CHICAGO ARCHITECTURE FOUNDATION

Panel Discussion: Ticket to Ride Bus Rapid Transit—Cleveland, San Francisco, New York, and Chicago

June 6, 2012

With support from:

Rockefeller Foundation
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CHICAGO ARCHITECTURE FOUNDATION

http://chicagotonight.wttw.com/2012/03/28/mexico-city%E2%80%99s-bus-rapid-transit-system

THE CHICAGO COMMUNITY TRUST

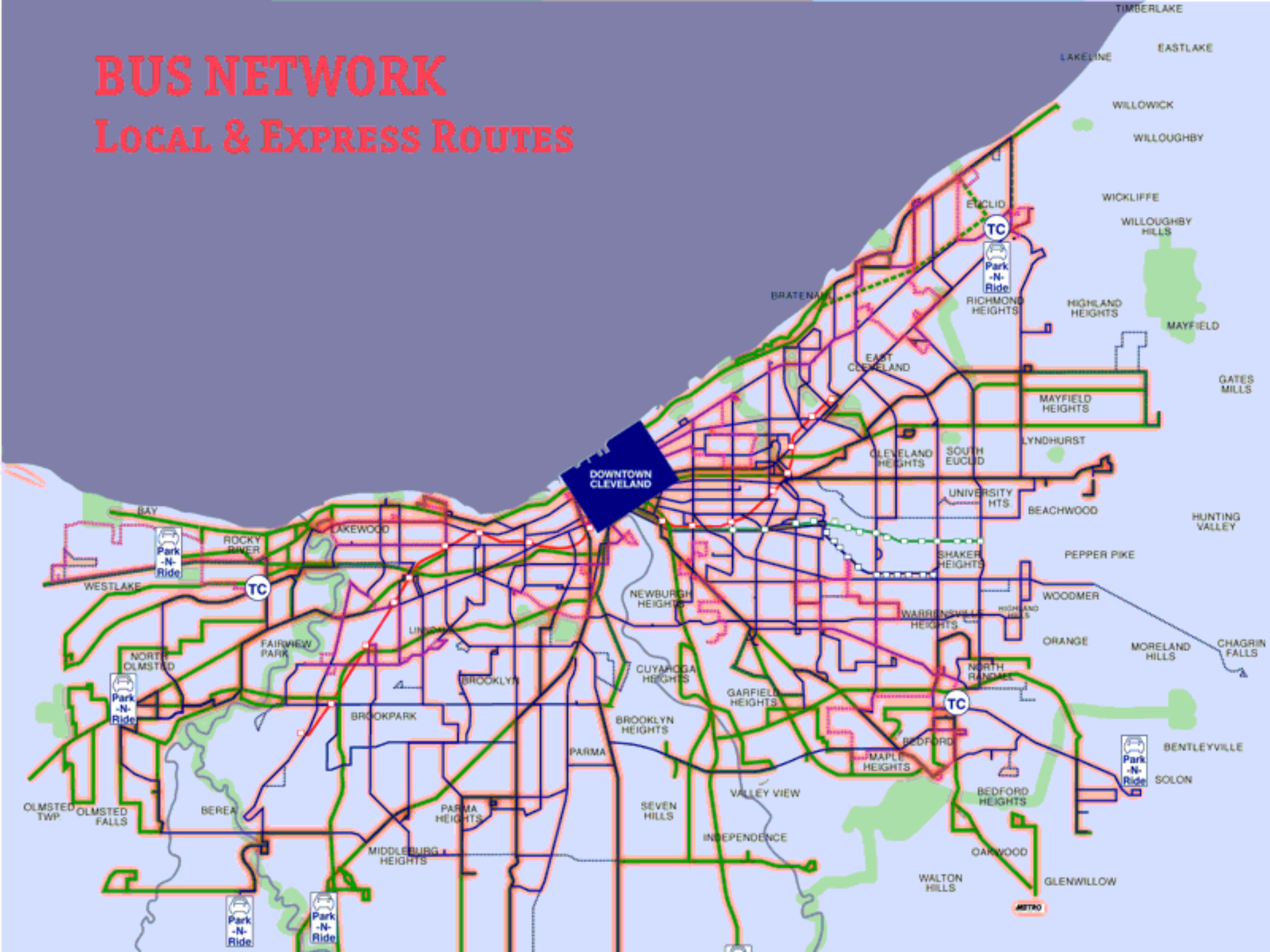
AND AFFILIATES

Greater Cleveland Regional Transit Authority

Joe Calabrese – General Manager

BUS NETWORK

Local & Express Routes



RTA Fleet


3001
RTA


39E SHOREGATE
RTA

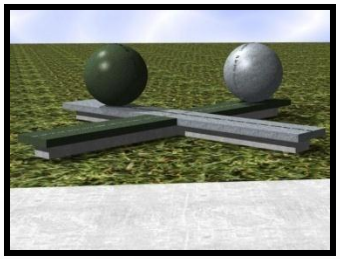

7007
RTA
PARATRANSIT


SMILE & RIDE FREE


LAKESIDE
RTA

RAIL NETWORK

HealthLine
RTA's Newest "Rapid"



Euclid Avenue History

Euclid Avenue History

Euclid Avenue History

- Streetcars disappeared in 1954
- # 6 Bus Route put in service to connect the two major employment hubs
  - Great Service but not attractive to the "choice rider"
- Alternative Analysis
  - Subway or Light Rail
  - Do Nothing (keep the #6 bus)
  - Bus Rapid Transit (BRT)

Mode Selection Criteria

- Capacity (30,000 + daily customers)
- Connectivity
- Funding possibilities (FTA)
- Cost
  - Capital
  - Operating
- Economic development potential
- *BRT Selected by Region*

Branding of BRT

- "Better" Rapid Transit
  - Best characteristics of rail
    - Permanence
    - Image
    - Service level
  - Best characteristics of a bus
    - Flexibility
    - Lower Costs

Rail-Like Image ("Silver Line")

- Rail service on rubber tires
  - Fast
  - Simple
  - Safe
  - First Class

Euclid Corridor Project – 9.38 Miles

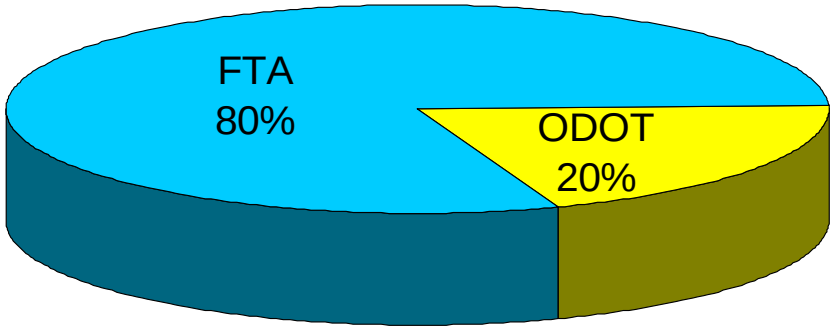
- 36 stations
- Travel time from 28 to 40 minutes
- Building face to building face
- Pedestrian friendly with bike lanes
- Landscape/hardscape treatment
  - 1,500 trees with irrigation
- Integrated/stand-alone public art


Hit or Miss
ROSIE'S

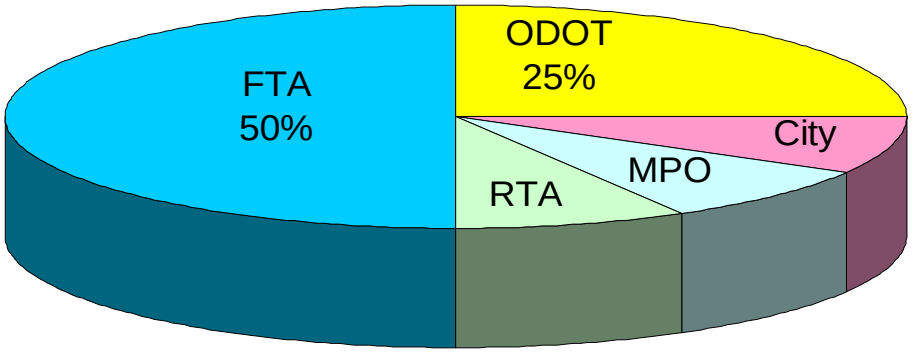

CLEVELAND
CLEVELAND
RTA

Ground Breaking October 2004

Funding Pie Charts - $200 Million



2000



2004


Holiday
Circle
Fest
Holiday
Circle
Fest
BUS


Holiday Circle Fest
Holiday Circle Fest
NatCity investments
COLONIAL MARKETPLACE


Holiday
Circle
Fest

Faster Travel Times

Higher Speeds

- Exclusive Right-of-Way
  - Higher Travel Speed Limit
- Traffic Signal Prioritization

Shorter Stops

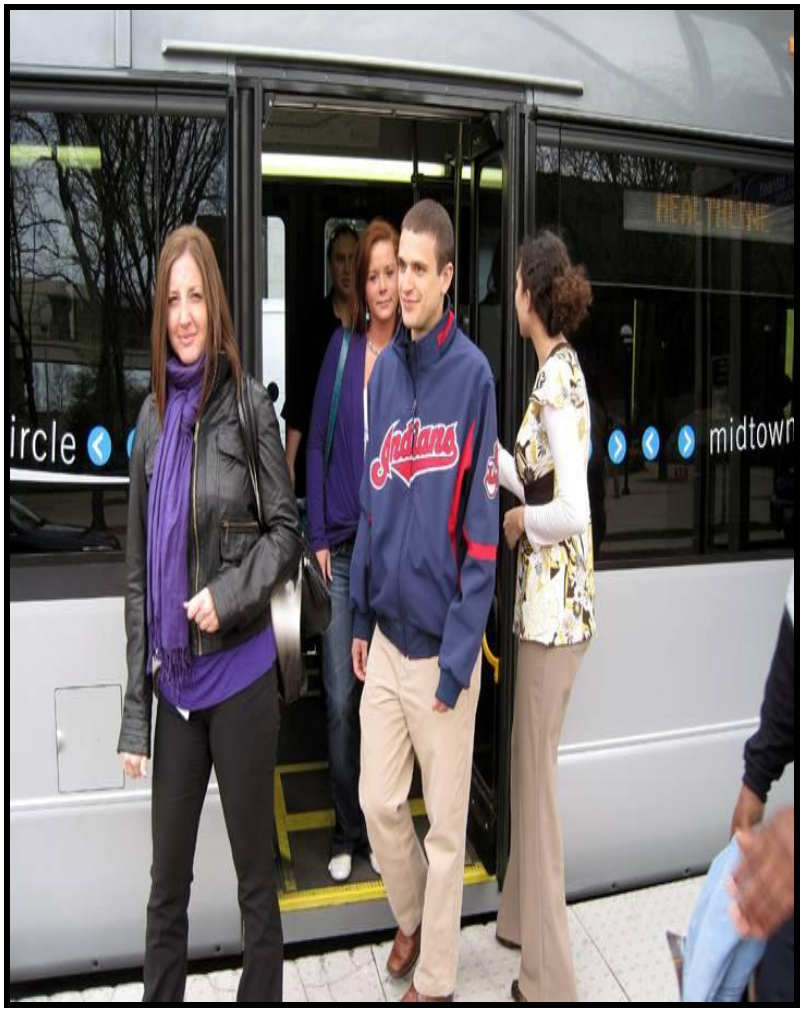
- Precision Docking
- Level Boarding “Stations”
- Off Board Fare Collection

"Rail-Like" Service and Image

- Hi-Frequency Service
  - 24x7
  - Peak every 5 minutes
  - Off-Peak every 8 to 15 minutes
- Rapid Transit Vehicles (RTV's)
  - Train on Rubber Tires
- Use of latest technology

