



DESIGNING CITIES
NACTO **DENVER** 2023

#NACTO2023

**Bus' a Move:
Getting Transit Street Design
Improvements Across the Finish Line**



Linda Morris

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County



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Minneapolis-St. Paul



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In a word or phrase, what is the biggest hurdle you face in implementing bus priority improvements? (e.g., bureaucracy, funding, local opposition)



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RESULTS

Move! That! Bus!



ACTION 1:

Offer Frequent All-Day Bus Service

ACTION 2:

Redesign Streets to Prioritize Bus Service

ACTION 3:

Adopt Local Policy Reforms That Support Transit



ACTION 2:

Redesign Streets to Prioritize Bus Service



REDESIGN STREETS TO PRIORITIZE BUS SERVICE

1. **Dedicated bus lanes**
2. **Spot treatments**
3. **Transit signal priority**
4. **Bus stop balancing and upgrades**
5. **Safe and accessible connections to bus stops**

A QUICK POLL

Do you have dedicated ROW in your City?

Did it take less than two years to implement?

Is it more than 1/2 mile?

In a word or phrase, what is the biggest hurdle you face in implementing bus priority improvements? (e.g., bureaucracy, funding, local opposition)



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RESULTS

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Bus Lanes in Indianapolis

NACTO Designing
Cities 2023
May 17, 2023



Current Program

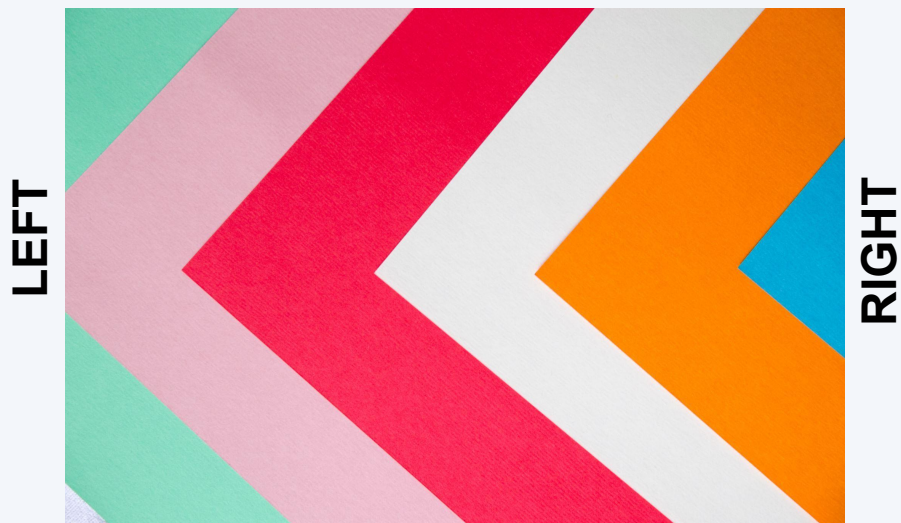
- 3 BRT Lines
 - 1 open, 1 under construction, 1 in design
 - Center running w/ center stations and left-side boarding
- **Bus lanes!**
 - **47 miles of BRT // 30miles of bus lanes**
- System-wide longer service hours and increased frequency



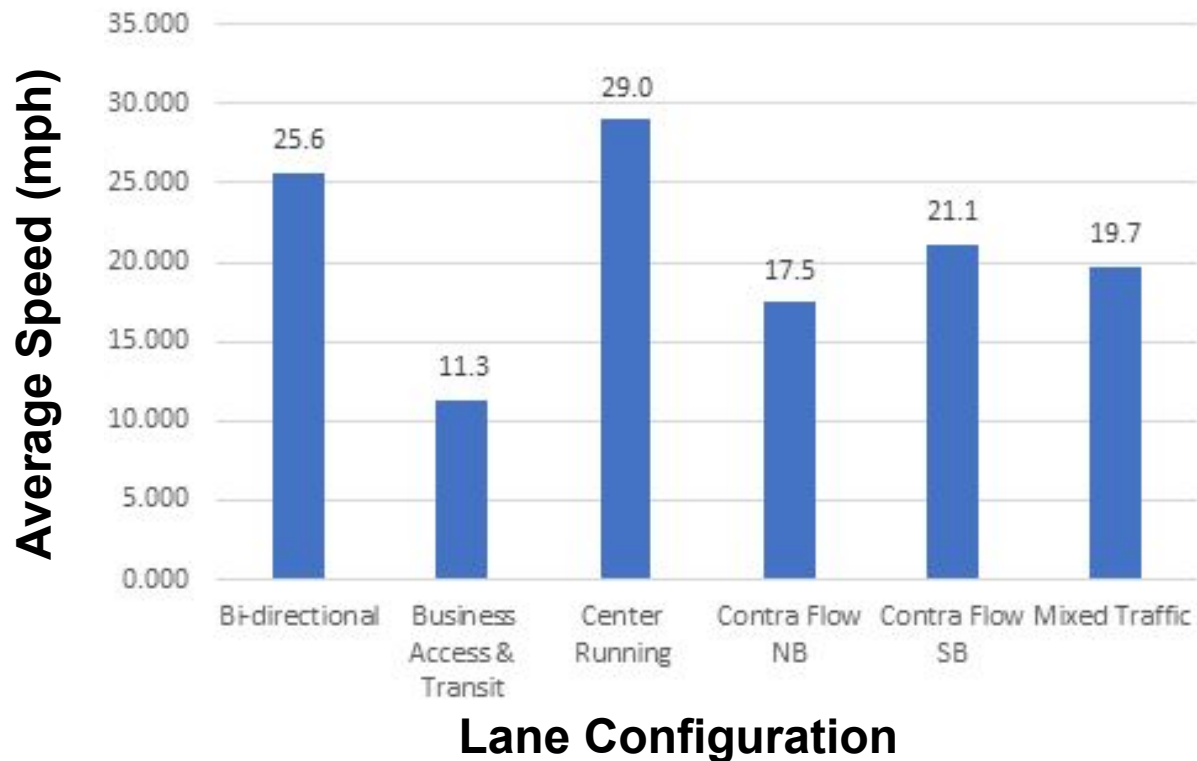
Dedicated Lanes

Biggest Fight & Biggest Opportunity

- Mode-shift – center running
- Transit performance
- Infrastructure
- Traffic calming
- Land Use - TOD
- Economic development



Transit Performance



Infrastructure

- BRT projects are more than transit!
They include sidewalk/side path, signal improvements, storm drainage, pavement
- \$370M construction total



Traffic Calming

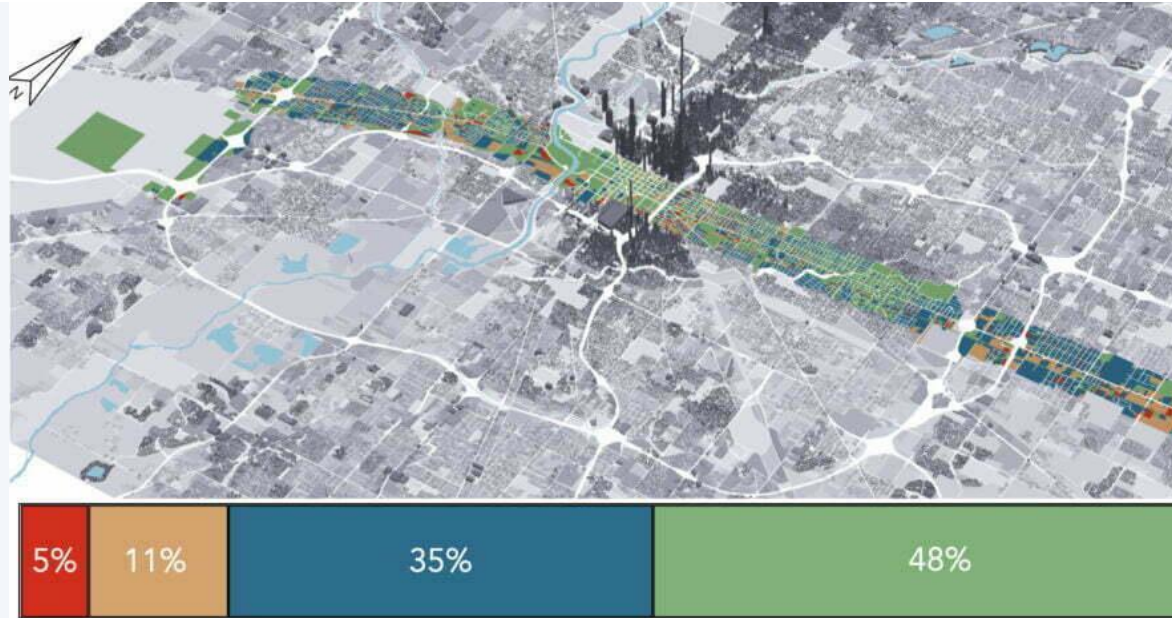


Land Use/TOD



Land Use/TOD

- TOD overlay district around BRT lines codified in 2021
- Site use restrictions
- Compact, walkable, mixed use station areas



