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SR 85 Express Lanes Project
Santa Clara County, California

Location Hydraulic Study Report

Prepared for:

Prepared by:

March 2013

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Submitted to:
Santa Clara Valley Transportation Authority and California Department of Transportation, District 4

This report has been prepared by or under the supervision of the following Registered Engineer. The Registered Civil Engineer attests to the technical information contained herein and has judged the qualifications of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.

Analette Ochoa, P.E.
Registered Civil Engineer

3/21/13

Date

March 2013

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Executive Summary

State Route (SR) 85 is a 24.1-mile-long freeway through Santa Clara County that connects Mountain View to southern San Jose. SR 85 passes through Cupertino, Saratoga, Campbell, Los Gatos, Sunnyvale, Los Altos, Mountain View, and San Jose. The purpose of the SR 85 Express Lanes Project (project) is to utilize excess capacity in the SR 85 High-Occupancy Vehicle (HOV) lanes, manage traffic congestion in the most congested HOV segments of the freeway between SR 87 and Interstate 280 (I-280), and maintain consistency with provisions defined in Assembly Bill 2032 (2004) and Assembly Bill 574 (2007) to implement express lanes in the SR 85 corridor. The project proposes to convert the existing HOV lanes on northbound and southbound SR 85 into express lane facilities that would have one lane between US 101 in southern San Jose and SR 87, two lanes between SR 87 and I-280, and one lane between I-280 and US 101 in Mountain View. In the section between SR 87 and I-280, where the median width is approximately 46 ft, pavement widening would be conducted in the median to accommodate the second express lane. In addition, an auxiliary lane would be added to a 1.1-mile segment of northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard. The project would also install new signage, striping, vehicle detection sensor units, and dynamic message signs.

The purpose of this Location Hydraulic Study is to examine and analyze the existing floodplains within the project limits and to document any potential impacts to or encroachments upon these floodplains and any mitigation that may be required. As defined by the Federal Highway Administration (FHWA), a significant encroachment is a highway encroachment and any action to promote base floodplain development that would involve one or more of the following construction or flood related impacts: 1) a significant potential for the interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route; 2) a significant risk; or 3) a significant adverse impact on the natural and beneficial floodplain values (FHWA, 1994).

The project encompasses 21 creek crossings, of which 13 are bridges and 8 are cross culverts. Within the project limits, 20 areas are within delineated floodplains defined by the Federal Emergency Management Agency (FEMA). Of these floodplains, seven are identified as flood hazard Zone AE, which represents the 1 percent annual chance of flooding to specified flood elevations. One floodplain is within flood hazard Zone AO, which represents the 1 percent annual chance flood with specified flood depths of 1 to 3 ft. The remaining 12 floodplains are identified as flood hazard Zone A, which represents the 1 percent annual chance flood with undetermined base flood elevations.

Of the 20 floodplains, 12 are not within areas of roadway widening or re-grading and would therefore not have impacts: a tidal floodplain at Matadero and Adobe creeks; the crossings of Permanente Creek, Stevens Creek (four locations), Permanente Diversion, Canoas Creek, and Coyote Creek; and three other floodplain areas along Coyote Creek. Of the remaining eight floodplains, three are at bridges that would not be widened as part of this project. These floodplains include the crossings of Calabazas Creek, Los Gatos

Creek and Guadalupe River. The Saratoga Creek and San Tomas Aquino Creek floodplains are at bridges that would be widened as part of this project. The remaining three floodplains exist at cross culverts where all widening would take place within the median. These culverts are at the crossings of Rodeo, Vasona, and Ross creeks. Rodeo and Ross creeks are known to be contained within the culvert at their respective crossings, while water surface elevations at the Vasona Creek crossing are not known. There would be minimal grading at areas of these culvert crossings.

Impervious areas would increase along SR 85 between I-280 and SR 87 as a result of median widening. The increase in roadway surface runoff, however, would be minimal in comparison to the overall watersheds for the creeks, with the average increase of approximately 0.01 percent. Thus, there would be insignificant increases in water surface elevations.

The project does not constitute a longitudinal encroachment of the base floodplain. Stevens Creek runs parallel to SR 85, and Coyote Creek runs parallel to US 101 within the project limits. No widening is proposed, however, within the vicinity of either of these creeks.

This project would not support probable incompatible floodplain development. The project is the widening and reconfiguration of an existing highway and would not create new access to developed or undeveloped land.

Various areas within the project limits have natural and beneficial floodplain values. These areas include waters of the U.S., potential wetlands, and varying types of riparian forest. None of the work is anticipated to take place in these areas, and the contractor would be required to protect them when work is conducted in adjacent areas.

The project would improve traffic conditions along SR 85 by creating express lanes and, in some locations, widening the median. Several areas within the project limits that are currently overtopped by the 1 percent annual chance flood are along US 101 at the northwest end of the project. These areas are outside of widening and grading areas and would not be significantly modified as a result of this project. There are also several locations along SR 85 where floodplains have been studied by FEMA and may overtop SR 85. The work for the proposed widening of the SR 85 bridges would occur along the banks and riparian corridors of Saratoga Creek and San Tomas Aquino Creek, and the project would not require in-water work. The small areas of potential wetland that exist apart from creek crossings are also outside of widening areas. The project does not constitute a significant floodplain encroachment as defined in 23 Code of Federal Regulations (CFR), Section 650.105(q).

Acronyms

BSA	Biological Study Area
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
LOMR	Letter of Map Revision
NAVD 88	North American Vertical Datum of 1988
NES	Natural Environment Study
PM	Post Mile
RCB	Reinforced Concrete Box
SCBWMI	Santa Clara Basin Watershed Management Initiative
SCVWD	Santa Clara Valley Water District
SOV	Single Occupant Vehicle
SR	State Route
US	United States Highway
VTA	Valley Transportation Authority

1 GENERAL DESCRIPTION

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to convert the existing High-Occupancy Vehicle (HOV) lanes on State Route (SR) 85 to High-Occupancy Toll (HOT) lanes (hereafter known as express lanes). The express lanes would allow HOVs to continue to use the lanes without cost and eligible single-occupant vehicles (SOVs) to pay a toll. The express lanes would be implemented on northbound and southbound SR 85 from US 101 in southern San Jose to US 101 in Mountain View in Santa Clara County (Figures 1 and 2). The express lanes would continue for 3.3 miles of a 5.5-mile segment on US 101 in southern San Jose. Express lane advance notification signage would also be added in a 4.1-mile segment of US 101 in Mountain View, for a total project length of 33.7 miles. Work on the US 101 segments will mainly consist of striping and signing and will not include widening or any changes in system or HOV lane access. The project does not require any right-of-way acquisition.

The purpose of the SR 85 Express Lanes Project (project) is to utilize excess capacity in the SR 85 HOV lanes, manage traffic congestion in the most congested HOV segments of the freeway between SR 87 and Interstate 280 (I-280), and maintain consistency with provisions defined in Assembly Bill 2032 (2004) and Assembly Bill 574 (2007) to implement express lanes in the SR 85 corridor.

1.1 Project History

SR 85 is a 24.1-mile-long freeway that connects Mountain View to southern San Jose. SR 85 passes through Cupertino, Saratoga, Campbell, Los Gatos, Sunnyvale, Los Altos, Mountain View, and San Jose. SR 85 also intersects with SR 237, I-280, SR 17, and SR 87. SR 85 has three lanes in each direction, which consist of two mixed-flow lanes and one HOV lane.

The proposed project was originally conceived in 2003 as part of a VTA Adhoc Financial Stability Committee recommendation. In 2004 the California Legislature passed Assembly Bill 2032 authorizing the VTA, as part of a demonstration project to conduct, administer, and operate a value pricing and transit development program under which SOVs may use designated HOV lanes at certain times of the day for a fee. A Feasibility Study was completed in 2005. In 2007, Assembly Bill 574 was passed, removing the "demonstration" category from the law and allowing the VTA to implement a value pricing program within any two corridors in the Santa Clara County HOV system.

VTA began preliminary engineering and public outreach in 2007, and the VTA Board approved a Silicon Valley Express Lane Program in December 2008. Work on the development of SR 85 express lanes has been on-going since 2007. As part of the preliminary engineering work, over 19 express lanes access configurations were reviewed, public outreach was conducted, and a technical memorandum was prepared that was used as input for the approval of the Silicon Valley Express Lanes Program by VTA Board of Directors. Approval of the project's project Study Report (PSR) advanced

work into the preliminary engineering and environmental approval phase. Net revenue generated from the use of the SR 85 express lanes would be used in the SR 85 corridor for highway improvements including transit service and operations.

1.2 Project Description

The project would convert existing HOV lanes to express lanes along SR 85 and a portion of US 101. Two alternatives are proposed: Build and No Build.

1.2.1 Build Alternative

The Build Alternative would convert the existing HOV lanes on northbound and southbound SR 85 into express lane facilities that would have one lane between US 101 in southern San Jose and SR 87, two lanes between SR 87 and I-280, and one lane between I-280 and US 101 in Mountain View. The project would include multiple intermediate access points between the express lanes and the adjacent mixed-flow lanes. The access points would consist of entrance and exit openings in a striped 2-foot-wide buffer zone where traffic can enter and exit the express lane facility. All work would be done in the existing right-of-way on both sides of the road and in the median. No work would be done in waterways in or adjacent to the project area.

In the section between SR 87 and I-280, where the median width is approximately 46 ft, pavement widening would be conducted in the median to accommodate the second express lane. The median would be paved, and the existing thrie-beam barrier would be replaced with a Type 60 concrete barrier. The project would also install new signage, striping, vehicle detection sensor units, and dynamic message signs.

SR 85 bridge decks would be widened at Almaden Expressway (northbound side only), Camden Avenue, Oka Road, Pollard Road, and Saratoga Avenue, as well as at the San Tomas Aquino Creek and Saratoga Creek crossings. The existing gaps between the northbound and southbound bridges at these locations would be closed except at Almaden Expressway, where the northbound bridge would be widened on the inside (toward the median).

An auxiliary lane would be added to a 1.1-mile segment of northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard. The existing pavement would be widened by up to 14 feet to the outside (northeast). To accommodate the auxiliary lane, the existing embankments at the abutments of the South Stelling Road and McClellan Road overcrossings adjacent to northbound SR 85 would be replaced with retaining walls. No culvert extensions, sound wall modifications, or additional right-of-way would be required.

1.2.2 No Build Alternative

The No Build Alternative assumes no modifications would be made to the current SR 85 corridor, including the continuous access HOV lane, other than routine maintenance and rehabilitation of the facility and any currently planned and programmed projects within the area.

Figure 1. Location Map

Source: United States Geological Survey

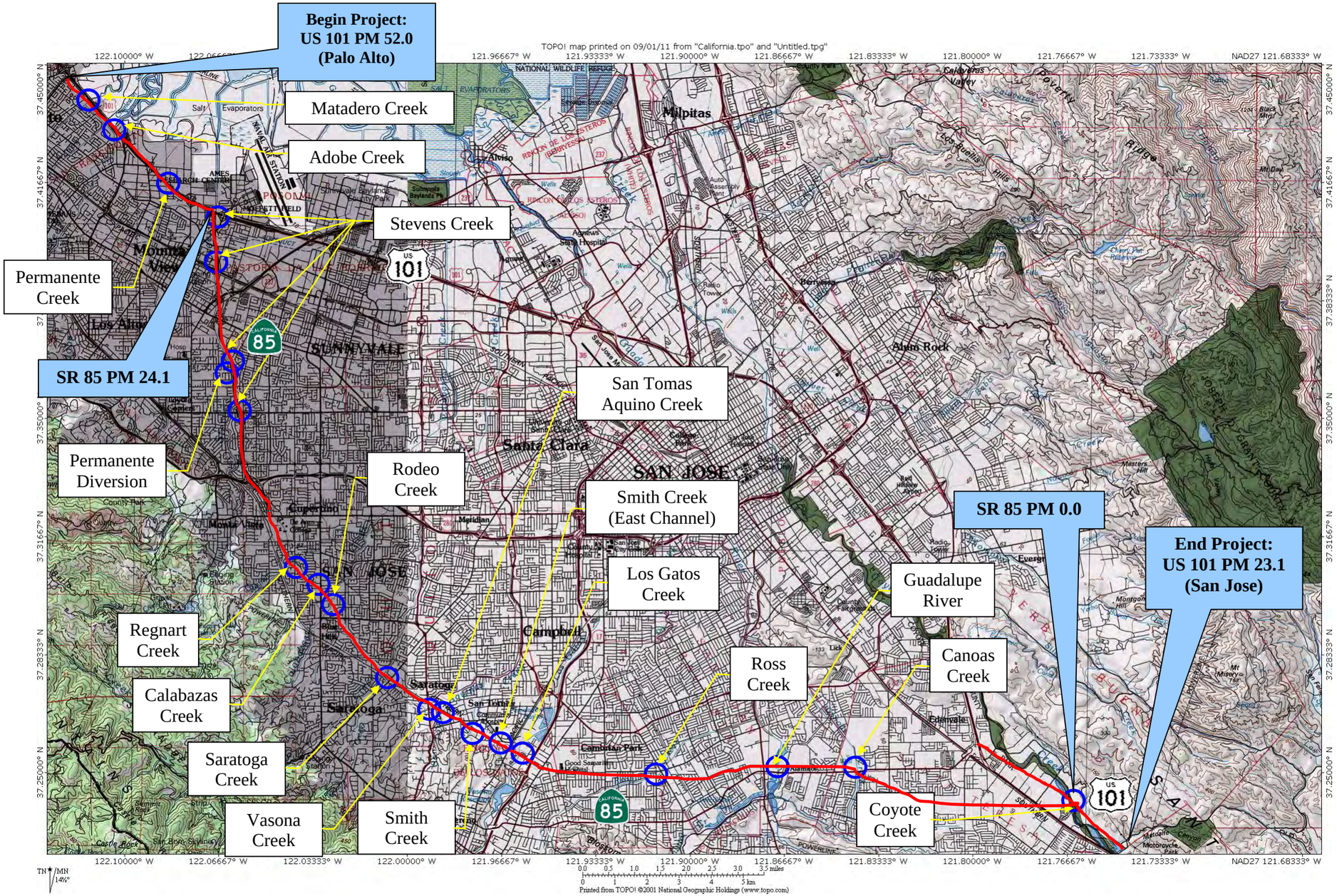

Figure 2. Vicinity Map and Waterway Crossings

Source: United States Geological Survey

1.3 Geographical References

Project maps were based on the following quadrangles from the United States Geological Survey: Mountain View, Cupertino, San Jose West, Los Gatos, San Jose East, and Santa Teresa Hills.

All elevations listed in the Flood Insurance Rate Maps (FIRMs) and the Flood Insurance Study (FIS) are based on the North American Vertical Datum of 1988 (NAVD 88). The project survey data is also based on NAVD 88, so no datum shift is necessary.

1.4 Creek, Stream, and River Crossings

Eighteen waterways cross SR 85 within the project limits, with Stevens Creek crossing the highway alignment 4 times for a total of 21 crossings (see Figure 2). Creek crossing drainage systems were located from FEMA maps, as-built record drawings, Caltrans Structure Maintenance Logs, aerial photographs and site visits by WRECO staff on August 3 and September 2, 2011. The sizes and types of these crossings are discussed in the following sections and listed in Table 1. All creeks that pass through the project limits are maintained by the Santa Clara Valley Water District (SCVWD).

1.4.1 Matadero Creek (US 101 PM 51.37)

Matadero Creek crosses US 101 approximately 3,200 ft southeast of the Oregon Expressway interchange. The creek originates in the Town of Los Altos Hills and the upper portion of Palo Alto, flowing northeast through unincorporated areas of Santa Clara County and the City of Palo Alto. According to the Watershed Stewardship Plan, the overall watershed area of Matadero Creek is approximately 14 sq mi, of which 13.6 sq mi are upstream of the US 101 crossing according to the FIS. Of the total watershed, 11 sq mi are within mountainous areas, and 3 sq mi are in gently sloping terrain. Within the City of Palo Alto, the watershed is almost fully urbanized. Overall, 76 percent of the watershed area is urbanized for residential, commercial, industrial, and institutional use. There is open space in the foothills, which covers approximately 24 percent of the watershed area. About 40 to 60 percent of the fully urbanized area near the project site is impervious. The impervious area is expected to increase in the future from probable developments (Tetra Tech, 2006).

Matadero Creek flows in a natural channel with steep slopes through the unincorporated areas of Santa Clara County. In the City of Palo Alto, Matadero Creek travels in a U-shaped concrete channel with relatively flat slopes. The creek is conveyed under US 101 in a concrete lined channel under a 81 ft long by 133 ft wide double span concrete bridge. At the downstream end of the project site, Matadero Creek discharges into the Palo Alto Flood Basin, which eventually outfalls to the San Francisco Bay. This area is a straightened, earthen bed channel with a channel longitudinal slope of less than 0.1 percent.

The existing median barrier of US 101 at the vicinity of the Matadero Creek crossing is a mixture of thrie-beam barrier and concrete barrier. The US 101 travel way and frontage road are separated by narrow open space and a chain-link fence. The existing US 101 barriers in the vicinity of Matadero Creek crossing do not obstruct the lateral movement of the storm runoff.

Photo 1. Matadero Creek entering bridge under US 101 (looking downstream)

1.4.2 Adobe Creek (US 101 PM 50.66)

Adobe Creek crosses US 101 between the Matadero Creek crossing (approximately 3,700 ft northwest of the creek crossing) and the San Antonio Road Interchange (approximately 1,800 ft southeast of the creek crossing). Adobe Creek has its confluence with Barron Creek at the upstream face of the US 101 crossing. Adobe Creek originates in the highlands of the unincorporated areas of Santa Clara County and Palo Alto Hills. The total watershed area of Adobe Creek is approximately 13.5 sq mi. Land use within the City of Palo Alto and City of Los Altos is fully urbanized. Open space is limited to the area in the foothills of the upstream watershed. Approximately 70 percent of the watershed area is urbanized and 30 percent is open space. Currently, the area surrounding the project site is 40 to 60 percent impervious, but future residential or commercial developments could increase impervious area (Tetra Tech, 2006).

Adobe Creek flows in a natural channel with moderate to steep slopes within the City of Los Altos and Town of Los Altos Hills. In the City of Palo Alto, Adobe Creek travels in a wide rectangular concrete channel with very flat slopes. Adobe Creek is conveyed under US 101 in a 65 ft long by 33 ft wide single span concrete bridge. The slope of the channel within the project area is less than 0.1 percent. At the downstream end of its US 101 crossing, Adobe Creek discharges to Charleston Slough, which eventually outfalls to the San Francisco Bay.

The existing median barrier of US 101 in the vicinity of the Adobe Creek crossing comprises thrie-beam barrier and concrete barrier. The US 101 travel way and the frontage road are separated by a narrow strip of open space and a chain-link fence. The US 101 Auxiliary Lanes project was required to maintain the three-beam barrier locations to allow the lateral movement to continue to cross the freeway.

Photo 2. Adobe Creek at bridge under US 101 (looking upstream)

1.4.3 Permanente Creek

Permanente Creek crosses US 101 between the North Rengstorff Avenue interchange (approximately 2,200 ft northwest of the creek crossing) and the Shoreline Boulevard interchange (approximately 3,100 ft southeast of the creek crossing). The creek originates in the Santa Cruz Mountains, travels 19 mi north to the San Francisco Bay, and passes through unincorporated areas of Santa Clara County as well as the City of Cupertino, Town of Los Altos Hills, City of Los Altos, and City of Mountain View. At the downstream end of the project site, Permanente Creek passes through a twin reinforced concrete box (RCB) culvert at Charleston Road and a bridge at Amphitheatre Parkway to discharge to Mountain View Slough; the creek eventually outfalls to the San Francisco Bay.

The watershed area of Permanente Creek is approximately 15.8 sq mi at the US 101 crossing. The cities of Mountain View and Los Altos are fully developed and cover approximately 55 percent of the watershed area. In addition to the urbanized area, approximately 8 percent of the area is used as non-urbanized development, such as a golf course and a mine. The remaining 37 percent is open space, predominantly located in the ridge foothills.

Permanente Creek crosses US 101 in a 216 ft long single 12 ft by 12 ft RCB culvert. Existing rectangular concrete lined channels upstream and downstream of the RCB culvert crossing have very flat slopes of 0.1 percent. The channel upstream of the US 101 cross culvert is a 12 ft wide by 9 ft deep concrete lined channel. There is a 3 ft drop immediately upstream of the US 101 cross culvert. The end of the transition from the concrete lined channel to the earthen channel takes place approximately 200 ft downstream from the cross culvert (Tetra Tech, 2006).

US 101 has a concrete median barrier in the vicinity of the Permanente Creek crossing. There is no frontage road of US 101 in the vicinity of the Permanente Creek crossing. A chain-link fence is used as a barrier between US 101 and the adjacent area in the vicinity of the US 101 crossing of Permanente Creek.

Photo 3. Permanente Creek at box culvert under US 101 (looking upstream)

1.4.4 Stevens Creek

Stevens Creek drains a 29 sq mile watershed originating in the low elevation Santa Cruz Mountains of the Santa Clara Valley. The creek originates at an elevation of 2,500 ft and flows southeast along the San Andreas Fault for approximately 5 mi, then bends northeast and flows for an additional 3 mi before reaching Stevens Creek Reservoir. From the reservoir, the creek flows 12.5 mi before terminating in the southern San Francisco Bay. Approximately 6.3 mi from Stevens Creek reservoir, peak flows of Permanente Creek (up to 1,400 cfs) are diverted into Stevens Creek via the Permanente Diversion, bringing the total watershed area for Stevens Creek to 38 sq mi (of which 36.4 sq mi are upstream of the US 101 crossing according to the FIS). Historic evidence suggests that Permanente Creek was originally a tributary of Stevens Creek. North of I-280, it runs generally parallel to SR 85. Stevens Creek crosses US 101 just east of the US 101/SR 85 interchange in a small stretch of concrete lined trapezoidal channel. North of US 101 it flows through a straightened earth channel and eventually outfalls into San Francisco Bay.

Approximately 34 percent of the watershed consists of urbanized portions of Cupertino, Sunnyvale and Mountain View. In addition to the urbanized area, approximately 2 percent of the area is used as non-urbanized development, such as agriculture, golf courses and mines. The remaining 64 percent is open space, located primarily in the Santa Cruz Mountains (Tetra Tech, 2006).

Stevens Creek crosses the project in four different locations: One crossing at US 101 once and three at SR 85. These crossings are documented below.

1.4.4.1 Stevens Creek (US 101 PM 48.04)

Stevens Creek crosses US 101 just east of the US 101/SR 85 interchange under a 50 foot long, 201 foot wide dual-span concrete bridge in a concrete lined trapezoidal channel. The Stevens Creek trail follows the western bank at this location.

Photo 4. Stevens Creek at bridge under US 101 (looking upstream)

1.4.4.2 Stevens Creek (SR 85 PM R22.95)

Stevens Creek crosses SR 85 0.3 mi north of the Central Expressway interchange under a 122 ft long, 151 ft wide triple-span bridge in a trapezoidal channel with an earthen bottom and concrete-lined side-slopes. At the upstream end of the bridge are v-shaped energy dissipaters. Downstream of the bridge and upstream of the energy dissipaters, Stevens Creek flows in a natural channel. The Stevens Creek trail follows the creek along the west bank.

Photo 5. Stevens Creek at bridge under SR 85 north of Central Expressway (looking upstream)

1.4.4.3 Stevens Creek (SR 85 PM R20.96)

Stevens Creek crosses SR 85 roughly halfway between the El Camino Real and Fremont Avenue interchanges under a 35 ft long, 125 ft wide single span bridge in a natural channel.

1.4.4.4 Stevens Creek (SR 85 PM R20.02)

Stevens Creek crosses SR 85 0.2 mi north of the Fremont Avenue interchange under a 121 ft long, 163 ft wide triple-span bridge in a natural channel.

1.4.5 Permanente Diversion

Permanente Diversion is an overflow channel for Permanente Creek that is re-routed toward Stevens Creek. Just upstream of the confluence with Stevens Creek, it crosses SR 85, approximately halfway between the El Camino Real and Fremont Avenue interchanges. It is conveyed through a 10 ft by 10 ft concrete box culvert. Upstream of the crossing, it flows through a concrete lined trapezoidal channel. Downstream of the crossing it enters the natural channel of Stevens Creek.

Photo 6. Permanente Diversion upstream of bridge under SR 85 (looking downstream)

1.4.6 Regnart Creek (SR 85 PM 16.65)

Regnart Creek crosses SR 85 adjacent to the Stelling Road undercrossing, 0.8 mi northwest of the De Anza Road interchange. The creek originates in the foothills of the Santa Cruz Mountains and flows to the northeast through the City of Cupertino. Except for its uppermost 2/3 mi, Regnart Creek is primarily contained in a concrete channel. In northeastern Cupertino, approximately 2 mi downstream of the SR 85 crossing, Regnart Creek outfalls into Calabazas Creek.

Upstream of the freeway crossing, the channel has a concrete-lined invert and steep side slopes of terraced rock mesh. At Festival Drive, just upstream of SR 85, Regnart Creek enters a 12 ft wide by 7 ft tall concrete box culvert. Downstream of the freeway, Regnart Creek remains in a box culvert as it passes under Stelling Road and Jollyman Park, eventually daylighting approximately 0.4 mi downstream.

Photo 7. Regnart Creek entering box culvert under Festival Drive and SR 85 (looking downstream)

1.4.7 Calabazas Creek (SR 85 PM R15.40)

Calabazas Creek crosses SR 85 approximately 0.3 mi southeast of the De Anza Boulevard interchange. The creek originates in the foothills of the Santa Cruz Mountains and flows 13.3 mi to the northeast through the Cities of Saratoga, Cupertino, Sunnyvale, San Jose and Santa Clara through sections of both natural and lined channel. Approximately 9 mi downstream of the site, Calabazas Creek outfalls into Guadalupe Slough and ultimately the San Francisco Bay.

The watershed of Calabazas Creek is approximately 4.4 sq mi at the SR 85 crossing. Overall, the Calabazas Creek watershed is 81 percent urbanized. In addition to the urbanized area, approximately 1 percent of the area is used as non-urbanized development, such as agriculture and golf courses. The remaining 18 percent is open space, predominantly located in the foothills of the Santa Cruz Mountains (Tetra Tech, 2006). Most of the open space is upstream of the SR 85 crossing, so this area is less developed than the watershed as a whole.

At SR 85, Calabazas Creek is conveyed under three separate dual-span concrete bridges, ranging from 149 ft to 156 ft in length and 26 ft to 70 ft in width. Both upstream and downstream of the bridge, the Calabazas Creek is conveyed in a natural channel, but under the bridge, the channel is lined with concrete tiles. Portions of this lining have been covered in up to 3 ft of sediment.

Photo 8. Calabazas Creek under SR 85 bridge (looking upstream)

1.4.8 Rodeo Creek (SR 85 PM 15.06)

Rodeo Creek crosses SR 85 between the South De Anza interchange and the Saratoga Avenue interchange. The creek begins in western Saratoga and flows to the northeast through the cities of Saratoga and San Jose. Rodeo Creek has been realigned from its natural channel and consists of a combination of earth and concrete lined channels as well as sections of underground culvert.

Upstream of SR 85, Rodeo Creek is confined within a box culvert. The crossing of SR 85 consists of an 11 ft wide by 7 ft tall concrete box culvert. Downstream of SR 85 it consists of a trapezoidal channel with a concrete lined 8 ft bottom and steep side slopes of terraced rock mesh.

Photo 9. Rodeo Creek at downstream end of culvert under SR 85 (looking upstream)

1.4.9 Saratoga Creek (SR 85 PM R13.91)

Saratoga Creek crosses SR 85 just northwest of Saratoga Avenue. The creek begins in the Santa Cruz Mountains and flows to the northeast through unincorporated Santa Clara County as well as the cities of Saratoga, San Jose and Santa Clara. Much of the southern portion of the creek consists of natural channel, while downstream portions of the channel have been straightened and/or hardened.

The watershed of Saratoga Creek is approximately 11.1 sq mi at the SR 85 crossing. Overall, the Saratoga Creek watershed is 41 percent urbanized. The remaining 59 percent consists primarily of open space, but also includes small areas of vacant land and agriculture (Tetra Tech, 2006). Most of the open space is upstream of the SR 85 crossing, so this area is less developed than the watershed as a whole.

At the SR 85 crossing, Saratoga Creek is conveyed through a natural channel under four separate single-span concrete bridges, ranging from 97 ft to 102 ft in length and 28 ft to 59 ft in width. Under the bridge, the side slopes have been lined with rock slope protection.

Photo 10. Saratoga Creek under SR 85

1.4.10 Vasona Creek (SR 85 PM 12.72)

Vasona Creek crosses SR 85 roughly halfway between the Winchester Boulevard and Saratoga Road interchanges. The creek flows through portions of unincorporated Santa Clara County and the City of Saratoga, primarily in a natural channel. Approximately 0.2 mi upstream of the SR 85 crossing is the confluence with Wildcat Creek.

Vasona Creek flows within a natural channel both upstream and downstream of the crossing. It is conveyed under SR 85 through a double 12 ft by 12 ft concrete box culvert. Immediately downstream of the crossing is the confluence with San Tomas Aquino Creek.

Photo 11. Downstream end of Vasona Creek double box culvert under SR 85 (looking upstream)

1.4.11 San Tomas Aquino Creek (SR 85 PM R12.68)

San Tomas Aquino Creek crosses SR 85 roughly halfway between the Winchester Boulevard and Saratoga Road interchanges, just southeast of the Vasona Creek crossing. The creek originates in the foothills of the Santa Cruz Mountains and flows to the northeast through the cities of Saratoga, San Jose, Campbell and Santa Clara. Approximately 8 mi downstream of the SR 85 crossing, Saratoga Creek enters San Tomas Aquino Creek. San Tomas Aquino Creek flows downstream through Santa Clara to the Guadalupe Slough and finally into the southern San Francisco Bay. A majority of the stream channel from the Smith Creek confluence to US 101 has been hardened (lined with concrete) and/or realigned (SCVURPP).

Overall, the San Tomas Aquino Creek watershed is 85 percent urbanized. The remaining 15 percent consists primarily of open space, but also includes small areas of vacant land (Tetra Tech, 2006). Most of the open space is upstream of the SR 85 crossing, so this area is less developed than the watershed as a whole.

San Tomas Aquino Creek is conveyed under SR 85 under a pair of single-span 105 ft long by 59 ft wide concrete bridges. Under the bridge and downstream of the crossing, the channel has a gravel invert with 1:1 (H:V) side slopes lined with sacked concrete. Just downstream of the crossing is the confluence with Vasona Creek.

Photo 12. San Tomas Aquino Creek downstream of SR 85 bridge (looking upstream)

1.4.12 Smith Creek (SR 85 PM 11.82)

Smith Creek crosses SR 85 approximately 0.8 mi northwest of Winchester Boulevard. It flows through the cities of Monte Sereno and Cupertino as well as the Town of Los Gatos. Much of the channel has been engineered, and some portions of the creek consist of underground culverts.

The watershed area for Smith Creek is 0.8 sq mi at the SR 85 crossing. This area consists almost entirely of developed land, primarily the residential areas of Monte Sereno and Los Gatos, as well as the La Rinconada Country Club golf course.

Adjacent to SR 85 on the south side, Smith Creek is conveyed in a rectangular concrete channel as it passes under the railroad tracks. Under SR 85, Smith Creek is conveyed through a circular reinforced concrete pipe culvert. The size could not be confirmed, but the size of the pipe culvert appears to be approximately 60 inches. Downstream of the crossing, it remains underground in a concrete box culvert until it daylights at West Hacienda Avenue approximately 0.09 miles from the SR 85 crossing. Approximately 1.0 mi downstream of Hacienda Avenue, Smith Creek enters San Tomas Aquino Creek.

Photo 13. Upstream end of Smith Creek culvert under SR 85 (looking downstream)

1.4.13 Los Gatos Creek (SR 85 PM R10.80)

Los Gatos Creek crosses SR 85 at the western end of the SR 17 interchange. The creek originates in the Santa Cruz Mountains at an elevation of up to 3,483 ft and follows SR 17 as it winds through the mountains. The lower portions of the creek pass through Los Gatos, Campbell and San Jose. Upstream of the crossing, it flows primarily in a natural channel, though downstream some portions have been straightened. Downstream of SR 85, it continues to parallel SR 17 until it outfalls into Guadalupe River in downtown San Jose.

The watershed area of Los Gatos Creek is approximately 44.1 sq mi at the SR 85 crossing. Overall, the Los Gatos Creek watershed is 26 percent urbanized. The remaining 74 percent consists primarily of open space, but also includes small areas of vacant land golf courses and mines (Tetra Tech, 2006). Most of the open space is upstream of the SR 85 crossing, so this area is less developed than the watershed as a whole. There are many water bodies in the Los Gatos Creek watershed including Lake Elsman, Lexington Reservoir and Vasona Reservoir, all of which are upstream of the SR 85 crossing.

At the SR 85 crossing, Los Gatos Creek flows through a natural channel alongside the paved Los Gatos Creek trail. It is conveyed under three separate dual-span bridges, all 178 ft long and ranging from 59 ft to 94 ft wide. Under the bridges the banks are lined with rock slope protection. Vasona Reservoir is located approximately 0.8 mi upstream of the SR 85 crossing of Los Gatos Creek.

Photo 14. Los Gatos Creek under SR 85 bridge (looking upstream)

1.4.14 Ross Creek (SR 85 PM 8.15)

Ross Creek crosses SR 85 at the western end of the Camden Avenue interchange. It flows to the northeast through eastern Los Gatos and portions of southern San Jose. With the exception of the farthest upstream portion, nearly the entire creek channel has been straightened. Approximately 2.2 mi downstream of the SR 85 crossing, Ross Creek enters Guadalupe River.

The watershed drains primarily urban areas of Los Gatos and San Jose. Some undeveloped areas exist in the southern portion of the watershed.

Upstream of the freeway, the creek is conveyed in an 8 ft wide trapezoidal channel with 1:1 (H:V) side slopes. It is conveyed under SR 85 through a double 10 ft wide by 12 ft tall box culvert. Downstream of the freeway, the culvert continues under Camden Avenue and outfalls into an 8 ft wide trapezoidal channel with 1:1 (H:V) side slopes. According to as-builts from Caltrans, a significant portion of Ross Creek surrounding SR 85 was lowered to accommodate SR 85 and the realigned Camden Avenue in the 1990s.

Photo 15. Ross Creek entering box culvert under SR 85 (looking downstream)

1.4.15 Guadalupe River (SR 85 PM 5.59)

Guadalupe River crosses SR 85 between the SR 87 interchange and the Almaden Expressway interchange. The river originates in the Santa Cruz Mountains and flows to the north through unincorporated Santa Clara County and the City of San Jose. Upstream of the SR 85 crossing, most of Guadalupe River flows in a natural channel.

The watershed area of Guadalupe River at the SR 85 crossing is approximately 53.2 sq mi. The watershed area consists of both urbanized portions of southern San Jose as well as undeveloped areas in unincorporated Santa Clara County. Upstream of the crossing, there are several reservoirs including Almaden Reservoir, Calero Reservoir, Guadalupe Reservoir, and Almaden Lake.

Under SR 85, Guadalupe River is conveyed in a straightened natural channel with moderate to heavy riparian vegetation directly adjacent to the channel under two separate 81 ft wide bridges that are approximately 1,600 ft long. These bridges also cross recharge ponds operated by SCVWD. The confluence of Guadalupe River and Canoas Creek is located approximately 2.7 mi downstream of the SR 85 crossing at Guadalupe River.

Photo 16. SR 85 bridge over Guadalupe River and SCVWD percolation ponds (looking downstream)

1.4.16 Canoas Creek (SR 85 PM 4.28)

Canoas Creek crosses SR 85 between the SR 87 interchange and the Blossom Hill Road interchange. The creek flows to the northwest through the City of San Jose in a straightened channel. Approximately 3.6 mi downstream of the crossing, Canoas Creek enters Guadalupe River.

At the SR 85 crossing, the watershed area of Canoas Creek is approximately 12.5 sq mi. The watershed area almost entirely consists of urbanized areas of southern San Jose, though it also drains the north-facing slopes of the Santa Teresa hills.

