Appendix I: Hydrology and Water Quality Report Existing Conditions Analysis

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HYDROLOGY AND WATER QUALITY REPORT
EXISTING CONDITIONS ANALYSIS
IN SUPPORT OF ENVIRONMENTAL IMPACT REPORT
FOR
MISSION VALLEY COMMUNITY PLAN UPDATE
CITY OF SAN DIEGO
SAN DIEGO COUNTY, CALIFORNIA

Job Number 17571

February 23, 2016

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1.0 INTRODUCTION

This report describes existing storm water drainage and storm water quality conditions within the Community of Mission Valley in the City of San Diego, California. The Community of Mission Valley (herein "Mission Valley") includes approximately 2,418 acres (3.8 square miles) and is located near the geographic center of the City of San Diego. Mission Valley is bounded on the north by Friars Road and the northern slopes of the valley, on the east by the eastern banks of the San Diego River, on the south by the southern slopes of the valley, and on the west by Interstate 5. The vicinity map, Figure 1.1 shows the boundaries of Mission Valley. This report is in support of a Programmatic Environmental Impact Report (PEIR) for the Mission Valley Community Plan Update. The Mission Valley Community Plan Update will update land use policies in order to create a plan for future development, and a long term vision for Mission Valley.

Storm water drainage is discussed in Section 2 of this report. The storm water drainage discussion addresses local surface runoff patterns and floodplains. Storm water quality is discussed in Section 3, including quality of local surface runoff and quality of receiving waters. Section 4 describes regulations, policies and programs applicable to storm water drainage, floodplain management, and storm water quality in the City of San Diego that will dictate design criteria and standards for development projects within Mission Valley. Section 5 will provide an overview of the development constraints for San Diego City-Owned properties within Mission Valley.

Figure 1 – Vicinity Map

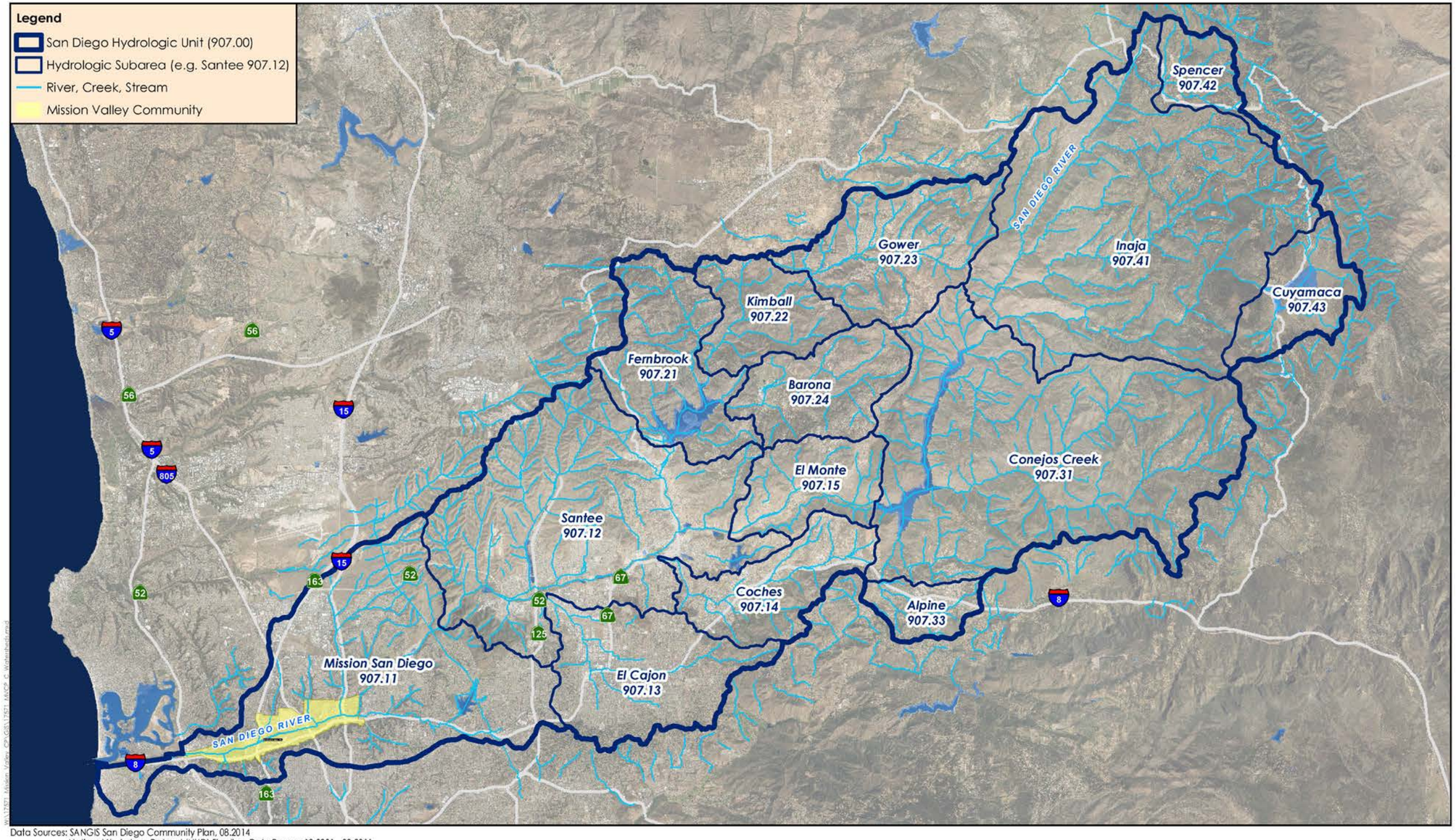
Hydrologic Setting

The Community of Mission Valley is in the San Diego River Watershed. For purposes of tracking water quality, according to the San Diego Basin Plan[1], Mission Valley is within the Mission San Diego Hydrologic Subarea (907.11) of the Lower San Diego Hydrologic Area (907.1) of the San Diego Hydrologic Unit (907.00). A hydrologic unit represents an entire watershed. A hydrologic area, and hydrologic subarea further divide a hydrologic unit (watershed) into smaller areas. Figure 2, Hydrologic Unit Map, shows the San Diego River Watershed.

The San Diego Hydrologic Unit (watershed) has an area of approximately 440 square miles. It contains portions of the cities of San Diego, El Cajon, La Mesa, and Santee, and several unincorporated communities of San Diego County.

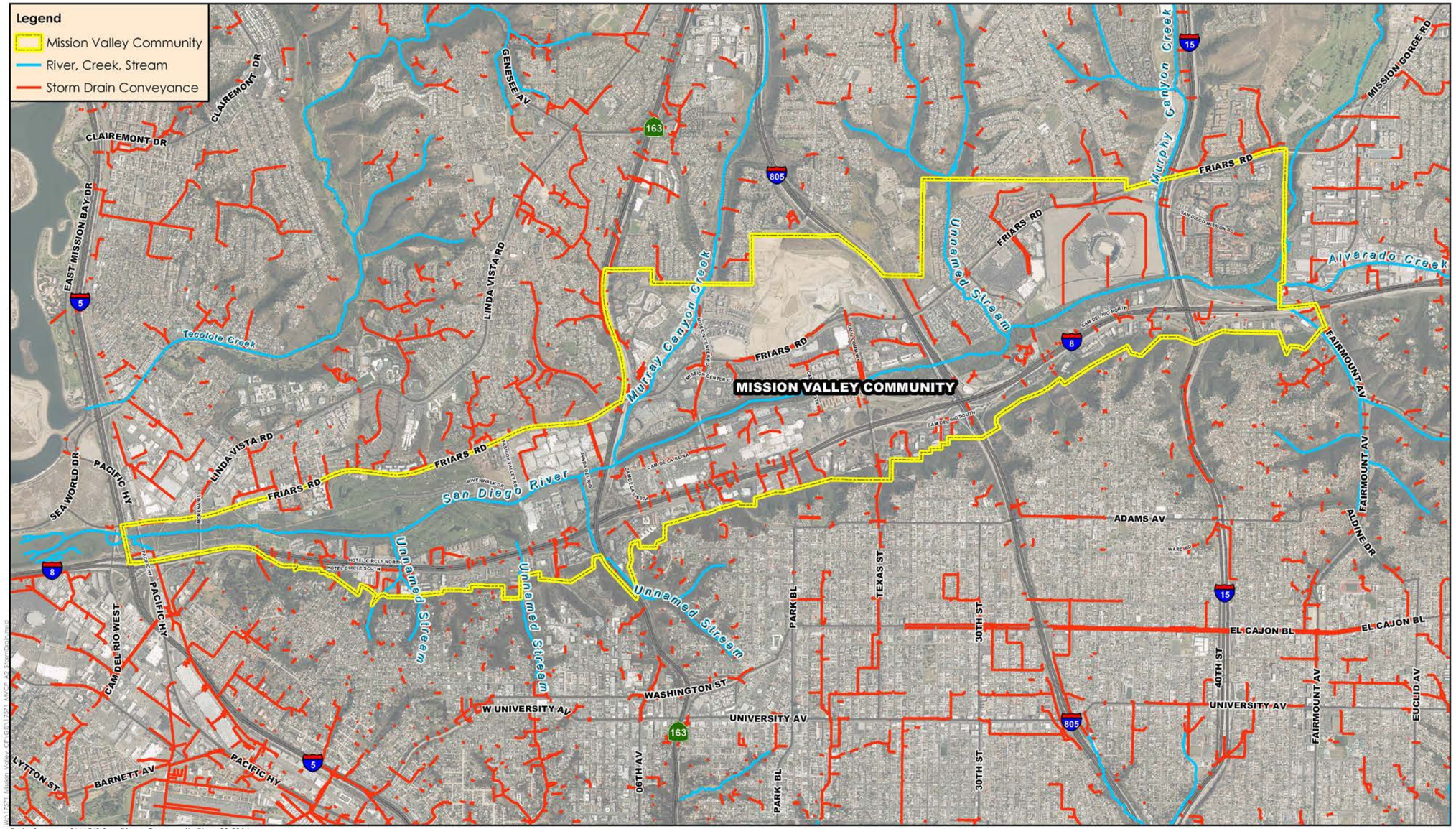
The Community of Mission Valley encompasses the lower 6.5 miles of the San Diego River. The San Diego River flows from east to west through the center of the community. The San Diego River enters Mission Valley at the community's northeast boundary, east of Interstate 15 (I-15), and flows southerly along the community's east boundary. Then before reaching Interstate Highway 8 (I-8), it turns and flows westerly through the center of Mission Valley to the Pacific Ocean. In general, storm water runoff in Mission Valley travels towards the San Diego River. There are three major creeks, Alvarado Creek, Murphy Canyon Creek, and Murray Canyon Creek, that flow into the San Diego River within Mission Valley. Figure 3, River, Creek, Stream, and Storm Drain Map, shows drainage patterns within Mission Valley. Figure 4, Mission Valley Community, Adjacent Communities, and USGS 40-Foot Contours, displays topography for the area.

[1] "Water Quality Control Plan for the San Diego Basin (9)" adopted by the California Regional Water Quality Control Board, San Diego Region



Data Sources: SANGIS San Diego Community Plan, 08.2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10.2001 - 03.2011
SANGIS Hydrologic Basins per CA Department of Forestry, 06.2003
Eagle Aerial Photo: 04.2013

Figure 2 – Hydrologic Unit Map



Data Sources: SANGIS San Diego Community Plan, 08.2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10.2001 - 03.2011
SANGIS Drain Conveyance, 04.2010
Eagle Aerial Photo: 04.2013

Figure 3 – River, Creek, and Storm Drain Map

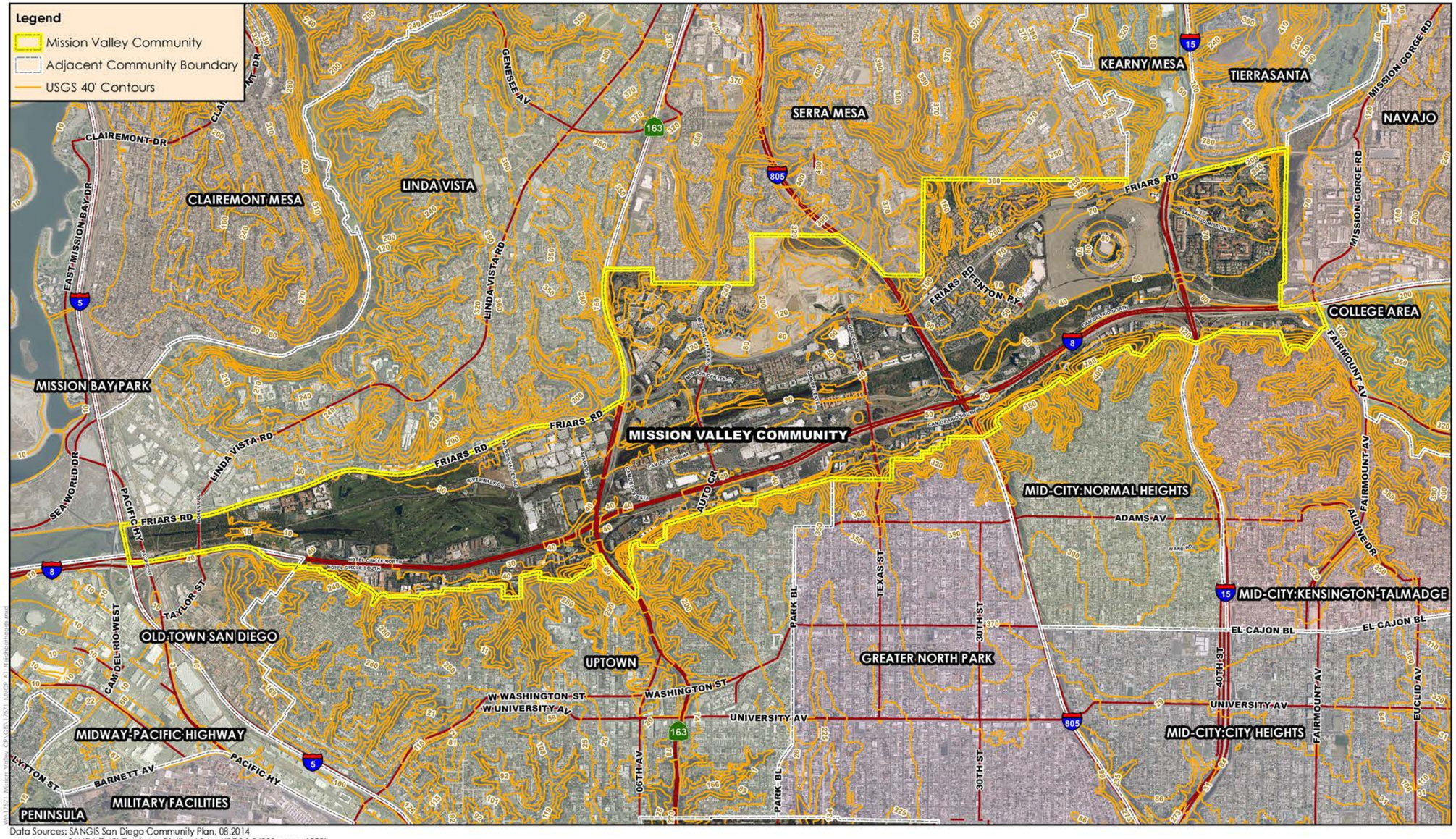


Figure 4 – Mission Valley Community, Adjacent Communities, and USGS 40-Foot Contours

2.0 EXISTING DRAINAGE CONDITIONS

Local Surface Runoff Patterns

The Community of Mission Valley is surrounded by steep hills on its north and south sides, sloping toward the San Diego River, as shown on Figure 3. Considering the topographic characteristics of Mission Valley, the local storm water runoff originating within the community stays within the boundary of the community and drains toward the San Diego River. Storm water runoff originating in Mission Valley is conveyed to the San Diego River in streets, gutters, cross gutters, open channels, and storm drain systems. Existing storm drain locations that are included in the City of San Diego's storm drain inventory are shown on Figure 2. The runoff is then conveyed in the San Diego River to the Pacific Ocean.

Mission Valley is mostly developed and is highly impervious, except for the San Diego River channel and Riverwalk Golf Course. Nearly all rainfall landing on the developed areas of Mission Valley can be expected to become runoff because there are minimal opportunities for infiltration. Typical runoff response from highly impervious areas is flashy with high peak flow rates for short durations.

The San Diego River watershed area is greater than the community of Mission Valley. This makes Mission Valley the recipient of storm water runoff from its adjacent communities. Neighboring communities to Mission Valley are shown on Figure 2.1.

Major drainage inputs to Mission Valley are Alvarado Creek, Murphy Canyon Creek, Murray Canyon Creek, San Diego River, and a few unnamed creeks. Numerous storm drain pipes and open channels also cross the Mission Valley Community boundary, to direct the drainage from adjacent communities toward the San Diego River. Surface drainage (e.g: overland flow, flow in road gutters) from adjacent communities is also a source of storm water input to Mission Valley Community.

Floodplains

The four major water bodies draining through the Mission Valley Community, San Diego River, Alvarado Creek, Murphy Canyon Creek, and Murray Canyon Creek, have been studied and documented in the Federal Emergency Management Agency (FEMA) "Flood Insurance Study for San Diego County, California and Unincorporated Areas," dated May 16, 2012, hereafter referred to as "San Diego County 2012 FIS". The river and creeks are mapped on Flood Insurance Rate Maps (FIRMs). Attachment A includes an exhibit showing effective FEMA Flood Hazard Areas (floodways, 100-year floodplains, and 500-year floodplains) for Mission Valley based on the National Flood Hazard Layer (NFHL) published by FEMA. Attachment A also includes copies of effective FIRMs that encompass Mission Valley. The FIRMs are annotated with Mission Valley Community boundary. FEMA Flood Hazard Zones within Mission Valley include Zone AE, Zone A, and Zone X (shaded).

Zones AE and A are Special Flood Hazard Areas (SFHAs) subject to inundation by the 1% annual chance flood (100-year flood). Zone AE means Base Flood Elevations (BFEs) and floodway extents have been determined. The BFEs and floodway are shown on the FIRMs (see Attachment A). The BFE is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. Zone A means no BFEs have been determined (i.e., a detailed hydraulic study to establish BFEs has not been prepared) and floodway is not established. Most of the SFHA in Mission Valley has BFEs established and is mapped as Zone AE. Only isolated pockets of Zone A exist where no study has been prepared.

Zone X (shaded) indicates "Other Flood Areas" which could be "areas of 0.2% annual chance flood [500-year]; areas of 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees

from 1% annual chance flood." Most of the Zone X (shaded) areas in Mission Valley are areas protected from the San Diego River by levees, which are discussed in detail below.

Below is a discussion of each riverine flooding source (San Diego River, Alvarado Creek, Murphy Canyon Creek, and Murray Canyon Creek).

San Diego River

The primary source of riverine flooding in Mission Valley Community is the San Diego River. Based on the San Diego County 2012 FIS, the San Diego River watershed drains approximately 433 square miles at its mouth in Mission Bay, and conveys 36,000 cubic feet per second (cfs) through Mission Valley in the 1% annual chance flood.

The historical flooding for the San Diego River is documented in the San Diego County 2012 FIS:

> "From available data concerning San Diego River, it is estimated that approximately a 1-percent annual chance frequency flood occurred in 1916 and approximately a 2-percent annual chance frequency flood occurred in 1927."
>
> "January-February 1980: In the 1980 storms, approximately 15 to 20 inches of precipitation accumulated over approximately six weeks, followed immediately by the storm of February 20-21. During this climax, most county reservoirs peaked and local streams reached maximum levels. Considerable evacuation was necessary, particularly in Lakeside and San Diego-Mission Valley."

As shown on the FIRMs provided in Attachment A, many areas of Mission Valley are in the 100-year floodplain of the San Diego River. This includes the following locations:

1. East of Interstate 15 (I-15) – portions of: Ward Road (bridge), San Diego Mission Road (low water crossing), Camino Del Rio North
2. West of I-15 – portions of Qualcomm Stadium Parking Lot (flooding is due to the San Diego River and Murphy Canyon Creek)
3. West of Interstate 805 (I-805) – a portion of Qualcomm Way, from Friars Road to the San Diego River (low water crossing often flooded during lower storm events)
4. Camino Del Este road crossing (low water crossing very frequently flooded during lower storm events)
5. Mission Center Road from Friars Road to the San Diego River (low water crossing often flooded during lower storm events).
6. Between I-805 and SR-163, south of the San Diego River – portions of: Camino De La Reina, Camino Del Rio North, Camino De La Siesta, Camino Del Arroyo
7. West of SR-163 –Avenida Del Rio and portions of Fashion Valley Road (low water crossings very frequently flooded during lower storm events),
8. Portions of Fashion Valley Mall parking (structures on south side of mall and west parking lot south of JC Penney)
9. Portions of: Camino De La Reina, Town and Country Resort and Convention Center, Riverwalk Golf Club, Handlery Hotel, Hotel Circle North, Hotel Circle South
10. Portions of I-8 between SR-163 and Interstate 5 (I-5)
11. YMCA along Friars Road
12. Trolley is in and out of the San Diego River all the way from Camino Del Rio North (east of I-15) to near I-5. While most of the length is elevated, at-grade stations at Morena Linda Vista, Mission Valley Center, Fenton Parkway, and Mission San Diego are subject to flooding, and access to elevated stations at Fashion Valley and Qualcomm Stadium may be interrupted due to flooding on local roads and parking areas. Hazard Center and Rio Vista stations are outside of the SFHA.

