

PHYSICAL ENVIRONMENT

3.9 Hydrology and Floodplains

The information in this section is based on the following technical reports:

- *Floodplain Evaluation Report* (LSA Associates, Inc., 2008)
- *Location Hydraulic Study, Mid County Parkway Project, San Jacinto North Segment* (CH2M Hill, 2007)
- *Location Hydraulic Study, Mid County Parkway Project, San Jacinto South Segment* (CH2M Hill, 2007)
- *Location Hydraulic Study, Mid County Parkway Project, Perris Valley Storm Drain Bridge* (CH2M Hill, 2007)
- *Location Hydraulic Study, Mid County Parkway Project, San Jacinto Bridge at Lakeview* (CH2M Hill, 2007)
- *Drainage Report for Mid County Parkway from I-15 to I-215* (RBF Consulting, 2008)

3.9.1 Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

3.9.2 Affected Environment

3.9.2.1 Watershed Description

The MCP project area is located in Riverside County within the Santa Ana River Watershed and the San Jacinto Valley Watershed (Figure 3.9.1). The San Jacinto River is considered a tributary of the Santa Ana River, although it usually terminates at Lake Elsinore. However, during high rainfall years, Lake Elsinore overflows into Temescal Creek and then into the Santa Ana River.¹ The United States Environmental Protection Agency (EPA) considers both watersheds to be separate, but for some regulatory purposes (such as National Pollution Discharge Elimination System [NPDES] permits, Drainage Area Management Plans, etc.), the San Jacinto River Watershed is considered a sub-watershed of the Santa Ana River Watershed. The San Jacinto River and Santa Ana River Watersheds are treated as separate watersheds in this EIR/EIS. The Santa Ana River Watershed is approximately 7,252 square kilometers (sq km) (approximately 2,800 square miles [sq mi]) (including the San Jacinto Valley Watershed) and extends approximately 154 kilometers (km) (96 miles [mi]) from its headwaters to where it drains into the Pacific Ocean.²

The primary receiving water for surface water and runoff within the western portion of the MCP study area is Temescal Wash, which flows to the Santa Ana River (Reach 3) and, ultimately, the Pacific Ocean. Surface water and runoff from the central portion of the MCP study area drains to Cajalco Creek and Lake Mathews. Surface water and runoff from the eastern portion of the MCP project area drains to the San Jacinto River, which discharges into Canyon Lake and, ultimately, into Lake Elsinore.

3.9.2.2 Floodplain Description

The Federal Emergency Management Agency (FEMA) has prepared Flood Insurance Rate Maps (FIRMs) that delineate flood zones based on estimated flood risk. Zone A is the FEMA designation for areas of 100-year flood where base flood elevations and flood hazard factors have not been determined. Zone A1-A30 is the designation for areas of the 100-year flood in which base flood elevations and flood hazard factors

¹ United States Geological Survey (USGS), 2006, National Water Quality Assessment Program—Santa Ana Basin, ca.water.usgs.gov/sana_nawqa/env_set.html.

² Santa Ana Watershed Project Authority (SAWPA), www.sawpa.org.

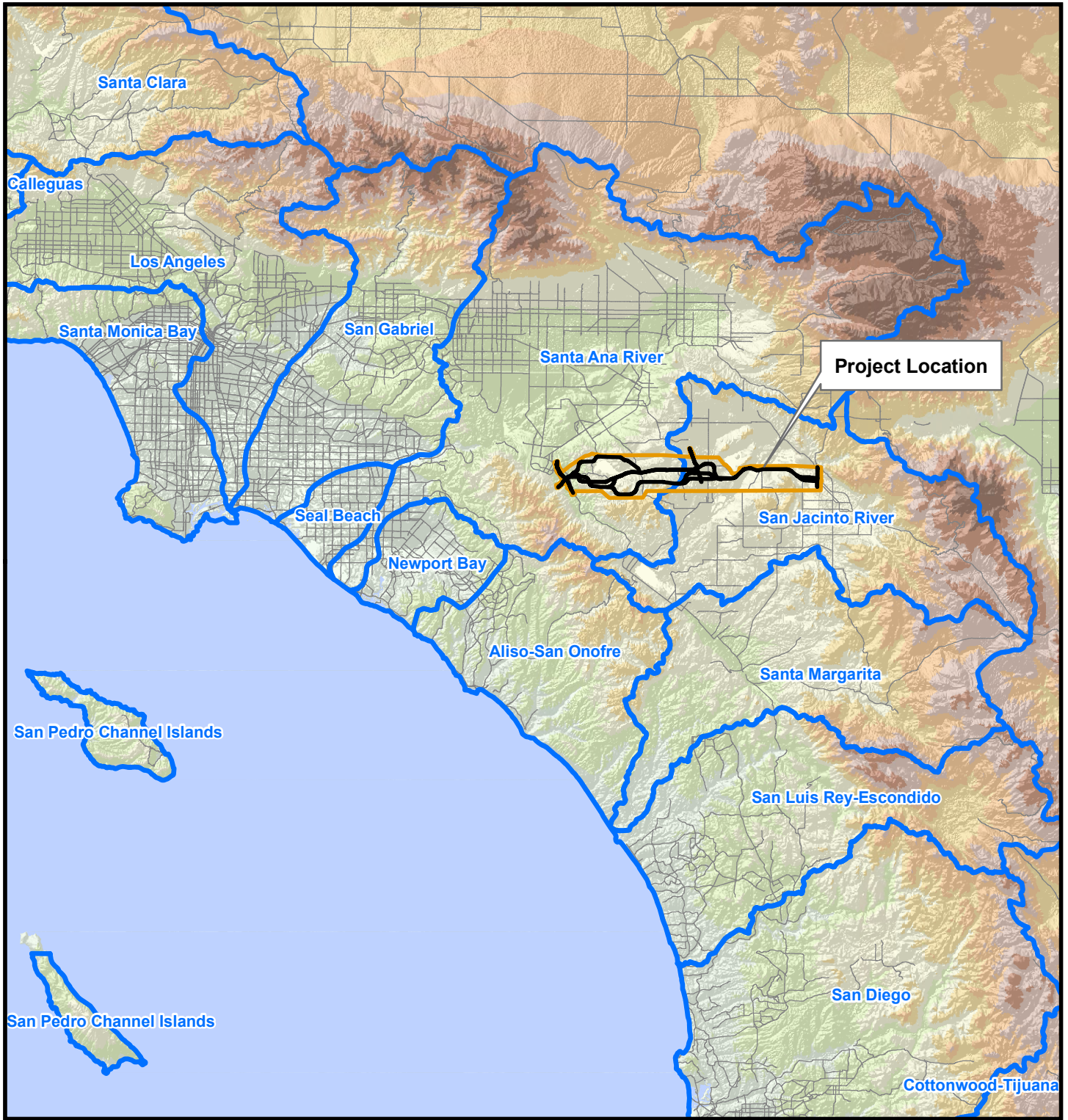
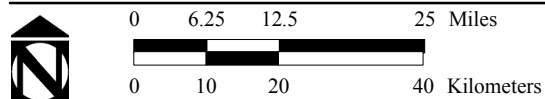


Figure 3.9.1

Legend

- Watershed
- Mid County Parkway Alignments
- MCP Study Area

SOURCE: California Resource Agency (1999), ESRI (2004), Jacobs Engineering (02/2007).



Watershed Boundaries

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have been determined. Zone X is the designation for areas determined to be outside the 500-year floodplain.

The following floodplains shown on the current FIRMs could be impacted by the MCP project. Applicable Letter of Map Revision are also included in the discussion. The floodplain discussion proceeds north to south and west to east. All relevant FIRMs are provided in Appendix M of this EIR/EIS. Figures 3.9.2a and 3.9.2b present an overview of the 100-year, FEMA-mapped floodplains within the MCP study area.

Temescal Wash

The Temescal Wash floodplain is a mapped Zone A1 floodplain, and includes the Temescal Wash, El Cerrito Road, and Bedford Canyon Wash floodplains. Temescal Wash flows northward on the east side of Interstate 15 (I-15). The Temescal Wash floodplain at Cajalco Road is approximately 520 meters (m) (1,705 feet [ft]) wide. The existing Cajalco Road Bridge across the wash is approximately 55.5 m (172 ft) long and 9.1 m (30 ft) wide. The bridge is supported by four pier walls without debris noses.¹ This bridge is a substantial constriction in the Temescal Wash floodplain and causes the water surface to rise approximately 1.2 m (4 ft) across the width of the bridge.

