American Planning Association
Washington Chapter
Puget Sound Section

Making Great Communities Happen

City of Bellevue
Mobility Implementation Plan
and
Multimodal Concurrency

CM# 9213062

March 23, 2021

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Transportation

FEHR PEERS

Mobility Implementation Plan
and
Multimodal Concurrency

Discussion Outline

Part 1. Overview of Mobility Implementation Plan Scope of Work - Kevin

Part 2. Details of Multimodal Concurrency - Chris

- Staff Recommendation
- Transportation Commission Review

Part 3. Comments and Questions – Kevin and Chris

Evolving Bellevue Multimodal Level Of Service Policy

Level-of-Service in Bellevue

Toward a Multimodal Approach to Mobility

Comprehensive Plan 1989

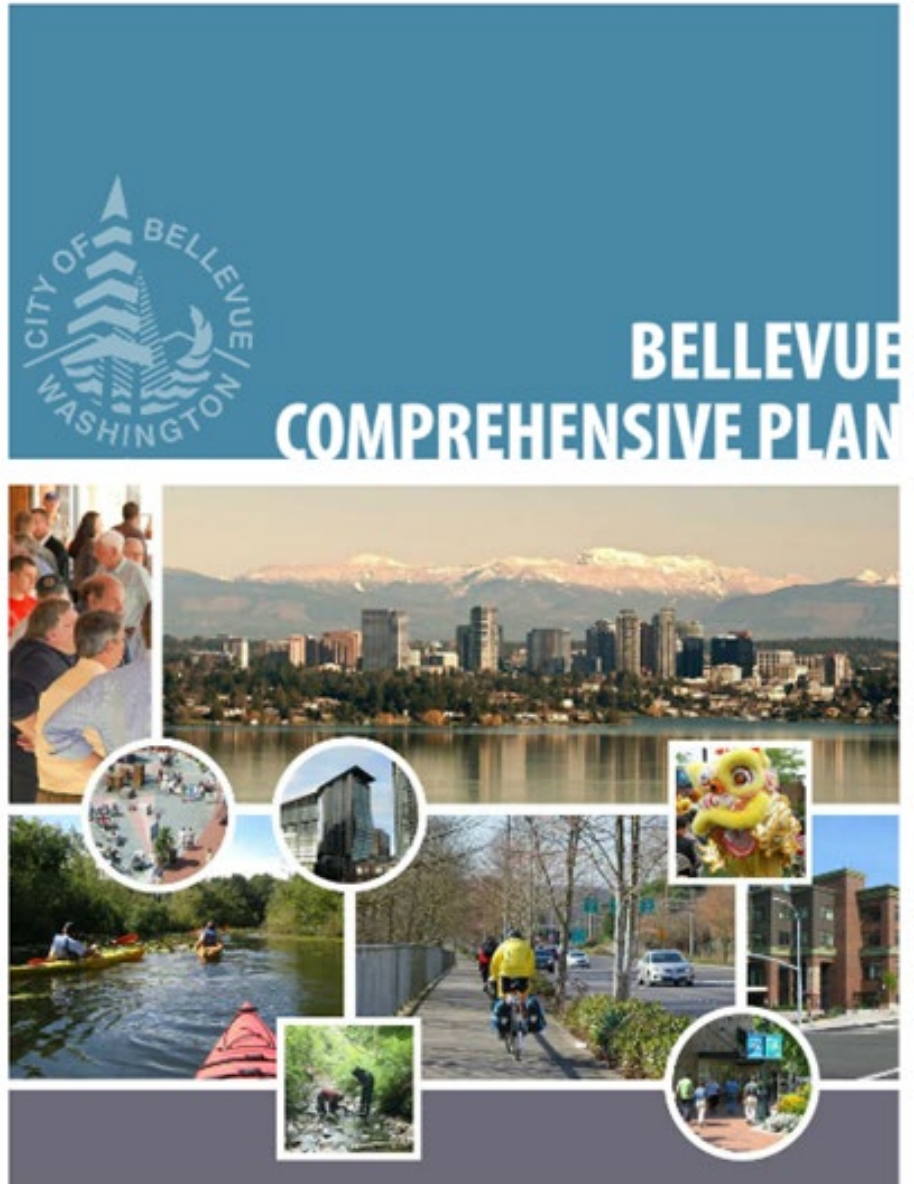
Traveling on arterials should not be too inconvenient, time consuming, or unsafe

Comprehensive Plan 1993

Establish (vehicle) LOS standards in each area of the city in light of growth management objectives

Comprehensive Plan 2015

Establish Multimodal Level of Service measures, standards and targets



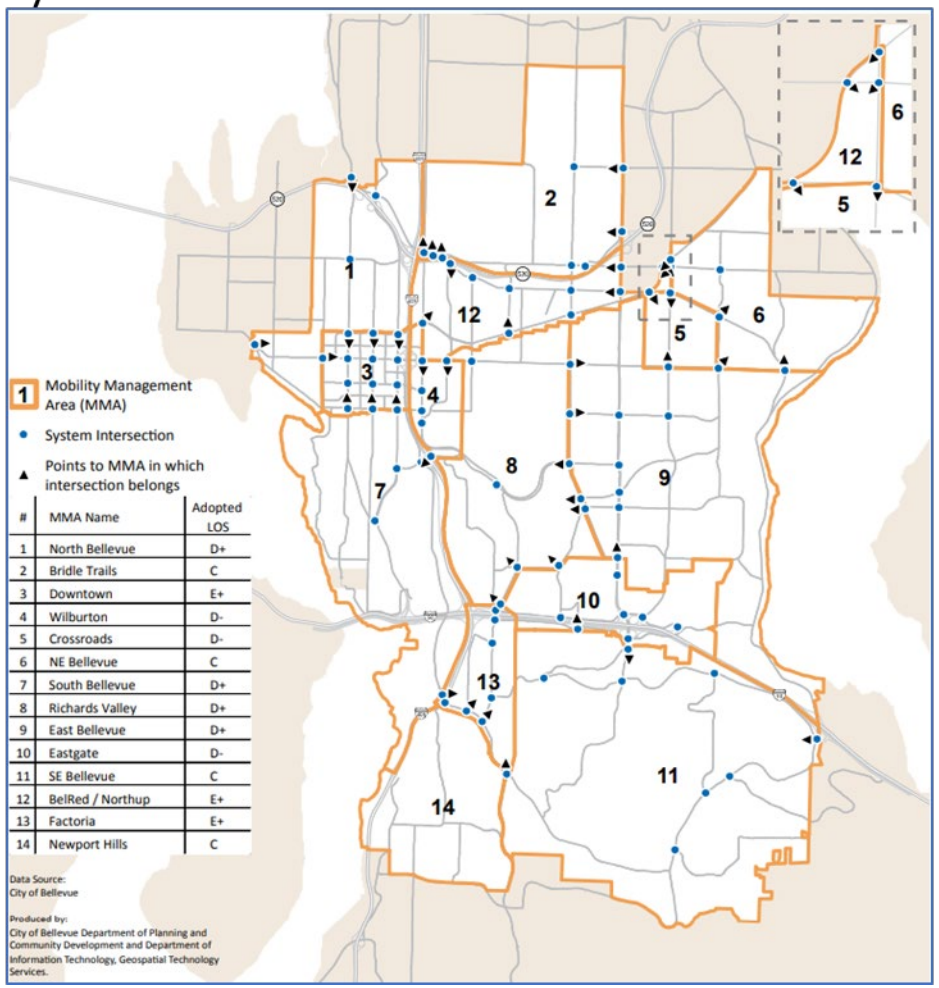
Evolving Bellevue Concurrency Policy

For 30+ years, concurrency standards for vehicles created the complete arterial network that supports Bellevue growth

- 2013 Transportation Commission engaged in conversations to evolve concurrency toward a multimodal approach
- 2015 multimodal concurrency policies added to Comprehensive Plan, with direction to prepare multimodal metrics
- 2017 TC prepared MMLOS Metrics, Standards and Guidelines to describe multimodal performance and land use relationships
- 2021 Council approved MIP scope of work, including a request for a recommendation from the Transportation Commission on multimodal concurrency

CITY OF BELLEVUE COMPREHENSIVE PLAN

Map TR-1. Mobility Management Areas and System Intersections



#	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

Mobility Implementation Plan Scope of Work

Phase I - 2021

- Transportation system completeness – layered network, complete and connected networks, project prioritization, multimodal long-range planning
- Refresh project descriptions as needed
- Establish performance metrics and monitoring
- Embed equity and sustainability considerations to prioritize and evaluate
- Multimodal Transportation Concurrency

Phase II topics that may emerge from Phase I - 2022

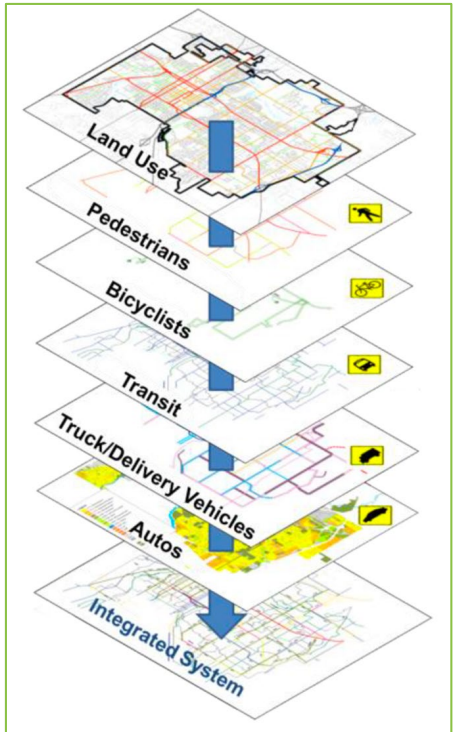
- Transportation Impact Fees – all modes
- Transportation Demand Management – refresh if needed

