Agenda

- Welcome and Introductions
- Community Conversations
- Discussion of City Council Actions on September 9
- Review of Technical Evaluations
  - South Palo Alto Tunnel Animations
  - Summary of Churchill Alternatives
- Summary of Technical Action Items
- XCAP Organization Discussion
  - Process to Elect Chair and Co-chair
  - Communications and other Protocols
  - Meeting Schedule
- Adjourn
- **September 27, 2019 – Design Workshop** – thorough discussion of current alternatives (geometrics, etc.); detailed questions and answers

- **POSTPONED**

- **October 16, 2019 – XCAP Meeting #6** – discuss any outstanding issues for Meadow/Charleston and Churchill closure (including public safety and PAUSD access); review fact sheets for the alternatives

- **October 30, 2019 – XCAP Meeting #7** – review materials and exhibits for upcoming community meeting

- **November 7, 2019 – Citywide Community Meeting**
The City Council adopted:

A. Continue the XCAP and authorize the XCAP to appoint a Chair and Co-Chair, take votes to make recommendations and provide updates to Council;

B. Reiterate the April Motion and allow additional alternatives to be studied including:
   i. Allow the XCAP to brainstorm some alternatives such as at Embarcadero, Meadow, and Charleston;
   ii. Ensure the trench alternative minimizes construction impacts;

C. Have the XCAP present preferred alternatives by April 30, 2020;

D. Direct Staff to refine scope, purpose and timeline for an RBRC to focus on regional cooperation and funding and bring it back to Council prior to April 30, 2020; and

E. Direct Staff to continue to work with VTA, Caltrain, Stanford and others on potential funding sources.
Alternatives Still Under Consideration

**Meadow / Charleston Trench**
- Lower the railroad below the roadways at Meadow and Charleston

**Meadow / Charleston Hybrid**
- Partially lower the roads and partially elevate the tracks at Meadow and Charleston

**Meadow / Charleston Viaduct**
- Raise the railroad above the roadways at Meadow and Charleston on structure

**South Palo Alto Tunnel – Passenger & Freight**
- Tunnel south of Oregon Expressway under Meadow and Charleston

**South Palo Alto Tunnel with At-Grade Freight**
- Tunnel south of Oregon Expressway under Meadow and Charleston with at grade freight

**Churchill Ave. Closure**
- At-grade crossing to be fully closed at Churchill Ave. with a grade separation for Bike/Ped connectivity. Will also consider all street mitigation options including Embarcadero.

**Churchill Ave. Vicinity Viaduct**
- Raise the railroad above the roadways in the vicinity of Churchill on structure

Being Discussed Today
South Palo Alto Tunnel – Passenger & Freight, Twin Bore Tunnel
South Palo Alto Tunnel Passenger & Freight Animation

All animations are made available online at: https://connectingpaloalto.com/renderings-plans-and/animations/ within days of the meeting.
South Palo Alto Tunnel with At-Grade Freight, Twin Bore Tunnel
South Palo Alto Tunnel with At-Grade Freight Animation

All animations are made available online at: https://connectingpaloalto.com/renderings-plans-andAnimations/ within days of the meeting.
Recap: Churchill Ave Ped/Bike Undercrossing – Option 1

This option is part of the Churchill Closure alternative.
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This option is part of the Churchill Closure alternative.
Recap: Churchill Ave Ped/Bike Undercrossing – Option 2

This option is part of the Churchill Closure alternative.
Recap: Churchill Ave Ped/Bike Undercrossing – Option 2

This option is part of the Churchill Closure
Recap: Improvement for El Camino Real/Embarcadero Rd

- Install additional westbound left turn lane and northbound right turn lane
- Optimize signal timings

This option is part of the Churchill Closure alternative.
Recap: Improvement for Alma Street/Oregon Expressway

• Signalize both on/off ramps with one controller

This option is part of the Churchill Closure alternative.
Recap: Improvement for El Camino Real/Oregon Expressway-Page Mill Road

- Install westbound right turn lane from Oregon Expressway to El Camino Real
- Optimize signal timing

Existing Layout

Proposed Layout

This option is part of the Churchill Closure alternative.
Recap: Embarcadero/Alma (3D Rendering. Looking West)

- Palo Alto High School
- Ped/Bike Bridge over Embarcadero
- Left Turn Pocket from SB Alma St
- Rt Turn Pocket from EB Embarcadero
- Alma St Bridge Widening
- Signalized Intersection
- Town & Country
- Kingsley Ave
- Lincoln Ave
- High St
- This option is part of the Churchill Closure alternative.
Churchill Viaduct Animation

All animations are made available online at: https://connectingpaloalto.com/renderings-plans-and/animations/ within days of the meeting.
# Churchill Avenue Evaluation Matrix

