City of Bellevue

# Transportation Commission Study Session

**DATE:** February 6, 2025

**TO:** Chair Stash and Members of the Transportation Commission

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**SUBJECT:** **Mobility Implementation Plan Update: Pedestrian Level of Traffic Stress**

**DIRECTION REQUESTED**

| | |
|---|---|
| | Action |
| X | Discussion/Direction |
| X | Information |

Staff will introduce a recommended Pedestrian Level of Traffic Stress (PLTS) matrix using the approved primary metrics, and will demonstrate how the PLTS matrix informs PLTS Targets, Existing Conditions and Performance Target gaps. Staff will seek Commissioner input and concurrence on the PLTS matrix and on the PLTS Performance Targets and map.

## BACKGROUND AND INFORMATION

At the January 23 study session, the Transportation Commission confirmed the primary metrics for Pedestrian Level of Traffic Stress and viewed a conceptual PLTS "matrix" that demonstrated approximate PLTS outcomes based on the various combinations of primary metrics. Commissioners also confirmed the two types of Supplemental Components to inform priorities and project concepts that will address Performance Target gaps.

### Specific PLTS Matrix

The PLTS primary metrics are the basis for a performance targets matrix that graphically describes PLTS based on the characteristics of the arterial (traffic speed and daily traffic volume) and the sidewalk (width of sidewalk and width of buffer). The specific matrix fine-tunes the conceptual matrix staff shared with the Commission on January 23, and looks like the graphic in Figure 1 below, with the color in each cell representing the respective PLTS.

Generally, the combinations of lower traffic speed and volume matched with a wider sidewalk and buffer will yield a lower pedestrian level of traffic stress (PLTS 1 or PLTS 2, green and blue).

Conversely higher traffic speed and volume with narrower sidewalks and buffers create an environment of higher pedestrian level of traffic stress (PLTS 3 or PLTS 4, orange and red).

| Pedestrian Level of Traffic Stress | | PLTS 1<br>PLTS 2<br>PLTS 3<br>PLTS 4 | Sidewalk Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Width of Sidewalk | | | | | | | | |
| | | | only shoulder | <4 feet | | ≥4 feet - <6 feet | | 6 feet - <10 feet | | ≥10feet | |
| | | | Width of Buffer | | | | | | | | |
| Arterial Characteristics | | | 0 feet | <5 feet | ≥5 feet | <5 feet | ≥5 feet | <5 feet | ≥5 feet | <5 feet | >5 feet |
| Arterial Actual Travel Speed | Arterial Daily Traffic Volume | | | | | | | | | | |
| ≤25 | ≤3k | | 1 | | | | | | | | |
| | >3k-7k | | | 2 | | | | | | | |
| | >7k | | | | | | | | | | |
| >25-30 mph | ≤10k | | | | 3 | | | | | | |
| | >10 -25k | | | | | | | | | | |
| | >25k | | | | | | | | | | |
| >30-35 mph | ≤25k | | | | | | | | | | |
| | >25k | | | | | | | | | | |
| >35 | Any | | | | | 4 | | | | | |

**Figure 1**

PLTS Performance Targets on Arterials

A performance target "assignment" for the arterials is intended to describe the intended pedestrian environment (PLTS).

General PLTS assignments for arterials are recommended as follows:

- PLTS 1 in PMA 1 (Downtown, BelRed, Wilburton).
- PLTS 2 in PMA 2 (Crossroads, Factoria, Eastgate), except PLTS 1 along segments of Factoria Boulevard and 156th Avenue NE.
- PLTS 3 in PMA 3, except PLTS 2 near pedestrian destinations such as schools, libraries, FTN Stations, neighborhood shopping centers, etc.

