Separated Bike Lanes Webinar Series (Part I)

Planning for Separated Bike Lanes

Dan Goodman

Federal Highway Administration

Carl Sundstrom

UNC Highway Safety Research Center

Ben Rosenblatt

Sam Schwartz Transportation Consultants

Kyle Rowe

City of Seattle

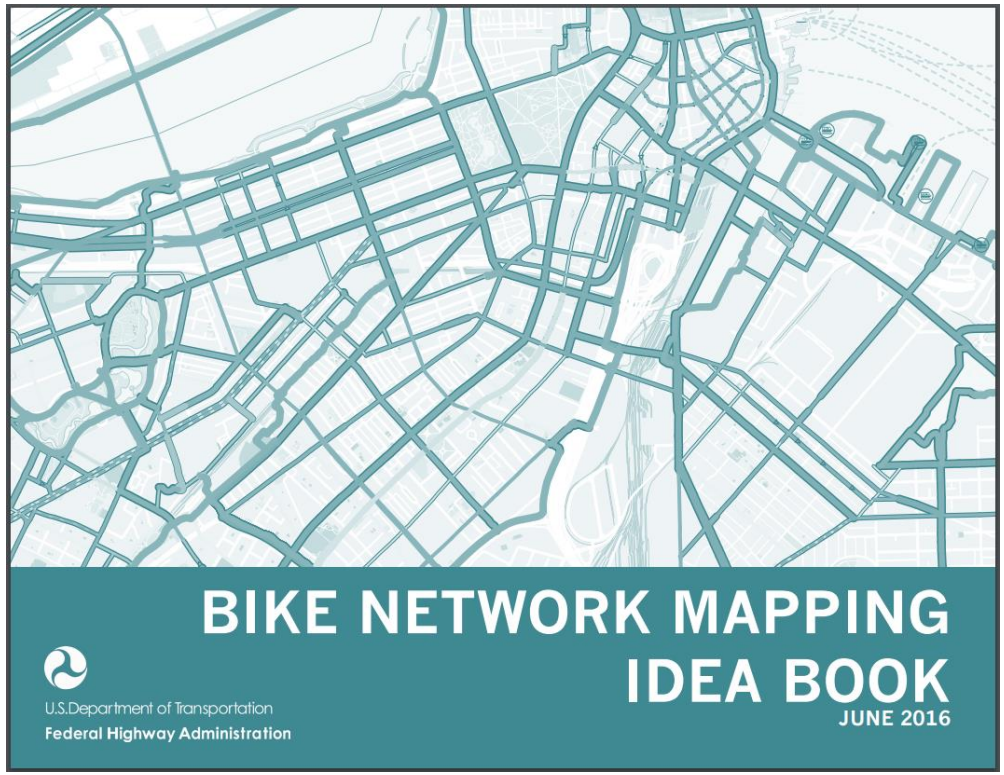
Today's Presentation

- **Introduction and housekeeping**
- **Audio issues?**
  Dial into the phone line instead of using "mic & speakers"
- **PBIC Trainings and Webinars**
  www.pedbikeinfo.org/training
- **Registration and Archives at**
  pedbikeinfo.org/webinars
- **PBIC News and updates on Facebook**
  www.facebook.com/pedbike
- **Questions at the end**

New Resource on Bicycle Network Mapping

New resource from FHWA on visualizing bicycle networks

Examples of bike network maps at the state, regional, county and city levels



www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/bikemap_book/bikemap_book.pdf

Planning for Separated Bike Lanes (Part I)

June 7, 2016

U.S. Department of Transportation
Federal Highway Administration

Context

Policy Statement on Bicycle and Pedestrian Accommodation

The DOT **policy is to incorporate** safe and convenient walking and bicycling facilities into transportation projects. **Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling** and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to **go beyond minimum standards to provide safe and convenient facilities** for these modes.

Context

Mayors' Challenge for Safer People, Safer Streets

- Complete Streets
- Fix Barriers
- Gather Data
- Design Right
- Create Networks
- Improve Laws
- Educate and Enforce

Context

FHWA Support For:

- An integrated, safe, and convenient transportation system for all users
- Sustainable transportation policies and practices
- Design flexibility
- Connected pedestrian and bicycle *networks*
- Pedestrian and bicycle data
- Equity and Ladders of Opportunity
- Quality of life and livability

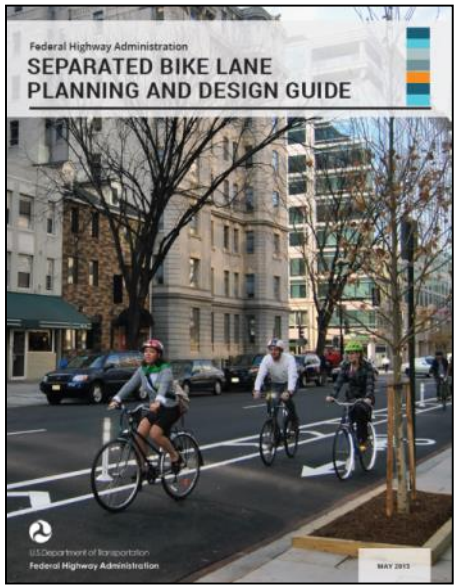




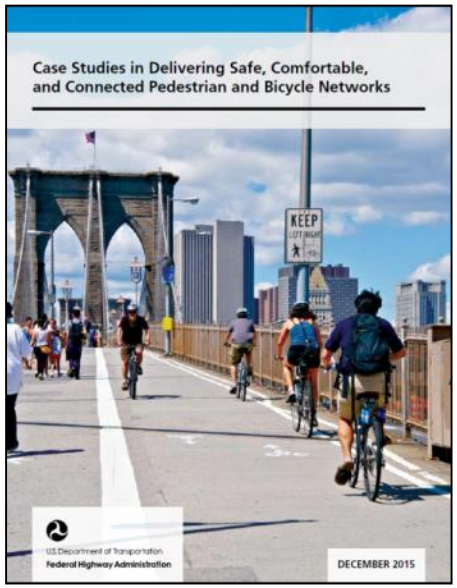

CITY OF CARY

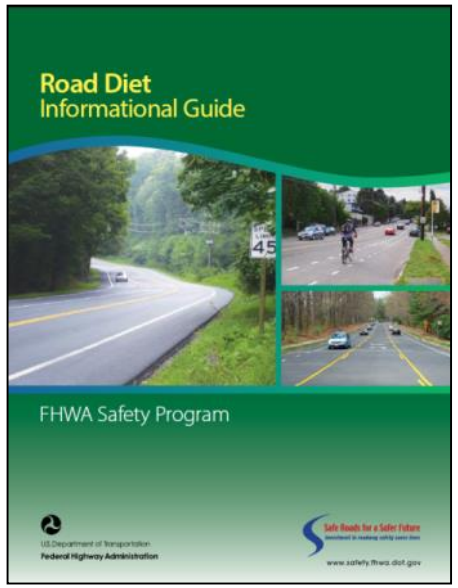


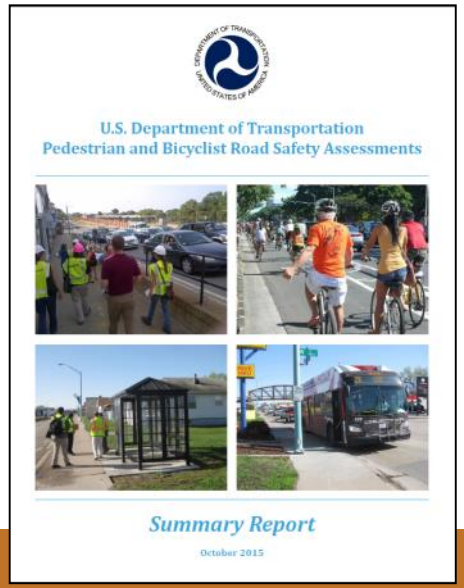
Context


Federal Highway Administration
SEPARATED BIKE LANE
PLANNING AND DESIGN GUIDE
U.S. Department of Transportation
Federal Highway Administration
MAY 2015

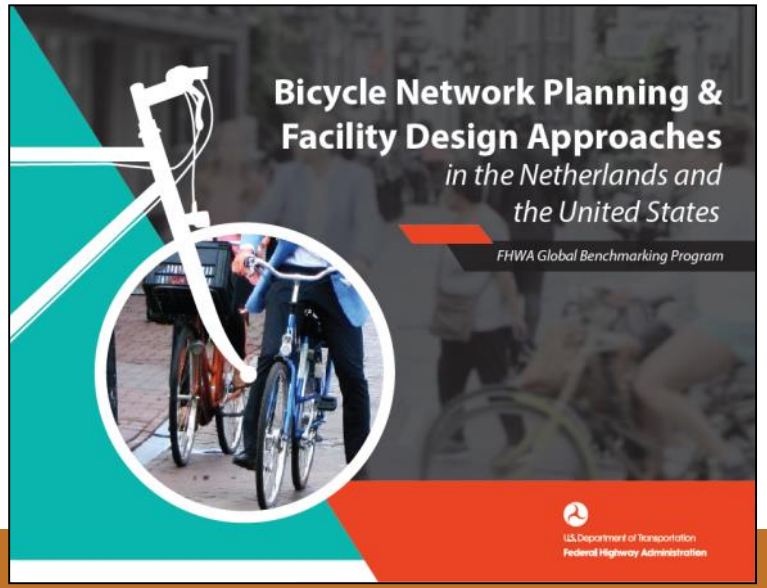

Incorporating
On-Road Bicycle Networks
into Resurfacing Projects
U.S. Department of Transportation
Federal Highway Administration
MARCH 2016


Case Studies in Delivering Safe, Comfortable,
and Connected Pedestrian and Bicycle Networks
KEEP
U.S. Department of Transportation
Federal Highway Administration
DECEMBER 2015


Road Diet
Informational Guide
FHWA Safety Program
U.S. Department of Transportation
Federal Highway Administration
Safe Roads for a Safer Future
www.safety.fhwa.dot.gov


U.S. Department of Transportation
Pedestrian and Bicyclist Road Safety Assessments
Summary Report
October 2015


U.S. Department of Transportation
Federal Highway Administration
GUIDEBOOK
FOR DEVELOPING PEDESTRIAN &
BICYCLE PERFORMANCE MEASURES
MARCH
2016


Bicycle Network Planning &
Facility Design Approaches
in the Netherlands and
the United States
FHWA Global Benchmarking Program
U.S. Department of Transportation
Federal Highway Administration

U.S. Department of Transportation
Federal Highway Administration

About Programs Resources Briefing Room Contact Search FHWA

Office of Planning, Environment, & Realty (HEP)
Planning • Environment • Real Estate

HEP | Events | Guidance | Publications | Awards | Contacts

Bicycle & Pedestrian

- Overview
- Legislation
- Guidance & Information
- Funding
- Publications
- Meetings & Events
- Resources

FHWA Contact

For more information, please contact Daniel Goodman, 202-366-9064.

State Coordinator Contact Information

Each State administers its own program. Contact your State Bicycle and Pedestrian Coordinator for guidance on State policies and project eligibility requirements.

FHWA → Environment → Bicycle & Pedestrian Program → Funding

Bicycle and Pedestrian Funding Opportunities: US Department of Transportation, Federal Transit, and Federal Highway Funds

Revised **December 4, 2014**, to incorporate programs authorized under the Moving Ahead for Progress in the 21st Century Act (MAP-21).

This table indicates potential eligibility for pedestrian and bicycle projects under Federal Transit and Federal Highway programs. Specific program requirements must be met, and eligibility must be determined, on a case-by-case basis. For example: transit funds must provide access to transit; CMAQ must benefit air quality; HSIP projects must be consistent with the State Strategic Highway Safety Plan and address a highway safety problem; NHPP must benefit National Highway System (NHS) corridors; RTP must benefit trails; the Federal Lands and Tribal Transportation Programs (FLTTP) must provide access to or within Federal or tribal lands. See more information about Bikes and Transit and Eligibility of Pedestrian and Bicycle Improvements under Federal Transit Law.

Bicycle and Pedestrian Funding Opportunities / Federal Transit and Federal Highway Funds

Activity	TIGER see note below	FTA	ATI	CMAQ see note below	HSIP	NHPP NHS	STP	TAP TE	RTP	SRTS until expended	PLAN	402	FLTTP
Access enhancements to public transportation	$	$	$	$			$	$					$
ADA/504 Self Evaluation / Transition Plan	$plan						$	$	$		$		$
Bicycle and/or pedestrian plans	$plan	$					$	$			$		$
Bicycle lanes on road	$	$	$	$	$	$	$	$		$			$
Bicycle parking	$*	$	$	$		$	$	$	$	$			$
Bike racks on transit	$	$	$	$			$	$					$

Safety education positions							$ as SRTS	$ as SRTS		$	
Separated bicycle lanes*	$	$	$	$	$	$	$	$		$	
Shared use paths / transportation trails	$	$	$	$*	$	$	$	$	$	$	
Sidewalks (new or retrofit)	$	$	$	$	$	$	$	$	$	$	

http://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.cfm

Addressing Common Misconceptions

3. Separated bike lanes cannot be built with Federal funds.

This is false. Federal funds can be used to plan and build separated bike lanes, which can include cycle tracks and protected bike lanes. The FHWA recently published a *Separated Bike Lane Planning and Design Guide*, which includes planning considerations and design options for separated bike lanes. In addition, separated bike lanes are included in the Bicycle and Pedestrian Funding Opportunities: US Department of Transportation, Federal Transit, and Federal Highway Table.

