

City of  
Bellevue



# Transportation Commission Study Session

**DATE:** September 2, 2021

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

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**SUBJECT:** Mobility Implementation Plan: Review Vehicle Facility Performance Approach

## DIRECTION REQUESTED

Action

☒ **Discussion/Direction**

☒ **Information**

On September 9, staff and the consultant team will summarize and seek Transportation Commission concurrence on a recommended approach to define Vehicle Performance Management Areas, System Intersections and Primary Vehicle Corridors. Staff will review an approach to address the response to the circumstance when monitoring reveals that a Vehicle Performance Target is not met.

### Performance Management Areas

Staff recommends three categories of Performance Management Areas (PMAs) and seven specific PMAs as previously discussed with the Commission and as shown in **Figure 1**. This recommendation reflects the Commission's expressed preference to reduce the number of geographic areas for which specific Performance Targets are set from the existing 14 Mobility Management Areas while tailoring Performance Targets to support the existing and planned land use and to acknowledge existing and planned mobility and accessibility options. Similar land use types are grouped together in 7 Performance Management Area categories as follows:

- **Type 1. Mixed-Use, High-Density, High-Growth: Downtown, BelRed, and Wilburton/East Main** are activity centers with high density land use, **light rail service**, and many mobility options that provide access within the PMA and to other areas; these are shown in orange shading on the map.

- Each of these PMA categories would be assigned an overall Performance Target for intersections with higher levels of traffic congestion and slower traffic speed anticipated in higher density locations that offer more mobility and accessibility options. Staff anticipates the discussion regarding vehicle Performance Targets to commence with the Transportation Commission on September 23.



Based on discussions with the Transportation Commission dating back to 2014, the use of arterial corridors to evaluate multimodal performance is fundamental. This focus on arterial corridors is evident in the consensus pedestrian, bicycle, and transit Performance Metrics and Performance Targets. The Transportation Commission has communicated the intent to carry the corridor concept to the vehicle mode. Staff has developed a set of criteria to help define a “Primary Vehicle Corridor” for which Performance Targets for both vehicle corridor travel time and intersection v/c ratio would be established and monitored. The designation of “Primary Vehicle Corridor” would create a subset of all arterial corridors in the city for which Performance Targets are set separate from other arterials. Such a designation would not necessarily imply that vehicle mobility is the top priority for the corridor, for example, a Primary Vehicle Corridor segment could also be a Bicycle Priority Corridor. A Primary Vehicle Corridor could be defined as follows:

- Staff proposes the Primary Vehicle Corridors shown in **Figure 2**.



## System Intersections

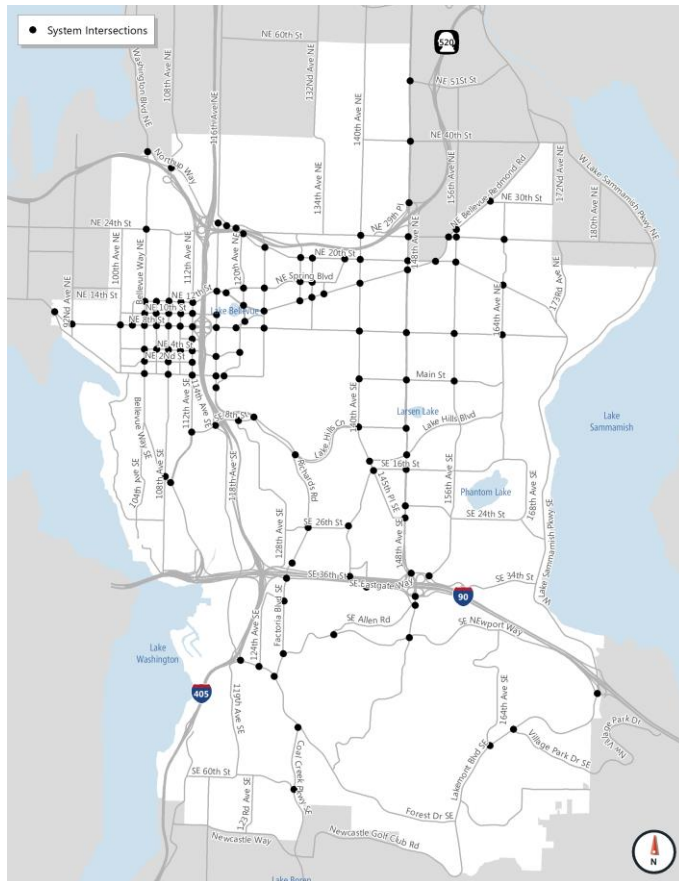
In addition to monitoring performance of vehicle travel time along corridors, Bellevue will also continue to monitor intersection congestion. Monitoring v/c as a vehicle Performance Target will inform project descriptions and priorities through each update of the Transportation Facilities Plan and implementation through the CIP, the levy and impact fees.

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System Intersections are the locations where the City will monitor intersection performance in terms of the volume/capacity (v/c) ratio. To be designated as a System Intersection for the Mobility Implementation Plan, staff recommends the following criteria, both of which must be met:

- Signalized or roundabout intersection with two arterials; and
- Located along a Primary Vehicle Corridor.

Applying these criteria results in 124 System Intersections as shown in **Figure 3**.