Bedford Canyon Wash

A tributary to Temescal Wash, Bedford Canyon Wash is a mapped Zone A floodplain from the east side of Interstate 15 (I-15) to its confluence with Temescal Wash. Flood elevation for this area is defined on the FIRM as “flooding between 0.3 m and 0.9 m (1 and 3 ft) by approximate methods.” No official Base Flood Elevation has been established for Bedford Canyon Wash.

Cajalco Creek

Cajalco Creek is within a mapped Zone A floodplain. From its headwaters in the northeast portion of the Estelle Mountains, Cajalco Creek flows westerly through the Mead Valley and into Lake Mathews. Recent improvements at Cajalco Road and El Sobrante Road include a dam and detention basin. Because of these improvements, a Letter of Map Revision has been issued that amends the floodplain to the north side

¹ A debris nose is a stand-alone wall located next to the pier wall on the upstream side that prevents loose rocks or other large debris carried by the current from directly hitting and damaging the pier wall.

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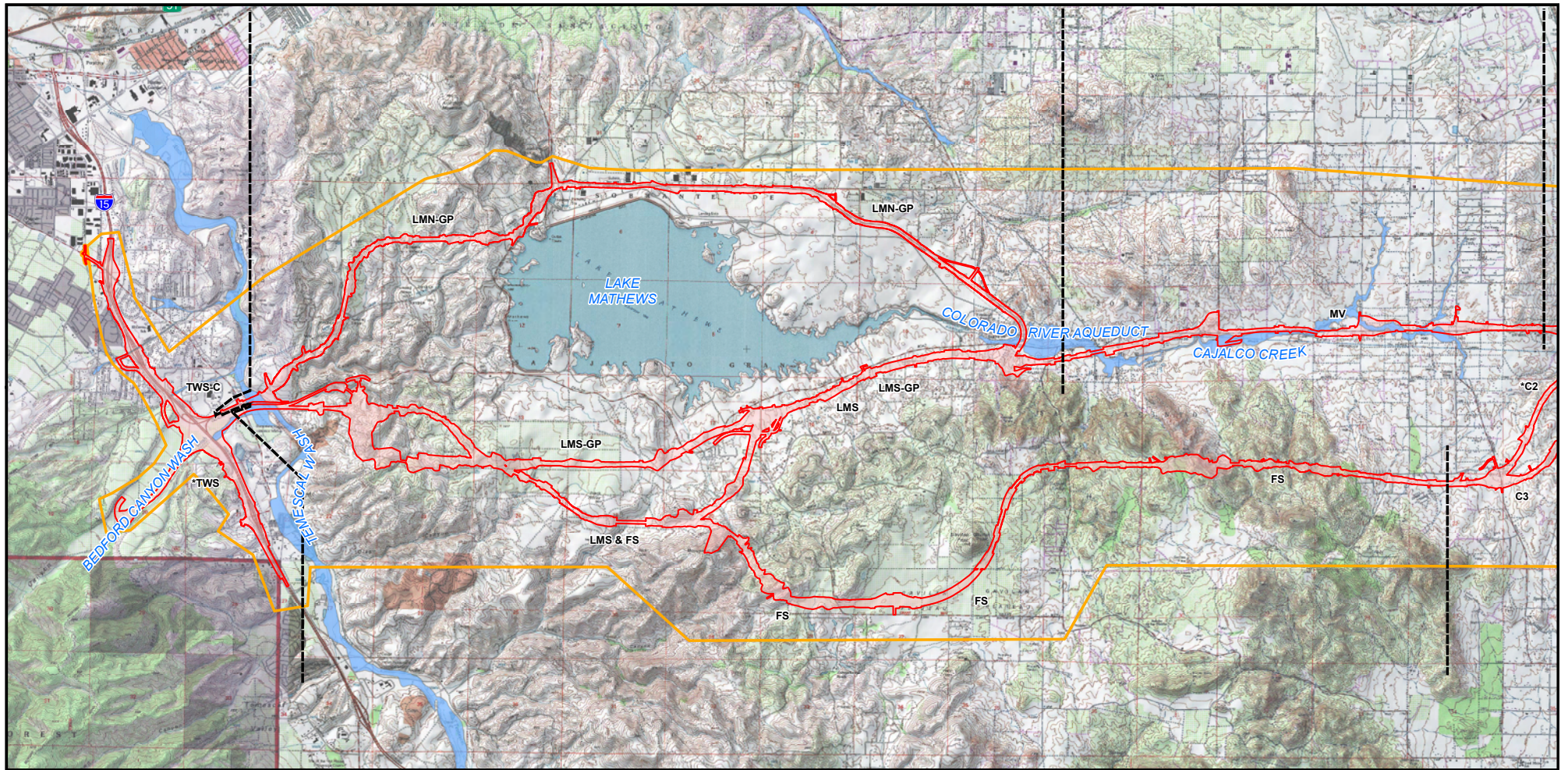
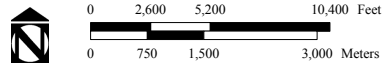


Figure 3.9.2a

- Legend
- Segments (* denotes Design Variation segment)
 - Right-of-Way (All Alternatives)
 - Study Area
 - Special Flood Hazard Areas (100-Year Floodplain)

SOURCE: USGS, Jacobs Engineering (02/2007), FEMA Q3 Flood Data (1995), FEMA Flood Insurance Rate Map (1980, revised 1996)



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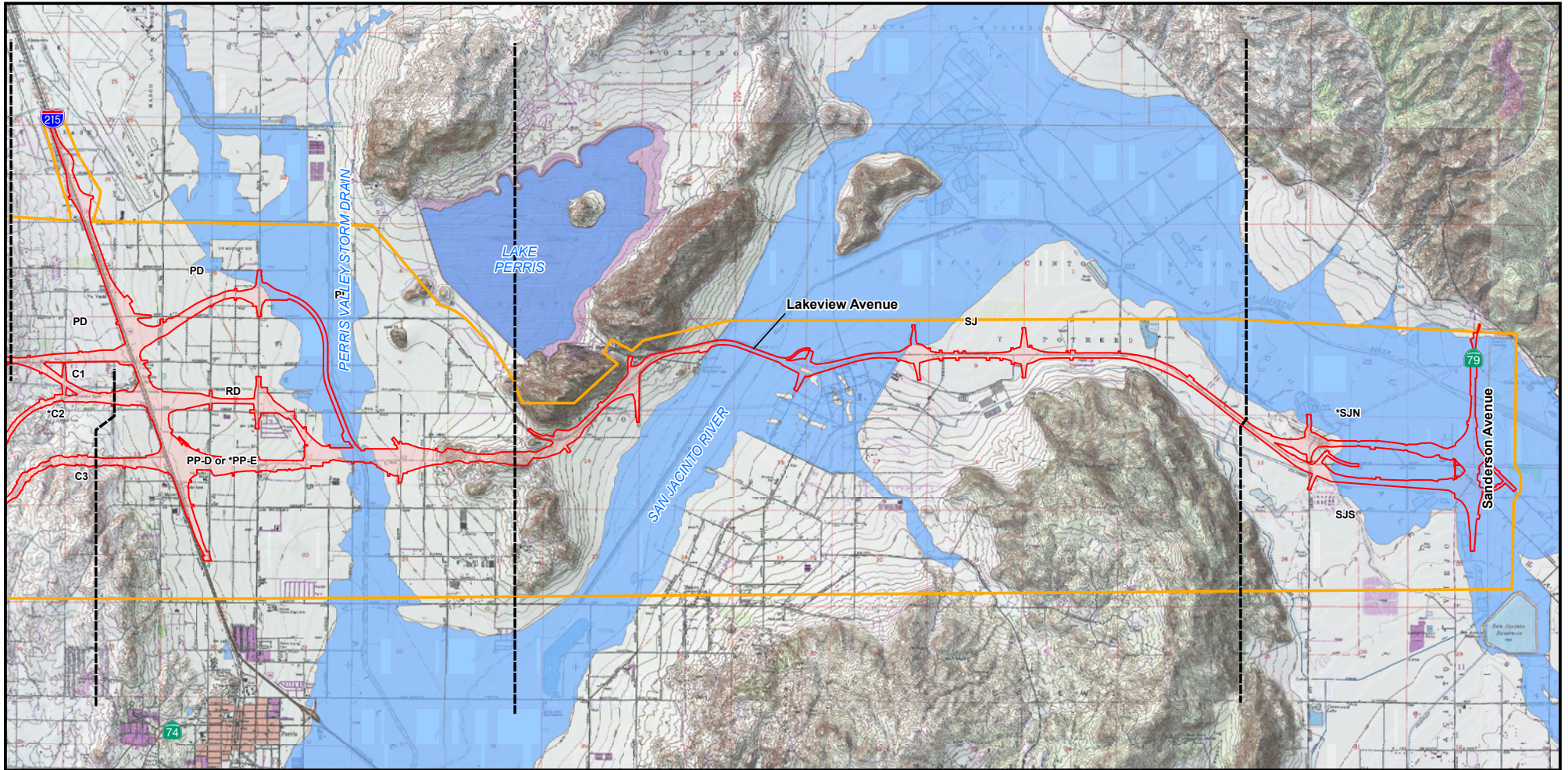
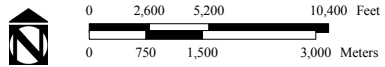


