Multimodal Concurrency

Transportation Commission
February 11, 2021

Multimodal Concurrency and Mobility Implementation Plan

Bellevue Staff
Kevin McDonald

Chris Breiland
Don Samdahl

Study Session Topic Overview

- Address some of the questions about concurrency raised by Commissioners in and following the January meeting
- Outline in more detail the steps for calculating Mobility Units of supply and demand for multimodal concurrency
- Further discussions about the staff recommendation related to transportation concurrency
- Seeking Commission concurrence on refinements to multimodal concurrency framework – help advance toward implementation

Key Questions Raised by Commissioners in January

- How do we know the “right network” of supply is being built? What outcomes can be expected?
- How do we ensure that what is built is related to growth and will be utilized over time?
- How do we measure progress?

On the following slides, we will go through a step-by-step process to help answer these questions and consider the greater transportation and land use planning context in Bellevue

MULTIMODAL CONCURRENCY

A Step-by-Step Sequence Toward Multimodal Concurrency

1 → Forecast Demand

12-Year Growth Forecast from PSRC

2 → BKR Model TFP Baseline Network

Trips:
- Vehicle
- Transit
- Walk
- Bike

- Intersection V/C
- Corridor Speed
- Bus Speed
- Transit Access

- Capacity by others
- Exceptional TDM

3 → Apply Performance Metrics to TFP "Baseline"

- Vehicles
- Transit
- Walk
- Bike

4 → Available funding for 12-year TFP

5 ⇄ Test Performance of Candidate Projects

- Vehicles
- Transit
- Walk
- Bike

6 → BKR Model TFP Updated Network

- Intersection V/C
- Corridor Speed
- Bus Speed
- Transit Access
- Ped Network Completeness
- Bike Network Completeness

7 Create Supply

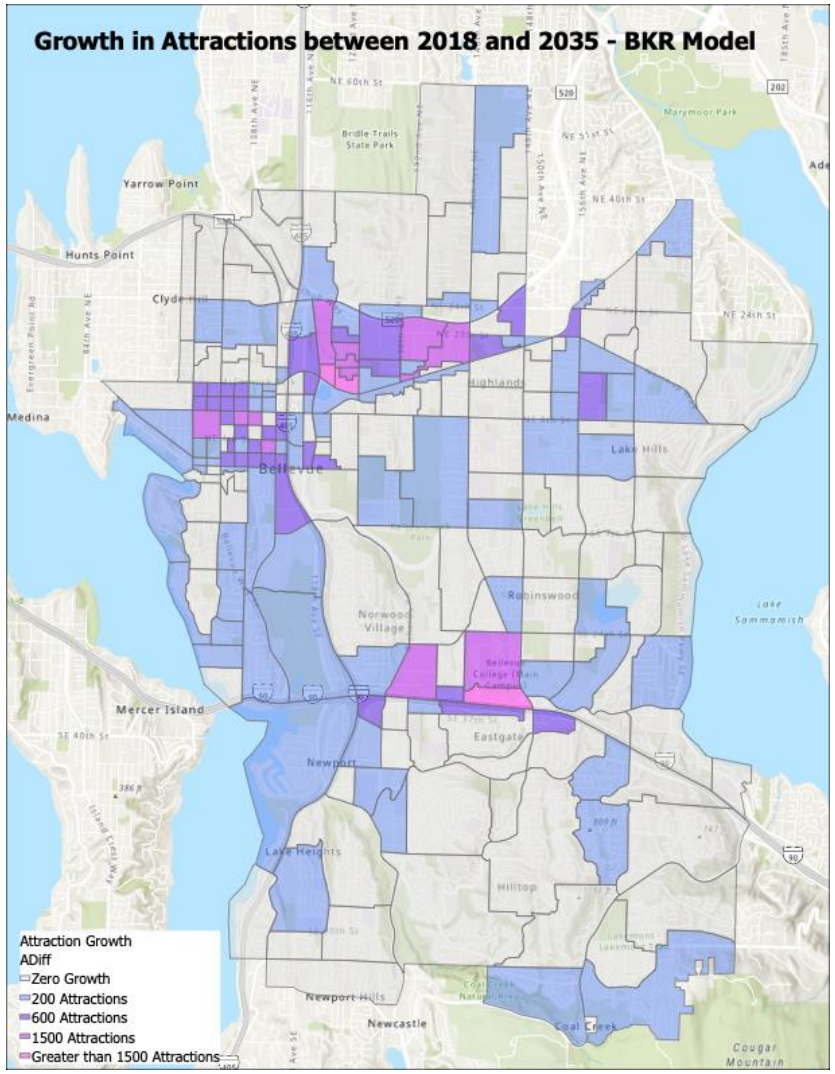
Implement Projects in CIP

Step 1 – Forecast Demand

- Bellevue staff forecasts the increase in trips by all modes using growth forecasts from the PSRC
- 12-year growth forecast aligns with the TFP analysis horizon
- Specific increase in person trips (mobility units of demand) calculated by the BKR Cast model

