



Expanding Networks to Seattle's Job Centers



Dongho Chang, City Traffic Engineer
September 23, 2015

Presentation overview

- Background on Seattle
- Vision Zero
- Bicycle Master Plan
- Questions/discussion



SDOT Mission, Vision, and Core Values

Mission: deliver a high-quality transportation system for Seattle

Vision: connected people, places, and products

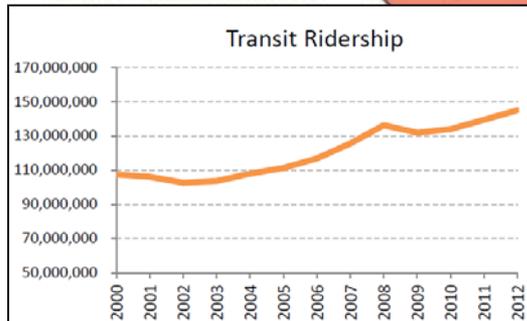
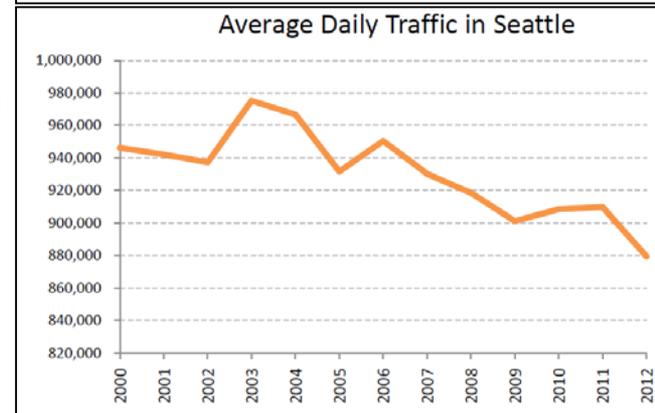
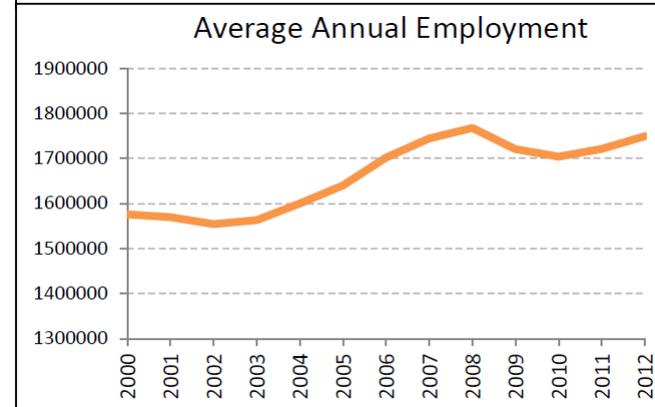
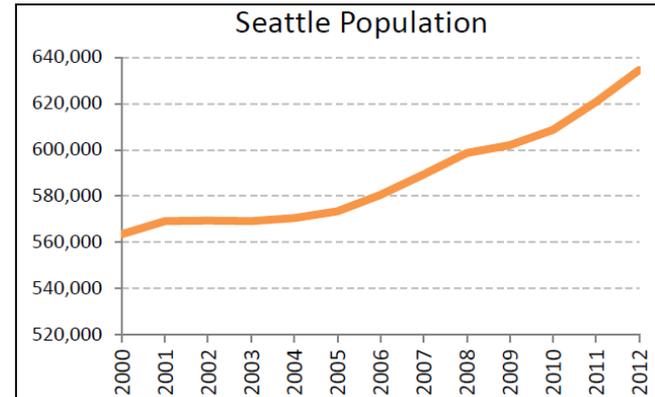
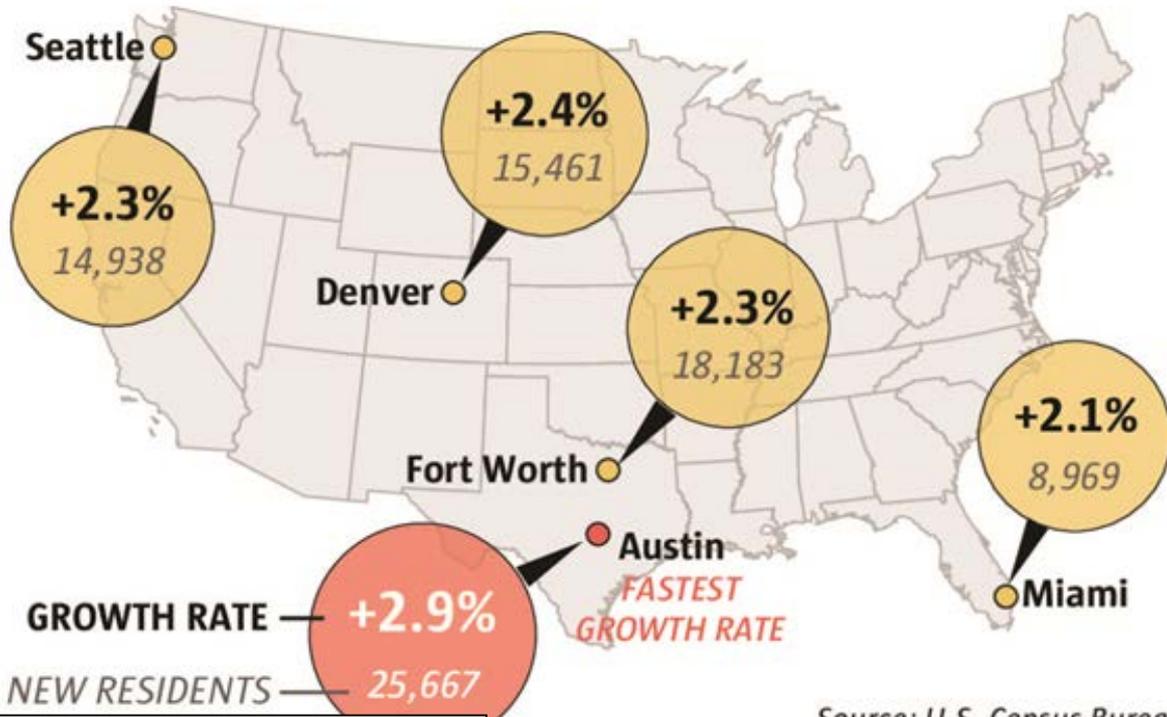


Committed to **5 core values** to create a city that is:

- Safe
- Interconnected
- Affordable
- Vibrant
- Innovative

Seattle is growing. A lot.

Seattle tied with Fort Worth, Texas, for the third-fastest rate of growth among the 50 largest U.S. cities from 2013 to 2014. Last year, Seattle ranked No. 1.



Source: U.S. Census Bureau

KELLY SHEA / THE SEATTLE TIMES

\$2.3 Billion Residential Developments



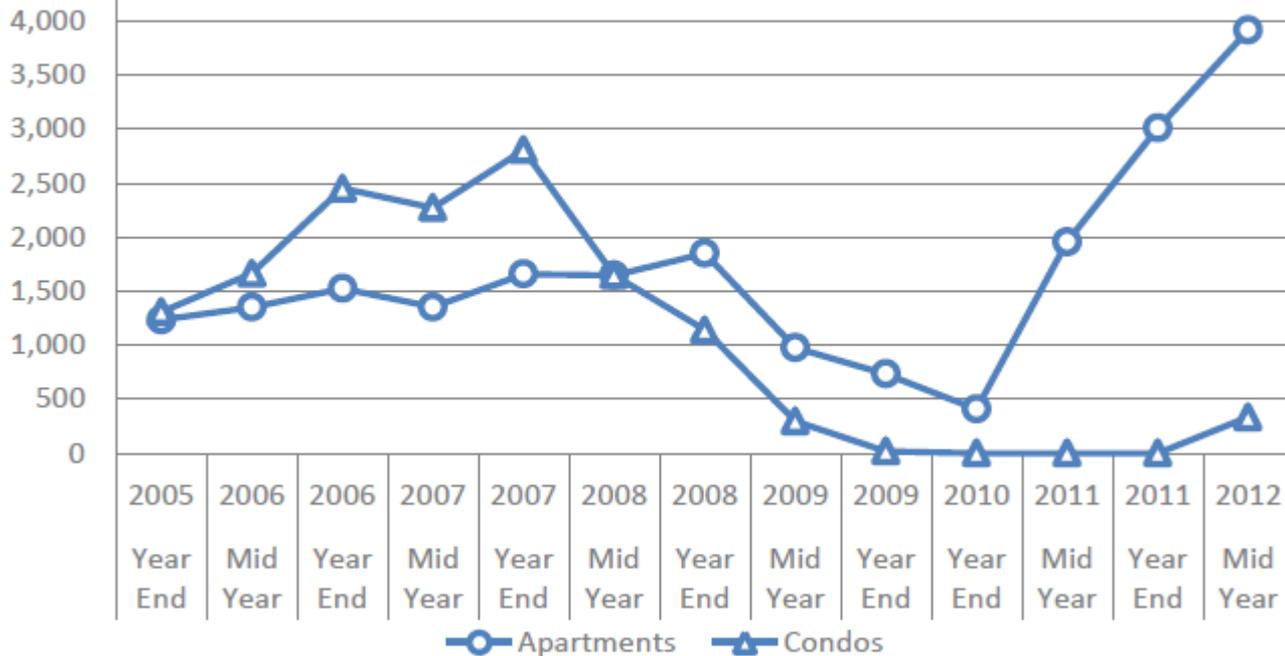
\$2.3 Billion Residential Developments



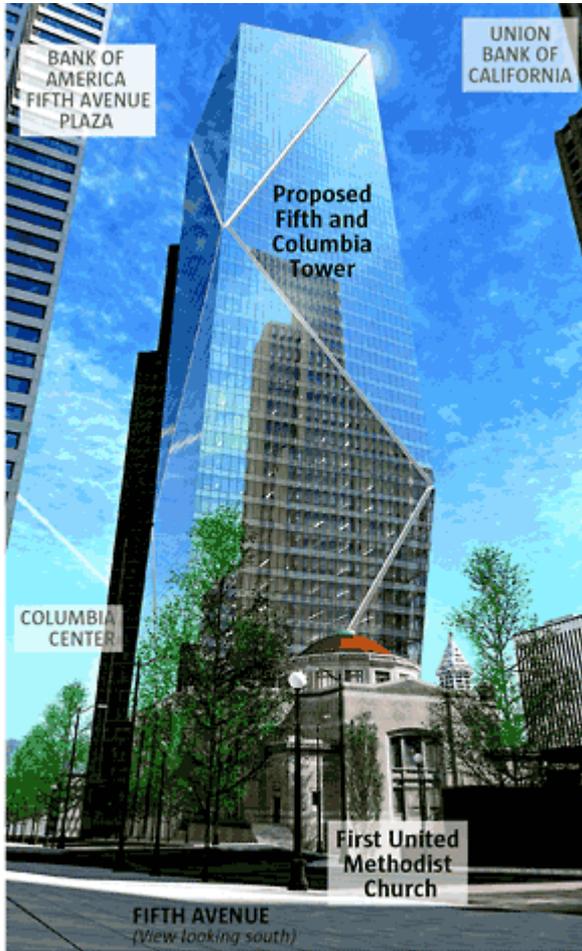
Table 1. Largest active residential projects (June 2012)

Name	Units	Cost
VIA6	654	\$200,000,000
Stadium Place Phase I	514	\$255,000,000
Insignia Phase I*	335	\$180,000,000
901 Dexter Ave N	284	\$41,000,000
Stack House	278	\$33,000,000

*Condominiums



Continued Interest in Large Developments



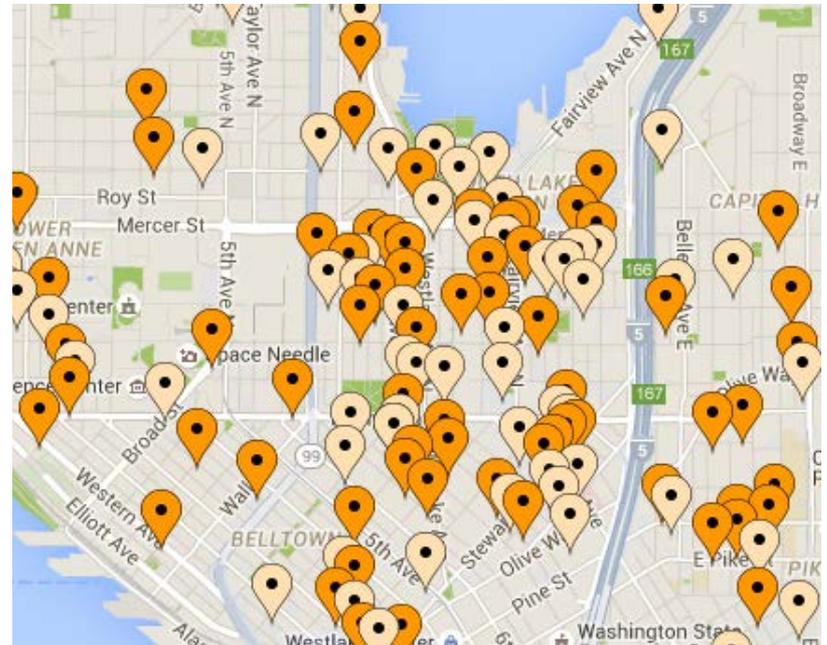
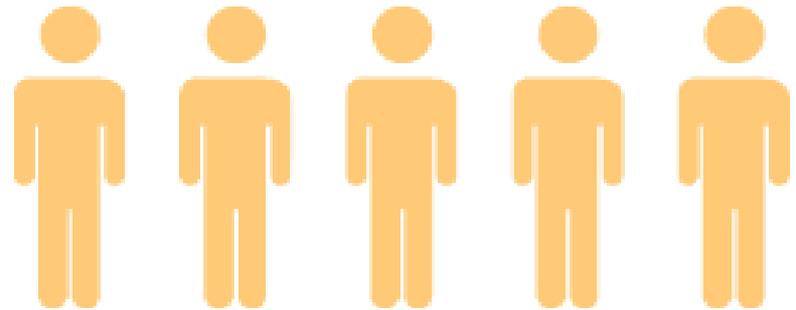
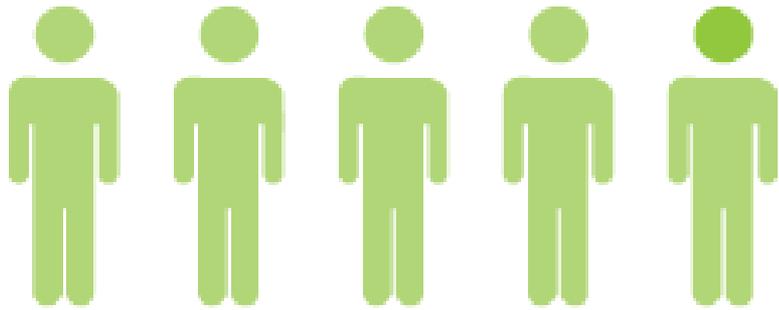
5th and Columbia – 43 story tower



Amazon Rufus 2.0 - 37 story tower

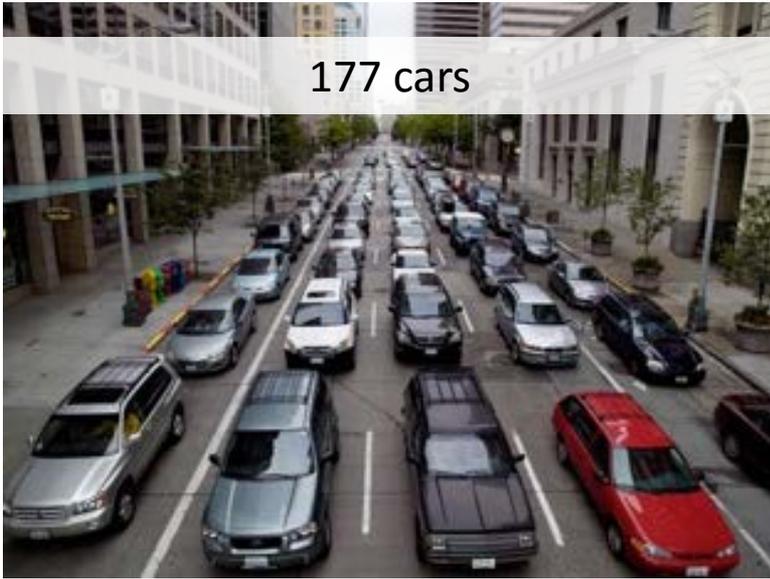


9th and Stewart Hedreen Hotel - 43 story tower

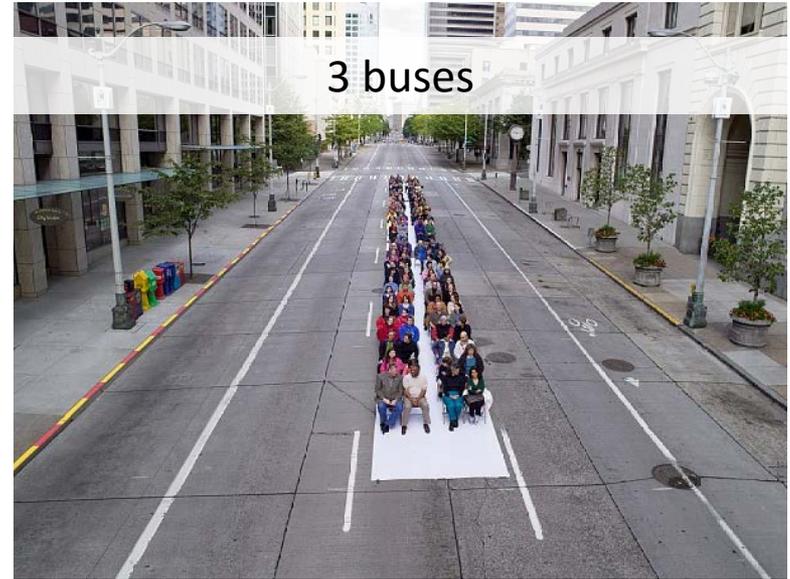


200 people can fit in...

