



Downtown Transportation Plan Update

**DOWNTOWN BELLEVUE
TRANSPORTATION COMMISSION
MARCH 14, 2013**

**TRANSIT SERVING DOWNTOWN
RESIDENTS, WORKERS, VISITORS**

DOWNTOWN BELLEVUE TRANSIT
Transportation Commission Agenda
March 14, 2013

Downtown Transit – Speed and Reliability

- Transit Priority Corridors
- Transit Priority Intersections

DOWNTOWN BELLEVUE TRANSIT TRANSIT SPEED AND RELIABILITY

Community Scoping Comments

- Getting buses through intersections
- Impacts of bus/pedestrian conflicts on right turns
- Signalized intersections (Transit signal priority)
- Roadway segments/corridors (Peak hour transit/HOV Lanes)
- Off-board fare payment

Transportation Commission Comments 12/14/12

- If considering bus bulbs, also consider traffic impacts
- Transit priority corridors – emphasize dependable speed
- Right turning vehicles delayed due to pedestrians
- Bus layover space
- Bus vehicle size should reflect demand and purpose

Downtown Bellevue Transit

Transit Speed and Reliability

Best Practices

Appropriate transit speed and reliability tools for Downtown Bellevue

Applicable Corridors/Intersections

Transit priority corridors would be designated based on existing or projected PM Peak Hour bus volume

Measures of Effectiveness

- Travel time (seconds) per transit rider along select corridors

Policy Factors

- Allocate roadway space and signal phasing time in consideration of the number of people moving along a corridor in various modes
- Accommodate bicyclists, loading zones, taxis, etc
- Support transit service investments
- Emphasize driveway access from non-transit priority streets – develop concept through the Downtown Livability Initiative

Downtown Transit Speed and Reliability

Best Practices

Many transit speed and reliability tools for transit priority corridors and intersections are available and used worldwide

- **Transit Priority Corridors**
- **Intersections along Transit Priority Corridors**
- **Back-of-Curb Pedestrian Facilities**

Downtown Transit Speed and Reliability

Transit Priority Corridor Tools

Transit Lane Dedication

- Peak hour restrictions
 - On-street parking
 - General purpose traffic
- Business Access Transit (BAT) Lane
- BAT+Bicycle Lane



