

**CITY OF MOUNTAIN VIEW
MEMORANDUM**

3.1

DATE: November 10, 2011

TO: City Council

FROM: Kevin S. Woodhouse, Deputy City Manager
Jacqueline A. Solomon, Assistant Public Works Director
Margaret Netto, Planner

SUBJECT: NOVEMBER 15, 2011 STUDY SESSION—GOOGLE'S (PLANETARY
VENTURES) NASA-BAY VIEW STEVENS CREEK CROSSINGS PROJECT
UPDATE

PURPOSE

The purpose of this Study Session is to provide an update on how Google's Stevens Creek Crossings Project has been revised to respond to City Council comments from the July 5, 2011 Study Session and receive any additional City Council feedback on concepts in the project submittal.

BACKGROUND AND ANALYSIS

At a City Council Study Session on July 5, 2011, the Council discussed the proposed concept for Google's bridges over Stevens Creek. City staff presented general information about jurisdictional control and City services related to Google's future development and the potential bridges crossings, as well as project-specific concepts related to the potential bridges.

Since July 5, 2011, Google has continued to refine its project concepts in response to the City Council's early feedback, with input from City staff, and submitted a formal planning application in late September. Additionally, preparation of the environmental documents for California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) review are under way, with an anticipated January 2012 public review/comment period. As design of the project moves forward from the current conceptual/schematic phase, additional design refinements will be made based on the City Council's comments and the environmental review process. Bridge design refinement will begin after the environmental review phase. Construction of the bridges, if authorized by the Council, is anticipated to begin in January 2013.

This staff report and the presentation at the Study Session on November 15, 2011 are intended to: (a) present to the City Council Google's revised project submittal for the bridges and how these revisions have responded to City Council's earlier feedback; (b) clarify City staff's understanding of jurisdictional and City service issues related to

this project; and (c) summarize the processes and time lines for environmental review and the legal mechanism, an encroachment permit or agreement, to obtain the City's authorization for the bridge crossings. In addition to updating the City Council with this information, staff is specifically seeking Councilmember comments on the following three topics at this preliminary and conceptual stage of the project:

1. The number of bridges and their proposed configuration.
2. The tied arch bridge design.
3. Staff's recommendation that the City provide Police and Fire services to the Bay View area.

Councilmember input on these topics, as well as any other Councilmember comments, will help guide further refinement and design of the project in preparation for City Council action on the project in the future.

Revised Design Concepts and Use

At the July 5, 2011 Study Session, Google presented a two-bridge design concept with bridges that combined vehicles and bicycles/pedestrians and impacts to the alignment of the Stevens Creek Trail. Based on feedback from the City Council at that time, Google has reevaluated their initial concepts and worked through several alternatives to arrive at current revised design concepts, summarized below. The purpose of the project is to create an east-west connection between the existing Google office facilities on the west side of the creek and the future Google Bay View campus on NASA property to the east of the creek. The bridges are proposed to accommodate emergency response vehicles and private and public transit vehicles (shuttles and buses). No private vehicular use is planned to be allowed. The pedestrian/bike bridges will be available for public use. The Charleston Road bridges are proposed to land in a new public park on the NASA side of Stevens Creek. The Context Plan for the Crossings Project is provided as Attachment 1.

Design Concepts

The project site starts at the eastern ends of Charleston Road and Crittenden Lane. The project components consist of three crossings (dimensions based on the drawings in Attachment 3):

1. One new two-way vehicular bridge and roadway connection aligned with the eastern terminus of Crittenden Lane and perpendicular to the PG&E property and Stevens Creek.
 - Free-span the creek approximately 300 linear feet (full length of bridge/approaches is approximately 870').
 - Twelve foot (12') clearance above the Stevens Creek Trail with the highest point on the arch at approximately 58' above the trail. The width of the bridge structure is approximately 43'.
 - The existing concrete bridge will remain in place parallel to and immediately south of the new Crittenden Lane bridge and will be reutilized to primarily serve pedestrians/bicyclists while maintaining the connection to the Stevens Creek Trail.
2. One new two-way vehicular bridge and roadway connection aligned with the eastern terminus of Charleston Road and perpendicular to the PG&E property and Stevens Creek.
 - Free-span the creek approximately 280 linear feet across (full length of bridge/approaches is approximately 700').
 - Twelve foot (12') clearance above the Stevens Creek Trail with the highest point on the arch at approximately 56' above the trail. The width of the bridge structure is approximately 43'.
3. One new pedestrian/bicycle bridge and pathway connection aligned with the eastern terminus of the Charleston Road, parallel with and south of the proposed new Charleston Road vehicular bridge. The bridge pathway connection will link the two levees on each side of Stevens Creek and connect into a planned public park on the NASA Ames side of Stevens Creek.
 - Free-span the creek approximately 180 linear feet across top of levee toe to top of levee.
 - Twenty feet (20') in width.

Construction of the bridges may require adjacent PG&E transmission towers to be raised to a new height sufficient to meet a 30' safety separation between high-voltage lines and bridge/roadway structures.

Two renderings have been provided for the bridge crossings from the trail user perspective as shown in Attachment 2. Also, schematic plans and elevations are shown in Attachment 3.

