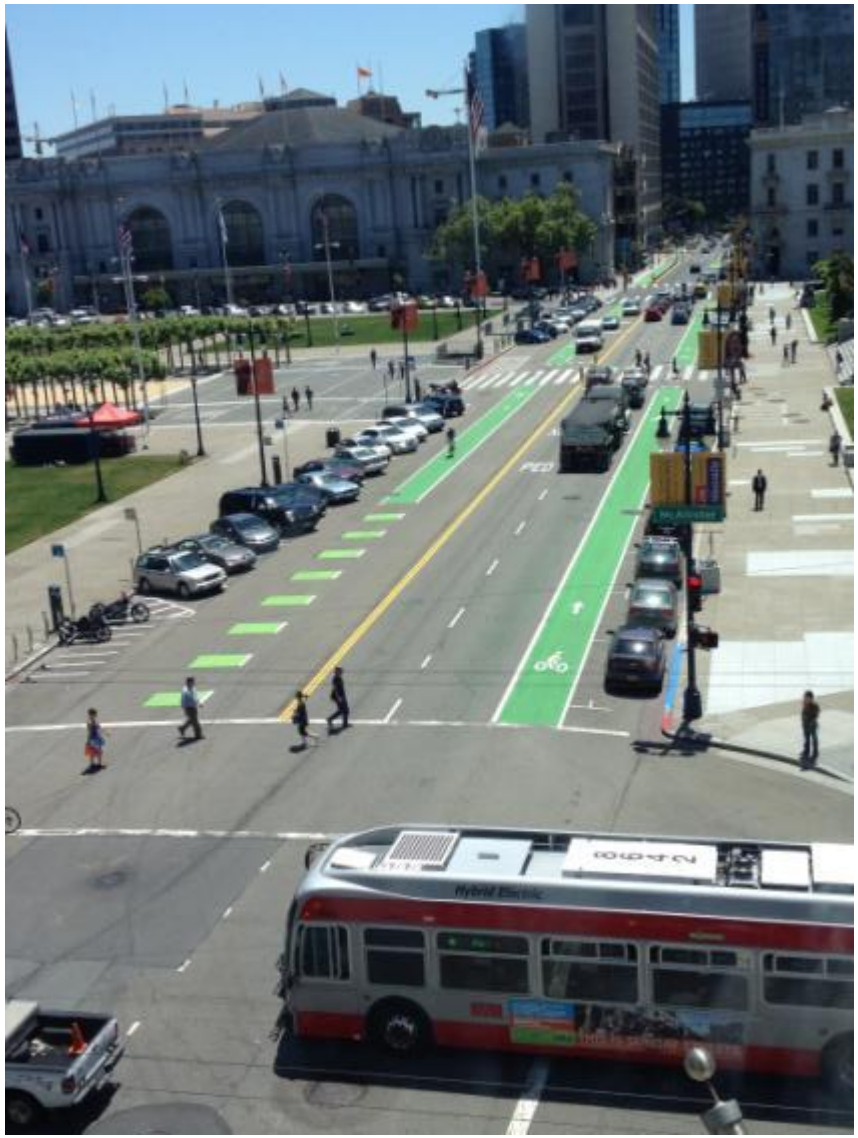
THE NACTO URBAN STREET DESIGN GUIDE

SAN MATEO TRAINING

May 14, 2014

Application of the Guide on San Francisco Roadways

Two Recent Complete Street Projects



Polk St. (Civic Center)

Cesar Chavez

An Incomplete Street can feel like…

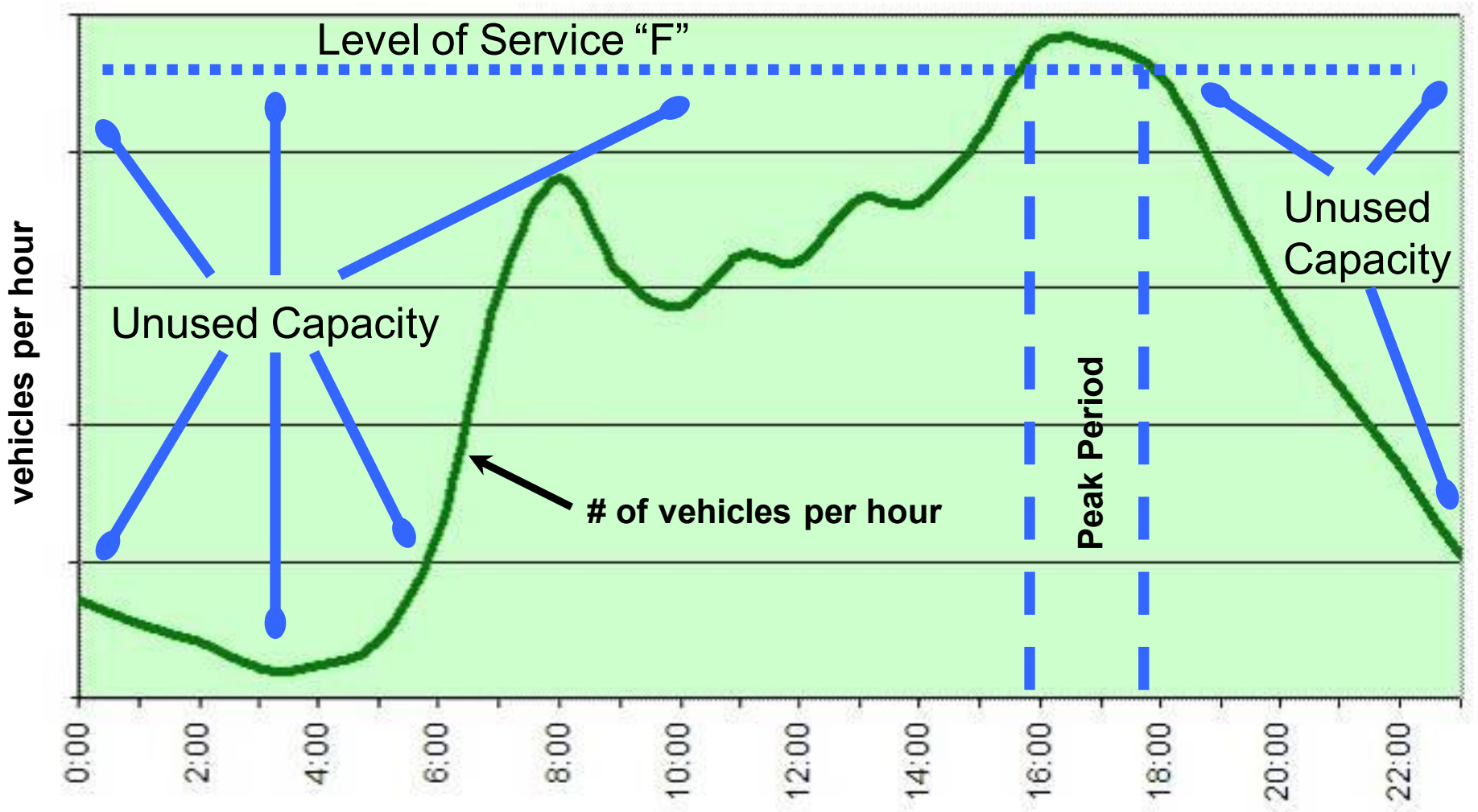
Cesar Chavez Street: 6 lane arterial

Result of Designing for Peak Hour*

Inefficient Use of Valuable Space
One-Dimensional Design
Encourages Speeding
Unnecessarily Wide for Pedestrians

*Peak hour occurs ~2hrs/day, 5 days/week, or 6% of the time

Designing for Peak Motor Vehicle Flow

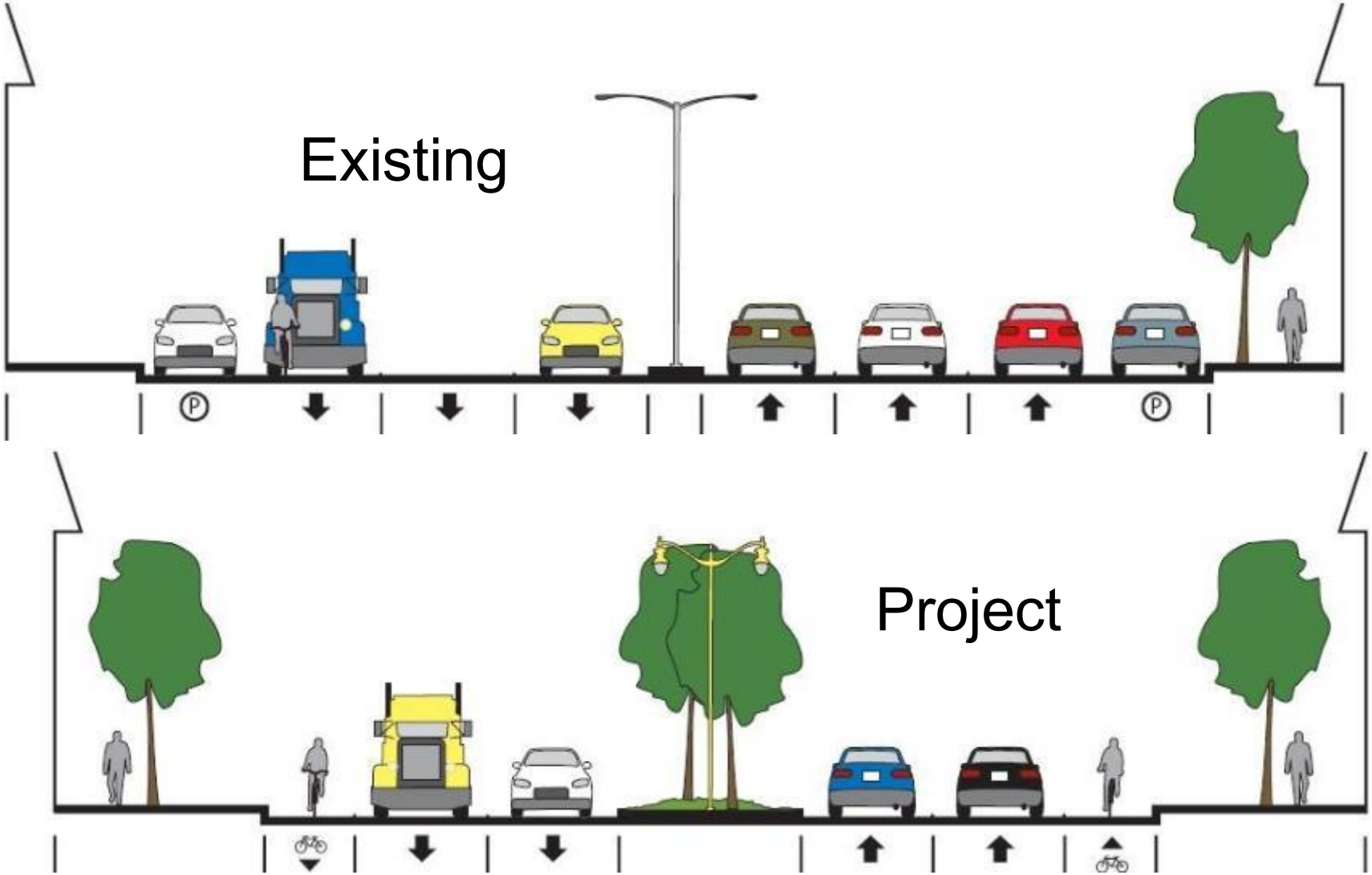


Cesar Chavez Streetscape Project

- Pedestrians
- Bicyclists
- Trucks
- Signal Design
- Traffic Routing during Construction
- Schools, Parks Access
- Transit
- Local and Regional Traffic
- Accessibility (APS)

