Transportation Strategies Report

Eastgate/I-90
Land Use & Transportation Project

CITY OF BELLEVUE

January 2012

Department of Transportation
Department of Planning and Community Development

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INTRODUCTION

Land use and transportation strategies will reinforce the Eastgate/I-90 corridor as an economically vibrant focal point that serves as a gateway to the City of Bellevue. This vision is supported by a multimodal corridor that serves both regional and local travel with an expanded and more efficient interstate system, network of local streets, bus routes, bicycle facilities and pedestrian enhancements (see Figure 1). This report describes the supportive transportation strategies that will guide public and private actions, investments and capital project priorities to improve mobility for all modes in this corridor.

Efforts to better integrate land use and transportation in the Eastgate area must be balanced with other competing City priorities and sensitivity to available funding. For the foreseeable future, Bellevue funding is in short supply and is far exceeded by needs. As the City responds to the current economic environment and "resets" the budget, it focuses on providing the highest priority government programs, services, and capital investments. It is in this context that the Citizen Advisory Committee (CAC) assessment of potential improvements in the project area are oriented toward finding the best transportation solution set that fits within the context, is affordable, is supported by the surrounding communities, and can be implemented in a reasonable time frame.

The transportation strategy advancing the Eastgate/I-90 Land Use and Transportation Project vision is attuned to Bellevue's limited level of readily available resources for capital improvements. For example, early on in the planning process a number of suggested projects were taken off the table from further consideration because of their significant expense. These include the concept of improving the street grid in Richards Valley which would have extended SE 30th Street to connect to 139th Avenue SE, and extended 136th Avenue SE south to link with SE 32nd Street ($17 million estimate from the 2009 *Preliminary Screening Analysis*). Similarly, the concept of improving north-south connectivity in the corridor with a

Figure 1 *The Eastgate/I-90 vision strives to promote community livability by guiding future development into targeted mixed use areas to reduce trip lengths and enable greater use of non-auto travel options.*

multi-use trail and bridge over I-90 between Factoria Boulevard and 139th Avenue SE ($16 million estimate from the 2009 *Preliminary Screening Analysis* prepared at the project outset) was also eliminated from consideration.

Although financial considerations informed the CAC in its formulation of a vision for the corridor, it did not deter the CAC from arriving at a balanced package of improvements that have the potential to relieve transportation choke-points, provide an enhanced environment for walking and cycling, and increase the attractiveness of transit as a travel option in Bellevue (see Figure 2). The list of transportation improvements associated with the Eastgate/I-90 vision would transform both the function and feel of the corridor with improvements to:

- traffic flow at critical intersections (e.g., Eastgate Way/150th Avenue SE intersection improvement)
- transportation connectivity that maximize integration of land uses (e.g., Lincoln Executive Center road improvements).
- the pedestrian/bicycle environment to make roadways safe for all modes of travel (e.g., Eastgate Way sidewalk project between Richards Road and 139th Avenue SE).
- transportation linkages between urban and natural systems (e.g., elimination of the "Eastgate Gap" in the Mountains to Sound Greenway Trail).
- transit operations (e.g., 142nd Place SE transit emphasis corridor).
- the visual coherence and attractiveness of the corridor (e.g., 150th Avenue SE Boulevard Project).

This vision of the corridor arose out of a screening process that considered the extent to which these transportation projects "position the corridor to attract and leverage investment from other public and private sources and to capture opportunities that might arise from improved future economic conditions" (Eastgate/I-90 Land Use and Transportation Project, 2010 *Bellevue Council Principle*). Therefore, assessing the fiscal feasibility of the transportation projects list takes into account the ability of Bellevue and its partner agencies to secure funding to implement the list of projects to support the identified land uses in the Eastgate/I-90 subarea.

Admittedly the combined infrastructure improvements in the preferred land use/transportation vision – like the planned High Capacity Transit (HCT) station area, transit hubs, interstate improvements, boulevard enhancements, Mountains to Sound Greenway Trail enhancements, and sidewalk and bicycle facilities – are potentially significant expenses for the City and its transit and state agency partners. However, identifying these types of improvements is an important part of the planning process in terms of creating a new vision for the area.

The dynamic nature of this Eastgate corridor requires a bold vision supported by practical, achievable strategies in the near term that set the right foundation for longer term improvements through the 2030 horizon year. Despite the financial uncertainty associated with the transportation project list, there are a number of encouraging near-term developments that will advance several components of this project list. Beyond these more immediate improvements there are also several small and relatively inexpensive improvements that can be implemented as development proposals and as other opportunities arise that represent incremental steps toward the installation of the longer term improvements.

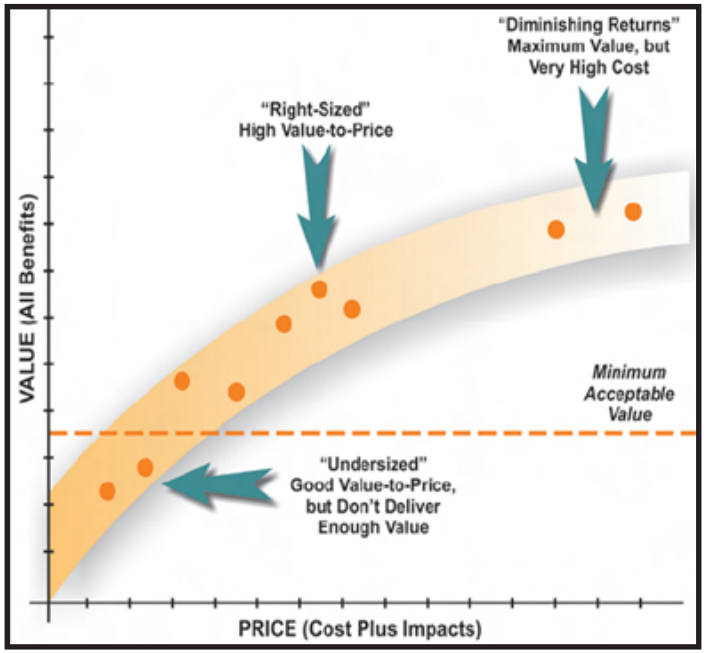


FIGURE 2 *Wise investment in transportation infrastructure requires sensitivity to available funding.*

COMMUNITY OUTREACH

Throughout this project, staff and the CAC have engaged the public to help inform early draft alternatives and ultimately the preferred alternative. Through several public open houses, online surveys, stakeholder interviews, presentations to interest groups, and website updates, we have heard desires and concerns of employers and employees in the study area, as well as residents surrounding the study area.

Concerns about traffic congestion (delay, noise, and safety) on the interstate system and local roads ranks high on the list of issues that affect perceptions about quality of life in the project area. Common transportation themes that have been expressed include a desire for the transportation system to be safe and reliable and to provide a variety of mobility options for travelling between desired destinations (see Figure 3). The preferred alternative developed by the CAC is intended to address these issues.

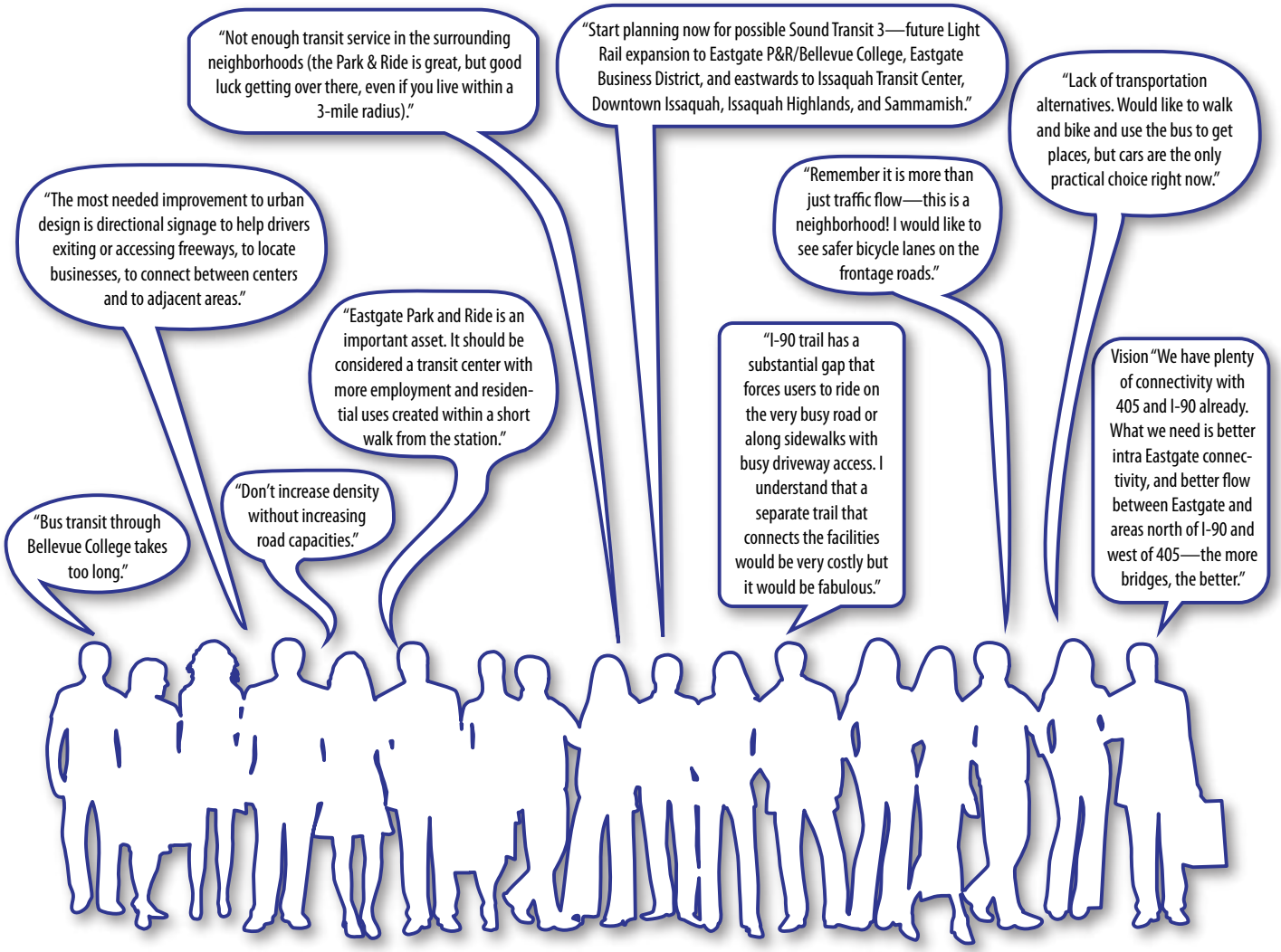


FIGURE 3 *Public Comments on Transportation Priorities*

METHODOLOGY

Staff began preparing for the Eastgate/I-90 Land Use and Transportation Project in late 2009, and used much of 2010 to prepare background materials and engage with stakeholders and the broader community through a variety of means, including an online survey, open houses, an economic development forum, community association presentations, and one-on-one interviews. By the time the Citizen Advisory Committee (CAC) was appointed in October, 2010, sufficient background information was available to allow the CAC to quickly come up to speed on the project.

Completion of the 2009 *Preliminary Screening Analysis* was an important early transportation planning milestone; the study determined whether additional land uses, and of what magnitude, would be feasible in the Eastgate area. A variety of transportation capacity and traffic signal recommendations were among the mobility improvements contemplated in the 2009 analysis. Additionally, extensive work conducted in WSDOT's *I-90 Bellevue to North Bend Corridor Study* (Eastgate to 465th) provided additional information supporting the Eastgate/I-90 Land Use and Transportation Project.

This transportation strategy report document revisits and refines the transportation improvement concepts evaluated in these previous planning efforts. Bellevue staff retained consultants with a diverse set of engineering and planning skill-sets (Figure 4) to propose strategies that support the CAC's preferred land use vision in a manner that responds to Council priorities for the project area. Together, City of Bellevue staff and the consultant team, undertook a variety of traffic (Figure 5), trail alignment (Figure 6), transportation connectivity (Figure 7), and transit (Figure 8) assessments to help the CAC arrive at the preferred vision.

Additional details on the transportation strategies detailed in this report are found in the *Evaluation of Draft Alternatives Report* (August 2011) document. The Evaluation Report includes both a quantitative and qualitative appraisal of the strengths and weaknesses of the "no action" and three "action" land

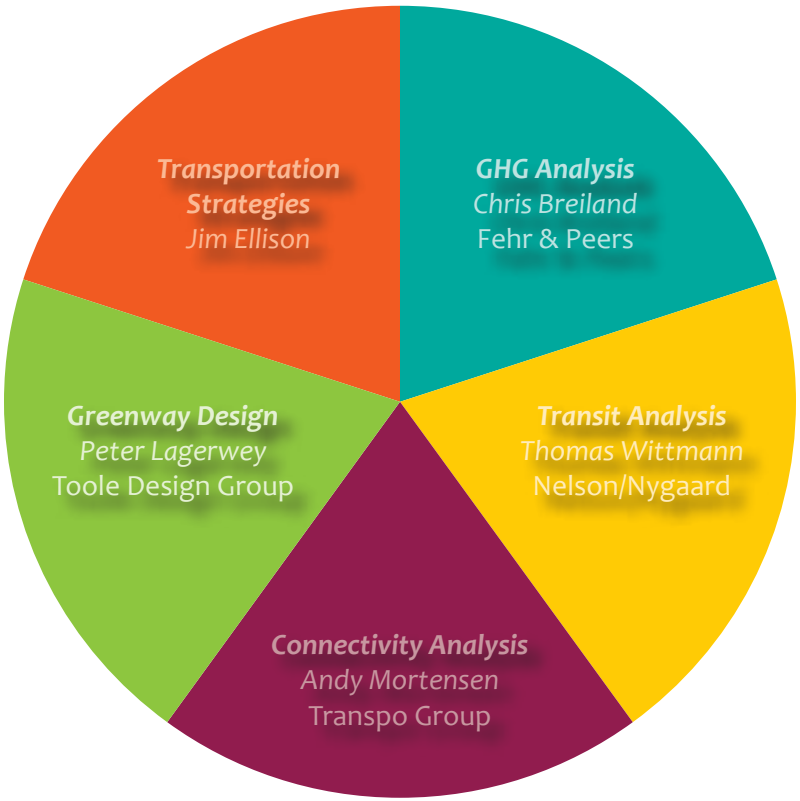
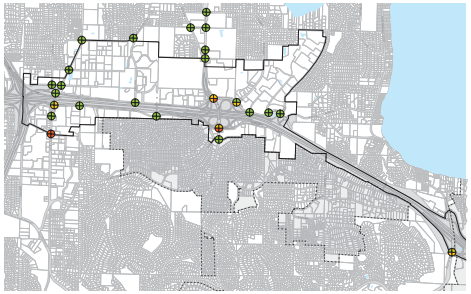


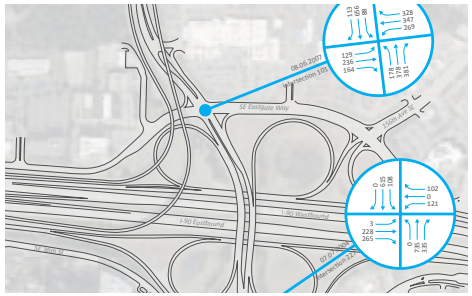
FIGURE 4 *The transportation consultant team supporting the CAC in its evaluation of Eastgate/ I-90 draft alternatives.*



Travel Demand Analysis

Delta Plots

Micro-Simulations

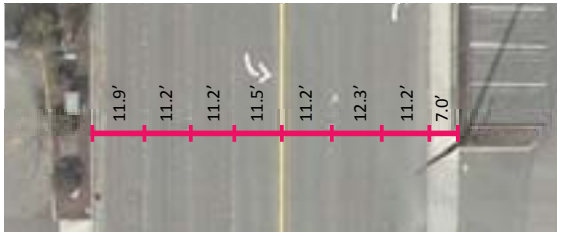


Turning Movements

FIGURE 5 *Traffic Analysis*

Outreach

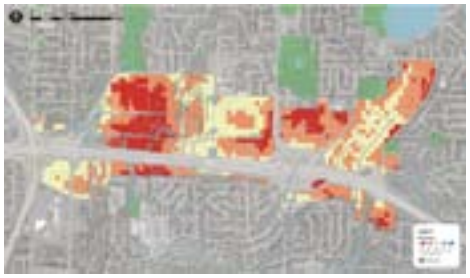
Field Work



Existing Road Geometry

FIGURE 6 *Trail Alignment Assessment*

use and transportation alternatives. The analysis is organized around the nine topical areas addressed by the Evaluation Criteria adopted by the CAC in March, 2011, and informed by the Council Principles approved by Council in February, 2010. The Evaluation Report provided a basis for the CAC to draw discrete elements from multiple alternatives and blend them into a new preferred alternative.

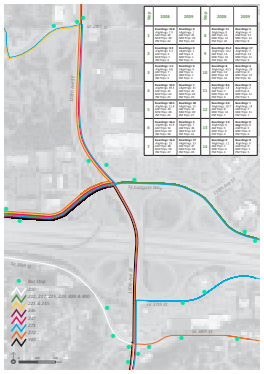


Non-Motorized RDI Score

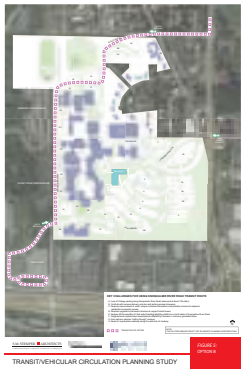
Vehicular RDI Score

HCT ViaCity Score

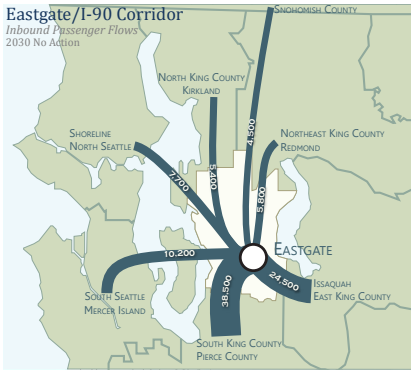
FIGURE 7 *Connectivity Assessment*



Route Productivity Analysis



Coordination with Partners



Flow Map Analysis

FIGURE 8 *Transit Assessment*

TRAFFIC CONDITIONS

The quality of traffic operations on roadway facilities is described in terms of Level of Service (LOS), a measure of operational conditions and motorists' perceptions. LOS ratings range from "A" to "F" and are related to the average delay experienced by all vehicles as they approach the intersection, as shown in Table 1. LOS A represents the best operation and LOS F the poorest operation.

The City's Bellevue-Kirkland-Redmond (BKR) travel demand model (EMME version MP030r5.5) was used to evaluate how projected traffic under the preferred alternative would impact 2030 roadway facilities. This methodology is consistent with FHWA guidance indicating that the appropriate tool for the planning phase of a project is a Travel Demand Model (*Traffic Analysis Toolbox FHWA-HRT-04-038*, June 2004).

Inputs to the four-step model used in travel demand forecasting are current land use; the current transportation system; forecast changes in households, employment, and transportation system improvements; and the fraction of trips made during the peak period (see Figure 9). The travel demand model compares demand for travel to the supply of the roadway system within the project area. Travel demand is derived from population and employment, while the supply side of the equation is the roadway system on which travel occurs.

Table 2 on page 11 presents a comparison of growth projections by land use type for existing conditions (2008), no action, and preferred land use alternative. It is important to note that the "2030 No Action" scenario is intended to depict a reasonable projection of how the study area would continue to develop over the next 20 years if no Comprehensive Plan or Zoning Map were made. Therefore, the "2030 No Action" scenario assumes some amount of growth in the study area over the next 20 years, though of a more limited nature than would occur in the preferred land use alternative.

TABLE 1 *Signalized Intersection Level of Service Criteria*

LOS	Delay (seconds)	Description
A	0 – 10	Most vehicles arrive during the green phase and so do not stop
B	10 – 20	More vehicles stop than with a LOS A, but many still do not need to stop.
C	20 – 33	The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	33 – 55	The influence of congestion is noticeable, and most vehicles must stop.
E	55 – 80	Most, if not all, vehicles must stop; drivers consider the delay excessive.
F	80+	Vehicles may wait through multiple cycles to pass through the intersection.

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

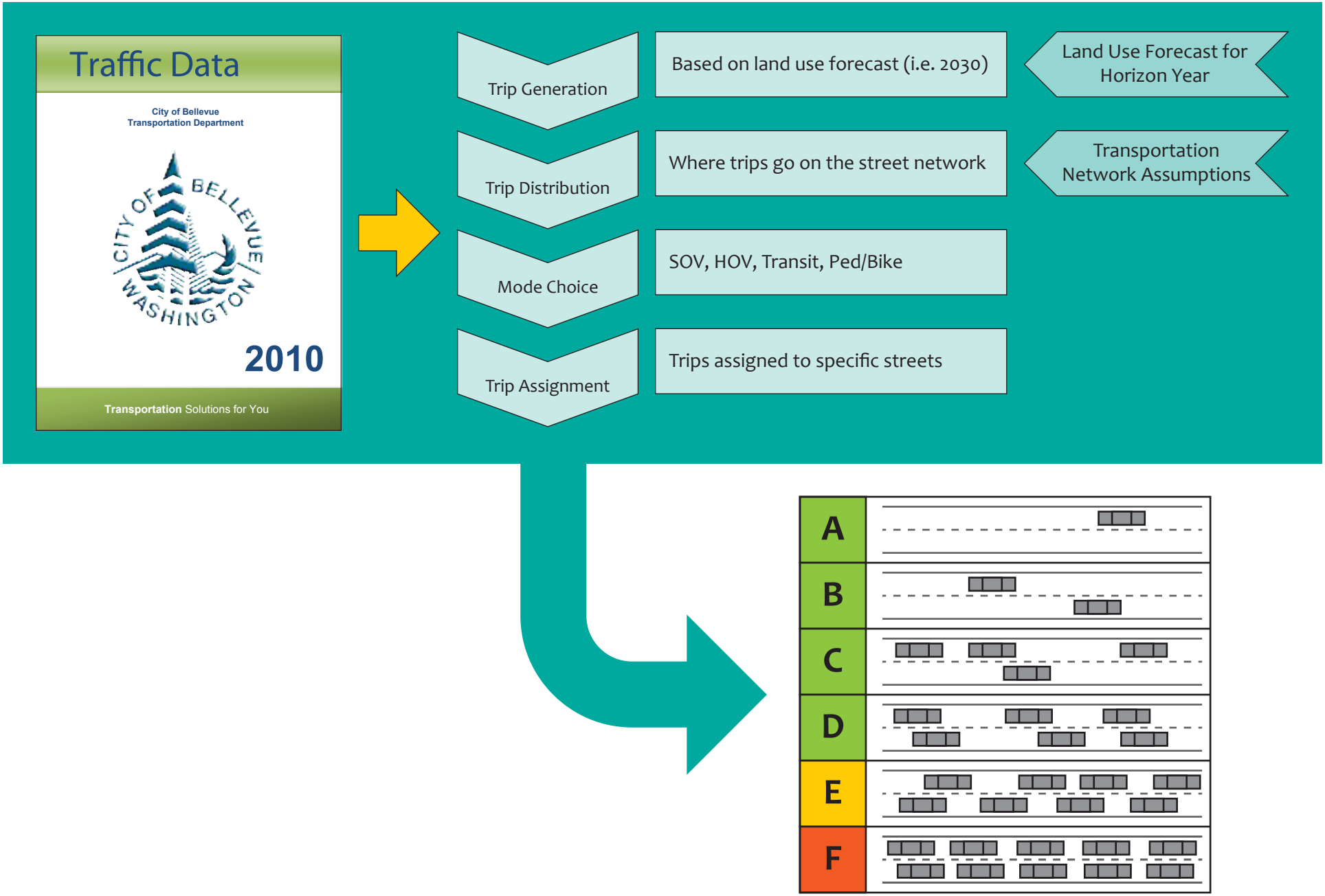


FIGURE 9 *Travel Demand Model*

***Table 2** Land Use (Square Footage and Jobs/Population) Projection Comparison*

	Existing (2008)		2030 No Action LU Alternative				2030 Preliminary Preferred LU Alternative			
			Square Footage or Units		Jobs or Population		Square Footage or Units		Jobs or Population	
	Square Footage or Units	Jobs or Population	Total	Change from Existing	Total	Change from Existing	Total	Change from Existing	Total	Change from Existing
Office (SF & Jobs)	4,947,688	16,209	5,147,688	200,000	16,864	655	6,747,688	1,800,000	22,105	5,897
Retail (SF & Jobs)	660,193	1,290	660,193	0	1,290	0	775,193	115,000	1,515	225
Industrial (SF & Jobs)	1,817,500	2,404	1,903,489	85,989	2,593	189	1,770,265	(47,235)	2,342	(62)
Institutional (SF & Jobs)	1,115,480	1,222	1,395,480	280,000	1,250	28	1,534,280	418,800	1,429	207
Hotel (SF & Jobs)	469,874	207	469,874	0	207	0	684,974	215,100	301	95
Total (SF & Jobs)	9,010,735	21,331	9,576,724	565,989	22,203	872	11,512,400	2,501,665	27,692	6,361
Housing (Units & Pop)	2,586	2,457	2,672	86	2,539	82	3,472	3,299	3,299	842

The LOS analysis used PM peak one-hour traffic volumes for fifty two intersections within and surrounding the Eastgate subarea. Figure 10 reflects the BKR travel demand model results with existing (2009) and projected (2030) intersection PM peak hour delay levels of service. Both 2030 scenarios depicted on the map assume the preferred land use alternative; one incorporates the transportation improvements depicted in Appendix A ("2030 Preferred Land Use with Transportation Improvements") and one assumes no change to the existing transportation network ("2030 Preferred Land Use without Transportation Improvements").

Table 3 reflects the average delay – measured in seconds per vehicle (sec/veh) – on three choke-point intersections at the Eastgate interchange. As indicated, the proposed capacity improvements at Eastgate area intersections will accommodate future traffic growth and result in measurable improvements over existing conditions at these same locations.

***Table 3** Average Intersection Delay Level of Service Comparison*

(ID) Intersection	Existing (2009) LOS	2030 No Action LU on 2009 Network		2030 Preferred Land Use Without Transportation Improvements			2030 Preferred Land Use With Transportation Improvements		
		LOS	% Change from Existing (2009)	LOS	% Change from Existing (2009)	% Change from 2030 No Action	LOS	% Change from Existing (2009)	% Change from 2030 No Action
(227) 150th Ave SE and EB I-90 Off-Ramp	79 sec/veh LOS E	137 sec/veh LOS F	73% increase	139 sec/veh LOS F	76% increase	1% increase	57 sec/veh LOS E	28% reduction	58% redcution
(101) 150th Ave SE and SE Eastgate Way	61 sec/veh LOS E	64 sec/veh LOS E	5% increase	81 sec/veh LOS F	33% increase	27% increase	58 sec/veh LOS E	5% reduction	9% reduction
(86) 156th Ave SE and SE Eastgate Way	54 sec/veh LOS D	60 sec/veh LOS E	11% increase	64 sec/veh LOS E	19% increase	7% increase	53 sec/veh LOS D	2% reduction	12% reduction

Table 4 *PM Peak-Hour Intersection Delay Level of Service Comparison*

	Existing (2009)				2030 No Action LU on 2009 Network				2030 Preferred LU without Improvements				2030 Preferred LU with Improvements			
(Intersection ID) Address	TEV*	Average Delay (sec/veh)	Total Delay (hrs)	LOS	TEV*	Average Delay (sec/veh)	Total Delay (hrs)	LOS	TEV*	Average Delay (sec/veh)	Total Delay (hrs)	LOS	TEV*	Average Delay (sec/veh)	Total Delay (hrs)	LOS
(45) 145th Pl SE & SE 16th St	1,817	40	20.2	D	2,461	89	61	F*	2,498	81	56.2	E*	2,494	80	55.4	E*
(52) 148th Ave SE & SE 16th St	3,909	27	29.3	C	4,691	56	73	E*	4,591	47	59.9	D*	4,599	47	60.0	D*
(53) 148th Ave SE & SE 22nd St	4,180	23	26.7	C*	4,725	31	41	C*	4,599	25	31.9	C	4,619	31	39.8	C
(54) 145th Pl SE & SE 24th St	1,153	36	11.5	D	1,197	26	9	C	1,336	32	11.9	C	1,348	31	11.6	C
(55) 148th Ave SE & SE 24th St	4,181	17	19.7	B*	4,899	20	27	B*	4,866	23	31.1	C*	4,899	24	32.7	C*
(56) 148th Ave SE & SE 27th St	3,463	3	2.9	A	4,408	3	4	A	4,311	3	3.6	A	4,362	3	3.6	A
(57) 148th Ave SE & SE 28th St	4,178	18	20.9	B	4,778	16	21	B*	4,833	14	18.8	B	4,895	14	19.0	B
(82) Richards Rd & Kamber Rd	2,431	39	26.3	D	3,223	47	42	D	3,047	41	34.7	D	3,034	41	34.6	D
(85) Richards Rd & SE 32nd St	2,813	21	16.4	B	3,835	28	30	C	3,889	30	32.4	C	3,874	30	32.3	C
(86) 156th Ave SE & SE Eastgate Way	3,003	54	45.0	D	3,459	60	58	E	3,680	64	65.4	E	3,717	53	54.7	D
(90) 158th Ave SE & SE Eastgate Way	935	21	5.5	C	948	21	6	C	987	29	8.0	C	988	30	8.2	C
(91) 160th Ave SE & SE Eastgate Way	1,287	22	7.9	C	1,308	23	8	C	1,404	23	9.0	C	1,363	23	8.7	C
(92) 161st Ave SE & SE Eastgate Way	1,417	32	12.6	C	1,757	40	20	D	1,749	39	18.9	D	1,723	39	18.7	D
(97) 156th Ave SE & SE 24th St/22nd	1,197	11	3.7	B	1,566	15	7	B	1,508	14	5.9	B	1,503	14	5.8	B
(101) 150th Ave SE & SE Eastgate Way	4,647	61	78.7	E	5,181	64	92	E*	5,699	81	128.2	F*	5,845	58	94.2	E
(105) Richards Rd & SE Eastgate Way	3,736	35	36.3	C	4,675	42	55	D	4,722	43	56.4	D	4,686	42	54.7	D
(132) Richards Rd & SE 30th Street	2,540	9	6.4	A	3,246	9	8	A	3,285	9	8.2	A	3,274	9	8.2	A
(134) Richards Rd & Lk Hills Connector	2,976	35	28.9	C	4,132	44	51	D	4,047	43	48.3	D	4,067	44	49.7	D
(146) SE Eastgate Way & SE 35th Pl	1,479	23	9.4	C	1,664	45	21	E	1,664	44	20.3	E	1,620	39	17.6	E
(171) 142nd Ave SE & SE 36th St	1,592	21	9.3	C	2,012	42	23	D	2,138	46	27.3	D	2,166	46	27.7	D
(173) 156th Ave SE & SE 16th St	1,140	17	5.4	B	1,492	26	11	C	1,437	26	10.4	D	1,440	26	10.4	D
(174) 150th Ave SE & SE 38th St	2,897	43	34.6	D	3,924	45	49	D	3,937	46	50.3	D	3,945	47	51.5	D
(182) 144th Ave SE & 145th Pl SE	2,035	5	2.8	A	2,285	5	3	A	2,393	5	3.3	A	2,406	5	3.3	A
(200) 146th Ave SE & SE 36th St	N/A	5	N/A	A	1,627	5	2	A	1,673	5	2.3	A	1,686	5	2.3	A
(204) Factoria Blvd & SE 36th St	4,513	50	62.7	D	5,473	74	113	E*	5,574	80	123.9	E*	5,546	78	120.2	E*
(205) 145th Place SE & SE 22nd St	705	5	1.0	A	1,033	5	1	A	1,104	5	1.5	A	1,132	5	1.6	A
(206) Factoria Blvd & SE 32nd St	530	5	0.7	A	1,095	5	2	A	1,133	5	1.6	A	1,139	5	1.6	A
(207) Factoria Blvd & SE 26th St	417	5	0.6	A	820	5	1	A	749	5	1.0	A	750	5	1.0	A
(208) 161st Ave SE & SE 24th St	440	5	0.6	A	913	5	1	A	794	5	1.1	A	793	5	1.1	A

(Intersection ID) Address	Existing (2009)				2030 No Action LU on 2009 Network				2030 Preferred LU without Improvements				2030 Preferred LU with Improvements			
	TEV*	Average Delay (sec/veh)	Total Delay (hrs)	LOS	TEV*	Average Delay (sec/veh)	Total Delay (hrs)	LOS	TEV*	Average Delay (sec/veh)	Total Delay (hrs)	LOS	TEV*	Average Delay (sec/veh)	Total Delay (hrs)	LOS
(222) Factoria Blvd & SE 38th Place	3,872	104	111.9	F*	4,959	131	180	F*	4,952	258	354.9	F*	4,916	253	345.5	F*
(227) 150th Ave SE & I-90 EB Off-Ramp	4,087	79	89.7	E*	4,309	137	164	F*	4,490	139	173.4	F*	4,472	57	70.8	E
(228) Lakemont Blvd & SE Newport Way	2,721	42	31.7	D	2,926	76	62	E*	3,037	76	64.1	E*	3,193	70	62.1	E*
(246) W Lk Sammamish & SE 38th St	1,067	5	1.5	A	1,465	5	2	A	1,441	5	2.0	A	1,377	5	1.9	A
(253) Lakemont Blvd & I-90 WB Ramps	1,819	5	2.5	A	2,035	5	3	A	2,283	5	3.2	A	2,292	5	3.2	A
(254) Lakemont Blvd & W Lk Sammamish	2,079	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,800	N/A	N/A	N/A	2,801	N/A	N/A	N/A
(260) I-90 EB On-Ramp & SE Newport Way	1,294	N/A	N/A	A	1,394	17	7	B	1,543	3	1.3	A	1,427	3	1.2	A
(261) W Lk Sammamish & SE 34th St	1,508	14	5.9	B	1,707	10	5	A	1,661	9	4.2	A	1,649	12	5.5	B
(272) 139th Ave SE & SE Eastgate Way	1,255	21	7.3	C	1,670	27	13	C	1,786	39	19.3	D	1,791	39	19.4	D
(278) 139th Ave SE & SE 32nd Street	834	5	1.2	A	1,232	5	2	A	1,325	5	1.8	A	1,330	5	1.8	A
(280) 139th Ave SE & Kamber Rd	1,395	43	16.7	D	1,891	47	25	D	2,013	48	26.8	D	2,014	48	26.9	D
(285) Factoria Blvd & 3600 Block	3,695	22	22.6	C	4,666	22	29	C	4,740	20	26.3	B	4,729	20	26.3	B
(286) I-90 EB On-Ramp & SE 37th St	1,609	2	0.9	A	1,770	2	1	A	1,796	2	1.0	A	1,775	1	0.5	A
(291) 132nd Ave SE & SE 36th St	1,676	12	5.6	B	1,802	12	6	B	1,835	11	5.6	B	1,849	11	5.6	B
(297) Lakemont Blvd & I-90 EB Off-Ramp	912	14	3.5	B	954	12	3	B	1,025	5	1.4	A	1,350	5	1.9	A
Total	**95,434**	**1,056**	**827.0**		**115,607**	**1,404**	**1,337.4**		**120,374**	**1,538**	**1557.4**		**120,878**	**1,413**	**1,402.8**	