Use of Bridges

In an October 20, 2011 memo, Fehr & Peers discusses the need for two vehicle bridges (Attachment 4). Their conclusion is that two bridges reduce travel times, vehicle miles traveled and provide flexibility and efficiency for Google and other transit providers. While Google infers that these connections and their shuttles will relieve some of the pressure on these roadways, sufficient data has not yet been provided to complete the analysis of transporting 5,000 new employees to their Bay View campus. Information is needed regarding the effect of these connections with Google or other transit usage on intersections along North Shoreline Boulevard, Moffett Boulevard or Highway 101. Because the project is still in the conceptual stage and no formal environmental analysis has been completed at this time, staff cannot make a recommendation at this time regarding the number or configuration of the proposed bridges.

Jurisdictional Control and North Bayshore Area Planning

City Jurisdiction

Staff has confirmed with the State Lands Commission that the Federal government's jurisdiction over the Bay View development area is proprietary jurisdiction, whereby the City (in this case) has primary authority but cannot interfere with Federal government functions. Google's campus will be built on Federally owned land within the City limits in order to further the purposes of the Space Act. The City does not have the authority to regulate the land use because Google, under their lease with NASA, will be carrying out a Federal governmental function.

The City's approval authority over the proposed bridges depends on their location in relation to City-owned property, the public right-of-way or private or other governmental agency property. The bridges, as proposed in the current submittal, would connect to the public right-of-way. Although projects which encroach into public right-of-way can be authorized through an encroachment permit approved by the Public Works Director as allowed for in the City Code, the magnitude and complexity of this project warrant City Council consideration of a more comprehensive encroachment permit or agreement to authorize the bridges in the City's right-of-way, in addition to consideration and certification of the environmental review documents. The bridges will also require a building permit which is ministerial and not subject to City Council

review. Pending City Council input at the Study Session, staff will return to the City Council in a Closed Session for the purposes of providing directions to the City's real property negotiator regarding potential terms of an encroachment agreement.

North Bayshore Area Planning

Another policy consideration for the City relates to the timing of this project submittal compared to the timing of the City's studies and planning of transportation needs in the North Bayshore Area. The City is beginning a comprehensive study of North Bayshore Area transportation issues later this year, timed to follow the Draft General Plan Update and the traffic analysis that is part of the General Plan Update's environmental review process. Unfortunately, the timing of the City Council's consideration of Google's bridge connections project precedes the area-wide study. Therefore, it is not known at this time whether bridge connections (or the number or configuration of them) might hold a greater area-wide benefit beyond the benefit the project applicant claims the bridges will bring to the current North Bayshore Area traffic challenges nor whether the bridges should be designed to accommodate other modes of transportation. However, from a purely transportation and public safety analysis perspective, if bridges are to be built with private funding at this time, then 2 two-lane bridges with limited access and use would present flexibility in the case of emergencies or for future increased access and use if future studies warranted such increases or the City requested changes in access rights/use. Alternatively, in the absence of this private project proposal, future transportation studies could potentially show a need for bridge connectivity to the NASA Ames/Moffett area, leaving such improvements to be publicly financed.

Another unknown future variable of which the project applicant is aware and plans to evaluate during the more detailed design phase of the project has to do with sea-level rise and flood control. The proposed bridges provide a minimum clearance for maintenance vehicles using the levees. If future sea-level rise requires raising the levees, the bridges at their proposed heights would create access challenges for Santa Clara Valley Water District (SCVWD) staff and potentially trail users. The SCVWD has not analyzed the Stevens Creek levees to determine whether they would need to be raised to accommodate future sea-level rise. If the levees do need to be raised, creekside improvements such as bridges, maintenance roads and trails may need to be modified.

Environmental Review Status

The City has selected ICF International to conduct the environmental analysis for the applicant's proposed project. Given that the project also occurs on NASA Ames in addition to the City, both CEQA and NEPA regulations apply. When a project is subject to review under both CEQA and NEPA, State and local agencies are encouraged to cooperate with Federal agencies in the environmental review process and to prepare a joint environmental document. The City has agreed with NASA Ames staff to prepare a joint document with the City taking the lead on document preparation. ICF is

currently preparing the first administrative draft of the document to be reviewed by City and NASA staff in November. The applicant's current schedule anticipates the issuance of the Joint Initial Study/Environmental Assessment (IS/EA) for public review in January 2012. The IS/EA will examine the potential impacts in all environmental topic areas covered under both CEQA and NEPA. Expected environmental topic areas of special concern include aesthetics, biological resources, hydrology and water quality, recreation, transportation and circulation, and public services/utilities.

Alternatives

Based on Councilmembers' comments at the previous Study Session, Google has worked through several alternative concepts to arrive at the current project concept. These changes include providing for tied arch bridges, separate pedestrian/bicycle crossings, increasing the bridge creek span length from 175' to 180' to 280' to 300' and decreasing the architectural height of bridges due to the change from a cable stay bridge to a more traditional arch/truss style. These alternative concepts have been designed to address connectivity, access and traffic flow issues in a manner that proposes to avoid or minimize impacts to the environment. The following commitments have been incorporated into the proposed project concept:

- Vehicular bridges will span Stevens Creek, its levees and the City's Stevens Creek Trail, and will introduce no new structures in the creek;
- The existing Stevens Creek Trail will remain unchanged except for the addition of a new pedestrian/bicycle at-grade connection and bridge at Charleston Road and new connectivity at Crittenden Lane and Charleston Road;
- Existing Crittenden Lane bridge will remain in place;
- Bridge components will be prefabricated to minimize construction impacts;
- Bridge structure will be a "tied arch" design to minimize aesthetic impacts; and
- No new at-grade vehicle crossings are proposed on the Stevens Creek Trail.