Bridges and Road Crossings/Culverts for the San Diego River

There are several existing bridges and road crossings/culverts across the San Diego River in the Mission Valley Community. Crossings are shown on Figure 5, Channel Structures on San Diego River.

Bridges (listed from east to west) include:

Ward Road

I-15

I-805

SR-163

Morena Boulevard

Pacific Highway

San Diego Metropolitan Transit System Trolley

Riverwalk Golf Course Bridges

Road Crossings/Culverts (listed from east to west) include:

San Diego Mission Road

Qualcomm Way

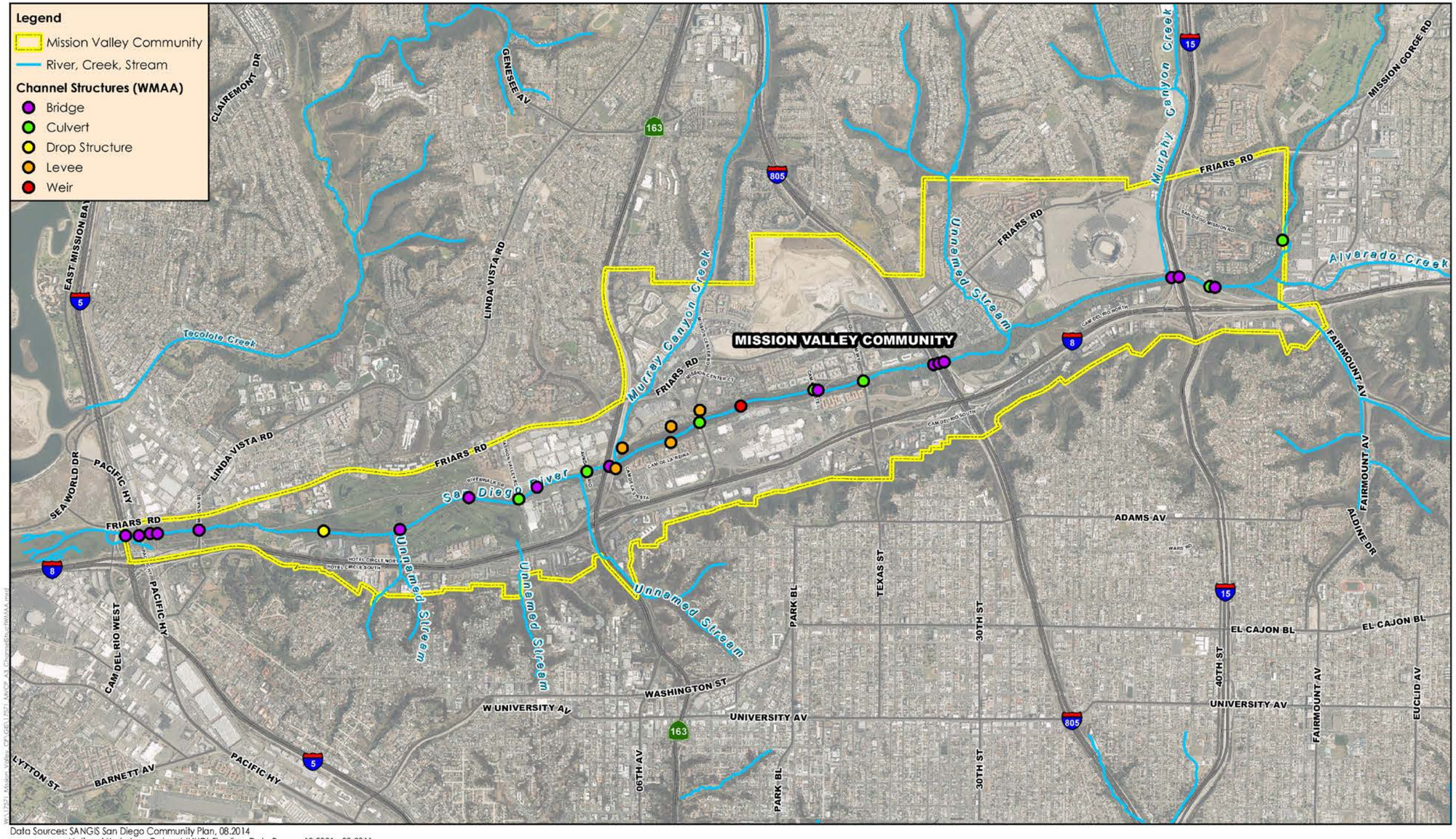
Camino Del Este

Mission Center Road

Avenida Del Rio

Fashion Valley Road

All of the road crossings/culverts listed above are low water crossings, also known as ford crossings. This means that the road is designed to allow crossing the river when the water is low, as when there is no storm event or during small storm events, and to temporarily flood or overtop (convey river flow across the roadway) during large storm events.



Data Sources: SANGIS San Diego Community Plan, 08.2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10.2001 - 03.2011
SANGIS Assessor Parcels, 08.2015
Eagle Aerial Photo: 04.2013

Figure 5 – Channel Structures on San Diego River

The road crossings/culverts listed above, as well as Ward Road Bridge, will be impassable during some storm events. Avenida Del Rio, Fashion Valley Road, and San Diego Mission Road are the most susceptible to flooding. They could be expected to flood in approximately 5-year storm events and greater. Camino Del Este, Qualcomm Way, and Mission Center Road could be expected to flood in approximately 10-year storm events and greater. Ward Road crossing is a bridge rather than a low water crossing. However it is susceptible to flooding in approximately 20-year storm events and greater.

Because of the design of the road crossings, flooding of the San Diego River creates a major disruption to transportation in Mission Valley for temporary periods. When the San Diego River overtops the road crossings, it impacts public safety, traffic circulation and access to businesses. Public transportation must be re-routed or suspended. Flooding can also cause damage to the structures (e.g., the Fashion Valley Road crossing was destroyed in 2005). The impact of structure damage extends well beyond the duration of the storm event.

Levees for the San Diego River

There are three levees along the reach of the San Diego River within the Mission Valley Community. However, these levee systems are not accredited by FEMA. This means that they cannot be considered to provide flood protection because they do not meet FEMA's standards for levees. This affects the following areas, which are shown on the FIRM panels as Zone X (shaded) with a note that they are protected by a provisionally accredited levee:

1. North of the San Diego River from SR-163 to just west of the westerly terminus of Station Village Lane, including properties along Hazard Center Drive, portion of Frazee Road south of Friars Road, Mission Center Court, Caminito Gabaldon, and Caminito De Pizza.

2. South of the San Diego River from SR-163 to Qualcomm Way, including properties along Camino De La Reina, Camino Del Rio North, and Camino Del Este. This includes Mission Valley Mall.

The affected areas may be subject to flooding from the San Diego River in the 100-year storm event.

Below is a summary of the three levees in in the Mission Valley Community and their status with respect to the accreditation process:

- Levees 11 and 13 – Located north of the San Diego River, extending from SR-163 to Mission Center Road and from Mission Center Road to Qualcomm Way, respectively
- Levee 13 – Located south of the San Diego River, extending from SR-163 to Qualcomm Way

The effective FIRMs dated May 16, 2012 show that these levees are provisionally accredited levees (PALs). PAL designation means that the levee was recognized on FEMA's previous FIRMs; however the regulatory requirement for levee accreditation has since changed, and the levee is in the process of accreditation. In order for a levee to gain FEMA full accreditation, the community or levee owner must provide the proper documentation to certify that the levee continues to provide protection from the base flood, and that the levee still meets the minimum Federal requirements. The proper documentation for levee accreditation must be provided to FEMA within a 24-month timeframe from the date the community or levee owner has signed an agreement indicating the data and documentation required for compliance will be provided. If the 24-month PAL period expires and the community does not submit all of the required documentation, FEMA will consider the levee system as de-accredited and the impacted area will be mapped as high risk.

FIRM panels dated May 16, 2012 include this note for Provisionally Accredited Levees:

> "Provisionally Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee systems(s) shown as providing protection for areas on this panel. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations by May 16, 2012. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicate the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de-accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http:ltwww.fema.gov/businesslnfip/indes/shtm"

Based on the FIRM panels, the timeframes for levee accreditation have passed. Therefore, the levees in the Mission Valley Community cannot be considered to provide flood protection because they do not meet FEMA's standards.

Alvarado Creek

Based on San Diego County 2012 FIS, the Alvarado Creek watershed encompasses approximately 14 square miles, measured to the San Diego River. Alvarado Creek flows through Mission Valley Community for just 400 feet before it confluences with (flows into) the San Diego River. FEMA Flood Zone for Alvarado Creek within the Community of Mission Valley is Zone AE. The short reach of Alvarado Creek within the Mission Valley Community does not include existing roads or structures impacted by flooding from Alvarado Creek.

Murphy Canyon Creek

Based on the San Diego County 2012 FIS, the Murphy Canyon Creek watershed encompasses approximately 12.1 square miles, measured to Friars Road. Murphy Canyon Creek flows southerly parallel to I-15 in the Mission Valley Community for 0.5 mile before it confluences with (flows into) the San Diego River.

FEMA Flood Zones for Murphy Canyon Creek within the Community of Mission Valley are Zone A, AE, and X. There are no records of historical flooding for Murphy Canyon Creek. The San Diego County 2012 FIS mentions the following Flood Protection Measure in the City of San Diego that is outside of the Mission Valley Community but affects the community:

> "On Murphy Canyon Creek, just upstream of Friars Road, there is an approximately 300-foot long concrete-lined trapezoidal channel downstream of a 1,900-foot long double, 8- by 14-foot reinforced concrete box culvert. Upstream of the double box culvert, there is an additional 600 feet of concrete-lined trapezoidal channel. This lined channel/box culvert structure will fully contain the 10- and 2-percent annual chance flood flows and will contain a major portion of the 1- and 0.2-percent annual chance flood flows. In addition to this structure, CALTRANS, in conjunction with the USACE, has installed a large corrugated metal pipe culvert at the Interstate Highway 15-Murphy Canyon Creek crossing. This corrugated metal pipe culvert restricts the flood flow, thereby causing the upstream valley to act as a detention pond. This detention pond greatly reduces the peak flood flows downstream, and is wholly contained within the Miramar Naval Air Station."

Qualcomm Stadium parking lot can be flooded from Murphy Canyon Creek. Overflow from Murphy Canyon Creek breaks out of the channel in an area north of the parking lot shown as Zone A on the FIRM, and comingles with overflow from the San Diego River in the parking lot. This flooding also affects the tank farm located between Friars Road, I-15, and San Diego Mission Road.

Murray Canyon Creek

Based on the San Diego County 2012 FIS, Murray Canyon Creek watershed encompasses approximately 3.93 square miles, measured to its mouth at the San Diego River. Murray Canyon Creek enters Mission Valley Community from the north, along Mission Center Road, in an existing underground culvert. Murray Canyon Creek flows through Mission Valley Community for approximately 1 mile, mostly in the existing culvert system, before it confluences with (flows into) the San Diego River. The entrance to the culvert system is just north of Sevan Court, off Mission Center Road, approximately 1,200 feet upstream of Mission Valley Community boundary. The culvert system that starts at Sevan Court daylights (outlets) in a low point just upstream of Friars Road, near SR-163. Murray Canyon Creek then immediately enters another existing underground culvert under Friars Road, which outlets downstream of Friars Road at the west side of Hazard Center Mall. From the Friars Road culvert outlet, an existing open channel with rock bank protection continues between Hazard Center Mall and SR-163 to the westerly terminus of Hazard Center Drive. Existing CMP culverts under Hazard Center Drive connect Murray Canyon Creek to the San Diego River.

FEMA Flood Zones for Murray Canyon Creek within Mission Valley are Zone AE and Zone X (shaded). Flooding from Murray Canyon Creek can occur when storm events greater than the existing culvert capacity cause breakouts at the culvert entrances. Floodwater that cannot enter the culvert at Sevan Court flows over Mission Center Road, which carries the overflow to the San Diego River. This is shown as Zone X (shaded) on Mission Center Road north of Friars Road on the FIRM Panel. While the FIRM Panels indicate the 1% annual chance flood discharge is contained by the culvert, any obstruction to the culvert entrance could cause breakouts. Breakouts can also occur at Friars Road, where the long culvert system from Sevan Drive daylights upstream of the Friars Road culvert entrance. Floodwater that cannot enter the Friars Road culvert will overtop Friars Road between SR-163 and Frazee Road. The portion of Friars Road affected by flooding from Murray Canyon Creek is shown as Zone AE on the FIRM Panel.

3.0 EXISTING WATER QUALITY CONDITIONS

San Diego River and the Pacific Ocean at San Diego River mouth are the "receiving waters" for storm water runoff from Mission Valley. The quality of storm water runoff from Mission Valley Community directly impacts the quality of the receiving waters. However, San Diego River watershed is much greater than the community of Mission Valley, so the San Diego River and the Pacific Ocean at San Diego River mouth are also impacted by the quality of storm water runoff from other communities of the City of San Diego, and other jurisdictions (El Cajon, La Mesa, Santee, and County of San Diego). Because of this, this Section is organized to discuss (1) local surface runoff, and (2) receiving water quality, which is a watershed-wide matter.

Local ("On-Site") Storm Water Quality

Mission Valley Community is mostly developed and is highly impervious. Land uses include a mixture of residential, commercial business, industrial uses, governmental agencies / institutional, recreational, park, open spaces, and transportation. Typical pollutants that can be expected from these land uses include sediment, nutrients, heavy metals, organic compounds, trash and debris, oxygen demanding substances, oil and grease, bacteria and viruses, and pesticides. Because storm water runoff originating in Mission Valley Community is conveyed to the receiving waters in streets and storm drain systems with little to no opportunity for infiltration, all of the pollutants in runoff originating from existing development in Mission Valley Community can be expected to be conveyed to the receiving water. The only exception would be storm water runoff from industrial sites that have implemented best management practices (BMPs) required by the Industrial General Permit[2] or individual waste discharge requirements (WDRs) issued by the California Regional Water Quality Control Board San Diego Region (SDRWQCB), or from development projects constructed since the City of San Diego adopted the Storm Water Standards Manual, requiring certain development projects

[2] California State Water Resources Control Board Order NPDES No. CAS000001, National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Industrial Activities

classified as “Priority Development Projects” (PDPs) to include permanent post-construction best management practices (BMPs) that treat storm water runoff prior to discharge from the project. The majority of existing development in Mission Valley Community was established prior to adoption of storm water regulations requiring protection and treatment of storm water runoff. Therefore, there are few existing BMPs for protection of storm water runoff quality.

All of the pollutants identified above are detrimental to receiving water quality and need to be addressed. Storm water runoff pollution can be addressed by implementing a variety of BMPs, including source control, site design (low impact development or LID), and structural BMPs. Further information about BMP requirements is presented in Section 4 of this report.

Certain pollutants are particularly significant because the receiving waters are known to be impacted by the pollutant. This means that the City of San Diego must implement programs to directly address these pollutants. Priority pollutants are identified below under Receiving Water Quality.

Receiving Water Quality

303(d) List of Impaired and Threatened Waters and TMDLs

Under Section 303(d) of the 1972 Clean Water Act, all states are required to develop a list of impaired and threatened waters (stream/river segments, lakes) for which the required pollution controls are not sufficient to attain or maintain applicable water quality standards. The states then develop an action plan called Total Maximum Daily Loads (TMDLs) to improve water quality. A TMDL is a quantitative assessment of water quality problems, and it represents the maximum amount of the pollutant of concern that a waterbody can receive and still attain water quality standards. The states establish priorities for development of TMDLs based on the severity of the pollution and the sensitivity of the uses to be made of the waters, among other factors.

The receiving waters in or downstream of Mission Valley Community that are listed as impaired based on the current (2010) 303(d) List are:

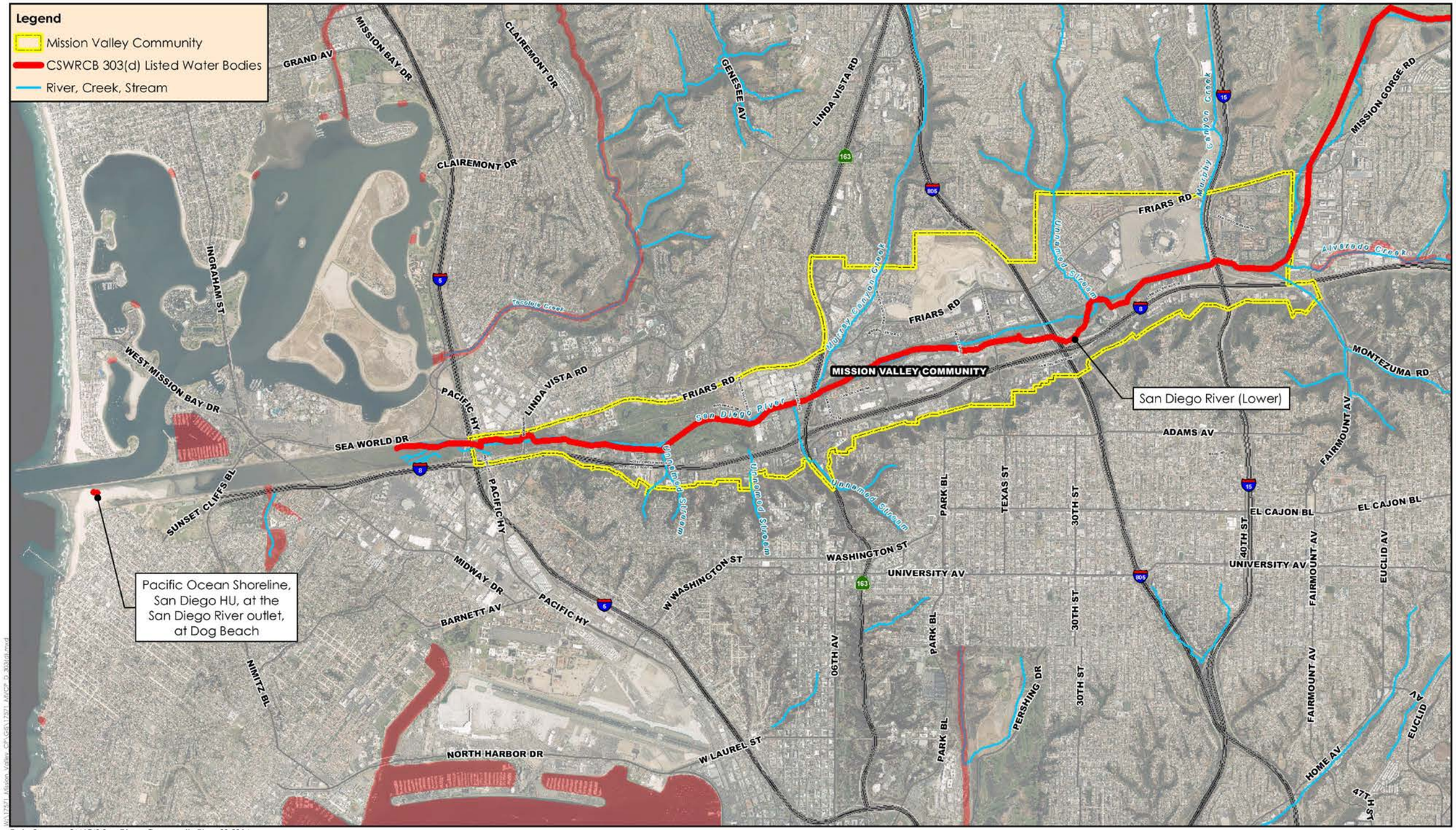
- San Diego River (Lower) – The pollutants/stressors causing impairment are enterococcus, fecal coliform, low dissolved oxygen, manganese, nitrogen, phosphorus, total dissolved solids, and toxicity.
- Pacific Ocean Shoreline, San Diego Hydrologic Unit (HU), at the San Diego River outlet, at Dog Beach –The pollutants/stressors causing impairment are enterococcus and total coliform.

Figure 6 provides a map showing the California State Water Resources Control Board, 303(d) Listed Water Bodies in Mission Valley Community. TMDLs have been established for enterococcus, fecal coliform, and total coliform for the Pacific Ocean Shoreline. TMDLs for other pollutants/stressors identified above have not been developed yet.

