

Air Quality Conformity Task Force

August 24, 2017



Transbay Corridor Core Capacity

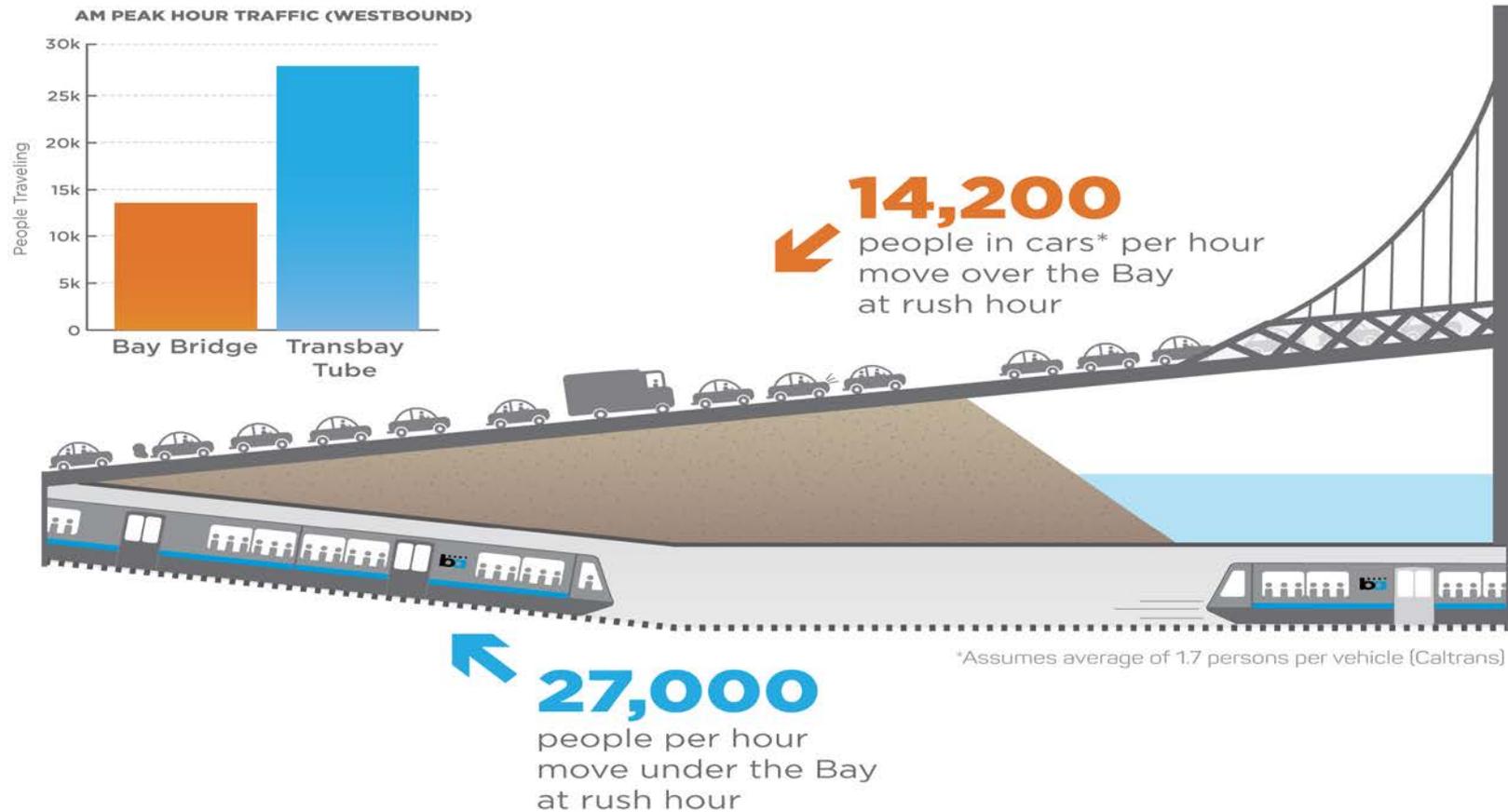








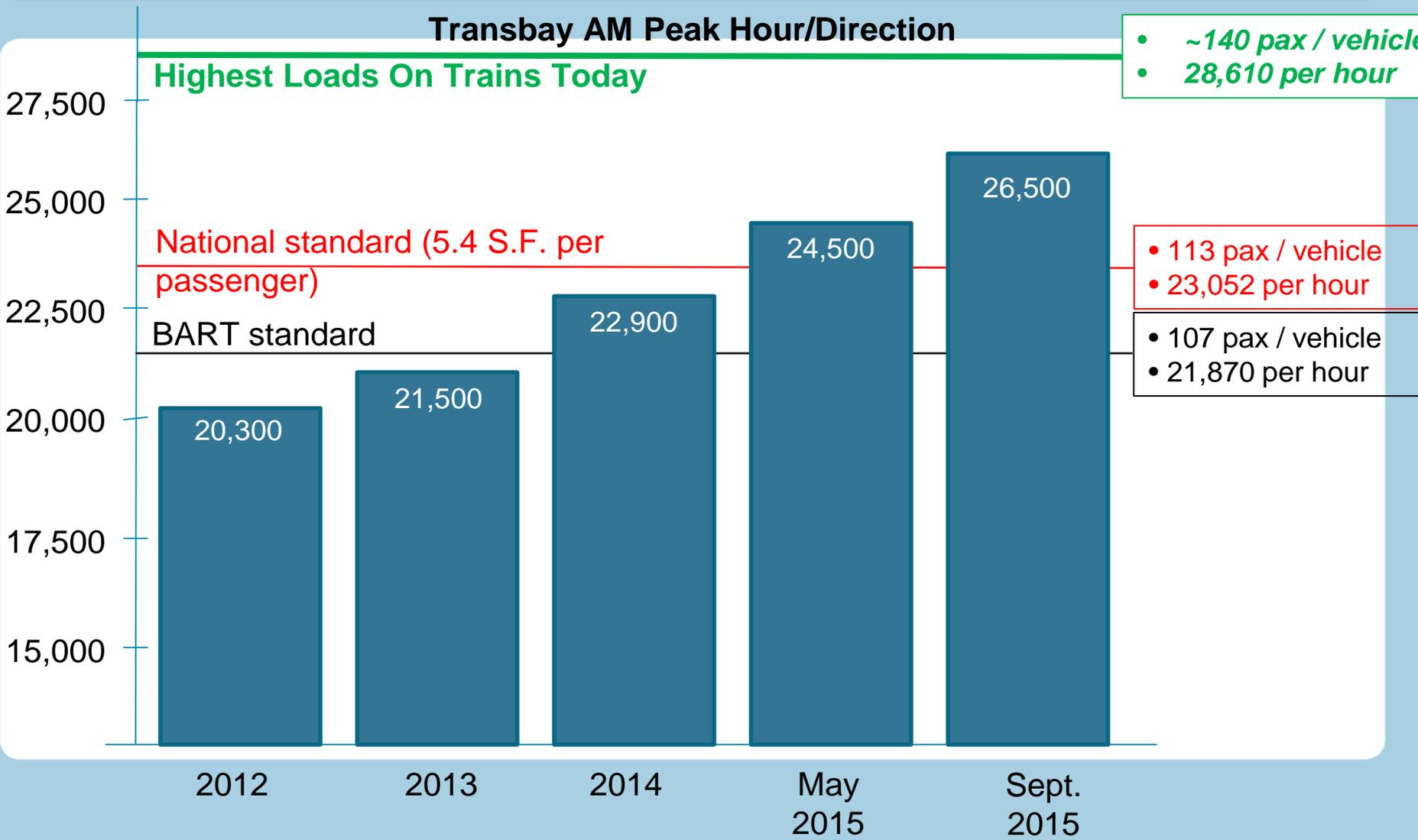
BART's Peak Hour Transbay Market Share



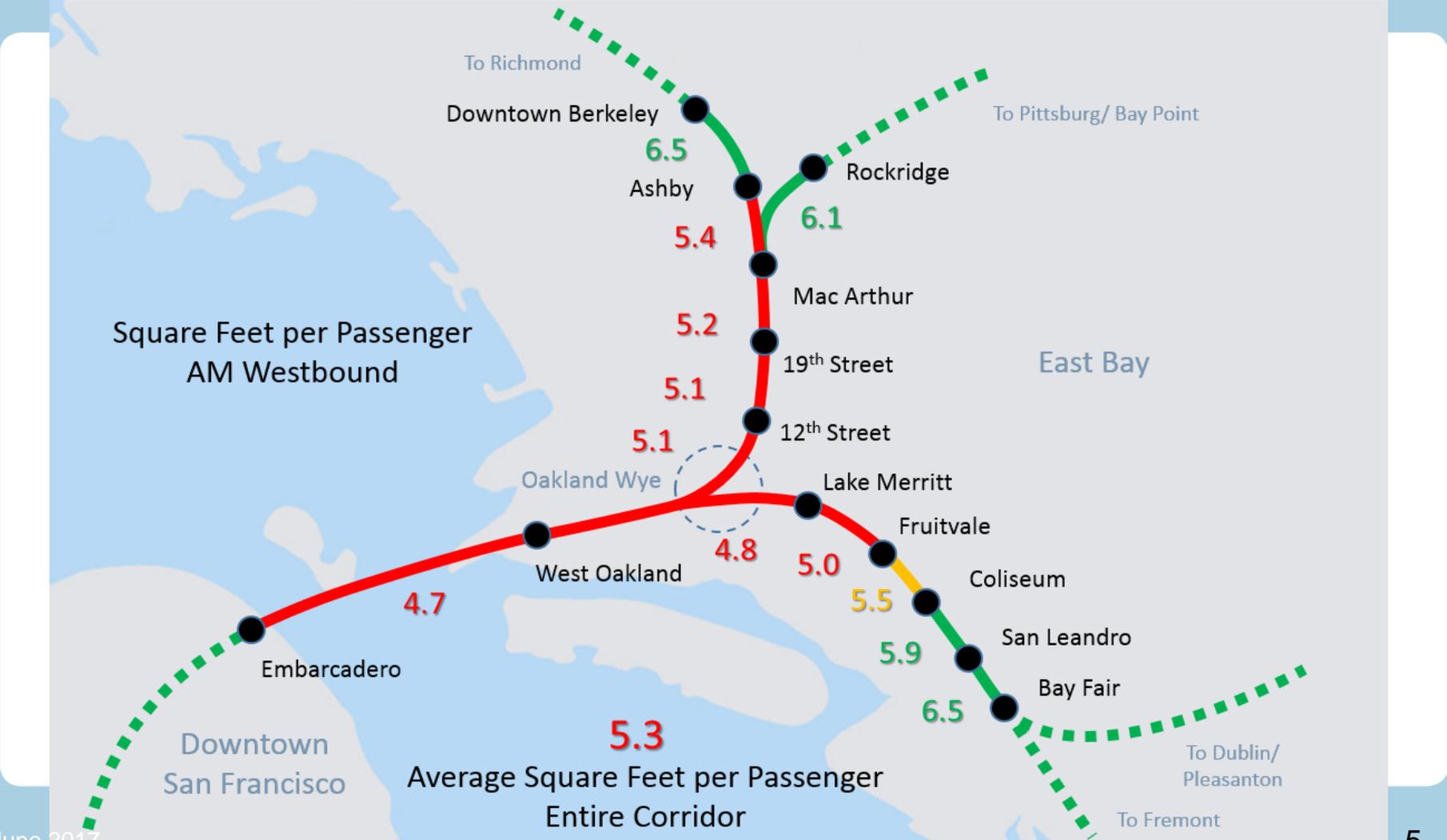