Although the project applicant has already worked through various concept alternatives based on the City Council's earlier feedback, the Council may wish to consider the following alternatives in commenting on the topics of the number of bridges and bridge design:

1. Does the project need, and its related policy considerations warrant, a second vehicular bridge?

2. Should consideration of a second bridge be delayed until North Bayshore Area transportation studies are completed?
3. Are there other preferable bridge designs, such as a concrete beam bridge (similar to a freeway overpass), that would be visually less obtrusive (but may have impacts, environmental or other, associated with such a design)?

City Services

NASA Ames and Google have requested the City provide municipal Police and Fire services to the future Bay View campus. While the City is not legally obligated to provide Police or Fire services to the Bay View Area, the request to do so raises several policy and operational considerations that have not been previously evaluated by the City because the Bay View area is currently vacant and has not generated any public safety response calls.

Once Google builds its Bay View campus, projected to house approximately 5,000 employees and potentially some residents, public safety response becomes a higher-priority issue whether new bridges are built or not. One policy consideration is the fact the City currently provides both of these services throughout the City. Another consideration is the recent Emergency Medical Services (EMS) agreement between the County of Santa Clara and the City that requires the City to provide first responder emergency medical response within its "authorized jurisdiction," that is, City boundaries, and must respond to calls (other than minor injury calls) within 7:59 minutes. In the event the City fails to meet the response time requirement, the City could be subject to penalties and potentially a forfeiture of first responder funding which is approximately \$275,000 to \$300,000 annually under the agreement. The Fire and Police Departments have indicated that response times to the Bay View area will be challenging unless the existing bridge near Crittenden Lane is improved or new bridge connections are built. If Google's Bay View campus is constructed but new bridge connections are not built, staff will need to evaluate and return to the City Council for consideration of a project to improve the existing bridge to accommodate public safety response to the Bay View area. Additional considerations of which the Council should also be aware are that NASA Ames does not have any authority to provide police services to the Bay View area unless a Federal crime is involved and, even if NASA's own fire service were to respond to the Bay View (which they are not obligated to do), they do not have paramedics on their engines to provide first responder services. For these reasons, staff recommends continuing to provide public safety services to the Bay View area.

Next Steps

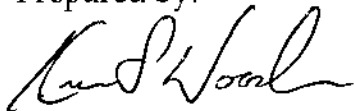
In summary of various processes and time lines mentioned earlier in this report, and pending the City Council's input on project concepts at the November 15, 2011 Study Session, key milestones include:

- January 2012: Tentative Closed Session with City Council for the purposes of providing direction to the City's real property negotiator regarding potential terms of an encroachment permit/agreement;
- January 2012: Public review/comment period for the Joint Initial Study / Environmental Assessment;
- January 2012 to March 2012: Refinement of bridge designs, commencement of construction drawings and negotiation of encroachment permit/agreement;
- March 2012: City Council to consider approval of the Mitigated Negative Declaration (if confirmed by the Joint Initial Study / Environmental Assessment) and authorize City Manager to execute encroachment permit/agreement;
- April to December 2012: Final design and permits; and
- January 2013 to October 2014: Construction.

PUBLIC NOTICING

In addition to agenda posting, a comprehensive list of potentially interested stakeholders were notified about the Study Session. In addition, all property owners within a 300' radius of the project area were notified.

Prepared by:



Kevin Woodhouse
Deputy City Manager

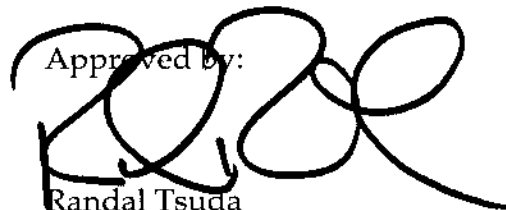


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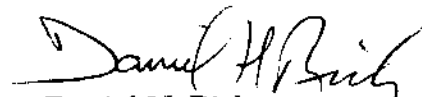
Approved by:



Randal Tsuda
Community Development Director



Michael A. Fuller
Public Works Director



Daniel H. Rich
City Manager

- Attachments:
1. Context Plan for the Crossings Project
 2. Renderings for the Bridge Crossings
 3. Schematic Plans and Elevations
 4. October 20, 2011 Memo

cc: Google
Sares Regis
NASA Ames
Santa Clara Valley Water District
City of Sunnyvale
PG&E
Stevens Creek and Permanente Creek Watershed Council
Friends of Stevens Creek Trail
Silicon Valley Bicycle Coalition
Save Our Trails
San Francisco Bay Trail
Santa Clara Audubon Society
Santa Clara County Creeks Council
Midpeninsula Regional Open Space District
Peninsula Open Space Trust
Committee for Green Foothills
Santa Clara County Parks and Recreation Commission
San Francisco Bay Bird Observatory
California Native Plant Society
State of California, Department of Fish and Game
National Marine Fisheries Service
United States Fish and Wildlife Service



EXHIBIT 7
CONTEXT PLAN

STEVENS CREEK CROSSINGS PROJECT

SARES | REGIS

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Stevens Creek Crossings Project – Crittenden Lane



