Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

TRANSPORTATION COMMISSION
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FEHR & PEERS

OUTLINE

1. Current Practice
2. Evolving Multimodal Level-of-Service Approaches for Concurrency and Long-Range Planning
3. MMLOS Objectives
4. Geographic Scope
5. MMLOS Metrics & Standards

CURRENT PRACTICE

Separate Systems for Long Range Planning and Concurrency

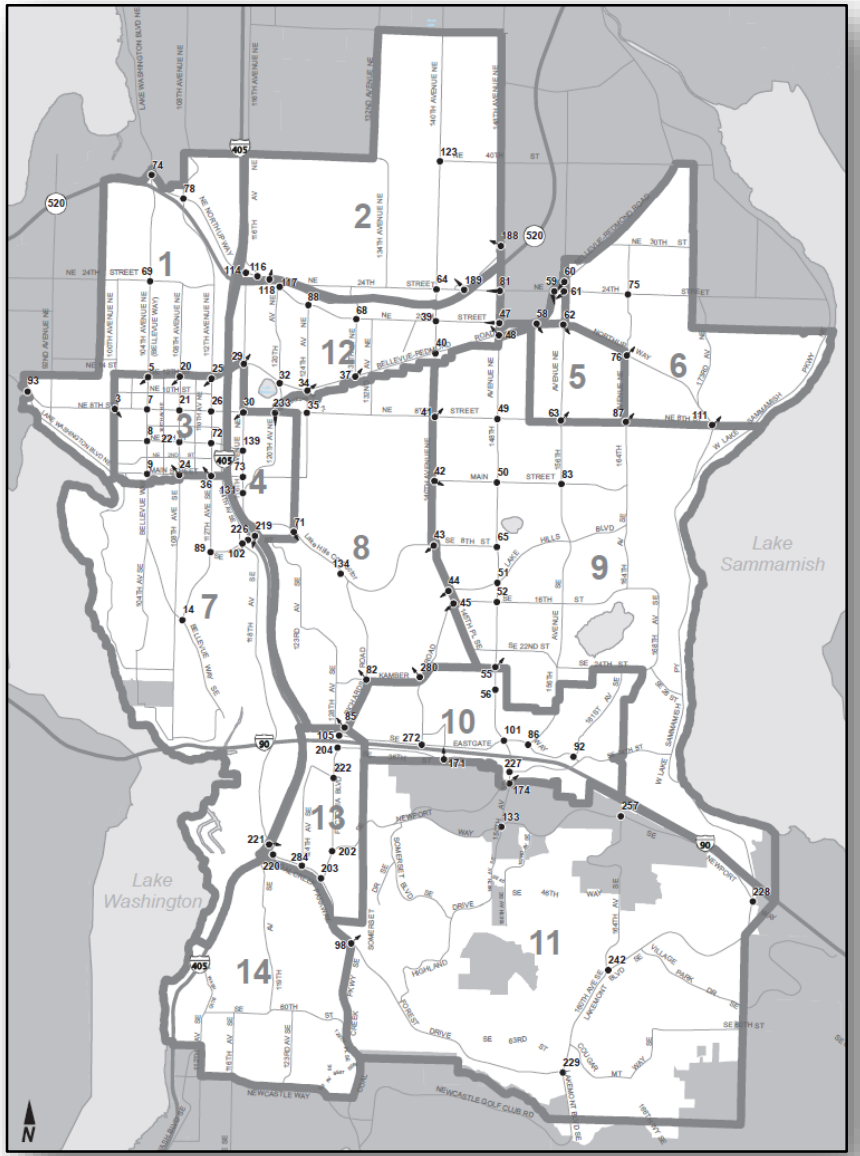
- Historical context

Long Range Planning (Transportation Element - Policy):

- Vehicle LOS by MMA
- Mode share goals for commute trips
- Frequent Transit Network
- Pedestrian/Bicycle systems

Concurrency (Traffic Standards Code):

- PM peak period (2 hour) vehicle LOS evaluation – V/C standard at system intersections varies by MMA



CURRENT PRACTICE

- LOS standards used for Concurrency and Long Range Planning vary between MMAs based on the land use type and the availability of mobility options
- LOS evaluation and forecasting for both Concurrency (6-years) and Long-Range Planning (20-years) can be performed with the BKR model

