

Moving people: prioritizing transit

Simply having transit service isn't good enough, provide reliable transit is the key



ITE 2016 Annual Meeting & Exhibit
Owen Kehoe and Reiner Blanco
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Our mission, vision, and core values

Mission: deliver a high-quality transportation system for Seattle

Vision: connected people, places, and products

Committed to **5 core values** to create a city that is:

- Safe
- Interconnected
- Affordable
- Vibrant
- Innovative

For **all**

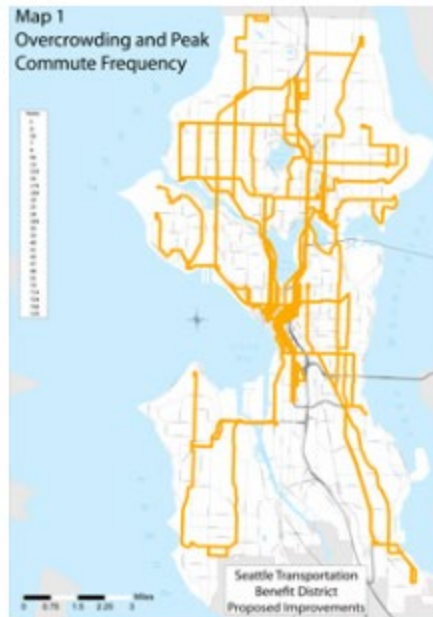
Presentation overview

- Background
- Problem Statements
- The *Speed & Reliability Toolbox*
- Case Study: RapidRide C-Line Extension
- Lessons Learned
- Capital Costs

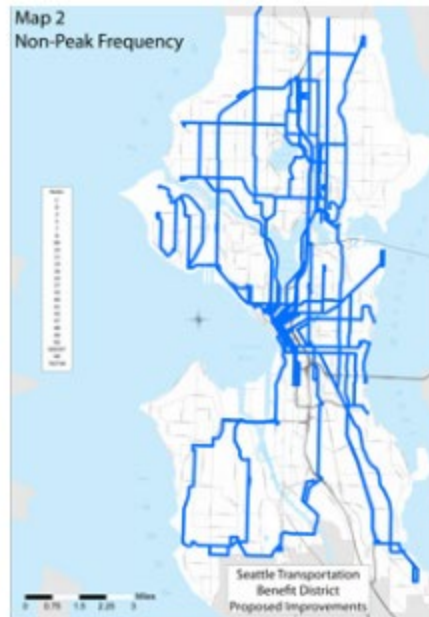
Background

- Seattle residents voted for better bus service when [Proposition 1](#) was approved in November 2014.

