

Potential Ch 2 - Community Context

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City Council Criteria (what was supposed to be Ch 3- CC criteria),

In September 2017, the City Council adopted evaluation criteria they intended to use for grade separation evaluations. In 2018-2019 the Council had significant discussion about removing the tiered levels of the criteria. However, as the process evolved with the formation of the Community Advisory Panel (CAP) and the Expanded Community Advisory Panel, the Criteria never returned to Council for further discussion.

Adopted City Council Evaluation Criteria:



Technical	Tier 1 Criteria: Most Important	• 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
		• Ped/Bike 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
Financial	Tier 2 Criteria: Also Important	• Cost: finance with feasible funding sources
		• Environmental impacts: reduce rail noise and vibration along the corridor
Property Construction	Tier 2 Criteria: Also Important	• Environmental 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 by eminent domain
		• Construction: minimize disruption and the duration of construction



Source: <https://connectingpaloalto.com/wp-content/uploads/2019/11/Item-6-Final-Memo-Review-Council-Adopted-Criteria.pdf>

Eminent Domain and Property Acquisition:

In the development of the Council Criteria and in subsequent discussions, the issue of eminent domain has been a key component. The Council has repeatedly indicated that they want to minimize the amount of eminent domain, but they very specifically did not prohibit the use of eminent domain outright and the issue of negotiated property acquisition was not fully pursued. The criteria specifically states “Cost: minimize right-of-way acquisition by eminent domain”, leaving open the city negotiating to minimize involuntary property acquisition and allowing for greater design flexibility.

XCAP had land use attorney Norm Matteoni present so that the public, XCAP, Council and Staff could better understand the eminent domain process. A transcript¹ of that meeting was posted on the Connecting Palo Alto website, as well as the attachment² provided by Mr. Matteoni providing an overview of the eminent domain process and property owner’s writes under the law.

¹ https://connectingpaloalto.com/wp-content/uploads/2020/05/2020-02-05_XCAP-Meeting-Minutes-verbatim_Cybertary.pdf

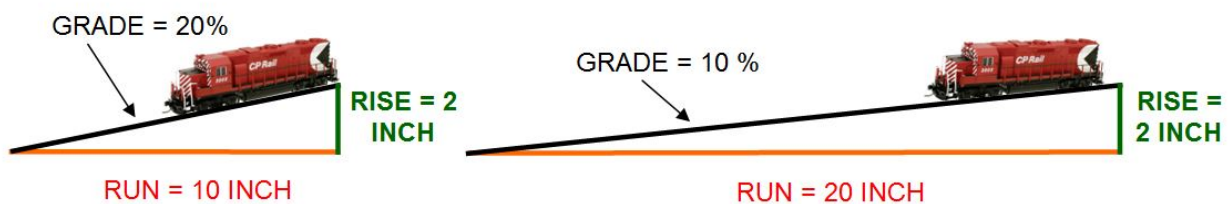
² <https://connectingpaloalto.com/wp-content/uploads/2020/02/Item-3-All-Shared-at-Meeting-XCAP-Meeting-2.5.20.pdf>

Freight

Freight trains play a regional role in moving goods through the area and reducing the number of trucks needed, reducing pollution and traffic. Union Pacific carries freight on diesel trains that travel through Palo Alto three times at night. When Caltrain is electrified, the freight trains will remain diesel. The freight trains travel Sunday through Friday nightly by the Mission Bay hauler, a turn running from Warm Springs down the Milpitas line into San Jose and then up the Caltrain main line to Redwood City and returning. The majority of the customers using freight are in the Port of Redwood City, South San Francisco and the Port of San Francisco.

Caltrain owns the right-of-way in Palo Alto but Union Pacific has a several trackage rights agreements³ that allows them to travel on the corridor. As part of that agreement, Caltrain agrees to work with Union Pacific when making changes to the infrastructure on the corridor. The agreement with Union Pacific is that throughout the Electrification project and any grade separation projects, Caltrain and Union Pacific must be able to maintain operations.