***TEV = Total Entering Volume in PM Peak Hour (Weekday)**

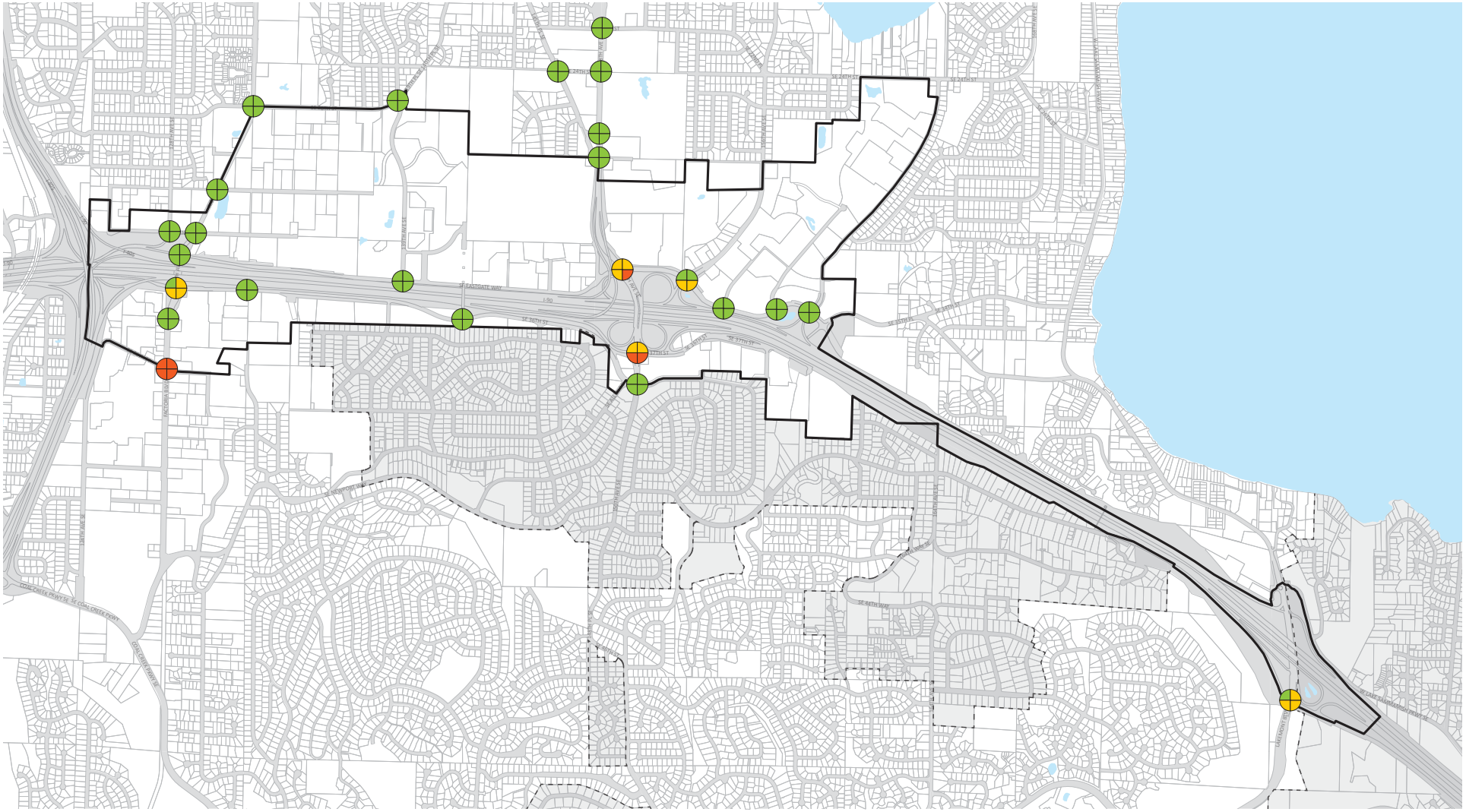


FIGURE 10 *PM Peak-Hour Intersection Delay Level of Service Comparison*

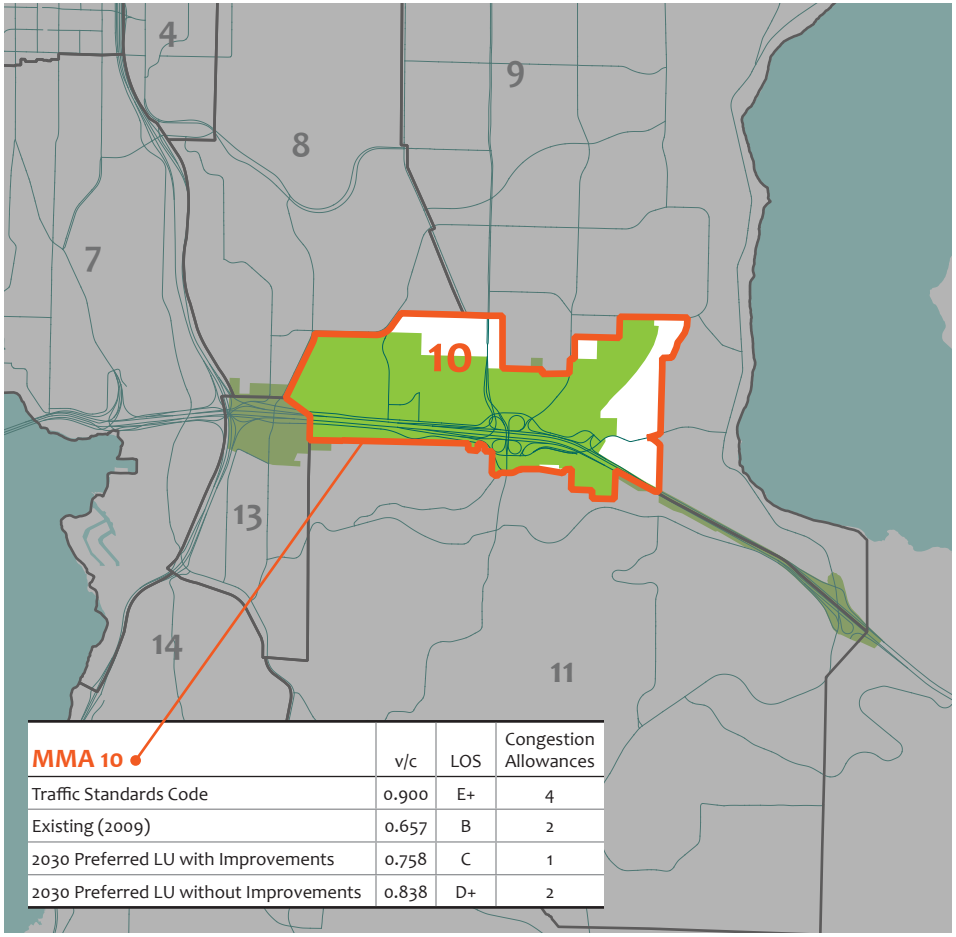
When considered from a corridor-wide perspective, PM peak transportation volumes and total delay (hours) increase over existing conditions in all of the 2030 land use/transportation scenarios. Compared to existing conditions the "2030 No Action Land Use without Transportation Improvements" scenario experiences a 21 percent increase in traffic volume and a 62 percent increase in total delay hours in the PM peak. Alternatively, the "2030 Preferred Land Use with Transportation Improvements" scenario experiences a 27 percent increase in traffic volume and a 70 percent increase in total delay hours in the PM peak when compared to existing conditions. Finally, the "2030 Preferred Land Use Without Transportation Improvements" scenario experiences a 26 percent increase in traffic volume and an 88 percent increase in total delay hours in the PM peak when compared to existing conditions.

TRANSPORTATION CONCURRENCY

Concurrency remains a driver for many of the City's decisions related to development permitting and transportation investments. Under the Growth Management Act, local governments are required to establish level of service (LOS) standards for their transportation systems. The transportation LOS standards serve as a baseline for determining whether transportation facilities can accommodate new development. If the new development will cause the transportation system to exceed the pre-determined LOS standards, the jurisdiction must deny the development unless transportation improvements and strategies are made to accommodate the development within six years, a process known as concurrency mitigation.

The City of Bellevue measures LOS (and thus concurrency) on the basis of a comparison of vehicle use to roadway capacity at 104 designated system intersections in 14 Mobility Management Areas (MMAs) of the city during the 2-hour PM peak period. This comparison is referred to as the volume/capacity ratio (v/c). The "volume" side of the ratio is determined by the average number of vehicles that use the roadway during the busiest two hour period of the day. The "capacity" portion of the ratio is determined by " roadway geometry," essentially the number of lanes, their design, and the roadway's operational strategy (e.g., signal timing). A v/c ratio below 1.0 means that the roadway is lower than its calculated capacity. A ratio of 1.0 suggests the roadway is at capacity. A ratio greater than 1.0 indicates significant congestion.

Figure 11 reflects a 1-hour PM peak period area-average LOS standard and the congestion allowance for the Eastgate MMA (#10); which most closely follows the geographic boundaries of the project area. The congestion allowance specified (4) is the maximum number of system intersections allowed to exceed the area-average LOS standard set for the MMA. The 1-hour PM peak period used in this analysis is a more conservative threshold determination than the 2-hour PM peak period methodology administered through Bellevue's Traffic Standards Code (Section 14.10.030). Even with this more rigorous stress test, the Eastgate MMA is found to operate within the City's adopted concurrency framework in both the "2030 Preferred Land Use with Transportation Improvements" and "2030 Preferred Land Use without Transportation Improvements" scenarios.



MMA 10	v/c	LOS	Congestion Allowances
Traffic Standards Code	0.900	E+	4
Existing (2009)	0.657	B	2
2030 Preferred LU with Improvements	0.758	C	1
2030 Preferred LU without Improvements	0.838	D+	2

FIGURE 11 *Eastgate MMA (#10) Concurrency Assessment*

LOCAL ARTERIAL IMPROVEMENTS

The projected 2030 PM peak hour traffic volumes for the preferred alternative indicates that future roadway and transit capacity improvements at key locations will be important in adequately serving transportation needs in the project study area. Public comments received on the early draft alternatives indicated concern about existing traffic congestion and support for local arterial improvements (see Figure 12).

NEAR-TERM IMPROVEMENTS

City staff is planning to implement the Sydney Coordinated Adaptive Traffic System (SCATS) traffic control at existing signalized intersections in the Eastgate Area on 148th Avenue SE, 150th Avenue SE, SE Eastgate Way, and SE 36th Street as part of its 2012 and 2013 program. SCATS is an adaptive transportation system which modifies the timing of traffic signals based on real time vehicle volumes. Detection devices are used to count vehicles in every lane at each intersection. The system adapts quickly to changing traffic conditions. It changes the next signal cycle length and green time for each movement as needed, improves pedestrian service, and coordinates the overall system to enhance traffic flow and safety.

In 2010, the City of Bellevue implemented the SCATS traffic control program at 38 intersections in the Downtown and Factoria areas. Bellevue's deployment of SCATS along Factoria Boulevard resulted in a 17 percent reduction in the northbound direction (compared to the previously used "TOD" time-of-day signal timing plans) and a 40 percent travel time reduction in the southbound direction along Factoria Boulevard (Figure 13).

The flashing yellow arrow is a new feature implemented in 2010 at several intersections including Factoria Boulevard SE/SE Newport Way. The flashing allows left turns to proceed after yielding to pedestrians and other vehicles.

FIGURE 12 *Public comments received on early draft alternatives indicate concern about existing traffic congestion and support for a balanced strategy to address congestion - operate existing roadways efficiently, manage demand, and add capacity strategically.*

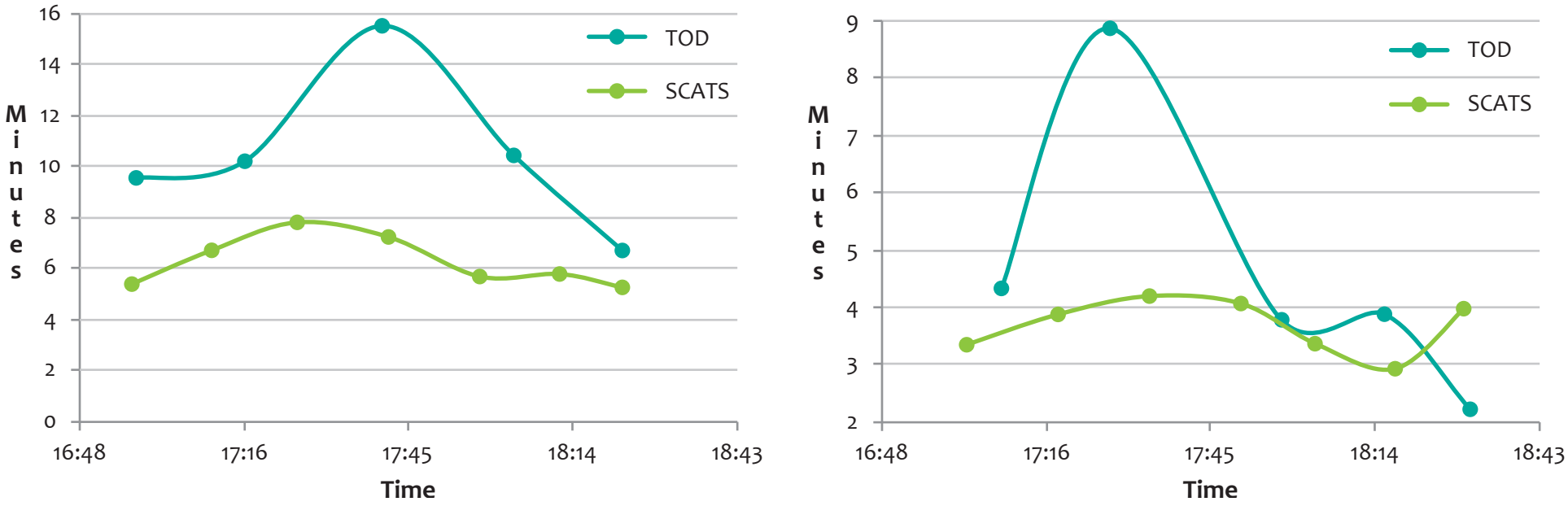


FIGURE 13 *Travel time comparison showing Factoria Boulevard operations with previously used "TOD" time-of-day signal timing plans compared to SCATS traffic control; southbound (left) and northbound (right).*

Improving left turn performance has eliminated the need for a capital project identified in previous years (left-turn delay was reduced from 38 to 16 seconds per vehicle). Other notable features implemented with SCATS include: pedestrian re-service (optimizes opportunities for crossing the street), pedestrian Jump (improves safety by allowing pedestrians to start crossing the street before cars can move), and phase re-service (helps manage traffic flow and queues due to freeway on-ramps). All SCATS new features are carefully evaluated based on specific criteria such as: collision history, speeds and sight distance for safety considerations; pedestrian and traffic volumes & patterns for improved efficiency.

LONG-TERM IMPROVEMENTS

Projected 2030 traffic volumes for the preferred alternative indicate that future capacity improvements at key intersections are necessary to adequately serve transportation needs in the project area. Appendix B reflects ideas for how to address these traffic volumes including widened intersections, roundabouts, and new roadway connections.

Six of the projects noted in Appendix A are incorporated in Bellevue's 2009–2020 Transportation Facilities Plan (TFP), a 12-year transportation program balanced to projected revenues. These TFP projects are reaffirmed in the Eastgate/I-90 vision as important elements of the combined list of improvements in the corridor. Based on CAC guidance, Bellevue staff prepared more detailed cost estimates for project numbers I-2, I-3, I-4 and TFP-154 that will all be prioritized against the array of citywide transportation project improvements under consideration in the upcoming 2013-2024 TFP process (only one of these TFP projects is in the immediate project area). These projects are detailed below.

Project I-2: Eastgate Way / 150th Avenue SE Intersection Improvement

One of two options is proposed to address projected 2030 PM peak hour traffic volumes at this intersection: Option A (Signalized Alternative) and Option B (Roundabout Alternative) detailed below. The intersection improvement (Option A) was used to assess the preferred land use

vision's influence on the transportation network. The "2030 Preferred Land Use with Transportation Improvements" scenario reduces delay to 58 sec/veh down from 81 sec/veh in the "2030 Preferred Land Use without Transportation Improvements" scenario, a 40 percent reduction. The delay reduction associated with the "2030 Preferred Land Use with Transportation Improvements" scenario maintains the current LOS E rating at this intersection; it would otherwise result in an LOS F rating in the "2030 Preferred Land Use without Transportation Improvements" scenario. Furthermore, the "2030 Preferred Land Use with Transportation Improvements" scenario reduces delay from 61 sec/veh ("existing conditions"), a 5 percent reduction over what is experienced today.

Option A (Signalized Alternative)

The 2009 *Preliminary Screening Analysis* proposed widening the west leg to accommodate double right turn lanes, a single left turn lane, and a single through lane, while also adding another westbound through lane departing the intersection, to at least 148th Avenue SE or preferably further west. The east leg would be widened to provide a second westbound through lane through the intersection. The south leg would be reconfigured to accommodate double northbound left turn lanes. These proposed improvements would allow for the east-west split phase signal operation to be converted to a more efficient leading and/or lagging left turn phase operation.

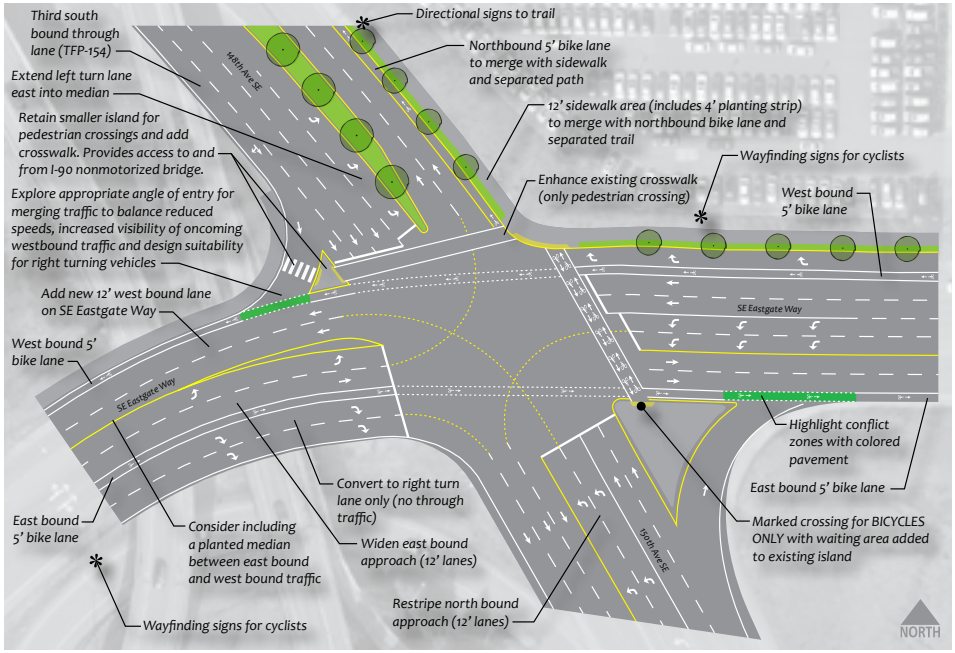


FIGURE 14 *150th Avenue SE and SE Eastgate Way Signalized Intersection Improvement Option (Project I-2: Option A)*

The 2009 *Preliminary Screening Analysis* found that these improvements help reduce southbound (vis-à-vis TFP-154) and westbound queues at the 150th Avenue SE and SE Eastgate Way intersection, with the 2030 PM peak hour anticipated to operate at the lower range of LOS E. That study provided a 2009 planning level estimate of cost of approximately $2.1 million for these improvements.

Figure 14 is a conceptual plan of Option A for 150th Avenue SE and SE Eastgate Way. If this alternative is funded in the future, a detailed operational analysis in the preliminary engineering phase of the project is recommended to determine the most appropriate lane configuration.

The proposal for a bicycle-only signalized crossing of the east leg of the intersection would need to be evaluated with respect to a possible future change in signal phasing that would incorporate flashing yellow arrow operation for the southbound to eastbound movement. Such a permissive left turn operation would conflict with any concurrent bicycle signal phase across the east leg. The recommended operational analysis could also more closely evaluate the design and operations alternatives at that time.

Figure 14 also shows the use of green colored pavement where the marked bicycle lanes cross over conflicting right turning vehicle lanes. The Manual on Uniform Traffic Control Devices (MUTCD) has issued interim approval for the optional use of green colored pavement in marked bicycle lanes and in extensions of bicycle lanes through intersections and other conflict areas.

Regarding the wide crosswalk proposed across the right turning roadway, and the green portion of the bike lane immediately downstream, the possibility of combining that crosswalk with the yield point to the bike lane might need to be considered, instead of designing two separate yield points (i.e., one for the crosswalk, and then another for the bike lane), to enhance driver recognition and expectations of where to yield and to lessen the possibility that drivers stopped and queued up for the bike lane don't also block the crosswalk.

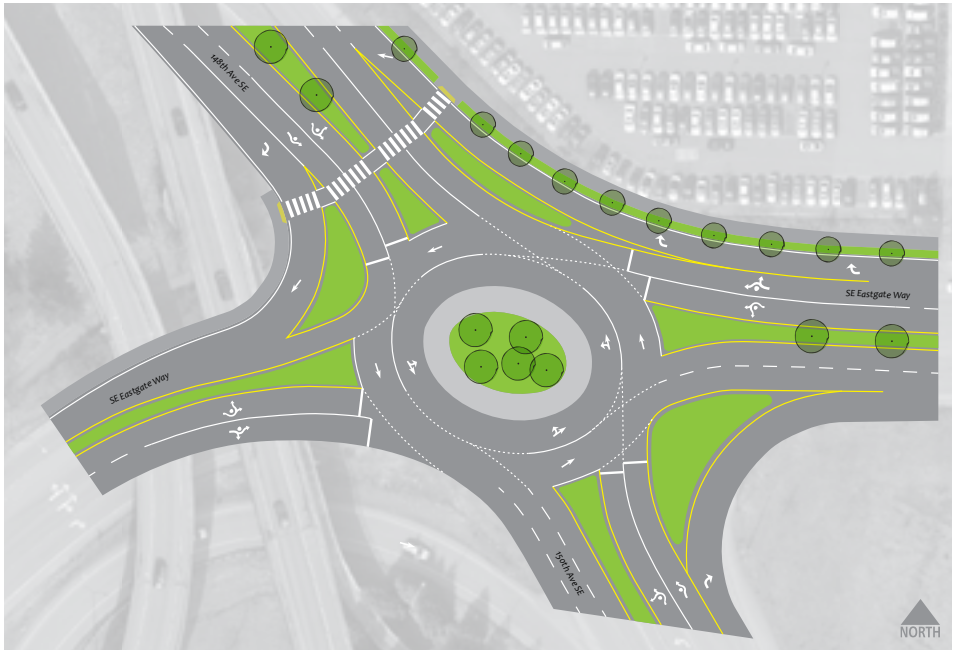


FIGURE 15 *150th Avenue SE and SE Eastgate Way Roundabout Improvement Option (Project I-2: Option B)*

FIGURE 16 *WSDOT Simulation Model of Roundabout Improvement Option (Project I-2: Option B; looking south)*

Based on CAC guidance, Bellevue staff prepared more specific cost estimates for Option A. This exercise arrived at a 2011 planning level cost estimate of $3,725,000 based on the conceptual illustration found in Appendix B (see page 51).

Option B (Roundabout Alternative)

In 2010, WSDOT conducted a concept analysis of replacing key intersections in the Eastgate/I-90 project area with five roundabouts. Using a micro-simulation model and 2030 PM peak hour volumes, WSDOT identified that the operation of a multi-lane roundabout with right turn bypass lanes and a signal meter on the westbound approach of SE Eastgate Way passes preliminary tests for feasibility and merits further consideration for viability as an intersection treatment to manage mobility in the area. Figure 15 is a conceptual plan of Option B for 150th Avenue SE and SE Eastgate Way and Figure 16 is a screen shot of the roundabout from the WSDOT simulation model.

The following are representative safety, traffic flow, and place-making attributes of roundabouts from the Federal Highway Administration's Informational Guide on Roundabouts that make them a compelling alternative to consider in the corridor:

- **Fewer crashes** – Reduces conflict points (where the path of traffic movement crosses) from 32 to 8 – results in an average 35% decrease in number of crashes (relative to signals).
- **Less severe crashes** – Slower speeds (15-25 mph) and converting traffic movements to right-turns (no head-on or right-angle conflicts) reduces severe injury crashes by an average of 60 to 80%.
- **Reduces delay** – Traffic not always required to stop – only yield. Conversion to roundabouts led to an average 20+ percent reduction in delay; particularly notable during off-peak traffic conditions.
- **Aesthetics** – Creates a focal point that can provide enhanced character and gateway treatment for a community or neighborhood.
- **Environmental** – Cuts down vehicular emissions and fuel consumption by reducing vehicle idle time at intersections (averaging 33% less hydrocarbons, 36% less CO, 21% less nitric oxides).

- **Access Management** – Creates opportunities for access management of nearby properties, particularly where congested commercial driveways occur, thus improving safety for all modes at these nearby driveways while adequately facilitating redirected travel patterns in a reduced conflict manner.

- **O&M Costs** – Reductions in ongoing maintenance expenses as compared to the relatively more complex electronics and systems of traffic signals.

It is important to note that considerably more technical vetting of operations would be necessary to validate the operation and design parameters to ensure a roundabout functions properly at the 150th Avenue SE and SE Eastgate Way intersection. An important consideration in the design and operation of a multi-lane roundabout is to provide drivers who are approaching the roundabout adequate guidance to ensure they are in the proper lane before entering the circulatory roadway, through the use of appropriate signing and MUTCD approved pavement markings.

Based on CAC guidance, Bellevue staff prepared more specific cost estimates for Option B. This exercise arrived at a 2011 planning level cost estimate of $5,225,000 based on the conceptual illustration found in Appendix B (see page 52).

Project I-3: 156th Avenue SE at SE Eastgate Way (I-90 WB off-ramp) Intersection Improvement

Respondents to the City of Bellevue's on-line questionnaire requested specific improvements to address the I-90 westbound to 148th Avenue SE northbound movement. The following is a representative comment: "Going from I-90 westbound to 148th northbound is sloppy. There are two stoplights and two turns on this very common path. How much congestion could we eliminate if there were no stoplights/turns/intersections?" To address public concerns at this location, Project TFP-162 aims to widen the I-90 westbound off-ramp at Eastgate Way & 156th Avenue SE to provide two dedicated left turn lanes and a shared through/right lane with channelized right turn (illustrated in Figure 17).

A roundabout concept for this location is also presented in Figure 18.

Based on CAC guidance, Bellevue staff prepared more specific cost estimates for Option A (Signalized Alternative) and Option B (Roundabout Alternative). This exercise arrived at a 2011 planning level estimate of cost

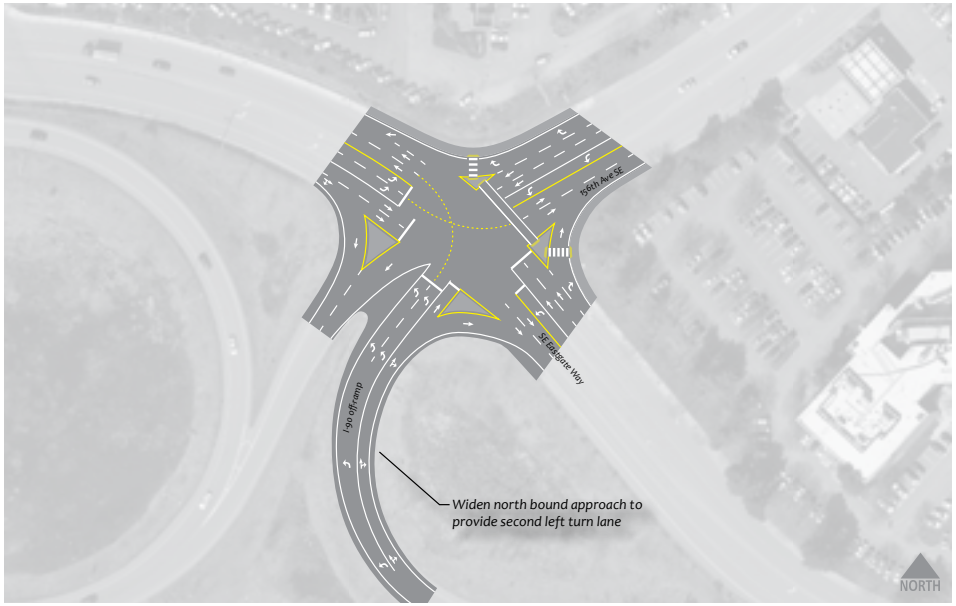


FIGURE 17 *156th Avenue SE and SE Eastgate Way Intersection Improvement Option (Project I-3: Option A)*

FIGURE 18 *156th Avenue SE and SE Eastgate Way Roundabout Improvement Option (Project I-3: Option B)*

of approximately $880,000 for Option A and $3,700,000 for Option B, based on the conceptual illustration found in Appendix B (see page 53 and page 54, respectively).

The intersection improvement (Option A) was used to assess the preferred land use vision's influence on the transportation network. The "2030 Preferred Land Use with Transportation Improvements" scenario reduces delay to 53 sec/veh down from 64 sec/veh in the "2030 Preferred Land Use without Transportation Improvements" scenario, a 21 percent reduction. The delay reduction associated with the "2030 Preferred Land Use with Transportation Improvements" scenario maintains the current LOS D rating at this intersection; it would otherwise result in an LOS E rating in the "2030 Preferred Land Use without Transportation Improvements" scenario. Furthermore, the "2030 Preferred Land Use with Transportation Improvements" scenario reduces delay from 54 sec/veh ("existing conditions"), a 2 percent reduction over what is experienced today.

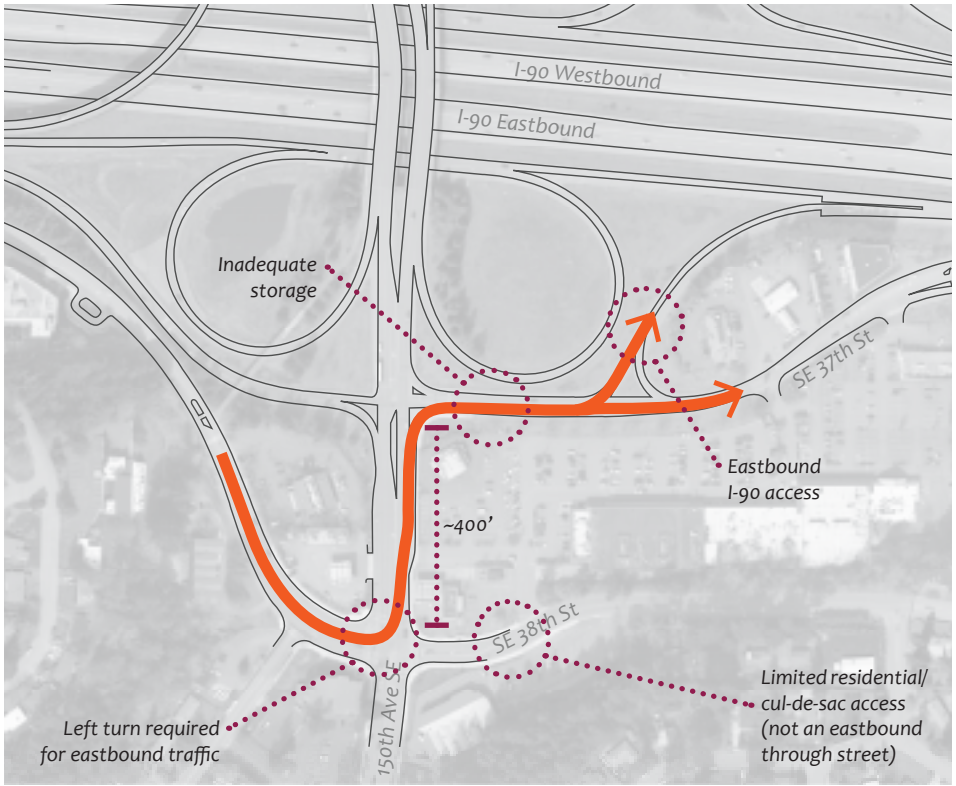


FIGURE 19 *Traffic Challenges on SE 37th and SE 38th Street at 150th Avenue SE*

Project I-4: 150th Avenue SE/ I-90 Eastbound Off-Ramp and SE 37th Street Intersection Improvement

The signalized intersections of SE 37th Street and SE 38th Street with 150th Avenue SE are in close proximity to each other (separated by roughly 400 feet). Traffic coming from the west on SE 38th Street destined further east – either to I-90 or East Bellevue – must turn left (northbound) onto 150th Avenue SE and then right (eastbound) onto SE 37th Street. A significant amount of afternoon peak traffic makes this movement to access I-90 eastbound because an eastbound ramp to I-90 does not exist in Factoria. This movement creates a bottleneck along SE 38th Street and 150th Avenue SE. Arterial congestion at this location is, in part, a byproduct of extremely high interchange volumes and a lack of available storage on SE 37th Street (see Figure 19).

One of two options is proposed to address current and projected 2030 PM peak hour traffic volumes at this intersection. Option A (Signalized Alternative) and Option B (Roundabout Alternative) are detailed below.

The intersection improvement (Option A) was used to assess the preferred land use vision's influence on the transportation network. The "2030 Preferred Land Use with Transportation Improvements" scenario reduces delay to 57 sec/veh down from 139 sec/veh in the "2030 Preferred Land Use without Transportation Improvements" scenario, a 144 percent reduction. The delay reduction associated with the "2030 Preferred Land Use with Transportation Improvements" scenario maintains the current LOS E rating at this intersection; it would otherwise result in an LOS F rating in the "2030 Preferred Land Use without Transportation Improvements" scenario. Furthermore, the "2030 Preferred Land Use with Transportation Improvements" scenario results in a 28 percent reduction in delay over "existing conditions".

Option A (Signalized Alternative)

The current analysis supports the implementation of Project TFP-195 at this location, which would widen the I-90 eastbound off-ramp at 150th Avenue SE and add a through lane. SE 37th Street east of 150th Avenue SE would be widened for an additional lane and channelization to accommodate eastbound left turning traffic onto the I-90 eastbound on-ramp while allowing eastbound through traffic to continue along SE 37th Street past the on-ramp intersection.

Based on the projected 2030 PM peak hour LOS F conditions in both the "2030 No Action Land Use without Transportation Improvements" and "2030 Preferred Land Use without Transportation Improvements" scenarios, the following improvements are recommended on SE 37th Street:

- East leg – Add dual WB left turns, add additional EB through lane. Include new sidewalk on south side.
- West leg – Widen I-90 off-ramp and stripe as a left turn, through lane, and dual right turn lanes.
- North leg – Extend the SB left turn lane to a total of 300 feet in length and phase as protected/permissive signalized movement; extend planned third SB lane to the intersection of SE 37th Street/150th Avenue SE.
- South leg – Extend the SB right turn lane at SE 38th Street to the north to SE 37th Street.
- Run split signal phasing for the east and west legs.

In addition, it is recommended to provide dual EB left turn lanes and a signal at the intersection of SE 37th Street and the I-90 on-ramp. The ramp itself would need to be widened to receive the dual left turns from SE 37th Street. The improvements described above would significantly improve the LOS and reduce delay at the intersection under the 2030 PM peak hour conditions.

Based on CAC guidance, Bellevue staff prepared more specific cost estimates for Option A. This exercise arrived at a 2011 planning level cost estimate of $3,335,000 for these improvements based on the conceptual illustration found in Appendix B (see page 55).

Option B (Roundabout Alternative)

A roundabout concept for this location is also presented in Figure 21. Figure 22 is a screen shot of the roundabout from the WSDOT simulation model (including an additional roundabout at SE 38th Street).