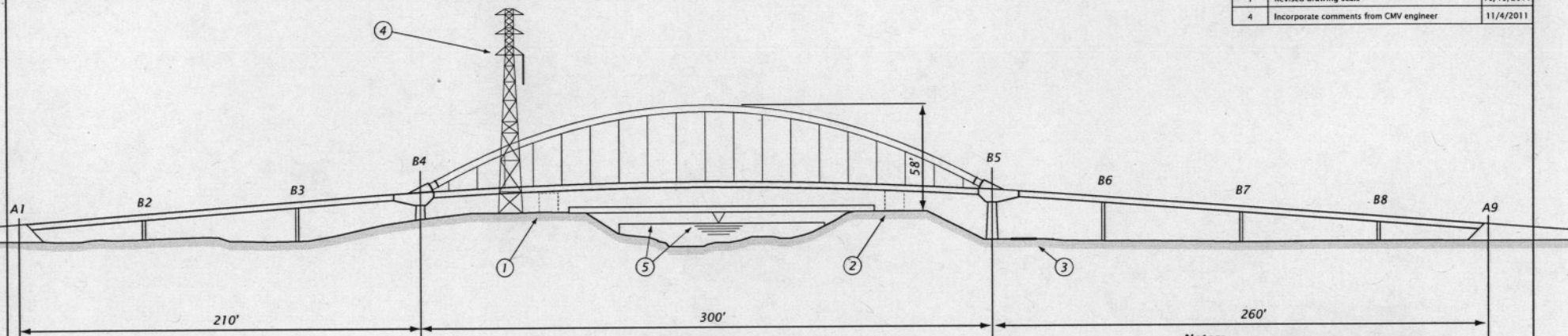
Mountain View City Council Study Session - November 15, 2011

Stevens Creek Crossings Project – Charleston Road



Mountain View City Council Study Session - November 15, 2011

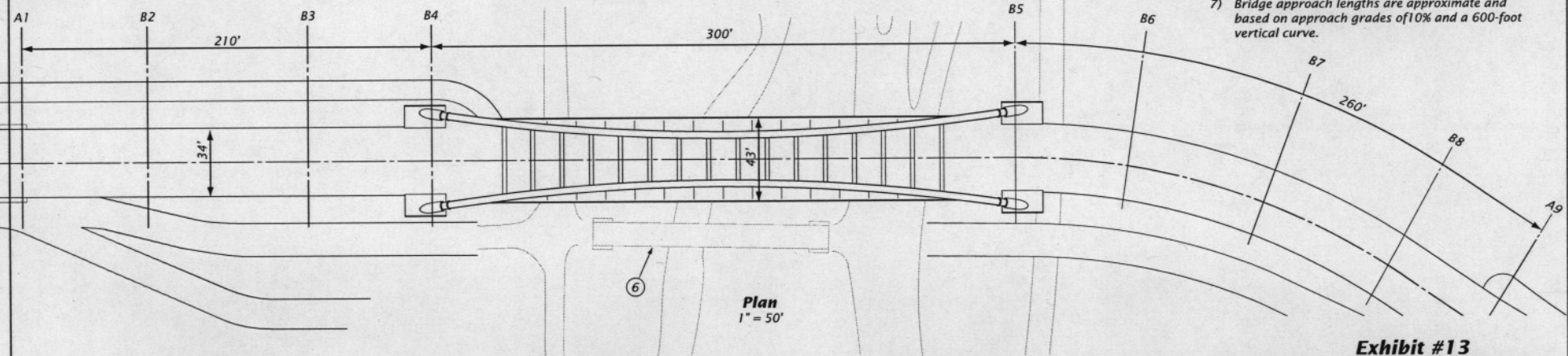
Rev.	Description	Date
0	Re-submittal to City of Mountain View	9/28/2011
1	Revised drawing scale	10/19/2011
4	Incorporate comments from CMV engineer	11/4/2011



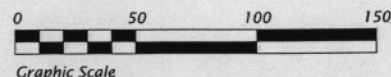
Developed Elevation
1" = 50'

Notes:

- 1) Stevens Creek Trail Levee Top Path.
- 2) Unnamed Levee Top Path.
- 3) West Perimeter Road (NASA Ames).
- 4) Raise PG&E towers to provide a minimum 30-foot separation from high tension wires.
- 5) 100-year flood level and existing bridge beyond.
- 6) Existing bridge to remain in service.
- 7) Bridge approach lengths are approximate and based on approach grades of 10% and a 600-foot vertical curve.



