Informational Report
XCAP Meeting-Apr. 22, 2020

XCAP MEETING
May 6, 2020
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Memorandum

From: Staff
To: Rail Expanded Community Advisory Panel (XCAP)
Date: April 16, 2020
Subject: Staff Update: Follow Up to XCAP Questions

The XCAP generated a long list of questions for staff and consultants at the end of 2019. The questions ranged from general curiosity information to information needed to really help the XCAP narrow the options in order to give the City Council a recommendation by the April 30 deadline. In a series of meetings, the XCAP discussed the questions and narrowed the list of questions considerably. They approved their "final" list of questions on January 22 and submitted them to staff. Here is a link to the approved questions non-annotated.

The traffic questions included on the list of questions were narrowed at a later XCAP meeting (LINK). Those questions were addressed at the February 12, 2020 XCAP meeting where they were discussed with traffic consultant, Hexagon (Gary Black). Here is a link to the memo related to the traffic questions (https://connectingpaloalto.com/wp-content/uploads/2020/02/Item3-Hexagon-Responses-to-XCAP-Traffic-Questions.pdf) and a link to the meeting video where this was discussed (https://midpenmedia.org/palo-alto-expanded-community-advisory-panel8-2122020/).

The questions with answers below are organized by topic area similar to the XCAP questions.

XCAP Questions and Staff/Consultant Responses:

PROCESS:

1. 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.

   Response: Palo Alto Avenue will still be studied. It was removed from the discussion of the other rail crossings' grade separations because it overlaps with many other elements that make it a different type of process to evaluate (downtown, University Ave. Station, proximity to Stanford and Menlo Park, etc.), and most recently Caltrain's interest in replacing the San Francisquito bridge. Staff continues to prepare for the work on this crossing and make sure that the decisions all make sense as a network in Palo Alto.

2. What is the official status of the Embarcadero Road overpass (historic? what type of historic protection?) (NEW Rewording: The Consultants have explained that Embarcadero grade separation is eligible for historic designation. What does that mean for changes made to it as proposed by the mitigations for the closure of Churchill? What does that mean if it was to be removed (Tony's idea) or if it needed to be rebuilt (for

seismic reasons or any other reason)? Please describe the process, how long it takes, who decides, and what's possible under various scenarios (example: you can't touch it, unless it is a structural concern, and then you have broad latitude, etc.).

Response: Embarcadero Underpass Historic Designation: The bridge is listed as "eligible" for historic designation in the National Register (and therefore the State Register), but it is not on the official National Register for historic bridges. With the "eligibility status," it is a CEQA resource which means that the CEQA analysis is triggered regardless of whether the bridge is officially listed on the National and State Register lists. This means that the City would have to replicate character-defining features of the bridge in compliance with the Secretary of the Interior's Standards, otherwise demolition or significant modification to character-defining features would require preparation of an Environmental Impact Report or Statement of Overriding Consideration to describe significant, unavoidable impact and the reasoning for it.

3. 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?

   Response: No, there is not a legal requirement to continue the operation of the Stanford Game Day Caltrain Station. The City of Palo Alto does not have an agreement with Caltrain for this stop and Caltrain does not have an agreement in place with Stanford for this station. Stanford acknowledges the usefulness of the stop but also could function with using the nearby stations if needed.

4. 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?

   Response: For the passing tracks, Caltrain continues to state that the alternatives pushed forward from the City should not "preclude four tracks in the future." Caltrain has committed to providing staff with some sort of a memo/letter with further information around how to interpret the potential for 4-tracks relative to the alternatives being considered in Palo Alto. Staff awaits this memo/letter and is currently under the understanding that Caltrain, if doing any passing tracks in Palo Alto, would only be looking at passing tracks in the southern portion of Palo Alto and into Mountain View. Pending this information from Caltrain, it is likely that Caltrain would consider this issue when reviewing designs advanced by the City.

5. Is there any public or private funding available given that we continue to have grade crossings with some of the highest accident rates in the country?

   Response: There is a small amount of funding (percentage of overall cost) available from Section 190 funding as well as ATP funding.

   On March 25-26, 2020, there was a call for projects that came out for ATP funding. The City may not be in a place to apply for this go-round, but applications for "Cycle 5" are due on June 15 (understanding this date might shift due to COVID-19): https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/active-transportation-program/cycle5

   A couple of the program's main goals are to:
   - Increase the proportion of trips accomplished by biking and walking.
   - Increase the safety and mobility of non-motorized users.

