

Palo Alto: Caltrain Viaduct Grade Separations

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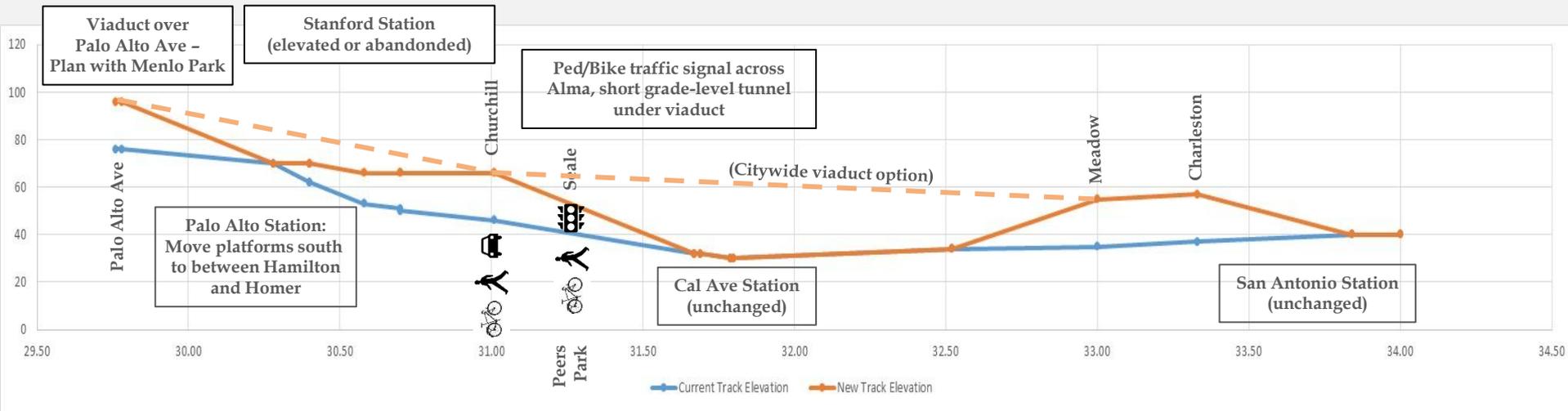
Palo Alto Online, June 14, 2023



Palo Alto architect Joe Bellomo's vision for high-speed rail
<http://www.paloaltoonline.com/news/2009/11/27/architect-calls-for-design-contest-for-high-speed-rail>

Viaduct Grade Separations over Palo Alto Ave, Churchill, Seale, Meadow, Charleston

Conceptual Design Solves and Avoids Many Issues



Palo Alto Ave solves issues for:

- * Palo Alto Ave
- * Creek
- * Trestle

Plan with Menlo Park, Atherton, Redwood City

Churchill Avenue streets unchanged avoids:

- * Private property acquisition
- * Ped/bike tunnel residential and parking impacts on Churchill and Alma to Kellogg
- * (Odd) T-intersection
- * Diverting traffic to Embarcadero
- * Under-street utilities impacts
- * Future sea level rise, flood impacts

Seale ped/bike crossing traffic signal avoids:

- * Private property acquisition
- Long, less safe tunnel
- Residential, parking impacts on Seale, Alma

Raised tracks enables:

- Citywide parkway
- Quarry Rd extension etc.

Meadow and Charleston Avenues streets unchanged avoids:

- * Private property acquisition
- * Residential and parking impacts on Alma, Meadow, Charleston, and nearby properties
- * Likely traffic congestion from roundabout
- * Under-street utilities impacts
- * Future sea level rise, flood impacts

