City of Bellevue

Transportation Commission Study Session

DATE: April 17, 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 identify bicycle network facility tools and resources that may be used to achieve target Bicycle Level of Traffic Stress (BLTS) through arterial intersections with the intent to achieve the BLTS target along the associated bicycle network corridor. Staff will seek Commission concurrence to implement this change in the MIP Update.

BACKGROUND AND INFORMATION

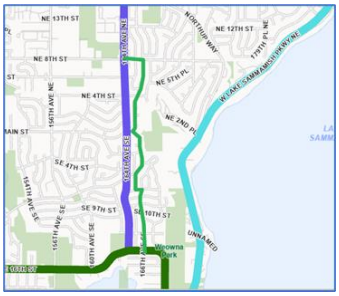
At the March 27 study session, the Transportation Commission approved amendments to MIP Table 3 and an amendment to a Priority Bicycle Corridor.

The amendment to MIP Table 3 uses the speed limit factor (speed limit times 1.2) instead of the posted speed limit as a primary metric to determine BLTS on an arterial.

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

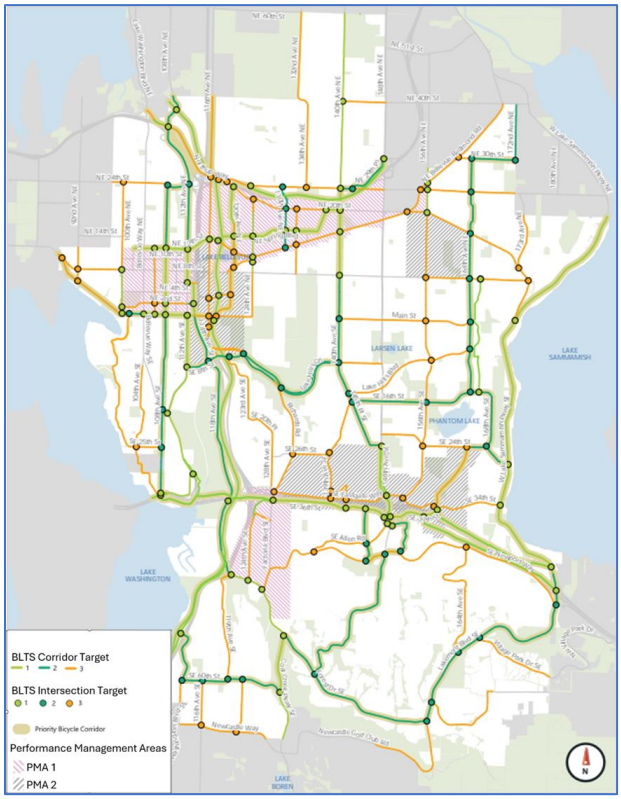
In a separate action, the Commission approved an amendment to the “Spirit Ridge-Sammamish River Connection” Priority Bicycle Corridor to add the East Bellevue Greenway as an alternate route.



At Intersections on the Arterial Bicycle Network

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-stripe	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



On March 27, staff brought forward a recommendation to **repeal MIP Table 4** and to **add bicycle network corridor intersections** to Figure 12. Staff recommended to **refer to the Transportation Design Manual** and other industry guides such as National Association of City Transportation Officials (NACTO) and American association of State Highway Transportation Officials (AASHTO) as resources for the tools/facility types that may be used at intersections to achieve the target BLTS along a bicycle network corridor. Note that the target BLTS at an intersection where two bicycle network corridors meet would match the highest corridor BLTS target.

The Commission requested additional information about the types of bicycle facilities that could be employed at intersections.

- BLTS Intersection Tools/Design Guidance

At an intersection along a bicycle network corridor, the design should incorporate facility types intended to achieve the target BLTS along a corridor, otherwise the corridor would be a series of segments bracketed by uncomfortable/stressful intersections.

Three fundamental components of an intersection influence the BLTS outcome: space, separation, and protection.

Space: this is the horizontal space dedicated to people riding bicycles. The wider the space and the more clearly designated for bikes, the better the BLTS. Examples include sharrows and green skip-stripe.

Separation: this is the separation of people riding bicycles from moving vehicles, in terms of both space and time. The greater the separation, the better the BLTS. Examples include bike signal (to provide bikes a head start, similar to leading pedestrian interval) and the placement of a green skip-stripe.

Protection: this is the designated space or vertical barrier between people riding bicycles and moving vehicles. The more substantive the barrier, the better the BLTS outcome. Examples include a bike box and a protected intersection.

The graphic images below (AASHTO left, NACTO right) capture most of the potential bicycle intersection tools that could be applied to achieve the target BLTS. Space, separation and protection are illustrated. A bike signal would be a complement to these treatment options.

