APPENDIX G

TRANSPORTATION TECHNICAL DATA

Bellevue Grand Connection: I-405 Crossing – Downtown to Eastrail

Final Bellevue Grand Connection Crossing Transportation Technical Report
August 2024

Submitted to
City of Bellevue – Transportation
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Bellevue Grand Connection: I-405 Crossing – Downtown to Eastrail

Bellevue Grand Connection Crossing Transportation Technical Report

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Transportation Technical Report

Revisions

Date	Description	Edited By
August 22, 2024	Draft Transportation Technical Report	JH
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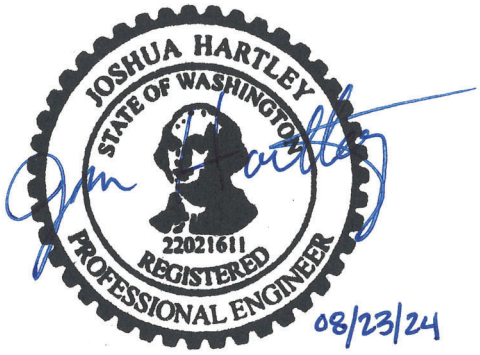

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LIST OF ACRONYMS

ADA ..... Americans with Disabilities Act
AM ..... Ante Meridiem or "Before Noon"
ADA ..... Americans with Disabilities Act
App ..... Application
BGC ..... Bellevue Grand Connection
BRT ..... Bus Rapid Transit
DEIS ..... Draft Environmental Impact Statement
East Link ..... East Link Extension (Line 2)
e.g. ..... exempli gratia or "for example"
EIS ..... Environmental Impact Statement
Ft. ..... Feet
GCC ..... Grand Connection Crossing
HCM ..... Highway Capacity Manual
I-90 ..... Interstate 90
I-405 ..... Interstate 405
I-520 ..... Interstate 520
ITE ..... Institute of Transportation Engineers
LOS ..... Level of Service
LTS ..... Level of Traffic Stress
MA ..... State of Massachusetts
MMLOS ..... Multimodal Level of Service
MPH ..... Miles Per Hour
NACTO ..... National Association of City Transportation Officials
NE ..... Northeast
No. ..... Number
PM ..... Post Meridiem or "After Noon"
PSRC ..... Puget Sound Regional Council
PUDO ..... Pick-Up Drop Off
RDI ..... Route Directness Index
ROW ..... Right-of-Way
RRFB ..... Rapid Rectangular Flashing Beacon
SE ..... Southeast
SR ..... State Route
St ..... Street
TAZ ..... Traffic Analysis Zone
TOD ..... Transit Oriented Development
TripGen ..... Trip Generation
TX ..... State of Texas
v/c ..... Volume/Capacity Ratio
VMT ..... Vehicle Miles Traveled
WA ..... State of Washington
WSDOT ..... Washington State Department of Transportation

1.0 EXECUTIVE SUMMARY

The City of Bellevue's Grand Connection (BGC) program comprises over 1.5 miles of interconnected public and pedestrian-focused spaces that span the city. Starting at Meydenbauer Bay Park, it extends eastward through downtown Bellevue, crossing Interstate 405 (I-405) and linking to the Eastrail regional trail. This route includes a variety of public open spaces, rights-of-way, private plazas, mid-block connections, and different frontage types.

A key component of this program is the Grand Connection Crossing (GCC), an active transportation crossing over I-405 that will connect downtown Bellevue to the Eastrail regional trail and the future Wilburton Transit Oriented Development (TOD). The crossing will align with a planned future lid park over I-405, as envisioned in the City's Grand Connection Framework Plan. The GCC aims to transform the Wilburton study area into Bellevue's next urban mixed-use community, enhancing amenities, livability, opportunities for healthy living, and economic vitality for a diverse and growing population.

This study details the transportation assessment of current and future year anticipated modal operations with and without the GCC preferred crossing alternative focusing on the Bellevue Transit Center, 112th Avenue NE, 116th Avenue NE, and the Eastrail regional trail. One study intersection - NE 6th Street/110th Avenue NE – and five mixing zones or nodes along the GCC were addressed in this analysis. The following scenarios were evaluated:

- Existing Conditions (2024)[1]
- Future with Project Conditions (2044)[2]
- Future with Project with I-405 Lid Conditions (2044)[3]

1.1 Project Description

The GCC project will be a direct link for people walking and biking between downtown Bellevue and the Eastrail regional trail. It is envisioned as the first step in creating an iconic lid, including activated space over I-405. In compliance with the City of Bellevue's Multimodal Level of Service (MMLOS) Metrics, Standards & Guidelines, the GCC project is planned to meet this stated Purpose and Needs:

The purpose of the Bellevue Grand Connection: I-405 Crossing – Downtown to Eastrail (Grand Connection Crossing) project is to create a safe, high comfort, transformative connector and crossing of I- 405 for people walking, biking, and rolling; expand the regional trail network

[1] Traffic conditions reflected by intersection turning movement counts collected in 2024.
[2] Projected future traffic at study intersection and build-out of the Bellevue Grand Connection Crossing excluding the proposed I-405 Lid.
[3] Projected future traffic at study intersection and build-out of the Bellevue Grand Connection Crossing including the proposed I-405 Lid.

with a connection point to the future Eastrail; enhance access to the regional light rail system; and connect between downtown Bellevue and Wilburton.

The project is needed to provide:

- **Safety for active transportation users:** In downtown Bellevue there are currently no exclusive active transportation crossings of I-405. Existing crossings of I-405 for people walking, biking, and rolling closest to downtown Bellevue are four- to six-lane, heavily traveled, arterial streets with a posted speed limit of 30 miles per hour. These arterial streets have adjacent, curb-tight, sidewalks with gaps that are not buffered from vehicle traffic and have no identified bicycle lanes, resulting in an existing high level of traffic stress for active transportation users.
- **Multimodal connectivity and access in downtown Bellevue:** King County's regional Eastrail trail runs parallel to I-405 about one quarter mile east of the interstate highway without a safe, comfortable connection across I-405 to destinations in downtown Bellevue. In addition, Sound Transit's Link 2 Line light rail includes two stations in or near downtown Bellevue, the Bellevue Downtown station and the Wilburton station, which will provide access to the regional light rail system. This crossing will provide safe, multimodal connections from downtown Bellevue to Wilburton and further east Bellevue neighborhoods as well as regional access to employment in downtown Bellevue.
- **Community connection as envisioned in local land use plans:** The City of Bellevue has developed local land use plans, such as *The Grand Connection Framework Plan* and the *Bellevue Connector Feasibility Study Report*, that identify the need to provide a crossing of I-405 between downtown and the Wilburton transit-oriented development (TOD) area to reconnect Bellevue's urban fabric. This crossing supports the Wilburton Vision Implementation initiative that will transform an auto-oriented commercial area into a vibrant, mixed-use, urban neighborhood with multi-modal transportation options. In addition, in June 2021 the Bellevue City Council adopted a new section of the land use code with guidelines and standards to improve livability, access and placemaking along the route of the Bellevue Grand Connection.

1.2 Volume Results

In evaluating the traffic impacts of the proposed GCC, attention was directed to the study intersection at NE 6th Street/110th Avenue NE adjacent to the westernmost mixing zone/node for the GCC through which the majority of multimodal trips are expected to pass during peak hours. The estimated pedestrian and bicycle volumes are shown in **Table 1** and assumes a 2.1-5% annual growth rate from 2024 to 2044.

Table 1: Estimated Pedestrian & Bicycle Volumes in 2044 for the GCC

Year	Scenario	Pedestrian Volume Low	Pedestrian Volume High	Bicycle Volume Low	Bicycle Volume High	Total Volume Low	Total Volume High
2024	Current Year	125	310	25	65	150	375
2044	Future Year without Lid	190	830	40	170	230	1,000
2044	Future Year (Lid Volumes Only)	165	200	30	35	195	235
2044	**Total Estimated Volume**	**355**	**1,030**	**70**	**205**	**425**	**1,235**

The mixing zone and/or node on the eastern side will provide a connection into the future Eastrail Regional Trail, a 42-mile multi-use trail extending from Gene Coulon Memorial Beach Park in Renton, north through Bellevue, to Woodinville and the City of Snohomish in Snohomish County.[4] The GCC connection to the trail will be a grade-separated structure for non-motorized use only. Estimated volumes of the Eastrail Regional Trail are expected to be greater than 2,000 trips per day during peak days, as shown in **Figure 1** below.

1.3 Findings and Recommendations

The future year volumes were evaluated using the MMLOS metric, standards, and guidelines from the Mobility Implementation Plan and no future year Performance Target gaps were found. However, given the unique nature of the GCC, further consideration was given to the facility design, since Bellevue's standard sidewalk and on-street bicycle lane designs are not applicable to this type of facility.

The GCC western mixing area is estimated to have up to 4,000 pedestrian and bicycle trips during the PM peak hour in 2044. The majority of these trips are forecast to be pedestrian trips, with the light rail station as the primary trip generator. Given this high level of pedestrian and bicycle activity, thoughtful design is required, with focus on

[4] City of Bellevue (2024), *Eastrail Multi-use Corridor*. Eastrail Multi-use Corridor | City of Bellevue (bellevuewa.gov)

separating leisure trips by pedestrians and bicycles, with commuter or faster-paced bicycle trips.

Looking at the GCC bridge itself, PM peak hour volumes are approximately **425 – 1,235**. Using the person-trip annual growth rates of 2.1% - 2.8%, the volumes are approximately 425 – 495. Using WSDOT's Active Transportation Programs Design Guide[5], it is recommended that a minimum width of 15 ft. for a shared-use path be provided to maintain a LOS C condition. Using the high growth rates of 3-5%, the volumes are approximately 595 – 1,235. To account for additional demand that could potentially be placed on the GCC, from the connection to the Eastrail Regional Trail, to un-boardings form the Sount Transit stations in this area, it is recommended that a shared-use path of greater than 20 ft. be provided. This will equate to a LTS 1 rating, providing additional comfort and functionality of the GCC.

[5] WSDOT. (2024). *Active Transportation Design Guide.* Table 9 (p. 139). Active Transportation Programs Design Guide (wa.gov)

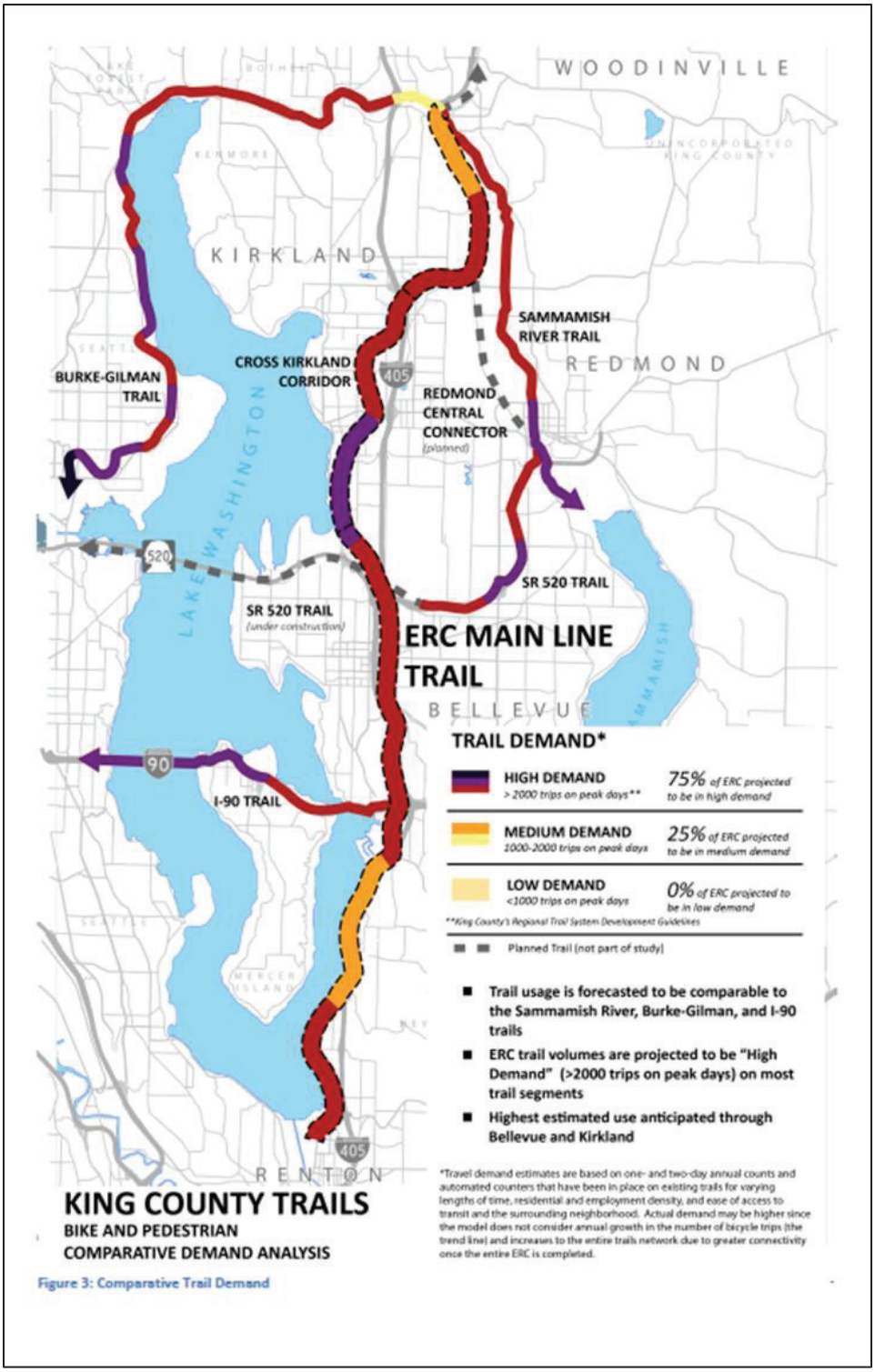


Figure 1: Projected Travel Volumes for Pedestrians & Bicycles for the Eastrail Regional Trail[6]

[6] Toole Design Group. (2015). *Eastside Rail Corridor Regional Trail Level of Use Analysis*., Figure 3 Comparative Travel Demand, (p. 7)

2.0 INTRODUCTION

This study analyzes the multimodal transportation operations and impacts of the City of Bellevue's Grand Connection Crossing (GCC) preferred alternative which will consist of a separated, non-motorized, bicycle and pedestrian crossing extending from the transit plaza adjacent to the Downtown Bellevue Sound Transit station, over I-405, to the Eastrail regional trail. The evaluation documented in this report describes the existing and future transportation networks in the project vicinity, existing and future traffic operations, multimodal level of service (MMLOS), safety and access analysis of the preferred GCC alternative. The primary outcome of the transportation analysis is to provide data and considerations that can inform the facility's design with a specific eye on how to safely meet the needs of a diverse set of users of the GCC. Portions of this report were informed by the results of a Structural Type, Size, and Location Report developed for the City of Bellevue detailing the preferred alternative.[7]

2.1 Project Context

The City of Bellevue's Grand Connection program consists of 1.5 miles of interconnected public and pedestrian-focused spaces that traverse the City. It starts at Meydenbauer Bay Park and continues east through downtown Bellevue across I-405, connecting to the Eastrail regional trail, connecting across a diversity of public open spaces, rights-of-way, private plazas and midblock connections, and frontage types, as shown in **Figure 2**. A key element of the Grand Connection is a non-motorized crossing over I-405, which will link downtown Bellevue to the Eastrail regional trail and the future Wilburton Transit Oriented Development for people traveling without a car. This crossing will be compatible with a planned future lid park over I-405, which is a long-range vision included in the City's Grand Connection Framework Plan. The GCC will support the transformation of the Wilburton study area into Bellevue's next urban mixed-use community, where improved amenities, greater livability, opportunities for healthy living, and economic vitality will serve the needs of a diverse and growing population.

[7] WSP, Draft Bellevue Grand Connection: I-405 Crossing – Downtown to Eastrail: Structural Type, Size, and Location Report, June 2024.

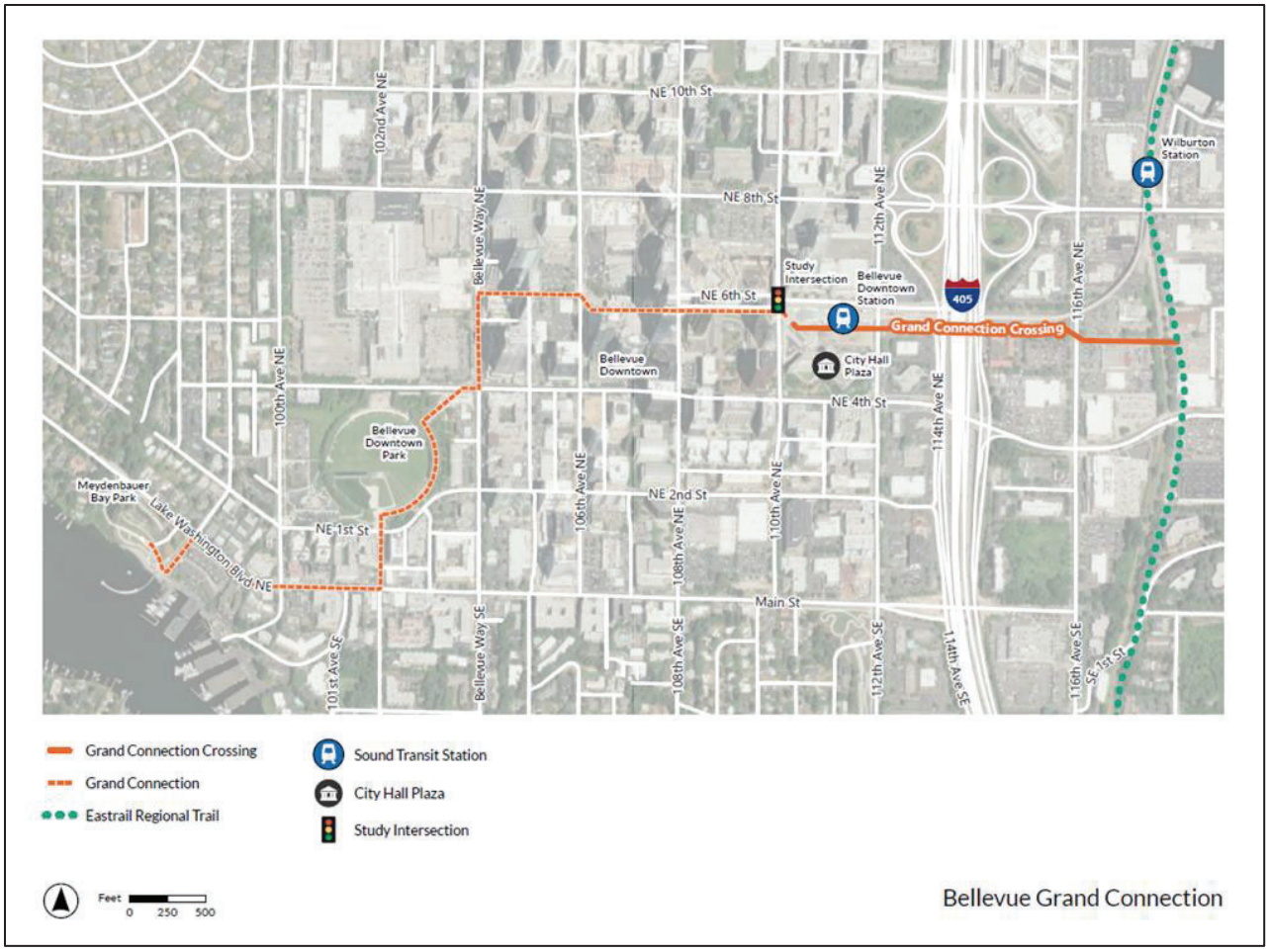


Figure 2: Project Vicinity Map within the Context of the Full Bellevue Grand Connection

2.2 Bellevue Grand Connection Crossing

The preferred alternative is shown in **Figure 2** and runs between 110th Avenue NE and Eastrail with grade separated crossings of 112th Avenue NE, 114th Avenue NE, I-405, and 116th Avenue NE.

The length of the GCC is comprised of four distinct types of places – gateways, nodes, the I-405 crossing, and the connecting spans between these elements. These locations are described below and presented in **Table 2** and **Figure 3**.

- **Gateways/Tie-ins** – Located at each end of the structure, the City Hall Plaza to the west, and Eastrail regional trail to the east, these locations may include, but not limited to, feature landscapes, art/cultural elements, seating, play, vending, welcome kiosk, signage and wayfinding, lighting, and overhead weather protection.
- **Nodes –** Locations that provide vertical and horizontal connections to/from the crossing to/from development and the street below; at the street level at each node, a plaza will

provide a mid-crossing gateway from the street onto the structure; these locations will include multi-level placemaking and plaza opportunities.

- **I-405 Crossing** – Dedicated/Separated bicycle and pedestrian facilities, each a minimum of 12 feet in width, which may include viewpoints, overhead weather protection, seating, signature landscape features, and will be designed to maximize compatibility with future lid structures.
- **Connecting Spans –** Dedicated/Separated bicycle and pedestrian facilities, each a minimum of 12 feet in width, which will be designed to maximize connectivity to adjacent developments.

Table 2: Circulation Mixing Zones

Zone No.	Location	Place Type[1]	Circulation Type
1	West Tie-in (City Hall Plaza)	Gateway	Mixing Zone
2	West Node (connection to 112th Ave via vertical circulation of stairs, elevator)	Node	Mixing Zone
3	I-405 Crossing (location of future lid)	Crossing/ Node	Dedicated/Separated Bicycle and Pedestrian Facilities; Mixing Zone
4	East Node (connection to 116th Ave via vertical circulation of stairs, elevator/ramp)	Node	Mixing Zone
5	East Tie-in (connection to Eastrail regional trail in two locations)	Gateway	Mixing Zone

Notes:

1. *Source: WSP, DRAFT Bellevue Grand Connection: I-405 Crossing – Downtown to Eastrail: Structural Type, Size, and Location Report, 2024.*

Source: Fehr & Peers, 2024.

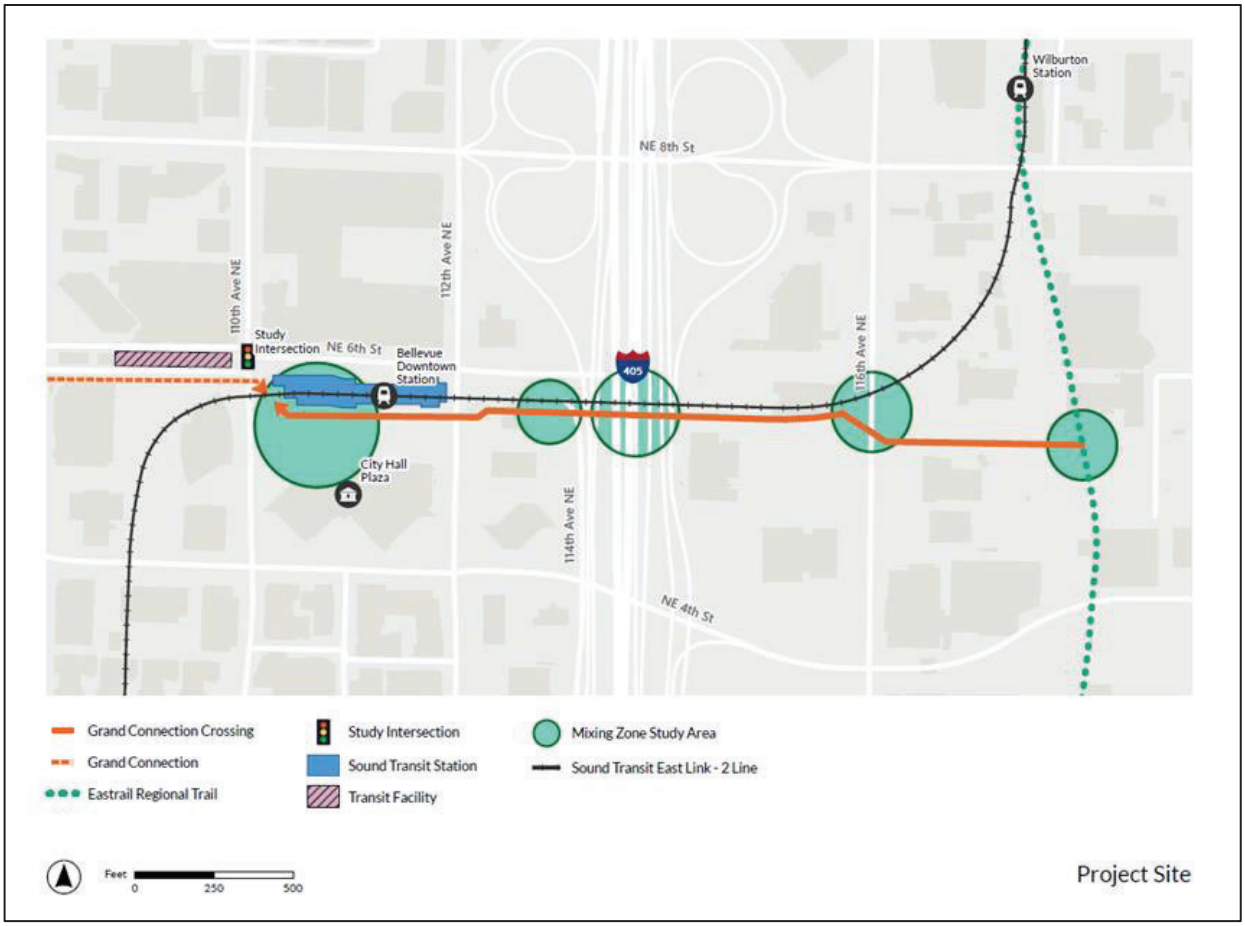


Figure 3: Project Vicinity Map of the Bellevue Grand Connection Crossing

This study analyzes the functionality of the four place types relative to anticipated volumes and will inform next stages of design.