Viaduct Grade Separations – Viaduct is the Better Solution

Criteria V V	Alternatives >>	Hybrid: Raise Tracks Lower Roads	Viaduct: Churchill, Meadow, Charleston (PA Ave)
Simplicity		Very Complex	Simple
Maintain or Improve East/West Connectivity for All Transportation Modes		Mixed Results	Maintains
Maintain or Reduce Traffic Congestion		Mixed Results or Worse	Maintains
Pedestrian/Bike Circulation: Clear, Safe, Separate from Auto Traffic		TBD depending on design	Maintains
Support Continued Rail Operations, Improvement		Presumed OK	Presumed OK
Finance Cost with Feasible Funding Sources		TBD	TBD
Operational Reduce Rail Noise and Vibration (Study, July 2020)		Slight Reduction	Significant Reduction
Construction Noise and Vibration (Study, July 2020)		Moderate to Severe	Moderate
Timeframe of Construction (Study, July 2020)		4 years	2 years
Minimize Visual Changes		Both options similar	Both options similar
Maintain or Improve Access to Neighborhoods, Parks, Schools, etc.		Maintains	Maintains
Minimize Right-of-Way Acquisition by Eminent Domain		Impacts many properties	No property acquisitions
Minimize permanent impacts on driveway access, parking, street safety		Major impacts	No impacts
Minimize Disruption and Duration of Construction (Study, July 2020)		Major disruptions	Minimal disruptions
Avoid Sea Level Rise / Groundwater Incursion (Study, January 2024)		Some risk	No risk
Overall Cost		TBD	TBD

Criteria based on Appendix E, City Council Staff Report, Meeting Date 9/5/17. Expanded criteria and evaluation by Mike Forster.
 Vibration/Noise Study, July 2020: <https://connectingpaloalto.com/wp-content/uploads/2020/08/Noise-Vibration-Comparative-Analysis-Report.pdf>
 Sea Level Rise Study, January 2024: <https://connectingpaloalto.com/wp-content/uploads/2024/03/Attachment-C-Sea-Level-Rise-Assessment-1.pdf>

Viaduct Grade Separations - Dollar and Personal Cost Savings Over Hybrid Alternative

- **Raising the Caltrain tracks a little more should be a low incremental cost increase.**
 - Compared with the hybrid lower road / raise tracks a little cost.
- **Cost avoidance from not lowering roadways at all.**
 - Cost for acquisition of private properties for expanded road footprint.
 - Cost to lower the roadways and reconfigure nearby roadways and intersections
 - Cost of changing utilities under the roadways.
 - Likely cost of adding pumps for lowered roadways –
 - Avoids introducing a permanent maintenance and operational issue.
 - Simpler solution, likely shorter timeframe, which likely means lower cost.
- **Risk avoidance due with simpler viaduct approach.**
 - Simplicity reduces risks of surprises, cost and schedule overruns of complex hybrid approach.
- **Reduces period of disruption during construction.**
 - Most or all construction contained within existing Caltrain right-of-way.
- **Avoids personal costs for families of affected homes.**
 - Loss of part or all of a property.
 - Loss of driveway length and street parking; reduction of driveway access and safety.
- **Avoids likely legal quagmire.**
 - Avoids likely lawsuits by homeowners over eminent domain.

Viaduct Grade Separations – Burlingame: Viaduct

- In 2020, the City considered a conceptual design for a hybrid approach
- In 2022, the City chose a viaduct approach: fully elevates tracks, does not lower roads
- <https://burlingame.org/DocumentCenter/View/2932/Presentation-Slides---Virtual-Community-Meeting-July-13-2022-PDF>
- <https://www.caltrain.com/media/33194/download> August 2023



Proposed Broadway grade separation



Proposed Cadillac Way underpass
Similar to Seale with a ped/bike traffic signal

Viaduct Grade Separations – San Bruno, Redwood City, Menlo Park

- **San Bruno: Viaduct-like - as built:**
 - Minimal road lowering at San Bruno Ave
 - Minimal or no road lowering at San Mateo Ave
 - Little or no impact on nearby properties



San Bruno Avenue



San Mateo Ave

- **Redwood City: Viaduct over 3 crossings**
 - Recent plans (on hold) include a viaduct over 3 northern crossings
- **Menlo Park: Reconsidering the Viaduct approach after community feedback**
 - In 2022 (post-covid), included the viaduct among other study options

Visually Attractive Examples of Viaduct Grade Separations

- Elevated tracks do not have to be berms that might divide cities.

(Images from Google Earth / Streetview)



Montessoro, Italy



Paris, France - Bercy



Sunnyside, NY



Paris, France - Blvd. St. Jacques



Berlin, Germany - SPUR 2017



Union City, CA - Kennedy Park - BART