177 cars



3 buses



1 light rail train



on their bikes



2nd Avenue in Seattle

Street Right of Way

- Public Space
- Used for Transportation Utility
- Serve our Community's Diverse Needs



Accommodate Modes Efficiently



Figure 6. What 200,000 jobs looks like: Downtown Seattle vs. Eastside
 Source: Based on Puget Sound Regional Council Covered Employment Estimates, 2011

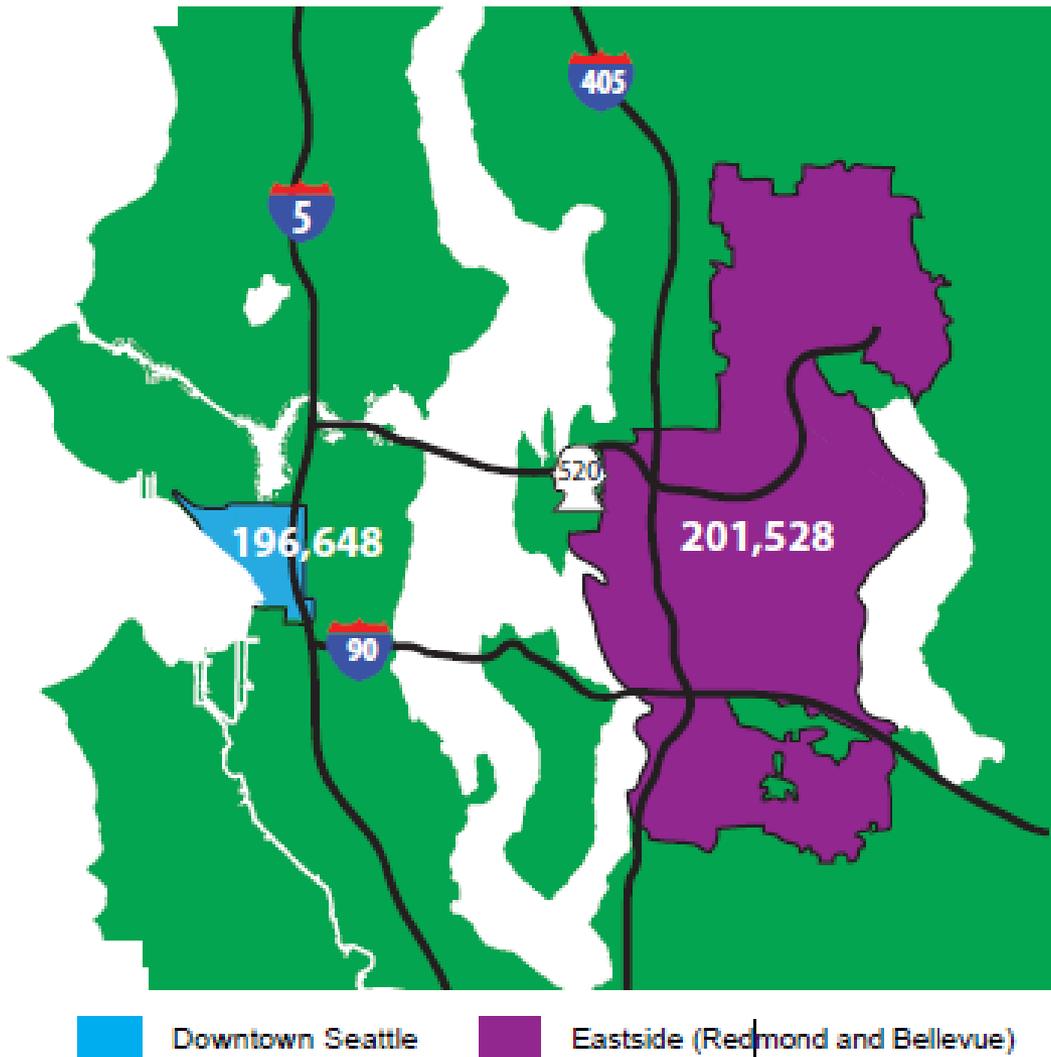
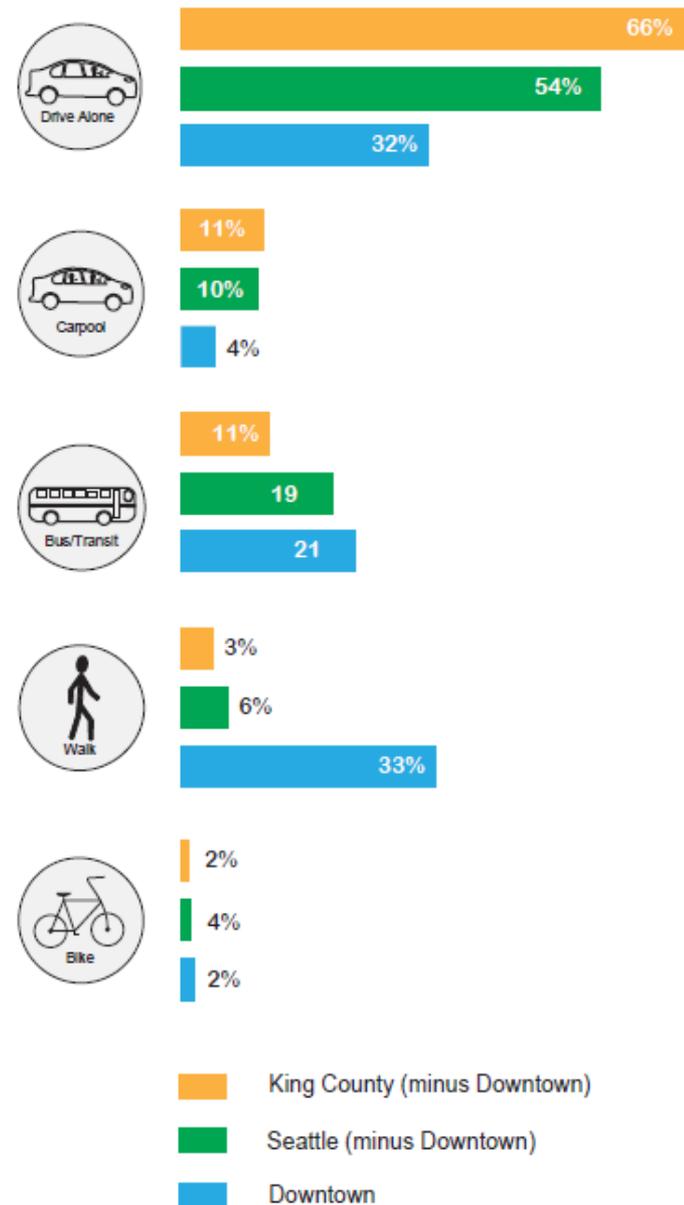
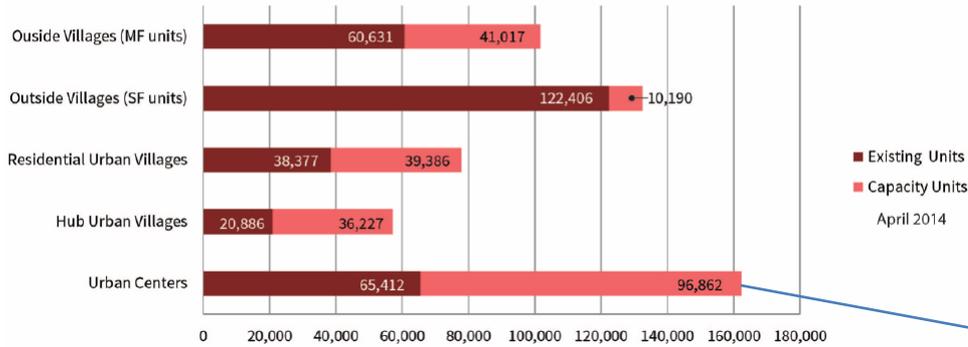


Figure 8. Residents' Mode of Transportation to Work (2013)
 Source: The Nielsen Company, 2013

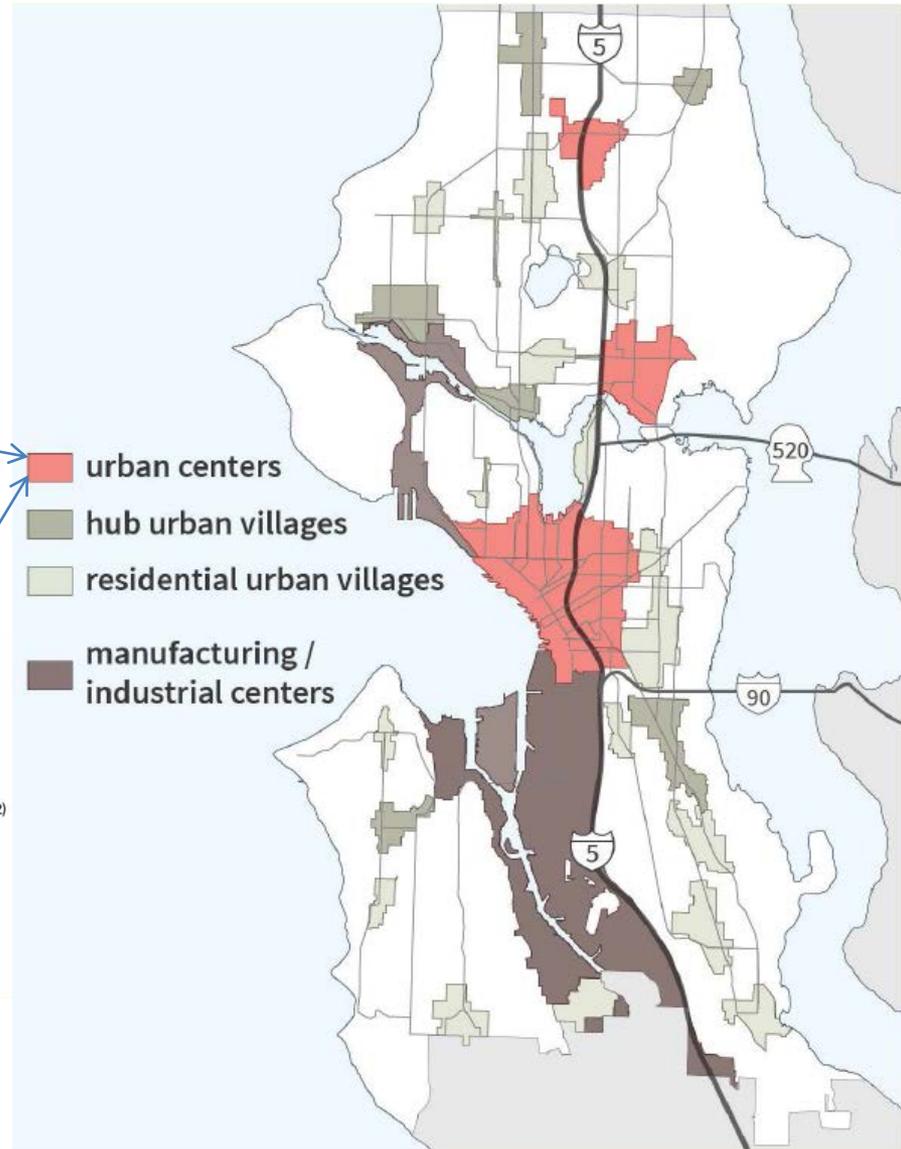
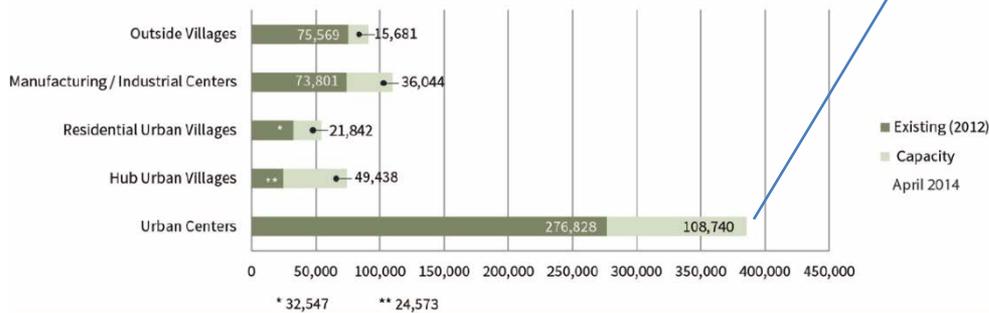


Where Seattle Plan to Grow

Housing Units



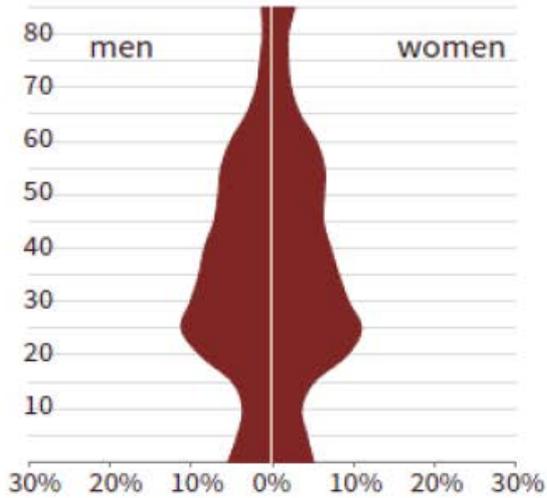
Jobs



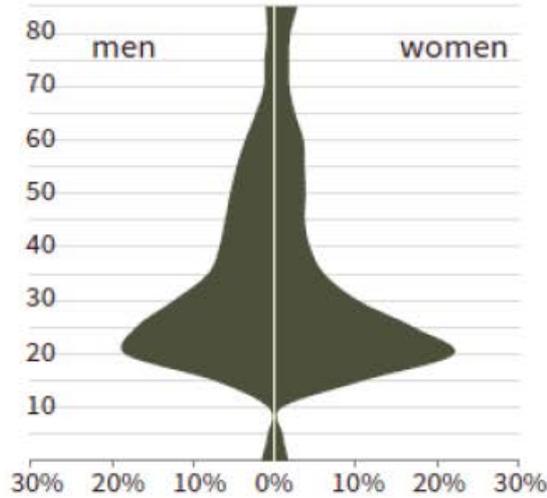
AGE



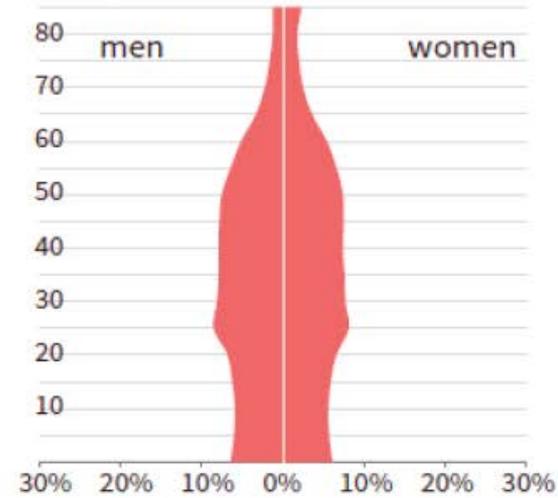
Seattle as a whole



urban centers



King County



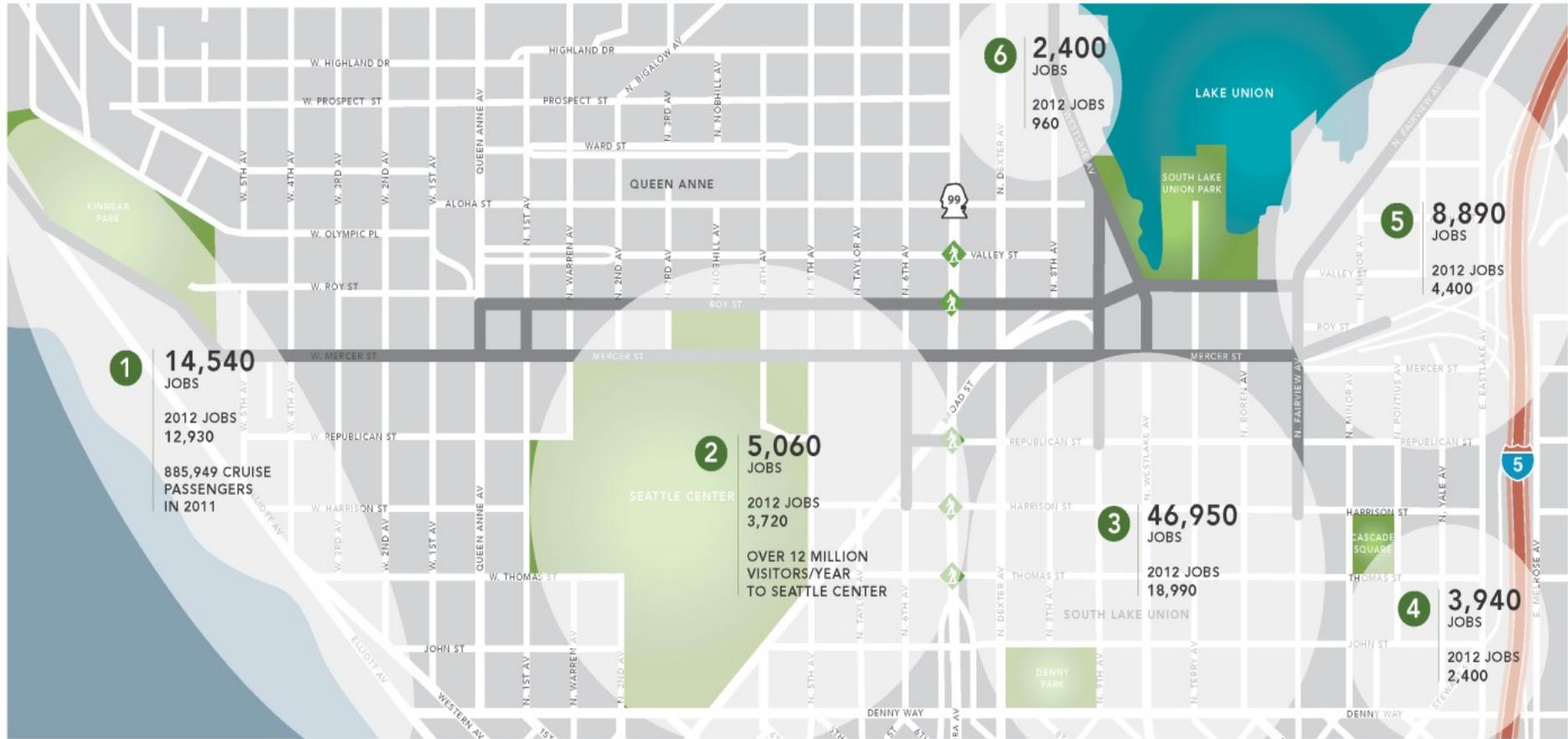
South Lake Union

Fastest Growing Area in Seattle

- 35,000 Jobs
- 71,5000 Amazon Employee Space by 2019
- 3,500 Existing Housing Units
- 10,000 Housing Units Planned
- Transit Service Demand



