



Existing Conditions Analysis Hydrology and Water Quality

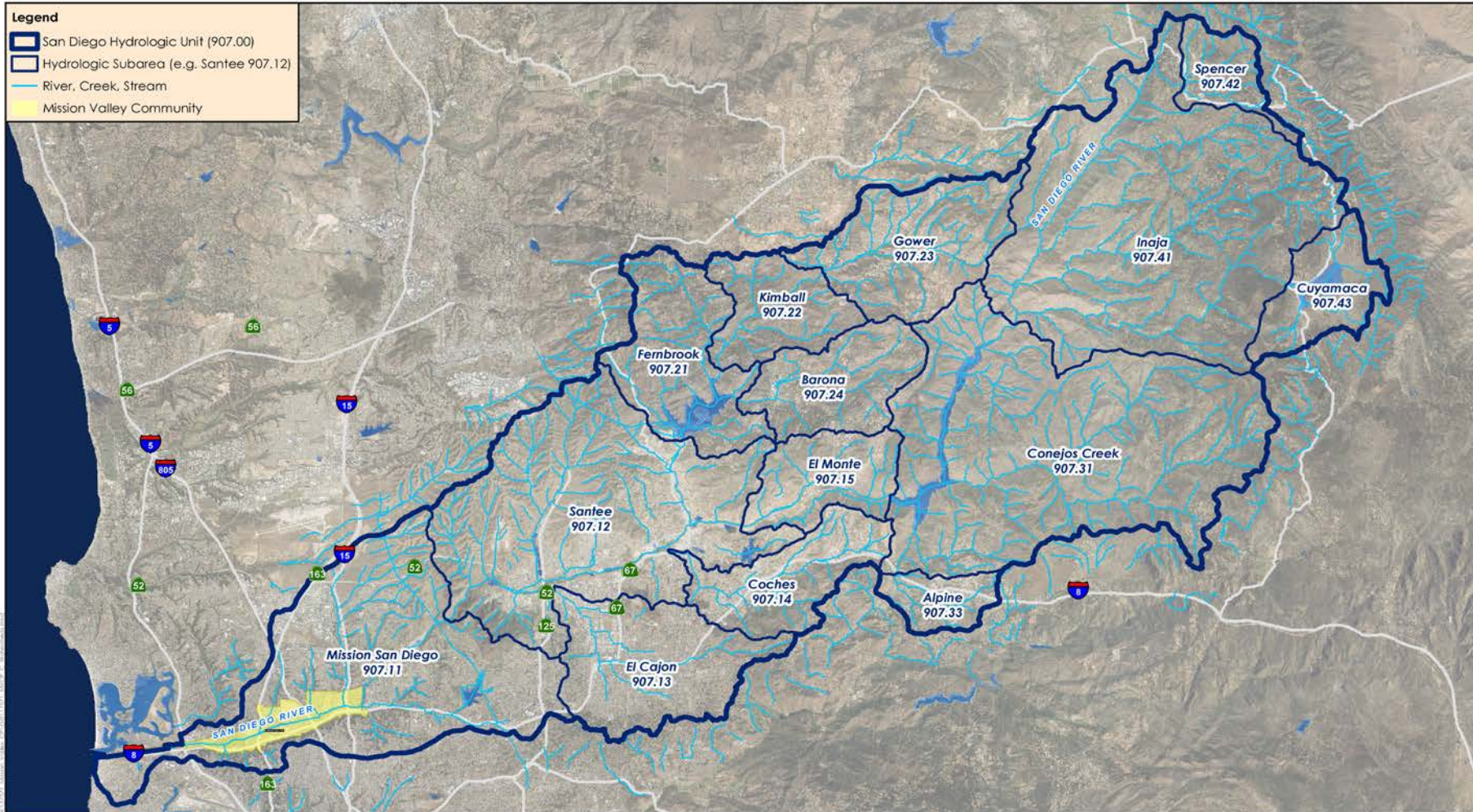
CPG Subcommittee Meeting
June 10, 2016

- 3:00 – 4:00: Presentation
 - *Overview of Existing Hydrologic/Hydraulic Conditions*
 - *Overview of Floodplains/FEMA Regulations*
 - *Channelization/River Crossings in Mission Valley*
 - *Water Quality*
 - *Regulations, Policies and Programs*
 - *FSDRIP*
 - *City of San Diego – San Diego River Park Master Plan*
 - *Habitat*
- 4:00 – 4:30: Discussion

HYDROLOGIC SETTING

- Community of Mission Valley is in the San Diego River Watershed
 - *San Diego Hydrologic Unit*
 - *440 square miles watershed*
 - *Cities of San Diego, El Cajon, La Mesa, Santee and unincorporated communities of San Diego Cou*

