



# Transbay Tube Earthquake Safety Service Plan



**BART Board Meeting  
March 22, 2018**



# Agenda

- Background
  - 4 AM - 5 AM Ridership Profile
- Mitigation Strategies and Impacts
- State of Good Repair (SOGR) Impact
- Service Change Impact Study and Outreach Plan
- Next Steps and Schedule



# Background

- Transbay Internal Retrofit contract awarded to Shimmick/CEC JV Dec. 2016.
- Contract provides for a work window from approximately 9:30 PM (Sunday - Thursday) until 5:00 AM (Monday - Friday) for 3.5 years.
- Requires Transbay Tube single-tracking from 9:30 PM until closing; sustainable headway of 24 minutes.
- Requires 5 AM systemwide opening beginning September 2018.

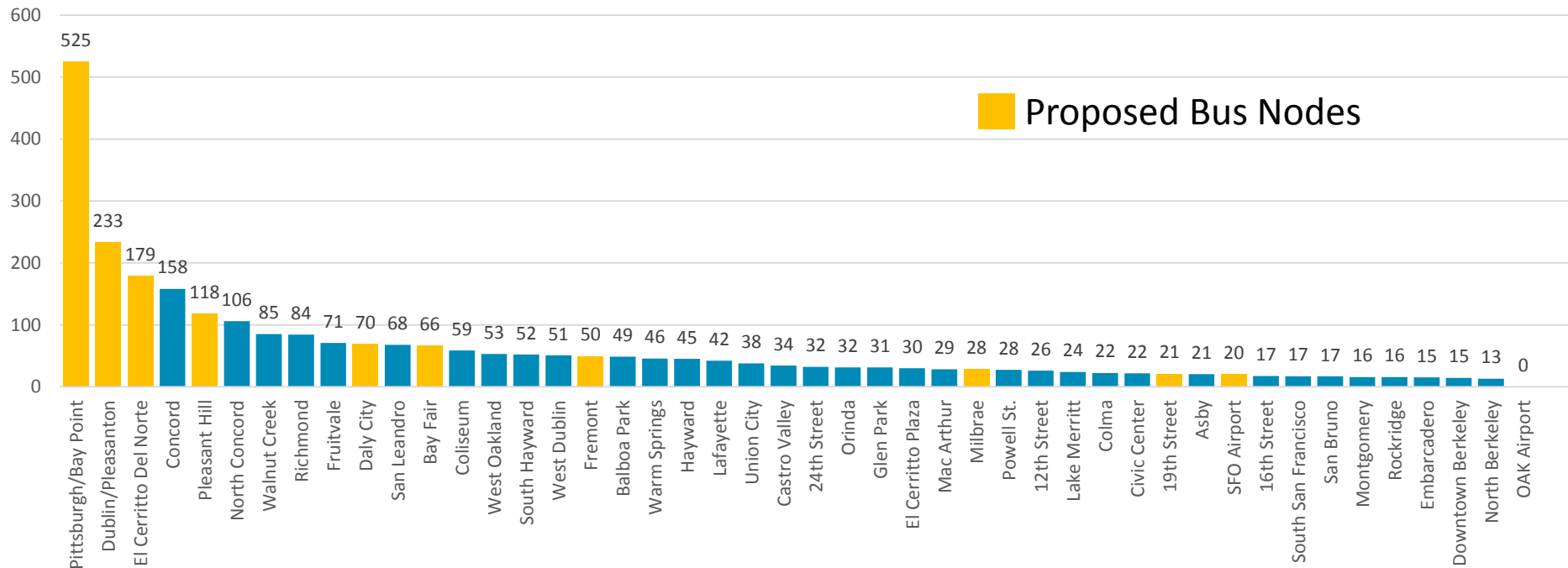


# Ridership Profile – Origin Stations

1<sup>st</sup> hour of service (3:45 AM – 4:45 AM)

- 2,800 Passengers enter the system during the 1<sup>st</sup> Hour

Entries per station (between 0345 and 0445)