2.3 Study Area

The Project site spans an area extending from NE 6th Street/110th Street NE and City Hall Park in Downtown Bellevue, across I-405, to the Eastrail regional trail in Wilburton, as shown on **Figure 3**.

The area of influence for this project extends throughout Downtown Bellevue and Wilburton. Once complete, the GCC is likely to be one of the primary routes for bicycle and pedestrian trips to access key destinations on each side of I-405 considering that the adjacent streets of NE 8th Street and NE 4th Street do not include any bicycle amenities and only basic pedestrian facilities.

Analysis of traffic operations, including pedestrian and bicycle facilities, is limited to one study intersection - NE 6th Street/110th Avenue NE - and the five circulation mixing zones summarized in **Table 2**. Transit facilities were not analyzed as it is not anticipated that existing transit stops will be impacted.

2.4 Analysis Methodology and Model Scenarios

The project team used Synchro to analyze future traffic operations for both the AM and PM Peak Hours at the study intersection using The Synchro model established current year traffic operations at the study intersection, using volumes from traffic counts collected in July 2024, signal timings at the study intersection, and current lane geometry.

The current year LOS was calculated to determine if the intersection was meeting LOS standards from the City of Bellevue. For the two 2044 future year conditions, intersection Level of Service (LOS), and other metrics used the latest version of the Highway Capacity Manual (HCM) methodology and Synchro 11 analysis software.

The following scenarios were analyzed to evaluate the effects of the GCC on traffic operations in the project area and inform the design of the preferred alternative:

- **Existing Conditions (2024):** Traffic conditions reflected by intersection turning movements collected in July 2024.
- **Project Conditions (Without Lid) (2044):** Projected future traffic at the study intersection and mixing zones along the crossing with implementation of the project absent the I-405 lid.
- **Project Conditions (With I-405 Lid) (2044):** Projected future traffic at the study intersection and mixing zones along the crossing with implementation of the project including the future I-405 lid.

2.4.1 Traffic Volumes

This analysis evaluates traffic operations and access needs during the weekday AM Peak Hour (8:00-9:00 AM) and PM Peak Hour (4:45-5:45 PM) hours. Intersection turning movement counts were collected during the AM and PM peak periods on July 16, 2024, NE 6th Street/110th Street NE. The collected data is provided in **Appendix A**.

For the future year with project (2044) analysis, background traffic forecasts were estimated by applying a three (3) percent annual growth rate, labeled as low, and five (5) percent annual growth rate, labeled as high, to the collected 2024 volumes. The assumed annual growth rate is based on data from several sources, including the Puget Sound Regional Council, *LUV-it*[8], travel model for the Downtown and Wilburton traffic analysis zones (TAZs) shown in Section 4.1.2 in the Project Conditions section below. The travel model includes regional growth in employment, population, and housing, as predicted by Puget Sound Regional Council, and transportation improvements in the Regional Transportation Plan.

[8] Puget Sound Regional Council. (2024). *PSRC Data Portal for the LUV-it Land Use Forecast Product.* *PSRC Data Portal (arcgis.com)*

2.4.2 Multimodal Level of Service Standards

Traffic operations are analyzed with respect to City of Bellevue multimodal level-of-service standards (MMLOS). These standards are based on policies published in the City's *MMLOS Metrics, Standards & Guidelines* (2017), recently updated in the *Bellevue Transportation Design Manual and Complete Streets Guide* (2024). Both guides refer to adopted standards in the *Bellevue Downtown Transportation Plan* (2013), *City of Bellevue Downtown Land Use Code*, and other plans and policies as noted below.

2.4.2.1 Vehicle Level of Service Standards

Vehicle LOS standards and guidelines for intersections and corridors are summarized in **Tables 3 & 4.** These are designed to meet Traffic Standards Code requirements and evaluate long range planning alternatives.

Table 3: Vehicle Level of Service Standards

LOS Metric	Location Where Applied	Minimum Threshold for Downtown Bellevue
Volume/Capacity Ratio	Intersection	0.901 – 0.950[1]
Delay[2]	Intersection	LOS E+[3]

Notes:

1. *Transportation LOS in Bellevue is defined on a policy level in the Transportation Element of the Comprehensive Plan and is codified in the Traffic Standards Code (BCC 14.10.030). This volume-to-capacity (v/c) threshold is given for the PM peak period (two-hour period between 4-6 PM).*
2. *Standards for long-range transportation planning are not formally established in policy or by code, but the common practice in Bellevue is to use a forecast average vehicle delay (in seconds) at system intersections in the PM peak hour.*
3. *This LOS standard is based on the City of Bellevue Comprehensive Plan (May 2019).*

Table 4: Vehicle Level of Service Standards

Category	Average Vehicular Volume-to-Capacity Ratio	Description (Subjective Impression to Driver)
LOS A	< = 0.600	Highest driver comfort. Little delay. Free flow.
LOS B	0.601 - 0.700	High degree of driver comfort. Little delay.
LOS C	0.701 - 0.800	Some delays. Acceptable level of driver comfort. Efficient traffic operation.
LOS D		Some driver frustration.
LOS D+ (High D)	0.801 - 0.850	Efficient traffic operation.
LOS D- (Low D)	0.851 - 0.900	Increased driver frustration. Long cycle length.

LOS E		Near capacity. Notable delays.
LOS E+ (High E)	0.901 - 0.950	Low driver comfort. Difficulty of signal progression.
LOS E- (Low E)	0.951 - 1.000	At capacity. High level of congestion. High level of driver frustration.
LOS F	> = 1.001	Breakdown flow. Excessive delays.

Source: City of Bellevue Comprehensive Plan. (May 2019). Figure TR-1. Vehicular Level of Service Categories (Page 6). Transportation August 2015h.pdf (bellevuewa.gov).

2.4.2.2 Pedestrian Level of Service Standards

Pedestrian LOS standards and guidelines for intersections and corridors are summarized in **Table 5**. These reflect adopted dimensional standards for sidewalks and landscape buffers in Downtown Bellevue.

Table 5: Pedestrian Level of Service Standards

LOS Metric	Location Where Applied	Minimum Threshold for Downtown Bellevue
Sidewalk Width (combined sidewalk and landscape buffer width)	Corridor Segment	16-feet with a 6-inch curb[1]
Landscape Buffer Width	Corridor Segment	5-feet[2]
Intersection Treatment (Design Components)	Intersection	Enhanced intersection features: • Wider sidewalks with buffer space from vehicles • Wayfinding at corners • Weather protection at/near corners • Special paving treatment or striping • Curb bump outs or tighter radius to shorten crossing distance, calm traffic, and provide pedestrian queuing areas Exceptional intersection features[3]: • Pedestrian scramble signal phase • Raised crossings • Landmark freestanding wayfinding
Mid-Block Crossings (Arterial Crossing Frequency)	Corridor Segment	≤ 300 feet[4]

Notes:
1. *Per the City of Bellevue Downtown Land Use Code 20.25A.090.*
2. *Per the Bellevue Transportation Design Manual and Complete Streets Guide, p. 33.*

3. *Per the Bellevue Downtown Transportation Plan, exceptional intersections may contain these elements in addition to those outlined in enhanced intersections (see p. 42).*
4. *Mid-Block Crossing Locations will not be evaluated for this project because each node is being treated as an intersection.*

Sources: Bellevue Transportation Design Manual and Complete Streets Guide, 2024; Bellevue Downtown Transportation Plan, 2013; Fehr & Peers, 2024.

2.4.2.3 Bicycle Level of Service Standards

Bicycle LOS standards and guidelines for intersections and corridors are summarized in **Table 6**. These reflect adopted dimensional standards for bikeway facility components based on ambient traffic conditions and are particular to Downtown Bellevue.

Bicycle LOS standards are designed to achieve low-stress bicycling and network connectivity represented by measures of Levels of Traffic Stress (LTS) (see **Figure 4).** LTS is predicated on the understanding that a successful bicycle network is designed to attract the widest possible segment of the population by providing low-stress connectivity along routes between people's origins and destinations that do not require people to use segments that exceed their tolerance for traffic stress or involve extensive detours.

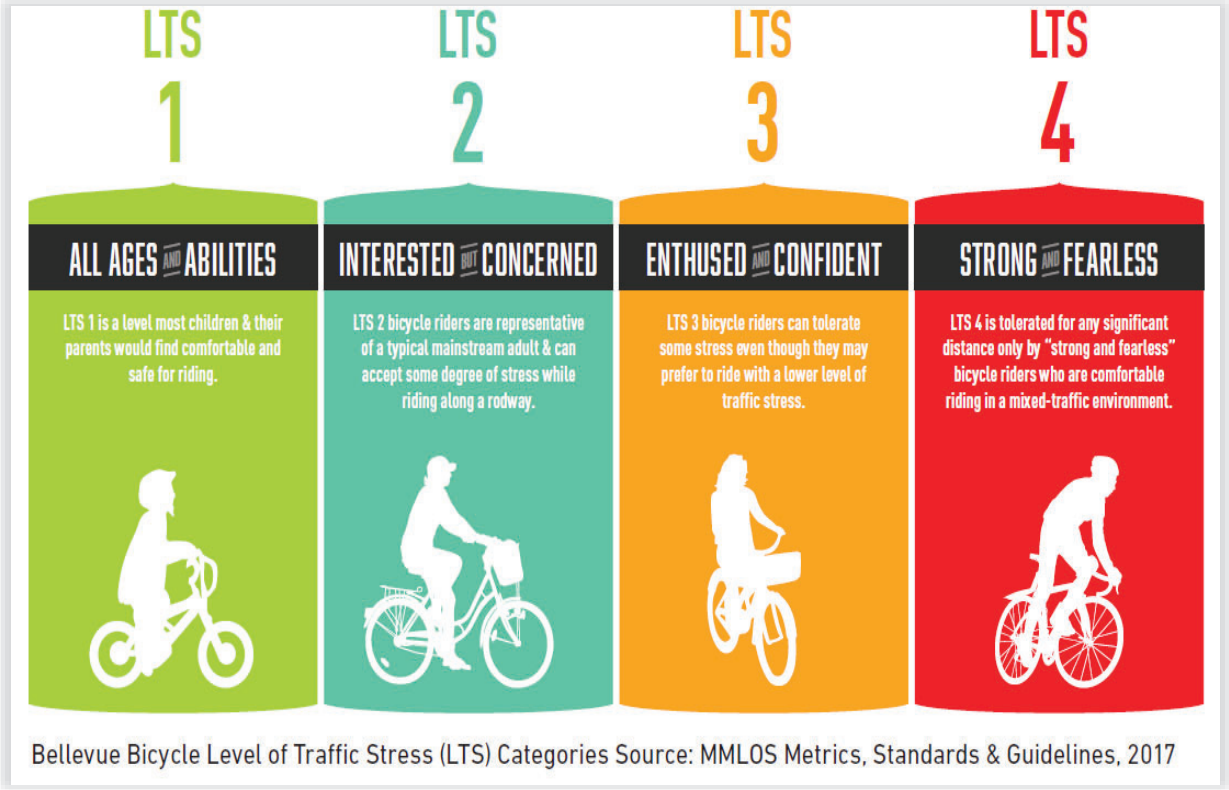


Figure 4: Bellevue Bicycle Level of Traffic Stress (LTS) Categories[9]

[9] For more information, see City of Bellevue, Transportation Design Manual and Complete Streets Guide – Volume 2, August 2020, available from: https://bellevuewa.gov/sites/default/files/media/pdf_document/2024/trans-dmcsg-volume-2-2024.pdf.

Table 6: Bicycle Level of Service Standards

LOS Metric	Location Where Applied	Minimum Threshold for Downtown Bellevue
Level of Traffic Stress (LTS) on Corridors	Corridor Segments	LTS 1[1]; refer to Figure

Level of Traffic Stress (LTS) at Intersections	Intersections	LTS 1:
		• Dedicated bike signal
		• Green street crossing
		• At approach to intersection:
		  ○ Protected intersection
		  ○ Parking protected bike lane
		• At intersections with a right turn lane:
		  ○ Dedicated bike facility approaching intersection
		  ○ Bend-out design and protected intersection approach
		  ○ Mountable corner island
		• Amenities including:
		  ○ Bike lean rail for all bike lane approaches
		  ○ Bike wayfinding signage
		  ○ Bike wayfinding pavement markers

Notes:

1. *Per the Bellevue MMLOS guidelines, a high level of bicycle mobility for all ages and abilities is expected within areas where the City has the vision, intent, and policy to promote a high-density, mixed use urban environment (p. 27). This is recommended for Priority Bicycle Corridors within Downtown and Activity Centers like GCC.*
2. *Per the Bellevue Transportation Design Manual and Complete Streets guide, a bicycle facility may include these components at an intersection (p. 46).*
3. *Sources: Bellevue Transportation Design Manual and Complete Streets Guide, 2024; Fehr & Peers, 2024.*

Bicycle level of service LTS standards for corridor segments are presented in **Figure 5.**

Table 5: Bicycle Level of Service / Level of Traffic Stress *(Amended from the MMLOS Metrics, Standards & Guidelines, 2017)*

Roadway Characteristics		Bicycle Facility Components: Guideline to Achieve Intended Level of Service/Level of Traffic Stress					
Speed Limit	**Arterial Traffic Volume**	**No Marking**	**Sharrow Lane Marking**	**Striped Bike Lane**	**Buffered Bike Lane (Horizontal)**	**Protected Bike Lane (Vertical)**	**Physically Separated Bikeway**
</=25	<3k	1	1	1	1	1	1
	3-7k	3	3	2	1	1	1
	>/=7k	3	3	2	2	1	1
30	<10k	3	3	2	2	1	1
	10-25k	4	4	3	3	2	1
	>/=25k	4	4	3	3	3	1
35	<25k	4	4	3	3	3	1
	>/=25k	4	4	4	3	3	1
>35	Any	4	4	4	4	3	1

Notes: This table is amended from Transportation Commission recommendations in their MMLOS report per evolving best practices. The final design and the ultimate achieved LTS is subject to engineering design and site-specific situations.

Figure 5: Bellevue Bicycle Level of Traffic Stress (LTS) Standards[10]

2.5 Plans and Policies

Numerous existing plans and policies establish expectations for growth and mode share within the study area relevant to this analysis and the aforementioned multimodal level of service transportation system standards and guidelines. These policies include the following:

- *City of Bellevue Comprehensive Plan – Bellevue 2044* (updated July 10, 2024)
- *City of Bellevue Downtown Transportation Plan* (2013)
- *City of Bellevue Transportation Design Manual and Complete Streets Guide* (2024)
- *The Grand Connection Framework Plan* (2020)
- *Eastrail Wilburton Framework Plan* (2023)
- *Eastside Rail Corridor Regional Trail Level of Use Analysis* (2015)

[10] For more information, see City of Bellevue, Transportation Design Manual and Complete Streets Guide – Volume 2, August 2020, available from: https://bellevuewa.gov/sites/default/files/media/pdf_document/2024/trans-dmcsg-volume-2-2024.pdf.

- *2024–2044 Comprehensive Plan Periodic Update and Wilburton Vision Implementation* (2024)
- *Wilburton Commercial Area Land Use and Transportation Project – Draft EIS* (2018)

The relevance of these plans and policies to GCC design is described below.

2.5.1 City of Bellevue Comprehensive Plan - 2024–2044 Comprehensive Plan Periodic Update and Wilburton Vision Implementation (2024)

The *Bellevue Comprehensive Plan 2044* presents the city's vision for its future, directing city actions, decisions, and capital investments. The Preferred Alternative for Bellevue's Comprehensive Plan is a hybrid of the three Action Alternatives evaluated in the DEIS. This alternative provides the most housing capacity for the City of Bellevue, with significant emphasis on mixed-use centers and transit-oriented development. For the City of Bellevue, the Preferred Alternative projects a capacity of 152,000 new housing units and 185,000 jobs; the actual targets are the same for all alternatives - 35,000 housing units, 70,000 new jobs compared to 2019 levels. For the Wilburton study area, the Preferred Alternative projects the addition of 12.0 million square feet of commercial development, an additional 14,800 housing units and space for an additional 35,500 jobs.

The preferred alternative presents ambitious growth targets that would need to be met by equally ambitious multimodal transportation improvements to facilitate movement across and within the City of Bellevue. The GCC is assumed as part of these improvements, anticipated to facilitate non-automotive travel across I-405 and connections to regional transit service.

2.5.2 City of Bellevue Downtown Transportation Plan (2013)

The *City of Bellevue Downtown Transportation Plan* aims to provide a comprehensive mobility strategy to accommodate the projected growth in employment and residential population, ensuring efficient and sustainable transportation options for the future. According to the plan, by 2030, Downtown Bellevue is expected to support mobility for 70,300 employees and 19,000 residents, with a significant increase in daily person trips to 665,000 by 2030. Of the 665,000 daily person trips forecast for 2030, 424,000 have an origin outside of Downtown and 104,000 originate Downtown with a destination elsewhere. The plan projects continued growth, anticipating 27,775 jobs and 12,142 residents Downtown under the growth scenario necessitating ongoing improvements in transportation infrastructure and services to maintain mobility and livability.

The Bellevue Downtown Transportation Plan identifies three main types of intersections, each designed to cater to different pedestrian and traffic conditions:

- **Standard Crosswalk/Intersection:** Suitable for lower pedestrian volumes, recommended design features include parallel white bars, curb ramps, audible

countdown signals, pedestrian signal actuation, vehicle stop bars, and adequate crossing time.

- **Enhanced Crosswalk/Intersection:** Suitable for high pedestrian and vehicle traffic, recommended design features include wider crosswalks, alternative striping, wayfinding, generous crossing time, weather protection, special paving treatments, and curb bump-outs
- **Exceptional Crosswalk/Intersection:** Suitable for key "celebrated" pedestrian intersections, recommended design features include raised crosswalks, all-walk signal phases, whole intersection crosswalks, and design treatments intended to foster a unique sense of place and carry design features from adjacent intersections into the intersection.

The NE 6th Street/110th Street NE study intersection is identified in this plan as a key part of the *Bellevue Downtown Transportation Plan's* Pedestrian Corridor and is designated for exceptional treatment.

2.5.3 City of Bellevue MMLOS Metrics, Standards & Guidelines (2017)

The purpose of the *MMLOS Metrics, Standards & Guidelines* is to establish a comprehensive framework for the development, implementation, and evaluation of transportation facilities in Bellevue. Guidelines establish multimodal standards for pedestrian, bicycle, and vehicle facilities, both for intersections and segments. Vehicle LOS standards measure the volume-to-capacity ratio at intersections to ensure efficient roadway operations. Bicycle LOS standards focus on minimizing traffic stress and providing safe, comfortable, and accessible cycling conditions. Pedestrian LOS standards prioritize the qualitative experience, ensuring safety, comfort, and connectivity for those walking.

Adopted in 2017, this document has since been superseded by the *City of Bellevue Transportation Design Manual and Complete Streets Guide* (2024).

2.5.4 City of Bellevue Transportation Design Manual and Complete Streets Guide (2024)

The purpose of the *City of Bellevue Transportation Design Manual and Complete Streets Guide*, adopted in 2024, is to establish guidelines and standards for designing and constructing transportation facilities in Bellevue, ensuring safe, reliable, and equitable mobility for all users, including pedestrians, cyclists, transit riders, and motorists. It comprises the Transportation Design Manual and the Complete Streets Guide, providing detailed design standards, policies, and illustrated guidance, including multimodal level of service standards. This manual serves as a resource for city staff, developers, contractors, and design professionals involved in transportation projects. It also addresses the City of Bellevue's anticipated land use changes, ensuring that transportation infrastructure evolves in harmony with the city's growth and development.

This manual updates the standards from the City of Bellevue *MMLOS Metrics, Standards & Guidelines* (2017), updating criteria to provide a comprehensive framework for planning and designing a more inclusive and efficient multimodal transportation network.

2.5.5 Grand Connection Framework Plan (2017)

The *Grand Connection Framework Plan* provides a comprehensive vision and strategy to enhance non-motorized connectivity, public spaces, and cultural experiences within Bellevue. Relative to the GCC, this plan aims to create a safe and comfortable crossing over I-405 for pedestrians and cyclists that is integrated with the Eastside Rail Corridor and future developments, and which enhances connectivity to the Wilburton Commercial Area and catalyzes its future development. This crossing is analyzed with respect to three alternatives:

1. **Sculptural Bridge:** A curvilinear, iconic structure with public spaces and vegetation.
2. **Linear Bridge:** A direct, efficient connection with minimal infrastructure impact.
3. **Lid Park:** A park-like lid over the interstate, creating extensive public space and reconnecting the urban fabric.

The plan speaks to safety and mobility considerations which are central to this study:

- **Mobility:** Prioritize the experience and safety of pedestrians and cyclists, modify, and synchronize signals to improve the speed, range, and comfort of non-motorized travel.
- **Safety:** Create an environment that is safe for pedestrians and cyclists, as well as those that may use any supporting public space.

2.5.6 Eastrail Wilburton Framework Plan (2023)

The *Eastrail Wilburton Framework Plan* envisions the corridor along the Eastrail regional trail as a crucial connecting spine - a linear park and non-motorized corridor integrated with development and regional infrastructure, including light rail. It is anticipated to support Wilburton's development as a sustainable, accessible, transit-oriented community. The Bellevue GCC would support this growth by providing a low-stress, non-motorized connection between Wilburton and Downtown Bellevue. The junction of the Bellevue GCC and Eastrail regional trail is identified in the plan as a complex, major mixing zone requiring design that balances a high volume of pedestrian and bicycle connections with sense of place and seamless connections to adjacent future residential and commercial development.

2.5.7 Wilburton Commercial Area Land Use and Transportation Project (Draft EIS) (2018)

Published in February 2018, the *Wilburton Commercial Area Study* evaluates the potential impacts of proposed zoning and transportation changes, documents existing conditions, analyzes future scenarios under 2035 conditions, and identifies significant impacts and mitigation measures to inform transportation performance. The study analyzes the following three scenarios:

1. **No Action Alternative:** Maintains current zoning and transportation plans.
2. **Alternative 1:** Proposes moderate changes with increased land use intensity and adjustments to building heights and transportation.
3. **Alternative 2:** Envisions significant changes with higher building heights, greater floor area ratios, and extensive transportation modifications.

The preferred scenario is Alternative 2 which envisions significant growth and transformation of the area as described here:

- **Land Use:** Approximately 12.1 million square feet of additional development by 2035, compared to the No Action Alternative.
- **Transportation Improvements:** Extension of NE 6th Street to 116th Avenue NE, overcrossings at NE 8th Street, and new local streets, pedestrian paths, and alleys to enhance connectivity.
- **Population Growth:** An estimated additional 10,500 new residents by 2035.
- **Bicycle and Pedestrian Infrastructure:** Improved non-motorized connectivity with the addition of new local streets, pedestrian paths, and alleys, as well as enhancements to the Eastside Rail Corridor Trail.