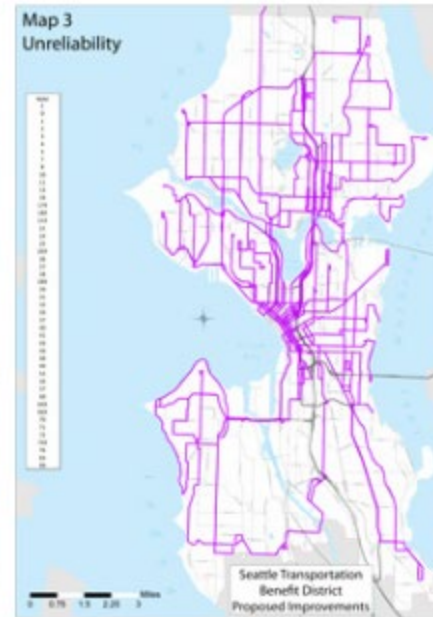
Reduced Bus Overcrowding



Increased Bus Frequency



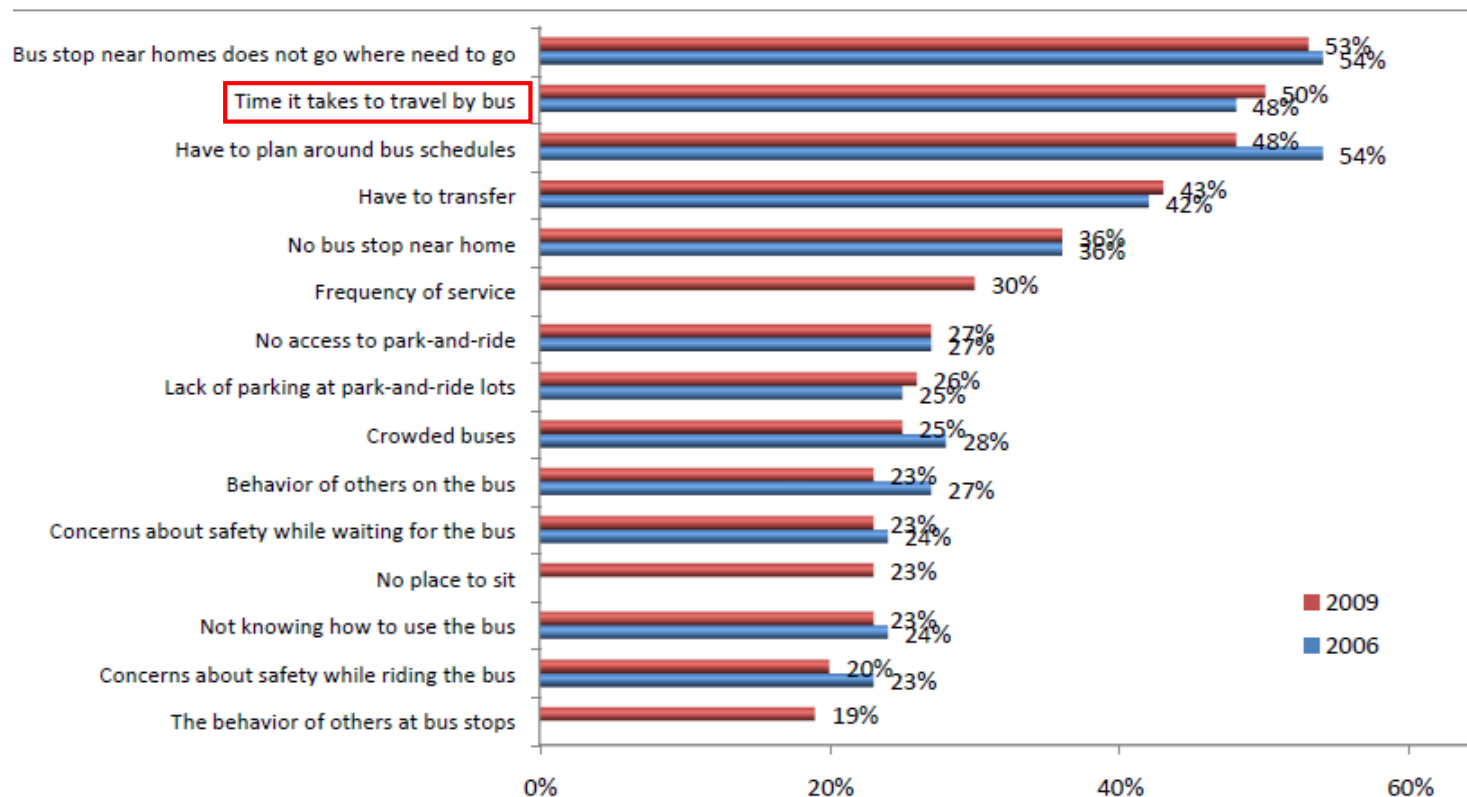
Increased Bus Reliability



Source: Seattle Department of Transportation (SDOT)