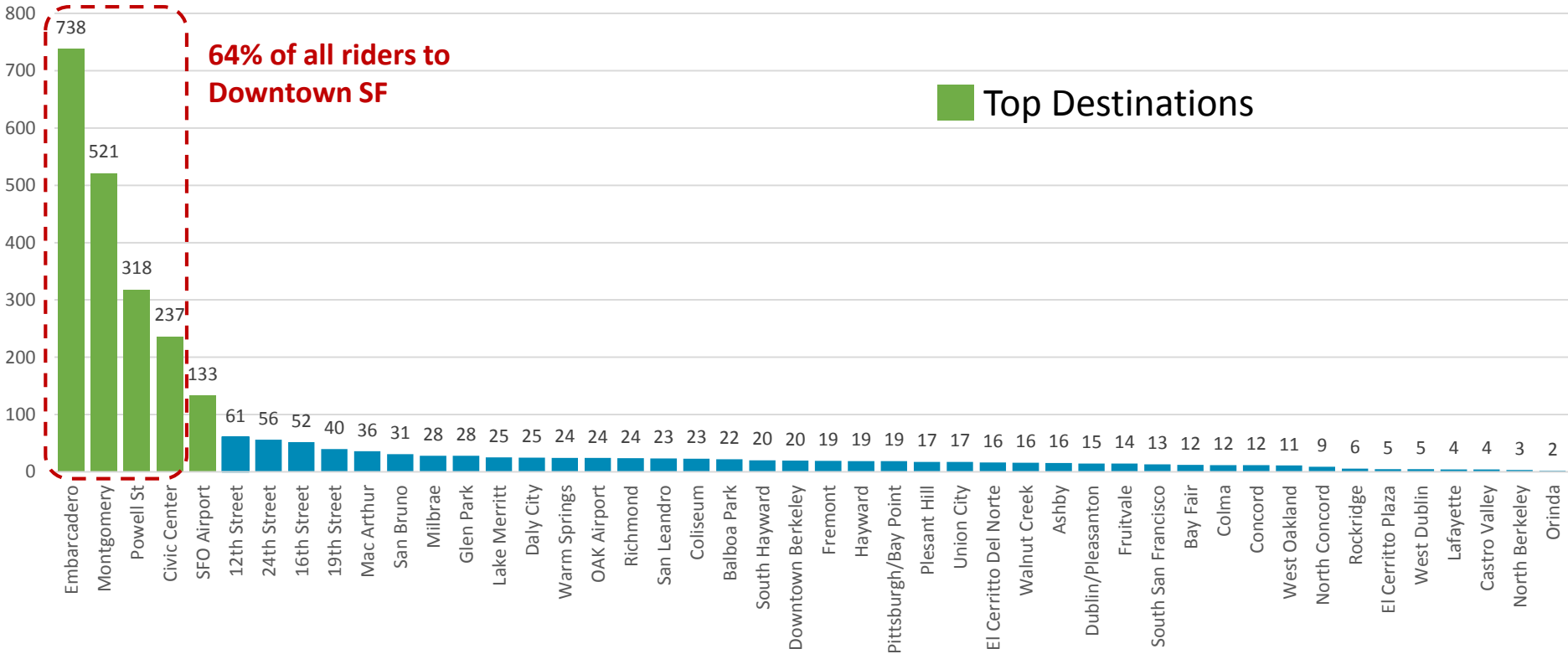




# Ridership Profile – Destination Stations

1<sup>st</sup> hour of service (3:45 AM – 4:45 AM)

Exits per station (entry between 0345 and 0445)





# Ridership Profile- Demographics

## Minority and Non-Minority Ridership

	1 <sup>st</sup> Hour	All Day
Minority	66%	56%
Non-minority	34%	44%

## Low-Income and Non-Low-Income Ridership

	1 <sup>st</sup> Hour	All Day
Low-Income*	37%	26%
Non-Low-Income	63%	74%

\*Low-income riders defined as under \$50K.



# Mitigation Options and Impacts



# Mitigation Options Evaluated

## Options to be Advanced

1. **No Mitigation:** No Additional Service
2. **Bus Service A:** New East Bay Routes + Enhanced Existing Routes
3. **Bus Service B:** Bus Service A + SF Express Routes

## Other Options Considered

- Minimal Regional Train Service + Extensive Single Tracking
- Shuttle Train Service + Three (3) Station Express Buses
- Shuttle Train Service + One (1) Station Express Bus





