

**Virtual Townhall - Connecting Palo Alto  
Rail Grade Separation Project  
Q & A Session II – September 3, 2020**

**General Questions**

1. Why isn't leaving the at-grade crossing as is being considered?

Caltrain is currently in the process of electrifying its trains as part of their effort to increase both frequency and capacity. This increase in trains will increase gate downtime and will cause more delays to all modes of transportation. With the electrification of the Caltrain Corridor, the gates will be down for 15% of peak hour times. Please review the Connecting Palo Alto Fact Sheet for more information. Traffic backups would also become excessive due to the increased gate downtime at all of the at-grade crossings in Palo Alto. Leaving the at-grade crossing as is (no build) will be considered and evaluated as part of the environmental process.

2. Since Caltrain ridership has decreased significantly, shouldn't we delay making a decision until ridership increases?

City staff believes the transit decrease associated with the Covid-19 and economic downturn is temporary. Caltrain and California High Speed Rail are moving forward with their plans for increased frequency in the Caltrain corridor. These are long term plans, and economic downturns are relatively shorter than the planning horizon for the grade separation project. The grade separation program will take several years to build.

3. Is Caltrain's corridor-wide grade separation study needed for background for the City to make a decision?

The Caltrain corridor-wide grade separation study will look at the Caltrain corridor, including all three counties and grade separations. The Caltrain study will provide additional information that we can build upon into our selected alternatives. However, these are completely independent efforts.

4. How have the economic/social consequences from the pandemic impacted the City Council's decision-making process with regards to the rail crossing agenda?

Projects such as grade separations are multiyear long-term projects and involve several steps. Typically, the economic/social impacts of the economic downturn are not as long-lasting as the project timelines. We are expecting that the pandemic related effects will be diminished in 2-5 years which is significantly shorter than the planning and construction horizon for such projects. We are cautiously proceeding with these alternatives while monitoring other regional transportation plans and efforts under consideration. Also, worth noting is that in the previous recession, the Federal government enacted grant programs such as the American Recovery and Reinvestment Act, an infrastructure-related grant funding program. The City will be better prepared to avail of similar opportunities in the future if such grants are offered in the future for projects.

5. When will a decision be made?

The Expanded Community Advisory Panel, also known as XCAP, is tasked with reviewing the grade separation alternatives and provide recommendations. In addition, the feedback from the virtual townhall will be considered by the City Council. We are hoping to have the recommended alternative selected by the end of this year.

6. Who will pay to design and construct the grade separation alternative selected?

Typically, projects such as grade separation infrastructure projects will require a combination of funding sources to fund the construction. In Santa Clara County, voters have approved Sales Tax Measure B which has earmarked funding of approximately \$700 Million for grade separation projects. The four of the total eight grade separations on the Caltrain corridor are in the City of Palo Alto and therefore shall be eligible for such funding. The City will also explore other Federal, State, and Regional Funding available as grants for such projects. However, applying for Federal and State Grants can only begin after the project is defined.

7. Where are the cost and construction timelines for the various alternatives?

The construction timelines are summarized in Row J of the Evaluation Matrix and the order of magnitude costs are in the row just below that. This information is also included in the Fact Sheets for each alternative. For the Churchill alternatives, the construction timelines are approximately 2 years for the Closure with Mitigations and the Viaduct. The Partial Underpass is expected to take approximately 2.5- 3 years to construct. The closure is the least costly to construct at \$50M to \$65M. There are costs related to the closure because there are mitigations required at 4 intersections to accommodate the diversion of traffic. These improvements are shown in the tabletop map for the Churchill Closure. The animation was not developed for the closure alternative because there are no grade structures built for this alternative. The Partial Underpass costs \$160M to \$200M. The most expensive alternative is the Viaduct at approximately \$300M-\$400M.

8. Will the public be able to view comments submitted by the community through the Virtual Town Hall?

The frequently asked questions received from the community through the Virtual Townhall were answered in the Question and Answer sessions, scheduled on August 27 and September 3, 2020. These frequently asked questions were also added to the Connecting Palo Alto website the Virtual Townhall also provides the link to the Frequently Asked Questions (FAQ). In addition, all comments received through Virtual Town Hall will be tabulated and included in the meeting summary after the Virtual Town Hall wraps up.

9. Shouldn't a long-term tunneling alternative for the entire Caltrain corridor be considered?

A Citywide Tunnel alternative was reviewed and discussed earlier in the process. After evaluating the costs and complexities associated with the Citywide Tunnel alternative, the City

Council eliminated this option from further consideration. Therefore, the Citywide Tunnel alternative is no longer being considered.