Mobility Management Area (MMA)	MMA-Average LOS Standard (Maximum v/c Ratio)	Congestion Allowance
Regional Center	0.950	
(Downtown/MMA #3)		9
Activity Area	0.950	
(Factoria/MMA #13)		5
(Bel-Red/Northup/MMA #12)		7
Mixed Commercial/ Residential Areas	0.900	
(Wilburton/MMA #4)		3
(Crossroads/MMA #5)		2
(Eastgate/MMA #10)		4
Residential Group 1	0.850	
(North Bellevue/MMA #1)		3
(South Bellevue/MMA #7)		4
(Richards Valley/MMA #8)		5
(East Bellevue/MMA #9)		5
Residential Group 2	0.800	
(Bridle Trails/MMA #2)		4
(NE Bellevue/MMA #6)		2
(SE Bellevue/MMA #11)		3
(Newport/MMA #14)		*

*No system intersections are currently identified in this mobility management area.

EVOLVING MMLOS APPROACHES

Why Multimodal LOS?

- You can't address what you don't measure
- Recognize synergies and tradeoffs between LOS metrics and standards for different modes
- Better transportation planning to support land use
  - MMLOS provide a stronger basis for planning, prioritizing and implementing transportation facilities
  - May be tailored to the needs of a particular mobility corridor or neighborhood while maintaining overall mobility

