City of Bellevue

Transportation Commission Study Session

DATE: March 20, 2025

TO: Chair Stash and Members of the Transportation Commission

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SUBJECT: **Mobility Implementation Plan Update**

DIRECTION REQUESTED

X Action
X Discussion/Direction
X Information

Staff will introduce recommended amendments to the adopted Mobility Implementation Plan (MIP) related to Bicycle Level of Traffic Stress (BLTS) on bicycle network corridors and at intersections. Staff will seek Commission concurrence to implement these changes in the MIP Update. Also, staff will follow up on the discussion from March 13 related to project concepts to address projected V/C performance target gaps. No action is requested on this item.

BACKGROUND AND INFORMATION

At the March 13 study session, staff noted that the approved Pedestrian Level of Traffic Stress (PLTS) primary metric of the actual vehicle travel speed turned out to have unreliable data from cell phones, and consequently the existing PLTS existing conditions turned out also to be unreliable. Staff identified that using the posted speed limit - increased by a factor of 20% - would yield a reliable approximation of actual travel speed and a reliable existing PLTS. The Transportation Commission approved the 20% speed limit factor as a primary PLTS metric, and using the actual travel speed 85th percentile as a supplemental component that would be a factor in prioritizing PLTS performance target gaps. Staff shared the PLTS existing conditions maps that reflected the speed limit factor primary metric.

Bicycle Network and Level of Traffic Stress

In the review of the adopted Mobility Implementation Plan, staff noted that changed circumstances prompt a recommendation for two minor amendments to MIP Chapter 3 “Performance Metrics” and an amendment to one of the Priority Bicycle Corridors.

Along Bicycle Network Corridors

Table 3 in the Mobility Implementation Plan uses "Speed Limit" as one of the arterial characteristics that defines bicycle level of traffic stress. For consistency with the approved PLTS primary metric, staff the speed limit factor (speed limit times 1.2) is used for BLTS. To support this change, the arterial speed shown in the left column in the updated Table 3 is adjusted to reflect a 20 percent increase in vehicle speed to ensure that the calibrated BLTS scores are not affected by the change in the performance metric. Synchronizing the speed metric with PLTS does not change the BLTS of the existing network. Commission concurrence is requested to make this change.

Table 3: Bicycle Level of Service/Level of Traffic Stress

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

UPDATED Table 3: Bicycle Level of Traffic Stress

Arterial Characteristics		Bicycle Facility Components: Guideline to Achieve Intended Level of Traffic Stress					
Actual/ Estimated Speed	Traffic Volume	No Marking	Sharrow Lane Marking	Striped Bike Lane	Buffered Bike Lane (Horizontal)	Protected Bike Lane (Vertical)	Shared Use Path
</=30	<3k	1	1	1	1	1	1
	3-7k	3	3	2	1	1	1
	>/=7k	3	3	2	2	1	1
31-36	<10k	3	3	2	2	1	1
	10-25k	4	4	3	3	2	1
	>/=25k	4	4	3	3	3	1
37-42	<25k	4	4	3	3	3	1
	>/=25k	4	4	4	3	3	1
>42	Any	4	4	4	4	3	1

Table 3 also includes a reference in the right column to "Physically Separated Bikeway". The updated Table 3 reflects the change the title of that column to "Shared Use Path" to recognize the associated reference and standards in the Transportation Design Manual. Other changes to this table remove "level of service" and refer simply to Bicycle Level of Traffic Stress (BLTS), and change "roadway" to "arterial". This is a non-substantive change for which Commission concurrence in not requested.

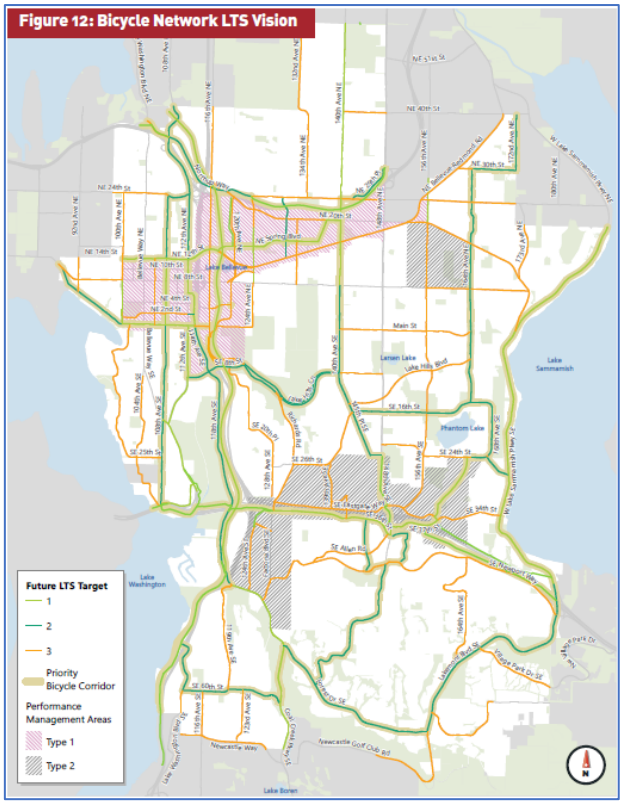
At Intersections on the Arterial Network

Table 4 in the Mobility Implementation Plan Chapter 3 describes the components of an intersection on the bicycle network that are intended to maintain the corridor BLTS through the intersection. Staff recommends to repeal Table 4, and to simply refer to the Transportation Design Manual which is the up-to-date resource where developers and city staff will look for the standards and tools/facility types to use at each specific intersection. Staff recommends that narrative be added to the MIP, and amendments to the Bicycle Network BLTS Vision map (MIP Figure 12) will pinpoint the arterial intersections on the bicycle network and add the intended BLTS at those locations using color-coded dots to match the target BLTS.