Plan
1" = 50'



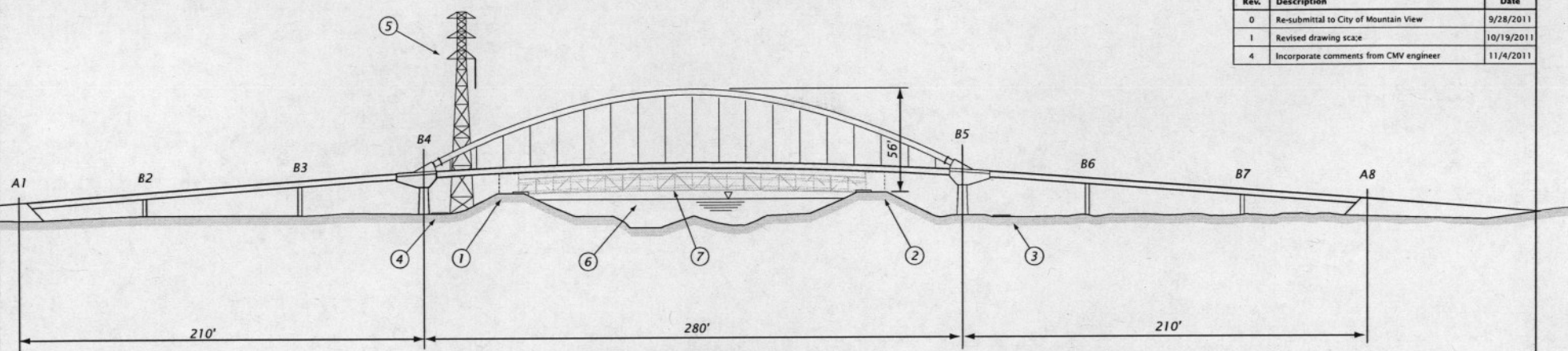
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SARES REGIS

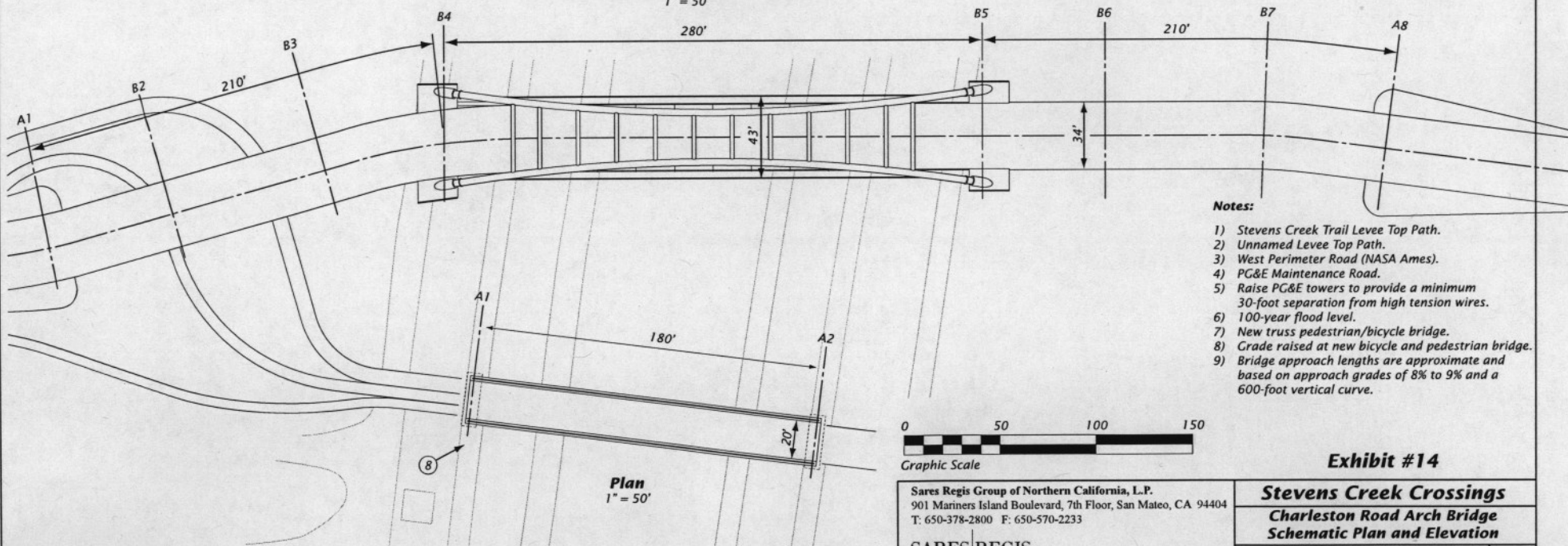
Exhibit #13

Stevens Creek Crossings	
Crittenden Lane Arch Bridge	
Schematic Plan and Elevation	
OPAC CONSULTING ENGINEERS	S1

Rev.	Description	Date
0	Re-submittal to City of Mountain View	9/28/2011
1	Revised drawing scale	10/19/2011
4	Incorporate comments from CMV engineer	11/4/2011

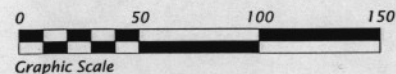


Developed Arch Elevation
1" = 50'



Notes:

- 1) Stevens Creek Trail Levee Top Path.
- 2) Unnamed Levee Top Path.
- 3) West Perimeter Road (NASA Ames).
- 4) PG&E Maintenance Road.
- 5) Raise PG&E towers to provide a minimum 30-foot separation from high tension wires.
- 6) 100-year flood level.
- 7) New truss pedestrian/bicycle bridge.
- 8) Grade raised at new bicycle and pedestrian bridge.
- 9) Bridge approach lengths are approximate and based on approach grades of 8% to 9% and a 600-foot vertical curve.



