Bellevue Transportation: Challenges, Opportunities and Priorities

Bellevue Downtown Association
September 20, 2018

Dave Berg
Transportation Director
City of Bellevue

Mobility Challenges

- Traffic, traffic and more traffic!
- Funding
  - Capital projects
  - Ongoing maintenance and operations
- Regional freeway system
- Housing affordability
- Non-motorized environment
- Curb space management

Mobility Priorities

- Capital program delivery
  - TIFIA, General CIP, Levy
  - Construction implications
- Vision Zero Action Plan implementation
- Multimodal Level-of-Service
- East Link/I-405 Bus Rapid Transit and Metro service enhancements
- Regional system improvements
  - Freeway
  - Non-motorized trails
- Smart Mobility Plan implementation
- Enhancements to public right of way

VISION ZERO
CITY OF BELLEVUE
WALK BIKE DRIVE
SAFE

The Downtown Transportation Plan and a new Multimodal Approach to Mobility

Bellevue Downtown Association

September 20, 2018

Kevin McDonald, AICP
Principal Transportation Planner
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Downtown Transportation Plan Update

Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

Downtown Transportation Plan Update

Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

Bellevue Downtown Transportation Plan Overview

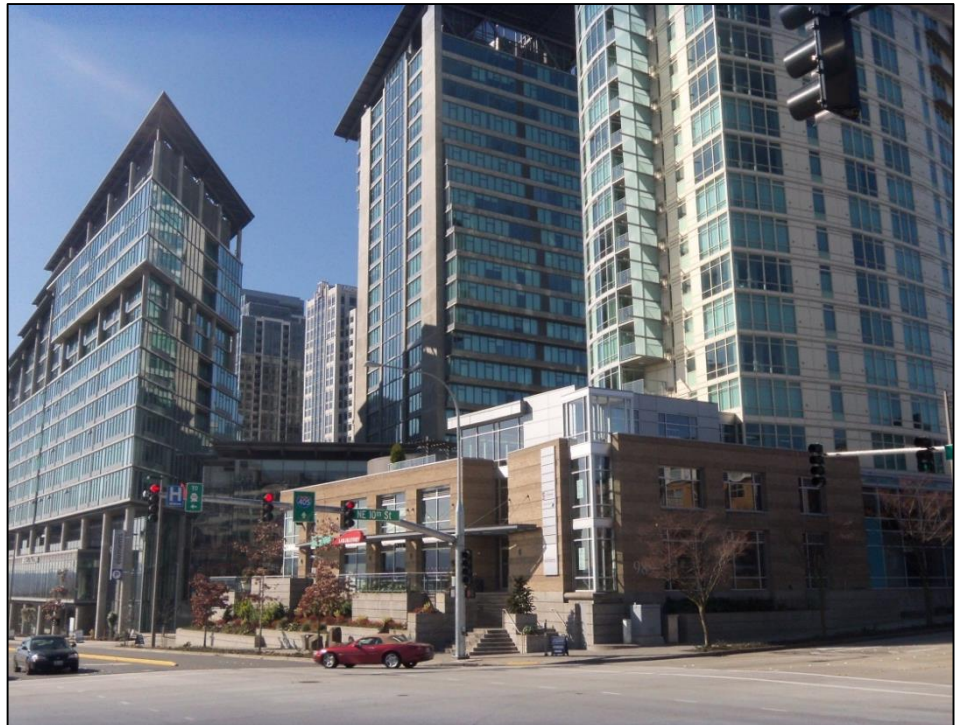
- DTP Planning/Final Report
- DTP Implementation

Multimodal Level of Service Overview

- MMLOS Metrics, Standards, Guidelines and Implementation

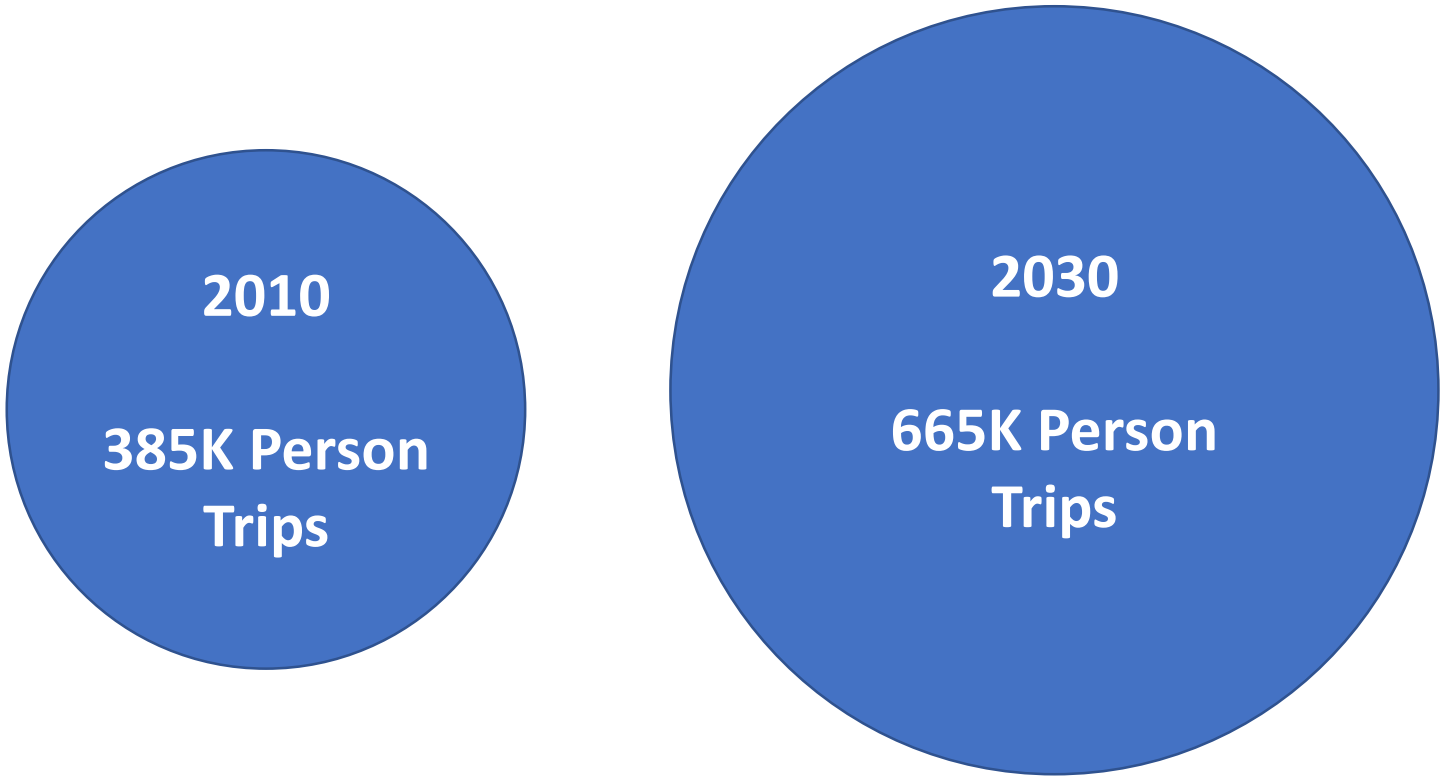
Downtown Land Use Forecast

	1990	2000	2010	2018	2030	2010/2030 Growth
Employment	22,257	34,042	**42,525**	**50,800**	**70,300**	**+27,775**
Population	1,182	2,588	**7,147**	**13,400**	**19,000**	**+11,853**



Downtown Travel Demand Forecast

Travel Demand Model for **daily person trips** (regardless of mode)
for all Downtown travel, to/from/within



