

**Metropolitan Transportation Commission  
Programming and Allocations Committee**

April 11, 2018

Item Number 5b

**BART Railcar and Transbay Corridor Core Capacity Projects Update**

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**Subject:** BART staff will provide an update to the Committee on their railcar procurement and Transbay Corridor Core Capacity Project.

**Background:** At the request of Committee members, BART staff have made periodic presentations to the Committee regarding the status and funding plans for BART's fleet replacement and capacity expansion projects since the Commission made its first funding commitment to the replacement cars in 2010. BART staff will be present at the meeting to present the most recent update, attached.

**Issues:** None.

**Recommendations:** Information only.

**Attachments:** BART presentation.

J:\COMMITTE\PAC\2018 PAC Meetings\04 Apr 2018 PAC\5b\_BART\_Car&Transbay\_Capacity\_SummarySheet.docx



# BART Train Control Modernization and New Car Project Updates





# BART Basic Statistics

- Regional rail rapid transit
- ~429,000 weekday riders (FY17)
- 112 heavy rail track miles
- 6 lines
- 46 stations
- Rail Farebox Ratio – 78% (Highest in the US)



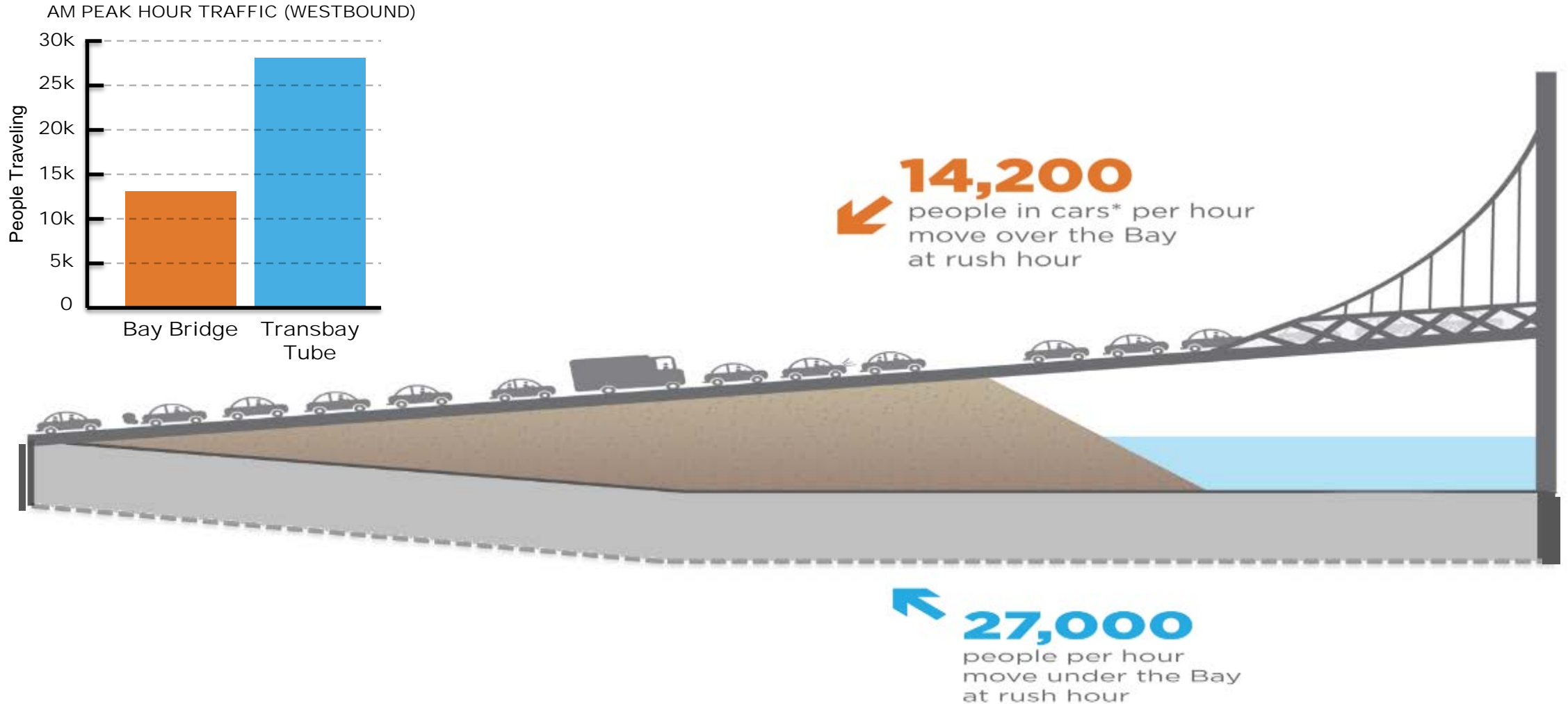


2/3rds of BART trips begin or end on Market St



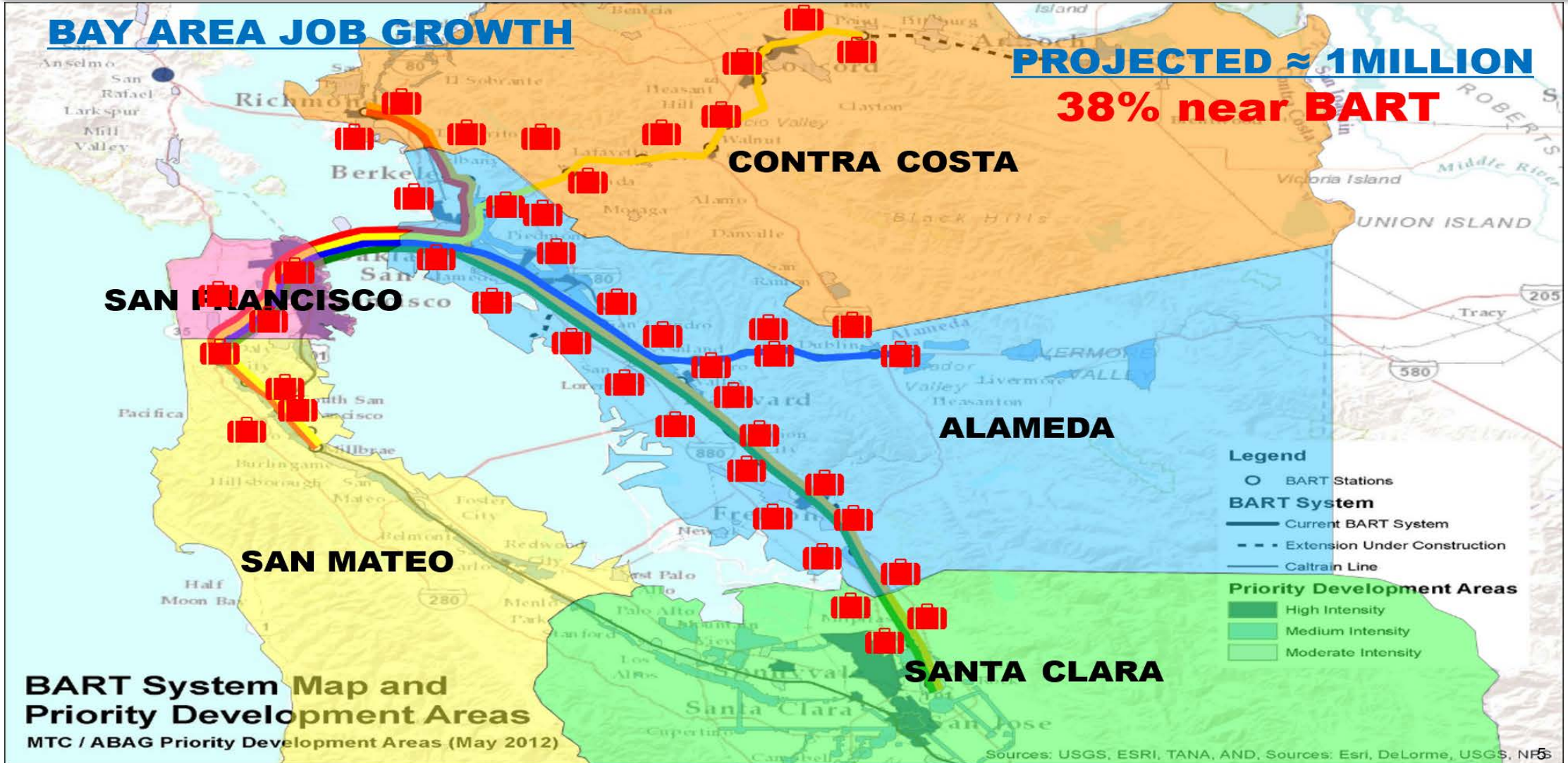


# BART's Peak Hour Transbay Market Share





# Job Growth





# Housing

## HOUSEHOLD GROWTH

**PROJECTED  $\approx 625,000$**

**$\approx 34%$  near BART**

**SAN FRANCISCO**  
 **$\sim 100,000$**

**CONTRA COSTA**  
 **$\sim 90,000$**

**ALAMEDA**  
 **$\sim 160,000$**

**SAN MATEO**  
 **$\sim 60,000$**

**SANTA CLARA**  
 **$\sim 215,000$**

**BART System Map and  
Priority Development Areas**

MTC / ABAG Priority Development Areas (May 2012)

### Legend

- BART Stations
- BART System**
  - Current BART System
  - Extension Under Construction
  - Caltrain Line

