

Memorandum

From: Staff
To: Expanded Community Advisory Panel (XCAP)
Date: December 12, 2019
Subject: Agenda Item #6: Action: Update XCAP List of Questions

In preparation for the Design Workshop with AECOM, the XCAP generated a list of questions related to the existing alternatives under consideration as well as about the process for grade separations. The XCAP decided to postpone the Design Workshop to a date uncertain and thus, the list of questions remained.

The Chairperson reorganized the list of questions from the initial spreadsheet list to a list where the questions are organized by the subject manner. This list of questions is attached to this document as Attachment 1a. The goal of the XCAP discussion at the December 18, 2019 meeting is to review this list of questions and narrow the list to those questions most relevant so that staff and the consultants can work to provide some follow up to the questions.

**XCAP Questions
As of September/October 2019**

The list of questions to review are below and organized by topic:

PROCESS:

1. How do design decisions get finalized going forward to construction? (Caltrain design review, who else involved, etc. after preferred alternative chosen)?
2. What is the latest thinking on how to integrate downtown area plans with ongoing rail plans? What happened to plans for Palo Alto Ave? We can't do all this work and ignore it and be left with no money at the end.
3. What would it cost to fill back in current underpasses at University Ave, Embarcadero, and Oregon Expwy? This is assuming an option(s) could be found that would warrant this.
4. What is the official status of the Embarcadero Road overpass (historic? what type of historic protection?)
5. What other adjacent key infrastructure (example: water pump on Embarcadero grade separation) might be impacted if in the future (regardless of grade separation plans today) the overpass needed to be replaced?
6. Are there any legal requirements for Embarcadero grade separation to continue to include a Stanford stop (if changed in the future for any reason)? Who is responsible for Stanford Station? Does the City have an arrangement with Stanford that must be considered?
7. What are the rules/guidelines behind updating infrastructure as old as the Embarcadero grade separation? Give examples (besides earthquakes) that would require re-building or repairing the existing grade separation.
8. Why are we not considering the full demolition of Embarcadero and the construction of an on-grade traffic circle (with Caltrain on a viaduct)?
9. Could we change our process slightly to accommodate more brainstorming and sketching versus presentation of polished ideas?
10. What is our contingency plan if we need passing lane(s) in Palo Alto? How do we get some more definitive information about four-tracking requirements from Caltrain?
11. Are there state and local agencies that we can work with better so that we are all planning a regional solution rather than a town-by-town solution?
12. Is there state, federal, or railroad funding available given that we continue to have grade crossings with some of the highest accident rates in the country?
13. Is there reason to believe the City could or couldn't use the Caltrain right of way under a viaduct? Who will maintain the right of way under viaducts or over tunnels? Who will be accountable to control weeds and graffiti? Some residents have expressed dismay with Caltrain's current maintenance of the area near the tracks. Is there any possibility of the city reclaiming land from Caltrain under viaducts or over tunnels? Will any existing tracks be put in a state of train disuse such that they can be turned into bike paths? If not, what is the intended use of this space after the new tracks are built?
14. Congestion impacts, mitigation relation to closure - When will the decisions be made?
15. What are the economic costs of no build? What are the benefits of no build?

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16. At the last City Council meeting, there was some Council discussion about tradeoffs, that might reduce project cost but require property takings. IF, the Council is putting eminent domain back on the table, should the XCAP examine the earlier Council decision to rule out a Churchill Avenue crossing. Such an analysis should consider the cost, number of properties impacts, etc., of the underpass proposal vs. the cost and other impacts of simply closing that crossing.
17. Can City staff provide the XCAP with an updated list of Council criteria? How will the activities, schedule, etc., of the XCAP change in response to the Sept. 9 Council resolution creating the RBRC? At the Sept. 9 Council meeting, Council member Dubois was critical of the "waterfall" nature of this decision process. How can the process be made more "Agile?" Does Staff have a list of all the concerns and criteria raised by Council and speakers at the Sept. 9 RBRC agenda time discussion?
18. Will there be inspections after each earthquake to ensure the viaduct remains viable and reduce risk of derailments? Who will conduct such inspections?
19. Do the viaduct plans take the daylight plane into consideration? If a neighboring property's daylight plane is blocked by the raised structure such as the viaduct, does that constitute a "taking" for the affected neighbor?
20. Is there anything in our Code that regulates how long of a stretch between RR crossover points? (For example, there must be a RR crossing opportunity at least every X miles.)
21. Are there other alternatives that have been ruled out so far due to concerns about eminent domain, but which would be possible absent that concern? If so, please provide a summary description of such alternatives.
22. Do any of the alternatives require the taking of private properties? If so, which and how many properties?