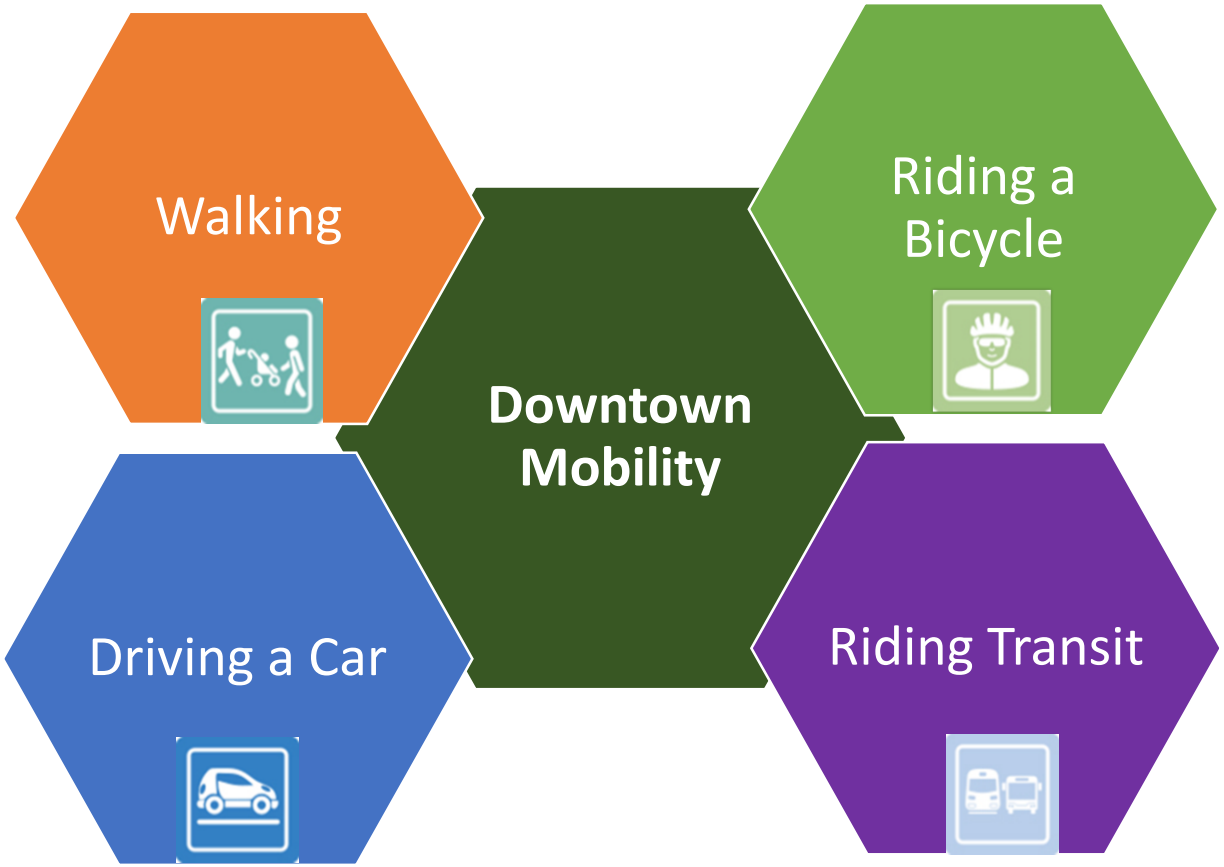
City of Bellevue

Downtown Transportation Plan

Transportation Commission Recommendation

October 2013

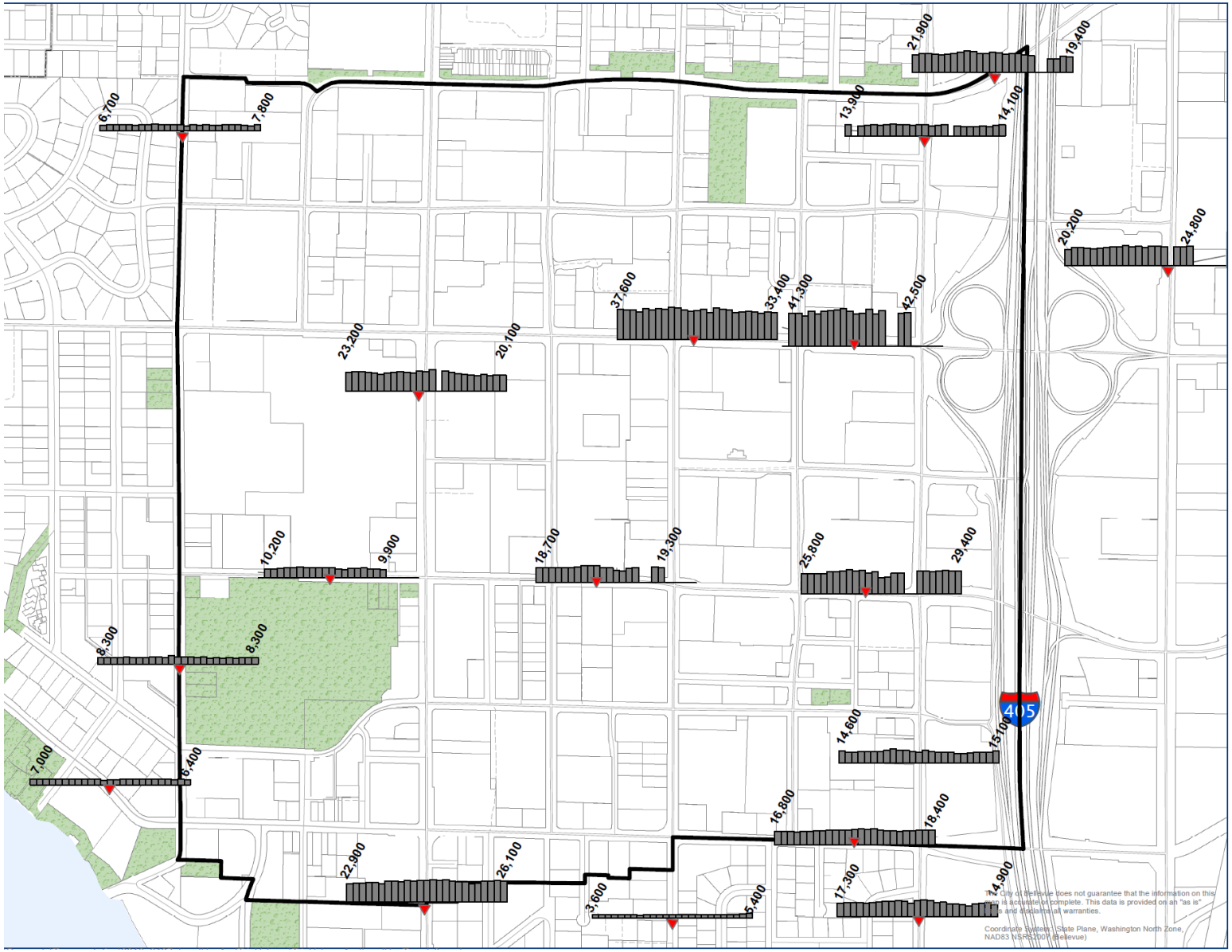
Multimodal Strategy - Mobility options for all trip purposes

