

# SPUR

**Ideas + Action for a Better City**

learn more at [SPUR.org](http://SPUR.org)

*tweet about this event:*

*@SPUR\_Urbanist*

*#CapAndTradeTranspo*

# Integrating High Speed Rail, Regional Rail, and Transit Services in California

Cap and Trade Transit and Intercity Rail Funding

**SPUR Presentation**

**February 1, 2017**

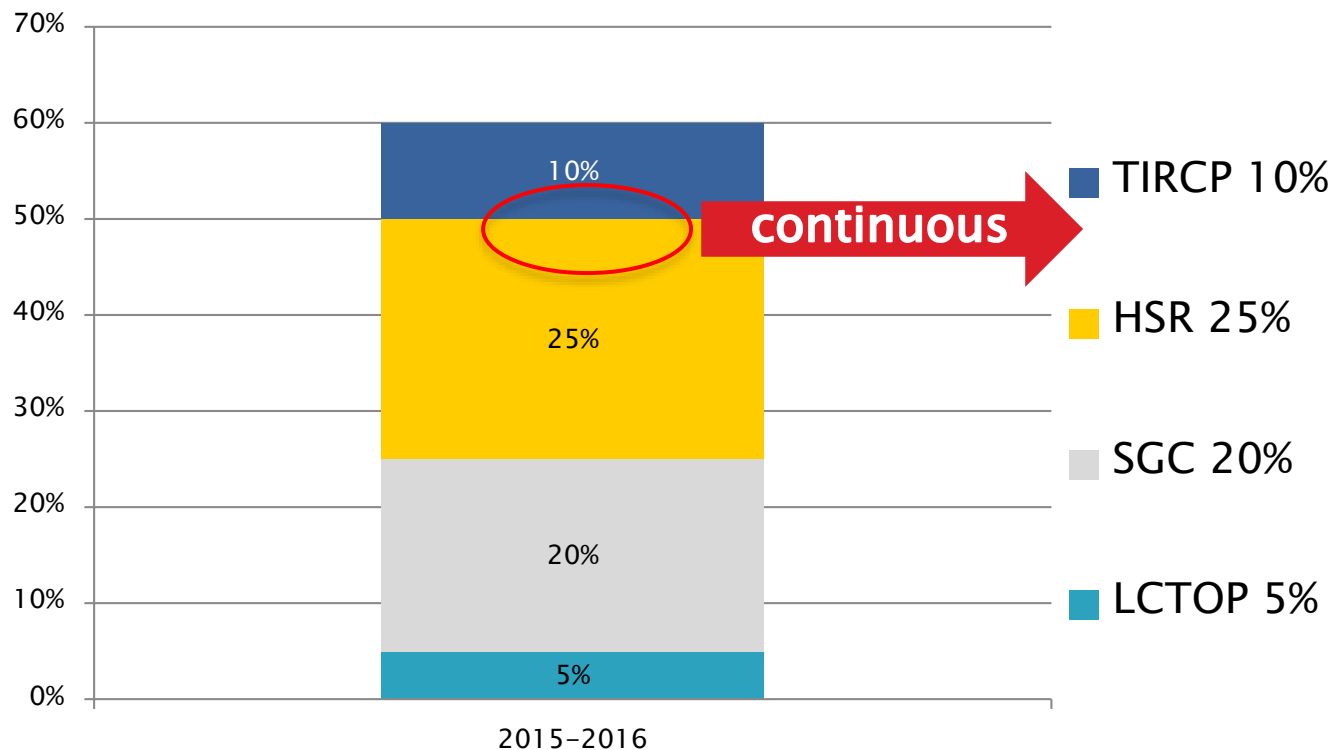


# California Rail Services: Both Regional and High Speed



# Continuous Funding

- ▶ Cap-and-Trade Auction Proceeds
- ▶ Multi-year program (FY14-16, FY16-18, FY 18-23)



# Proposed Additional Funding

- ▶ Governor's Transportation Funding Package
  - ▶ Additional \$500 million per year from cap and trade, conditioned on extension of cap and trade on a 2/3 vote
    - ▶ \$400 million Transit and Intercity Rail Capital Program
    - ▶ \$100 million Active Transportation Program
  - ▶ Early debt repayment providing over \$80 million per year over the next three fiscal years
- ▶ Five Year Program to be adopted by June 30, 2018



# Objectives

Modernize California's transit systems to:

1. Reduce greenhouse gas emissions;
2. Expand and improve transit service to increase ridership;
3. Integrate the rail service of the state's various rail operations, including integration with the high-speed rail system; and
4. Improve transit safety



# Program Focus

- ▶ Specifies funding of “transformative capital improvements”
  - Significantly reduce VMT, congestion, & GHG emissions by
    - Creating a new transit system,
    - Increasing the capacity of an existing transit system, or
    - Significantly increasing the ridership of a transit system

# Eligible Projects

- ▶ Must demonstrate GHG reduction
- ▶ Focus on transformative projects
- ▶ Include *but are not limited to*:
  1. Rail capital projects
  2. Intercity, commuter & urban rail projects that:
    - ▶ Increase service levels
    - ▶ Improve reliability
    - ▶ Decrease travel times
  3. Rail, bus and ferry integration implementation
  4. Bus Rapid Transit, Bus and Ferry transit investments to increase ridership



# Evaluation Criteria

- ▶ Primary criteria
  1. Reduce GHG emissions
  2. Increase ridership
  3. Integration with other operators
  4. Improve safety

# Selected Projects: First Two Rounds

- ▶ 28 statewide projects
  - \$615.2 million towards projects totaling \$4.7 billion when counting additional leveraged funds
  - 5 million tons of GHG emissions reduction by end of useful life
  - 26 of 28 projects benefiting disadvantaged communities



# Selected Projects: First Two Rounds

## Bay Area and Central Coast

Capitol Corridor Joint Powers Authority	Travel Time Reduction Project	\$4,620,000
Monterey-Salinas Transit	Monterey Bay Operations & Maintenance Facility/Salinas Transit Service Project	\$10,000,000
Peninsula Corridor Joint Powers Board	Peninsula Corridor Electrification Project	\$20,000,000
San Francisco MTA (Muni)	Expanding the SFMTA Light Rail Vehicle Fleet Project	\$41,181,000
San Francisco MTA (Muni)	Light Rail Modernization & Expansion Program	\$45,092,000
Santa Clara Valley Transportation Authority	BART Silicon Valley Phase II Expansion	\$20,000,000
Sonoma-Marín Area Rail Transit	SMART Rail Car Capacity Project	\$11,000,000
<b>Total</b>	<b>7 projects</b>	<b>\$151,893,000</b>