   Since the focus is on mobility/safety of peds/bikes, this could be a good source of funding for any project that has a major ped/bike improvement component (e.g., an underpass at Kellogg in the Churchill Partial Underpass alternative, the ped/bike part of the Churchill Closure with Mitigations alternative, and/or the Meadow/Charleston Underpass alternative. Each of these alternatives has a separated ped/bike path that traverses under the tracks and Alma St.). Other funding opportunities that occur will be relevant once the City has selected preferred alternatives (e.g., the DOT Build Grant, INFRA, etc.).

6. 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? 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?

   Response: The land under a viaduct would still be the Right of Way of Caltrain. In the process that comes after the City Council chooses a preferred alternative, is a time for the City to pursue agency agreements needed with all agencies relevant to the project for construction and beyond. It is at that time that the City would be able to further discuss with Caltrain if the land beneath a viaduct could be reclaimed for another purpose and who would be responsible for maintenance of such land use. The City does not anticipate Caltrain 'relinquishing' the property, though they might be open to doing a maintenance agreement with the City.

Questions About Assumptions/Grade Separation Designs:

VIADUCT:

1. Viaduct: Alignment on the current tracks versus the alignment where the trees are (regarding Churchill)?

   Response: Shifted Viaduct alignment at Churchill does not work since the Caltrain right of way in this location is reduced with insufficient width between the existing tracks to be used as shoofly and the western edge of Alma St. The shifted viaduct alignment works in the Meadow/Charleston area of the city because the right of way is wider.

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.

   Response: The viaduct height is expected to be approximately 50 feet high. Other dimension information is currently approximate and can be found within the cross sections shown on this resources page of the website: https://connectingpaloalto.com/renderings-plans-and-animations/.
   AECOM recently obtained existing noise measurements. The noise survey looked at residential areas near existing grade crossings and proposed improvements (noise collected at approximately 15 locations). The survey recorded both overall ambient noise levels and train events. The AECOM noise team is currently in the process of analyzing the raw data. Part of the task will be to estimate how much of a reduction could possibly be achieved by eliminating the train horns and crossing bells associated with the existing grade crossings. The team will also look at the potential reduction in noise level (also known as "noise mitigations") associated with the different design alternatives, including viaduct, hybrid and trench alternatives. This analysis is currently underway.

3. Can we get estimates of increase or decrease in train noise, operating on the viaduct instead of the current right of way?

   *Response: S*ee the response to Question Viaduct#2. The estimates are being done now.

4. Can we get detailed drawings at Churchill of the finished viaduct?

   Response: Detailed drawings will be produced during detailed design. Current feasibility drawings can be found on the grade separation website (Link: https://connectingpaloalto.com/renderings-plans-and-animations/).

5. What viaduct types might we use? Which are best and why?

   Response: It is too early in the engineering development to determine structure and construction type. There is no typical "best" option. Each structure will need to be

assessed for its pros and cons and decisions made during a later stage in the design process. There will be more community engagement in that part of the process to narrow the specific design scope.

6. In the [Churchill] viaduct option, can we add more bike/ped crossings at Seale?

   Response: The viaduct will provide opportunities to add additional ped/bike crossings. Wherever additional crossings are located new issues will be raised not currently being discussed and vetted.

7. Are Palo Alto Zoning codes applicable to any of the alternatives?

   Response: Some of the alternatives may require an adjustment in zoning district boundaries, but this should not impact project selection as it is a means to accomplish a goal. The transportation project of a grade separation does not constitute a change in land use/zoning.

8. 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?

   Response: Correct. At this point in the feasibility design process, 30' poles and 20' high tracks are currently what can be produced. Detail design stage will determine the final horizontal and vertical alignments of the tracks.

9. NEW: For the viaduct, I would like to see some 3D perspective renderings from ground level as if from a person's view at the viaduct: 1) from an adjacent backyard. 2) from across Alma on the other side. 3) further back into Old PA or Southgate to see how it affects the skyline from further away. (only related to Churchill Viaduct)

   Response: There are rendering perspectives as mentioned for Churchill Viaduct within the Exhibits on the website (https://connectingpaloalto.com/renderings-plans-and-animations/). AECOM can do photo sims (before/after images) from any location. We are currently doing some photo sims for the Churchill Partial Underpass (new idea at Churchill). If the XCAP would be interested in further photo simulations, this would have to be given to staff to assign to AECOM and within budget.

HYBRID:

10. 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?

    Response: In the materials presented to date, it was assumed that the final configuration (of the lanes) would essentially match the existing condition: same number of lanes, widths, and stacking as existing conditions. Any additions to the number of lanes or widths would require right-of-way acquisition, which is not planned.