Regardless of which intersection improvement concept is selected, it would need to be designed to accommodate the Mountains to Sound Greenway Trail alignment if the southern alignment is selected. If an at-grade trail crossing is implemented, additional engineering/ design attention would be required to select appropriate treatments for providing safe and direct trail crossings at this location.

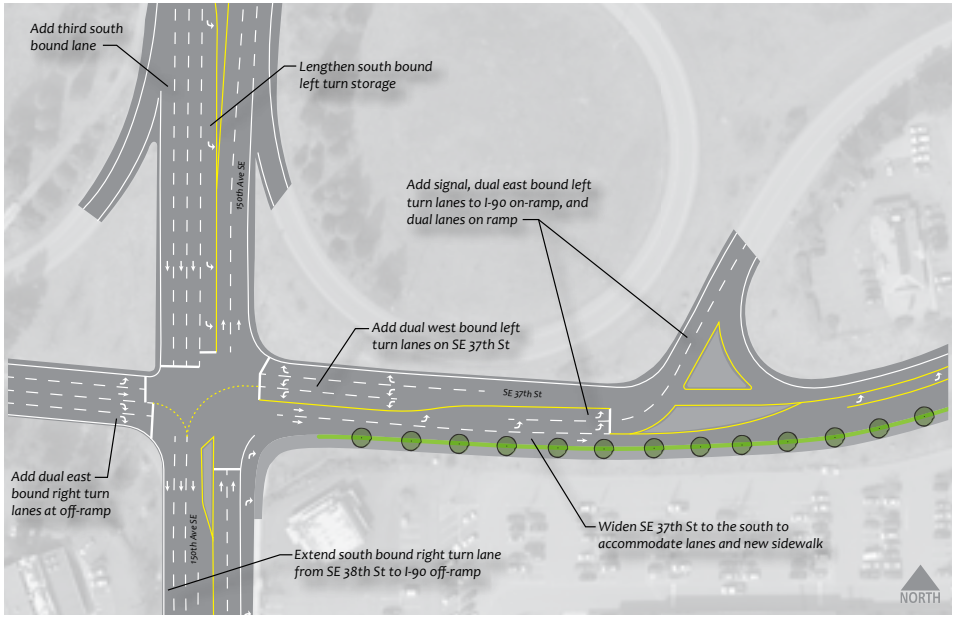


FIGURE 20 *150th Avenue SE and I-90 Eastbound Off-ramp Intersection Improvement Option (Project I-4: Option A)*

FIGURE 21 *150th Avenue SE and I-90 Eastbound Off-ramp Roundabout Improvement Option (Project I-4: Option B)*

Figure 22 *WSDOT Simulation Model of Roundabout Improvement Option (Project I-4: Option B; looking south)*

Figure 23 *148th Avenue SE/150th Avenue SE Third Southbound Lane Improvement Project (Project TFP-154)*

Based on CAC guidance, Bellevue staff prepared more specific cost estimates for Option B. This exercise arrived at a 2011 planning level cost estimate of $3,255,000 for these improvements based on the conceptual illustration found in Appendix B (see page 56).

Project TFP-154: 148th/150th Avenue SE Third SB Lane (I-90 WB On-ramp to SE 38th Street)

148th Avenue SE is classified as a primary arterial north of I-90 and as a minor arterial south of the interchange (150th Avenue SE). Principal arterials provide direct routes for long distance travel within the region, and connect freeway interchanges to major concentrations of commercial activity. Minor Arterials connect principal arterials to major commercial and residential areas.

The 2010 Annual Average Weekday Traffic Count (AAWDT) for the 148th/150th Avenue SE corridor showed a daily vehicle count of 29,468 on 148th Avenue SE south of SE 28th Street, 12,900 on SE Eastgate Way east of 146th Place SE and 31,100 on 150th Avenue SE south of SE 37th Street. During the morning and afternoon peak, the vehicle counts on 148th Avenue SE and 150th Avenue SE were between 2,000 and 2,600 vehicles per hour, and between 1,000 and 1,300 vehicles per hour on SE Eastgate Way at 146th Place SE.

Project TFP-154, evaluated during the 2002 Eastgate/I-90 Corridor Study, would ease southbound congestion along 148th/150th Avenue SE through the Eastgate Way intersection by constructing a third southbound lane along 148th Avenue SE from the westbound I-90 on-ramp, along 150th Avenue SE, to the I-90 westbound off-ramp south of Eastgate Way. The eastbound I-90 off-ramp immediately south of Eastgate Way would merge with the third southbound lane. The 150th Avenue SE overpass of I-90 has three lanes, so no further widening would be required. The third lane would remain an "exit-only" or drop-lane for the I-90 eastbound loop ramp immediately north of the SE 37th Street.

Based on the 2009 *Preliminary Screening Analysis*, it appears that a third continuous southbound through lane will be needed south from SE Eastgate Way to SE 38th Street. It would be an extension of the lane provided by Project TFP-154. [Note: a third southbound lane might not be needed were a multi-lane roundabout identified as the preferred intersection treatment at the 150th Avenue SE and SE 37th and SE 38th Street intersections].

Based on CAC guidance, Bellevue staff prepared more specific cost estimates for the 148th Avenue SE/150th Avenue SE Third Southbound Lane improvement project (illustrated in Figure 23). This project costing exercise arrived at a 2011 planning level estimate of cost of approximately $2,200,000 for these improvements (see page 57).

INTERSTATE IMPROVEMENTS

The Eastgate study area's success as a business corridor is directly linked to its accessibility to I-90. I-90 is the longest Interstate Highway in the United States and is the main east-west corridor that connects eastern and western Washington, which makes it critical to the state's economy and vital to the 10 million people who travel this corridor each year (see Figure 24).

Because of its importance as a transportation corridor, congestion on I-90 spans three hours during the morning commute and two hours during the evening commute (between Front Street in Issaquah and Eastgate in Bellevue). In Bellevue, the current Eastgate interchange operates at or near capacity during peak travel times; often resulting in spillover traffic that causes congestion on the surrounding arterial street network. In response to these and other conditions in the corridor, the Washington State Department of Transportation (WSDOT) embarked on the *I-90 Bellevue to North Bend Corridor Study* in late 2006 to look at existing and future needs along the corridor.

NEAR-TERM IMPROVEMENTS

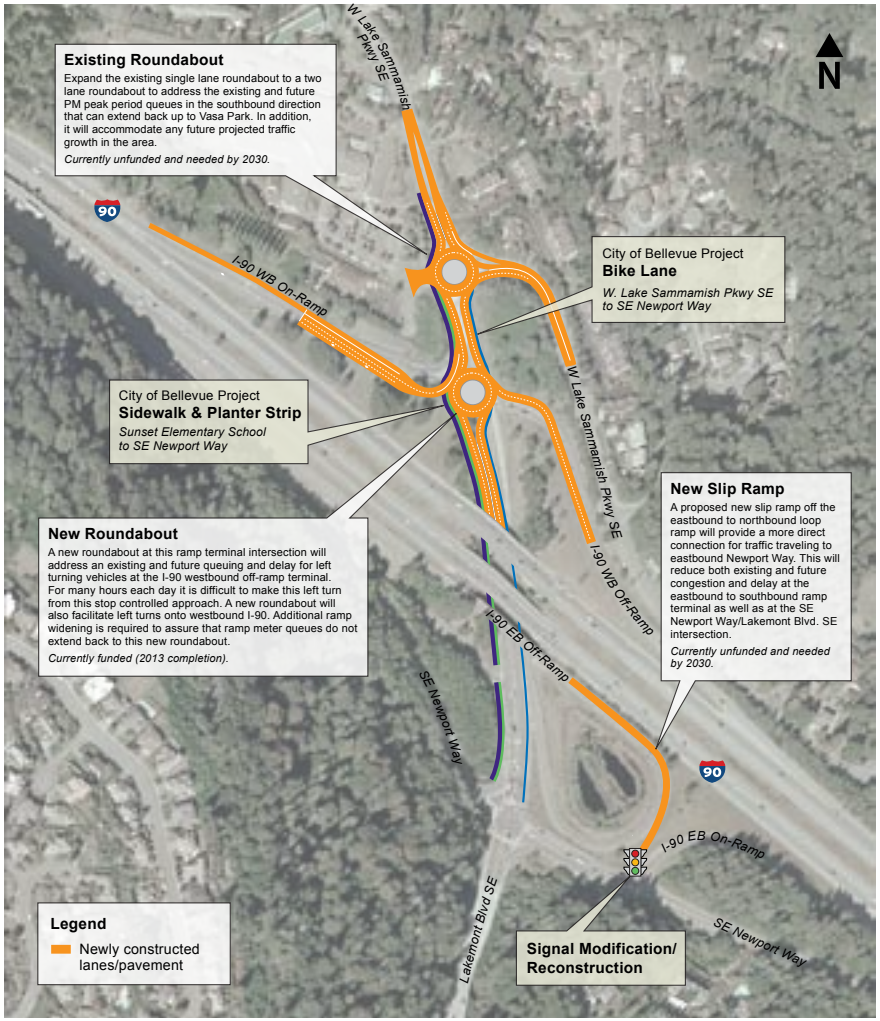
WSDOT's Draft *I-90 Bellevue to North Bend Corridor Study* recommends the following improvements at the Lakemont Boulevard SE/West Lake Sammamish Parkway SE Interchange: enlarge the existing West Lake Sammamish Parkway roundabout estimated at $4.1M ($2009 WSDOT estimate); construct a new roundabout at the westbound ramp terminal estimated at $1.4M ($2009 WSDOT estimate); and, construct a new EB slip ramp on the existing EB to NB West Lake Sammamish Parkway off-ramp estimated at $2.3M ($2009 WSDOT estimate).

The westbound ramp intersection on West Lake Sammamish Parkway is currently un-signalized. Due to the high conflicting turning movements

FIGURE 24 *As one of only two routes across Lake Washington between the city of Seattle and the cities in eastern King County, I-90 serves a diverse market of transportation users and service providers.*

I-90 Bellevue to North Bend Corridor Study

West Lake Sammamish Parkway Roundabout Options



Washington State Department of Transportation

April 2010

FIGURE 25 *WSDOT improvement concept for Lakemont Boulevard Interchange*

for the westbound I-90 off-ramp, left turning vehicles experiences delay coming off the freeway trying to access the local street system. Delays are also experienced by left turning vehicles northbound entering onto the I-90 westbound on ramp but that is more a function of queuing and operation on the ramp itself. As a result, WSDOT is proposing a multilane roundabout at the westbound ramps intersection, as well as, widening the existing single-lane roundabout at SE 43rd Place and West Lake Sammamish Parkway to a 2-lane roundabout, to address the failing conditions during the p.m. peak.

The WSDOT *Draft I-90 Bellevue to North Bend Corridor Study* found that both roundabout improvements (at the westbound ramps/Lakemont Boulevard/West Lake Sammamish Parkway intersection, as well as, widening the existing single-lane roundabout at SE 43rd Place and West Lake Sammamish Parkway to a 2-lane roundabout) would improve the LOS at both intersections from LOS F in the p.m. hour to LOS B or better in 2030. In the a.m. peak hour, the westbound ramps intersection operates at LOS F under its current configuration, while the existing single-lane roundabout to the north operates at LOS D. With both roundabout improvements, both intersections will also operate at LOS B in the a.m. peak hour.

Despite the State's financial difficulties, WSDOT is moving forward with improvements at the westbound ramp intersection on West Lake Sammamish Parkway (Figure 25). The addition of a new roundabout at this location meets WSDOT's warrants (based on its collision history) and has received funding for design/construction (2013 completion). The scope of this project is limited to the new roundabout (not the widening of the existing roundabout or new slip ramp).

LONG-TERM IMPROVEMENTS

The preliminary recommendations from the *Draft I-90 Bellevue to North Bend Corridor Study* include: an eastbound auxiliary lane from 150th Avenue SE to West Lake Sammamish Parkway SE estimated at $33M; a westbound auxiliary lane from SR-900 to 150th Avenue SE estimated at $112M; conversion of existing I-90 HOV lanes to High Occupancy Toll (HOT) lanes estimated at $19M; and, Active Traffic Management (ATM) intelligent transportation system estimated at $27M ($2011 WSDOT estimate).

The WSDOT *Draft I-90 Bellevue to North Bend Corridor Study* found that in the near term (2015) the eastbound auxiliary lane between Eastgate and Lakemont Boulevard interchanges would reduce (general purpose traffic)

congestion around the Eastgate interchange (see Figure 26). Corridor speeds along I-90 would exceed 55 mph for nearly the entire 3-hour p.m. peak period, and for most of the distance between Mercer Island and beyond Issaquah. The improvement would also reduce travel times up to 3 minutes, an improvement even over 2005 conditions. By 2030, with the addition of the HOT lane conversion, corridor speeds along I-90 would exceed 55 mph for more than half of the 3-hour p.m. peak period, and for most of the distance between Mercer Island and beyond Issaquah. In addition, travel times along the corridor, after the improvements are implemented, would improve by 2 minutes, compared to doing nothing.

Bellevue's travel demand modeling effort confirm that construction of the eastbound and westbound auxiliary lanes on I-90, between 150th Avenue SE and Lakemont Boulevard, would have significant benefits for the mainline and would help minimize or eliminate the resulting queuing and congestion on City streets that lead to key on-ramps within the project study area. The BKR modeling effort shows that the I-90 auxiliary lane improvements have significant benefit for the I-90 mainline, particularly eastbound in the PM peak hour. In some places within the Eastgate corridor the auxiliary lane addition expands travel capacity by over 700 trips eastbound. Some of this is attributed to the general purpose lanes actually moving faster in some cases than the HOV lanes, which opens up additional capacity in both.

The BKR travel plots indicate that more trips access I-90 from the north and south via I-405, instead of using north-south arterials such as 148th/150th Avenue SE. In fact, there are fewer trips on these north-south arterials in the PM peak with the I-90 improvements in place, which is beneficial for the corridor as well. This situation helps minimize or eliminate the resulting queuing and congestion on City streets leading to key on-ramps within the project study area, such as on SE 37th Street and on 150th Avenue SE south to SE 38th Street.

Bellevue has a history of successfully partnering with WSDOT to provide the city's perspective on large highway projects such as Access Downtown, I-405 South Bellevue Widening, and Bellevue Braids. Given the benefits of the I-90 mainline improvements, it is assumed that Bellevue will work with WSDOT to advance these interstate projects.

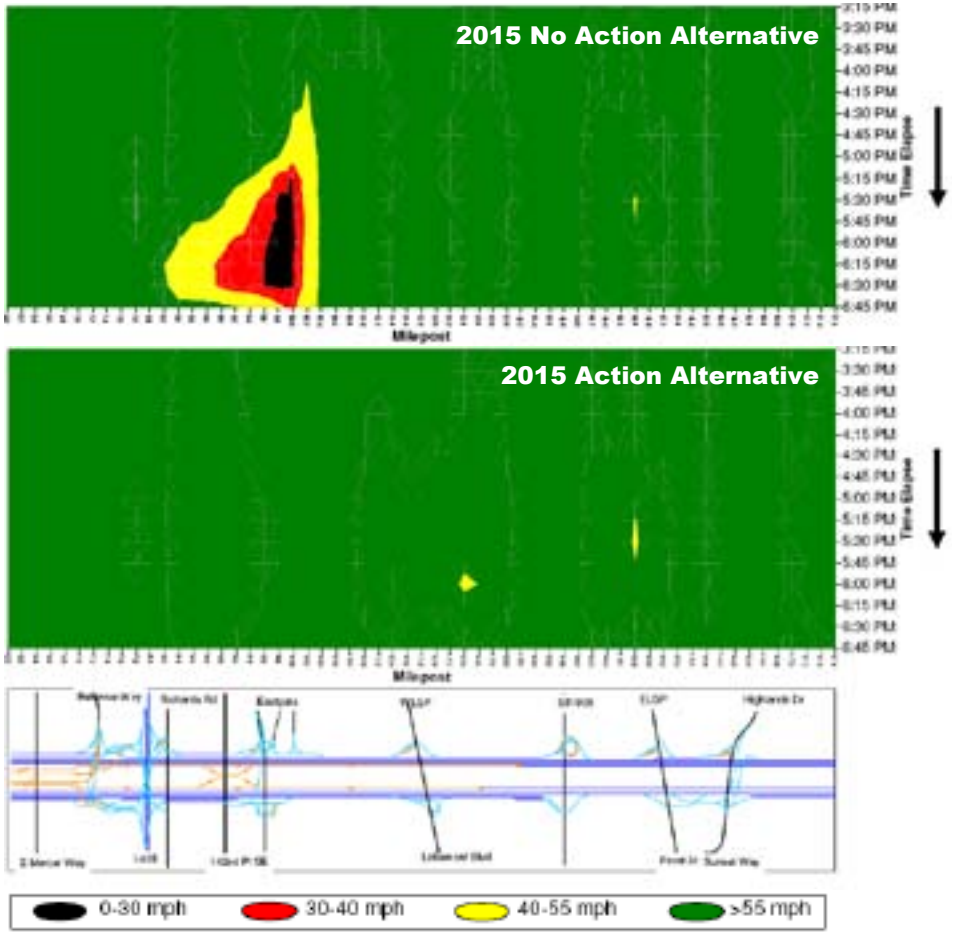


FIGURE 26 *WSDOT study results showing I-90 eastbound speed profile with and without auxiliary lane improvement. In the 2015 action alternative, vehicles will have more space to enter the mainline traffic at the Eastgate interchange resulting in a smoother merge and less congestion at this location.*

TRANSIT ENHANCEMENTS

Bellevue's 2008 *Budget Survey* – a tool for gauging the public's priorities - found that 92 percent of Bellevue respondents agree that in order to deal with increased traffic congestion, the City should "work with regional agencies to improve local transit service within Bellevue." While the City of Bellevue doesn't operate its own transit system in the city, it can leverage additional transit investments in the Eastgate subarea with supportive land uses that maximize existing transit facility investments (i.e., Park & Ride and direct access ramps). Additionally, efforts to improve the average speed of coaches in the Eastgate subarea will result in improved provision of cost efficient and effective bus transit service and potential for increased ridership.

NEAR-TERM IMPROVEMENTS

In the near-term, a portion of the capital costs (installing loading zones at the 142nd Place SE and SE 36 Street intersection to provide a paratransit / bus transfer point; see Figure 27) associated with enhancing the 142nd Place SE bridge crossing for transit (detailed in the long-term improvements section) is programmed by Sound Transit as construction mitigation for closing the South Bellevue P&R during East Link construction.

LONG-TERM IMPROVEMENTS

The preferred land use/transportation vision for the Eastgate/I-90 corridor strives to maximize transit performance through supportive land uses and speed and reliability treatments that facilitate transit operations on Bellevue's street network. One of the most significant transit supportive land use enhancements in the preferred vision is the redevelopment of several properties neighboring the Eastgate Park & Ride facility, including, but not limited to, the Lincoln Executive Center and a portion of Bellevue College to become a hotspot of activity linked closely with transit that includes a mix of higher density residential, institutional, and commercial

FIGURE 27 *Conceptual illustration of Sound Transit potential improvements to 142nd Place SE bridge structure.*

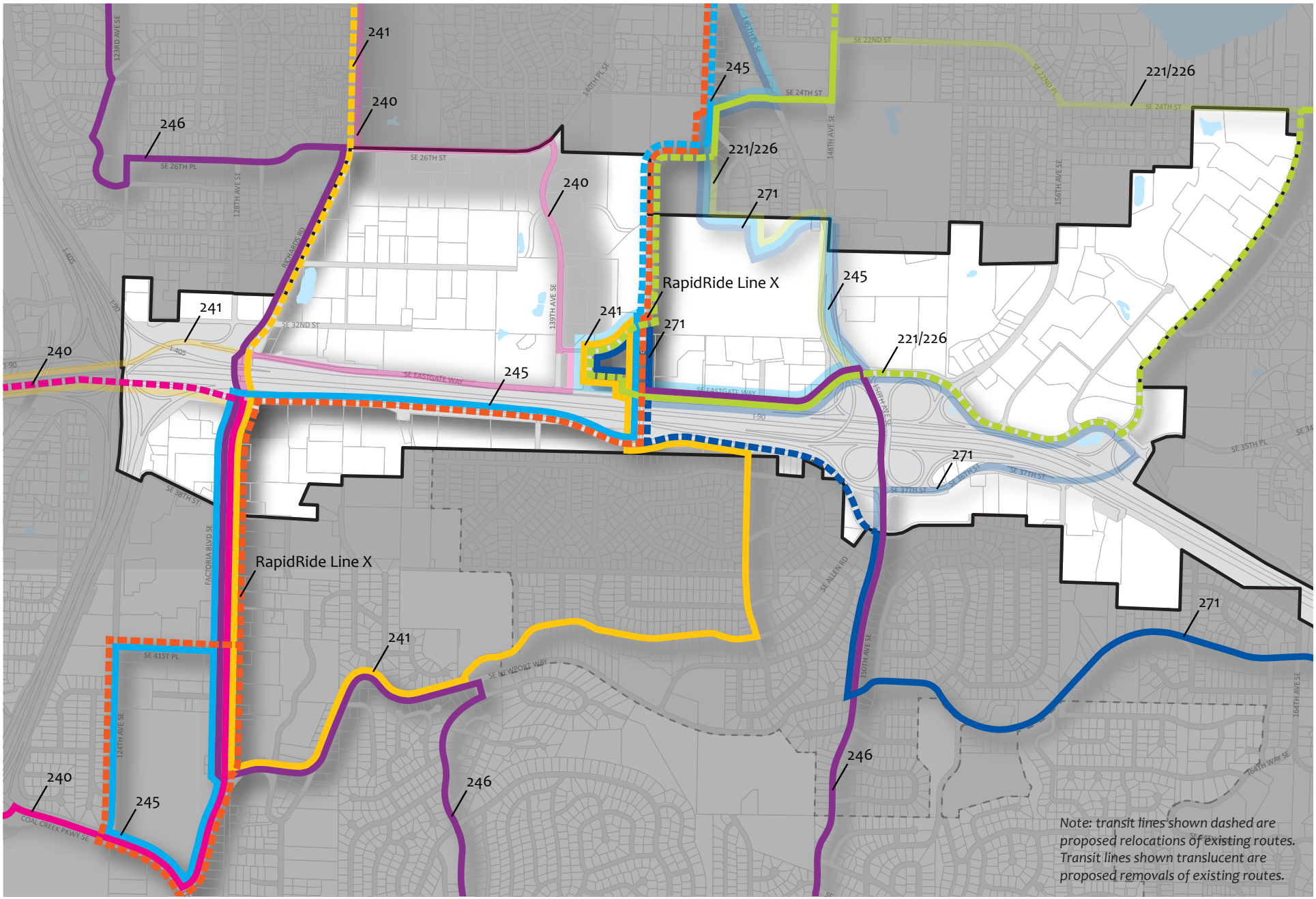


FIGURE 28 *Proposed Transit Service Improvements in Eastgate/I-90 Corridor*

(e.g., coffee shops, book stores, convenience stores, restaurants) uses. Figure 28 shows the proposed route structure in the Eastgate area that would direct increased levels of bus service to this all-day destination.

Directing future land uses where more people can directly access and use transit increases the Eastgate/I-90 corridor's "geographic value" thereby aligning it with Metro's focus on creating a more efficient and productive transit system in accordance with its new *Strategic Plan for Public Transportation (2011-2021)* and associated service guidelines. The Citizen Advisory Committee considered Metro's new policy direction and the body of research showing that residential and employment densities has a strong relationship to transit ridership when making its land use decisions in the Eastgate/I-90 Project. These land use decisions will have a significant influence on King County's transit resource allocation decisions relative to the project area in the future.

Enhancing the transit connection between the Eastgate Park & Ride and Bellevue College will significantly improve transit operations and service

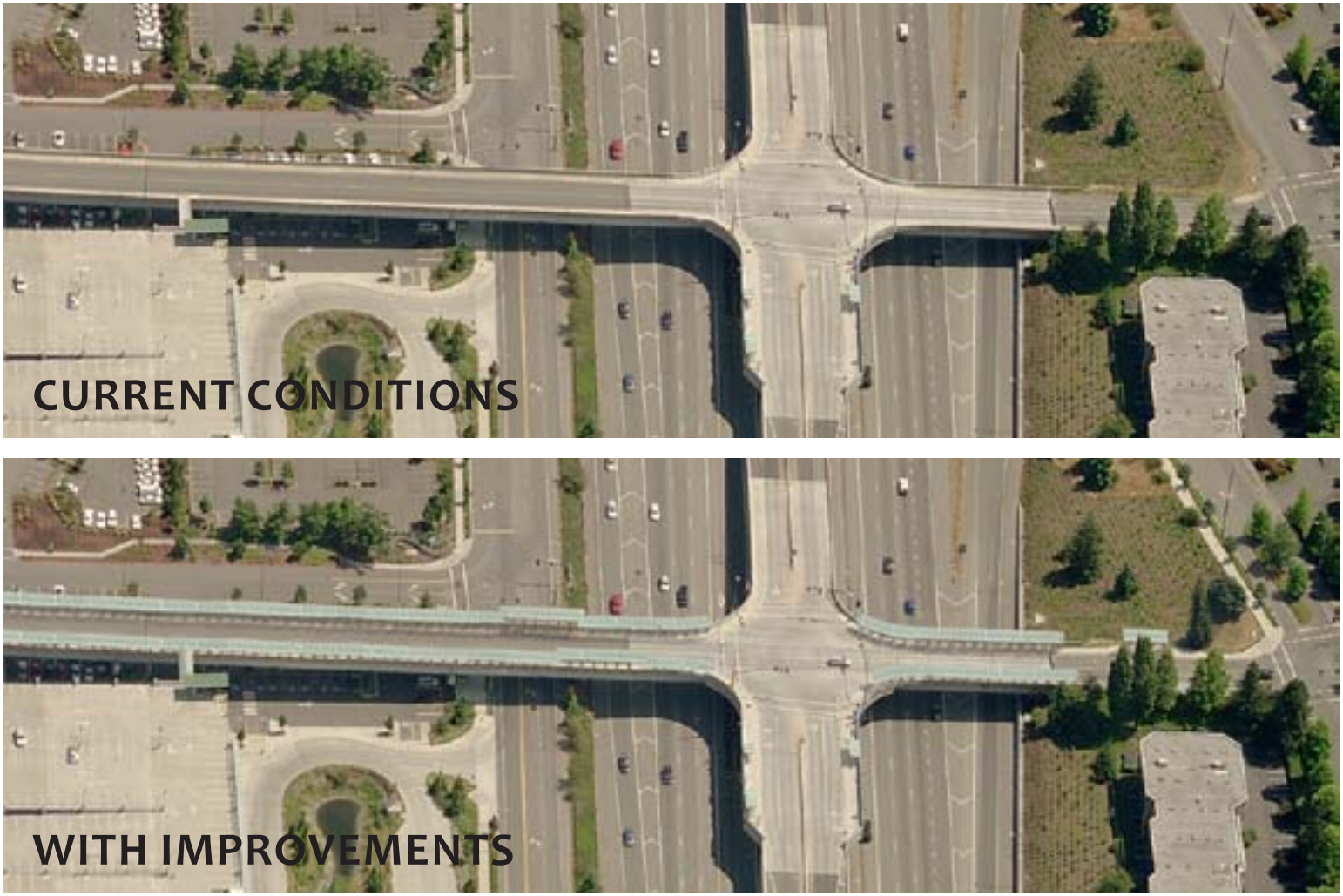


Figure 29 *Proposed 142nd Place SE Bridge and MTS Greenway Trail Improvements*

delivery at the direct access ramp and at the intersection with SE 36th Street. At present, these two major transit hubs are less than a half mile apart as the crow flies. Unfortunately, terrain and the road network make this a very difficult connection. Coaches go all the way out to 148th Avenue and turn onto Eastgate Way; this amounts to three signalized left turns in the northbound direction, in addition to a lot of added distance.

To enhance linkages between the Park & Ride and College, the preferred land use and transportation vision incorporates a covered walkway on the 142nd Place SE bridge (much like the Totem Lake I-405 direct access ramp has between the Kingsgate Park & Ride and the flyer stops). At present, the walk is exposed to the elements, which reduces the attractiveness of transferring between local and regional service at this location.

In addition to improving pedestrian comfort with weather protection, bus stops would be placed on the 142nd Place SE bridge immediately adjacent to the I-90 flyer stops to allow for seamless transfers between regional service on I-90 and local service to Factoria, Bellevue College, and points beyond. To realize this location's transfer potential (which will lead to greater ridership), the sidewalk on the bridge would be widened to 8 feet to allow for bus stops on the structure (the sidewalk is only 6 feet wide).

Structural modifications of the bridge structure do not appear necessary to advance these improvements. Visual inspection shows that the travel lanes on the 142nd Place SE bridge are 14 feet wide and the sidewalks are 6 feet wide. It appears possible to narrow the travel lanes to 12 feet and widen the sidewalks to 8 feet, which would be required for a bus stop. Buses would stop in-lane on the bridge, which may delay traffic on the bridge at times.

Figure 29 on the previous page shows the concept of a wider/covered pedestrian walkway across the 142nd Place SE bridge connecting with and contributing to the Mountains to Sound Greenway trail concept on the SE 36th Street frontage road. North of the bridge, improvements would be made on Snoqualmie River Road, which includes upgraded pavement to support buses, sidewalks, accessible bus stops, and the south entrance intersection. This capital investment would allow for the bus routing concept depicted in Figure 30 (source: *Bellevue College Transportation Planning Study*; July 2011).

Developing 142nd Place SE as a "transit emphasis corridor" necessitates a partnership between the City of Bellevue, Bellevue College, Sound Transit, and King County Metro to address the following key challenges: (i) a loss

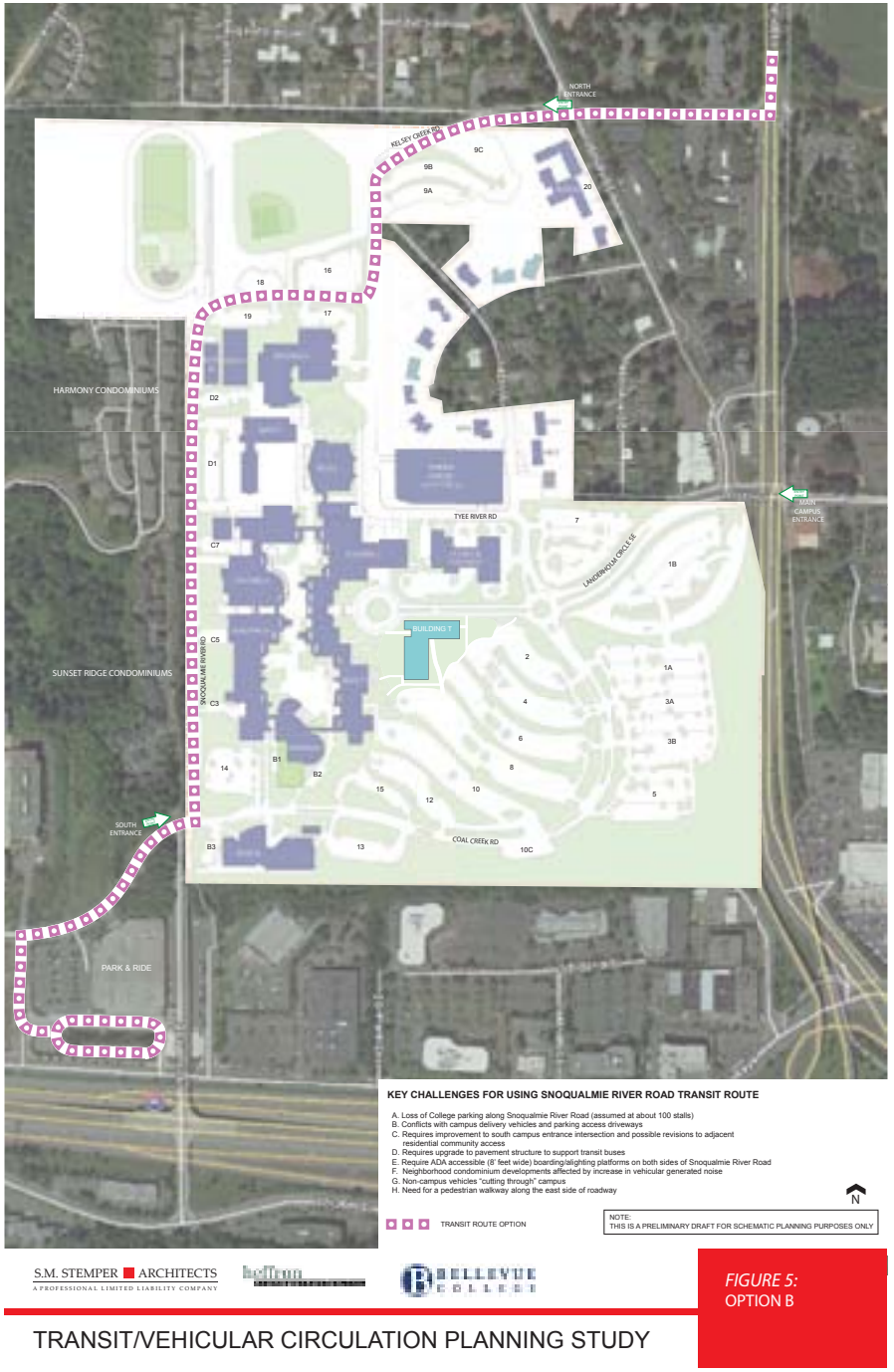


FIGURE 30 *Bellevue College Transit Circulation Concept*

of up to 100 parking stalls along Snoqualmie River Road; (ii) conflicts with delivery vehicles; and, (iii) increase in vehicle-generated noise that may impact the condominiums adjacent to Bellevue College. Improvements to Snoqualmie River Road that reinforce Bellevue College as an all-day transit service area with enhanced bus service connections to and through the campus are estimated to cost $4.4 million (2009 *Eastgate Preliminary Screening Analysis*). This capital investment would allow for improved transit routing through the campus which is expected to result in approximately $540,000 in annual operating cost savings to King County Metro.

A potential avenue to advance these projects is through the ST3 planning process that may lead to a potential vote on a future system expansion in the I-90 corridor, including HCT from Bellevue to Issaquah. Given the current investment in the parking structure at Eastgate as well as the anticipated densification of land uses surrounding the existing Eastgate Park-and-Ride, it is highly likely that any HCT stop will be in the vicinity of the Park-and-Ride (see Figure 31). Bellevue is expected, as it has in the past, to play an active role in Sound Transit's planning process and to ensure that appropriate transit service and capital investments are made consistent with the preferred land use/transportation vision in the Eastgate/I-90 corridor.