## Sacramento and Central Valley

Capitol Corridor Joint Powers Authority	Increased Rail Service to Roseville, Service Optimization and Standby Power Investments	\$8,999,000
City of Fresno	Metropolitan Rapid Transit and Rail Connectivity Project	\$8,000,000
Sacramento Regional Transit District	SacRT Refurbishment of 7 Light Rail Vehicles Project	\$6,427,000
Sacramento Regional Transit District	Downtown/Riverfront Sacramento-West Sacramento Streetcar	\$30,000,000
San Joaquin Regional Rail Commission	Altamont Corridor Express Wayside Power	\$200,000
San Joaquin Regional Rail Commission	ACE Near Term Capacity Improvement Program	\$16,459,000
San Joaquin RTD	MLK Corridor and Crosstown Miner Corridor Bus Rapid Transit Project	\$6,841,000
<b>Total</b>	<b>7 projects</b>	<b>\$76,926,000</b>



# Selected Projects: First Two Rounds

## Southern California

Antelope Valley Air Quality Management District	Zero Emission Bus and Vanpool Expansion in the Antelope Valley, Kern County and the Coachella Valley	\$8,930,000
Antelope Valley Transit Authority	Regional Transit Interconnectivity & Environmental Sustainability Project	\$24,403,000
Foothill Transit	Bus Electrification, Service Expansion and Rail Integration	\$5,000,000
Los Angeles County MTA (Metro)	Willowbrook/Rosa Parks Station and Blue Line Light Rail Operational Improvements Program	\$38,494,000
Los Angeles County MTA (Metro)	Airport Metro Connector 96 <sup>th</sup> Street Station/Metro Green Line Extension to LAX	\$40,000,000
Los Angeles County MTA (Metro)	Metro Red and Purple Line Core Capacity Improvements	\$69,209,000
LOSSAN Rail Corridor Agency	Pacific Surfliner Transit Transfer Program	\$1,675,000
LOSSAN Rail Corridor Agency	All Aboard: Transforming Southern California Rail Travel	\$82,000,000
Orange County Transportation Authority	Bravo! Route 560 Rapid Buses	\$2,320,000
Orange County Transportation Authority	OC Streetcar and OCTA System-Wide Mobile Ticketing	\$28,000,000
San Bernardino Associated Governments	Redlands Passenger Rail Project	\$9,204,000
San Diego Association of Governments	South Bay Bus Rapid Transit Project	\$4,000,000
San Diego MTS	San Diego MTS Trolley Capacity Improvements Project	\$31,936,000
SCRRA (Metrolink)	Purchase of 9 Fuel-Efficient Tier IV Locomotives	\$41,181,000
<b>Total</b>	<b>14 projects</b>	<b>\$386,352,000</b>



# An Example of an Integrated Network - Wetzikon





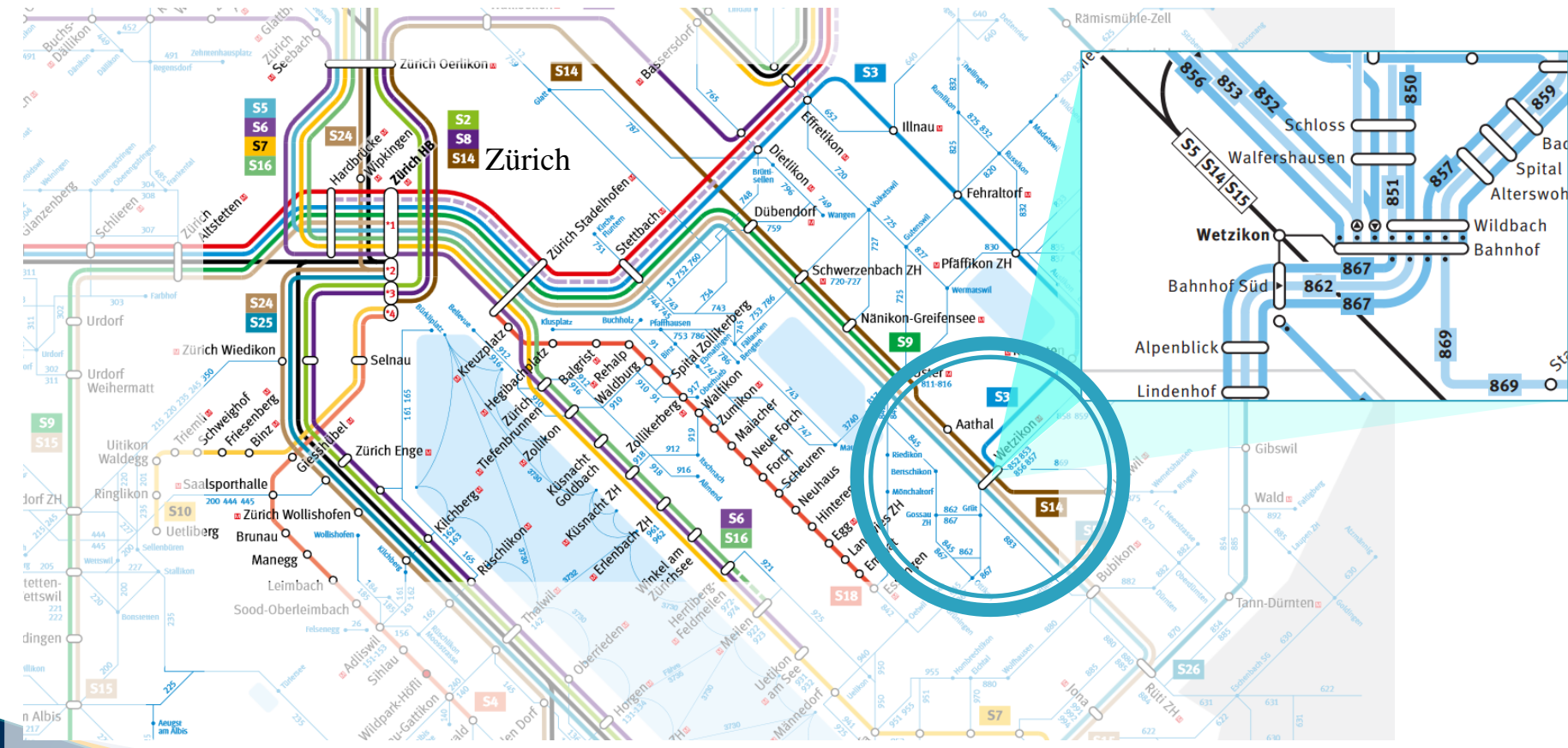
# An Example of an Integrated Network - Wetzikon



- Multimodal Connectivity:
  - Facilitates Bus-Rail connections
- Transfers occur half-hourly at minutes 15 and 45
- Connections between 3 regional rail lines and 12 bus lines

