Downtown Transportation Plan Update

CITY COUNCIL BRIEFING
MARCH 11, 2013

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Briefing and Discussion, March 11, 2013

- Overview
- Measures of Effectiveness
- Land Use/Travel Demand Modeling Analysis
- Downtown Mobility Topics
  - Private Vehicle Passenger
  - Bicycle Riders
  - Pedestrians
  - Transit Riders
- Next Steps

Downtown Transportation Plan Overview

Update the Transportation Projects and Policies in the 2004 Downtown Subarea Plan

- **2030 Planning Horizon**
  - Update Subarea Plan transportation sections from 2020 to 2030
- **Acknowledge surge in Downtown employees and residents – new demographics and interests**
- **Account for revised local and regional transportation system plans**
  - SR 520 expansion and tolling
  - East Link, RapidRide
  - ITS (SCATS) installed Downtown and progress citywide
- **Incorporate new land use assumptions**
  - Bel-Red Subarea Plan
- **Track progress on completed Downtown Subarea Plan projects**
  - NE 10th Street extension
  - Transit Center improvements
- **Incorporate trends in trip generation rates and daily traffic volume**

Downtown Transportation Plan Overview

Council Direction

Provide Multimodal Mobility within Downtown, to the City as a whole and to the Region

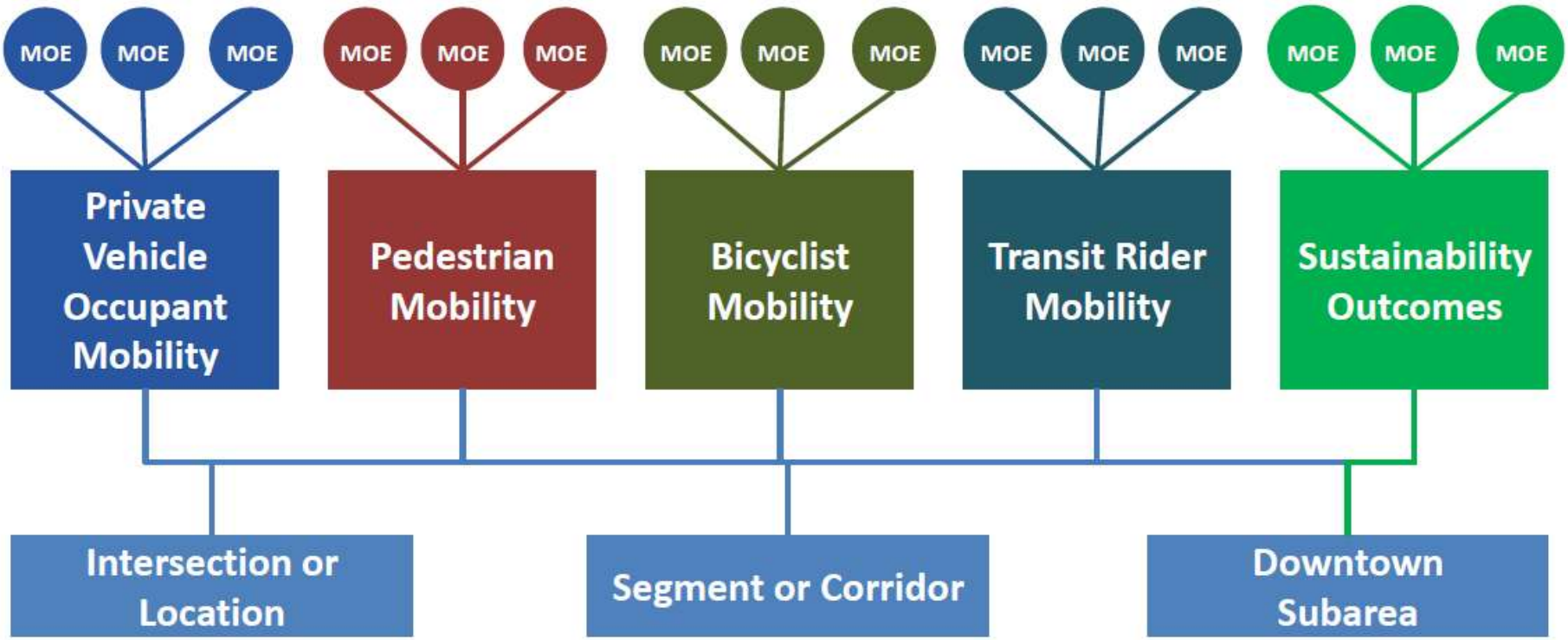
- Serve projected 2030 travel demand
- Support Downtown vision
  - Urban Design
  - Economic Development
  - Livability
- Involve the public innovatively and comprehensively
- Describe projects that are effective and fundable
- Employ measures of effectiveness to evaluate projects
- **Transportation Commission** will serve as advisory body

Downtown Transportation Plan Overview

Staff Support

- **Transportation Department**
  - Planning
  - Modeling and Analysis
  - Engineering/Project Management
  - Traffic Operations
- **Planning and Community Development**
  - Planning/Urban Design
  - Interface with Downtown Livability Initiative
- **Development Services Department**
  - Development Review

Measures of Effectiveness

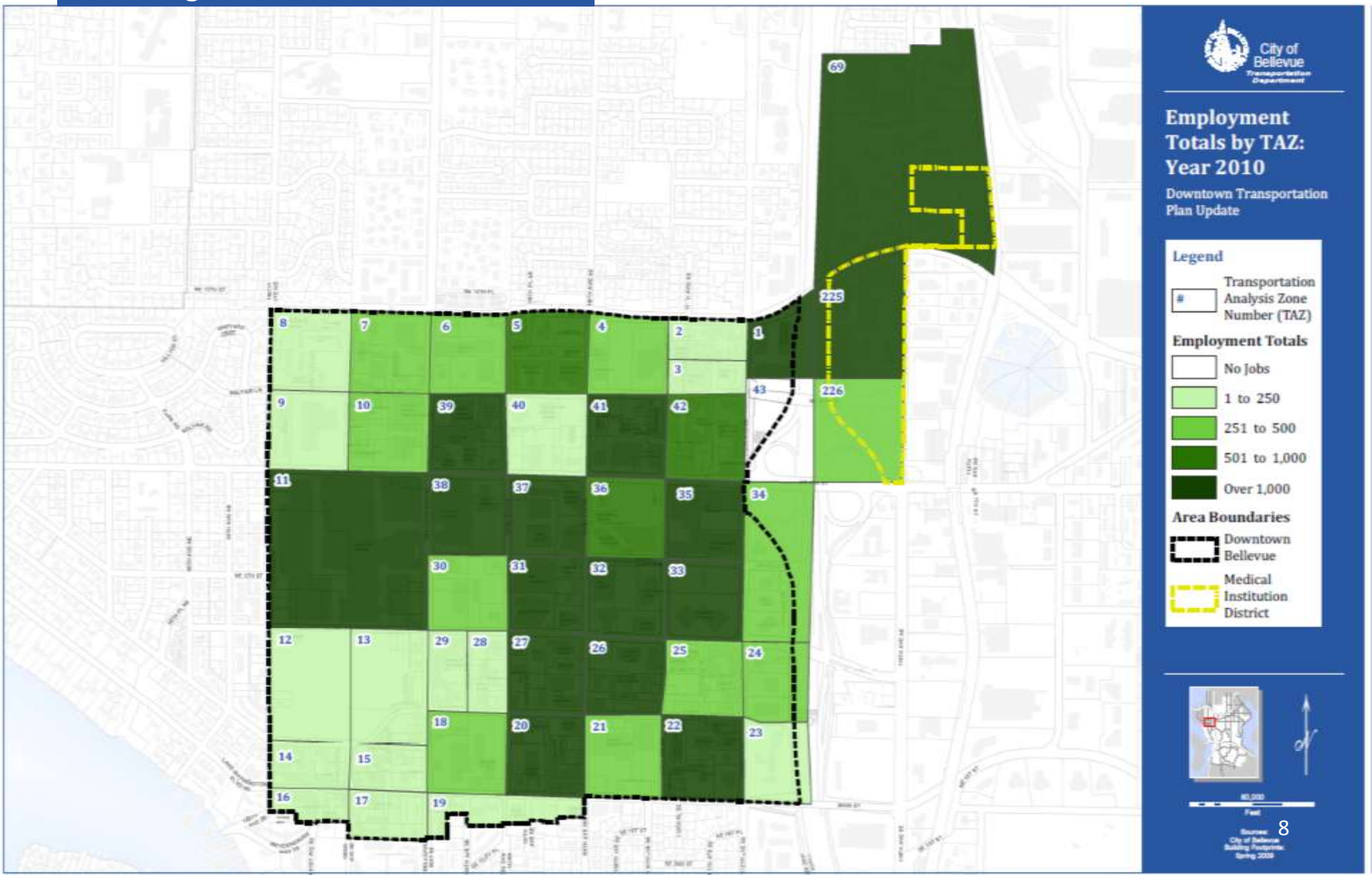


Downtown Land Use Forecast

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

Downtown 2010: Employment

Including Medical Institution District



Downtown 2030: Employment

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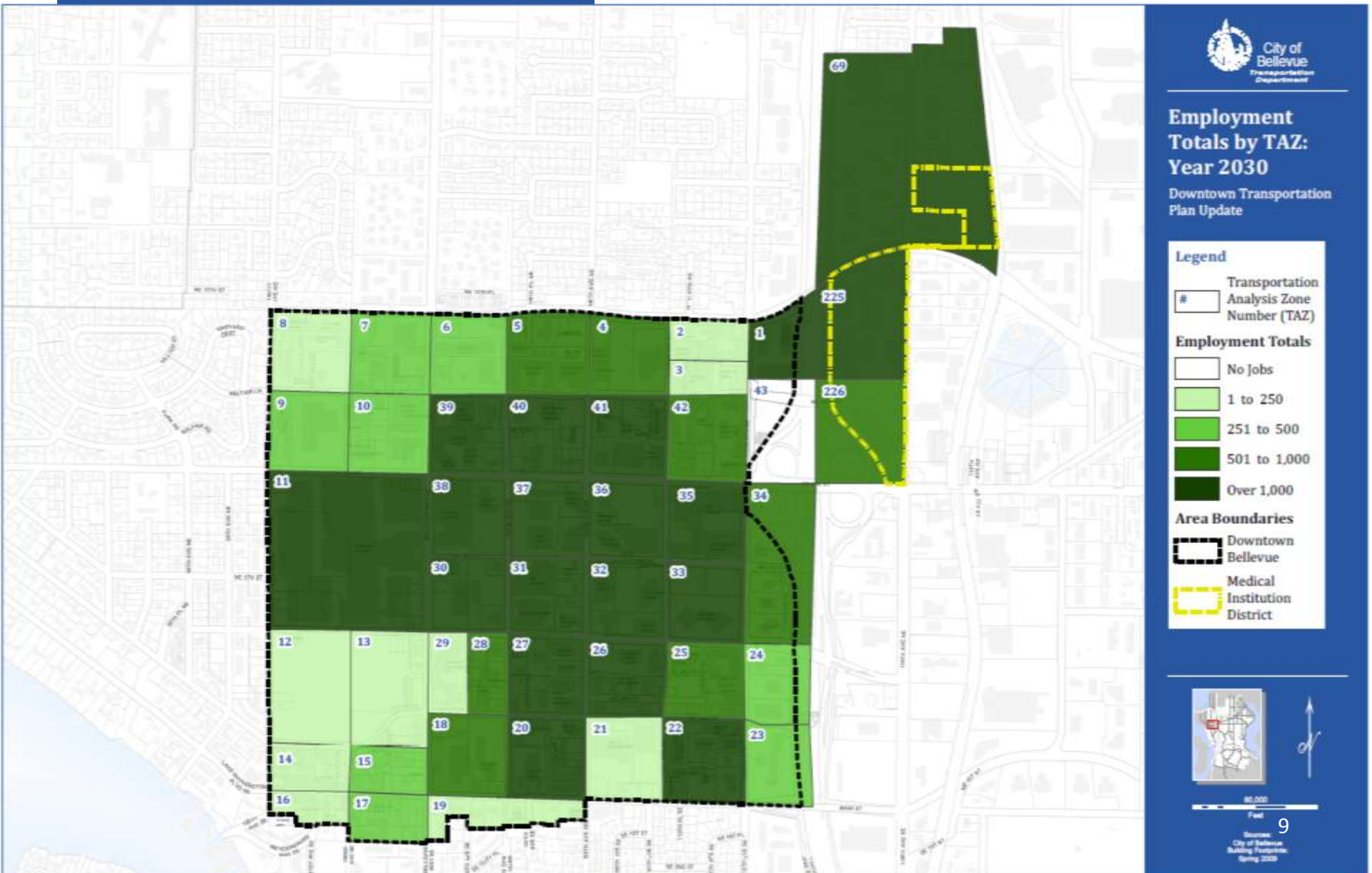
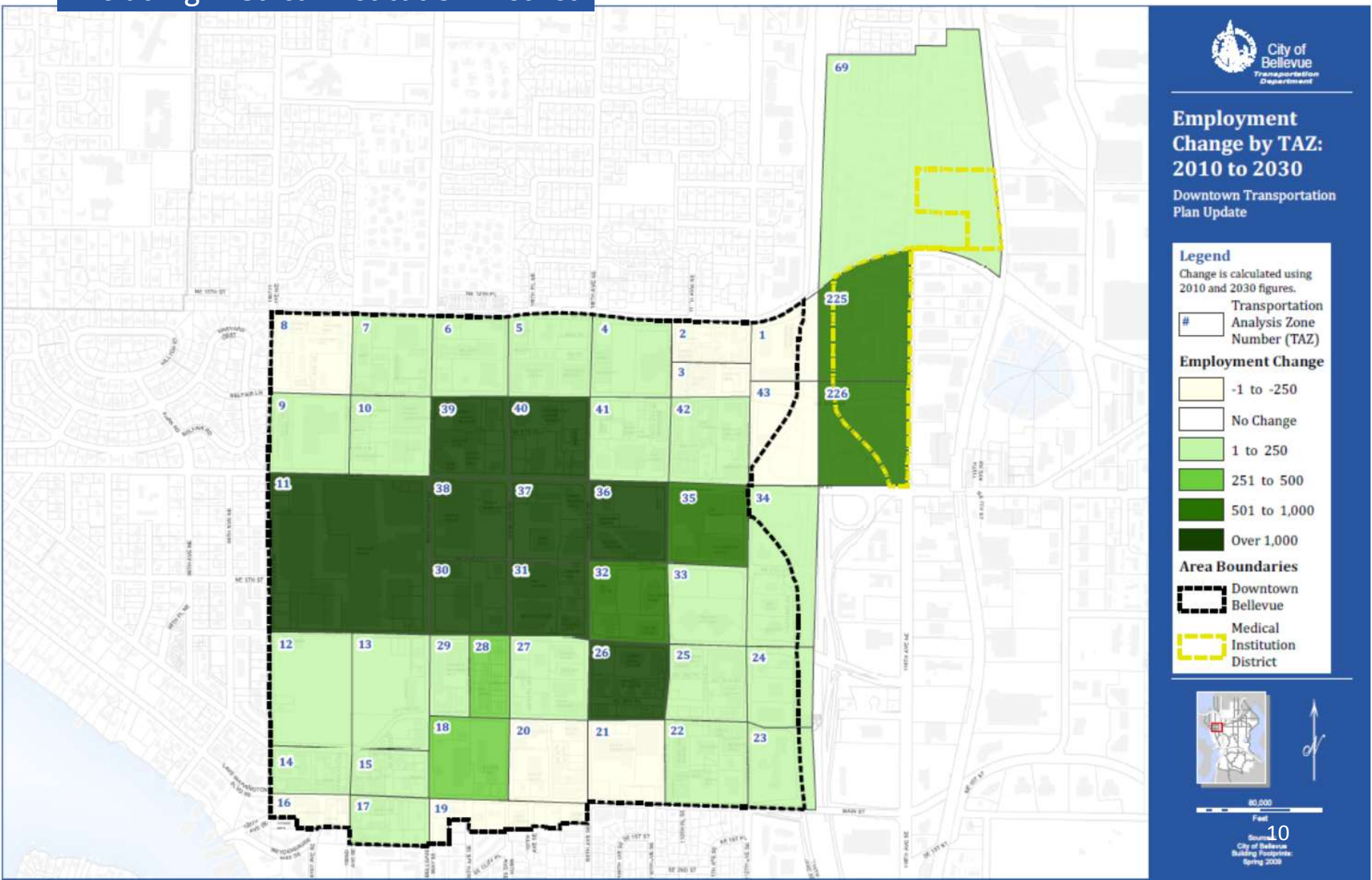


