



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

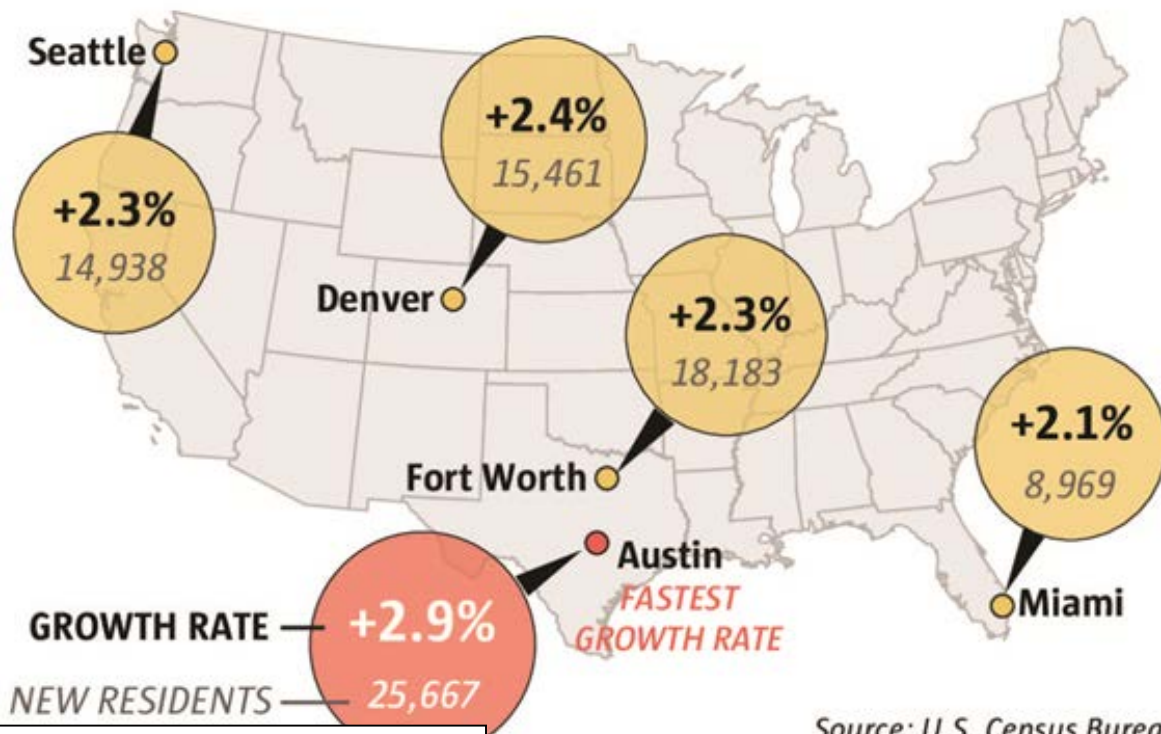


Committed to **5 core values** to create a city that is:

- Safe
- Interconnected
- Affordable
- Vibrant
- Innovative

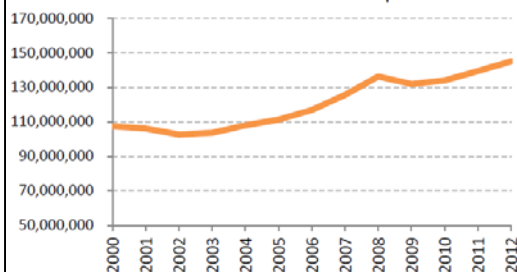
Seattle is growing. A lot.

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.



GROWTH RATE — **+2.9%**
NEW RESIDENTS — **25,667**

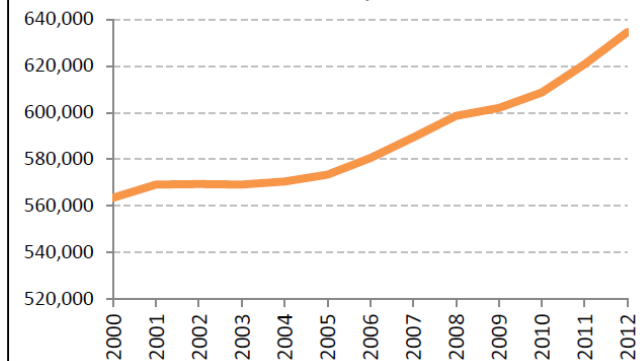
Transit Ridership



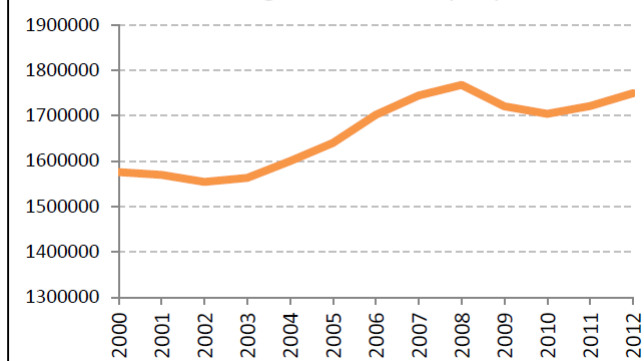
Source: U.S. Census Bureau

KELLY SHEA / THE SEATTLE TIMES

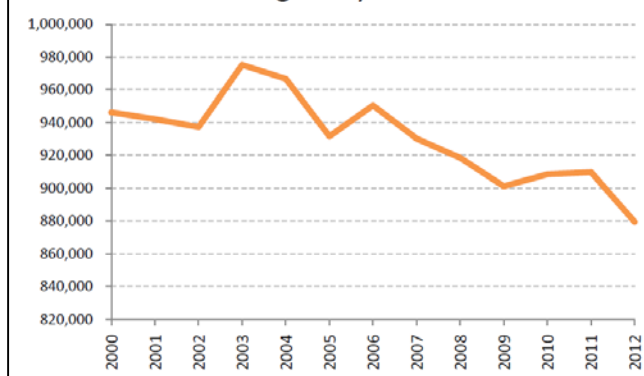
Seattle Population



Average Annual Employment



Average Daily Traffic in Seattle



\$2.3 Billion Residential Developments



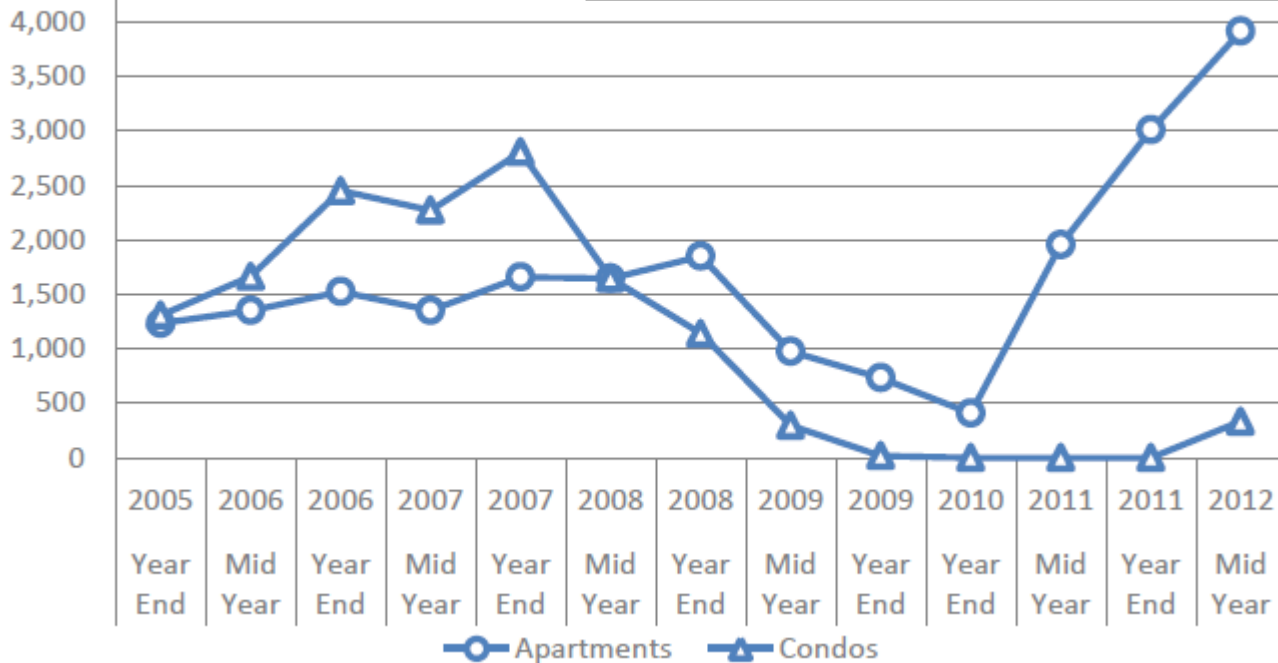
\$2.3 Billion Residential Developments



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



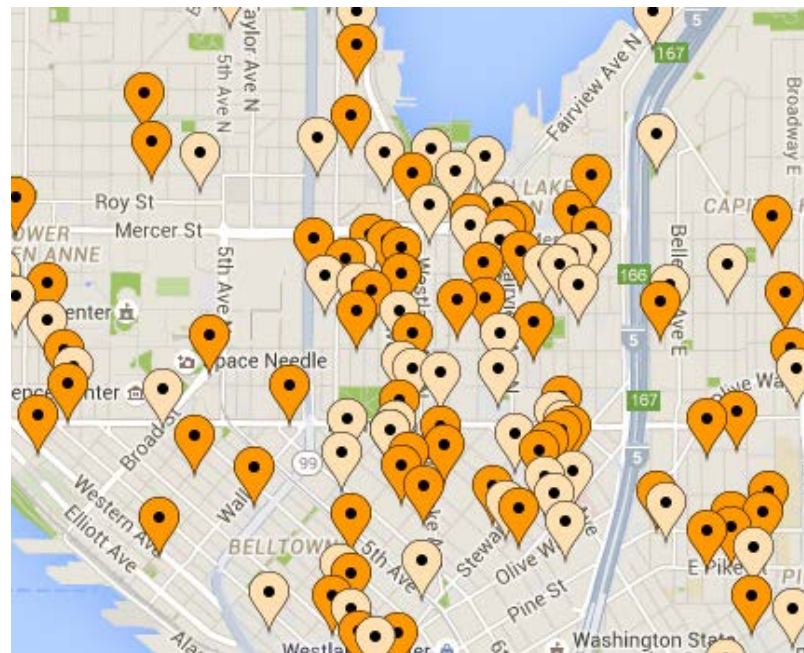
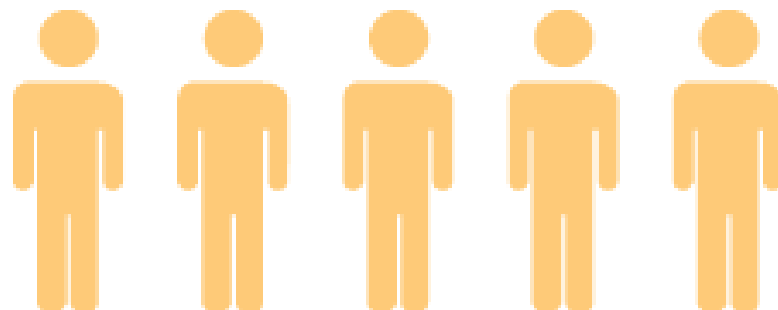
5th and Columbia – 43 story tower



Amazon Rufus 2.0 - 37 story tower



9th and Stewart Hedreen Hotel - 43 story tower

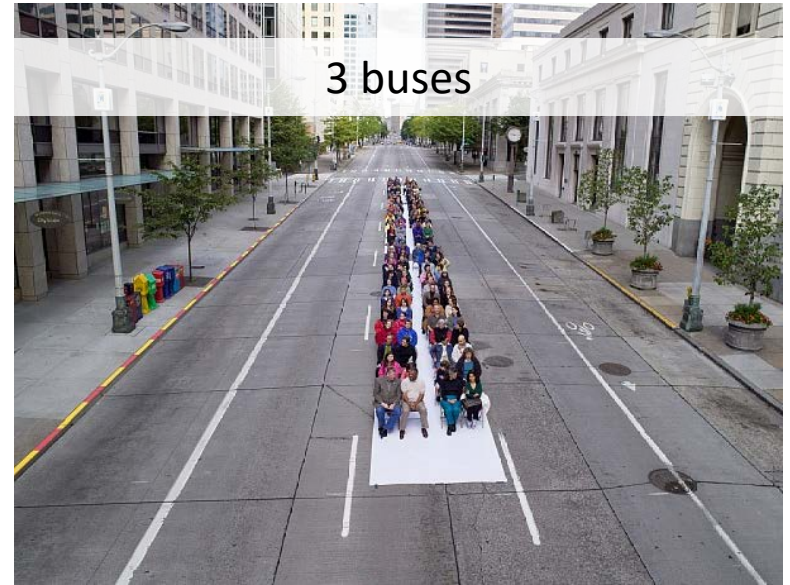


200 people can fit in...