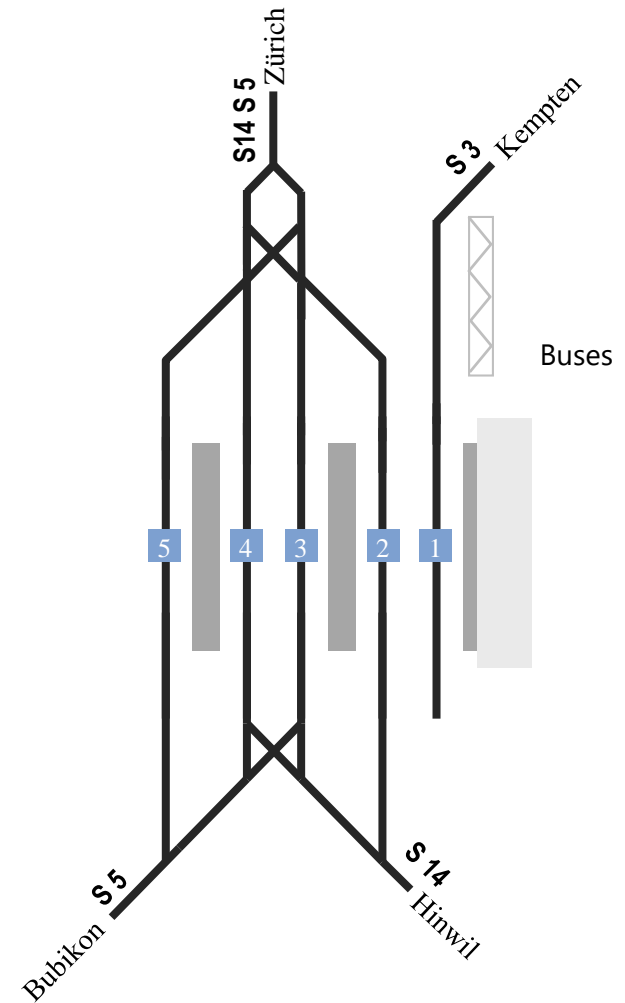
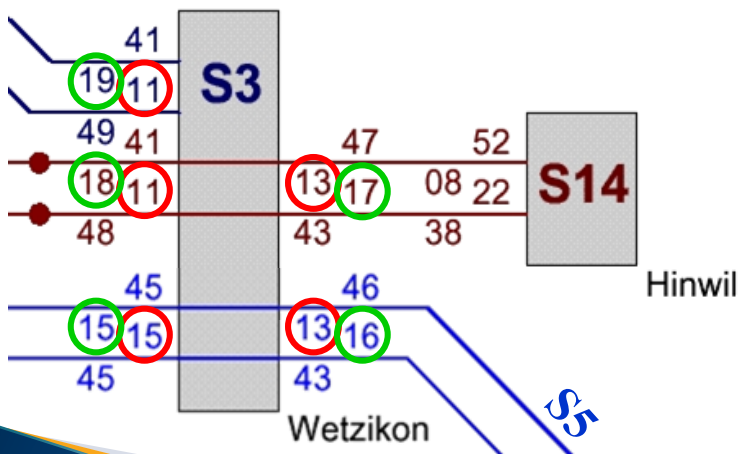
# An Example of an Integrated Network - Wetzikon

## ► Network Map



# An Example of an Integrated Network - Wetzikon

1. Buses arrive in advance of the trains
2. Trains arrive in the station
3. All services are in the station
4. Trains depart from the station
5. Buses depart from the station





# Near-Term Strategies Supporting Rail & Transit Integration

## 1. State Funding Priority on Transit–Rail Integration

- Focus of cap and trade funding for transit and rail
- Guiding future interregional project selection

## 2. Improved Existing Services

- Improved network planning & operations
- Significantly increased capital investment

## 3. Improved Customer Experience

- Next generation smart cards and mobile ticketing
- More extensive ticketing and service integration

## 4. Long Range Planning with Vision in Mind

- Not-to-preclude framework for planning and investment
- Regional strategic planning focused on future service goals



# Using Cap-and-Trade to Improve California's Transportation: Regional Perspectives

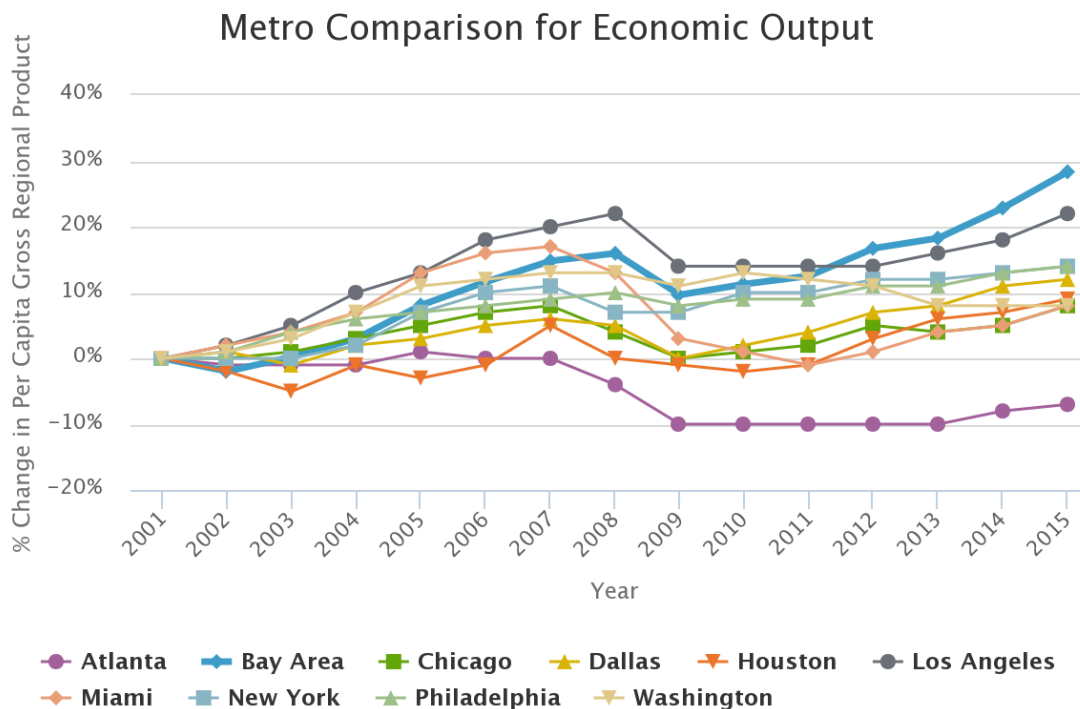


**Alix Bockelman**  
**Metropolitan Transportation Commission**

February 1, 2017

## REGIONAL PERFORMANCE

# The Bay Area's economy has grown faster than any other major metro area's since 2001



Sources: Bureau of Economic Analysis (inflation-adjusted to 2015 dollars)

Note: GRP is reported at the MSA level; the Bay Area MSAs include the 9-county region and San Benito County.