Caltrain will be soon initiating a corridor-wide study and we are not anticipating Caltrain considering a corridor-wide tunnel due to the significant costs associated with constructing tunnels. Therefore, we don't believe a long-term tunneling alternative for the entire Caltrain corridor will be considered as part of the corridor-wide study.

10. Is it possible to zoom into the plans using display widget? Can the profile and typical sections be downloaded?

The mouse wheel can be used to zoom. While on a mobile device, pinch/drag out can be used to zoom on the materials. The Connecting Palo Alto website also allows for all layouts, profiles, typical sections, fact sheets, etc. to be downloaded The webpage can be found here:

<https://connectingpaloalto.com/renderings-plans-and-animations/>

### **Meadow-Charleston Grade Separation Alternative Questions**

11. Would construction at Churchill Avenue occur at the same time as construction on Meadow Drive and Charleston Road?

It is highly unlikely that City will pursue the construction of Churchill Avenue grade separation at the same time as Meadow Drive and Charleston Road grade separations. These are long-term projects and require significant efforts for design and construction planning. Furthermore, the funding constraints will also limit the City's ability to fund and construct these improvements simultaneously. Also, if Meadow-Charleston grade separation was to be built simultaneously, we will ensure that at least one of the crossing remains open to traffic during construction.

12. What are the private property impacts for the Meadow-Charleston underpass alternative?

Conceptual private property impacts (full and partial acquisitions) are shown on the Underpass Alternative Fact Sheet, see Figure 1 below.

Figure 1 - Property Impacts

### Conceptual Private Property Impacts



Meadow Drive Private Property Impacts  
(Subject to changes during design development)



Charleston Road Private Property Impacts  
(Subject to changes during design development)

Two parcels will require acquisition due to realignment of Meadow Drive to the north. Three parcels require acquisition on Charleston Road; two are due to the roundabout near Mumford Place, one is at the northeast corner of the Park Blvd/Charleston Rd intersection on the west side of the tracks to accommodate the ped/bike path.

Various partial acquisitions, mostly narrow strips of fronting property, are also required through the project site to accommodate the transportation infrastructure of this alternative.

#### 13. What are long-term maintenance costs Meadow-Charleston alternatives?

We have not developed costs for the long-term maintenance items, but we have identified the anticipated items. These can be found in Row M of the Evaluation Matrix. Items include pump stations for dewatering for all the alternatives, except the Viaduct. Lift stations/siphons for the creek diversions for the Trench and the Tunnel alternatives are also identified. Caltrain has provided some clarity on who would be responsible for maintenance costs related to the railroad. Caltrain will take on the maintenance responsibility of new infrastructure that will raise or lower the tracks by embankment, viaduct or bridge; however, the City should assume it is responsible for the cost to maintain a Trench or Tunnel alternative.

14. For the Meadow-Charleston Underpass, could a "box jacking system" method of construction be used to eliminate the shoofly?

The box jacking system in question was used on the Long Island Railroad (LIRR) in New York to install a roadway underpass structure. By use of hydraulic jacks, the underpass structure was pushed into place over a single weekend after removal of the tracks and excavation of the soil under the tracks, took place. A time lapse video of this process can be seen starting at 1:35: [https://www.youtube.com/watch?v=-H4\\_Inc9FAw&t=128s](https://www.youtube.com/watch?v=-H4_Inc9FAw&t=128s)

The advantage of this method of construction is that it avoids the construction of a shoofly track, which would potentially be less costly and reduce the traffic impacts along Alma Street. A preliminary evaluation of the LIRR project revealed many engineering challenges and potential obstacles to using this method. For example, pile foundations are typically used on rail bridges in California to resist lateral and vertical forces during a seismic event, but piles could not be used with this construction method. Groundwater at the project sites in Palo Alto will also need to be considered to determine the feasibility of this construction method. In summary, construction methods, such as the "box jacking system" will be evaluated more closely and discussed with Caltrain during the next phase of the project.

15. Is the Meadow-Charleston Underpass the only alternative that allows through traffic on Charleston and Meadow to cross both the train tracks and Alma without stopping?

Yes, Charleston Underpass allows through traffic to cross both the train tracks and Alma without stopping. This is one of the advantages of this alternative. However, note that a traffic signal is proposed in the Meadow Underpass at the "T" intersection with the off-ramp from southbound Alma Street, so Meadow Drive will not always be free-flow.

