

Expanded Community Advisory Panel (XCAP)

THIS PACKET INCLUDES:

A compilation of emails (public comments, etc) submitted to the XCAP email box, XCAP@CityofPaloAlto.org, between **September 23 and September 30, 2020 at 12:00 pm approximately.**



Note: This PDF contains bookmarks separating each email in this compilation. If you'd like to see the bookmarks but your internet browser doesn't show them, download this PDF from your browser, then re-open it in a PDF reader (such as Adobe Reader, Foxit, etc) and make sure your bookmarks panel is open.

From: gmahany@aol.com
To: [Expanded Community Advisory Panel](#)
Subject: ask VTA for the Moffett field trench
Date: Wednesday, September 23, 2020 5:51:14 PM

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Hello XCAP

Trench coast can be asked for the VTA trench for light rail placed in front of the Moffett field air port runways.

Gmahany

From: [Ken Joye](#)
To: [Expanded Community Advisory Panel](#)
Subject: further thoughts on Meadow/Charleston
Date: Wednesday, September 23, 2020 1:13:39 PM

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At the XCAP meeting held on 16 September 2020, I spoke during the public comments period for your Meadow/Charleston agenda item. I would like to expand upon those comments briefly.

I would first reiterate that each of the alternatives you are considering has flaws, there is not one which I would say is a good option. What I favor is a “least bad” option.

Beyond the points I made about the underpass alternative, I must add one thing which I neglected to articulate on the 16th: I find the number of property takings it would require to be a huge negative factor. I cannot support an alternative which causes so many neighbors to lose their homes when there are other alternatives which do not have that impact. That said, I must reiterate my concerns about the impact upon pedestrians and bicycle riders, both safety and movement restrictions. I urge you not to recommend the underpass.

The two tunnel alternatives and the trench appear to be impossibly expensive. I cannot favor them on cost alone, though I do see that they have high aesthetic value, something which my neighbors further along Park Blvd have stressed. (Full disclosure: though I do live on Park Blvd with my rear fence along the rail right-of-way, my home would not have a raised structure directly behind it, though an embankment might rise behind our property).

Of the remaining two alternatives, the viaduct and hybrid, I absolutely recognize that the visual flaw is significant. Of those two, the viaduct has the flaw of being rather more expensive than the hybrid. However, the viaduct does have advantages the hybrid lacks: it would be more equidistant between homes on Park & Alma, it would not require pedestrians and cyclists to descend below grade and it can be constructed without a shoofly track, lessening the disruption during construction. (Full disclosure: due to my age, the duration of construction disruption is a greater factor to me than it might be to others—I don’t expect to live long enough after completion to “fully amortize” that cost). Also, it is conceivable to me that at least some of the land below a viaduct could be available for uses that would not be available if a hybrid were atop a berm (a potential but not clear advantage).

To me, the viaduct is the “least bad” alternative.

as I said before, thank you for your service,
Ken Joye
Ventura neighborhood

From: [William Robinson](#)
To: [Expanded Community Advisory Panel](#)
Cc: [PABAC](#)
Subject: Noise considerations for the Viaduct at Meadow-Charleston
Date: Wednesday, September 23, 2020 4:29:52 PM
Attachments: [image001.png](#)

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In my opinion having a Viaduct carry the CalTrain and possible HSR through south Palo Alto is preferable to other proposals:

- Perhaps the safest construction methods - so students, employees, cyclists and neighbors can go across Alma during construction.
- Less time to build overall.
- Negligible impact on Alma during construction – no shoo fly needed.
- Limited intersection closures during construction.
- Less earth, concrete, or utilities to be removed or altered.
- All turning movements conserved.
- Less trouble with creeks and ground water.
- Apparently, no property taking.

Many of my Charleston-Meadow neighbors will disagree with my preference for the Viaduct due to Noise and Sight.

Thankfully, the Factsheet references the Caulfield to Dandenong Viaduct in Melbourne.



Caulfield to Dandenong Viaduct - Australia

I am finding the <https://levelcrossings.vic.gov.au/> a valuable source of pertinent, timely information. (web site very useable)

According to a 2019 executive summary Noise is lower than before !
<https://levelcrossings.vic.gov.au/media/publications/caulfield-to-dandenong-assessment-of-operational-noise>

As proposed, the viaduct for Meadow-Charleston would be located close to Alma

allowing noise reducing plants and (2.) sight blocking trees to be nourished where the rail bed is now located.

'Rob' William Robinson 4164 Wilkie Way 50 years.

From: [Gary Lindgren](#)
To: [Expanded Community Advisory Panel](#)
Subject: Trench Discussion
Date: Wednesday, September 23, 2020 5:43:24 PM

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Hello XCAP Committee,

In your discussion on the Trench option, no one brought up the CalTrain requirement of possible 4 tracks.

Gary

Gary Lindgren
585 Lincoln Ave
Palo Alto CA 94301

650-326-0655

[Check Out Latest Seismometer Reading](#)
[@garyelindgren](#)

[Listen to Radio Around the World](#)

Be Like Costco... do something in a different way

Don't trust Atoms...they make up everything

A part of good science is to see what everyone else can see but think what no one else has ever said.

The difference between being very smart and very foolish is often very small.

So many problems occur when people fail to be obedient when they are supposed to be obedient, and fail to be creative when they are supposed to be creative.

The secret to doing good research is always to be a little underemployed. You waste years by not being able to waste hours.

It is sometimes easier to make the world a better place than to prove you have made the world a better place.

Amos Tversky

From: gmahany@aol.com
To: [Expanded Community Advisory Panel](#)
Subject: XCAP meeting agenda item 5
Date: Wednesday, September 23, 2020 5:46:04 PM

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Hello XCAP

the deliberations on the Meadow Charleston trench no one has mentioned about the underground utilities that have to be adjusted to the trench. Gas, Water and sewage.

gmahany

From: [Glenn Fisher](#)
To: [DuBois, Tom](#); [Kou, Lydia](#)
Cc: [Council, City](#); [Expanded Community Advisory Panel](#)
Subject: Move now on Grade Crossings!
Date: Thursday, September 24, 2020 7:19:11 PM

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Tom and Lydia, and the rest of the City Council and XCAP,

This is not the time to stick our heads in the sand and abandon the grade crossing effort! Covid doesn't change the long term equation and it actually improves the short term construction outlook.

CalTrain has made it clear that they won't give us clear answers and are waiting for a miracle to fund them. High Speed Rail is mostly dead. We can continue to do nothing and have several people a year killed or injured at our antiquated grade crossings, or we can have vision and grit and move forward, like the City did almost 100 years ago with Embarcadero and University.

The XCAP has done a lot of hard work, and has put together wonderful resources. My only quibble is there could have been more and better outreach to get the business community involved. It's time to take their input and make a decision and move forward, so we're ahead of the curve. If we wait, we'll be competing with every other city which sat on its hands to wait for Covid to be over, or for CalTrain to make up its mind.

I have attended many XCAP meetings, I've read all their minutes and publications, and I've been actively involved responding. Don't waste the work they've done by putting it on a shelf.

It's time to separate our grade crossings NOW. Get on with it!!!!

Glenn Fisher
Adobe Meadow

From: [Gary Lindgren](#)
To: [Expanded Community Advisory Panel](#)
Subject: September 23rd... Some Thoughts
Date: Friday, September 25, 2020 2:52:40 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Hello XCAP Committee,

I had thought that XCAP had stopped thinking about The Trench several months ago because of the creek issue, 4 tracks maybe, and the cost. And so was very surprised when Keith brought this up. He had a list of all the problems, but I didn't see any list of benefits. Why are you thinking about this.

The things that I would worry about are:

1. Cost
2. Safety aspects of the structure e.g., people playing around the area. Some aspects the structure would be big invites to try out.
3. Safety aspects for bikes and pedestrians, there is no separate path for them to cross at the intersections.
4. The creek, in thinking about this, it's not really a siphon. Normally we think of a siphon where you run a tube from a high position to a lower level with an even higher level in the middle (think getting gas from your car's gas tank and to a bucket on the ground.) What we have for the Trench is like a bath tub with a divider in the middle and an opening at the bottom. As water comes down the creek, the west side opening will collect water and the tub will start to fill up. When the water level on the east side reaches the creek level there, water will start flowing east. What I see happening 2 open pools of water that will be around for months and a perfect breeding ground for mosquitos. There will have be screening grates on each side to keep debris from logging the pipes. This means maintenance. This will also be a place for kids to play around.

Nadia, regarding the underpass option, you mentioned "what about raising the track level a foot or two." If you raise the track level, then you also need to raise the level of Alma in the vicinity, remember the underpass needs to go under both. This would really mess up the sidewalks and driveways in the area.

Take Care,
Gary

Gary Lindgren
585 Lincoln Ave
Palo Alto CA 94301

650-326-0655

[Check Out Latest Seismometer Reading](#)
[@garyelindgren](#)

[Listen to Radio Around the World](#)

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Amos Tversky

From: gmahany@aol.com
To: [Expanded Community Advisory Panel](#)
Subject: Viaduct day light plan info for Tony
Date: Friday, September 25, 2020 3:43:24 PM
Attachments: [day light plane for viaduct.pdf](#)

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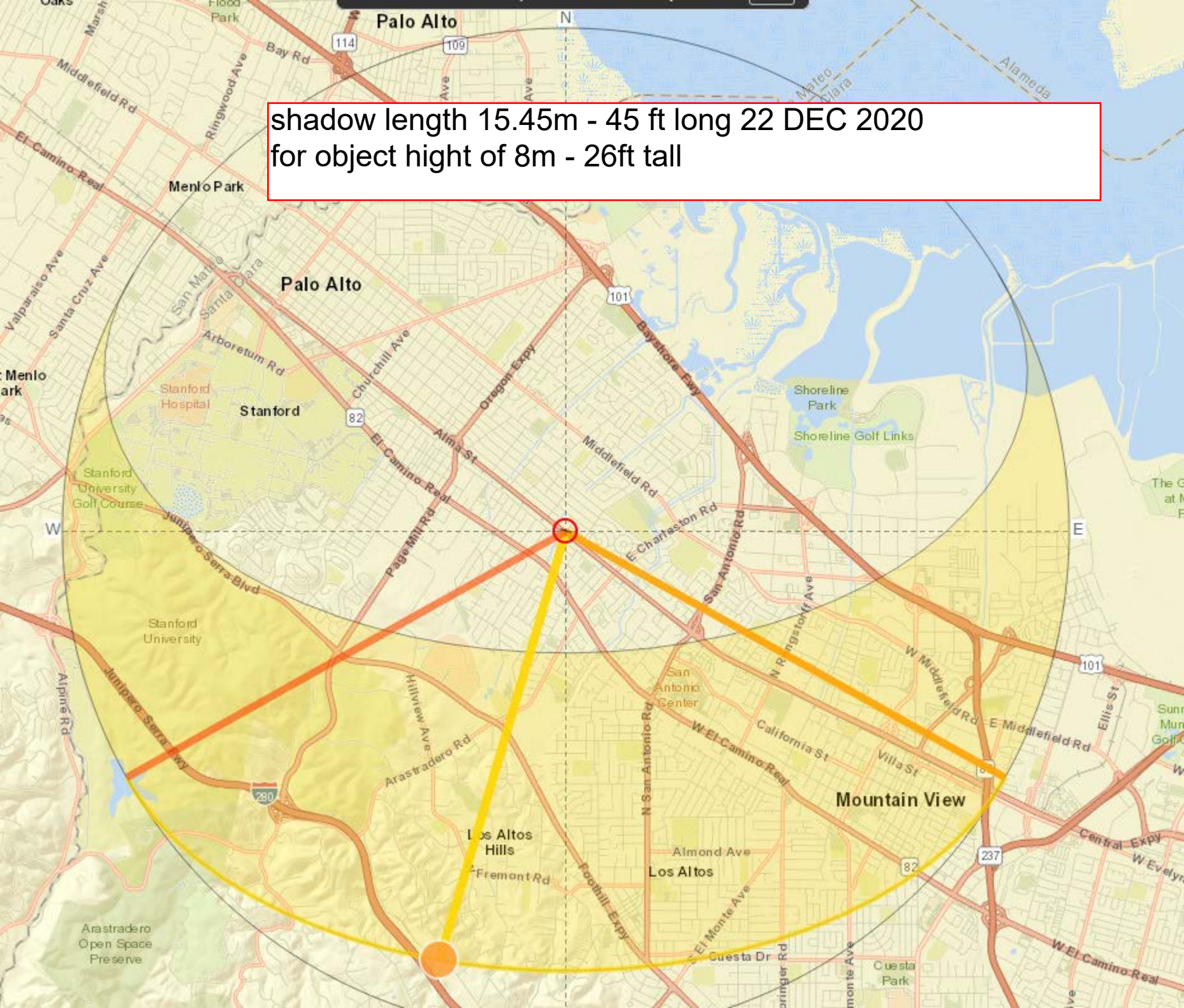
Hello Xcap members

Please see the attachment to see the direction and length of shadow that a 26 ft high Viaduct will cast.