177 cars



3 buses



1 light rail train



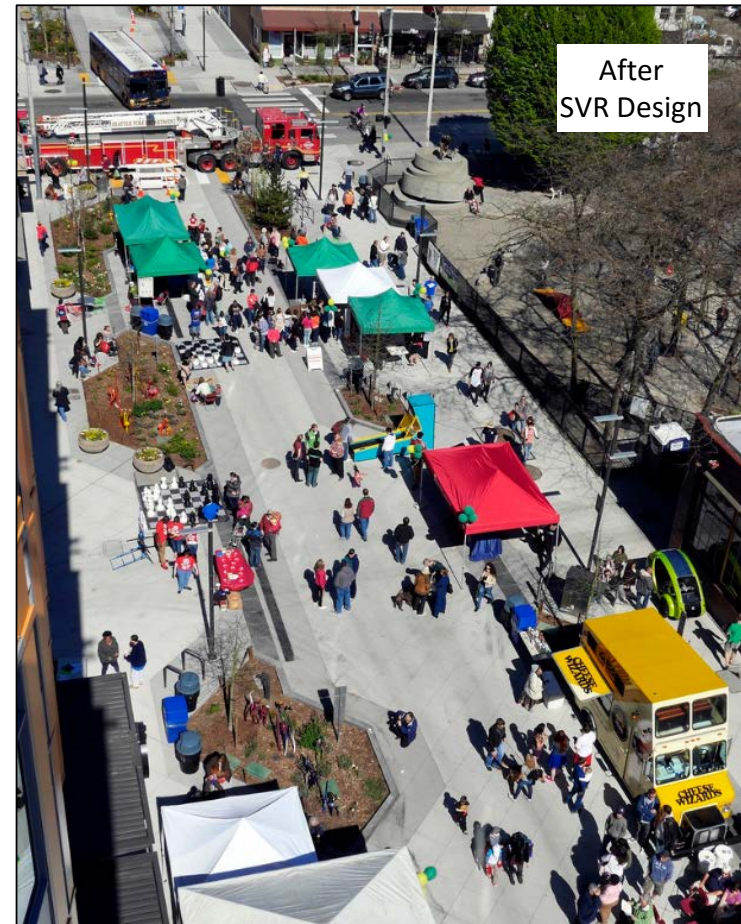
on their bikes



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

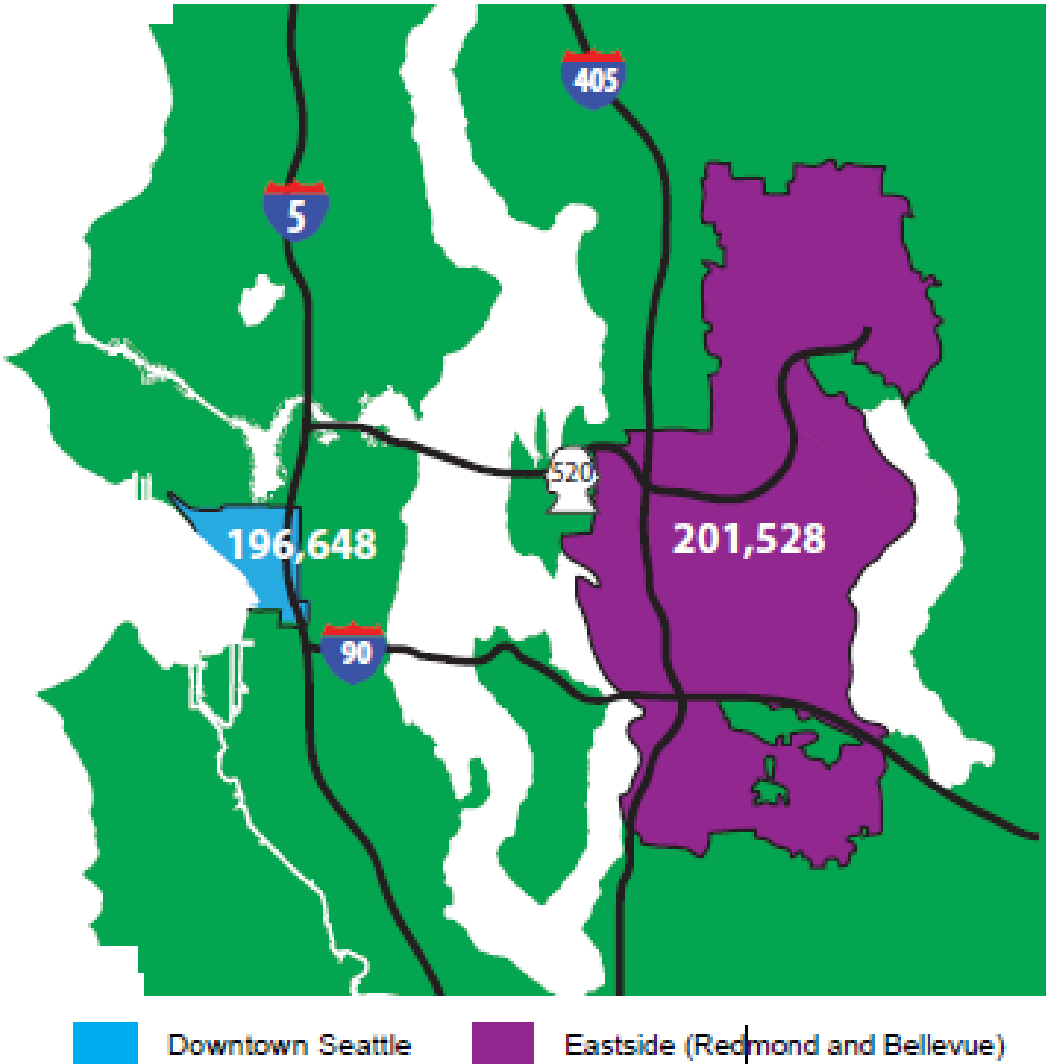
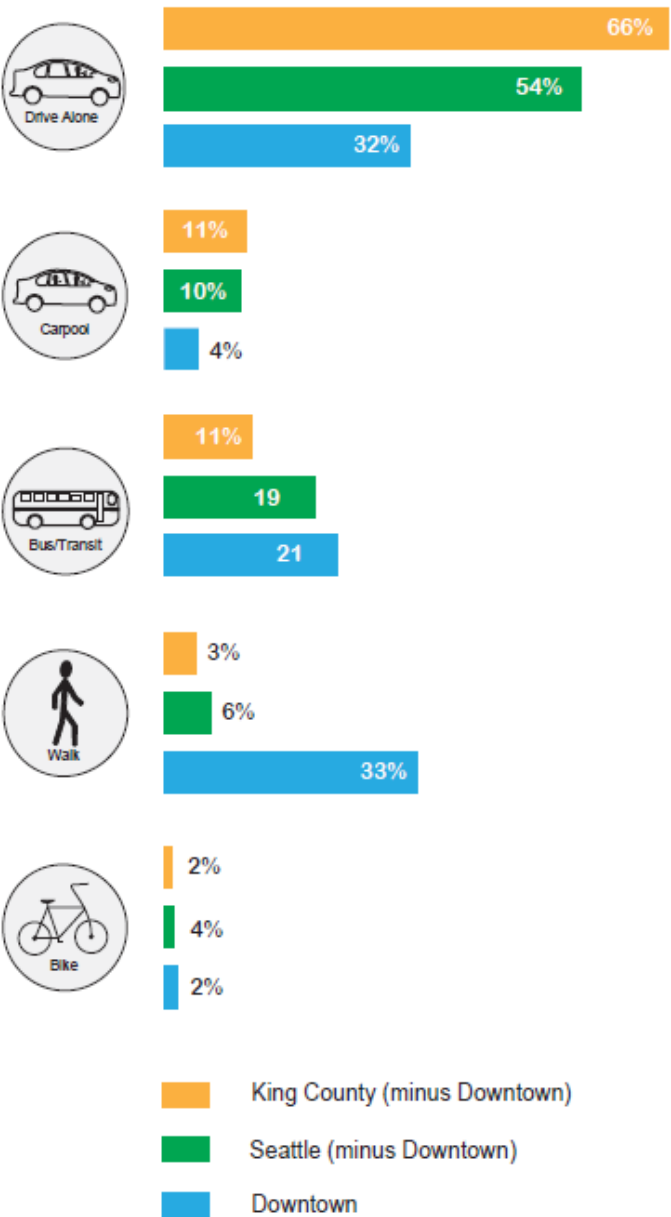
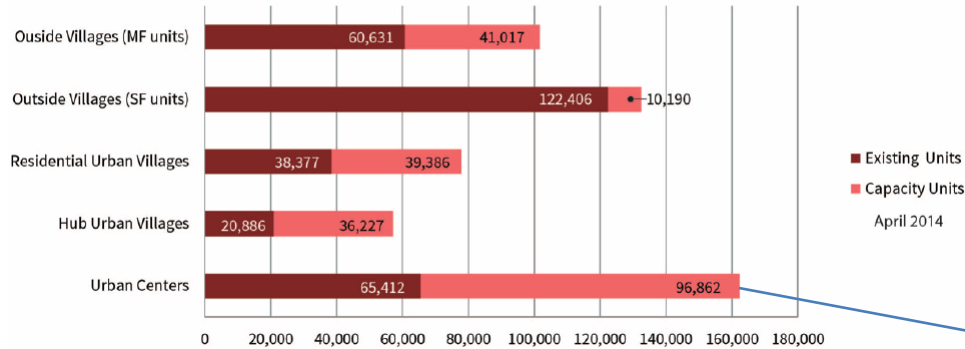


Figure 8. Residents' Mode of Transportation to Work (2013)
 Source: The Nielsen Company, 2013

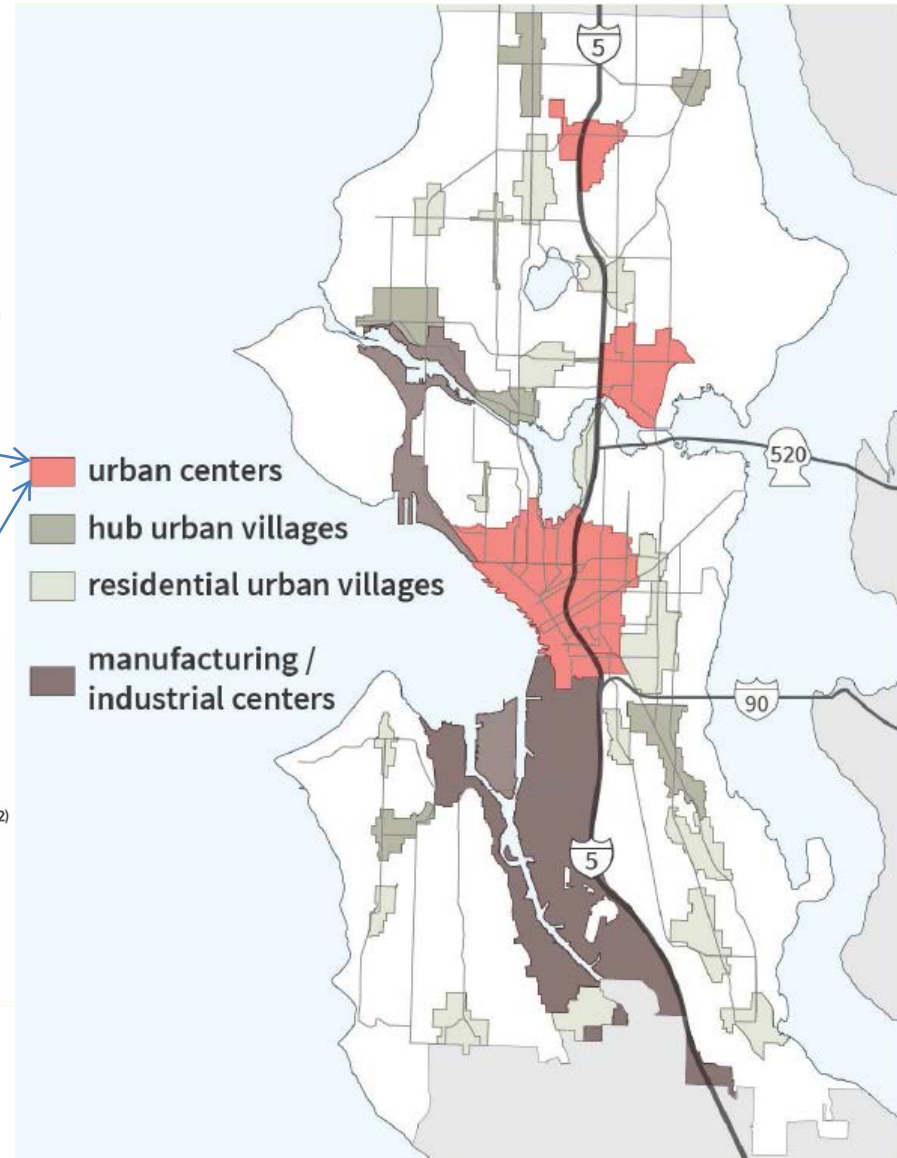
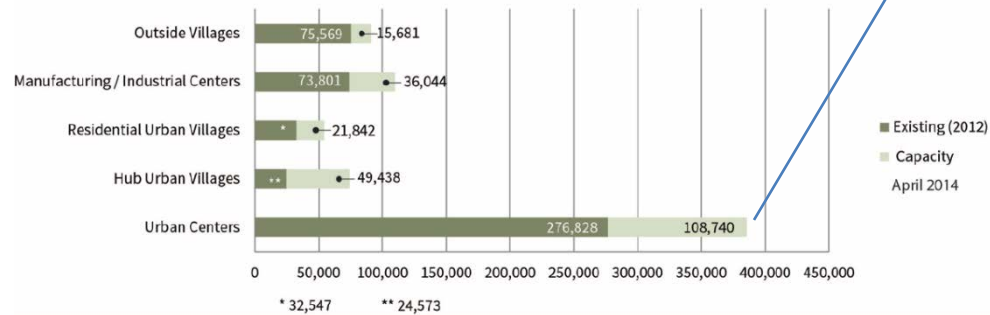


Where Seattle Plan to Grow

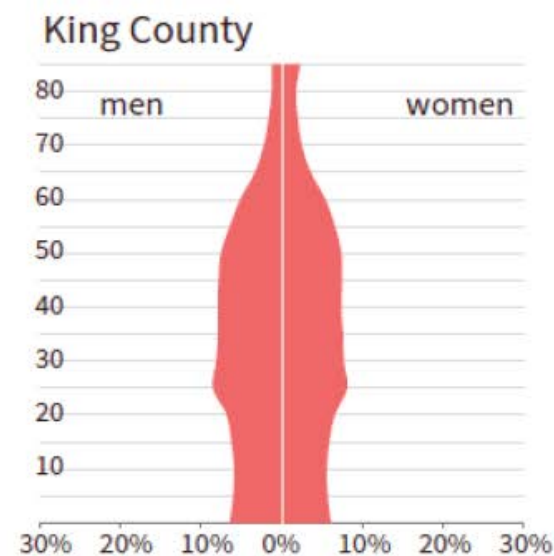
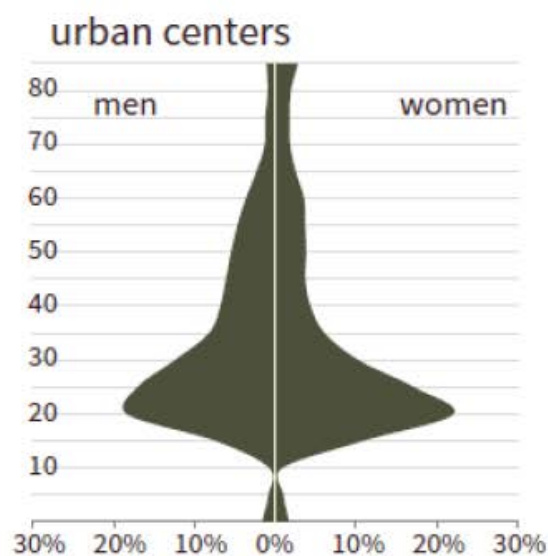
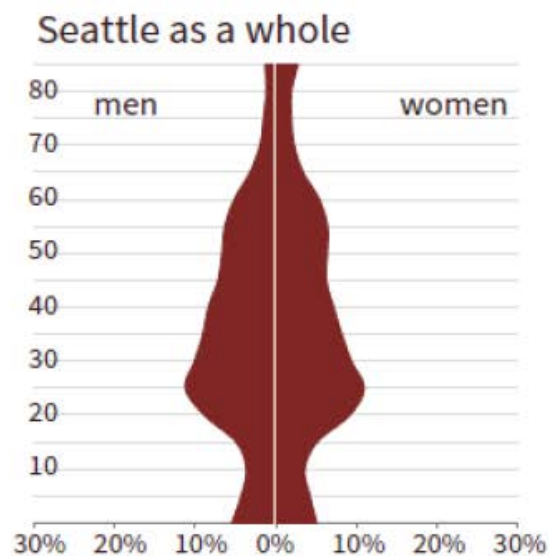
Housing Units



Jobs



AGE



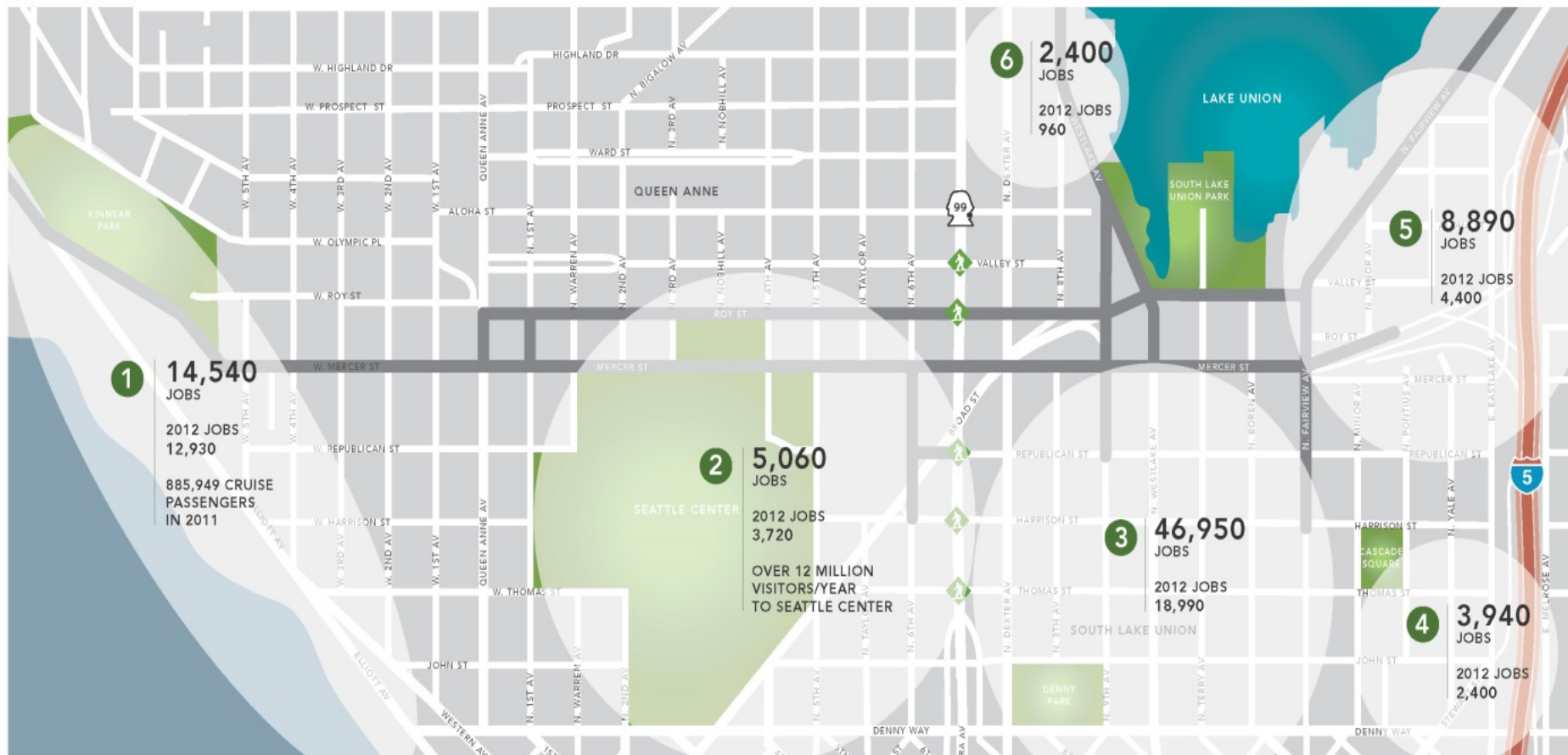
South Lake Union

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
Sightlife

5

Fred Hutchinson Cancer Research Cntr.
Seattle Cancer Care Alliance
ZymoGenetics/Bristol Myers 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