Technical (General)

1. Was Caltrain consulted on any future changes that may be anticipated but have not yet been made official - such as, for example, without freight, what would be Caltrain's maximum allowable grade?
2. What is the likelihood of any surprises through the design review process (re Caltrain, etc.)?
3. Can we get detailed drawings of the post-construction appearance of each alternative?
4. Will Caltrain be ready to speak about Union Pacific Railroad exceptions related to freight?

Questions About Assumptions/Grade Separation Designs:

VIADUCT:

1. Thin cross section versus thick cross section: how can the viaduct be designed in a way to minimize the height of the structure? Viaduct: Alignment on the current tracks versus the alignment where the trees are?
2. Viaduct stats: how high; how close to homes and how many homes affected; noise comparison - viaduct (with noise abatement) vs today's structure for electric trains.

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3. Can we get estimates of increase or decrease in train noise, operating on the viaduct instead of the current right of way?
4. Can we get detailed drawings of the finished viaduct, as seen from various points north and south of Churchill?
5. Do we have a set of graphics and estimates related to "Viaduct in the Vicinity?" This is a new option for me.
6. What effect does Caltrain's plan to run trains at 15-minute headways have on all that?
7. What viaduct types might we use? Which are best and why?
8. In the viaduct option, can we add more crossings than just Churchill? If so, which ones?
9. Are we really totally sure that we can build a viaduct close to the property lines without taking any property or requiring easements?
10. What is the maximum height for viaduct + train + electrical pole?
11. Will there will be eminent domain impact on Viaduct option?
12. Is viaduct height acceptable for minimum and maximum building height standards promote relationship of scale among structures in residential, neighborhoods, helping to create harmonious environments which enhance a sense of place?
13. Is viaduct structure compliant with Palo Alto building code such as primary daylight plane?
14. Is there another place in the US where a train viaduct has been built to cross a single street on otherwise flat terrain, in a residential neighborhood, that includes freight trains?
15. Do the viaduct plans take the daylight plane into consideration? If a neighboring property's daylight plane is blocked by the raised structure such as the viaduct, does that constitute a "taking" for the affected neighbor?
16. The diagrams show that the viaduct structure (including train and wires up to 30' and pillars up to 20') will be up to 50 ft overall. Will it exceed 50 ft at any point?
17. Are there any other 50' structures nearby the proposed viaduct sites?
18. If cars don't have to go under the viaduct, can it be lower? For example, in a Churchill automobile closure, could pillars be 10 ft instead of 20 ft?
19. Or in a Meadow automobile closure, with a viaduct ramping to full height for cars to pass under at Charleston, could Meadow still be open to bike/ped? Would this reduce the length of the viaduct at either Churchill or Meadow/Charleston?
20. Have we considered if we put the viaduct over Alma Street instead of between Alma and the existing RR tracks? Would such an overlap allow easier creation of the four-across bypass lanes? Would it reduce the visual or noise impacts on properties along Alma and Park?
21. Where should the viaduct be located (Alma versus tree side)?

HYBRID:

22. Hybrid: Were the hybrid assumptions for Meadow/Charleston developed using the road width assumptions of today's roadway (including stacking, turning lanes) or the future needs of the roadway? If future, what assumptions were made? If present day, what, if any, design changes might be made to ensure significant demand induction doesn't occur and how might that change the area impacted under the hybrid alternatives?

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23. If needed: Hybrid: Horizontal alignment for the track, will it substantively matter (if you move the track over related to trees, etc.)?
24. Hybrid: What is the height difference (once centenarians are included) between the hybrid and the viaduct?

