



Briefing for Caltrans Planners

# BART's Role in Supporting Sustainable Cities

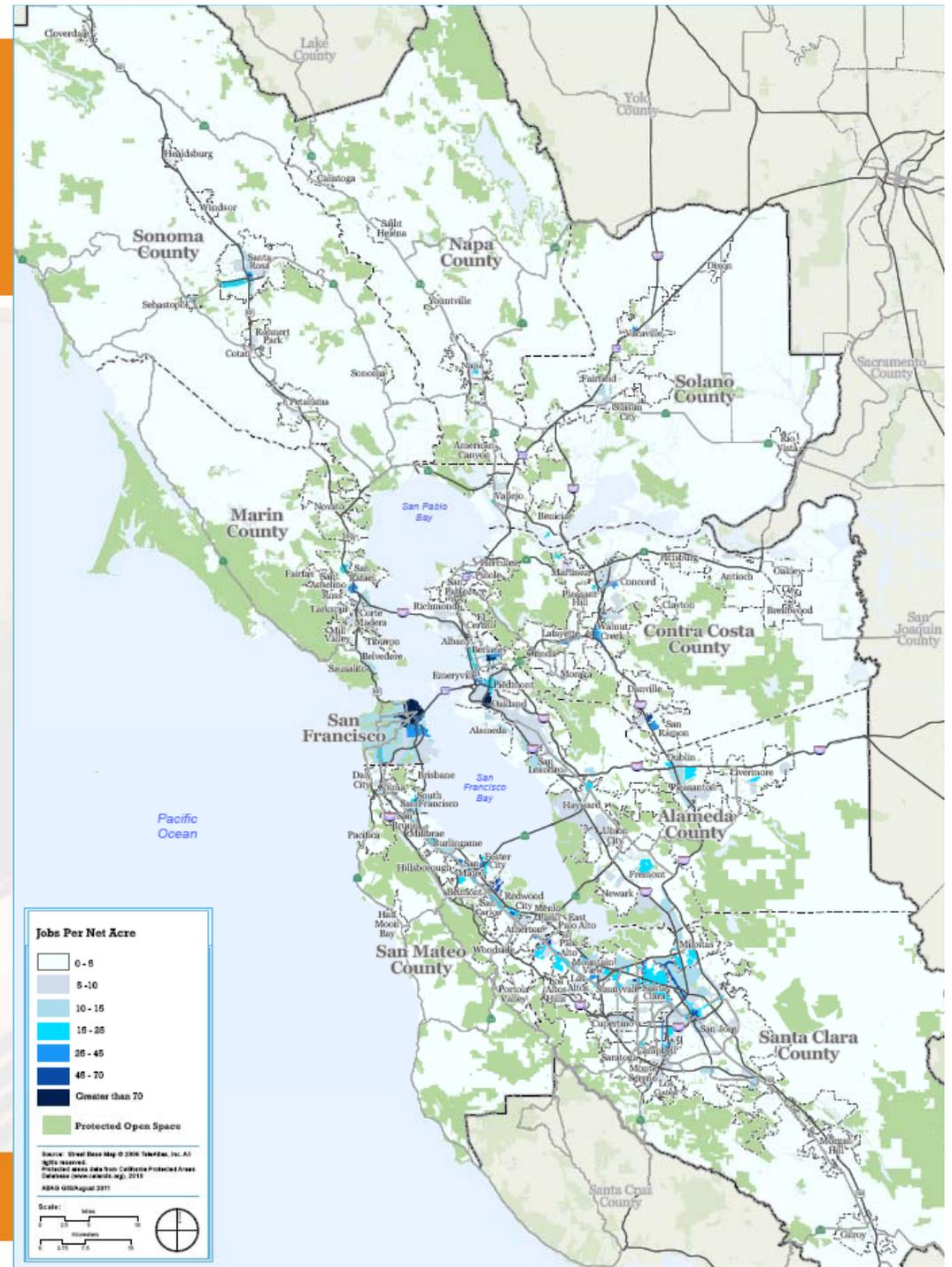
April 24, 2012



San Francisco Bay Area

# Our Region

- 7 million people
- 9 counties
- Three major cities:
  1. San Jose
  2. San Francisco
  3. Oakland
- Regional Government:
  - Metropolitan Transportation Commission
  - Association of Bay Area Governments
  - Bay Area Air Quality Mgmt District
  - 28 transit operators



# Agenda



1. **BART Background**
2. **State and Regional Context**
3. **BART Strategic Needs**
4. **Regional Sustainability**

# BART Today

## Basic System Facts



- Regional and local rail rapid transit
- Elected Board of Directors: 9
- Comprised of 3 Counties:
  - Alameda, Contra Costa & San Francisco
  - Serves San Mateo
- 104 total track miles
- 5 lines
- 44 stations
- 46,000 parking spaces



# BART Today (FY12)

## Basic System Facts



- 367K vs. 404K avg weekday riders in Sept 2012 (9 days over 400k)
- 1.1 billion annual passenger miles
- BART carries as many people as the Bay Bridge during the peak hour (peak direction)
- Operating Funds:
  - Rail farebox recovery ratio: 70%
  - Rail cost / passenger mile: \$0.333
  - Other sources:
    - Sales tax
    - Property tax
    - SamTrans



