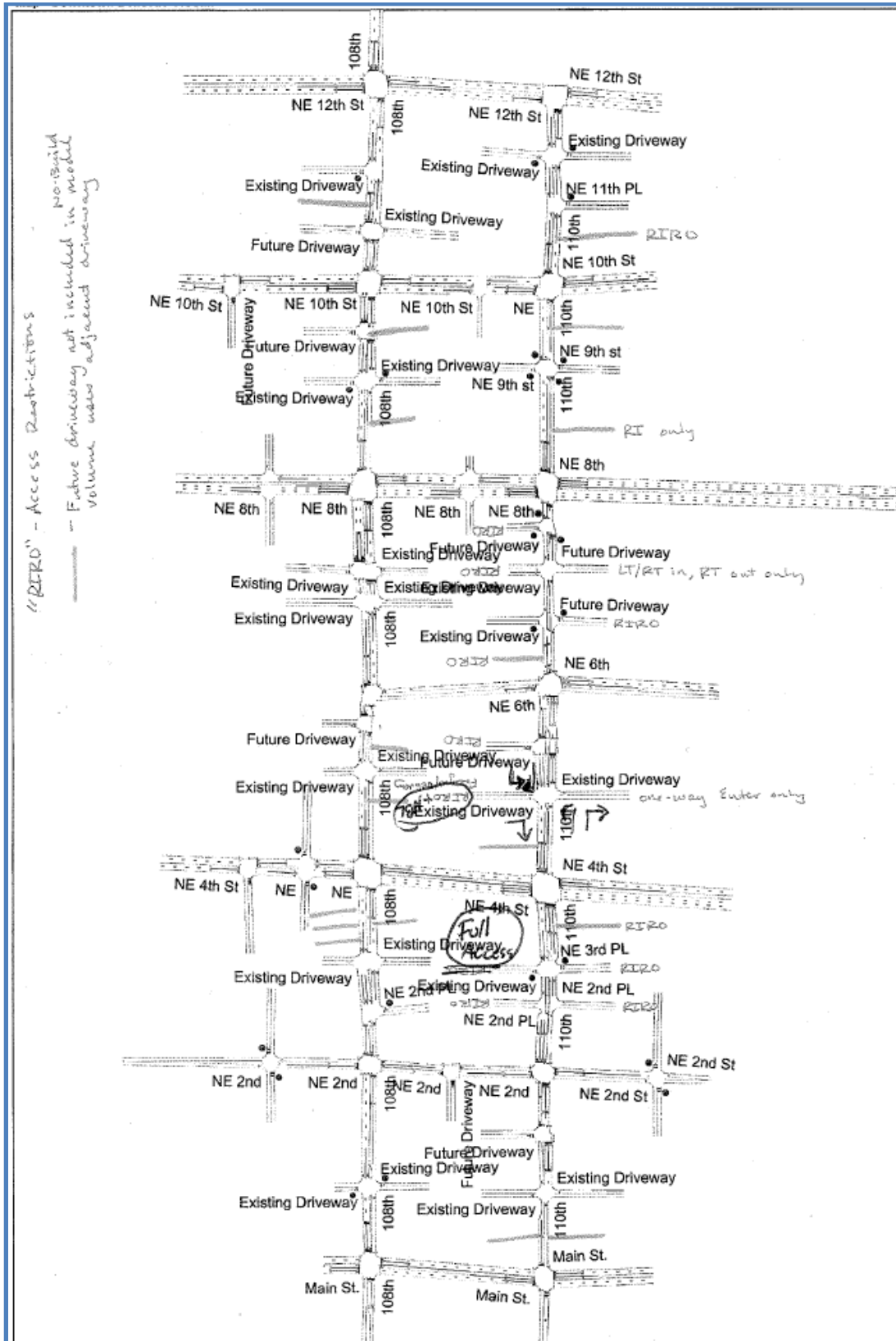


EL30R5 - Eastlink Analysis 2030  
Scenario 4: EL30 C11A\_r4 PMPK  
Scenario 1304: BACKUP PMPK RUN 13 C9T  
2010-01-20 13:27  
Transportation Department  
Modeling and Analysis Group

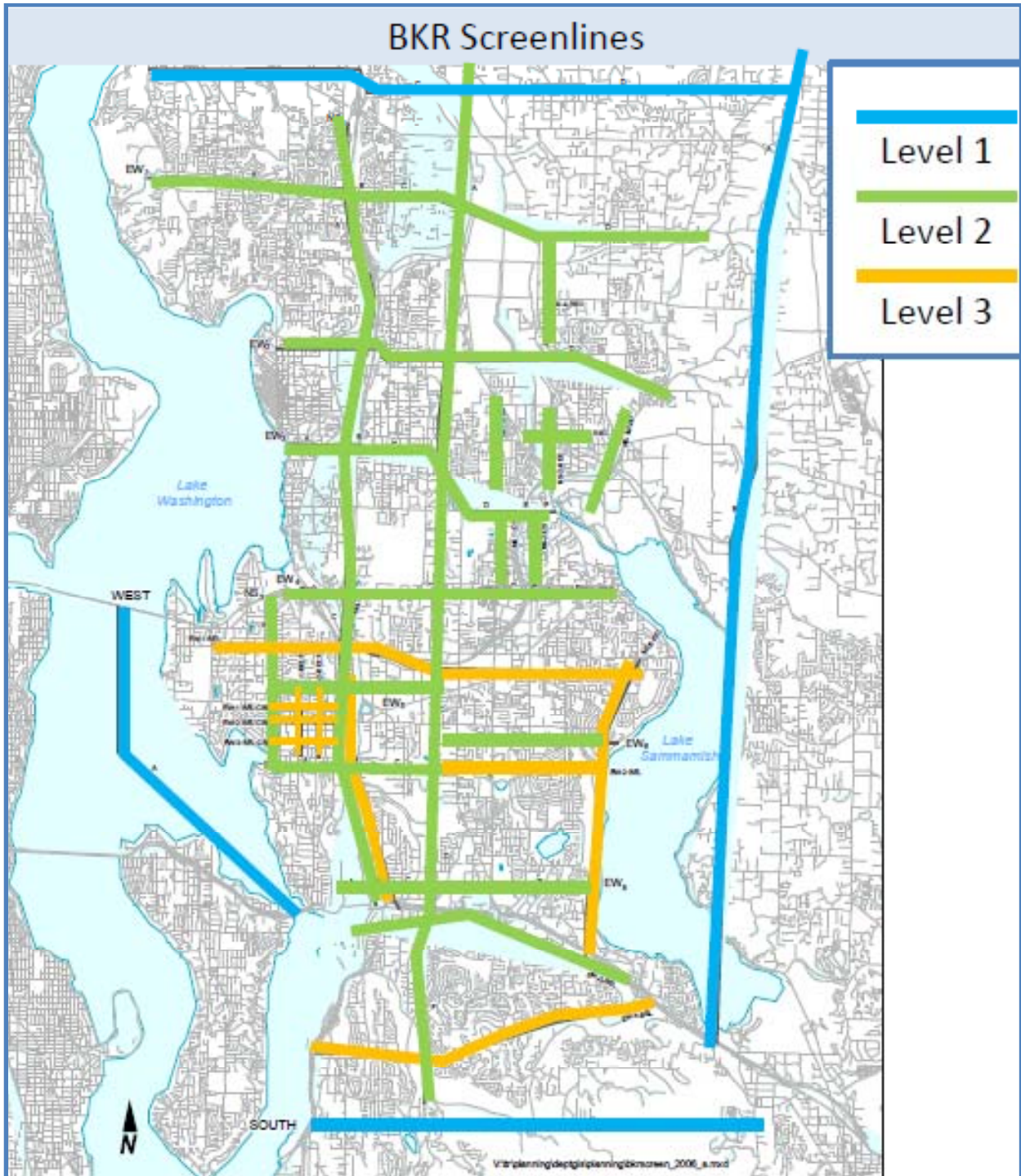




Attachment 13 Downtown Bellevue 2030 "No Build" Driveway Assumptions for the 108<sup>th</sup> Avenue NE and 110<sup>th</sup> Avenue NE Corridors



Attachment 14 BKR Screenline Map



Attachment 15 BKR 2008/2030 Land Use Forecasts

<b>2009 MPO R10 (2008) BKR HHs and Employment by Sector</b>							
<b>Area</b>	<b>HHs</b>	<b>Retail</b>	<b>FIRES</b>	<b>EDU</b>	<b>WTCU</b>	<b>FTE-Uni</b>	<b>Total Employees</b>
Bellevue	55,001	21,354	92,368	2,503	8,700	13,390	<b>126,263</b>
Bel-Fringe	12,609	207	2,707	495	46	0	<b>3,454</b>
Kirkland	24,531	7,098	25,758	1,100	6,408	4,515	<b>40,816</b>
Kirk-Fringe	34,906	2,966	14,856	1,961	6,934	1,280	<b>26,845</b>
Redmond	29,759	7,258	57,034	1,163	15,435	0	<b>80,890</b>
Red-Fringe	12,717	1,529	2,704	517	6,518	0	<b>11,268</b>
<b>Total</b>	<b>169,523</b>	<b>40,412</b>	<b>195,427</b>	<b>7,738</b>	<b>44,041</b>	<b>19,185</b>	<b>289,537</b>
<b>Summary of MF24 Outputs for 2030 LU Data by HHs and Employment</b>							
<b>Area</b>	<b>HHs</b>	<b>Retail</b>	<b>FIRES</b>	<b>EDU</b>	<b>WTCU</b>	<b>FTE-Uni</b>	<b>Total Employees</b>
Bellevue	76,505	34,203	146,092	2,503	17,056	13,390	<b>201,192</b>
Bel-Fringe	9,444	2,092	7,128	495	345	0	<b>10,060</b>
Kirkland	30,772	11,586	33,352	1,100	10,147	4,515	<b>56,637</b>
Kirk-Fringe	37,493	5,621	24,290	1,961	4,768	1,280	<b>36,768</b>
Redmond	40,915	10,036	97,920	660	18,261	0	<b>126,877</b>
Red-Fringe	15,572	4,030	6,930	0	3,262	0	<b>14,222</b>
<b>Total</b>	<b>210,702</b>	<b>67,568</b>	<b>315,713</b>	<b>6,718</b>	<b>53,839</b>	<b>19,185</b>	<b>445,755</b>
<b>% Change 2008/2030</b>	<b>24%</b>	<b>67%</b>	<b>62%</b>	<b>-13%</b>	<b>22%</b>	<b>0%</b>	<b>54%</b>