Source: Urban3

ECONOMIC DEVELOPMENT

FIXED LINE SERVICE

\$350 MILLION+
ECONOMIC DEVELOPMENT
IN MIDTOWN INDY



 **\$126 MILLION**
IMPROVING INFRASTRUCTURE



R \$583 MILLION

P \$83 MILLION

B \$1.8 BILLION

\$2.5 BILLION
ECONOMIC DEVELOPMENT
ALONG BRT LINES



*IndyGo*SM

THANK
YOU

Matt Duffy, PE, PTOE
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**Massachusetts Bay
Transportation Authority**

Getting Transit Street Design Improvements Across the Finish Line

NACTO Designing Cities 2023: Denver

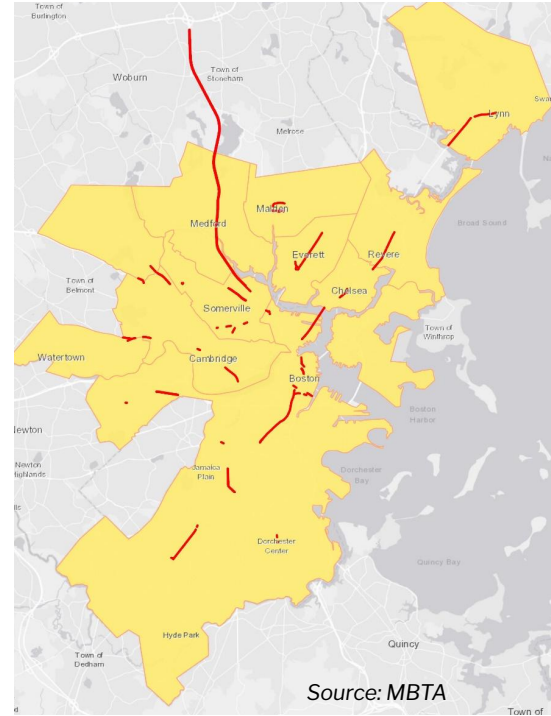
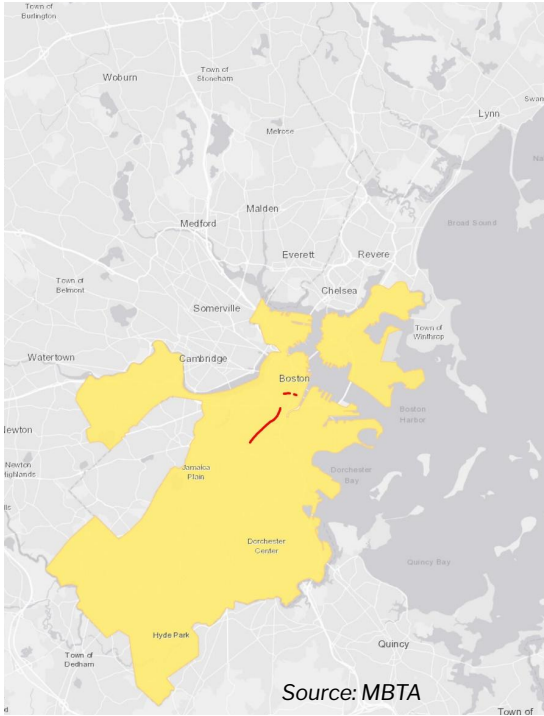
Becca Wolfson (she/her)
Project Manager, Transit Priority
rwolfson@mbta.com

Going to regale you with stories of:

- Incrementalism
- Making the best of emergency situations
- Calling on unexpected experts
- Changing who is in the driver's seat



The Rise of Bus Lanes Across MBTA Service Area



**Under 3 lane-miles constructed
in 1 municipality, Boston, 2015**

**Over 42 lane-miles constructed
in 12 municipalities, April 2023**



Incrementalism: From cones to corridor

Boston Tests Faster Bus Service Simply By Laying Out Orange Cones

The same low-cost approach that cities have used to quickly reallocate street space to walking and biking can also be used to try out transit improvements.

By Angie Schmitt | Dec 12, 2017 | 72 COMMENTS



Photo credit: Streetsblog USA

Boston set up a bus lane using orange cones. Photo: Jacqueline Goddard

Broadway AM Peak Pilot, Everett



Photo credit: ITDP

Broadway AM and PM Peak Lanes, Everett



Photo credit: MBTA

Sweetser Circle all day Lanes, Everett



Incrementalism: From cones to corridor

2016

2020

2023?

2025?



Emergency Management: From closure to corridor

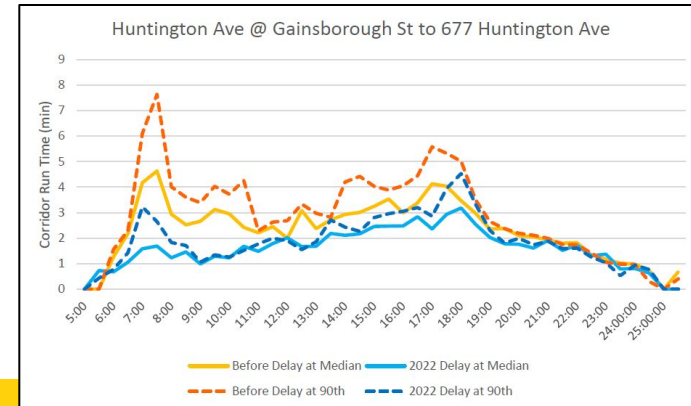
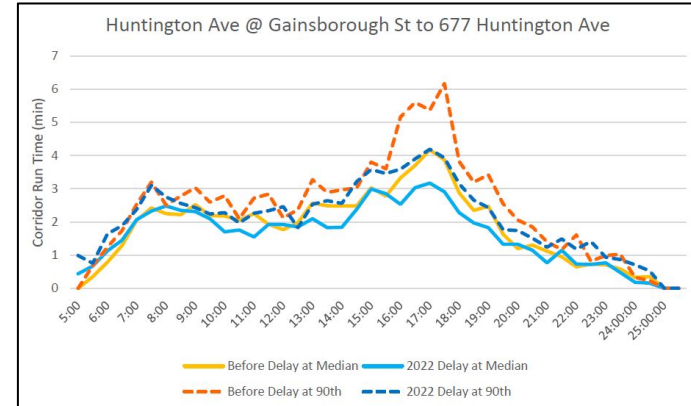
Eyes On the Street: Huntington Avenue's Bus and Bike Lane Gets Some Color

By Grecia White | Sep 28, 2022 | 0 COMMENTS



Photo credit: Streetsblog MASS

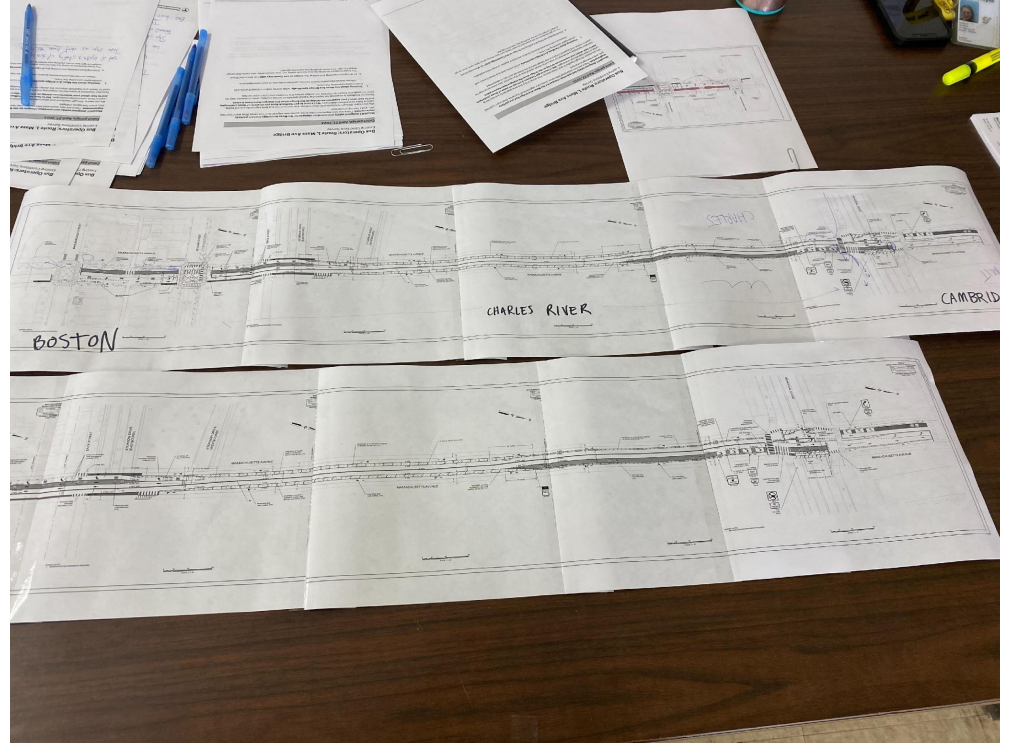
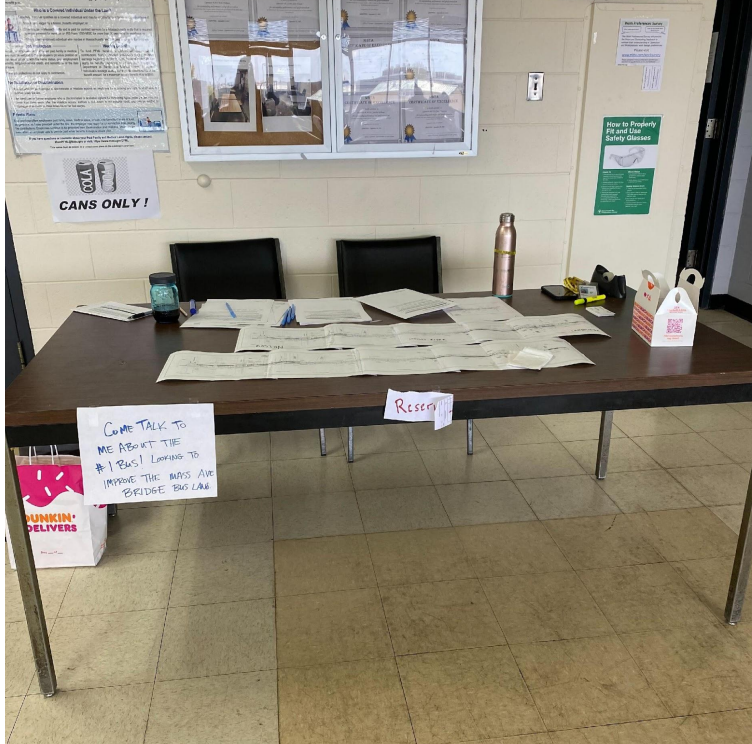
Huntington Ave, Boston