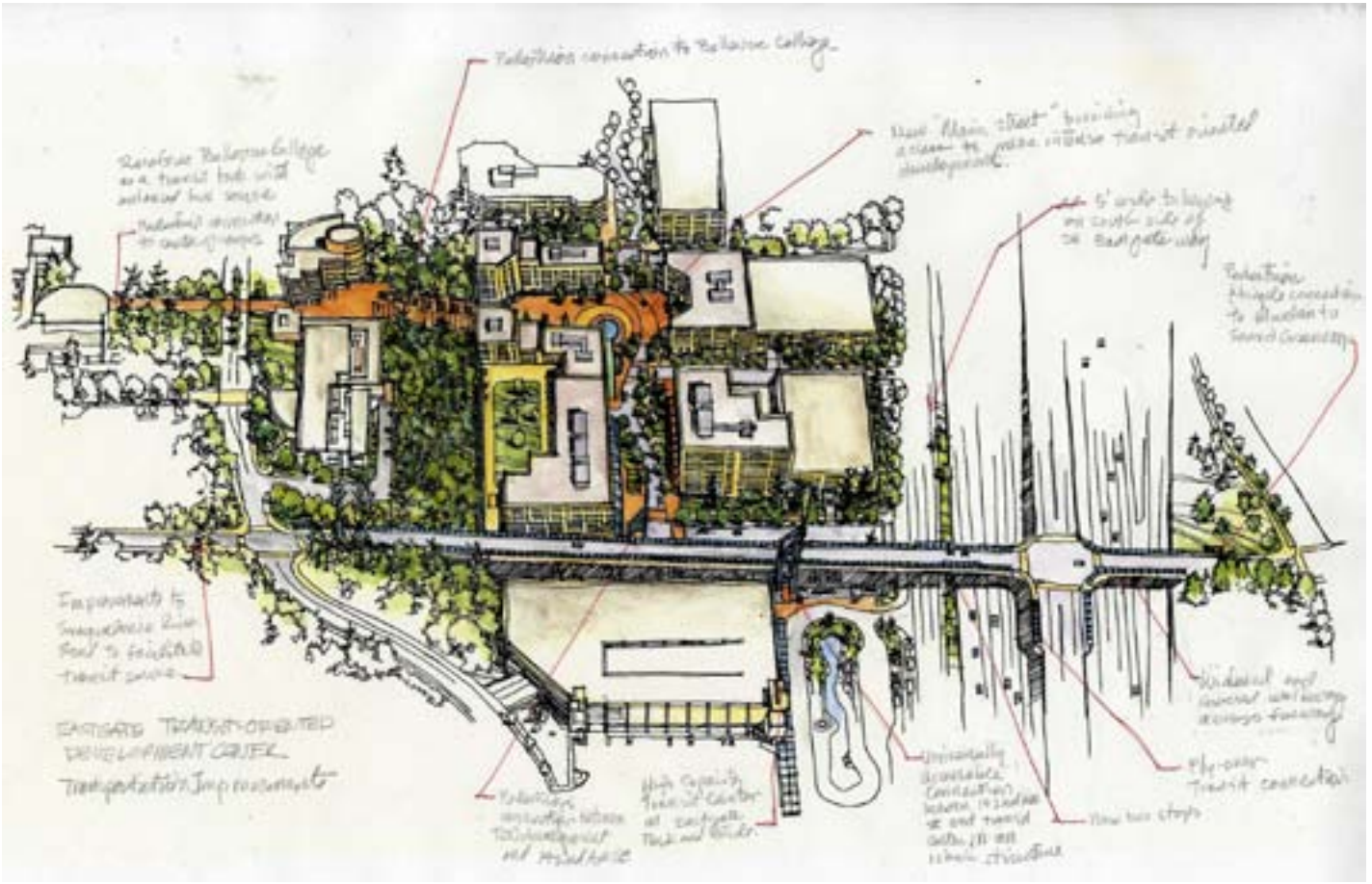


Figure 31 *Together, the Park-and-Ride, Lincoln Executive Center site, surrounding parcels, and Bellevue College campus create a viable opportunity to form Eastgate's central focal point supported by a balanced transportation system that emphasizes transit and non-motorized connectivity.*

MOUNTAINS TO SOUND GREENWAY

The City of Bellevue places a high value on bike and walking paths as a growing component of a healthy and sustainable life-style. Addressing the needs of pedestrians and bicyclists will, in turn, have beneficial outcomes for the community's public health and efforts to reduce emissions of greenhouse gases.

There are a number of barriers for cyclists and pedestrians in the Eastgate/I-90 corridor. The most notable of these is along the Mountains to Sound Greenway (MTSG) which stretches along 100 miles of I-90 in Washington State from the waterfront in Seattle to Central Washington. Unfortunately, the MTSG through the Eastgate area is inadequate as a regional trail. The Greenway ends abruptly at Factoria Boulevard. The next multi-use trail begins 2 miles east at the Sunset Trail (see Figure 32).

There have been many ideas over the past ten years on how to address the "Eastgate Gap" and "integrate into the designs of frontage roads along the I-90 freeway corridor the Mountain-to-Sound greenway concept. Give particular attention to multiuse trails, large-scale landscaping, and pedestrian amenities." (Policy UD-53; *Bellevue Comprehensive Plan*) The 2002 *Eastgate/I-90 Corridor Study* identified the north side of I-90 as the preferred alignment of the Greenway Trail. The 2009 *Pedestrian and Bicycle Plan* process proposed an alignment along the south side of I-90 (based on implementation challenges with the north alignment).

As part of the Eastgate/I-90 Land Use and Transportation Project, the Mountains to Sound Greenway trail alignment was reassessed to take into account whether land use considerations being evaluated might warrant a different routing for the trail through the Eastgate subarea, which was not considered as part of the 2009 *Pedestrian and Bicycle Plan*. Community input represented an important consideration in the assessment of trail alignment

FIGURE 32 *Conceptual illustration of the Mountains to Sound Greenway Trail and "boulevard" treatments along SE 36th Street including street trees and median plantings (identified as Project G-1 in Appendix A).*

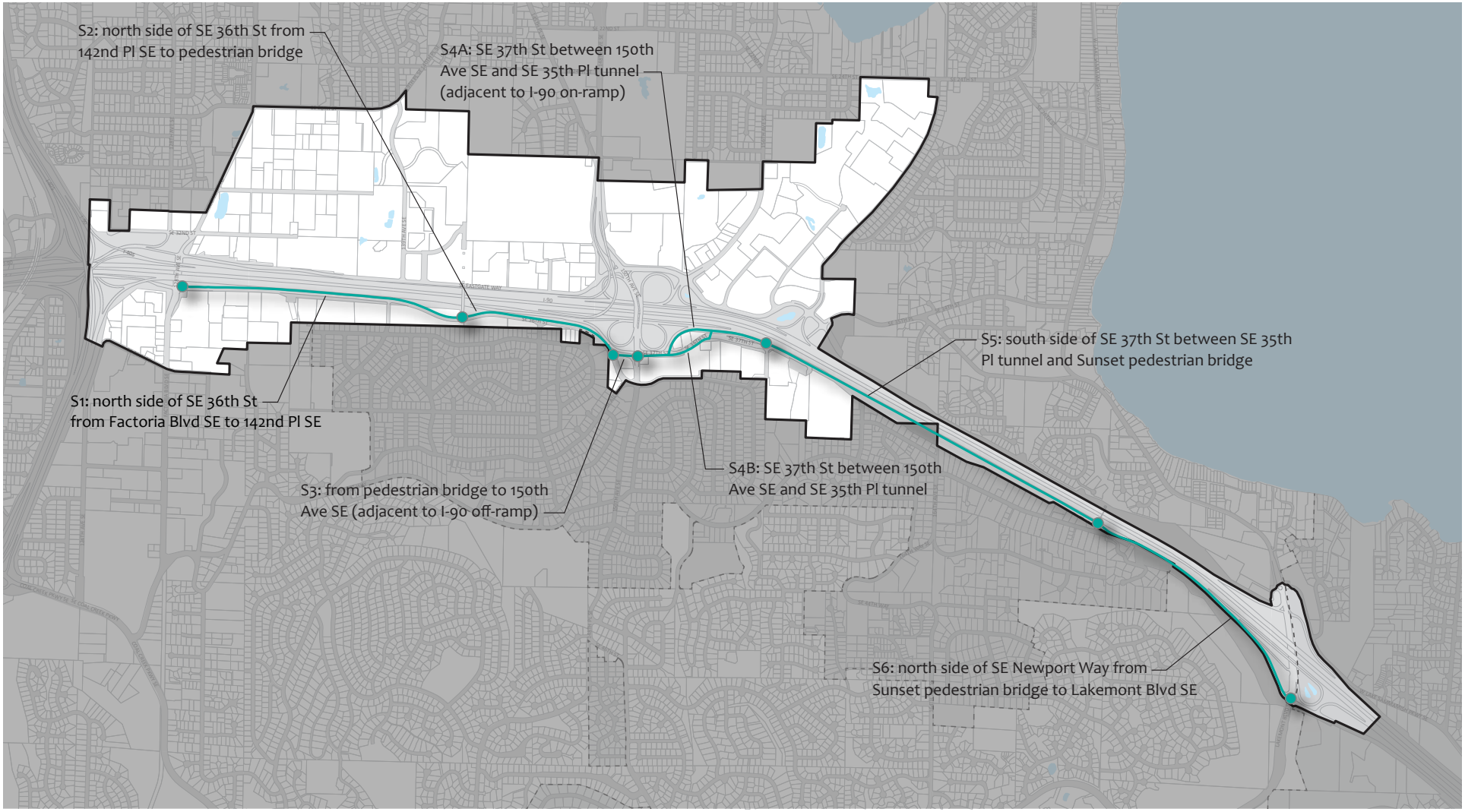


FIGURE 33 *Proposed Mountains to Sound Greenway Trail Alignment*

S1: north side of SE 36th St from Factoria Blvd SE to 142nd Pl SE

S2: north side of SE 36th St from 142nd Pl SE to pedestrian bridge

S3: from pedestrian bridge to 150th Ave SE (adjacent to I-90 off-ramp)

S4A/B: SE 37th St between 150th Ave SE and SE 35th Pl tunnel

S5: adjacent to I-90 from SE 35th Pl tunnel to Sunset pedestrian bridge

S6: north side of SE Newport Way from Sunset pedestrian bridge to Lakemont Blvd SE

options. On July 26, 2011, Bellevue staff held a public outreach ride for residents to experience first-hand what it is presently like to ride a bike along the missing link in the Greenway Trail along the I-90 corridor. An on-line questionnaire was sent out to cyclists who joined the ride to obtain input and reactions on their experience with the present state of the corridor and future development of the trail.

Responses during the ride and in the on-line questionnaire indicated that riders prefer the southern alignment because it is the most direct and continuous route (see Figure 33). In total, sixty-seven people took the on-line survey. Of the four alternatives presented, sixty-four percent of respondents preferred the alignment along the south side of I-90 to Newport Way. Cyclists preferred this alternative at a ratio of approximately two to one over the second preferred alignment (north of I-90, along Eastgate Way).

NEAR-TERM IMPROVEMENTS

In early 2011, the Federal Highway Administration (FHWA) awarded Bellevue a $158,312 grant under the National Scenic Byways Program to undertake a more detailed feasibility analysis of the alignment option arrived at by the Eastgate/I-90 Citizen Advisory Committee. These funds will enable the City of Bellevue and Mountains to Sound Greenway Trust to advance careful technical study of the proposed trail corridor including surveying, mapping, public outreach, and documentation of public ownerships and easements along the route. A final product of this upcoming project will be a detailed description of the preferred trail alignment, recommended design standards, recommendations for future ownership and management of the trail, an implementation strategy that includes steps for each phase of future trail development, potential funding sources, and a financing plan.

LONG-TERM IMPROVEMENTS

Supporting the completion of the Greenway trail network is an essential component of a broader vision of improved access to and interaction with the natural environment in the I-90 corridor. For many Bellevue residents, outdoor green spaces and a well-connected trail network signifies a well-defined sense of place and good quality of life that helps nurture, support and maintain public health and well-being. This perspective is shared by the Bellevue Council in its desire to "improve the Eastgate Corridor's urban design quality and coherence, recognizing the area as a major City gateway and prominent location on the Mountains to Sound Greenway" (Eastgate/I-90 Land Use and Transportation Project, 2010 *Bellevue Council Principle*).

Communities across the country have recognized the ecological and aesthetic opportunities and values in establishing and maintaining roadside plantings and vegetation. It is for this reason that the Eastgate/I-90 preferred vision also includes gateway treatments using naturalistic landscaping in the interstate corridor. The value of trees goes beyond aesthetics. They can provide important environmental and economic benefits as well. This concept will advance Bellevue's environmental stewardship efforts and help enhance the corridor's gateway appeal (see Figure 34).

FIGURE 34 *This image shows how barren the Eastgate interchange is relative to the significant tree canopy of the surrounding community. At present, the tree canopy in the Eastgate/I-90 area is 25.8% of the total acreage and represents an air pollution removal value of $11 million a year and $35 million in storm-water management savings.*

The following are the costs/benefits of this transportation corridor enhancement treatment:

- Costs - A typical Washington State Department of transportation planting contract includes: Soil preparation and amendments, weed control, the plants themselves, and mulch coverage. These types of contracts include 3 years of follow up maintenance, including watering and any necessary plant replacements. This can be between $85,000 to $95,000 per acre or about $3,240,000 for a project of this scope. This cost doesn't include design or contract engineering and administration costs, which varies according to the size of the project. At present there is no direct allocation from WSDOT to increase the urban tree canopy coverage in the Eastgate interchange area.

- Benefits - It takes an average of $30 per cubic foot in facilities costs to mitigate stormwater. Per year, this increase in canopy cover can process an additional 300,000 cubic feet of stormwater, saving nearly $9 million in mitigation costs. This would bring the total amount of stormwater the corridor trees manage to 1,455,000 cubic feet, at a cost saving of nearly $43.6 million. A tree canopy coverage of 29% can remove 5.7 million pounds of air pollutants a year. This has an estimated value nearly $13 million annually. Air pollutants are a factor in many human health issues, such as asthma and lung cancer. In addition, this amount of tree coverage has the potential to store 2.8 million tons of carbon, and can increase that amount by 21,450 tons per year.

A number of local and national partnership case studies are worth considering that would advance the greening of the Eastgate interchange area. By way of example, for every person who test drives a car at one of their Seattle locations, Carter Motors makes a donation to plant a tree in the Mountains to Sound Greenway along I-90 in Washington State. For each car purchase, Carter funds the planting of three additional trees. The idea is that these four trees will offset a year of the carbon emissions of each car sold. Carter has funded the planting of over 27,000 trees in the Greenway. A similar initiative could be undertaken, in partnership with Eastgate corridor businesses, dedicated to greening and beautifying the Eastgate and Lakemont interchange areas as a gateway to Bellevue.

Given the benefits of these projects, it is assumed that Bellevue will work with WSDOT, the Mountains to Sound Greenway Trust, and private entities to advance both the trail and interstate planting improvements in the interstate corridor (see Appendix D for a conceptual illustration of the Eastgate interchange planting concept). The City's recent success in securing FHWA Scenic Byways funds bodes well for advancing Greenway implementation in future rounds of grant applications.

PEDESTRIAN AND BICYCLE CONNECTIVITY

Natural topography has been a significant determiner of spatial pattern in the Eastgate/I-90 corridor. Steep slopes defined edges and isolated large tracts of land, further fracturing connections broken by the freeway. Regulatory frameworks that reflected early twentieth century urban planning ideas, such as separation of uses, low densities, and limited orientation to transit or pedestrians, and the propensities of the real estate market in the 1960s to build automobile-oriented development reinforced these natural and physical features (see Figure 35).

All of these forces, historic uses, natural topography and regulatory frameworks, have contributed to gaps in the Eastgate/I-90 corridor's pedestrian and bicycle network. Addressing this issue is a priority for the Bellevue Council who would like to "increase connectivity across the Eastgate corridor, addressing the area's numerous barriers such as its limited street and non-motorized (both pedestrian and bicycle) network, and stand-alone developments." (Eastgate/I-90 Land Use and Transportation Project, 2010 *Bellevue Council Principle*).

FIGURE 35 *Pale purple reflects areas with a sparse curvilinear tangle of dead-end streets. The unconnected street network found in the Eastgate Subarea today impedes mobility of all users of the transportation network.*

NEAR-TERM IMPROVEMENTS

Progress is underway in responding to the need for improved transportation connectivity in the Eastgate/I-90 corridor. Some of these efforts, like the Mountains to Sound Greenway Trail feasibility analysis (described in the previous section), are in preliminary design phase while others, like the 124th Avenue SE trail connection project, are in construction nearing completion.

The 124th Avenue SE Connection is a 10' wide paved multi-purpose trail on WSDOT ROW connecting the north end of 124th Avenue SE near SE 38th Street to the existing Mountains to Sound Greenway trail along I-90 (as shown in Figure 36). Completion of this trail will allow bicyclists to bypass congestion along Factoria Boulevard; improving both comfort and safety.

Figure 36 *This image shows the 124th Avenue SE trail connection project nearing completion.*

Figure 37 *This image shows how trips that are relatively short "as the crow flies" become burdensome to walk or bike when a person must travel long distances just to get to the road that connects to their destination. If project P-2 is implemented, people in this large office area (Microsoft 2,000 employees; Boeing 2,758 employees; Verizon 1,146 employees; and, Department of Ecology 208 employees) would have an attractive alternative to Eastgate Way (which has no bicycle facilities and a poor pedestrian level of service).*

Completion of the 124th Avenue SE trail connection project is indicative of the importance of documenting projects in long-range planning documents (this project was originally identified in the City's 2002 *Eastgate/I-90 Corridor Study*) and the City of Bellevue's success at securing grant funds ($4 of every $5 in project costs were funded through grants).

LONG-TERM IMPROVEMENTS

It is recognized that large-scale improvements, like building a new bridge structure over I-90, is beyond the scope of the Eastgate/I-90 vision; that said, more modest strategies are available to improve transportation connectivity in the corridor. In the Lincoln Executive Center, Park-and-Ride, and Bellevue College area, an east-west main street could be formalized for multi-modal users. Additionally, paths in the office complex east of 156th Avenue Southeast could also be implemented to provide enhanced connectivity for pedestrians and cyclists, particularly to access retail and services in the 156th area. Pathway improvements to the I-90 Office Park Complex could be integrated with other pedestrian enhancements along 160th Avenue SE to provide a more cohesive pedestrian network serving the many businesses, retail, and recreation attractions in this area. Landscape medians and curb bulbs could be utilized on 160th Avenue SE for instance, to slow vehicle speeds, while other enhancements such as flashing light systems at crosswalks may be an option. Businesses in this area include major employers such as Microsoft, Boeing and the Department of Ecology which have had employees express interest for further pedestrian enhancements in the area (see Figure 37).

Based on CAC guidance, Bellevue staff prepared more specific cost estimates for projects P-2 and P-3. This project costing exercise arrived at a 2011 planning level estimate of cost of approximately $550,000 to implement both P-2 and P-3 improvements found in Appendix B (see page 58 and page 59). These improvements might be feasible through public/private partnerships.

City of Bellevue

Eastgate/I-90 Land Use and Transportation Project

Transportation Strategies Report: Appendices

January 2012

Appendix A
Transportation Improvements

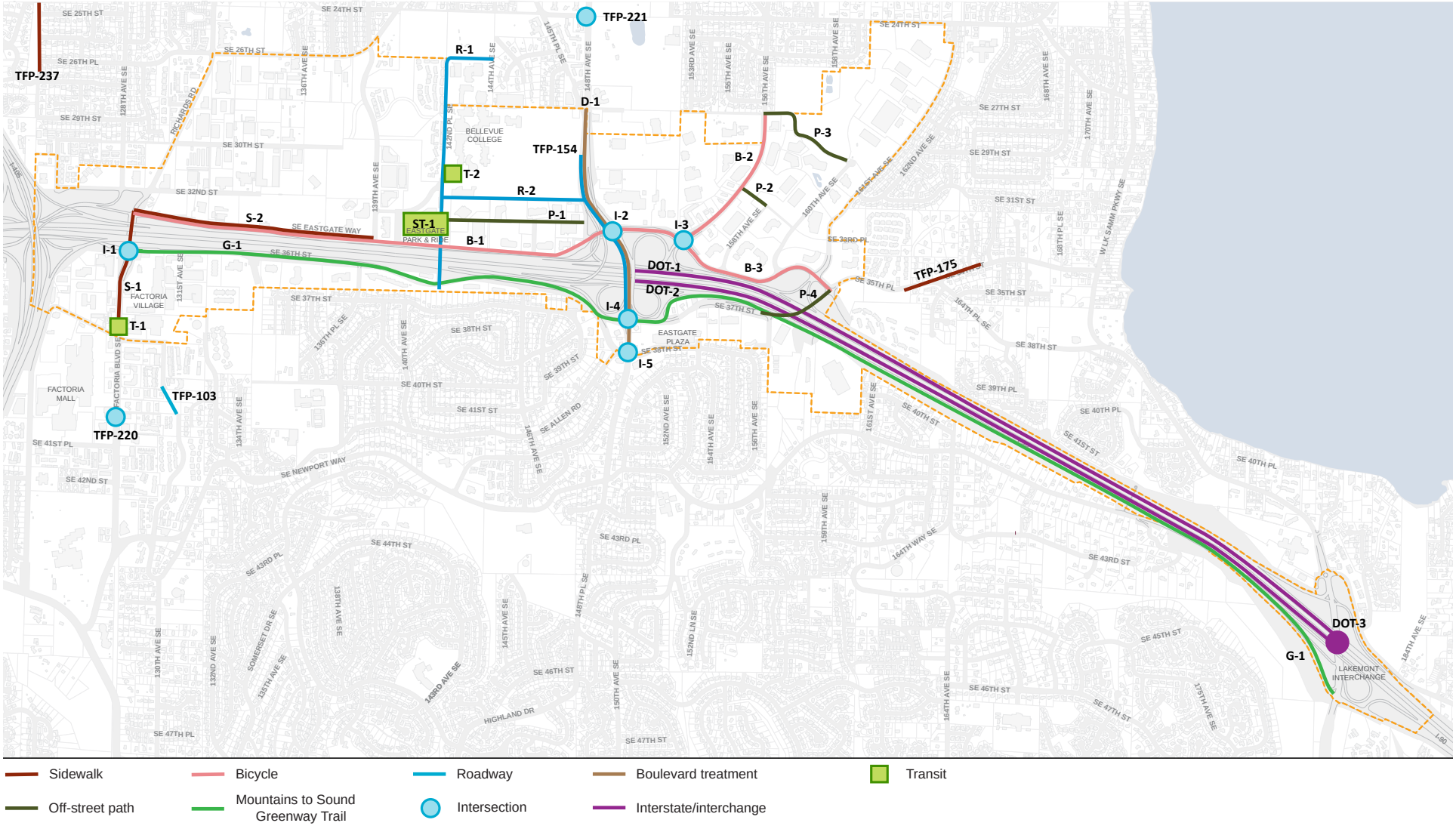


FIGURE A-1 *Suggested Transportation Improvements*

***Table A-1** Transportation Improvements*

Note: The Eastgate/I-90 Land Use and Transportation Project advances a long-range land use and transportation vision, which represents the first step in the plan adoption and, ultimately, the project development process. As such, the projects identified below are conceptual and the final details of design will be developed if/when projects proceed further along in the implementation process. Consistent with City practices, any transportation project that might move forward for additional design/study will involve additional community engagement to ensure that the projects are safe, attractive, and compatible with surrounding land uses.

Project	Description	Funding Requirement	Key Responsibility
TFP-103	Extend 129th Place SE north to SE 38th Street. Project implementation will be coordinated with potential future private development in the immediate vicinity.	$4,590,000 *(TFP 2009-2020)*	City of Bellevue
TFP-154	Add a third continuous southbound lane along 148th Avenue SE (near the westbound I-90 on-ramp) to SE 38th Street.	$2,200,000 *(COB est, 2011)*	City of Bellevue
TFP-175	Construct sidewalk on north side of SE 34th St (162nd Place SE to West Lake Sammamish Parkway) where missing and widen curb lanes.	$4,250,000 *(TFP 2009-2020)*	City of Bellevue
TFP-220	Lengthen the southbound to eastbound left turn lane and lengthen the westbound left turn lane at SE 40th lane and Factoria Blvd.	$280,000 *(TFP 2009-2020)*	City of Bellevue
TFP-221	Replace aging wiring and poles at four signalized intersections along the 148th Avenue corridor, including SE 24th Street, SE 8th Street, Main Street, and NE 8th Street.	$1,000,000 *(TFP 2009-2020)*	City of Bellevue
TFP-237	Construct sidewalk placing curb 14' from center of the roadway on the east side of 123rd Ave SE (SE 20th St to SE 26th St).	$950,000 *(TFP 2009-2020)*	City of Bellevue
I-1	Redesign the Factoria Blvd and SE 36th St intersection to enhance pedestrian and bicycle crossings.	Plan Range: < $1M *COB est, 2011*	City of Bellevue
I-2	Redesign 150th Ave SE and SE Eastgate Way intersection to enhance traffic flow, upgrade pedestrian and bicycle crossings, and establish a gateway treatment, potentially to include developing a modern roundabout.	$3,725,000 for intersection widening or $5,225,000 for roundabout *(COB est, 2011)*	City of Bellevue WSDOT
I-3	Redesign 156th Ave SE and SE Eastgate Way intersection to enhance traffic flow, upgrade pedestrian and bicycle crossings, and establish a gateway treatment, potentially to include developing a modern roundabout.	$880,000 for intersection widening or $3,700,000 for roundabout *(COB est, 2011)*	City of Bellevue WSDOT
I-4	Redesign 150th Ave SE and I-90 Eastbound Off-Ramp (SE 37th St) intersection to enhance traffic flow, upgrade pedestrian and bicycle crossings, and establish a gateway treatment, potentially to include developing a modern roundabout.	$3,335,000 for intersection widening or $3,255,000 for roundabout *(COB est, 2011)*	City of Bellevue WSDOT
I-5	If a modern roundabout is funded in project I-4 then construct a modern roundabout at the 150th Ave SE and SE 38th St Intersection. A landscaped median between I-4 and I-5 will advance the 150th Ave SE boulevard corridor concept.	Plan Range: $1M - $4.9M *(COB est, 2011)*	City of Bellevue WSDOT
P-1	A new east-west pedestrian connection is formalized through the Lincoln Executive Center to the Eastgate Park-and-Ride.	Plan Range: $1M - $4.9M *(COB est, 2011)*	Private Developer

Project	Description	Funding Requirement	Key Responsibility
P-2	Improve east-west pedestrian and bicycle connectivity to retail services by creating a 6 to 10' wide trail connection that links SE 33rd Street to 156th Avenue SE.	$90,000 *(COB est, 2011)*	City of Bellevue I-90 Office Park
P-3	Improve east-west pedestrian and bicycle connectivity by enhancing the gravel trail connection east of 156th Ave SE that connects to I-90 Office Park with an asphalt surface. Details will be coordinated with the Bellevue Airfield Park design process.	$415,000 *(COB est, 2011)*	City of Bellevue I-90 Office Park
P-4	Increase sidewalk width on south side of I-90 tunnel (from SE 37th St to Eastgate Way/SE 35th Place intersection) to offer cyclists improved accommodation. Coordinate with WSDOT to improve tunnel lighting and signage.	Plan Range: $1M - $4.9M *(COB est, 2011)*	City of Bellevue WSDOT
T-1	Work with transit partners to develop a Factoria Transit Center at Factoria Boulevard and SE 38th St.	Plan Range: < $1M *(COB est, 2011)*	City of Bellevue King County Metro Sound Transit
T-2	Work with Bellevue College (BC) and transit partners to develop a BC Transit Center that reinforces the campus as an all-day transit hub with enhanced bus service connections to and through Bellevue College.	Plan Range: < $1M *(COB est, 2011)*	City of Bellevue King County Metro Sound Transit Bellevue College
G-1	Develop the Mountains to Sound Greenway Trail from the I-90 trail at Factoria Blvd and continue eastward to Lakemont Blvd. Ensure that SE 36th St receives "boulevard" treatments including street trees, median plantings, special lighting, crosswalks, seating, special signs, landscaping, and public art.	Plan Range: $5M - $9.9M *(COB est, 2011)*	City of Bellevue MTS Greenway Trust
D-1	As a major north-south corridor and a gateway point for regional traffic on I-90, 148th Avenue SE/150th Avenue SE between SE 28th St and SE 38th St receives "boulevard" treatments including street trees, median plantings, special lighting, crosswalks, seating, special signs, landscaping, and public art.	Plan Range: $1M - $4.9M *(COB est, 2011)*	City of Bellevue
DOT-1	Add an EB auxiliary lane from Eastgate to Lakemont interchange. This hard shoulder running project is identified in the WSDOT I-90 Bellevue to North Bend Corridor Study.	Plan Range: $33,000,000 *(WSDOT est, 2011)*	WSDOT
DOT-2	Add a WB auxiliary lane between SR 900 in Issaquah to Eastgate interchange. This hard shoulder running project is identified in the WSDOT I-90 Bellevue to North Bend Corridor Study.	Plan Range: $112,000,000 *(WSDOT est, 2011)*	WSDOT
DOT-3	The Lakemont Blvd SE/West Lake Sammamish Pkwy SE Interchange Improvements identifed in the WSDOT I-90 Bellevue to North Bend Corridor Study include the following project elements: (1) widen existing WLSP roundabout; (2) addition of a new roundabout at the westbound ramp terminal; and, (3) addition of a new EB slip ramp on the existing EB to NB WLSP off-ramp.	Plan Range: $8,000,000 *(WSDOT est, 2011)*	WSDOT
R-1	A covered/widened walkway on the 142nd Place SE bridge will improve transit operations at the direct access ramp and at the intersection with SE 36th Street. North of the 142nd Place SE bridge, improvements would be made on Snoqualmie River Road, which includes upgraded pavement to support buses, sidewalks, and accessible bus stops.	Plan Range: $5M - $9.9M *(COB est, 2011)*	City of Bellevue King County Metro Sound Transit Bellevue College
R-2	Establish a new east-west roadway on the south edge of the campus between 142nd Place SE/ Snoqualmie River Road and 148th Avenue SE along the south campus boundary.	Plan Range: $5M - $9.9M *(COB est, 2011)*	Bellevue College
ST-1	Create a high capacity transit (HCT) station facility at the Eastgate Park & Ride.	Plan Range: $10M + *(COB est, 2011)*	Sound Transit

Project	Description	Funding Requirement	Key Responsibility
B-1	Add a bike lane on the south side of Eastgate Way from Richards Road (132nd Avenue SE) to 148th Avenue SE.	Plan Range: < $1M *(COB est, 2011)*	City of Bellevue
B-2	Add a wide bike shoulder on both the east and west sides of 156th Avenue SE from SE 27th Street to SE Eastgate Way.	Plan Range: < $1M *(COB est, 2011)*	City of Bellevue
B-3	Add a bike lane on the north and south sides of Eastgate Way from 148th Avenue SE to Phillips Hill Road (SE 35th Street).	Plan Range: < $1M *(COB est, 2011)*	City of Bellevue
S-1	Enhance sidewalk, pedestrian crossing, and intersection improvements along Factoria Boulevard consistent with the 2005 Factoria Transportation Study.	Plan Range: < $1M *(COB est, 2011)*	City of Bellevue
S-2	Add a sidewalk and planter strip on the north side of Eastgate Way from Richards Road to 139th Avenue SE where not complete.	Plan Range: $1M - $4.9M *(COB est, 2011)*	Private Developer

Appendix B
Transportation Projects

FIGURE B-1 *Project I-2 (Option A) Design and Project Cost*

Eastgate Study Cost Estimate
I-2 Option A
Location: Eastgate Way & 150 Ave SE
Date: Nov. 2011 Estimated by: C.Masek

Description: Add second northbound left turn lane, add second eastbound right turn lane, add westbound through lane past 148 Ave SE, and add bike lanes through the intersection. Does not include work that is part of TFP-154. Can't find the need for $750k for ROW mentioned in the Screening Report.

Project Element	Quantity	Unit	Unit Cost	Total Cost	Notes/Assumptions
Roadway Widening	1950	LF	$230	$448,500	Assumes 12' wide lanes, minor walls. Does not inlcude Curb, Gutter, or Sidewalk. Assumes 10" thick pavement
Standard Bike Lane	1750	LF	$140	$245,000	Assumes 5' wide lane, minor walls. Does not include sidewalks/curbs
Shared Lane		LF	$130	$0	Assumes 14' wide lane, minor walls. Does not include sidewalks/curbs
Off Street Asphalt Pathway		LF	$120	$0	Assumes 10' wide path, minor walls
Sidewalk, Curb, Gutter	950	LF	$210	$199,500	Assumes 6' wide sidewalk, 4' planter minor walls
Traffic Signal (New or modified)	1	EA	$350,000	$350,000	One signal is a complete signal. If only modifying part of signal, enter fraction
Right of Way	650	SF	$50	$32,500	SF number will vary depending on location
Structural Walls		LF	$170	$0	Use when wall heights/designs will be significant
Grind and Overlay	152000	SF	$4	$608,000	
Bridges		LF		$0	

Subtotal	**$1,851,000**
DETENTION/WATER QUALITY +10%	$185,100
ITEMS NOT ESTIMATED +10%	$185,100
PLANNING LEVEL ESTIMATE +15%	$277,650
CONSTRUCTION TOTAL	**$2,498,850**
DESIGN ENGINEERING +25%	$624,713
WSDOT COORDINATION/PERMITS +10%	$62,471
RIGHT OF WAY	$32,500
CONSTRUCTION CONTINGENCY +10%	$249,885
CONSTRUCTION ADMINISTRATION +10%	$249,885
Project Total	**$3,718,304**

FIGURE B-2 *Project I-2 (Option B) Design and Project Cost*

Eastgate Study Cost Estimate
I-2 Option B
Location: Eastgate Way & 150 Ave SE
Date: Nov. 2011 Estimated by: C.Masek

Description: Construct Multi-Lane Roundabout. Note: This design has not be completed vetted and is very "conceptual". The limits of re-profiling for this project may be more than shown. The geometry of this roundabout needs some serious work as pointed about Pat McGrady of Reid Middleton.

Project Element	Quantity	Unit	Unit Cost	Total Cost	Notes/Assumptions
Roadway Widening		LF	$230	$0	Assumes 12' wide lanes, minor walls. Does not include Curb, Gutter, or Sidewalk. Assumes 10" thick pavement
Standard Bike Lane		LF	$140	$0	Assumes 5' wide lane, minor walls. Does not include sidewalks/curbs
Shared Lane		LF	$130	$0	Assumes 14' wide lane, minor walls. Does not include sidewalks/curbs
Off Street Asphalt Pathway		LF	$120	$0	Assumes 10' wide path, minor walls
Sidewalk, Curb, Gutter	1100	LF	$210	$231,000	Assumes 6' wide sidewalk, 4' planter minor walls
Traffic Signal (New or modified)	0.5	EA	$350,000	$175,000	One signal is a complete signal. If only modifying part of signal, enter fraction
Right of Way	2500	SF	$50	$125,000	SF number will vary depending on location
Structural Walls	200	LF	$170	$34,000	Use when wall heights/designs will be significant
Grind and Overlay	14000	SF	$4	$56,000	
Bridges		LF		$0	
Roundabout Widening / Roadway Reconstruction	121000	SF	$17	$2,057,000	Assumes 10" Thick pavement. Does not include curb, gutter and sidewalk. Includes reconstruction of roadway for new profile needed for the roundabout.

Subtotal	**$2,553,000**
DETENTION/WATER QUALITY +10%	$255,300
ITEMS NOT ESTIMATED +10%	$255,300
PLANNING LEVEL ESTIMATE +15%	$382,950
CONSTRUCTION TOTAL	**$3,446,550**
DESIGN ENGINEERING +25%	$861,638
WSDOT COORDINATION/PERMITS +10%	$86,164
RIGHT OF WAY	$125,000
CONSTRUCTION CONTINGENCY +10%	$344,655
CONSTRUCTION ADMINISTRATION +10%	$344,655
Project Total	**$5,208,661**

FIGURE B-3 *Project I-3 (Option A) Design and Project Cost*

Eastgate Study Cost Estimate
TFP-162 & I-3 Option A
Location: 156th Ave SE / EB I-90 Offramp
Date: Nov. 2011 Estimated by: C.Masek

Description: 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.

