COMMUNITY MEETING
November 7, 2019
Agenda

- Welcome & Update
- Project Background & Purpose
- Overview of Churchill Ave & South Palo Alto Tunnel Alternatives
- Q & A
- Break-out Stations
  - Churchill Ave
  - South Palo Alto Tunnel
  - Evaluation Matrix & Engineering Impacts
  - City Staff & Other Crossings
  - Traffic
  - Noise/Vibration
  - Creeks/Drainage
- Station Report Out
- Next Steps
Welcome & Major Update since March 2019 Community Meeting

Ed Shikada
City Manager

- Community Advisory Panel (CAP) was replaced by the Extended Community Advisory Panel (XCAP).
- City Council modified the list of current alternatives including eliminating the Citywide Tunnel from consideration and adding the Churchill Viaduct and the South Palo Alto Tunnels.
- Palo Alto Ave was removed and will be studied through a separate coordinated area plan due to its proximity to Downtown.
- City Council began to explore the feasibility of greater levels of local funding in the form of fees or taxes.
Background: What is an at-grade crossing?

Also known as a “railroad crossing”... a location where a roadway and sidewalk cross railroad tracks at grade (same level as the street).

Drop-down gates and red flashing lights are used to stop traffic when a train approaches.
Community-Driven Process

• The City is guiding a community-based process to address impacts caused from Caltrain electrification and the increased service impacts on Palo Alto grade crossings

• Expanded Community Advisory Panel (XCAP) work continues and will inform the City Council’s decision as one form of input

• Timing is for the City Council to decide in Spring 2020 on preferred alternatives

• Goal is to gain community feedback all along the way throughout this process

• Today’s community meeting is the beginning of our next phase and community engagement is planned now through Spring 2020
Connecting Palo Alto Phases

Understanding the Options
- Engineering analysis
- Neighbors and other stakeholders provide input
- Ensure clarity in describing issues

Community Conversations
- Community-wide awareness and engagement
- Stakeholders advocate for/against options
- Integrate with regional initiatives

Decision-making
- Regional/funding viability assessed
- Local funding strategy defined
- XCAP Recommendation
- City Council decision

We are here
Community Conversations

• New website is launched
  – Evolving Frequently Asked Questions based on input tonight and through the process

• New blog series has begun to inform and bring the community up to speed

• New fact sheets are available tonight – seeking input on these as well

• Creating new collateral to answer questions and inform
Community Conversations

• Planning three Town Halls in 2020

• Attending upcoming community events

• Launching informal conversations about transportation efforts, including rail

• Developing several online surveys to engage and gain community input
Estimated Timeline – Spring 2020 through the end of construction

- **May 2020:** Council: Estimated City Council decision on grade separations
- **Consultant writing Project Study Report**
- **Spring 2024:** Begin Final Design
- **Spring & Summer 2026:** Award and Construct project(s) depending on funding; start construction
- **Early 2025:** If necessary: Acquire any property, including permanent and temporary construction easements
- **Dec 2032:** Finish Construction (depending on alternative chosen and funding)
- **Nov 2020:** Begin Environmental Process
- **Spring 2024:** Obtain Agency Permits/Approvals
- **May 2023:** Approve Agency Agreements for construction management
- **May 2023:** Certify Environmental Document; Approve Project
Palo Alto Existing At-Grade Crossings
Near Miss: Vehicle Stopped on Tracks
Why is the City undertaking this effort?

Increase Public Safety (vehicular, bicycle, and pedestrian)
- Eliminate pedestrian, bicyclist and motor vehicle conflicts with the railroad
- Improve pedestrian and bicycle access

Improve Traffic Circulation/Mobility
- Reduce traffic delays caused by gate down times
- Improve traffic flow across railroad crossing

California’s most dangerous grade crossings:
- #4 CHARLESTON ROAD
- #5 MEADOW DRIVE
- #15 CHURCHILL AVENUE
Caltrain’s 2040 Vision - Gate Down Times

<table>
<thead>
<tr>
<th>Existing Crossings</th>
<th>Peak Hour Auto Crossings</th>
<th>Collisions (2008-2018)</th>
<th>Crossing Gate Downtime (Assuming No Improvements)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>Existing</td>
<td>Existing</td>
</tr>
<tr>
<td>Churchill Ave</td>
<td>800</td>
<td>5</td>
<td>0:06</td>
</tr>
<tr>
<td>California Ave</td>
<td>970</td>
<td>6</td>
<td>0:07</td>
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<tr>
<td>Oregon Expy</td>
<td>1,080</td>
<td>10</td>
<td>0:07</td>
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<tr>
<td>W Meadow Dr</td>
<td></td>
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<tr>
<td>W Charleston Rd</td>
<td></td>
<td></td>
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<tr>
<td>San Antonio Rd</td>
<td></td>
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</tbody>
</table>

Note: Conceptual 4 Track Segment to be refined through further analysis and community engagement.

