Multimodal Concurrency

Transportation Commission
April 22, 2021

Transportation

FEHR PEERS

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April 22, 2021 Agenda

MULTIMODAL CONCURRENCY

Study Session

- Concurrency Performance Metrics and Thresholds
  - Direction / Approval

Unfinished Business

- Multimodal Concurrency Fundamental Principles
  - Direction / Approval

Overview: Concurrency Standard and Performance Metrics and Thresholds

GMA mandates that jurisdictions adopt a transportation concurrency "standard"

- Bellevue defines Concurrency Standard in the Comprehensive Plan and Traffic Standards Code
- Failure to meet concurrency standard will result in denial of development approval until standard is met

- Performance Metrics: What to measure
- Performance Thresholds: What is the desired level-of-service
- Process to address a performance deficiency: Consider magnitude of deficiency and trade-offs

Performance Metrics for Concurrency

Transportation Commission 2017 MMLOS Recommendation

- Performance metrics and thresholds described for each mode
- Performance may be expressed in qualitative or quantitative terms
  - Bicycle Level of Traffic Stress (LTS)
    - Bicycle Network Corridors
    - Intersections
  - Transit Stop Facilities
  - Sidewalk/Landscape Dimensions
  - Transit Travel Speed
  - Vehicle Travel Speed
  - Volume/Capacity

Performance Metrics for Concurrency

Metrics

Define or describe *what* to measure for each mode

Thresholds

Define or describe the community's *desired level of service* for each mode

Define or describe the *timeframe for connectedness* of the transportation system (for the incomplete parts of the system)