Canoas Creek is conveyed under a pair of 124 ft long, 81 ft wide concrete bridges in a concrete-lined trapezoidal concrete channel with a 10 ft bottom width and a 15 ft high side slopes at a 1:1 (H:V) slope lined with sacked concrete. The confluence of Guadalupe River and Canoas Creek is located approximately 3.9 mi downstream of the SR 85 crossing of Canoas Creek.

Photo 17. Canoas Creek under SR 85 bridge (looking upstream)

1.4.17 Coyote Creek (US 101 PM R26.47, R26.60)

Coyote Creek crosses US 101 and the northbound on-ramp from US 101 to SR 85 within the southern US 101/SR 85 interchange. The creek flows to the northeast through the cities of Morgan Hill and San Jose and portions of unincorporated Santa Clara County. While some of the stream channel in the upland areas is still natural, most areas in the valley floor have been partially reconstructed to optimize flood conveyance capacity. Approximately 17 mi downstream of the US 101 crossing, Coyote Creek outfalls into the San Francisco Bay.

The watershed area of Coyote Creek is approximately 229 sq mi at the SR 85 crossing. Overall, 27 percent of the Coyote Creek watershed is within the Urban Service Areas of either San Jose or Morgan Hill, while the remaining 73 percent is within unincorporated areas of Santa Clara County (SCVWD, 2002). Upstream of the US 101 crossing, there are several reservoirs, most notably Anderson Lake. There are also the Parkway Lakes, which are just upstream of the US 101 crossing.

Coyote Creek is conveyed under US 101 via four separate bridges (US 101 southbound lanes, Interchange for express lanes, US 101 northbound lanes, and connector from US 101 northbound to SR 85 northbound) ranging from 474 ft to 773 ft in length and from 47 to 95 ft in width. The creek is in a partially straightened gravel and earth channel with riparian vegetation surrounding, but not under, the bridges.

Photo 18. Coyote Creek under US 101 (looking downstream)

Table 1. Drainage Facilities at Major Crossings

Waterway	Route	Post Mile at Crossing	Drainage Facility
Matadero Creek	US 101	51.37	81 ft long by 133 ft wide single span concrete bridge
Adobe Creek	US 101	50.66	65 ft long by 133 ft wide single span concrete bridge
Permanente Creek	US 101	-	12 ft by 12 ft reinforced concrete box culvert
Stevens Creek	US 101	48.04	50 ft long by 201 ft wide dual span concrete bridge
	SR 85	R(1)22.95	122 ft long by 151 ft wide triple span concrete bridge
	SR 85	R20.96	35 ft long by 125 ft wide single span concrete bridge
	SR 85	R20.02	121 ft long by 163 ft wide triple span concrete bridge
Permanente Diversion	SR 85	-	10 ft by 10 ft reinforced concrete box culvert
Regnart Creek	SR 85	16.65	12 ft by 7 ft reinforced concrete box culvert
Calabazas Creek	SR 85	R15.40	156 ft long dual span concrete bridges
Rodeo Creek	SR 85	15.06	11 ft by 7 ft reinforced concrete box culvert
Saratoga Creek	SR 85	R13.91	100 ft long single span concrete bridge
Vasona Creek	SR 85	12.72	Double 12 ft by 12 ft reinforced concrete box culvert
San Tomas Aquino Creek	SR 85	R12.68	105 ft long single span concrete bridges
Smith Creek	SR 85	11.82	60” reinforced concrete pipe culvert
Smith Creek East Channel	SR 85	11.34	Unknown culvert size
Los Gatos Creek	SR 85	R10.80	178 ft long dual span concrete bridges
Ross Creek	SR 85	8.15	Double 10 ft by 12 ft reinforced concrete box culvert
Guadalupe River	SR 85	5.59	1,620 ft long 10-span concrete bridges
Canoas Creek	SR 85	4.28	124 ft long single span concrete bridges
Coyote Creek	US 101	R26.47, R26.60	475 ft long triple span concrete bridge
			474 ft long triple span concrete bridge
			474 ft long triple span concrete bridge
			773 ft long four span concrete bridge

Note:
(1). “R” in post mile refers to realigned routes.

1.5 Bridge Numbers

Eight of the 21 creek crossings are cross culverts. The other 13 are bridges with assigned bridge numbers. Though Ross Creek is a culvert, it also has a bridge number. These bridges are listed below:

Table 2. Bridge Numbers

Waterway	Route	Station	Post mile	Bridge Number
Matadero Creek	US 101	1947+30	51.37	37-0040
Adobe Creek	US 101	1909+80	50.66	37-0174
Stevens Creek	US 101	1771+50	48.04	37-0034
Stevens Creek	SR 85	1850+67	R22.95	37-0197
Stevens Creek	SR 85	1743+50	R20.96	37-0189
Stevens Creek	SR 85	1695+73	R20.02	37-0185
Calabazas Creek	SR 85	1459+50	R15.40	37-0527L, 37-0527R, 37-0527S
Saratoga Creek	SR 85	1370+67	R13.91	37-0500K, 37-0500L, 37-0500R, 37-0500S
San Tomas Aquino Creek	SR 85	1305+50	R12.68	37-0524L, 37-0524R
Los Gatos Creek	SR 85	1210+25	R10.80	37-0491L, 37-0491R
Ross Creek	SR 85	1061+54	8.15	37-0469
Guadalupe River	SR 85	935+15	5.59	37-0467L, 37-0467R
Canoas Creek	SR 85	855+29	4.28	37-0412L, 37-0412R
Coyote Creek	US 101	615+50	R26.47, R26.60	37-0346L, 37-0346R, 37-0346E, 37-0346G

1.6 Traffic

SR 85 and US 101 are major highways used by emergency supply or evacuation, emergency vehicle access, school buses and mail delivery. However, practical detour routes are available and can be made available during construction. Please see below for the summary of the assessment. The current and future traffic volumes for representative segments within each of the four major system interchanges in the project corridor (between US 101 at the southern project limit and SR 87, between SR 87 and I-880/SR-17, between I-880/SR-17 and I-280, and between I-280 and US 101 at the northern project limit) are summarized in Table 3.

Emergency Supply or Evacuation Route: Yes
Emergency Vehicle Access: Yes
Practical Detour Route: Yes
School Bus or Mail Route: Yes

Table 3. Traffic Volumes

Route	Location	2009 Volume (AADT)	2015 No Build Volume (AADT)	2035 No Build Volume (AADT)	2015 Build Volume (AADT)	2035 Build Volume (AADT)
SR 85	Blossom Hill to SR 87	141,000	148,900	184,900	153,400	187,300
SR 85	Union to Bascom	129,000	139,100	164,700	149,300	175,800
SR 85	Saratoga to Sunnyvale/DeAnza	100,000	113,400	138,900	122,200	150,800
SR 85	Fremont to El Camino	115,000	125,100	146,200	125,800	143,600

1.7 Traffic Interruptions for Base Flood (Q_{100})

FEMA defines the base flood as the flood event having a one percent chance of being equaled or exceeded in any given year. This is often referred to as the "100-year flood" or the 1-percent annual chance flood. For the purposes of this report, such a flood is referred to as the 1-percent annual chance flood.

There are several areas of potential flooding along SR 85 within the project limits. Most of the cities of Mountain View and Saratoga are defined by FEMA as being within Flood Hazard Zone X, which typically represents shallow flooding of less than a foot. These areas include significant portions of SR 85 and may be a source of traffic interruption. There are also floodplains at several creek crossings for which information is not available to determine whether freeway traffic would be interrupted. These locations include San Tomas Creek, Vasona Creek, and two of the Stevens Creek crossings.

Portions of US 101 at the north end of the project fall within the 1-percent annual chance floodplain. Zone AE, a 100-year floodplain caused by high-tide, covers northbound and southbound US 101 from the Embarcadero Road Interchange to the Rengstorff Avenue Interchange. Traffic interruption may also occur at the following five interchanges as these streets would also be inundated during the 1-percent annual chance flood event: Embarcadero Road, Oregon Expressway, San Antonio Road, Rengstorff Avenue, and Old Middlefield Way.

Overall, the project does not have significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles. The project would maintain routes currently used by emergency vehicles and would improve traffic flow. There are also various streets running parallel to SR 85 that would be available for detour and

emergency vehicle use. There is generally no change in grade, and there would be no significant increase in interruptions caused by flooding issues due to the project.

2 HYDROLOGIC AND HYDRAULIC DATA

Within the project limits, 20 areas are within the delineated floodplains defined by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM). The maps indicate there is an additional creek crossing (Smith Creek, discussed further below) that does not contain a defined floodplain at the project site but has a floodplain directly adjacent to the site. Of these floodplains, seven are identified as flood hazard zone designation Zone AE, which represents areas with a 1 percent annual chance of flooding, where base flood elevations have been determined in the Flood Insurance Study (FIS) by detailed methods of analysis. One floodplain is within Zone AO, which represents a 1 percent or greater chance of shallow flooding each year, with an average depth ranging from 1 ft to 3 ft. The remaining 12 floodplains are identified as Zone A, which represents areas with a 1 percent annual chance of flooding, where the floodplain has been analyzed by approximate methods and base flood elevations have not been determined.

There are also various areas that are delineated on the FIRMs as being within Zone X (shaded), which may represent the area between the 1-percent and 0.2-percent annual chance floodplains, areas protected from the 1-percent annual chance flood by levees, or shallow flooding with average depths of less than one foot. These areas do not support the typical beneficial uses associated with floodplains, nor do they require the purchase of flood insurance.

The FIS for Santa Clara County, CA and Incorporated Areas (2009) was used to obtain existing floodplain information within the project area to supplement the data provided by the FIRMs. The FIS provides hydrologic information and explains the methods of analysis used to generate the floodplains shown on the FIRMs. The FIS also includes profiles of the floodplain elevations. In the cases of Stevens Creek, Ross Creek and Guadalupe River, the FIS profiles include water surface elevations not shown on the FIRMs. These water surface elevations were used in the analysis and are documented below. Where neither the FIS nor the FIRM provided water surface elevations, HEC-RAS models provided by SCVWD were used to determine water surface elevations.

It should be noted that much of the information available in the FEMA studies was determined before the construction of SR 85. Therefore, much of the hydrologic information presented in the following sections reflects the nearest or most applicable data available.

An overview of the floodplain maps is shown in Figure 3, Figure 4, and Figure 5. FIRMs can be found in Appendix C.

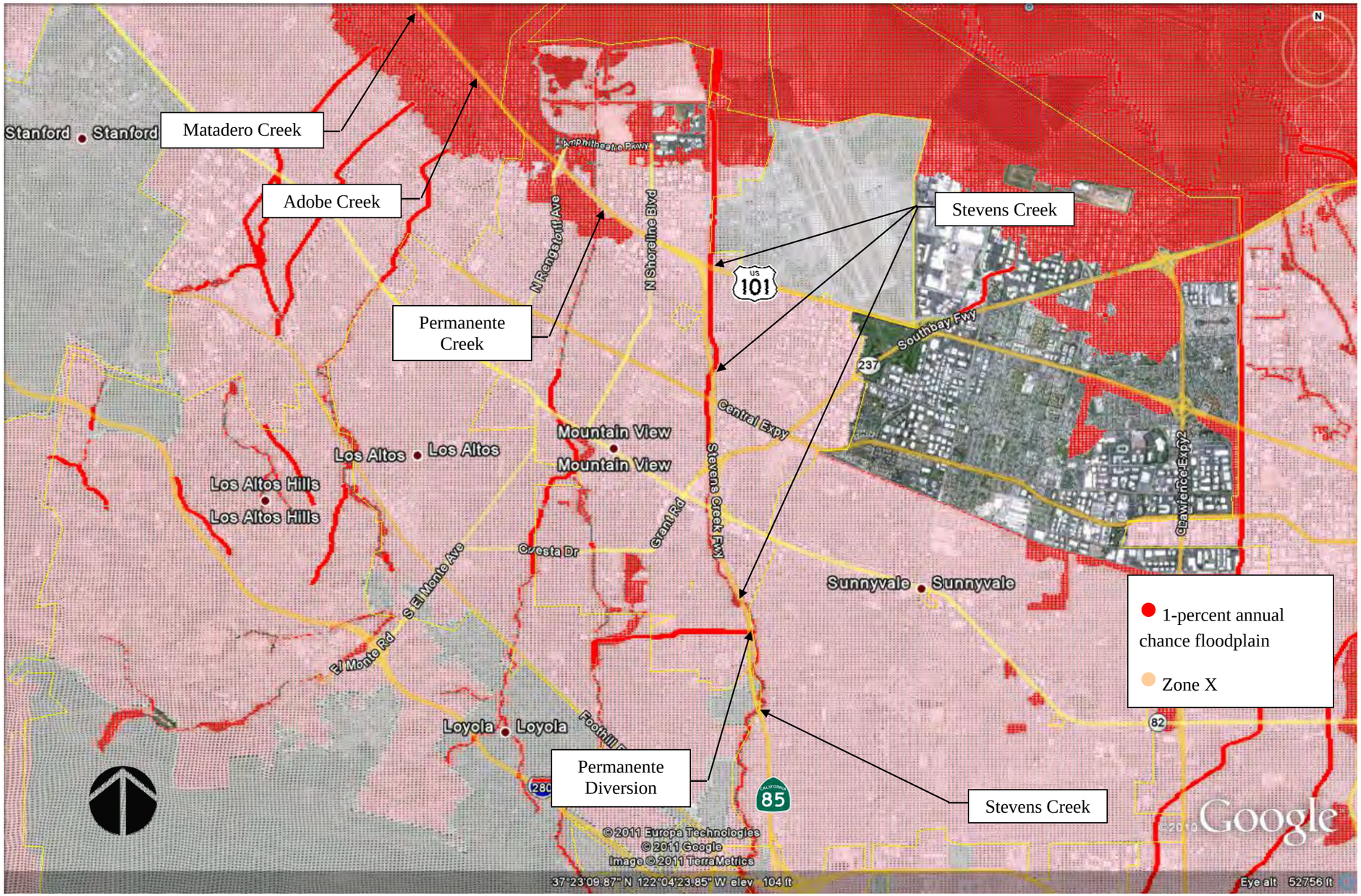

Figure 3. Floodplain Map, Part 1

Source: FEMA, Google Earth

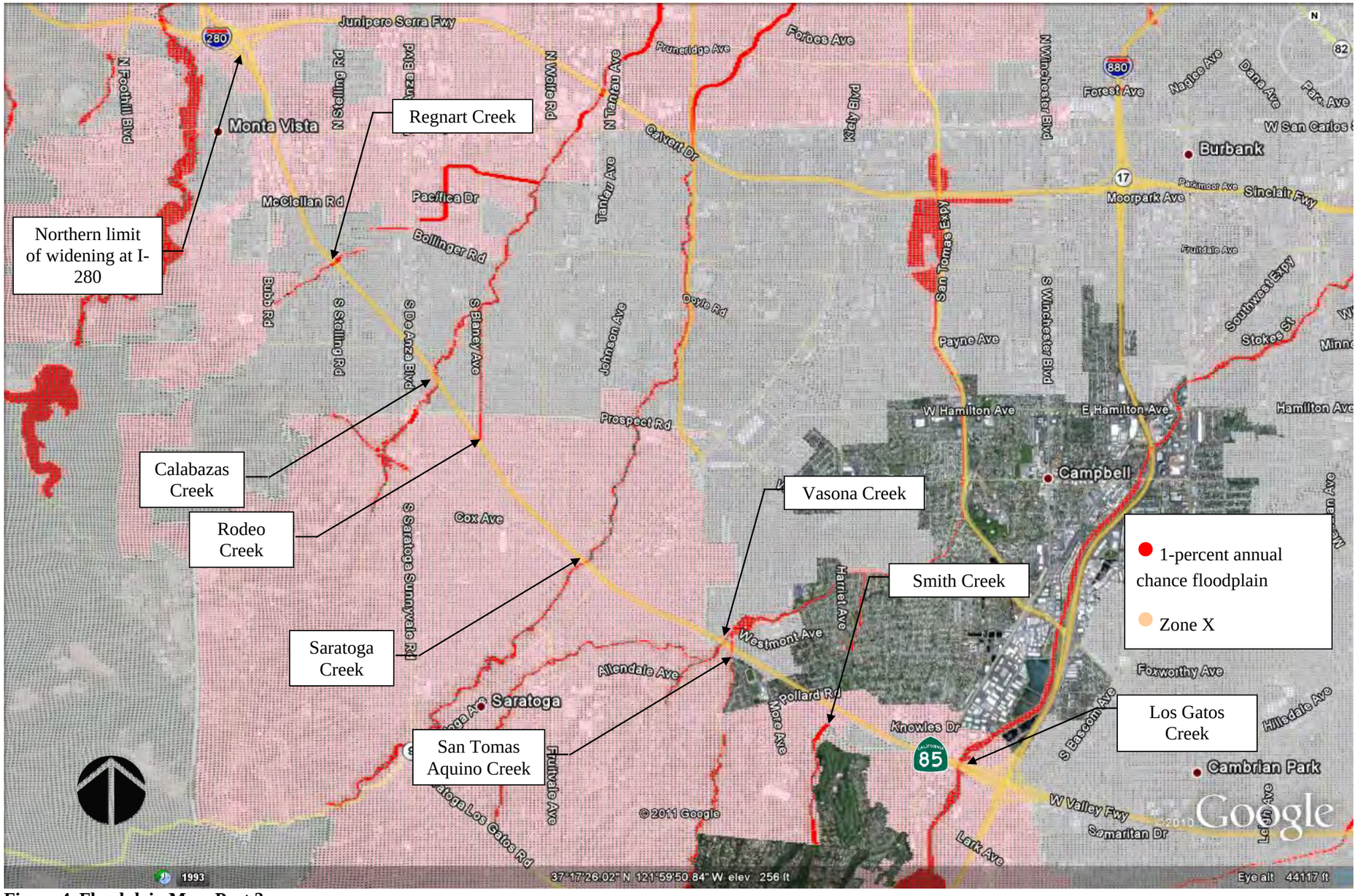

Figure 4. Floodplain Map, Part 2

Source: FEMA, Google Earth

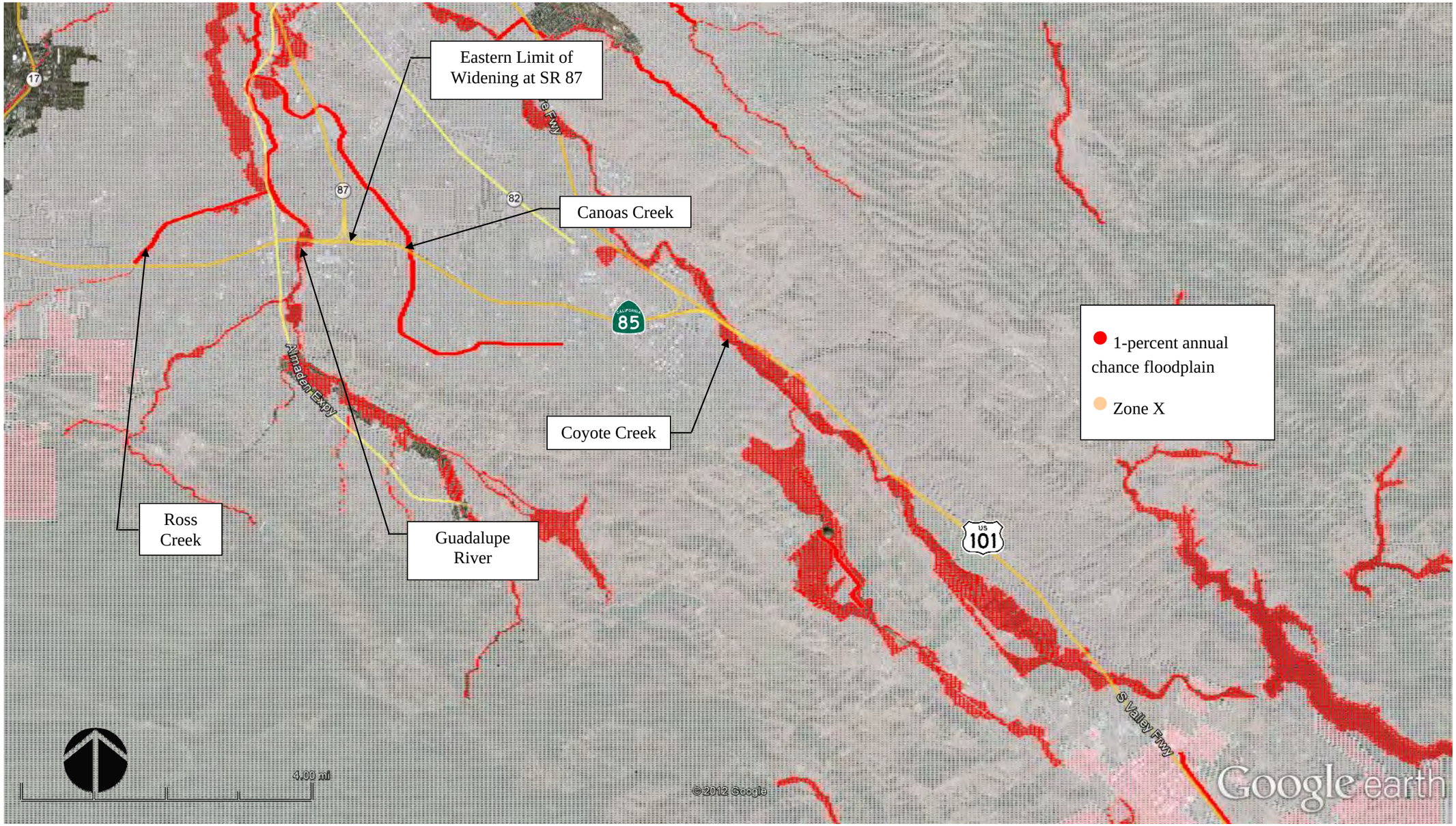

Figure 5. Floodplain Map, Part 3

Source: FEMA, Google Earth

2.1 Matadero and Adobe Creeks

Northwest of the US 101/SR 85 interchange, Matadero and Adobe creeks each cross US 101 together generate large floodplains that cover much of US 101 and the surrounding areas within the project limits.

The floodplain that covers much of US 101 consists of Zone AE, which represents the 1-percent annual chance floodplain determined by detailed hydraulic analyses. According to the City of Palo Alto, this area is due to the potential overtopping of bayfront levees in the event of an extremely high tide, particularly one that might be associated with an extreme storm event (City of Palo Alto, Department of Public Works). A high tide event during a 1-percent annual chance flood event in the Project location is approximately 11 ft NAVD. Zone AE floodplain in the vicinity of US 101 bridges over Matadero and Adobe creeks represents areas with an elevation of less than 11 ft NAVD, which is subject to the tidal flooding. The floodplain covers northbound and southbound US 101 from the Embarcadero Road interchange to the North Rengstorff Avenue interchange.

As noted above, the water surface elevation throughout this area is approximately 11 ft NAVD. This elevation is higher than the existing US 101 in some locations through this stretch.

2.2 Permanente Creek

Permanente Creek crosses US 101 between the North Rengstorff Avenue and Old Middlefield Way interchanges. According to FIRM 06085C0037H, there is no floodplain directly at the US 101 crossing, but there are adjacent areas that do fall within the 1-percent annual chance floodplain. These areas are designated as being within Zone AO, which represents the floodplain caused by the shallow sheet overtopped flow from Permanente Creek during a 1-percent annual chance flood event. This overtopping is due to the insufficient capacity of the concrete lined channel upstream of US 101 (FEMA 2009). The Zone AO floodplain area, at the upstream side of the US 101 cross culvert, is approximately 150 acres. In the vicinity of the project site, floodplain areas adjacent to the US 101 southbound lanes are at the North Rengstorff Avenue interchange and the Old Middlefield Road interchange. A small portion of the North Rengstorff Avenue on-ramp to US 101 is shown as being within Zone AO with a 2 foot depth.

2.3 Stevens Creek

North of I-280, Stevens Creek runs parallel to SR 85, crossing it in several places as well as crossing US 101 near the northern limit of the project. According to FIRMs 06085C0037H , 06085C0039H, 06085C0202H and 06085C0206H, this stretch of the creek is within flood hazard zone designation Zone A, which designates a floodplain during a 1-percent annual chance flood event determined by approximate methods. In several locations, the FIRMs state that the 1 percent annual discharge is contained within the culvert, but they do not specify whether this applies to the entire segment of Stevens Creek within the project limits. The FEMA layers in Google Earth, however, confirm

that the entirety of Stevens Creek between US 101 and the Central Expressway is contained within the channel. With the exception of the locations where Stevens Creek crosses SR 85, there are no instances where the floodplain encroaches into the Department's right-of-way.

Nearly the entire cities of Mountain View and Sunnyvale are defined as being within Zone X (shaded). Downstream of the US 101 crossing, the FIRM states that Zone X (shaded) areas are protected from the 1-percent annual-chance flood hazard by a levee system that has been provisionally accredited. In November 2010, FEMA issued a Letter of Map Revision (LOMR) confirming the accreditation of these levees, but notes that the overtopping of levees is possible. Throughout the remainder of the project limits, FEMA does not specify why the areas surrounding SR 85 are within Zone X.

South of I-280, a detailed study was performed on Stevens Creek and shows some areas of floodplain outside of the creek channel. These areas are over half of a mile outside of the project limits, but appear to contribute to additional areas of Zone X surrounding SR 85 south of I-280 within the City of Cupertino. FEMA does not specify why these areas are being listed within Zone X (shaded), but profiles in the FIS show the creek overtopping several bridges, most notably at Stevens Creek Boulevard.

2.3.1 Stevens Creek at US 101 (PM 48.04)

According to FIRM number 06085C0037H, a floodplain exists at the Stevens Creek crossing of US 101. This floodplain is identified as being in flood hazard Zone A, and does not list a water surface elevation. The FIS lists the 1-percent annual chance peak discharge as 5,750 cfs and the drainage area as 36.4 sq mi at the US 101 crossing. Though the FIRM does not list water surface elevations, the profiles in the FIS show the 1-percent annual chance water surface elevation to be 35.9 ft NAVD upstream of the crossing and 35.7 ft NAVD just downstream of the crossing. The existing roadway elevation is approximately 40.0 ft NAVD, and is not inundated by the 1-percent annual chance flood. The FEMA layer in Google Earth also shows that the waterway is contained within the channel at this crossing.

2.3.2 Stevens Creek at PM 22.95

According to FIRM number 06085C0039H, a floodplain exists at the Stevens Creek crossing of SR 85 between Middlefield Road and Central Expressway (approximate station 1291+00). This floodplain is identified as being in flood hazard Zone A, and does not list a water surface elevation. The closest available hydrologic data in the FIS is for the railroad crossing 0.3 mi upstream of the SR 85 crossing. At the railroad crossing, the FIS lists the 1-percent annual chance peak discharge as 5,350 cfs and the drainage area as 34.3 sq mi. Though the FIRM does not list water surface elevations, the profiles in the FIS show the 1-percent annual chance water surface elevation to be 64.6 ft NAVD upstream of the SR 85 crossing and 64.0 ft NAVD downstream of the crossing. The roadway elevation is at approximately 78.0 ft NAVD, and would not be inundated by the

1-percent annual chance flood. The FEMA layer in Google Earth also shows that the waterway is contained within the channel at this crossing.

2.3.3 Stevens Creek at PM 20.96

According to FIRM number 06085C0202H, a floodplain exists at the Stevens Creek crossing of SR 85 approximately 0.8 mi south of El Camino Real (approximate station 1397+00). This floodplain is identified as being in flood hazard Zone A, and does not list a water surface elevation. Direct information from the FIS for this location is not available. This location, however, is 0.3 mi downstream of the confluence with Permanente Diversion and the FIS lists hydrologic values for both Permanente Diversion and Stevens Creek just upstream of the confluence. Adding the values together gives a 1-percent annual chance peak discharge of 7,390 cfs and a drainage area of 33.1 sq mi.

2.3.4 Stevens Creek at PM 20.02

According to FIRM number 06085C0206H, a floodplain exists at the Stevens Creek crossing of SR 85 just north of Fremont Avenue (approximate station 1446+50). This floodplain is identified as being in flood hazard Zone A, and does not list a water surface elevation. Direct information from the FIS for this location is not available. This location, however, is 0.7 mi upstream of the confluence with Permanente Diversion. At the confluence, the FIS lists a 1-percent annual chance discharge of 6,000 cfs and a drainage area of 24.2 sq mi.

2.4 Permanente Diversion

According to FIRM number 06085C0202H, a floodplain exists at the Permanente Diversion crossing of SR 85. The FIRM identifies the floodplain as being in flood hazard Zone A and does not list a water surface elevation, but states that the 1 percent annual discharge is contained within the channel at this location. SCVWD provided HEC-RAS models that provide 1-percent annual chance water surface elevations at the crossing, listing it as 167.1 ft NAVD upstream of the crossing and 164.2 ft NAVD downstream of the crossing. Where Permanente Diversion enters Stevens Creek, adjacent to the SR 85 crossing, the FIS lists the 1-percent annual chance peak discharge as 1,390 cfs and the drainage area as 8.9 sq mi.

Nearly the entire cities of Mountain View and Sunnyvale are defined as being within flood hazard Zone X (shaded), which represents the area between the 1-percent annual chance and 0.2-percent annual chance floodplains, areas protected from the 1-percent annual chance flood by levees, or shallow flooding with average depths of less than one foot. Within the vicinity of Permanente Diversion, FEMA does not specify why the areas surrounding SR 85 are within Zone X (shaded).

2.5 Regnart Creek

FIRM number 06085C0216H shows a floodplain at the Regnart Creek crossing of SR 85. In September 2010, however, FEMA issued Letter of Map Revision (LOMR) number 10-09-2408P-060339, which shows the 1-percent annual chance flood as being contained

within the culvert under SR 85. There is thus no applicable floodplain for Regnart Creek. The FIS does not include hydrologic parameters for Regnart Creek.

2.6 Calabazas Creek

According to FIRM number 06085C0217H, a floodplain exists at the Calabazas Creek crossing of SR 85. This floodplain is identified as being in flood hazard Zone AE. The water surface elevation is 284.1 ft NAVD upstream of the crossing and 280.2 ft NAVD downstream of the crossing. The roadway elevation is at approximately 296.5 ft NAVD and is not inundated by the 1-percent annual chance flood.

The FIS lists hydrologic data for both 0.3 mi upstream (at Prospect Road) and 0.3 mi downstream (at Rainbow Drive). The data from just above Prospect Road were used, which list the 1-percent annual chance peak discharge as 1,800 cfs and a drainage area of 4.4 sq mi.

The FIRM does not show any Zone X (shaded) areas adjacent to the Calabazas Creek crossing of SR 85 in the City of San Jose. Nearly all of the City of Saratoga, however, southeast of the Calabazas Creek crossing, is listed as being in Zone X (shaded), which represents the area between the 1-percent annual chance and-0.2 percent annual chance floodplains, areas protected from the 1-percent annual chance flood by levees, or shallow flooding with average depths of less than 1 foot. The FIS does not specify which condition applies in particular areas of Saratoga, but does acknowledge that at a minimum some portions of Saratoga contain areas where the 1-percent annual chance flood produced depths of greater than 1 foot and were subsequently designated as Zone X (shaded). The FIS also indicates that there is overtopping of Calabazas Creek at the railroad tracks approximately 0.7 mi upstream of SR 85. Likewise, it was noted that some overflow areas are adjacent to SR 85 and will enter the freeway depressed section.

According to the watershed characteristic report prepared by Santa Clara Basin Watershed Management Initiative (SCBWMI, 2000), Calabazas Creek has a history of chronic flooding. On December 22, 1955, over 160 homes were flooded to a depth of up to 3 ft in Sunnyvale alone. More recent flooding has occurred in 1978, 1980, 1983, 1986, 1995, and 1998. The 1998 storms resulted in the overtopping of the following bridges: Southern Pacific Railroad, Saratoga-Sunnyvale Road, Bollinger Road, Miller Avenue, Tantau Avenue, Pruneridge Avenue and Monroe Street.

2.7 Rodeo Creek

According to FIRM number 06085C0217H, a floodplain exists at the Rodeo Creek crossing of SR 85. This floodplain is identified as being in flood hazard Zone A, and does not list a water surface elevation. SCVWD, however, provided the project team with a HEC-RAS model of Rodeo Creek. This model begins at the downstream end of the creek, and lists the water surface elevation as 280.8 ft NAVD. The roadway elevation is at approximately 288.0 ft NAVD and is not inundated by the 1-percent annual chance

flood. The SCVWD HEC-RAS models also provide a 1-percent annual chance flow of 300 cfs.

The Rodeo Creek crossing is within the limits of the City of Saratoga, which is almost entirely within flood hazard Zone X (shaded). According to the FIS, the 1-percent annual chance flood will subject nearly the entire City of Saratoga to shallow flooding due to the limited capacity of its storm drain system.

2.8 Saratoga Creek

According to FIRM number 06085C0219H, a floodplain exists at the Saratoga Creek crossing of SR 85. At the crossing itself, the floodplain is identified as being in flood hazard Zone A, and does not list a water surface elevation. Just upstream of the project site, however, is listed as Zone AE with a 1-percent annual chance water surface elevation of 315 ft NAVD. The roadway elevation at Saratoga Creek is approximately 319.5 ft NAVD, and is not inundated by the 1-percent annual chance flood. The FIS lists the 1-percent annual chance peak discharge as 3,950 cfs and the drainage area as 11.1 sq mi at the railroad tracks just upstream of the SR 85 crossing.

The Saratoga Creek crossing is within the limits of the City of Saratoga, which is almost entirely within flood hazard Zone X (shaded). According to the FIS, the 1 percent annual chance flood will subject nearly the entire City of Saratoga to shallow flooding due to the limited capacity of its storm drain system.

The earliest flood of record on Saratoga Creek occurred in 1861. Other floods occurred in 1892, 1910, 1940, 1943, 1955 and 1958. The highest ever recorded flow on Saratoga Creek occurred in 1955, when flows reached 2,730 cfs (SCBWMI, 2000). According to the FIS, this is estimated to have been a 40 to 50-year event, and it washed out numerous private bridges. The storms of 1958 caused similar levels of damage.

2.9 Vasona Creek

According to FIRM number 06085C0238H, a floodplain exists at the Vasona Creek crossing of SR 85. This floodplain is identified as being in flood hazard Zone A, and does not list a water surface elevation. The floodplain shown on the FIRM suggests that Vasona Creek is contained within its banks, but information is not available to confirm this assumption. This report therefore considers the possibility that Vasona Creek overtops SR 85 at this location.

2.10 San Tomas Aquino Creek

According to FIRM number 06085C0238H, a floodplain exists at the San Tomas Aquino Creek crossing of SR 85. This floodplain is identified as being in flood hazard Zone A, and does not list a water surface elevation. The floodplain shown on the FIRM suggests that San Tomas Aquino Creek is contained within its banks, but information is not available to confirm this assumption. This report therefore considers the possibility that San Tomas Aquino Creek overtops SR 85 at this location. Portions of San Tomas

Aquino Creek received a detailed study in the FIS, but this portion of the creek did not. The nearest available data are from near Old Adobe and Quito roads, approximately 0.7 mi upstream of the project. At this location, the 1-percent annual chance peak discharge is given as 1,350 cfs and the drainage area is given as 3.1 sq mi.

In 1931, San Tomas Aquino Creek overtopped Latimer Avenue in Los Gatos. In 1998, it overbanked downstream of SR 237.

2.11 Smith Creek

According to FIRM number 06085C0238H, a floodplain exists just upstream of the Smith Creek crossing of SR 85. Just upstream of the project site, the floodplain is listed as Zone AE with a 1-percent annual chance water surface elevation of 251 ft NAVD. The roadway elevation at this crossing is approximately 255.5 ft NAVD, and is not inundated by the 1-percent annual chance flood. The FIS lists the 1-percent annual chance peak discharge at the railroad tracks just upstream of SR 85 as 440 cfs and the drainage area as 0.8 sq mi.