Source: Caltrain Business Plan, Developing a Long-Range Vision, City of Palo Alto Booklet, May 2019
Excessive Queue Lengths

PM Queues

AM Queues

LEGEND
- = PM Queues
- = PM Queues with Electrification

LEGEND
- = AM Queues
- = AM Queues with Electrification
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

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

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.

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
South Palo Alto Tunnel Passenger & Freight Animation
https://connectingpaloalto.com/renderings-plans-and-animations/
South Palo Alto Tunnel with At-Grade Freight continued, North Portal Launch Pit

110 FT. CALTRAIN RIGHT-OF-WAY

EXISTING CALTRAIN TRACKS

EXISTING GROUND

FENCE

SHOOFLY

FENCE

EXISTING SIDEWALK

~ 48 FT. EXISTING ALMA STREET

16 FT. EXISTING LANDSCAPE AREA

3-LANE ROADWAY

GROUND ANCHOR

40 FT. MAX
South Palo Alto Tunnel with At-Grade Freight continued, Tracks in Tunnel
South Palo Alto Tunnel with At-Grade Freight Animation
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- 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.
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<th>At-Grade Freight</th>
<th>Comments</th>
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<tbody>
<tr>
<td>A Improve East-West Connectivity</td>
<td>Blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B Reduce traffic congestion and delays</td>
<td></td>
<td></td>
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<td>C Provide clear, safe routes for pedestrians and bikes</td>
<td>Blue</td>
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<tr>
<td>D Support continued rail operations</td>
<td></td>
<td></td>
<td>For a detailed comparison of the Meadow/Charleston alternatives including the South Palo Alto Tunnel alternatives, see the Evaluation Matrix &amp; Engineering Challenges Station or visit: [<a href="https://connectingpaloalto.com/renderings-plans-and-animations/">https://connectingpaloalto.com/renderings-plans-and-animations/</a>]</td>
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<tr>
<td>E Finance with feasible funding sources</td>
<td>Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F Minimize right-of-way acquisition</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>G Reduce rail noise and vibration</td>
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<td>I Minimize visual changes along the corridor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J Minimize disruption and duration of construction</td>
<td>6 years</td>
<td>6 years</td>
<td></td>
</tr>
<tr>
<td>Order of Magnitude Cost</td>
<td>$1,218M to $1,827M*</td>
<td>$1,173XM to $1,759M*</td>
<td>* Total Preliminary Construction Costs in 2018 dollars with escalation to 2025 (Subject to Change)</td>
</tr>
<tr>
<td>Engineering Impacts</td>
<td>Passenger and Freight</td>
<td>At-Grade Freight</td>
<td></td>
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<td>---------------------</td>
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| L Creek/Drainage Impacts | ❑ Requires diversion of Adobe and Matadero creeks resulting in the need for pump stations  
❑ Numerous regulatory agency approvals required for creek diversion  
❑ Pump stations also required to dewater the trench and tunnel  
❑ Increased risk of flooding due to pump stations | ❑ Required diversion of Adobe and Matadero creeks resulting in the need for pump stations  
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❑ Increased risk of flooding due to pump stations |
| M Long Term Maintenance | ❑ Increased maintenance costs due to:  
• Pump stations for creek diversions  
• Pump stations for trench dewatering  
• Below ground railroad alignment | ❑ Increased maintenance costs due to:  
• Pump stations for creek diversions  
• Pump stations for trench dewatering  
• Below ground railroad alignment as well as at-grade railroad alignment |
| N Utility Relocations | ❑ Major utility relocations for lowered railroad | ❑ Major utility relocations for lowered railroad |
| O Railroad Operations Impacts during Construction | ❑ Temporary track (shoofly) is required | ❑ Temporary track (shoofly) is required. |
| P Local Street Circulation Impacts during Construction | ❑ Alma Street will be reduced to one lane in each direction from south of Oregon Expressway to Ventura Avenue  
❑ From Charleston Road to Ferne Avenue, there will be only one southbound lane on Alma Street | ❑ Alma Street will be reduced to one lane in each direction from south of Oregon Expressway to Ventura Avenue |
| Q Caltrain Design Exceptions Needed | 2% grade on track required. Maximum allowed by Caltrain is 1% | 2% grade on track required. Maximum allowed by Caltrain is 1% |
Churchill Closure