Vehicle Performance from MMLOS

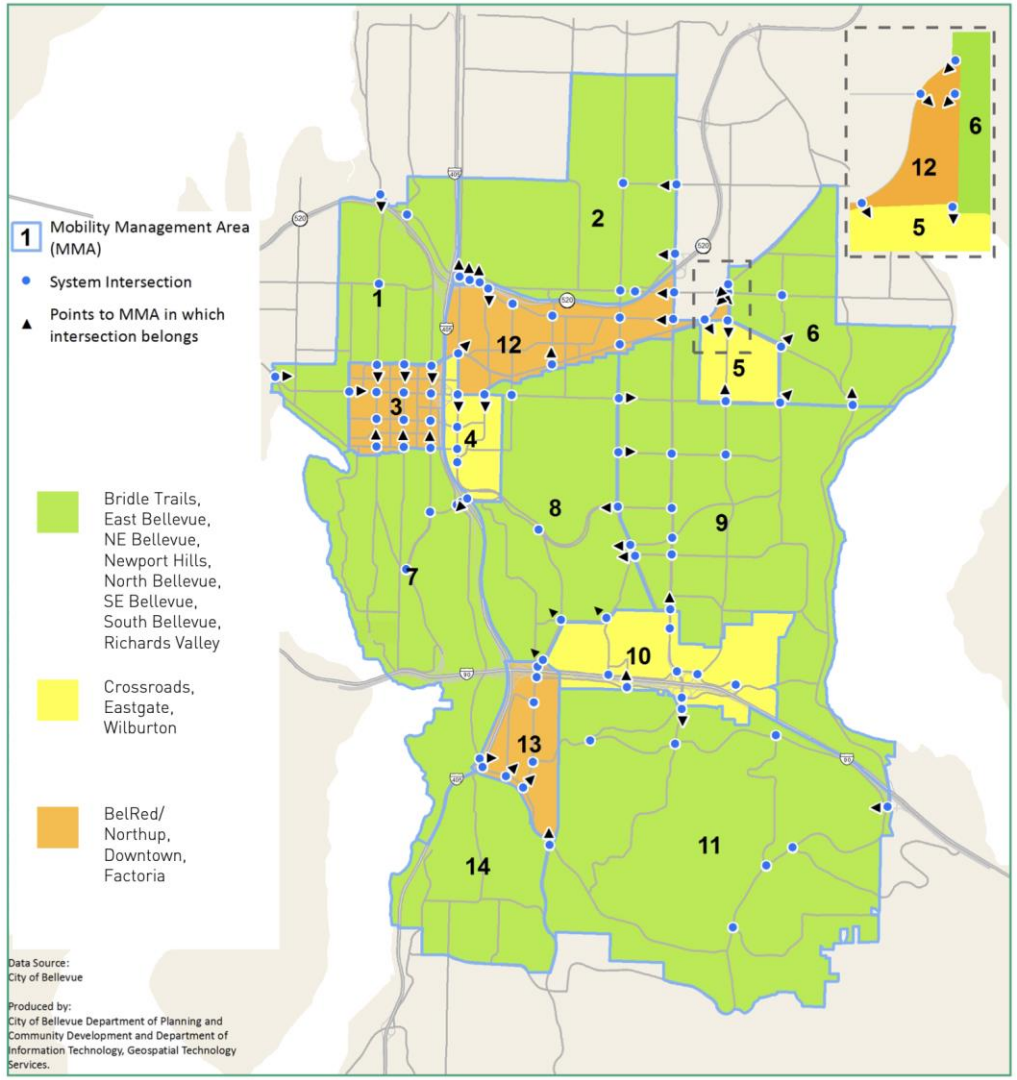
Vehicle Performance Metrics

- Vehicle travel speed
- Volume/capacity at system intersections

Vehicle Performance Thresholds

- Vehicle travel speed varies by MMA
- V/C varies by MMA

LOS	Typical Urban Travel Time/Travel Speed on Corridors Based on 40% of the Posted Speed Limit
	Less than 90% of Typical Urban Travel Time | Faster than 1.1 times the Typical Urban Travel Speed
	90-110% of Typical Urban Travel Time | Between 1.1 and .9 times the Typical Urban Travel Speed
	110-155% of Typical Urban Travel Time | Between .9 and .75 times the Typical Urban Travel Speed
	155-200% of Typical Urban Travel Time | Between .75 and .5 times the Typical Urban Travel Speed
	More than 200% of Typical Urban Travel Time | Slower than .5 times the Typical Urban Travel Speed