# 50+ Years of History, 40 Years of Service



**1946**

Bay Area Council & others begin discussions

**1957**

BART District Created

**1962**

Voters Approve BART Plan

**1964**

Construction Begins

**1970**

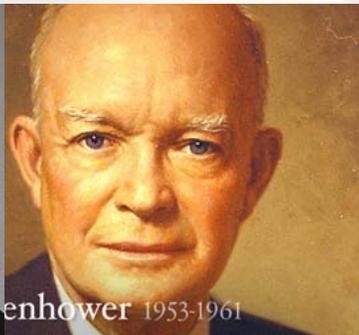
BART Car Prototype Created

**1972**

BART Carries First Passenger



1945-1953



Eisenhower 1953-1961



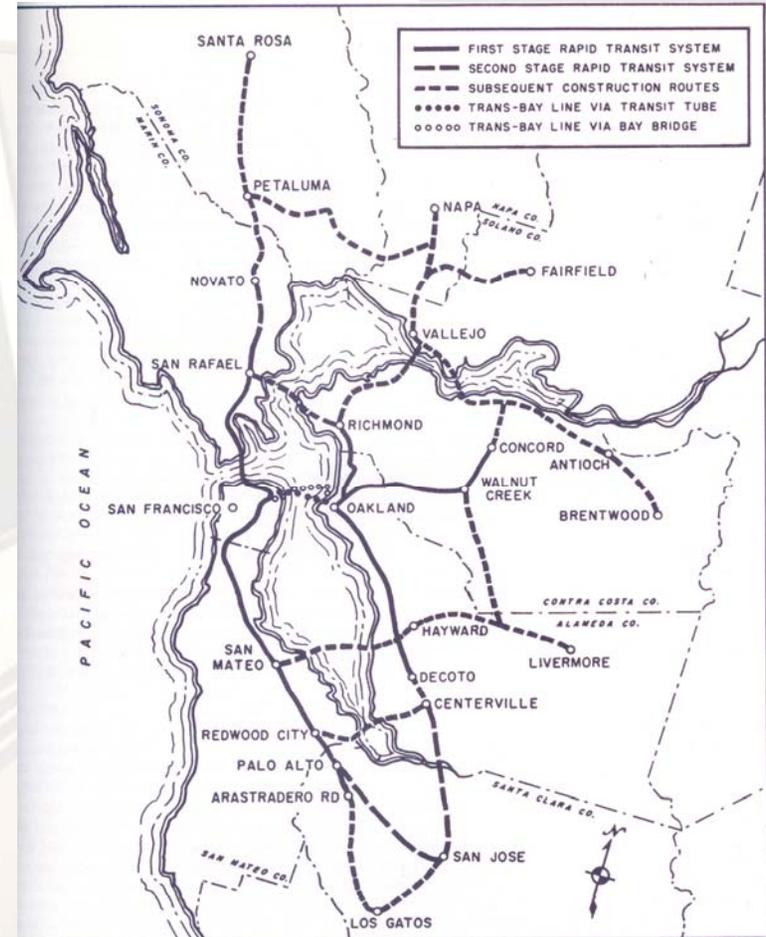
Kennedy 1961-1963



# 1950's Rail Map for Region



- Nine county plan for Bay Area (1956)
- Led to three county funding referendum in (1962)