# Metrics and Multi-Agency Support

## Passenger Impact

Number of Passengers Impacted

Passenger Fare

Travel Time

## Annual Cost of Mitigation Options

Bus Service Cost and Revenue

BART Operating Budget Impact

## State of Good Repair Impact

Transbay Tube Earthquake Safety Construction

Systemwide Maintenance

- Measure RR
- CBTC
- Other Capital Projects
- Additional Maintenance Needs

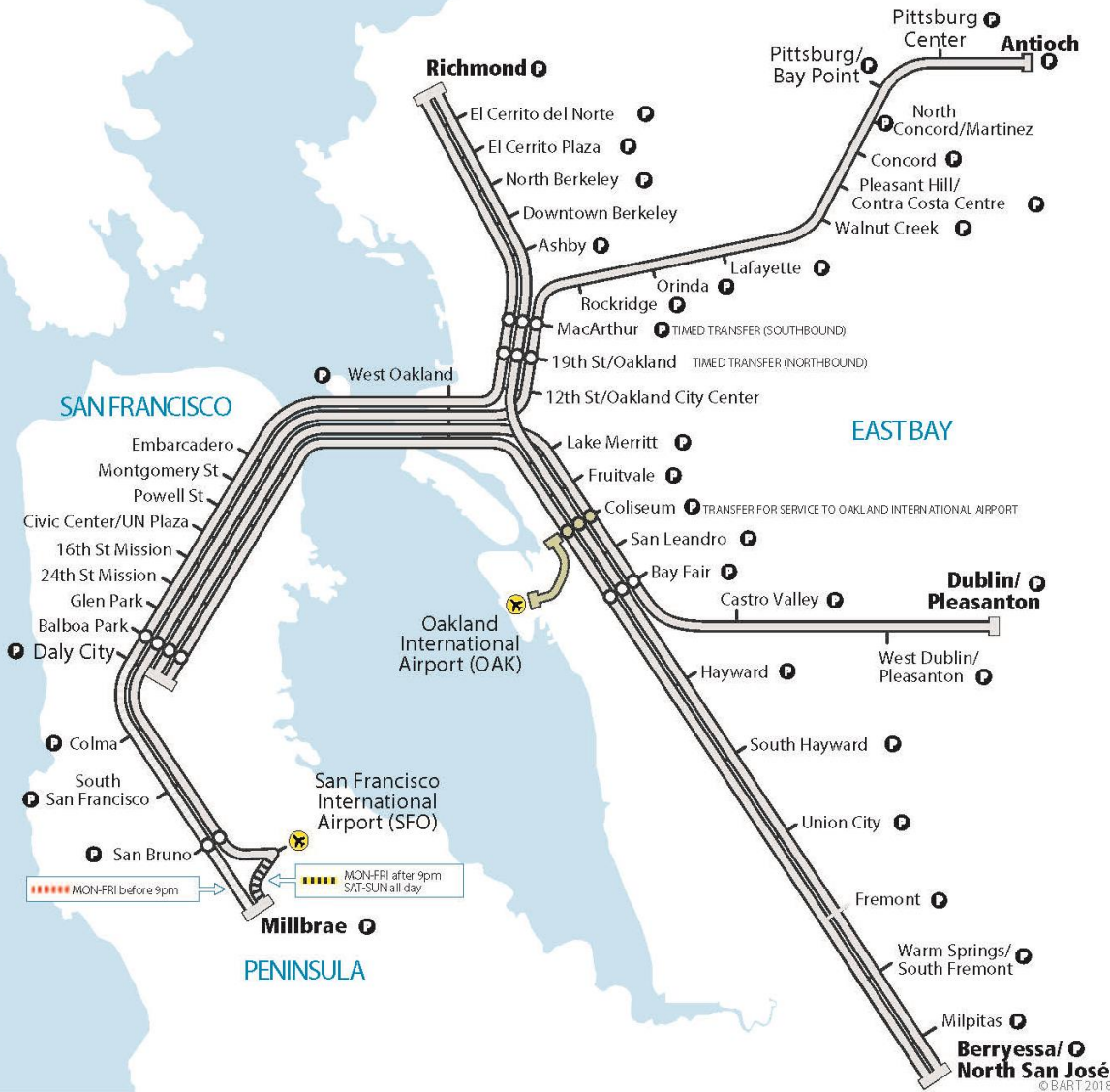




# No Mitigation: No Additional Service

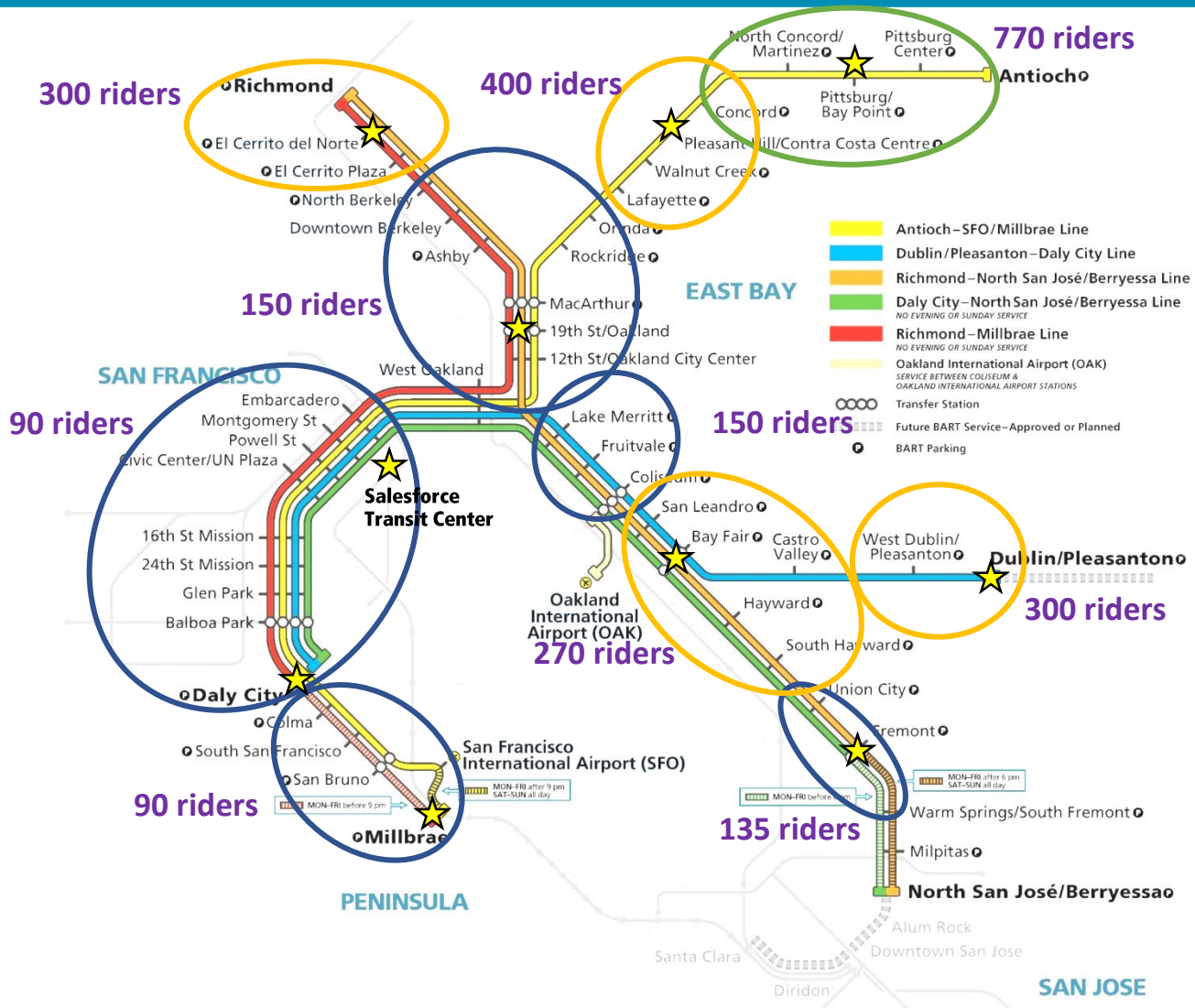