Water Quality Improvement Plan for the San Diego River

The City of San Diego and other agencies within the San Diego River watershed have collectively developed a Water Quality Improvement Plan for the San Diego River watershed[3] (San Diego River WQIP). As part of the development of the San Diego River WQIP, the agencies prepared an assessment of the impacts of storm drain discharges on receiving water quality that considers discharge prohibitions, available storm drain outfall data, locations, and discharge characteristics at storm drain outfalls to receiving waters. Based on these assessments, a list of priority water quality conditions was developed for the watershed, and the list was narrowed to identify the highest priority water quality condition. The highest priority water quality condition identified for the San Diego River watershed is bacteria, in both dry weather and wet weather conditions. Other priority water quality conditions are nitrogen and phosphorus, total dissolved solids, eutrophic conditions, and index of biological integrity in dry weather conditions.

[3] "San Diego River Watershed Management Area Water Quality Improvement Plan," submitted by City of El Cajon, City of La Mesa, City of San Diego, City of Santee, County of San Diego, and Caltrans, dated September 2015



Data Sources: SANGIS San Diego Community Plan, 08.2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10.2001 - 03.2011
SWRCB 303(d) Impaired Water bodies list: 2010
Eagle Aerial Photo: 04.2013

Figure 6 – 303(d) Listed Water Bodies in Mission Valley Community

4.0 REGULATIONS, POLICIES AND PROGRAMS

This Section discusses existing policies and regulations that apply to drainage and water quality in the City of San Diego, based on the City of San Diego's Land Development Code. Any development project in Mission Valley will be subject to requirements and design criteria outlined in the City of San Diego's Land Development Code and the City of San Diego's Land Development Manual, which establishes development standards and guidelines used in the review of applications. Drainage, floodplain management, and storm water runoff management requirements applicable to all development projects are discussed below. At the end of this Section is a discussion of other permits and programs that may affect specific activities or project sites.

Drainage

Drainage design policies and procedures for the City of San Diego are given in the City of San Diego's "Drainage Design Manual," dated April 1984, which is incorporated in the Land Development Manual as Appendix B. Pursuant to the Drainage Design Manual, the basic objectives are to "collect, transmit and discharge drainage in a manner to promote public safety and provide for low maintenance by:

1. Calculating the amount and frequency of storm runoff.
2. Determining the natural points of concentration and discharge and other hydraulic controls.
3. Determining the necessity for protection from floating trash and from debris moving under water.
4. Determining the requirements for energy dissipation and slope protections.
5. Analyzing the deleterious effects of corrosive soils and waters on drain pipe and structures.
6. Minimizing scour and siltation of natural stream beds, canyons and lagoons.
7. Preventing the diversion of drainage.
8. Providing for public health and safety.

9. Preventing property damage.
10. Comparing and coordinating proposed design with existing structures and systems handling the same flows.
11. Coordinating with other agencies the proposed designs for facilities.
12. Providing access for maintenance operations.
13. Providing for removal of detrimental amounts of subsurface water.
14. Design of the most efficient drainage facilities consistent with good drainage practices and considering economic considerations, ease and economy of maintenance, safety, legal obligations and aesthetics."

Development standards and guidelines to meet the objectives listed above are provided in the Drainage Design Manual. Development project applications must include a drainage study that calculates the amount of runoff expected and demonstrates how the project design adheres to the Drainage Design Manual requirements. The City of San Diego will be responsible for reviewing hydrologic and hydraulic studies and design features for conformance to the Drainage Design Manual for every map or permit for which discretionary approval is sought from the City of San Diego.

Floodplain Management

The City of San Diego is a participating Community in the National Flood Insurance Program (NFIP) administered by FEMA. The NFIP is a Federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding. As a participant in NFIP, the City of San Diego is responsible to institute adequate land use and development control measures for preventing and reducing property damage from flooding. In addition, the City has to ensure that projects within or fringing on a floodway or floodplain comply with FEMA regulations and requirements.

The City has adopted development regulations for Special Flood Hazard Areas (SFHAs) in the Land Development Code (Sections 143.0145 and 143.0146). Excerpt of these policies and regulations are included in Attachment B. Following is a summary:

- Within the floodway (the floodway is the hatched portion of Zone AE shown on the FIRM Panels in Attachment A): the regulations set limitations on land uses, structures, and channelization or other alteration of the river, and require passage of the base flood. Permanent structures are not allowed. Development in floodways (e.g., road crossing) shall be offset by improvements or modifications to enable the passage of a base flood.
- Within the flood fringe (the flood fringe is the non-hatched portion of Zone AE shown on the FIRM Panels in Attachment A): permanent structures and fill for permanent structures, roads, and other development are allowed if certain conditions are met.

A large portion of Mission Valley is designated Zone X with a Provisionally Accredited Levee (PAL) note. Zone X is not a Special Flood Hazard Area (Zone X is designated "Other Flood Areas"). Zone X would not typically be subject to the regulations for the flood fringe. However, because the levees are no longer accredited, the areas that were considered to be protected by the levees need to be studied for potential map revision. The designation could change from Zone X to Zone AE, which means the areas could be considered part of the flood fringe, and regulations applicable to the flood fringe would apply.

The City of San Diego will be responsible for reviewing development project designs for conformance to the floodplain management regulations for every map or permit for which discretionary approval is sought from the City of San Diego.

Storm Water Quality

The City of San Diego is a Copermittee under the Municipal Storm Water Permit[4] issued by the California Regional Water Quality Control Board, San Diego Region. As a Copermittee, the City of San Diego must implement several storm water management programs, including programs designed to control storm water discharges from development projects both during construction and on a permanent basis post-construction. The City of San Diego has adopted a "Storm Water Management and Discharge Control Ordinance" to address these requirements. The following discussion describes construction measures and permanent, post-construction measures (best management practices or "BMPs") that are required for development projects and must be considered from the start of project planning.

Requirements During Construction

During the construction or demolition phase, any project that results in land surface disturbances of 1 acre or greater, or results in land surface disturbances of less than 1 acre but is part of a larger common plan of development, will be subject to the requirements of the Construction General Permit[5]. Projects less than one acre in size and not part of a larger common plan of development are not subject to the requirements of the Construction General Permit. However, the City of San Diego has construction storm water requirements that apply to all development activities, including projects less than one acre in size. Projects greater than one acre are required to prepare and implement a Construction Storm Water Pollution Prevention Plan (SWPPP) which identifies the pollution prevention measures that will be implemented during construction. Projects less than one acre are required to prepare and implement a Water Pollution Control Plan (WPCP) which identifies the pollution prevention measures that will be implemented

[4] SDRWQCB Order No. R9-2013-0001, "National Pollutant Discharge Elimination System (NPDES) Permit And Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within The San Diego Region, NPDES Permit No. CAS 0109266"

during construction. The City of San Diego's Storm Water Standards Manual provides guidance for compliance with these requirements and minimum BMPs to prevent discharges of pollutants associated with construction activity.

Based on the Storm Water Standards Manual, the major construction BMP categories are:

1. Project Planning;
2. Good Site Management "Housekeeping", including Waste Management;
3. Non Storm Water Management;
4. Erosion Control;
5. Sediment Control;
6. Run-on and Run-off Control; and
7. Active/Passive Sediment Treatment Systems, where applicable.

Permanent, Post-Construction BMP Requirements

The City of San Diego implements the permanent, post-construction BMP requirements for development projects through their "Storm Water Standards Manual." As described in the Storm Water Standards Manual, all development projects must include site design and source control BMPs. Certain projects that meet size thresholds defined in the Municipal Storm Water Permit are considered "priority development projects" (PDPs) (size threshold is typically 10,000 square feet of new impervious area for new development projects or 5,000 square feet of newly created and/or replaced impervious area for redevelopment projects, but may be lower, e.g., as low as 2,500 square feet, for some land uses or locations). All PDPs must implement structural BMPs for pollutant control in addition to the required site design and source control BMPs. Some PDPs must also implement structural BMPs for flow control (control of hydromodification, or erosion of receiving waters downstream of the project) depending on the receiving water that the project drains to.

[5] SWRCB Order No. 2009-0009-DWQ, "National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities, NPDES Permit No. CAS000002"

Site design requirements are qualitative requirements that apply to the layout and design of all development project sites. Site design performance standards define minimum requirements for how a site must incorporate low impact development (LID) BMPs, including the location of BMPs and the use of integrated site design practices. The following site design practices must be implemented at all development projects, where applicable and technically feasible:

(a) Maintenance or restoration of natural storage reservoirs and drainage corridors (including topographic depressions, areas of permeable soils, natural swales, and ephemeral and intermittent streams)[6];

(b) Buffer zones for natural water bodies (where buffer zones are technically infeasible, require project applicant to include other buffers such as trees, access restrictions, etc.);

(c) Conservation of natural areas within the project footprint including existing trees, other vegetation, and soils;

(d) Construction of streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided public safety is not compromised;

(e) Minimization of the impervious footprint of the project;

(f) Minimization of soil compaction to landscaped areas;

(g) Disconnection of impervious surfaces through distributed pervious areas;

(h) Landscaped or other pervious areas designed and constructed to effectively receive and infiltrate, retain and/or treat runoff from impervious areas, prior to discharging to the MS4;

(i) Small collection strategies located at, or as close as possible to, the source (i.e. the point where storm water initially meets the ground) to minimize the transport of runoff and pollutants to the MS4 and receiving waters;

(j) Use of permeable materials for projects with low traffic areas and appropriate soil conditions;

(k) Landscaping with native or drought tolerant species; and

(l) Harvesting and using precipitation.

Source control BMPs are features that must be implemented to address specific sources of pollutants. The following source control BMPs must be implemented at all development projects where applicable and feasible:

(a) Prevention of illicit discharges into the MS4;

(b) Storm drain system stenciling or signage;

(c) Protection of outdoor material storage areas from rainfall, run-on, runoff, and wind dispersal;

(d) Protection of materials stored in outdoor work areas from rainfall, run-on, runoff, and wind dispersal;

(e) Protection of trash storage areas from rainfall, run-on, runoff, and wind dispersal; and

(f) Use of any additional BMPs determined to be necessary by the City to minimize pollutant generation at each project.

Structural BMPs for pollutant control are permanent features that are designed to remove pollutants from storm water by measures such as retention, biofiltration, and/or flow-thru treatment by filtration or other pollutant removal mechanism. All PDPs must include structural BMPs for pollutant control. The standard for pollutant control is retention of storm water (intercept, store, infiltrate, evaporate, evapotranspire, or use storm water onsite). All PDPs must determine the feasibility to retain storm water onsite. If retention is infeasible, biofiltration of storm water runoff is required. If biofiltration is infeasible, storm water runoff must be treated by flow-thru BMPs (e.g., filtration BMPs), and the project must implement an offsite structural BMP to retain or biofilter storm water in another location in addition to implementing the onsite flow-thru treatment measures.

Structural BMPs for flow control (control of hydromodification) are permanent features that store runoff and control the outflow to mimic pre-development flow rates for a range of storm events. Structural BMPs for flow control are typically larger than structural BMPs for pollutant control and will dictate design elements in locations where

[6] Development projects proposing to dredge or fill materials in waters of the U.S. must obtain a Clean Water Act Section 401 Water Quality Certification. Projects proposing to dredge or fill waters of the state must obtain

downstream channels are susceptible to erosion from increases in storm water runoff discharge rates and durations. Typically in Mission Valley, storm water discharges are direct to the San Diego River, which is exempt from requirements for hydromodification management. However, if storm water is discharged to any other unlined channel prior to reaching the San Diego River, structural BMP requirements for flow control will apply.

The City of San Diego will be responsible for reviewing development project designs for conformance to the storm water management regulations for every map or permit for which discretionary approval is sought from the City of San Diego. Implementation of these requirements is one element of the City of San Diego's compliance with TMDL requirements and strategies for improving water quality under the San Diego River WQIP.

Other Permits

In addition to the requirements described above, other permits may be applicable to specific activities or project sites.

Industrial Storm Water Permit

Industrial facilities are subject to the requirements of the Industrial General Permit[7]. This general permit applies to operation of industrial facilities associated with nine broad categories of industrial activities. The Industrial General Permit requires the implementation of storm water management measures and development of a Storm Water Pollution Prevention Plan (SWPPP). This general permit may be reissued several times during the life of the Mission Valley Community Plan.

waste discharge requirements.

[7] California State Water Resources Control Board Order NPDES No. CAS000001, National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Industrial Activities

Temporary Groundwater Extraction

Groundwater extraction discharges to surface waters within the San Diego Region are subject to waste discharge requirements for groundwater extraction discharge[8]. Examples of activities covered under this general permit include discharge of groundwater to lower groundwater levels or pressures, control or eliminate groundwater seepage or leakage, stabilize slopes and other earth structures, construction and foundation dewatering, trench and ditch dewatering projects, monitoring wells, tank removal projects, groundwater remediation projects, permanent groundwater drainage and seepage control and other similar activities. This general permit may be reissued several times during the life of the Mission Valley Community Plan.

Alterations to Channels

Alteration to the channel of the San Diego River, Alvarado Creek, Murphy Canyon Creek, Murray Canyon Creek, or other channels would require permits issued at many levels from federal, state, and local agencies including Section 404 (of the Clean Water Act) Permit from the United States Army Corps of Engineers, Section 401 Water Quality Certification from the SDRWQCB, and several agreements and certifications from other agencies that are required as part of the Section 404 and/or Section 401 permitting process, including documentation and review under the California Environmental Quality Act (CEQA), as needed, project by project basis.

Other Programs

There are also other programs that either regulate or present guidelines and recommendations that affect urban runoff management or floodplain management in the Mission Valley Community.

[8] SDRWQCB Order No. R9-2015-0013, NPDES No. CAG919003, "General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters within the San Diego Region"

First San Diego River Improvement Project (FSDRIP) and Natural Resources Management Plan (NRMP) for FISDRIP

The First San Diego River Improvement Project (FSDRIP) Specific Plan was intended to implement and maintain a 100-year flood control channel, replant and permanently preserve natural riparian and upland habitat, and provide an urban corridor for transportation and recreation along approximately 7000 feet (~ 1.3 mile) of the San Diego River from Qualcomm Way (west of I-805) to SR-163, an area that covers approximately 45 acres.

U.S. Army Corps of Engineers implemented the flood control measures by reconfiguring the existing floodway, narrowing and deepening the floodway (by dredging the floodway by a depth of approximately 2 feet), and providing ponds for retention during storm events. The channel then was revegetated by a selection of indigenous native plants, which are required to be maintained in perpetuity within the limits of FSDRIP. The project was completed in 1988.

On February 2, 2004, the City of San Diego adopted "Natural Resources Management Plan (NRMP) for FSDRIP" to provide for the future protection and sustainable management of the natural resources within FSDRIP, pursuant to the Army Corps of Engineers' permit and conditions. The NRMP is the operational document for maintenance and management of FSDRIP and is consistent with the Mission Valley Community Plan (1985). The City of San Diego's Parks and Recreation Department is responsible for NRMP implementation.

Adjacent developments and maintenance activities must follow management and maintenance guidelines outlined in NRMP. Any activity which might result in habitat disturbance must follow mitigation restoration guidelines in NRMP. Other guidelines that would apply to development projects include fencing of FSDRIP limits during construction on adjacent properties, replanting of disturbed areas with appropriate native

plant species, and limited passive recreation use which excludes swimming, boating, hunting, and other active recreational activities within FSDRIP limits.

City of San Diego General Plan

The City of San Diego's General Plan, "City of San Diego General Plan," presents goals and policies for storm water infrastructure in the "Public Facilities, Services, and Safety Element (PF)" section of the Plan, and for floodplain management and urban runoff management in the "Conservation Element (CE)" section of the Plan. Mission Valley Planned District Ordinance is located in Chapter 15, Article 14, Division 1 through 4. Relevant excerpts from the General Plan are included in Attachment C.

City of San Diego, San Diego River Park Master Plan

The City of San Diego has adopted "San Diego River Park Master Plan" in Resolution No. R-308196, on May 20, 2013. This document provides recommendations and guidelines to be considered when updating the Community Plans for the communities along the San Diego River, and is the primary policy document for land use policies along and adjacent to San Diego River. The design guidelines apply to the River Corridor Area and the River Influence Area only. The River Corridor Area is the 100-year Floodway (as mapped by the Federal Emergency Management Agency, FEMA), plus 35 feet on both sides of the floodway to accommodate a pathway corridor. The River Influence Area extends 200 feet beyond the River Corridor Area on both sides of the river. An excerpt of San Diego River Park Master Plan is included in Attachment D.

San Diego River Water Quality Improvement Plan

The San Diego River WQIP[9] identifies strategies that the City will implement for improving water quality for the San Diego River watershed. For development projects, compliance with the City of San Diego's Storm Water Standards Manual provides consistency with WQIP strategies. For some development projects, if onsite compliance with permanent, post-construction structural BMP requirements for retention or biofiltration of runoff is not feasible, offsite alternative compliance will be required.

The San Diego River Watershed Management Area Analysis (WMAA), an element of the WQIP, identifies candidate projects that could potentially be used as offsite alternative compliance options in lieu of satisfying full onsite retention or biofiltration structural BMP requirements. Prior to implementing these candidate projects the project stakeholders must demonstrate that implementing such a candidate project would provide greater overall benefit to the watershed than requiring implementation of the onsite structural BMPs. WMAA is also intended to identify and/or prioritize areas where it is appropriate to allow certain exemptions from onsite hydromodification management BMPs. The WMAA provides the analysis that supports the exemption to hydromodification management BMPs for development projects that drain directly to the San Diego River.

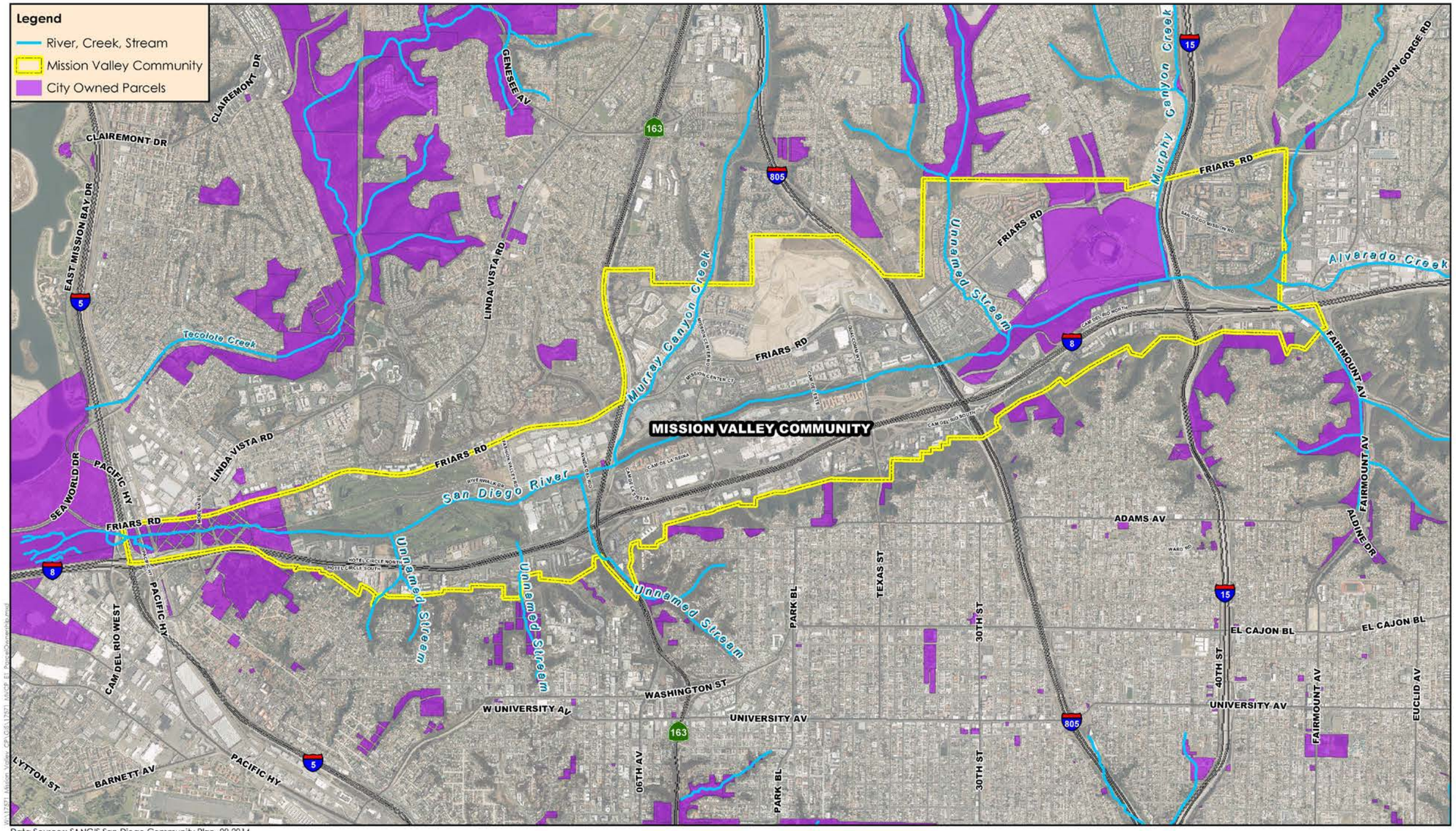
[9] "San Diego River Watershed Management Area Water Quality Improvement Plan," submitted by City of El Cajon, City of La Mesa, City of San Diego, City of Santee, County of San Diego, and Caltrans, dated September 2015

5.0 DEVELOPMENT CONSTRAINTS FOR CITY OWNED PROPERTIES

Figure 7 provides an exhibit showing City-owned parcels within Mission Valley Community.