BART Transbay Corridor Peak Loads



Transbay AM Peak Hour/Direction



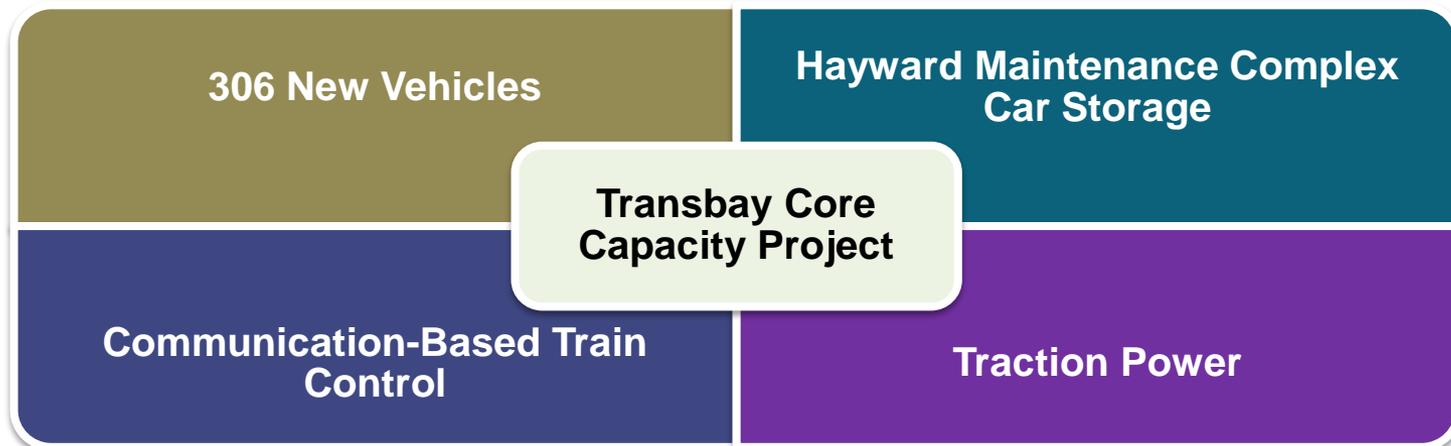
Project Corridor Definition was Driven by Square Feet per Passenger

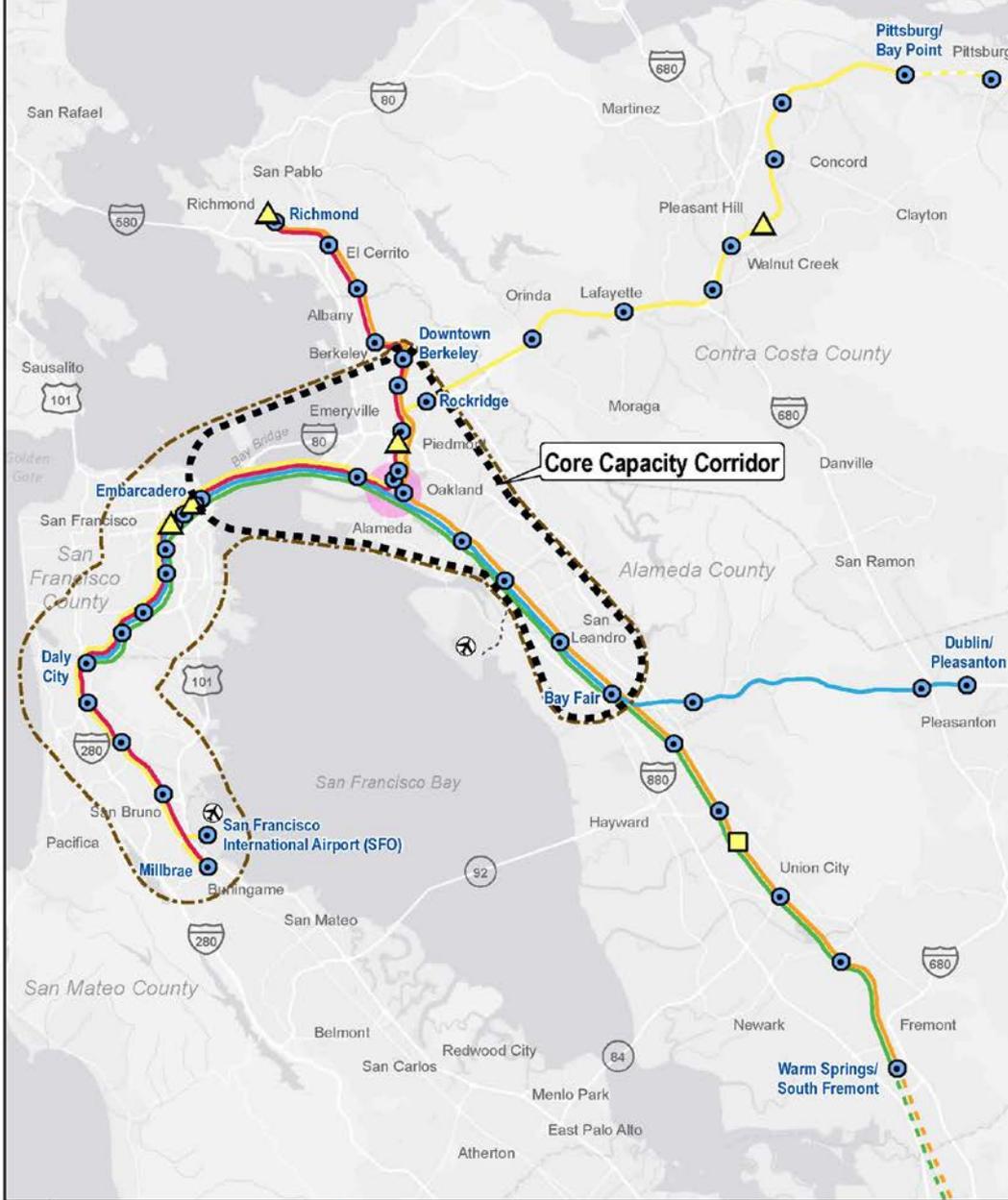


Project Overview



- **Project Need:** Current trains are overloaded beyond BART and FTA's standards.
- **Project Purpose:** To provide additional capacity through the operation of more frequent, longer trains.
- **Project Objective:** Increase capacity from 24 to 30 TPH, and make all peak trains 10-car trains.





SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT
Transbay Corridor
Core Capacity Program

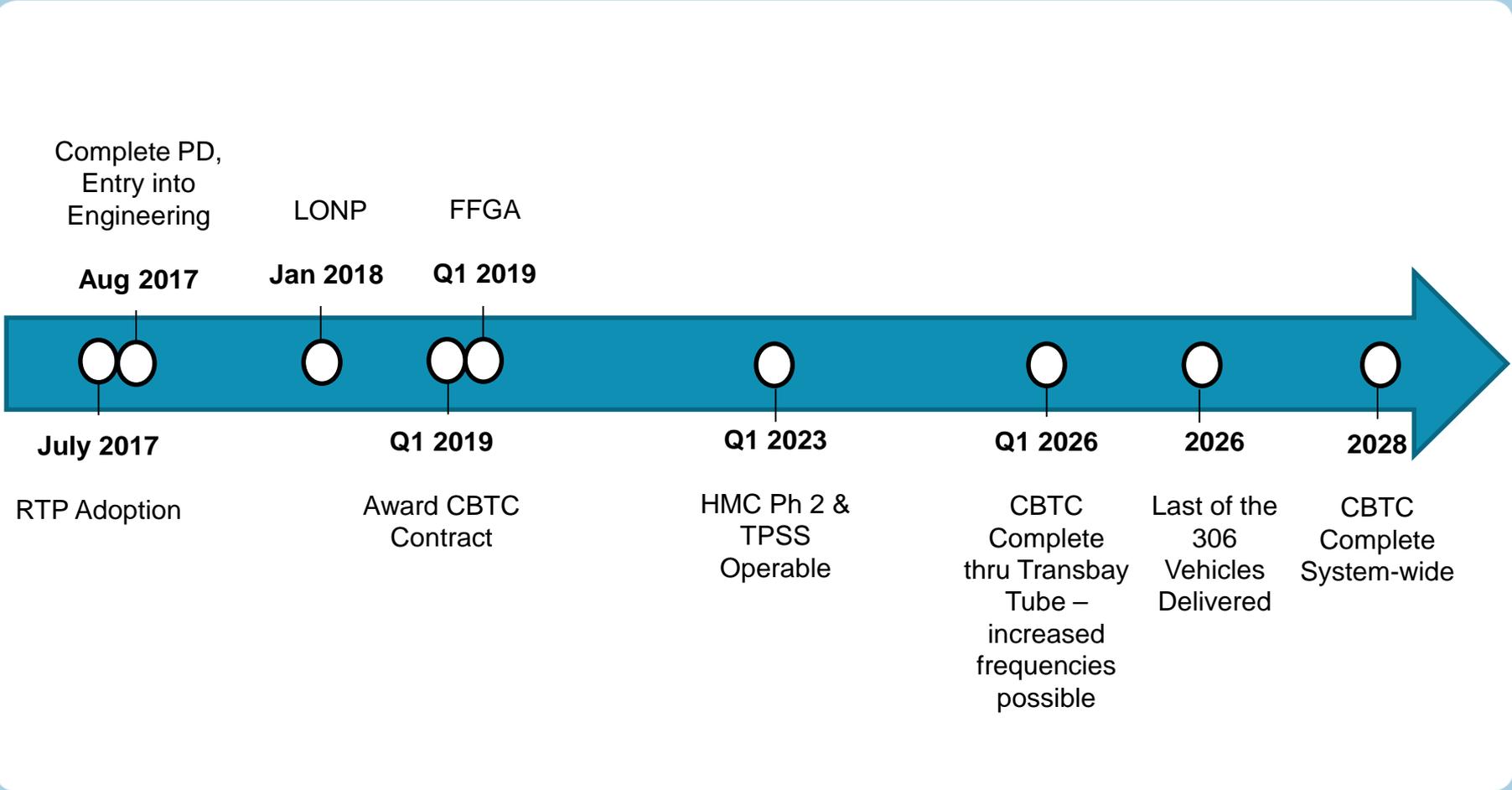
San Francisco Bay Area, California

Project Scope

- New CBTC train control systemwide
- 306 railcars
- New railcar storage yard at Hayward Yard
- 5 new traction power substations

Note: Corridor limit shown is for FTA CIG Program eligibility purposes only.