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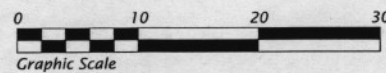
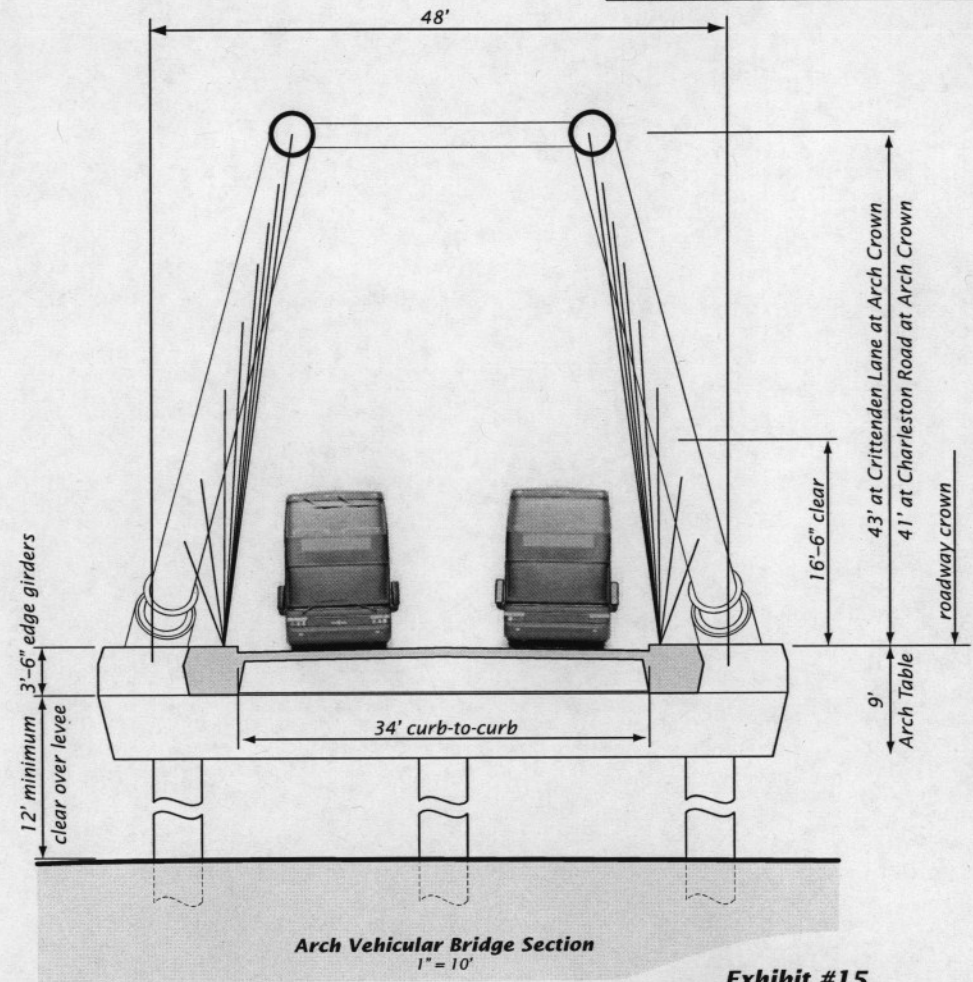
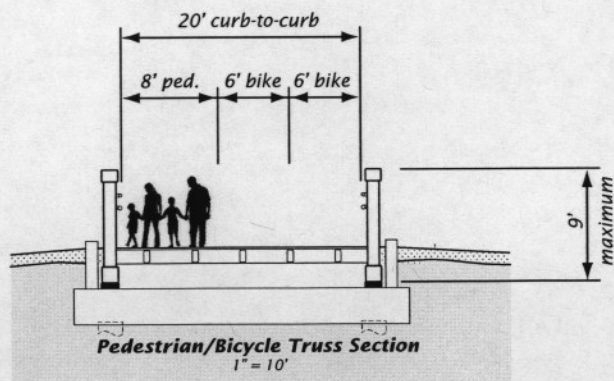
Exhibit #14

Stevens Creek Crossings
Charleston Road Arch Bridge
Schematic Plan and Elevation

OPAC CONSULTING ENGINEERS

S2

Rev.	Description	Date
0	Re-submittal to City of Mountain View	9/28/2011
1	Show bus on vehicular bridge	10/19/2011
4	Incorporate comments from CMV engineer	11/4/2011



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SARES REGIS

Exhibit #15

Stevens Creek Crossings

Truss & Arch Bridges
Schematic Typical Sections

OPAC CONSULTING ENGINEERS

S3



MEMORANDUM

Date: October 20, 2011

To: David Hopkins, P.E., Sares Regis Group

From: Robert H. Eckols, P.E.

Subject: *The Stevens Creek Crossings Project - The Need for Two Vehicular Bridge Connections*

SJ11-1220

This memorandum was prepared at the request of the Sares Regis Group, who is the developer for the Google NASA Bayview project (under a ground lease agreement between NASA Ames Research Center and Planetary Ventures LLC) and is the applicant for a City of Mountain View encroachment agreement for the proposed Stevens Creek Crossings Project ("Project"). Additionally, the City and NASA have initiated a cooperative environmental review of the Project, under the California Environmental Quality Act (CEQA) and the National Environmental Quality Act (NEPA). The draft Project Description describes the purpose and need for two new vehicular bridges and one new pedestrian/bicycle bridge over Stevens Creek to serve the NASA Bayview development site and improve public access to Stevens Creek Trail and the San Francisco Bay Trail. This memorandum focuses on the vehicular connections, and addresses a fundamental question posed by the Project:

WHY ARE MULTIPLE VEHICULAR BRIDGES A GOOD SOLUTION TO EXISTING AND FUTURE CONNECTIVITY BARRIERS?