## Passenger Impacts

- 2,800 passengers impacted systemwide





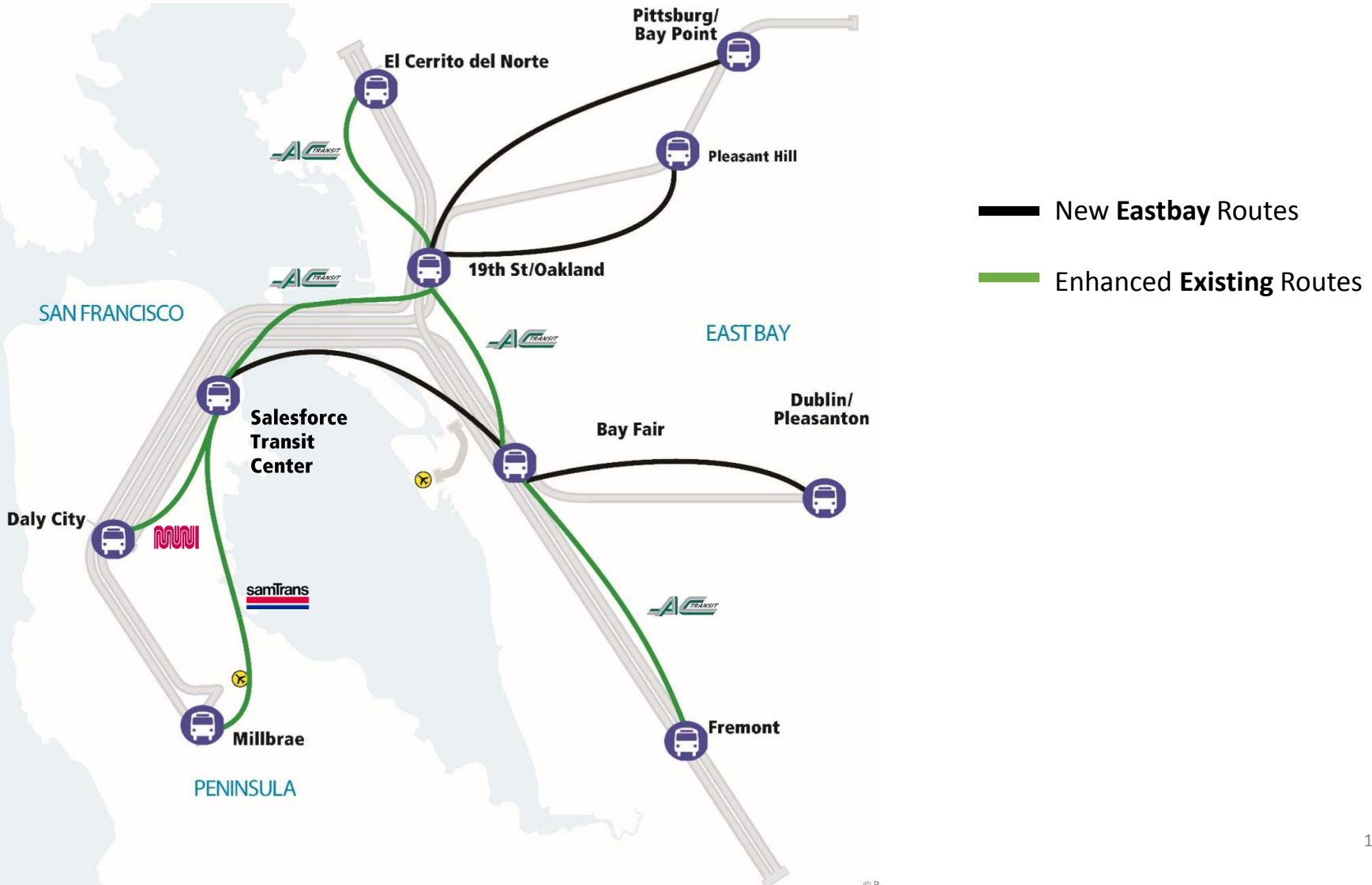
# Origin Stations Catchment Area



Proposed Bus Nodes

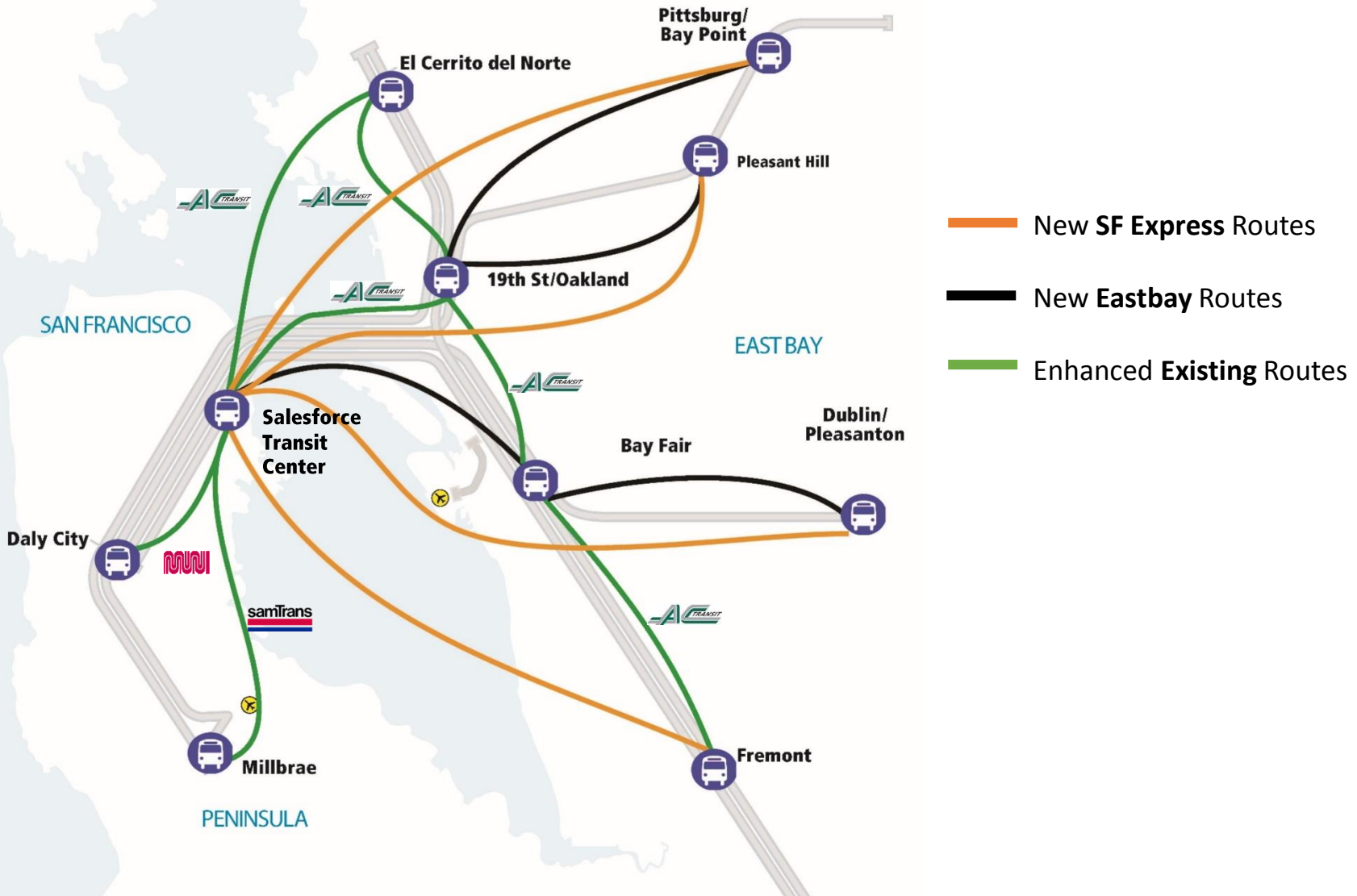


# Bus Service A: New Eastbay Routes + Enhanced Existing Routes





# Bus Service B: Bus Service A + SF Express Routes





# Summary of Mitigation Impacts

	Standard BART	No Mitigation: No Additional Service	Bus Service A: New Eastbay Routes + Enhanced Existing Routes	Bus Service B: Bus Service A + SF Express Routes			