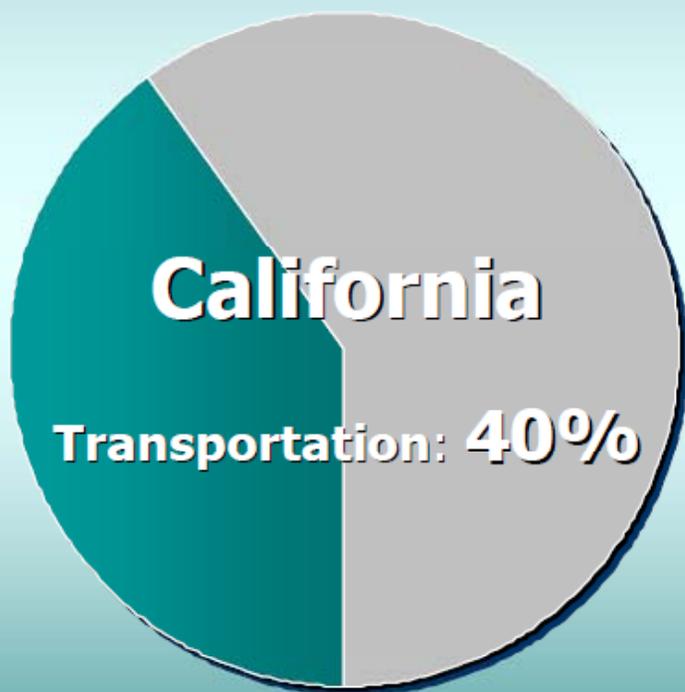


# Agenda

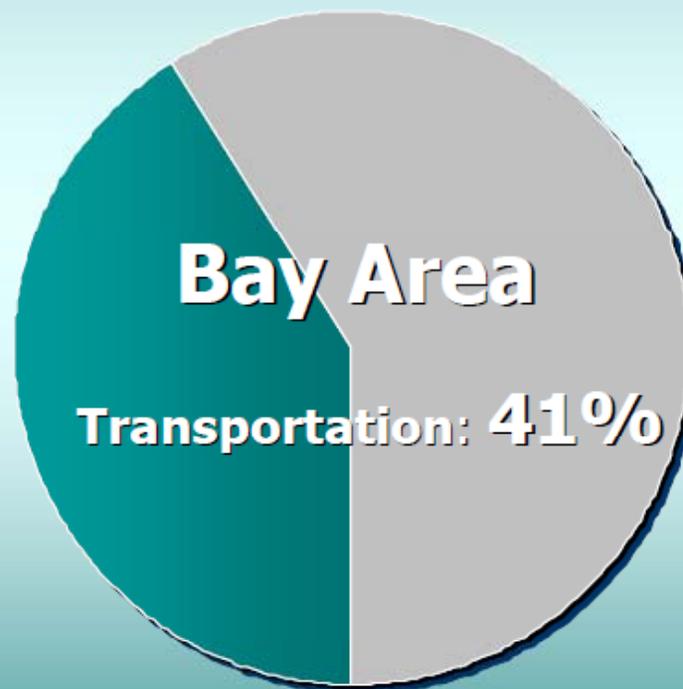


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# Transportation is the Main Source of Greenhouse Gas Emissions



Sources: ARB GHG Projections for 2020



Sources: USEIA, BAAQMD 2007 Base Year Inventory





- ❑ **AB32 CA Global Warming Solutions Act**
  - 1990 emissions levels by 2020
- ❑ **Executive Order #S-3-05 (2005)**
  - 80% below 1990 emissions by 2050
- ❑ **SB375 Sustainable Communities Strategy (2008)**
  - Regional GHG Emission Targets for Autos / Light Trucks



# Bay Area Growth

2010 – 2040



## Population & Housing

- Pop: 2.1 million more
- HH: 0.7 million more

## Employment

- Jobs: 1.1 million more

# Agenda



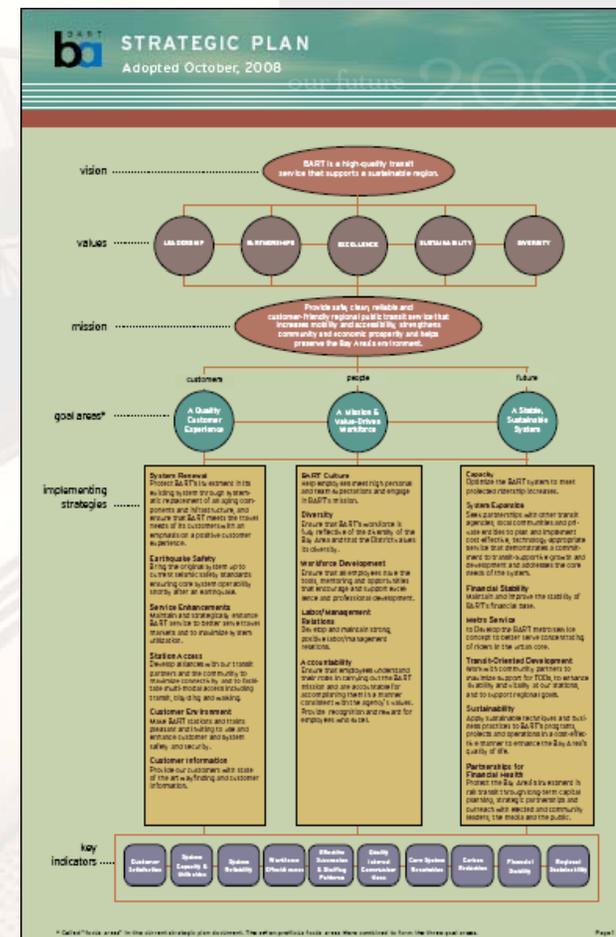
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Adopted 2008

# BART Strategic Plan



- Board adopted Oct. 2008
- Updated and Streamlined
- Performance Indicators
- Vision
  - BART is a high-quality transit service that supports a sustainable region
- Three Goal Areas
  - Customers
  - People
  - Future



# Critical Reinvestment Needs



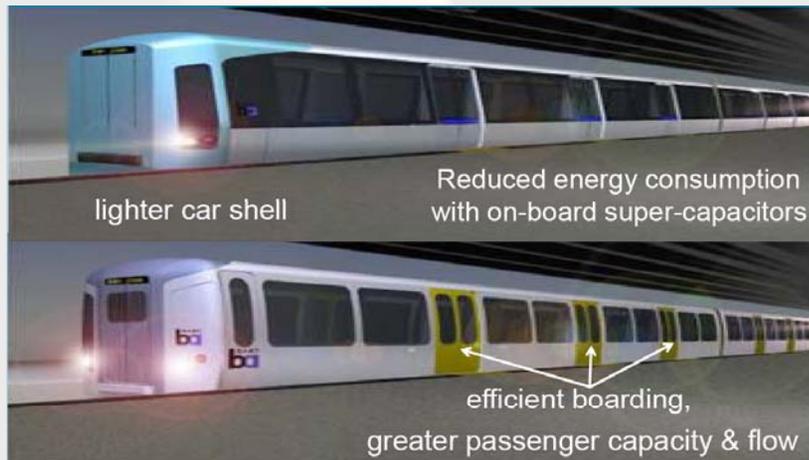
- After ~40 years, reinvestment and upgrades are vital
- Investment projects include:
  - Replace/Add Rail cars
  - Station Modernization
  - Track Improvements
  - Traction Power
  - Capacity Enhancements
  - Train Control/Communication systems