TRENCH:

25. Trench: How could a trench be widened to accommodate 4 tracks (re Caltrain Business Plan)? And what is the impact to Alma during and after construction?
26. Is a city-wide trench down the middle of Alma (per Councilmember DuBois suggestion way back) possible? If so, what would that look like? What would be the cost?
27. Are there options to avoid the trench tie backs?

SOUTH PA TUNNEL:

28. South Palo Alto tunnel: Given Caltrain is still developing standards for tunnels that have only electric trains (which will be used for going into TransBay), what assumptions were used? How were they derived?
29. Would the South tunnel result in a permanent narrowing of Alma?
30. Does the South tunnel clear the creeks?

GENERAL:

31. Can Meadow be closed?
32. Agree that we need rough cost estimates for each approach.
33. Which alternatives have the longest construction time? ... the shortest?
34. Can we get detailed drawings of the post-construction appearance of each alternative?
35. Can we get estimates of increase or decrease in train noise, for each alternative?
36. What's the cost range to blowing out existing grade separations (especially Embarcadero)?
37. What's the cost range for reconstructing a station?
38. What are the ongoing maintenance costs associated with each option?
39. What happens if we plan a single-lane car underpass for Churchill, either restricted to one way traffic, or with a mechanism to change direction during different parts of the day (like we see on some bridges, for instance). Could this provide some road connectivity without property takings?
40. Can we overlay any possible future four-track passing sections against the current maps of alternatives?
41. What about "92 Churchill", the house structure is built very close to the property line/train line?
42. How much money do we save for a 2% versus a 1% trench?
43. Can you swing the Caltrain Right of Way in general into Alma vs. tree side?

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Traffic:

1. Hybrid: How were the surrounding road networks (El Camino, 101 and other arterials) considered when determining future traffic patterns and possible inducement post grade separations?
2. Trench: same question as above - what traffic assumptions were used and did design options consider that extensive stacking and turning lanes would further induce demand and that instead, some traffic restrictions should be considered - and how might that impact design/cost?
3. Overall: How would future grade separation projects (like Mt. View's plan to lower Rengstorff which is estimated to mean traffic disruptions on Central Expressway for up to 7 years) impact the construction impacts of Meadow/Charleston grade separations?
4. How would cost and cumulative impacts be estimated given the extensive and uncertain timeline?
5. What analysis can be done to study the possibility of re-opening Park Blvd to automobiles in the Southgate/Evergreen park neighborhood?
6. Has Evergreen Park neighborhood been officially engaged in this process?
7. Are there any future traffic predictions that should be considered for the long term design alternatives to be measured against?
8. For example, the traffic study thus far goes out to 2030 - given that Stanford General Use Permit process is not complete, how would that impact roadway use the future (since Stanford does NOT have to say WHERE on the academic campus they intend to build)?
9. How would future grade separation projects (like Mt. View's plan to lower Rengstorff which is estimated to mean traffic disruptions on Central Expressway for up to 7 years) impact the Churchill part of the road network?
10. Ideas: Remove current turn lane from El Camino S.bound into T&C (by Kara's cupcakes) - since stacking from those turns conflict with stacking for turns onto westbound Embarcadero. (Nadia)
11. Evaluate a potential new traffic signal at Encina and El Camino allowing Southbound El Camino to turn onto Encina Westbound (thus allowing vehicles from southbound El Camino to enter into T&C off of Encina). This would be in addition to the idea of removing the turn into T&C near Kara's cupcakes (see previous suggestion). (Nadia)
12. Consider the benefit of "reclaiming" El Camino highway from State control and putting it back under local control. The benefits would include significantly improved signal coordination (since those lights are currently controlled by Caltrans). This would also allow PA to control "flow" along the city, through better light coordination- and potentially limit pass through traffic along Alma (allowing more cars to go on El Camino). The rationale for this is with LESS cars along Alma, there may be more design alternatives for a roundabout at a place like Embarcadero/Churchill. There is a full report on the benefits to the State regarding the relinquishment of El Camino to local jurisdictions: <https://www.hightail.com/download/bXBZZHlzckk1UjRPd3NUQw>
13. The webpage discussing this concept is here: <https://grandboulevard.net/204-to-relinquish-or-not-to-relinquish-learn-about-relinquishment-of-el-camino-real-from-vta->

