Proposed Ground Level View - Looking East
Churchill Avenue Intersection

Proposed Viaduct Aerial View - Looking South
Chuchill Avenue Intersection

Proposed Backyard View - Looking East
Typical Property West of Tracks

RAIL FACT SHEETS

CITY OF PALO ALTO

# Churchill Viaduct

## About the Viaduct

For the viaduct alternative, the railroad tracks will be elevated on a structure over Churchill Avenue. The new electrified railroad tracks will be built at the same location as the existing railroad tracks and will begin rising near Homer Avenue, remain elevated over Churchill Avenue, and return to the existing track elevation near the California Avenue Station. Stanford game day station will be eliminated.

The roadway at Churchill Avenue will remain at its existing grade and have a similar configuration to what exists today. This will require expanding the width of the road through the underpass of the railroad to accommodate the new column supporting the railroad structure.

## By the numbers

- Railroad track is designed for 110 mph.
- Churchill Avenue is designed for 25 mph.
- Maximum grade on railroad is 1.6%.
- Travel lane widths are 10-12 feet.
- Bike lane widths are 5-6 feet.
- Construction period is approximately 2 years.

## Engineering Challenges

- A non-standard grade of 1.6% will be required on the tracks. Caltrain's preferred maximum grade is 1%.

## Cost Breakdown

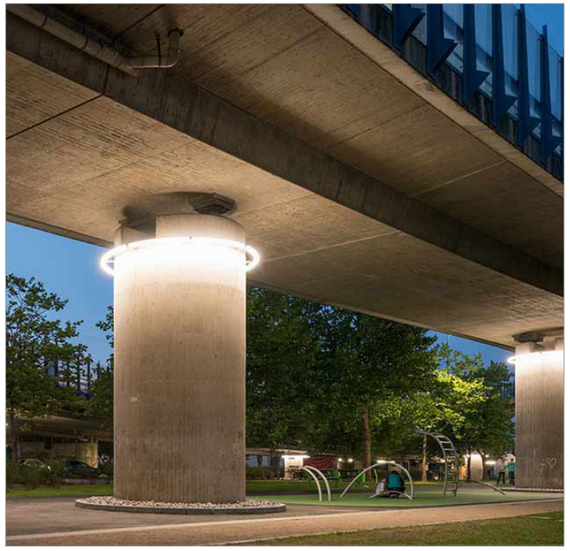
| | |
|---|---|
| Roadway & Railroad Items | $55M to $73M |
| Structure Items | $115M to $152M |
| Right-of-way & Utilities | $16M to $20M |
| Support Costs | $60M to $80M |
| Escalation to 2025 dollars | $54M to $75M |
| **TOTAL PROJECT COSTS** | **$300M to $400M** |

**Preliminary and subject to change. Maintenance costs and relocation of fiber optic lines not included.**

**For more Rail Fact Sheets visit: https://connectingpaloalto.com/fact sheets/**

## Neighborhood Considerations

- During construction, Alma Street and Churchill Avenue will be closed intermittently at night and on weekends.
- During construction, Alma Street will be reduced to two lanes and right turn lanes on Alma Street at Churchill Avenue will be removed.
- Vertical clearance of the railroad over Churchill Avenue will be 15.5 feet.
- The railroad tracks will be approximately 20 feet above the existing street at Churchill Avenue.
- With grade separations at Churchill Avenue the traffic at nearby intersections is expected to improve.
- Stanford game day station will be eliminated.



Viaduct with linear park and lighting - Germany

## Evaluation with City Council-Adopted Criteria

### *Facilitate movement across the corridor for all modes of transportation*
Churchill Avenue will be grade separated from the railroad for all modes and will remain open. Viaduct provides opportunities for additional crossings for all modes.

### *Reduce delay and congestion for vehicular traffic at rail crossings*
With construction of the grade separation, the railroad crossing gates and warning lights at Churchill Avenue will be removed. Thus, the traffic will not be interrupted by railroad crossing gates.