# **Technical Appendix**

**FHWA Screenline Standard Chart**

**Screenline Map**

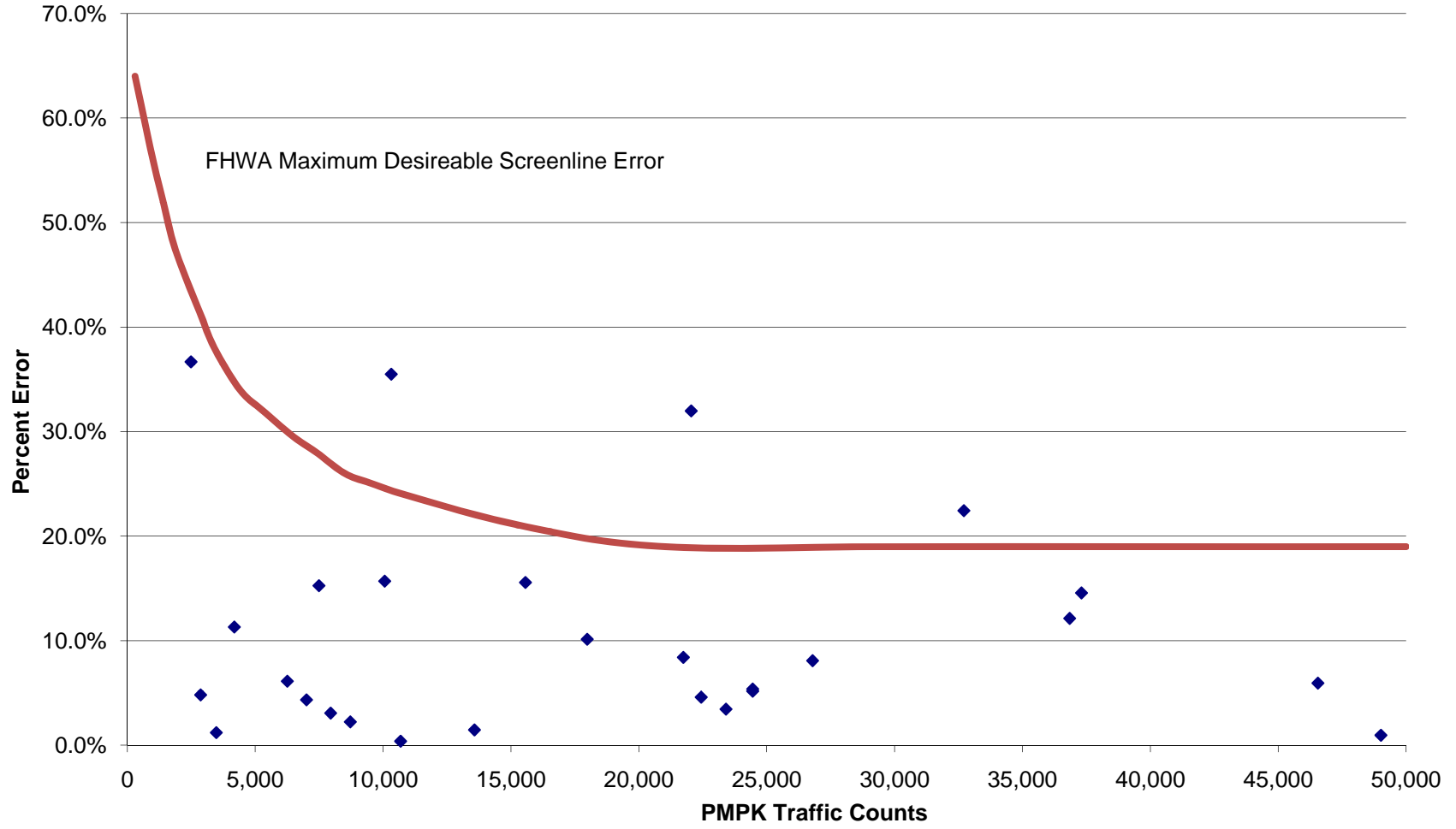
**Screenline Table**

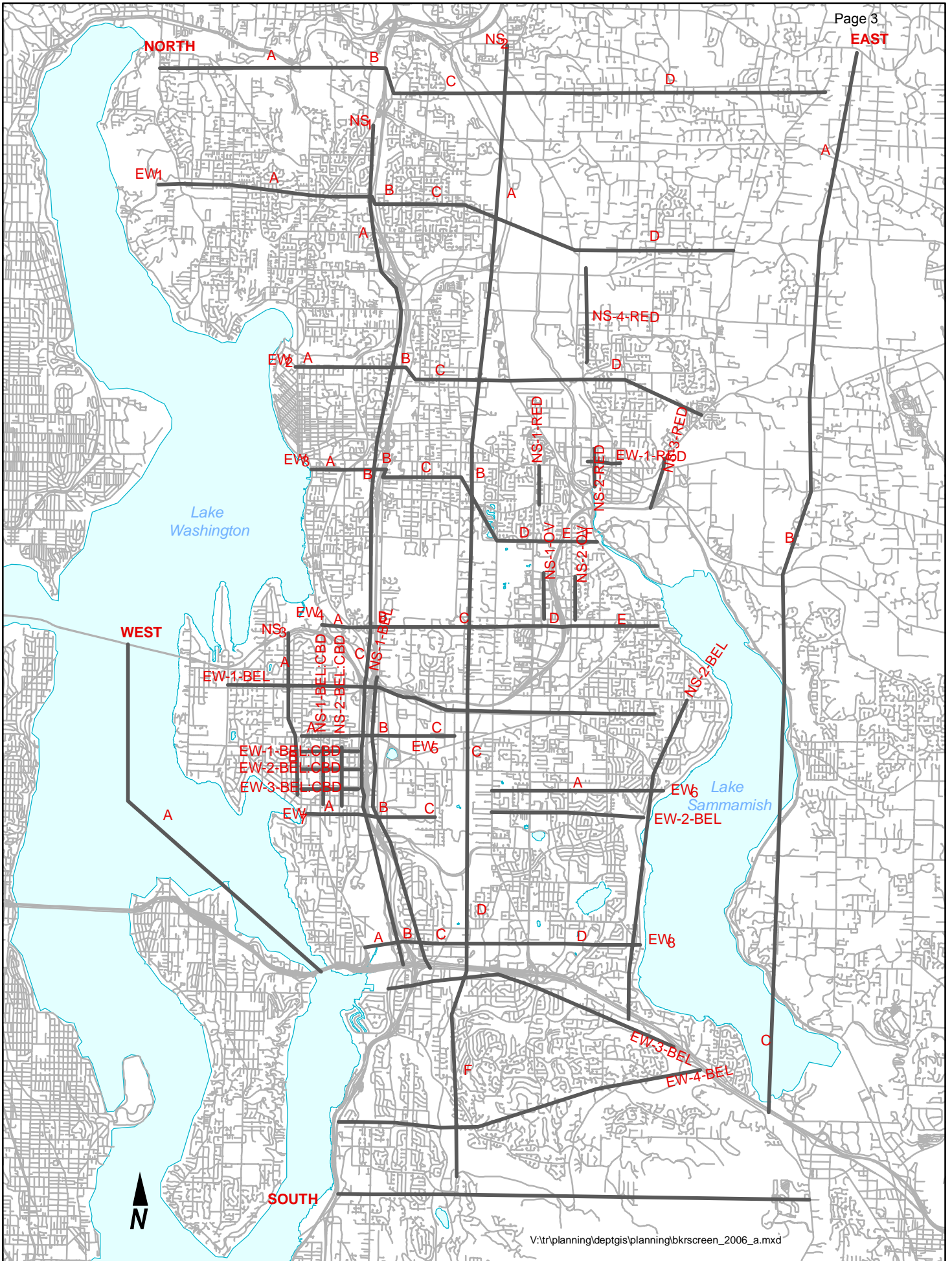
**Trip Length Frequency Curves 4 files**