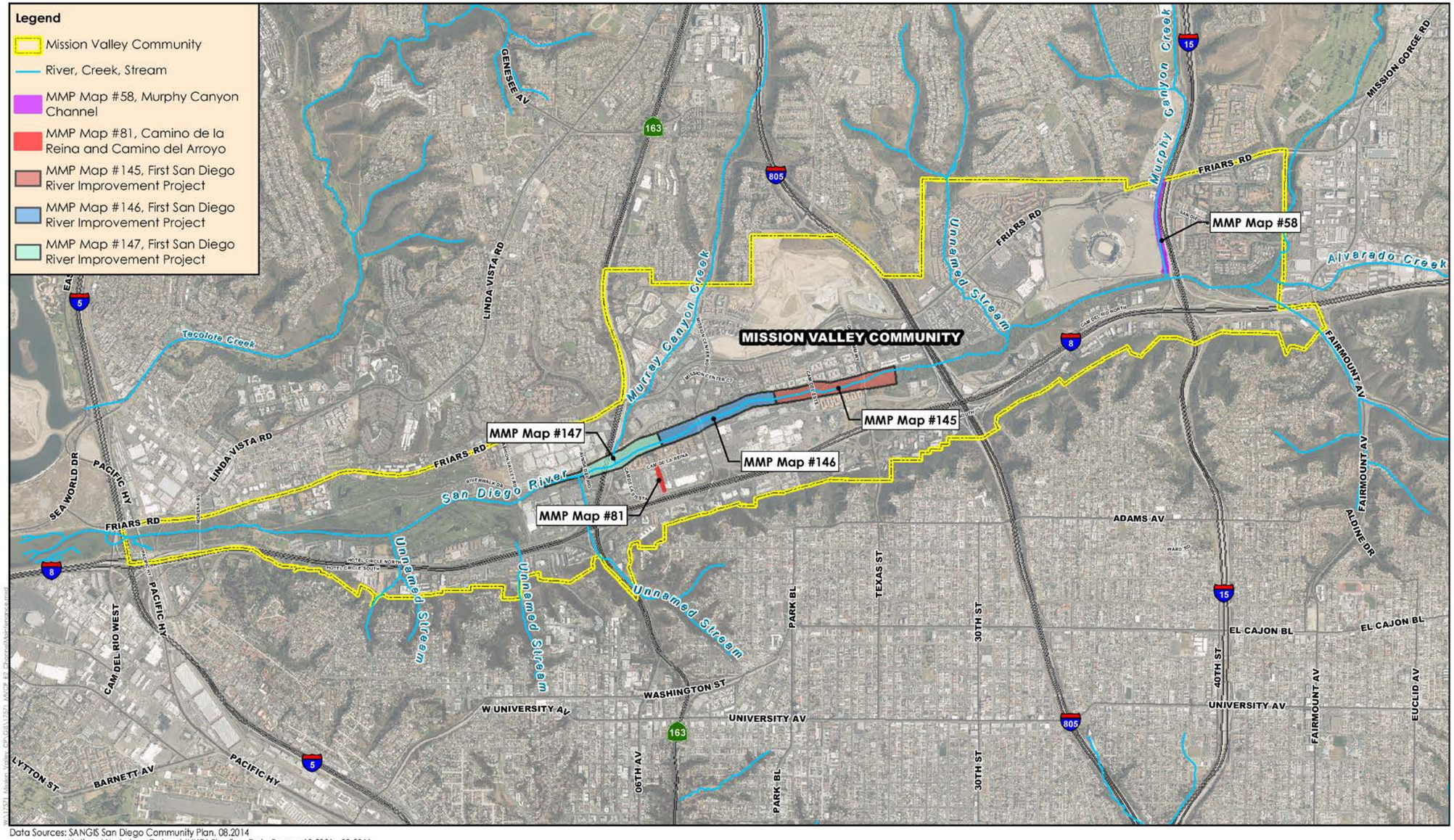
Many of the City-owned parcels are within the SFHA identified by the FEMA flood maps. The floodway portion of the SFHA must be reserved to allow passage of the 100-year flood. Land uses are restricted and development in floodways (e.g., road crossing) shall be offset by improvements or modifications to enable the passage of a base flood. Within the flood fringe (portion of the SFHA outside the floodway), permanent structures and fill for permanent structures, roads, and other development are allowed if certain conditions are met to protect from flooding. The City of San Diego may require approval of a Conditional Letter of Map Revision (CLOMR) from FEMA before construction or development begins within any Special Flood Hazard Area (SFHA). If the hydrologic and hydraulic analysis for CLOMR is approved by FEMA, this conditional letter informs the public that when the project is completed, it will qualify for a LOMR (Letter of Map Revision). A LOMR will still be required to officially change the NFIP map. The study for the development project must provide Base Flood Elevations (BFEs), floodway delineation and inclusion of other data needed to ensure that the building sites will be reasonably safe from flooding, and also that the proposed development does not increase the flood hazard on other properties. The City of San Diego also has regulation for required freeboard to ensure that the buildings are elevated above the BFE.

One City-owned property south of Fashion Valley Mall is within FSDRIP. The City-owned property within FSDRIP is subject to deed restriction and maintenance regulations by FSDRIP NRMP. Figure 8, “Storm Water Channels in the City of San Diego Master Storm Water System Maintenance Program (MMP), October 2011” shows the location of FSDRIP maintenance areas.



Data Sources: SANGIS San Diego Community Plan, 08.2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10.2001 - 03.2011
SANGIS Assessor Parcels, 08.2015
Eagle Aerial Photo: 04.2013

Figure 7 – City-Owned Parcels within Mission Valley Community



Data Sources: SANGIS San Diego Community Plan, 08.2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10.2001 - 03.2011
City of San Diego, Master Storm Water System Maintenance Program, 10.2011
Eagle Aerial Photo: 04.2013

Figure 8 – Storm Water Channels in the City of San Diego Master Storm Water System Maintenance Program (MMP), October 2011

ATTACHMENT A

ATTACHMENT A.1: Annotated FIRMs

ATTACHMENT A.2: Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) Floodplain and Floodway

ATTACHMENT A.1: Annotated FIRMs

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). this information was photogrammetrically compiled at a scale of 1:24,000 from aerial photography dated 2009.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-877-FEMA MAP (1-877-336-2627) for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.

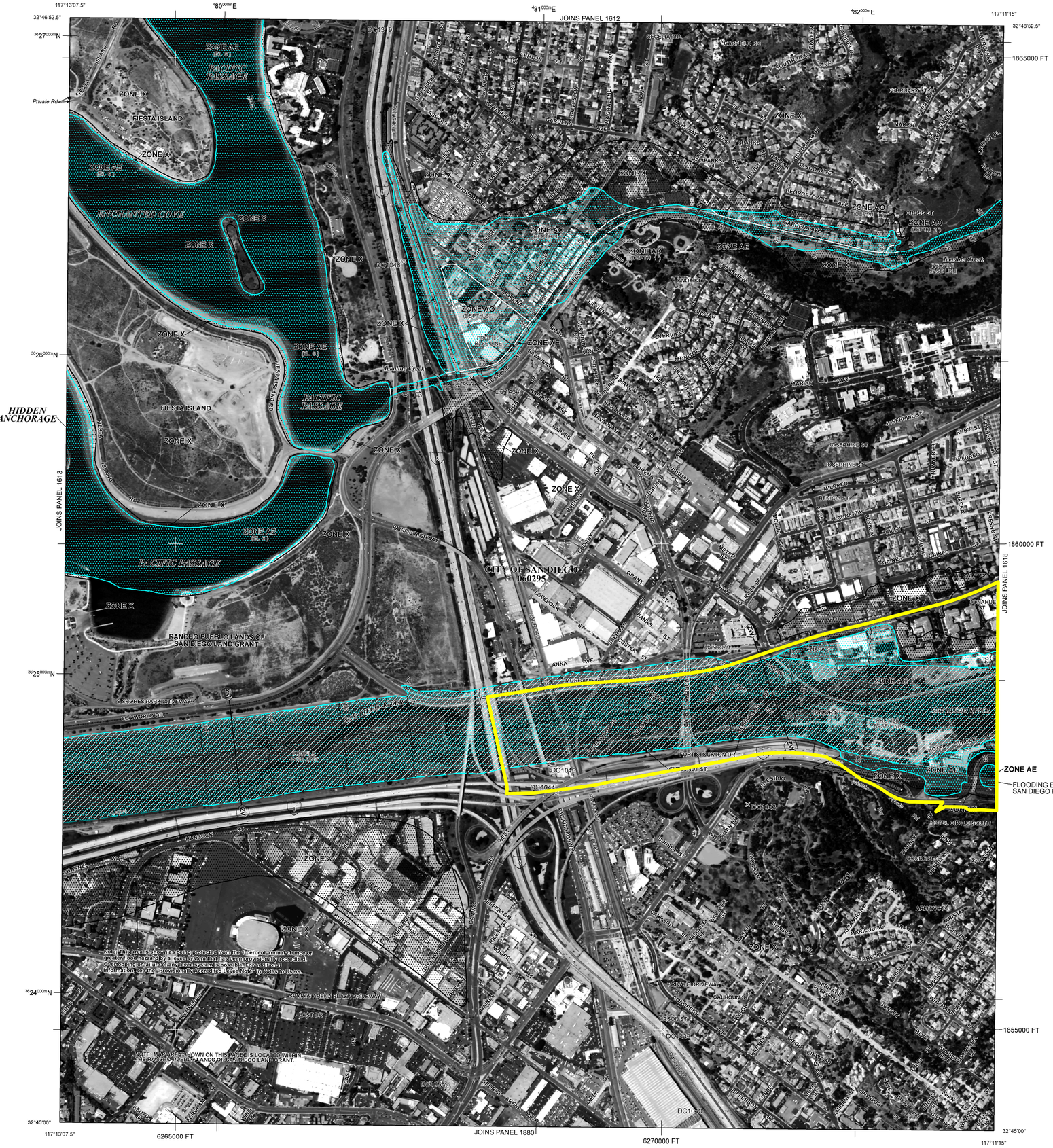
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.

The **"profile base lines"** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line", in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Provisionally Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimeated level of protection provided (which may exceed the 1-percent-annual chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations by July 23, 2009. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicate the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de-accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index/.shtm.

Legend

Mission Valley Community



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
513 — Base Flood Elevation line and value; elevation in feet*
(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*
* Referenced to the North American Vertical Datum of 1988
A — A — Cross section line
23 — 23 — Transect line
97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4275000mE — 1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 FT — 5000-foot grid values: California State Plane coordinate system, Zone VI (FIPSZONE = 406), Lambert projection
DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
June 19, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
May 16, 2012 – to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to update map elevations to North American Vertical Datum of 1988.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1614G

FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA

AND INCORPORATED AREAS

PANEL 1614 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN DIEGO, CITY OF	060295	1614	G

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
06073C1614G

MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

NOTES TO USERS

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Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). this information was photogrammetrically compiled at a scale of 1:24,000 from aerial photography dated 2009.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-877-FEMA MAP (1-877-336-2627) for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.

The **"profile base lines"** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line", in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Legend

Mission Valley Community

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A A	Cross section line
23 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4475000mE	1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 FT	5000-foot grid values: California State Plane coordinate system, Zone VI (FIPSZONE = 406), Lambert projection
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
June 19, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
May 16, 2012 – to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to update map elevations to North American Vertical Datum of 1988.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1617G

FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1617 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN DIEGO, CITY OF	060295	1617	G

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
06073C1617G

MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

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SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

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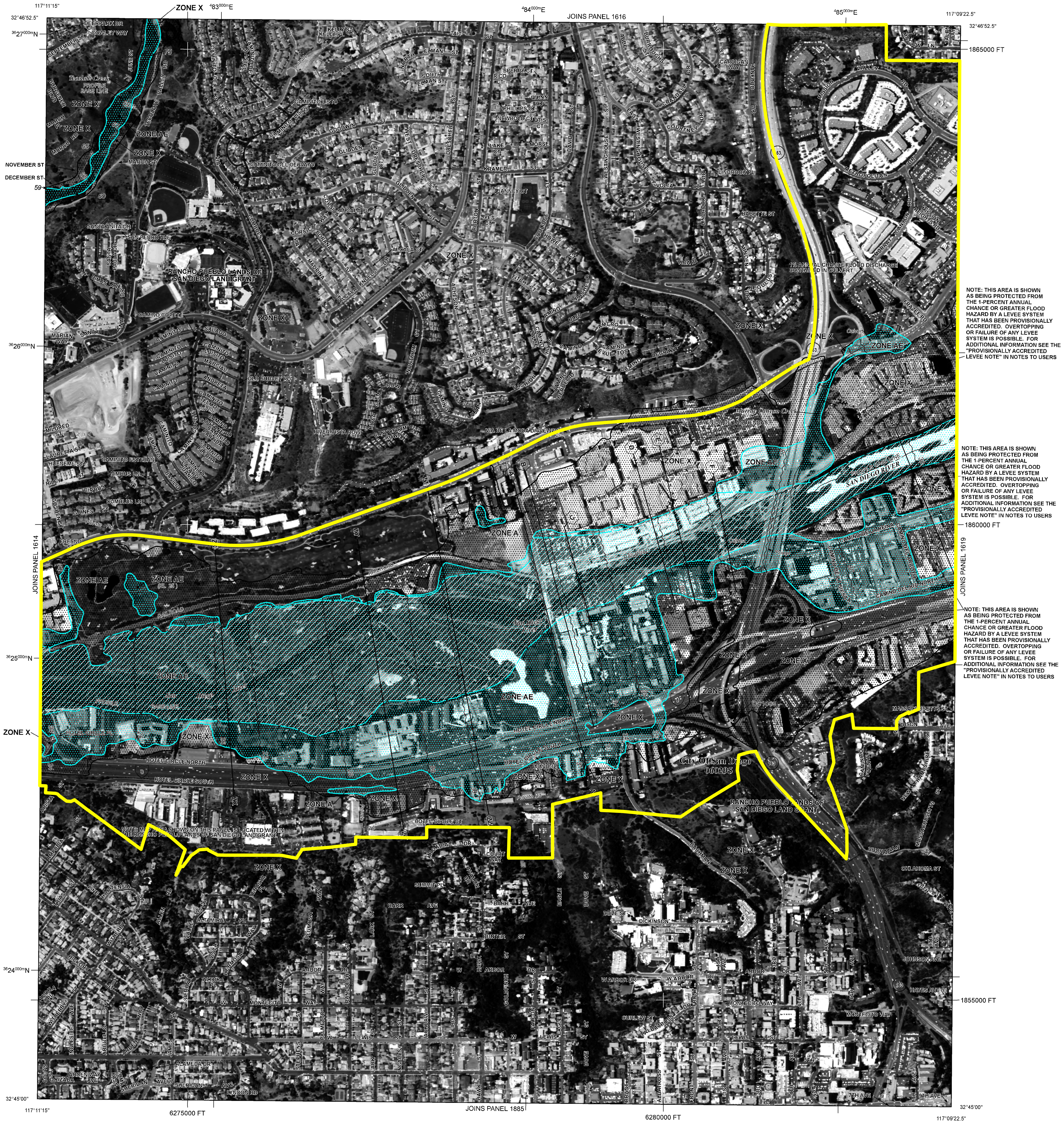
The **"profile base lines"** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line", in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Provisionally Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations by July 23, 2009. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicate the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de-accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

Legend

Mission Valley Community



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities

~~ 513 ~~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

(A)———(A)	Cross section line
(23)- - - - - -(23)	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4275000m E	1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 FT	5000-foot grid values: California State Plane coordinate system, Zone VI (FIPSZONE = 406), Lambert projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
June 19, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
May 16, 2012 – to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to update map elevations to North American Vertical Datum of 1988.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET
150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1618G

FIRM
FLOOD INSURANCE RATE MAP
SAN DIEGO COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1618 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN DIEGO, CITY OF	060295	1618	G

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
06073C1618G

MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

NOTES TO USERS

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Legend

Mission Valley Community

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

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ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
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MAP REPOSITORIES
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EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
June 19, 1997

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250 0 250 500 750 1,000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1619G

FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1619 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN DIEGO, CITY OF	060295	1619	G

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
06073C1619G

MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

NOTES TO USERS

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Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

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NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

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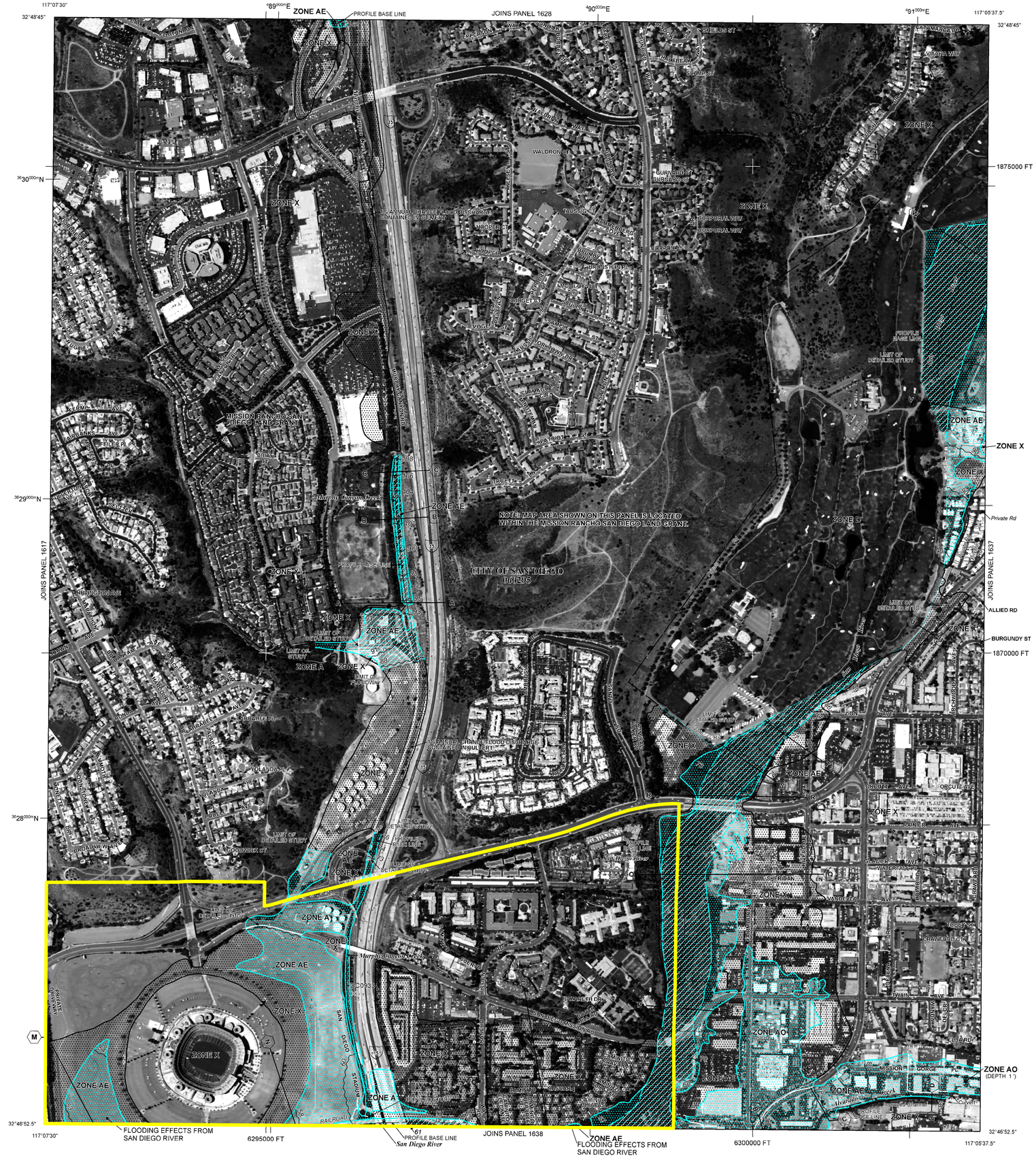
Legend

Mission Valley Community



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4 75 000mE — 1000-meter Universal Transverse Mercator grid ticks, zone 11
- 6000000 FT — 5000-foot grid values: California State Plane coordinate system, Zone VI (FIPSZONE = 406), Lambert projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
June 19, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
June 16, 1999

May 16, 2012 – to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to update map elevations to North American Vertical Datum of 1988.