Bridging safety for bikes and operations for bus



Let Experts Make the Case



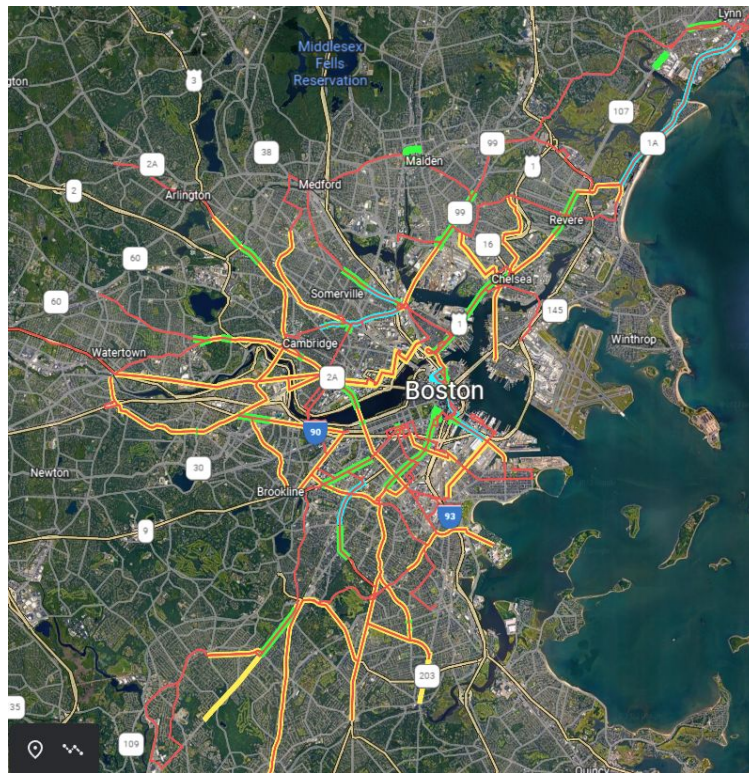
Next Phase of the Transit Priority Program: Changing who is in the Drivers' Seat

What We're Doing:

- **Transit Priority Toolkit**
- **Transit Priority Plan** (systemwide)
- Supporting the roll-out of **Bus Network Redesign** to ensure services are as reliable as possible



Next Phase of the Transit Priority Program



Where Transit Priority Will Best Support Network Redesign

- BNRD High-Frequency Corridor
- New Investment warranted (based on speed, delay, and unreliability)
- Exists Today
- Planning Underway



MBTA Bus Network Redesign

MBTA Transit priority plan

How We Identified Needs

Service Offering:

Where service frequency aligns with general practice and expectations for transit priority

Using: **Future Frequency in Network Redesign**

Social Benefit:

Where substantial monetizable benefits (time and cost savings) are likely be obtainable from priority measures

Using: **Existing Bus and Passenger Delay**

Passenger Experience:

Where customer perception of the present quality of service is likely low

Using: **Speed and Runtime Variability**

Corridor Profile

Nubian Sq to LMA (via Malcolm X Blvd) – Service and Customer Attributes

	BNRD Routes	Length (miles)	Person-Hours of Delay	Bus-Hours of Delay	Service Volume (Bus Trips)				Percentage of Riders			Transit Critical?
					Peak Hour BNRD	Peak Hour Increase	All Day BNRD	All Day Increase	Minority	Low-Income	Zero-Auto	
1	Nubian Station to Guild Row 14, 19, 38, 41, 44, 45, T12, T15, T23, T28, T66	0.1	4,460	271	48	+2	699	+128	13%	18%	11%	42
2	Guild Row to Columbus Ave 19, 38, 41, 45, T12, T15, T23, T28, T66	0.5	809	53	42	-1	652	+113	15%	20%	13%	48
3	Columbus Ave to Brookline Ave T12, T22, T28, T66	0.6	141	6	30	+22	470	+373	39%	44%	54%	136





Thank you!

Photo credit:
MBTA



Photo: Minnesota Spokesman-Recorder

METRO B Line on Lake Street: A story of city/county/transit agency partnership

Katie Roth, Director, Arterial Bus Rapid Transit

Metro Transit | Minneapolis-St. Paul



Arterial BRT addresses needs on our region's highest-ridership routes with:



- A faster, more reliable ride that's 20-25% faster than existing local bus



- Frequent, all day, every day access to a network of destinations



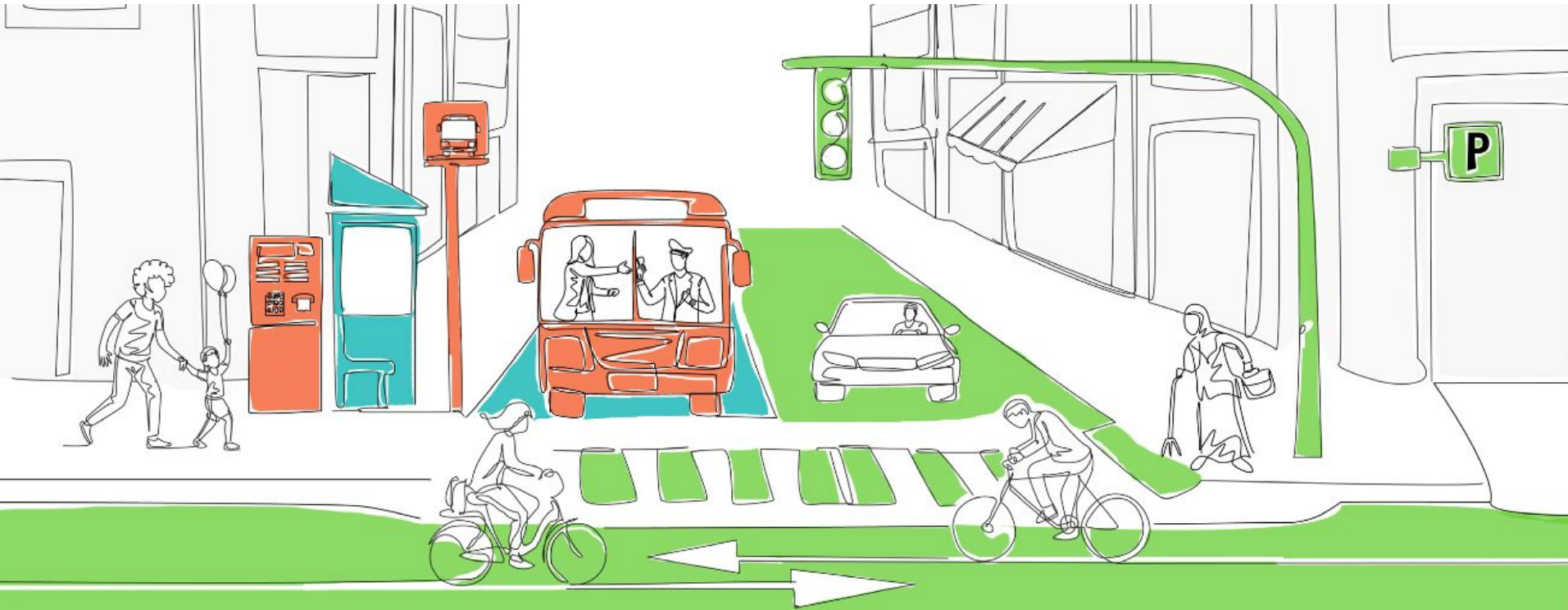
- An improved experience at the station and on board