While there is a need to provide at least one new vehicular bridge connection over Stevens Creek for use by emergency vehicles, a second connection is proposed to improve the public and private transit operations for the NASA Bayview site as well as adjacent areas within the North Bayshore Area along Charleston Road and Crittenden Lane east of Shoreline Boulevard, and the adjacent NASA Ames Research Center and other facilities to the east. A second vehicle crossing would also provide an important additional point of access for emergency vehicles without compromising response times, if an emergency event required rapid response or evacuation. The proposed vehicle bridges will be open to public use, but will only carry emergency vehicles, public transit vehicles, and private motor coaches and shuttles. Adjacent to these vehicle bridges will be public pedestrian / bicycle crossings of Stevens Creek that will connect between the top of the levees that run along on each side of the creek channel. Commuter bicyclists may choose to use either the vehicle bridges or the pedestrian / bicycle crossings.

BACKGROUND

Currently, there are no publicly accessible vehicle crossings of Stevens Creek between the North Bayshore Area of Mountain View and the NASA Ames Research Center. Both the Santa Clara Valley Transportation Authority (VTA) and Google provide transit service to the employees and residents within both NASA and North Bayshore. Under the existing conditions, in order to provide transit service between these two areas, transit vehicles are required to use US101 and/or local streets on the West side of US101. VTA currently operates two bus routes in the

area, Route 52 serves NASA and Route 40 serves the North Bayshore Area. Under the existing routing, it requires multiple transfers to move between NASA and North Bayshore using VTA buses.

Google operates private shuttle service between NASA and the Google campus located in North Bayshore. This service transports employees involved in joint projects that Google and NASA are working on, which are located in the Research Center. Today, the Google shuttles must use US101 to traverse between the two areas. US101 experiences heavily congested and stop-and-go conditions during both the AM and PM peak periods.

At its Mountain View campus, Google currently operates a fleet of just under 80 motor coaches that make over 300 daily runs (some one-way and some two-way trips) carrying over 3,300 riders. These vehicles carry commuters from distant locations such as San Francisco, the East Bay and the South Bay, as well as employees to and from local activity centers via smaller local shuttles. As Google expands their employee base in the North Bayshore Area, there will be an increased need to provide for greater mobility for Google employees within the expanding North Bayshore campus. Today, there are a limited number of local shuttles to and between selected building complexes during the mid-day period that carry an average of approximately 100 daily trips (on peak days almost 200 trips). As the physical area of the campus expands and the number of Google employees increases, it is anticipated there will be a need to increase the number of local shuttles to move employees between the various building stretching over the entire North Bayshore Area and into NASA Bayview. These local intra-campus shuttles will support the other alternatives modes of travel that Google employees currently use such as ride sharing, cycling and walking.

TRANSIT OPPORTUNITIES

There are five categories of transit opportunities created by providing a two-bridge connection into the NASA Bayview development site. It is assumed that these connections would only be available to emergency vehicles, public transit vehicles and private motor coaches / shuttles. The five categories are:

1. User Convenience through Operational Flexibility
2. Reduced Travel Times and Vehicle Miles Traveled
3. Reduced Delay due to Shoreline Amphitheatre Event Traffic
4. Improved Connection to the Bayshore/NASA Light Rail Station
5. Improved Connections to Downtown Mountain View

User Convenience through Operational Flexibility – Eliminating dead-end routes on both Charleston Road and Crittenden Lane by creating the opportunity for transit vehicles to loop through the NASA Bayview development maximizes the efficiency of transit operations between the North Bayshore Area and NASA Bayview campuses. By providing two bridges that form a loop connecting Crittenden, Charleston and Shoreline (See [Figure 1A](#)), transit vehicles will be allowed to circulate in either a clockwise or counterclockwise direction. The ability to operate a route in either direction will benefit both employee commuter transit and local shuttles. The greatest benefit will be to local shuttles that transport employees between the Google buildings. Operating shuttles in both directions allows for the user to choose the vehicle traveling in the

direction (clockwise or counter-clockwise) that will minimize their travel distance and reduce their travel time.

Reduced Travel Times and Miles Traveled – As stated earlier, the existing roadway configuration east of Shoreline Boulevard creates two dead-end cul-de-sacs when it comes to transit service on Charleston Road and Crittenden Lane east of Shoreline Boulevard. To provide transit to the Google buildings located at the eastern terminus of Charleston Avenue and continue on to the Crittenden complex without a two-bridge connection, adds approximately 5,000 feet (~1.0 mile) of additional travel distance. Figure 1B shows the existing travel distances caused by the two cul-de-sacs. While there would be some added time to traverse the segment located on the NASA Bayview site, the elimination of backtracking along Shoreline, Charleston, and Crittenden offsets the increase on the NASA Bayview site by 9/10 of a mile. Therefore, with the two bridge configuration, there will be a corresponding reduction in miles traveled compared to the existing routing.

