REVISED AGENDA
*Changes are denoted in red on the agenda

*** BY VIRTUAL TELECONFERENCE ONLY***

CLICK HERE TO JOIN   Zoom Meeting ID: 362 027 238   Phone:1(669)900-6833

Pursuant to Governor Newsom's Executive Order N-29-20, as amended through order N-08-21, City Council meetings will be held as hybrid meetings with the option to attend by teleconference/video conference or in person. To maximize public safety while still maintaining transparency and public access, members of the public can choose to participate in the meeting from home or attend the meeting in person. Information on how the public may observe and participate in the meeting is located at the end of the agenda.

Public Comments will be accepted both in person and VIA Zoom meeting. All requests to speak will be taken until 5 minutes after the staff's presentation. Written public comments can be submitted in advance to city.council@cityofpaloalto.org and will be provided to the Council and available for inspection on the City’s website. Please clearly indicate which agenda item you are referencing in your email subject line.

The meeting will be streamed live on YouTube at https://www.youtube.com/c/cityofpaloalto, and Midpen Media Center https://midpenmedia.org and broadcast on Cable TV Channel 26.

TIME ESTIMATES
Time estimates are provided as part of the City Council’s effort to manage City Council meetings. Listed times are estimates only and are subject to change at any time, including while the meeting is in progress. Agenda items may be heard before or after the time estimated on the agenda.

CITY COUNCIL MEETING MATERIALS
Materials related to an item on this agenda submitted to the City Council after distribution of the agenda meeting packet are available for public inspection on the City’s website.

AMERICANS WITH DISABILITY ACT (ADA)
Persons with disabilities who require auxiliary aids or services in using City facilities, services or programs or who would like information on the City’s compliance with ADA, may contact (650) 329-2550 (Voice) 24 hours in advance.
CALL TO ORDER

SPECIAL ORDERS OF THE DAY

1. Alta Housing Presentation (5:00 PM - 5:20 PM)
   **This Item was added to the Agenda**

CLOSED SESSION
Public Comments: Members of the public may speak to the Closed Session item(s); three minutes per speaker.

2. CONFERENCE WITH CITY ATTORNEY-POTENTIAL LITIGATION
   Subject: Houman Boussina (Personnel Dispute)
   Authority: Potential Exposure to Litigation Under Government Code Section 54956.9(d)(2) One Case, as Defendant
   (5:20 PM - 6:20 PM)

STUDY SESSION

3. 3150 El Camino Real [21PLN-00169]: Request for Prescreening of Applicant’s Proposal to Re-zone the Subject Properties from CS (Service Commercial) to Planned Home Zoning (PHZ) and to Redevelop the Site with an Approximately 134,515 Square Foot Mixed-use Project. The Project Would Include 129 Residential Rental Units and Approximately 2,800 sf of Retail Space Which Would Replace Existing Restaurant and Office Space. Environmental Assessment: Not a Project. (6:20 PM - 7:20 PM)

AGENDA CHANGES, ADDITIONS AND DELETIONS

ORAL COMMUNICATIONS (6:20 PM - 6:35 PM)
Members of the public may speak to any item NOT on the agenda. Council reserves the right to limit the duration of Oral Communications period to 30 minutes.

MINUTES APPROVAL

4. Approval of Action Minutes from August 9, 2021

CONSENT CALENDAR (6:35 PM - 6:40 PM)
Items will be voted on in one motion unless removed from the calendar by three Council Members.

5. Approval of a Lease Amendment Between Palo Alto Players and the City of Palo Alto for the Premises at the Lucie Stern Community Center Located at 1305 Middlefield Road for an Approximate 36-month Term,

Q&A
Public Comment

August 23, 2021

MATERIALS RELATED TO AN ITEM ON THIS AGENDA SUBMITTED TO THE CITY COUNCIL AFTER DISTRIBUTION OF THE AGENDA PACKET ARE AVAILABLE FOR PUBLIC INSPECTION IN THE CITY CLERK’S OFFICE AT PALO ALTO CITY HALL, 250 HAMILTON AVE. DURING NORMAL BUSINESS HOURS.
at a starting Base Rent of $1,410.00 per Month and Increasing 3 Percent Annually

CITY MANAGER COMMENTS (6:40 PM - 6:50 PM)

ACTION ITEMS
*Include: Reports of Committees/Commissions, Ordinances and Resolutions, Public Hearings, Reports of Officials, Unfinished Business and Council Matters.*

6. Detailed Review of Alternatives Being Considered for Meadow Drive and Charleston Road Train Crossings, and Direction to City Staff for Conducting Additional Studies for Consideration of Final/Preferred Alternative(s) (6:50 PM - 9:15 PM) *Power point added to attachments.*

COUNCIL MEMBER QUESTIONS, COMMENTS AND ANNOUNCEMENTS
*Members of the public may not speak to the item(s)*

CLOSED SESSION

7. CONFERENCE WITH REAL PROPERTY NEGOTIATORS
Authority: Government Code Section 54956.8
Property: 300 Homer Avenue, Assessor’s Parcel Number 120-17-093
Negotiating Party: Palo Alto History Museum
City Negotiators: Ed Shikada, Kiely Nose, Clare Gibson, Phil Crosby
Subject of Negotiations: Lease Price and Terms of Payment
(9:15 PM - 10:15PM)

ADJOURNMENT

INFORMATIONAL REPORTS
*Information reports are provided for informational purposes only to the Council and the public but are not listed for action during this meeting’s agenda.*

Public Letters to Council August 4, 2021 thru August 12, 2021
Schedule of Upcoming Meetings

STANDING COMMITTEE MEETINGS

Finance Committee Meeting - CANCELLED August 17, 2021
City School Liaison Committee Meeting - August 19, 2021
Summary Title: 3150 El Camino: Prescreening - Removed

Title: 3150 El Camino Real [21PLN-00169]: Request for Prescreening of Applicant's Proposal to Re-zone the Subject Properties from CS (Service Commercial) to Planned Home Zoning (PHZ) and to Redevelop the Site with an Approximately 134,515 Square Foot Mixed-use Project. The Project Would Include 129 Residential Rental Units and Approximately 2,800 sf of Retail Space Which Would Replace Existing Restaurant and Office Space. Environmental Assessment: Not a Project. (6:00 PM - 7:00 PM)

From: City Manager

Lead Department: City Clerk

This item has been removed from consideration after the initial agenda publication.
City of Palo Alto
City Council Staff Report

Report Type: Minutes Approval  Meeting Date: 8/23/2021

Summary Title: Minutes from August 9, 2021

Title: Approval of Action Minutes from August 9, 2021

From: City Manager

Lead Department: City Clerk

Recommendation
Staff is requesting Council review and approve the attached Action Minutes.

Attachments:
- Attachment4.a: August 9, 2021 Draft Action Minutes
The City Council of the City of Palo Alto met on this date in virtual teleconference at 5:02 P.M.

Participating Remotely: Burt, Cormack, DuBois, Filseth, Kou, Stone, Tanaka

Absent:

Closed Session

1. CONFERENCE WITH LABOR NEGOTIATORS
City Designated Representatives: City Manager and his designees Pursuant to Merit System Rules and Regulations (Ed Shikada, Rumi Portillo, Molly Stump, Kiely Nose, Bob Jonsen, Geo Blackshire, Dean Batchelor, Nick Raisch)
Employee Organizations: Service Employees International Union, (SEIU) Local 521; Service Employees International Union, (SEIU) Local 521, Hourly Unit; Palo Alto Police Officers Association (PAPOA); Palo Alto Fire Chiefs’ Association (FCA) and Employee Organization: International Association of Fire Fighters (IAFF), Local 1319; Palo Alto Police Manager’s Association (PAPMA); Utilities Management and Professional Association of Palo Alto (UMPAPA);
Authority: Government Code Section 54957.6(a).

MOTION: Council Member Filseth moved, seconded by Council Member Cormack to go into Closed Session.

MOTION PASSED: 7-0

Council went into Closed Session at 5:04 P.M.

Council returned from Closed Session at 6:25 P.M.

Mayor DuBois announced no reportable action.
DRAFT ACTION MINUTES

Agenda Changes, Additions and Deletions

Mayor DuBois advised that Agenda Item Number 15 will be heard before Agenda Item Number 11.

Mayor DuBois advised that Agenda Item Number 13 may be heard at 9:00 P.M.

Minutes Approval

2. Approval of Action Minutes for the June 14, 21 and 22, 2021 City Council Meetings.

MOTION: Council Member Filseth moved, seconded by Council Member Kou to approve the Action Minutes for the June 14, 21 and 22, 2021 City Council Meetings.

MOTION PASSED: 7-0

City Council took a break at 6:43 P.M. and returned at 6:54 P.M.

Consent Calendar

Council Member Kou registered a no vote on Agenda Item Number 5.

Council Member Cormack registered a no vote on Agenda Item Number 10.

Council Member Tanaka registered a no vote on Agenda Item Numbers 3, 4, 6.

MOTION: Council Member Kou moved, seconded by Vice Mayor Burt, third by Council Member Tanaka to pull Agenda Item Number 5 to be heard on a date uncertain.

MOTION: On motion by Mayor DuBois and passed by the following vote, the City Council approved Agenda Item Numbers 3 through 4 and 6 through 10.

3. Approval of a Design-Build Contract With INDECT USA CORPORATION in the Amount of $2,241,310; and Authorization for the City Manager to Negotiate and Execute Change Orders up to a Not-to-Exceed Amount of $224,131 for the Downtown Automated Parking Guidance System Design-Build Project, Capital Improvement Program Project PL-15002.
4. Approve an Agreement Between the City of Palo Alto and the City of East Palo Alto for a Limited Emergency Water Supply Intertie.

5. QUASI-JUDICIAL. 505 E Charleston Road [21PLN-00068]: Appeal of Director's Approval of a Safe Parking Permit Application. Approved by the Director of Planning and Development Services on May 12, 2021. Environmental Assessment: Exempt per CEQA Guidelines Section 15301 (Existing Facilities). Zoning District: Single-Family Residential (R-1). (This item is continued to a date uncertain.)


7. Endorse and Authorize the Mayor to Sign a Joint Letter to the Valley Transportation Authority (VTA) From the Cities of Mountain View, Palo Alto, and Sunnyvale Recommending a Measure B Funding Allocation for Grade Separations.

8. Adoption of a Resolution 9979 Vacating Public Utility Easement at 3500 Louis Road.


10. SECOND READING: Adoption of Ordinance 5528 Establishing Board and Commission Term Limits, Consolidating Appointments to April of Each Year, and Codifying the Human Relations Commission's Existing Role of Recommending Grant Funding (FIRST READING: June 21, 2021 PASSED: 6-1 Cormack no).

MOTION PASSED FOR AGENDA ITEM NUMBER 3, 4, 6: 6-1 Tanaka no

MOTION PASSED FOR AGENDA ITEMS NUMBER 7-9: 7-0

MOTION PASSED FOR AGENDA ITEM NUMBER 10: 6-1 Cormack no

Action Items

15. Approval of the Appointment of Gayathri Kanth as Director of Libraries and Darren Numoto Director of Information Technology/Chief Information Officer.
MOTION: Mayor DuBois moved, seconded by Council Member Filseth to approve the appointments of Gayathri Kanth as Director, Libraries; and Darren Numoto as Director, Information Technology/Chief Information Officer.

MOTION PASSED: 6-0 Tanaka abstain

11. PUBLIC HEARING/PROPOSITION 218: Adoption of two Resolutions: 1) Resolution 9980 Adopting the Fiscal Year (FY) 2022 Wastewater Collection Utility Financial Plan and Amending the Wastewater Collection Utility Reserve Management Practices; 2) Resolution 9981 Amending Utility Rate Schedules S-1 (Residential Wastewater Collection and Disposal), S-2 (Commercial Wastewater Collection and Disposal), S-6 (Restaurant Wastewater Collection and Disposal) and S-7 (Commercial Wastewater Collection and Disposal – Industrial Discharger).

Public Hearing opened at 8:16 P.M.