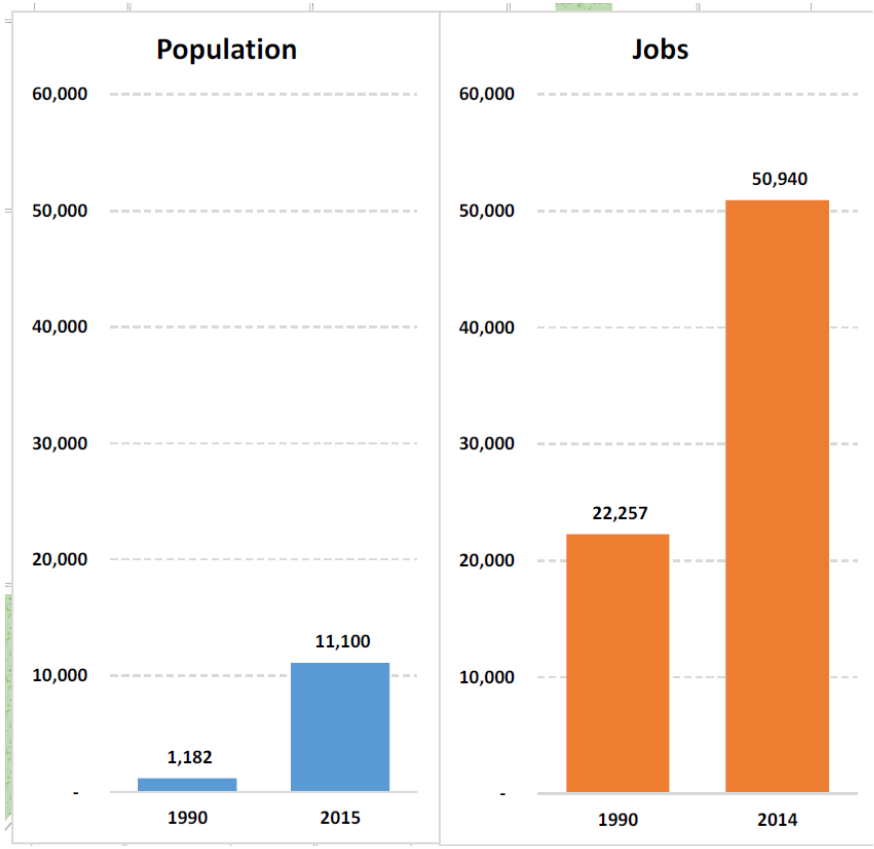


People Driving (and Parking)

- In Downtown, the street is managed largely for moving vehicles
- In a few locations, the curbside is used for on-street parking, loading

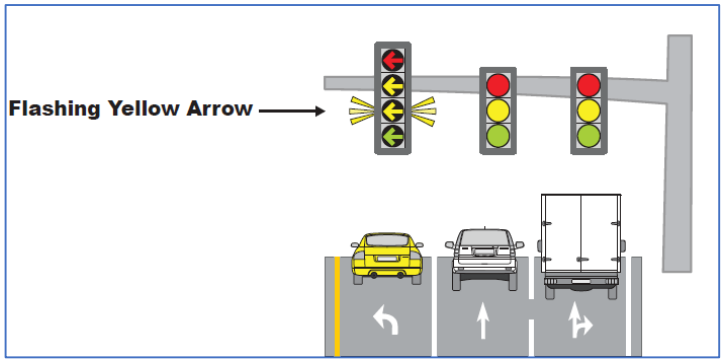
Average Annual Weekday Traffic: 1990-2015





People Driving(Traffic Operations)

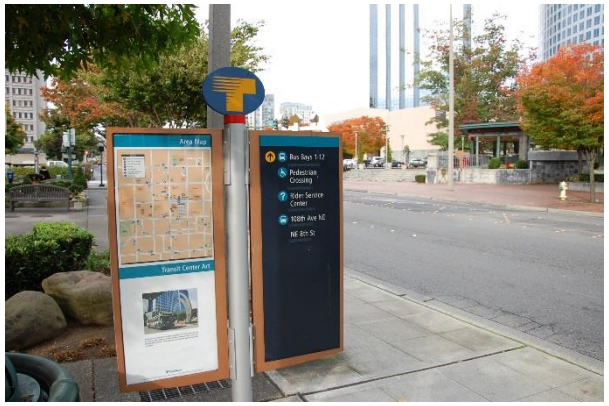
Bellevue operates an “Intelligent Transportation System” (ITS) that adapts to traffic conditions and responds to demand from cars, transit, bicycles and pedestrians



People Riding Transit

Frequent and reliable transit service works for people who need to take short trips within Downtown and for longer trips to regional destinations

East Link light rail will add significant transit capacity in 2022/23



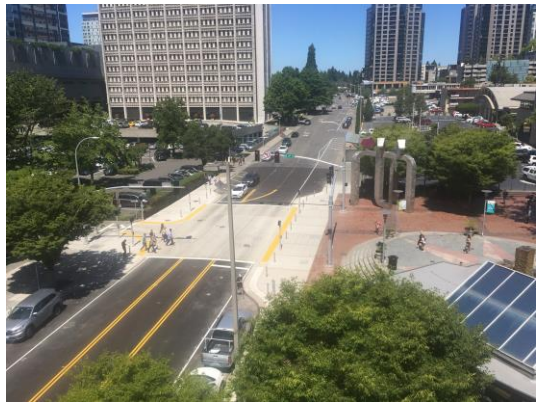
People Walking

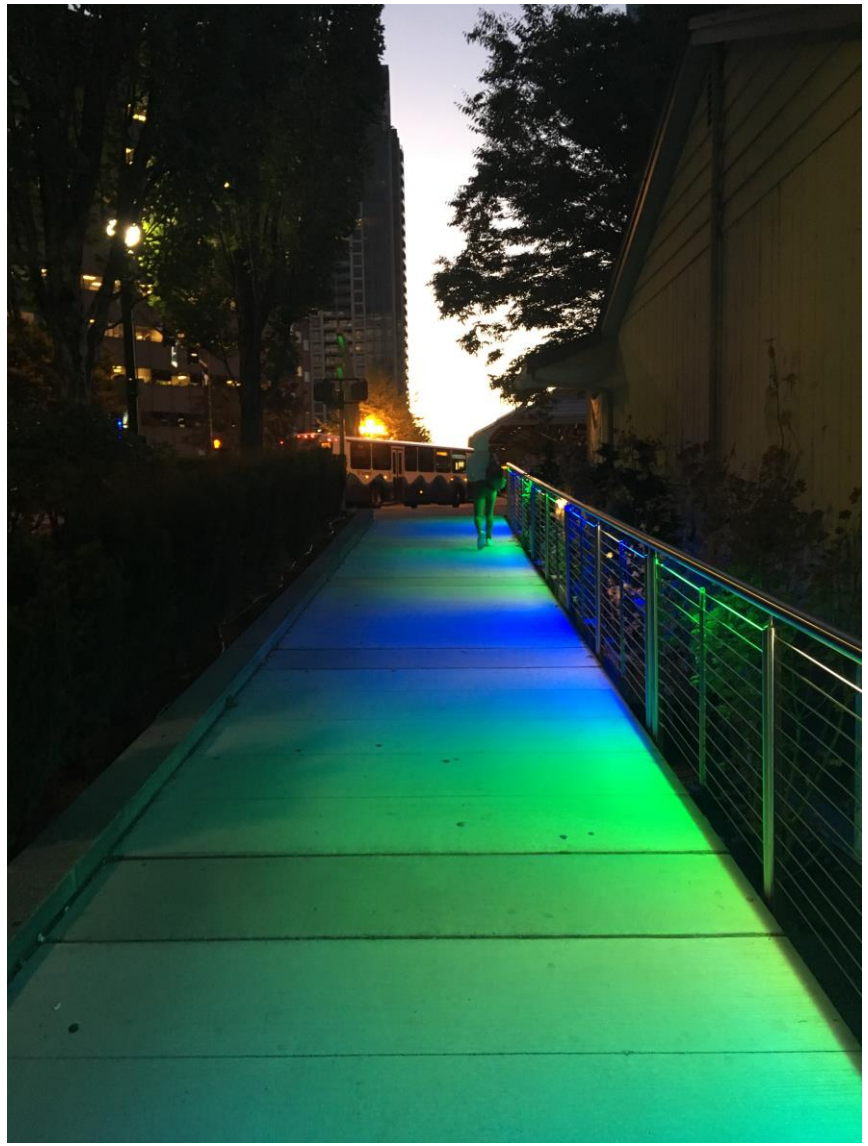
Generous sidewalks, wide crosswalks and strategically-placed mid-block crossings make walking the easiest way to get around in Downtown

