

## Frequently Asked Questions

Connecting Palo Alto

[www.cityofpaloalto.org/ConnectingPaloAlto](http://www.cityofpaloalto.org/ConnectingPaloAlto)

### General Project Questions

Q1: What is Connecting Palo Alto?

A1: Connecting Palo Alto (formerly the Palo Alto Rail Program) is a community based process to address long-standing challenges associated with at-grade crossings on the Caltrain corridor that runs through the community. This process will inform decisions affecting both community aesthetics and mobility choices for many future generations. Community feedback and collaboration will be a vital part of the decision-making process. Engagement activities that inform, educate, gather input and connect citizens about potential rail design alternatives will help prepare the City for the transit landscape of the future.

Q2: Why is Connecting Palo Alto needed?

A2: There are currently six roadways where motorists can cross the railroad tracks in Palo Alto. These intersections, called at-grade crossings, differ from vehicular intersections because a train, in most cases, cannot safely stop in a timely manner to avoid collisions. Two of the grade crossings cross the tracks below the level of the tracks (at Embarcadero and University) and four of them cross the tracks at the same level (at Charleston, Meadow, Churchill, and Palo Alto Avenue/Alma Street). Traffic congestion is expected to get worse at all of these locations in the future with additional trains as part of Caltrain's electrification and potentially high speed rail. This will mean that crossing gates will come down many more times each day – as much as 45 seconds every 3 minutes - impacting traffic and safety. If we don't do anything, traffic delays will increase and more traffic will divert to existing grade separations like Embarcadero, University, and San Antonio (in Mountain View) as motorists look for ways to avoid the worst congestion.

Q3: What is the purpose of Connecting Palo Alto?

A3: Connecting Palo Alto strives to: recognize and build off of the previous rail corridor planning work, improve safety along the rail corridor, reduce the traffic congestion that occurs at existing at-grade crossings every time a train passes by, minimize right-of-way acquisitions and local road closures, improve circulation and access across the rail corridor for all modes of transportation, separate bicyclists and pedestrians from automobile traffic, deliver grade separations and circulation improvements in a timely manner, reduce train noise and vibrations, minimize visual changes along the rail corridor, and support Caltrain service enhancements.

Q4. What problem are we trying to solve?

A4: While enhanced rail transit service is important to the City of Palo Alto, the Caltrain corridor creates a physical and visual barrier to east/west connectivity within the City, and is also the source of safety concerns for pedestrians, bicyclists and motorists, especially at existing at-grade crossings. The rail corridor also creates issues in surrounding neighborhoods, such as noise, vibration, traffic, and visual impacts. While the City of Palo Alto benefits from Caltrain service, and supports Caltrain modernization (including electrification), some of the issues experienced along the rail corridor will continue to get worse in the future with increases in Caltrain service and the probable addition of high speed rail.

Q5. What is an at-grade crossing?

A5: An at-grade crossing is an intersection of railroad tracks with roads and pedestrian/bicycle ways at the same street level. Vehicles and pedestrians are forced to stop at the crossing while a train travels through the intersection. At-grade crossings have a significant risk of collisions between trains, trucks, cars, bikes and pedestrians.

Q6. What is a grade separation?

A6: A grade separation allows for the safe movement of vehicles, bicyclists and pedestrians under or over railroad tracks. Generally, these separations come in the form of either an underpass or an overpass structure (bridge). Grade separations eliminate the risks of collisions with trains, which enhances safety and boosts mobility.

Q7. What is an embankment?

A7: An embankment is a mound of earth that is built to support a roadway or railroad over an area above the existing ground/terrain. The sides of the embankment can be sloped (generally 2H:1V or flatter) or they can be vertical if used in conjunction with retaining walls. The construction of an embankment allows for a change in elevation of the roadway or railroad, which is typically used in the approach to a grade separation.

Q8. Has the City conducted a public outreach process for this project?

A8: The City has maintained a lengthy public community engagement process for this project, and has made a concerted effort to engage community members from the start. The City has held numerous workshops, roundtables, community meetings, and Rail Committee meetings; built a database of interested stakeholders; sent out a questionnaire that received 800 responses; produced a Connecting Palo Alto e-newsletter; posted extensively on social media; and contacted local media about workshops, roundtables and the process. More information about Connecting Palo Alto can be found on the Connecting Palo Alto website at [www.cityofpaloalto.org/connectingpaloalto](http://www.cityofpaloalto.org/connectingpaloalto)

Q9. How can I get more involved in Connecting Palo Alto?