Public Hearing closed at 8:16 P.M.

MOTION: Council Member Cormack moved, seconded by Mayor DuBois to:

A. Adopt a Resolution approving:

  i. The Fiscal Year (FY) 2022 Wastewater Collection Utility Financial Plan;

  ii. Up to a $2.2 million transfer from the Operations to the Capital Improvements Projects Reserve in FY 2021;

  iii. Up to a $4.35 million capital program contribution from the Operations to the Capital Improvements Projects Reserve in FY 2022;

  iv. Amendments to the Wastewater Collection Utility Reserves Management Practices; and

B. Adopt a Resolution approving adjustments to Wastewater Collection Utility Rates via the Amendment of Wastewater Collection and Disposal Rate Schedules:

  i. S-1 (Residential Wastewater Collection and Disposal), S-2 (Commercial Wastewater Collection and Disposal), S-6 (Restaurant Wastewater Collection and Disposal) and S-7
DRAFT ACTION MINUTES

(Commercial Wastewater Collection and Disposal – Industrial Discharger).

**MOTION PASSED: 7-0**

12. Review South Palo Alto Bikeways Phase 1 Community Feedback and Concept Plan Alternatives, and Approve Preferred Concept Plan.

**MOTION:** Vice Mayor Burt moved, seconded by Mayor DuBois to approve the preferred concept plan for the following project segments:

A. Waverley Multi-Use Path Alternative 2 Widen Towards Either Side;
B. Fabian Way – Protected bicycle lanes on both sides;
C. East Meadow Drive Segment 1 between East Meadow Circle and Fabian Way – Standard bicycle lanes on both sides;
D. East Meadow Drive Segment 2 between Alma Street and Waverley Street – Protected bicycle lanes on both sides;
E. East Meadow Drive Segment 3 between Waverley Street and Middlefield Road – Protected bicycle lane on one side with buffered bicycle lane on the other side; and
F. East Meadow Drive Segment 4 between Middlefield Road and East Meadow Circle – Traffic calming and bicycle lane visibility treatments, including travel lane width reduction from 11 to 10 feet.

**MOTION PASSED: 7-0**

13. Adoption of a Resolution Endorsing the Santa Clara County Community Plan to End Homelessness 2020-25 and Discussion and Direction on Strategies for Services for Unhoused Palo Alto Residents, Including Direction Regarding Application for Project Homekey Program for an Emergency Shelter in a Portion of the Former Los Altos Treatment Plant (LATP) Site and Direction Related to Other Resources for Unhoused Palo Altans.

**MOTION:** Vice Mayor Burt moved, seconded by Council Member Kou to:

A. Support advancing an application for the Project Homekey Program for an emergency shelter in a portion of the Former Los Altos Treatment Plant (LATP) site with specific steps as follows:
   i. Pursue partnership with LifeMoves as the nonprofit partner;
ii. Pursue zoning changes necessary to allow for an emergency shelter at the LATP site;

iii. Direct Staff to identify funding sources and to include that information in the return report to the City Council;

iv. Return to City Council in September with sufficient time to make an application and include all application details, including the explanation of all costs; and

B. Continue City Council discussion on the rest of this item to a date uncertain.

**MOTION SPLIT FOR THE PURPOSE OF VOTING**

**MOTION PART A PASSED:** 6-1 Tanaka no  
**MOTION PART B PASSED:** 7-0


**MOTION:** Council Member Filseth moved, seconded by Vice Mayor Burt to approve Council Member Kou as the voting delegate and Vice Mayor Burt as alternates for the 2021 Cal Cities Annual Conference to be held September 22-24, 2021 in Sacramento, CA.

**MOTION PASSED:** 7-0

Adjournment: The meeting was adjourned at 12:12 A.M.

ATTEST:                                  APPROVED:

____________________  ____________________
City Clerk                                              Mayor

NOTE: Action minutes are prepared in accordance with Palo Alto Municipal Code (PAMC) 2.04.160(a) and (b). Summary minutes (sense) are prepared in accordance with PAMC Section 2.04.160(c). Beginning in January 2018, in accordance with Ordinance No. 5423, the City Council found action minutes and the video/audio recordings of Council proceedings to be the official records of both Council and committee proceedings. These recordings are available on the City’s website.
Summary Title: Palo Alto Players Office Space Lease Amendment at Lucie Stern

Title: Approval of a Lease Amendment Between Palo Alto Players and the City of Palo Alto for the Premises at the Lucie Stern Community Center Located at 1305 Middlefield Road for an Approximate 36-month Term, at a starting Base Rent of $1,410.00 per Month and Increasing 3 Percent Annually

From: City Manager

Lead Department: Administrative Services

Recommendation
Staff recommends that Council authorize the City Manager or their designee to execute the Second Amendment to Lease contained in Attachment A, between City of Palo Alto and Palo Alto Players-Peninsula Center Stage for the continued use of office space at the Lucie Stern Community Center located at 1305 Middlefield Road. The term will commence upon full execution of the amendment through August 31, 2024. The initial base rent will be $1,410 per month and increase 3 percent annually starting on September 1, 2022.

Background
Palo Alto Players is the oldest theatre group on the Peninsula, producing diverse programming that highlights local talent and tells stories of resonance for the local community since 1931. During the COVID-19 pandemic, Palo Alto Players has continued to connect with the community, reaching over 1,100 households in 34 states and six countries to date, and has expanded theatre access, through innovations such as closed captioning for virtual shows and Pay-What-You-Choose pricing. The Palo Alto Players have been an advocate and resource for arts organizations and other nonprofits throughout the pandemic. They are on a journey to refine administrative and artistic processes that advance their mission through an Inclusion, Diversity, Equity, Access, and Liberation (IDEAL) lens, setting the example for a theatre of the future that serves the whole community post-pandemic.

Palo Alto Players’ annual budget for staffing, general operations, and direct production costs for its season of five plays and musicals at the Lucie Stern Theater is
approximately $800,000. In a normal season, an estimated 60 percent of each annual budget is earned in ticket sales and other earned income, 35 percent is contributed from donations and grants, and the remaining 5 percent is derived from investments. In addition, per the agreement between the City of Palo Alto and Palo Alto Players, all tickets sold are assessed an additional “facility usage fee” of $4 per ticket ($2 is earmarked for capital improvements for the Stern Theater). These fees are collected and remitted to the City of Palo Alto following each production.

**Discussion**

Palo Alto Players currently occupies approximately 500 square feet of office space at the City-owned Lucie Stern Community Center, located at 1305 Middlefield Road, under a lease that was approved by the City Council on May 11, 2015 ([CMR 5719](#)). The lease was subsequently amended and expired on June 30, 2021 however, under the holding over provision of the lease, the Palo Alto Players remain in possession of the premises and have continued to be current on all rent payments. City Staff recommends a second amendment to the lease to extend the agreement to August 31, 2024 at a starting base rent of $1,410 per month with annual 3 percent increases starting on September 1, 2022. The extension will provide Palo Alto Players with continued use of the office space to manage, administer, and support the theater programs at the Lucie Stern Theater.

The Second Amendment to Lease will extend the term of the agreement through August 31, 2024 and modify the rent as shown in the table below. All other terms will remain the same.

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>MONTHLY RENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTENSION DATE – 8/31/2022</td>
<td>$1,410.00</td>
</tr>
<tr>
<td>9/1/2022 – 8/31/2023</td>
<td>$1,452.30</td>
</tr>
<tr>
<td>9/1/2023 – 8/31/2024</td>
<td>$1,495.87</td>
</tr>
</tbody>
</table>

**Timeline**

The Palo Alto Players’ current lease expired on June 30, 2021 however under the holding over provision of the lease they remain in possession of the premises. The term of the Second Amendment to Lease will commence upon full execution and extend through August 31, 2024.

**Resource Impact**

The base rent during the final year of the current lease, through June 30, 2021, was $1,365 per month. Under the holding over provision of the lease, the monthly rental obligation increased 10 percent, to $1,501.50, while Palo Alto Players remained in
possession of the premises. Upon full execution of the Second Amendment, the base monthly rent will be reduced to $1,410.00, but will represent a $45.00, or 3.3 percent, increase over the rent paid during the final year of the previous term. The base rent will increase 3 percent annually, starting on September 1, 2022. This initial base rent is approximately $2.82/sq foot per month. For reference, the overall average asking rent for all office space classes in Palo Alto is $8.06 according to Cushman & Wakefield, and current rent rates at the City’s space in Cubberley ranges from $0.32 to $3.57/square foot per month.

If approved, annual rent receipts in this lease are in line with projected rental earnings included as part of the FY 2022 Adopted Budget. If not approved, and the space not otherwise rented out to another service provider, the City would fall below FY 2022 revenue estimates by approximately $17,000.

**Policy Implications**

This recommendation is consistent with existing City policies to support the cultural program in the City of Palo Alto to enrich the lives of residents in the local communities.

**Stakeholder Engagement**

The Real Estate Division of the Administrative Services Department and the Community Services Department discussed the Palo Alto Players’ proposal to extend their lease. While higher revenue generating programs could be explored for the space, the Palo Alto Players are an excellent tenant and have continued to pay rent throughout the COVID-19 pandemic. Having the stability of the office will help them recover from the pandemic and be able to produce their full season of shows again.

**Environmental Review**

Approval of the lease for City owned office space is exempt from the requirements of the California Environmental Quality Act.

**Attachments:**

- **Attachment5.a:** Attachment A: Lease with Palo Alto Players, Second Amendment
SECOND AMENDMENT TO LEASE

THIS SECOND AMENDMENT TO LEASE (this “Second Amendment”) is made and entered into as of ________________, by and between City of Palo Alto, a California municipal corporation (“City”), and PALO ALTO PLAYERS-PENINSULA CENTER STAGE, a 501(c)(3) non-profit corporation (“Lessee”).

RECITALS

A. City and Lessee are parties to that certain Lease, dated July 1, 2015, as amended by that certain Amendment Number One to Lease Agreement, dated July 1, 2018 (collectively, the “Lease”). Pursuant to the Lease, City has leased to Lessee an office suite containing approximately 500 square feet (the “Premises”) at the Lucie Stern Community Center located at 1305 Middlefield Road, Palo Alto, California (the “Property”).

B. The Lease by its terms expired on June 30, 2021 (“Prior Termination Date”), but Lessee has occupied the Premises since that time in holdover on a month-to-month basis pursuant to the provisions of Section 18 (Holding Over) of the Lease.

C. The parties desire to extend the Lease Term, all on the following terms and conditions.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, City and Lessee agree as follows:

1. Extension. The Lease Term is hereby extended to and shall expire on August 31, 2024 (“Extended Termination Date”), unless sooner terminated in accordance with the terms of the Lease. That portion of the Lease Term commencing on the date of full execution of this Second Amendment (“Extension Date”) and ending on the Extended Termination Date shall be referred to herein as the “Extended Term”. Lessee shall have no right to extend the Extended Term of the Second Amendment.

2. Base Monthly Rent. As of the Extension Date, the schedule of Base Monthly Rent payable with respect to the Premises during the Extended Term is the following:

<table>
<thead>
<tr>
<th>Period</th>
<th>Base Monthly Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension Date – 8/31/2022</td>
<td>$1,410.00</td>
</tr>
<tr>
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<tr>
<td>9/1/2023 – 8/31/2024</td>
<td>$1,495.87</td>
</tr>
</tbody>
</table>

All such Base Monthly Rent shall be payable by Tenant in accordance with the terms of the Lease, as amended hereby.

3. Miscellaneous.

3.1 This Second Amendment sets forth the entire agreement between the parties with
respect to the matters set forth herein. There have been no additional oral or written representations or agreements.

3.2 Except as herein modified or amended, the provisions, conditions and terms of the Lease shall remain unchanged and in full force and effect. In the case of any inconsistency between the provisions of the Lease and this Second Amendment, the provisions of this Second Amendment shall govern and control. The capitalized terms used in this Second Amendment shall have the same definitions as set forth in the Lease to the extent that such capitalized terms are defined therein and not redefined in this Second Amendment.

