City of Bellevue

Transportation Commission Study Session

DATE: March 6, 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 the existing conditions maps (and data) for Pedestrian Level of Traffic Stress (PLTS) on the arterial network. Also, staff will recommend a change to one of the primary metrics for PLTS, switching from actual speed to a metric based on the posted speed limit. Staff will seek Commission concurrence to implement this change.

BACKGROUND AND INFORMATION

At the February 13 study session, the Transportation Commission confirmed the assignment of Pedestrian Level of Traffic Stress targets to the arterial network, shown in Figure 1. The approved approach to assign a Pedestrian Level of Traffic Stress target is based on the Performance Management Areas (PMA), and on the arterial classifications in PMA 3, with enhanced PLTS performance targets in vicinity of pedestrian destinations. In PMA 1 (Downtown, Wilburton and BelRed), the target is PLTS 1. In PMA 2 (Factoria, Eastgate, Crossroads), the target is PLTS 2, except PLTS 1 along commercial segments of Factoria Boulevard and 156th Avenue NE. In PMA 3, the target for Major Arterials is PLTS 3, except PLTS 2 near pedestrian destinations such as schools, libraries, frequent transit network stations, neighborhood shopping centers, etcetera. Also in PMA 3, the target is PLTS 2 on Minor Arterials and Collector Arterials.

Commissioners raised the question about the definitions for the three types of arterials. The Bellevue Comprehensive Plan provides definitions as follows:

- Major Arterial: A street that provides a direct route for long-distance vehicles and active transportation travel within the city and often with connections to neighboring jurisdictions. Streets that connect freeway interchanges to major concentrations of commercial activities are typically classified as major arterials.
- Minor Arterial: A street that provides a vehicle and active transportation connection between major arterials and concentrations of residential and commercial activities.
- Collector Arterial: A street that is two or three lanes that collects (or distributes) traffic from (or to) local streets within a neighborhood and provides connections to minor or major arterials. Collector arterials serve neighborhood traffic and also provide access to abutting land uses. They do not carry much through traffic and are designated to be compatible with residential neighborhoods and local commercial areas.