Cesar Chavez
- before project

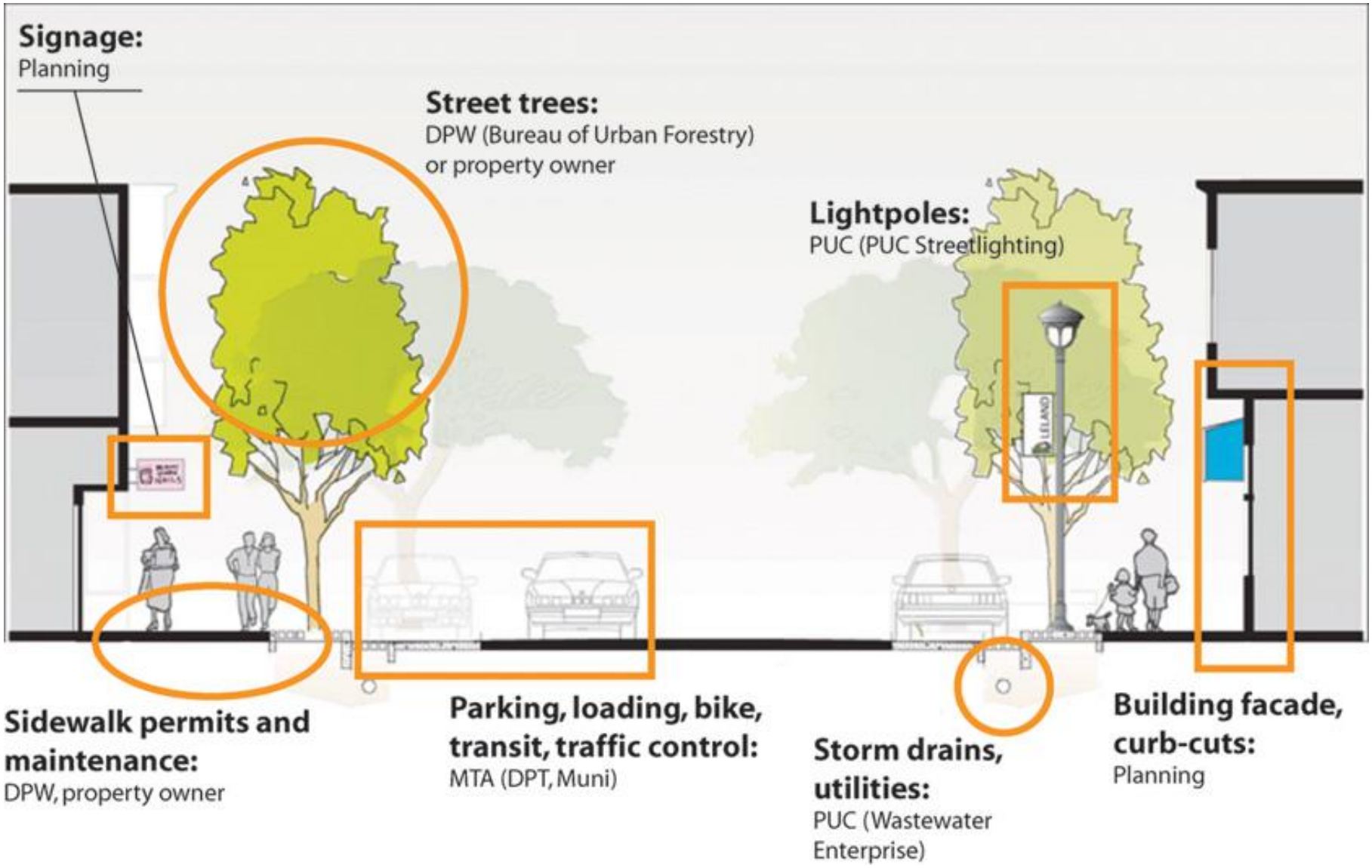
Road Diet Concept



50,000+ veh/day – LOS F acceptable trade-off for benefits

SFMTA
Municipal
Transportation
Agency

Multi-Agency Effort



Cesar Chavez – before project

Six lanes, 53,000 veh/day

Cesar Chavez – after project

Road diet, bike lanes, landscaping, bulb outs, LED lights

SFMTA
Municipal
Transportation
Agency

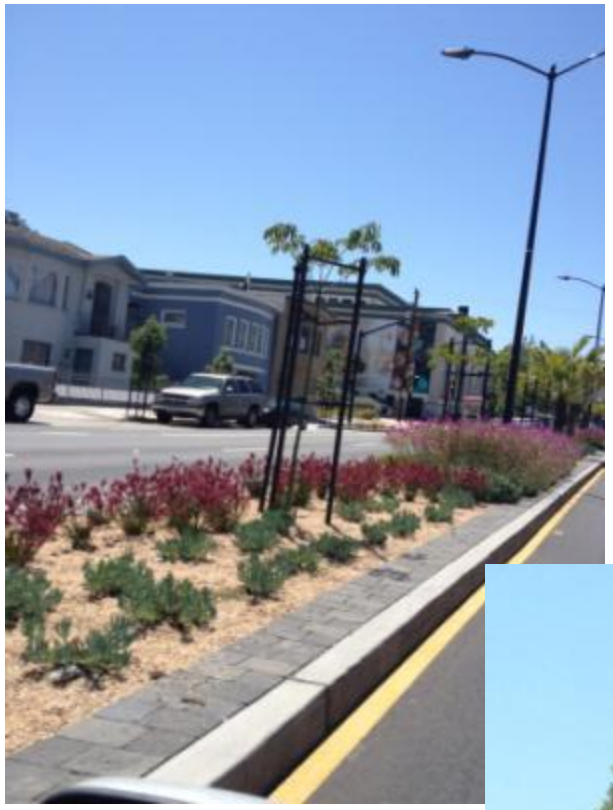
Cesar Chavez: street or freeway on-ramp?

Goodbye freeway sign!

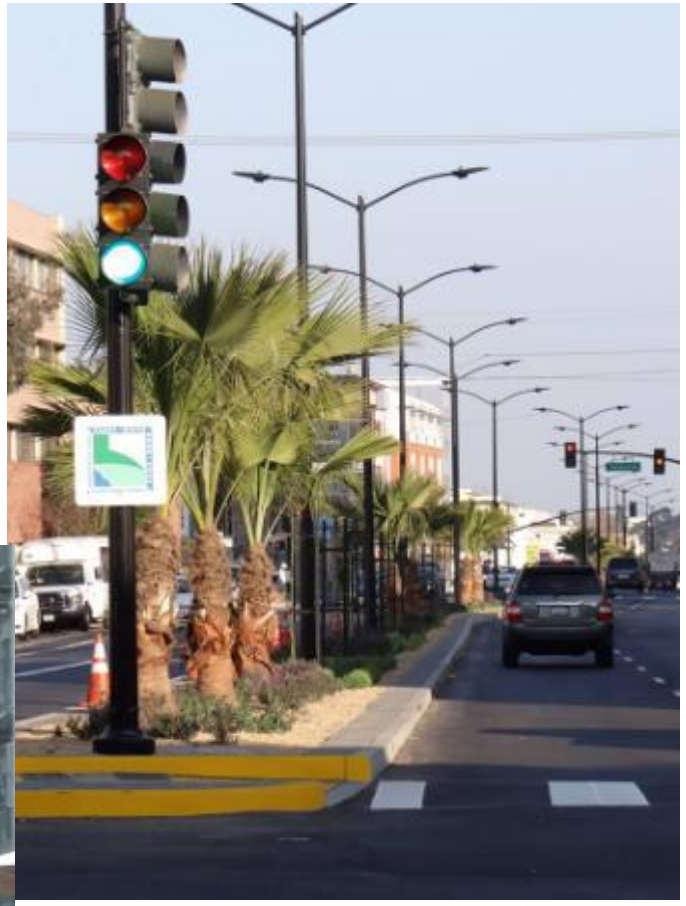
Cesar Chavez: before

Cesar Chavez: before

Cesar Chavez: after



Landscape median w turn pockets and ped refuges



Transit bulbs

Cesar Chavez at Mission and Capp

Awkward intersection, degraded pedestrian sidewalk space, long exposed street crossings

Cesar Chavez at Mission and Capp

Plaza, raised intersection, shared space, and bulb out under construction

Cesar Chavez at Mission and Capp

All with permeable pavement

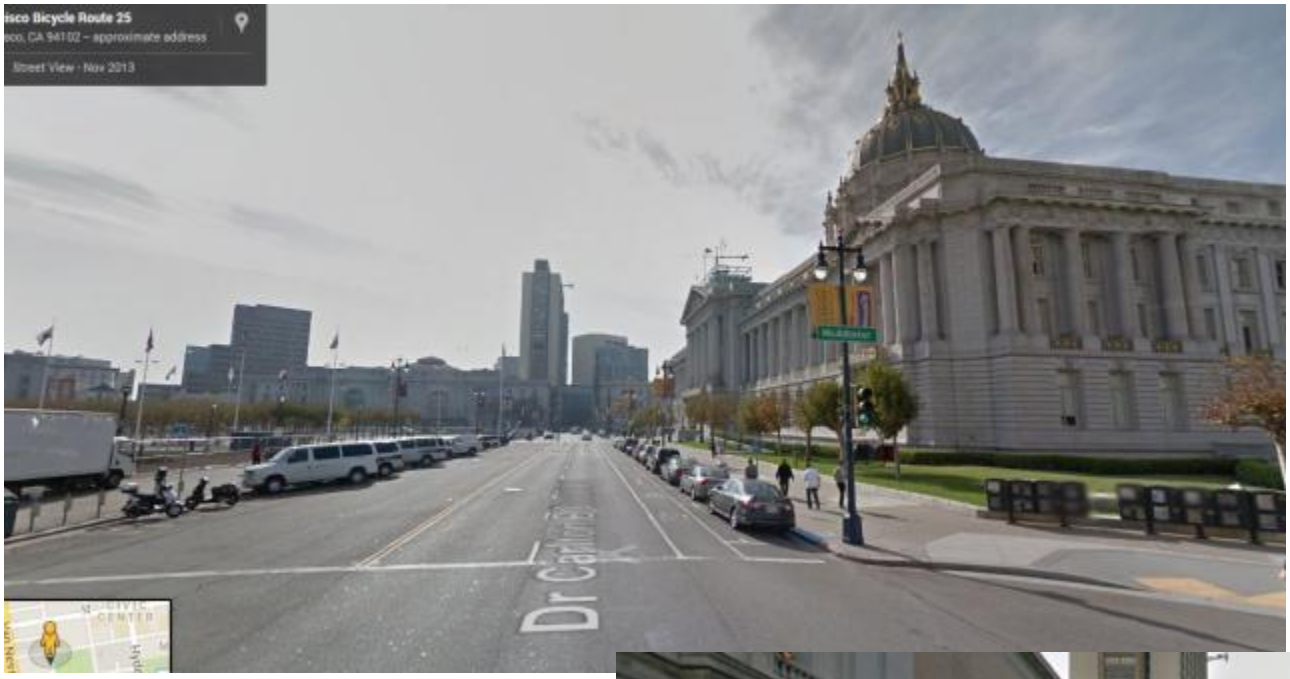
Cesar Chavez at York and Hampshire - before

