

# Houghton Everest Neighborhood Center 6<sup>th</sup> Street Corridor

Transportation Commission  
February 22, 2017



# AGENDA

- Background Growth and Traffic Forecast
- Houghton / Everest Neighborhood
  - Background Growth
  - Transportation Traffic Generation from Development Scenarios
- Background Citywide Corridor Investments and Transit Performance Results
- Houghton / Everest Center Investments and 68<sup>th</sup> St & 108<sup>th</sup> Ave Intersection Performance Results

# Background Growth

# Puget Sound Regional Growth Forecast 2010 – 2040



35% population increase



57% job increase

# Kirkland Growth Target 2010-2035



80,000 → 90,000 population (13%)



30,000 → 65,000 Jobs (117%)

# Background Corridor Investments and Transit Performance Results

# Background Corridor Investments

- **Pedestrian System**

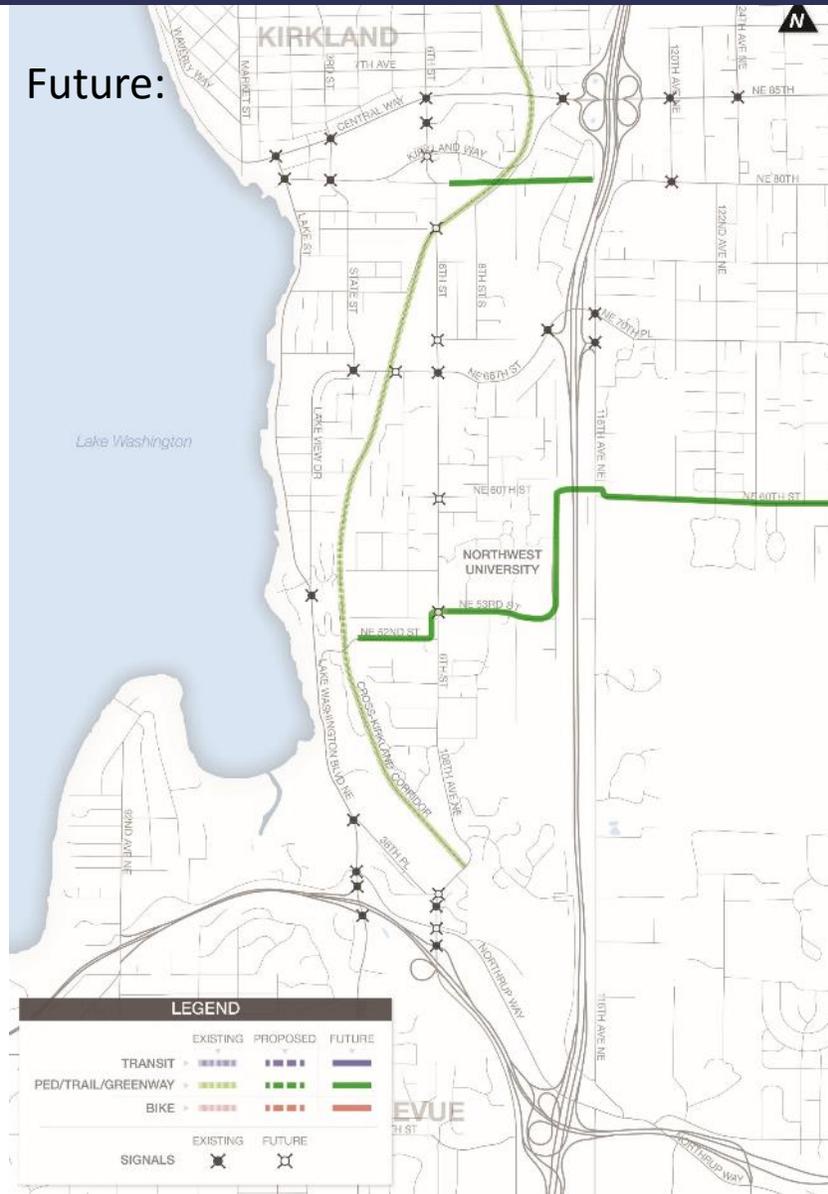
- Connecting Communities
- Walkable
- School routes



# Background Corridor Investments

- **Pedestrian System**

- Connecting Communities
- Walkable
- School routes



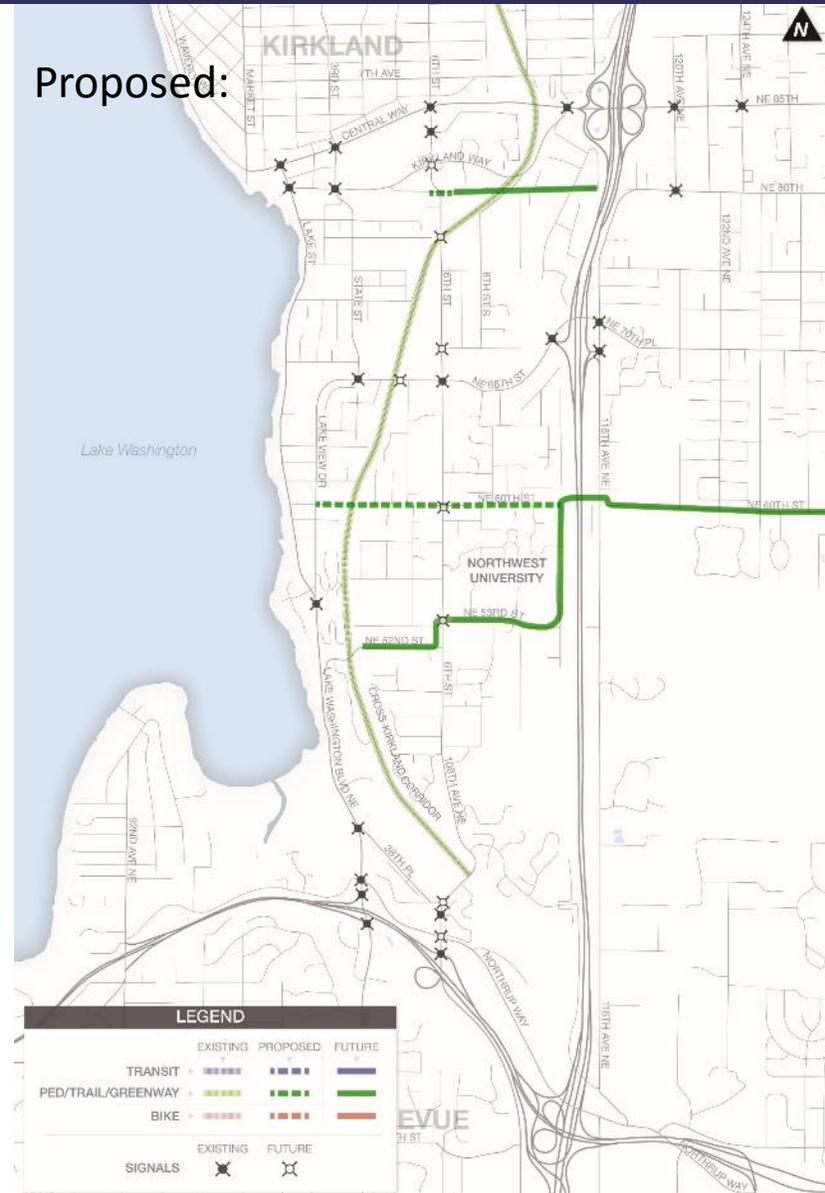
- **Future:**

- Kirkland Ave connection
- NE 52<sup>nd</sup> / 53<sup>rd</sup> / 60<sup>th</sup> St connections

# Background Corridor Investments

- **Pedestrian System**

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- **Future:**

- Kirkland Ave connection
- NE 52<sup>nd</sup> / 53<sup>rd</sup> / 60<sup>th</sup> St connections

