

# RAIL ALIGNMENT AND BENEFITS (RAB) STUDY

PREVIOUSLY KNOWN AS RAILYARD  
ALTERNATIVES & I-280 BOULEVARD STUDY



San Francisco  
**Planning**

June, 2018

# CONNECTING CALIFORNIA

**4,300 LANE MILES + 115 AIRPORT GATES** WOULD BE NEEDED  
*to create equivalent capacity of high speed rail*

**545 MILLION TRIPS** BETWEEN REGIONS  
*In 2040. That is 50% more than 2010*

*California will grow*  
**260,000 NEW RESIDENTS** EVERY YEAR



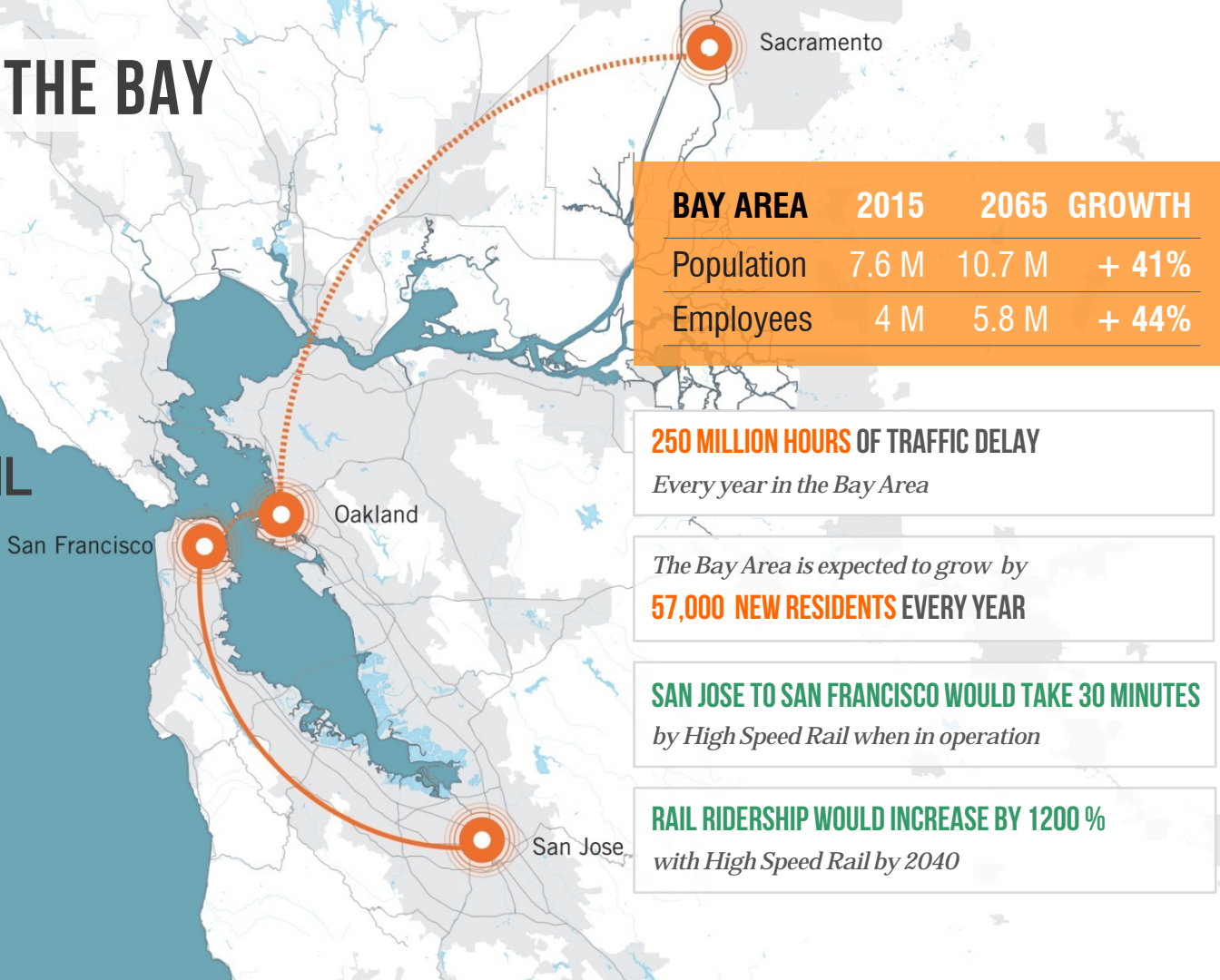
CALIFORNIA	2015	2065	GROWTH
Population	39 M	52 M	+ 33%
Employees	16 m	28 m	+ 77%