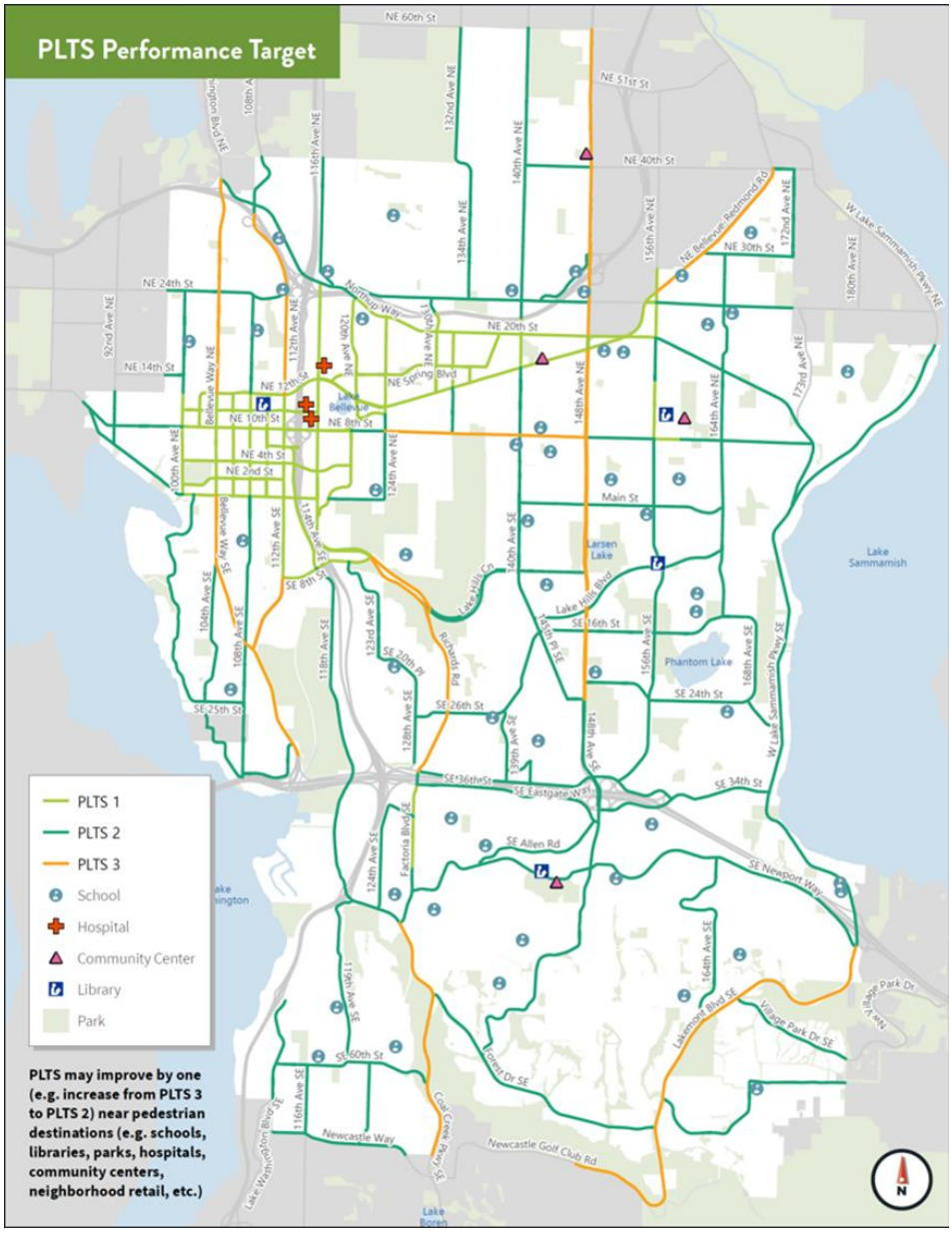


Figure 1. Pedestrian Level of Traffic Stress Target Assignments on Arterials

PLTS Existing Conditions on the Arterial Network

Based on the approved primary metrics of traffic speed, traffic volume, buffer width and sidewalk width, a data set and maps document the existing conditions of PLTS on the arterial network. Initially, the Transportation Commission approved the use of actual 85th percentile traffic speed as a primary metric because actual speed could more realistically account for the level of traffic stress a pedestrian would experience. Staff expressed to the Commission that the data for travel speed was available. Which it is. However, in gathering and documenting travel speed, staff discovered several anomalies (with resulting anomalous PLTS outcomes) that made us question the use of this metric. While the data is available, it is not universally reliable. Staff believe that the posted speed limit, increased by a factor of 20% to account for those higher-speed drivers, will be a better metric for determining PLTS. For example, along an arterial with a posted speed limit of 30 mph, the metric would be 30 mph X 1.2 or 36 mph.

The 20% Speed Limit Factor

The 20 percent speed limit factor is based on information derived from cell phones and connected vehicles to estimate travel speeds. When looking across all arterials across the entire city, the analysis found that the 85th percentile of travel speed is about 20 percent faster than the speed limit. Given the anomalies found when reviewing the data at an individual link level, this analysis finding was shared with a broad group of city staff who concurred that the 20 percent adjustment factor is reasonable based on their observations and that it meets the intent of reflecting “actual” conditions experienced by people walking along the street.

While there is not currently reliable actual speed data across all arterials, there is still value in collecting this data and applying it in the effort to prioritize PLTS performance target gaps. Supplemental Components Type 1 are intended as factors to consider in determining priorities. Staff recommends using actual 85th percentile speed as a new Supplemental Component Type 1. When a PLTS performance target gap is identified, the actual speed for that arterial segment can be determined and used in prioritization amongst other performance target gaps and in consideration with other Supplemental Component Type 1 factors.

Existing Conditions Maps

Using the 20% speed limit factor, existing PLTS conditions on arterials are shown in four maps that each depict a quadrant of the city. Figure 2 is NW, Figure 3 is SW, Figure 4 is NE and Figure 5 is SE. Attachments 1-4 show the existing conditions on a full-page map for each quadrant. Attachment 5 shows the primary metrics data that informs the existing conditions PLTS.

