

Dear Chair Mandelman and Commissioners,

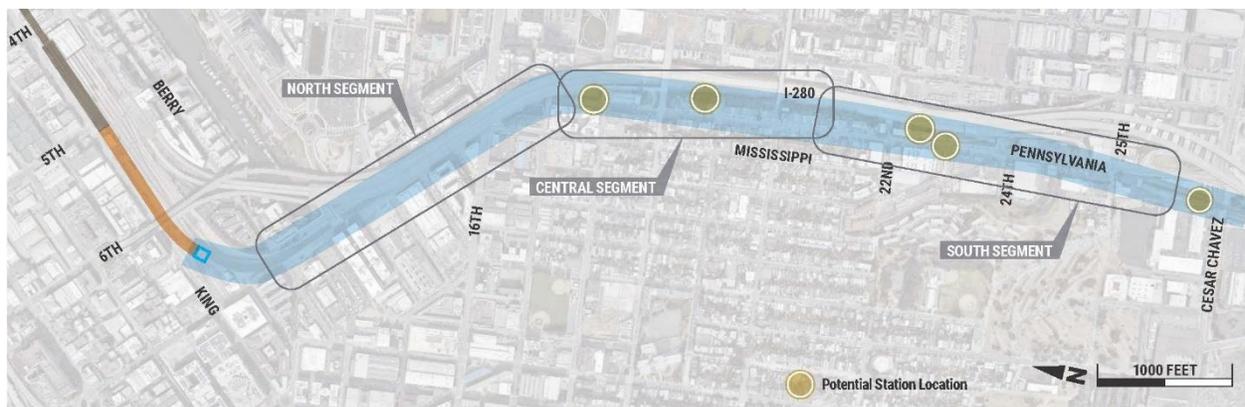
Thank you for the opportunity to substantiate and elaborate on the comments I made at the May 26th CAC meeting.

Please allow me to start by complementing Ms. Waldman and her team for the schedule (slide 6) which, unlike the infamous so-called “RAB” 5-year “Study”, proposes to make the PAX Pre-Environmental Study Final Report available for review in September.

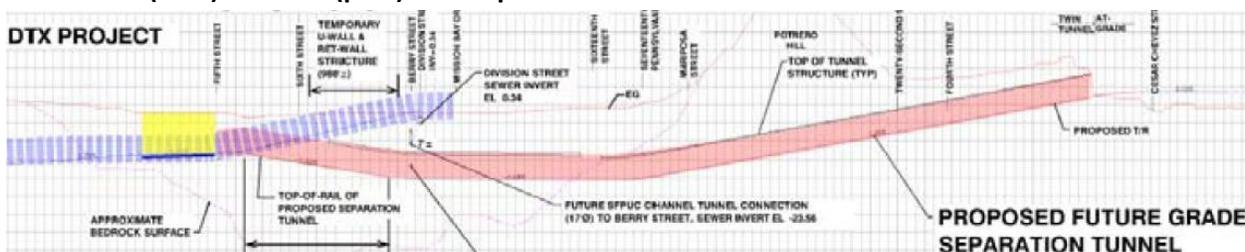
I was also pleased to find a plausible twin-bore tunnel profile with an external bore diameter of approximately 27 feet on slide 3.

The first issue for your consideration is the “Potential Station Locations” on slide 4 because, as seen below, the tunnel profile on slide 3 would result in platforms sloping at 2% or more and the amount of excavation under the Central Segment (tunnel #1) and South Segment (tunnel #2) would result in massive surface impacts and prohibitive costs. The “Potential Station Locations” also do not take into account that non-stopping trains must be able to pass through the station(s) at 80 MPH resulting in an overall length of excavation of approximately 1,300 feet (300-foot throat + 700-foot platform(s) + 300-foot throat). This leaves two Potential Station Locations: a \$100M elevated station above Cesar Chavez (between western tunnel #2 and Highway 280) and/or a \$400M underground multimodal station under the North Segment (7th Street between 16th and Townsend) with seamless transfers to MUNI buses, the T-3rd and N-line extensions, the Central subway and the future 16th Street/UCSF BART station.