2.5.8 Sound Transit East Link Extension

The East Link Extension (2 Line) is an ongoing project by Sound Transit to extend light rail service from Downtown Seattle to the Downtown Redmond. East Link includes the addition of three stations within close proximity of the Bellevue GCC: East Main Station, Bellevue Downtown Station, and Wilburton Station. While Wilburton Station will primarily serve the Wilburton Commercial Area, the Bellevue GCC would facilitate connections to Bellevue Downtown Station from portions of Wilburton, particularly south of NE 6th Street. The 2 Line, from South Bellevue to Redmond Technology Station, opened on April 27, 2024. The remainder of East Link connecting to the 1 Line in Seattle is scheduled to open in 2025 or 2026. See **Figure 6** for both current and planned 2 Line stations.

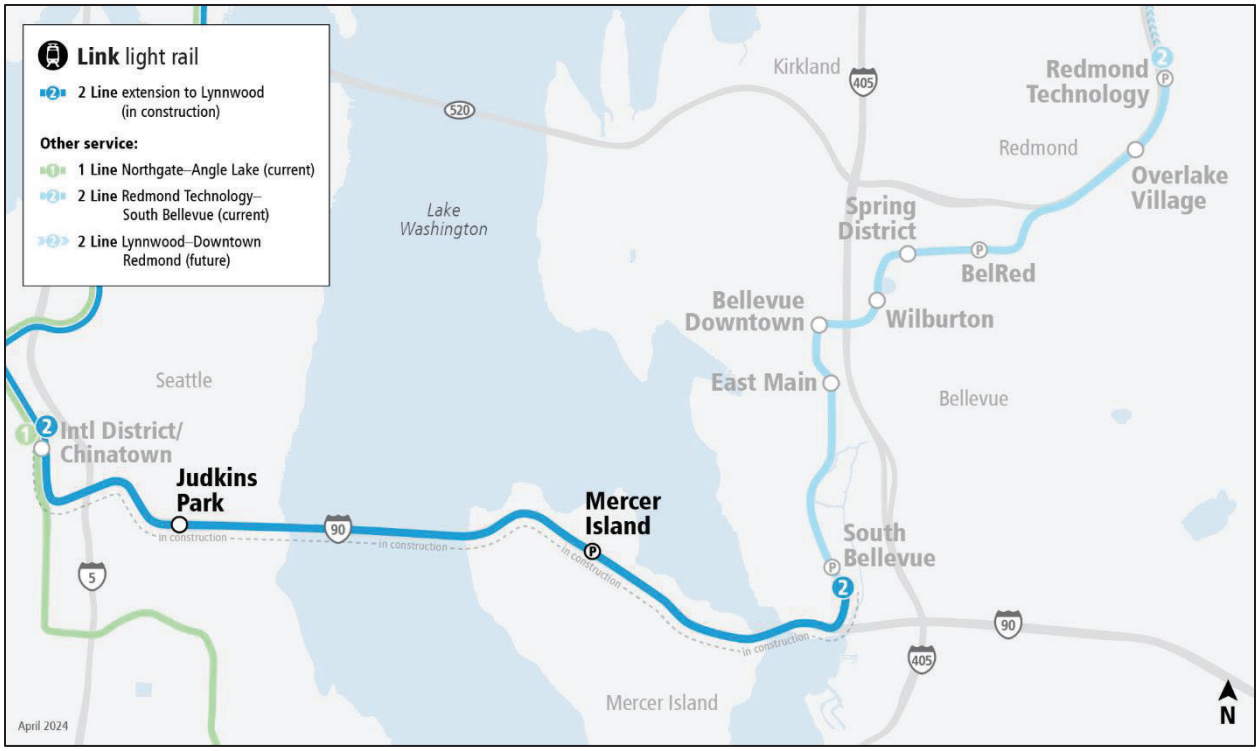


Figure 6: Sound Transit East Link Extension Project Map[11]

2.5.9 Sound Transit I-405 Stride Bus Rapid Transit (BRT) Project

The Sound Transit I-405 Stride Bus Rapid Transit (BRT) project is a high-capacity transit service project designed to provide fast, reliable bus service along I-405 and SR 522 corridors. This project is part of Sound Transit's 2016 voter-approved ST3 system expansion program. Two of the three proposed BRT lines would terminate at the Bellevue Transit Center:

- Stride S1 Line: Connecting Bellevue to Burien, will primarily operate in the I-405 Express Toll Lanes and include new transit centers and stations (e.g., South Renton Transit Center, NE 44th Station).
- Stride S2 Line: Connecting Bellevue to Lynnwood, will also utilize the I-405 Express Toll Lanes and connect via Kirkland and Bothell.

Stride S1 service is scheduled to begin in 2026, and Stride S2 service, scheduled to begin in 2027. See **Figure 7** for planned routes.

[11] For more information see Sound Transit, East Link Extension, 2024.

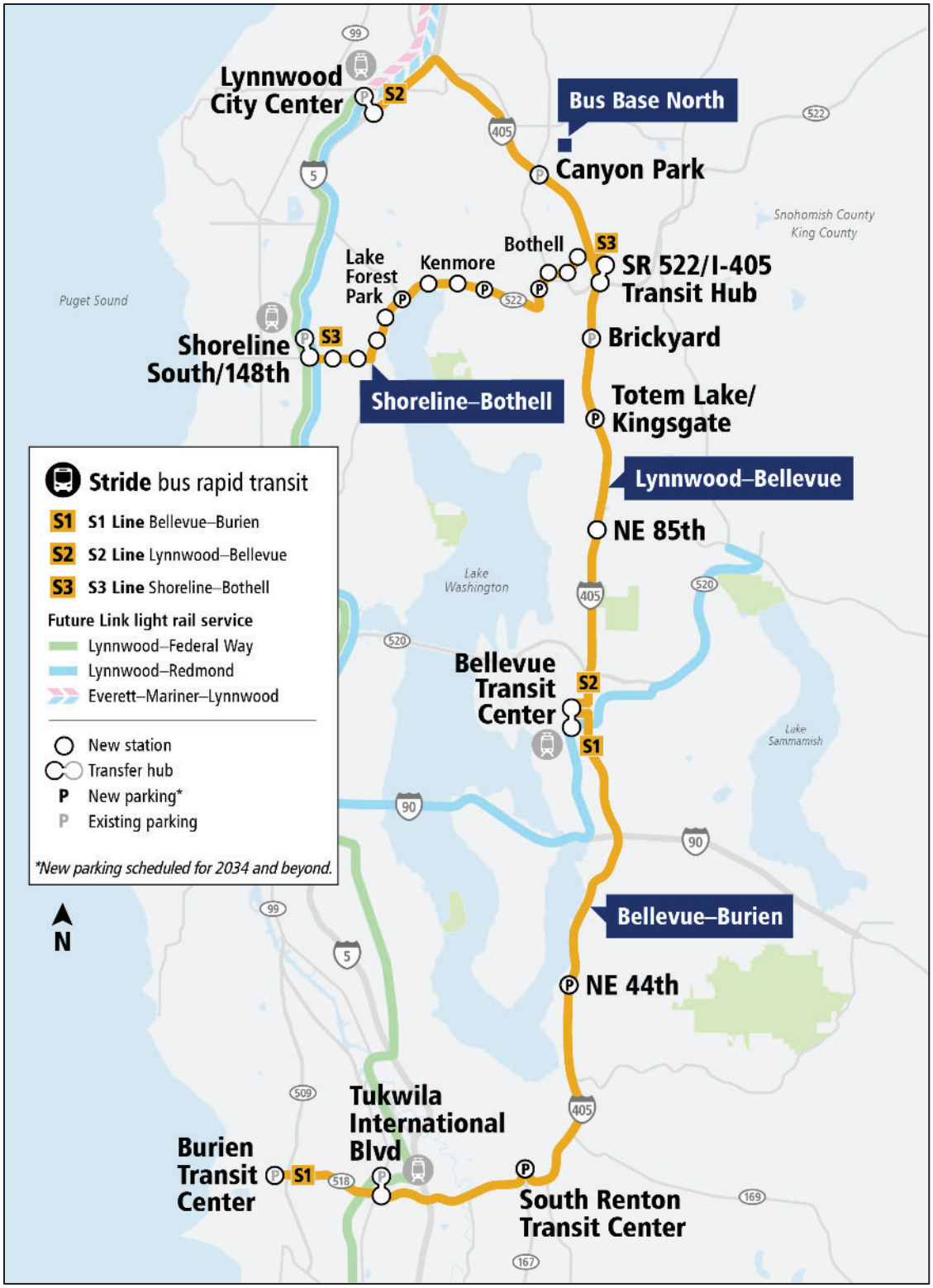


Figure 7: Sound Transit Stride Bus Rapid Transit Project Map[12]

[12] For more information see Sound Transit, Stride Bus Rapid Transit, 2024.

3.0 EXISTING CONDITIONS

This section outlines the current conditions of roadways (including lane configurations and traffic signal timing), pedestrian paths, bicycle facilities, and transit services near the Project site. It includes an assessment of existing traffic volumes and operations at the study intersection. This analysis establishes a baseline understanding of how transportation infrastructure in the vicinity of the Project site functions under current multimodal traffic demand and roadway configurations.

3.1 Site Inventory

This section describes multimodal transportation facilities in the Project vicinity. These include roadway, pedestrian, bicycle, and transit facilities.

3.1.1 Roadway Facilities

The roadway facilities in the study area are summarized in **Table 7** and shown in **Figure 18.** The Bellevue GCC will run parallel to NE 6th Street, elevated over cross streets including 112th Avenue NE, I-405, and 116th Avenue NE.

Table 7: Existing Roadway Network Summary

Roadway Name	Facility Type	Street Classification	Speed Limit (mph)[1]	Number of Travel Lanes
Interstate 405	WSDOT	Highway	60	5
NE 6th Street	Local	Arterial	30	2 to 3
110th Avenue NE	Local	Arterial	30	1 to 3
112th Avenue NE	Local	Arterial	30	2 to 3
116th Avenue NE	Local	Arterial	30	2 to 3

Notes:

1. *Speed limits of 30 mph are established in Downtown Bellevue; https://bellevue.municipal.codes/BCC/11.32.020.*
2. *Source: Fehr & Peers, 2024.*

3.1.1.1 Regional Roadway Facilities

I-405 is a major north-south auxiliary freeway that bypasses downtown Seattle, running from Tukwila in the south to Lynnwood in the north. It serves as a vital corridor for regional traffic, providing access to key cities and commercial areas on the east side of Lake Washington. Within the vicinity of the Project site, it is comprised of approximately 5 lanes in each direction and multiple interchanges with east-west arterials.

3.1.1.2 Local Roadway Facilities

NE 6th Street is an east-west multimodal transportation corridor extending intermittently through the study area. Within the study area, it extends from Bellevue Way NE to an elevated central on-/off-ramp serving I-405. The portion from 106th Avenue NE to 108th Avenue NE is comprised of a pedestrian path. Between 108th Avenue NE and 110th Avenue NE, NE 6th Street serves as the bus access road for the Bellevue Transit Center, the region's busiest transit hub outside the City of Seattle. This roadway provides access to the I-405 Express Toll Lanes just east of 112th Avenue NE.

- It should be noted that on Tuesday July 23, 2024 the Bellevue City Council voted to extend NE 6th Street to an at-grade crossing with 116th Avenue NE. No further eastward extension of the NE 6th Avenue arterial was approved.[13]

NE 12th Street is an east-west arterial crossing over I-405, connecting Wilburton to Downtown. As shown in **Figure 8**, an 18 ft. shared-path for pedestrians and bicycles is separated from traffic by a traffic barrier on the north side of the roadway. There is also a 12 ft. sidewalk separated from traffic by a traffic barrier on the south side of the roadway. Currently, it is the crossing that is most compliant with the City of Bellevue's MMLOS metrics, standards, and guidelines. **Figure 9** shows the existing facilities facing west from Wilburton into Downtown.

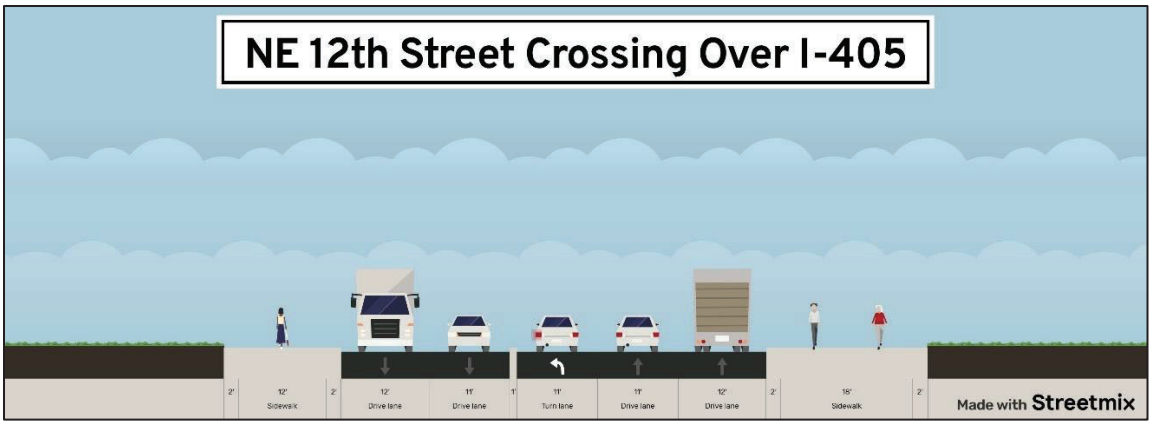


Figure 8: Existing NE 12th Street Cross-Section for the Crossing Over I-405 (facing west)

[13] For more information, see City of Bellevue, Ordinance No. 6802, 2024.

Figure 9: Existing Conditions for NE 12th Street Over I-405 (facing west)

NE 10th Street is an east-west arterial crossing over I-405, connecting Wilburton to Downtown. As shown in **Figure 10**, an 12 ft. shared-path for pedestrians and bicycles is located on the north side of the roadway. There is also a 12 ft. sidewalk on the south side of the roadway. Neither path is physically separated from the adjacent traffic lanes, which can lower the LTS scores for both pedestrians and bicycles. **Figure 11** shows the existing facilities facing west from Wilburton into Downtown.

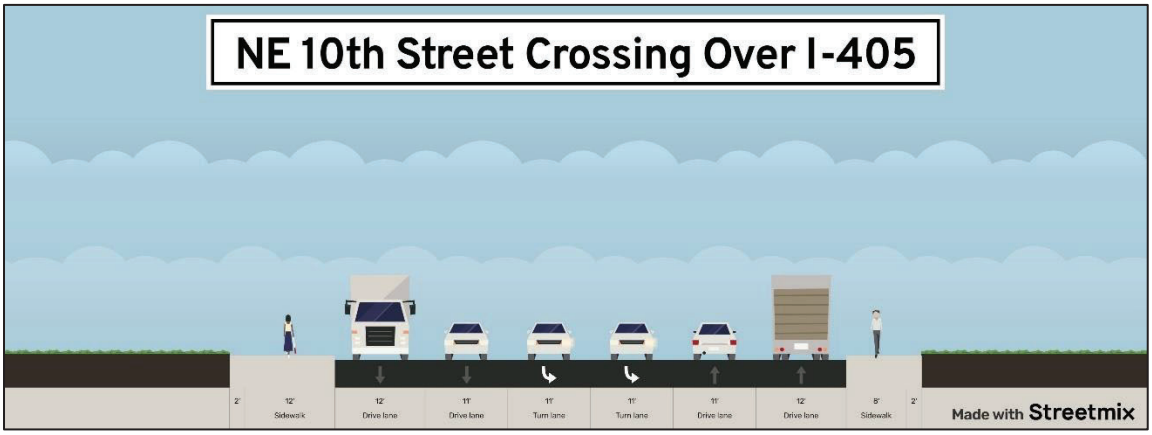


Figure 10: Existing NE 10th Street Cross-Section for the Crossing Over I-405 (facing west)

Figure 11: Existing Conditions for NE 10th Street Over I-405 (facing west)

NE 8th Street is an east-west arterial crossing over I-405, connecting Wilburton to Downtown. As shown in **Figure 12**, an 8 ft. sidewalk is located on the north side of the roadway. There is also an 8 ft. sidewalk on the south side of the roadway. Neither sidewalk has a landscapte buffer and there are no bicycle facilties. The uncontrolled crosswalks across the ramps to and from I-405 are also uncomfortable to cross as many drivers to not yield to pedestrians. **Figure 13** shows the existing facilities facing west from Wilburton into Downtown.

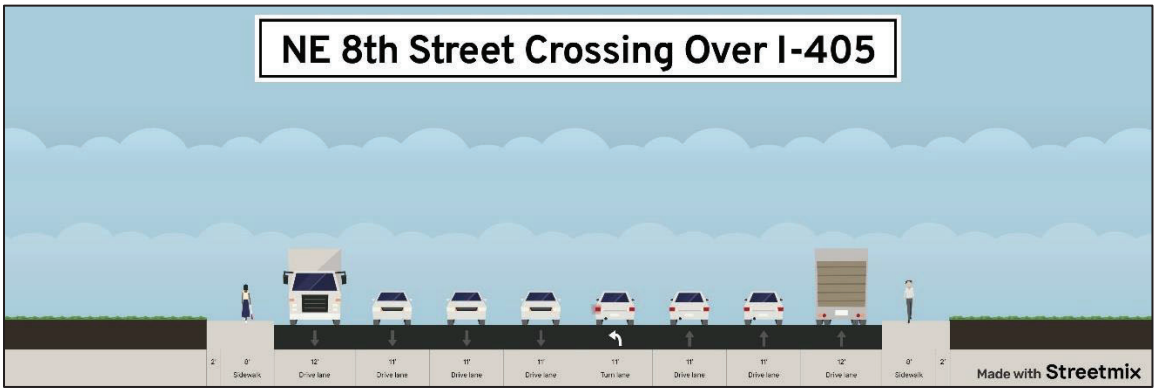


Figure 12: Existing NE 8th Street Cross-Section for the Crossing Over I-405 (facing west)

Figure 13: Existing Conditions for NE 8th Street Over I-405 (facing west)

NE 4th Street is an east-west arterial crossing over I-405, connecting Wilburton to Downtown. As shown in **Figure 14**, a 10 ft. sidewalk is located on the north side of the roadway. There is also a 12 ft. sidewalk on the south side of the roadway. Neither path is physically separated from the adjacent traffic lanes and there are no dedicated bicycle facilities. **Figure 15** shows the existing facilities facing west from Wilburton into Downtown.

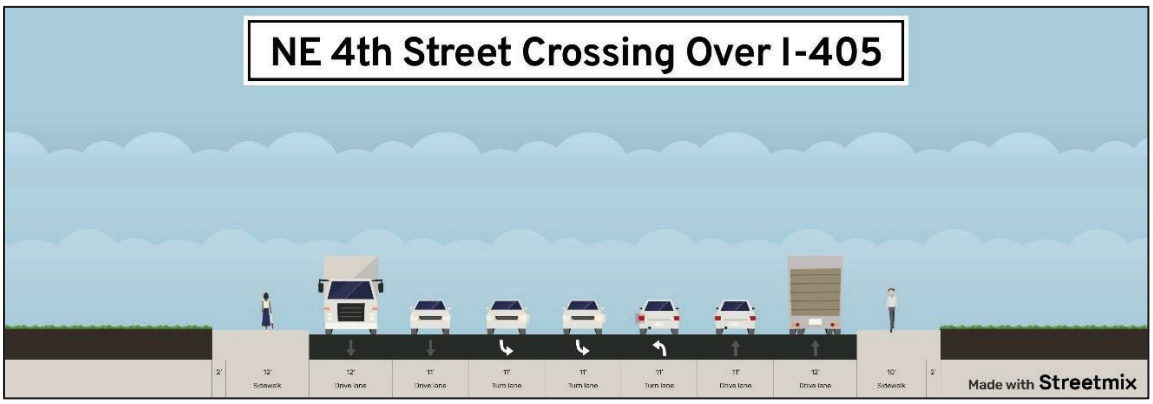


Figure 14: Existing NE 4th Street Cross-Section for the Crossing Over I-405 (facing west)

Figure 15: Existing Conditions for NE 4th Street Over I-405 (facing west)

Main Street is an east-west arterial crossing over I-405, connecting Wilburton to Downtown and the East Main 2 Line station. As shown in **Figure 16**, a 6 ft. sidewalk is located on the north side of the roadway and is not separated by traffic in the adjacent lanes, with the exception of a 4 ft. shoulder. There is also a 10 ft. multipurpose path on the south side of the roadway. This path provides an LTS 1 facility crossing I-405. **Figure 17** shows the existing facilities facing west from Wilburton into Downtown.

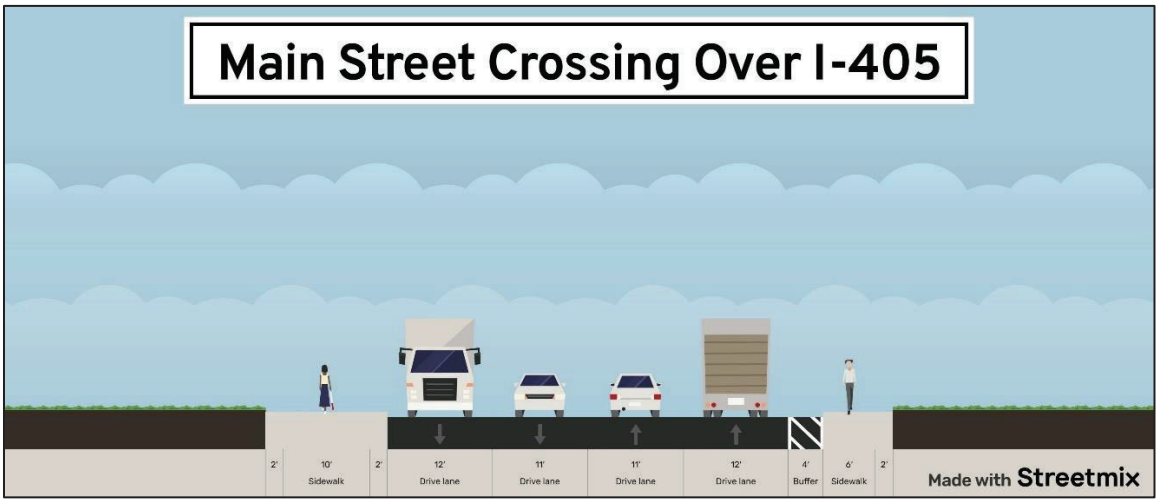


Figure 16: Existing Main Street Cross-Section for the Crossing Over I-405 (facing west)

Figure 17: Existing Conditions for Main Street Over I-405 (facing west)

110th Avenue NE is a north-south arterial extending from NE 12th Street to Main Street. This roadway is a key roadway that provides access to many land uses within Downtown, but does not extend beyond the commercial core and is therefore, fairly lightly traveled by cars. The roadway specifically serves the Bellevue Library, Bravern complex, City Hall, and provides key walking access to the Bellevue Transit Center and Link light rail station.

112th Avenue NE is a north-south arterial extending from an interchange with SR-520 to Bellevue Way SE. Running one block west of I-405, the roadway connects residential neighborhoods in the north and south with the eastern edge of the Downtown core and provides direct access the streets that connect with I-405. During times of substantial congestion on I-405, 112th Avenue can experience additional traffic as people avoid the freeway.

116th Avenue NE is a north-south arterial extending from Northup Way to Lake Hills Connector just south of Wilburton. Running east of I-405, the roadway connects residential neighborhoods to Wilburton area. 116th Avenue NE provides access to major retail centers near NE 4th Street and the hospital complex between NE 8th Street and NE 12th Street. Like 112th Avenue NE, 116th Avenue NE can experience congestion if I-405 is crowded.

Some changes to these facilities may occur alongside project implementation. One potential change proposed within the Wilburton Commercial Area Study is the removal

of NE 6th Street from 112 Avenue NE to the west boundary of Wilburton. The implications of this change relative to GCC design are discussed in Project Conditions and Future Conditions sections. Existing roadway facilities near the Project area are shown on **Figure 18**.