**Eastlink Bus Integration Transit Routes**

**BKR Model Platform Releases**

### BKR 2008 PMPK Screenline Error





<b>SUMMARY - 1/14/10 2008 Observed Vol &amp; 2008 Model_MP0r10 Vol</b>													
<b>1 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION</b>													
<b>SCENARIO TITLE: 2008 MP0_r10 EMME3 MC VALIDATION SUMMARY</b>													
<b>RUN #21 2008 Observed Vol &amp; 2008 Model_MP0r10 Vol</b>													
<b>10-Feb-10</b>				<b>2008 MP0_r10 EMME3 MC VALIDATION SUMMARY</b>									
			<b>Total</b>			<b>NB/EB</b>			<b>SB/WB</b>				
<b>SL #</b>	<b>LEVEL ONE - Study Area Boundary Screenlines</b>			<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	
1	North Boundary	S/O Bothell Way (SR-522) & Woodinville-Duvall Rd (NE 185th St)			24,452	25,767	1.05	13,775	16,603	1.21	10,677	9,164	0.86
2	South Boundary	S/O SE 69th Way & Newcastle-Coal Creek Rd			15,566	17,989	1.16	7,501	7,120	0.95	8,065	10,869	1.35
3	East Boundary	E/O Avondale Rd, 196th Ave NE & W Lk Samm Pkwy			24,452	23,189	0.95	14,500	15,635	1.08	9,952	7,554	0.76
4	West Boundary	Lake Washington Bridge Crossings - SR-520 & I-90			21,740	23,567	1.08	11,020	11,918	1.08	10,720	11,649	1.09
<b>LEVEL ONE Screenlines Totals</b>				<b>86,210</b>	<b>90,512</b>	<b>1.05</b>	<b>46,796</b>	<b>51,276</b>	<b>1.10</b>	<b>39,414</b>	<b>39,236</b>	<b>1.00</b>	
					Max	1.16	Max		1.21	Max		1.35	
					Median	1.07	Median		1.08	Median		0.97	
					Min	0.95	Min		0.95	Min		0.76	
<b>2 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION</b>													
<b>SCENARIO TITLE: 2008 MP0_r10 EMME3 MC VALIDATION SUMMARY</b>													
<b>RUN #21 2008 Observed Vol &amp; 2008 Model_MP0r10 Vol</b>													
<b>10-Feb-10</b>				<b>2008 MP0_r10 EMME3 MC VALIDATION SUMMARY</b>									
			<b>Total</b>			<b>NB/EB</b>			<b>SB/WB</b>				
<b>SL #</b>	<b>LEVEL TWO - Regional BKR Screenlines</b>			<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	
5	EW-1	N/O NE 132nd St (W/O 405) & NE 124th St (E/O 405)			22,979	27,137	1.18	14,205	18,024	1.27	8,774	9,113	1.04
6	EW-2	N/O Central Way, NE 85th St & NE Redmond Way (SR-908)			26,919	33,656	1.25	16,819	21,727	1.29	10,100	11,929	1.18
7	EW-3	N/O NE 68th St, NE 72nd St, NE 70th St, & NE 51st St			32,707	40,045	1.22	19,088	24,897	1.30	13,619	15,148	1.11
8	EW-4	N/O SR-520 & S/O NE 40th St			37,306	42,740	1.15	21,471	25,530	1.19	15,835	17,210	1.09
9	EW-5-BEL	N/O NE 12th St & Bel-Red Rd			22,048	14,999	0.68	11,129	4,915	0.44	10,919	10,084	0.92
10	EW-6-BEL	S/O NE 8th St & N/O Main St			8,720	8,525	0.98	3,264	3,472	1.06	5,456	5,053	0.93
11	EW-7-BEL	S/O Main St			23,407	24,215	1.03	10,602	10,534	0.99	12,805	13,681	1.07
12	EW-8-BEL	N/O I-90 & Eastgate Way			26,794	28,960	1.08	11,530	12,017	1.04	15,264	16,943	1.11
13	NS-1	W/O I-405			49,015	49,483	1.01	24,151	25,110	1.04	24,864	24,373	0.98
14	NS-2	E/O 132nd Ave NE, Richards Rd, 128th Ave SE & CC Pkwy			46,551	49,315	1.06	22,924	24,847	1.08	23,627	24,468	1.04
15	NS-3-BEL	W/O 100th Ave NE			10,686	10,727	1.00	4,752	4,951	1.04	5,934	5,776	0.97
<b>LEVEL TWO Screenlines Totals</b>				<b>307,132</b>	<b>329,802</b>	<b>1.07</b>	<b>159,935</b>	<b>176,024</b>	<b>1.10</b>	<b>147,197</b>	<b>153,778</b>	<b>1.04</b>	
					Max	1.25	Max		1.30	Max		1.18	
					Median	1.06	Median		1.06	Median		1.04	
					Min	0.68	Min		0.44	Min		0.92	

3 PROJECT TITLE: REDMOND -- GROWTH MANAGEMENT PROJECT											
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY											
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol											
10-Feb-10			2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
			Total			NB/EB			SB/WB		
SL #	LEVEL THREE - CITY Screenlines - REDMOND		08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
16	NS-1-OV	W/O SR-520	3,480	3,522	1.01	1,092	1,739	1.59	2,388	1,783	0.75
17	NS-2-OV	E/O 156th Ave NE	2,490	3,403	1.37	1,297	1,769	1.36	1,193	1,634	1.37
20	EW-1-RED	S/O NE 83rd St	4,184	3,711	0.89	2,218	2,283	1.03	1,966	1,428	0.73
18	NS-1-RED	W/O W LK Sammamish PkWy	3,041	2,993	0.98	1,610	1,824	1.13	1,431	1,169	0.82
19	NS-2-RED	E/O 160th Ave NE	7,304	7,532	1.03	4,549	4,927	1.08	2,755	2,605	0.95
21	NS-3-RED	W/O Avondale Rd NE & SR-520	10,321	13,983	1.35	6,168	8,365	1.36	4,153	5,618	1.35
33	NS-4-RED	E/O Woodinville-Redmond Rd (SR-202)	2,868	2,730	0.95	1,856	1,420	0.77	1,012	1,310	1.29
<b>LEVEL THREE Screenlines Totals</b>			<b>33,688</b>	<b>37,874</b>	<b>1.12</b>	<b>18,790</b>	<b>22,327</b>	<b>1.19</b>	<b>14,898</b>	<b>15,547</b>	<b>1.04</b>
					Max	1.37	Max	1.59	Max	1.37	
					Median	1.02	Median	1.24	Median	0.88	
					Min	0.89	Min	1.03	Min	0.73	
4 PROJECT TITLE: BELLEVUE - TRANSPORTATION MODEL											
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY											
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol											
10-Feb-10			2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
			Total			NB/EB			SB/WB		
SL #	LEVEL THREE - CITY Screenlines - BELLEVUE		08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
22	EW-1-BEL: CBD	S/O NE 12th St	6,257	5,874	0.94	3,213	3,444	1.07	3,044	2,430	0.80
23	EW-2-BEL: CBD	S/O NE 8th St	7,492	8,635	1.15	3,596	4,382	1.22	3,896	4,253	1.09
24	EW-3-BEL: CBD	S/O NE 4th St	7,007	7,311	1.04	3,168	3,319	1.05	3,839	3,992	1.04
25	NS-1-BEL: CBD	E/O Bellevue Way	7,951	7,707	0.97	3,340	3,484	1.04	4,611	4,223	0.92
26	NS-2-BEL: CBD	E/O 108th Ave NE	10,062	11,641	1.16	5,018	6,285	1.25	5,044	5,356	1.06
27	EW-1-BEL	S/O SR-520 & N/O NE 20th St	36,107	31,699	0.88	18,503	13,923	0.75	17,604	17,776	1.01
28	EW-2-BEL	S/O Main St	8,183	7,315	0.89	3,149	2,920	0.93	5,034	4,395	0.87
29	EW-3-BEL	S/O of I-90 & Eastgate	22,437	23,468	1.05	9,632	9,686	1.01	12,805	13,782	1.08
30	EW-4-BEL	N/O SE 60th St	17,981	19,803	1.10	7,917	7,594	0.96	10,064	12,209	1.21
31	NS-1-BEL	E/O I-405	36,845	41,315	1.12	18,038	19,807	1.10	18,807	21,508	1.14
32	NS-2-BEL	W/O SR-901 & W Lk Sammamish PkWy	13,573	13,374	0.99	8,760	8,870	1.01	4,813	4,504	0.94
<b>LEVEL THREE Screenlines Totals</b>			<b>173,895</b>	<b>178,142</b>	<b>1.02</b>	<b>84,334</b>	<b>83,714</b>	<b>0.99</b>	<b>89,561</b>	<b>94,428</b>	<b>1.05</b>
					Max	1.16	Max	1.25	Max	1.21	
					Median	1.04	Median	1.04	Median	1.04	
					Min	0.88	Min	0.75	Min	0.80	



<b>5 PROJECT TITLE:</b>		<b>BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION</b>								
<b>SCENARIO TITLE:</b>		<b>2008 MP0_r10 EMME3 MC VALIDATION SUMMARY</b>								
<b>RUN #21</b>		<b>2008 Observed Vol &amp; 2008 Model_MP0r10 Vol</b>								
<b>10-Feb-10</b>		<b>2008 MP0_r10 EMME3 MC VALIDATION SUMMARY</b>								
		<b>Total</b>			<b>NB/EB</b>			<b>SB/WB</b>		
<b>LEVEL</b>	<b>ALL THREE Screenlines LEVELS - BKR REGION</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>
ONE	STUDY AREA BOUNDARY: NSEW	86,210	90,512	1.05	46,796	51,276	1.10	39,414	39,236	1.00
TWO	BKR: NS & EW	307,132	329,802	1.07	159,935	176,024	1.10	147,197	153,778	1.04
THREE	CITY: REDMOND	33,688	37,874	1.12	18,790	22,327	1.19	14,898	15,547	1.04
THREE	CITY: BELLEVUE	173,895	178,142	1.02	84,334	83,714	0.99	89,561	94,428	1.05
<b>ALL LEVELS</b>	<b>Screenlines Totals</b>	<b>600,925</b>	<b>636,330</b>	<b>1.06</b>	<b>309,855</b>	<b>333,341</b>	<b>1.08</b>	<b>291,070</b>	<b>302,989</b>	<b>1.04</b>
			Max	1.12	Max		1.19	Max		1.05
			Median	1.06	Median		1.10	Median		1.04
			Min	1.02	Min		0.99	Min		1.00
Check	Previous Page Detail	600,925	636,330		309,855	333,341		291,070	302,989	
	Summary - Detail	0	0		0	0		0	0	
	Summary Col Total	2,403,700	2,545,320		1,239,420	1,333,364		1,164,280	1,211,956	
	Divide by 4	600,925	636,330		309,855	333,341		291,070	302,989	
	Row 124 - Row127	0	0		0	0		0	0	