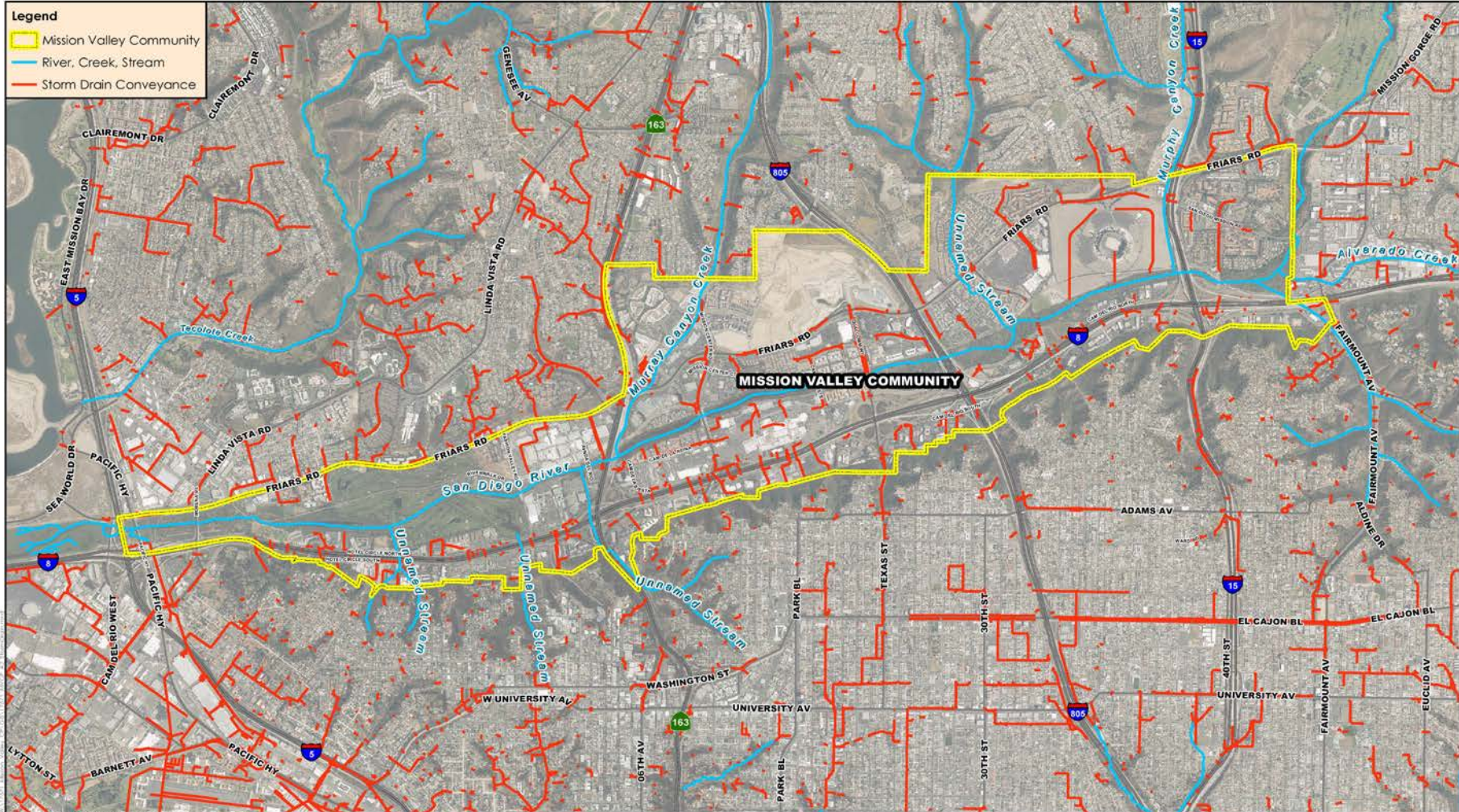
San Diego River Watershed



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

- Community of Mission Valley
 - *Lower 6.5 miles of the San Diego River*
 - *3 major creeks that flow into the San Diego River*
 - *Alvarado Creek*
 - *Murphy Canyon Creek*
 - *Murray Canyon Creek*