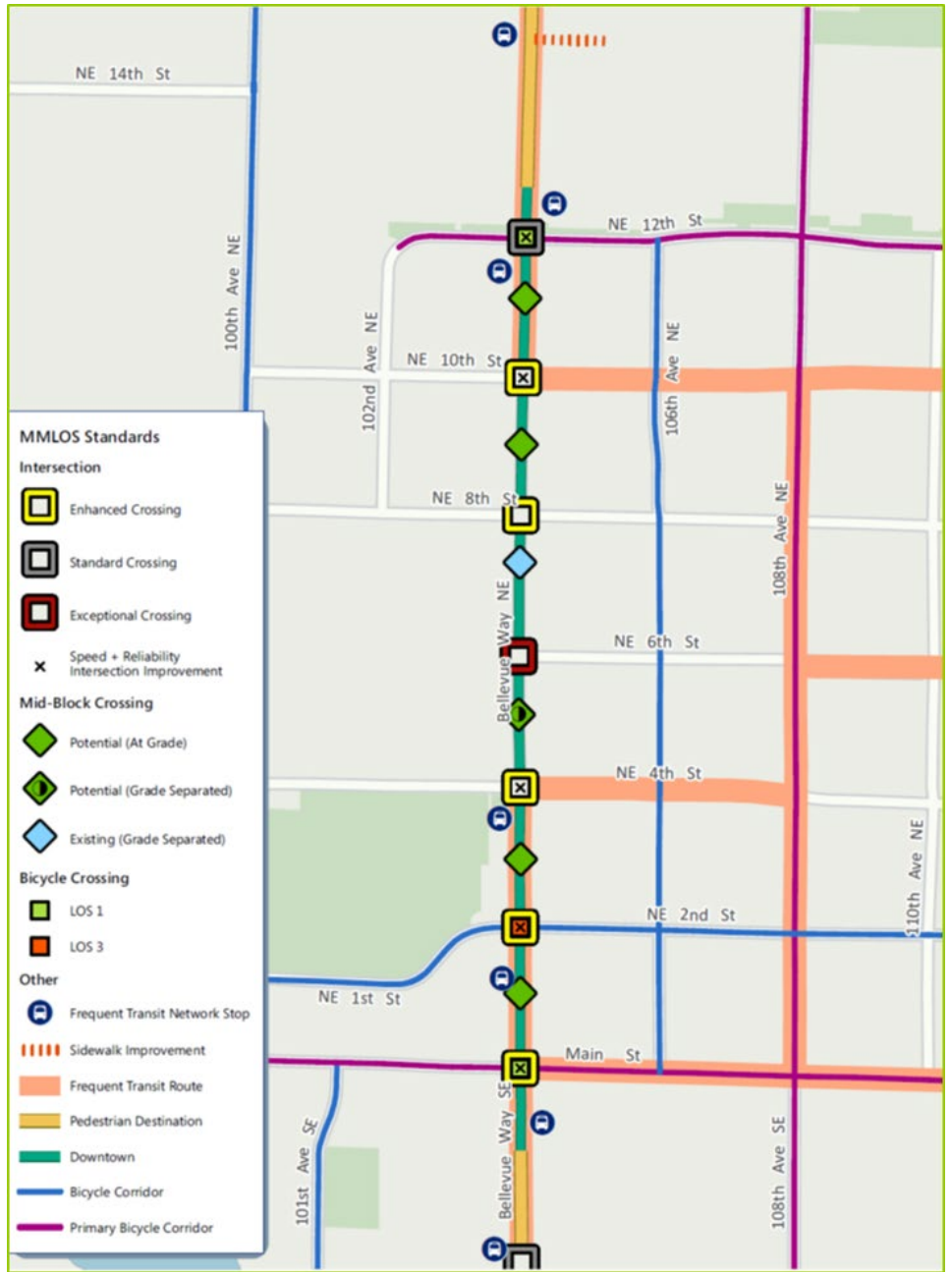
Mobility Implementation Plan

The "Layered Network"

- Transportation system planning and projects based on the mode of travel
- Overlap occurs
- Prioritization issues emerge

Transportation Commission's Multimodal Level-of-Service report recommends a "layered network" approach to help reconcile competing priorities using the land use layer.

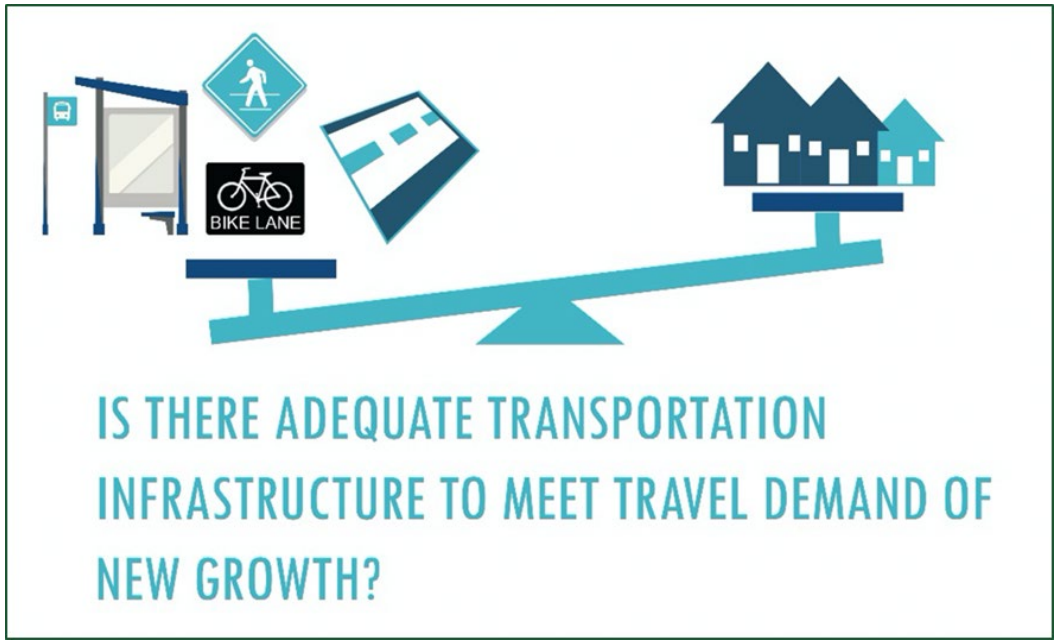




Mobility Implementation Plan

Multimodal Concurrency

A multimodal approach to ensure the travel demand from land use is supported with an adequate supply of transportation capacity – all modes



Mobility Implementation Plan

Multimodal Approach to Long-Range Transportation Planning

- Long-range planning creates the inventory of transportation projects for all modes:
  - Modal Plans
  - Subarea Plans
  - Arterial Corridor Plans
- Projects informed by the Transportation Commission's report on MMLOS Metrics, Standards and Guidelines (2017)
- Project inventory used to update the 12-year Transportation Facilities Plan and the 7-year Capital Investment Program

Mobility Implementation Plan

Define, Document and Display Performance Outcomes

Performance metrics are critical to understanding the effectiveness of projects, utilization, connectedness, and completeness of the system.

Transportation Commission will advise:

- What to measure – informed by MMLOS
- Standard/quantitative measures or guideline/qualitative measures
- Sustainability, equity measures
- How to display and share data

Mobility Implementation Plan

Public Involvement

Transportation Commission is the advisory body

- Study Sessions, Workshops – all Virtual for now

Public involvement

- Virtual engagement
- Input to Transportation Commission
- Outreach and engagement
  - Invite input from a diversity of Bellevue stakeholders
  - Seek equity in the means and methods of outreach
  - Reach out to typically underrepresented members of the community

Multimodal Concurrency

Staff Recommendation

- Builds from policy and Transportation Commission prior work on concurrency and Multimodal Level-of-Service
- Introduced to the Transportation Commission January 14, 2021
- Study Sessions Q1 – Q2, 2021
- Q2 2021 Recommendation
  - Comprehensive Plan policy

