Planning Commission Meeting Date: February 17, 2022 **Agenda Item 6a.**

PLANNING COMMISSION AGENDA ITEM

CITY OF SHORELINE, WASHINGTON

AGENDA TITLE: **Transportation Master Plan Update: Auto Level of Service Approach**
DEPARTMENT: **Public Works**
PRESENTED BY: **Nora Daley-Peng, Senior Transportation Planner**

☐ **Public Hearing**	☐ **Study Session**	☐ **Recommendation Only**
☒ **Discussion**	☐ **Update**	☐ **Other**

INTRODUCTION

This staff report provides the overview to tonight's presentation and discussion about auto level of service (LOS) policies options, as part of Shoreline's Transportation Master Plan (TMP) update. This is the third in a series of briefings to the Planning Commission about the TMP update. No action is required tonight.

BACKGROUND

The City is currently updating its TMP to better serve the community's current and future transportation needs. The TMP supports all forms of travel – by foot, bicycle, skateboard, scooter, stroller, wheelchair, transit, motorcycle, automobile, etc. With the coming arrival of light rail transit, new and higher frequency bus service, new pedestrian/bicycle connections, land use changes, and anticipated population growth, the TMP update provides an opportunity to better align transportation goals, objectives, and policies with the City's Comprehensive Plan.

The last update to the TMP was in 2011. The TMP update will guide local and regional transportation investments and define the City's future transportation policies, programs, and projects for the next 20 years.

PROCESS AND SCHEDULE

In fall 2020, the City launched a multi-year process to update the TMP with the goal of adoption by the end of 2022. City staff has and will continue briefing the Planning Commission and City Council throughout the process and seek their feedback on the development of the TMP update.

To date, the project team has assessed existing conditions, conducted two rounds of public outreach, developed the TMP Vision and Goals, and a Project Evaluation Framework. The team is now working on multimodal LOS policies, draft modal plans, a

Approved By: **Project Manager** ____ **Planning Director** ____

process for prioritizing projects, and getting ready to launch Outreach Series 3 in April. The following overview schedule shows key milestones for the TMP update process.

OVERVIEW

Tonight's presentation and discussion about auto level of service (LOS) policies options that define the adequacy of vehicle capacity and flow on City arterials as part of TMP update. LOS policies directly influence how the City will grow as well as how it conducts development reviews and transportation concurrency assessments. In addition, LOS policies guide the development of the TMP update project list and Transportation Impact Fee (TIF) program.

MEASURING VEHICLE OPERATIONS

Jurisdictions in Washington have significant flexibility in choosing level of service standards appropriate for their cities. Shoreline's current standard uses a standard that evaluates the highest peak hour traffic volume divided by that roadway assumed hourly volume capacity. This is referred to as a volume to capacity (V/C) ratio. See below for additional details.

The operational performance of intersections within Shoreline is measured using a standard methodology known as level of service (LOS). LOS represents the degree of congestion at an intersection based on a calculation of average delay per vehicle at a controlled intersection, such as a traffic signal or stop sign.

Individual LOS grades are assigned on a letter scale, A-F, with LOS A representing free-flow conditions with no delay and LOS F representing highly congested conditions with long delays, as illustrated in **Figure 1**. It is worth noting that LOS assessments are conducted specifically for the peak hour of traffic volumes; typically, the highest hour of traffic volumes occurs between 4-6 PM. As such, the LOS assessment represents the worst-case scenario, whereas the intersection likely performs with significantly lower delays most of the day.