Spoiler - the shadow on 22DEC will be 45 ft long and fall on Alma st.

gmahany

shadow length 15.45m - 45 ft long 22 DEC 2020
for object height of 8m - 26ft tall



www.suncalc.org [Printversion] ©Torsten Hoffmann**Location:** 3401 Alma St, Palo Alto, CA, 94306, USA**Time:** 22.Dec.2020, 13:11 UTC-8

Solar data for the Location		Geo data for the Location	
Dawn:	06:50:44	Height:	7m
Sunrise:	07:19:39	Latitude:	N 37°25'9.06" 37.41919°
Sun peak level:	12:07:28	Longitude:	W 122°7'30.81" -122.12523°
Sunset:	16:55:18	Timezone:	America/Los_Angeles PST
Dusk:	17:24:13		
Duration:	9h35m39s		
Altitude:	27.37°		
Azimut:	196.41°		
Shadow length:	15.45	at an object level:	8m

shadow length 15.45m - 45 ft long 22 DEC 2020
for object hight of 8m - 26ft tall

From: [Chris](#)
To: [Expanded Community Advisory Panel](#); [Council](#); [City](#); [City Mgr](#)
Subject: Rail Trench
Date: Saturday, September 26, 2020 6:28:27 AM
Attachments: [Palo Alto Grade Sep.pdf](#)

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

To the Rail Planners of Palo Alto:

I am a native Palo Altan, born there in 1955. I graduated Paly in 1973 and have relatives who still live in Palo Alto. I now live in the Los Angeles area and have been following the Palo Alto grade separation saga from afar. A couple of things stand out in my mind.

In all of the planning I have seen, it seems there has been little outreach to Caltrain itself, owner of the trains, the right-of-way and the stations.

I have read analyses of a trench solution as a means of achieving grade separation. However, I have not seen anything regarding Caltrain's sentiment toward having its trains and two stations submerged. That is a fundamental issue.

Hatch Mott MacDonald studied a rail trench for Palo Alto several years ago and issued a report in 2014 which I have attached. In it, they describe a scenario involving a 1% grade and another involving a 2% grade. The takeaway from this study is that Caltrain prefers a 1% grade for its trains and the freight trains that use the right-of-way. A grade of greater than 1% would require a design exception, according to the study.

The Hatch Mott MacDonald study describes a trench with a 1% grade. The takeaway is that a 1% trench would require major construction as well as a shoofly track and would be extremely costly. The study also describes a trench with a 2% grade but offers no guidance on whether a 2% trench would be acceptable to Caltrain.

Another issue which has received very little attention in the material I've seen concerns the issue of storm flooding. A trench by its very nature is potentially vulnerable to flooding. There are several questions concerning the issue of flooding. First, who would be responsible for dealing with any flooding conditions which may arise, the City of Palo Alto or Caltrain? Which party would be responsible for maintaining the pumping equipment needed for a rail trench? More importantly, who would be held liable in the event that rail service were disrupted due to storm flooding? This is more than a remote possibility, as storm pumps have been known to become overwhelmed or even fail during a severe storm. If storm flooding were severe enough to make a rail trench in Palo Alto impassable, it would immobilize Caltrain service in both directions for an indefinite period of time. All trains travel between San Francisco and San Jose or Gilroy and thus pass through Palo Alto. Disruption of the service would leave thousands of commuters stranded.

Adding to the problem is the fact that there is no natural drainage along the right of way in Palo Alto. I am not aware of a route flood water could take from a rail trench to the bay, for example.

It is my understanding that the city of Burlingame studied an underground rail solution and ultimately abandoned the idea.

Best wishes,

Chris Clementson



City of Palo Alto

City Council Staff Report

(ID # 5175)

Report Type: Study Session

Meeting Date: 10/20/2014

Summary Title: Palo Alto Grade Separation and Trenching Study

Title: Palo Alto Grade Separation and Trenching Study

From: City Manager

Lead Department: Planning and Community Environment

Recommendation

This study session provides the City Council an opportunity to discuss findings in the attached report by Hatch Mott McDonald (HMM) and provide direction on next steps. No action is recommended at this time.

Executive Summary

HMM, a consulting firm specializing in construction engineering, was hired at the direction of the Palo Alto City Council to study conceptual grade separation alternatives for a portion of the Caltrain right of way encompassing three existing at-grade crossings (Charleston, Meadow, and Churchill). This study provides preliminary information on the potential impacts and cost of construction (by order of magnitude) for various roadway submersion and trenching alternatives.

This information is intended to facilitate community dialogue on the issue and ultimately to help form a policy position on grade separations. The study is not definitive in determining an ultimate configuration, but does provide a starting point for dialogue on the issue. Specifically, the study indicates that the roadway submersion alternatives would require significant property acquisitions, while the trenching alternatives would not. Also, the trenching alternatives would maintain turning movements along Alma Street, while not all of the roadway submersion alternatives would do so.

For example, the two percent (2%) grade trenching alternative would grade separate Charleston and Meadow for around \$488 million and require zero property acquisitions versus the alternative that submerges the roadway beneath the railroad tracks at Charleston and Meadow and maintains turning movements on and off of Alma which would cost approximately \$320 million and require acquisition of 32 full parcels and seven partial parcels.

Background

At the November 4, 2013 City Council meeting, HMM was authorized, at a cost of \$59,790, to move forward with Phase I of an analysis that delivered a conceptual cost estimate for a number of preliminary grade separation alternatives south of the California Avenue Caltrain Station. The most important information obtained from this analysis was intended to be a clearer understanding of the differences in cost and construction impacts between submerging the roadway and trenching the railroad at certain intersections in Palo Alto. The reason trenching was only studied south of Oregon Expressway is that because if it was determined that trenching was cost prohibitive south of Oregon Expressway it certainly would be north of Oregon Expressway where trenching the corridor would require the complete reconstruction of the City's three existing grade separated crossings (Oregon Expressway, Embarcadero, and University) and submerging the City's two Caltrain stations (California Avenue and Palo Alto), in addition to complications posed by San Francisquito Creek.

Phase I of the analysis, as presented in this report, evaluates the preliminary alternatives by evaluating construction feasibility, right of way impacts (i.e. property acquisitions), and concept level cost estimates for comparison purposes.

Phase II of the analysis would develop the City's selected preliminary alternatives to a final concept level, produce concept design exhibits, and provide refined order of magnitude project costs and assessments of feasibility. The cost of Phase II would be an additional \$67,760 and staff is interested in hearing from the Council whether this additional work is needed to provide sufficient information for community dialog and policy decisions regarding which of the preliminary alternatives, if any, should be pursued from a funding and logistical standpoint with outside agencies such as Caltrain, the Santa Clara Valley Transportation Authority, and the Metropolitan Transportation Commission.

Listed below are the specific grade separation alternatives evaluated by HMM. Alternatives that were studied by HMM are:

1. Trenching the corridor from approximately San Antonio to approximately Oregon Expressway, which would grade separate both Meadow and Charleston by keeping the existing roadways at-grade and running rail traffic beneath it in an open trench.
 - ❖ Please note that this alternative does not impact whether or not the roadway is submerged below the railroad tracks at Churchill.
2. Submerging the roadway beneath the railroad tracks at Churchill
3. Submerging the roadway beneath the railroad tracks at Meadow
4. Submerging the roadway beneath the railroad tracks at Charleston

It should be noted, as the report from HMM indicates, that if Council chooses to pursue the roadway submersion alternatives at both Charleston and Meadow that maintain turning movements on and off of Alma they must be done as a single project due to their proximity; however, submerging the roadway at Churchill can occur regardless of what happens at the Meadow and Charleston intersections.

Attached for your review is HMM’s Palo Alto Grade Separation Study (Attachment A), including an attachment that outlines the costs associated with each alternative. The primary difference between the trenching estimate that was generated by HMM in 2011 and the one generated in this study is that the previous estimate was based on California High Speed Rail Authority (CHSRA) cost of construction per foot figures and did not take local, existing conditions into consideration at the level of detail this study does.

The updated study uses current and local construction cost information. HMM generated their estimates in part by using information they’ve obtained from current transportation construction projects in the area with similar traits such as the Bay Area Rapid Transit (BART) to San Jose extension project. Furthermore, HMM used figures that are more applicable to the existing conditions at the intersections they studied as it relates to utility relocation costs, right of way impacts, staging, and traffic signal impacts rather than wholesale allowance numbers.

The use of recent and local construction data provides more realistic order of magnitude cost estimates for work on the Peninsula compared to the 2011 study.

Results of the Analysis

As displayed in the Alternative Cost Estimates attachment to the HMM report, the most expensive alternative is the one percent (1%) grade trench alternative at a cost of approximately \$1.05 billion. This alternative would not require a design exemption as it relates to the slope of the grade but it’s more than double the cost of the two percent (2%) grade trench alternative mainly due to the impacts it would have on Oregon Expressway (already grade separated) and the San Antonio Avenue and California Avenue Caltrain stations based on its expanded footprint. Additionally, this alternative becomes significantly more complex than the two percent (2%) grade trench alternative when existing creeks are considered because instead of the trench being able to go above them the creeks would have to be rerouted, likely requiring additional infrastructure such as pump stations.

Although both the one percent (1%) grade trench alternative and the two percent (2%) grade trench alternative are more expensive than the roadway submersion alternatives they require zero parcel acquisitions, have fewer visual impacts by having a reduced footprint at each intersection, and result in a grade separated roadway that is level with the existing roadways, significantly benefiting bicycle and pedestrian movements.

Table 1 below summarizes the trench alternatives:

Table 1: Summary of Trench Alternatives

Trench Grade	One Percent (1%)	Two Percent (2%)
Cost	\$1,050,728,700	\$488,187,283
Full Property Acquisitions	0	0

Partial Property Acquisitions	0	0
Turn Movements Maintained	Yes	Yes

Source: Hatch Mott McDonald, 2014

As for the roadway submersion alternatives displayed in the Alternative Cost Estimates attachment to the HMM report, they are significantly less expensive than the trenching alternatives (ranging in price from approximately \$85 million to \$184 million per roadway submersion) but have far greater impacts in the form of property acquisitions, lost turning movements, and have far more visual impacts at each intersection due to their larger footprints.

Below are two tables that summarize the roadway submersion alternatives. Table 2 below shows the roadway submersion alternatives where Alma Street is left at-grade and therefore turning movements on and off of Alma Street are lost. Table 3 below shows the roadway submersion alternatives where Alma Street is lowered in order to maintain turning movements.

Table 2: Summary of Roadway Submersion Alternatives that Abolish Alma Street Turning Movements

Roadway Submersion Intersection	Churchill	Meadow	Charleston
Cost	\$90,334,561	\$84,578,797	\$101,783,449
Full Property Acquisitions	16	11	18
Partial Property Acquisitions	4	5	3
Turn Movements Maintained	No	No	No

Source: Hatch Mott McDonald, 2014

Table 3: Summary of Roadway Submersion Alternatives that Lower Alma Street to Maintain Turning Movements

Roadway Submersion Intersection	Churchill	Meadow	Charleston
Cost	\$183,513,669	\$143,385,047	\$152,903,454
Full Property Acquisitions	33	14	18
Partial Property Acquisitions	3	4	3
Turn Movements Maintained	Yes	Yes	Yes

Source: Hatch Mott McDonald, 2014

As previously noted, if the roadway submersion alternatives that maintain turning movements on and off of Alma Street at the Meadow and Charleston intersections are selected they must be constructed congruently, as a single project, and that will cost an additional \$23,177,765 for a total project cost of \$319,466,266 (\$143,385,047 + \$152,903,454 + \$23,177,765).

Next Steps

Based on Council comments, staff will come back to Council in the near future with a staff

recommendation for Council review and approval on a preferred alternative to pursue. By identifying a preferred alternative staff will be more effective in both discussing the issue with transportation and funding agencies in addition to facilitating our public outreach efforts.

The property acquisitions associated with some of the alternatives presented in the HMM report are significant and therefore staff feels strongly that any decision that is made on this topic should not be rushed. Therefore, staff felt that first discussing the HMM report in a study session before bringing it before Council for action was most appropriate.

Finally, as noted above, staff is interested in learning whether Council believes further study, such as Phase II of the HMM scope of work, should be done or if at this time the information HMM has already provided is sufficient.

Attachments:

- Palo Alto Grade Separation Study 10-7-2014 (PDF)



To Richard Hackmann, City of Palo Alto
From Michael Canepa, PE, HMM
Date 10/7/14
Project # 324006
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CC Chris Metzger, Brian Hughes, Derek Penrice
Subject Palo Alto Grade Separation Study

This memo discusses alternatives for grade separating the Caltrain tracks at existing at-grade crossings in the City of Palo Alto. The two alternatives evaluated in this study were: construction of an undercrossing at Churchill Ave, Meadow Dr, and Charleston Rd, and the construction of a rail trench under Meadow Dr and Charleston Rd. The following information was evaluated in support of the findings of this study:

- Typical cross sections for each alternative
- Plan/profile for each alternative
- ROW impacts
- Traffic impacts
- Utility impacts
- Cost estimate

Undercrossing at Churchill Ave, Meadow Dr, and Charleston Rd

The first alternative is to build an undercrossing at Churchill Ave, Meadow Dr, and Charleston Rd to separate the existing Caltrain tracks from the roadways. Due to the proximity of Alma St to the rail corridor, two scenarios were evaluated – keeping Alma St at existing grade and lowering Alma St to match the elevation of the undercrossing.