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MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1636H

FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1636 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN DIEGO, CITY OF	060295	1636	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
06073C1636H

MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

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150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1638H

FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1638 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN DIEGO, CITY OF	060295	1638	H

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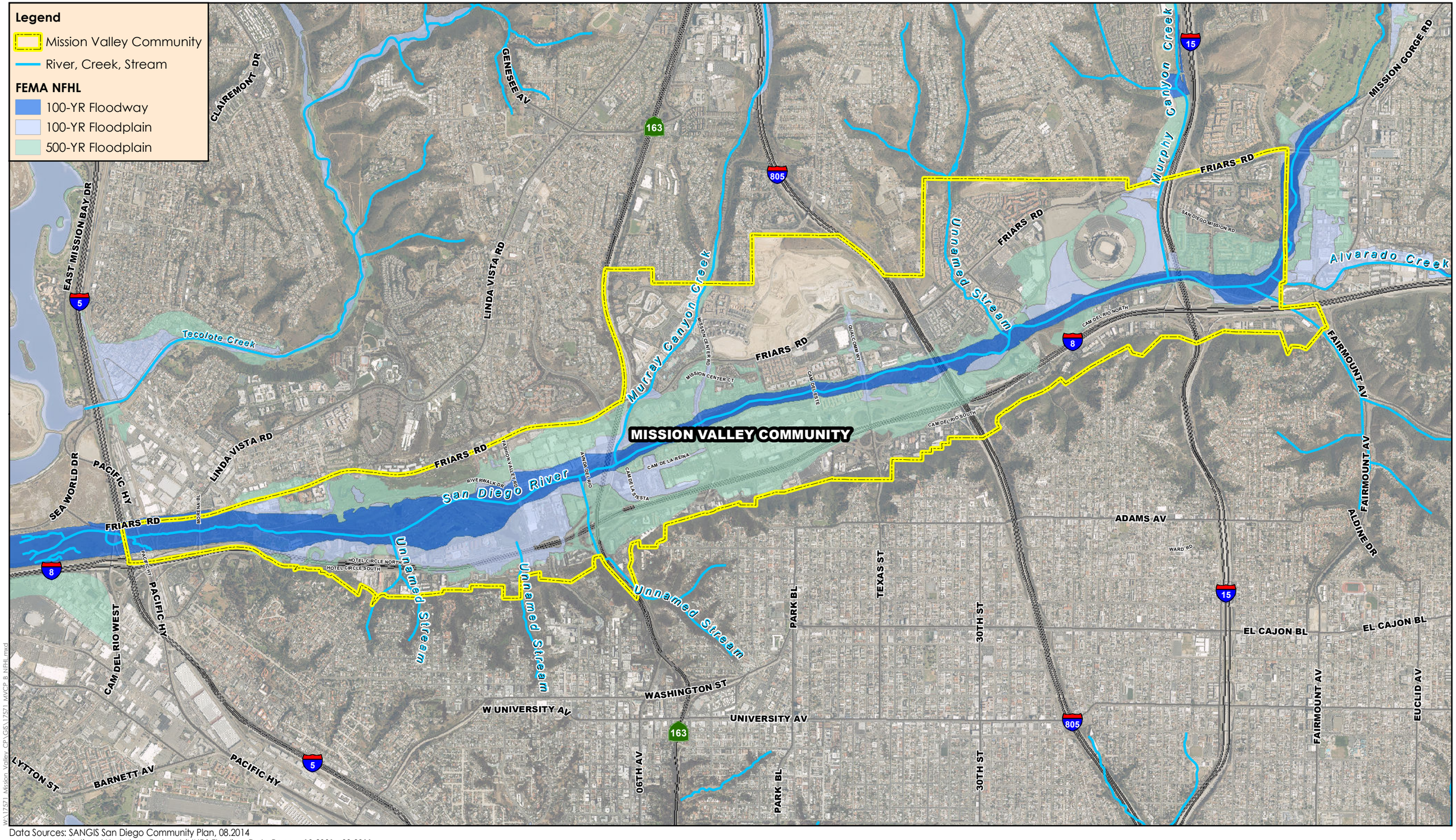
MAP NUMBER
06073C1638H

MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

ATTACHMENT A.2: Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) Floodplain and Floodway



W:\17571 Mission Valley CP\GIS\17571 MVCP B_NFHL.mxd

Data Sources: SANGIS San Diego Community Plan, 08.2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10.2001 - 03.2011
FEMA National Flood Hazard Layer (NFHL), 06.2014
Eagle Aerial Photo: 04.2013

RICK ENGINEERING COMPANY

Scale in Feet
0 2,400 4,800
North

Date of Exhibit: 10.02.2015

Mission Valley Community Plan

B – Federal Emergency Management Agency (FEMA), National Flood Hazard Layer (NFHL) Floodplain and Floodway

J-17571

ATTACHMENT B

Excerpts from City of San Diego Municipal Code

§142.0134 Retaining Walls

Retaining walls shall comply with the height limits and construction material requirements in Chapter 14 Article 2, Division 3 (Fence Regulations).
(Retitled from "Retaining Walls and Structurally Enhanced Fill" and amended 1-9-2001 by O-18910 N.S.; effective 8-8-2001.)

§142.0135 Grading Within the *Special Flood Hazard Area*

Grading within the *Special Flood Hazard Area* shall comply with Chapter 14, Article 2, Division 2 (Drainage Regulations) and Chapter 14, Article 3, Division 1 (Environmentally Sensitive Lands Regulations).
(Amended 4-22-2002 by O-19051 N.S.; effective 10-8-2002.)

§142.0144 Grading Within Environmentally Sensitive Lands

Grading within *environmentally sensitive lands* shall comply with Chapter 14, Article 3, Division 1 (Environmentally Sensitive Lands Regulations).
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0145 Performance of Grading

All persons performing *grading* work shall be responsible to provide safe and stable slopes and to protect water quality.
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0146 Erosion, Sedimentation, and Water Pollution Control

(a) All *grading* work shall incorporate erosion and siltation control measures in accordance with Chapter 14, Article 2, Division 4 (Landscape Regulations) and the standards established in the Land Development Manual.

(b) All *development* shall be conducted to prevent erosion and stop sediment and pollutants from leaving the work site. The property owner is responsible to implement and maintain temporary and permanent erosion, sedimentation, and water pollution control measures to the satisfaction of the City Manager, whether or not such measures are a part of approved plans. The property owner shall install, monitor, maintain, and revise these measures, as appropriate, to ensure their effectiveness. Controls shall include measures outlined in Chapter 14, Article 2, Division 2 Storm Water Runoff Control and Drainage Regulations) that address the *development's* potential erosion and sedimentation impacts.

Article 2: General Development Regulations

Division 2: Storm Water Runoff and Drainage Regulations

(Retitled from "Drainage Regulations" on 9-10-2001 by O-18977 N.S.; effective 10-10-2001 outside the Coastal Overlay Zone; effective 11-16-2001 within the Coastal Overlay Zone.)

§142.0201 Purpose of Drainage Regulations

The purpose of this division is to regulate the *development* of, and impacts to, drainage facilities, to limit water quality impacts from *development*, to minimize hazards due to *flooding* while minimizing the need for construction of *flood* control facilities, to minimize impacts to *environmentally sensitive land*s, to implement the provisions of federal and state regulations, and to protect the public health, safety, and welfare.
(Amended 9-10-2001 by O-18977 N.S.; effective 10-10-2001 outside the Coastal Overlay Zone; effective 11-16-2001 within the Coastal Overlay Zone.)

§142.0202 When Drainage Regulations Apply

This division shall apply to all *development* in the City, whether or not a permit or other approval is required.
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0210 Construction Standards

All storm water runoff control, drainage, and *flood* control facilities shall be constructed in accordance with standards established in the Land Development Manual, the Standard Specifications for Public Works, and any City-adopted supplements.
(Amended 9-10-2001 by O-18977 N.S.; effective 10-10-2001 outside the Coastal Overlay Zone; effective 11-16-2001 within the Coastal Overlay Zone.)

EDITORS NOTE: **The Land Development Manual includes:**
Coastal Bluffs and Beaches Guidelines
Biology Guidelines
Historical Resources Guidelines
Submittal Requirements for Deviations within the Coastal Overlay Zone

See RR-292248 for the Coastal Bluffs and Beaches Guidelines of the Land

Development Code; RR-292249 for the Biology Guidelines of the Land Development Code; RR-292250 for the Historical Resources Guidelines of the Land Development Code; RR-292251 for the Submittal Requirements for Deviations within the Coastal Overlay Zone of the Land Development Code.

§142.0220 Storm Water Runoff Control

(a) All *development* shall comply with Municipal Code Chapter 4, Article 3, Division 3 (Stormwater Management and Discharge Control).

(b) All *development* shall be conducted to prevent erosion and stop sediment and pollutants from leaving the property to the maximum extent practicable. The property owner is responsible to implement and maintain temporary and permanent erosion, sedimentation, and water pollution control measures to the satisfaction of the City Manager, whether or not such measures are a part of approved plans. The property owner shall install, monitor, maintain, and revise these measures, as appropriate, to ensure their effectiveness. Controls shall include the following measures that address the *development*'s potential erosion, sedimentation, and water pollution impacts.

(1) Erosion prevention.

(2) Sediment control.

(3) Phased *grading.*

(Retitled from "Stormwater Management and Discharge Control" and amended 9-10-2001 by O-18977 N.S.; effective 10-10-2001 outside the Coastal Overlay Zone; effective 11-16-2001 within the Coastal Overlay Zone.)

§142.0230 Development Within the Special Flood Hazard Area

All *development* within a *Special Flood Hazard Area* shall comply with Chapter 14, Article 3, Division 1 (Environmentally Sensitive Lands Regulations).
(Amended 4-22-2002 by O-19051 N.S.; effective 10-8-2002.)

§143.0145 Development Regulations for Special Flood Hazard Areas

(a) *Special Flood Hazard Areas* within the City of San Diego are established in accordance with the report entitled "*Flood Insurance Study,* San Diego County, California," dated June 16, 1999 and the accompanying *Flood Insurance Rate Maps (FIRM),* published by the Federal Emergency Management Agency (FEMA), on file in the office of the City Clerk as Document Nos. 18910-1 and 18910-2, including any supplements, amendments, and revisions which are properly promulgated by FEMA or the Federal Insurance Administrator.

(b) For the purpose of Sections 143.0145 and 143.0146, the City Engineer is the designated Floodplain Administrator and shall administer, implement, and enforce these regulations.

(c) The degree of *flood* protection required by this section is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger *floods* can and will occur on rare occasions. It is possible that increased *flood* heights may result from man-made or natural causes. This section does not imply that land outside a *Special Flood Hazard Area* or uses permitted within such areas will be free from *flooding* or *flood* damages. This section shall not create liability on the part of the City, any officer or employee thereof, or the FEMA, for any *flood* damages that result from reliance on this chapter or any administrative decision lawfully made there under.

(d) The following development regulations and all other applicable requirements and regulations of FEMA apply to all *development* proposing to encroach into a *Special Flood Hazard Area*, including both the *floodway* and *flood fringe* areas or that does not qualify for an exemption pursuant to Section 143.0110(c):

(e) *Floodways*

(1) Within the *floodway* portion of a *premises*, development regulations are as set forth for the OF zone, pursuant to Section 131.0231.

(2) *Structures* associated with any allowed use shall comply with the following requirements:

(A) *Structures* shall not be attached to a foundation, in order to readily move them in case of *flood*; and

(B) *Structures* shall be removed upon imminence of *flooding*, as predicted by the National Weather Service or local public weather broadcast. If a *structure* is not removed and *flooding* occurs, the retrieval or salvage of the *structure* and repair of any damage caused by the *structure* shall be the responsibility of the owner.

(3) *Channelization* or other substantial alteration of rivers or streams shall be limited to that necessary for the following:

(A) Essential public service projects, where no other feasible construction method or alternative project location exists; and

(B) *Flood* control projects, where no other feasible method for protecting existing public or private *development* exists and where such protection is necessary for public safety.

(C) Projects where the primary function is the improvement of fish and wildlife habitat.

(4) *Development* in *floodways* shall be offset by improvements or modifications to enable the passage of a *base flood*, in accordance with the FEMA standards and regulations provided in Section 143.0146.

(5) *Development* that involves *channelization* or other substantial alteration of rivers or streams is subject to the following requirements.

(A) All requirements and relevant recommendations of hydrological studies for the watershed of the affected stream, as approved by the City Engineer, shall be incorporated into the project design and mitigation measures. These requirements include erosional characteristics, flow velocities, volume, sediment transport, and maintenance of hydrology.

(B) The channel shall be designed to ensure that the following occur:

(i) Stream scour is minimized;

(ii) Erosion protection is provided;

(iii) Water flow velocities are maintained as specified by the City Engineer;

(iv) There are neither significant increases nor contributions to downstream bank erosion and sedimentation of *sensitive biological resources*; acceptable techniques to control stream sediment include planting riparian vegetation in and near the stream and detention or retention basins;

(v) Wildlife habitat and corridors are maintained;

(vi) Resource management criteria are implemented consistent with applicable *land use plans*; and

(vii) Groundwater recharge capability is maintained or improved.

(C) Channels that accommodate a *base flood* shall do so without increasing the water surface elevation more than one foot at any point from the level of a nonconfined *base flood* in the natural undeveloped floodplain. Channels may accommodate less than a *base flood* (low-flow channels), but shall be designed and constructed in accordance with FEMA regulations.

(D) All artificial channels shall consist of natural bottoms and sides and shall be designed and sized to accommodate existing and proposed riparian vegetation and other natural or proposed constraints. Where maintenance is proposed or required to keep vegetation at existing levels compatible with the design capacity of the channel, a responsible party shall be identified and a maintenance and monitoring process shall be established to the satisfaction of the City Engineer.

(6) *Development* shall not significantly adversely affect existing *sensitive biological resources* on-site or off-site.

(7) Within the Coastal Overlay Zone, no *structure* or portion thereof shall be erected, constructed, converted, established, altered or enlarged, or no landform alteration *grading*, placement or removal of vegetation, except that related to a historic and ongoing agricultural operation, or land division shall be permitted, provided:

(A) Parking lots, new roadways and roadway expansions shall be allowed only where indicated on an adopted *Local Coastal Program land use plan.*

(B) *Floodway* encroachments for utility and transportation crossings shall be offset by improvements or modifications to enable the passage of the *base flood*, in accordance with the FEMA standards and regulations provided in Section 143.0146.

(f) *Flood Fringe*. The applicable development regulations are those in the underlying zone, subject to the following supplemental regulations:

(1) Within the *flood fringe* of a *Special Flood Hazard Area*, permanent *structures* and *fill* for permanent *structures*, roads, and other *development* are allowed only if the following conditions are met:

(A) The *development* or *fill* will not significantly adversely affect existing *sensitive biological resources* on-site or off-site;

(B) The *development* is capable of withstanding *flooding* and does not require or cause the construction of off-site *flood* protective works including artificial *flood* channels, revetments, and levees nor will it cause adverse impacts related to *flooding* of properties located upstream or downstream, nor will it increase or expand a *(FIRM)* Zone A;

(C) *Grading* and *filling* are limited to the minimum amount necessary to accommodate the proposed *development*, harm to the environmental values of the floodplain is minimized including peak flow storage capacity, and *wetlands* hydrology is maintained;

(D) The *development* neither significantly increases nor contributes to downstream bank erosion and sedimentation nor causes an increase in *flood* flow velocities or volume; and

(E) There will be no significant adverse water quality impacts to downstream wetlands, lagoons or other *sensitive biological resources*, and the *development* is in compliance with the requirements and regulations of the National Pollution Discharge Elimination System, as implemented by the City of San Diego.

(F) The design of the *development* incorporates the findings and recommendations of both a site specific and coastal watershed hydrologic study.

(2) All *development* that involves *fill*, *channelization*, or other alteration of a *Special Flood Hazard Area* is subject to the requirements for *channelization* in Section 143.0145(e)(5) and with FEMA regulations.

(Amended 4-22-2002 by O-19051 N.S.; effective 10-8-2002.)
(Amended 11-13-08 by O-19805 N.S; effective 12-13-2008.)

§143.0146 Supplemental Regulations for Special Flood Hazard Areas

All proposed *development* within a *Special Flood Hazard Area* is subject to the following requirements and all other applicable requirements and regulations of FEMA.

(a) *Development* and Permit Review

(1) Where *base flood elevation* data has not been provided by the *Flood Insurance Study*, the City Engineer shall obtain, review, and utilize *base flood elevation* and *floodway* data available from federal or state sources, or require submittal of such data from the *applicant*. The City Engineer shall make interpretations, where needed, as to the location of the boundaries of the areas of the *Special Flood Hazard Area*, based on the best available engineering or scientific information.

(2) Proposed *development* in a *Special Flood Hazard Area* shall not adversely affect the *flood* carrying capacity of areas where *base flood elevations* have been determined but the *floodway* has not been designated. "Adversely affect" as used in this section means that the cumulative effect of the proposed *development*, when combined with all other existing and anticipated *development*, will not increase the water surface elevation of the *base flood* more than one foot at any point.

(3) In all cases where a watercourse is to be altered the City Engineer shall do the following:

(A) Notify affected, adjacent communities and the California Department of Water Resources of any proposed alteration or relocation of a watercourse and submit evidence of the notice to the Federal Insurance Administration;

(B) Require that the *flood* carrying capacity of the altered or relocated portion of the watercourse is maintained; and

(C) Secure and maintain for public inspection and availability the *certifications*, appeals, and variances required by these regulations.

(4) The *applicant* shall grant a flowage easement to the City for that portion of the property within a *floodway*.

(5) Appropriate agreements shall be secured between the *applicant* and the City to assure participation by the *applicant* or any successor in interest in financing of future *flood* control works.

(6) *Development* in a *Special Flood Hazard Area* shall not increase or expand a *FIRM* Zone A.

(7) In In all *floodways*, any *encroachment*, including *fill*, new construction, significant modifications, and other *development* is prohibited unless *certification* by a registered professional engineer is provided demonstrating that *encroachments* will not result in any increase in *flood* levels during the occurrence of the *base flood* discharge except as allowed under Code of Federal Regulations Title 44, Chapter 1, Part 60.3(c)(13).

(b) Standards for *Subdivisions*

(1) All preliminary *subdivision* proposals shall identify the *Special Flood Hazard Area* and the elevation of the *base flood*.

(2) All final *subdivision maps* shall provide the elevation of proposed *structures* and pads. If the site is *filled* above the *base flood elevation*, the *lowest floor*, including *basement*, shall be certified to be 2 feet above the *base flood elevation* by a registered professional engineer or surveyor, and the *certification* shall be provided to the City Engineer.

(3) All *subdivisions* shall be designed to minimize *flood* damage.

(4) All *subdivisions* shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize *flood* damage.

(5) All *subdivisions* shall provide adequate drainage to reduce exposure to *flood* hazards.

(6) The final map shall bear the notation "Subject to Inundation" for those portions of the property with a *grade* lower than 2 feet above the *base flood elevation*.

(c) Standards of Construction

In all *Special Flood Hazard Areas*, the following standards apply for all *development*.

(1) All permitted, permanent *structures* and other significant improvements shall be anchored to prevent flotation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

(2) All permitted permanent *structures* and other significant improvements shall be constructed with materials and utility equipment resistant to *flood* damage.

(3) Construction methods and practices that minimize *flood* damage shall be used.

(4) All electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities shall be designed and located to prevent water from entering or accumulating within the equipment components during conditions of *flooding*.

(5) *Breakaway walls* shall be certified by a registered engineer or architect to meet all applicable FEMA requirements. The *certification* shall be provided to the City Engineer before final inspection approval.

(6) New construction or *substantial improvement* of any *structure* shall have the *lowest floor*, including *basement*, elevated at least 2 feet above the *base flood elevation*. Upon completion of the *development*, the elevation of the *lowest floor*, including *basement*, shall be certified by a registered professional engineer or surveyor to be properly elevated. The *certification* shall be provided to the City Engineer before final inspection approval. The City Engineer reserves the right to require a preliminary *certification* before foundation inspection approval.

(7) New construction or *substantial improvement* of any *structure* in *FIRM* Zone AH or AO shall have the *lowest floor*, including *basement*, elevated above the highest adjacent *grade* at least 2 feet higher than the depth number specified on the *FIRM*, or at least 4 feet if no depth number is specified. Upon the completion of the *structure* the elevation of the *lowest floor*, including *basement*, shall be certified by a registered professional engineer or surveyor, to be properly elevated. The *certification* shall be provided to the City Engineer before final inspection approval. The City Engineer may require a preliminary *certification* before foundation inspection approval.

(8) Permitted nonresidential construction shall either be elevated as required by Section 143.0146(c)(6) or (7) or, together with attendant utility and sanitary facilities, meet the flood proofing requirements of FEMA. *Certification* by a registered professional engineer or architect that such requirements are met shall be provided to the City Engineer before final inspection approval. The City Engineer may require a preliminary *certification* before foundation inspection approval.

(9) Fully enclosed areas below the *lowest floor* that are subject to *flooding* shall be certified by a registered professional engineer or architect that they comply with the flood proofing requirements of FEMA. The *certification* shall be provided to the City Engineer before final inspection approval.

(d) Standards for *Manufactured Homes*

All new and replacement *manufactured homes* and additions to *manufactured homes* are subject to the following regulations.

