



# Grade Separation and Rail Alignments

# Benefits of Grade Separation

- Improve safety
- Enable higher train speeds
- Minimize delay to 16<sup>th</sup> Street Bus Rapid Transit
- Incompatible train and bus overhead wire systems
- Minimize traffic delay and queuing
- Prevent neighborhood traffic diversion
- Eliminate train horn noise

To create grade separation, either the streets or the tracks need to be depressed



# Mission Bay Street Under Tracks



Source: CaHSRA



# 16<sup>th</sup> Street Under Tracks



Source: CaHSRA



# 16<sup>th</sup> Street Under Tracks



Source: CaHSRA

# 7<sup>th</sup> Street Underpass, Oakland



- Inhospitable pedestrian realm
- Exacerbates barrier between neighborhoods
- Inhibits access to adjacent land uses

Preferred design would depress tracks under street  
– like a subway

- Reconnect neighborhoods
- Improve aesthetics
- Reduce noise
- Enable access to adjacent land uses

Underground tracks enable potentially straighter or shorter  
route than existing alignment



# Alternative Rail Alignments Considered

## West Route

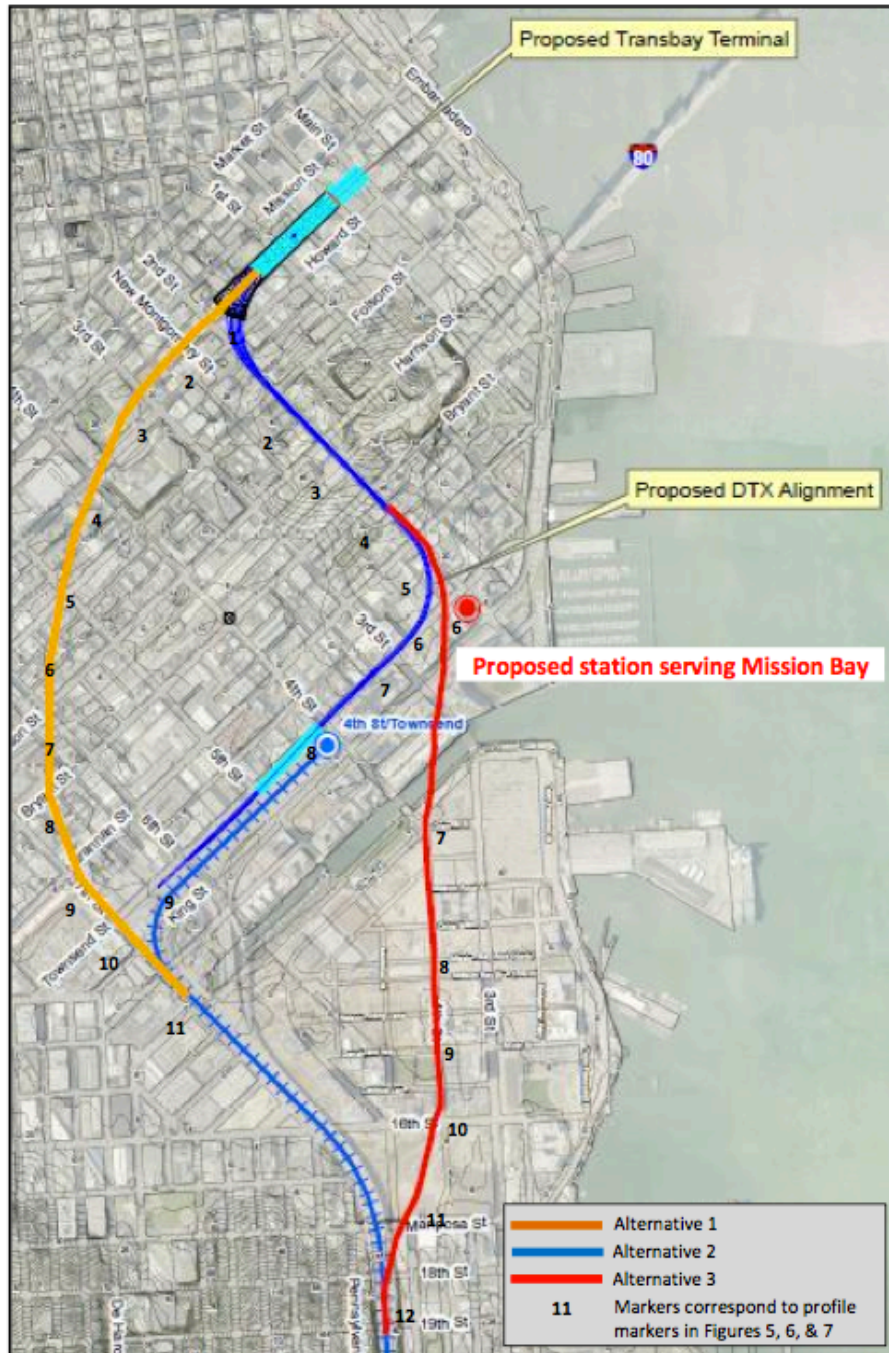
- Conflicts with Moscone & SFMOMA
- No Mission Bay station (except spur)