Who's Who in Bus Service

 Transit Agency

 City Transportation Departments
(or County)

 City/ Transit Agency Partnership
(or County)



Metro Transit's arterial BRT toolkit

2-3 stations
per mile,
designed for
faster stops

High-tech,
high-amenity,
secure stations

Pre-boarding fare
payment for
faster stops

Higher-capacity
buses & boarding
through all doors

Bus priority
signals & lanes

Faster, frequent,
all-day service



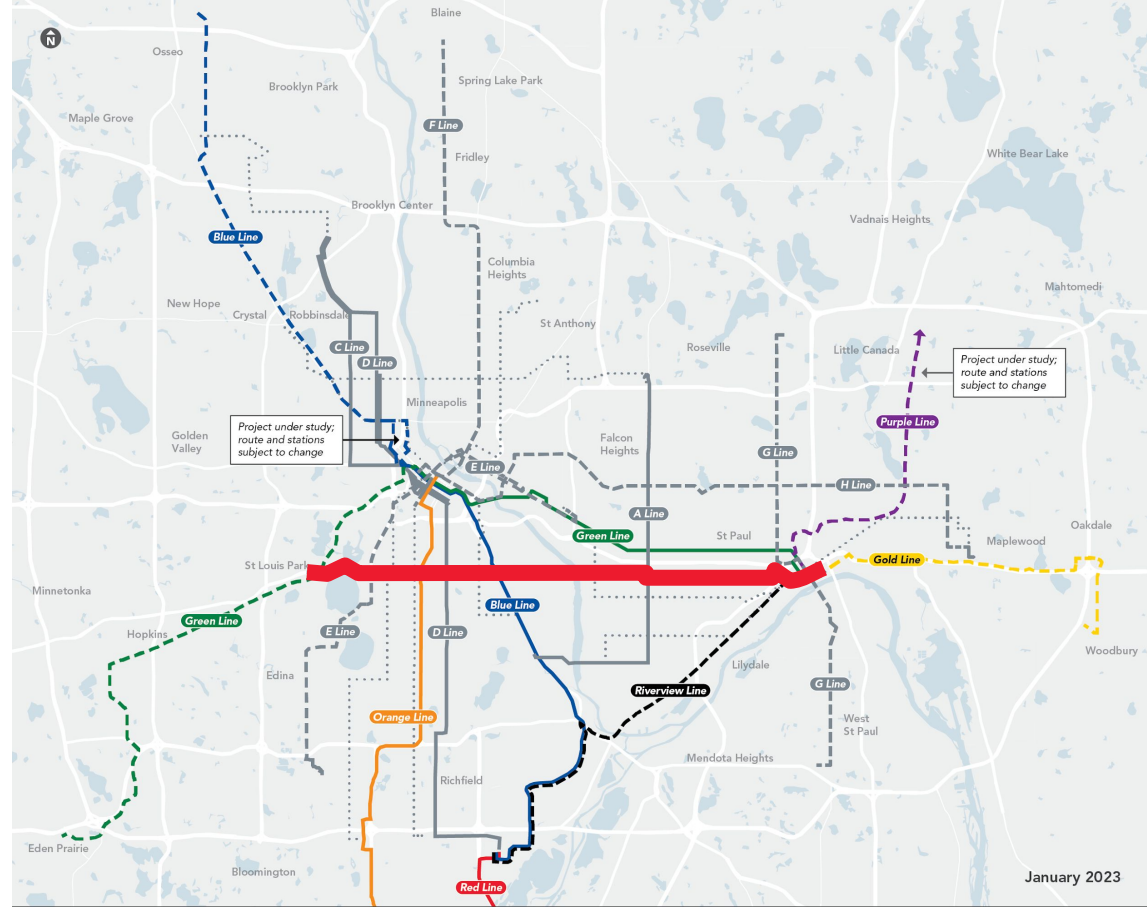
 **Transit Agency**

 **City Transportation Departments
(or County)**

 **City/ Transit Agency Partnership
(or County)**

A network of eight arterial BRT lines planned by 2030

- A Line (Snelling): Open 2016
- C Line (Penn): Open 2019
- D Line (Chicago/Fremont): Open 2022
- **B Line (Lake/Marshall/Selby) Opens 2024**
- E Line (Hennepin/France) Opens 2025
- F Line (Central Avenue) Opens 2026
- G Line (Rice/Robert – Routes 62/68) Opens 2027, pending full funding
- H Line (Como/Maryland – Route 3) Opens 2028, pending full funding



Current METRO network

- A Line
- C Line
- D Line
- Blue Line
- Green Line
- Orange Line
- Red Line

Planned METRO network

- - - Planned BRT
- ⋯ Additional candidates for BRT between 2030 and 2040
- Riverview Line
- Gold Line
- Purple Line
Project under study; route and stations subject to change.
- Green Line Extension
- Blue Line Extension
Project under study; route and stations subject to change.

January 2023

 **Transit Agency**

 **City Transportation Departments
(or County)**

 **City/ Transit Agency Partnership
(or County)**

2016

2019

2020

2021

2022

2023-2024

Lake Street
corridor
regionally
prioritized as
the B Line

Project
funding
pursuit begins

Planning for
station locations

Metro Transit-led
study of traffic and
transit advantages

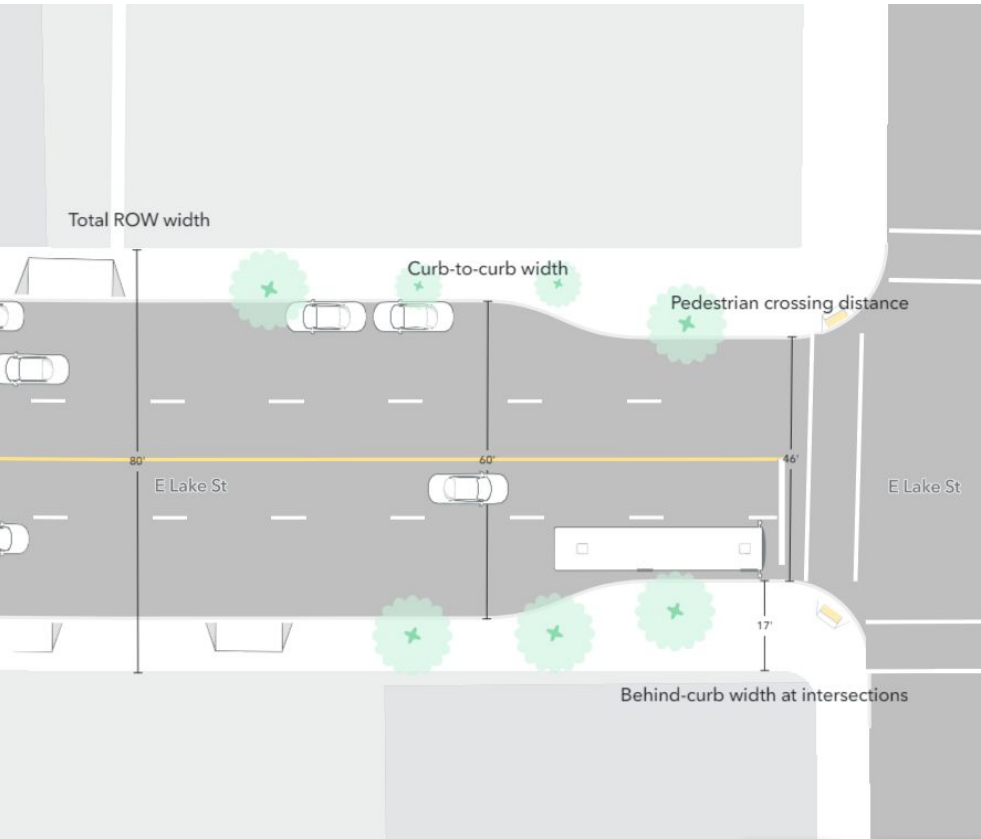
*First red bus lanes
installed elsewhere
in Minneapolis*

Lake Street



Photo: Minnesota Spokesman-Recorder

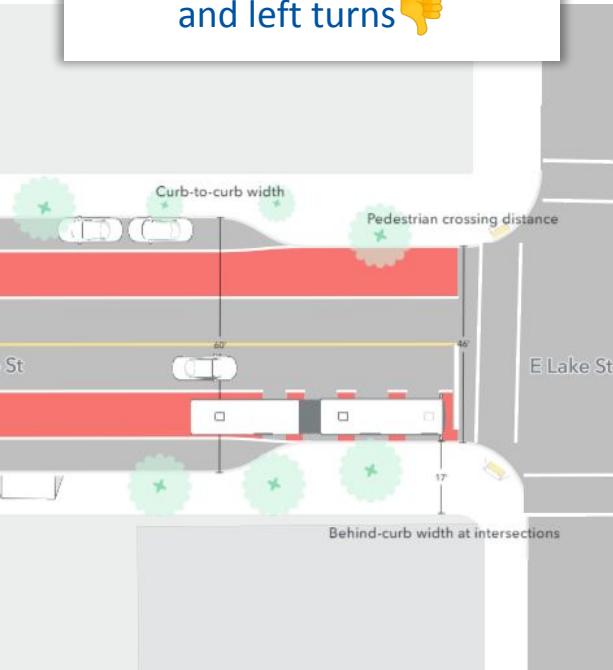
- Reconstructed 2006-2008, typically 4-lane undivided with bumpouts
- Highest crash corridor in all of both Minneapolis & Hennepin County
- Significant focus of community rebuilding since May 2020
- Changing policy context in 2020-2021