Multimodal Concurrency - Overview

Foundations

- GMA, Best Practices in Washington, Bellevue Policy and MMLOS

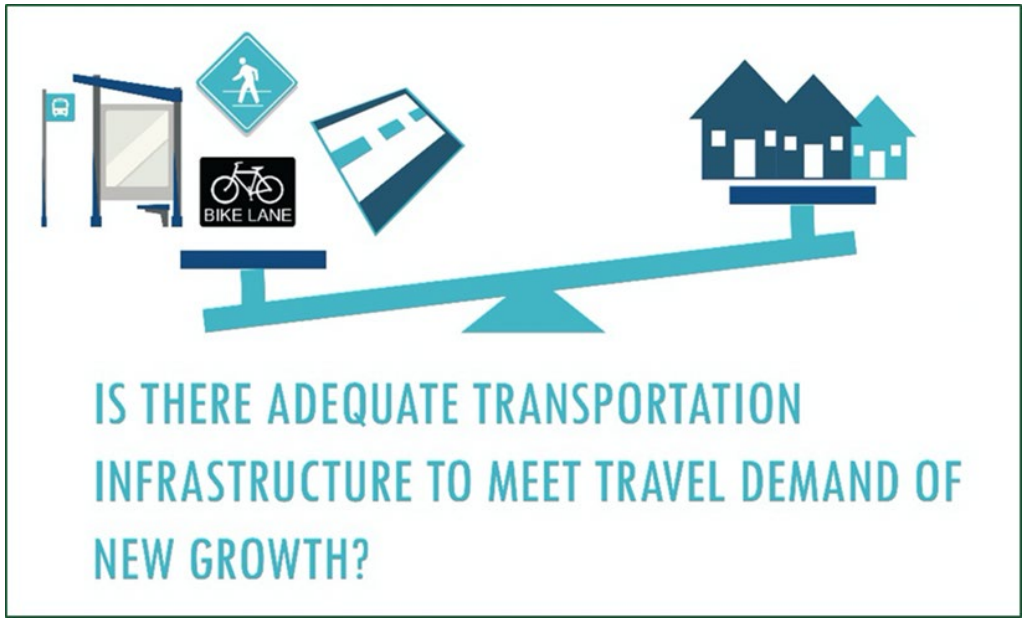
Transportation Concurrency Standard

- Mobility Units Supply > Mobility Units of Demand

Mobility Units of Supply

Supply is capacity projects of all modes

- Supply is **planned** in the TFP
- Supply is **created** in the CIP



Mobility Units of Demand

Demand is person trips in all modes

- Demand is **forecast** in the TFP
- Demand is **generated** by land use permit applications

Multimodal Concurrency Foundations

Washington Growth Management Act (1990)

- Local jurisdictions must establish concurrency level-of-service metrics to ensure the capacity of the transportation system is available to support demand for travel from new development
- Multimodal concurrency encouraged

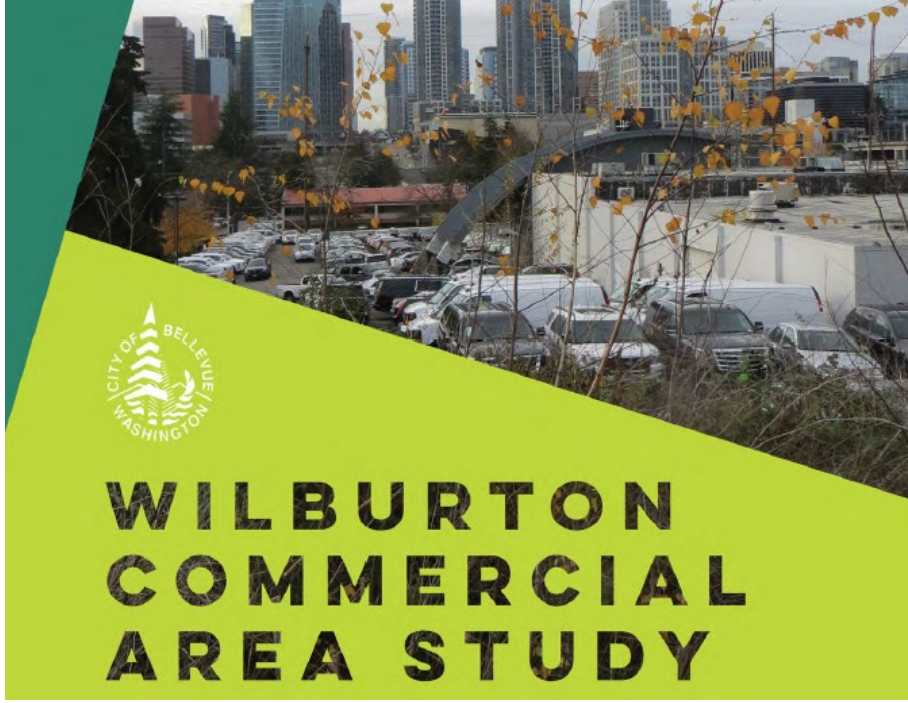
Best Practices

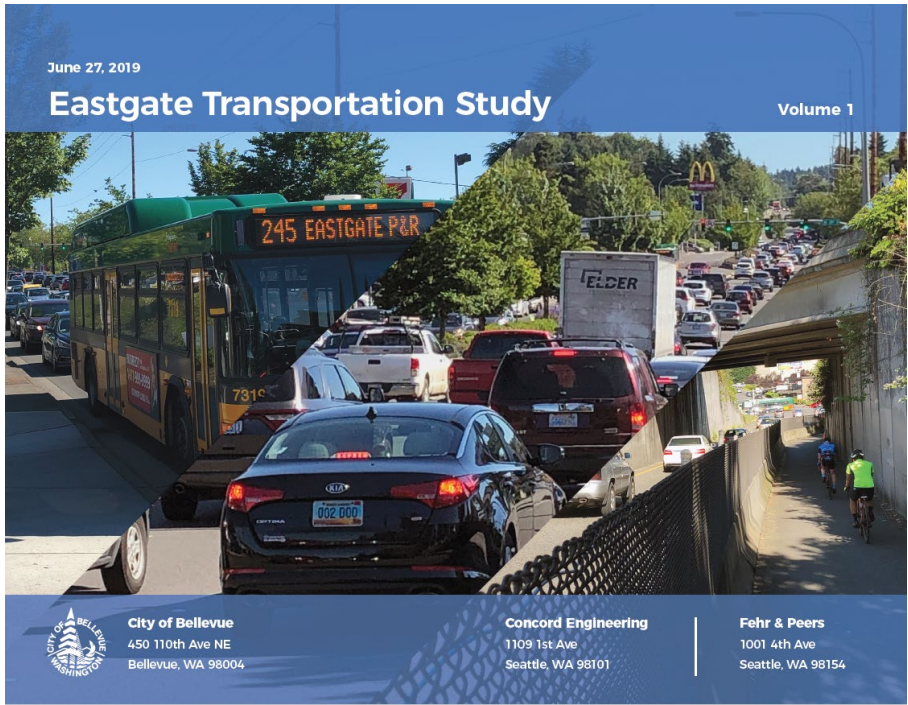
- To effectively implement a multimodal approach:
  - Related to adopted mobility plans
  - Robust performance monitoring
  - City controls transportation investments
  - Straightforward to implement

Mobility Units of Supply

Long-Range Planning

- Describes the 20+ Year Vision for Transportation and Land Use
- Subarea Plans. ie) BelRed, Wilburton Commercial Area, East Main, Downtown
- Corridor Plans. ie) Eastgate Transportation Study
- Modal Plans. ie) Pedestrian and Bicycle Transportation Plan, Transit Master Plan
- Builds Inventory of Transportation Projects





Mobility Units of Supply

Supply is Forecast in the Transportation Facilities Plan (TFP)

- Projects evaluated and prioritized for a 12-year period
- Updated every 2-3 years
- Evaluation examines how well a project would achieve transportation vision

Supply is Created in the Capital Investment Program (CIP)

- Projects are funded for construction within a 7-year period
- Fully-funded projects count toward concurrency supply
- Existing supply available from recent projects may provide a “Running Start”

Supply may be Created by Private Development

- Frontage improvements (projects identified in the TFP)

Mobility Units of Demand

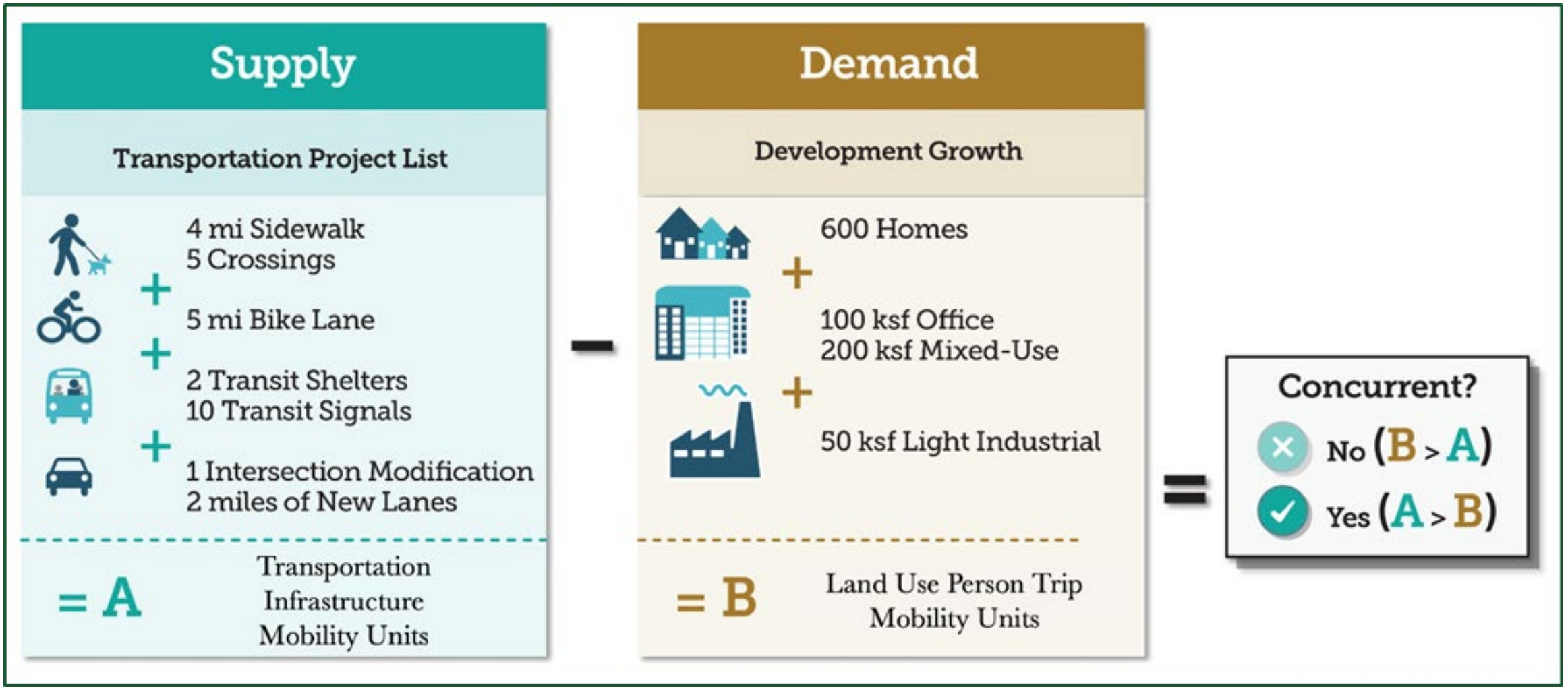
Demand is Forecast for 12-Years in each update of the TFP