People Riding Bicycles

On-street bicycle facilities and secure bicycle parking support people who rely on two-wheeled mobility

Pedestrian Facility Improvements





Bicycle Facility Improvements

Essential messages:

- A mixed, dense land use pattern creates opportunity for people to walk, bicycle, and ride transit
- An “All of the Above” mobility strategy keeps the rate of traffic growth way below the rate of land use growth – reducing or eliminating the need to add vehicle capacity to maintain level-of-service
- A Multimodal approach inspires conversations about projects and priorities

Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

BELLEVUE MMLOS TOPICS

- Bellevue Policy Evolution
- Vehicle Level of Service
- Pedestrian Level of Service
- Bicycle Level of Service
- Transit Level of Service
- Implementation

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.

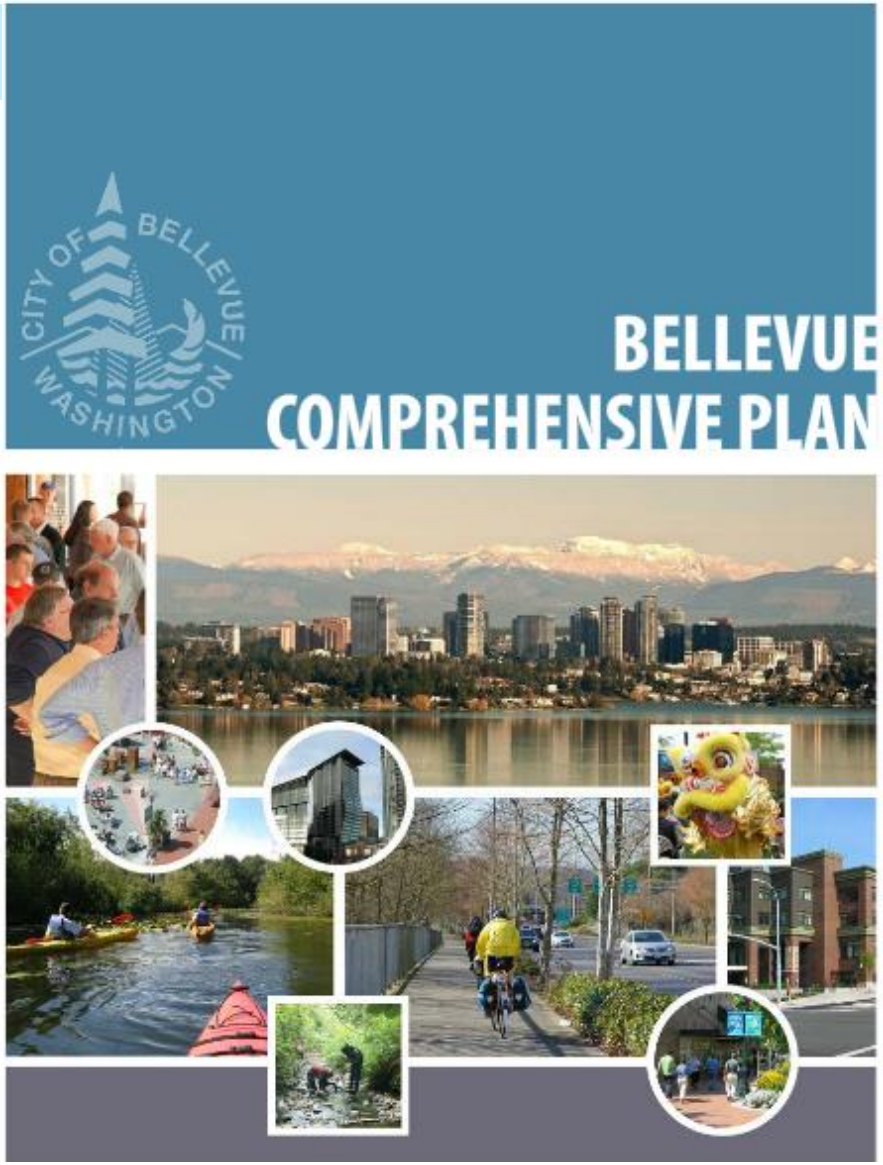
Multimodal planning considers the modes of transportation and the context as inputs to design and investment decisions.

EVOLVING MOBILITY POLICY

- **Comprehensive Plan 1989**
  - Traveling on arterials should not be too inconvenient, time consuming, or unsafe

- **Comprehensive Plan 1993**
  - Establish (vehicle) LOS standards in each area of the city in light of growth management objectives

- **Comprehensive Plan 2015**
  - Establish MMLOS measures, standards and targets



Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

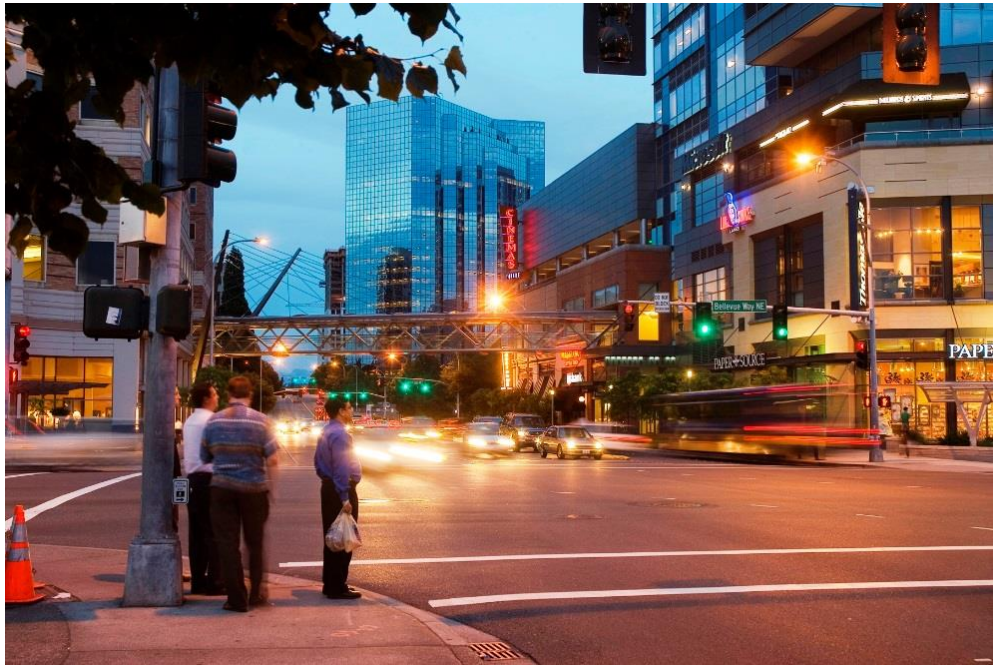
MMLOS SUMMARY Transportation Commission Approved April 13, 2017			
Mode	LOS Metric	LOS Standard	LOS Guideline
Vehicle	Intersections: Volume/Capacity or Average Delay	V/C: 0.80-0.95. Varies by mobility options and land use	Average Delay: 20-80 sec. Varies by mobility options land use
	Typical Urban Travel Speed on Arterials		Percent of posted speed limit, Varies by neighborhood context
Pedestrian	Sidewalk and Landscape Width	12-20 feet, Varies by land use context	
	Pedestrian Comfort, Access and Safety at Intersections		Design varies by land use context
Bicycle	Level of Traffic Stress (LTS) on Corridors		Design to achieve intended LTS varies by roadway traffic speed and volume
	Level of Traffic Stress (LTS) at Intersections		Maintain corridor LTS at intersections. Design components vary by context
Transit	Passenger Comfort, Access and Safety		Varies by transit stop/station typology
	Transit Travel Speed on Corridors		14 mph on Frequent Transit Network corridors between Activity Centers