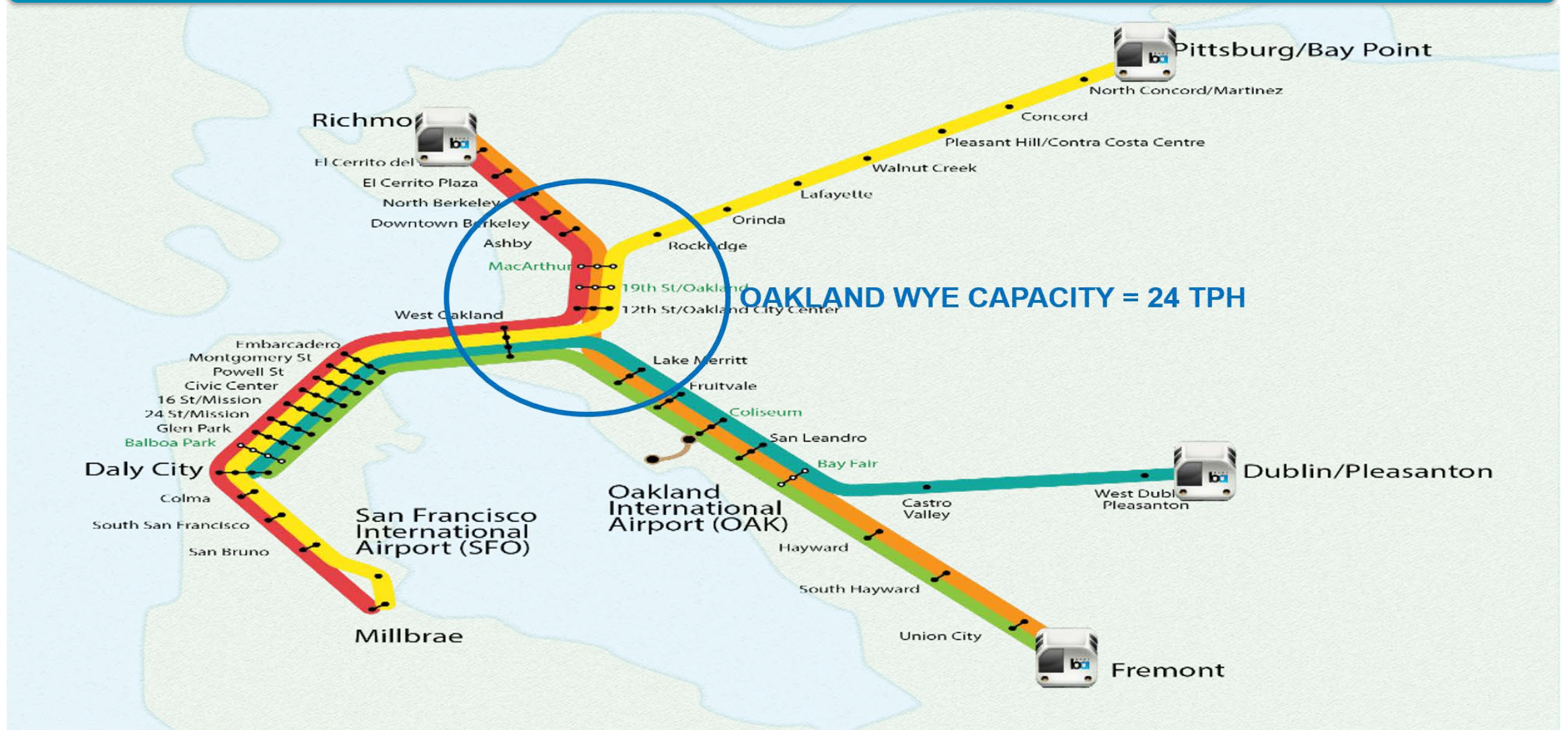
### Priority Development Areas

- High Intensity
- Medium Intensity
- Moderate Intensity

Sources: USGS, ESRI, TANA, AND, Sources: Esri, DeLorme, USGS, NGS



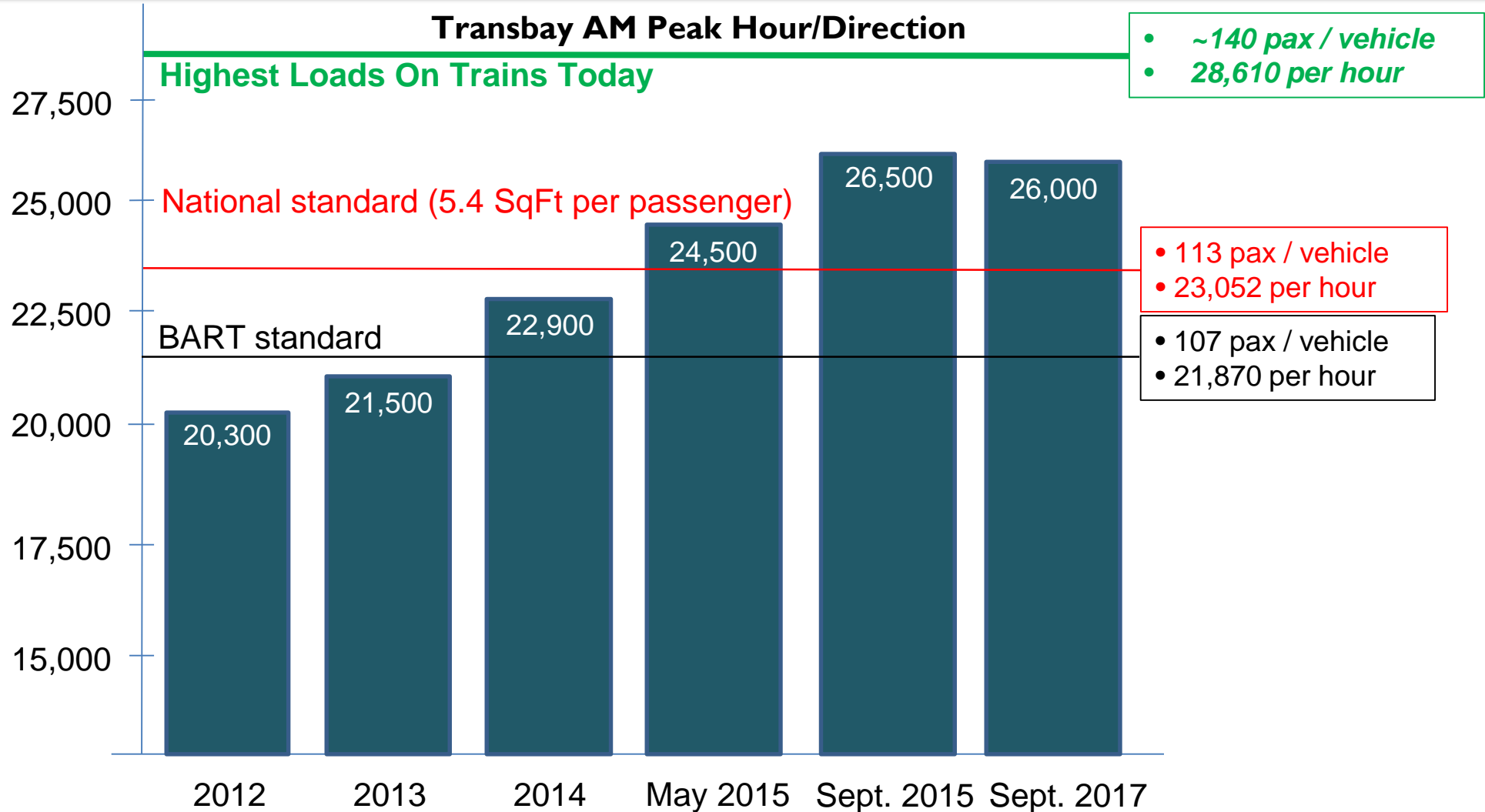
# Oakland Wye Capacity







# Transbay Tube Crowding





# Core Capacity Program + Big 3 Capital Projects

**45% MORE CAPACITY**

## Fleet of the Future

\$1,652M  
306 more vehicles  
(1,081 total)

\$2,584M  