Project Element	Quantity	Unit	Unit Cost	Total Cost	Notes/Assumptions
Roadway Widening	450	LF	$230	$103,500	Assumes 12' wide lanes, minor walls. Does not inlcude Curb, Gutter, or Sidewalk. Assumes 10" thick pavement
Standard Bike Lane		LF	$140	$0	Assumes 5' wide lane, minor walls. Does not include sidewalks/curbs
Shared Lane		LF	$130	$0	Assumes 14' wide lane, minor walls. Does not include sidewalks/curbs
Off Street Asphalt Pathway		LF	$120	$0	Assumes 10' wide path, minor walls.
Sidewalk, Curb, Gutter		LF	$210	$0	Assumes 6' wide sidewalk, 4' planter minor walls.
Traffic Signal (New or modified)	0.5	EA	$350,000	$175,000	One signal is a complete signal. If only modifying part of signal, enter fraction
Right of Way		SF	$50	$0	SF number will vary depending on location
Structural Walls		LF	$170	$0	Use when wall heights/designs will be significant
Grind and Overlay	40000	SF	$4	$160,000	
Bridges		LF		$0	

Subtotal	**$438,500**
DETENTION/WATER QUALITY +10%	$43,850
ITEMS NOT ESTIMATED +10%	$43,850
PLANNING LEVEL ESTIMATE +15%	$65,775
CONSTRUCTION TOTAL	**$591,975**
DESIGN ENGINEERING +25%	$147,994
WSDOT COORDINATION/PERMITS +10%	$14,799
RIGHT OF WAY	$0
CONSTRUCTION CONTINGENCY +10%	$59,198
CONSTRUCTION ADMINISTRATION +10%	$59,198
Project Total	**$873,163**

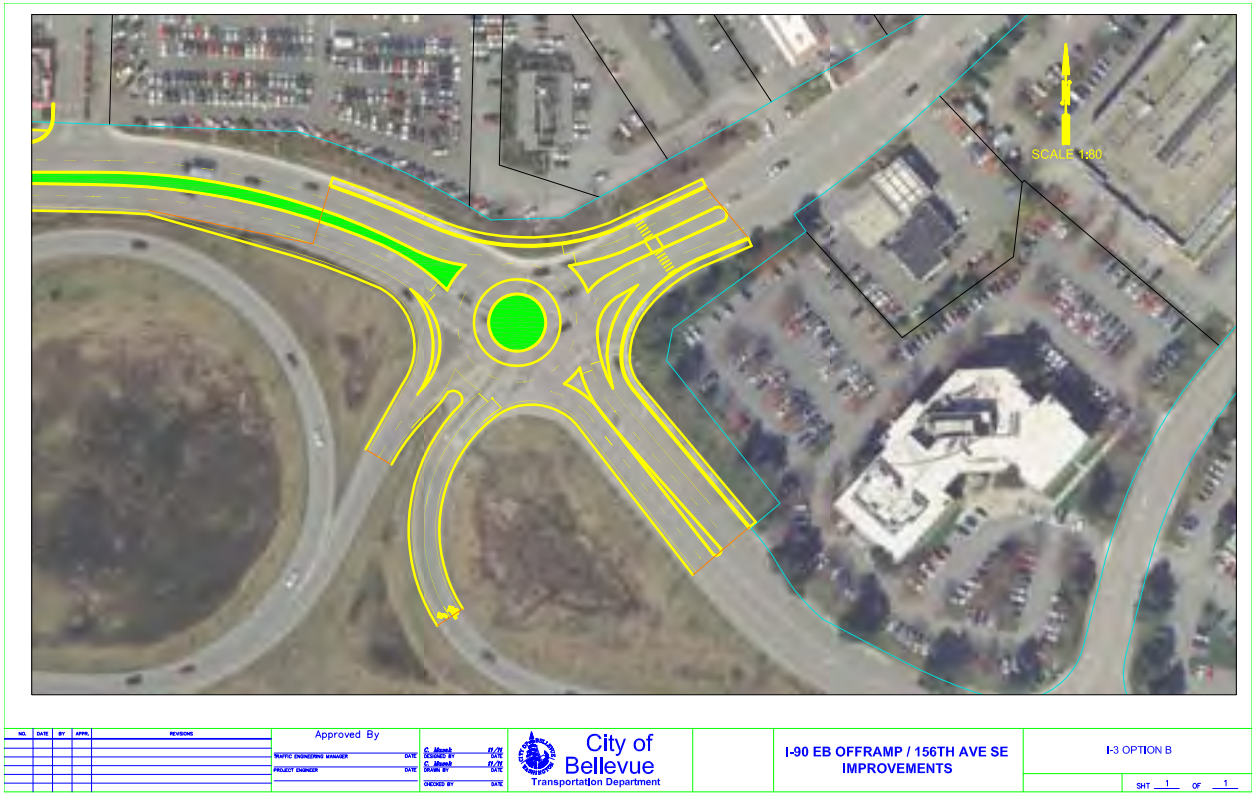


FIGURE B-4 *Project I-3 (Option B) Design and Project Cost*

Eastgate Study Cost Estimate
I-3 Option B
Location: 156th Ave SE / EB I-90 Offramp
Date: Nov. 2011 Estimated by: C.Masek

Description: Construct Multi-Lane Roundabout. Note: This design has not be completed vetted and is very "conceptual". The limits of re-profiling for this project may be more than shown. There is no fatal flaws in the geometry of this roundabout per Pat McGrady of Reid Middleton

Project Element	Quantity	Unit	Unit Cost	Total Cost	Notes/Assumptions
Roadway Widening		LF	$230	$0	Assumes 12' wide lanes, minor walls. Does not inlcude Curb, Gutter, or Sidewalk. Assumes 10" thick pavement
Standard Bike Lane		LF	$140	$0	Assumes 5' wide lane, minor walls. Does not include sidewalks/curbs
Shared Lane		LF	$130	$0	Assumes 14' wide lane, minor walls. Does not include sidewalks/curbs
Off Street Asphalt Pathway		LF	$120	$0	Assumes 10' wide path, minor walls.
Sidewalk, Curb, Gutter	850	LF	$210	$178,500	Assumes 6' wide sidewalk, 4' planter minor walls.
Traffic Signal (New or modified)	0.5	EA	$350,000	$175,000	One signal is a complete signal. If only modifying part of signal, enter fraction
Right of Way		SF	$50	$0	SF number will vary depending on location
Structural Walls	200	LF	$170	$34,000	Use when wall heights/designs will be significant
Grind and Overlay	19000	SF	$4	$76,000	
Bridges		LF		$0	
Roundabout Widening / Roadway Reconstruction	81800	SF	$17	$1,390,600	Assumes 10" Thick pavement. Does not include curb, gutter and sidewalk. Includes reconstruction of roadway for new profile needed for the roundabout.

Subtotal	**$1,854,100**
DETENTION/WATER QUALITY +10%	$185,410
ITEMS NOT ESTIMATED +10%	$185,410
PLANNING LEVEL ESTIMATE +15%	$278,115
CONSTRUCTION TOTAL	**$2,503,035**
DESIGN ENGINEERING +25%	$625,759
WSDOT COORDINATION/PERMITS +10%	$62,576
RIGHT OF WAY	$0
CONSTRUCTION CONTINGENCY +10%	$250,304
CONSTRUCTION ADMINISTRATION +10%	$250,304
Project Total	**$3,691,977**

FIGURE B-5 *Project I-4 (Option A) Design and Project Cost*

Eastgate Study Cost Estimate
TFP 195 & I-4 Option A
Location: SE 37 St and 150 Ave SE
Date: Nov. 2011 Estimated by: C.Masek

Description: Add second eastbound right turn lane, add second westbound left turn lane, add eastbound through lane past I-90 eastbound on-ramp, add second eastbound left turn lane at I-90 onramp, extend southbound left turn pocket, and extend 3rd southbound lane from I-90 On-ramp to SE 38 St. Can't find the need for 1.4 million for ROW noted in Screening report

Project Element	Quantity	Unit	Unit Cost	Total Cost	Notes/Assumptions
Roadway Widening	2900	LF	$230	$667,000	Assumes 12' wide lanes, minor walls. Does not inlcude Curb, Gutter, or Sidewalk. Assumes 10" thick pavement
Standard Bike Lane		LF	$140	$0	Assumes 5' wide lane, minor walls. Does not include sidewalks/curbs
Shared Lane		LF	$130	$0	Assumes 14' wide lane, minor walls. Does not include sidewalks/curbs
Off Street Asphalt Pathway		LF	$120	$0	Assumes 10' wide path, minor walls.
Sidewalk, Curb, Gutter	675	LF	$210	$141,750	Assumes 6' wide sidewalk, 4' planter minor walls.
Traffic Signal (New or modified)	1	EA	$350,000	$350,000	One signal is a complete signal. If only modifying part of signal, enter fraction
Right of Way	0	SF	$50	$0	SF number will vary depending on location
Structural Walls		LF	$170	$0	Use when wall heights/designs will be significant
Grind and Overlay	129000	SF	$4	$516,000	
Bridges		LF		$0	

Subtotal	**$1,674,750**
DETENTION/WATER QUALITY +10%	$167,475
ITEMS NOT ESTIMATED +10%	$167,475
PLANNING LEVEL ESTIMATE +15%	$251,213
CONSTRUCTION TOTAL	**$2,260,913**
DESIGN ENGINEERING +25%	$565,228
WSDOT COORDINATION/PERMITS +10%	$56,523
RIGHT OF WAY	$0
CONSTRUCTION CONTINGENCY +10%	$226,091
CONSTRUCTION ADMINISTRATION +10%	$226,091
Project Total	**$3,334,846**

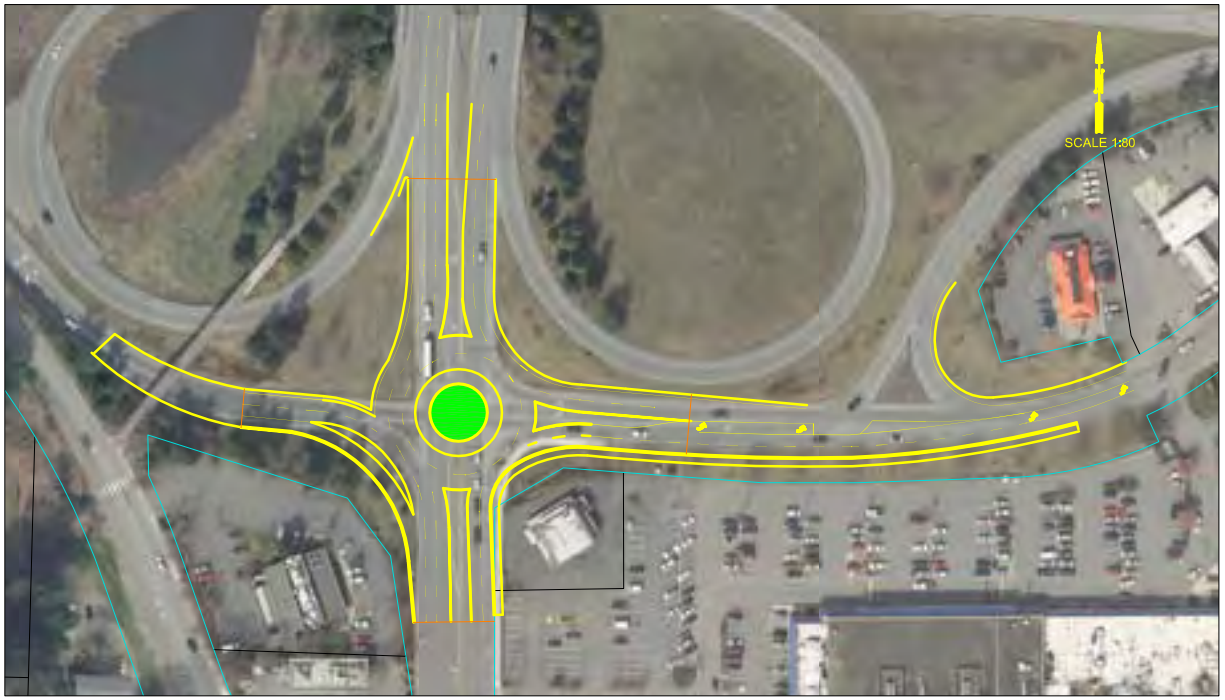


FIGURE B-6 *Project I-4 (Option B) Design and Project Cost*

Eastgate Study Cost Estimate
I-4 Option B

Description: Construct Mult-Lane Roundabout. Note: This treatment would likely need to be constructed at the Intersection of 150 Ave SE and SE 38 St to work properly. This cost estimate is only for 150 Ave SE and SE 37 St. This design has not be completed vetted and is very "conceptual". The limits of re-profiling for this project may be more than shown. Per Pat McGrady of Reid Middleton, remove the SB third thru lane for proper roundabout operation. Other minor geometric adjustments needed.

Location: SE 37 St and 150 Ave SE
Date: Nov. 2011 Estimated by: C.Masek

Project Element	Quantity	Unit	Unit Cost	Total Cost	Notes/Assumptions
Roadway Widening	650	LF	$230	$149,500	Assumes 12' wide lanes, minor walls. Does not include Curb, Gutter, or Sidewalk. Assumes 10" thick pavement
Standard Bike Lane		LF	$140	$0	Assumes 5' wide lane, minor walls. Does not include sidewalks/curbs
Shared Lane		LF	$130	$0	Assumes 14' wide lane, minor walls. Does not include sidewalks/curbs
Off Street Asphalt Pathway		LF	$120	$0	Assumes 10' wide path, minor walls.
Sidewalk, Curb, Gutter	760	LF	$210	$159,600	Assumes 6' wide sidewalk, 4' planter minor walls.
Traffic Signal (New or modified)		EA	$350,000	$0	One signal is a complete signal. If only modifying part of signal, enter fraction
Right of Way		SF	$50	$0	SF number will vary depending on location
Structural Walls	115	LF	$170	$19,550	Use when wall heights/designs will be significant
Grind and Overlay	50000	SF	$4	$200,000	
Bridges		LF		$0	
Roundabout Widening / Roadway Reconstruction	65000	SF	$17	$1,105,000	Assumes 10" Thick pavement. Does not include curb, gutter and sidewalk. Includes reconstruction of roadway for new profile needed for the roundabout.

Subtotal	**$1,633,650**
DETENTION/WATER QUALITY +10%	$163,365
ITEMS NOT ESTIMATED +10%	$163,365
PLANNING LEVEL ESTIMATE +15%	$245,048
CONSTRUCTION TOTAL	**$2,205,428**
DESIGN ENGINEERING +25%	$551,357
WSDOT COORDINATION/PERMITS +10%	$55,136
RIGHT OF WAY	$0
CONSTRUCTION CONTINGENCY +10%	$220,543
CONSTRUCTION ADMINISTRATION +10%	$220,543
Project Total	**$3,253,006**

NOTE - The assumption is that the intersection of SE 38 St and 150 Ave SE would be a roundabout for this location to work properly. The additional roundabout is not part of this estimate

FIGURE B-7 *Project TFP-154 Design and Project Cost*

Eastgate Study Cost Estimate
TFP-154
Location: 148th/150th Ave SE Widening
Date: Nov. 2011 Estimated by: C.Masek

Description: Widen by extending the third southbound lane on 148th Avenue SE from the on-ramp to westbound I-90 to south of Eastgate Way at the I-90 westbound off ramp.

Project Element	Quantity	Unit	Unit Cost	Total Cost	Notes/Assumptions
Roadway Widening	2000	LF	$230	$460,000	Assumes 12' wide lanes, minor walls. Does not inlcude Curb, Gutter, or Sidewalk. Assumes 10" thick pavement
Standard Bike Lane		LF	$140	$0	Assumes 5' wide lane, minor walls. Does not include sidewalks/curbs
Shared Lane		LF	$130	$0	Assumes 14' wide lane, minor walls. Does not include sidewalks/curbs
Off Street Asphalt Pathway		LF	$120	$0	Assumes 10' wide path, minor walls.
Sidewalk, Curb, Gutter		LF	$210	$0	Assumes 6' wide sidewalk, 4' planter minor walls.
Traffic Signal (New or modified)	0.5	EA	$350,000	$175,000	One signal is a complete signal. If only modifying part of signal, enter fraction
Right of Way		SF	$50	$0	SF number will vary depending on location
Structural Walls	375	LF	$170	$63,750	Use when wall heights/designs will be significant
Grind and Overlay	100000	SF	$4	$400,000	
Bridges		LF		$0	

Subtotal	**$1,098,750**
DETENTION/WATER QUALITY +10%	$109,875
ITEMS NOT ESTIMATED +10%	$109,875
PLANNING LEVEL ESTIMATE +15%	$164,813
CONSTRUCTION TOTAL	**$1,483,313**
DESIGN ENGINEERING +25%	$370,828
WSDOT COORDINATION/PERMITS +10%	$37,083
RIGHT OF WAY	$0
CONSTRUCTION CONTINGENCY +10%	$148,331
CONSTRUCTION ADMINISTRATION +10%	$148,331
Project Total	**$2,187,886**

FIGURE B-8 *Project P-2 Design and Project Cost*

Eastgate Study Cost Estimate
P-2
Location: 156 Ave SE @ 3300 Block
Date: Nov. 2011 Estimated by: C.Masek

Description: Construct 10' Asphalt Trail Connection from 156 Ave SE to parking lot. Based on field review, no walls or stairs are required that were mentioned in the scope

Project Element	Quantity	Unit	Unit Cost	Total Cost	Notes/Assumptions
Roadway Widening		LF	$230	$0	Assumes 12' wide lanes, minor walls. Does not inlcude Curb, Gutter, or Sidewalk. Assumes 10" thick pavement
Standard Bike Lane		LF	$140	$0	Assumes 5' wide lane, minor walls. Does not include sidewalks/curbs
Shared Lane		LF	$130	$0	Assumes 14' wide lane, minor walls. Does not include sidewalks/curbs
Off Street Asphalt Pathway	125	LF	$120	$15,000	Assumes 10' wide path, minor walls
Sidewalk, Curb, Gutter		LF	$210	$0	Assumes 6' wide sidewalk, 4' planter minor walls
Traffic Signal (New or modified)		EA	$350,000	$0	One signal is a complete signal. If only modifying part of signal, enter fraction
Right of Way	1200	SF	$50	$60,000	SF number will vary depending on location
Structural Walls		LF	$170	$0	Use when wall heights/designs will be significant
Grind and Overlay		SF	$4	$0	
Bridges		LF		$0	

Subtotal	**$15,000**
DETENTION/WATER QUALITY +10%	$1,500
ITEMS NOT ESTIMATED +10%	$1,500
PLANNING LEVEL ESTIMATE +15%	$2,250
CONSTRUCTION TOTAL	**$20,250**
DESIGN ENGINEERING +25%	$5,063
RIGHT OF WAY	$60,000
CONSTRUCTION CONTINGENCY +10%	$2,025
CONSTRUCTION ADMINISTRATION +10%	$2,025
Project Total	**$89,363**

FIGURE B-9 *Project P-3 Design and Project Cost*

Eastgate Study Cost Estimate

P-3 **Description:** Construct 10' Asphalt Trail from 156 Ave SE to 160 Ave SE

Location: 156 Ave SE to 160 Ave SE

Date: Nov. 2011 Estimated by: C.Masek

Project Element	Quantity	Unit	Unit Cost	Total Cost	Notes/Assumptions
Roadway Widening		LF	$230	$0	Assumes 12' wide lanes, minor walls. Does not inlcude Curb, Gutter, or Sidewalk. Assumes 10" thick pavement
Standard Bike Lane		LF	$140	$0	Assumes 5' wide lane, minor walls. Does not include sidewalks/curbs
Shared Lane		LF	$130	$0	Assumes 14' wide lane, minor walls. Does not include sidewalks/curbs
Off Street Asphalt Pathway	1500	LF	$120	$180,000	Assumes 10' wide path, minor walls
Sidewalk, Curb, Gutter		LF	$210	$0	Assumes 6' wide sidewalk, 4' planter minor walls
Traffic Signal (New or modified)		EA	$350,000	$0	One signal is a complete signal. If only modifying part of signal, enter fraction
Right of Way		SF	$50	$0	SF number will vary depending on location
Structural Walls	180	LF	$170	$30,600	Use when wall heights/designs will be significant
Grind and Overlay		SF	$4	$0	
Bridges		LF		$0	

Subtotal	**$210,600**
DETENTION/WATER QUALITY +10%	$21,060
ITEMS NOT ESTIMATED +10%	$21,060
PLANNING LEVEL ESTIMATE +15%	$31,590
CONSTRUCTION TOTAL	**$284,310**
DESIGN ENGINEERING +25%	$71,078
RIGHT OF WAY	$0
CONSTRUCTION CONTINGENCY +10%	$28,431
CONSTRUCTION ADMINISTRATION +10%	$28,431

Project Total **$412,250**

Appendix C

Eastgate Long-Range Transit Recommendations

INTRODUCTION

Appendix C summarizes the supporting transit recommendations and infrastructure needs necessary to help the Eastgate area accommodate both growth as well as the goal to increase transit mode split. It follows the Bellevue Council's principle of "continuing to evolve Eastgate's transportation infrastructure to a high performing multi-modal system, including coordination with service providers on increased transit service to the area."

SUMMARY OF RECOMMENDATIONS

A summary of the service recommendations is shown in Table C-1

If all recommendations were implemented, an additional 4,800 hours and 5 buses would be required. Some of these service recommendations (e.g., BRT route) might be realized vis-à-vis ST resources being made available with the redeployment of 550 hours upon East Link implementation and capital projects might be realized through partnerships with Bellevue College and ST (e.g., Snoqualmie River Road).

CHALLENGES TO TRANSIT IN EASTGATE

Achieving a greater transit mode share in a suburban environment is always difficult. The street connectivity and land uses in Eastgate make this particularly challenging.

- **Transit effectiveness compromised by transportation barriers.** It is very difficult to operate efficient and direct transit services to the array of destinations in the Eastgate area due to the freeway and the limited street network. Buses have very limited crossing points over I-90 yet major development is planned for both sides of the freeway. The current network of local and commuter routes provide direct service from most communities north of I-90, from Issaquah, Mercer Island and downtown Seattle. There is minimal local service from the Factoria and Somerset areas south of I-90 to Eastgate. It is nearly impossible to provide effective

TABLE C-1 *Proposed Long-Range Service Improvements in Eastgate*

Route	Service Improvement and/or Revision	Cost
221	Serve SE Eastgate Way east of 150th Avenue SE to replace the existing Route 271 loop to this area. To maintain service to Bellevue College, Route 221 should be interlined with Route 226.	Cost Neutral
226	Modify alignment between Bellevue College and the Eastgate Park-and-Ride to utilize proposed speed and reliability improvements. Interline route with Route 221.	Cost Neutral
240	Delete Eastgate Park-and-Ride deviation and revert to former alignment connecting Factoria Boulevard with South Bellevue Park-and-Ride.	Saves ~2,000 hours
241	In conjunction with Route 240 recommendation, revise to serve Richards Road instead of the South Bellevue Park-and-Ride.	Saves ~1,000 hours
245	Modify alignment between Bellevue College and the Eastgate Park-and-Ride to utilize proposed speed and reliability improvements. Do not use bus loop at Park-and-Ride and instead stop on 142nd Place bridge.	Saves up to 2,200 hours
271	Truncate Route 271 to serve the Issaquah to Eastgate market only. A new RapidRide line will replace 271 between Eastgate and downtown Bellevue	Saves ~1,000 hours
New RapidRide	Create a new RapidRide line between downtown Bellevue, Bellevue College, Eastgate, and Factoria that replaces Route 271.	~7,600 hours
New Commuter	Create a new peak directional commuter route between the Renton Transit Center, Factoria, and Eastgate using I-405	3,400 hours

transit service from the various communities to all of the Eastgate and Factoria area destinations with a one-seat ride (without a transfer).

- **Transit effectiveness compromised by land use barriers.** Because of its cul-de-sac access and egress, direct service into the I-90 Business Park via existing transit routes passing near the development is undesirable due to the travel time penalties imposed on existing through riders. To generate improved transit ridership will require the development of well-marked, hard-surfaced pedestrian trails from the business park connecting with other trails in the area and to bus stops along adjacent city roadways. Such improvements must also include improved pedestrian path signage, directing pedestrians to nearby bus stops, improved waiting facilities at existing stops adjacent to the business park development, low-level lighting along pedestrian paths and some provision to protect pedestrians from the elements during inclement weather.
- **Employment areas not being served by transit.** The employment center along the north side of I- 90 just east of 156th Avenue now includes the new Advanta Microsoft campus, with three 7-story buildings. Transit service exists only along the Eastgate Way frontage, well over a quarter mile away.

BRIEF DESCRIPTION OF TRANSIT DESTINATIONS

Eastgate's topography, street network, and employment/residential distribution make for a very challenging environment to provide transit. There are several locations in the study area with the employment and population density to support frequent transit service.

Bellevue College is located 0.4 miles from the Eastgate Park-and-Ride, and is the single biggest all-day transit destination in Eastgate. Ridership to the campus is steady throughout the day and not as peak-oriented as ridership to most of the surrounding office developments. While Bellevue College is very close to the Eastgate Park-and-Ride, travel between the two is circuitous on a bus – taking seven minutes, which is only marginally faster than walking.

The Eastgate Park-and-Ride has over 1,600 parking stalls, and is a major origin of peak-hour trips to Seattle. The park-and-ride function does not typically generate all-day trips, but is very peak-oriented. There is a significant amount of commercial land use within ¼ mile of the Park-and-Ride. It is a focal point of King County Metro service, and routes distribute to all corners of the Eastgate study area from the facility. The direct access ramps to the I-90 HOV lanes have flyer stops that are used by many regional routes. Passengers transferring between routes at the direct access ramps and the Park-and-Ride generally have a 700 foot walk and a walk up/down stairs in the parking garage.

The Factoria Village/T-Mobile complex located adjacent to Factoria Boulevard and SE 36th Street is a highly concentrated area of retail and employment and also a significant transit generator. It is our understanding that T-Mobile provides commuter benefits such as reduced cost bus passes through its Commute Trip Reduction (CTR) program. Existing ridership patterns show that approximately 45 passengers are riding from Factoria Boulevard/SE 38th Street to Eastgate and approximately 25 riders are riding from Eastgate to Factoria Boulevard/SE 38th.

The I-90 Business Park (Boeing Airfield property) located north of the intersection of SE Eastgate Way and 158th Avenue SE employs thousands of employees. Unfortunately, from a transit access perspective, the large setbacks between Eastgate Way and adjacent office buildings and long distances between the Advanta Microsoft Campus and the Boeing facility are a challenge. In addition, this destination does not have as frequent service as Bellevue College, the Eastgate Park-and-Ride, and Factoria Village, and ridership is correspondingly much lower.

There are no other major existing transit destinations in the Eastgate study area, nor are there other dense concentrations of commercial or residential activity that are unserved.

STRATEGIES OF ADDRESSING MOBILITY IN EASTGATE

Eastgate's road network and walk-sheds make it virtually impossible to provide direct one-seat service from each origin and destination. It is our experience that no one bus route should even try to serve the entire area, as it will invariably lead to such indirect travel patterns that no one will ride.

In addition, different strategies must be used for different market groups. Local access from transit supportive areas in Bellevue must be balanced with providing distribution from regional service at the Eastgate Park-and-Ride. In order to accommodate these travel patterns, a high-frequency (15-minute or better) route strategy should be adopted so that existing routes act as feeder services to the regional service at the Eastgate Park-and-Ride.

An examination of transfer patterns at the Eastgate Park-and-Ride shows that the highest frequency routes had the highest transfer rates. During midday and afternoon, collected transfer data at the platform indicated that Route 245 represented 27 percent of the transfer activity while Route 271 represented 19 percent of the total activity. This shows the importance of a high-frequency corridor strategy connecting major destinations. Transfer penalties for connections between non-frequent routes (worse than 15-minute frequency) are such that choice riders will almost always avoid riding, which severely limits ridership potential.

LAND USE

When examining long-range transit needs, it is imperative to match future land use to the projected transit service. High quality transit will go unused if the supporting land uses are not available. The study team was cognizant of this as it developed three different alternatives that varied the location, type, and density of more dense land uses.

Despite variations within the three different alternatives, there were consistent themes throughout all three. There are three different transit-friendly nodes in the study area – where "transit friendly" is defined as an area having the density capable of supporting transit service effectively. These three areas are Factoria, Bellevue College, and the area immediately surrounding the Eastgate Park-and-Ride. Each of these areas is projected to grow and all three are expected to include additional residential density, which further cements their ability to be both all-day origins and destinations for transit trips. The long-range transit recommendations are focused on improving service to these locations.

LONG-TERM TRANSIT SERVICE RECOMMENDATIONS FOR EASTGATE

The long-term transit recommendations follow the direction from the CAC and Bellevue Council to enhance transit service by improving access to Eastgate destinations, enhancing speed and reliability, and thereby increasing the number of transit patrons. Specific themes found in the recommendation include increasing route directness to minimize in-bus travel time, serving all-day destinations with more frequent transit, and connecting the Eastgate area with more regional transit destinations. Recommendations will be discussed for high capacity transit (HCT), regional transit, and local transit service.

High Capacity Transit Recommendations

Sound Transit's long-range plan calls for high capacity transit connecting the East Link line with Issaquah. The Sound Transit plan does not specify mode or alignment. Given the current investment in the parking structure at Eastgate as well as the anticipated densification of land uses surrounding the existing Eastgate Park-and-Ride in all alternatives, it is highly likely that any high capacity transit stop will be in the vicinity of the Park-and-Ride.

The Eastgate I-90 Study and the Factoria Area Transportation Study (FATS) report included potential in-line flyer stops for buses on I-405 behind Factoria Mall and I-90 on Richards Road. While each of these locations would increase transit access dramatically while leveraging existing service, the proximity to the I-90/I-405 interchange and the associated lack of right-of-way makes these in-line flyer stops extremely difficult to construct. Due to this, these are not included in the final study recommendations.

Alternative 2 includes a direct access ramp to enhance transit access to the employment area in the vicinity of 156th Avenue. The cost of such a facility is in the vicinity of $80M, if it is feasible to construct. The proximity to the 142nd Place direct access ramps and acceleration and deceleration lane needs are such that this direct access ramp may not be constructable. The bigger issue is ridership potential. The land uses surrounding the proposed direct access ramp are highly unlikely to be able to generate the ridership necessary to support all-day transit use.

Regional Recommendations

With or without high capacity transit, Eastgate has excellent regional service to Seattle, Mercer Island, and Issaquah via transit service on I-90. Accessing Eastgate from Renton and points further south or Kirkland and points further north via transit along the I-405 corridor is currently not possible.

The trip patterns predicted by the Bellevue-Kirkland-Redmond (BKR) model were examined for 2011 as well as the future year of 2030. All three 2030 land use scenarios examined through this process were modeled.

An examination of the travel demand data from (BKR) model revealed that the biggest regional travel market to Eastgate is from SE King County, which includes Renton. According to the model data, between 38,000 and 47,000 trips are made each weekday – depending on the assumed land use. The model also shows that the growth in trips is to Eastgate is most prevalent

between Eastgate and SE King County – with more than 8,000 new trips expected in the next 20 years. This large and growing market is currently unserved by regional transit service.

Given the predominant office land use, the majority of the regional demand is peak-directional oriented – i.e. this is not an all-day market. It should be noted that the South King County to Eastgate travel pattern is supported by data from Bellevue College, which showed a sizable number of students living in Renton and further south. While students are typically an all-day market, they make up only a small portion of the overall travel market.

In order to better serve the South King County market, a peak-directional route is recommended to travel from the Renton Transit Center to the Eastgate Park-and-Ride via I-405, Coal Creek Parkway, Factoria Boulevard, SE 36th Street, and 142nd Place. This route should have a minimum of 4 a.m. northbound and 4 p.m. southbound trips. Estimated cost of this recommendation is 3,400 hours and 3 buses.

The BKR model also showed a sizable number of commuters coming from north King County and south Snohomish County to Eastgate. The only way for these trips to use transit is to travel to downtown Bellevue and transfer to a different route to make the trip to Eastgate. Given the 10-minute frequency of service between the Bellevue Transit Center and the I-405 North corridor, the transfer penalty is minimal for potential patrons – if high frequency connections to Eastgate exist. A new Bus Rapid Transit line discussed in the local route recommendations between Bellevue Transit Center, Bellevue College, Eastgate, and Factoria should address the majority of this movement.

Local Route Recommendations

By 2030, East Link will be up and operating. The Factoria area, with its residential and employment concentration, should be directly connected to this regional facility. Therefore, 15-minute bus service is recommended between Factoria and the South Bellevue Park-and-Ride to provide this connection.

Figure C-1 shows the proposed route structure in the Eastgate area. A full description of the changes follows.

Route 221

Route 221 is an all-day two-way route with service every day of the week. It serves Education Hill, Redmond Transit Center, Overlake Transit Center, Bellevue College, and the Eastgate Park-and-Ride primarily using 148th Avenue SE. The Fall 2011 service change keeps Route 221 on 148th Avenue through Overlake instead of deviating to the transit center. It serves Crossroads as it replaces the current Route 926 service in Lake Hills and Phantom Lake en route to Bellevue College.

Route 221 is among the least productive all-day routes, with only 19.6 boardings per revenue hour—about one-third lower than the Bellevue average (30.9). The cost per revenue hour ($157) is also below average ($229) by roughly the same proportion. Ridership increased steadily between 2003 and 2008 as additional service was added to the route; however, ridership has declined since Fall 2008.

Recommendation: Route 221 should be modified to serve SE Eastgate Way east of 150th Avenue SE. This will replace the existing Route 271 loop to this area. To maintain service to Bellevue College, Route 221 should be interlined with Route 226. This recommendation should be cost neutral.

Route 226

Route 226 is a new route that was developed for the Fall 2011 service change that incorporates parts of several existing routes, including Routes 233 and 245. No existing route level ridership data is available for this route.

Recommendation: Route 226 should be modified to take advantage of proposed speed and reliability improvements between Bellevue College and the Eastgate Park-and-Ride (see capital section). In addition, Route 226 should be interlined with Route 221. This recommendation should save several minutes of running time, but is projected to be cost neutral.