10-Feb-10		2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
I-405 (Freeway) HOV (From North To South)		Total			NB/EB			SB/WB		
LEVEL	ALL THREE Screenlines LEVELS - BKR REGION	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
North Boundary	S/O Bothell Way (SR-522) & Woodinville-Duvall Rd (NE 185th St) 4902 4905	1,920	3,484	1.81	1,220	2,205	1.81	700	1,279	1.83
EW-1	N/O NE 132nd St (W/O 405) & NE 124th St (E/O 405) 4900 4901	2,230	3,341	1.50	1,510	2,116	1.40	720	1,225	1.70
EW-2	N/O Central Way, NE 85th St & NE Redmond Way (SR-908) 4869 4878	2,560	3,947	1.54	1,860	2,426	1.30	700	1,521	2.17
EW-3	N/O NE 68th St, NE 72nd St, NE 70th St, & NE 51st St 4860 4868	2,450	3,497	1.43	1,650	1,987	1.20	800	1,510	1.89
EW-4	N/O SR-520 & S/O NE 40th St 4819 4859	2,120	3,290	1.55	1,270	1,823	1.44	850	1,467	1.73
EW-1-BEL	S/O SR-520 & N/O NE 20th St 4817 4818	2,650	3,173	1.20	1,000	1,788	1.79	1,650	1,385	0.84
EW-7-BEL	S/O Main St 4814 4815	2,610	3,197	1.22	1,030	1,516	1.47	1,580	1,681	1.06
EW-8-BEL	N/O I-90 & Eastgate Way 4812 4100	2,150	3,390	1.58	750	1,427	1.90	1,400	1,963	1.40
EW-3-BEL	S/O of I-90 & Eastgate 4810 4811	2,100	3,196	1.52	760	1,327	1.75	1,340	1,869	1.39
EW-4-BEL	N/O SE 60th St 4807 4808	2,720	3,253	1.20	1,020	1,372	1.35	1,700	1,881	1.11
South Boundary	S/O SE 69th Way & Newcastle-Coal Creek Rd 4807 4808	2,740	3,253	1.19	1,060	1,372	1.29	1,680	1,881	1.12
<b>ALL LEVELS</b>	<b>Screenlines HOV Totals</b>	<b>26,250</b>	<b>37,021</b>	<b>1.41</b>	<b>13,130</b>	<b>19,359</b>	<b>1.47</b>	<b>13,120</b>	<b>17,662</b>	<b>1.35</b>

7 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION										
HOV VALIDATION										
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY										
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol										
10-Feb-10		2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
SR-520 (Freeway) HOV (From West To East)		Total			NB/EB			SB/WB		
LEVEL	ALL THREE Screenlines LEVELS - BKR REGION	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
West Boundary	Lake Washington Bridge Crossings - SR-520 0 0	0	0	0.00	0	0	0.00	0	0	0.00
NS-3-BEL	W/O 100th Ave NE 4911 4910	770	741	0.96	0	0	0.00	770	741	0.96
NS-1	W/O I-405 4090 4091	580	746	1.29	0	0	0.00	580	746	1.29
NS-1-BEL	E/O I-405 4093 4094	480	2,308	4.81	480	1,127	2.35	0	1,181	0.00
NS-2	E/O 132nd Ave NE, Richards Rd, 128th Ave SE & CC Pkwy 4094 4096	1,740	0	0.00	510	0	0.00	1,230	0	0.00
EW-4	N/O SR-520 & S/O NE 40th St 4098 4099	1,430	1,384	0.97	510	540	1.06	920	844	0.92
EW-3	N/O NE 68th St, NE 72nd St, NE 70th St, & NE 51st St 4171 7743	870	516	0.59	0	0	0.00	870	516	0.59
<b>ALL LEVELS</b>	<b>Screenlines HOV Totals</b>	<b>5,870</b>	<b>5,695</b>	<b>0.97</b>	<b>1,500</b>	<b>1,667</b>	<b>1.11</b>	<b>4,370</b>	<b>4,028</b>	<b>0.92</b>

8 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION										
HOV VALIDATION										
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY										
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol										
10-Feb-10		2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
LEVEL	I-90 (Freeway) HOV (From West To East) ALL THREE Screenlines LEVELS - BKR REGION	Total			NB/EB			SB/WB		
		08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
West Boundary	Lake Washington Bridge Crossings I-90	4580	4253	2.69	550	1,478	2.69	0	0	0.00
		4252	4264	1.03	620	76	0.12	760	1,343	1.77
NS-1	W/O I-405	4264	4265	1.38	620	712	1.15	600	969	1.62
NS-1-BEL	E/O I-405	4266	4267	3.09	470	1,396	2.97	280	922	3.29
NS-2	E/O 132nd Ave NE, Richards Rd, 128th Ave SE & CC Pkwy	4267	4268	3.09	470	1,396	2.97	280	922	3.29
NS-2-BEL	W/O SR-901 & W Lk Sammamish Pkwy	4280	4270	1.96	710	1,509	2.13	330	532	1.61
East Boundary	E/O Avondale Rd, 196th Ave NE & W Lk Samm Pkwy	4271	4272	1.35	1,000	1,441	1.44	360	401	1.11
<b>ALL LEVELS</b>	<b>Screenlines HOV Totals</b>	<b>7,050</b>	<b>13,097</b>	<b>1.86</b>	<b>4,440</b>	<b>8,008</b>	<b>1.80</b>	<b>2,610</b>	<b>5,089</b>	<b>1.95</b>

9 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION										
HOV VALIDATION										
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY										
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol										
10-Feb-10		2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
LEVEL	ALL THREE Screenlines LEVELS - BKR REGION	Total			NB/EB			SB/WB		
		08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
	I-405 (Freeway) HOV	26,250	37,021	1.41	13,130	19,359	1.47	13,120	17,662	1.35
	SR-520 (Freeway) HOV	5,870	5,695	0.97	1,500	1,667	1.11	4,370	4,028	0.92
	I-90 (Freeway) HOV	7,050	13,097	1.86	4,440	8,008	1.80	2,610	5,089	1.95
<b>ALL LEVELS</b>	<b>Screenlines Totals</b>	<b>39,170</b>	<b>55,813</b>	<b>1.42</b>	<b>19,070</b>	<b>29,034</b>	<b>1.52</b>	<b>20,100</b>	<b>26,779</b>	<b>1.33</b>

10 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION										
HOV VALIDATION										
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY										
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol										
10-Feb-10		2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
I-405 (Freeway) GP (From North To South)		Total			NB/EB			SB/WB		
LEVEL	ALL THREE Screenlines LEVELS - BKR REGION	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
North Boundary	S/O Bothell Way (SR-522) & Woodinville-Duvall Rd (NE 185th St) 6757 3136	10,890	11,706	1.07	6,110	7,135	1.17	4,780	4,571	0.96
EW-1	N/O NE 132nd St (W/O 405) & NE 124th St (E/O 405) 6776 6756	10,260	11,632	1.13	5,820	7,018	1.21	4,440	4,614	1.04
EW-2	N/O Central Way, NE 85th St & NE Redmond Way (SR-908) 5522 6759	10,950	13,239	1.21	5,810	7,850	1.35	5,140	5,389	1.05
EW-3	N/O NE 68th St, NE 72nd St, NE 70th St, & NE 51st St 6719 6730	10,650	13,281	1.25	5,280	8,013	1.52	5,370	5,268	0.98
EW-4	N/O SR-520 & S/O NE 40th St 5191 5640	11,880	13,593	1.14	6,520	8,097	1.24	5,360	5,496	1.03
EW-1-BEL	S/O SR-520 & N/O NE 20th St 5250 5214	11,790	6,609	0.56	6,090	0	0.00	5,700	6,609	1.16
EW-7-BEL	S/O Main St 5283 5645	11,790	12,692	1.08	6,090	5,914	0.97	5,700	6,778	1.19
EW-8-BEL	N/O I-90 & Eastgate Way 5305 3389	11,580	12,235	1.06	5,890	5,457	0.93	5,690	6,778	1.19
EW-3-BEL	S/O of I-90 & Eastgate 6112 5319	10,260	10,483	1.02	4,910	4,522	0.92	5,350	5,961	1.11
EW-4-BEL	N/O SE 60th St 3106 3107	7,600	8,025	1.06	3,870	3,609	0.93	3,730	4,416	1.18
South Boundary	S/O SE 69th Way & Newcastle-Coal Creek Rd 3106 3107	7,540	8,025	1.06	3,810	3,609	0.95	3,730	4,416	1.18
<b>ALL LEVELS</b>	<b>Screenlines GP Totals</b>	<b>115,190</b>	<b>121,520</b>	<b>1.05</b>	<b>60,200</b>	<b>61,224</b>	<b>1.02</b>	<b>54,990</b>	<b>60,296</b>	<b>1.10</b>