*Option:*  
**MAXIMIZE RAIL**  
**OR**  
**EXPAND AIRPORTS/HWYS**



# CONNECTING THE BAY

*Option:*  
**MAXIMIZE RAIL  
OR  
EXPAND  
I-80  
I-280  
US-101**



<b>BAY AREA</b>	<b>2015</b>	<b>2065</b>	<b>GROWTH</b>
Population	7.6 M	10.7 M	+ 41%
Employees	4 M	5.8 M	+ 44%

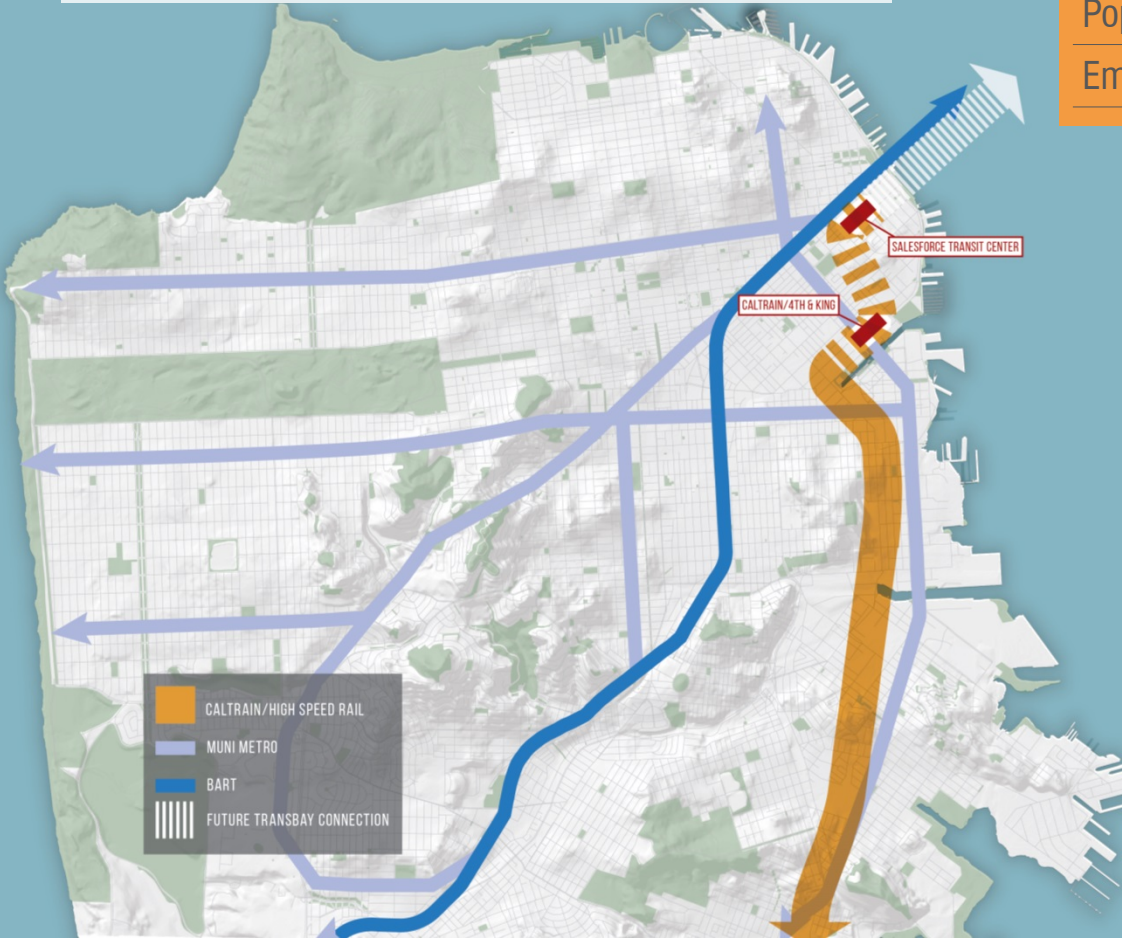
**250 MILLION HOURS OF TRAFFIC DELAY**  
*Every year in the Bay Area*