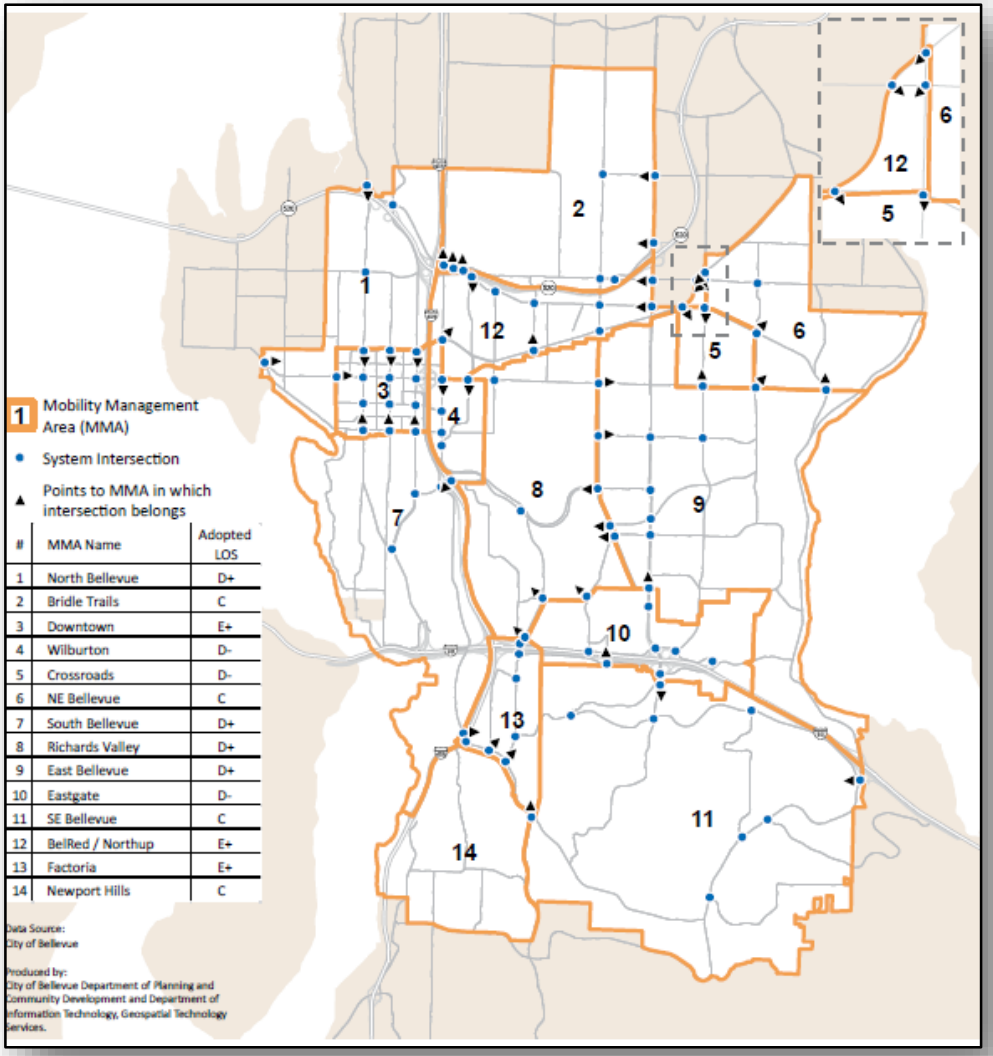
MMLOS OBJECTIVES

1. Establish or revise the existing LOS metrics for each applicable mode;
2. Establish or revise LOS standards by mode for roadway corridors/segments and/or for Mobility Management Areas;
3. Explore modifying the boundaries of MMAs;
4. Update the methodology used to track Concurrency and to forecast LOS for Long-Range Planning;
5. Create a tool to inform investment decisions for transportation projects that are implemented by the public sector through the CIP and by the private sector through development review;
6. Initiate a monitoring protocol to gather data and track performance.

GEOGRAPHIC SCOPE: CITYWIDE