# BART New Rail Car Program



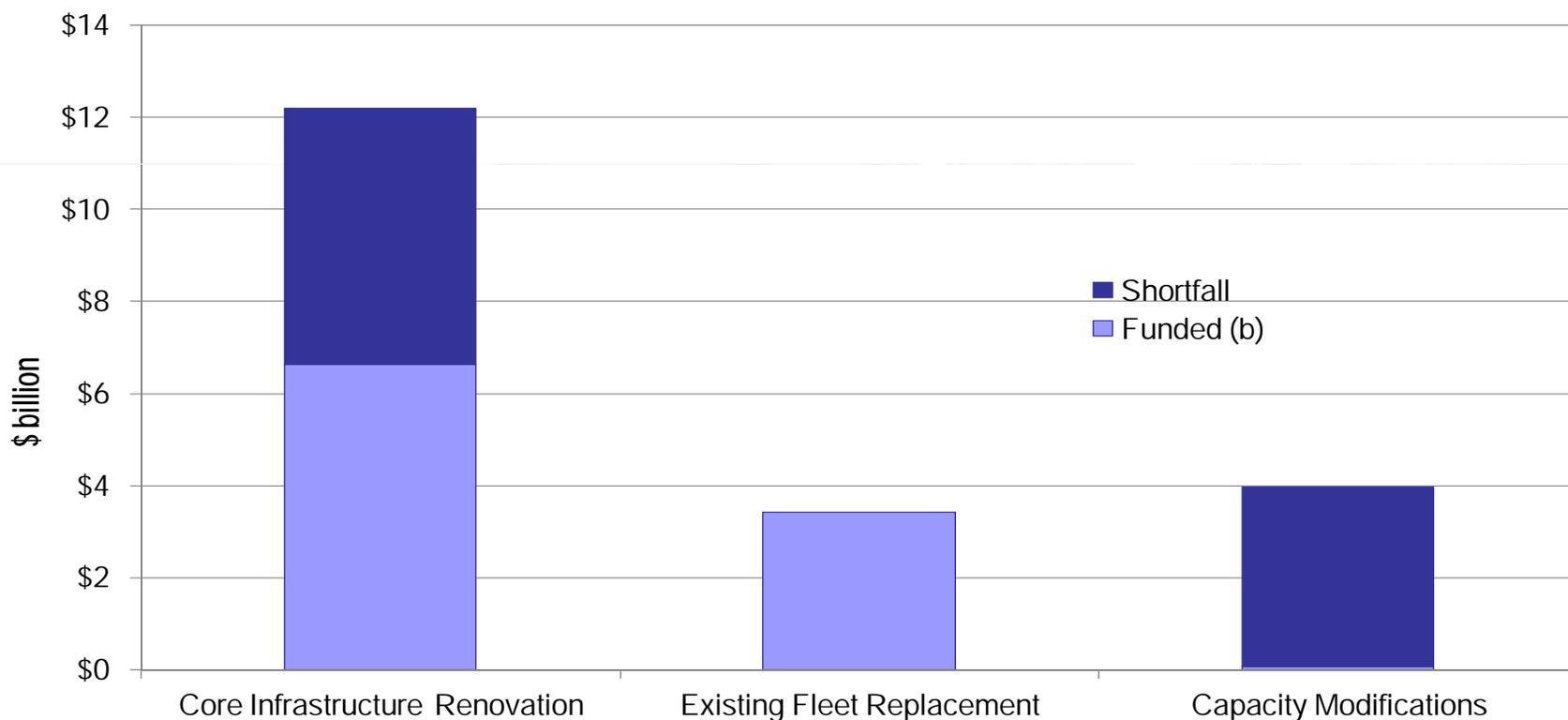
- Replace existing car fleet
- Oldest fleet in the country
- \$3.3B replacement program
- Procurement in progress
- Future plans to expand fleet