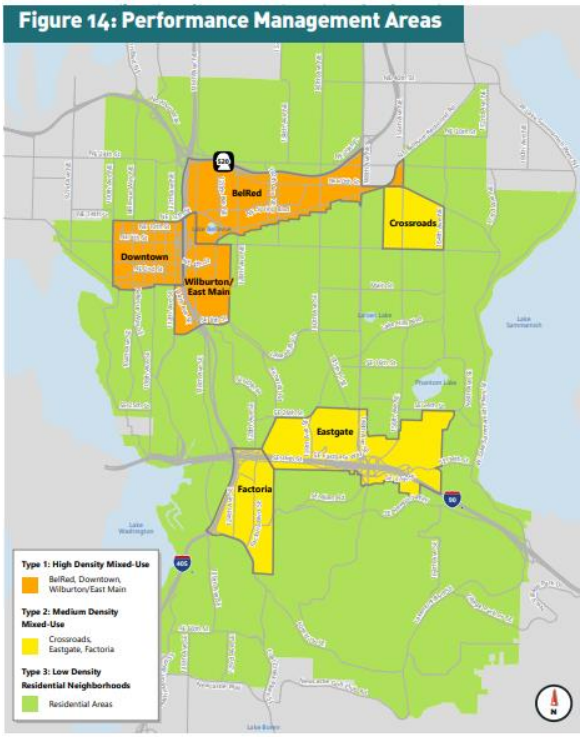



**Figure 2**

Applied to the arterial network, the PLTS assignments will largely reflect the underlying Performance Management Area (Figure 2), with a nuanced approach related to the local context described above. The graphic on the following page and the accompanying PLTS Performance Target map (Figure 3) represent the approach that recognizes the relationship of the primary metrics with the intensity of the built environment. Note there are no PLTS 4 targets.