Cut-through traffic, higher speed turns, ped xing

Cesar Chavez at York and Hampshire - after

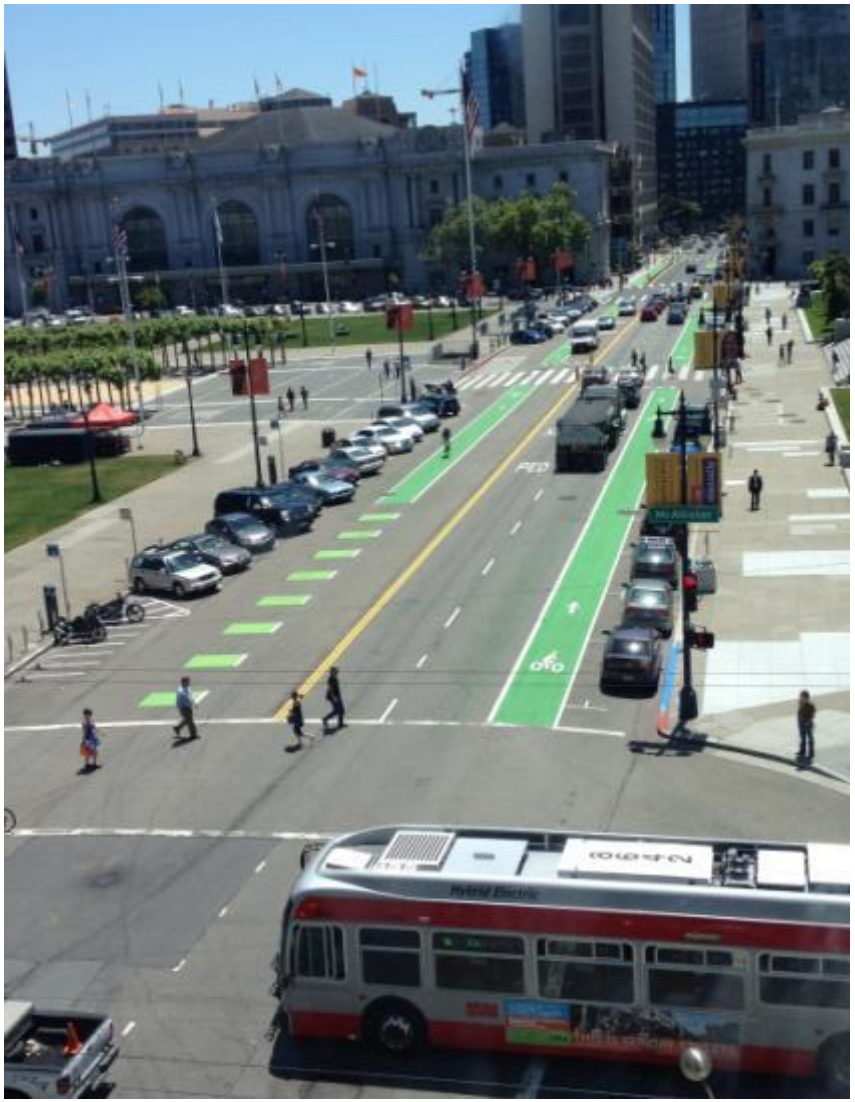
Raised xwalk, choker/bulb out

Polk Street - before



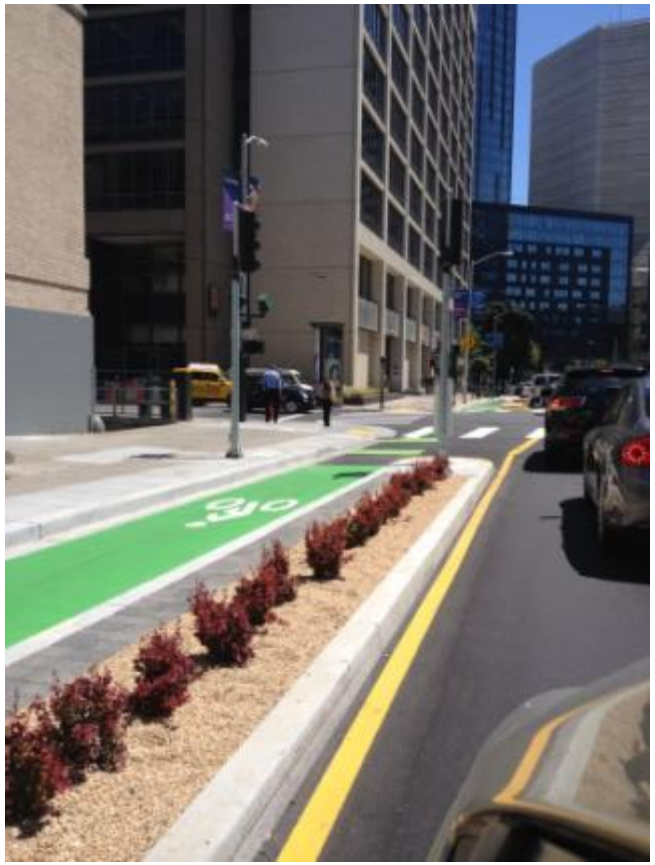
Poor bike connectivity, challenging ped xings

Polk Street Bikeways - after



Widened green lanes with back-in angled parking

Visible, connected, comfortable

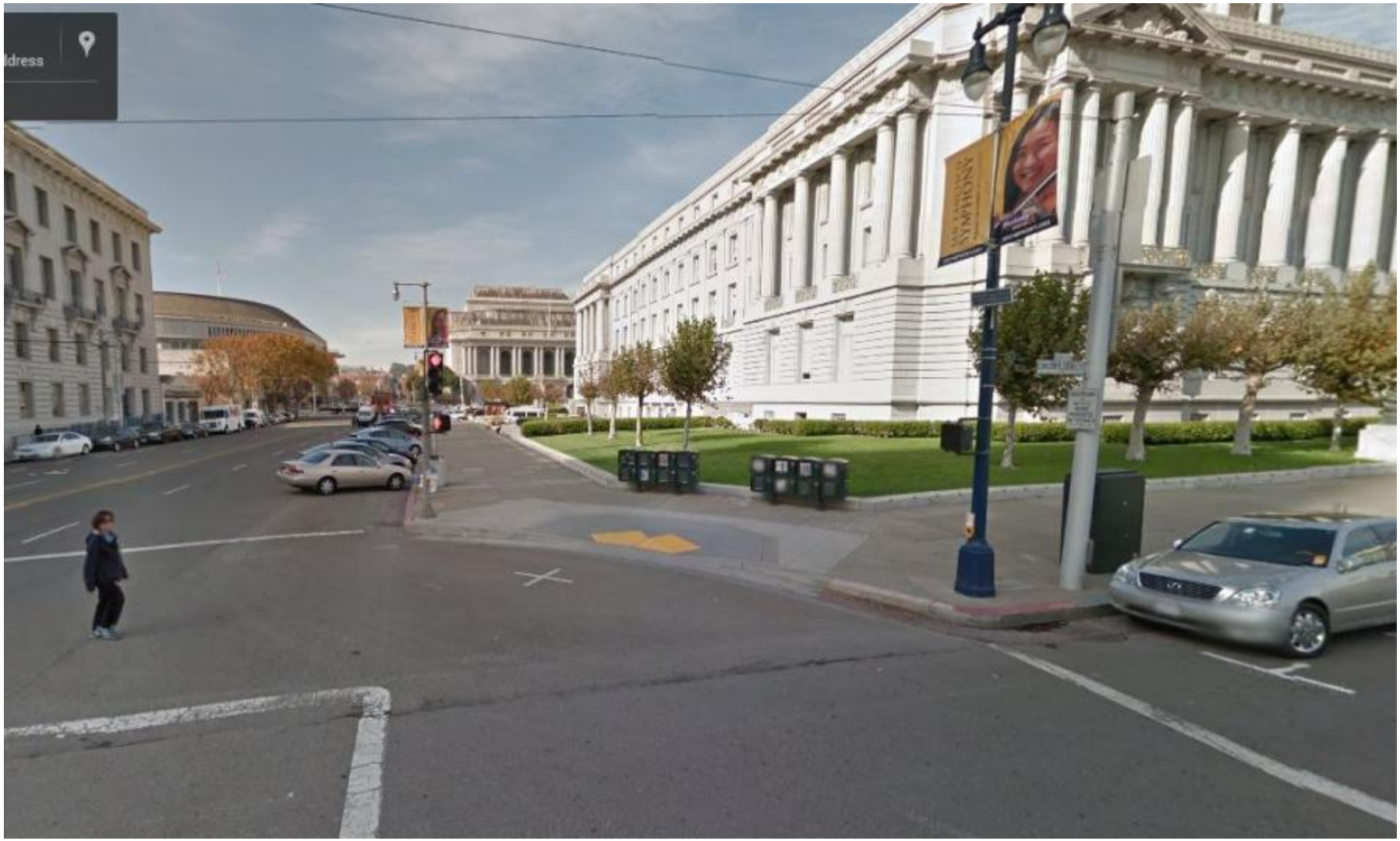


Separated contraflow lane

Polk Street Contraflow Bike Lane

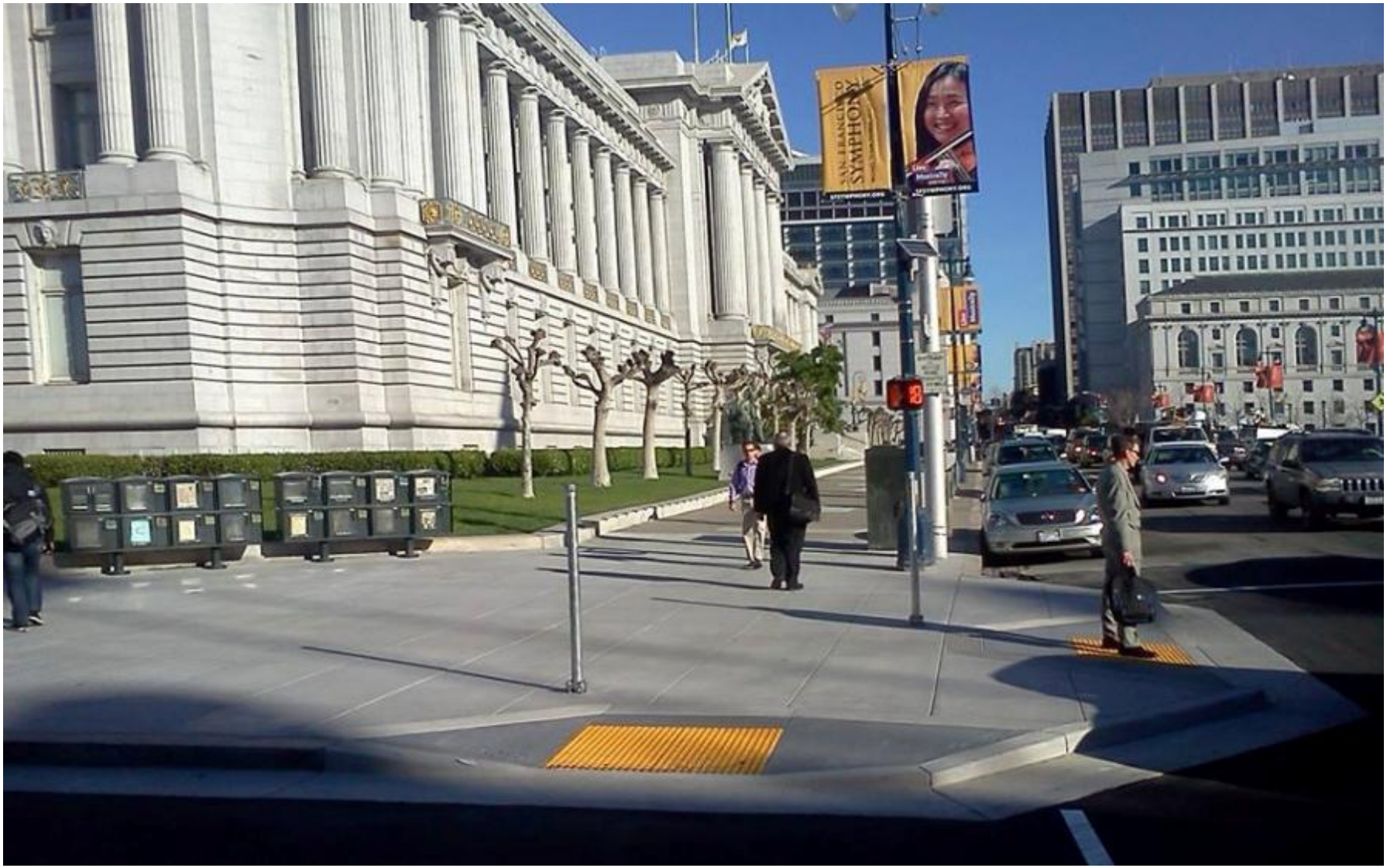
Improved Connectivity along One-Way Arterial

Polk Street – old ped xings



Scalloped corners, longer xings

Polk Street – new ped xings



Bulb outs, shorter xings

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Transportation
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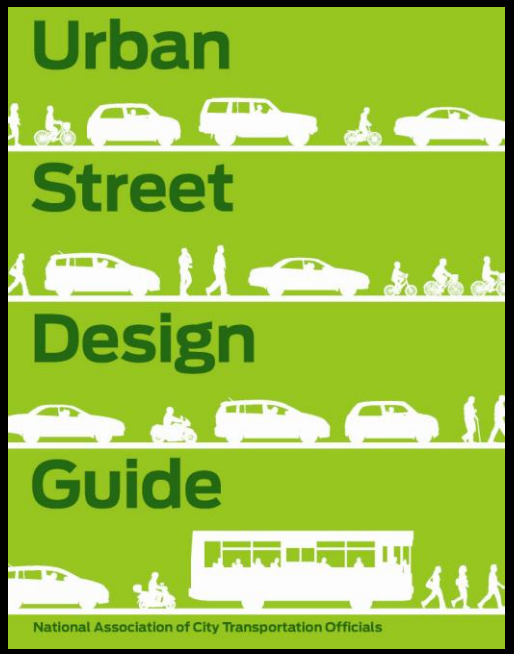
Thank You!