Figure 3.9.2b

- Legend
- Segments (* denotes Design Variation segment)
 - Right-of-Way (All Alternatives)
 - Study Area
 - Special Flood Hazard Areas (100-Year Floodplain)

SOURCE: USGS, Jacobs Engineering (02/2007), FEMA Q3 Flood Data (1995), FEMA Flood Insurance Rate Map (1980, revised 1996)



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of Cajalco Road at El Sobrante Road. From approximately 185 m (605 ft) west of to 95 m (310 ft) east of Harley John Road, the Cajalco Creek floodplain straddles Cajalco Road. Cajalco Road and Cajalco Creek diverge east of Harley John Road. Approximately 1.75 km (1.1 mi) farther east, the creek and road converge again. At Wood Road, and easterly for 1.5 km (0.94 mi), the creek lies on the south side of the road, adjacent to the toe of the existing slope. The creek crosses to the north side of Cajalco Road just west of Barton Road. The floodplain is approximately 265 m (870 ft) wide at this point. Roughly 170 m (560 ft) east of Alexander Street, Cajalco Creek returns to flow against the north side of Cajalco Road. At Brown Street, the floodplain crosses to the south side of Cajalco Road and then lies on both sides of the road to a point 200 m (660 ft) east of Clark Street.

Perris Valley Storm Drain

The Perris Valley Storm Drain is within a mapped Zone A1 floodplain. The Perris Valley Storm Drain collects runoff from the City of Moreno Valley, the City of Perris, and unincorporated Riverside County, and then drains into the San Jacinto River. The total tributary drainage area served by the Perris Valley Storm Drain is approximately 220 sq km (85 sq mi). Topographical relief ranges from steep foothill terrain to mild sloping valley terrain.

San Jacinto River

The San Jacinto River is within a mapped Zone X floodplain. The San Jacinto River originates approximately 48.7 km (20.4 mi) east-southeast of the MCP study area in the San Jacinto Mountains and flows through the area from the east. The section of the San Jacinto River floodplain that parallels the MCP study area has a natural curving watercourse that supports a moderate amount of low-lying vegetation, including native grasses, shrubs, and trees along the low-flow channel. The San Jacinto River floodplain is approximately 1,500 m (approximately 4,921 ft) wide and flat and is dominated by low brush grasses and farmland.

3.9.2.3 Beneficial Uses

Floodplains and wetlands in their natural or relatively undisturbed state serve water resource values (e.g., natural moderation of floods, water quality maintenance, groundwater recharge), living resource values (e.g., fish, wildlife, plant species), and cultural resource values (e.g., open space, archaeological, historical natural beauty, scientific study, outdoor education, recreation). Beneficial uses for surface waters are defined in the Santa Ana River Basin Water Quality Control Plan as various ways that water can be used for the benefit of people and/or wildlife. Examples of beneficial

uses include municipal and domestic water supply (MUN); agricultural water supply (AGR); industrial service supplies (IND); industrial process supply (PROC); groundwater recharge (GWR); water contact recreation (REC1); non-contact water recreation (REC2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); rare, threatened, or endangered species habitat (RARE); and spawning habitat (SPWN). Table 3.10.A, presented later in Section 3.10, Water Quality and Storm Water Runoff, lists the beneficial uses of surface waters within the MCP study area that may be affected by the MCP project.

3.9.3 Environmental Consequences

3.9.3.1 Permanent Impacts

Build Alternatives

Floodplain Encroachment

A transverse encroachment would result from construction, or placement of fill, in the base floodplain perpendicular to the direction of flow. Impacts associated with a transverse encroachment would include bridge piers, abutments, and flood control improvements constructed within the base floodplain. A longitudinal encroachment would result from a bridge, levee, or road constructed parallel to the existing floodplain. A longitudinal encroachment may require realignment or channelization of an existing creek, thereby affecting more of the floodplain area than a transverse encroachment. Transverse and longitudinal encroachments of the floodplain are discussed below, by segment first, and then summarized by alternative alignment. If more than one encroachment would occur within a segment, each encroachment is discussed separately. Segments differentiated by a design variation are discussed together if the design variation does not substantially change the impact to the floodplain.

Table 3.9.A summarizes the floodplain encroachment by segment for each MCP Build Alternative. These encroachments are discussed in detail below. However, the base floodplain within the following segments would not be affected by any of the MCP Build Alternatives and therefore would not create any impacts related to floodplains. Consequently, they are not discussed further in this section.

- Far South (FS) Segment
- Connector Perris 1 (C1), Connector Perris 2 (C2), and Connector Perris 3 (C3) Segments
- Rider Street (RD) Segment

Table 3.9.A Summary of Proposed Transverse and Longitudinal Floodplain Encroachments by Segment and Build Alternative

Alternative Number	Alternative Name	MCP Segments																
		TWS-C	TWS	LMS	LMN-GP	LMS-GP	MV	FS	C1	C2	C3	PD	RD	PP-D	PP-E	SJ	SJN	SJS
4	South of Lake Mathews/ North Perris (Drain)	TE	TE	NE	N/A	N/A	LE	N/A	N/A	N/A	N/A	TE	N/A	N/A	N/A	TE	LE	LE
5	South of Lake Mathews/ South Perris (at Rider Street)	TE	TE	NE	N/A	N/A	LE	N/A	NE	N/A	N/A	N/A	NE	N/A	N/A	TE	LE	LE
6	General Plan North and South of Lake Mathews/ North Perris (Drain)	TE	TE	N/A	TE	TE	LE	N/A	N/A	N/A	N/A	TE	N/A	N/A	N/A	TE	LE	LE
7	General Plan North and South of Lake Mathews/ South Perris (at Rider Street)	TE	TE	N/A	TE	TE	LE	N/A	NE	N/A	N/A	N/A	NE	N/A	N/A	TE	LE	LE
9	Far South/ Placentia Avenue	TE	TE	N/A	N/A	N/A	N/A	NE	N/A	NE	NE	N/A	NE	TE	TE	TE	LE	LE

Source: Jacobs, June 2006.

MCP Segment Abbreviations:

C1 = Connector Perris 1

C2 = Connector Perris 2 (Design Variation)

C3 = Connector Perris 3

FS = Far South

LMN-GP = Lake Mathews North General Plan

LMS = Lake Mathews South Segment

LMS-GP = Lake Mathews South General Plan

MV = Mead Valley

PD = Perris Drain

PP-D = Placentia Avenue/Perris Boulevard Depressed

PP-E = Placentia Avenue/Perris Boulevard Elevated Grade (Design Variation)

RD = Rider Street

SJ = San Jacinto

SJN = San Jacinto North

SJS = San Jacinto South

TWS = Temescal Wash Area (Design Variation)

TWS-C = Temescal Wash Area with Collector-Distributor Roads

Key:

LE = Longitudinal Encroachment

NE = No Encroachment

TE = Transverse Encroachment

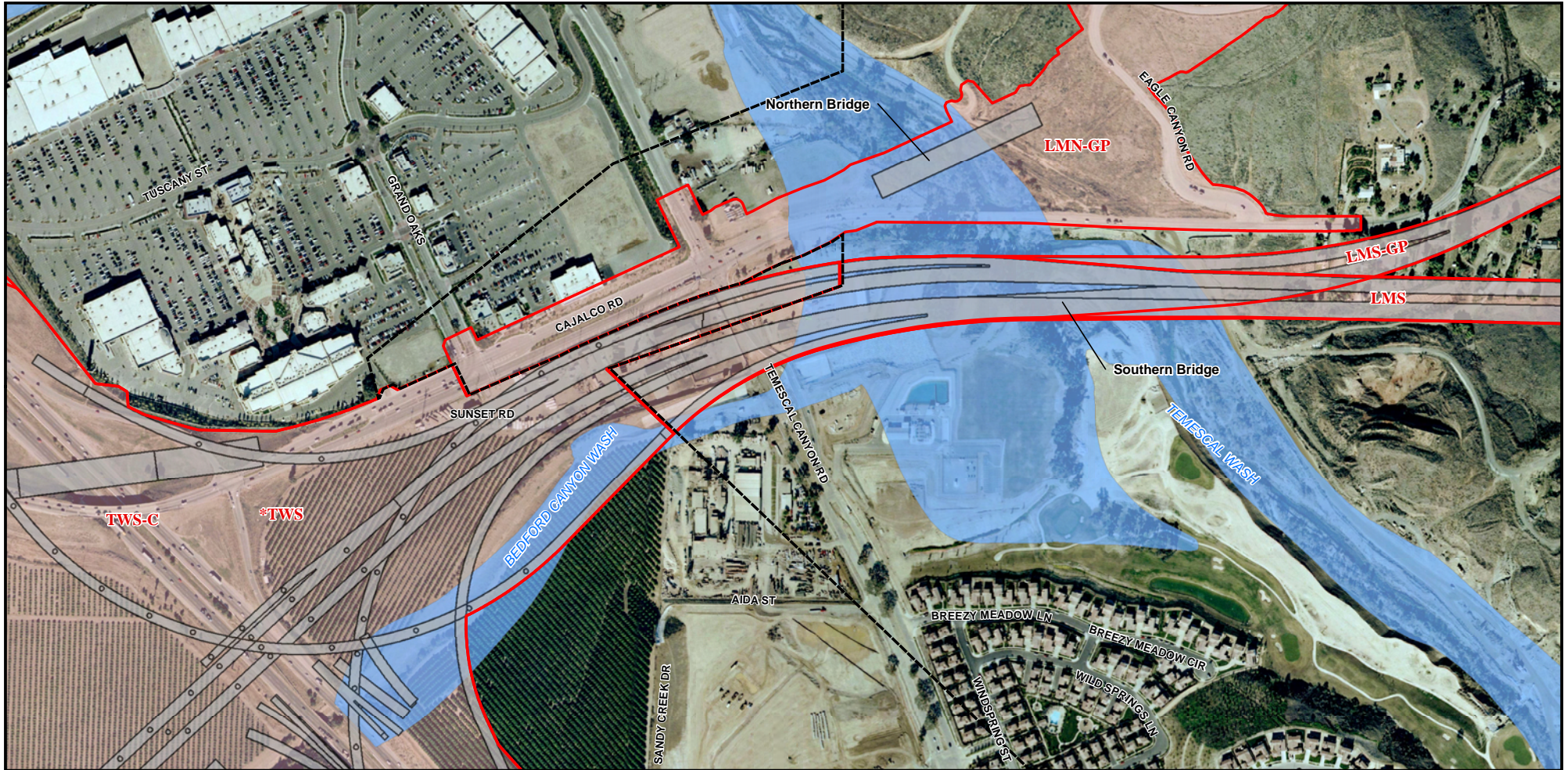
N/A = Not Part of Alternative

Temescal Wash Area with Collector-Distributor Roads (TWS-C)/Temescal Wash Area (TWS) Segment

Two crossings of the Temescal Wash floodplain are proposed in the Temescal Wash Area. The northern bridge is proposed along the northern general plan alignment as a realignment of the existing Cajalco Road (see the Lake Mathews North General Plan [LMN-GP] Segment). Three 100-year floodplains are mapped in the Temescal Wash Area: Temescal Wash, El Cerrito Road, and Bedford Canyon Wash. The El Cerrito Road and Bedford Canyon Wash floodplains would be spanned by the proposed bridges, and no encroachment would occur. The proposed southern bridge in the TWS-C/TWS Segment is a high-elevation flyover connection with I-15 south of the existing Cajalco Road alignment. This bridge spans three segments: the TWS-C/TWS, the Lake Mathews South General Plan (LMS-GP), and the Lake Mathews South (LMS). Figure 3.9.3 shows the location of the proposed bridge in relation to the segment boundaries. The southern bridge over the Temescal Wash floodplain in the TWS-C/TWS Segment is a transverse crossing of the 100-year floodplain. No embankments would be constructed in the floodplain, and no longitudinal encroachment would occur at these two bridges.

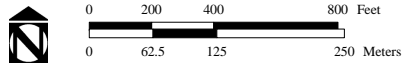
The northbound-to-eastbound, southbound-to-eastbound, and westbound-to-southbound connectors to and from I-15 would cross over the Bedford Canyon Wash floodplain. Two of the connectors are flyovers and would have little to no floodplain impact. The principal floodplain impact would occur from the northbound I-15 to the eastbound MCP connector.

Because the wash is restricted under the existing I-15 bridge, the width of the floodplain is a result of the rapid expansion and deceleration of the flow as it exits the bridge. Bridge abutments and drainage outfall structures would need to be placed within the 100-year floodplain. To protect the proposed bridge, there would likely be some embankment/levees constructed between the I-15 bridge and the proposed bridge as well as scour protection at the two new abutments. Channelization would be designed to retain the 100-year floodplain between the banks of the wash without diminishing the flood protection upstream of the improvements. The proposed bridge is not a longitudinal encroachment. A Letter of Map Revision will be necessary to redefine the floodplain map for the affected portions of Bedford Canyon Wash. The Letter of Map Revision would show that the 100-year flow is conveyed between the bridges and does not increase the water surface elevation downstream of the project.



- Legend**
- Segment (* denotes Design Variation segment)
 - Right-of-Way (All Alternatives)
 - Study Area
 - Bridges (All Alternatives)
 - Special Flood Hazard Areas (100-Year Floodplain)

SOURCE: USGS, Jacobs Engineering (02/2007), FEMA Flood Insurance Rate Map (1980, revised 1996), Air Photo USA (02/06)



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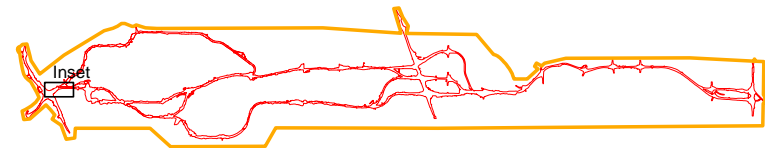


Figure 3.9.3

Temescal Wash

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Lake Mathews South (LMS) Segment

As described above and shown in Figure 3.9.3, the proposed Temescal Wash southern bridge spans three segments: the TWS-C/TWS, the LMS-GP, and the LMS. The bridge over the Temescal Wash floodplain in the LMS Segment is a transverse crossing of the 100-year floodplain. No embankments would be constructed in the floodplain, and no longitudinal encroachment would occur.

Lake Mathews North General Plan (LMN-GP) Segment

The western abutment of the northern bridge in the LMN-GP Segment would be constructed within the floodplain. Bridge abutments in the floodplain are not considered a longitudinal floodplain encroachment. The eastern abutment of the northern bridge would be outside of the mapped floodplain in the LMN-GP Segment. The proposed northern bridge over the Temescal Wash floodplain in the LMN-GP Segment is a transverse crossing of the 100-year floodplain, and no longitudinal encroachment would occur.

Lake Mathews South General Plan (LMS-GP) Segment

As described above and shown in Figure 3.9.3, the eastern terminus of the proposed Temescal Wash southern bridge is in the LMS-GP Segment. The southern bridge over the Temescal Wash floodplain in the LMS-GP Segment is a transverse crossing of the 100-year floodplain. No embankments would be constructed in the floodplain, and no longitudinal encroachment would occur.