Traffic Signal Prioritization

Level Boarding

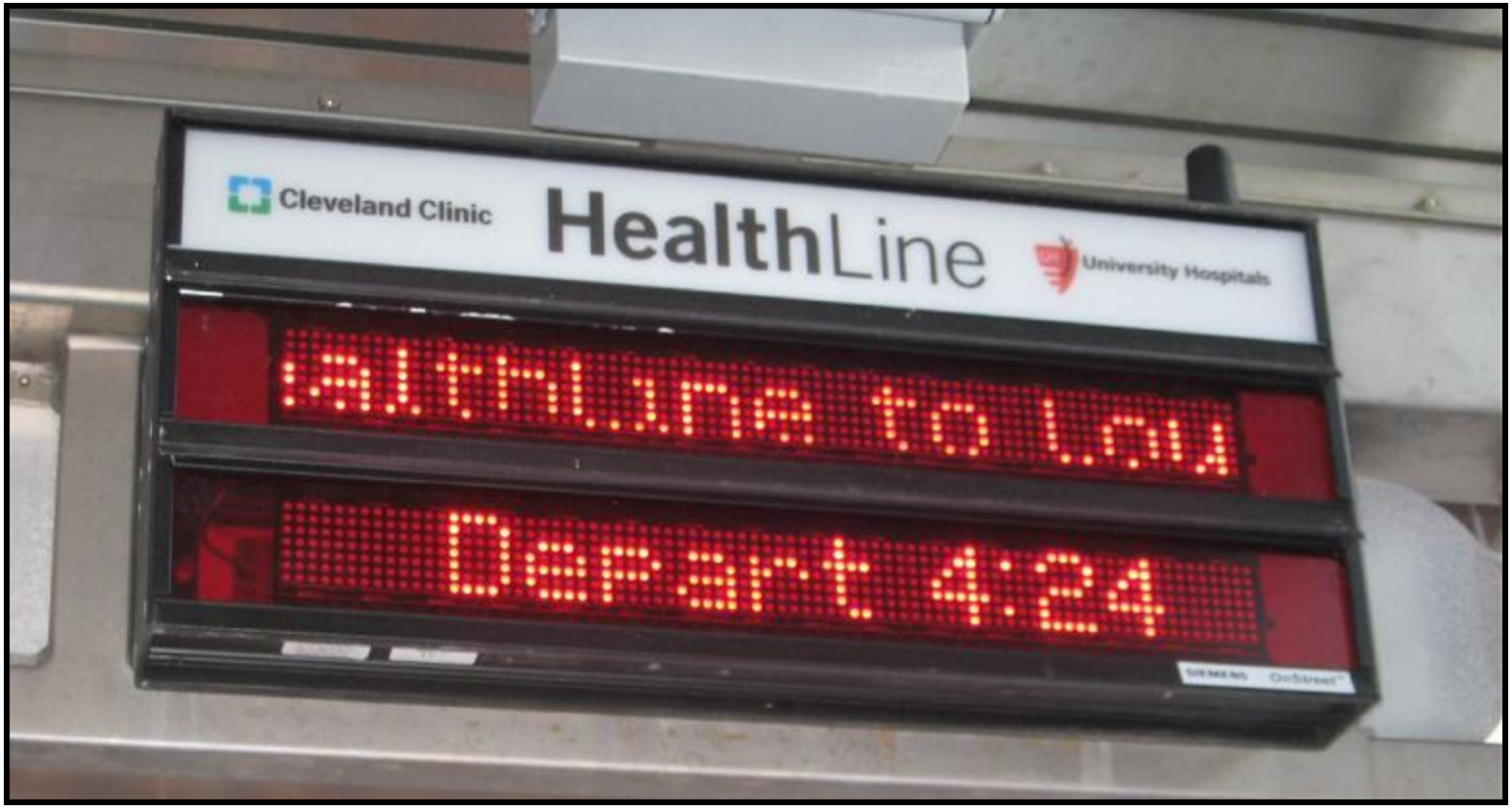


Level Boarding Bridge-Plates

Off Board Fare Collection

Fare Enforcement

Real Time Information



Emergency Call Boxes

Cameras at Stations

Cameras on Vehicles

Downtown Station Design

Median Station Design

New Vehicle Design

New Vehicle Design

New Flyer Rapid Transit Vehicle“RTV”

Landscaping and Public Art

Landscaping

Branding The HealthLine

Branding The HealthLine

Economic Development

More than an RTA Project

- Economic Development success was achieved through the action of others leveraging RTA's investment

The Rebirth


Josh Cribbs isn't supposed to be in the Pro Bowl, but don't tell him that.
Our presidential picks
Ah, the spa
SUNDAY PLAIN DEALER
The rebirth
Euclid Corridor project has already brought $4.3 billion in new investment to the city