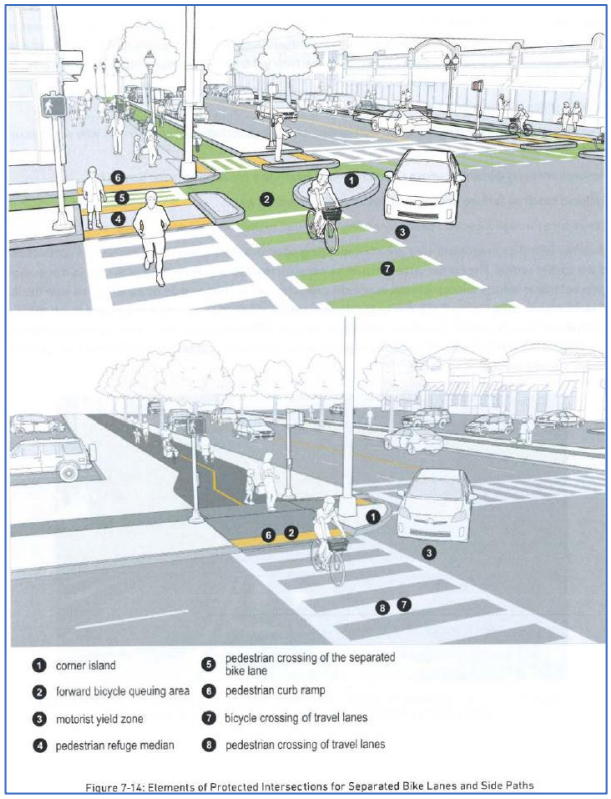
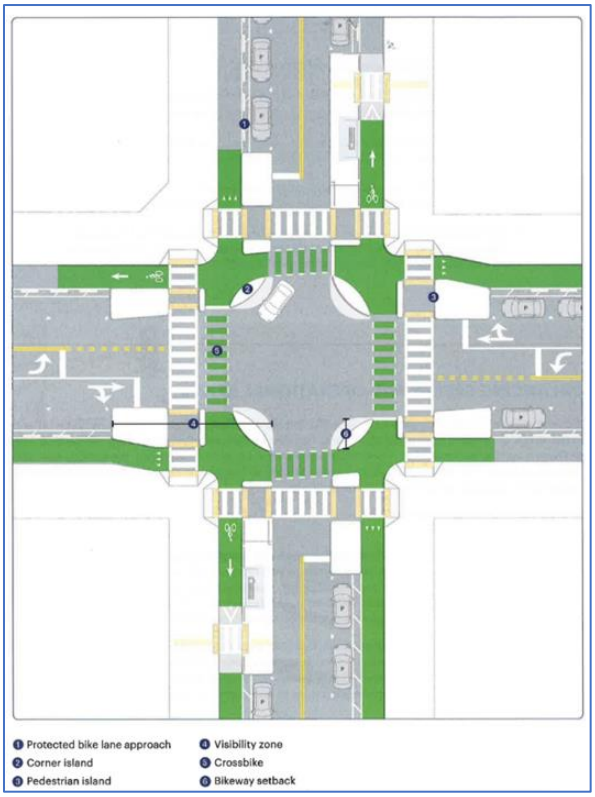
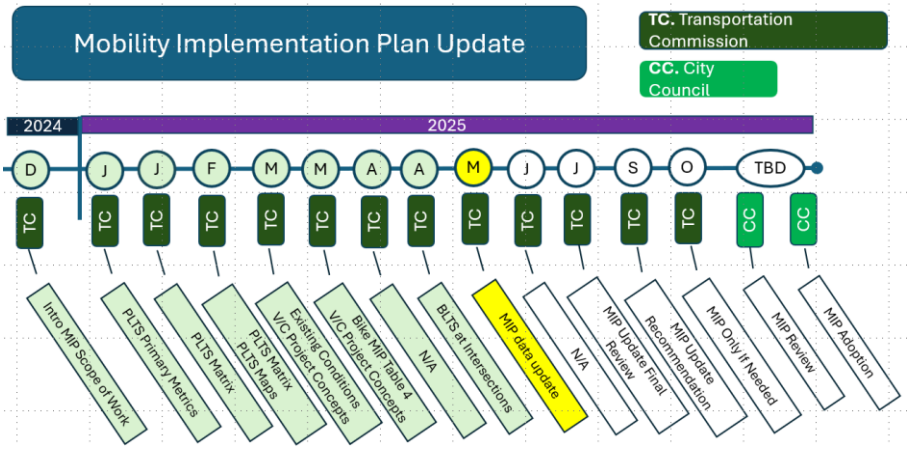


Figure 7-14: Elements of Protected Intersections for Separated Bike Lanes and Side Paths



Staff seeks Commission concurrence to incorporate the changes in the MIP to repeal Table 4 and instead refer to the Transportation Design Manual and to the other technical resources (NACTO, AASHTO) to help inform the design of bicycle network intersections, and to add intersections and BLTS performance targets to the Bicycle Network BLTS Vision map (Figure 12).

MIP Update Calendar