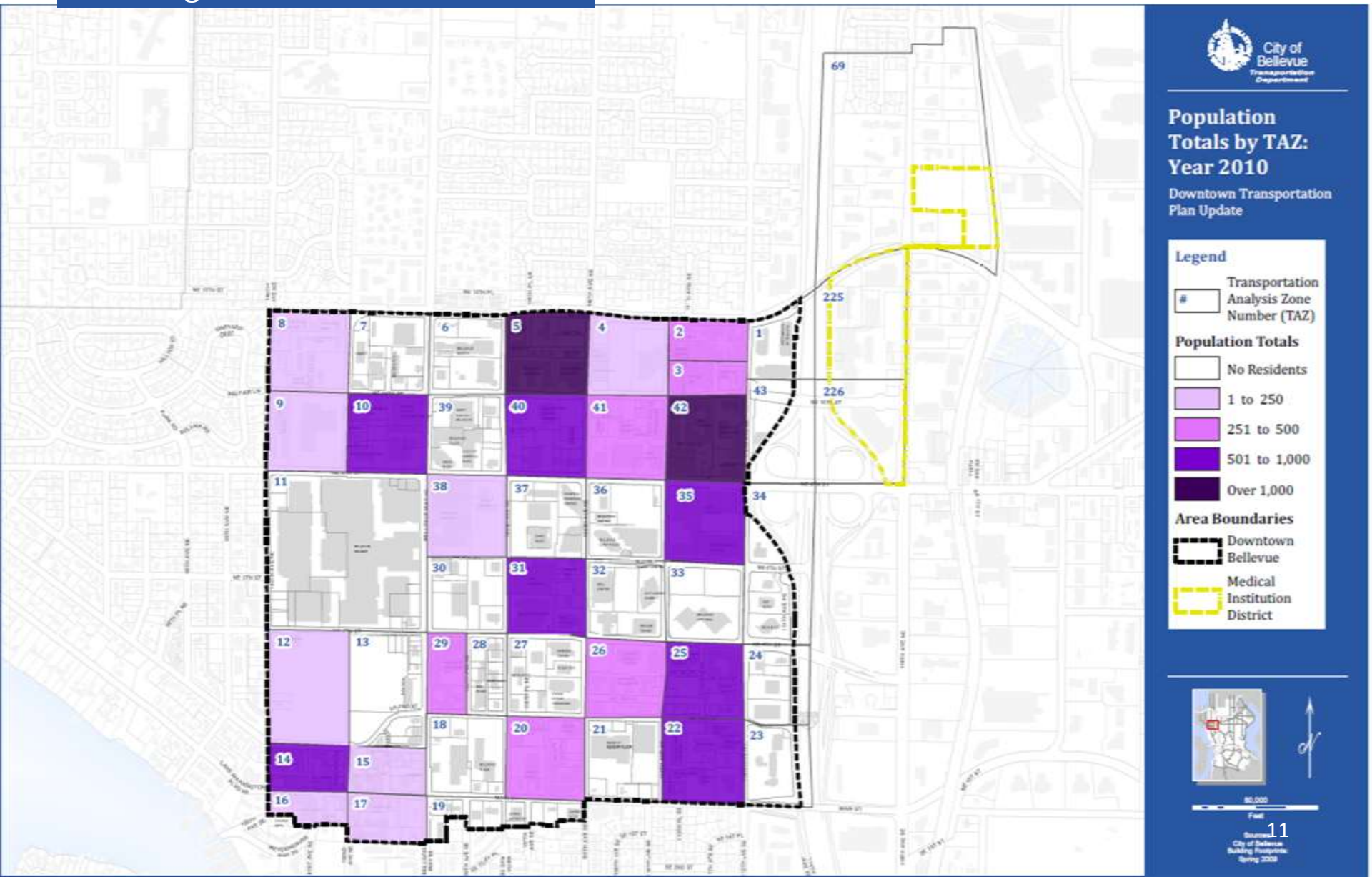
Downtown Employment Change

Including Medical Institution District



Downtown 2010: Population

Including Medical Institution District



Downtown 2030: Population

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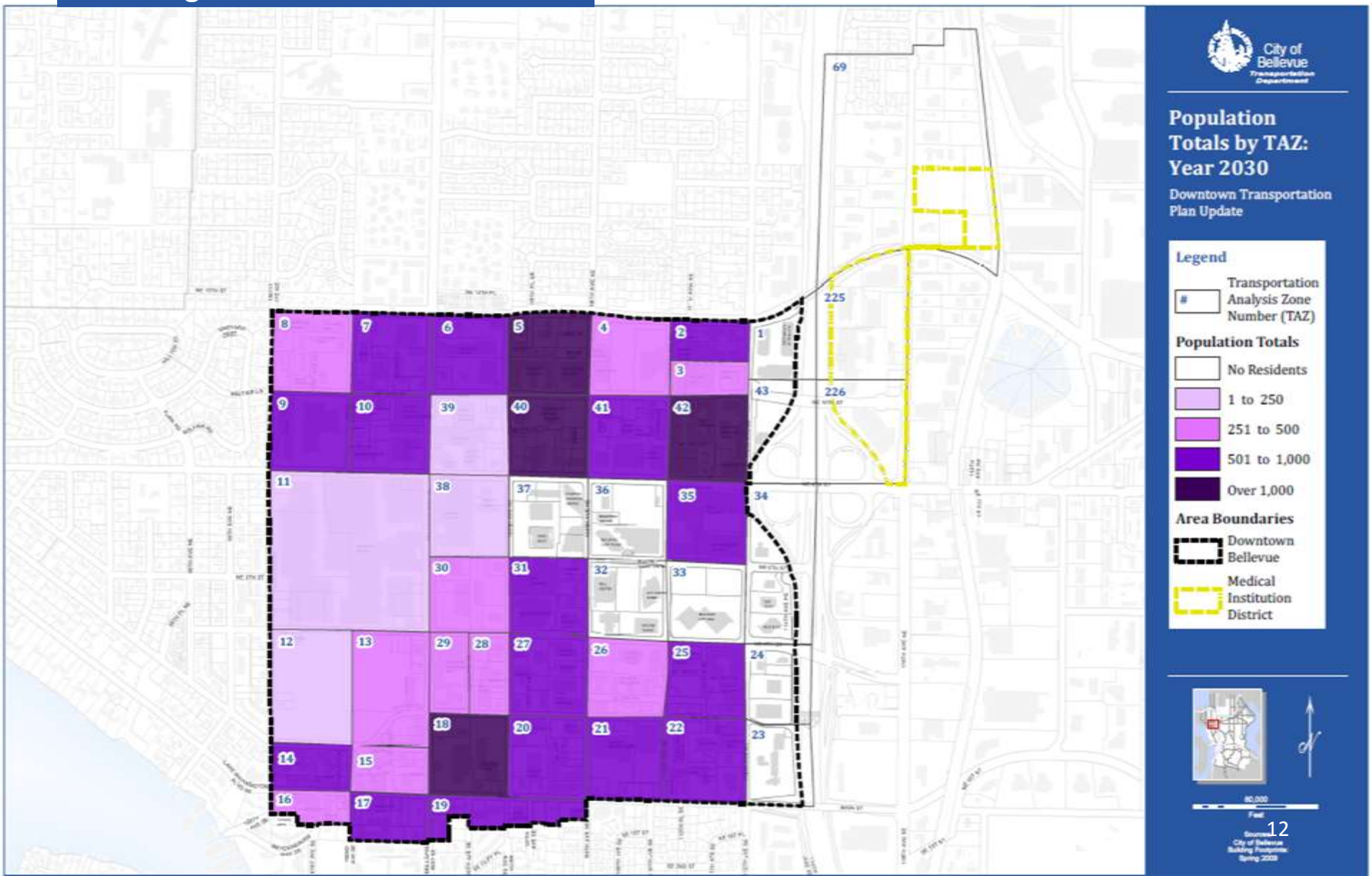
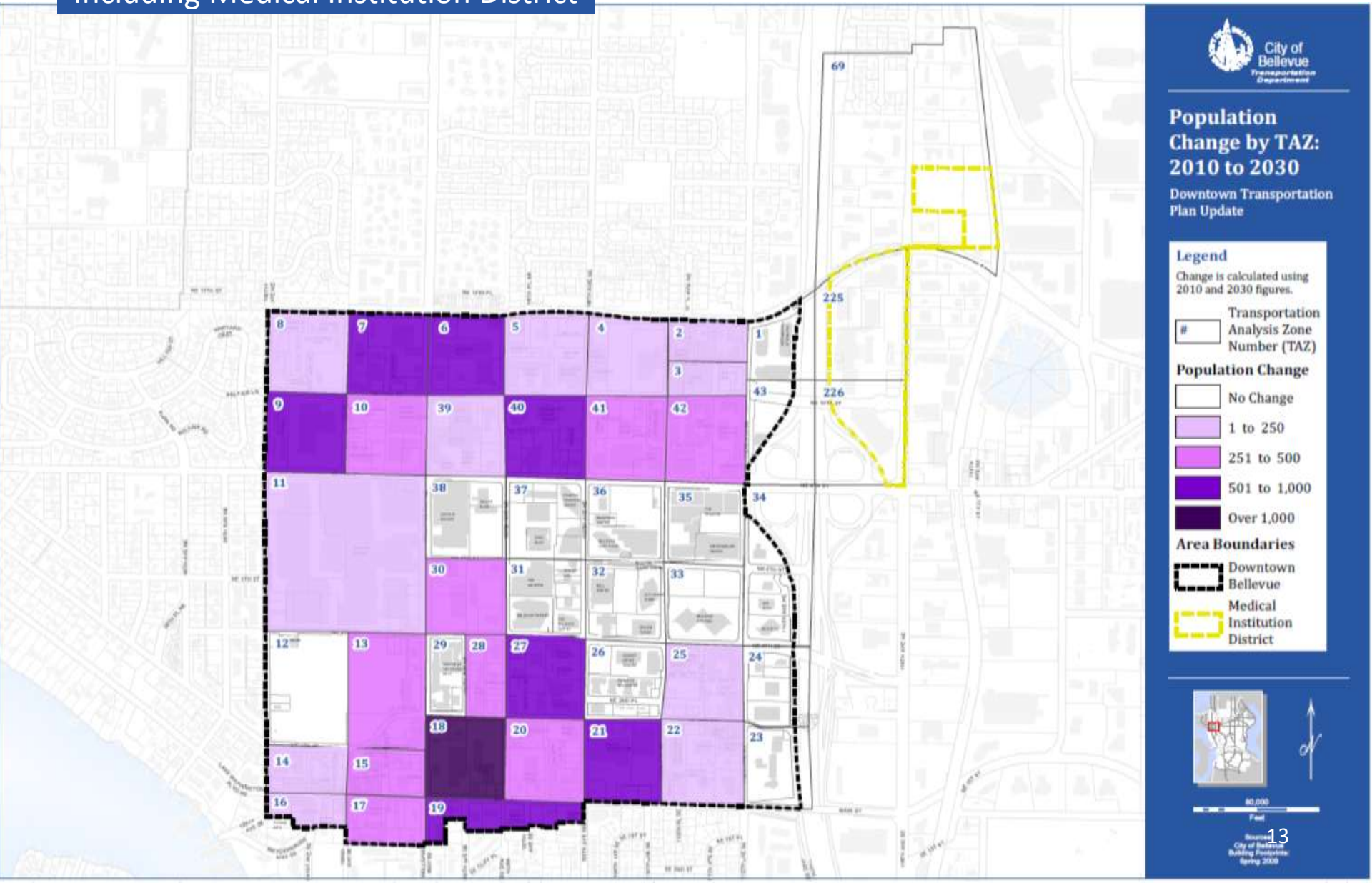
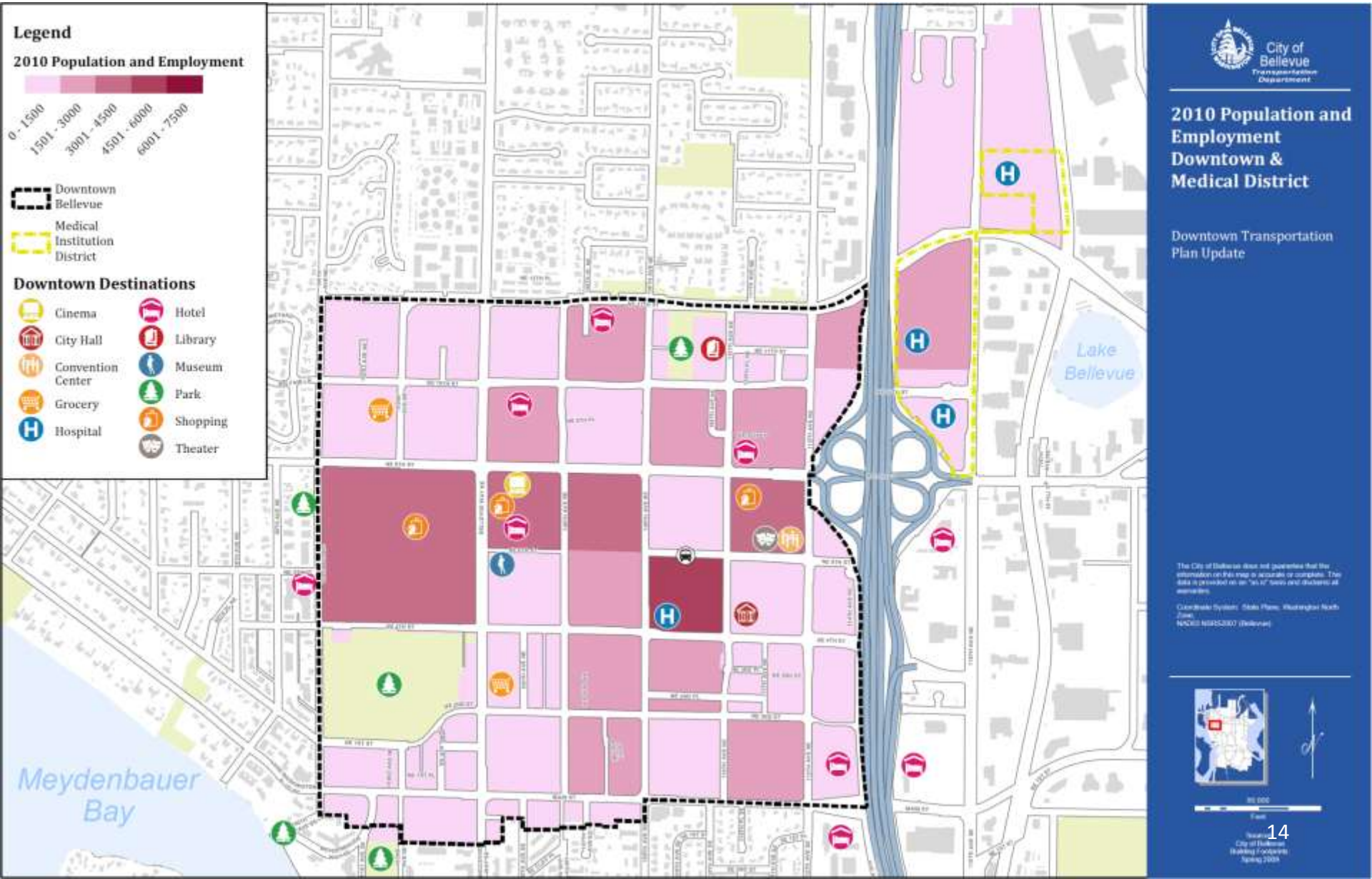