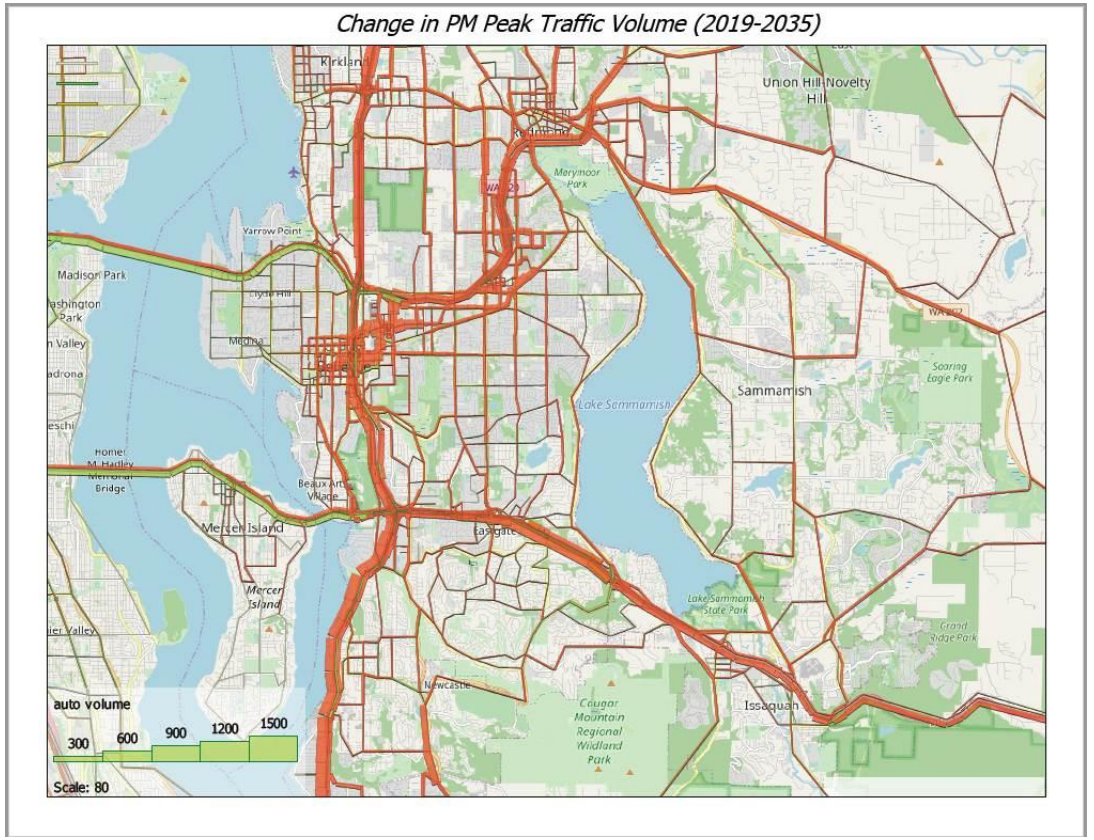
Step 2 – Use BKR Cast Model To Understand Growth Impacts

- How many more person trips (mobility units of demand) are generated?
- Where is the growth occurring?
- What is the mode share of trips and how did that change?
- Understand the impacts of other agency investments in Bellevue's transportation network (WSDOT, Sound Transit, Metro, etc.)
- Considers latest updates in TDM program



Step 3 – Evaluate "Baseline" Performance

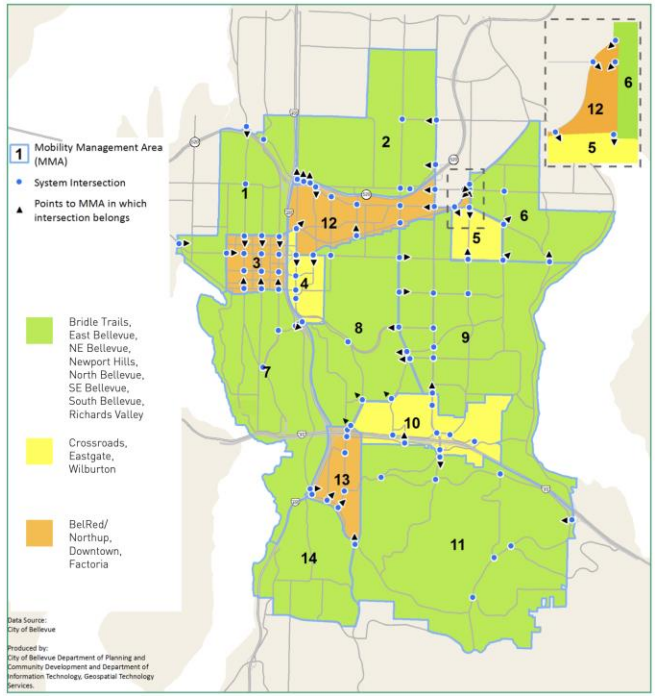
- Includes existing TFP without any additional projects
  - All the projects in the existing TFP –known as baseline projects
- Performance metrics based on MMLOS
- Other performance metrics could also be considered to identify gaps in performance and areas of emphasis