3.3 Submission of this Second Amendment by City is not an offer to enter into this Second Amendment but rather is a solicitation for such an offer by Lessee. City shall not be bound by this Second Amendment until City has executed and delivered the same to Lessee.

3.4 Lessee hereby represents to City that Lessee has dealt with no broker in connection with this Amendment. Lessee agrees to indemnify and hold City harmless from all claims of any other brokers claiming to have represented Lessee in connection with this Second Amendment.

3.5 Each signatory of this Second Amendment represents hereby that he or she has the authority to execute and deliver the same on behalf of the party hereto for which such signatory is acting.

3.6 The Premises have undergone an inspection by a Certified Access Specialist (CASp), and it was determined that the Premises did not meet all applicable construction-related accessibility standards pursuant to California Civil Code §55.51 et seq. To the best of City’s knowledge, there have been no modifications or alterations completed or commenced between the date of the inspection and date of this Second Amendment which have impacted the Premises’ compliance with construction-related accessibility standards. City has provided, at least forty-eight (48) hours prior to execution of this Second Amendment, a copy of such CASp report to Lessee.

Because a disability access inspection certificate, as described in subdivision (e) of Section 55.53 of the California Civil Code, was not issued for the Premises, Lessee is advised of the following (pursuant to Section 1938 of the California Civil Code):

“A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the premises.”

Attachment A - 2
The parties hereby agree that Lessee shall have the right, but not the obligation, to have a CASp further inspect the Premises. If Lessee elects to obtain a CASp inspection, Lessee shall be responsible for the payment thereof. Additionally, if Lessee elects to make any repairs necessary to correct violations of construction-related accessibility standards, Lessee may do so, at its sole cost and expense.

[Signature Page Follows]
IN WITNESS WHEREOF, City and Lessee have entered into and executed this Second Amendment as of the date first written above.

CITY:
CITY OF PALO ALTO,
a California municipal corporation

By: __________________________
Name: __________________________
Title: __________________________
Dated: __________________________

Approved as to form:

By: __________________________
Name: __________________________
Title: __________________________
Dated: __________________________

LESSEE:
PALO ALTO PLAYERS-PENINSULA CENTER STAGE,
a 501(c)(3) non-profit corporation

By: __________________________
Name: __________________________
Title: __________________________
Dated: __________________________
Report Type: Action Items  Meeting Date: 8/23/2021

Summary Title: Railroad Grade Separation - Meadow/Charleston

Title: Detailed Review of Alternatives Being Considered for Meadow Drive and Charleston Road Train Crossings, and Direction to City Staff for Conducting Additional Studies for Consideration of Final/Preferred Alternative(s) (7:35 PM - 10:00 PM)

From: City Manager

Lead Department: Transportation Department

RECOMMENDED MOTION
Staff recommends that the City Council:

1. Review the four (4) alternatives under consideration for Meadow Drive and Charleston Road crossings along the Caltrain corridor;
2. Review the preliminary scope and cost estimates of additional studies, and direct staff to negotiate with AECOM to develop the scope and costs to perform the additional studies as directed by the City Council for consideration of the final alternative(s) to design and construct grade separation.

EXECUTIVE SUMMARY
With completion of the XCAP review of grade separation options, the City Council provided direction to staff at the April 26, 2021 Council meeting to come back with a detailed review of the alternatives still under consideration at each of these crossings to then provide direction on additional studies/next phase of the project. This staff report provides detailed information on Charleston Road and Meadow Drive Grade Separation and seeks council direction in pursuing additional studies that could assist further in selecting preferred alternative(s). Staff plans to bring back a similar item for the Churchill Avenue crossing in the fall of this year.

The report is organized as follows in the Discussion section of this report:

- Detailed Review of Charleston Road and Meadow Drive Grade Separation Alternatives
  - Layout (Vehicular, Bike, Pedestrians) & Right of Way
  - Traffic Circulation:
  - Noise & Vibration Analysis
  - Outreach
o Construction & Engineering Challenges
o Project Cost

- Additional Studies, as described below
- Next Steps

Staff is seeking Council guidance on the scope of additional studies for consideration of the final alternative(s) to design and construct grade separation. Below is a brief list of issues of interest previously identified by the XCAP and councilmembers for consideration, further details on each of these can be found under “Additional Studies” in the report.

It should be noted that many of these studies are typically conducted later in a construction project development process and focused on a primary rather than multiple alternatives. This is reflected in the associated costs. In addition, conclusions from these studies must be considered preliminary, since responsible agencies such as Caltrain will provide limited guidance and feedback at the current conceptual design stage. Nonetheless, to the extent these studies provide community stakeholders greater confidence in decision-making, the costs involved represent a small percentage of the ultimate costs of grade separation construction.

- **Track Review and Caltrain Coordination (estimated $90,000-$110,000):** Palo Alto has been identified in the Caltrain Business Plan as a potential location for high-growth capacity improvements, including 4-tracks. To date, alternatives developed for the Rail Program has only been evaluated for 2-tracks. Work to further define the ability of grade separation alternatives to accommodate four tracks includes: Gather Data from Caltrain, Evaluate Alternatives, Meet with Caltrain, Prepare memorandum report.

- **Traffic Study Update (2040) (estimated $45,000-$55,000):** Update to traffic analysis to reflect a future forecast year of 2040 rather than the year 2030 forecasts will require the following specific tasks: Work to Model Land Use, Model Forecasts, Traffic Calculations, Documentation.

- **Design Refinement of Underpass Alternatives (estimated $125,000-$150,000):** Refinement of the Underpass Alternative at Meadow and Charleston requires additional iteration of review to ensure that input from the PABAC and school committees should be incorporated to further refine this alternative. As such staff requested the Consultant for their support to develop the estimated costs and scope as follows: Enhance Alternatives, Update Exhibits, Update Renderings, Update Cost Estimates, Update Miscellaneous Items.


- **Box Jacking System/Geotechnical Investigation & Feasibility Study (estimated $350,000-$600,000):** Data Collection and Review – Groundwater and Geotechnical, Construction

- **Shadow Analysis (Light Plane Review) (estimated $20,000-$25,000):** 3D Model Development, Shadow Study Analysis, Study Document Production and Final Report

- **Additional Noise Study (estimated $55,000-$65,000):** Expand Study Area/Measurements, Expand Analysis for Future Growth, Analyze Structural Noise/Vibration, Update Noise Study Report

- **Storm Drainage Infrastructure (estimated $200,000 – $250,000):** Evaluate Trench Storm Drain Alternatives, a rough order-of-magnitude (ROM) cost will be developed for both options. Evaluate Underpass Storm Drain Alternatives, Prepare Memorandum Report.

- **Additional Outreach (estimated $15,000-$20,000):** Conduct Meetings with Additional Stakeholders, Prepare Meeting Notes.

- **Urban Designer (estimated $100,000-$125,000):** Urban Design / Public Realm Opportunity Mapping opportunities for public realm improvements for each of the three (3) alternatives and constraints urban design plan diagram will be created for each of the three alternatives, Urban Design / Public Realm Design Enhancements conceptual site plan for each alternative will be updated with the proposed public realm design features, and Meetings.

- **Conceptual Design for Ped/Bike Undercrossing At Seale And Loma Verde (estimated $80,000-$100,000):** Conceptual Layouts, Cost Estimates, 3D Renderings, and Miscellaneous Public Outreach Materials.

- **Sustainability (estimated $50,000-80,000):** Sustainability Strategy Plan strategy to identify major categories where sustainable materials and practices can be incorporated into final design of alternatives, and Bike/Ped Usage improvement in relation to the grade separation alternatives.

Note: The estimated scope and fee listed above for various studies is inclusive of work anticipated for all three crossings (Churchill Avenue, Meadow Drive, and Charleston Road).

**BACKGROUND**

With the proposed California High Speed Rail (CAHSR) using the Caltrain corridor and the planned electrification of the Caltrain corridor that will increase the frequency of trains along this corridor, the delays to the at-grade crossings are expected to increase significantly. Therefore, City initiated the plan to consider grade separation at all four of the existing at-grade crossings in Palo Alto. For the past decade, City engaged the public to help develop and evaluate potential grade separation options at each of Palo Alto’s four Caltrain rail crossings.

Since 2017, the City’s focus has been mainly on the three existing grade crossings of Churchill Avenue, Meadow Drive, and Charleston Road. Palo Alto Avenue Crossing was separated to be integrated with the Downtown Coordinated Area plan. The planning process for the development of alternatives at the three crossings of Churchill Avenue, Meadow Drive, and
Charleston Road was led by staff and consultants with public input coming through community meetings. In 2018, City Council created a Citizen Advisory Panel (CAP) for advising staff and consultants on developing alternatives and improving community outreach and communications efforts. Later in 2019, City Council formed an Expanded Community Working Group for the evaluation of the Connecting Palo Alto railroad grade separation at these three crossings (Churchill Avenue, Meadow Drive, and Charleston Road) along the Caltrain corridor and to achieve greater community input for selection of the preferred alternative at these three crossings.

The XCAP group diligently over the period of eighteen (18) months completed the review of a total of nine (9) alternatives and prepared a final report providing their recommendations to the Council on March 23, 2021. At this study session, Council received the final XCAP report and discussed major recommendations and findings from the report. Considering the environmental challenges and the estimated costs for the South Palo Alto Tunnel alternatives, the XCAP unanimously recommended the Council removes the tunnel alternatives from further consideration.

After the review of the XCAP report and considering the XCAP recommendation, the City Council on April 26, 2021, removed the two tunnel alternatives 1) South Palo Alto Tunnel (Passenger and Freight) 2) South Palo Alto Tunnel (With At-Grade Freight) from further consideration.

The final seven (7) alternatives in consideration at these three crossings are as follows:

- **Churchill Avenue**
  - Churchill Avenue Closure with Mitigation - Option 1 & 2
  - Churchill Avenue Viaduct
  - Churchill Partial Underpass

- **Meadow Drive and Charleston Road**
  - Meadow Charleston Trench
  - Meadow Charleston Viaduct
  - Meadow Charleston Hybrid
  - Meadow Charleston Underpass

**DISCUSSION**
This agenda item presents a detailed review of the alternatives in considerations at Meadow Drive and Charleston Road Crossings and seeks City Council direction on the additional studies needed for selection of a preferred alternative(s) at each of these locations.

*Layout (Vehicular, Bike, Pedestrians) & Right of Way*
Below is a summary of the layout and right of way that would result in each of the four alternatives. Further explanation and details can be found below this summary table organized by alternative (trench, viaduct, hybrid, and underpass).

**TABLE 1: Summary of Layout & Right of Way**

<table>
<thead>
<tr>
<th></th>
<th>Trench</th>
<th>Viaduct</th>
<th>Hybrid</th>
<th>Underpass</th>
</tr>
</thead>
</table>
| Vehicular | On the bridge – similar to the existing configuration | At Grade – similar to the existing configuration | Will be lowered by about 6 feet – similar to the existing configuration | At Meadow:
  - NBL & NBR will be made through U-Turn at Alma Village;
  - EBR & WBL will be prohibited.
  - Park Blvd will be closed on south side, North side will be limited to right-in and right out.
  At Charleston:
  - NBL, SBR, and EBL will be made by using the roundabout at Mumford Place.
  - Only SBR & EBR at Park Place. No Through movements.
  - Ely Place will be limited to right out only. |
| Pedestrian | On the bridge – will have separate sidewalks | At Grade – will have separate sidewalks | Will be lowered by about 6 feet – with sidewalks | • Bike and Pedestrian pathway provided on one side of the roadway. Connection made through circuitous way to connect using ramps.
  • Ninety (90) degrees bends to provide adequate ramp slopes meeting ADA requirements. Bike and Ped Crossings needed |
| Bike     | On the bridge – will have bike lanes | At Grade – will have bike lanes | Will be lowered by about 6 feet – with bike lanes | • Bike and Pedestrian pathway provided on one side of the roadway. Connection made through circuitous way to connect using ramps.
  • Ninety (90) degrees bends to provide adequate ramp slopes meeting ADA requirements. |
| Other    | Bridge will provide adequate width, & Charleston will require widening | Meadow & Charleston will require widening | Meadow & Charleston will require widening | • Will require full property acquisitions and partial property acquisitions at both Meadow & Charleston.
  • Bike and Ped Crossings needed for Meadow at 2nd Street & Emerson Street and for Charleston at new traffic circle/roundabout |
**Trench:**
For the trench alternative, the railroad tracks will be lowered in a U-shaped box below Meadow Drive and Charleston Road. The new electrified railroad tracks will be built at the same location as the existing railroad tracks and will begin lowering south of Loma Verde Avenue, remain lowered under Meadow Drive and Charleston Road, and return to the existing elevation north of the San Antonio Station. The maximum railroad grade will be 2% which will require a Caltrain design exception. The railroad tracks will be approximately 30 feet below the existing street between Meadow Drive and Charleston Road. A high fence will be required along trench walls.