Table 4: Bicycle Facility Components at an Intersection

Bicycle LOS/LTS	Bike Signal	Street Crossing	Approach to Intersection	Approach to Intersection with Right Turn Lane
1	Bike Signal	Green solid or skip-stripe	Green bike box	Curb ramp to wide sidewalk, Dutch Intersection
2	Bike Signal	Skip stribe	Bike box	Green bike lane to left of turn lane
3	Green Cycle Length	Sharrow lane markings	Automatic signal actuation	Bike lane to left
4	No specific design guideline for LTS/LOS 4			
Trail or Mid-Block Crossing	Full signal or HAWK or RRFB	Green solid or skip-stripe	N/A	N/A

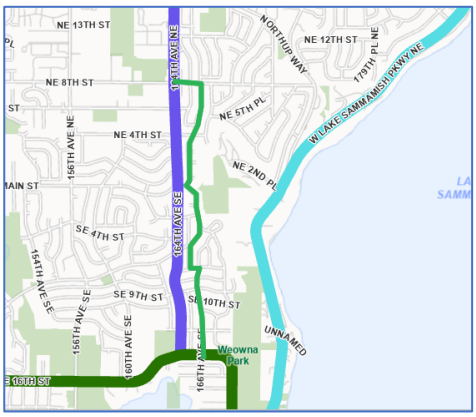
Figure 12: Bicycle Network LTS Vision



Recommended Narrative for the MIP: The Bicycle Level of Traffic Stress (BLTS) of a bicycle network corridor should be maintained at an arterial intersection. A set of intersection design elements is available in the Transportation Design Manual that are intended to be applied in the context of each intersection to achieve the intended BLTS outcome. Bicycle intersection design elements include bike lanes that cross over right turn lanes, lanes that do not cross over right turn lanes, green crossing markings, bike boxes, no right turn on red signage, bicycle signals, and protected intersection corners. At arterial intersections, the target BLTS and applicable facility types should be determined by the arterial that has the higher speed limit or traffic volume.

Staff seeks concurrence from the Commission to incorporate the changes in the MIP to repeal Table 3 and instead refer to the Transportation Design Manual, to add the narrative to the MIP, and to add BLTS intersections to the Bicycle Network BLTS Vision map (Figure 12).

Priority Bicycle Corridor



The "Spirit Ridge-Sammamish River Connection" Priority Bicycle Corridors traverses the eastern side of the city largely along 164th Avenue SE/NE (wide purple line). City staff have been working with the neighborhood to establish the East Bellevue Greenway (narrow green line). The greenway is on a local street with a speed limit of 20 mph, which achieves BLTS 1. BLTS 2 is the target for 164th Avenue between SE 14th Street and NE 8th Street. This segment of 164th Avenue currently meets the BLTS 2 target. Bicyclists commonly use the Spirit Ridge-Sammamish River Connection. The East Bellevue Greenway would be a comfortable alternate north-south route for riders of all ages and abilities. Staff seeks concurrence from the Commission to add the East Bellevue Greenway as an alternate to the Spirit Ridge-Sammamish River Connection Priority Bicycle Corridor.

System Intersection Forecast Performance Target Gaps

On March 13, staff described the analysis in the Final Environmental Impact Statement for the 2044 Comprehensive Plan, Appendix K, that identified system intersections that, given the assumptions of 2044 land use and transportation network, would not meet the Volume/Capacity (V/C) performance target defined in the Mobility Implementation Plan.

Staff has prepared project concepts that could address those forecast V/C performance target gaps. With each update of the Transportation Facilities Plan, staff would analyze and prioritize actual performance target gaps and prepare project concepts for the high priority locations.

This topic is for information only and no Commission action is requested.