A9: We welcome your participation at all of our public meetings, workshops, community meetings, Community Advisory Panel meetings, and at boards, commissions and City Council meetings where projects are deliberated and approved. Meeting agendas are posted on the City's website, where you can view upcoming discussion items and plan accordingly. You can also sign up for the Connecting Palo Alto E-Newsletter at the Connecting Palo Alto website at [www.cityofpaloalto.org/connectingpaloalto](http://www.cityofpaloalto.org/connectingpaloalto). Please do not hesitate to contact transportation staff if you have any questions at [transportation@cityofpaloalto.org](mailto:transportation@cityofpaloalto.org).

Q10. What are other cities doing?

A10: Refer to the following links for information of similar projects being pursued by our neighbors.

<http://menlopark.org/ravenswood>

<https://www.mountainview.gov/depts/pw/transport/services.asp>

<https://www.cityofsanmateo.org/3198/Caltrain25th-Avenue-Grade-Separation-Pro>

[https://www.burlingame.org/departments/public\\_works/capital\\_improvement\\_projects.php](https://www.burlingame.org/departments/public_works/capital_improvement_projects.php)

Q11. What is Caltrain Electrification?

A11: Caltrain Electrification will electrify the Caltrain corridor from San Francisco to San Jose. Approximately 75% of Caltrain's diesel service will be replaced with electric service resulting in cleaner, greener, and better service to the Caltrain community. To have more of your questions answered, visit the Caltrain Electrification FAQ at [http://calmod.org/wp-content/uploads/CalMod\\_FAQ\\_1.2018.pdf](http://calmod.org/wp-content/uploads/CalMod_FAQ_1.2018.pdf).

## Grade Separation Questions

Q12. How many different grade separation options have been looked at?

A12: Over the last year, the City has undertaken an extensive citywide engagement effort to establish a broad awareness of the need and issues associated with constructing rail grade separations to ensure Palo Alto's community connectedness is maintained in the face of imminent electrification and increased train traffic on the Caltrain corridor. This has generated roughly 34 discrete ideas for grade separations.

Q13. What alternative solutions are being developed and evaluated?

A13: Fully depressed tracks in a trench; fully raised tracks on a viaduct; partially raised tracks with partially depressed roadways (called the "hybrid" option); partially raised roadways with partially depressed tracks (called the "shallow trench" option); permanent closure of a crossing with rerouting of traffic to adjacent crossings; and a tunnel. All alternatives will be designed to accommodate Caltrain electrification and future high speed rail.

Q14. What is the timeline for selecting a preferred grade separation alternative?

A14: At its February 5, 2017 Retreat, the City Council adopted "Selecting a preferred grade separation alternative by December 2018" as its goal under the Council priority of Grade Separations. This goal was set based on understanding the time sensitivity of decisions needed in order to expeditiously plan, fund, design, and construct the rail grade separations needed to address community safety, access, and traffic congestion concerns throughout Palo Alto. The next steps in decision-making was to narrow these 34 ideas into a handful of alternatives to be studied in detail. With an estimated \$200,000-300,000 in cost and time required to study each alternative, it will be important that timely decisions be made to narrow the ideas to a small number of the most viable alternatives. This will enable more detailed study and selection of a preferred solution.

Q15. What are the criteria for selecting a preferred solution?

A15: The City will look at the following criteria in selecting a preferred solution: East-West connectivity - facilitate movement across the corridor for all modes of transportation; traffic congestion - reduce delay and congestion for automobile traffic at rail crossings; pedestrian / bicycle circulation - provide clear and safe routes for pedestrians and bicyclists seeking to cross the rail corridor, separate from automobile traffic; rail operations - support continued rail operations and Caltrain service improvements; and, cost - finance the project with feasible funding sources. Additionally, the following criteria are also important: environmental impacts - reduce rail noise and vibration along the corridor; visual impacts - minimize visual changes along the rail corridor; local access - maintain or improve access to neighborhoods, parks, schools and other destinations along the corridor while reducing regional traffic on neighborhood streets; cost - minimize right-of-way acquisition; construction - minimize disruption and the duration of construction.

Q16. What are the Comprehensive Plan Guidelines?

A16: Palo Alto will build and maintain a sustainable network of safe, accessible and efficient transportation and parking solutions for all users and modes, while protecting and enhancing the quality of life in Palo Alto. Programs will include alternative and innovative transportation processes, and the adverse impacts of automobile traffic on the environment in general and residential streets in particular will be reduced. Streets will be safe, attractive and designed to enhance the quality and aesthetics of Palo Alto neighborhoods. Palo Alto recognizes the regional nature of its transportation system, and will be a leader in seeking regional transportation solutions, prioritizing Caltrain service improvements and railroad grade separations.

Q17. How are we taking previous studies into account?