ESTIMATED MAJOR JOB GROWTH ALONG MERCER CORRIDOR BY 2020



1

Port of Seattle
 F5 Networks Headquarters
 Amgen
 Real Networks
 Big Fish Games
 Columbia Hospitality
 Holland American Line
 Omeros
 Cell Therapeutics Inc
 Pacific Market International
 ClearChannel
 Emeritus

2

The Bill & Melinda Gates Foundation
Seattle Center
(Space Needle, Pacific Science Center, McCaw Hall/Seattle Opera, Key Arena, Pacific Northwest Ballet, Seattle Repertory Theatre, EMP/Science Fiction Museum, Intiman Theatre, Seattle Children's Theatre, The Children's Museum, Dale Chihuly Glass Museum, KEXP, Center House, Seattle Monorail)
 Fisher Broadcasting
 KCTS
 Pacific Biomarkers

3

Amazon.com World Headquarters
UW Medicine
 Group Health Coop. Headquarters
 Sellen Construction
 Seattle Times Company
 Microsoft
 King Broadcasting/BELO
 PATH
 Tommy Bahama
 Institute for Systems Biology
 Seattle BioMed
 Seattle Children's Research Institute

4

PEMCO Financial Center
 Skanska
 Wunderman
 REI
 NBBJ Architects
 Sightline

5

Fred Hutchinson Cancer Research Cntr.
 Seattle Cancer Care Alliance
 ZymoGenetics/Bristol Meyers Squibb
 Dendreon
 Puget Sound Blood Center
 Nanostring Technologies
 Novo Nordisk

6

Attachmate/WRQ
 Associated General Contractors
 Q13 Fox Broadcasting
 Battelle
 Westlake Steps



ESTIMATED 2020 TOTAL JOBS: 81,700

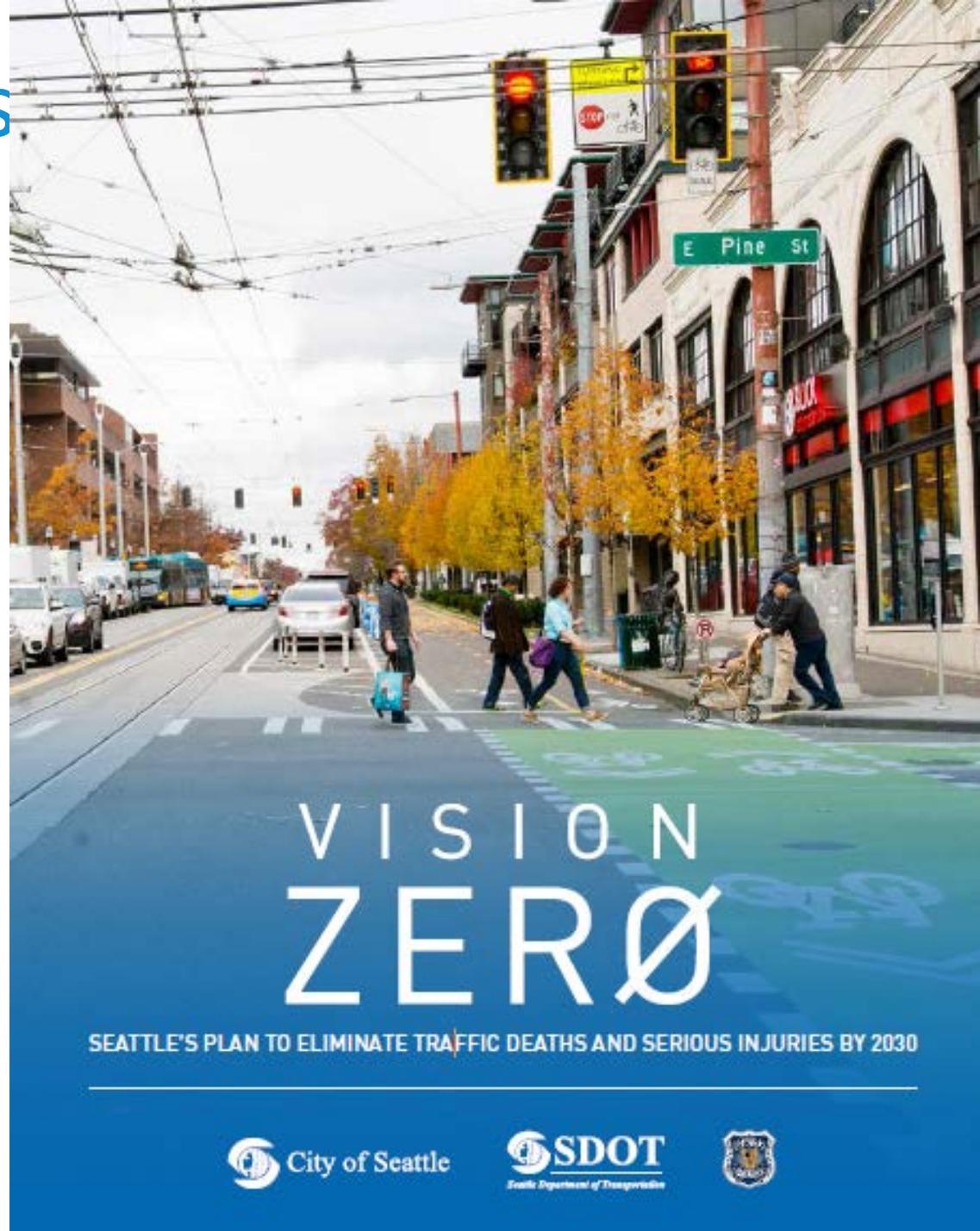
ESTIMATED 2012 TOTAL JOBS: 43,400



Vis

Seattle's plan to eliminate traffic deaths and serious injuries

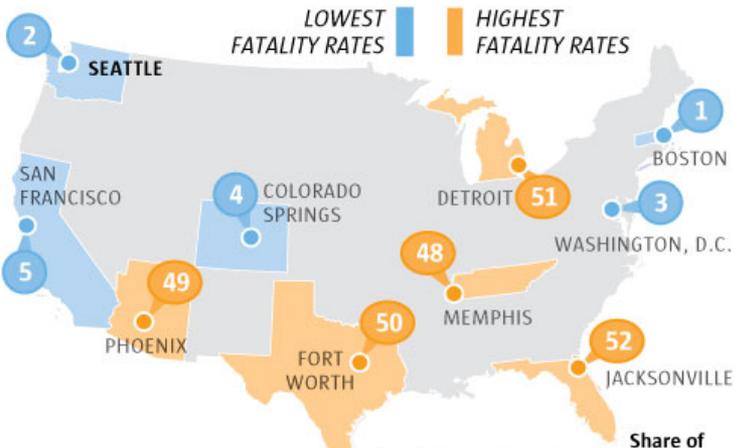
- Street designs that prioritize safety
- Public education and engagement
- Targeted enforcement patrols



City with Zero Traffic Fatality

Safest, deadliest cities for walking and biking

Cities where many people walk or bike to work are among the safest. Seattle ranks second, based on a formula to determine the overall fatality rate for bike and pedestrian commuters.



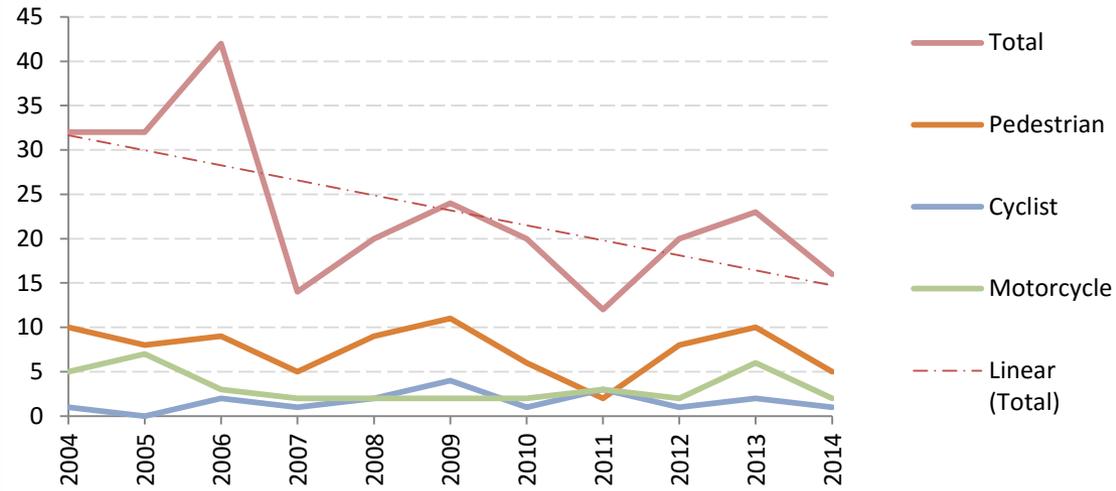
(per 10,000 commuters)

RANK/CITY	Bike fatalities	Pedestrian fatalities	Share of commuters who walk or bike
1. Boston	2.5	0.9	16.7%
2. Seattle	1.7	2.7	12.0
3. Washington, D.C.	1.1	3.3	14.7
4. Colorado Springs	4.8	3.4	3.7
5. San Francisco	0.9	4.0	13.2
SAFEST CITIES			
52. Jacksonville	33.1	41.6	1.7%
51. Detroit	39.8	40.1	3.5
50. Fort Worth	41.9	29.6	1.1
49. Phoenix	19.3	29.6	2.7
48. Memphis	36.0	29.1	2.1
DEADLIEST CITIES			

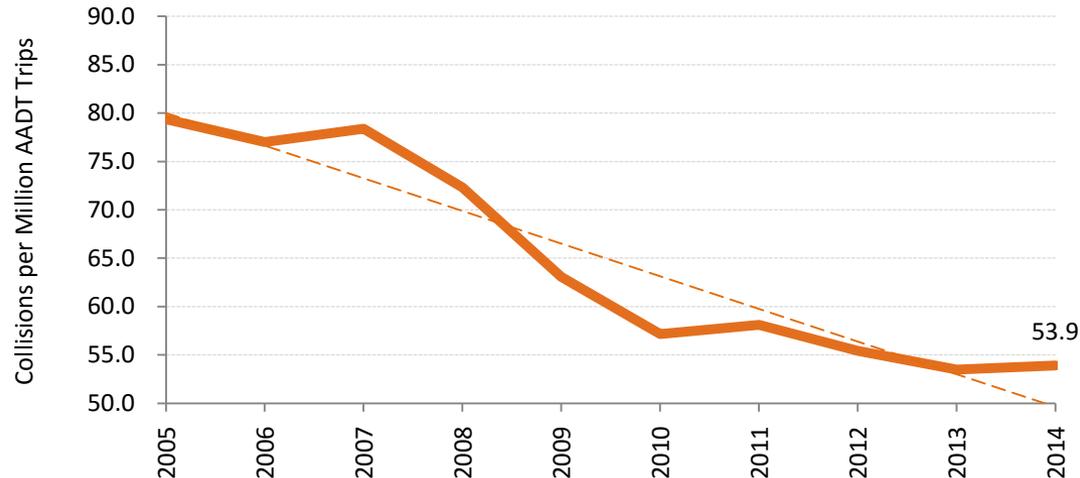
Source: Benchmarking Report, Alliance for Biking & Walking, 2014

GARLAND POTTS / THE SEATTLE TIMES

Traffic Fatalities on Seattle Streets

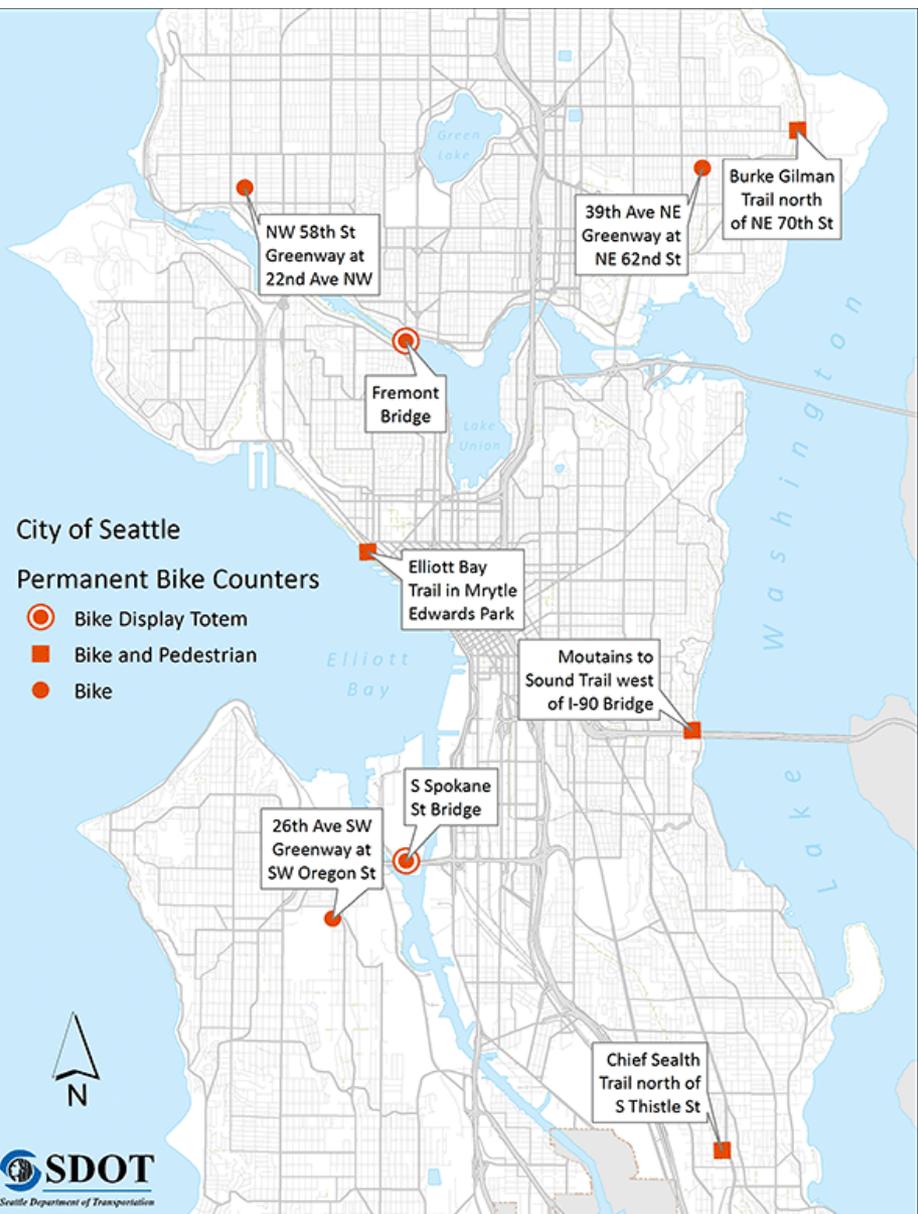
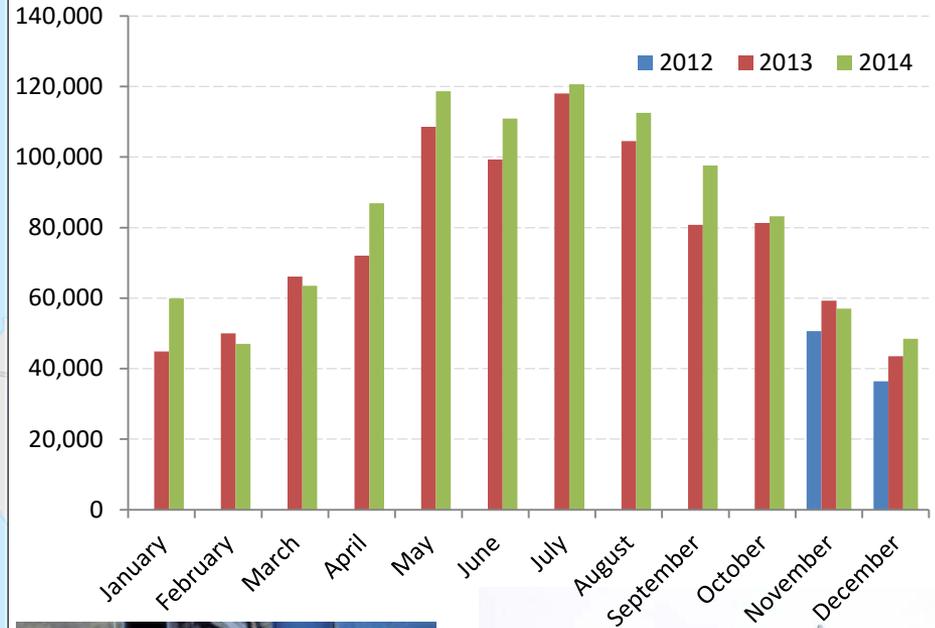