### Figure 3. System Intersections

## Calculating and Reporting Vehicle Performance

Bellevue currently documents vehicle performance by measuring the v/c ratio at System Intersections and averaging v/c ratios across each Mobility Management Area. As part of the MIP, staff recommends a departure from this approach. Instead, staff recommends monitoring and reporting intersection v/c ratios and corridor travel time on an individual basis with no averaging over geographic areas (Performance Management Areas). Rather than averaging the v/c across all System Intersections and travel time along Primary Vehicle Corridors within a PMA to determine if the PMA meets the Performance Target, each System Intersection and

Primary Vehicle Corridor would be assessed against the Performance Targets set for the PMA or the Corridor. Therefore, the outcome of the Performance Target gap evaluation would be a list of System Intersections and a list of Primary Vehicle Corridor segments that do not meet their respective Performance Targets.

### **Addressing a Gap in a Vehicle Performance Target**

The approach proposed for the Mobility Implementation Plan is to address a vehicle performance gap in the same manner that the Commission has recommended for the other modes. When monitoring reveals that a vehicle Performance Target gap exists, staff would consider each gap individually to evaluate whether and how to meet the Performance Target. Considerations may include available funding, potential environmental impacts, equity, available right-of-way, the location's priority within the layered network, and other nearby modal mobility gaps – considerations to be defined in the Mobility Implementation Plan. If considerations reveal that investments/interventions to meet the Performance Target would not be reasonable or feasible for any of the above reasons, a description of why the target cannot be met would be accompanied by options for other investments/interventions to improve mobility and accessibility. Options may include improving vehicle operations on a parallel corridor, enhancing the modal options for non-vehicle modes, implementing more aggressive transportation demand management measures, and managing diverted traffic related to increased congestion. Two hypothetical examples are provided below:

#### **Example 1: Intersection A**

Intersection A currently does not meet the 0.95 v/c Performance Target for its Performance Management Area. Intersection A has already been built to its maximum vehicle capacity, there is no additional right-of-way available and there are environmental constraints of a wetland. While adding vehicle capacity to improve performance at this specific location may be unreasonable and infeasible, alternate ways to enhance mobility and accessibility for people may include better freeway access, buildout of the urban corridor bicycle network, and enhancing pedestrian connectivity. Regional investments in light rail and bus rapid transit service may improve access for people to local and regional destinations.

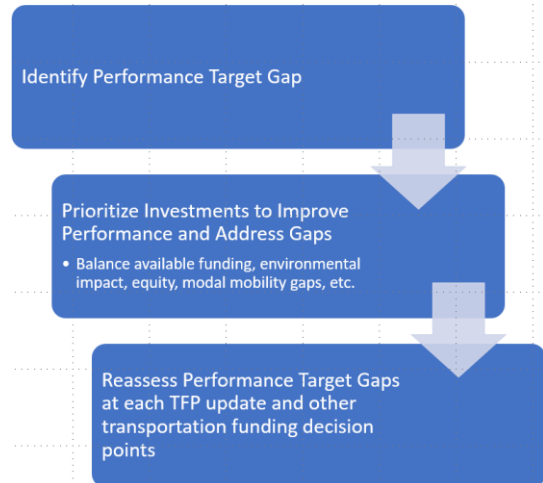
#### **Example 2: Intersection B**

Intersection B is nearing the 0.90 v/c Performance Target for its Performance Management Area. The location of this intersection offers options for reconfiguration and/or expansion given the available right-of-way and few land use or environmental constraints. As a result, the City would evaluate options for added vehicle capacity to improve vehicle performance, while also accommodating bicycle and pedestrian facilities at and around this intersection to also accommodate Performance Targets for these modes.

## Vehicle Facility Performance Evaluation: Step-by-Step

Staff have developed a proposed approach to evaluate and address vehicle facility performance. At a high level, the steps include:

1. Identify gaps in vehicle Performance Targets: Primary Vehicle Corridor segments and System Intersections that do not meet the corridor travel speed and volume/capacity (v/c) ratio Performance Targets.
2. Focus investments/interventions to address gaps; prioritize addressing performance gaps that meet overall MIP prioritization goals.
3. Recognize that not all vehicle performance gaps may need to be addressed in the TFP update given funding constraints, environmental and equity considerations, limited right-of-way, etc.
4. Document the intersections or segments that do not meet Performance Targets and the alternative investments that could be implemented to improve accessibility (e.g., investments in a parallel corridor, bicycle corridor improvements, etc.) or the reasons that no investments are being made at this time (low priority, environmental constraints, lack of right-of-way, etc.).
5. Reassess Performance Target gaps at each update of the TFP and at other transportation funding decision points; consider how gaps will be addressed or why gaps do not need to be addressed at the time of the TFP update.



## Conclusion

The recommended evaluation procedure to identify and address a vehicle Performance Target gap brings the approach for the vehicle mode in line with that identified for other modes. When a gap is identified, the Transportation Commission/community/staff would consider how to address the gap within financial and environmental constraints as well as among competing mobility priorities.

## NEXT STEPS

More details and discussions on setting the vehicle Performance Targets are planned for the Transportation Commission meeting on September 23<sup>rd</sup> when modeling data from the latest TFP update and new land use targets from King County are available.