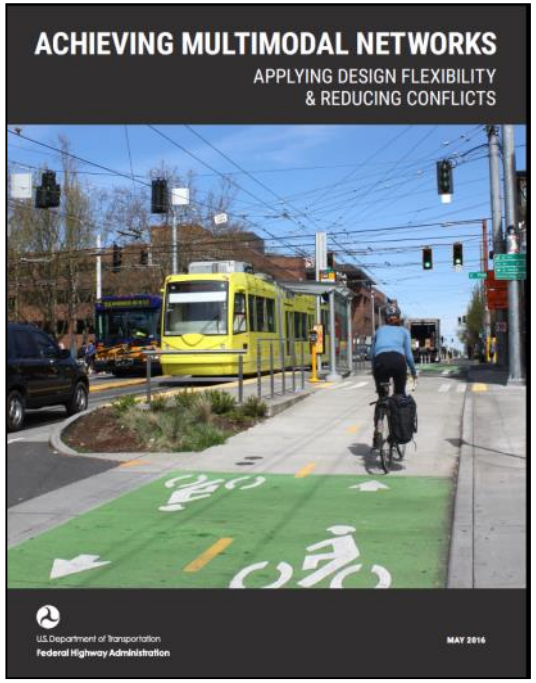
Minimum Data Collection Before and After Construction of Separated Bike Lane

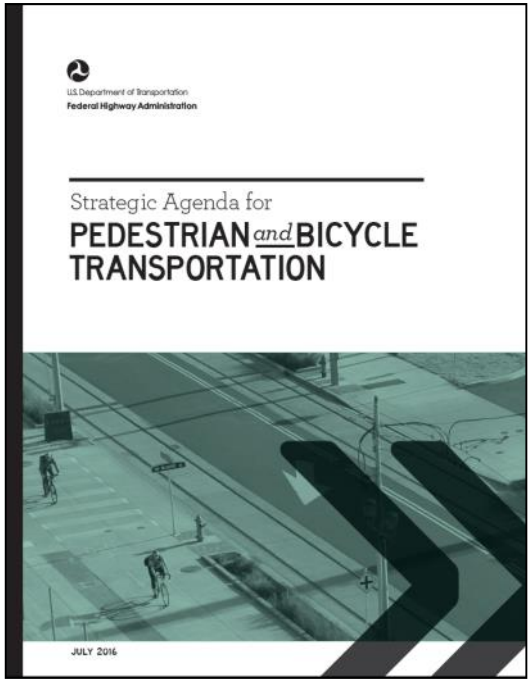
Before and After Construction of Separated Bike Lane	Data Element	Minimum	Preferred	After Construction Data Consideration	Notes
Volume of Bicyclists	Manual count duration/day	4 hours/day	All Daylight Hours	Ensure compatible time periods as before counts	Suggested times: 4 hours in split mo evening
	Manual count days	3 days	14 Days	Ensure comparable weather conditions and days of the week as before counts	
	Automatic count duration	24 hours/day	24 hours/day	Ensure compatible time periods as before counts	
	Automatic count days	7 days	14 Days	Ensure comparable weather conditions and days of the week as before counts	
	Documentation of count locations	All	All	Same count locations as before counts	Adequa docume count l docume
Travel Characteristics	Traveling direction	All bicyclists in any direction	Each direction separately		
	Wrong way riding	Not counted separately	"Wrong" and "Right" directions separately		Which the wrc were o there m counts each di
	Facility on which bicyclists are traveling	All lanes together	Each lane separately		e.g. Sha Lane, S
Crashes	Identify and compile all available crash records in the project vicinity	All available	All available		Ideally coded l crashes crashes crash, and documentation of circumstances

Before and After Construction of Separated Bike Lane	Data Element	Minimum	Preferred
Volume of Bicyclists	Manual count duration/day	4 hours/day	All Daylight Hours
	Manual count days	3 days	14 Days
	Automatic count duration	24 hours/day	24 hours/day
	Automatic count days	7 days	14 Days
	Documentation of count locations	All	All

Coming Soon!

- Achieving Multimodal Networks: Applying Design Flexibility & Reducing Conflicts
- Strategic Agenda for Pedestrian and Bicycle Transportation
- Multimodal Networks in Small Town and Rural Communities
- FTA Guidebook for Enhancing Pedestrian and Bicycle Connections to Transit





FHWA Contacts

Dan Goodman

Office of Planning, Environment, and Realty

daniel.goodman@dot.gov

Christopher Douwes

Office of Planning, Environment, and Realty

Christopher.Douwes@dot.gov

Gabriel Rousseau

Office of Safety

Gabe.Rousseau@dot.gov

Elizabeth Hilton

Office of Infrastructure

Elizabeth.Hilton@dot.gov

Dave Kirschner

Office of Operations

David.Kirschner@dot.gov

For More Information:
www.fhwa.dot.gov/environment/bicycle_pedestrian

What are Separated Bike Lanes?

A SBL is an exclusive facility for bicyclists that is located within or directly adjacent to the roadway and that is physically separated from motor vehicle traffic with a vertical element.

Least Separation

Most Separation

Signed Routes (No Pavement Markings)

A roadway designated as a preferred route for bicycles.

Shared Lane Markings

A shared roadway with pavement markings providing wayfinding guidance to bicyclists and alerting drivers that bicyclists are likely to be operating in mixed traffic.

On-Street Bike Lanes

An on-road bicycle facility designated by striping, signing, and pavement markings.

On-Street Buffered Bike Lanes

Bike lanes with a painted buffer increase lateral separation between bicyclists and motor vehicles.

Separated Bike Lanes

A separated bike lane is an exclusive facility for bicyclists that is located within or directly adjacent to the roadway and that is physically separated from motor vehicle traffic with a vertical element.

Off Street Trails / Sidepaths

Bicycle facilities physically separated from traffic, but intended for shared use by a variety of groups, including pedestrians, bicyclists, and joggers.

Why Separated Bike Lanes?

- Attract new riders
  - More comfortable facility
  - Health, economic, environmental benefits
  - Low-stress options will attract a more diverse set of users
- Potential to increase safety for all road users
  - “organize” traffic as part of retrofits
  - Reduce effective crossing distances

Overview of the Planning Process

Planning Elements

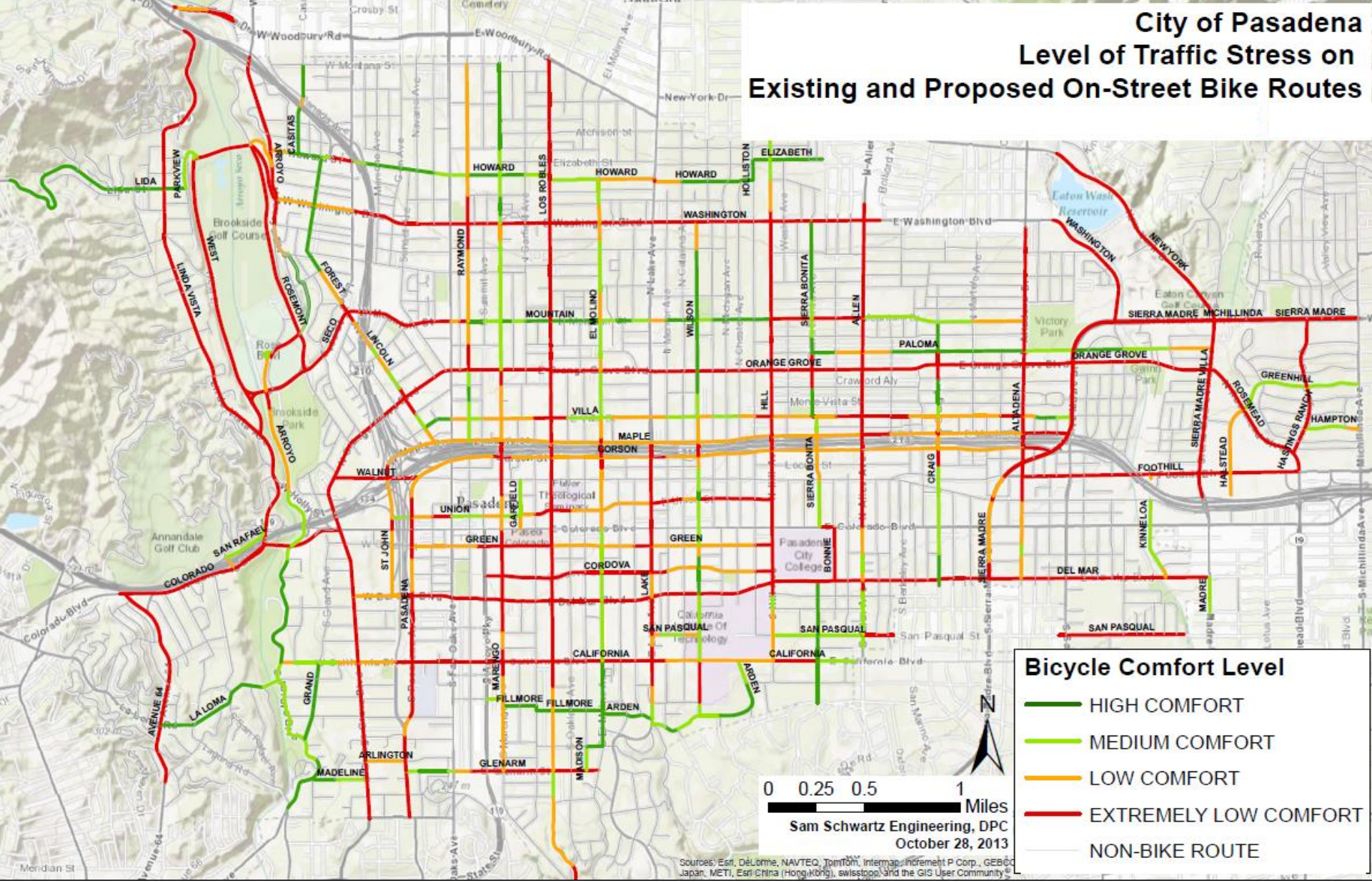
1. Selecting Locations
2. Funding and Installation Opportunities
3. Maintenance Considerations
4. Public Engagement and Outreach
5. Project Evaluation