11 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION										
HOV VALIDATION										
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY										
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol										
-----										
10-Feb-10		2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
SR-520 (Freeway) GP		Total			NB/EB			SB/WB		
(From West To East)										
LEVEL ALL THREE Screenlines LEVELS - BKR REGION		08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
-----										
West Boundary	Lake Washington Bridge Crossings - SR-520									
	3999 5112	7,630	8,541	1.12	3,780	4,003	1.06	3,850	4,538	1.18
NS-3-BEL	W/O 100th Ave NE									
	5137 5145	7,440	7,780	1.05	3,800	4,081	1.07	3,640	3,699	1.02
NS-1	W/O I-405									
	5178 5185	8,280	8,315	1.00	4,120	4,917	1.19	4,160	3,398	0.82
NS-1-BEL	E/O I-405									
	5207 5218	9,820	8,770	0.89	4,640	3,943	0.85	5,180	4,827	0.93
NS-2	E/O 132nd Ave NE, Richards Rd, 128th Ave SE & CC Pkwy									
	3129 3130	6,150	7,420	1.21	3,190	3,682	1.15	2,960	3,738	1.26
EW-4	N/O SR-520 & S/O NE 40th St									
	5238 7310	5,460	7,743	1.42	2,710	3,970	1.46	2,750	3,773	1.37
EW-3	N/O NE 68th St, NE 72nd St, NE 70th St, & NE 51st St									
	5230 7743	6,350	9,898	1.56	3,930	5,922	1.51	2,420	3,976	1.64
<b>ALL LEVELS</b>										
<b>Screenlines GP Totals</b>		<b>51,130</b>	<b>58,467</b>	<b>1.14</b>	<b>26,170</b>	<b>30,518</b>	<b>1.17</b>	<b>24,960</b>	<b>27,949</b>	<b>1.12</b>
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12 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION										
HOV VALIDATION										
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY										
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol										
10-Feb-10		2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
I-90 (Freeway) GP (From West To East)		Total			NB/EB			SB/WB		
LEVEL	ALL THREE Screenlines LEVELS - BKR REGION	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
West Boundary	Lake Washington Bridge Crossings - SR-520 & I-90	5366	5382	1.05	6,070	6,361	1.05	0	0	0.00
		3421	5368	0.94	6,110	5,768	0.94	0	0	0.00
NS-1	W/O I-405	5377	5297	0.77	10,480	8,119	0.77	6,070	4,652	0.77
NS-1-BEL	E/O I-405	5312	3116	0.94	11,930	11,234	0.94	6,500	6,470	1.00
NS-2	E/O 132nd Ave NE, Richards Rd, 128th Ave SE & CC Pkwy	3116	5325	0.94	11,930	11,234	0.94	6,500	6,470	1.00
NS-2-BEL	W/O SR-901 & W Lk Sammamish Pkwy	5348	6205	0.92	10,290	9,460	0.92	6,580	5,938	0.90
East Boundary	E/O Avondale Rd, 196th Ave NE & W Lk Samm Pkwy	6226	3119	0.93	9,460	8,819	0.93	5,860	5,565	0.95
<b>ALL LEVELS</b>	<b>Screenlines GP Totals</b>	<b>66,270</b>	<b>60,995</b>	<b>0.92</b>	<b>37,580</b>	<b>35,456</b>	<b>0.94</b>	<b>28,690</b>	<b>25,539</b>	<b>0.89</b>

13 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION										
HOV VALIDATION										
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY										
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol										
10-Feb-10		2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
		Total			NB/EB			SB/WB		
LEVEL	ALL THREE Screenlines LEVELS - BKR REGION	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
	I-405 (Freeway) GP	115,190	121,520	1.05	60,200	61,224	1.02	54,990	60,296	1.10
	SR-520 (Freeway) GP	51,130	58,467	1.14	26,170	30,518	1.17	24,960	27,949	1.12
	I-90 (Freeway) GP	66,270	60,995	0.92	37,580	35,456	0.94	28,690	25,539	0.89
<b>ALL LEVELS</b>	<b>Screenlines Totals</b>	<b>232,590</b>	<b>240,982</b>	<b>1.04</b>	<b>123,950</b>	<b>127,198</b>	<b>1.03</b>	<b>108,640</b>	<b>113,784</b>	<b>1.05</b>

14 PROJECT TITLE: BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION										
HOV VALIDATION										
SCENARIO TITLE: 2008 MP0_r10 EMM3 MC VALIDATION SUMMARY										
RUN #21 2008 Observed Vol & 2008 Model_MP0r10 Vol										
10-Feb-10		2008 MP0_r10 EMM3 MC VALIDATION SUMMARY								
		Total			NB/EB			SB/WB		
LEVEL	ALL THREE Screenlines LEVELS - BKR REGION	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act	08_Act	08_Mod	Mod/Act
	I-405 (Freeway) GP + HOV	141,440	158,541	1.12	73,330	80,583	1.10	68,110	77,958	1.14
	SR-520 (Freeway) GP + HOV	57,000	64,162	1.13	27,670	32,185	1.16	29,330	31,977	1.09
	I-90 (Freeway) GP + HOV	73,320	74,092	1.01	42,020	43,464	1.03	31,300	30,628	0.98
ALL LEVELS	Screenlines Totals	271,760	296,795	1.09	143,020	156,232	1.09	128,740	140,563	1.09