<b>Passenger Impact</b>							
<i>Trip Time</i> PB/BP-EMB/TBT Milb-EMB/TBT	53 min 35 min	Passengers use alternative mode	55 min 25 min	40 min 25 min			
<i>Fare</i> PB/BP-EMB/TBT Milb-EMB/TBT	\$6.55 \$4.65	Passengers use alternative mode	Bus fare less than BART fare	Bus fare less than BART fare			
<b>SOGR Impact</b>							
TBT Work/Risk	N/A	+	+	+			
Systemwide Maintenance	N/A	+	+	+			
<b>Annual Cost of Mitigation Option</b>		<i>Range (-)</i>	<i>Range (+)</i>	<i>Range (-)</i>	<i>Range (+)</i>	<i>Range (-)</i>	<i>Range (+)</i>
Est. BART Revenue Loss	\$0	(\$4.5 M)	(\$2.5 M)	(\$4.5 M)	(\$2.5 M)	(\$4.5 M)	(\$2.5 M)
Est. BART Operating Expense Savings	\$0	\$3.0 M	\$4.0 M	\$3.0 M	\$4.0 M	\$3.0 M	\$4.0 M
Est. Net Bus Service Cost	\$0	N/A	N/A	(\$2 M)	(\$1.5 M)	(\$2.5 M)	(\$1 M)
Est. Parking Revenue Loss	\$0	(\$0.5 M)	(\$0.2 M)	(\$0.5 M)	(\$0.2 M)	(\$0.5 M)	(\$0.2 M)
<b>Est. Net to BART</b>	<b>\$0</b>	<b>(\$2 M)</b>	<b>\$1.3 M</b>	<b>(\$4 M)</b>	<b>(\$0.2 M)</b>	<b>(\$4.5 M)</b>	<b>\$0.3 M</b>