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[s-state-route-82-relinquishment-exploration-study-provides-information-to-aid-informed-decisions](#)

14. Trench: How could a trench be widened to accommodate 4 tracks (re Caltrain Business Plan)? And what is the impact to Alma during and after construction?
15. Congestion impacts, mitigation relation to closure - When will the decisions be made?
16. Comprehensive traffic flow analysis for all alternatives, including for all 3 existing entrance/exits from Palo Alto High School (Embarcadero, Churchill, and El Camino north).
17. What are the increased delays on Meadow and Charleston during construction (of each alternative)? For how long?
18. What are the increased delays for traffic on Alma Street during construction? For how long?
19. Any other traffic impacts?
20. How will traffic crossing Churchill be affected by viaduct construction?
21. What other possible ped/bike options are possible at Churchill, if Churchill were closed?
22. What other mitigations are possible at Embarcadero?
23. What mitigations are possible at Oregon Expwy's underpass to improve traffic flow there?
24. What are the results of modeling PAUSD's bus routes as well as other transport needs like shuttling meals around from central kitchens to the school sites?
25. What about bike/ped only crossings under the viaduct?
26. Do the different options for Embarcadero and Churchill in the closure scenario meaningfully impact vehicle/bike/pedestrian traffic flow?
27. Are mitigations needed at Oregon Expressway?
28. What would the Embarcadero mitigations cost?
29. Can we see a version of the Embarcadero mitigations that includes the approved bike/ped improvements from Kingsley to El Camino?
30. What other options do we have to improve the pedestrian crossing if we take out the existing light near Town and Country?
31. What's the traffic impact of no build?
32. What happens if we plan a single-lane car underpass for Churchill, either restricted to one way traffic, or with a mechanism to change direction during different parts of the day (like we see on some bridges, for instance). Could this provide some road connectivity without property takings?
33. What are the obstacles preventing us from creating additional pedestrian or bicycle crossings under viaducts or over tunnels (or even new roads)?
34. During the period that one of the Meadow/Charleston crossings is either closed or restricted due to construction, has there been an evaluation of the traffic impacts on Alma Street? on the nearby El Camino Real and El Camino Way intersections?
35. During the period of construction of a Churchill undercrossing, will there be an evaluation of the traffic impacts on Alma Street? on the nearby El Camino Real and El Camino Way intersections?
36. Have we surveyed/quantified the bike and pedestrian traffic at the Meadow-Alma and Charleston-Alma intersections? How do they compare to Churchill-Alma?

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37. In a Meadow closure, is it necessary to create a tunnel for bike/pedestrian track crossing? Or could we have an arm/gate/bell + signal controlled crossing for bikes and pedestrians only at Meadow?
38. Have we studied the impact of closing both Alma-Meadow and Alma-Charleston to vehicular traffic and diverting it to San Antonio?
39. Large charter buses currently use the Charleston-Arastradero corridor. Will they fit under the viaduct as currently planned (20' pillars)? What other large vehicles are currently allowed to use this route? Will the viaduct change any of these uses?
40. Would it be helpful to consider keeping Alma narrower and slower (e.g., 3 lanes and 25mph) from the Embarcadero overpass to south of Churchill to provide wider ROW at Churchill?
41. In a Churchill closure, is it necessary to create a tunnel for bike/pedestrian track crossing? Or could we have a arm/gate/bell + signal controlled crossing for bikes and pedestrians only at Churchill?
42. At Churchill, the train tracks are already elevated several feet higher than Alma. In a Churchill closure, does this elevation differential make it easier/quicker/cheaper to create a bike/ped underpass at the tracks?
43. Would a bike/ped underpass at Churchill begin on the tracks side of Alma, or would it travel under Alma from the non-tracks side, as at California Ave.?
44. Have we investigated creating an interchange between Alma and Embarcadero that relies on ramps and merges (without signals), like we have on Alma and Oregon?
45. Can or should we divert the PALY-Embarcadero crossing pedestrian traffic to El Camino-Embarcadero, rather than pushing it closer to Alma? If not, why not?
46. Will you do a traffic analysis of what traffic will be like (the easier flow) once the grade separation takes place at Meadow and Charleston?
47. Can we get the pulse networks for all of the drawings?

