City of Bellevue

Transportation Commission Study Session

DATE: January 16, 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

At the January 23 study session, Transportation Department staff and the consultant team from Fehr & Peers will review the primary metrics for Pedestrian Level of Traffic Stress and the supplemental components that were discussed at the January 9 Commission meeting. Staff will introduce a generalized PLTS matrix using the primary metrics, similar to the bicycle level of traffic stress matrix in the Mobility Implementation Plan. Staff will seek Commissioner input and concurrence on the generalized PLTS matrix and on the recommended categories and functions of supplemental components.

BACKGROUND AND INFORMATION

Safe, comfortable pedestrian travel is an important goal for the city of Bellevue. When a pedestrian feels unsafe or uncomfortable they may choose a vehicle mode instead of walking. The adopted MIP defines the basic performance metric for the pedestrian network as the presence of a sidewalk. This project will refine performance metrics to include a Pedestrian Level of Traffic Stress.

Pedestrian Level of Traffic Stress (PLTS) is a qualitative way that some jurisdictions use to describe the level of comfort and safety of people walking adjacent to vehicle traffic along an arterial given various sets of arterial and sidewalk characteristics. The PLTS describes four categories of pedestrian comfort and safety along an arterial segment:

- PLTS 1: Little to no stress or concerns for safety in a comfortable pedestrian environment.

- PLTS 2: Low stress. Generally, a comfortable and safe pedestrian environment.
- PLTS 3: Moderate stress. May be somewhat uncomfortable, with some concern for safety.
- PLTS 4: High stress. Uncomfortable, significant concern for safety.

On January 9, the Commission reviewed and implicitly concurred with the staff recommendation to use the following primary metrics to describe the pedestrian LTS along Bellevue arterials:

- Actual traffic speed
- Average daily traffic volume
- Width of sidewalk
- Width of buffer

Driveways

On January 9, Commissioners discussed whether the presence of commercial and multifamily driveways should be considered as a primary PLTS metric, and requested staff and consultants return with a recommendation. Staff and consultants acknowledge that the presence of a driveway may create a potential mixing zone between vehicles and people using the sidewalk. In addition, the factors of driveway spacing, design, and vehicle volume contribute to the potential for pedestrian discomfort and concern for the safety of vulnerable users of the sidewalk. Upon consideration, staff and consultants recommend that commercial and multifamily driveways not be considered as a primary metric to determine pedestrian level of traffic stress for the following reasons:

- Data on driveway design and vehicle volume is not available citywide. A fundamental characteristic of a primary metric is the availability of citywide information.
- Spacing and vehicle volume of driveways are not in city control and may be addressed only through redevelopment or a capital project. Existing commercial/multifamily driveways may not meet current standards related to design features such as spacing, location, width, sight lines, or level sidewalk.
- Not all existing driveways present the same type of conflict within the mixing zone, therefore a simple accounting of driveway spacing may not tell a meaningful story related to pedestrian safety. The variables of the driveway and the sidewalk environment apply in the specific context of each individual driveway to inform the design of a project concept, rather than to describe generalized PLTS along an arterial.
- New driveways that are required through development review, or that are retrofit as part of a capital project (rare) are designed to provide clear sight lines between drivers and pedestrians.

- New commercial/multifamily driveways that are required and designed through development review provide a level sidewalk across the driveway. Most older driveways prioritize vehicle ingress and egress (and thus speed) by providing a level passage for vehicles across the sidewalk, with the sidewalk dropping down to driveway level. A level sidewalk increases pedestrian visibility and slows vehicle speed, thus providing for a greater degree of safety and comfort for pedestrians on the sidewalk.
- Bellevue has very limited ability to proactively address the design or location of existing driveways. When an existing driveway design or location does not meet current standards, improvements would be implemented with site redevelopment (very rarely with a corridor capital project, such as along Factoria Boulevard in the early 2000s)
- Bellevue will implement current development standards related to driveways as a condition of new development approval or as part of a capital project. Incrementally, a driveway that does not meet current design standards will be improved as redevelopment occurs. Redevelopment may include consolidation and realignment of existing multiple driveway access points to a single parcel.

Instead of considering commercial/multifamily driveways as a primary metric to determine the arterial PLTS, staff recommends that driveways be considered a Type 2 supplemental component that will influence and inform the design of a project concept, as described in the Supplemental Components section below.

<u>Generalized PLTS Matrix</u>

The primary metrics form the basis for a performance targets matrix that graphically describes PLTS based on the fundamental characteristics of the arterial (traffic speed and volume) and the sidewalk (width of sidewalk and buffer). Conceptually, the matrix would look like the graphic below, with the color bands approximately representing the PLTS:

Pedestrian Level of Traffic Stress

PLTS 1
PLTS 2
PLTS 3
PLTS 4

Arterial Characteristics		Sidewalk Characteristics							
		Width of Sidewalk							
		<4'		4 - 6'		6' - 10'		>10'	
		Width of Buffer							
Arterial Actual Travel Speed	Arterial Daily Traffic Volume	<5'	≥5'	<5'	≥5'	<5'	≥5'	<5'	≥5'
≤25	<3k								
	3k-7k								
	>7K								
25-30	<10								
	10 -25k								
	>25								
30 - 35	<25								
	>25								
>35	Any								

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 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 4, orange and red). In the presentation to the Commission on January 23, staff will describe how the PLTS matrix will be applied to the arterial network.

Supplemental Components

Supplemental components will help prioritize performance target gaps and inform the design of project concepts to address gaps. At the project implementation stage, supplemental components will be helpful in refining/informing project concept designs and development mitigations.

Staff provided the list of supplemental components on January 9. Upon further consideration, staff recommends that the supplemental components be categorized into two types based on how they will be used, as described below:

Type 1 supplemental components will help prioritize performance target gap:

- Performance Management Area to represent generalized land use
- Pedestrian destinations: school, library, FTN stop, etc
- Accessibility: Standards from ADA, PROWAG
- Safety: High Injury Network

Type 2 supplemental components will inform the design details of project concept to address a performance target gap:

- Driveways: spacing and volume of commercial and multifamily driveways
- Presence of fixed objects in buffer area
- Presence of curbside parking or bike lane
- Spacing of designated arterial crossings
- Adjacent/proximate land uses and environmental constraints

NEXT STEPS

Staff intend to present a map of existing arterial network PLTS conditions and overlay PLTS performance targets (PLTS 1, PLTS 2 and PLTS 3) onto the Bellevue arterial network.

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.

ATTACHMENTS

None