Design Criteria and Assumptions

- Design speed is assumed to be 5 mph above the posted speed limit or a minimum of 30 mph
- Maximum roadway grade used is 8%
- Maximum sidewalk grade is 5% (per ADA)
- Roadway vertical clearance is 15.5' (per JPB Standards for Design and Maintenance of Structures 2.4.2)
- Sidewalk vertical clearance is 10' (per HDM 208.6)
- Minimum vertical curve length is 200' (per HDM 204.4)
- 1:10 depth to span ratio for rail bridges
- Roadway bridge depths:



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- Reinforced concrete bridge (continuous span over Caltrain trench) – AASHTO Bridge Design Table 2.5.2.6.3-1
- Prestressed girder bridge (simple span over roadway undercrossing) – based on manufacturer’s recommend depth for prestressed girders

Typical Roadway & Bridge Sections

- Churchill Ave undercrossing width is 60’ when Alma St remains at existing grade
 - 2x 12’ thru lanes
 - 2x 2’ buffer
 - 2x 6’ bike lane
 - 2x 2’ barrier
 - 2x 8’ sidewalk
- Churchill Ave undercrossing width is 70’ when Alma St is lowered
 - 2x 12’ thru lanes
 - 12’ right turn lane
 - 2’ buffer
 - 2x 6’ bike lane
 - 2x 2’ barrier
 - 2x 8’ sidewalk
- Meadow Dr undercrossing width is 80’ when Alma St is at existing grade or lowered
 - 4x 11’ thru lanes
 - 2x 2’ buffer
 - 2x 6’ bike lane
 - 2x 2’ barrier
 - 2x 8’ sidewalk
- Charleston Rd undercrossing width is 80’ when Alma St is at existing grade or lowered
 - 4x 11’ thru lanes
 - 2x 2’ buffer
 - 2x 6’ bike lane
 - 2x 2’ barrier
 - 2x 8’ sidewalk
- Rail bridge width at undercrossing is 40’
 - 15’ track center (per Caltrain Design Criteria 3.1)



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- 2x 9.5' from centerline of track to OCS pole (per Caltrain Standard Drawing ETF-0001-0010)
- 2x 1.5' OCS pole (per Caltrain Standard Drawing ETF-0001-0010)
- 2x 1.5' from OCS pole to edge of bridge deck

Two scenarios were evaluated at each undercrossing. In the first scenario, Alma St would remain at existing grade and each undercrossing would pass below both the Caltrain tracks and Alma St. This would disconnect Alma St from the crossing streets and would require traffic to be routed to the next crossing to the north or south. In the second scenario, to maintain connectivity between the streets, Alma St. would be lowered to match the elevation of the crossing street.

At each crossing, several streets will be closed to avoid property impacts at the intersections with the undercrossing. Closures at these intersections will force traffic to adjacent intersections which may require signalization to compensate for the increase in traffic.

In the first scenario, with Alma St at existing grade, the following impacts will occur:

- ROW impacts along Churchill from Castilleja Ave to Emerson St with intersection closures at Mariposa Ave and the eastern side of Castilleja Ave
- ROW impacts along Meadow Dr from 2nd St to Emerson St with intersection closures at Park Blvd and 2nd St
- ROW impacts along Charleston Rd from Ruthelma Ave to Wright Pl with intersection closure at Park Blvd
- Traffic impacts at Madrono Ave/Churchill Ave intersection
- Traffic impacts at Wilkie Way/Meadow Dr intersection
- Traffic impacts at Ruthelma Ave/Charleston Rd intersection and Wilkie Way/Charleston Rd intersection

For this scenario, there will be 16 full parcel takes and 4 partial takes for Churchill Ave undercrossing, 11 full parcel takes and 5 partial takes for Meadow Dr undercrossing, and 17 full parcel takes and 3 partial takes for Charleston Rd undercrossing.

In the second scenario, with Alma St lowered to the new elevation of the undercrossing, the following impacts will occur *in addition* to those listed above:



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- ROW impacts along Alma St from Melville Ave to Lowell Ave with intersection closures at Kellogg Ave and Coleridge Ave
- ROW impacts along Alma St from Alma Village Cir to Meadow Dr
- Intersection closure at Lindero Dr if undercrossings are constructed at both Meadow Dr and Charleston Rd
- Traffic impacts at Melville Ave/Alma St intersection and Lowell Ave/Alma St intersection

The total number of parcel takes required for this scenario *in addition* to those listed above is 17 additional full parcel takes and 1 less partial take for Churchill Ave undercrossing, 14 additional full parcel takes and 1 less partial take for Meadow Dr undercrossing, and no change in parcel takes for Charleston Rd undercrossing.

This study also evaluated the potential of combining roadway undercrossings with a slight elevation of the rail tracks to minimize the extent of the ROW/traffic impacts along the crossing streets. For every 3' the tracks are raised, the length of the impacted area along the cross street decreases by 40'-50' at each end.

In the first scenario, with Alma St at existing grade, the following benefits will occur when the tracks are raised 3 feet:

- 3 parcel impacts will no longer be required at Churchill Ave
- Castilleja Ave closure will no longer be required at Churchill Ave
- 2 parcel impacts will no longer be required at Meadow Dr
- 2nd St closure will no longer be required at Meadow Dr
- 3 parcel impacts will no longer be required at Charleston Rd

In the second scenario, with Alma St lowered to the new elevation of the undercrossing, the following benefits will occur *in addition* to those listed above when the tracks are raised 3 feet:

- 2 additional parcel impacts will no longer be required at Churchill Ave
- Alma Village Cir closure will no longer be required at Meadow Dr



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Rail Trench Under Meadow Dr and Charleston Rd

The second alternative is to build a trench under Meadow Dr and Charleston Rd to separate the existing Caltrain tracks from the roadways. Due to the constraints of Matadero Creek, Barron Creek, and Adobe Creek crossing the corridor, two scenarios were studied to avoid impacts to the creeks – maximum grade of 1% (preferred maximum) and maximum grade of 2% (design exception required).

Design Criteria and Assumptions

- Design speed is assumed to be 90 mph (per Caltrain Design Criteria 1.0)
- Preferred maximum grade is 1%; maximum grade with design exception is 2% (per Caltrain Design Criteria 7.1)
- Minimum rail vertical clearance is 24.5' (per Caltrain Standard Drawing SD-2002)
- Minimum distance from TOR to creek invert at creek crossing is 32.5' (24.5' rail vertical clearance + 3' trench lid + 5' cover)

Typical Roadway & Trench Sections

- Trench width is 47'
 - 15' track center (per Caltrain Design Criteria 3.1)
 - 2x 10' from track centerline to trench wall (per Caltrain Standards for Design and Maintenance of Structures 2.4.3)
 - 2x 3' trench wall
 - 2x 3' excavation support wall
- Churchill Ave bridge width is 66'
 - 2x 12' thru lanes
 - 12' right turn lane
 - 2' buffer
 - 2x 6' bike lane
 - 2x 8' sidewalk
- Meadow Dr bridge width is 76'
 - 4x 11' thru lanes
 - 2x 2' buffer
 - 2x 6' bike lane



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- 2x 8' sidewalk
- Charleston Rd bridge width is 76'
 - 4x 11' thru lanes
 - 2x 2' buffer
 - 2x 6' bike lane
 - 2x 8' sidewalk

Two scenarios were studied for the rail trench alternative. In the first scenario, a maximum grade of 2% is used to minimize the length of the trench while avoiding impacts to the creeks. Using this alternative, the trench will begin just south of the Matadero Creek. It will pass under Baron Creek, Meadow Dr, Charleston Rd, and Adobe Creek, and will return to grade just north of San Antonio Rd. The depth and grade of the trench is controlled by the 32.5' clearance required under the two creeks (Baron Creek and Adobe Creek) and the constraints at either end (Matadero Creek and San Antonio Rd). Both the 1.75% grade into the trench and the 2.00% grade coming out of the trench will require design exceptions.

In the second scenario, a maximum grade of 1% is used, which will also avoid impacts to creeks but will require approximately 10,500' additional feet of trench and will require the reconstruction of Oregon Expressway and San Antonio Rd. The trench will begin just south of Churchill Ave. It will pass under Oregon Expressway, which will need to be reconstructed to remove the existing undercrossing and return the roadway to surrounding grade level. The trench will continue under Matadero Creek, Baron Creek, Meadow Dr, Charleston Rd, and Adobe Creek, with the depth of the trench being controlled by the 32.5' clearance required under Matadero Creek and Adobe Creek. As the trench returns to grade at Rengstorff Ave, it will pass under San Antonio Rd, which will need to be raised several feet to accommodate 24.5' of clearance over the rail. This alternative will not require any design exceptions.

This study also evaluated the potential relocation of the three existing creeks to mitigate design exceptions and minimize trench length. However, relocation of any of the creeks would require resizing of the culverts to accommodate slower flow through a flatter channel. In addition, at Adobe Creek and Matadero Creek, the 100 year flood water surface elevation is at the top of the culvert, and at Baron Creek there is only 1.8' of freeboard. Any modifications would require upsizing all the culverts to provide 3' of freeboard. While maintaining a minimum slope of 0.25%, the creek crossing could be relocated several hundred feet north or south, however, this would not provide enough space to avoid a maximum grade design exception for the 2% grade scenario and would only provide a few hundred feet of savings in trench length for the 1% grade scenario.



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There will be no permanent ROW impacts with this alternative, as the trench will be built within the existing JPB ROW. Traffic impacts will be temporary, and will be related to construction of the roadway bridges.

Cost Estimate

A preliminary cost estimate for each alternative for comparative purposes is provided as Attachment A to this memo. The major civil components used to produce the preliminary cost estimates include earthwork, trench and bridge structures, pump stations, railroad shooflies, traffic detours, railroad and roadway signaling, utility relocations, and right-of-way costs. Soft costs for professional services and contingency costs have been included as percentages of estimated construction and project costs.

Attachments

Attachment A – Alternative Cost Estimates

Palo Alto Caltrain - Grade Separation Projects Attachment A - Alternative Cost Estimates

line no.	Description	Unit	Unit Cost	Rail Trench 1% Max Grade (Caltrain Preferred)		Rail Trench 2% Max. Grade (w/Design Exception)		Churchill Alma At-grade		Churchill Alma Lowered		Meadow Alma At-grade		Meadow Alma Lowered		Charleston Alma At-grade		Charleston Alma Lowered		Meadow&Charleston Alma Lowered	
				Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost
001	<i>Estimate Summary</i>																				
002	Construction				622,440,744		289,191,768		25,200,625		52,677,350		27,370,319		55,705,363		29,076,479		57,591,565		128,158,000
003	Utility Relocation and Protection				213,300		104,400		1,664,300		4,960,380		2,750,450		5,559,850		2,350,750		4,129,000		8,562,750
004	Subtotal A				622,654,044		289,296,168		26,864,925		57,637,730		30,120,769		61,265,213		31,427,229		61,720,565		136,720,750
005	Professional Services (% of Subtotal A)		35%		217,928,915		101,253,659		9,402,724		20,173,206		10,542,269		21,442,825		10,999,530		21,602,198		47,852,263
006	Right of Way (incl. ROW Services)				-		-		36,000,000		69,000,000		27,000,000		32,000,000		39,000,000		39,000,000		71,000,000
007	Subtotal B				840,582,960		390,549,826		72,267,649		146,810,936		67,663,038		114,708,038		81,426,759		122,322,763		255,573,013
008	Contingency (% of Subtotal B)		25%		210,145,740		97,637,457		18,066,912		36,702,734		16,915,759		28,677,009		20,356,690		30,580,691		63,893,253
009	Total Project Cost (2014 dollars)				1,050,728,700		488,187,283		90,334,561		183,513,669		84,578,797		143,385,047		101,783,449		152,903,454		319,466,266
010																					
011	note 1) Professional Services includes Design Engineering, Project Mgmt, and Construction Mgmt.																				
012																					
013																					