Fleet Replacement  
Underway  
775 vehicles



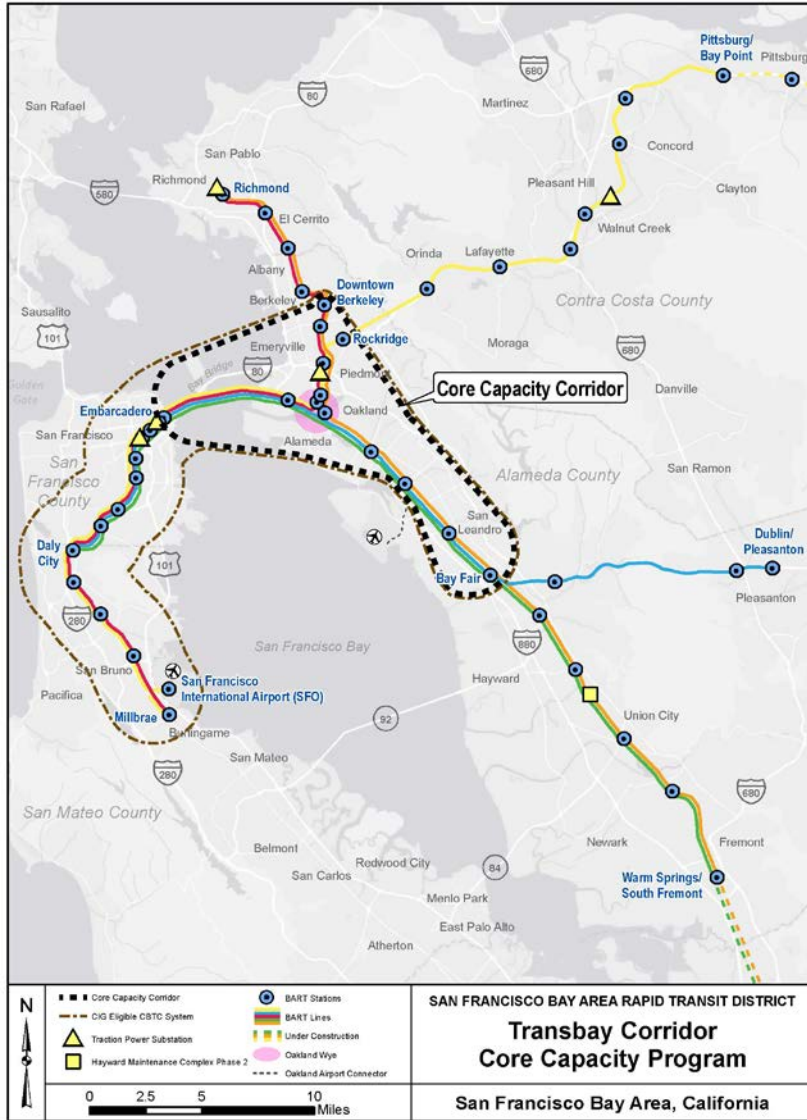
Train Control  
Modernization  
\$1.15B

Hayward  
Maintenance  
Complex  
\$581M

Traction Power System Supplemented and Refurbished



# Core Capacity Program Scope



## Project Scope

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

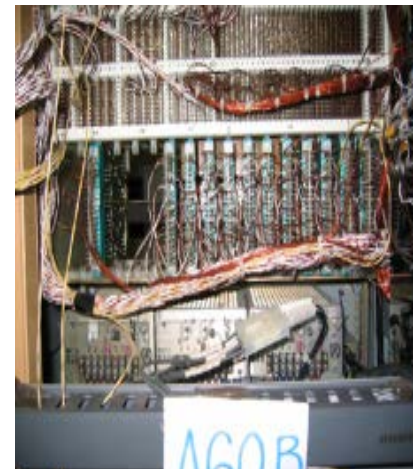
Note: Corridor limit shown is for FTA CIG Program eligibility purposes only.



