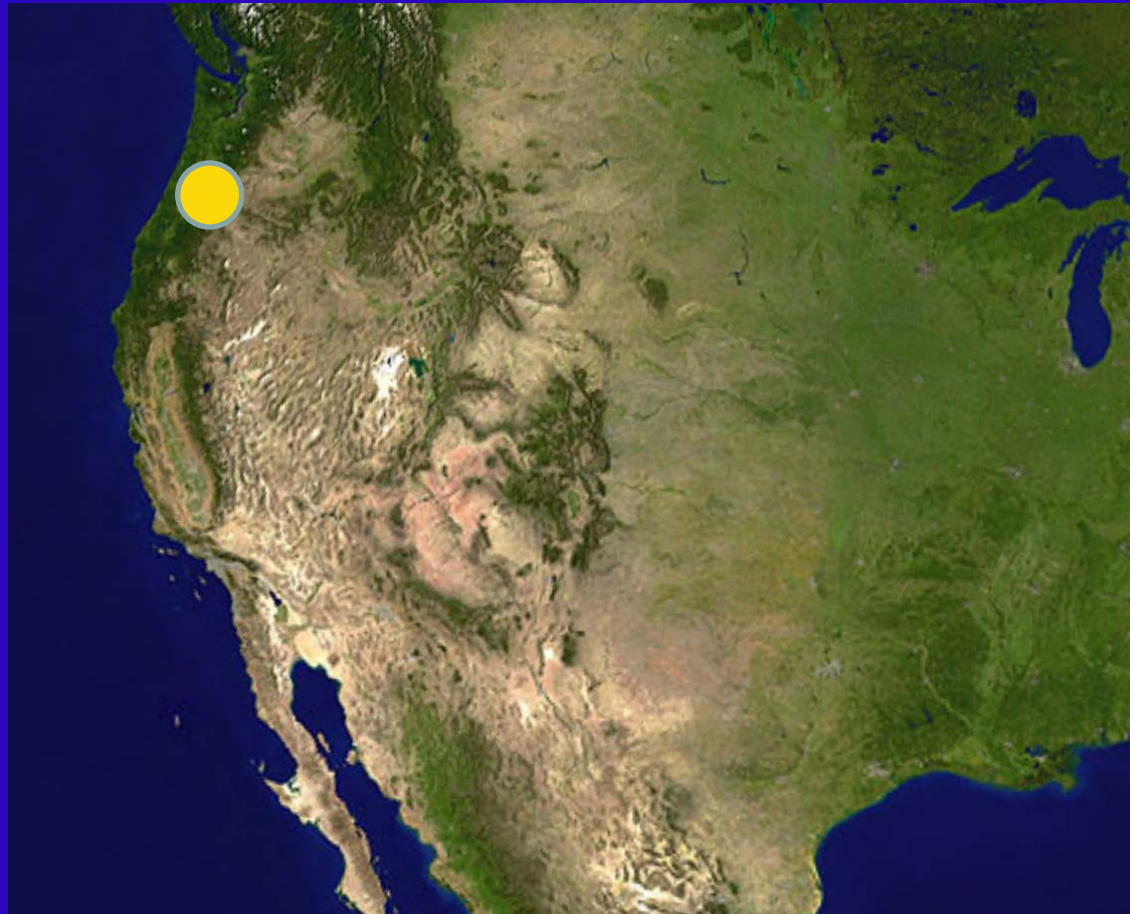


# Optimal Results from New Light Rail Lines: Three Decades' Experience

**Ken Zatarain**  
Director, Service Delivery  
TriMet  
Portland, Oregon



# Portland, Oregon



# TriMet

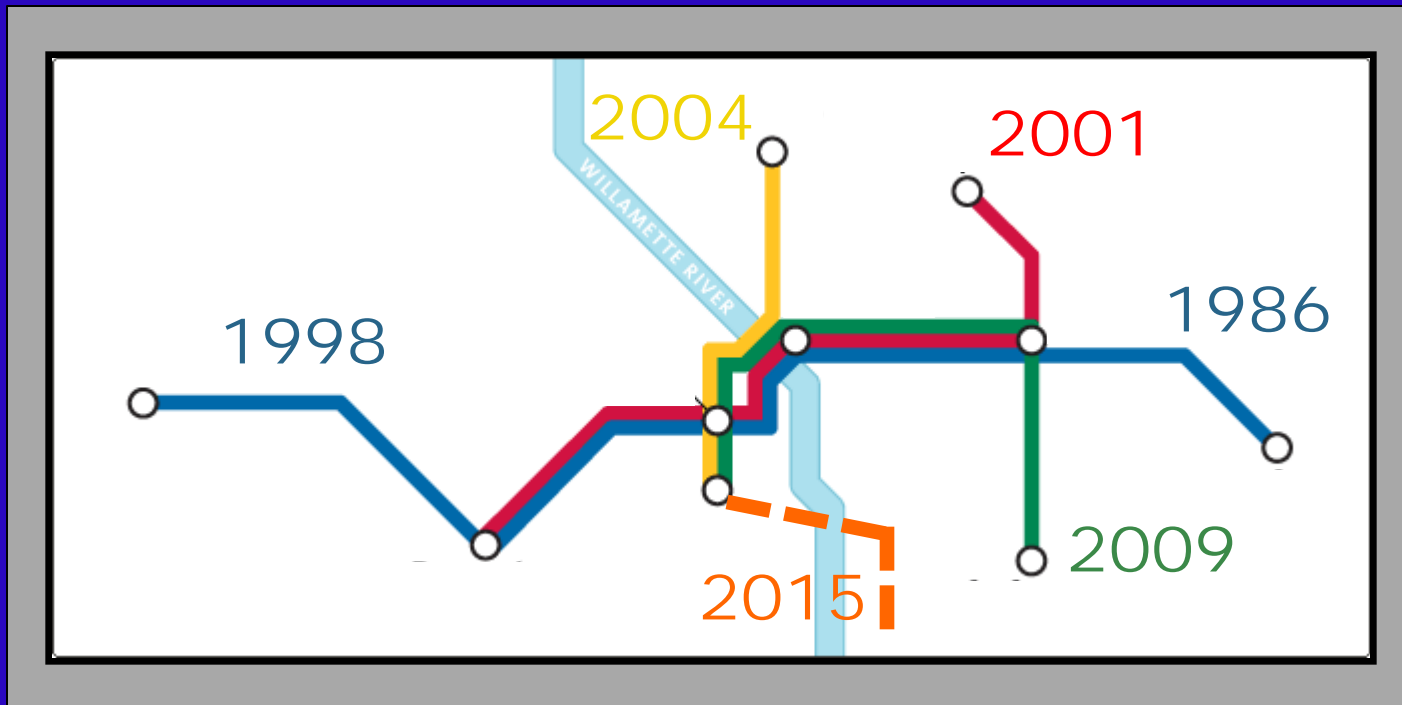
- Bus, rail, paratransit
- 533 square miles
- 1.5 million residents
- 100 million annual boardings

# TriMet

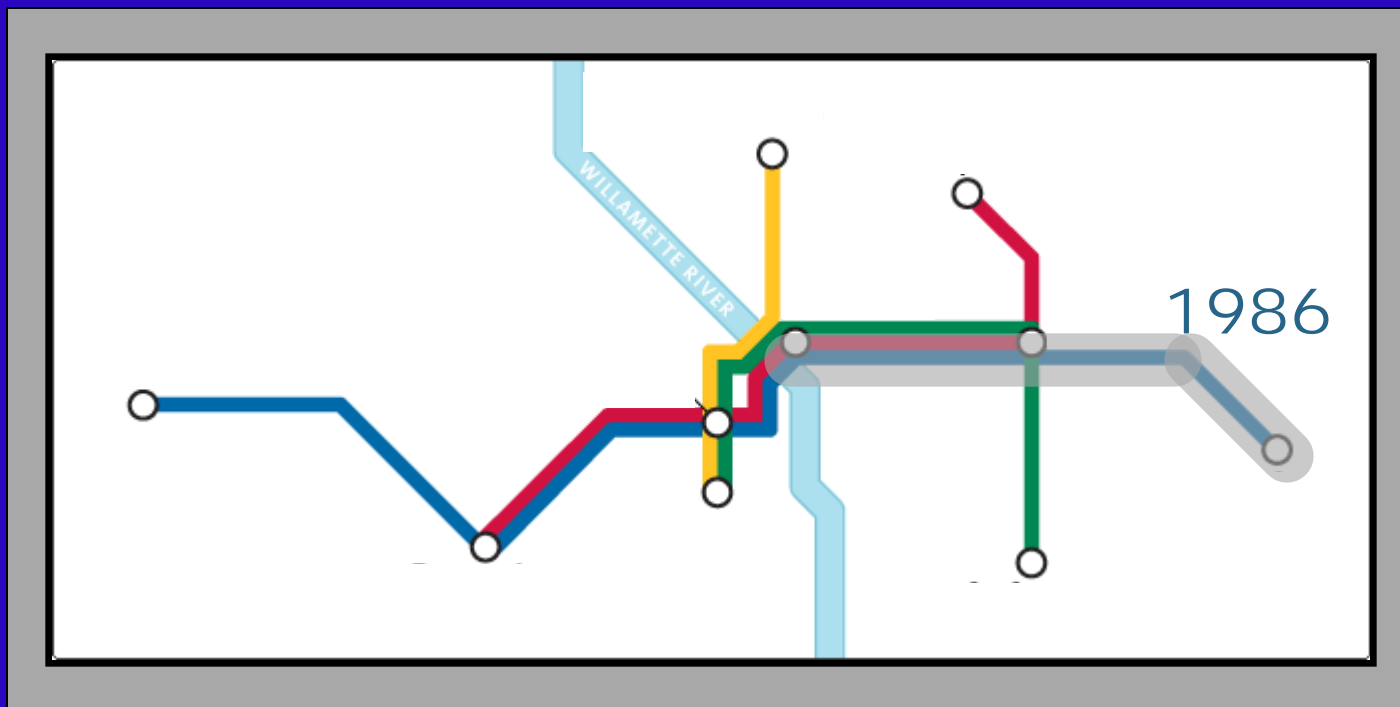
## High per capita ridership

- Bus, rail, paratransit
- 533 square miles
- 1.5 million residents
- 100 million annual boardings