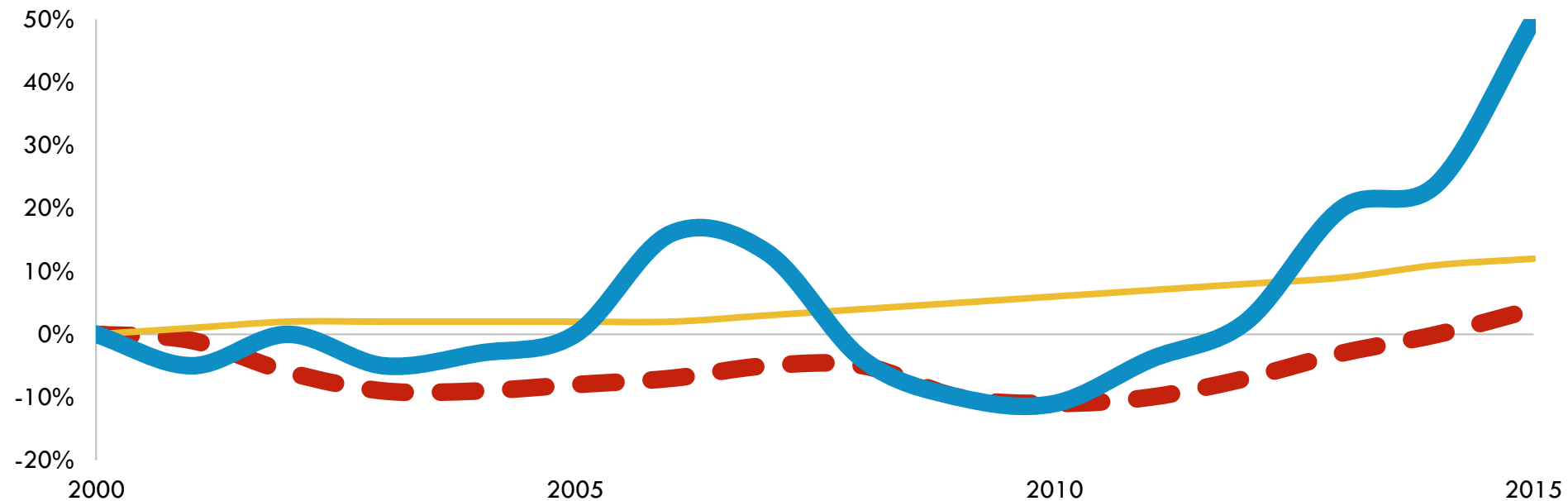
Highcharts.com

## REGIONAL PERFORMANCE

**Congested delay has grown at a much faster rate than jobs.**

**% CHANGE SINCE 1990**

Jobs Population Congested Delay



Sources: California Employment Development Department, 2015; California Department of Finance, 2015; INRIX/Iteris/MTC, 2015

## Transbay Corridor

### Existing Conditions

Westbound to SF Core  
AM Peak Hour

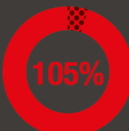
10,000 People in Cars

29,000 Transit Trips

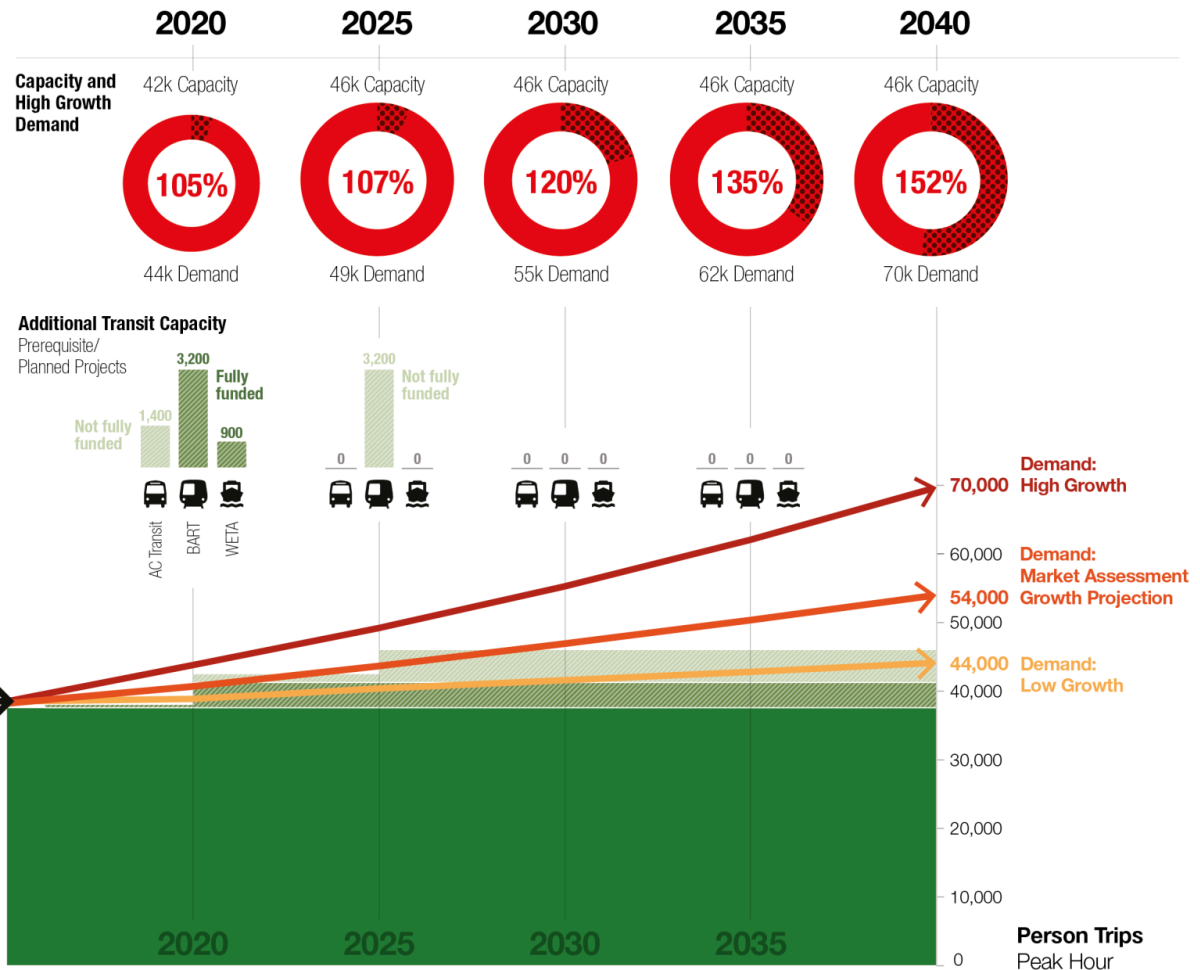
2,700 AC Transit & WestCAT bus  
25,000 BART  
1,300 WETA ferry