Considering an average speed for transit vehicles of 15 mph (including time for stops), the travel time to traverse this additional distance (~4,800 feet) represents an increase of approximately four minutes. Given the current travel time within the North Bayshore Area is approximately 15 minutes, this loss of efficiency reflects a high percentage (27%) of the time required to unload the buses once they reach their Mountain View destinations. This time increment would likely increase due to additional congestion as traffic in the overall campus area increases.

Reduced Delay due to Shoreline Amphitheatre Event Traffic – The addition of a two-bridge connection also helps reduce or eliminate an existing problem for all visitors to events at Shoreline Amphitheatre, and a range of service vehicles related to event emergency response, event services, and traffic control. When there is a weekday event, Google buses are often delayed (and add to the congestion) trying to exit from the Crittenden area via Shoreline Boulevard. With the two-bridge configuration, transit vehicles could travel from the Crittenden campus to Charleston Road by passing through the NASA Bayview site. Once at Charleston, they could make their other pickups and exit the North Bayshore Area.

Improved Connection to Bayshore/NASA Light Rail Station – A two-bridge connection with a new alignment at Charleston Road could also be used to provide a direct transit connection between the North Bayshore Area and the Bayshore / NASA Light Rail Station. A shuttle connection through the NASA Bayview site would improve the travel times for light rail users destined to the North Bayshore area. Figure 2 shows the existing connection from the North Bayshore Area to the VTA light rail station in Downtown Mountain View (solid blue line). A light rail user travels via a shuttle to downtown (approximately 2 miles using Shoreline Boulevard) and then travels another 2.5 miles via light rail (dashed orange line). The light rail passes through three stops (Evelyn, Whisman, & Middlefield) before reaching the Bayshore / NASA Station.

A direct transit connection using the proposed bridge at Charleston Road would travel 2.5 miles directly to the Bayshore / NASA Station (dashed blue line). Since this would include a road section of transit-only travel, the travel time to the Bayshore / NASA station would be similar to or less than traveling in the congested Shoreline Boulevard corridor. It takes approximately 10 minutes (based on schedule time) for the light rail to travel from downtown Mountain View to the Bayshore / NASA station. Therefore, this direct shuttle connection would reduce the users travel time by a minimum of 10 minutes and potentially more during congested conditions. A timing savings of 10 minutes could increase the desirability of using light rail for some users, particularly, when combined with the future express light rail service proposed by VTA to connect between BART (Milpitas) and Moffett Business Park.

Improved Connections to Downtown Mountain View – A transit bridge at Charleston Road will open the opportunity to provide an alternative transit route to downtown Mountain View as shown in Figure 2 (dashed green line). This alternative route to downtown would utilize Charleston Road, RT Jones Road, Moffett Boulevard and Castro Street. While the route would be 35% longer in distance than using Shoreline Boulevard, the alternative connection would generally be less congested during peak periods with a resulting shorter travel time. More importantly, this new route would reduce traffic burden on the over-taxed Shoreline Blvd. corridor.

CONCLUSIONS

1. By constructing two vehicular bridges connecting to the new Google campus at NASA Bayview, one located at Crittenden Lane and other at Charleston Road, it is possible to reduce the travel distance of transit vehicles, reduce travel times, and open other opportunities for improving transit access and circulation between the North Bayshore Area and NASA Bayview development. As the employee population increases in the North Bayshore Area, it will be necessary to continue to improve transit service in order to sustain and increase transit ridership, as well as promote other modes of transportation besides autos. Therefore, any opportunity to improve or enhance the transit users' experience will be beneficial in increasing ridership and reducing the number of vehicle trips on the roadways.
2. Multiple vehicular bridges are needed and are good for North Bayshore, NASA, and Google. Enabling and facilitating mass transit and other alternative mobility options is a pressing need for the North Bayshore Area. By providing alternative transit routes and increased access for pedestrians and bicyclists, the Stevens Creek Crossings Project will improve travel into/out of North Bayshore for all, not just Google employees.
3. Public safety within and around the Bayview site will have two ingress and egress routes connecting to Mountain View streets in North Bayshore. Fire and police response times will be reduced and, in the event one access point is blocked, the other bridge will provide a time-efficient alternative. In emergency situations, multiple routes are critical to efficient response and effective evacuation.
4. Google transit serves nearly 30% of the Google workforce in Mountain View. Motor coaches and shuttles are critical to reducing single-occupant vehicle trips to and from the workplace. To sustain this high level of transit service into the future, and to provide operational flexibility, an efficient looped system for transit vehicles is a key design principle.

The primary reason for proposing two vehicular bridge connections to the Bayview site from the existing Google campus is to maximize the flexibility for public and private transit operations that would serve both Google's existing North Bayshore campus and its future Bay View development. The two bridge connections improve mobility for transit users by reducing travel time and provide a more efficient system by eliminating the existing dead-end cul-de-sacs on Charleston Road and Crittenden Lane. Providing an alternative route out of the Crittenden complex would help reduce congestion and delays to all vehicles on Amphitheatre event days. There is also the opportunity to improve public and private transit connections from the Mountain View North Bayshore Area to the Bayshore / NASA Light Rail station and provide an new route to downtown Mountain View. Reducing transit service times and traffic delays, and improving convenience and route directness are key factors to maximizing potential transit ridership and minimizing the use of single-occupant vehicles within the North Bayshore Area.



A. Shuttle Bus Loop with Two Bridge Crossings



B. Shuttle Bus Routes with No Crossings