- Travel demand is identified and documented in the 12-year land use forecast
  - Obtained from PSRC
  - Distributed in the city by Bellevue Community Development

Demand is Generated by Development Projects

- Travel demand is expressed as “person-trips” regardless of mode
- A person trip occurs when a person leaves a development site/building by any mode on the transportation system
- Person trips for each development project are determined in a traffic impact analysis at time of land use permitting
- Demand for vehicle trips can be further reduced through exceptional Transportation Demand Management measures

Multimodal Concurrency Equation



Multimodal Performance Monitoring

- A performance monitoring dashboard will document multimodal concurrency compliance for defined metrics
- Basic performance metrics for all modes will be extracted from the Transportation Commission's 2017 MMLOS report
  - BKRCast travel demand model for quantitative metrics
  - TC may recommend additional performance metrics
- Performance metrics of all modes
  - ❖Confirm concurrency: Supply > Demand
  - Track progress across multiple metrics toward system completeness
  - Inform need for new projects in long-range planning
  - Project evaluation and prioritization for updates to the TFP
  - Project funding in the CIP

A Step-by-Step Sequence Toward Multimodal Concurrency

1 → Forecast Demand

2 → BKR Cast 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 Cast Model TFP Updated Network

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

7 Implement Supply

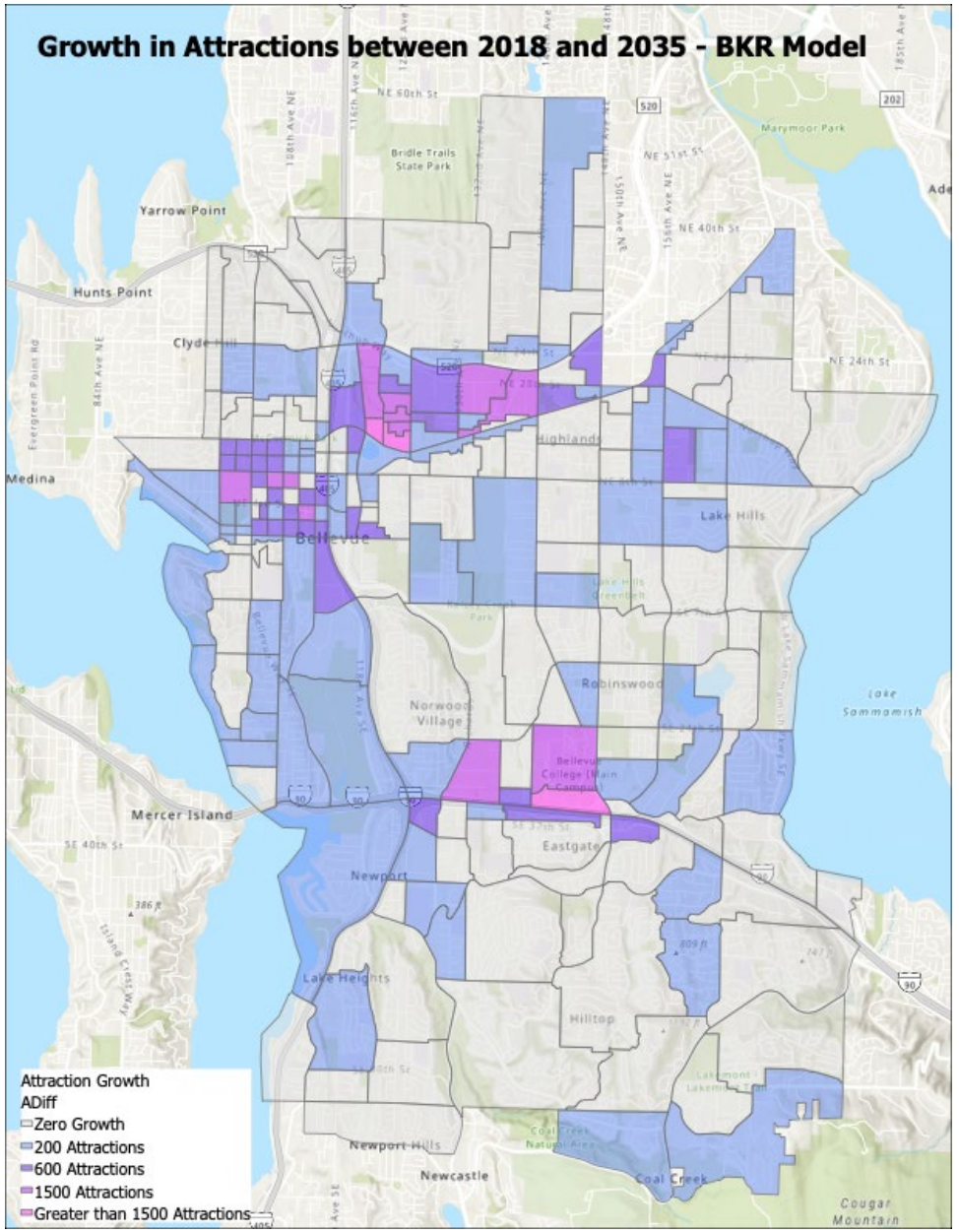
Supply of mobility units is greater than demand

Step 1 – Forecast Demand

- Bellevue staff forecasts the increase in person 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 BKRCast travel demand model

Step 2 – Use BKRCast Model To Understand Growth Impacts

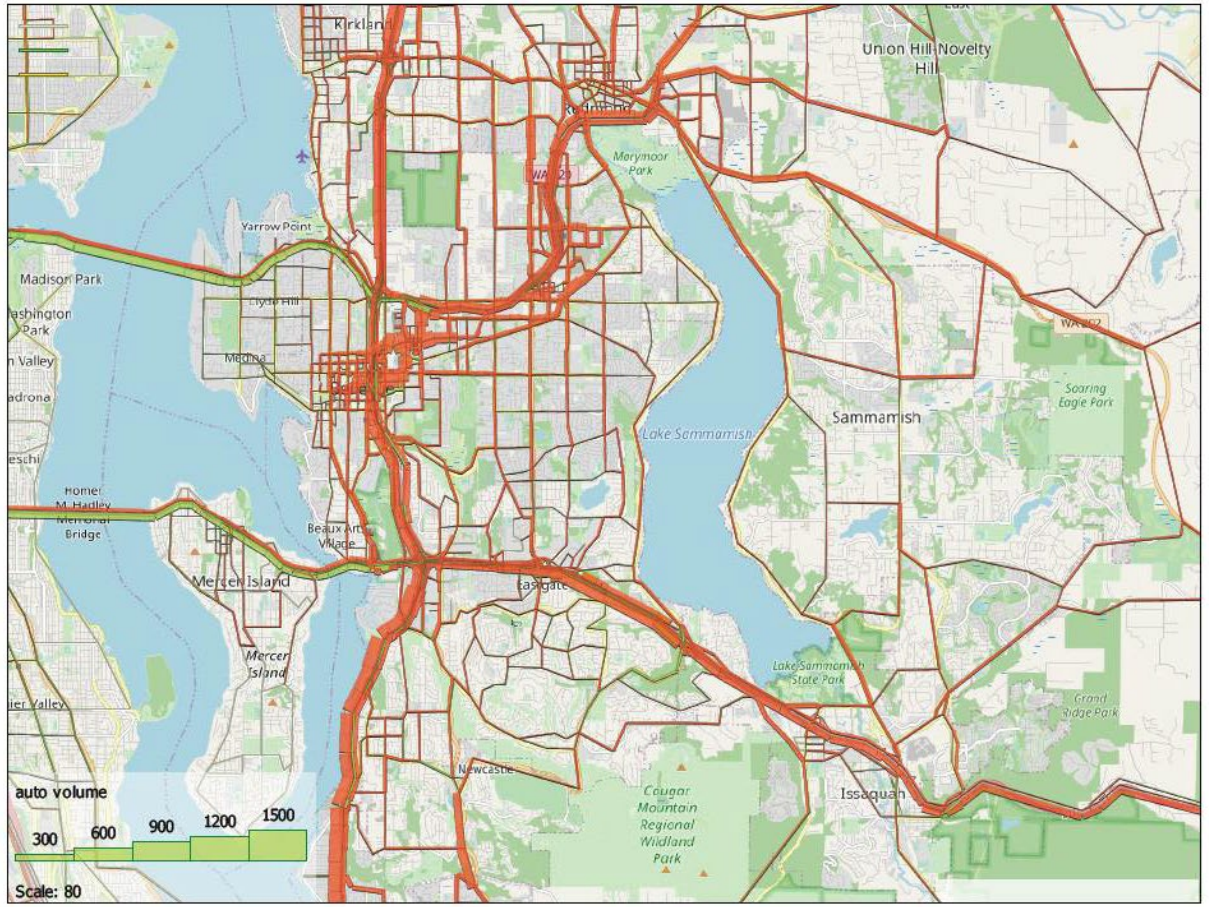
- How many new person trips (mobility units of demand) are generated?
- Where is the growth in person trips occurring?
- What is the mode share of trips and how did that change?
- Understand the impacts of other agency investments in Bellevue's transportation network (WSDOT, Sound Transit, Metro)
- Consider Transportation Demand Management strategies