Citywide Collision Rate

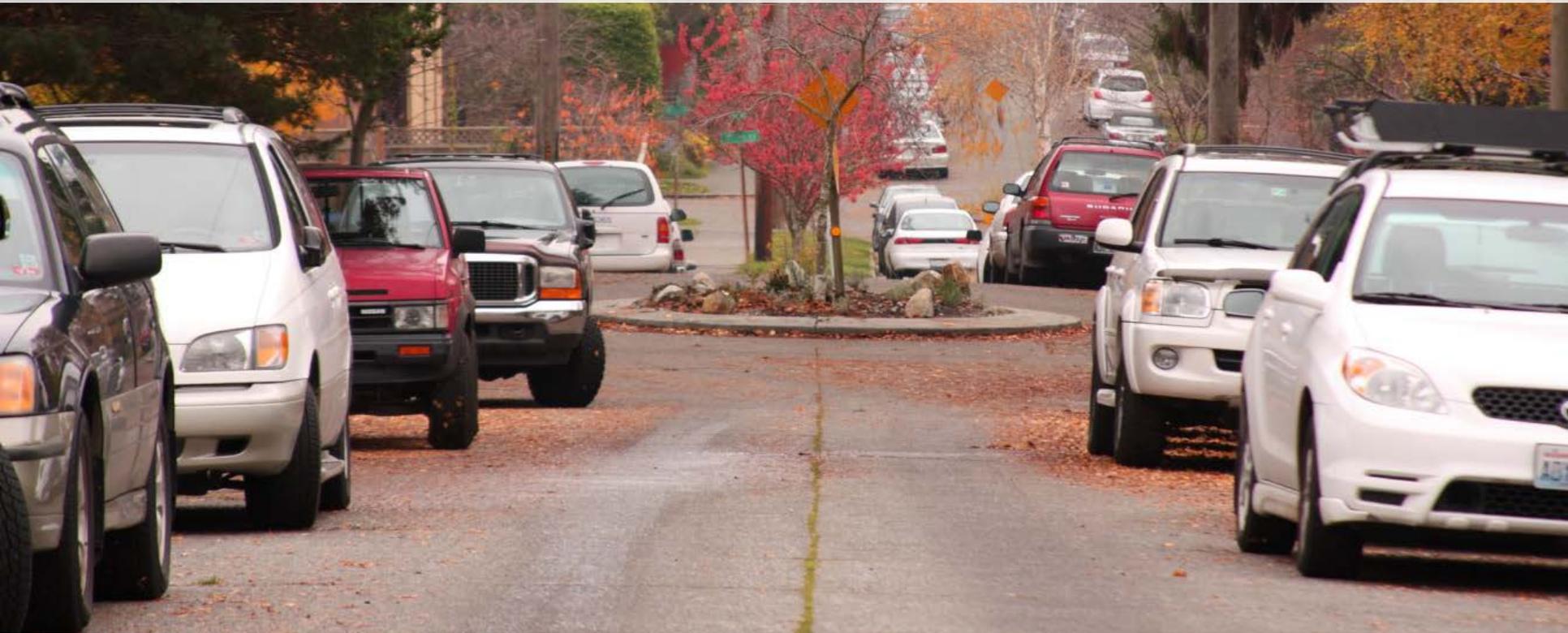


Bike Counters

Fremont Bridge Bike Counts



Neighborhood Traffic Calming



A lot has been done already

Seattle



- **1,500 Traffic Circles (1,127 inventoried in asset management)**
- **Reduce injury collision by 97%, all collisions by 90%**
- **1,343 Volunteers just for our circles! (1 to 4 volunteers per circle)**
- **Curb/Planter strip gardening – raised structures requires no-fee permit (sand boxes!)**

Enforcement



- 24 camera locations. 20 with 3 year before/after data
- Angle collisions reduced by 46%
- **Pedestrian collisions reduced by 32%**
- Rear-end collisions reduced by 15%, all collisions reduced by 23%

Bicycle Master Plan

- 20 year plan
- Updated in 2014

Generalized Bicycle Facility Designation	Bicycle Facility Types	Posted Speed Limit (mph)	Average Daily Traffic (ADT) per day	Street Classification
Neighborhood greenway	Neighborhood Greenway	20	1,500 or less	Non-arterial
Shared street	Shared lane pavement marking (sharrow)	25 - 30	To be used due to ROW constraints or topography	Non-arterial and Collector/Minor arterials
In street, minor separation	Bicycle lane; Climbing Lane	30	8,000 or less	Collector arterial
	Buffered bicycle lane	30	15,000 or less	Collector/Minor arterials
Cycle tracks (protected bicycle lanes)	Physically separated (raised or with barrier on-street facility)	30 and greater	15,000 and above	Minor/Principal arterials
Off-street*	Multi-use trail	N/A	N/A	N/A

	Existing Network*	Proposed Network Improvements			Total Network	Percent of Total Network
		Upgraded to Existing Bicycle Facilities	New Facilities	Total New or Upgraded Facilities to Build		
Off Street	46.9	0	32.0	32.0	78.9	13%
Cycle Track (protected bicycle lane)	3.2	52.1	49.5	101.6	104.8	17%
Neighborhood Greenway	10.3	0	238.6	238.6	248.9	41%
In Street, Minor Separation	44.4	17.9	75.6	93.5	137.9	23%
Shared Street	30.0	0	7.8	7.8	37.8	6%
Total	134.8	70.0	403.5	473.5	608.3	100%

Bicycle Master Plan

- 5 year Implementation Plan
- Mostly local levy funding



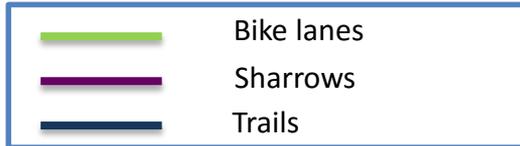
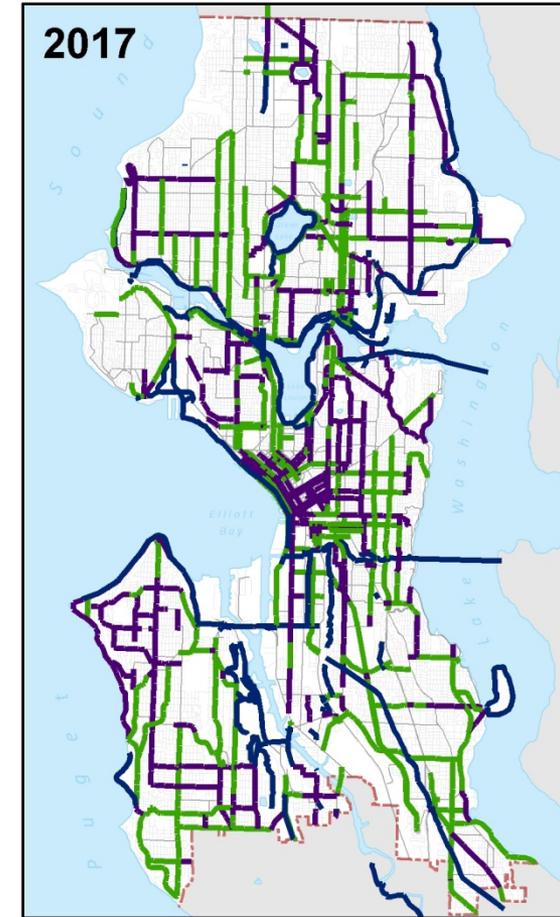
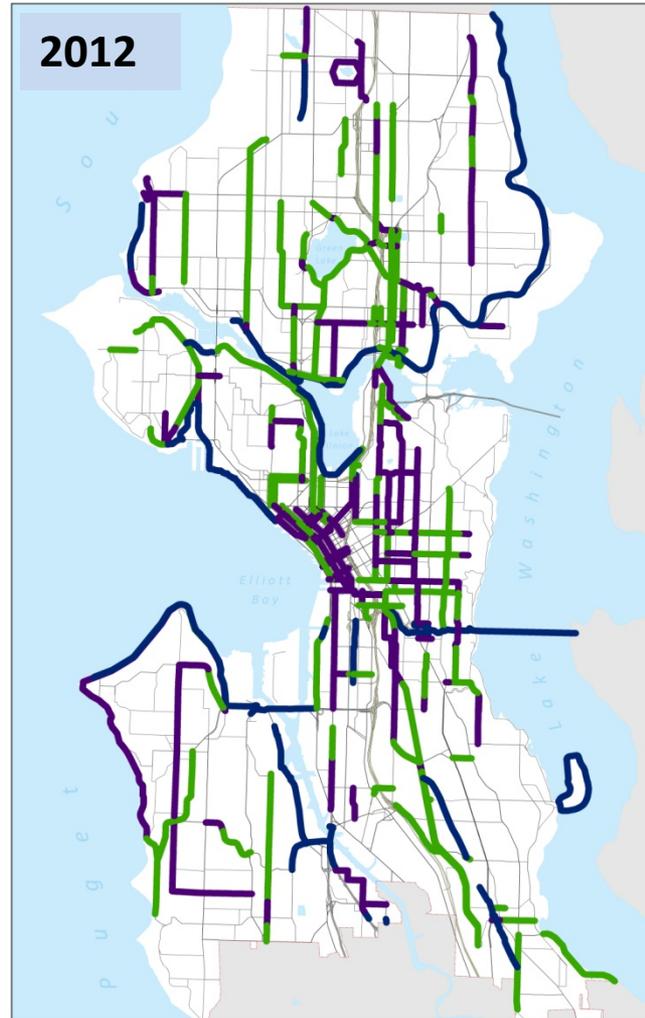
COST ESTIMATE

	2015	2016	2017	2018	2019	5 YEAR TOTAL
Total Cost Estimate (1)	\$19.5	\$12.8	\$17.6	\$13.8	\$14.8	\$78.5

PROJECTS AND PROGRAMS	2015	2016	2017	2018	2019	5-YEAR TOTAL
Protected Bicycle Lanes	7.5	9.4	6.1	5.8	7.8	36
Neighborhood Greenways	12.6	4.1	15.6	10.9	9.5	52
Education (schools reached)	12	14	16	18	20	80
Bike racks	225	200	175	150	125	875
Bike corrals	15	20	25	30	35	125
Wayfinding (miles)	25	25	25	25	25	25
Spot improvements	10	10	10	10	10	50

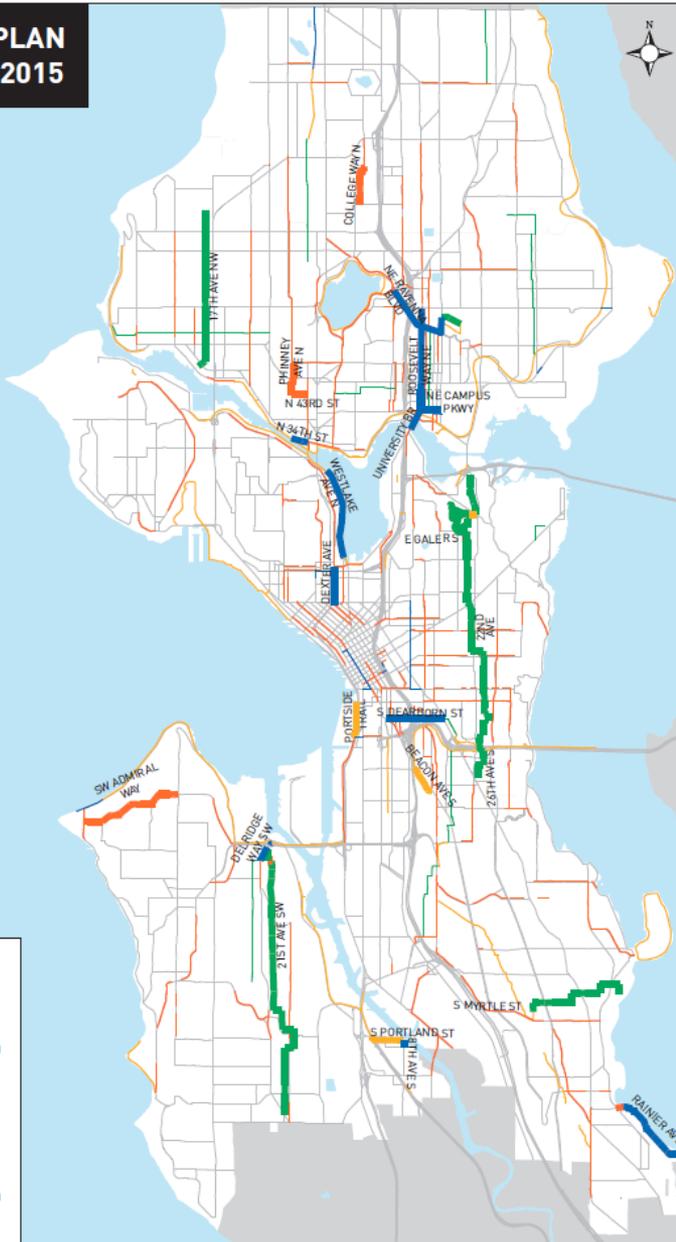


Seattle's Bicycle Network



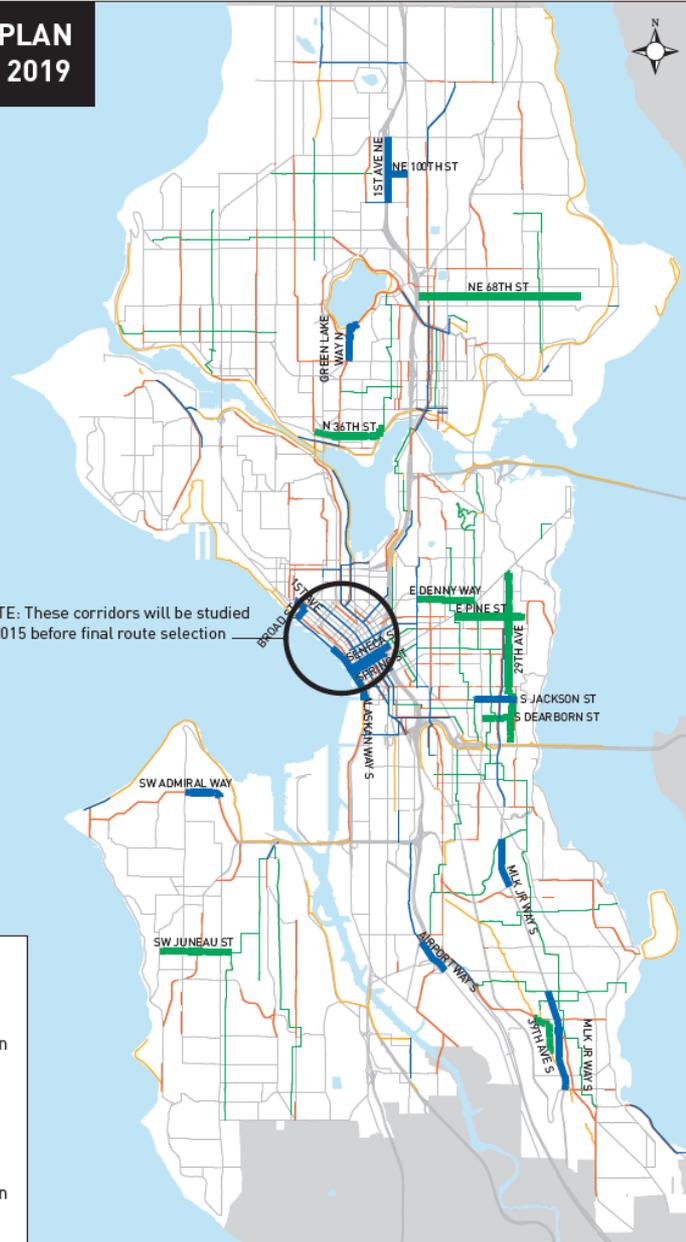
Bicycle Master Plan

BICYCLE MASTER PLAN IMPLEMENTATION 2015



- 2015 Projects**
- █ Neighborhood Greenway
 - █ Protected Bike Lane
 - █ In Street Minor Separation
 - █ Multi Use Trail
- Existing Bike Facilities**
- █ Neighborhood Greenway
 - █ Protected Bike Lane
 - █ In Street Minor Separation
 - █ Multi Use Trail

BICYCLE MASTER PLAN IMPLEMENTATION 2019



NOTE: These corridors will be studied in 2015 before final route selection

- 2019 Projects**
- █ Neighborhood Greenway
 - █ Protected Bike Lane
 - █ In Street Minor Separation
 - █ Multi Use Trail
- Existing Bike Facilities**
- █ Neighborhood Greenway
 - █ Protected Bike Lane
 - █ In Street Minor Separation
 - █ Multi Use Trail