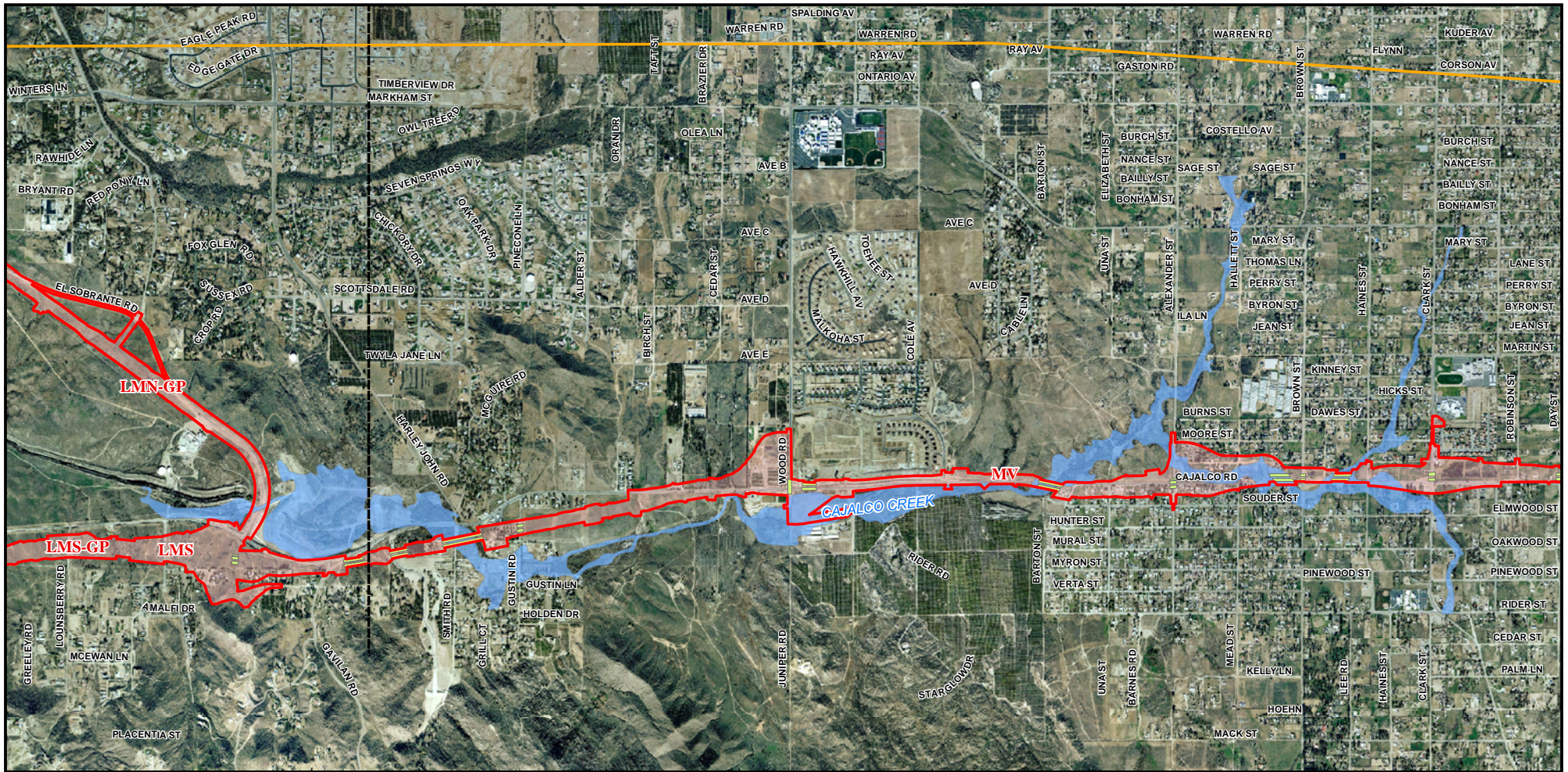
Mead Valley (MV) Segment

The existing Cajalco Creek floodplain and proposed bridges under MCP Build Alternatives 4–7 are shown in Figure 3.9.4. The proposed bridge over Cajalco Creek at Smith Road in the MV Segment is a transverse crossing of the 100-year floodplain and would be designed to span the 100-year floodplain. The bridge deck would be approximately 7.5 m (25 ft) above the existing ground at the lowest point. No embankments would be constructed in the floodplain, and no longitudinal encroachment would occur.

Between Clark Avenue and Alexander Road (Station 288+00 to Station 335+00)

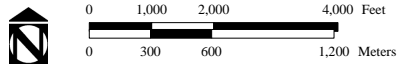
At this location under Alternatives 4–7, the MCP project would longitudinally encroach into the existing 100-year floodplain of Cajalco Creek at several locations within an approximately 47 m (154 ft) segment between Clark Avenue and Alexander Road (Figure 3.9.4). In this area, the MCP project would be

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- Legend**
- Segments
 - Right-of-Way (All Alternatives)
 - Study Area
 - Bridges - Alternatives 4, 5, 6 and 7
 - Special Flood Hazard Areas (100-Year Floodplain)

SOURCE: TBM (2007), Jacobs Engineering (02/2007), LSA (2007), FEMA Q3 Flood Data (1995), FEMA Flood Insurance Rate Map (1980, revised 1996), Air Photo USA (02/06)



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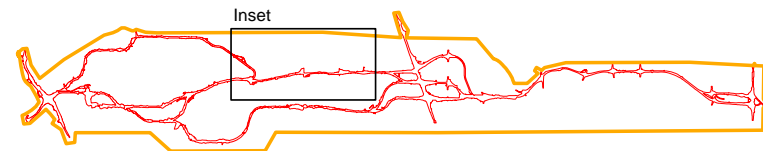


Figure 3.9.4



Cajalco Creek

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constructed using a series of bridges and viaducts along Cajalco Creek that would be designed to span the floodplain to the extent practical. Retaining walls and levees would be used to minimize impacts to the floodplain in areas where Cajalco Creek is longitudinally adjacent to the MCP project. Channelization of Cajalco Creek would be required from Alexander Street to Brown Street.

Perris Drain (PD) Segment

There would be no longitudinal encroachment within the floodplain of the Perris Valley Storm Drain in the PD Segment because the MCP project would be on structure for the entire length of the floodplain in this area. No embankments would be constructed in the floodplain. Bridge piers may result in a transverse encroachment of the floodplain in this segment. The proposed bridge location with respect to the existing base floodplain is shown in Figure 3.9.5.

Placentia Avenue/Perris Boulevard Depressed (PP-D) and Placentia Avenue/Perris Boulevard Elevated (PP-E) Segments

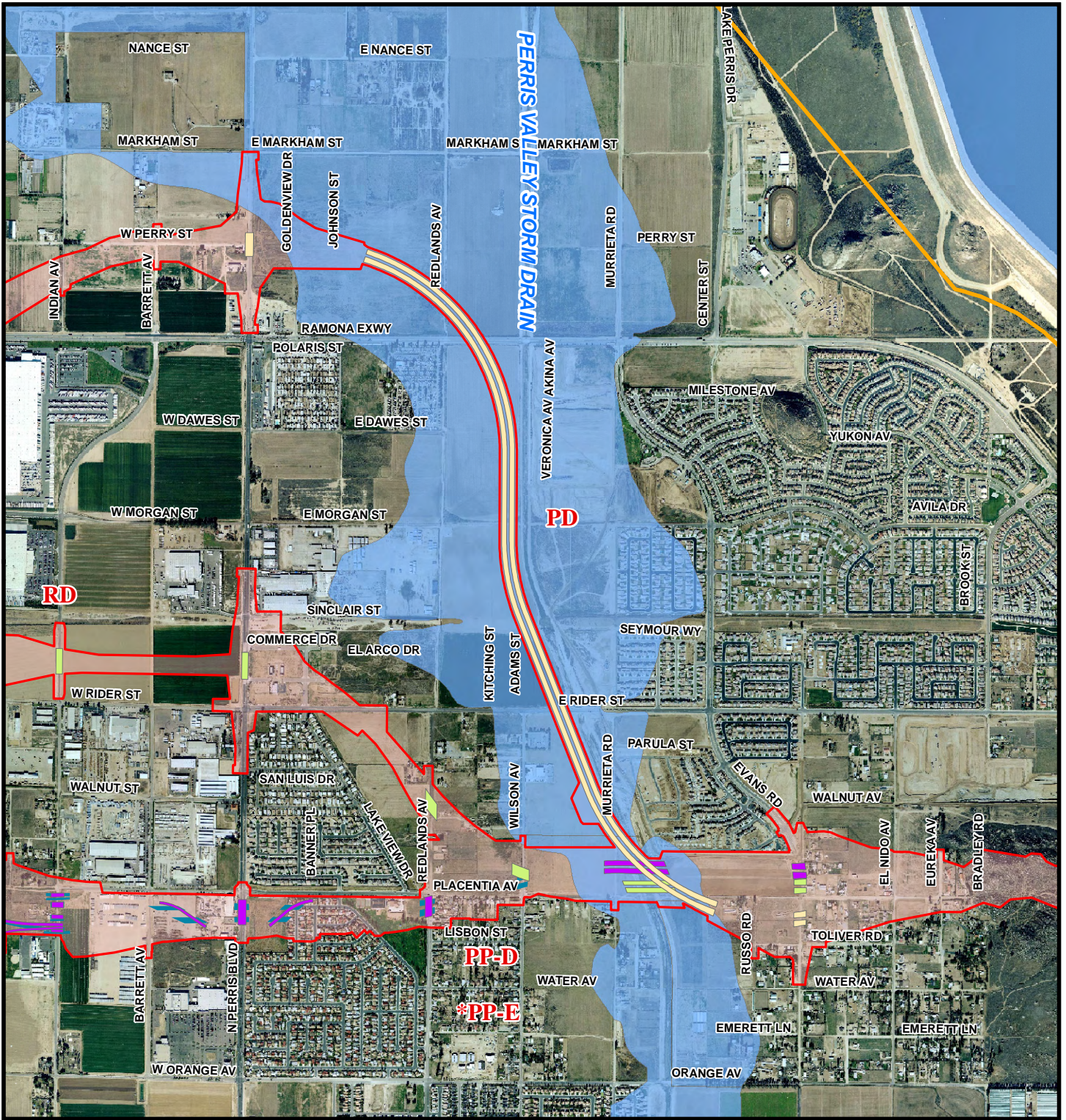
There would be no longitudinal encroachment within the floodplain at this location because the bridge would span the Perris Valley Storm Drain at a skew angle of approximately 21 degrees (see Figure 3.9.5). No embankments would be constructed in the floodplain, and no longitudinal encroachment would occur. Bridge piers and abutments may result in a transverse encroachment of the floodplain in this segment.