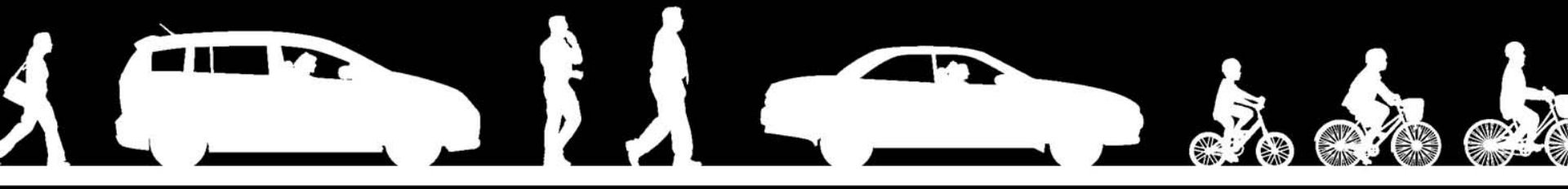
Contact: Mike Sallaberry, mike.sallaberry@sfmta.com



The Urban Street Design Guide

Street Types & Design Elements

March 14, 2014



STREETS

Downtown 1-Way Street
Downtown 2-Way Street
Downtown Thoroughfare
Neighborhood Main Street
Neighborhood Street
Yield Street
Boulevard

Residential Boulevard
Transit Corridor
Green Alley
Commercial Alley
Residential Shared Street
Commercial Shared Street

NACTO vs. Functional Classification

NACTO Street Types	Functional Classification
Downtown Streets	Arterial, Collector, Local
Downtown Thoroughfare	Arterial, Collector
Neighborhood Main Street	Arterial, Collector
Boulevard	Arterial, Collector
Residential Boulevard	Arterial, Collector, Local
Transit Corridor	Arterial, Collector
Neighborhood Streets	Local
Shared Streets	Local
Alleys	Local

Context is Critical

Street design should both respond to and influence the desired character of the public realm.

Context/Land Use

Downtown 1-Way Street
Downtown 2-Way Street
Downtown Thoroughfare
Neighborhood Main Street
Neighborhood Street
Yield Street
Boulevard

Residential Boulevard
Transit Corridor
Green Alley
Commercial Alley
Residential Shared Street
Commercial Shared Street

Usage Characteristic/Mode

Downtown 1-Way Street
Downtown 2-Way Street
Downtown Thoroughfare
Neighborhood Main Street
Neighborhood Street
Yield Street
Boulevard

Residential Boulevard
Transit Corridor
Green Alley
Commercial Alley
Residential Shared Street
Commercial Shared Street

Size/Class/Configuration

Downtown 1-Way Street
Downtown 2-Way Street
Downtown Thoroughfare
Neighborhood Main Street
Neighborhood Street
Yield Street
Boulevard

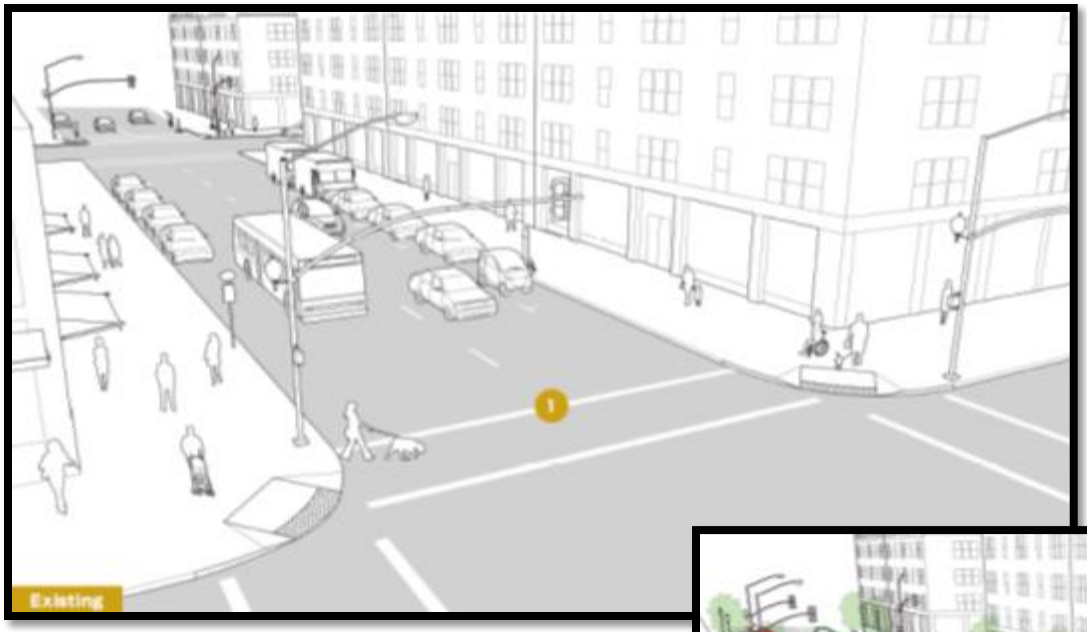
Residential Boulevard
Transit Corridor
Green Alley
Commercial Alley
Residential Shared Street
Commercial Shared Street

SAN FRANCISCO STREETS
From the Better Streets Plan

Parkways
Park Edge
Boulevards
Ceremonial (Civic Streets)
Commercial Throughways
Downtown Commercial
Downtown Residential
Neighborhood Commercial
Residential Throughway
Mixed Use
Industrial
Shared Public Ways
Paseo
Alleys

Downtown 1-Way Street

Downtown 1-Way



Downtown 1-Way

9th Avenue Complete Street (2007-2008)

GOALS

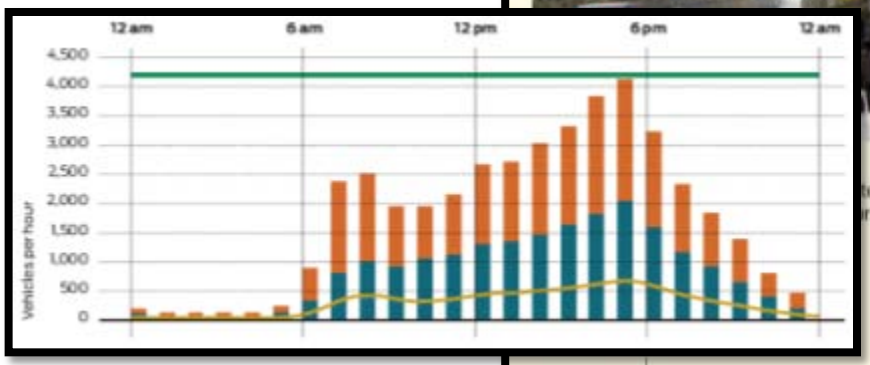
- Higher quality experience for cyclists of all levels
- Secure and pleasant pedestrian experience
- Conflict-free loading and unloading
- Through vehicle movements accommodated
- Congestion-free surface transit

Credit: Mike Flynn

Downtown 1-Way

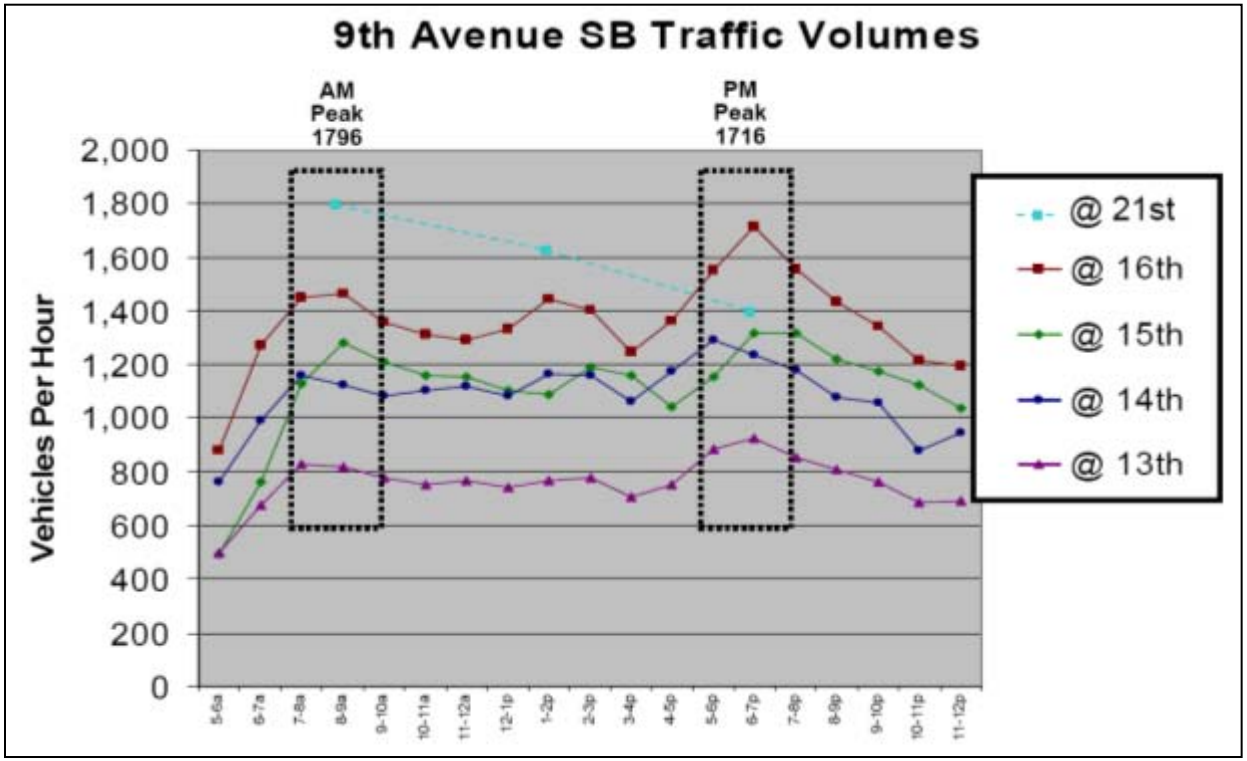
9th Avenue Complete Street (2007-2008)

Design Hour



Downtown 1-Way

9th Avenue Complete Street (2007-2008)



- < 1,800 vph during peak hours
- Travel lanes comfortably accommodate 600 vph
- 4 travel lanes = excess capacity

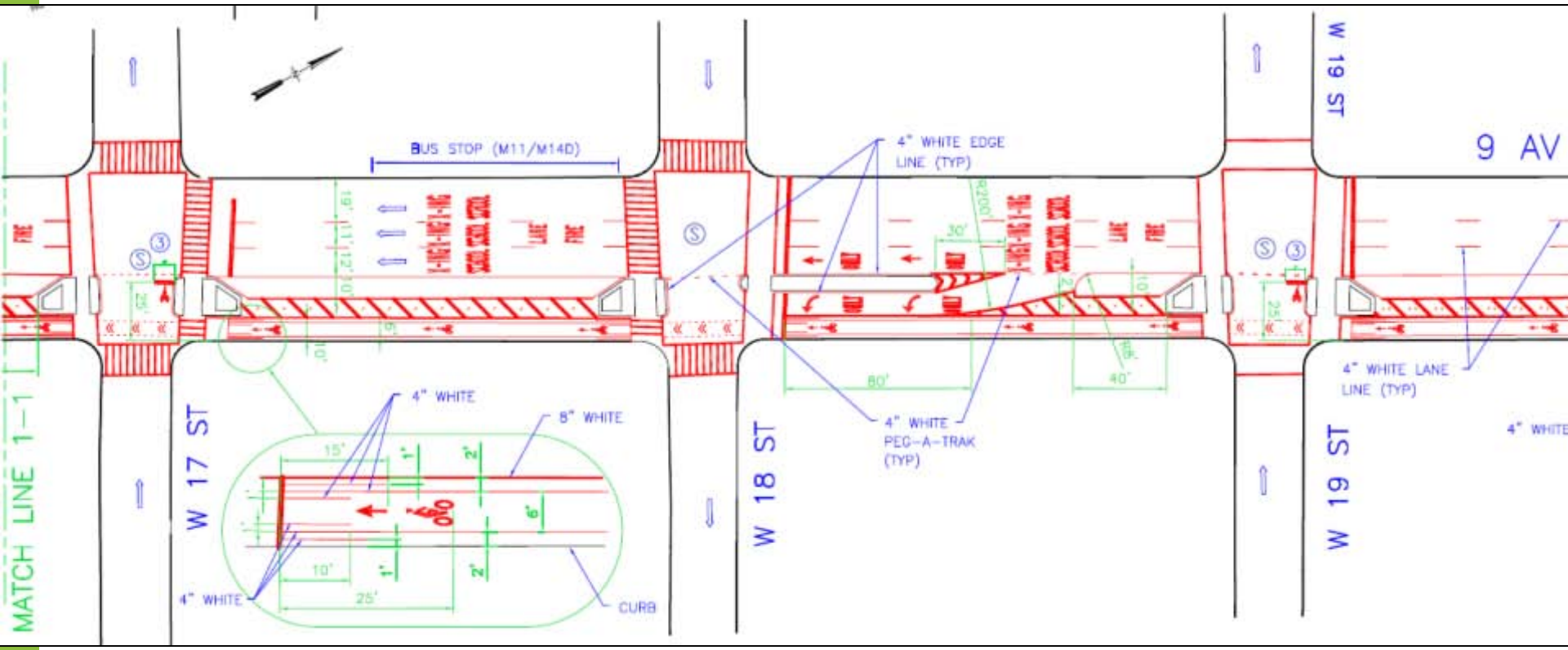
DESIGN CONSIDERATIONS

- Motorist-bicyclist turning conflicts (left hooks)
- Street sweeping & snow clearing
- Loading & unloading