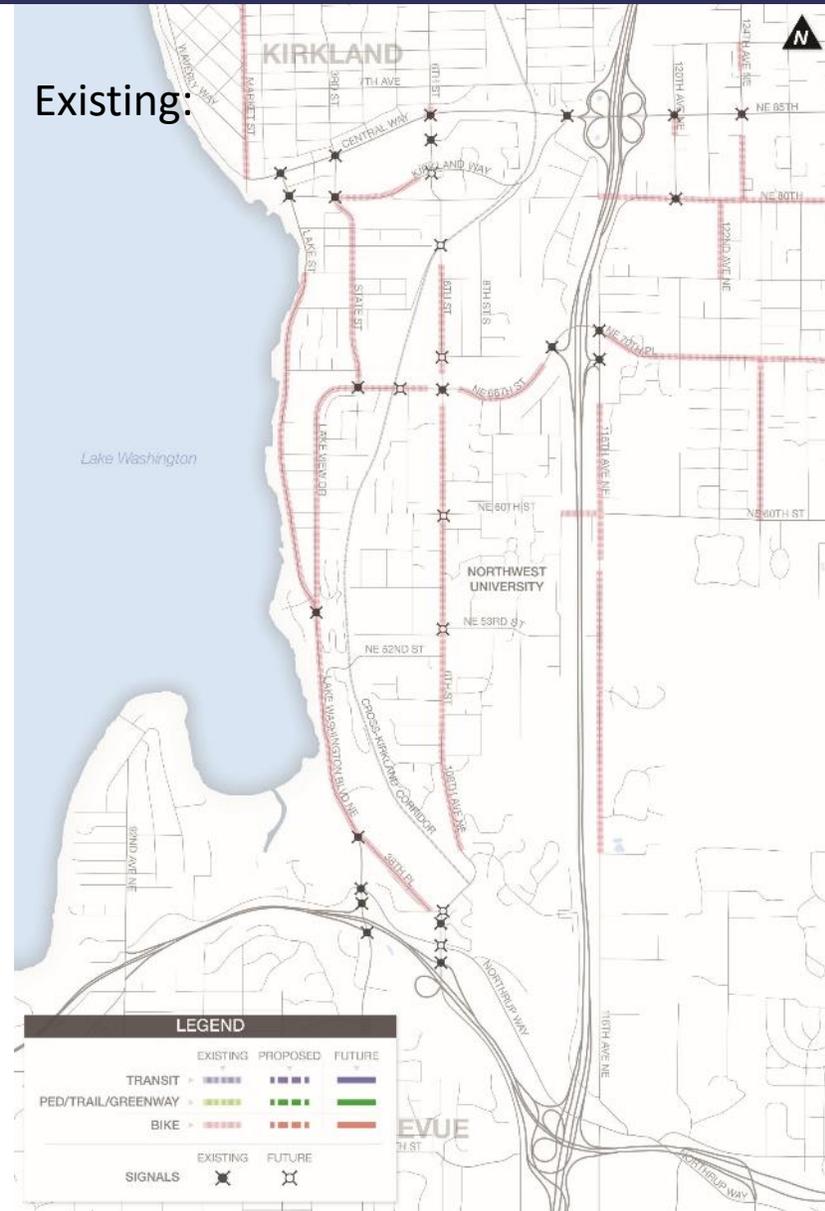
- **Proposed:**

- NE 60<sup>th</sup> St Greenway
- Kirkland Ave crossing at 6<sup>th</sup> St
- Connect CKC trail to S Kirkland P&R
- Improve CKC access at NE 60th

# Background Corridor Investments

- **Bike System**

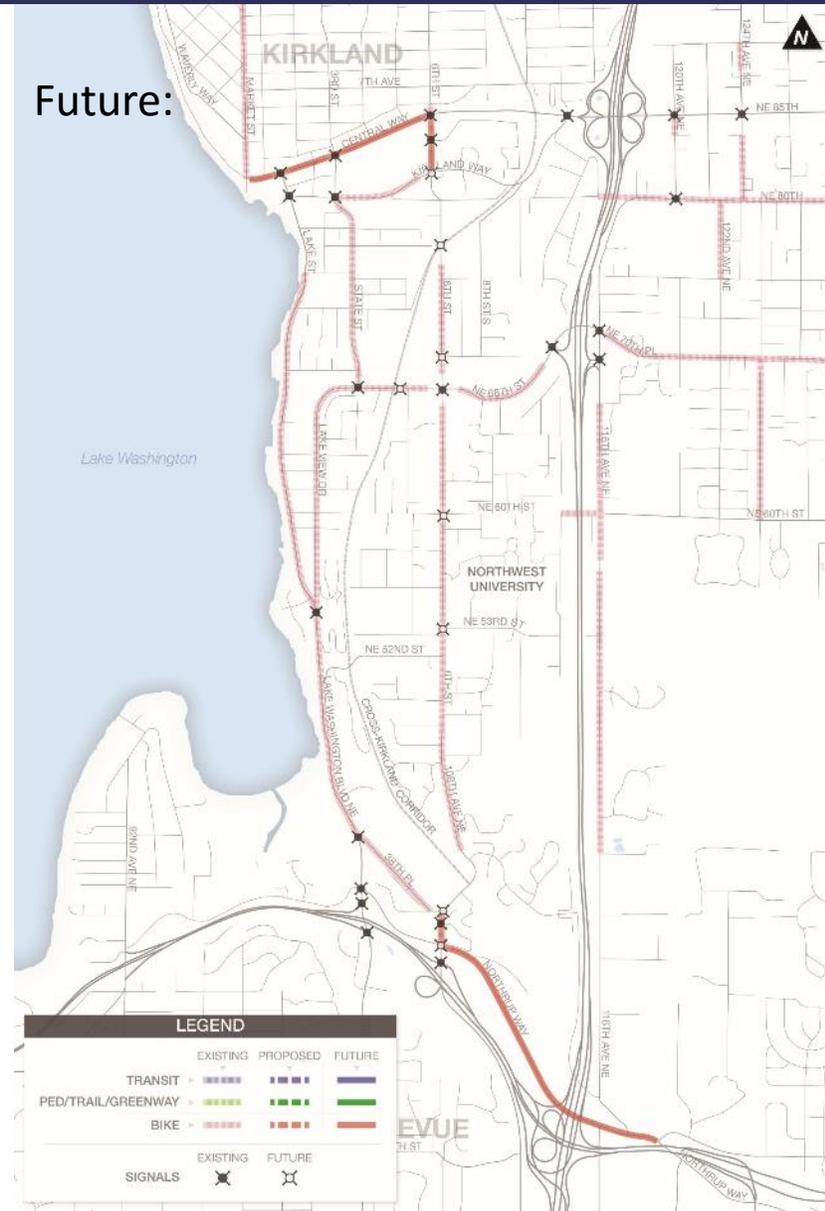
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# Background Corridor Investments

