Bus’ a Move: Getting Transit Street Design Improvements Across the Finish Line
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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)
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 ½ mile?
In a word or phrase, what is the biggest hurdle you face in implementing bus priority improvements? (e.g., bureaucracy, funding, local opposition)
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 // 30 miles 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

Average Speed (mph)

- Bi-directional: 25.6
- Business Access & Transit: 11.3
- Center Running: 29.0
- Contra Flow NB: 17.5
- Contra Flow SB: 21.1
- Mixed Traffic: 19.7

Lane Configuration
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

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

INDIANAPOLIS

$583 MILLION

$83 MILLION

$1.8 BILLION

$2.5 BILLION
ECONOMIC DEVELOPMENT ALONG BRT LINES
THANK YOU

Matt Duffy, PE, PTOE
Matthew.duffy@indygo.net
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

Source: MBTA
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 | 11 COMMENTS

Broadway AM Peak Pilot, Everett

Photo credit: Streetsblog USA

Photo credit: MBTA

Sweetser Circle all day Lanes, Everett

Photo credit: MBTA

Broadway AM and PM Peak Lanes, Everett

Photo credit: ITDP
Incrementalism: From cones to corridor

2016

2020

2023?

2025?
Eyes On the Street: Huntington Avenue's Bus and Bike Lane Gets Some Color

By Erica White | Sep 28, 2022 | 8 COMMENTS

Photo credit: Streetsblog MASS

Huntington Ave, Boston
Bridging safety for bikes and operations for bus
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

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

<table>
<thead>
<tr>
<th>BN RD Routes</th>
<th>Length (miles)</th>
<th>Person-Hours of Delay</th>
<th>Bus-Hours of Delay</th>
<th>Peak Hour BNRD</th>
<th>Peak Hour Increase</th>
<th>All Day BNRD</th>
<th>All Day Increase</th>
<th>Minority</th>
<th>Low-Income</th>
<th>Zero-Auto</th>
<th>Transit Critical?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nubian Station to Guild Row</strong></td>
<td>0.1</td>
<td>4,460</td>
<td>271</td>
<td>48</td>
<td>+2</td>
<td>699</td>
<td>+128</td>
<td>13%</td>
<td>18%</td>
<td>11%</td>
<td>42</td>
</tr>
<tr>
<td><strong>Guild Row to Columbus Ave</strong></td>
<td>0.5</td>
<td>809</td>
<td>53</td>
<td>42</td>
<td>-1</td>
<td>652</td>
<td>+113</td>
<td>15%</td>
<td>20%</td>
<td>13%</td>
<td>48</td>
</tr>
<tr>
<td><strong>Columbus Ave to Brookline Ave</strong></td>
<td>0.6</td>
<td>141</td>
<td>6</td>
<td>30</td>
<td>+22</td>
<td>470</td>
<td>+373</td>
<td>39%</td>
<td>44%</td>
<td>54%</td>
<td>136</td>
</tr>
</tbody>
</table>
Thank you!

Photo credit: MBTA
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
2016
Lake Street corridor regionally prioritized as the B Line

2019
Planning for station locations

2020
Metro Transit-led study of traffic and transit advantages

2021
First red bus lanes installed elsewhere in Minneapolis

2022

2023-2024

Transit Agency
City Transportation Departments (or County)
City/ Transit Agency Partnership (or County)
Lake Street

- 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
Aggressive and successful local pursuit of additional funding for street improvements
Result: Comprehensive changes coming to Lake Street

- Street resurfacing & 4-to-3 conversion
- Station construction
- Bus lane in direction with greater delay
- Additional signal & pedestrian ramp upgrades beyond stations

• 6+ miles of bus lanes to be constructed 2023-2024
See red in Minneapolis in 2025!
metrotransit.org/b-line-project
Delivering Transit Priority Citywide in San Francisco

NACTO Designing Cities

May 17, 2023
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
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!
- Pilot!
- Persevere!
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
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.
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
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%
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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
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
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
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%