City of Bellevue

Transportation Commission Study Session

DATE: April 15, 2021

TO: Chair Marciante and Members of the Transportation Commission

FROM: Kevin McDonald, Principal Transportation Planner, 425-452-4558
kmcdonald@bellevuewa.gov

SUBJECT: Multimodal Concurrency – Performance Metrics and Principles

DIRECTION REQUESTED

	Action
X	**Discussion/Direction**
	Information

Discussion: This memo describes a set of recommended transportation concurrency performance metrics and thresholds that will be explored in detail in the April 22 study session.

Direction: The Commission will be asked to concur with a set of multimodal concurrency principles under Unfinished Business.

Please feel free to contact me prior to the meeting if you have questions about the agenda materials.

INFORMATION

Staff prepared a recommendation for multimodal concurrency as a key preliminary deliverable for the Mobility Implementation Plan. A final report on multimodal concurrency is linked here and the document located on the Mobility Implementation Plan web site.

The Multimodal Concurrency Performance Thresholds

In the context of multimodal concurrency, a performance "metric" describes what is being measured, and the performance "threshold" describes the intended level of performance for each metric. Using the existing concurrency framework, the volume to capacity ratio (v/c) of traffic at an intersection is the "metric, and the "threshold" is the assigned maximum v/c for the intersection.

Monitoring of the "performance threshold" will guide project identification and prioritization to develop the planned multimodal transportation network that:

- Accommodates planned growth;
- Provides the expected user experience;
- Promotes the land use vision and livability; and
- Supports other City goals and policies.

Performance thresholds will help ensure that the multimodal transportation system planned in the TFP and constructed through the CIP (mobility supply) includes projects that serve the transportation needs of growth (mobility demand). Performance thresholds are not multimodal concurrency standards. Rather, they describe the expected performance of the system for each mode, within a defined geographic area, and in a specified time period.

Concurrency Standard and Performance Threshold

There is a significant difference between a performance threshold and the concurrency standard defined in the Washington State Growth Management Act. Under the GMA, a city **must** define a transportation concurrency standard and deny a development application if that standard is not met. As previously discussed and documented in principle #2 (see Table 2) *"Achieve concurrency when the supply of mobility units exceeds the demand for mobility units."*, the recommended transportation concurrency standard for Bellevue is based on a supply of mobility units (defined in the TFP and implemented through the CIP) that exceeds the demand for mobility units (defined by the growth forecast in the TFP and quantified for each development during the permitting process).

Under the GMA, a jurisdiction **may** establish multimodal performance metrics and thresholds and define actions to take if those thresholds are not met. The Transportation Commission recommended performance metrics and thresholds for each mode in its 2017 MMLOS Metrics, Standards and Guidelines report. Staff recommends these performance metrics and thresholds for concurrency purposes. If the amount and/or pace of development results in a deficiency in transportation system performance, then, in accordance with principal #9 (see Table 2) *"A deficiency in a concurrency performance threshold will be addressed by modifying the supply of mobility and/or the demand for mobility"*.

A jurisdiction may set certain administrative actions to take when a performance threshold is deficient. This is distinct from the GMA requirement that is specific to the concurrency standard. Whereas failure to meet a concurrency standard will result in an action to "prohibit development approval", Bellevue may define a less drastic response in the event a performance threshold is not met.

Multimodal Concurrency Performance Thresholds

A preliminary list of multimodal performance thresholds to use in multimodal concurrency is included in Table 1. Note that additional work on the Mobility Implementation Plan will likely identify other performance metrics and thresholds, such as mode share and vehicle miles

travelled. While the latter are not essential metrics for concurrency, they will enhance the overall understanding of the transportation system performance with respect to other goals.

For each recommended concurrency performance metric, staff will work with the Commission to define a process that will confirm performance thresholds and prescribe timelines to implement incomplete networks. Failure to meet a performance threshold or to hold to the set timeline to complete the buildout of the pedestrian, bicycle, and transit improvements would require a response from the City as identified in principle #9 (see Table 2).