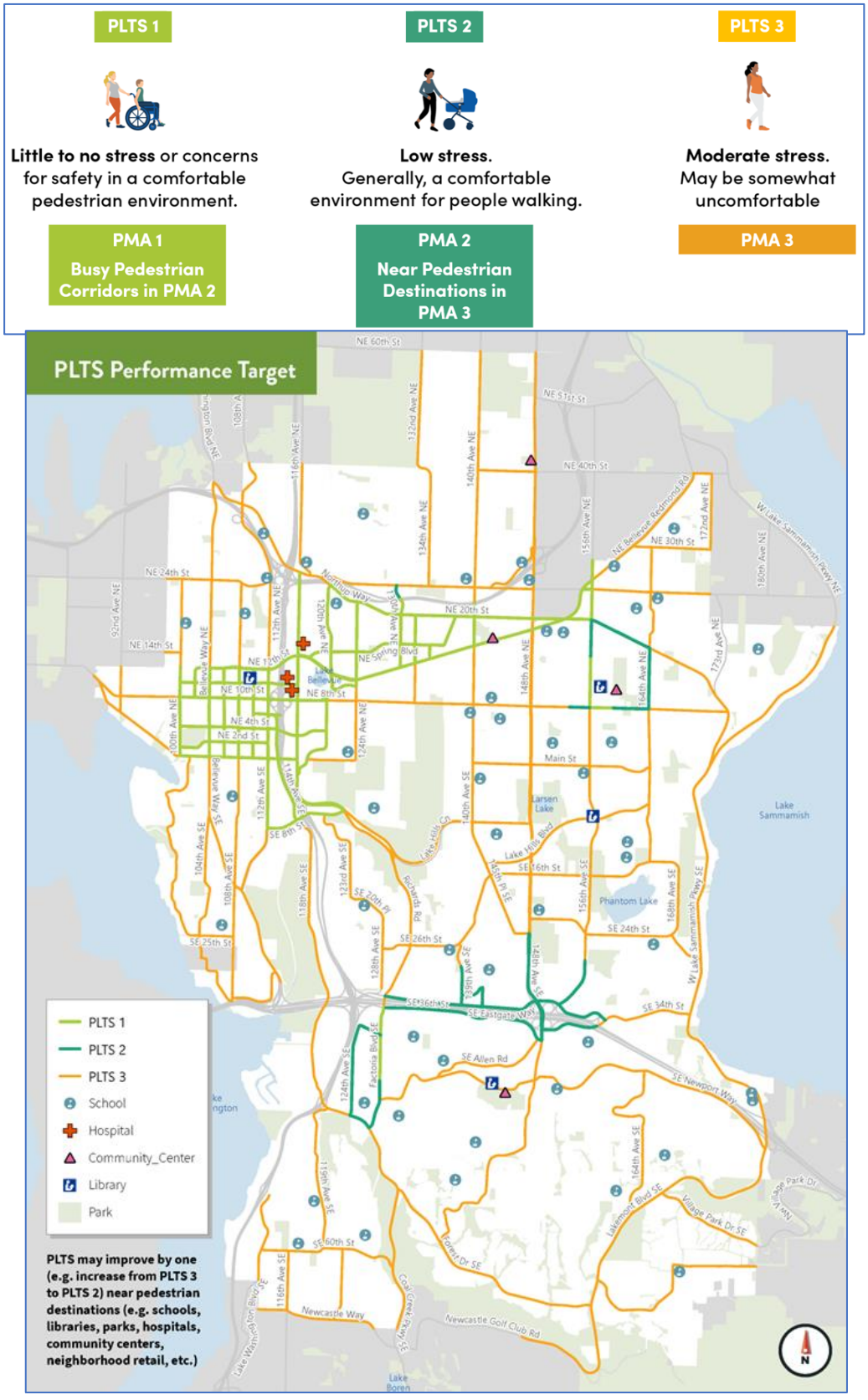

PLTS 1
PLTS 2
PLTS 3
Little to no stress or concerns for safety in a comfortable pedestrian environment.
Low stress. Generally, a comfortable environment for people walking.
Moderate stress. May be somewhat uncomfortable
PMA 1
Busy Pedestrian Corridors in PMA 2
PMA 2
Near Pedestrian Destinations in PMA 3
PMA 3
PLTS Performance Target
PLTS 1
PLTS 2
PLTS 3
School
Hospital
Community_Center
Library
Park
PLTS may improve by one (e.g. increase from PLTS 3 to PLTS 2) near pedestrian destinations (e.g. schools, libraries, parks, hospitals, community centers, neighborhood retail, etc.)
N

**Figure 3**

PLTS Existing Conditions on Arterials

Using available data for the arterial network, it is possible to graphically represent the existing conditions for PLTS on a map to show where existing conditions do not meet the intended performance target. The maps (Figure 4 through Figure 7) represent a preliminary look at the existing PLTS conditions on the arterial network, based on the PLTS matrix from Figure 1 and data from the city.

Note that the sidewalk and buffer data on the figures represent data as of 2022/2023 and that city staff are actively updating and reviewing the data. Your eye may be drawn to a specific corridor and you may wonder about the PLTS assignment. We provide these maps to give a general reference for how the existing PLTS conditions will be displayed. These maps will be refined and updated before the MIP update document is finalized later this spring/summer.

In generating the maps, some notable trends were identified. Specifically, there is considerable variability in 85$^{th}$ percentile speeds along some corridors, which causes PLTS to vary even when the sidewalk and buffer conditions are fairly consistent. Speed is particularly notable on some of the lower-volume collector arterials that have sidewalks directly adjacent to the street (e.g., 116th Avenue NE north of SR 520 or 108th Avenue SE south of Main Street). The maps also highlight areas that are missing sidewalks on both sides of the street – a MIP performance target gap. The project team is still working on visualizing areas where sidewalks are missing on just one side of the street, but those will tend to be PLTS 4 conditions.