Downtown Population Change

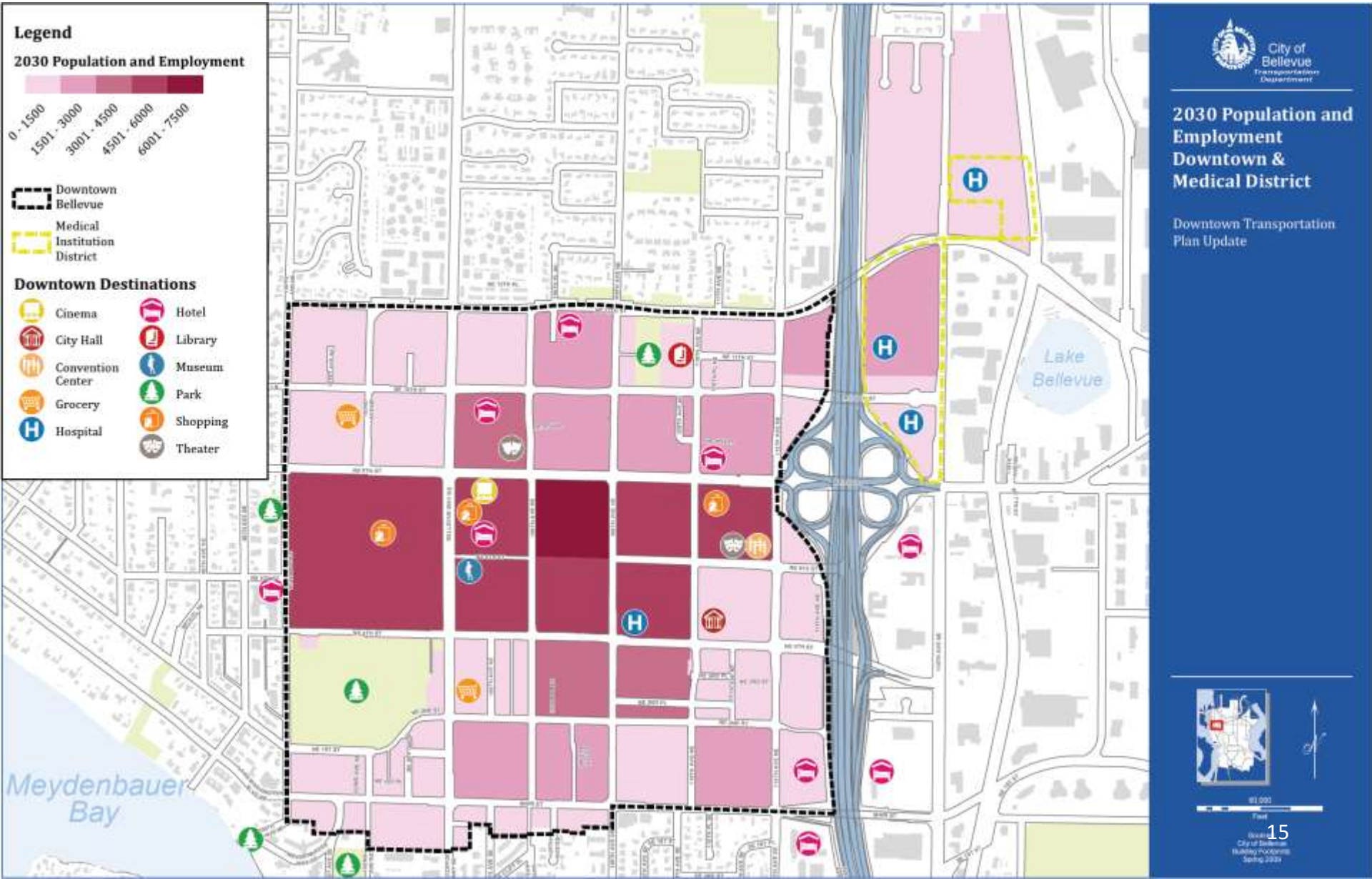
Including Medical Institution District

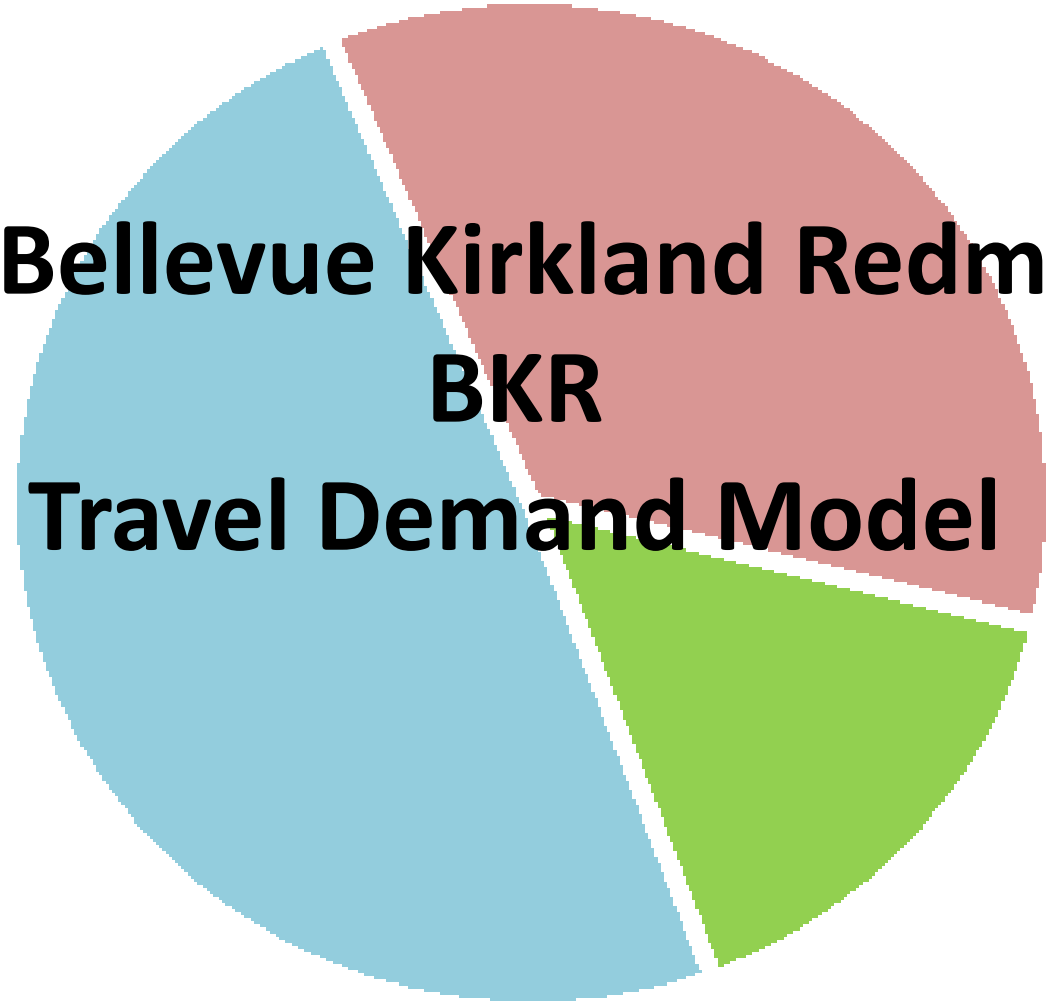


Downtown 2010 Population and Employment



Downtown 2030 Population and Employment

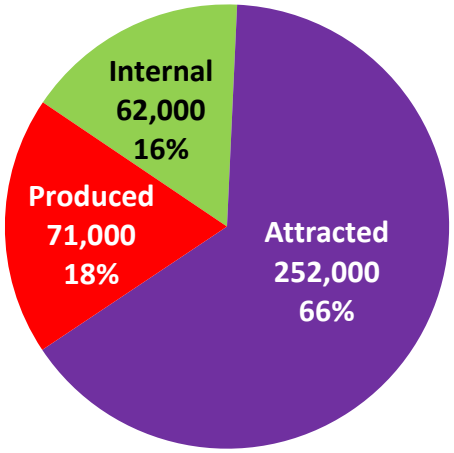




The Bellevue Kirkland Redmond BKR Travel Demand Model

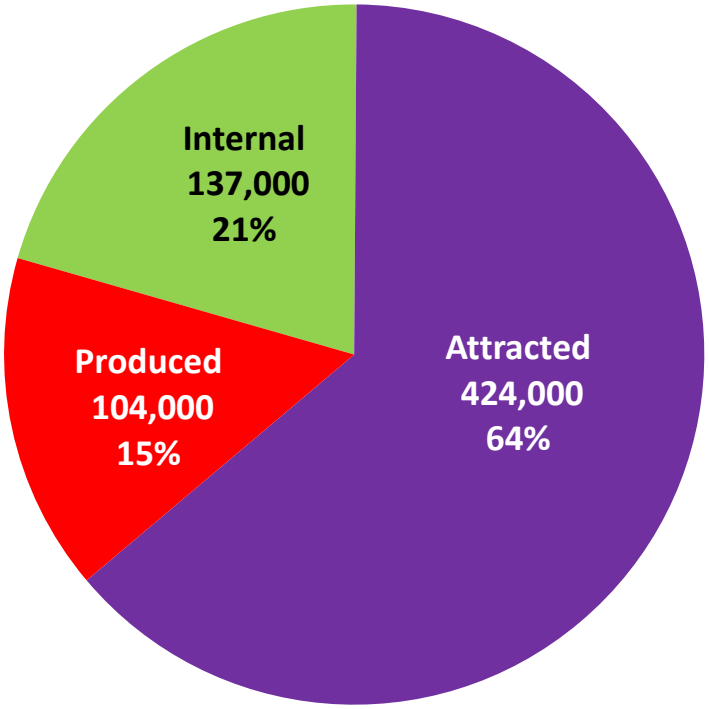
BKR Model – Total Downtown Person Trips

2010 Daily Person Trips



~ 385,000

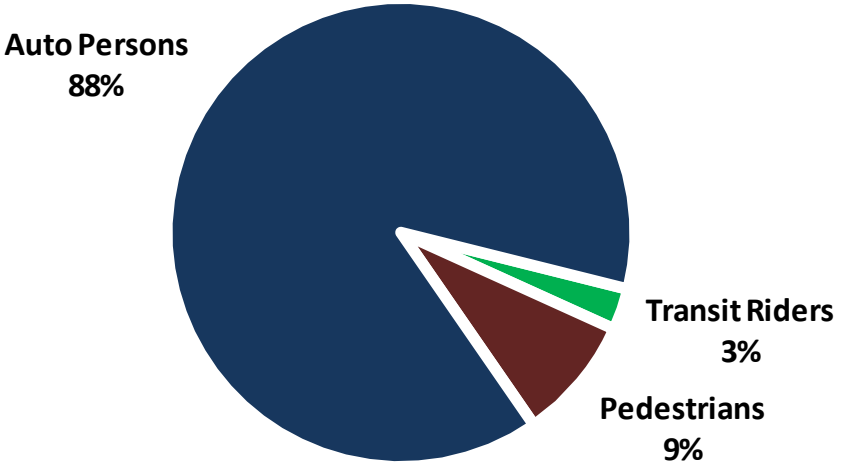
2030 Daily Person Trips



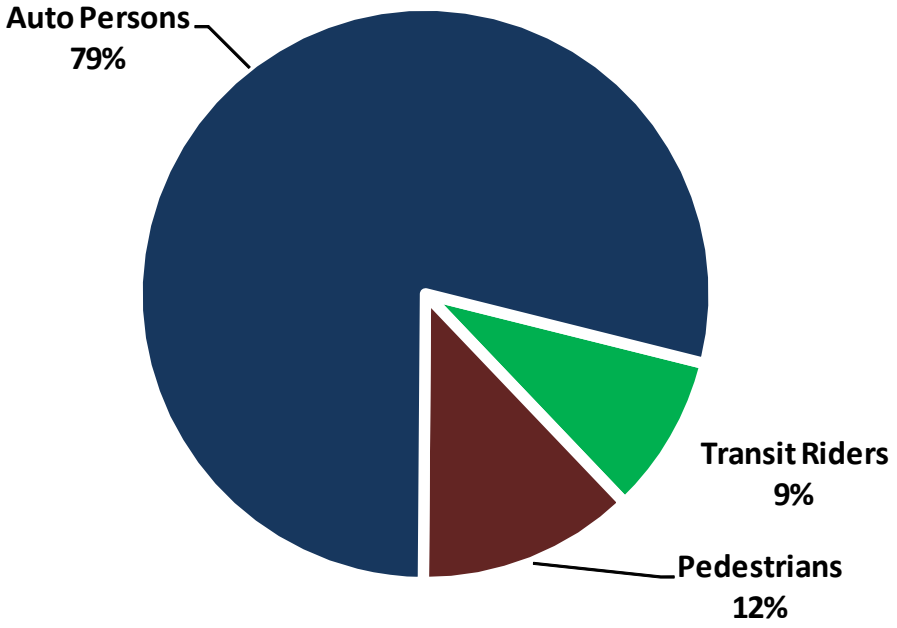
~ 665,000

BKR Model –Downtown Person Trips

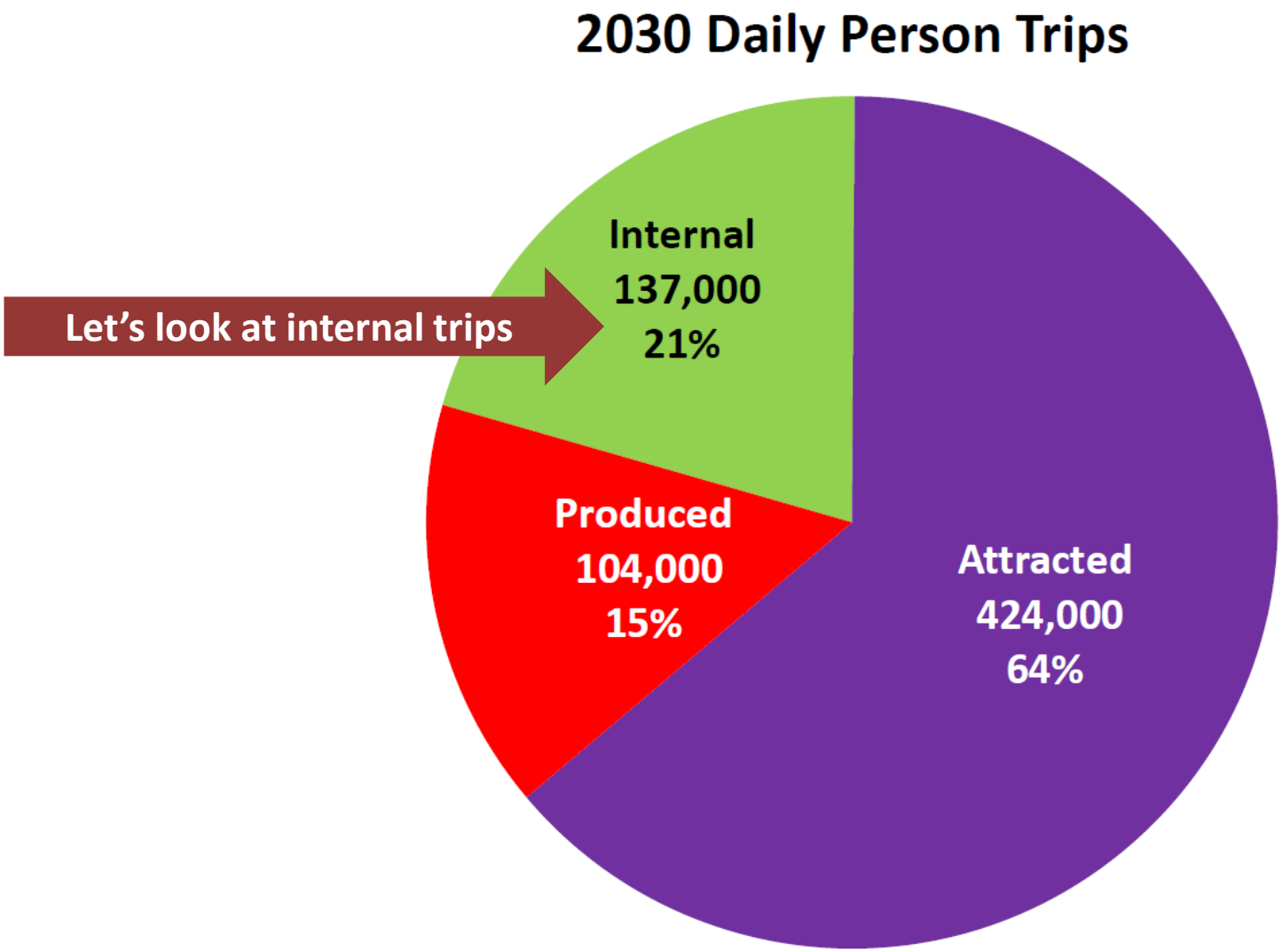
Downtown Daily Person Trips: 2010



Downtown Daily Person Trips: 2030



Downtown Travel Demand Analysis



Downtown Travel Demand Analysis

- Person trips between TAZs are all considered to be motorized
- Trips assumed w/in a Downtown TAZ = 0
- Many trips between Downtown TAZs are short “walk trips”
- Forecast 137,000 Daily internal trips
- How to forecast walk trips?
- Two categories:
  - No Car Available (transit/carpool)
  - Short Trips

15 Trips between TAZs

BKR Downtown Internal Trips

Distance Methodology for Calculating Downtown Walk Trips: Short Trips

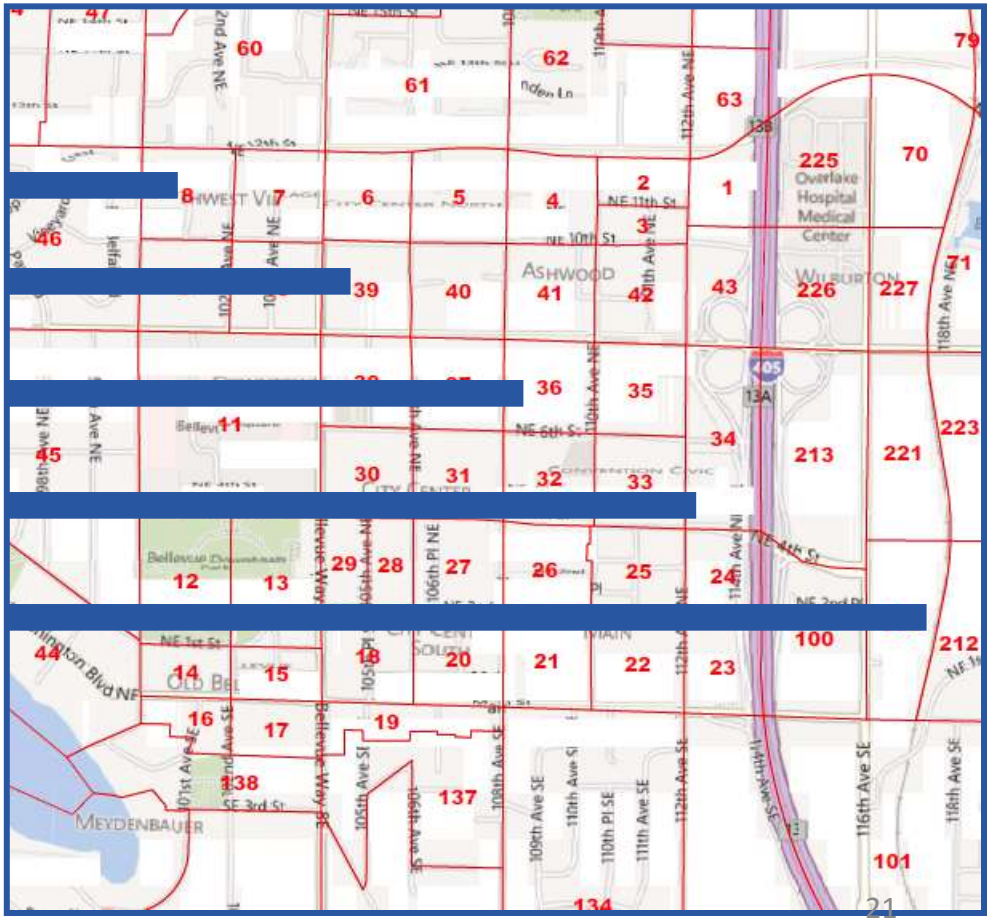
0-.25 miles: 70% walk

.25-.50 miles: 50% walk

.50-.75 miles: 30% walk

.75-1.0 miles: 10% walk

>1 mile: 5% walk



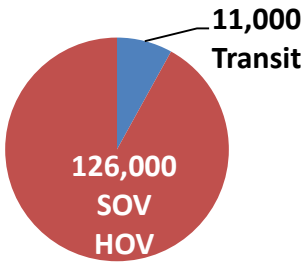
2030 Walk Trip Calculation Methodology

How Many Daily Walk Trips?