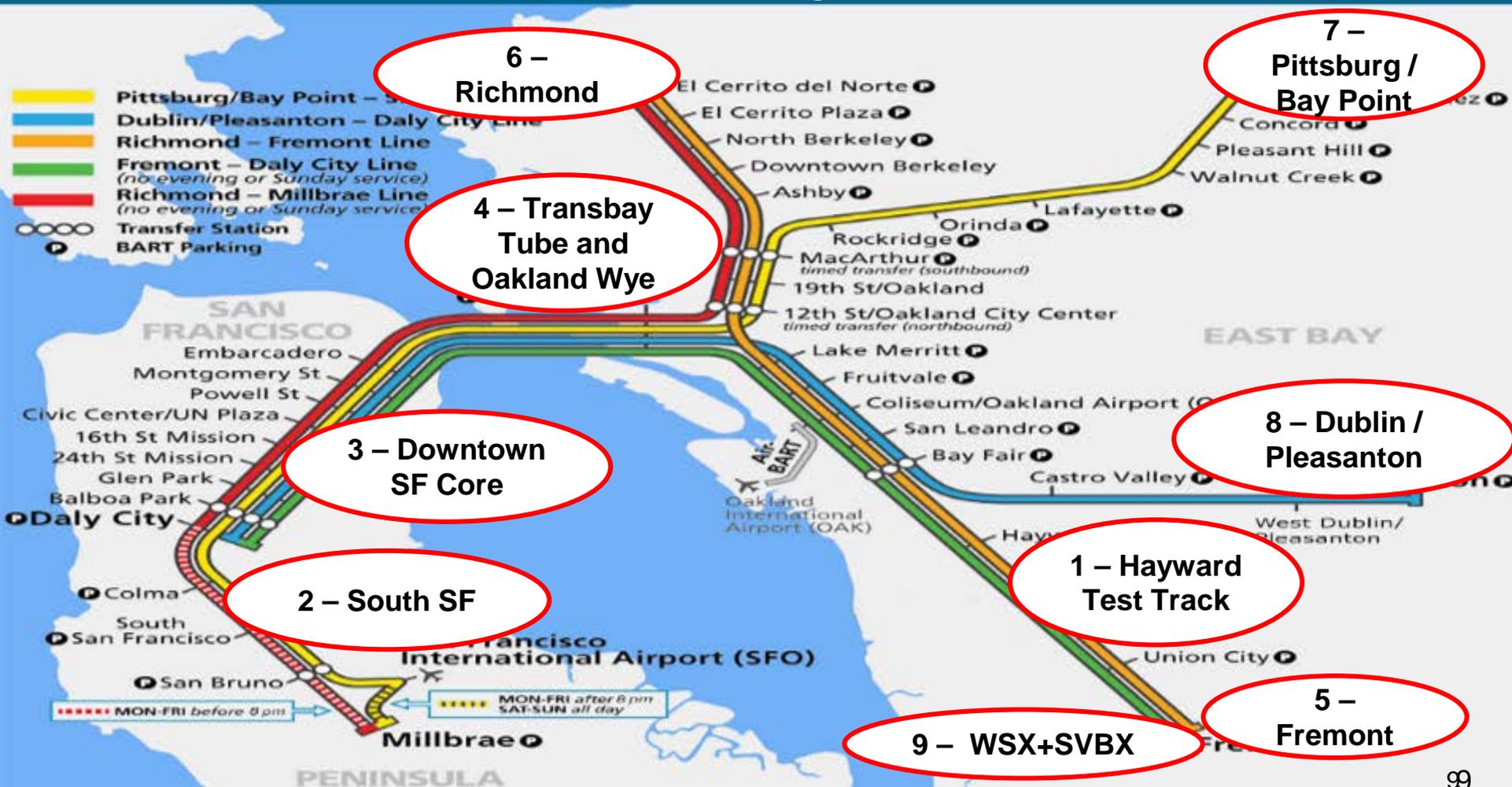
Project Delivery Schedule



Train Control Modernization - CBTC



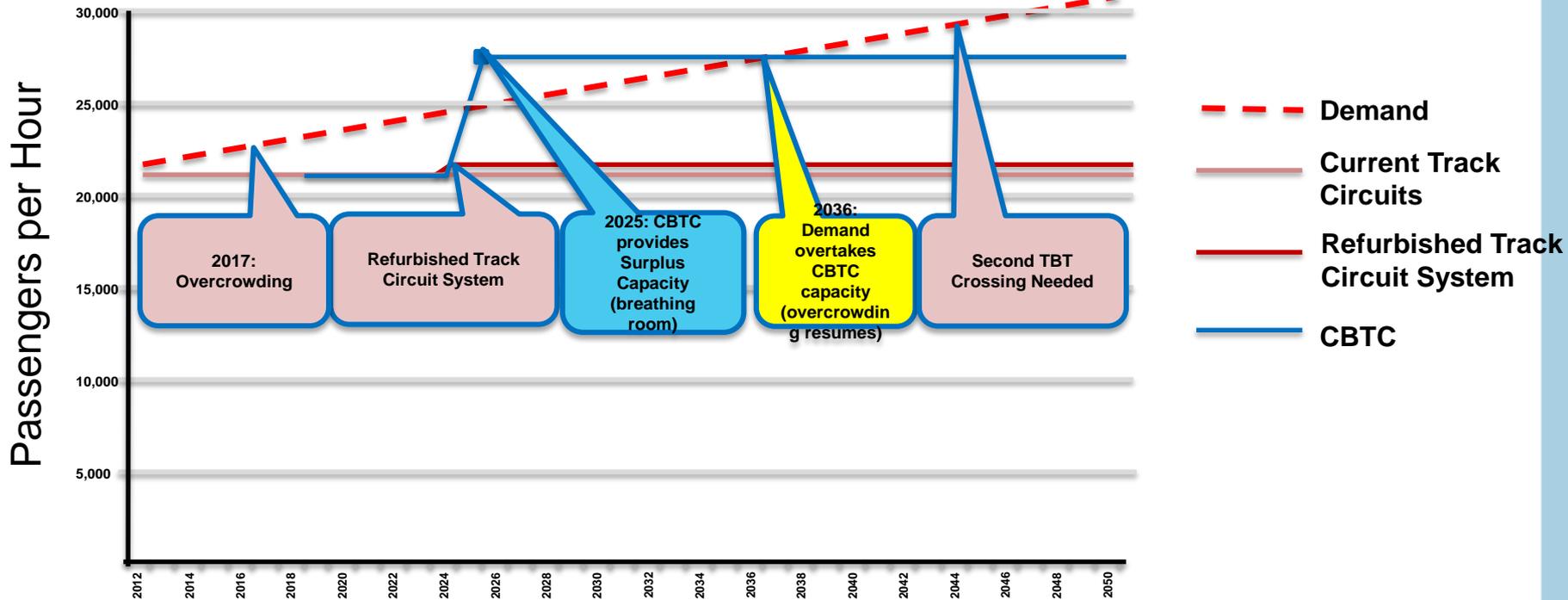
Phased Migration



The Case for CBTC



Capacity vs. Peak Demand – Transbay Tube



How Does CBTC Work?



Existing vs. Modern Train Control Systems

Fixed-Block Signaling System

Under BART's existing train control, distances are maintained with safety buffers between trains. Capacity can't be added, even with more trains.



Communications-Based Train Control

In this modernized system, trains constantly communicate to maintain safe distances and allow more trains to run closer together.



How Does CBTC Work?