(1) The *lowest floor* shall be elevated at least 2 feet above the *base flood elevation*.

(2) *Manufactured homes* shall be securely anchored to a permanent foundation system to resist flotation, collapse, or lateral movement.

(3) A registered engineer or architect must certify that the conditions of this subsection have been met. The *certification* shall be provided to the City Engineer before final inspection approval.

(e) Standards for Utilities

Certification shall be provided to the City Engineer before final inspection approval that the following requirements have been met.

(1) All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of *flood* waters into the system and discharge from systems into *flood* waters.

(2) On-site waste disposal systems shall be located and designed to avoid impairment to them or contamination from them during *flooding*.

(f) The City Engineer shall notify the San Diego District Offices of the Coastal Commission of any pending changes to the adopted Flood Insurance Rate Maps affecting property within the Coastal Overlay Zone when the City Engineer receives notification of such potential changes. The City Engineer shall notify the Commission staff when *costal development* within the City of San Diego's Coastal

Development Permit jurisdiction would require processing a change to the FIRM maps. The City Engineer shall assure the Commission's District Office has the most current effective Flood Insurance Rate Maps approved by FEMA by forwarding any revised maps affecting the Coastal Overlay Zone within thirty working days of City Engineer's receipt.

(Amended 4-22-2002 by O-19051 N.S.; effective 10-8-2002.)
(Amended 8-4-2011 by O-20081 N.S.; effective 10-6-2011.)

§143.0150 Deviations from Environmentally Sensitive Lands Regulations

Plans submitted in accordance with this section shall, to the maximum extent feasible, comply with the regulations of this division. If a proposed *development* does not comply with all applicable development regulations of this division and a deviation is requested as indicated in Table 143-01A, the Planning Commission may approve, conditionally approve, or deny the proposed Site Development Permit in accordance with Process Four, subject to the following:

(a) Deviations from the regulations of this division may be granted only if the decision maker makes the *findings* in Section 126.0504(c).

(b) Deviations from the Supplemental Regulations for Special Flood Hazard Areas in Section 143.0146 may be granted only if the decision maker makes the *findings* in Section 126.0504(d).

(c) Within the Coastal Overlay Zone, deviations from the Environmentally Sensitive Lands Regulations may be granted only if the decision maker makes the *findings* in Section 126.0708.

§1514.0302 San Diego River Subdistrict ("River Subdistrict")

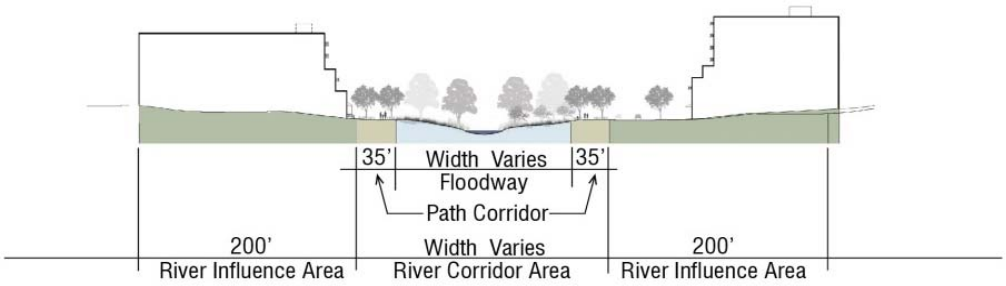
(a) Purpose

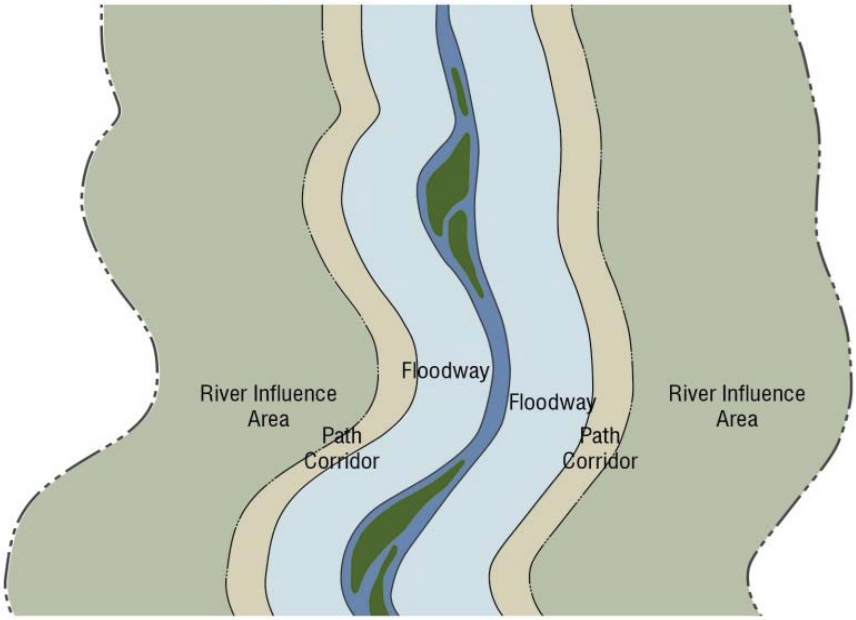
It is the purpose of the River Park Subdistrict regulations to ensure that development along the San Diego River implements the San Diego River Park Master Plan and the Mission Valley Community Plan. It is also the intent of the River Park Subdistrict regulations to preserve and enhance the character of the San Diego River valley, to provide for sensitive rehabilitation and redevelopment, and to create the River Pathway.

(b) Boundaries

The River Park Subdistrict includes the River Corridor Area and the River Influence Area. The regulations of this subdistrict apply to any project fully or partially within these boundaries. See Appendix E and Diagram 1514-03A, San Diego River Park Subdistrict Components.

Diagram 1514-03A
San Diego River Park Subdistrict Components





(c) River Corridor Area

(1) Permitted Uses and Development

(A) Development within the Floodway shall be in accordance with Section 143.0145 (Development Regulations for Special Flood Hazard Areas).

(B) Within the Path Corridor, only the following development shall be allowed:

(i) The River Pathway,

(ii) Trails, in accordance with Section 1514.0302(c)(4), and

(iii) Development determined by the City Manager to be for passive recreational use, such as picnic areas, scenic and interpretive overlooks, fitness stations, seating, and educational exhibit areas.

(C) Within locations that are not mapped as Multi-Habitat Planning Area (MHPA), as identified by the City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan, or determined to be wetland buffers in accordance with Section 143.0141, the following development shall be allowed: children's play areas, multipurpose courts, turf fields, and development determined by the City Manager to be for active recreational use.

(D) Portions of the Path Corridor that are mapped as MHPA, as identified by the City of San Diego MSCP Subarea Plan, or determined to be wetland buffers in accordance with Section 143.0141 shall be developed in accordance with the MSCP Subarea Plan's Land Use Considerations and the Environmentally Sensitive Lands Regulations in Chapter 14, Article 3, Division 1.

(2) Grading

(A) Grading within the Floodway shall be conducted in accordance with the MSCP Subarea Plan's Land Use Considerations and the Environmentally Sensitive Lands Regulations in Chapter 14, Article 3, Division 1.

(B) Grading within the Path Corridor shall, to the satisfaction of the City Manager:

(i) Avoid long, continuous engineered slopes with hard edges;

(ii) Provide gradual transitions at the top and bottom of slopes; and

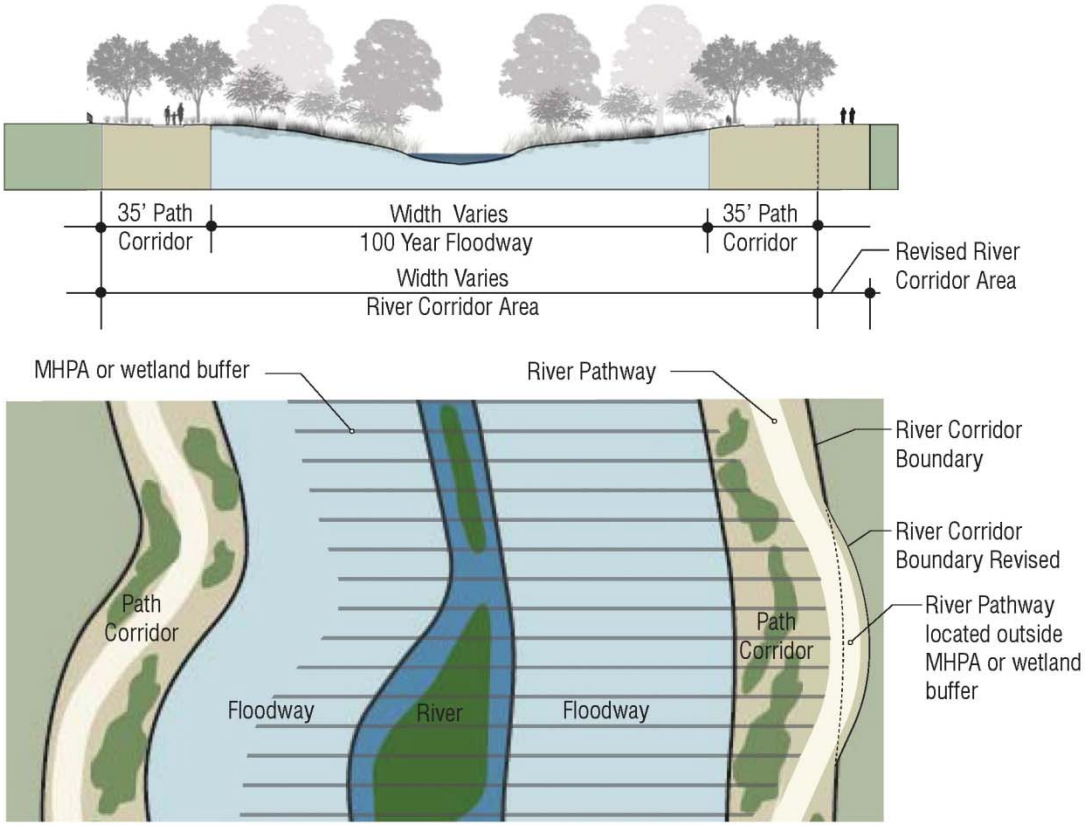
(iii) Stabilize and revegetate slopes with native plants consistent with the surrounding habitat type.

(3) River Pathway

(A) Development on a lot located wholly or partially in the River Corridor Area shall include a River Pathway. The River Pathway shall meander, to the satisfaction of the City Manager.

(B) Where portions of the Path Corridor are mapped as MHPA, as identified by the City of San Diego MSCP Subarea Plan, or determined to be wetland buffers in accordance with Section 143.0141, the River Pathway shall be located (immediately adjacent to the Path Corridor) outside the portions of the MHPA and the wetland buffer. See Diagram 1514-03B, Path Corridor Realignment for MHPA and Wetland Buffer.

Diagram 1514-03B
Path Corridor Realignment for MHPA and Wetland Buffer



(C) The entire River Pathway shall be dedicated with an easement that allows public access.

(D) The River Pathway shall be completed in the first phase of any phased development.

(E) The River Pathway shall include the following features:

(i) A minimum10-foot wide pathway of concrete or similar material in a color that blends with the surrounding native soil;

(ii) A minimum 2-foot wide area of decomposed granite or similar material along each side of the River Pathway in a color similar to the River Pathway;

(iii) A minimum 10-foot wide landscape area between the Floodway and the River Pathway; and

(iv) A minimum 12-foot vertical clearance above finished grade of the River Pathway.

(4) Trails. Pedestrian-only trails may be located within the River Corridor Area in accordance with the following:

(A) Trail alignments shall mimic natural conditions and minimize grading and disturbance to vegetation.

(B) Trails shall be designed to provide continuous loops to the River Pathway, with no trail alignment resulting in a dead end.

(C) Trails located in areas mapped as MHPA, as identified by the City of San Diego MSCP Subarea Plan, or determined to be wetland buffers in accordance with Section 143.0141, are subject to the MSCP Subarea Plan's Land Use Considerations and the Environmentally Sensitive Lands Regulations in Chapter 14, Article 3, Division 1.

(D) Trails shall include the following features:

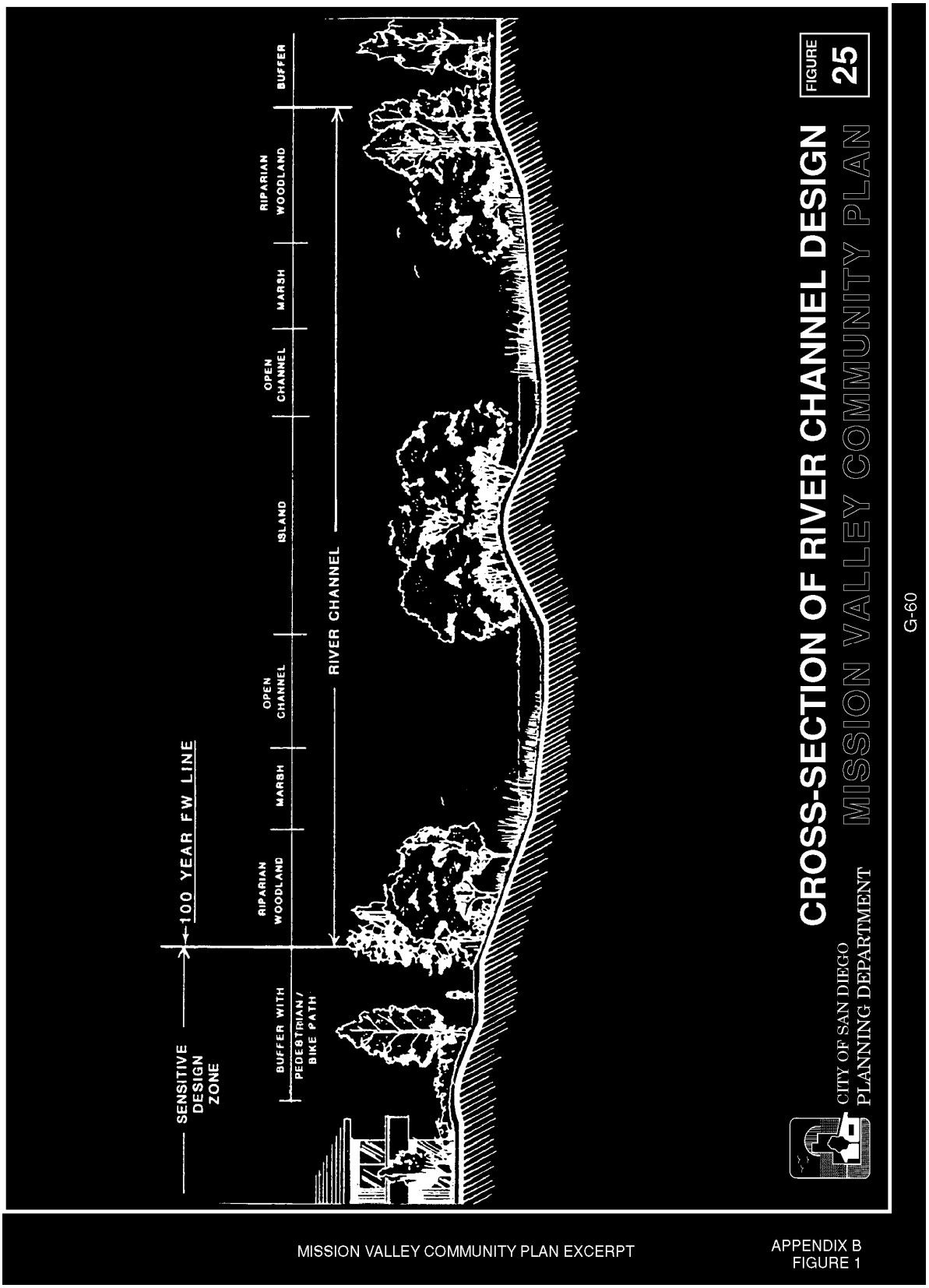
(i) A maximum 8-foot width;

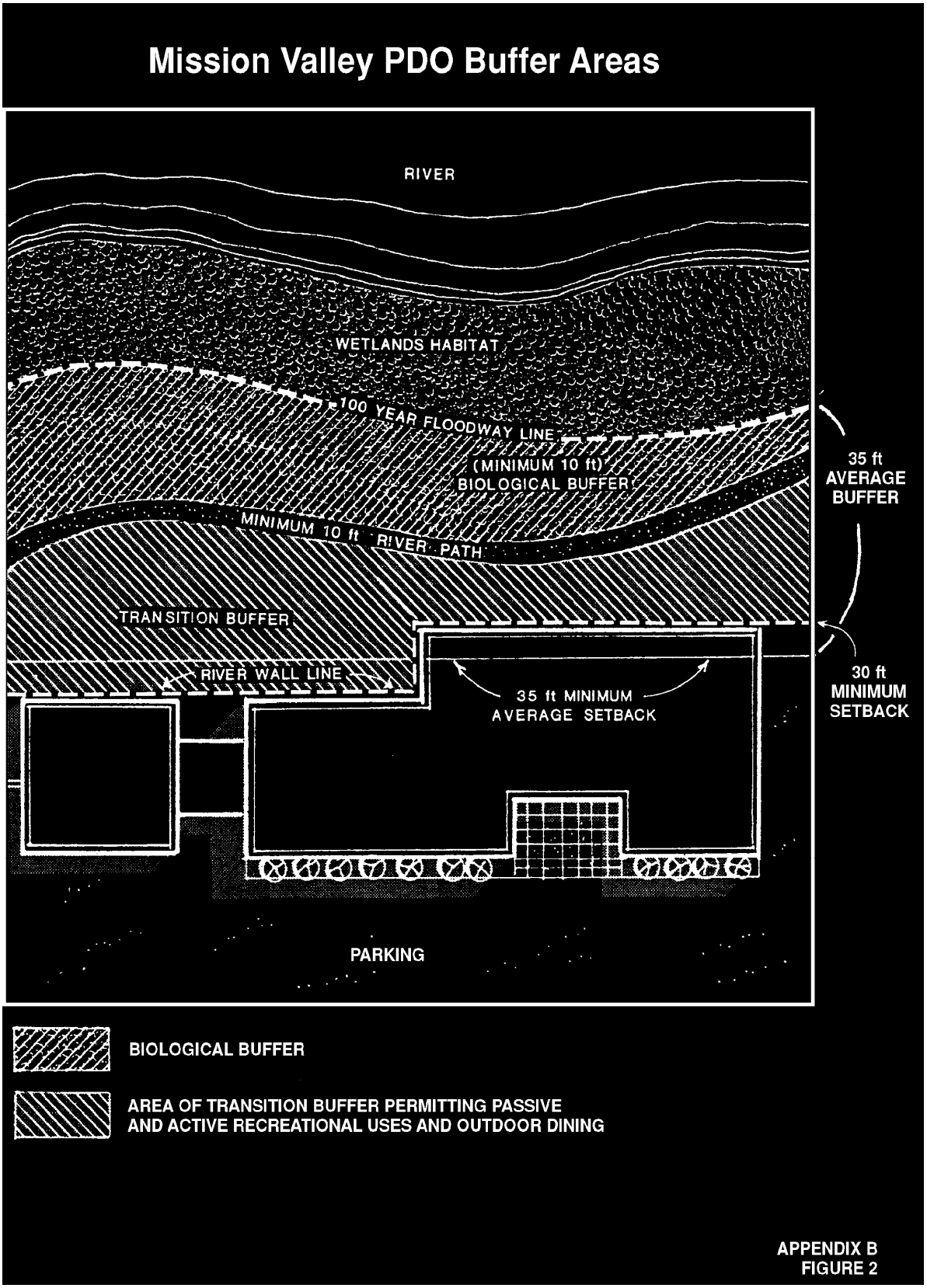
(ii) An 8-foot vertical clearance above finished grade of the trail; and

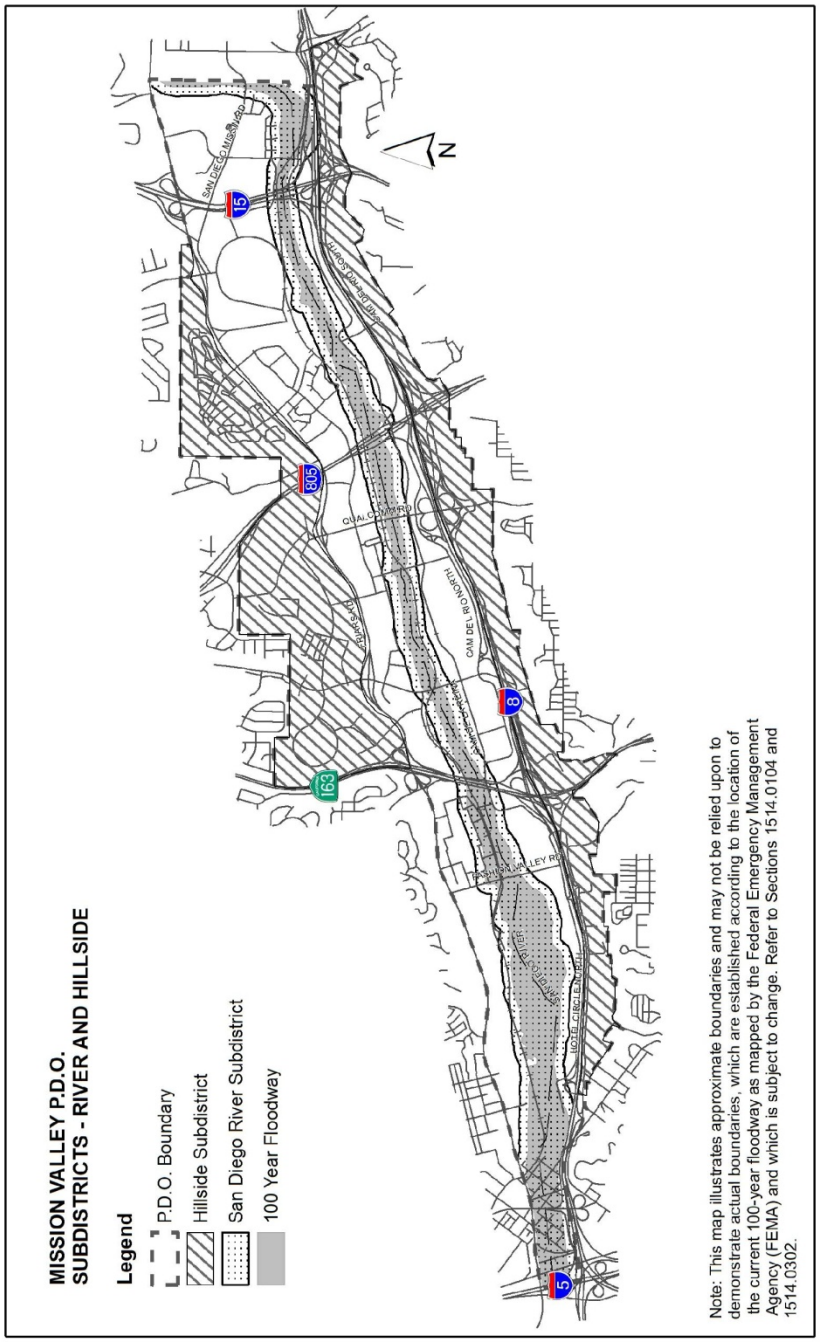
(iii) Surface material of decomposed granite or similar material in a color that blends with the surrounding native soil.