# BART Capital Program for Core System Major Funding Shortfalls

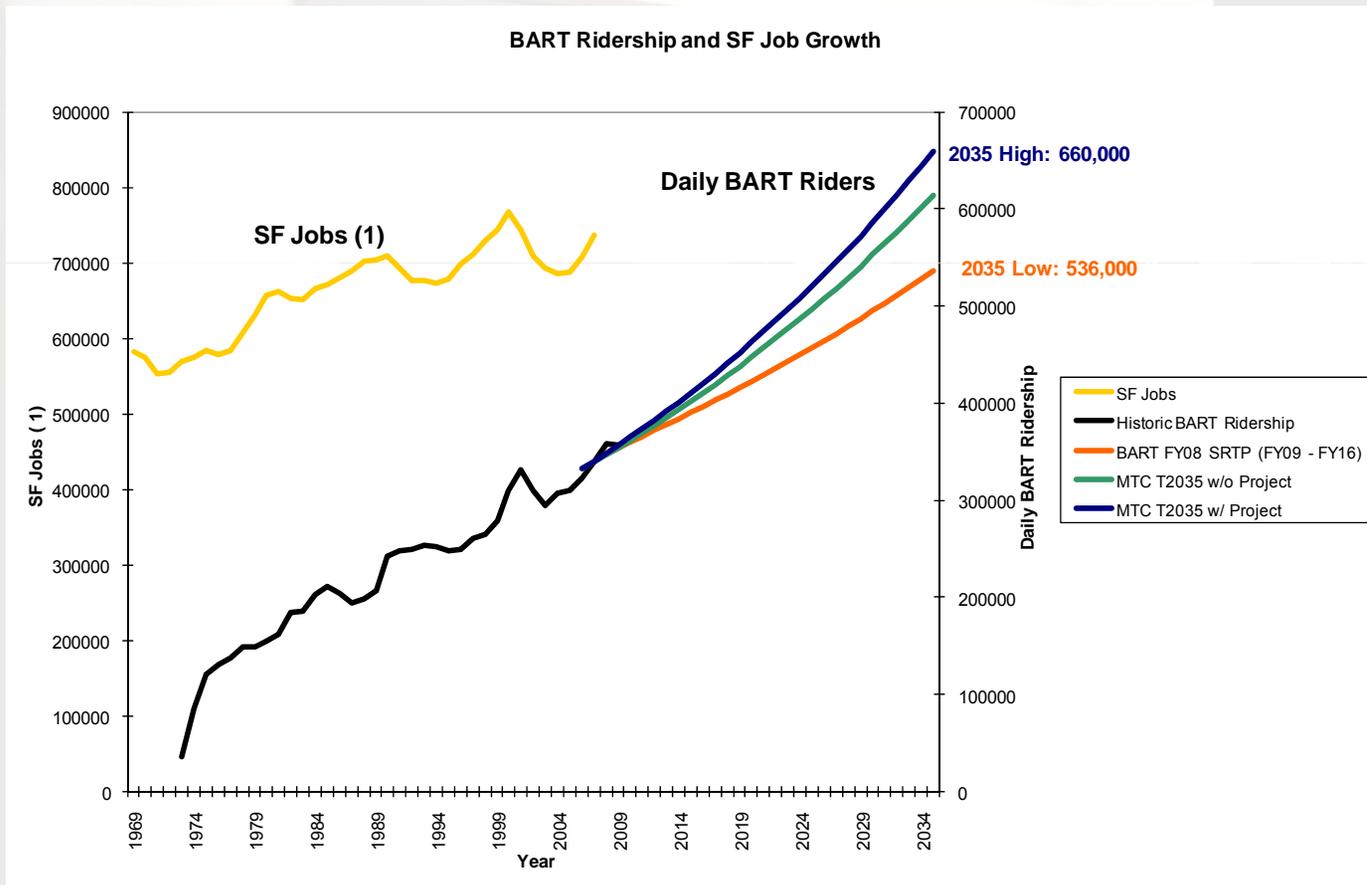


BART Capital Program (a)  
(\$billion)



(a) Not shown are \$30 million in Security improvements and \$30 million in Quality Enhancements  
(b) Funding as "programmed" in MTC 2035 Regional Transportation Plan

# BART Average Daily Ridership Historic Trends and Projections



(1) US Bureau of Labor Statistics

## Slide 17

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ea1

text in graph could be larger.

engin ayaz, 5/24/2010

# Current Travel Markets



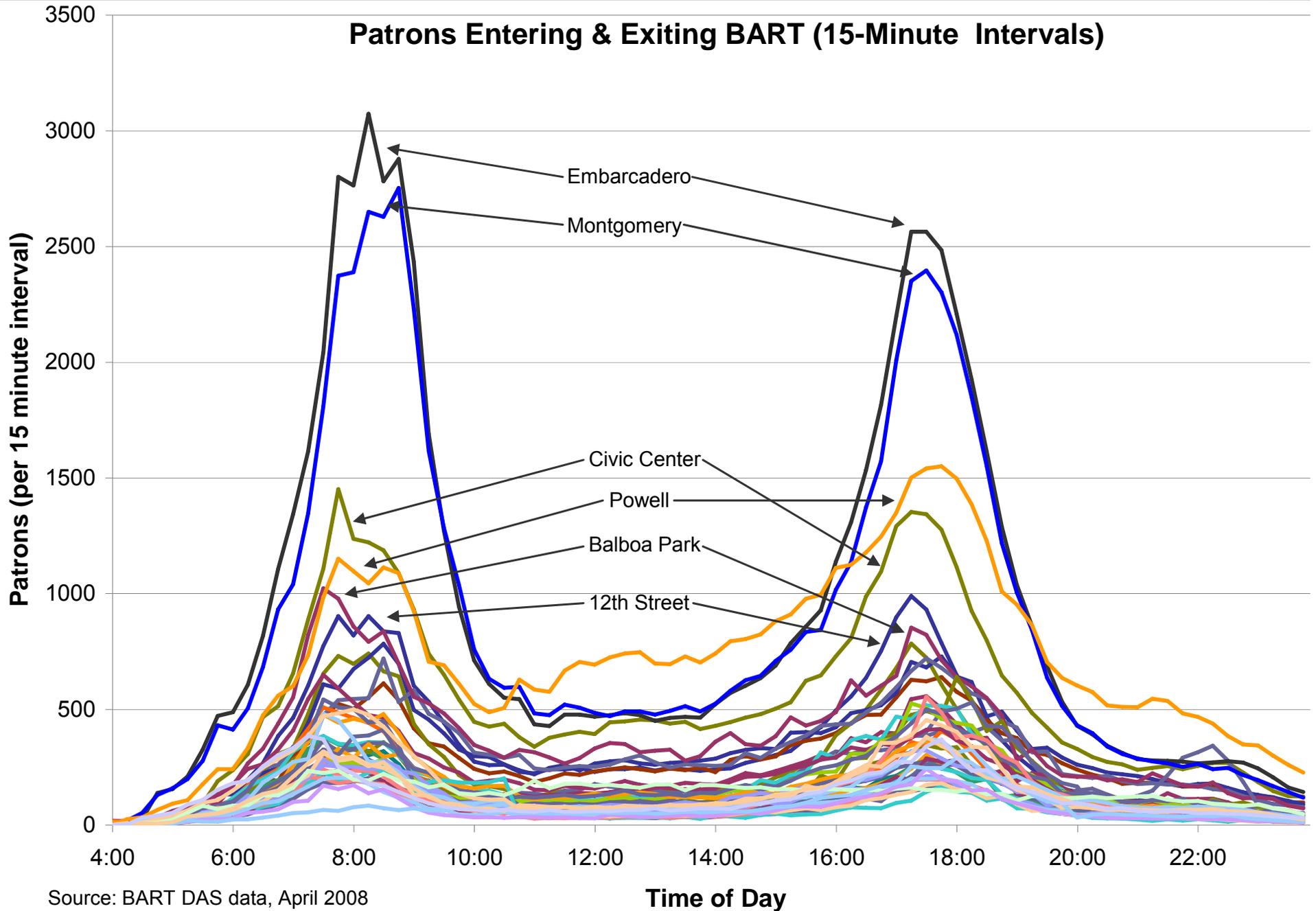
2/3<sup>rd</sup> of BART trips to/from Market Street stations