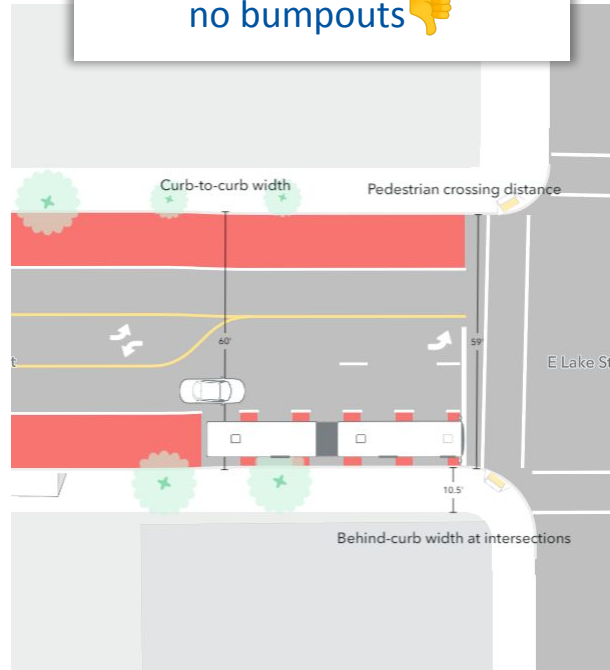
Getting from here **to red**:

- Find a technical solution
 - Avoid full reconstruction
 - Address safety needs
- Ensure political support
 - Avoid major impacts
 - Leverage policy basis for road space reallocation
- Get the funding needed
 - Avoid BRT project delay and maximize construction opportunity
 - Leverage strong case for corridor investment

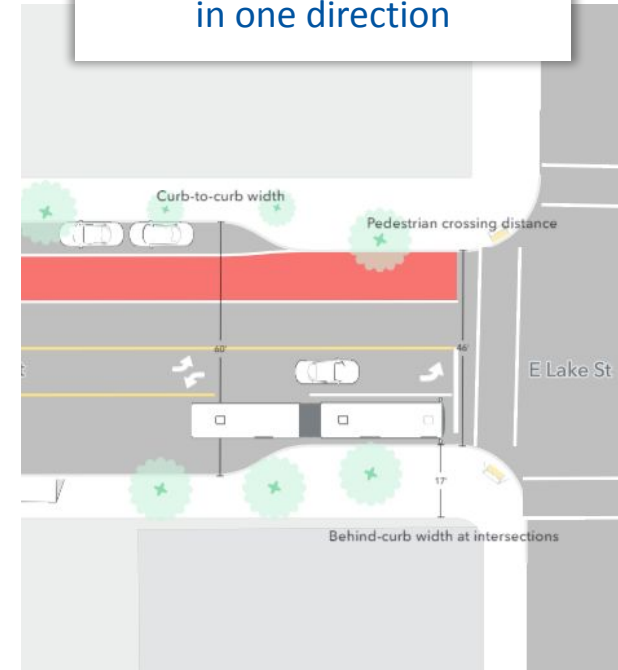
Reallocating one lane in each direction for buses would leave a single lane for thru traffic and left turns 🙅



Bi-directional bus lanes + left turn lanes
= no parking, no bumpouts 🙅



To add left-turn lanes without removing bumpouts, most places will have a bus lane in one direction



2022 RAISE GRANT APPLICATION



HENNEPIN COUNTY
LAKE STREET
MULTIMODAL IMPROVEMENTS
to Enhance Arterial Bus Rapid Transit (BRT)
Operations, Mobility and Community Connections
APRIL 2022

Prepared by
Kimley Horn



LOCAL NEWS

Pete Buttigieg rides Metro Transit to highlight future Minneapolis-St. Paul BRT line

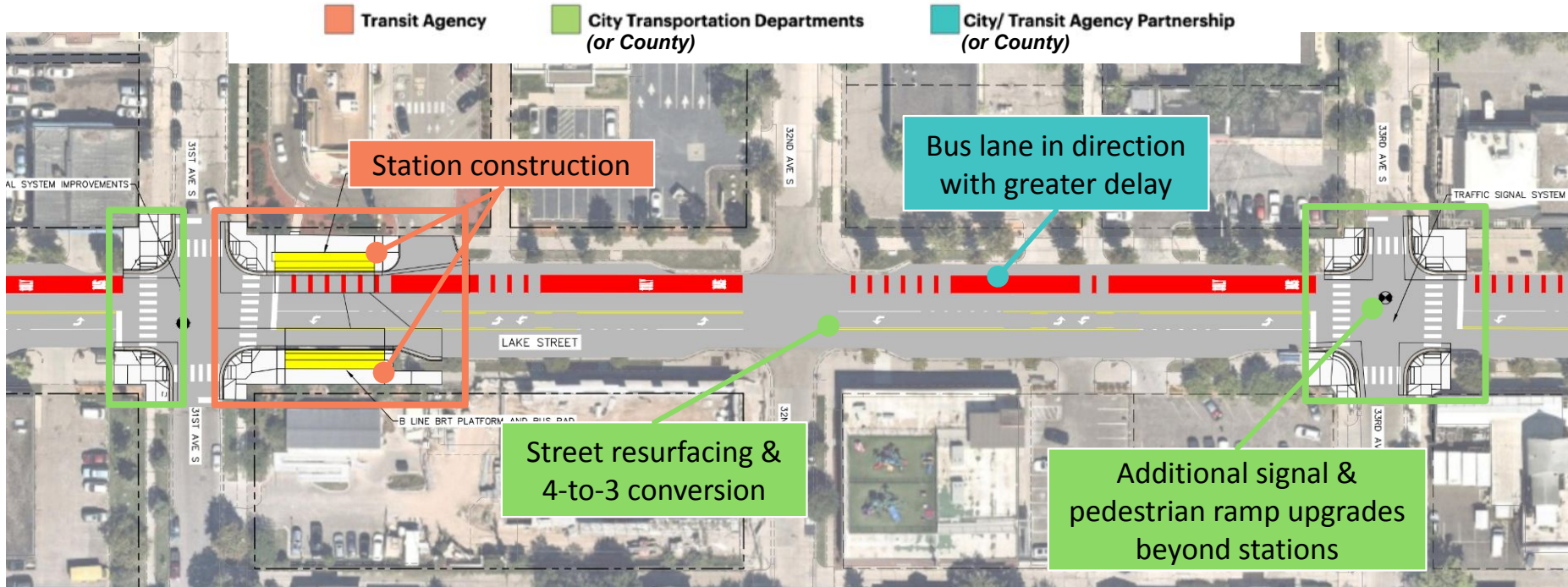


U.S. Transportation Secretary Pete Buttigieg, right, takes a bus tour of Lake Street in Minneapolis on Thursday, Aug. 25, 2022 to highlight federal funds for infrastructure projects. The Lake Street Corridor will feature a rapid bus line connecting Uptown with Union Depot in downtown St. Paul. (Scott Takushi / Pioneer Press)

By **FREDERICK MELO** | fmelo@pioneerpress.com | Pioneer Press
PUBLISHED: August 25, 2022 at 1:27 p.m. | UPDATED: November 30, 2022 at 1:56 p.m.