*The Bay Area is expected to grow by*  
**57,000 NEW RESIDENTS EVERY YEAR**

**SAN JOSE TO SAN FRANCISCO WOULD TAKE 30 MINUTES**  
*by High Speed Rail when in operation*

**RAIL RIDERSHIP WOULD INCREASE BY 1200 %**  
*with High Speed Rail by 2040*

# CONNECTING SAN FRANCISCO



San Francisco	2015	2065	GROWTH
Population	860,000	1,430,000	+ 66%
Employees	700,000	995,000	+ 44%

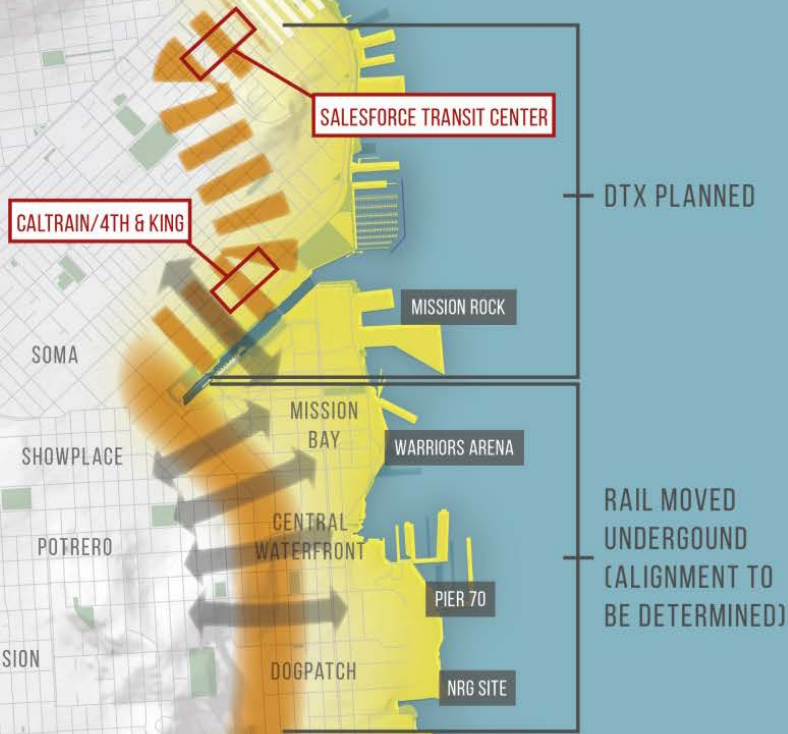
MUNI METRO DEMAND IS **124% CAPACITY**  
*during morning commute (2015)*

San Francisco is expected to grow by  
**12,000 NEW RESIDENTS** EVERY YEAR

*Option:*  
**MAXIMIZE RAIL**  
**OR**  
**INCREASE**  
**DEMAND ON**  
**SF STREETS**



# CONNECTING NEIGHBORHOODS



FIDI, Mission Bay, SOMA, So. Bayfront	2015	2065	GROWTH
Population	87,000	257,000	194%
Employees	304,000	554,000	82%

**20,000 NEW HOUSEHOLDS** IN SOUTHERN BAYFRONT  
*are planned, from Mission Creek to Executive Park*

**35,000 NEW JOBS + 520 ACRES OF OPEN SPACE**  
*are also planned in the Southern Bayfront*

**6 EAST-WEST ROADS** COULD BE RECONNECTED  
*across Caltrain tracks*

*Option:*  
**UNDERGROUND RAIL  
 OR  
 NEIGHBORHOOD  
 ISOLATION**

# WHY NOW? MAJOR PLANNED NEW INFRASTRUCTURE

CALTRAIN ELECTRIFICATION



HIGH SPEED RAIL (HSR)