Route 240

Route 240 is an important route that connects the neighborhoods of Clyde Hill, Surrey Downs, Newport Hills, Newcastle, and the Renton Highlands with the activity centers of Downtown Bellevue, Factoria, and Downtown Renton. It is the primary connection between Factoria and Downtown Bellevue. It serves 100th Avenue NE between Clyde Hill and the Bellevue Transit Center, 108th Ave, Bellevue Way, and I-90 between the Bellevue Transit Center and Factoria, local arterials, neighborhood streets, and

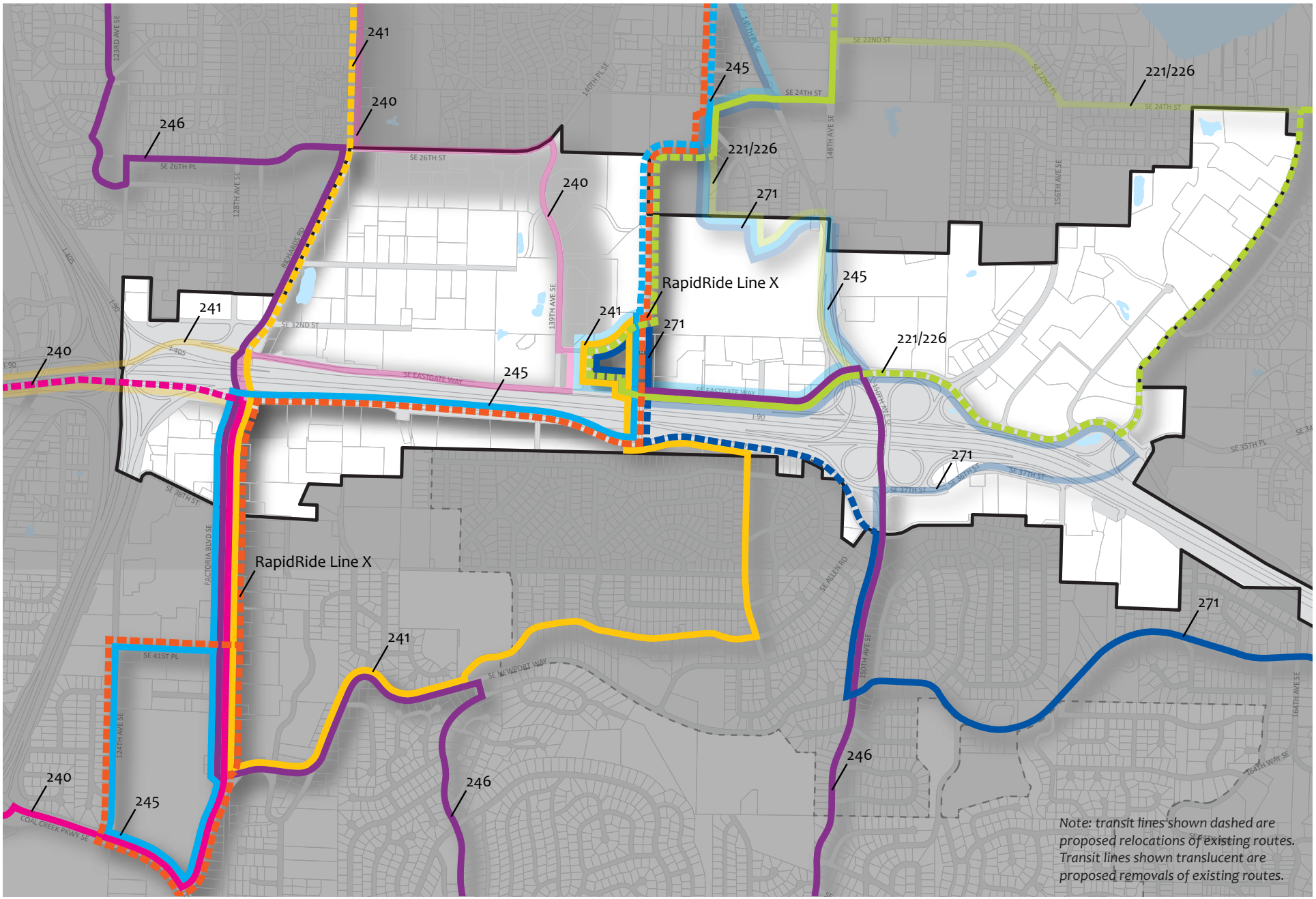


FIGURE C-1 *Proposed Transit Service Improvements in Eastgate/I-90 Corridor*

Coal Creek Parkway to the Renton Highlands, and Sunset Boulevard to Downtown Renton. In the Fall 2011 service change, Route 240 will be rerouted to serve the activity center surrounding the Eastgate Park-and-Ride, including Bellevue College. Route 241 will replace 240's current routing to Factoria and Route 246 will replace its current routing to Clyde Hill.

Route 240 is the most productive all-day route at 32.3 boardings per revenue hour, slightly above the Bellevue average (30.9). It also has the lowest cost per rider among Bellevue's all-day routes. It has minimal ridership from Clyde Hill to the Bellevue Transit Center, but retains good ridership all the way to Renton with many boardings and alightings along the way. Its ridership peaks in the Factoria area.

In Fall 2011, Route 240 will be modified to deviate from its existing routing to serve the Eastgate Park-and-Ride, which may help some riders but will likely negatively affect service to many more riders. In addition, Route 240 will largely duplicate existing Route 245 service between Factoria and Eastgate.

Recommendation: There is a high probability that the Route 240 deviation will negatively affect more riders than it will help based on the deviation to the Eastgate Park-and-Ride. Route 240 should revert to its former alignment connecting Factoria Boulevard with the South Bellevue Park-and-Ride and East Link, and continue to downtown Bellevue using 108th Avenue SE (replacing Route 241 service on this segment). Using the former alignment should save approximately 2,000 hours or more annually, which should be reinvested to provide 15-minute service during peak times.

Route 241

Route 241 is a new route connecting downtown Bellevue with Factoria and the Eastgate Park-and-Ride. It replaces segments of the existing Route 240 between Bellevue and Factoria and also the segment of Route 222 between Factoria and the Eastgate Park-and-Ride. Because this is a new route, no route level ridership data is available.

Recommendation: Route 241 should be revised to provide service to Richards Road instead of to the South Bellevue Park-and-Ride. This will remove duplication with Route 240 and save up to 1,000 hours annually.

Route 245

Route 245 is an all-day, two-way, frequent route connecting Kirkland with Overlake, Crossroads, Bellevue College, Eastgate, and Factoria via NE 70th St, 148th Avenue NE, 156th Ave, 148th Avenue SE, SE 36th St, and Factoria Boulevard. It is the most frequent Eastside route that does not serve the Bellevue Transit Center or Seattle. Metro received a grant in Fall 2009 to increase peak service on Route 245 to every fifteen minutes and to market the route. In the Fall 2011 service change, Metro will add service to Route 245 to give it fifteen minute headways and deviate the route to serve Sammamish High School using Main Street, 140th Avenue SE, and 145th Place SE between Crossroads and Bellevue College. Areas formerly served by 245 will now be served by Route 226.

Route 245 is a relatively well-performing route. Its productivity (27.4) is slightly below average, but its cost per revenue hour ($172) and cost per rider ($6.28) are both significantly below average ($229 and $9.02, respectively). Interestingly, the trend is reversed among Bellevue's all-day routes—its productivity and cost per revenue hour are both above the all-day averages (23.9 and $166, respectively). The currently low productivity may be because the route only recently began frequent service, so its ridership likely has not yet fully matured.

Recommendation: Route 245 should be revised between Bellevue College and the Eastgate Park-and-Ride to take advantage of the proposed speed and reliability improvements through campus. Assuming the routing exits Bellevue College at 142nd Place, Route 245 should not stop at the park-and-ride bus loop and instead cross the 142nd Place Bridge directly on the way to Factoria. A stop on the bridge would provide access to the Park-and-Ride. This recommendation saves up to 2,200 hours annually and requires one less bus to operate.

Route 246

Route 246 is an all-day route that connects the neighborhoods of Woodridge and Somerset with the activity centers of Downtown Bellevue, Eastgate, and Factoria via Lake Hills Connector, 123rd Avenue SE, SE 26th St, Eastgate Way, 150th Avenue SE, Highland Drive, Somerset Boulevard, Newport Way, and the Factoria Mall parking lot. In Fall 2011, Route 246 will be revised to serve the hotel district on 112th Avenue SE and will reverse the loop, serving Factoria before terminating at Eastgate.

Route 246 has consistently been one of Bellevue's least productive routes; in 2010 it averaged only 13.9 boardings per service hour, compared to the Bellevue average of 30.9. Though it's cost per revenue hour ($174) is significantly better than Bellevue's average ($229), its cost per rider

($12.46) is among Bellevue's highest. Data since 2008 obscures its actual performance because a school trip was added to its statistics, thereby increasing its 'productivity' from roughly 10 boardings per service hour while only adding a few heavily-used trips. Most of the route's trips have fewer than ten riders.

Recommendations: No recommendations are made for Route 246.

Route 271

Route 271 is a complex route. It has an all-day base route from the University District to the Issaquah Transit Center via SR-520, 84th Avenue NE, NE 8th St, the Bellevue Transit Center, Lake Hills Connector, 145th Pl, Bellevue College, Eastgate Park-and-Ride, SE Newport Way, West Lake Sammamish Parkway, and the Issaquah Transit Center. This route runs every thirty minutes all day and hourly in the evening. Route 271 also has an all-day variant, which only goes from the Eastgate Park-and-Ride to the University District. This variant runs every thirty minutes midday and more frequently according to need during peak times. All reverse peak Eastgate turnback variants of the route serve the Eastgate Employment Center in a loop through Eastgate Way and SE 36th Street. All night versions of Route 271 serve Gillman Village and Sunset Way. In the Fall 2011 service change, Metro will increase service on the Eastgate turnback variant.

Based on zone-level boarding and alighting data, Route 271 has three unique purposes with different levels of ridership. The University District to Downtown Bellevue segment has an average load between twenty and twenty-three riders, the Downtown Bellevue to Bellevue College between fifteen and seventeen riders, and the segment between the Eastgate Park-and-Ride and Issaquah Transit Center has between five and ten riders. Historically, Route 271 has increased ridership as the number of daily trips have increased. However, Fall 2009 ridership is about 6 percent lower than Fall 2008, coinciding with the recession. Route 271's productivity (30.4 riders per service hour) is almost identical to the Bellevue average (30.9) overall; however, weekend trips are roughly half as productive, due in part to the nature of the University District and a higher proportion of Issaquah trips occurring on weekends.

Recommendation: Route 271 should be truncated in the Eastgate area given the travel markets. Given that a new RapidRide line (see below) will provide service on the segment between downtown Bellevue, the Bellevue College and the Eastgate Park-and-Ride, Route 271 should be restructured to operate between Issaquah and Eastgate only. This route would reduce operating costs on this segment by approximately 1,000 annual hours.

New RapidRide Service

Enhanced connectivity between Factoria, Eastgate, Bellevue College, and downtown Bellevue is one of the unmet market needs. Given existing service and ridership levels, a new RapidRide BRT corridor should be implemented in this corridor. The routing should follow the existing Route 271 alignment between the Bellevue Transit Center and Bellevue College with stops every ½ mile or more (there is underlying local service along most of this route). The new RapidRide line should then connect Bellevue College to Factoria via 142nd Place and 36th Avenue SE. It should not stop in the existing bus loop at the Eastgate Park-and-Ride, but instead have its station on the 142nd Place bridge to facilitate regional transfers. The BRT route would fulfill several different functions in addition to providing connectivity between Eastgate, Bellevue College, and downtown Bellevue. It would provide the high-frequency, branded connection between the I-90 HCT line, Bellevue College, and Factoria to provide circulation. It could also replace Route 240 service to Eastgate as well. This recommendation is consistent with WSDOT's SR 520 BRT program which shows a BRT alignment between downtown Bellevue, Bellevue College, and the Eastgate Park-and-Ride. This RapidRide line would require approximately 7,600 additional annual service hours than Route 271 requires on this alignment, and 3 additional buses. This assumes live-looping through downtown Bellevue and laying over at the existing Route 245 layover in Factoria.

Private Vanpool/Shuttle Services – One of the challenges of suburban office park developments are cul-de-sac designs and road networks that are poorly connected. In Eastgate, the majority of the existing office buildings are beyond easy walking distance from the regional transit facility at Eastgate. In the Eastgate area, Microsoft has private shuttle services to its Advanta campus to connect it both to regional destinations and to other Microsoft buildings. One way to connect local employers with the Eastgate Park-and-Ride is through a VanShare program – where a van is parked at the park-and-ride in the morning, and transit riders use a vanpool to drive the last mile. This program is used extensively along Sounder stations, and more information can be found here:

http://metro.kingcounty.gov/tops/van-car/commutervans.html.

CAPITAL PROJECTS RECOMMENDATIONS

The effectiveness of the service recommendations are dramatically enhanced and in some cases depend on a series of capital improvements.

Improved Transit Amenities on the 142nd Place Bridge

The 142nd Place bridge and the I-90 direct access ramps represent one of the connectivity challenges in the study area. It is more than 0.1 mile walk from the flyer stops on the I-90 ramps to the bus stops at the Eastgate Park-and-Ride. The walk is exposed to the elements, which reduces the attractiveness of transferring between local and regional service at this location.

There are no actual bus stops on the bridge structure, as the sidewalk is only 6 feet wide. ADA bus stop requirements stipulate that a minimum of 8 feet are necessary to operate a wheelchair lift at a bus stop. According to the Access Board Right-of-Way Guidelines, as noted in "R308.1.1.1 Dimensions", "Boarding and alighting areas shall provide a clear length of 2.4 m (8.0 ft) minimum, measured perpendicular to the curb or street or highway edge, and a clear width of 1.5 m (5.0 ft) minimum, measured parallel to the street or highway."

In order to address this, Sound Transit is adding a van stop between the bridge abutment at the south end and SE 36th Street. The stop would only be big enough for a 20-foot vehicle, not a full-size bus. Because of this limitation, a more robust solution should be examined.

Improving pedestrian and transit access to the I-90 flyer stops is recommended. The walkway from the flyer stops to the Park-and-Ride should have weather protection – much like the Totem Lake I-405 direct access ramp has between the Kingsgate Park-and-Ride and the flyer stops. This walkway will be used by transferring passengers, persons using the park-and-ride, as well as regional passengers walking to Bellevue College.

In addition to improving pedestrian comfort with weather protection, bus stops should be placed on the 142nd Place bridge immediately adjacent to the I-90 flyer stops to allow for seamless transfers between regional service on I-90 and local service to Factoria, Bellevue College, and points beyond. Visual inspection shows that the travel lanes on the 142nd Place bridge are 14 feet wide and the sidewalks are 6 feet wide. It appears possible to narrow the travel lanes to 12 feet and widen the sidewalks to 8 feet, which would be required for a bus stop. Buses would stop in-lane on the bridge, which may delay traffic on the bridge at times.

Transit Signal Priority

Signalized intersections are typically one of the major sources of delay to transit service. Future year level of service calculations were completed to assess where future intersection bottlenecks were. Factoria Boulevard and the 148th/150th Avenue SE corridors were the areas where most future delay were to occur.

In 2005, DKS Associates completed a Bellevue Transit Improvement Analysis that assessed the feasibility and the cost/benefit of transit signal priority throughout Bellevue. Both corridor and route level benefits were documented. Both SE Eastgate Way and Factoria Boulevard scored with a positive cost/benefit in this analysis. Signalized intersections on both corridors should be considered for transit signal priority.

The signalized intersections on 148th/150th Avenue SE should also be examined for transit signal priority warrants. Alternatively, roundabouts at the major intersections, such as SE 37th Street, SE 38th Street, and SE Eastgate Way could enhance transit speed and reliability

Speed and Reliability Through Bellevue College's Campus

Bellevue College is one of the biggest transit ridership generators in the Eastgate area, with over 600 boardings on-campus every day. According to the college's recent transportation planning study, currently 1,400 students and 14% of the employees utilize transit to and from the campus, and students pay for half the cost of an ORCA pass. Ridership numbers on Bellevue College are projected to grow due to new academic buildings and the addition of over 1,000 residential units on campus.

Bellevue College also intends to start charging for parking, which will also cause a shift to more transit utilization. For fall quarter 2011, the college will begin implementing a charge for student and daily parking permits. Quarterly permits will cost $35 for students coming to campus two days per week, or $65 for three or more days a week. For students who come to campus less often and for visitors, parking at meters will be available for $2 per day.

From an operational standpoint, the existing bus routing through campus has some significant drawbacks. While the stop at Kelsey Creek Road / Tye River Road is ideally located adjacent to the academic building core, the roadways leading there dramatically negatively impact operational speed and reliability. The bus stop is located adjacent to a major pedestrian

movement between a parking garage and academic buildings, making conflicts common. There are speedbumps to slow car traffic that slow buses as well. Delays caused by vehicles waiting in a bus zone to pick up passengers or waiting to get into the garage also delay buses. The existing street network and pavement conditions require that buses travelling between Bellevue College and the Eastgate Park-and-Ride use 148th Avenue, a circuitous path on congested roadways that causes bus travel times to be close to equivalent to walking between these locations.

One of the goals of Bellevue College is to further promote transit utilization and improve on the existing 14 percent transit mode share. As part of the Bellevue College Master Planning process, several different methods to improve transit speed and reliability were examined. The alternative with the most promise in providing access into the heart of campus without out-of-direction travel and exposure to delay is shown in Figure C-2. This alternative, combined with utilizing the 142nd Place bridge, will save up to 4,000 annual service hours. More importantly, it will streamline local service through campus and entice more students, faculty, and staff to use transit and thus support Bellevue College's long-term sustainability goals.

It should be noted that there are some key challenges to implementing this recommendation, including:

- A loss of up to 100 parking stalls along Snoqualmie River Road
- Conflicts with delivery vehicles
- Increase in vehicle-generated noise that may impact the condominiums adjacent to Bellevue College
- Potential for additional cut-through traffic
- Reconstruction of Snoqualmie River Road, which includes upgraded pavement to support buses, sidewalks, accessible bus stops, and the south entrance intersection.

Reconstructing the Snoqualmie River Road will cost approximately $4.4 million (Source: Eastgate Preliminary Screening Analysis, December 2009, Given the size and the benefits of this project, costs should be borne by both transit agencies and Bellevue College. It should be clear that Bellevue College should not be bearing the entire cost of this.

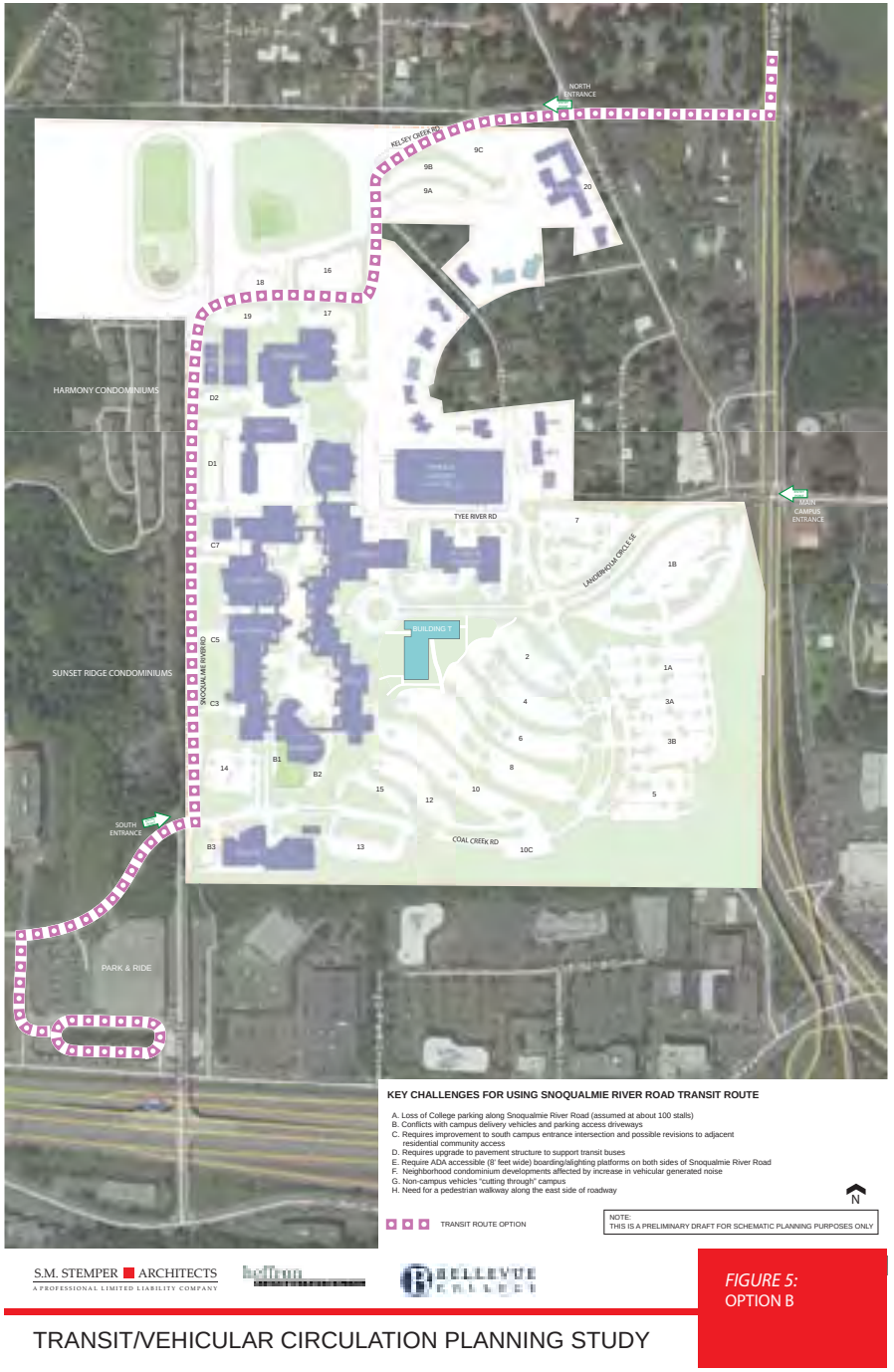


FIGURE C-2 *Proposed Long-Range Transit Circulation in Bellevue College*

Transit Station on Factoria Boulevard

The FATS report outlined the need for enhanced transit facilities on Factoria Boulevard. Given the existing ridership levels (1,100 boardings and alightings on local routes in the vicinity of SE 38th Street) before any redevelopment takes place, it is clear that this recommendation still holds true. A transit station that significantly enhances pedestrian access and passengers amenities is recommended in the vicinity of SE 38th Street. In the short term, the transit station should consist of enhanced rider information and shelters. In the longer-term, a more substantial transit center could be designed and coordinated together with private redevelopment projects. To facilitate pedestrian crossings of Factoria Boulevard and SE 38th Street, install special paving types or marketing and pedestrian countdown signals. A grade-separated crossing (skybridge) may be considered in the long-term integrated with adjacent private development and using natural topographic features to the east. The capital costs of this enhancement should be integrated into future redevelopment.

Enhancements at the Eastgate Park-and-Ride

The Eastgate Park-and-Ride is highly likely to have high capacity transit stopping at the facility. As part of any reconstruction or station improvement efforts, additional layover space at the Park-and-Ride should be considered. While some of the need for layover will be mitigated by the replacement of Route 212 service to Seattle by high capacity transit, future recommendations have at least five routes ending at the Park-and-Ride. There are currently two layover bays at Eastgate, one of which is approximately 160 feet long and another which is approximately 140 feet long. These have between four and six buses worth of layover space, depending on bus size. An increase in layover capacity is recommended.

PRIORITIZATION OF RECOMMENDATIONS

Long-range transit recommendations represent improvements that will take years to implement due to both capital and infrastructure costs involved. They are, however, a roadmap for where investments in transit should be made. The three highest priority improvements are as follows:

- **Improve Connections between Bellevue College and Eastgate Park-and-Ride** – The more direct alignment connecting the regional transportation facility and major destination will save operating costs and increase ridership potential. The operating savings could be so significant that over time, they exceed the cost of the capital improvement.

- **Improve Transfers between the Freeway Stops and connecting service at the Eastgate Park-and-Ride** – The existing connection between regional service on the I-90 Freeway Stops and most connecting bus service in Eastgate requires a long, exposed walk. Providing weather protection and adding bus stops on the 142nd Place bridge immediately adjacent to the direct access ramps should dramatically enhance the customer experience while transferring – which will lead to greater ridership.

***Table C-2** Metro Service Families*

Service Family	Description	Routes	Annual Ridership			Annual Revenue Hours		
			Rides	% of Total	% of Eastgate	Hours	% of Total	% of Eastgate
Local	Connects neighborhood services and centers with 30+ minute headways.	329, 730	329,730	2.4%	6.8%	20,805	4.5%	12.9%
Hourly	Infrequent service (60+ minute headways) to low-density areas.	436, 695	436,695	3.2%	9.0%	21,627	4.7%	13.4%
Peak Commuter	Peak-hour service on weekdays, connecting regional employment centers.	210, 211, 212, 215, 216, 217, 218, 225, 229, 247	1,245,100	9.2%	25.7%	24.972	5.4%	15.4%
Frequent Arterial	Connects centers with 30 minute headways or better, operating 16 to 18 hours daily.	240, 245, 271	2,825,098	20.9%	58.4%	94,446	20.5%	58.4%

***Table C-3** Bellevue Service Categories*

Service Category	Description	Routes	Annual Ridership			Annual Revenue Hours		
			Rides	% of Total	% of Eastgate	Hours	% of Total	% of Eastgate
Community	Routes exclusively serving Bellevue, connecting neighborhoods and local destinations.	222, 246, 926	329,730	2.4%	6.8%	20,805	4.5%	12.9%
Eastside	Routes connecting Bellevue with other Eastside communities.	221, 245	1,173,653	8.7%	24.3%	48,102	10.5%	29.7%
Regional	Routes connecting Bellevue to other regional destinations, notably including Seattle.	210, 211, 212, 215, 216, 217, 218, 225, 229, 240, 247, 271, 272, 554, 555, 556	3,333,239	24.7%	68.9%	92,943	20.2%	57.4%