Slide 4 Potential Station Locations



Slide 3 DTX (blue) and PAX (pink) tunnel profiles



PAX Alternatives (slide 7)

There are three issues with the discussion on this slide:

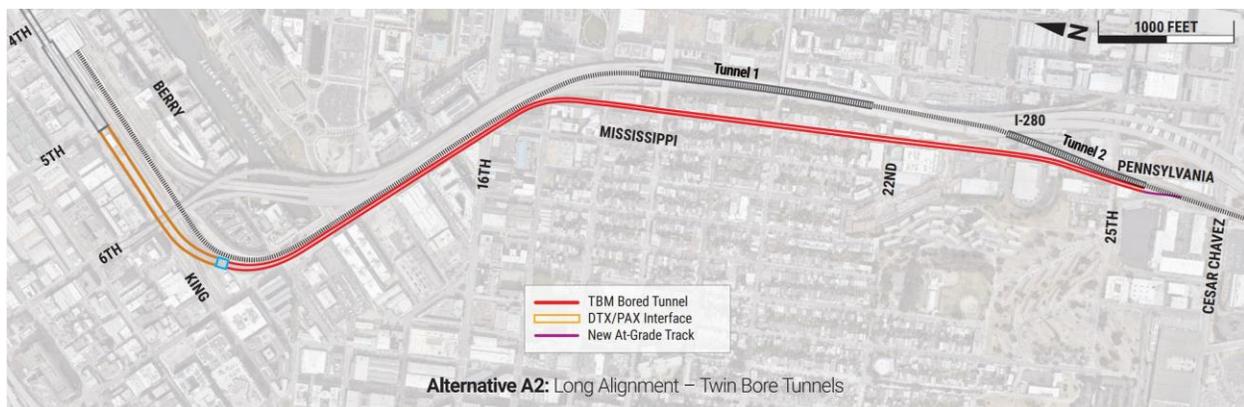
- 1) The primary discussion revolves around the relocation or modification of the 22nd Street station while ignoring the issue of sloping platforms as mentioned above.
- 2) There is no consideration of the nexus between the continued operation of the 4th & King railyard and the continued operation of the existing 22nd Street station, specifically that there will be no change to 22nd Street as long as Caltrain continues to provide service to the 4th & King railyard because passengers requiring access to the Cesar Chavez and/or 7th Street station(s) will board Transbay trains while passengers requiring access to the 22nd Street station will board trains terminating at 4th & King.
- 3) The third and final issue is that there is no consideration of phasing whereby Cesar Chavez could be constructed for initial Transbay operations and 7th Street could be constructed at a later date at which point Potrero Hill and the Central waterfront would be served by TWO Caltrain stations (Cesar Chavez to the South and 7th Street to the north) with 7th Street providing service to Mission Bay, including Oracle Park, the Chase Center and the future 4th & King railyard redevelopment.

Alternative A: Long Alignment (slide 8)

Alternative A1 (Single Bore tunnel) is prohibitively expensive (\$1B-\$2B) with a southern portal conflicting with the northern tip of the Cesar Chavez station. Additionally, the estimated 45-foot diameter single bore tunnel would require a minimum overburden of 40 feet (potentially more depending on soil conditions in the 7th Street/Berry area) which would result in top of rail (TOR) approximately 25-30 feet below the DTX tunnel profile as currently proposed.

Alternative A2 (Twin Bore Tunnel) is viable but has the following disadvantages:

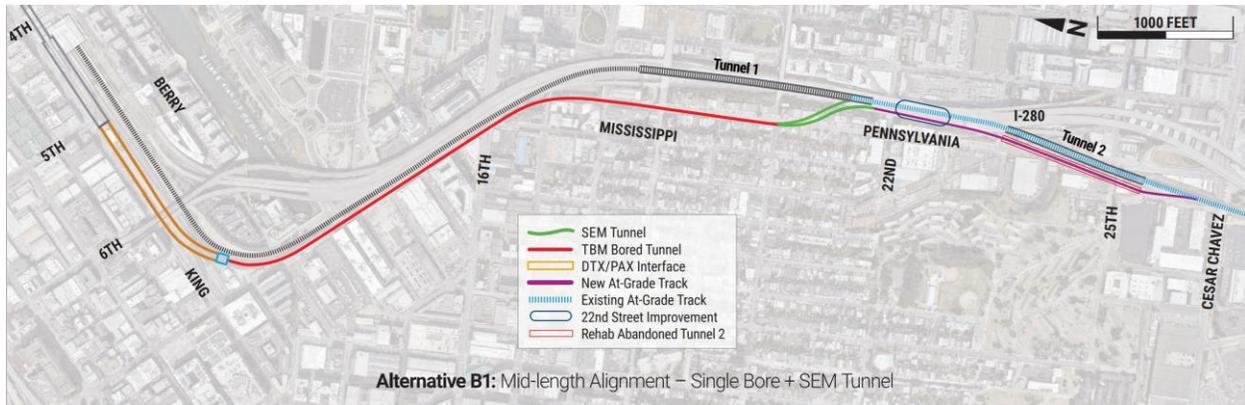
- Excessive tunnel length caused by the bypass of western tunnel #2 resulting in excessive costs caused by redundant tunneling (eliminated in the South Segment alignment in Alternative B2)
- Sharp curve at the junction of Pennsylvania Avenue and 7th Street