137,000
Internal Auto Person Trips

11,000 Transit

126,000
Auto Person Trips



Distance (mi)	Walk Likelihood
0.0 – 0.25	70%
0.25-0.5	50%
0.5-0.75	30%
0.75-1.0	10%
> 1.0	5%

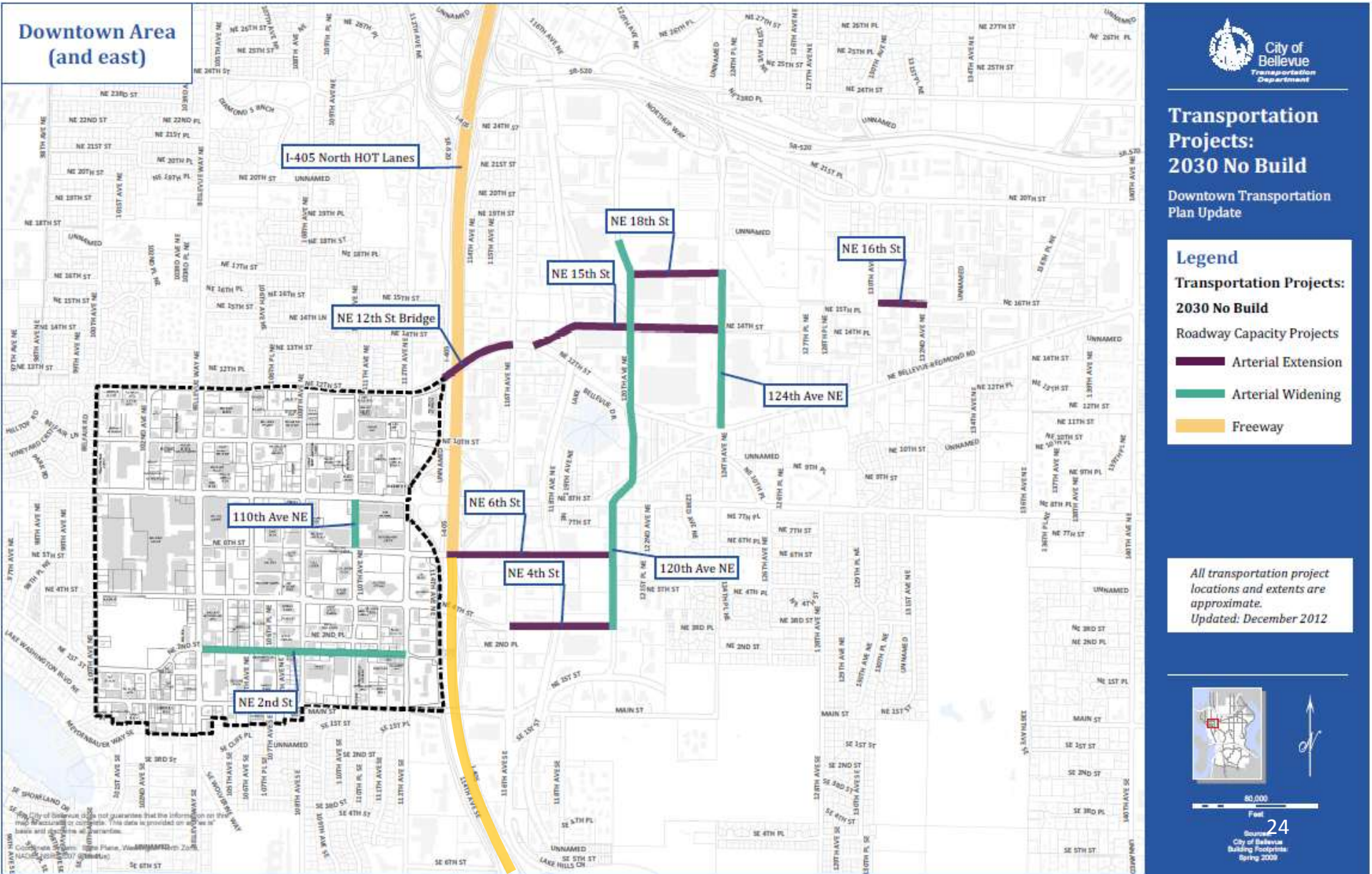
126,000 Auto Person Trips − **39,000** "No Car" Deduction − **37,000** Short Trip Deduction = **50,000** Auto Person Trips

39,000 Walk Trips + **37,000** Walk Trips = **76,000** Walk Trips

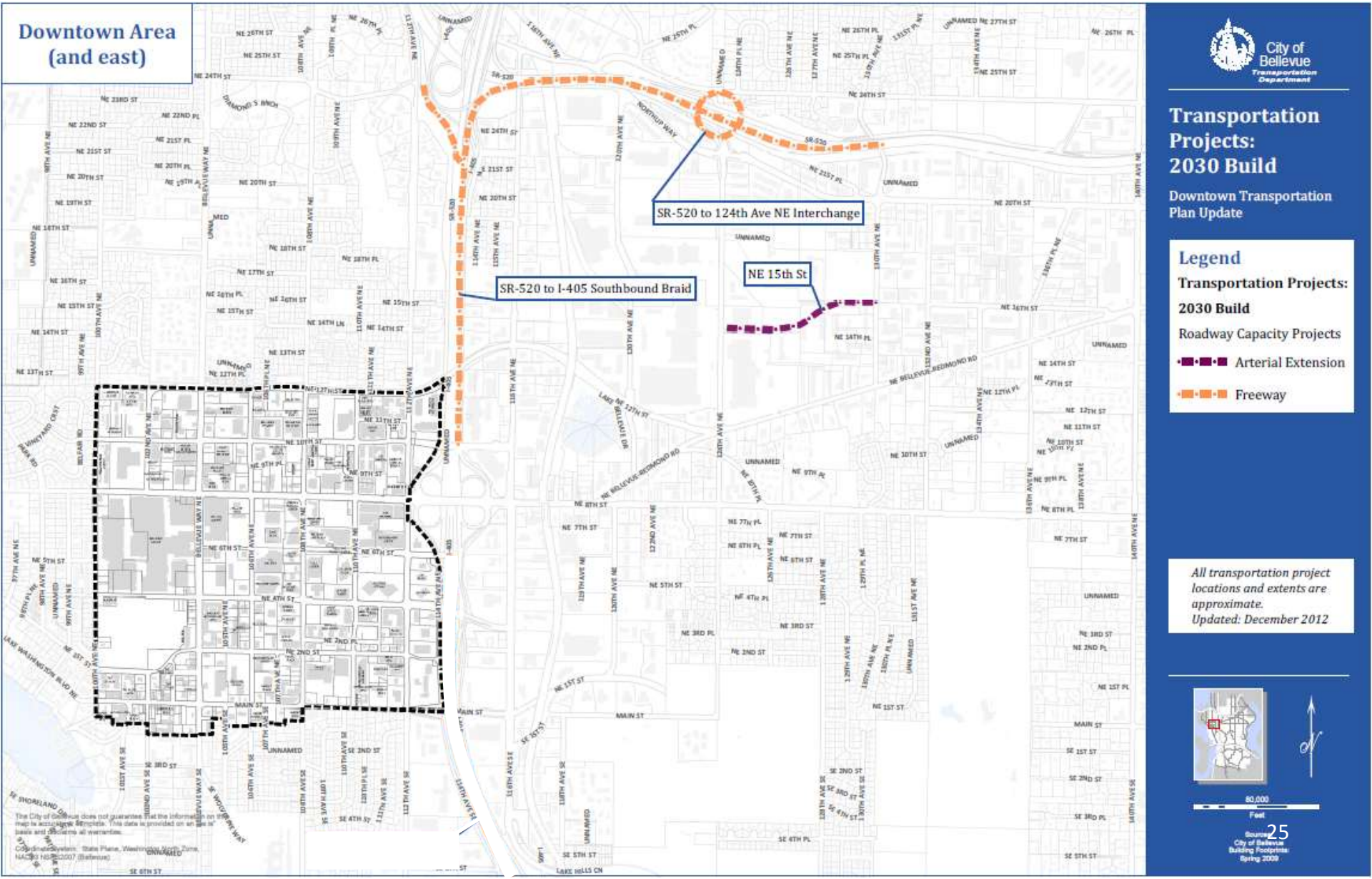
Downtown Short Trip Vehicle Trips Reduced