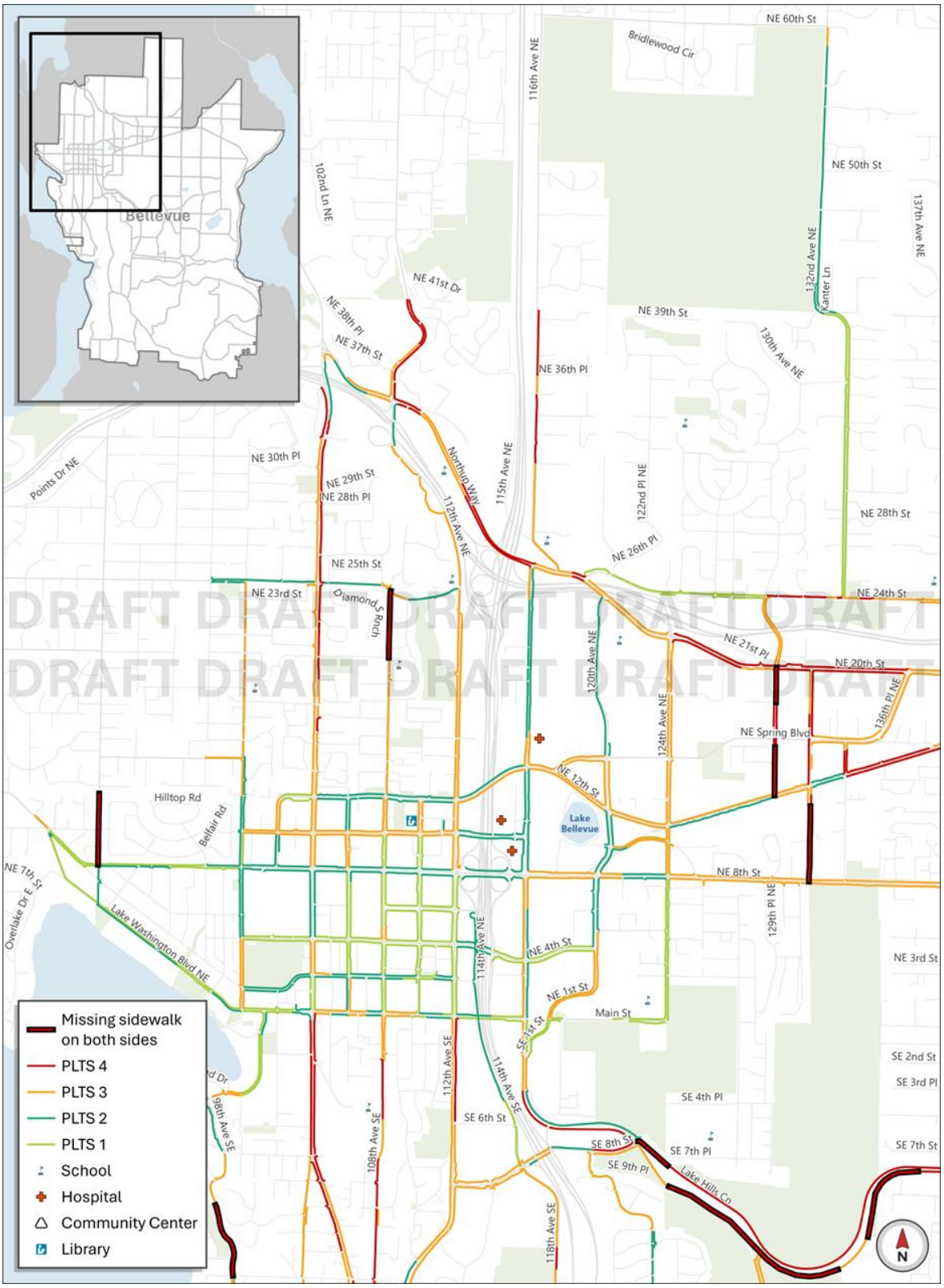



**Figure 4 – Existing PLTS Northwest "Quadrant" of Bellevue (DRAFT)**

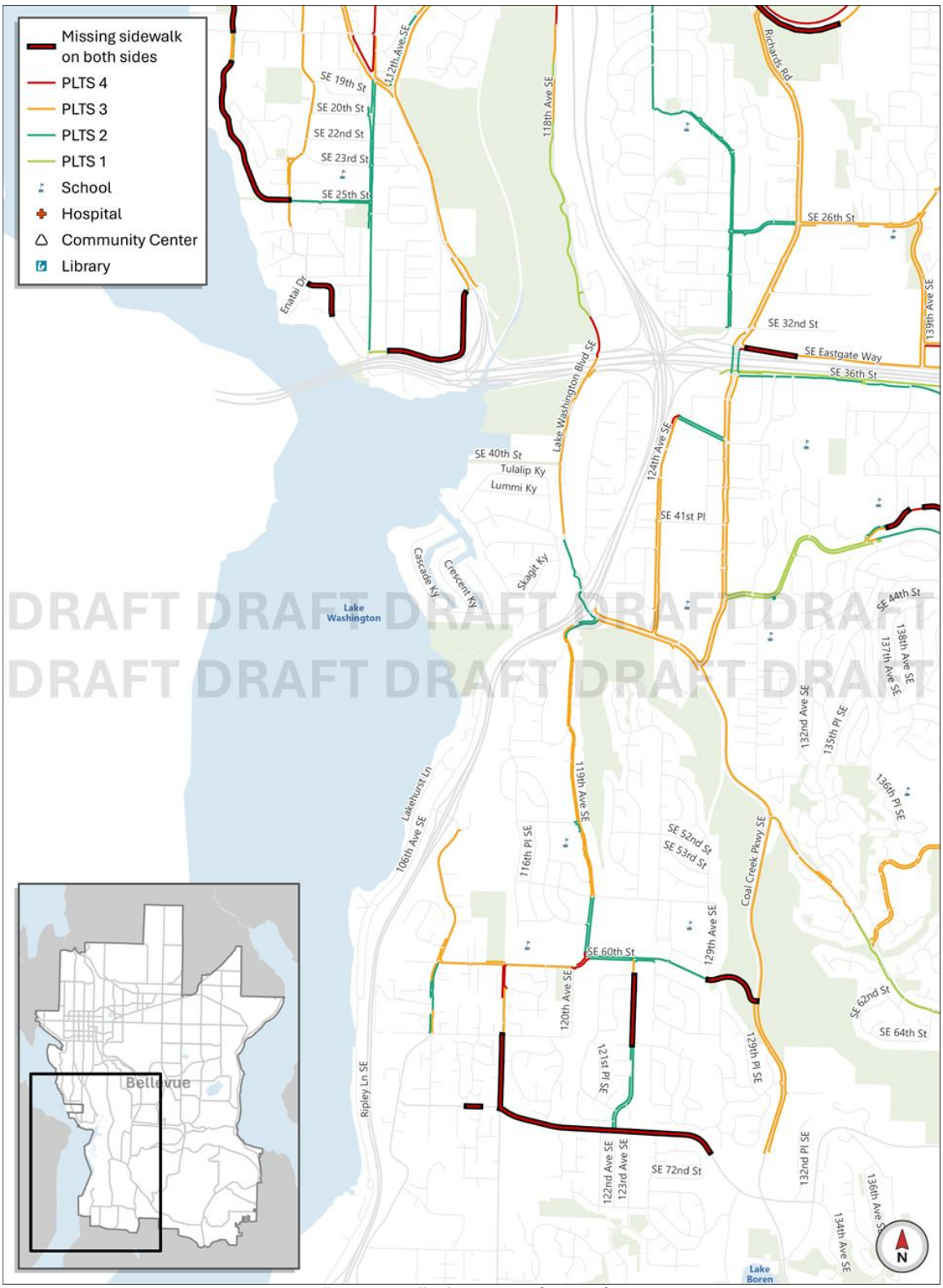



**Figure 5 – Existing PLTS Northeast "Quadrant" of Bellevue (DRAFT)**

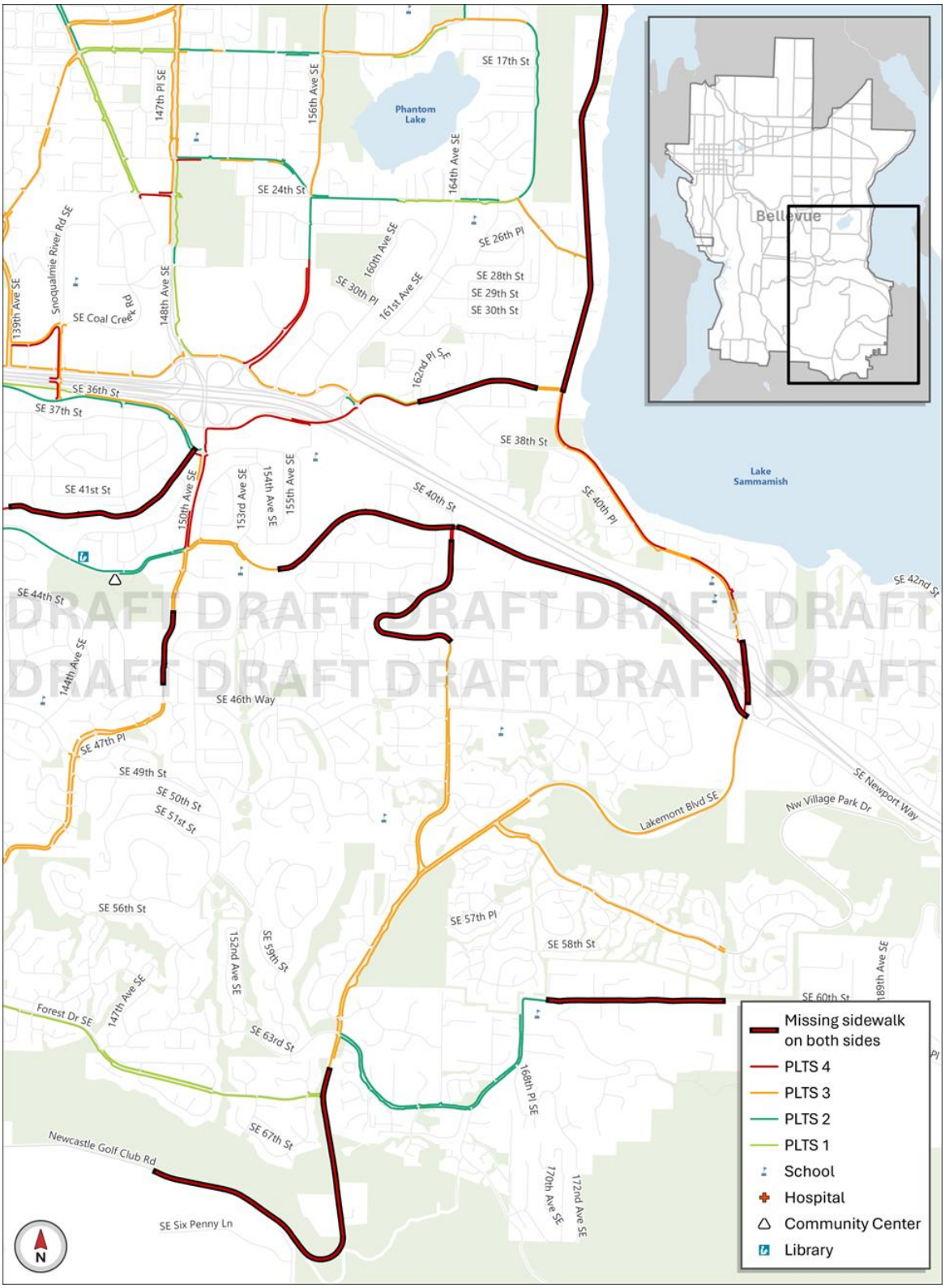



**Figure 6 – Existing PLTS Southwest "Quadrant" of Bellevue (DRAFT)**

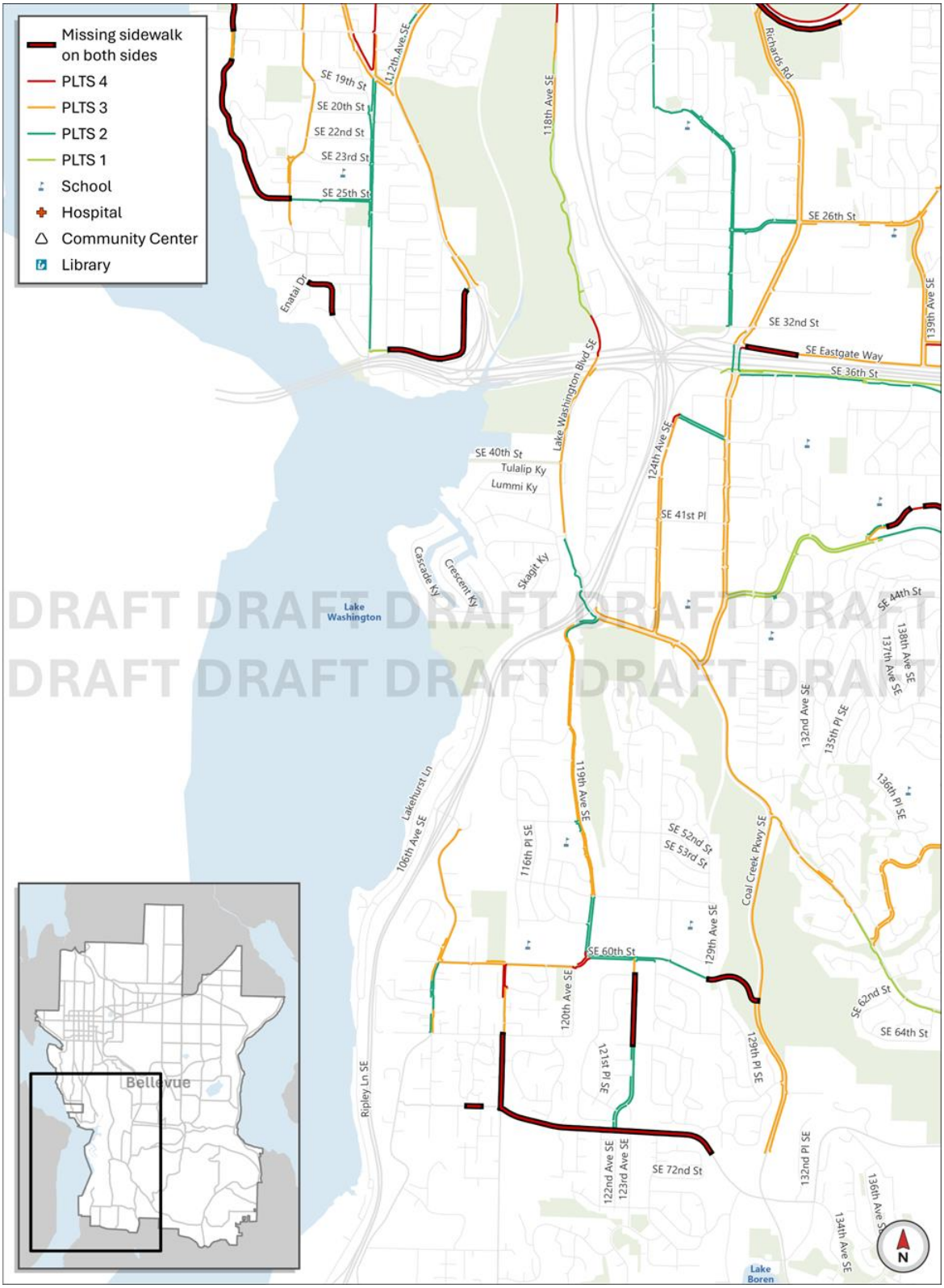



**Figure 7 – Existing PLTS Southeast "Quadrant" of Bellevue (DRAFT)**

PLTS Performance Target Gaps on Arterials

The documentation of the PLTS performance target gaps is the first step toward determining priorities and preparing project concepts. The maps (Figure 4-Figure 7) can be used to identify the existing PLTS performance target gaps on the arterial network.

This update of the Mobility Implementation Plan will not go through the exercise of prioritizing performance target gaps and preparing project concepts. That process will occur prior to the next update of the Transportation Facilities Plan when the MIP is used to advance project concepts for consideration. At that time, the MIP will use scoring criteria that reflect the fundamental MIP goals as well as supplemental components: Type 1 supplemental components will inform prioritization, and Type 2 supplemental components will inform project concepts for the higher priority gaps.

PLTS Data for Arterials

When generating the PLTS results shown in the prior maps, a detailed inventory of data is developed for each arterial segment. The representative data for primary PLTS metrics associated with a couple roadway segments is shown for example in Table 1 and will be valuable as part of future project concept development and prioritization.