\* Fare revenue subject to final bus fare schedule



# State of Good Repair Impact



# TRA 2017 Maintenance Study: Major Themes

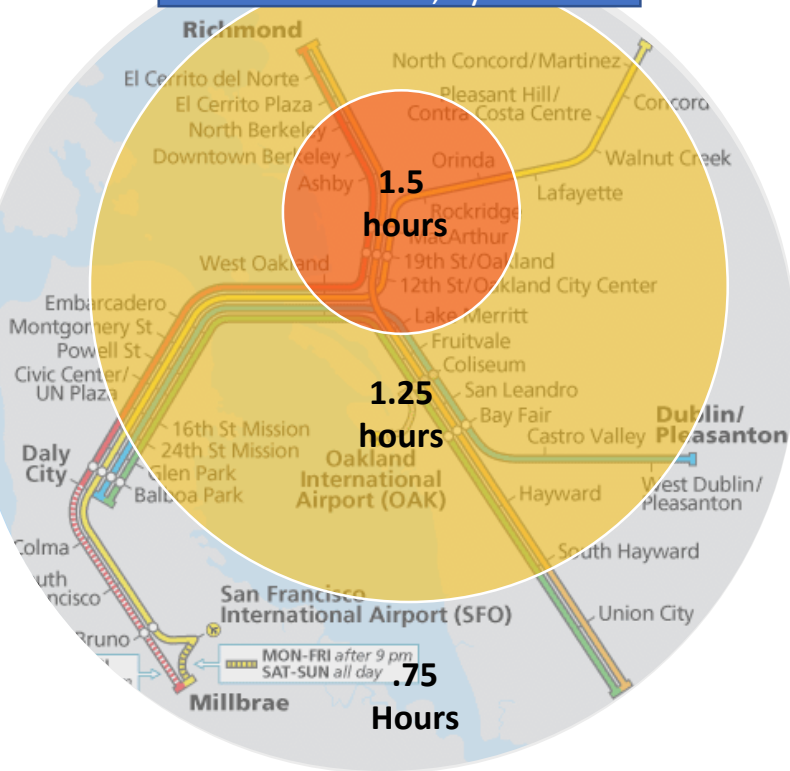
- BART's current state threatens future success without continued infrastructure investment
- Predictable reliability is the key to holding the riding public's trust
- Real-time track availability is insufficient to conduct needed maintenance, rebuild and renewal
- Service adjustments and regular maintenance shutdowns must become normal business





# Real-Time Maintenance Availability is Insufficient

Weekday Maintenance Wrench Time, by zone



Zone	Sun-Thurs hours*	Weekly hours*	Yearly hours (Current Conditions)	Yearly Hours with Extra Hour per night	% Mtc. Time Added with Extra Hour per night
Richmond	1.5	16.5	858	1,223	43% more
Dublin/Pleasanton	1.25	14.75	767	1132	48% more
Millbrae	.75	11.2	585	950	62% more



\*Maximum potential “wrench time” does not include half hour for set up and half hour for tear down



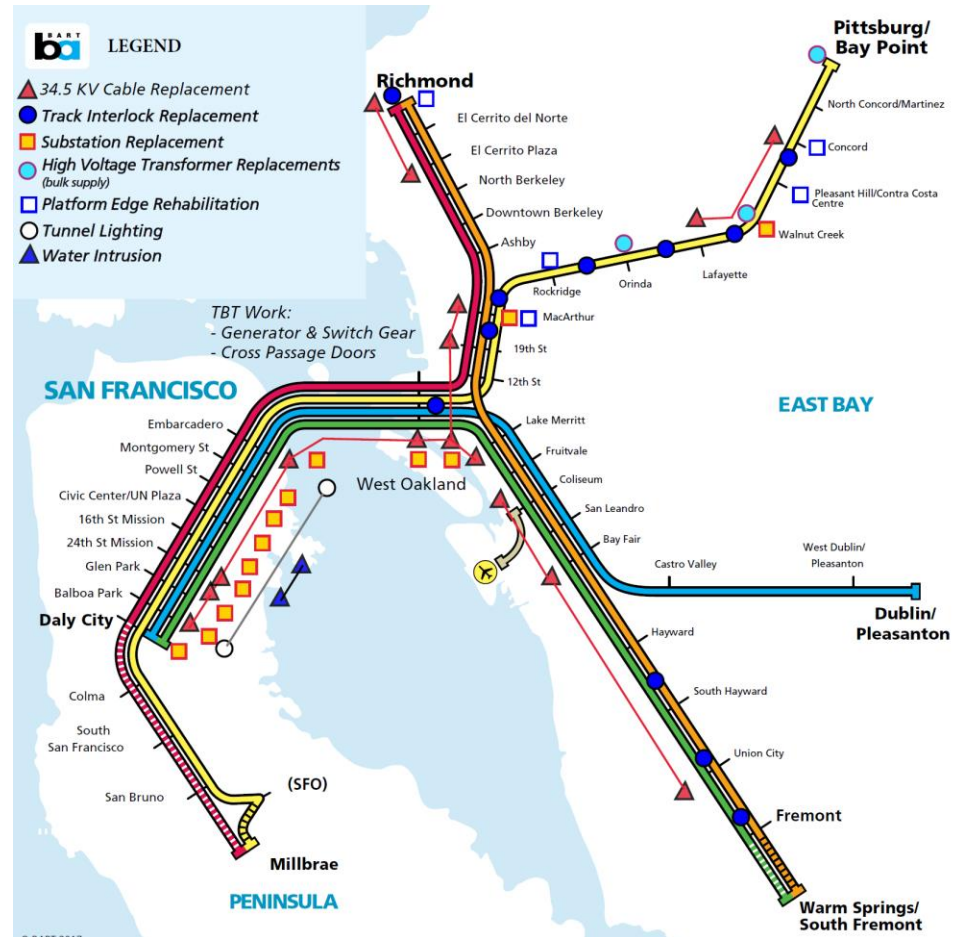
# Real Cost & Schedule Impacts: M line 34.5 KV Cable Contract