Within the vicinity of Smith Creek, portions of SR 85 are within Zone X (shaded), which represents the area between the 1-percent annual chance and 0.2-percent annual chance floodplains, areas protected from the 1-percent annual chance flood by levees, or shallow flooding with average depths of less than 1 foot. Neither the FIRM nor the FIS state which condition is true within the vicinity of SR 85 at the Smith Creek crossing, but the FIS states that some areas of Los Gatos are subject to shallow overland flow of less than 3 ft deep.

2.12 Los Gatos Creek

According to FIRM number 06085C0239H, a floodplain exists at the Los Gatos Creek crossing of SR 85. This floodplain is identified as being in flood hazard Zone AE. The water surface elevation is 263.6 ft NAVD upstream of the crossing and 263.1 ft NAVD downstream of the crossing. The roadway elevation at the crossing is approximately 269.5 ft NAVD and is not inundated by the 1-percent annual chance flood. The closest available hydrologic data in the FIS come from 0.8 mi upstream, below Vasona Dam. Below Vasona Dam, the FIS lists the 1-percent annual chance peak discharge as 6,950 cfs and the drainage area as 44.1 sq mi.

Within the vicinity of Los Gatos Creek, portions of SR 85 are within Zone X (shaded), which represents the area between the 1-percent annual chance and 500-year floodplains, areas protected from the 1-percent annual chance flood by levees, or shallow flooding with average depths of less than 1 foot. Neither the FIRM nor the FIS state which condition is true within the vicinity of SR 85 at the Los Gatos Creek crossing, but the FIS states that some areas in the Town of Los Gatos are subject to shallow overland flow of less than 3 ft deep.

Floods on Los Gatos Creek in 1952 damaged the Main Street bridge and caused the Chemeketa Park bridge to collapse. Vasona Park flooded in 1962.

2.13 Ross Creek

According to FIRM number 06085C0243H, a floodplain exists at the Ross Creek crossing of SR 85. This floodplain is identified as being in flood hazard Zone A, and the FIRM does not list a water surface elevation. Where Ross Creek crosses SR 85 is just upstream of the upper limit of a profile in the FIS. The FIS shows the water surface elevation as 213.5 ft NAVD at the intersection of Branham Lane and Camden Avenue, which is adjacent to SR 85. The FIS lists no hydrologic information for Ross Creek. In July 2010, FEMA issued LOMR number 10-09-2973P-060349, which shows the 1-percent annual chance flood as being contained within the channel from downstream of Camden Avenue to the confluence with Guadalupe River. The LOMR does not document any changes to the SR 85 crossing, however.

As-builts of the construction of the SR 85/Camden Avenue interchange show the realignment and profile of Ross Creek, constructed in 1992. This project shows Ross Creek being lowered by approximately 7 ft at the SR 85 crossing. They also show that the 1-percent annual chance water surface elevation is contained within the box culvert, with a water surface elevation of approximately 199 ft NAVD at the downstream end of SR 85 and approximately 204 ft NAVD as it enters the box culvert. SCVWD HEC-RAS models confirm that the water surface elevations are significantly lower than those listed by FEMA, showing elevations of approximately 203 ft NAVD upstream of the crossing and 202 ft NAVD downstream of the crossing. The remainder of this report assumes that the SCVWD HEC-RAS data are the most current and accurate.

The roadway elevation at this crossing is approximately 224.5 ft NAVD, and will not be inundated by the 1-percent annual chance flood.

2.14 Guadalupe River

According to FIRM number 06085C0263H, a floodplain exists at the Guadalupe River crossing of SR 85. This floodplain includes the surrounding percolation ponds operated by SCVWD and is identified as being in flood hazard Zone A; a water surface elevation is not listed. The closest available hydrologic data in the FIS come from Blossom Hill Road, 0.4 mi upstream of the SR 85 crossing. At the Blossom Hill Road crossing of Guadalupe River, the FIS lists the 1-percent annual chance peak discharge as 11,500 cfs and the drainage area as 53.2 sq mi. Though the FIRM does not list water surface elevations, the FIS profile show the 1-percent annual chance water surface elevation as 178.9 ft NAVD upstream of the SR 85 crossing and 178.5 ft NAVD downstream of the crossing. The roadway elevation is approximately 217 ft NAVD at the crossing and is not inundated by the 1-percent annual chance flood.

The written history of flooding in the Guadalupe River area dates to the founding of Mission Santa Clara and Pueblo San Jose de Guadalupe in 1777. Accounts of flooding

were recorded in 1779, 1862, 1867, 1869, and 1911. The storm of December 1955 caused widespread flooding throughout the Basin, the Guadalupe River alone inundating some 5,200 acres. Flooding would have been even more severe if the upstream storage reservoirs had not been nearly empty prior to the storm. Major flooding also occurred in April 1958, when flood waters covered portions of downtown San Jose to a depth of up to 4 ft. In recent years, the Guadalupe River has flooded San Jose communities during the winters of 1980, 1982, 1983, and 1995 (SCBWMI, 2000).

2.15 Canoas Creek

According to FIRM number 06085C0264H, a floodplain exists at the Canoas Creek crossing of SR 85. This floodplain is identified as being in flood hazard Zone A, and the FIRM does not list a water surface elevation. SCVWD, however, provided the project team with a HEC-RAS model of Canoas Creek, which shows the water surface elevation to be 159.1 ft NAVD at both the upstream and downstream ends of the crossing. The roadway elevation at Canoas Creek is approximately 180.5 ft NAVD, and is not inundated by the 1-percent annual chance flood. The closest available hydrologic data in the FIS come from the crossing at Blossom Hill Road 0.2 mi upstream of the SR 85 crossing. At the Blossom Hill Road crossing, the FIS lists the 1-percent annual chance peak discharge as 1,400 cfs and the drainage area as 12.5 sq mi.

2.16 Coyote Creek

According to FIRM number 06085C0407H, a floodplain exists at the Coyote Creek crossing of US 101 and the northbound on-ramp to SR 85. This floodplain is identified as being in flood hazard Zone AE. The FIRM lists the 1-percent annual chance water surface elevations as 228.0 ft NAVD upstream of the US 101 crossing and 226.2 ft NAVD downstream of the US 101 crossing. The FIRM shows the roadway is inundated by a 100-year flood. However, per the survey information, the roadway elevation at the crossing is approximately 241.5 ft NAVD, which is above the 100-year water surface elevation shown on the FIRM.

The FIS does not list hydrologic information at this exact location. Downstream of the site, the closest available hydrologic data in the FIS come from the USGS survey gage near Edenvale, approximately 3.4 mi downstream of the project. Upstream of the site, the closest available hydrologic data come from upstream of the confluence with Fischer Creek, approximately 1.6 mi upstream of the project site. The Fischer Creek data, however, are upstream of the Parkway Lakes. Due to the hydrologic effect these lakes may have on Coyote Creek, the Edenvale location was considered more accurate and is used in this report. At the Edenvale survey gage, the FIS lists the 1-percent annual chance peak discharge as 13,760 cfs and the drainage area as 229.0 sq mi.

Approximately 1.2 mi northwest of the US 101/SR 85 interchange, FIRM number 06085C0268H shows the floodplain of Coyote Creek encroaching onto US 101. The FIRM lists the floodplain over US 101 as Zone AO floodplain, which represents the floodplain caused by the shallow sheet overtopped flow from Coyote Creek during a 1-

percent annual chance flood event. The FIRM lists the floodplain elevation adjacent to the Zone AO floodplain as 210 ft NAVD (see Figure 6). The current topography shows the highway elevation to be approximately 210 ft NAVD, which is equivalent to the 100-year floodplain elevation.

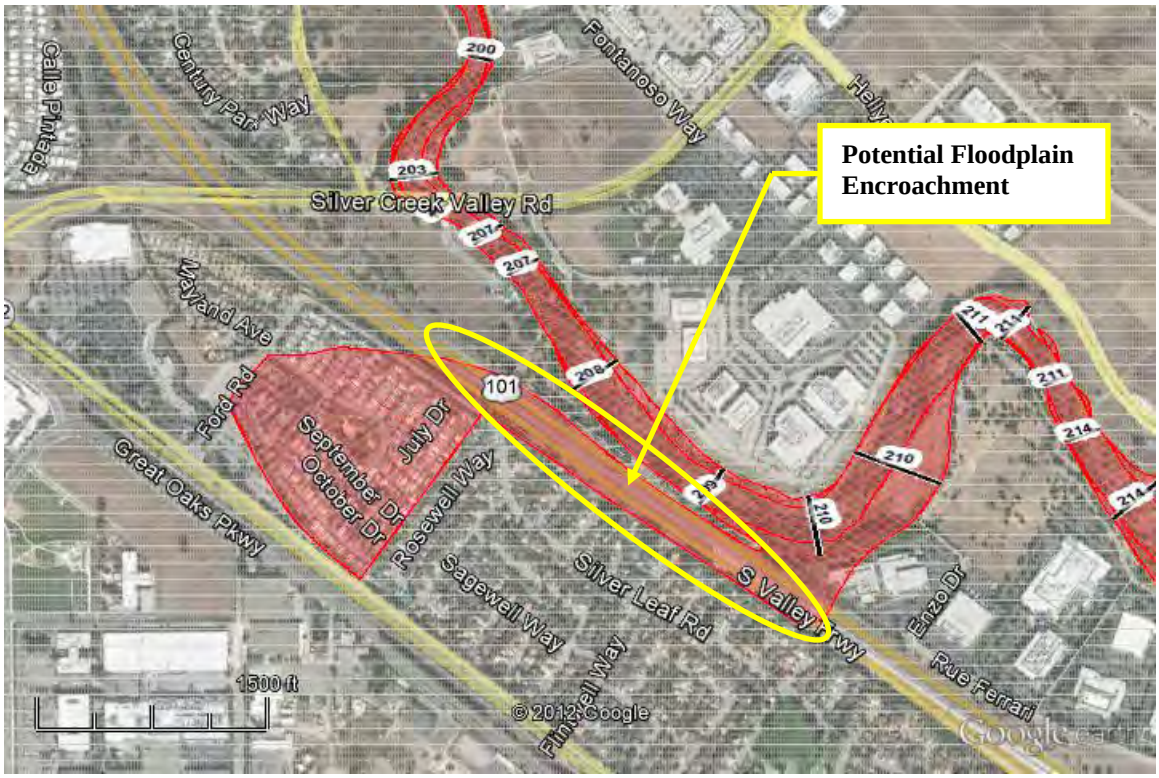

Figure 6. FIRM Overlay, Coyote Creek Floodplain along US 101, Location 1

Source: FEMA and Google Earth

Approximately 0.5 mi southeast of the US 101/SR 85 interchange, FIRM number 06085C0407H shows the floodplain of Coyote Creek encroaching onto US 101. The FIRM lists the floodplain elevation as approximately 235 ft NAVD in this location (see Figure 7). The current topography, however, shows the highway elevation to be approximately 245 ft NAVD, well above the floodplain. USGS Topo maps from 1980, however, show that US 101 used to be the roadway that is currently Monterey Road, on the west side of Coyote Creek. In addition, Coyote Creek flood profile from the FEMA FIS does not show the US 101 bridge over Coyote Creek at the US 101/SR 85 interchange. This is most likely because the FIS was completed in 1979 and has not been updated to reflect the effect of the US 101 roadway project (Contract No. 04-117384), which was completed in 1980.

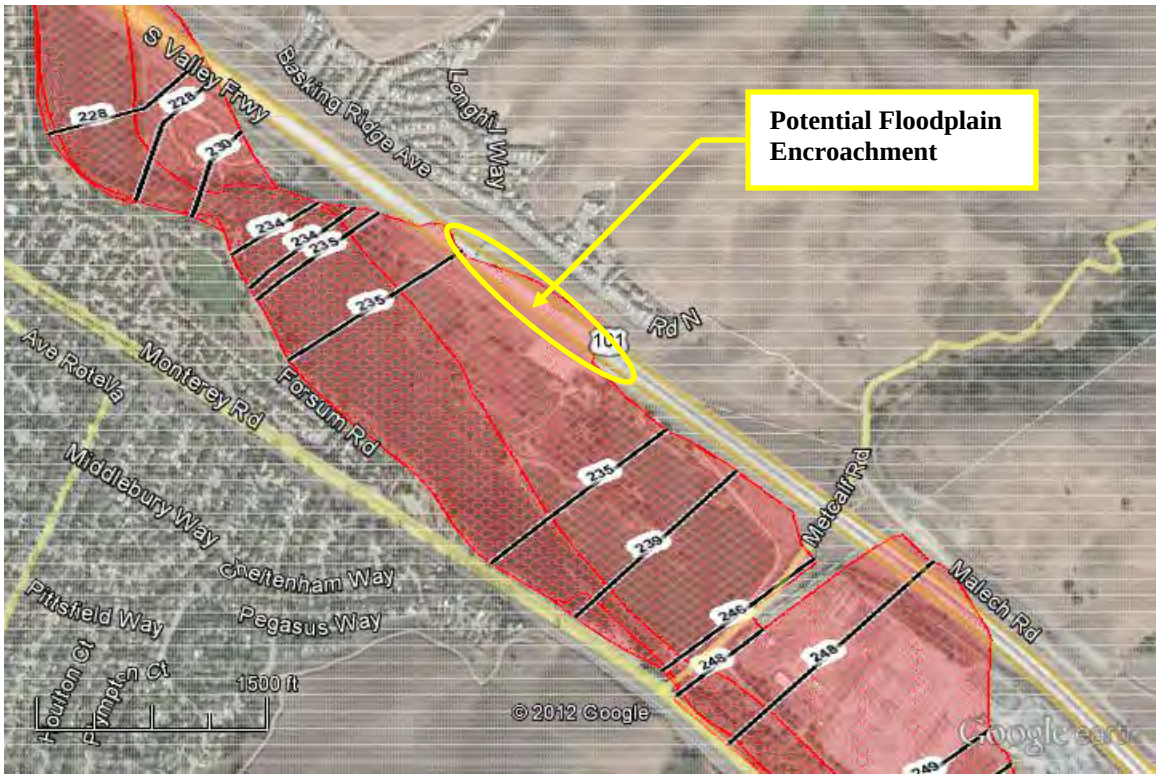

Figure 7. FIRM Overlay, Coyote Creek Floodplain along US 101, Location 2

Source: FEMA and Google Earth

Just southeast of the US 101/Metcalf Road interchange, FIRM number 06085C0426H shows the floodplain of Coyote Creek, designated as Zone AE, encroaching onto US 101. The FIRM lists the floodplain elevation as approximately 248 ft NAVD in this location (see Figure 8). The current topography, however, shows the highway elevation to be approximately 256 ft NAVD, well above the 100-year floodplain. The FIS was completed in 1979 and has not been updated to reflect the effect of the US 101 roadway project (Contract No. 04-117384), which was completed in 1980. USGS Topo maps from 1980 show that US 101 used to be the roadway that is currently Monterey Road, on the west side of Coyote Creek.

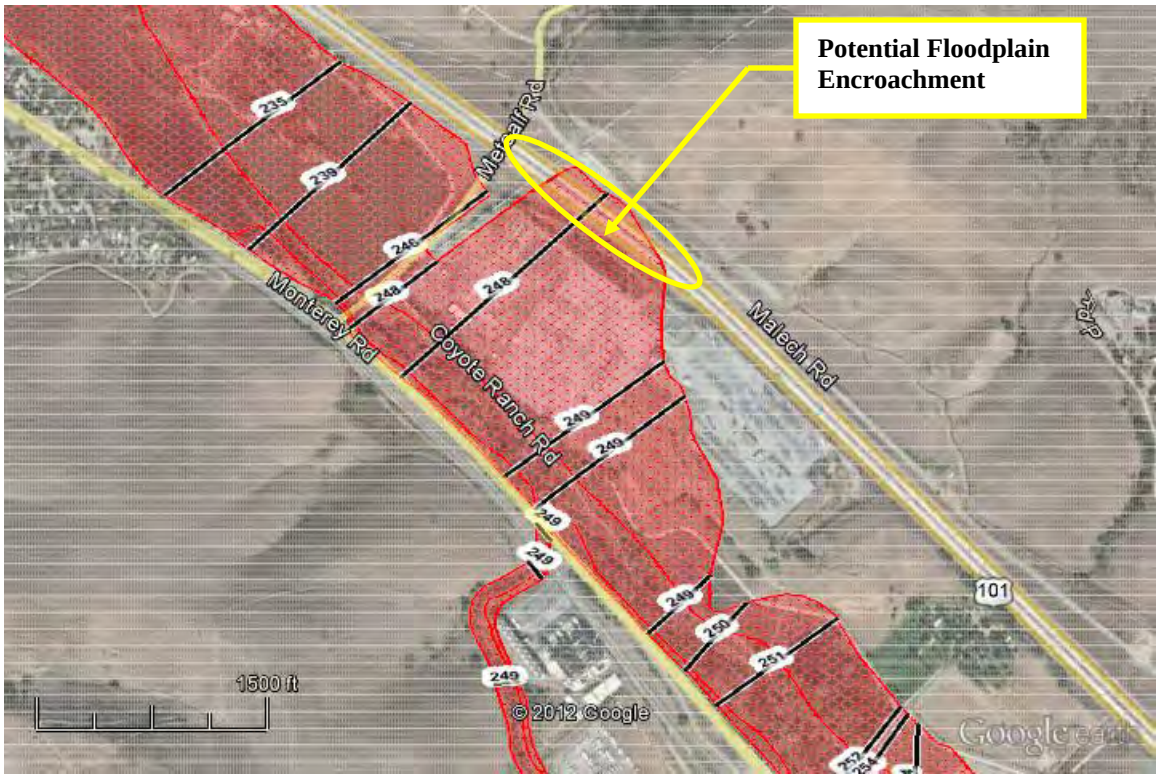

Figure 8. FIRM Overlay, Coyote Creek Floodplain along US 101, Location 3

Source: FEMA and Google Earth

Approximately 0.5 mi northwest of the US 101/Bailey Road interchange, FIRM number 06085C0428H shows the floodplain of Coyote Creek encroaching onto US 101. The FIRM lists the floodplain elevation as approximately 264 ft NAVD in this location (see Figure 9). According to the contour data available from the SCVWD's GIS data library, elevation of US 101 at this location is approximately 270 ft, NAVD, well above the 100-year floodplain. USGS Topo maps from 1980 show that US 101 used to be the roadway that is currently Monterey Road, on the west side of Coyote Creek. The FIS was completed in 1979 and has not been updated to reflect the effect of the US 101 roadway project (Contract No. 04-117384), which was completed in 1980.

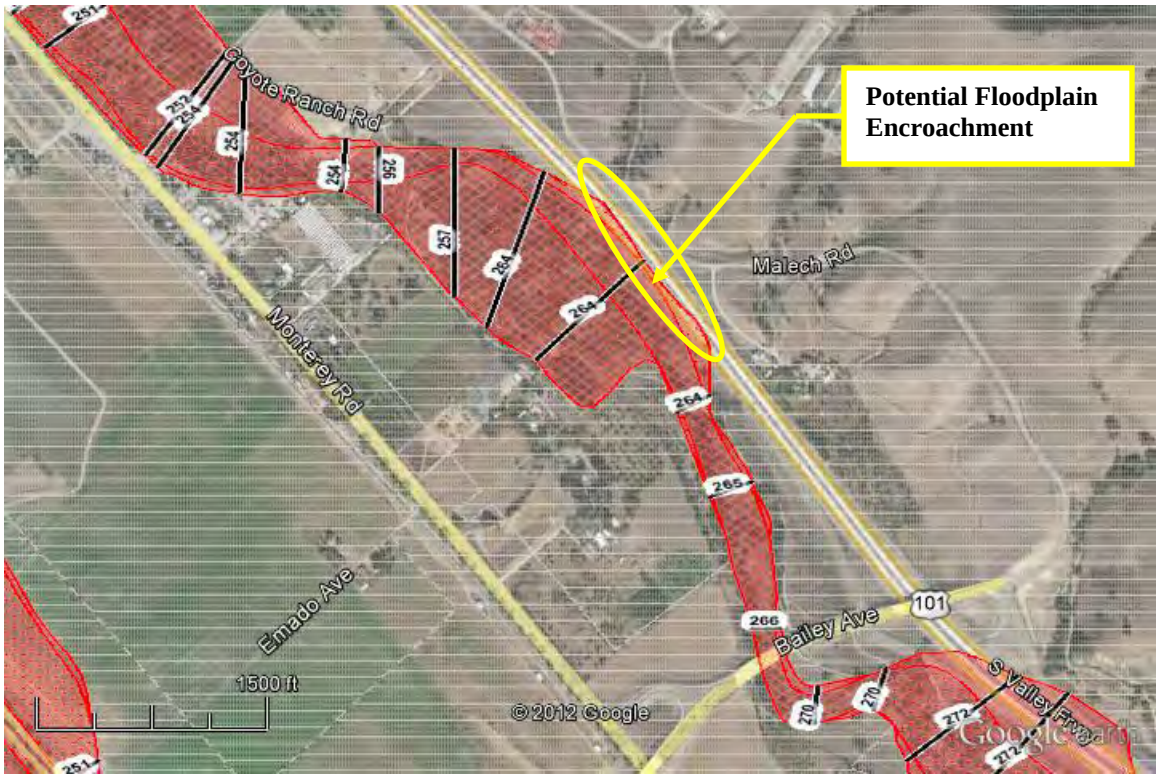

Figure 9. FIRM Overlay, Coyote Creek Floodplain along US 101, Location 4

Source: FEMA and Google Earth

The largest recorded flow on Coyote Creek was 25,000 cfs in 1911, 1.2 mi downstream of the future Anderson Dam, and caused a large lake at the junction with the overflow of Guadalupe River. Since the construction of Anderson Dam, the largest recorded flow on Coyote Creek was 5,750 cfs, recorded in April 1958. The floods of 1983, however, caused extensive damage.

2.17 Summary Tables of Hydrologic and Hydraulic Data

Table 4 summarizes the available hydrologic and hydraulic information for each creek crossing within the project limits. Table 5 summarizes floodplain information from FEMA.

Table 4. Hydrologic and Hydraulic Information

Creek	1-percent annual chance Peak Discharge (cfs)	Drainage Area (mi^2)	Water Surface Elevation (ft, NAVD)		Roadway Elevation (ft)
			Upstream	Downstream	
Matadero Creek	1,775	13.6	11	11	12
Adobe Creek	1,780	13.5	11	11	11
Permanente Creek	4,000	15.8	1' depth	16	21
Stevens Creek at US 101 (PM 48.04)	5,750	36.4	35.9	35.7	40.0
Stevens Creek (PM 22.95)	5,350	34.3	64.6	64.0	78.0
Stevens Creek (PM 20.96)	7,390[3]	33.1[1]			159.0
Permanente Diversion	1,390	8.9	167.1[2]	164.2[2]	170.0
Stevens Creek (PM 20.02)	6,000[3]	24.2[3]			208.5
Regnart Creek					297.0
Calabazas Creek	1,800[4]	4.4[4]	284.1	280.2	296.5
Rodeo Creek	300[2]			280.8[2]	288.0
Saratoga Creek	3,950	11.1	315	-	319.5
Vasona Creek					274.5
San Tomas Aquino Creek	1,350[5]	3.1[5]			280.0
Smith Creek	440	0.8	251	-	255.5
Los Gatos Creek	6,950[6]	44.1[6]	263.6	263.1	269.5
Ross Creek	1,300[2]		203.0[2]	202.0[2]	224.5
Guadalupe River	11,500[7]	53.2[7]	178.9	178.5	217.0
Canoas Creek	1,400[8]	12.5[8]	159.1[2]	159.1[2]	180.5
Coyote Creek	13,670[9]	229[9]	228[10]	226.2[10]	241.5

* Note: All information is from FEMA unless otherwise noted
[1] Crossing is below confluence with Permanente Diversion. Values shown represent the flows upstream of the crossing at Stevens Creek plus the flows in the Permanente Diversion.
[2] Information is from SCVWD HEC-RAS models
[3] Values are for confluence with Permanente Diversion, 0.7 mi downstream.
[4] Several values are listed for Calabazas Creek close to the SR 85 crossing. This value is the most conservative listed, reflecting flows upstream of the Prospect Road bridge that overtops and diverts some flows.
[5] Values are for Old Adobe and Quito Roads, 0.7 mi upstream of crossing.
[6] Values are for Vasona Dam, 0.8 mi upstream of crossing.
[7] Values are for Blossom Hill Road, 0.3 mi upstream of crossing.
[8] Values are for Blossom Hill Road, 0.2 mi upstream of crossing.
[9] Values are for Edenvale USGS gage, 3.4 mi downstream of crossing.
[10] Values are at upstream and downstream of the US 101/SR 85 Interchange bridges over Coyote Creek. .

Table 5. Floodplain Information

Route	Begin Post Mile	End Post Mile	Creek(s)	FIRM #	Flood Hazard Zone	Inundates Freeway?
US 101	52.18	49.61	Matadero Creek, Adobe Creek,	06085C0030H, 06085C0036H, 06085C0037H	AE	Yes
US 101	49.52	49.42	Permanente Creek	06085C0037H	AO	Yes (on-ramp)
US 101	48.05	48.03	Stevens Creek	06085C0037H	A	No
SR 85	23.15	23.13	Stevens Creek	06085C0039H	A	No
SR 85	21.14	21.10	Stevens Creek	06085C0202H	A	Unknown
SR 85	20.87	20.86	Permanente Diversion	06085C0202H	A	No
SR 85	20.22	20.18	Stevens Creek	06085C0206H	A	Unknown
SR 85	--	--	Regnart Creek	06085C0216H	None	No
SR 85	15.80	15.70	Calabazas Creek	06085C0217H	AE	No
SR 85	15.20	15.20	Rodeo Creek	06085C0217H	A	No
SR 85	14.06	14.03	Saratoga Creek	06085C0219H	A	No
SR 85	12.92	12.90	Vasona Creek	06085C0238H	A	Unknown
SR 85	12.84	12.80	San Tomas Aquino Creek	06085C0238H	A	Unknown
SR 85	--	--	Smith Creek	06085C0238H	None	No
SR 85	11.02	10.99	Los Gatos Creek	06085C0239H	AE	No
SR 85	8.20	8.17	Ross Creek	06085C0243H	A	No
SR 85	5.87	5.64	Guadalupe River	06085C0263H	A	No
SR 85	4.32	4.26	Canoas Creek	06085C0263H	A	No
US 101	27.24	27.83	Coyote Creek	06085C0268H	AO	Yes
US 101	26.12	25.82	Coyote Creek	06085C0407H	AE	No
US 101	25.50	25.21	Coyote Creek	06085C0407H	AE	No
US 101	24.73	24.55	Coyote Creek	06085C0426H	AE	No
US 101	23.16	22.92	Coyote Creek	06085C0428H	AE	No

3 PROJECT EVALUATION

Executive Order 11988 requires federal agencies to avoid to the maximum extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. This section analyzes the impacts associated with this project.

3.1 Risk Associated with the Proposed Action

As defined by the Code of Federal Regulations (CFR) Title 23 Part 650, risk shall mean the consequences associated with the probability of flooding attributable to an encroachment. It shall include the potential for property loss and hazard to life during the service life of the proposed bridges and station structures.

The potential risk associated with the implementation of the proposed Project include: 1) change in land use; 2) fill inside floodplain; and 3) changes in the 100-year WSE.

The project is not proposing any change in land use, therefore there will be no land use risk associated with the Project. The risks associated with fill inside floodplains and changes in the 100-year WSE are discussed in the following sections.

3.1.1 Areas North of I-280 (PM 52.16 to PM 18.62)

North of the I-280/SR 85 interchange, the project would primarily consist of re-striping and new signs. This work would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect any floodplains. Floodplains within this area would include the floodplains along US 101 in Mountain View and Palo Alto surrounding Matadero, Adobe and Permanente creeks. This area would also include all crossings of Stevens Creek as well as the crossing of Permanente Diversion.

3.1.2 Regnart Creek

As noted in Section 2, Regnart Creek is contained within the channel at the SR 85 crossing and does not have a floodplain within the Project limits.

3.1.3 Calabazas Creek

Impacts to the floodplain at the Calabazas Creek crossing would be minimal. The existing bridge across Calabazas Creek does not get overtopped in the 1-percent annual chance flood and would not be modified as part of this project. The floodplain does not extend beyond the limits of the bridge. There would be some increase in impervious area draining to Calabazas Creek, but this area would represent only 0.09 percent of the total watershed area and would not have a significant impact on the floodplain (see Table 6).

3.1.4 Rodeo Creek

Impacts to the floodplain at the Rodeo Creek crossing would be minimal. Work within the FEMA-defined floodplain area would include median widening. This widening, however, would take place well above the 1-percent annual chance flood water surface elevation, would not significantly change the roadway profile, and would involve minimal grading. There would be a small addition of impervious area draining to Rodeo Creek, but these areas would be insignificant compared to the overall Rodeo Creek watershed (see Table 6).

3.1.5 Saratoga Creek

Impacts to the floodplain at the Saratoga Creek crossing would be minimal. Bridge widening is proposed to close the gap between the northbound and southbound bridges. The proposed bridge will remain single-span and will not change the existing hydraulic opening. The bridge widening would not significantly modify the 1-percent annual flood profile in the project vicinity. The existing and proposed SR 85 bridges across Saratoga Creek would not overtopped by the 1-percent annual chance flood. The floodplain does not extend beyond the limits of the bridge. Outside of the floodplain, there would be some increase in impervious area draining to Saratoga Creek, but this area would represent only 0.03 percent of the total watershed area and would not have a significant impact on the floodplain (see Table 6).

3.1.6 Vasona Creek

Impacts to the floodplain at the Vasona Creek crossing would be minimal. Available information does not confirm whether or not the floodplain elevation overtops SR 85 at this location. Work within the FEMA-defined floodplain area would include median widening. This widening, however, would not significantly change the profile and would involve minimal grading. There would be a small addition of impervious area draining to Vasona Creek, but these areas would be insignificant compared to the overall Vasona Creek watershed (see Table 6).

3.1.7 San Tomas Aquino Creek

Impacts to the floodplain at the San Tomas Aquino Creek crossing would be minimal. Available information does not confirm whether or not the floodplain elevation overtops SR 85 at this location. Bridge widening is proposed to close the gap between the northbound and southbound bridges. The proposed bridge will remain single-span and will not change the existing hydraulic opening. Within some areas that drain to San Tomas Aquino Creek, impervious area would be added, but these areas would be outside of the floodplain and would be insignificant compared to the overall Saratoga Creek watershed (see Table 6).

3.1.8 Smith Creek

As noted in Section 2, Smith Creek does not have a 100-year floodplain where it crosses SR 85.

3.1.9 Los Gatos Creek

Impacts to the floodplain at the Los Gatos Creek crossing would be minimal. The existing bridge across Los Gatos Creek is not overtopped by the 1-percent annual chance flood and would not be modified as part of this project. The floodplain does not extend beyond the limits of the bridge. Within some areas that drain to Los Gatos Creek, impervious area would be added, but these areas would be outside of the floodplain and would be insignificant compared to the overall Los Gatos Creek watershed (see Table 6).

3.1.10 Ross Creek

Impacts to the floodplain at the Ross Creek crossing would be minimal. Work within the FEMA-defined floodplain area would include median widening. This widening, however, would take place well above the 1-percent annual chance water surface elevation, would not significantly change the roadway profile, and would involve minimal grading. There would be a small addition of impervious area draining to Ross Creek, but these areas would be insignificant compared to the overall Ross Creek watershed (see Table 6).

3.1.11 Guadalupe River

Impacts to the floodplain at the Guadalupe River crossing would be minimal. The existing bridge across Guadalupe River is not overtopped by the 1-percent annual chance flood, and would not be modified as part of this project. The floodplain does not extend beyond the limits of the bridge. Within some areas that drain to Guadalupe River, impervious area would be added, but these areas would be outside of the floodplain and would be insignificant compared to the overall Guadalupe River watershed (see Table 6).

3.1.12 Areas Southeast of SR 87 (PM 5.23 to PM 22.92)

Southeast of the SR 87/SR 85 interchange, the project would primarily consist of re-striping and new signs. This work would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect any floodplains. Floodplains within this area would include the floodplain at the Canoas Creek and Coyote Creek crossings as well as several other locations where FEMA maps show the Coyote Creek watershed encroaching onto US 101 south of the US 101/SR 85 interchange.

3.2 Increase in Impervious Surfaces

SR 85 bridge decks would be widened at Almaden Expressway (northbound side only), Camden Avenue, Oka Road, Pollard Road, and Saratoga Avenue, as well as at the San Tomas Aquino Creek and Saratoga Creek crossings. The existing gaps between the northbound and southbound bridges at these locations would be closed except at Almaden Expressway, where the northbound bridge would be widened on the inside (toward the median). Between I-280 and SR 87, there would be an increase in impervious area due to widening in the median and addition of an auxiliary lane between South De Anza Boulevard and Stevens Creek Boulevard. The widening would result in

increases to peak stormwater runoff and a reduction in the amount of pervious surfaces available for infiltration of stormwater runoff.

Table 6 summarizes the increase in impervious area contributing to the creeks and the associated floodplains. These increases in area are compared to the overall watershed drainage areas at each crossing. Where available, overall drainage areas were taken from FEMA. Where watershed areas were not available in the FEMA studies, watersheds were delineated using USGS topographic maps.

Table 6. Added Impervious Area by Creek

Location	Added Impervious Area (ac)	Watershed Area (ac)	Percent of Total Watershed Area (%)
Matadero Creek	0.00	8,704	0.00%
Adobe Creek	0.00	8,640	0.00%
Permanente Creek	0.00	10,112	0.00%
Stevens Creek	0.00	23,296	0.00%
Regnart Creek	3.33	799	0.42%
Calabazas Creek	5.26	2,816	0.19%
Rodeo Creek	1.50	654	0.23%
Saratoga Creek	1.97	7,104	0.03%
Vasona Creek	3.27	2,793	0.12%
San Tomas Aquino Creek	0.14	2,337	0.01%
Smith Creek	1.16	512	0.23%
Smith Creek East Channel	2.11	148	1.43%
Los Gatos Creek	8.60	28,224	0.03%
Ross Creek	10.16	4,240	0.24%
Guadalupe River	2.64	34,048	0.01%
Canoas Creek	0.00	8,000	0.00%
Coyote Creek	0.00	146,560	0.00%
Total	**40.14**	**288,987**	**0.01%**

Source: URS

The project will not pose a significant risk by widening SR 85. As Table 6 shows, the increase in roadway runoff will be minimal in comparison to the overall watersheds of the creeks (less than 1.43 percent at each crossing). Therefore, there will be an insignificant change in the water surface elevation to the identified floodplain areas due to increases in impervious areas.

3.3 Impacts on Natural and Beneficial Floodplain Values

Natural and beneficial floodplain values include, but are not limited to: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and ground water recharge.

The Natural Environment Study (NES) for this project identified approximately 7.67 acres of potentially jurisdictional waters that exist within the biological study area (BSA). These jurisdictional features include perennial and intermittent streams, some of which may be considered waters of the U.S. Some of these streams also contain potential wetland areas within their channels. Potential wetland areas were identified within the channels of Calabazas Creek, Los Gatos Creek, Guadalupe River, and Coyote Creek, as well as a perennial freshwater wetland along the south side of US 101 at the southern end of the project. A summary of these areas can be found in Table 7.

Table 7. Potential Waters of the U.S. and Wetland Areas within Project BSA

Location	Route	Approximate Post Mile	Waters of the US Areas (acres)	Wetland Area (acres)
Matadero Creek	US 101	--	0.15	0
Adobe Creek	US 101	50.66	0.15	0
Permanente Creek-Culverted water	US 101	--	0.06	0
Permanente Creek	US 101	--	0.01	0
Permanente Creek	US 101	--	0.01	0
Stevens Creek	US 101	48.04	0.14	0
Stevens Creek	SR 85	22.95	0.16	0
Stevens Creek	SR 85	20.96	0.07	0
Stevens Creek	SR 85	20.02	0.23	0
Calabazas Creek and stormwater drain	SR 85	15.40	0.24	<0.01
Saratoga Creek	SR 85	13.91	0.20	0
Vasona Creek[a]	SR 85	12.72	0.13	0
San Tomas Aquino Creek	SR 85	12.68	0.11	0
Los Gatos Creek	SR 85	10.80	0.41	0.03
Ross Creek	SR 85	8.15	0.15	0
Guadalupe River	SR 85	5.59	4.23[b]	0.08
Canoas Creek	SR 85	4.28	0.13	0
Coyote Creek	US 101	26.47, 26.60	0.40	0.43, <0.01
South Side US 101	US 101	595+00	0	0.14
North Side US 101	US 101	592+00	0	<0.01
Total			**6.98**	**0.69**

Source: URS 2013a, b
[a] Labeled as "WUS-8 Wildcat Creek" in Natural Environment Study (URS 2013a) and Jurisdictional Delineation (URS 2013b).
[b] Includes 3.86 acres of recharge pond area.