Figure 1: Intersection Level of Service

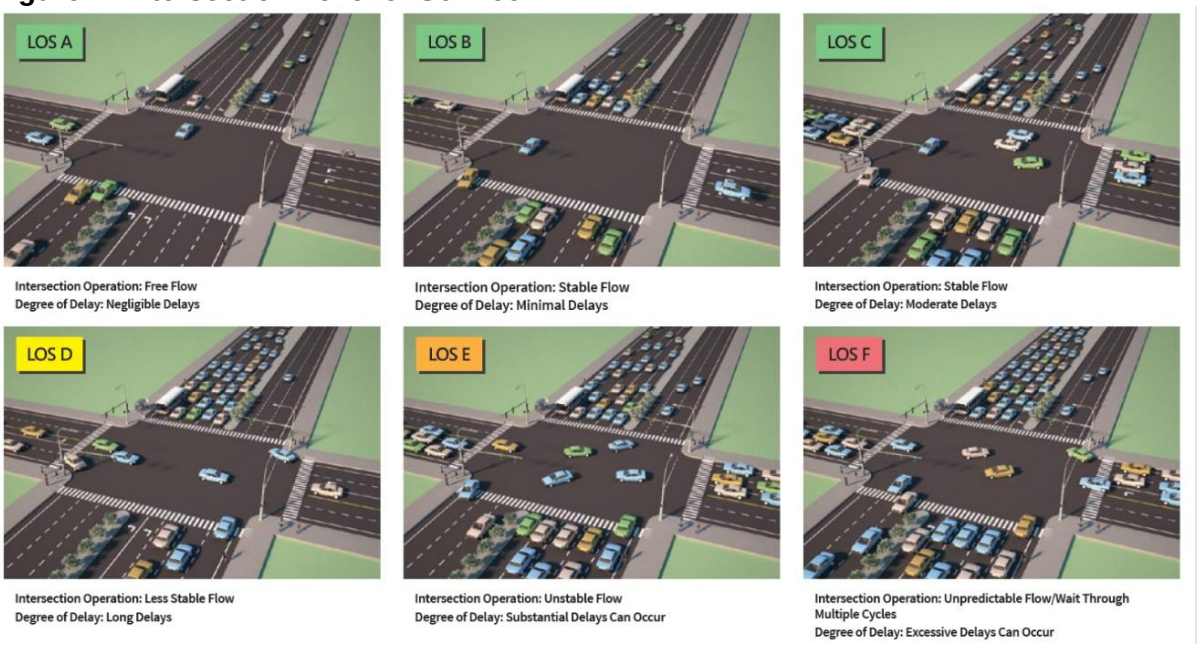


Figure 2 includes the definition of each intersection LOS grade from the 6th Edition Highway Capacity Manual (HCM) methodology, which is based on average control delay per vehicle. Signalized intersections have higher delay thresholds compared with two-way and all-way stop-controlled intersections. HCM methodologies prescribe how delay is measured at different types of intersections: for signalized and all-way stop intersections, LOS grades are based on the average delay for all vehicles entering the intersection; for two-way stop-controlled intersections, the delay from the most congested movement is used to calculate LOS.

Figure 2: Intersection Level of Service Criteria Based on Delay

Level of Service	Signalized Intersections (seconds per vehicle)	Stop-Controlled Intersections (seconds per vehicle)
A	<= 10	<= 10
B	10 to 20	10 to 15
C	20 to 35	15 to 25
D	35 to 55	25 to 35
E	55 to 80	35 to 50
F	> 80	> 50

Source: 6th Edition Highway Capacity Manual

It is worth noting that while LOS A represents the lowest traffic delay, it is not necessarily the ideal standard to strive for as it is largely unattainable in more urban environments and significantly limits desired redevelopment. While little to no delay might be convenient for drivers, it may also indicate that resources and space dedicated to streets could be better used for other purposes, such as sidewalks, bike lanes, greenery, on-street parking, or other urban amenities.

SHORELINE'S CURRENT LOS POLICY

The City's current LOS policy requires LOS D at signalized intersections on arterials and most unsignalized intersecting arterials.