While freight represents less than 5% of all the train operations on the Caltrain corridor, the technical constraints of considering freight when designing grade separations has a significant impact on design flexibility. Electrified trains can climb and descend at steeper slopes than freight trains, which prefer much flatter slopes. The majority of the Caltrain corridor has a maximum of 1% slope (which is typically referred to as the maximum percent grade). When raising or lowering the train tracks to go over or under a road, the grade at which it can travel must be flatter, which in turns means it takes more distance. A change from a 1% grade to a 2% is a 50% decrease in the distance needed to achieve the change in grade. The following graphic for model trains (using inches rather than feet) illustrates this concept:



Freight trains can travel at steeper grades, and as can be seen above, a small change makes a big difference. In 2017, Union Pacific announced they were looking for a company to sublet their trackage rights to operate freight on the Peninsula. The mayors of San Francisco and San Jose wrote a letter to Union Pacific asking them to consider finding an operator that would be comfortable operating at 2% grade because. “In anticipation of Caltrain electrification, the Peninsula cities expect to work with Caltrain to amend the design criteria to provide for a two

³<https://www.caltrain.com/about/JPB-Agreements.html>

percent grade design standard.”⁴ While this change hasn’t happened yet, it indicates the importance of this technical requirement on the ability to build grade separations on the corridor.

The needs of freight can also make grade separations designs more expensive because they require higher and wider clearances than Caltrain trains.

Policymakers and staff should continue to advocate for greater flexibility in freight standards through Caltrain’s Long Term Service Vision Planning and Caltrain Modernization to achieve grade separations in Palo Alto. Currently, five of the nine design alternatives being considered would require a design exception above one percent.

High Speed Rail and Caltrain Operations

In addition to freight, Caltrain may have High Speed Rail operating on the corridor in the future. In 2008, voters approved Proposition 1A, which authorized funds for the construction for the California High-Speed Rail Authority to build a high speed rail line between San Francisco and Los Angeles, as part of an eventual system that would also extend to Sacramento in the north and San Diego in the south. High Speed Rail (HSR) trains would run over the Caltrain line between San Jose and San Francisco. The estimated date for HSR on the Peninsula Corridor has recently been extended to 2031, and the project has had implementation and funding challenges that are likely to extend beyond that date⁵, but their potential arrival has impacts on the corridor planning and future potential future co-operations..

In 2012, Caltrain and High Speed Rail signed a Memorandum of Understanding⁶ committing to a Blended System on the Caltrain corridor which establishes primarily two shared tracks substantially within the existing Caltrain corridor. From Caltrain’s website: *“Additional system improvements that need to be defined include HSR stations, passing tracks that can be used by HSR trains to bypass the Caltrain trains that need to stop more frequently, at-grade crossing improvements, and system upgrades to support higher train speeds. Grade separations, a storage/maintenance facility, and other system elements will also be considered in defining the blended system.”*⁷ According to Caltrain’s Business Plan, if HSR comes to the corridor, they will need passing tracks in several areas, including Palo Alto and Redwood City to overtake Caltrain.

It should be noted that this is a source of disagreement between Caltrain and High Speed Rail. High Speed Rail claims that they do not need passing tracks in Palo Alto if Caltrain is willing to

⁴ <https://www.cityofpaloalto.org/civicax/filebank/documents/61071>

⁵ <https://www.latimes.com/california/story/2020-09-08/newsom-bullet-train-faces-financial-crunch>

⁶ <https://www.caltrain.com/Assets/Caltrain+Modernization+Program/Documents/Executed+9+Party+MOU.pdf>

⁷ <https://www.caltrain.com/projectsplans/CaltrainModernization/BlendedSystem.html>

⁸ <https://www.greencaltrain.com/2019/10/high-speed-rail-and-caltrain-address-passing-track-concerns/>

wait at stations or on sidings while High Speed Rail passes. Studies have shown, however, that this would significantly impact Caltrain's operational schedule and Caltrain would be unable to achieve their Business Plan goals. Caltrain recently sent a letter to High Speed rail as part of the Environmental Impact Report for San Francisco to San Jose that made it clear it finds Caltrain finds this unacceptable and expects HSR to pay for passing tracks if they decide to run service on the Peninsula. **(NEED SOURCE)**

It should be noted that under the rules from the Federal Railroad Administration, if there are four tracks built, a grade separation **MUST** be built, as it is unacceptable for cars to drive over four tracks of trains at a level grade crossing.