Problem: Buses are Slow

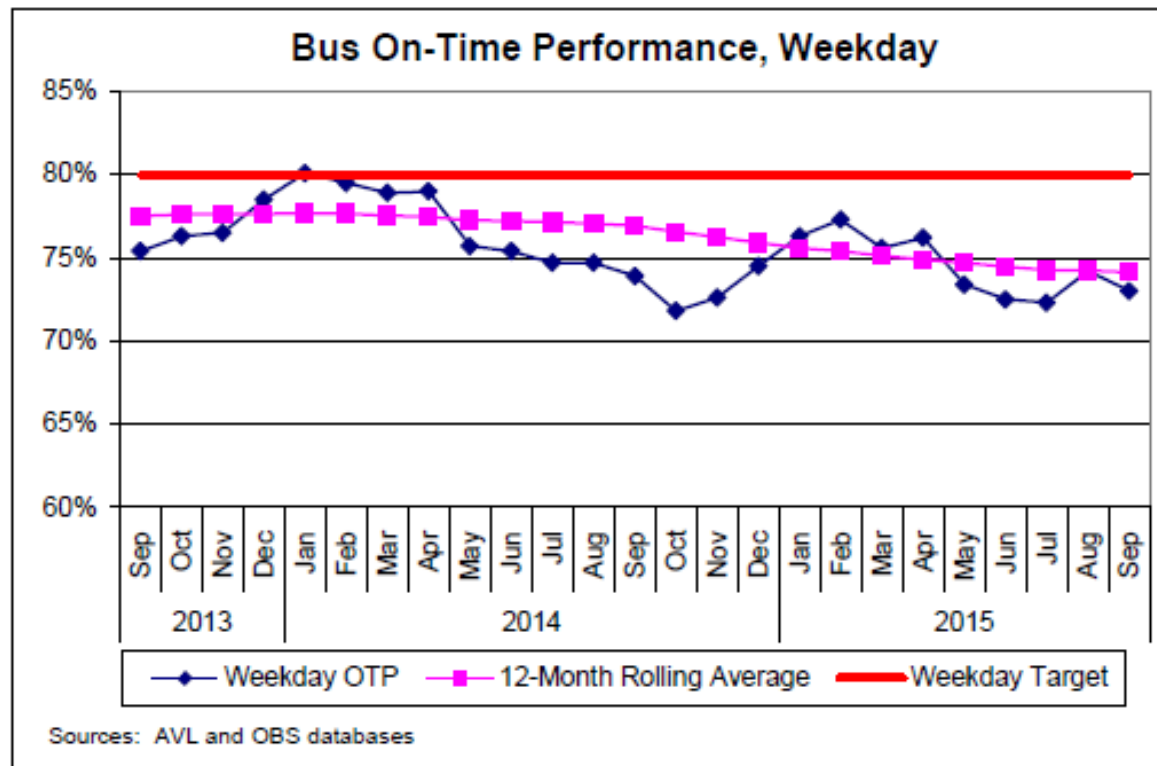
- Barriers to Taking the Bus



Source: King County Metro
Rider / Non-Rider Survey 2009

Problem: Slow buses cost money

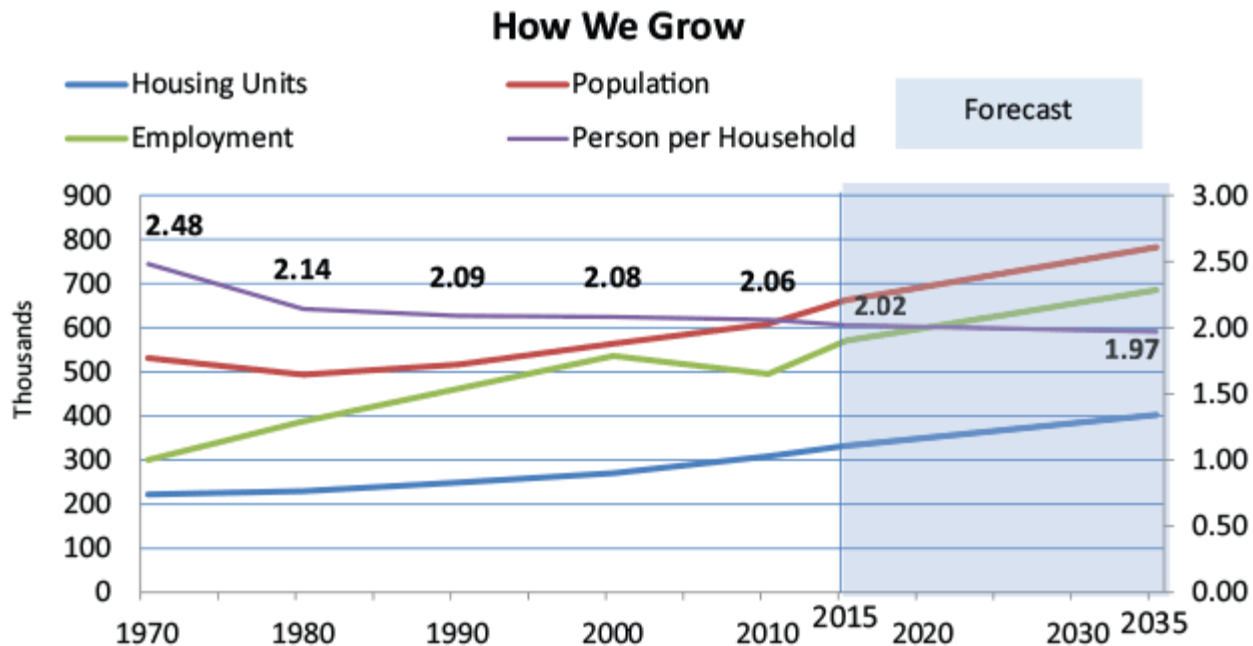
- $\text{Cost} = \# \text{ of buses} = \text{Cycle Time} / \text{Headway}$
- Cycle Time includes recovery
