EXPANDED COMMUNITY ADVISORY PANEL (XCAP)

FINAL REPORT ON GRADE SEPARATIONS
MARCH 2021
XCAP MEMBERS

- Nadia Naik (Chair)
- Larry Klein (Vice Chair)
- Greg Brail
- Phil Burton
- Inyoung Cho
- Tony Carrasco
- Keith Reckdahl
- Dave Shen
- Cari Templeton
Total Meetings (29 since COVID began)

Equivalent to 200 full work days

Donated by volunteers serving Palo Alto

(Not counting time outside of meetings)
TODAY’S PRESENTATION

External Factors:

- Grade Separations are a 10 year or more process
- Delayed Corridor-wide Grade Separation Study
- Passing Track Location impacts Palo Alto
- San Francisquito Creek bridge replacement impacts Palo Alto Avenue timeline

Overview of XCAP Recommendations:

- Churchill Recommendation (Closure, additional mitigations, bike/ped option 2)
- Other North Palo Alto Recommendations:
  - Consider Palo Alto Avenue and Downtown Coordinated area plan
  - Consider future of existing Embarcadero Grade Separation

- South Palo Alto Recommendations:
  - Tunnels should be removed from consideration
  - Further work recommended to determine Preferred Alternative:
    - Policy and Outreach
    - Perform additional technical interim work
XCAP’S TIMELINE 2019-2020

Oct 2019 – Established Chair/Vice Chair and Guiding Principles

Nov 2019 Sought new ideas from community

XCAP’s TAC and Volunteer Retired Civil Engineers review concepts

Dec 2019 XCAP selects new alternatives to present to City Council

Jan 2020 City Council approves study of Churchill Partial Underpass and Meadow/Charleston underpass

Feb 2020 XCAP eliminates two South Palo Alto tunnels alternatives from deliberations

Mar 2020 COVID

See XCAP Report Chapter 8 for complete timeline
See XCAP Report Chapter 8 for complete timeline

**XCAP’S TIMELINE (CONTINUED) 2020-2021**

- **Apr 2020** TAC presented updated Churchill Partial Underpass info and initial Meadow /Charleston designs
- **May 2020** XCAP informed of Caltrain’s new Rail Corridor Policy on 4 tracks
- **May 2020** XCAP Receives updated designs for Churchill and initial designs for Meadow/ Charleston
- **Jun 2020** Received Noise and Vibration study
- **Jul 2020** Received updated renderings and fact sheets for Meadow/ Charleston Underpass updating bike/ped infrastructure
- **Aug 2020** Received Final Traffic Report from Hexagon
- **Nov 2020 – Feb 2021** Wrote and edited Final Report

**May 2020 XCAP](#) [informed of Caltrain's new Rail Corridor Policy on 4 tracks**

**Jun 2020** Received Noise and Vibration study

**Jul 2020** Received draft updated Hexagon Traffic Report with new alternatives

**Sept –Oct 2020 XCAP Deliberations**
Despite COVID disruptions to traffic and transit, grade separations remain a high priority.

These projects can take at least a decade to design and build, so work must continue.

Traffic is already coming back and better transit alternatives are needed.

Grade separations are critical to improve regional transit schedules and to reduce traffic congestion.

Improving transit and reducing congestion helps reduce greenhouse gas emissions.

Grade separations enhance quality of life, creating safer crossings and reduce noise pollution (by removing train horns and crossing gate bells).
In the near term, City Council will be involved in:

- Determine additional work needed in preparation for grade separations, including mitigations that can be built before grade separations
- Deciding Preferred Alternatives
- Working on funding

Caltrain will approve final designs.

Future Funding partners will also be involved in approving projects.