- **Bike System**

- Connecting Communities
- Walkable
- School routes



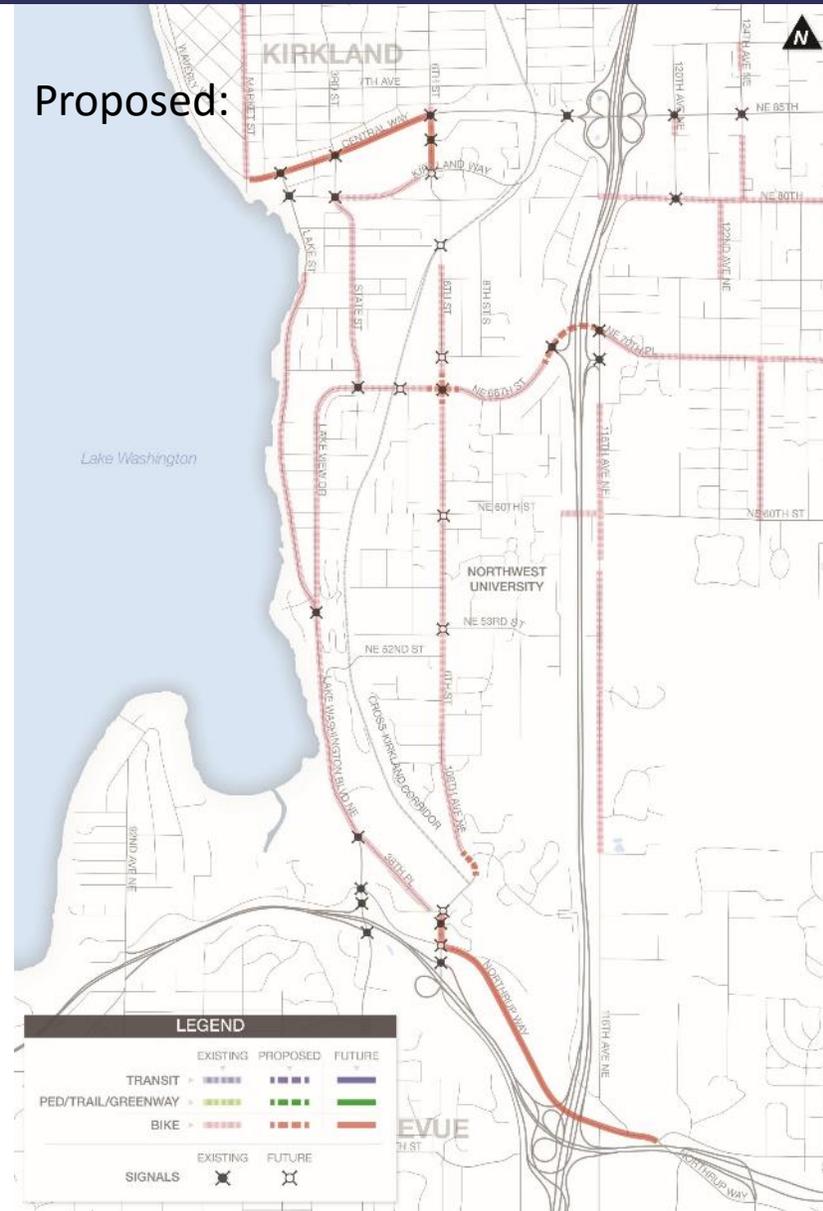
- **Future:**

- Central Way / NE 6<sup>th</sup> Street bike facility
- Northup Way bike facilities

# Background Corridor Investments

- **Bike System**

- Connecting Communities
- Walkable
- School routes



- **Future:**

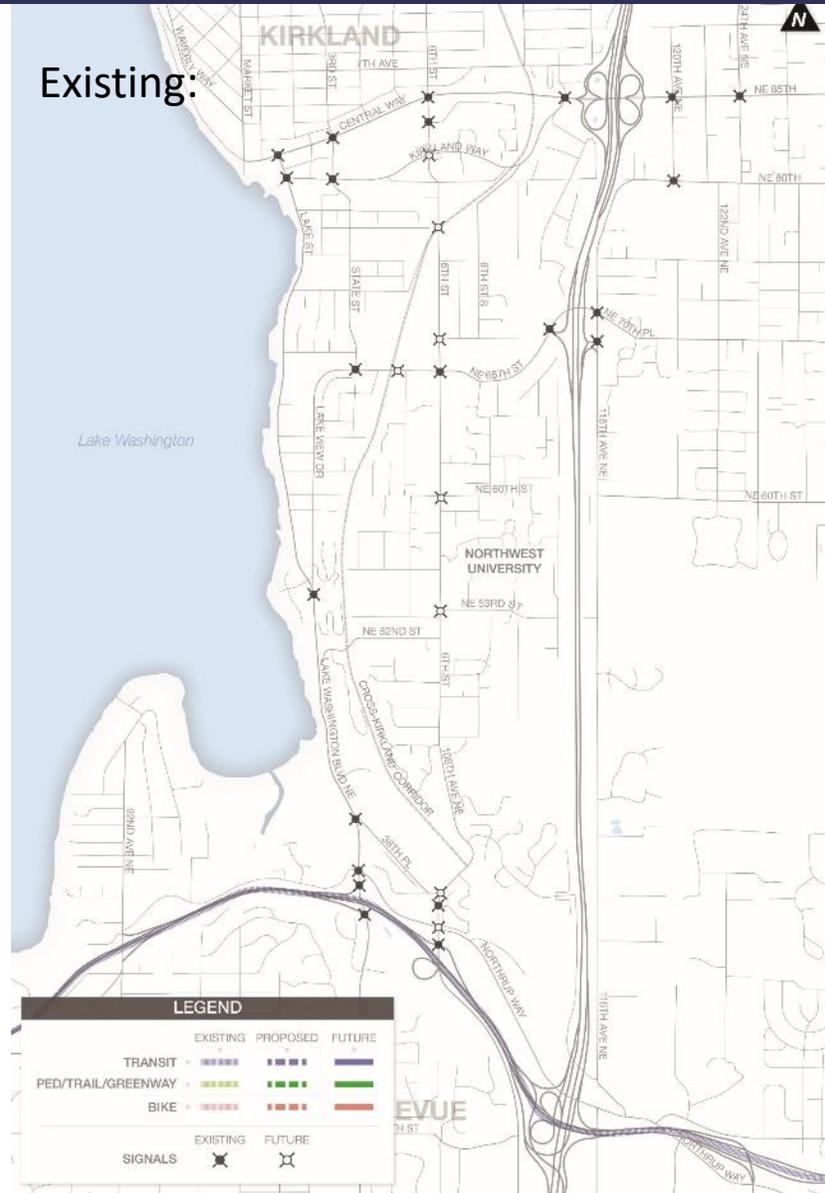
- Central Way / NE 6<sup>th</sup> Street bike facility
- Northup Way bike facilities

- **Proposed:**

- Complete Bike Network along 108<sup>th</sup> Ave and 6<sup>th</sup> St
- Bicycle Intersection at NE 68<sup>th</sup> St / 108<sup>th</sup> Ave
  - Or Green Bike Boxes
- NE 60<sup>th</sup> Street Greenway
- Install Bike Racks or bike share at S Kirkland P&R