Palo Alto Caltrain - Grade Separation Projects Attachment A - Alternative Cost Estimates

line no.	Description	Unit	Unit Cost	Rail Trench 1% Max Grade (Caltrain Preferred)		Rail Trench 2% Max. Grade (w/Design Exception)		Churchill Alma At-grade		Churchill Alma Lowered		Meadow Alma At-grade		Meadow Alma Lowered		Charleston Alma At-grade		Charleston Alma Lowered		Meadow&Charleston Alma Lowered		
				Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty
014	Construction																					
015	Support of Excavation (SOE)		-		-		-		-		-		-		-		-		-		-	
016	SOE Area	SF	80	2,428,595	194,287,616	1,239,904	99,192,320	59,200	4,736,000	155,040	12,403,200	56,320	4,505,600	155,776	12,462,080	60,000	4,800,000	160,320	12,825,600	381,600	30,528,000	
017	Excavation		-		-		-		-		-		-		-		-		-		-	
018	Mass Excavation	CY	15	1,232,246	18,483,684	588,380	8,825,706	45,222	678,333	123,748	1,856,222	56,059	840,889	137,788	2,066,822	59,722	895,833	142,161	2,132,417	333,778	5,006,667	
019	Offhaul/Disposal - Subcontract Trucking	HR	110	236,180	25,979,845	112,773	12,405,019	8,668	953,435	23,718	2,609,023	10,745	1,181,916	26,409	2,905,033	11,447	1,259,144	27,248	2,997,230	63,974	7,037,148	
020	Offhaul/Disposal - Dump Fee (Average)	Load	50	118,090	5,904,510	56,386	2,819,323	4,334	216,690	11,859	592,960	5,372	268,617	13,205	660,235	5,723	286,169	13,624	681,189	31,987	1,599,352	
021	Invert Slab		-		-		-		-		-		-		-		-		-		-	
022	Invert Slab Concrete	CY	600	130,163	78,097,778	54,667	32,800,000	8,800	5,280,000	22,489	13,493,333	10,193	6,115,556	24,919	14,951,111	11,467	6,880,000	26,193	15,715,556	54,267	32,560,000	
023	Invert Slab Rebar	TON	2,500	6,508	16,270,370	2,733	6,833,333	440	1,100,000	1,124	2,811,111	510	1,274,074	1,246	3,114,815	573	1,433,333	1,310	3,274,074	2,713	6,783,333	
024	Trench Walls		-		-		-		-		-		-		-		-		-		-	
025	Wall Concrete	CY	900	149,556	134,600,400	77,104	69,394,000	3,211	2,890,000	8,567	7,710,000	3,111	2,800,000	8,618	7,756,000	3,267	2,940,000	8,833	7,950,000	21,700	19,530,000	
026	Wall Rebar	TON	2,500	22,433	56,083,500	11,566	28,914,167	482	1,204,167	1,285	3,212,500	467	1,166,667	1,293	3,231,667	490	1,225,000	1,325	3,312,500	3,255	8,137,500	
027	Waterproofing		-		-		-		-		-		-		-		-		-		-	
028	Waterproofing Membrane	SF	10	2,224,604	22,246,040	1,062,940	10,629,400	88,300	883,000	228,900	2,289,000	96,800	968,000	245,760	2,457,600	106,800	1,068,000	256,300	2,563,000	561,600	5,616,000	
029	Fences		-		-		-		-		-		-		-		-		-		-	
030	Fence/Railing	LF	200	38,800	7,760,000	18,000	3,600,000	1,800	360,000	4,400	880,000	1,600	320,000	4,400	880,000	1,800	360,000	4,600	920,000	9,600	1,920,000	
031	Bridges		-		-		-		-		-		-		-		-		-		-	
032	Bridge Deck Concrete	SF	500	13,667	6,833,500	6,478	3,239,000	6,798	3,399,000	2,640	1,320,000	8,858	4,429,000	3,440	1,720,000	8,858	4,429,000	3,440	1,720,000	6,880	3,440,000	
033	Creek Crossings		-		-		-		-		-		-		-		-		-		-	
034	Creek Crossing Concrete	SF	500	2,419	1,209,500	1,599	799,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
035	Underdrains		-		-		-		-		-		-		-		-		-		-	
036	Underdrain	Rt-Ft	60	19,400	1,164,000	9,000	540,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
037	Pump Stations		-		-		-		-		-		-		-		-		-		-	
038	Pump Station - Location 1	LS	1,000,000	1	1,000,000	1	1,000,000	1	1,000,000	1	1,000,000	1	1,000,000	1	1,000,000	1	1,000,000	1	1,000,000	1	1,000,000	
039	Pump Station - Location 2	LS	1,000,000	1	1,000,000	1	1,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
040	Other Work		-		-		-		-		-		-		-		-		-		-	
041	UPRR Shoofly with Temp. Signal System (Corridor)	Rt-Ft	800	19,400	15,520,000	9,000	7,200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
042	UPRR Shoofly with Temp. Signal System (Local)	EA	2,500,000	-	-	-	-	1	2,500,000	1	2,500,000	1	2,500,000	1	2,500,000	1	2,500,000	1	2,500,000	2	5,000,000	
043	Rebuild Oregon Expwy	LS	15,000,000	1	15,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
044	Rebuild San Antonio Road	LS	5,000,000	1	5,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
045	Rebuild California Av Caltrain Statn (N.of Oregon Expwy)	LS	8,000,000	1	8,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
046	Rebuild San Antonio Caltrain Statn (S.of San Antonio Rd)	LS	8,000,000	1	8,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
047	Total Construction				622,440,744		289,191,768		25,200,625		52,677,350		27,370,319		55,705,363		29,076,479		57,591,565		128,158,000	

Palo Alto Caltrain - Grade Separation Projects

Attachment A - Alternative Cost Estimates

line no.	Description	Unit	Unit Cost	Rail Trench 1% Max Grade (Caltrain Preferred)		Rail Trench 2% Max. Grade (w/Design Exception)		Churchill Alma At-grade		Churchill Alma Lowered		Meadow Alma At-grade		Meadow Alma Lowered		Charleston Alma At-grade		Charleston Alma Lowered		Meadow&Charleston Alma Lowered	
				Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost
048	Utility Relocation and Protection																				
049	Protect-in-Place - Electric (Overhead)	LF	200	340	68,000	160	32,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
050	Protect-in-Place - Gas - 04"	LF	160	-	-	-	-	150	24,000	-	-	-	-	-	-	-	685	109,600	-	-	-
051	Protect-in-Place - Gas - 06"	LF	200	40	8,000	40	8,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
052	Protect-in-Place - Gas - 08"	LF	250	130	32,500	40	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
053	Protect-in-Place - Sanitary Sewer - 08"	LF	120	40	4,800	40	4,800	-	-	-	-	-	-	-	-	-	540	64,800	-	-	-
054	Protect-in-Place - Sanitary Sewer - 10"	LF	140	40	5,600	40	5,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-
055	Protect-in-Place - Sanitary Sewer - 30"	LF	300	130	39,000	40	12,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
056	Protect-in-Place - Storm Drain - 12"	LF	140	-	-	-	-	70	9,800	-	-	50	7,000	-	-	-	65	9,100	-	-	-
057	Protect-in-Place - Water - 06"	LF	200	-	-	-	-	75	15,000	-	-	-	-	-	-	-	-	-	-	-	-
058	Protect-in-Place - Water - 08"	LF	220	40	8,800	40	8,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-
059	Protect-in-Place - Water - 10"	LF	240	-	-	-	-	75	18,000	-	-	-	-	-	-	-	-	-	-	-	-
060	Protect-in-Place - Water - 12"	LF	260	130	33,800	40	10,400	75	19,500	-	-	300	78,000	-	-	-	-	-	-	-	-
061	Protect-in-Place - Water - 16"	LF	300	-	-	-	-	-	-	-	-	300	90,000	-	-	-	655	196,500	-	-	-
062	Protect-in-Place - Water - 18"	LF	320	40	12,800	40	12,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-
063	Relocate - Electric (Overhead)	LF	300	-	-	-	-	650	195,000	5,121	1,536,300	4,181	1,254,300	10,661	3,198,300	2,635	790,500	6,450	1,935,000	13,516	4,054,800
064	Relocate - Electric (Underground)	LF	300	-	-	-	-	400	120,000	362	108,600	-	-	-	-	190	57,000	190	57,000	-	-
065	Relocate - Gas - 02"	LF	160	-	-	-	-	650	104,000	425	68,000	100	16,000	100	16,000	-	-	65	10,400	165	26,400
066	Relocate - Gas - 03"	LF	180	-	-	-	-	500	90,000	510	91,800	-	-	-	-	475	85,500	470	84,600	-	-
067	Relocate - Gas - 04"	LF	200	-	-	-	-	-	-	2,185	437,000	-	-	900	180,000	-	-	1,800	360,000	3,170	634,000
068	Relocate - Gas - 06"	LF	250	-	-	-	-	-	-	-	-	240	60,000	970	242,500	775	193,750	765	191,250	1,735	433,750
069	Relocate - Gas - 08"	LF	300	-	-	-	-	-	-	-	-	1,150	345,000	1,150	345,000	-	-	-	-	1,150	345,000
070	Relocate - Joint Trench (PRI,TEL,CATV,W,G,S/L,SEC)	LF	300	-	-	-	-	500	150,000	455	136,500	-	-	-	-	-	-	-	-	-	-
071	Relocate - Sanitary Sewer - 06"	LF	140	-	-	-	-	500	70,000	466	65,240	-	-	-	-	-	-	-	-	-	-
072	Relocate - Sanitary Sewer - 08"	LF	160	-	-	-	-	-	-	795	127,200	1,400	224,000	1,800	288,000	525	84,000	900	144,000	2,700	432,000
073	Relocate - Sanitary Sewer - 10"	LF	180	-	-	-	-	-	-	-	-	-	-	-	-	700	126,000	-	-	-	-
074	Relocate - Sanitary Sewer - 12"	LF	200	-	-	-	-	-	-	-	-	70	14,000	70	14,000	-	-	-	-	70	14,000
075	Relocate - Sanitary Sewer - 30"	LF	350	-	-	-	-	-	-	-	-	-	-	1,145	400,750	-	-	-	-	1,145	400,750
076	Relocate - Storm Drain - 08"	LF	160	-	-	-	-	100	16,000	149	23,840	-	-	-	-	-	-	-	-	-	-
077	Relocate - Storm Drain - 10"	LF	180	-	-	-	-	-	-	25	4,500	-	-	-	-	-	-	-	-	-	-
078	Relocate - Storm Drain - 12"	LF	200	-	-	-	-	300	60,000	516	103,200	430	86,000	430	86,000	300	60,000	900	180,000	1,330	266,000
079	Relocate - Storm Drain - 15"	LF	220	-	-	-	-	-	-	645	141,900	-	-	-	-	-	-	-	-	-	-
080	Relocate - Storm Drain - 27"	LF	300	-	-	-	-	-	-	-	-	15	4,500	15	4,500	-	-	-	-	15	4,500
081	Relocate - Storm Drain - 36"	LF	400	-	-	-	-	-	-	-	-	50	20,000	50	20,000	-	-	-	-	50	20,000
082	Relocate - Water - 06"	LF	240	-	-	-	-	1,200	288,000	2,550	612,000	120	28,800	120	28,800	-	-	-	-	120	28,800
083	Relocate - Water - 08"	LF	260	-	-	-	-	-	-	-	-	650	169,000	650	169,000	1,225	318,500	1,200	312,000	1,850	481,000
084	Relocate - Water - 10"	LF	280	-	-	-	-	-	-	1,835	513,800	-	-	-	-	-	-	-	-	-	-
085	Relocate - Water - 12"	LF	300	-	-	-	-	-	-	1,835	550,500	800	240,000	900	270,000	-	-	-	-	900	270,000
086	Relocate - Water - 16"	LF	330	-	-	-	-	-	-	-	-	345	113,850	900	297,000	-	-	1,800	594,000	2,700	891,000
087	Relocate - Water - 18"	LF	350	-	-	-	-	-	-	-	-	-	-	-	-	730	255,500	745	260,750	745	260,750
088	Relocate - Water - 24"	LF	400	-	-	-	-	650	260,000	605	242,000	-	-	-	-	-	-	-	-	-	-
089	Relocate - Water - 27"	LF	450	-	-	-	-	500	225,000	440	198,000	-	-	-	-	-	-	-	-	-	-
090	Total Utility Relocation and Protection				213,300		104,400		1,664,300		4,960,380		2,750,450		5,559,850		2,350,750		4,129,000		8,562,750

Palo Alto Caltrain - Grade Separation Projects Attachment A - Alternative Cost Estimates

line no.	Description	Unit	Unit Cost	Rail Trench 1% Max Grade (Caltrain Preferred)		Rail Trench 2% Max. Grade (w/Design Exception)		Churchill Alma At-grade		Churchill Alma Lowered		Meadow Alma At-grade		Meadow Alma Lowered		Charleston Alma At-grade		Charleston Alma Lowered		Meadow&Charleston Alma Lowered	
				Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost	Qty	Total Cost
091	<i>Right of Way (incl. ROW Services)</i>																				
092	Property Take - Partial	LS	1,000,000	-	-	-	-	4	4,000,000	3	3,000,000	5	5,000,000	4	4,000,000	3	3,000,000	3	3,000,000	7	7,000,000
093	Property Take - Full	LS	2,000,000	-	-	-	-	16	32,000,000	33	66,000,000	11	22,000,000	14	28,000,000	18	36,000,000	18	36,000,000	32	64,000,000
094	Total Right of Way (incl. ROW Services)				-		-		36,000,000		69,000,000		27,000,000		32,000,000		39,000,000		39,000,000		71,000,000

From: [Shaila Sadrozinski](#)
To: [Nadia Naik](#)
Cc: [Expanded Community Advisory Panel](#)
Subject: your presentation to City Council
Date: Saturday, September 26, 2020 2:44:14 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Hi Nadia,

Thank you very much for the years of hard work you've put in trying to resolve the issue of rail crossings in Palo Alto.