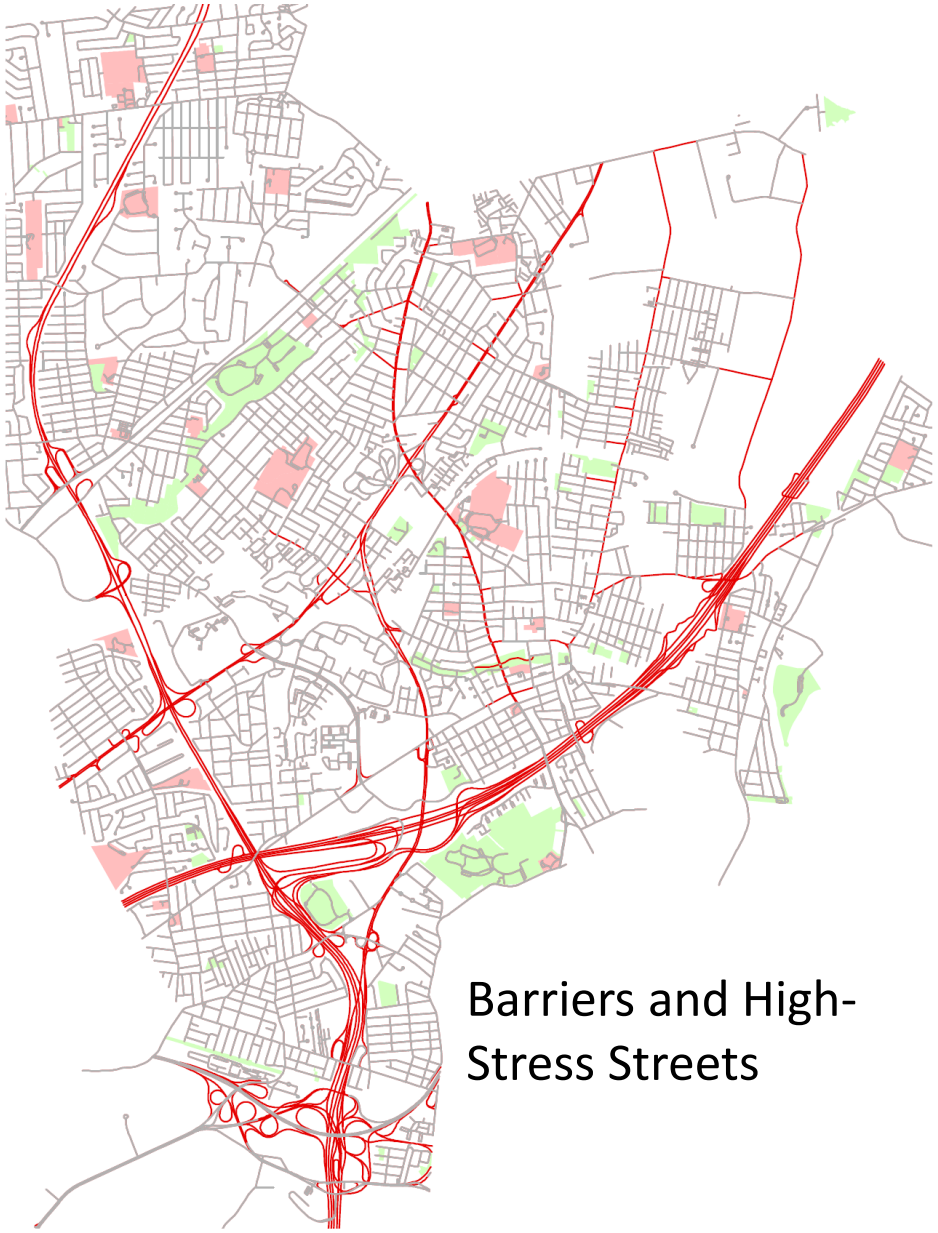
Overview of the Planning Process

1. What defines a successful location?

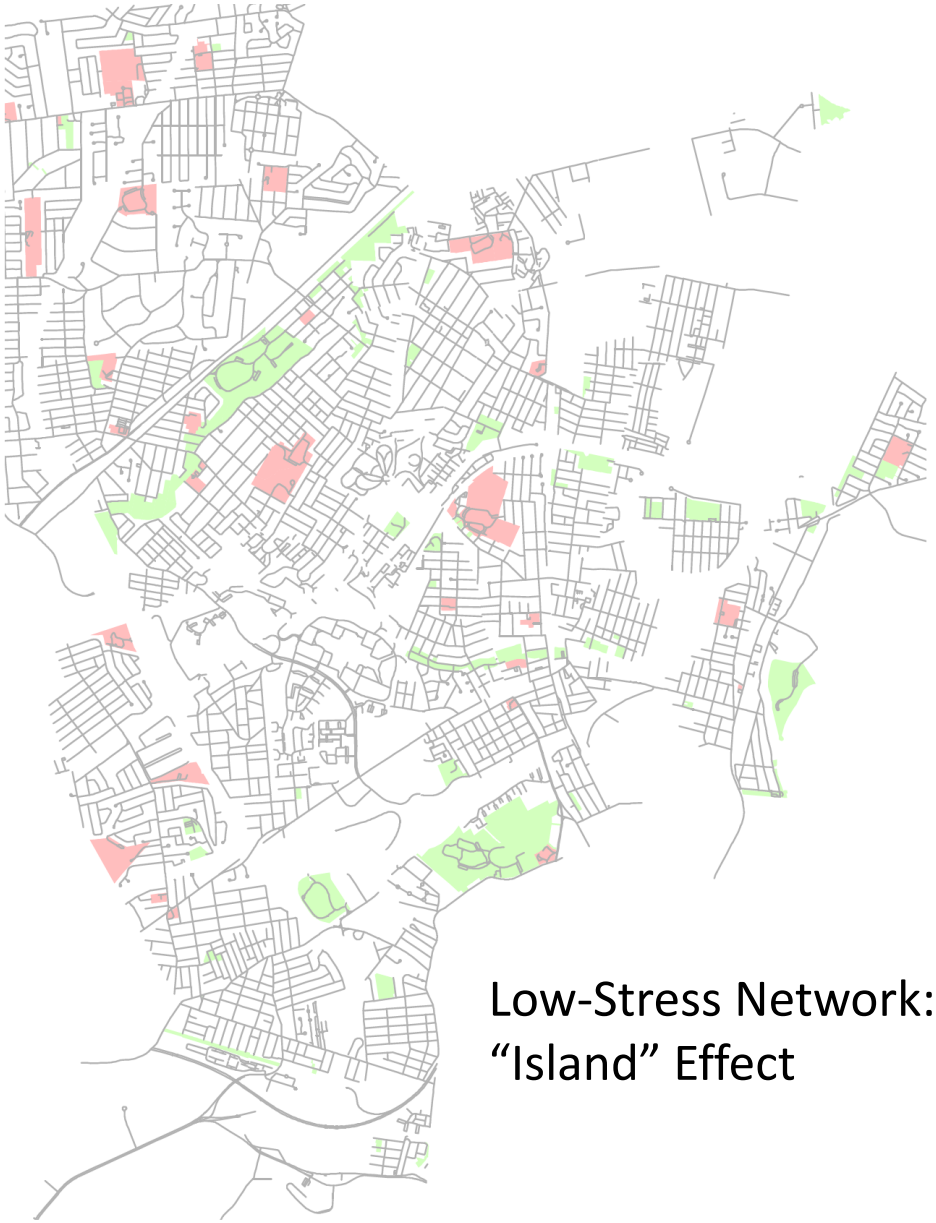
- Building networks
  - Connectivity means everything
  - First and last mile
  - Filling gaps
  - Join forces with bike share

City of Pasadena
Level of Traffic Stress on
Existing and Proposed On-Street Bike Routes





Barriers and High-Stress Streets



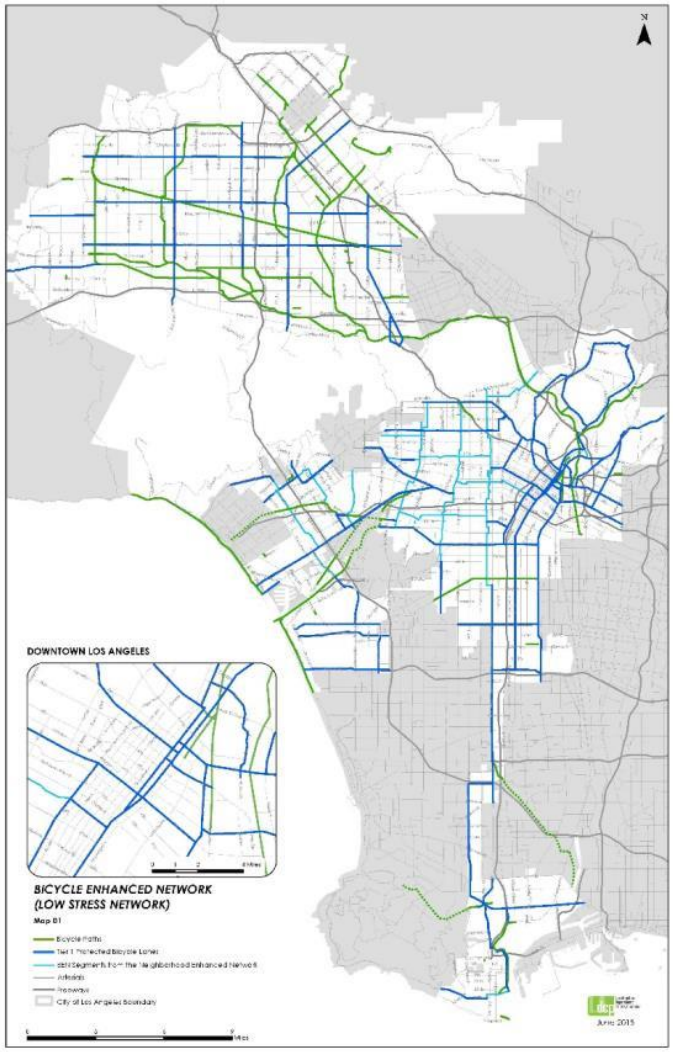
Low-Stress Network: “Island” Effect

Bike share + SBL: Austin, TX

Overview of the Planning Process

1. What defines a successful location?

- Follow and implement outstanding plans
  - Regional or municipal plans starting to highlight low-stress or SBL-specific bike networks
    - Los Angeles, CA, Mobility Plan 2035
    - Seattle, WA, Bike Master Plan



Implementing existing plans: Los Angeles, CA

Overview of the Planning Process

1. What defines a successful location?

- Improving safety
  - Perception vs reality – does it matter?
  - 96% of SBL users report feeling safer
  - Even perceived safety can represent success

Perceived vs. real safety: New York, NY

Overview of the Planning Process

1. What defines a successful location?

- Attracting ridership
  - The most simple measure of success
  - Follow the demand:
    - Where do people already ride?
    - Where do people want to ride to?
  - Filling unmet needs
    - Holes in the network
    - Streets that need lower-stress options

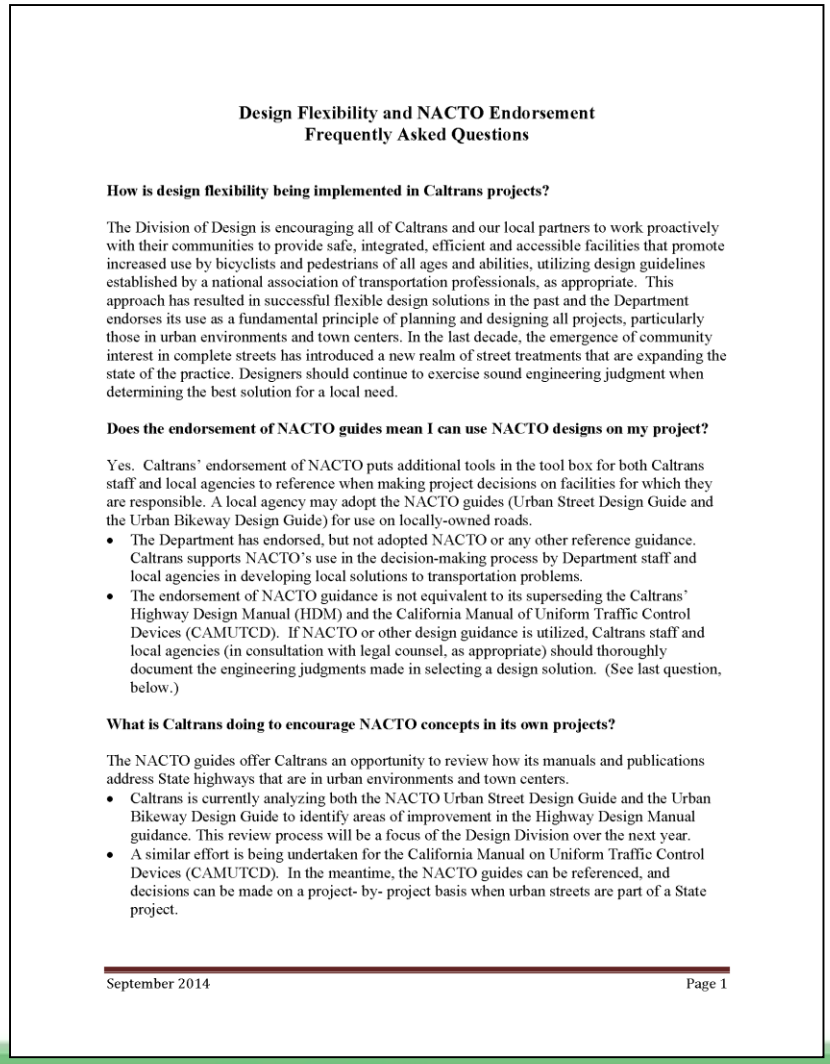
Existing ridership: Alameda, CA

Connection to bridge: New York, NY

Overview of the Planning Process

1. What defines a successful location?

- Flexible designs
  - Design for context
  - Make modifications
  - Be experimental



Design Flexibility and NACTO Endorsement
Frequently Asked Questions

How is design flexibility being implemented in Caltrans projects?

The Division of Design is encouraging all of Caltrans and our local partners to work proactively with their communities to provide safe, integrated, efficient and accessible facilities that promote increased use by bicyclists and pedestrians of all ages and abilities, utilizing design guidelines established by a national association of transportation professionals, as appropriate. This approach has resulted in successful flexible design solutions in the past and the Department endorses its use as a fundamental principle of planning and designing all projects, particularly those in urban environments and town centers. In the last decade, the emergence of community interest in complete streets has introduced a new realm of street treatments that are expanding the state of the practice. Designers should continue to exercise sound engineering judgment when determining the best solution for a local need.

Does the endorsement of NACTO guides mean I can use NACTO designs on my project?

Yes. Caltrans' endorsement of NACTO puts additional tools in the tool box for both Caltrans staff and local agencies to reference when making project decisions on facilities for which they are responsible. A local agency may adopt the NACTO guides (Urban Street Design Guide and the Urban Bikeway Design Guide) for use on locally-owned roads.

- The Department has endorsed, but not adopted NACTO or any other reference guidance. Caltrans supports NACTO's use in the decision-making process by Department staff and local agencies in developing local solutions to transportation problems.
- The endorsement of NACTO guidance is not equivalent to its superseding the Caltrans' Highway Design Manual (HDM) and the California Manual of Uniform Traffic Control Devices (CAMUTCD). If NACTO or other design guidance is utilized, Caltrans staff and local agencies (in consultation with legal counsel, as appropriate) should thoroughly document the engineering judgments made in selecting a design solution. (See last question, below.)

What is Caltrans doing to encourage NACTO concepts in its own projects?

The NACTO guides offer Caltrans an opportunity to review how its manuals and publications address State highways that are in urban environments and town centers.

- Caltrans is currently analyzing both the NACTO Urban Street Design Guide and the Urban Bikeway Design Guide to identify areas of improvement in the Highway Design Manual guidance. This review process will be a focus of the Design Division over the next year.
- A similar effort is being undertaken for the California Manual on Uniform Traffic Control Devices (CAMUTCD). In the meantime, the NACTO guides can be referenced, and decisions can be made on a project- by- project basis when urban streets are part of a State project.