Tracy Nichols - Director

City of Cleveland
Economic Development

Dick Pace - Principal

Cumberland Development LLC

Ari Maron - President

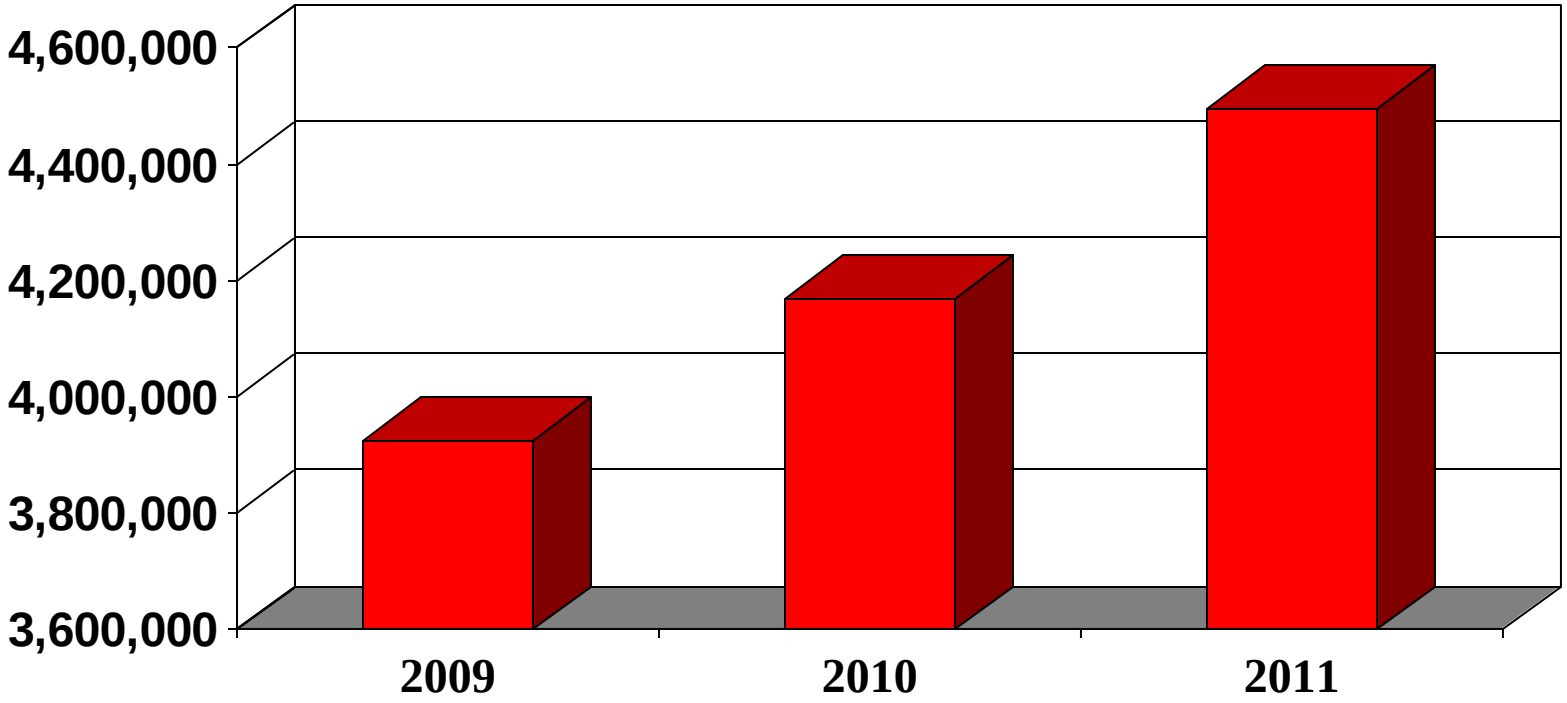
MRN & Associates

Downtown Economic Development

Branding - Naming Rights Agreement


HEALTHLINE
PUMPING NEW LIFE INTO THIS CITY

HealthLine Ridership - 60% + increase



“HealthLine” Success

“HealthLine” Success

2010 ACEC Award

American Council of Engineering Companies

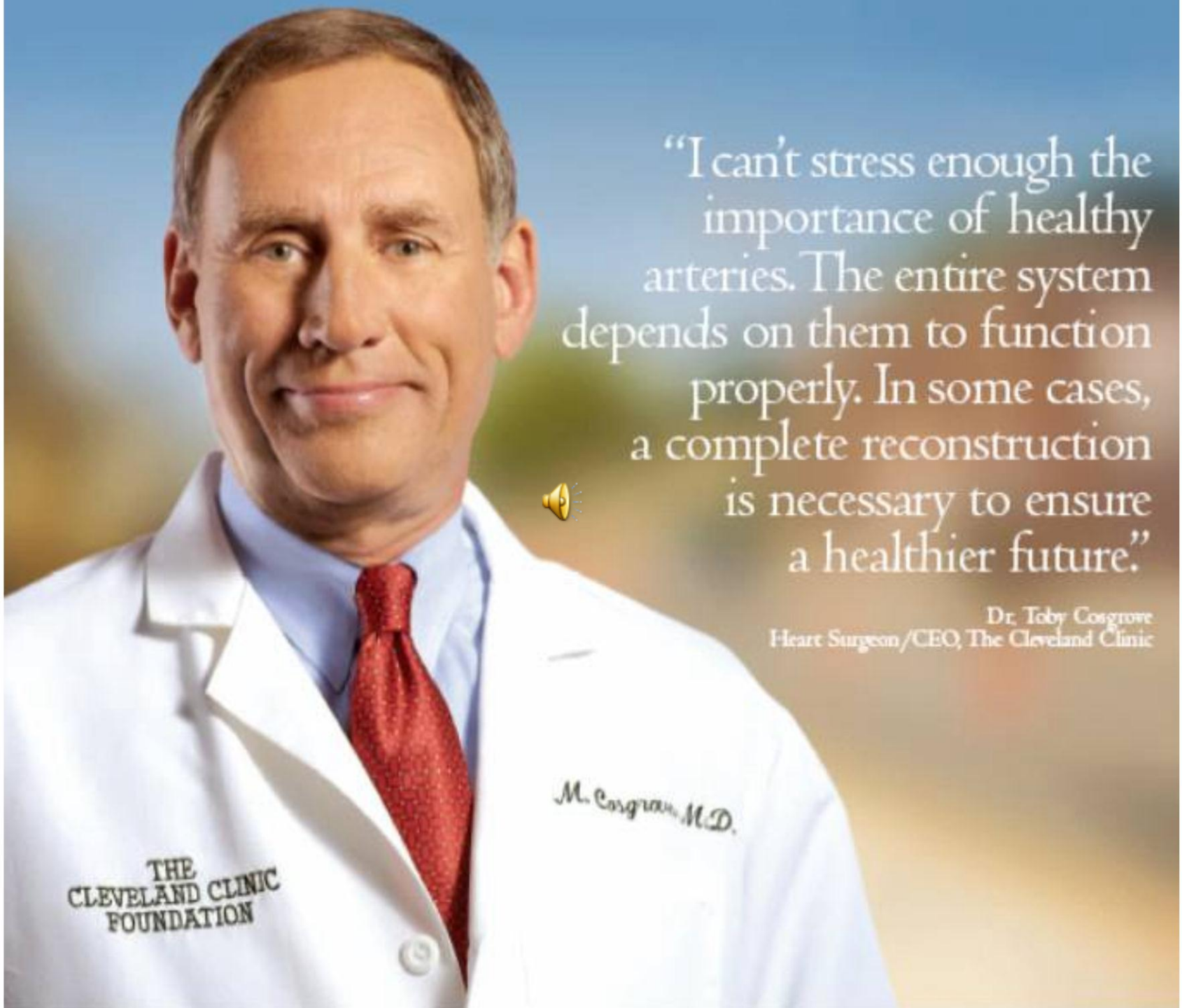
2010 Grand Award

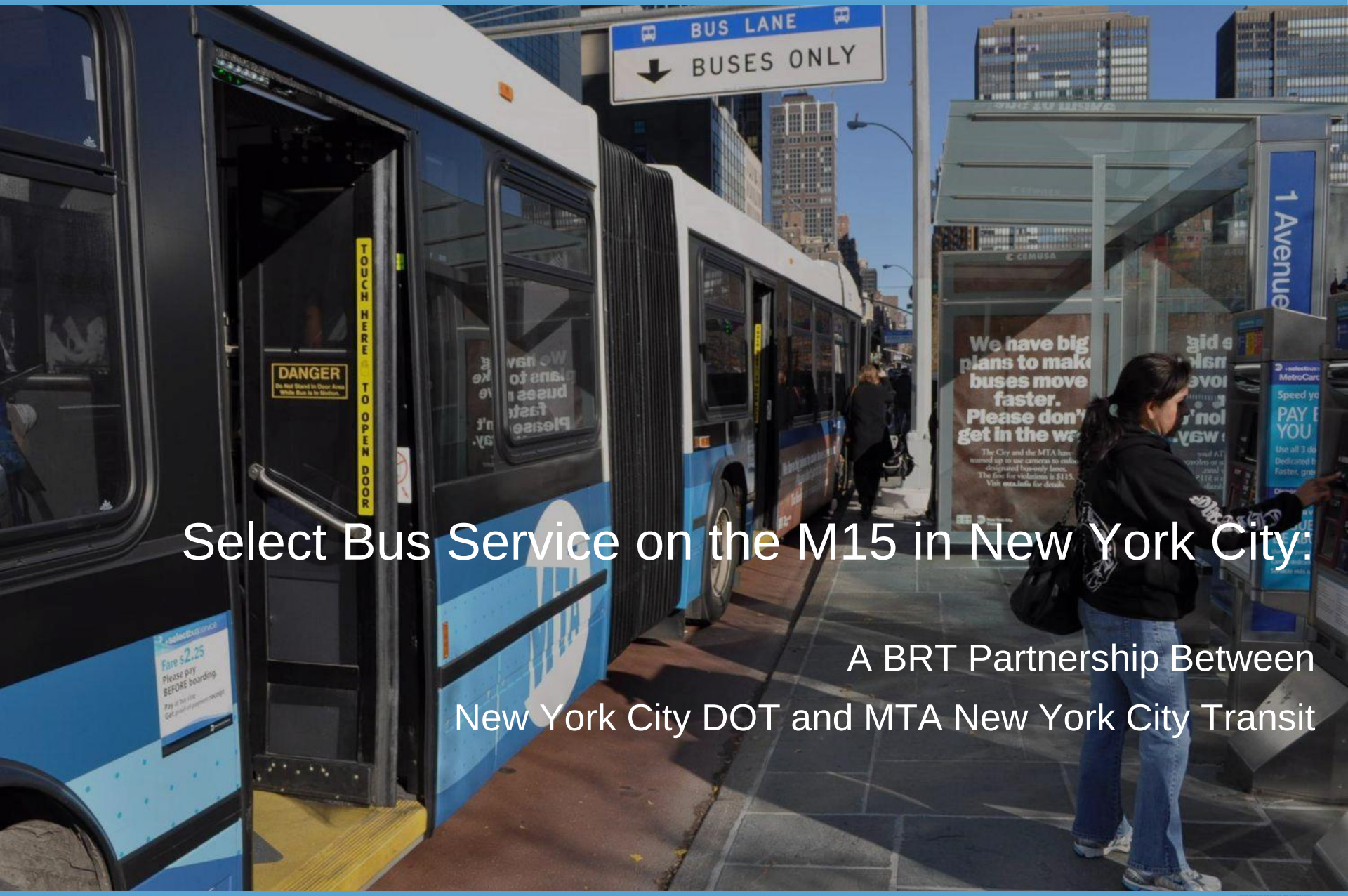
Other HealthLine Award

Urban Land Institute

ULI 2011 Award for Excellence

Questions & Answers


"I can't stress enough the importance of healthy arteries. The entire system depends on them to function properly. In some cases, a complete reconstruction is necessary to ensure a healthier future."
Dr. Toby Cosgrove
Heart Surgeon/CEO, The Cleveland Clinic
THE CLEVELAND CLINIC FOUNDATION
M. Cosgrove, M.D.



Select Bus Service on the M15 in New York City:

A BRT Partnership Between

New York City DOT and MTA New York City Transit

Background

- MTA New York City Transit:
  - Operator of New York City's public transit system
  - Part of Metropolitan Transportation Authority (New York State)
  - Over 5.2 million subway and 2.3 million bus trips per day
- New York City Department of Transportation:
  - Operator of New York City's 6,000 miles of streets, 787 free bridges, 12,000 traffic lights, and the Staten Island Ferry
- Agency partnership key to project success

Background

NYC has the highest bus ridership in the US, but slow bus speeds

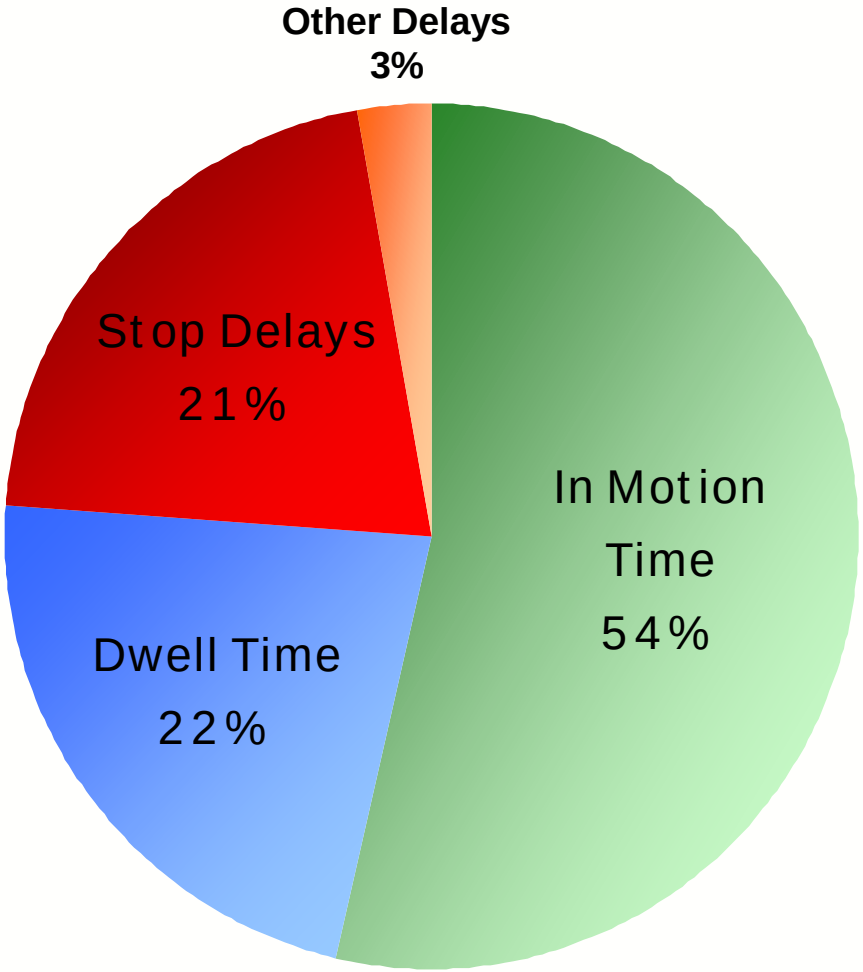
Bus speeds have been slowing down, and bus ridership has stagnated even as subway ridership has grown

First Avenue/Second Avenue selected for BRT as part of citywide study of routes with most benefits, compatibility

M15 Corridor

- Over 54,000 weekday riders
- Within ¼ mile:
  - 537,000 residents
  - 78% of households—No car
  - 57% of residents commute by transit
- Lexington Avenue subway is a long walk – and is at capacity
- Avenues key part of citywide bicycle master plan

Sources of Bus Delay: M15



M15 SBS: Features

M15 SBS: Bus Lanes

- **“Offset” bus lanes used where possible**
  - In effect 24/7
  - Parking/loading retained along curb
- **Curbside bus lanes used where traffic is heavier**
  - In effect 7am-10am, 2pm-7pm M-F
  - Commercial loading windows provided mid-day
- **High visibility treatments used**
  - Red paint
  - Overhead signage

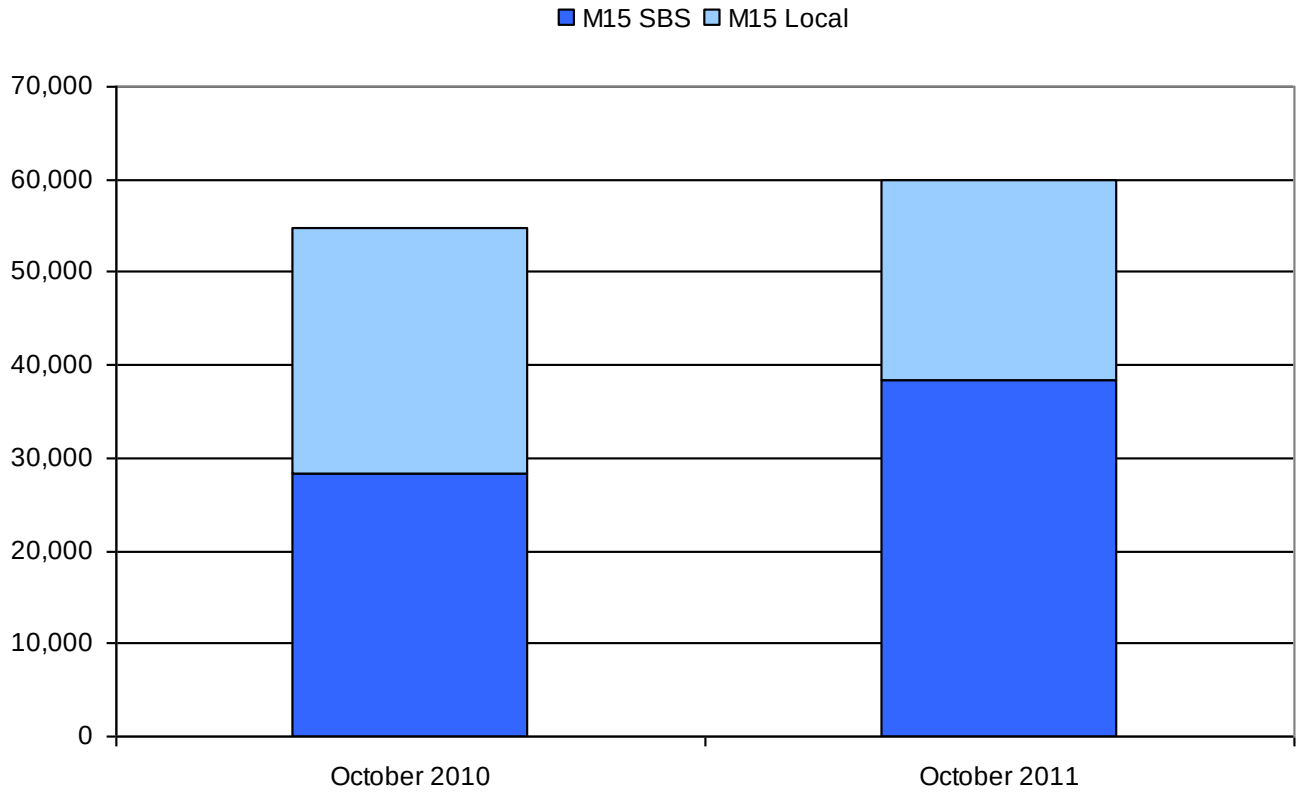
M15 SBS: Bus Lanes

M15 SBS: Bus Lane Enforcement

- **Bus Lane Video Cameras**
- **Additional NYPD Enforcement**
- **Extensive Education Campaign**