Step 3 – Evaluate “Baseline” Performance

- Includes TFP baseline without additional projects
  - Projects in the existing TFP –baseline projects
- Performance evaluation based on MMLOS metrics
- Other performance metrics could also be considered to identify gaps in performance and areas of emphasis – environmental, societal

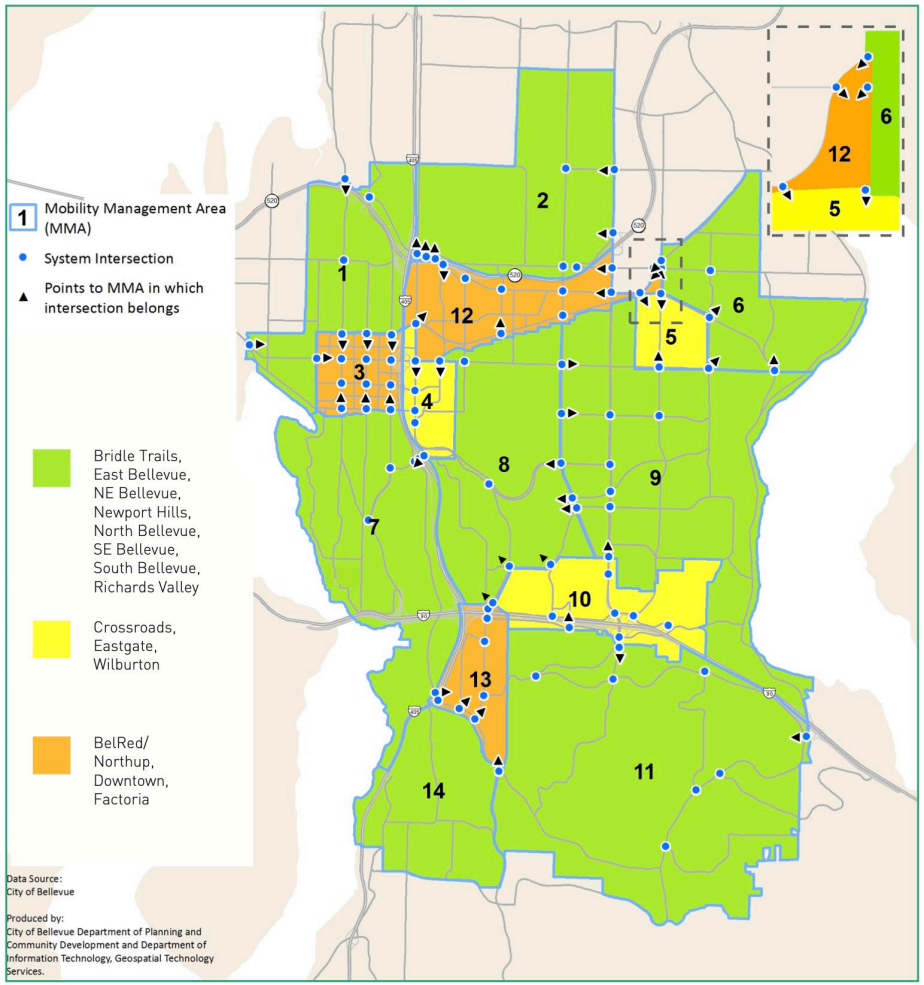
Change in PM Peak Traffic Volume (2019-2035)



Step 3 – Vehicle Performance

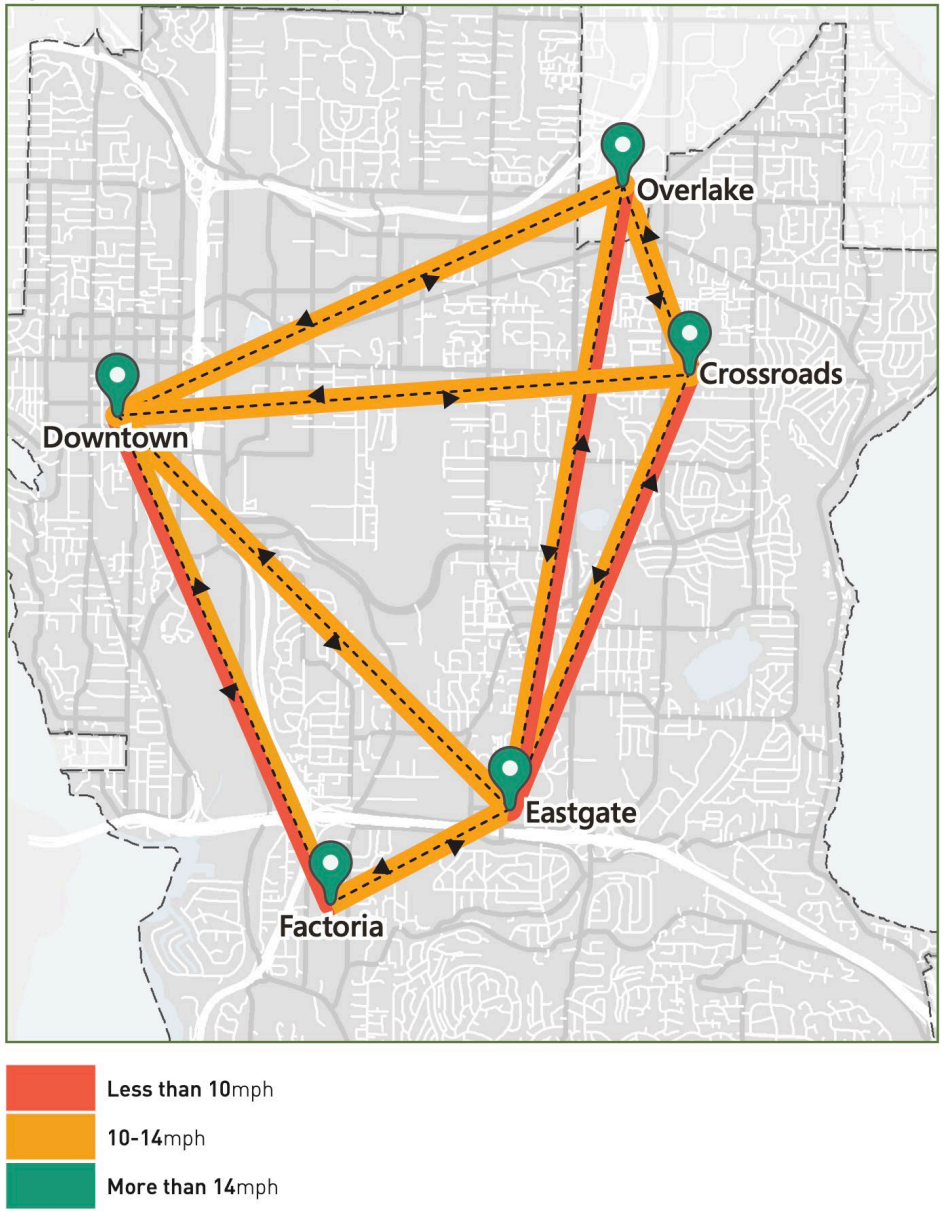
- Vehicle performance options from MMLOS
  - Corridor travel speed
  - v/c ratio
- Focused on vehicle volume/capacity and congestion measures