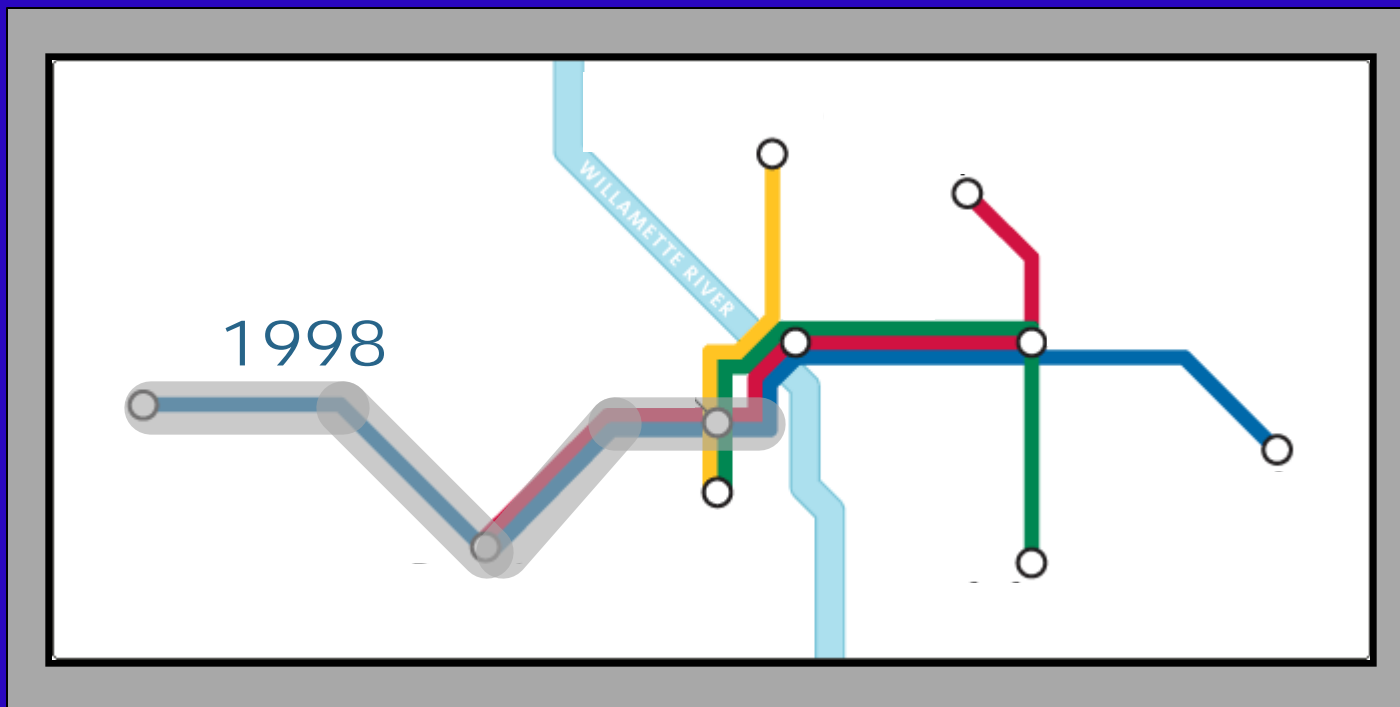
# MAX Light Rail



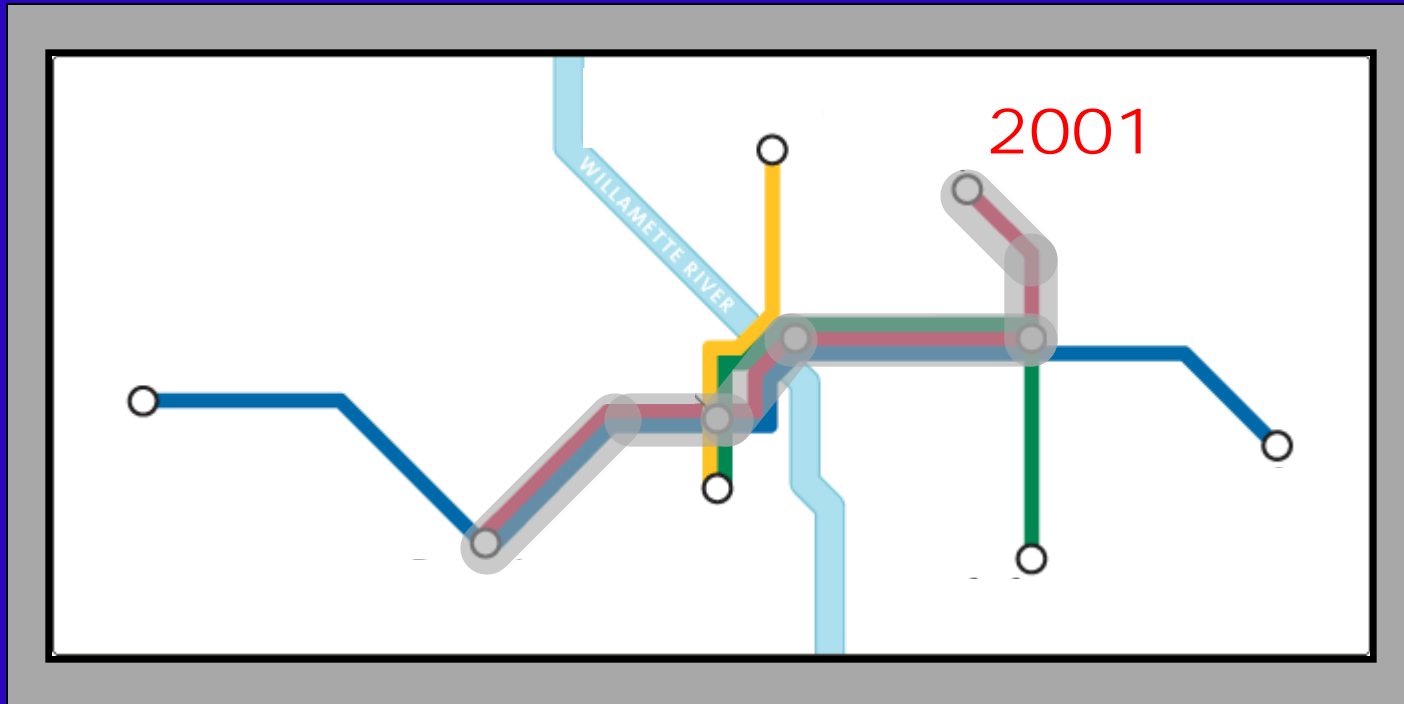
# MAX Light Rail



# MAX Light Rail

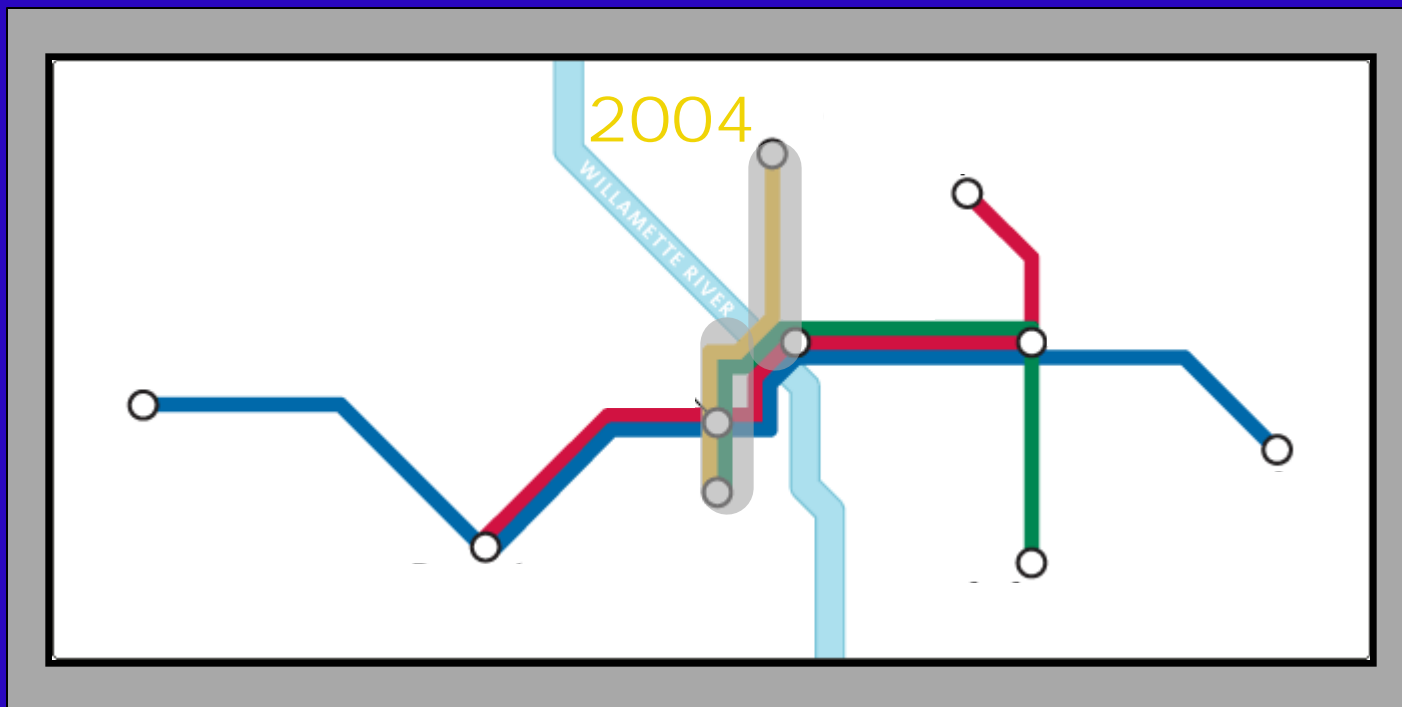


# MAX Light Rail

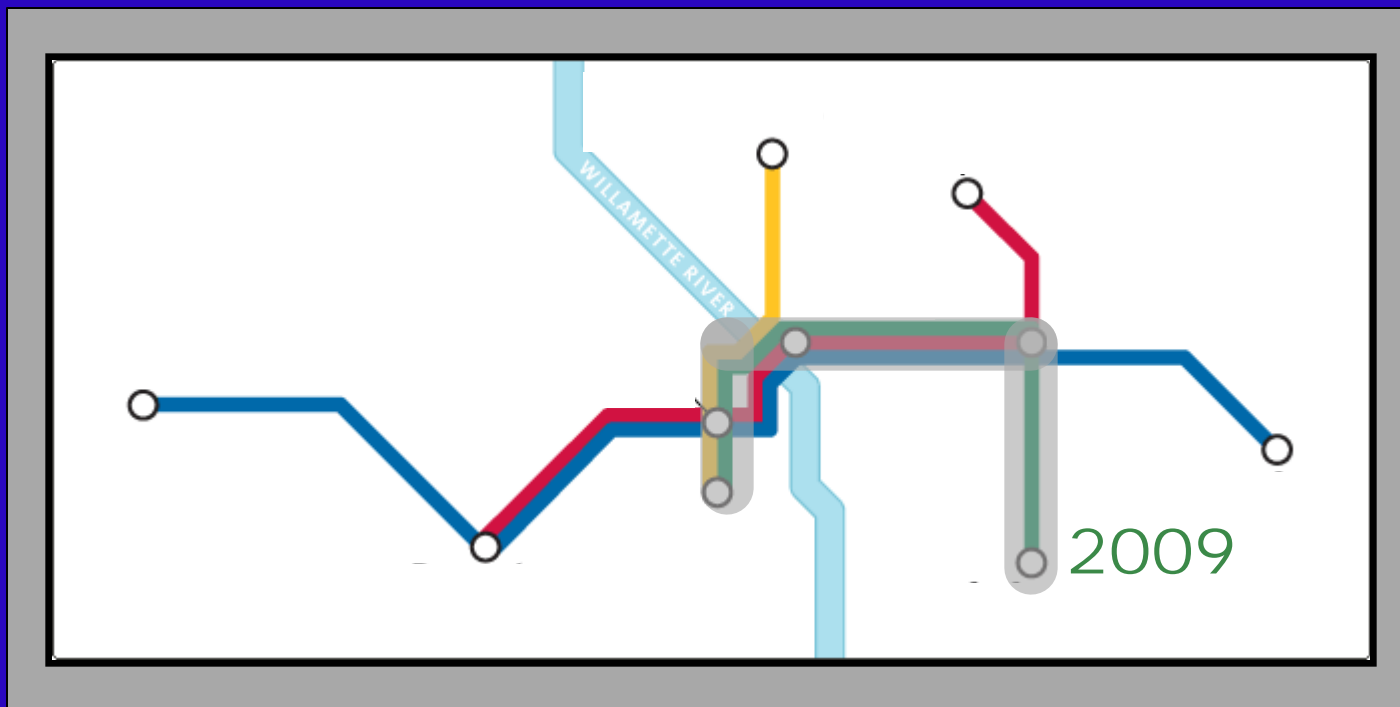




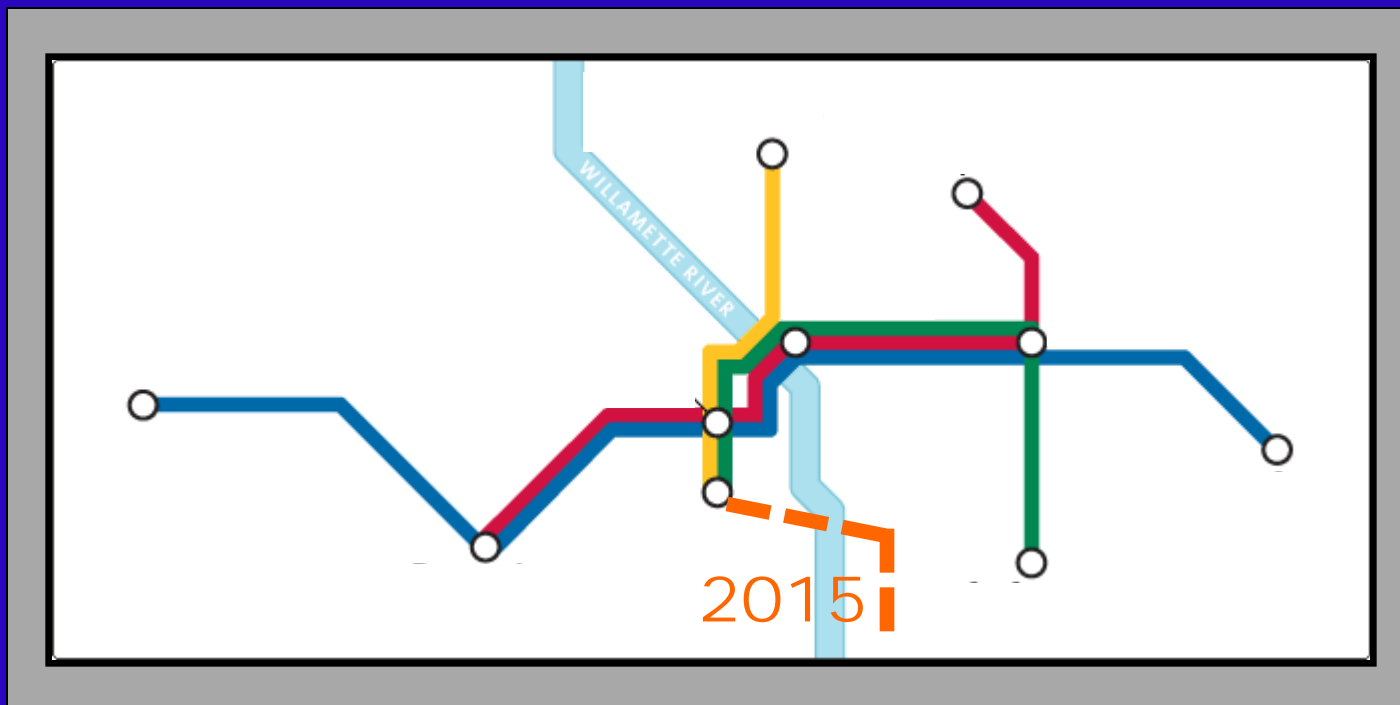
# MAX Light Rail



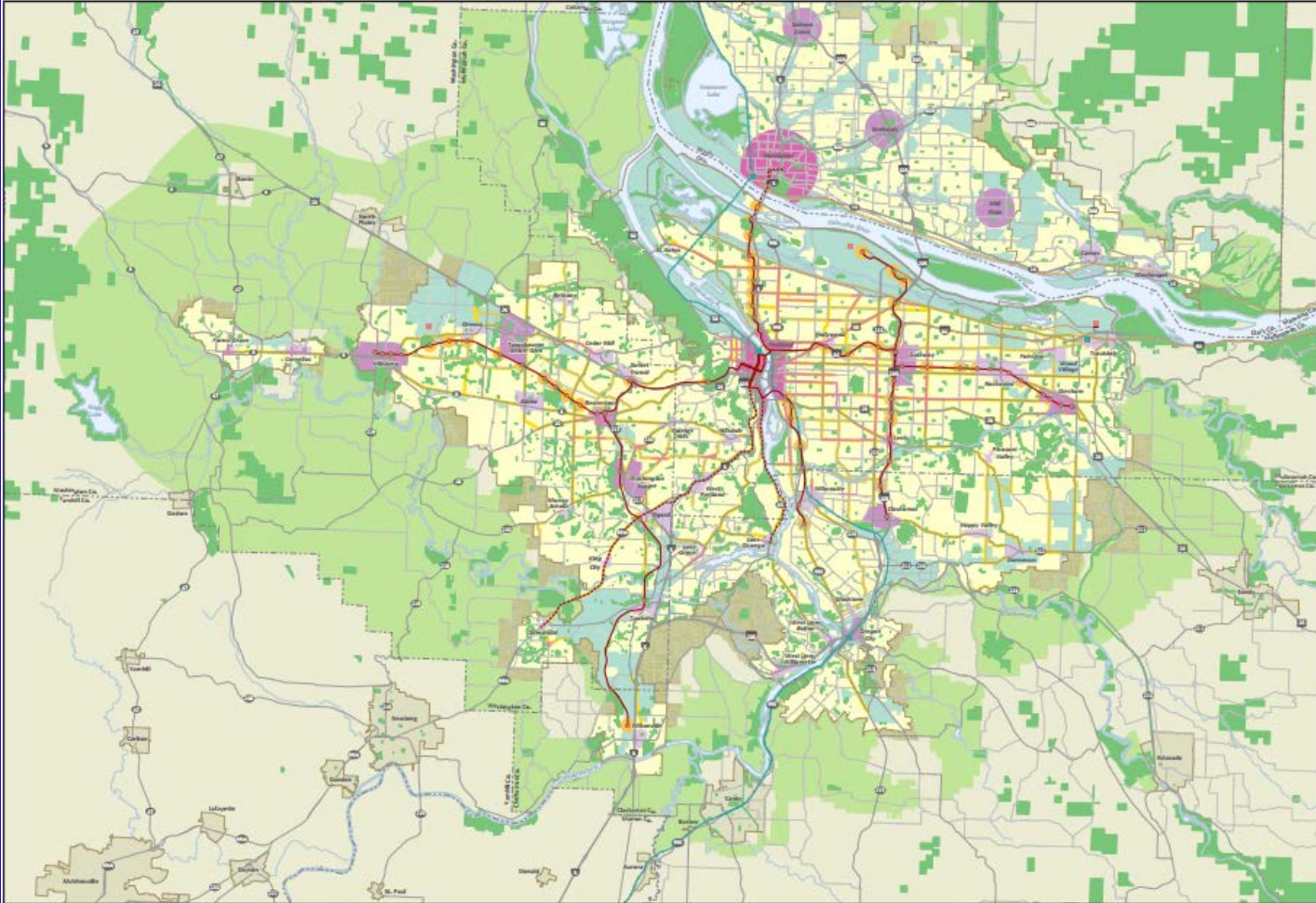
# MAX Light Rail



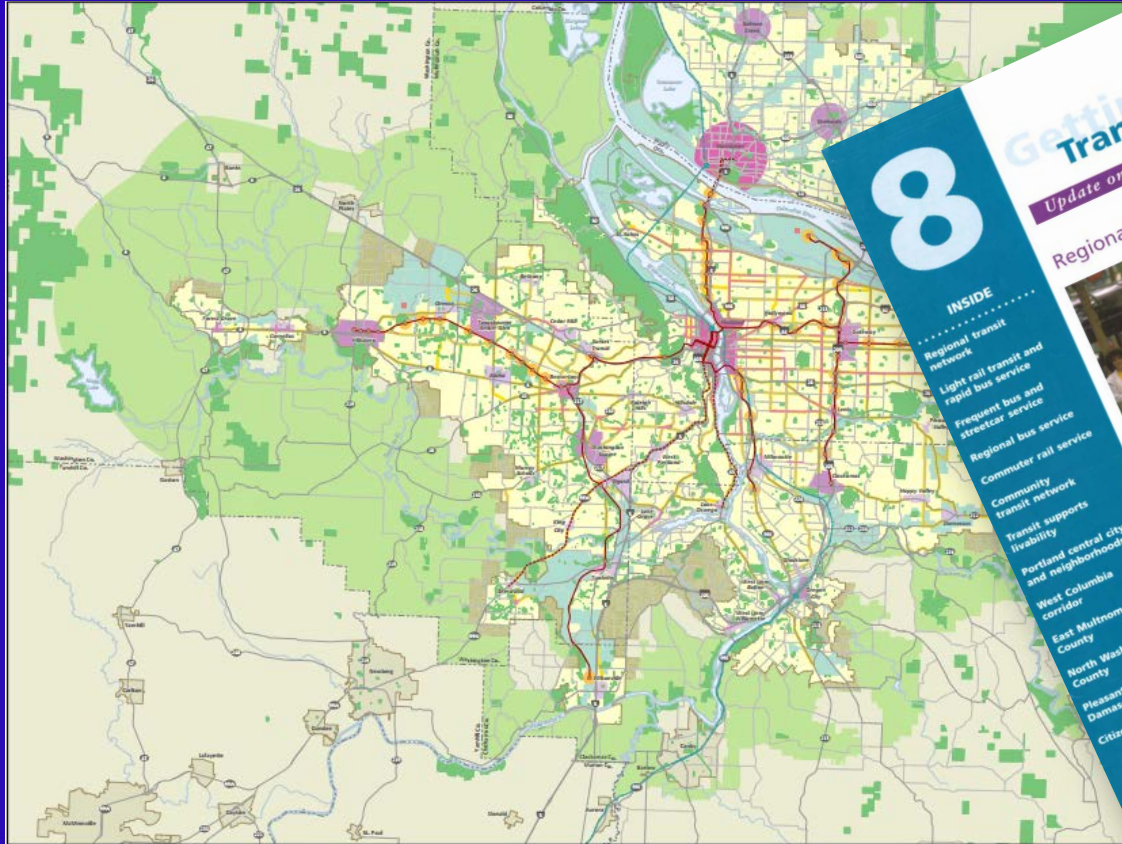
# MAX Light Rail



# 2040 Framework Plan



# Transit Service Strategy



# 8

## INSIDE

- Regional transit network
- Light rail transit and rapid bus service
- Frequent bus and streetcar service
- Regional bus service
- Commuter rail service
- Community transit network
- Transit supports
- Portland central city and neighborhoods
- West Columbia corridor
- East Multnomah County
- North Washington County
- Pleasant Valley and Damascus
- Citizen views



## Getting There Transit Service Strategy

Update on Regional Transportation Plan Projects  
FALL 1999  
Regional Transit Service Strategy for 2040



Although most of today's bus service focuses on neighborhood routes, future service will include faster "rapid bus" services in several corridors, and more convenient "frequent bus" for short hops along busy main streets and corridors.

### Regional transportation strategy

The Regional Transportation Plan is a 20-year transportation blueprint for the region. As part of the current update to the RTP, Metro and Tri-Met have worked with residents to define long-term transit needs for the region. Metro's role is to establish a 20-year plan for regional transit improvements, such as major bus or rail service, through the RTP. Metro also links long-term transit and land-use planning in the region.

Tri-Met makes these transit improvements happen through annual updates and expansions to its service plan. In addition, Tri-Met plan improvements to community-level transit services, such as local bus lines or lift

services. In determining where expanded transit service is most needed each year, annual growth trends, ridership and traffic congestion are all considered.

Other public transit operators in the region include SMART, which serves the Willamette area, and C-Tran, which serves Clark County and includes bus service to points in Portland. Metro works with these operators, as well, to ensure that planned transit service is adequate to meet our 20-year needs.

Transit plays an important role in managing congestion on our roads, helping to keep our air clean, offering us choices for getting around and supporting community goals. Transit plays a vital role in successfully implementing the Region 2040

Plan. By improving transit quality, adding more service and providing different types of transit options, the region can achieve substantial increases in ridership.

Transit can be a viable alternative to driving by serving a variety of destinations daily throughout the metropolitan region. Future transit service will focus on regional centers such as Gresham, Beaverton, Clackamas, and the Portland central city. Transit must also reinforce other land uses that depend on frequent transit services, most notably high streets, town centers, light station areas and major corridors.