While I appreciate the manner in which you conduct the XCAP meetings, I was disappointed with your presentation to City Council this week about the vote to close Churchill. Perhaps reflecting your personal preference, you simplified the majority vote to mostly a matter of uncertainty over the Caltrain right-of-way, when in fact there are numerous other considerations, some of which I will outline below; and for the minority vote against closure, you said that the partial underpass might be possible to improve, without mentioning that during the deliberations for example XCAP member and architect Carrasco couldn't think of a single redeeming feature in its favor.

The argument in favor of the partial underpass is that it supposedly prevents the Southgate neighborhood from being isolated from the rest of Palo Alto. I should point out that closing the Churchill crossing would not cut off Southgate any more than College Terrace or Evergreen Park neighborhoods are currently cut off from the rest of Palo Alto.

But more importantly, the partial underpass would not seamlessly connect Southgate to the eastern side of the tracks: coming from El Camino, cars would only be able to turn left or right onto Alma, and cars from the east would only be able to turn north onto Alma. So there would be no direct connection in both directions between Churchill East and West.

Since there would no longer be any delay at the intersection due to trains, it would encourage more non-neighborhood traffic from El Camino to access Alma, turning this short section of Churchill into a high-volume feeder street for commuters.

The Castilleja Ave bike boulevard leads directly into Paly, and students need to cross Churchill safely. It is already hazardous for bikes and pedestrians, because not all cars stop for the pedestrian warning lights and bikers rarely push the button to activate them. Increased traffic would make this unsafe for students.

Cost should not be the only deciding factor; however, there should at least be some advantage to spending the additional millions of dollars. Closure of Churchill will cost one-third of the amount, while still providing full access across Alma and the tracks to bikes and pedestrians (with "option 2" for the bike/pedestrian tunnel giving a more direct route than the convoluted tunnel with the partial underpass). Moreover, cars coming on Churchill from the east will be able to turn both north and south onto Alma, which is not possible with the partial underpass design.

I believe the advantages of closing Churchill at the tracks outweigh the negligible inconvenience to Southgate motorists.

Shaila Sadrozinski

From: [William Robinson](#)
 To: [Expanded Community Advisory Panel](#)
 Cc: [PABAC](#)
 Subject: Preferred solutions for 75 crossings in Melbourne
 Date: Monday, September 28, 2020 1:28:03 PM

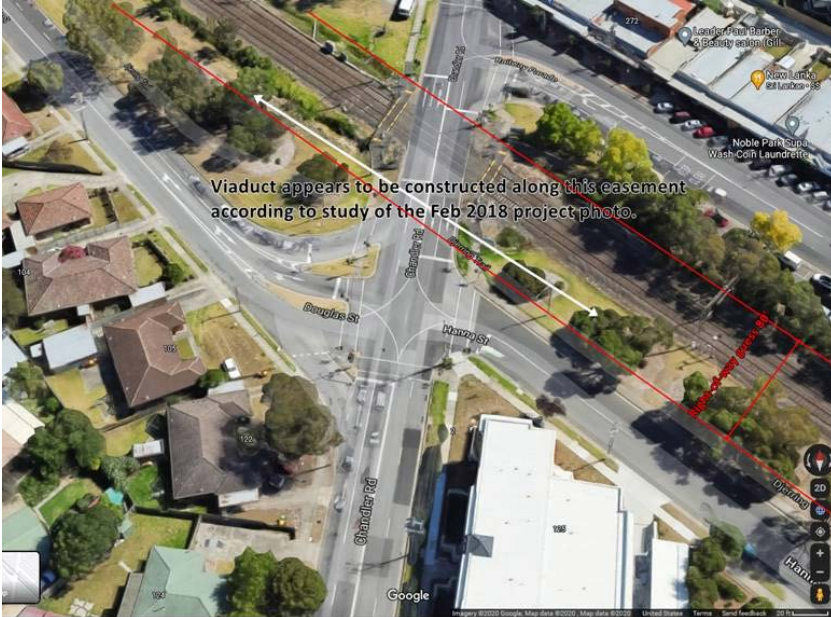
CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

The following is excellent guidance for grade crossing separation strategies. Terrain and history are similar to San Francisco to Gilroy rail.
 Chosen "solutions" of Grade separations in Melbourne AU
https://en.wikipedia.org/wiki/Level_Crossing_Removal_Project

Victoria term	XCAP term	Number		Safety characteristic
Rail over	Viaduct	34	43.0%	Roadway remains level!
Rail Under	Trench	23	29.1%	Roadway remains level!
	Road			
Road Over	overpass	10	12.7%	Roadway NOT level
Closed off	Closed	4	5.1%	
Hybrid	Hybrid	4	5.1%	Roadway NOT level
Road under	Underpass	4	5.1%	Roadway NOT level
		79	100.0%	

Motorists, cyclists and pedestrians would likely strongly appreciate level roadways.

**Chandler Road Level Crossing removal completed February 2018
 Traffic is on Chandler. Heavily residential.
 See Google (not updated by satellite.)**



Google view is not consistent with constructed photo in Noble district.

William 'Rob' Robinson, member PABAC (Pedestrian and Bicycle Advisory Committee), Palo Alto since 2005

From: [Gaile Gordon](#)
To: [Expanded Community Advisory Panel](#)
Subject: alternative cost analysis of Trench options
Date: Tuesday, September 29, 2020 5:52:59 PM

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As has been discussed in many places/occasions, the trench option at caltrain grade crossings is preferable to other options from aesthetic perspective and for other practical concerns. However it seems the cost has been high enough to block this from consideration. Keith Reckdahl's presentation on the matter raised some very interesting questions and options by comparing this project to other related projects which have already been executed.

(For details see - https://connectingpaloalto.com/wp-content/uploads/2020/09/2020-09-23_Trench-presentation-from-Member-Reckdahl.pdf)

Since the trench is so clearly preferable, it seems highly recommended to investigate additional cost estimates or approaches to this construction to see if costs could be brought down to the point it could be a good option.

Gaile

From: [jean uuik](#)
To: [Expanded Community Advisory Panel](#)
Subject: Charleston/Meadow Trench
Date: Tuesday, September 29, 2020 1:50:51 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Keith Reckdahl, who sits on the XCAP committee, did some independent research and found that AECOM (the engineering firm that did the cost estimates of the various options for Palo Alto) appears to have inflated the cost of the trench by a LOT.

I would like to urge you to seek independent cost estimates. Could the cost be inflated because this is Palo Alto? Do not just believe one company's estimates.

Sincerely,
Jean Wang
Resident of Charleston Meadows

From: [Irene Lloyd](#)
To: [Expanded Community Advisory Panel](#)
Subject: Connect Palo Alto
Date: Tuesday, September 29, 2020 4:32:09 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

To "bury" the ugly trains in the tunnel is still the best option...second best is trench.

AECOM, though hired by city of Palo Alto, does not work for Palo Alto, they work for CalTrain and also on high-speed rail. There is definitely a conflict of interest as they appear to inflate cost of projects they do not like. Therefore City of Palo Alto and residents are not their primary concern.

City should get a new estimate for a trench. We need to do the right thing the first time around and put the trench option "on track"!

Please remember we would all have to live with a bad decision should it be made. Cheap is just that, cheap. It has no quality and doesn't last.

Sincerely

Irene Lloyd
Resident

From: maryam_mossadeghian@yahoo.com
To: [Expanded Community Advisory Panel](#)
Cc: city.council@cityofpaloalto.or
Subject: Cost estimate for Palo Alto trench
Date: Tuesday, September 29, 2020 6:08:45 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

I do not believe that the cost estimates provided by AECOM for the trench in Palo Alto are accurate. They are significantly higher than other nearby trench construction projects. Please arrange for a second opinion (by a different company).

Sincerely,
Maryam Mossadeghian
Sent from my iPhone

From: [Marilyn Gillespie](#)
To: [Expanded Community Advisory Panel](#)
Subject: Cost Estimates For Trench Option
Date: Tuesday, September 29, 2020 3:03:10 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear XCAP Committee Members,

It has come to my attention that the cost estimates being currently used by the Grade Separation Committee (XCAP) to evaluate the trench option may be higher than comparable projects elsewhere. Therefore, I would urge the committee to relook at this option carefully to reexamine projected costs as well as to be reminded of the extremely negative impact that a raised overpass would be compared to a trench or tunnel. This negative impact would be felt by the community for generations to come.

Thank You.

Marilyn Gillespie
mgilles12@gmail.com
650-493-5891
384 Whitclem Drive
Palo Alto, CA 94306

From: [carlin otto](#)
To: [Expanded Community Advisory Panel](#)
Subject: Estimated Trench Costs are Not to Industry Standards
Date: Tuesday, September 29, 2020 12:41:11 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear XCAP Committee:

I do not believe that the cost estimates provided by AECOM for the trench in Palo Alto are accurate. They are significantly higher than other nearby trench construction projects.

Please arrange for a second opinion (by a different company).

**Carlin Otto
231 Whitlem Court
Palo Alto**

From: [Florence Keller](#)
To: [Expanded Community Advisory Panel](#)
Cc: [LaDoris Cordell](#)
Subject: Estimates
Date: Tuesday, September 29, 2020 11:02:48 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

We urge the City to get additional independent estimates for the cost of the trench option. In fact, since there is no obvious way to explain the vast disparities between the costs of other cities trenches and AECOM's estimates, it would be irresponsible not to. The engineering firms that oversaw the successful recent trench projects in Reno and San Gabriel would be good choices.

Florence Keller
LaDoris Cordell

From: gmahany@aol.com
To: [Expanded Community Advisory Panel](#)
Subject: high or low cost estaments for rail croosssing
Date: Tuesday, September 29, 2020 4:43:32 PM

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hello Xcap and city of Palo Alto

If there are complants about the acurace of the cost estimates that are currently being used by the Grade Separation Committee (XCAP) to evaluate the trench option are very out of line with industry standards. What other of the choices are not accurate. What cost did other cities pay for Viaducts or Hybrid crossings.

Gmahany

From: [Tom Longo](#)
To: [Expanded Community Advisory Panel](#)
Cc: ["Keith Reckdahl" via Palo Alto Citizens](#)
Subject: How can the public truly imagine the overall effect of each grade separation alternative?
Date: Tuesday, September 29, 2020 8:56:13 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Hello XCAP members,

I've been following this entire discussion from a distance, looking at the evaluation matrices and the plan drawings and it's clear that there is no simple answer to this question of how to best separate the rail corridor from car, bike and pedestrian traffic at crossing. However, when reading the pros and cons and different levels of difficulty of each alternative, I always end up with the same conclusion: the decisions we make today will affect the citizens, community and environment of Palo Alto for at least 100 years into the future.

So if the goal is to improve traffic flow for cars, pedestrians and bicycles at these crossings, and to do it at a reasonable cost in a reasonable time frame, it feels to me like the actual long-term visual, visceral, and cultural impacts are being put secondary or even tertiary in importance. I've seen the virtual renderings and studied them, both in picture form and movie form. And while they give some mechanical, architectural concept of how each alternative will look and feel, especially at the intersections under discussion, they fail to provide a real visceral feeling of the overall impact on the Alma corridor and surrounding neighborhoods.

For example, I was initially opposed to the Viaduct option since it creates a giant structure with the top of rail at 20 feet above ground level, putting the top of the sound wall even higher! That is a very long and tall structure cutting through a large section of the center of Palo Alto. However, looking at the renderings which show a park-like area below and around the viaduct, the overall feeling seems lighter and more open than the Hybrid option. The Hybrid creates a giant wall over 20 feet high (I'm including the sound wall) almost half a mile long right along Alma. I've been to sections of San Carlos and neighboring towns where they have had a Hybrid structure for years, and the overall effect feels negative to the nearby streets and neighborhood. The Hybrid wall structure creates a great divide and a very urban feel that does not feel like the Alma section of Palo Alto.

Most importantly, looking at the renderings available on your web sites, I don't think that anyone, especially the average Palo Alto citizen, can really truly imagine the long term visceral and cultural impacts of any option. Your fact sheets and discussions are excellent, and your evaluation matrices are very helpful, but they just cannot give the final living effect of any alternative. It seems to me that a better rendering, in movie form, from the street level perspective of a pedestrian traveling along Alma and even into adjacent streets is needed for anyone to really comprehend and imagine the final impact of these massive projects. You already have some great movies of the construction process in some great detail, but these give only short term indicators of the impact and timeline of construction. What's most important is the next 100 years after construction, what we are left with cutting through the center of Palo Alto and our neighborhoods with homes and schools. Will it create a truly positive impact for the citizens, community and environment of Palo Alto? Will the visceral, visual feeling be one of improvement for quality of life and the environment, not simply for traffic and pedestrian flow at intersections? I don't think the matrices and tables and discussions and simple renderings can answer these questions.