The NES also defines different vegetation communities within the BSA, some of which are riparian in nature. The total areas within the project limits are shown in Table 8.

Table 8. Areas of Riparian Vegetation

Vegetation Type	Area within BSA (acres)
Arroyo willow forest	25.86
Black cottonwood forest	0.63
California bay riparian forest	0.54
California sycamore woodland	0.34
Cattail marsh	0.07
Coast live oak woodland	2.57
Fremont cottonwood forest	1.76
Red willow forest	0.19
Sandbar willow thicket	<0.01
Serpentine grassland	0.83
White alder forest	0.01

Source: URS 2013a

None of the areas listed as being potential waters of the U.S. or wetlands would be disturbed by this project. Although in-water work is not proposed, work would occur along the banks and riparian corridors of San Tomas Aquino and Saratoga creeks.

No work would take place at other creeks that pass under bridges or within any stream channels or riparian areas. The small areas of potential wetland that exist apart from creek crossings are also outside of widening areas.

3.4 Support of Probable Incompatible Floodplain Development

As defined by the FHWA, the support of incompatible base floodplain development will encourage, allow, serve, or otherwise facilitate incompatible base floodplain development, such as commercial development or urban growth.

Because this project includes minimal median widening of an existing highway, it would not support incompatible floodplain development. It would not create new access to developed or undeveloped land.

3.5 Measures to Minimize Floodplain Impacts Associated with the Action

There would be minimal floodplain impacts associated with the project. The project would cause increases in impervious area, but these areas are small compared to the existing creek watersheds and would not significantly increase flows or affect floodplain

areas. No work is planned at bridges within floodplains, and there would be no significant changes in profile within floodplains. No potential impacts to jurisdictional wetlands, waters of the U.S. or floodplains are expected from the proposed project. Mitigation measures are therefore not required.

All proposed construction would be limited to the existing and proposed right-of-way, and environmentally sensitive areas (ESAs) would be identified on the contract documents. ESAs would include wetlands, waters, and habitats that support sensitive species. Contractor encroachment into ESAs would be prohibited.

3.6 Measures to Restore and Preserve the Natural and Beneficial Floodplain Values Impacted by this Action

As noted above, there are no anticipated impacts to locations with natural and beneficial floodplain values. Where necessary, any environmental impacts resulting from construction can be mitigated with standard measures, re-vegetation, best management practices (BMPs), and other activities.

The contractor would also be required to submit a Storm Water Pollution Control Plan to protect water quality. The contractor would install erosion control BMPs, avoid allowing asphalt concrete to enter live streams, and keep all staging areas away from waters of the U.S. or wetlands.

3.7 Practicability of Alternatives to any Significant Encroachments

As defined by the FHWA, risk shall mean the consequences associated with the probability of flooding attributable to an encroachment. It shall include the potential for property loss and hazard to life during the service life of the bridge and roadway.

The project would maintain the existing roadway profile. The effects to the floodplain would be minimal due to the relatively minor increases in impervious area compared to the total watershed areas. Encroachments would not be significant. The project would take place within the existing right-of-way of SR 85, and it would be impractical to relocate the project to avoid impacts.

3.8 Practicability of Alternatives to any Longitudinal Encroachments

As defined by the FHWA, a longitudinal encroachment is an action within the limits of the base floodplain that is longitudinal to the normal direction of the floodplain.

A longitudinal encroachment is “[a]n encroachment that is parallel to the direction of flow. Example: A highway that runs along the edge of a river is, usually considered a longitudinal encroachment.” The requirement for consideration of avoidance alternatives must be included in a Location Hydraulic Study by including an evaluation and a

discussion of the practicability of alternatives to any significant encroachment or any support of incompatible floodplain development.

No widening work would take place within areas of longitudinal encroachment. With the exception of portions of Stevens Creek and Coyote Creek, the project would be perpendicular to all creek crossings. Stevens Creek runs parallel to the existing SR 85 between US 101 and I-280, crossing SR 85 several times. This portion of the project, however, does not include freeway widening. Coyote Creek runs parallel to US 101 in some locations within the project limits, but work in these areas would be limited to the installation of signs, tolling equipment, and Traffic Operations Systems equipment.

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Appendix A Summaries of Floodplain Encroachment

FLOODPLAIN EVALUATION REPORT SUMMARY
MATADERO CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	51.37
EA	4A7900	Bridge No.:	37-0040

Limits:
Northern Limit of project (PM 52.0) to Rengstorff Avenue Interchange (PM 49.61)

Floodplain Description:
According to FEMA FIRMs 06085C0030H, 06085C0036H and 06085C0037H, the floodplain that covers much of US 101 in the vicinity of Matadero Creek crossing is designated as Zone AE. According to the City of Palo Alto, this area is due to the potential overtopping of bayfront levees in the event of an extremely high tide, particularly one that might be associated with an extreme storm event.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
MATADERO CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	51.37
EA	4A7900	Bridge No.:	37-0040

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
ADOBE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	50.66
EA	4A7900	Bridge No.:	37-0174

Limits:
Northern Limit of project (PM 52.0) to Rengstorff Avenue Interchange (PM 49.61)

Floodplain Description:
According to FEMA FIRMs 06085C0030H, 06085C0036H and 06085C0037H, the floodplain that covers much of US 101 in the vicinity of Adobe Creek crossing is designated as Zone AE. According to the City of Palo Alto, this area is due to the potential overtopping of bayfront levees in the event of an extremely high tide, particularly one that might be associated with an extreme storm event.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
ADOBE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	50.66
EA	4A7900	Bridge No.:	37-0174

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
PERMANENTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	None

Limits:
From Rengstorff Avenue Interchange (PM 49.61) to US 101 Southbound on-ramp (PM 48.3).

Floodplain Description:
According to FEMA FIRM 06085C0037H, there is no floodplain directly at the US 101 crossing, but there are adjacent areas that do fall within the 1-percent annual chance floodplain. These areas are designated as being within Zone AO, which represents the floodplain caused by the shallow sheet overtopped flow from Permanente Creek during a 1-percent annual chance flood event. This overtopping is due to the insufficient capacity of the concrete lined channel upstream of US 101.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
PERMANENTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	None

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
STEVENS CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	48.04
EA	4A7900	Bridge No.:	37-0034

Limits:
US 101 bridge over Stevens Creek

Floodplain Description:
According to FEMA FIRM 06085C0037H, a Zone A floodplain exists at the Stevens Creek crossing of US 101. The profiles in the FIS show the 1-percent annual chance water surface elevation to be 35.9 ft NAVD upstream of the crossing and 35.7 ft NAVD just downstream of the crossing. The existing roadway elevation is approximately 40.0 ft NAVD, and is not inundated by the 1-percent annual chance flood.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
STEVENS CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	48.04
EA	4A7900	Bridge No.:	37-0034

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
STEVENS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R22.95
EA	4A7900	Bridge No.:	37-0197

Limits:
SR 85 Bridge over Stevens Creek north of Central Expressway Interchange (PM 22.63)

Floodplain Description:
According to FIRM number 06085C0039H, a Zone A floodplain exists at the Stevens Creek crossing of SR 85 at PM 22.95. The profiles in the FIS show the 1-percent annual chance water surface elevation to be 64.6 ft NAVD upstream of the SR 85 crossing and 64.0 ft NAVD downstream of the crossing. The roadway elevation is at approximately 78.0 ft NAVD, and would not be inundated by the 1-percent annual chance flood.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
STEVENS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R22.95
EA	4A7900	Bridge No.:	37-0197

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
STEVENS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R20.96
EA	4A7900	Bridge No.:	37-0189

Limits:
SR 85 Bridge over Stevens Creek between El Camino Real Interchange (PM 21.75/21.76) and Fremont Avenue Interchange (PM 19.86)

Floodplain Description:
According to FEMA FIRM 06085C0202H, Zone A floodplain exists at the SR 85 Bridge over Stevens Creek at PM 20.96. The FIRM does not show a sign of overbank flow inundating SR 85 or backwater at the bridge crossing.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
STEVENS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R20.96
EA	4A7900	Bridge No.:	37-0189

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
STEVENS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R20.02
EA	4A7900	Bridge No.:	37-0185

Limits:
SR 85 Bridge over Stevens Creek approximately 0.15 mi north of Fremont Avenue Interchange (PM 19.86)

Floodplain Description:
According to FIRM number 06085C0206H, Zone A floodplain exists at the Stevens Creek crossing of SR 85 just north of Fremont Avenue. The FIRM does not show a sign of overbank flow inundating SR 85 or backwater at the bridge crossing.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
STEVENS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R20.02
EA	4A7900	Bridge No.:	37-0185

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
PERMANENTE CREEK DIVERSION

District:	04	County:	Santa Clara
Route:	SR 85	PM:	
EA	4A7900	Bridge No.:	

Limits:
SR 85 RCB culvert across Permanente Diversion

Floodplain Description:
According to FIRM number 06085C0202H, Zone A floodplain exists at the Permanente Diversion crossing of SR 85. The FIRM does not show a sign of overbank flow inundating SR 85 or backwater at the bridge crossing.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
PERMANENTE CREEK DIVERSION

District:	04	County:	Santa Clara
Route:	SR 85	PM:	
EA	4A7900	Bridge No.:	

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
REGNART CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	16.65
EA	4A7900	Bridge No.:	

Limits:
SR 85 RCB cross culvert across Regnart Creek

Floodplain Description:
There is no applicable floodplain for Regnart Creek. In September 2010, FEMA issued Letter of Map Revision (LOMR) number 10-09-2408P-060339, which shows the 1-percent annual chance flood as being contained within the cross culvert under SR 85.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
REGNART CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	16.65
EA	4A7900	Bridge No.:	

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
CALABAZAS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R15.40
EA	4A7900	Bridge No.:	37-0527L, 37-0527R 37-0527S

Limits:
SR 85 bridges across Calabazas Creek

Floodplain Description:
According to FIRM number 06085C0217H, Zone AE floodplain exists at the Calabazas Creek crossing of SR 85. The 100-year water surface elevation is 284.1 ft NAVD upstream of the crossing and 280.2 ft NAVD downstream of the crossing. The roadway elevation is at approximately 296.5 ft NAVD and is not inundated by the 1-percent annual chance flood.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
CALABAZAS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R15.40
EA	4A7900	Bridge No.:	37-0527L, 37-0527R
			37-0527S

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
RODEO CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	15.06
EA	4A7900	Bridge No.:	

Limits:
SR 85 RCB cross culvert across Rodeo Creek

Floodplain Description:
According to FIRM number 06085C0217H, Zone A floodplain exists at the Rodeo Creek crossing of SR 85. The roadway elevation is at approximately 288.0 ft NAVD and is not inundated by the 1-percent annual chance flood.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
RODEO CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	15.06
EA	4A7900	Bridge No.:	

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
SARATOGA CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R13.91
EA	4A7900	Bridge No.:	37-0500K, 37-0500L
			37-0500R, 37-0500S

Limits:
SR 85 bridges across Saratoga Creek

Floodplain Description:
According to FIRM number 06085C0219H, Zone A floodplain exists at the Saratoga Creek crossing of SR 85. The roadway elevation at Saratoga Creek is approximately 319.5 ft NAVD, and is not inundated by the 1-percent annual chance flood.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
SARATOGA CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R13.91
EA	4A7900	Bridge No.:	37-0500K, 37-0500L
			37-0500R, 37-0500S

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
VASONA CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	12.72
EA	4A7900	Bridge No.:	

Limits:
SR 85 RCB cross culvert for Vasona Creek

Floodplain Description:
According to FIRM number 06085C0238H, Zone A floodplain exists at the Vasona Creek crossing of SR 85. The floodplain shown on the FIRM suggests that Vasona Creek is contained within its banks. However, available information does not confirm whether or not the floodplain elevation overtops SR 85 at this location.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
VASONA CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	12.72
EA	4A7900	Bridge No.:	

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
SAN TOMAS AQUINO CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R12.68
EA	4A7900	Bridge No.:	37-0524L, 37-0524R

Limits:
SR 85 bridges across San Tomas Aquino Creek

Floodplain Description:
According to FIRM number 06085C0238H, Zone A floodplain exists at the San Tomas Aquino Creek crossing of SR 85. The floodplain shown on the FIRM suggests that San Tomas Aquino Creek is contained within its banks. However, available information does not confirm whether or not the floodplain elevation overtops SR 85 at this location.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
SAN TOMAS AQUINO CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R12.68
EA	4A7900	Bridge No.:	37-0524L, 37-0524R

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
SMITH CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	11.82
EA	4A7900	Bridge No.:	

Limits:
SR 85 RCP cross culvert at Smith Creek

Floodplain Description:
Smith Creek does not have a 100-year floodplain where it crosses SR 85. The floodplain assigned at the Smith Creek RCP cross culvert crossing SR 85 is Zone X (shaded).

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
SMITH CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	11.82
EA	4A7900	Bridge No.:	

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
LOS GATOS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R10.80
EA	4A7900	Bridge No.:	37-0491L, 37-0491R

Limits:
SR 85 bridges across Los Gatos Creek

Floodplain Description:
According to FEMA FIRM 06085C0239H, Zone AE floodplain exists at the Los Gatos Creek crossing of SR 85. The water surface elevation is 263.6 ft NAVD upstream of the crossing and 263.1 ft NAVD downstream of the crossing. The roadway elevation at the crossing is approximately 269.5 ft NAVD and is not inundated by the 1-percent annual chance flood.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
LOS GATOS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	R10.80
EA	4A7900	Bridge No.:	37-0491L, 37-0491R

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
ROSS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	8.15
EA	4A7900	Bridge No.:	37-0469

Limits:
SR 85 RCB cross culvert at Ross Creek

Floodplain Description:
According to FIRM number 06085C0243H, Zone A floodplain exists at the Ross Creek crossing of SR 85. Based on the available information, 100-year WSE at the upstream and downstream of the crossing was estimated to be 203 ft NAVD and 202 ft NAVD, respectively. The roadway elevation at this crossing is approximately 224.5 ft NAVD, and will not be inundated by the 1-percent annual chance flood.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
ROSS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	8.15
EA	4A7900	Bridge No.:	37-0469

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
GUADALUPE RIVER

District:	04	County:	Santa Clara
Route:	SR 85	PM:	5.59
EA	4A7900	Bridge No.:	37-0467L, 37-0467R

Limits:
SR 85 bridges across Guadalupe River

Floodplain Description:
According to FIRM number 06085C0263H, Zone A floodplain exists at the Guadalupe River crossing of SR 85. According to the stream profiles in FEMA FIS, 1-percent annual chance water surface elevation as 178.9 ft NAVD upstream of the SR 85 crossing and 178.5 ft NAVD downstream of the crossing. The roadway elevation is approximately 217 ft NAVD at the crossing and is not inundated by the 1-percent annual chance flood.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
GUADALUPE RIVER

District:	04	County:	Santa Clara
Route:	SR 85	PM:	5.59
EA	4A7900	Bridge No.:	37-0467L, 37-0467R

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
CANOAS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	4.28
EA	4A7900	Bridge No.:	37-0412L, 37-0412R

Limits:
SR 85 bridges across Canoas Creek

Floodplain Description:
According to FIRM number 06085C0264H, Zone A floodplain exists at the Canoas Creek crossing of SR 85. The 100-year WSE of Canoas Creek is 159.1 ft NAVD at both the upstream and downstream ends of the crossing. The roadway elevation at Canoas Creek is approximately 180.5 ft NAVD, and is not inundated by the 1-percent annual chance flood.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
CANOAS CREEK

District:	04	County:	Santa Clara
Route:	SR 85	PM:	4.28
EA	4A7900	Bridge No.:	37-0412L, 37-0412R

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	

Limits:
Between Project limit (US 101 PM 28.6) and US 101/SR 85 Interchange (US 101 PM 26.70)

Floodplain Description:
Approximately 1.2 mi northwest of the US 101/SR 85 interchange, FIRM number 06085C0268H shows the overtopping flow from Coyote Creek encroaching onto US 101, which is classified as Zone AO floodplain. The FIRM lists the floodplain elevation adjacent to the Zone AO floodplain as 210 ft NAVD. The current topography shows the highway elevation to be approximately 210 ft NAVD, which is equivalent to the 100-year floodplain elevation.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☐	☒
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	R26.47, R26.60
EA	4A7900	Bridge No.:	37-0346L, 37-0346R
			37-0346E, 37-0346G

Limits:
US 101/SR85 Interchange bridges over Coyote Creek

Floodplain Description:
According to FIRM number 06085C0407H, existing Coyote Creek floodplain below the US 101 and the US 101/SR 85 interchange bridges is classified as Zone AE floodplain with elevation of 228.0 ft NAVD upstream of the US 101 crossing and 226.2 ft NAVD downstream of the US 101 crossing. Per the survey information, the roadway elevation at the crossing is approximately 241.5 ft NAVD, which is above the FEMA 100-year floodplain elevation.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	R26.47, R26.60
EA	4A7900	Bridge No.:	37-0346L, 37-0346R
			37-0346E, 37-0346G

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	

Limits:
Between US 101/SR85 Interchange (PM 26.60) and US 101/Metcalf Road interchange (PM 25.31)

Floodplain Description:
Approximately 0.5 mi southeast of the US 101/SR 85 interchange, FIRM number 06085C0407H shows the floodplain of Coyote Creek, designated as Zone AE, encroaching onto US 101. The current topography, however, shows the highway elevation to be approximately 245 ft NAVD, well above the floodplain elevation of 235 ft, NAVD.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	

Limits:
Between US 101/Metcalf Road interchange (PM 25.31) and Project limit (PM 23.1)

Floodplain Description:
Just southeast of the US 101/Metcalf Road interchange (PM 25.31), FIRM number 06085C0426H shows the floodplain of Coyote Creek, designated as Zone AE with elevation of 248 ft NAVD, encroaching onto US 101. The current topography, however, shows the highway elevation to be approximately 256 ft NAVD, well above the floodplain elevation.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	

Limits:
Between US 101/Metcalf Road interchange (PM 25.31) and Project limit (PM 23.1)

Floodplain Description:
Approximately 0.5 mi northwest of the US 101/Bailey Road interchange (Project limit, PM 23.1), FIRM number 06085C0428H shows the floodplain of Coyote Creek, designated as Zone AE with elevation of 264 ft NAVD, encroaching onto US 101. The current topography, however, shows the pavement elevation of the US 101 to be approximately 270 ft NAVD, well above the floodplain elevation.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	☒	☐
2.	Are the risks associated with the implementation of the proposed action significant?	☒	☐
3.	Will the proposed action support probable incompatible floodplain development?	☒	☐
4.	Are there any significant impacts on natural and beneficial floodplain values?	☒	☐
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	☒	☐
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	☒	☐
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	☐	☒

FLOODPLAIN EVALUATION REPORT SUMMARY
COYOTE CREEK

District:	04	County:	Santa Clara
Route:	US 101	PM:	
EA	4A7900	Bridge No.:	

PREPARED BY:

Signature - Hydraulic Engineer Date

CONCURRENCE FROM:

Signature - Dist. Hydraulic Engineer Date

Signature - Dist. Environmental Branch Chief Date

Signature - Dist. Project Engineer Date

Appendix B Location Hydraulic Study Forms

LOCATION HYDRAULIC STUDY FORM
Matadero Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. 51.37 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FEMA FIRMs 06085C0030H, 06085C0036H and 06085C0037H, the floodplain that covers much of US 101 in the vicinity of Matadero Creek crossing is designated as Zone AE. According to the City of Palo Alto, this area is due to the potential overtopping of bayfront levees in the event of an extremely high tide, particularly one that might be associated with an extreme storm event.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consists of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 1775 cfs
WSE100= 11 ft *The flood of record, if greater than Q100:*
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Matadero Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. 51.37
Federal-Aid Project Number:_____
EA 4A7900 Bridge No. 37-0040

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Adobe Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. 50.66 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FEMA FIRMs 06085C0030H, 06085C0036H and 06085C0037H, the floodplain that covers much of US 101 in the vicinity of Adobe Creek crossing is designated as Zone AE. According to the City of Palo Alto, this area is due to the potential overtopping of bayfront levees in the event of an extremely high tide, particularly one that might be associated with an extreme storm event.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consists of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 1780 cfs
WSE100= 11 ft *The flood of record, if greater than Q100:*
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk
Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Adobe Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. 50.66
Federal-Aid Project Number:_____
EA 4A7900 Bridge No. 37-0174

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Permanente Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM 06085C0037H, there is no floodplain directly at the US 101 crossing, but there are adjacent areas that do fall within the 1-percent annual chance floodplain. These areas are designated as being within Zone AO, which represents the floodplain caused by the shallow sheet overtopped flow from Permanente Creek during a 1-percent annual chance flood event. This overtopping is due to the insufficient capacity of the concrete lined channel upstream of US 101.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consists of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 4,000 cfs
WSE100= 16 ft *The flood of record, if greater than Q100:*
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Permanente Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M._____
Federal-Aid Project Number:_____
EA 4A7900 Bridge No._____

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO___X_____YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Stevens Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. 48.04 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FEMA FIRM 06085C0037H, a Zone A floodplain exists at the Stevens Creek crossing of US 101. The profiles in the FIS show the 1-percent annual chance water surface elevation to be 35.9 ft NAVD upstream of the crossing and 35.7 ft NAVD just downstream of the crossing. The existing roadway elevation is approximately 40.0 ft NAVD, and is not inundated by the 1-percent annual chance flood.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consists of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 5,750 cfs
WSE100= 35.9 ft *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Stevens Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. 48.04
Federal-Aid Project Number:
EA 4A7900 Bridge No. 37-0034

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Stevens Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R22.95 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0039H, a Zone A floodplain exists at the Stevens Creek crossing of SR 85 at PM 22.95. The profiles in the FIS show the 1-percent annual chance water surface elevation to be 64.6 ft NAVD upstream of the SR 85 crossing and 64.0 ft NAVD downstream of the crossing. The roadway elevation is at approximately 78.0 ft NAVD, and would not be inundated by the 1-percent annual chance flood.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consists of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 5,350 cfs
WSE100= 64.6 ft *The flood of record, if greater than Q100:*
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Stevens Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R22.95
Federal-Aid Project Number:
EA 4A7900 Bridge No. 37-0197

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Stevens Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R20.96 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FEMA FIRM 06085C0202H, Zone A floodplain exists at the SR 85 Bridge over Stevens Creek at PM 20.96. The FIRM does not show a sign of overbank flow inundating SR 85 or backwater at the bridge crossing.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consists of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current (2009) 115,000 Projected (2035, Build) 143,600

3. Hydraulic Data: Base Flood Q100= 7,390 cfs
WSE100= N/A *The flood of record, if greater than Q100:*
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Stevens Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R20.96
Federal-Aid Project Number:_____
EA 4A7900 Bridge No. 37-0189

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Stevens Creek

Dist. 04 Co. Santa Clara Rte. SR85 P.M. R20.02 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0206H, Zone A floodplain exists at the Stevens Creek crossing of SR 85 just north of Fremont Avenue. The FIRM does not show a sign of overbank flow inundating SR 85 or backwater at the bridge crossing.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
No bridge widening is proposed as part of the Project. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current (2009) 115,000 Projected (2035, Build) 143,600

3. Hydraulic Data: Base Flood Q100= 6,000 cfs
WSE100= N/A *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO_____ YES X
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk
Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Stevens Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R20.02
Federal-Aid Project Number:
EA 4A7900 Bridge No. 37-0185

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Permanente Creek Diversion

Dist. 04 Co. Santa Clara Rte. SR 85 P.M._____ EA: 4A7900
Federal-Aid Project Number:_____

Floodplain Description:
According to FIRM number 06085C0202H, Zone A floodplain exists at the Permanente Diversion crossing of SR 85. The FIRM does not show a sign of overbank flow inundating SR 85 or backwater at the bridge crossing.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
No bridge widening is proposed as part of the Project. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current (2009) 115,000 Projected (2035, Build) 143,600

3. Hydraulic Data: Base Flood Q100= 1,390 cfs
WSE100= N/A *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES_____
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:
A. Residences? NO X YES_____
B. Other Bldgs? NO X YES_____
C. Crops? NO X YES_____
D. Natural and beneficial Floodplain values? NO X YES_____

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:
A. Emergency supply or evacuation route? NO_____ YES X
B. Emergency vehicle access? NO_____ YES X
C. Practicable detour available? NO_____ YES X
D. School bus or mail route? NO_____ YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.
A. Roadway $ N/A
B Property $ N/A
Total $ N/A

9. Assessment of Level of Risk Low X
Moderate_____
High_____

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Permanente Creek Diversion

Dist. 04 Co. Santa Clara Rte. SR 85 P.M._____
Federal-Aid Project Number:_____
EA 4A7900 Bridge No._____

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO___X____YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Regnart Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 16.65 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
There is no applicable floodplain for Regnart Creek. In September 2010, FEMA issued Letter of Map Revision (LOMR) number 10-09-2408P-060339, which shows the 1-percent annual chance flood as being contained within the cross culvert under SR 85.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
Regnart Creek is contained within the channel at the SR 85 crossing and does not have a floodplain. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= N/A cfs
WSE100= N/A *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Regnart Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 16.65
Federal-Aid Project Number:_____
EA 4A7900 Bridge No._____

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Calabazas Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R15.40 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0217H, Zone AE floodplain exists at the Calabazas Creek crossing of SR 85. The 100-year water surface elevation is 284.1 ft NAVD upstream of the crossing and 280.2 ft NAVD downstream of the crossing. The roadway elevation is at approximately 296.5 ft NAVD and is not inundated by the 1-percent annual chance flood.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The existing bridge across Calabazas Creek does not get overtopped in the 1-percent annual chance flood and would not be modified as part of this project. The floodplain does not extend beyond the limits of the bridge. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current (2009) 100,000 Projected (2035, Build) 150,800

3. Hydraulic Data: Base Flood Q100= 1,800 cfs
WSE100= 284.1 ft *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:
A. Residences? NO X YES
B. Other Bldgs? NO X YES
C. Crops? NO X YES
D. Natural and beneficial Floodplain values? NO X YES
"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:
A. Emergency supply or evacuation route? NO YES X
B. Emergency vehicle access? NO YES X
C. Practicable detour available? NO YES X
D. School bus or mail route? NO YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.
A. Roadway $ N/A
B Property $ N/A
Total $ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Calabazas Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R15.40
Federal-Aid Project Number:
EA 4A7900 Bridge No. 37-0527L, 37-0527R, 37-0527S

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Rodeo Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 15.06 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0217H, Zone A floodplain exists at the Rodeo Creek crossing of SR 85. The roadway elevation is at approximately 288.0 ft NAVD and is not inundated by the 1-percent annual chance flood.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
Work within the FEMA-defined floodplain area would include median widening. This widening, however, would take place well above the 1-percent annual chance flood water surface elevation, would not significantly change the roadway profile, and would involve minimal grading. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current (2009) 100,000 Projected (2035, Build) 150,800

3. Hydraulic Data: Base Flood Q100= N/A cfs
WSE100= 280.8 ft *The flood of record, if greater than Q100:*
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Rodeo Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 15.06
Federal-Aid Project Number:_____
EA 4A7900 Bridge No._____

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Saratoga Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R13.91 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0219H, Zone A floodplain exists at the Saratoga Creek crossing of SR 85. The roadway elevation at Saratoga Creek is approximately 319.5 ft NAVD, and is not inundated by the 1-percent annual chance flood.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
Bridge widening is proposed to close the gap between the northbound and southbound bridges. The proposed bridge will remain single-span and will not change the existing hydraulic opening. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current (2009) 100,000 Projected (2035, Build) 150,800

3. Hydraulic Data: Base Flood Q100= 3,950 cfs
WSE100= 315 ft *The flood of record, if greater than Q100:*
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:
A. Residences? NO X YES
B. Other Bldgs? NO X YES
C. Crops? NO X YES
D. Natural and beneficial Floodplain values? NO X YES
"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:
A. Emergency supply or evacuation route? NO YES X
B. Emergency vehicle access? NO YES X
C. Practicable detour available? NO YES X
D. School bus or mail route? NO YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.
A. Roadway $ N/A
B Property $ N/A
Total $ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Saratoga Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R13.91
Federal-Aid Project Number:_____
EA 4A7900 Bridge No. 37-0500K, 37-0500L, 37-0500R, 37-0500S

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Vasona Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 12.72 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0238H, Zone A floodplain exists at the Vasona Creek crossing of SR 85. The floodplain shown on the FIRM suggests that Vasona Creek is contained within its banks. However, available information does not confirm whether or not the floodplain elevation overtops SR 85 at this location.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
Work within the FEMA-defined floodplain area would include median widening. This widening, however, would not significantly change the profile and would involve minimal grading. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= N/A cfs
WSE100= N/A *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:
A. Residences? NO X YES
B. Other Bldgs? NO X YES
C. Crops? NO X YES
D. Natural and beneficial Floodplain values? NO X YES
"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:
A. Emergency supply or evacuation route? NO YES X
B. Emergency vehicle access? NO YES X
C. Practicable detour available? NO YES X
D. School bus or mail route? NO YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.
A. Roadway $ N/A
B Property $ N/A
Total $ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Vasona Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 12.72
Federal-Aid Project Number:
EA 4A7900 Bridge No.

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
San Tomas Aquino Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R12.68 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0238H, Zone A floodplain exists at the San Tomas Aquino Creek crossing of SR 85. The floodplain shown on the FIRM suggests that San Tomas Aquino Creek is contained within its banks. However, available information does not confirm whether or not the floodplain elevation overtops SR 85 at this location.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
Bridge widening is proposed to close the gap between the northbound and southbound bridges. The proposed bridge will remain single-span and will not change the existing hydraulic opening. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 1,350 cfs
WSE100= N/A *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:
A. Residences? NO X YES
B. Other Bldgs? NO X YES
C. Crops? NO X YES
D. Natural and beneficial Floodplain values? NO X YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:
A. Emergency supply or evacuation route? NO YES X
B. Emergency vehicle access? NO YES X
C. Practicable detour available? NO YES X
D. School bus or mail route? NO YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.
A. Roadway $ N/A
B Property $ N/A
Total $ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
San Tomas Aquino Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R12.68
Federal-Aid Project Number:_____
EA 4A7900 Bridge No. 37-0524L, 37-0524R

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Smith Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 11.82 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
Smith Creek does not have a 100-year floodplain where it crosses SR 85. The floodplain assigned at the Smith Creek RCP cross culvert crossing SR 85 is Zone X (shaded).

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The Project is performed outside of the existing 100-year floodplain. Elements to minimize floodplain impacts are not proposed at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 440 cfs
WSE100= N/A *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:
A. Residences? NO X YES
B. Other Bldgs? NO X YES
C. Crops? NO X YES
D. Natural and beneficial Floodplain values? NO X YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:
A. Emergency supply or evacuation route? NO YES X
B. Emergency vehicle access? NO YES X
C. Practicable detour available? NO YES X
D. School bus or mail route? NO YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.
A. Roadway $ N/A
B Property $ N/A
Total $ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Smith Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 11.82
Federal-Aid Project Number:_____
EA 4A7900 Bridge No._____

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Los Gatos Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R10.80 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FEMA FIRM 06085C0239H, Zone AE floodplain exists at the Los Gatos Creek crossing of SR 85. The water surface elevation is 263.6 ft NAVD upstream of the crossing and 263.1 ft NAVD downstream of the crossing. The roadway elevation at the crossing is approximately 269.5 ft NAVD and is not inundated by the 1-percent annual chance flood.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The existing bridge across Los Gatos Creek is not overtopped by the 1-percent annual chance flood and would not be modified as part of this project. The floodplain does not extend beyond the limits of the bridge. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 6,950 cfs
WSE100= 263.6 *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO____ YES X
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Los Gatos Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. R10.80
Federal-Aid Project Number:
EA 4A7900 Bridge No. 37-0491L, 37-0491 R

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Ross Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 8.15 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0243H, Zone A floodplain exists at the Ross Creek crossing of SR 85. Based on the available information, 100-year WSE at the upstream and downstream of the crossing was estimated to be 203 ft NAVD and 202 ft NAVD, respectively. The roadway elevation at this crossing is approximately 224.5 ft NAVD, and will not be inundated by the 1-percent annual chance flood.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
Work within the FEMA-defined floodplain area would include median widening. This widening, however, would take place well above the 1-percent annual chance water surface elevation, would not significantly change the roadway profile, and would involve minimal grading. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 1,300 cfs
WSE100= 203 *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk
Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Ross Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 8.15
Federal-Aid Project Number: _____
EA 4A7900 Bridge No. 37-0469

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES _____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Guadalupe River

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 5.59 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0263H, Zone A floodplain exists at the Guadalupe River crossing of SR 85. According to the stream profiles in FEMA FIS, 1-percent annual chance water surface elevation as 178.9 ft NAVD upstream of the SR 85 crossing and 178.5 ft NAVD downstream of the crossing. The roadway elevation is approximately 217 ft NAVD at the crossing and is not inundated by the 1-percent annual chance flood.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The existing bridge across Guadalupe River is not overtopped by the 1-percent annual chance flood, and would not be modified as part of this project. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 11,500 cfs
WSE100= 178.9 *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:
A. Residences? NO X YES
B. Other Bldgs? NO X YES
C. Crops? NO X YES
D. Natural and beneficial Floodplain values? NO X YES
"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:
A. Emergency supply or evacuation route? NO YES X
B. Emergency vehicle access? NO YES X
C. Practicable detour available? NO YES X
D. School bus or mail route? NO YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.
A. Roadway $ N/A
B Property $ N/A
Total $ N/A

9. Assessment of Level of Risk Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Guadalupe River

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 5.59
Federal-Aid Project Number:_____
EA 4A7900 Bridge No. 37-0467L, 37-0467R

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM
Canoas Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 4.28 EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
According to FIRM number 06085C0264H, Zone A floodplain exists at the Canoas Creek crossing of SR 85. The 100-year WSE of Canoas Creek is 159.1 ft NAVD at both the upstream and downstream ends of the crossing. The roadway elevation at Canoas Creek is approximately 180.5 ft NAVD, and is not inundated by the 1-percent annual chance flood.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consist of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current (2009) 141,000 Projected (2035, Build) 187,300

3. Hydraulic Data: Base Flood Q100= 1,400 cfs
WSE100= 159.1 *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk
Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Canoas Creek

Dist. 04 Co. Santa Clara Rte. SR 85 P.M. 4.28
Federal-Aid Project Number:
EA 4A7900 Bridge No. 37-0412L, 37-0412R

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding

LOCATION HYDRAULIC STUDY FORM
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. EA: 4A7900
Federal-Aid Project Number:

Floodplain Description:
Approximately 1.2 mi northwest of the US 101/SR 85 interchange, FIRM number 06085C0268H shows the overtopping flow from Coyote Creek encroaching onto US 101, which is classified as Zone AO floodplain. The FIRM lists the floodplain elevation adjacent to the Zone AO floodplain as 210 ft NAVD. The current topography shows the highway elevation to be approximately 210 ft NAVD, which is equivalent to the 100-year floodplain elevation.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The Project at the floodplain would primarily consist of re-striping and placing new signs, which would not widen the freeway, add impervious areas, increase flows, or grade any new slopes, and thus would not affert any floodplains. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= cfs
WSE100= 210 *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO X YES
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk
Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. EA: 4A7900
Federal-Aid Project Number:
EA 4A7900 Bridge No.