September 2014 Page 1

Overview of the Planning Process

2. Funding and Installation Opportunities

- Minor street retrofits
  - Geometric tweaks
    - Do you really need those 12 foot lanes?
  - Consider upgrading existing on-street lanes

Repurposing excess space: Syracuse, NY

Overview of the Planning Process

2. Funding and Installation Opportunities

- Major street retrofits
  - Road diets and restriping
  - Evaluate on-street parking demand vs. supply

Dearborn Street retrofit: Chicago, IL

Overview of the Planning Process

2. Funding and Installation Opportunities

- Leverage capital construction projects
  - Include SBL in designs for major street reconstruction
  - Could be a fraction of project cost
  - Comprehensive redesigns are an opportunity to re-think a street

Capital project: Indianapolis, IN

Photo: Rundell Ernstberger Associates

Overview of the Planning Process

2. Funding and Installation Opportunities

- Pilot projects with temporary materials
  - Pilot route can be quicker, easier
  - Use of temporary materials can keep costs down
  - Cheap materials mean cheap modifications
  - Pilots allow for public comment and change

Pilot project: Salt Lake City, UT

Pilot project: Boulder, CO

Overview of the Planning Process

3. Maintenance Considerations

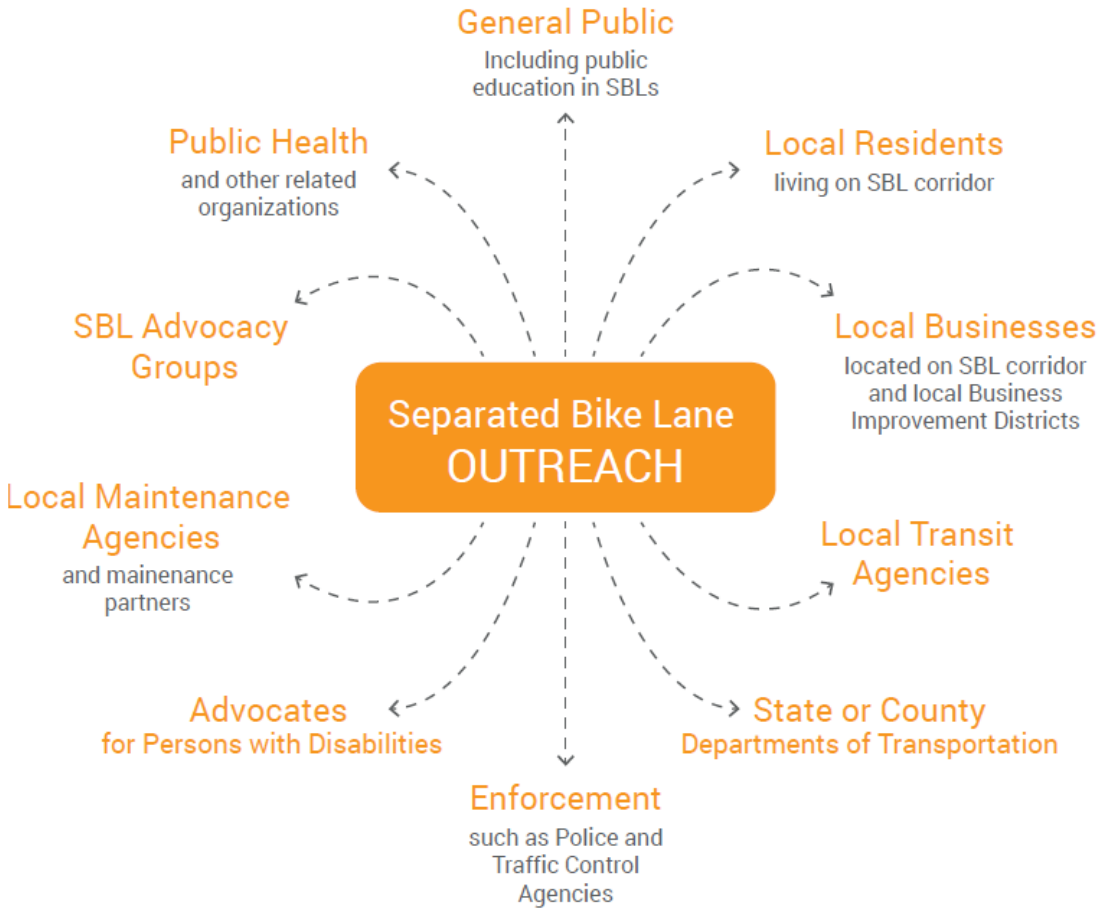
- Design width of SBL affects ability to sweep and plow
  - 1-way vs. 2-way SBL
  - Choice of separation method
- Who performs maintenance?
  - Can be useful to identify a partner

Maintenance: Boulder, CO

Overview of the Planning Process

4. Public Engagement and Outreach

- Who?
  - Variety of stakeholders



Overview of the Planning Process

4. Public Engagement and Outreach

- When?
  - Bike master planning (if applicable)
  - Early in planning and design process
  - Frequent communication
  - During and after implementation

Preliminary outreach: Jackson, WY

Overview of the Planning Process

4. Public Engagement and Outreach

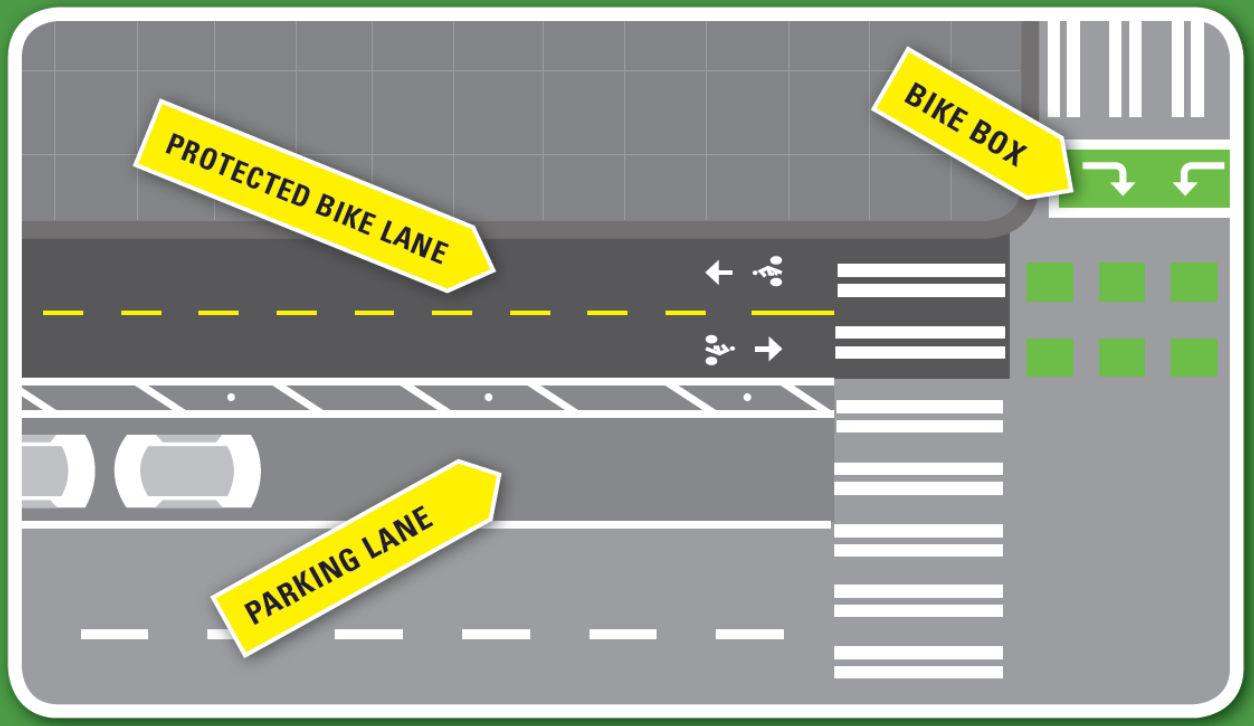
- How?
  - Localized nature of SBLs can require very targeted outreach (often door-to-door)
  - Business owners may have specific needs
  - Education before and after lane is installed – signs, media blitz, etc.
    - The last thing you want is a confused public when the lane has gone in
    - Targeted public education – drivers, cyclists, pedestrians

Informational signage: Los Angeles, CA

Outreach posters: Seattle, WA

NEW! SECOND AVENUE *PROTECTED BIKE LANE*

DEMONSTRATION PROJECT



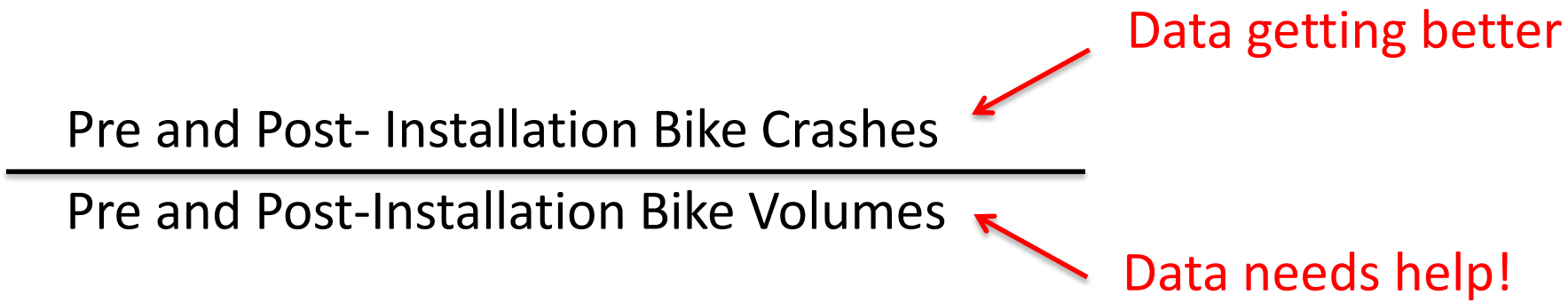
WHAT YOU NEED TO KNOW

The new two-way protected bike lane between Pike Street and Yesler Way will change the way you ride on Second Avenue—learn how to use it safely. >

Overview of the Planning Process

5. Project Evaluation

- Crash and volume collection guidelines



Overview of the Planning Process

5. Project Evaluation

- Holistic evaluation can include:
  - Travel time (all modes)
  - Pedestrian mobility improvements (shorter crossings)
  - Beautification (number of new planters or street trees)
  - Economic benefits (pre-/post-SBL retail sales metrics)

Holistic evaluation: all users

Planning for Protected Bike Lanes

UNC Highway Safety Research Center Webinar

Kyle Rowe

June 7, 2016

SDOT
Seattle Department of Transportation

Our mission, vision, and core values

Mission: deliver a high-quality transportation system for Seattle

Vision: connected people, places, and products

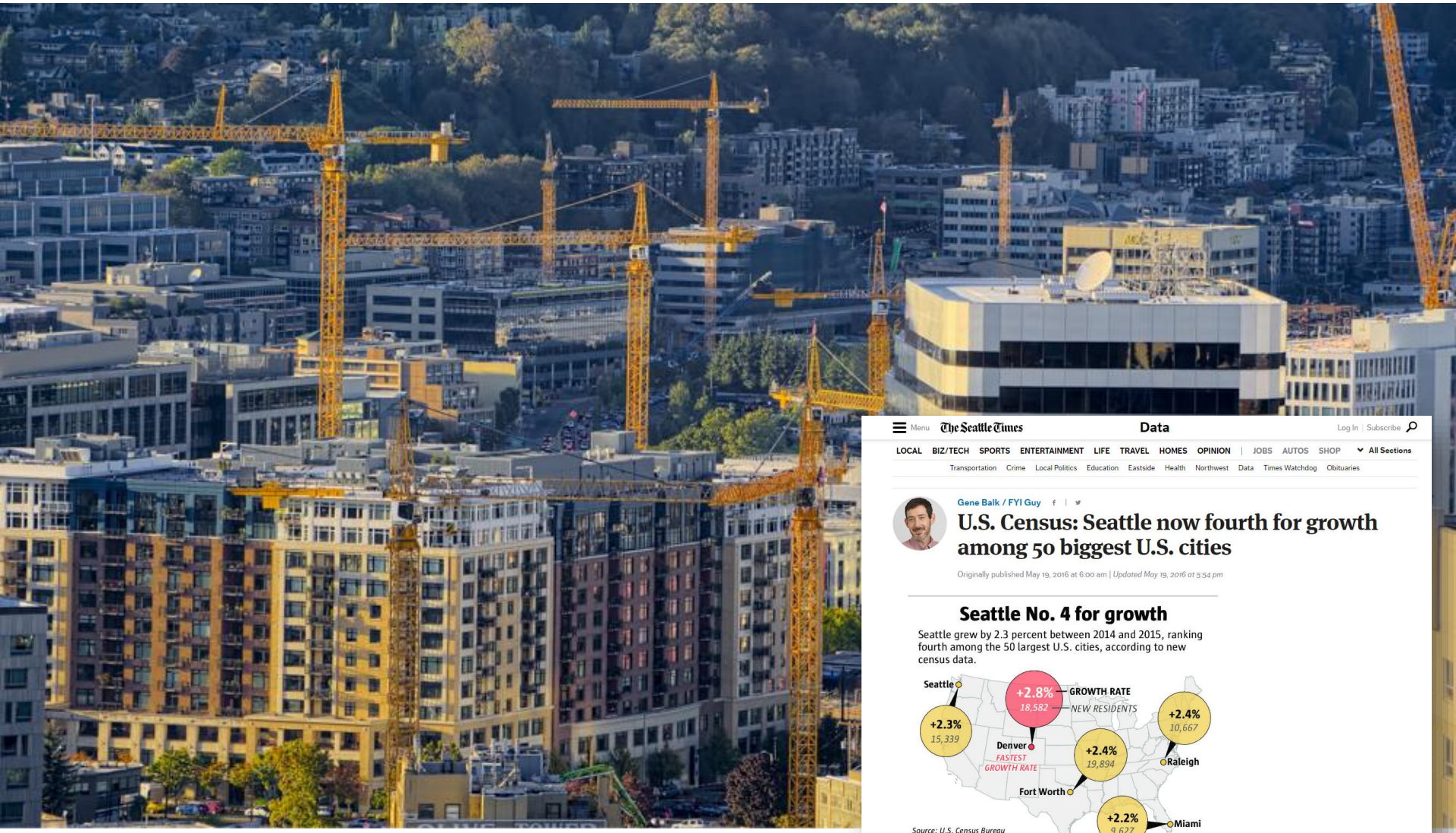
Committed to 5 core values to create a city that is:

- Safe
- Interconnected
- Affordable
- Vibrant
- Innovative

For **all**

Presentation

- Background
- Bicycle Master Plan update
- Implementing the plan
- Protected bike lanes in the Center City
- Project examples



Menu The Seattle Times Data Log In | Subscribe

LOCAL BIZ/TECH SPORTS ENTERTAINMENT LIFE TRAVEL HOMES OPINION | JOBS AUTOS SHOP All Sections

Transportation Crime Local Politics Education Eastside Health Northwest Data Times Watchdog Obituaries

Gene Balk / FYI Guy

U.S. Census: Seattle now fourth for growth among 50 biggest U.S. cities

Originally published May 19, 2016 at 6:00 am | *Updated May 19, 2016 at 5:54 pm*

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.

Source: U.S. Census Bureau

KELLY SHEA / THE SEATTLE TIMES

The latest numbers show the population increased by 2.3 percent between July 1, 2014, and July 1, 2015.

This column contains new data — but I understand if it sounds like a rerun.

Share story

Seattle, for the third consecutive year, is among the Top 5 big cities for

Trending: Seattle home prices rising twice as fast as national average — only Portland is faster

Study: Traffic in Seattle still horrible, ranks 2nd-worst in U.S. for evening rush hour congestion

BY TAYLOR SOPER on March 22, 2016 at 2:00 am

4 Comments | Share 1.5k | Tweet | Share 75 | Reddit | Pin

Max Herman / Shutterstock.com.

TomTom released its annual Traffic Index today, and the good news for Seattle drivers is that congestion levels did not increase from a year ago.

The bad news is that traffic did not improve in Seattle, either.

seattle bicycle master plan

April 2014

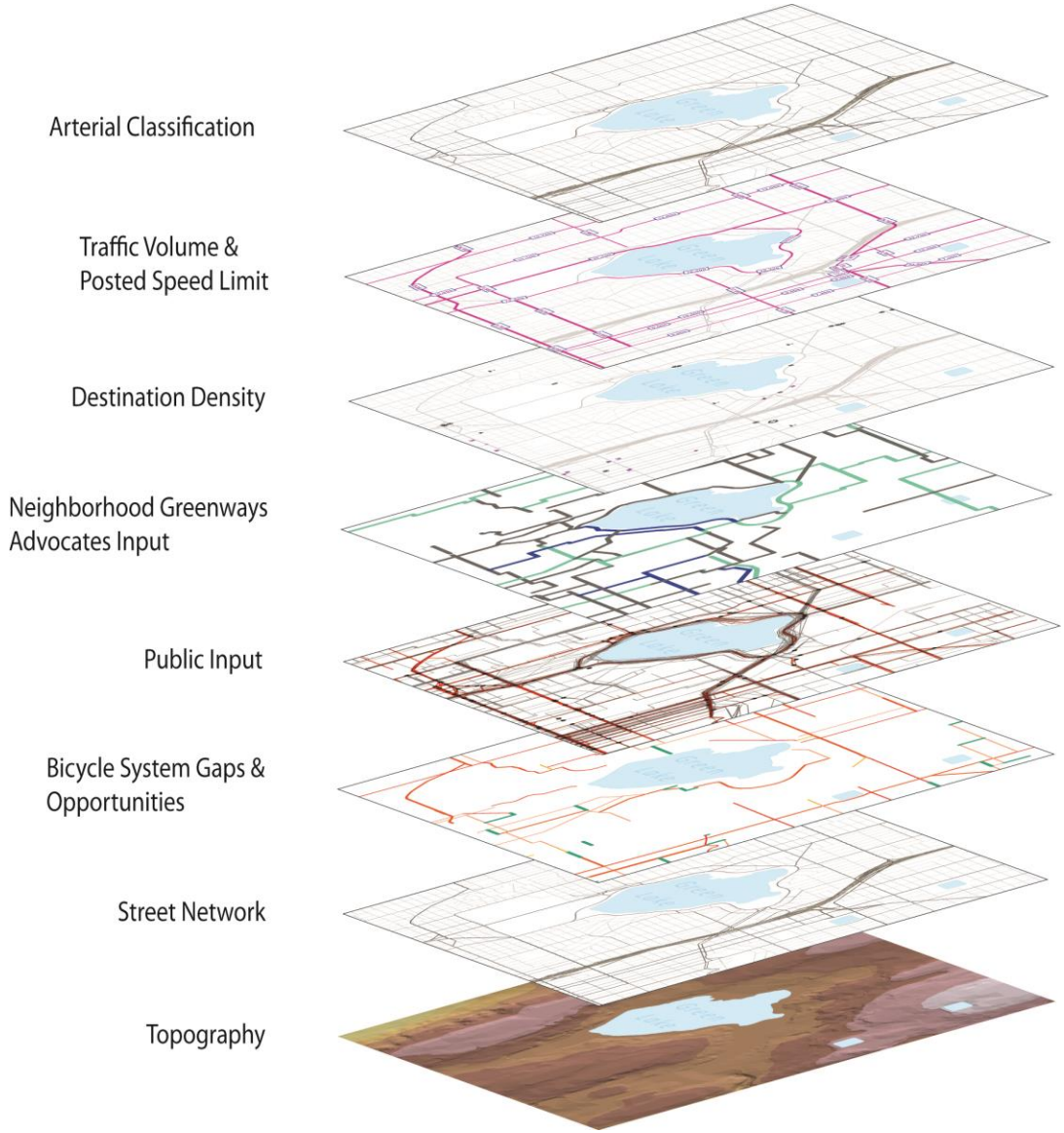
SDOT

Seattle Department of Transportation

BMP Policy Framework

VISION: *Riding a bicycle is a comfortable and integral part of daily life in Seattle for people of all ages and abilities.*

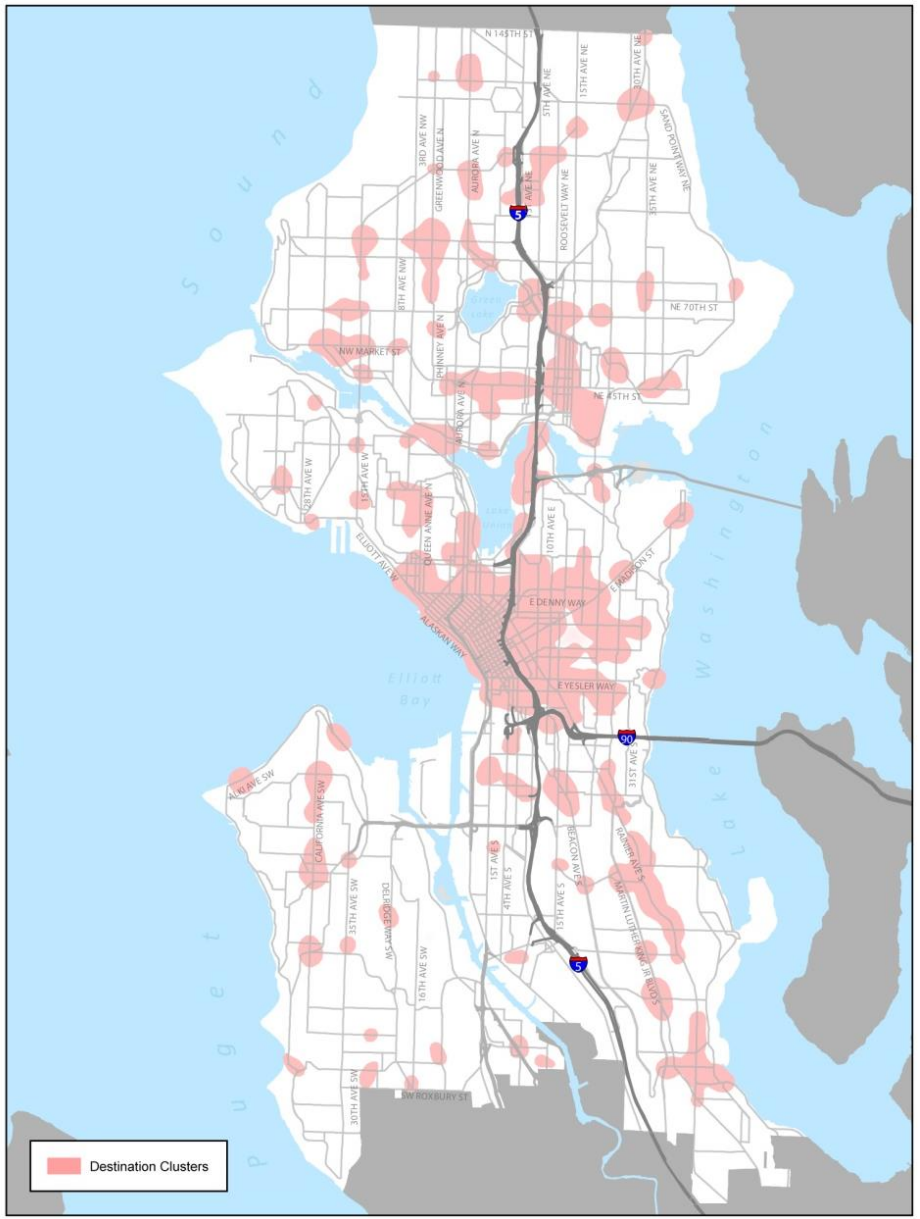
Network map development



Destination density

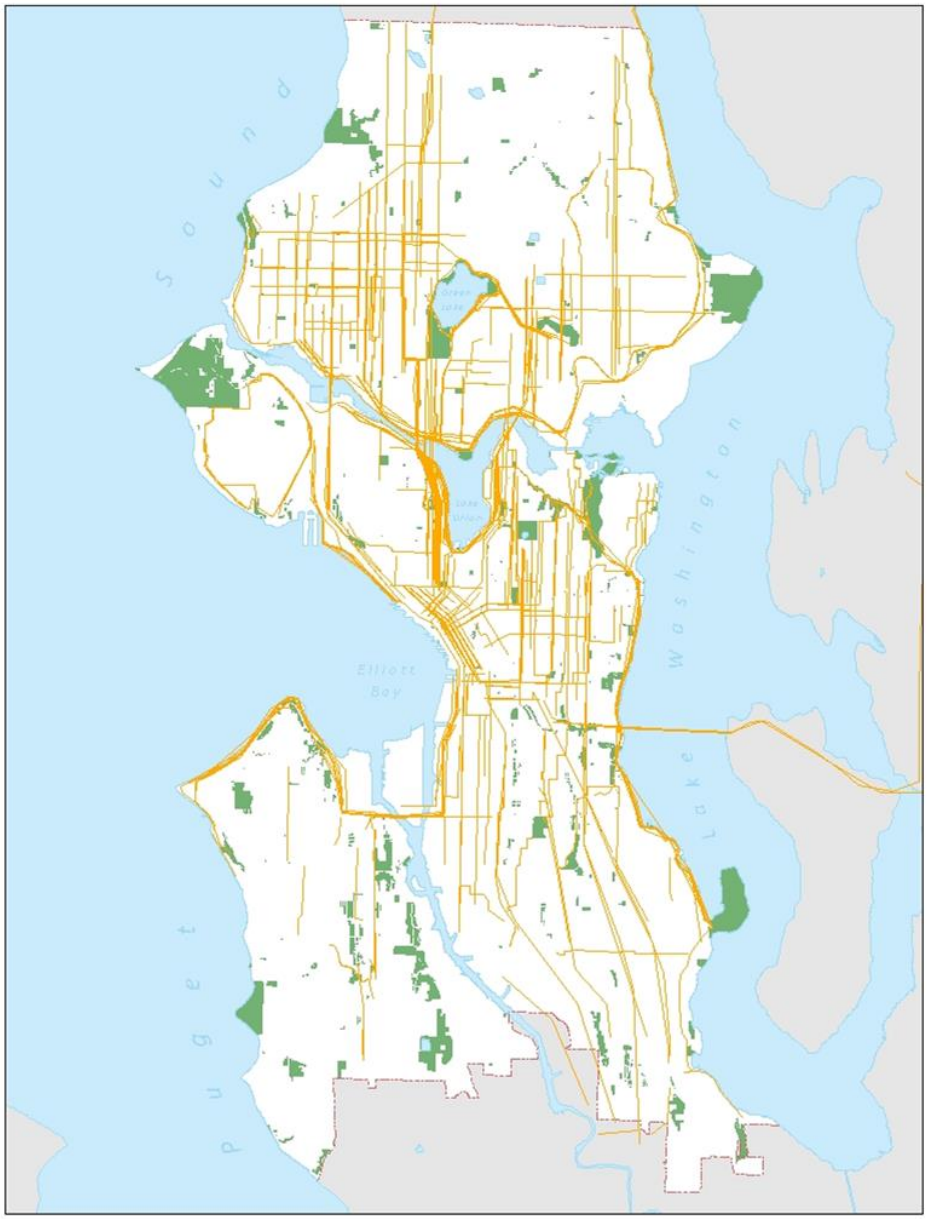
Connect people to the places they want to go = **Destination Clusters**