SALESFORCE TRANSIT CENTER





# WHY DO WE NEED THIS STUDY?



- To coordinate state, regional and local infrastructure for generations of growth
- To connect neighborhoods while supporting Caltrain and High-Speed Rail operations
- Current plans require 16<sup>th</sup> St to be closed 20+ minutes every hour (during peak)





# TRADE-OFFS TO CONSIDER

CONNECTIVITY



OPERATIONS, CAPACITY,  
AND SAFETY OF ALL MODES



ADHERENCE TO EXISTING  
PLANS/POLICIES



CONSTRUCTION SCHEDULES



POTENTIAL DEVELOPMENT  
OPPORTUNITIES



COSTS



# RAB STUDY COMPONENTS

*Each component:*

- Is independent of others
- Will affect San Francisco for 100+ years

**1** Rail Alignment to Salesforce Transit Center

**2** Railyard Reconfiguration/Relocation

**3** Urban Form and Land Use Considerations

**4** Transit Center (SFTC) Extension/Loop

**5** Boulevard I-280



# 1 RAIL ALIGNMENTS TO SALESFORCE TRANSIT CENTER



**OPTION 1:**  
**FUTURE WITH SURFACE RAIL**  
 DTX + TRENCHED STREETS

**OPTION 2:**  
**PENNSYLVANIA AVE ALIGNMENT**  
 DTX + EXTENDED TUNNEL

**OPTION 3:**  
**MISSION BAY ALIGNMENT**  
 MODIFIED DTX + 3RD ST. TUNNEL



## 2

# RAILYARD RECONFIGURATIONS / RELOCATION

What if Caltrain SEPARATED operations from staging and storage/maintenance?