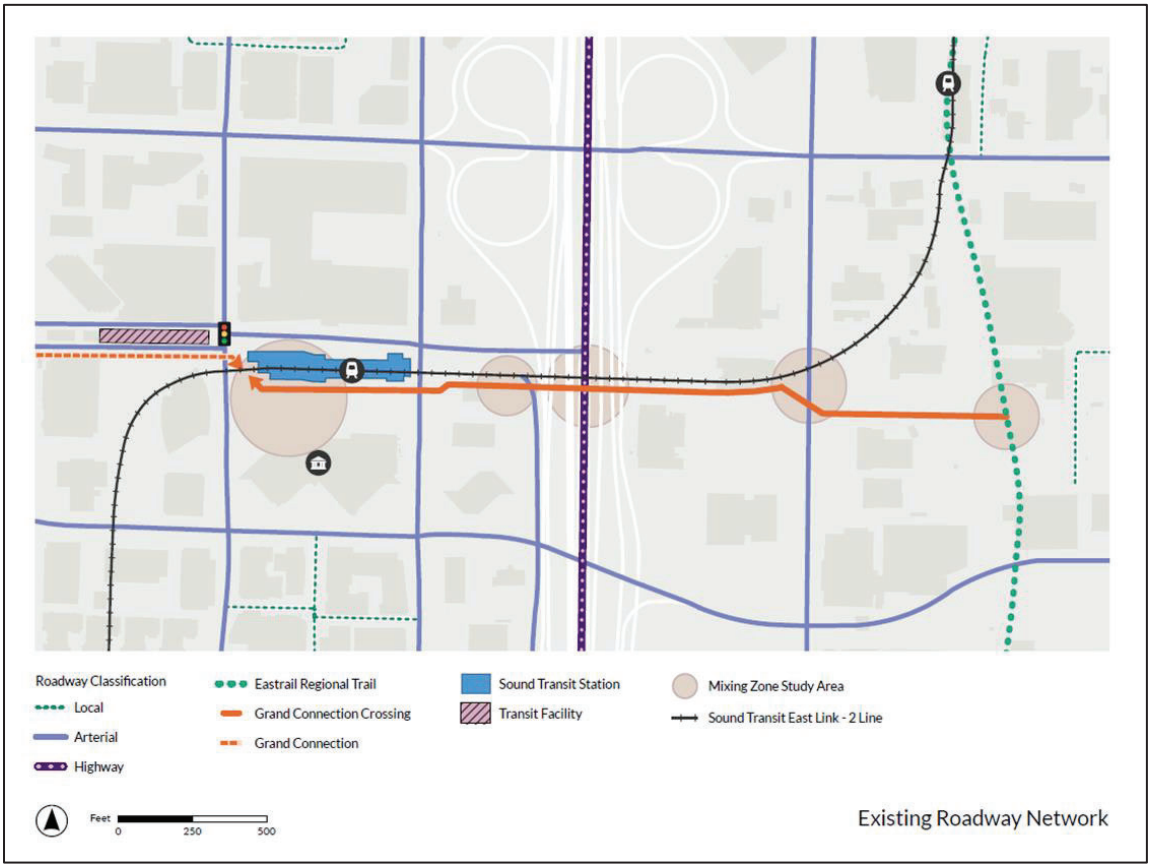


Figure 18. Roadway Facilities

3.1.2 Pedestrian Facilities

Pedestrian facilities including sidewalks, crosswalks, curb ramps, and pedestrian signals are provided throughout the study area. Sidewalks are provided along all surface roadways in the study area. Pedestrian signals and crosswalks are provided at all local intersections within the study area. Curb ramps are also generally provided at all intersections within the Project area. Existing pedestrian facilities near the Project area are shown on **Figure 19**.

Pedestrian facilities at the signalized 6th Street NE/110th Street NE study intersection include the following:

- Diagonal Americans with Disabilities Act (ADA) curb ramps with truncated domes on the southwest and southeast corners; directional ADA curb ramps with truncated domes on the northeast corner. The northwest corner is under construction and barricaded. The Bellevue Transit Center extends into the west

intersection approach and crosswalk and includes diagonal curb ramps without truncated domes.

- Marked crosswalks are provided across all four approaches, with a temporary striped crosswalk extending from the northeast corner to the north side of the Bellevue Transit Center median. Non-audible pedestrian signal heads with countdown timers on both sides of each crosswalk. Signal timing includes an all-way pedestrian scramble phase.

Figure 19: Pedestrian Facilities

3.1.3 Bicycle Facilities

Within the project area, bicycle facilities include dedicated on-street bike lanes, separated bike trails, and bike-friendly street design. The project area's existing bicycle facilities are presented in **Figure 20** and summarized below.

3.1.3.1 Shared-Use Paths

The existing bicycle network in the project area includes the following shared-use paths:

- The Eastrail regional trail in Wilburton is a partially built 42-mile shared-use pathway that runs parallel to 116th Avenue NE and serves pedestrians, cyclists, and other non-motorized traffic from Woodinville to Renton. The trail features a wide, paved surface with directional markings and signage to support accessibility and safety. The trail includes benches, rest areas, and informational kiosks, as well as connections to parks and transit hubs. Infrastructure such as bridges and tunnels are incorporated to navigate natural and urban obstacles, providing a continuous route for users. Currently, Eastrail is open between Kirkland (where it is called the Cross Kirkland Corridor) and NE 4th Street.
- A shared-use path extending from 112th Avenue NE to the north end of 114th Avenue NE. The path provides a connection from Downtown Bellevue to a route south, along 114th Avenue NE and later 118th Avenue NE, to the east-west I-90 Trail/Mountain to Sound Greenway Trail.

3.1.3.2 Bike Lanes

The existing bicycle network in the project area includes the following bike lanes:

- 108th Avenue NE bike lanes. Part of a larger corridor that extends between I-90 and NE 24th Street, within Downtown, 108th Avenue has a mix of standard and buffered bike lanes and some sections of cycle track. This is the primary north-south bike facility through Downtown Bellevue.
- 112th Avenue NE striped bike lane. This bikeway extends from the end of the shared-use path intersecting 112th Street NE to NE 10th Street in the northbound direction only.

Figure 20: Bicycle Facilities

3.1.4 Transit Facilities

Transit facilities including bus routes and stops, light rail stations, and a transit center are provided in this study area:

- The Bellevue Transit Center is a major transportation hub located in Downtown Bellevue in the median of NE 6th Street, between 108th Avenue NE and 110th Avenue NE. The Center serves as a central point for approximately 21 local bus and BRT routes and paratransit operated by King County Metro. The transit center is equipped with passenger amenities including shelters, seating, real-time information displays, and bike storage, enhancing the commuting experience for users. It also includes a passenger Pick-Up Drop-Off (PUDO) zone on 108th Avenue NE. See **Figure 21** for routes and lines served.

- The Bellevue Downtown Link light rail station is located adjacent to City Hall Park on the southeast corner of the NE 6th Street/110th Street NE and serves the 2 Line which extends from South Bellevue Station to Redmond Technology Station. The 2 Line operates with 10-minute headways throughout the day. The station includes covered waiting areas, and real-time service information. This line will eventually connect to Seattle and Lynnwood across Lake Washington, with full service anticipated in 2025 or 2026. This station is also expected to serve the future 4 Line between South Kirkland and Issaquah, which is expected to open in the 2040s.

Figure 21: Transit Routes at the Bellevue Transit Center

3.2 Existing Multimodal Level of Service

This discussion is limited to traffic operations and level-of-service at the existing study intersection.

3.2.1 Vehicle Level of Service

Based on existing volumes and roadway configuration, the project team calculated the LOS at the study intersection using the Highway Capacity Manual (HCM) 6th Edition methodologies. The existing lane configurations, traffic controls, and peak hour traffic volumes are shown in **Figures 22 and 23**. Existing conditions intersection analysis results are presented in Appendix B.

Figure 22: Existing Lane Configuration and Current Year (2024) AM Peak Hour Volumes

Figure 23: Existing Lane Configuration and Current Year (2024) PM Peak Hour Volumes

Table 8 summarizes the existing conditions intersection analysis results. The results show that the study intersection operates at LOS B during the AM and PM peak hours. Therefore, traffic operations during both peak hours meet the City of Bellevue standard of LOS E+ for this intersection. See **Appendix B** for Synchro Outputs of Current Year (2024).

Table 8: Intersection Level of Service Summary – Current Year (2024)

Intersection	Traffic Control	Peak Hour	Existing		
			v/c Ratio	Delay (seconds)	LOS
NE 6th Street / 110th Street NE	Signal	AM	0.21	15.9	B
		PM	0.26	14.9	B

Note:
1. Signal = intersection controlled by traffic signal.
2. Delay: Calculated using HCM 6th Edition. Average intersection delay presented for signalized intersections.

4.0 PROJECT CONDITIONS

This chapter outlines the operation of transportation facilities under Project conditions, in the absence of a lid over I-405, for 2044. This includes an assessment of traffic volumes and operations at the study intersection and mixing zones. This analysis identifies how transportation infrastructure is anticipated to operate with construction of the Bellevue GCC.

4.1 Pedestrian and Bicycle Demand

The project team estimated the pedestrian and bicycle demand for the Project using three (3) methods as described in the below sections of this chapter. An analytical tool, called Replica, was used first to estimate "people in vehicles" driving over the existing I-405 crossings between NE 12th Street and Main Street. Next, the Puget Sound Regional Council's (PSRC) *LUV-it* travel demand model was used to calculate an annual growth rate in the Downtown and Wilburton neighborhoods, to be used for the study intersection LOS analysis. The project team reviewed volumes from project sites in the region similar to the GCC project, to conduct a review against the estimated Project volumes. Growth rates were identified by previously approved plans and used for comparison purposes for this project. A recommended range of pedestrian, bicycle, and total volumes were estimated for use by the design team. See **Appendix C** for more detailed information.

4.1.1 Replica Data Analysis

Replica is a next-generation urban planning tool, established in 2019, that can be used to estimate current volumes of vehicles, pedestrians, and bicycles.[14] Utilizing data from local agencies and jurisdictions, including census tract information, volumes can be provided on a corridor basis. For the GCC, existing corridor crossing volumes for NE 12th Street, NE 10th Street, NE 8th Street, NE 4th Street, and Main Street were extrapolated from the tool to estimate a count for people in vehicles per day. See **Figure 24** for a representative map of crossing selected for this analysis.

The total people in vehicles per day was estimated at 99,000 based on Replica data. PM peak hour volumes were estimated at ten (10) percent of the daily volumes, providing a total PM peak hour people in vehicles of 9,900. These volumes were converted to pedestrian and bicycle volumes using the assumptions listed in **Table 9**. Given these assumptions, the total estimated PM peak hour pedestrian and bicycle volumes for the Project in the current year (2024) is between 150 and 375. In other words, if the GCC were built today, we would estimate 150 to 375 people crossing in the PM peak hour (either walking, rolling, or biking).

[14] Replica, (2024). Replica: Data to Drive Decisions about the Built Environment (replicahq.com)

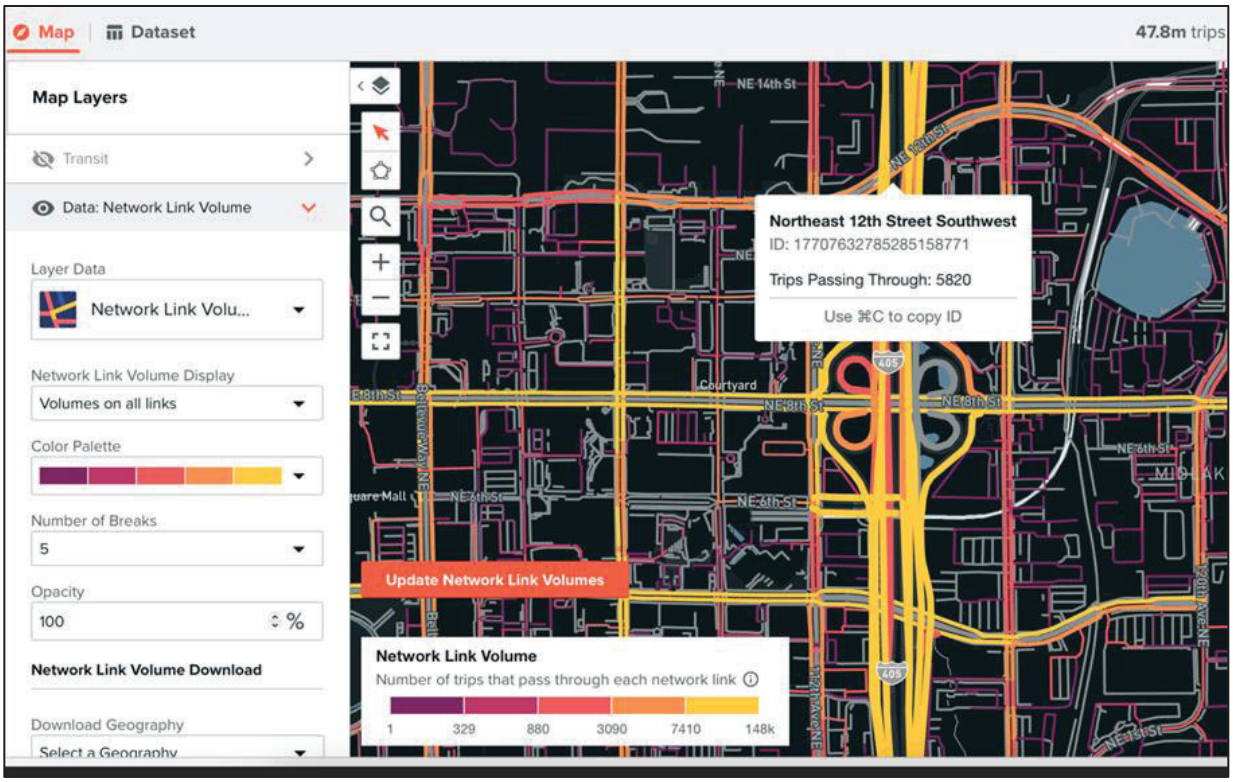


Figure 24: Corridor Volumes for Existing Crossings Over I-405 Using the Replica Tool

Table 9: Existing Conditions Bicycle & Pedestrian Trip Volume Estimates

Context	Low Estimate	High Estimate
Total Estimate[1]	200	500
Non-Project[2]	50	125
Project[3]	**150**	**375**

Notes:

1. *This volume is equivalent to 2-5% of the existing daily vehicle volume crossing I-405 in the vicinity of the project on NE 12th Street, NE 10th Street, NE 8th Street, NE 4th Street, and Main Street. The 2-5% range corresponds to trips of a length and origin-destination pair conductive to conversion to bicycle or pedestrian trip. Corridors were selected to determine total daily volume crossing over I-405 that would be used by the new Grand Connection once built.*
2. *Based on the origin-destination pairs for estimated bicycle and pedestrian trips, it is estimated that about 25% would be completed using existing facilities, not the Bellevue GCC.*
3. *This constitutes the remaining 75% of estimated bicycle and pedestrian trips that could be completed using the Bellevue GCC. Based on counts collected on July 16, 2024, these low and high estimate figures are comparable to 75% of the existing bicycle and pedestrian volumes passing in the East-West direction through the NE 6th Street/110th Street NE intersection in the AM Peak Hour (8:00-9:00 AM) and PM Peak Hour (4:45-5:45 PM), respectively.*

Source: Fehr & Peers, 2024.

4.1.2 PSRC *LUV-it* Travel Demand Model Analysis

To forecast estimated pedestrian and bicycle volumes in 2044, the project team calculated an annual growth rate that was applied to current year (2024) study intersection traffic counts and the Replica current year (2024) estimated volumes above in section 5.1.1. The *LUV-it* travel demand model is the latest PSRC land use forecast model utilized by the Puget Sound region, including the City of Bellevue and the update to the City's Comprehensive Plan for 2044. Traffic Analysis Zones (TAZs) were identified from the Downtown and Wilburton neighborhoods to calculate the total number of households and employment by land use type for 2018 and 2044. Using the Institute of Transportation Engineers (ITE) TripGen Web-based App[15], daily trips by land use types were used to calculate the total growth in trips for 2044. See **Table 10** below for the annual growth rate for the Downtown and Wilburton Neighborhoods.

Table 10: Annual Growth Rate for the City of Bellevue Downtown & Wilburton Neighborhoods

Neighborhood	2018 Total Trip Ends	2044 Total Trip Ends	Growth in Trips	Trip Growth Rate	Annual Growth Rate
Downtown	2,153,720	3,694,350	1,540,630	41.70%	2.10%
Wilburton	643,900	1,320,290	676,390	48.77%	2.80%

4.1.3 Growth Rates Identified in City Long-Range Planning Documents

There are several approved transportation plans in the Downtown and Wilburton Neighborhoods for the City of Bellevue that analyzed the subareas and calculated annual growth rates. For comparison purposes to the PSRC *LUV-it* growth rate calculated above, the following growth plans were reviewed:

4.1.3.1 2044 Bellevue Comprehensive Plan Environmental Impact Statement (EIS)

The approved EIS identified the preferred alternatives recommended for the comprehensive plan for the Downtown and Wilburton Neighborhoods. Using the preferred alternative, the average growth rate for Downtown was 5.87%. For the Wilburton Neighborhood, the average growth rate was 14.82%. Both growth rates were calculated using growth in estimated households in each neighborhood. Employment growth rates were not factored into the average annual growth rate[16].

[15] Institute of Transportation Engineers (ITE). (2024). *ITE TripGen Web-based App.* Graph Look Up (itetripgen.org)
[16] City of Bellevue (2024). *Bellevue Final Environmental Impact Statement.* bellevuewa.gov/sites/default/files/media/pdf_document/2024/%21BellevueFEIS%2BAppendices_2024-01-23.pdf

4.1.3.2 Wilburton Commercial Area Study

The Wilburton Commercial Area Study estimated annual growth rates by two categories: baseline, representing the continuation of development trends in place prior to 2008, and vision, which is based on the goals of PSRC, counties, and cities established in the Vision 2040 plan. The Study Area was divided into two PSRC zones: North Bellevue and Central Bellevue. North Bellevue is expected to grow very quickly – by 3 percent annually under the baseline projection, and 3.9 percent annually under the vision. Downtown Bellevue is expected to grow even more quickly, between 4.7 and 5.5 percent annually.[17]

4.1.3.3 Bellevue Mobility Implementation Plan

The Downtown and Wilburton Neighborhoods are estimated to grow at an annual rate of 11% annually. The plan recognizes that the annual growth rate is considered high but was used as a stress-test on the transportation network in that specific plan.[18]

4.1.3.4 Bellevue Downtown Transportation Plan

The Downtown area was estimated to grow at an annual rate of 3.6% between 2010 and 2030. Given the publishing date of the plan, in 2013, it is outdated, however; the PSRC Vision 2040 plan recognizes it as a relevant plan for comparison. [19]

4.1.4 Mode Share

Tables 11 & 12 summarizes the mode share projected under existing, no action, and three (3) growth alternatives for Bellevue workers and residents, as outlined in the Bellevue Final EIS[20]. In general, walk share is expected to grow slightly, particularly amongst residents, and bicycle share is anticipated to remain the same.

[17] City of Bellevue. (2018). *Wilburton Commercial Area Study.* Nbbj. WCA Report Final Published Version with Errata.pdf (bellevuewa.gov)
[18] City of Bellevue. (2023). *Downtown Mobility Study.* Fehr and Peers. Downtown Mobility Study_0.pdf (bellevuewa.gov)
[19] City of Bellevue. (2013). *Downtown Transportation Plan – Transportation Commission Recommendation.* *DTPFINAL2015.pdf (bellevuewa.gov)*
[20] City of Bellevue. (2024). *Final Environmental Impact Statement.* Chapter 11. !BellevueFEIS+Appendices_2024-01-23.pdf (bellevuewa.gov)

Table 11: Mode Share for Bellevue Workers

Mode	Existing	No Action	Alternative 1	Alternative 2	Alternative 3
Walk	6%	8%	7%	8%	8%
Bicycle	0%	0%	0%	0%	0%
Single-Occupancy-Vehicle	60%	41%	43%	43%	43%
High-Occupancy-Vehicle	25%	19%	20%	20%	20%
Transit	9%	32%	29%	29%	28%

Note:

1. *Mode shares are rounded and may not sum to 100%*

Table 12: Mode Share for Bellevue Residents

Mode	Existing	No Action	Alternative 1	Alternative 2	Alternative 3
Walk	13%	18%	20%	19%	19%
Bicycle	1%	1%	1%	1%	1%
Single-Occupancy-Vehicle	33%	25%	24%	25%	25%
High-Occupancy-Vehicle	46%	44%	43%	43%	42%
Transit	7%	12%	12%	12%	12%

Note:

1. *Mode shares are rounded and may not sum to 100%*

4.1.5 2044 Project Pedestrian and Bicycle Estimated Volumes

The GCC over I-405 will be an iconic, vital, and safe route for pedestrians and bicyclists to travel through both city neighborhoods and connect to regional trails for both leisure and commuting purposes. The project team reviewed the annual growth rates from the current PSRC model and approved city/regional plans and recommended a range of 2.1-5% annually. Two growth rate scenarios were used to calculate the estimated 2044 pedestrian and bicycle volumes: **Tables 13 & 14** use the person-trip growth rates from the *LUV-it* model, and **Tables 15 & 16** use the higher growth rate estimates. While the second scenario is higher than the estimated values in the *LUV-it* model analysis between 2.10-2.80%, the volumes used will heavily influence the decisions of the design team, determining the width and other design elements of the crossing. Therefore, the team added a contingency factor on the annual growth rates to ensure the cross-sectional width of the crossing is adequate for the service life of the crossing.

Table 13: 2044 Project Conditions (Without Lid) Pedestrian and Bicycle Trip Volumes – *LUV-it*[1]

Context	Low Estimate	High Estimate
Total Estimate[2]	**230**	**260**
Pedestrian Volumes[3]	190	220
Bicycle Volumes[3]	40	40

Notes:

1. *Volumes estimates used the person-trip growth rates for Downtown and Wilburton neighborhoods from the LUV-it travel demand model.*
2. *This volume is equivalent to application of a 2.1-2.8% compounding growth rate applied for a time span of 20 years.*
3. *This calculation assumes a ratio of 5:1 for pedestrian-to-bicycle trips based on travel behavior in the region.*

Source: Fehr & Peers, 2024.

Table 14: 2044 Project Conditions (With Lid) Pedestrian and Bicycle Trip Volumes – *LUV-it*[1]

Context	Low Estimate	High Estimate
Total Estimate[2]	**425**	**495**
Pedestrian Volumes[3]	350	410
Bicycle Volumes[3]	75	85

Notes:

1. *Volumes estimates used the person-trip growth rates for Downtown and Wilburton neighborhoods from the LUV-it travel demand model.*
2. *This volume is equivalent to application of a 2.1-2.8% compounding growth rate applied for a time span of 20 years.*
3. *This calculation assumes a ratio of 5:1 for pedestrian-to-bicycle trips based on travel behavior in the region.*

Source: Fehr & Peers, 2024.

Table 15: 2044 Project Conditions (Without Lid) Pedestrian and Bicycle Trip Volumes – High[1]

Context	Low Estimate	High Estimate
Total Estimate[1]	**400**	**1000**
Pedestrian Volumes[2]	330	830
Bicycle Volumes[2]	70	170

Notes:

1. *Volumes estimates used a higher growth rate to promote a more comfortable cross-section width.*
2. *This volume is equivalent to application of a 3-5% compounding growth rate applied for a time span of 20 years.*
3. *This calculation assumes a ratio of 5:1 for pedestrian-to-bicycle trips based on travel behavior in the region.*

Source: Fehr & Peers, 2024.

Table 16: 2044 Project Conditions (With Lid) Pedestrian and Bicycle Trip Volumes – High[1]

Context	Low Estimate	High Estimate
Total Estimate[1]	**595**	**1235**
Pedestrian Volumes[2]	500	1030
Bicycle Volumes[2]	95	205

Notes:

1. *Volumes estimates used a higher growth rate to promote a more comfortable cross-section width.*
2. *This volume is equivalent to application of a 3-5% compounding growth rate applied for a time span of 20 years.*
3. *This calculation assumes a ratio of 5:1 for pedestrian-to-bicycle trips based on travel behavior in the region.*

Source: Fehr & Peers, 2024.

4.2 Multimodal Level of Service Results

This section summarizes Level of Service results for vehicles, pedestrians, and bicycles for the 2044 Project condition (without the lid). The results are compared to the requirements of the City of Bellevue MMLOS Metrics, Standards, and Guidelines.