Flexible, with potentially special considerations for certain geographic areas such as:

- Downtown Bellevue
- Mixed Use Places
  - Factoria, Crossroads, BelRed
- Small Commercial Nodes
  - Northtowne

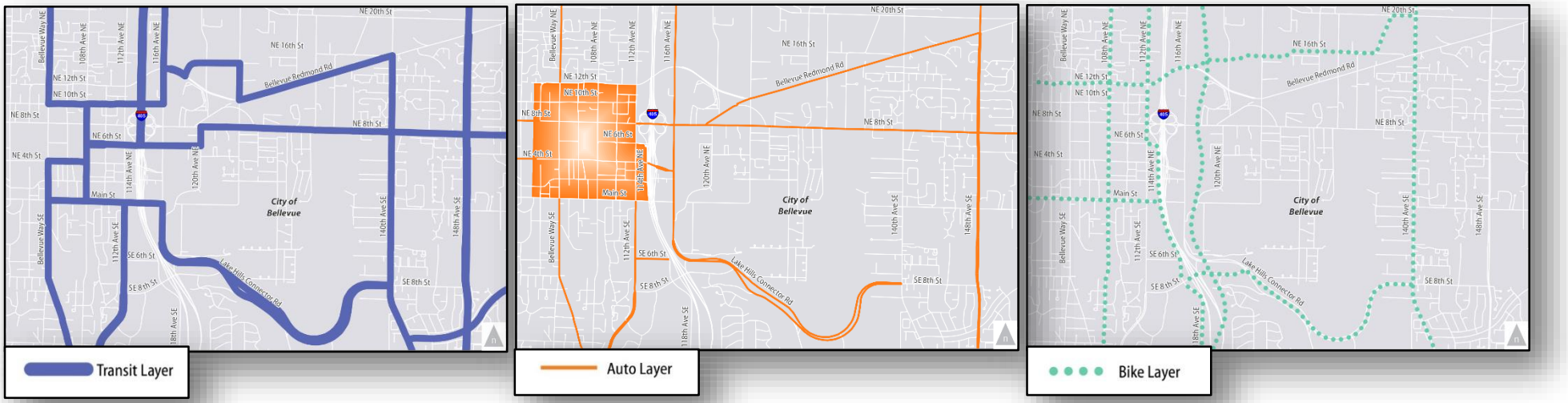


#	MMA Name	Adopted LOS
1	North Bellevue	D+
2	Bridle Trails	C
3	Downtown	E+
4	Wilburton	D-
5	Crossroads	D-
6	NE Bellevue	C
7	South Bellevue	D+
8	Richards Valley	D+
9	East Bellevue	D+
10	Eastgate	D-
11	SE Bellevue	C
12	BelRed / Northup	E+
13	Factoria	E+
14	Newport Hills	C

MMLOS METRICS & STANDARDS

- Corridor focus
- How the metrics are evaluated
- How well they describe the quality of the transportation system for the user of each mode