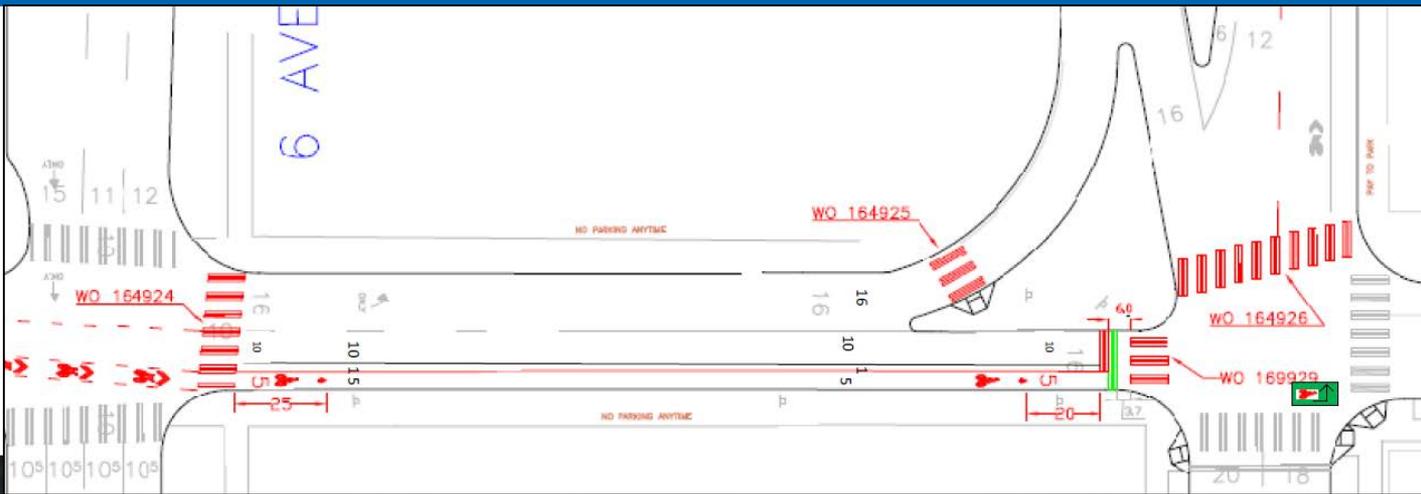
Protected bike lane benefits

- Risk of injury drops 90 percent* on protected bicycle lanes
- Encourage ridership, particularly 'willing but weary' bike riders
- Reduce door crashes
- Add level of bike predictability



* December 2012, Vol 102, No. 12 | American Journal of Public Health

Cherry St



NE 65th St

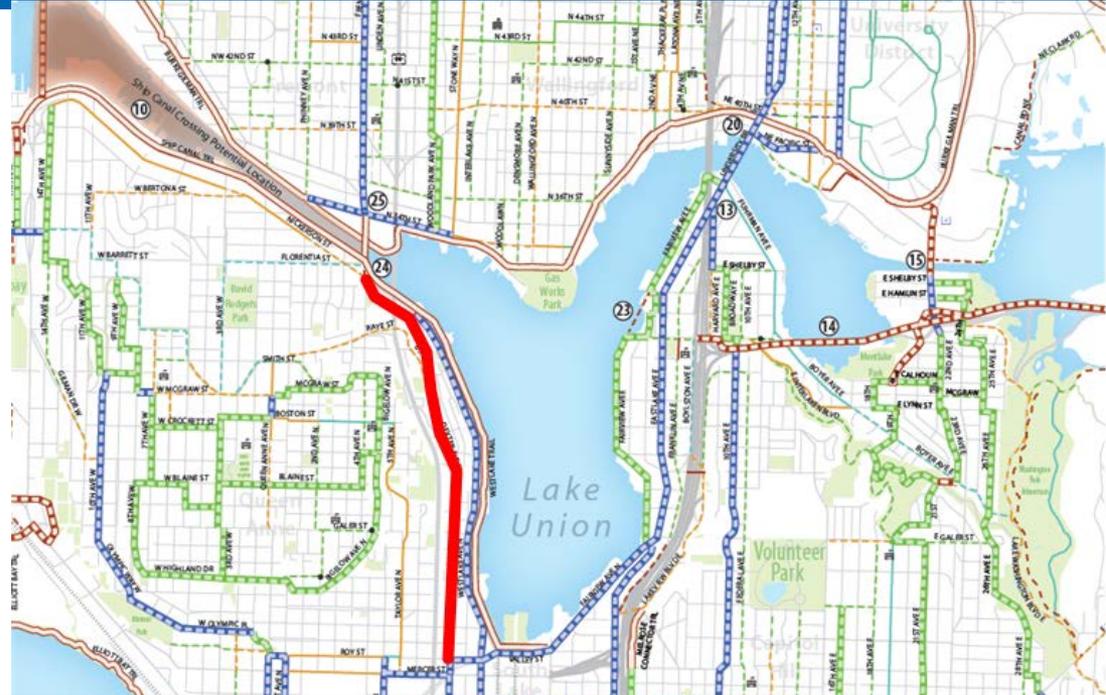


NE 65th St



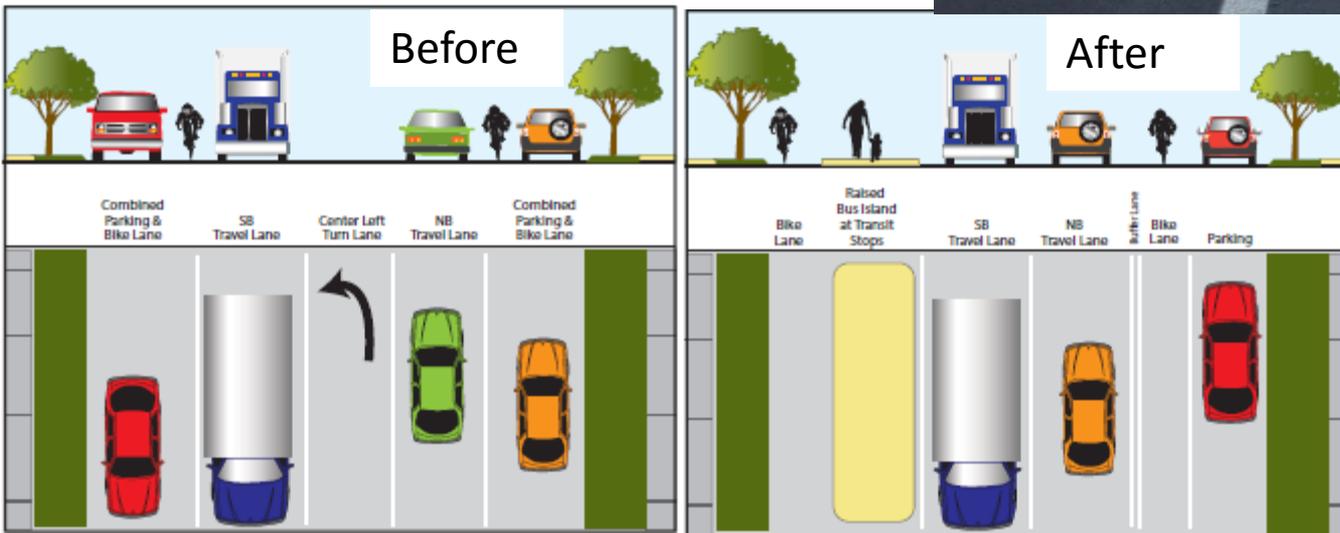
Dexter Avenue North

- 2011 Paving Project
- 1.5 Miles in Length
- 5 lanes to 2 lanes
- Bus and Bike Improvements
- Community Concerns



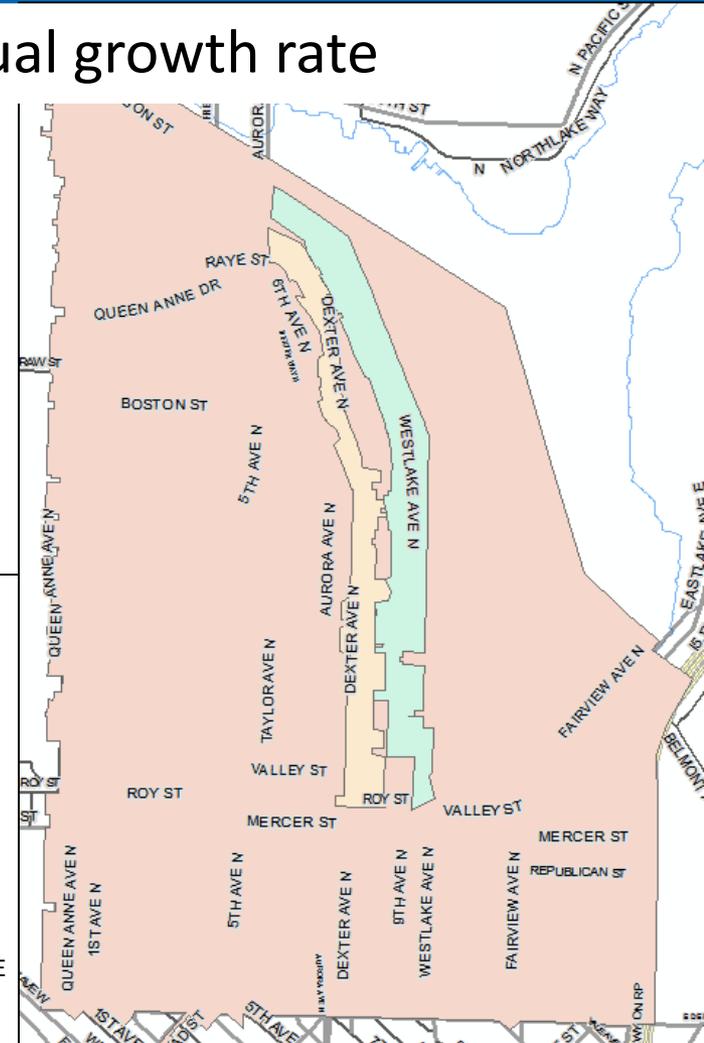
Dexter Avenue North

- 19% increase in traffic volume
- 11,800 AWDT Before
- 14,100 AWDT After
- 19% decrease in collision rate
- ~40% increase in bus ridership
- Bus travel time approximately same (+0.4 seconds)

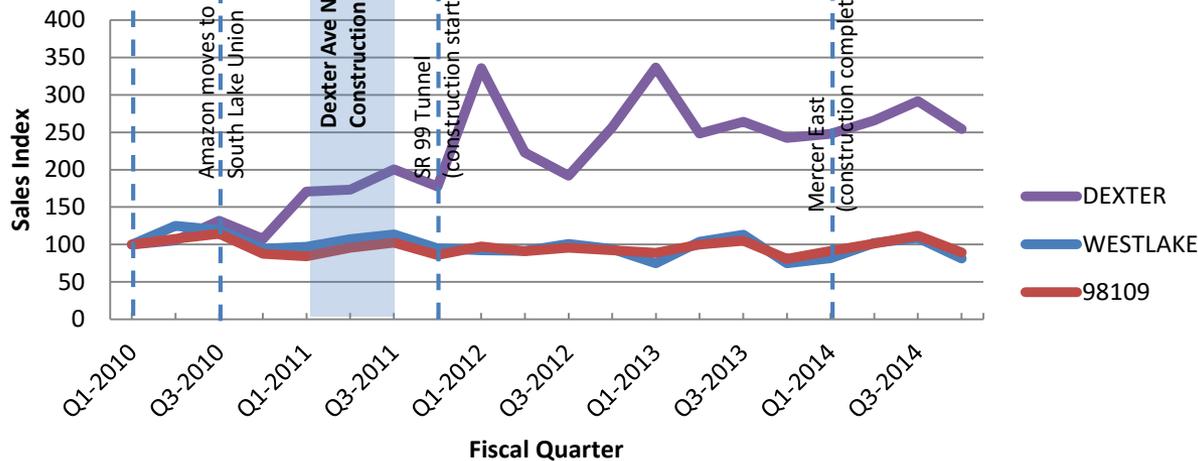


Dexter Avenue North

- Sales index is trending at a positive 5% annual growth rate



Impacts to Retail Businesses along Dexter Ave North



Dexter Avenue North

- Bicycle ridership increased by 39%



Dexter Avenue



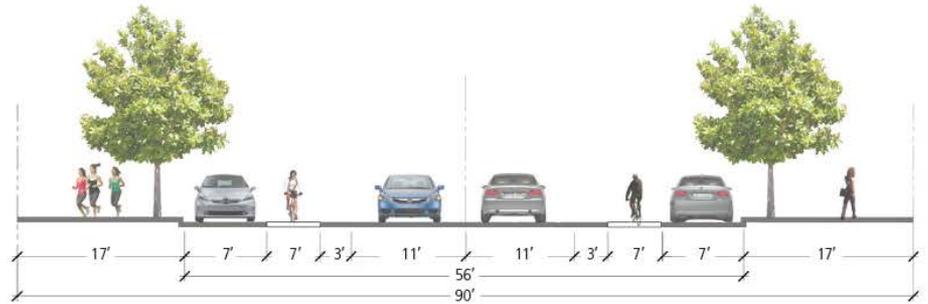
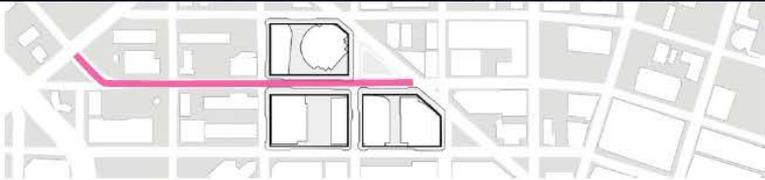
Dexter Avenue



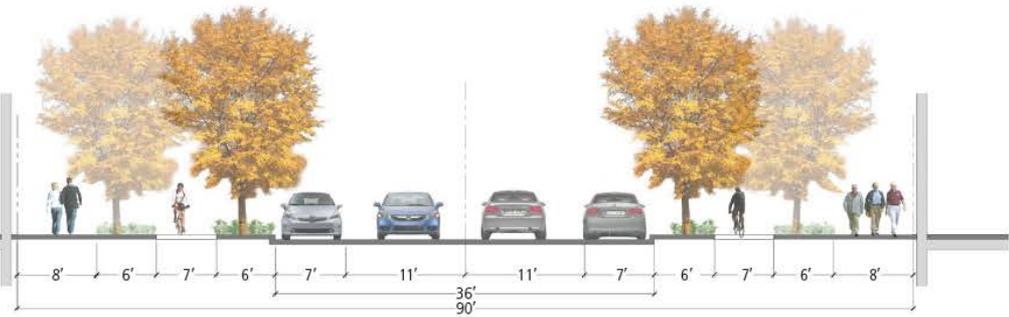
Dexter Ave



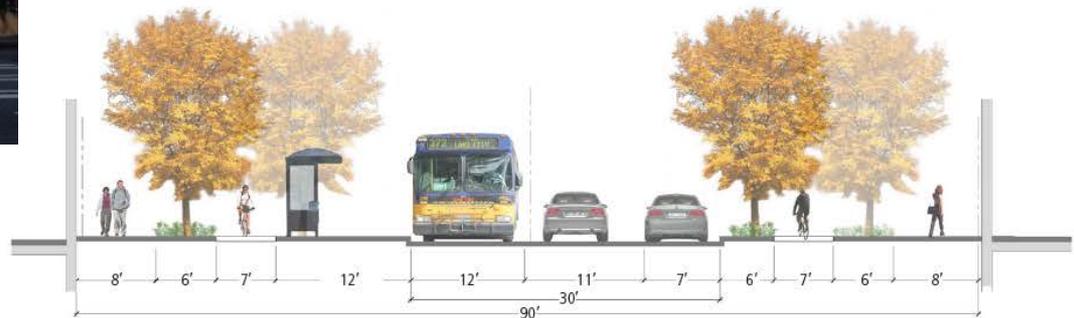
Dexter Ave



Existing/Interim Section



Typical Design Section



Typical Design Section - Metro Bypass

Mercer Street

Vacation of the Broad Street Triangle: Neighborhood Context



Mercer Street



Mercer Street



2nd Avenue

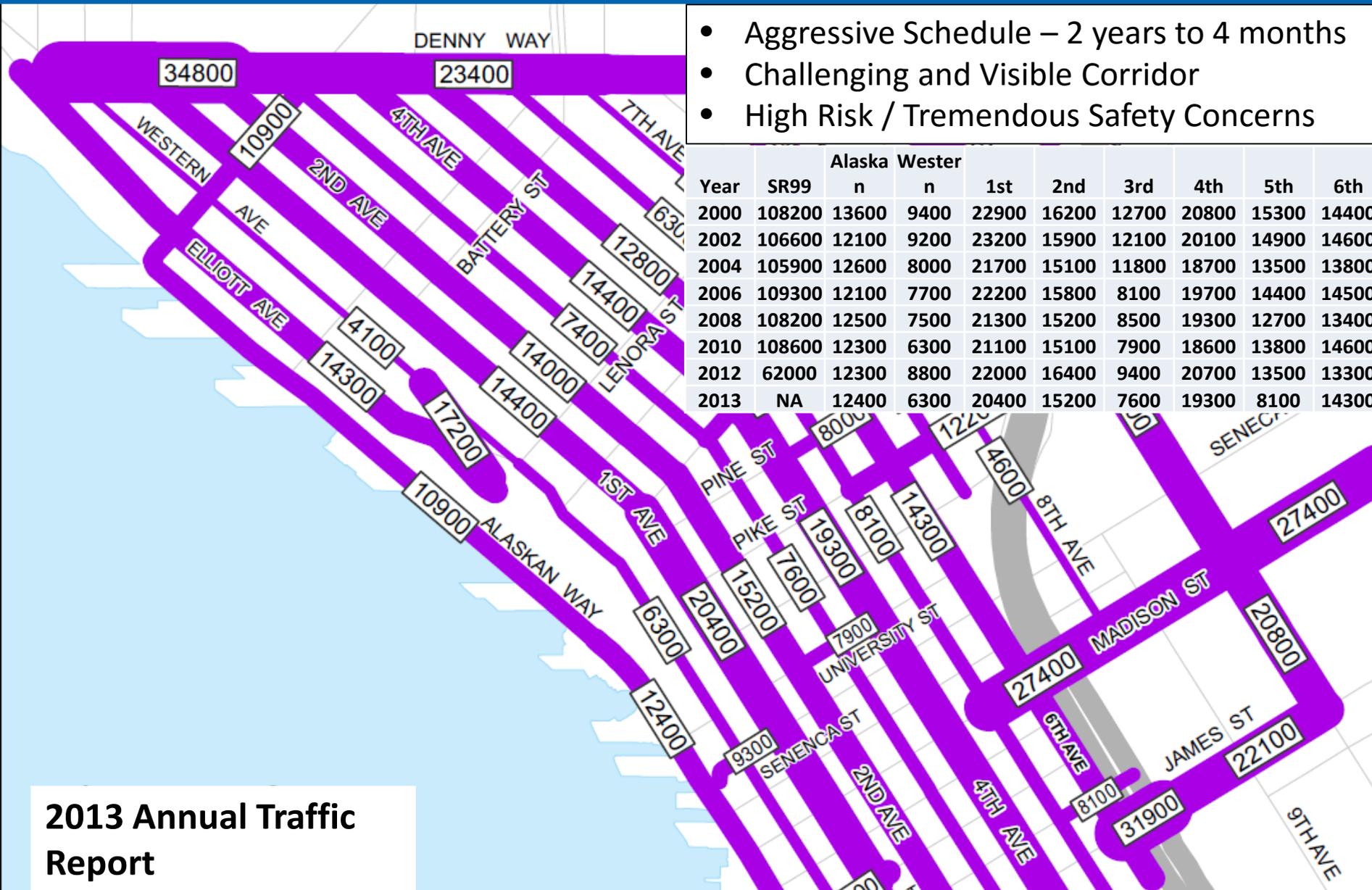
- May 7 – Mayor Murray Announce 2nd Avenue Demonstration Project (9/8/14)
- Pike Place to Pioneer Square (0.71 miles)
- In time for Bike Share Launch (10/14/14)