Up to 25% Increase in Train Capacity

Fixed-Block Signaling System: Existing Train Control Technology

24

Trans-Bay trains
per hour per direction
during peak hour



Communications-Based Train Control: Needed to Increase Capacity and Assure Reliability

30

Trans-Bay trains
per hour per direction
during peak hour



... along with BART Fleet of the Future and Enhanced Traction Power

Core Capacity Program 306 New Car Procurement



1081 Cars (306 New) Needed to Operate 30 Ten-Car Trains per hour thru Tube

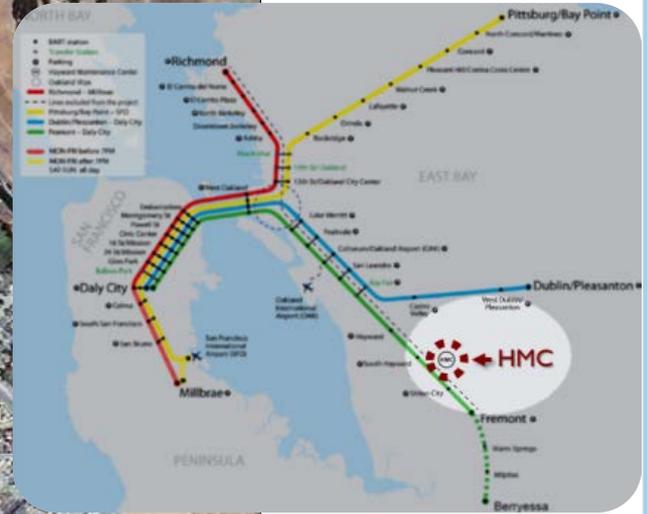


Contract	Tranche	No. of Cars	Running Total
Bombardier (funded)	Replace Current Fleet	669	669
	Capacity – train length	13	682
	WSX (opens 2016)	33	715
	SVBX (opens 2017)	60	775
Funded but not part of Bombardier contract	Capacity – train length	75	850
	Capacity – more frequent service	231*	1081

*Includes additional cars for Orange Line

306

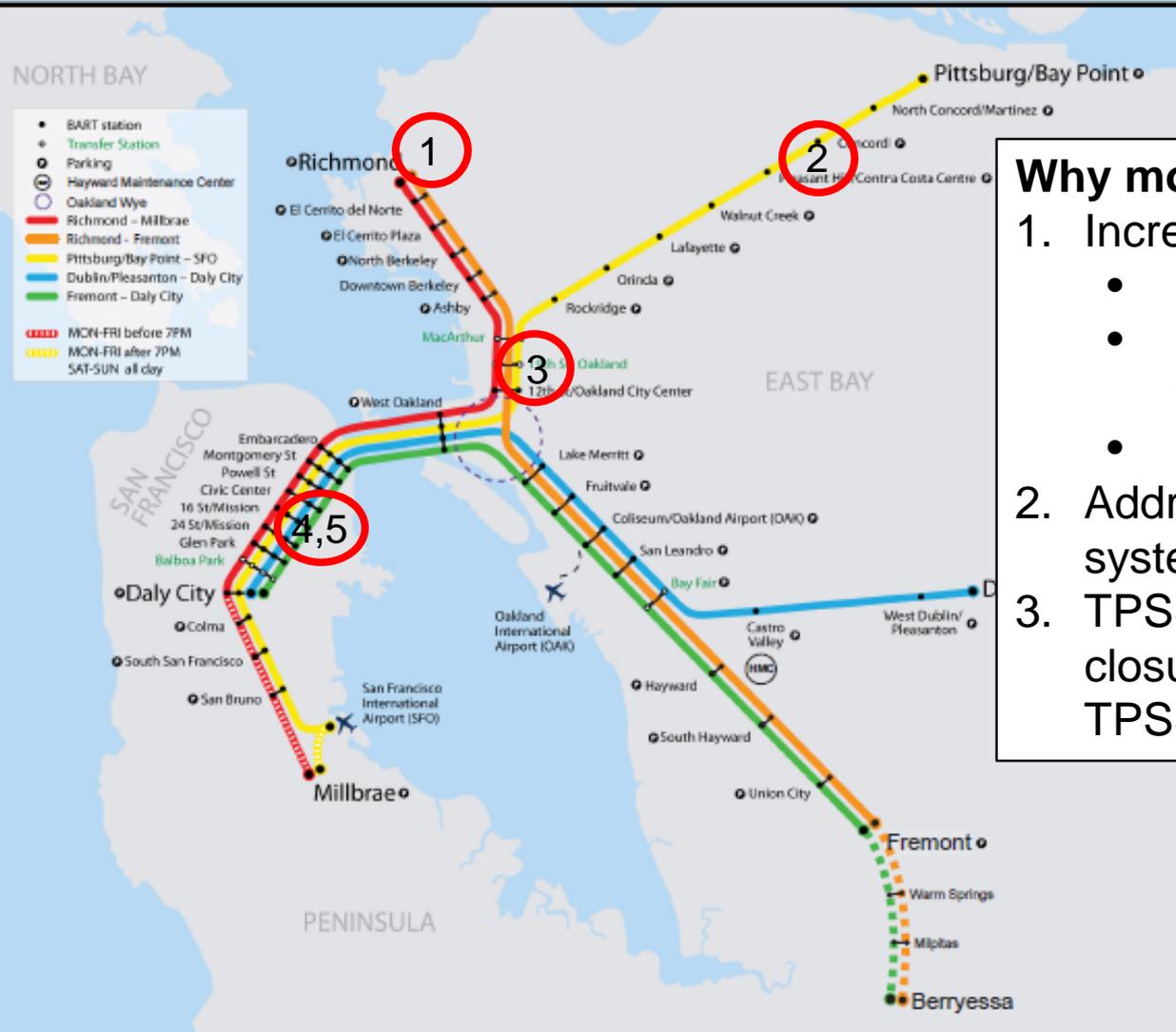
Hayward Maintenance Complex (HMC) Phase 2 (Hayward Yard East)



Flyover at HMC Phase 2 (Looking north from Whipple Rd.)



30 TPH Service Requires 5 New Traction Power Substations (TPSS)



Why more substations?