M15 SBS: Off-Board Fare Collection

M15 SBS Performance: Ridership

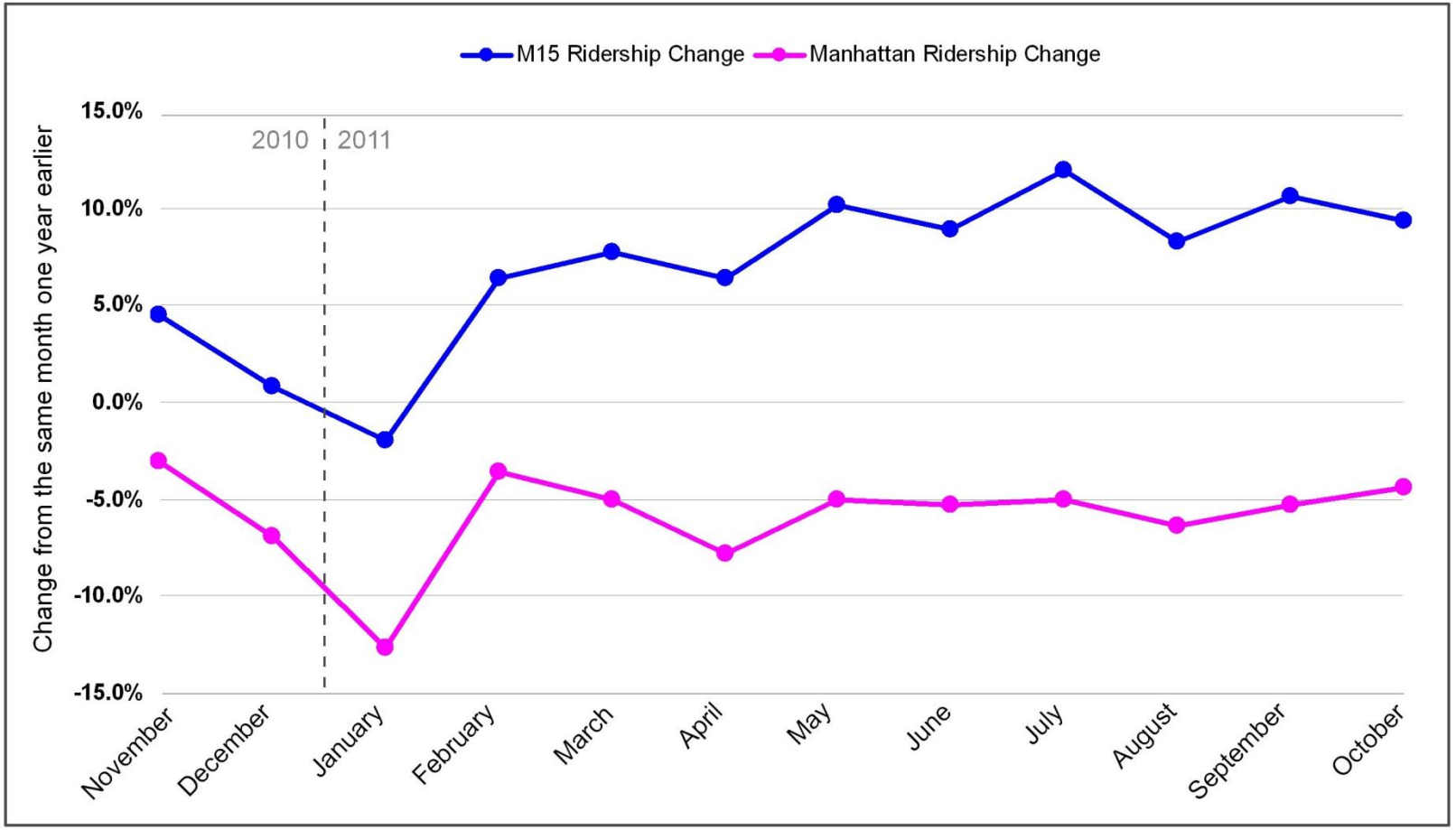


36% increase from former Limited to SBS

5,000 new M15 trips per day

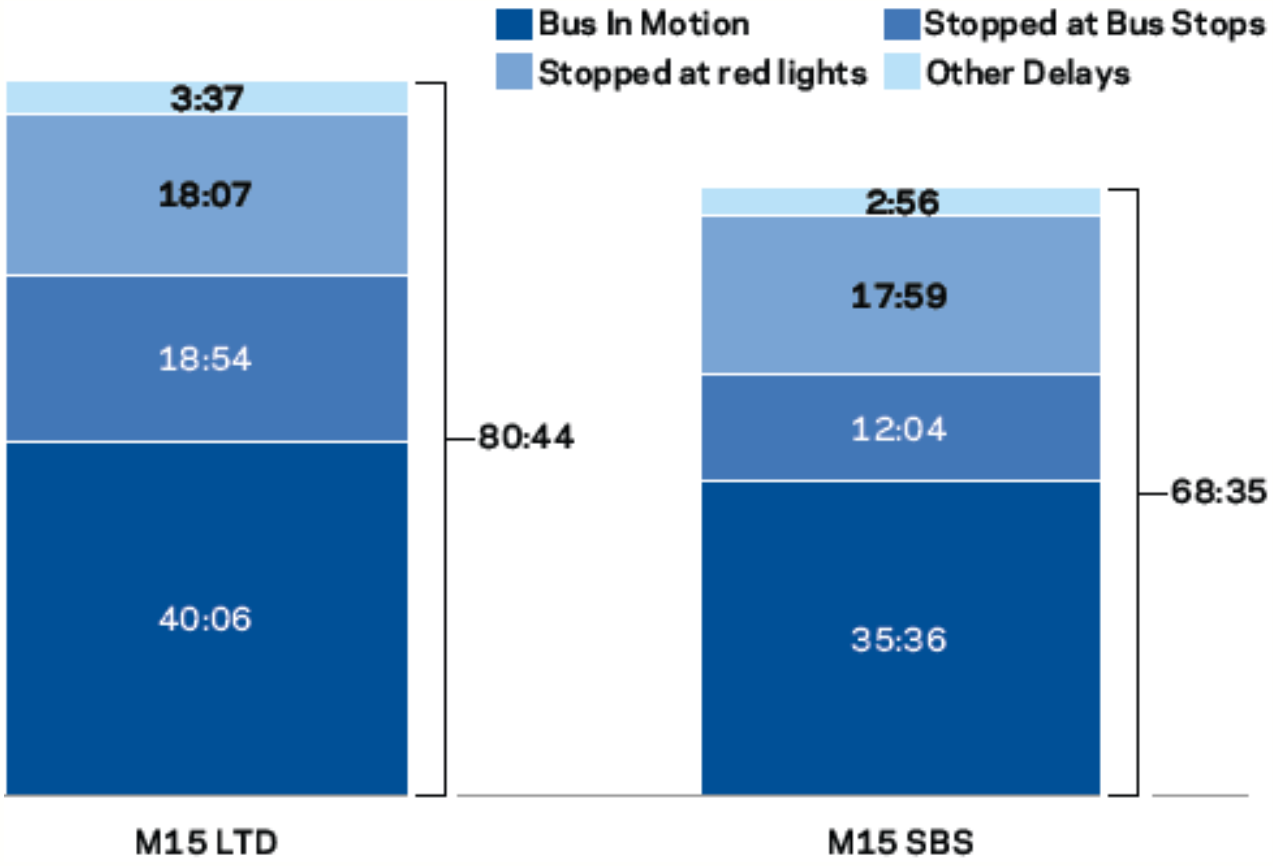
Bus ridership in Manhattan down 5% overall

M15 SBS Performance: Ridership



M15 SBS Performance: Travel Time

M15 Limited vs. M15 SBS



SBS 12 minutes (15%) faster than Limited

M15 SBS Performance: Traffic

Roadway speeds measured using GPS devices in in-service yellow taxis, for trips beginning and ending on First Avenue or Second Avenue

Evaluation showed minimal changes in traffic speeds

Traffic volumes also showed minimal changes

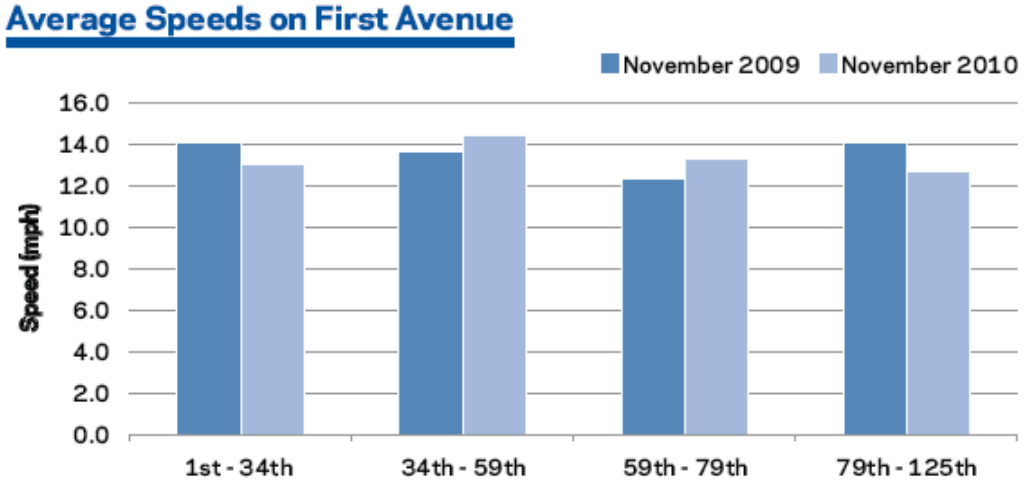
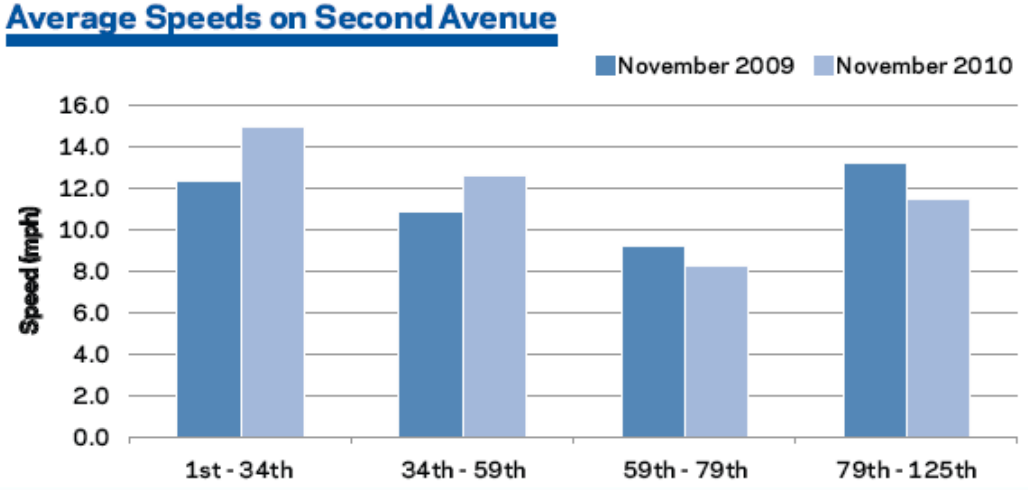
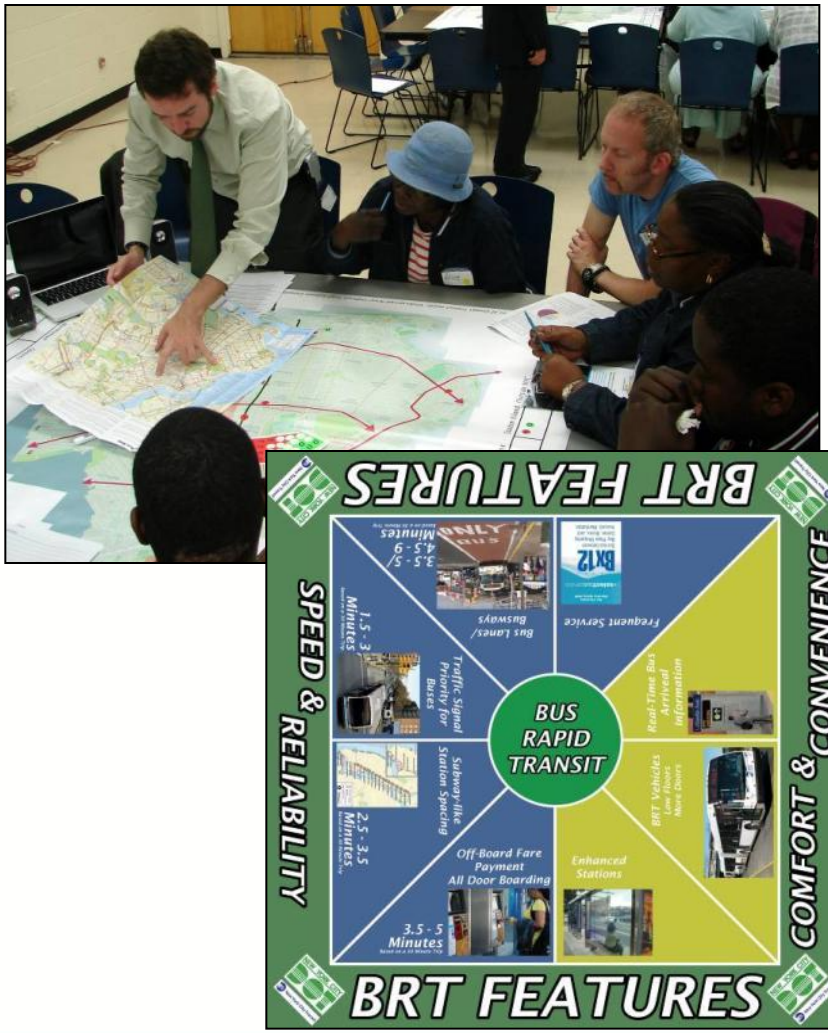