At some point, the Council’s role will change from decision makers to advocates for Palo Alto’s preferred alternative.
EXTERNAL FACTORS

CALTRAIN CORRIDOR WIDE GRADE SEPARATION STUDY
PASSING TRACK LOCATION
PALO ALTO AVENUE / SAN FRANCISQUITO CREEK BRIDGE
CALTRAIN CORRIDOR WIDE GRADE SEPARATION STUDY

- Caltrain secured $5 million in funding for the study
- Delayed until “Early 2021” – Multiyear Phased effort with dedicated Project Manager (likely delayed further!)
- 41 remaining at-grade crossings between San Francisco and San Jose
- Study may cover impact of technical standards on grade separations but **will not** design individual grade separations in each City
- Initial phase of work (+/- 6 mos) would be extensive information gathering and stakeholder outreach effort focused on gathering input needed to:
  - define technical scope of the work
  - organizational structure and governance model for the project
  - Develop and execute contracting strategy

Palo Alto may need resolution of issues sooner – direct negotiation with Caltrain will be needed
PASSING TRACK LOCATION IMPACTS PALO ALTO

- Relationship between Caltrain and High-Speed Rail is governed by a Memorandum Of Understanding (MOU) for the “Blended System”
  - HSR claims no passing tracks are needed and instead Caltrain trains can wait at station areas
  - Caltrain claims to avoid significantly impacting operations as Caltrain system expands, 2 additional passing tracks are needed for HSR
- Legally, if there are 4 tracks, a grade separation is mandatory (and Caltrain’s position is HSR must fund them)

In Caltrain Business Plan process the Conceptual 4-track segment had previously been:
  - Shown on diagrams as impacting only South Palo Alto (from Cal Ave station area towards Mountain View)

Caltrain/HSR disagree about passing tracks and have not resolved the issue
PASSING TRACK LOCATION IMPACTS PALO ALTO

Feb 2020 – Caltrain adopted the Rail Corridor Use Policy (RCUP)

- Changed the assumptions being used by Caltrain. XCAP was not made aware until May 2020. RCUP decision impacts ALL four grade crossings in Palo Alto

- New, more conservative approach considers a 4-track segment from the San Francisquito Creek Bridge (border between Menlo Park/Palo Alto) to the Mountain View Station
  - Passing track will not be the entire length – but that is area currently impacted by this decision

- RCUP says any alternatives selected by Palo Alto must be approved by Caltrain and must not preclude the possibility 4 tracks.

- Palo Alto did NOT study any 4 track alternatives. If 4 tracks are needed, a significant revised XCAP type study would have to be undertaken for new designs

- Many question if HSR will ever materialize and, thus, whether this is relevant

Palo Alto must resolve 4-track issue to be able to advance any designs
PALO ALTO AVE

- **January 2019**—City Council voted Palo Alto Ave crossing be part of Downtown Coordinated Area Plan
- **Not part of XCAP’s process**
- Early work (pre-XCAP) evaluated a hybrid
- Requires working with Menlo Park due to proximity
- Constraints identified by consultants:
  - El Palo Alto Heritage Tree in El Palo Alto Park
  - **Historic Bridge over San Francisquito Creek**
  - Palo Alto Caltrain Station Platform

Palo Alto Avenue grade separation design is tied to San Francisquito Creek Bridge
SAN FRANCISQUITO BRIDGE

- **June 2019** – Caltrain budgeted $600,000 for planning of San Francisquito Creek Bridge Replacement (118-year-old bridge that has a 100-year design life).

- **December 2020** – Consultant has bid on project to complete:
  - Preliminary Planning and outreach
  - Baseline engineering assessments and earliest concept designs for the bridge replacement
  - Expected completion of preliminary work 6/30/2021

- Palo Alto Avenue design for grade separation will be impacted by bridge design and replacement schedule

- **City needs to be involved with Caltrain and Menlo Park now**

- Not part of XCAP’s process

Planning efforts are already underway - Palo Alto needs to be involved now.
XCAP’S RECOMMENDATIONS - CHURCHILL

Churchill Closure - Vote: 6 Yes – 3 No (Burton, Reckdahl, Naik)

- Prefer Bike/Pedestrian Option 2 with suggestions - Vote: 7-0-2 Abstentions (Carrasco and Burton)
  - Explore a flatter, wider, taller and fully lit bike/ped tunnel with increased sightlines
  - Consider additional modifications to Churchill Ave including explore closing off/reducing cars

