



# Level-of-Service in Bellevue

***Toward a Multimodal Approach to Mobility***

Transportation Commission

January 14, 2016

# Multimodal Level-of-Service

## Discussion Outline

- The Setting and the Opportunity
- Existing Level-of-Service Metrics and Standards
- Transportation Commission MMLOS Policy Review in 2013/14
- Comprehensive Plan Amendment – Transportation Element Policy
- MMLOS Update Scope of Work
- Next Steps

# The Setting and the Opportunity

Much of Bellevue retains a suburban character

- Mobility is significantly auto-dependent

Portions of Bellevue feature urban-density, mixed-use development

- Mobility options include driving, frequent transit service, wide sidewalks and marked crossings, and bicycle facilities.

Arterials, frequent transit service routes and priority bicycle corridors span suburban and urban neighborhoods

Methodology for transportation planning in Bellevue is anchored to vehicle Level-of-Service, tailored to Mobility Management Areas

MMLOS allows Bellevue to consider mobility in the context of neighborhood character – for concurrency and long-range planning

# Level-of-Service (LOS)

Washington Growth Management Act (1990) established Transportation as a mandatory element of local comprehensive plans

- Transportation Elements in comprehensive plans must contain an inventory of transportation facilities
- Level-of-service for transportation system must be defined, LOS standards must be established and transportation facilities must be planned and funded to accommodate growth
  - Jurisdictions may describe a multimodal transportation system to support land use
  - Jurisdictions must establish LOS standards to meet community-defined needs
  - Development may not cause the LOS on a transportation facility to fall below adopted standards
  - Transportation system improvements must be made concurrent with development

# LOS and Concurrency in Bellevue

LOS metric is the volume-to-capacity (V/C) ratio for vehicles in the PM peak period at “system” intersections within mobility management areas (MMAs)

LOS standard varies between MMAs in broad consideration of land use character and available mobility options

- Suburban areas with few mobility options have a higher vehicle LOS standard than urban neighborhoods with many mobility options

Concurrency evaluates how a proposed development would impact the vehicle LOS – timeframe is six years

- BKR travel demand model considers traffic volume generated by “pipeline” growth and the vehicle capacity of funded transportation projects
- If insufficient vehicle capacity, options include scaling back the project or increasing roadway capacity

# LOS and Long-Range Planning in Bellevue

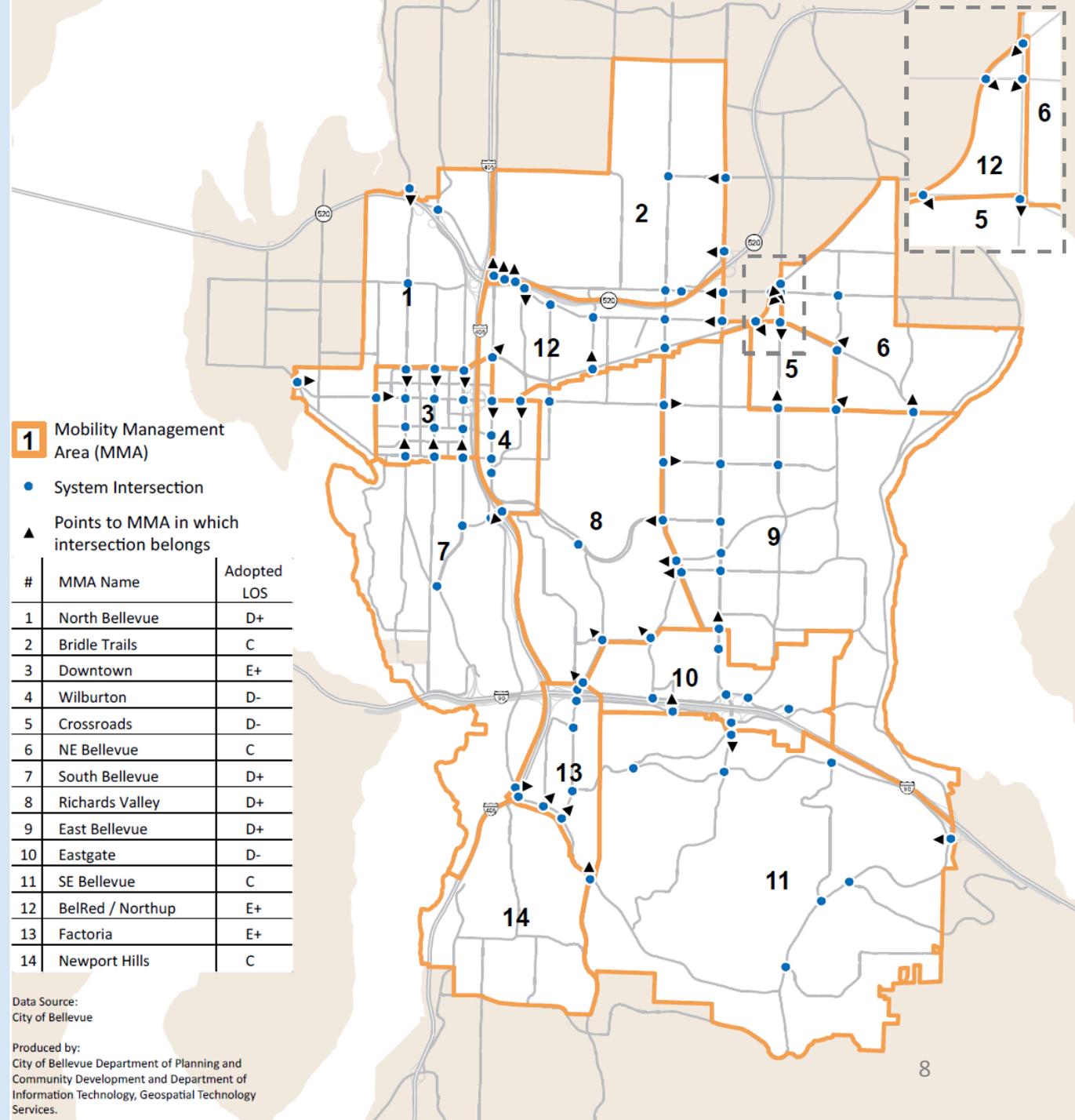
- No adopted LOS metrics or standards for long range planning
- LOS for long-range planning considers the **average vehicle delay** (in seconds) at signalized system intersections in PM peak period
  - Can be rolled up to MMA values similar to LOS for Concurrency
- Vehicle delay is the time elapsed from when a vehicle joins a queue or stops at a stop bar at an intersection to when the vehicle makes it across the stop bar
- A letter grade is assigned to average vehicle delay and LOS is equated with letter grades used for V/C for Concurrency