Downtown Transit Speed and Reliability

- **Median Transit Stops**

- Center platform
- Side platform



- **Bus Stop Consolidation/Location**



Downtown Transit Speed and Reliability

Intersection/Signalization Tools

- **Transit Signal Priority**

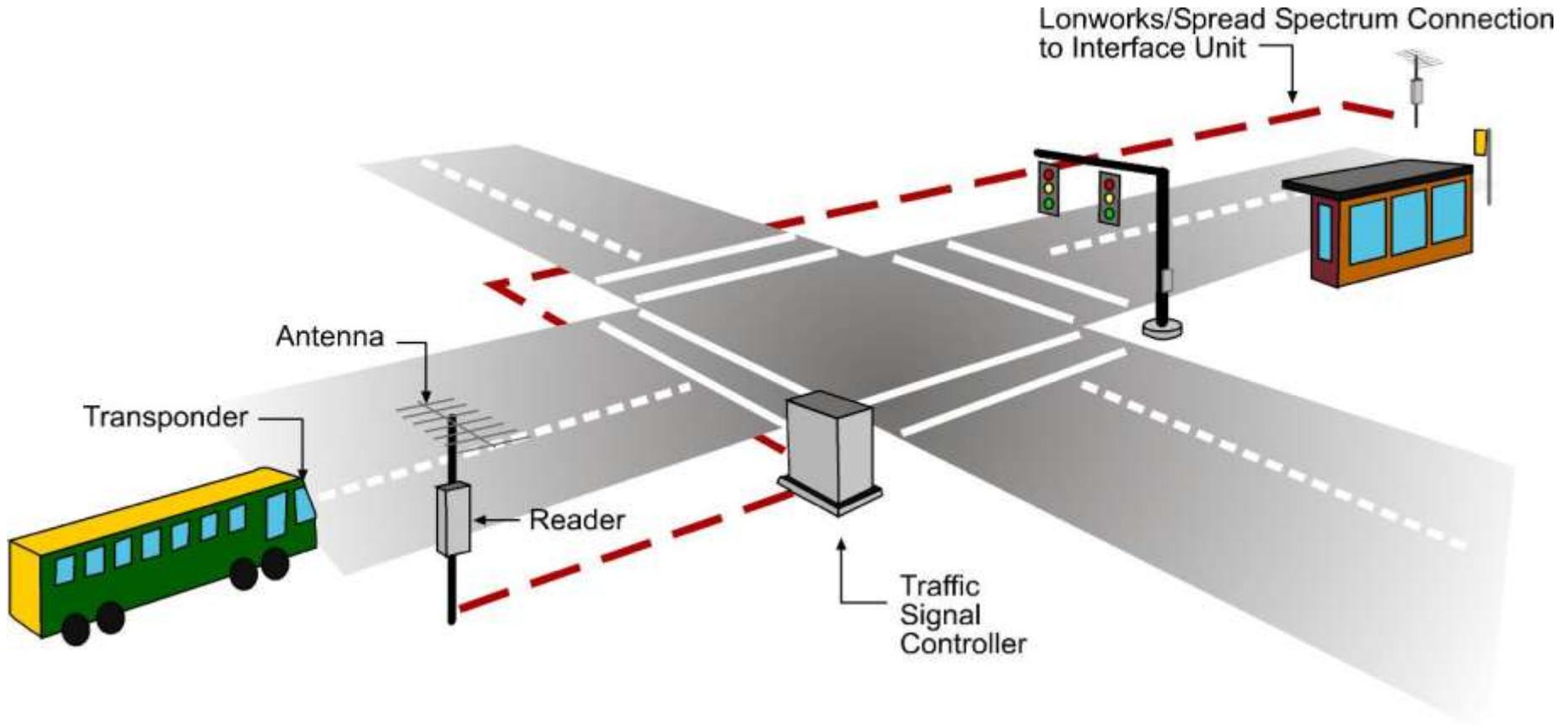
- Manage “green time” as a scarce resource
- Conditional priority rather than pre-emption
- Maintain signal coordination



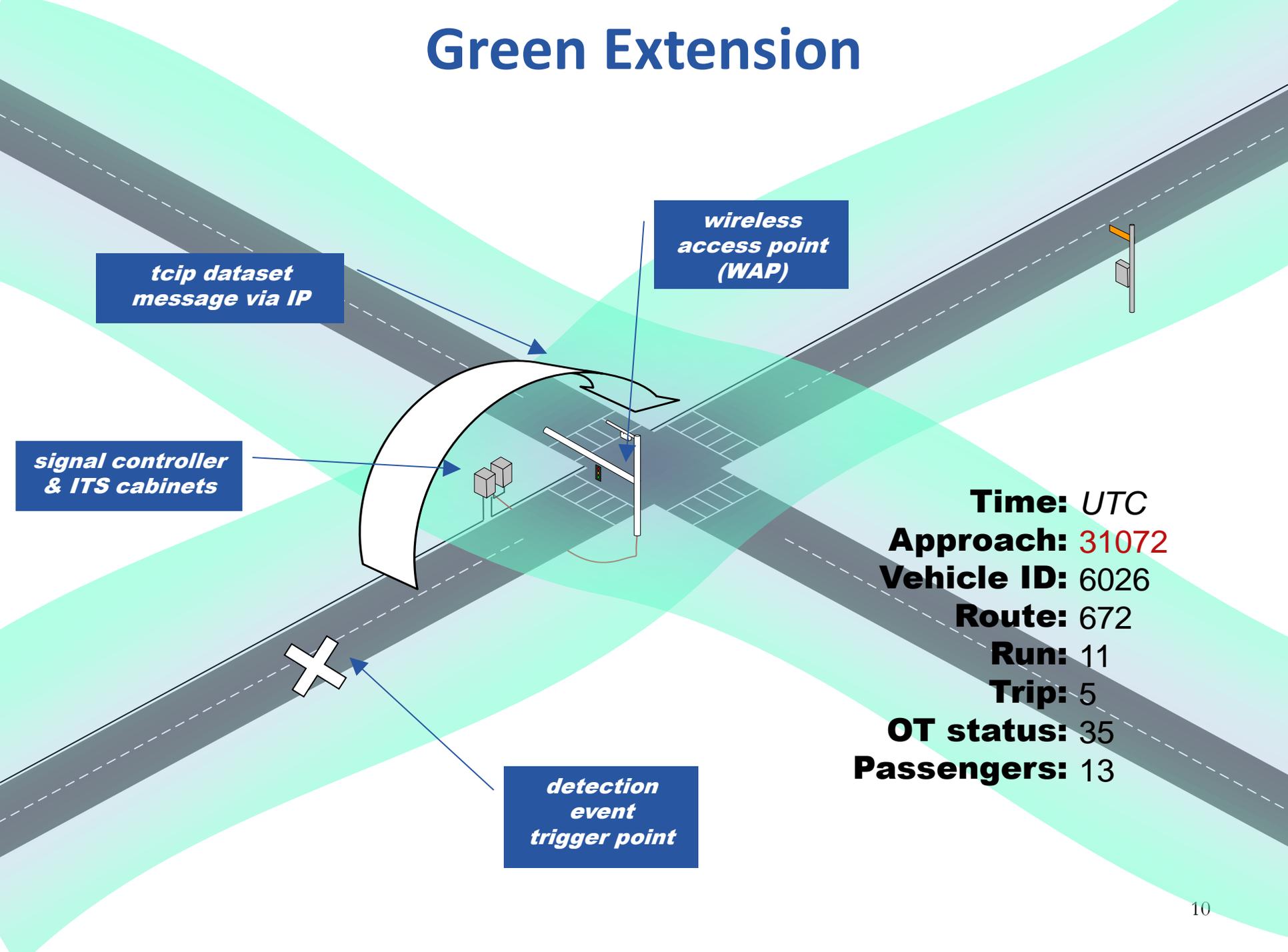
- ❖ Allows a bus to travel through an intersection with little or no delay by holding a green or shortening a red
- ❖ Detectors identify and distinguish buses from other vehicles to give priority to the buses