# Background Corridor Investments

- Transit
  - Moving People



# Background Corridor Investments

- **Transit**

- Moving People

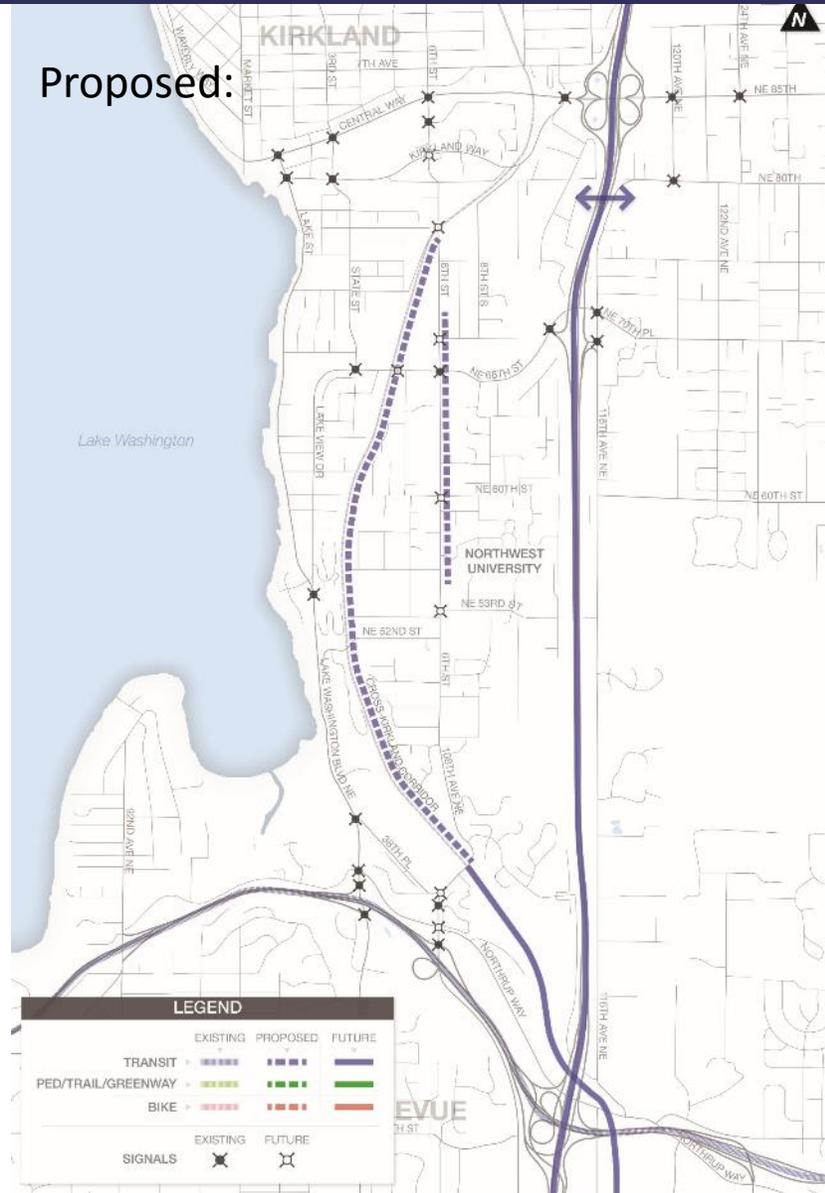


- **Future:**

- Bus Rapid Transit on I-405
- Light Rail to S Kirkland P&R

# Background Corridor Investments

- **Transit**
  - Moving People

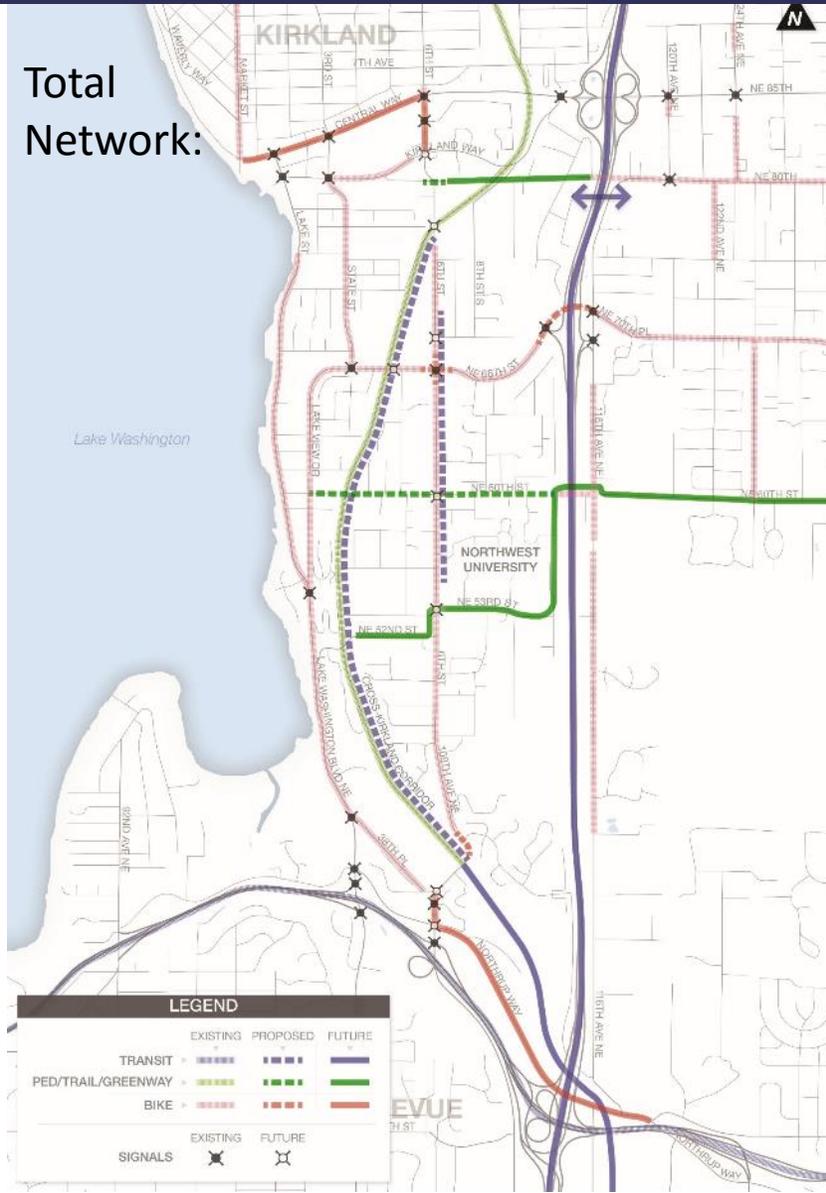


- **Future:**
  - Bus Rapid Transit on I-405
  - Light Rail to S Kirkland P&R
- **Proposed:**
  - Transit Signal Priority at 6<sup>th</sup> Street / Kirkland Way
  - HCT on the CKC
  - Bus intersection at 6<sup>th</sup> / CKC
  - Houghton P&R lease for Private Shuttle Use
  - Widen 108<sup>th</sup> to provide queue jump / new signal at NE 60<sup>th</sup>
  - New signal at 53rd St
  - S Kirkland P&R
    - Permitting for parking
    - Improve Access / Egress with signals
    - Real Time Parking Occupancy
  - Education Campaign on Value of Transit
  - Performance Monitoring of Transit throughout

# Background Corridor Investments

- **Vehicular**

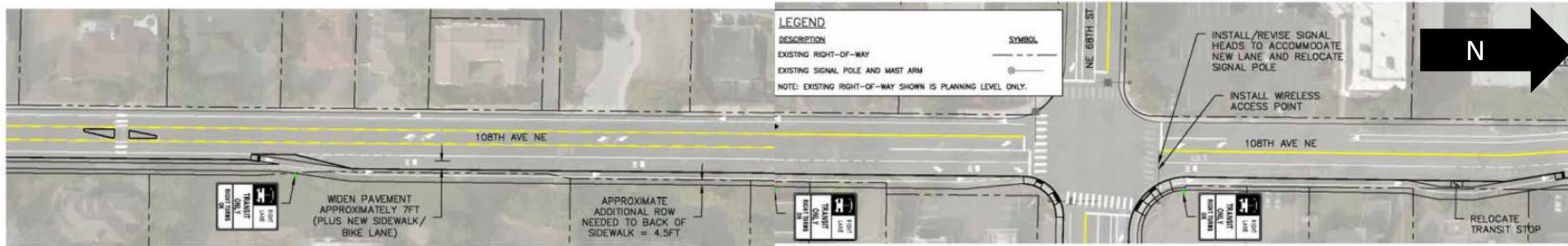
- Accommodate growth for the future



- **Proposed:**

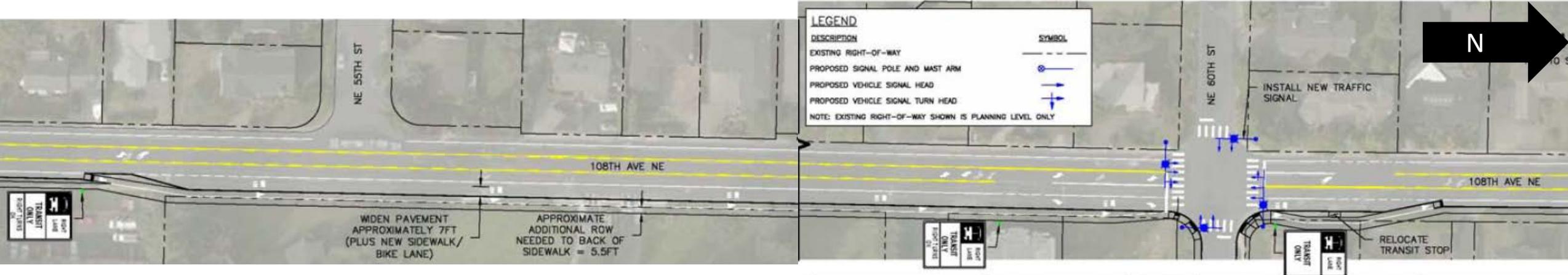
- Signal Coordination along 6<sup>th</sup> Street
- Kirkland Way & Railroad Ave Intersection Improvements
- Signal at 6<sup>th</sup> St & 9<sup>th</sup> Ave
- Work with regional partners to study improvement and expansion of 70<sup>th</sup> St Overpass
- Install 'don't block the box' pavement markings at Fire Station on 108<sup>th</sup> Ave
- Driveway consolidation around 68<sup>th</sup> St / 108<sup>th</sup> Ave businesses
- Reduce business access on 68<sup>th</sup> & 108<sup>th</sup> to signalized intersections and install new signal at 106<sup>th</sup> Ave. (may increase neighborhood cut-through)
- Citywide parking management strategies such as shared parking and joint parking use.