4.2.1 Vehicle Level of Service

Based on existing traffic counts from July 2024 and existing plus project estimated volumes, using a low annual growth rate of 3% and a high annual growth rate of 5%, and roadway configuration, the project team calculated the LOS at the study intersection using the Highway Capacity Manual (HCM) 6th Edition methodologies. Project conditions intersection analysis results are presented in **Appendix D.**

Table 17 summarizes the Project Conditions (Without Lid) intersection analysis results. The results show that the study intersection would operate at LOS B during the AM Peak Hour and LOS C during the PM peak hour. Therefore, traffic operations during both AM & PM Peak Hours meet the City of Bellevue standard of LOS E+ (v/c 0.901 – 0.950) for this intersection.

Table 17: 2044 Project Conditions (Without Lid) Vehicle LOS Summary

Intersection	Control Type	Peak Hour	3% Annual Growth Rate	3% Annual Growth Rate	3% Annual Growth Rate	5% Annual Growth Rate	5% Annual Growth Rate	5% Annual Growth Rate
			v/c Ratio	Delay (seconds)	LOS	v/c Ratio	Delay (seconds)	LOS
NE 6th Street / 110th Street NE	Signal	AM	0.37	18.7	B	0.53	27.2	C
NE 6th Street / 110th Street NE	Signal	PM	0.48	18.0	B	0.67	34.6	C

Note:
1. *Signal = intersection controlled by traffic signal.*
2. *Delay: Calculated using HCM 6th Edition. Average intersection delay presented for signalized intersections.*

Source: Fehr & Peers, 2024.

4.2.2 Pedestrian Level of Service

Pedestrian LOS standards and guidelines for intersections and corridors, summarized in **Tables 18 & 19**, reflect adopted dimensional standards for sidewalks and landscape buffers in Downtown Bellevue. Intersection LOS standards were applied to the study intersection and mixing zones and corridor LOS standards applied to the proposed GCC segment cross sections. It is important to note that the study intersection at NE 6th Street and 110th Street NE currently has a pedestrian scramble phase at the end of the cycle. The total time for this phase is 44 seconds. It is possible that queuing of pedestrians could occur during peak hours as a result of this signal phasing. The design team will need to optimize the signal phasing and timings to account for these queues based on the final design alternative used.

Pedestrian features not yet present at the study intersection may be used to inform the next phase of design. These missing elements could be added but should only be added if they enhance the overall functionality of the intersection. For example, weather protection is a nice amenity, but it requires space that might cause bottlenecks for pedestrian and bicycle flow across the intersection. Similarly, tighter curb radii could help slow turning vehicles, but considerations must be made to accommodate the heavy bus movements at the intersection.

Table 18: 2044 Project Conditions (Without Lid) Pedestrian LOS Summary – Intersection

LOS Metric	Minimum Threshold	Proposed?	Meets Threshold?
Intersection Treatment (Design Components)	Wider sidewalks with buffer space from vehicles	✓	Pedestrian features provided at the intersection do not yet meet the MMLOS standard for an exceptional intersection.
	Wayfinding at corners	✓	
	Weather protection at corners	×	
	Special paving treatment or striping	✓	
	Curb bump outs or tighter radius to shorten crossing distance, calm traffic, and provide pedestrian queuing areas	×	
	Pedestrian scramble signal phase[3]	✓	
	Raised crossings[3]	×	
	Landmark freestanding wayfinding[3]	×	

Notes:

1. *Per the Bellevue Downtown Transportation Plan, exceptional intersections may contain these elements in addition to those outlined in enhanced intersections (see p. 42).*

Sources: Bellevue Transportation Design Manual and Complete Streets Guide, 2024; Bellevue Downtown Transportation Plan, 2013; Fehr & Peers, 2024.

Table 19: 2044 Project Conditions (Without Lid) Pedestrian LOS Summary – Corridor

LOS Metric	Minimum Threshold	Proposed Dimension	Meets Threshold?
Sidewalk Width (combined sidewalk and landscape buffer width)	16-feet with a 6-inch curb[1]	12-foot pedestrian path	No
Landscape Buffer Width	5-feet[2]	Not yet defined	N/A

Notes:

1. *Per the City of Bellevue Downtown Land Use Code 20.25A.090.*
2. *Per the Bellevue Transportation Design Manual and Complete Streets Guide, p. 33.*

Sources: Bellevue Transportation Design Manual and Complete Streets Guide, 2024; Bellevue Downtown Transportation Plan, 2013; Fehr & Peers, 2024.

The results show that the proposed dimensions for pedestrian path extending the length of the GCC would be narrower than the 16.6 feet given as a minimum standard for Downtown Bellevue. When accounting for the volume of pedestrians anticipated for the area, our team looked to other resources for guidance on an appropriate width of the GCC.

For estimated pedestrian volumes of 350 - 410 during the PM peak hour using the *LUV-it* growth rates, WSDOT recommends a shared-use path of 12-15 ft. For estimated pedestrian volumes of 500 – 1,030 during the PM peak hour using the higher growth rates, WSDOT recommends a shared-use path of greater than 20 ft. See **Table 20** below for minimum widths required for peak hour volumes.

Table 20: WSDOT Shared-Use Path Minimum Width based on Peak Hour Volumes[21]

Minimum Width (Ft)	SUPLOS "C" Peak Hour Volumes at Preferable Width
11	150-300
12-15	300-500
16->20	500->600

[21] WSDOT. (2024). *Active Transportation Design Guide.* Table 9 (p. 139). Active Transportation Programs Design Guide (wa.gov)

4.2.3 Bicycle Level of Service

Bicycle LOS standards and guidelines for intersections and corridors, summarized in **Tables 21 & 22**, reflect adopted dimensional standards for bicycle facilities in Downtown Bellevue. Intersection LOS standards were applied to the study intersection and mixing zones and corridor LOS standards applied to the proposed GCC segment cross sections. Bicycle volumes in 2044 are estimated to be 75 – 205, using a range of 2.1 – 5% for annual growth rates, and will be required to utilize the crossing. The recommendation of greater than 20 ft. for the cross-section width of the crossing is still valid given the estimated volumes of bicycles. When combined with pedestrians, it will be important for the design team to provide elements that focus on separation and safety of modes, both on the crossing and in the mixing zones.

Table 21: 2044 Project Conditions (Without Lid) Bicycle LOS Summary – Intersection

LOS Metric	Potential Elements to Meet Intersection LOS Targets for Bicycles
LTS	Dedicated bike signal
LTS	Green street crossing
LTS	At approach to intersection:
LTS	Protected intersection
LTS	Parking protected bike lane
LTS	At intersections with a right turn lane:
LTS	Dedicated bike facility approaching intersection
LTS	Bend-out design, protected intersection approach
LTS	Mountable corner island
LTS	Bike lean rail for all bike lane approaches
LTS	Bike wayfinding signage
LTS	Bike wayfinding pavement markers

Notes:

1. *Per the Bellevue MMLOS guidelines, a high level of bicycle mobility for all ages and abilities is expected within areas where the City has the vision, intent, and policy to promote a high-density, mixed use urban environment (p. 27). This is recommended for Priority Bicycle Corridors within Downtown and Activity Centers such as the GCC.*
2. *Per the Bellevue Transportation Design Manual and Complete Streets guide, a bicycle facility may include these components at an intersection (p. 46).*

Sources: Bellevue Transportation Design Manual and Complete Streets Guide, 2024; Fehr & Peers, 2024.

Bicycle features not yet present at the study intersection may be used to inform the next phase of design. Similar to the pedestrian mode, missing elements (specifically related to the intersection treatment – see **Table 18**) could be considered, but only if they meet the overall function of the intersection. For example, dedicated bicycle signals and green street crossings may not be desirable considering that there is not a dedicated bicycle facility on the west side of 110th Avenue NE. However, bicycle wayfinding signage and markers might be appropriate. The design phase of the project will consider the most appropriate treatments.

Table 22: 2044 Project Conditions (Without Lid) Bicycle LOS Summary - Corridor

LOS Metric	Minimum Threshold	Proposed	Meets Threshold?
Level of Traffic Stress (LTS) on Corridors	LTS 1[1]; refer to Figure	Physically separated bikeway not adjacent to vehicle traffic	**Yes**

Notes:

1. *Per the Bellevue MMLOS guidelines, a high level of bicycle mobility for all ages and abilities is expected within areas where the City has the vision, intent, and policy to promote a high-density, mixed use urban environment (p. 27). This is recommended for Priority Bicycle Corridors within Downtown and Activity Centers such as the GCC.*
2. *Per the Bellevue Transportation Design Manual and Complete Streets guide, a bicycle facility may include these components at an intersection (p. 46).*

Sources: Bellevue Transportation Design Manual and Complete Streets Guide, 2024; Fehr & Peers, 2024.

4.2.4 Route Directness Index

WSDOT utilizes a tool, called the Route Directness Index (RDI)[22], to help establish a quantitative measurement of both pedestrian and bicycle level of traffic stress. The tool calculates an index, or number, for current routes utilized by active transportation modes today. It compares the direct distance, or "how the crow flies," to the total distance of the existing route used. A RDI that equals 1.0 equates to the most direct route possible. WSDOT accepts RDIs of less than 2.0 and is actively increasing the total linear length (miles) of WSDOT-owned infrastructure that provide a pedestrian or bicycle LTS rating of 1 or 2.

For the GCC project, the RDI was calculated for the existing crossings over I-405 for existing roadways (NE 12th Street, NE 110th Street, NE 8th Street, NE 4th Street, and Main Street) All existing crossings had RDIs of less than 2.0. However, it is important to note that most existing crossings have a LTS rating of 3 or 4, due to the lack of separation from adjacent vehicle lanes and/or cross-section width for these modes. In general, the

[22] WSDOT. (2022). *Designing for Level of Traffic Stress Design Bulletin.* (p. 5). Design Bulletin 2022-01 Designing of level of traffic stress (wa.gov)

GCC project will construct a LTS 1 facility that will slightly reduce RDIs for most existing routes. Given the reduction of both distance of LTS rating, it can be anticipated that pedestrians and bicycles will prioritize the use of the GCC crossing over existing routes, particularly NE 4th Street and NE 8th Street. See **Appendix E** for detailed RDI calculations.

4.3 Modal and Safety Effects

The GCC Project is anticipating carrying over 425 – 1,235 pedestrian and bicycle trips during the PM peak hour in 2044[23] with a grade-separated structure that connects the Bellevue Transit Center and Sound Transit Link 2 Line Station in Downtown with the Eastrail Regional Trail located in the Wilburton Neighborhood to the east. Providing a safe transition from the main segment of the GCC into the existing infrastructure at all connection points will be critical to the safe operations of the facility. This section provides additional context for the mixing zones and discusses challenges and/or constraints with the existing infrastructure. **Figure 25** shows the complexity of the western mixing zone located in project area and the need to prioritize the safety of all modes utilizing this space on a daily basis.

Figure 25: View of the New ST Bellevue Downtown Station & City Hall Plaza

[23] Note that this is the volume across I-405 and is lower than the volume anticipated at the 110th Avenue NE intersection.

4.3.1 Mixing Zones

4.3.1.1 Western Mixing Zone

There are two volume generators that will impact the western mixing zone for the GCC Project: the Bellevue Transit Center and the Sound Transit Bellevue Downtown Station that services the Link 2 Line. The Bellevue Transit Center serves as a regional connection for several key King County Metro and Sound Transit Bus Routes (see **Figure 21** in Section 4.1.4). Also located in the same proximity as the transit center is the newly opened Bellevue Downtown Station by Sound Transit. Long-term, the Link 2 Line will connect Downtown Bellevue to Redmond Downtown to the north and Seattle Downtown/ Link 1 Line via the existing International District/Chinatown Station. It is anticipated that many people will use these two facilities to transfer and continue on their commute and/or trip to their final destination.

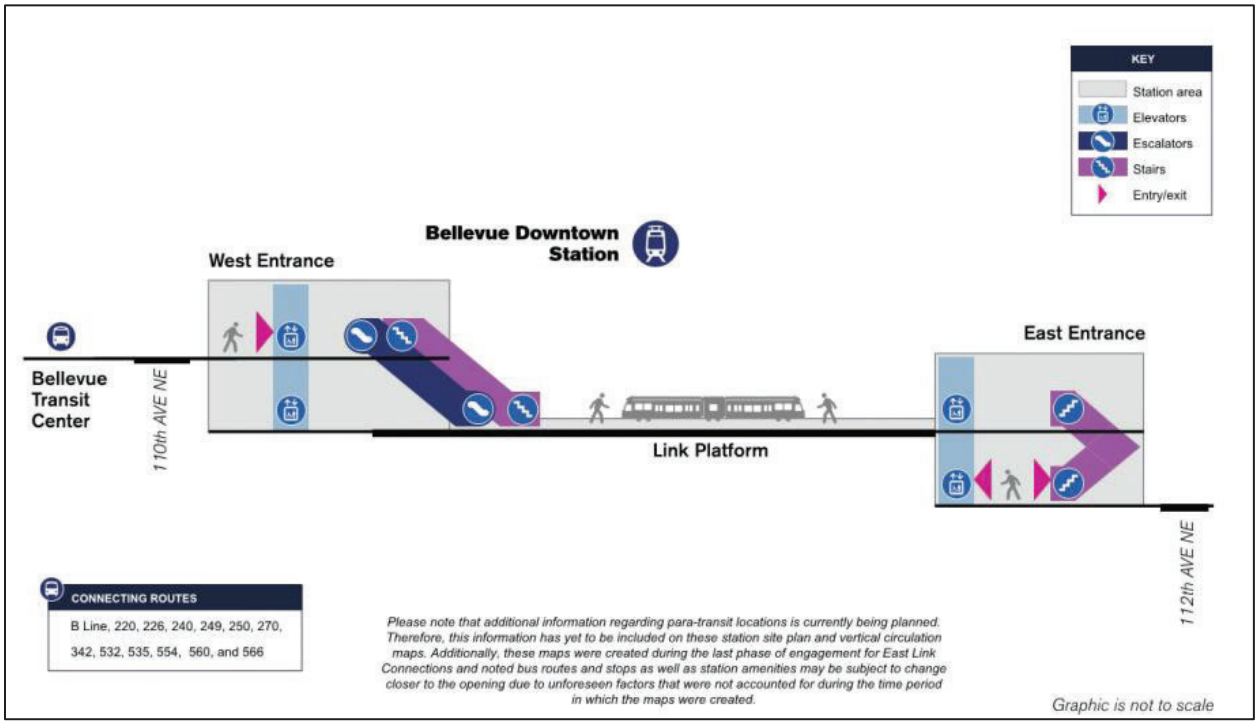


Figure 26: Sound Transit Bellevue Downtown Station Access and Operations[24]

Shown in **Figure 26** is the station access diagram for Bellevue Downtown Station. The primary access point is located at the southeast corner of NE 6th Street and 110th Avenue NE. Riders off-boarding from this station will be entering and exiting the western mixing zone, with significant impacts/interactions necessary between the riders and the users of the GCC Project. Based on modeling analysis conducted by Fehr and Peers, the peak

[24] Sound Transit. (2024) *Bellevue Downtown Station.* *Bellevue Downtown Station | Project map and summary | Sound Transit*

hour ridership volumes are expected to reach 2,250 – 3,000 passengers. Paired with the estimated volumes of pedestrians and bicycles using the GCC, the western mixing zone could see upwards of 4,000 people navigating the area during the peak hours of the day, with the PM peak hour anticipated to be the busiest. Organizing the users who are in this space and making sure that high-speed bicycle traffic does not conflict with pedestrians stepping out of the Link station will need to be a major design focus.

In addition to the existing major transit uses in the area, the City of Bellevue, WSDOT, and other agencies, are exploring the construction of a lid over I-405 in Downtown Bellevue. The GCC Project is expected to connect into this future lid proposal. The primary use of the lid will be park space that could host large gatherings and special events in the future. **Figure 27** shows one concept on how the proposed lid could connect into the GCC. Given this context, the emphasis on separation of pedestrians and bicycles will be made even more pressing given the presence of another large trip generator in the area.

Figure 27: City of Bellevue I-405 Proposed Lid Concept[25]

[25] City of Bellevue. (2018). *Downtown Bellevue Network.* *I-405 Lid Crossing Chosen as Segment of Grand Connection by City Council - Downtown Bellevue Network*

Table 23 presents the trip generation for the I-405 lid park, anticipated to contain 4.4 acres (190,000 square feet) of public open spaces. As noted previously, this is based on trip generation data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual* (11th Edition).[26]

Table 23: Estimated Peak Hour Trips Generated by the I-405 Lid

Land Use	ITE Code	Size	Saturday Peak Hour	Sunday Peak Hour
Public Park[1]	411	4.4 acres	0	9

Notes:

1 ITE Trip Generation land use category (411) Public Park, General Urban/Suburban, Saturday & Sunday, Peak Hour Generator
*2 Saturday Peak Hour Generator: T = 0.08 * X (no directional distribution available)*
*3 Saturday Peak Hour Generator: T = 1.98 * X (no directional distribution available)*
Source: Fehr & Peers, 2024.

ITE's Trip Generation Manual is primarily based on data collected at single-use suburban sites where the automobile is often the only travel mode. However, the GCC is in a dense, mixed-use urban environment near frequent regional and local transit service, where many trips are walk, bike, or transit trips. Furthermore, the ITE data for this land use category is extremely limited, containing five or fewer studies for the conditions included in this analysis, most of which pertain to significantly larger parks. This dataset may not contain references for urban parks that generate demand for short active travel trips by persons in the vicinity. This is, therefore, considered an exceptionally low estimate and anticipated that the lid would increase demand for the GCC by greater than the nine bicycle and pedestrian volumes presented in **Tables 13 – 16.**

The project team found existing pedestrian and bicycle counts at similar freeway lids in other parts of the country. The Klyde Warren Park, located in Dallas, TX, and the Rose Kennedy Greenway – Freeway Cap Park, located in Boston, MA, are close in the type of function and nearby land use as the proposed I-405 lid. Using factors to scale the observed trip generation at these locations, it was calculated that the I-405 lid *could generate* an additional 195 - 235 peak hour trips for pedestrians and bicycles. Therefore, the estimated total number of peak hour trips on the main line segment between the western mixing zone and the center of I-405 ranges between 425 and 1,235. See **Appendix F** for details about the comparable freeway lids and volume calculations.

[26] Institute of Transportation Engineers (ITE). (2024). *ITE TripGen Web-based App.* Graph Look Up (itetripgen.org)

4.3.1.2 Eastern Mixing Zone

The eastern mixing zone for the GCC Project will connect into the future Eastrail Regional Trail, a multi-modal trail that will connect throughout the Eastside, including the Wilburton Neighborhood located in Bellevue. **Figure 28** shows a potential concept for the trail navigating through the Wilburton area[27].

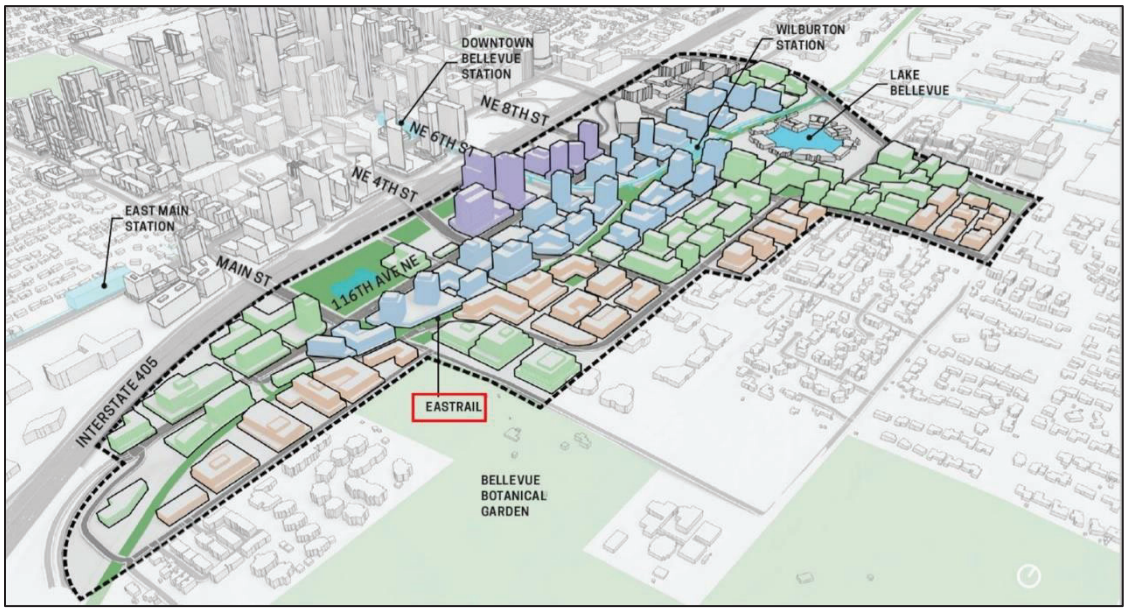


Figure 28: A Proposed Concept for the Eastrail Regional Trail in Wilburton

As described in Section 1.2 and **Figure 1**, this segment of the trail is expected to see over 2,000 daily trips by pedestrians and bicycles. Similar to the western mixing zone, the design team will need to consider additional safety and separation measures in this mixing zone due to these volumes.

[27] City of Bellevue. (2021). *Wilburton Eastrail Trail.* *City of Bellevue Looks for Feedback from Community on Eastrail Trail Features and Amenities - Downtown Bellevue Network*

4.3.2 Vehicle Miles Traveled (VMT) Reduction

Providing a shared use bicycle and pedestrian path may reduce VMT by encouraging a mode shift on the roadways parallel to that facility from vehicles to bicycles or traveling on foot. This shift, however, would not occur if the facility is installed in isolation.

VMT reduction associated with this project is dependent upon its connection to an "all ages and abilities," or low stress, multimodal network. As shown in **Figure 29**, for a bicycle and pedestrian network to truly support users of all ages and abilities, its most fundamental attribute should be low stress connectivity. That is, the route must connect origins and destinations that do not require cyclists or pedestrians to travel on roadways with undue traffic stress, such as high vehicle volumes or speeds. Building out this infrastructure is vital to supporting the mode share shift and associated VMT reductions from the additional strategies analyzed below.