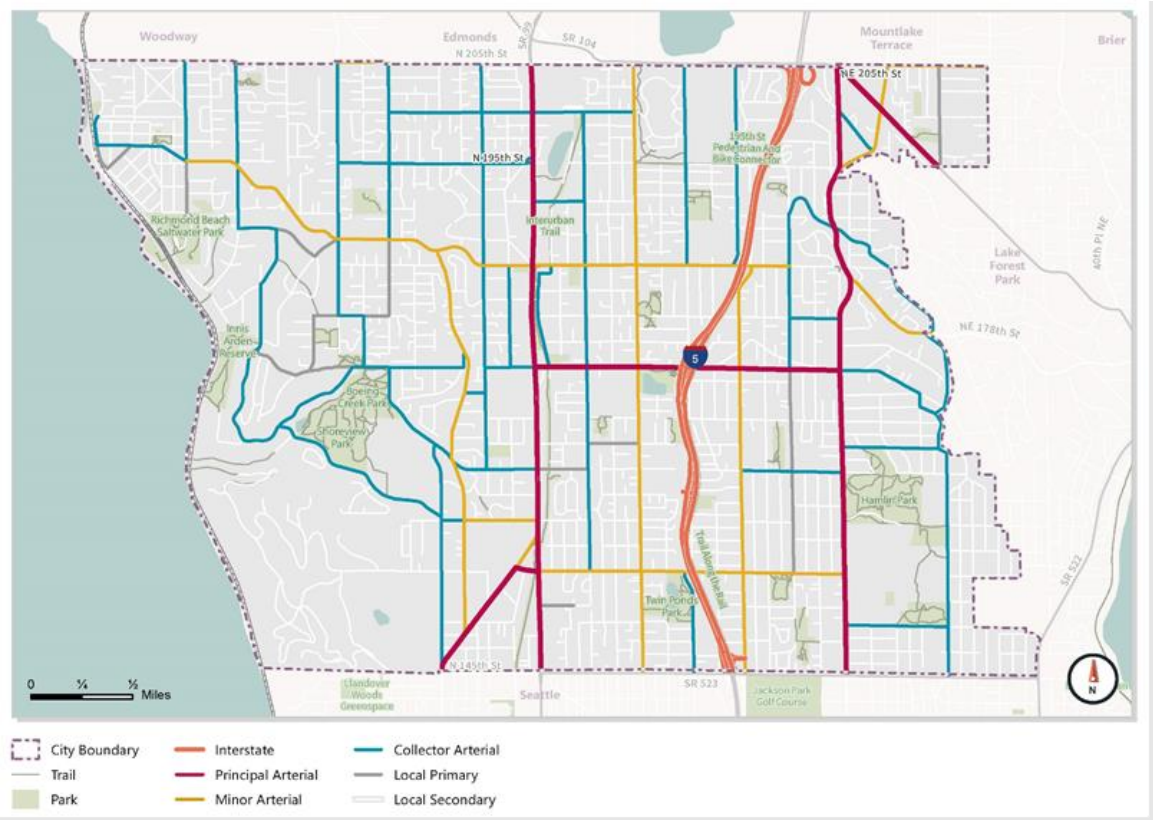
SHORELINE'S CURRENT VOLUME-T0-CAPACITY (V/C) RATIO POLICY

Additionally, the intersection LOS policy is supplemented with a documented Volume-to-Capacity (V/C) Ratio standard of 0.90 or lower for principal/minor arterials. **Figure 3** shows the functional classification of Shoreline's streets.

The following two street segments are exempted from this standard:

- Dayton Avenue N from N 175th Street to N 180th Street
- 15th Avenue NE from NE 150th Street to NE 175th Street

Figure 3: Shoreline's Street Functional Classification



ANALYSIS – OPTIONS CONSIDERED

Options for Updating Intersection LOS Policy

The project team considered three potential options for intersection level of service (see **Figure 4**). Options include staying with the status quo and making modifications that would provide more flexibility and nuance to ensure that roadway conditions are still comfortable for people walking, bicycling, riding transit, and other non-auto modes.

Figure 4: Options for Updating Intersection LOS

1. No Change	2. District Approach	3. District Approach + Corridor Averaging
• LOS D at intersections	• LOS D at intersections in residential settings • LOS E at intersections adjacent to higher land uses	• Instead of applying LOS D or E to individual intersections, group multiple intersections along a corridor and use the average delay of the group. • Average LOS D in residential settings • Average LOS E at intersections adjacent to higher land uses
• Most conservative – results in requiring the most mitigation/growth projects. • Concern that TIF would be too high, discouraging redevelopment. • Concern that it could result in much larger and costly intersection improvements with greater impacts than Option 2 (District Approach) and Option 3 (District Approach + Corridor Averaging) to pedestrian comfort and safety, as well as the natural environment.	• Allows for a more context sensitive approach and better balance to modal priorities in denser areas. • Results in fewer mitigation/growth projects compared to Option 1 "No Change" but slightly more compared to Option 3 "District Approach + Corridor Averaging". • Relatively simple to administer. • Travel time and delay will be greater than Option 1 along corridors adjacent to higher land use.	• Even greater flexibility resulting in even fewer mitigation/growth projects than Option 2 "District Approach" • Challenging to determine how to group intersections without seeming arbitrary. • More difficult to administer than Option 1 or 2. • Travel time and delay will be greater than Option 1 or Option 2 along corridor adjacent to higher land use.

