Proposed Ground Level View - Looking East
Charleston Road Intersection

Proposed Hybrid Aerial View - Looking South
Meadow Drive Intersection

Proposed Backyard View - Looking East
Typical Property West of Tracks

RAIL FACT SHEETS

CITY OF PALO ALTO

Meadow-Charleston Hybrid

About the Hybrid

For the hybrid alternative, the railroad tracks will be raised above Meadow Drive and Charleston Road. The new electrified railroad tracks will be relocated about 10 feet west of the existing railroad tracks and will begin rising near El Verano Avenue, remain raised above Meadow Drive and Charleston Road, and return to the existing elevation north of the Ferne Avenue.

Between Park Boulevard and Alma Street, the roadways at Meadow Drive and Charleston Road will be lowered and will have a similar lane configuration that exists today, with the addition of Class II buffered bike lanes on Charleston Road. This will require expanding the width of the road to maintain bike lanes through the underpass of the railroad and to accommodate the new column supporting the railroad structure.

By the numbers

- Railroad track is designed for 110 mph.
- Meadow Drive and Charleston Road are designed for 25 mph.
- Maximum grade on roadway is 5%.
- Caltrain's preferred maximum grade is 1%.
- Travel lane widths are 10-12 feet.
- Bike lane widths are 5-6 feet.
- Construction period is approximately 4 years.

Engineering Challenges

- A non-standard temporary vertical clearance of 12 feet will be required on tracks. Caltrain's minimum allowable clearance is 16.5 feet.
- Lowering of the roadways will require a pump station.
- Increased long-term maintenance costs and risk of flooding due to pump stations.
- Major utility relocations will be required for the lowered roadways.

Cost Breakdown

Roadway & Railroad Items	$180M to $220M
Structure Items	$15M to $20M
Right-of-way & Utilities	$30M to $40M
Support Costs	$70M to $85M
Escalation from 2018 to 2025 dollars	$95M to $115M
TOTAL PROJECT COSTS	**$390M to $480M**

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

Neighborhood Considerations

- During construction, Alma Street, Meadow Drive, and Charleston Road will be reduced to two lanes, and right turn lanes on Alma Street at Meadow Drive and Charleston Road will be removed.
- Vertical clearance of Meadow Drive and Charleston Road under the railroad will be 16.5 feet.
- The railroad tracks will be approximately 15 feet above the existing tracks between Meadow Drive and Charleston Road.
- With grade separations at Meadow Drive and Charleston Road the traffic at nearby intersections is expected to improve.

42nd Ave, San Mateo

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

Evaluation with City Council-Adopted Criteria

Facilitate movement across the corridor for all modes of transportation
Meadow Drive and Charleston Road will be grade separated from the railroad for all modes and will remain open.

Reduce delay and congestion for vehicular traffic at rail crossings
With construction of the grade separation, the railroad crossing gates and warning lights at Meadow Drive and Charleston Road 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 only. Bike lanes will be added to Meadow Drive and Charleston Road 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, and a crossover track located north of the San Antonio Caltrain Station will be relocated. The easternmost retaining wall (adjacent to Alma St) will be built along Caltrain's right of way line to accommodate future expansion (siding track, etc.).

Finance with feasible funding sources (Order of magnitude cost)
The hybrid would require lower levels of local funding, with a substantial portion of capital costs covered by Regional, State and Federal sources.

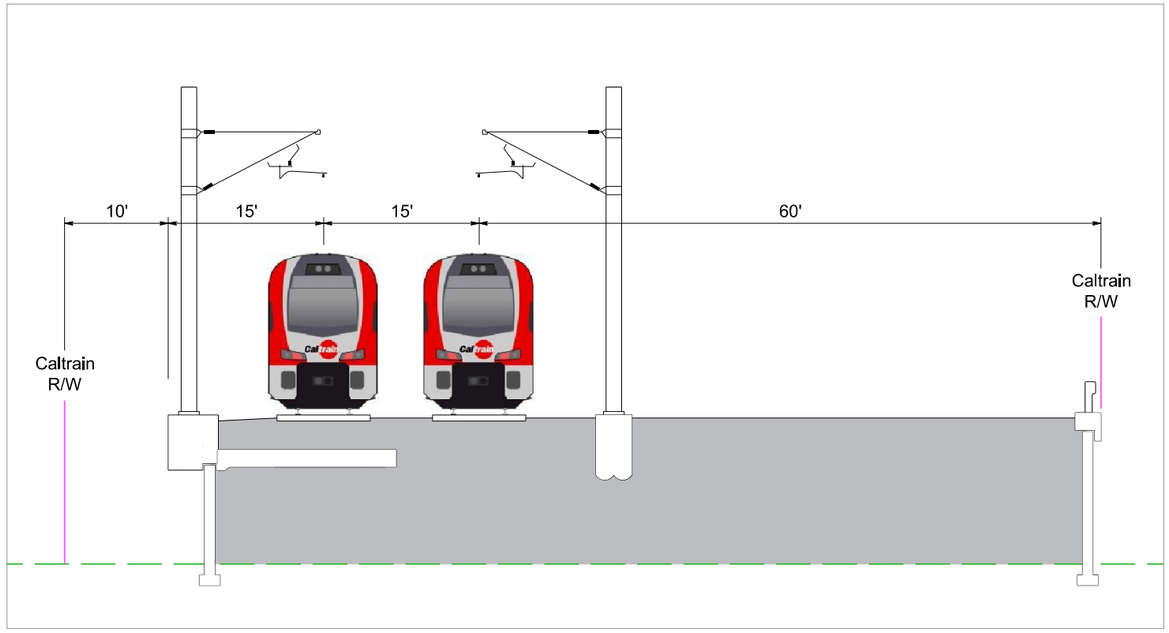
Reduce rail noise and vibration
Train horn noise and warning bells will be eliminated with the replacement of the at-grade crossings with grade separations. Utilizing EMU trains instead of diesel engines will also reduce noise. Six-foot high parapet sound barriers will help reduce propulsion and wheel/rail noise. There would be a slight reduction to vibration levels at nearby receptors.

Minimize visual changes along the corridor
Railroad tracks will be approximately 15 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 grade separations.

Minimize right-of-way acquisition (Private property only)
No acquisition of private properties is required; however, some driveway modifications will be required.

Minimize disruption and duration of construction
Extended lane reductions at Alma Street, Meadow Drive, and Charleston Road will be required. Construction would last for approximately 4 years.



Example Section - Hybrid - Looking North (Typical Between Meadow Drive & Charleston Road)

Concept Plan and Profile