2015

37k Capacity



39k Demand



# Regional Cap-and-Trade Framework

- Address major core capacity needs, system modernization, and expansion through **Transit and Intercity Rail Capital Program (TIRCP)**
- Improve small transit operator service, invest in key transit corridors and the Clipper system through **Low Carbon Transit Operations Program (LCTOP)**
- Fund affordable housing projects and related infrastructure through **Affordable Housing and Sustainable Communities program (AHSC)**



# Transit and Intercity Rail Capital Program (TIRCP)

## Regional Priorities

### Fleet Expansion



### System Modernization & Expansion



### Support Facilities



**MTC's Total TIRCP Framework:  
\$3 Billion over 25 years to Region**

# Transit and Intercity Rail Capital Program (TIRCP)

- Program is 10% of state Cap-and-Trade revenues
- Through 2 rounds, \$152 million awarded to Bay Area projects (25% of statewide)
- Regional target: 33% of program



Project	Amount Awarded
Muni Light Rail Vehicles	\$86 million
BART Silicon Valley Phase II	\$20 million
Caltrain Electrification	\$20 million
Others (SMART, ACE, Capital Corridor)	\$26 million
<b>Bay Area Total</b>	<b>\$152 million</b>



# Low Carbon Transit Operations Program (LCTOP)

## Regional Priorities

- 50% of program: formula based on revenue, direct to operators
- **50% of program: formula based on population, goes to region**

Small Operators &  
North Counties



Key Transit Corridors



Clipper/ Fare Policy



# Low Carbon Transit Operations Program (LCTOP)

- Program is 5% of state Cap-and-Trade revenues
- Through 2 rounds, \$37 million awarded to Bay Area projects (37% of statewide)
- 56% of state's revenue-based funds
- 19% of state's population-based funds



## Current Bay Area projects:

- New transit vehicles
- Service expansion
- Replacing Clipper equipment
- Transit Signal Priority equipment
- Maintenance facilities
- Real-time transit information
- Transit passes

# Affordable Housing and Sustainable Communities (AHSC)

## Regional Priorities

- Support projects providing greater share and total number of affordable units
- Support Plan Bay Area strategies
- Support adopted transit priorities



## Early Success

- Program is 20% of state Cap-and-Trade revenues
- Through 2 rounds, \$157 million awarded to 19 Bay Area projects (35% of statewide funds)
  - 1,700 affordable housing units and associated infrastructure (new buses, bicycle & ped. improvements, etc.)

# High Speed Rail

- Program is 25% of Cap-and-Trade revenues
- \$113 million funding commitment to Caltrain Electrification
- Opportunities for future Bay Area investment



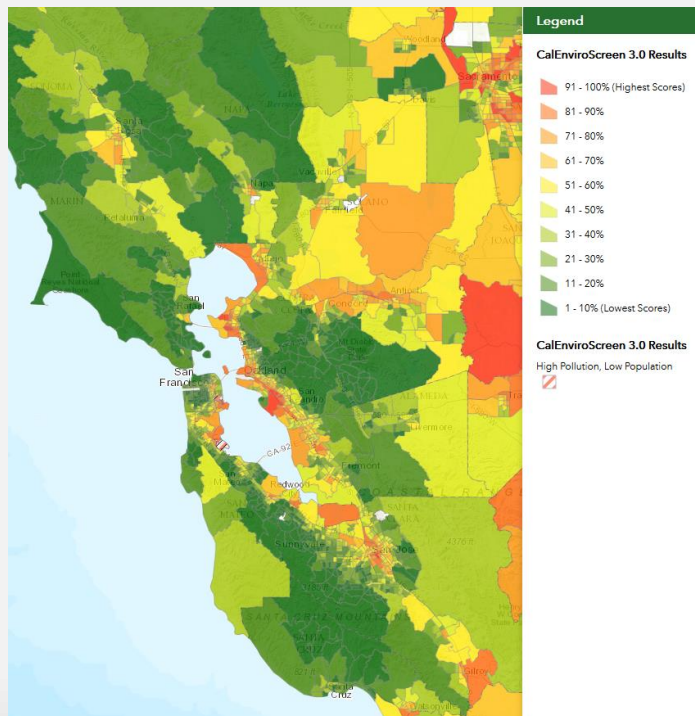


# Clean Vehicle Opportunities

- **Low Carbon Transportation** programs, through California Air Resources Board:
  - Clean Vehicle Rebate Project
  - Heavy-duty hybrid/zero-emission trucks and buses
  - Freight demonstration projects
  - Pilot programs in disadvantaged communities



# Disadvantaged Communities/ Communities of Concern



- Minimum 25% of Cap and Trade funds must benefit Disadvantaged Communities (increasing to 35%, AB 1550)
- Set-asides vary by program
- Plan Bay Area's Communities of Concern cover far more population and area than state's CalEnviroScreen 3.0 definition:

	Communities of Concern	CalEnviroScreen 3.0 Disadvantaged Communities
Population	1,708,000	471,000
Census Tracts	365	105

- MTC continues to advocate for broader Disadvantaged Community definition



**SFMTA**  
Municipal  
Transportation  
Agency

# Transforming San Francisco's Light Rail Program

February 1, 2017  
SPUR Lunchtime Forum

The background image is a photograph of a city street, likely in San Francisco, showing a cable car (tram) and various buildings. A semi-transparent dark grey rectangular box with a dotted border is centered over the image, containing the text. The top of the slide features a solid red header with a decorative pattern of overlapping red circles on the right side.