Credit: Mike Flynn

Downtown 1-Way

9th Avenue Complete Street (2007-2008)



- Pedestrian crossings reduced by 25’ (from 70’)
- New trees & planting beds

- Separated bike path
- Bicycle signals
- Sufficient capacity for motorists
- One left turn banned

- Single-space meters → multi-space
- Some parking loss
- Bus service unchanged

Credit: Mike Flynn

Downtown 1-Way

9th Avenue Complete Street (2007-2008)

BEFORE

Downtown 1-Way

9th Avenue Complete Street (2007-2008)

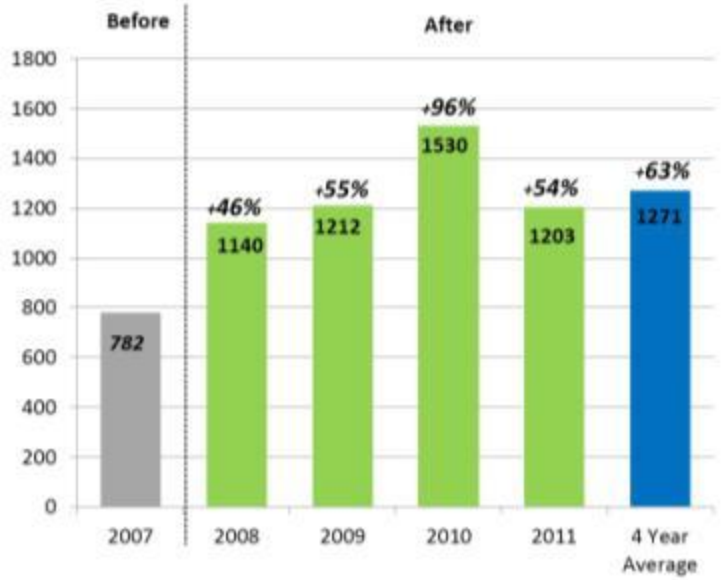
INTERIM

Downtown 1-Way

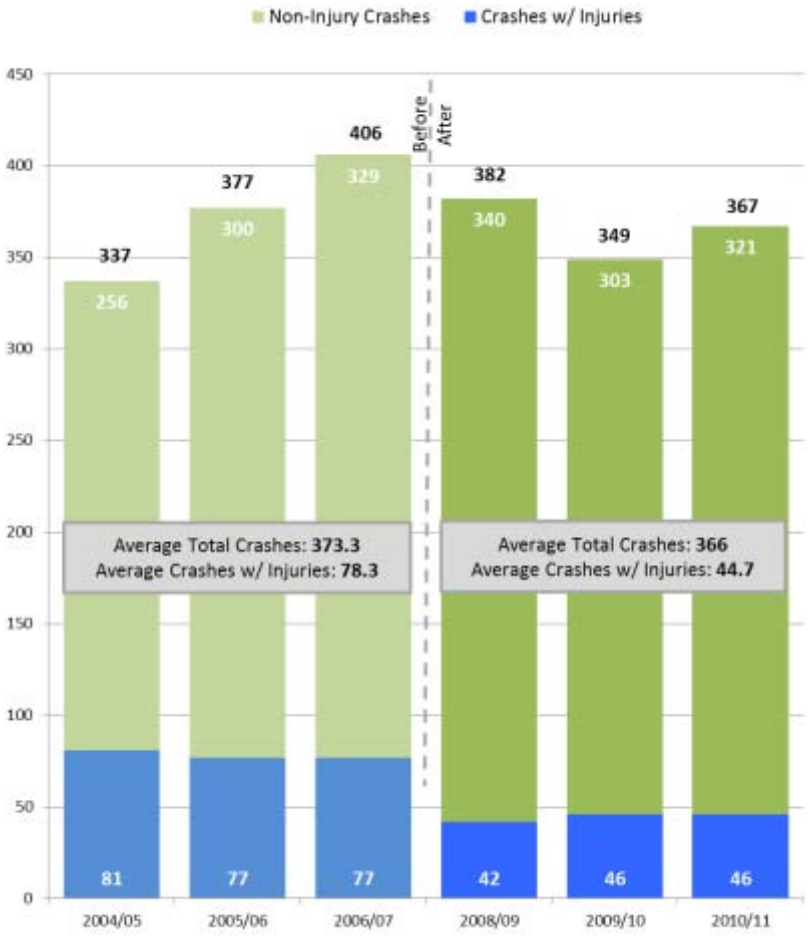
9th Avenue Complete Street (2007-2008)

RESULTS

- Cyclist injuries down 36%
- 46% fewer injuries to all users
- 43% fewer crashes with injuries
- Weekday bicycle volumes increased by 63%



Cyclist Volume - 12 Hour: 7AM - 7PM, Weekdays



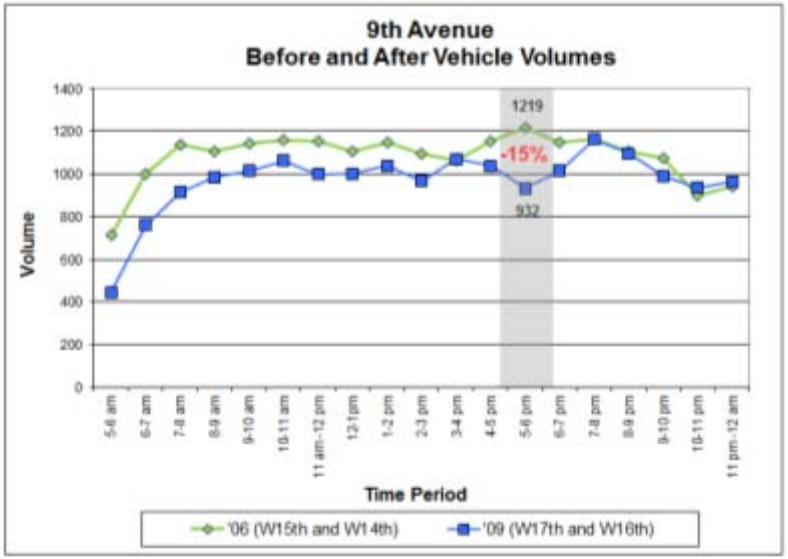
Credit: Mike Flynn

Downtown 1-Way

9th Avenue Complete Street (2007-2008)

RESULTS

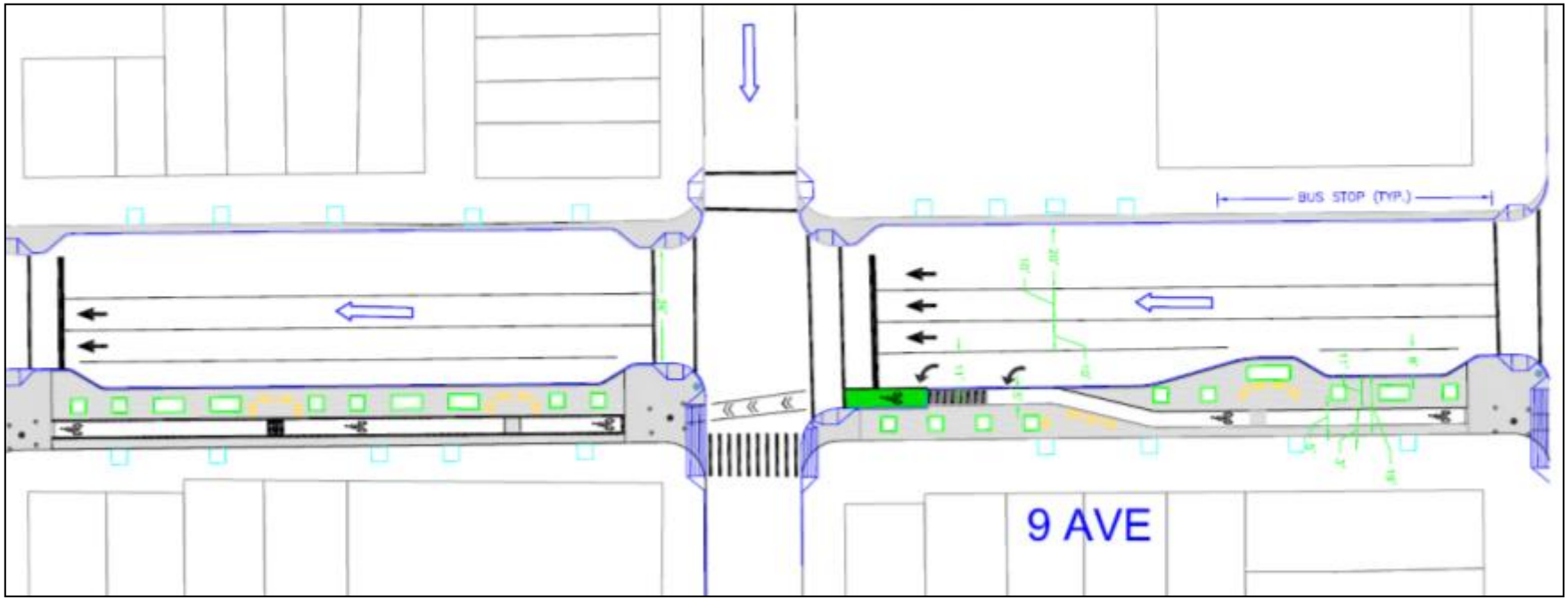
- 15% reduction in vehicle volume during peak hour
- During PM peak period, 14% of roadway users are cyclists
- 49% increase in retail sales between 23rd – 31st Sts, compared to 3% for borough and 26% for comparisons



Area Improvement Site	Baseline Quarterly Sales	Δ Sales Post-Improvement 1st Year	2nd Year	3rd Year
9th (23-31)	$3,284,342	17%	47%	49%
Borough				
Manhattan	$5,215,280,268	5%	-7%	3%
Neighborhood Comparisons				
Average	$4,748,430	25%	27%	26%
8th (24-28)	$1,217,927	15%	15%	13%
7th (16-23)	$8,719,988	23%	23%	20%
10th (16-26)	$4,307,375	37%	43%	44%

Downtown 1-Way

9th Avenue Complete Street (2007-2008)



Capital Build-Out Concept

Credit: Mike Flynn

Downtown 1-Way

1st & 2nd Avenues Select Bus Service (2010-2013)