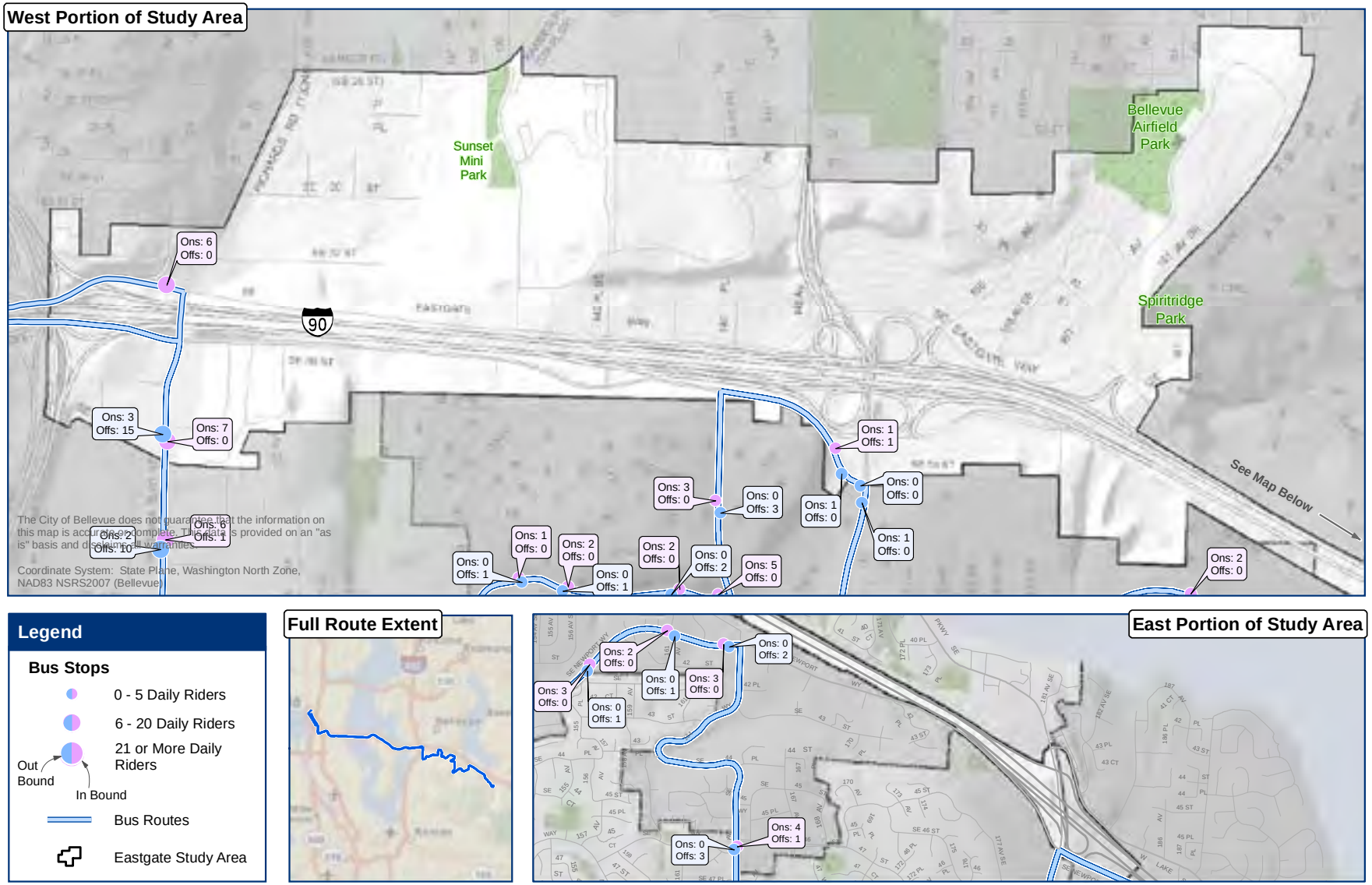


FIGURE C-3 *Route 210 Bus Ridership Activity*

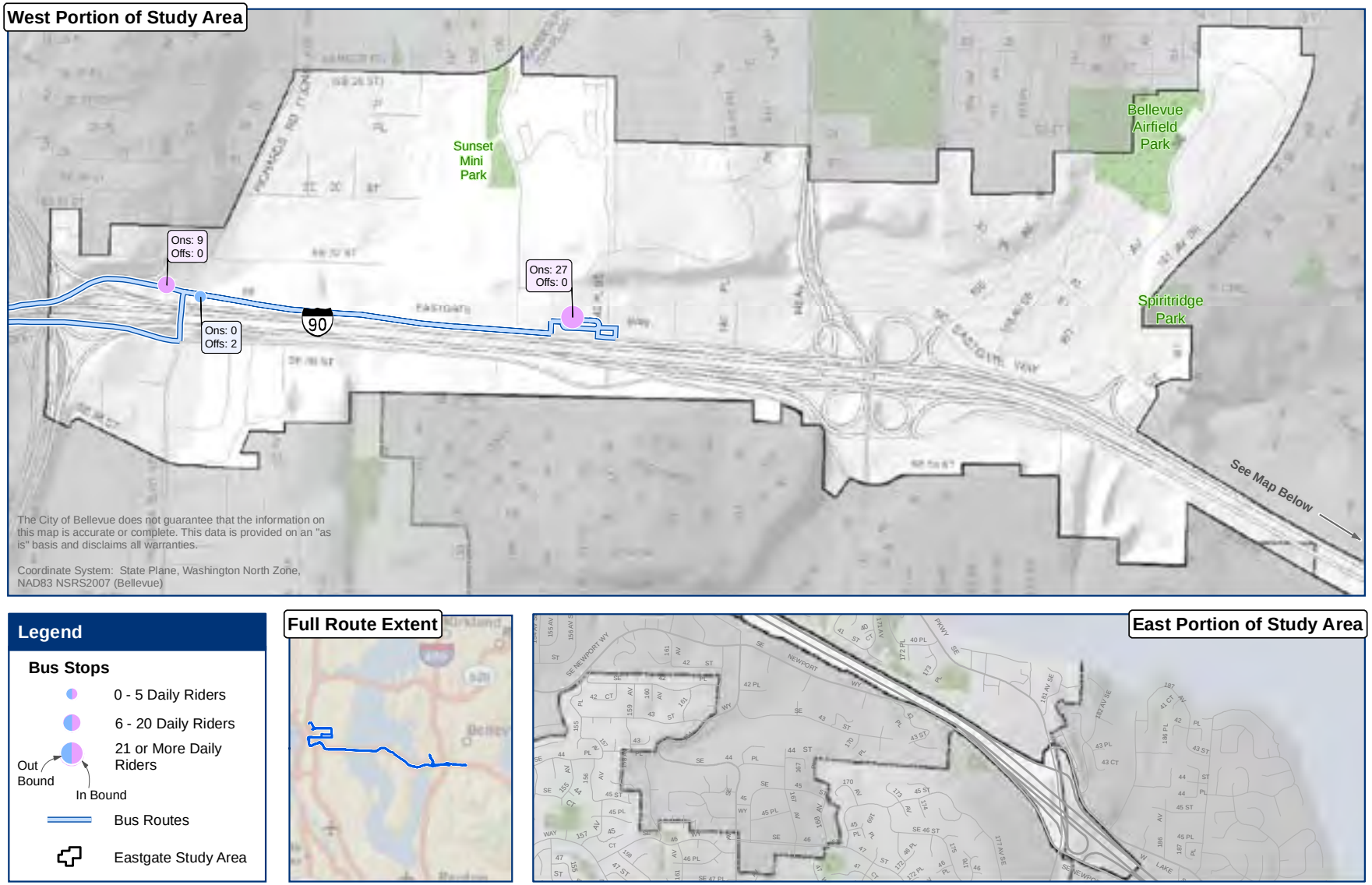


FIGURE C-4 *Route 211 Bus Ridership Activity*

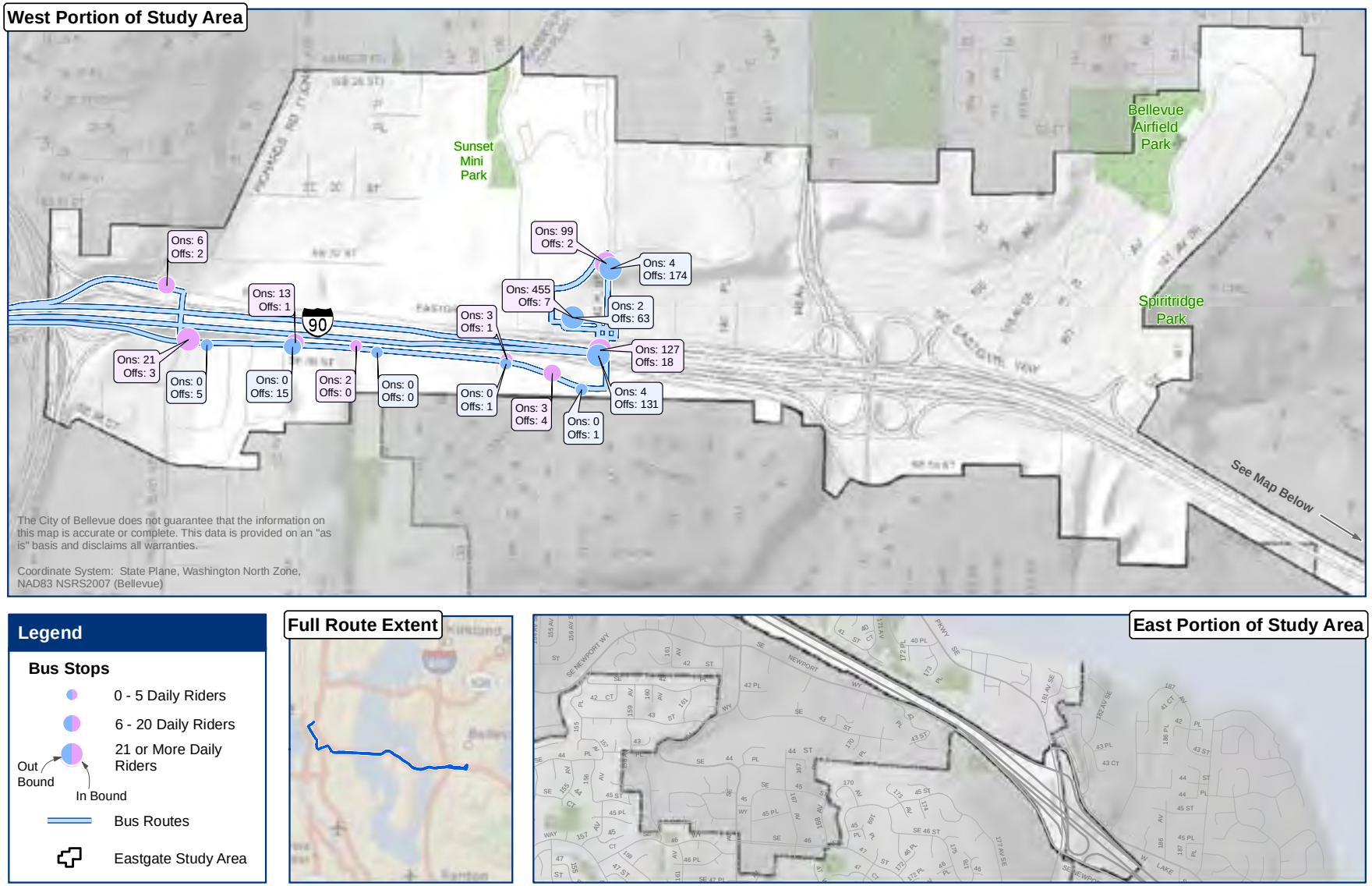


FIGURE C-5 *Route 212 Bus Ridership Activity*

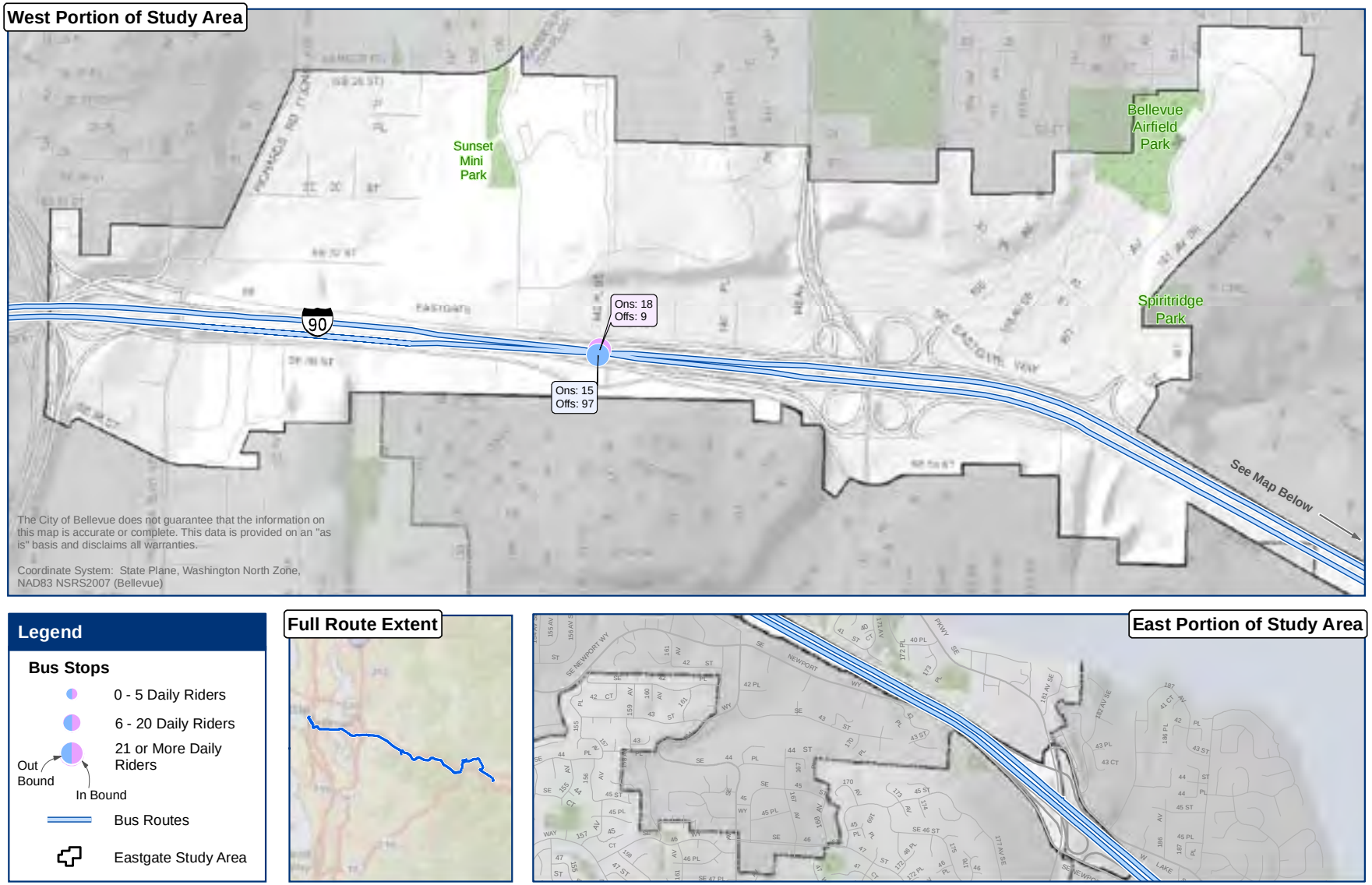


FIGURE C-6 *Route 215 Bus Ridership Activity*

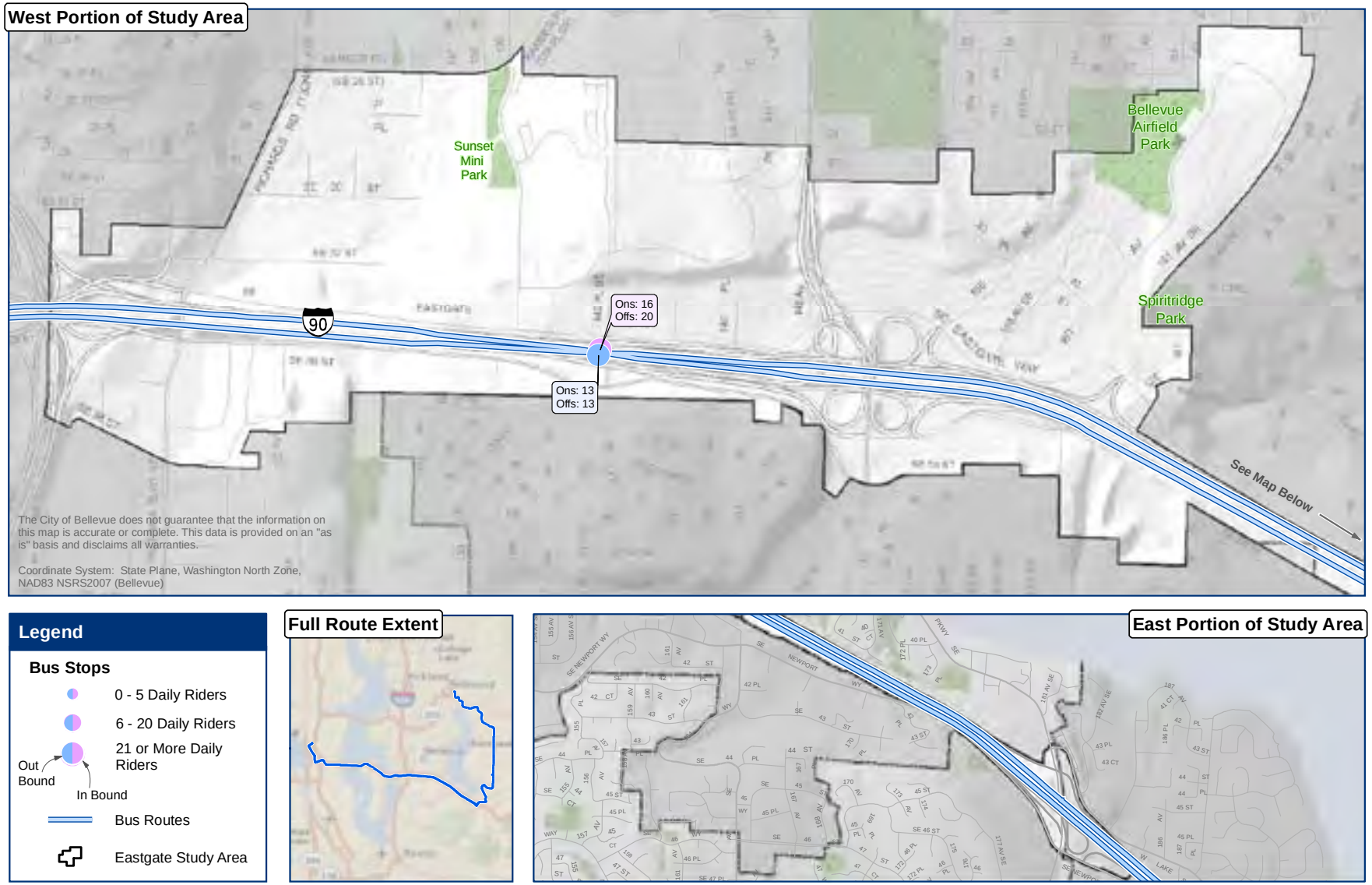


FIGURE C-7 *Route 216 Bus Ridership Activity*

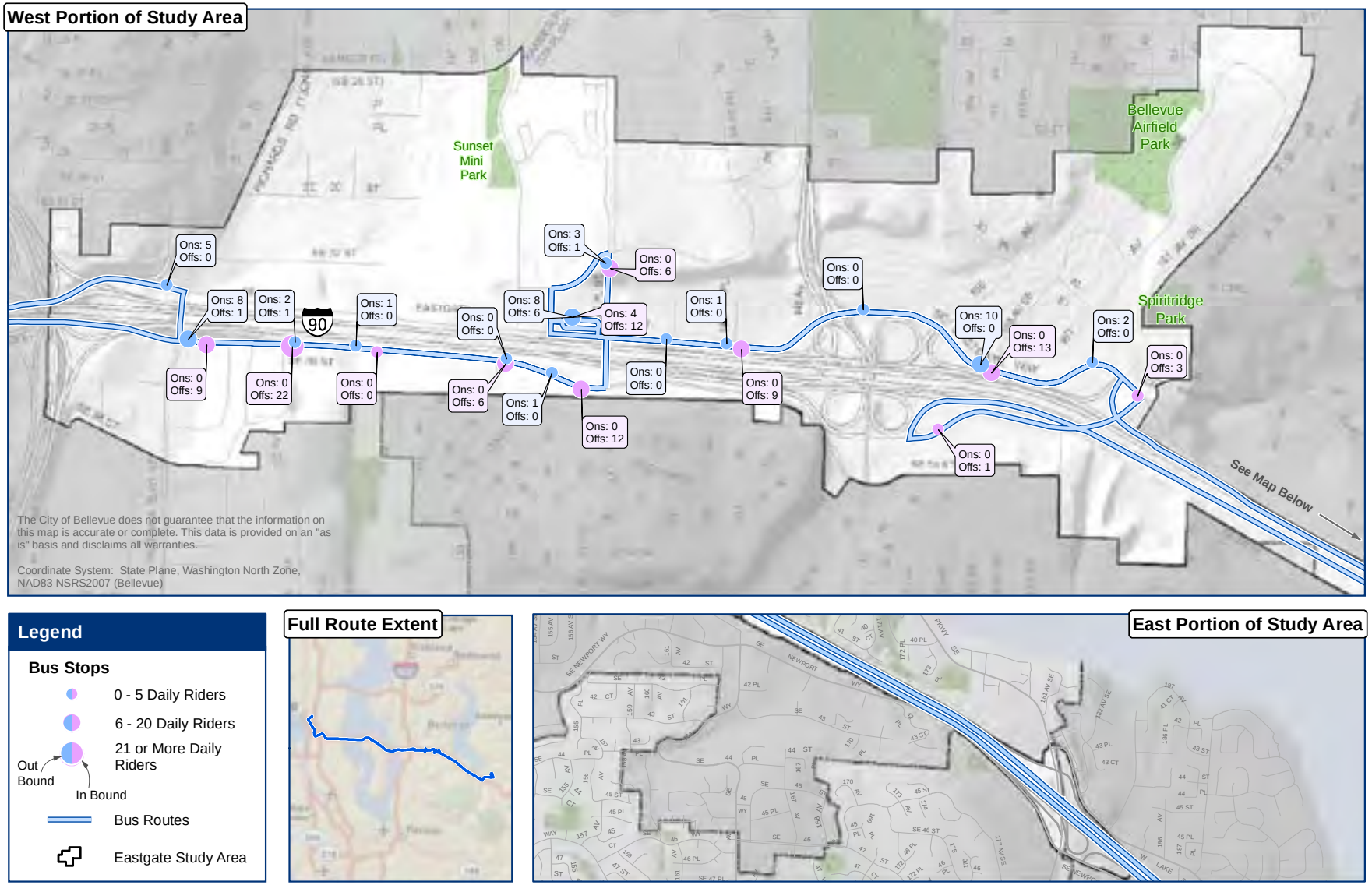


FIGURE C-8 *Route 217 Bus Ridership Activity*

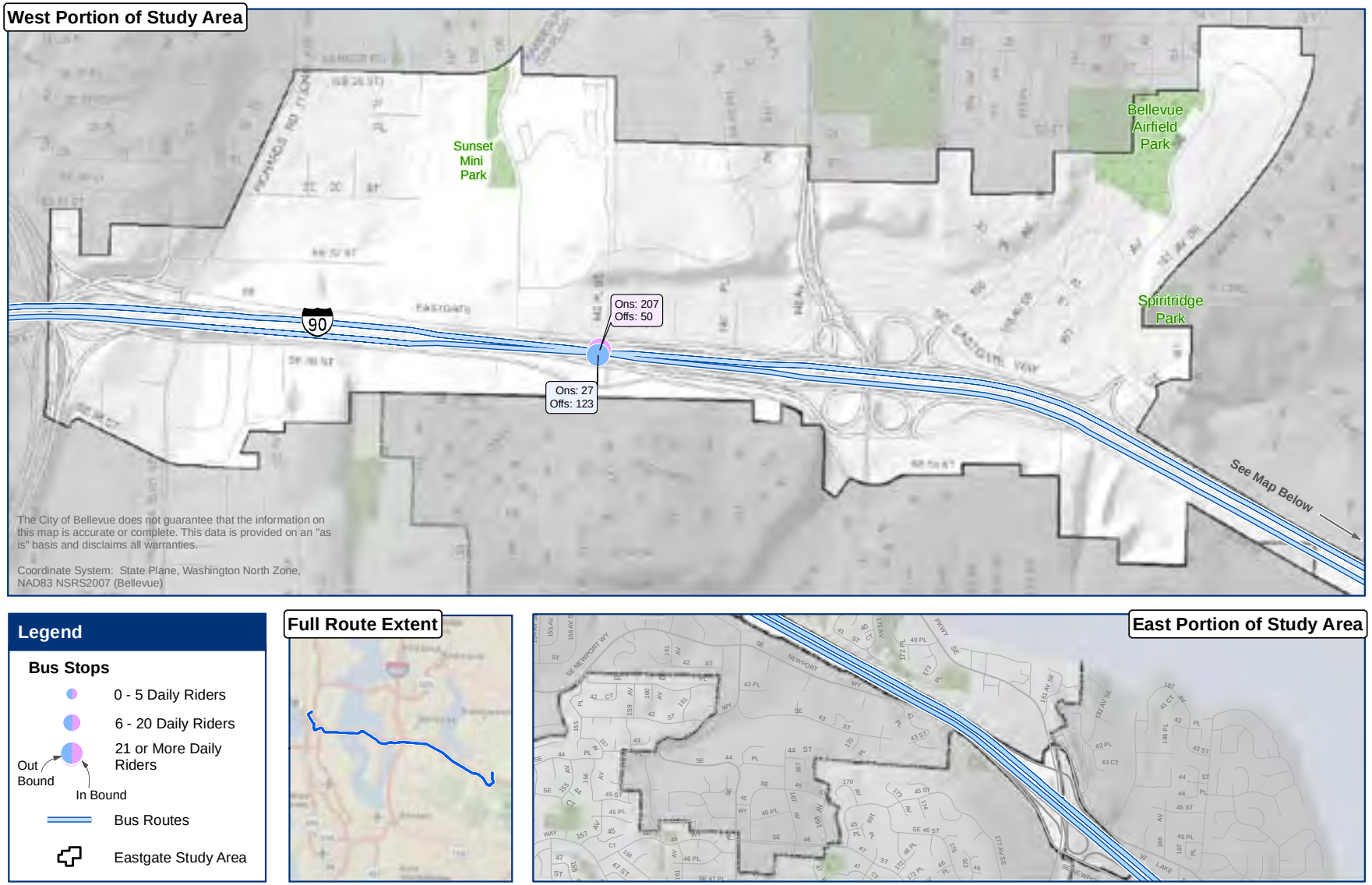
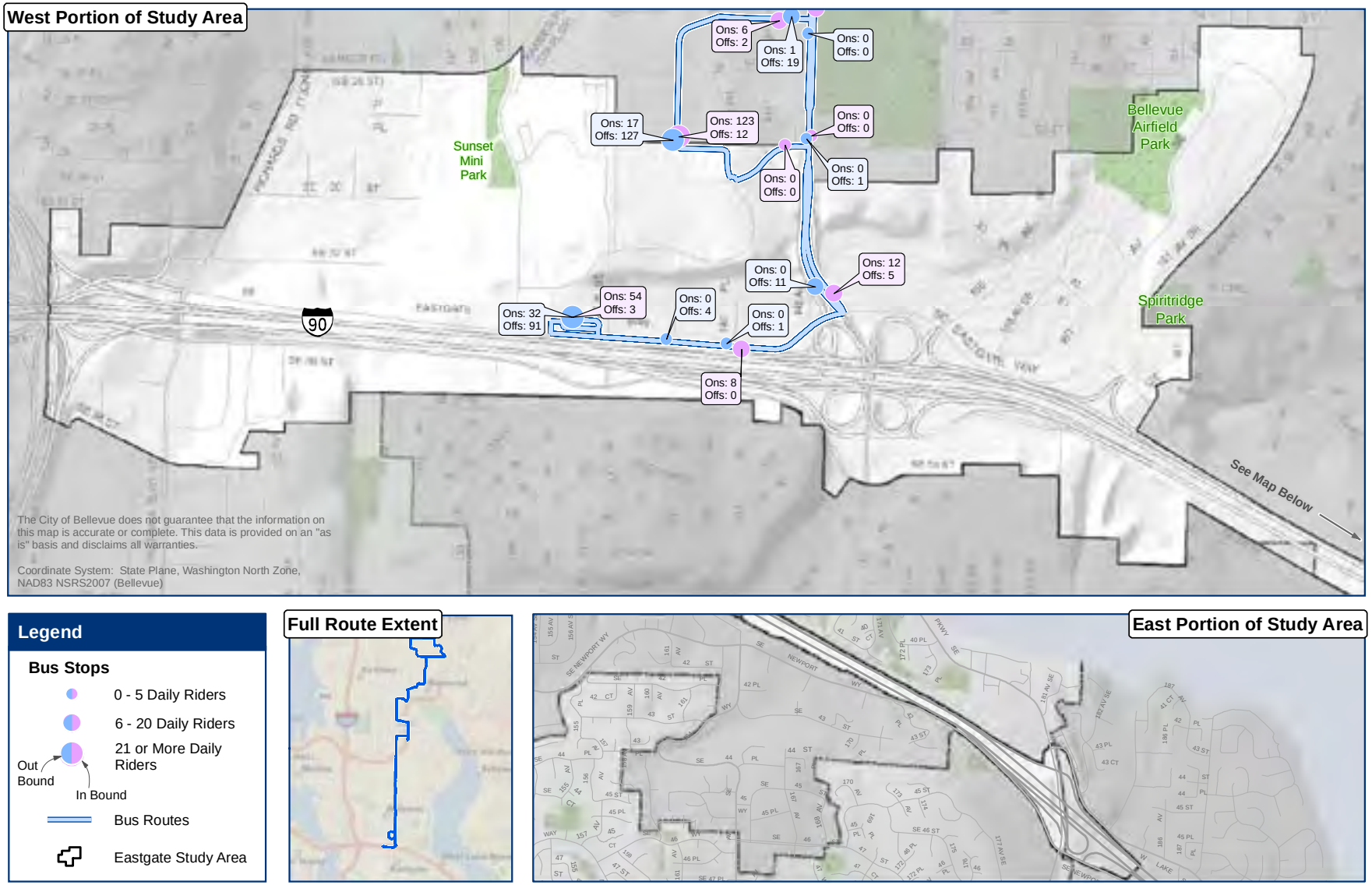


FIGURE C-9 *Route 218 Bus Ridership Activity*



City of Bellevue
GIS Services

Eastgate/I-90 Land Use and Transportation Study

Bus Ridership Activity

Route 221

Sources: City of Bellevue
King County
Stop data from Fall of 2009

Plot Date: 3/21/2011 File Name: V:\City\EastgateStudy\arcgis\eastgateTransitRidershipDDAtlas_8x11.mxd