Ultimately identify/prioritize transportation improvements



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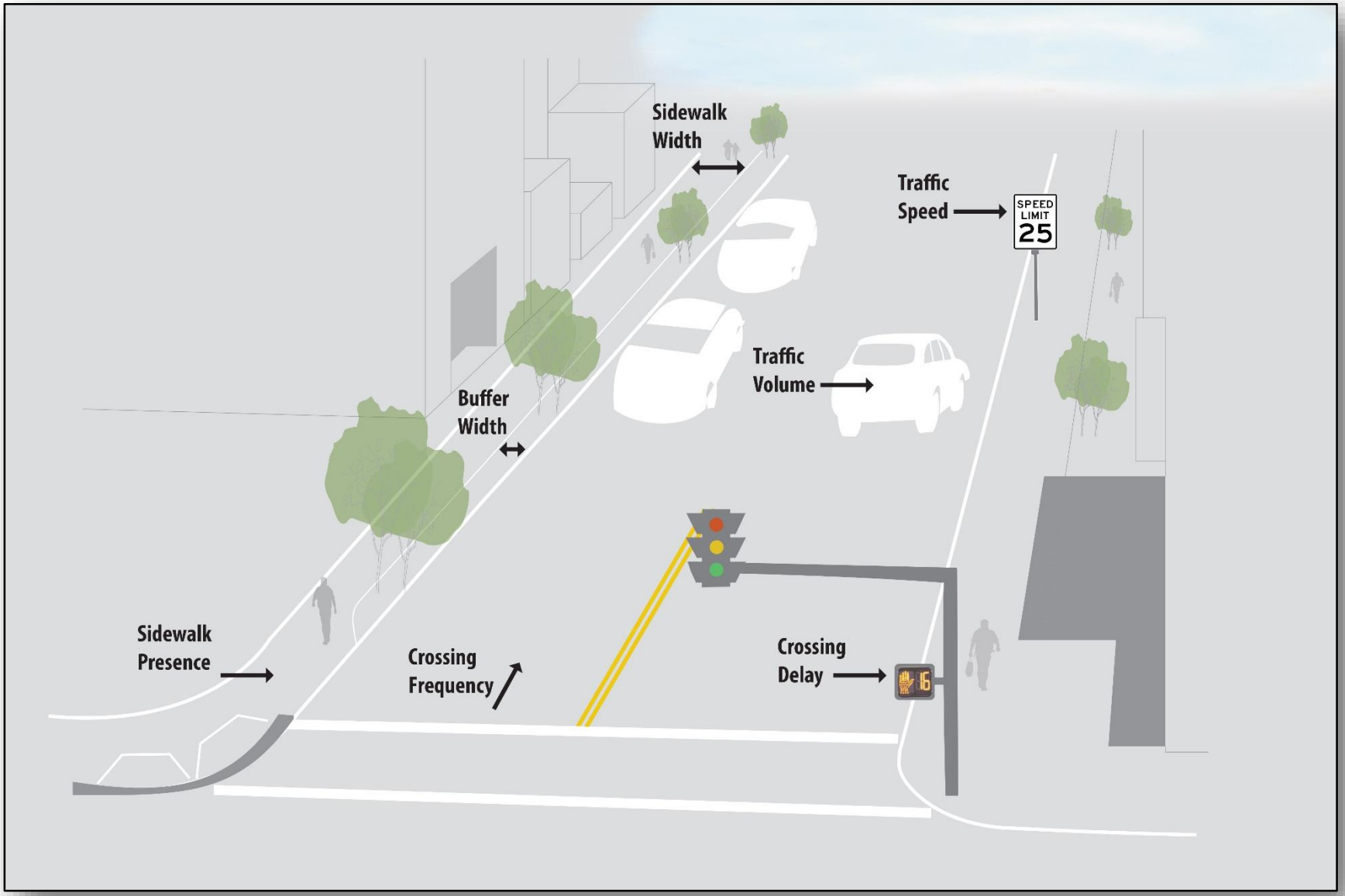
PEDESTRIAN LOS: COMPONENTS