Rivers, Creeks, Storm Drain

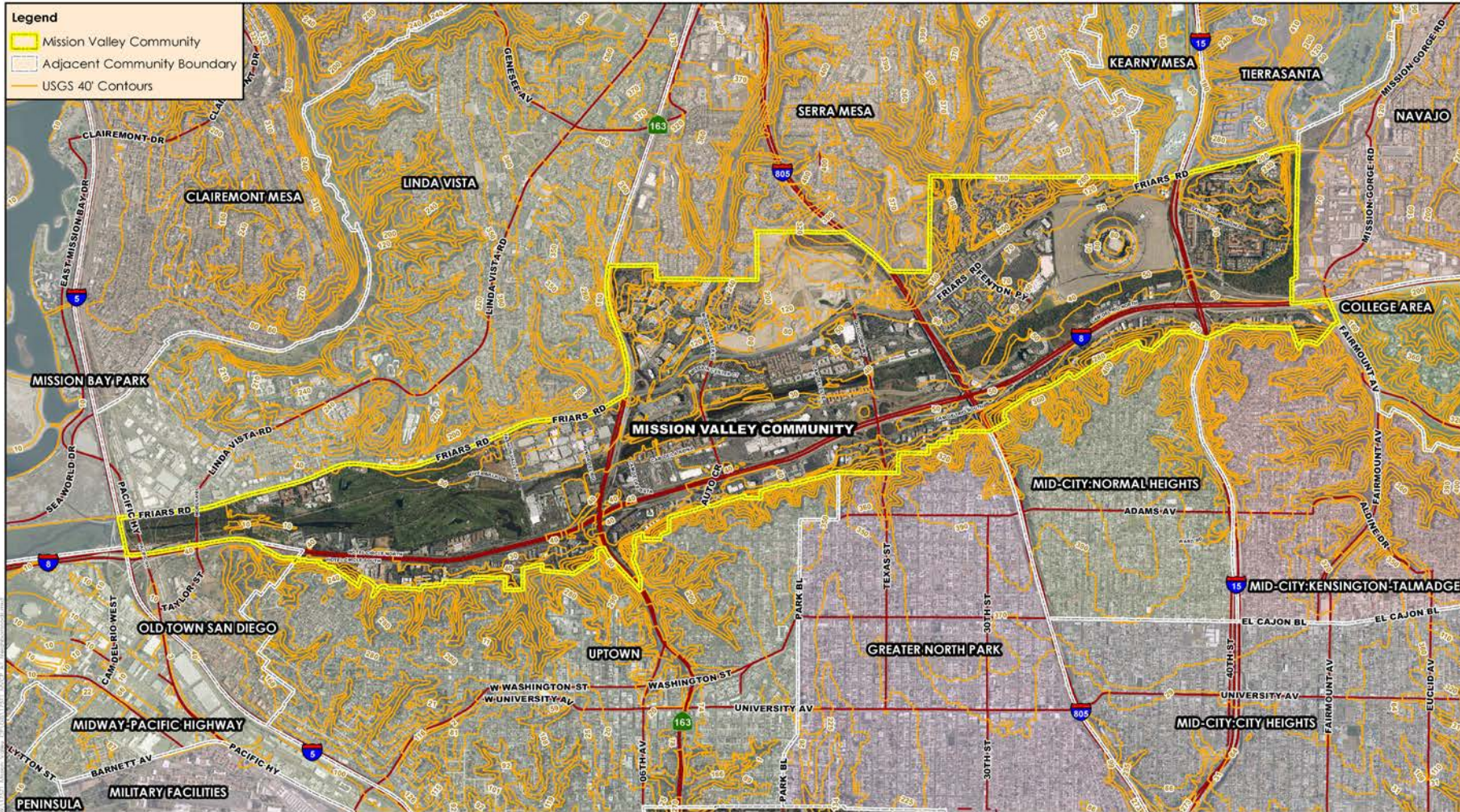


Data Sources: SANGS San Diego Community Plan, 08.2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10.2001 - 03.2011
SANGS Drain Conveyance, 04.2010
Eagle Aerial Photo: 04.2013

Local Surface Runoff Patterns

- Local Surface Runoff Patterns
 - *Steep hills to north and south drain to the San Diego River*
 - *Mostly developed and highly impervious except for the San Diego River and Riverwalk Golf Course*
 - *Minimal opportunities for infiltration*
 - *Flashy high peak flow rates for short durations*
- Adjacent Community Runoff Patterns
 - *Recipient of storm water from adjacent communities*
 - *Major drainage from 3 major creeks and surface drainage via overland flow in road gutters*

Adjacent Communities



Data Sources: SANDAG San Diego Community Plan, 08.2014
SANDAG 40' Contours, Digitized from USGS 1:24000 maps, 1970's
Eagle Aerial Photo: 04.2013

FLOODPLAINS

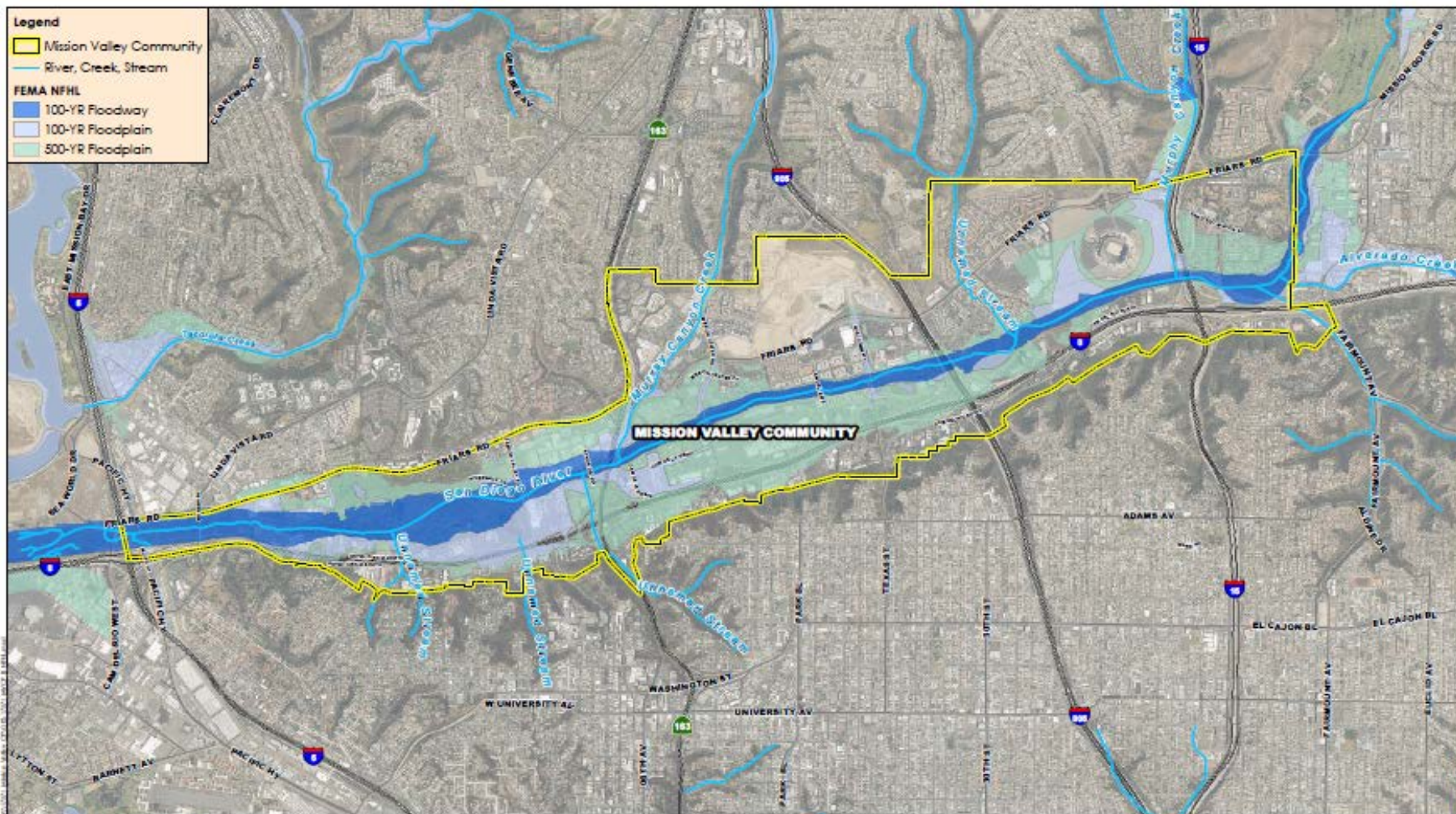
- Four Major FEMA Floodplains

- *San Diego River*
- *Alvarado Creek*
- *Murphy Canyon Creek*
- *Murray Canyon Creek*