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding

LOCATION HYDRAULIC STUDY FORM
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. R26.47/R26.60
EA: 4A7900 Federal-Aid Project Number: _____

Floodplain Description:
According to FIRM number 06085C0407H, existing Coyote Creek floodplain below the US 101 and the US 101/SR 85 interchange bridges is classified as Zone AE floodplain with elevation of 228.0 ft NAVD upstream of the US 101 crossing and 226.2 ft NAVD downstream of the US 101 crossing. Per the survey information, the roadway elevation at the crossing is approximately 241.5 ft NAVD, which is above the FEMA 100-year floodplain elevation.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consist of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 13,670 cfs
WSE100= 228 *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO_____ YES X
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES_____
B.	Other Bldgs?	NO X	YES_____
C.	Crops?	NO X	YES_____
D.	Natural and beneficial Floodplain values?	NO X	YES_____

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO_____	YES X
B. Emergency vehicle access?	NO_____	YES X
C. Practicable detour available?	NO_____	YES X
D. School bus or mail route?	NO_____	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk
Low X
Moderate_____
High_____

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. R26.47/R26.60
Federal-Aid Project Number: _____
EA 4A7900 Bridge No. 37-0346L, 37-0346R, 37-0346E, 37-0346G

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO_____ YES X

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding

LOCATION HYDRAULIC STUDY FORM
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M._____
EA: 4A7900 Federal-Aid Project Number:_____

Floodplain Description:
Approximately 0.5 mi southeast of the US 101/SR 85 interchange, FIRM number 06085C0407H shows the Zone AE floodplain of Coyote Creek with the elevation of 235 ft encroaching onto US 101. The current topography, however, shows the highway elevation to be approximately 245 ft NAVD, well above the floodplain elevation of 235 ft, NAVD.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consist of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100=_____cfs
WSE100= 235 *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO_____ YES X
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES_____
B.	Other Bldgs?	NO X	YES_____
C.	Crops?	NO X	YES_____
D.	Natural and beneficial Floodplain values?	NO X	YES_____

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO_____	YES X
B. Emergency vehicle access?	NO_____	YES X
C. Practicable detour available?	NO_____	YES X
D. School bus or mail route?	NO_____	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate_____
High_____

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. _____
Federal-Aid Project Number: _____
EA 4A7900 Bridge No. _____

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO_____ YES X

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding

LOCATION HYDRAULIC STUDY FORM
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M._____
EA: 4A7900 Federal-Aid Project Number:_____

Floodplain Description:
Just southeast of the US 101/Metcalf Road interchange (PM 25.31), FIRM number 06085C0426H shows the floodplain of Coyote Creek, designated as Zone AE with elevation of 248 ft NAVD, encroaching onto US 101. The current topography, however, shows the highway elevation to be approximately 256 ft NAVD, well above the floodplain elevation.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consist of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100=_____cfs
WSE100= 248 *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO_____ YES X
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES_____
B.	Other Bldgs?	NO X	YES_____
C.	Crops?	NO X	YES_____
D.	Natural and beneficial Floodplain values?	NO X	YES_____

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO_____	YES X
B. Emergency vehicle access?	NO_____	YES X
C. Practicable detour available?	NO_____	YES X
D. School bus or mail route?	NO_____	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate_____
High_____

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. _____
Federal-Aid Project Number: _____
EA 4A7900 Bridge No. _____

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO_____ YES X

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding

LOCATION HYDRAULIC STUDY FORM
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M._____
EA: 4A7900 Federal-Aid Project Number:_____

Floodplain Description:
Approximately 0.5 mi northwest of the US 101/Bailey Road interchange (Project limit, PM 23.1), FIRM number 06085C0428H shows the floodplain of Coyote Creek, designated as Zone AE with elevation of 264 ft NAVD, encroaching onto US 101. The current topography, however, shows the pavement elevation of the US 101 to be approximately 270 ft NAVD, well above the floodplain elevation.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The work at this floodplain consist of re-striping and new signs. This project would not widen the freeway, add any impervious areas, increase flows, or grade any new slopes, and thus would not affect the floodplain at this location. Therefore, minimization and/or mitigation measures are not proposed.

2. ADT: Current N/A Projected N/A

3. Hydraulic Data: Base Flood Q100= 13,670 cfs
WSE100= 264 *The flood of record, if greater than Q100:* N/A
Q= N/A cfs WSE= N/A
Overtopping flood Q= N/A cfs WSE= N/A

Are NFIP maps and studies available? YES

4. Is the highway location alternative within a regulatory floodway? NO____ YES X
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: N/A

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ N/A
B	Property	$ N/A
	Total	$ N/A

9. Assessment of Level of Risk Low X
Moderate____
High____

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.
Coyote Creek

Dist. 04 Co. Santa Clara Rte. US 101 P.M. _____
Federal-Aid Project Number: _____
EA 4A7900 Bridge No. _____

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO_____ YES X

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency Project Manager *(Local Assistance projects)*

_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

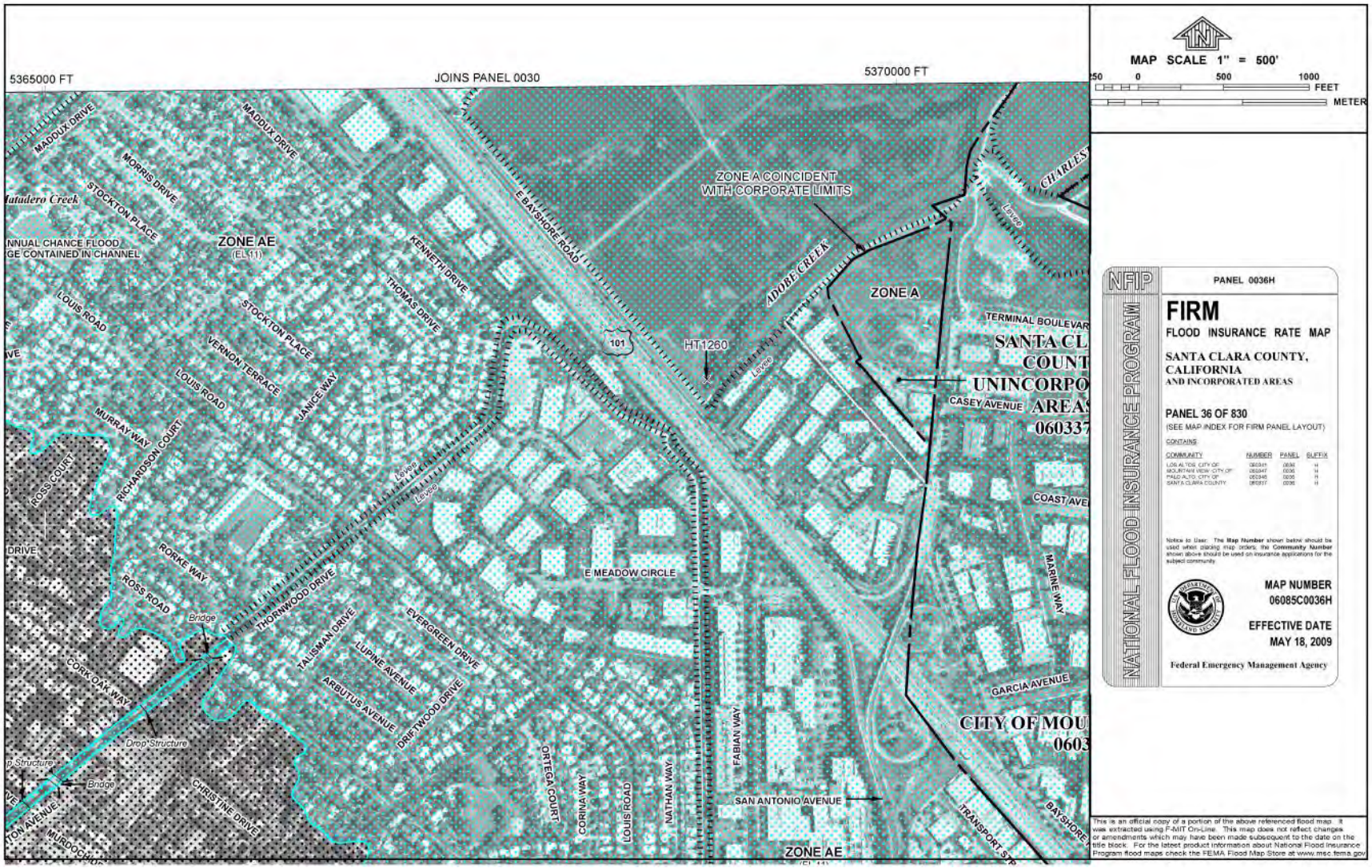
I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

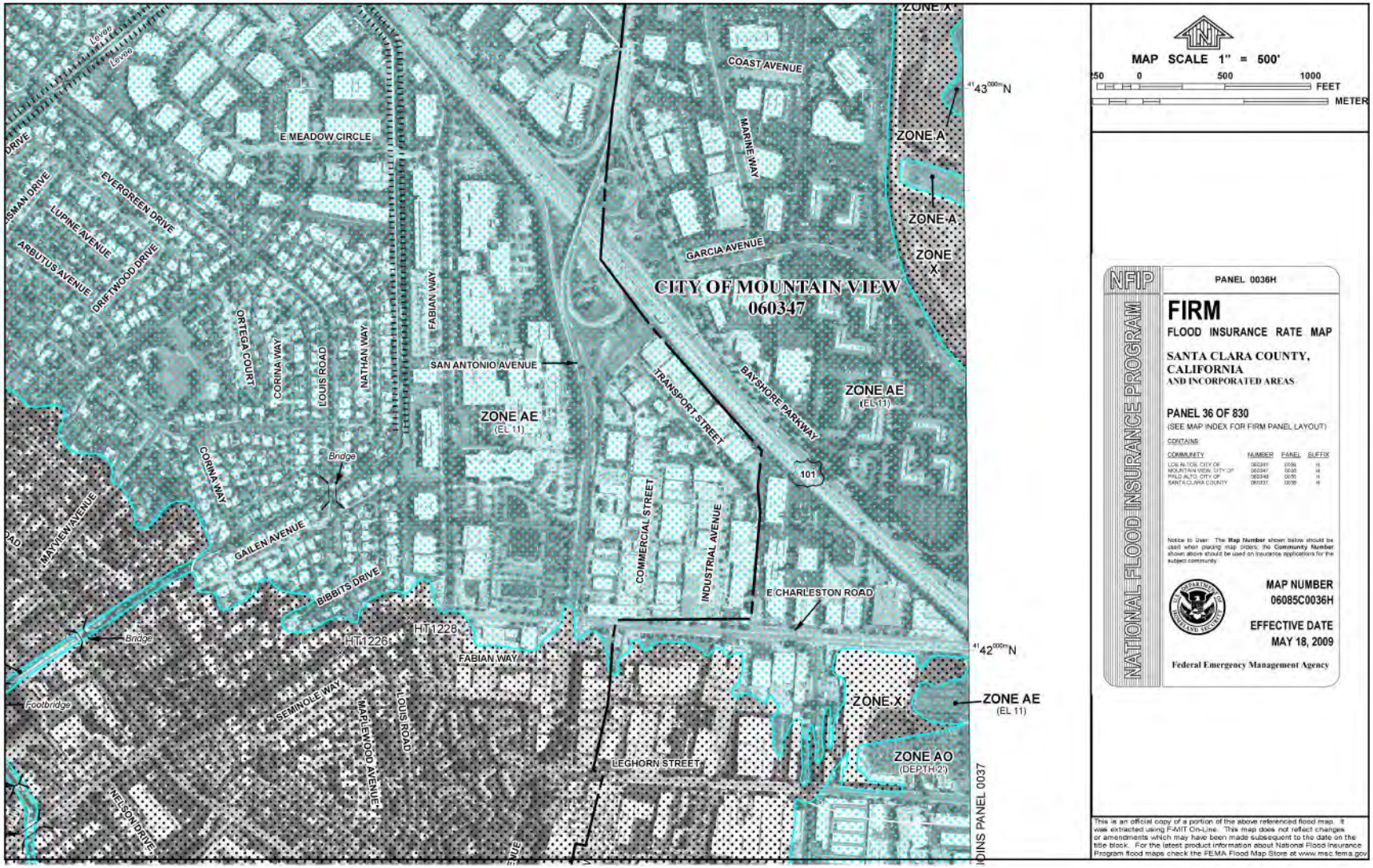
_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

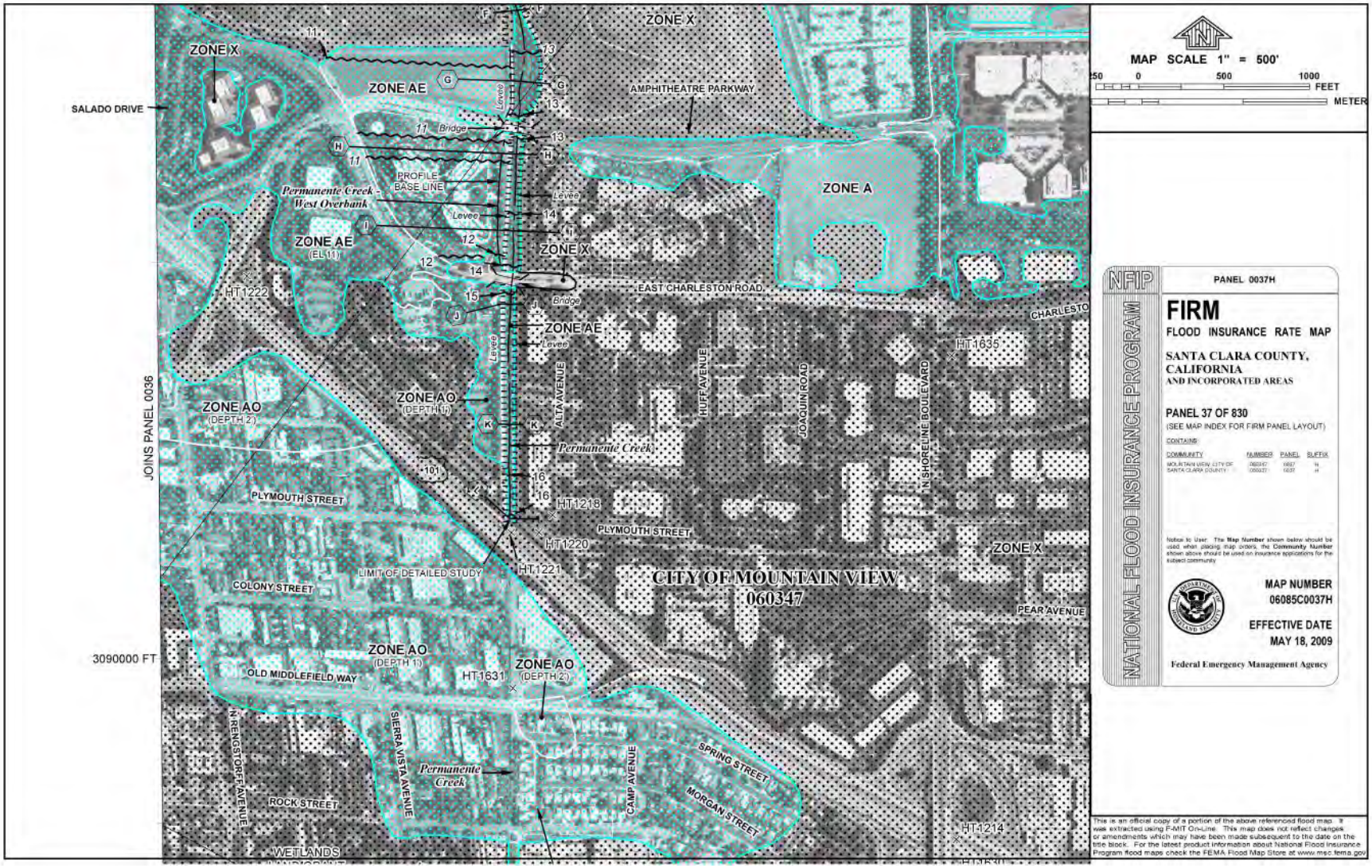
Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding

Appendix C Federal Emergency Management Agency Flood Insurance Rate Maps

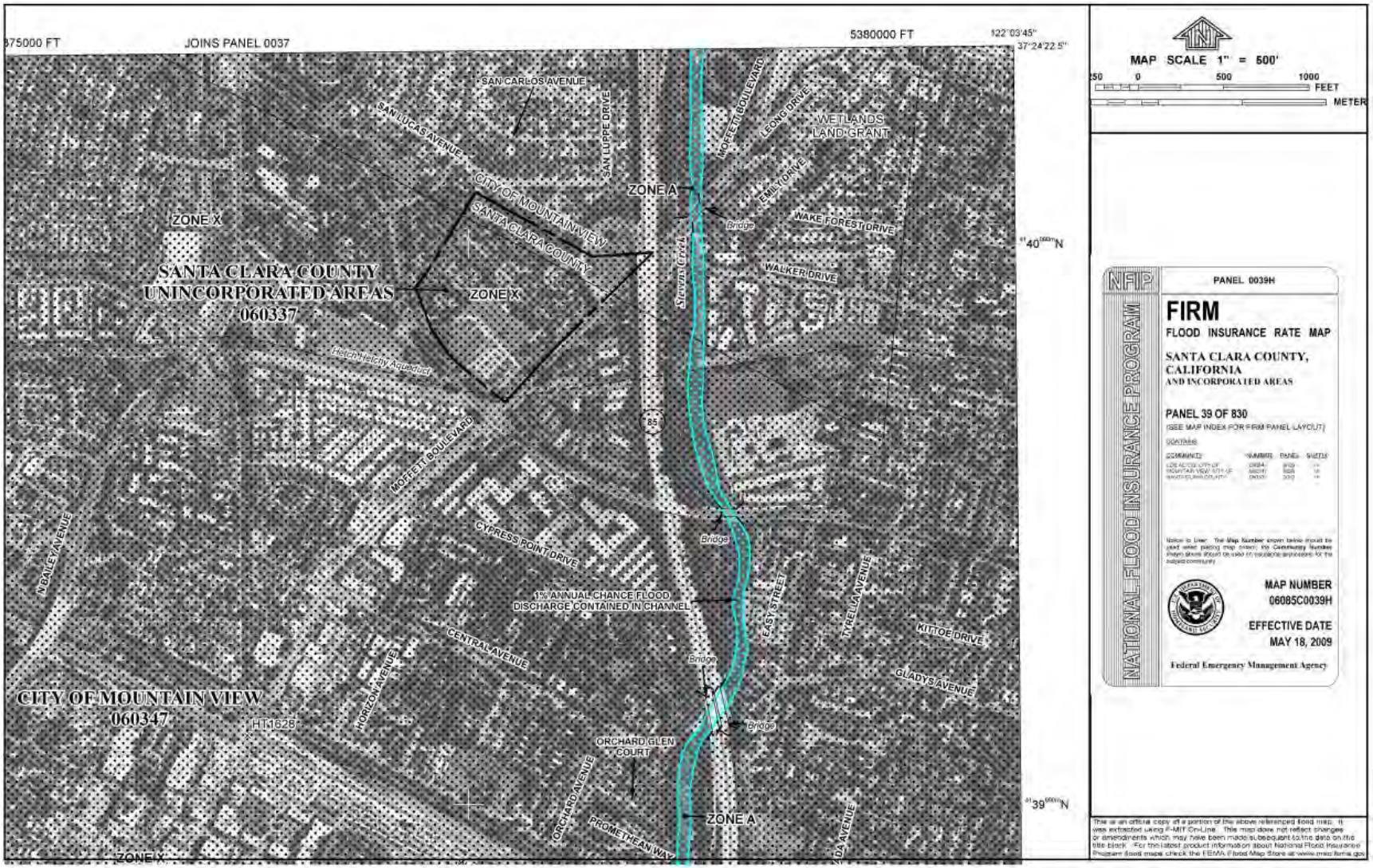
ZONE AE
(EL 11)
San Francisquito Creek
PALO ALTO MUNICIPAL AIRPORT
Levee
HT1279
DUCK POND
HT1275
HT1274
HT1272
ZONE VE
(EL 11)
3105000 FT
MAYFIELD SLOUGH
EMBARCADERO WAY
GENG ROAD
PABER PLACE
ZONE AH
(EL 13)
HT1278
E BAYSHORE ROAD
ZONE AE
(EL 11)
MATADERO CREEK
OREGON EXPRESSWAY
W BAYSHORE ROAD
MORENO AVENUE
AMARILLO AVENUE
ADOBE CREEK
PALO ALTO
FLOOD BASIN
3100000 FT
HT1262
COLORADO AVENUE
101
37°26'15"
122°07'30"
78000mE
JOINS PANEL 0036
79000mE
80000mE
MAP SCALE 1" = 1000'
FEET
METER
NFIP
PANEL 0030H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 30 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS
COMMUNITY NUMBER PANEL SUFFIX
MOUNTAIN VIEW, CITY OF 060347 0030 H
PALO ALTO, CITY OF 060348 0030 H
SANTA CLARA COUNTY 060337 0030 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0030H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
NATIONAL FLOOD INSURANCE PROGRAM
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

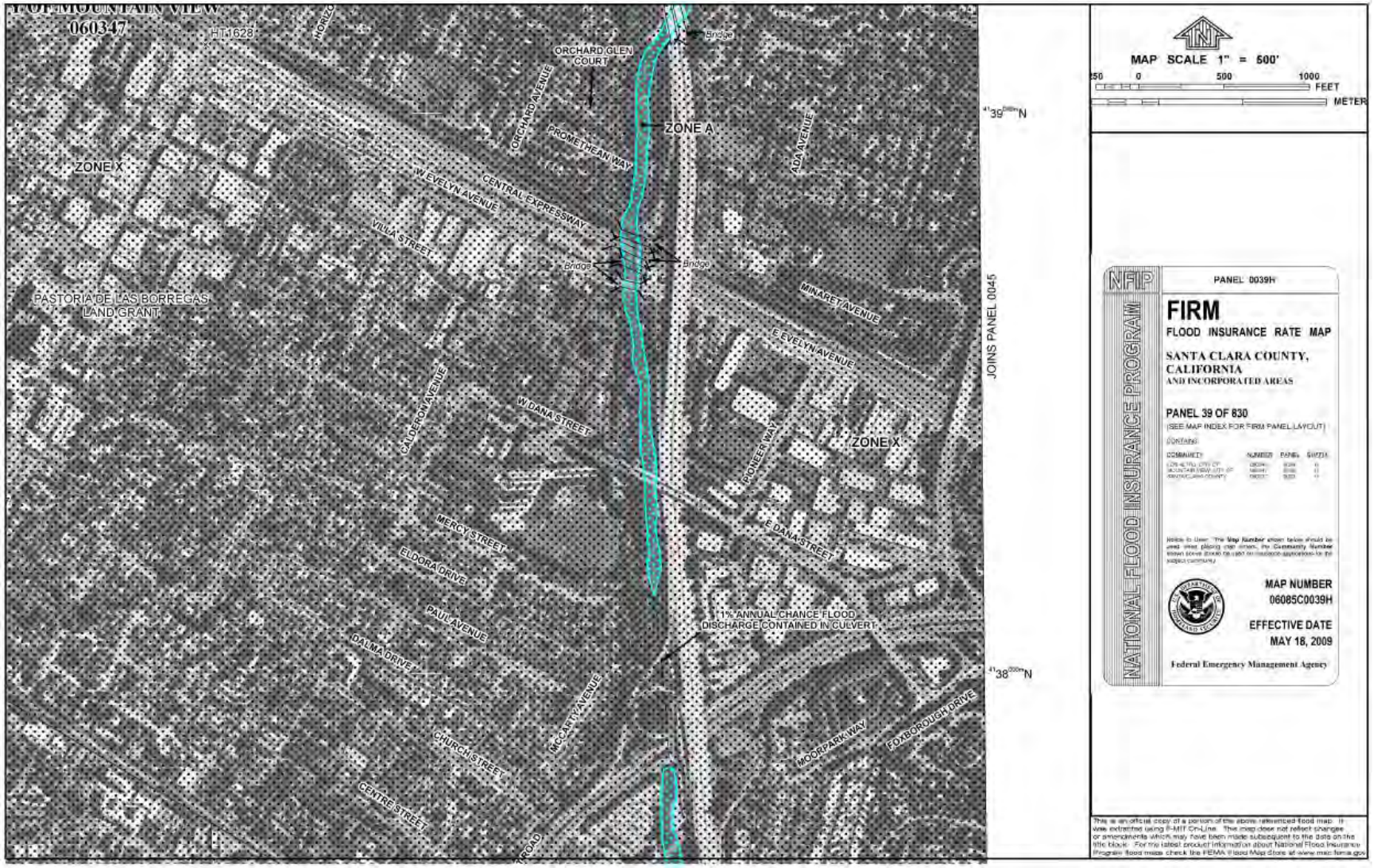

5365000 FT
JOINS PANEL 0030
5370000 FT
MAP SCALE 1" = 500'
FEET
METER
ZONE A COINCIDENT WITH CORPORATE LIMITS
ZONE AE
ZONE A
ADOBE CREEK
E BAYSHORE ROAD
HT1260
101
Levee
TERMINAL BOULEVARD
CASEY AVENUE
COAST AVE
E MEADOW CIRCLE
GARCIA AVENUE
SAN ANTONIO AVENUE
MADDUX DRIVE
MORRIS DRIVE
STOCKTON PLACE
KENNETH DRIVE
THOMAS DRIVE
LOUIS ROAD
VERNON TERRACE
JANICE WAY
MURRAY WAY
RICHARDSON COURT
ROSS COURT
RORKE WAY
ROSS ROAD
THORNWOOD DRIVE
TALISMAN DRIVE
EVERGREEN DRIVE
LUPINE AVENUE
ARBUTUS AVENUE
DRIFTWOOD DRIVE
CORK OAK WAY
CHRISTINE DRIVE
ORTEGA COURT
CORINA WAY
NATHAN WAY
FABIAN WAY
MARINE WAY
TRANSPORT STR
BAYSHORE
Bridge
Drop Structure
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0036H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 36 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS
COMMUNITY NUMBER PANEL SUFFIX
LOS ALTOS, CITY OF 060341 0036 H
MOUNTAIN VIEW, CITY OF 060347 0036 H
PALO ALTO, CITY OF 060348 0036 H
SANTA CLARA COUNTY 060337 0036 H
MAP NUMBER
06085C0036H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov


MAP SCALE 1" = 500'
FEET
METER
NFIP
PANEL 0036H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 36 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0036H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
CITY OF MOUNTAIN VIEW
060347
ZONE AE
(EL 11)
ZONE A
ZONE X
ZONE AO
(DEPTH 2')
COAST AVENUE
MARINE WAY
GARCIA AVENUE
BAYSHORE PARKWAY
TRANSPORT STREET
COMMERCIAL STREET
INDUSTRIAL AVENUE
E CHARLESTON ROAD
LEGHORN STREET
SAN ANTONIO AVENUE
FABIAN WAY
E MEADOW CIRCLE
EVERGREEN DRIVE
LUPINE AVENUE
ARBUTUS AVENUE
DRIFTWOOD DRIVE
ORTEGA COURT
CORINA WAY
LOUIS ROAD
NATHAN WAY
GAILEN AVENUE
BIBBITS DRIVE
MAYVIEW AVENUE
SEMINOLE WAY
MAPLEWOOD AVENUE
NELSON DRIVE
Bridge
Footbridge
Levee
101
HT1228
HT1226
41°43'000"N
41°42'000"N

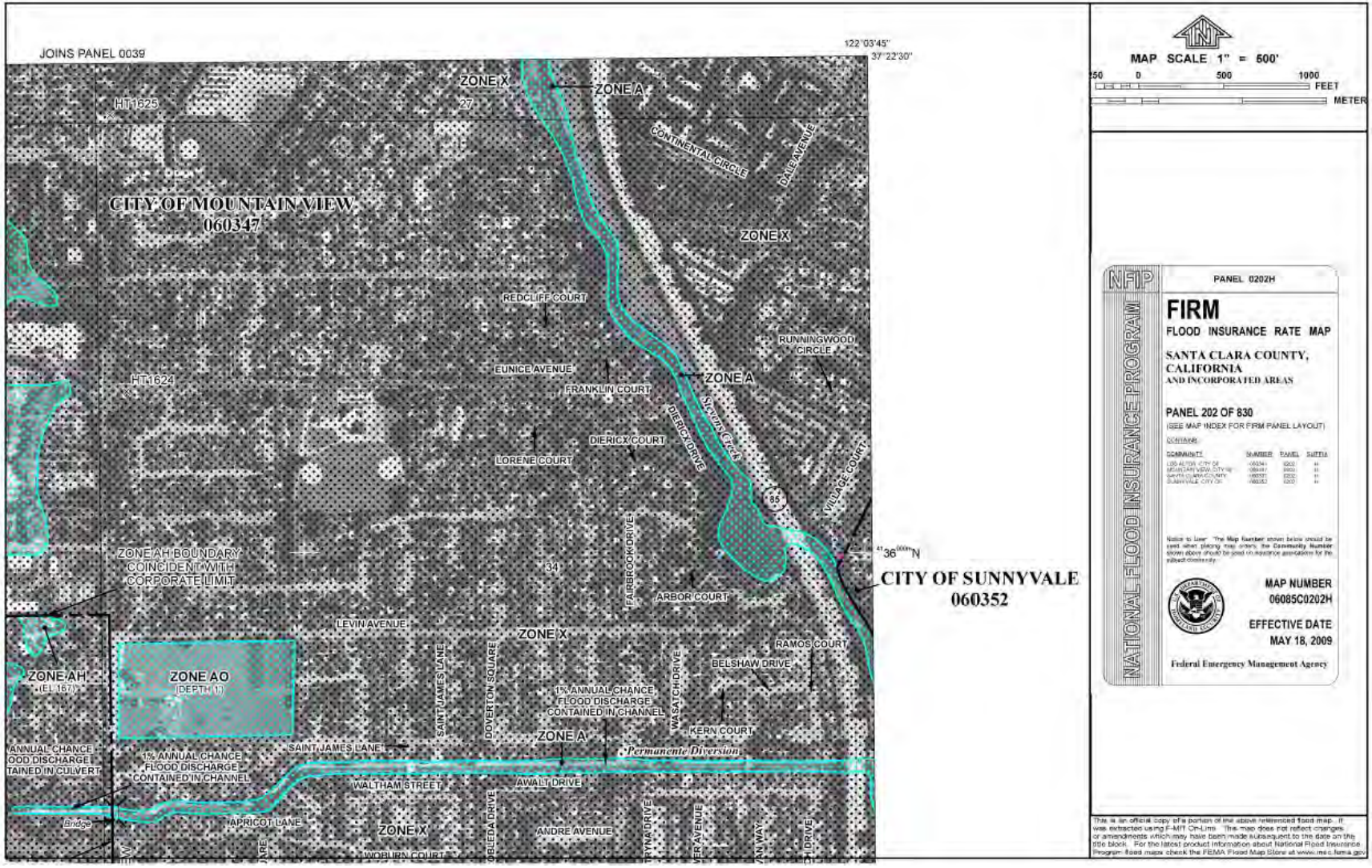

ZONE X
ZONE AE
ZONE A
ZONE AO
(DEPTH 1)
(DEPTH 2)
(EL 11)
SALADO DRIVE
AMPHITHEATRE PARKWAY
Permanente Creek
West Overbank
PROFILE BASE LINE
Levee
Bridge
EAST CHARLESTON ROAD
CHARLESTO
HT1222
HT1635
HT1218
HT1220
HT1221
HT1631
HT1214
ALTA AVENUE
HUFF AVENUE
JOAQUIN ROAD
N SHORELINE BOULEVARD
PLYMOUTH STREET
COLONY STREET
OLD MIDDLEFIELD WAY
LIMIT OF DETAILED STUDY
CITY OF MOUNTAIN VIEW
060347
PEAR AVENUE
SPRING STREET
MORGAN STREET
CAMP AVENUE
SIERRA VISTA AVENUE
N RENGSTORFF AVENUE
ROCK STREET
WETLANDS
JOINS PANEL 0036
3090000 FT
MAP SCALE 1" = 500'
FEET
METER
NFIP
PANEL 0037H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 37 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0037H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency

1% ANNUAL CHANCE FLOOD
DISCHARGE CONTAINED IN CHANNEL
ZONE X
SPACE PARK WAY
NAVAL RESERVATION
LIMIT OF STUDY
1% ANNUAL CHANCE FLOOD
DISCHARGE CONTAINED IN CHANNEL
NAVAL AIR
STATION - MOFFETT FIELD
06FED
OF MOUNTAIN VIEW
060347
PEAR AVENUE
ARMAND AVENUE
CASA GRANDE AVENUE
MONTEREY DRIVE
VILLA DRIVE
LAVENIDA STREET
SPRING STREET
ORGAN STREET
Levee
LIMIT OF STUDY
ORION PARK
MOFFETT BOULEVARD
ZONE D
STEVENS ROAD
HT1214
HT1630
Note: This area is shown as being protected from the 1-percent-annual-chance or greater flood hazard by a levee system that has been provisionally accredited. Overtopping or failure of any levee system is possible. For additional information, see the "Provisionally Accredited Levee Note" in Notes to Users.
ZONE D BOUNDARY COINCIDENT WITH CORPORATE BOUNDARY
VERNON AVENUE
ZONE X
SAN LEANDRO AVENUE
VERNON CIRCLE
HT1213
TERRA BELLA AVENUE
WEST MIDDLEFIELD ROAD
SHORELINE BOULEVARD
LINCANISTA AVENUE
SANTA FAE AVENUE
Bridge
ZONE X
POSOLMI LAND GRANT
101
ZONE A
85
JOINS PANEL 0039
82°E
41°N
37°24'22.3"
122°03'45"
PASTORIA DE LAS BORREGAS LAND GRANT
MAP SCALE 1" = 500'
500
1000
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0037H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 37 OF 830
MAP NUMBER
06085C0037H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


375000 FT
JOINS PANEL 0037
5380000 FT
122°03'45"
37°24'22.5"
MAP SCALE 1" = 500'
FEET
METER
SAN CARLOS AVENUE
SAN LUCAS AVENUE
SAN LUPPE DRIVE
MOFFETT BOULEVARD
LEONE DRIVE
WETLANDS LAND GRANT
EMILY DRIVE
WAKE FOREST DRIVE
WALKER DRIVE
CITY OF MOUNTAIN VIEW
SANTA CLARA COUNTY
ZONE A
ZONE X
SANTA CLARA COUNTY UNINCORPORATED AREAS 060337
Hetch Hetchy Aqueduct
Stevens Creek
Bridge
85
CYPRESS POINT DRIVE
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
EAST STREET
TAHELLA AVENUE
KITTOE DRIVE
GLADYS AVENUE
N BAILEY AVENUE
CENTRAL AVENUE
HORIZON AVENUE
CITY OF MOUNTAIN VIEW 060347
HT1628
ORCHARD GLEN COURT
ORCHARD AVENUE
PROMETHEAN WAY
40°00'00"N
39°00'00"N
NFIP
PANEL 0039H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 39 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0039H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


060347
HT 1628
ORCHARD GLEN COURT
ORCHARD AVENUE
PROMETHEAN WAY
ZONE A
ZONE X
W EVELYN AVENUE
CENTRAL EXPRESSWAY
VILLA STREET
Bridge
PASTORIA DE LAS BORREGAS LAND GRANT
ADA AVENUE
MINARET AVENUE
E EVELYN AVENUE
JOINS PANEL 0045
CALDERON AVENUE
W DANA STREET
PIONEER WAY
ZONE X
E DANA STREET
MERCY STREET
ELDORA DRIVE
PAUL AVENUE
DALMA DRIVE
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CULVERT
MCCARTY AVENUE
CHURCH STREET
CENTRE STREET
MOORPARK WAY
FOXBOROUGH DRIVE
MAP SCALE 1" = 500'
FEET
METER
NFIP
PANEL 0039H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 39 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0039H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency

MERCY STREET
ELDORA DRIVE
PAUL AVENUE
DALMA DRIVE
CHURCH STREET
CENTRE STREET
GRANT ROAD
YUBA DRIVE
MCCARTY AVENUE
E DANA STREET
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CULVERT
MOOR PARK WAY
FOXBOROUGH DRIVE
RAINBOW DRIVE
EL CAMINO REAL
SYLVAN AVENUE
CONTINENTAL CIRCLE
CARMELITA DRIVE
MARTENS AVENUE
LEONA LANE
ZONE A
ZONE X
ZONE X
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 6 SOUTH, RANGE 2 WEST, THE PASTORIA DE LAS BORREGAS, AND WETLANDS LAND GRANTS
Stevens Creek
85
41°38'00"N
41°37'00"N
37°22'30"
122°03'45"
JOINS PANEL 0202
82°00'00"E
MAP SCALE 1" = 500'
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0039H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 39 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0039H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