The roadways at Meadow Drive and Charleston Road will remain at their existing grade on a bridge over the railroad tracks. The roadway will have a similar configuration to what exists today with the addition of Class II buffered bike lanes on Charleston Road. This will require expanding the width of the road to maintain bike lanes through the overpass of the railroad. Charleston Road over the railroad will be 24.5 feet. The railroad tracks will be approximately 30 feet below the existing street between Meadow Drive and Charleston Road. A high fence will be required along trench walls.

**Viaduct:**
For the viaduct alternative, the railroad tracks will be elevated on a structure over Meadow Drive and Charleston Road. The new electrified railroad tracks will be built between the existing railroad tracks and Alma Street (east side) and will begin rising north of Loma Verde Avenue, remain elevated over Meadow Drive and Charleston Road, and return to the existing elevation south of Ferne Avenue. The maximum railroad grade for this alternative will be 1.4% which will also require a Caltrain design exception. The railroad tracks will be approximately 20 feet above the existing street between Meadow Drive and Charleston Road.

The roadways at Meadow Drive and Charleston Road will remain at their existing grade and have a similar configuration to what exists today, with the addition of Class II buffered bike lanes on Charleston Road. This addition will require expanding the width of the road to maintain bike lanes through the underpass of the railroad and to accommodate the new column supporting the railroad structure.

**Hybrid:**
For the hybrid alternative, the railroad tracks will be raised above Meadow Drive and Charleston Road. The new electrified railroad tracks will be built at the same location as the existing railroad tracks and will begin rising near El Verano Avenue, remain raised above Meadow Drive and Charleston Road, and return to the existing elevation north of Ferne Avenue. This alternative meets the Caltrans preferred maximum grades for the railroad alignment of 1% and therefore no design exception is anticipated for this alternative. The railroad tracks will be approximately 15 feet above the existing street between Meadow Drive and Charleston Road.
Between Park Boulevard and Alma Street, the roadways at Meadow Drive and Charleston Road will be lowered and will have a similar configuration that exists today, with the addition of Class II buffered bike lanes on Charleston Road. This will require expanding the width of the road to maintain bike lanes and pedestrian facilities through the underpass of the railroad. The maximum grade for the roadways will be near 5%.

No additional Right of Way is anticipated; however, this alternative will require driveway modifications.

**Underpass:**
The underpass alternative retains the Caltrain tracks at the current grade and lowers Meadow Drive and Charleston Road under the tracks and Alma Street for through traffic. Alma Street will retain four lanes of traffic, two northbound and two southbound, supported on a new road bridge spanning the intersecting road. The maximum grade on Meadow Drive, Charleston Road, and the modified portion of Park Blvd will be 12%. The vertical clearance of Meadow Drive and Charleston Road under the railroad will be 15.5 feet.

Turning movements to and from Alma Street will be facilitated by ramps for key traffic flow directions and controlled by traffic signals. On the east side of Alma Street, the new road profile will begin descending just west of Emerson Street for Meadow Drive, and just west of Wright Place on Charleston Road and will return to grade on the west side of the tracks, just west of Park Boulevard. Turning movements from various side streets will be limited. The Caltrain tracks will be supported on a new rail bridge that spans the width of the intersecting road and the pedestrian/bike ramp while remaining on its current alignment.

The on-ramp and off-ramp connecting Meadow Drive to Alma Street will be limited to northbound and southbound traffic, respectively. Through traffic on Park Boulevard will no longer be possible. The connection from the south side of Park Boulevard to Meadow Drive will no longer be possible and will end in a cul-de-sac, while the north side of Park Boulevard will have driveway modifications but turning movements will be retained. The northbound left and right turns will be facilitated by making U-turns at Alma Village and Alma Street signalized intersection north of the grade crossing.

With connection ramps only to East Charleston Road, movement to and from Alma Street will be facilitated via a roundabout on East Charleston Road just west of Mumford Place. As with Meadow Drive, through traffic on Park Boulevard will no longer be possible, however, a bridge will be constructed just west of the tracks to provide north/south pedestrian/bike connectivity at Park Boulevard. Ely Place intersection with Alma Street will only facilitate an exit onto northbound Alma Street. Entrance from southbound Alma Street into Ely Place will be prohibited.

The pedestrian/bike ramp will provide a crossing for cyclists and foot traffic of both Alma Street and the railroad. This pedestrian/bike crossing is separate and at a different grade from both
the rail and the road, providing both the benefits of a safer route and less traffic interference resulting in better traffic flow. Also, since roadway profile grade exceeds American Disability standards, ramp structure will provide grades meeting such requirements for all pedestrian and bicycle facilities.

Right-of-way acquisitions including multiple private property acquisitions and some (sliver) acquisitions of residential properties will be required to accommodate this alternative. In addition, driveway modifications for this alternative.

**Traffic Circulation**

To review the traffic circulation, a traffic study was conducted by Hexagon Traffic consultants. The study evaluated the existing traffic conditions based on the traffic counts conducted in October 2019. The future traffic volumes were obtained from the traffic forecasts based on the 2016 Palo Alto Comprehensive Plan for future (Year 2030) conditions. The study analyzed traffic operations during the weekday AM (7-9) and PM (4-6) peak commute hours. The traffic study focuses on vehicular traffic operations; however, bicycle and pedestrian circulation have been accounted for in the traffic analysis.

*Trench, Viaduct & Hybrid:*

The roadway configuration for trench, viaduct, and hybrid are similar and therefore these alternatives have similar traffic impacts. Based on the traffic study for these three alternatives, the intersection of Alma/Charleston operates at LOS F during both the AM and PM peak hours. With future traffic volumes (see Table below), the analysis shows that both the Meadow and Charleston intersections would operate at LOS F during the AM and PM peak hours. With electrification, the analysis shows that both intersections would continue to operate at unacceptable LOS F during the AM and PM peak hours with future traffic volumes.

**TABLE 2: Meadow and Charleston Grade Separation Alternatives – Future Traffic Volumes**

<table>
<thead>
<tr>
<th>Traffic Operations (Year 2030 Traffic Volumes)</th>
<th>No Improvements (No Electrification)¹</th>
<th>No Improvements (With Electrification)²</th>
<th>Viaduct ³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
</tr>
<tr>
<td>Meadow Drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alma Street &amp; Meadow Drive</td>
<td>Signal</td>
<td>215.03 F</td>
<td>318.96 F</td>
</tr>
<tr>
<td>Charleston Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alma Street &amp; Charleston Road</td>
<td>Signal</td>
<td>330.72 F</td>
<td>330.31 F</td>
</tr>
</tbody>
</table>

Notes:
1. All turning movements permitted. Analysis assumes 8 trains per hour with no electrification. Traffic analysis was conducted using SimTraffic.
2. All turning movements permitted. Analysis assumes 14 trains per hour with electrification. Traffic analysis was conducted using SimTraffic.
3. All turning movements permitted. Traffic analysis was conducted using SimTraffic.
Underpass:
The Underpass alternative proposes to keep the Caltrain tracks at grade and lower Meadow Drive and Charleston Road to go under the tracks and Alma Road. This alternative was analyzed for future conditions as shown in the table below.

Meadow Drive:
As briefly discussed in the layout description above, the right of way and intersection geometry makes certain movements difficult to provide for at this crossing. Therefore, a U-turn lane on northbound Alma at the existing signalized intersection of Alma Street and Alma Village Circle was proposed to facilitate certain movements. Alma Village Circle is located approximately 600 feet to the north of Meadow Drive. The U-turn lane would allow northbound traffic on Alma Street to access Meadow Drive by making a U-turn at the Alma Village Circle and using the proposed southbound Alma Street off-ramp to Meadow Drive. The westbound left and eastbound right movements cannot be accommodated in this alternative at Meadow Drive. The traffic for such movements will use other streets such as El Camino Road and internal roadways to access Alma Street. Various options for traffic control devices such as stop signs or signals were evaluated to review future traffic conditions.

At the Alma and Meadow intersection, the analysis shows that both the ramps from southbound Alma to Meadow and from Meadow to northbound Alma would operate at acceptable LOS B or better during the AM and PM peak hours with future traffic volumes. Where the northbound on-ramp would merge onto Alma Street, the analysis shows that the on-ramp approach would operate at LOS E during the AM peak hour, as traffic merging onto Alma Street would have to find gaps in the uncontrolled traffic flow on northbound Alma, which is the peak direction.

Charleston Road:
At the Alma/Charleston intersection, some turning movements would be cut off at the intersection itself but would be accommodated via a two-lane roundabout that would be provided on Charleston Road at Mumford Place, east of Alma Street.

The analysis shows that the two signalized intersections at Alma/Charleston would operate at LOS C or better during both the AM and PM peak hours under future conditions. Where the on-ramp from eastbound Charleston would merge onto southbound Alma Street, the analysis shows that the on-ramp approach would operate at LOS E during the PM peak hour under future traffic conditions, as traffic merging onto Alma Street would have to find gaps in the uncontrolled traffic flow on southbound Alma, which is the peak direction. The analysis shows that the two-lane roundabout at Charleston/Mumford would operate at acceptable levels of service during both the AM and PM peak hours under existing and future conditions.
TABLE 3: Meadow and Charleston Partial Underpass – Future Traffic Volumes

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traffic Control</strong></td>
<td><strong>Delay (secs)</strong></td>
<td><strong>LOS</strong></td>
</tr>
<tr>
<td>Alma Village Circle</td>
<td>Signal</td>
<td>18.84 B</td>
</tr>
<tr>
<td><strong>Meadow Drive</strong></td>
<td><strong>Alma Street S8 Off-Ramp &amp; Meadow Drive</strong></td>
<td>Signal</td>
</tr>
<tr>
<td></td>
<td><strong>Alma Street On-Ramp &amp; Meadow Drive</strong></td>
<td>Uncontrolled</td>
</tr>
<tr>
<td></td>
<td><strong>Meadow to NB Alma (On-Ramp)</strong></td>
<td>Yield</td>
</tr>
<tr>
<td><strong>Charleston Road</strong></td>
<td><strong>Alma Street &amp; Charleston Road (N)</strong></td>
<td>Signal</td>
</tr>
<tr>
<td></td>
<td><strong>EB Charleston to S8 Alma (On-Ramp)</strong></td>
<td>Yield</td>
</tr>
<tr>
<td></td>
<td><strong>Mumford Place &amp; Charleston Road</strong></td>
<td>Roundabout</td>
</tr>
</tbody>
</table>

**Notes:**
1. **AWSG** - All Way Stop Controlled
2. **Option 1** - At the Meadow Dr and Alma NB On-Ramp intersection, analysis assumes through traffic on Meadow does not stop. Left-turns from Meadow to Alma northbound would yield to westbound traffic on Meadow. The delay for the eastbound left-turns is shown in the table.
3. **Option 2** - At the Meadow Dr and Alma NB On-Ramp intersection, analysis assumes an all-way stop control.
4. **Option 3** - At the Meadow Dr and Alma NB On-Ramp intersection, analysis assumes a traffic signal.
5. The following turning movements are restricted at Alma/Meadow and Alma/Charleston due to the partial underpass.
   - Alma/Meadows - right-turn from eastbound Meadow, left-turn from westbound Meadow, left-turn and right-turn from northbound Alma.
   - Alma/Charleston - left-turn from eastbound Charleston, left-turn from northbound Alma, right-turn from southbound Alma.
6. The analysis assumes a northbound U-turn lane at Alma/Village Circle signal to allow northbound traffic on Alma Street to make a U-turn and use the southbound off-ramp to Meadow Drive.