TSP - Transit Priority Request System

Field Equipment

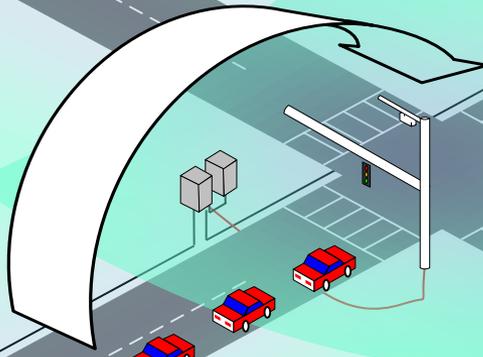


Green Extension



Early Green

*tcip dataset
message via IP*

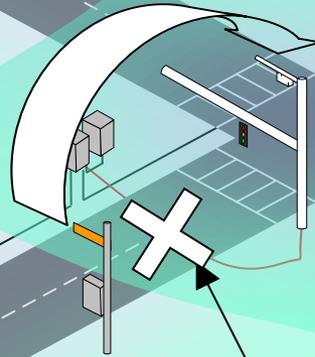


Time: UTC
Approach: 31072
Vehicle ID: 6026
Route: 672
Run: 11
Trip: 5
OT status: 35
Passengers: 13

*detection
event
trigger point*

Near-side Stop

*tcip dataset
message via IP*



*detection
event
trigger point*

Time: UTC
Approach: 31132
Vehicle ID: 6026
Route: 672
Run: 11
Trip: 5
OT status: 35
Passengers: 13