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



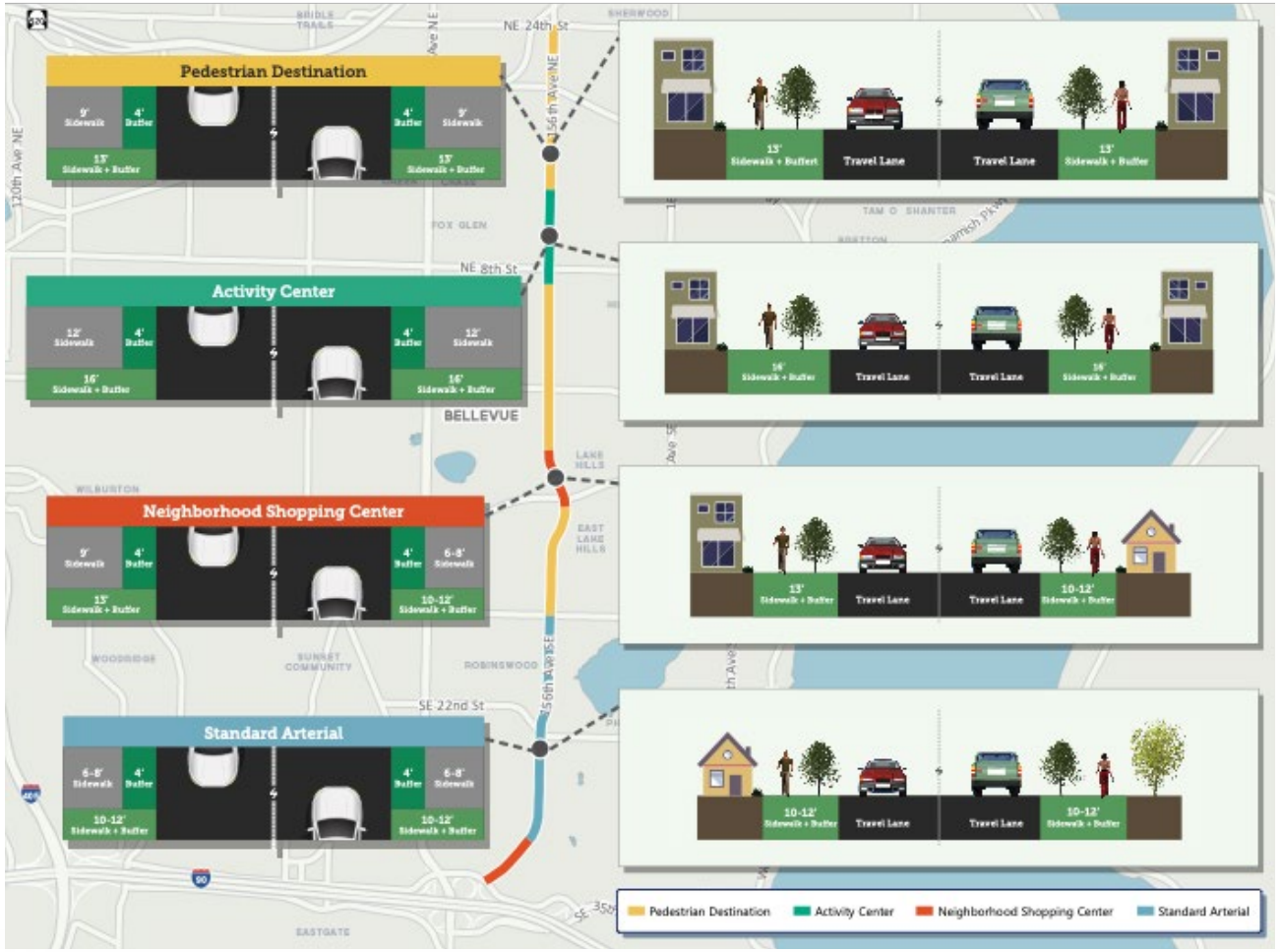
Step 3 – Transit Performance

- Transit performance options from MMLOS, Transit Master Plan
  - Frequent transit network speed
  - Bus stop amenities
- Consider the transit travel time to destinations
- Focus on bus stop facilities for passenger comfort, access, and information
- Infrastructure 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 on arterial streets in growing areas of the city
- Focus on pedestrian access, comfort, and safety



Step 3 – Bicycle Facility Performance

- Bicycle LTS from MMLOS
  - Considers adjacent arterial traffic speed and traffic volume
  - Different bicycle facility types for different types of bicyclists (commuters to casual cyclists)
  - Consider both arterial corridors and intersections – LTS continuity
- Focus on Bicycle Priority Network
- Access within and between major growth areas
  (Growth Corridor High Comfort Bicycle Network)

Bicycle Level of Traffic Stress (LTS)

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
Vehicle	Volume/Capacity Ratio at System Intersections
	Typical Urban Travel Speed on Arterials
Pedestrian	Sidewalk Width plus Landscape Width
	Pedestrian Comfort, Access and Safety at Intersections
Bicycle	Level of Traffic Stress, or Level of Bicyclist Comfort on Arterials
	Level of Traffic Stress, or Level of Bicyclist Comfort at Intersections
Transit	Passenger Comfort, Access and Safety
	Transit Travel Speed on Corridors between Activity Centers

Step 4 – Identify Available Funding to Improve the Transportation System

- Bellevue Department of Finance and Asset Management provides TFP revenue forecast
- Accounts for continuation of ongoing TFP projects
- Only a portion of revenue 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

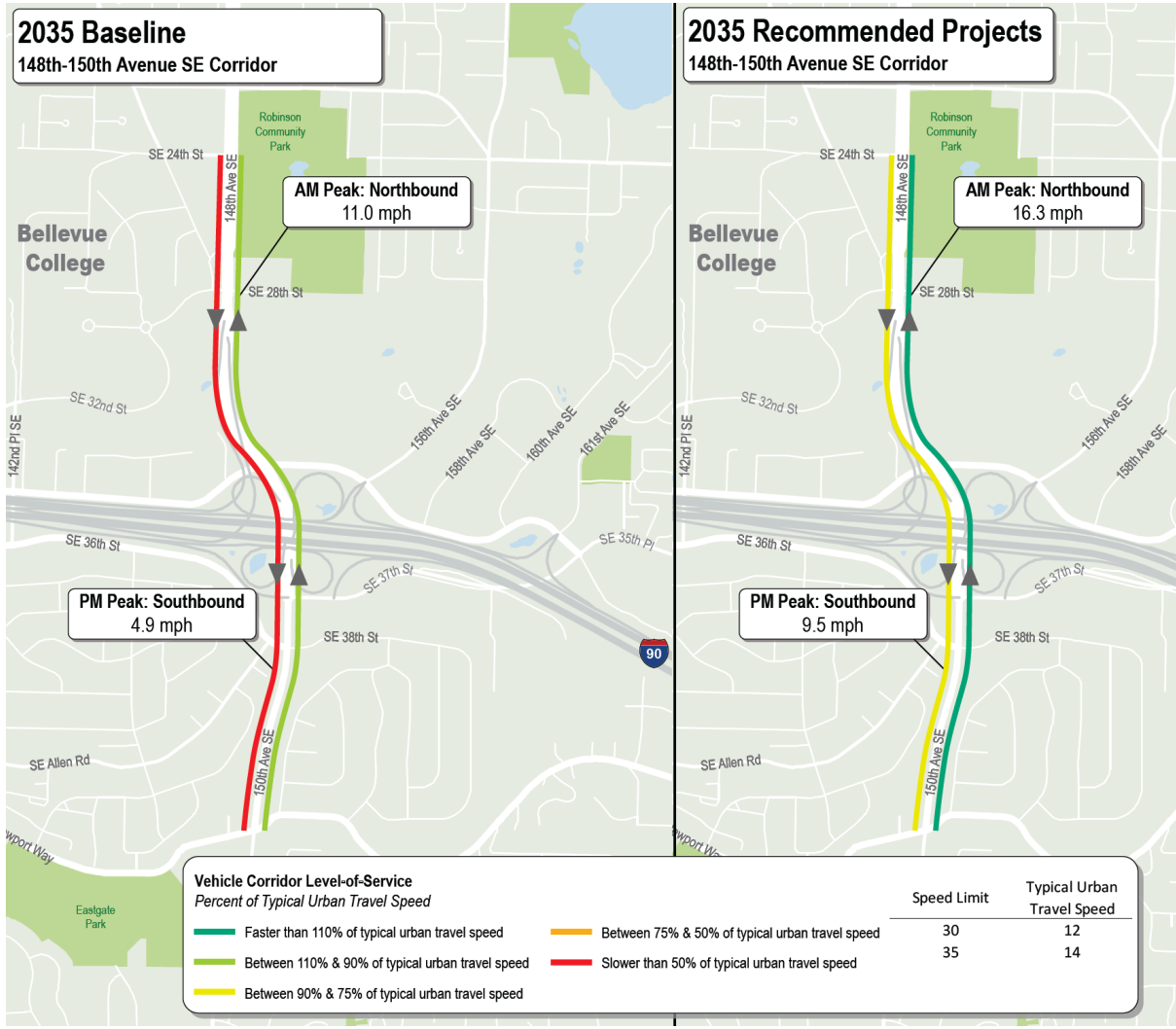
Identify projects to improve MMLOS performance outcomes

- Traffic congestion
- Transit speed and access
- Pedestrian access and comfort
- Bicycle access and comfort