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Closure</th>
<th>Viaduct</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Improve East-West Connectivity</td>
<td></td>
<td>For the closure, ped/bikes cross underneath the railroad tracks only. For the viaduct, all mode of traffic (ped/bikes and vehicles) cross underneath the railroad tracks at grade.</td>
<td></td>
</tr>
<tr>
<td>B Reduce traffic congestion and delays</td>
<td></td>
<td>For the closure, impacted intersections due to the closure of Churchill, such as Embarcadero/Alma, are mitigated. For the viaduct, elimination of the grade crossing and corresponding gate down time reduces the traffic delays.</td>
<td></td>
</tr>
<tr>
<td>C Provide clear, safe routes for pedestrians and bikes</td>
<td></td>
<td>For the closure, a ped/bike undercrossing provides a safe and separate crossing at Churchill. The viaduct also provides a safe route for ped/bikes at-grade and separated from vehicles in a bike lane.</td>
<td></td>
</tr>
<tr>
<td>D Support continued rail operations</td>
<td></td>
<td>The closure can be built with limited single track operations at night and on weekends. No shoofly (temporary railroad detour) required. Shoofly is required for the viaduct. In addition, Stanford game day station would be eliminated due to grade issues.</td>
<td></td>
</tr>
<tr>
<td>E Finance with feasible funding sources</td>
<td></td>
<td>Based on estimated range of construction costs noted in the last row.</td>
<td></td>
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<tr>
<td>F Minimize right-of-way acquisition</td>
<td></td>
<td>The closure and construction of ped/bike undercrossing may have some impact on the Palo Alto High School property; additionally, ramps are proposed within Caltrain right-of-way. There also may be some parking loss on the east side of Churchill for the ped/bike undercrossing. Viaduct does not impact private properties.</td>
<td></td>
</tr>
<tr>
<td>G Reduce rail noise and vibration</td>
<td></td>
<td>Both alternatives eliminate train horn noise and warning bells at Churchill. For the viaduct, wheel noise could radiate out, but this can be mitigated.</td>
<td></td>
</tr>
<tr>
<td>H Maintain or improve local access</td>
<td></td>
<td>For the closure, Churchill is closed to through traffic. Impacted intersections are mitigated. For the viaduct, local access is improved with the grade separation at Churchill.</td>
<td></td>
</tr>
<tr>
<td>I Minimize visual changes along the corridor</td>
<td></td>
<td>The closure has opportunities for additional landscaping areas. Viaduct train is approximately 20 feet above grade – some tree landscaping for screening is feasible.</td>
<td></td>
</tr>
<tr>
<td>J Minimize disruption and duration of construction</td>
<td>1-2 years</td>
<td>2 years</td>
<td>Viaduct has extended road reductions at Alma (one-lane in each direction) during construction (day and night).</td>
</tr>
<tr>
<td>Order of Magnitude Cost</td>
<td>$50M to $65M*</td>
<td>$300M to $400M*</td>
<td>* Total Preliminary Construction Costs in 2019 dollars (Subject to Change)</td>
</tr>
<tr>
<td>Engineering Impacts</td>
<td>Closure</td>
<td>Viaduct</td>
<td></td>
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<tr>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>L Creek/Drainage Impacts</td>
<td>❑ Pump station required for lowered pedestrian/bike way.</td>
<td>❑ No significant creek or drainage impacts</td>
<td></td>
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<tr>
<td></td>
<td>❑ Increased risk of flooding due to pump stations</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>❑ Relocation of the pump house at Embarcadero required to accommodate widening of Alma St</td>
<td></td>
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<tr>
<td>M Long Term Maintenance</td>
<td>❑ Increased maintenance costs due to:</td>
<td>❑ Increased maintenance costs due to:</td>
<td></td>
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<tr>
<td></td>
<td>• Pump stations for undercrossing dewatering</td>
<td>• Above ground railroad alignment with embankments and viaduct structures</td>
<td></td>
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<tr>
<td>N Utility Relocations</td>
<td>❑ Potential utility relocations in Alma St and Churchill for ped/bike undercrossing</td>
<td>❑ Minimal impacts to utilities</td>
<td></td>
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<tr>
<td></td>
<td>❑ Minor utility relocations for Embarcadero/Alma improvements</td>
<td></td>
<td></td>
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<tr>
<td>O Railroad Operations Impacts during Construction</td>
<td>❑ No temporary track (shoofly) required, only single tracking during nights and weekends</td>
<td>❑ Temporary track (shoofly) is required.</td>
<td></td>
</tr>
<tr>
<td>P Local Street Circulation Impacts during Construction</td>
<td>❑ Path along Palo Alto High School will impacted temporarily during construction</td>
<td>❑ Alma, reduced to 2 lanes</td>
<td></td>
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<tr>
<td></td>
<td>❑ Temporary night and weekend closures of lanes on Churchill, Alma St and Embarcadero</td>
<td>❑ Removal of right turn lanes on Alma St at Churchill; however, movements still allowed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>❑ Temporary night and weekend closures of lanes on Alma St and Churchill</td>
<td></td>
</tr>
<tr>
<td>Q Caltrain Design Exceptions Needed</td>
<td>None required.</td>
<td>1.6% grade on track required. Maximum allowed by Caltrain is 1%.</td>
<td></td>
</tr>
</tbody>
</table>
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XCAP Meeting
October 16, 2019
4:00 – 6:00pm

All meeting materials will be posted onto
www.cityofpaloalto.org/connectingpaloalto

At-Grade Crossing
Churchill Ave. and Caltrain Tracks
Thank you