2030 Vehicle Trip Reduction

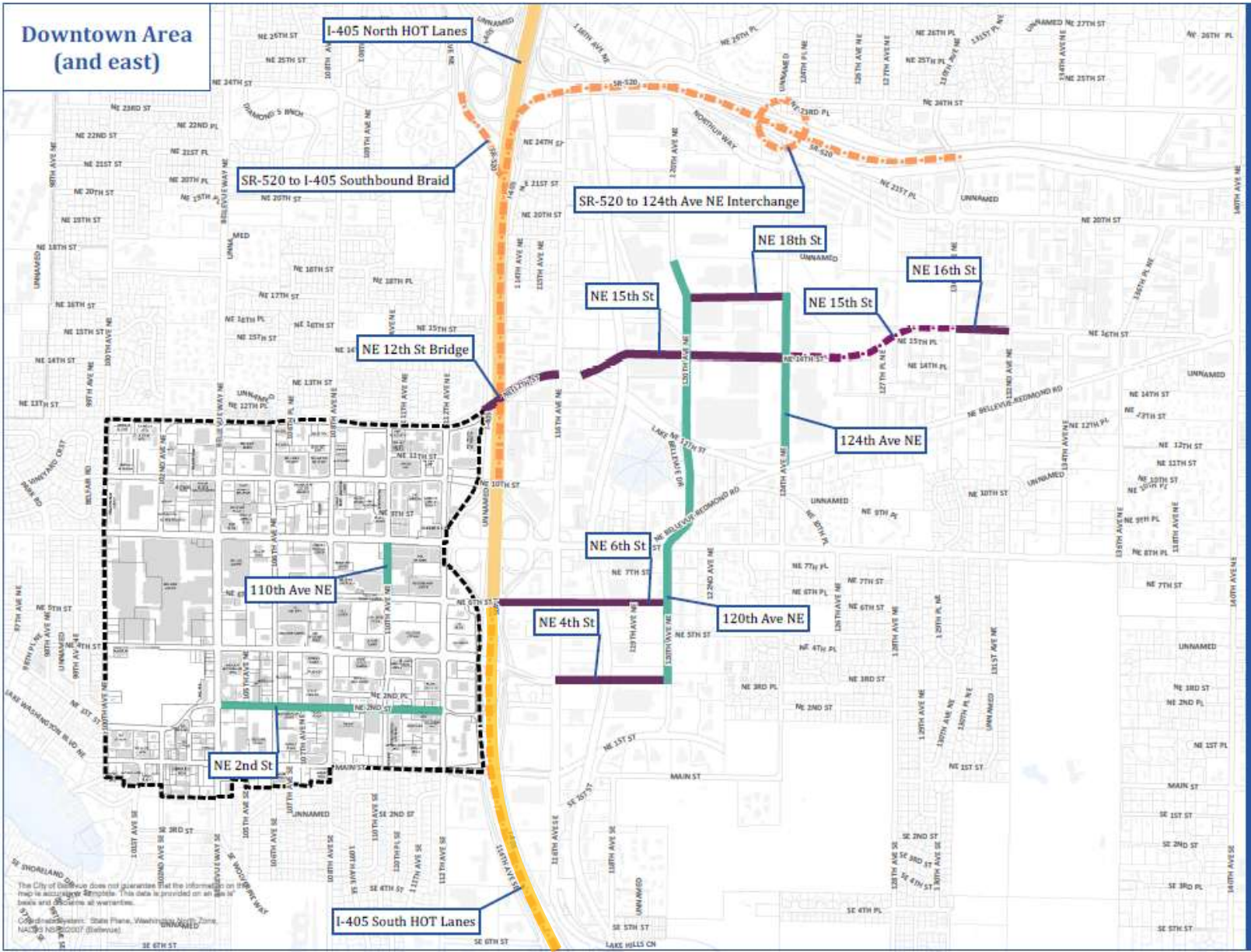
2030 Baseline "No Build" Projects



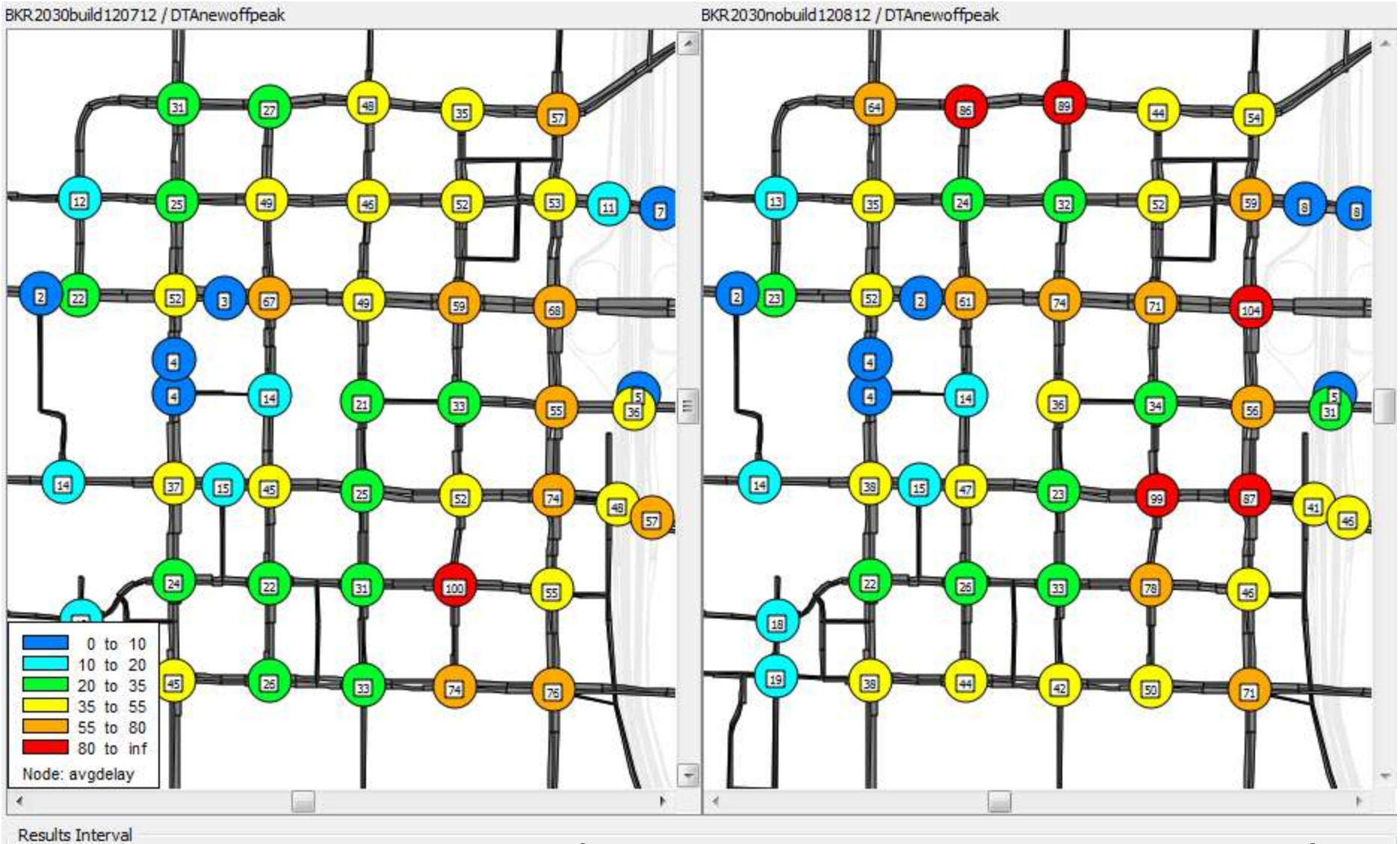
2030 "Build" Projects



2030 “No Build” + “Build” Projects



PM Peak Average Intersection Vehicle Delay and LOS



2030 "Build" Vehicle Delay/LOS **2030 "No Build" Vehicle Delay/LOS**

Modeling Scenario Comparisons

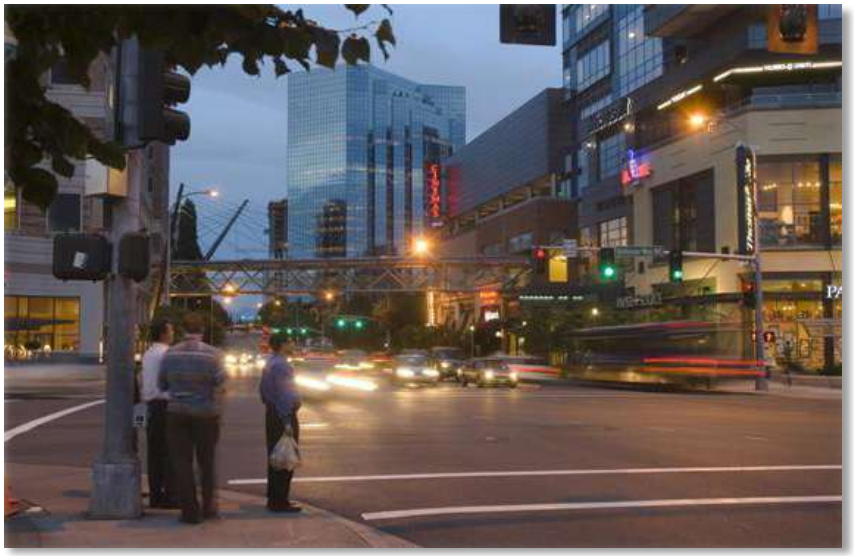
Downtown	2010 Base Year	2030 "No Build"	2030 "Build"
PM Peak Hourly Vehicle Volume	82,000	112,000	119,000
Average Intersection Vehicle Delay (Seconds)	27	56	48
Level of Service (Delay)	C	E	D
Total Hours Vehicle Delay	600	1,700	1,600

Modeling Conclusions

- 2030 “No Build” traffic in Downtown is not gridlock
- 2030 “Build” projects would improve Downtown traffic flow
  - Better distribution on east-west arterials
  - Local and regional projects outside of Downtown and NE 2nd Street improve access to neighborhoods and to the regional system
  - Changes traffic patterns make the system more efficient overall
- Adaptive signal technology (SCATS) can improve traffic flow and help optimize roadway capacity
- **Major roadway capacity projects beyond the 2030 “Build” scenario projects are not needed within Downtown Bellevue to accommodate 2030 projected growth**
- Certain roadway links and intersections may require additional analysis to determine capacity issues

Downtown Vehicle Mobility

Downtown Access



Regional + Neighborhood Access

Roadway Capacity

Traffic Flow/Efficiency

BELLEVUE
ITS
BELLEVUE
INTELLIGENT TRANSPORTATION SYSTEMS

Downtown Bicycle Mobility

Local Connections

Regional Connections

Getting Around Downtown

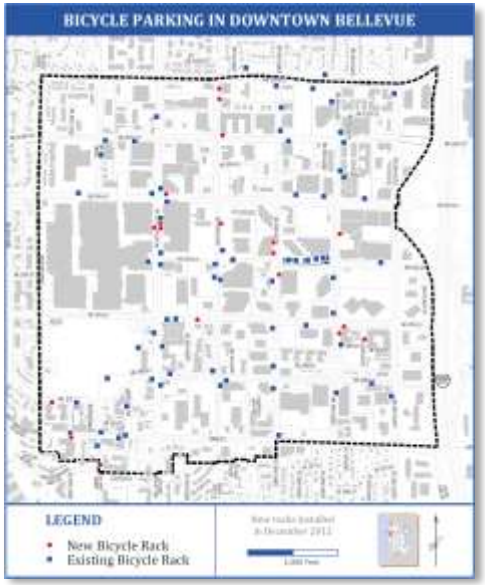
Parking

Commuting

Downtown Bicycle Mobility

On-Street Facilities

Public Off-Street Facilities



Wayfinding

Private Off-Street Facilities

Downtown Pedestrian Mobility

Crosswalks

Mid-Block Crossings

Sidewalks

Through-Block Connections

Crosswalk Treatments

Standard Crosswalk

- Designated pedestrian crossing location
- Signalized intersections
- Appropriate curb return radius

Enhanced Crosswalk

- Support urban design goals
- Higher traffic volume and higher pedestrian volume

Exceptional Crosswalk

- Significant urban design and mobility function
- Signalized intersections at “A”-designated rights-of-way per Land Use Code
  - NE 6th Street/Pedestrian Corridor
  - Main Street/Old Bellevue

Standard Crosswalks

Components include:

- Parallel white bars
- Vehicle stop bars
- Two curb ramps per corner
- Curb return radius appropriate to urban setting
- Bicycle signal actuation
- Accessible pedestrian push buttons for actuation
- Countdown + audible signal heads

Enhanced Crosswalks

Components include:

- Wider than standard to accommodate large volume of pedestrians – often after significant queuing
- Minor wayfinding
- Special paving treatment
- Alternative striping
- Curb bump outs for shorter crossing distance and queuing space

Exceptional Crosswalks

Components include:

- Wide crosswalk – may encompass entire intersection
- Pedestrian scramble signal phase for efficient diagonal access
- Special paving
- Raised crossing
- Curb bump outs
- Weather protection
- Significant wayfinding

Mid-Block Crossings

Components include:

- Landscape or hardscape median for pedestrian refuge
- Special paving
- Full signalization
- Rectangular rapidly flashing beacon
- Grade-separation when justified

Sidewalks

Components include:

- 12-20 feet in width
- Level walking surface
- Landscape strip or street trees
- Weather protection

❑ Recommendations for dimensional standards and urban design components such as benches, sidewalk textures and weather protection are referred to the **Downtown Livability Initiative**

Through Block Connections

Components include:

- Standard public access wayfinding
- Commonly recognizable paving material
- Accessible to all

- ❑ Recommendations for design components of through-block connections are referred to the **Downtown Livability Initiative**