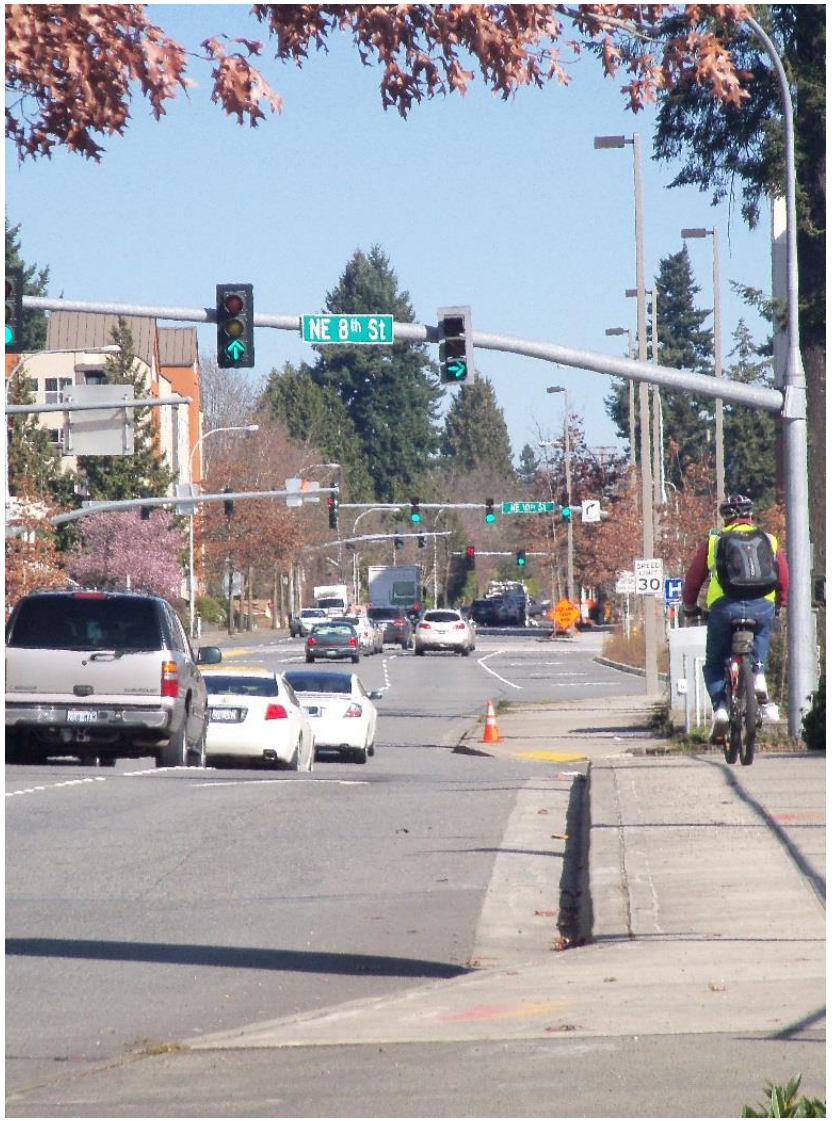
Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

VEHICLE LOS

- Intersections
- Corridors



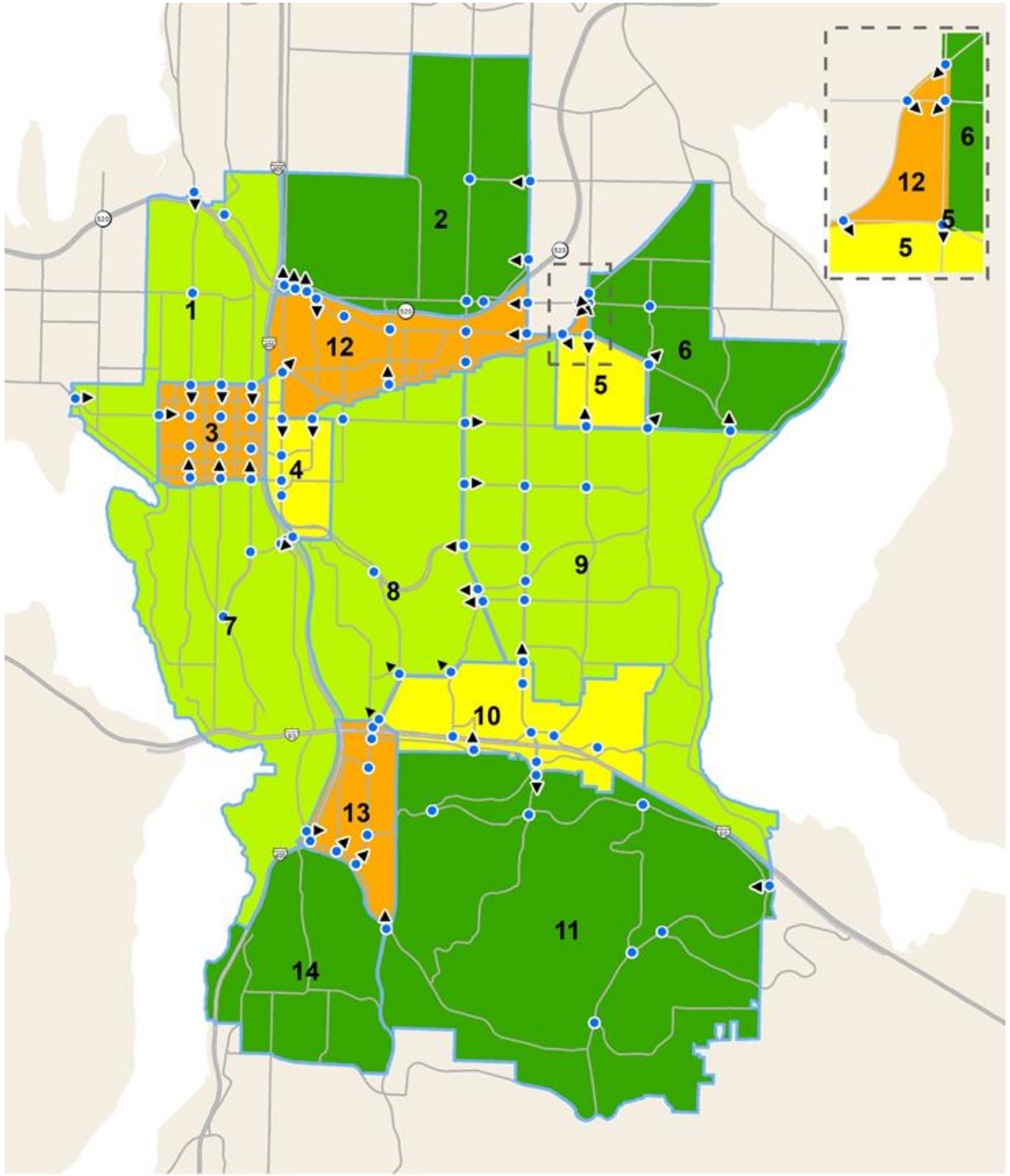


Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

VEHICLE LOS - INTERSECTIONS

LOS Standard Average V/C PM Peak	LOS V/C Standard as applied to Mobility Management Areas BCC 14.10.030
V/C </= .800	Bridle Trails, NE Bellevue, SE Bellevue, Newport Hills
V/C </= .850	North Bellevue, South Bellevue, Richards Valley, East Bellevue
V/C </= .900	Wilburton, Crossroads, Eastgate
V/C </= .950	Downtown, Factoria BelRed