- FEMA Designations:

- Special Flood Hazard Areas (SFHAs)
 - Zone AE, Zone A and Floodways
- “Other Flood Areas”
 - Zone X (shaded)

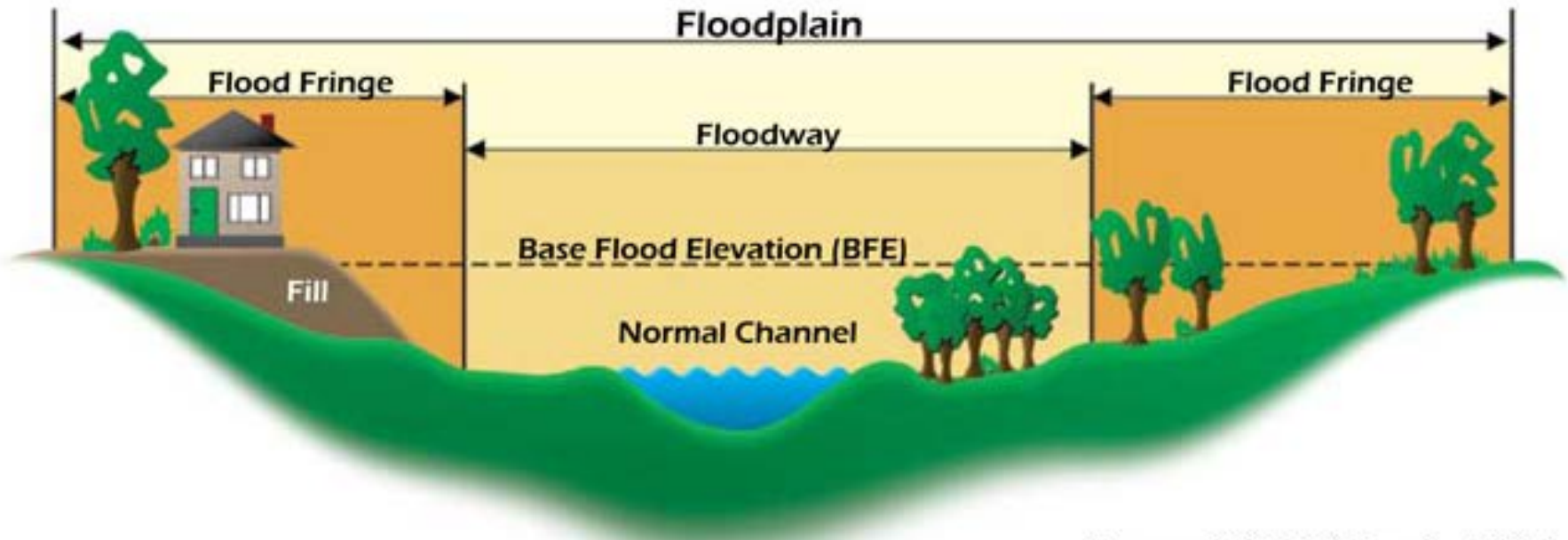
FEMA Floodplains



Data Sources: SANDS San Diego Community Plan, 08/2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10/2001 - 03/2011
FEMA National Flood Hazard Layer (NFI), 06/2014
Eagle Aerial Photo: 04/2013

Floodplain vs. Floodway

Characteristics of a Floodplain



Source: NFIP Guidebook, FEMA

- FEMA requirements for Development within FEMA designated Special Flood Hazard Areas (SPFH) and Floodways
 - Base Flood Elevations
 - Conditional Letter of Map Revisions
 - Conditional Letter of Map Revisions based on Fill
 - Letter of Map Revisions
 - Letter of Map Revisions based on Fill

Municipal Code Requirements

- **San Diego Municipal Code Chapter 14**
 - *New construction and substantial improvements of any structure shall have the lowest floor, including basement, elevated at least 2 feet above the base flood elevation*

CHANNELIZATION / RIVER CROSSINGS

- **San Diego River Crossings**
 - *Bridges*
 - Ward Road
 - I-15
 - I-805
 - SR-163
 - Morena Boulevard
 - Pacific Highway
 - San Diego Metropolitan Transit System Trolley
 - Riverwalk Golf Course Bridges