# 108<sup>th</sup> Avenue Transit Signal Priority at NE 68<sup>th</sup> St



- Property Impacts
  - 2 residential properties
  - 1 business property
- Improves transit travel times
- Improves vehicle travel times
- Relocates bicycle lanes

# 108<sup>th</sup> Avenue Transit Signal Priority at NWU and NE 60<sup>th</sup> St



- Property Impacts
  - 2 residential properties
- Improves transit travel times
- Improves vehicle travel times
- Relocates bicycle lanes
- New signal (60<sup>th</sup>)

# Investments to move people

- 108<sup>th</sup> Avenue Corridor

**Table 6. PM Peak Hour Transit Travel Speed Comparison with Transit Investments**

6th St Travel Time (mm:ss)	Existing	With Improvements	Change
<b>Northbound</b>			
NE 62nd St to 9th Ave S	04:56	03:37	- 01:20 (-27%)
NE 48th St to Kirkland Way	12:11	09:24	- 02:48 (-23%)
<b>Southbound</b>			
9th Ave S to NE 62nd St	02:29	02:25	- 00:04 (-3%)
Kirkland Way to NE 48th St	09:36	09:17	- 00:19 (-3%)

# Solutions Considered but Not Recommended

- Transit Signal Priority Options @ 108<sup>th</sup> Ave NE & NE 68<sup>th</sup> St
  - 7A – Left turn lane for transit only by time of day
  - 7C – Left turn lane combines transit and vehicles
    - Limited effectiveness for people, transit or vehicles
    - New solution found with better benefits and higher impacts
- New East-West Connection and Crossing of I-405 @ NE 60<sup>th</sup> Street
  - Impacts to adjacent arterial streets due to steep grades
  - Impacts to neighborhood streets and greenway designation
- Residential Parking Zones and Time of Day Parking
  - Parking was found to be available
  - Management of parking is a higher priority
- Grade-separated ped crossing @ 108<sup>th</sup> Ave NE & NE 68<sup>th</sup> St
  - Impacts to adjacent properties
  - Grade change dissuades use by peds

# Houghton / Everest Neighborhood Background Growth and Traffic Generation

# Houghton Everest Neighborhood Center Greater Change



# Houghton Everest Development Scenarios

Uses	Existing	2035 Comp Plan	Modest Change (35')	Greater Change (55')
Residential Dwelling units	39	360	574	862
Retail (Square Feet)	105,092	113,480	113,480	113,480
- General Retail	34,826	29,961	29,961	29,961
- Supermarket	65,391	78,644	78,644	78,644
- Convenience Store	2,400	2,400	2,400	2,400
- Coffee Shop	2,475	2,475	2,475	2,475
Office (Square Feet)	38,034	122,476	122,476	122,476

## Assumptions

- ITE Trip Rates
- Grocery expands
- Retail roughly the same
- Office increases for all future build
- Convenience store stays the same
- Coffee shop stays the same
- Residential increases with height

# Houghton Everest Traffic Generation

Scenario	Daily Vehicle Trips	PM Peak Hour Vehicle Trips
<b>Existing Trips</b>	<b>10,994</b>	<b>713</b>
<b>2035 Comp Plan</b>	<b>15,200</b>	<b>1,031</b>
Increased Trips	4,206	318
Percent Change over Existing	<b>38%</b>	<b>45%</b>
<b>2035 Modest Change</b>	<b>16,622</b>	<b>1,114</b>
Increased Trips	1,423	83
Percent Change over Comp Plan	<b>9%</b>	<b>8%</b>
<b>2035 Greater Change</b>	<b>18,538</b>	<b>1,227</b>
Increased Trips	3,338	196
Percent Change over Comp Plan	<b>22%</b>	<b>19%</b>