## DTX Route

- Retain tight curve at 7<sup>th</sup>/Townsend
- Mission Bay station remains

## East Route

- Potential conflicts with Mission Bay building pilings
- Relocated Mission Bay station to east

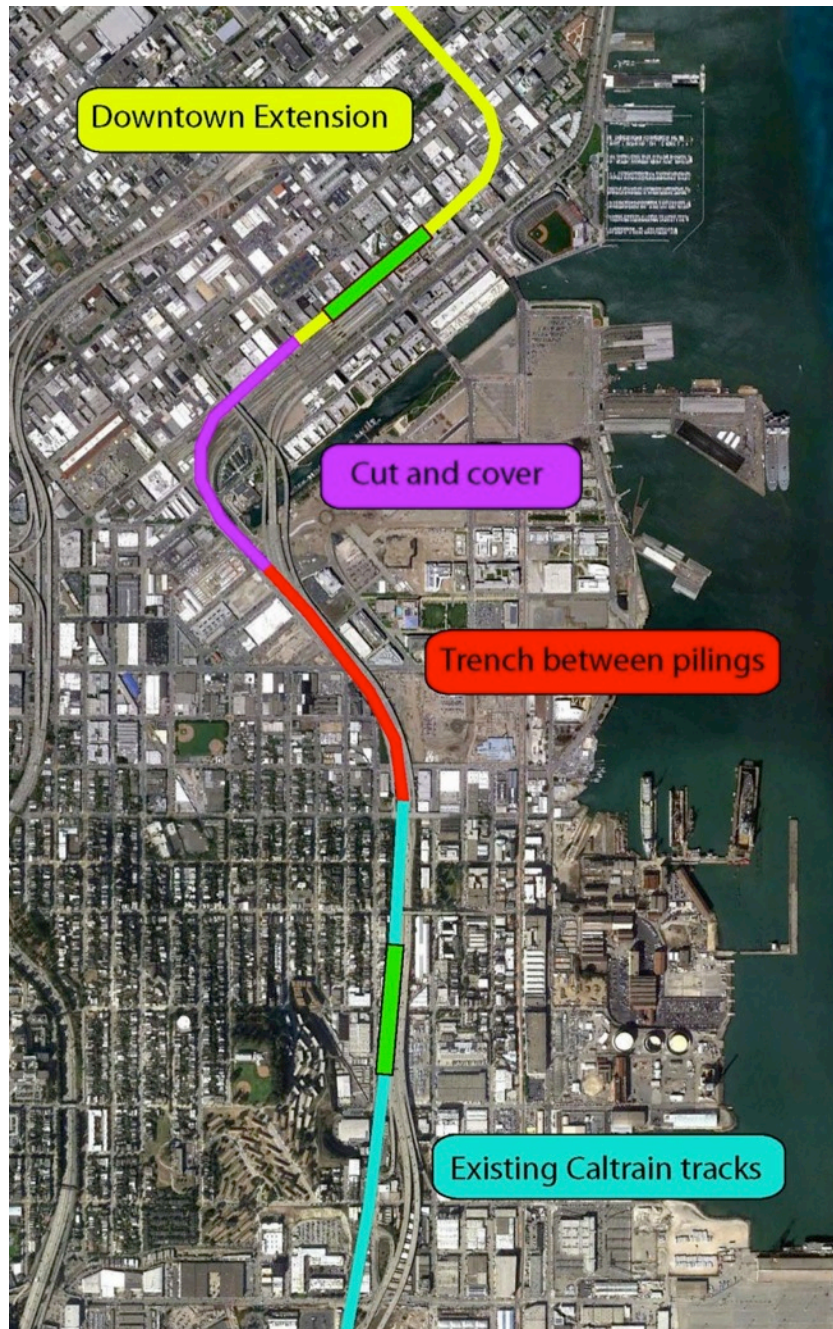


Source: SFCTA



# Constraints on Potential Rail Alignments

1. Connect to DTX at 4<sup>th</sup>/Townsend Station?
2. Avoid major sewer infrastructure
3. Avoid structures on pilings
4. During construction:
  - Maintain Caltrain operation
  - Minimize disruption to local land uses
  - Accommodate local circulation and regional traffic



## Option 1: Trench in between freeway pilings



- Simplest option
- May not be physically or structurally feasible