(5) Picnic Areas and Overlooks

(A) Development on a lot located wholly or partially in the River Corridor Area shall include at least one picnic area or overlook along the River Pathway unless either exists less than one-half mile away.


CROSS-SECTION OF RIVER CHANNEL DESIGN
MISSION VALLEY COMMUNITY PLAN
FIGURE 25
CITY OF SAN DIEGO
PLANNING DEPARTMENT
G-60
SENSITIVE DESIGN ZONE
100 YEAR FW LINE
BUFFER WITH PEDESTRIAN / BIKE PATH
RIPARIAN WOODLAND
MARSH
OPEN CHANNEL
ISLAND
OPEN CHANNEL
MARSH
RIPARIAN WOODLAND
BUFFER
RIVER CHANNEL
MISSION VALLEY COMMUNITY PLAN EXCERPT
APPENDIX B
FIGURE 1


Mission Valley PDO Buffer Areas
RIVER
WETLANDS HABITAT
100 YEAR FLOODWAY LINE
(MINIMUM 10 ft)
BIOLOGICAL BUFFER
MINIMUM 10 ft RIVER PATH
TRANSITION BUFFER
RIVER WALL LINE
35 ft MINIMUM
AVERAGE SETBACK
35 ft
AVERAGE
BUFFER
30 ft
MINIMUM
SETBACK
PARKING
BIOLOGICAL BUFFER
AREA OF TRANSITION BUFFER PERMITTING PASSIVE
AND ACTIVE RECREATIONAL USES AND OUTDOOR DINING
APPENDIX B
FIGURE 2


MISSION VALLEY P.D.O.
SUBDISTRICTS - RIVER AND HILLSIDE
Legend
P.D.O. Boundary
Hillside Subdistrict
San Diego River Subdistrict
100 Year Floodway
Note: This map illustrates approximate boundaries and may not be relied upon to demonstrate actual boundaries, which are established according to the location of the current 100-year floodway as mapped by the Federal Emergency Management Agency (FEMA) and which is subject to change. Refer to Sections 1514.0104 and 1514.0302.
APPENDIX E
RIVER AND HILLSIDE SUBDISTRICTS

ATTACHMENT C

Excerpts from City of San Diego General Plan

G. Storm Water Infrastructure

Goals

- Protection of beneficial water resources through pollution prevention and interception efforts.
- A storm water conveyance system that effectively reduces pollutants in urban runoff and storm water to the maximum extent practicable.

Discussion

City of San Diego storm drain

The City's storm water pollution prevention efforts and conveyance system strive to protect the quality of our recreational waters and potable water resources as mandated by the federal Clean Water Act of 1972 and the San Diego Regional Water Quality Control Board. The City also maintains compliance with the Water Quality Control Plan for the San Diego Region 9 also referred to as the Basin Plan, and with storm water permits. These functions require a multi-faceted approach that couples infrastructure improvements and maintenance, water quality monitoring, source identification of pollutants, land use planning policies and regulations, and pollution prevention activities such as education, code enforcement, outreach, public advocacy, and training. Additional discussion on Urban Runoff Management, Section E, is included in the Conservation Element.

The City has more than 39,000 storm drain structures and over 900 miles of storm drain pipes and channels serving approximately 237 square miles of urbanized development. Many storm water infrastructure projects do not have the opportunity to affect site design or implement other means to keep pollutants from entering storm drain flows. Therefore, prevention through education, outreach, code enforcement, and other efforts continues to be the most effective method of protecting water resources. Secondly, capital improvement investments in storm water structures (curbs, gutters, inlets, catch basins, pipes, and others) determined through Best Management Practices (BMP) are critical in order to reduce pollutant loading to acceptable levels. Public projects should be evaluated for their impact on the storm drain conveyance system and incorporate storm water quality and conveyance structures during the design process. Similarly, private development will mitigate the impacts of its development on the storm water conveyance system while overall system monitoring including the identification of needs is also performed by the City.

In addition to capital investments in storm water structures, operations and maintenance are equally critical to ensure governmental compliance and clean water resources. Furthermore, state regulations require that the City keep track of storm water structure locations and maintenance via inspections, and in some cases, collection and/or reporting of storm water quality monitoring data. The storm drain fee and other sources of funds are instrumental in ensuring compliance with legal mandates and maintaining storm water prevention and conveyance functions.

Policies

PF-G.1. Ensure that all storm water conveyance systems, structures, and maintenance practices are consistent with federal Clean Water Act and California Regional Water Quality Control Board NPDES Permit standards.

PF-G.2. Install infrastructure that includes components to capture, minimize, and/or prevent pollutants in urban runoff from reaching receiving waters and potable water supplies.

PF-G.3. Meet and preferably exceed regulatory mandates to protect water quality in a cost-effective manner monitored through performance measures.

PF-G.4. Develop and employ a strategic plan for the City's watersheds to foster a comprehensive approach to storm water infrastructure improvements.

PF-G.5. Identify and implement BMPs for projects that repair, replace, extend or otherwise affect the storm water conveyance system. These projects should also include design considerations for maintenance, inspection, and, as applicable, water quality monitoring.

PF-G.6. Identify partnerships and collaborative efforts to sponsor and coordinate pollution prevention BMPs that benefit storm water infrastructure maintenance and improvements.

The City's parks, open space, trails and pedestrian linkages are part of an integrated system that connect with regional and state resources and provide opportunities for residents and visitors to experience San Diego's open spaces. The Recreation Element describes the attributes of designated and dedicated park and open space lands for the provision of outdoor recreation. Some important open space areas are not preserved as dedicated park land, but are protected through regulations or other private property restrictions such as conservation or open space easements.
Open space that is designated in community plans and other land use plans is an important component of the open space system because of its value in protecting natural landforms, defining community boundaries, providing natural linkages between communities, providing visually appealing open spaces, and protecting habitat and biological systems of community importance that are not otherwise included in the MHPA.

Policies

CE-B.1. Protect and conserve the landforms, canyon lands, and open spaces that: define the City's urban form; provide public views/vistas; serve as core biological areas and wildlife linkages; are wetlands habitats; provide buffers within and between communities; or provide outdoor recreational opportunities.

a. Utilize Environmental Growth Funds and pursue additional funding for the acquisition and management of MHPA and other important community open space lands.

b. Support the preservation of rural lands and open spaces throughout the region.

c. Protect urban canyons and other important community open spaces including those that have been designated in community plans for the many benefits they offer locally, and regionally as part of a collective citywide open space system (see also Recreation Element, Sections C and F; Urban Design Element, Section A).

d. Minimize or avoid impacts to canyons and other environmentally sensitive lands, by relocating sewer infrastructure out of these areas where possible, minimizing construction of new sewer access roads into these areas, and redirecting of sewage discharge away from canyons and other environmentally sensitive lands.

e. Encourage the removal of invasive plant species and the planting of native plants near open space preserves.

f. Pursue formal dedication of existing and future open space areas throughout the City, especially in core biological resource areas of the City's adopted MSCP Subarea Plan.

g. Require sensitive design, construction, relocation, and maintenance of trails to optimize public access and resource conservation.

CE-B.2. Apply the appropriate zoning and Environmentally Sensitive Lands (ESL) regulations to limit development of floodplains, sensitive biological areas including wetlands, steep hillsides, canyons, and coastal lands.

a. Manage watersheds and regulate floodplains to reduce disruption of natural systems, including the flow of sand to the beaches. Where possible and practical, restore water filtration, flood and erosion control, biodiversity and sand replenishment benefits.

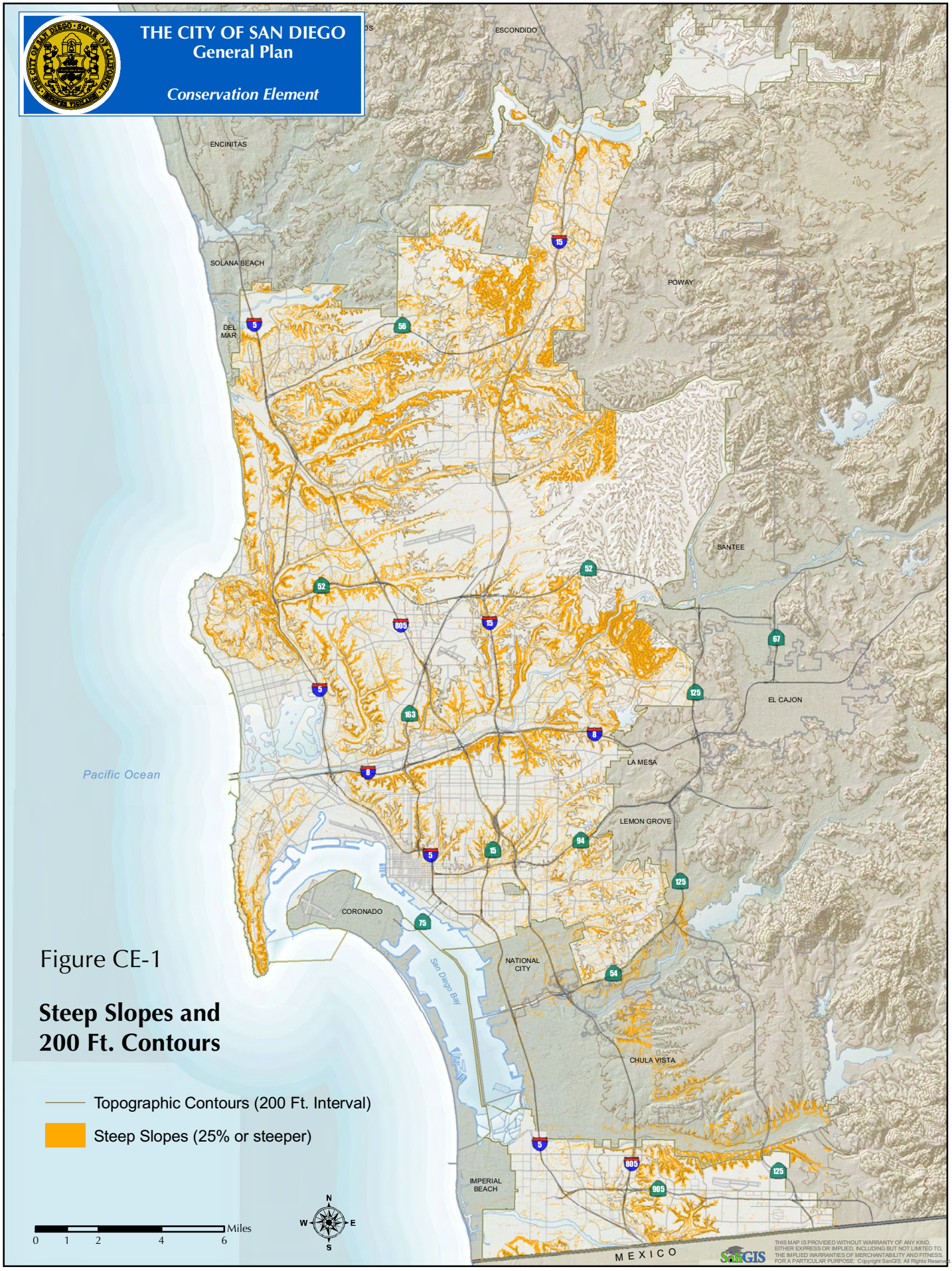
b. Limit grading and alterations of steep hillsides, cliffs and shoreline to prevent increased erosion and landform impacts.

CE-B.3. Use natural landforms and features as integrating elements in project design to complement and accentuate the City's form (see also Urban Design Element, Section A).

CE-B.4. Limit and control runoff, sedimentation, and erosion both during and after construction activity.

CE-B.5. Maximize the incorporation of trails and greenways linking local and regional open space and recreation areas into the planning and development review processes.

CE-B.6. Provide an appropriate defensible space between open space and urban areas through the management of brush, the use of transitional landscaping, and the design of structures (see also Urban Design Element, Policy UD-A.3.o). Continue to implement a citywide brush management system.



The following policies address land development practices for erosion control, decreased use of impervious surfaces, and design that captures or reduces runoff from development sites. The policies also provide a summary of the City's overall water quality protection policies.

Policies

CE-E.1. Continue to develop and implement public education programs.

a. Involve the public in addressing runoff problems associated with development and raising awareness of how an individual's activities contribute to runoff pollution.

b. Work with local businesses and developers to provide information and incentives for the implementation of Best Management Practices for pollution prevention and control.

c. Implement watershed awareness and water quality educational programs for City staff, community planning groups, the general public, and other appropriate groups.

CE-E.2. Apply water quality protection measures to land development projects early in the process-during project design, permitting, construction, and operations-in order to minimize the quantity of runoff generated on-site, the disruption of natural water flows and the contamination of storm water runoff.

a. Increase on-site infiltration, and preserve, restore or incorporate natural drainage systems into site design.

b. Direct concentrated drainage flows away from the MHPA and open space areas. If not possible, drainage should be directed into sedimentation basins, grassy swales or mechanical trapping devices prior to draining into the MHPA or open space areas.

c. Reduce the amount of impervious surfaces through selection of materials, site planning, and street design where possible.

d. Increase the use of vegetation in drainage design.

e. Maintain landscape design standards that minimize the use of pesticides and herbicides.

f. Avoid development of areas particularly susceptible to erosion and sediment loss (e.g., steep slopes) and, where impacts are unavoidable, enforce regulations that minimize their impacts.

g. Apply land use, site development, and zoning regulations that limit impacts on, and protect the natural integrity of topography, drainage systems, and water bodies.

h. Enforce maintenance requirements in development permit conditions.

CE-E.3. Require contractors to comply with accepted storm water pollution prevention planning practices for all projects.

a. Minimize the amount of graded land surface exposed to erosion and enforce erosion control ordinances.

b. Continue routine inspection practices to check for proper erosion control methods and housekeeping practices during construction.

CE-E.4. Continue to participate in the development and implementation of Watershed Management Plans for water quality and habitat protection.

CE-E.5. Assure that City departments continue to use "Best Practice" procedures so that water quality objectives are routinely implemented.

a. Incorporate water quality objectives into existing regular safety inspections.

b. Follow Best Management Practices and hold training sessions to ensure that employees are familiar with those practices.

c. Educate City employees on sources and impacts of pollutants on urban runoff and actions that can be taken to reduce these sources.

d. Ensure that contractors used by the City are aware of and implement urban runoff control programs.

e. Serve as an example to the community-at-large.

CE-E.6. Continue to encourage "Pollution Control" measures to promote the proper collection and disposal of pollutants at the source, rather than allowing them to enter the storm drain system.

a. Promote the provision of used oil recycling and/or hazardous waste recycling facilities and drop-off locations.

b. Review plans for new development and redevelopment for connections to the storm drain system.

c. Follow up on complaints of illegal discharges and accidental spills to storm drains, waterways, and canyons.

CE-E.7. Manage floodplains to address their multi-purpose use, including natural drainage, habitat preservation, and open space and passive recreation, while also protecting public health and safety.