- Additional Mitigations beyond AECOM’s suggestions - Vote: 7-0-2 Abstentions (Carrasco and Burton)
  - Consider new Bike/Ped path at Seale/Alma/Peers Park as mitigation to be built before Churchill is closed (or before any grade separation is built)
  - Create comprehensive Bike/Ped connection plan and include Embarcadero Improvements from 2016 Bike Project
  - Address design issues of Lincoln/Kingsley/High/Embarcadero multi-way intersection to reduce cut-through traffic
  - Work with Town & Country and review proposed pedestrian overpass and consider stairs near the proposed overpass
  - Study whether Park Blvd in Southgate should be reopened.
  - Add a traffic signal at Alma/N. California

See XCAP Report Chapter 4.3
XCAP RECOMMENDATIONS NORTH PALO ALTO

- Address **Palo Alto Avenue** and **Downtown Coordinated Area Plan**
  - Consider impacts of any roadway modifications to east/west travel
- Consider future of existing **Embarcadero grade separation**
  - **Cost-benefit analysis** of whether it may need to eventually be replaced and, if so, whether opportunities exist to improve all turn movements
  - What impact might any new design have on east/west arterials and their planned improvements since the closure of Churchill could impact **network resiliency**
OVERVIEW XCAP RECOMMENDATIONS SOUTH PA

SOUTH PALO ALTO TUNNELS
INTERIM POLICY WORK
INTERIM TECHNICAL WORK
SOUTH PALO ALTO TUNNELS (WITH AND WITHOUT FREIGHT)

- **XCAP recommends South Palo Alto tunnels be removed from consideration.**

- **XCAP removed these two options from consideration due to:**
  - Cost
  - Time to Construct
  - Environmental Impacts - particularly on ground water and creeks

See XCAP Report Chapter 5.2.1
XCAP RECOMMENDATIONS SOUTH PALO ALTO

XCAP could not come to a consensus recommendation (or even a majority recommendation) with the information available for Meadow/Charleston.

Instead, XCAP:

- Recommended further areas of policy work and outreach
- Recommended additional technical interim work that can be done to select a Preferred Alternative
- Provided detailed suggestions for improving each alternative, including recommending further iterations on Underpass alternative (to be reviewed at next XCAP presentation)
INTERIM POLICY WORK – UPDATE CRITERIA

Review existing policies to inform further work and update alternative selection criteria

- Criteria was last updated in September 2017
- Needs to be updated to address the current list of alternatives
- Needs to be reconciled with existing (sometimes conflicting) policies

**Tier 1 Criteria: Most Important**

- East-West connectivity: facilitate movement across the corridor for all modes of transportation
- Traffic congestion: reduce delay and congestion for automobile traffic at rail crossings
- Ped/Bike circulation: provide clear and safe routes for pedestrians and bicyclists seeking to cross the rail corridor, separate from automobile traffic
- Rail operations: support continued rail operations and Caltrain service improvements
- Cost: finance with feasible funding sources

**Tier 2 Criteria: Also Important**

- Environmental impacts: reduce rail noise and vibration along the corridor
- Environmental impacts: minimize visual changes along the rail corridor
- Local access: maintain or improve access to neighborhoods, parks, schools and other destinations along the corridor while reducing regional traffic on neighborhood streets
- Cost: minimize right-of-way acquisition by eminent domain
- Construction: minimize disruption and the duration of construction
INTERIM POLICY WORK
- REVIEW POLICIES
- FORMALIZE OUTREACH

Several guiding documents should be reviewed including:

- Comprehensive Plan
- 2012 Bike + Pedestrian Transportation Plan
- Rail Corridor Study 2012

XCAP recommends formalizing a system for feedback from key stakeholders, especially:

- Palo Alto Unified School District (PAUSD) including school facilities personnel
- Palo Alto Bicycle Advisory Committee (PABAC)
- Safe Routes to School (SRTS)
- Palo Alto Council of PTAs (PTAC)
- City/School Traffic Safety Committee

Further Community Outreach within Palo Alto
INTERIM TECHNICAL WORK

Interim work can be completed to narrow the range of remaining alternatives while Palo Alto negotiates with Caltrain regarding Passing tracks and works on additional technical issues:

A. Further iteration of the Underpass alternative

B. Additional Bike/Pedestrian Crossings (Seale/Loma Verde) and any other road mitigations needed to begin eventual grade separation construction

C. Geotechnical and Groundwater (hydraulic) analysis

D. Traffic mitigations and updated Traffic Study

E. Noise and Vibration addendum

F. Urban Designer to improve bike/pedestrian experience on all alternatives

City can keep working on grade separations while waiting for Caltrain
FURTHER ITERATION OF UNDERPASS ALTERNATIVE

- Last alternative to be developed - did not receive sufficient design iteration to fully address its shortcomings due to COVID
- Plans developed by AECOM differed significantly from original concept (particularly at Meadow)
- Designs need iterative refinements to be fairly evaluated against the other more developed alternatives
- Areas of further study include bike/ped connections along Park to access the dedicated bike/ped tunnel and further iterations to avoid property impacts, particularly the apartment building on the northeast corner of Alma and Meadow.
- If four tracks are needed, the attractiveness of this alternative could grow because this alternative does not move the tracks at all.

XCAP recommends further refinement of Underpass alternative
ADD BIKE/PEDESTRIAN CROSSING AS MITIGATIONS

XCAP supports **Seale/Alma crossing** study because:

1. Recommended in Comprehensive Plan, 2012 Bike + Pedestrian Transportation Plan and Rail Corridor Plan
2. Adds initial bike/pedestrian mitigation while road and Churchill bike mitigations are being built.
3. Provides more direct **Safe Route to School**
4. **Reduces bike/ped traffic** on congested California Ave tunnel and on (eventual) Churchill bike/ped tunnel.
5. Bikes exiting on west side of tracks would **connect to existing bike path** on Park Blvd

This crossing will provide critical alternate route for bikes/peds during construction
ADD BIKE/PEDESTRIAN CROSSING AS MITIGATIONS

XCAP supports **Loma Verde/Alma crossing** study because:

1. Recommended in Comprehensive Plan, 2012 Bike + Pedestrian Transportation Plan and Rail Corridor Plan

2. Adds initial bike/pedestrian mitigation while work continues on selecting the Meadow/Charleston grade separation alternatives

3. Would close a critical 1.3 mile bike/ped crossing gap between Cal Ave tunnel and Meadow Drive.

4. Provides a missing link between South of Midtown neighborhood and Cal Ave/Ventura Neighborhood, on to Bol Park Bike Path that leads to Gunn and Stanford Research Park employment center.

This crossing will provide critical alternate route for bikes/peds during the construction of any of the South Palo Alto alternatives.
Ground conditions of a site are extremely variable and the composition of the ground can vary across even a short distance and different environmental stressors such as drainage and site history have a considerable impact on how the ground will react to added pressures or changes from new construction and development.

- Early site investigation helps avoid surprises, informs design and potential construction methods, and minimizes risk in selection between alternatives.
- Hybrid, Trench, Meadow/Charleston Underpass and Churchill Partial Underpass all require significant excavation.
- Current cost estimates are generic at this early phase - Information obtained through interim studies could provide more accurate cost information (which could help decide between alternatives).
- Could inform whether Trench is possible.

Early geotechnical/hydraulic analysis will help narrow the range of alternatives.
RECOMMENDATIONS FOR UPDATED TRAFFIC STUDY

Updated Traffic Study is likely needed, particularly to determine all mitigations for Churchill Closure

- Expand Traffic Study to include impacts beyond 2030
  - Given the uncertainty of long-range forecasts, seek analysis with confidence bands
  - Any future scenario analysis should test how sensitive the LOS forecast predictions are to changes in the input assumptions.

- Perform network LOS analysis of proposed mitigations and improvements to understand the queuing effects of these mitigations and whether they create capacity constraints at other intersections.

- Consider potential delays to public transit or/and school buses that may result from concentrating more traffic on fewer roadways.

An amended Traffic Study is likely given the lengthy project timeline
Noise and Vibration addendum should provide more information to address community concerns about how homes further away are impacted by elevated structures in a single-story overlay neighborhood.