# BART Current State

BART runs on a 45 year old System




- Today, aging hardware fails frequently interrupts service
- Adverse effects on public perception
- Wayside train control system is very labor intensive

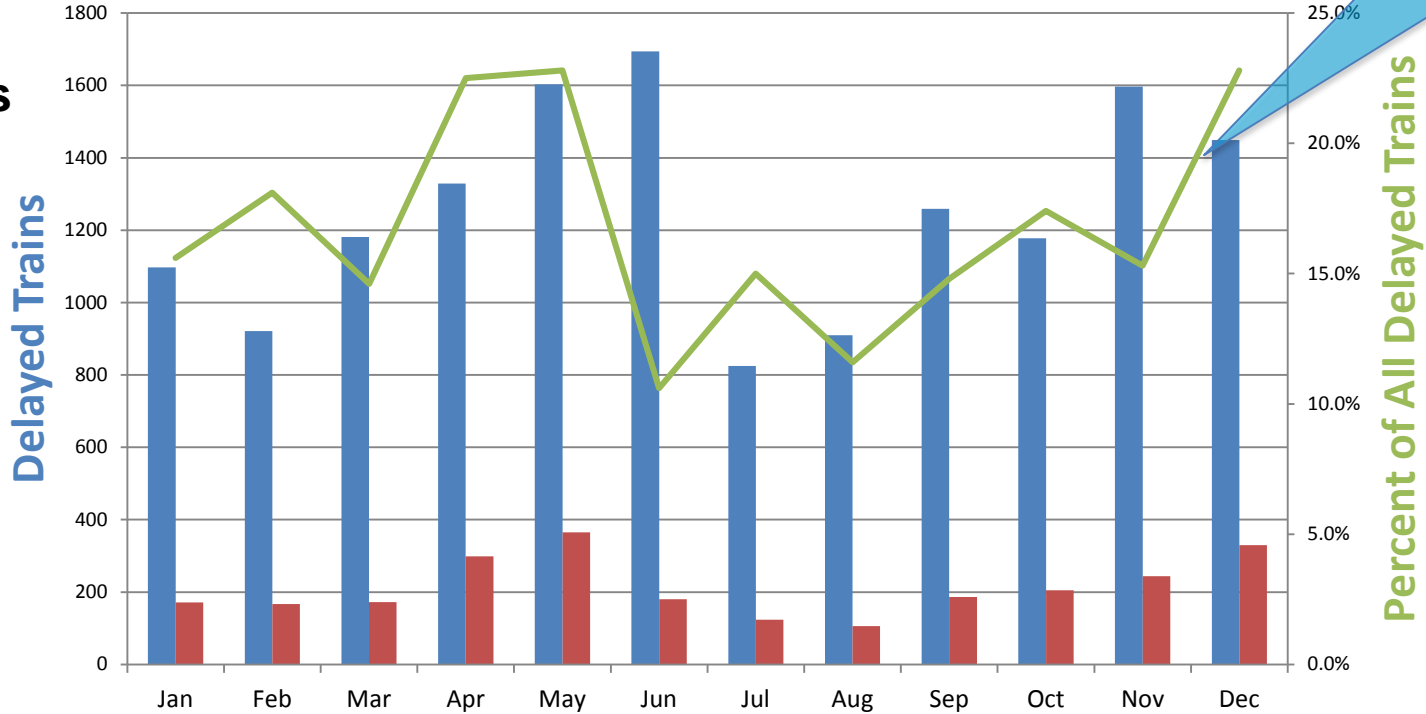




# Train Control System Delay Trend

### Total Delayed Trains Caused by the Train Control System

-  Total Delayed Trains
-  Train Control Delayed Trains
-  Percent of TC Delayed Trains



**15-25%**



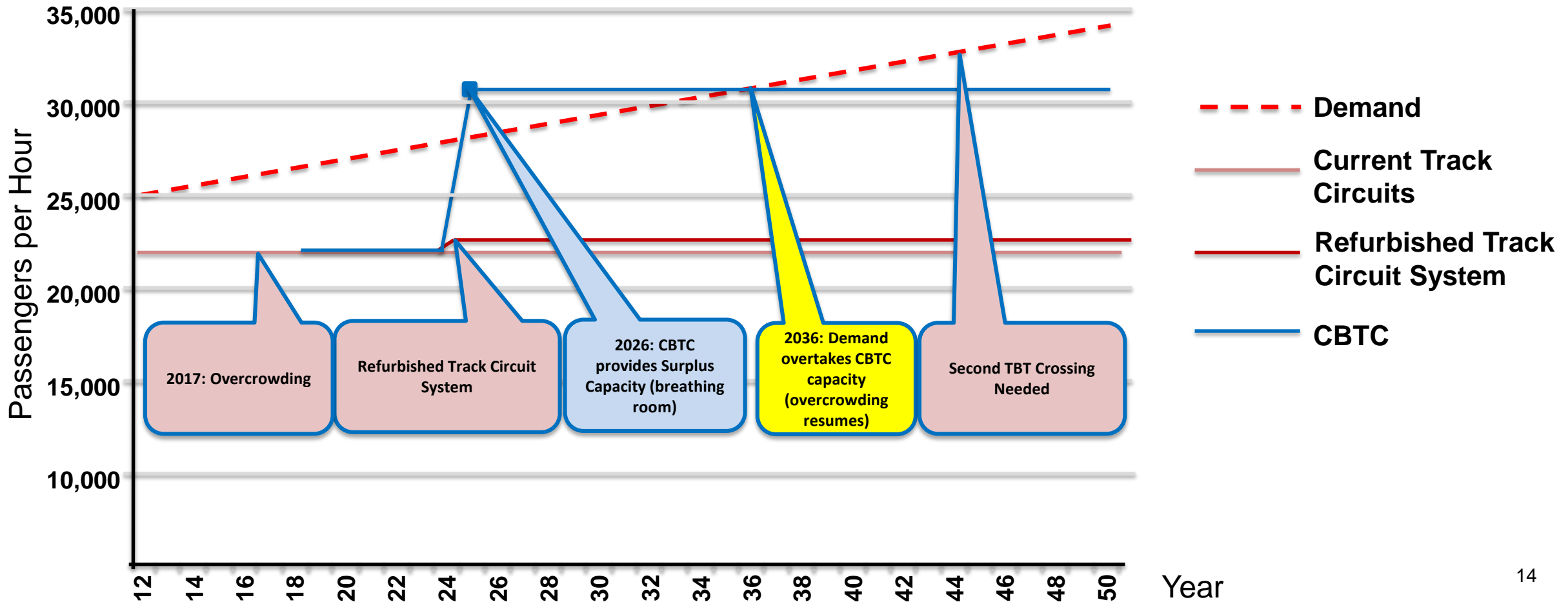
# What is CBTC?