PEDESTRIAN LOS: EXAMPLE STANDARDS

	Downtown Arterial Street (e.g., Main Street)		Lake Hills School Walking Route	
Component	Acceptable	Optimal	Acceptable	Optimal
Sidewalk presence	Both sides of street	Both sides of street	One side of street	Both sides of street
Sidewalk width	5' – 8'	8' or wider	4' – 5'	5' or wider
Buffer width	0' – 5'	5' or wider	0' – 5'	5' or wider
Crossing frequency	600'	300'	Adjacent to schools	Adjacent to schools and every ¼ mile
Crossing delay	100 seconds	90 seconds	100 seconds	90 seconds

PEDESTRIAN LOS: EXAMPLE EVALUATION

Downtown Arterial Street (e.g., Main Street)		
Component	**Condition**	**Rating**
Sidewalk presence	Missing from South side of Street	
Sidewalk width	3’	
Buffer width	0’	
Crossing frequency	600’	
Crossing delay	90 seconds	
Final Rating		

PEDESTRIAN LOS

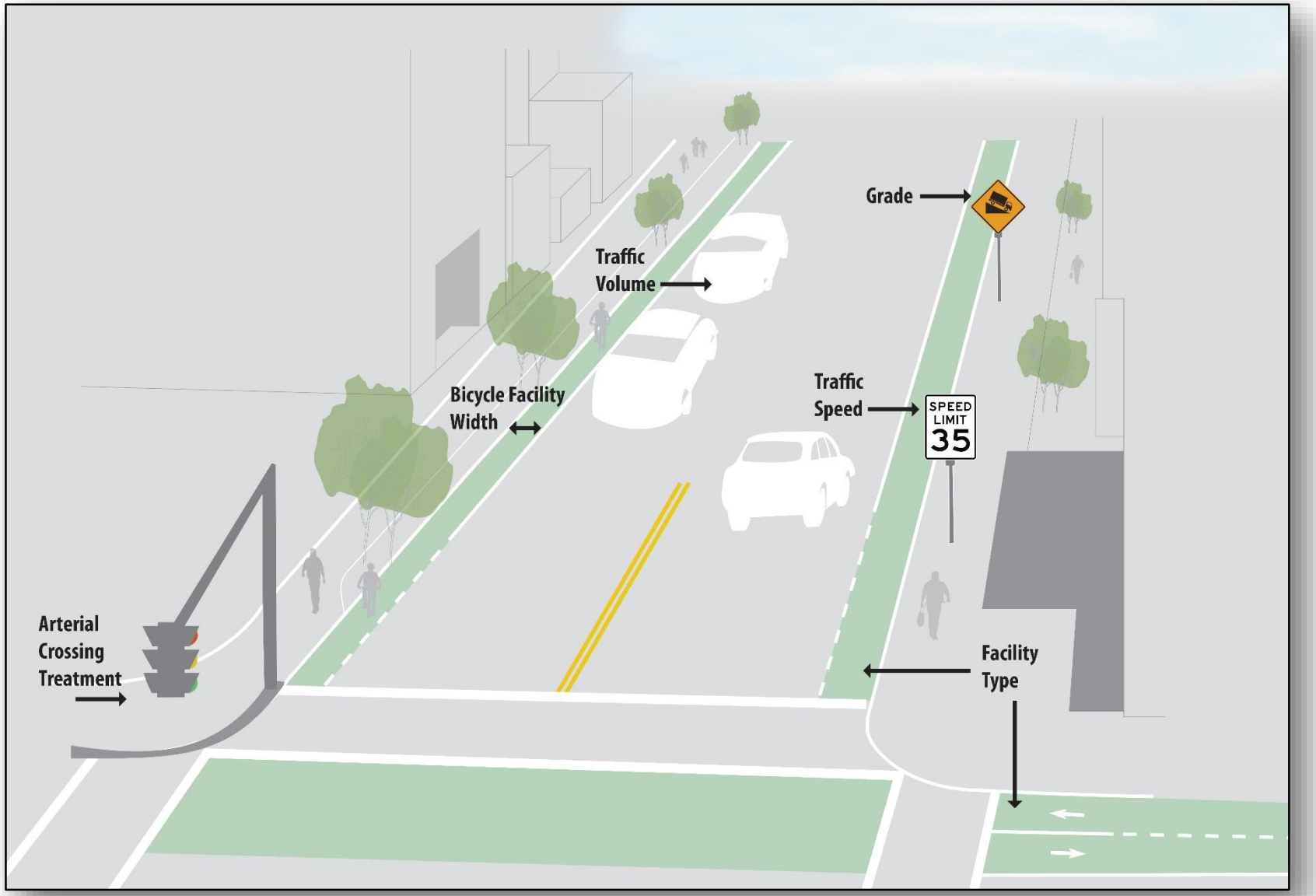
Advantages

- Transparent metric, simple to understand
- Focuses on high-quality pedestrian design
- In-sync with pedestrian master plan
- Easy to evaluate in GIS
- Sensitive to urban form and transportation choices
- Sensitive to street crossing frequency

Disadvantages

- Moderate/significant effort required to identify acceptable and optimal standards for a range of facilities
- Requires data that City may not have
- Limited information about whether the LOS measure is correlated with additional walking mode share

BICYCLE LOS: COMPONENTS



BICYCLE LOS: EXAMPLE STANDARDS

	Arterial Collector			Local Street	
Traffic Volume	Acceptable	Not Acceptable	Optimal	Acceptable	Optimal
> 15,000	<7' bike lanes, wide lanes	No bike lanes, sharrows	Trail, cycle track, 7+' bike lanes	Signalized crossing at arterials with volume > 25,000 or at all locations not within ¼ mile of existing signal	Route signage, signalized crossing at all arterial intersections
10,000 - 15,000	Sharrows	No bike markings	Trail, cycle track, bike lanes		
5,000 – 10,000	Sharrows		Trail, cycle track, bike lanes, sharrows in urban area		
< 5,000	No bike markings		Sharrows		