BEFORE

Downtown 1-Way

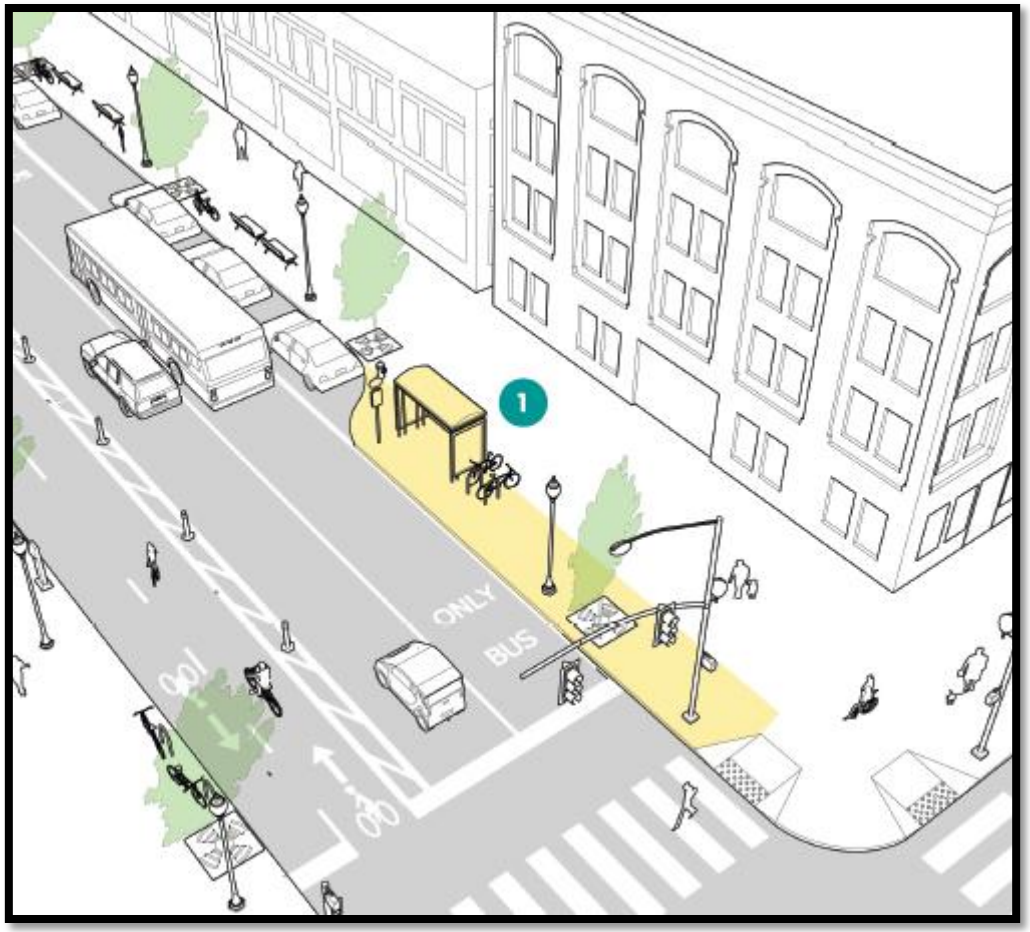
1st & 2nd Avenues Select Bus Service (2010-2013)

INTERIM

Downtown 1-Way

1st & 2nd Avenues Select Bus Service (2010-2013)

Bus Bulbs

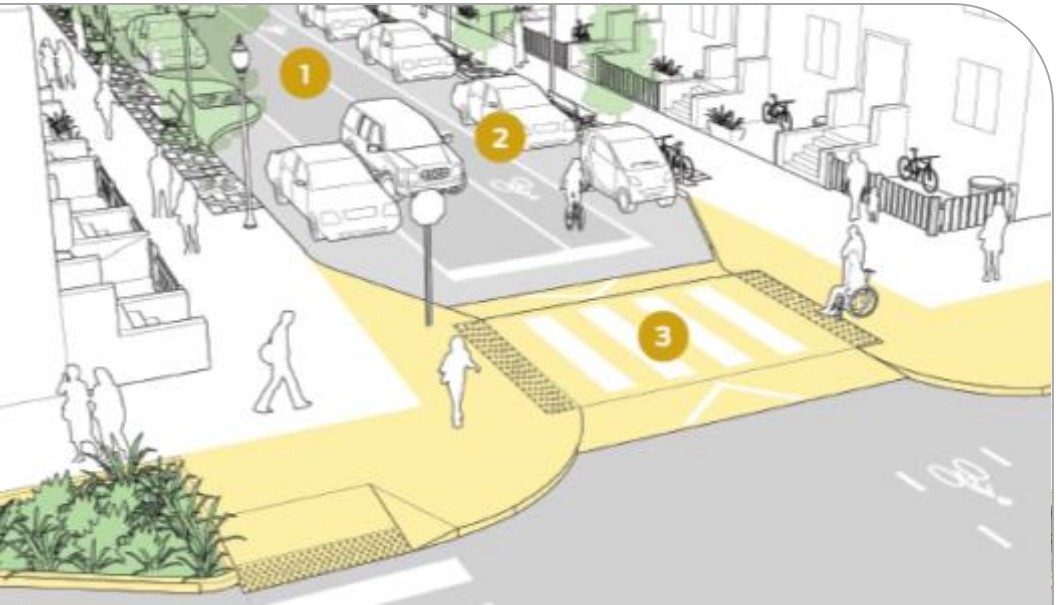


Downtown 1-Way

1st & 2nd Avenues Select Bus Service (2010-2013)

CAPITAL

Neighborhood Street



Neighborhood Street

Neighborhood Street

Neighborhood Slow Zone program (2011 –)

PROGRAM GOALS

- Community-based program to change driver behavior
- Lower incidence and severity of crashes
- Enhance quality of life by reducing cut-through traffic and traffic noise in residential neighborhoods

Neighborhood Street

Neighborhood Slow Zone program (2011 –)

APPROACH

- Application-based, competitive selection
- Self-contained areas of mainly local streets with strong boundaries
- Use of low-cost, quick interim treatments

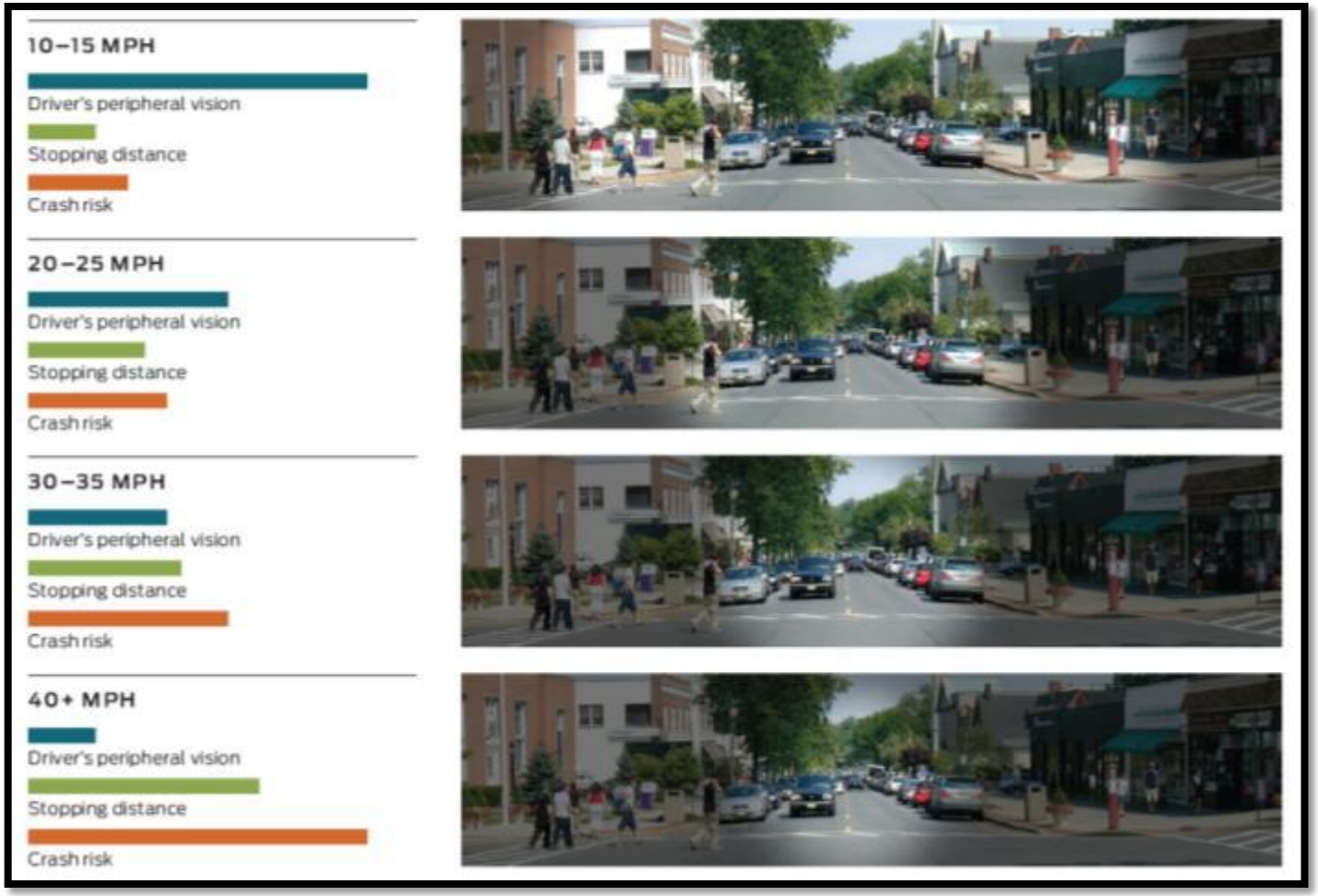
TOOLKIT

- Gateway treatments at entries
- Channelization markings to visually narrow roadway
- Speed humps at regular intervals

Neighborhood Street

Neighborhood Slow Zone program (2011 –)

Design Speed



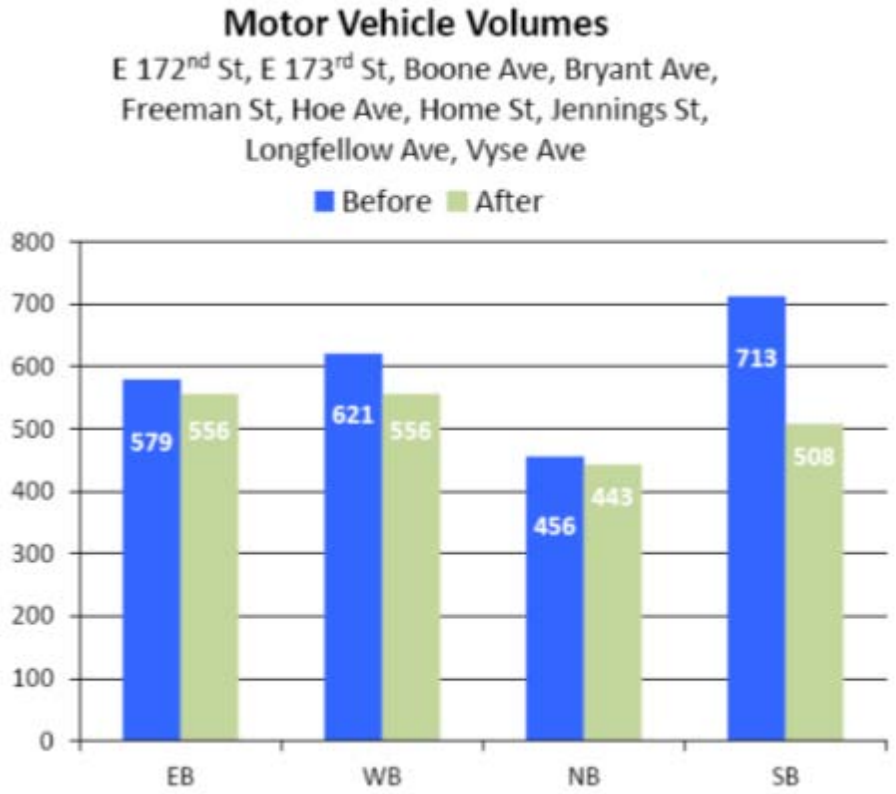
Higher speeds =
Higher crash risk =
Higher injury severity =
Lower safety

Neighborhood Street

Neighborhood Slow Zone program (2011 –)

RESULTS (Claremont Slow Zone)

- Speeds reduced at 6 out of 7 locations with speed humps (10% decrease in 85th percentile speeds)
- Traffic volumes inside zone decreased by 13%
- Extremely popular – program being doubled, with 15 projects in 2015
- 74 applications received from communities for 15 slots