Downtown Transit Speed and Reliability

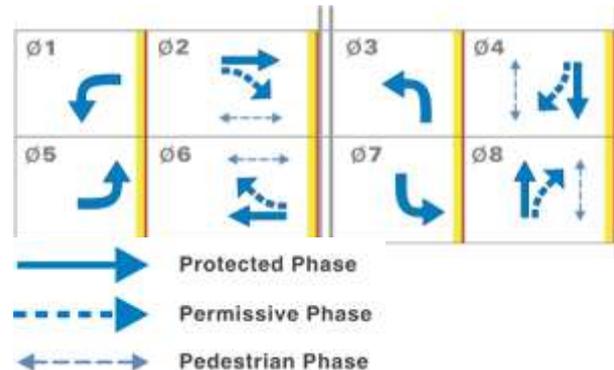
Intersection/Signalization Tools

- **Pedestrian Signalization Phasing**

- Leading pedestrian interval
- Two-way countdown



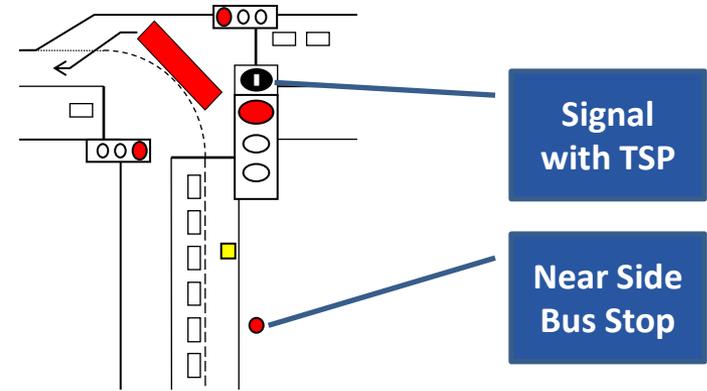
Start the pedestrian phase first so that pedestrians begin to cross the street before vehicles get a green



Downtown Transit Speed and Reliability

Intersection/Signalization Tools

- Bus Left Turn from Curb Lane



- Bus Merge Assistance
- Bus Queue Jump



- Traffic Management Measures

Downtown Transit Speed and Reliability

Back-of-Curb Tools

Improvements to the pedestrian environment can enhance transit

- **Off-Board Fare Payment**
- **Improvements to the Transit Passenger Environment**
 - More discussion under the topic of transit passenger comfort, access and information – May 9