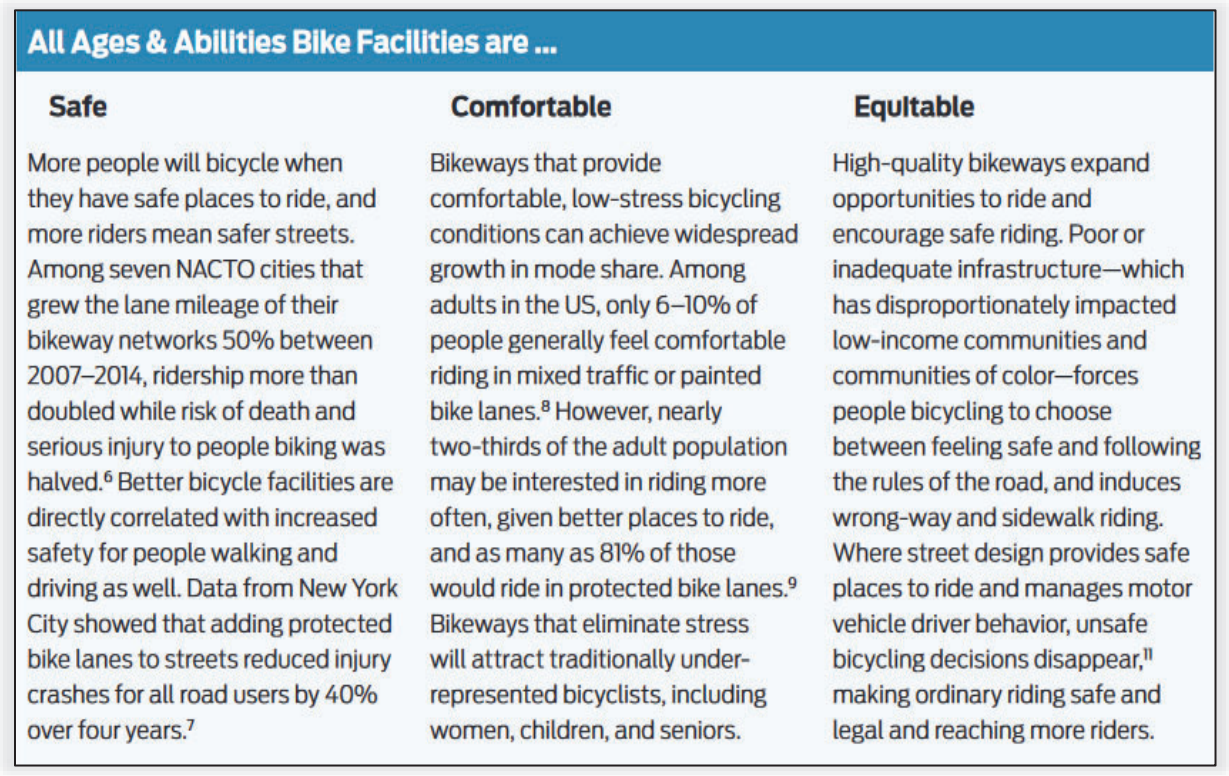


Figure 29: Designing Bicycle Facilities for All Ages and Abilities[28]

[28] For more information, see NACTO, Designing for All Ages & Abilities, December 2017, available from: https://nacto.org/wp-content/uploads/2017/12/NACTO_Designing-for-All-Ages-Abilities.pdf

To calculate the estimated VMT reduction percentage for the GCC, the greenhouse gas reduction formula derived from the *Handbook for Analyzing Greenhouse Gas Emission Reductions*[29], was applied.

$$A = -1 \times \frac{\left(\frac{C-B}{B}\right) \times D \times F \times H}{E \times G}$$

Whereas:
A = Percent reduction in VMT
B = Existing bikeway miles in community with measure
C = Bikeway miles in community with measure
D = Bicycle mode share, as a percentage, in community
E = Vehicle mode share, as a percentage, in community
F = Average one-way bicycle trip length, miles per trip, in community
G = Average one-way vehicle trip length, miles per trip, in community
H = Elasticity of bike commuters with respect to bikeway miles per 10,000 population

Table 24: Variable Values Used for VMT Reduction Percentage

Variable	Value
B[1]	2.5 miles
C[2]	3.0 miles
D[3]	1%
E[3]	25%
F[4]	3.75 miles
G[4]	5.7 miles
H[5]	0.25

Notes:

1. *"B" distance calculated by the sum of all crossings over I-405 for NE 12th Street, NE 10th Street, NE 8th Street, NE 4th Street, and Main Street.*
2. *"C" distance calculated by the sum of existing crossings (B) plus BCC crossing.*
3. *"D & E" bicycle and vehicle mode share values are from* ***Table 12*** of this report.
4. *"E & F" bicycle and vehicle average one-way trip length is calculated from PSRC Household Travel Survey Trips.*[30]
5. *"H" value is calculated from the Handbook for Analyzing Greenhouse Gas Emission Reductions.*

Source: Fehr & Peers, 2024.

[29] California Air Pollution Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.* (p. 147). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (caleemod.com)

[30] PSRC. (2024). *Household Travel Survey Trips.* *Household Travel Survey Trips | Household Travel Survey Trips | Household Travel Survey (arcgis.com)*

Using the values listed in **Table 24** for each variable in the formula yields the following VMT reduction percentage result:

$$A = -1 \times \frac{\left(\frac{3 - 2.5}{2.5}\right) \times 1\% \times 3.75 \times 0.25}{25\% \times 5.7}$$

A = -0.13%

The formula does not consider factors such as level of traffic stress for existing crossings, the level of traffic stress for the GCC, or other city initiatives and ordinances, such as the Commute Trip Reduction Implementation Plan.[31] Providing the only non-motorized, LTS 1 facility in downtown could have an impact on VMT reduction. Workers could choose to walk and/or bike to work, use the crossing to run errands during lunch, or meet with clients in other areas of town. Employers could offer commuter benefits to promote use of alternative modes other than single occupancy vehicles, as suggested by the Commute Trip Reduction Implementation Plan.

Residents could use the crossing on weekdays and weekends, especially when special events are taking place on the proposed freeway lid. Therefore, the 0.13% VMT reduction is indicative of providing the crossing and assuming mode share wouldn't change. It can be reasonably assumed that the other factors listed would have a higher impact on reducing VMT in the future.

[31] City of Bellevue. (2015). *Commute Trip Reduction Implementation Plan Update: 2015-2019.* *CTR Update 2015-2019.pdf (bellevuewa.gov)*

5.0 CONCLUSIONS

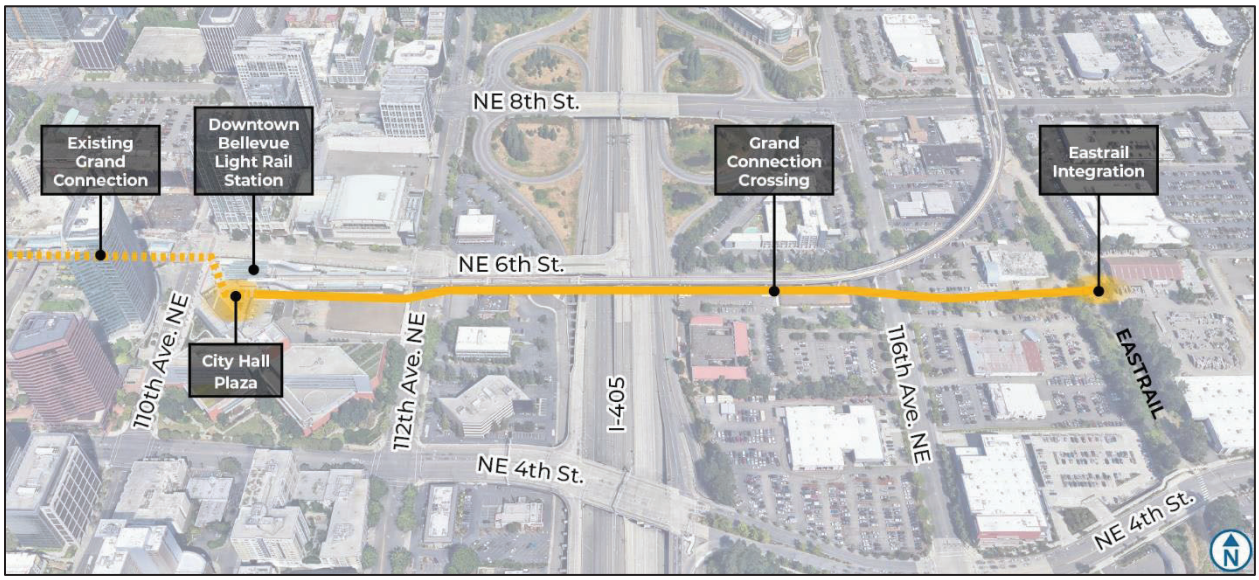


Figure 30: Bellevue Grand Connection Crossing[32]

The City of Bellevue[33] has provided four main reasons for the need of the GCC:

- **Improved access to downtown Bellevue:**

This crossing would connect users of the Eastrail regional trail and new regional light rail stations with safe, high-quality multimodal connections from downtown Bellevue to Wilburton and out to east Bellevue neighborhoods.

- **Improved safety for pedestrians and bicyclists:**

Bellevue has no crossings of I-405 exclusively for people walking, biking, and rolling. Existing crossings of I-405 connecting downtown and Wilburton are designed for moving cars, sometimes without continuous protected paths for people walking or using a wheelchair and or designated bicycle lanes.

- **New opportunities for community gathering, recreation, and retail:**

Wilburton and the eastern end of downtown Bellevue currently lack high-quality community gathering spaces, such as plazas, independent retailers, and open space. Together with planning for redevelopment of city-owned property and private redevelopment in Wilburton, the GCC offers an opportunity to add substantial new high-quality public space.

[32] WSP. (2024) Bellevue Grand Connection Crossing Figure.
[33] City of Bellevue. (2024). *Bellevue Grand Connection: I-405 Crossing – Downtown to Eastrail.* *Bellevue Grand Connection: I-405 Crossing – Downtown to Eastrail | City of Bellevue (bellevuewa.gov)*

- **Coordination with local land use and transportation plans:**

The City of Bellevue has identified a need for an active transportation crossing of I-405 to seamlessly connect downtown Bellevue with the Wilburton Transit Oriented Development (TOD) area in The Grand Connection Framework Plan and the Bellevue Connector Feasibility Study Report.

5.1 Summary Results

The City of Bellevue has the opportunity to provide a high quality, safe, and connected crossing over I-405 through the GCC Project. As noted below, the City of Bellevue's MMLOS Metrics, Standards, and Guidelines can be met easily with thoughtful and focused detail on all design elements from the structure itself to the mixing zones on either side. Using a 2.1 – 5% annual growth rate for the Downtown and Wilburton neighborhoods, the estimated future year (2044) pedestrian and bicycle volumes will range between 425 to 1,235 trips during the PM Peak Hour for the GCC. See **Table 25**.

Table 25: Estimated Pedestrian & Bicycle Volumes for the Grand Connection Crossing

Year	Scenario	Pedestrian Volume Low	Pedestrian Volume High	Bicycle Volume Low	Bicycle Volume High	Total Volume Low	Total Volume High
2024	Current Year	125	310	25	65	150	375
2044	Future Year with Lid - *LUV-it* Growth[1]	350	410	75	85	425	495
2044	Future Year with Lid - High Growth[2]	500	1,030	95	205	595	1,235

Notes:

1. *The Total Volume Low and High is equivalent to application of 2.1 – 2.8% compounding growth rate applied for a time span of 20 years.*
2. *The Total Volume Low and High is equivalent to application of 3 – 5% compounding growth rate applied for a time span of 20 year.*
3. *This calculation assumes a ratio of 5:1 for pedestrian-to-bicycle trips based on travel behavior in the region.*

5.1.1 2044 Vehicle Level of Service

The study intersection of NE 6th Street and 110th Street NE is currently operating at a LOS B in both the AM and PM Peak Hours, based on counts collected on July 16, 2024. The intersection is expected to experience a slight increase in delay in 2044 with a LOS B in the AM Peak Hour and LOS C in the PM Peak Hour. The City of Bellevue MMLOS policy has a minimum of E+ for the study intersection, therefore, it will meet the City standard in the future year. It is recommended that the design team analyze the signal phasing and timings of the intersection based on the estimated pedestrian and bicycle volumes that will utilize the intersection crosswalks. Phase 9, or the pedestrian scramble, is the last phase of each cycle with a total time of 44 seconds. There may be a need to increase this phase to accommodate the high volume of pedestrians in the future year.

5.1.2 2044 Pedestrian Level of Service

The study intersection is considered an "exceptional intersection" as defined by the City of Bellevue. The City has minimum thresholds for this type of intersection as shown in **Table 18**. Existing conditions of the study intersection mostly meet the requirement with the exception of weather protection at corners, curb bump outs or tighter radii, and landmark freestanding wayfinding. Given the proximity of the Bellevue Transit Center, it may not be possible to tighten radii, as the intersection experiences heavy bus traffic.

That said, it is recommended that the focus shift towards design improvements to the western mixing zone of the project, located between the Sound Transit Bellevue Downtown Station/City Hall Plaza and the Bellevue Transit Center. With estimated pedestrian and bicycle volumes of 4,000 during the PM Peak Hour in 2044, the western mixing zone will be heavily used, with the Sound Transit Bellevue Downtown Station being the main trip generator. A key design element for the GCC Project would be to provide separation and wayfinding signage to help pedestrians navigate this space and minimize potential conflicts. See Section 5.3.1 Mixing Zones for additional recommendations.

5.1.3 2044 Bicycle Level of Service

The City of Bellevue has minimum thresholds for both intersection and corridor treatments for bicycle facilities within the City. The 2044 estimated bicycle volumes range between 75 to 205 for the GCC Project, with the potential for higher volumes in the mixing zones. City MMLOS standards require new facilities to have a LTS of 1 or 2. As shown in section 4.1.1.2, none of the current crossings over I-405 in Downtown have this LTS rating. Therefore, it is recommended that focus shift towards providing design elements that can achieve this rating. Design elements that should be considered, but not limited to, are protected intersections, separation between bicycles and pedestrians, wayfinding signage, bike lean rails for all bike lane approaches, etc. Similar to the

pedestrian recommendations, thoughtful design should be a priority for the mixing zones on either side of the GCC. It is anticipated that a large amount of interaction between pedestrians, bicycles, and other active transportation modes will take place in these areas, so safety must be a priority.

5.2 Final Recommendations

The GCC is estimated to carry between 425 to 1,235 pedestrians and bicycles in 2044. As demonstrated in prior sections of this report, the City of Bellevue's MMLOS Metrics, Standards, and Guidelines are easily met for both the study intersection and the new GCC crossing. Considering the *LUV-it* growth rate, volumes are estimated to be 425 – 495 for the GCC. For these volumes, the minimum cross-section width is 15 ft. However, the mixing zones on either side of the project and on the main line segment will experience high demand and interactions between pedestrians and bicycles. The freeway lid, programmed to promote large gatherings and special events, will exacerbate the interactions between the modes even more. Therefore, it is recommended that a minimum cross-section wide of 20 ft. or more is considered for the GCC. Furthermore, it is recommended that the width be split between a shared-use path for leisure trips by pedestrians and bicycles and dedicated two-way bicycle track for commuter bicycle trips. For safety purposes, and to minimize interactions between the two, a physical separation should be considered, such as low-profile curbing or other concrete elements. Emphasis shall shift towards thoughtful and effective design treatments to ensure these standards are met. **Figure 31** shows the nearby Redmond Technology Station bridge crossing over I-405 is a good example of recommendations from this report above.

Figure 31: Redmond Technology Station Bridge Crossing Over I-405[34]

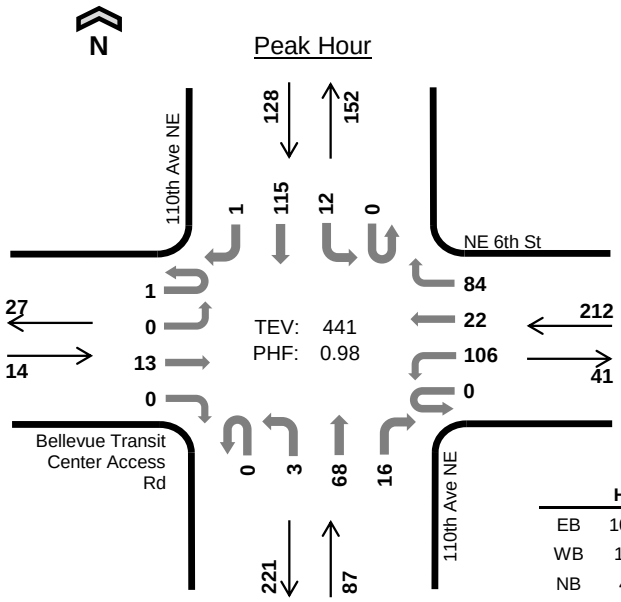
[34] Fehr & Peers (2024) *Redmond Technology Station Bridge – Pedestrians & Bicycles Utilizing the Crossing*

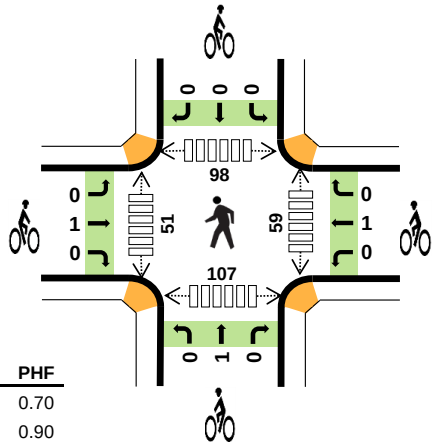
APPENDIX A

EXISTING TRAFFIC VOLUMES DATA

110th Ave NE
NE 6th St

Date: 07/16/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	100.0%	0.70
WB	10.8%	0.90
NB	4.6%	0.81
SB	7.0%	0.91
TOTAL	11.3%	0.98

Two-Hour Count Summaries

Interval Start		Bellevue Transit Center Access Rd				NE 6th St				110th Ave NE				110th Ave NE				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	3	0	0	12	5	9	0	1	12	0	0	1	19	1	63	0
7:15 AM		0	0	5	0	0	18	4	8	0	1	12	2	0	0	14	0	64	0
7:30 AM		0	0	5	0	0	22	7	11	0	2	13	2	0	2	18	0	82	0
7:45 AM		1	0	2	1	0	25	4	15	0	2	24	7	0	1	27	0	109	318
8:00 AM		**1**	**0**	**4**	**0**	**0**	**32**	**4**	**23**	**0**	**1**	**13**	**4**	**0**	**2**	**25**	**0**	**109**	364
8:15 AM		**0**	**0**	**3**	**0**	**0**	**23**	**10**	**15**	**0**	**1**	**19**	**2**	**0**	**3**	**31**	**1**	**108**	408
8:30 AM		**0**	**0**	**3**	**0**	**0**	**36**	**4**	**18**	**0**	**1**	**18**	**1**	**0**	**2**	**29**	**0**	**112**	438
8:45 AM		**0**	**0**	**3**	**0**	**0**	**15**	**4**	**28**	**0**	**0**	**18**	**9**	**0**	**5**	**30**	**0**	**112**	**441**
Count Total		2	0	28	1	0	183	42	127	0	9	129	27	0	16	193	2	759	0
Peak Hour	**All**	**1**	**0**	**13**	**0**	**0**	**106**	**22**	**84**	**0**	**3**	**68**	**16**	**0**	**12**	**115**	**1**	**441**	**0**
	HV	**1**	**0**	**13**	**0**	**0**	**0**	**22**	**1**	**0**	**2**	**2**	**0**	**0**	**0**	**8**	**1**	**50**	**0**
	HV%	**100%**	**-**	**100%**	**-**	**-**	**0%**	**100%**	**1%**	**-**	**67%**	**3%**	**0%**	**-**	**0%**	**7%**	**100%**	**11%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	5	1	2	*11*	0	0	0	0	*0*	6	12	16	15	*49*
7:15 AM	4	4	2	2	*12*	0	0	0	0	*0*	17	12	11	24	*64*
7:30 AM	5	7	3	0	*15*	0	0	0	2	*2*	21	9	19	27	*76*
7:45 AM	2	4	2	1	*9*	0	0	0	0	*0*	12	13	26	36	*87*
8:00 AM	**5**	**4**	**1**	**4**	***14***	**0**	**1**	**1**	**0**	***2***	**10**	**10**	**18**	**23**	*61*
8:15 AM	**3**	**10**	**1**	**3**	***17***	**0**	**0**	**0**	**0**	***0***	**15**	**11**	**23**	**25**	*74*
8:30 AM	**3**	**4**	**1**	**1**	***9***	**0**	**0**	**0**	**0**	***0***	**22**	**12**	**23**	**30**	*87*
8:45 AM	**3**	**5**	**1**	**1**	***10***	**1**	**0**	**0**	**0**	***1***	**12**	**18**	**34**	**29**	***93***
Count Total	28	43	12	14	*97*	1	1	1	2	*5*	115	97	170	209	*591*
Peak Hour	**14**	**23**	**4**	**9**	***50***	**1**	**1**	**1**	**0**	***3***	**59**	**51**	**98**	**107**	***315***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Bellevue Transit Center Access Rd				NE 6th St				110th Ave NE				110th Ave NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	3	0	0	0	5	0	0	1	0	0	0	0	1	1	11	0
7:15 AM	0	0	4	0	0	0	4	0	0	1	1	0	0	0	2	0	12	0
7:30 AM	0	0	5	0	0	0	7	0	0	2	1	0	0	0	0	0	15	0
7:45 AM	0	0	2	0	0	0	4	0	0	1	0	1	0	0	1	0	9	47
8:00 AM	**1**	**0**	**4**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**14**	50
8:15 AM	**0**	**0**	**3**	**0**	**0**	**0**	**10**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**1**	**17**	55
8:30 AM	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**9**	49
8:45 AM	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**10**	**50**
Count Total	1	0	27	0	0	0	42	1	0	7	4	1	0	0	12	2	97	0
Peak Hour	**1**	**0**	**13**	**0**	**0**	**0**	**22**	**1**	**0**	**2**	**2**	**0**	**0**	**0**	**8**	**1**	**50**	**0**

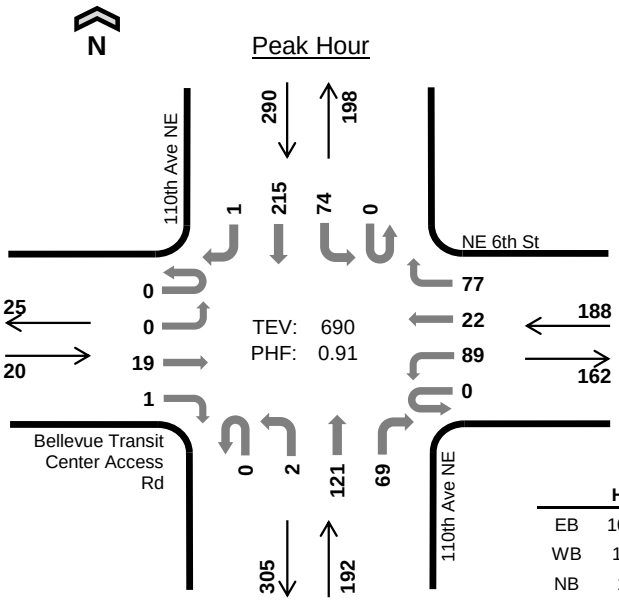
Two-Hour Count Summaries - Bikes

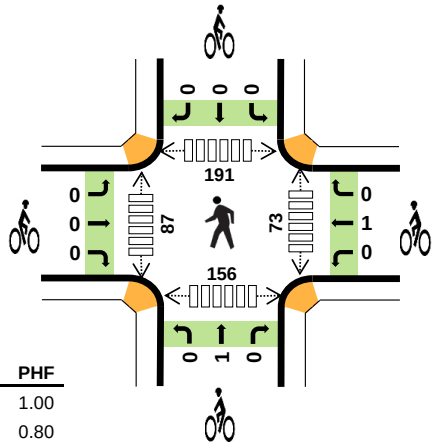
Interval Start	Bellevue Transit Center Access Rd			NE 6th St			110th Ave NE			110th Ave NE			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	4
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	4
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
8:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**
Count Total	0	1	0	0	1	0	0	1	0	0	2	0	5	0
Peak Hour	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

110th Ave NE
NE 6th St

Date: 07/16/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	100.0%	1.00
WB	12.8%	0.80
NB	1.0%	0.84
SB	0.3%	0.92
TOTAL	6.8%	0.91

Two-Hour Count Summaries

Interval Start		Bellevue Transit Center Access Rd Eastbound				NE 6th St Westbound				110th Ave NE Northbound				110th Ave NE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	1	7	0	0	13	4	12	0	0	29	11	0	13	44	1	135	0
4:15 PM		0	0	4	1	0	25	3	13	0	0	22	14	0	14	52	0	148	0
4:30 PM		0	1	6	0	0	19	6	29	0	1	24	12	0	13	54	0	165	0
4:45 PM		**0**	**0**	**4**	**1**	**0**	**25**	**5**	**13**	**0**	**0**	**23**	**19**	**0**	**14**	**55**	**0**	**159**	607
5:00 PM		**0**	**0**	**5**	**0**	**0**	**27**	**5**	**27**	**0**	**1**	**27**	**18**	**0**	**28**	**50**	**1**	**189**	661
5:15 PM		**0**	**0**	**5**	**0**	**0**	**8**	**6**	**20**	**0**	**0**	**35**	**12**	**0**	**17**	**57**	**0**	**160**	673
5:30 PM		**0**	**0**	**5**	**0**	**0**	**29**	**6**	**17**	**0**	**1**	**36**	**20**	**0**	**15**	**53**	**0**	**182**	**690**
5:45 PM		0	0	5	0	0	21	3	18	0	0	31	10	0	10	55	0	153	684
Count Total		0	2	41	2	0	167	38	149	0	3	227	116	0	124	420	2	1,291	0
Peak Hour	**All**	**0**	**0**	**19**	**1**	**0**	**89**	**22**	**77**	**0**	**2**	**121**	**69**	**0**	**74**	**215**	**1**	**690**	**0**
	HV	**0**	**0**	**19**	**1**	**0**	**1**	**22**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**47**	**0**
	HV%	**-**	**-**	**100%**	**100%**	**-**	**1%**	**100%**	**1%**	**-**	**100%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	7	5	0	2	*14*	0	0	1	0	*1*	7	8	36	34	*85*
4:15 PM	5	6	0	1	*12*	0	0	0	0	*0*	15	6	29	30	*80*
4:30 PM	6	7	2	2	*17*	1	1	0	0	*2*	12	9	27	36	*84*
4:45 PM	**5**	**5**	**0**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**16**	**17**	**42**	**28**	*103*
5:00 PM	**5**	**7**	**1**	**0**	***13***	**0**	**0**	**1**	**0**	***1***	**9**	**10**	**38**	**35**	*92*
5:15 PM	**5**	**6**	**0**	**1**	***12***	**0**	**1**	**0**	**0**	***1***	**21**	**33**	**53**	**42**	*149*
5:30 PM	**5**	**6**	**1**	**0**	***12***	**0**	**0**	**0**	**0**	***0***	**27**	**27**	**58**	**51**	***163***
5:45 PM	5	3	0	1	*9*	0	0	0	0	*0*	18	11	32	37	*98*
Count Total	43	45	4	7	*99*	1	2	2	0	*5*	125	121	315	293	*854*
Peak Hour	**20**	**24**	**2**	**1**	***47***	**0**	**1**	**1**	**0**	***2***	**73**	**87**	**191**	**156**	***507***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Bellevue Transit Center Access Rd				NE 6th St				110th Ave NE				110th Ave NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	7	0	0	1	4	0	0	0	0	0	0	0	1	1	14	0
4:15 PM	0	0	4	1	0	1	3	2	0	0	0	0	0	0	1	0	12	0
4:30 PM	0	0	6	0	0	1	6	0	0	1	1	0	0	0	2	0	17	0
4:45 PM	**0**	**0**	**4**	**1**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	53
5:00 PM	**0**	**0**	**5**	**0**	**0**	**1**	**5**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	52
5:15 PM	**0**	**0**	**5**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**12**	52
5:30 PM	**0**	**0**	**5**	**0**	**0**	**0**	**6**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**47**
5:45 PM	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	9	46
Count Total	0	0	41	2	0	4	38	3	0	3	1	0	0	0	6	1	99	0
Peak Hour	**0**	**0**	**19**	**1**	**0**	**1**	**22**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**47**	**0**