Step 3 – Vehicle Performance

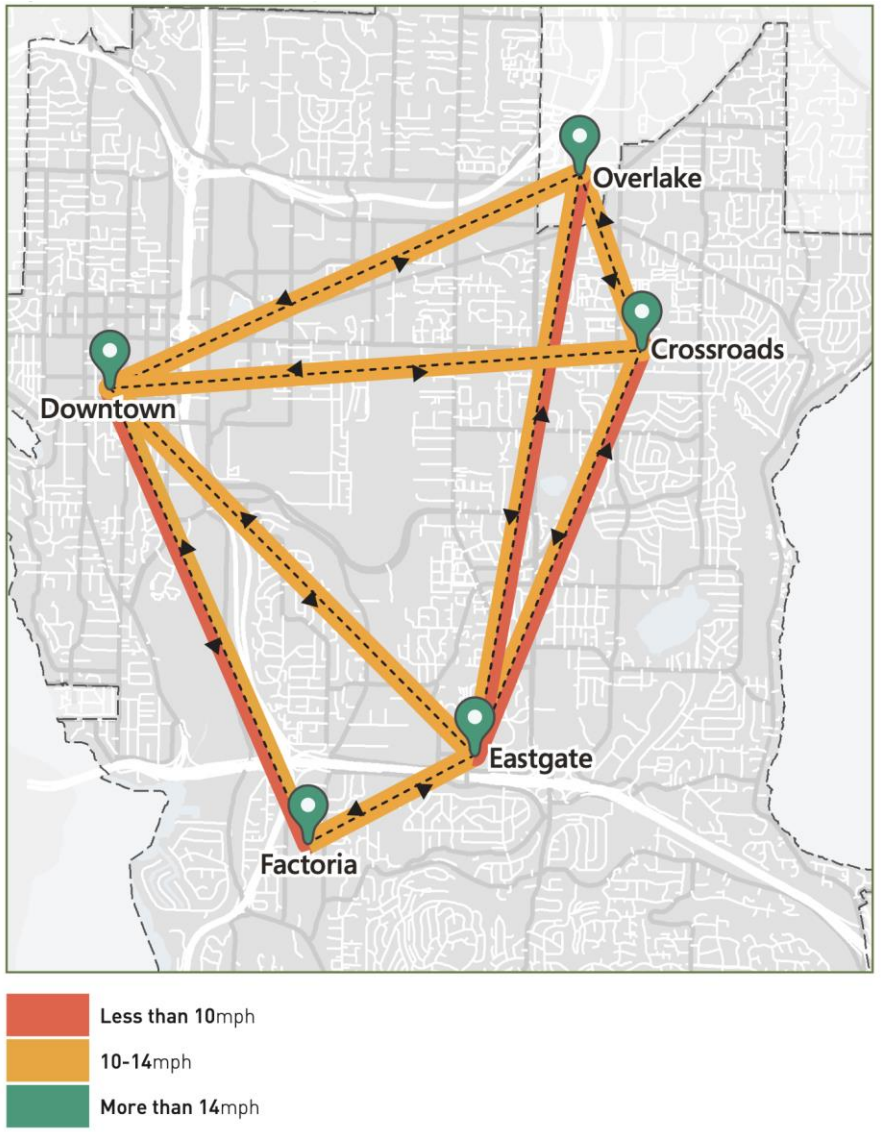
- Vehicle performance options from MMLOS
  - Corridor travel speed
  - v/c ratio
- Focused on vehicle volume/capacity and congestion measures