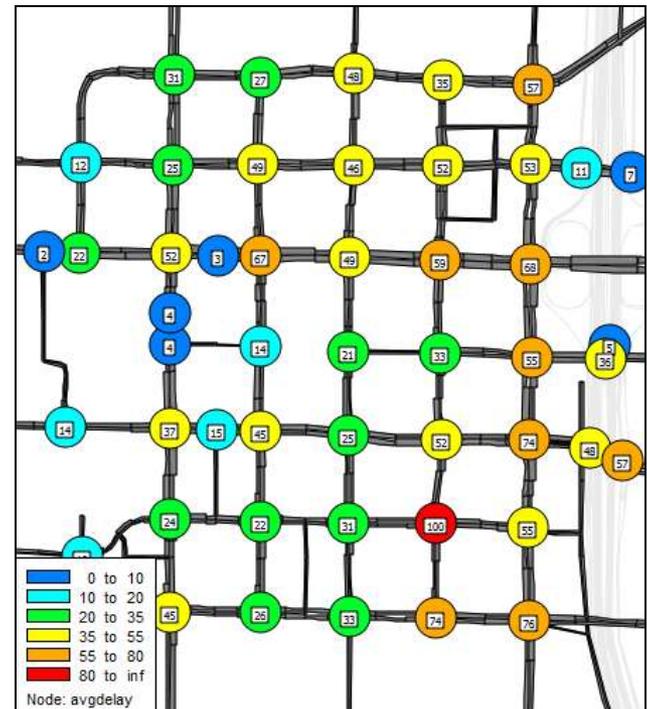
Downtown Transit Speed and Reliability

Candidate Transit Corridors

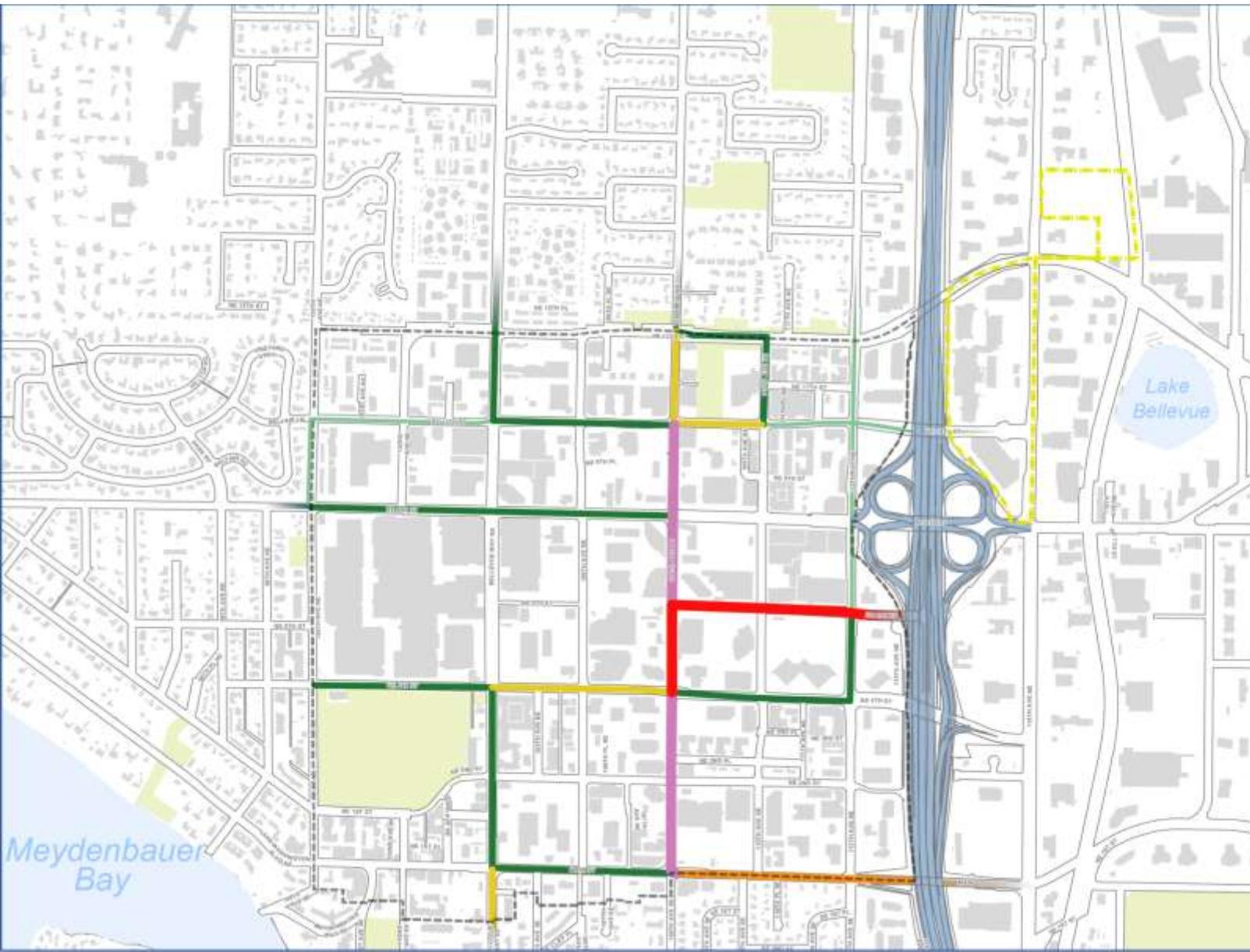
- Arterials with high transit use are candidate corridors for transit priority treatment

Candidate Transit Intersections

- Located along Transit Corridors
- Particular attention if forecast LOS E or F



2030 Downtown PM Peak Hour Bus Volumes



2030 Downtown PM Peak Hour Bus Volumes
Downtown Transportation Plan Update

Legend

PM Peak Hour Buses per Hour

- 4 - 14
- 15 - 30
- 31 - 59
- 60 - 90
- 91 - 120
- 121 - 150

- Downtown Bellevue
- Medical Institution District



Source: City of Bellevue Building Footprints, Spring 2020

Downtown Transit Speed and Reliability

Recommended Transit Corridors

High Transit Use = Corridor for Transit Priority Treatment

- **Bus Trips PM Peak Hour**

- **Priority 1** = 90+ PM Peak Hour bus trips
- **Priority 2** = 15 - 90 PM Peak Hour bus trips