JOINS PANEL 0039
122°03'45"
37°22'30"
MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
ZONE X
ZONE A
HT1625
CONTINENTAL CIRCLE
DALE AVENUE
CITY OF MOUNTAIN VIEW
060347
ZONE X
REDCLIFF COURT
RUNNINGWOOD CIRCLE
EUNICE AVENUE
FRANKLIN COURT
ZONE A
HT1624
DIERICX COURT
DIERICX DRIVE
Stevens Creek
LORENE COURT
VILLAGE COURT
85
ZONE AH BOUNDARY COINCIDENT WITH CORPORATE LIMIT
34
FAIRBROOK DRIVE
ARBOR COURT
CITY OF SUNNYVALE
060352
LEVIN AVENUE
ZONE X
RAMOS COURT
BELSHAW DRIVE
ZONE AH
(EL 167')
ZONE AO
(DEPTH 1)
SAINT JAMES LANE
DOVERTON SQUARE
WASATCH DRIVE
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
KERN COURT
ZONE A
Permanente Diversion
ANNUAL CHANCE FLOOD DISCHARGE TAINED IN CULVERT
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
SAINT JAMES LANE
WALTHAM STREET
AWALT DRIVE
Bridge
APRICOT LANE
ZONE X
ANDRE AVENUE
WOBURN COURT
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0202H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 202 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0202H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency

060352
MAP SCALE 1" = 500'
FEET
METER
ARBOR COURT
LEVIN AVENUE
ZONE X
RAMOS COURT
BELSHAW DRIVE
ZONE AH
ZONE AO
(DEPTH 1)
SAINT JAMES LANE
DOVERTON SQUARE
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
WASATCH DRIVE
KERN COURT
ZONE A
Permanente Diversion
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
WALTHAM STREET
AWALT DRIVE
APRICOT LANE
ZONE X
ANDRE AVENUE
TRYNA DRIVE
BROWER AVENUE
IVAN WAY
LUBICH DRIVE
WOBURN COURT
VILLA ROBLEDA DRIVE
BEAUMONT SQUARE
HT1623
BRYANT AVENUE
CITY OF LOS ALTOS
CITY OF MOUNTAIN VIEW
ZONE X
T-6S
T-7S
JOEL WAY
FLOODING EFFECTS FROM STEVENS CREEK
HAWKINS DRIVE
HARWALT DRIVE
SELIG LANE
CITY OF SUNNYVALE 060352
ZONE X
HT1620
JOINS PANEL 0206
RAVENSWOOD DRIVE
BROOKMILL ROAD
LARKELLEN LANE
HAVENHURST DRIVE
ZONE D
ZONE X
TIPTOE LANE
CITY OF LOS ALTOS
060341
BROOKMILL ROAD
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0202H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 202 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0202H
EFFECTIVE DATE
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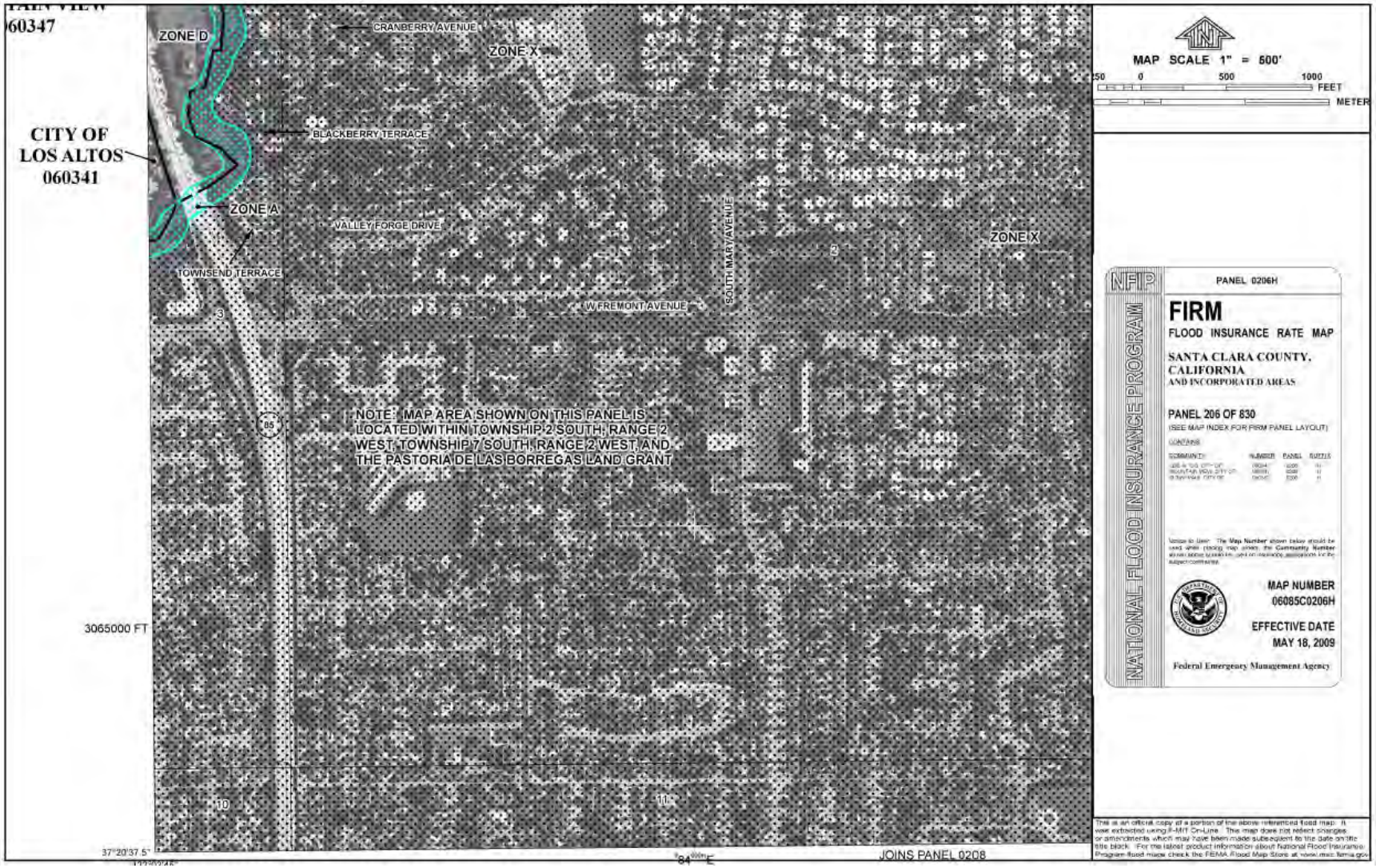
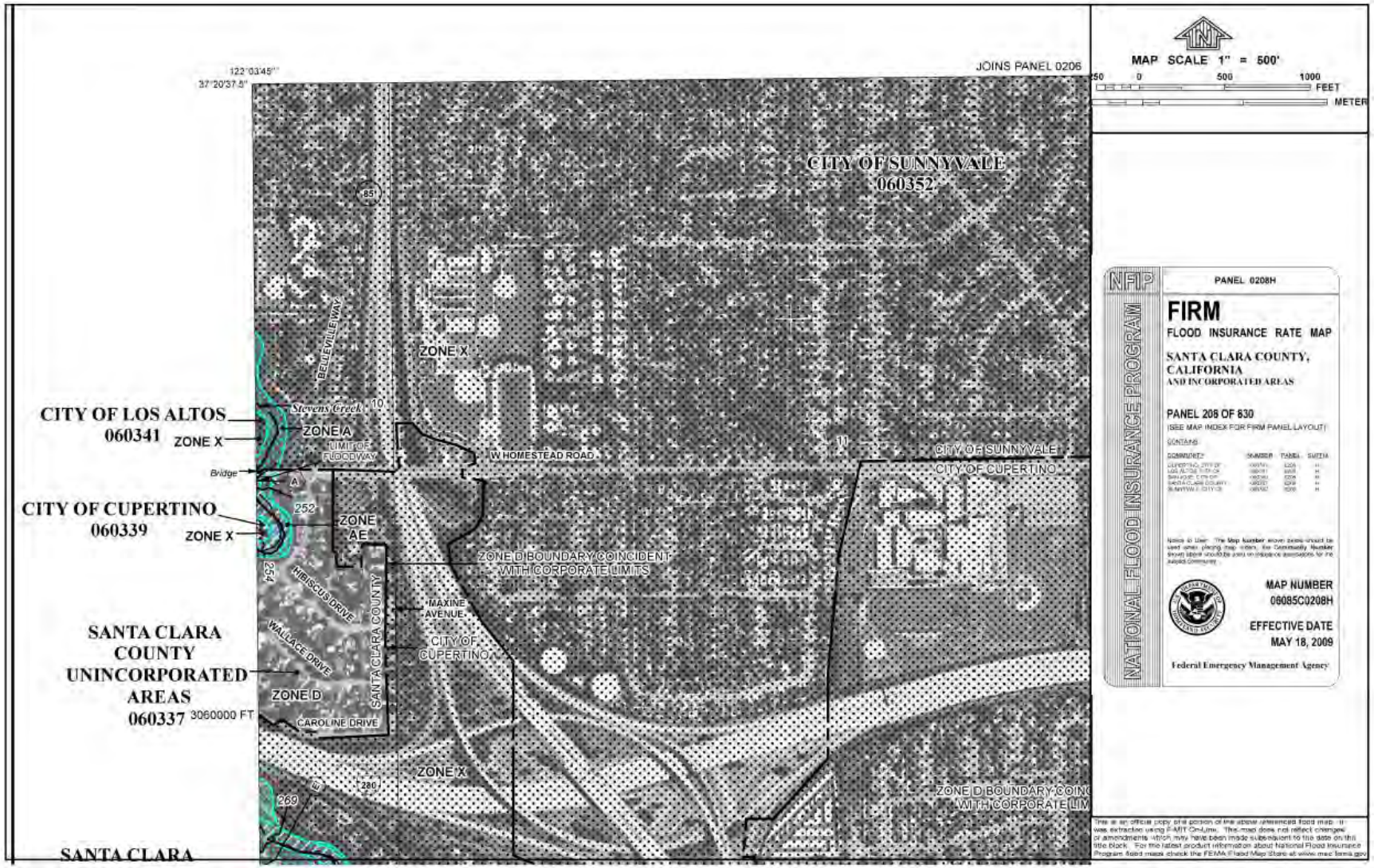
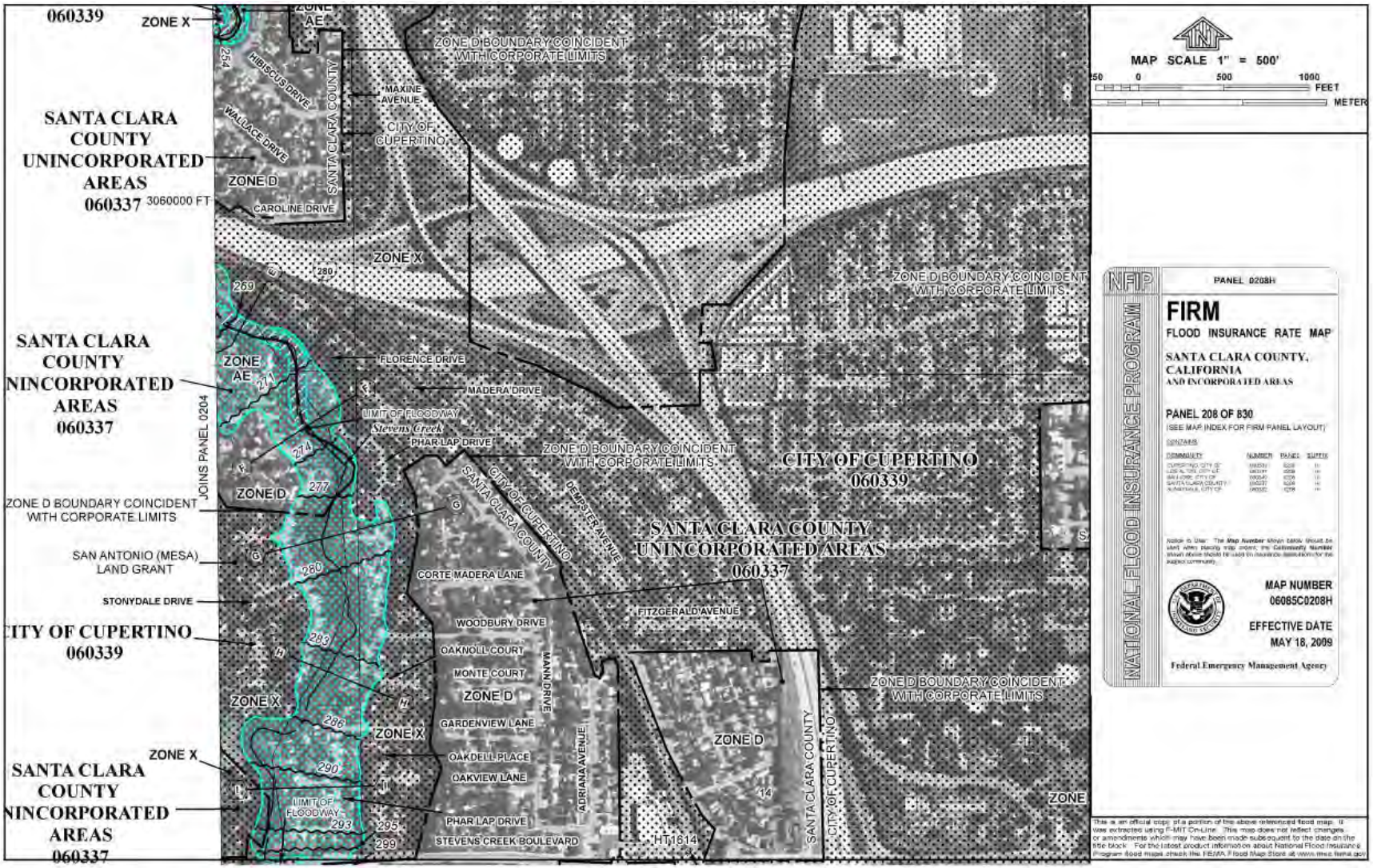
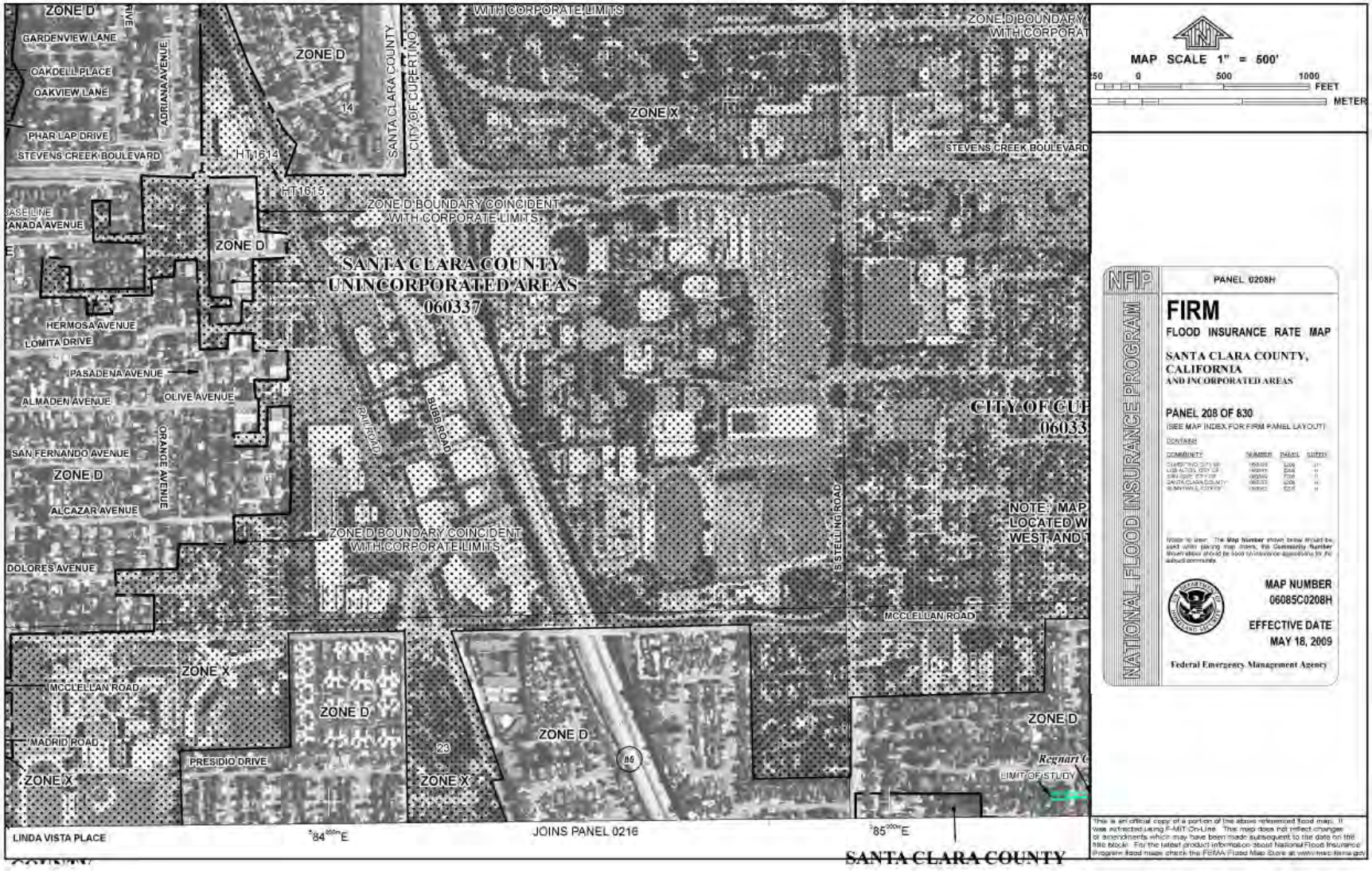
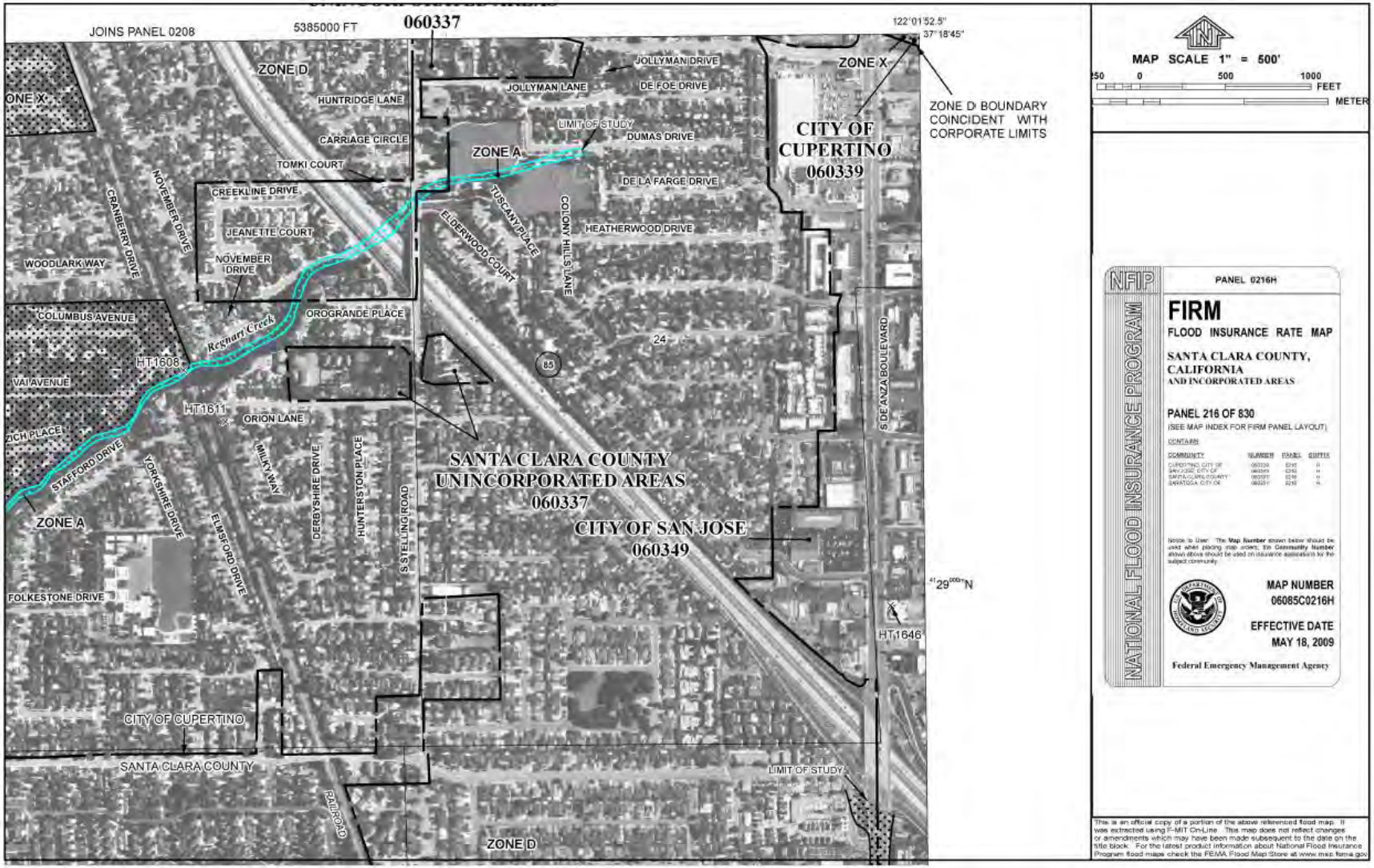
Federal Emergency Management Agency


60347
ZONE D
CRANBERRY AVENUE
ZONE X
CITY OF
LOS ALTOS
060341
BLACKBERRY TERRACE
ZONE A
VALLEY FORGE DRIVE
TOWNSEND TERRACE
SOUTH MARY AVENUE
ZONE X
W FREMONT AVENUE
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 2 SOUTH, RANGE 2 WEST, TOWNSHIP 7 SOUTH, RANGE 2 WEST, AND THE PASTORIA DE LAS BORREGAS LAND GRANT
3065000 FT
37°20'37.5"
JOINS PANEL 0208
MAP SCALE 1" = 500'
FEET
METER
NFIP
PANEL 0206H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 206 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0206H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


JOINS PANEL 0206
MAP SCALE 1" = 500'
FEET
METER
CITY OF SUNNYVALE
060352
ZONE X
CITY OF LOS ALTOS
060341
ZONE X
ZONE A
LIMIT OF FLOODWAY
W HOMESTEAD ROAD
CITY OF SUNNYVALE
CITY OF CUPERTINO
CITY OF CUPERTINO
060339
ZONE X
ZONE AE
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
MAXINE AVENUE
CITY OF CUPERTINO
SANTA CLARA COUNTY UNINCORPORATED AREAS
060337
ZONE D
CAROLINE DRIVE
ZONE X
SANTA CLARA
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0208H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 208 OF 630
MAP NUMBER
06085C0208H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


060339
ZONE X
ZONE AE
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
MAXINE AVENUE
CITY OF CUPERTINO
HIBISCUS DRIVE
WALLACE DRIVE
SANTA CLARA COUNTY
SANTA CLARA COUNTY UNINCORPORATED AREAS 060337
3060000 FT
ZONE D
CAROLINE DRIVE
ZONE X
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
SANTA CLARA COUNTY UNINCORPORATED AREAS 060337
ZONE AE
FLORENCE DRIVE
MADERA DRIVE
LIMIT OF FLOODWAY
Stevens Creek
PHAR LAP DRIVE
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
CITY OF CUPERTINO 060339
JOINS PANEL 0204
ZONE D
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
SANTA CLARA COUNTY
CITY OF CUPERTINO
DEMPSTER AVENUE
SANTA CLARA COUNTY UNINCORPORATED AREAS 060337
SAN ANTONIO (MESA) LAND GRANT
CORTE MADERA LANE
STONYDALE DRIVE
WOODBURY DRIVE
FITZGERALD AVENUE
CITY OF CUPERTINO 060339
OAKNOLL COURT
MONTE COURT
MANN DRIVE
ZONE D
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
ZONE X
GARDENVIEW LANE
ZONE X
ZONE D
ZONE X
OAKDELL PLACE
OAKVIEW LANE
ADRIANA AVENUE
SANTA CLARA COUNTY
CITY OF CUPERTINO
SANTA CLARA COUNTY UNINCORPORATED AREAS 060337
LIMIT OF FLOODWAY
PHAR LAP DRIVE
STEVENS CREEK BOULEVARD
HT1614
ZONE
MAP SCALE 1" = 500'
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0208H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 208 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0208H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


ZONE D
GARDENVIEW LANE
OAKDELL PLACE
OAKVIEW LANE
ADRIANA AVENUE
PHAR LAP DRIVE
STEVENS CREEK BOULEVARD
HT1614
HT1615
SANTA CLARA COUNTY
CITY OF CUPERTINO
WITH CORPORATE LIMITS
ZONE X
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
SANTA CLARA COUNTY
UNINCORPORATED AREAS
060337
HERMOSA AVENUE
LOMITA DRIVE
PASADENA AVENUE
ALMADEN AVENUE
OLIVE AVENUE
SAN FERNANDO AVENUE
ORANGE AVENUE
ALCAZAR AVENUE
DOLORES AVENUE
RAILROAD
BUBB ROAD
S STELLING ROAD
CITY OF CUP
06033
NOTE: MAP
LOCATED W
WEST AND
MCCLELLAN ROAD
MADRID ROAD
PRESIDIO DRIVE
LIMIT OF STUDY
LINDA VISTA PLACE
JOINS PANEL 0216
SANTA CLARA COUNTY
MAP SCALE 1" = 500'
FEET
METER
PANEL 0208H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 208 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0208H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


