

Training

Municipal Facilities & Activities



RIVERSIDE COUNTY
WATERSHED PROTECTION

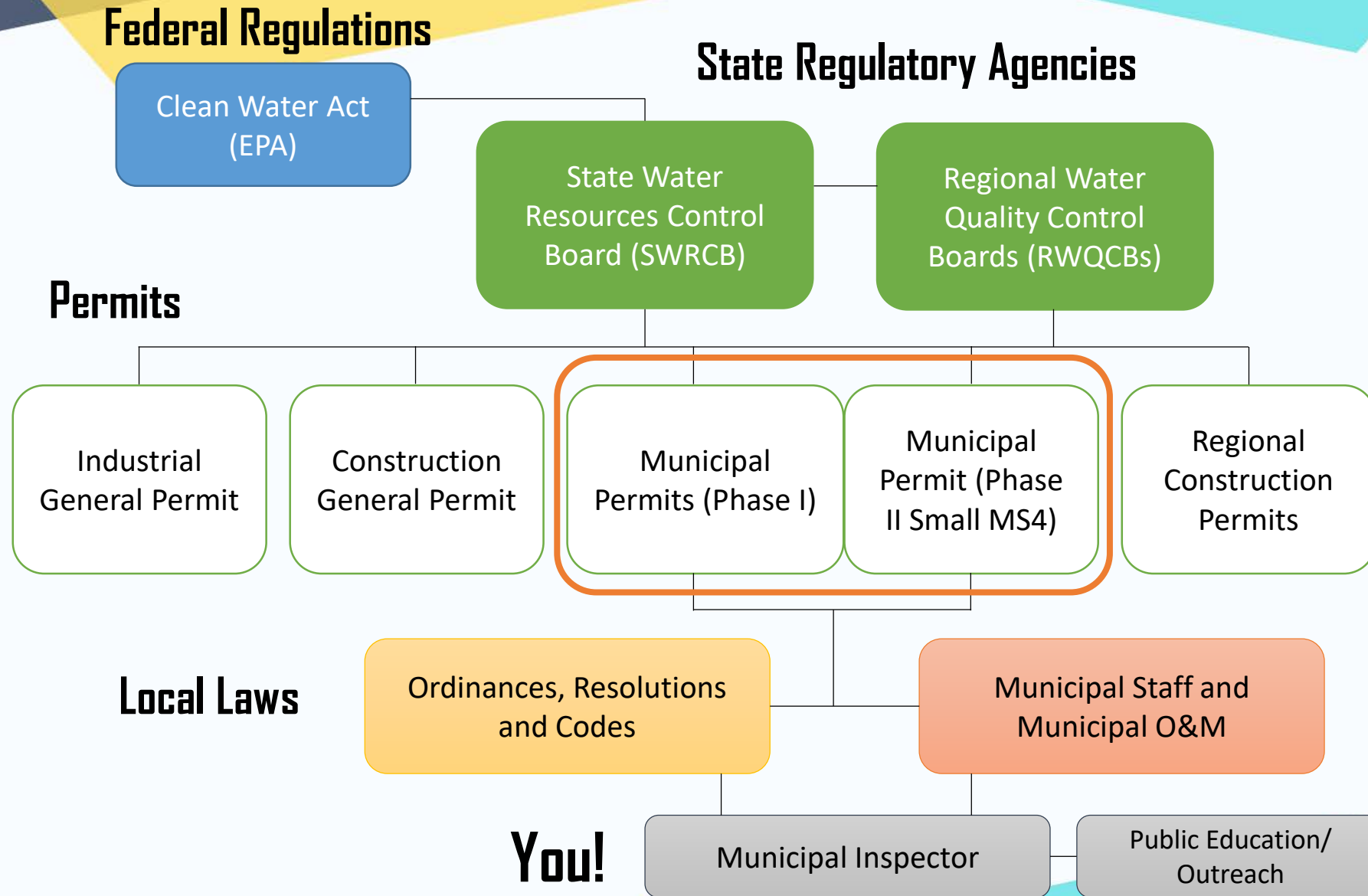
Prepared for: Santa Ana River Watershed Permittees
Presented By: CASC Engineering and Consulting, Inc.

Version 1

Training Goals

- Upon completion of this course students will be able to
 - Explain local and State requirements for construction activities for water quality protection,
 - Conduct operation and maintenance of MS4 facilities for stormwater compliance,
 - Properly implement and maintain BMPs in municipal facilities,
 - Identify illicit connections/illicit discharges, and
 - Gain a basic knowledge of the Municipal Facility Pollution Prevention Plan.