- **Priority 1 Corridors**

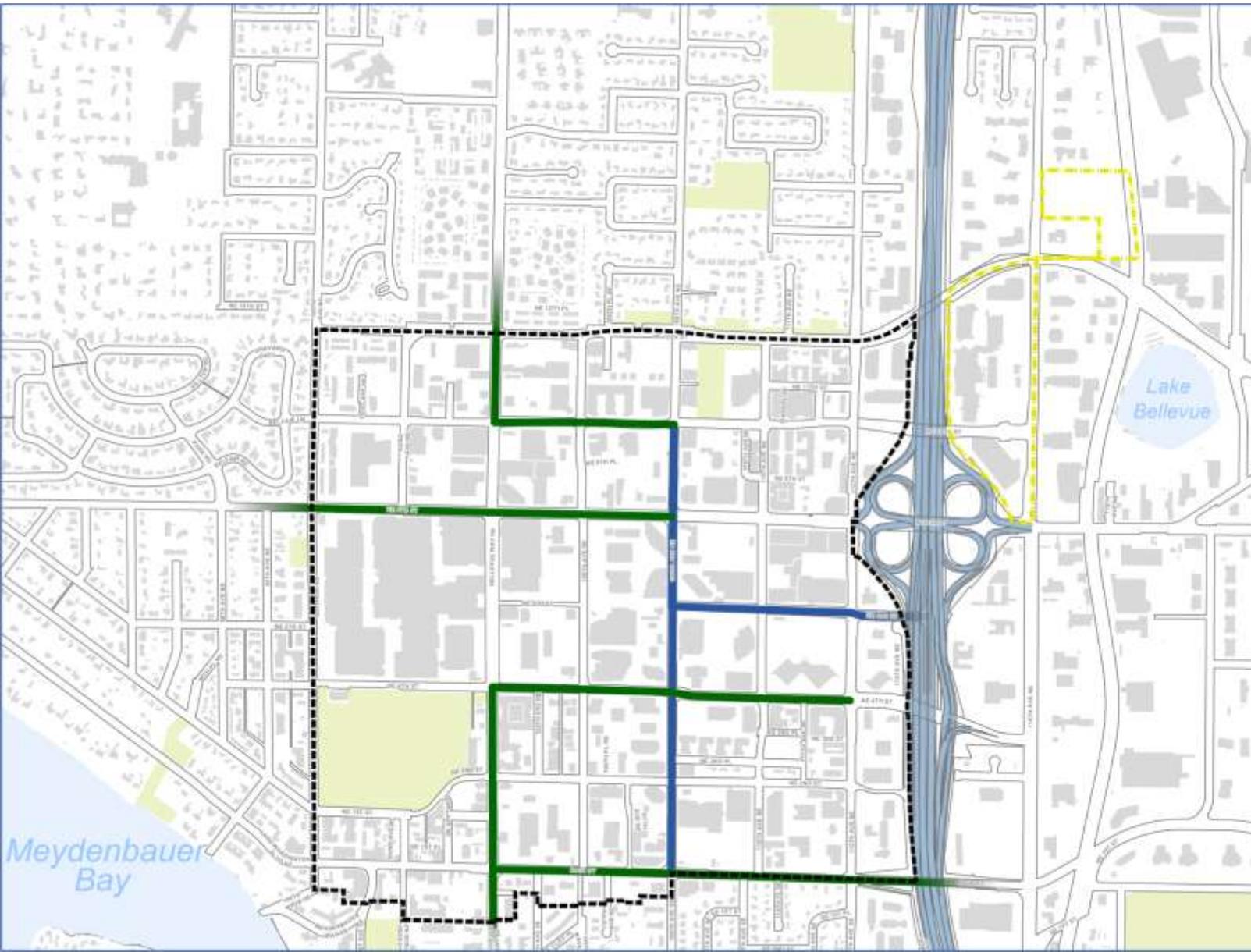
- 108th Avenue NE
- NE 6th Street

- **Priority 2 Corridors**

- Main Street, NE 4th Street, NE 8th Street, NE 10th Street
- Bellevue Way

2030 Transit Priority Corridors

Candidate Corridors: Speed & Reliability Enhancements



2030 Transit Priority Network
Downtown Transportation Plan Update

Legend

Transit Priority Enhancements

— Priority 1

— Priority 2

--- Downtown Bellevue

--- Medical Institution District



Source:
City of Bellevue
Building Department
Spring 2008