Photo: Seattle Bicycle Blog

2nd Avenue

- Aggressive Schedule – 2 years to 4 months
- Challenging and Visible Corridor
- High Risk / Tremendous Safety Concerns



Year	SR99	Alaska		Wester					
		n	n	1st	2nd	3rd	4th	5th	6th
2000	108200	13600	9400	22900	16200	12700	20800	15300	14400
2002	106600	12100	9200	23200	15900	12100	20100	14900	14600
2004	105900	12600	8000	21700	15100	11800	18700	13500	13800
2006	109300	12100	7700	22200	15800	8100	19700	14400	14500
2008	108200	12500	7500	21300	15200	8500	19300	12700	13400
2010	108600	12300	6300	21100	15100	7900	18600	13800	14600
2012	62000	12300	8800	22000	16400	9400	20700	13500	13300
2013	NA	12400	6300	20400	15200	7600	19300	8100	14300

2013 Annual Traffic Report

2nd Avenue at Pike

- Aggressive Schedule – 2 years to 4 months
- Challenging and Visible Corridor
- High Risk / Tremendous Safety Concerns

Thursday, May 1, 2014

5-6 pm

1107 total vehicles

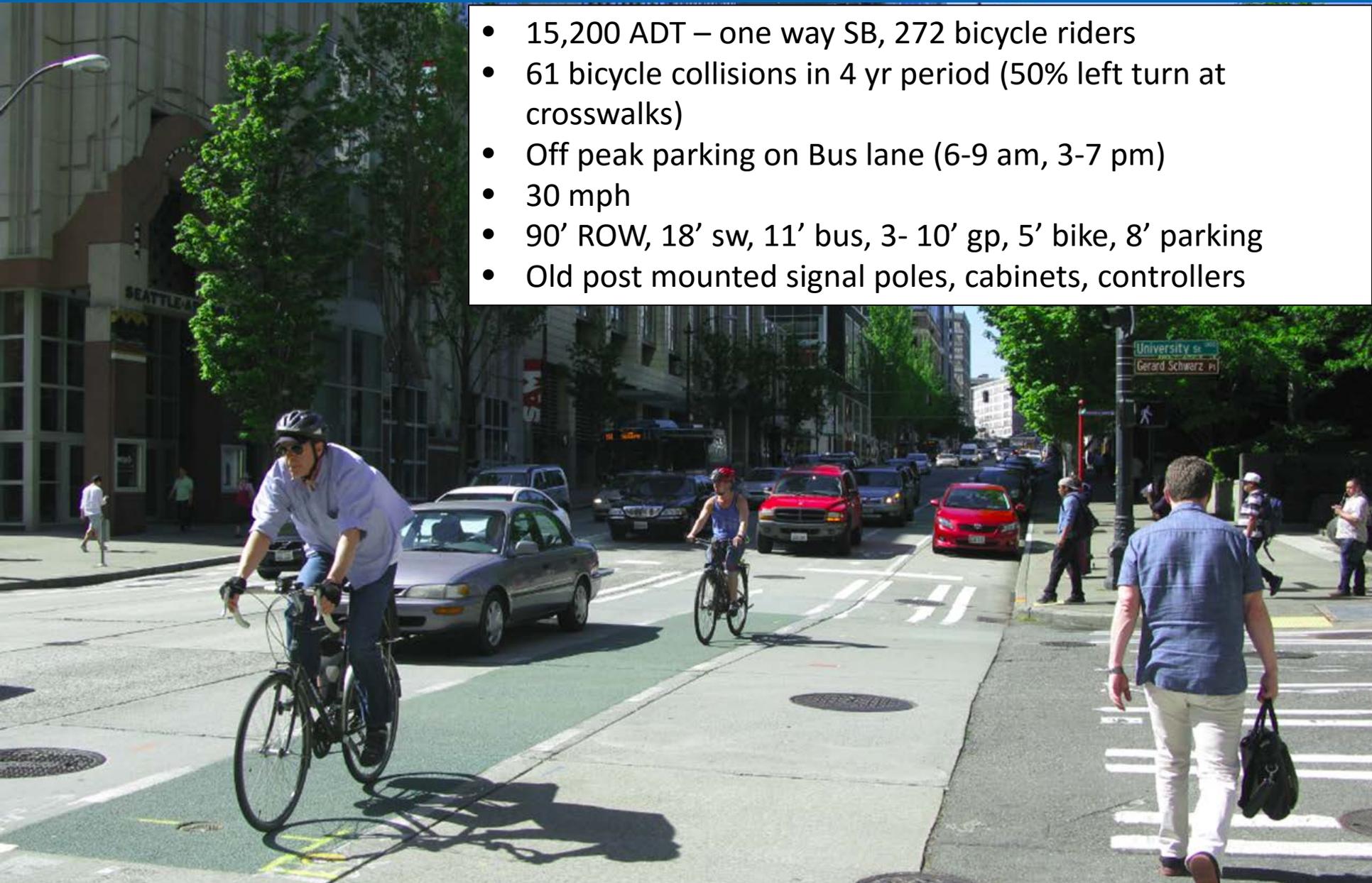
3288 total pedestrians

108 bicycle riders

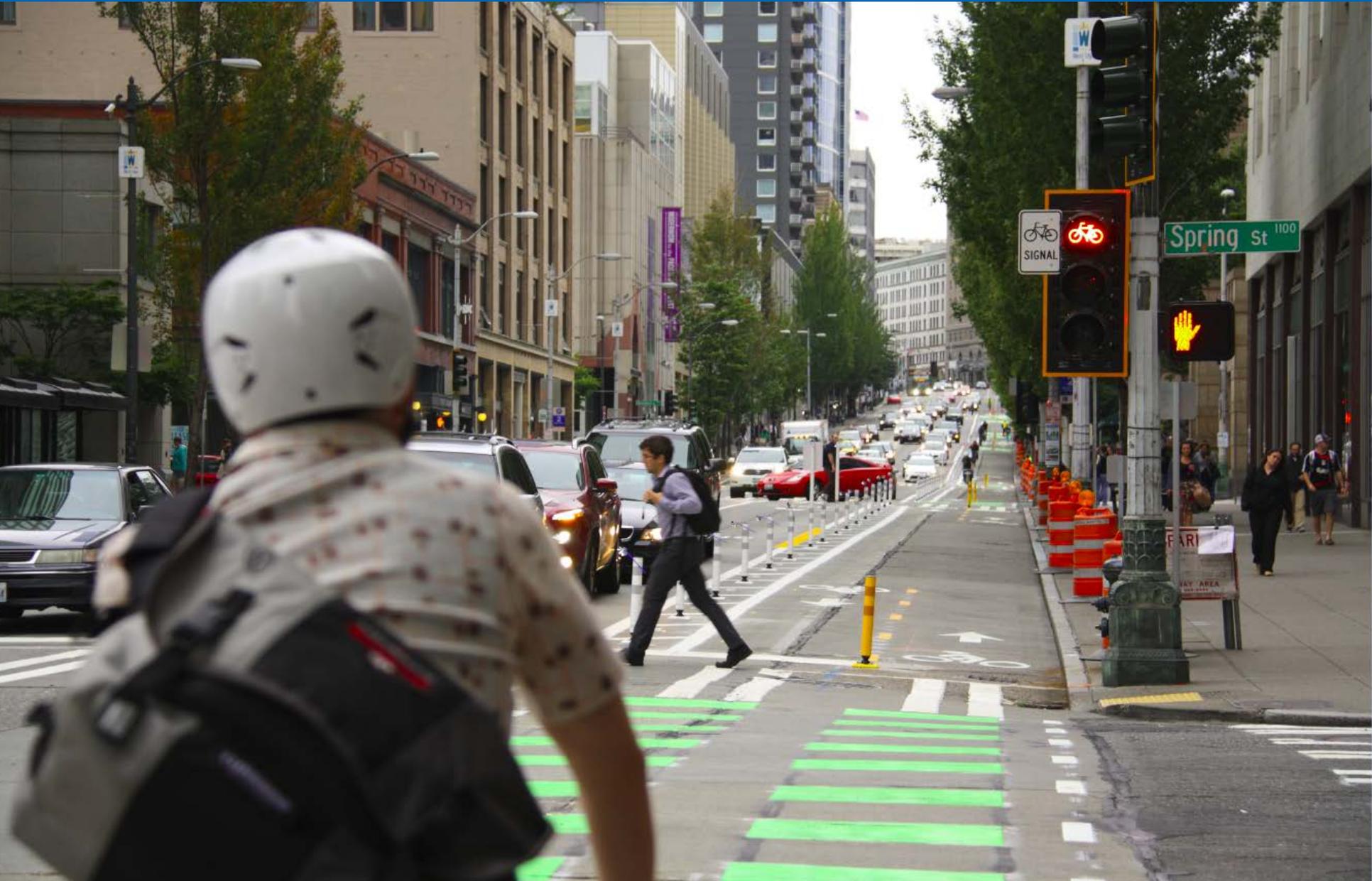


2nd Avenue

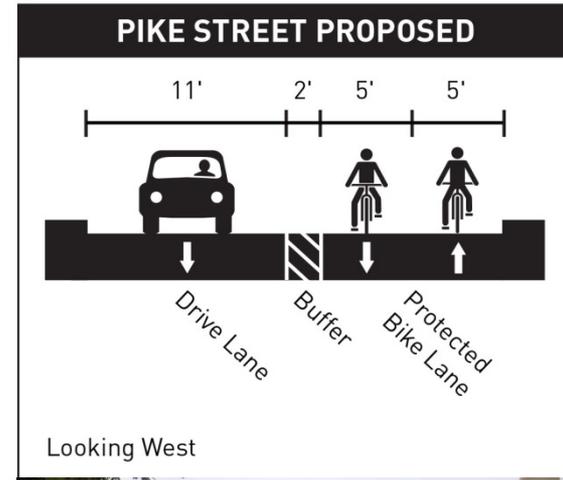
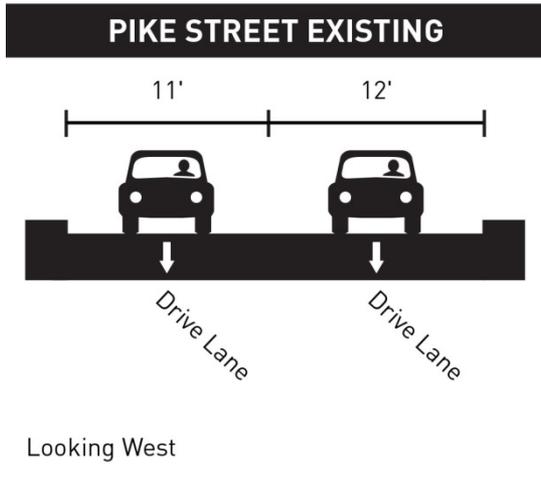
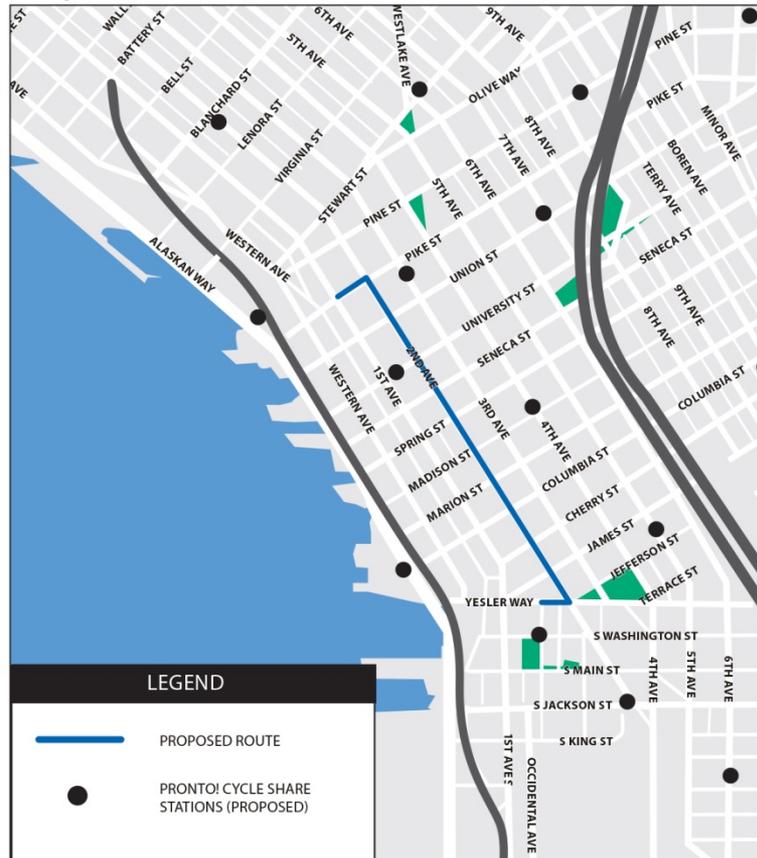
- 15,200 ADT – one way SB, 272 bicycle riders
- 61 bicycle collisions in 4 yr period (50% left turn at crosswalks)
- Off peak parking on Bus lane (6-9 am, 3-7 pm)
- 30 mph
- 90' ROW, 18' sw, 11' bus, 3- 10' gp, 5' bike, 8' parking
- Old post mounted signal poles, cabinets, controllers



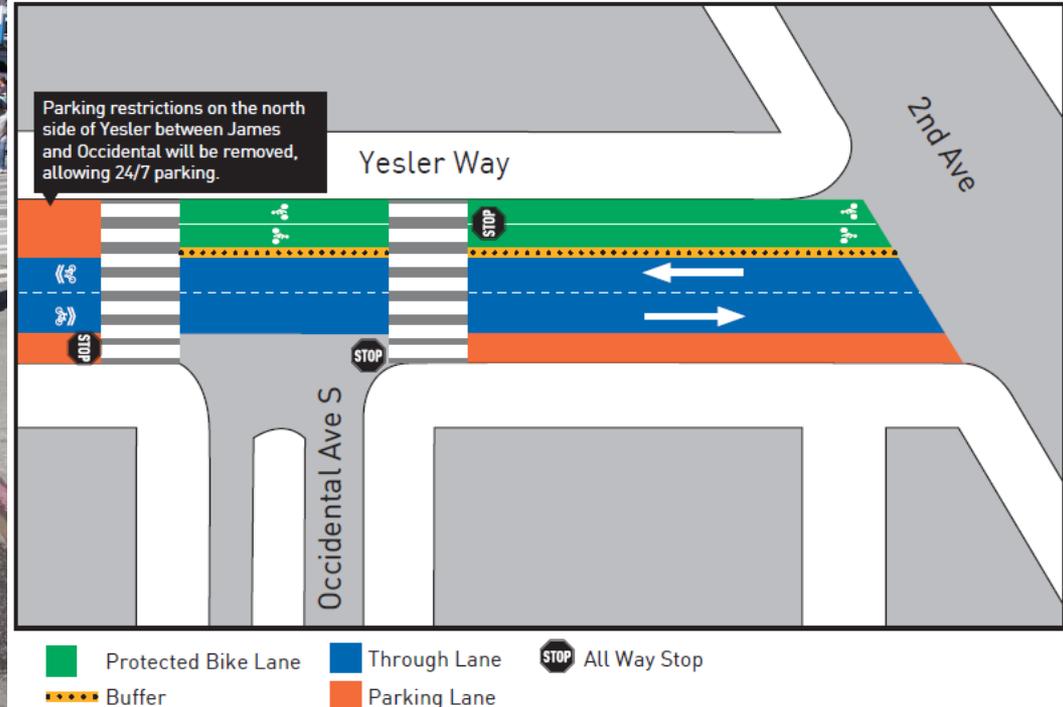
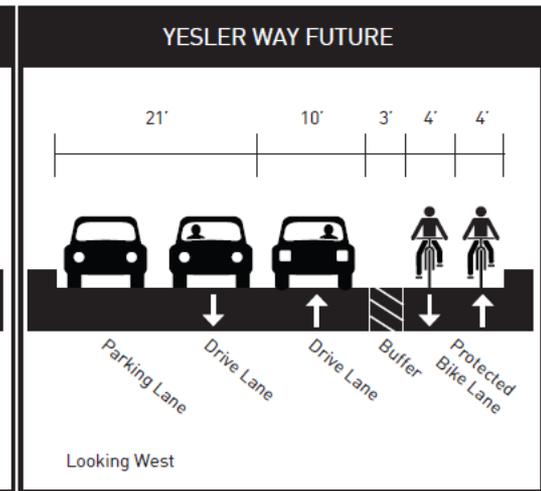
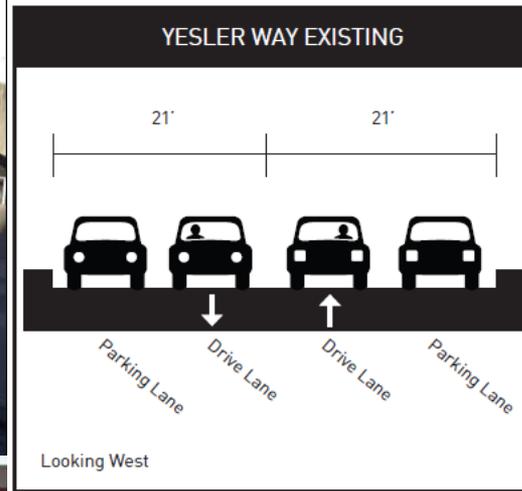
2nd Avenue