# Commuter Choice – Lifestyle Choice

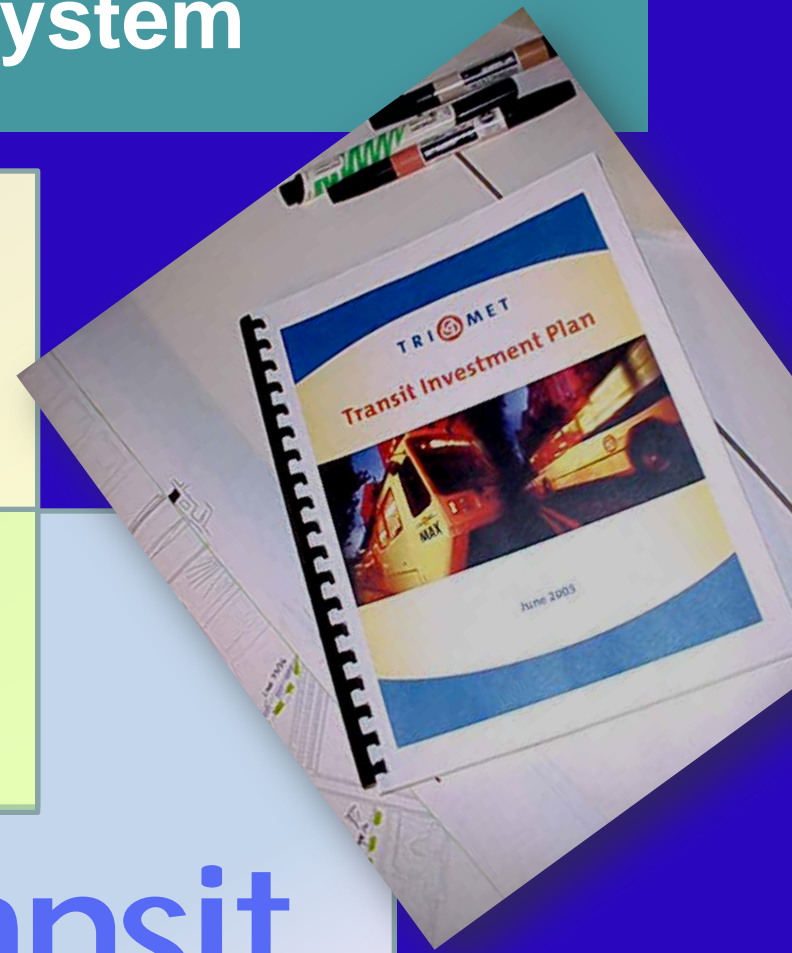


# Total Transit System

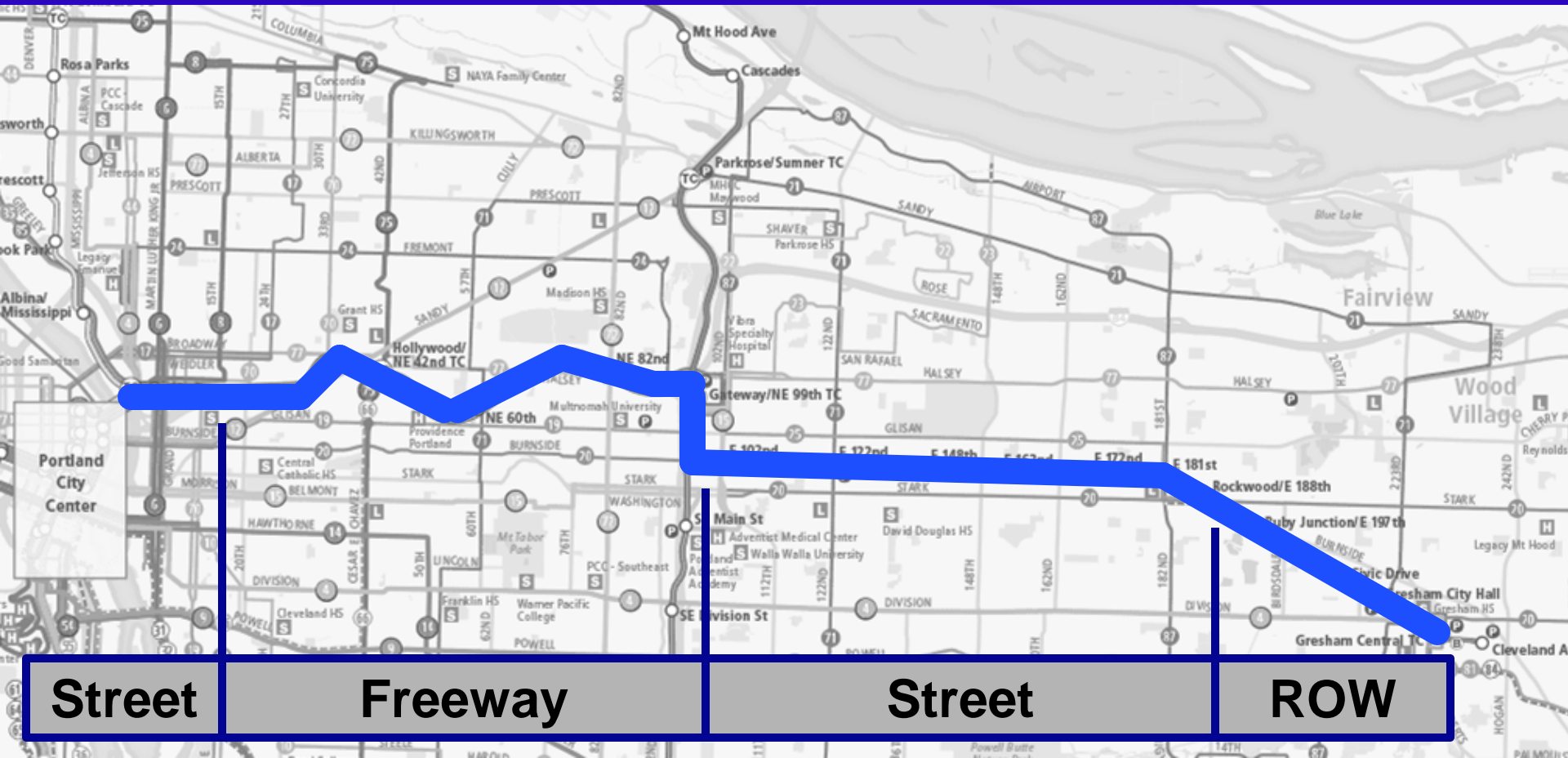
land  
use

street  
design

transit  
network

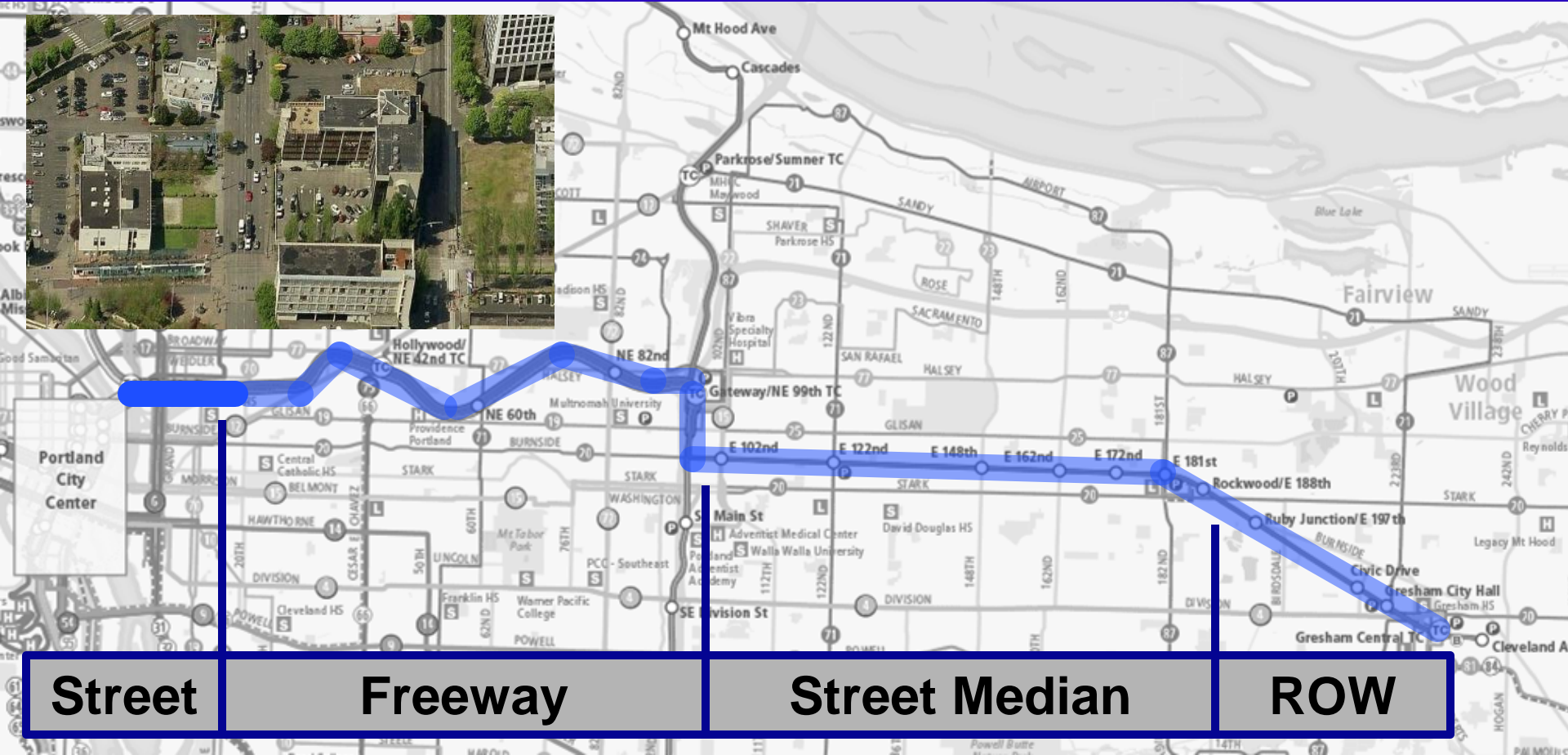


# Eastside – 1986

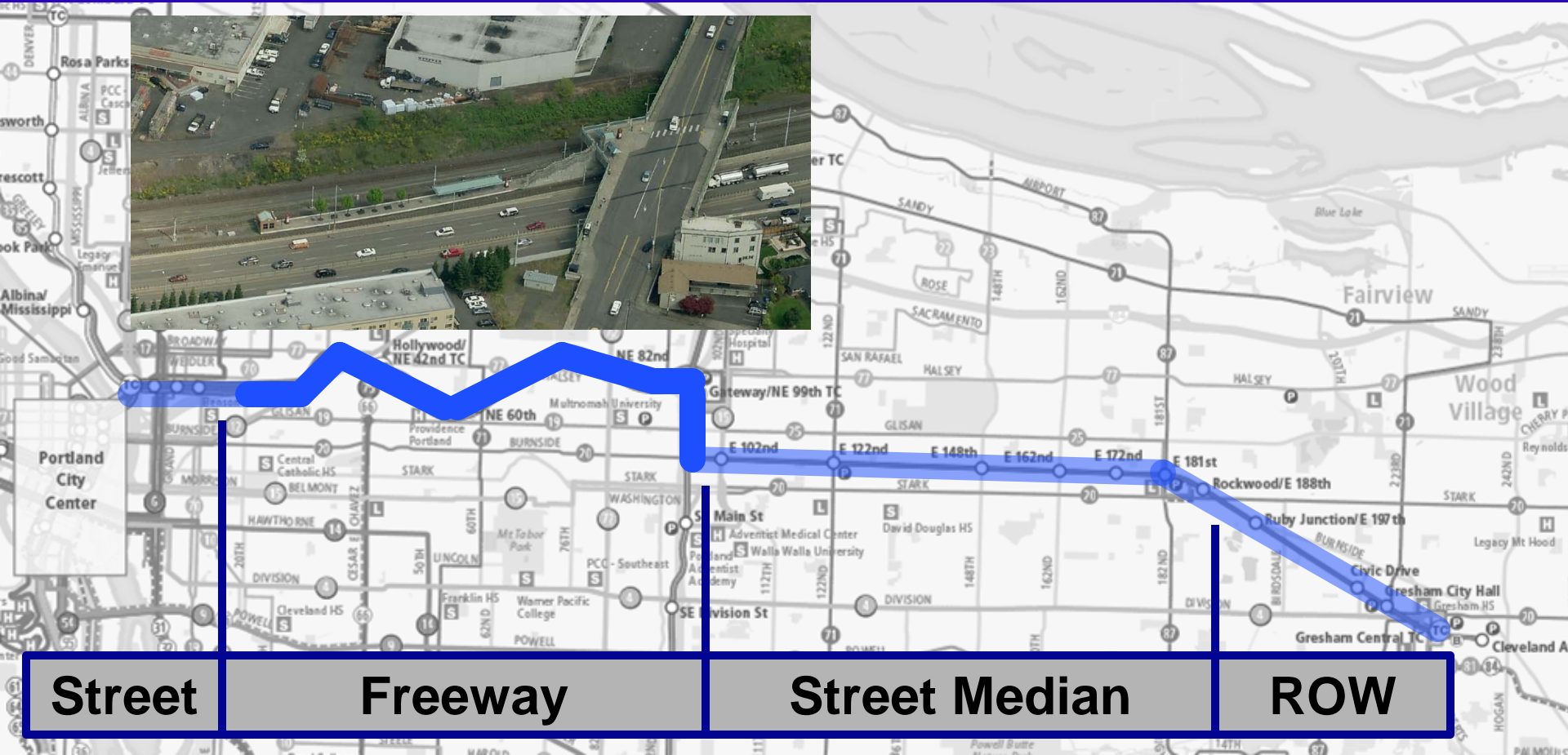




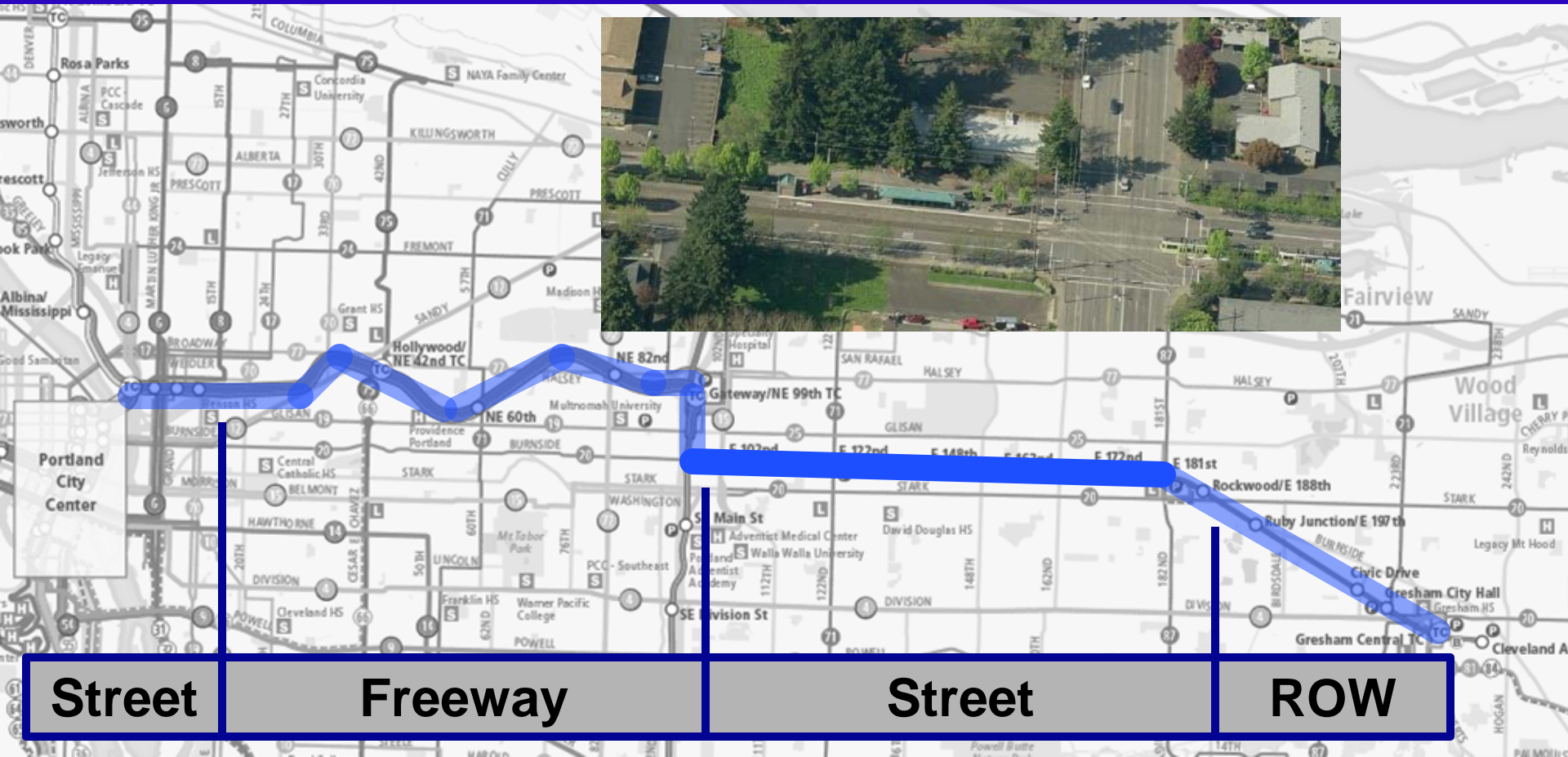
# Lloyd District



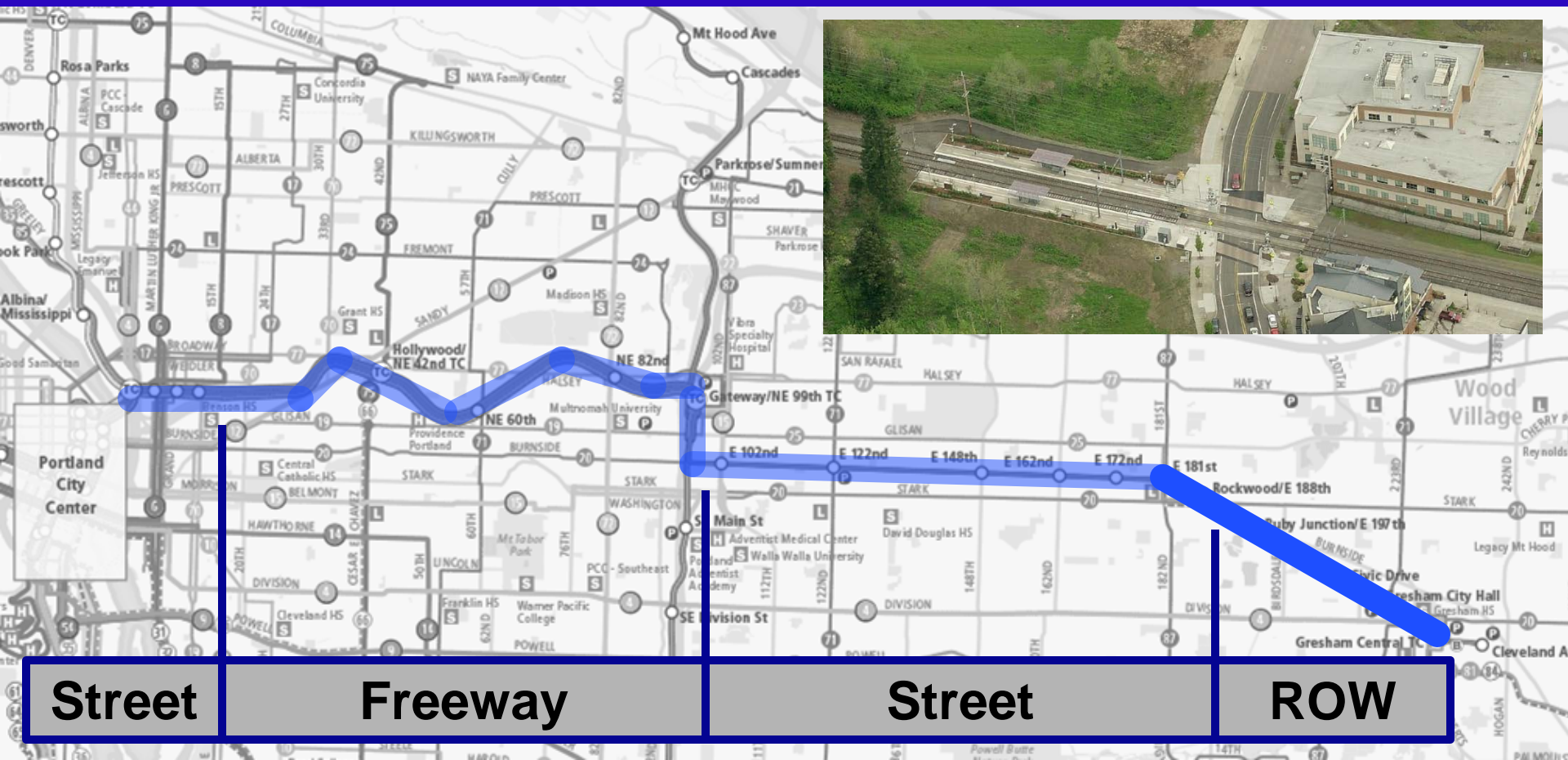