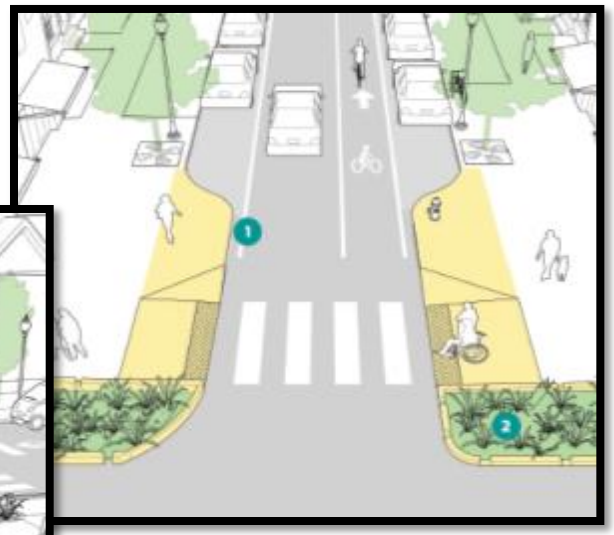
Credit: Mike Flynn

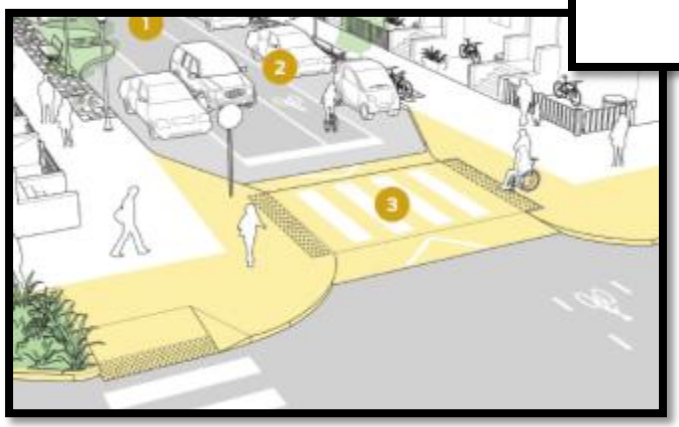
Neighborhood Street

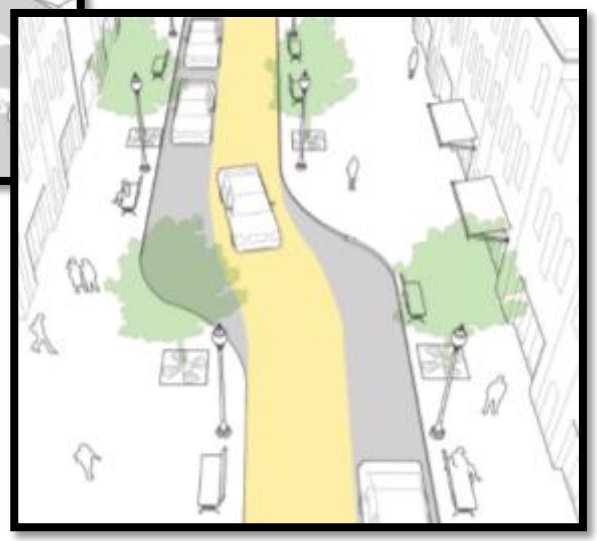
Neighborhood Slow Zone program (2011 –)

POTENTIAL TOOLKIT for CAPITAL BUILD-OUT

- Gateway
- Raised Crossing/ Raised Intersection
- Pinchpoint
- Chicane
- Mini-Roundabout







Boulevard

Boulevard

Boulevard

Boulevard

Residential Boulevard

Boulevard

Allen & Pike Street Malls (2008-2013)

BEFORE

Boulevard

Allen & Pike Street Malls (2008-2013)

INTERIM

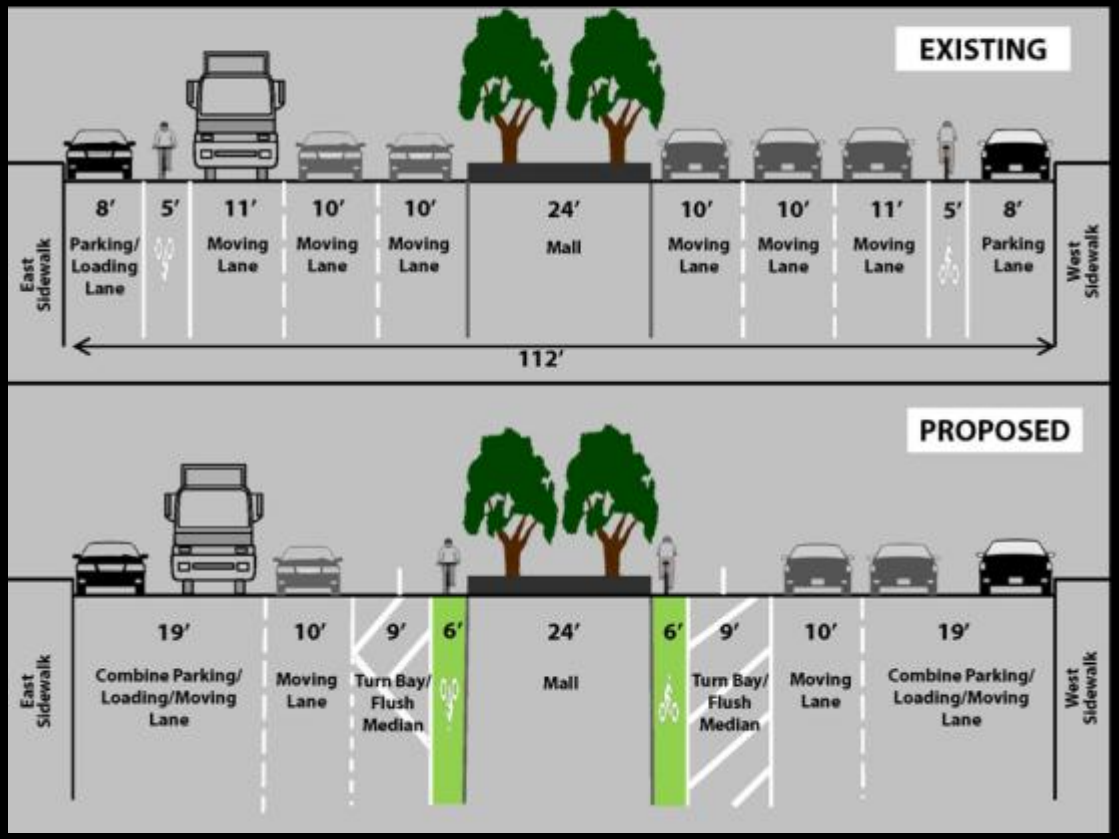
Boulevard

Allen & Pike Street Malls (2008-2013)

CAPITAL

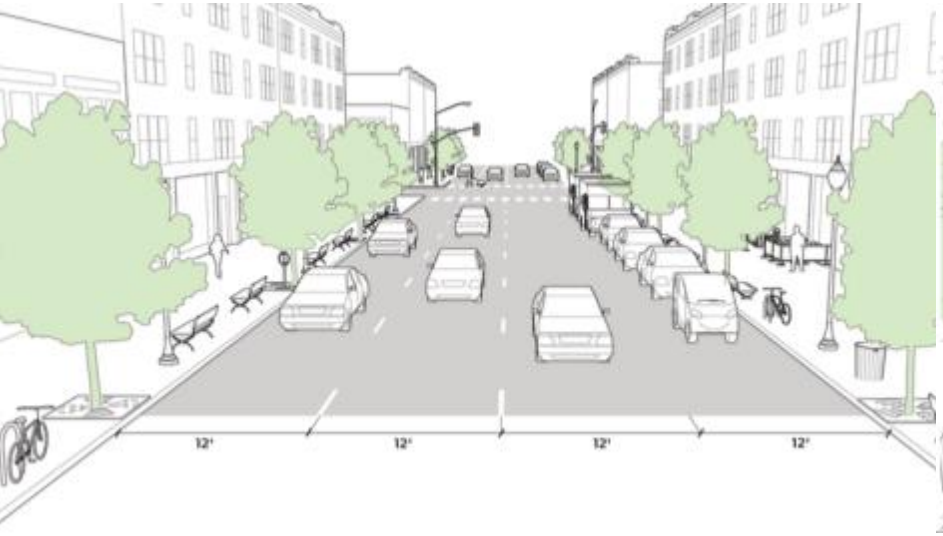
Elements Used

- Protected Bike Lanes (Median)
- 10-ft. lanes
- Interim Public Plazas



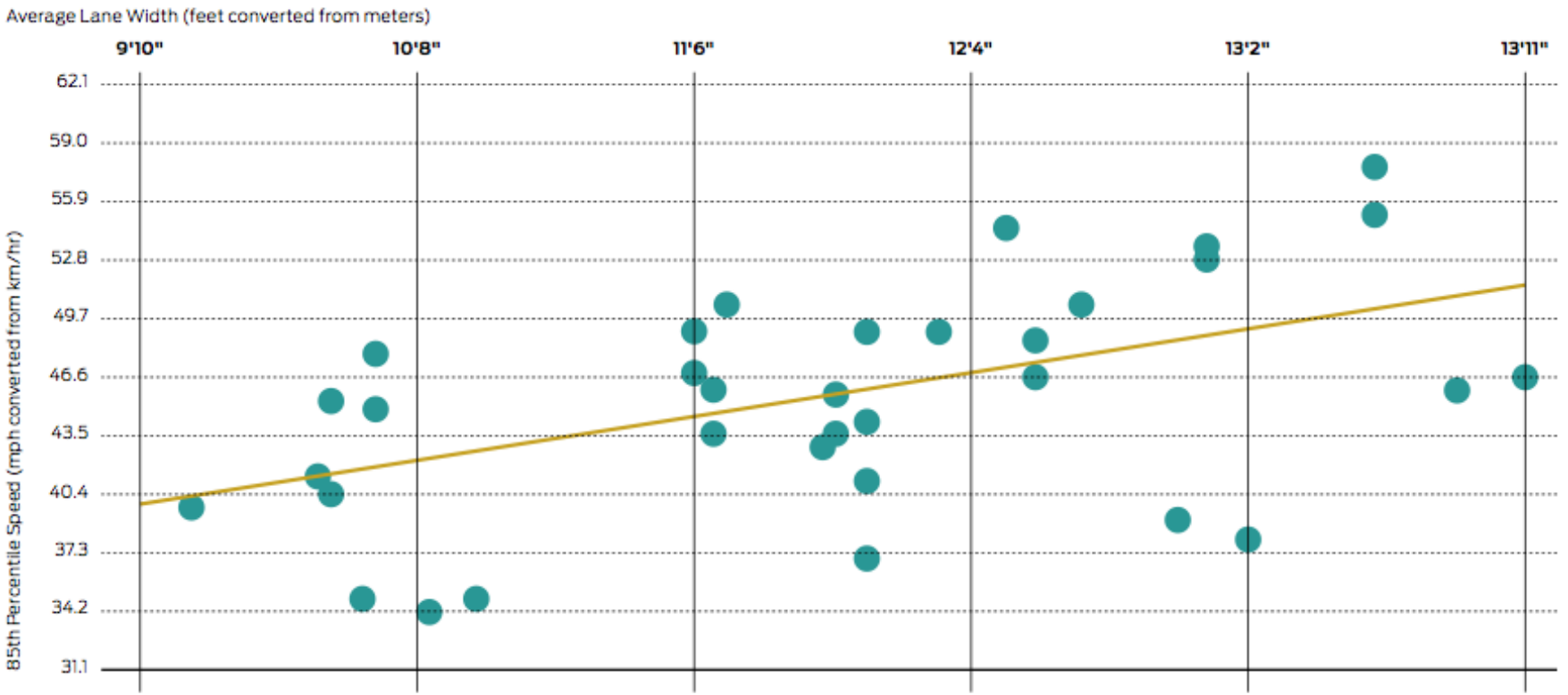
Credit:
NYC DOT

Lane Width



Lane width should be evaluated within the overall assemblage of the street.

Wider travel lanes are correlated with higher vehicle speeds.



