

RAIL FACT SHEETS

Churchill Viaduct

What is a 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%.

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.

Cost Breakdown

Roadway & Railroad Items	\$50M to \$65M
Structure Items	\$128M to \$170M
Right-of-way & Utilities	\$3M to \$5M
Support Costs	\$63M to \$85M
Escalation from 2018 to 2025 dollars	\$56M 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/>



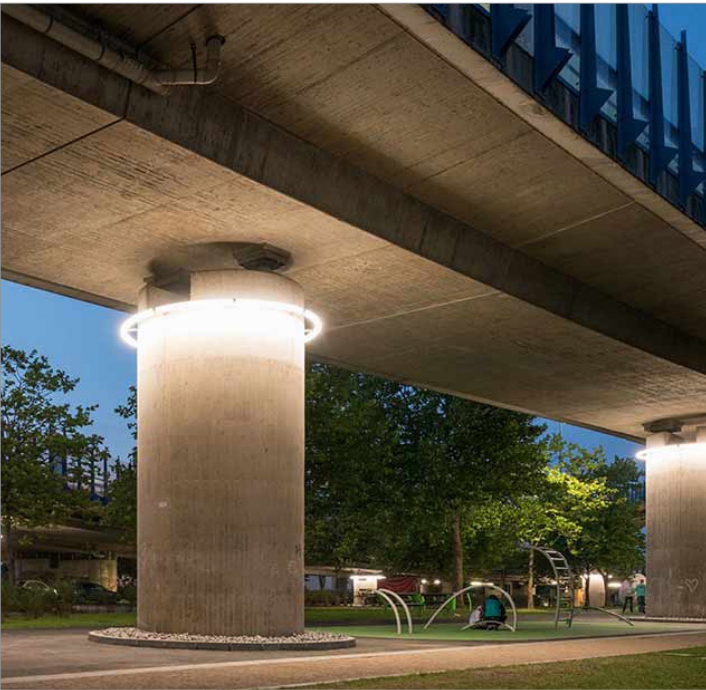
Proposed Ground Level View - Looking East Churchill Avenue Intersection



Proposed Viaduct Aerial View - Looking South Churchill Avenue Intersection



Proposed Backyard View - Looking East Typical Property West of Tracks



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 of transportation 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 the 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.

Support continued rail operation and Caltrain service improvements

A temporary railroad track will be required. Stanford game day station will be eliminated.

Finance with feasible funding sources

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 by the replacement of the at-grade crossings with grade separations. Utilizing electric engines instead of diesel engines will also reduce noise. With the elevated track, train wheel noise could radiate out; however, this can be mitigated with a sound barrier.

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

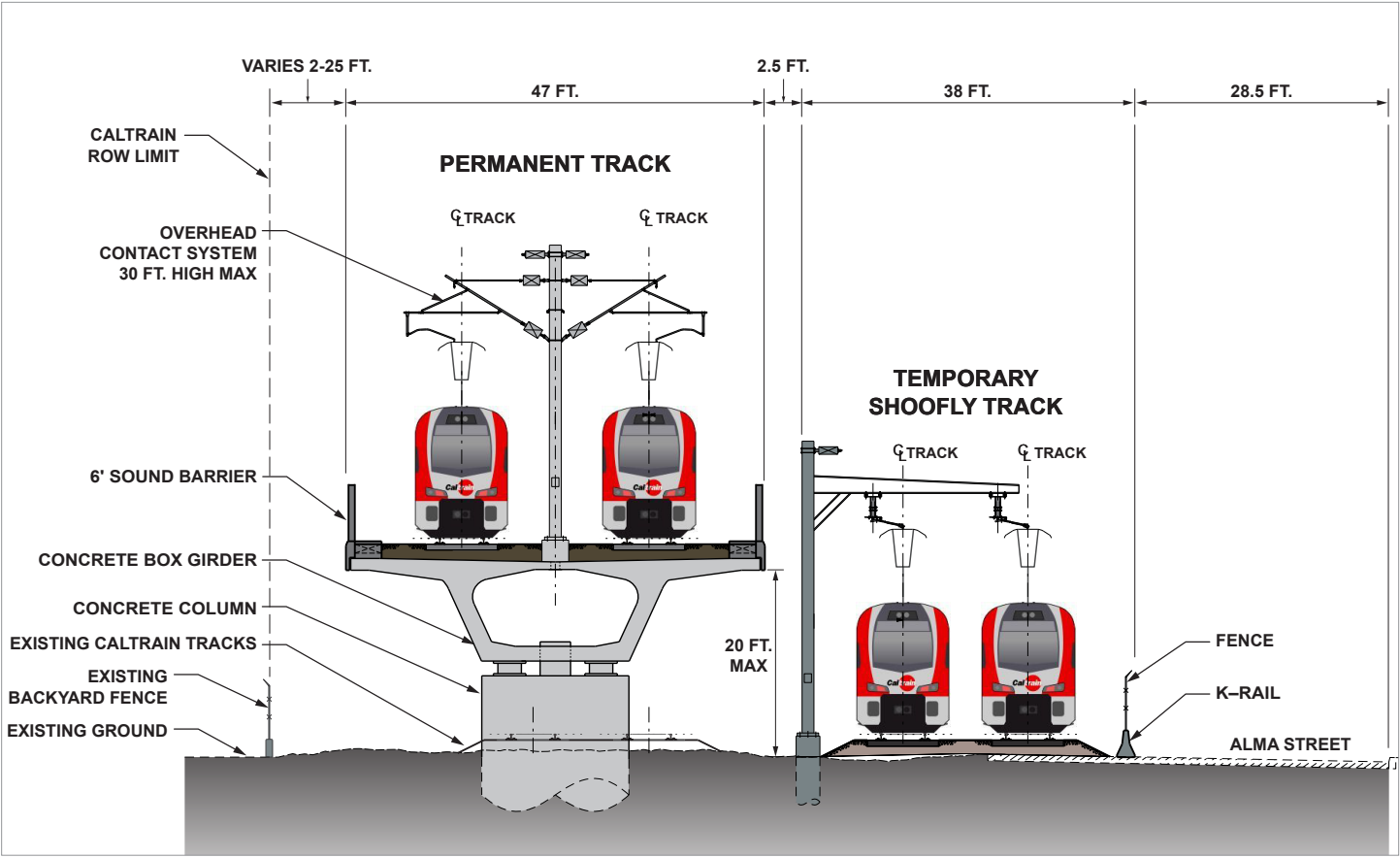
No diversion of regional traffic with construction of a grade separation.

Minimize right-of-way acquisition

No acquisition of private properties will be required.

Minimize disruption and duration of construction

Extended lane reductions at Alma Street will be required. Construction would last for approximately 2 years.



Example Section - Viaduct - Looking North

Concept Plan and Profile