1. Increased power draw from:
 - 23 TPH → 30 TPH
 - 8/9/10 car trains → all 10 car trains
 - Higher performance new cars
2. Address low voltage segments of system.
3. TPSS 4 and 5 needed to allow for closure and rehabilitation of existing TPSS equipment at Powell.

Typical TPSS within Existing Station



Typical At-Grade AC Switchgear House



Air Quality Conformity Status



- **Project has plan-level conformity** - full project is included in Plan Bay Area 2040 adopted by MTC, and so is included in a conforming regional plan.
- **Project-level conformity**
 - *HMC Phase 2 has existing CE under 23 CFR 771 and is thus exempt per 40 CFR 93.126.*
 - *Train control modernization (CBTC) and traction power improvements are exempt from conformity per 40 CFR 93.126.*
 - *Acquisition of 306 new rail vehicles is not considered to be a minor expansion, and therefore is not exempt. Project-level conformity determination is needed for this element.*

Is this a project of air quality concern?



➤ **Not a Project of Air Quality Concern**

- *Not a new or expanded highway project.*
- *No effect on intersections (no changes to parking).*
- *No changes to rail or bus terminals or transfer points are included in project, and none are anticipated.*
- *No modifications to bus operations are part of the project, and none are anticipated.*
- *No effect on PM emissions.*
- **All BART vehicles are electrically-powered.**
- **Slight reduction of VMTs possible.**



Connecting Buses

- **No changes to bus network are included in project (BART does not operate buses).**
- **Bus changes generally happen as part of large bus network restructuring projects**
 - *Concentrate service on frequent, high density corridors.*
 - *Reduce low-frequency coverage service in low-density areas.*
 - *SFMTA (Muni Forward), AC Transit (ACgo), VTA (Next Network).*
 - *Reaction to changing ridership patterns, different housing patterns, and competition from TNCs.*
 - *Subject to independent environmental review and AQ findings.*
- **Bus Technology**
 - *Evolving to low/zero-emission – hybrids, hydrogen.*

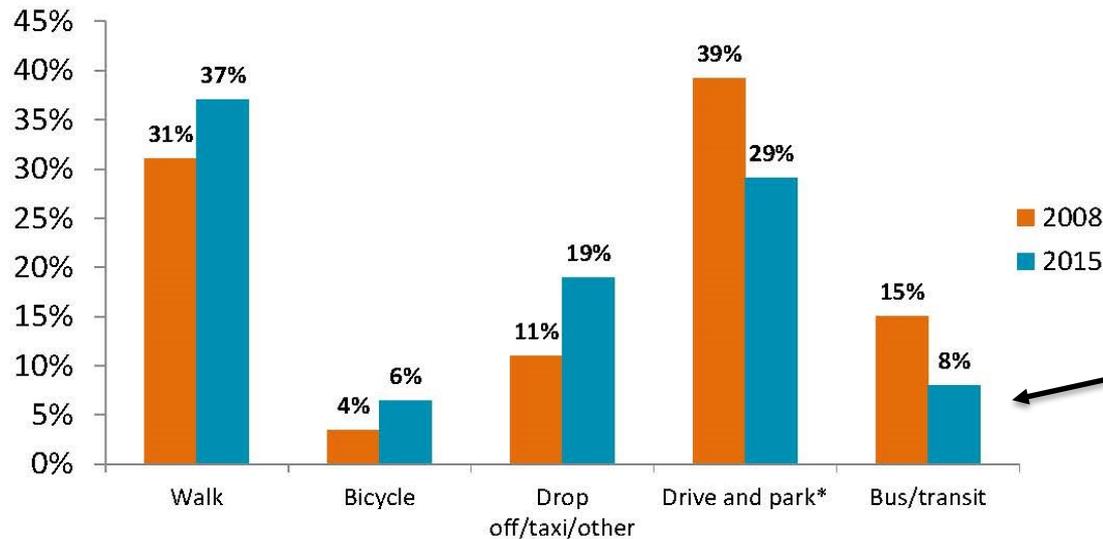
BART Access Trends 2008-2016



BART Board Workshop 2016

Access from Home to BART

- With BART's parking supply approximately flat since 2008, ridership growth has been accommodated by walking, cycling or getting dropped off at stations. Fewer are driving or taking transit.



Note – This reduction is from approx 45,000 daily trips down to approx 32,000 daily trips.

Q: How did you get from (origin trip purpose) to the (entry station) for this trip?

Base: weekday trips with home origins

PRELIMINARY RESULTS

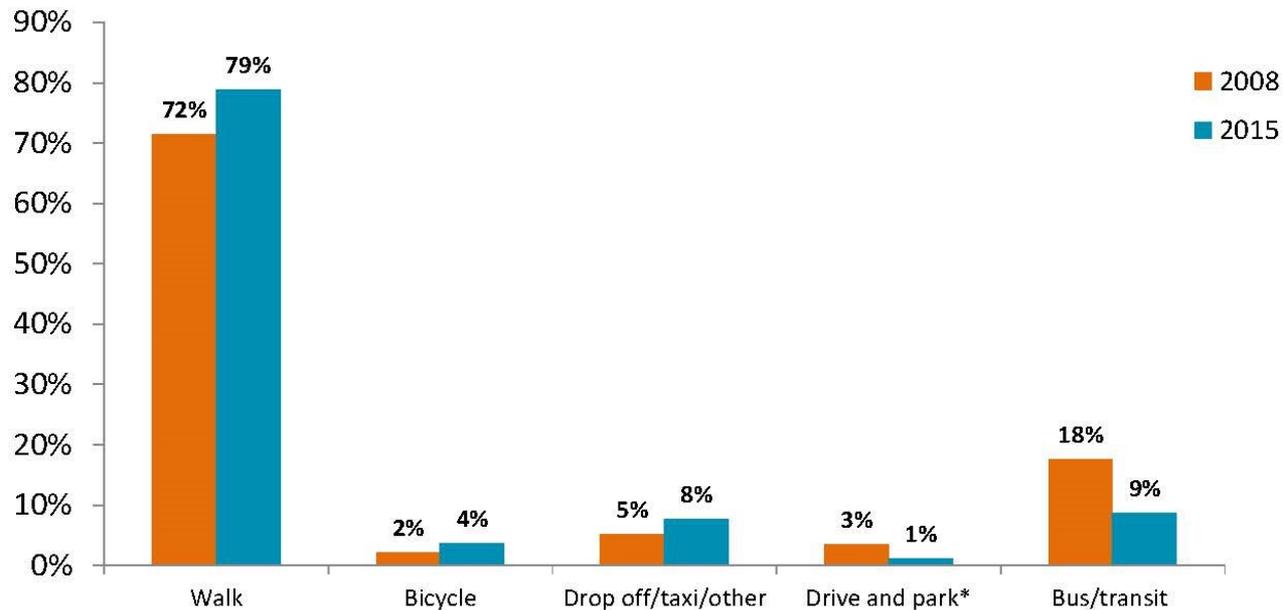
*Includes motorcycle/motorized scooter and carpool