# Banfield Freeway I-84



# East Burnside Street



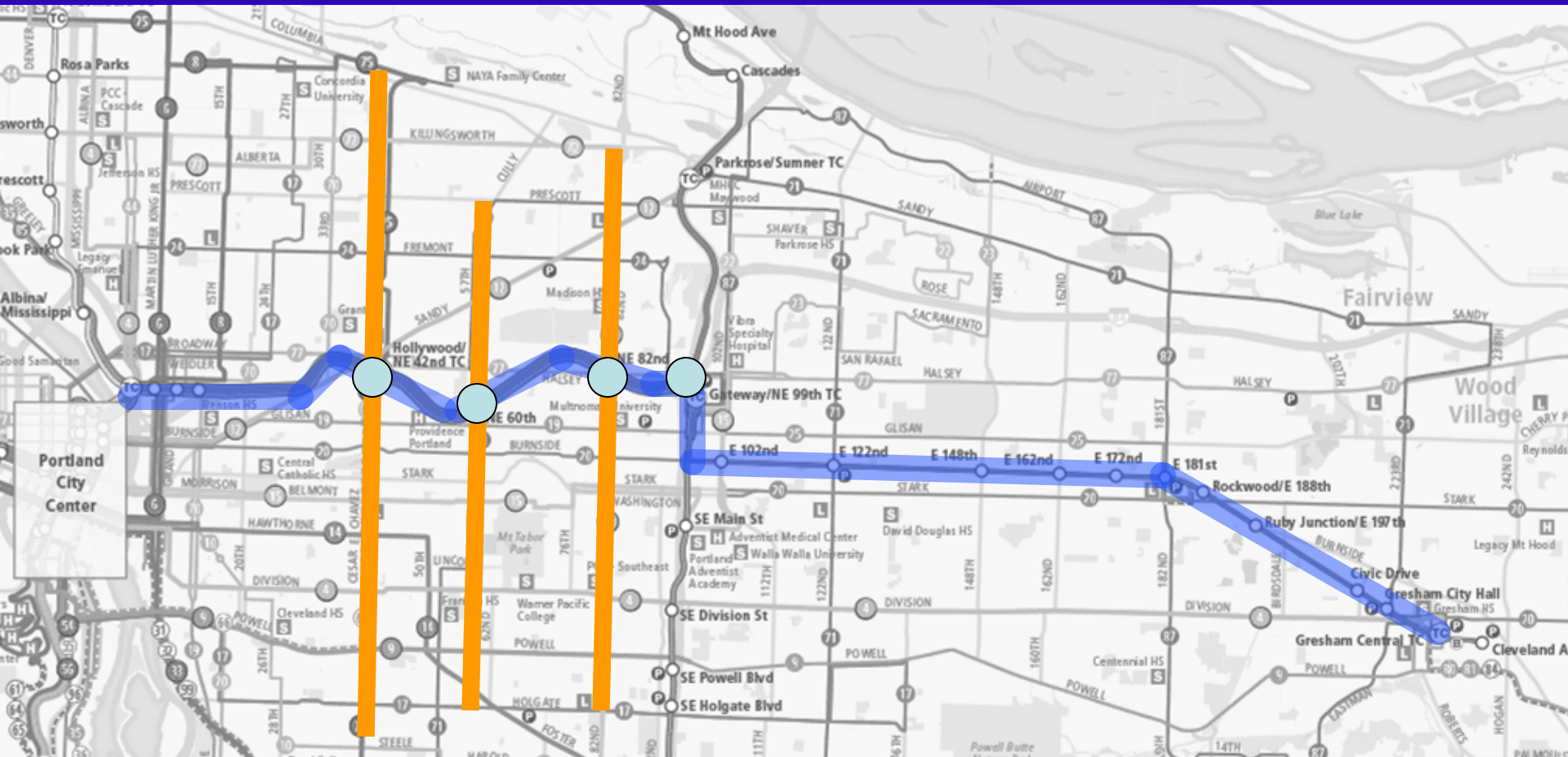
# Mt. Hood Interurban



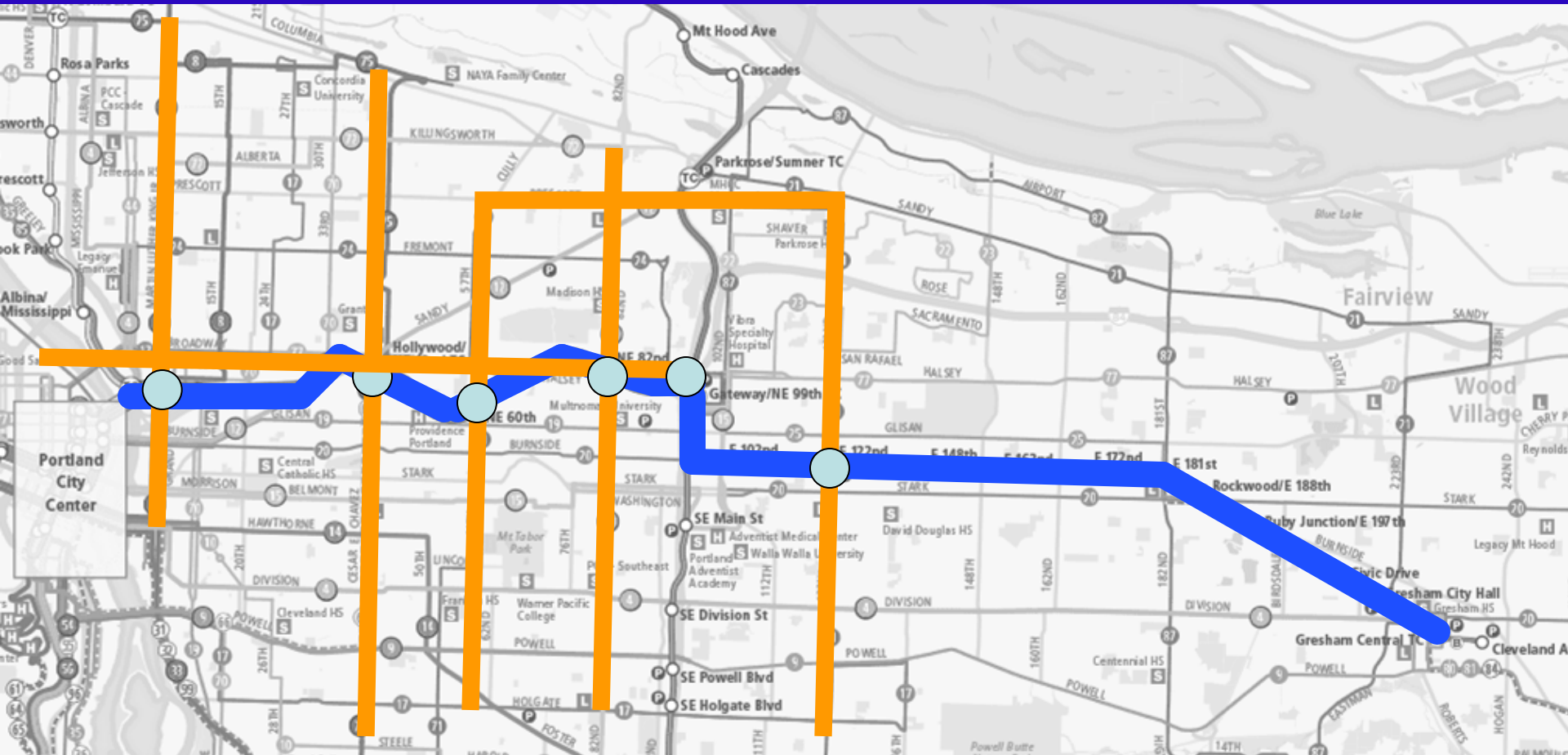
# Eastside – 1986

- Improve bus network before & with LRT
- Anticipate LRT in network design
- Integrate modes
- Prepare station area land use plans
- Collaborate on pedestrian environment

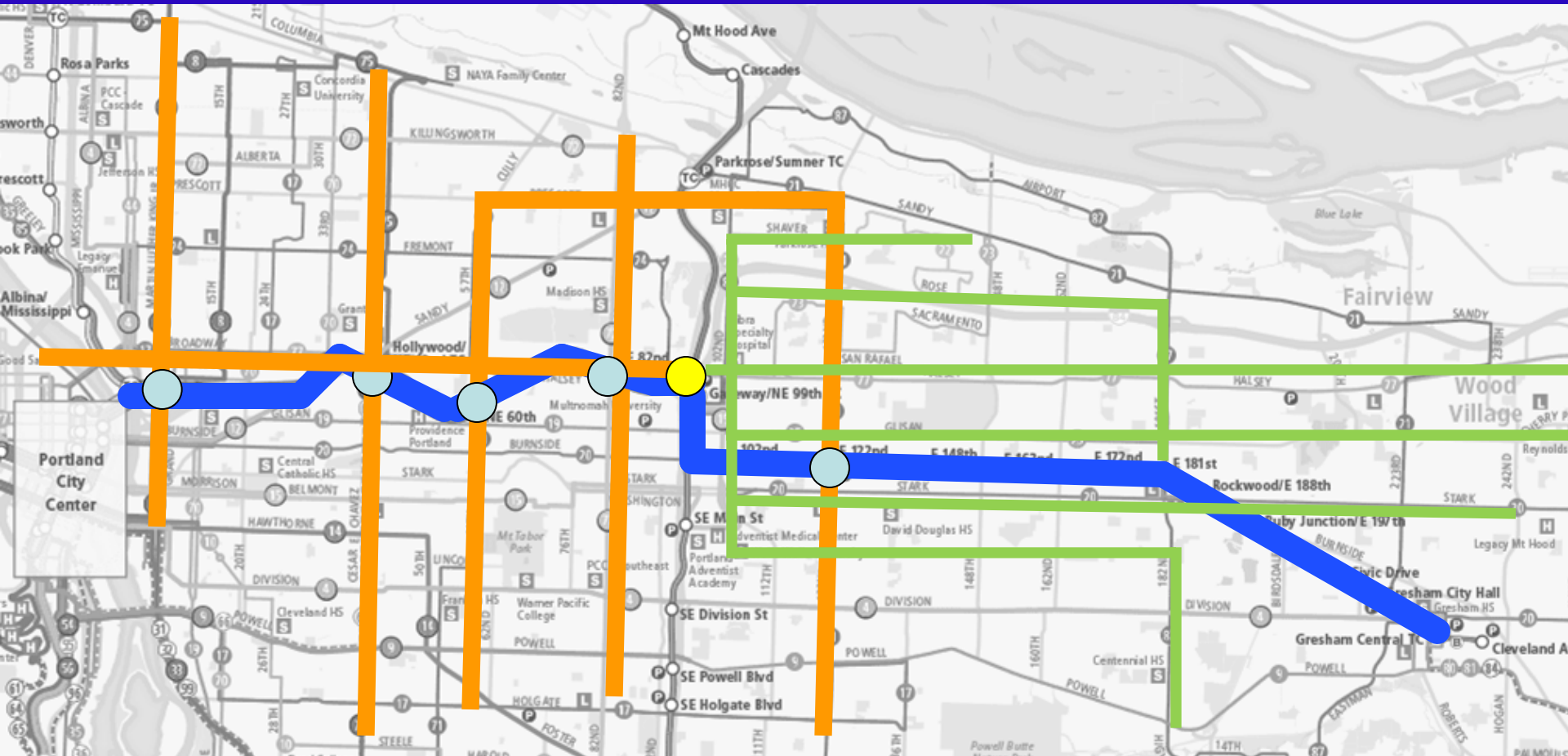
# Eastside Grid – 1982 North-South Connections