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



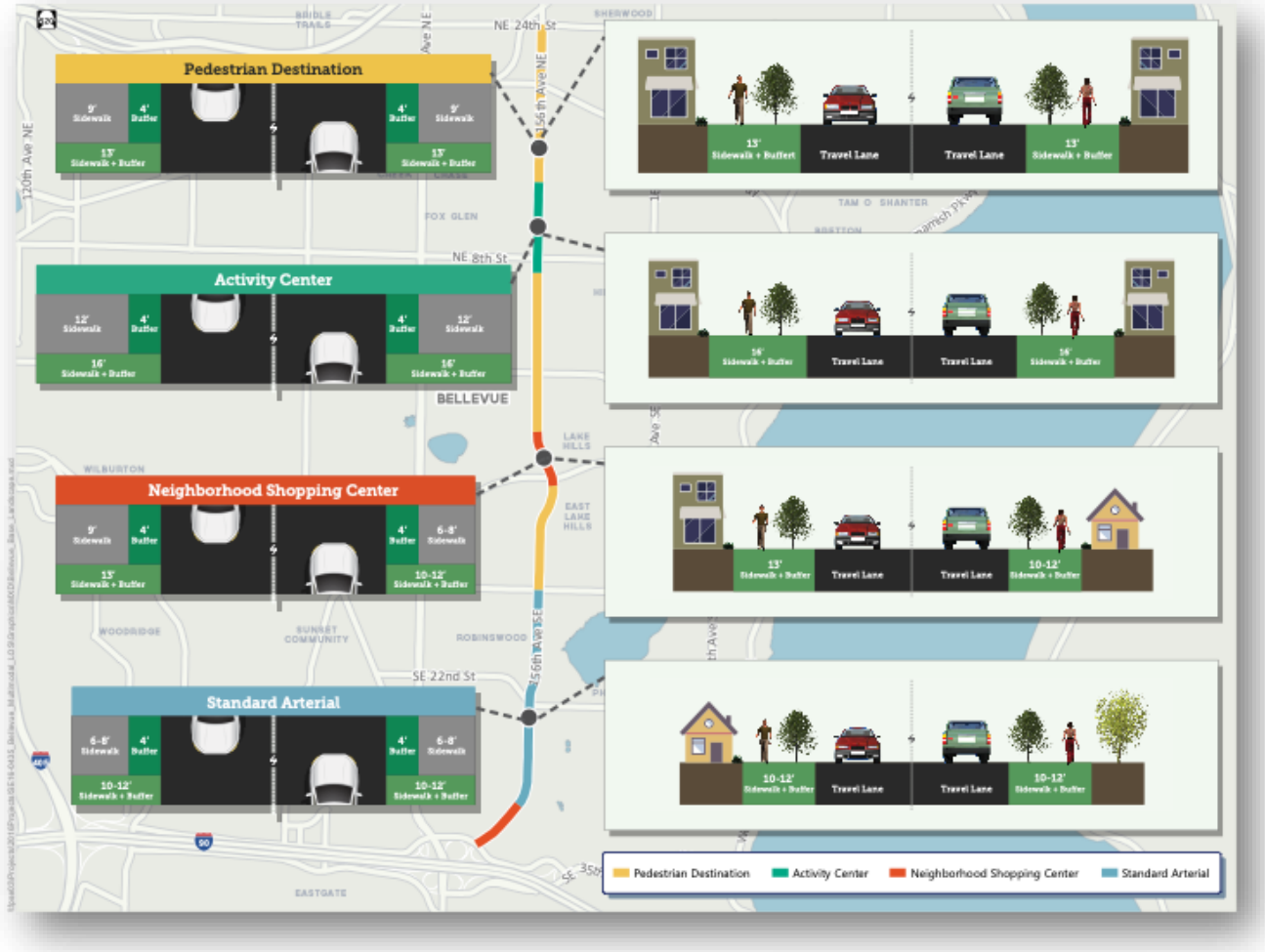
Step 3 – Transit Performance

- Transit performance options from MMLOS
  - Frequent transit network speed
  - Bus stop amenities
- Focused on facilities for passenger comfort, access, and information
- Also considers the transit travel time to destinations
- Those elements within Bellevue's control



Step 3 – Pedestrian Facility Performance

- Pedestrian LOS from MMLOS
  - Sidewalk and landscape buffer
  - Intersection treatments
  - Mid-block crossing frequency
- Focus is on arterial streets in growing areas of the city
- Focused on pedestrian access, comfort, and safety



Step 3 – Bicycle Facility Performance

- Bicycle LTS from MMLOS
  - Considers adjacent speed and traffic volumes
  - Different bicycle facilities for different types of bicyclists (commuters to casual cyclists)
  - Along arterials and crossings at intersections
- Focused on Bicycle Priority Network
- Access within and between major growth areas

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

Step 3 – Summary of MMLOS Performance Measures

Mode	Level of Service Metric	Details and Notes
Vehicle	Volume/Capacity Ratio at System Intersections	LOS varies by neighborhood context
	Typical Urban Travel Speed on Arterials	Percent of posted speed limit. LOS varies by neighborhood context
Pedestrian	Sidewalk Width plus Landscape Width	12-feet to 20-feet for sidewalk + landscape. Varies by land use context
	Pedestrian Comfort, Access and Safety at Intersections	Crosswalk spacing and back of curb design varies by land use context
Bicycle	Level of Traffic Stress, or Level of Bicyclist Comfort on Arterials	Bicycle facilities achieve intended Level of Traffic Stress. Design varies by traffic speed and traffic volume, and other factors
	Level of Traffic Stress, or Level of Bicyclist Comfort at Intersections	Maintain corridor Level of Traffic Stress at intersections. Design components vary by context.
Transit	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

Step 4 – Identify Available Funding to Improve the Transportation System

- Bellevue Department of Finance and Asset Management provides TFP revenue forecasts
- Accounts for continuation of ongoing TFP projects
- Only a portion is available to fund new projects