- Key land use categories:
  - Major employment sites
  - Universities and schools
  - Transit hubs
  - Neighborhood business districts
  - Parks, community facilities
  - Food providers
  - Other



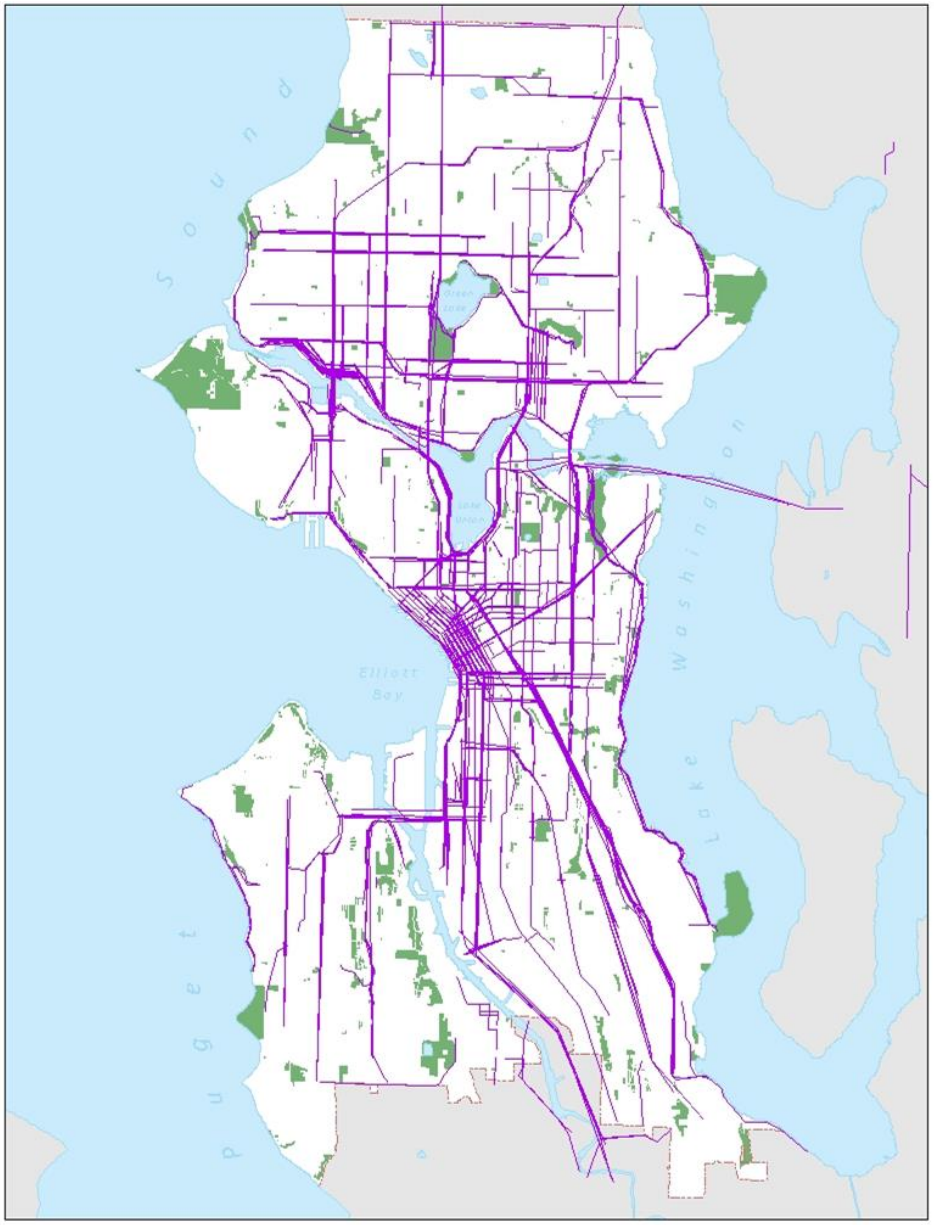
Public input

Question:
Which Seattle streets are best to ride?



Public input

Question:
Which Seattle streets are worst to ride?

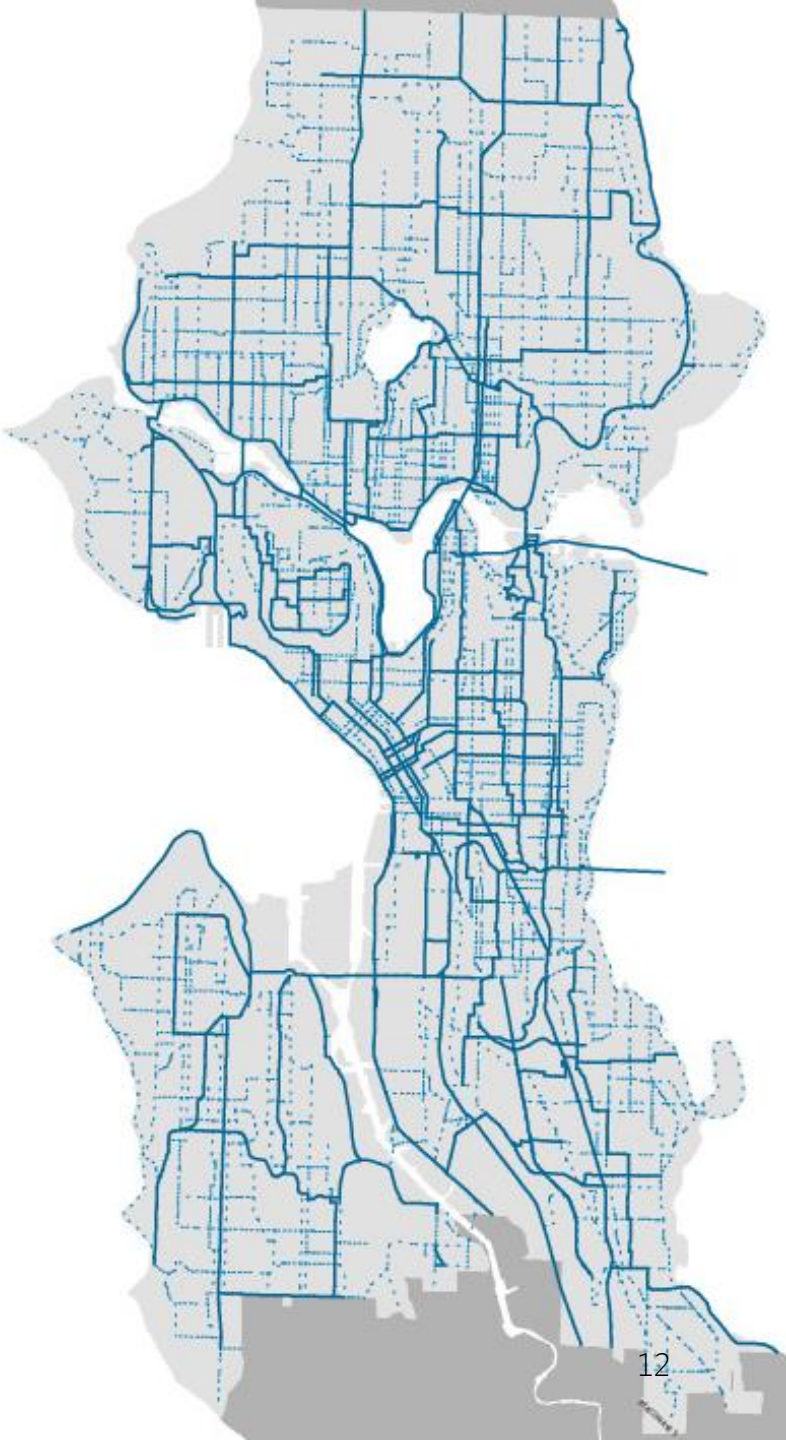


Bicycle network map

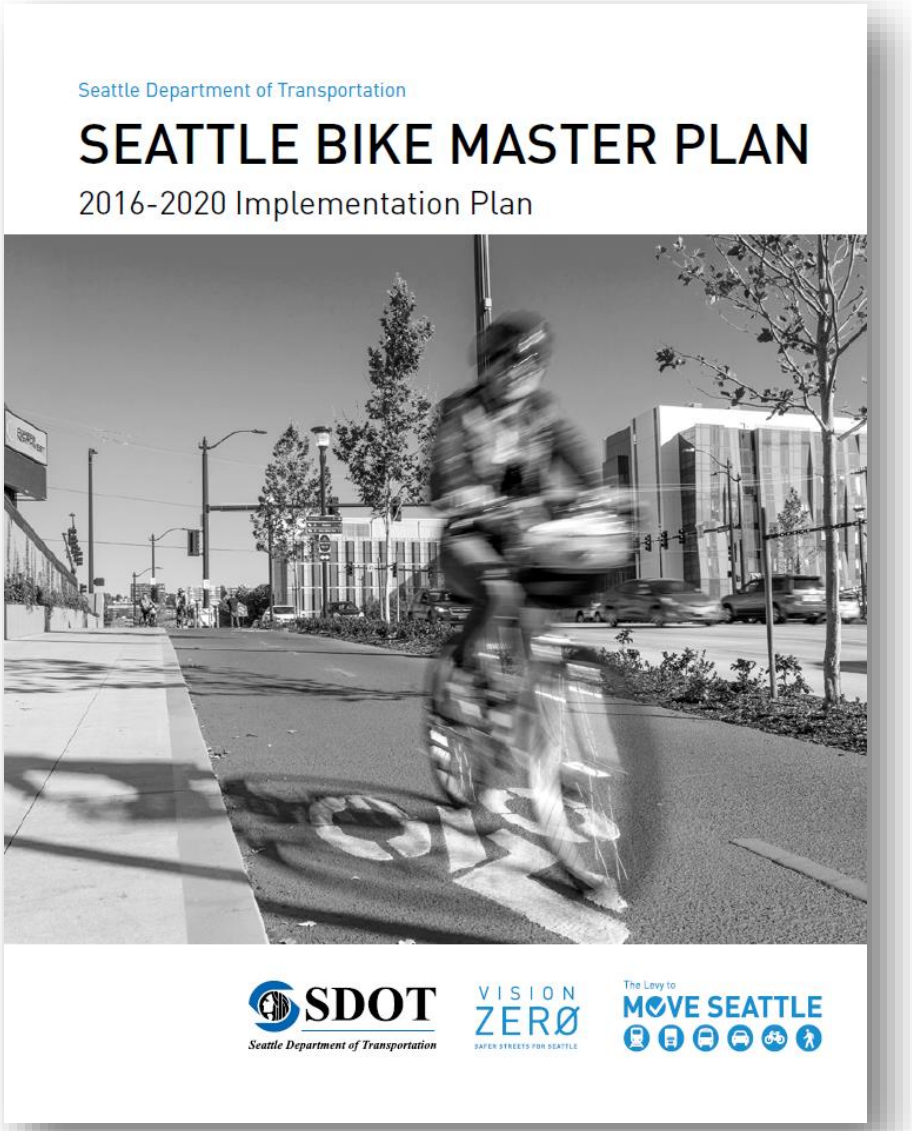
Citywide Network:

"All ages and abilities" facilities connect to key destinations

- Multi-use trails
- Protected bike lanes
- Neighborhood greenways



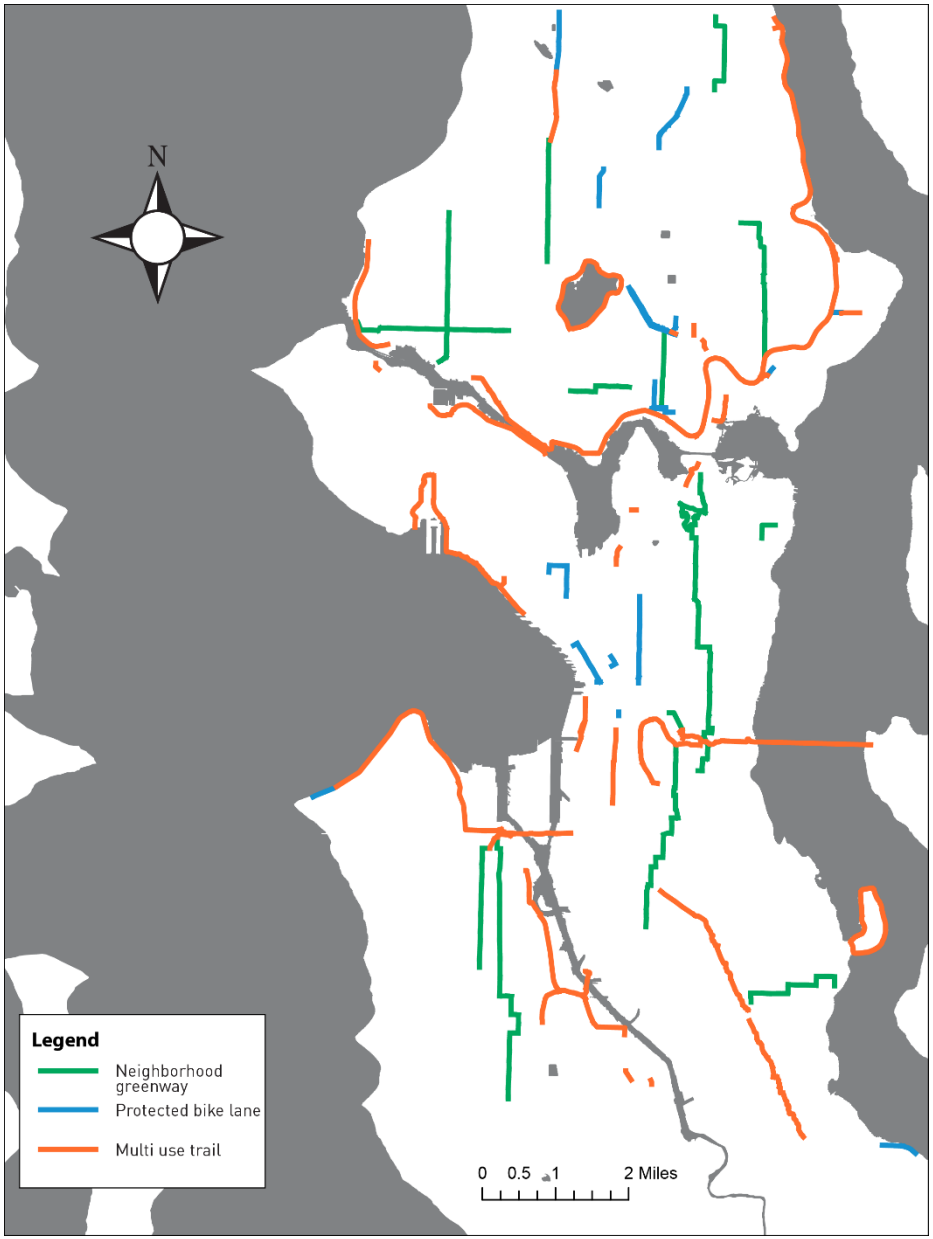
2016 Implementation Plan



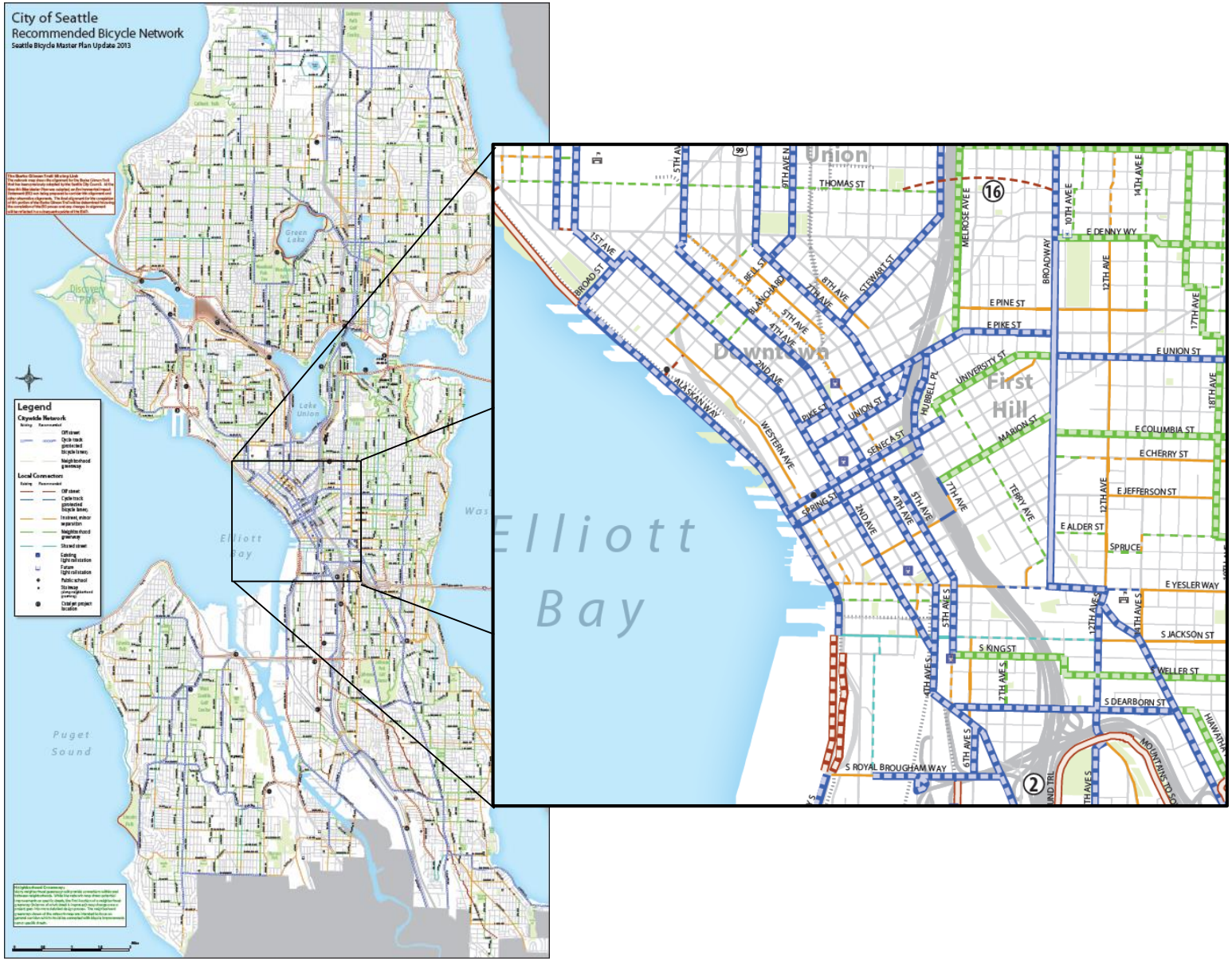
Prioritization framework

Theme	Criteria Definition
Improve SAFETY	Addresses location with bicycle collision history and emphasis on vulnerable roadway users
	Enhances bicyclist safety by promoting travel on streets with low motorist speeds and low volumes
	Addresses locations or streets that are associated with greater bicyclist stress and more severe collision potential due to high motor vehicle volumes (ADT) and high speeds
Increase RIDERSHIP	Provides a connection to destination clusters
	Provides a connection to areas with high population density
Address EQUITY	Serves populations that are historically underserved, including areas with a higher percentage of minority populations, households below poverty, people under 18, people over 65, and households without access to an automobile
	Provides a health benefit for people in areas with the greatest reported health needs, represented by obesity rates, physical activity rates (self-reported), and diabetes rates
Enhance LIVABILITY	Reaches the greatest number of riders, but recognizes that all bicycle facilities provide a measurable benefit to at least some bicyclists
	Distribute bicycle facilities across the city so people riding bicycles can reach all destinations
Enhance CONNECTIVITY	Removes a barrier or closes a system gap in the bicycling network
	Makes a connection that will immediately extend the bicycle network