Aggressive and successful local pursuit of additional funding for street improvements

Result: Comprehensive changes coming to Lake Street



- 6+ miles of bus lanes to be constructed 2023-2024



May 8, 2023: Groundbreaking

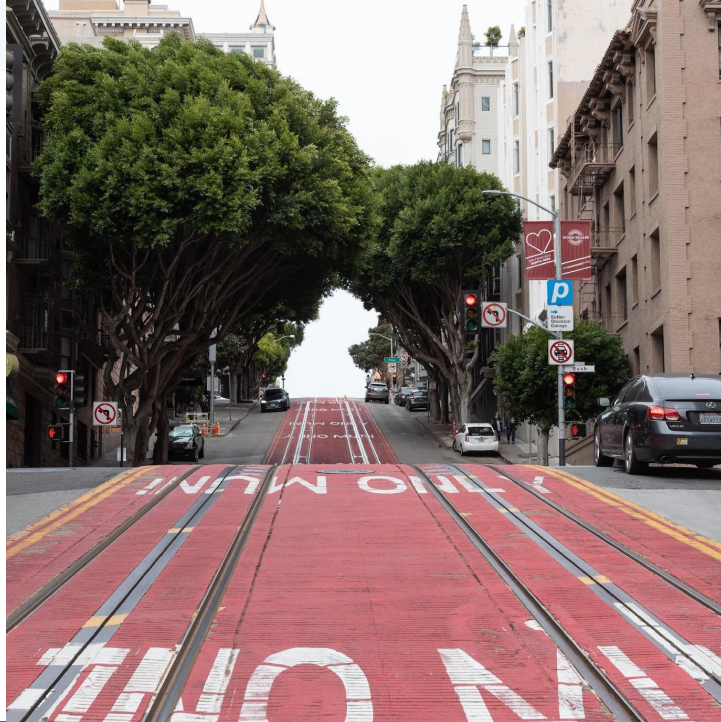


See red in Minneapolis in 2025!
metrotransit.org/b-line-project





SFMTA



Delivering Transit Priority Citywide in San Francisco

NACTO Designing Cities

May 17, 2023

Transit Challenges in San Francisco



- Over 80% of Muni trips are by bus or surface rail
- Congestion heavily impacts service quality and cost

The Solution: Muni Forward



- **Reliability upgrades** that implement SF's Transit-First Policy
- **Integrated improvements** to capital and service
- Incorporates **Vision Zero** upgrades
- **Quick-build** and iterative approach
- Focus on **high-ridership** and **equity priority** routes

Muni Forward Improvements

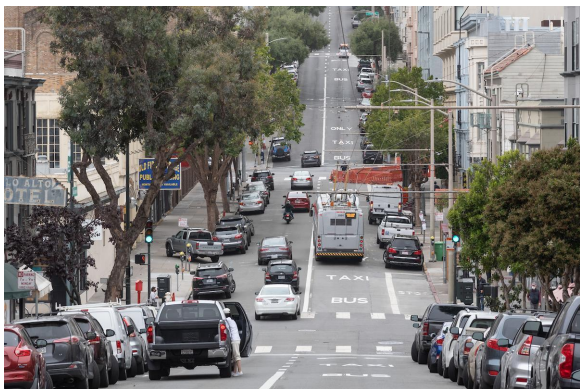
About **80 miles** of reliability upgrades approved or built since 2014.

Toolkit of 20+ engineering measures to improve reliability and safety, such as:

- Transit lanes and queue jumps
- Transit signal priority
- Transit bulbs and boarding islands
- Stop rebalancing and optimization
- Turn pockets and restrictions
- Pedestrian bulbs on transit corridors
- Road diets



The Three P's of Transit Priority



Partner! Example

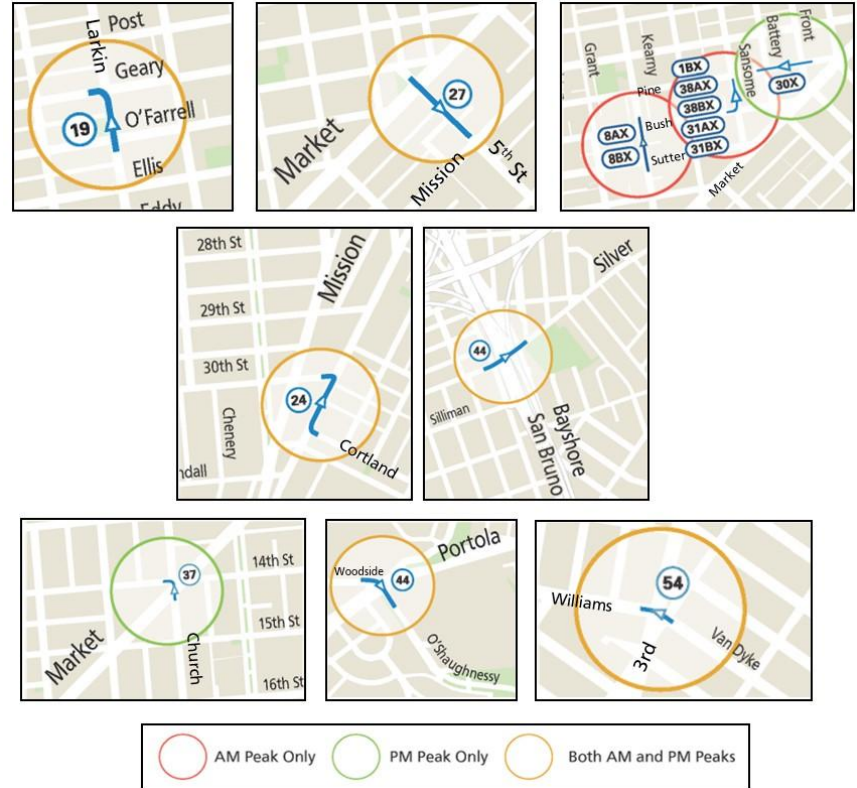
- The **Geary Rapid Project** completed in 2021 included red transit lanes, TSP, stop optimization, transit bulbs, etc.
- Partnered with the Department of Public Works, SF Public Utilities Commission, and SF Department of Technology to include:
 - Repaving
 - Sewer/water main replacement
 - Fiber optic installation



Pilot! Example

Transit Delay Hot Spots Program:

- Each year, use data to identify the 10 slowest segments in the Muni system
- Targets simple, quick-build improvements where they can have the largest impact
- Solutions often involve:
 - Stop consolidation
 - Signal changes
 - Queue jumps
 - Route changes
 - Curb changes etc.

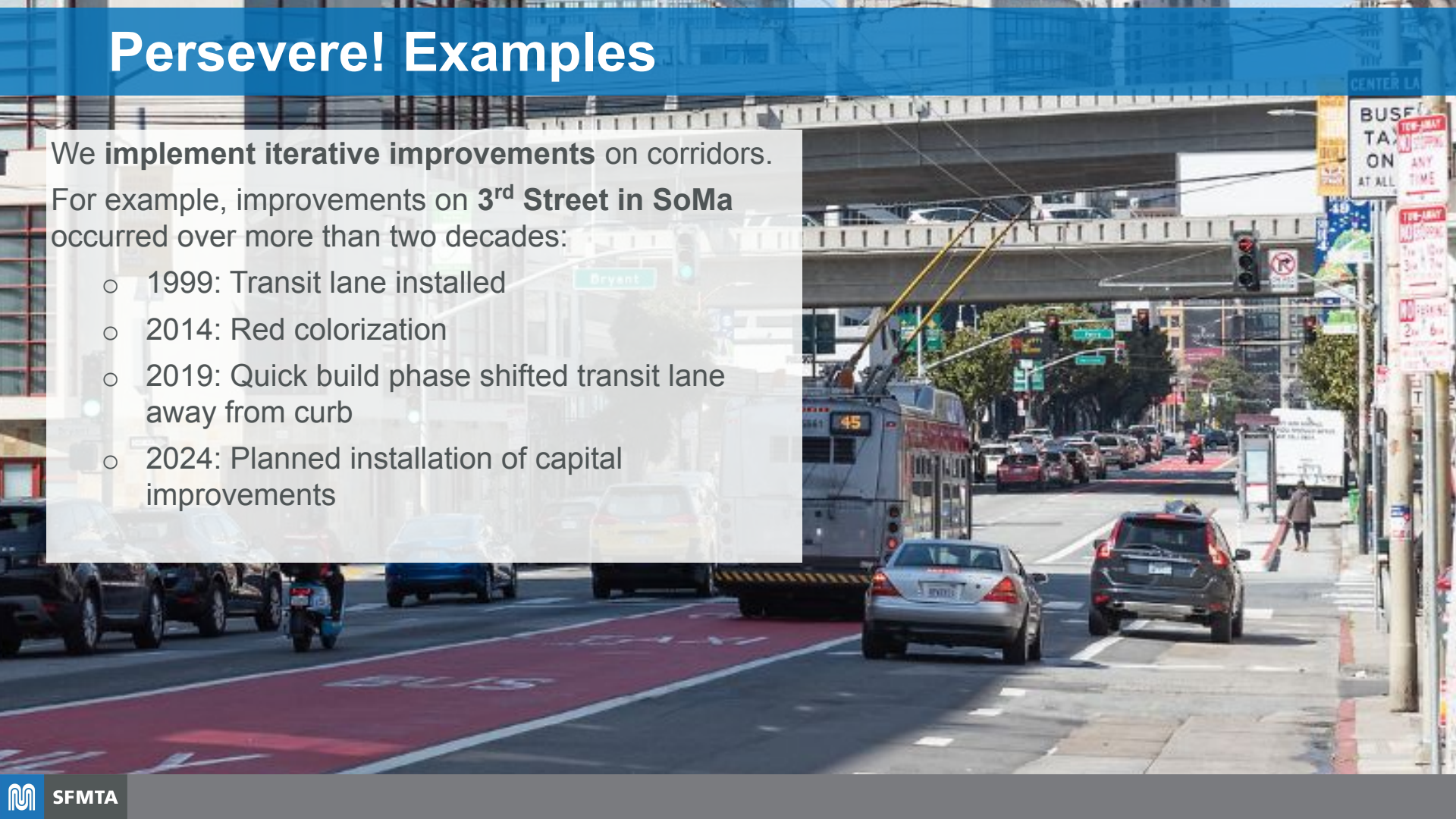


Persevere! Examples

We **implement iterative improvements** on corridors.