Options for Updating V/C Ratio Supplemental LOS Standard

The project team discussed two main options for the segment V/C ratio supplemental LOS standard (see **Figure 5**); whether the City should continue using the segment V/C ratios as a supplemental measure or remove the supplemental measures altogether.

Figure 5: Options for V/C Supplemental LOS Standard

1. Keep it the same (0.9 V/C)	2. Remove V/C
• Retaining the 0.9 VC on some corridors in the City is likely infeasible as it would require a large investment including significant property acquisition to meet this LOS. • In conflict with modal priorities in City's denser areas, as mitigating to meet standards would mean wider, less pedestrian-friendly corridors. • Difficult to administer from a development review perspective, as there is no accepted industry standard for how capacity is calculated.	• Removing the 0.9 V/C standard eliminates the issues described in Option 1 and allows for simplicity in reviewing for concurrency. • However, removing the standard weakens the City's ability to discourage significant growth in areas that lack robust supportive land uses and transportation choices as alternatives to auto-dependency.

PROPOSED REFINEMENTS

In working through potential refinements to best align the City's transportation standards with the Shoreline Comprehensive Plan and TMP Vision and Goals, the team developed the following proposed staff recommendation.

Intersection LOS

The project team recommends Intersection LOS Option 2, with some refinements. After thinking through how to apply a context sensitive standard, we looked at applying a district approach to intersections within the City's Candidate Countywide Centers[1] (listed below). This approach would align areas where the City could accept higher levels of delay with where we expect to see and want to encourage growth.

- 148th Street Station Area
- 185th Street Station Area
- Shoreline Place
- Town Center

By focusing on flexibility in centers, as opposed to allowing more delay at every location with non-residential land use, the City could uphold what is likely a more appropriate delay standard in locations with less supportive transportation infrastructure (e.g., small pockets of commercial land use in Richmond Beach) while further incentivizing growth

[1] Countywide growth centers serve important roles as places for equitably concentrating jobs, housing, shopping, and recreational opportunities. These are often smaller downtowns, high-capacity transit station areas, or neighborhood centers that are linked by transit, provide a mix of housing and services, and serve as focal points for local and county investment. On December 1, 2021, the Growth Management Planning Council (GMPC) approved the City of Shoreline's 148th St. Station Area, 185th St. Station Area, Shoreline Place, and Shoreline Town Center as candidate countywide centers. Jurisdictions with candidate countywide centers are expected to fully plan for their centers as a part of the 2024 comprehensive plan periodic update or in parallel local planning efforts.