**Table 1**

| | | | Primary PLTS Metrics | | | |
|---|---|---|---|---|---|---|
| **Arterial Name** | **From/To** | **AADT** | **Actual 85%ile Speed** | **Sidewalk width** | **Buffer width** | **PLTS** |
| NE 10th Street (eastbound) | 108th Ave NE to 110th Ave NE | 11,000 | 40 mph | 8 feet | 5 feet | PLTS 3 |
| Lake Hills Blvd (westbound) | 154th Ave NE to 156th Ave NE | 10,600 | 36 mph | 6 feet | 4 feet | PLTS 3 |

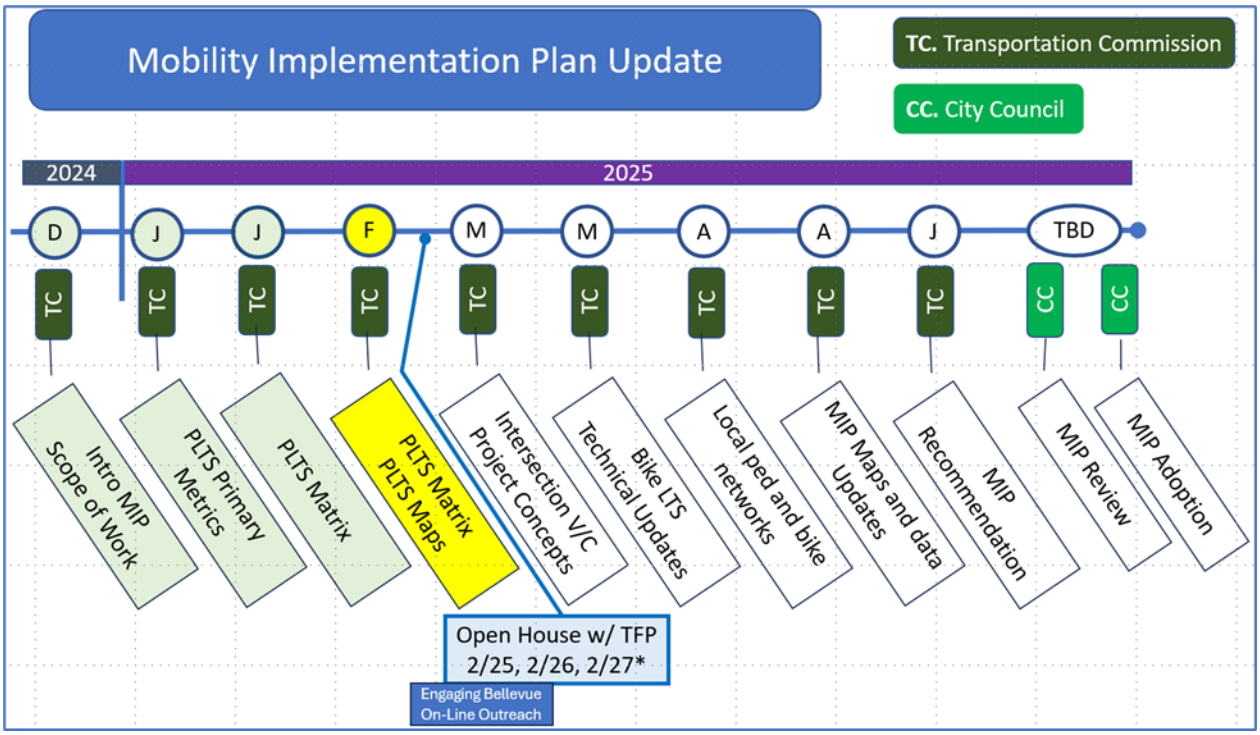
**NEXT STEPS: PUBLIC ENGAGEMENT**

Staff will soon initiate an Engaging Bellevue project page to verify that the 2009 Pedestrian and Bicycle Plan networks for local streets meet current needs and to solicit input on where the previously planned network should be modified in this update of the Mobility Implementation Plan.

In-person engagement for the MIP Update regarding pedestrian and bicycle local networks will be done in collaboration with the open houses planned for the Transportation Facilities Plan update. Dates/times and locations for the open houses are as follows:

- February 25 @ Crossroads 11:00 – 1:00
- February 26 @ City Hall Concourse 4:30-7:00
- *Tentative February 27 @ Factoria

**MIP Update Calendar**




**ATTACHMENTS**

None