Upstream
Bridge

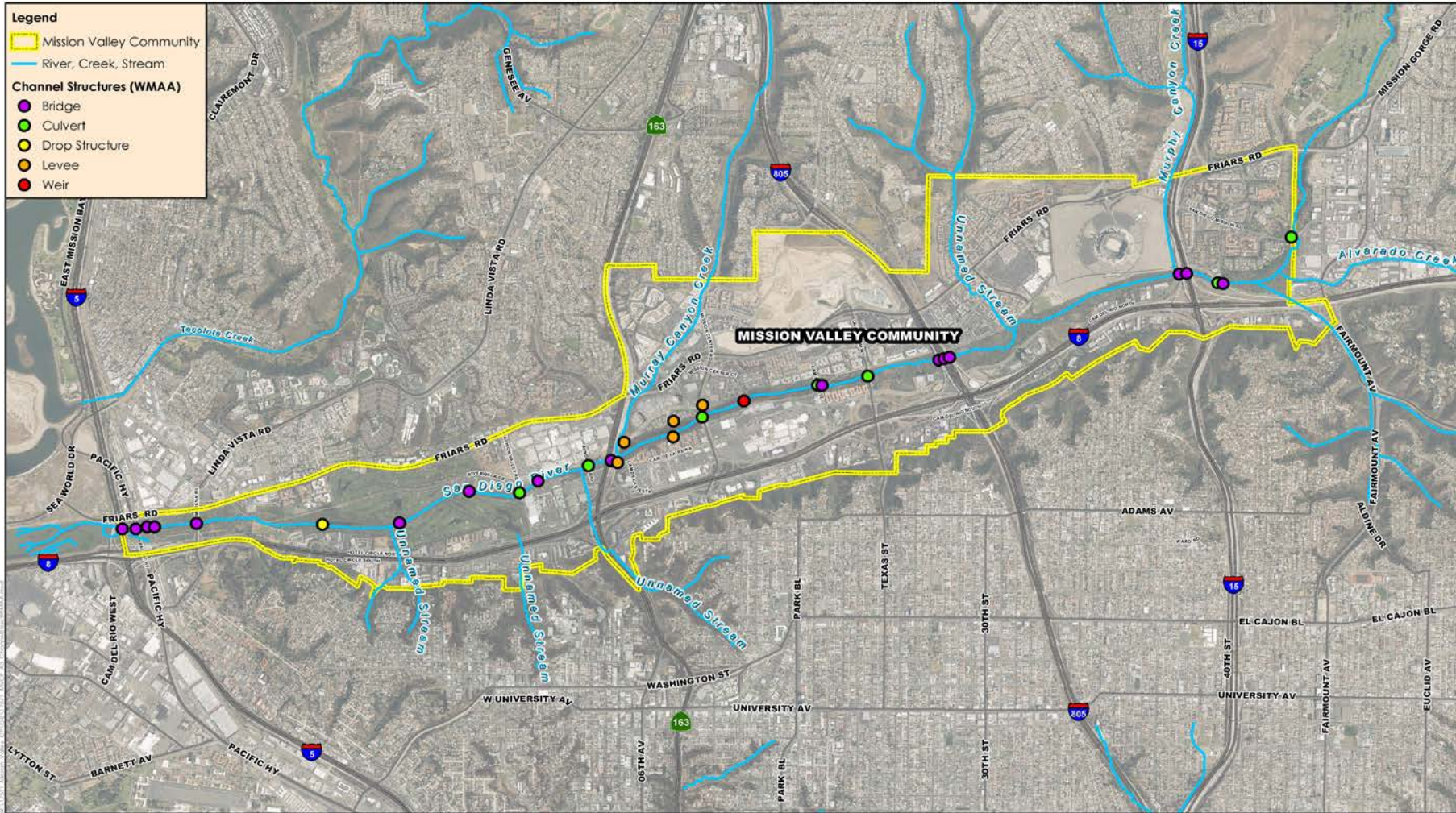


Downstream
Bridge



Looking north
on Ward Street

Channel Structures



Data Sources: SANGS San Diego Community Plan, 08/2014
National Hydrology Dataset (NHD) Flowline, Date Range: 10/2001 - 03/2011
SANGS Assessor Parcels, 08/2015
Eagle Aerial Photo: 04/2013

Channelization/Road Crossings

- **San Diego River Crossings**
 - *Road Crossing/Culverts (low water crossings)*
 - San Diego Mission Road (approx. 5-year storm)
 - Qualcomm Way (approx. 10-year storm)
 - Camino Del Este (approx. 10-year storm)
 - Mission Center Road (approx. 10-year storm)
 - Avenida Del Rio (approx. 5-year storm)
 - Fashion Valley Road (approx. 5-year storm)