3

# URBAN FORM AND LAND USE CONSIDERATIONS



Restoration of street grid

Improved bike/ped connections

Eliminate rail hazards & noise

Housing

Open Space

Office/Retail

4th St

5th St

6th St

King St

Townsend St



# 4

## TRANSIT CENTER (SFTC) EXTENSION/LOOP

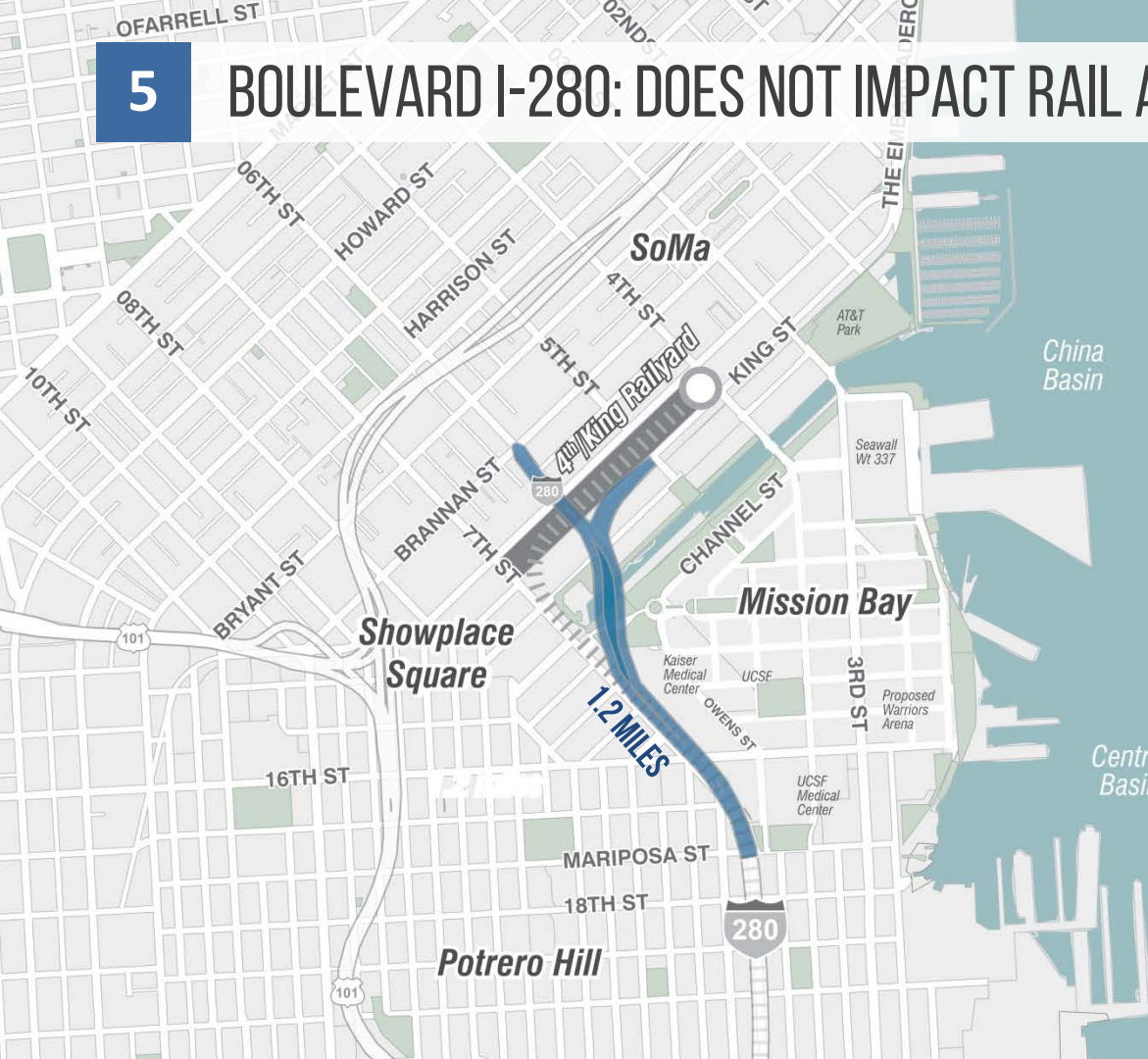


An extension or loop is not needed now but will be when more trains travel the corridor



5

## BOULEVARD I-280: DOES NOT IMPACT RAIL ALIGNMENTS



- Removing I-280 does not create new opportunities for rail
- No physical relationship to other components
- Removing I-280 requires much longer conversation with Caltrans

An aerial, grayscale photograph of a dense urban area. The image shows a complex network of streets, buildings of various heights, and a multi-lane highway running diagonally across the center. A river or canal flows through the lower right portion of the frame. A large, semi-circular stadium is visible on the right side. In the bottom left corner, there is a small logo consisting of a fan-like shape. A white rectangular box with a subtle grid pattern is centered in the image, containing the word "COSTS" in a bold, orange, sans-serif font.

# COSTS



# 1 RAIL ALIGNMENTS TO SALESFORCE TRANSIT CENTER



**OPTION 1:**  
**FUTURE WITH SURFACE RAIL**  
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**OPTION 2:**  
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# PRELIMINARY ESTIMATES OF PROBABLE COSTS AND SCHEDULES

ALIGNMENT	COST <sup>1</sup>	EXPECTED COMPLETION DATE <sup>2</sup>
<b>FUTURE WITH SURFACE RAIL:</b> DTX + TRENCHED STREETS	\$5.1 Billion	2026
<b>PENNSYLVANIA AVENUE:</b> DTX + EXTENDED TUNNEL	\$6.0 Billion	2027
<b>MISSION BAY:</b> MODIFIED DTX + 3 <sup>RD</sup> STREET TUNNEL	\$9.3 Billion	2031

1. Includes construction costs, value capture, and impact costs
2. Completion date estimate if all money were available on January 1, 2017