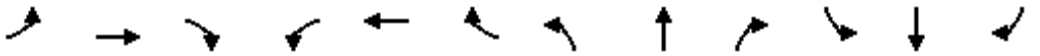
Two-Hour Count Summaries - Bikes

Interval Start	Bellevue Transit Center Access Rd			NE 6th St			110th Ave NE			110th Ave NE			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	2	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	3
5:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	4
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	1	0	0	0	2	0	0	2	0	0	0	0	5	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

APPENDIX B

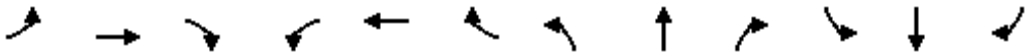
EXISTING CONDITIONS (2024) VEHICLE LEVEL OF SERVICE SYNCHO OUTPUTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	13	0	106	22	84	3	68	16	12	115	1
Future Volume (vph)	0	13	0	106	22	84	3	68	16	12	115	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			0%			0%	
Total Lost time (s)		2.5		2.0	2.0	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Frt		1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		855		1449	1525	1296	1547	1629	1384	1518	3033	
Flt Permitted		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.70	1.00	
Satd. Flow (perm)		855		1449	1525	1296	1547	1629	1384	1123	3033	
Peak-hour factor, PHF	0.70	0.70	0.70	0.90	0.90	0.90	0.81	0.81	0.81	0.91	0.91	0.91
Adj. Flow (vph)	0	19	0	118	24	93	4	84	20	13	126	1
RTOR Reduction (vph)	0	0	0	0	0	67	0	0	13	0	1	0
Lane Group Flow (vph)	0	19	0	118	24	26	4	84	7	13	126	0
Heavy Vehicles (%)	100%	100%	100%	11%	11%	11%	5%	5%	5%	7%	7%	7%
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	D.P+P	NA	
Protected Phases		3		4	4	5	1	6		5	2	
Permitted Phases	3					4			6	6		
Actuated Green, G (s)		0.9		9.4	9.4	12.5	0.6	18.1	18.1	21.2	20.6	
Effective Green, g (s)		2.9		11.4	11.4	16.5	2.6	20.1	20.1	25.2	22.6	
Actuated g/C Ratio		0.05		0.20	0.20	0.28	0.04	0.34	0.34	0.43	0.39	
Clearance Time (s)		4.5		4.0	4.0	5.5	5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)		42		282	297	366	68	560	476	519	1173	
v/s Ratio Prot		c0.02		c0.08	0.02	c0.01	0.00	c0.05		0.00	0.04	
v/s Ratio Perm						0.01			0.00	0.01		
v/c Ratio		0.45		0.42	0.08	0.07	0.06	0.15	0.01	0.03	0.11	
Uniform Delay, d1		27.0		20.6	19.2	15.3	26.7	13.2	12.6	9.5	11.5	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.8		0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	
Delay (s)		29.8		21.0	19.3	15.4	26.9	13.3	12.6	9.5	11.5	
Level of Service		C		C	B	B	C	B	B	A	B	
Approach Delay (s)		29.8			18.6			13.7			11.3	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	15.5
Intersection Capacity Utilization	27.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	19	1	89	22	77	2	121	69	74	215	1
Future Volume (vph)	0	19	1	89	22	77	2	121	69	74	215	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			0%			0%	
Total Lost time (s)		2.5		2.0	2.0	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Frt		0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		849		1423	1498	1273	1608	1693	1439	1624	3247	
Flt Permitted		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.67	1.00	
Satd. Flow (perm)		849		1423	1498	1273	1608	1693	1439	1138	3247	
Peak-hour factor, PHF	1.00	1.00	1.00	0.80	0.80	0.80	0.84	0.84	0.84	0.92	0.92	0.92
Adj. Flow (vph)	0	19	1	111	28	96	2	144	82	80	234	1
RTOR Reduction (vph)	0	1	0	0	0	68	0	0	52	0	0	0
Lane Group Flow (vph)	0	19	0	111	28	28	2	144	30	80	235	0
Heavy Vehicles (%)	100%	100%	100%	13%	13%	13%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	D.P+P	NA	
Protected Phases		3		4	4	5	1	6		5	2	
Permitted Phases	3					4			6	6		
Actuated Green, G (s)		1.0		9.2	9.2	14.3	0.6	20.8	20.8	25.9	25.3	
Effective Green, g (s)		3.0		11.2	11.2	18.3	2.6	22.8	22.8	29.9	27.3	
Actuated g/C Ratio		0.05		0.18	0.18	0.29	0.04	0.36	0.36	0.47	0.43	
Clearance Time (s)		4.5		4.0	4.0	5.5	5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)		40		252	266	369	66	612	520	594	1407	
v/s Ratio Prot		c0.02		c0.08	0.02	0.01	0.00	c0.09		c0.02	0.07	
v/s Ratio Perm						0.01			0.02	0.05		
v/c Ratio		0.48		0.44	0.11	0.08	0.03	0.24	0.06	0.13	0.17	
Uniform Delay, d1		29.2		23.1	21.7	16.2	29.0	14.0	13.1	9.1	10.9	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.2		0.4	0.1	0.0	0.1	0.1	0.0	0.0	0.0	
Delay (s)		32.5		23.6	21.8	16.2	29.1	14.1	13.1	9.2	10.9	
Level of Service		C		C	C	B	C	B	B	A	B	
Approach Delay (s)		32.5			20.4			13.9			10.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	63.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX C

PSRC *LUV-IT* TRAVEL DEMAND MODEL TAZS AND ANNUAL GROWTH RATES

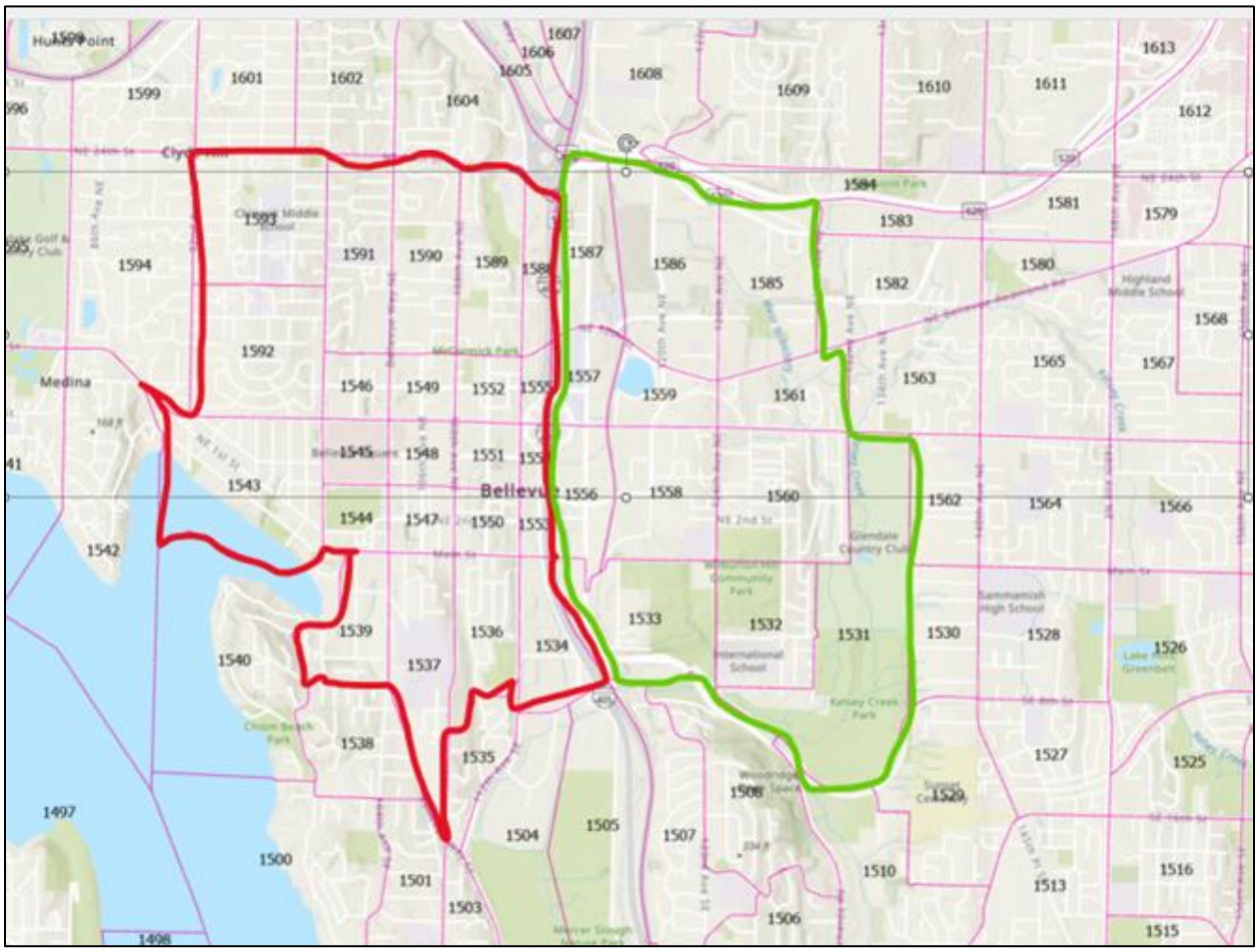


Figure C-01: Downtown & Wilburton Neighborhood Traffic Impact Zones for Analysis

Downtown Traffic Analysis Zones

Wilburton Traffic Analysis Zones

Table C-1: 2018 Traffic Analysis Zones for Downtown & Wilburton Neighborhoods for Households & Employment

Area	TAZ	sf_hh	mf_hh	tot_hh	empedu_p	empfoo_p	empgov_p	empind_p	empmed_p	empofc_p	empoth_p	empret_p	emprsc_p	empsvc_p	tot_emp
Downtown	1534	0	0	**0**	7	6	0	86	24	293	24	24	0	491	**955**
Downtown	1536	226	10	**236**	1	0	0	48	6	129	16	7	0	70	**277**
Downtown	1537	153	859	**1012**	253	96	35	402	40	496	71	582	0	422	**2397**
Downtown	1539	79	996	**1075**	62	328	0	522	28	209	95	732	0	91	**2067**
Downtown	1543	283	381	**664**	25	3	10	15	18	145	12	10	0	141	**379**
Downtown	1544	0	804	**804**	155	790	0	910	63	317	152	1797	0	239	**4423**
Downtown	1545	0	0	**0**	52	210	0	308	17	64	54	502	0	62	**1269**
Downtown	1546	1	658	**659**	146	379	0	86	59	800	4	81	0	366	**1921**
Downtown	1547	0	805	**805**	25	1211	0	403	78	6100	23	316	0	788	**8944**
Downtown	1548	0	537	**537**	19	876	31	330	51	5153	22	241	0	541	**7264**
Downtown	1549	0	1041	**1041**	187	396	0	31	55	1301	4	121	0	498	**2593**
Downtown	1550	0	1130	**1130**	44	391	110	212	160	4458	415	206	0	166	**6162**
Downtown	1551	0	220	**220**	27	124	518	149	128	3143	235	134	0	64	**4522**
Downtown	1552	0	2181	**2181**	30	118	69	228	221	1781	65	13	0	315	**2840**
Downtown	1553	0	0	**0**	12	158	0	65	66	1529	123	59	0	78	**2090**
Downtown	1554	0	0	**0**	13	58	0	58	37	1197	75	50	0	31	**1519**
Downtown	1555	0	0	**0**	1	1	0	76	36	726	10	1	0	25	**876**
Downtown	1588	0	0	**0**	86	28	0	214	277	824	49	107	0	24	**1609**
Downtown	1589	216	0	**216**	126	21	67	76	134	333	16	54	0	25	**852**
Downtown	1590	218	238	**456**	2	2	49	1	5	8	2	1	0	0	**70**
Downtown	1591	210	564	**774**	18	9	4	1	6	19	7	2	0	21	**87**
Downtown	1592	354	2	**356**	105	1	27	4	9	16	7	1	0	13	**183**
Downtown	1593	210	7	**217**	193	8	12	11	8	45	23	4	0	30	**334**
Wilburton	1531	16	2	**18**	0	0	16	2	0	0	0	0	0	149	**167**
Wilburton	1532	140	0	**140**	58	2	0	2	3	24	8	6	0	6	**109**
Wilburton	1533	1	91	**92**	269	12	1080	133	78	1043	97	393	0	63	**3168**
Wilburton	1556	0	504	**504**	0	65	0	53	56	465	71	447	0	128	**1285**
Wilburton	1557	0	0	**0**	33	23	130	48	880	670	49	138	0	64	**2035**
Wilburton	1558	24	115	**139**	0	48	0	269	97	1134	138	571	0	97	**2354**
Wilburton	1559	0	223	**223**	17	58	22	104	566	500	65	201	0	145	**1678**
Wilburton	1560	310	77	**387**	0	2	0	17	42	30	9	1	0	9	**110**
Wilburton	1561	48	298	**346**	0	7	0	111	236	406	18	24	0	48	**850**
Wilburton	1585	0	9	**9**	110	124	0	533	117	576	317	791	0	297	**2865**
Wilburton	1586	0	205	**205**	63	48	0	149	285	300	131	273	0	120	**1369**
Wilburton	1587	10	6	**16**	81	32	2	169	2281	2161	148	372	0	116	**5362**

Source: City of Bellevue. (2024) 2018 LUV-it Inputs for Bellevue.

Table C-3: TAZs for 2044

Area	TAZ	tot_hh	tot_emp
Downtown	1534	436	1199
Downtown	1536	260	244
Downtown	1537	1668	2719
Downtown	1539	1612	1939
Downtown	1543	903	374
Downtown	1544	1779	2830
Downtown	1545	1010	3436
Downtown	1546	4468	3645
Downtown	1547	2931	19421
Downtown	1548	4015	21354
Downtown	1549	3083	13041
Downtown	1550	3231	9068
Downtown	1551	2848	12094
Downtown	1552	3547	5149
Downtown	1553	263	1325
Downtown	1554	203	2000
Downtown	1555	0	287
Downtown	1588	72	755
Downtown	1589	263	737
Downtown	1590	502	152
Downtown	1591	833	134
Downtown	1592	372	310
Downtown	1593	246	512
Wilburton	1531	65	182
Wilburton	1532	186	229
Wilburton	1533	384	3721
Wilburton	1556	508	2400
Wilburton	1557	182	5814
Wilburton	1558	390	2776
Wilburton	1559	235	2560
Wilburton	1560	431	210
Wilburton	1561	440	800
Wilburton	1585	1023	5169
Wilburton	1586	978	7478
Wilburton	1587	22	4792

Table C-4: Summary by Household & Employment

Area Neighborhood	Total hh	Total jobs
Downtown	34545	102725
Wilburton	4844	36131

Source: City of Bellevue. (2024) 2044 LUV-it Inputs for Bellevue.

Table C-2: 2050 Traffic Analysis Zones for Downtown & Wilburton Neighborhoods for Households & Employment

Area	TAZ	sf_hh	mf_hh	tot_hh	empedu_p	empfoo_p	empgov_p	empind_p	empmed_p	empofc_p	empoth_p	empret_p	emprsc_p	empsvc_p	tot_emp
Downtown	1534	0	30	**30**	40	71	0	164	75	676	84	442	0	542	**2094**
Downtown	1536	243	227	**470**	2	0	0	32	7	108	15	5	0	66	**235**
Downtown	1537	175	1277	**1452**	253	137	23	336	141	911	65	631	0	447	**2944**
Downtown	1539	140	1399	**1539**	51	383	0	416	61	323	85	841	0	123	**2283**
Downtown	1543	371	565	**936**	31	2	1	13	17	183	10	8	0	105	**370**
Downtown	1544	0	1930	**1930**	88	577	0	589	70	318	89	2069	0	176	**3976**
Downtown	1545	0	1262	**1262**	103	403	0	361	174	293	77	908	0	182	**2501**
Downtown	1546	1	2586	**2587**	124	577	0	171	249	1475	62	214	0	453	**3325**
Downtown	1547	0	3953	**3953**	37	1210	0	351	194	8080	28	430	0	732	**11062**
Downtown	1548	0	4744	**4744**	190	1551	41	687	695	11389	255	706	0	971	**16485**
Downtown	1549	0	3297	**3297**	248	886	0	230	397	4233	66	414	0	897	**7371**
Downtown	1550	0	2750	**2750**	93	839	169	308	372	8031	469	638	0	434	**11353**
Downtown	1551	0	1979	**1979**	115	373	889	312	432	7222	407	412	0	257	**10419**
Downtown	1552	0	4364	**4364**	44	276	100	269	292	2786	71	71	0	488	**4397**
Downtown	1553	0	48	**48**	35	222	0	113	207	3061	177	265	0	186	**4266**
Downtown	1554	0	155	**155**	26	78	0	86	86	1664	85	95	0	67	**2187**
Downtown	1555	0	0	**0**	20	30	0	110	134	1372	31	72	0	87	**1856**
Downtown	1588	3	37	**40**	76	31	0	105	187	959	29	153	0	32	**1572**
Downtown	1589	254	151	**405**	87	23	38	31	119	410	10	50	0	23	**791**
Downtown	1590	271	361	**632**	1	13	29	1	4	7	1	2	0	0	**58**
Downtown	1591	254	747	**1001**	26	9	0	1	5	21	10	1	0	16	**89**
Downtown	1592	453	2	**455**	117	1	39	5	11	17	7	2	0	11	**210**
Downtown	1593	251	5	**256**	238	7	14	10	7	41	18	3	0	30	**368**
Wilburton	1531	18	8	**26**	0	0	4	1	0	0	0	0	0	130	**135**
Wilburton	1532	173	67	**240**	138	2	0	2	3	23	8	7	0	5	**188**
Wilburton	1533	29	299	**328**	208	73	1024	138	98	1344	120	535	0	171	**3711**
Wilburton	1556	0	509	**509**	18	175	0	166	193	846	122	929	0	235	**2684**
Wilburton	1557	0	162	**162**	87	88	217	88	909	1314	78	291	0	138	**3210**
Wilburton	1558	145	335	**480**	28	141	0	179	107	1217	108	643	0	134	**2557**
Wilburton	1559	7	222	**229**	91	414	24	206	710	1932	107	511	0	312	**4307**
Wilburton	1560	372	76	**448**	0	8	0	15	31	30	8	1	0	12	**105**
Wilburton	1561	96	359	**455**	15	38	0	99	225	547	22	31	0	70	**1047**
Wilburton	1585	0	369	**369**	415	333	0	336	354	1404	269	1373	0	362	**4846**
Wilburton	1586	0	3324	**3324**	256	1518	0	594	1275	3491	409	1530	0	1030	**10103**
Wilburton	1587	7	6	**13**	247	140	4	197	2112	4158	158	1054	0	272	**8342**

Source: City of Bellevue. (2024) 2050 LUV-it Inputs for Bellevue.