San Diego Mission Road



Upstream of 6-
60" RCPs & 3-
48" CMPs



Downstream of
6-60" RCPs &
3-48" CMPs



Looking east on
San Diego
Mission Road

Qualcomm Way



Upstream of 6-
60" RCPs & 3-
48" CMPs



Downstream of
6-60" RCPs &
3-48" CMPs



Looking north
on Qualcomm
Way

Camino Del Este



Upstream of 6-10 feet wide by 5.5 feet high RCBs



Looking upstream from Camino Del Este



Looking north on Camino Del Este

Mission Center Road



Upstream of
7- 9 feet wide by
6 feet high RCBs



Downstream of
7- 9 feet wide by
6 feet high RCBs



Looking north
on Mission
Center Road

Avenida Del Rio



Looking
upstream of
Avenida Del Rio



Looking
downstream of
Avenida Del Rio



Looking north
on Avenida Del
Rio

Fashion Valley Road



Downstream of
6-60" RCPs



Looking
downstream
from Fashion
Valley Road



Looking south
on Fashion
Valley Road

Fashion Valley Road Emergency Repair



Fashion Valley Road Emergency Repair

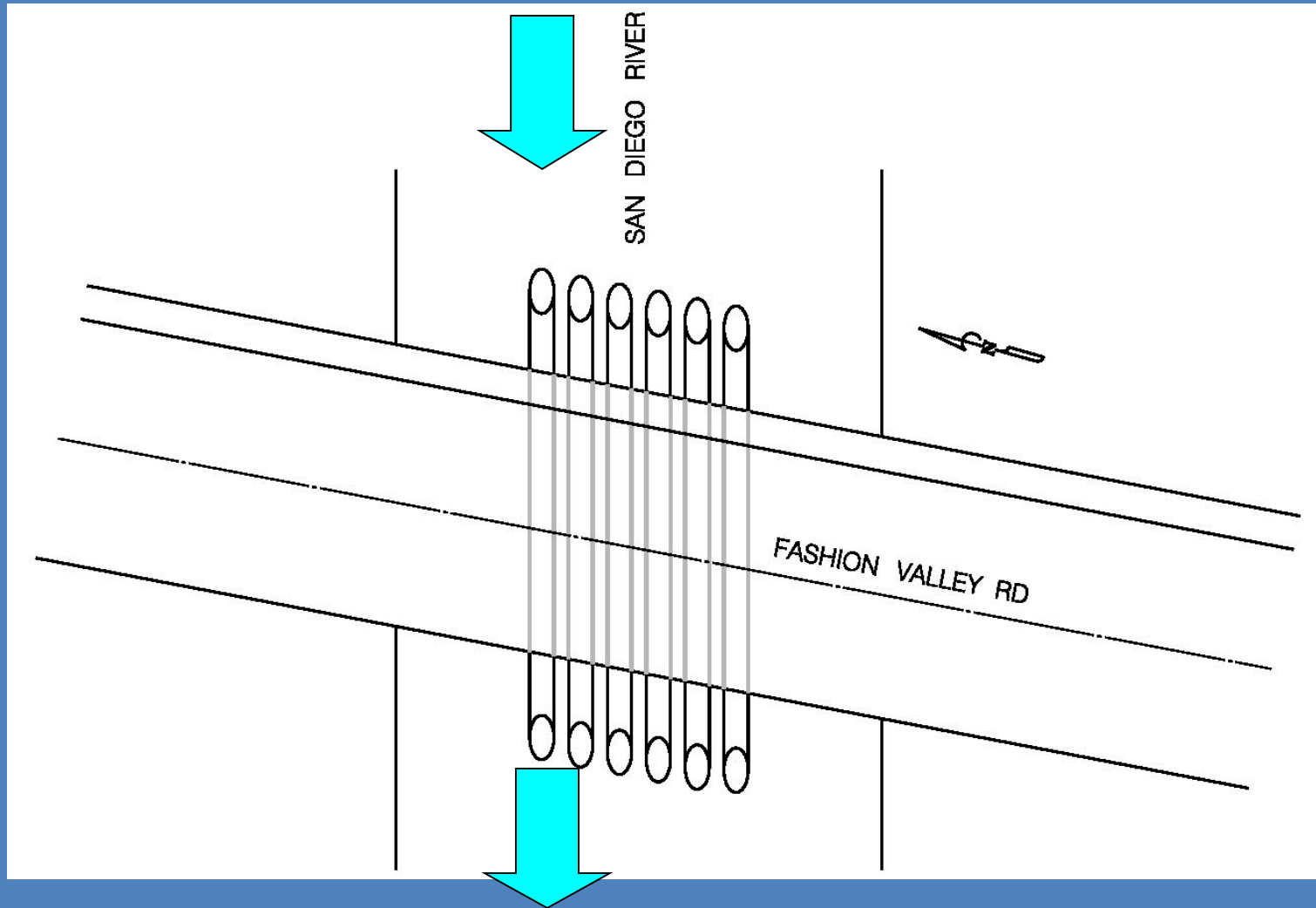


Fashion Valley Road Emergency Repair



- 4 lane Fashion Valley Rd failed/closed at SD River crossing
- Six 5 ft CMP storm drain pipelines cross Fashion Valley Rd to convey SD River normal low flows
- Constructed in 1969 and improved in 1979. CMP pipe corroded.
- During storm on 12/30/2004, CMP failure caused collapse of Fashion Valley Rd
- A 16" water pipe also failed