# The Case for CBTC

## Capacity vs. Peak Demand – TransBay Tube



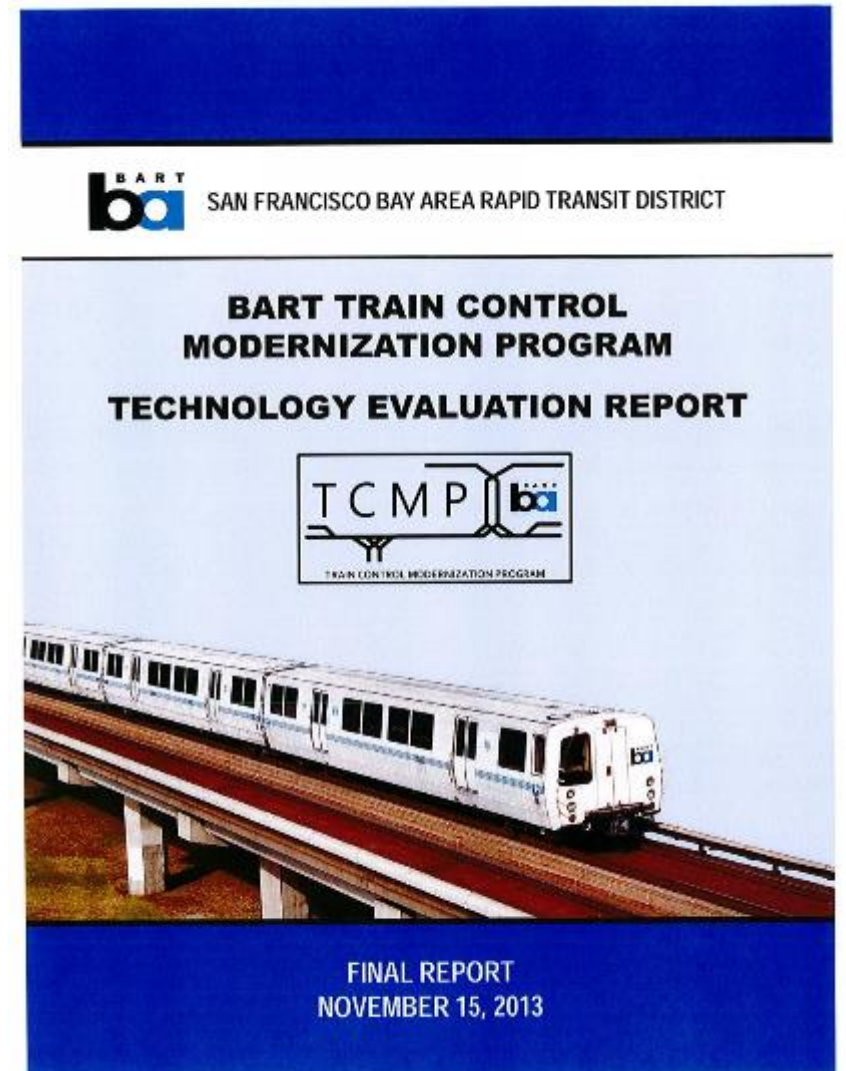


# Core Capacity Improvements Evaluated CBTC vs Track Circuits

## TCMP Objectives:

- Eliminate aged and obsolete equipment
- Improve reliability and availability
- Enhanced maintenance efficiency/state of good repair
- Increase in capacity/support future ridership numbers