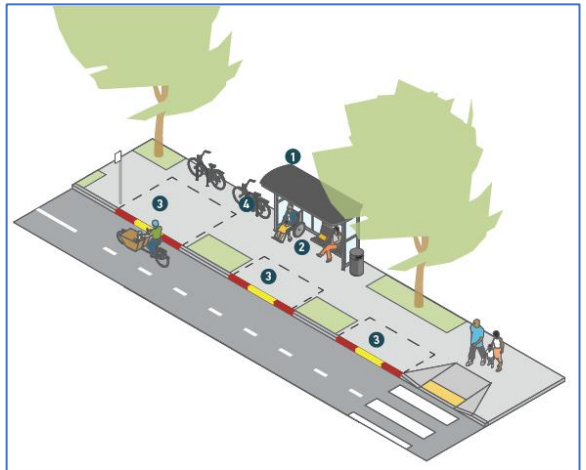
Transit Performance from MMLOS

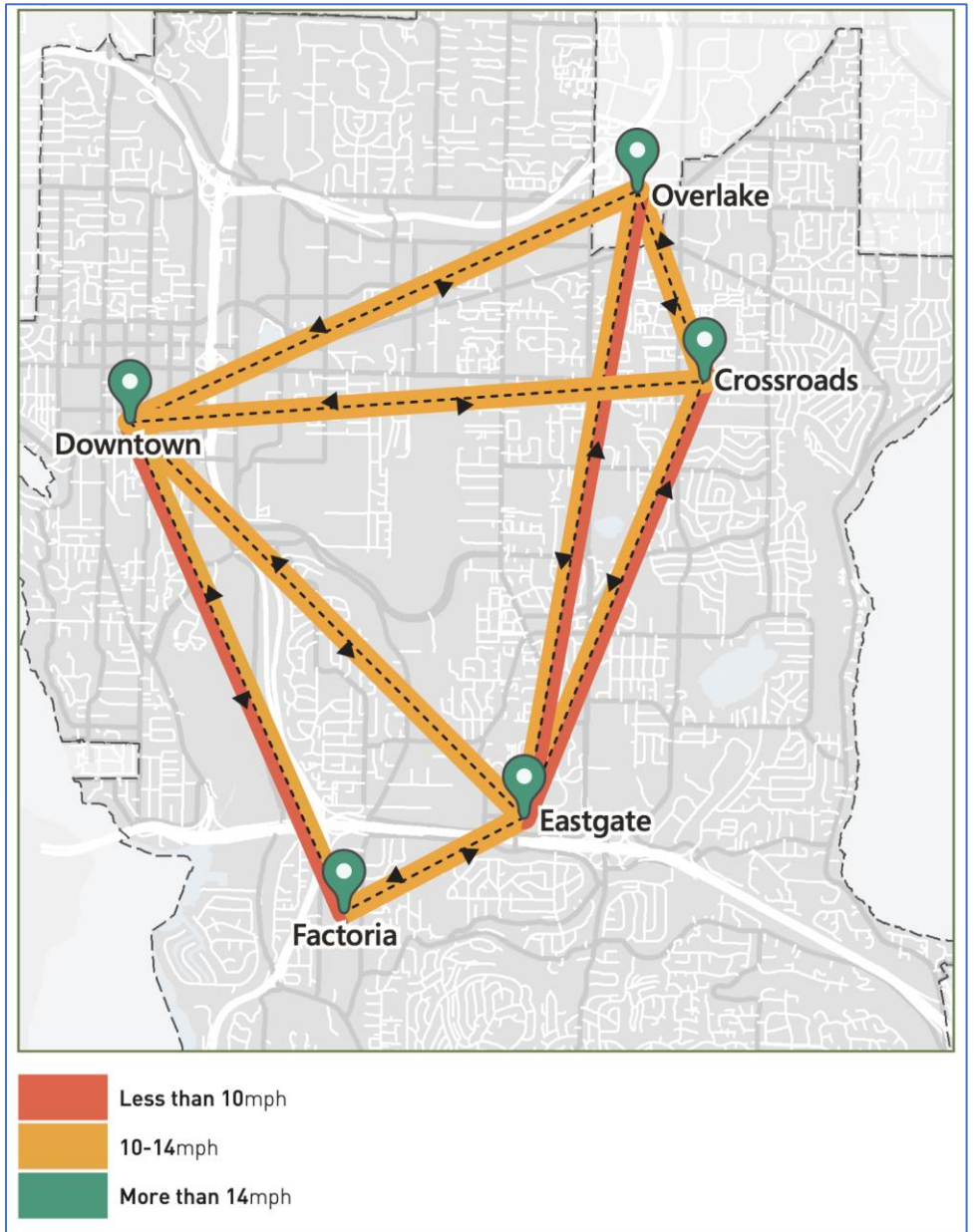
Transit Performance Metrics

- Speed on Frequent Transit Network (FTN) routes between Activity Centers
- Transit stop facilities for passenger comfort, access, and information

Transit Performance Thresholds

- 14 mph on FTN between Activity Centers Frequent transit network speed
- Transit facilities vary per type of stop
  - Local
  - Primary
  - FTN