Fashion Valley Road



Downstream of
6-60" RCPs



Looking
downstream
from Fashion
Valley Road



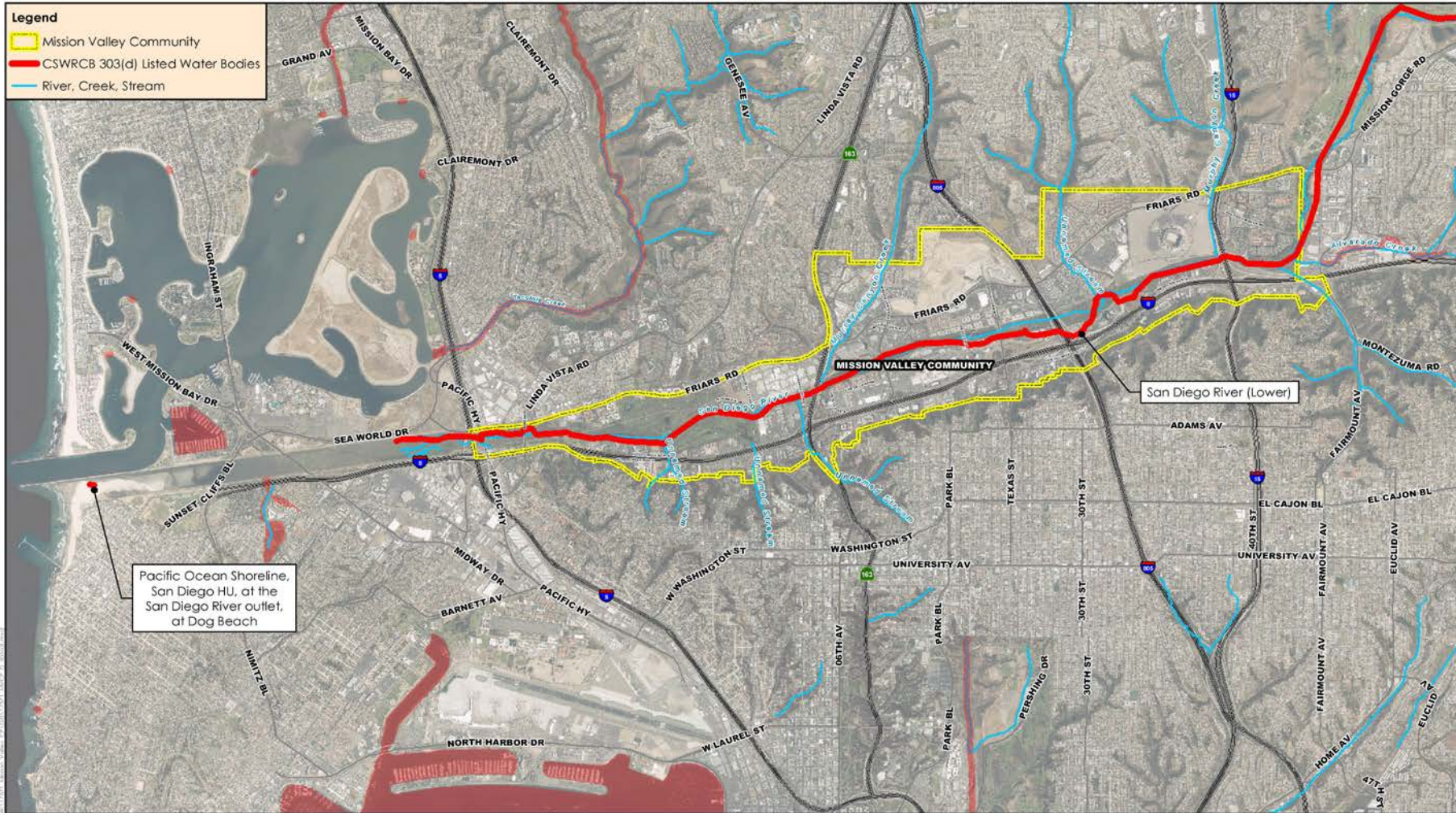
Looking south
on Fashion
Valley Road

WATER QUALITY

Existing Water Quality Conditions

- Local “On-Site” Storm Water Quality
 - Mostly developed and highly impervious
 - Pollutants conveyed directly to the receiving waters
 - Little to no opportunity for infiltration
 - Exceptions:
 - Industrial sites implementing BMPs required by the Industrial General Permit
 - Projects constructed since the MS4 Permit implementation
- Implement a Variety of BMPs to address Pollutants & TMDLs
 - Source Control
 - Site Design (Low Impact Development (LID))
 - Structural BMPs

303(d) Listed Water Bodies



Data Sources: SANGS 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

Water Quality Improvement Plans (WQIPs)

Water Quality Improvement Plans (WQIPs)

- Watershed Level
- Multi-Jurisdictional Watershed Plan that identifies:
 - Highest water quality priorities
 - Numeric goals
 - Strategies to achieve goals
 - Structural and non-structural BMPs
 - Implementation schedule
 - Watershed monitoring
 - Program assessment

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
Caltrans



Prepared by:



Modeling by:

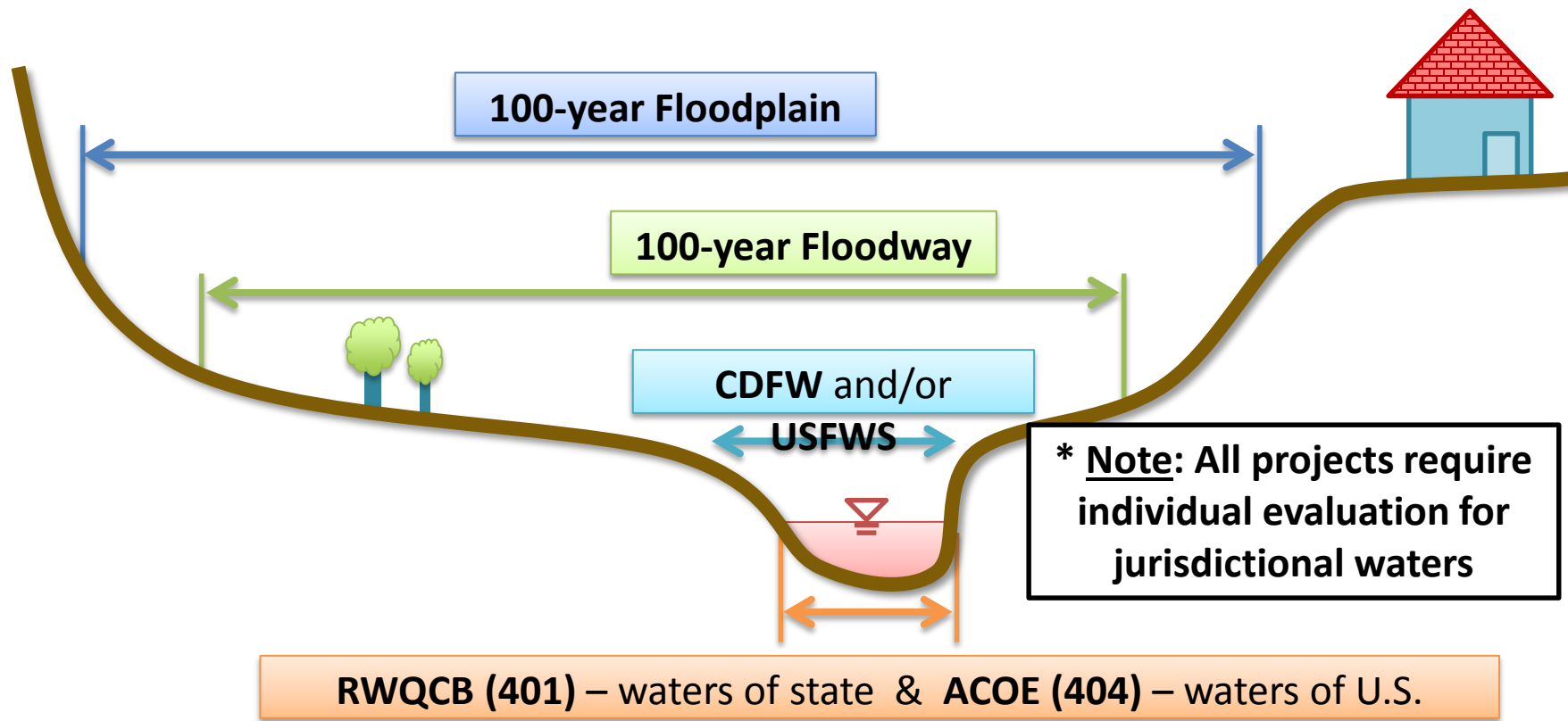


engineers | scientists | innovators

- Structural BMPs must not be constructed within waters of the U.S.

Waters of the United States - As defined in the 40 CFR 122.2, the Waters of the U.S. are defined as: "(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition; (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA."