Caltrain Rail Corridor Use Policy and Four-Tracks

The Caltrain Board of Directors, known as the Peninsula Joint Powers Board (JPB) are the owners and operators of the Caltrain corridor. **The JPB has to ultimately approve all designs for grade separations.** As part of their Long Term Service Vision, Caltrain Board's recently signed the Rail Corridor Use Policy (RCUP)⁹ ensuring Caltrain will not allow grade separations to be built that would preclude the ability to run a four track system. From Caltrain's email to Palo Alto City Staff:

"The exact location of a potential four track segment is yet to be defined, however. For the purposes of RCUP, which governs Caltrain's use of its own property, we took the most conservative approach and considered the potential for a 4-track segment between San Francisquito Creek Bridge in Palo Alto to just through the Mountain View Station (the area in which a 4tracks segment is operationally viable for the intended purpose). The ultimate extent of the area preserved for 4tracks does not need to encompass this full length. However, we would need to work with the City to advance thinking about the City's potential capital projects along the corridor to then make decisions that could constrain the extent of the area under consideration. Until that time, Caltrain will take a very conservative approach – as specified through the RCUP– when it comes to any potential long term encumbrance of our property."¹⁰

Caltrain has made it clear that any alternatives considered for grade crossings should not preclude the ability to deliver a four -track segment. While the City could initiate the RCUP review process to petition Caltrain staff review the compatibility, Caltrain says "in order to be considered for an exception to the RCUP and be considered compatible **the onus would be on the City to show via conceptual designs that a potential future four track segment would not be precluded in this are a...**" Caltrain goes further and explains "even if the City did this and the proposal was able to be considered 'potentially viable' by receiving a compatibility exception

⁹ [https://www.caltrain.com/Assets/_Public+Affairs/pdf/Rail+Corridor+Use+Policy+\(RCUP\).pdf](https://www.caltrain.com/Assets/_Public+Affairs/pdf/Rail+Corridor+Use+Policy+(RCUP).pdf)

¹⁰ https://connectingpaloalto.com/wp-content/uploads/2020/04/2020-04-22_Caltrain-Responses-Regarding-Encroachment.pdf

through the RCUP, it would still need to undergo substantial design, engineering, and regulatory review before it would be approved as a use for JPB property.”

Caltrain Corridor Wide Grade Separation Study

In July 2020, Caltrain Representative Sebastian Petty described the Caltrain Corridor Wide Grade Separation Study that is planned. The study represents Caltrain’s first attempt to develop a cohesive grade separation strategy for the corridor. A synopsis of the Caltrain presentation was made available in XCAP’s update to City Council in Sept 2020¹¹ and is excerpted below:

- Will begin Fall of 2020 (funding secured in this past year’s capital budget). Budget authorized hiring a single point of contact to manage work broken up between multiple contractors and phases. Phase 1: expected to take 6 months; entire study about 2.5 years.
- A corridor and community process, including all local jurisdictions on the corridor, regional and state partners will work to develop and determine the scope, timeframe, contracting method and how the study should be governed. Focus will be policy framework, not specific grade separation or crossing designs.
- Phase 2: Will echo what was heard and seek feedback from city representatives, especially on standards and construction methods and why they’re needed to understand mutual implications of all decisions.
- Will consider economies of scale, construction standards and design standards comprehensively (so individual projects are not asked to go through onerous design exemption processes) and how construction contracting and sequencing approaches can be used to keep costs and impacts under control. And, will include organization analysis and governance around project delivery vs. operations and corridor management, structure for decision making on issues that span multiple jurisdictions and impact both cities and rail operations and structure for administering funding.

Grade Separations as part of the study:

- At a corridor level, standards like what is an acceptable grade will need to be evaluated rather than taking a case by case exception approach to ensure Union Pacific is comfortable.

The Corridor-wide grade separation study is also expected to consider grouping grade separation projects together to be able to receive more federal funding. (See Funding Grade Separations Section for more information).