Step 6 – Document Results

Framework Step

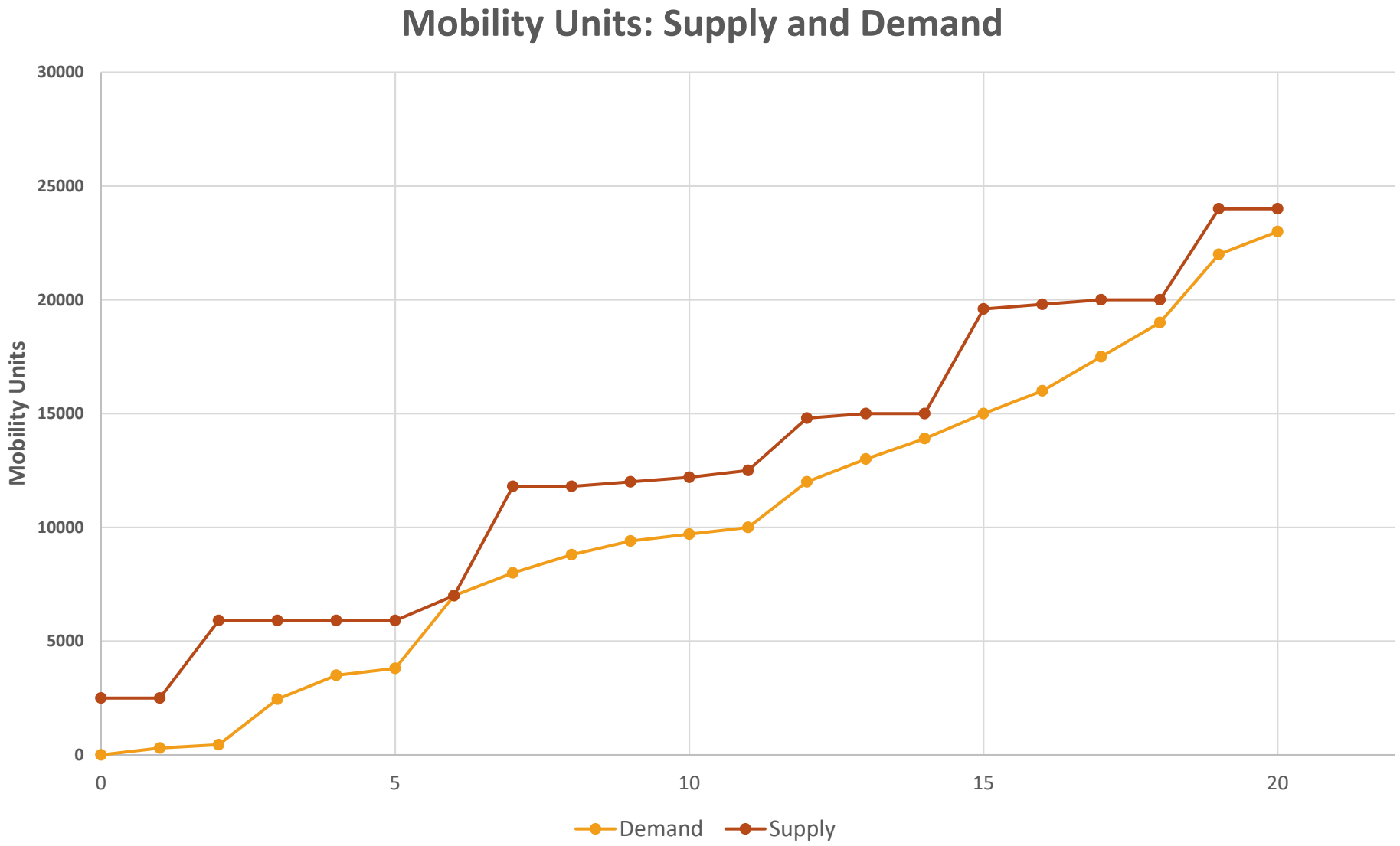
1. Use transportation modeling tools to identify the traffic congestion reduction projects to meet 2035 LOS thresholds or improve upon the 2035 Baseline; include planned projects (2019-2030 Transportation Facilities Plan, Eastgate Transportation and Land Use Study) and new projects not previously considered.
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 candidate projects
- Transportation Commission evaluates projects to balance performance 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