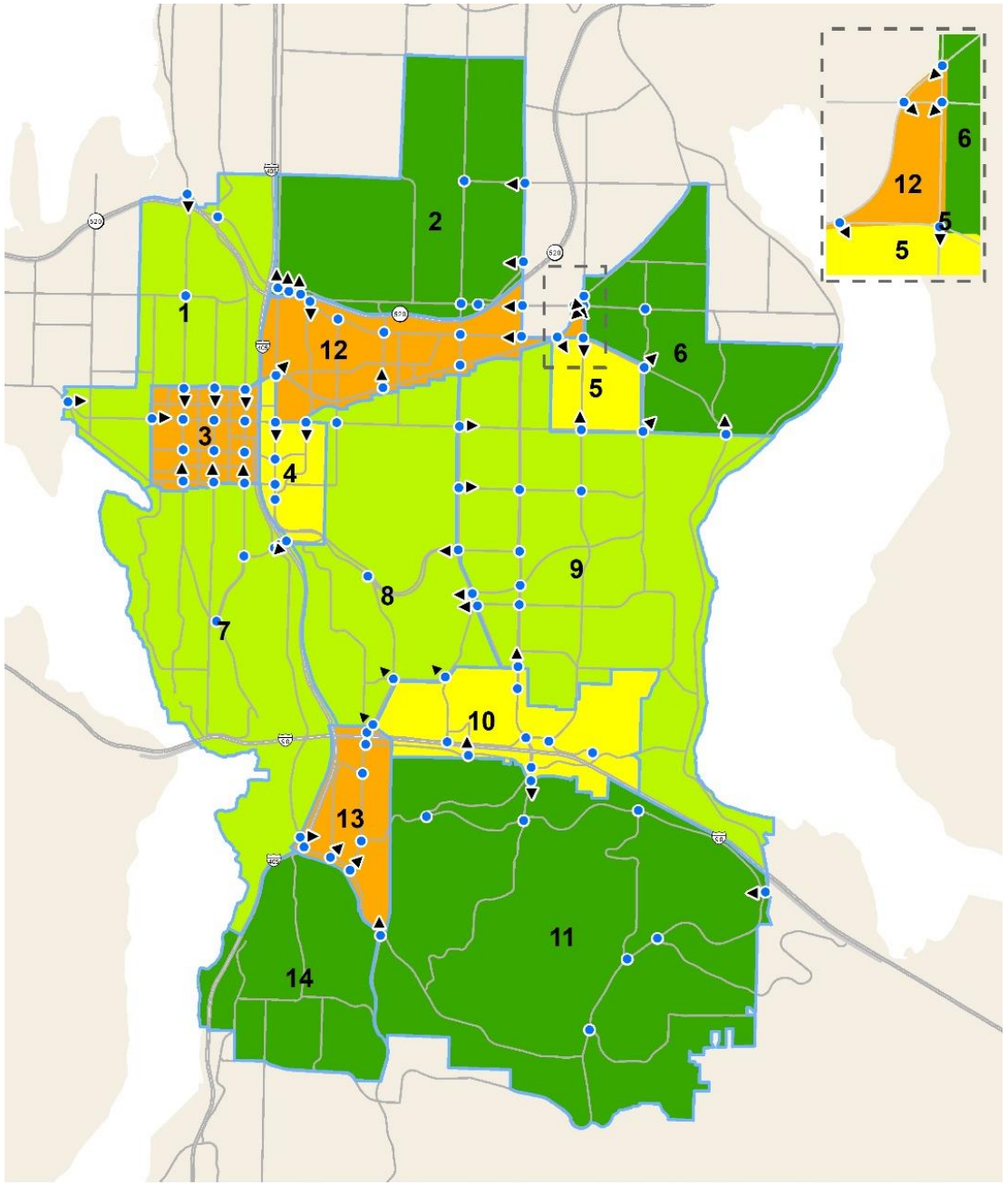


Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

VEHICLE LOS – ARTERIAL CORIDORS

LOS Guidelines Corridor Travel Speed PM Peak	LOS Corridor Travel Speed Guidelines as applied to Mobility Management Areas
100% of speed limit	Bridle Trails, NE Bellevue, SE Bellevue, Newport Hills
90% of speed limit	North Bellevue, South Bellevue, Richards Valley, East Bellevue
75% of speed limit	Wilburton, Crossroads, Eastgate
50% of speed limit	Downtown, Factoria, BelRed



Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

VEHICLE LOS *(HYPOTHETICAL)*

BELLEVUE WAY CORRIDOR

Intersection LOS Standard V/C .95

Meets Standard **Does Not meet standard**

Corridor Speed LOS Guideline: 15 mph

Speed is >/= guideline

Speed is < guideline

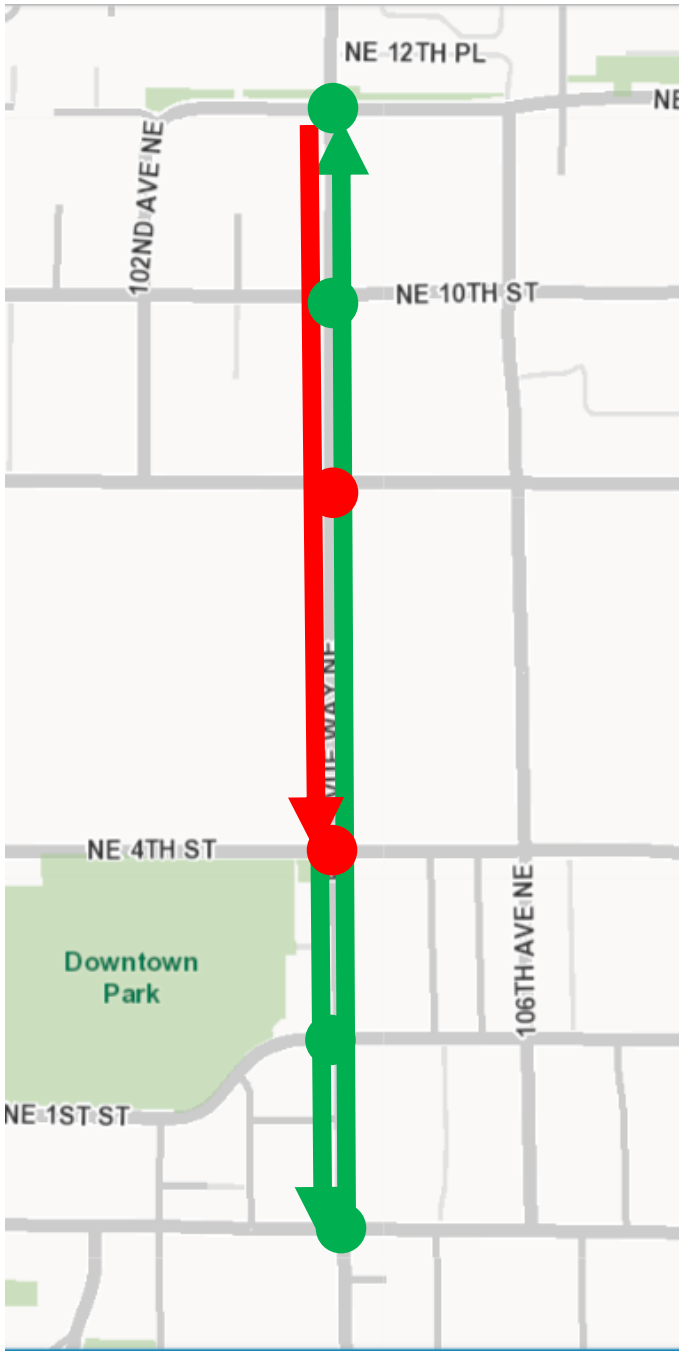
What to do with this information?