Computer graphics and/or Virtual Reality (VR) technology are clearly up to the task of helping the Palo Alto public truly understand these impacts. I think the time and money put into creating a real, visceral vision of each option under consideration will be more beneficial than hours of further discussion. Not that these are mutually exclusive, I just feel that I can't read any more text without really being able to imagine the true impacts that each alternative will have for the next 100 years or more.

Thanks for listening. I know that better public transportation, especially electric in the form of trains and even cars and buses, are the key to a better environment. That's a given. But how we best implement these now will affect

Palo Alto for a very long time into the future.

Tom Longo
3316 Kenneth Drive
Palo Alto

From: [David Ephron](#)
To: [Expanded Community Advisory Panel](#)
Subject: Independent estimate of the cost of the trench option is needed
Date: Tuesday, September 29, 2020 9:10:05 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

To the XCAP Committee:

The presentation on trench issues of 9/23 makes a very persuasive case that AECOM has severely overestimated the cost of the trench option (and also the construction time).

I think it is imperative that the city secure an independent estimate. The engineering firms that successfully completed the trench projects in Alameda or Reno would be good choices.

The trench option is by far the best option for Palo Alto. It's only negative compared with the raised track options is that it has been presented as being far more expensive. If its cost is actually comparable to the other options, then selecting it becomes a no brainer.

Best regards,

David Ephron
259 Whitclem Court
Palo Alto, CA 94306
650.504.7659
david@ephron.net

From: [Sandeep Bahl](#)
To: [Expanded Community Advisory Panel](#); [Council, City](#)
Subject: Inflated cost estimate for trench and tunnel options
Date: Tuesday, September 29, 2020 4:12:36 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear XCAP Committee Members

I would like to recommend to please get alternate evaluations of the trench options. I have seen data showing the estimate for our trench is much higher than comparable projects in other cities like Reno and San Gabriel. In addition, there are better options for trench wall support, such as struts, which will not need tiebacks. Other evaluations will also provide a wider range of options to address the technical issues brought up.

Please also consider the option of a trench with a roof. As you have seen, the tunnel option is the most popular, however, also the most expensive. A trench with a roof may be the best of both, allowing a bike path on top, with landscaping on the sides. Additionally, the roof would provide the wall support, so would save the cost of tiebacks.

Thank you.

Sincerely,
Sandeep Bahl

From: [Deborah Ju](#)
To: [Expanded Community Advisory Panel](#)
Subject: Inflated cost estimate for trench and tunnel options
Date: Tuesday, September 29, 2020 12:37:17 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear XCAP Committee Members

I do not trust the cost estimates for the consultants for the trench and tunnel options, as it seems that the consultants came into this project already decided to recommend an overpass or viaduct for the Charleston crossing. It seems that trenches and tunnels have been built in other locations at much lower cost that reflected in the consultant's report. Our neighborhood needs and deserves an independent review by a different consultant on the costs of both the tunnel and trench options. Thank you.

Sincerely,
Deborah Ju

From: [William Robinson](#)
To: [Expanded Community Advisory Panel](#)
Cc: [PABAC](#)
Subject: Lessons learned from Melbourne removing 75 crossings
Date: Tuesday, September 29, 2020 7:39:05 PM
Attachments: [Key pointers in grade separation solutions chosen.pdf](#)
[Victoria Level Crossings Separations wikipedia.xlsx](#)

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Scale. A regional approach. The state of Victoria, Australia took a system wide approach to congestion relief and safety. Please read the two page attachment. A link to an excellent YouTube visualization is at the end.

Unfortunately, CalTrain must accommodate freight making trenches much deeper than shallow examples possible in Melbourne. Attached also is an Excel file derived from Wikipedia

William'Rob' Robinson, member PABAC (Pedestrian and Bicycle Advisory Committee), Palo Alto since 2005

Key examples in Melbourne grade separation solutions. September 29, 2020

Australia's State of Victoria (Largely dominated by Melbourne) is removing 75 level grades financed in part by privatization of the Port of Melbourne. The terrain is similar to that over which Caltrain operates. Rails carry electric "Metro" train sets. Current and future congestion and rising accidents spurred the project beginning in 2014. 38 of 78 have been completed according to Wikipedia. All are to be complete by 2025. Relationship with customers and the community is generous and rewarded.

72% of chosen solutions move rail up (viaduct) or rail down (trench) leaving the road flat and level. Viaducts are chosen 42% for speed of construction, connecting the adjacent communities and creating recreation space. A viaduct (with impressive span length) example:

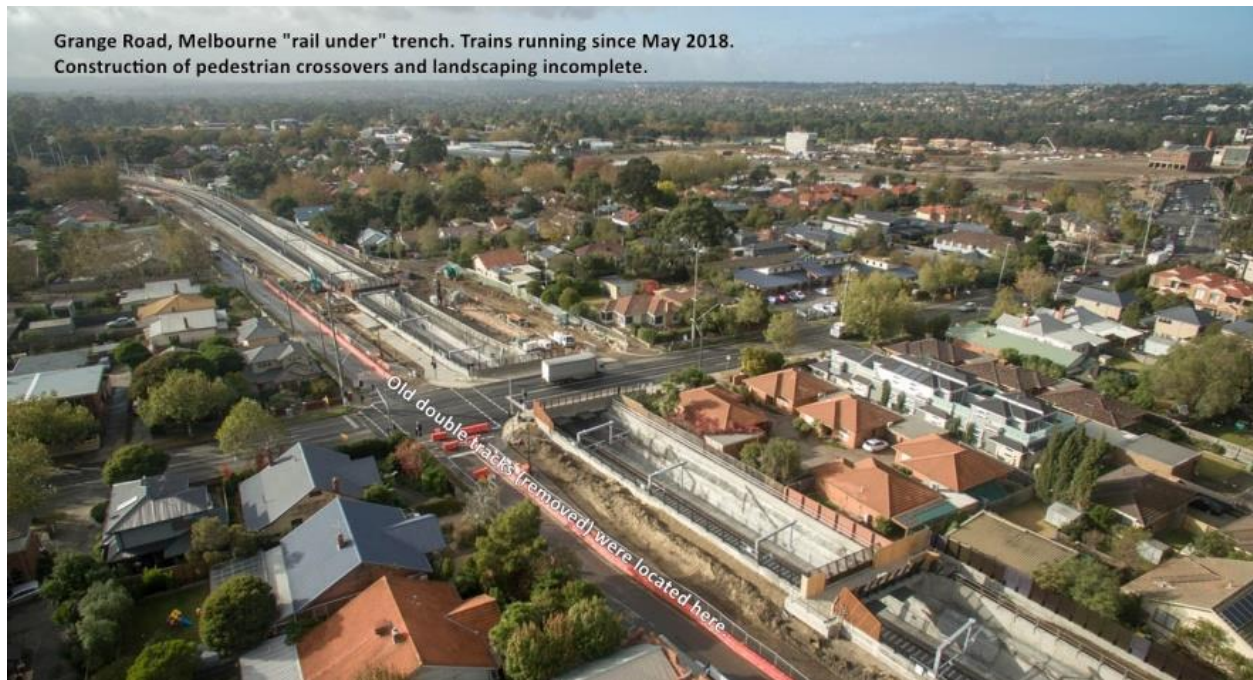


Another viaduct, celebrated for speed and results:

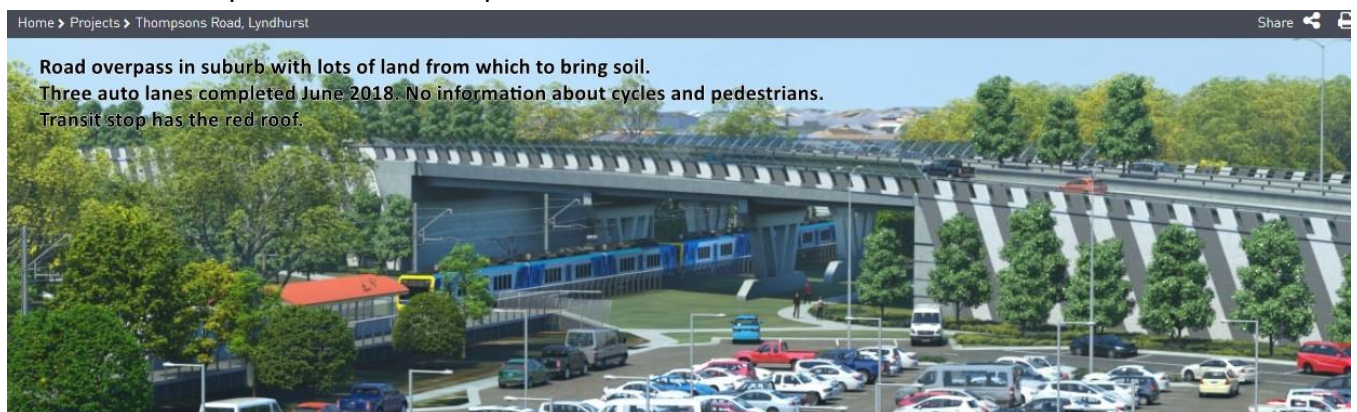


Moving rail down (29%) is done with trenches in suburbs, tunnels downtown.

A trench example:



13% of solutions provide a road overpass such as this:



Summary:

- Viaducts are chosen for construction speed, capturing recreational space and freedom of movement under and to nearby transit stations. Grades rising to stations or viaducts slow trains upon arrival and speed them upon departure saving energy.
- Viaduct track side "sound" fences are curiously configured as inside metro "sight" limiters.
- Viaduct noise studies report lower levels after viaducts are in place than before.
- Trenches are shallow, to fit the single level metropolitan equipment. Fast slurry wall construction requires little reinforcement. However, pedestrian crossings must be included.
- Overpasses don't interfere with trains but road closures or bypasses are required during road overpass construction.

Sources: <https://levelcrossings.vic.gov.au/>

https://www.youtube.com/watch?v=rbmruXpAHmQ&feature=emb_rel_end

Road	Nearest station	Line	Solution	Status	Date of completion	%
Buckley Street	Essendon	Craigieburn	Road under	Completed	Sep-18	
Clyde Road	Berwick	Pakenham	Road under	Under construction	2022[36]	
Robinsons Road	Deer Park	Ballarat & Geelong	Road under	Early planning		
Gap Road	Sunbury	Sunbury	Road under	Early planning		
		Road under Count	4			5.1%
Evans Road	Merinda Park	Cranbourne	Road over	Under construction	2020	
Cardinia Road	Cardinia Road	Pakenham	Road over	Under construction	2021[52]	
South Gippsland Highway	Dandenong	Pakenham	Road over	Under construction	2022[39]	
Cherry Street	Werribee	Werribee	Road over	Under construction	2022[45]	
Old Geelong Road	Hoppers Crossing	Werribee	Road over	Under construction	2022[46]	
Fitzgerald Road	Ardeer	Ballarat & Geelong	Road over	Early planning	2023[50]	
Camms Road	Cranbourne	Cranbourne	Road over	Planning	2025[51]	
Melton Highway	Watergardens	Sunbury	Road over	Completed	January 2018[42]	
Thompsons Road	Merinda Park	Cranbourne	Road over	Completed	June 2018[24]	
Aviation Road	Aircraft	Werribee	Road over	Completed	September 2019[44]	
		Road over Count	10			12.8%
Blackburn Road	Blackburn	Belgrave	Rail under	Completed	Jan-17	
Heatherdale Road	Heatherdale	Belgrave	Rail under	Completed	Jan-17	
Camp Road	Campbellfield	Upfield	Rail under	Completed	Dec-17	
Glenroy Road	Glenroy	Craigieburn	Rail under	Contract awarded	2022[22]	
Ferguson Street	Williamstown	Williamstown	Rail under	Contract awarded	2022[48]	
Union Road	Surrey Hills	Belgrave & Lilydale	Rail under	Planning	2025[51]	
Centre Road	Bentleigh	Frankston	Rail under	Completed	August 2016[25]	
McKinnon Road	McKinnon	Frankston	Rail under	Completed	August 2016[25]	
North Road	Ormond	Frankston	Rail under	Completed	August 2016[25]	
Charman Road	Cheltenham	Frankston	Rail under	Completed	August 2020[27]	
Park Road	Cheltenham	Frankston	Rail under	Completed	August 2020[27]	
Scoresby Road	Bayswater	Belgrave	Rail under	Completed	December 2016[21]	
Burke Road	Gardiner	Glen Waverley	Rail under	Completed	January 2016[31]	
Balcombe Road	Mentone	Frankston	Rail under	Completed	July 2020[29]	
Station Street/Bondi Road	Bonbeach	Frankston	Rail under	Under construction	Late 2022[26]	
Edithvale Road	Edithvale	Frankston	Rail under	Under construction	Late 2022[26]	
Argyle Avenue	Chelsea	Frankston	Rail under	Under construction	Late 2022[26]	
Grange Road	Alphington	Hurstbridge	Rail under	Completed	May 2018[32]	
Furlong Road	Ginifer	Sunbury	Rail under	Completed	November 2016[41]	
Main Road	St Albans	Sunbury	Rail under	Completed	November 2016[41]	
Mont Albert Road	Mont Albert	Belgrave & Lilydale	Rail under	Early planning		
Glen Huntly Road	Glenhuntly	Frankston	Rail under	Early planning		
Neerim Road	Glenhuntly	Frankston	Rail under	Early planning		
		Rail under Count	23			29.5%
Hallam Road	Hallam	Pakenham	Rail over	Early planning	2022	
High Street	Reservoir	Mernda	Rail over	Completed	Dec-19	
Station Street	Carrum	Frankston	Rail over	Completed	Feb-20	
Toorak Road	Kooyong	Glen Waverley	Rail over	Completed	Apr-20	
Munro Street	Coburg	Upfield	Rail over	Under construction	2020[35]	
Reynard Street	Coburg	Upfield	Rail over	Under construction	2020[35]	
Bell Street	Bell	Mernda	Rail over	Planning	2021[35]	
Cramer Street	Preston	Mernda	Rail over	Planning	2021[35]	
Murray Road	Preston	Mernda	Rail over	Planning	2021[35]	
Oakover Road	Bell	Mernda	Rail over	Planning	2021[35]	
Maroondah Highway	Lilydale	Lilydale	Rail over	Under construction	2022[34]	
Manchester Road	Mooroolbark	Lilydale	Rail over	Under construction	2022[34]	
Werribee Street	Werribee	Werribee	Rail over	Under construction	2022[46]	
Mt Derrimut Road	Deer Park	Ballarat & Geelong	Rail over	Early planning	2023[50]	
Centre Road	Clayton	Pakenham	Rail over	Completed	April 2018[38]	
Clayton Road	Clayton	Pakenham	Rail over	Completed	April 2018[38]	
Chandler Road	Noble Park	Pakenham	Rail over	Completed	February 2018[40]	
Corrigan Road	Noble Park	Pakenham	Rail over	Completed	February 2018[40]	
Heatherston Road	Noble Park	Pakenham	Rail over	Completed	February 2018[40]	
Kororoit Creek Road	Seaholme	Werribee	Rail over	Completed	July 2018[47]	
Skye/Overton Road	Frankston	Frankston	Rail over	Completed	June 2018[28]	
Grange Road	Carnegie	Pakenham	Rail over	Completed	June 2018[37]	
Koornang Road	Carnegie	Pakenham	Rail over	Completed	June 2018[37]	