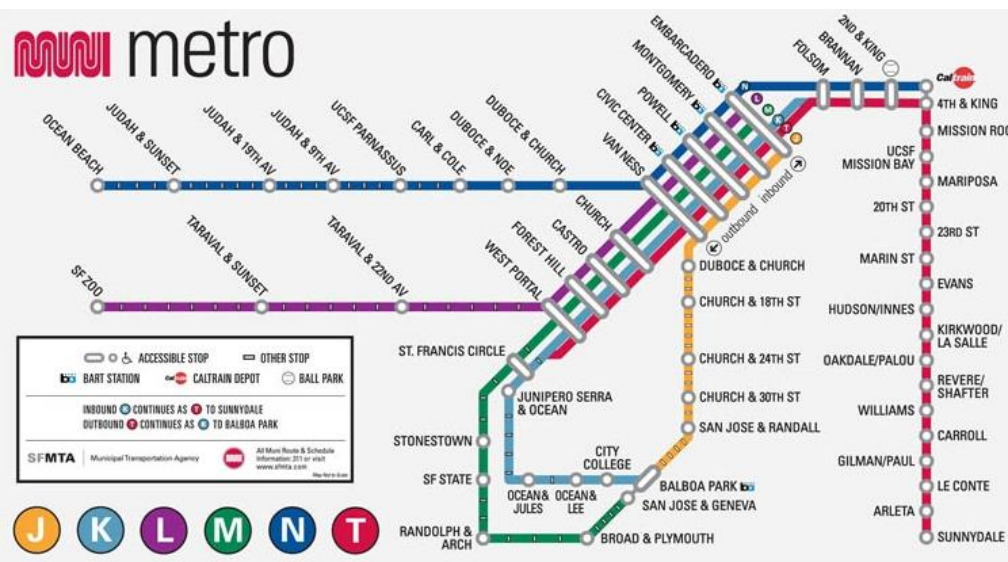
# **Who We Are**

**The SFMTA plans, designs,  
builds, operates, regulates and  
maintains one of the most  
comprehensive transportation  
networks in the world.**



# Muni Light Rail System at a Glance

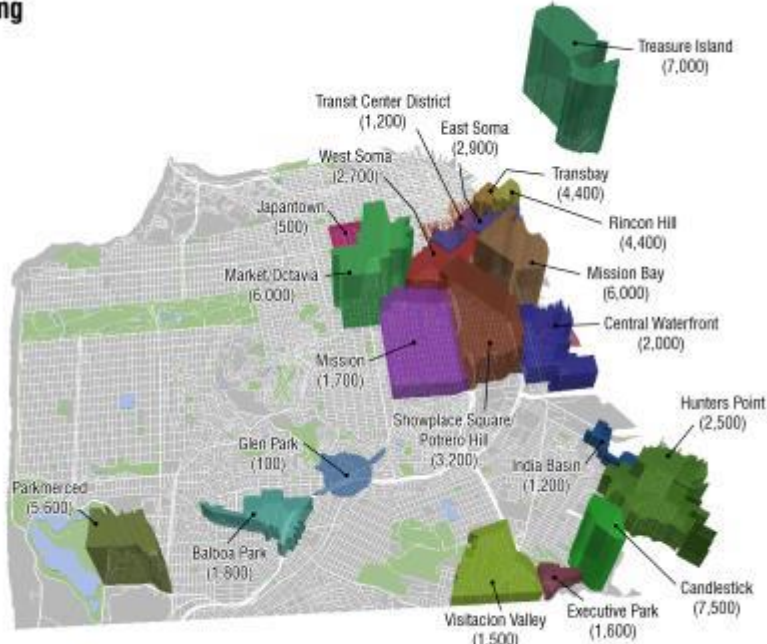
- Zero emission backbone of the system
- Key to meeting service goals & delivering special events
- Serves a quarter of our riders (170k weekday boardings)
- Recent introduction of Hillway and Castro shuttles to alleviate crowding



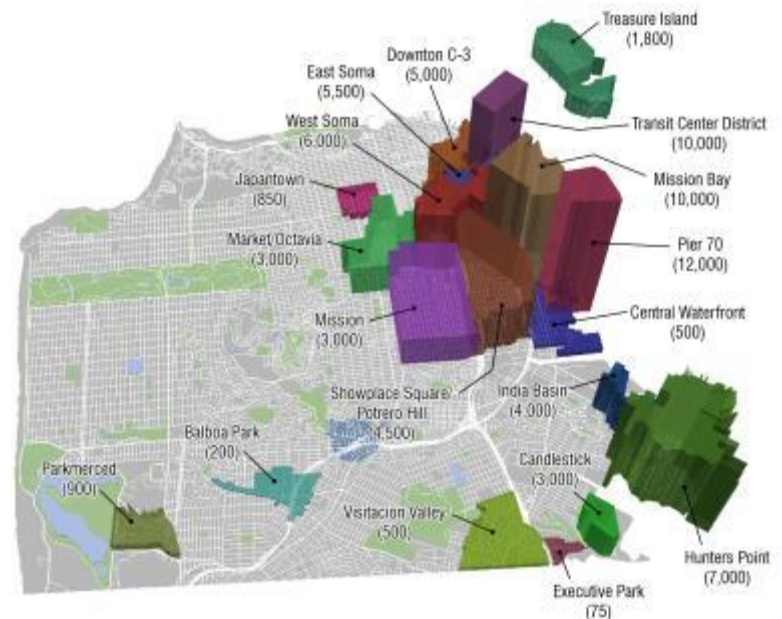
# San Francisco is Growing

- We anticipate **130,000+** new households and **310,000+** new jobs by 2040
- LRV ridership expected to grow by about 50 percent in that time period

Housing



Jobs



# Light Rail Modernization & Expansion Program Benefits

- Improves **safety** with 151 replacement LRVs and up to 113 expansion vehicles
- Increases **ridership** by over 80,000 new weekday boardings
- **Integrates** with regional and statewide transit
- **Reduces greenhouse gas emissions** by almost 1 million metric tons
- Delivers on our promise for **equity**



# First New Light Rail Vehicle Arrived!



# State-of-the-Art Safety Features



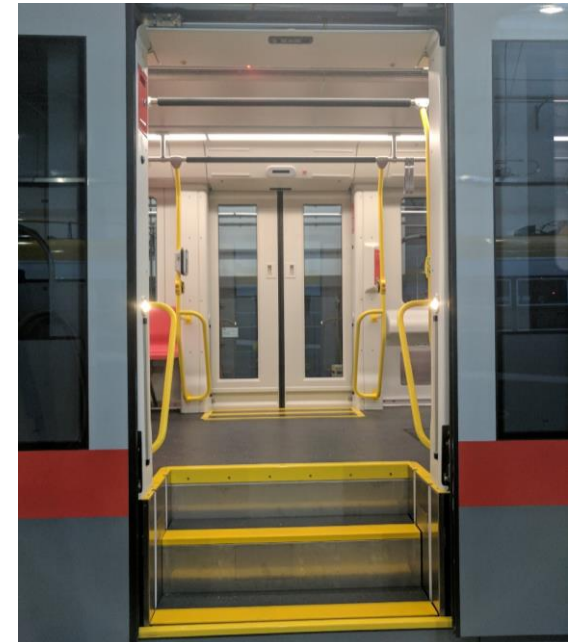
- Ergonomically designed operator cab improves working environment and visibility
- Crash energy management system protects passengers and operators
- Optimized truck design to accommodate track conditions and lower the risk of derailment
- Advanced propulsion and braking systems provide a smoother ride and reduce harsh braking and acceleration





# Improved Performance

- Five times less likely to break down in service compared to current fleet
- Modular components allow rapid replacement to reduce downtime
- Train Operator Display provides info to help operator quickly diagnose issues
- Color-block destination signs & LCD screens improve wayfinding
- Improved passenger amenities and access for people with disabilities