		Duration Impact		Cost Impact	
Track Access Time (Hrs./Wk.)	Access	Duration (Months) Subtotal	% change from baseline	Engineer's Estimate Subtotal	% change from baseline
16	No Change	75 months	<b>Current Case</b>	\$134.6 M	<b>Current Case</b>
20	5:00 Opening	45 months	<b>40% Improvement</b>	\$119.0 M	<b>12% Improvement</b>
40	Single Track Sundays, 5:00 Opening	32 months	<b>57% Improvement</b>	\$68.2 M	<b>49% Improvement</b>
56	Single Track 10:00 PM & Sundays, 5:00 Opening	21 months	<b>72% Improvement</b>	\$62.6 M	<b>54% Improvement</b>



# Progressing to SOGR - Upcoming Projects

- Interlocking rebuild – 10 (impacting all lines)
- Rail replacement – 60 miles (all lines)
- Rail reprofile (entire system)
- Joint elimination – all lines
- 34.5 KV replacement – M, K, A, C, R lines
- Tunnel Lighting – M, K,R, C lines
- Tunnel Water Mitigation – M, R lines
- Transbay Tube Generator & Switchgears
- Transbay Tube Cross Passage Doors
- Substation replacement M,K,A,R, C and L lines
- Platform Edge rehabilitation M, R, C, K, lines
- Wayside Signage Upgrades – All lines
- Wayside Lubricator Replacement – All lines
- Train Control Mux upgrades – All lines
- Train Control Program Stop Antenna – All Lines
- Train Control Transmit and Receiver Loop – All lines
- Fire Systems – RY, CY, HY, A and L lines





# Agencies that have Modified Service for Maintenance

- Miami-Dade Department of Transportation and Public Works (DTPW) Metrorail
- New York City Transit (NYCT)\*
- Washington Metropolitan Area Transit Authority (WMATA)\*
- Chicago Transit Authority (CTA)
- Massachusetts Bay Transit Authority (MBTA)
- Southeastern Pennsylvania Transportation Authority (SEPTA)
- Los Angeles County Metropolitan Transportation Authority (LA Metro)
- Metropolitan Atlanta Rapid Transit Authority (MARTA)
- Port Authority-Trans Hudson (PATH)
- Toronto Transit Commission (TTC)
- Société de transport de Montreal (Montreal Metro)
- London Underground (The Tube)
- Metro Trans Melbourne
- MTA Maryland\*

\*unplanned extended reduction of service hours to deal with unsafe track conditions



# Service Change Impact Study and Outreach Plan



# Service Change Impact Study

- Staff to conduct a Service Change Impact Study to determine impacts on minority/low-income populations.
  - Demographic assessment
  - Travel Time and alternative routes analysis
  - Survey and public outreach
  
- Timeline: Late March-May

\*Service change does not require Title VI analysis/no requirement to submit to FTA.



# Outreach Plan

## **Outreach will target early morning passengers.**

1. Onboard survey beginning at the following stations:
  - Pittsburg/Bay Point, Richmond, Dublin/Pleasanton, Warm Springs/South Fremont, Millbrae
2. In-station outreach held at the following stations:
  - Embarcadero, Powell, Montgomery, 12<sup>th</sup> Street, MacArthur
3. Newspaper/Media/Multilingual Media Ads.
4. Presentation to OCR's Title VI/Environmental Justice and Limited English Proficiency Advisory Committees.
5. Robust outreach to community groups, chambers of commerce, and business councils, hospitality and service workers, owners and unions.
6. Outreach to Airport Employees (OAK and SFO).



# Next Steps and Schedule





## Next Steps and Schedule

Task	Lead	2018 Timeframe	Board Input
Finalize options for outreach	BART	March	
Conduct Service Change Impact Study + Outreach	BART	March – May	
Finalize service plan, fares and logistics	BART + Bus Operators	June	
Negotiate business agreements	BART + Bus Operators	June – August	
Conduct outreach	BART	August – September	
Implement service change	BART	September	