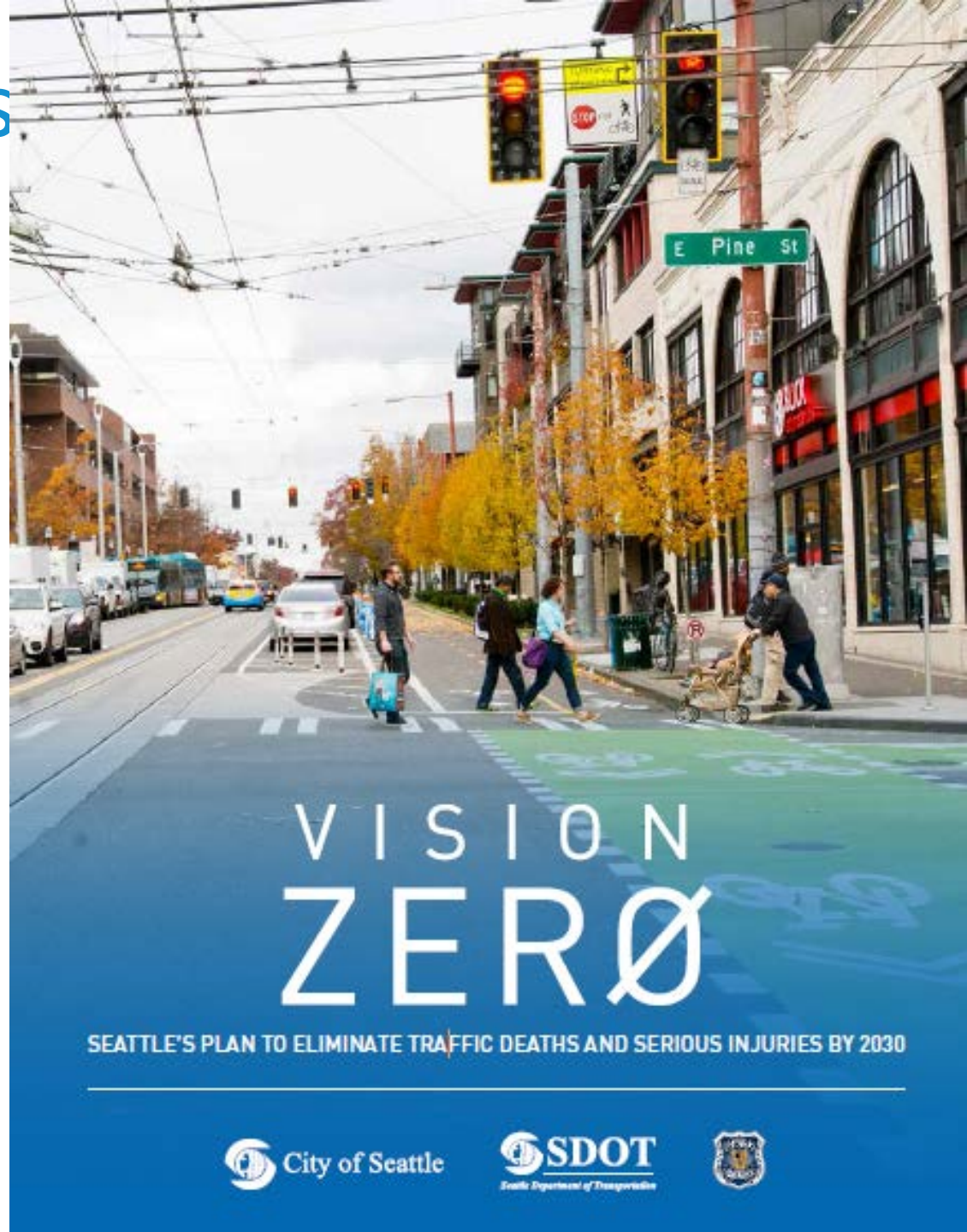
ESTIMATED 2012 TOTAL JOBS: 43,400



Vis

Seattle's plan to eliminate traffic deaths and serious injuries

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



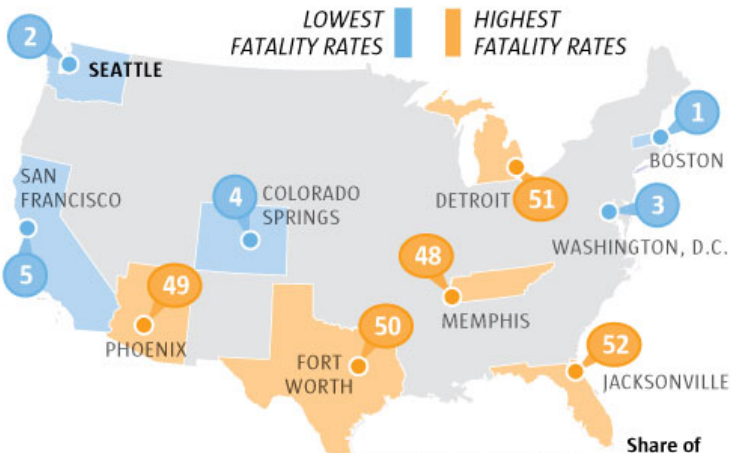
www.seattle.gov/visionzero



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.

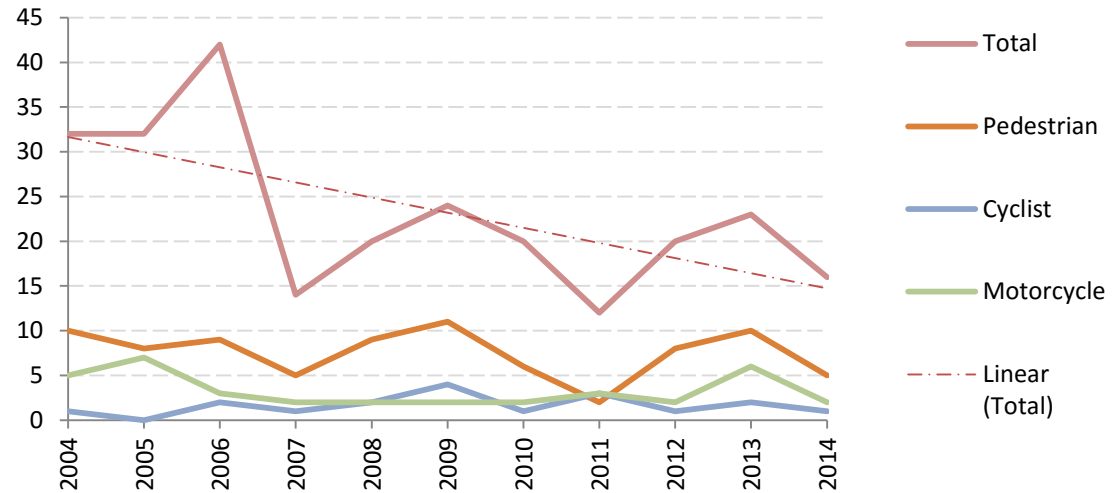


	RANK/CITY	(per 10,000 commuters)		Share of commuters who walk or bike
		Bike fatalities	Pedestrian fatalities	
SAFEST CITIES	1. Boston	2.5	0.9	16.7 %
	2. Seattle	1.7	2.7	12.0
	3. Washington, D.C.	1.1	3.3	14.7
	4. Colorado Springs	4.8	3.4	3.7
	5. San Francisco	0.9	4.0	13.2
DEADLIEST CITIES	52. Jacksonville	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

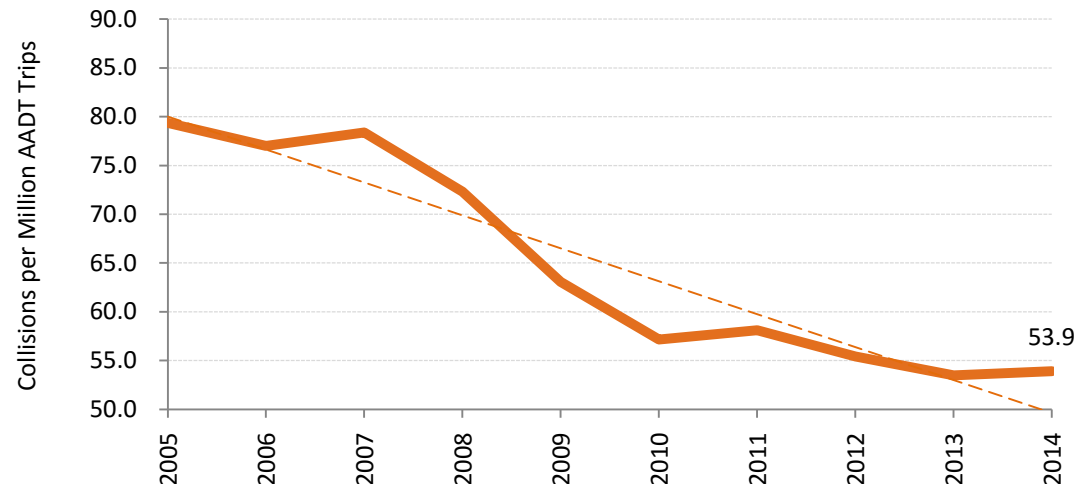
Source: Benchmarking Report, Alliance for Biking & Walking, 2014