16. For the Meadow-Charleston Underpass, could the ramp from southbound Alma Street to Charleston Road be deleted?

The eastbound right turn to go southbound on Alma Street is used heavily by vehicular traffic. The 2030 forecast is 500 right turns during the PM peak hour. Removing this ramp at this intersection will cause the intersection to operate ineffectively.

17. For the Meadow-Charleston Underpass, what turning movements are allowed?

Each intersection has 12 turning movements allowed under existing conditions. At Charleston, all 12 would be retained although some would require traveling through the roundabout. At East Meadow 10 of the 12 would be retained although some would require a U-turn at Alma Village. The two movements that would not be possible would be from either direction on East Meadow to southbound Alma Street.

18. For the Meadow-Charleston Underpass, since some of the turning movements are not allowed is there an opportunity for cut-through traffic on the neighborhood streets?

On the west side of the railroad tracks, there would be some demand to use Wilkie Way although traffic could also use El Camino Real. Traffic could not use Park Boulevard because the connection to Charleston Road would allow only right turns. On the east side of the railroad tracks, there would be a demand to use the streets in the Fairmeadow neighborhood. The turn movements that would not be allowed each comprise about 80 vehicles during peak hours.

19. For the Meadow-Charleston Underpass, will motor traffic increase on Wilkie Way?

Yes, it is likely that traffic would increase on Wilkie Way because it provides a connection from East Meadow to Charleston.

20. For the Meadow-Charleston underpass, was there any additional traffic analysis performed to ensure that streets can handle such traffic due to additional movement around the roundabout or Alma Street?

Yes, the traffic study includes an analysis of the Meadow-Charleston underpass alternative. Yes, the streets, including the roundabout, would be able to accommodate the traffic.

21. For the Meadow-Charleston Underpass, can the sharp corners the cyclists have to navigate be modified?

Some rounding of the 90-degree turns can be made and this can be refined in the next phase of the project. However, large radii for even moderate bicycle speeds (> 10-15 mph) should not be expected due to right-of-way constraints. Please note that many ped/bike facilities, including the Homer Ave Undercrossing require bicyclists to slow down or walk their bikes at sharp (90-degree) corners with limited sight distance.

22. For the Meadow-Charleston Underpass, are the Plan and Section drawings missing some dimensions on vertical clearance? Is an 8-foot vertical clearance adequate?

The profile exhibits have been updated to show additional vertical clearance dimensions.

8 feet of vertical clearance is not ideal, but it does meet the minimum standard per the Caltrans Highway Design Manual. The project team aims to achieve at least 10 feet, where possible. The 8-foot vertical clearance is shown because the descent of the Meadow ped/bike profile cannot begin too far to the west. The elevation of the ped/bike path is governed by the road profile in front of private driveways just east of 2nd St, and the railroad elevation is fixed (it's same as existing in this alternative). That said, the design of this alternative could be refined in the next phase of the project. For example, a slightly raised rail profile could be a variation of this alternative, which would provide additional vertical clearance.

23. For the Meadow-Charleston Underpass, where do pedestrians and bicyclists walk and ride? Where do they connect to the existing bike/ped facilities?

For the Meadow Underpass, pedestrians and bicyclists must cross onto the south side of the street to traverse under Alma Street and the tracks. Crosswalks will be provided at Emerson St and 2<sup>nd</sup> St to allow for the “cross movement”. Users will connect to the existing facilities (sidewalks and Class II bike lanes) just east of Emerson and just west of 2<sup>nd</sup> St at either end of the project.

For the Charleston Underpass, pedestrians and bicyclists must cross onto the north side of the street to traverse under Alma Street and the tracks. Crosswalks will be provided on each side of the roundabout just west of Mumford Place to allow the “cross movement” at the east end of the project. A ped/bike bridge will be provided just west of the tracks to allow users to cross Charleston on the west end of the project. Users will connect to the existing facilities (sidewalks and Class II bike lanes) just east of Mumford Place and just west of Ruthelma Ave at either end of the project.

24. For the Meadow-Charleston Underpass, will there be signalized or controlled crossings on Meadow Drive at Emerson Street and Second Street to allow for pedestrians and bikes to cross?

The City will consider additional improvements in the subsequent phases of the project to determine the appropriate traffic control devices, such as signing, striping, bike/ped crossing signals, etc. at such intersections within the project. The design development phase will include the evaluation and the detailed design of such traffic control devices. The design will be performed in accordance with the California Manual of Uniform Traffic Control Devices to ensure that pedestrian and bicycle traffic movements can safely occur at these locations. These improvements will eventually become part of the overall construction of the project.