# Eastside Grid – 1986 New Grid Connections

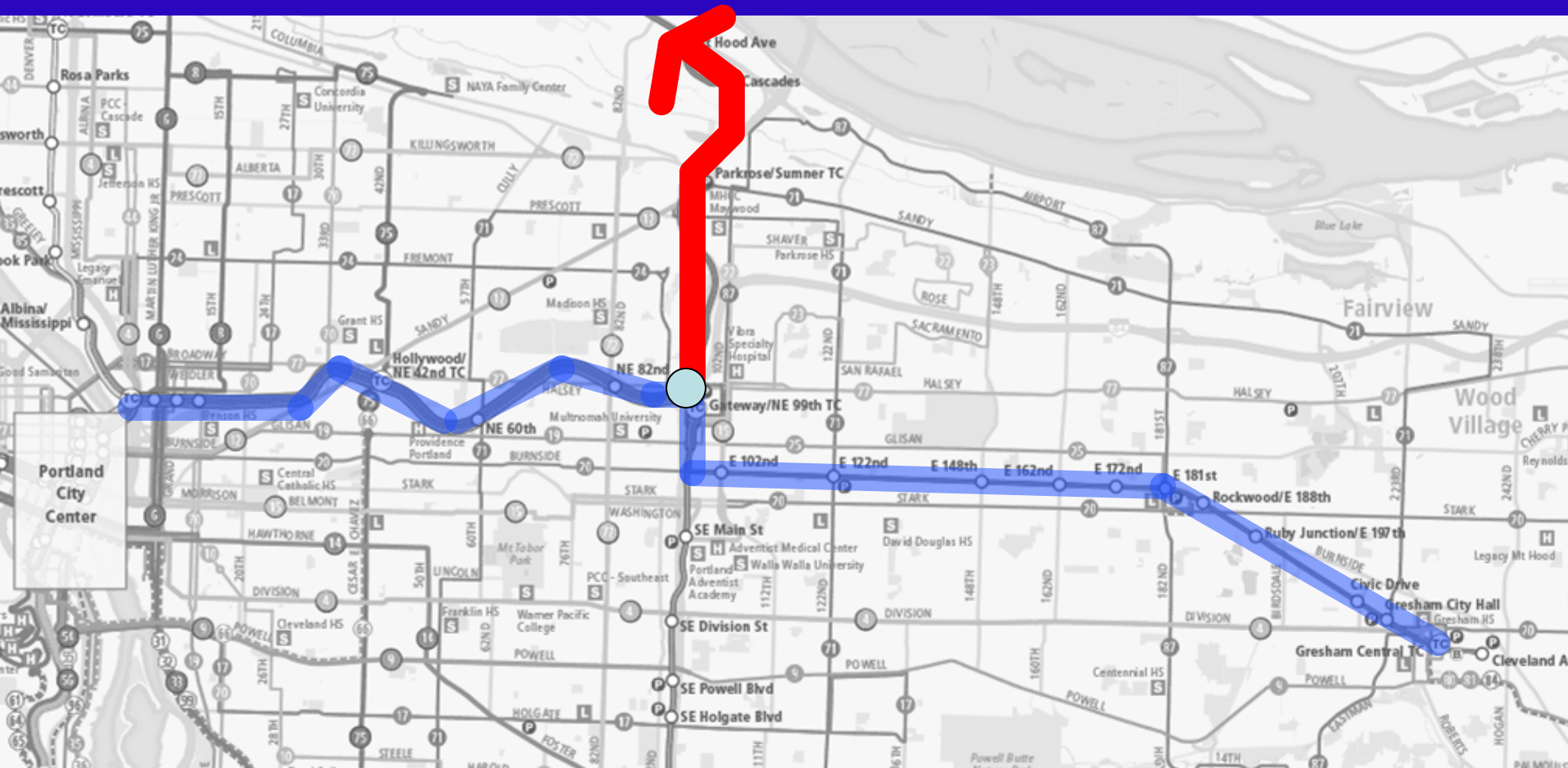


# Eastside Grid – 1986 Timed-Transfer Connections

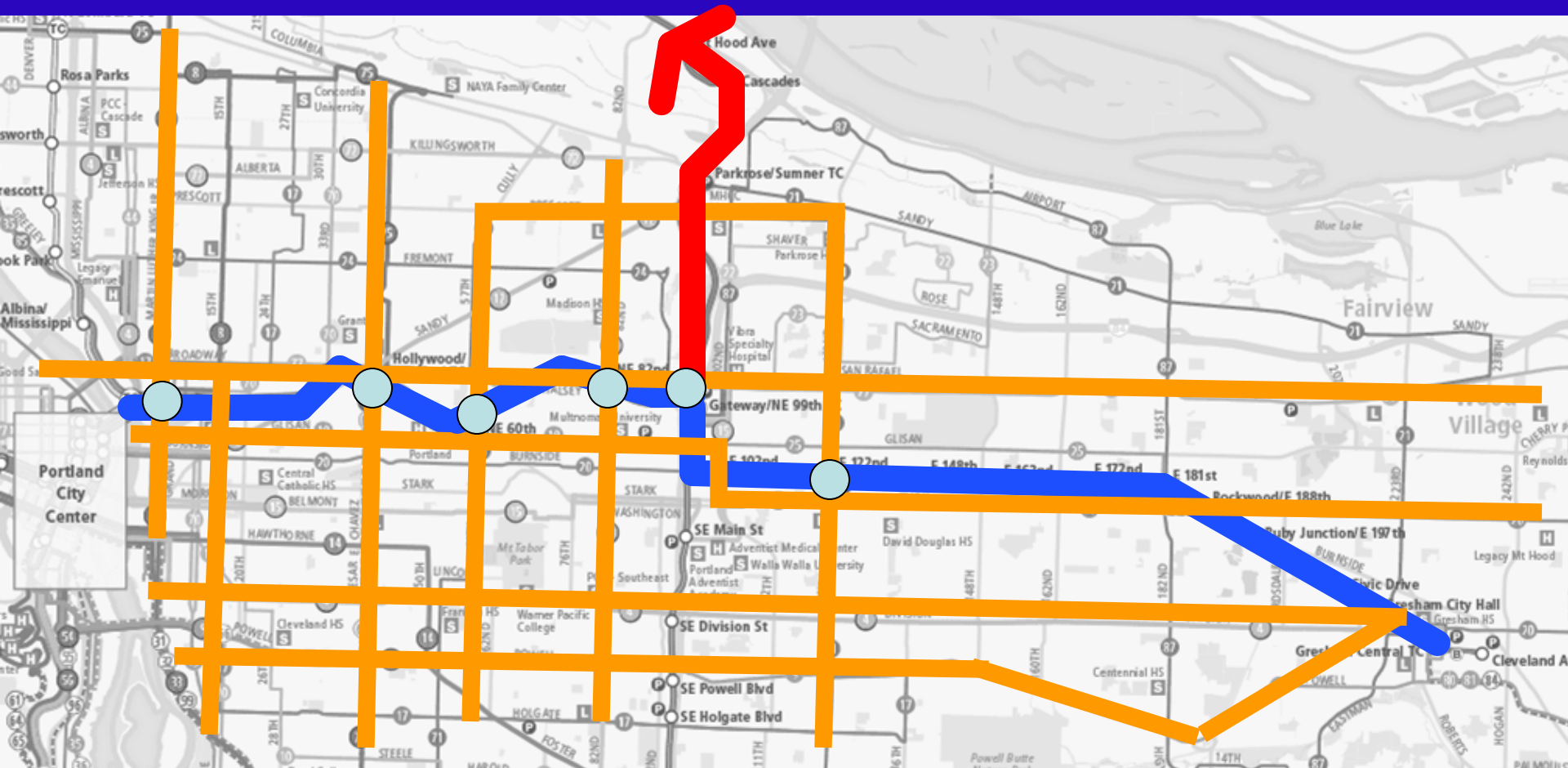




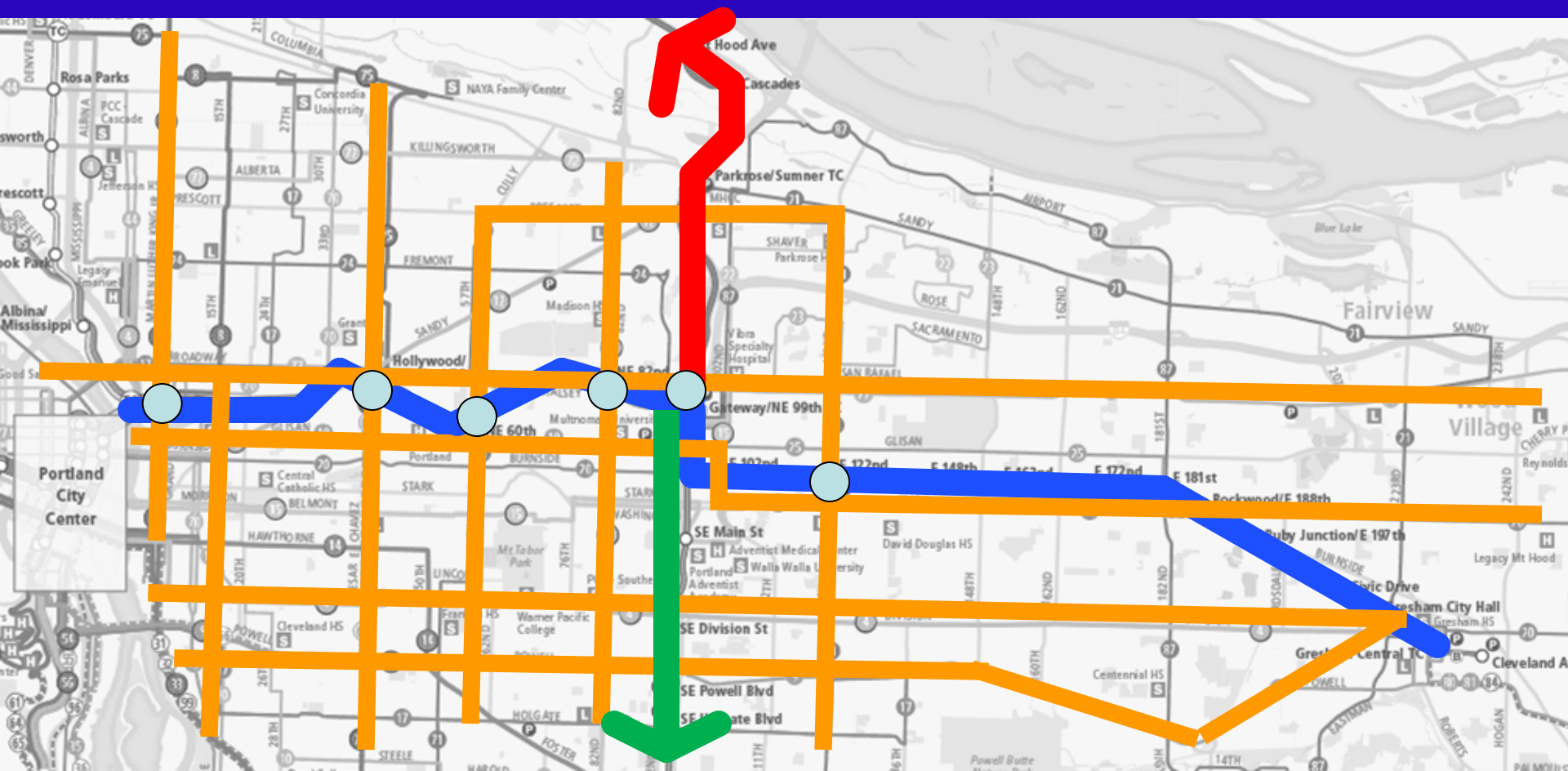
# Airport – 2001



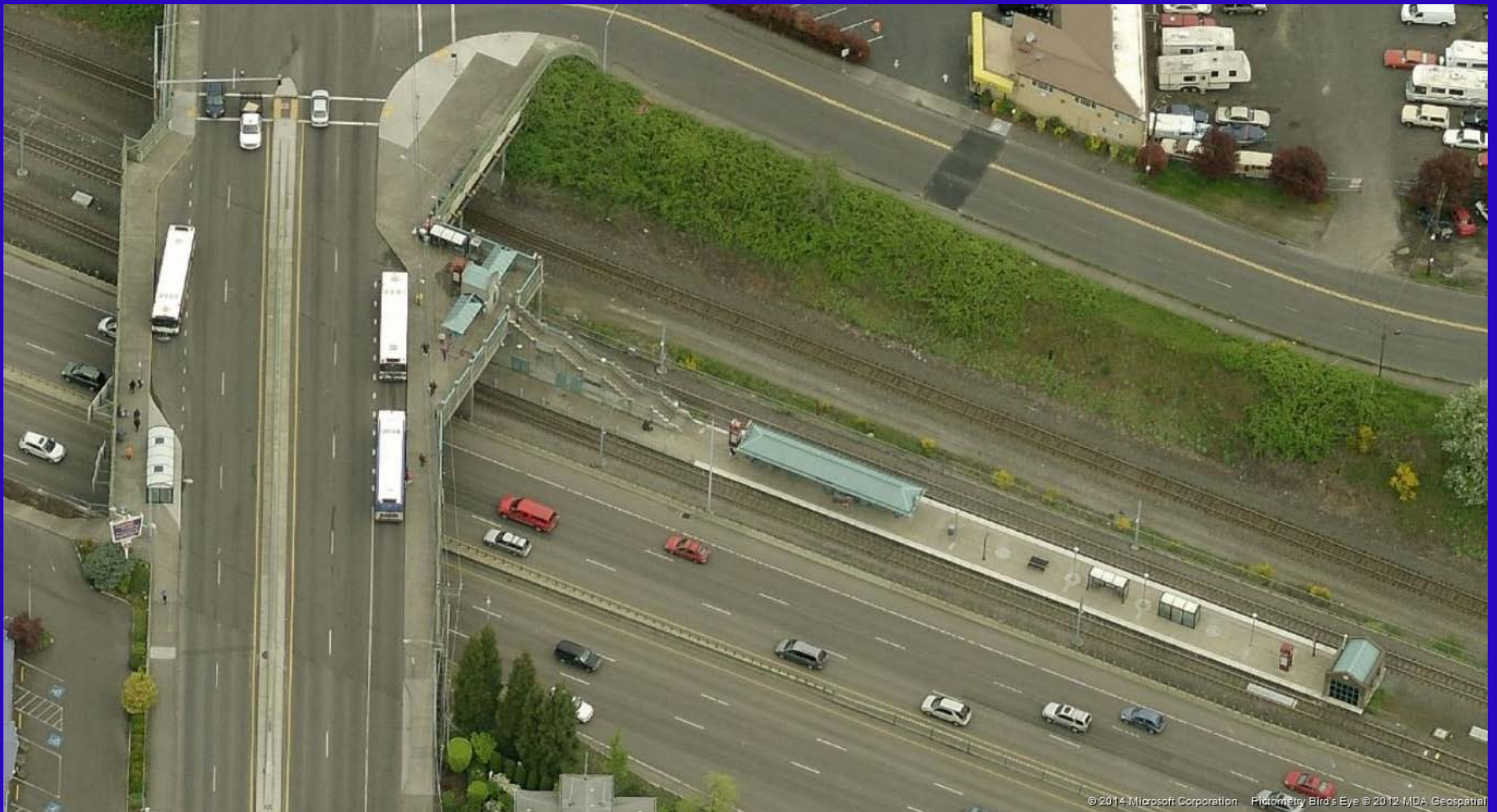
# Airport – 2001



# I-205 – 2009



# 82nd Avenue

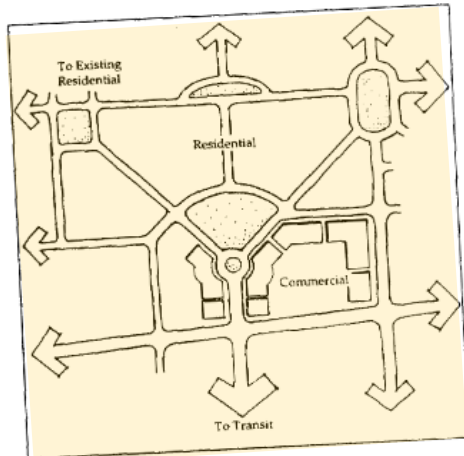
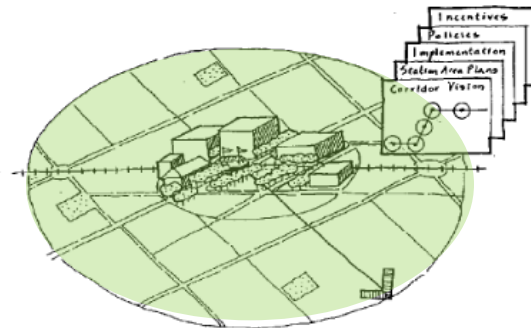
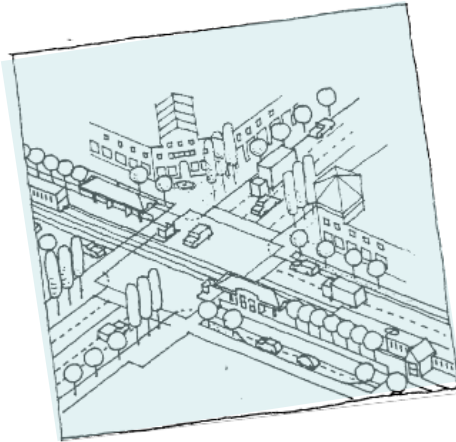