# Bellevue Level-of-Service Metrics

LOS	V/C Concurrency	Delay (seconds/vehicle) Long-Range Planning	Description Subjective Impression of Driver
A	</= 0.600	< 10	Highest driver comfort. Little delay. Free flow.
B	0.601-0.700	10-20	High degree of driver comfort. Little Delay
C	0.701-0.800	20-35	Some delays. Acceptable level of driver comfort. Efficient traffic operation.
D+	0.801-0.850	35-50	Some driver frustration. Efficient traffic operation.
D-	0.851-0.900		Increased driver frustration. Long cycle length.
E+	0.901-0.950	50-80	Near capacity. Notable delays. Low driver comfort. Difficulty of signal progression.
E-	0.951-1.000		At capacity. High level of congestion. High level of driver frustration.
F	>/=1.001	> 80	Breakdown flow. Excessive delays.

# Transportation Element

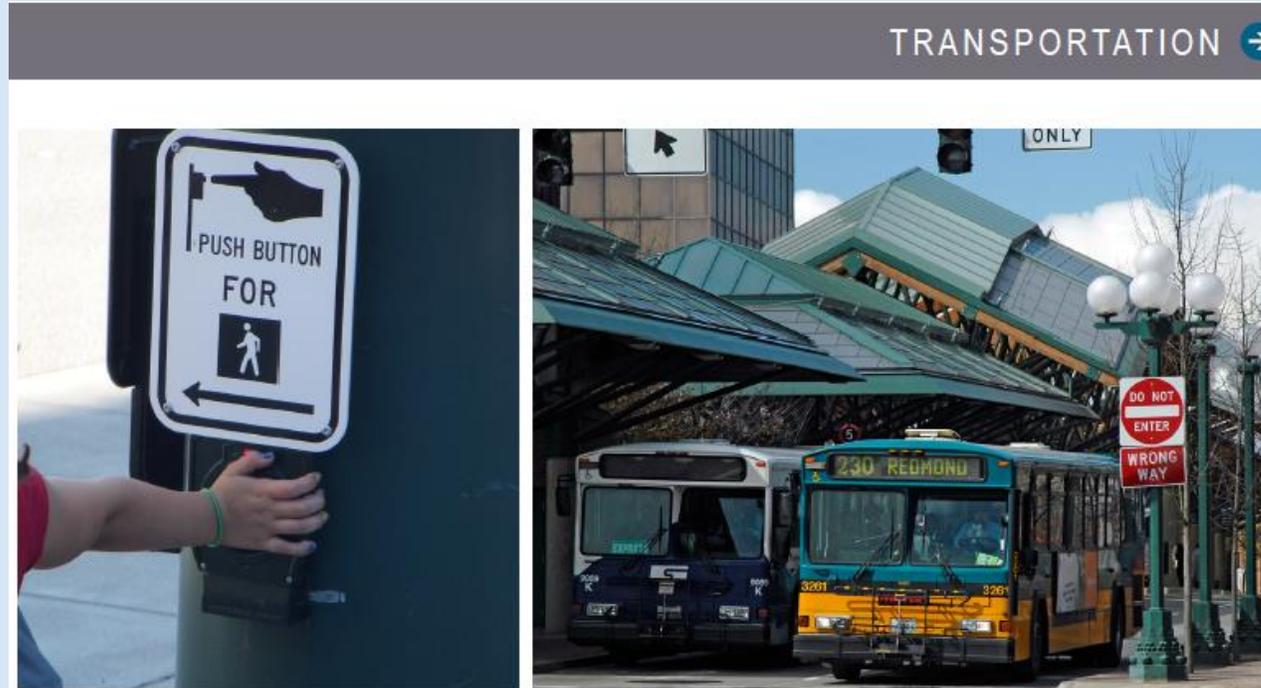
**Map TR-1.**  
 Bellevue MMA Map  
 with Adopted LOS  
 standards and the System  
 Intersections that  
 contribute to the LOS  
 calculation.