IT Department

FIGURE C-10 *Route 221 Bus Ridership Activity*

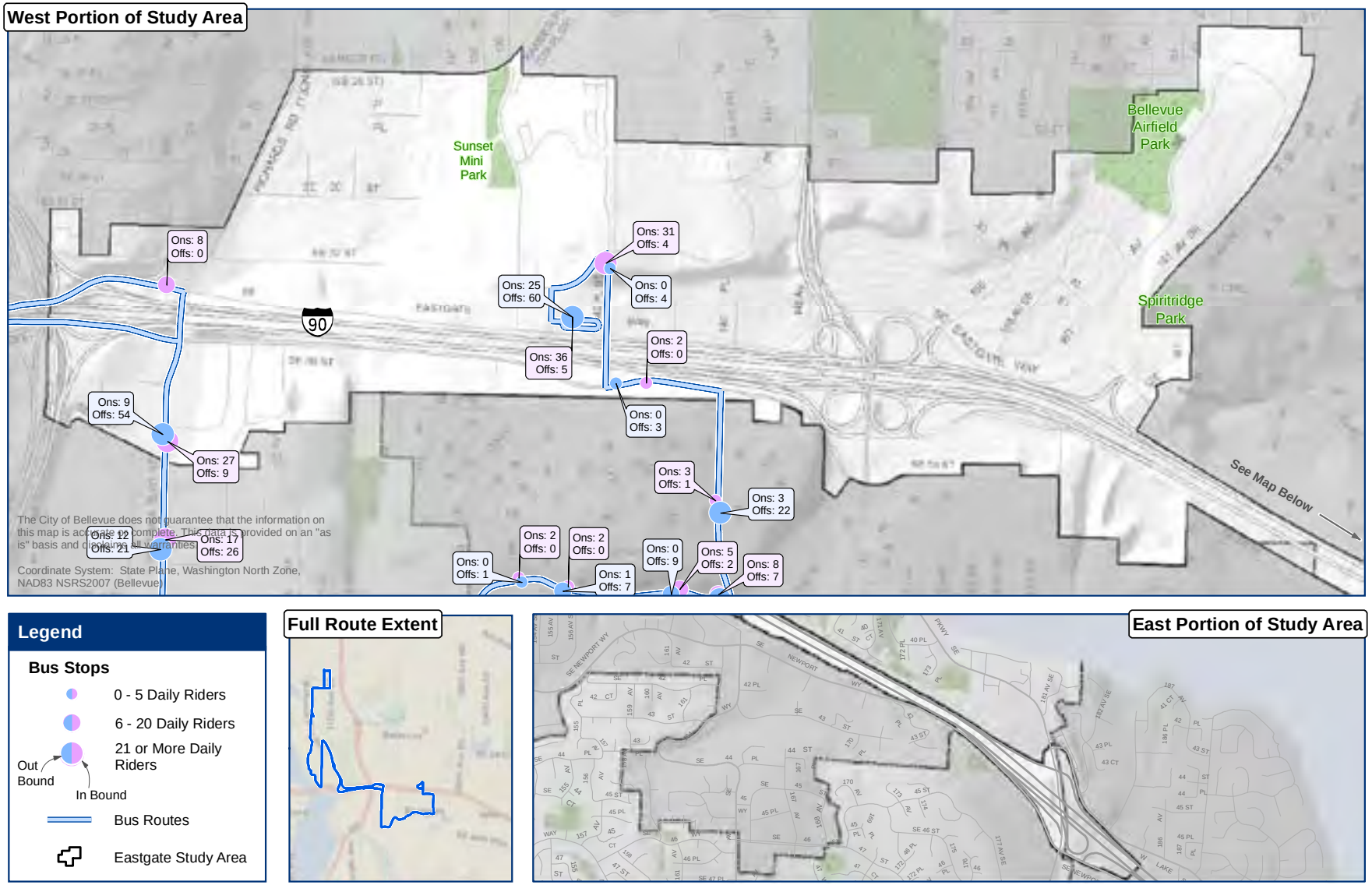


FIGURE C-11 *Route 222 Bus Ridership Activity*

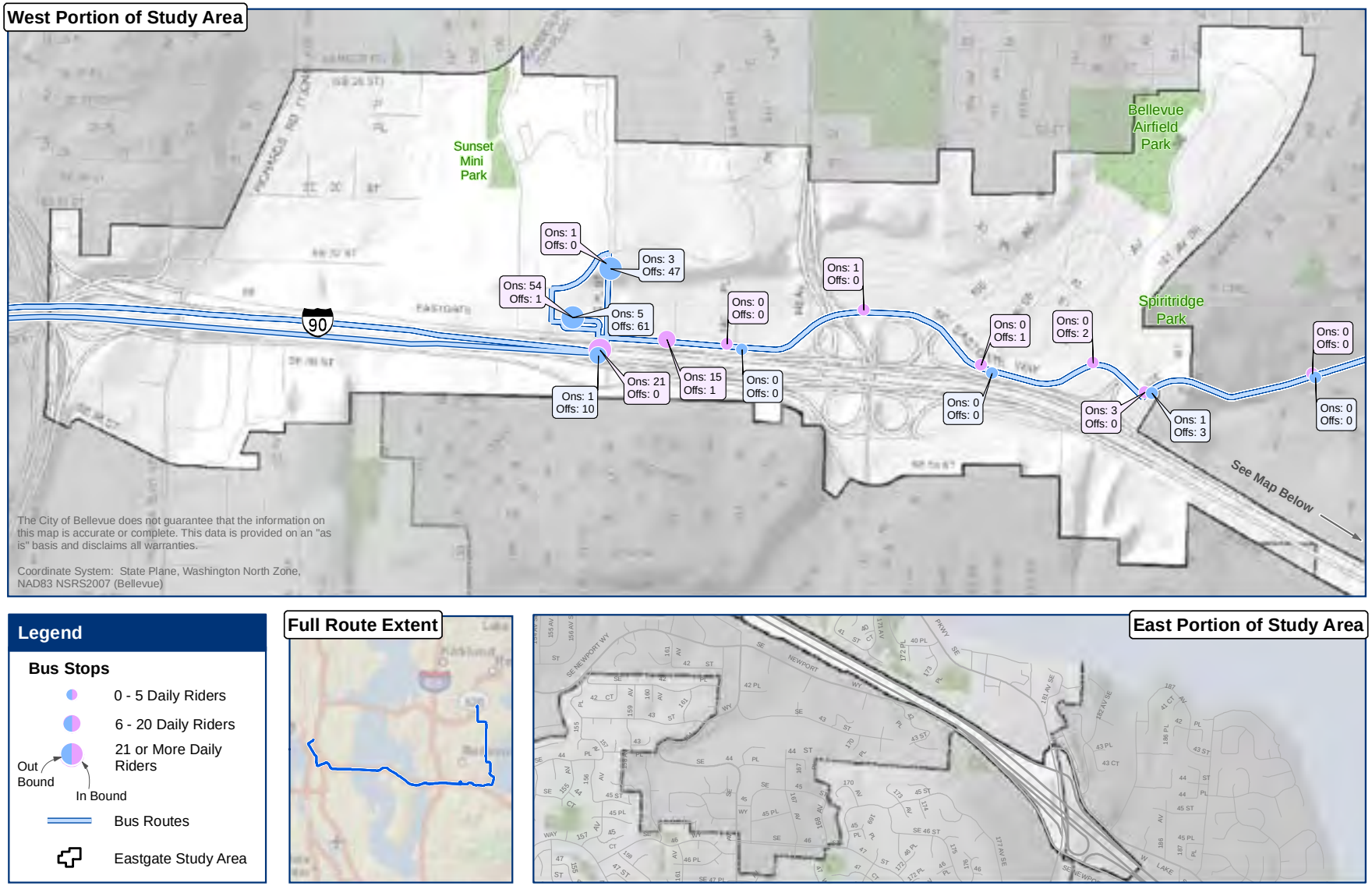


FIGURE C-12 *Route 225 Bus Ridership Activity*

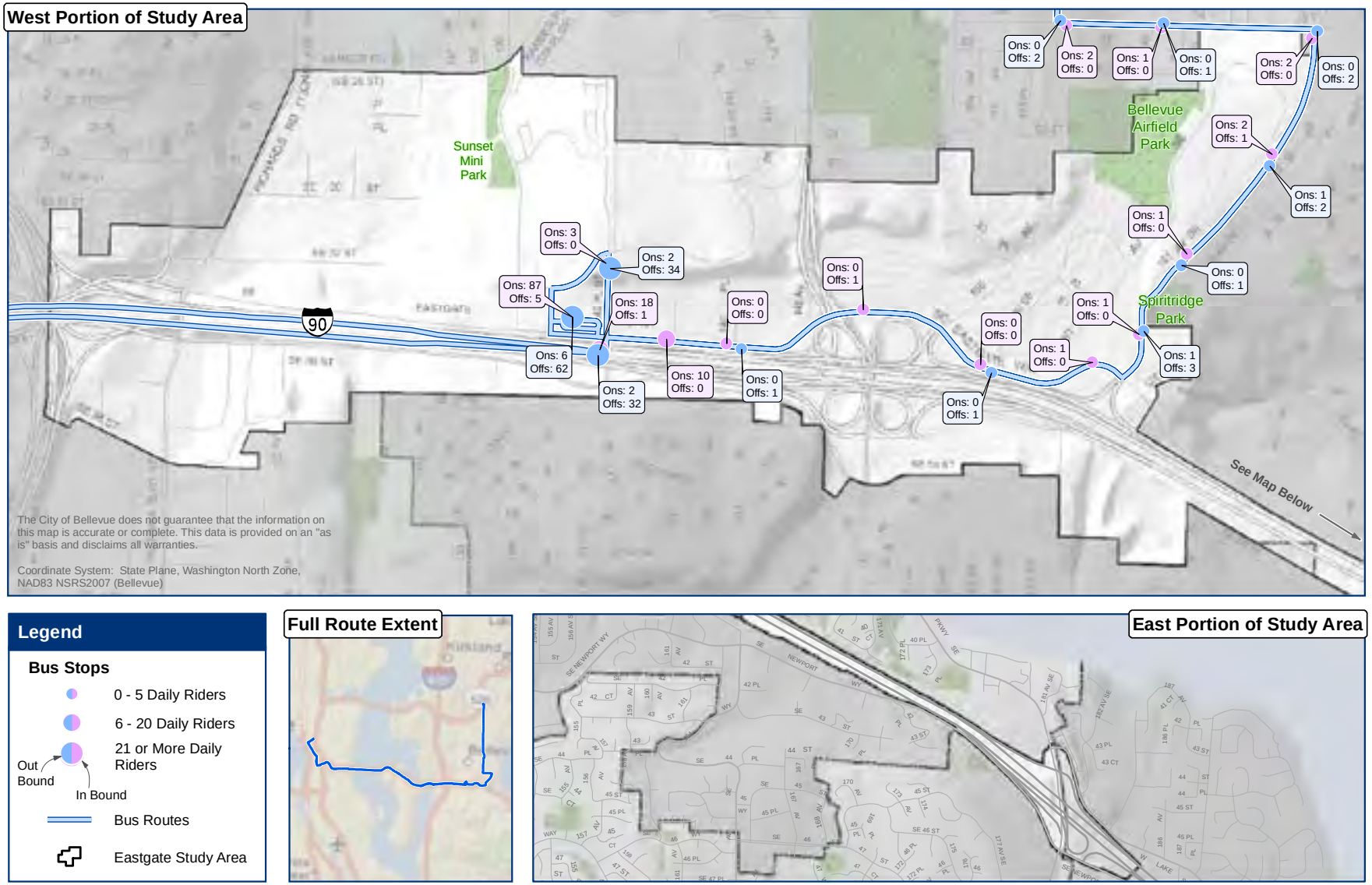


FIGURE C-13 *Route 229 Bus Ridership Activity*

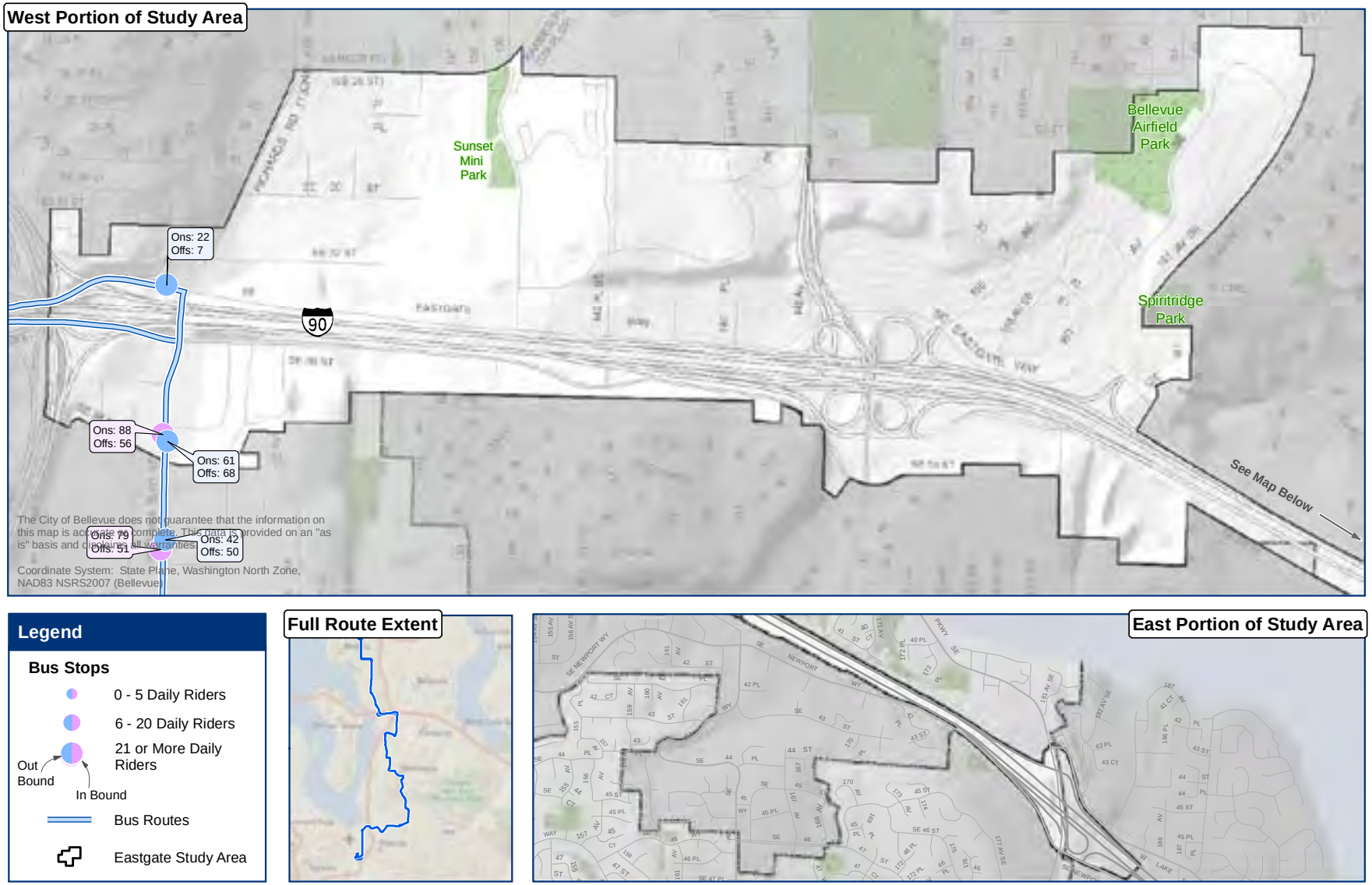


FIGURE C-14 *Route 240 Bus Ridership Activity*

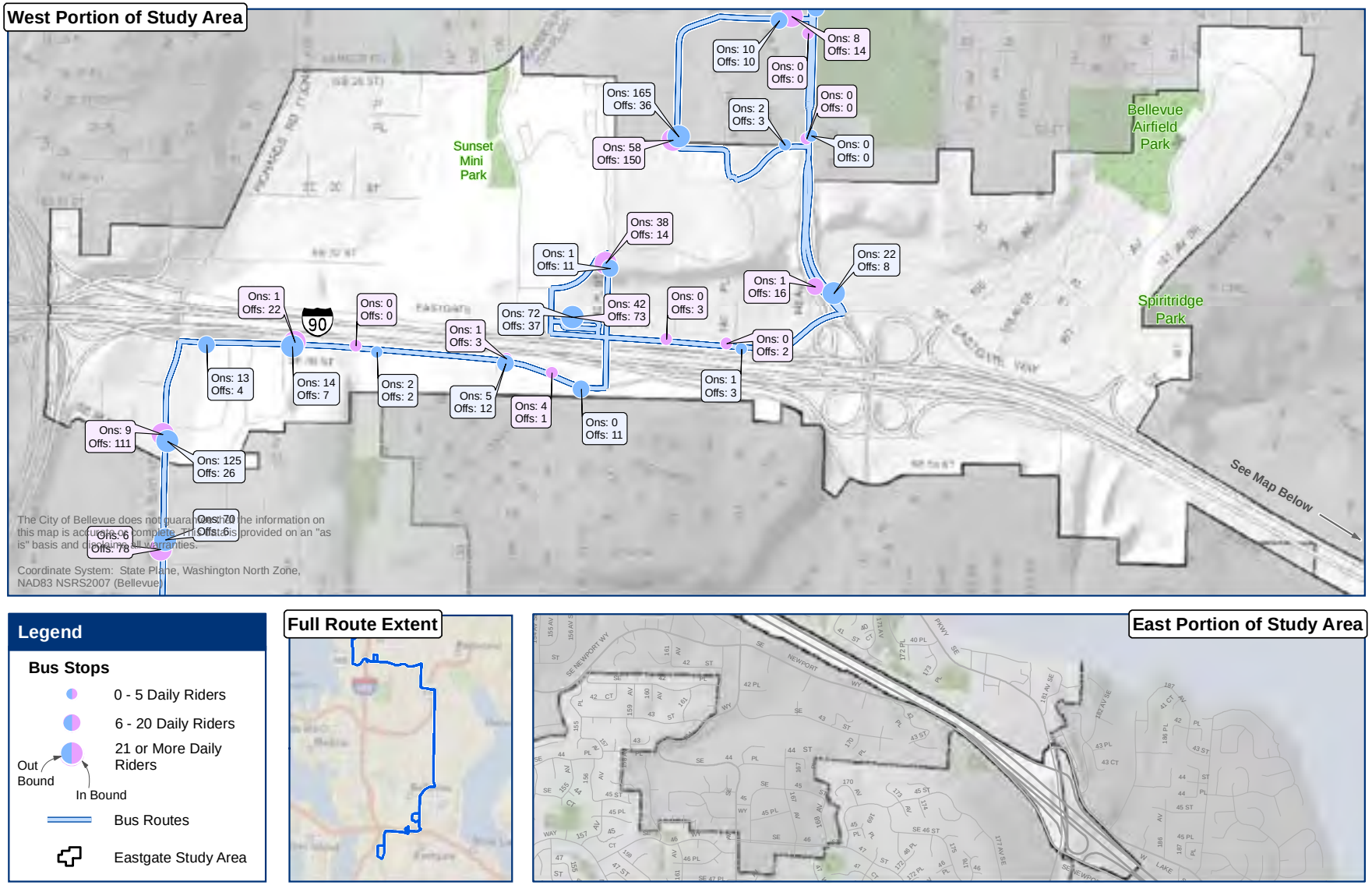


FIGURE C-15 *Route 245 Bus Ridership Activity*

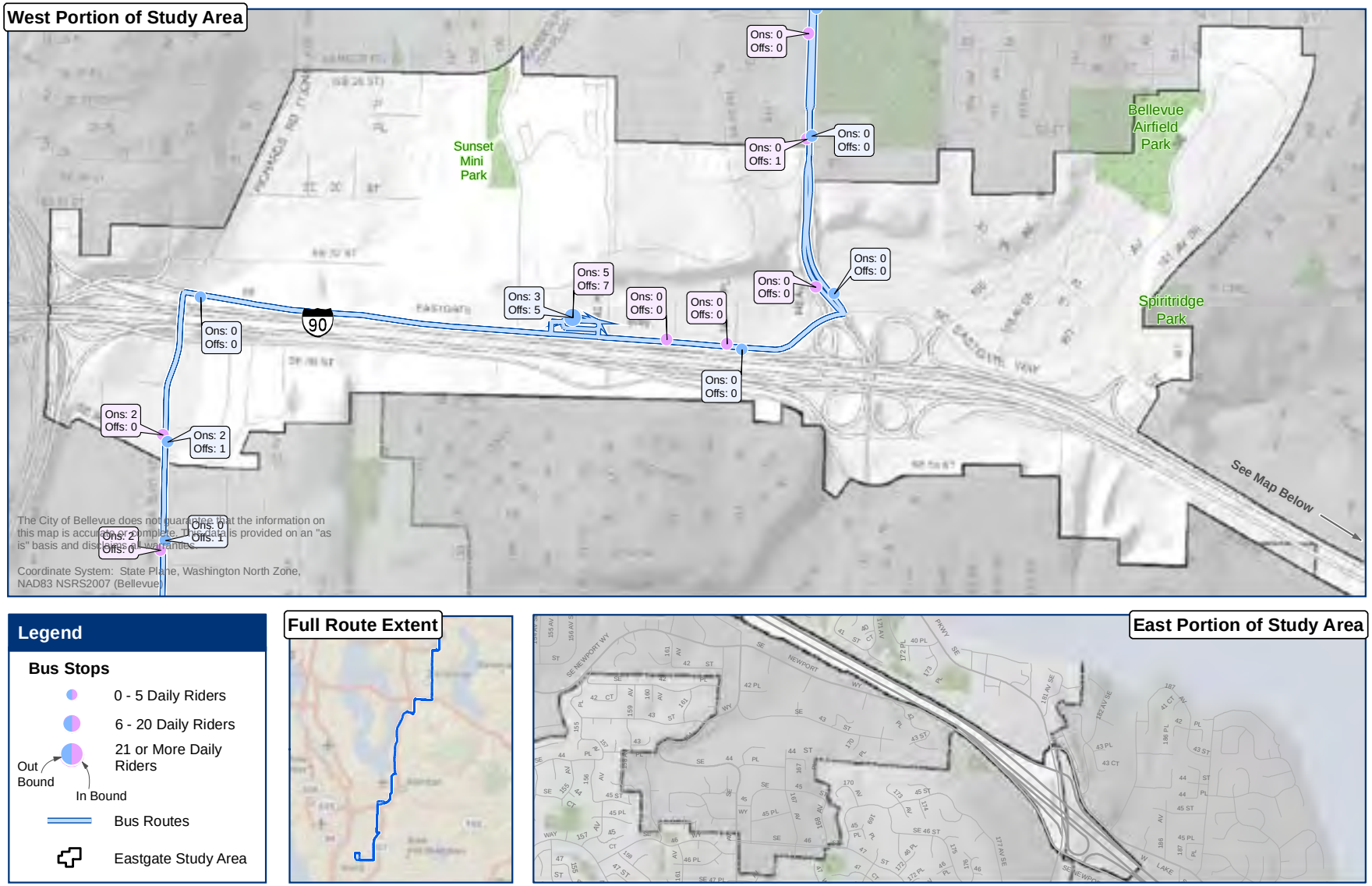


FIGURE C-16 *Route 247 Bus Ridership Activity*

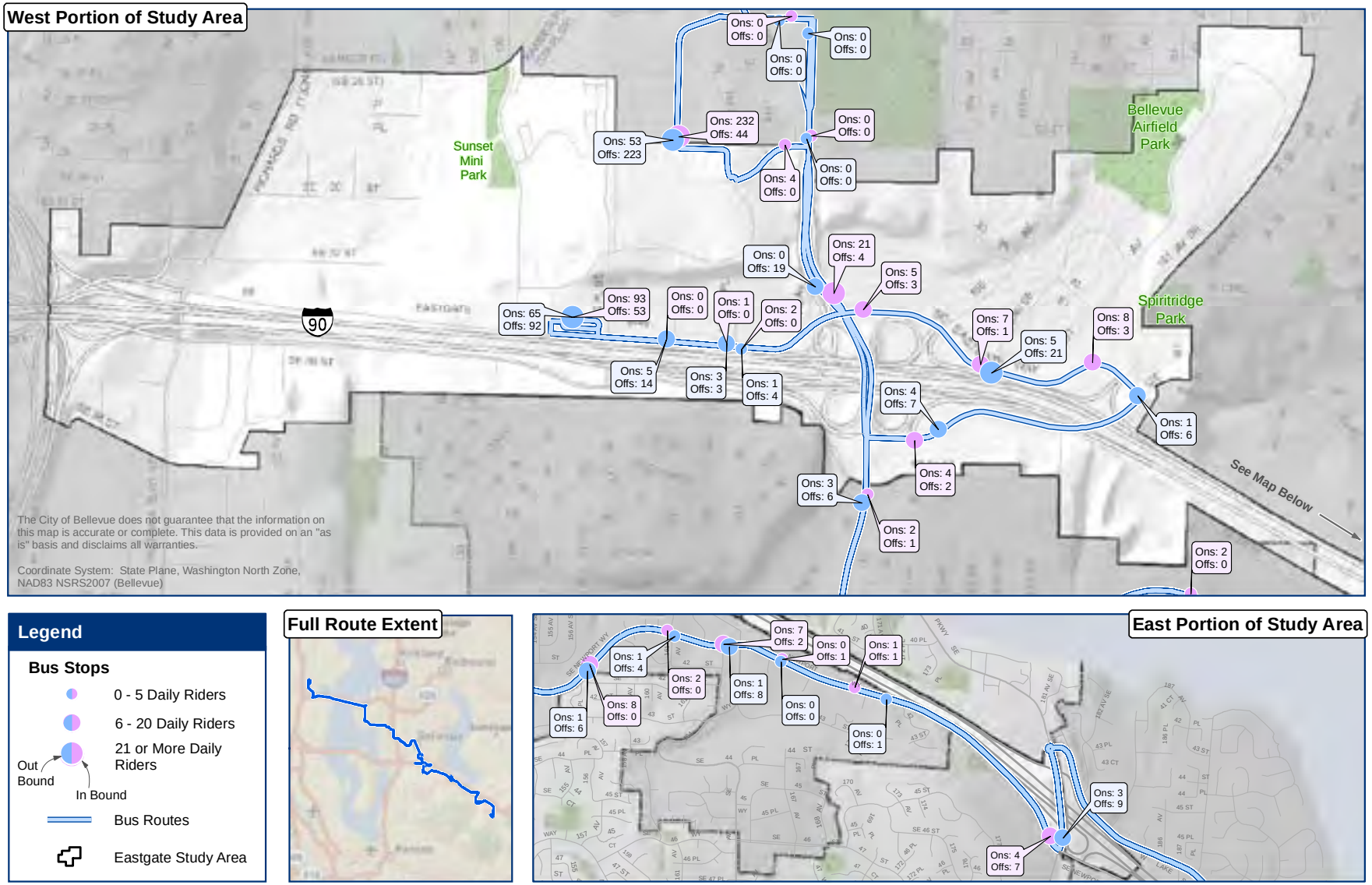


FIGURE C-17 *Route 271 Bus Ridership Activity*

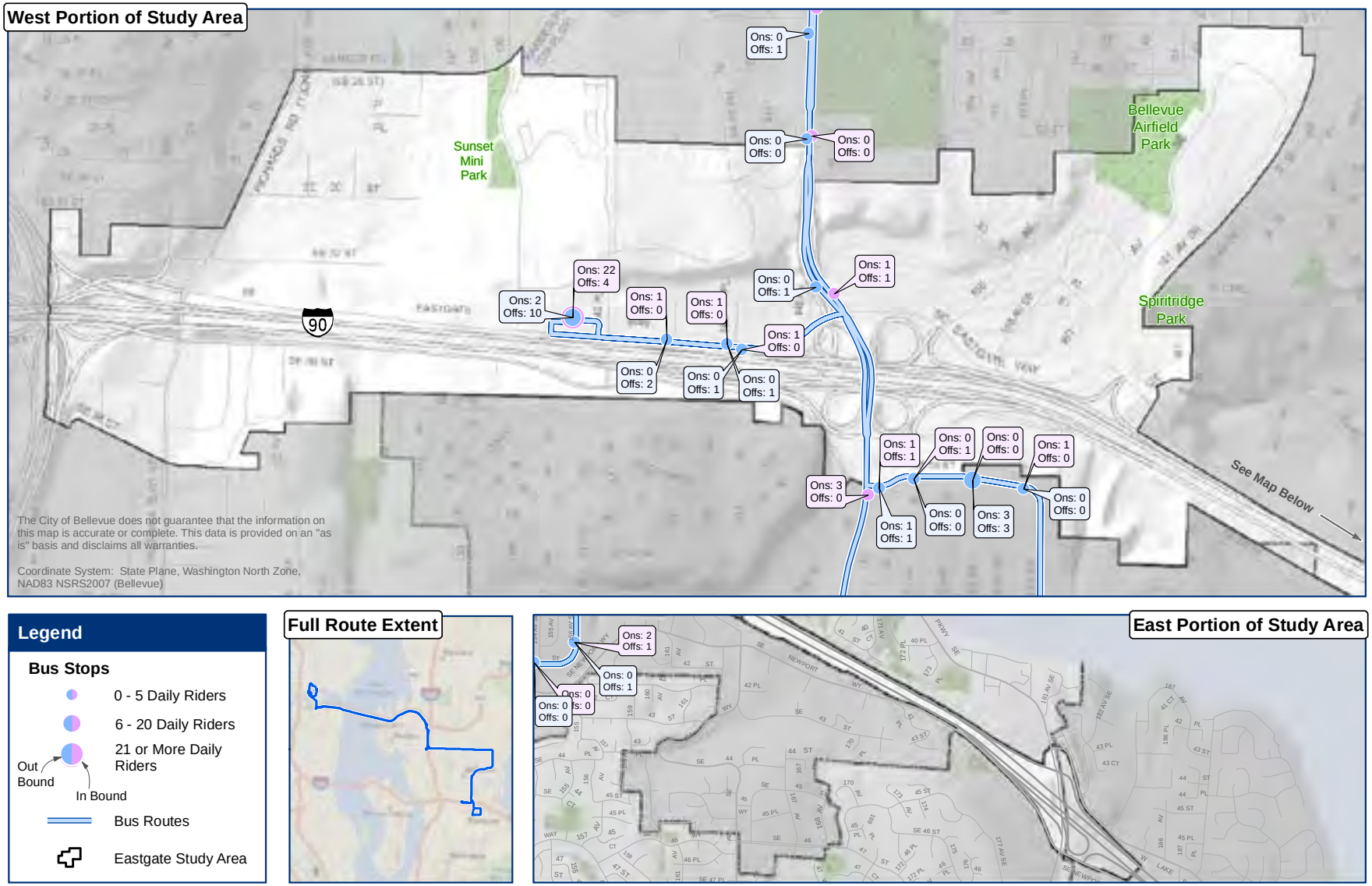


FIGURE C-18 *Route 272 Bus Ridership Activity*

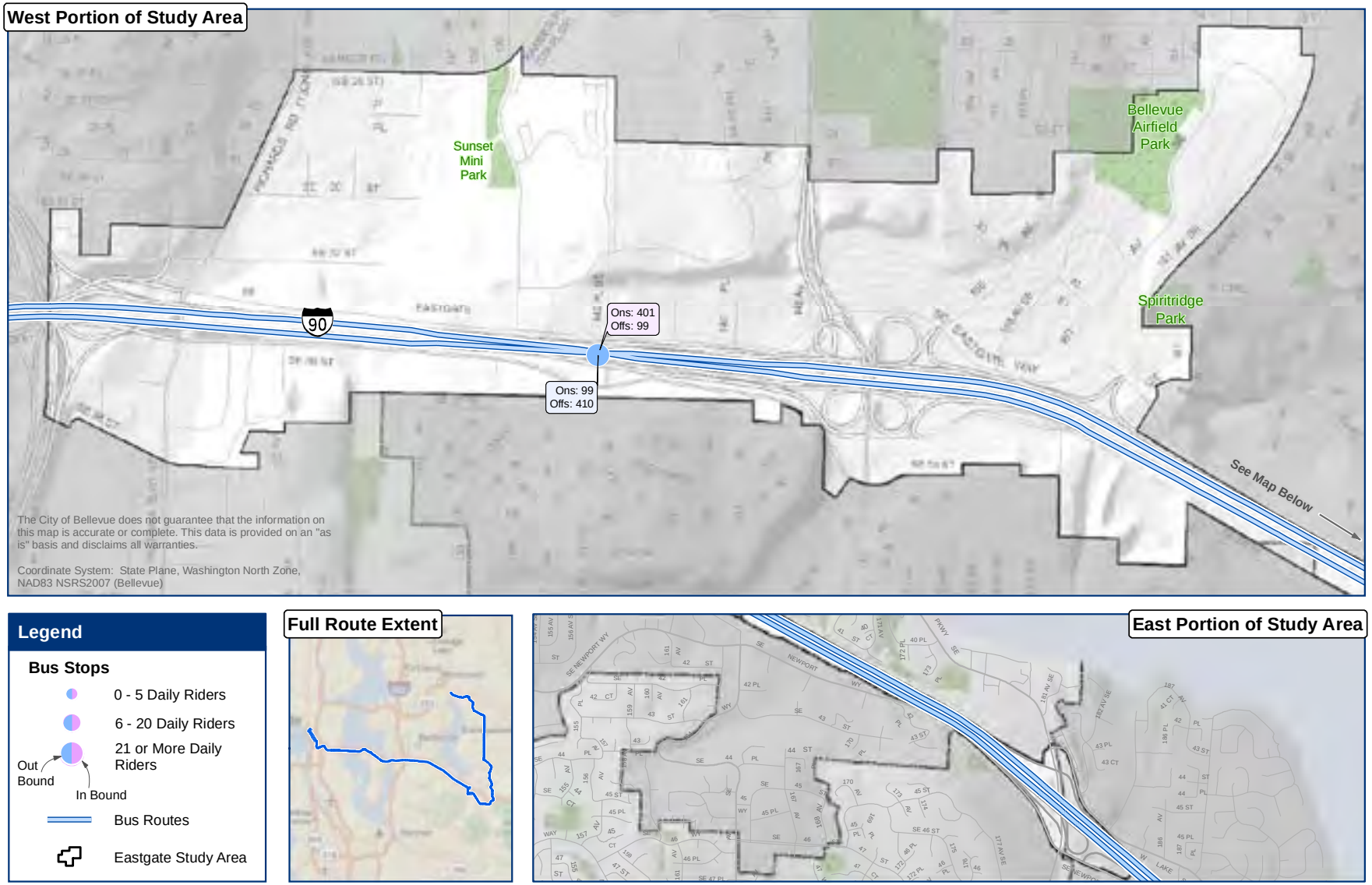


FIGURE C-19 *Route 554 Bus Ridership Activity*

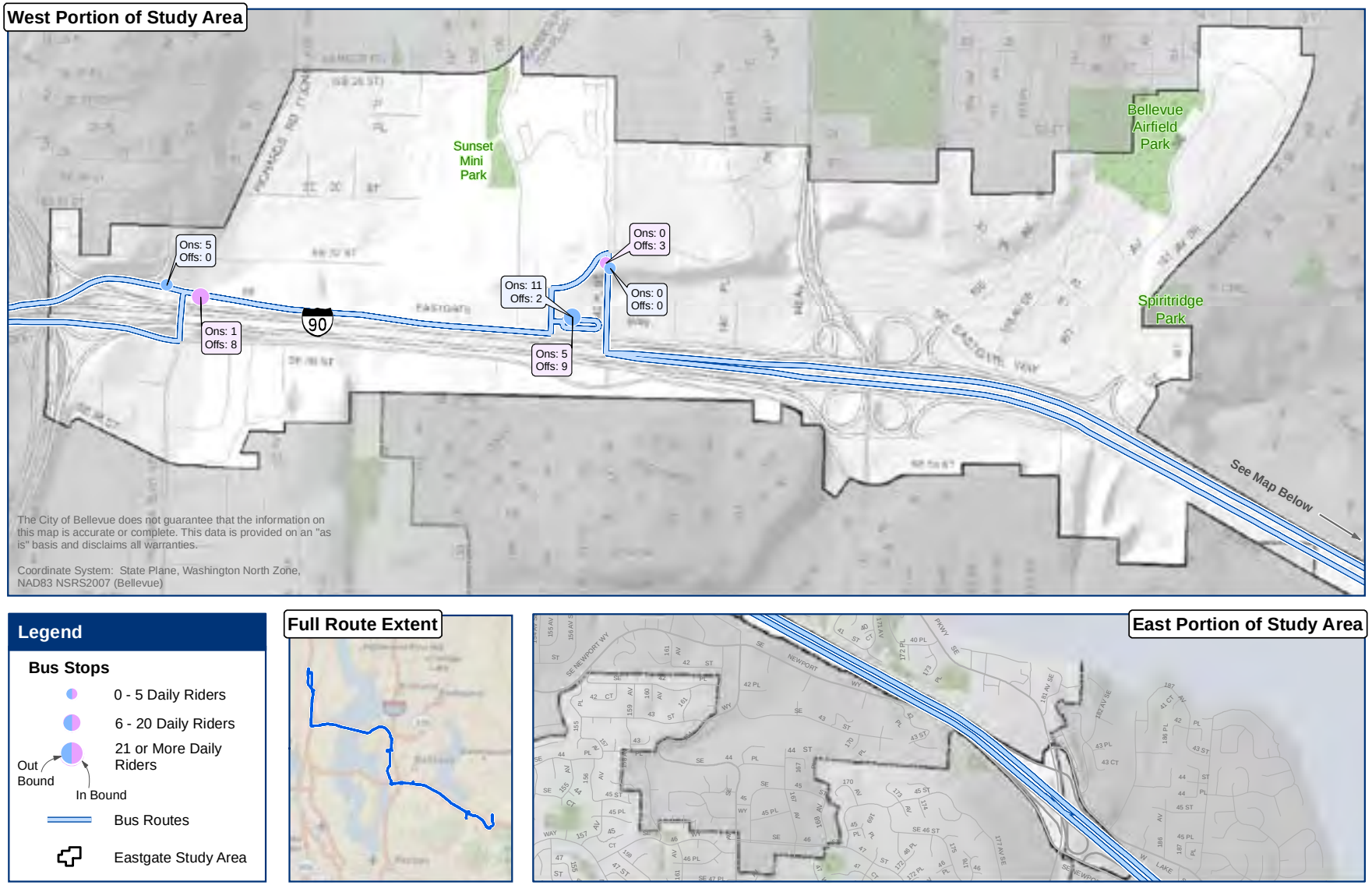


FIGURE C-20 *Route 555 Bus Ridership Activity*

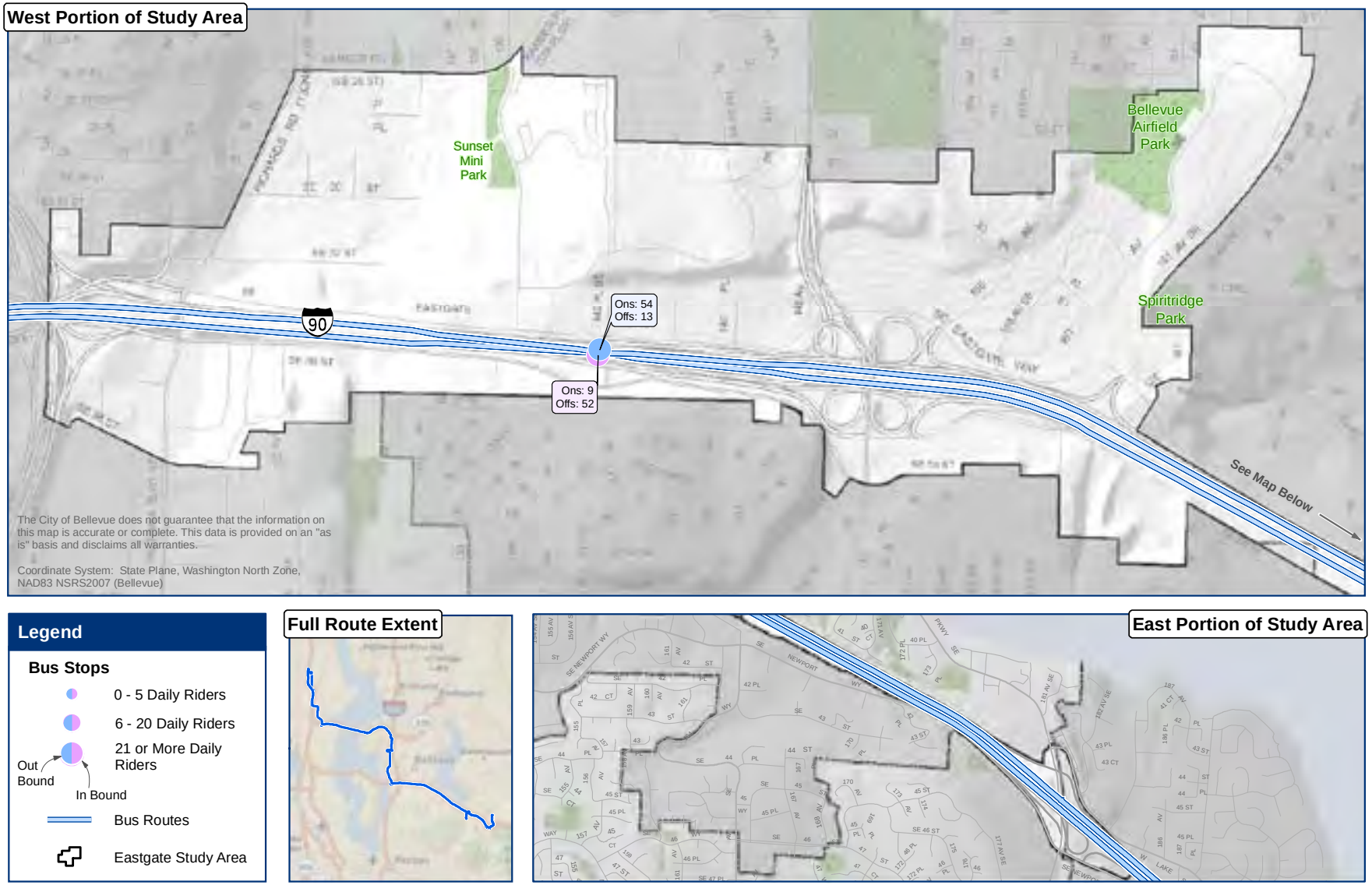


FIGURE C-21 *Route 556 Bus Ridership Activity*

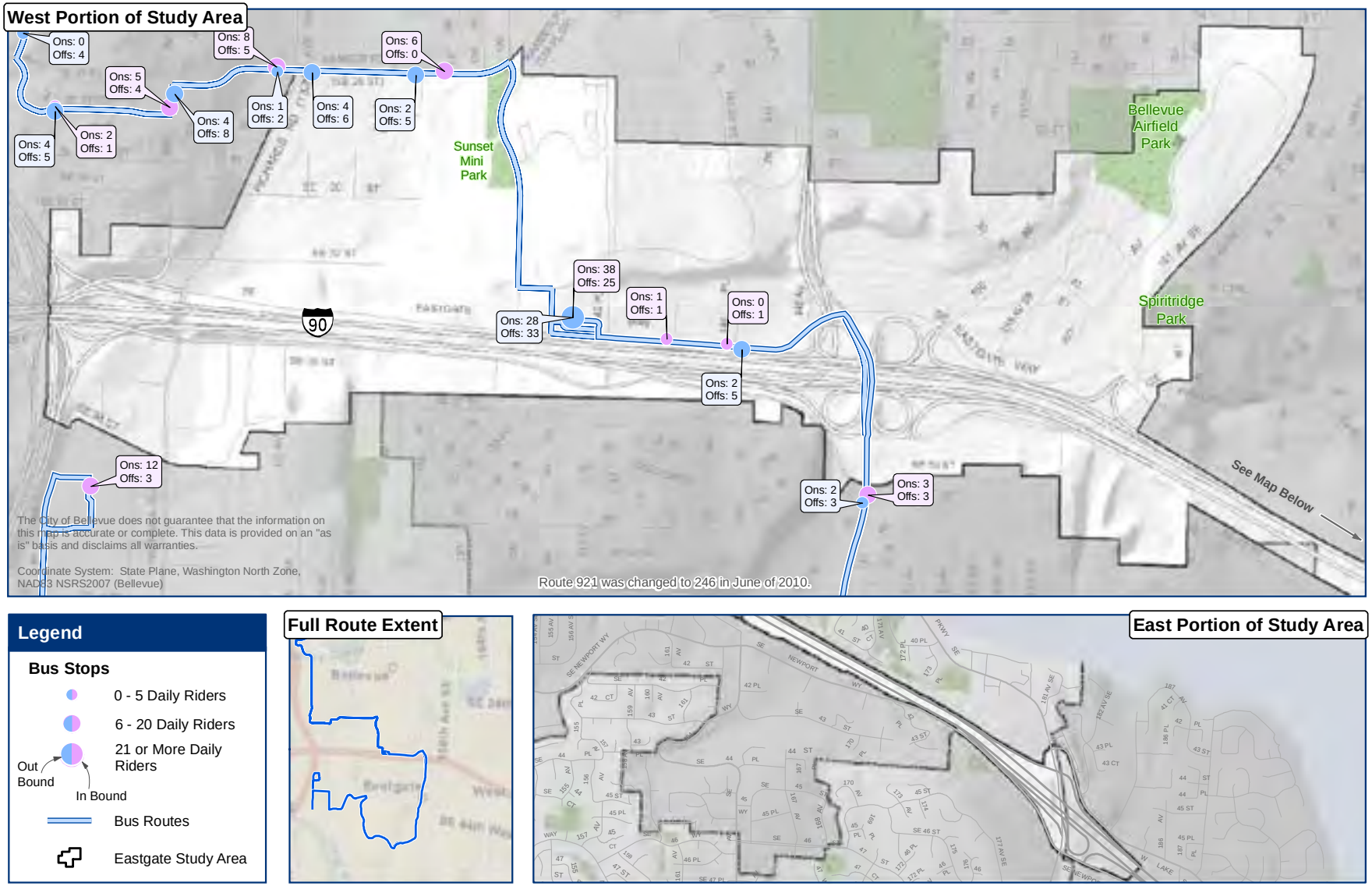


FIGURE C-22 *Route 921 Bus Ridership Activity*

Appendix D

Illustrations of Eastgate Interchange Planting Concept

Appendix D illustrates the Eastgate interchange planting concept. This gateway treatment is enhanced with natural landscaping, particularly trees to add visual height to the gateway, to improve the automobile entry to Eastgate, and strengthen the "city in a park" feeling (see Figure). This concept responds to Bellevue Council direction to "improve the Eastgate Corridor's urban design quality and coherence, recognizing the area as a major City gateway and prominent location on the Mountains to Sound Greenway." (Eastgate/I-90 Land Use and Transportation Project, 2010 *Bellevue Council Principles*).

The following represent the objectives and concepts informing the interchange planting concept.

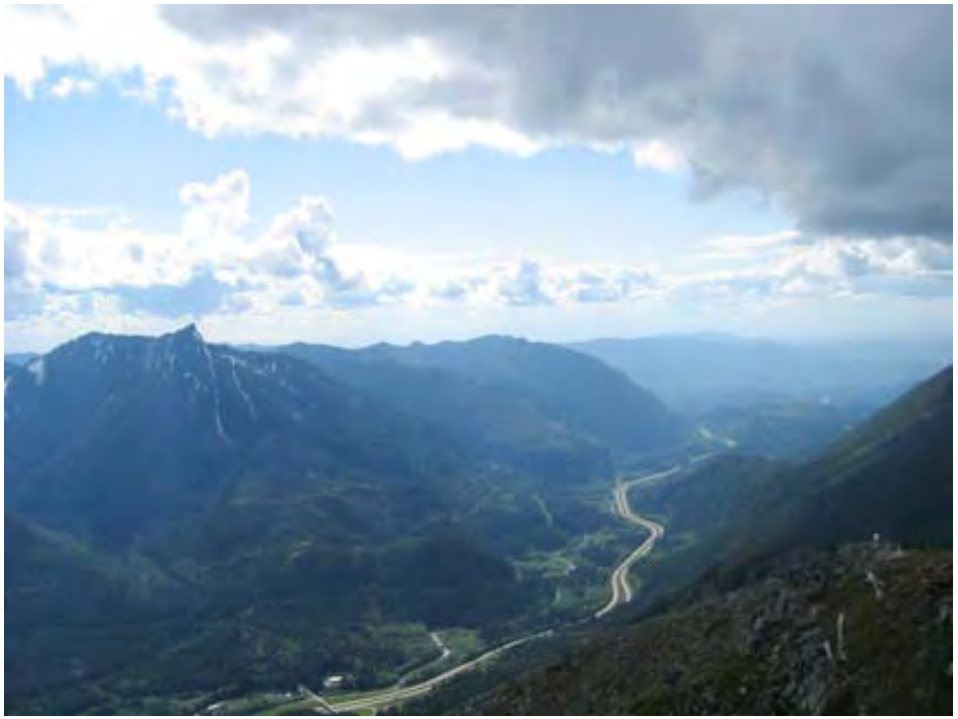


Figure D-1 *View of Interstate-90 and surrounding Mountains to Sound Greenway. Credit: Washington State Tourism Image Library, Levy Sheckler*

Objectives:

- To create an attractive entry into Bellevue, especially for the traveler from the east.
- To extend the naturalistic landscape palette from the east (Lakemont interchange and beyond) into Eastgate and reinforce the "City in a Park" identity.
- To make the interchange landscape safe and easily maintainable.
- To provide the traveler on I-90 with a pleasing visual sequence with views of businesses and buildings within a predominantly green setting.
- To reduce, where possible, the freeway's impact on air and water quality, noise, etc.

Concept:

- Apply the standard WSDOT naturalistic landscaping approach featuring a composition of predominantly native plant species.
- "Sculpt" the configuration of plant materials to provide a pleasing visual sequence with spot views of businesses and buildings north and south of the freeway.
- Vary the landscape character where appropriate to take advantage of special conditions and address ecological objectives (for example some of the areas might be constructed wet ponds to handle storm water.
- Reduce opportunities for vagrancy by maintaining visibility into applicable areas.
- Include some accent species to add interest where appropriate.

Note: The images depicted on the following pages do not represent formal plans, just concepts to illustrate general approaches to interchange landscaping. Final details of design will be developed in close coordination with the Washington State Department of Transportation if/when these improvements proceed further along in the implementation process. Consistent with City practices, any project that might move forward for additional design will involve additional community engagement to ensure that the projects are safe, attractive, and compatible with surrounding land uses.

Figure D-2 *Eastgate Interchange Planting Option A*

View 1

View 2

FIGURE D-3 *Eastgate Interchange Planting Option A Views*

Figure D-4 *Eastgate Interchange Planting Option B*

View 1

View 2

FIGURE D-5 *Eastgate Interchange Planting Option B Views*












Accent Planting | *Native Planting* | *Native Meadow* | *Native Wetland Planting*

FIGURE D-6 *Eastgate Interchange Planting Options*