© 2014 Microsoft Corporation. Flightline, Bird's Eye © 2012 MDA Geospacial

# Gateway Transit Center



# Station Area Planning



# Downtown Streetscape

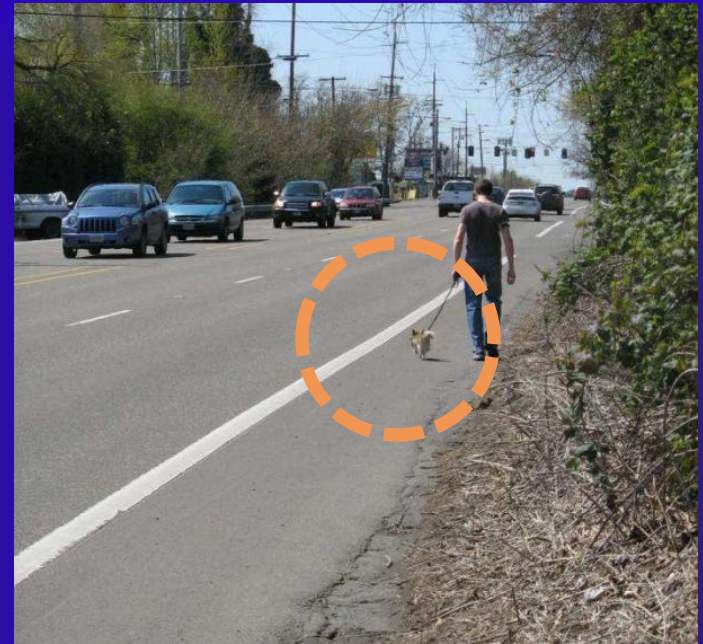


# Pedestrian Environment

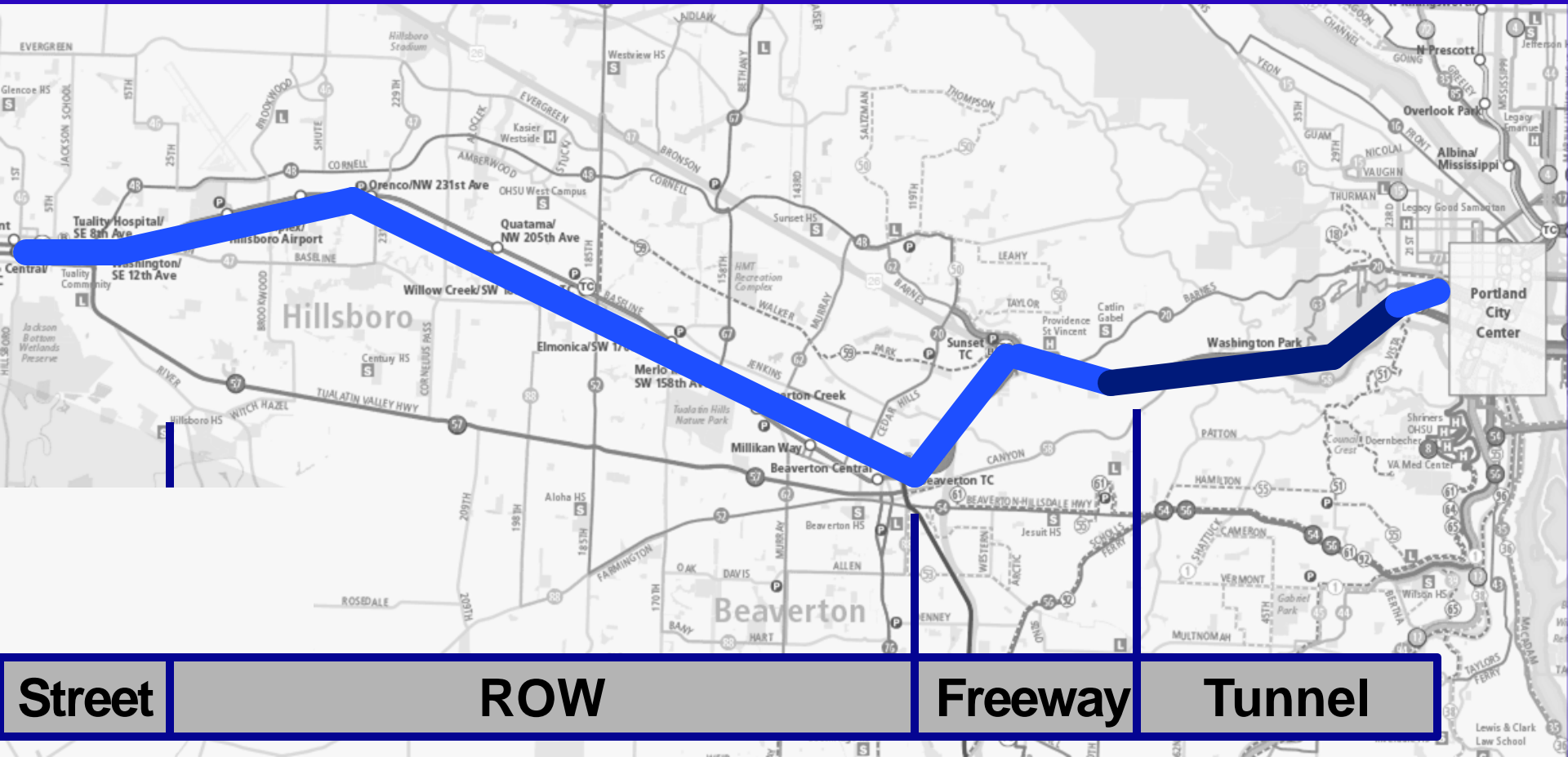




# Pedestrian Environment



# Westside – 1998



Street

ROW

Freeway

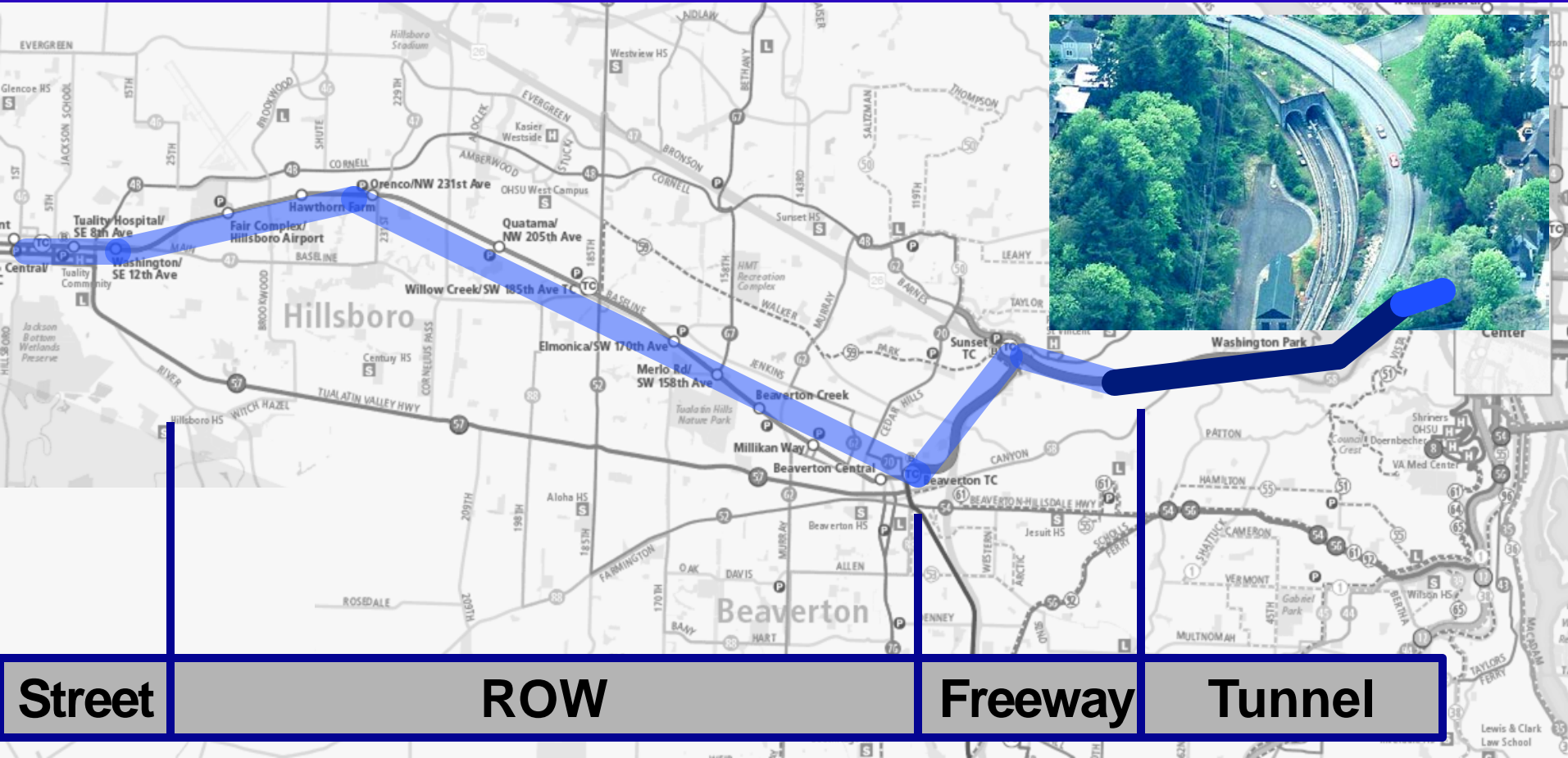
Tunnel



13<sup>th</sup> National Light Rail & Streetcar Conference



# Robertson Tunnel



Street

ROW

Freeway

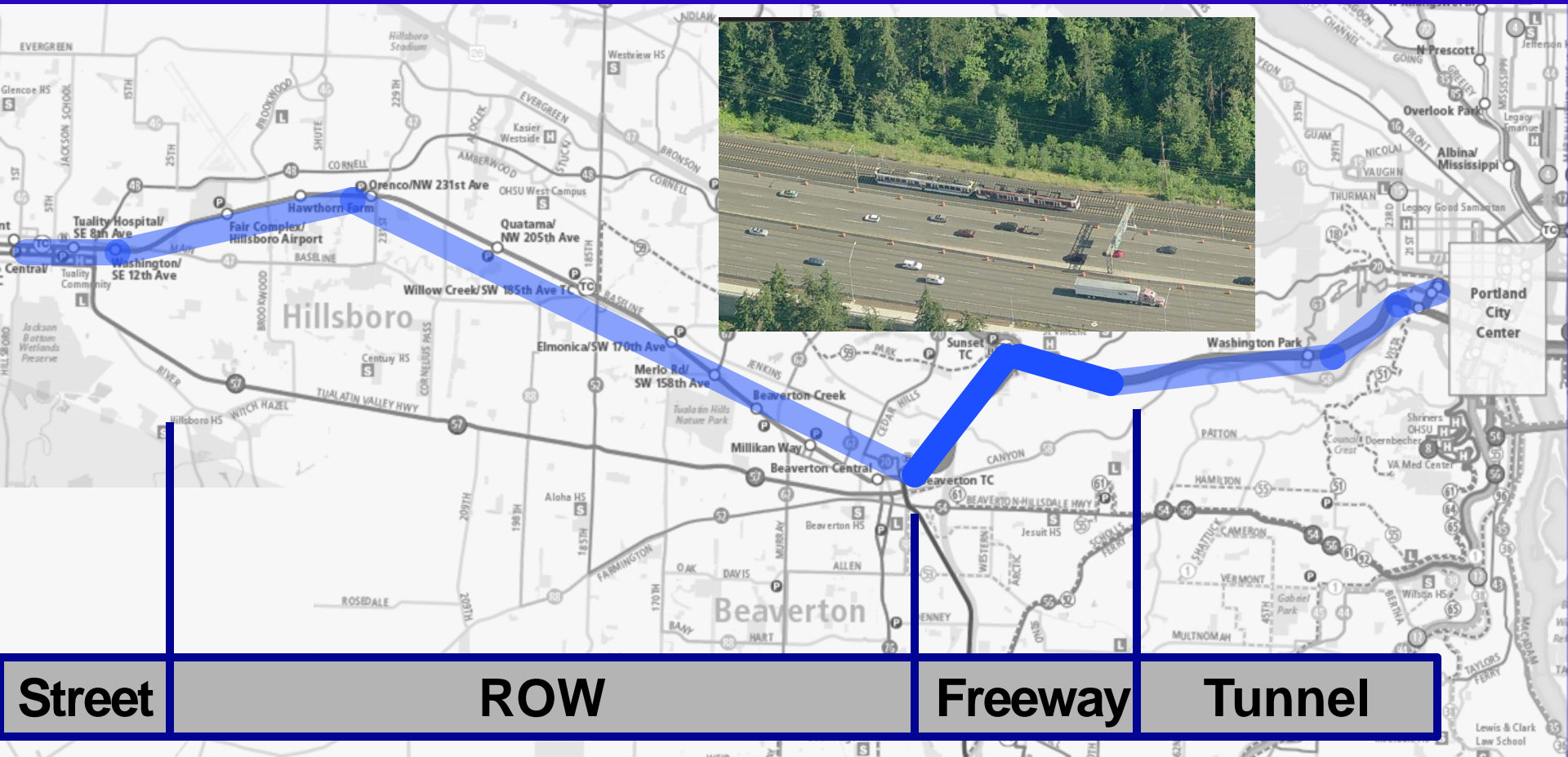
Tunnel



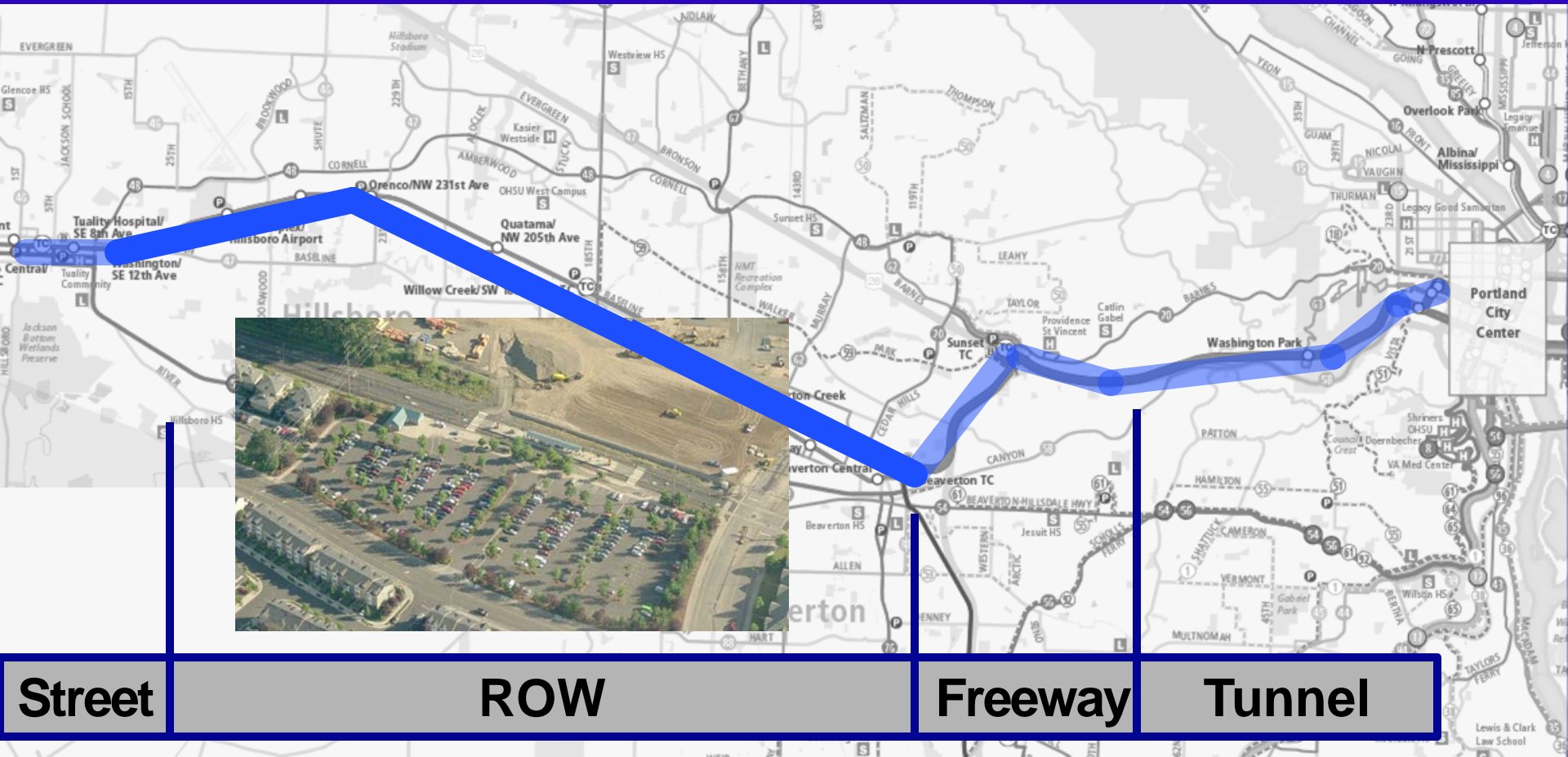
13<sup>th</sup> National Light Rail & Streetcar Conference



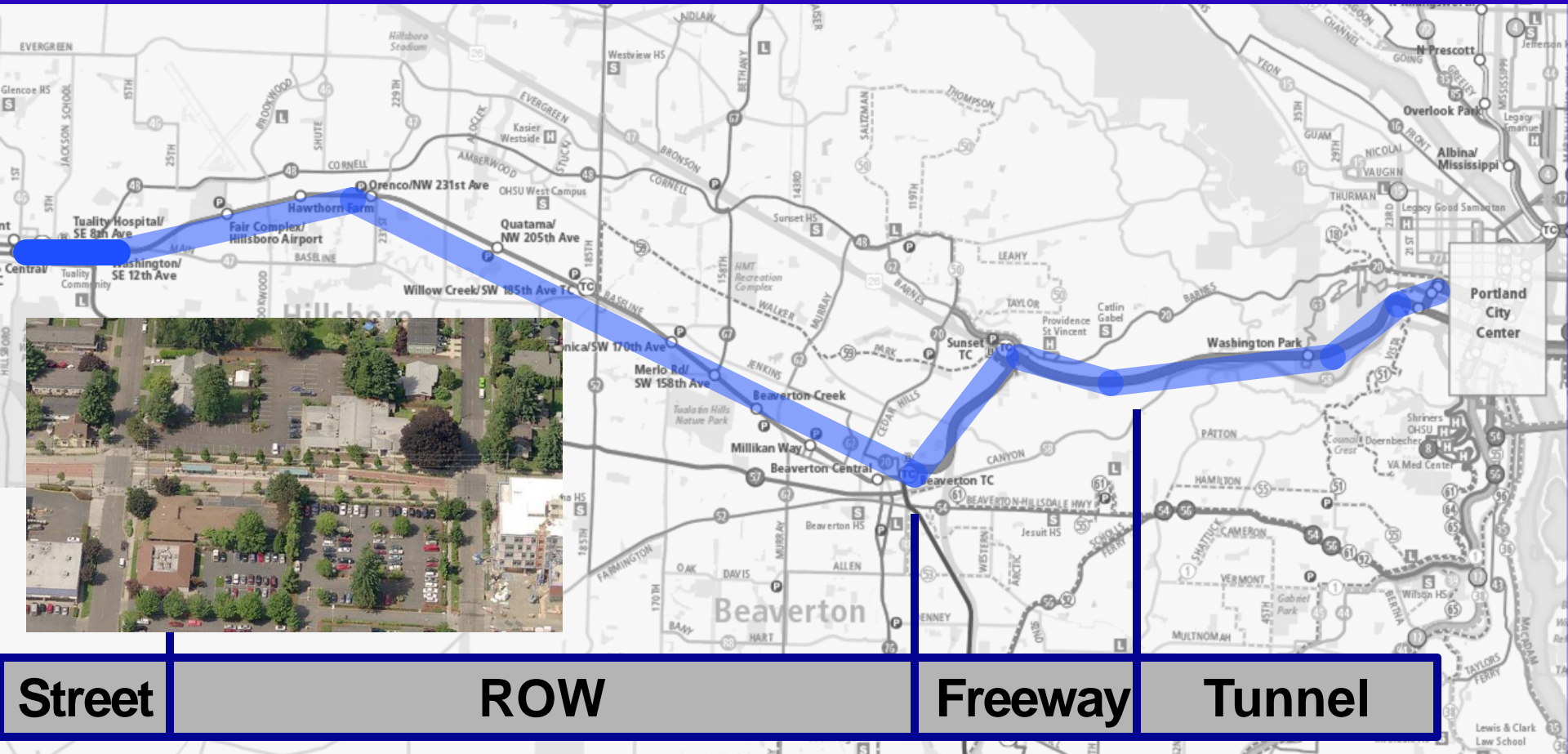
# Sunset Highway US 26



# Oregon Electric Interurban

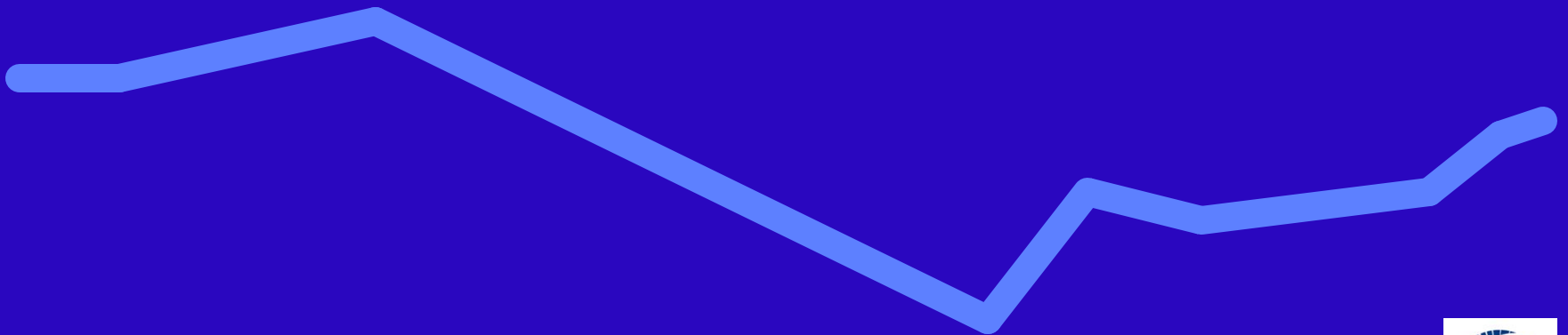


# Washington Street - Hillsboro

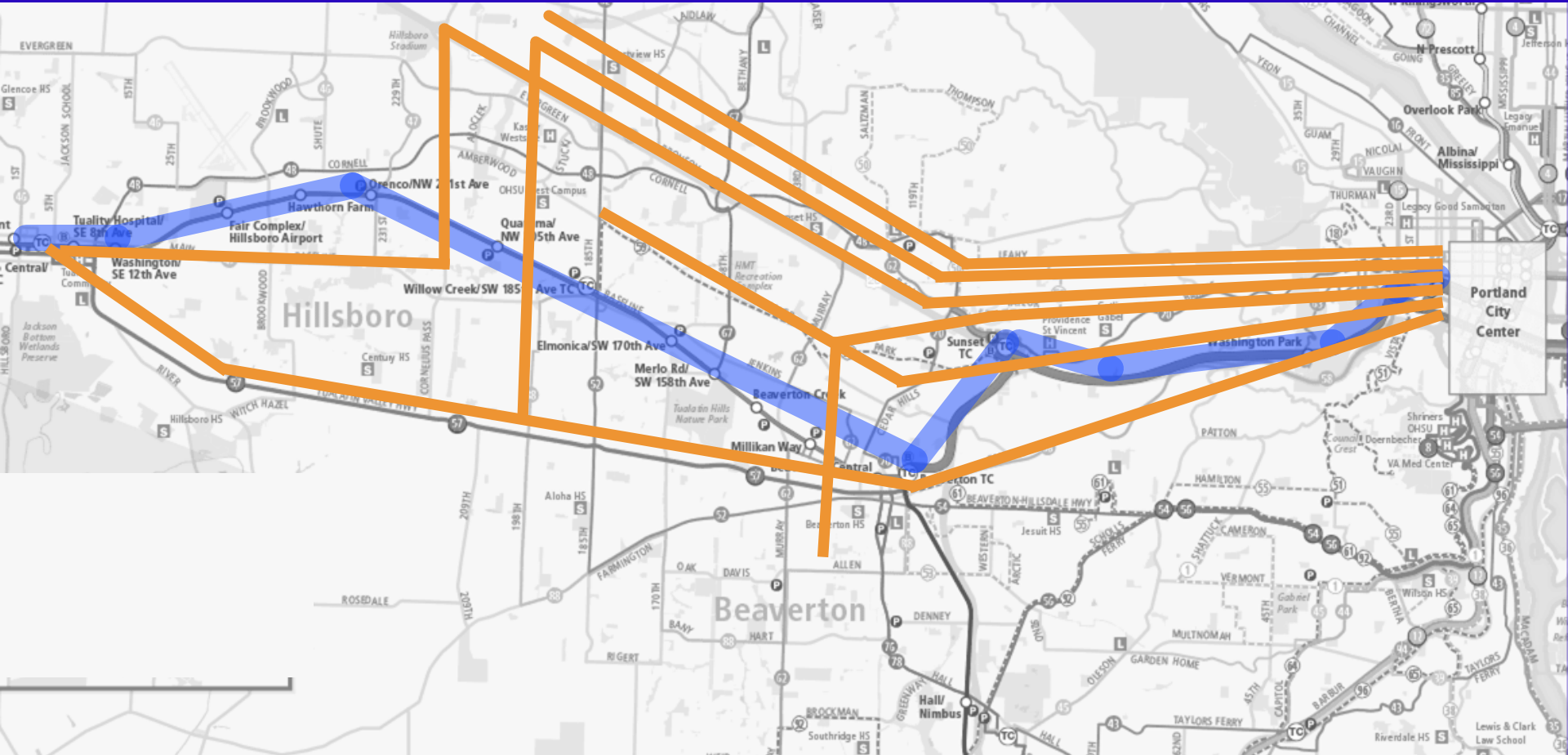


# Westside – 1998

- Engage stakeholders early & often
- Improve local connections
- Create corridor-wide land use plans
- Cultivate employer partnerships
- Address last-mile connections