 - 90th percentile target for recovery



Source: King County
Metro October 2015
System Performance
Indicators Report

Problem: More people; finite R.O.W.

- Seattle Population projects



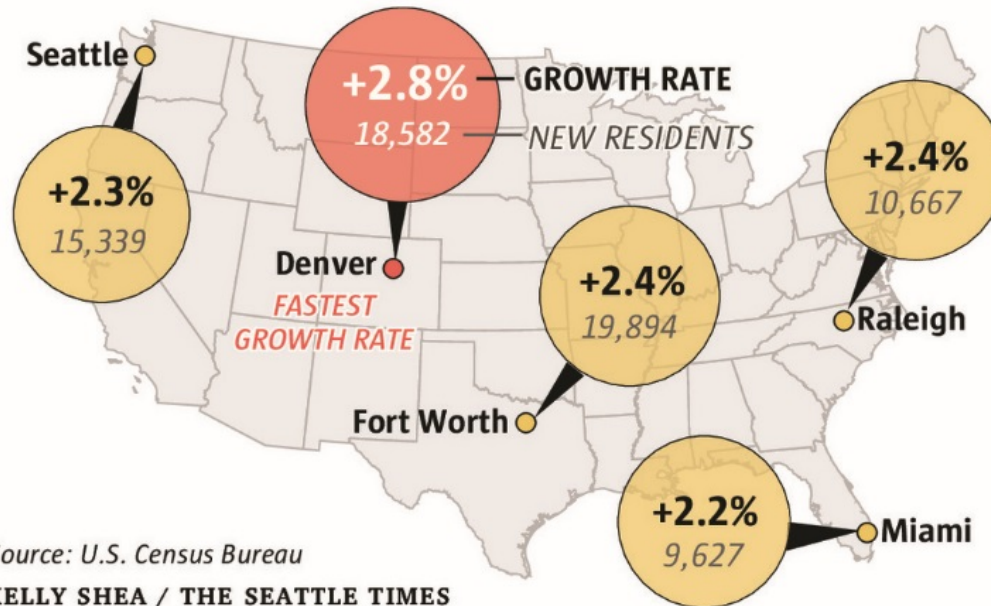
Source: Seattle Office of Planning & Community Development

Problem: More people; finite R.O.W.