JOINS PANEL 0208
5385000 FT
060337
122°01'52.5"
37°18'45"
ZONE D
ZONE X
JOLLYMAN DRIVE
JOLLYMAN LANE
DE FOE DRIVE
HUNTRIDGE LANE
LIMIT OF STUDY
DUMAS DRIVE
CARRIAGE CIRCLE
ZONE A
TOMKI COURT
DE LA FARGE DRIVE
CREEKLINE DRIVE
TUSCANY PLACE
COLONY HILLS LANE
ELDERWOOD COURT
HEATHERWOOD DRIVE
JEANETTE COURT
NOVEMBER DRIVE
CRANBERRY DRIVE
WOODLARK WAY
COLUMBUS AVENUE
OROGRANDE PLACE
Regnart Creek
HT1608
VAI AVENUE
HT1611
ORION LANE
STAFFORD DRIVE
YORKSHIRE DRIVE
MILKY WAY
DERBYSHIRE DRIVE
HUNTERSTON PLACE
S STELLING ROAD
ELMSFORD DRIVE
FOLKESTONE DRIVE
CITY OF CUPERTINO
060339
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
SANTA CLARA COUNTY
UNINCORPORATED AREAS
060337
CITY OF SAN JOSE
060349
S DE ANZA BOULEVARD
41°29'00"N
HT1646
CITY OF CUPERTINO
SANTA CLARA COUNTY
RAILROAD
LIMIT OF STUDY
ZONE D
MAP SCALE 1" = 500'
FEET
METER
NFIP
PANEL 0216H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 216 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS
COMMUNITY
NUMBER
PANEL
SUFFIX
CUPERTINO, CITY OF
060339
0216
H
SAN JOSE, CITY OF
060349
0216
H
SANTA CLARA COUNTY
060337
0216
H
SARATOGA, CITY OF
060351
0216
H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0216H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
NATIONAL FLOOD INSURANCE PROGRAM
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JOINS PANEL 0216
GALLI DRIVE
WEYBURN LANE
Calabazas
Bridge
270
276
RAINBOW DRIVE
S BLANE
Rodeo Creek
BRETMOOR
CANTERBURY COURT
RAINBOW DRIVE
MAP SCALE 1" = 500'
FEET
METER
WESTMOOR WAY
HANOVER DRIVE
CALABAZAS CREEK CIRCLE
LONGFELLOW COURT
ZONE AE
ZONE A
ZONE D
277
281
283
285
290
294
LONGFELLOW WAY
BUCKTHORNE WAY
KINTYRE WAY
DAPHNE DRIVE
GLENMOOR WAY
QUITO LAND GRANT
WISTERIA WAY
WINDSOR WAY
SHARON DRIVE
DARTMOOR WAY
DARTMOOR WAY
DUCKETT WAY
EDDINGTON PLACE
DEVON WAY
BROOKVALE DRIVE
85
MC GREGOR WAY
S BLANEY AVENUE
ARDENWOOD DRIVE
DAPHNE DRIVE
CLARKSPUR LANE
MILLER AVENUE
ZONE X
ZONE X
RUTHERFORD AVENUE
IVY LANE
PROSPECT ROAD
PROSPECT ROAD
BRISBANE COURT
MERIDA DRIVE
3045000 FT
PAMPAS COURT
SARAGLEN COURT
ZONE D BOUNDARY IS COINCIDENT WITH CORPORATE LIMITS
ATRIUM DRIVE
NATOMA COURT
CAROL LANE
COVINA COURT
MARILLA DRIVE
MARILLA COURT
PLUMAS DRIVE
ZONE A
VIEWRIDGE DRIVE
OAKHAVEN DRIVE
SARAGLEN DRIVE
VIEWOAK DRIVE
KNOLLWOOD DRIVE
ZONE X
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0217H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 217 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS
COMMUNITY
NUMBER
PANEL
SUFFIX
CUPERTINO, CITY OF
SAN JOSE, CITY OF
SANTA CLARA, COUNTY
SARATOGA, CITY OF
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MAP NUMBER
06085C0217H
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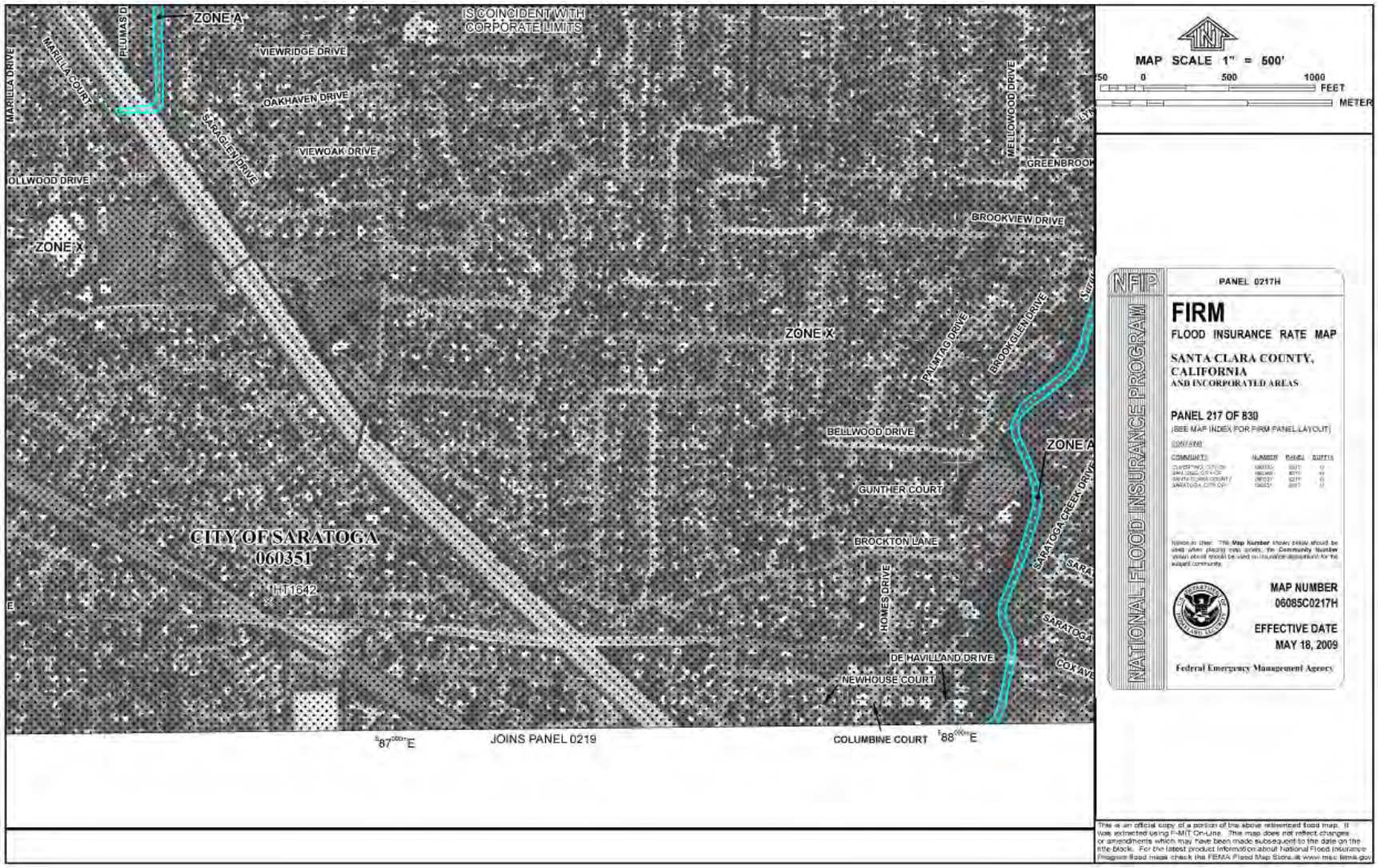
ZONE A
IS COINCIDENT WITH CORPORATE LIMITS
VIEWRIDGE DRIVE
OAKHAVEN DRIVE
VIEWOAK DRIVE
SARGLEN DRIVE
MARILLA DRIVE
MARILLA COURT
PLUMAS DR
OLLWOOD DRIVE
ZONE X
MELLOWOOD DRIVE
GREENBROOK
BROOKVIEW DRIVE
ZONE X
PANTAO DRIVE
BROOKGLEN DRIVE
BELLWOOD DRIVE
ZONE A
GUNTHER COURT
BROCKTON LANE
CITY OF SARATOGA
060351
HT1642
HOWES DRIVE
SARATOGA CREEK DRIVE
DE HAVILLAND DRIVE
NEWHOUSE COURT
COLUMBINE COURT
JOINS PANEL 0219
MAP SCALE 1" = 500'
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0217H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 217 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
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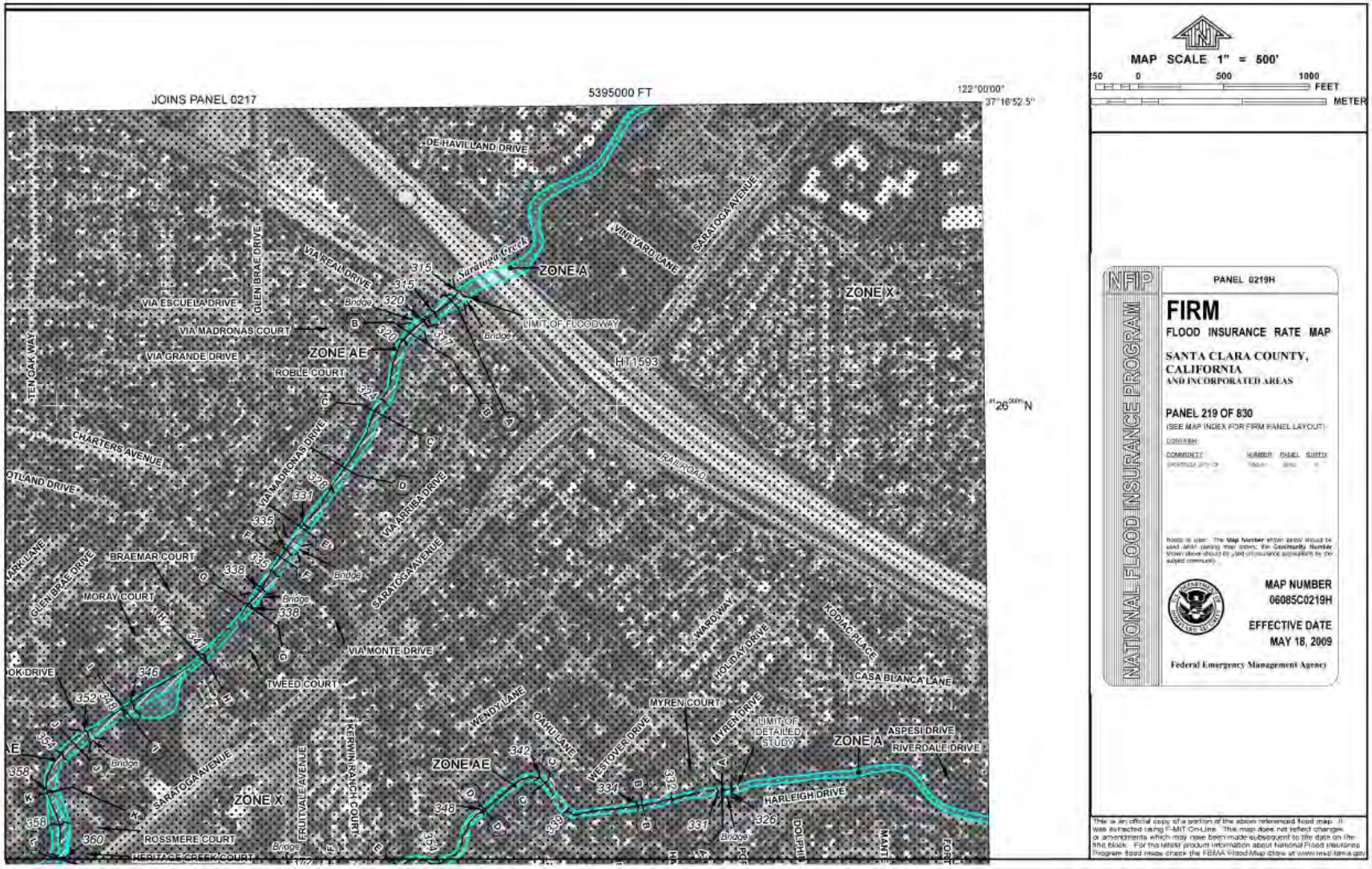
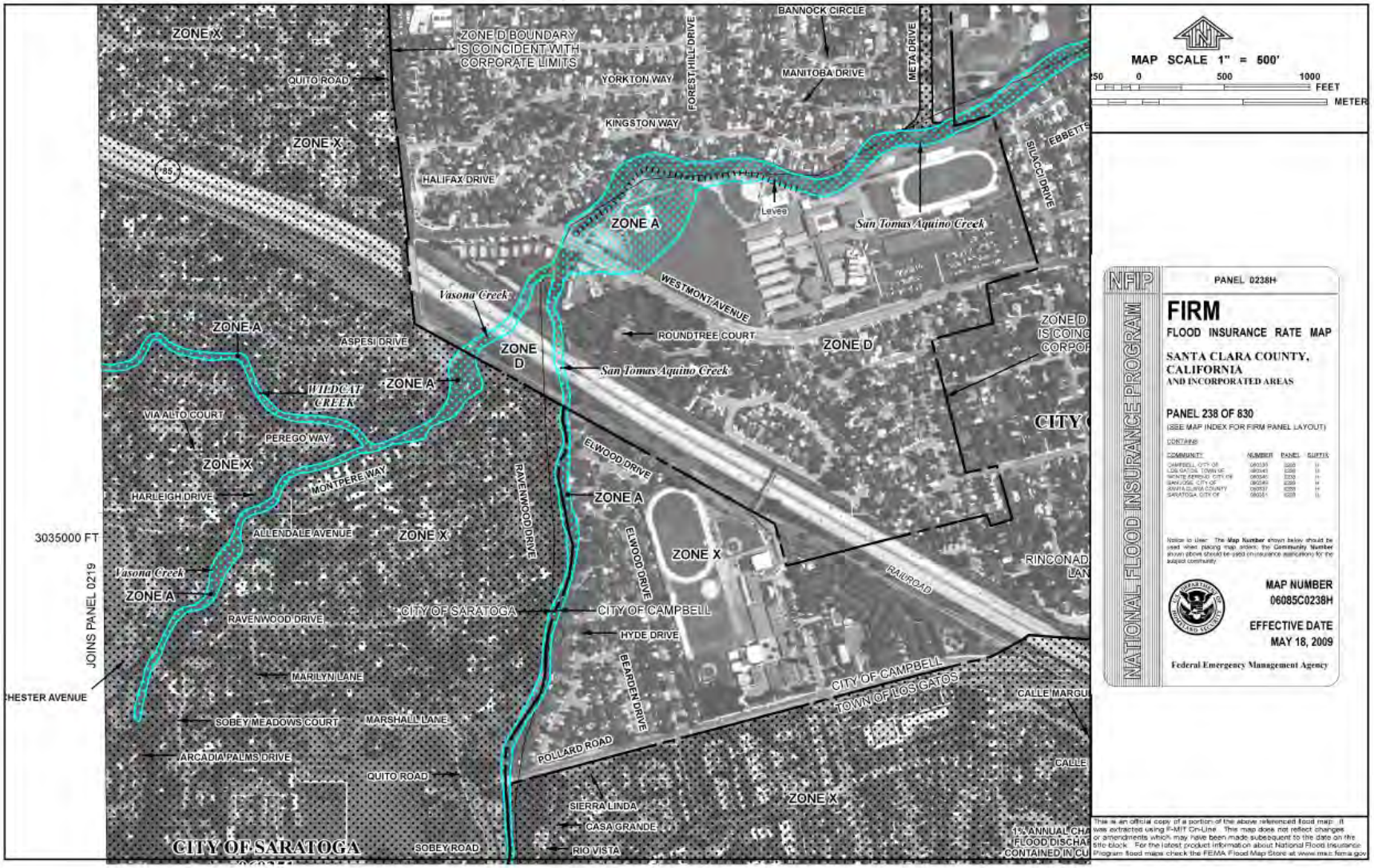
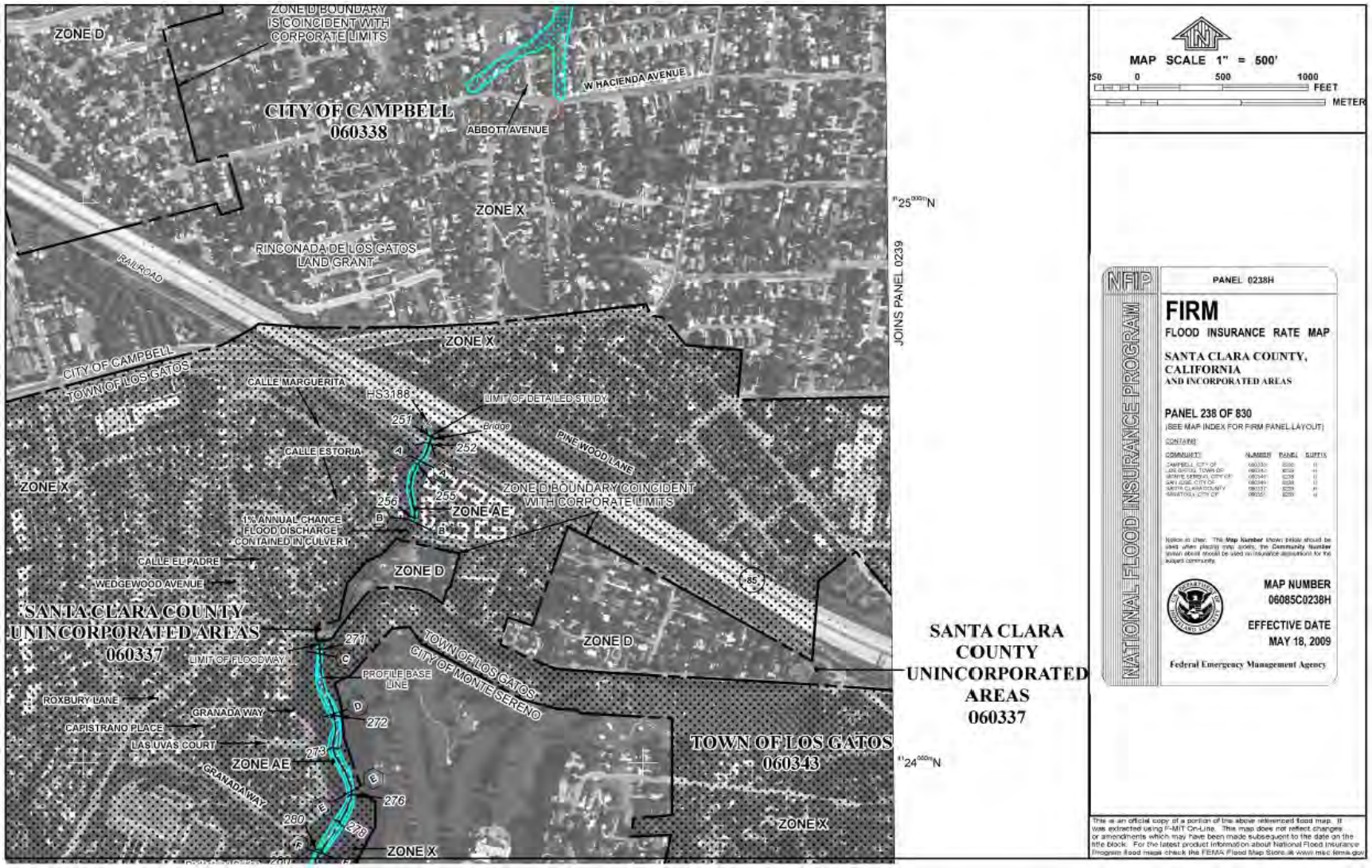
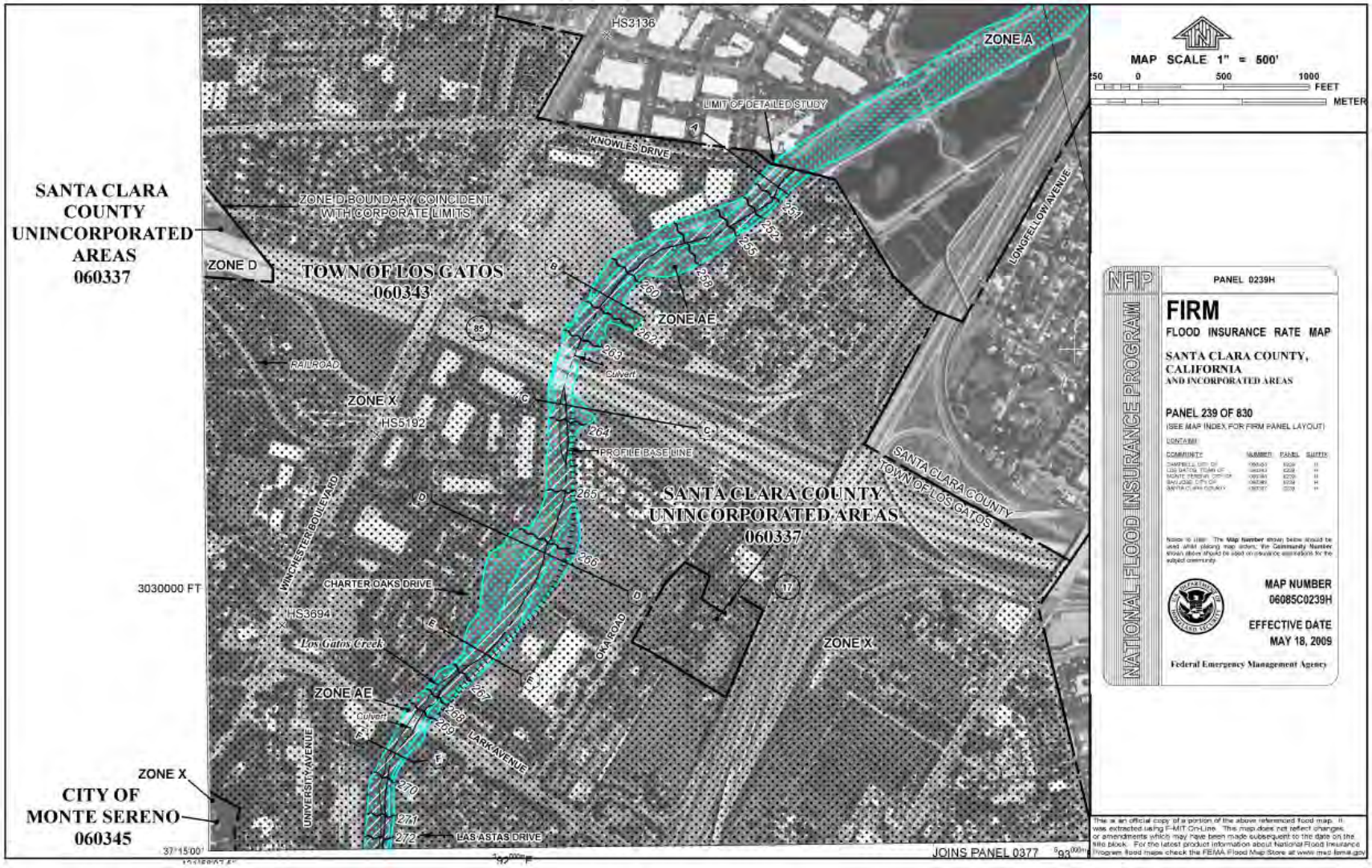
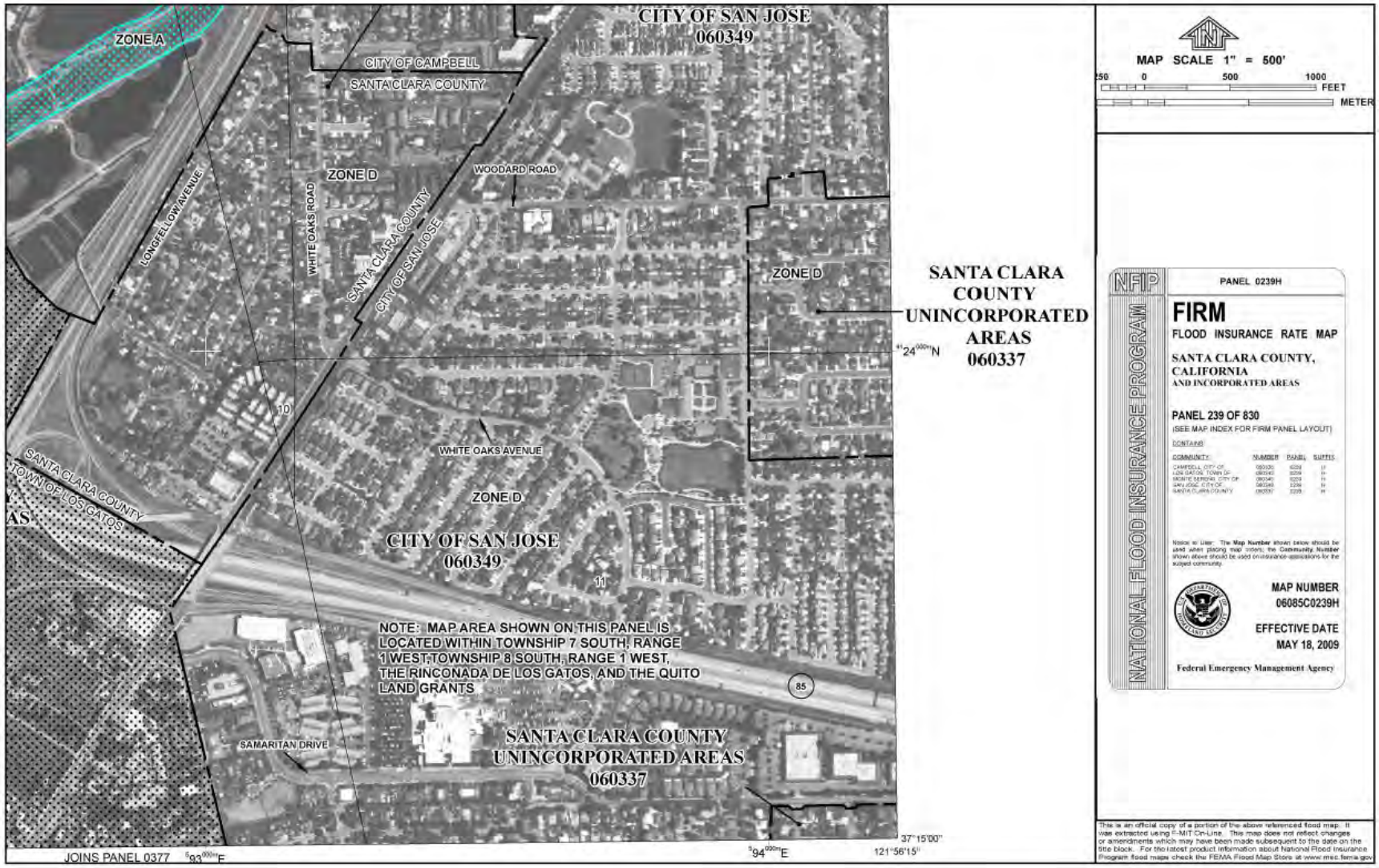
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


MAP SCALE 1" = 500'
FEET
METER
JOINS PANEL 0217
5395000 FT
122°00'00"
37°16'52.5"
DE HAVILLAND DRIVE
VINEYARD LANE
SARATOGA AVENUE
VIA REAL DRIVE
GLEN BRAE DRIVE
Saratoga Creek
ZONE A
ZONE X
VIA ESCUELA DRIVE
VIA MADRONAS COURT
LIMIT OF FLOODWAY
VIA GRANDE DRIVE
ZONE AE
HT1593
ROBLE COURT
TEN OAK WAY
CHARTERS AVENUE
RAILROAD
VIA MADRONAS DRIVE
VIA ARRIBA DRIVE
BRAEMAR COURT
MORAY COURT
GLEN BRAE DRIVE
VIA MONTE DRIVE
TWEED COURT
L WARD WAY
HOLIDAY DRIVE
KODIAC PLACE
CASA BLANCA LANE
MYREN COURT
MYREN DRIVE
LIMIT OF DETAILED STUDY
ASPESI DRIVE
RIVERDALE DRIVE
WENDY LANE
OAHU LANE
WESTOVER DRIVE
HARLEIGH DRIVE
FRUITVALE AVENUE
KERWIN RANCH COURT
ROSSMERE COURT
HERITAGE CREEK COURT
Bridge
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0219H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 219 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0219H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


ZONE X
ZONE D BOUNDARY IS COINCIDENT WITH CORPORATE LIMITS
BANNOCK CIRCLE
FOREST HILL DRIVE
META DRIVE
MANITOBA DRIVE
YORKTON WAY
QUITO ROAD
KINGSTON WAY
HALIFAX DRIVE
Levee
San Tomas Aquino Creek
ZONE A
EBBETTS
SILACCI DRIVE
WESTMONT AVENUE
Vasona Creek
ROUNDTREE COURT
ZONE D
ASPESI DRIVE
WILDCAT CREEK
VIA ALTO COURT
PEREGO WAY
MONTPERE WAY
HARLEIGH DRIVE
ALLENDALE AVENUE
RAVENWOOD DRIVE
ELWOOD DRIVE
3035000 FT
JOINS PANEL 0219
CITY OF SARATOGA
CITY OF CAMPBELL
HYDE DRIVE
BEARDEN DRIVE
RAILROAD
RINCONAD
MARILYN LANE
SOBEY MEADOWS COURT
MARSHALL LANE
ARCADIA PALMS DRIVE
POLLARD ROAD
TOWN OF LOS GATOS
CALLE MARGU
SIERRA LINDA
CASA GRANDE
RIO VISTA
SOBEY ROAD
MAP SCALE 1" = 500'
FEET
METER
NFIP
PANEL 0238H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 238 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0238H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


ZONE D
ZONE D BOUNDARY IS COINCIDENT WITH CORPORATE LIMITS
W HACIENDA AVENUE
CITY OF CAMPBELL
060338
ABBOTT AVENUE
ZONE X
RINCONADA DE LOS GATOS LAND GRANT
RAILROAD
JOINS PANEL 0239
CITY OF CAMPBELL
TOWN OF LOS GATOS
CALLE MARGUERITA
HS3188
LIMIT OF DETAILED STUDY
Bridge
PINE WOOD LANE
CALLE ESTORIA
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
ZONE AE
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CULVERT
CALLE EL PADRE
WEDGEWOOD AVENUE
SANTA CLARA COUNTY UNINCORPORATED AREAS
060337
LIMIT OF FLOODWAY
PROFILE BASE LINE
TOWN OF LOS GATOS
CITY OF MONTE SERENO
ROXBURY LANE
GRANADA WAY
CAPISTRANO PLACE
LAS UVAS COURT
TOWN OF LOS GATOS
060343
SANTA CLARA COUNTY UNINCORPORATED AREAS
060337
MAP SCALE 1" = 500'
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0238H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 238 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0238H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


MAP SCALE 1" = 500'
FEET
METER
ZONE A
HS3136
LIMIT OF DETAILED STUDY
KNOWLES DRIVE
SANTA CLARA COUNTY UNINCORPORATED AREAS 060337
ZONE D BOUNDARY COINCIDENT WITH CORPORATE LIMITS
ZONE D
TOWN OF LOS GATOS 060343
ZONE AE
RAILROAD
ZONE X
HS5192
Culvert
PROFILE BASE LINE
SANTA CLARA COUNTY UNINCORPORATED AREAS 060337
LONGFELLOW AVENUE
SANTA CLARA COUNTY
TOWN OF LOS GATOS
WINCHESTER BOULEVARD
CHARTER OAKS DRIVE
3030000 FT
HS3694
Los Gatos Creek
OAK ROAD
ZONE X
ZONE AE
LARK AVENUE
UNIVERSITY AVENUE
ZONE X
CITY OF MONTE SERENO 060345
LAS ASTAS DRIVE
JOINS PANEL 0377
PANEL 0239H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 239 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0239H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency


ZONE A
CITY OF SAN JOSE
060349
CITY OF CAMPBELL
SANTA CLARA COUNTY
ZONE D
WOODARD ROAD
LONGFELLOW AVENUE
WHITE OAKS ROAD
SANTA CLARA COUNTY
CITY OF SAN JOSE
ZONE D
SANTA CLARA COUNTY
UNINCORPORATED
AREAS
060337
37°24'00"N
10
WHITE OAKS AVENUE
SANTA CLARA COUNTY
TOWN OF LOS GATOS
ZONE D
CITY OF SAN JOSE
060349
11
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 7 SOUTH, RANGE 1 WEST, TOWNSHIP 8 SOUTH, RANGE 1 WEST, THE RINCONADA DE LOS GATOS, AND THE QUITO LAND GRANTS
85
SAMARITAN DRIVE
SANTA CLARA COUNTY
UNINCORPORATED AREAS
060337
JOINS PANEL 0377
93°00'00"E
94°00'00"E
37°15'00"
121°56'15"
MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
NFIP
PANEL 0239H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 239 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS
COMMUNITY NUMBER PANEL SUFFIX
CAMPBELL, CITY OF 060330 0239 H
LOS GATOS, TOWN OF 060340 0239 H
MONTE SERENO, CITY OF 060346 0239 H
SAN JOSE, CITY OF 060349 0239 H
SANTA CLARA COUNTY 060337 0239 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0239H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
NATIONAL FLOOD INSURANCE PROGRAM
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MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
CAMDEN AVENUE
WOODARD ROAD
CITY OF SAN JOSE
SANTA CLARA COUNTY
LEIGH AVENUE
HS3263
SANTA CLARA COUNTY
UNINCORPORATED AREAS
060337
UNION AVENUE
CHARMERAN AVENUE
BARRETT AVENUE
CITY OF SAN JOSE
060349
ZONE D
ZONE D
3030000 FT
COLE DRIVE
11
12
SANTA CLARA COUNTY
UNINCORPORATED AREAS
060337
85
LEIGH AVENUE
37°15'00"
121°56'15"
595000m E
JOINS PANEL 0381
NFIP
PANEL 0243H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 243 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
CAMPBELL, CITY OF 060335 0243 H
SAN JOSE, CITY OF 060349 0243 H
SANTA CLARA COUNTY 060337 0243 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0243H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
NATIONAL FLOOD INSURANCE PROGRAM
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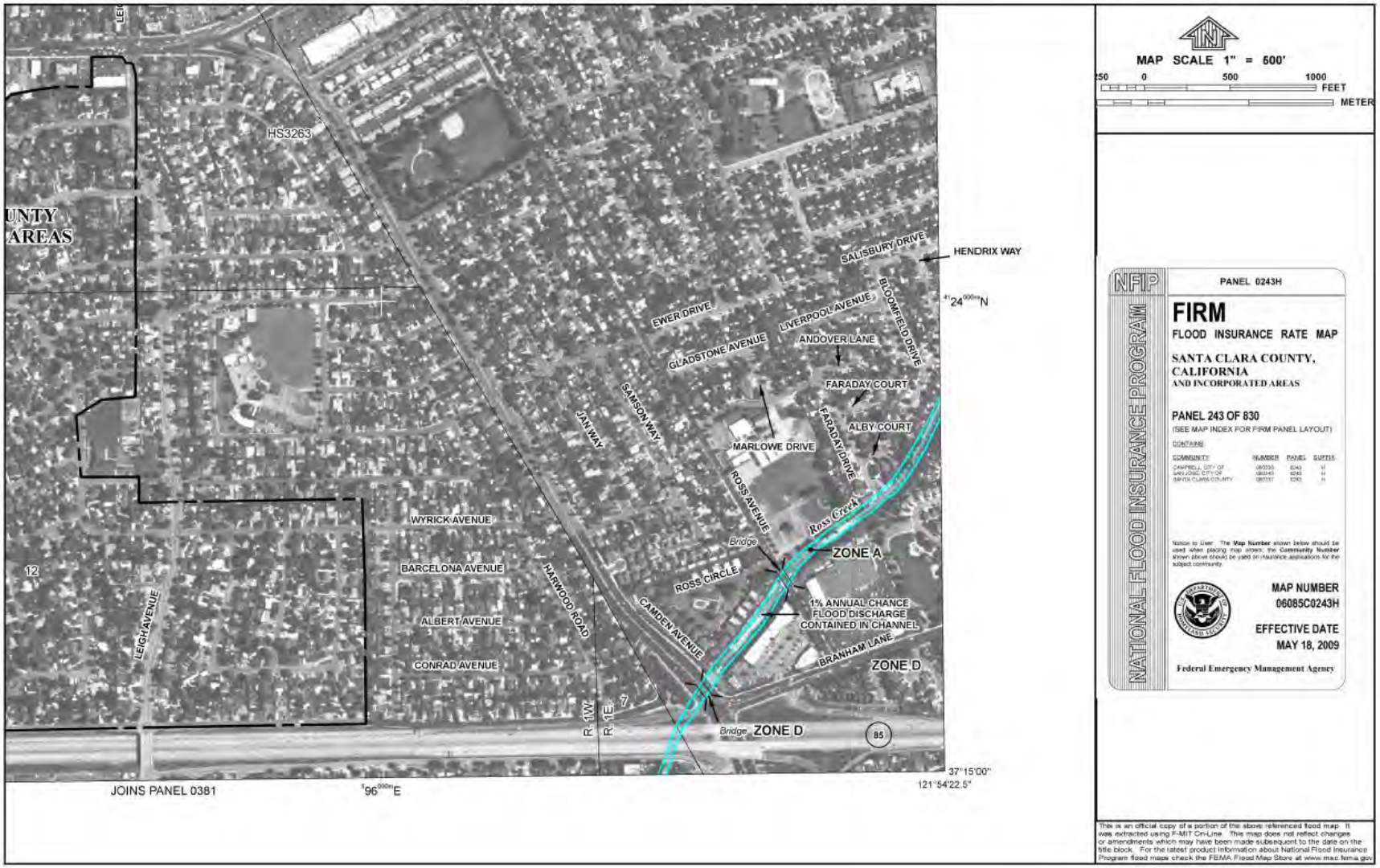
MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
HS3263
UNTY
AREAS
HENDRIX WAY
SALISBURY DRIVE
BLOOMFIELD DRIVE
LIVERPOOL AVENUE
EWER DRIVE
ANDOVER LANE
GLADSTONE AVENUE
FARADAY COURT
ALBY COURT
FARADAY DRIVE
SAMSON WAY
JAN WAY
MARLOWE DRIVE
ROSS AVENUE
Ross Creek
Bridge
ZONE A
WYRICK AVENUE
BARCELONA AVENUE
ROSS CIRCLE
1% ANNUAL CHANCE
FLOOD DISCHARGE
CONTAINED IN CHANNEL
ALBERT AVENUE
HARWOOD ROAD
CAMDEN AVENUE
BRANHAM LANE
CONRAD AVENUE
ZONE D
LEIGH AVENUE
R. 1W.
R. 1E.
Bridge
ZONE D
85
37°15'00"
121°54'22.5"
JOINS PANEL 0381
96000mE
24000mN
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0243H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 243 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
CAMPBELL, CITY OF 060339 0243 H
SAN JOSE, CITY OF 060349 0243 H
SANTA CLARA COUNTY 065151 0243 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0243H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
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ZONE A
ZONE D
(DEPTH 2)
MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
COLMERY DR
HALLCREST DRIVE
COURTYARD DR
SEARCY DRIVE
BOYSEA DRIVE
BRANHAM LA
SHAW
NOREEN DRIVE
SHONA COURT
PETULLA COURT
KIRK ROAD
SILVERCREST DRIVE
Ross Creek
CALLE DE STUARDA
CRESTHAVEN LANE
LONARDO AVENUE
SHREEN COURT
HALLBROOK DRIVE
CORTE DE TEBALDI
CORTE DE BOLEYN
CALLE DE AIDA
ILIKAI AVENUE
CALLE DE ARROYO
CALLE DE FARRAR
LAHAINA WAY
MILROY PLACE
SALISBURY DRIVE
KIRK COURT
Bridge
CORTE DE ANNA
CORTE DE PEARSON
CORTE DE MEDEA
CORTE DE PONS
CALLE DE TOSCA
TAMPICO WAY
CASA DE PONSELLE
SCOSSA AVENUE
SAINT REGIS DRIVE
SHERBOURNE DRIVE
HOLLOWGATE LANE
MONTROSE WAY
TAWNYGATE WAY
TUPOLO DRIVE
KLIPSPRINGER DRIVE
WYNDHAM DRIVE
3030000 FT
NOTE: MAP AREA SHOWN ON THIS PANEL IS
LOCATED WITHIN THE SAN JUAN BAUTISTA LAND GRANT
85
37°15'00"
121°54'22.5"
98000m E
JOINS PANEL 0382
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0244H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 244 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS
COMMUNITY NUMBER PANEL SUFFIX
SAN JOSE, CITY OF 060340 0244 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0244H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
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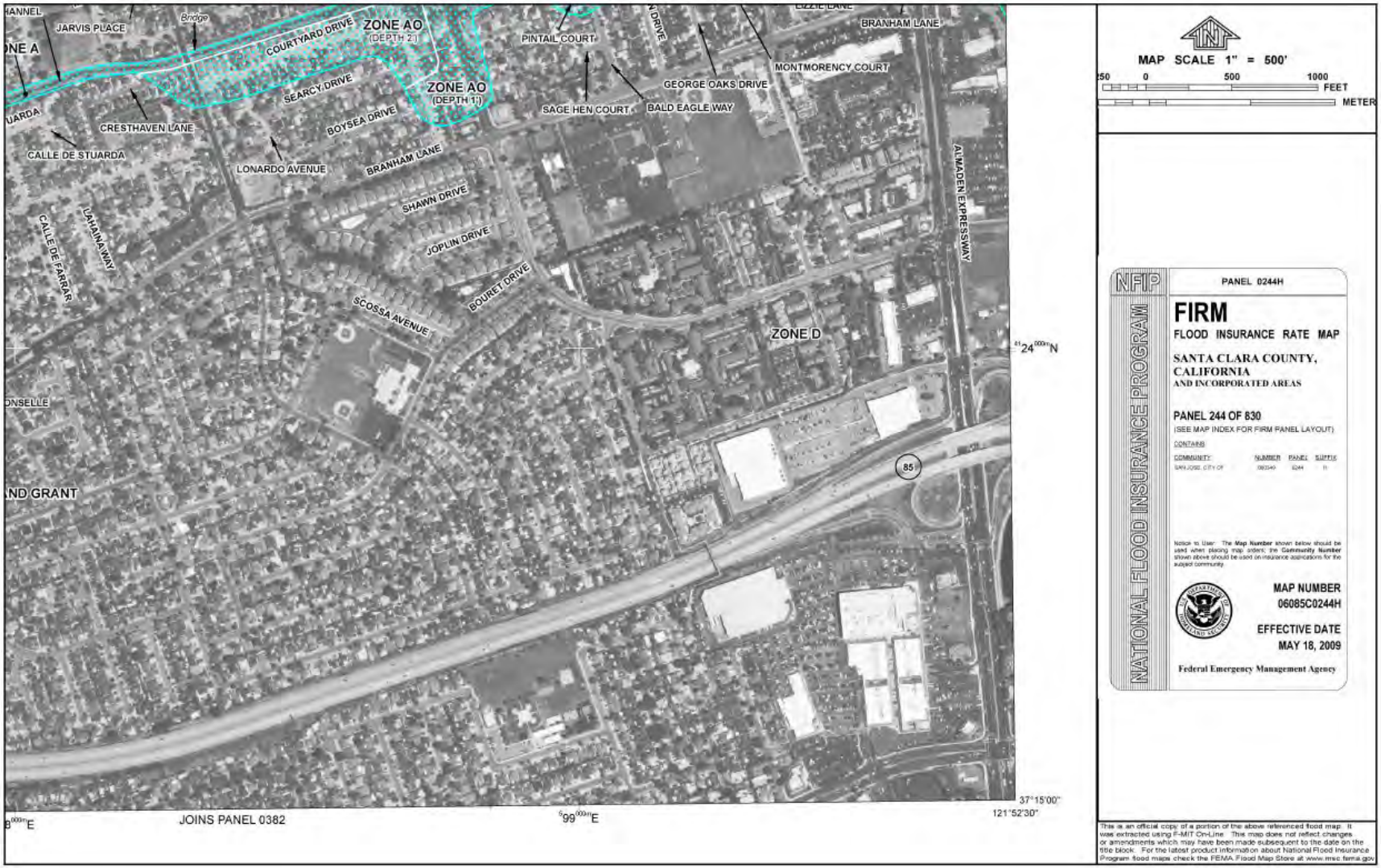
JARVIS PLACE
Bridge
COURTYARD DRIVE
ZONE AO
(DEPTH 2')
ZONE AO
(DEPTH 1')
SEARCY DRIVE
BOYSEA DRIVE
CRESTHAVEN LANE
CALLE DE STUARDA
LONARDO AVENUE
BRANHAM LANE
SHAWN DRIVE
JOPLIN DRIVE
BOURET DRIVE
SCOSSA AVENUE
CALLE DE FARRAR
LAHAINA WAY
PINTAIL COURT
SAGE HEN COURT
BALD EGLE WAY
GEORGE OAKS DRIVE
MONTMORENCY COURT
BRANHAM LANE
ALMADEN EXPRESSWAY
ZONE D
85
JOINS PANEL 0382
37°15'00"
121°52'30"
MAP SCALE 1" = 500'
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0244H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 244 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0244H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency

MAP SCALE 1" = 500'
FEET
METER
QUICKSILVER DR
CORRALES DRIVE
MINAS DRIVE
TONINO DRIVE
GUADALUPE RIVER
FELL AVENUE
EARL AVENUE
SAN JUAN BAUTISTA LAND GRANT
HATHAWAY
POTOMAC
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
CHYNOWETH AVENUE
3030000 FT
ZONE A
ZONE D
85
THORNWOOD DRIVE
WINFIELD BOULEVARD
BLOSSOM RIVER WAY
SANCHEZ DRIVE
SANTA TERESA BOULEVARD
BLOSSOM HILL ROAD
Levee
Bridge
37°15'00"
121°52'30"
JOINS PANEL 0401
NFIP
PANEL 0263H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 263 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS
COMMUNITY NUMBER PANEL SUFFIX
SAN JOSE, CITY OF 060340 0263 H
SANTA CLARA COUNTY 060337 0263 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0263H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
NATIONAL FLOOD INSURANCE PROGRAM
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SAN JUAN BAUTISTA LAND GRANT
DUNRAVEN COURT
HATHAWAY COURT
POTOMAC COURT
NEW WORLD DRIVE
MASSACHUSETTS DRIVE
COMPTON DRIVE
HYDE PARK DRIVE
CHURCHILL PARK DRIVE
BARRON PARK DRIVE
BIRMINGHAM DRIVE
Bridge
Canoas Creek
YERBA BUENA LAND GRANT
CHYNOWETH AVENUE
GAUNDABERT LANE
ZONE A
ZONE D
85
SANTA CLARA COUNTY
CITY OF SAN JOSE
SANTA TERESA BOULEVARD
JOINS PANEL 0401
37°15'00"
121°50'37.5"
MAP SCALE 1" = 500'
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0263H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 263 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0263H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency

MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
KEY TO NUMBERED STREETS
1 - COLONY FIELD DRIVE
2 - COLONY KNOLL DRIVE
3 - COLONY GREEN DRIVE
4 - COLONY PARK CIRCLE
5 - COLONY CREST CIRCLE
6 - DON CORRELLI COURT
7 - DON DIABLO COURT
8 - DON RODOLFO COURT
9 - DON CARRELLI WAY
CHYNOWETH AVENUE
AVENIDA MANZANOS
3030000 FT
ZONE A
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
DUESENBERG DRIVE
ENTRADA OLMOS
AVENIDA ALMENDROS
AVENIDA ARBOLES
AVENIDA ABETOS
DON JUAN CIRCLE
ENTRADA CEDROS
SNELL AVENUE
GIUFFRIDA AVENUE
CHESBRO AVENUE
Canoas Creek
ZONE D
VELASCO DRIVE
85
BLOSSOM HILL ROAD
HS2964
Bridge
ZONE A
37°15'00"
121°50'37.5"
°03'000mE
JOINS PANEL 0402
°04'000mE
NOTE: MAP AREA SHOW
WITHIN THE PUEBLO LA
AND YERBA BUENA LAN
ZONE
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0264H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 264 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
SAN JOSE, CITY OF 060349 0264 H
SANTA CLARA COUNTY 060337 0264 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0264H
EFFECTIVE DATE
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Federal Emergency Management Agency
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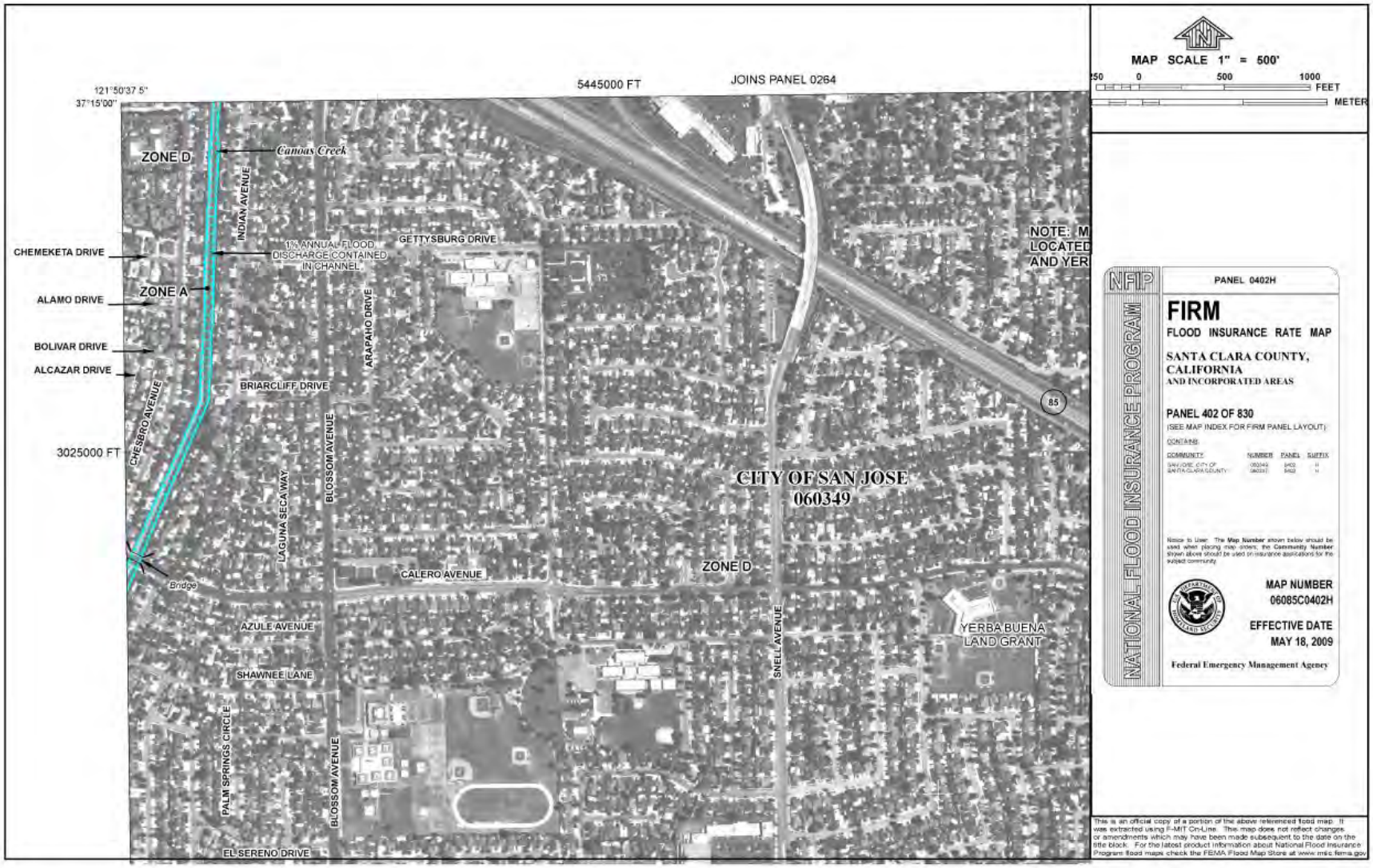
MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
121°50'37.5"
37°15'00"
5445000 FT
JOINS PANEL 0264
ZONE D
Canoas Creek
INDIAN AVENUE
CHEMEKETA DRIVE
1% ANNUAL FLOOD DISCHARGE CONTAINED IN CHANNEL
GETTYSBURG DRIVE
ZONE A
ALAMO DRIVE
BOLIVAR DRIVE
ALCAZAR DRIVE
ARAPAHO DRIVE
BRIARCLIFF DRIVE
CHESBRO AVENUE
3025000 FT
BLOSSOM AVENUE
LAGUNA SECA WAY
CITY OF SAN JOSE
060349
CALERO AVENUE
ZONE D
Bridge
AZULE AVENUE
SHAWNEE LANE
SNELL AVENUE
YERBA BUENA LAND GRANT
PALM SPRINGS CIRCLE
BLOSSOM AVENUE
EL SERENO DRIVE
85
NOTE: M
LOCATED
AND YER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0402H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 402 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
SAN JOSE, CITY OF 060349 0402 H
SANTA CLARA COUNTY 060337 0402 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0402H
EFFECTIVE DATE
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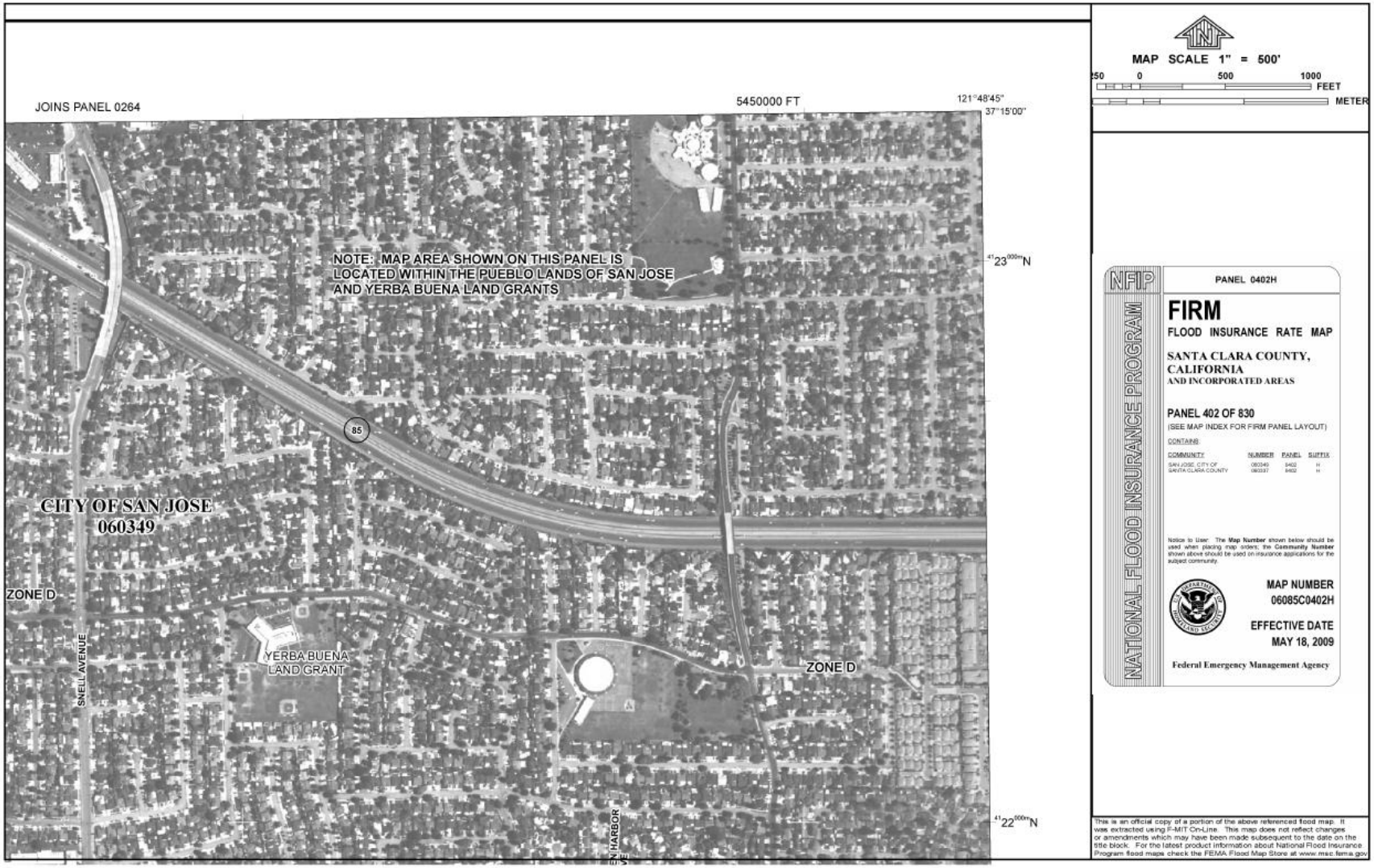
MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
JOINS PANEL 0264
5450000 FT
121°48'45"
37°15'00"
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN THE PUEBLO LANDS OF SAN JOSE AND YERBA BUENA LAND GRANTS
41°23'000"N
85
CITY OF SAN JOSE
060349
ZONE D
YERBA BUENA LAND GRANT
SNELL AVENUE
ZONE D
41°22'000"N
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0402H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 402 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
SAN JOSE, CITY OF 060349 0402 H
SANTA CLARA COUNTY 060337 0402 H
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Federal Emergency Management Agency
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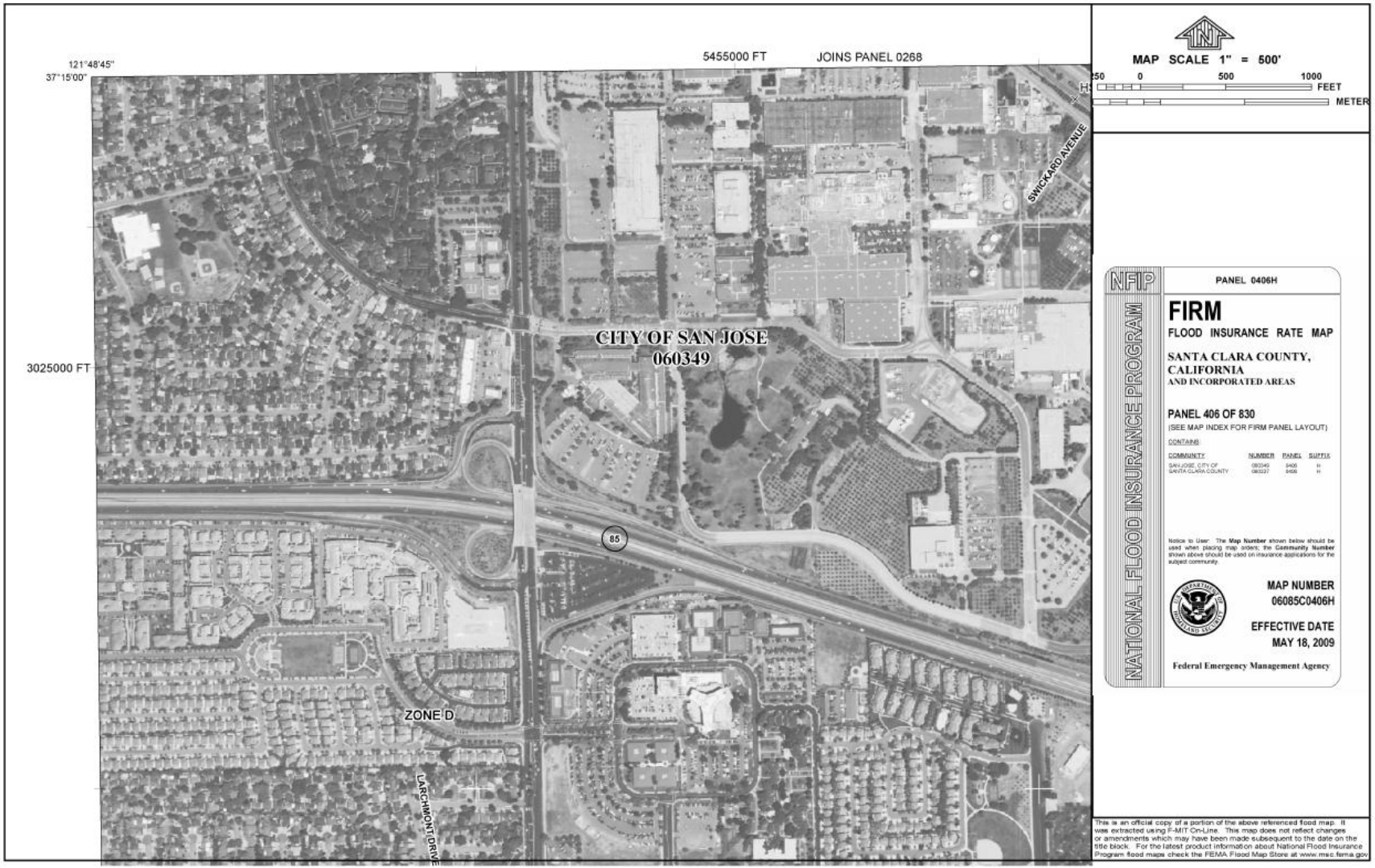
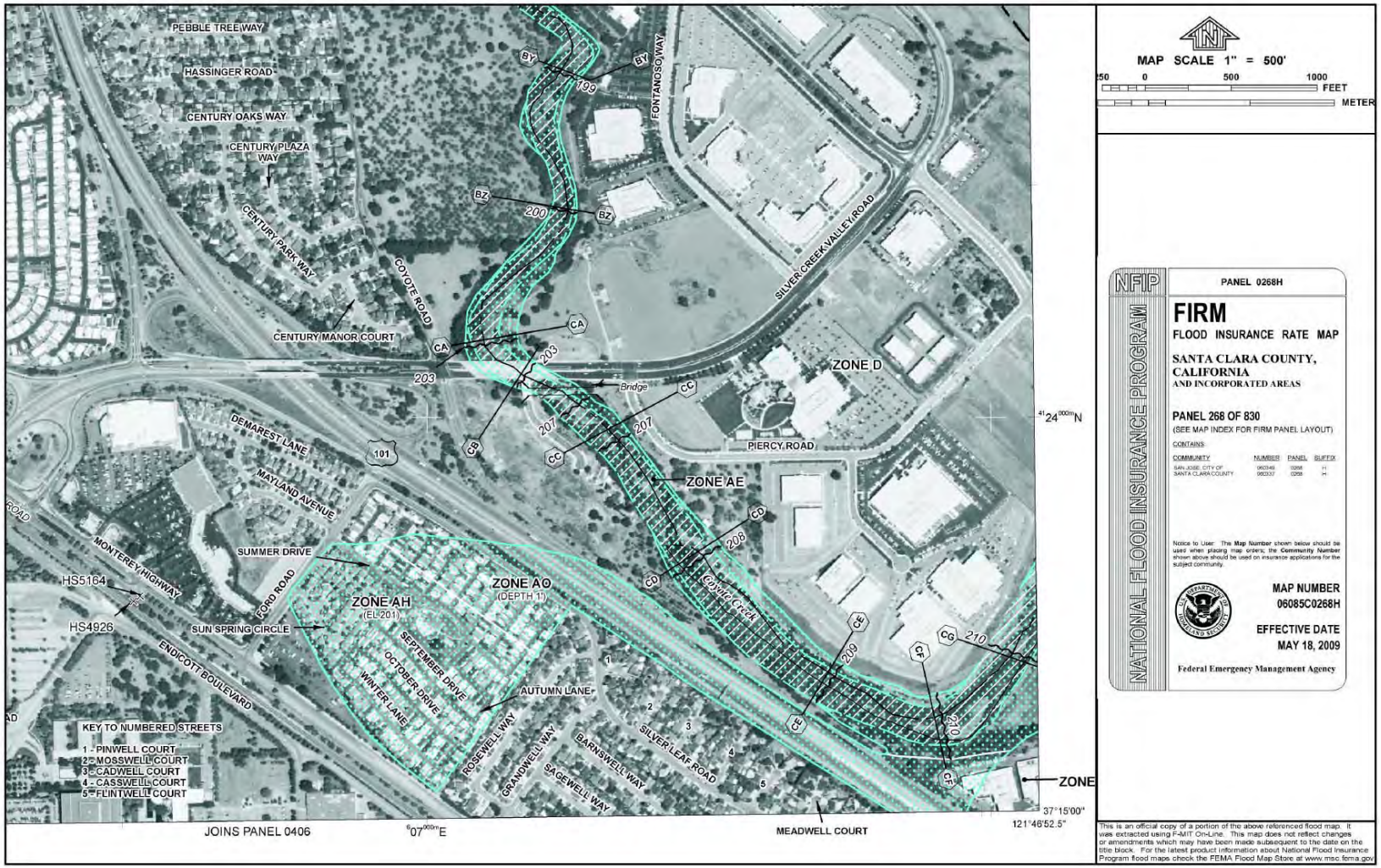

121°48'45"
37°15'00"
5455000 FT
JOINS PANEL 0268
3025000 FT
CITY OF SAN JOSE
060349
SWICKARD AVENUE
85
ZONE D
LARCHMONT DRIVE
MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
NFIP
PANEL 0406H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 406 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS
COMMUNITY NUMBER PANEL SUFFIX
SAN JOSE, CITY OF 060349 0406 H
SANTA CLARA COUNTY 060327 0406 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06085C0406H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency
NATIONAL FLOOD INSURANCE PROGRAM
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov


MAP SCALE 1" = 500'
FEET
METER
PEBBLE TREE WAY
HASSINGER ROAD
CENTURY OAKS WAY
CENTURY PLAZA WAY
CENTURY PARK WAY
COYOTE ROAD
CENTURY MANOR COURT
FONTANOSO WAY
SILVER CREEK VALLEY ROAD
ZONE D
PIERCY ROAD
ZONE AE
DEMAREST LANE
MAYLAND AVENUE
MONTEREY HIGHWAY
SUMMER DRIVE
FORD ROAD
SUN SPRING CIRCLE
ZONE AH
(EL 201)
ZONE AO
(DEPTH 1')
SEPTEMBER DRIVE
OCTOBER DRIVE
WINTER LANE
AUTUMN LANE
ENDICOTT BOULEVARD
HS5164
HS4926
KEY TO NUMBERED STREETS
1 - PINWELL COURT
2 - MOSSWELL COURT
3 - CADWELL COURT
4 - CASSWELL COURT
5 - FLINTWELL COURT
ROSEWELL WAY
GRANDWELL WAY
BARNSWELL WAY
SAGEWELL WAY
SILVER LEAF ROAD
MEADWELL COURT
ZONE
JOINS PANEL 0406
37°15'00"
121°46'52.5"
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0268H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 268 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0268H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency

FLOODING EFFECTS FROM COYOTE CREEK
ZONE AO
(DEPTH 1')
PARKWELL COURT
121°46'52.5"
37°15'00"
5455000 FT
JOINS PANEL 0268
HS2785
ROSEWELL COURT
SAGEWELL WAY
FLINTWELL WAY
SEAWELL COURT
DEARWELL WAY
RUE FERRARI
101
SWICKARD AVENUE
PERIMETER ROAD
SILVER LEAF ROAD
KNOLLWELL WAY
PALMWELL WAY
BRADWELL COURT
SOUTHVIEW COURT
MONTEREY HIGHWAY
RAILROAD
SOUTHPINE DRIVE
41°23'000"N
ZONE D
HS2784
ZONE D
85
41°22'000"N
MAP SCALE 1" = 500'
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0406H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 406 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0406H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency

121°46'52.5"
37°15'00"
Bridge
JENNY COURT
5465000 FT
JOINS PANEL 0269
CIMITY COURT
SIRICA COURT
ALYSSA DRIVE
EDEN PARK PLACE
SCHOOLHOUSE ROAD
ASHTON OAKS WAY
BRANDERMILL COURT
PROMENADE LANE
RUE FERRARI
SILICON VALLEY BOULEVARD
3025000 FT
CITY OF SAN JOSE
060349
ZONE AE
ZONE D
VERANDA WAY
KNOLLCREST AVENUE
CHELSEA CROF
BASKING RIDGE AVENUE
BIRKHAVEN PLACE
RAILROAD
MONTEREY HIGHWAY
MONTEREY CIRCLE
CYPRESS LANE
BIRCH WAY
REDWOOD DRIVE
MIMOSA WAY
OAK DRIVE
ACACIA LANE
GREGORICH DR
Coyote Creek
DANNA
HS5165
MAP SCALE 1" = 500'
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0407H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 407 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
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EFFECTIVE DATE
MAY 18, 2009
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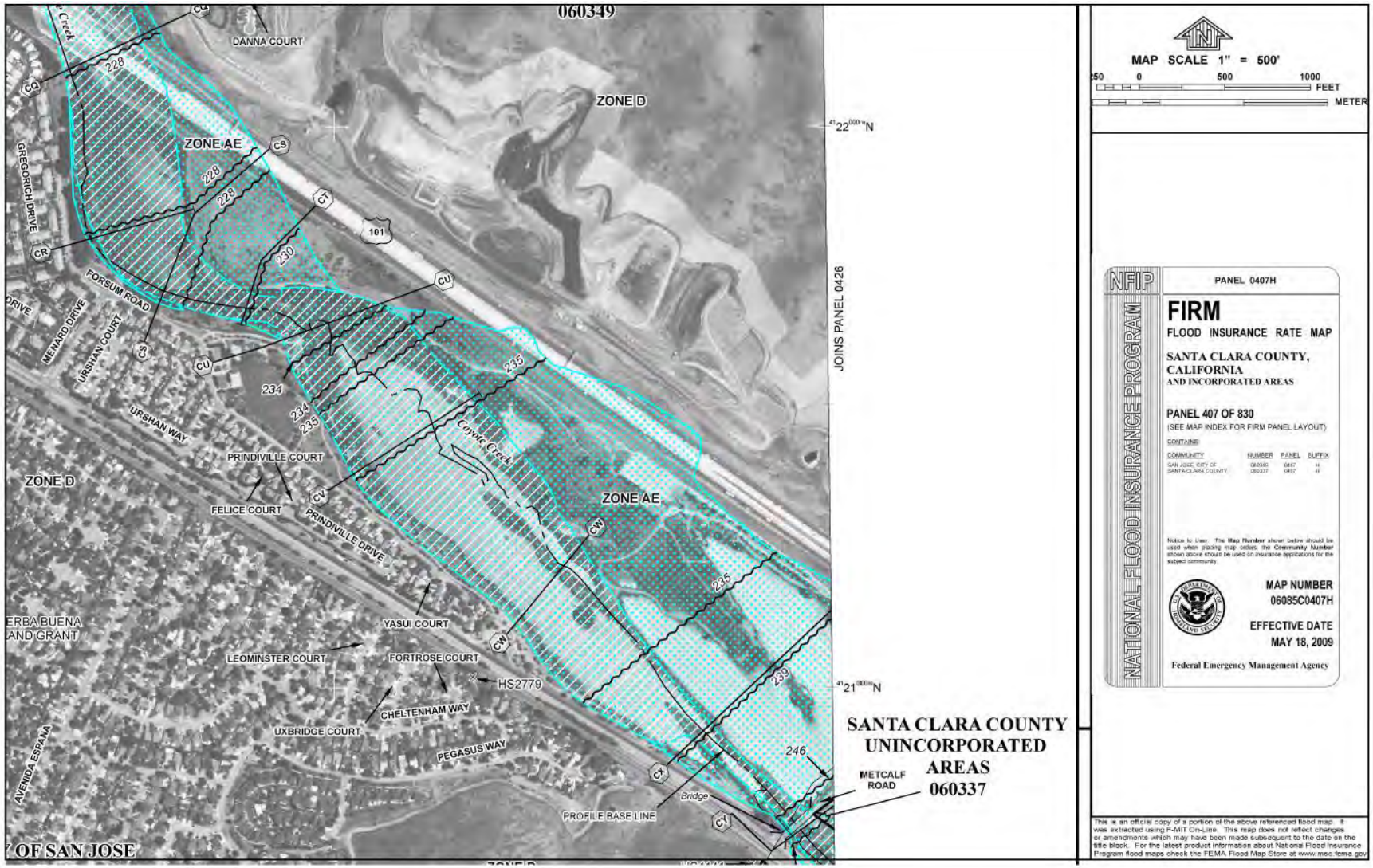
060349
DANNA COURT
ZONE D
ZONE AE
GREGORICH DRIVE
FORSUM ROAD
MENARD DRIVE
URSHAN COURT
URSHAN WAY
PRINDIVILLE COURT
FELICE COURT
PRINDIVILLE DRIVE
Coyote Creek
YASUI COURT
LEOMINSTER COURT
FORTROSE COURT
HS2779
CHELTENHAM WAY
UXBRIDGE COURT
PEGASUS WAY
AVENIDA ESPANA
PROFILE BASE LINE
Bridge
METCALF ROAD
JOINS PANEL 0426
SANTA CLARA COUNTY
UNINCORPORATED
AREAS
060337
OF SAN JOSE
MAP SCALE 1" = 500'
FEET
METER
NFIP
PANEL 0407H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 407 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0407H
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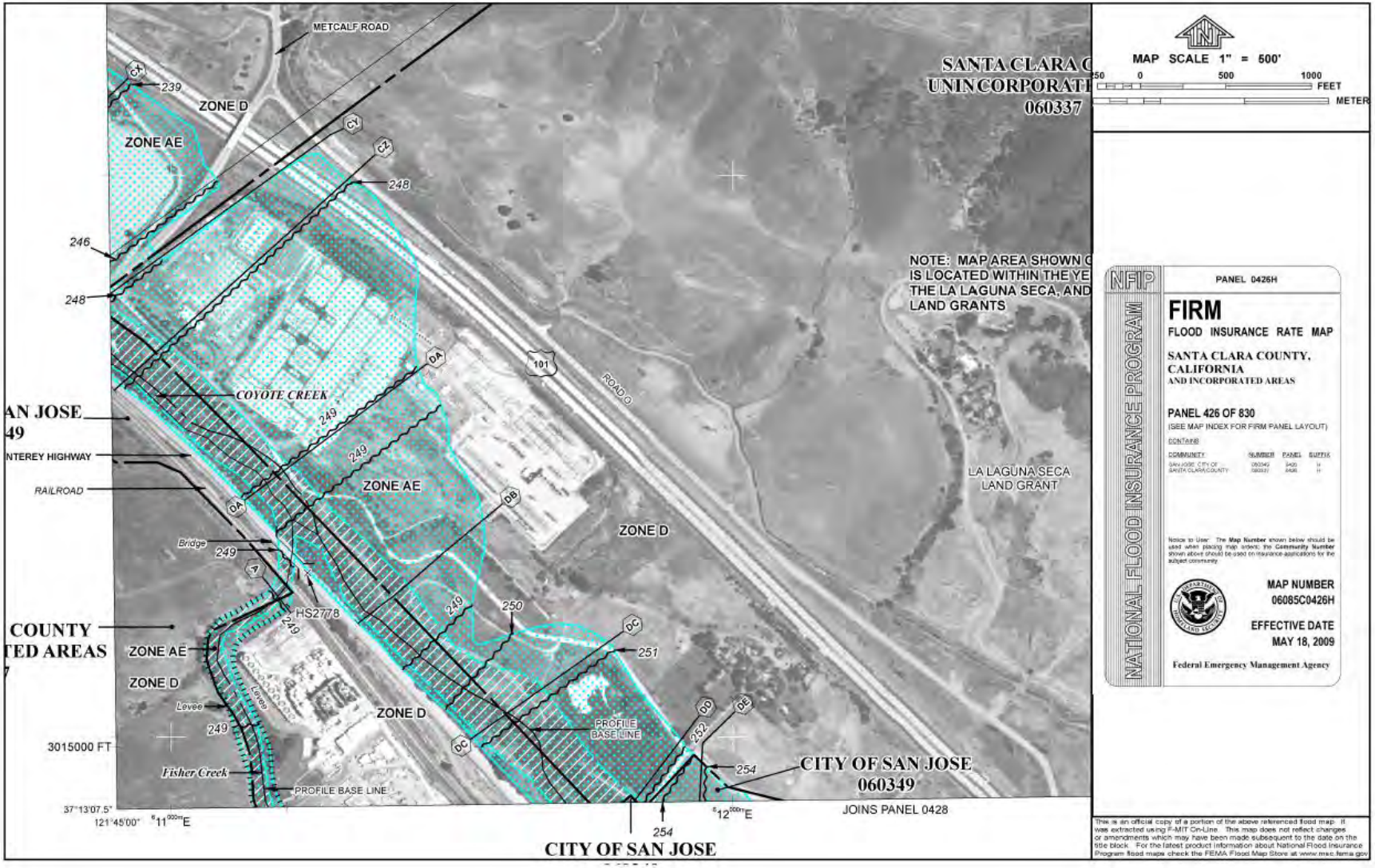
MAY 18, 2009
Federal Emergency Management Agency


METCALF ROAD
ZONE D
ZONE AE
239
248
246
COYOTE CREEK
249
ZONE AE
101
ROAD O
LA LAGUNA SECA LAND GRANT
ZONE D
Bridge
HS2778
250
251
252
254
PROFILE BASE LINE
Levee
Fisher Creek
3015000 FT
37°13'07.5"
121°45'00"
CITY OF SAN JOSE
060349
JOINS PANEL 0428
CITY OF SAN JOSE
NOTE: MAP AREA SHOWN O
IS LOCATED WITHIN THE YE
THE LA LAGUNA SECA, AND
LAND GRANTS
MAP SCALE 1" = 500'
FEET
METER
PANEL 0426H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 426 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER
06085C0426H
EFFECTIVE DATE
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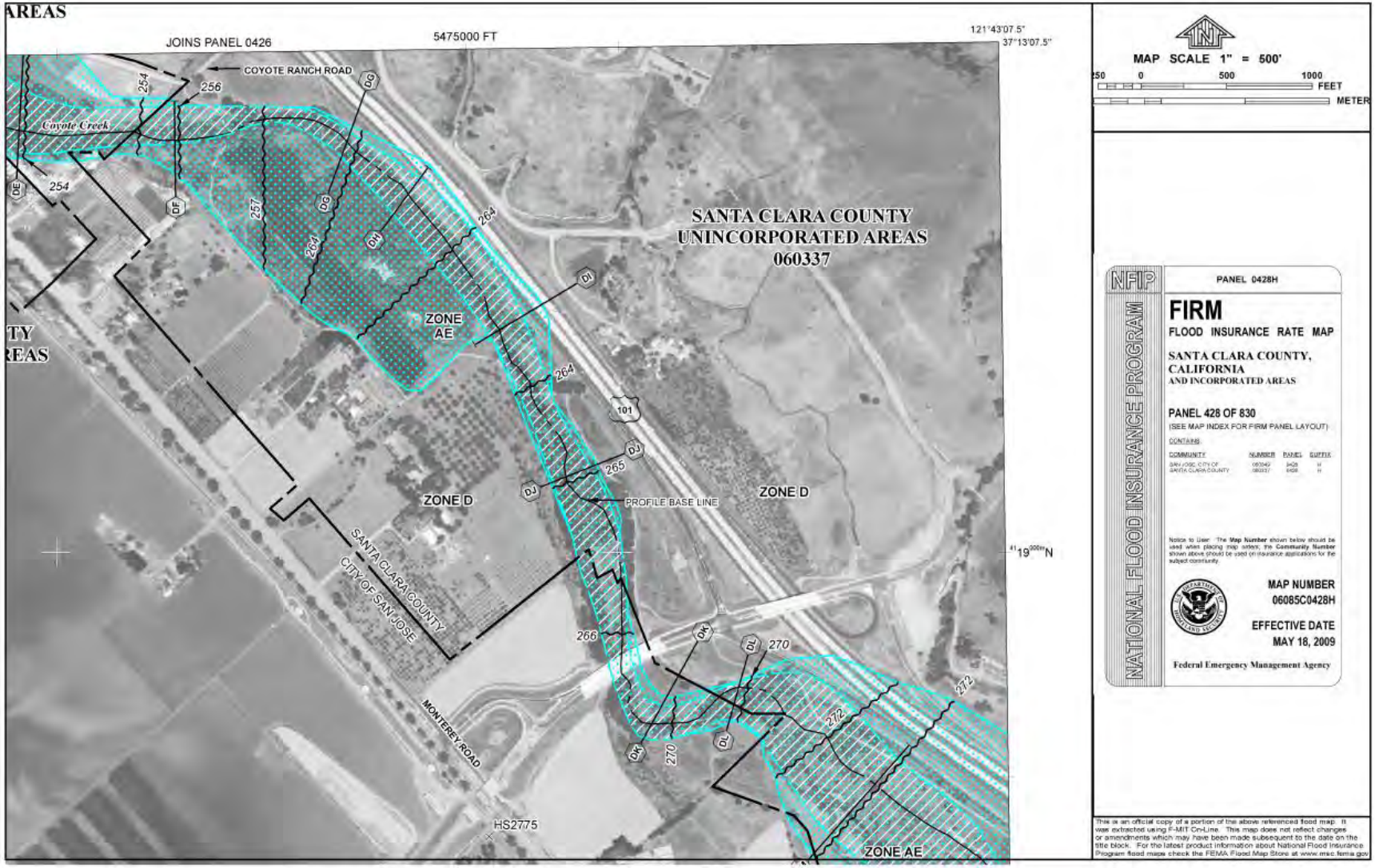
AREAS
JOINS PANEL 0426
5475000 FT
121°43'07.5"
37°13'07.5"
COYOTE RANCH ROAD
Coyote Creek
SANTA CLARA COUNTY
UNINCORPORATED AREAS
060337
ZONE AE
ZONE D
PROFILE BASE LINE
SANTA CLARA COUNTY
CITY OF SAN JOSE
MONTEREY ROAD
HS2775
ZONE AE
MAP SCALE 1" = 500'
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0428H
FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 428 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
MAP NUMBER
06085C0428H
EFFECTIVE DATE
MAY 18, 2009
Federal Emergency Management Agency