Downtown Transit Speed and Reliability

Recommended Transit Priority Intersections

Intersections along a priority transit corridor

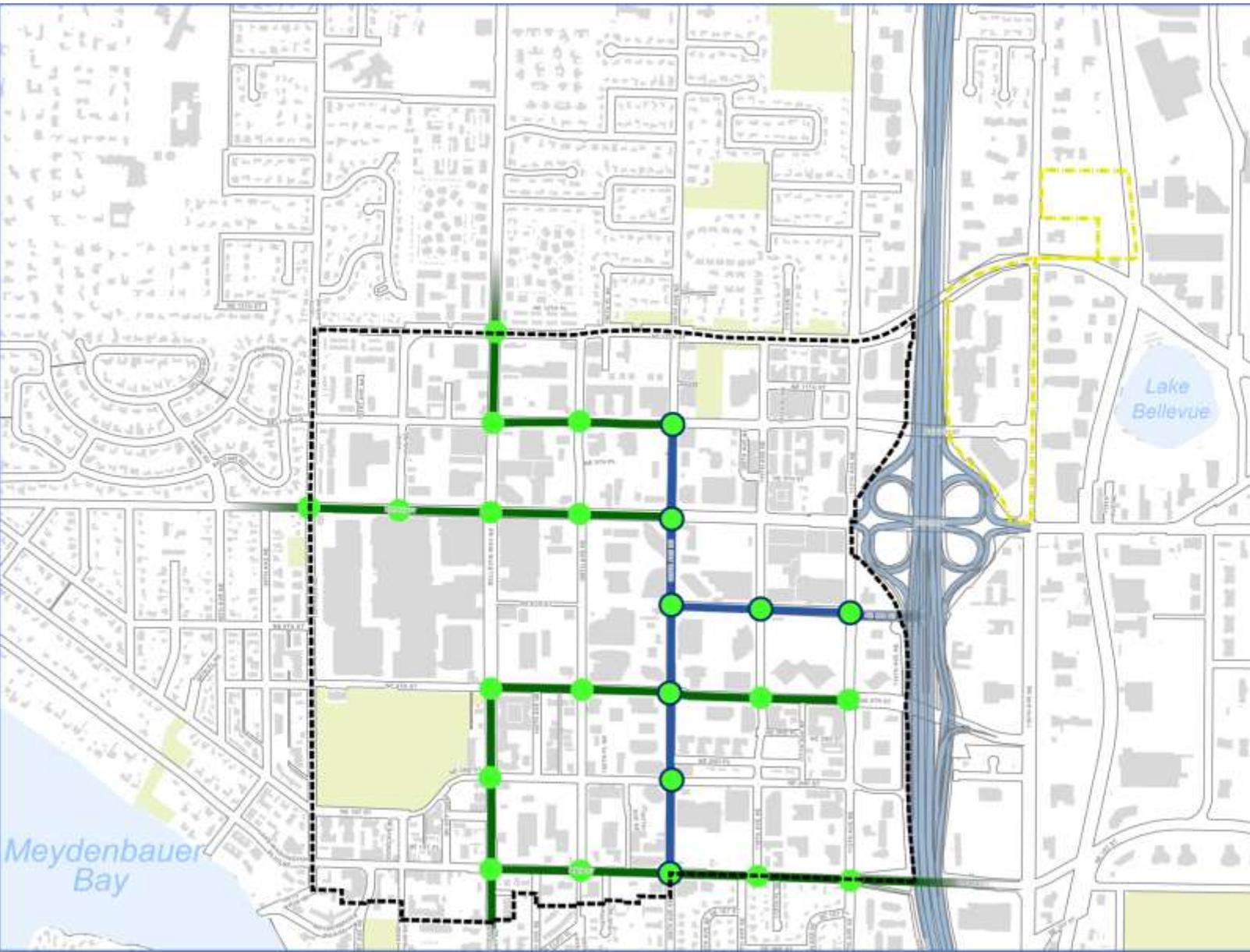
- **Priority 1 Transit Intersections**

- 108th Avenue NE: Main Street – NE 10th Street

- **Priority 2 Transit Intersections**

- NE 4th Street: Bellevue Way – 112th Ave NE
- NE 6th Street: 108th Ave NE – 112th Ave NE
- NE 8th Street: 100th Ave NE – 108th Ave NE
- NE 10th Street: Bellevue Way – 108th Ave NE
- Main Street: Bellevue Way – NE 10th Street
- Bellevue Way: Main Street – NE 12th Street