- Center City growth

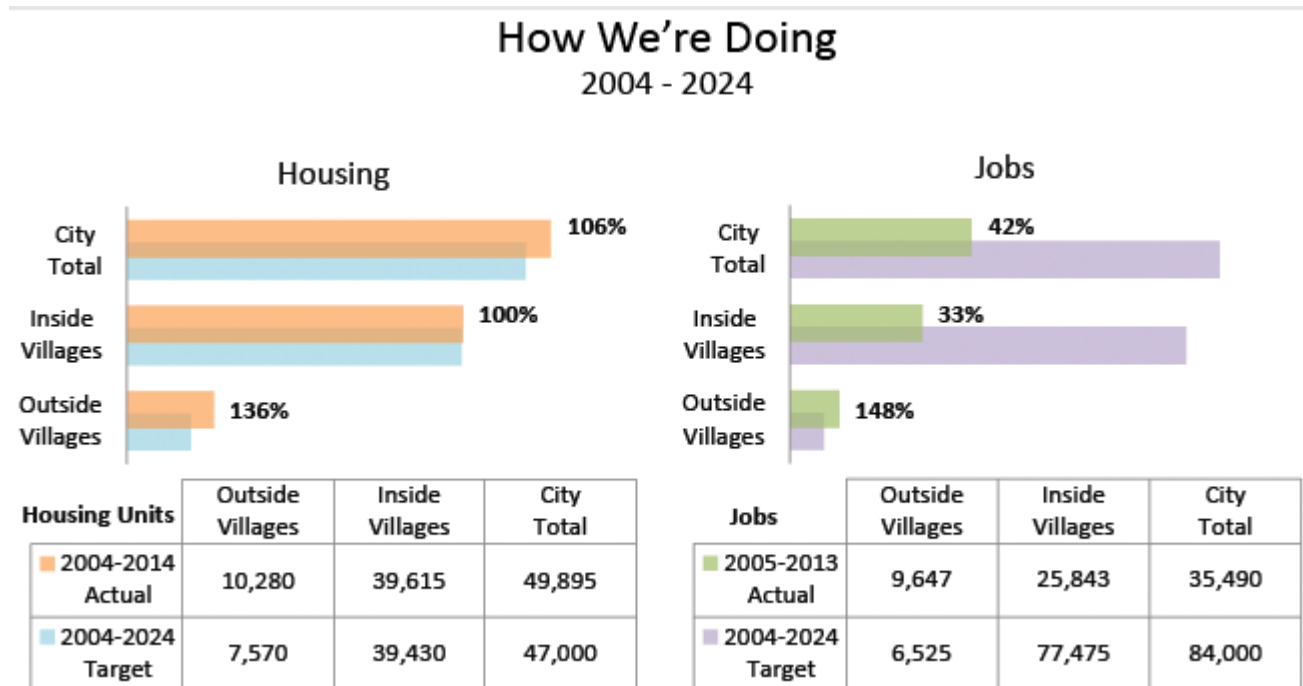
Seattle No. 4 for growth

Seattle grew by 2.3 percent between 2014 and 2015, ranking fourth among the 50 largest U.S. cities, according to new census data.