For example, improvements on **3rd Street in SoMa** occurred over more than two decades:

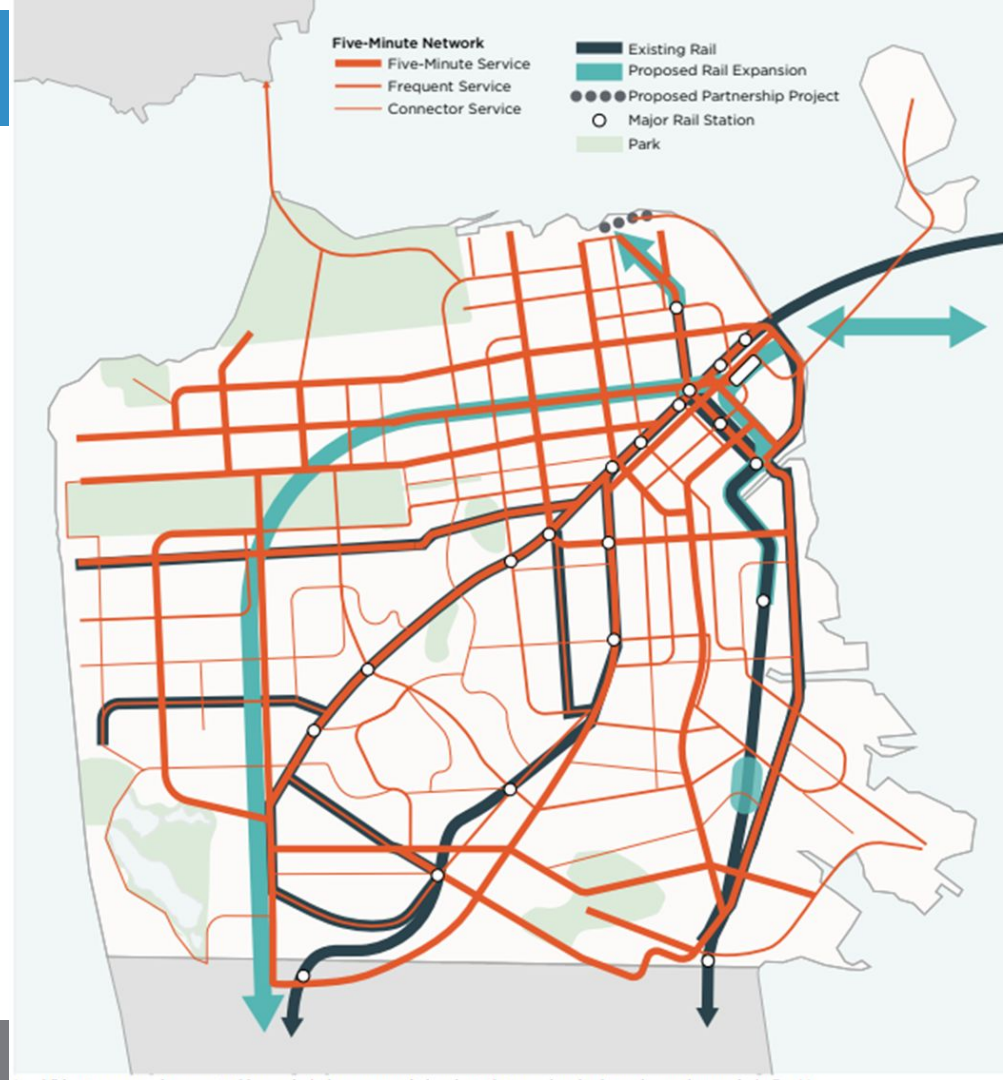
- 1999: Transit lane installed
- 2014: Red colorization
- 2019: Quick build phase shifted transit lane away from curb
- 2024: Planned installation of capital improvements



Where we are going

The **Five-Minute Network** encompasses a longer-term vision:

- Street and transit priority improvements enable a network of bus and rail routes running every five minutes
- Limited or no stopping between transit stops/stations



Communicate benefits



The Fast Lane to Recovery

Temporary Emergency Transit Lanes
Evaluation Summary

May 2022



Ridership increased 14% on Rapid bus from 2016 to 2018

- 8 Bayshore corridor: +12%
- Mission/Van Ness corridor: +9%
- Geary corridor: +8%
- 19th Ave corridor: +19%

Time savings of 10% or more

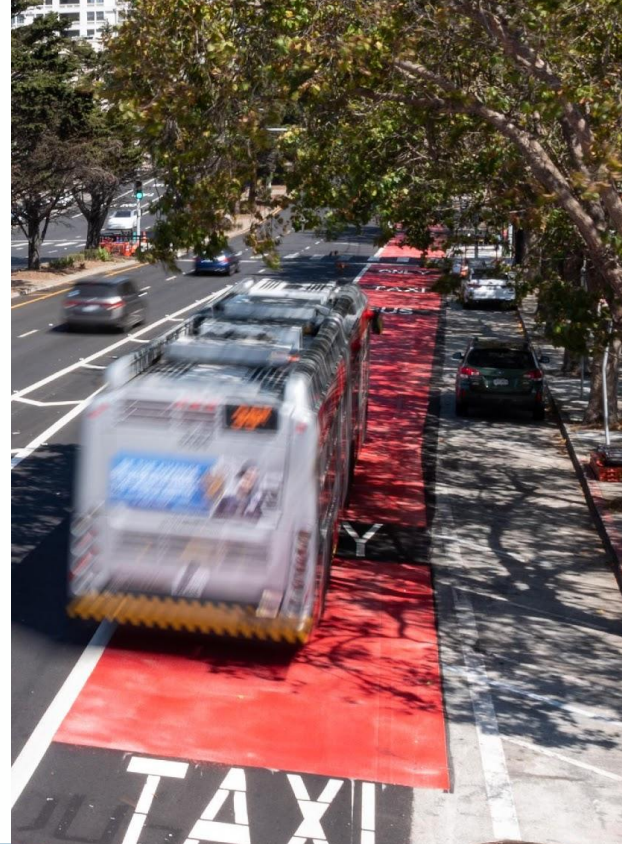
- Church Street: 15%
- 5R Fulton Rapid: 9-12%
- Mission: 13%
- 16th Street quick-build phase: 10%
- Potrero: 20%
- Two-Way Haight: Over 20%
- Sansome: Over 20%

Transit lanes implemented during the pandemic have protected buses from increased congestion:

- 1 California: 11%
- 14/14R Mission Downtown: 31%
- 38 Geary: 20%
- 19 Polk: 27%
- 27 Bryant: 27%



SFMTA



Thank you

Cassie Halls | cassie.halls@sfmta.com

May 17, 2023



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**Bus' a Move:
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In a word or phrase, what is the biggest hurdle you face in implementing bus priority improvements? (e.g., bureaucracy, funding, local opposition)



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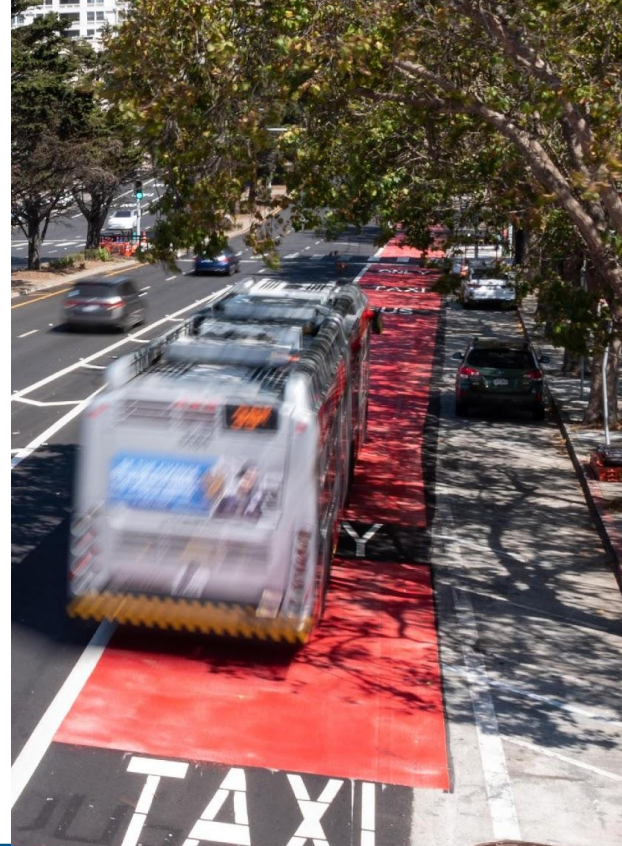
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RESULTS



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Reference Slides

May 17, 2023

Partner! Examples

- **L Taraval Improvement Project** is a multi-agency collaboration with the San Francisco Public Utilities Commission and the Department of Public Works with a planned completion in 2024:
 - Combines TSP, ped bulb-outs, boarding islands and other transit priority measures with streetscape and sewer and water line replacement