25. Is it possible to select the Hybrid Alternative for Meadow crossing and Underpass for Charleston?

The preliminary evaluation indicates that roadway improvements can be accommodated for the two alternatives at each grade separation location independently, however, it may require adjustment of railroad grade at both locations i.e. Meadow and Charleston

The hybrid alternative raises the tracks by 14 feet at Meadow. The distance required to transition the railroad grade from 14 feet to match existing grade in accordance with Caltrain requirements is greater than the distance between the two crossings. As a result, the railroad tracks may need to be elevated at both grade crossing locations. The project will require a longer shoofly than anticipated for the current underpass alternatives at Meadow and Charleston (no rail raise provided at either location). The grade separation at these locations will therefore require additional design work to elevate the railroad at one (or both) locations to accommodate such improvements.

26. Why is tunnel with Freight at-grade considered?

The premise for adding the Tunnel with At-Grade Freight alternative was based on public feedback that there would be cost savings if the Tunnel did not have to be designed to accommodate freight. While there were some cost savings related to the smaller tunnel

diameter, it was not a significant difference. Other design changes, such as reducing the grade and vertical clearance within the tunnel were explored, but ultimately Caltrain indicated that changes to their design criteria could not be assumed. Specifically, Caltrain indicated "any changes to Caltrain's standards must be considered in a way that is careful, deliberate and fully and fairly weighs both the benefits and consequences; and should be undertaken on a system-wide basis."

27. Will the tunnel alternatives reduce the number of lanes on Alma Street?

The tunnel animations cover the traffic diversions in detail and can be reviewed for visual aid.

Links for animations:

Passenger & freight - <https://vimeo.com/444677088/19783b2dae>

Freight at Grade - <https://vimeo.com/444676793/1484b197ec>

During construction of the Tunnel with Passenger and Freight alternative, Alma Street is reduced to one lane in each direction from south of Oregon Expressway to El Verano Avenue, and is reduced to just one single lane from Charleston Road to Ferne Avenue. All lanes are restored to existing conditions once construction is complete and the shoofly tracks are removed.

For the Tunnel with Freight on the surface (at-grade), Alma Street is permanently reduced to one lane in each direction from south of Oregon Expressway to El Verano Avenue and from Charleston Road to Ferne Avenue.

28. For the Meadow-Charleston Viaduct, what is the distance from the viaduct structure to the houses?

The permanent alignment for the tracks will be shifted about 45 feet to the east. The edge of the viaduct structure will be at least 75-80 feet to the homes on Roosevelt Circle, Lindero Drive and Starr King Circle, just east of Alma Street. On the west side of the tracks, the edge of the viaduct structure will be about the same distance to the nearest homes on Park Boulevard, no closer than about 70-75 feet to these homes.

29. For the Meadow-Charleston Viaduct, are bike lanes shown on Meadow Drive and Charleston Road?

Bike lanes are not shown on the renderings; however, the intent is to maintain the existing conditions which means that continuous bike lanes are planned along Meadow and Charleston for the Viaduct alternative. In addition, coordination with the City will be done during the next phase to ensure the striping configuration is consistent with the City's long-term Bike Plan.

30. Will the elevated railroad alignment alternatives, such as the Viaduct and Hybrid, result in more noise?

The Viaduct and Hybrid alternatives would raise the elevation of the rail line above the current ground elevation by 15 to 20 feet in some areas, and this could slightly decrease the noise



reduction provided by the first row of buildings for subsequent rows. However, this would be more than compensated for by the reduction in wheel/rail noise that will be provided by a 6-foot noise barrier mounted on the elevated structure near the train. The Hybrid alternative could also help reduce Alma Street road noise for homes to the west of the rail line by providing a physical barrier between the roadway and the homes.

The Noise and Vibration study, available at the Connecting Palo Alto website and the Virtual Town Hall, provides a comparison of the proposed alternatives in terms of potential noise and vibration benefits and impacts. The biggest reduction in existing noise would come from eliminating horn soundings in the vicinity of the grade crossings. Train operators are required to sound the horn at all grade crossings per the Federal Rail Administration's regulations, so with the grade separations and/or closures this requirement would be eliminated for all alternatives. This results in substantial noise reductions in areas near the existing grade crossings. Aside from the elimination of horn soundings, the alternatives differed by smaller amounts when considering secondary noise benefits between alternatives, such as changes in elevation of the railroad and the roadway geometrics. A more detailed analysis of noise and vibration will be conducted during the environmental and design phases of the project.