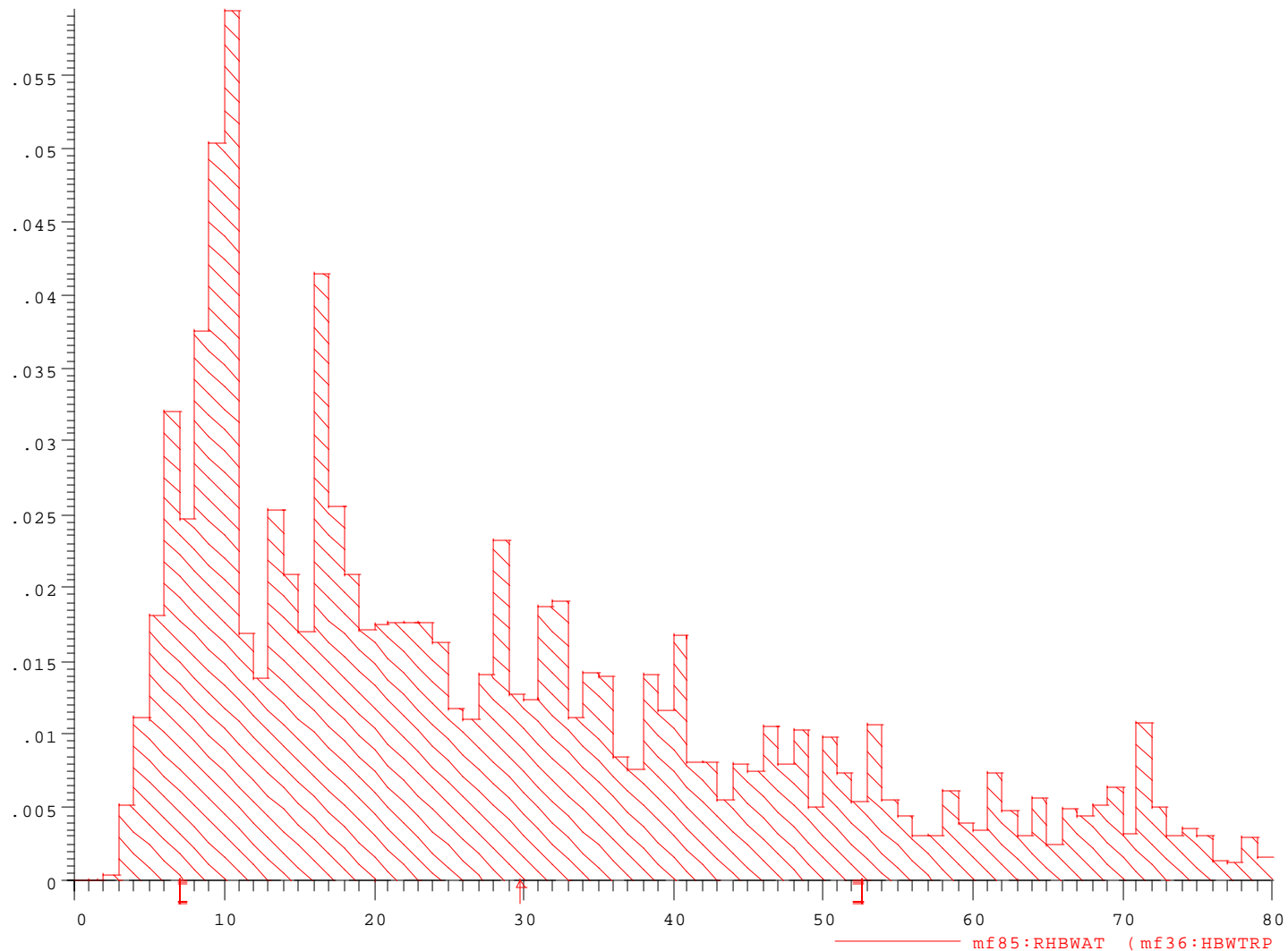


<b>15 PROJECT TITLE:</b>		<b>BELLEVUE - TRANSPORTATION MODEL</b>								
<b>SCENARIO TITLE:</b>		<b>2008 MP0_r10 EMM3 MC VALIDATION SUMMARY</b>								
<b>RUN #21</b>		<b>2008 Observed Vol &amp; 2008 Model_MP0r10 Vol</b>								
<b>10-Feb-10</b>		<b>2008 MP0_r10 EMM3 MC VALIDATION SUMMARY</b>								
		<b>Total</b>			<b>NB/EB</b>			<b>SB/WB</b>		
<b>SL #</b>	<b>LEVEL THREE - CITY Screenlines - Redmond / Overlake</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>
34	1-EW-Redmond S/O Old Redmond Road	13,717	18,756	1.37	8,092	11,677	1.44	5,625	7,079	1.26
35	2-EW-Redmond N/O NE 40th Street	15,756	17,869	1.13	9,477	10,801	1.14	6,279	7,068	1.13
36	3-EW-Redmond N/O NE 24th Street	13,553	17,266	1.27	5,914	8,634	1.46	7,639	8,632	1.13
37	4-EW-Redmond S/O NE 24th Street	3,473	3,522	1.01	1,452	1,701	1.17	2,021	1,821	0.90
38	5-NS-Redmond W/O 140th Ave NE	4,929	4,617	0.94	2,079	2,035	0.98	2,850	2,582	0.91
39	6-NS-Redmond E/O 148th Ave NE	3,041	2,993	0.98	1,610	1,824	1.13	1,431	1,169	0.82
40	7-NS-Redmond W/O 148th Ave NE	12,809	14,988	1.17	5,990	7,139	1.19	6,819	7,849	1.15
41	8-NS-Redmond E/O 148th Ave NE	4,055	3,802	0.94	1,209	1,759	1.45	2,846	2,043	0.72
42	9-NS-Redmond E/O 156th Ave NE	4,155	6,980	1.68	1,638	3,200	1.95	2,517	3,780	1.50
<b>LEVEL THREE Screenlines Totals</b>		<b>75,488</b>	<b>90,793</b>	<b>1.20</b>	<b>37,461</b>	<b>48,770</b>	<b>1.30</b>	<b>38,027</b>	<b>42,023</b>	<b>1.11</b>
				Max 1.68			Max 1.95			Max 1.50
				Median 1.13			Median 1.19			Median 1.11
				Min 0.00			Min 0.00			Min 0.00
<b>15 PROJECT TITLE:</b>		<b>BELLEVUE-KIRKLAND-REDMOND TRANSPORTATION MODEL VALIDATION</b>								
<b>SCENARIO TITLE:</b>		<b>2008 MP0_r10 EMM3 MC VALIDATION SUMMARY</b>								
<b>RUN #21</b>		<b>2008 Observed Vol &amp; 2008 Model_MP0r10 Vol</b>								
<b>10-Feb-10</b>		<b>2008 MP0_r10 EMM3 MC VALIDATION SUMMARY</b>								
		<b>Total</b>			<b>NB/EB</b>			<b>SB/WB</b>		
<b>LEVEL</b>	<b>ALL THREE Screenlines LEVELS - BKR REGION</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>	<b>08_Act</b>	<b>08_Mod</b>	<b>Mod/Act</b>
<b>ONE</b>	<b>STUDY AREA BOUNDARY: NSEW</b>	86,210	90,512	1.05	46,796	51,276	1.10	39,414	39,236	1.00
<b>TWO</b>	<b>BKR: NS &amp; EW</b>	307,132	329,802	1.07	159,935	176,024	1.10	147,197	153,778	1.04
<b>THREE</b>	<b>CITY: REDMOND</b>	33,688	37,874	1.12	18,790	22,327	1.19	14,898	15,547	1.04
<b>THREE</b>	<b>CITY: REDMOND &amp; Overlake (new)</b>	75,488	90,793	1.20	37,461	48,770	1.30	38,027	42,023	1.11
<b>THREE</b>	<b>CITY: BELLEVUE</b>	173,895	178,142	1.02	84,334	83,714	0.99	89,561	94,428	1.05
<b>ALL LEVELS Screenlines Totals</b>		<b>676,413</b>	<b>727,123</b>	<b>1.07</b>	<b>347,316</b>	<b>382,111</b>	<b>1.10</b>	<b>329,097</b>	<b>345,012</b>	<b>1.05</b>

*emme/2*

HISTOGRAM OF MF85:RHBWAT (MF36:HBWTRP )  
 DENSITY (PERCENT )

FREQUENCY



mf85: RHBWAT  
 WEIGHT  
 mf36: HBWTRP  
 OUT OF RANGE  
 ABOVE: .040975  
 MEAN:29.840217  
 STD: 22.776809

EMME/2 PROJECT: MP0\_R10 2008 Base Year 850 zone BKR Multimodal Model  
 MATRIX mf85: RHBWAT Rounded AM auto time for HBW  
 MATRIX mf36: HBWTRP HBW Trip Table

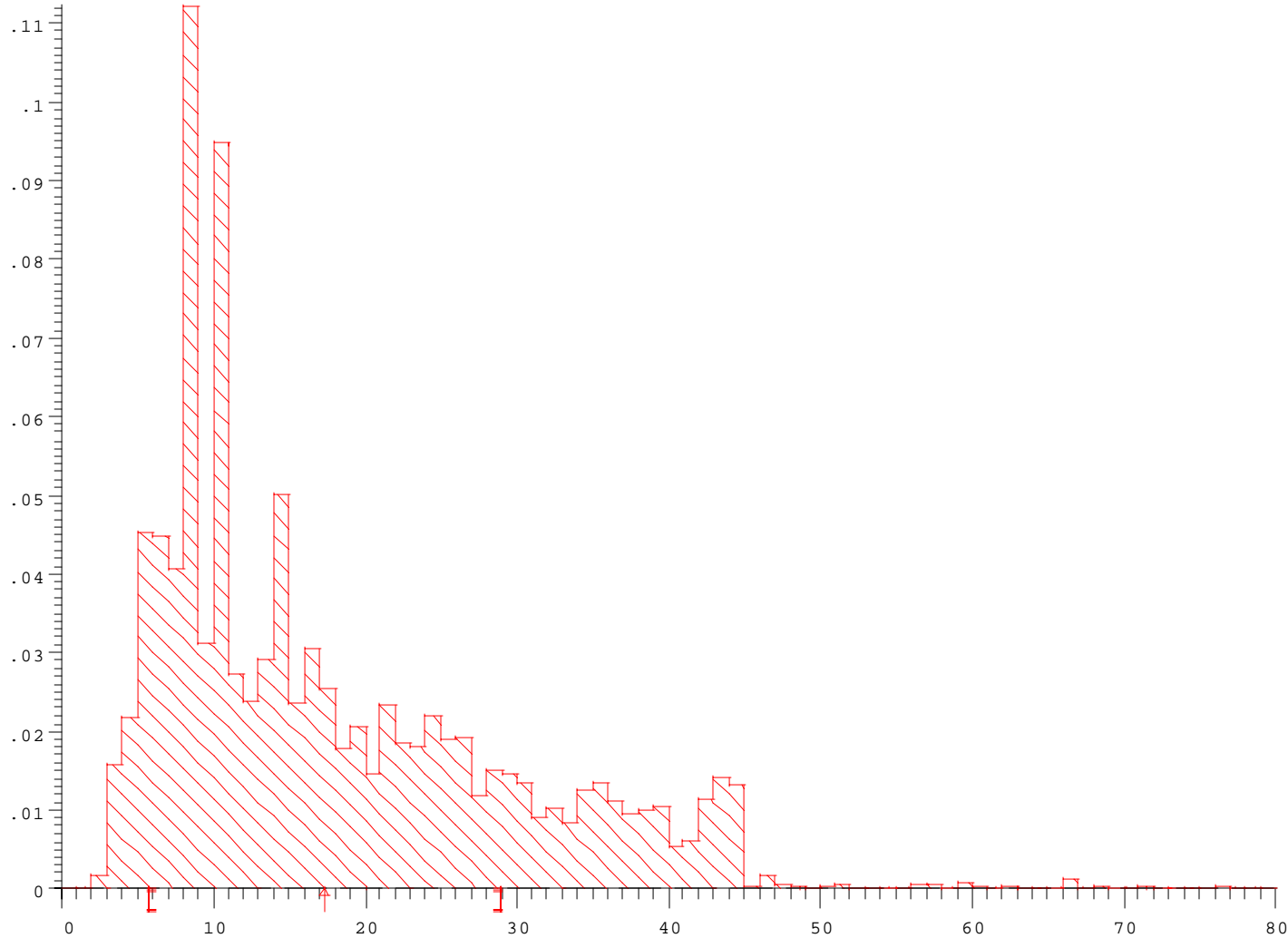
10-01-19 14:10  
 MODULE: 3.16  
 BLVU.....COB

*emme/2*

HISTOGRAM OF MF77:RHBOAT (MF37:HBOTRP )

DENSITY (PERCENT )