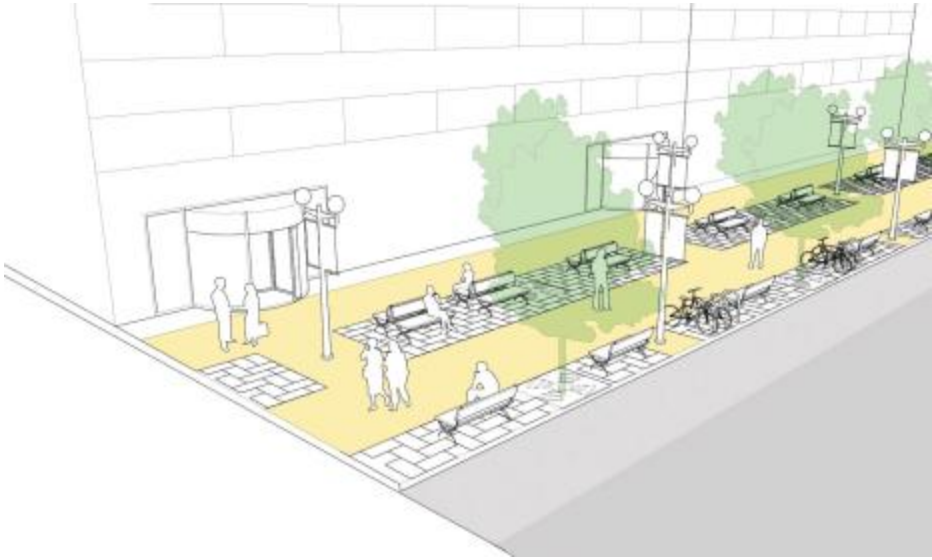
"As the width of the lane increased, the speed on the roadway increased... When lane widths are 1 m (3.3 ft) greater, speeds are predicted to be 15 km/h (9.4 mph) faster."

Chart source: Fitzpatrick, Kay, Paul Carlson, Marcus Brewer, and Mark Wooldridge. 2000. "Design Factors That Affect Driver Speed on Suburban Streets." *Transportation Research Record* 1751: 18–25.

Sidewalks: The City at Eye-Level


MENU
ALL MEALS UNDER $4

Credit: Mike King



INTERIM DESIGN STRATEGIES

Activating the curb
Parklets
Temporary Street Closures
Interim Public Plazas


TOSHIBA
TDK
Kodak
Bank of America
AMERICAN EAGLE OUTFITTERS
TOSHIBA
Kodak

INTERIM DESIGN STRATEGIES

	CONVENTIONAL PROJECT DEVELOPMENT	PHASED / INTERIM DESIGN STRATEGY
Year 1	Concept	Concept
	Plan/Outreach	Plan/Outreach
Year 2		**Interim Installation**
		Impacts Analysis
Year 3	Design	Design
Year 4		
Year 5	Construction	Construction

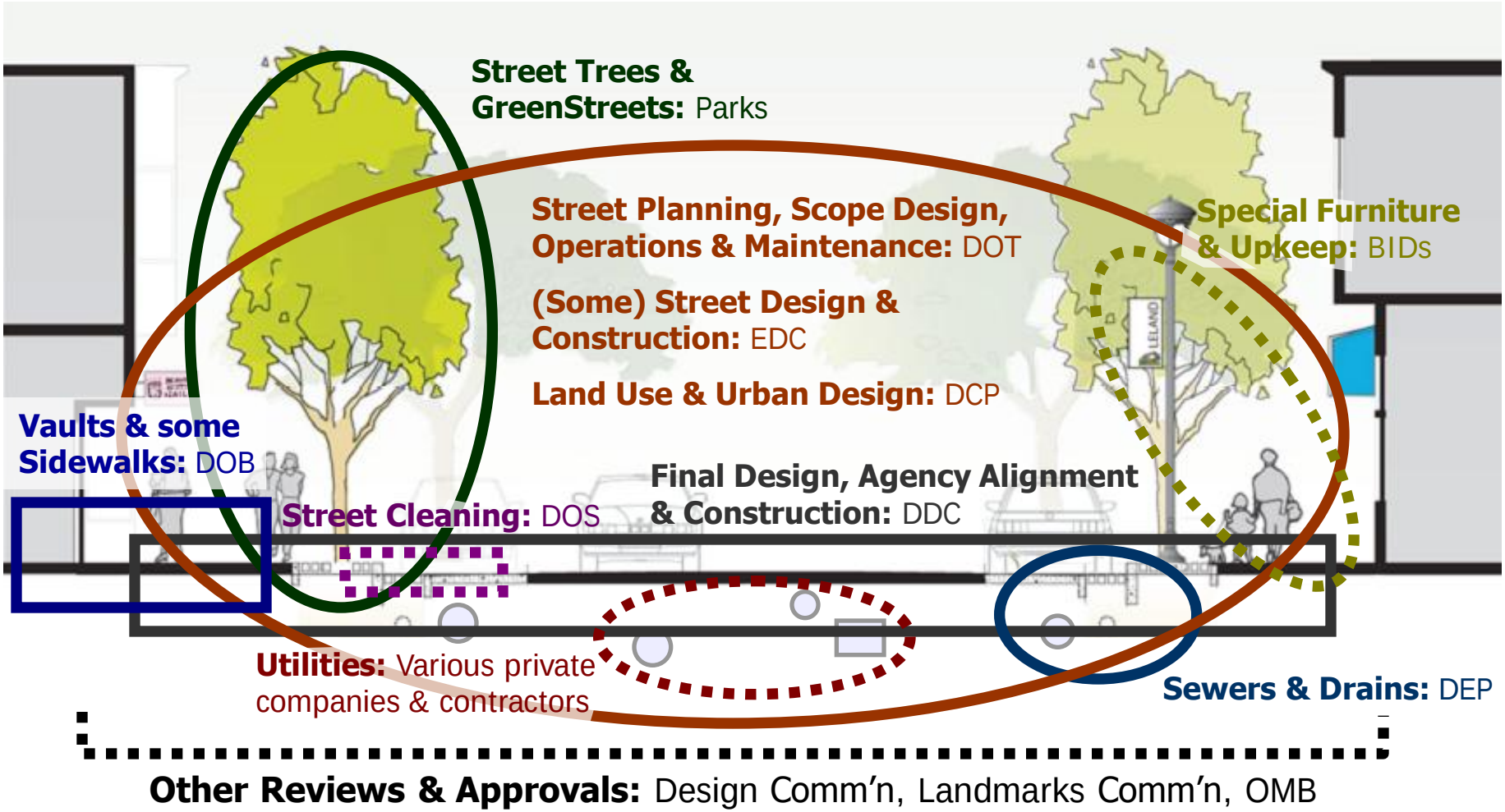


Image: SF Better Streets Plan


AT&T Wireless Center


LOOK

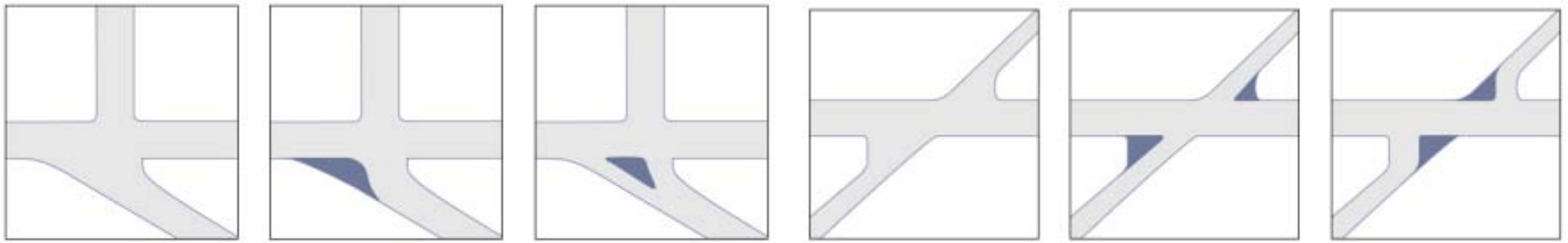
Pros & Cons

Pros

- Design in real time
- Realize project benefits now
- Evaluate and improve rather than spend then correct
- Build a constituency
- Build more, cheaper, faster

Cons

- Pilot projects can be removed
- Aesthetic quality often lower
- Potential absence of capital funds for improvement.
- Can look shabby if poorly maintained



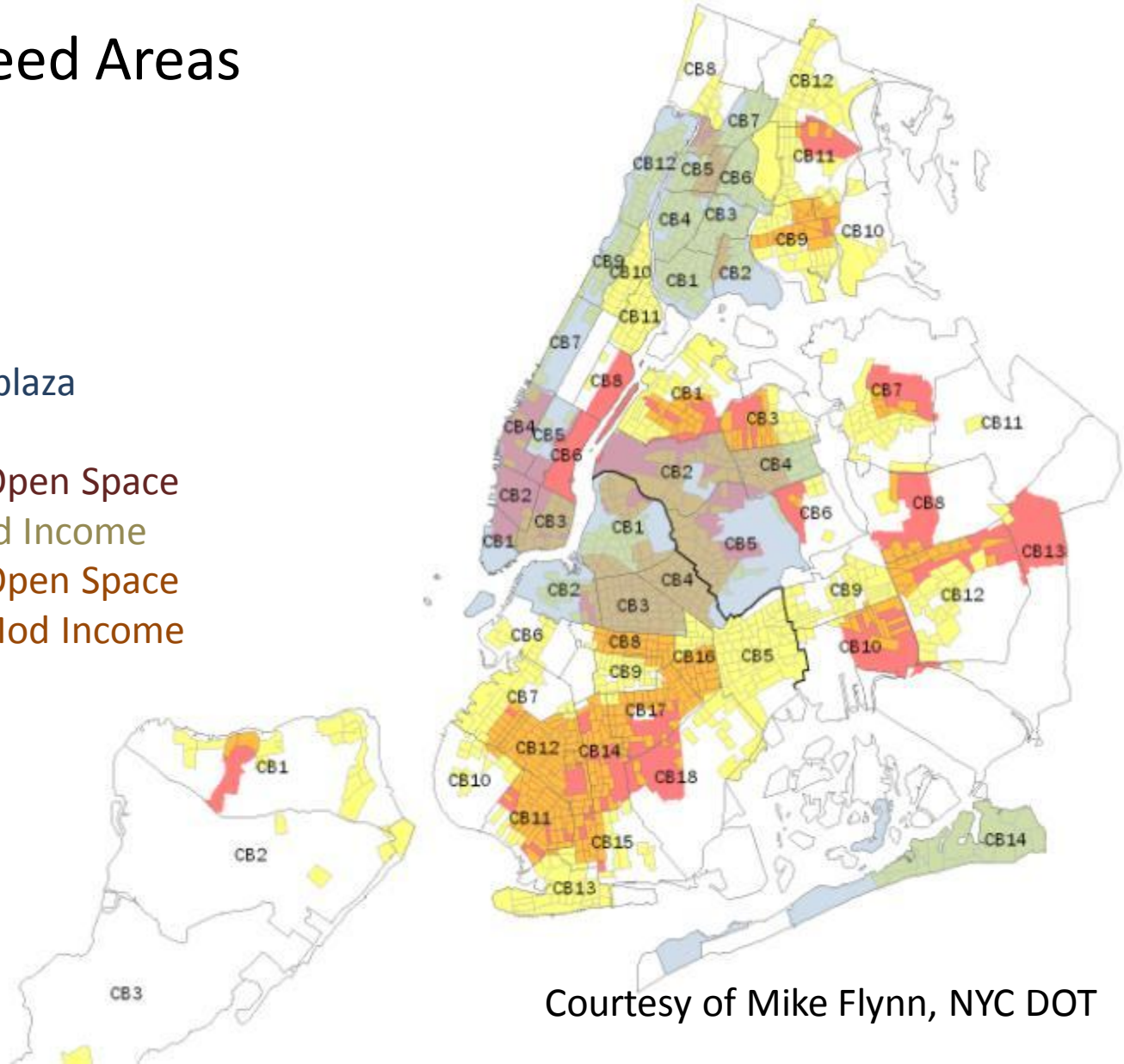

STOP

Credit: University City District

Interim Public Plazas – *NYC Plaza Program*

Prioritizes High-Need Areas

Blue	Existing plaza project
Red	Lack of Open Space
Yellow	Low-Mod Income
Orange	Lack of Open Space & Low-Mod Income



Courtesy of Mike Flynn, NYC DOT

Credit: Mike King

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NACTO

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