Caltrain Governance Reform

As part of their Business Plan, Caltrain is reviewing a possible reform of its governance structure which, if pursued, could also impact how projects are designed, managed and funded. In July

¹¹https://connectingpaloalto.com/wp-content/uploads/2020/08/2020-09-02_XCAP-Update-to-City-Council-6.pdf

2019, Caltrain completed an Organizational Assessment Report¹² which explained that the California Legislature has provided enabling authority for two types of structures created for the purpose of building major capital projects. These are Special Construction Authorities and Grade Separation Districts. A Special Construction Authority is an independent agency created by the State legislature to plan and construct specific projects, which, if created, would require comprehensive agreements addressing funding mechanisms, planning and construction requirements, technical specification reviews, and operational agreements.¹³ By contrast, a Grade Separation District could be created if a board of supervisors in any county could pass a resolution to create a grade separation district, upon a finding that the safety and welfare of the residents of contiguous areas within the county require the formation of a district to provide for a separation of grade. The Grade Separation District would need to be ratified by a majority of the voters within the proposed district in a general election. Under existing legislation, the district would have a 5-member governing board that confers broad powers to the agency, including the power to plan, design and build the project and to exercise the power of eminent domain. A grade separation district also has the power to issue bonds and to levy property taxes subject to obtaining approval from 2/3 of those who cast ballots in a duly called election.

From the report:

“Although implementation of grade separation projects to date within the Caltrain rail corridor have been designed and constructed by means other than a grade separation district (e.g., contractual arrangements between local funding agencies, the JPB and the cities or county in the jurisdiction of the project), there is precedent for the creation of such districts elsewhere in California. In 1954, the Kern County Board of Supervisors invoked the grade separation district enabling authority, resulting in the creation of the Greater Bakersfield Separation of Grade District whose duties were to separate dangerous at-grade intersections of roadways and railroads by means of underpasses or overpasses.”¹⁴

If Caltrain were to pursue either one of these parallel governance forms, the City of Palo Alto would need to consider their design and funding strategies accordingly.

Funding for Grade Separations

As is typical with government planning of capital improvements, until funding appears, plans remain on the shelf. There were two significant funding events that pushed the issue of grade separations to the forefront: 2016 Measure B and Caltrain Electrification Funding (discussed in Ch 1). These events led to an increased urgency by Palo Alto to determine designs, but the momentum has now been somewhat stunted by COVID19 and the uncertainty related to funding and future ridership projections.

¹² Report page 89 <https://www.caltrain2040.org/wp-content/uploads/Caltrain-Organizational-Assessment-Full-Report.pdf>

¹³ Report page 90 *ibid*

¹⁴ Report page 91 *ibid*

The XCAP was specifically excluded from discussing funding sources as part of their recommendations since when XCAP was formed, the City Council was actively involved in considering a business tax that could potentially fund grade separations. The progress of discussions on a business tax were halted by the financial impacts of COVID19 beginning in March 2020.

Policy makers should note that over time, a shift in how and why grade separations have been funded has driven the process for grade separation planning.

Historic Funding Sources:

The grade separations have been constructed (and reconstructed) at various points during the corridor's 150-year history. Planning for, funding, and constructing grade separations has been a decades-long challenge for the Caltrain corridor.

Between the 1935- 1941, grade crossings were largely funded through two federal stimulus programs: Emergency Relief Appropriation Act (FERA) and later the Federal Aid Grade Crossings Appropriation Act which funded over 65 grade separations in California.¹⁵ While safety at grade crossings was an issue across the country, the federal government appropriated this funding mainly to stimulate employment during the Great Depression.

Since the JPB assumed ownership of the Caltrain Service in 1992, the majority of the grade separations built were in San Mateo County¹⁶ using "Measure A" sales tax (1998, 2004) which paid (in part) for the following:

- Millbrae: Millbrae Ave (1990s)
- North Fair Oaks: 5th Ave (1990s)
- Redwood City: Jefferson Ave (1990s)
- Belmont: Ralston, Harbor (1990s)
- San Carlos: Holly, Britain Howard (1990s)
- San Bruno: San Bruno, San Mateo, Angus (2014)