Downtown Transit Mobility

Coverage

Speed and Reliability

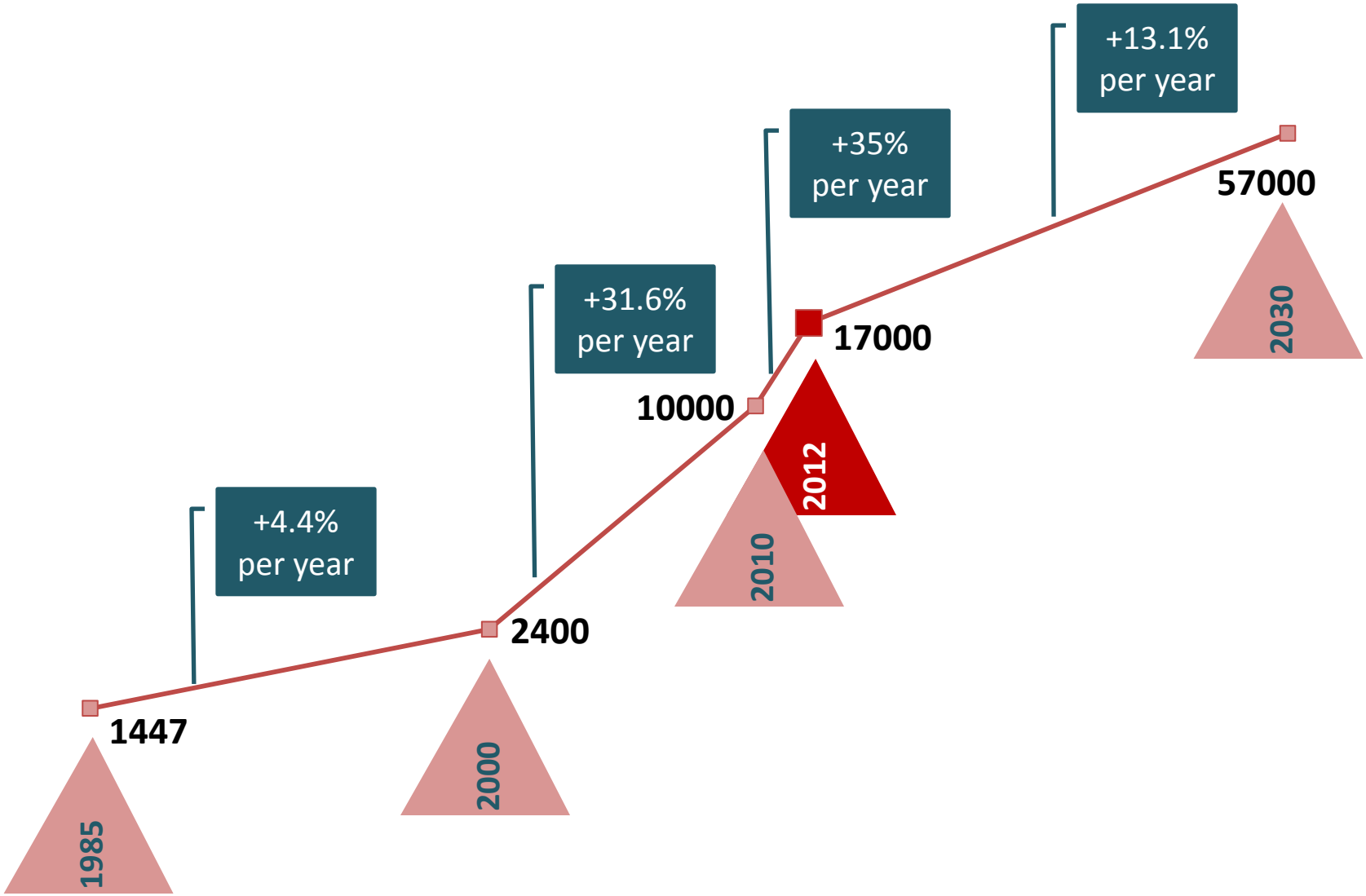
Commission March 14

Capacity

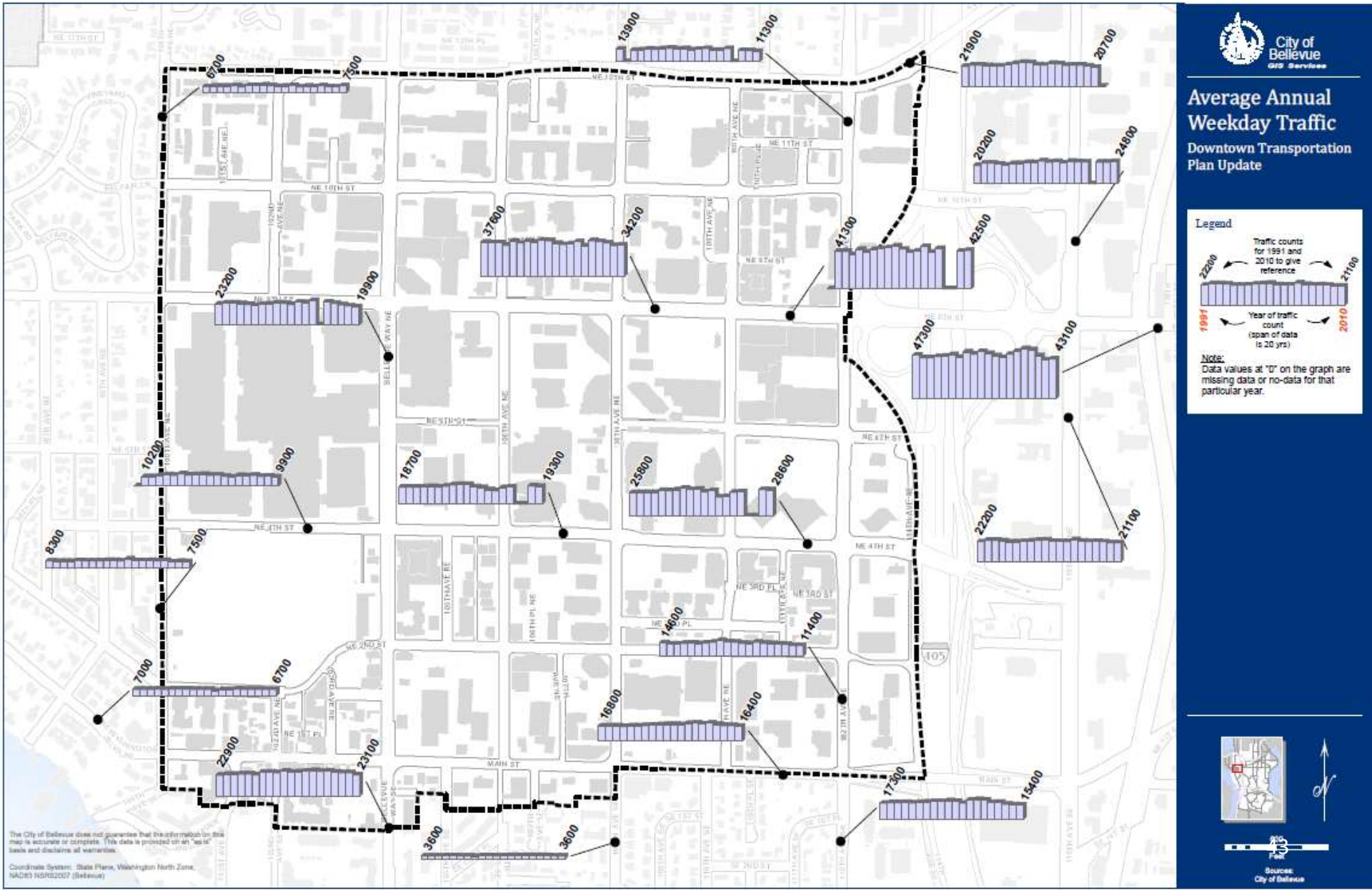
Comfort/Access/Information

Commission May 9

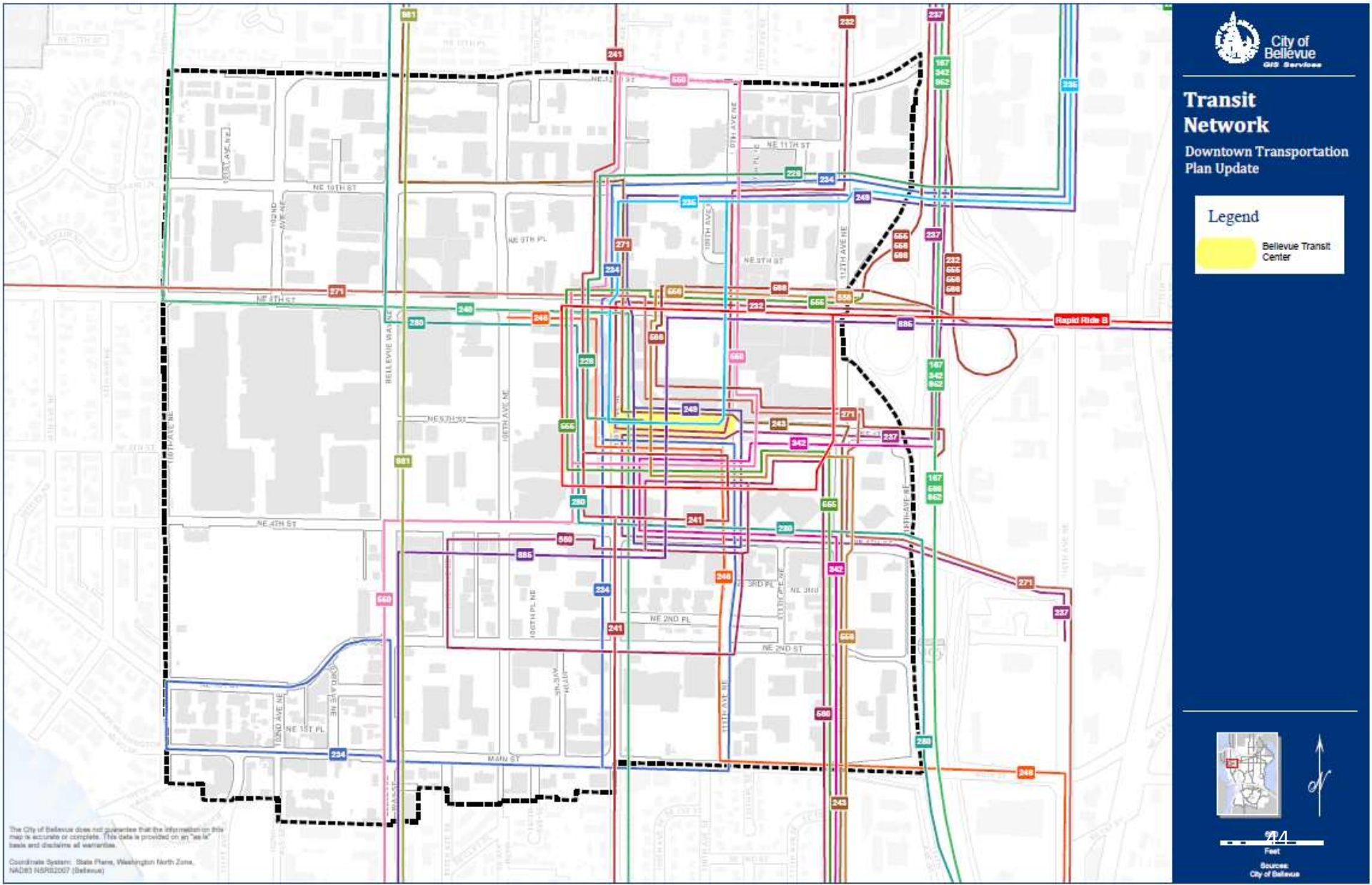
1985 – 2030 Downtown Transit Ridership



1991 – 2010: Average Annual Weekday Traffic

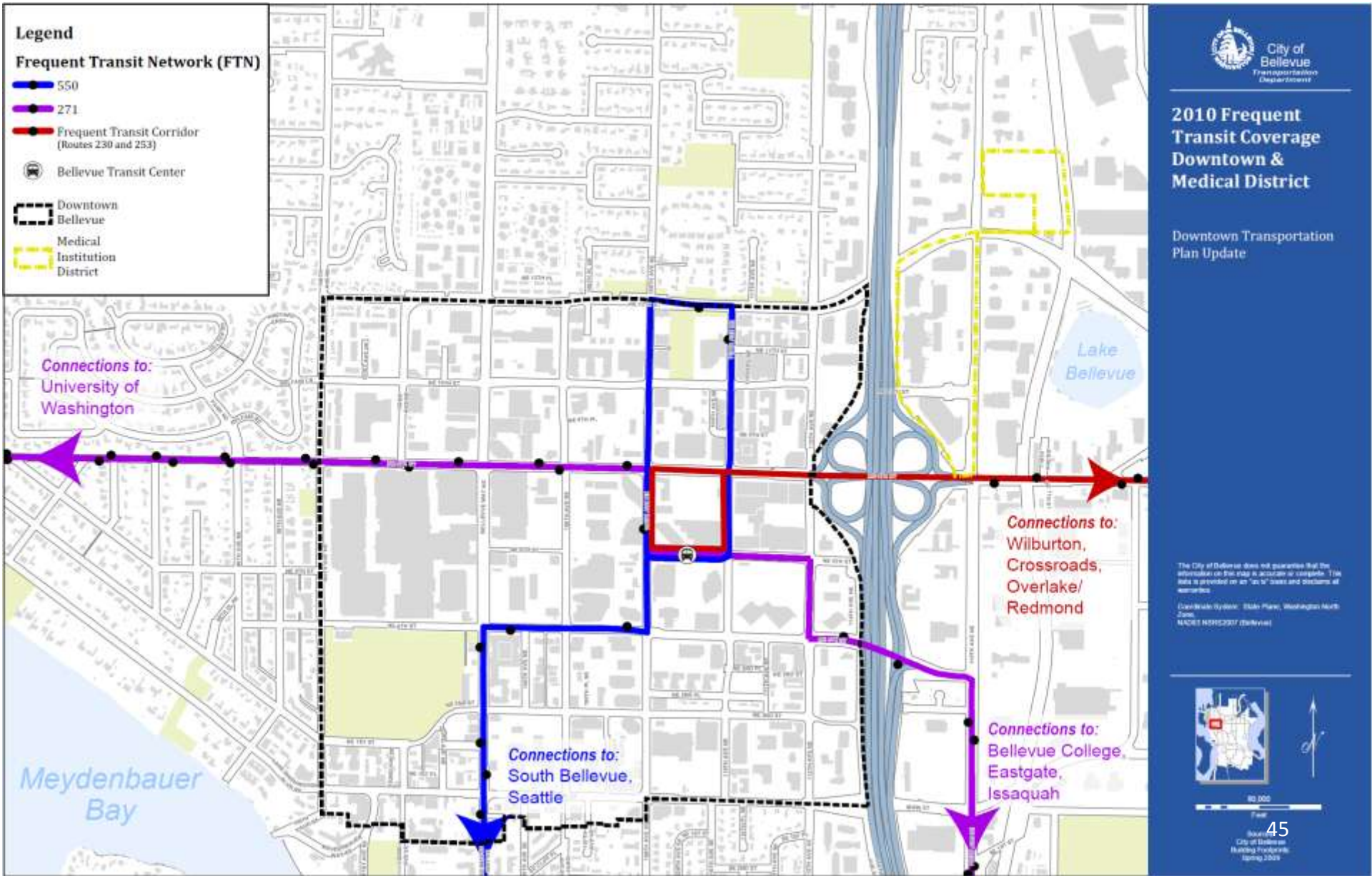


Downtown 2010: Transit Network



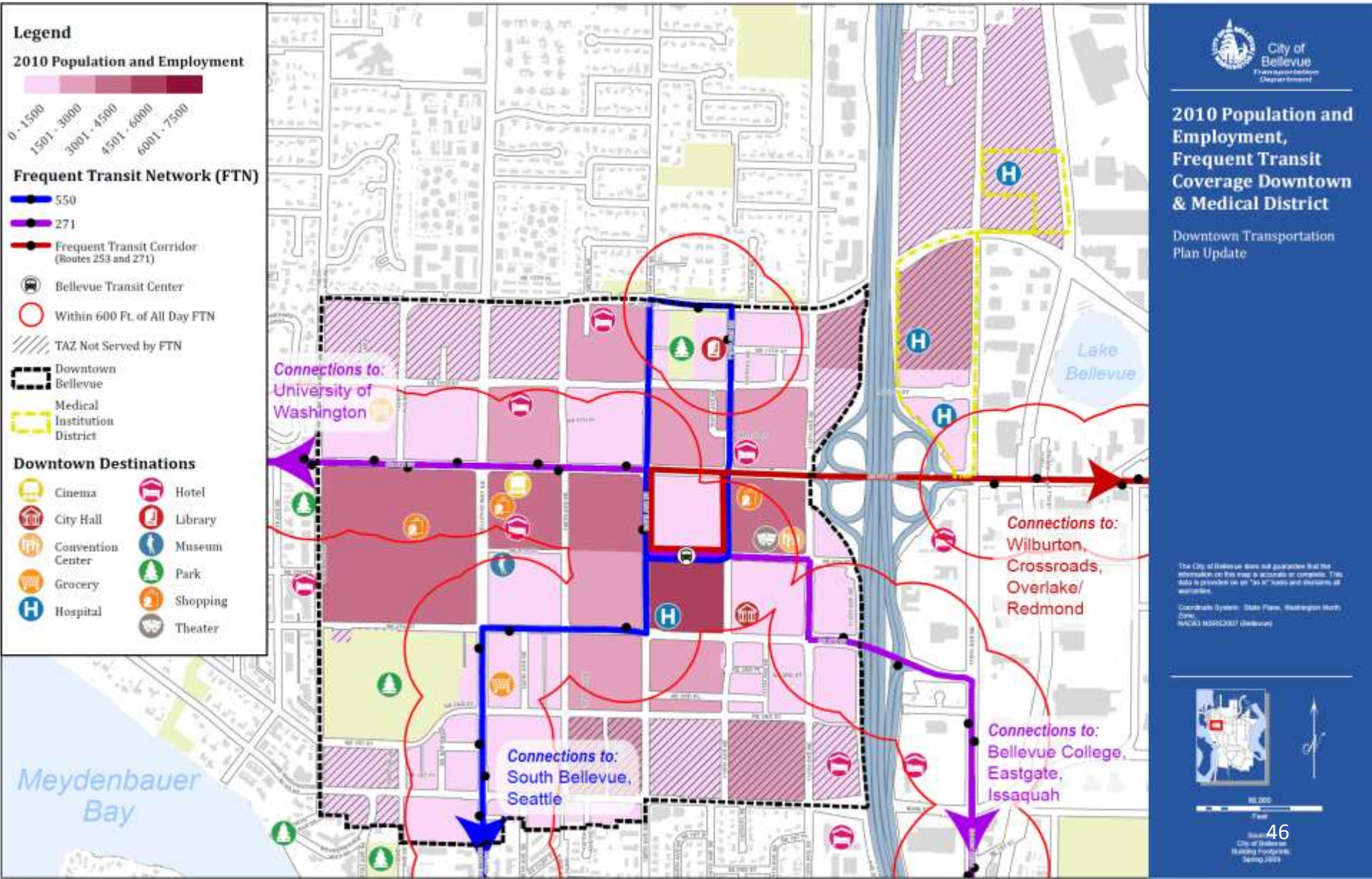
Downtown 2010: Transit Coverage

Frequent Transit Network



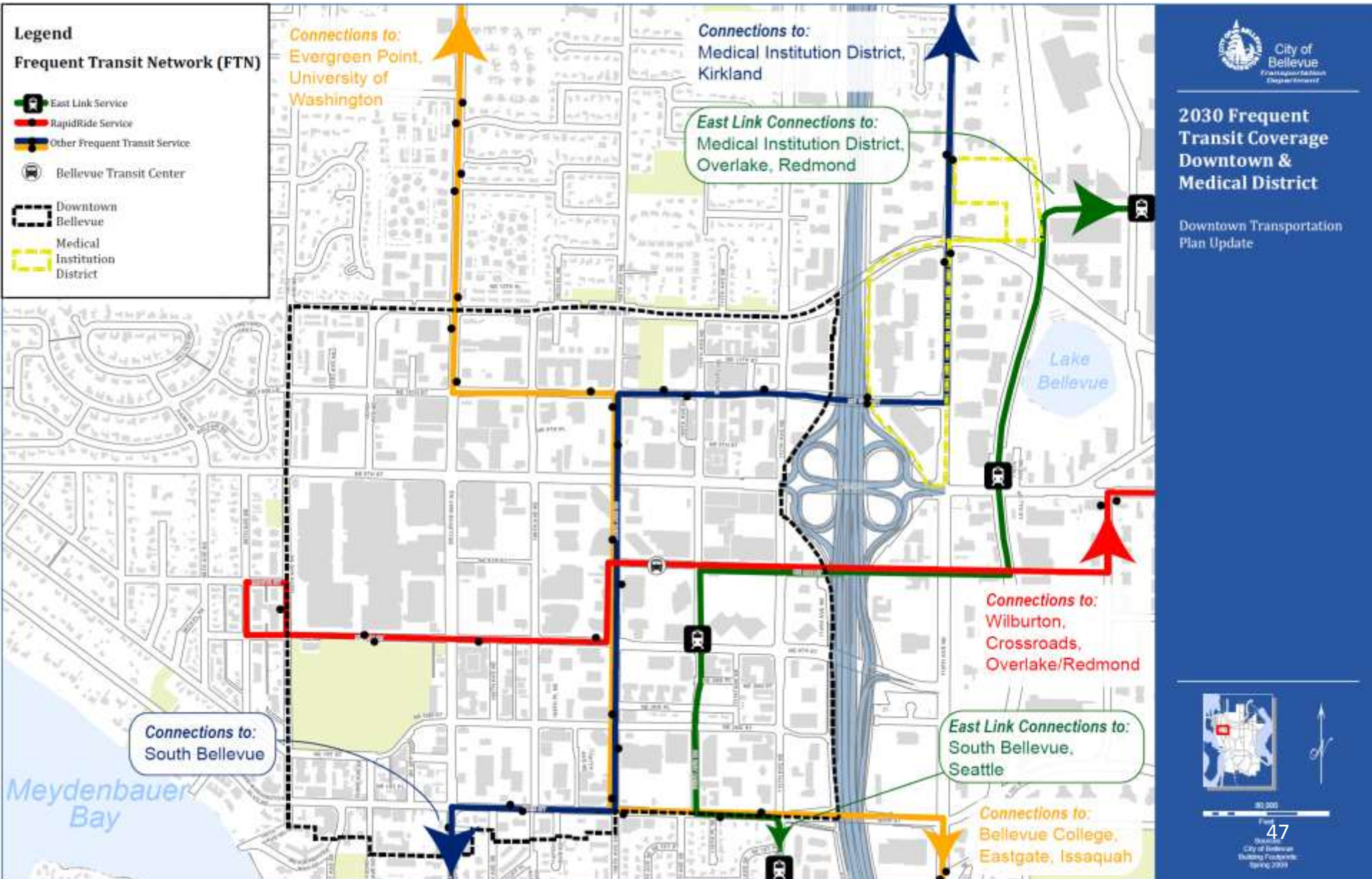
Downtown 2010: Transit Coverage

Transit + Land Use + 600’ Radius + Coverage **Residents and Employees: 86.4%**



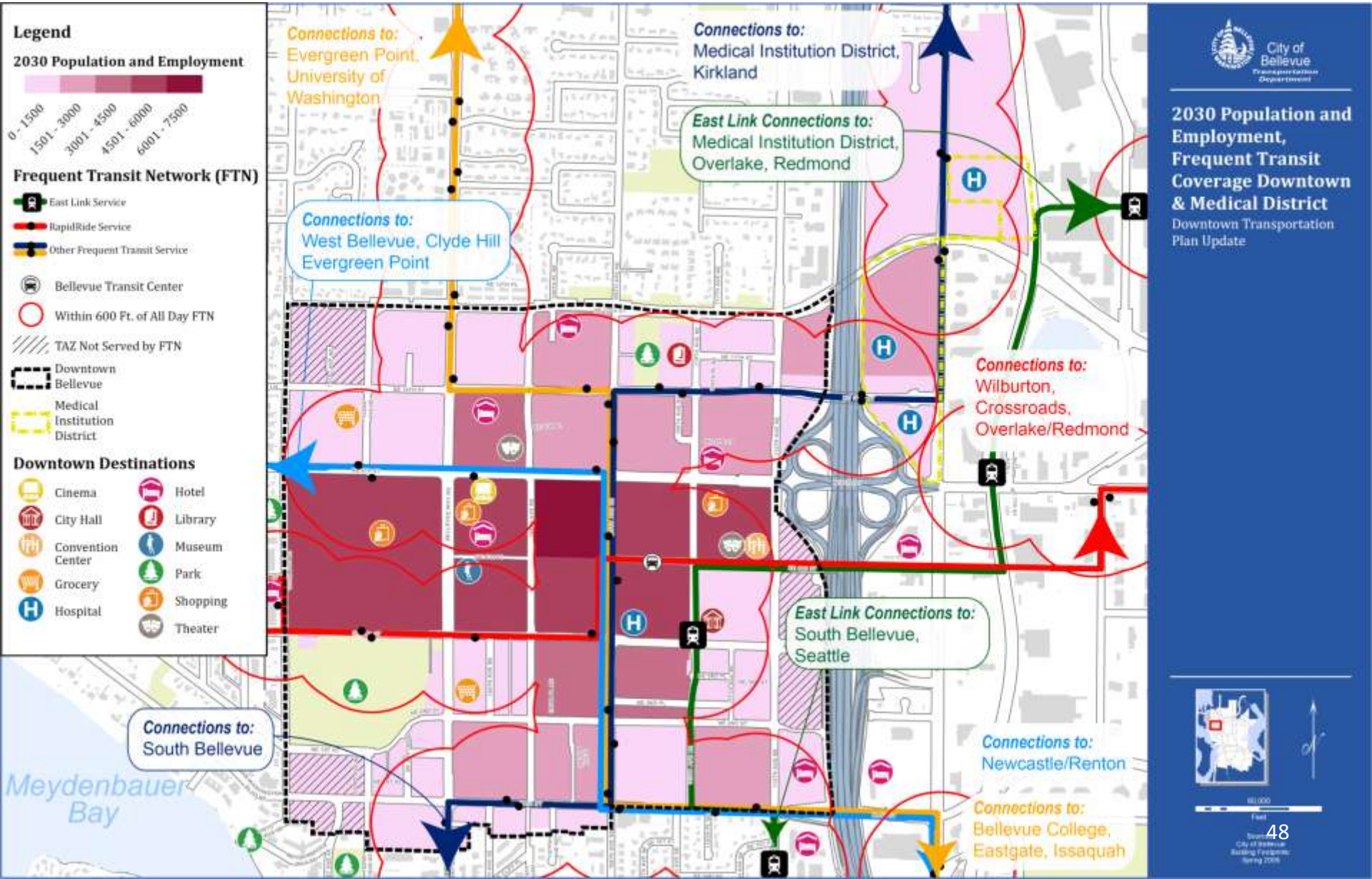
Downtown 2030: Transit Coverage

Frequent Transit Network

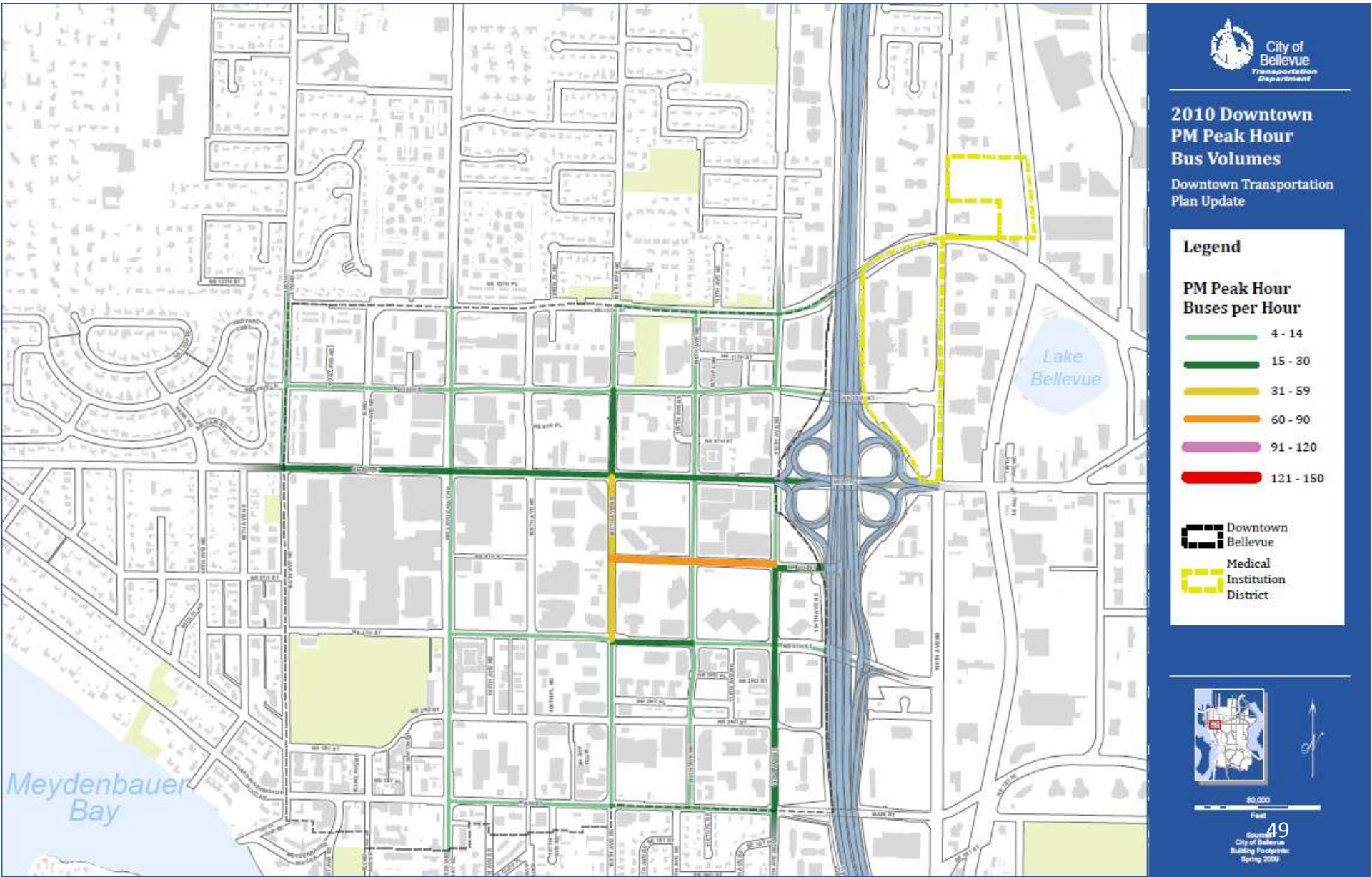


Downtown 2030: Transit Coverage

Transit + Land Use + 600’ Radius + Coverage **Residents and Employees: 97%**



Downtown 2010 PM Peak Hour Bus Volumes



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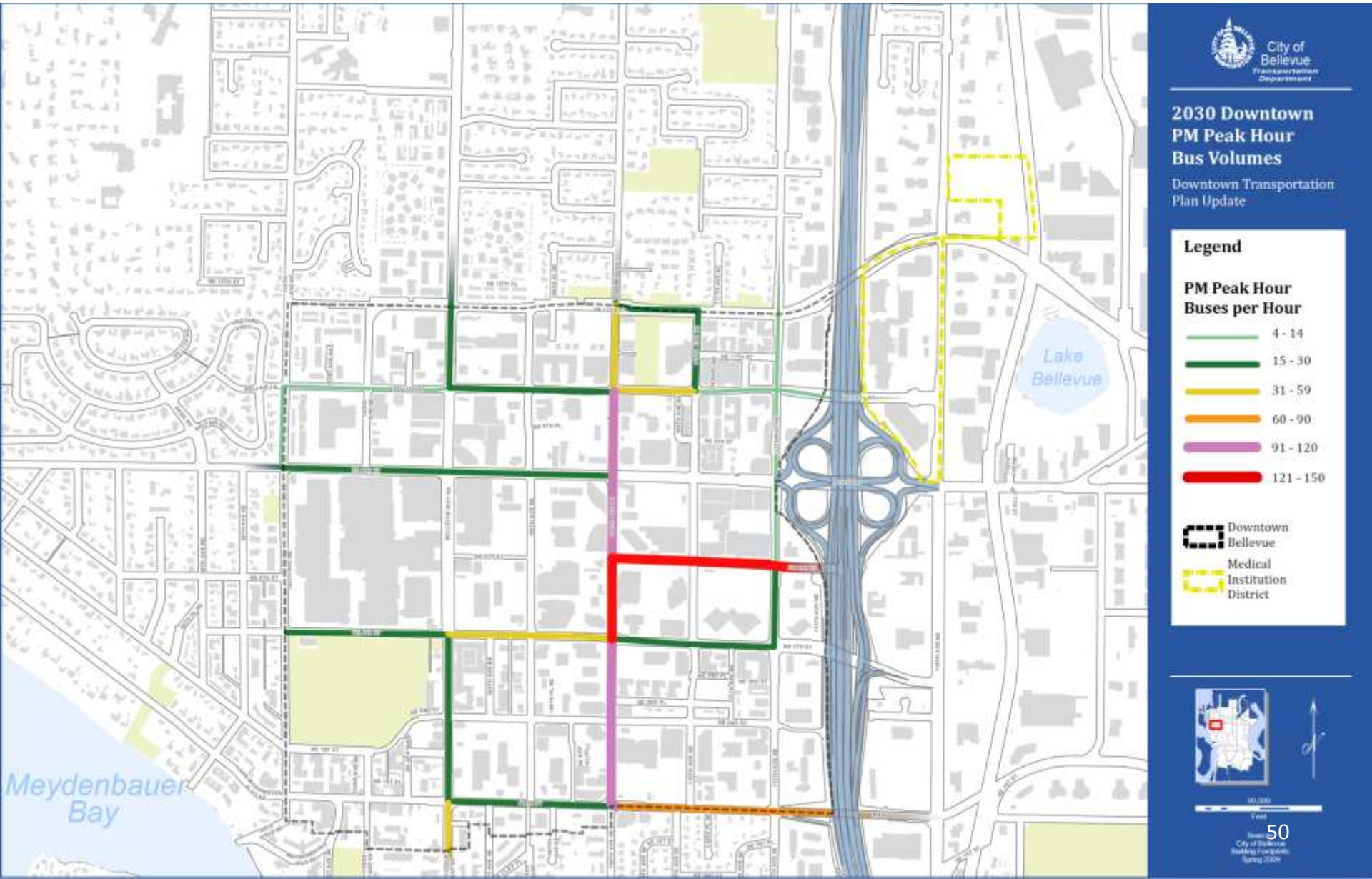
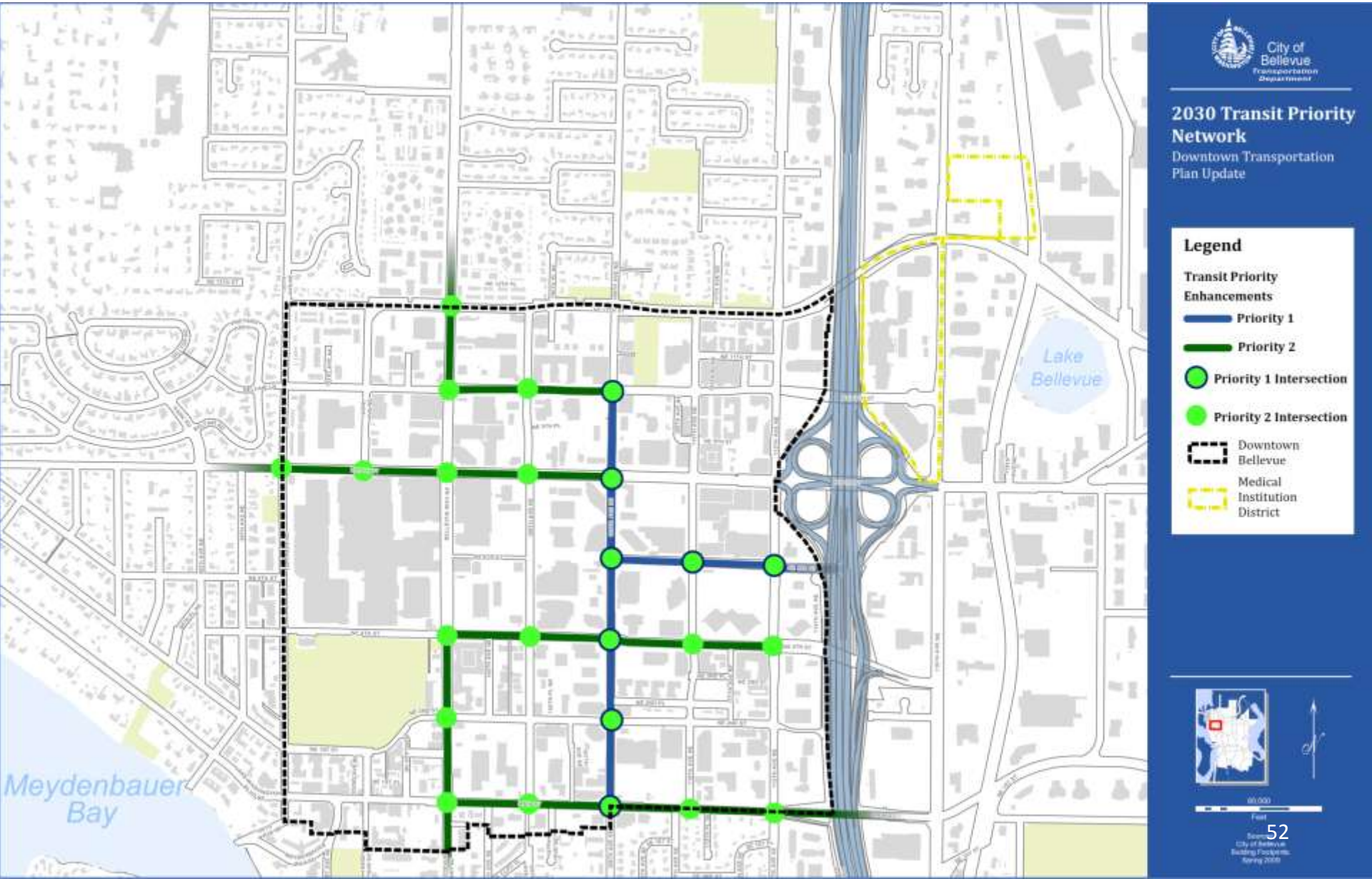


Downtown 2030 Transit Priority Corridors

- **Priority 1 Transit Corridors:** 91 or more bus trips in PM Peak hour
  - NE 6th Street, 108th Avenue NE
- **Priority 2 Transit Corridors:** Generally 15 or more bus trips in PM Peak hour
  - Main Street, NE 4th Street
- **Priority 1 Intersections:** On a Priority 1 Transit Corridor