XCAP Recommends an Urban Designer be hired to create a more comfortable environment for all modes.
CONTINUED ADVOCACY WITH CALTRAIN

- Technical assumptions such as grade, vertical curve (to be discussed in further detail in next presentation)
- Exploring construction methodologies to save time and money (jacked box, reduced bridge-deck thickness)
- Safety improvements along the entire Caltrain corridor (such as fencing)
FURTHER COMMUNITY OUTREACH WITHIN PALO ALTO

- Need to formalize bike/pedestrian input, particularly from PAUSD and bike community, but also other key stakeholders.

- Stakeholder feedback improves the project and improves community support.

- Broader community outreach – especially for new alternative(s) will be needed.

- Long term community support will be key to completing grade separations
City should adopt a strategy to ensure safety along the Palo Alto corridor, not just related to grade separations.

Council should consider adopting and urging for standardized safety protocols for means restrictions along the entire corridor as part of the Caltrain Corridor-wide grade separation study. This should include goals of:

- Good, uniform fencing for the entire corridor (particularly the west side of the tracks)
- Additional safety measures for station areas

Consider the cost of installation and maintenance of the counter measures to prevent illegal access to the Caltrain corridor as part of the budget process for alternatives and in discussions with Caltrain.

Safety should remain a top priority
DESIGN AND APPROVAL PROCESS

Rail Grade Separation Design and Approval Process

- Problem Statement
- Conceptual Engineering
- Alternatives Evaluation
- Estimate Cost, Schedule, and Scope
- Identify Project Need
- Secure Programming
- Secure Funding Source(s)
- Agency Commitment to Proceed with Project Development
- Prelim Engineering (Caltrain):
  - Rail Operations
  - Freight
  - Safety/Security
  - Structural
  - Hydraulics
  - Geotechnical
  - Constructability
- Prelim Engineering (City/Others):
  - Traffic/Bike/Ped
  - Property Needs
  - Utilities
- Consideration of Alternatives
- Prepare Project Report & Environmental Studies
- Secure Caltrain & Other Agency Approvals
- Formal Review & Approval of Project Report & Environmental Document (PR & ED)
- Final Interagency Construction & Operations Agreements
- Acquire Properties incl. Temporary Construction Easements
- Prepare Plans, Specifications & Estimates (PS&E) for Construction
- Prepare Traffic & Constr. Mgt Plan
- Obtain Permits from Responsible Agencies
- Complete Design, Acquisition & Agreements
- Construction

Expenditures

We are Here
Measure B allows Palo Alto to do some preliminary work

City (not Caltrain) should do Hydraulics and Geotechnical work to narrow alternatives further and determine “Constructability”
RECOMMENDED COUNCIL ACTIONS

1. Select Churchill Closure with mitigations as Preferred Alternative
2. Select Option 2 for bike/pedestrian tunnel at Churchill/Alma
3. Begin work for interim traffic mitigations needed for Closure
4. Begin necessary work for Seale/Alma and Loma Verde/Alma crossings for Bike/Pedestrians
5. Begin work on updated Bike/Pedestrian connections as part of Master Bike Plan
6. Formalize outreach to PAUSD, bike community and other key stakeholders
7. Remove Tunnels from further consideration
RECOMMENDED ACTIONS FOR COUNCIL

8. Update Traffic Study as needed and identify traffic mitigations needed for South Palo Alto in advance of grade separations

9. Continue work to iterate Underpass alternative

10. Begin Geotechnical and Hydraulic analysis

11. Hire Urban designer to help with design of alternatives

12. Participate in Corridor-wide Grade Separation Study and follow Caltrain’s work carefully

13. Coordinate with Caltrain and Menlo Park on San Francisquito Creek Bridge
Detailed Recommendations for Churchill and minority position

Pros and Cons of South Palo Alto alternatives

Detailed suggestions on areas further design iterations of all alternatives

Engineering Issues that could improve alternatives and cut costs

Construction Methods that can save time and money

More technical recommendations for Interim mitigations
QUESTIONS