# Growth in Trips to/from HE Development

Figure 1 - Daily Trips to/from Development

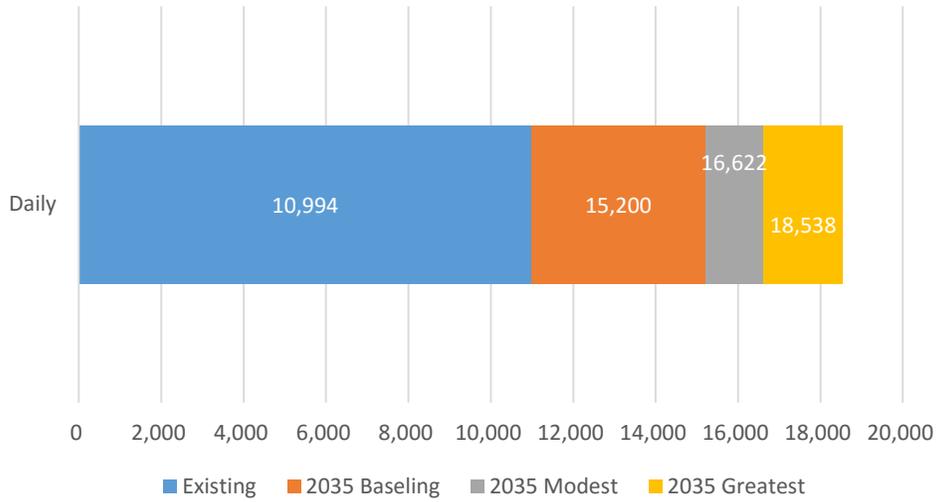
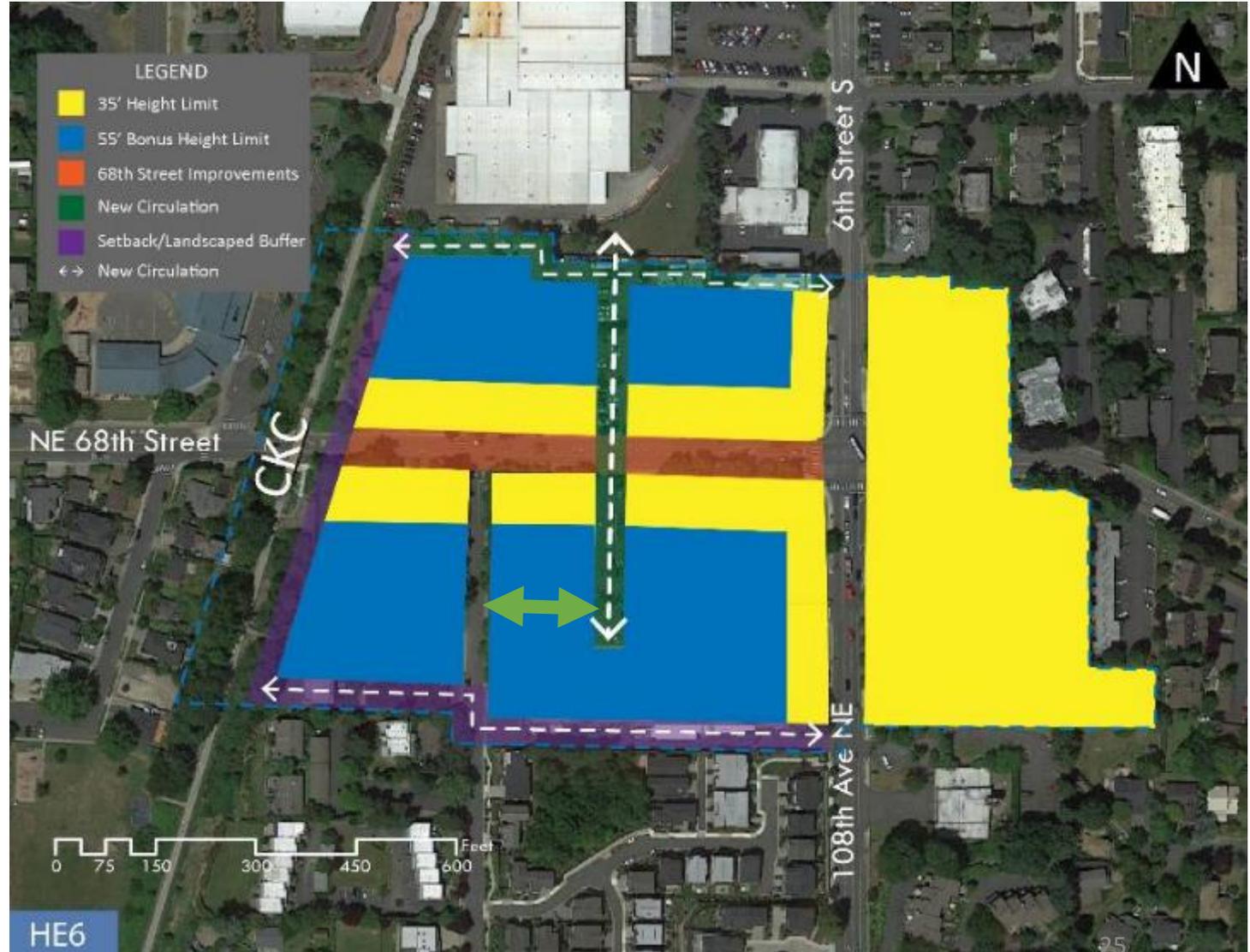
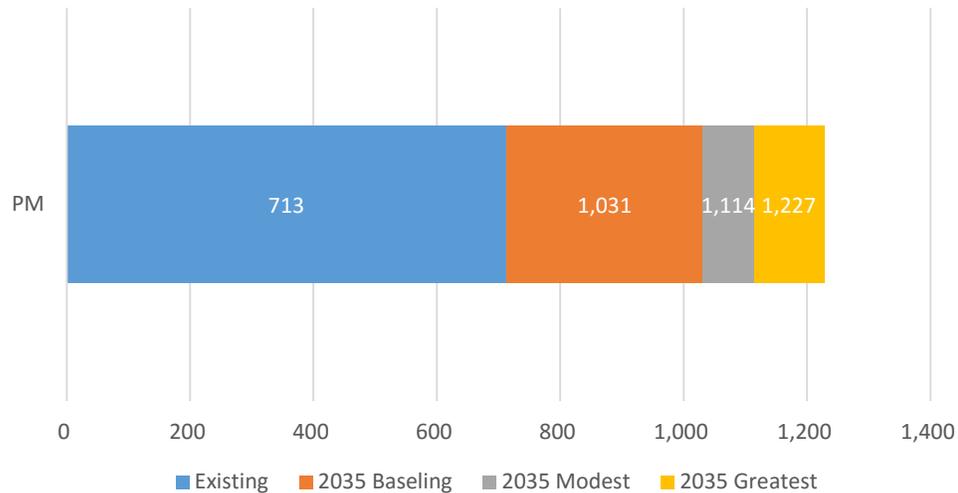
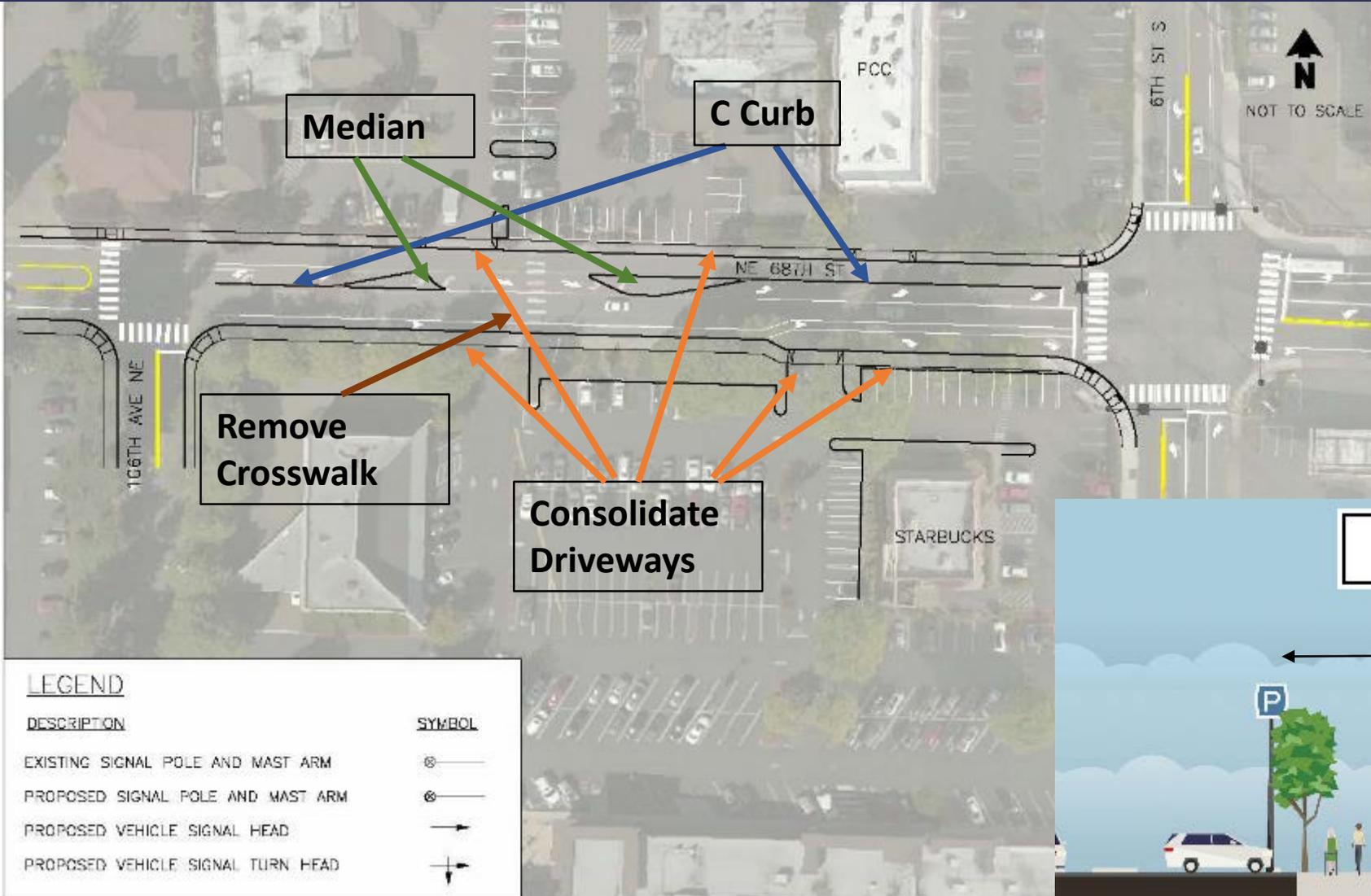