Noise & Vibration Analysis

**Noise Analysis**

As part of the evaluation, a noise study was conducted to better understand the relative benefits or penalties of the grade separation alternatives. A noise survey was conducted in the study area to establish existing conditions in a variety of locations throughout the project. The noise measurement locations were selected to represent a variety of noise sensitive land uses in the study area with an emphasis on residential land uses. Most measurement locations were conducted at publicly accessible areas that were similar in distance and acoustical setting to nearby residential locations with an emphasis on first and second row homes (typically within about 300 feet of the rail line and about 1500 feet of a grade crossing). Both short- and long-term noise measurements were conducted to evaluate the noise study.

For each alternative, the noise levels were predicted for generalized locations of the first row and second row of homes on both east and west side of the tracks. It was expected that at locations beyond second row homes, train events may still be audible, but calculated noise levels would be much closer to (or lower than) existing ambient noise levels.

The following table provides a summary of how the relative contributions of rail and road noise sources may be expected to change as a function of proposed alternatives. Most noise source levels will be reduced by most alternatives as they introduce more noise reducing features such
as increased shielding from noise barriers or structures, however, it is noted that engine noise from hybrid and viaduct alternatives could increase slightly since the increased elevation of the rail path may reduce the effectiveness of first row shielding at second row homes.

TABLE 4: Noise Source Changes by Alternative

<table>
<thead>
<tr>
<th>Proposed Alternative</th>
<th>Potential Noise Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Horns/Bells</td>
</tr>
<tr>
<td>Existing</td>
<td>No change</td>
</tr>
<tr>
<td>EMU trains</td>
<td>No change</td>
</tr>
<tr>
<td>Closure</td>
<td><strong>Reduction</strong></td>
</tr>
<tr>
<td>Trench</td>
<td><strong>Reduction</strong></td>
</tr>
<tr>
<td>Viaduct</td>
<td><strong>Reduction</strong></td>
</tr>
<tr>
<td>Hybrid</td>
<td><strong>Reduction</strong></td>
</tr>
<tr>
<td>Tunnel (passenger + freight)</td>
<td><strong>Reduction</strong></td>
</tr>
<tr>
<td>Tunnel (freight at grade)</td>
<td><strong>Reduction</strong></td>
</tr>
<tr>
<td>Underpass</td>
<td><strong>Reduction</strong></td>
</tr>
</tbody>
</table>

1) May create some increased noise level beyond first row for diesel freight events
2) Decrease at receivers to west
3) Depends on new roadway configuration

In order to provide a quantitative comparison of relative acoustical benefits for these alternatives, future noise levels were calculated for representative residential locations at typical first and second row homes to the east and west of the rail line. These calculations followed the methodology and calculation methods presented in the Federal Transit Administration’s (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) and assumptions were based on the Caltrain data provided in their environmental documents.

In addition to the alternatives in consideration, the noise study reviewed the two additional scenarios with beneficial 6-foot tall parapet barrier that was assumed for the viaduct and hybrid alternatives for the grade crossing closure and underpass alternatives. The following table provides a summary of the results of the noise reduction based on the prediction analysis for each alternative and each generalized receiver location.
The study indicated that the biggest noise reduction would come from eliminating horn soundings in the vicinity of grade crossings with typical reductions of 9 to 14 dBA (as demonstrated by the “Existing vs. Closure” scenario). While all the studied alternatives will provide the acoustical benefit of ending horn soundings, some will provide smaller additional benefits.

Viaduct and hybrid alternatives will provide the additional benefit of reducing wheel/rail noise at all receivers and the hybrid alternative will also help reduce Alma street road noise for homes to the west of the rail line. The trench alternative will both provide significant reductions for engine and wheel/rail noise.

**Vibration Analysis**

The movements of rail vehicles generate ground-borne vibration. According to FTA guidelines, a passenger/freight rail line would have to pass within less than 20 feet of a typical residential structure to potentially cause structural damage which would not be an issue with this project.

However, human perception of, and potential annoyance to ground-borne vibration could be triggered in homes within 150-200 feet from the tracks. Under the current/existing conditions, many of the first-row homes to both the east and west of the track are already within 200 feet of the tracks and may already be experiencing perceptible vibrations from train pass-by events.

The vibration study conducted a relative qualitative assessment of changes in ground-borne vibration level by proposed alternatives based on FTA guidance. The following table provides a brief summary of the qualitative assessment.

<table>
<thead>
<tr>
<th>Alternative</th>
<th>First Row West</th>
<th>Second Row West</th>
<th>First Row East</th>
<th>Second Row East</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peak</td>
<td>Ldn</td>
<td>Peak</td>
<td>Ldn</td>
<td>Peak</td>
</tr>
<tr>
<td>Existing/w Horns (EMU)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>GC Closure (Diesel)</td>
<td>13.4</td>
<td>12.4</td>
<td>12.7</td>
<td>11.8</td>
<td>10.5</td>
</tr>
<tr>
<td>GC Closure (EMU)</td>
<td>14.2</td>
<td>12.9</td>
<td>13.4</td>
<td>12.2</td>
<td>10.9</td>
</tr>
<tr>
<td>GC Closure (EMU) w/barrier</td>
<td>18.4</td>
<td>16.5</td>
<td>16.6</td>
<td>15</td>
<td>12.3</td>
</tr>
<tr>
<td>Viaduct (Churchill)</td>
<td>18.4</td>
<td>16.5</td>
<td>16.6</td>
<td>14.1</td>
<td>12.3</td>
</tr>
<tr>
<td>Viaduct (Meadow/Charleston)</td>
<td>18.5</td>
<td>16.6</td>
<td>16.6</td>
<td>14.2</td>
<td>12.3</td>
</tr>
<tr>
<td>Hybrid</td>
<td>23.6</td>
<td>20.8</td>
<td>20.6</td>
<td>17.2</td>
<td>12.2</td>
</tr>
<tr>
<td>Trench</td>
<td>18.0</td>
<td>16.6</td>
<td>16.3</td>
<td>15.0</td>
<td>12.2</td>
</tr>
<tr>
<td>Transition (trench or tunnel)</td>
<td>21.1</td>
<td>15.6</td>
<td>15.5</td>
<td>14.1</td>
<td>12.6</td>
</tr>
<tr>
<td>Tunnel Pass. &amp; Freight</td>
<td>18.9</td>
<td>17.6</td>
<td>16.9</td>
<td>15.7</td>
<td>12.4</td>
</tr>
<tr>
<td>Tunnel At Grade Freight</td>
<td>21.9</td>
<td>18.3</td>
<td>19.9</td>
<td>16.3</td>
<td>15.4</td>
</tr>
<tr>
<td>Underpass Meadow/Charleston</td>
<td>14.2</td>
<td>12.9</td>
<td>13.4</td>
<td>12.2</td>
<td>10.9</td>
</tr>
<tr>
<td>Underpass M/C w/barrier</td>
<td>18.4</td>
<td>16.5</td>
<td>16.6</td>
<td>14.9</td>
<td>12.3</td>
</tr>
<tr>
<td>Underpass Churchill</td>
<td>15.6</td>
<td>14.3</td>
<td>15.3</td>
<td>14.1</td>
<td>14.4</td>
</tr>
<tr>
<td>Underpass Churchill w/barrier</td>
<td>23.5</td>
<td>20.4</td>
<td>22.1</td>
<td>19.5</td>
<td>18.4</td>
</tr>
</tbody>
</table>
TABLE 6: Potential Change in Ground-Borne Vibration by Alternative

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Qualitative Change in Ground-Borne Vibration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Crossing Closure</td>
<td>No Change</td>
</tr>
<tr>
<td>Churchill Viaduct</td>
<td>Significant reduction for homes both east and west.</td>
</tr>
<tr>
<td>Meadow/Charleston Viaduct</td>
<td>Significant reduction for both east and west, but slightly better for west.</td>
</tr>
<tr>
<td>Hybrid</td>
<td>Slight reduction for homes both east and west.</td>
</tr>
<tr>
<td>Trench</td>
<td>Slight reduction for homes both east and west.</td>
</tr>
<tr>
<td>Tunnel, passenger and freight</td>
<td>Probable slight reduction for homes both east and west</td>
</tr>
<tr>
<td>Tunnel, freight at grade</td>
<td>Slight reduction for homes to west, possible increase for homes to east for nighttime freight events (which would be moved closer to homes)</td>
</tr>
<tr>
<td>Underpass</td>
<td>Little or no change</td>
</tr>
</tbody>
</table>

Source: FTA 2018, Table 6-12

As indicated in the table above, most of the proposed alternatives would either create no significant change or perhaps a slight improvement in ground-borne vibration. The viaduct alternative may provide a significant improvement.

However, a more detailed ground vibration engineering analysis for the selected alternative at each of the crossings will need to be completed to develop a more detailed vibration impact assessment with detailed recommendations for vibration mitigation features to be incorporated into the final design.

**Outreach**

During the XCAP Process community represented participated and provided feedback and comments. The city staff and Consultant provided support at the XCAP meetings and conducted studies, performed analysis, and provided additional technical information for the review of the alternatives.

Earlier in 2020, before the pandemic began, the City hosted two well attended Rail Town Hall meetings and smaller neighborhood specific open house meetings to gain community input on the rail alternatives and answer community questions. Staff also developed and released online surveys and used social media, the City’s website, and electronic newsletters to inform, answer questions and gain feedback from the community on this important City priority.

In addition, to further engage the community, City staff hosted a Virtual Town Hall from August 19, 2020 to September 14, 2020 gaining over 1,000 unique visitors to the online platform. This virtual platform was designed to inform the community and seek feedback on the proposed alternatives for grade separation at the three grade crossing locations of Churchill Avenue, Meadow Drive and Charleston Road. A summary report of virtual townhall was provided as an informational report to the City Council on November 30, 2020. Staff and XCAP also provided project update and related information to the Pedestrian and Bike Advisory Committee (PABAC), City’s School Liaison Committee, and City School Traffic Committee. A shift to the
Virtual Town Hall format was a direct result of the pandemic and the opportunity to further community engagement through this project phase.

**Construction & Engineering Challenges:**
There are several Construction and Engineering challenges with each of these alternatives. These challenges are described below and are summarized in the table to show the impact on each alternative.

- **Conformance of railroad grade** with preferred maximum grade by Joint Peninsula Board (JPB)/Caltrain. With the current design, only the hybrid and underpass alternatives for Meadow and Charleston are in compliance with Caltrain’s maximum preferred railroad grade. The viaduct and the trench alternative will require design exceptions from the JPB/Caltrain.

- **Four Tracking of Caltrain:** during the later stages of the conceptual plan development, JPB/Caltrain indicated a need for four (4) tracking of its railroad line within the vicinity of south Palo Alto may be needed to accommodate future Caltrain demands. As a result, all designs shall accommodate the need of these future four tracks. The concepts as planned has not been designed to accommodate these four (4) tracking requirement. As such a future review and coordination with Caltrain will be needed.

- **Underground Structure Conflicts:** Installation of underground structures will impact the underground facilities. For the Trench alternative at these crossings, it will require diversion of Adobe and Barron creeks, resulting in the need for lift station/siphons. In addition, the trench will require ground anchors to support structures. These ground anchors will require easements on the properties to the west and trees removal. Also, approval of such facilities will require permitting from the numerous regulatory agencies that may involve lengthy and difficult negotiations. For all other alternatives, there will be minimal to no impacts on the creeks.