# Planning for LRV Expansion





# Using New Vehicles in Service!

- Use new LRVs for capacity in segments with highest demand
- Frequent T Third from Chinatown to Bayview
- Longer trains on N Judah, S Shuttle, and J Church
- Evaluating multiple service scenarios including express trains, route interlining and coupling practices for increased flexibility
- Assessing bypass tracks at selected locations





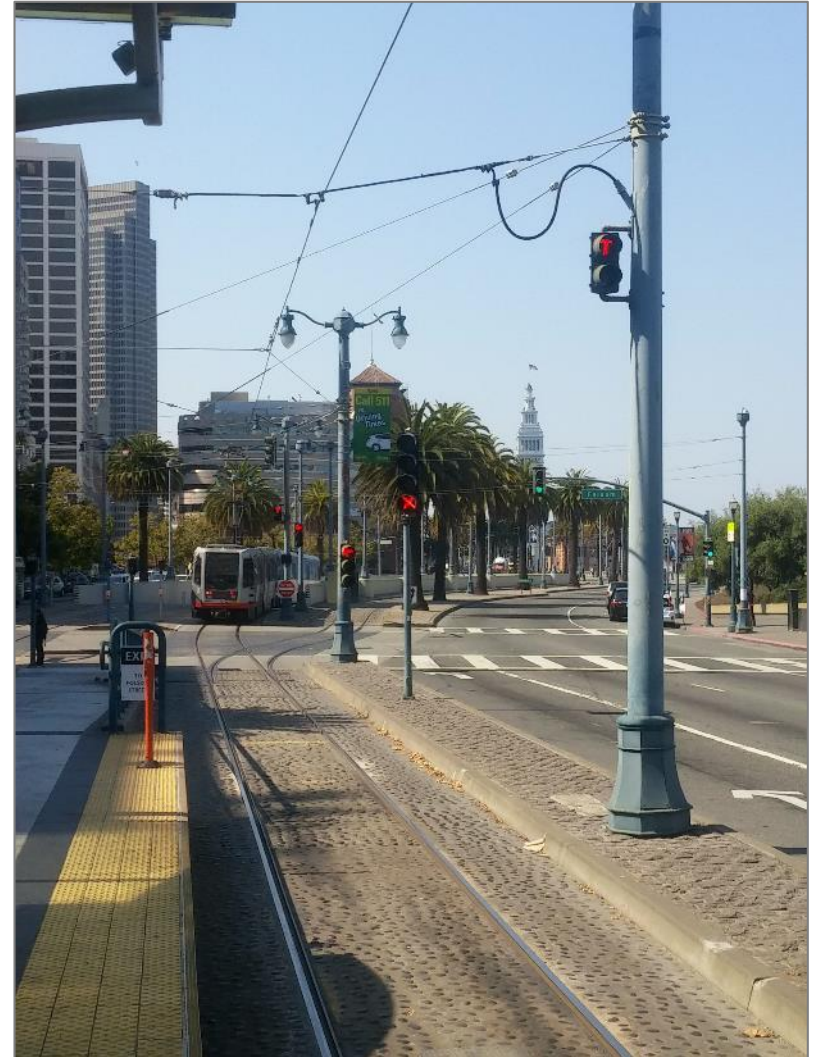
# Surface Signaling and Related Investments

## Capital Investments

- Dynamic surface signaling and positive train control
- New Warriors Platform
- Signal redesign at bottleneck locations
- New pocket track on Embarcadero to relieve Muni Metro Turnback

## Benefits

- Reduced collisions
- Better special event management and incident recovery
- Fewer service gaps, more even vehicle spacing
- Builds on current investment (e.g., transit signal priority)

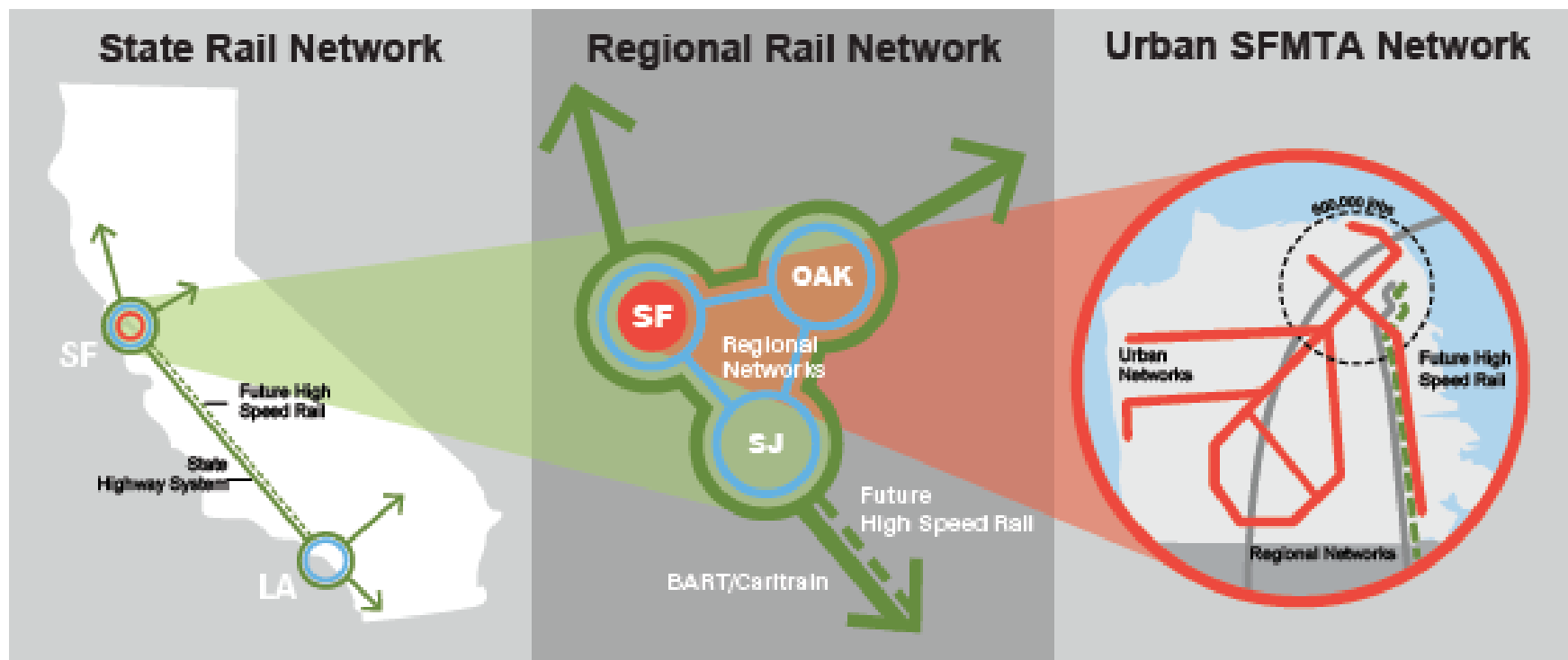


# Investing in San Francisco light rail leverages:

## Connecting California's Economy

San Francisco is a hub with rich local, regional and state surface transportation connections.