Road	Nearest station	Line	Solution	Status	Date of completion	%
Poath Road	Hughesdale	Pakenham	Rail over	Completed	June 2018[37]	
Murrumbeena Road	Murrumbeena	Pakenham	Rail over	Completed	June 2018[37]	
Moreland Road	Moreland	Upfield	Rail over	Under construction	Late 2020[43]	
Bell Street	Coburg	Upfield	Rail over	Under construction	Late 2020[43]	
Greens Road	Dandenong	Cranbourne	Rail over	Under construction	Late 2022[51]	
Lower Plenty Road	Rosanna	Hurstbridge	Rail over	Completed	May 2018[33]	
Abbotts Road	Dandenong	Cranbourne	Rail over	Completed	September 2018[23]	
Main Street	Pakenham	Pakenham	Rail over	Early planning		
McGregor Road	Pakenham	Pakenham	Rail over	Early planning		
Racecourse Road	Pakenham	Pakenham	Rail over	Early planning		
		Rail over Count	33			42.3%
Mountain Highway	Bayswater	Belgrave	Hybrid	Completed	December 2016[20][21]	
Chelsea Road	Chelsea	Frankston	Hybrid	Under construction	Late 2022[26]	
Seaford Road	Seaford	Frankston	Hybrid	Completed	September 2018[30]	
Webster Street	Dandenong	Cranbourne & Pakenham	Hybrid	Early planning		
		Hybrid Count	4			5.1%
Mascot Avenue	Bonbeach	Frankston	Closed off	Completed	Feb-20	
Eel Race Road	Seaford	Frankston	Closed off	Completed	Feb-20	
Lochiel Avenue	Edithvale	Frankston	Closed off	Under construction	Late 2022[26]	
Swanpool Avenue	Chelsea	Frankston	Closed off	Under construction	Late 2022[26]	
		Closed off Count	4			5.1%
		Grand Count	78			100.0%

From: [Jeneen Nammar](#)
To: [Expanded Community Advisory Panel](#)
Subject: Please obtain independent estimates for trench Caltrain option
Date: Tuesday, September 29, 2020 10:48:39 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear XCAP Committee:

After reading about the presentation on trench issues on 9/23, and seeing the possibility that AECOM has overestimated the cost of the trench option by a substantial amount, it is obvious that we need more independent estimates before proceeding. Those that built the Reno and San Gabriel trenches seem like obvious good options.

It cannot be overstated how important it is for the committee to make the right choices. Your choices will affect the quality of life in our community for years to come. Please gather more bids to ascertain the real cost of the trench option.

Thank you.

Sincerely,
Jeneen Nammar
South Palo Alto resident

From: [Anjan Ghose](#)
To: [Expanded Community Advisory Panel](#)
Subject: Please re-do trench cost estimates
Date: Tuesday, September 29, 2020 12:40:25 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

I do not believe that the cost estimates provided by AECOM for the trench in Palo Alto are accurate. They are significantly higher than other nearby trench construction projects. Please arrange for a second opinion (by a different company). Thank you.

**Anjan Ghose
4119 Park Blvd.
Palo Alto, CA 94306**

From: [Karen Brannon](#)
To: [Expanded Community Advisory Panel](#)
Subject: rail underpass options
Date: Tuesday, September 29, 2020 9:06:21 PM
Attachments: [image.png](#)
[image.png](#)

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

XCAP members:

I'm commenting first about underpasses in general, then specifically about the Meadow/Charleston underpass option. I am in favor of the trench option for Meadow/Charleston.

I found a study done in the UK on reducing crime in cities

<https://www.bre.co.uk/filelibrary/Briefing%20papers/102417-Crime-Hotspots-Briefing-Paper-v4.pdf>

There is a section on underpasses that makes good suggestions on how to design a safe underpass. There has been an assault in the Homer tunnel and multiple problems in the University Ave Caltrain underpasses. So the possibility of crime needs to be addressed up front. The summary of the study for underpasses is as follows:

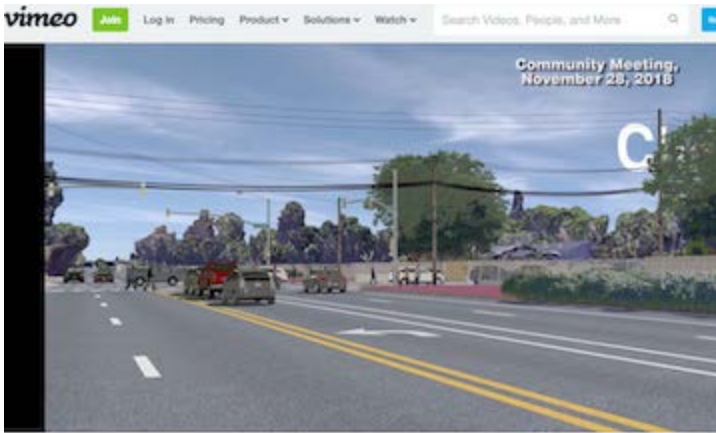
Underpass problems

The majority of underpasses are intended to avoid the need for pedestrians to cross busy roads and so continue their journey in a safe way. However, many underpasses are poorly designed and have inadequate lighting, poor sightlines, poor way-finding and no surveillance. In addition, many show signs of neglect, such as graffiti, dirt and litter.

Underpass solutions

Wherever possible, pedestrians and vehicles should be kept on the same level and underpasses removed. But if an underpass is considered to be necessary, it should be as straight, short and as wide as possible. It should also be well lit, with clear lines of sight so that pedestrians can see what is ahead. Ambiguous spaces, such as gaps and corners should be avoided as they can provide hiding places for potential offenders and can increase fear of crime. Underpasses should be maintained in good order and monitored on a regular basis. They should be free from rubbish and any graffiti removed as soon as possible.

Currently I feel safe crossing Alma at Charleston in the early morning/evening. I would never cross using the proposed underpass - too scary. The proposed underpass has "poor sightlines, poor way-finding", not sure about the lighting - and city commitment to graffiti abatement. In contrast the trench option shows a very safe, inviting path for ped/bikes to cross Alma.



Meadow Charleston Trench Alternative

I submitted a series of comments/questions to the virtual town hall on the Meadow/Charleston underpass option. I'm including them below to make sure they have been seen.

Town Hall Feedback and Comments

Q4

Do you have any questions/comments about Connecting Palo Alto Grade Separation project?

The following questions deal with the Meadow/Charleston Underpass option

- * Have you notified property owners about seizures of their property slated for the Meadow/Charleston Underpass option? If not why not.
- * Currently there is a 17 foot wide buffer (parking strip/planting strip) between the sidewalk and Alma along Alma from Ely Place to farther north. Will this buffer continue to exist? It is an important safety feature needed for pedestrians walking along Alma at all times but especially in the winter when it is dark due to shorter days. This route is well used, for example by students traveling to/from Gunn, workers traveling to/from the San Antonio caltrain station, access to the three places of worship along Alma, etc. If this buffer is removed an additional concern is increased noise and pollution for residents with backyards next to Alma.
- * Currently there is a 8 foot wide buffer (parking strip/planting strip) between the sidewalk and Charleston along Charleston from Alma to farther east. Will this buffer continue to exist? It is an important safety feature needed for pedestrians walking along Charleston at all times but especially in the winter when it is dark due to shorter days. If this buffer is removed an additional concern is increased noise and pollution for residents with front yards/backyards next to Charleston.
- * Currently there is a bike lane along the south side of Charleston from Alma to farther east. Will this bike lane continue to exist? It is needed for cyclists starting out from a home on the south side of Charleston and needing to travel east (e.g. to go to Peets or Piazza's or farther east).
- * What are the specific plans for traffic detours needed when Meadow and Charleston are closed for years? Children need to get to/from school
- * At one of the XCAP meetings I attended a speaker indicated he "was not a roundabout expert". Have you hired an expert in roundabouts to make sure this design will accomplish the objectives.
- * A diagram in the fact sheet shows a crosswalk at the south east corner of Charleston/Alma. Please note that crossing will be needed early in the morning or in the evening when it is dark as well as during daylight hours. Will this crosswalk be protected by a traffic signal? Also in that diagram it shows a walking path on the overpass right next to the traffic on Alma - that looks dangerous.
- * A diagram in the fact sheet shows crosswalks to the west and to the east of the roundabout. Please note that crossing will be needed early in the morning or in the evening when it is dark as well as during daylight hours. What measures are planned to ensure pedestrians/cyclists can cross safely?
- * Overall I feel that the underpass option discourages walking or biking eastbound or westbound along Charleston or Meadow. The fact sheet indicates "Pedestrians and cyclists traveling east/west will have more circuitous routes". I suggest you add that these routes are confusing and dangerous - especially for children. A 4-5% grade will cause issues for children on bikes. Also problematic are the ramps - steep with sharp turns.

Q5

Walnut Grove

Which neighborhood do you reside in/represent? (select one)

Q6

Email

How did you hear about the Virtual Town Hall? (select all that apply)

Q7

Good

How would you rate your experience at our Virtual Town Hall for informing and finding desired details on rail grade separations? (select one)

Other questions I submitted in the virtual town hall:

- * Was the cost of property seizure included in the cost estimate for the

underpass option. If not why not. If so, what prices were used for all the full and partial property seizures. What is the estimated cost for decreased property values due to increased noise and traffic.

- * What will be done to better align the underpass option with the Palo Alto Bicycle Boulevard project - especially concerning bike traffic on Park and Wilkie Way?
- * The underpass option at both Meadow and Charleston moves existing traffic flow from Alma onto neighborhood streets. This is unacceptable. For Charleston this is in conflict with the recently completed Charleston/Arastradero Corridor project which improves safety for pedestrians and cyclists.
- * Early on in the grade separation process there was an uproar about property seizures in North Palo Alto, and options requiring seizure were dropped. The underpass is a recent addition to options for Meadow/Charleston. Was there a conscious decision to allow new options that have property seizures in South Palo Alto?

Thank you for your consideration

Karen Brannon
Ely Place, Palo Alto

From: [Ratson Morad](#)
To: [Expanded Community Advisory Panel](#)
Subject: Raising the tracks high overhead
Date: Tuesday, September 29, 2020 5:40:20 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

To the XCAP Committee:

I was surprised and shocked to see the presentation on the trenches for the train.

The presentation on trench issues of 9/23 makes a very persuasive case that AECOM has severely overestimated the cost of the trench option and at the same time sending the misleading idea that the overhead is the right one, which is completely wrong.

It is imperative that the city secure an independent estimate. The engineering firms that successfully completed the trench projects in Alameda or Reno would be good choices.

Also, the city should evaluate the look and feel of both options, as the overhead is an ugly thing that will stay forever.

The trench option is by far the best option for Palo Alto. It's only negative compared with the raised track options is that it has been presented as being far more expensive. If its cost is actually comparable to the other options, then selecting it becomes a no brainer.