- **Priority 2 Intersections:** On a Priority 2 Transit Corridor

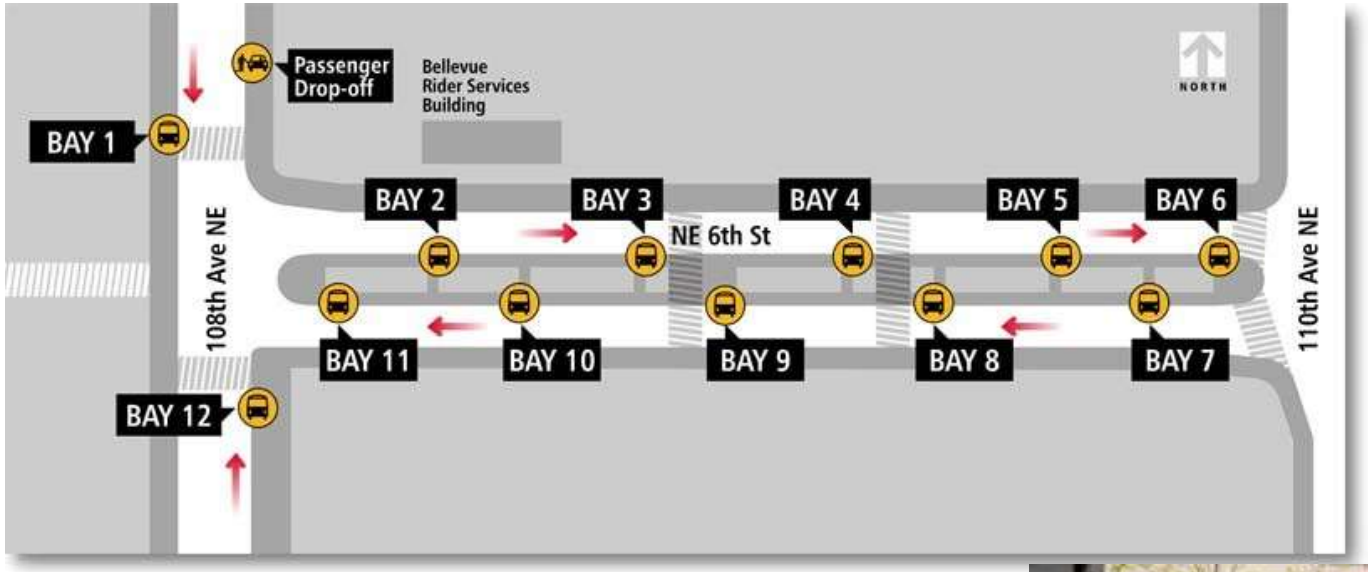
*Transit Priority corridor and intersection treatments to be determined – Transportation Commission agenda topics for March 14 and May 11

Downtown 2030
Transit Priority Corridors + Intersections



Downtown 2030 Transit Capacity

Bellevue Transit Center Bus Capacity



- **2010:** 80 buses per hour serve platform during the PM Peak
- **2030:** 125 buses per hour
- Reassign frequent transit network routes to Bays on 108th Avenue NE
- Reassign lower frequency routes to Bays 5, 6, 10 and 11

Downtown 2030 Transit Capacity

Bellevue Transit Center Pedestrian Capacity

Pedestrian queuing and circulation areas on platform are unnecessarily congested, reconfigure platform components:

- Benches
- Wayfinding signs
- Telephone booths
- Kiosks
- Trash receptacles

Downtown Transit Mobility

Transportation Commission will review staff ideas on March 14 and May 11

- Transit Priority Corridors
  - Speed and Reliability enhancements to benefit transit passengers – and others
- Transit Stop Typologies
  - Local Transit Stop
  - Primary Transit Stop
  - Frequent Transit/RapidRide
  - Downtown Multimodal Center

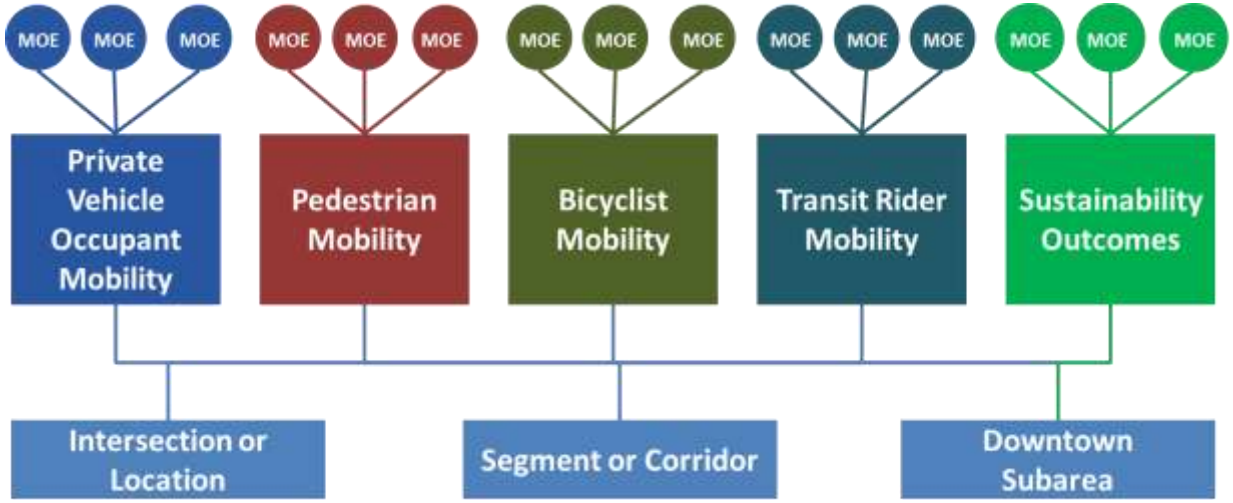
Speed and Reliability

Comfort/Access/Information

Downtown Multimodal Mobility Strategy

- **Vehicle Occupant Mobility**
- **Pedestrian Mobility**
- **Bicyclist Mobility**
- **Transit Rider Mobility**
- **Downtown Sustainability**