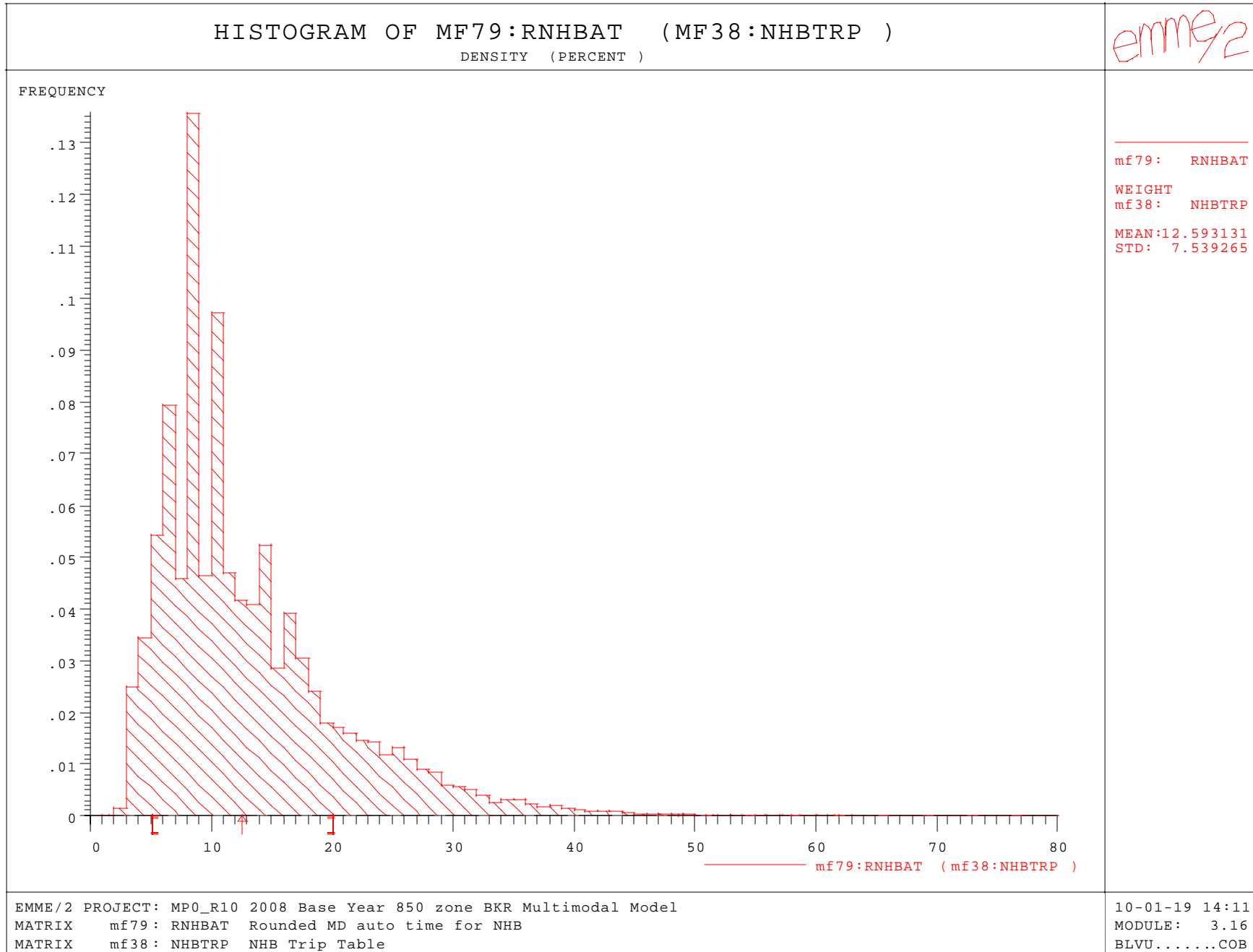
FREQUENCY



mf77:RHBOAT (mf37:HBOTRP )

EMME/2 PROJECT: MP0\_R10 2008 Base Year 850 zone BKR Multimodal Model  
 MATRIX mf77: RHBOAT Rounded MD auto time for HBO  
 MATRIX mf37: HBOTRP HBO Trip Table

10-01-19 14:09  
 MODULE: 3.16  
 BLVU.....COB

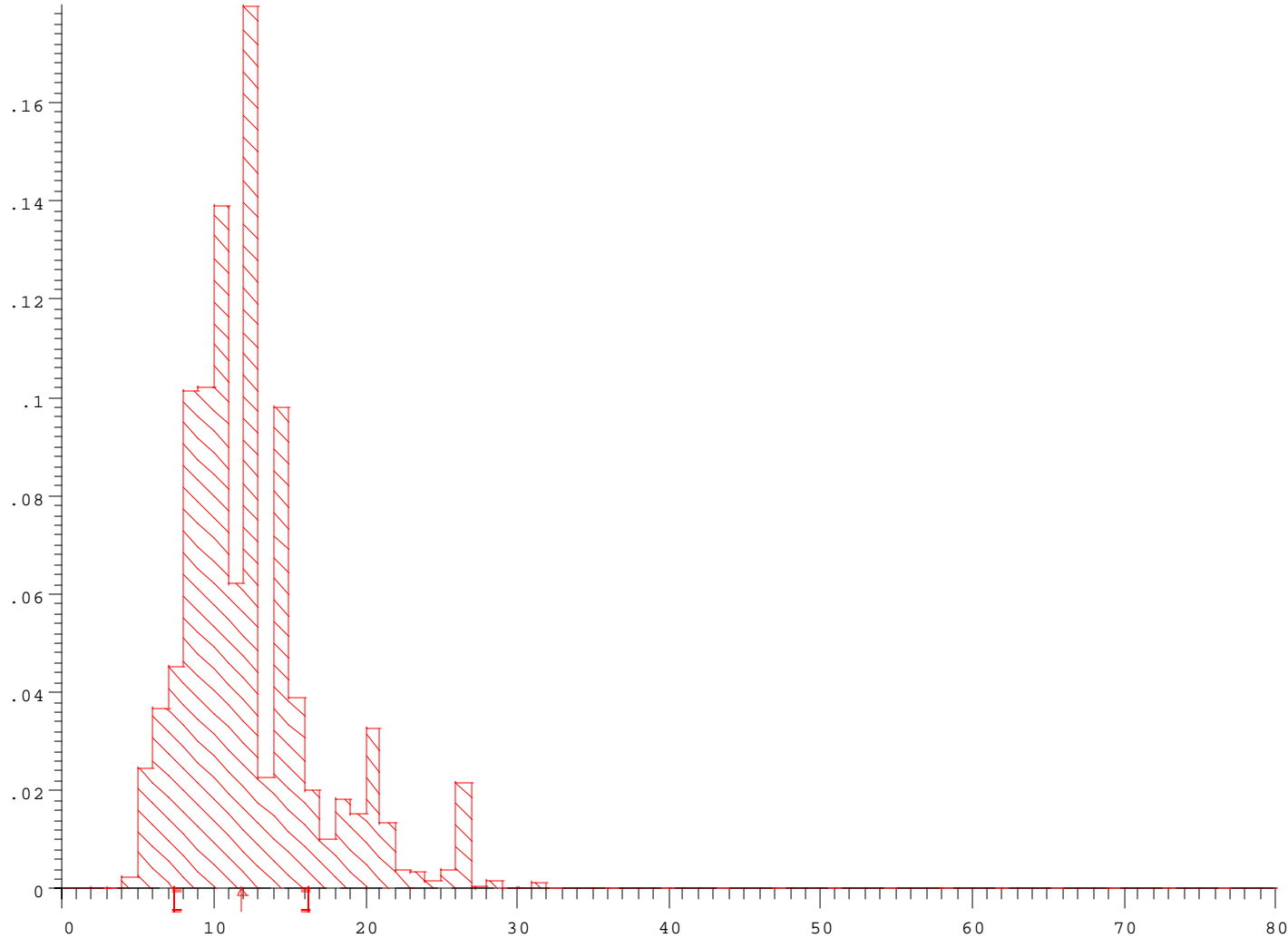


*emme/2*

HISTOGRAM OF MF80:RSCHAT (MF39:HBSTRP )

DENSITY (PERCENT )

FREQUENCY



mf80: RSCHAT  
 WEIGHT  
 mf39: HBSTRP  
 MEAN:11.882375  
 STD: 4.453463

mf80:RSCHAT (mf39:HBSTRP )

EMME/2 PROJECT: MP0\_R10 2008 Base Year 850 zone BKR Multimodal Model  
 MATRIX mf80: RSCHAT Rounded AM auto time for SCH  
 MATRIX mf39: HBSTRP HBSc Trip Table