Jurisdictional Waters “Rule of Thumb”



REGULATIONS, POLICIES AND PROGRAMS

City of San Diego's Land Development Code and Manual

- Drainage: Drainage Design Manual April (1984)
 - “collect, transmit and discharge drainage in a manner to promote public safety and provide for low maintenance”

Floodplain Management

- National Flood Insurance Program (NFIP) administered by FEMA
 - City of San Diego is responsible to institute adequate land use and development control measures for preventing and reducing property damage from flooding.
 - City of San Diego to ensure that projects within or fringing on a floodway or floodplain comply with FEMA regulations and requirements.

Floodplain Management

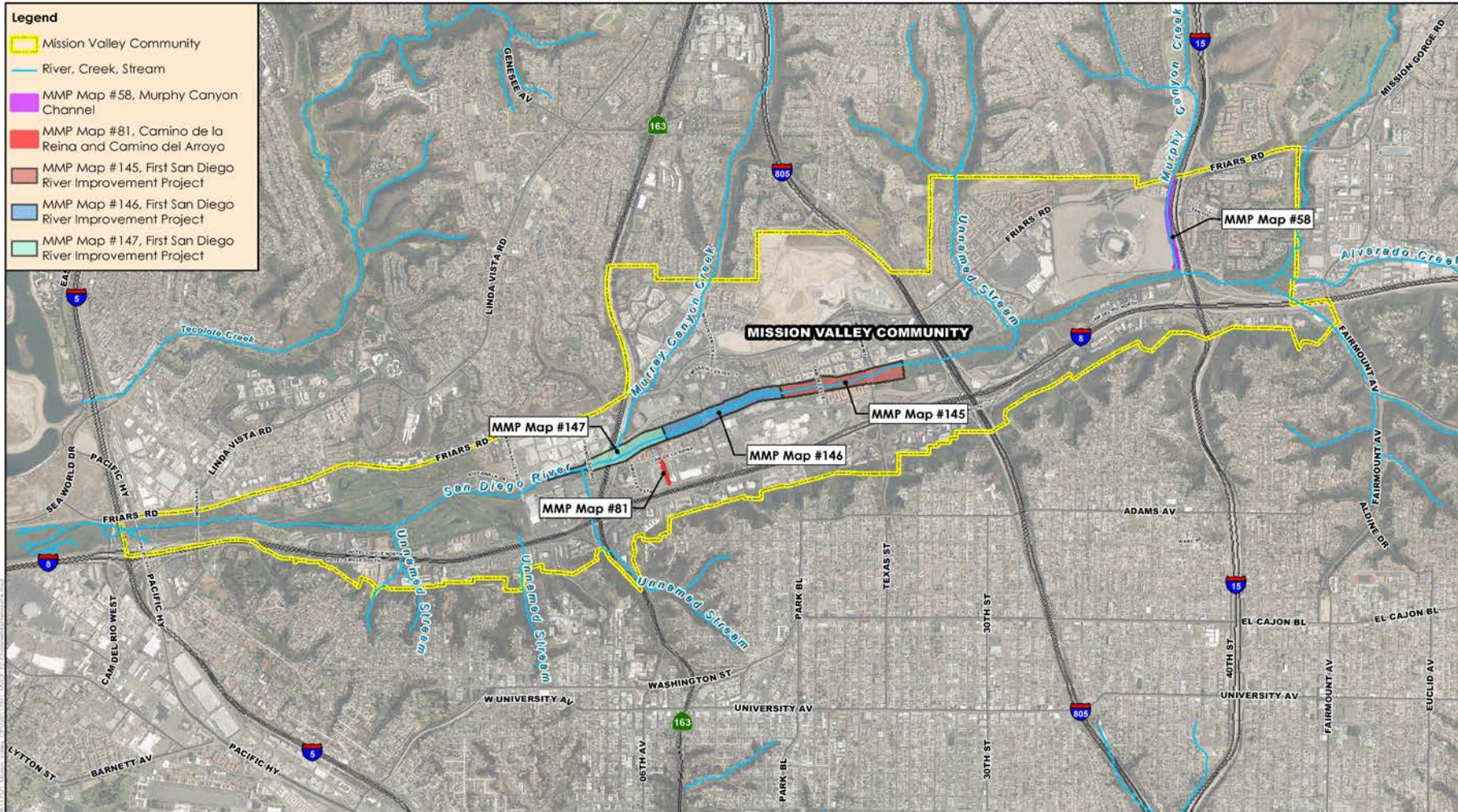
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FIRST SAN DIEGO RIVER IMPROVEMENT PROJECT (FSDRIP)

First San Diego River Improvement Project (FSDRIP)

- Implement and maintain a 100-yr flood control channel, replant, permanently preserve natural riparian and upland habitat
- Provide urban corridor for transportation and recreation along 1.3 miles of the San Diego River from Qualcomm Way to SR-163

Storm Water Channels



Data Sources: SANGS 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

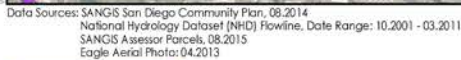
First San Diego River Improvement Project (FSDRIP)

- U.S. Army Corps of Engineers reconfigured the existing floodway
- Narrowing and deepening the floodway by approximately 2 feet
- Provided ponds, revegetated with indigenous native plants and maintained into perpetuity
- Project completed in 1988

CITY OF SAN DIEGO, SAN DIEGO RIVER PARK MASTER PLAN

City of San Diego - San Diego River Park Master Plan

- City of San Diego adopted in Resolution No. R-308196 – May 201, 2013
- Provides recommendations and guidelines when updating Community Plans along the San Diego River
- Primary policy document for land use policies along and adjacent to the San Diego River
- Design guidelines apply to the River Corridor Area (100-year Floodway plus 35 feet on both sides) and River Influence Area (extends 200 feet beyond the River Corridor Area on both sides) only



QUESTIONS?

Future Meetings

- July – Park and Recreation Opportunities
- August – Go dark or discuss Urban Design



Existing Conditions Analysis Hydrology and Water Quality

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