Table 1. Preliminary Multimodal Concurrency Performance Metrics and Thresholds

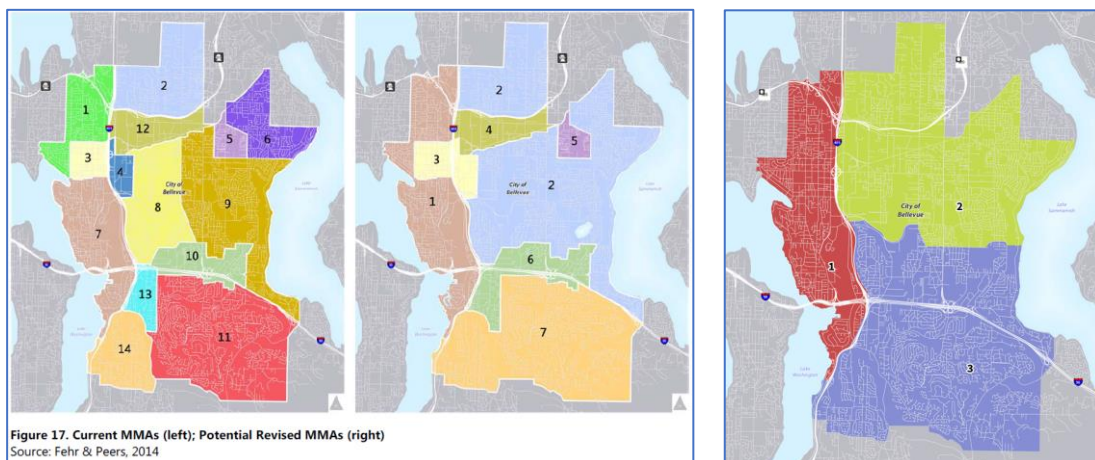| Mode	Performance Metric	Notes on Performance Threshold
Vehicle	Volume/Capacity Ratio at System Intersections, summarized with MMAs	Similar to existing transportation concurrency system with v/c thresholds at system intersections that vary across the MMAs based on land use goals and travel options available. *MMLOS Metrics, Standards, and Guidelines, pages 16-19*
	Typical Urban Travel Speed on Arterials	Travel speed expectations in each MMA is based on land use goals and travel options available. *MMLOS Metrics, Standards, and Guidelines, pages 16-19*
Pedestrian	Sidewalk Width plus Landscape Width	Minimum requirements vary based on the context of the adjacent land use. *MMLOS Metrics, Standards, and Guidelines, pages 20-23*
	Pedestrian Comfort, Access and Safety at Intersections	Minimum requirements vary based on the context of the adjacent land use. *MMLOS Metrics, Standards, and Guidelines, pages 20-23.*
	Amount of System complete along Arterials and at Intersections	A proportion of the pedestrian system will be complete and meet the MMLOS thresholds by time horizon of a future TFP. This implementation timeline must be financially sustainable and is not intended to be "aspirational".
Bicycle	Level of Traffic Stress on Arterials	LTS for arterial bicycle facilities supplemented by ongoing work on the Growth Corridor High-Comfort Bicycle Network *MMLOS Metrics, Standards, and Guidelines, pages 24-31,*
	Level of Traffic Stress at Intersections	LTS for intersection bicycle facilities supplemented by ongoing work on the Growth Corridor High-Comfort Bicycle Network *MMLOS Metrics, Standards, and Guidelines, pages 24-31*
	Amount of bicycle System Complete along Arterials and at Intersections	A proportion of the bicycle system will be complete and meet the MMLOS thresholds by time horizon of a future TFP*). This implementation timeline must be financially sustainable and is not intended to be "aspirational".*
Transit	Passenger Comfort, Access and Safety at Transit Stops	Components of Passenger Comfort, Access and Safety at Transit Stops *MMLOS Metrics, Standards, and Guidelines, pages 32-35*
	Transit Travel Speed on Corridors between Activity Centers	Defined in the Transit Master Plan and recommended in *MMLOS Metrics, Standards, and Guidelines, pages 32-35*
	Transit Stops with Passenger Comfort, Access and Safety Components Installed	A proportion of the transit stop improvements will meet MMLOS thresholds by time horizon of a future TFP This implementation timeline must be financially sustainable and is not intended to be "aspirational". Note: Transit travel speed performance will be monitored and will be addressed in collaboration with the transit service providers. A timeline is not proposed as transit operations are not within control of the City.

In Table 1, all modes have a clearly defined performance threshold that defines the expected level-of-service for the user experience.

For the vehicle mode, the arterial network is substantially complete, in the sense that a person may drive a vehicle between any two points in the City. Therefore, the performance threshold is that traffic congestion (the measure of the driver's experience expressed as v/c or travel speed) will fall within the range for each Mobility Management Area identified in *MMLOS Metrics, Standards, and Guidelines.*

For the pedestrian, bicycle, and transit modes, *MMLOS Metrics, Standards, and Guidelines* identifies the expected user experience for each mode within the land use context. Unlike with the vehicle mode, portions of the pedestrian, bicycle or transit systems are missing or do not meet the level-of-service thresholds the Commission recommends in MMLOS. Since it will take time and money to upgrade or complete these modal networks, an additional performance metric is needed to identify the proportion of the system that is complete by a specified horizon year. This performance threshold is intended to support allocating funding for projects that upgrade or advance completeness of modal networks during each TFP and CIP cycle.

Geography. In the existing transportation concurrency system, the city is divided into 14 Mobility Management Areas (MMAs) within which there are a number of "system" intersections. Each MMA has a vehicular level-of-service standard expressed as the volume/capacity ratio for vehicles at system intersections. Only a certain number of system intersections in each MMA may operate in excess of the adopted standard.

In an environment of multimodal concurrency, the MMA may be retained as a familiar geographic unit used to establish and monitor vehicle performance thresholds. With respect to vehicle performance, the Commission previously reviewed a concept of aggregating MMAs to reflect a range of land uses in distinct areas of the city, as shown in Figure 1, from MMLOS Appendix, page 35. Other potential aggregations of MMAs are possible, such the three-zone concurrency area shown on the right.