TRENCH:

11. NEW: Is it feasible to engineer the trench without the tiebacks? If so, what's the impact on expense?

    Response: The trench with tiebacks design was a solution to reduce the excavation and horizontal requirements. It requires underground property impacts, but was more feasible than the initial trench option where the trench wall sloped as an embankment. The sloped wall embankment trench option significantly enlarged the footprint of the required trench and was deemed infeasible with the Right of Way available to work with.

SOUTH PA TUNNEL:

12. 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?

    Response: The basis was the preliminary Caltrain design for tunnels for the downtown extension to the Transbay Terminal.

GENERAL:

13. What are the ongoing maintenance costs, including pumping, etc. associated with each option and who is responsible for the individual costs? ADDED FROM WATER-GROUNDWATER SECTION: 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?

    Response: As explained in the response provided on January 15, 2020, the exact ongoing maintenance costs associated with ongoing pumping of a creek are unknown at this time (Link: https://connectingpaloalto.com/wp-content/uploads/2020/01/SharedatMeeting-Measurable-Criteria-Questions-with-staff-responses-jan.15.20.pdf). It is staff's understanding that, unless an agreement is worked

out with another agency, that the pumping and maintenance costs would be borne by the City.

14. NEW: What are the total time delays during construction "Inconvenience Costs?"

    Response: The estimated time of construction is shown by alternative in the evaluation matrix (link: https://connectingpaloalto.com/wp-content/uploads/2019/11/PA_Matrices_Nov2019-1.pdf). It is not customary to track "inconvenience costs" in this level of analysis as they are speculative at best and will not be able to control for all the other contributing factors as well.

PUBLIC SAFETY /POLICE / FIRE / MEANS RESTRICTION:

1. NEW: Who will pay for safety initiatives?

   Response: Our history has been that the City pays for specific safety initiatives such as fencing, etc. This information will be further discussed with Caltrain throughout the process and other funding sources will be explored.

2. MOVED FROM THE PROCESS SECTION: NEW: Will there be a public education campaign to inform citizens about the increased frequency and higher speeds of trains as we move forward with electrification?

   Response: The City will coordinate as much as feasible with Caltrain to increase public awareness about Caltrain's electrified trains and when they will be rolling through Palo Alto. Caltrain is leading an engagement effort right now regarding electrification in cities throughout the corridor. For their meeting in Palo Alto, staff helped to increase awareness about the meeting and also was present.

3. NEW: What are the standard safety measures being assumed [or will be needed] to be included? Particularly those in excess of the standard code.

   Response: The conceptual layouts for all alternatives are based on the design standards established by Caltrain (for rail design) and FHWA/Caltrans (for road design). One criterion that must be established upfront is design speed to ensure all alternatives are consistent. For example, a design speed of 35 mph was chosen for Alma Street and 25 mph for the east/west cross streets (Churchill, Meadow and Charleston) for all alternatives.

   We also make an effort to design to the standard and not exceed it if there's no particular reason to do so. For example, the road profiles are based on a 15'-6" vertical clearance under a railroad structure. We don't design in excess of that (e.g., 16 feet or 17 feet).

Some features are based on engineering judgement and determined on a case-by-case basis, and not necessarily based on meeting FHWA/Caltrans standards. Lane and shoulder widths are a good example of this. Based on the Caltrans Highway Design Manual, 12 feet is considered the standard lane width, but a 10 or 11-foot width on local City streets (Alma, Churchill, etc.) may be acceptable to the City and the design team.

PAUSD:

1. We should receive an update from PAUSD regarding the status of potentially relocating the school bus yard from 25 Churchill to a different location. And to know the impacts of the different alternatives on PAUSD.

   Response: The PAUSD Superintendent shared a letter with City staff at the end of February 2020 (link: https://connectingpaloalto.com/wp-content/uploads/2020/02/InfoReport-SharedatMeeting-Feb262020-Churchill-Closure-Impacts-PAUSD-Feb2020.pdf) sharing their understanding of the impacts of the Churchill Closure on the operations for the district. The letter did not take into account the planned bike and pedestrian crossings related to a Churchill Closure (with mitigations and a bike/ped crossing) alternative. The letter shared the number of vehicles, both buses and other maintenance-type of vehicles, that use the Churchill crossing frequently. However, it did not comment on any relocation efforts for the district operations yard.

NOISE:

1. Can we get estimates of increase or decrease in train noise, for each alternative? Especially factoring in diesel versus electric trains.