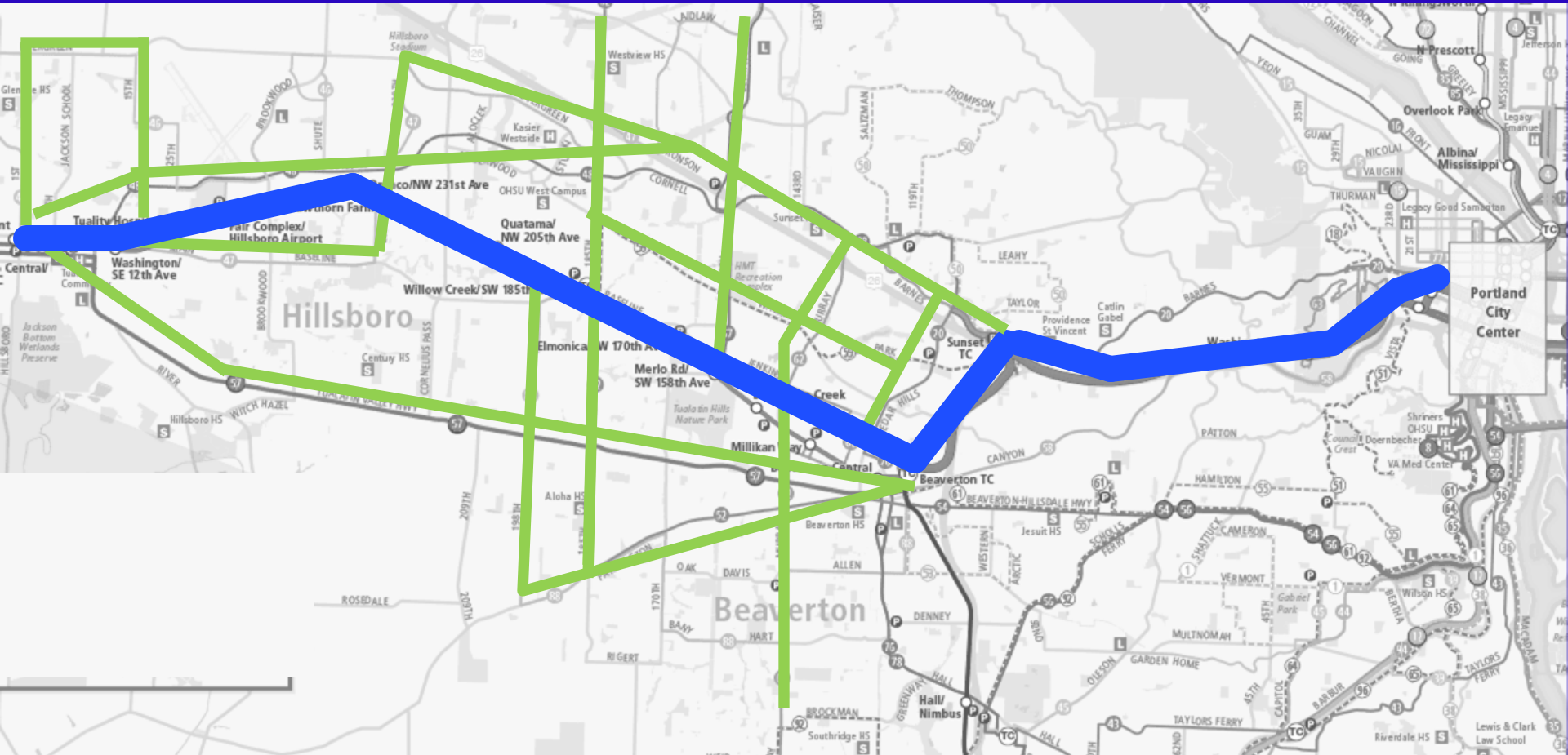


# Westside – 1997 Radial Routes

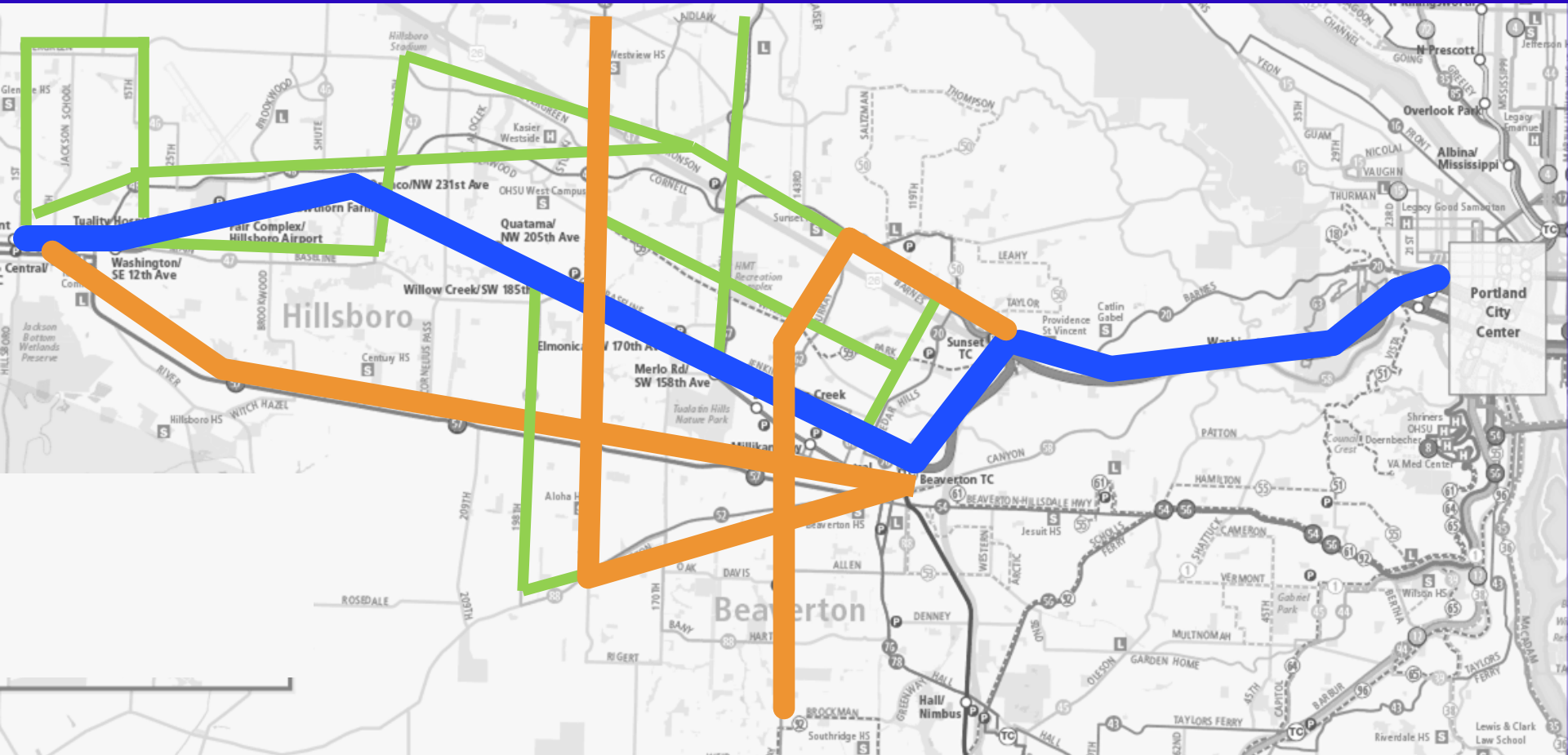




# Westside – 1998 Improved and New Local Routes



# Westside – 1998 Improved and New Local Routes



# Greenfields



# Transit Oriented Communities



# Beyond the Berm



# Silicon Forest

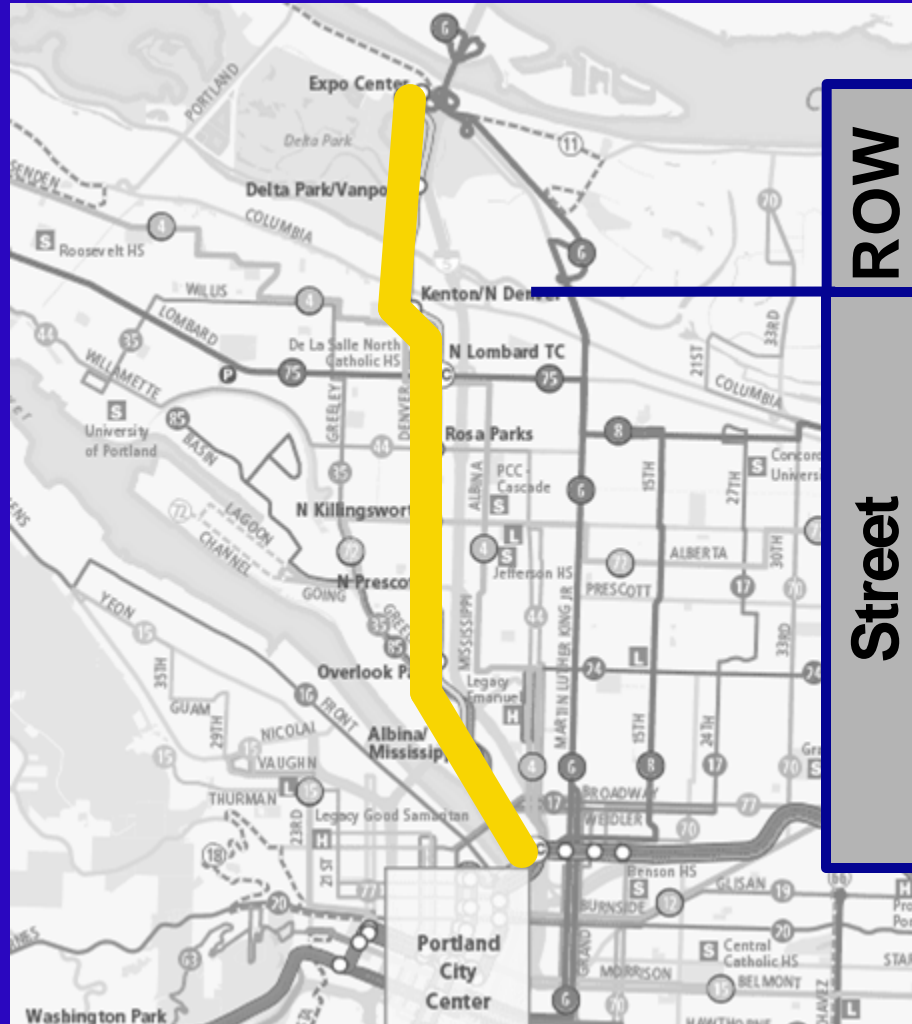
Ronler Acres Campus



# Last Mile Connections

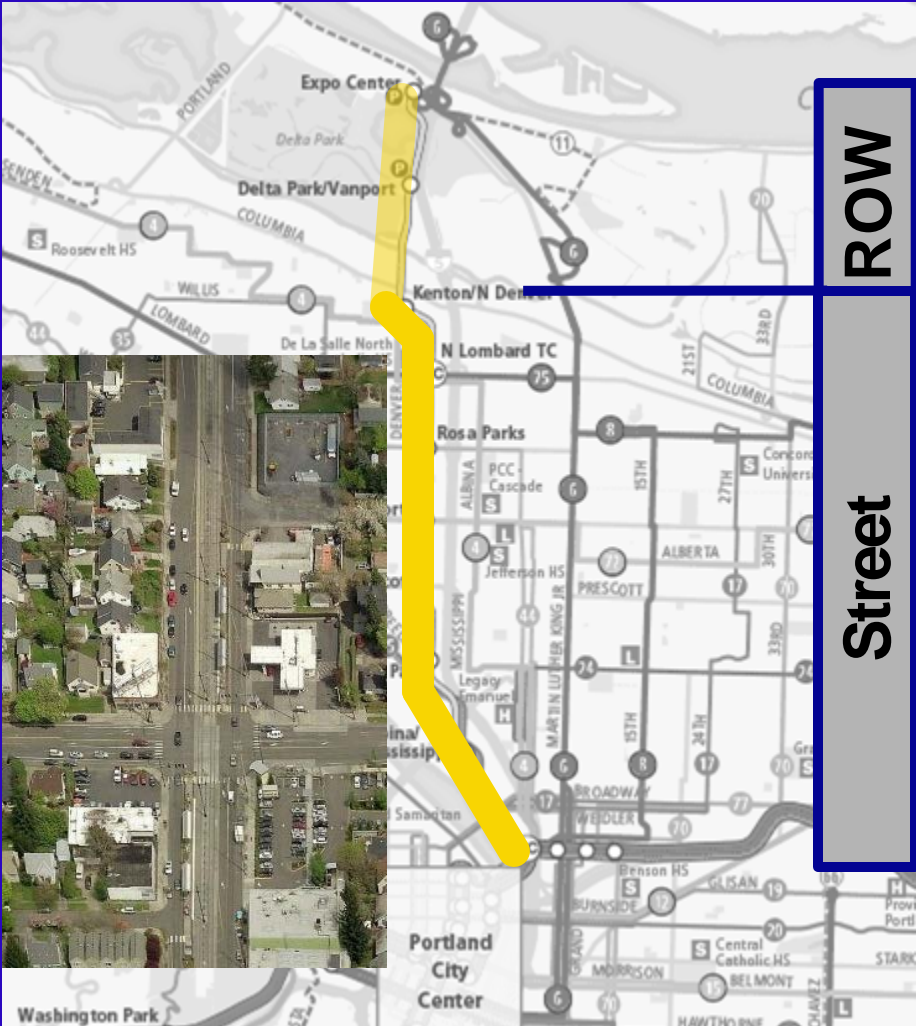


# Interstate – 2004

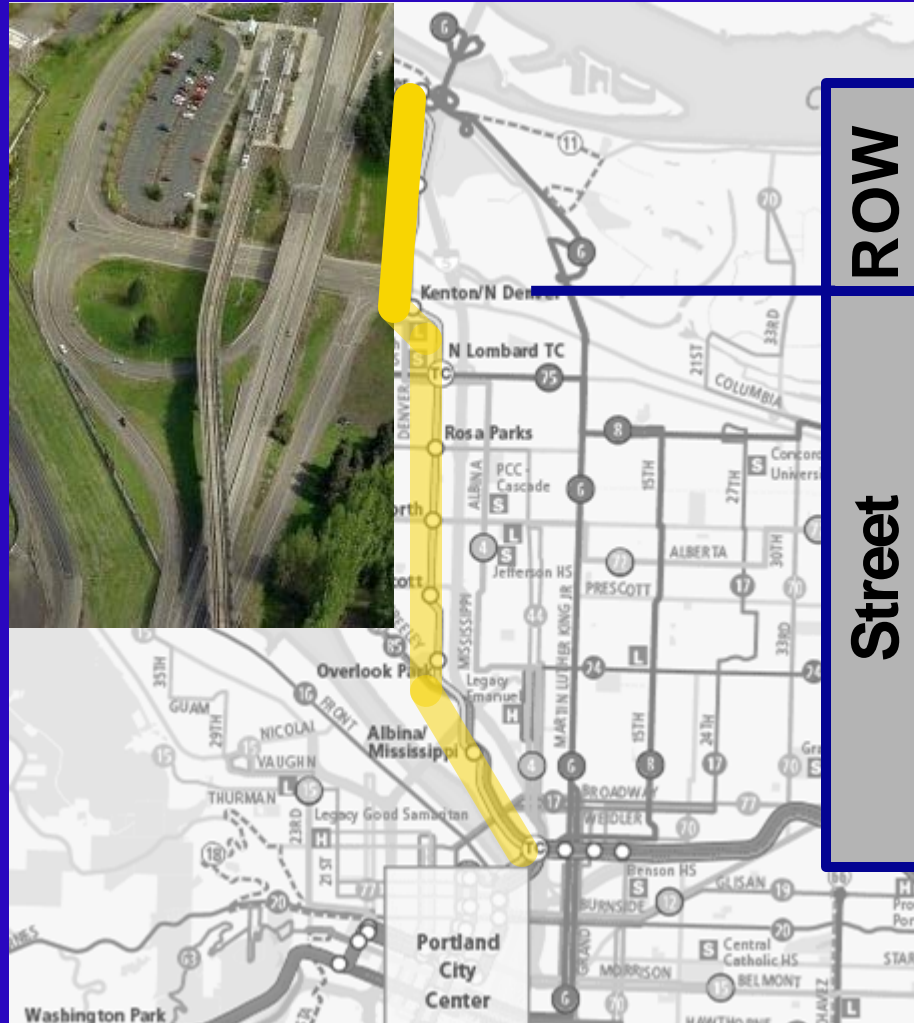




# Interstate Avenue



# Long Bridge



# Interstate

- Integrate LRT into grid
- Collaborate on ped access
- Try innovative marketing
- Design transfer connections

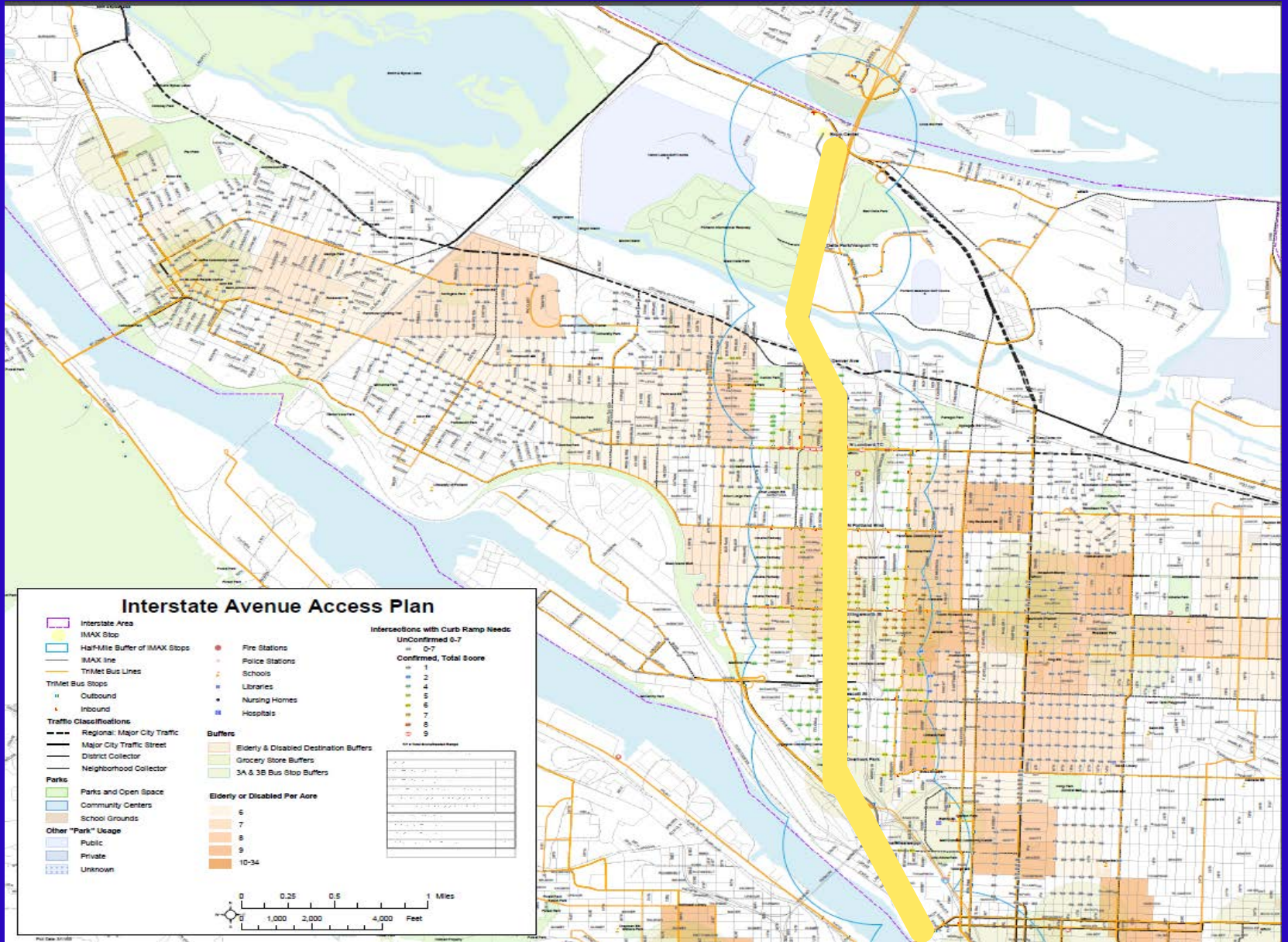


# Frequent Bus Connections



# Pedestrian Access





# Marketing



**SmartTrips** is the name for Active Transportation's programs to encourage alternative transportation choices. We want to make sure everyone who lives, works or runs a business in Portland knows about all the options they have for getting around. By choosing to walk, bike, take transit, and carpool Portlanders increase fitness, save money, reduce traffic congestion, and help maintain a liveable environment.