10-01-19 14:12  
 MODULE: 3.16  
 BLVU.....COB



Route	No-Build / Build	Align	Term	2020 Headways			2030 Headways			2020 Headways Equilibrated			2030 Headways Equilibrated			Route Description	Path Changes	Comments	Link Stations																										
				Peak 3	Rev 3	Midd ay	Peak 3	Rev 3	Midd ay	Peak 3	Rev 3	Midd ay	Peak 3	Rev 3	Midd ay				Peak 3	Rev 3	Midd ay	Rainier	Mercer Is	S Bellevue	SE 8th	18th	East Main	Old Bellevue	BTC	Ashwood / Hospital	Hospital	122nd	130th	Overlake Village	OTC	Redmond Town Ctr.	SE Redmond	Redmond P&R							
214.5	Build	Rep	Full	30	--	--	30	--	--	30	--	--	30	--	--	North Bend - Seattle CBD	Same as No-Build		X																										
216	No-Build			30	--	--	25	--	--	30	--	--	25	--	--	Samm - Seattle CBD	No change																												
216	Build	Rep	Full	30	--	--	25	--	--	30	--	--	25	--	--	Samm - Seattle CBD	Same as No-Build		X	X																									
217	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Issaquah - Seattle CBD	Delete																												
217	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Issaquah - Seattle CBD	Same as No-Build - Delete	Delete and merge into expanded Route 212																											
218	No-Build			12	--	--	10	--	--	15	--	--	15	--	--	Issq Highlds - Seattle CBD	No change																												
218	Build	Rep	Full	12	--	--	10	--	--	15	--	--	15	--	--	Issq Highlds - Seattle CBD	Same as No-Build		X																										
219	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Newcastle DART	Demand-responsive																												
219	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Newcastle DART	Same as No-Build	local service; design could change																											
220	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Redmond - Bellevue	Delete	Planned for February 2008																											
220	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Redmond - Bellevue	Same as No-Build - Delete																												
221	No-Build			15	15	15	15	15	15	15	15	15	15	15	15	Redmond - Eastgate	Route 221 will be revised to connect Education Hill and Eastgate via the Redmond TC, Overlake TC, 148th Avenue NE and SE, and BCC. Education Hill would be served via a one-way loop and all layover taken at the Redmond TC. The clockwise loop would be: 166th Avenue NE, NE 104th Street, 160th Avenue NE, NE 109th Street, Woodinville-Redmond Road (SR-202), NE 116th Street, 172nd Avenue NE, NE 111th Street, 179th Avenue NE, NE 104th Street, 166th Avenue NE, NE 83rd Street (Redmond TC). Between Redmond TC and Eastgate, route 221 would use the following arterials: 161st Avenue NE, Redmond Way, Old Redmond Road, 148th Avenue NE, NE 51st Street, 156th Avenue NE, NE 40th Street, 148th Avenue NE and SE, BCC (see current route 222 and 245), SE Eastgate Way	Planned for February 2008																											
221	Build	Rep	Full	15	15	15	15	15	15	15	15	15	15	15	15	Redmond - Eastgate	Same as No-Build																												
221	Build	E2	Full	15	15	15	15	15	15	15	15	15	15	15	15	Redmond - Eastgate	Same as No-Build																				X								
222	No-Build			30	30	30	30	30	30	30	30	30	30	30	30	Eastgate - Bellevue	Delete portion of Route 222 north of Eastgate. Revised route will connect Bellevue TC and Eastgate via its current path.	Planned for February 2008																											
222	Build	Rep	Full	30	30	30	30	30	30	30	30	30	30	30	30	Eastgate - Bellevue	Same as No-Build				X																								
222	Build	C1-T	Full	30	30	30	30	30	30	30	30	30	30	30	30	Eastgate - Bellevue	Same as No-Build			X																									
225	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Overlake - Seattle CBD	Delete	Trips added on 212																											
225	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Overlake - Seattle CBD	Same as No-Build - Delete	See 212 and 245																											
227	No-Build			30	30	30	30	30	30	30	30	30	30	30	30	Overlake - Eastgate	Route 227 will connect Eastgate and Overlake TC via BCC (see current route 926), SE 24th Street, 148th Avenue SE, SE Eastgate Way, 161st Avenue SE, SE 24th Street, 166th Avenue SE, SE 14th Street, 164th Avenue SE, Main Street, 156th Avenue NE, NE 8th Street (see current route 230), Northup Way, 164th Avenue NE, NE 24th Street, 152nd Avenue NE (Overlake P&R), NE 31st Street, 156th Avenue NE, Overlake TC.																												
227	Build	Rep	Full	30	30	30	30	30	30	30	30	30	30	30	30	Overlake - Eastgate	Same as No-Build																												
229	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Overlake - Seattle CBD	Delete	Trips added on 212																											
229	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Overlake - Seattle CBD	Same as No-Build - Delete																												



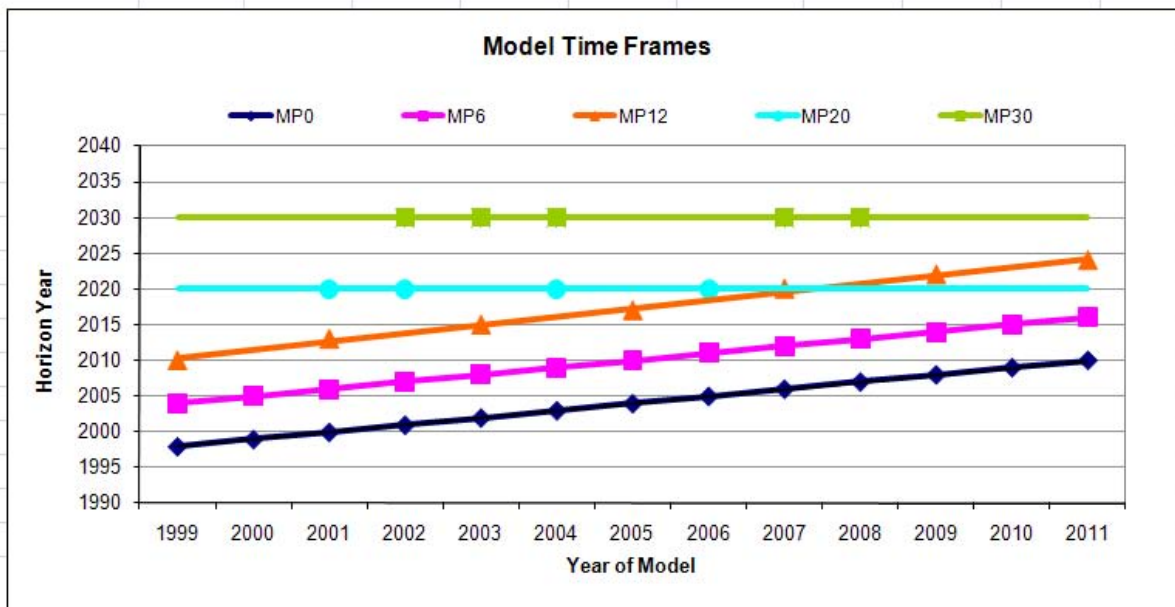








Route	No-Build / Build	Align	Term	2020 Headways			2030 Headways			2020 Headways Equilibrated			2030 Headways Equilibrated			Route Description	Path Changes	Comments	Link Stations																			
				Peak 3	Rev 3	Midd ay	Peak 3	Rev 3	Midd ay	Peak 3	Rev 3	Midd ay	Peak 3	Rev 3	Midd ay				Peak 3	Rev 3	Midd ay	Rainier	Mercer Is	S Bellevue	SE 8th	118th	East Main	Old Bellevue	BTC	Ashwood / Hospital	Hospital	122nd	130th	Overlake Village	OTC	Redmond Town Ctr.	SE Redmond	Redmond P&R
644	No-Build			30	--	--	30	--	--	30	--	--	30	--	--	Kenmore - Overlake	No change; will use NE 128th Street ramps to and from the South when they open in April 2007																					
644	Build	Rep	Full	30	--	--	30	--	--	30	--	--	30	--	--	Kenmore - Overlake	Same as No-Build																					
921	No-Build			30	30	30	30	30	30	30	30	30	30	30	30	Eastgate - Bellevue	Revised to serve Kamber Road. Follows more direct path to Bellevue TC.	Planned for February 2008																				
921	Build	Rep	Full	30	30	30	30	30	30	30	30	30	30	30	30	Eastgate - Bellevue	Same as No-Build								X													
921	Build	C 114th	Full	30	30	30	30	30	30	30	30	30	30	30	30	Eastgate - Bellevue	Same as No-Build							X	X													
922	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Carnation - Redmond	Delete																					
922	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Carnation - Redmond	Same as No-Build - Delete																					
925	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Newcastle DART	No change																					
925	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Newcastle DART	Same as No-Build																					
926	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Crossroads - Easgate	Delete	See 227																				
926	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Crossroads - Easgate	Same as No-Build - Delete																					
927	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Sammamish DART	No change																					
927	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Sammamish DART	Same as No-Build																					
929	No-Build			60	60	60	60	60	60	60	60	60	60	60	60	North Bend - Redmond	No change																					
929	Build	Rep	Full	60	60	60	60	60	60	60	60	60	60	60	60	North Bend - Redmond	Same as No-Build																					
929	Build	E2	Full	60	60	60	60	60	60	60	60	60	60	60	60	North Bend - Redmond	Same as No-Build																					
935	No-Build			30	30	30	30	30	30	30	30	30	30	30	30	Northshore - Totem Lake	No change; will use NE 128th Street overcrossing when it opens in April 2007 and will terminate at Totem Lake TC when it opens.																					
935	Build	Rep	Full	30	30	30	30	30	30	30	30	30	30	30	30	Northshore - Totem Lake	Same as No-Build																					
942	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	Eastgate - Seattle CBD	Delete																					
942	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	Eastgate - Seattle CBD	Same as No-Build - Delete																					
952	No-Build			45	--	--	45	--	--	45	--	--	45	--	--	Auburn - Boeing Everett	No change																					
952	Build	Rep	Full	45	--	--	45	--	--	45	--	--	45	--	--	Auburn - Boeing Everett	Same as No-Build																					
952	Build	B7	Full	45	--	--	45	--	--	45	--	--	45	--	--	Auburn - Boeing Everett	Same as No-Build							X														
MS Shuttle	No-Build			--	--	--	--	--	--	--	--	--	--	--	--	OTC - Microsoft	No change																					
MS Shuttle	Build	Rep	Full	--	--	--	--	--	--	--	--	--	--	--	--	OTC - Microsoft	Same as No-Build																					
MS Shuttle	Build	Rep	Overlake Village	--	--	--	--	--	--	--	--	--	--	--	--	Overlake - Microsoft	Shuttle service would split between OTC and Overlake Village	Microsoft operates this shuttle, currently serving OTC.																				



"Official" 1999-2009 BKR Model Platform Releases (Updated on 2/11/2010)

Base Year	MP0	Done in Year	MP6	Horizon Year	MP12	Horizon Year	MP20	Horizon Year	MP30	Horizon Year
1999	R1	2000	R2	2006	R1/R2	2010				
2000	R2	2001	R3	2007						
2001	R3.3	2002	R4	2008	R2	2013	R1	2020		
2002	R4	2003	R5.1	2009			R2	2020	R1	2030
2003	R5	2004	R6	2010	R3	2015			R2	2030
2004	R6/R6.1	2005	R7/R7.1	2011	R4	2017	R3	2020	R3/R4	2030
2005	R7	2006	R8	2012						
2006	R8	2007	R9	2013			R4	2020		
2007	R9	2008			R5	2020			R4.5	2030
2008	R10	2009							R5	2030
2009		2010								
2010										
2011										
2012										

note: Year is Base Year

Work is done in next calendar year