   Response: As previously stated in this memo, noise surveys were just concluded in early March 2020 and AECOM is in the process of reviewing that data now. The next step will be to develop estimates for noise reduction for the various alternatives. A reasonable assumption will be included in the estimate to account for the change in source noise levels for the change from diesel to electric locomotives. More to come on this soon to the full XCAP.

2. NEW: What types of noise mitigations are available in general?

   Response: In mid-March, AECOM obtained existing noise measurements and is in the process of analyzing that data which will help answer this question. The analysis is limited to the noise reduction elements that would be part of the proposed design alternatives. These could include the following:
   1. The elimination of sounds from train horns and gate bells associated with each grade crossing, if those crossings are grade separated.
   2. Partial noise barriers blocking wheel/rail noise for viaduct and hybrid (above ground) alternatives.

3. Acoustical shielding provided by trench walls for trench-like alternatives.
4. Noise analysis for underpass alternatives.

While not specifically related to any of the individual alternatives, AECOM will also take into account reduced noise associated with the changeover from diesel to electric locomotives.

CALTRAIN:

1. NEW: In the Caltrain Business Plan service vision approved by the Caltrain board, were there any options that anticipate and are consistent with maintaining a Stanford game day station? Have there been any stated intentions by Caltrain or Stanford to upgrade the station to new required standards?

   Response: As alluded to in "Process Q3," there is no intention to upgrade the Stanford Game Day station. There is also no requirement to continue to operate the station. The only alternative which impacts the game day station is the Churchill Viaduct alternative. All other alternatives for Churchill do not alter the game day station at all.

2. MOVED FROM GENERAL SECTION: How much money do we save for a 2% versus a 1% trench?

   Response: A 2% (maximum) gradient was chosen for the rail profile for the Meadow/Charleston trench alternative to avoid direct impact to the San Antonio Station. In other words, a 1% (maximum) gradient does not allow the rail profile to return to existing grade before (north of) San Antonio station from an elevation of 29.5' below the current top of road elevation at Charleston Road. In order to accommodate the 1% (maximum) gradient, the following must be considered:

   - Additional shoofly track south of San Antonio Road. The shoofly will likely tie into the tangent just north of the Rengstorff Ave grade crossing.
   - Excavation and lowering of Central Expressway to accommodate the vertical clearance requirement for the shoofly tracks under San Antonio Road.
   - Bus bridge of Caltrain service to accommodate station closure during construction.
   - Relocation and reconstruction of the Caltrain's San Antonio Station to current Caltrain criteria. The station platforms would be below grade in a trench.
   - A crossover track north of the station would also have to be accommodated. The crossover track and the station must be on a vertical tangent. To create enough vertical tangent length for both, a maximum grade of **less** than 1% is expected (currently under evaluation), and thus, would extend the limits of work even further south into Mountain View.
   - Closure of entrance and exit ramps of southbound Alma Street and Central Expressway during construction.

   Not all items listed above have a (significant) cost associated with it. For example, closure of the southbound ramps to/from San Antonio Road would require (temporary)

signage for motorists, but there would not be any heavy construction associated with that. However, this is worth mentioning because it would trigger alternate (detour) routes, more congestion on these routes, and in general, a significant inconvenience to the public.

The rough order-of-magnitude (ROM) cost for the items listed above is currently being evaluated.

MISCELLANEOUS:

1. NEW: During construction: what would it look like if we closed Alma to one lane and other major streets for construction? How far do the delays go down any given street?

   Response: Alma is a very busy street, but it flows pretty well. With only one lane in each direction back-ups would be lengthy. Vehicles would probably need to wait 2-3 cycles to get through each signal. Even still, not all existing traffic could get through. Traffic would be diverted to parallel streets: El Camino Real and Middlefield, but probably also to local streets. Similar effects would happen on any major street that had a lane closure.

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NEW TRAFFIC QUESTIONS:

The traffic questions listed in the original XCAP list of questions were superseded by traffic questions agreed upon at the Jan. 29, 2020 Meeting (link: https://connectingpaloalto.com/wp-content/uploads/2020/01/Item4-SharedAtMeeting-XCAP-Traffic-Questions1_24_19.pdf). The Jan. 29th questions were discussed and answered with traffic subconsultant at the Feb. 12, 2020 XCAP meeting. This is a link to the responses: https://connectingpaloalto.com/wp-content/uploads/2020/02/Item3-Hexagon-Responses-to-XCAP-Traffic-Questions.pdf.