**2014 SmartTrips Welcome** [Click here](#) for information on our programs to encourage people who are new to the neighborhood to get around Portland by walking, biking, transit, etc.



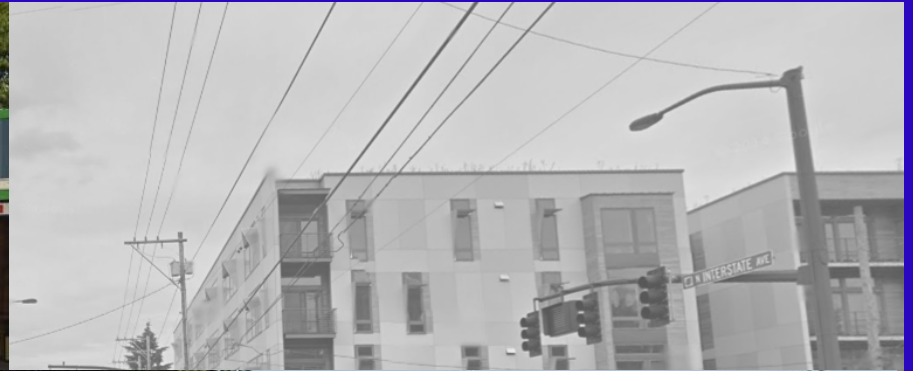
Commuting to work? [Click here](#) to get information on making your commute trips easier, healthier, and less expensive. Read more on the [SmartTrips Business homepage](#).

# Transfer Connections

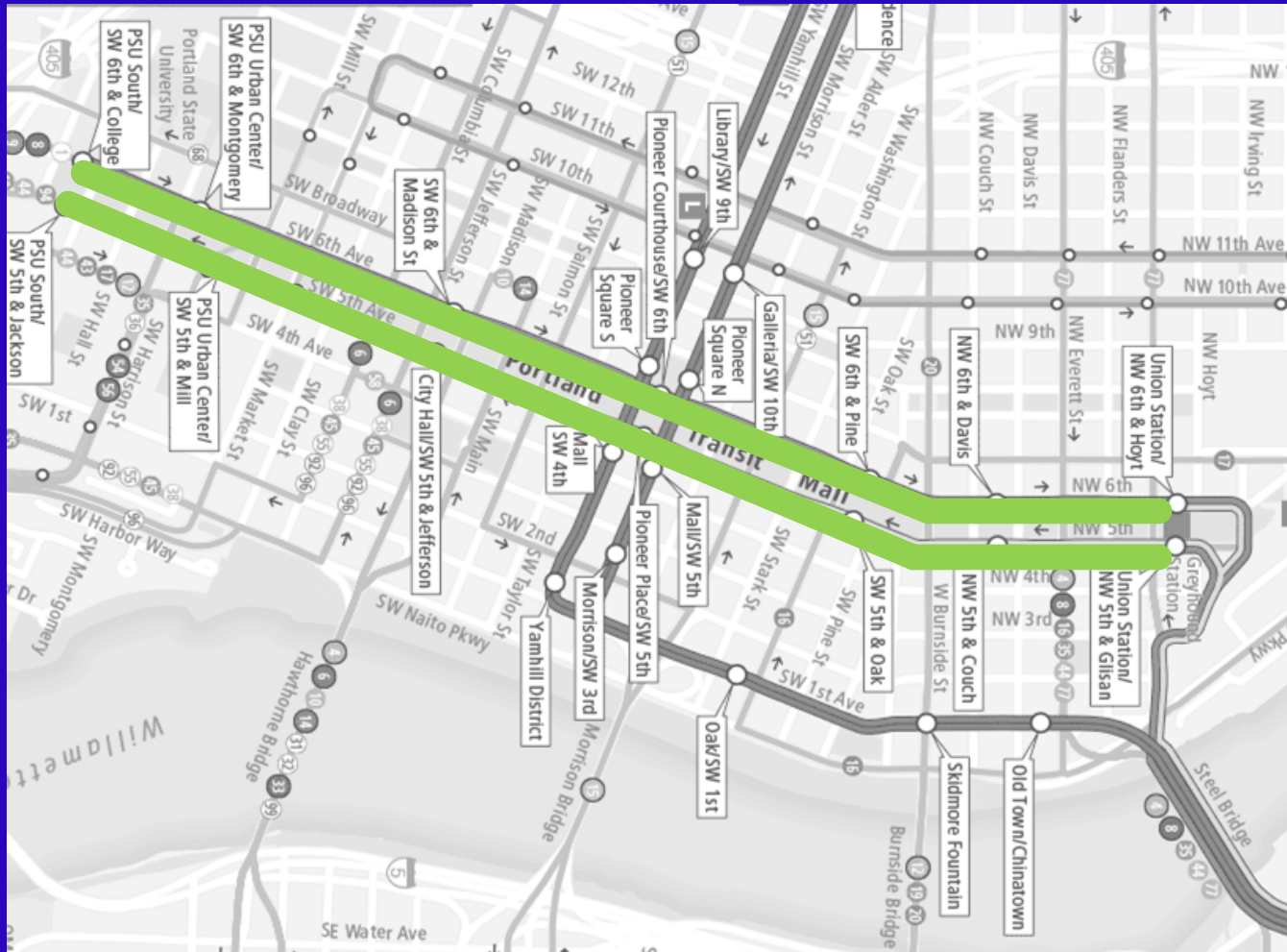




# Transfer Connections



# Portland Mall – 2009

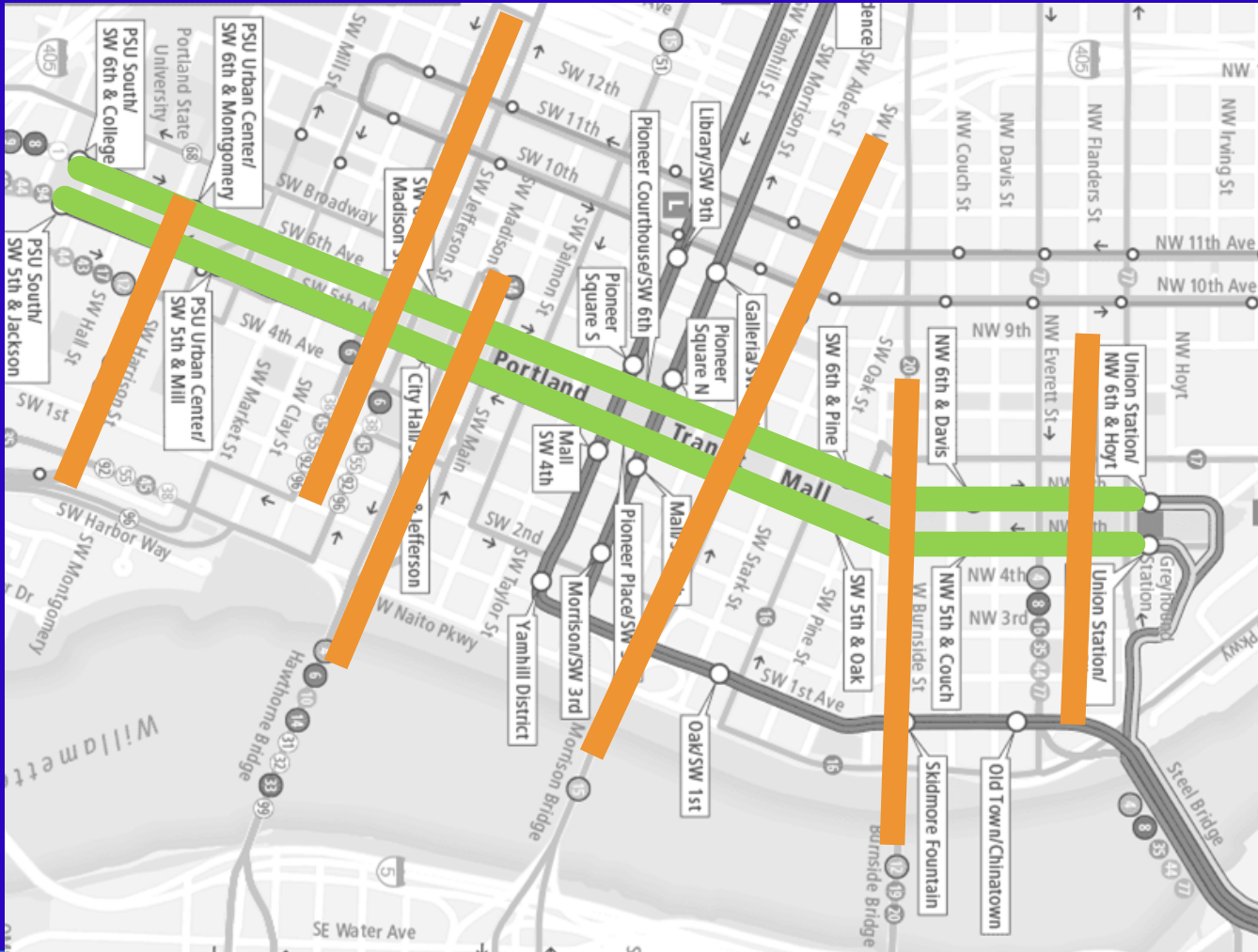


# Portland Mall- 2009

- Look for network efficiencies
- Engage design staff early and often
- Think beyond present operations
- Field test dimensions
- Convince with analysis

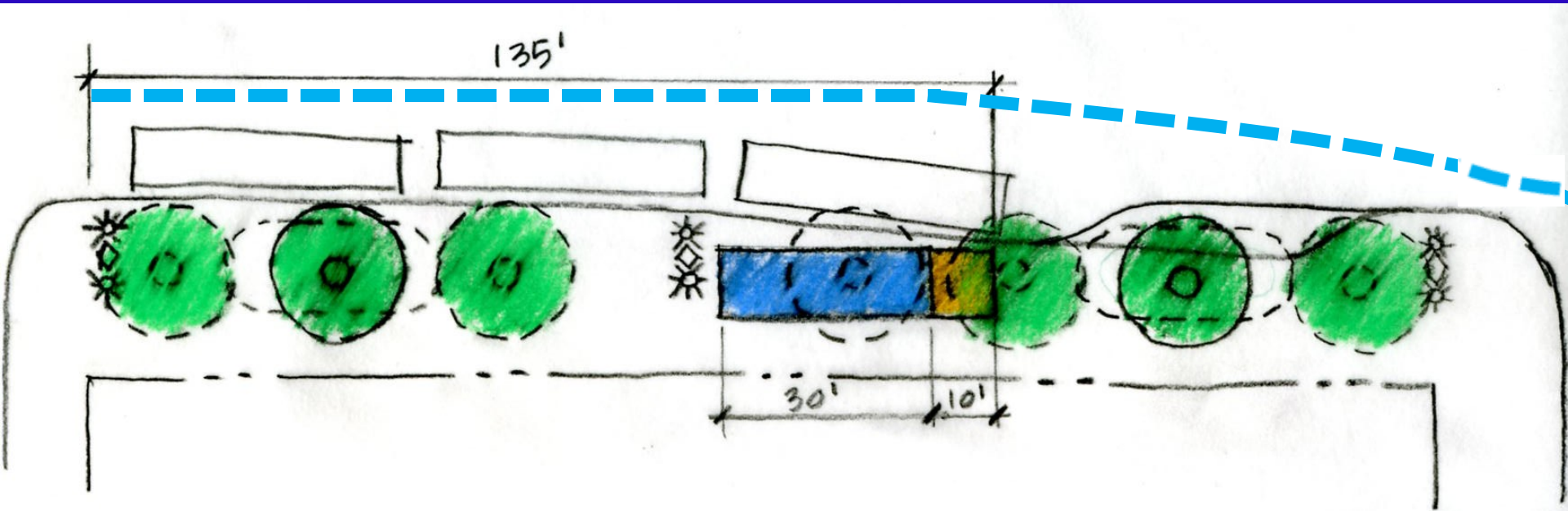


# Cross Mall Routes

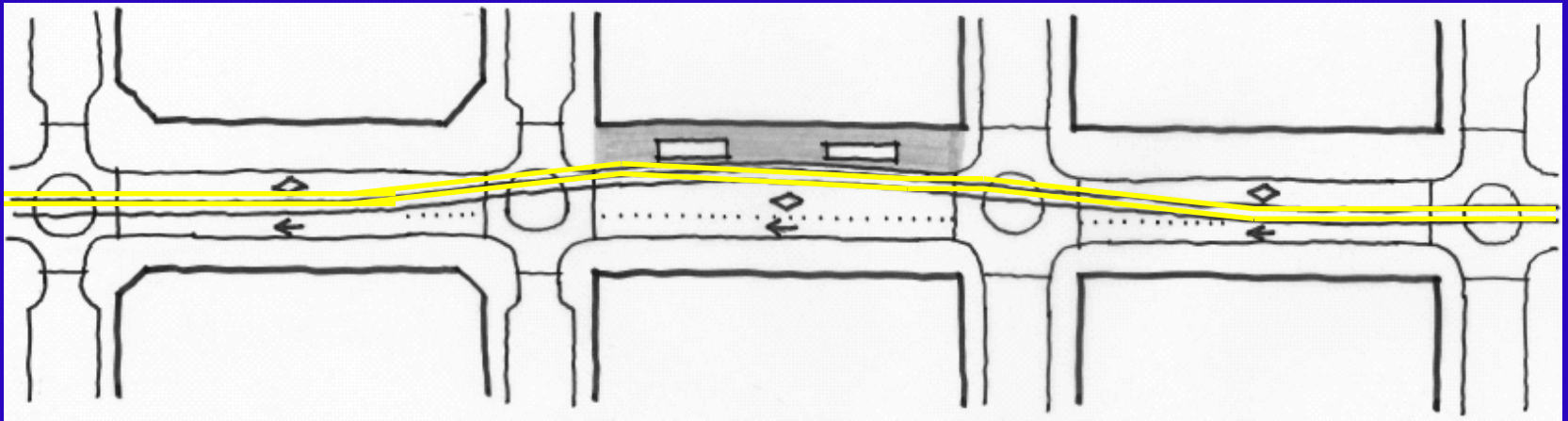


13<sup>th</sup> National Light Rail & Streetcar Conference

# Design Sketch



# The Weave



# Interdepartmental Team

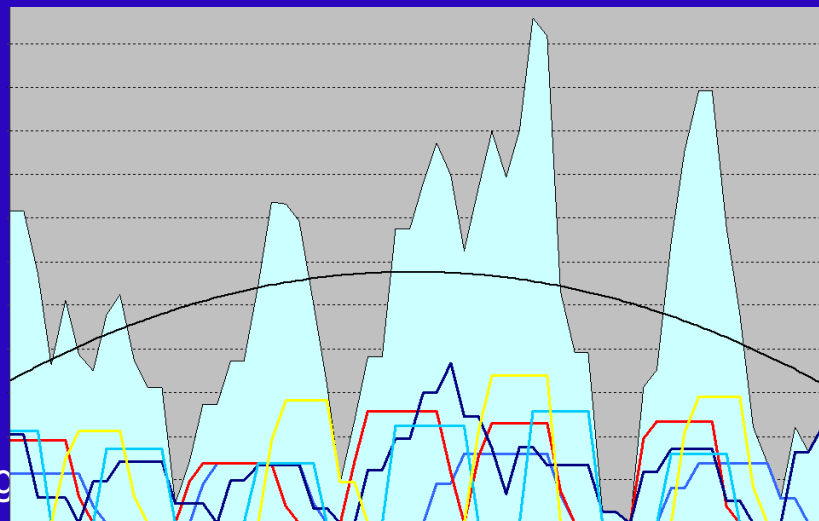
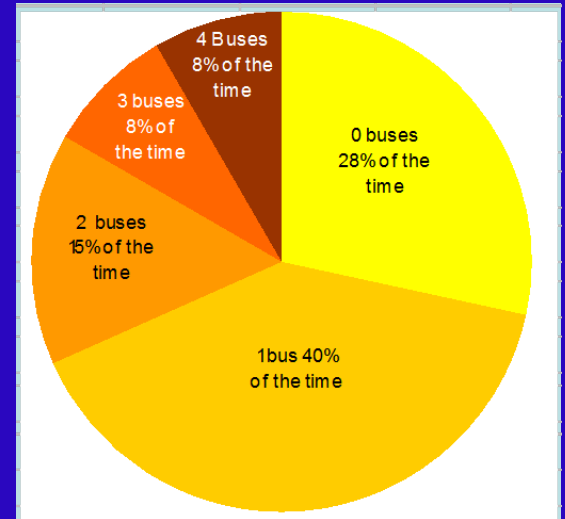
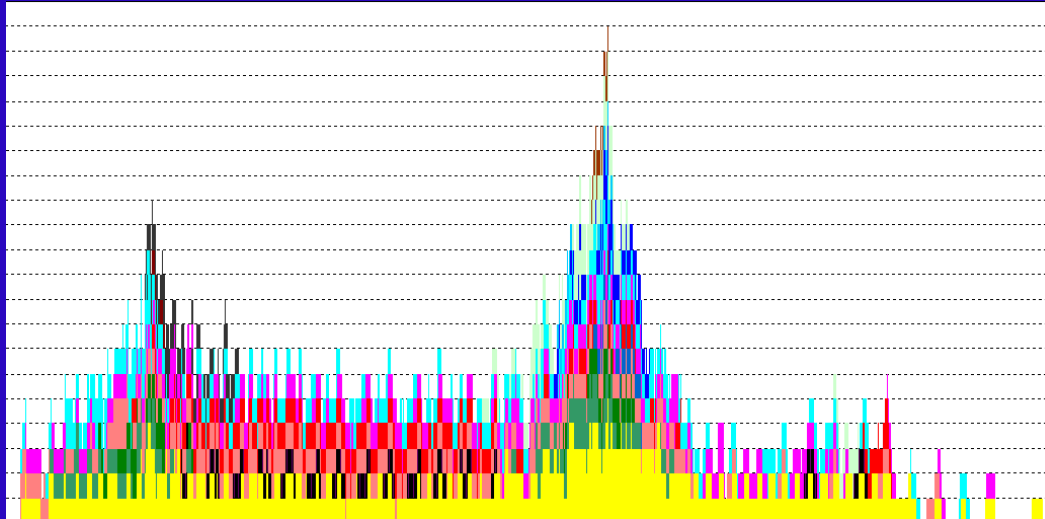


# Field Tests





# Design Analysis



# Multimodal Portland Mall