GARLAND POTTS / THE SEATTLE TIMES

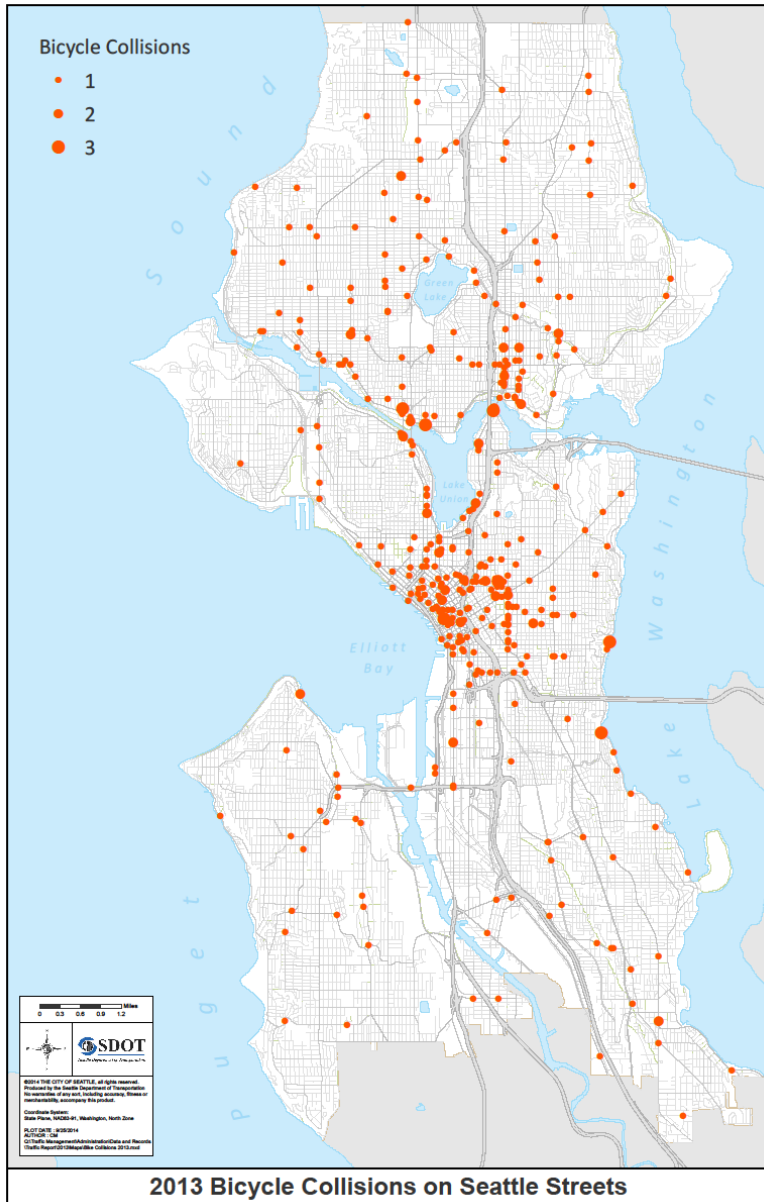
Traffic Fatalities on Seattle Streets



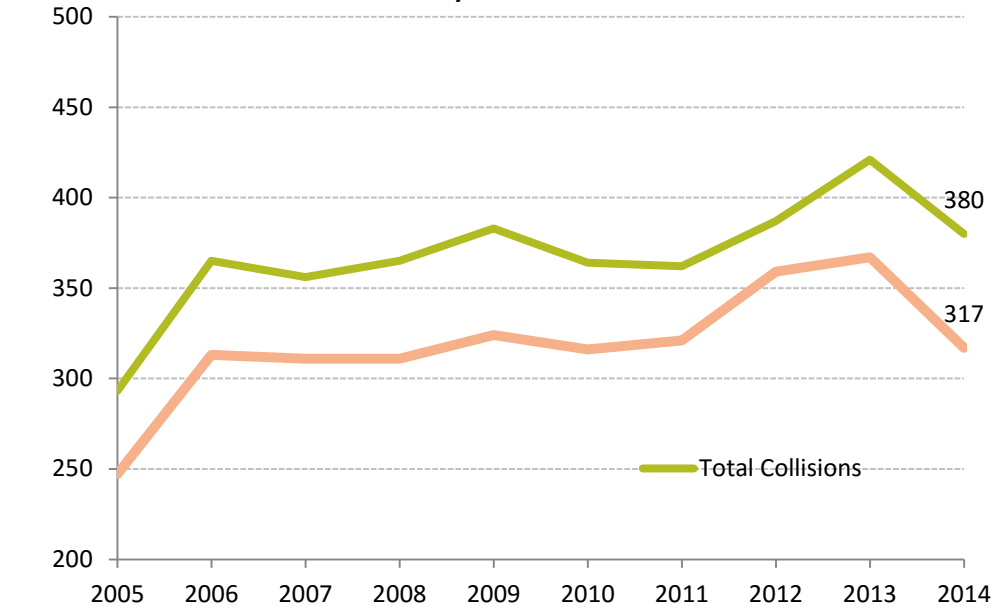
Citywide Collision Rate



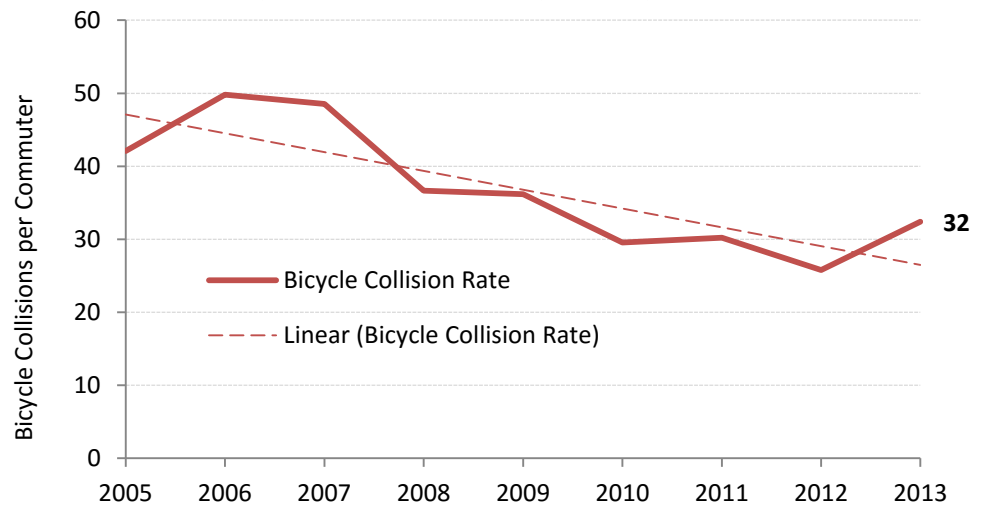
City with Zero Traffic Fatality



Bicycle Collisions

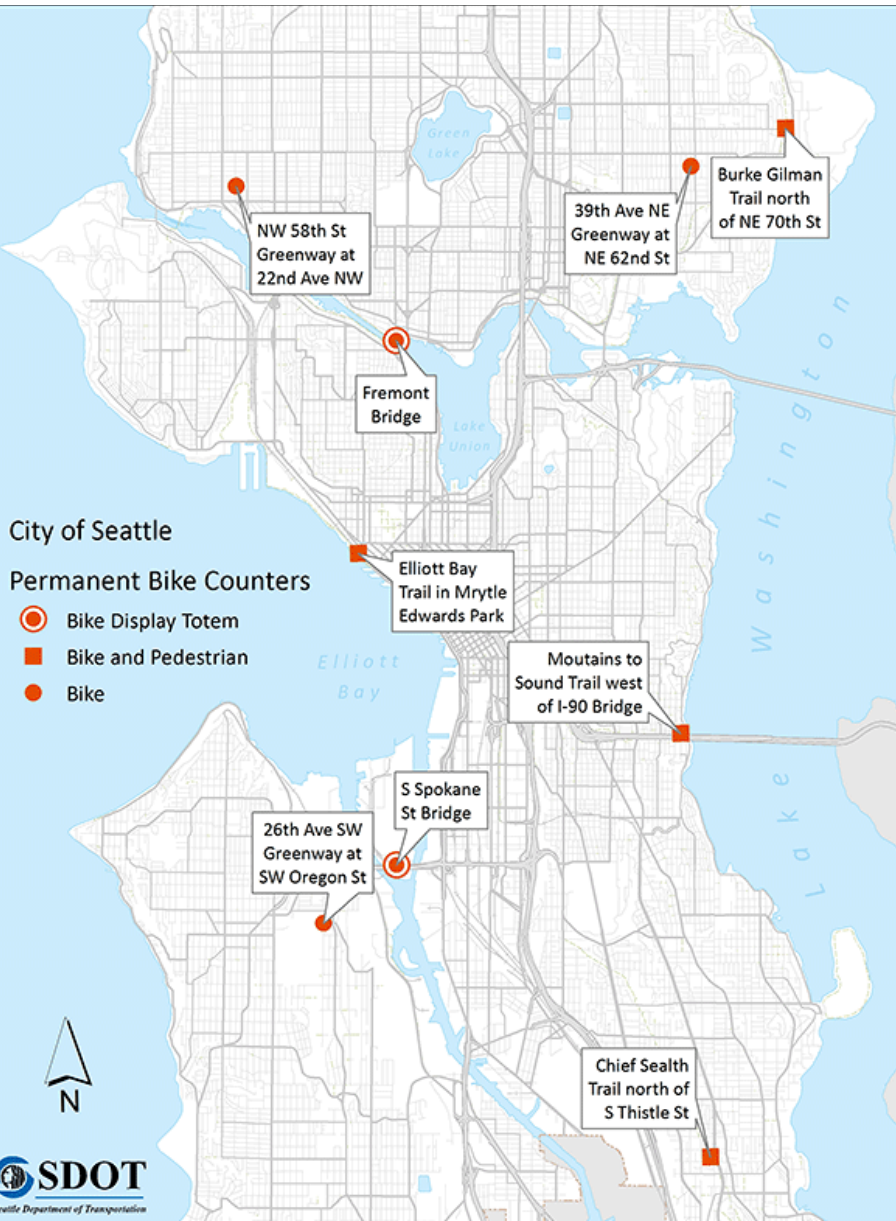
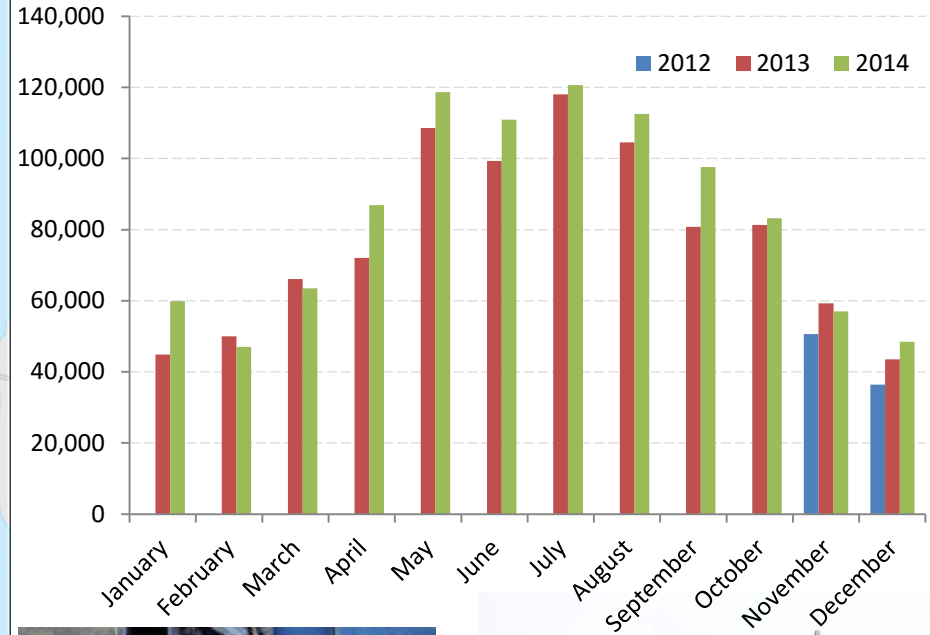


Bicycle Collision Rate per Bicycle Commuter*



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%**
- Rearend 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



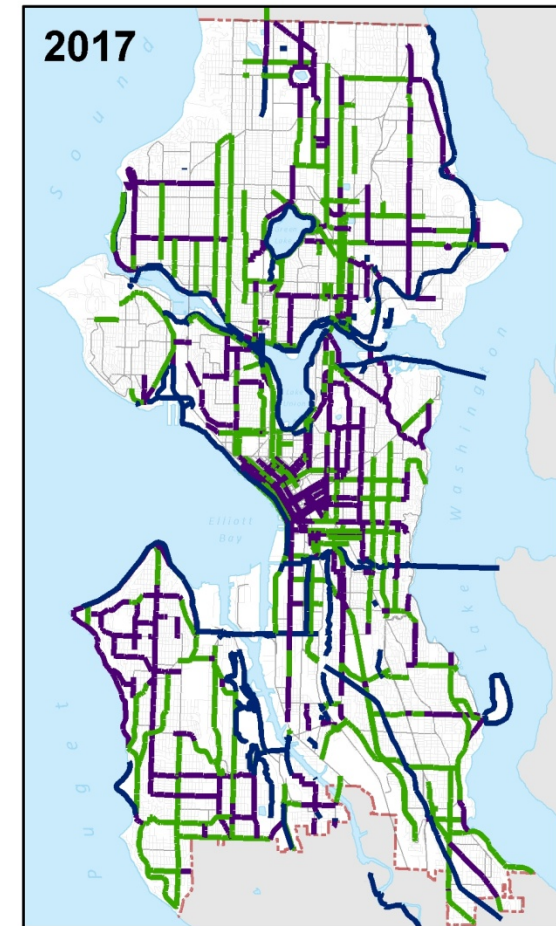
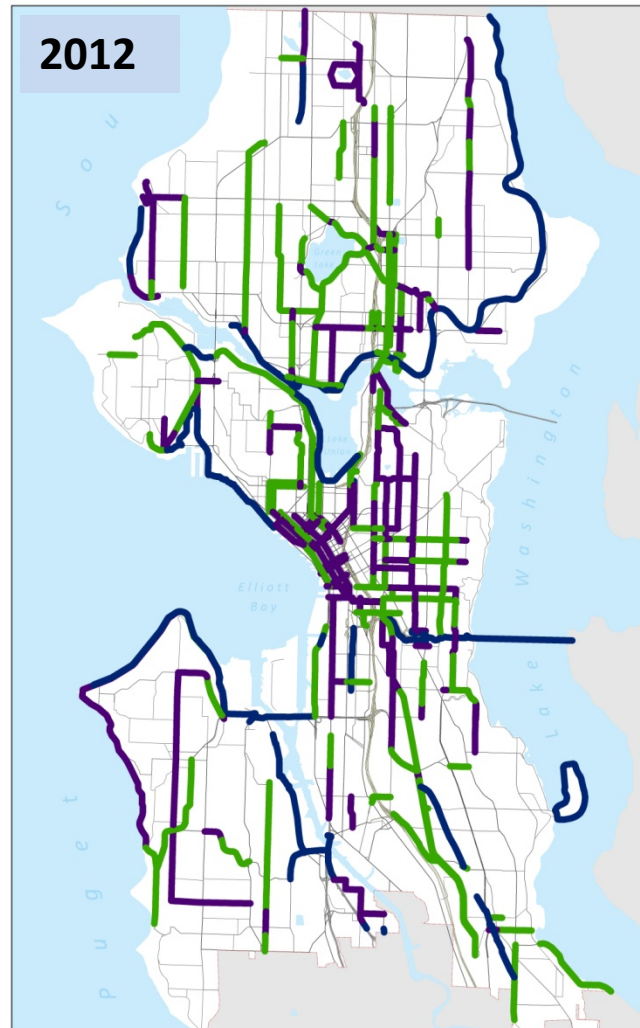
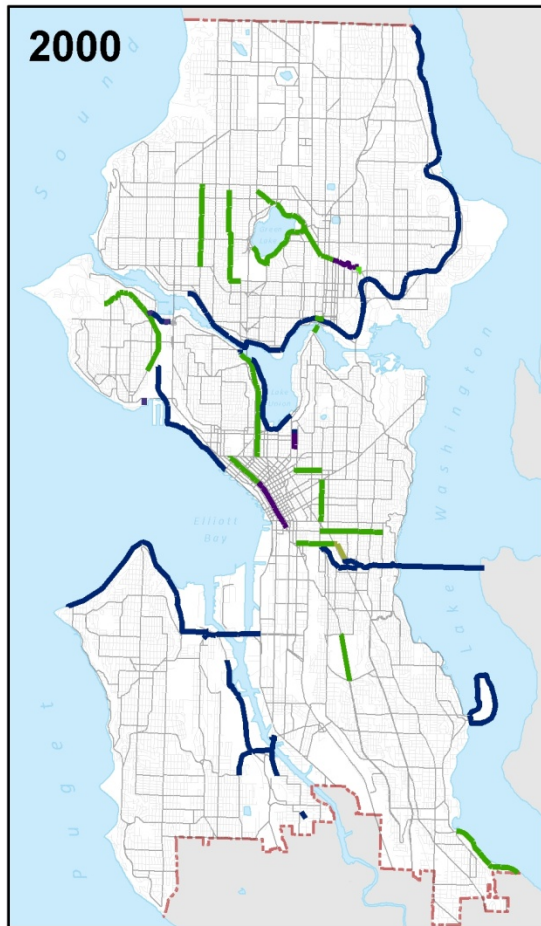
COST ESTIMATE