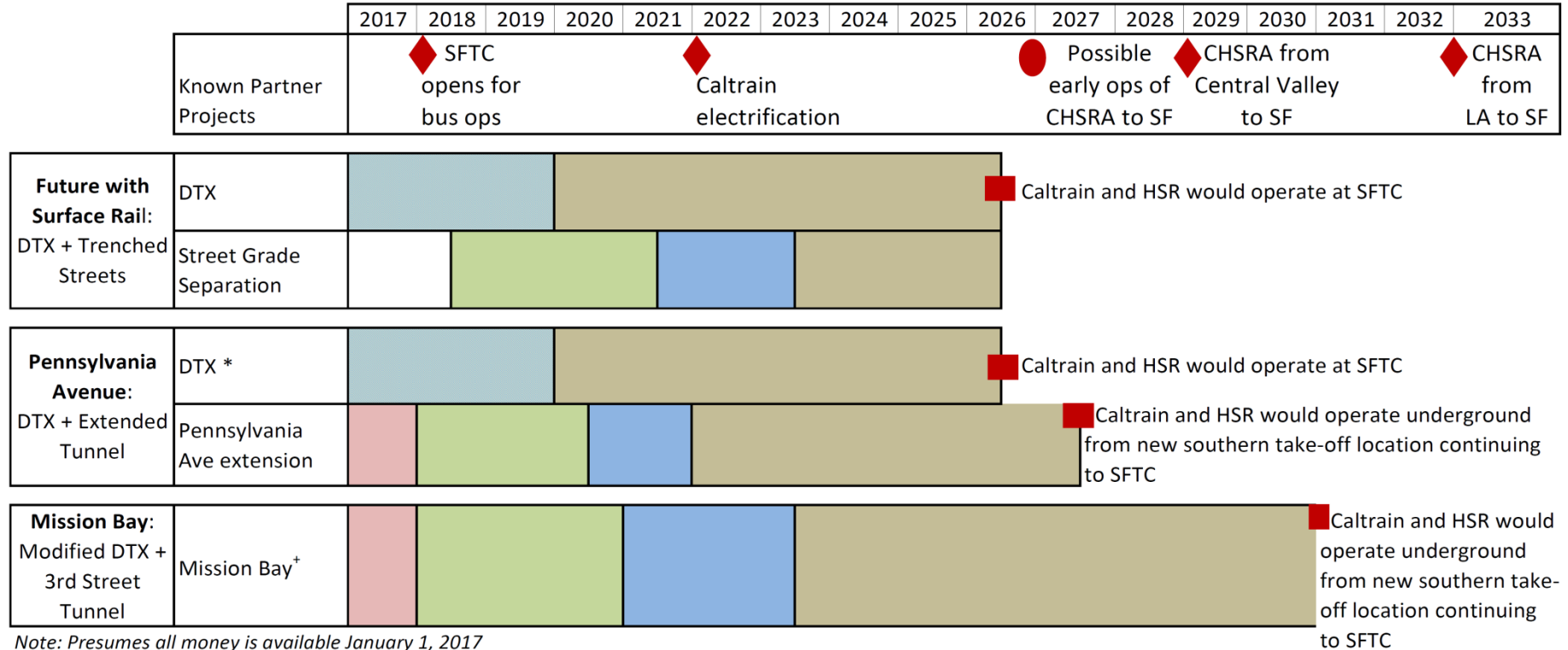
Conceptual Level  
Comparative Cost  
Estimates

# SUMMARY OF RAIL ALIGNMENT OPTIONS

	<b>FUTURE W/ SURFACE RAIL</b> DTX + TRENCHED STREETS	<b>PENNSYLVANIA AVENUE</b> DTX + EXTENDED TUNNEL	<b>MISSION BAY</b> MODIFIED DTX + 3 <sup>RD</sup> ST TUNNEL
Construction Cost	\$5.1 billion	\$6.0 billion	<b>\$9.3 billion</b>
Expected Completion Date	2026	<b>DTX segment in 2026, extension in 2027</b>	<b>2031</b>
Neighborhood Connectivity	<b>Puts 16<sup>th</sup> Street into 0.6 mile trench</b>	<b>Reconnects over 1-mile of the city</b>	Reconnects over 1-mile of the city
Vision Zero / Pedestrian Safety	Reduces pedestrian connections, increases walking distances	Improves safety and increases connections to Southeast Waterfront	Improves safety and increases connections to Southeast Waterfront
Surface Blocks Impacted By Construction along alignment	53+	12+	0+
Land use and affordable housing opportunities at 4 <sup>th</sup> /King	Railyard remains as currently used	<b>Creates land use opportunities</b>	Creates land use opportunities
22 <sup>nd</sup> Street Caltrain station	Remains in place	Creates opportunities to relocate, redesign or improve access	Creates opportunities to relocate, redesign or improve access
Resilience to Sea Level Rise	Trenches creates vulnerability to sea level rise	<b>Tunnels can be designed for resiliency</b>	
Access to SFTC	Not all trains	<b>All trains</b>	All trains