Figure 12: Average Speeds from Taxi GPS data on First Avenue



Lessons Learned: Planning Process

- Good design can accommodate more street activity than existing conditions. Plan for all street users.
- Important to bring in stakeholders early in the process.
- “Community Advisory Committee” can help bring all parties to the table, so everyone can hear everyone’s comments.
- Business support is important on retail corridors



Lessons Learned: Implementation

- Short implementation timeframes!
- Keep the public informed
- Agency Partnership key
- Customer ambassadors crucial.
- Red paint and overhead signs support bus lane compliance.
- Automated enforcement important.

Next Steps for BRT in NYC

- Finish Phase I Routes:
  - 34th Street (Nov 2011)
  - Hylan Blvd (9-2-12)
  - Nostrand/Rogers SBS
- Webster Avenue SBS
- LaGuardia Airport SBS
- TSP extended citywide

Van Ness Avenue
Bus Rapid Transit (BRT)

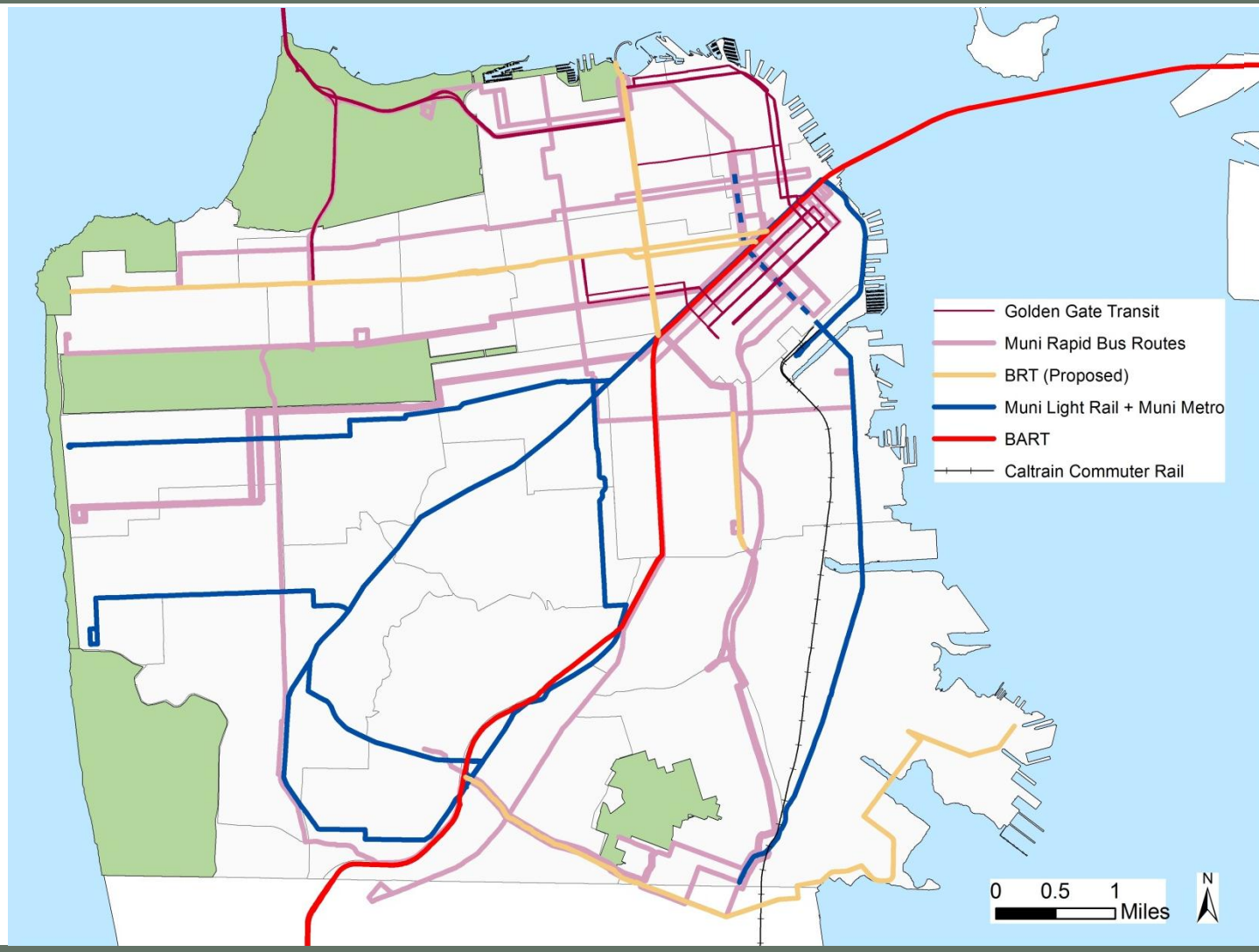
Chicago Architecture Foundation
06.06.12

SFMTA | Municipal Transportation Agency

San Francisco – Regional Transit Hub

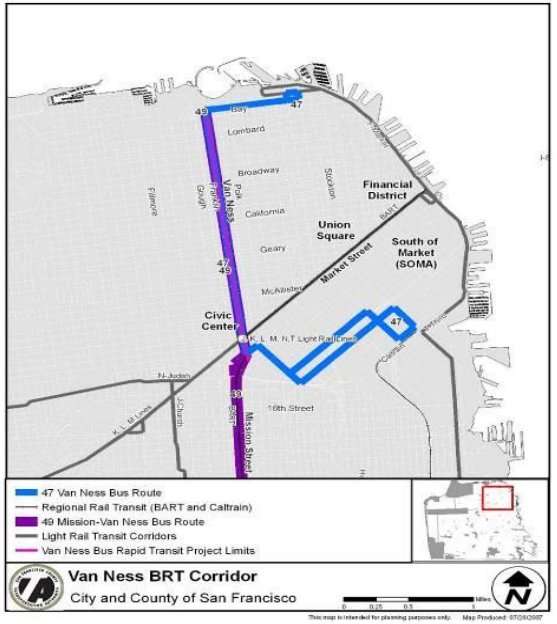
- Rail does not go to north side of city
- BRT network proposed to fill in rail gap…

  …and support local “rapid” + regional bus service



Van Ness Avenue – Existing Conditions

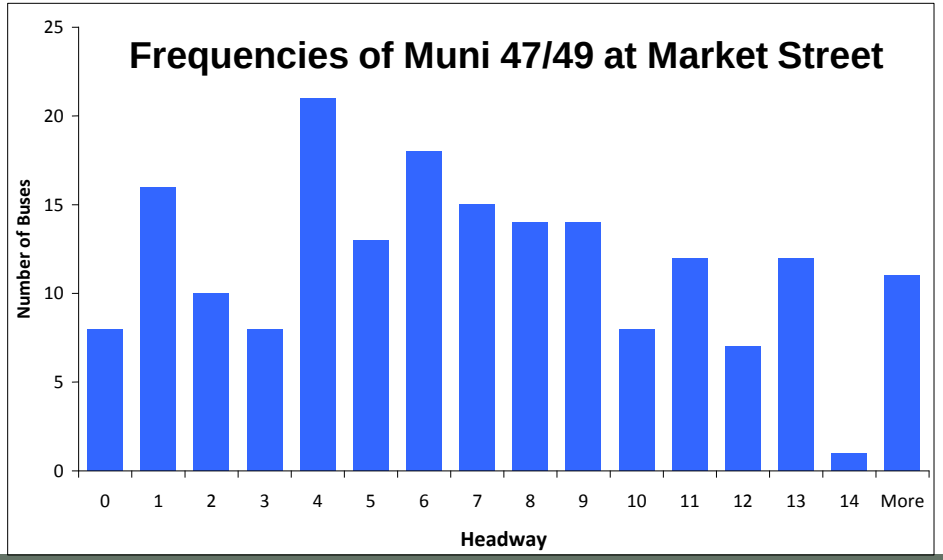
- 2 mile corridor
  - Transit trunkway that carries multiple local and regional bus routes
- US 101 in San Francisco
  - 93’ wide, including 14’ median
  - 80,000 daily motorized person-trips
    - 20% transit motorized mode share
- Multiple agency jurisdiction/ coordination