**CBTC addresses all!**







# Planning for Success

- Involved internal Stakeholders early
- Learned from Peer Agencies



**New York**



**London**



**New Jersey**



**Denmark**

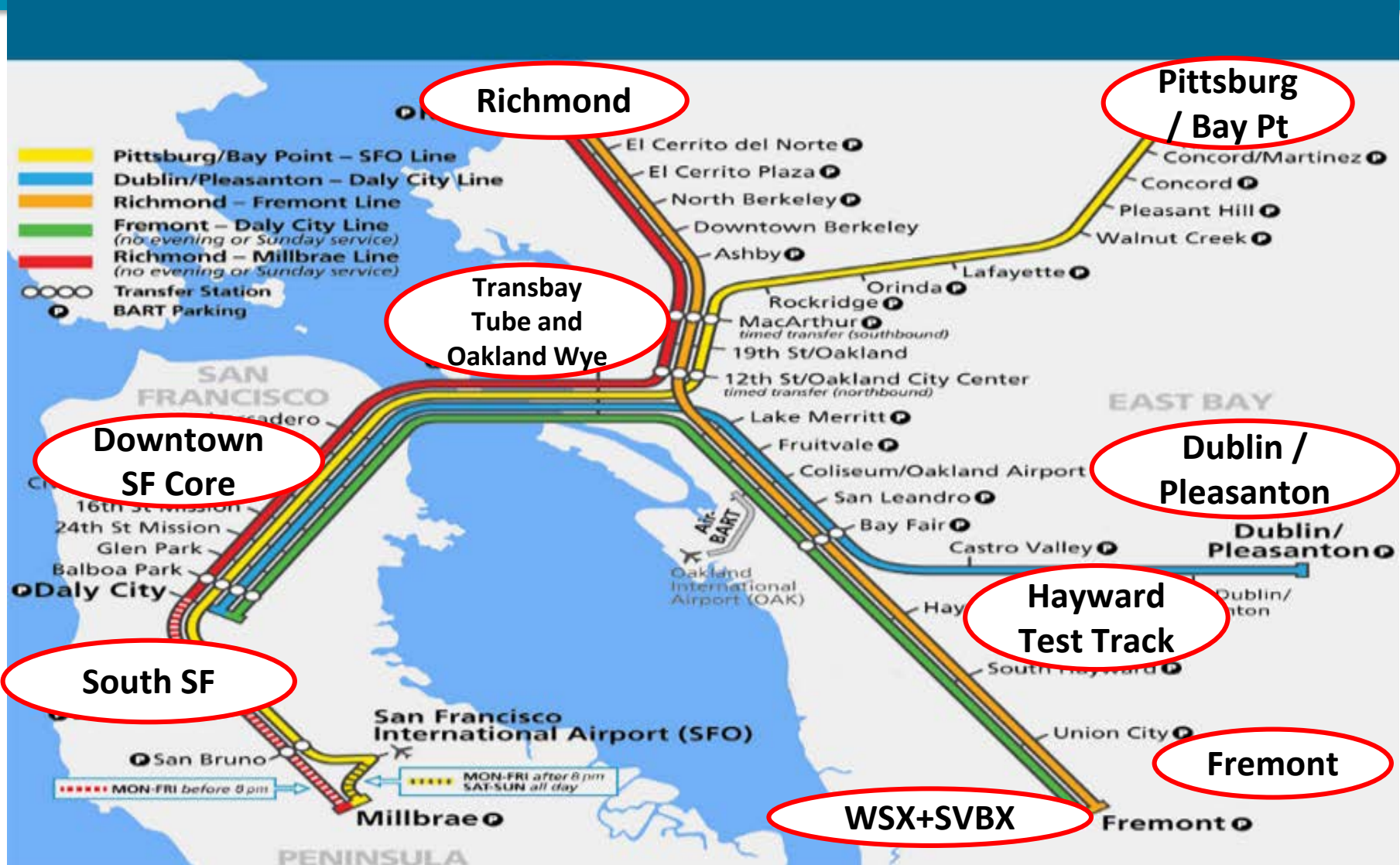


**Toronto**

- Learned from the CBTC Suppliers
- Best-value procurement approach
- Procure proven CBTC product & avoid customization
- Mandatory brownfield experience



# Phased Migration





# CBTC Schedule

FISCAL YEAR		2017												2018												2019				2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Task Number	Activity	START	FINISH	A	S	O	N	D	F	M	A	M	J	J	A	S	O	N	D	1st quarter	2nd quarter	3rd quarter	4th quarter																
2	Release RFQ/RFP			[Green bar from Sep to Oct]																																			
4	RFQ Evaluation/Selection							[Green bar from Nov to Dec]																															
5	RFP Response																																						
9	Final Evaluation + Selection																																						
10	NTP																																						
	TBT Capacity Increase																																						
	System Construction																																						



# CBTC Funding Plan

\$M	Funding Sources							
	FTA Core	MTC	State	BART	BART			
Project	Capacity	TCP	TIRCP	Cap. Alloc.	G.O. Bond	VTA	AATC	Total
Train Control Modernization	176	54	319	83	400	102	17	1,151



# Rail Vehicle Procurement: Scope of Existing Contract

- Design, manufacture, assemble, test, deliver and commission 775 vehicles.
- Supply spare parts, special tools, test equipment, cab simulator, documentation, drawings, warranty, manuals, and training.





# Project Accomplishments

- Received 10 Pilot Cars at the Hayward Test Track
- Started Mainline Testing During Blanket Hours (1-4) Nov 2016
- Started Testing Mainline during revenue service July 2017
- First Production car Received November 2017
- Start of Revenue service January 19, 2018
- Forecast to have 20 cars in service April 2018.