# MMLOS - Comprehensive Plan Update

- Commission identified a policy gap - Outdated reliance on vehicle (LOS) as a means to manage growth and plan for transportation investment
- Commission reviewed MMLOS best practices in Washington state and nationally
- Commission supported a corridor approach with neighborhood sensitivity for each mode
- Commission recommended MMLOS policy in the Transportation Element through the 2014 Comprehensive Plan Update
- Planning Commission reviewed and forwarded to Council for approval
- Comprehensive Plan Update adopted August 3, 2015

# Transportation Element Policy – MMLoS



**TR-30.** Establish multimodal level-of-service and concurrency standards and other mobility measures and targets for transportation corridors and in each area of the city in consideration of planned development patterns and mobility options.

# Multimodal Level-of-Service Defined

## WHAT IS MULTIMODAL MOBILITY?

A multimodal mobility strategy is designed to address more than one “mode” (or method) of transportation for people to get to/from and within Bellevue. The city’s multimodal mobility strategy incorporates policies for all mobility options, including walking, bicycling, riding transit, and driving.

Multimodal planning considers the modes of transportation and the context as inputs to design and investment decisions.



# MMLOS Budget

The Transportation Commission, with staff support and consultant services funded through this proposal, will prepare a recommendation for Council to **revise the existing level-of-service metrics, establish standards for corridors and Mobility Management Areas, and propose a methodology for concurrency purposes and for long-range planning.** Adopted standards will be a component of the Traffic Standards Code (BCC Chapter 14.10).

# MMLOS Scope of Work

Integrate multimodal metrics and standards into the Transportation Element and the Traffic Standards Code

- Develop metrics, standards and monitoring methods for:
  - Vehicular level-of-service
  - Transit level-of-service
  - Bicycle level-of-service
  - Pedestrian level-of-service
- Standards may be defined for corridors and neighborhoods
- May also consider Environmental components

# General Travel Demand/Mobility Components

- Person Trips
- Person Miles Traveled
- Mobility Units (Supply and Demand)
- Mode Share
- Percent Served (Employees, Residents)

# Typical Vehicular Level-of-Service Components

- Volume / Capacity
- Average Delay per Vehicle
- Travel Time
- Vehicle Miles Traveled
- Vehicle Travel Speed

# Typical Transit Level-of-Service Components

- Service frequency and span of service
- Speed and reliability
- Seated capacity
- Transit system access
- Passenger amenities at stops and stations

# Typical Bicycle Level-of-Service Components

- On-street facilities
  - Connected, Protected, Shared
- Off-street facilities
  - Short term parking, Commuter parking
- Wayfinding
  - Priority bicycle corridors, Regional connections

# Typical Pedestrian Level-of-Service Components

- Intersection design
- Connectivity of the pedestrian system
- Mid-block crossing locations and signalization
- Signal actuation and Crossing time
- Sidewalk width, landscaping buffer, curb cuts

# Corridors, MMAs, Neighborhoods

- **Transportation Commission** acknowledged that the existing MMA structure may not reflect neighborhood character and mobility options and patterns
- **Planning Commission** zeroed in on the notion that mobility metrics and standards need to be context-sensitive
- **City Council** noted that the transportation system everyone supports is one that includes all modes of travel
  - Convenient for shopping
  - Efficient for commuting
  - Safe for pedestrians and bicyclists

# Transportation Commission Assignment

Review existing LOS metrics and standards

Study several approaches. Commission recommended.....

- Corridor + neighborhood approach for planning
- “Mobility Unit” approach for concurrency

Recommend LOS metrics and standards for each mode

- Consider Corridors
- Consider Neighborhood Context
- Consider Existing and Intended Mobility Options
- Consider the expectations of residents, employees and visitors for safety, comfort, mobility and overall urban livability
- Consider Vision Zero?

# Next Steps

Approximately 12 Months

- Transportation Commission Study Sessions
- Community Information and Engagement
- Final Report
- Delivery to the City Council
- Transportation Element and Traffic Standards Code Amendments



# Level-of-Service in Bellevue

*Toward a Multimodal Approach to Mobility*

## QUESTIONS AND DISCUSSION

Thank You!

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