	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



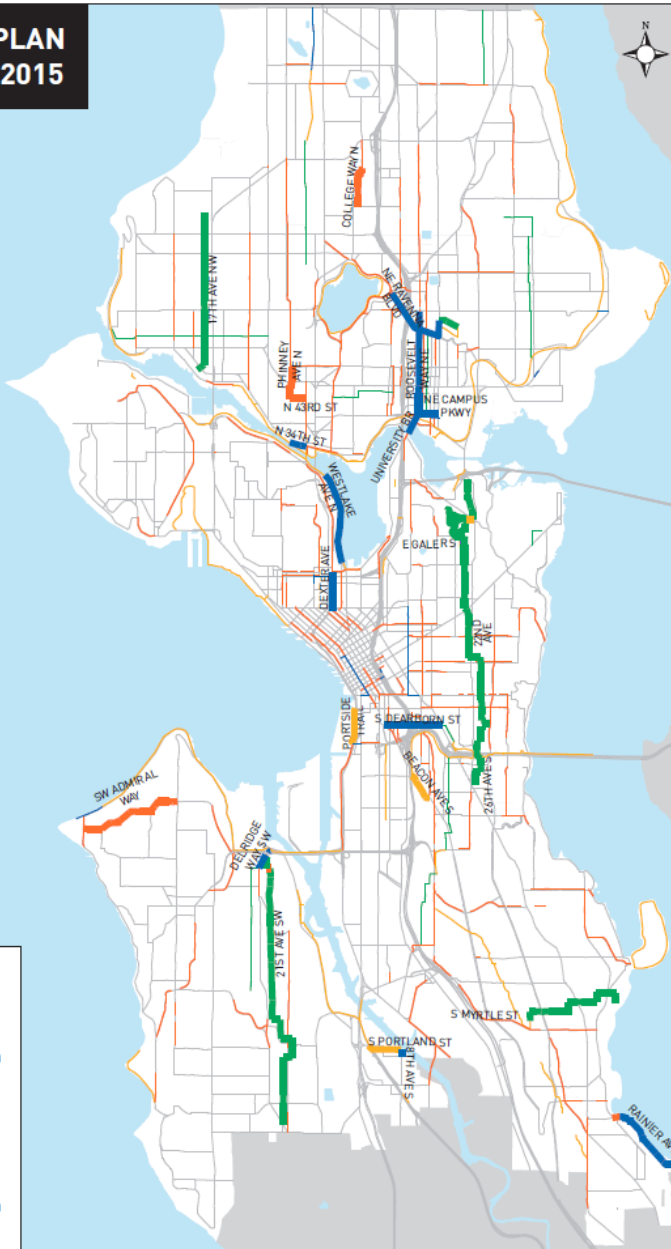
Seattle's Bicycle Network



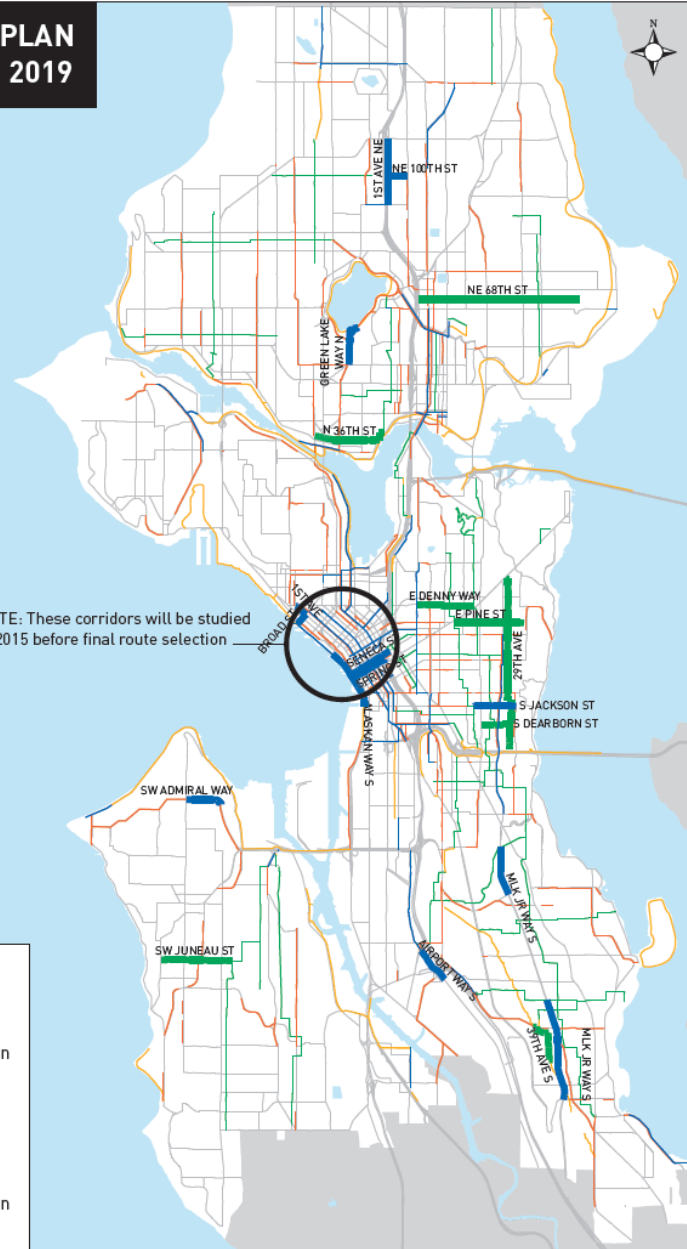
-  Bike lanes
-  Sharrows
-  Trails

Bicycle Master Plan

BICYCLE MASTER PLAN IMPLEMENTATION 2015



BICYCLE MASTER PLAN IMPLEMENTATION 2019



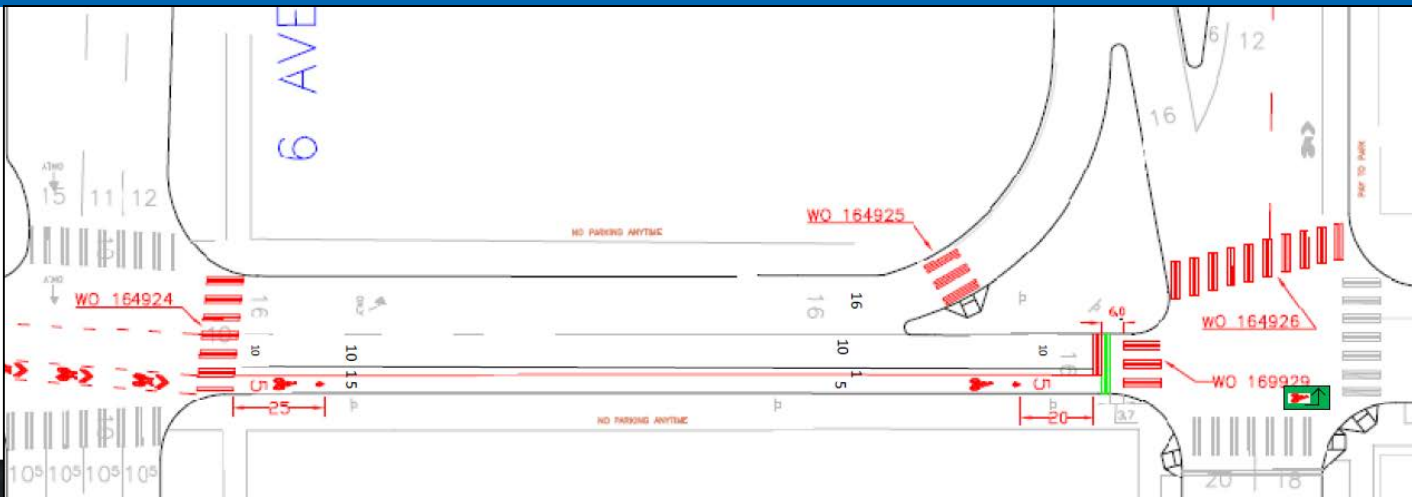
Protected bike lane benefits

- 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

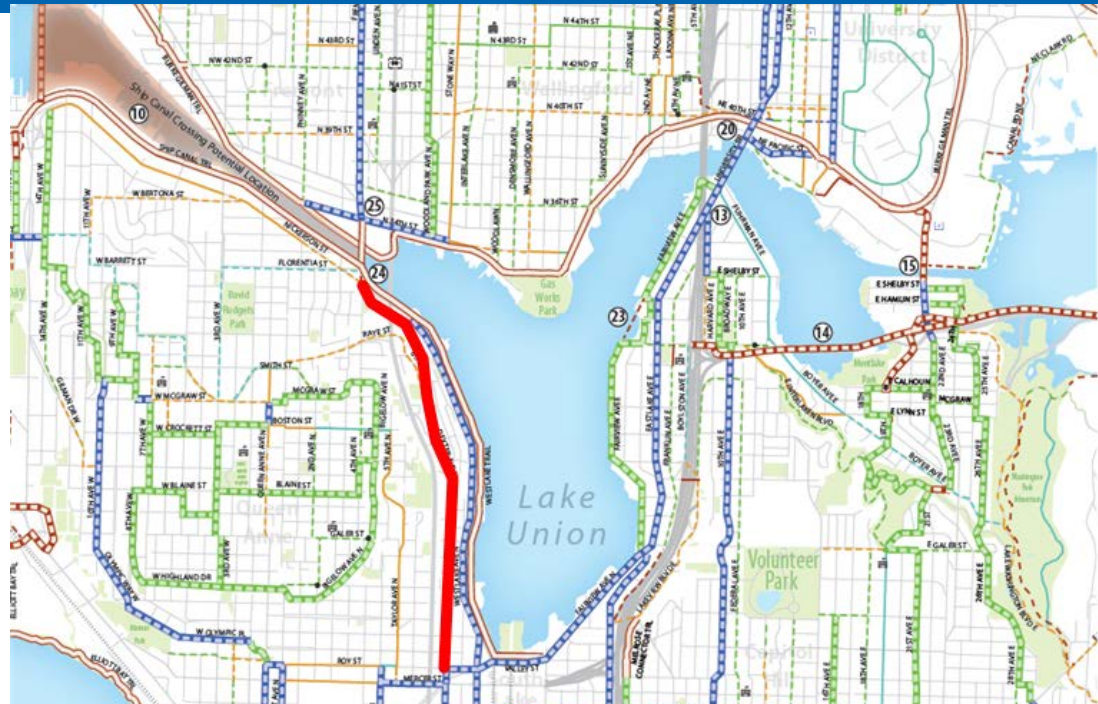


NE 65th St



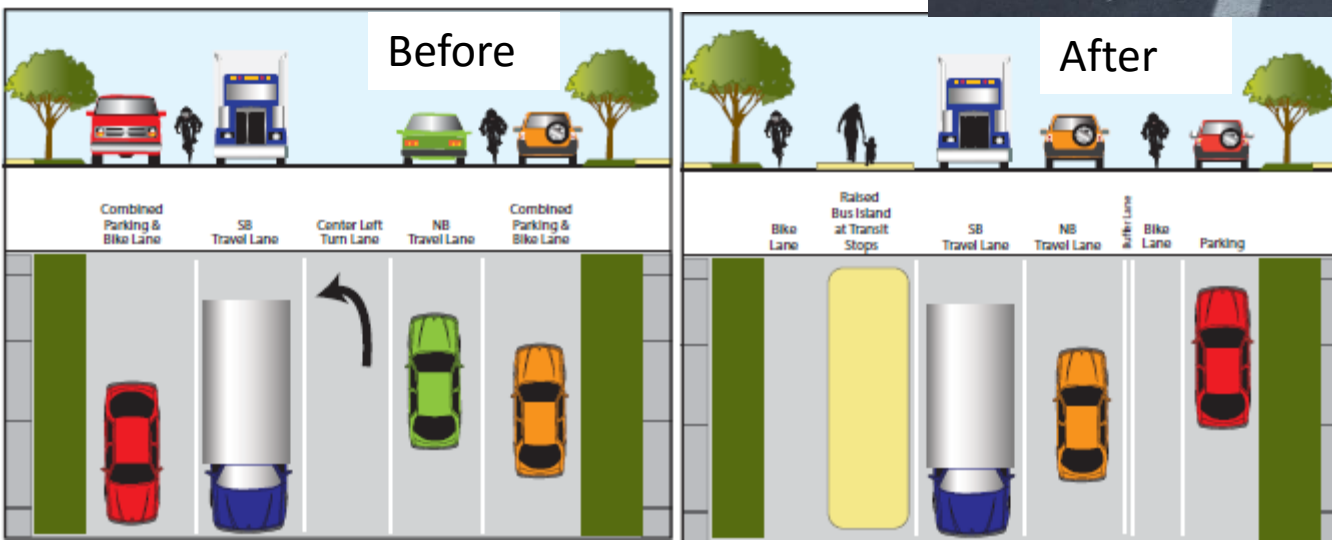
Dexter Avenue North

- 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)

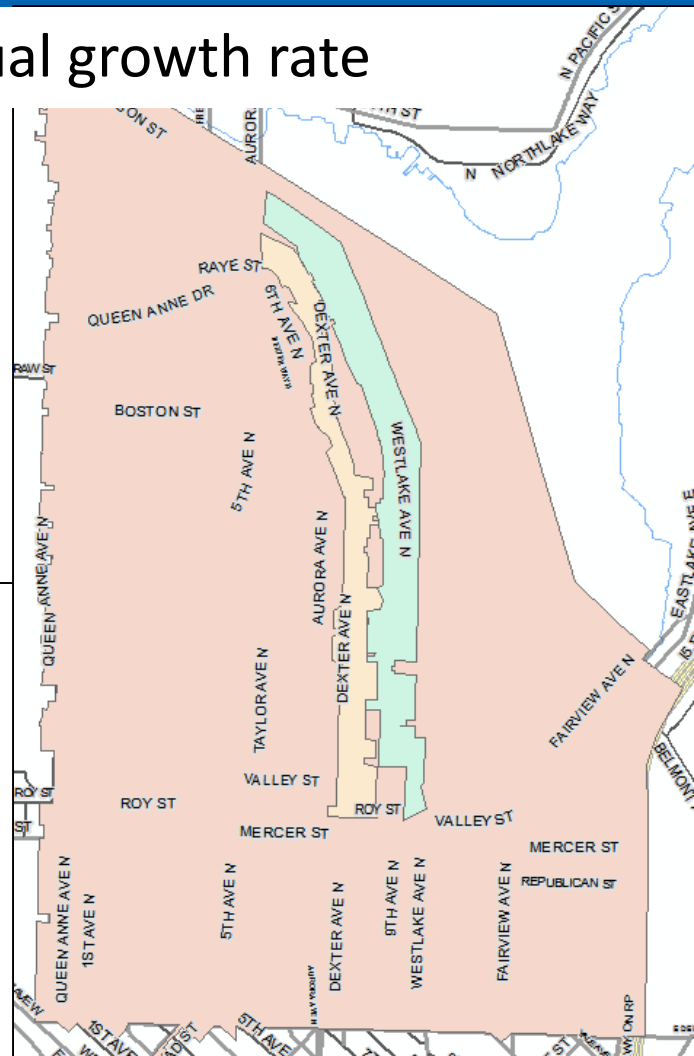
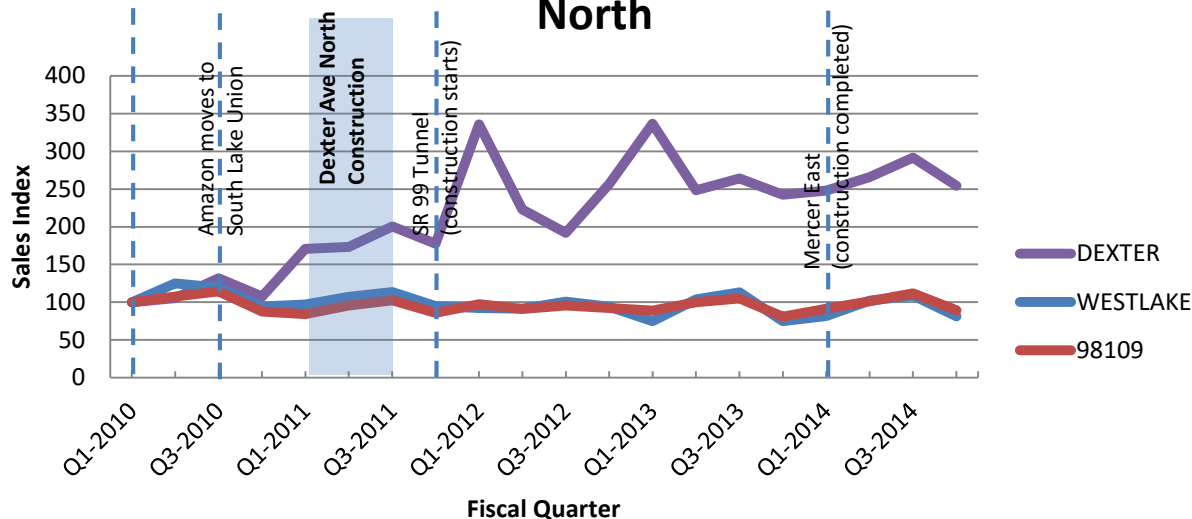


Dexter Avenue North

- 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



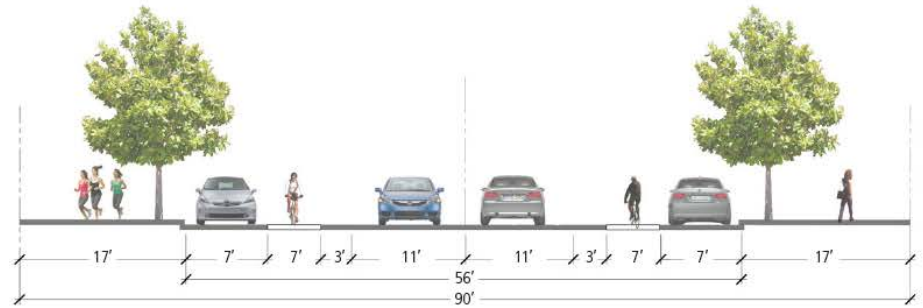
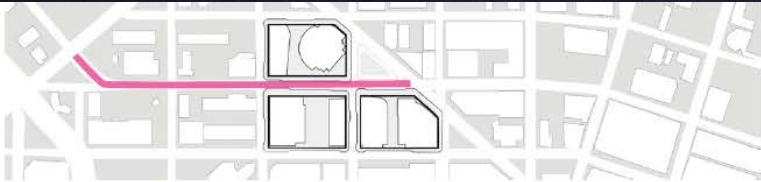
Dexter Avenue



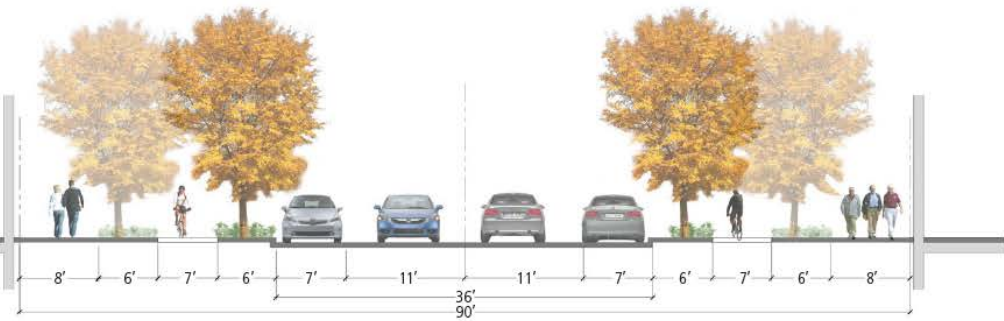
Dexter Ave



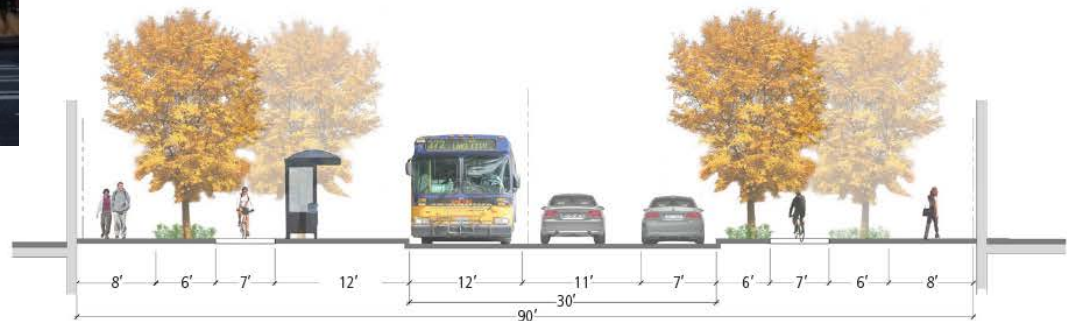
Dexter Ave



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	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