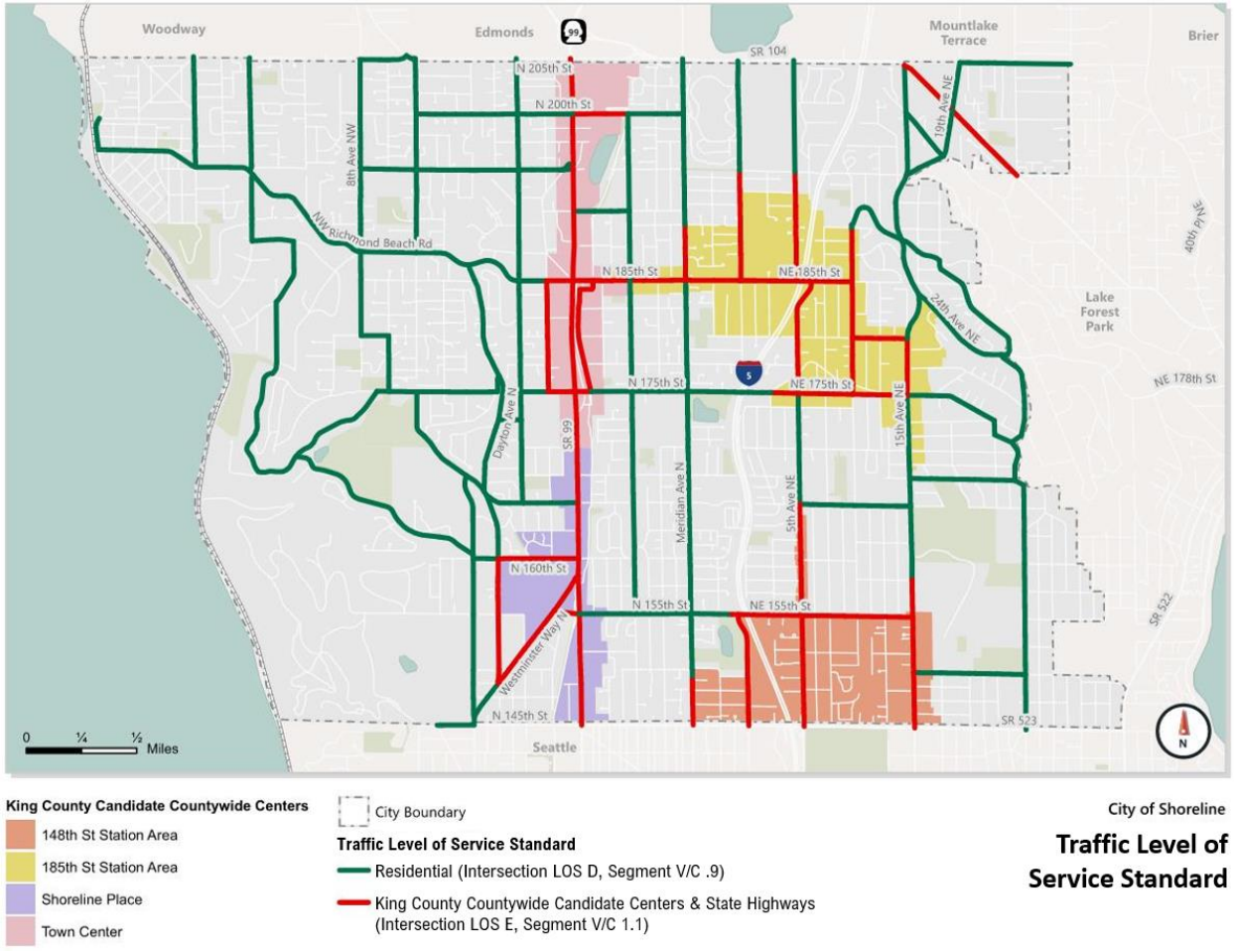
in centers where more trips by foot, bike, and transit are expected and therefore, better balancing modal priorities based on City context.

Segment LOS – V/C Ratio

By refining the intersection LOS as described above, we can consistently tie the roadway segment V/C to it. We propose a V/C of 1.1 within centers, and 0.9 elsewhere. Accepting a certain level of future congestion for general-purpose traffic in the centers will complement the center's planned dense and diverse land uses within a network of walkable, bikeable, transit-supportive streets. This again reinforces the City's goal of growth in these centers, while providing a measure of protection in areas of the City that may be less walkable, with less robust transit, and with less supportive land uses. In addition, this option provides for consistency and simplicity in application between intersection and segment standards.

Figure 6 is a draft of what staff's recommended intersection and segment LOS policy would look like.

Figure 6: Draft Refined Intersection and Segment LOS Option



NEXT STEPS

Over the winter 2022, the project team will build on the knowledge gained from the TMP's Outreach Series 1 and 2 and the future travel demand model. The project team

will use this to develop a draft layered transportation network of modal plans for pedestrian, bicycle, transit, shared-use mobility, and auto/freight modes. In addition, the project team will draft multimodal level of service (MMLOS) policies.

Staff will return to the Planning Commission in March with an update on the TMP's draft modal plans, a process for prioritizing projects, and an overview of activities and events for Outreach Series 3.

The project team plans to conduct Outreach Series 3 in April 2022 to share the results of Outreach Series 2, get feedback on the Project Evaluation Framework, and explain what a "layered transportation network" and "multimodal level of service" means and how those concepts apply to draft modal plans and policies.

ADDITIONAL INFORMATION

For more information about the TMP update, please visit the project webpage https://www.shorelinewa.gov/tmp or contact Nora Daley-Peng, Senior Transportation Planner, at ndaleypeng@shorelinewa.gov or (206) 801-2483.

RECOMMENDATION

Tonight's presentation is for discussion only. No recommendation action is required.