- **Ground Water Conditions:** Due to the groundwater conditions all alternatives except Viaduct will require pump stations for dewatering which will increase long-term maintenance costs and risk of flooding due to pump stations. The trench will require the most groundwater dewatering along the entire alignment, whereas the hybrid and underpass alternatives will require such dewatering only near the intersections where improvements are constructed. However, some dewatering will be required to construct footings for viaduct structures.

- **Utility Relocation:** Utility relocations will be required to remove any conflicts with foundations/trench and for any lowered construction condition. For Trench Alternative, the utility relocation will be required along the entire alignment whereas, for the hybrid and underpass alternative, utility relocations will be at these intersections. Also, for
Viaduct any utility conflict within the foundations and pier structure will need relocation.

- **Shoo-Fly/Temporary Rail System**: Shoo-Fly /Temporary Rail system included temporary electrification of the tracks will be required to accommodate all alternatives except for the viaduct based on the current design. For the Underpass alternative, the XCAP members shared an alternative methodology “Box Jacking” that may be feasible. Such technique will require further evaluation and Caltrain acceptance before determination of applicability for Underpass Alternative.

- **Traffic During Construction**: For all alternatives except Viaduct, during construction, Meadow Drive will be closed, while the Charleston Road bridge is constructed, and vice versa. In addition, Alma Street will be reduced to a two-lane roadway to accommodate shoofly for both Hybrid and Underpass Alternatives. For the Trench alternative, one southbound lane on Alma Street will be needed to install the pump structures during construction. During construction, all alternatives will have additional impacts at the intersections on Alma Street at both Meadow Drive and Charleston Road. For Hybrid Alternative, the construction will be done in two phases, the first phase will comprise of raising the rail structure and the second phase will be lowering the roadway. For Underpass Alternative, a closure of Meadow Drive between Emerson Street and Park Boulevard, and closure of Charleston Road between Alma Street and Park Boulevard will be required for the majority of construction duration. However, the duration of such closures for Underpass Alternative may change depending upon the construction means and methods.

- **Construction Time Period**: Viaduct Alternative is expected to take the least time for completing grade separation in two (2) years while Trench is anticipated to be completed over six (6) years. The Hybrid is anticipated to be constructed in 4 years whereas Underpass Alternatives will take three and a half (3-1/2) to four (4) years. However, construction duration for the Underpass Alternative may change depending upon the construction means and methods.

<table>
<thead>
<tr>
<th>LOCATION/DESCRIPTION</th>
<th>VIADUCT</th>
<th>HYBRID</th>
<th>TRENCH</th>
<th>UNDERPASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Period</td>
<td>2 Years</td>
<td>4 Years</td>
<td>6 Years</td>
<td>3.5-4 Years</td>
</tr>
<tr>
<td>Railroad Grade</td>
<td>1.4%</td>
<td>1%</td>
<td>2%</td>
<td>-</td>
</tr>
<tr>
<td>Shoo-Fly /Temp Rail System</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes /Alt Tech</td>
</tr>
<tr>
<td>Utility Relocation</td>
<td>Yes, Conflicts with Foundations</td>
<td>Yes, at crossings &amp; Approaches</td>
<td>Yes, along the alignment</td>
<td>Yes, at Crossings</td>
</tr>
</tbody>
</table>
Closure on Alma

Intersection Closures/Impacts

- None expected, SBR lane in areas closure
- Reduced to 2 lanes
- One lane reduction for pump station
- Reduced to 2 lanes

Intersection Closures, Minor Widening, some closures

Other impacts

- 2 phases – 12' Clearance for a period
- -

Dewatering & Excavation

- -

Long term dewatering

- Pump Station

Adobe Creek/ Baron Creek

- Raised above creeks (minimum impacts)

Project Cost

As far as the construction cost of the project, the Hybrid Alternative is the cheapest of all alternatives estimated at $190-230 million and Trench is the most expensive at approx. $800-950 million. Both Viaduct and Underpass Alternatives are anticipated in the mid-range of these alternatives. The high-level cost breakdown based on the current designs is shown in the following table.

TABLE 8: Summary of Project Cost

<table>
<thead>
<tr>
<th>LOCATION/DESCRIPTION</th>
<th>VIADUCT</th>
<th>HYBRID</th>
<th>TRENCH</th>
<th>UNDERPASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway &amp; Railroad Items</td>
<td>$72M to $90M</td>
<td>$84M to $102M</td>
<td>$450M to $540M</td>
<td>$124M to $152M</td>
</tr>
<tr>
<td>Structure Items</td>
<td>$155M to $194M</td>
<td>$10M to $12M</td>
<td>$8M to $10M</td>
<td>$18M to $22M</td>
</tr>
<tr>
<td>Right-Of-Way &amp; Utilities</td>
<td>$18M to $22M</td>
<td>$26M to $32M</td>
<td>$26M to $28M</td>
<td>$80M to $98M</td>
</tr>
<tr>
<td>Support Costs</td>
<td>$80M to $100M</td>
<td>$35M to $42M</td>
<td>$166M to $194M</td>
<td>$80M to $98M</td>
</tr>
<tr>
<td>Escalation To 2025 Dollars</td>
<td>$75M to $94M</td>
<td>$35M to $42M</td>
<td>$150M to $178M</td>
<td>$64M to $78M</td>
</tr>
<tr>
<td>Total Project Costs</td>
<td>$400M to $500M</td>
<td>$190M to $230M</td>
<td>$800M to $950M</td>
<td>$340M to $420M</td>
</tr>
<tr>
<td>Construction Period</td>
<td>2 Years</td>
<td>4 Years</td>
<td>6 Years</td>
<td>3.5-4 Years</td>
</tr>
</tbody>
</table>
**Additional Studies**
With the presentation of the XCAP final report to the City Council at the study session on March 23, 2021 and final recommendations on April 26, 2021, several concerns were brought up that would require additional studies and consultant support in order to fully address in reviewing the alternatives. Subsequently, staff requested the project Consultant AECOM to provide estimated scope and costs for the additional studies and revisions that may be helpful in further reviewing the alternatives in consideration for the selection of the preferred alternative(s).

It should be noted that many of these studies are typically conducted later in a construction project development process and focused on a primary rather than multiple alternatives. This is reflected in the associated costs. In addition, conclusions from these studies must be considered preliminary, since responsible agencies such as Caltrain will provide limited guidance and feedback at the current conceptual design stage. Nonetheless, to the extent these studies provide community stakeholders greater confidence in decision-making, the costs involved represent a small percentage of the ultimate costs of grade separation construction. The additional studies with estimated scopes and fees are listed below.

Overall, the estimated scope and fee listed above for various studies is inclusive of work anticipated for all three crossings (Churchill Avenue, Meadow Drive, and Charleston Road). In general, these costs are not directly proportional to the number of crossings. Depending upon the City Council direction, if a particular item needs exclusion from further study at any of the crossings, the scope will be reviewed and negotiated with the consultant. Discussion and direction from the Council on priorities within these potential additional studies will help staff manage project costs and ensure continued progress on the evaluation of the alternatives within resources.

**Track Review and Caltrain Coordination: Estimated fee** $90,000-$110,000
JPB/Caltrain has adopted the moderate-growth improvement program as outlined in its Business Plan ([https://caltrain2040.org/](https://caltrain2040.org/)). However, JPB also indicated that the high-growth improvement program should not be precluded. Palo Alto has been identified in the Business Plan as a location for the high-growth improvements, including 4-tracks. To date, alternatives developed for the Rail Program have been evaluated for 2-tracks. Identifying the implications of each alternative with 4-tracks will require additional engineering analysis.

- **Gather Data from Caltrain:** Meet with Caltrain to gather more information about what the limits of the 4-track alignment would be and what the typical section would be along the limits and at the stations.
- **Evaluate Alternatives:** Conduct a high-level analysis of the impacts of 4-tracks for each alternative still under consideration (MC Viaduct, MC Hybrid, MC Trench, MC Underpass, CH Viaduct, CH Underpass, and CH Closure) by overlaying Caltrain’s 4-track geometry over the proposed 2-track. Identify a list of significant impacts for each alternative. Determine if the alternatives are still feasible with 4-tracks or does not
preclude 4-tracks in the future. Note: This task assumes no animations or photo simulations or updates to existing exhibits.

- **Meet with Caltrain:** Meet with Caltrain to review the evaluation of alternatives and gather additional feedback on the feasibility and impacts of each.

- **Prepare memorandum report:** Prepare a draft and final memorandum report that documents the evaluation of the 4-track alignment and feedback received from Caltrain. Incorporate one set of consolidated comments from the City and Caltrain on the draft technical memorandum.

### Traffic Study Update (2040)

<table>
<thead>
<tr>
<th>Traffic Study Update (2040):</th>
<th>Estimated fee*</th>
<th>$45,000-$55,000</th>
</tr>
</thead>
</table>

During the study session and the XCAP recommendations, there was a discussion to review the traffic conditions with the future forecast of 2040 rather than the 2030 forecasts that have been used in the traffic study. While explained that the forecast reflects Comprehensive Plan buildout rather than a specific year, additional land use forecasts could be incorporated in order to update the traffic model. The update to traffic analysis to reflect a future forecast year of “2040” rather than the year 2030 forecasts will require the following specific tasks.

- **Model Land Use:** Palo Alto has not identified any growth beyond 2030, which is considered the horizon for the Comprehensive Plan. Therefore, for the traffic analysis zones (TAZ) within Palo Alto, the land use data will be the same as the 2030 forecasts. Outside of Palo Alto, Hexagon will update the land use data to year 2040 using the latest version of the VTA model.

- **Model Forecasts:** Consultant (Hexagon) will run the Palo Alto model and produce traffic volume forecasts for the major streets in Palo Alto in the study area. These forecasts will be used to calculate growth factors, and the growth factors will be applied to the existing intersection turning movement counts from the prior traffic study. This will yield an estimate of intersection turning movement counts for 2040.

- **Traffic Calculations:** The 2040 forecast intersection turning movements will be used to recalculate intersection levels of service for the project alternatives. There are 11 project alternatives, and calculations will be done for the AM and PM peak hours. Thus, 22 scenarios will be included in the study.

- **Documentation:** Consultant (Hexagon) will prepare a revised traffic report that updates the long-range analysis to year 2040. The existing conditions analysis will remain unchanged.
**Design Refinement Of Underpass Alternatives: Estimated fee* $125,000-$150,000**

The XCAP in their presentation to the City Council recommended that the Underpass Alternative at Meadow and Charleston undergo an additional design iteration to incorporate input from the PABAC and school committees. As such staff requested the Consultant for their support to develop the estimated costs and scope as follows:

- **Enhance Alternatives:** Refine the three underpass alternatives (Churchill, Meadow and Charleston) by including input received by the XCAP, the school committees, and the ped/bike advisory committees (PABAC, etc.).
  
  Note: This task assumes the railroad profiles remains at-grade.

- **Update Exhibits:** Update the plan, profile and typical section exhibits for each of the three alternatives.

- **Update Renderings:** Update the 3D CAD model and still image renderings to include all refinements, including those not captured previously (U-turn at Alma Plaza, for example).
  
  Note: This task does not include animations or photo simulations.

- **Update Cost Estimates:** Update the quantities, and cost estimates for each alternative.
  
  Note: If the unit costs get updated, then additional time will need to be added to update all other alternatives too for consistency.

- **Update Miscellaneous Items:** Update the Evaluation Matrix, Fact Sheets, website materials and VR room materials/exhibits based on the refinements.

**Preliminary Geotechnical Investigations: Estimated fee* $130,000-$160,000**

- **Data Collection and Review – Groundwater and Geotechnical:** Collect available geotechnical and groundwater data from adjacent projects. This could include data from Santa Clara Water District channel projects, Caltrans Local Bridges, and other sources.

- **Field Investigation – Two CPT Borings:** Once the existing available data has been collected and reviewed, make are recommendation to conduct a limited geotechnical field investigation to confirm data closer to proposed bridge and retaining wall structures. For this effort, two Cone Penetrometer Test (CPT) borings are anticipated. Recommendations for further detail geotechnical filed investigations will be evaluated but deferred to the next level of design. The purpose of this limited geotechnical investigation is to confirm design assumptions made during this design phase.