Pedestrian Facility Performance from MMLOS

Pedestrian Facility Performance Metrics

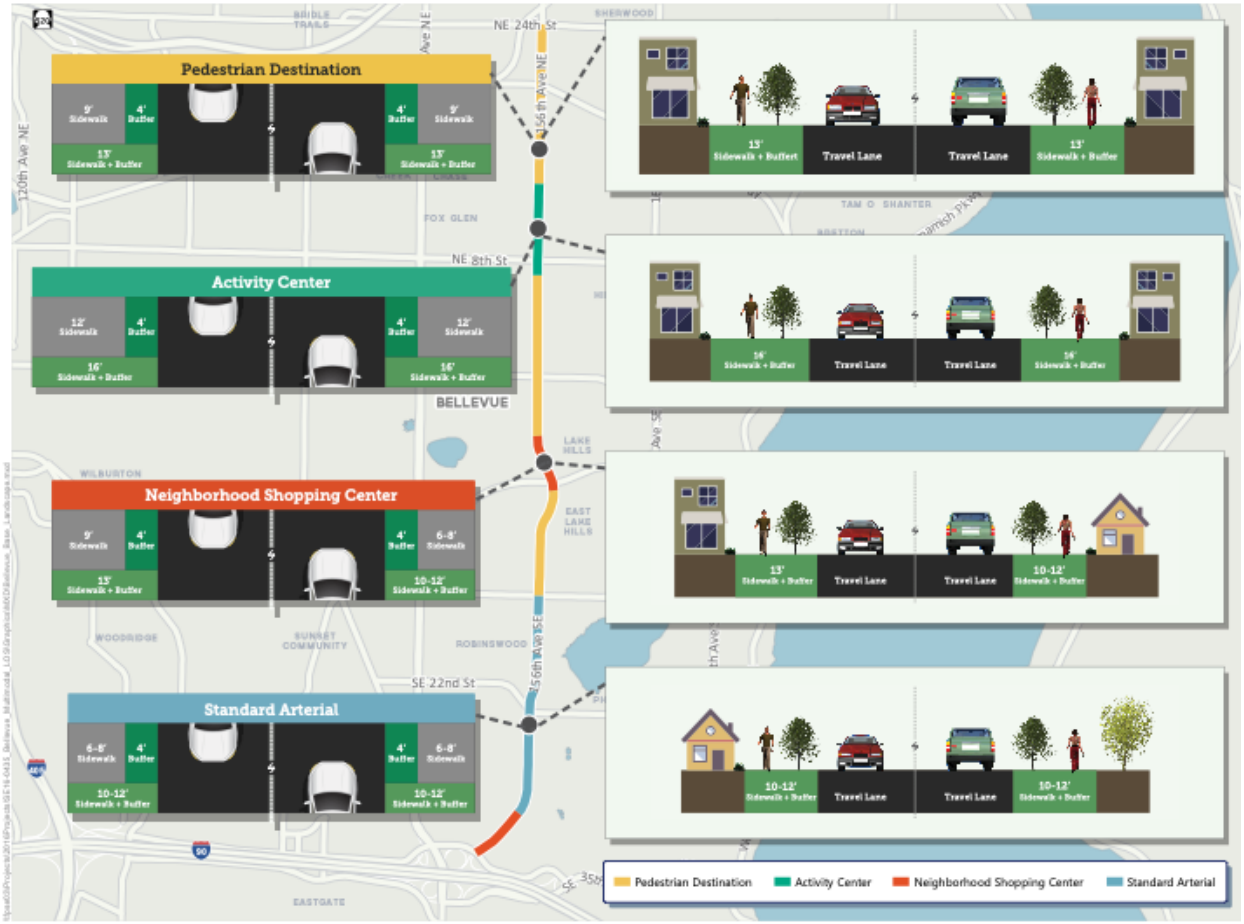
- Sidewalk and landscape dimensions
- Intersection treatments (x-walk width)
- Mid-block crossing frequency

Pedestrian Facility Performance Thresholds

- Timeline for implementation

Land use context determines:

- Sidewalk and landscape dimensions
- Intersection treatments
- Mid-block crossing frequency



Bicycle Facility Performance from MMLOS

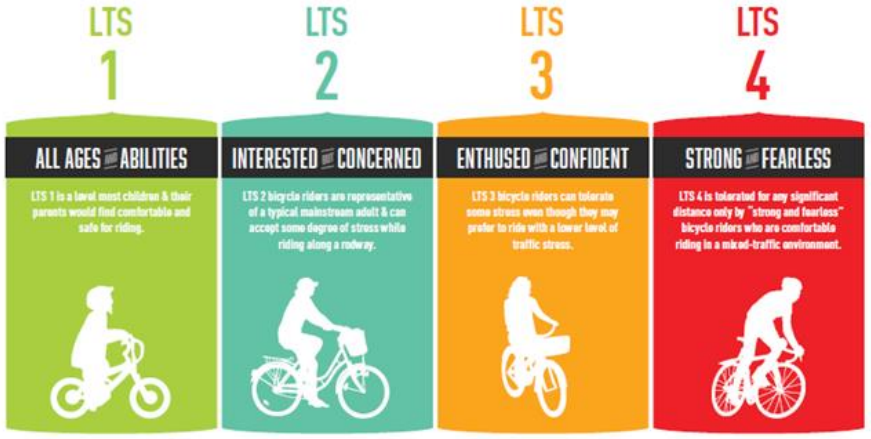
Bicycle Facility Performance Metrics

- Level of Traffic Stress (LTS) on bicycle network corridors
- Consider vehicle speed and volume on adjacent arterial
- Bicycle volumes determined by periodic counts at specified locations