2nd Avenue



2nd Avenue



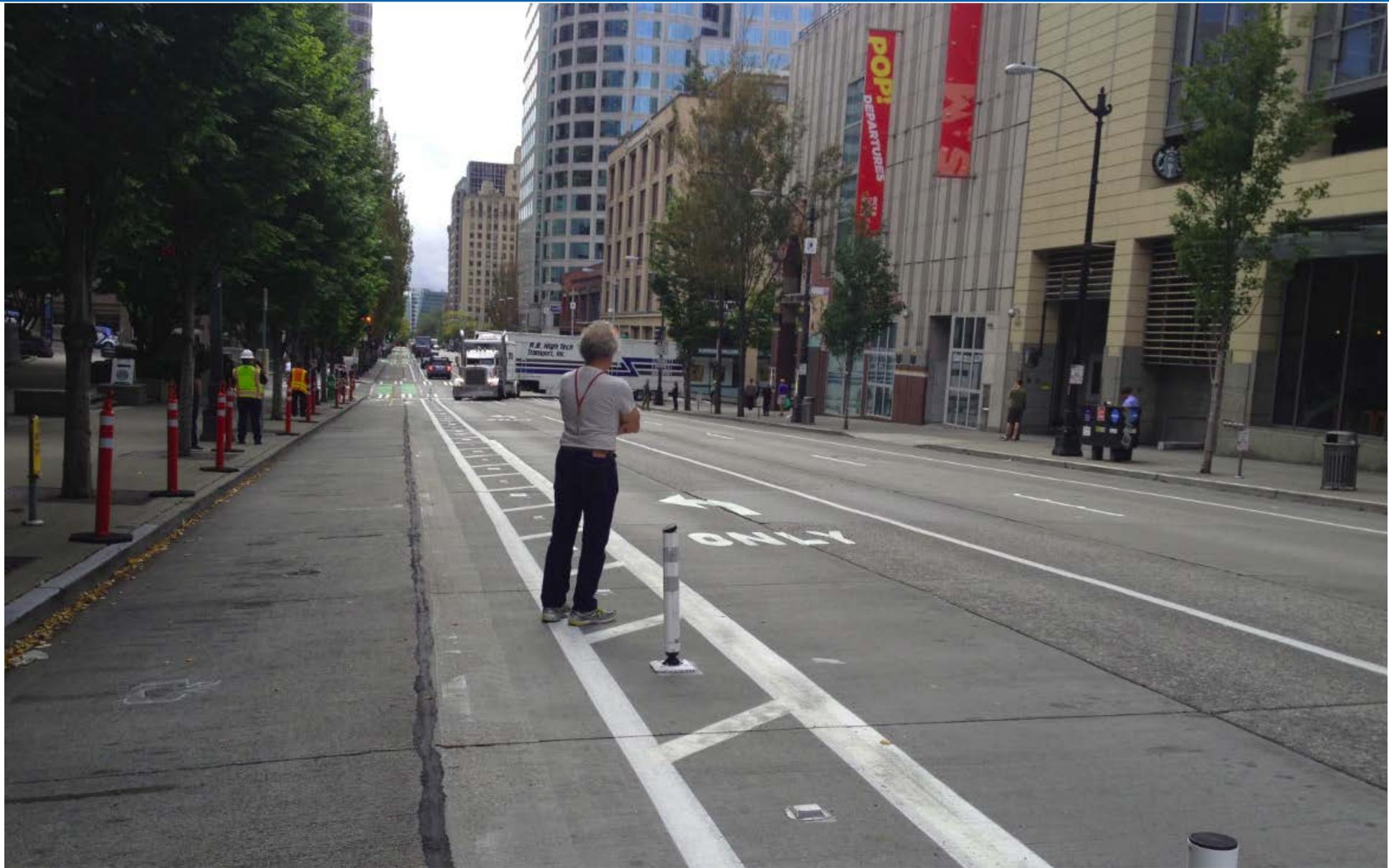
2nd Avenue



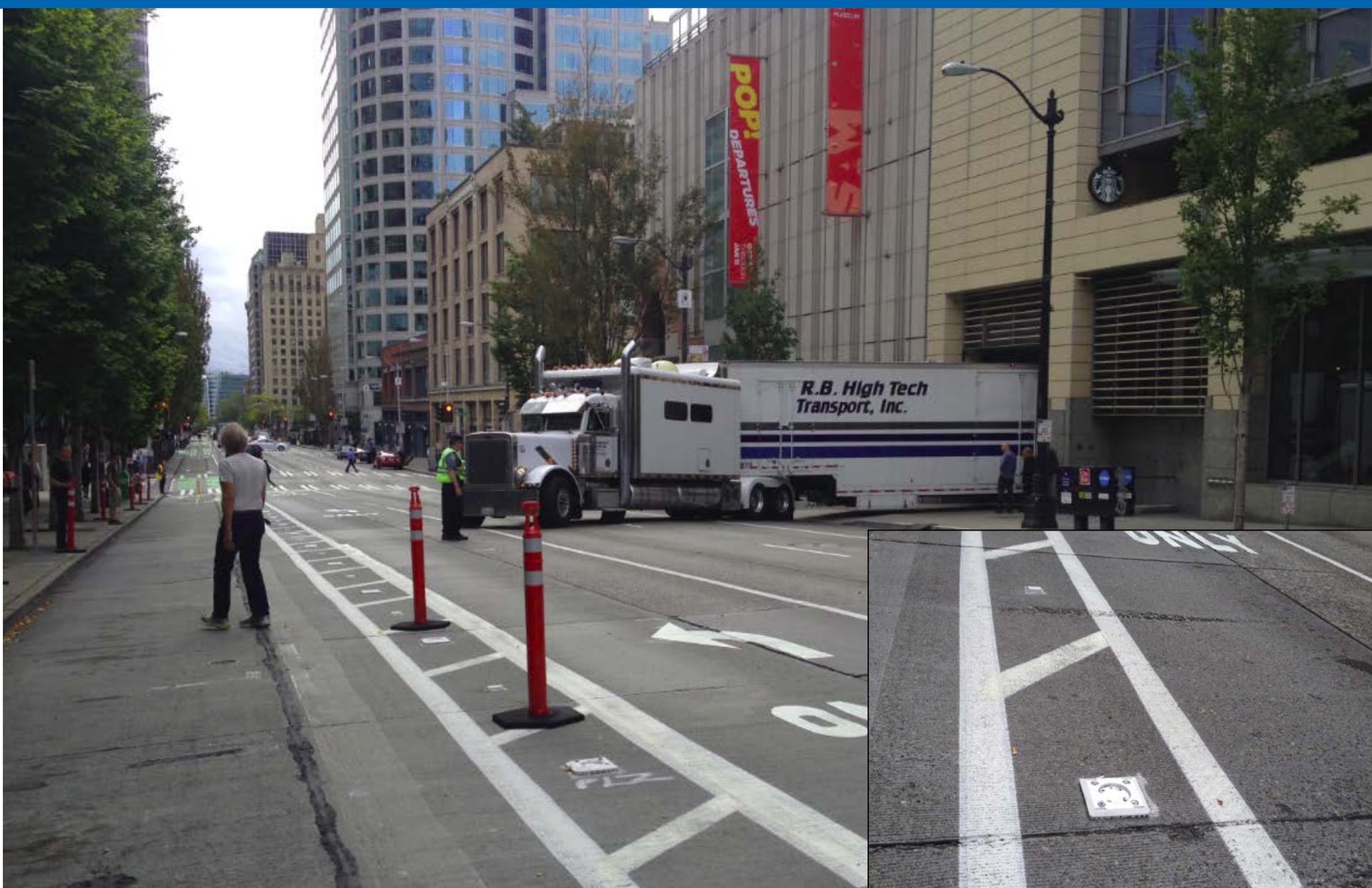
2nd Avenue



2nd Avenue – Art Museum



2nd Avenue – Art Museum

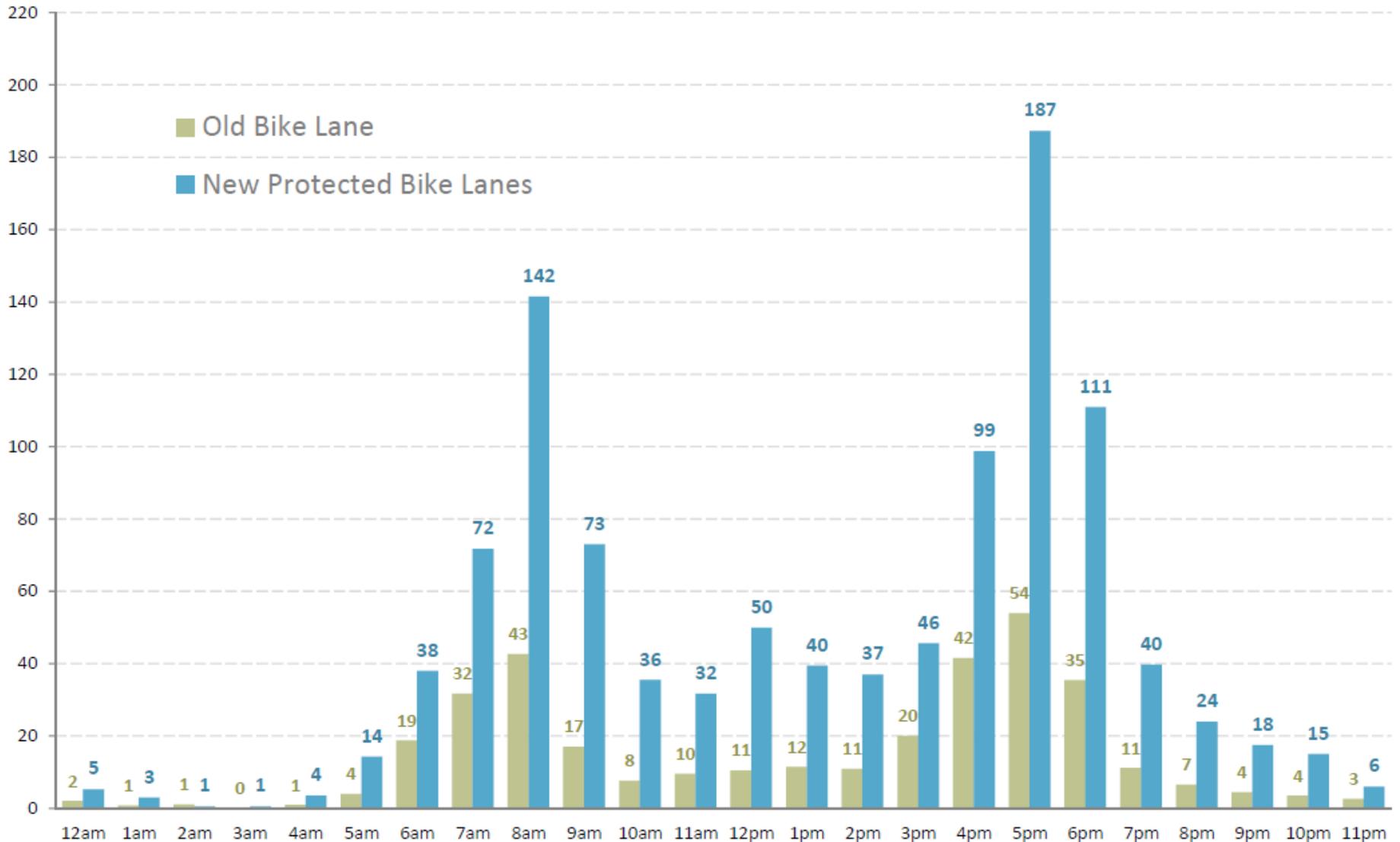


2nd Avenue – Art Museum



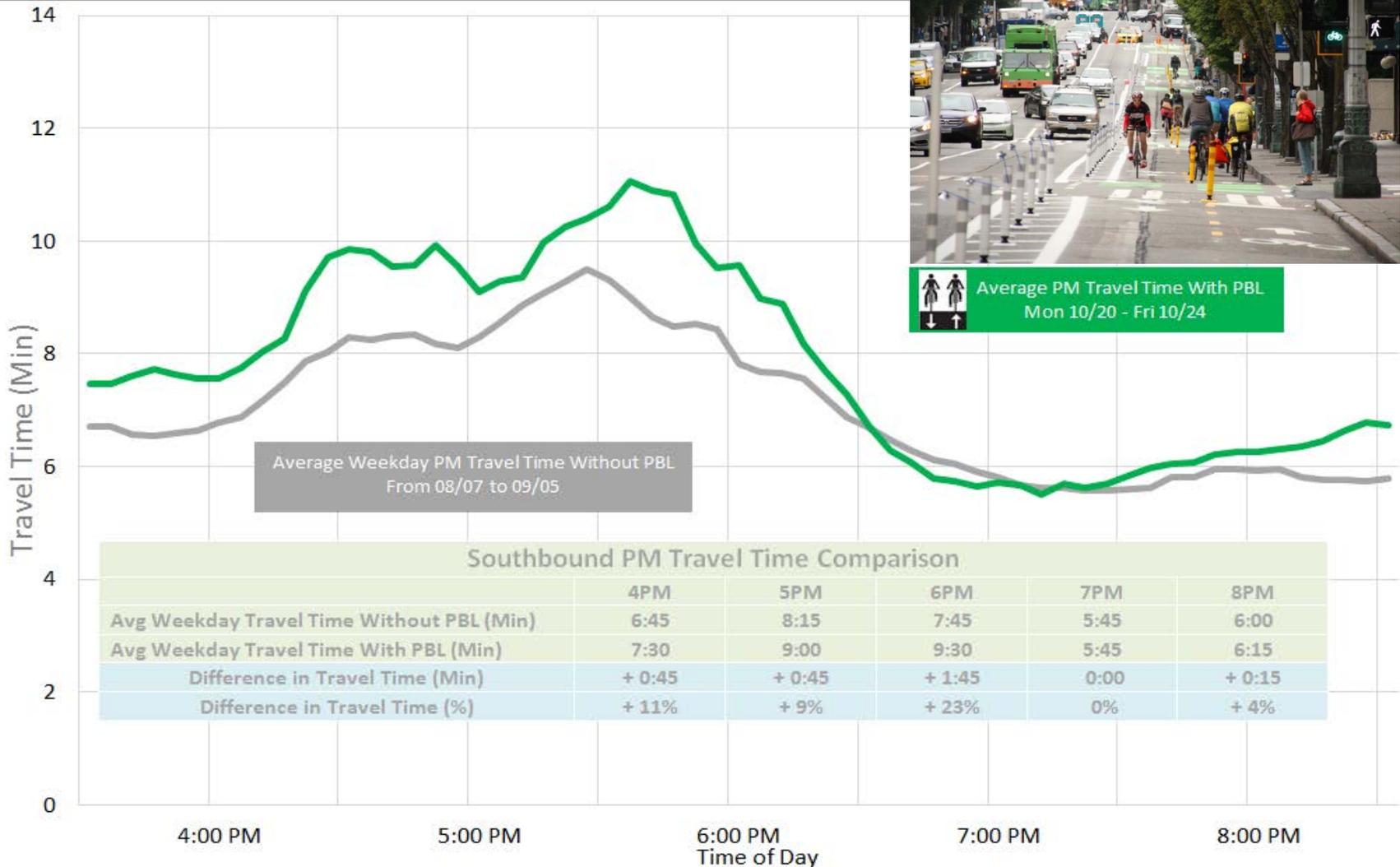
2nd Avenue

Average Hourly Bicycle Volume - 2nd Avenue

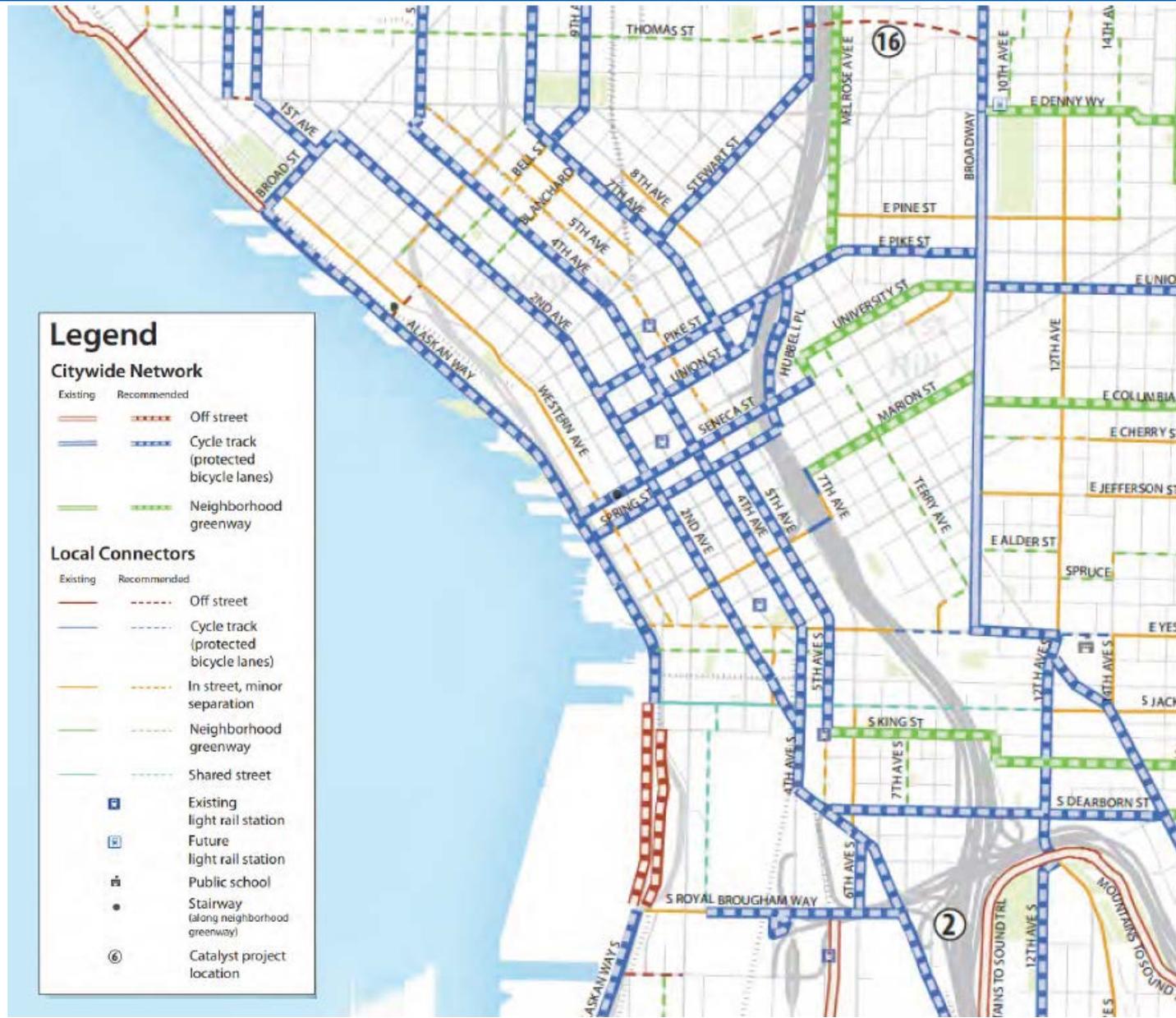


2nd Avenue

Southbound Travel Time (Weekday PM Peak) on 2nd Ave from Stewart St to James St



Center City



Legend

Citywide Network

Existing	Recommended	Description
		Off street
		Cycle track (protected bicycle lanes)
		Neighborhood greenway