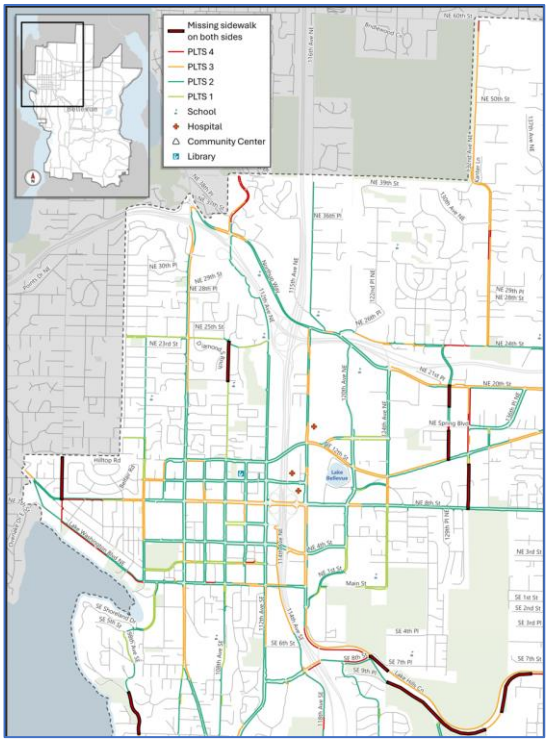


Figure 2. NW Bellevue Quadrant

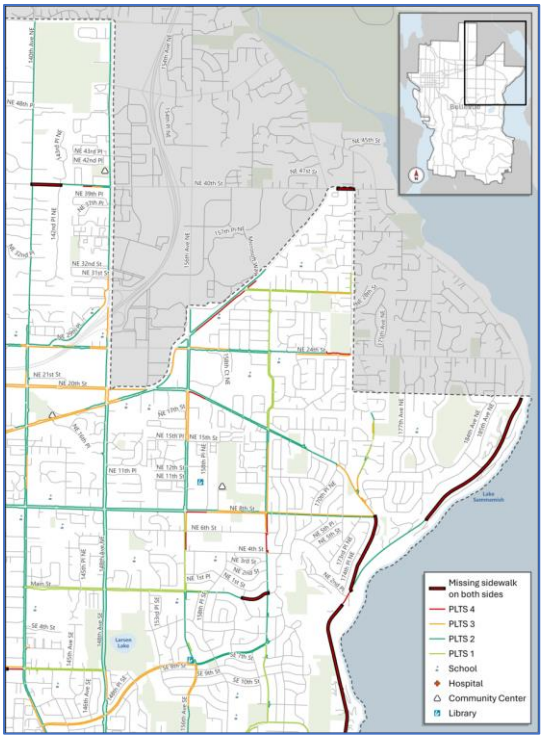


Figure 4. NE Bellevue Quadrant

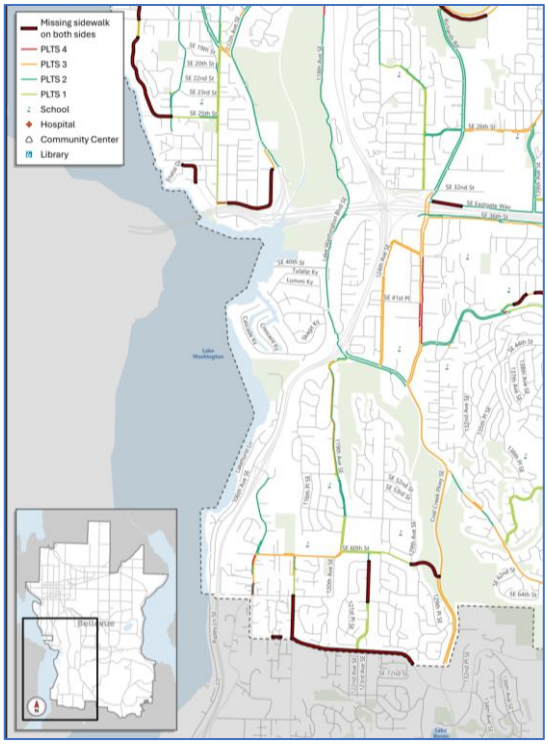


Figure 3. SW Bellevue Quadrant

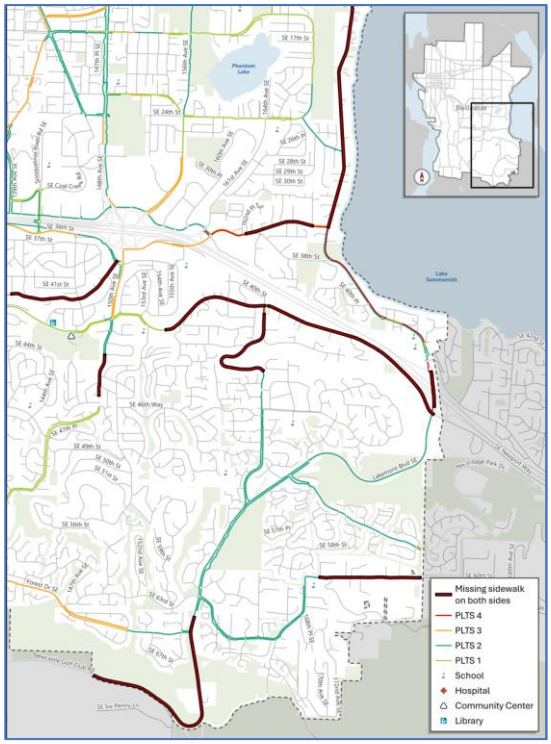


Figure 5. SE Bellevue Quadrant

System Intersection Forecast Performance Target Gaps

In the Final Environmental Impact Statement for the 2044 Comprehensive Plan, Appendix K, transportation analysis 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.