# RAB ALIGNMENTS – POTENTIAL SCHEDULES



Note: Presumes all money is available January 1, 2017

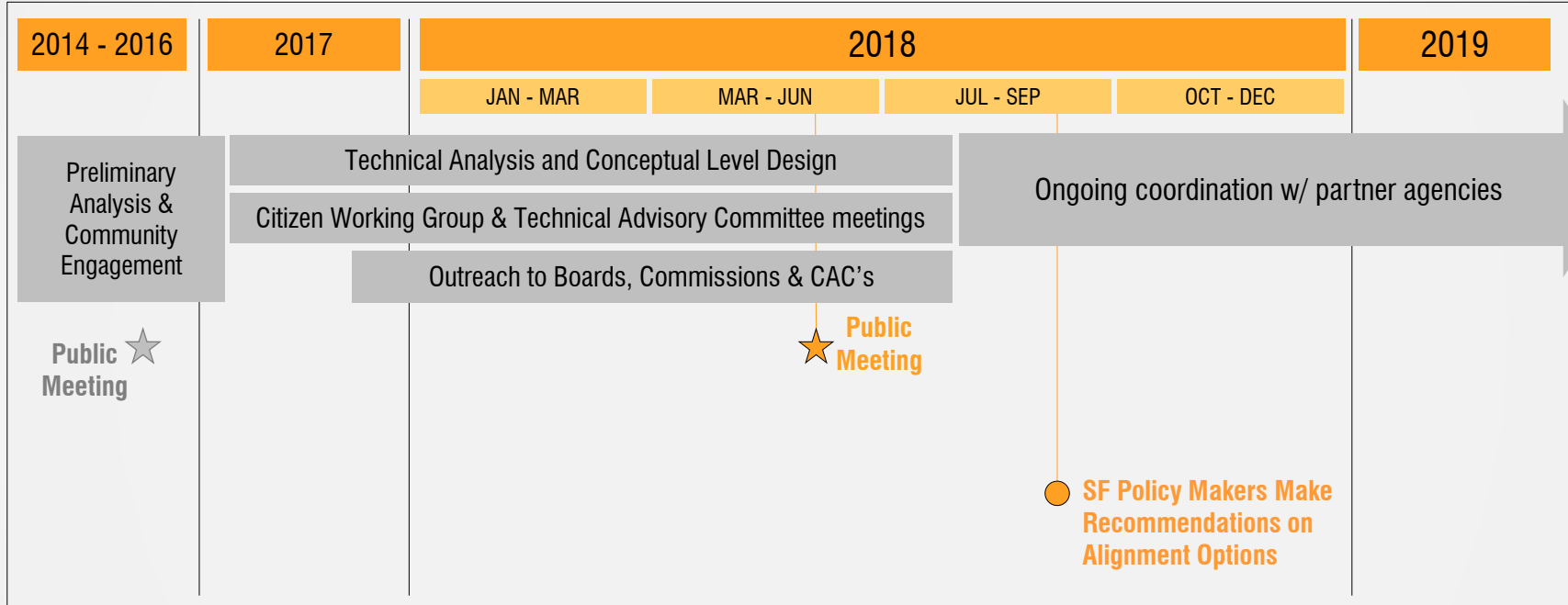
\* Coordinating the DTX project approach with boring of Pennsylvania Avenue Extension could save time.