Pilot! Examples



Transit Quick Build Program:

- Quick-Build projects use even lower-cost materials and deliver projects more quickly such as:
 - Transit lanes
 - Temporary boarding islands and bulbs
 - Stop spacing improvements
 - Turn pockets and restrictions

Persevere! Examples



Transit Lane Compliance Program

Muni Forward projects take an integrated approach to improving transit lane compliance that includes:

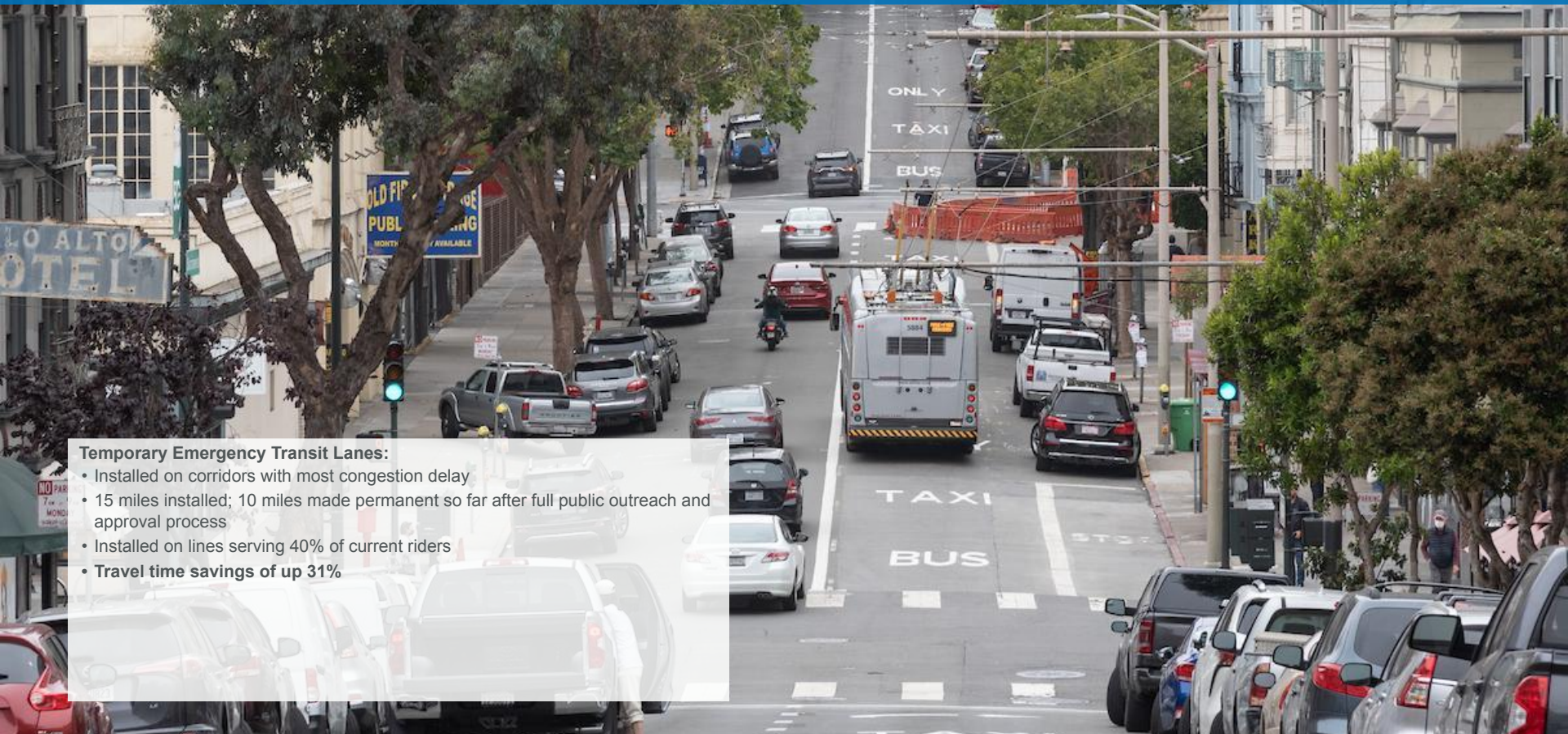
- **Education:** Signage, awareness campaigns, instructional materials, outreach
- **Engineering:** Lane design, striping, colorization, zone or turn restrictions, etc.
- **Enforcement:** in person warning/citing of illegal intrusions, testing next generation cameras

Persevere! Examples

Red lane maintenance program

- Asset database of 20 lane miles of red transit lanes (2013-Present)
- Annual site surveying
- Process to identify construction related impacts and seek remuneration
- Strategic planning & tracking of paving plans

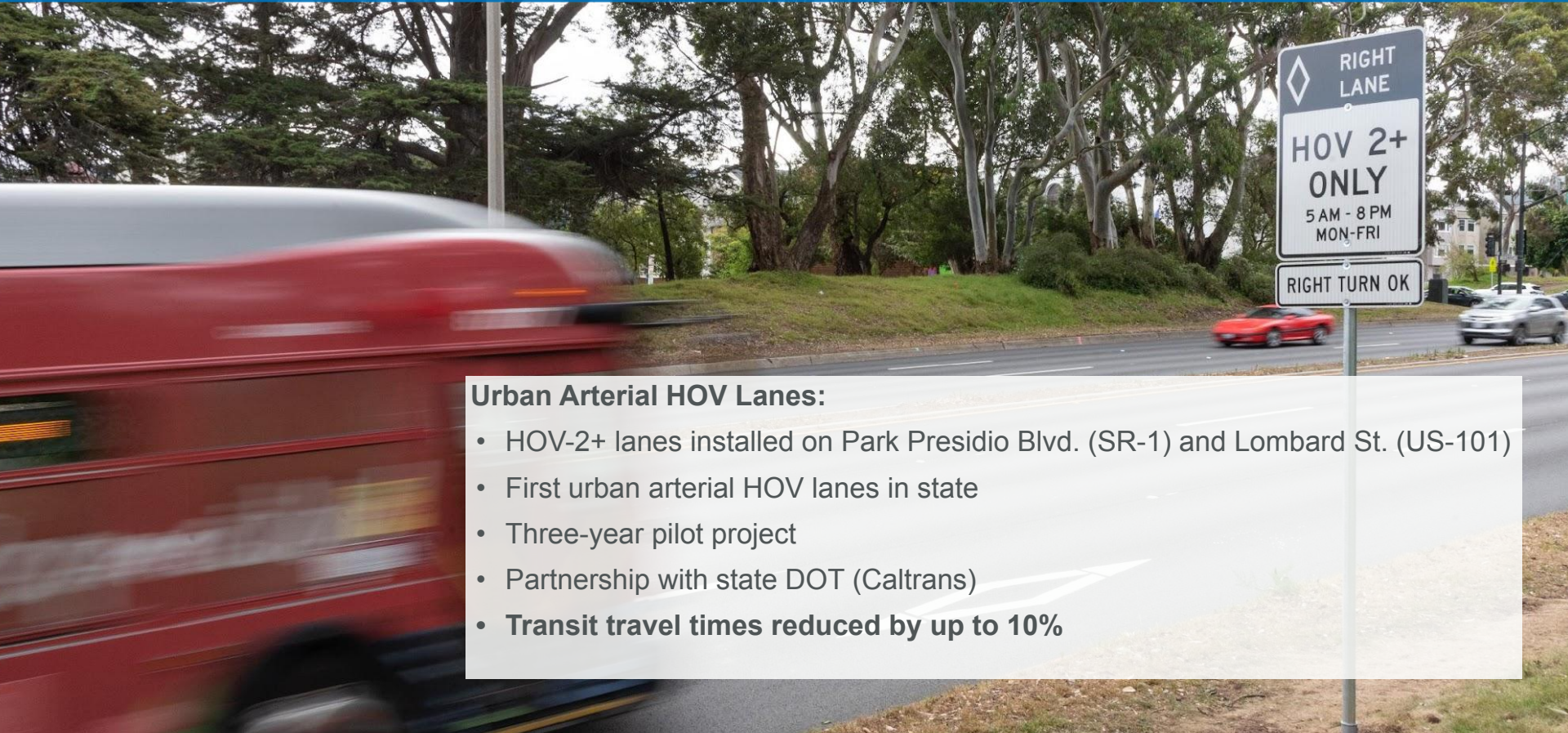
Pilot! Examples



Temporary Emergency Transit Lanes:

- Installed on corridors with most congestion delay
- 15 miles installed; 10 miles made permanent so far after full public outreach and approval process
- Installed on lines serving 40% of current riders
- Travel time savings of up 31%

Persevere! Example



Urban Arterial HOV Lanes:

- HOV-2+ lanes installed on Park Presidio Blvd. (SR-1) and Lombard St. (US-101)
- First urban arterial HOV lanes in state
- Three-year pilot project
- Partnership with state DOT (Caltrans)
- **Transit travel times reduced by up to 10%**