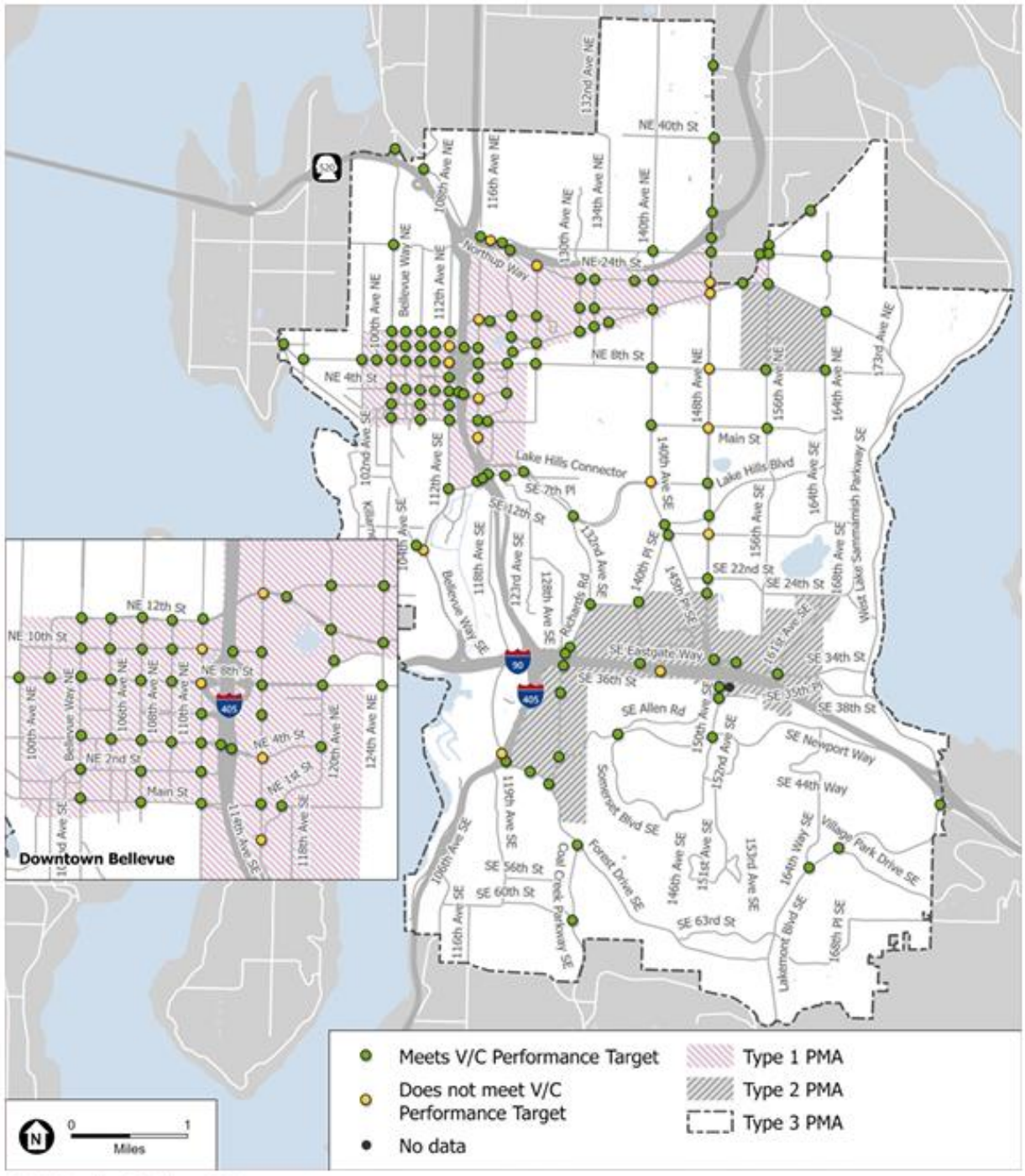
Table 8 from the FEIS is a list of those intersections and the forecast V/C performance. In the table, the "Preferred Alternative" is the hypothetical buildout of the zoning on each parcel of land in the city to its maximum, and the "2044 Growth Alternative" is the projected growth (far less than buildout).