Table 2: Summary of 2019–2030 Transportation Funding Allocations

	(Millions)
Total Projected Revenue	**$628.8**
Less Committed Revenue	$143.9
-Allocations to Non-TFP CIP Projects and Ongoing Programs	
Less Constrained Revenue	$96.8
-Continuation of Ongoing CIP Programs (2026-2030)	
-Continuation of Safety and Connectivity Levy Projects (2026-2030)	
Balance: Allocation to 2019-2030 TFP Projects-	**$388.1**

Includes:

- Committed to CIP TFP projects - $279.4M
- Unconstrained Funding (not part of adopted CIP) - $108.7M

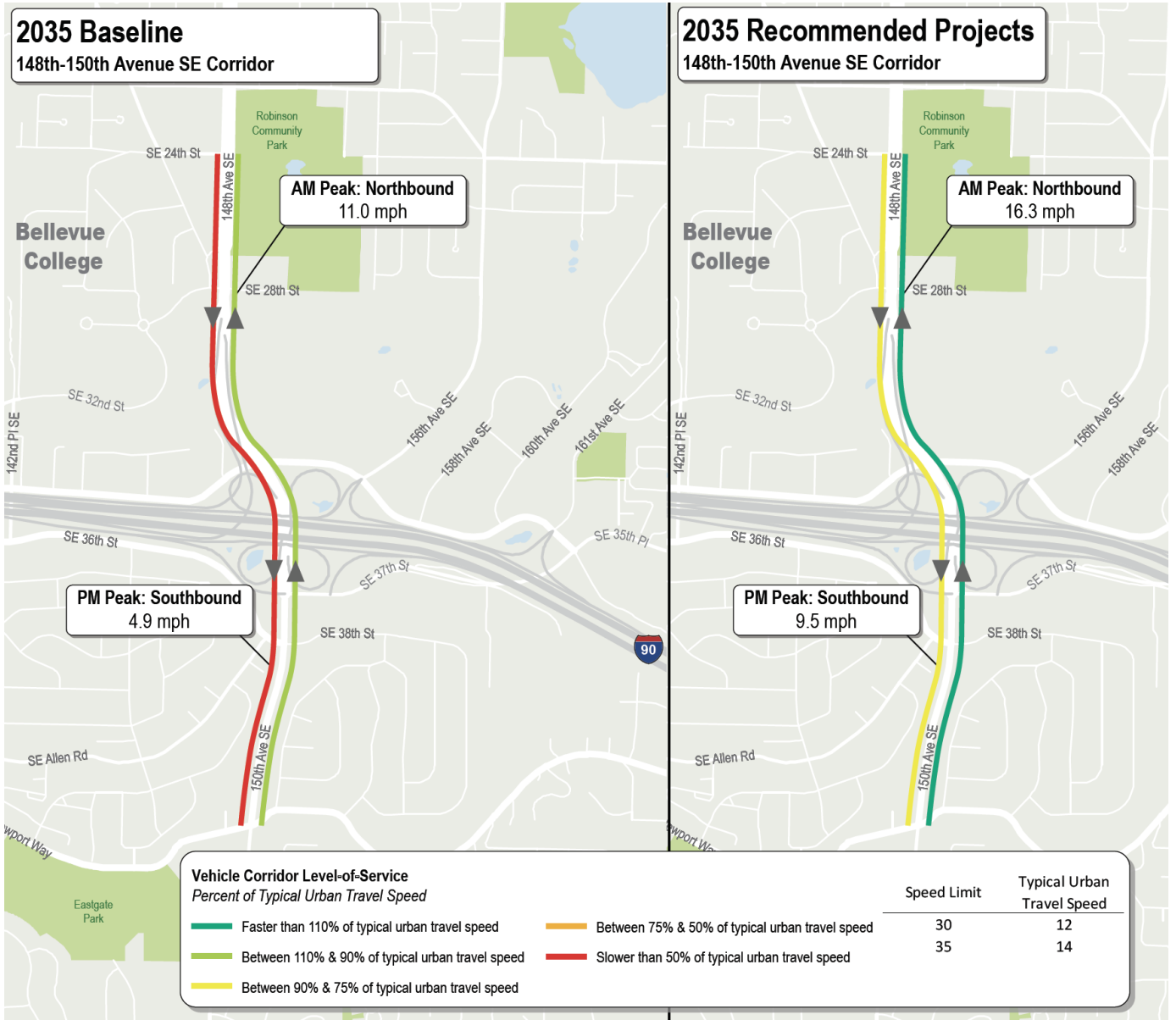
Step 5 – Test Projects to Improve Performance to Support Growth

- Based on the available funding, identify projects to improve MMLOS outcomes
  - Traffic congestion
  - Transit speed and access
  - Pedestrian access and comfort
  - Bicycle access and comfort