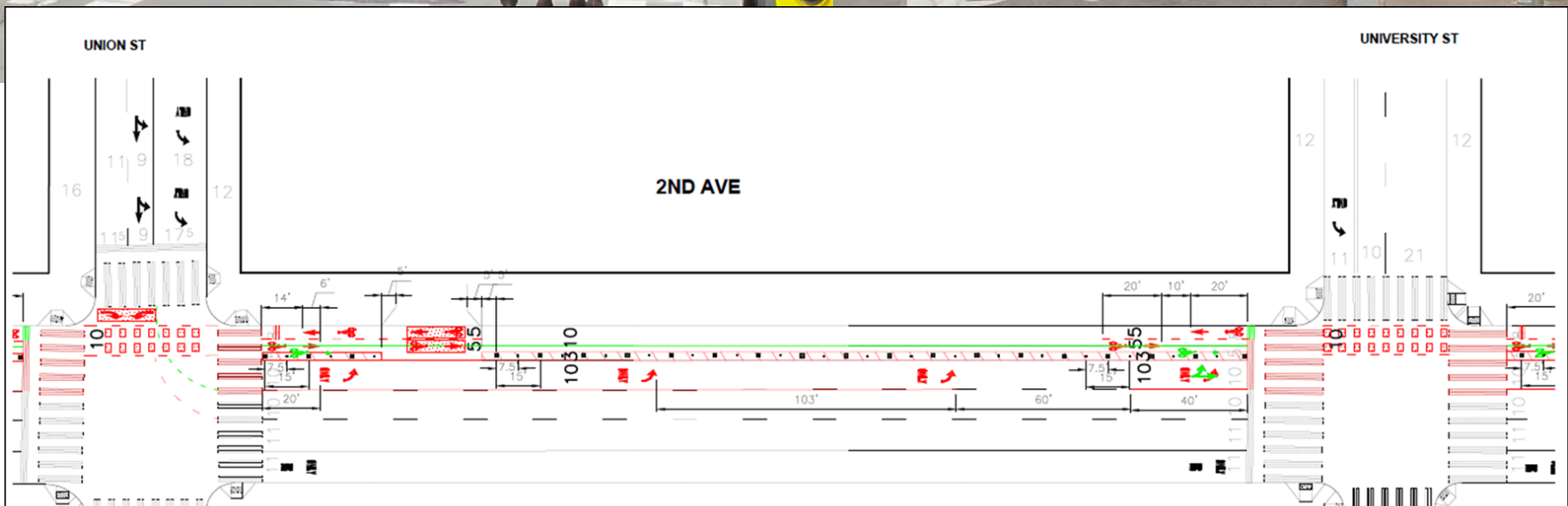


2nd Avenue

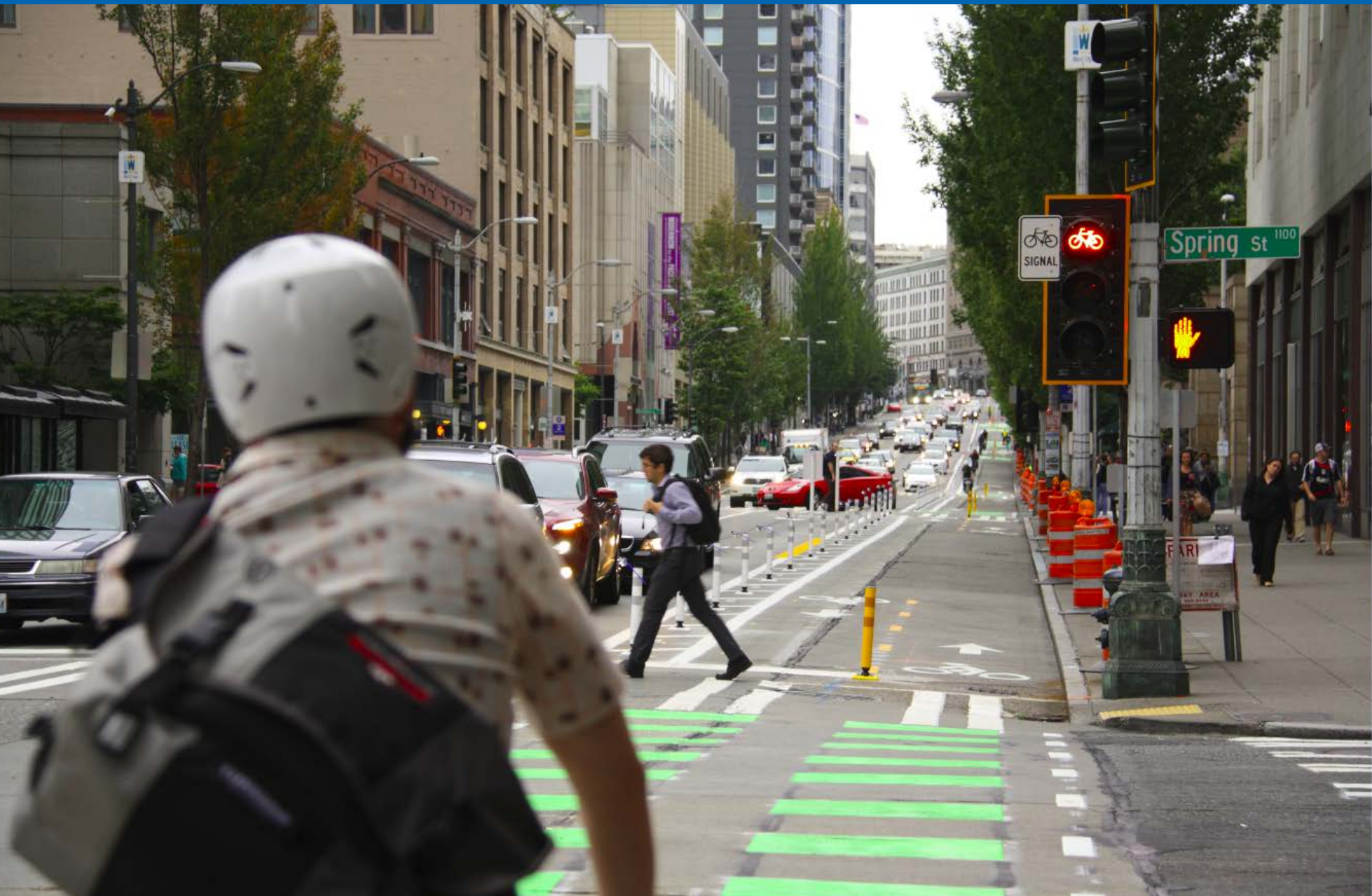
2nd Ave Before, SNG



2nd Ave After, Toole



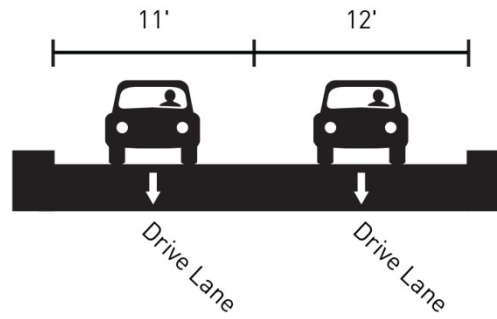
2nd Avenue



2nd Avenue

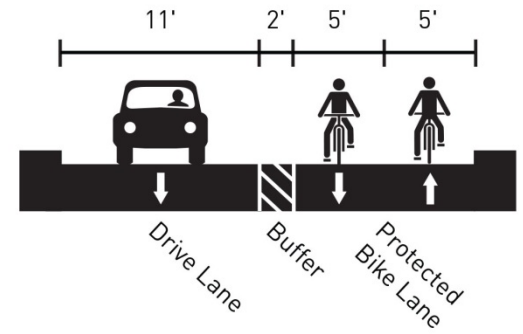


PIKE STREET EXISTING



Looking West

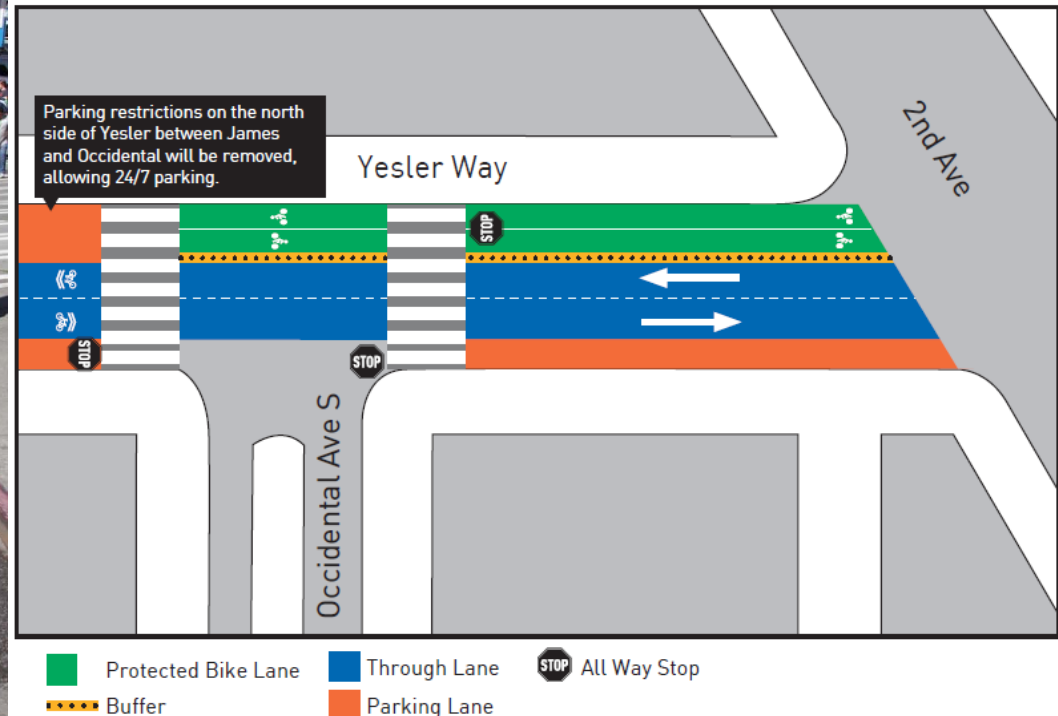
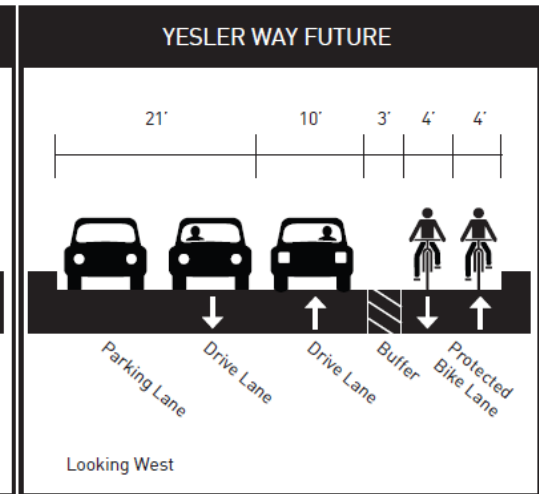
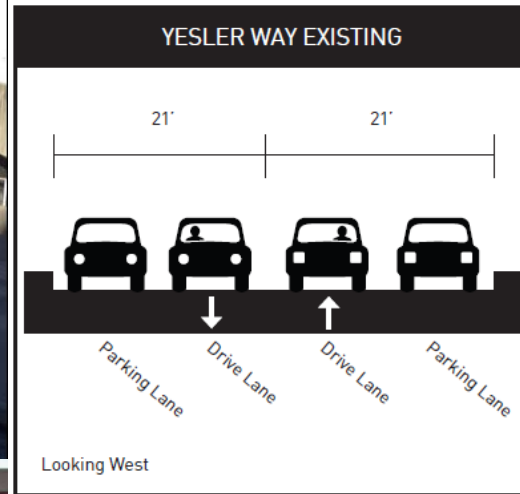
PIKE STREET PROPOSED