A17: Beginning in 2009, the Palo Alto rail corridor has been a subject of considerable discussion and community focus in response to planned rail investments along the Caltrain rail corridor, specifically the California High Speed Rail project and the Caltrain Electrification Project. The 2013 Palo Alto Rail Corridor Study, 2014 Palo Alto Grade Separation and Trenching Study, and 2017 Comprehensive Plan are the three essential planning studies which inform the present Rail Program planning effort, Connecting Palo Alto. The 2013

Palo Alto Rail Corridor Study, begun in November 2010 and adopted by City Council in January 2013, was initiated in response to California High Speed Rail and the Caltrain Electrification Project. The report focused on the rail corridor itself, circulation and connectivity, land use and urban design, and public facilities within a defined boundary on either side of the rail corridor traversing the entire city. A 17-member task force provided ongoing input and recommendations for consideration by City Council. The 2014 Palo Alto Grade Separation and Trenching Study was a conceptual engineering effort that provided preliminary information on the potential impacts and cost of construction for a range of roadway and railway submersion alternatives. The findings in the Palo Alto Grade Separation and Trenching Study were based on conceptual engineering documents prepared for community discussion. The report was not intended to make final determinations about which alternatives, if any, should be pursued. When the new Comprehensive Plan was adopted in November 2017, the following policy language was included: "Pursue grade separation of rail crossings along the rail corridor as a City priority." (Policy T-3.15) Additional policies and programs emphasize the desire to maintain access for automobiles, bicyclists, and pedestrians, address near-term safety and accessibility improvements, and call on the City to "Undertake studies and outreach necessary to advance grade separation of Caltrain to become a "shovel ready" project and strongly advocate for adequate State, regional and federal funding for design and construction of railroad grade separations." (Program T3.15.1)

Q18. What is the cost of the project and how will it be paid for?

A18: The Palo Alto Grade Separation Financing White Paper presents an overview of costs and potential funding and financing sources. Total project cost for the four locations ranges from \$100 million (individual grade separation) to \$4 Billion (city wide tunnel).

Q19. Will there be impacts on nearby properties?

A19: Once we narrow the ideas to a small number of the most viable alternatives for more detailed study, we will further develop our understanding of potential right-of-way impacts on nearby properties. The environmental and preliminary engineering phases of the project will identify any impacts and mitigation measures, including the need for any right-of-way to construct the project. The City's goal is to minimize the need for property acquisition.

Q20. How do these grade separation options take into account the possibility of High-Speed Rail being implemented in the future?

A20: There are currently a number of uncertainties regarding the timing and configuration of High Speed Rail implementation. The current High Speed Rail business plan has the initial phase only extending as far north as San Jose, with future plans to extend north along the Peninsula. The project is coordinating with High Speed Rail. The grade separation alternatives include the flexibility to allow for the addition of High-Speed Rail without significantly affecting the proposed improvements.

## November 2018 Questions

Q21: What was the decision process for eliminating the Churchill hybrid and shallow trench (reverse hybrid) ideas?

A21: The Churchill hybrid and reverse hybrid ideas were presented to the Rail Commission on 6/13/18 and the City Council on 6/19/18. One of the criteria for selecting a preferred solution is to minimize right-of-way acquisition. The potential right-of-way impacts were deemed to be severe and thus Council motioned to eliminate the Churchill hybrid and the reverse hybrid from consideration. For additional information, see links below to the City Council and Rail Committee agenda and minutes.

<https://cityofpaloalto.org/gov/agendas/council/default.asp>

<https://cityofpaloalto.org/gov/agendas/hsrs.asp>

Q22: For the Meadow/Charleston trench idea, what are the impacts to Barron and Adobe Creeks?

A22: Impacts to the creek are severe for the trench idea and the City is in contact with Santa Clara Valley Water District to determine if there are any possible mitigations. Lowering or covering of the creeks would require regulatory approval from numerous agencies, such as California State Department of Fish and wildlife, San Francisco Bay Regional Water Quality Control Board and the US Army Corps of Engineers.

Q23: What was the decision process for eliminating the Citywide Viaduct idea?

A23: The narrowing of the alternatives is done through the City Council via the City Council's Rail Committee, and based on a set of adopted evaluation criteria, such as cost, property takings and construction impacts among others. This particular alternative was removed as a possible alternative at the City Council's May 29<sup>th</sup> Special Council meeting. The meeting minutes can be found online ([Meeting Minutes, May 29<sup>th</sup>](#)) and the staff report related to the meeting can also be found [online](#). This citywide viaduct idea was eliminated due to serious constructability constraints.

Q24: How will bike and pedestrian facilities be incorporated into the ideas under consideration?

A24: Incorporating bike and pedestrian facilities will be unique to each location and will consider the City's Bicycle + Pedestrian Transportation Plan and Safe Routes to School as well and the evaluation criteria to provide clear, safe routes for pedestrians and bikes. Specifically, bike and pedestrian facilities will be discussed at the Community Meetings in [November](#) and [January](#).