BART Access Trends 2008-2016



BART Board Workshop 2016

Access from Non-home Origin to BART



Q: How did you get from (origin trip purpose) to the (entry station) for this trip?

Base: weekday trips with non-home origins

PRELIMINARY RESULTS

*Includes motorcycle/motorized scooter and carpooled

BART Access Trends 2008-2016



Home Origin Percentages

- Walking and biking have increased significantly.
- Transit and drive-alone have decreased.

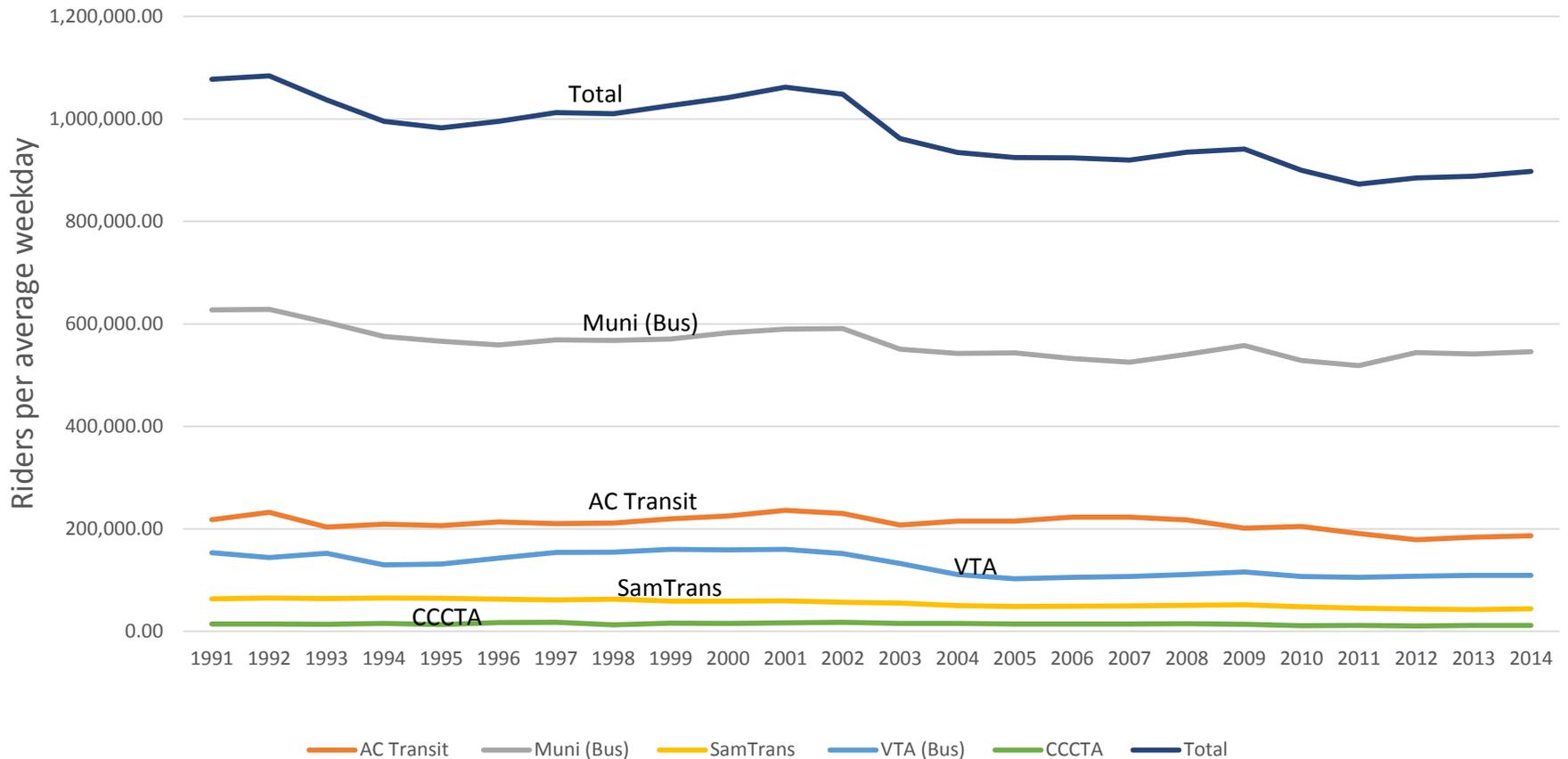
Non-Home Origin Percentages

- Walking, biking and transit are 92% of non-home access.

Access Trends



Bus Ridership Trends - 5 Largest Connecting Operators



Conclusion



- BART's Transbay Corridor Core Capacity Project will implement much needed capacity relief on the BART system. As an electrically-powered rail system, BART's operation has no detrimental effects on air quality.
- Expansion of the fleet by 306 rail vehicles is a critical component of expanding the system's capacity.
- Requesting a finding that BART's Transbay Corridor Core Capacity Project is not a project of air quality concern.
- **Questions?**

Thank You