## Weekday Trips by Sub-Area

- 48%: Transbay
- 28%: intra-West Bay
- 24%: intra-East Bay



# Patrons Entering & Exiting BART (15-Minute Intervals)



Source: BART DAS data, April 2008

# Where Could BART See Problems in the Future?



- On-Board Train Crowding
  - ❑ Passenger per Seat or per Car (Load Factors)
  - ❑ Train Control System
  - ❑ Vehicles
- SF Downtown Stations
  - ❑ Platform Crowding (PM)
  - ❑ Stair, Escalator & Faregate Queuing (AM)
  - ❑ Emergency Exiting
- Yards and Shops
- Station Access



JR Railway (Japan)

# Supply-Side Strategy



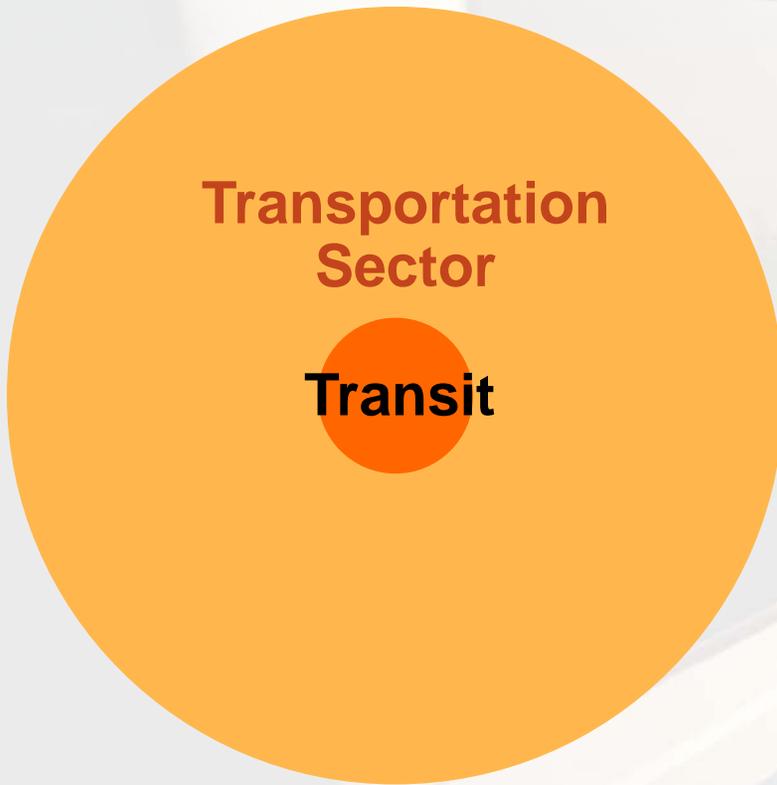
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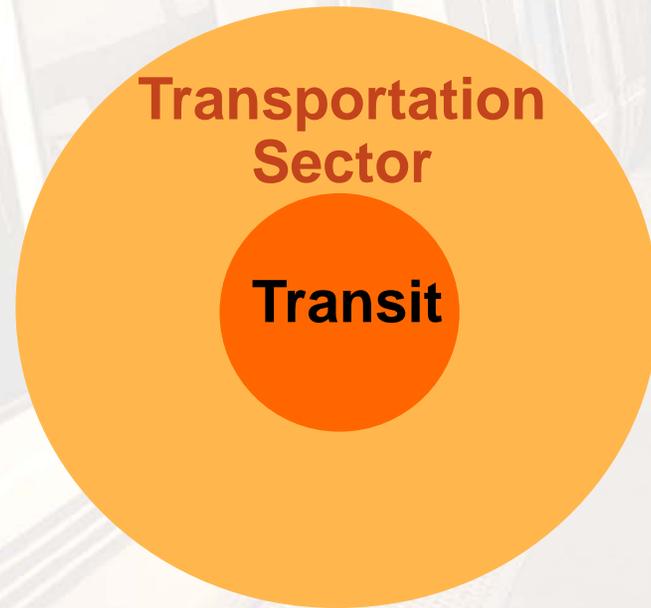
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Conceptual

# Transit's Role in Reducing GHG Emissions



**Less Transit**



**More Transit**

# Transit GHG Comparison



## Appendix I Estimated Carbon Dioxide Emissions per Passenger Mile for U.S. Transit Systems, 2008

Listed by system type in order of total passenger miles. See Appendix II for data sources and methodology.