**Ped/Bike Undercrossing**
- Option 1: crosses under the railroad tracks only
- Option 2: crosses under both the railroad tracks and Alma St

**Embarcadero/Alma Street Improvements**
- Construct ped/bike overcrossing over Embarcadero Rd and widen Alma Street bridge
- Add right turn from eastbound Embarcadero Rd and left turn from southbound Alma St
- Install new signal at Embarcadero Rd/ Kingsley Ave/High St
- Provide full connectivity to/from High Street (Option A) or keep the movement as it is today (Option B)

**Intersection Improvements**
- El Camino Real/Embarcadero Rd: optimize signal timing and add turn lanes
- Alma St/Oregon Expressway: signalize both on/off ramps
- El Camino Real/Oregon Expressway-Page Mill Rd: optimize signal timing and add turn lanes
This option is part of the Churchill Closure alternative.
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Churchill Ave Ped/Bike Undercrossing – Option 2

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

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

Existing Layout

Proposed Layout

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

- Signalize both on/off ramps with one controller

Existing Layout

Proposed Layout

This option is part of the Churchill Closure alternative.
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.
## Churchill Avenue Evaluation with City Council-Adopted Criteria

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<td>▗</td>
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<td>2 years</td>
<td>2 years</td>
<td></td>
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</table>

**Order of Magnitude Cost**

- **A** Improve East-West Connectivity: $50M to $65M*
- **B** Reduce traffic congestion and delays: $300M to $400M*

*Total Preliminary Construction Costs in 2018 dollars with escalation to 2025 (Subject to Change)

**Legend:**
- Improvement
- Impact

For a detailed comparison of the Churchill Avenue alternatives, see the Evaluation Matrix & Engineering Impacts Station or visit: [https://connectingpaloalto.com/renderings-plans-and-animations/](https://connectingpaloalto.com/renderings-plans-and-animations/)
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<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>
</tr>
<tr>
<td></td>
<td>✑ Increased risk of flooding with pump stations</td>
<td></td>
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<tr>
<td></td>
<td>✑ Relocation of the pump house at Embarcadero Road required to accommodate widening of Alma Street</td>
<td></td>
</tr>
<tr>
<td>M Long Term Maintenance</td>
<td>✑ Increased maintenance costs due to:</td>
<td>✑ Increased maintenance costs due to:</td>
</tr>
<tr>
<td></td>
<td>• Pump stations for undercrossing dewatering</td>
<td>• Above ground railroad alignment with embankments and viaduct structures</td>
</tr>
<tr>
<td>N Utility Relocations</td>
<td>✑ Potential utility relocations in Alma Street and Churchill Avenue for ped/bike undercrossing</td>
<td>✑ Minimal impacts to utilities</td>
</tr>
<tr>
<td></td>
<td>✑ Minor utility relocations for Embarcadero Road/Alma Street improvements</td>
<td></td>
</tr>
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<td>O Railroad Operations Impacts during Construction</td>
<td>✑ No temporary track (i.e., shoofly) required, only single tracking during nights and weekends</td>
<td>✑ Temporary track (i.e., shoofly) is required</td>
</tr>
<tr>
<td>P Local Street Circulation Impacts during Construction</td>
<td>✑ Path along Palo Alto High School will temporarily be impacted during construction</td>
<td>✑ Alma Street reduced to 2 lanes</td>
</tr>
<tr>
<td></td>
<td>✑ Temporary night and weekend closures of lanes on Churchill Avenue, Alma Street and Embarcadero Road</td>
<td>✑ Removal of right turn lanes on Alma St at Churchill Avenue; however, traffic will still be able to flow as needed despite lane reduction</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>
</tr>
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Question & Answers
Break-out Stations

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- South Palo Alto Tunnel
- Meadow/Charleston
- Evaluation Matrix and Engineering Impacts
- City Staff and Other Crossings
- Traffic
- Noise/Vibration
- Creeks/Drainage
Stay Engaged

Visit our website at: ConnectingPaloAlto.com

Contact us at:
transportation@cityofpaloalto.org
(650) 329-2520

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www.cityofpaloalto.org/newslettersignup

Follow the City’s blog series on the rail discussion
medium.com/paloalto-connect
Thank you