Sincerely,

Ratson Morad

From: [Deborah Waxman](#)
To: [Expanded Community Advisory Panel](#); [Council, City](#)
Subject: Trench costs
Date: Tuesday, September 29, 2020 1:57:23 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear City Council and Grade Separation Committee,

Based on the slides presented by Keith Reckdahl, I believe that the cost estimates currently being used by the Grade Separation Committee (XCAP) to evaluate the trench option are substantially inflated compared with industry standards. As you can see in Slide 3 at the link below, trenches have been built in other cities for FAR LESS than the estimates given by AECOM for the Palo Alto trench. I urge you to ensure an informed and responsible decision process by arranging a second estimate from an independent company. We will have to live with this decision for the rest of our lives.

https://connectingpaloalto.com/wp-content/uploads/2020/09/2020-09-23_Trench-presentation-from-Member-Reckdahl.pdf

Thank you,
Deborah Waxman
4166 Park Blvd
Palo Alto

From: [Anjan Ghose](#)
To: [Expanded Community Advisory Panel](#)
Subject: Trench option for Charleston/Meadows by AECOM
Date: Tuesday, September 29, 2020 4:39:20 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

I do not believe that the cost estimates provided by AECOM for the trench in Palo Alto are accurate. They are significantly higher than other nearby trench construction projects. Please arrange for a second opinion (by a different company).

Sincerely,

**Anjan Ghose
4119 Park Blvd
Palo Alto, CA 94306**

NOTE: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Hi SCAP members,
 I have been following the presentation and the emails for the options being considered for the Charleston and Meador crossings. The cost estimates for the trench option being presented by the consultant AECOM have been extremely high. I had pointed that out and presented the San Gabriel trench construction example as a counter to show that the trench cost is not that high (in one of my previous emails). Now Keith has come up with a very detailed analysis and many more comparables as shown below. Thank you Keith! Given this information the trench cost is potentially comparable to the cost of the other options such as underpass and hybrid and viaduct.

In my mind the trench is a much better option which preserves connectivity by FRED and takes on flat ground without steep inclines/declines, preserves the neighborhood feel and is better aesthetically. Hence my vote is to go with the trench option.
 Thanks to all
 @Austyn Gault
 (W. Meador Cross)

Rail Trench Project	Total Price (millions \$)	Completion Date	Length (ft)	Road Overpasses	Creeks	Trench in Water Table?	Cost/linear foot (thousands \$)
South Palo Alto	<u>800-950</u>	2025 (est)	6,000	2	2	Yes	<u>133-158</u>
Reno ReTRAC	282	COMPLETED Dec 2005	10,560	11	0	Yes	27
San Gabriel CA (Alameda Corridor East)	<u>293.7</u>	COMPLETED Sept 2018	<u>7,920</u>	<u>4</u>	<u>2</u>	Yes	37
Carlsbad CA (Short Design)	<u>224</u>	2030 (est)	<u>6,000</u>	<u>6</u>	??	Yes	37
Carlsbad CA (Long Design)	335	2030 (est)	8,400	7	??	Yes	40
Phoenix Sky Harbor	441	2025 (est)	12,000	1	0	??	37

From: [Jin Pi](#)
To: [Expanded Community Advisory Panel](#)
Subject: Trench option please for Charleston crossing
Date: Tuesday, September 29, 2020 1:01:24 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear Palo Alto City,

My name is Jin Pi. I am the CEO of Innopeak Technology which is at East Bayshore Rd and I live in Barron Park. Crossing the Caltrain tracks at Charleston is always a headache for my everyday commute.

Please consider the trench option and it is should be the best for Palo Alto.

Sincerely yours,

Jin Pi

From: [Larry Mone](#)
To: [Expanded Community Advisory Panel](#)
Subject: Trench Option
Date: Tuesday, September 29, 2020 11:40:13 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear XCAP:

Can you please get additional independent estimates for the cost of the trench option.

Thank you

Larry and Kate Mone
4163 Park Blvd

Sent from my iPad

From: [Florence LaRiviere](#)
To: [Expanded Community Advisory Panel](#)
Subject: trench
Date: Tuesday, September 29, 2020 5:24:47 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear XCAP members,
Please get independent cost estimates for the trench option for the rail separation. Thank you.

Florence LaRiviere
Virginia LaRiviere

453 Tennessee Lane
Palo Alto, Ca 94306

From: [Sally Keyes](#)
To: [Nadia Naik](#); [Expanded Community Advisory Panel](#)
Cc: [Council, City](#)
Subject: XCAP presentation to City Council
Date: Tuesday, September 29, 2020 5:11:46 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Greetings Nadia,

Thank you very much for your expertise regarding all train issues and, particularly, your efforts and hard work to assist in resolving the issue of the three rail crossings in Palo Alto.

My husband and I have attended talks you have given in Palo Alto and have followed a fair number of the XCAP meetings. We have always appreciated your equanimity and evenhanded delivery of pertinent information. However, we have concerns regarding your presentation to City Council about the vote to close Churchill. To us, you reduced the majority vote of XCAP to mostly a matter of uncertainty over the Caltrain right-of-way, when in fact there are other important considerations. For the minority vote against closure, you stated that the option of a partial underpass might be possible to improve.

One argument given by some residents in Southgate who favor the partial underpass is that it would prevent Southgate residents from being isolated from the rest of Palo Alto. Please note that the closing of Churchill would not cut off Southgate from Palo Alto any more than College Terrace or Evergreen Park neighborhoods are currently cut off from the rest of Palo Alto.

Also, the partial underpass provides no direct connection for vehicles, pedestrians, or bicyclists to Old Palo Alto on Churchill Avenue. Cars coming from El Camino heading east on Churchill would be able to turn north and south onto Alma but would not be able to continue directly east to Old Palo Alto. Cars heading from the east towards El Camino would only be able to turn north on Alma. In contrast, the Closure of Churchill allows vehicles coming from the east to turn both north and south on Alma. Option #2, unlike the circuitous route provided in the partial underpass option, will provide direct access for bicyclists and pedestrians to Old Palo Alto.

Furthermore, if there were a partial underpass, there would no longer be any delay at the intersection due to trains. This would encourage more traffic from El Camino to access Alma, turning this short section of Churchill heavily used by Paly students and parents into a higher-volume feeder street for vehicle commuters.

Please remember that the Castilleja Ave bike boulevard leads directly into Paly and students need to cross Churchill safely. This is a very hazardous crossing for pedestrians and bicyclists. Warning lights have been installed but numerous cars either intentionally fail to heed them or fail to see them because of their height. Please note that there are no lights that flash on the crosswalk as Mountain View has in a fair number of dangerous pedestrian crossings. Increased traffic would possibly make this crossing exponentially more dangerous for students.

Closing Churchill is the most fiscally prudent choice. However, we realize and agree that cost

should not be the only deciding factor in selecting an option, but there should be at least some significant advantage[s] to spending significant additional funds for a different option.

We believe the advantages for pedestrians and bicyclists of closing Churchill at the tracks outweigh the negligible inconvenience to vehicular traffic from Southgate.

Richard and Sally Keyes
1573 Mariposa Avenue
Southgate

From: [June](#)
To: [Expanded Community Advisory Panel](#)
Subject: Caltrain options
Date: Wednesday, September 30, 2020 9:32:42 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

To put Caltrain in a trench is the best option!! All other options not only generate noises to nearby neighbor houses but have potential safety issues. **If anything happened to the train the residents' lives near the rail will be in danger! Palo Alto city officials should find other contractors to obtain a better cost analysis for the trench option!**

From: [Franci McFarland](#)
To: [Expanded Community Advisory Panel](#)
Subject: independent cost estimates for Caltrain trench
Date: Wednesday, September 30, 2020 10:12:34 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

I am writing to request additional Independent cost estimates for a trench solution for the Caltrain project before ruling it out. I am not in favor of elevated tracks or road bypasses due to safety considerations, added disturbance to our surrounding noise levels, and deleterious effect on the visual appearance of our town.

From: khurshid.gandhi
To: [Expanded Community Advisory Panel](#); [Council, City](#)
Subject: Independent estimate for trench for Charleston-Meadows crossings
Date: Wednesday, September 30, 2020 1:09:20 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear City council and XCAP members,

For grade separation in Palo Alto, for the Charleston-Meadows crossings, our community is strongly in favor of underground options for the train. The AECOM estimates for the trench seem extremely high, specially based on the research done by Keith Reckdahl on the XCAP committee. Please do look up his presentation (<https://connectingpaloalto.com/presentations-and-reports/>)

This is a request that you should obtain independent (not AECOM) estimates for the cost of constructing a trench for the Charleston-Meadows grade separation project. The AECOM estimate seems extremely high compared with other similarly built trenches viz. the San Gabriel trench which also had to work with 2 creeks. It would be great for City of Palo Alto to check with San Gabriel to obtain insight into their trench construction experience.

A lower estimated cost may be able to make this project a reality and an underground train option would accomplish the goal of grade separation while not harming the community and neighborhood at Charleston-Meadows.

Thank you

Khurshid Gandhi

From: [Jennifer Wolfeld](#)
To: [Expanded Community Advisory Panel](#)
Subject: More environmental research on the Trench option
Date: Wednesday, September 30, 2020 10:48:26 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Putting Caltrain in a trench below ground level is a much better option for our community than elevating the tracks or building giant road overpasses. I understand that there are environmental concerns such as creek displacement and potential flooding, but to my knowledge there has been no consistent, credible research which would take the trench option off the table. We absolutely need to have expert advice on this issue.

In terms of financing the project, the only reason the trench option hasn't displaced the other options is that the engineering firm hired by the City estimates its cost to be higher than the others. *This estimate appears to be wildly overinflated.*

As City officials, you are responsible for seeking **independent cost estimates** to get better cost data to make a thoroughly informed decisions. As you must know by now, your leadership and ultimately, your decision on this issue will affect thousands of Palo Alto residents now and for many many in years to come.

Thank you,

Jennifer Wolfeld,

272 Whitclem Dr.
Palo Alto

From: [Neil Shea](#)
To: [Expanded Community Advisory Panel](#)
Cc: [Kamhi, Philip; Transportation; nadianaik@calhsr.com](#)
Subject: New Compromise Idea
Date: Monday, September 28, 2020 12:11:26 PM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

As the XCAP process winds down, kudos for all the creativity and probing questions. At the end of last week's meeting Nadia asked something, I think, extremely important: 'What if we took the Underpass option but raised the rail by a couple feet?' (paraphrased)

I think that question may be a key to a promising compromise worth exploring, e.g. instead of the Hybrid approach raising the tracks by ~10', or the Underpass with its limited turning movements and property takes. Could we raise the tracks by a smaller amount than the 10', keep most/all turning movements, and avoid property takes?

What would an option to raise the tracks, say, 4, 5 or 6' look like?

It might have many benefits:

- * Low cost
- * Avoid property takes
- * Easier pedestrian/bike access under the tracks (minimal vertical change), no pedestrian structures/tunnels, etc.
- * More auto turning movements
- * Much lower vertical profile than viaduct, and lower than hybrid
- * No issues with creek/pumping/hydrology approvals/flood zone concerns
- * No tie rods in neighbors' yards: Full flexibility to plant screen trees in the corridor - and in homeowners' yards!
- * No unsafe trench, risk of falling, etc.
- * No issues with Caltrain 2% grade ramp variance
- * and finally, much as no one wants 4 tracks, which is probably never needed or ever happens, tracks on a low-rise gentle berm would give Caltrain the flexibility to approve this option, and let our environmental & engineering work to go forward

Again thanks to everyone for the creative brainstorming and questions. I'm wondering here - if we 'split the difference' between the Underpass and Hybrid options, and say we raise the tracks 5' - would that be the compromise that, even if not perfect for everyone, lets us go forward?

Neil Shea & family
800 High Street (x Homer)
PA 94301

From: [Clive Hallatt](#)
To: [Expanded Community Advisory Panel](#)
Subject: trenching the train tracks at road intersections
Date: Wednesday, September 30, 2020 10:47:37 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

Dear Sir or Madam,

We need to trench the train tracks at road intersections in Palo Alto or tunnel the road underneath the tracks.

Elevating the train tracks is not a viable option.

Regards Clive Hallatt

Cell 650 740 5909

From: [Bob Hinden](#)
To: [Expanded Community Advisory Panel](#)
Cc: [Bob Hinden](#)
Subject: Tunnels and Trenches
Date: Wednesday, September 30, 2020 8:46:33 AM

CAUTION: This email originated from outside of the organization. Be cautious of opening attachments and clicking on links.

My preference is for the tunnel option, it is probably the most expensive, but the benefits are also much better. It would create open space from Menlo Park to Mountain View.

This could accommodate parks, bike paths, and walking paths. Just like the High Line in NYC (see <https://www.thehighline.org>). It would also reduce the noise from the trains.

This is, as the ad goes, is priceless. The analysis needs to look at the costs and the benefits, not just the costs. How much is it worth to get additional parks and paths in Palo Alto. Will there ever be another opportunity like this in the City of Palo Alto?

The second best option is a sunken trench.

Bob Hinden
3271 Murray Way
Palo Alto