Alternative B: Mid-length Alignment (slide 9)

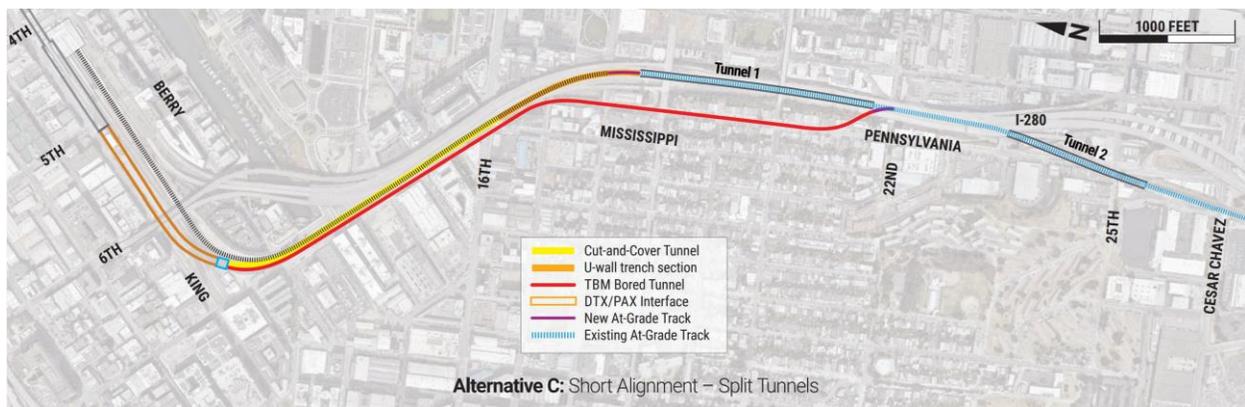
Alternative B1 (Single Bore Tunnel with SEM) has the same issues as Alternative A1 in the 7th Street/Berry area and is probably one of the worst alternatives in terms of constructability, surface impacts and costs.

Alternative B2 (Twin Bore Tunnel) is a superior solution because it has the potential to eliminate the SEM tunneling and continue north parallel to the 280 freeway (as envisioned by Southern Pacific) instead of making a sharp westward curve to align with Pennsylvania Avenue.



Alternative C Short Alignment

This is the worst of all alternatives because the cut & cover tunnel would interrupt Caltrain operations to 4th & King for a minimum of two years. Additionally, a cut & cover tunnel under the SSIP is not constructible and the distance between the bored tunnel and the existing tunnel #1 would result in unnecessarily long cross-passages whose construction is likely to compromise the structural integrity of tunnel #1.



Conclusion:

Alternative B2 (twin bore tunnel starting immediately north of 23rd Street approximately 150 feet north of the western tunnel #2 entrance) is the correct alternative with the following changes (south to north):

- 1) The connection to the existing Caltrain tracks is relocated further south (immediately north of the Jerrold bridge): <https://calhsr.com/wp-content/uploads/2010/02/02-TCCM-200-B.pdf>
- 2) The Cesar Chavez station is located to the west of the existing Caltrain tracks
- 3) The alignment continues through western tunnel #2
- 4) The PAX portal headwall is relocated to 100 feet north of 23rd Street: <https://calhsr.com/wp-content/uploads/2010/02/01-TCCM-200-B.pdf>
- 5) Tunnel boring follows the Caltrain subsurface easements acquired from Southern Pacific

Respectfully submitted for your consideration.

Sincerely,

Roland Lebrun