ATTACHMENT D

Excerpts from San Diego River Park Master Plan

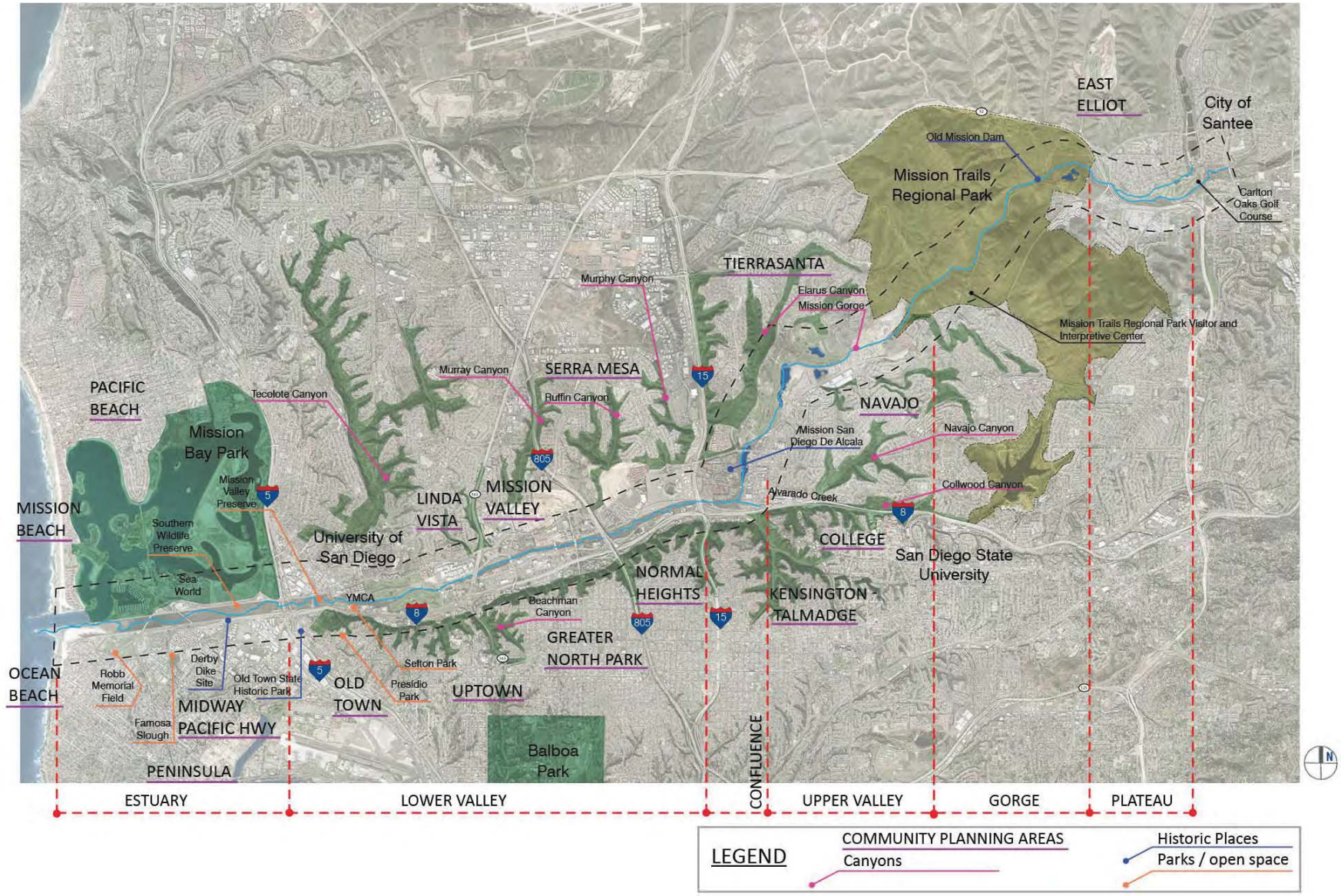


Figure 2. City of San Diego Context

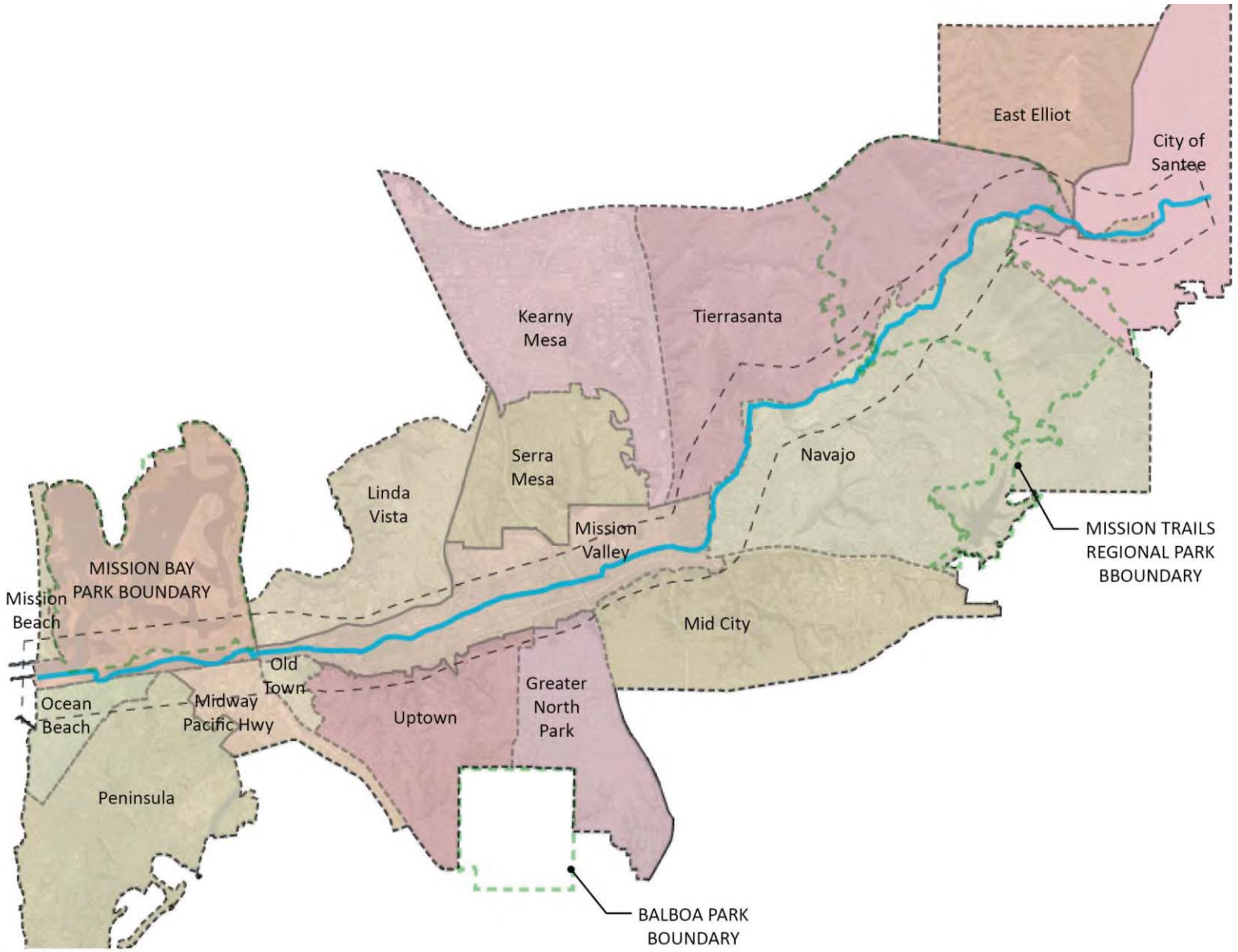


Figure 10. Community Planning Areas

3.2.2 LOWER VALLEY REACH

Overview

The Lower Valley includes the Mission Valley Preserve east to Interstate 15. The Lower Valley Reach is heavily urbanized; extensive paving in the form of parking lots and roadways, massive infrastructure projects and relatively high density development are within this reach. The river's presence is further marginalized by channelization and old mining ponds. Simple lack of space presents a severe hydrological constraint throughout the Lower Valley Reach, and exotic vegetation negatively impacts the reach's native ecosystems.

Lower Valley looking northwest

At the very west end of the Lower Valley is the Mission Valley Preserve, which extends from the Interstate 5 to Sefton Field and the YMCA. The preserve is entirely within the floodplain of the San Diego River. Most of it is riparian in nature, including black willows, cottonwoods, and sycamores. The western edge is estuarine, due to the constant fluctuation of the ocean, with salt grass, pickleweed, and spiny rush. This preserve is home to many wetland species and home to the endangered Least Bell's Vireo, a tiny songbird that nests in the area after wintering in Baja California. The birds usually arrive in the spring, as early as mid-March, and stay until as late as September. The City of San Diego owns and maintains the preserve.

Lower Valley from University of San Diego looking southeast

The surrounding communities within the Lower Valley Reach are particularly deficient in community and neighborhood parks and the San Diego River Park should play a role in addressing this need. In 2009, Sefton Field was dedicated to the City as a 19-acre population-based park, of which 7.37 acres are usable for ball fields and children's play area and the remaining acreage is a mitigation site for the construction of the

Metropolitan Transit System (MTS) trolley. On the north side of the river, across from Sefton Field is the Mission Valley YMCA. This site, 8.3 acres, is owned by the City with a lease to the YMCA for recreation facilities including a recreation building, outdoor multi-use fields and a 50-meter pool. The San Diego River Pathway is located on the south side of the river from the Mission Valley Preserve to Sefton Field. East of Sefton Field, the San Diego River Pathway does not exist along the river. At Fashion Valley Road, the San Diego River Pathway begins again on the north side of the river only and continues under State Highway 163 to the First San Diego River Improvement Project (FSDRIP) at Hazard Center Drive. From Hazard Center Drive, the western boundary of FSDRIP, the San Diego River Pathway is on the north and south side of the river to the end of FSDRIP at Qualcomm Way. The San Diego River Pathway stops at all existing public street intersections within FSDRIP, creating several gaps in the pathway. The City has completed a feasibility study on above-grade connections for the San Diego River Pathway that would close all the gaps within FSDRIP. The next San Diego River Pathway gap occurs under Interstate I-805 due to a large drainage structure. From Interstate 805 to the east, the San Diego River Pathway does not exist as a formal paved path. If additional development occurs west of Fenton Parkway, the San Diego River Pathway will be continued to the Upper Valley Reach. Undeveloped space or public land exists within the lower valley reach, offering opportunities for the river to meander, for wildlife habitat to expand, and for the creation of the San Diego River Pathway and parks.

RECOMMENDATIONS

A. **Support the goals of the Mission Valley Preserve and provide additional interpretive signs on the role of the San Diego River in the Preserve.**

B. **Provide a connection between the San Diego River Pathway and Presidio Park and a kiosk at Presidio Park to identify the San Diego River Pathway. Provide a connection between Sefton Field to the south of the river and the YMCA to the north.**

C. **Explore options at the Riverwalk Golf Course to extend the San Diego River Pathway along the trolley corridor as a short term measure until the Riverwalk Golf Course is redeveloped into a multi-use development. When the development occurs, extend the San Diego River Pathway along the River Corridor.**

D. **Pursue opportunities to address the hydrology of the river, to provide public parks and to orientate the new development toward the river in Specific Plan areas, if amended.**

Lower Valley Reach

E. Coordinate with Caltrans to establish "green gateways" at the intersection of State Highway 163 and Interstate 805 and the river valley by revegetating the freeway rights-of-ways with native vegetation.

F. Construct bike and pedestrian crossings for the existing San Diego River Pathway at FSDRIP at public street intersections, including Mission Center Road, Camino del Este and Qualcomm Way.

G. Create trail connections to the southern canyons of the Lower Valley, including Buchanan and Normal Heights Canyon, and to the northern canyons, including Murray, Murphy and Ruffin Canyons.

H. Create the San Diego River Pathway connection from Fenton Parkway (on the south side of Mission Valley Library) to I-15 and pursue opportunities to provide a pedestrian/bicycle connection, over the river, from Qualcomm Way to Mission City Parkway.

I. Consider public recreation, the San Diego River Pathway and a naturalized open space along the river when planning any future use of the City's property at the Qualcomm Stadium site.

J. Provide interpretive signage along the San Diego River Pathway about the rich history of the Lower Valley including: the prehistoric Village of Kosa'aay (Cosoy) and Nipaguay; the first Spanish Mission in California; and the farming industry of the 1880's; the sand and gravel companies; the construction of the highway system; and the development of Qualcomm Stadium (formerly known as Jack Murphy Stadium).

The heavily suburbanized condition of the lower valley reach is deficient in developed public parks will require innovative park solutions. The San Diego River Park has the potential to combine "natural" programs, such as the healthy hydrology of the river and its ecological habitat, with "urban" programs, such as active and passive recreation and an accessible and urban corridor edge. By locating recreational activities, such as passive picnic areas or overlooks within the River Corridor Area and active recreational uses in the River Influence Area such as field sports or children's play areas, the river becomes a place of varied experiences. An active river scene will reach out to a large number of user groups and introduce the river's historic and modern faces to a broad spectrum of people. The rights-of-way, associated with the river valley's highways, presents key opportunities to establish green gateways into the river area and the surrounding communities, extending the color and texture of native plant communities along the river.

Space for the river must be sought out in the Lower Valley Reach. Open space easements and property acquisition where feasible are necessary for the San Diego River Park to become a success. The future developments of public land or undeveloped land are opportunities for creating parks and open space. Consistent recommendations regarding new development, streets and landscape should be established for the Lower Valley Reach. Establishing setbacks along the river will allow the San Diego River Park to provide for areas for passive uses as well as active uses.

3.2.3 CONFLUENCE REACH

Overview

The Confluence Reach is the area between Interstate 15 and Friars Road Bridge. It is where Murphy Canyon, Alvarado Canyon and two minor canyons once joined the San Diego River as it turned west to the Pacific Ocean. This place is not only a confluence of canyons and creeks, but a confluence of people and activity throughout the history of San Diego. This is where the El Camino Real met the east-west transportation route following the San Diego River near the Mission San Diego de Alcalá. This reach also acts as a gateway to multiple destinations, allowing users to access Murphy Canyon, Alvarado Canyon, Collwood Canyon, Navajo Canyon and the Mission San Diego de Alcala.

This reach is partially enclosed by a steep canyon wall on the west side and industrial uses on the east side of the river. Interstate 8 on the south further emphasizes the sense of enclosure. Within this reach, east of Interstate 15 on the south side of the river, is a large undeveloped parcel owned by the California Department of Fish and Wildlife. This parcel was owned by Caltrans, but was deeded over to the California Department of Fish and Wildlife during the expansion of Interstate 805. The site is a State Ecological Reserve and is open for public use during daylight hours for hiking on existing trails and fishing from certain areas.

The river is also constrained by a series of old gravel mining ponds below the Friars Road Bridge; these ponds impede the normal hydrologic activities of the river system. Extensive exotic vegetation infestation is present both in the ponds (Ludwigia) and in the river (Arundo donax). As the river turns west, it is isolated by highway infrastructure, private property, and difficult physical terrain. The dense growth of Arundo further adds to the river's inaccessibility. The only section of the San Diego River Pathway constructed in this reach is along the east side of the river

River is choked by invasive vegetation

Development in Grantville should encourage new development to orient to the river

adjacent to some of the existing commercial development. Access to the Mission San Diego de Alcalá from the river is along the public sidewalk along San Diego Mission Road.

The Confluence Reach contains the Grantville Development Subarea A of the Navajo Community. This area is directly adjacent to the east side of the river and has been zoned and built with industrial uses that have turned their backs on the river and used the area as a storage yard and in some cases a waste storage area. Through development of Grantville, the area could to be rezoned with active uses that orient to the river and ensure that the river side of the structures includes plazas, public access and architecture that will step back and allow for air and sunlight to be part of the river corridor. Public parks to serve new residential uses along the river should be located adjacent to the river where possible and provide connections to the San Diego River Pathway.

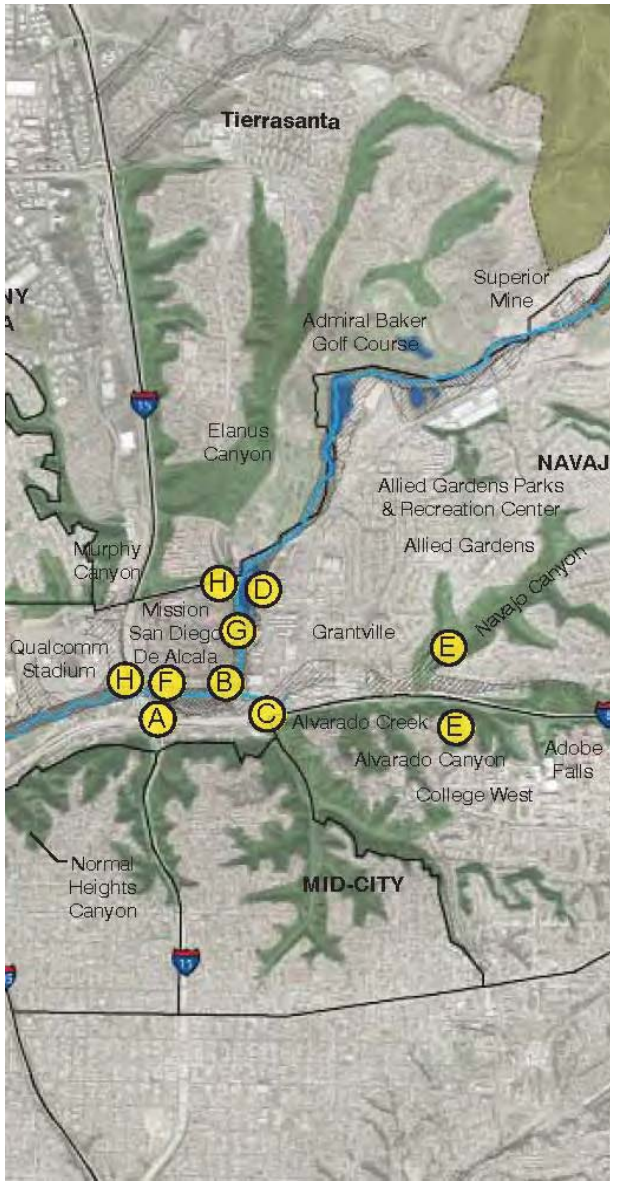
RECOMMENDATIONS

A. Pursue a class I path along Rancho Mission Road and Ward Road and coordinate with the California Department of Fish and Wildlife for a San Diego River Pathway connection on the south side of the river just east of Interstate 15. If a pathway connection cannot be provided alternative connections should be considered. Ensure that trails are designed with safety in mind, and to encourage stewardship and litter prevention.

B. Provide for a San Diego River Pathway connection to San Diego Mission Road from the north side of the river at Rancho Mission Road.

C. Improve water flow under the bridge at Mission Gorge/Fairmount Avenue for the Alvarado Creek to connect to the San Diego River. Provide a pedestrian connection under or over the bridge for access to the San Diego River Pathway from Alvarado Creek.

D. Identify land for public parks and open space through land acquisition or open space easements and identify an alignment for the San Diego River Pathway as Grantville redevelops.



Confluence Reach

E. Improve open space and trail connections with Alvarado Canyon and Navajo Canyon.

F. Create a connection between the San Diego River Park Pathway and the Mission San Diego de Alcalá.

G. Study alternatives to improve the hydrology of the river where the river corridor is narrow and constrained by deep ponds that were created by past sand and gravel mining operations. Separating the river channel from the ponds is recommended where possible and feasible. In addition, it is recommended to remove barriers between pond sections to create a larger, deeper pond.

H. Provide interpretive signage along the San Diego River Pathway about the history of the Confluence Reach including; Mission San Diego de Alcalá and its role in building the first water conveyance system (San Diego Mission Flume), the Kumeyaay village of Nipaguay at the historic mission site, the formation of the large Mexican land grants and the history of the sand and gravel mines.

The development in the Grantville area will provide the tools to change the river landscape in the Confluence Reach. By engaging owners of under-utilized property on the east edge of the river corridor, the development of Grantville may create opportunities for the acquisition of land or establishing public access easements that could allow for a wider river corridor. The river corridor today is highly constrained, however by separating the existing ponds from the river; it may be feasible to accommodate space for a free flowing river. With the ponds separated from the river a more diverse aquatic habitat could be provided. A complementary action might be improving the ponds for recreation activity, such as fishing or non-motorized boating, with resource agency approval.

The west side of the river is steep and narrow, and does not have possibilities for trail construction; however, cantilevered construction may be considered, but could affect the river and habitat. The San Diego River Park pathway can be best accommodated on the east side of the river. There is significant potential to recreate an important wildlife habitat connection between the river valley, Murphy Canyon and Alvarado Creek. Such connections would represent a meaningful first step toward reestablishing the physiographic origins of the river valley. A trail and habitat/open space connection along Alvarado Canyon Creek would link Navajo Canyon with the river corridor, further unifying the river valley's recreational and interpretive resources.

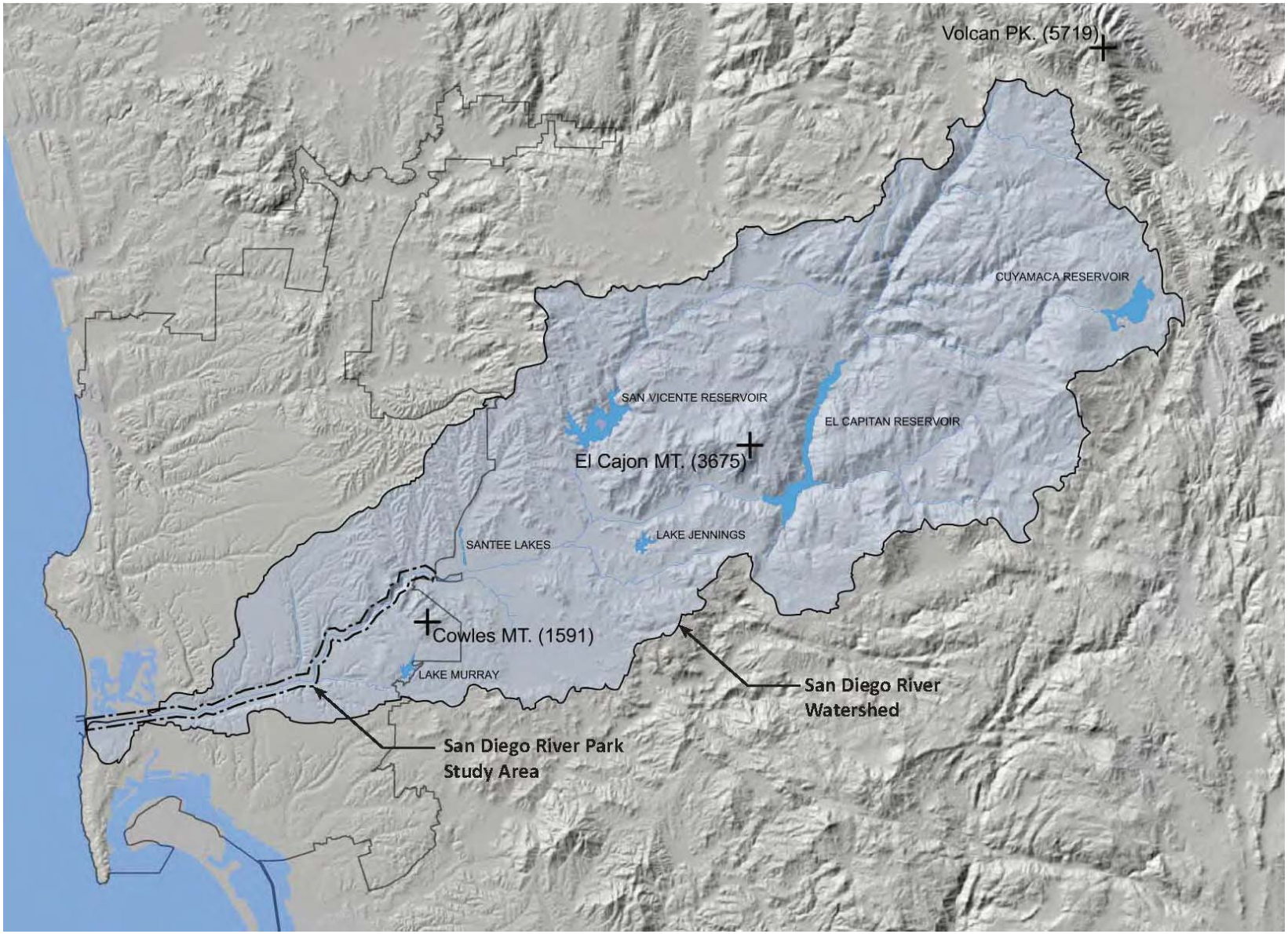


Figure 12. San Diego River Watershed

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