Figure 2 - PM Peak Hour Trips to/from Development



# Houghton / Everest Center Investments

# No Development: Access Consolidation



# No Development: Access Consolidation

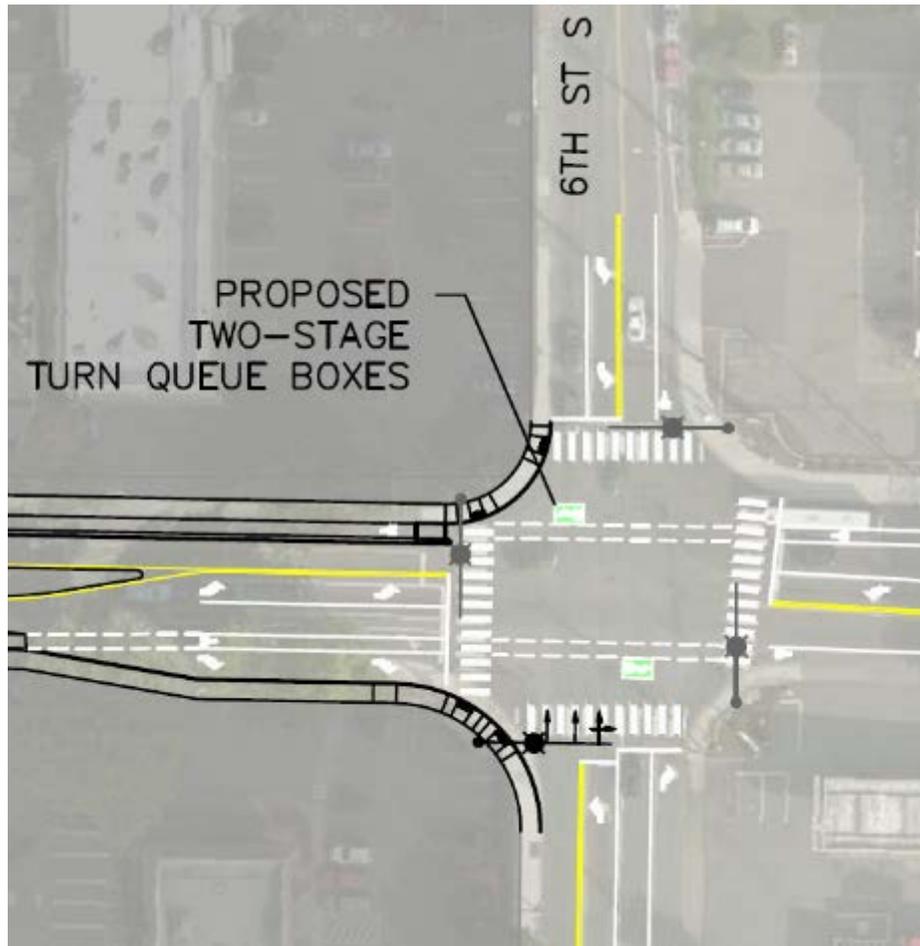


- Closely spaced driveways and intersections, bike lanes, as well as crosswalks on NE 68th Street results in numerous conflict points between vehicles, pedestrians and bicycles. Access management without any redevelopment or widening, could include some more minor access management strategies such as closing or consolidating driveways and potentially removing the pedestrian crossing.

Timeline	Cost	Movement of People	Connections	Capacity for Future	Recommend?
1-5 Years	\$\$	2	3	2	✓

- **Benefits**
  - Reduces conflicts for pedestrians, bikes and vehicles
  - Extends bike lanes
- **Challenges**
  - Consolidation of driveways impacts property owners
- **Recommendations**
  - **Implement if no changes are made to Houghton Everest Neighborhood Center Plan**
  - Coordinate with Property Owners

# No Development: Green Bike Boxes at 68<sup>th</sup> / 108th

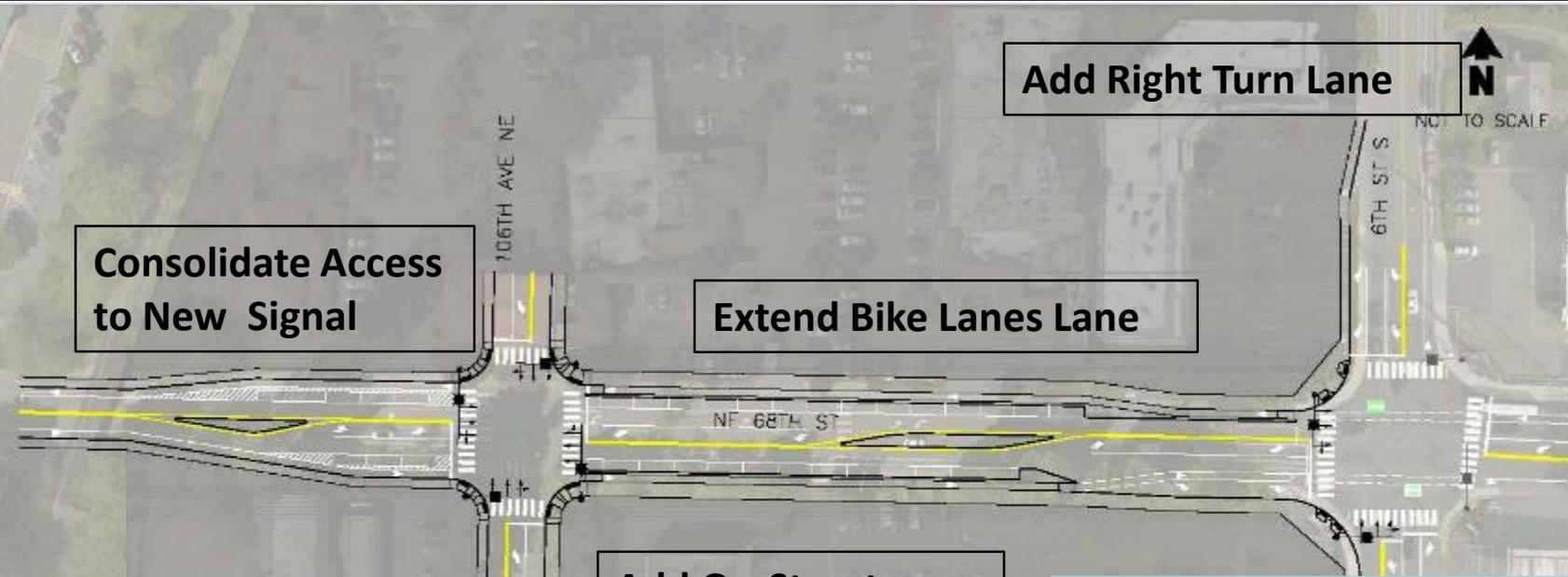


- Bicycle lanes are provided on NE 68th Street and 108th Avenue and bicycle use is growing; however, these bicycle lanes do not continue through the intersection of 108th Avenue NE at NE 68th Street. Green Bike Boxes could enhance bike visibility by placing a painted green bike at the front of vehicle queues. This may require widening.

Timeline	Cost	Movement of People	Connections	Capacity for Future	Recommend ?
5-10	\$\$	2	3	2	✓

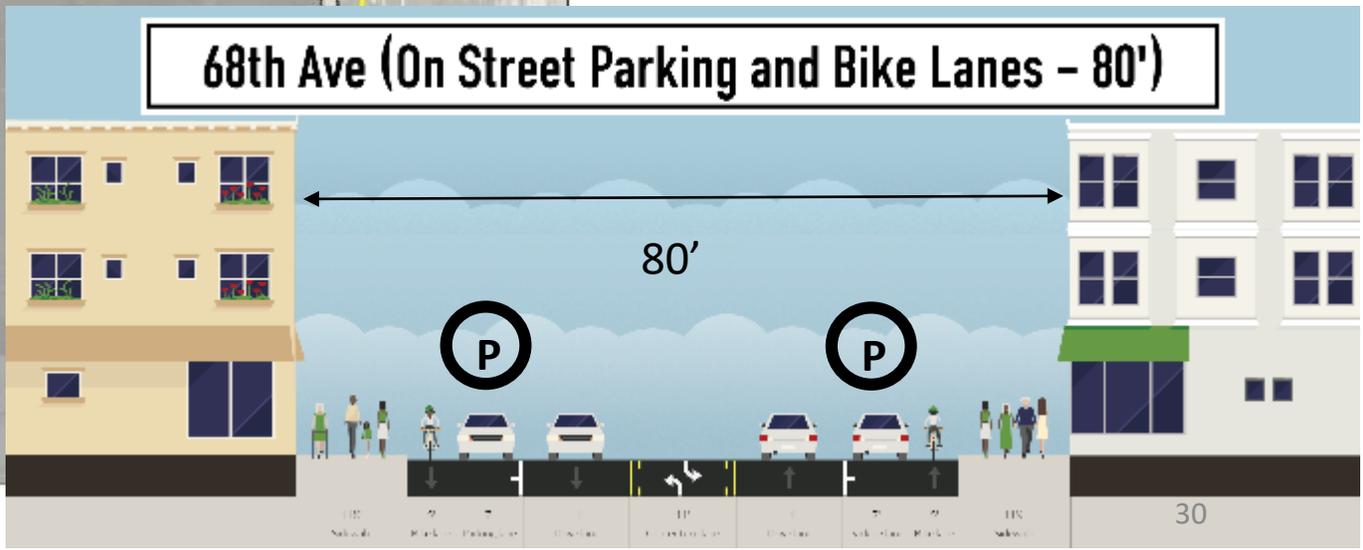
- **Benefits**
  - Increases visibility and safety for bike riders
- **Challenges**
  - Requires widening of 68<sup>th</sup> St, restriping and signal modifications
- **Recommendations**
  - Implement with redevelopment