Figure 2 from the FEIS shows the V/C performance targets map from the Comprehensive Plan Environmental Impact Statement.

Staff has been tasked with preparing project concepts that could address those forecast V/C performance target gaps. Staff will provide project concepts, and discuss their reasonableness and feasibility at the March 27 Commission meeting.

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



SOURCE: City of Bellevue 2023

FIGURE 2 **System Intersection Performance – 2044 Growth Alternative**

NEXT STEPS

Project Concepts

As noted above, staff has been tasked with identifying potential project concepts to address forecast V/C performance target gaps. Staff will share project concepts. These are for information only.

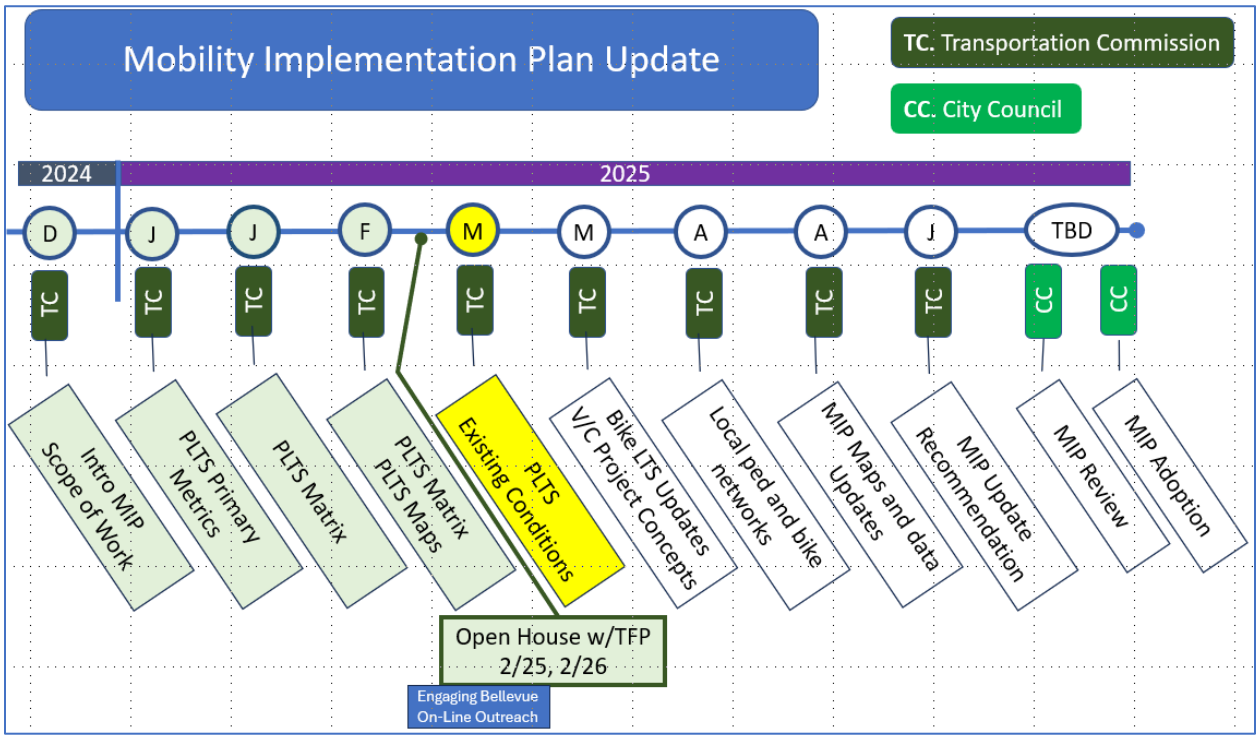
Bicycle Intersections

Table 4 in the Mobility Implementation Plan includes recommendations for intersection treatments along bicycle network corridors. Staff will recommend amendments.

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 will close 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 in April.

MIP Update Calendar



ATTACHMENTS

1. Existing Conditions - NW Quadrant
2. Existing Conditions - NE Quadrant
3. Existing Conditions - SW Quadrant
4. Existing Conditions - SE Quadrant
5. PLTS Primary Metrics Data