### *Provide clear, safe routes for pedestrians and cyclists crossing the rail corridor, separate from vehicles*
Pedestrians/cyclists will be separated from train traffic only. Bike lanes will be added to Churchill intersections. Additional pedestrian/cyclist separations routes can be explore on the next phase of design.

### *Support continued rail operations and Caltrain service improvements*
A temporary railroad track will be required. Stanford game day station will be eliminated due to grade issues.

### *Finance with feasible funding sources (Order of magnitude cost)*
The viaduct would require substantial local funding resources significantly above the closure alternative.

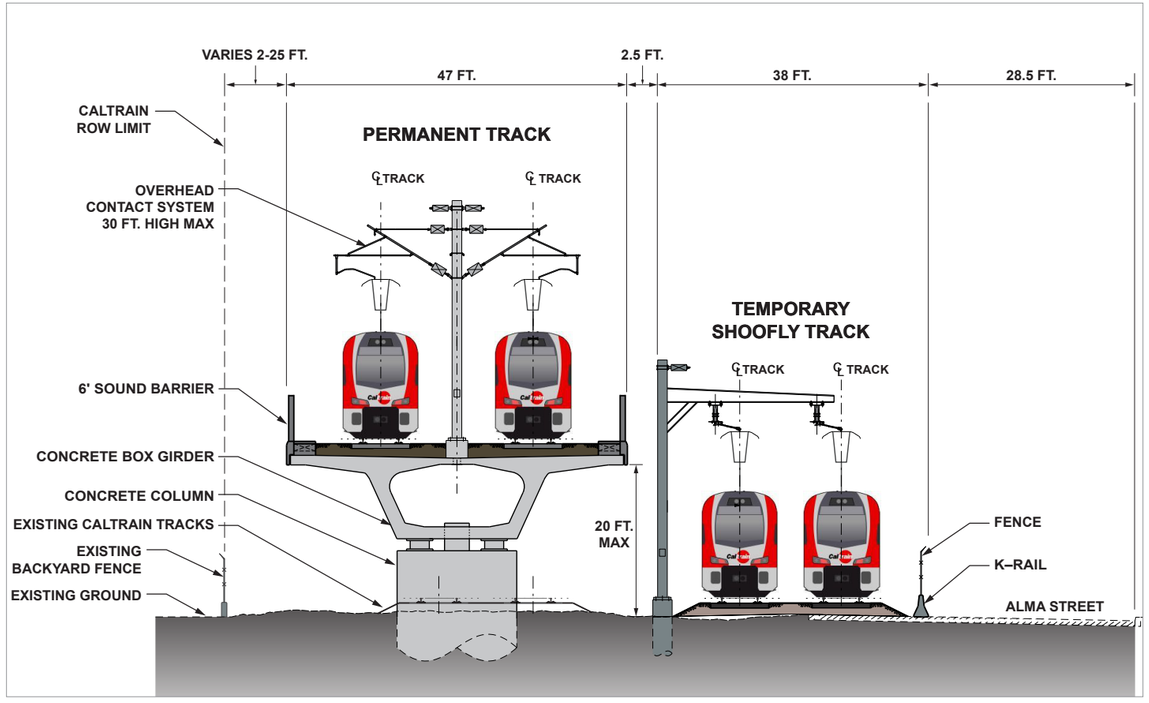
### *Reduce rail noise and vibration*
Train horn noise and warning bells will be eliminated with the replacement of the at-grade crossings with grade separations. Utilizing EMU trains instead of diesel engines will also reduce noise. There would be significant reduction in vibration levels at nearby receptors.

### *Minimize visual changes along the corridor*
Railroad tracks will be approximately 20 feet above grade. Landscaping with trees will be incorporated for screening where feasible.

### *Maintain access to neighborhoods, parks, and schools along the corridor, while reducing regional traffic on neighborhood streets*
No diversion of regional traffic with construction of a grade separations.

### *Minimize right-of-way acquisition (Private property only)*
No acquisition of private properties will be required.

### *Minimize disruption and duration of construction*
Extended lane reductions at Alma Street (one lane in each direction) will be required. Construction would last for approximately 2 years.




Example Section - Viaduct - Looking North

## Concept Plan and Profile