San Jacinto (SJ) Segment

There are two floodplain crossings of the San Jacinto River in the SJ Segment. The first is at the San Jacinto Bridge west of Lakeview Avenue. This bridge over the San Jacinto River is a transverse crossing of the 100-year floodplain. No embankments would be constructed in the floodplain, and no longitudinal encroachment would occur. Figure 3.9.6 shows the existing floodplain and the proposed bridge over the San Jacinto River west of Lakeview Avenue.

The second floodplain crossing in this segment is a roadway encroachment east of Lakeview Avenue. According to the current FEMA FIRMs for this area, the MCP project would encroach into the floodplain east of the Lakeview Avenue bridge in the SJ Segment. However, according to the Riverside County Flood

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- Right-of-Way (All Alternatives)
- Study Area
- Special Flood Hazard Areas (100-Year Floodplain)
- Bridges - Alternatives 4 and 6
- Bridges - Alternatives 5, 7 and 9
- Bridges - Alternative 9
- Design Variation PPE Bridges - Alternative 9

(* denotes Design Variation segment)

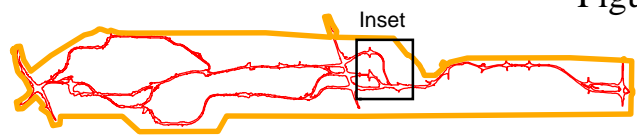
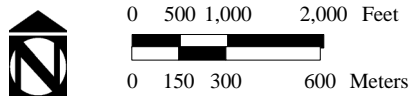


Figure 3.9.5

SOURCE: TBM (2007), Jacobs Engineering (2007), FEMA Q3 Flood Data (1995); FEMA Flood Insurance Rate Map (1980, revised 1996), Air Photo USA (2006)



Perris Valley Storm Drain

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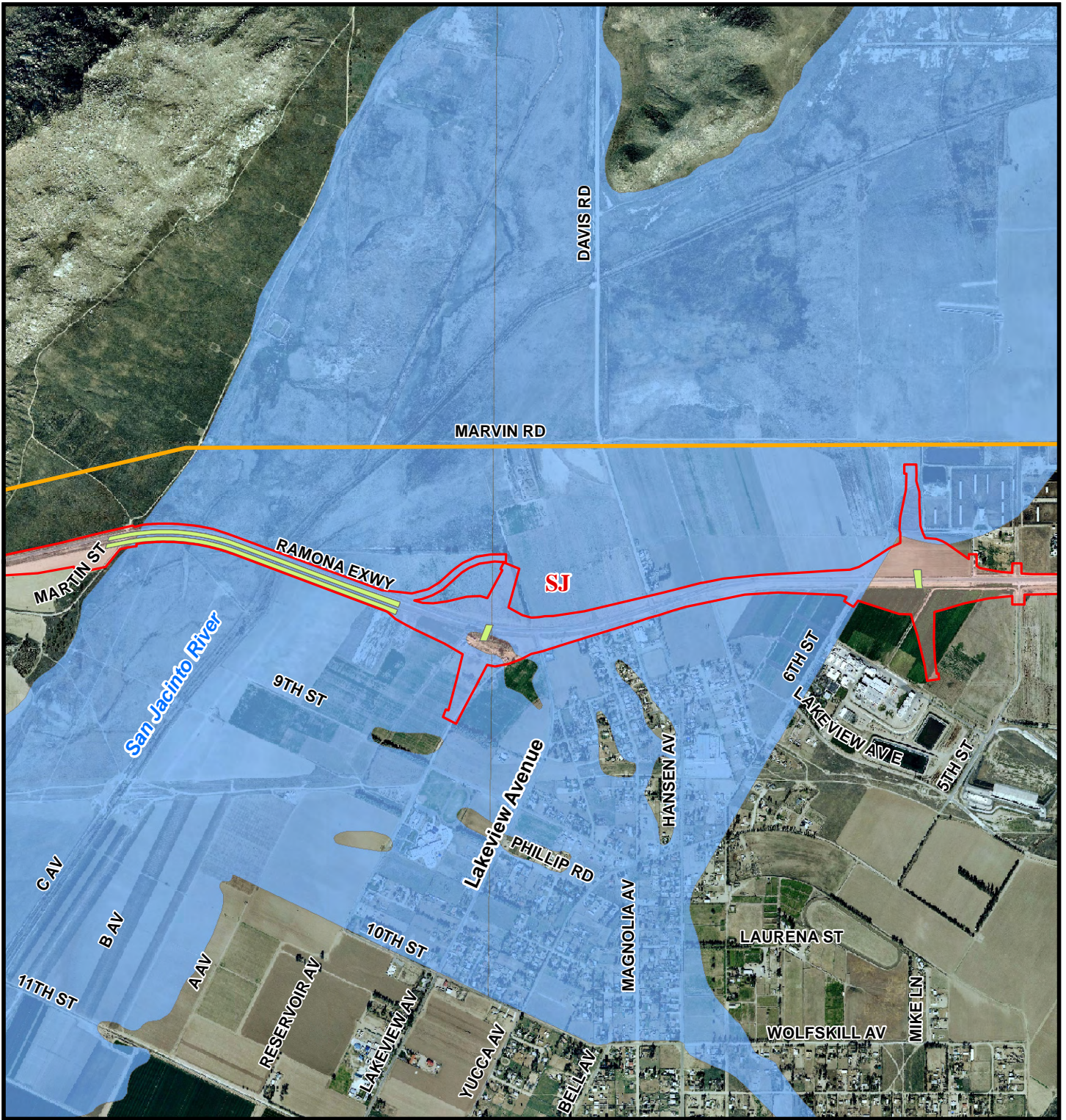
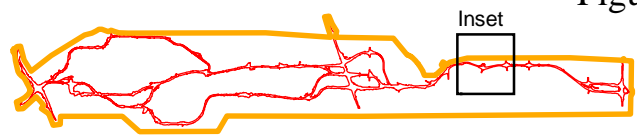


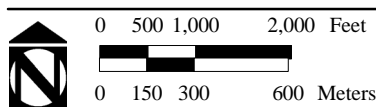
Figure 3.9.6

Legend

- Right-of-Way (All Alternatives)
- Study Area
- Bridges - All Alternatives
- Special Flood Hazard Areas (100-Year Floodplain)



SOURCE: TBM (2007), Jacobs Engineering (02/2007), FEMA Q3 Flood Data (1995); FEMA Flood Insurance Rate Map (1980, revised 1996), Air Photo USA (02/06)



San Jacinto River Floodplain West of Lakeview Avenue

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Control District (RCFCD),¹ a future reservoir is planned to be constructed near Lakeview Avenue that would remove the 100-year floodplain from the area east of Lakeview Avenue. Therefore, no longitudinal encroachment would occur in this area after the reservoir is completed. The RCFCD has not established a schedule for construction of this reservoir. Bridge piers may result in a transverse encroachment of the floodplain in this segment.