**Average U.S. Single Occupany Vehicle: 0.964 pounds CO<sub>2</sub>/passenger mile**

### Heavy Rail Systems

State	Heavy Rail Common Name	Pounds CO <sub>2</sub> / passenger mile	% of total heavy rail passenger miles traveled in the U.S.	KWH / seat mile (Efficiency of Vehicle)	Average % of seats full (ridership)	Pounds CO <sub>2</sub> /MWH for eGRID subregion (carbon content)
NY	New York City Subway	0.147	59.3%	0.107	59%	815
DC	Washington Metro	0.347	9.7%	0.101	33%	1,139
CA	San Francisco BART	0.085	8.6%	0.069	32%	399*
IL	Chicago "L"	0.573	7.0%	0.133	36%	1,538
GA	Atlanta MARTA	0.245	3.5%	0.064	39%	1,490
MA	Boston "T"	0.336	3.3%	0.167	46%	928
PA	Philadelphia SEPTA	0.374	2.5%	0.151	46%	1,139
NJ	New Jersey PATH	0.302	2.1%	0.249	94%	1,139
CA	Los Angeles Metro	0.282	1.3%	0.248	64%	724
FL	Miami-Dade Transit	0.656	0.8%	0.137	28%	1,319
NJ	New Jersey PATCO	0.519	0.6%	0.128	28%	1,139
MD	Baltimore Metro	0.919	0.4%	0.137	17%	1,139
OH	Cleveland Rapid	0.805	0.3%	0.168	32%	1,538
NY	Staten Island Railway	0.346	0.3%	0.110	26%	815
<b>National Average Weighted by Passenger Miles</b>		<b>0.224</b>	<b>99.7%</b>	<b>0.109</b>	<b>47%</b>	



Source: Calculated from Federal Transit Administration 2008 National Transit Database (NTD), U.S. Department of Energy carbon dioxide conversion factors, U.S. Environmental Protection Agency eGRID.

# Long-Range Planning



## Approved / Under Construction

- Warm Springs (2015)
- Oakland Airport Connector (2015)
- eBART (2016)
- VTA Silicon Valley Rapid Transit, Ph. 1 (2018)

## Environmental

- Livermore (Project EIR)