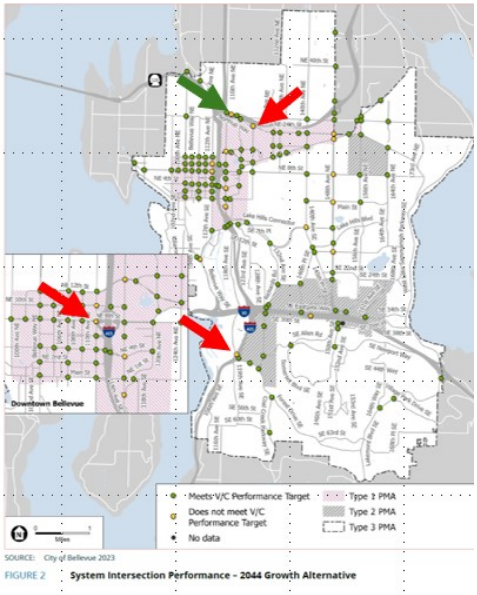
Table 8 from the FEIS is a list of the intersections that would not meet the performance target under the 2044 growth scenario and the forecast V/C performance. In the table, the "Preferred Alternative" is the hypothetical buildout of the zoning on each parcel of land in the city to its maximum, and the "2044 Growth Alternative" is the projected growth (far less than buildout). Note the yellow shaded intersections that are "exempt" from this exercise because the project is in WSDOT jurisdiction or it would be unreasonable to implement an infrastructure project due to constraints.

TABLE 8 **Vehicle Network Performance – System Intersections**

Performance Management Area and Performance Target	Intersections That Would Not Meet Target under 2044 Growth Alternative	V/C Ratio		
		No Action	Preferred Alternative	2044 Growth Alternative
Type 1 PMA (Performance Target = 1.00)	112th Ave NE & NE 8th St	1.23	1.56	1.04
	112th Ave NE & NE 10th St	1.12	1.48	1.06
	116th Ave NE & NE 12th St	1.32	2.24	1.33
	148th Ave NE & NE 20th St	1.00	1.18	1.02
	148th Ave NE & Bel-Red Rd	1.13	1.44	1.11
	124th Ave NE & Northup Wy	1.23	1.62	1.25
	116th Ave SE & SE 1st St	1.15	1.30	1.13
	116th Ave NE & NE 4th St	1.00	1.48	1.08
Type 2 PMA (Performance Target = 0.90	142nd Ave SE & SE 36th St	0.92	1.33	0.96
	I-405 SB Ramps & Coal Creek Pkwy	1.13	1.31	1.11
Type 3 PMA (Performance Target = 0.85)	112th Ave SE & Bellevue Wy SE	1.00	1.11	0.93
	140th Ave NE & SE 8th St	0.87	1.16	0.88
	148th Ave NE & NE 8th St	0.96	1.33	0.94
	148th Ave & Main St	0.95	1.18	0.96
	148th Ave SE & SE 16th St	0.86	0.97	0.86
	115th Pl NE & Northup Wy	1.00	1.17	1.00

Intersections Exempt from Further Analysis

Figure 2 from the FEIS shows the V/C performance targets map from the Comprehensive Plan Environmental Impact Statement and the intersections that are exempt from the V/C project concepts.



Intersection determined to be infeasible or unreasonable to expand as determined through previous MIP project concept development:

- 115th Place NE & Northup Way →

Intersections within WSDOT jurisdiction →

- 124th Ave NE & Northup Way
- 112th Ave NE & NE 8th St
- I-405 SB Ramps & Coal Creek Parkway

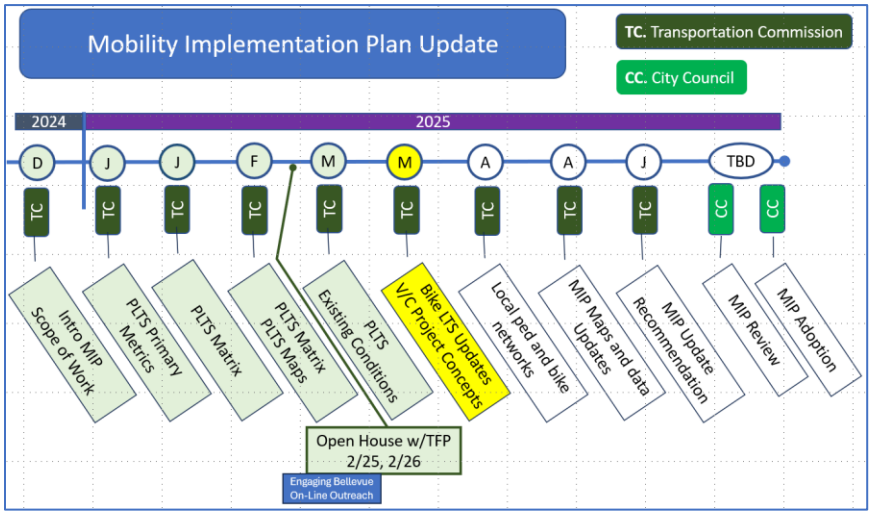
Attachment 1 includes the annotated project concept graphics for each of the candidate intersections.

NEXT STEPS

Local Networks

Staff initiated an Engaging Bellevue project page on February 24 to verify that the 2009 Pedestrian and Bicycle Transportation Plan networks for local streets meet current needs and to solicit input on how the planned network should be modified in this update of the Mobility Implementation Plan. The Engaging Bellevue site closed on March 17. Also, staff hosted two open houses when the public was invited to provide comments on the local networks. Staff will share a recommendation for the local street networks for pedestrians and bicycles on April 10.

MIP Update Calendar



ATTACHMENT

1. V/C Project Concepts