These projects were primarily city-led initiatives to reduce vehicle congestion and cities applied to the county for funds, with projects competing for limited funds. Today, 63% of the crossings along the Caltrain corridor (71 of 113) have been completed and there are 42 remaining separations from San Francisco to San Jose.¹⁷ There is one grade separation project currently under construction: San Mateo: 25th Avenue (estimated 2021 completion). Remaining at-grade

¹⁵Pdf pg 68 of <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/roadway-bridges-ca-2003-a11y.pdf>

¹⁶ Pdf pg 17

<https://www.caltrain.com/Assets/Caltrain+Modernization+Program/Meetings/LPMG/April+2019+Caltrain+Business+Plan+LPMG+Presentation.pdf>

¹⁷<https://www.caltrain.com/Assets/Caltrain+Modernization+Program/Meetings/LPMG/April+2019+Caltrain+Business+Plan+LPMG+Presentation.pdf>

crossings are: 2 in San Francisco County, 30 in San Mateo County and 10 in Santa Clara County (with 28 additional crossings on the Union Pacific owned part of the corridor south of Tamien).

Grade separation projects have also received funding from local transportation impact fees and value capture approaches, the State (CPUC Section 190) and the Federal government. As an example, here's the breakdown of San Bruno's grade separation was funded in 2014:

Comparable Grade Separation Projects in Nearby Cities

San Bruno funding sources obtained

Project Summary:

- Elevate Caltrain tracks above three crossings; three pedestrian underpasses; new elevated Caltrain station
- Project cost of \$155 million
- Completed in 2014

Funding Summary:

- Regional funds - \$92.4 million
 - San Mateo County Transportation Authority (Measure A)
- State funds - \$55.9 million
 - High Speed Rail / Proposition 1B / Statewide Transportation Improvement Program / Caltrans+CPUC Section 190
- Federal funds - \$6.6 million
 - Federal Transit Administration

Source: https://connectingpaloalto.com/wp-content/uploads/2019/03/20190313-PaloAlto_CAP_mtg_v4_Optimized.pdf

Dedicated funding had not previously been available in San Francisco or Santa Clara Counties until the passage of Santa Clara County's Measure B (2016).

Santa Clara County Measure B (2016):

Santa Clara County's Measure B (2016), a ~~30~~ year, half-cent countywide sales tax to enhance transit, highways, expressways and active transportation (bicycles, pedestrians and complete streets) is considered a substantive "down payment" for grade separations. Following the model used by San Mateo County, the measure earmarked \$700 million for eight grade separations including four in Palo Alto (Palo Alto Ave, Churchill, East Meadow and Charleston), two in Mountain View (Rengstorff and Castro St) and two in Sunnyvale (Mary Ave and Sunnyvale Ave). The total cost of the eight grade separations will exceed this amount. In order for cities to access Measure B funding, projects must include a minimum of 10% contribution of ~~no~~ 2016 Measure B funding.

It remains to be seen how Palo Alto, Mountain View and Sunnyvale have yet to negotiate with VTA how the money will be divided and distributed, but some monies have been distributed to Mountain View to begin planning and design. Mountain View recently signed the Castro Street

Grade Separation Project Cooperative Agreement¹⁸ to access Measure B funding and work is currently underway for 35% engineering of the Rengstorff project.¹⁹

Additional Funding Sources:

Palo Alto Funding Options:

There are a variety of possibilities for Palo Alto to raise additional local money to fund grade separations. These could include options such as transportation impact fees, value capture, property tax, business tax, bond measure, etc. Any type of funding would require a vote of the Palo Alto electorate.

Federal Infrastructure Spending:

For years, Democrats and the Republicans have discussed the possibility of a Federal Infrastructure Investment Plan that could provide significant funding for large infrastructure projects. If such investments materialize, they could provide an opportunity for more financing.

According to analysis from AECOM's economic expert, historically, federal funds have been limited for projects completed or under construction.²⁰ High Speed rail funds are now considered to be an unreliable source of future funding due to their own financial woes.²¹ Local funding sources such as transportation impact fees have yet to be a large contributor comparative to total project costs.²²

Corridor-wide Funding:

As discussed in the previous section, Caltrain is undertaking a Corridor-wide Grade Separation Study which will look at the potential need to change historic funding strategies along the corridor in order to achieve their Long-term Service Vision Goal. From the recap previously presented to City Council²³:

Funding Grade Separations:

- Costs are rising in the Bay Area and because railroad is getting more complicated with electrified infrastructure, positive train control and more complex systems. Construction methodology and standards are also challenging and increase cost.
- Interest in grade separations has increased without realistic levels of funding to complete projects.