Take a look here!

Identify problem and potential remedies

Compare to other locations - priorities

What are the MMLOS tradeoffs?



Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

PEDESTRIAN LOS

- Intersections
- Sidewalks

PEDESTRIAN LOS

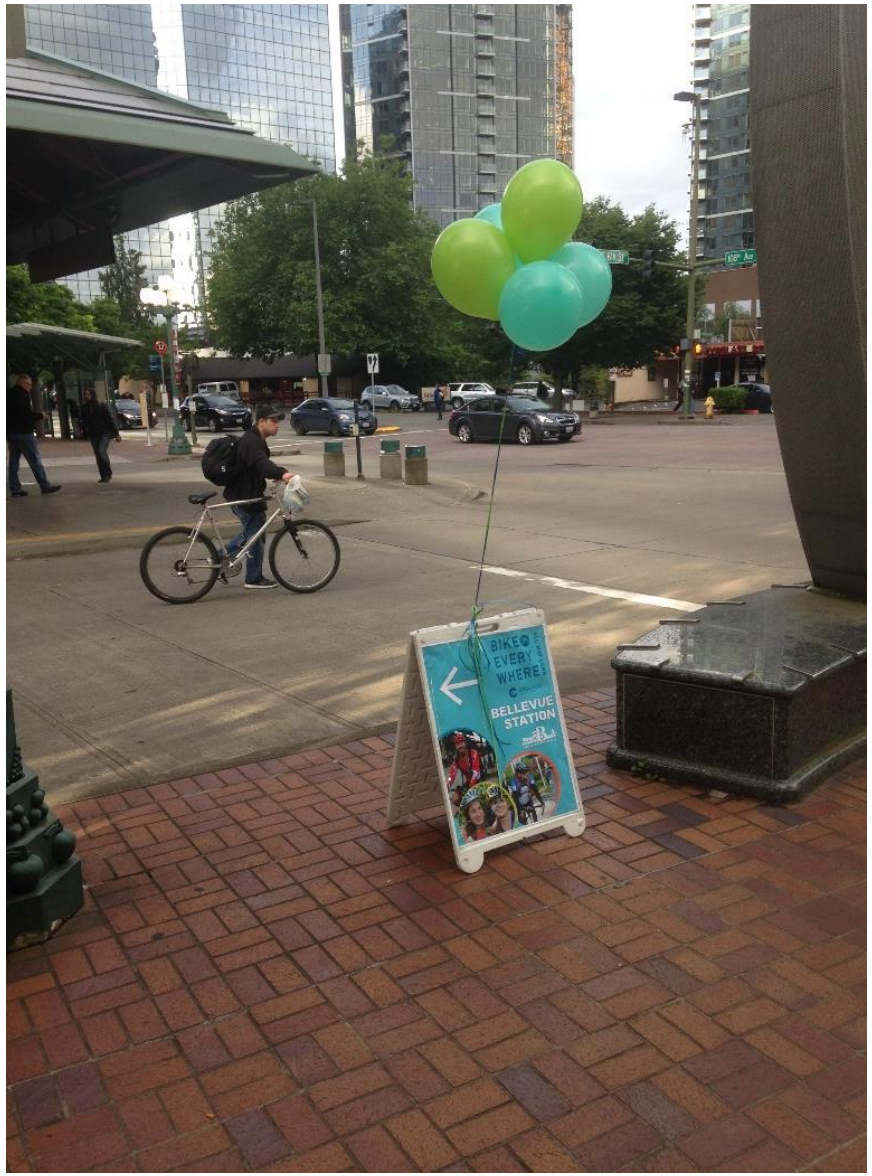
Context: / Component	Downtown	Activity Center	Neighborhood Shopping Center	Pedestrian Destination	Elsewhere
Sidewalk Width Landscape Buffer	Downtown Land Use Code	16 feet	13 feet	13 feet	Transportation Design Manual
Signalized Intersection Design	Downtown Transportation Plan	Downtown Transportation Plan "Enhanced"	Transportation Design Manual	Transportation Design Manual	Transportation Design Manual
Arterial Crossing Frequency	Downtown Transportation Plan	600- 800 feet	600 feet	300-600	N/A

Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

BICYCLE LOS

- Intersections
- Corridors



BICYCLE RIDER
LEVEL OF TRAFFIC STRESS (LTS)

LTS 1	LTS 2	LTS 3	LTS 4
Interested but Concerned – Children and Older Adults	Interested but Concerned – Adults	Enthused and Confident	Strong and Fearless

Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

BICYCLE RIDER LTS/LOS

Roadway Characteristics		Bicycle Facility Components Guidelines 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	4	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
40	Any	4	4	4	4	3	1

BICYCLE LOS INTERSECTION COMPONENTS

Intersection Treatment / Bike LOS	Bike Signal	Street Crossing	Approach to Intersection	Approach to Intersection with Right Turn Lane
1	Bike signal	Green solid or skip stripe	Green bike box	Curb ramp to wide sidewalk
2	Bike signal	Skip stripe	Bike box	Green bike lane to left
3	Green cycle length	Sharrows	Signal actuation	Bike lane to left
Trail or Mid-Block Crossing	Full signal or HAWK or RRFB	Green solid or skip stripe	N/A	N/A

Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

TRANSIT LOS

- Passenger Amenities
- Speed on Frequent Transit Network

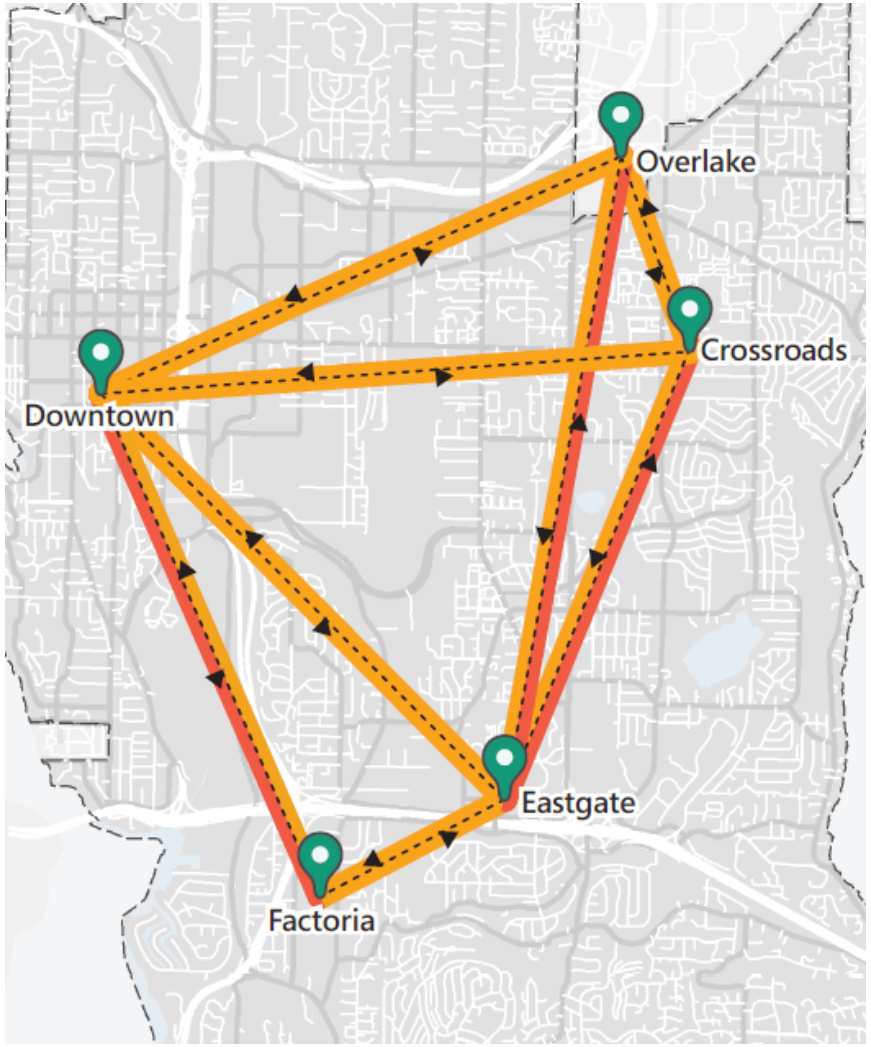
TRANSIT PASSENGER LOS COMPONENTS

Context / Component	Local Stop	Primary Stop	Frequent Transit Network Stop
Weather Protection	Yes	Yes	Yes
Seating	Yes	Yes	Yes
Paved Bus Door Passenger Zone	15-30’	40’	60’
Wayfinding	Optional	Yes	Yes

TRANSIT LOS SPEED

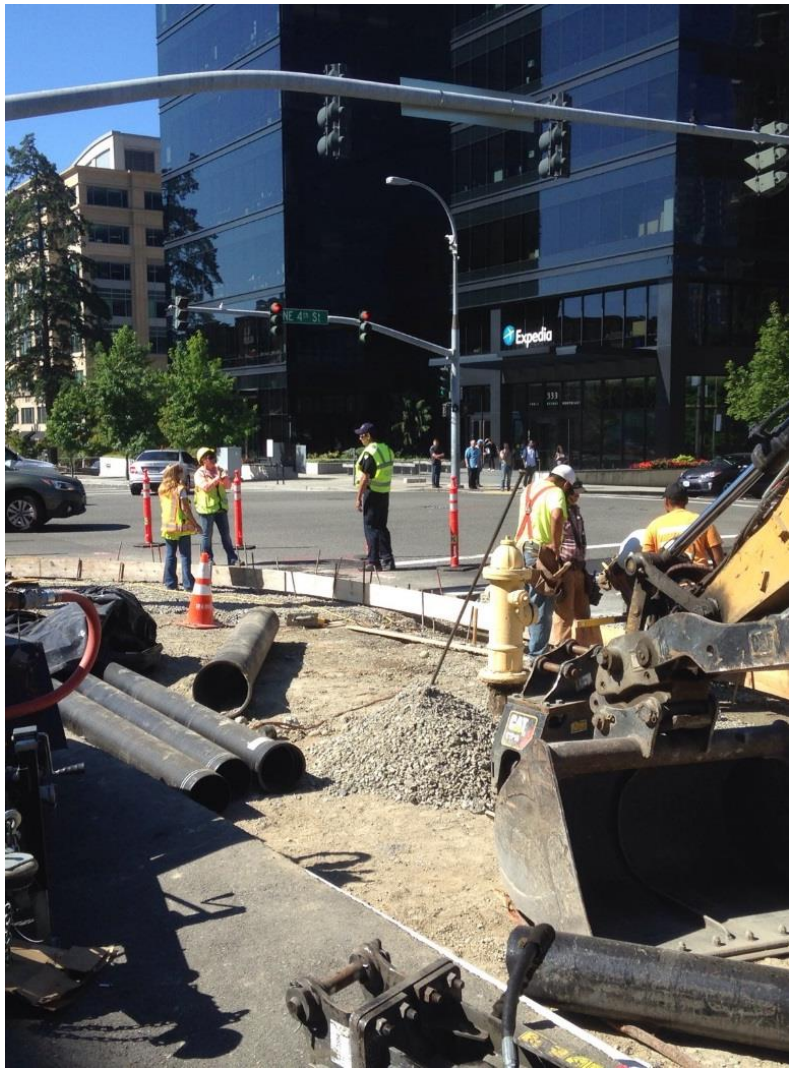
- Frequent Transit Network (FTN) Corridors between Activity Centers
- Target FTN speed in Bellevue Transit Master Plan (14 mph)
- Transit LOS Guidance: 14 mph on FTN connections

LOS Rating	Transit Speed Target
	<10 mph
	10-14 mph
	>14 mph



NEXT STEPS - MMLOS IMPLEMENTATION

- Capital Improvement Program
- Development Review



MMLOS IMPLEMENTATION – DEVELOPMENT REVIEW

Based on Person-Trips generated from project

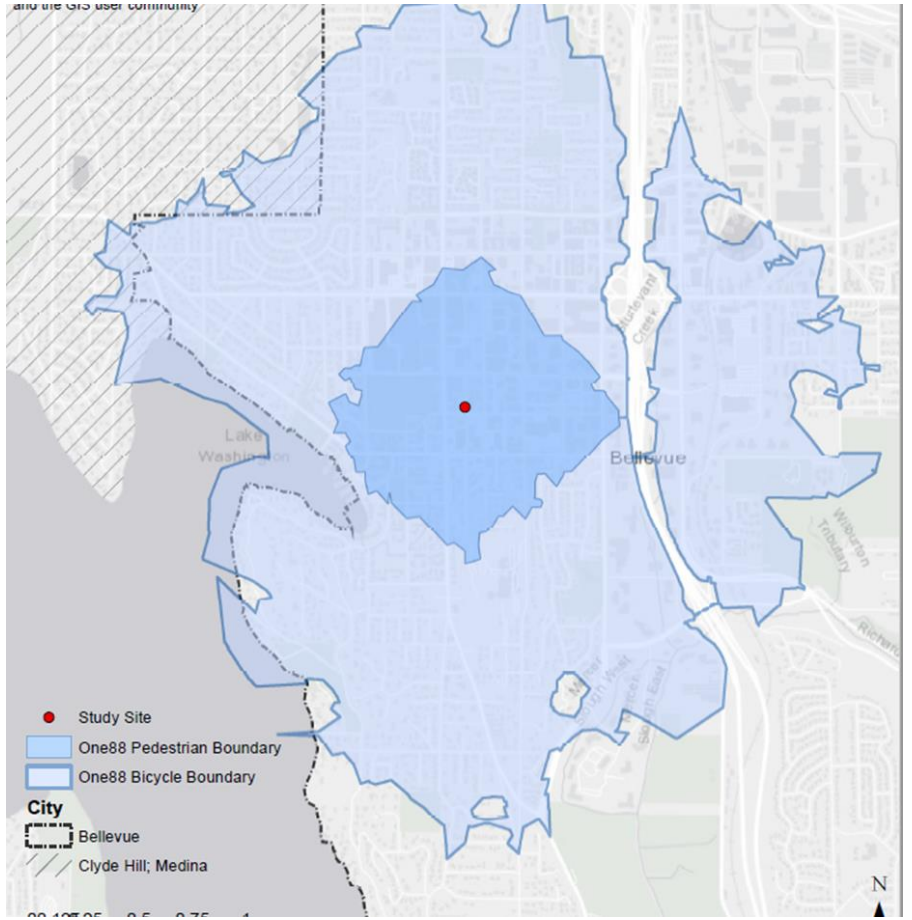
Determine share of improvements to mitigate impacts

½ mile for pedestrian and transit impacts

- Pedestrian Projects
  - Intersection improvements
  - Mid-block Crossings
  - Sidewalks
- Transit Projects
  - Transit stop amenities

1 ½ miles for bicycle impact

- Bicycle Projects



Downtown Transportation Plan Update

Level-of-Service in Bellevue

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