Step 6 – Document Results

Framework Step

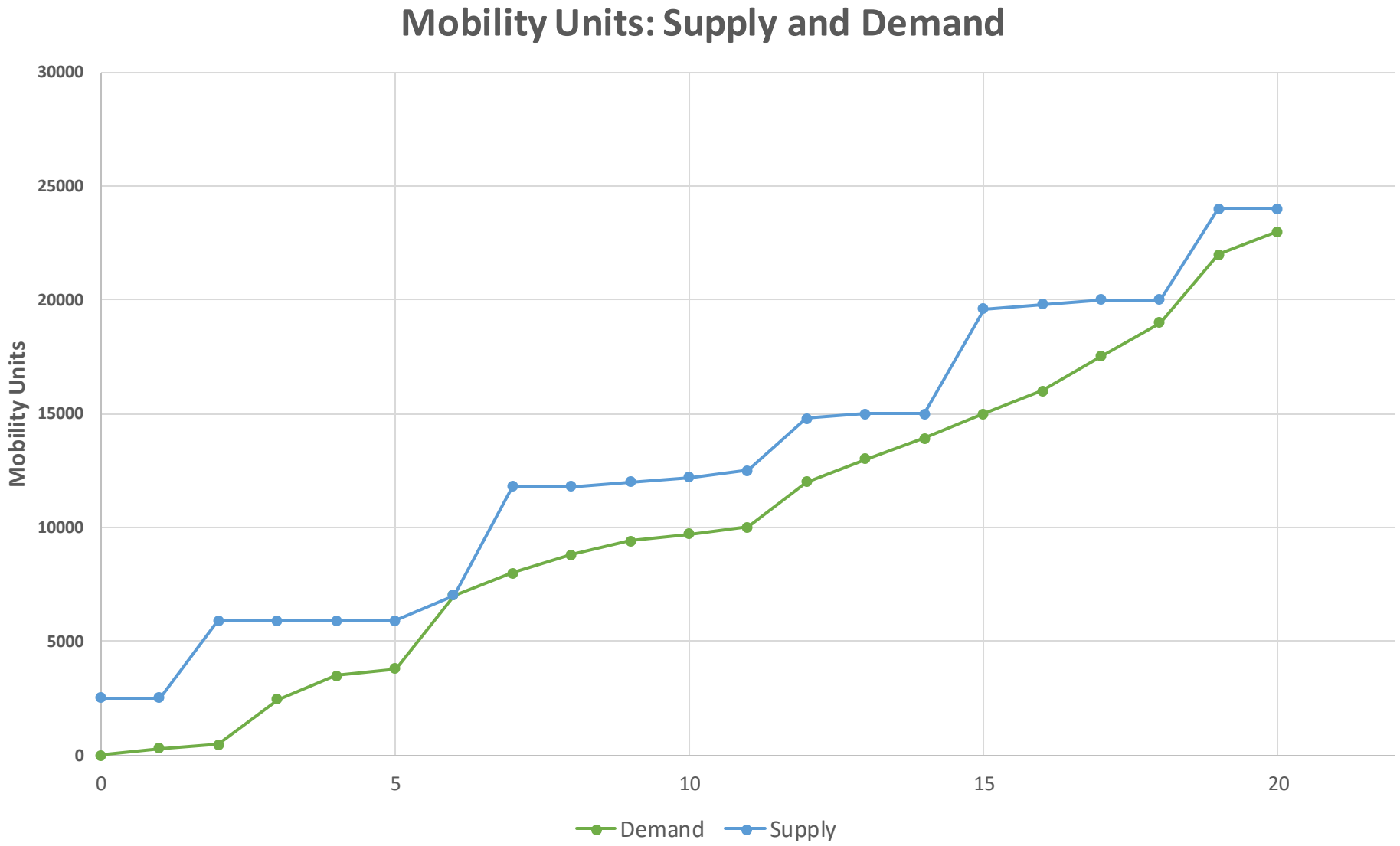
1. Use transportation modeling tools to identify the traffic congestion reduction projects to meet 2035 LOS thresholds or improve upon the 2035 Baseline; include planned projects (2019-2030 Transportation Facilities Plan, Eastgate Transportation and Land Use Study) and new projects not previously considered.
2. Analyze the implications of potential traffic congestion reduction projects to make sure the traffic congestion is not just relocated to other roadways and intersections.
3. Analyze whether the potential congestion reduction project precludes the City's ability to meet LOS standards or guidelines for pedestrian, bicycle, or transit modes.
4. Evaluate potential traffic congestion reduction project impacts on right-of-way or environmental resources.
5. Evaluate potential costs to implement the project. This involved both a qualitative cost estimate for initial evaluations and a detailed benefit/cost ratio as the project list was narrowed.
6. Refine or remove potential traffic congestion reduction projects that do not:
   - Substantially reduce traffic congestion
   - Allow the City to meet LOS standards/guidelines for pedestrians, bicycles, or transit modes in the future
   - Have substantial right-of-way impacts
   - Have substantial environmental impacts
   - Have a poor benefit (traffic congestion reduction) relative to cost
7. Develop final list of recommended traffic congestion reduction projects



Steps 5 and 6 – Iterate to Identify Projects

- As part of the TFP development, the City tests and models different improvement projects
- Works with Transportation Commission on balancing goals and priorities

Step 7 – Implement



Step 7 – Implement

Mobility Units Concurrency Calculator

version 0.90

Mobility Units Summary

Number of Projects Completed or Funded in Next 6 Years	Capital Cost	Mobility Units Capacity from Completed or Funded Projects	Mobility Units Consumed by Development	Mobility Units Remaining
16	$45,866,897	2,678	769	1,909

Project List

Go to Project List

Click on the button to access the project list. You can add or modify projects and update project status.