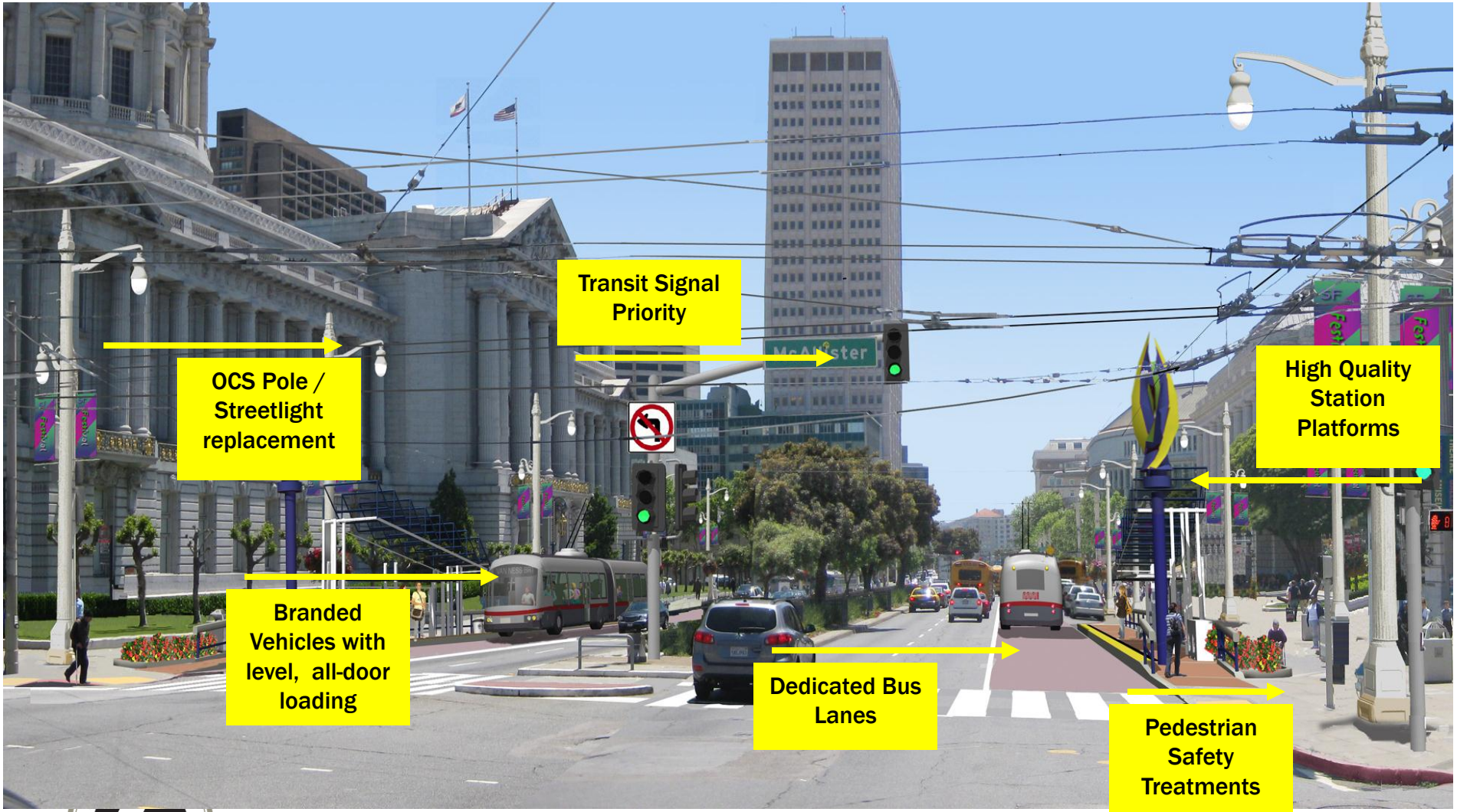
SFMTA

Project Purpose and Need

- Improve transit reliability, speed, connectivity and comfort
  - Separate autos from transit
  - Reduce delays associated with loading and unloading, and traffic signals
- Improve pedestrian comfort, amenities, and safety
- Enhance urban design and identity of Van Ness Avenue
- Accommodate safe multimodal circulation and access within the corridor

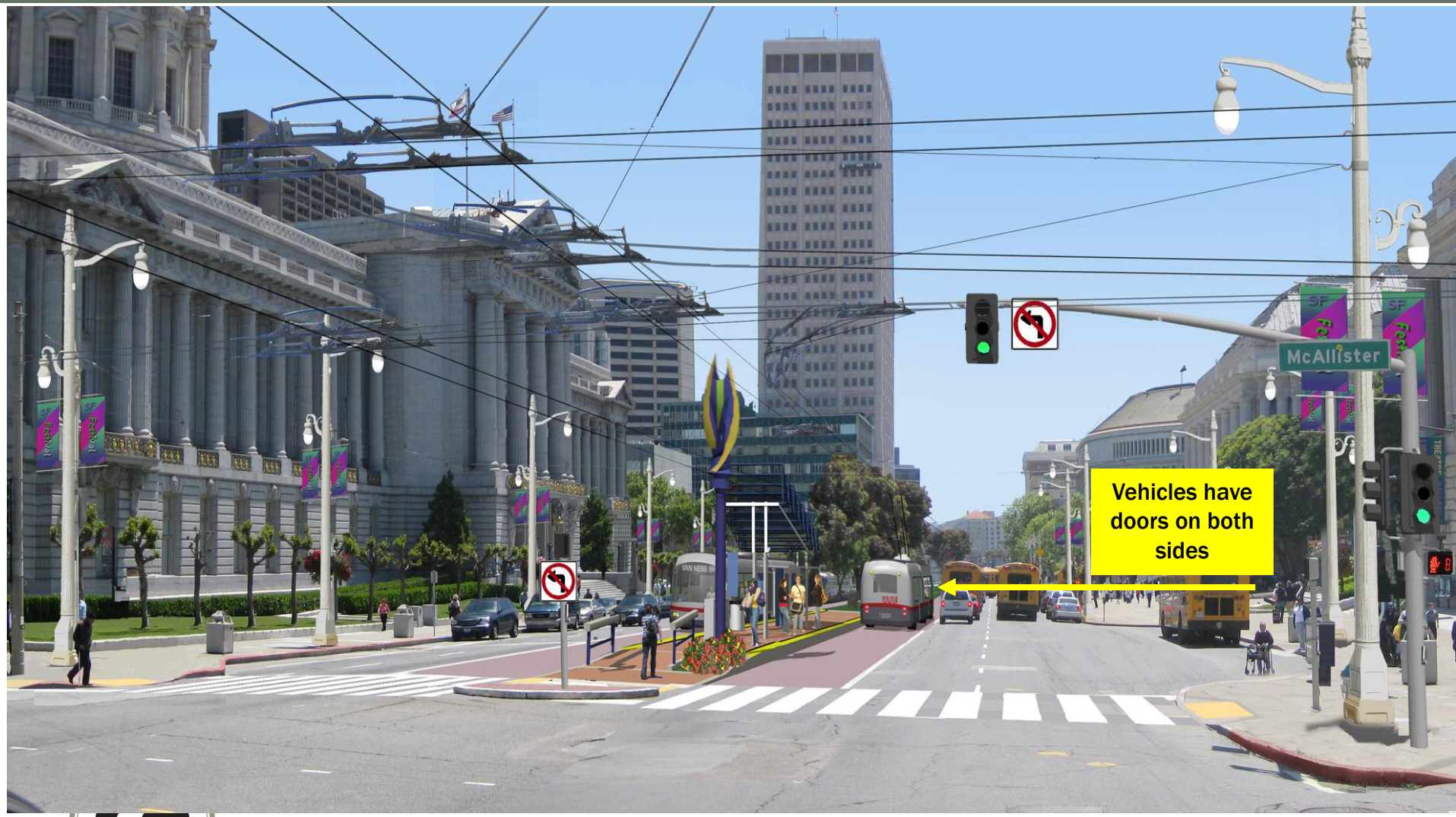


Alternative 2 – Side BRT Lanes



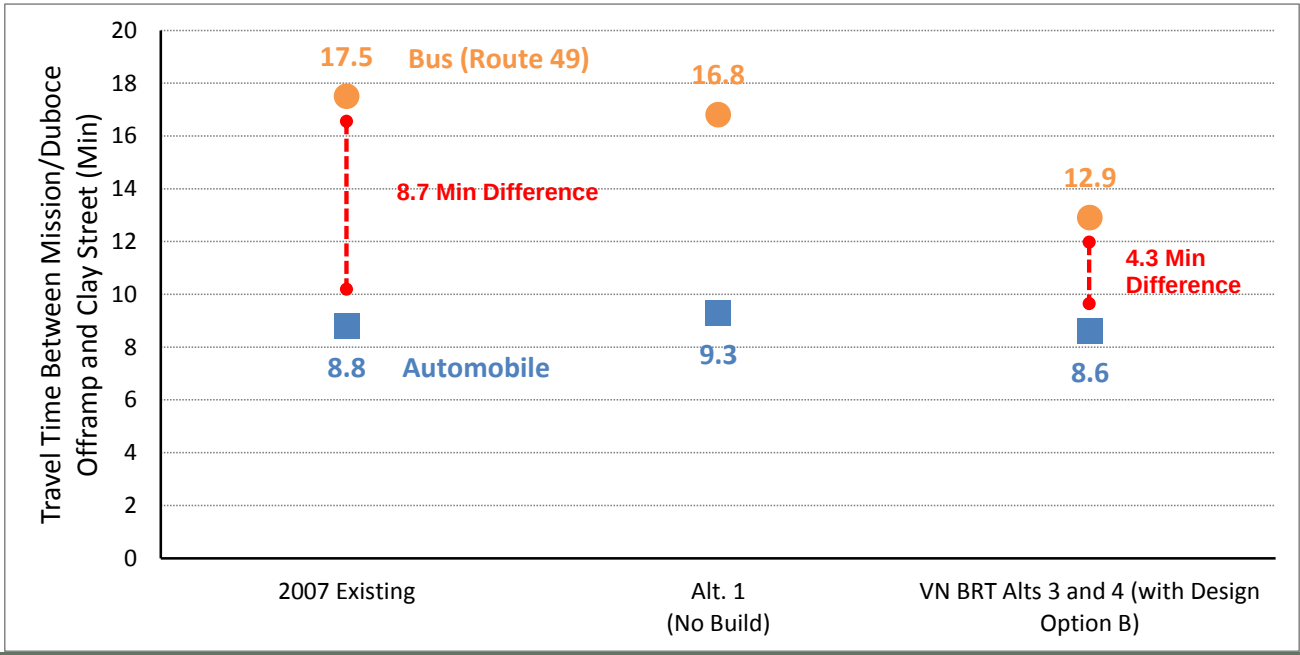
Alternative 3 – Center BRT Lanes with Right Side Loading / Dual Medians

Alternative 4 – Center BRT Lanes with Left Side Loading / Center Median

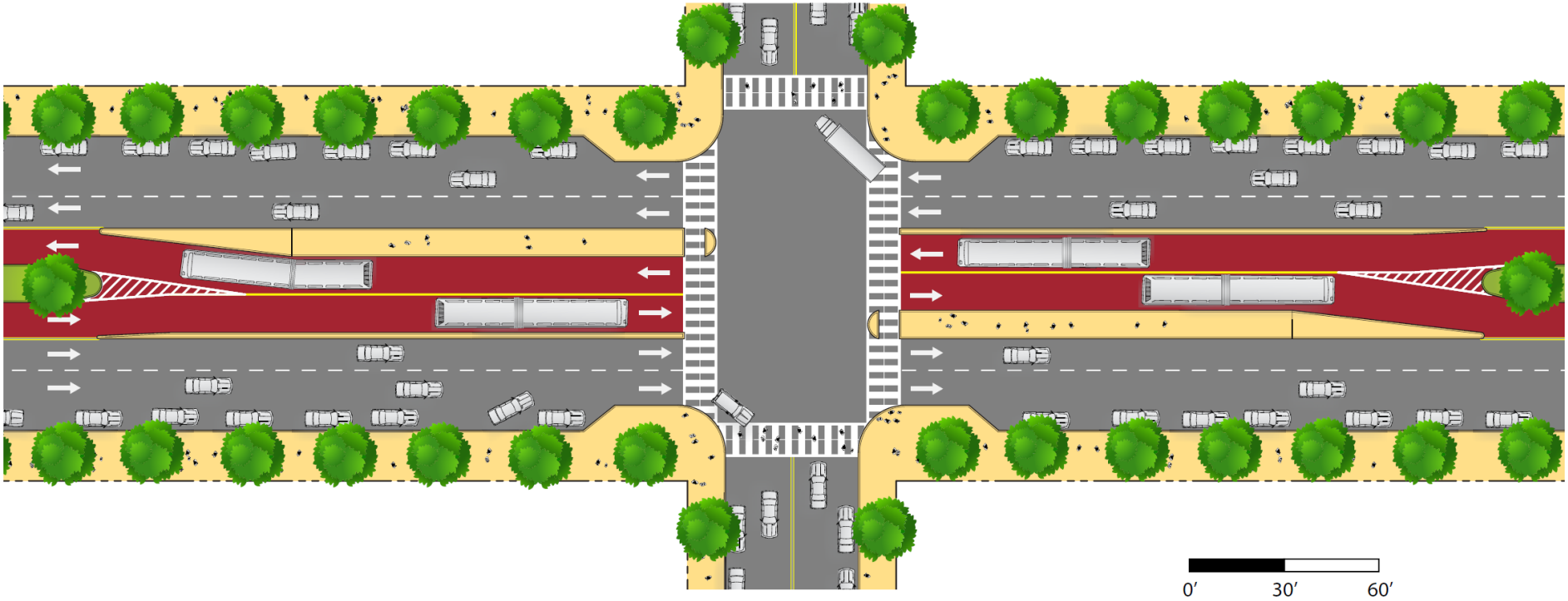


Center BRT Best Meets Project Purpose and Need

- **Design Option B has nearly twice the travel time savings and reliability benefits as Side BRT (Alternative 2)**
  - **33% travel time savings**
  - **50% reliability improvements**
  - **35% ridership increase**
- Nearly 3:1 public preference for Center BRT vs. Side