Local Connectors

Existing	Recommended	Description
		Off street
		Cycle track (protected bicycle lanes)
		In street, minor separation
		Neighborhood greenway
		Shared street

- Existing light rail station
- Future light rail station
- Public school
- Stairway (along neighborhood greenway)
- Catalyst project location

Broadway Avenue



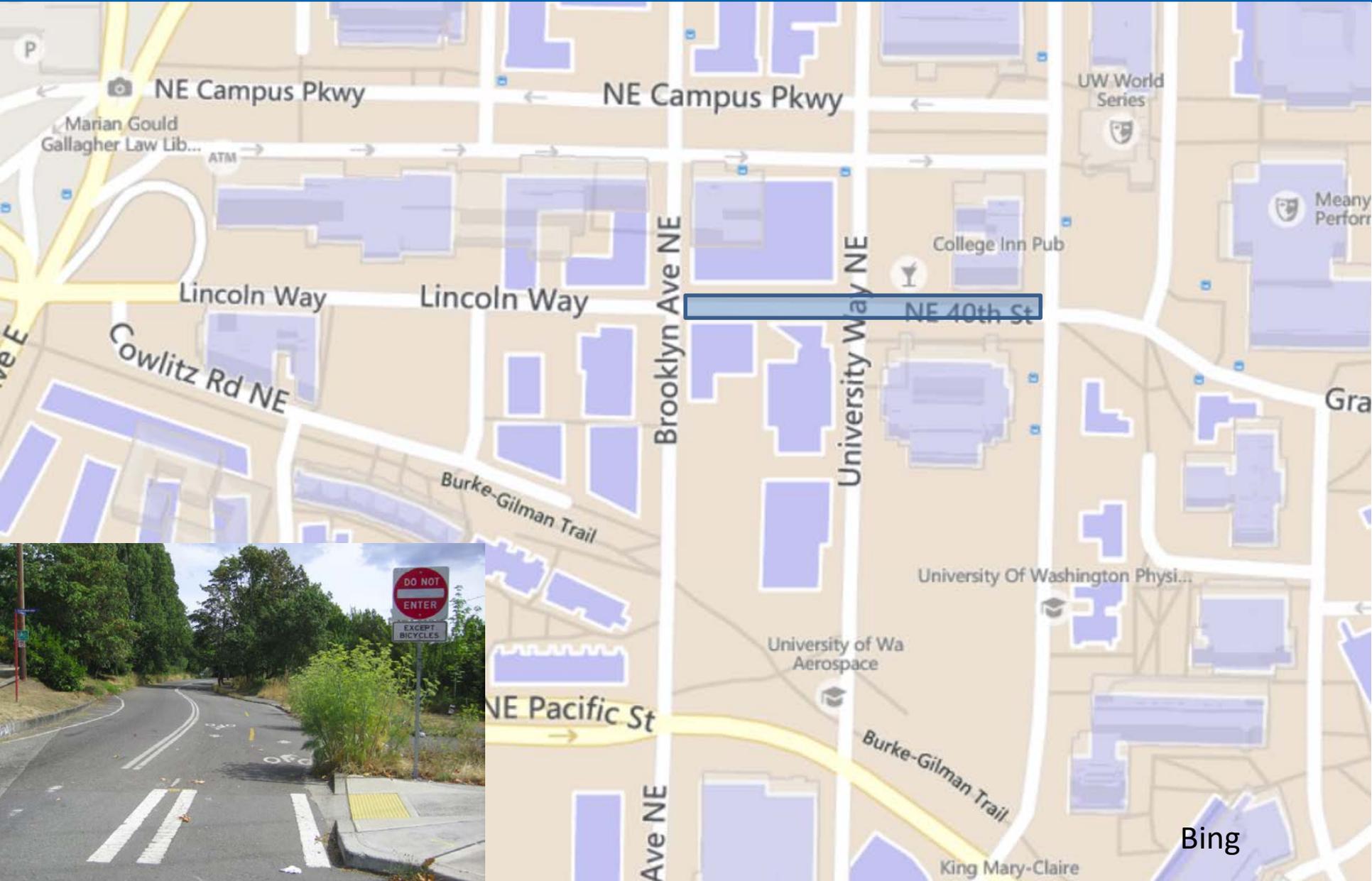
Broadway Avenue

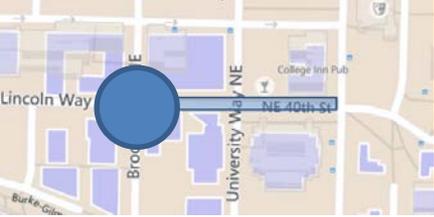


Roosevelt Way



NE 40th Street





NE 40th Street



Brooklyn Ave NE Before



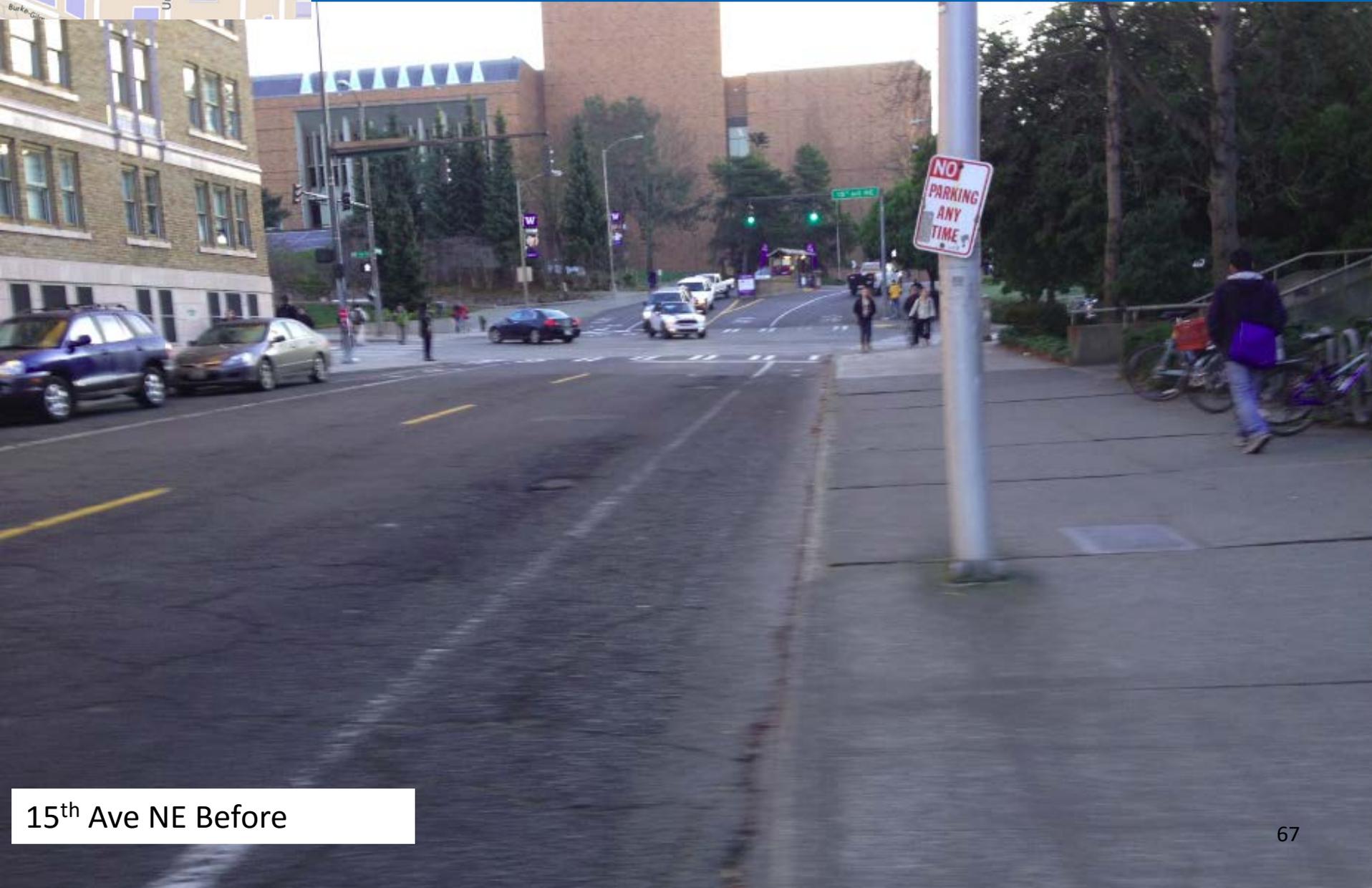
University Way



University Way Before



15th Ave NE



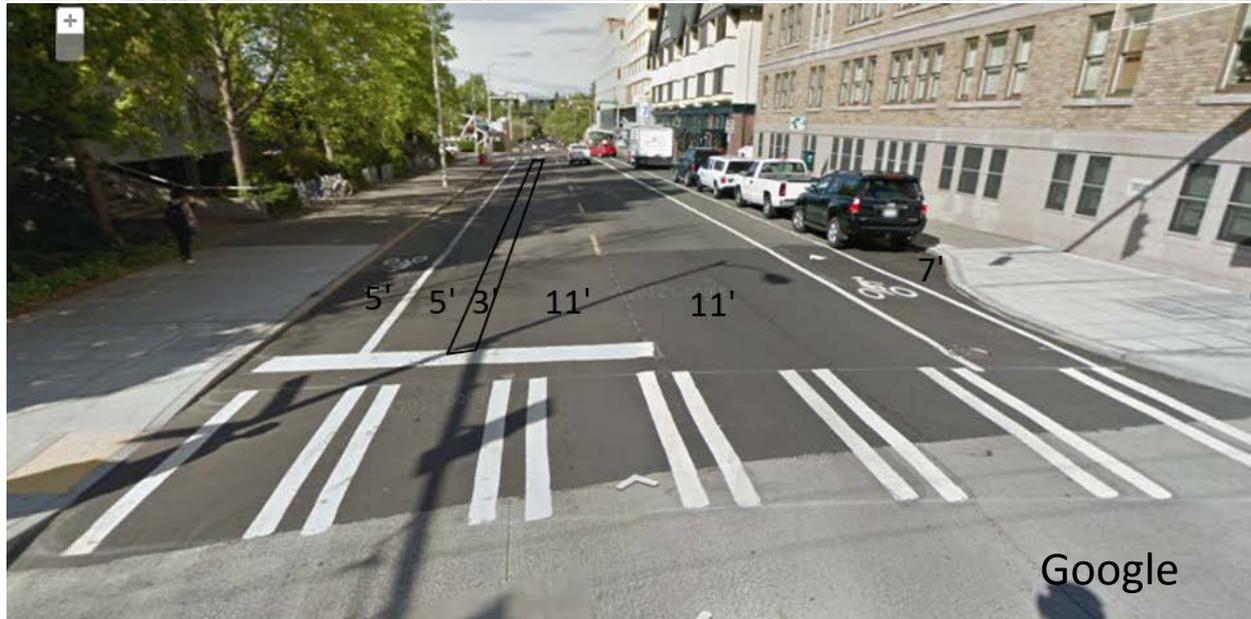
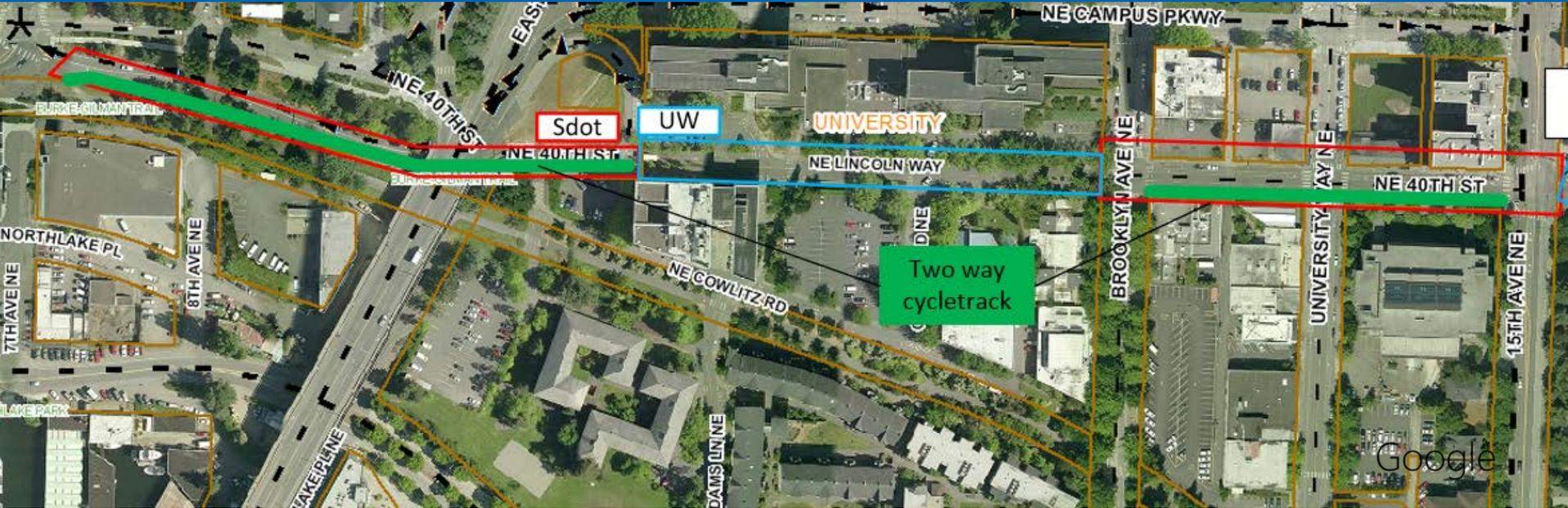
15th Ave NE Before



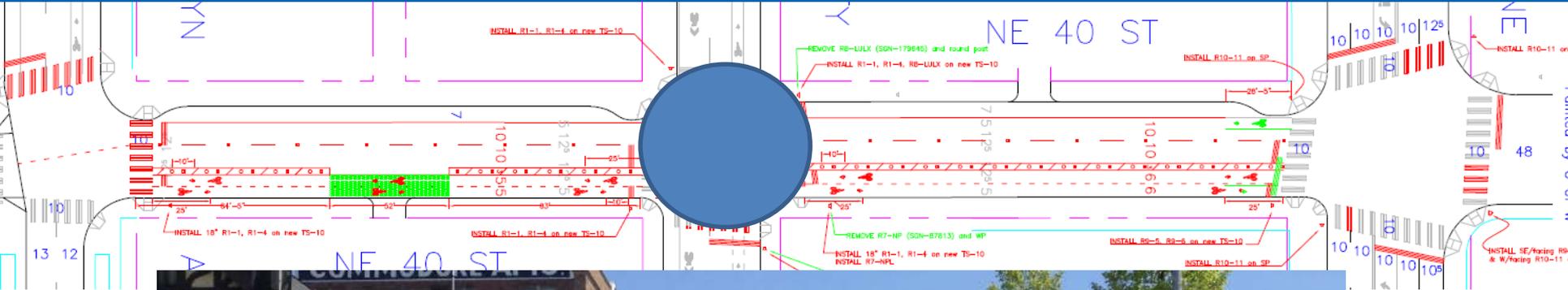
15th Ave NE



NE 40th Street



NE 40th Street



NE 40th Street



NW 45th St



NW 45th St



NW 45th St



Stone Way



Paint and Posts



Questions?

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