Q25: When will cost estimates and 3D animations be presented for the ideas still under consideration?

A25: The information will be provided at the Community Meetings in [November](#) and [January](#).

- Q26: When will we discuss underpass / overpass for bike and pedestrians at Churchill?
- A26: The pedestrian and bicycle underpass for Churchill will be discussed at the Community Meeting in [January](#). The City has begun discussions with Safe Routes to School community champions about this crossing as well.
- Q27: When will we discuss the implications to Embarcadero and University Ave grade separations as a result of alternatives being considered for Churchill Ave and Palo Alto Ave?
- A27: The City of Palo Alto is evaluating a range of options for improving the existing rail/street crossing at Palo Alto Avenue. Based on the analysis completed to date, it has become increasingly clear that factors, such as engineering constraints, land use plans and urban design, and access needs, affecting design options as part of the Downtown University Avenue vicinity require a more comprehensive planning effort. Such an effort needs to be separated from the current citywide grade separation planning project.
- Q28: Under what conditions would Caltrain accept a grade variance from 1% to 2%, and what would the approval process be?
- A28: Caltrain has a standard procedure for design variances. It outlines the approval process and required supporting documentation. The allowable maximum grade takes into consideration factors such as operational impacts, vehicle performance, proximity to stations, other site specific conditions, and maintenance impacts. A comprehensive study including operational simulations is required to support the design variance request. Additionally, the requestor is responsible for the costs to support the variance review/analysis.
- Q29: Under what conditions would Caltrain accept a variance to the existing vertical clearance for poles and wires, and what would the approval process be?
- A29: Caltrain minimum clearance to the pole and wires is established to meet California Public Utilities Commission requirements such as General Order 95 and SED 2. Union Pacific Railroad also requires minimum clearances.
- Q30: How are grade separation design criteria and constraints likely to change in the future?
- A30: The Caltrain Business Plan will help shape a long range vision for the corridor and will address how train service will grow over time and the kinds of supporting infrastructure that may be needed to support this growth. This work will include significant focus on the issue of grade-crossings and an effort to develop a corridor-wide strategy to support the funding and implementation of grade separations. Any changes to Caltrain's standards must be considered in a way that is careful, deliberate and fully and fairly weighs both benefits and consequences, and should be undertaken on a system-wide basis. We

anticipate working with the City of Palo Alto and other corridor communities in the coming year to begin this discussion.

Q31: What should the City of Palo Alto assume regarding freight on the Caltrain right of way in the future?

A31: The City of Palo Alto should assume that freight will continue to operate diesel locomotives along the corridor, even after Caltrain electrifies the line. UPRR use of the Caltrain Corridor is governed by the Surface Transportation Board. Subsequently, Caltrain has a trackage rights agreement with UPRR that specifies the terms of freight operations. After the electrification of the Corridor, it is anticipated that a short-line freight operator will replace UPRR. In addition, the Caltrain Corridor is included in the STRACNET Corridor which specifies additional requirements to allow shipments of military equipment, if needed.

Q32: What level of funding support is needed to grade separate because of the PCEP can or could be expected from Caltrain?

A32: The Peninsula Corridor Electrification Project (PCEP) does not include any grade separations. As stated previously, the Business Plan will identify a long term service vision for the corridor and the infrastructure needed to support that service. The Plan will also include a strategy for funding these investments over time. It is anticipated that a variety of local, regional, state and federal funding sources will be needed to support these corridor-wide investments.

Q33: The cost of maintenance for grade separation alternatives vary greatly, what should the City of Palo Alto assume regarding who will pay for the cost of maintenance?

A33: Environmental and economic life-cycle assessments should be performed for all alternatives. For a traditional grade separation such as raising and/or lowering the track by embankment, viaduct and bridge, the City of Palo Alto may assume that Caltrain will take on the maintenance responsibility for such new infrastructure. However, the City of Palo Alto may assume it is responsible for the cost to maintain trench and/or tunnel alternatives as they are anticipated to be significantly more expensive to maintain. Additionally, a mixed operation with freight (diesel powered locomotive) and passenger trains in a tunnel is not desired and requires special attention by FRA under High-Speed Passenger Rail Operations. Ultimately, the specific terms of a maintenance agreement would need to be negotiated between Caltrain and the City.

Q34: What is Caltrain's criteria regarding shooflies that are likely needed for several grade separations during construction?

A34: In general, the shoofly track shall be designed for timetable speed for both passenger and freight trains per Caltrain standards and operating requirements. Except for approved construction windows during cut over operations, the proposed grade separation design shall keep all Caltrain tracks fully operational at all times and shall

cause no interruption to train operations during construction. The construction of the grade separation shall not temporarily or permanently reduce the future demand on the Caltrain operating system and shall meet future Caltrain standards and requirements.