Figure 17. Current MMAs (left); Potential Revised MMAs (right)
Source: Fehr & Peers, 2014

Figure 1. Existing Mobility Management Areas and Potential Aggregations of MMAs for Concurrency

The geographic unit of analysis for people using the pedestrian, bicycle, and transit modes (performance metrics related to sidewalk dimensions, bicycle facility design, transit stop amenities) may be measured at a scale relative to the mode, such as the sidewalk segment, intersection, primary bicycle corridor, or transit stop. Projects implemented to complete these modal systems (how much of the system is being completed) could be tracked at a similar aggregated MMA geography as identified above. The geography established to evaluate and track performance metrics depends on the mode and the performance metric. The intent is to ensure the user experience meets expectations and that the city is implementing the transportation system in a sustainable and systematic way that supports growth.

Fundamental Principles for Multimodal Concurrency *(Unfinished Business from April 8)*

Staff presented a recommended set of fundamental principles for multimodal concurrency in Bellevue at the March 11 study session, during which the Commissioners recommended refinements and approved the principles subject to minor staff editing. These revised set of fundamental principles, presented at the April 8 study session are listed in Table 2.

Table 2 Multimodal Concurrency Principles

1	Employ a multimodal approach to transportation concurrency that meets multimodal level-of-service performance expectations
2	Achieve concurrency when the supply of mobility units exceeds the demand for mobility units.
3	Supply is forecast in the TFP, created in the CIP, and may be in projects of all modes.
4	Demand is forecast in the TFP, created in a permit for new development, and is expressed as person trips.
5	Performance metrics for each mode are gleaned from Multimodal Level of Service Metrics, Standards, and Guidelines (2017 Transportation Commission Report).
6	Use appropriate geographic scale (for example citywide, Mobility Management Area - MMA, Traffic Analysis Zone - TAZ) and arterial extents to monitor transportation system performance
7	Establish performance thresholds for each mode to identify deficiencies and to describe the magnitude of any deficiency.
8	A decision to address a performance deficiency will consider the conflicts and compatibilities of a multimodal transportation system within the context of land use and environmental priorities.
9	A deficiency in a concurrency performance threshold will be addressed by modifying the supply of mobility and/or the demand for mobility.

Commissioner Ting introduced three amendments (below) in a motion that was postponed until the April 22 study session *(under Unfinished Business)* to allow for more discussion time.

- Append #2: "…within a Concurrency Service Area, and when each mode meets mode-specific performance standards." *Staff response: Concurrency is the recommended citywide standard of supply > demand. There are no performance "standards" for any mode or geographic area, but there are recommended performance metrics and thresholds. Under the recommended system, a performance deficiency and the magnitude of that deficiency will inform the projects for each mode and the priorities within specified geographic areas.*
- Update #5: For each mode, gather data and establish experience and utilization performance thresholds to identify deficiencies and to describe the magnitude of any

deficiency. Set minimum and maximum utilization performance thresholds. *Staff response: For each mode, data will help to describe the performance relative to the metrics. In MMLOS, some metrics are quantitative (v/c at intersections) and some are qualitative (level of traffic stress on priority bicycle corridors). Deficiencies in performance and the magnitude of deficiencies will help to determine the projects and priorities. Utilization is a great performance outcome that the city will monitor, but for which thresholds cannot be meaningfully set – especially for pedestrians and bicycles - largely because the city cannot forecast or control the utilization of a facility. For example, the city collected before-and-after bicycle counts for the 108th Avenue NE demonstration bikeway. Utilization data combined with the performance metric (level-of-traffic stress) for this corridor informed the decision to make permanent improvements.*

- Append #8: "Periodically recalibrate the MU supply calculation based on observed facility performance." *Staff response: This recalibration would occur during updates to the Transportation Facilities Plan, so it is not necessary to include this statement as a principle.*

Multimodal performance thresholds will identify performance expectations, identify deficiencies and the magnitude of deficiencies, and ultimately inform the projects that constitute the mobility supply necessary to support the demand from growth. Within the overall transportation concurrency framework, performance monitoring compels the City to build components of the transportation system to ensure the performance thresholds are met.

NEXT STEPS

Staff will incorporate Commission direction to refine the multimodal level of service performance thresholds for discussion at the May 13 Study Session and approval on June 10.

Also, on May 13, staff will recommend amendments to policy to embed multimodal concurrency in the Transportation Element of the Comprehensive Plan. The Transportation Commission will send its policy recommendations to the Planning Commission in July for review together with other policies proposed in the 2021 amendments to the Comprehensive Plan.

April 8	April 22	May 13	June 10	July 8	September 9	October 14	November 11 (TBD)	December
TC Concur w/ Multimodal concurrency fundamental principles			TC Approve Performance metrics	TC Approve Policy recommendations			TC Approve Traffic Standards Code Amendment Recommendations	Council asked to approve CPA and Traffic Standards Code
	TC Review Performance metrics	TC Review Performance metrics	TC Review Policy recommendations	TC Review Traffic Standards Code Amendment Recommendations	TC Review Traffic Standards Code Amendment Recommendations	TC Review Traffic Standards Code Amendment Recommendations	TC Review Performance tracking dashboard	
		TC Review Transportation Element Policy recommendations				TC Review Performance tracking dashboard		