Looking West



2nd Avenue



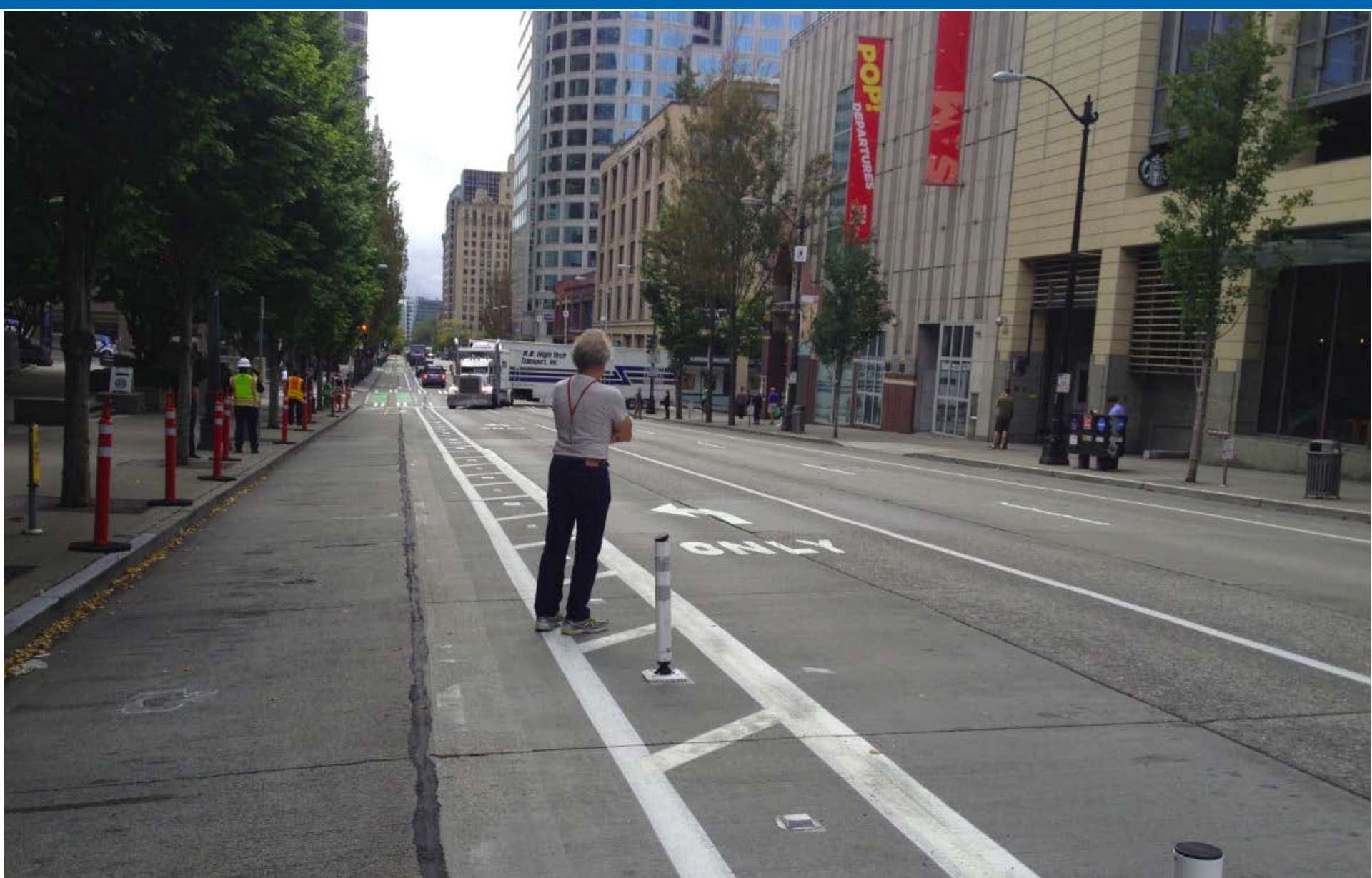
2nd Avenue



2nd Avenue



2nd Avenue – Art Museum



2nd Avenue – Art Museum

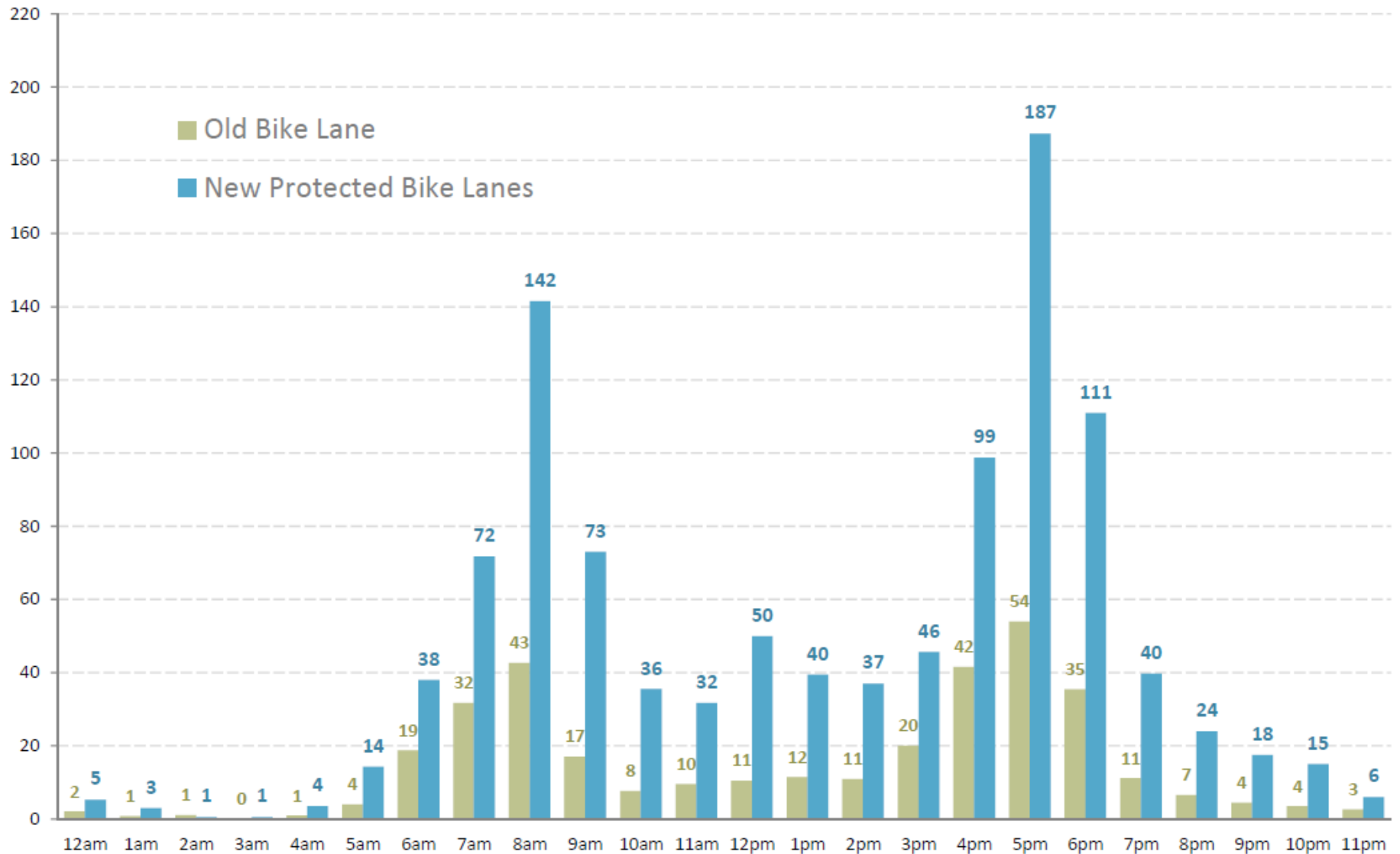


2nd Avenue – Art Museum



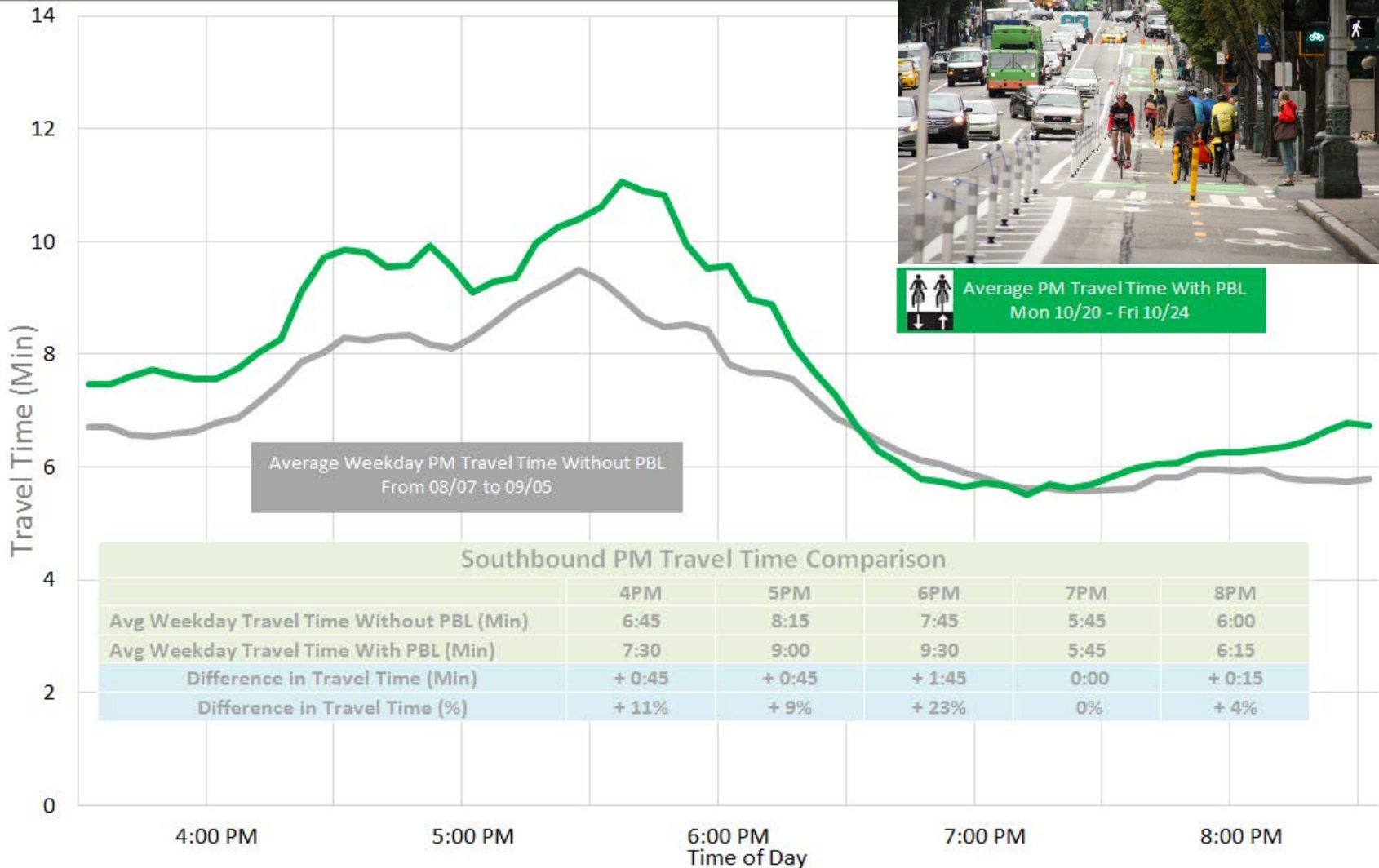
2nd Avenue

Average Hourly Bicycle Volume - 2nd Avenue

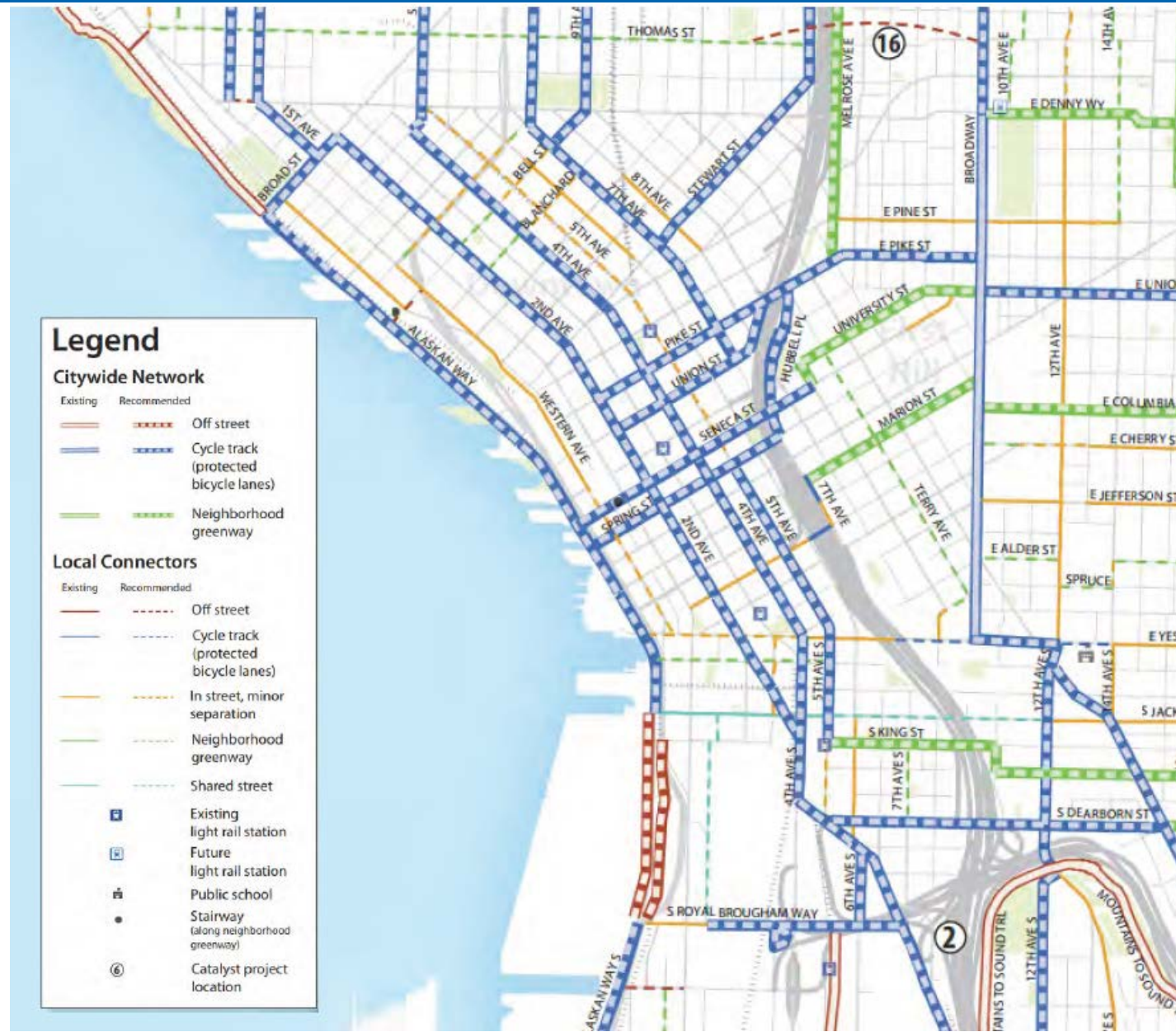


2nd Avenue

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



Center City



Broadway Avenue



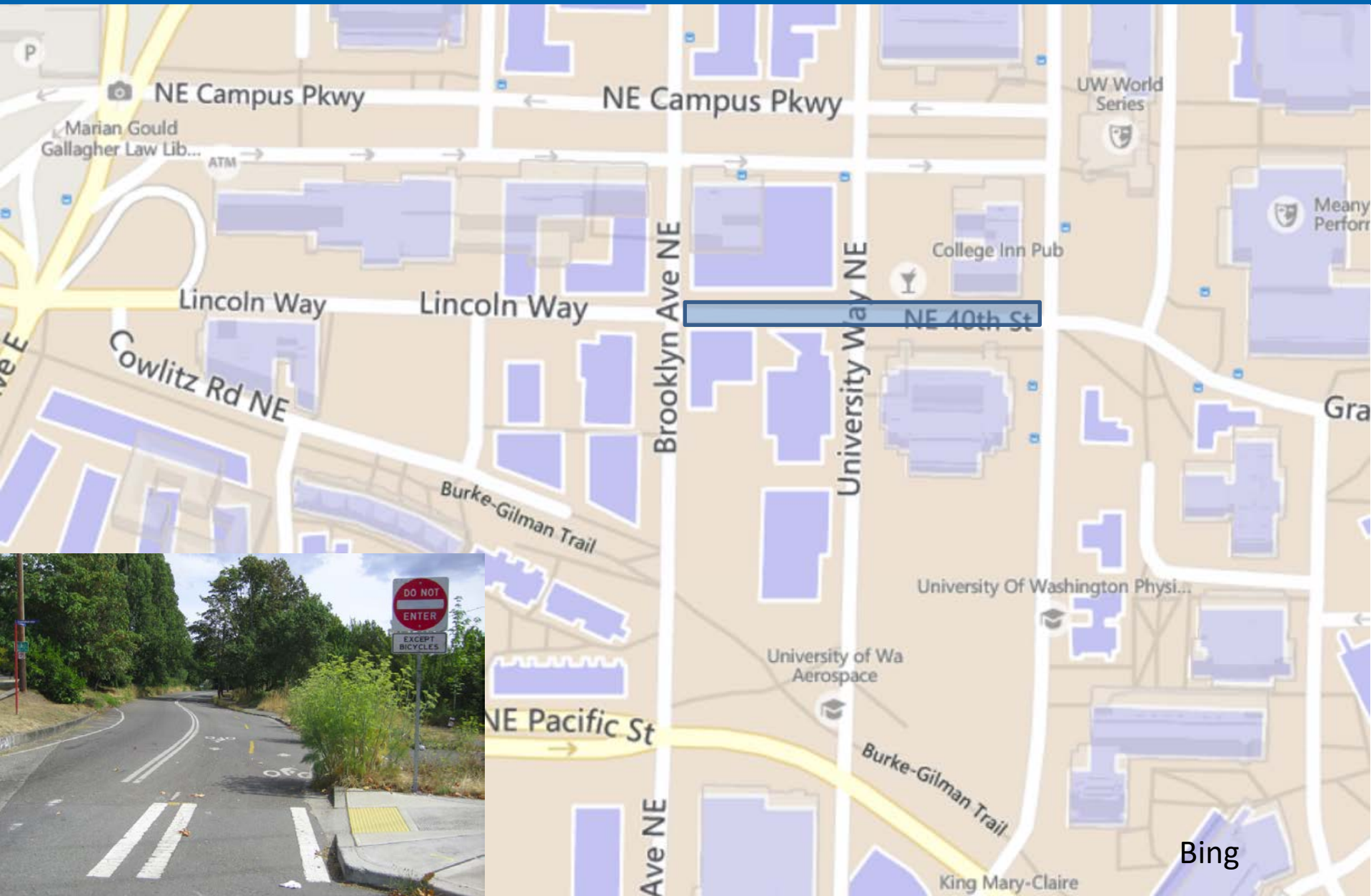
Broadway Avenue



Roosevelt Way



NE 40th Street





NE 40th Street



Brooklyn Ave NE Before



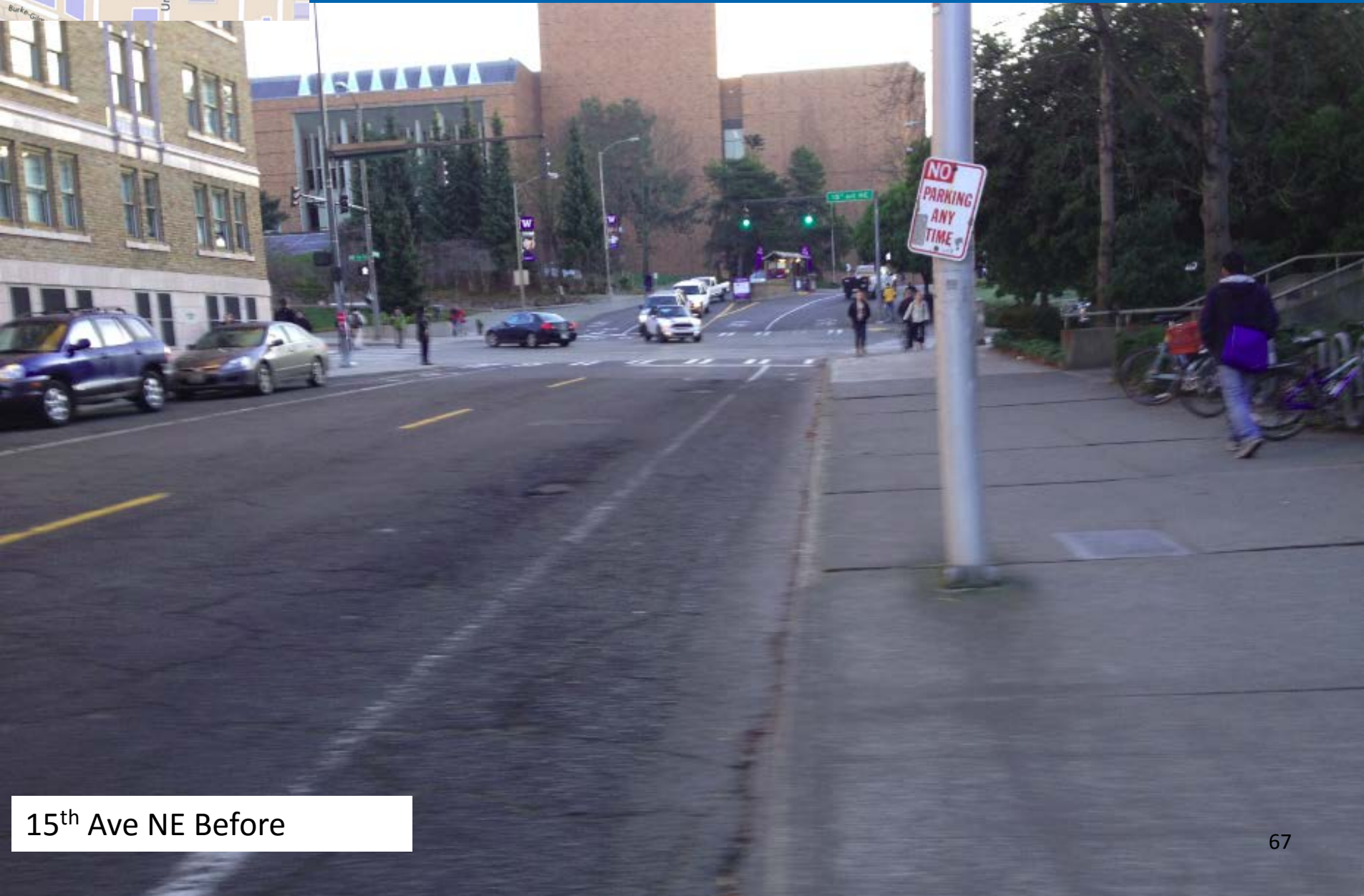