San Jacinto North (SJN) Segment

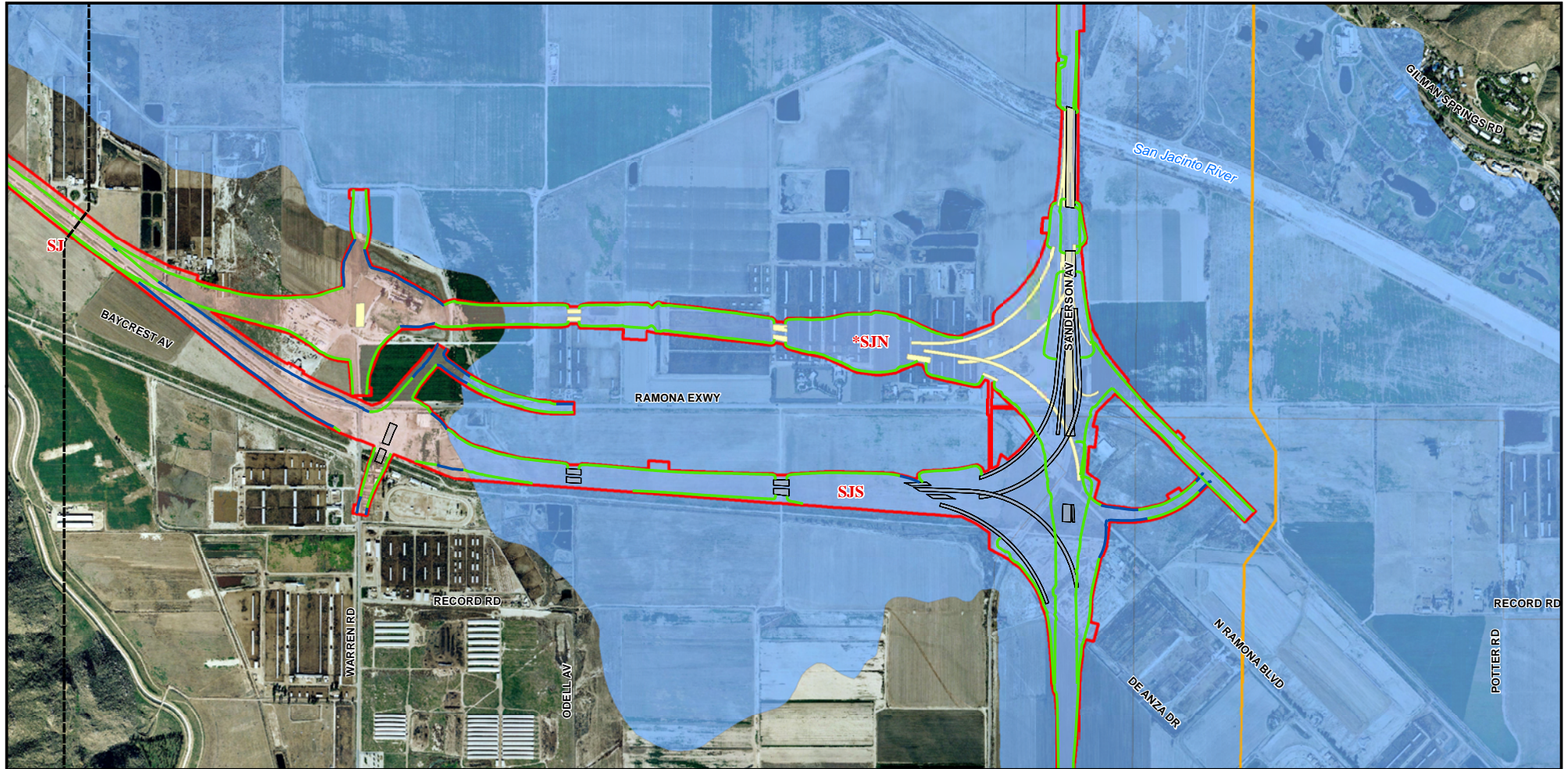
There are three floodplain crossings of the San Jacinto River floodplain in the SJN Segment. The first is a roadway encroachment where the MCP project would be constructed on elevated ground approximately 3 to 8 m (10 to 26 ft) above the existing ground. As shown in Figure 3.9.7, the MCP roadway in this area would longitudinally encroach into the existing 100-year floodplain of the San Jacinto River in an approximately 4.8 km (3.0 mi) segment, extending westerly from State Route (SR-79) to Warren Road. The proposed MCP design would provide a minimum freeboard (distance between the water surface and the bottom of the bridge deck) of 1.47 m (4.82 ft).

The second floodplain crossing is at the Sanderson Avenue bridge crossing of the San Jacinto River. The existing San Jacinto River crossing at Sanderson Avenue is a four-lane bridge approximately 21 m (69 ft) wide and 374 m (1,226 ft) long. The MCP project would widen the existing Sanderson Avenue Bridge to 34.8 m (114.2 ft). The proposed widening of the Sanderson Avenue Bridge would result in a longitudinal floodplain encroachment because the abutments would be constructed within the floodplain. The existing condition at this bridge provides at least 0.3 m (1.0 ft) of freeboard during the 100-year storm event. The widened bridge constructed for the MCP project would be similar in orientation to the existing Sanderson Avenue bridge and would provide a minimum freeboard of 0.23 m (0.75 ft). Figure 3.9.7 shows the location of the proposed bridge widening.

The third floodplain crossing results from the SR-79 connector bridges encroachment. The MCP project proposes two connector bridges to SR-79 in the SJN Segment (Figure 3.9.7). The SR-79 southbound/MCP westbound bridge would be 1,081 m (3,547 ft) long and 11.7 m (38.4 ft) wide. The SR-79 northbound/MCP westbound bridge would be 1,555 m (5,102 ft) long and 13.2 m (43.3 ft) wide. The proposed connector bridges would result in a longitudinal

¹ *Floodplain Evaluation Report, Mid County Parkway*, LSA Associates, Inc., 2008.

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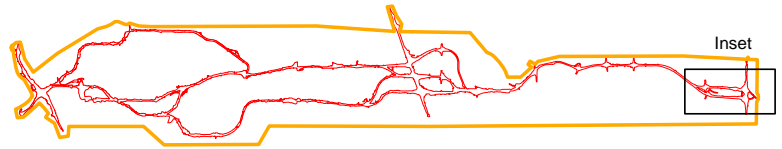
- Legend**
- Segments (* denotes Design Variation segment)
 - Right-of-Way (All Alternatives)
 - Study Area
 - Bridges - All Alternatives
 - Bridges - Design Variation SJN*
 - Special Flood Hazard Areas (100-Year Floodplain)
 - Cut
 - Fill

SOURCE: USGS, Jacobs Engineering (02/2007), FEMA Flood Insurance Rate Map (1980, revised 1996), Air Photo USA (02/06)



E:\JCV531\GIS_Final\EIR_EIS\20080402_EIR_EIS_Final\Floodplains_SR79_032707.mxd (8/5/2008)

Figure 3.9.7



San Jacinto River at Mid County Parkway/ State Route 79 Interchange

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floodplain encroachment because the abutments would be constructed within the floodplain. The minimum freeboard at the proposed westbound connector is 0.96 m (3.15 ft). The minimum freeboard at the proposed eastbound connector bridge is 0.91 m (2.99 ft).

San Jacinto South (SJS) Segment

There are three floodplain crossings of the San Jacinto River in the SJS Segment. The first is a roadway encroachment where the MCP project would be constructed on elevated ground approximately 3 to 8 m (10 to 26 ft) above the existing ground. As shown on Figure 3.9.7, the MCP roadway in this area would longitudinally encroach into the existing 100-year floodplain of the San Jacinto River in an approximately 4.8 km (3.0 mi) segment, extending westerly from SR-79 to Warren Road. The proposed MCP design would provide a minimum freeboard of 1.21 m (3.97 ft).

The second crossing is at the Sanderson Avenue Bridge crossing of the San Jacinto River. The existing San Jacinto River crossing at Sanderson Avenue is a four-lane bridge approximately 21 m (69 ft) wide and 374 m (1,226 ft) long. The MCP project would widen the existing Sanderson Avenue Bridge to 34.8 m (114.2 ft). The proposed widening of the Sanderson Avenue Bridge would result in a longitudinal floodplain encroachment because the abutments would be constructed within the floodplain. The existing condition at this bridge provides at least 0.3 m (1.0 ft) of freeboard during the 100-year storm event. The widened bridge constructed for the MCP project would be similar in orientation to the existing Sanderson Avenue bridge and would provide a minimum freeboard of 0.28 m (0.92 ft). Figure 3.9.7 shows the locations of the proposed bridge widening.

The third floodplain crossing results from the SR-79 connector bridges encroachment. The MCP project includes two proposed connector bridges to SR-79 in the SJS Segment (Figure 3.9.7). The SR-79 southbound/MCP westbound bridge would be 1,247 m (4,091 ft) long and 11.7 m (38.4 ft) wide. The SR-79 northbound/MCP westbound bridge would be 1,623 m (5,325 ft) long and 9.6 m (31.5 ft) wide. The proposed connector bridges would result in a longitudinal floodplain encroachment because the abutments would be constructed within the floodplain.

Comparison of Alternatives

As discussed above and shown previously in Table 3.9.A, Alternative 6 would result in the most floodplain encroachments (five transverse and five longitudinal). Alternatives 5 and 9 would result in the fewest floodplain encroachments (two transverse and five longitudinal for Alternative 5, and three transverse and four longitudinal for Alternative 9).

Transverse Floodplain Encroachments

Alternatives 4, 5, and 9 would avoid the transverse encroachment of the Temescal Wash floodplain associated with construction of the northern bridge in the LMN-GP Segment.

All of the alternatives would result in a transverse encroachment of the Bedford Canyon Wash floodplain between I-15 and Temescal Wash.