Multimodal strategy supports mobility, economic development, livability and overall Downtown Sustainability



Recommendations for Downtown Policies and Projects

Next Steps

March 13, 2013: BDA Briefing

March 14, 2013: Transportation Commission: Transit Speed and Reliability

April 24, 2013: SpringForward Expo

May 9, 2013: Transportation Commission: Transit Passenger Comfort/Access/Information

Summer/Fall 2013:

- Transportation Commission: Multimodal strategy
- Integrate with Downtown Livability

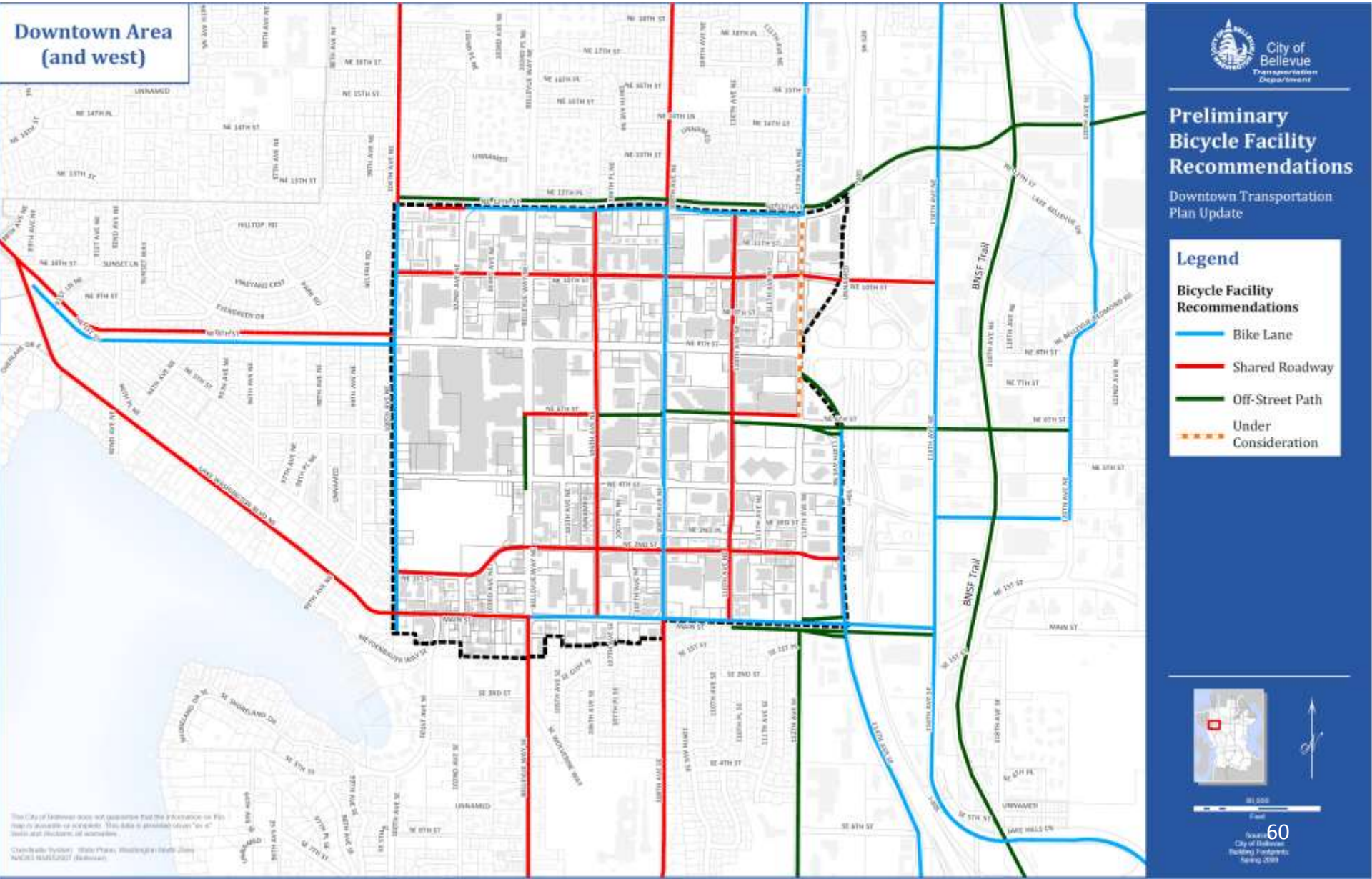
Thank you!

Questions?

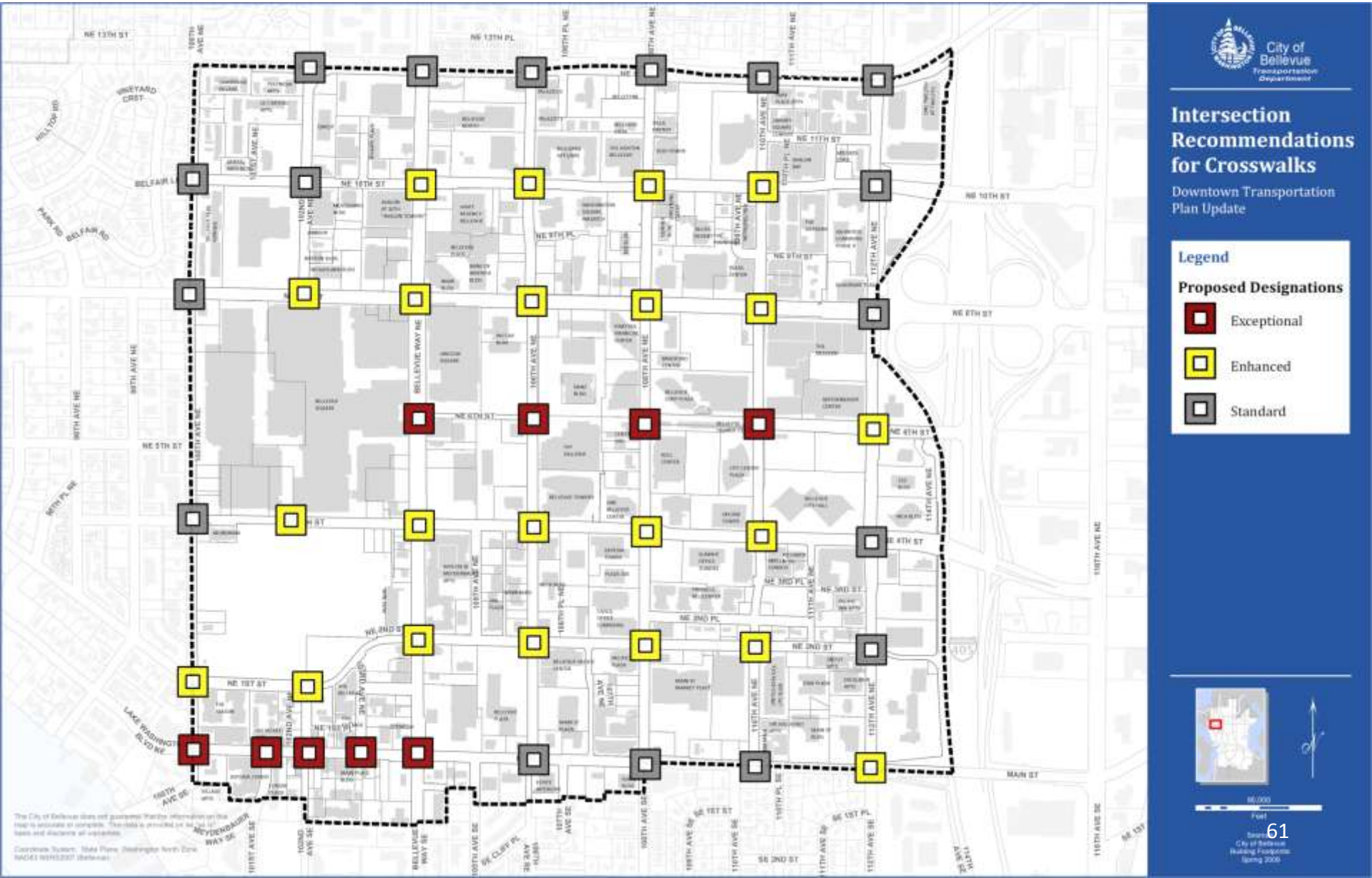
www.bellevuewa.gov/DowntownTransportationPlanUpdate

EXTRA SLIDES

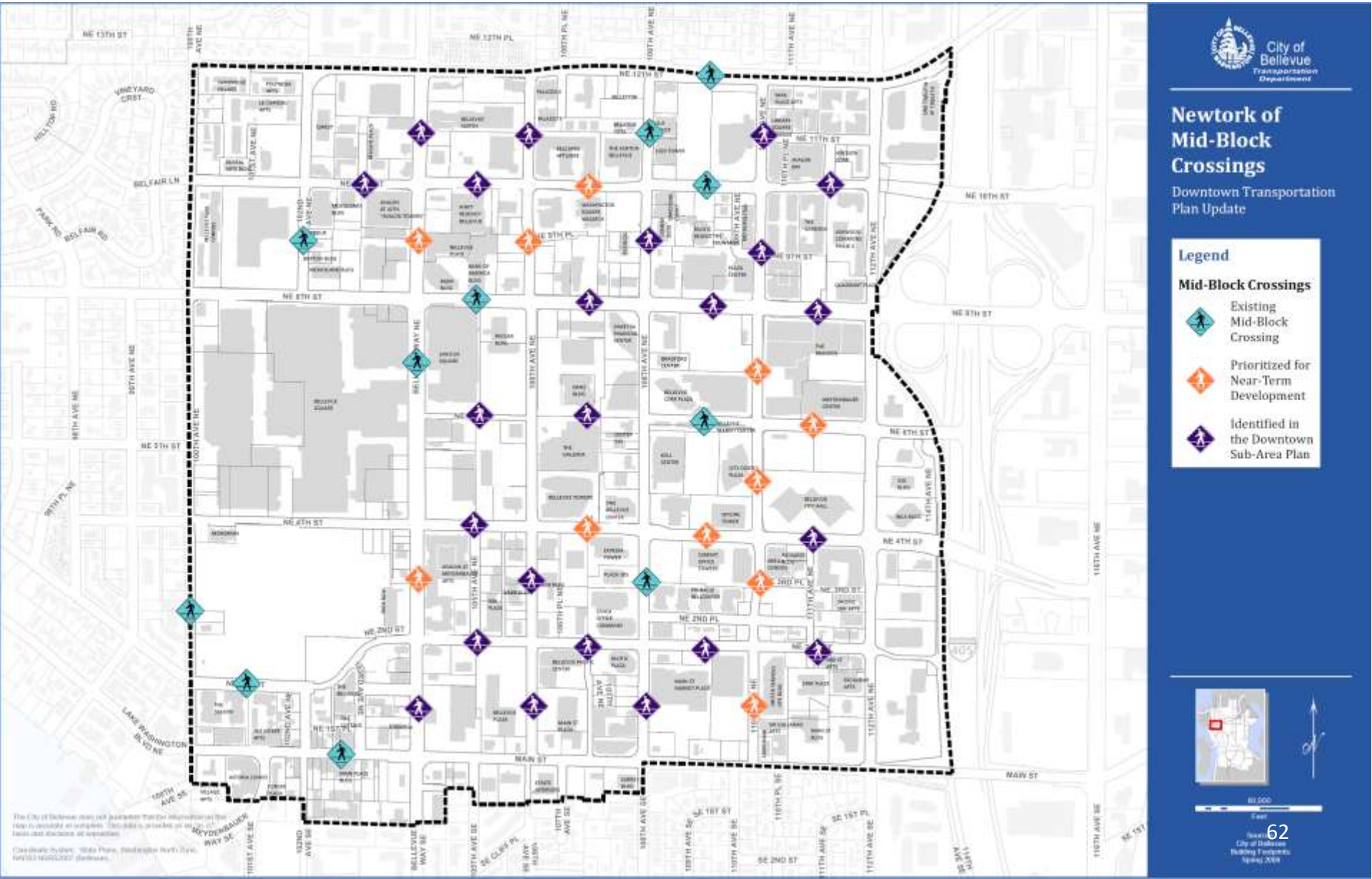
Downtown Bicycle Access

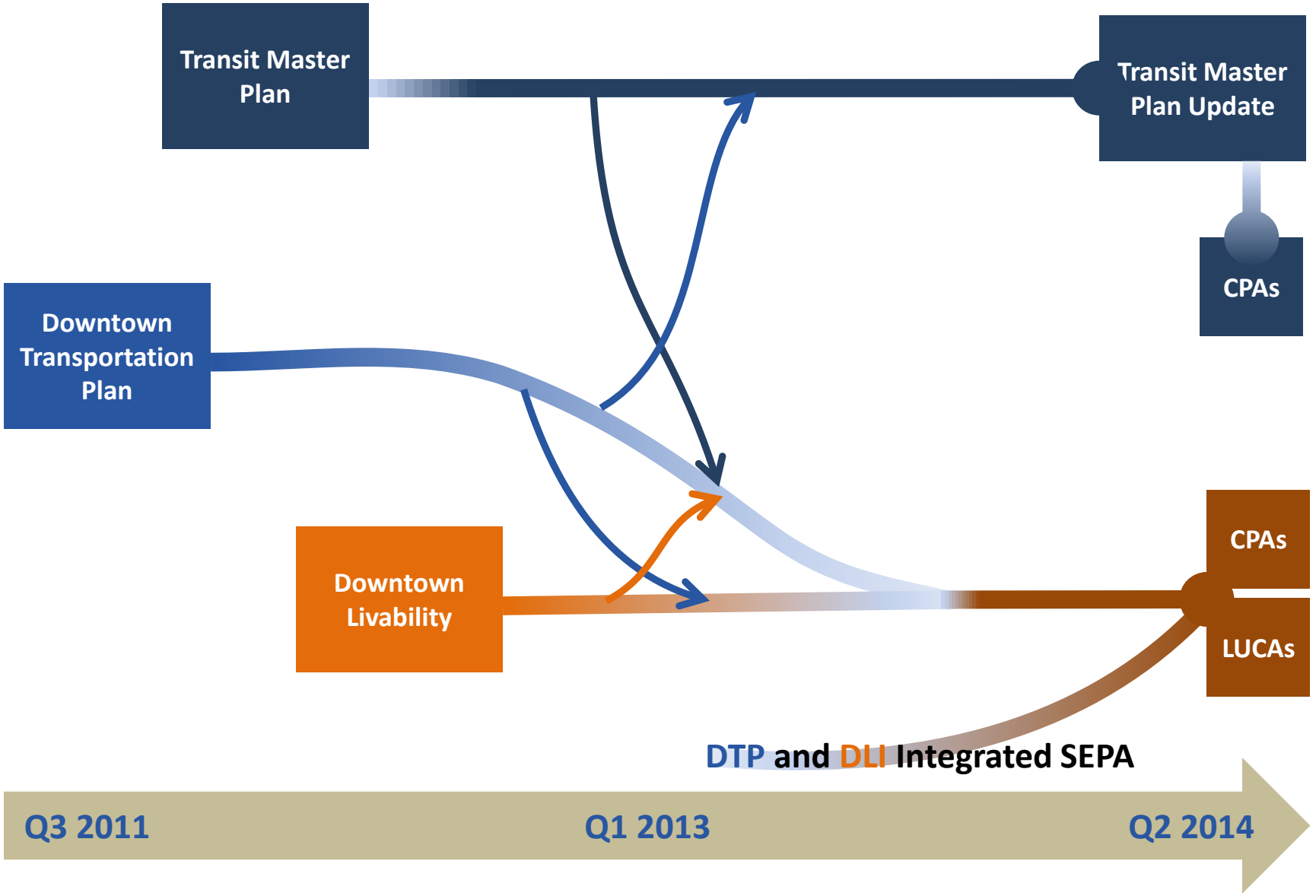


Downtown Crosswalks



Downtown Mid-Block Crossings



Downtown Sidewalks

DTL/DLI/TMP Integration