Existing AAA network

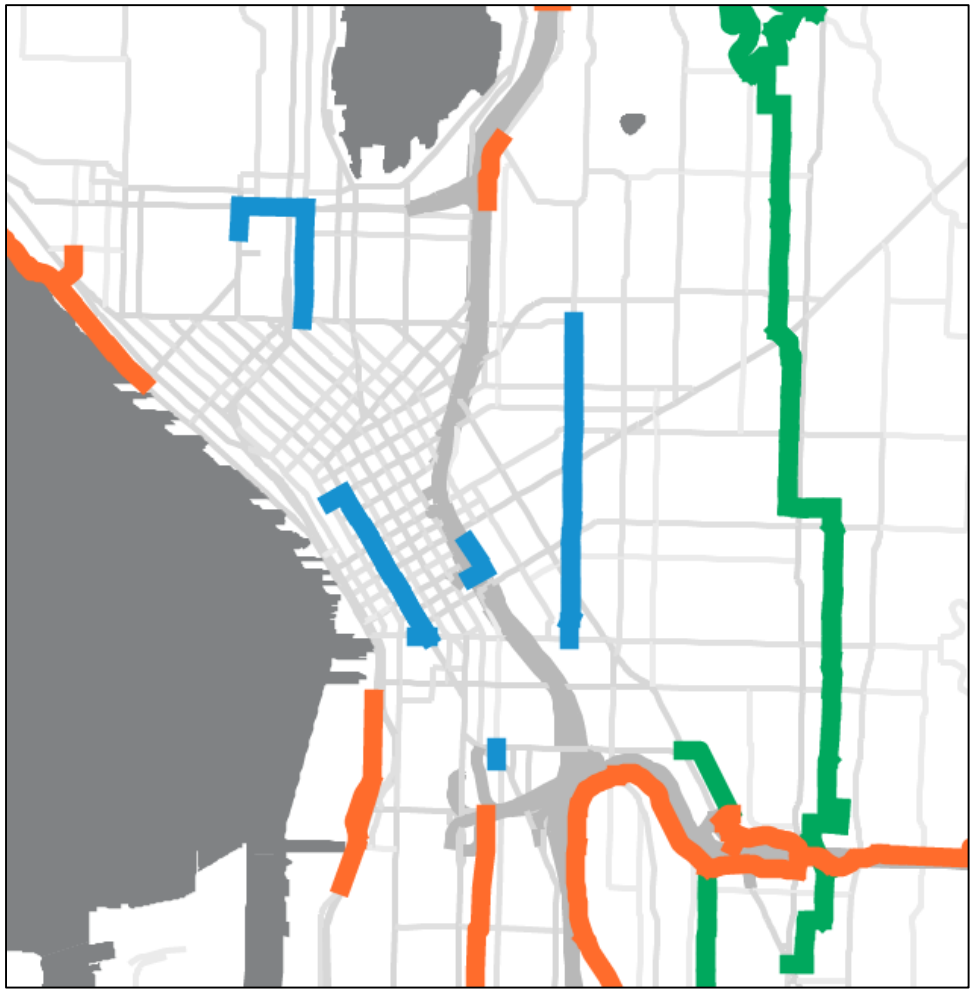


Center City Bike Network

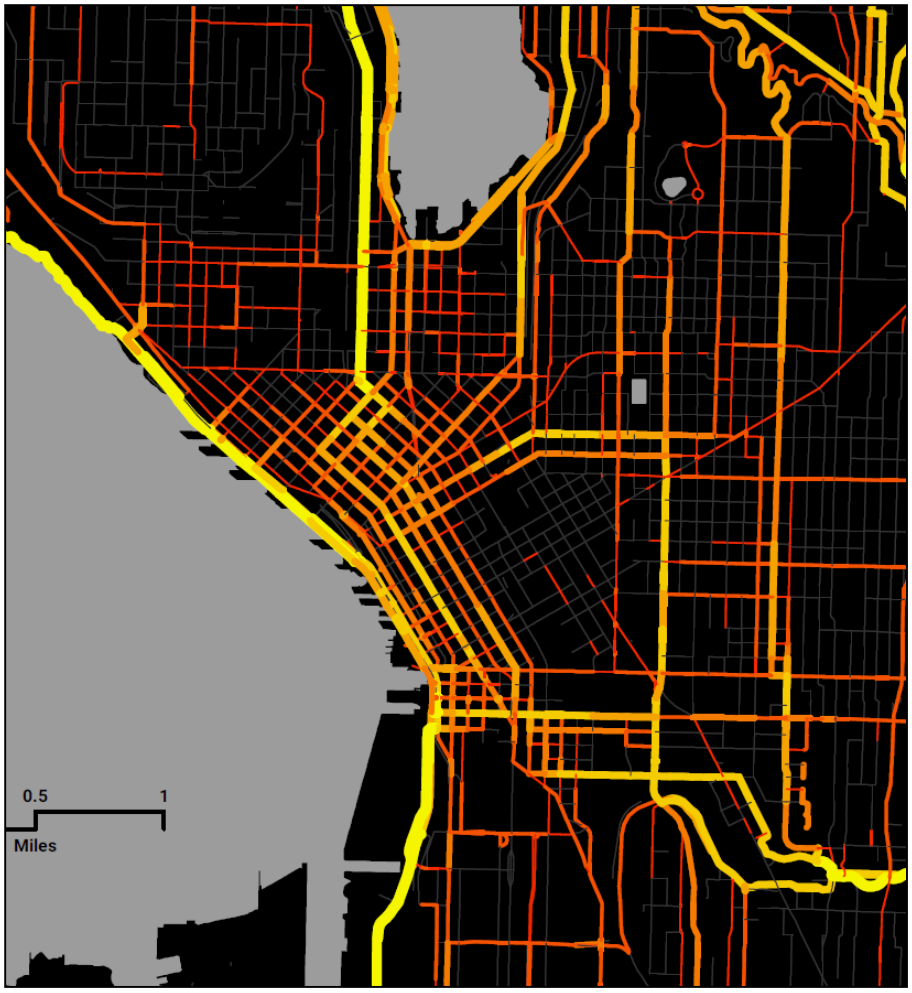


Center City Bike Network

Gaps and opportunities



Existing AAA network



Where people ride

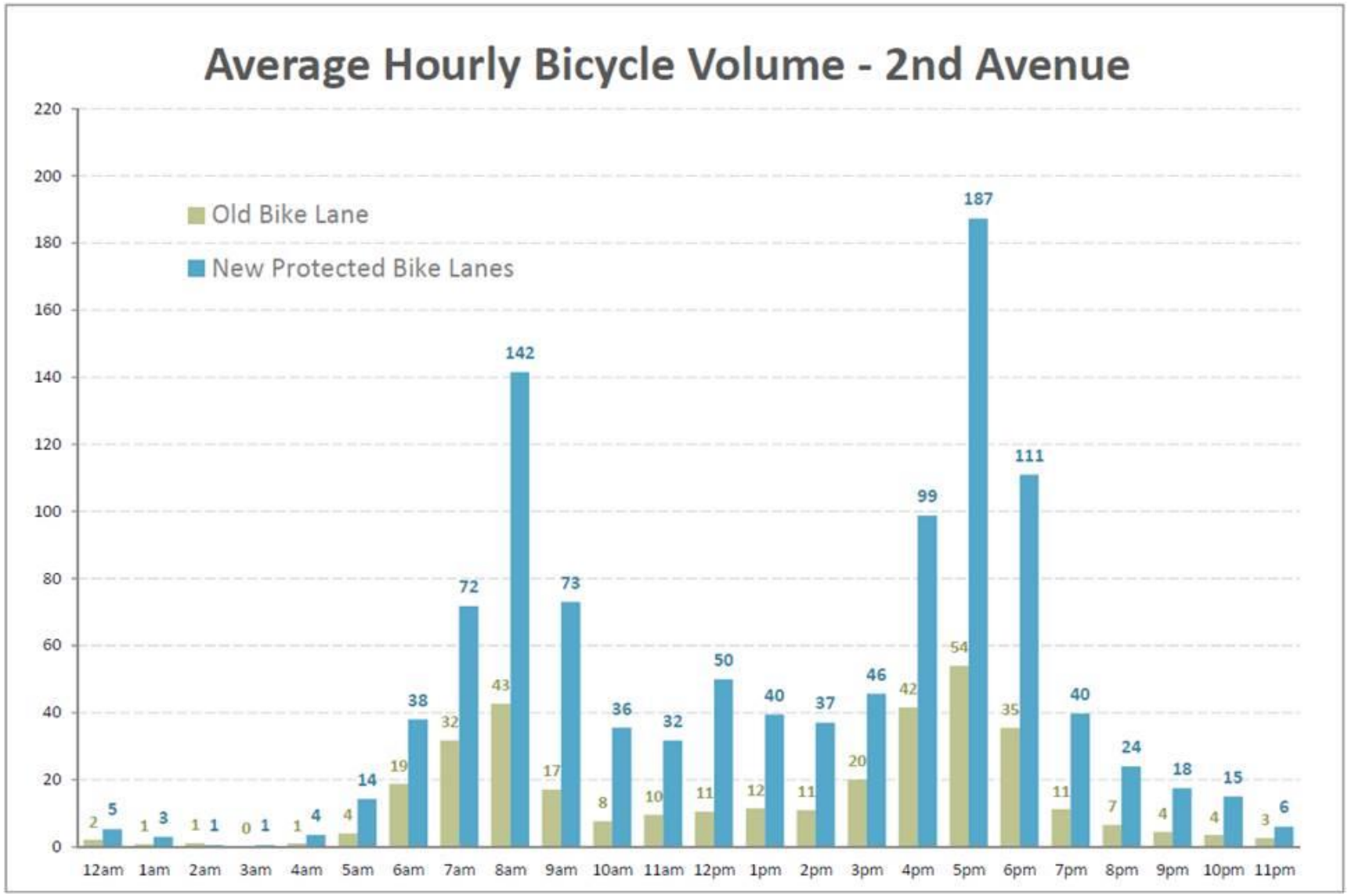
Second Ave Protected Bicycle Lane Project

PRONTO!

CYCLE SHARE

Second Avenue PBL—before and after

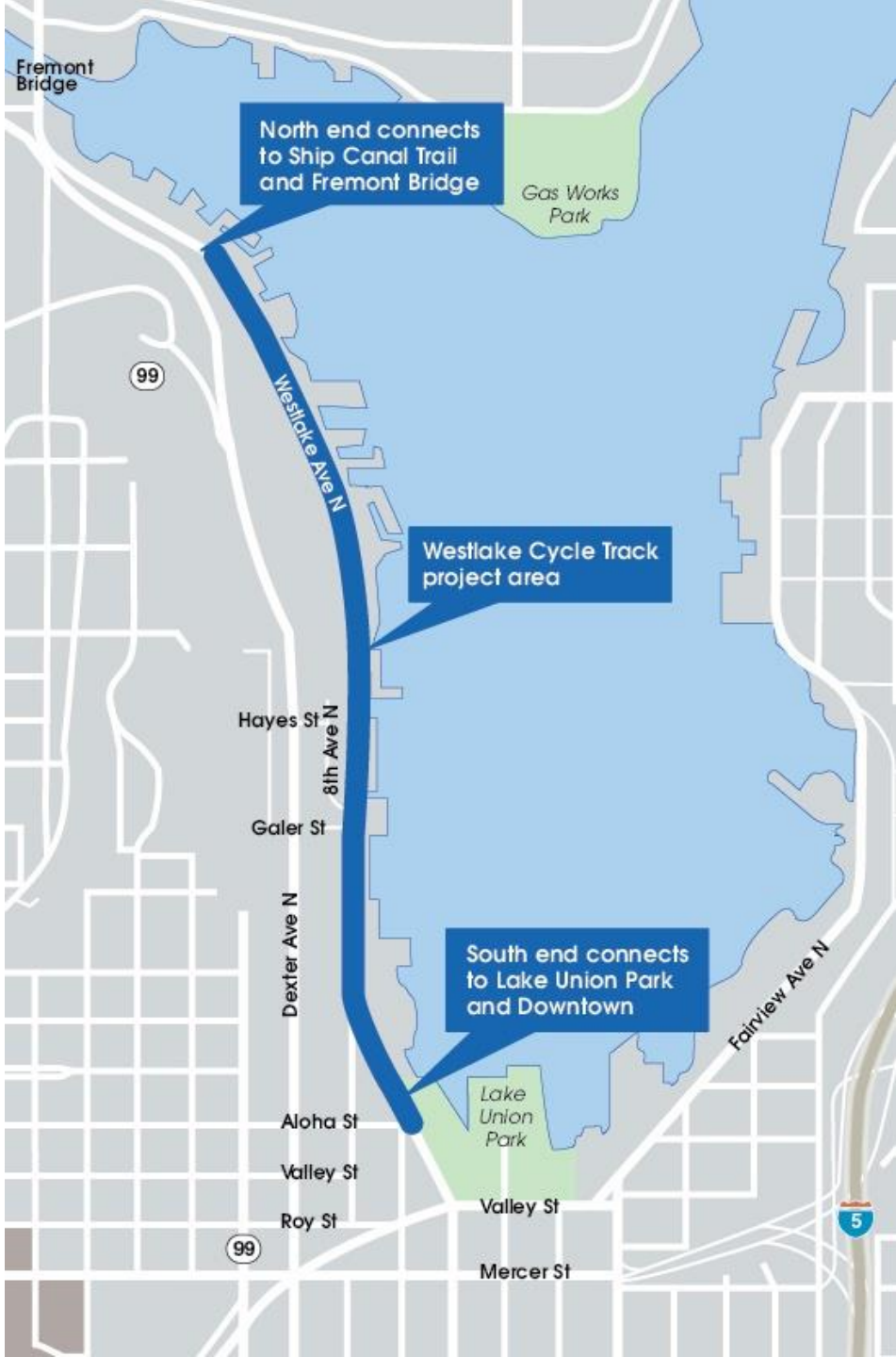
Before/after data about Second Avenue PBL

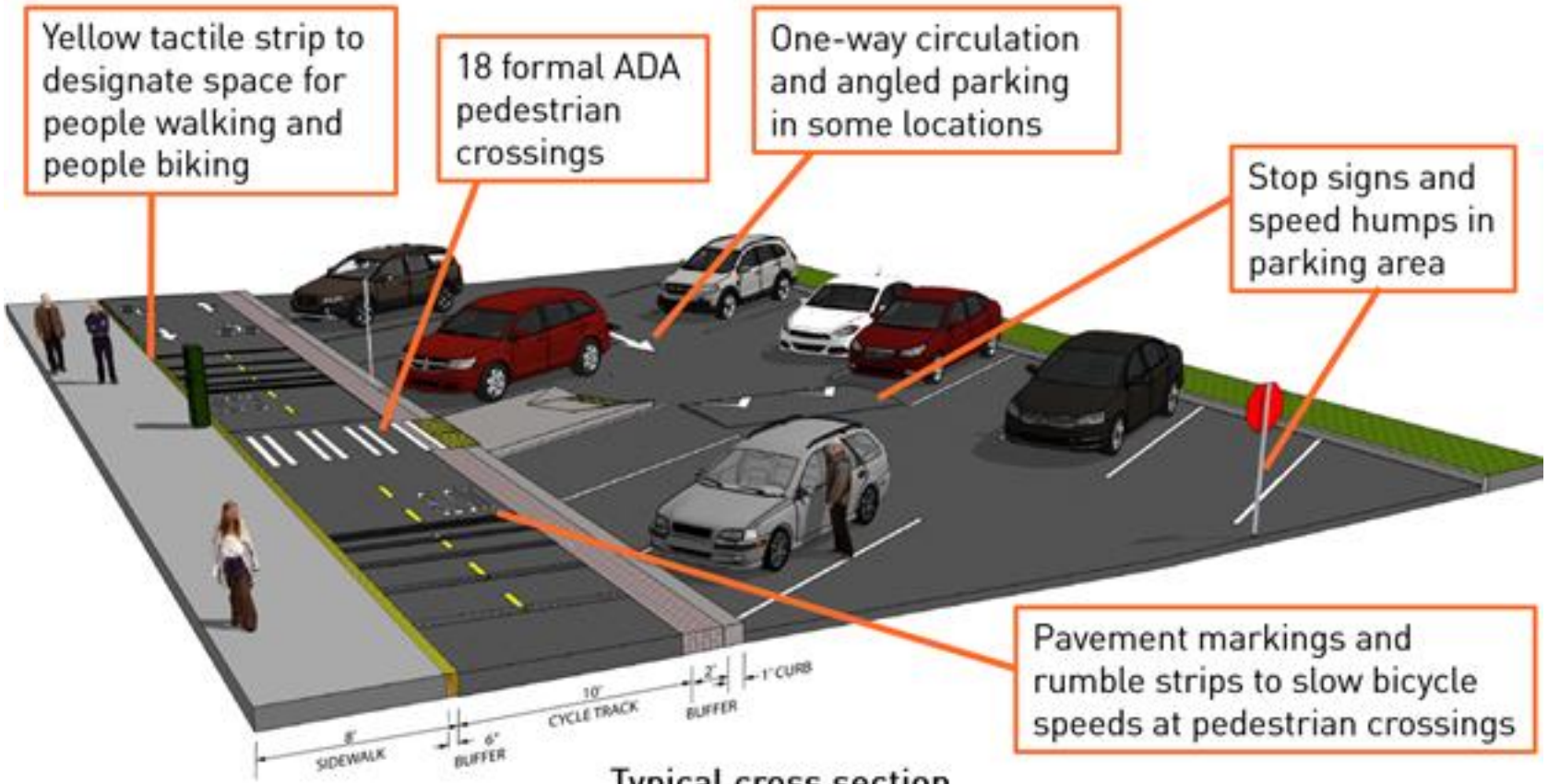


Westlake Protected Bike Lane

Project objective: connectivity

Connect with Fremont, South Lake Union, Downtown, the Fremont Bridge and surrounding trails and park





Typical cross section

Questions?

kyle.rowe@seattle.gov | (206) 684-7639

www.seattle.gov/transportation/bike.htm

www.seattle.gov/transportation

SDOT
Seattle Department of Transportation

Discussion

- **Archive at www.pedbikeinfo.org/webinars**
  - Downloadable/streaming recording and presentation slides
- **Questions?**

Dan Goodman

daniel.goodman@dot.gov

Carl Sundstrom

sundstrom@hsrc.unc.edu

Ben Rosenblatt

brosenblatt@samschwartz.com

Kyle Rowe

kyle.rowe@seattle.gov

General

webinars@hsrc.unc.edu