Alternatives 4 and 6 are the only MCP Build Alternatives that involve a transverse encroachment of the Perris Valley Storm Drain floodplain in the PD Segment (associated with bridge piers constructed in the floodplain). Alternatives 5, 7, and 9 would avoid this impact.

Alternative 9 is the only MCP Build Alternative that would create a transverse encroachment of the Perris Valley Storm Drain in the PP-D and PP-E Segments. Alternative 9 avoids the transverse encroachment of the Temescal Wash floodplain associated with construction of the northern bridge in the LMN-GP Segment and the transverse encroachment of the Perris Valley Storm Drain floodplain in the PD Segment.

All of the MCP Build Alternatives would create a transverse encroachment of the San Jacinto River floodplain west of Lakeview Avenue.

Longitudinal Floodplain Encroachments

All of the MCP Build Alternatives (4, 5, 6, 7, and 9) would result in a similar longitudinal encroachment of the floodplain of the San Jacinto River in the SJN and SJS Segments caused by the construction of the elevated roadway, connector bridge embankments, and the Sanderson Avenue bridge widening. None of the MCP Build Alternatives avoid this encroachment.

Alternatives 4, 5, 6, and 7 would result in longitudinal encroachment of the floodplain of Cajalco Creek in the MV Segment at several locations within an

approximately 47 m (154 ft) segment between Clark Avenue and Alexander Road. The proposed roadway is a series of bridges and viaducts along Cajalco Creek that would be designed to span the floodplain to the extent practical. Retaining walls and levees would be used to minimize impacts to the floodplain in areas where Cajalco Creek is longitudinally adjacent to the MCP project. Channelization of Cajalco Creek would be required from Alexander Street to Brown Street.

Alternative 9 would avoid the longitudinal encroachment to the floodplain of Cajalco Creek in the MV Segment and would therefore result in the least longitudinal encroachment impacts to existing floodplains. However, Cajalco Road in the MV Segment is currently overtopped by the 100-year flow in Cajalco Creek, and Alternative 9 would not have the beneficial effect of improving the existing flooding condition in this area.

Emergency Response

The MCP project would improve the transportation network in the area and would alleviate existing service interruptions caused by flooding because the MCP facility would be elevated higher than the existing facilities. The MCP project would enhance the ability to move fire protection and emergency service resources from one area to another by providing a reliable roadway network. Operation of the MCP project would not result in interruption of emergency services or routes and would improve access throughout the region during a flood event.

Risks to Life and Property

The implementation of the proposed MCP project would result in a minimal change in the capacity of the San Jacinto River, Cajalco Creek, Temescal Wash, and Perris Valley Storm Drain to carry water by placing piers in these waterways and would improve existing flooding conditions in the MCP project area by providing improved highway crossings of these floodplains. The channelization of a small segment of Bedford Canyon Wash would protect the bridge abutments of the proposed northbound I-15 to eastbound MCP connector and would not reduce upstream flood protection or increase downstream water elevation. The proposed MCP project would result in a minimal increase in flood heights and flood limits. This minimal increase would not result in any substantial change in flood risks or damage to life or property.

Natural and Beneficial Floodplain Values

The beneficial uses of surface waters within the MCP study area that may be affected by the MCP project are listed in Table 3.10.A in Section 3.10 of this EIR/EIS. There are no defined present beneficial uses within the MCP study area that would be directly affected by the MCP project. Only intermittent uses have been defined within the MCP study area, most likely because the water courses in the area experience seasonal, intermittent flow and are dry in the summer. Impacts to natural and beneficial floodplain values include direct impacts caused by grading, construction, and operation of the MCP project. MCP project impacts to wetlands and other waters of the United States are discussed in Section 3.18, Wetlands and Other Waters. Project impacts to water quality and beneficial uses are discussed in Section 3.10, Water Quality and Storm Water Runoff. Bridge abutments and piers would be located to avoid or minimize impacts to jurisdictional waters of the United States to the greatest extent feasible, thus preserving natural resource values. Compensatory mitigation for impacts to wetlands and other floodplain values would help to reduce impacts to water resource beneficial floodplain values. In addition, earthen-channel bottoms would be retained to the extent practical to provide flood protection for adjacent areas. Therefore, implementation of the MCP project would not result in substantial impacts to natural and beneficial floodplain values.

No Build Alternatives

Under Alternative 1A, the MCP project would not be constructed. Planned improvements in the regional and local circulation system, as accounted for in the adopted Riverside County General Plan, RCTC's Measure A program, and other adopted plans and policies, would be implemented assuming 2035 land use conditions. Alternative 1B is the same as Alternative 1A but includes implementation of Cajalco Road and Ramona Expressway, consistent with the Riverside County General Plan Circulation Element.

Individual projects in the MCP No Build Alternatives may result in floodplain encroachment. New roadway projects such as the SR-79 Realignment project would likely result in similar impacts to existing floodplains as those identified for the MCP Build Alternatives, while projects that widen existing facilities (e.g., I-15 Widening and I-215 Widening projects) are less likely to result in any floodplain encroachments.

The MCP No Build Alternatives would not have the beneficial effect of alleviating existing transportation service interruptions caused by flooding. Although some

projects included in the MCP No Build Alternatives may enhance the ability to move fire protection and emergency service resources from one area to another, they would not provide the benefit of a regional transportation facility like the MCP project.

Risks to Life or Property

The MCP No Build Alternatives include measures to improve the transportation network and would likely improve existing flooding conditions in areas where existing roadway encroachments into existing floodplains are improved.

Under the MCP No Build Alternatives, impacts to natural and beneficial floodplain values include direct impacts caused by grading, construction, and operation of the projects proposed in the city and county General Plan Circulation Elements. For these projects, it is assumed that proposed bridge abutments and piers would be located to avoid or minimize impacts to jurisdictional waters of the United States to the greatest extent feasible, thus preserving natural resource values. Compensatory mitigation for impacts to wetlands and other floodplain values would be required by regulatory agencies to reduce impacts to water resource beneficial floodplain values. In addition, earthen-channel bottoms would be retained to the extent practical to provide flood protection for adjacent areas. Therefore, implementation of the MCP No Build Alternatives is not expected to result in substantial impacts to natural and beneficial floodplain values.

Discussion of Impacts Relative to MSHCP Amendment

Hydrology and floodplains was determined not to be a topic of concern and was therefore not analyzed in the Multiple Species Habitat Conservation Plan (MSHCP) EIR/EIS. An amendment to the MSHCP to provide coverage for Alternative 9 TWS DV (the Locally Preferred Alternative) would not change the conclusion of the MSHCP EIR/EIS related to hydrology and floodplains.

3.9.3.2 Temporary Impacts

Build Alternatives

The possibility of erosion during construction of the MCP project is discussed in detail later in Section 3.10, Water Quality and Storm Water Runoff. Best Management Practices (BMPs) would be used to control erosion during construction. The construction BMPs would be described in the Storm Water Pollution Prevention Plan and illustrated on the construction plans. Existing general drainage patterns would be maintained during construction, although temporary detours around facilities undergoing reconstruction would occur. Temporary detention basins would

be used, if necessary, to prevent localized flooding. The BMPs used to control direct impacts would be effective at controlling indirect impacts related to erosion, drainage patterns, and flooding during construction of the MCP project.

No Build Alternatives

Under the MCP No Build Alternatives, the MCP project would not be constructed, and temporary impacts to hydrology and floodplains would not occur. However, construction of other projects that would occur under the MCP No Build Alternatives would result in similar temporary impacts to those described for the MCP project.

3.9.4 Avoidance, Minimization, and/or Mitigation Measures

Discussions of each affected floodplain are described in Section 3.9.3, Environmental Consequences. Measures to minimize impacts to these floodplains were considered as part of the design of the MCP project and were described in detail previously in Chapter 2.0, Project Description, of this EIR/EIS. These project design features include the following: (1) elevated flyover bridges and a series of viaducts and culverts have been incorporated into project plans and designed to span the floodplains in the MCP study area to the maximum extent practical; (2) retaining walls and levees have been designed to minimize impacts to the floodplain in areas where the proposed roadway would be longitudinally adjacent to the base floodplain; (3) earthen-channel bottoms would be retained to the extent practical to provide flood protection for adjacent areas; and (4) bridge abutments and piers have been incorporated into project plans to avoid or minimize impacts to jurisdictional waters of the United States, thus preserving natural resource values (see Appendix I, Attachment D, for additional detail regarding considerations during bridge design for waters and wetlands).

Compensatory mitigation for impacts to wetlands and other floodplain values would help to reduce impacts to water resource beneficial floodplain values, as described in Section 3.18, Wetlands and Other Waters.

Water quality and flood control basins would be used to lessen impacts to water quality and beneficial uses, as described in Section 3.10, Water Quality and Storm Water Runoff.