Table C-5: Downtown & Wilburton Neighborhood Households and Employment Summary - 2018

Area	sf_hh	mf_hh	empedu_p	empfoo_p	empgov_p	empind_p	empmed_p	empofc_p	empoth_p	empret_p	emprsc_p	empsvc_p
Downtown	1950	10433	1589	5214	932	4236	1526	29086	1504	5045	0	4501
Wilburton	549	1530	631	421	1250	1590	4641	7309	1051	3217	0	1242

Table C-6: Downtown & Wilburton Neighborhood Households and Employment Summary - 2044

Area	sf_hh	mf_hh	empedu_p	empfoo_p	empgov_p	empind_p	empmed_p	empofc_p	empoth_p	empret_p	emprsc_p	empsvc_p
Downtown	2434	32111	2329	8767	1529	5353	4482	61012	2449	9602	0	7202
Wilburton	623	4221	1317	2567	1115	1771	5272	14288	1235	6050	0	2516

Table C-7: Downtown Growth Rates by Land Use Through 2044

Land Use	ITE Code	Unit	Daily Trip Rate	Vehicle Trip Ends	Person Trip per Veh Trip	Person Trips	Growth
Single Family Home	210	Dwelling Unit	9.43	22956	1.45	33286	24.84%
Multi-Family Home (low-rise)	220	Dwelling Unit	6.74	32464	1.45	47073	207.78%
Multi-Family Home (mid-rise)	221	Dwelling Unit	4.54	51024	1.45	73985	207.78%
Multi-Family Home (high-rise)	222	Dwelling Unit	4.54	72891	1.45	105692	207.78%
Education (Elementary School)	520	Employees	22.5	0	1.25	0	0.00%
Education (Middle School)	522	Employees	23.41	0	1.25	0	0.00%
Education (High School)	525	High School	21.95	51114	1.25	63892	46.55%
Education (University)	550	Employees	8.89	0	1.25	0	0.00%
Food Service (Fast Casual Restaurant)	930	1000 SQFT GFA	97.14	85162	1.25	106452	68.14%
Food Service (Fine Dining Restaurant)	931	1000 SQFT GFA	83.84	73502	1.25	91877	68.14%
Food Service (Resaurant, high turnover, sit-down)	932	1000 SQFT GFA	104.53	128297	1.25	160371	68.14%
Food Service (Fast Food)	934	1000 SQFT GFA	389.26	204756	1.25	255945	68.14%
Government	730	Employees	7.45	11393	1.25	14241	64.09%
Industrial	110	Employees	3.1	16594	1.08	17922	26.37%
Medical	630	Employees	13.9	62299	1.25	77874	193.71%
Office	710	Employees	3.33	203170	1.25	253962	109.76%
Other/Construction	180	Employees	3.63	8891	1.25	11114	62.86%
Retail	820	Employees	17.42	167259	1.25	209074	90.32%
Service	945	Employees	241.21	1737271	1.25	2171589	60.02%
					Total Trip Ends 2044		**3694350**

Table C-9: Downtown Growth Rate Through 2044

Item	Total
Total Trip Ends (2044)	3694350
Growth Trip Ends (2018)	1540630
Trip Ends Growth Rate	41.70%
Annual Growth Rate	2.10%

Source: Fehr & Peers (2024)

Table C-8: Downtown Growth Rates by Land Use for 2018

Land Use	ITE Code	Unit	Daily Trip Rate	Vehicle Trip Ends	Person Trip per Veh Trip	Person Trips
Single Family Home	210	Dwelling Unit	9.43	18389	1.45	26663
Multi-Family Home (low-rise)	220	Dwelling Unit	6.74	10548	1.45	15294
Multi-Family Home (mid-rise)	221	Dwelling Unit	4.54	16578	1.45	24038
Multi-Family Home (high-rise)	222	Dwelling Unit	4.54	23683	1.45	34340
Education (Elementary School)	520	Employees	22.5	0	1.25	0
Education (Middle School)	522	Employees	23.41	0	1.25	0
Education (High School)	525	High School	21.95	34879	1.25	43598
Education (University)	550	Employees	8.89	0	1.25	0
Food Service (Fast Casual Restaurant)	930	1000 SQFT GFA	97.14	50649	1.25	63311
Food Service (Fine Dining Restaurant)	931	1000 SQFT GFA	83.84	43714	1.25	54643
Food Service (Resaurant, high turnover, sit-down)	932	1000 SQFT GFA	104.53	76303	1.25	95378
Food Service (Fast Food)	934	1000 SQFT GFA	389.26	121776	1.25	152220
Government	730	Employees	7.45	6943	1.25	8679
Industrial	110	Employees	3.1	13132	1.08	14182
Medical	630	Employees	13.9	21211	1.25	26514
Office	710	Employees	3.33	96856	1.25	121070
Other/Construction	180	Employees	3.63	5460	1.25	6824
Retail	820	Employees	17.42	87884	1.25	109855
Service	945	Employees	241.21	1085686	1.25	1357108
				Total Trip Ends 2018		**2153720**

Table C-10: Downtown & Wilburton Neighborhood Households and Employment Summary - 2018

Area	sf_hh	mf_hh	empedu_p	empfoo_p	empgov_p	empind_p	empmed_p	empofc_p	empoth_p	empret_p	emprsc_p	empsvc_p
Downtown	2434	32111	2329	8767	1529	5353	4482	61012	2449	9602	0	7202
Wilburton	623	4221	1317	2567	1115	1771	5272	14288	1235	6050	0	2516

Table C-11: Downtown & Wilburton Neighborhood Households and Employment Summary - 2044

Area	sf_hh	mf_hh	empedu_p	empfoo_p	empgov_p	empind_p	empmed_p	empofc_p	empoth_p	empret_p	emprsc_p	empsvc_p
Downtown	1950	10433	1589	5214	932	4236	1526	29086	1504	5045	0	4501
Wilburton	549	1530	631	421	1250	1590	4641	7309	1051	3217	0	1242

Table C-12: Wilburton Growth Rates by Land Use Through 2044

Land Use	ITE Code	Unit	Daily Trip Rate	Vehicle Trip Ends	Person Trip per Veh Trip	Person Trips	Growth
Single Family Home	210	Dwelling Unit	9.43	5877	1.45	8522	13.52%
Multi-Family Home (low-rise)	220	Dwelling Unit	6.74	9388	1.45	13612	127.59%
Multi-Family Home (mid-rise)	221	Dwelling Unit	4.54	6324	1.45	9169	127.59%
Multi-Family Home (high-rise)	222	Dwelling Unit	4.54	6324	1.45	9169	355.18%
Education (Elementary School)	520	Employees	22.5	14816	1.25	18520	0.00%
Education (Middle School)	522	Employees	23.41	0	1.25	0	0.00%
Education (High School)	525	High School	21.95	14454	1.25	18067	108.71%
Education (University)	550	Employees	8.89	0	1.25	0	0.00%
Food Service (Fast Casual Restaurant)	930	1000 SQFT GFA	97.14	24939	1.25	31174	509.82%
Food Service (Fine Dining Restaurant)	931	1000 SQFT GFA	83.84	21524	1.25	26906	509.82%
Food Service (Resaurant, high turnover, sit-down)	932	1000 SQFT GFA	104.53	37571	1.25	46964	509.82%
Food Service (Fast Food)	934	1000 SQFT GFA	389.26	59962	1.25	74952	509.82%
Government	730	Employees	7.45	8310	1.25	10387	-10.77%
Industrial	110	Employees	3.1	5490	1.08	5929	11.37%
Medical	630	Employees	13.9	73284	1.25	91605	13.60%
Office	710	Employees	3.33	47578	1.25	59472	95.48%
Other/Construction	180	Employees	3.63	4482	1.25	5602	17.47%
Retail	820	Employees	17.42	105396	1.25	131746	88.07%
Service	945	Employees	241.21	606796	1.25	758495	102.55%
					Total Trip Ends 2044		**1320290**

Table C-14: Wilburton Annual Growth Rate Through 2044

Item	Total
Total Trip Ends 2044	1320290
Growth Trip Ends	643900
Trip Ends Growth Rate	48.77%
Annual Growth Rate	2.80%

Table C-13: Wilburton Growth Rates by Land Use for 2018

Land Use	ITE Code	Unit	Daily Trip Rate	Vehicle Trip Ends	Person Trip per Veh Trip	Person Trips
Single Family Home	210	Dwelling Unit	9.43	5177	1.45	7507
Multi-Family Home (low-rise)	220	Dwelling Unit	6.74	4125	1.45	5981
Multi-Family Home (mid-rise)	221	Dwelling Unit	4.54	2778	1.45	4029
Multi-Family Home (high-rise)	222	Dwelling Unit	4.54	1389	1.45	2014
Education (Elementary School)	520	Employees	22.5	7099	1.25	8873
Education (Middle School)	522	Employees	23.41	0	1.25	0
Education (High School)	525	High School	21.95	6925	1.25	8657
Education (University)	550	Employees	8.89	0	1.25	0
Food Service (Fast Casual Restaurant)	930	1000 SQFT GFA	97.14	4090	1.25	5112
Food Service (Fine Dining Restaurant)	931	1000 SQFT GFA	83.84	3530	1.25	4412
Food Service (Resaurant, high turnover, sit-down)	932	1000 SQFT GFA	104.53	6161	1.25	7701
Food Service (Fast Food)	934	1000 SQFT GFA	389.26	9833	1.25	12291
Government	730	Employees	7.45	9313	1.25	11641
Industrial	110	Employees	3.1	4929	1.08	5323
Medical	630	Employees	13.9	64510	1.25	80637
Office	710	Employees	3.33	24339	1.25	30424
Other/Construction	180	Employees	3.63	3815	1.25	4769
Retail	820	Employees	17.42	56040	1.25	70050
Service	945	Employees	241.21	299583	1.25	374479
				Total Trip Ends 2018		**643900**

APPENDIX D

PROJECT CONDITIONS (2044) VEHICLE LEVEL OF SERVICE SYNCHRO OUTPUTS

Table D-1: 110th Ave & NE 6th St Synchro Results

	City of Bellevue Standard	AM Peak Hour	AM Peak Hour	AM Peak Hour	PM Peak Hour	PM Peak Hour	PM Peak Hour
Scenario	**LOS**	**LOS**	**v/c**	**Delay (s)**	**LOS**	**v/c**	**Delay (s)**
Existing Conditions - 2024	E+	B	0.21	16	B	0.26	15
3% Annual Growth - 2044	E+	B	0.37	19	B	0.48	18
5% Annual Growth - 2044	E+	C	0.53	27	C	0.67	35

Notes:

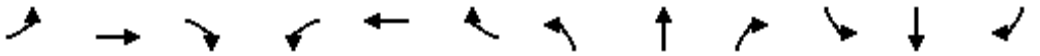
1. City of Bellevue volume over capacity ratio standard is 0.901 - 0.950 for the study intersection

Source: Fehr & Peers (2024)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	20	0	190	40	150	10	120	30	20	210	0
Future Volume (vph)	0	20	0	190	40	150	10	120	30	20	210	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			0%			0%	
Total Lost time (s)		2.5		2.0	2.0	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Frt		1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		855		1449	1525	1296	1547	1629	1384	1518	3036	
Flt Permitted		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.63	1.00	
Satd. Flow (perm)		855		1449	1525	1296	1547	1629	1384	1008	3036	
Peak-hour factor, PHF	0.70	0.70	0.70	0.90	0.90	0.90	0.81	0.81	0.81	0.91	0.91	0.91
Adj. Flow (vph)	0	29	0	211	44	167	12	148	37	22	231	0
RTOR Reduction (vph)	0	0	0	0	0	105	0	0	27	0	0	0
Lane Group Flow (vph)	0	29	0	211	44	62	12	148	10	22	231	0
Heavy Vehicles (%)	100%	100%	100%	11%	11%	11%	5%	5%	5%	7%	7%	7%
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	D.P+P	NA	
Protected Phases		3		4	4	5	1	6		5	2	
Permitted Phases	3					4			6	6		
Actuated Green, G (s)		2.5		15.1	15.1	21.1	0.7	16.4	16.4	22.4	21.7	
Effective Green, g (s)		4.5		17.1	17.1	25.1	2.7	18.4	18.4	26.4	23.7	
Actuated g/C Ratio		0.07		0.25	0.25	0.37	0.04	0.27	0.27	0.39	0.35	
Clearance Time (s)		4.5		4.0	4.0	5.5	5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)		57		367	386	482	61	444	377	455	1067	
v/s Ratio Prot		c0.03		c0.15	0.03	0.02	c0.01	c0.09		0.01	c0.08	
v/s Ratio Perm						0.03			0.01	0.01		
v/c Ratio		0.51		0.57	0.11	0.13	0.20	0.33	0.03	0.05	0.22	
Uniform Delay, d1		30.4		22.0	19.3	13.9	31.3	19.6	17.9	12.7	15.3	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.6		1.4	0.0	0.0	0.6	0.2	0.0	0.0	0.0	
Delay (s)		33.0		23.3	19.4	14.0	31.9	19.8	18.0	12.7	15.4	
Level of Service		C		C	B	B	C	B	B	B	B	
Approach Delay (s)		33.0			19.2			20.2			15.1	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	67.4	Sum of lost time (s)	15.5
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	30	0	160	40	140	0	220	120	130	390	0
Future Volume (vph)	0	30	0	160	40	140	0	220	120	130	390	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			0%			0%	
Total Lost time (s)		2.5		2.0	2.0	3.5		3.5	3.5	3.5	3.5	
Lane Util. Factor		1.00		1.00	1.00	1.00		1.00	1.00	1.00	0.95	
Frt		1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		855		1423	1498	1273		1693	1439	1624	3249	
Flt Permitted		1.00		0.95	1.00	1.00		1.00	1.00	0.42	1.00	
Satd. Flow (perm)		855		1423	1498	1273		1693	1439	712	3249	
Peak-hour factor, PHF	1.00	1.00	1.00	0.80	0.80	0.80	0.84	0.84	0.84	0.92	0.92	0.92
Adj. Flow (vph)	0	30	0	200	50	175	0	262	143	141	424	0
RTOR Reduction (vph)	0	0	0	0	0	106	0	0	107	0	0	0
Lane Group Flow (vph)	0	30	0	200	50	69	0	262	36	141	424	0
Heavy Vehicles (%)	100%	100%	100%	13%	13%	13%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	D.P+P	NA	
Protected Phases		3		4	4	5	1	6		5	2	
Permitted Phases	3					4			6	6		
Actuated Green, G (s)		2.7		16.1	16.1	23.6		15.6	15.6	23.1	28.6	
Effective Green, g (s)		4.7		18.1	18.1	27.6		17.6	17.6	27.1	30.6	
Actuated g/C Ratio		0.07		0.26	0.26	0.40		0.25	0.25	0.39	0.44	
Clearance Time (s)		4.5		4.0	4.0	5.5		5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)		57		370	390	505		428	364	402	1430	
v/s Ratio Prot		c0.04		c0.14	0.03	0.02		c0.15		c0.05	0.13	
v/s Ratio Perm						0.04			0.03	0.09		
v/c Ratio		0.53		0.54	0.13	0.14		0.61	0.10	0.35	0.30	
Uniform Delay, d1		31.3		22.1	19.7	13.4		22.9	19.9	14.4	12.5	
Progression Factor		1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.0		0.9	0.1	0.0		1.8	0.0	0.2	0.0	
Delay (s)		35.3		23.0	19.7	13.4		24.8	19.9	14.6	12.6	
Level of Service		D		C	B	B		C	B	B	B	
Approach Delay (s)		35.3			18.7			23.1			13.1	
Approach LOS		D			B			C			B	

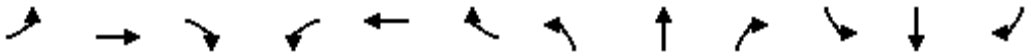
Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	15.5
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	30	0	280	60	220	10	180	40	30	310	0
Future Volume (vph)	0	30	0	280	60	220	10	180	40	30	310	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			0%			0%	
Total Lost time (s)		2.5		2.0	2.0	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Frt		1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		855		1449	1525	1296	1547	1629	1384	1518	3036	
Flt Permitted		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.51	1.00	
Satd. Flow (perm)		855		1449	1525	1296	1547	1629	1384	815	3036	
Peak-hour factor, PHF	0.70	0.70	0.70	0.90	0.90	0.90	0.81	0.81	0.81	0.91	0.91	0.91
Adj. Flow (vph)	0	43	0	311	67	244	12	222	49	33	341	0
RTOR Reduction (vph)	0	0	0	0	0	159	0	0	35	0	0	0
Lane Group Flow (vph)	0	43	0	311	67	85	12	222	14	33	341	0
Heavy Vehicles (%)	100%	100%	100%	11%	11%	11%	5%	5%	5%	7%	7%	7%
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	D.P+P	NA	
Protected Phases		3		4	4	5	1	6		5	2	
Permitted Phases	3					4			6	6		
Actuated Green, G (s)		4.5		14.9	14.9	20.9	0.8	18.8	18.8	24.8	24.0	
Effective Green, g (s)		6.5		16.9	16.9	24.9	2.8	20.8	20.8	28.8	26.0	
Actuated g/C Ratio		0.09		0.24	0.24	0.35	0.04	0.29	0.29	0.40	0.36	
Clearance Time (s)		4.5		4.0	4.0	5.5	5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)		77		341	358	449	60	471	400	405	1099	
v/s Ratio Prot		c0.05		c0.21	0.04	c0.02	0.01	c0.14		0.01	c0.11	
v/s Ratio Perm						0.04			0.01	0.02		
v/c Ratio		0.56		0.91	0.19	0.19	0.20	0.47	0.04	0.08	0.31	
Uniform Delay, d1		31.3		26.7	22.0	16.4	33.4	21.0	18.3	13.3	16.5	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.9		27.2	0.1	0.1	0.6	0.3	0.0	0.0	0.1	
Delay (s)		36.2		53.9	22.0	16.5	34.0	21.2	18.3	13.3	16.5	
Level of Service		D		D	C	B	C	C	B	B	B	
Approach Delay (s)		36.2			35.8			21.3			16.2	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	15.5
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	50	0	240	60	200	10	320	180	200	570	0
Future Volume (vph)	0	50	0	240	60	200	10	320	180	200	570	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			0%			0%	
Total Lost time (s)		2.5		2.0	2.0	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Frt		1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		855		1423	1498	1273	1608	1693	1439	1624	3249	
Flt Permitted		1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.34	1.00	
Satd. Flow (perm)		855		1423	1498	1273	1608	1693	1439	581	3249	
Peak-hour factor, PHF	1.00	1.00	1.00	0.80	0.80	0.80	0.84	0.84	0.84	0.92	0.92	0.92
Adj. Flow (vph)	0	50	0	300	75	250	12	381	214	217	620	0
RTOR Reduction (vph)	0	0	0	0	0	169	0	0	137	0	0	0
Lane Group Flow (vph)	0	50	0	300	75	81	12	381	77	217	620	0
Heavy Vehicles (%)	100%	100%	100%	13%	13%	13%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	D.P+P	NA	
Protected Phases		3		4	4	5	1	6		5	2	
Permitted Phases	3					4			6	6		
Actuated Green, G (s)		5.3		14.8	14.8	24.2	0.9	29.5	29.5	38.9	38.0	
Effective Green, g (s)		7.3		16.8	16.8	28.2	2.9	31.5	31.5	42.9	40.0	
Actuated g/C Ratio		0.08		0.19	0.19	0.32	0.03	0.36	0.36	0.49	0.46	
Clearance Time (s)		4.5		4.0	4.0	5.5	5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)		71		273	287	410	53	610	518	421	1486	
v/s Ratio Prot		c0.06		c0.21	0.05	0.03	0.01	c0.23		c0.07	0.19	
v/s Ratio Perm						0.04			0.05	0.19		
v/c Ratio		0.70		1.10	0.26	0.20	0.23	0.62	0.15	0.52	0.42	
Uniform Delay, d1		39.0		35.3	30.0	21.4	41.2	23.1	18.9	14.1	15.9	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		22.7		83.5	0.2	0.1	0.8	1.4	0.0	0.4	0.1	
Delay (s)		61.7		118.8	30.2	21.5	42.0	24.5	18.9	14.5	16.0	
Level of Service		E		F	C	C	D	C	B	B	B	
Approach Delay (s)		61.7			69.3			22.9			15.6	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	87.4	Sum of lost time (s)	15.5
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX E

WSDOT ROUTE DIRECTNESS INDEX CALCULATIONS

Table E-01: WSDOT Route Directness Index (RDI) Calculations

Trajectory	Via Street	Start	End	Line-of-Sight	Current Distance	+BGCC Distance	+BGCC Distance	+BGCC Distance	Current RDI	Current RDI	Current RDI	+BGCC RDI	+BGCC RDI	+BGCC RDI	Delta
Crossing	(E-W)	Street	Street	Mile	EB	WB	EB	WB	EB	WB	Avg	EB	WB	Avg	Current - BGCC
NW Bellevue to/from Wilburton	NE 12th St	NE 17th Street / Bellevue Way NE	126th Ave NE / NE 5th Ct	1.56	2.4	2.1	2	1.7	1.5	1.3	1.4	1.3	1.1	1.2	-0.2
NW Bellevue to/from Wilburton	NE 8th St	NE 17th Street / Bellevue Way NE	126th Ave NE / NE 5th Ct	1.56	2.4	2.4	2	1.7	1.5	1.5	1.5	1.3	1.1	1.2	-0.3
Central West Bellevue to/from Wilburton	NE 10th St	Bellevue Stores	Uwajimaya Bellevue	0.91	1.7	1.6	1.5	1.4	1.9	1.8	1.85	1.6	1.5	1.55	-0.3
Central West Bellevue to/from Wilburton	NE 8th St	Bellevue Stores	Uwajimaya Bellevue	0.91	1.1	1.4	1.3	1.2	1.2	1.5	1.35	1.4	1.3	1.35	0
Central West Bellevue to/from Wilburton	NE 6th St	Bellevue Stores	Uwajimaya Bellevue	0.91	1.4	1.4	1	1	1.5	1.5	1.5	1.1	1.1	1.1	-0.4
Central West Bellevue to/from Wilburton	NE 4th St	Bellevue Stores	Uwajimaya Bellevue	0.91	1.5	1.4	1.2	1.2	1.6	1.5	1.55	1.3	1.3	1.3	-0.25
Southwest Bellevue to/from Wilburton	NE 12th St	Meydenbauer Bay Park	126th Ave NE / NE 5th Ct	1.83	n/a	3.1	2.3	n/a	n/a	1.7	1.7	1.3	n/a	1.3	-0.4
Southwest Bellevue to/from Wilburton	NE 8th St	Meydenbauer Bay Park	126th Ave NE / NE 5th Ct	1.83	n/a	2.6	2.3	n/a	n/a	1.4	1.4	1.3	n/a	1.3	-0.1
Southwest Bellevue to/from Wilburton	NE 6th St	Meydenbauer Bay Park	126th Ave NE / NE 5th Ct	1.83	n/a	n/a	n/a	2.3	n/a	n/a	n/a	n/a	1.3	1.3	n/a
Southwest Bellevue to/from Wilburton	NE 4th St	Meydenbauer Bay Park	126th Ave NE / NE 5th Ct	1.83	2.3	n/a	2.4	2.3	1.3	n/a	1.3	1.3	1.3	1.3	0
Southwest Bellevue to/from Wilburton	Main St	Meydenbauer Bay Park	126th Ave NE / NE 5th Ct	1.83	2.3	2.3	2.4	2.4	1.3	1.3	1.3	1.3	1.3	1.3	0

Grand Connection Crossing (mi)	**0.5**
Uwajimaya to BGCC (via assumed cut-through) (mi)	**0.1**
"Wilburton" @ NE 5th Ct to BGCC (via assumed cut-through) (mi)	**0.6**

RDI = 'line-of-sight' distance/actual crossing distance
Minimum threshold = 2

Source: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://wsdot.wa.gov/sites/default/files/2022-06/DesignBulletin2022-01.pdf

Notes: *The WSDOT Active Transportation Plan sets out agency goals and performance metrics that apply to how facilities for bicyclists and pedestrians on state highways are designed in population centers. One purpose of the plan is to identify gaps in the pedestrian and bicycle network, where a gap is defined as either a physical barrier, or a highway segment that provides for a pedestrian or bicycle Level of Traffic Stress (LTS) 3 or 4 and/or a Route Directness Index greater than 2. The plan calls for an increase in the total linear length (miles) of WSDOT-owned infrastructure (or other connections identified as a parallel local facility),* that provide for a bicyclist and pedestrian LTS rating of 1 or 2.

APPENDIX F

COMPARABLE FREEWAY LID PARKS ADDITIONAL VOLUME CALCULATIONS

Table F-1: Comparable Freeway Lid Parks

Park	Location	Setting	Park Size (acres)	Annual Visitors	Year of Pedestrian/Bicycle Counts	Rainy Days/Year	Sunny Days/Year	ADT (Calculated)	Peak Hr (10% ADT)	Notes
Rose Kennedy Greenway, Freeway Cap Park[1]	Boston, MA	Urban	11	1400000	2024	137	228	6140	614	Boston data was used to calculate the Low ADT for the Bellevue I-405 Freeway Lid.
Klyde Warren Park[2]	Dallas, TX	Urban	5.4	1300000	2024	80	285	4561	456	Dallas data was used to calculated the High ADT for the Bellevue I-405 Freeway Lid. Per email: Park average 1.3 million visitors/year, averages to >108,000 visitors/month. **This is primarily based on our Signature Events throughout the year and other sporadic events.**[3]

Table F-2: Comparable Freeway Lid Parks

Derived Bellevue Lid Park Bike/Ped Volumes	Bellevue	Boston	Dallas
Item	Base	Low	High
Size (acres)	3.7	11	5.4
Sunny Days/Year (avg)	215	228	285
ADT (existing)	n/a	614	456
ADT (converted to Seattle)		579	344
ADT (converted to Lid size)		195	235

Source:

1. City of Boston. (2024). Rose Kennedy Greenway. https://www.meetboston.com/listing/rose-kennedy-greenway/11801/

2. City of Dallas. (2024) Klyde Warren Park - The Town Square of Dallas. https://www.klydewarrenpark.org/our-story

3. Klyde Warren Park - Bicycle and Pedestrian Visitors, email sent to WRPF (info@kyldewarrenpark.org). (Rachel), August 5, 2024

Fehr & Peers (2024)

From: Molly Riddle
To: Josh Hartley
Subject: Fw: Klyde Warren Park - Bicycle and Pedestrian Visitors
Date: Thursday, August 22, 2024 4:07:52 PM
Attachments: image001.png

See below for content re Dallas counts.

Molly Riddle, AICP
Fehr & Peers | 510.851.7719

From: WRPF <info@klydewarrenpark.org>
Sent: Tuesday, August 6, 2024 8:16 AM
To: Molly Riddle <M.Riddle@fehrandpeers.com>
Subject: RE: Klyde Warren Park - Bicycle and Pedestrian Visitors

[EXTERNAL EMAIL]

Hi Molly,

Thank you for your interest in Klyde Warren Park!

We average 1.3 million visitors a year. We do not have specific data by week or month. Doing the math, it averages out to a little over 108,000 visitors per month. This is really based on our Signature Events throughout the year and other things that go on in the park that aren't divided equally.

Hope this helps!

Rachael

From: Molly Riddle <M.Riddle@fehrandpeers.com>
Sent: Monday, August 5, 2024 6:41 PM
To: WRPF <info@klydewarrenpark.org>
Subject: Klyde Warren Park - Bicycle and Pedestrian Visitors

Hi,

I work for a transportation planning firm and am interested to know if you have any data on the number of visitors who visit Klyde Warren Park over the course of an average week. I know this information is difficult to observe, but if you have estimates that would be interesting to learn.

Thank you very much,

Molly Riddle, AICP
Senior Transportation Planner

t: 510.851.7719
m: 510.418.0194

2201 Broadway | Ste 602
Oakland, CA 94612

** Please note: I will be out of the office on PTO August 8-21. **