2030 Transit Priority Corridors + PM Peak Hour LOS Candidate Intersections: Speed & Reliability Enhancements



2030 Transit Priority Network
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Legend

Transit Priority Enhancements

- Priority 1
- Priority 2

Priority 1 Intersection

Priority 2 Intersection

Dashed Black Line: Downtown Bellevue

Dashed Yellow Line: Medical Institution District

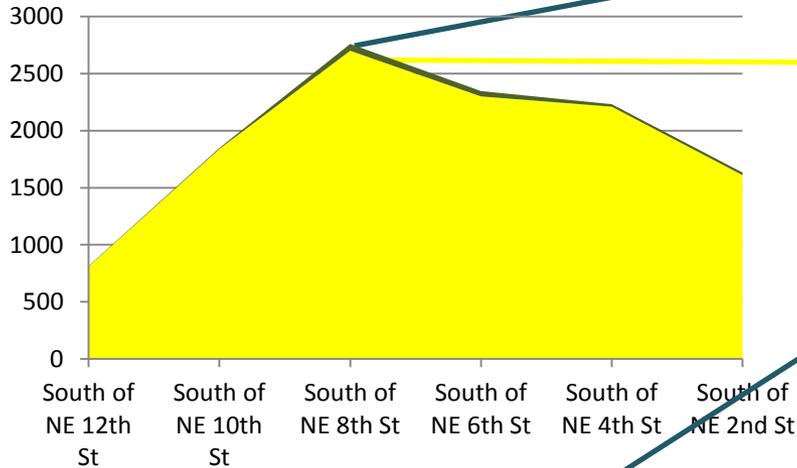


Source: City of Bellevue Building Department, Spring 2008

Downtown Transit Speed and Reliability

Benefit to Transit Passengers

Vehicle Trips



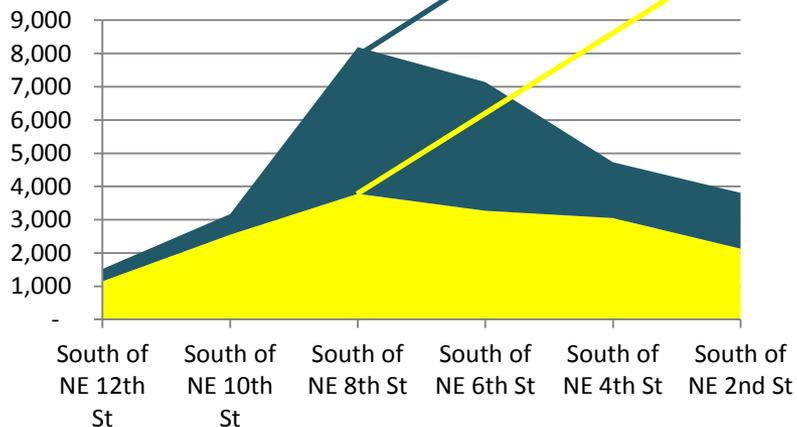
60 Transit Vehicles
PM Peak Hour

2,700 Autos
PM Peak Hour

4,400 Transit Passengers
PM Peak Hour

3,800 Auto Passengers
PM Peak Hour

Person Trips



Investments in transit speed and reliability would benefit the 4,400 bus passengers and potentially also benefit the 3,800 private vehicle occupants traveling along the corridor.

Intersection transit signal priority investments would be evaluated for all modes in all directions.

Downtown Transit Speed and Reliability

Priority 1 Corridor

Transit speed and reliability is prioritized

- Dedicated Bus Lanes
- Transit Signal Priority
- Transit stop amenities
- Curb space is prioritized for transit
- Access management
- Passenger comfort, access and information

Priority 2 Corridor

Transit priority is balanced with the needs of other modes

- Mixed traffic lanes
- Partial Transit Priority
- Transit stop amenities
- Shared curb space
- Passenger comfort, access and information

Downtown Transit Speed and Reliability

Summary Recommendations

- Designate Priority 1 and Priority 2 Transit Corridors and Intersections based on Transit Volume PM Peak Hour
 - **Priority 1:** 90+
 - **Priority 2:** 15 - 90
- Utilize appropriate transit corridor tools for application along Downtown arterials and intersections following further corridor analysis

Downtown Transit Speed and Reliability

Transit Corridor Priority Treatment

Recommended Implementation Strategies

- Existing or projected degraded passenger travel time (Measure of Effectiveness)
- Committed transit service enhancements
- Planned roadway improvements
- Planned intersection/signalization enhancements
- Private developer incentives or fees
- Others??

Next Steps

April 24, 2013: SpringForward Expo

“Projects Blooming in Bellevue”

May 9, 2013: Transportation Commission

- Transit Passenger Comfort/Access/Information

Summer/Fall 2013:

- Transportation Commission: Multimodal strategy
- Integrate with Downtown Livability Initiative

Spring 2014: Comprehensive Plan Amendments



Downtown Transportation Plan Update

Thank you!

www.bellevuewa.gov/DowntownTransportationPlanUpdate