# Rail Car Schedule

Milestone	Approved Schedule	Current Forecast	Actual	Status
Award of Contract	N/A	N/A	5/30/2012	Complete
Complete Final Design Phase	9/30/14	9/30/14	9/30/14	Complete
Commence Pilot Vehicle Delivery	4/30/15	3/15/16	3/15/16	Complete
Complete Pilot Car Delivery	8/25/15	12/1/16	12/1/16	Complete
Delivery of First Production Vehicle	12/30/16	11/6/2017	11/6/2017	Complete
Complete Delivery 200 <sup>th</sup> Vehicle	9/21/18	9/19/19		Not Started
Complete Delivery of 775 <sup>th</sup> Vehicle	9/27/21	3/7/22		Not Started
Complete Warranty of 775 <sup>th</sup> Vehicle	10/27/25	4/6/26		Not Started



## Rail Vehicle Procurement: Scope of Future Procurement

- Design, manufacture, assemble, test, deliver and commission 306 vehicles.
- Supply spare parts, special tools, test equipment, documentation, drawings, warranty, training and manuals.





# BART Car Procurement Funding Plan Summary

Assumes competitive bid/new supplier

\$ millions

	Number of Cars				Total Cost	MTC Funding Sources						Other Funding Sources				Total Funding
	Replacement	Berryessa	Capacity Expansion	Total		FTA & Flex Formula Funds	Financing Proceeds	Exchange Account (1)	RM3 (2)	Other MTC (3)	Total MTC	BART	VTA	Other State & Local (4)	FTA CIG	
Current Contract	669	60	46	775	2,584	231	928	236		350	1,745	639	200			2,584
New Procurement (5)			306	306	1,618			179	500		679	121		407	411	1,618
<b>Total</b>	<b>669</b>	<b>60</b>	<b>352</b>	<b>1,081</b>	<b>4,202</b>			<b>415</b>	<b>500</b>	<b>350</b>	<b>2,424</b>	<b>760</b>	<b>200</b>	<b>407</b>	<b>411</b>	<b>4,202</b>

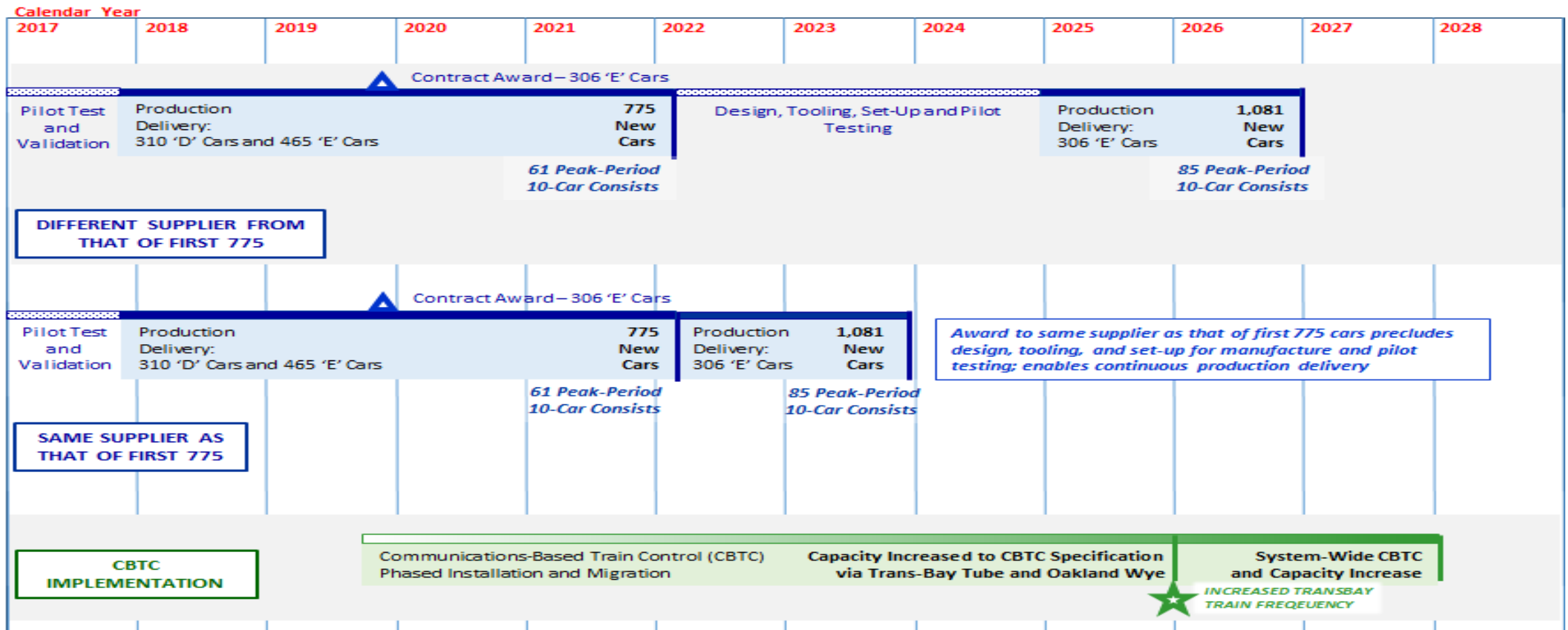
Notes:

1. Exchange Account total includes projected future earnings. If earnings are less than projected, other MTC sources would be increased to make up the difference.
2. If approved by voters.
3. Other MTC includes bridge tolls and SFO Net Operating Revenues.
4. Other State & Local includes TIRCP and county funds.
5. Transbay Corridor Core Capacity Project cars.



# Comparison of Procurement and Delivery Schedules for New Cars and CBTC

## Comparison of Procurement and Delivery Schedules for 306+ New Cars





# Q&A