- **Memorandum Report – Draft and Final:** The data collected in stated tasks above will be summarized in a memorandum. The memorandum will also discuss further investigation needed for detailed design as well as confirm assumptions used for bridge and retaining walls foundations.
**Box Jacking System/Geotechnical Investigation & Feasibility Study:** Estimated fee* $350,000-$600,000

- **Data Collection and Review – Groundwater and Geotechnical:** The scope described in task above for Preliminary Geotechnical investigation for data collection and field investigations is also be included in this task. In addition to the CPT described in task above, one exploratory boring would be taken at each crossing location to supplement the data collected from the CPT.

- **Construction Methodology Evaluation:** Data collected in the above task will be used to determine the feasibility of a relatively long-span (40-60 feet or possibly longer) box culvert-like structure to support the various loading conditions (dead load, live load, lateral and vertical seismic loads, and buoyancy due to groundwater).

- **Construction Phasing / Sequencing:** In this task, the various components involved with the set up and operation of a box jacking system will be evaluated, such as: dewatering of the excavation pit, the size of the pit and the extent of the temporary shoring, utility conflicts and the potential need for relocations, the maintenance of vehicular traffic and Caltrain’s overhead contact system.

- **Cost Estimate:** Prepare a rough order-of-magnitude (ROM) cost for the box jacking system.

- **3D Animation:** Prepare a 3D animation of the steps anticipated to complete the installation of a box culvert-like substructure via a box jacking system.

- **Memorandum Report:** The information in Tasks stated above would be summarized in a technical memorandum. It also includes incorporation of one round of comments is (one Draft and one Final report).

Cost Details: Geotechnical Investigation $120,000-$150,000; Structural Analysis $230,00-$450,000

**Shadow Analysis (Light Plane Review):** Estimated fee* $20,000-$25,000

- **3D Model Development**
  - Collect geolocation info (Lat/Long and Elevation data) for correct sun angle
  - Complete topology and surface conditions
    - Note: This does not include a Lidar scan, it’s assumed that 3D information from public sources (i.e., Google Earth) are used
  - Complete object 3D model (features that will cast shadows)
  - Complete subject 3D model (features that will receive shadows)
  - Model other details, as needed (trees, etc.)

- **Shadow Study Analysis**
  - Shadow Study Analysis
    - Note: One specific day of the year will be selected for the analysis
  - Organization and Preparation: Study imagery combined with analytics
  - Add Legend/Icons/Notes

- **Study Document Production and Final Report**
- Image and document post-production using Adobe Illustrator and Photoshop
- Combine multiple studies using Adobe InDesign
- Address comments and complete final report

Assumptions for these studies:

- Three sites (Churchill, Meadow and Charleston) and two alternatives (Viaduct at each and a Hybrid at Meadow and Charleston) will be studied.
- Each site has three proposed subjects (buildings) to be analyzed.
- Each site will have several buildings that can be used to extrapolate shadow study analytics for that area. Structures predicted to receive the most shading will be the subjects for study.
- The estimate includes one study at Churchill (Viaduct), two studies each at Meadow and Charleston (Viaduct and Hybrid).
- Fifteen (15) shadow analyses will be completed; three (3) at Churchill, six (6) at Meadow and six (6) at Charleston. Each one will include an analysis of shadow impact on the target structure and a visual of the shadow path, sun angles, and other simulation details. Studies for each site will be combined and annotated according to any given constraints. For example, a pass/fail system based on a maximum number of shade hours a target structure is allowed to receive.

**Additional Noise Study:** Estimated fee* $55,000-$65,000

- **Expand Study Area/Measurements:** Conduct additional noise measurements, going further back into the adjacent residential neighborhoods (perhaps 3 or 4 rows in a few locations near grade crossings) to determine the contribution of existing train noise relative to non-train ambient noise levels at these locations and incorporate these findings into the evaluation of the various grade separation alternatives.

- **Expand Analysis for Future Growth:** Expand the noise analysis to consider the comparative influence of the future growth scenarios (see table below) on the projected relative effectiveness of the proposed grade-crossing design alternatives.

**TABLE 9: Trains per Day, Caltrain Corridor**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Year (Est.)</th>
<th>Type of Train</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Caltrain</td>
<td>Freight</td>
</tr>
<tr>
<td>Existing</td>
<td>2020</td>
<td>92</td>
<td>3</td>
</tr>
<tr>
<td>Electrification</td>
<td>2024</td>
<td>114</td>
<td>3</td>
</tr>
<tr>
<td>Baseline growth</td>
<td>2040</td>
<td>174</td>
<td>3</td>
</tr>
<tr>
<td>Moderate growth</td>
<td>2040</td>
<td>268</td>
<td>3</td>
</tr>
<tr>
<td>High Growth</td>
<td>2040</td>
<td>348</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Caltrain Business Plan
• **Analyze Structural Noise/Vibration:** Conduct a limited literature review to collect data and support technical conclusions regarding the relative acoustical contribution of modern viaduct structures such as those proposed for use in the viaduct alternative.

• **Update Noise Study Report:** Update the technical noise report document to incorporate all three of the preceding expanded analyses and present the result (remotely) at a City Council meeting and incorporate one round of comments into a final report document.

**Storm Drainage Infrastructure:** *Estimated fee* $200,000 – $250,000

• **Evaluate Trench Storm Drain Alternatives:** An evaluation of a siphon or a lift station options will be performed for the creek crossing based on the trench grade separation alternative. The following items will be considered:
  - Environmental issues/concerns (e.g., impact to creek habitat)
  - Permit requirements (RWQCB, SCVWD, FEMA, USACE, Department of Fish and Game)
  - Flooding potential and impacts
  - Maintenance issues and long term requirements
  - Design Options and conceptual details (depth of siphon, entrance/exit slope and length, etc.)
  - Utility conflicts and impacts
  - Temporary shoring requirements
  - Traffic impacts during construction
  - Right-of-way impacts
  - Groundwater and aquifer impacts

A rough order-of-magnitude (ROM) cost will be developed for both options.

• **Evaluate Underpass Storm Drain Alternatives:** Drainage requirements for the underpass alternatives will be determined. For example, the size of the pump station, and the location of a motor control center (MCC) building, and potential right-of-way impacts, will be considered. A ROM cost will also be included.

• **Prepare Memorandum Report:** The information from the evaluation will be summarized in a technical memorandum. Incorporation of one round of comments is assumed (one Draft and one Final report).

**Additional Outreach:** *Estimated fee* $15,000-$20,000

• **Conduct Meetings with Additional Stakeholders:** Conduct separate virtual meetings with Palo Alto Unified School District (PAUSD), Stanford, and the Palo Alto Bicycle Advisory Committee (PABAC) to review the alternatives still under consideration (MC Viaduct, MC Hybrid, MC Trench, MC Underpass, CH Viaduct, CH Underpass, and CH Closure). A total of three meetings with the stakeholder are anticipated.

• **Prepare Meeting Notes:** Prepare draft and final meeting notes for each that documents the feedback received from each stakeholder. Develop list of revisions to be considered at the next phase of design. Incorporate one-set of consolidated comments from the
City and Caltrain on the draft technical memorandum. Note: This task does not include revising/updating any previously prepared exhibits or changing the location of the ped/bike undercrossing.

**Urban Designer:** *Estimated fee* $100,000-$125,000

- **Urban Design / Public Realm Opportunity Mapping:** Identify opportunities for public realm improvements for each of the three (3) alternatives that considers landscaping, public art, pedestrian, and bicycle network enhancements and other placemaking strategies that benefit the community as well as the environment. An opportunities and constraints urban design plan diagram will be created for each of the three alternatives.

- **Urban Design / Public Realm Design Enhancements:** Building on the analysis in opportunity mapping task, the layout of potential public realm enhancements that provide co-benefits to the community will be prepared. Strategies that will be considered includes urban greening, integration of public art, aesthetic character of walls and hardscape, and an overall human-centric approach to design that enhances the experience for the public. A conceptual site plan for each alternative will be updated with the proposed public realm design features. Note: This task does not include renderings, animations or photo simulations.

- **Meetings:** Two (2) team members to attend up to eight (8), virtual team coordination meetings.

**Conceptual Design for Ped/Bike Undercrossing At Seale And Loma Verde:** *Estimated fee* $80,000-$100,000

- **Conceptual Layouts:** Develop plan, profile and typical section exhibits for a ped/bike undercrossing at two locations: Seale Ave/Peers Park and Loma Verde Ave.

- **Cost Estimates:** Develop a conceptual-level cost estimate at each location to the same level of detail that was done for the previous alternatives.

- **3D Renderings:** Create a 3D CAD model of the conceptual designs and provide up to six (6) computer-generated renderings and two (2) photo simulations at each location.

- **Miscellaneous Public Outreach Materials:** The two concepts will be added to the Evaluation Matrix. Fact Sheets for each will be provided, and exhibits will be uploaded to the website. In addition, the VR room will be updated accordingly.

**Sustainability:** *Estimated fee* $50,000-$80,000

- **Sustainability Strategy Plan:** All of the alternatives developed to date can incorporate sustainability practices into the design. This task will develop a strategy to identify major categories where sustainable materials and practices can be incorporated into final design of alternatives.

- **Bike/Ped Usage:** Lowering greenhouse gases usage factors into the sustainable design of an alternative. Pedestrian and bicycle facilities factor into reduced greenhouse gases.
This task would evaluate how bike/ped facilities can be improved in relation to the grade separation alternatives.

*The estimated scope and fee listed above for various studies is inclusive of work anticipated for all three crossings (Churchill Avenue, Meadow Drive, and Charleston Road). In general, these costs are not directly proportional to the number of crossings. Depending upon the City Council direction, if a particular item needs exclusion from further study at any of the crossings, the scope will be reviewed and negotiated with the consultant.

**Next Steps**

- Staff will perform a detailed review of Churchill Avenue Crossing in the fall of this year including discussion on additional studies.
- Following the City Council's review of alternatives in detail and information on the additional studies for all three crossings, staff will negotiate with AECOM Consultants, the final scope and fee for this additional work. Staff will then return to Council for approval of an amendment to the existing consultant contract for expanded scope of work needed to accomplish additional work.
- Perform additional studies of selected alternatives as directed at each of the locations and bring back additional information for Council consideration.
- Rail Committee to discuss the financial consideration.
- Direct staff to prepare the initial Project Study Report (PSR) that provides the summary of actions and demonstrates the purpose, need, and provides the scope of the project which is necessary to complete studies and the work needed for project approval and environmental design.

The selection of preferred alternatives will therefore lead to the development of preliminary engineering and preparation of environmental documents including the associated Environmental Impact Report (EIR). The completion of Environmental documents will better position the City to seek grant funding from Federal and State programs for such projects. Depending upon the timing and funding availability, after the approval of EIR, the project will move towards completion of final design documents and then followed by construction of project improvements.

**RESOURCE IMPACT**

Preliminary scope and cost estimates to conduct additional studies were developed for all three rail crossings (Churchill Avenue, Meadow Drive and Charleston Road) for Council’s review and consideration for further staff direction. The recommendation to perform additional studies needed to select the preferred alternative will result in direct resource impact. Amendment to the Consultant Contract for performing these additional studies will be brought forward for Council approval.

Funding for grade separation project of $2.3 million is programmed in the FY 2022 Adopted Capital Improvement Budget for Railroad Grade Separation Project (PL-17001) that includes
funding from 2016 Measure B Local Streets and Roads. The anticipated costs of the all the studies for these crossings is estimated to range between $1.25 to $1.73 million. Funding for future years is subject to City Council approval through the annual budget process.

Direction from the City Council regarding further work, outside those recommended in this report, on the grade separation projects may lead to future resource impacts. As City Council direction is provided, corresponding budget adjustments will be brought forward for approval as appropriate. Rail grade separation projects are historically funded by the General Capital Improvement Fund through funding sources such as Measure B, SB1 and in or through General Fund support. Additional funding allocations will need to be taken into consideration of competing needs and limited funding remaining as part of the general Capital Improvement Fund.