# NEXT STEPS



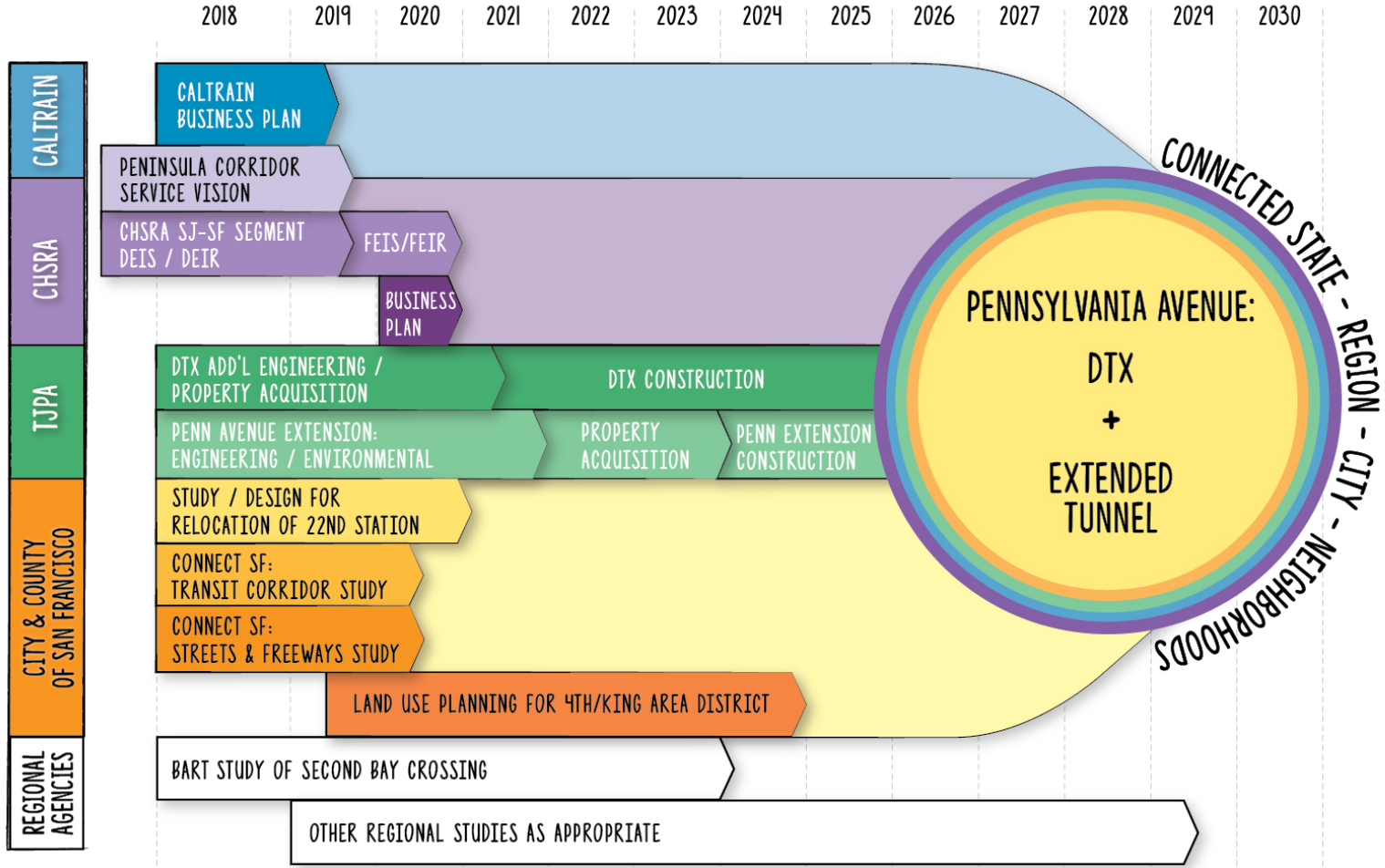


# RAB TIMELINE



*Dates subject to change*

# ONGOING COORDINATION TO CARRY RAIL PROJECTS FORWARD





# THANK YOU

[sf-planning.org/rab](https://sf-planning.org/rab)

*Study Manager*

Susan Gygi, PE



San Francisco  
**Planning**