Seattle is growing

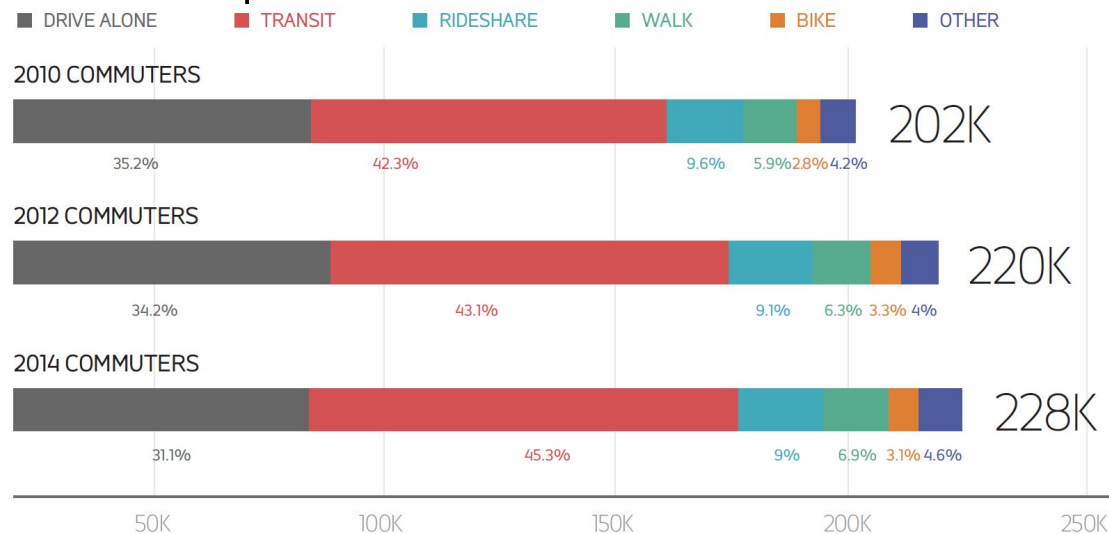
- Job growth



Source: Seattle Office of Planning & Community Development

Problem: More people; finite R.O.W.

- New residents do not bring new lanes with them
- Need to use existing resources better
- Residents expect choices