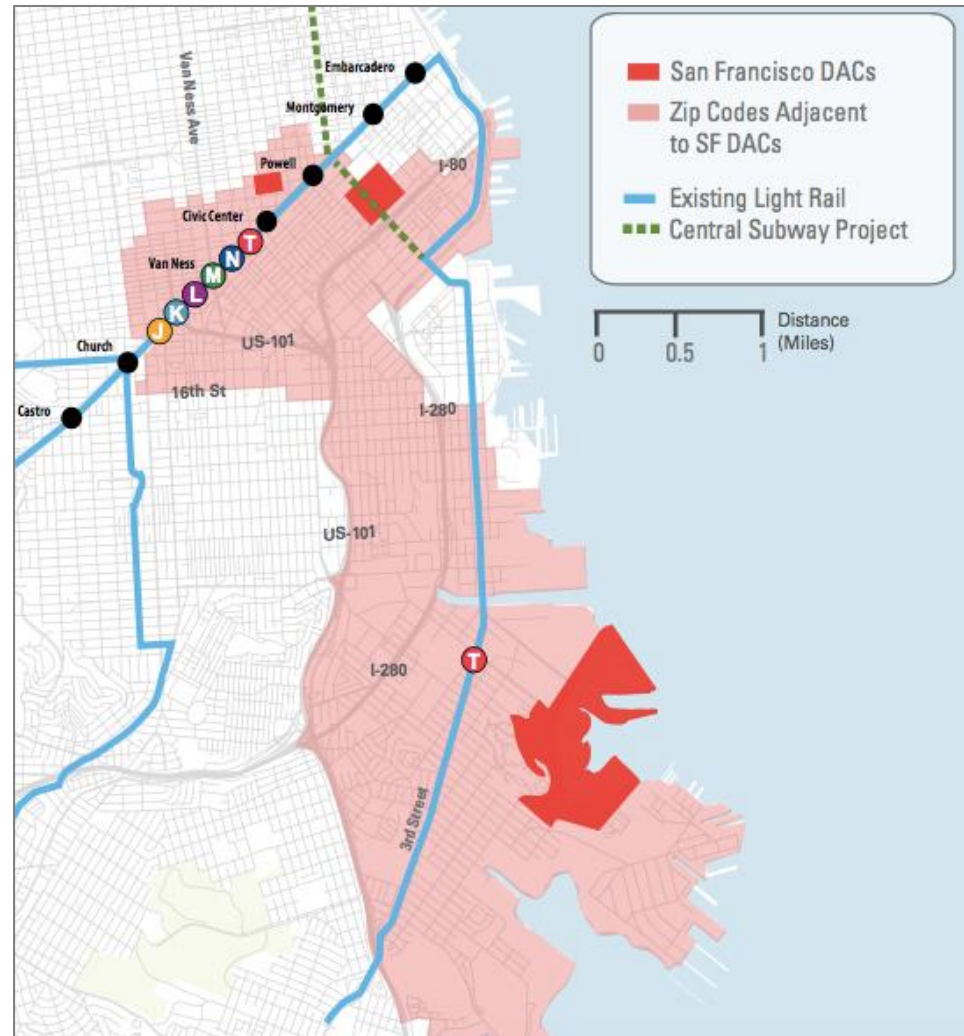
Transportation Interconnectivity Framework



- Integration with existing regional and state transportation
- The City's existing Climate Action Strategy, policies, & commitments
- Citywide transit and transportation improvements (e.g., Muni Forward, Vision Zero)

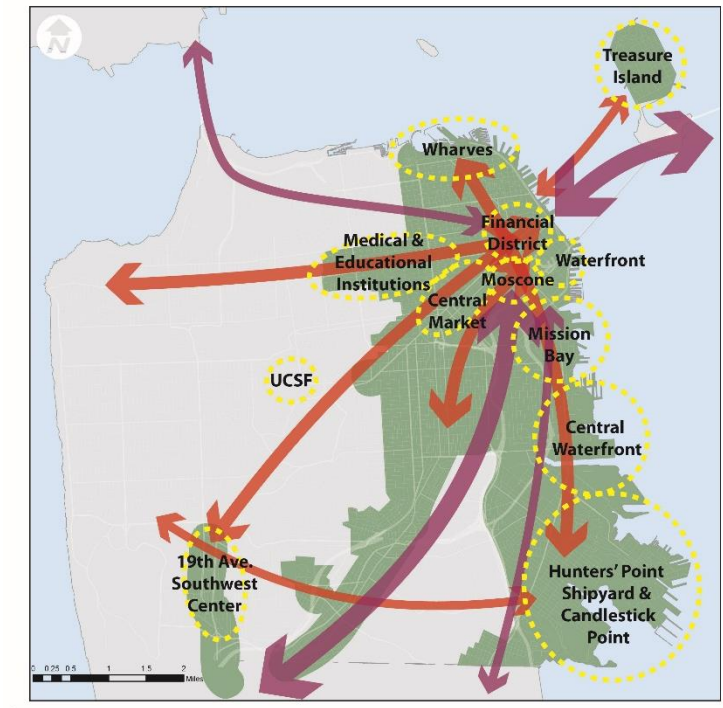
# Delivering on our Promise for Equity

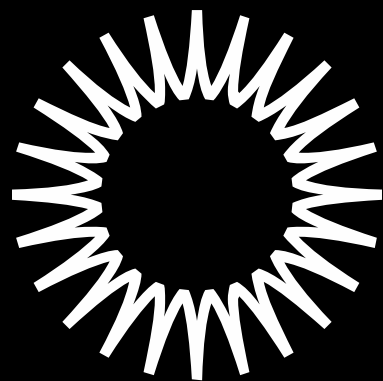
- New vehicles will provide immediate benefits to low income neighborhoods and Citywide customers from low-income households
- Half of Muni customers (51%) live in households that qualify as low income, a much higher proportion than the City average (31%)



# The Bay Area's Quality of Life Depends on a Robust Transit Network

- Leading Regional Economic Engine
- Addressing Sustainable Jobs and Housing Growth
- Providing Affordable/Equitable Transportation
- Enhancing the environment





# SPUR

**Ideas + Action for a Better City**

learn more at [SPUR.org](http://SPUR.org)

*tweet about this event:*

*@SPUR\_Urbanist*

*#CapAndTradeTranspo*