## Conceptual Planning

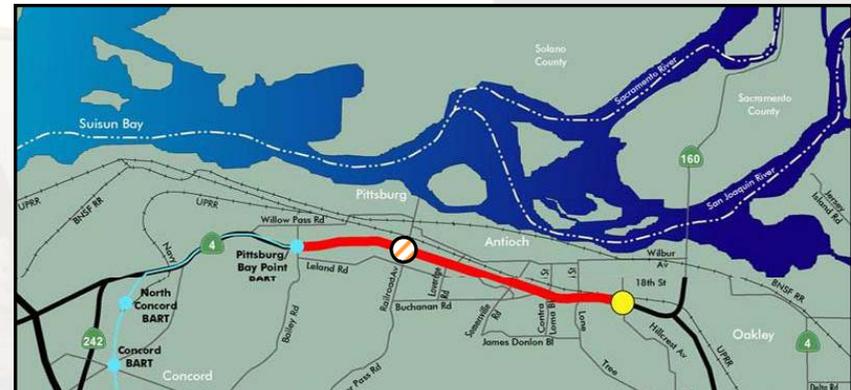
- BART Metro / Regional Rail



# eBART Project



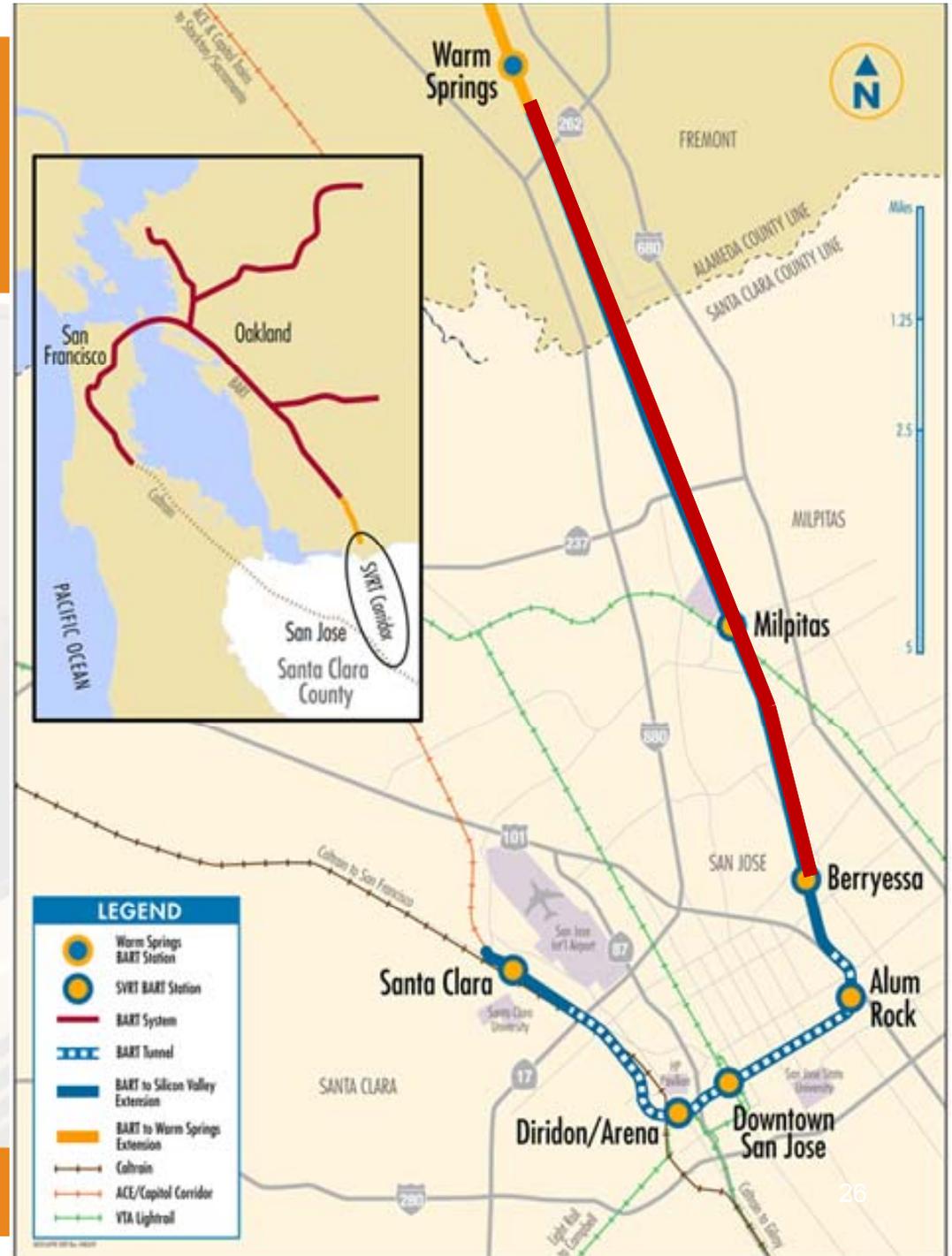
- BART extension to East County
- DMU technology
- Phase 1 length of 10 miles
- Highway 4 median alignment
- Capital Costs = \$462 M
- Passenger Access:
  - Transfer Platform at Pittsburg/BP
  - Hillcrest Ave, Antioch
- Railroad Ave Station (future):
  - To be funded by City of Pittsburg



Santa Clara County Valley Transportation Authority

# Silicon Valley Rapid Transit

- Funded and led by Santa Clara County Valley Transportation Authority (VTA)
- 16 miles of trackwork
- 3 above-ground stations
- 3 below-ground stations
- Over 90,000 weekday riders
- Approx. \$6 billion



# BART Station Activity



## In Planning ●

- 24<sup>th</sup> / Mission
- Balboa Park
- Montgomery
- Daly City
- Lake Merritt
- 19<sup>th</sup> St. / Oakland
- North Concord/Martinez
- Dublin/Pleasanton (south)

## Ready for Development Solicitation ●

- West Oakland
- Hayward
- Bay Fair
- Union City
- El Cerrito del Norte
- El Cerrito Plaza
- Concord
- Millbrae (RFQ)

## In Development Negotiations ●

- Glen Park
- Fruitvale (II)
- South Hayward
- Coliseum
- San Leandro
- Pittsburg / Bay Point
- Walnut Creek
- Hercules (II)

## Approved Development ●

- Richmond (II)
- MacArthur
- West Dublin/ Pleasanton

## Completed ●

- Richmond (I)
- Fruitvale (I)
- Ashby (east)
- Hercules (I)
- Castro Valley (part)
- Hayward (part)
- Pleasant Hill
- Dublin/ Pleasanton (north)



©BART

May 4, 2010



# Fruitvale BART

An aerial photograph showing the Fruitvale BART station and its surrounding urban environment. The station is a long, elevated structure with a train on the tracks. To the right of the station, a large, multi-story building complex is under construction or recently completed, featuring a mix of residential and commercial units. The area is densely packed with buildings, parking lots, and streets. A major road curves through the scene, and a large parking lot is visible in the foreground. The overall scene depicts a vibrant, mixed-use urban development.

## Phase 1

- 27,000 SF Office
- 37,000 SF Retail
- 71,000 SF Public
- 47 Residential units
- Public plaza
- Mixed-use
  - Community clinic
  - Child care facility
  - Public library
  - Charter high school

# Fruitvale BART



# MacArthur BART



# MacArthur BART



- **Mixed Use**  
*624 Residential Units*  
*42,500 sf retail*
- **Affordable Housing**
- **Community Center / Child Care**
- **Improved Intermodal**
- **BART Parking**
- **Under construction**





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April 24, 2012