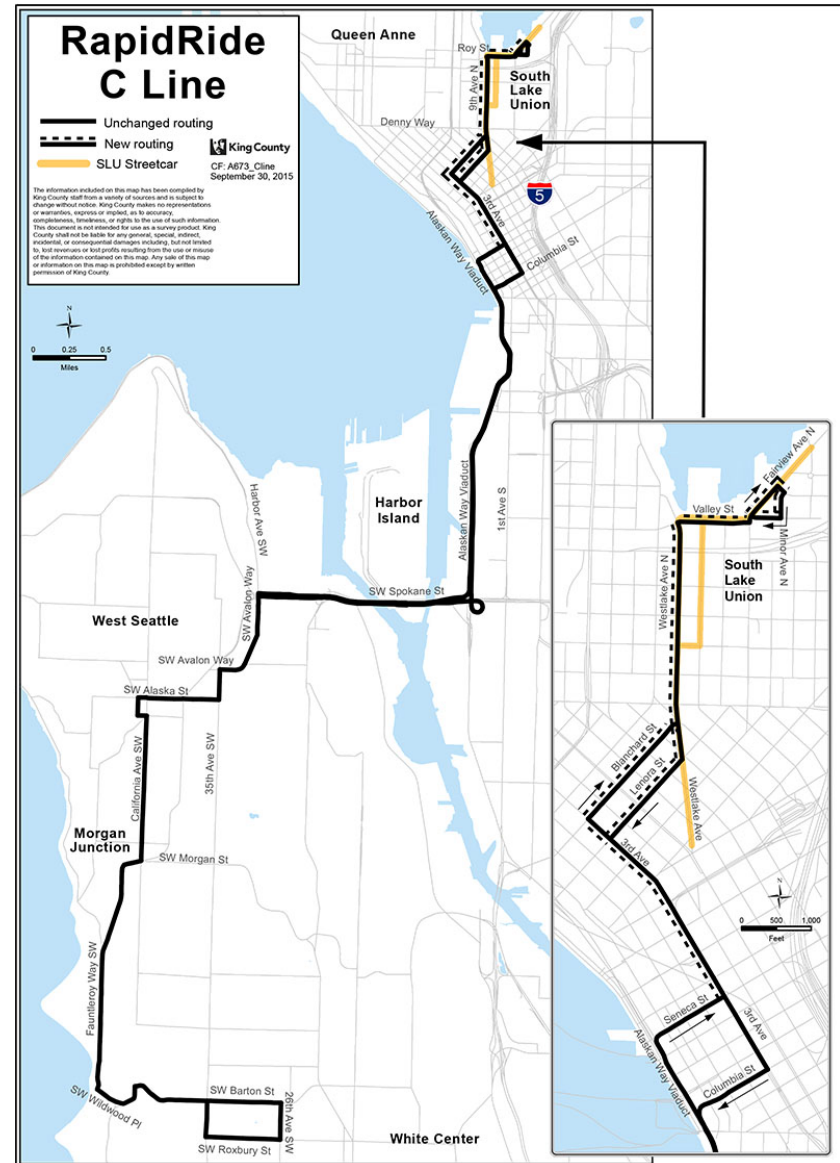


Solution: Speed & Reliability Tools

- A.K.A:
 - Transit Preferential Treatments
 - Transit Priority Treatments
 - BRT elements
- Goals
 - Provide competitive travel times
 - Provide consistent running times
 - Maximize person-throughput
- Careful Selection of Tools

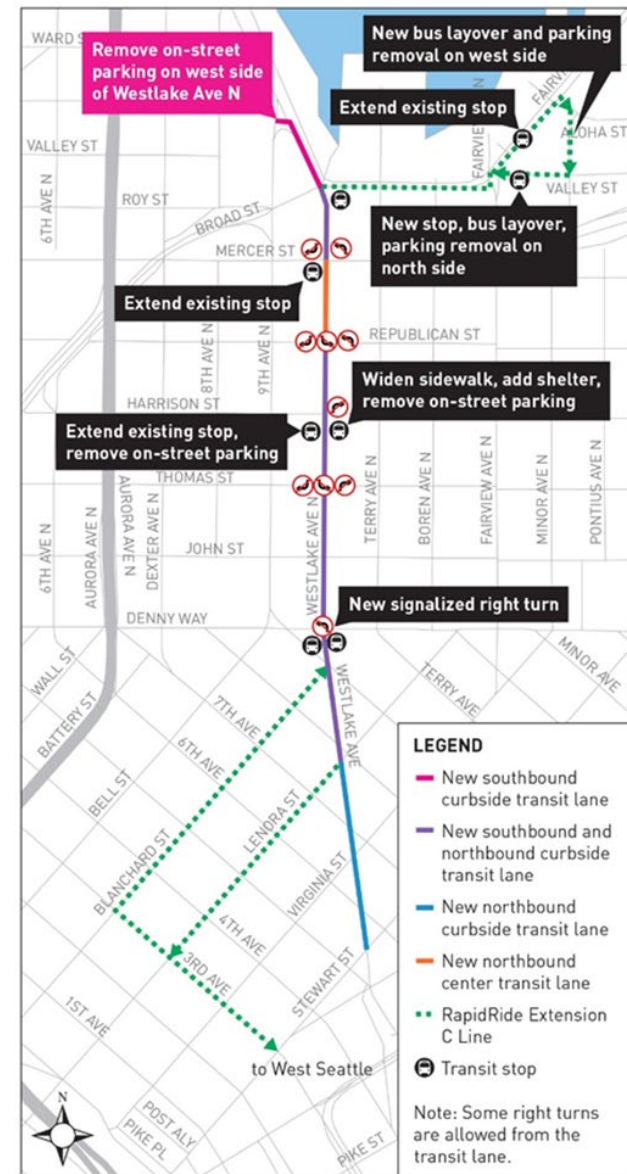
Case Study: C-Line Extension

- Goal: Improve reliability of RapidRide C/D line by splitting through-route
- Goal: New connections to South Lake Union
- Goal: Maintain fast and reliable service



Improvement selection process

- Understand the local neighborhood / stakeholders
- Understand employment
- Traffic data / studies
- Political vision



Queue Jump Signal

- Special bus signal
- Provides advance green for waiting buses



Westlake & Harrison

Queue Jump Signal



LRT-type Signal
Display



- Westlake & Mercer ST, Left Lane Queue Jump

Bus Bulbs

- Convert pull-out stop to in-lane stop
 - Eliminates merging delay
 - Additional space for customers & amenities