¹⁸ http://santaclaravta.iqm2.com/Citizens/Detail_LegiFile.aspx?MeetingID=3128&ID=7378

¹⁹ https://www.caltrain.com/projectsplans/Projects/Caltrain_Capital_Program/Rengstorff_Avenue_Grade_Separation_Project.html

²⁰ https://connectingpaloalto.com/wp-content/uploads/2019/03/20190313-PaloAlto_CAP_mtg_v4_Optimized.pdf

²¹ ibid

²² ibid

²³ https://connectingpaloalto.com/wp-content/uploads/2020/08/2020-09-02_XCAP-Update-to-City-Council-6.pdf

- Currently, there are no grade separation funding programs outside of local tax measures and no meaningful Federal programs. State funding has been fairly miniscule relative to the size of the projects. Corridor as a whole needs to be involved with representation from the region and the state to fund grade separations.
- Caltrain has no money for grade separations and no dedicated money to support grade separation engineering on a case-by-case basis. Currently, if cities have funding for grade separations, Caltrain can't analyze city plans until the city submits them and can front Caltrain money to hire consultants to do the analysis. Usually there is funding available to support the railroad's participation.
- As Palo Alto designs advance and move towards construction, the railroad will need to be more heavily involved. This could be a service agreement with Palo Alto directly or a three-party agreement with VTA and Palo Alto if they were contributing significant funding and Caltrain to cover costs. Those costs would be higher if Caltrain needed to do work that is looking at things outside of the normal standards that would generate a lot of work the railroad needed to do. Note: As projects advance, costs increase because the level of design and level of review necessary increases dramatically.
- Experts note the highest factor in prioritization of grade separations is how they can be grouped together for contracting purposes. Bundling multiple projects as a corridor to advocate for creation of new funding sources or to articulate comprehensive project benefits is likely to yield better results than cities relying on current county funding schemes.
- Caltrain has seen a lack of success in going after Federal funding for individual grade crossings. Sequencing of grade separation projects can have implications for service patterns to accommodate multiple construction projects – and projects that cross jurisdictions, add to the complexity.

Policymakers should note that as the need for grade separations becomes a regional priority to meet transportation and climate goals, the manner in which these projects are managed and funded could dramatically shift away from the previously city/county driven model.

Measure RR

Despite being the seventh largest and most efficient commuter rail service in the nation, unlike most transit agencies, Caltrain has not had a dedicated source of funding. Since its inception, Caltrain relies on revenue from passenger fares (70% of operating budget) and on contributions from its Member Agencies: San Mateo County Transit District (SMCTD), Santa Clara Valley Transportation Authority (VTA) and City & County of San Francisco (CCSF).²⁴

²⁴ <https://www.caltrain.com/about/dedicatedfunding.html>

Each of the Member Agencies (a) contributes an equal amount of capital funding each year and (b) supplements operating funding based on the percentage of system ridership originating in each County. The levels of both capital and operating funding are determined by the funding capacity of the Member Agency with the least ability to provide its share of funding in any given year, and the amount that Member Agency can make available then becomes the standard against which the contributions of the other Member Agencies are calculated.

As of the writing of this report, voters approved Measure RR (2020) establishing a dedicated source of funding for Caltrain as a 30 year one-eighth cent sales tax in San Francisco, San Mateo and Santa Clara County which will provide approximately \$100 million annually.

The impacts of this dedicated funding and the changes that might come from member agencies and their previous funding commitments remains to be seen.

COVID Impact on Funding:

As discussed in Chapter 1, Caltrain has suffered significant drops in ridership as a result of COVID19. However, the passage of Measure RR, despite these ridership impacts and the pandemic, shows a significant vote of support from electorate. Should federal funding become available, these results will likely be used to attract investment.

However, it is also important to note, the future of Caltrain's ridership and any funding remains highly uncertain.