University Way



University Way Before



15th Ave NE



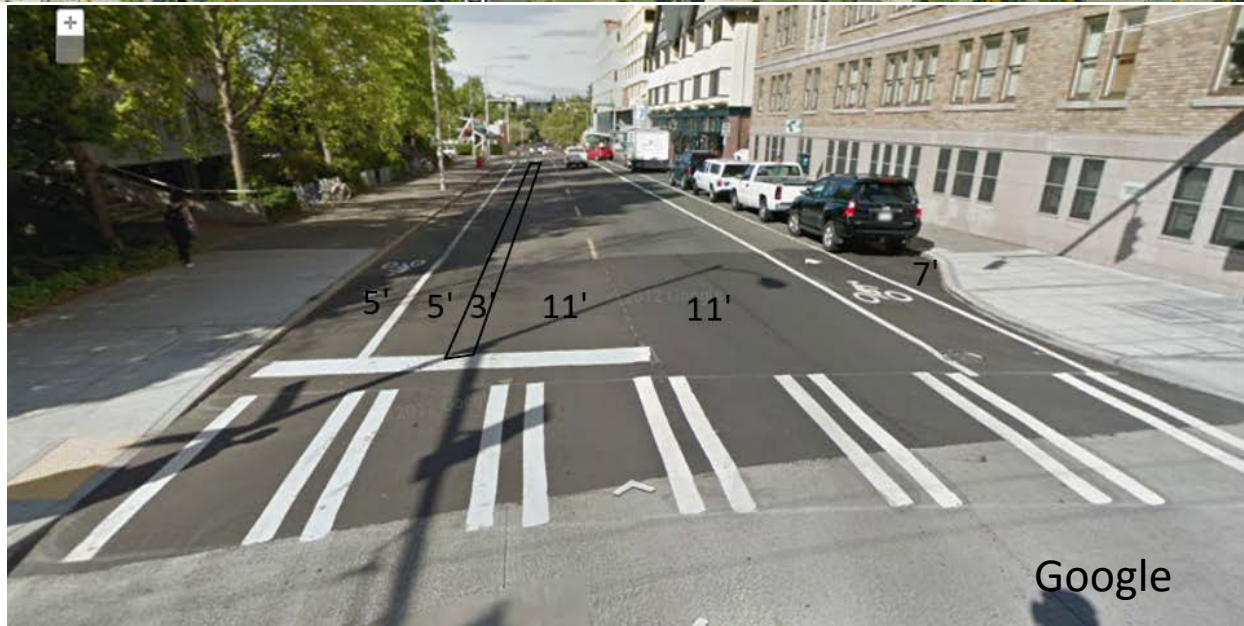
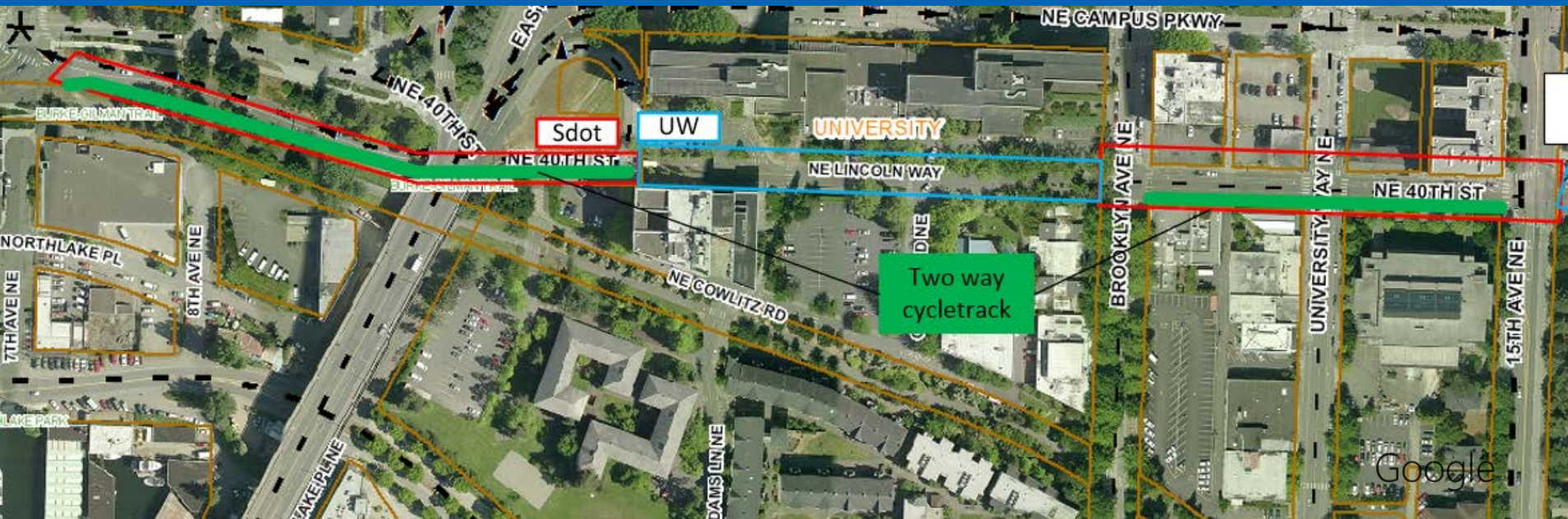
15th Ave NE Before



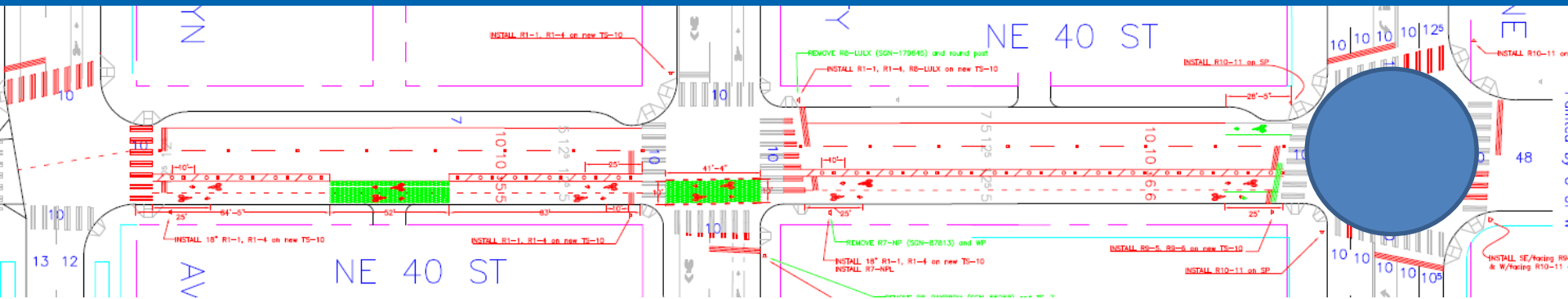
15th Ave NE



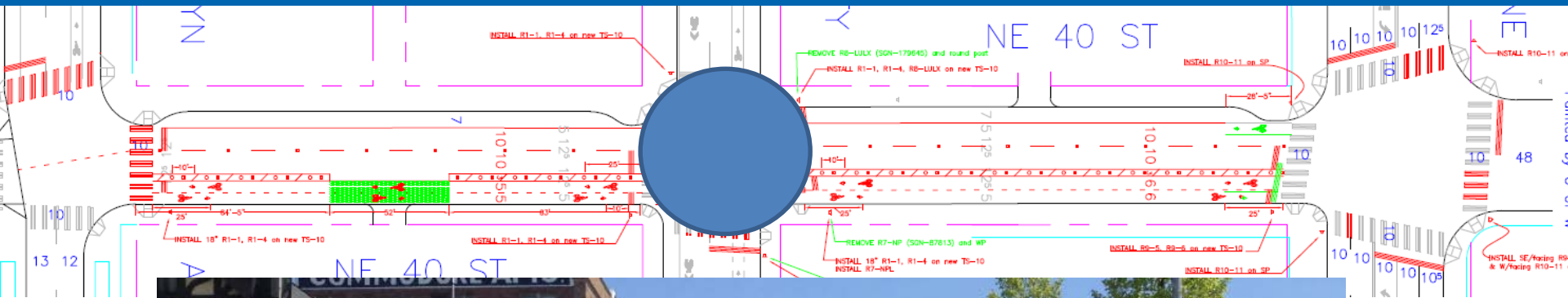
NE 40th Street



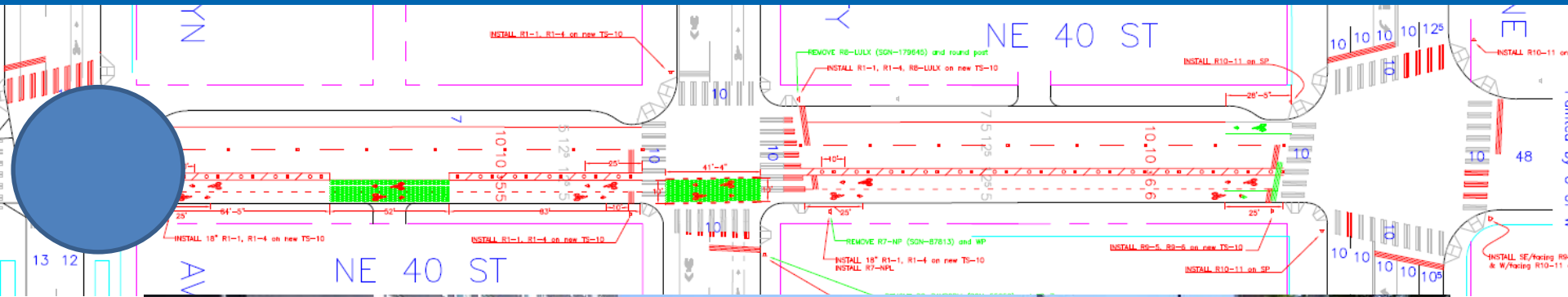
NE 40th Street



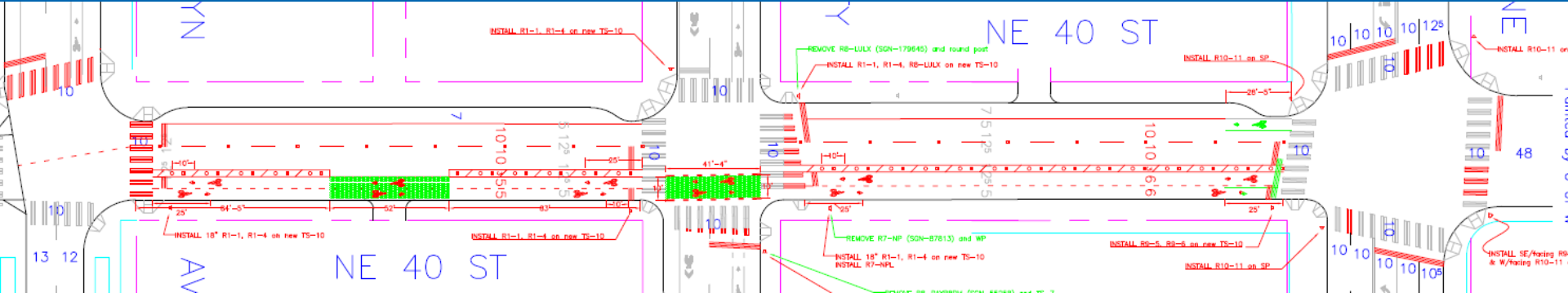
NE 40th Street



NE 40th Street



NE 40th Street



NE 40th Street



NW 45th St



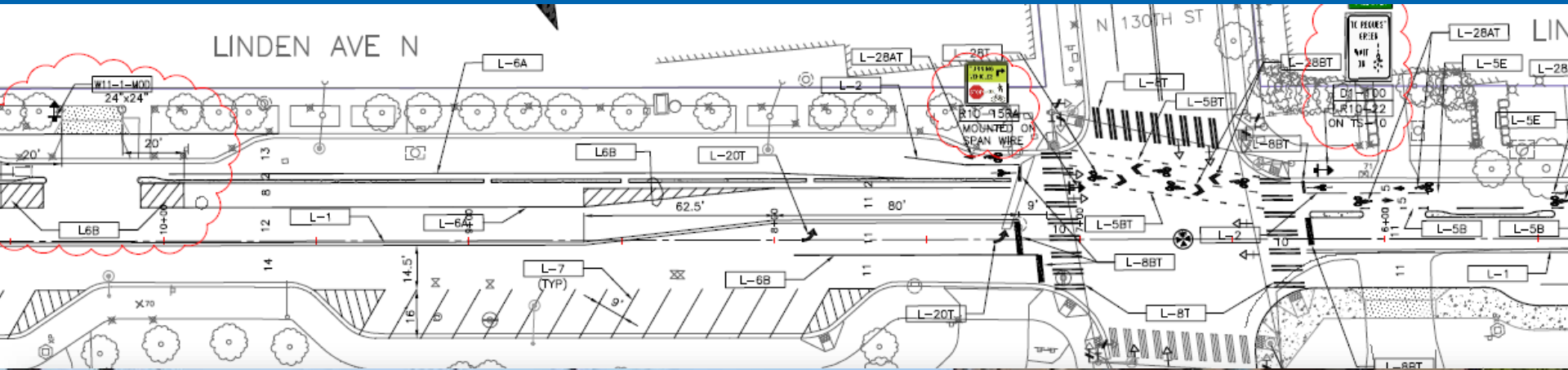
NW 45th St



NW 45th St



Linden Ave



Stone Way



Paint and Posts



Questions?

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