Westlake & Harrison, before



Westlake & Harrison, after

Bus Lanes



Valley & Fairview, before

Bus Lanes



Valley & Fairview, after

Bus Lane/Channelization



Westlake, before Bus Lane

Bus Lane/Channelization



Westlake, after Bus Lane 24/7

Bus Lane/Channelization



Battery St, Red Bus Lanes

Parking



5 Ave, Bus Lanes

Signal Timing/Phasing



Westlake & Denny

Signal Timing/Phasing

- Bus-Activated Signal Phase
 - Add bus-only movement to an existing signal



Fairview & Valley

Turn Radius Improvements

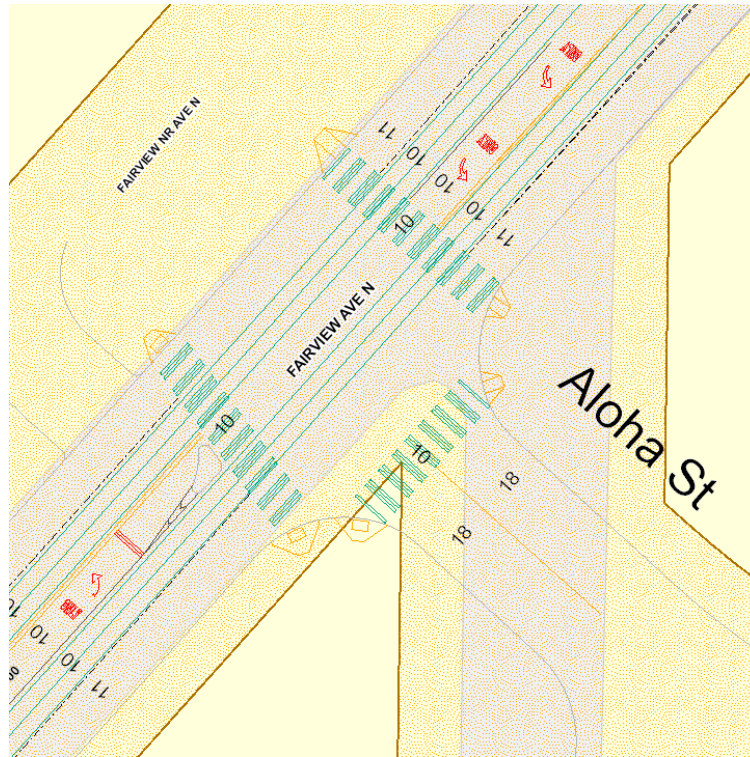
- Buses need more space to make turns



"Splitting Lanes" at Fairview & Aloha

Turn Radius Improvements

- Widening or Curb Relocation - \$\$\$\$
- Channelization adjustments - \$



Fairview & Aloha

Layover



The C-Line Terminal at Valley & Fairview: Room for 4 coaches!

Lessons Learned

- Manage Expectations
- Managing tradeoffs
 - Understand benefits & impacts
 - Stakeholder engagement
 - Sell as a package of improvements
 - Speed and reliability upgrades
 - New/added transit service doesn't hurt
- Engaging transit operations staff is important
- Use of self-enforcing treatments
 - Red pavement
 - LRT-style signal displays
 - A few plastic posts when needed

Capital Costs

LOCATION	APPROX.
Westlake & Harrison NB	\$250,000
Westlake & Harrison SB	\$200,000
Westlake & Denny NB	\$100,000
Westlake & Denny SB	\$30,000
Westlake & Mercer	\$250,000
Valley & Fairview	\$90,000

- Above Includes Bus Stop Improvements
- Compare to Metro's annual cost for C-Line Operations: \$7.5M* (approx.)

Questions?

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www.seattle.gov/transportation/bike.htm

<http://metro.kingcounty.gov/>
www.seattle.gov/transportation