Development Section

Description of Development	Land Use and ITE Category	Unit Value	
<Enter development description here>	820 | Shopping Center	180	sf/GLA

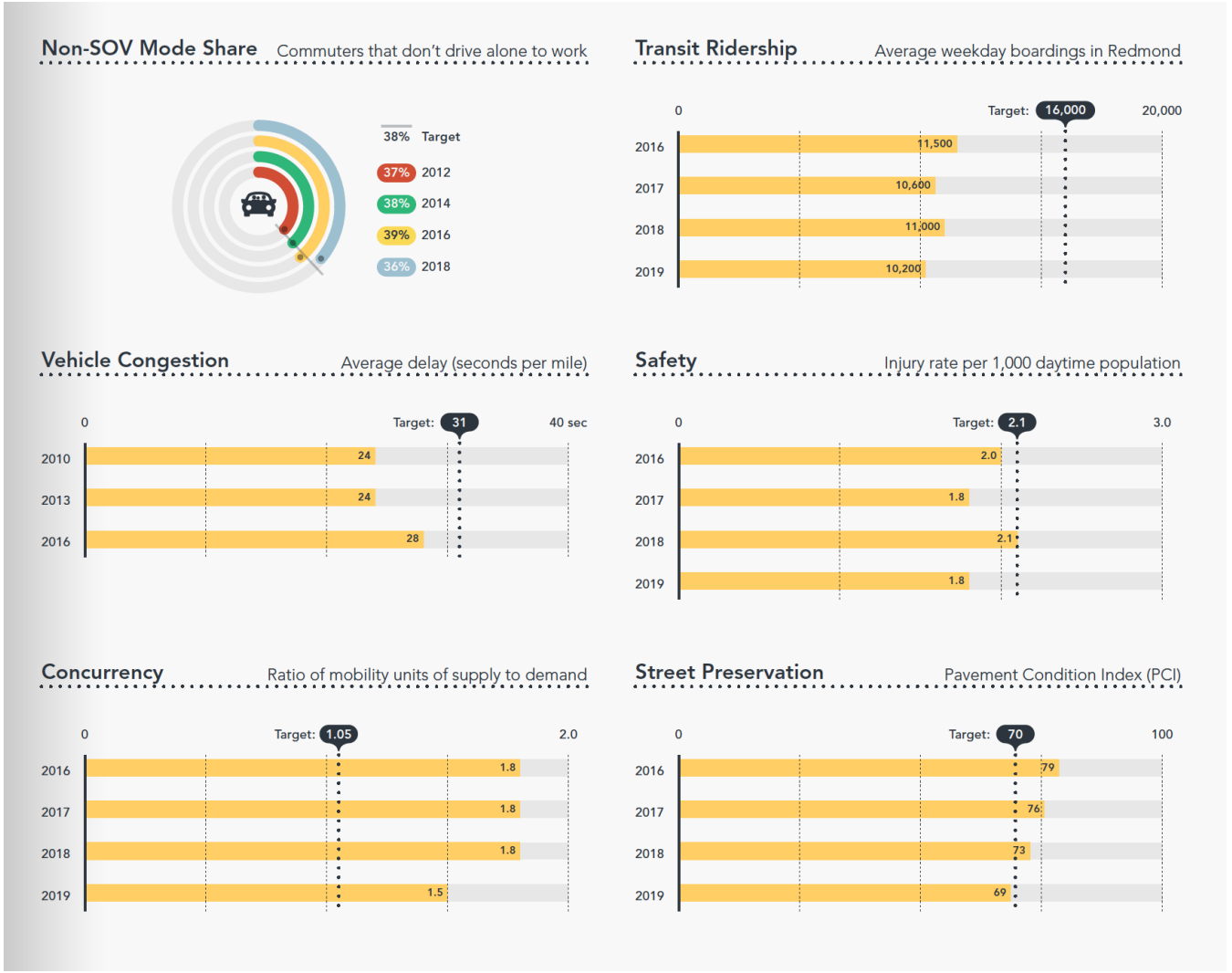
Add Development

Del Development

List of Developments

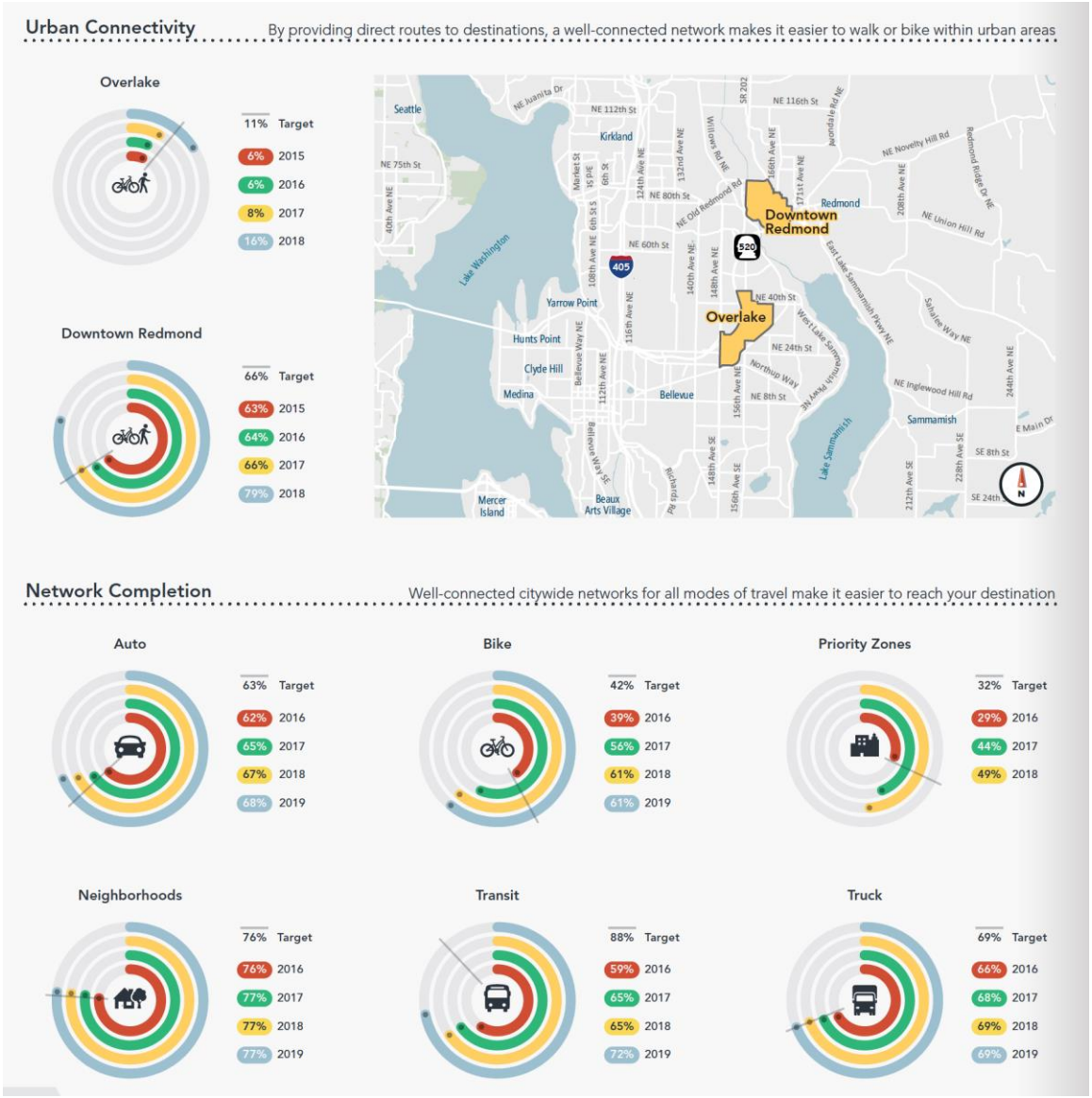
Developments Description	ITE Category	Size	Unit	Mobility Units
Downtown Apartment	221 | 3-10 Story Multi/Townhome/Condo	160	dwelling	102
Office Complex	710, 715, 750 | General Office	80	sf/GFA	101
Shopping Center	820 | Shopping Center	180	sf/GLA	566

Tracking Progress and Adjusting Over Time



Tracking Progress and Adjusting Over Time

MULTIMODAL CONCURRENCY



Discussion

- Questions?
- Comments?
- Suggestions for refinements on multimodal concurrency?

Next Steps for Concurrency

- TC March 11. Concurrency Refinements
- Project Prioritization
- Traffic Standards Code Amendments
- Comprehensive Plan Amendments
  - Council initiates April 5
  - Planning Commission briefing April 14
  - Planning Commission study and hearing Q3
  - Council study and decision Q4

Thank You!

Kevin McDonald
kmcdonald@bellevuewa.gov
425-452-4558

Chris Breiland
c.breiland@fehrandpeers.com
206-576-4217

Don Samdahl
d.samdahl@fehrandpeers.com
206-576-4220