# Greater Change at HE Development: Signalized Access Only



**LEGEND**

DESCRIPTION	SYMBOL
EXISTING SIGNAL POLE AND MAST ARM	⊗ —
PROPOSED SIGNAL POLE AND MAST ARM	⊗ —
PROPOSED VEHICLE SIGNAL HEAD	→
PROPOSED VEHICLE SIGNAL TURN HEAD	↗
REDEVELOPMENT AREA	■



# Greater Change at HE Development: Signalized Access Only



- Access management strategies includes installation of new full access traffic signals 106th Avenue provides fully controlled access with pedestrian crossings. Includes Bike Lanes and on-street parking. Relies on redevelopment of adjacent land uses a and assumes circulation on-sites (off street).

Timeline	Cost	Movement of People	Connections	Capacity for Future	Recommend ?
5-10 Years	\$\$\$	3	3	2	✓

## • Benefits

- Reduced conflicts improved access and local circulation
- Extends bike lanes
- On street parking for retailers

## • Challenges

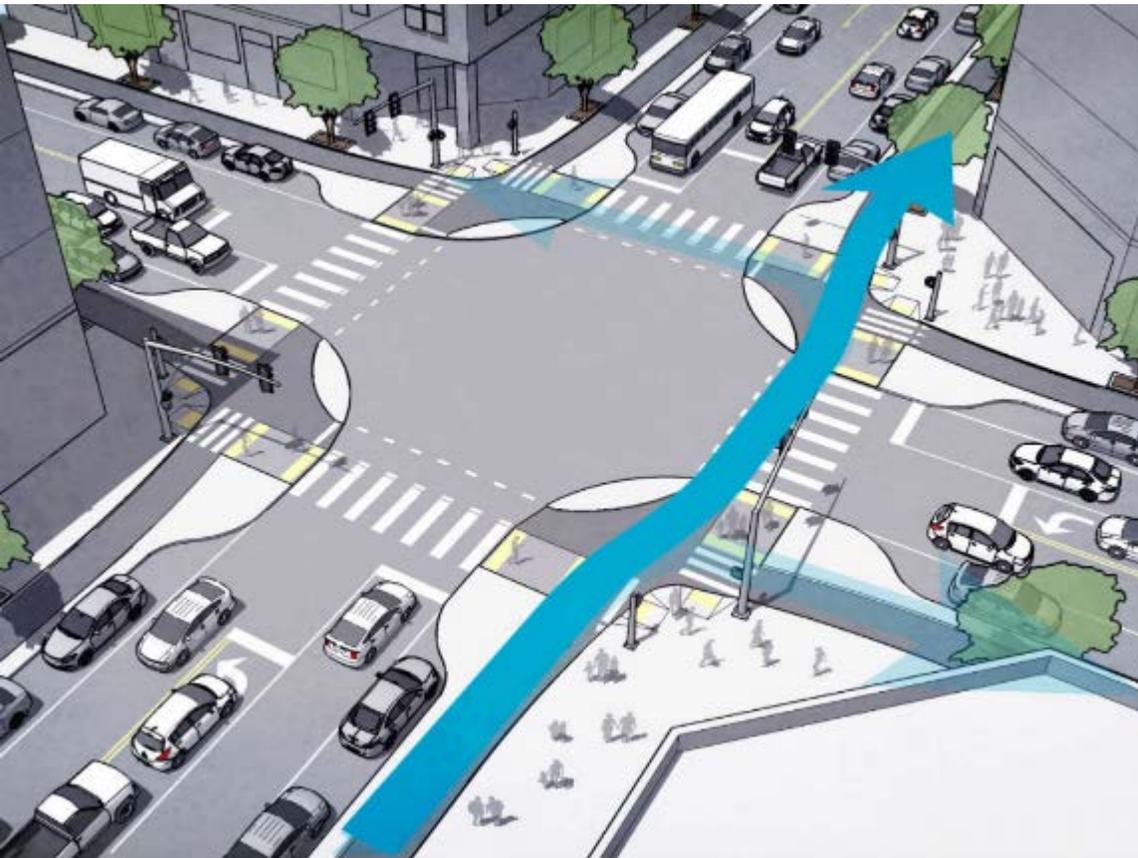
- Coordination with property owners

## • Recommendations

- Implement if greater changes are made to Houghton Everest Neighborhood Center Plan
- Coordinate with property owners

# Greater Change at HE Development: Full Bike Intersection

## Sample Full Bicycle Intersection at 68<sup>th</sup> / 108<sup>th</sup>:



- Bicycle lanes are provided on NE 68th Street and 108th Avenue and bicycle use is growing; however, these bicycle lanes do not continue through the intersection of 108th Avenue NE at NE 68th Street. One way to do this would be to create a bicycle intersection that extends bike lanes and protects bike movements. This type of intersection can also promote pedestrian safety with ped bulbs making pedestrians more visible.

Timeline	Cost	Movement of People	Connections	Capacity for Future	Recommend?
5-10	\$\$	2	3	2	✓

- **Benefits**
  - Provides safe connections for bikes
- **Challenges**
  - Extensive widening and Right of Way
  - Conflicts with high volume right turns
- **Recommendations**
  - Could be implemented with redevelopment

# Impact at the Adjacent Intersection

## NE 68<sup>th</sup>/108<sup>th</sup>/6<sup>th</sup> Intersection Operations

Scenario	LOS	Delay (sec/veh)	Total Entering Vehicles	Project Investments
1. Existing	E	62	2,520	<ul style="list-style-type: none"> <li>Existing Infrastructure</li> </ul>
2. Comp Plan 2035	F	142	3,855	<ul style="list-style-type: none"> <li>Consolidate Access Points at 68<sup>th</sup> St and 108<sup>th</sup> Ave</li> <li>Green Bike Boxes</li> </ul>
3. 2035 Moderate Change (1)	F	148	3,917	<ul style="list-style-type: none"> <li>Consolidate access points at 68<sup>th</sup> St and 108<sup>th</sup> Ave</li> <li>Green bike boxes at 68<sup>th</sup> &amp; 108<sup>th</sup> intersection</li> <li>60' wide NE 68<sup>th</sup> St</li> </ul>
4. 2035 Moderate Change (2)	F	111	3,917	<ul style="list-style-type: none"> <li>Consolidate Access Points at 68<sup>th</sup> St and 108<sup>th</sup> Ave</li> <li>Green Bike Boxes at 68<sup>th</sup> St &amp; 108<sup>th</sup> Ave</li> <li>60' wide NE 68<sup>th</sup> St</li> <li>Southbound right turn lane on 6<sup>th</sup> St at NE 68<sup>th</sup> St</li> </ul>
5. 2035 Greater Change (1)	F	155	4,000	<ul style="list-style-type: none"> <li>Signalized access to developments only at NE 106<sup>th</sup> St</li> <li>80' wide NE 68<sup>th</sup> St</li> <li>Full bicycle intersection</li> </ul>
6. 2035 Greater Change (2)	F	122	4,000	<ul style="list-style-type: none"> <li>Signalized access to developments only at NE 106<sup>th</sup> St</li> <li>80' wide NE 68<sup>th</sup> St</li> <li>Full bicycle intersection</li> <li>Southbound right turn lane on 6<sup>th</sup> St at NE 68<sup>th</sup> St</li> </ul>

# Questions?