BICYCLE LOS

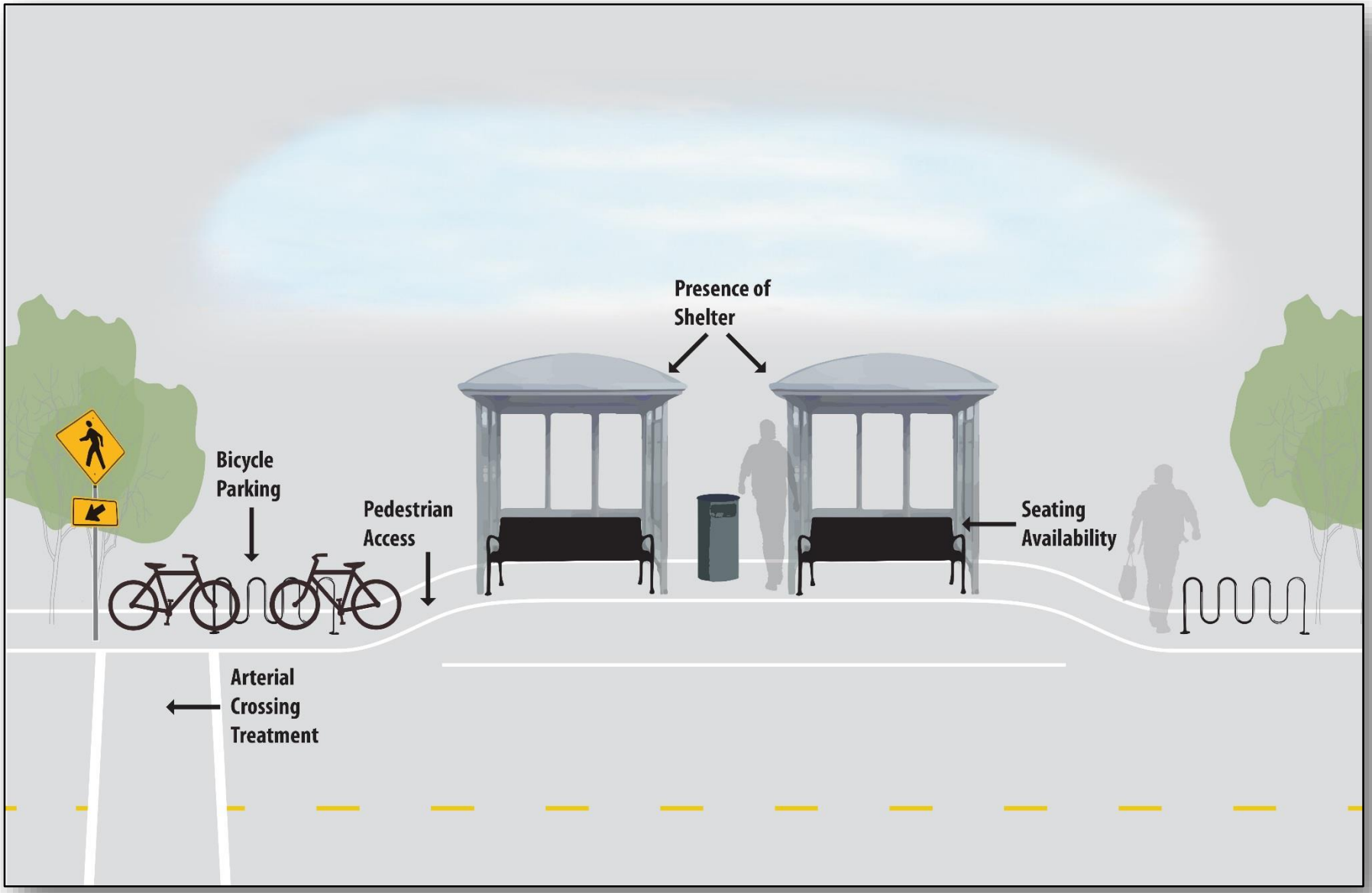
Advantages

- Established evaluation methodology
- Focuses on high-quality bicycle design
- In-sync with pedestrian bike plan
- Easy to evaluate in GIS

Disadvantages

- Moderate/significant effort required to identify acceptable and optimal standards for a range of facilities
- Requires data that City may not have
- Limited information about whether the LOS measure is correlated with additional bicycling mode share/route choice

TRANSIT LOS: COMPONENTS



TRANSIT LOS: EXAMPLE STANDARDS

	Light Rail Station (e.g., Main Street)		Low-ridership bus stop (under 20 boardings per day)	
Component	Acceptable	Optimal	Acceptable	Optimal
Shelter	Required – may be built into adjacent building	Required – may be built into adjacent building	None	None
Seating	Two benches per platform	Three benches per platform	None	If within 600 feet of: hospital, senior housing, community center
Access	Complete sidewalks on both sides of street within ¼ mile	Complete sidewalks on both sides of street within ¼ mile	Sidewalk on one side of street within 300 feet of stop	Sidewalk on one side of street within 600 feet of stop; appropriately marked crossing within 600 feet of stop
Bicycle Parking	Bicycle racks for 15 bikes	Bicycle cage	None	None

TRANSIT LOS

Advantages

- Simple to calculate
- Focuses on high-quality station/stop design
- Identifies access deficiencies
- Under city control

Disadvantages

- Does not speak to the performance of the transit service
- May require additional data

VEHICLE LOS: EXAMPLE STANDARDS

MMA Name	Adopted LOS	LOS Threshold Based on v/c ratio
North Bellevue		0.0-0.85 0.85-1.00 > 1.00
Bridle Trails		0.0-0.80 0.80-1.00 > 1.00
Downtown		0.0-0.95 0.95-1.00 > 1.00
Wilburton		0.0-0.90 0.90-1.00 > 1.00

VEHICLE LOS

Advantages

- Retains current method
- Allows for different thresholds to be set based on urban form (which is also the current practice)
- Ultimate facility would constrain the dimensions of roadways in dense/other sensitive parts of the city

Disadvantages

- Narrow/localized view of intersection performance – not necessarily corridor based
- Improving v/c can have negative impacts on other modes (which is partially offset by the ultimate facility designation)

NEXT STEPS

- **May 12:** Next Transportation Commission study session
- **Update:** LOS best practices across Washington State and other communities
- **Discuss:** Define and/or Revise LOS metrics as needed for each mode
- **Discuss:** Define and/or Revise specific standards for each mode
- **Apply/Test** potential Defined and/or Revised LOS metrics on a handful of multimodal corridors

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THANK YOU!

COMMENTS/QUESTIONS/OBSERVATIONS