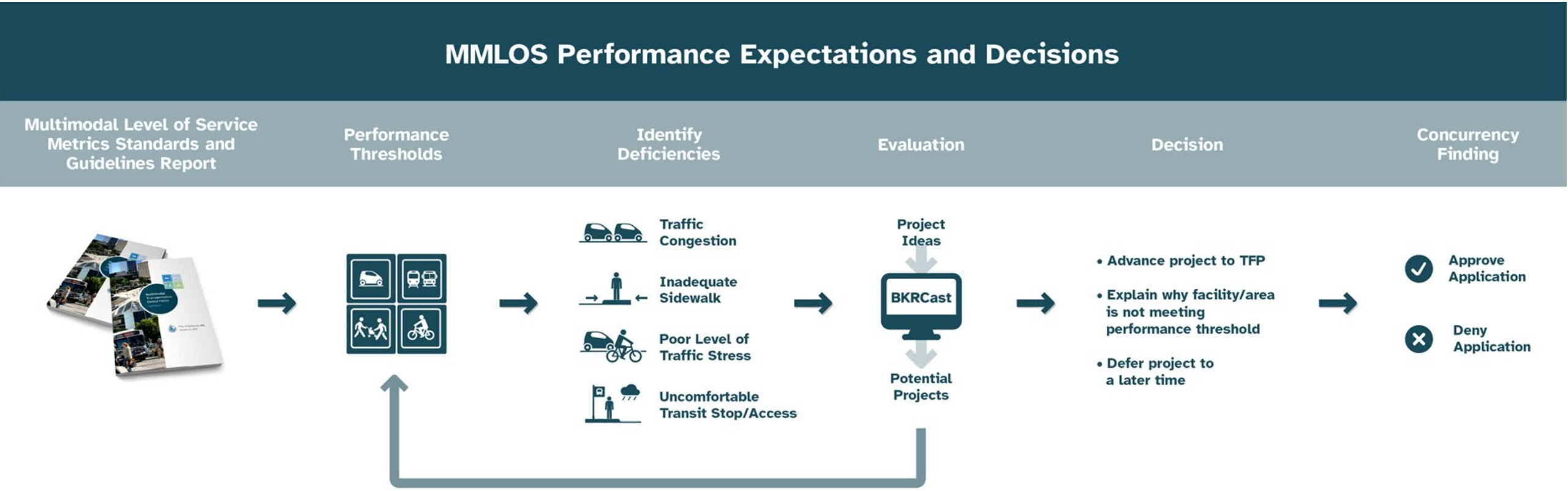
Add Development

Del Development

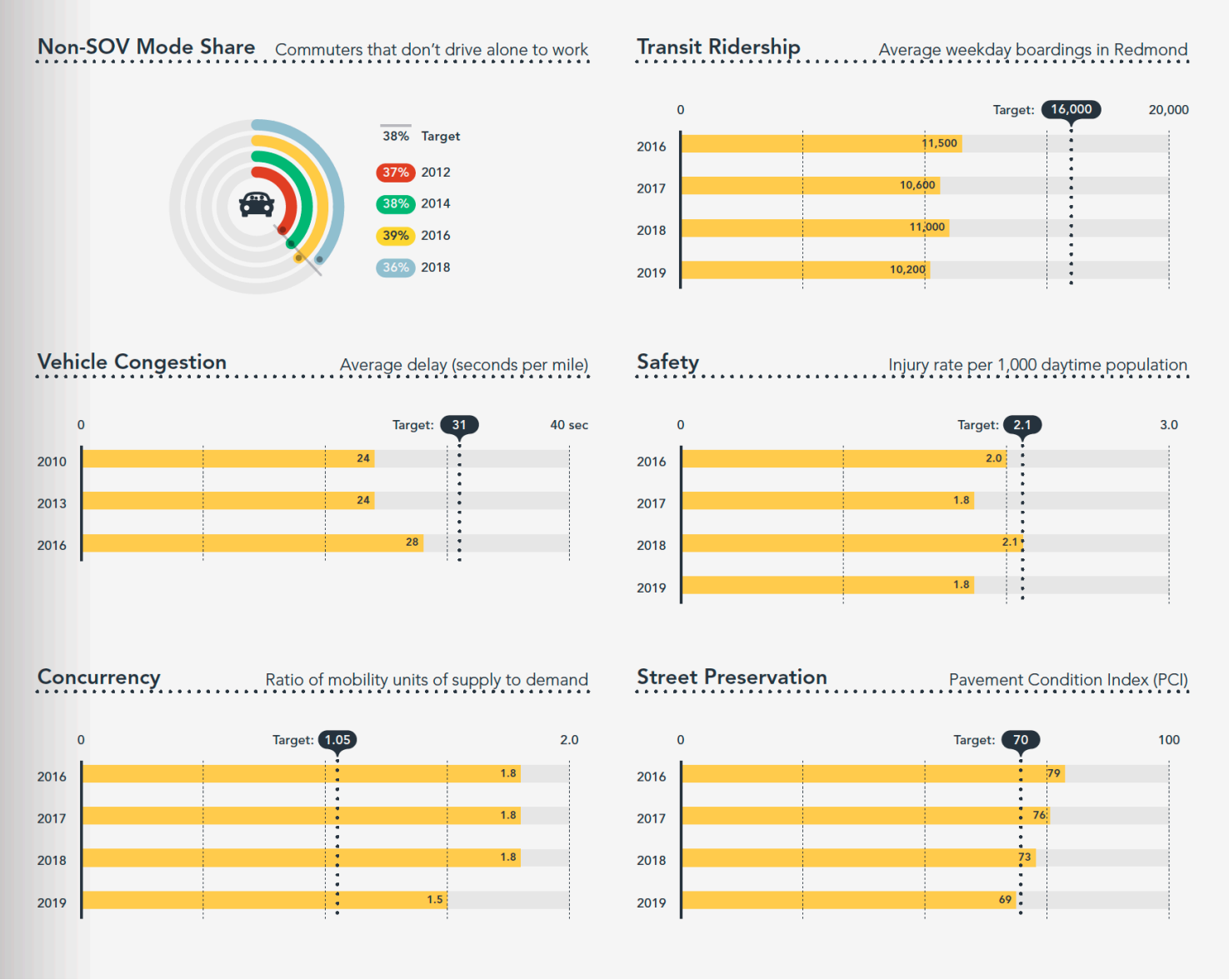
List of Developments

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

Key Process Steps



Track Progress and Adjust Over Time



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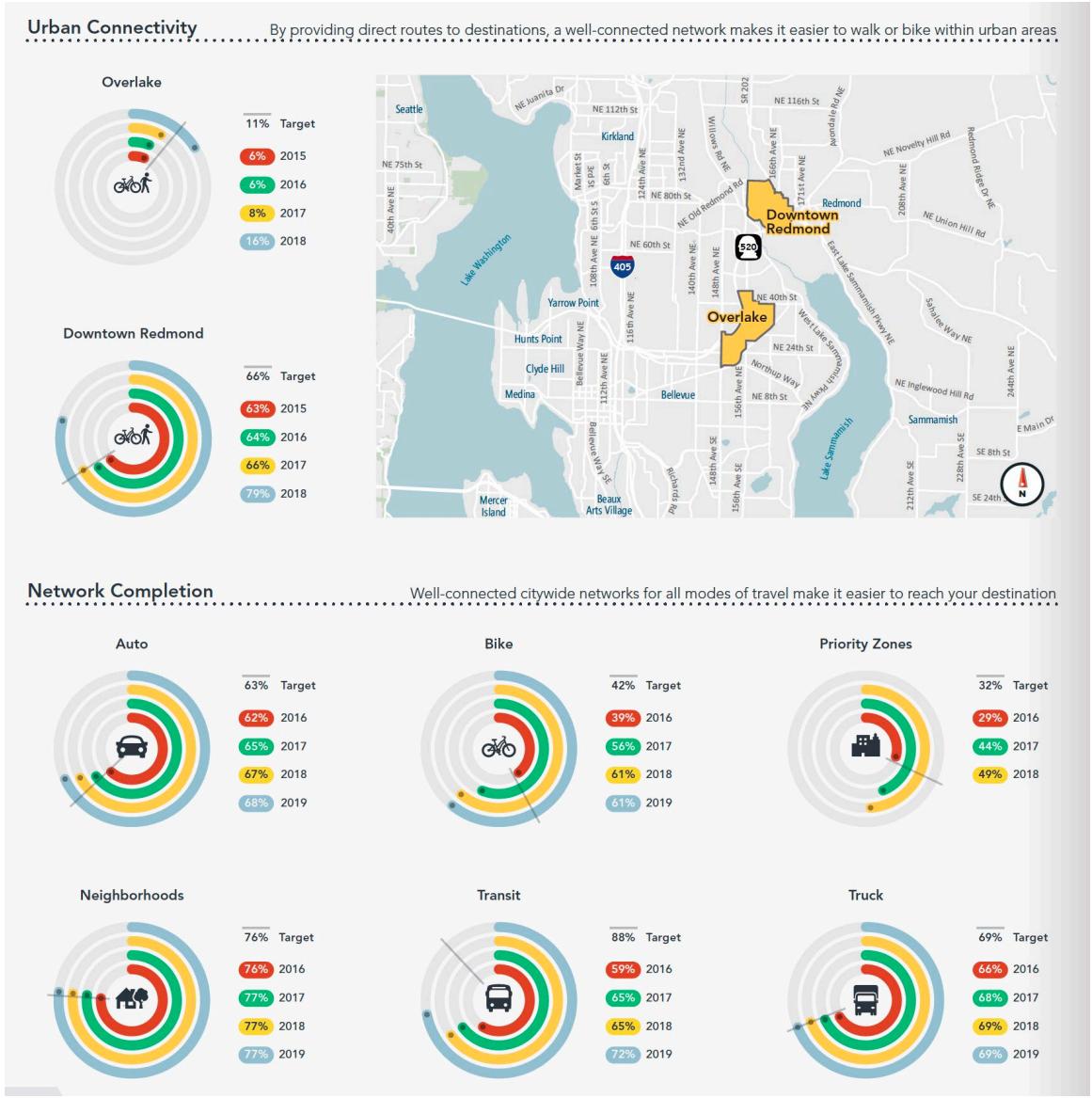
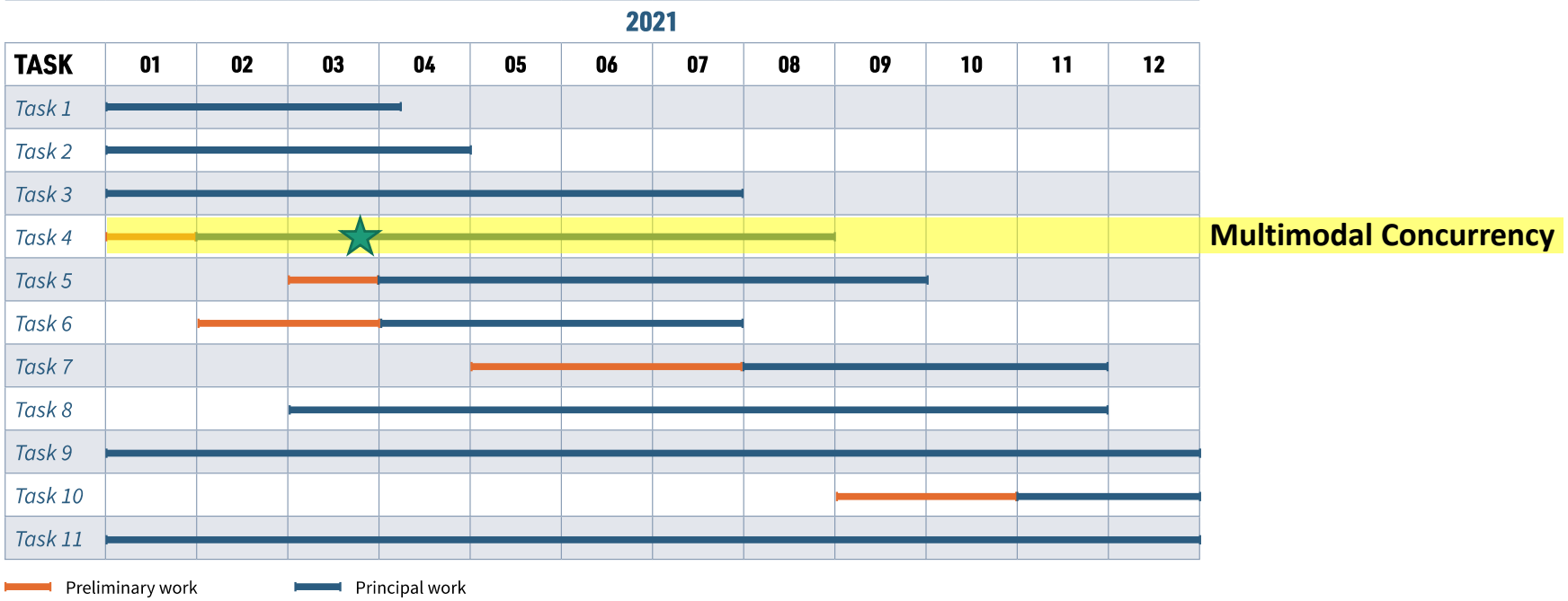
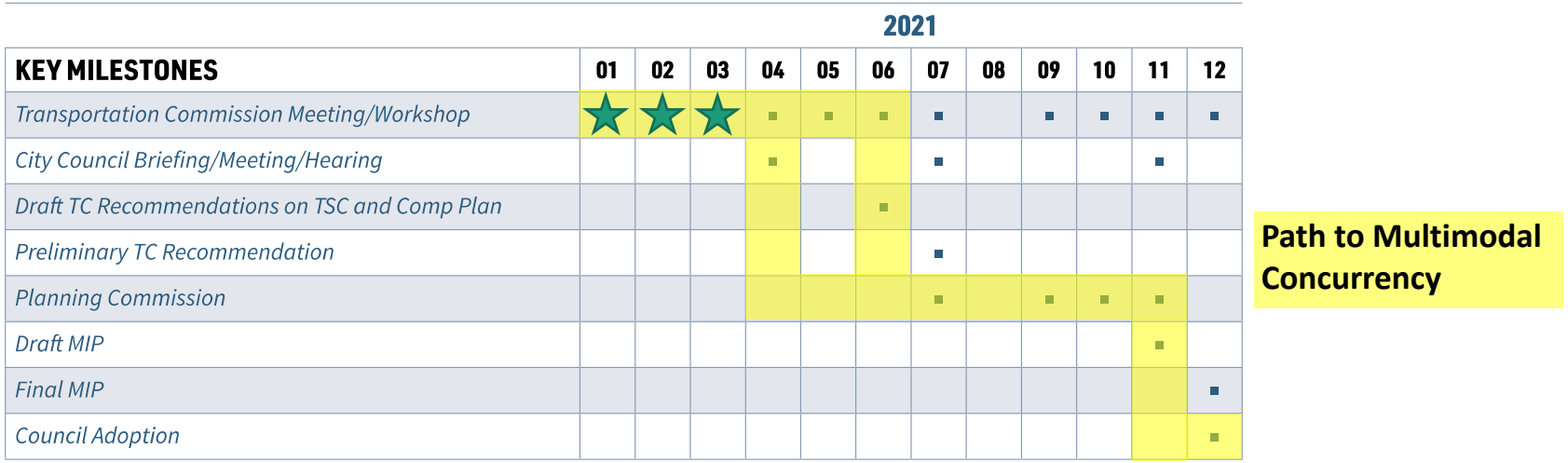


MIP / Multimodal Concurrency Timeline



Multimodal Concurrency



Path to Multimodal Concurrency

Thank You!
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Mobility Implementation Plan Web Site

https://bellevuewa.gov/city-government/departments/transportation/planning/infrastructure-and-subareas/mobility