Public Safety /Police / Fire / Means Restriction:

1. Do First responders and emergency vehicles have particular routes they take through the city?
2. Are those routes governed by any rules, or are they decided by the first responders based on their knowledge of Palo Alto's "typical" traffic patterns?
3. Have they been consulted throughout this process regarding the closure of Churchill officially?
4. Who is responsible for answering (the Police Chief? Fire Chief? EMS?)
5. Does Santa Clara County have any jurisdiction over countywide emergency vehicle patterns and have they been consulted?
6. Which option is safe for Paly Students and Stanford staff to commute?

PAUSD:

1. We should receive and update from PAUSD regarding the status of potentially relocating the school bus yard from 25 Churchill to a different location.

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2. How much of the traffic that needs to be mitigated caused by trips to/from Paly High?
3. What are the results of modeling PAUSD's bus routes as well as other transport needs like shuttling meals around from central kitchens to the school sites?

WATER – CREEKS:

1. Trench: How will we deal with the creeks?
2. Trench: What is the potential for flooding given climate change? How can we ensure that it doesn't flood parts of town?

WATER – GROUNDWATER:

1. Trench: Can you show us the groundwater level in Palo Alto? How does that impact the trench? Is a cyphen (siphon?) feasible? If not, then why? What would the pump station look and sound like?
2. Trench: How much water is the County already pumping for Oregon Expressway?
3. For the trench and tunnel options, what are the expected operating costs of the water pumping system? Is this a cost that the city would need to pay?

NOISE:

1. Can we get estimates of increase or decrease in train noise, for each alternative?
2. Can we get estimates of increase or decrease in train noise, operating on the viaduct instead of the current right of way?
3. Is there another place in the US where a train viaduct has been built to cross a single street on otherwise flat terrain, in a residential neighborhood, that includes freight trains? What is noise like in those places?
4. How loud are trains that pull freight up the "hill" and how far will the noise travel?
5. XCAP mtg #1 (6.19.19) handout showed a matrix of evaluation criteria. "Reduce rail noise and vibration" rates light blue for all 3 designs. Please provide design details for each and engineering analysis on DB reduction.
6. Viaduct stats: how high; how close to homes and how many homes affected; noise comparison - viaduct (with noise abatement) vs today's structure for electric trains.
7. Is there a way to better quantify the noise impact of the various alternatives, both to people near the tracks and to people farther away? Perceptions of noise impact affect many residents' perception of the viaduct and trench options.
8. Have we considered if we put the viaduct over Alma Street instead of between Alma and the existing RR tracks? Would such an overlap allow easier creation of the four-across bypass lanes? Would it reduce the visual or noise impacts on properties along Alma and Park?
9. What is the noise level increase from the raised viaduct near houses Alma and how sound travels thru out Palo Alto?

Property Impacts / Eminent Domain

1. Is there another place in the US where a train viaduct has been built to cross a single street on otherwise flat terrain, in a residential neighborhood, that includes freight trains? What were the impacts on property values nearby?

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2. Was there a compensation plan for loss of value? - How far will the line of sight be from the train - how many streets away will passengers see homes and people in homes see passengers? -
3. Is there an option to build a visual barrier to avoid the privacy impacts of a train "in people's back/ front yards"
4. What data is there regarding neighborhood crime, safety, and graffiti of adding a viaduct?
5. Will there be inspections after each earthquake to ensure the viaduct remains viable and reduce risk of derailments? Who will conduct such inspections?
6. In a Churchill closure or viaduct, what is the project impact of the narrow ROW at Churchill?
7. Do the viaduct plans take the daylight plane into consideration? If a neighboring property's daylight plane is blocked by the raised structure such as the viaduct, does that constitute a "taking" for the affected neighbor?