LPA Recommendation: Center-Running BRT with Right Side Loading/Center Median and Limited Left Turns



Graphic not to scale: for planning purposes only

Lessons Learned - Gold Standard BRT Is Challenging (but worth it)

- Need more proofs of concept for dense North American urban environments
- Some stakeholders want more (e.g., light rail) while others want less (e.g., everything but the dedicated lane)
- Cost and timeliness benefits tend to be during construction, not planning
- Whole is greater than sum of parts
  - Must maintain vision: danger of “scope attrition” rather than “scope creep”

Thank You!

www.vannessbrt.org

vannessbrt@sfcta.org

SFMTA | Municipal Transportation Agency

SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

CHICAGO DEPARTMENT OF TRANSPORTATION

Chicago Architecture Foundation Bus Rapid Transit

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Chicago Architecture Foundation Bus Rapid Transit

Chicago's Approach to BRT

Goals

- Eliminate Bus Slow Zones – Make short and long-term investments in heavily traveled bus corridors to support more efficient and cost effective bus network
- Forward Compatible Investment – Make short-term improvements that can be built into long-term investments
- Implement Complete Streets – Rebalance streets to accommodate all modes safely and efficiently
- Grow ridership on the bus network

Short-Term Improvements

- Coordinate targeted bus lane pilot on Western and Ashland
- Transit Signal Priority
- Test BRT elements on Jeffery corridor
- Implement full BRT in loop between Ogilvie and Michigan Ave
- All improvements designed forward compatible

Long-Term Vision

- Develop citywide BRT plan
- Modular and incremental improvements built as funding permits
- Develop branded services and concept of third mode L, Bus, and BRT

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Benefits of BRT

Riders

- 26% of Chicago households do not own cars
- Implement City's Complete Streets Policy: Design roadway to accommodate all users
- Improves speed and reliability – critical to holding a job, particularly hourly workers
- Improves customer experience, neighborhood-focused

Efficient Use of Capital Dollars

- Modular and incremental investments allow use of more flexible sources (CMAQ, STP, etc)
- Improvements focused on pinch points – bus "slow zones"
- Allows short-term improvements and a steady investment in the corridor as different funding sources become available

Efficient Operations

- Establish minimum service standards
- Speed and reliability improvements will flow directly to bottom line through reduced operating expenditures

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Jeffery BRT

Chicago's first BRT Route

- **Project Need:** Faster, more reliable service on local leg of well-used route that runs express to CBD via Lake Shore Drive
- **Status:** Currently in Final Design
- **Funding:** $11 million FTA Bus and Bus Facilities (5309) grant
- **Schedule:** Construction this Summer-Fall 2012.
- **Key Elements:**
  - Rush Hour Bus Lanes from 67th to 83rd Street
    - 7-9 AM Northbound and 4-6 PM Southbound
  - Transit Signal Priority (TSP) between 73rd–84th Streets (the longest section in Chicago)
  - Bus queue jump at 84th Street and Jeffery Boulevard (first queue jump in Chicago)
  - Enhanced CTA buses with unique branding and internal LED Bus Tracker screens
  - New and upgraded bus shelters with lighting and LED Bus Tracker screens
  - New street furniture and signage

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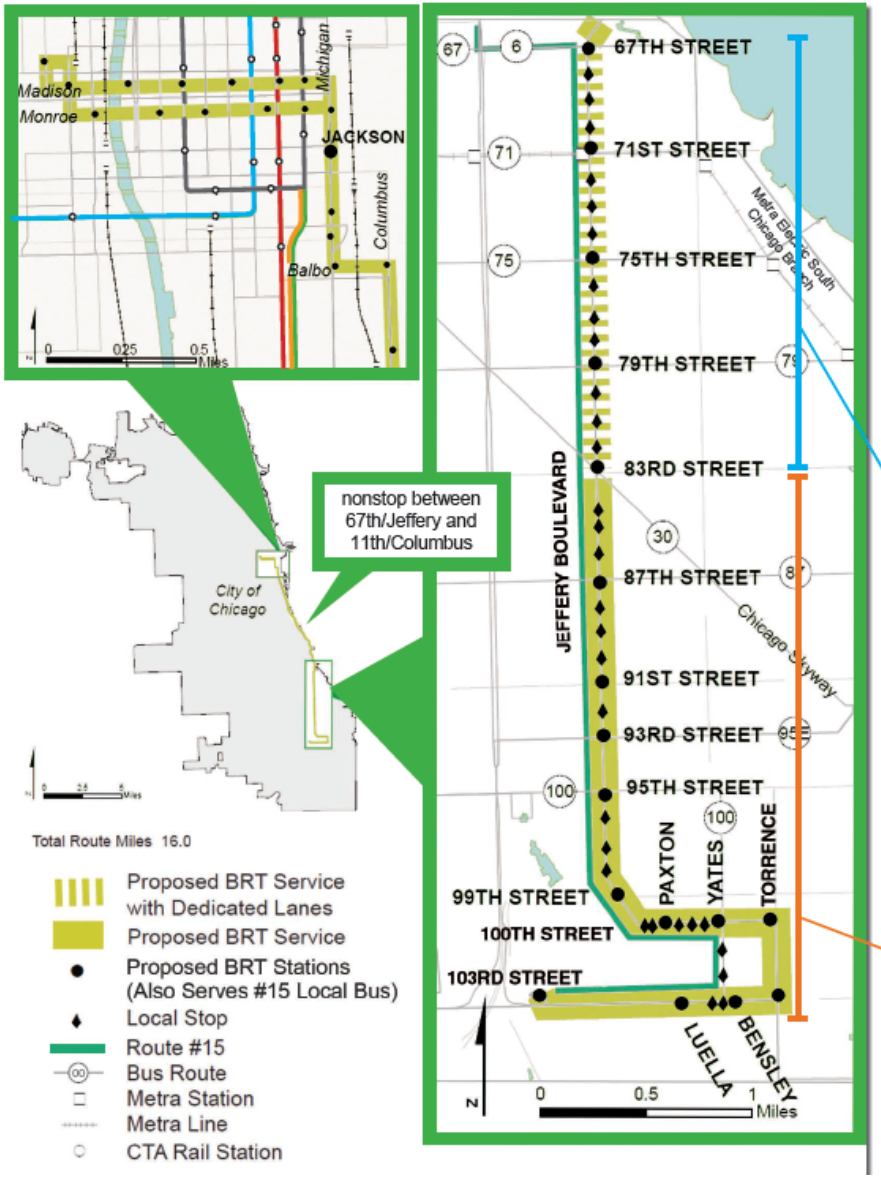
Jeffery BRT

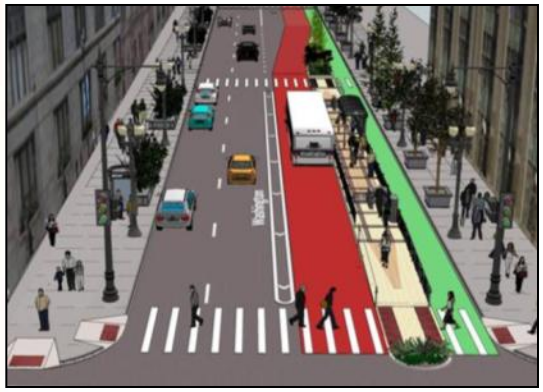


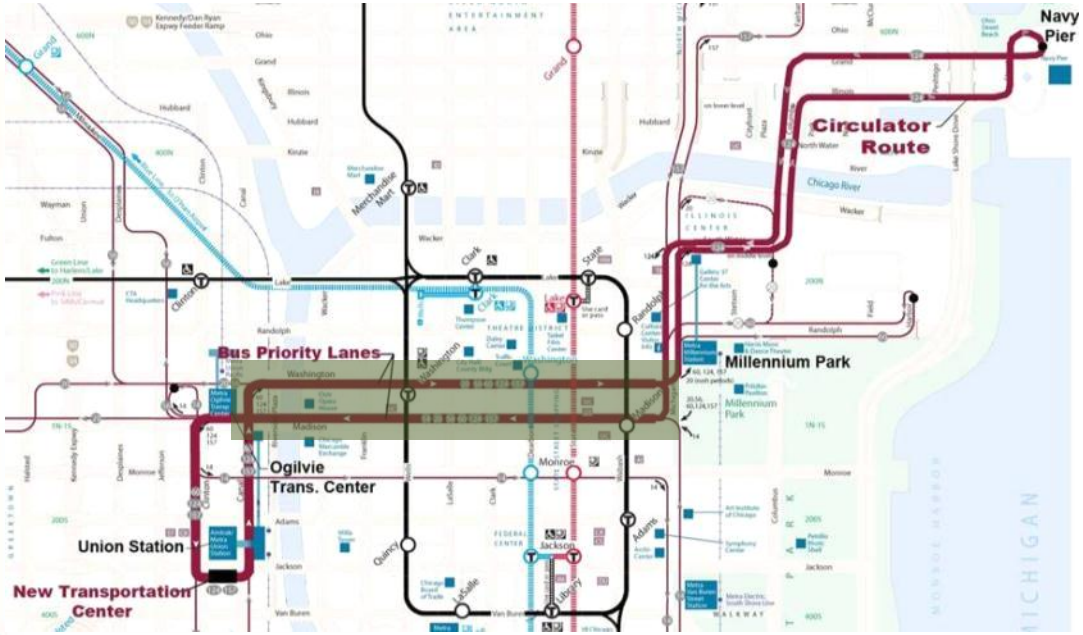
Estimated / Modeled Travel Times

		Northbound AM Peak (with Dedicated Lanes)	Northbound Midday	Southbound Midday	Southbound PM Peak (with Dedicated Lanes)
Span		7:00a-9:00a	9:00a-3:00p	9:00a-3:00p	4:00p-6:00p
Jefferson to 103rd St	Route # 14 Actual Travel Time	71:33	66:54	62:54	70:49
	BRT Estimated Travel Time	64:54	63:57	59:33	65:24
	Average Travel Time Savings	6:39	2:58	3:21	5:25
	% Saved per Trip	9.3%	4.4%	5.3%	7.6%
67th to 83rd St	Route # 14 Actual Travel Time	13:43	12:14	13:09	14:06
	BRT Estimated Travel Time	9:39	10:53	11:28	10:17
	Average Travel Time Savings	4:04	1:21	1:41	3:49
	% Saved per Trip	29.6%	11.0%	12.8%	27.1%
83rd to 103rd St	Route # 14 Actual Travel Time	24:55	23:58	15:11	16:19
	BRT Estimated Travel Time	22:20	22:22	13:31	14:43
	Average Travel Time Savings	2:35	1:37	1:40	1:36
	% Saved per Trip	10.4%	6.7%	11.0%	9.8%

Central Loop BRT

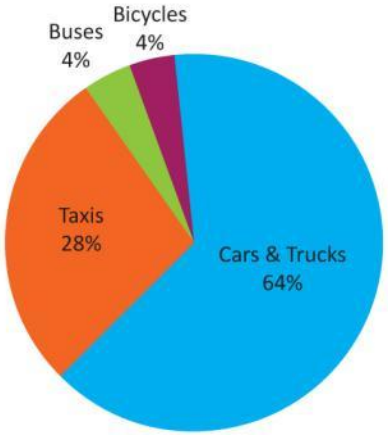
Union Station to Navy Pier





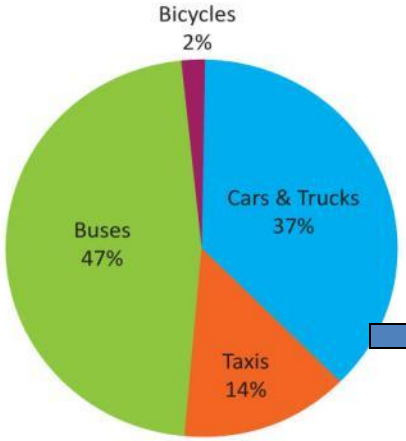
- Project Need:
  - Provide high-quality, high-capacity transit service connecting Union Station to the Loop to River North/Streeterville
- Status: Design
- Funding Sources:
  - $24.6M Federal Grant (Urban Circulator)
  - $4.7 M Federal Grant (CMAQ for terminal)
  - $7.3 M in TIF
- Schedule:
  - Complete design in Summer 2013
  - Complete construction by late Fall 2014
- Key Elements:
  - Dedicated bus lanes on Washington and Madison; colored pavement to increase awareness of bus lane
  - Protected bike lane on Washington
  - New off-street bus terminal at Union Station