ENVIRONMENTAL REVIEW
The proposed action is part of a planning study for a possible future action, which has not been approved, adopted, or funded and is therefore exempt from the California Environmental Quality Act (CEQA) in accordance with CEQA Guidelines Section 15262. The future decision to approve the construction of any one of the identified potential alternatives would be subject to CEQA and require the preparation of an environmental analysis. Environmental review and design for the grade separation project will be performed in the subsequent steps of the project development.

DOCUMENTS
All of the project related documents are posted on the project webpage here: https://connectingpaloalto.com/. Here are direct links furthered for Council consideration and public information as part of this staff report:

- Fact Sheets & Matrix
- Renderings & Animations
- Traffic Analysis Report
- Noise & Vibration Report
- Virtual Townhall Page

XCAP Final Report & Appendix
Appendix A contains Fact Sheets, Matrix, Renderings and Plans (created by AECOM). Appendix B contains general information. Appendix C contains XCAP materials. Due to file size limitations, the Appendix is broken into six parts:

- XCAP Final Report
  - Part 1: Appendix A-1 thru A-2-1
  - Part 2: Appendix A-2-2 (01-04)
  - Part 3: Appendix A-2-2 (05-08)
  - Part 4: Appendix A-2-3 thru A-6
Part 5: Appendix B
Part 6: Appendix C

Attachments:
- Attachment6.a: Exhibit A: Presentation for Grade Separation Project
Discussion Outline

- Introduction
- Detailed Review of Meadow-Charleston Alternatives
- Overview/Discussion on additional Studies
- Summary & Recommendations
- Public Comments
- Councilmembers Question & Comments
Purpose

Review and discuss additional studies that will help in furthering the selection of preferred alternative(s) for Meadow and Charleston grade separation.

Direct staff on the additional studies that staff should pursue to evaluate the Meadow Drive and Charleston Road Grade crossings.

Following the City Council meeting tonight, staff recommends:

1. Review of Churchill Avenue Grade Crossing details and direction to staff for additional studies (September/October 2021).
2. To initiate contract amendment and finalize scope with Consultant to perform recommended additional work for all three crossings (October/November 2021)
Review of Issues from Study Session

- Detailed Design Review
- Additional Studies for review:
  - Track Review and Caltrain Coordination
  - Traffic Study Update (2040)
  - Design Refinement of Underpass Alternatives
  - Preliminary Geotechnical Investigations
  - Box Jacking System/Geotechnical Investigation & Feasibility Study
  - Shadow Analysis (Light Plane Review)

- Additional Noise Study
- Storm Drainage Infrastructure
- Additional Outreach
- Urban Designer
- Conceptual Design for Ped/Bike Undercrossing At Seale And Loma Verde
- Sustainability
Meadow Charleston – Alternatives

- Viaduct
- Trench
- Hybrid
- Underpass
Meadow – Charleston – Viaduct
Plan and Profile
Meadow – Charleston – Viaduct Rendering
Meadow- Charleston – Trench
Plan and Profile
Meadow – Charleston – Trench Rendering

Looking South towards Meadow Drive
Meadow Drive – Hybrid Layout

LEGEND
- Fence
- Right-of-Way
- Ramp
- Landscaping
- Roadway Modifications
- Sidewalk Modifications
- Undercrossing Structure
- Stairway

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Charleston Drive – Hybrid
Layout
Meadow – Charleston – Hybrid Rendering
Meadow Drive – Underpass

Restricted Movements
- Eastbound Right
- Westbound Left
- Northbound Left and Right (U-Turn at Alma Village)

- Ped/Bike Crossings at 2nd Street on west side and Emerson Street on east side
Meadow Drive Underpass
Renderings

Looking North on Alma St
Looking West on Meadow Dr
Charleston – Underpass
Layout

Movements Accommodated via Roundabout:
• Eastbound Left
• Northbound Left
• Southbound Right
Charleston Road Underpass
Renderings

Looking South on Alma St

Looking West on Charleston Rd
Question about the Noise Study

The noise report Table 5-1 is intended to provide a qualitative accounting of which proposed design alternatives would help reduce which noise sources. Both Hybrid and Viaduct design alternatives are generally expected to reduce both wheel/rail and engine noise (with noted exceptions for diesel locomotive engine noise at second row receptors). Noise reduction is due primarily to the presence of the 6-foot parapet noise barriers that are included as an integral part of those alternatives specifically to reduce wheel/rail and EMU engine noise. The short/parapet noise barriers could be added as a stand only treatment for at grade trains, but even if they were, they would still create a wheel/rail and engine noise reduction for the hybrid and viaduct alternatives. However, switching to EMUs alone, or grade crossing closure alone, or underpass alternative alone, would not provide a notable reduction for wheel/rail noise.
Track Review and Caltrain Coordination

Scope of Work

- Gather Data from Caltrain
- Evaluate Alternatives
- Meet with Caltrain
- Prepare Memorandum Report

Determining if 4 tracks would not be precluded, as indicated in the Caltrain Business Plan, could potentially eliminate one or more alternatives.

Preliminary Cost Estimate

$ 90,000 – $ 110,000
Traffic Study Update (2040)

Scope of Work

- Model Land Use and Forecast
- Traffic Calculations
- Documentation

Since Palo Alto has not identified any growth beyond 2030, updating traffic volumes for 2040 land use would only affect zones outside of Palo Alto, and thus not make a significant difference to volumes in the project’s study area.

Preliminary Cost Estimate
$45,000 – $55,000
Design Refinement of Underpass Alternatives

Scope of Work

- Enhance Alternatives
- Update Exhibits & Renderings
- Update Cost Estimates
- Update Miscellaneous Items
- Documentation

Further study defines the alternatives in more detail and could provide additional information on the alternatives; however, this information may not help narrow the alternatives.

Preliminary Cost Estimate
$125,000 – $150,000
Preliminary Geotechnical Investigations

Scope of Work

- Data Collection and Review – Groundwater and Geotechnical
- Field Investigation – Two CPT Borings
- Memorandum Report – Draft and Final

- Geotech investigations are typically completed during the next phase; however, could confirm assumptions and unit costs, and could help determine if the box jacking method has some merit.

Preliminary Cost Estimate
$130,000 – $160,000
Box Jacking System/Geotechnical Investigation & Feasibility Study

Scope of Work

- Data Collection and Review – Groundwater and Geotechnical
- Construction Methodology Evaluation
- Construction Phasing / Sequencing
- 3D Animation
- Cost Estimates & Memorandum Report

Relatively costly study since there are many aspects to consider (structural, geotechnical, groundwater, traffic impacts, etc.), and Caltrain would likely not review/endorse the construction method in this preliminary phase. In addition, there may not be cost savings realized with the Box Jacking System.
Shadow Analysis (Light Plane Review)

Scope of Work

- 3D Model Development
- Shadow Analysis
- Study Documentation and Final Report

Visual impact studies are typically completed during the next phase; however, could help better understand one of the visual impacts of an elevated structure.

Preliminary Cost Estimate
$ 20,000 – $ 25,000
Additional Noise Study

Scope of Work

- Expand Study Area/Measurements:
- Expand Analysis for Future Growth
- Analyze Structural Noise/Vibration
- Update Noise Study Report

Adding Caltrain’s long-term (2040) growth forecasts and the potential addition of substantial HSR activity to the analysis could cause some of the alternative recommendations to shift.

Preliminary Cost Estimate
$ 55,000 – $ 65,000
Storm Drainage Infrastructure

Scope of Work

- Evaluate Drainage for Trench Alternatives
- Evaluate Drainage for Underpass Alternatives
- Prepare Memorandum Report

Could further define the impacts related to creek crossings, pump stations and siphons; and could help to better define drainage costs for all alternatives.

Negotiations with the regulatory agencies for permit approvals to divert the creeks for the trench would be lengthy and challenging since there are other “least impacting” alternatives that could be considered.

Preliminary Cost Estimate
$200,000 – $250,000
Additional Outreach

Scope of Work

- Conduct Meetings with Additional Stakeholders
- Prepare Meeting Notes

Could help gather feedback and refine some details, and thus make it easier to narrow the alternatives under consideration.

Preliminary Cost Estimate
$15,000 – $20,000
Urban Design

Scope of Work

- Urban Design / Public Realm Opportunity Mapping
- Urban Design / Public Realm Design Enhancements
- Meetings

Further study defines the alternatives in more detail and could provide additional information on the alternatives; however, this information may not help narrow the alternatives.

This task is typically performed after the selection of the preferred alternative.

Preliminary Cost Estimate

$ 100,000 – $125,000
Conceptual Design for Ped/Bike Undercrossing
At Seale And Loma Verde

Scope of Work

- Conceptual Layouts
- Cost Estimates
- 3D Renderings
- Miscellaneous Public Outreach Materials

The City is expecting Seale and/or Loma Verde to be reviewed as part of the City’s Ped/Bike Transportation Plan update and these projects would be independent of the grade separation study.

Preliminary Cost Estimate
$80,000 – $100,000
Sustainability

Scope of Work

- Sustainability Strategy Plan
- Bike/Ped Usage

- This is typically completed during the next phase, and likely would not help narrow the alternatives.

Preliminary Cost Estimate

$ 50,000 – $80,000
Summary of Additional Studies: Potential Prioritization

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<thead>
<tr>
<th>High</th>
<th>Medium</th>
<th>Low</th>
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Council Action & Resulting Next Steps

The goal is to provide grade separation and improve traffic safety and circulation across the Caltrain Corridor. Recognizing this goal, tonight staff is seeking Council direction to:

1) Possibly reduce the number of alternatives for further consideration
2) Provide direction on desired additional studies to help in further the selection of preferred alternative(s) for Meadow and Charleston grade separation

Next Steps:
The following are some of the potential items for consideration at the next Study Session:
- Invite regional partners like Caltrain and Valley Transportation Agency (VTA) to discuss City Council’s concerns and questions
- Perform additional studies of selected alternatives as directed at each of the locations and bring back additional information for Council consideration
- Narrow the number of alternatives further for selection of preferred alternative(s)
- Direct staff to prepare the Project Study Report
Schedule of Meetings  
(Published August 12, 2021)

This is a courtesy notice only. Meeting dates, times, and locations are subject to change. Almost all Palo Alto Council and some Standing Committee meetings are cablecast live on Channel 26. If there happens to be concurrent meetings, one meeting will be broadcast on Channel 29.

Until further notice, all meetings will be held by virtual teleconference via Zoom and streamed on YouTube.

**THURSDAY, AUGUST 12**  
Human Relations Commission Meeting, 6 p.m.

**MONDAY, AUGUST 16**  
Sp. City Council Meeting, 5 p.m.

**TUESDAY, August 17  ** CANCELED  
Sp. Finance Committee Meeting, 6 p.m.

**THURSDAY, AUGUST 19**  
Architectural Review Board Meeting, 8:30 a.m  
City/School Liaison Committee, 8:30 a.m.  
Public Art Commission Meeting, 7 p.m.

**MONDAY, AUGUST 23**  
Sp. City Council Meeting, 5 p.m.

**TUESDAY, AUGUST 24**  
Parks & Recreation Commission Meeting, 7 p.m.

**WEDNESDAY, AUGUST 25**  
Planning & Transportation Commission Meeting, 6 p.m.

**TUESDAY, August 26**  
Historic Resources Board 8:30 a.m.

**MONDAY, AUGUST 30**  
Sp. City Council Meeting, 5 p.m.

**WEDNESDAY, SEPTEMBER 1**  
Sp. Utilities Advisory Commission, 5 p.m.

**THURSDAY, SEPTEMBER 2**  
Architectural Review Board Meeting, 8:30 a.m.

**TUESDAY, SEPTEMBER 6  ** CANCELED DUE TO HOLIDAY  
Sp. City Council Meeting, 5 p.m.

**TUESDAY, SEPTEMBER 7**  
Sp. Finance Committee Meeting, 6 p.m.