Bicycle Facility Performance Thresholds

- LTS on bicycle network corridors and intersections
- Timeline for implementation

Roadway Characteristics		Bicycle Facility Components: Guideline to Achieve Intended Level of Service/Level of Traffic Stress					
Speed Limit (MPH)	Arterial Traffic Volume	No Marking	Sharrow Lane Marking	Striped Bike Lane	Buffered Bike Lane (Horizontal)	Protected Bike Lane (Vertical)	Physically Separated Bikeway
</= 25	<3k	1	1	1	1	1	1
	3-7k	3	2	2	2	1	1
	>/=7k	3	3	2	2	1	1
30	<15k	3	3	2	2	1	1
	15-25k	4	4	3	3	3	1
	>/=25k	4	4	3	3	3	1
35	<25k	4	4	3	3	3	1
	>/=25k	4	4	4	3	3	1
>35	Any	4	4	4	4	3	1



Bellevue Bicycle Level of Traffic Stress (LTS) Categories Source: MMLOS Metrics, Standards & Guidelines, 2017

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MMLOS Performance Metrics and Thresholds

Mode	Performance Metric	Performance Threshold
Vehicle	Volume/Capacity Ratio at System Intersections	Varies by Mobility Management Area
	Typical Urban Travel Speed on Arterials	Percent of posted speed limit Varies by Mobility Management Area
Pedestrian	Sidewalk Width plus Landscape Width	12-feet to 20-feet for sidewalk + landscape. Varies by land use context
	Crosswalk spacing and intersection design	Varies by land use context
	Amount of system complete along Arterials and at Intersections	To be determined through future financial and planning analysis
Bicycle	Level of Traffic Stress (LTS) on Arterials	Achieve intended Level of Traffic Stress. Design varies by traffic speed and traffic volume
	Level of Traffic Stress (LTS) at Intersections	Maintain corridor Level of Traffic Stress at intersections. Design components vary by context
	Amount of system complete along Bicycle Corridors	To be determined through future financial and planning analysis
	Bicycle volumes at specified locations	Use count data to monitor the performance outcome for bicycle facilities that have been built to inform the design and prioritization of future segments of the bicycle network
Transit	Facilities for Passenger Comfort, Access and Safety	Components vary by transit stop/transit station typology, and land use context
	Transit Travel Speed on Corridors between Activity Centers	14 mph on Frequent Transit Network corridors between Activity Centers
	Amount of system complete along FTN	To be determined through future financial and planning analysis

Performance Metrics and Thresholds

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Questions

and

Comments

TC Concurrence?

Multimodal Concurrency Principles

Why have Principles for Multimodal Concurrency

- Principles provide high level description of the intent
  - For Example: *Employ performance metrics and thresholds*
- Principles are intended to guide future work in order to maintain project schedule and budget
- Principles are the foundation of upcoming discussions with the Transportation Commission on Concurrency Policy recommendations for the Transportation Element
- Principles include a specific reference to metrics and thresholds that describe how to measure the performance of the transportation system
  - For Example:
    - *Metrics: Use the volume/capacity ratio at system intersections in Mobility Management Areas to measure traffic congestion.*
    - *Thresholds: Achieve an average volume/capacity ratio of xxx at system intersections in Mobility Management Area yyy*

Multimodal Concurrency Principles

MULTIMODAL CONCURRENCY

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's Offering on April 8 and Staff Response

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Append #2: "…within a Concurrency Service Area, and when each mode meets mode-specific performance standards."

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.

Append #8: "Periodically recalibrate the MU supply calculation based on observed facility performance."

Discussion of Principles and Concurrence

MULTIMODAL CONCURRENCY

Questions

and

Comments

TC Concurrence?

Pathway to Multimodal Concurrency

MULTIMODAL CONCURRENCY

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 Concur with Concurrency 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 Transportation Element Policy recommendations	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 Performance tracking dashboard	

Thank You!

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Mobility Implementation Plan web site