Traffic Stats



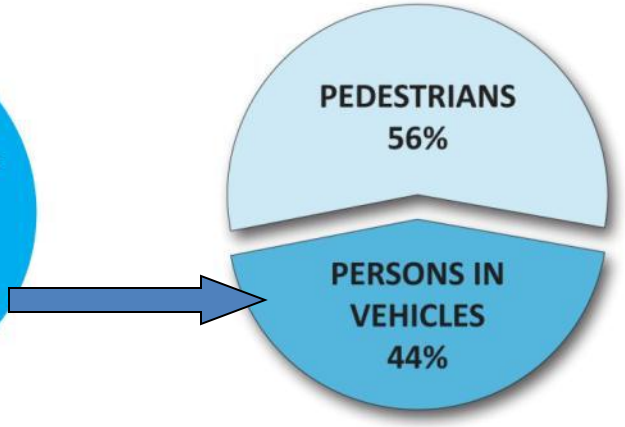
Vehicles

Traffic on Washington & Madison between Clark & LaSalle



Persons in Vehicles

On Washington & Madison between Clark & LaSalle



Daily Volumes

	Vehicles	Pedestrians
Washington	14,000	27,000
Madison	11,000	16,000
Canal	11,000	5,000
Clinton	4,000	5,000

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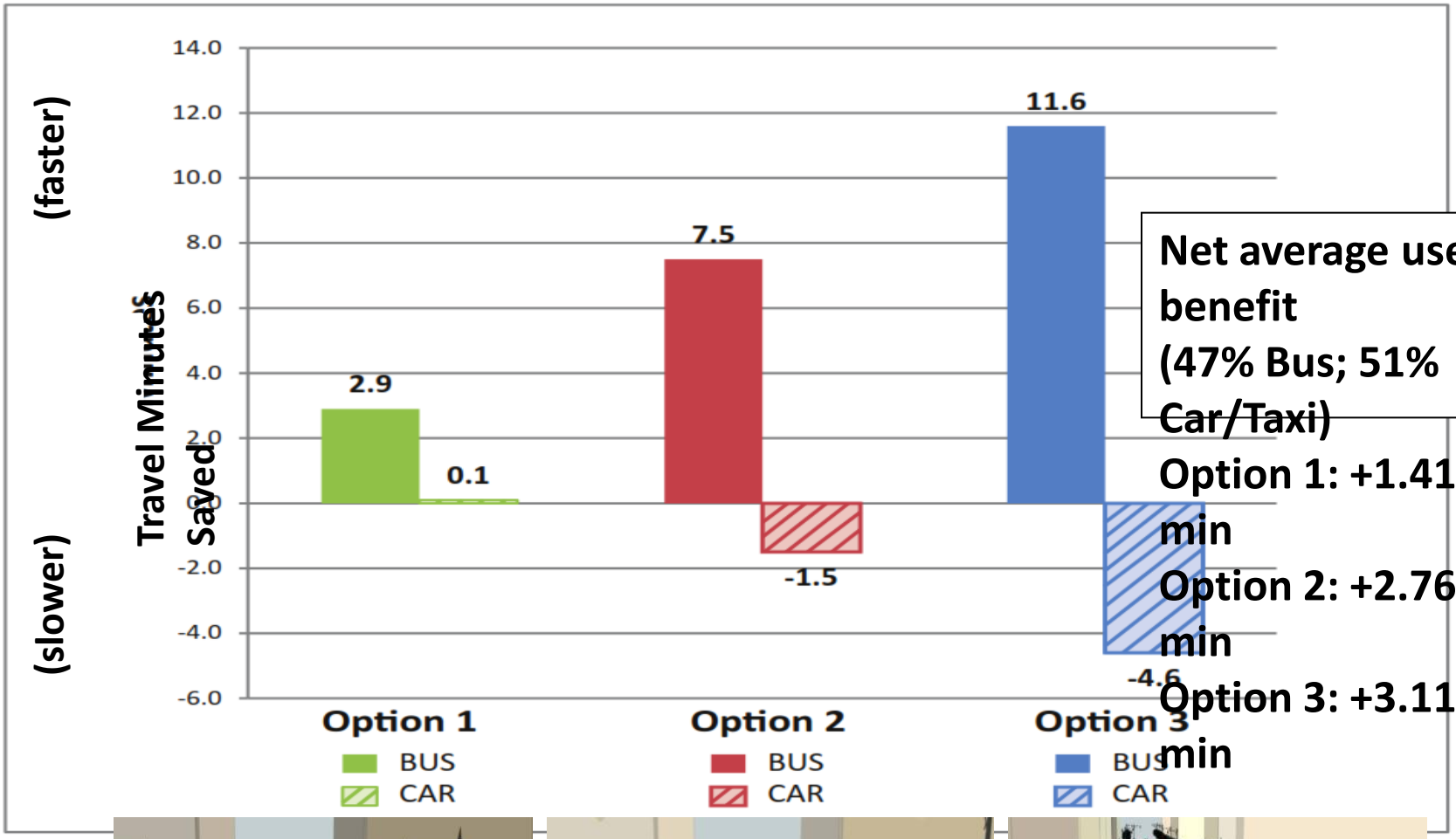
Traffic Facts

- Cars and trucks represent 64% of the traffic mix but only carry 37% of the total trips made by people across the Loop. Taxicabs are similar, being 28% of the traffic mix while carrying only 14% of trips.
- Because a single bus can carry so many people, while buses are only 4% of the total traffic mix they carry 47% of the trips made by people across the Loop in vehicles – a much more efficient means of travel.
- BRT improvements could improve overall bus travel times through the Central Loop corridor roadways by 3 to 9 minutes.
- BRT improvements such as dedicated lanes could reduce bus-related crashes by over 50%.

Central Loop: Total round-trip travel time benefit



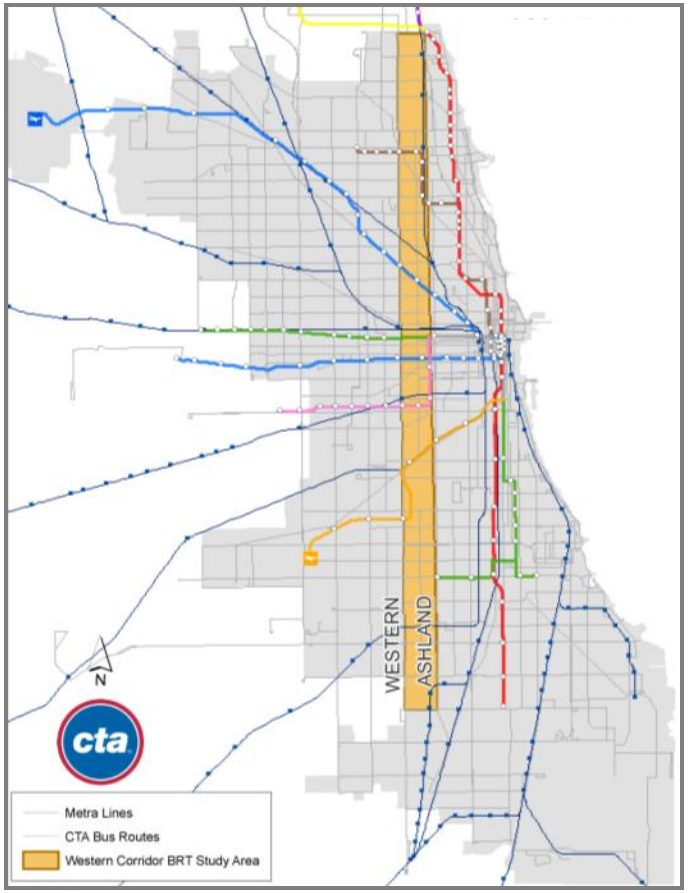
Net average user benefit (47% Bus; 51% Car/Taxi)

Option 1: +1.41 min

Option 2: +2.76 min

Option 3: +3.11 min

Western/Ashland Corridors BRT



- **Project Need:** Improve service on high-ridership bus corridor, opportunity to implement a new substantial cross-town, north-south transitways west of the central business district
- **Status:** Alternatives Analysis
- **Funding Sources:** $1.6 Million FTA Bus Livability Alternatives Analysis
- **Schedule:** Alternatives Analysis through 2012, future phases dependent on funding availability
- **Key Elements:**
  - Includes a 21-mile linear corridor on Western and Ashland
  - Studying options for near-term improvements.
  - Design to be determined
  - Wide ROW corridor provides potential to implement substantial improvements

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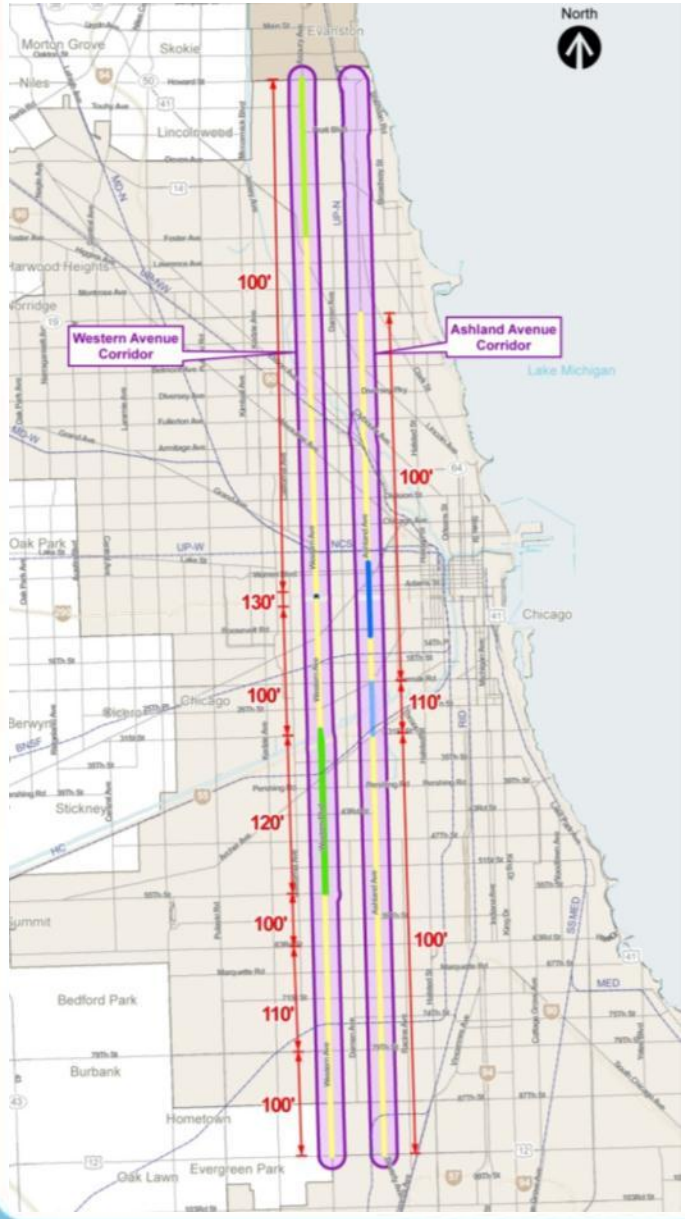
cta

Western/Ashland Corridors BRT



Additional Projects and System Plan

Potential Future Projects

- Downtown:
  - Extending Central Loop to Navy Pier
  - East-west connection north of river
  - North-south route on lakefront
- Lakefront:
  - North Lakeshore Drive Phase I (CDOT) for reconstruction of North Lakeshore Drive
  - Lakefront AA (CTA) evaluating transit improvements for feeder routes onto North and South LSD (Jeffery-style improvements)
- Rest of City:
  - System plan to evaluate other high-priority bus corridors

System Plan Scope

- Network of BRT lines
- Modular/incremental investment plan
- Financial plan
- Implementation Plan

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