Municipal Permit



MS4 Permit

Purpose:

- Regulates the discharge of pollutants from Municipal Separate Storm Sewer Systems (MS4s) within Santa Ana Region

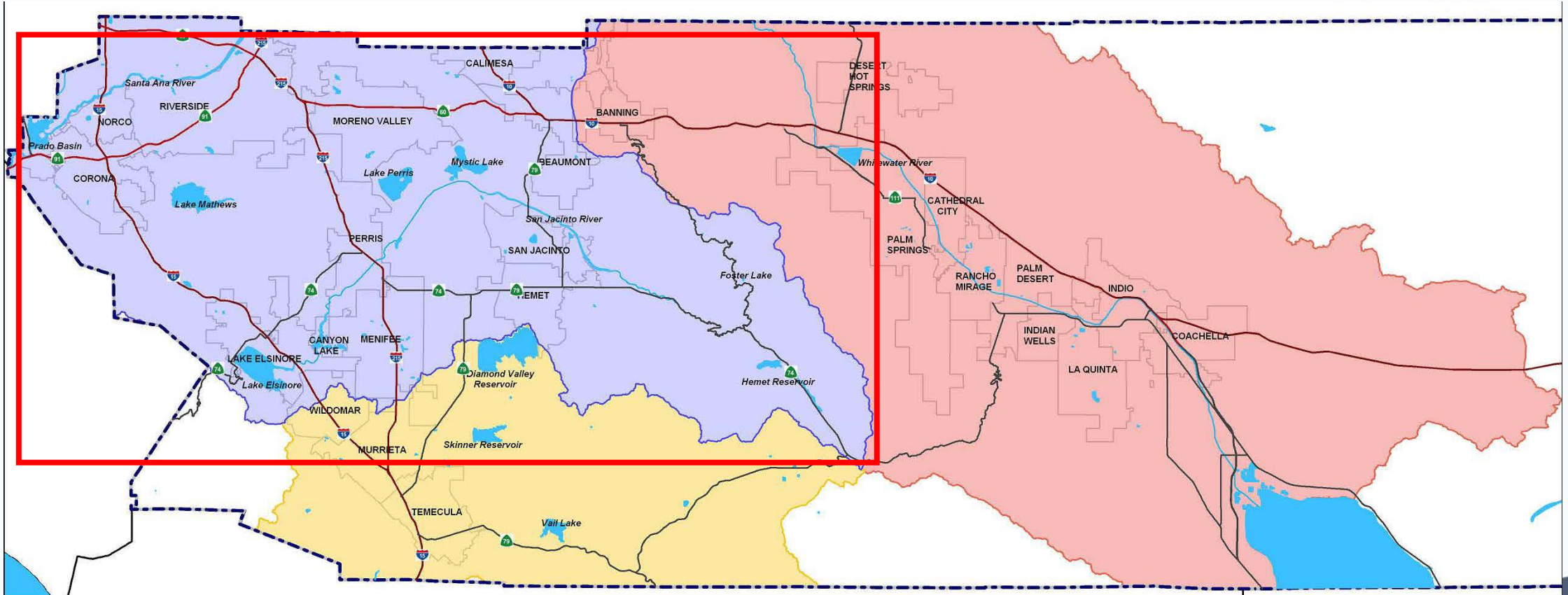
STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

ORDER NO. R8-2010-0033
NPDES NO. CAS 618033

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND
WASTE DISCHARGE REQUIREMENTS FOR
THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION
DISTRICT, THE COUNTY OF RIVERSIDE, AND THE INCORPORATED CITIES OF
RIVERSIDE COUNTY WITHIN THE SANTA ANA REGION

AREA-WIDE URBAN RUNOFF MANAGEMENT PROGRAM

Santa Ana (SAR) Watershed Management Area



Permittees & Co-Permittees Covered by SAR MS4 Permit

- Riverside County Flood Control and Water Conservation District (RCFC&WCD)*
- County of Riverside*
- Beaumont
- Calimesa
- Canyon Lake
- Corona
- Eastvale
- Hemet
- Jurupa Valley
- Lake Elsinore
- Menifee
- Moreno Valley
- Norco
- Perris
- Riverside
- San Jacinto

**Agencies covered by multiple permits*

MS4 Permit Requirement

- Implement measures to ensure municipal facilities and activities do not cause or contribute to impairments in receiving waterbodies
 - Co-Permittees must annually review activities and facilities and update local programs as needed
 - Implementation of Facility Pollution Prevention Plans
 - Inspections of fixed facilities and field operations
 - Implementation and development of maintenance schedules

Local Programs in the SAR Watershed



- Local programs in the Santa Ana Watershed developed to comply with the NPDES Permits
 - Drainage Area Management Plan (DAMP)
 - Local Implementation Plan (LIP)

Compliance documents can be found here:
<http://rcflood.org/npdes/SantaAnaWS.aspx>

Local Programs

Drainage Area Management Plan (DAMP)



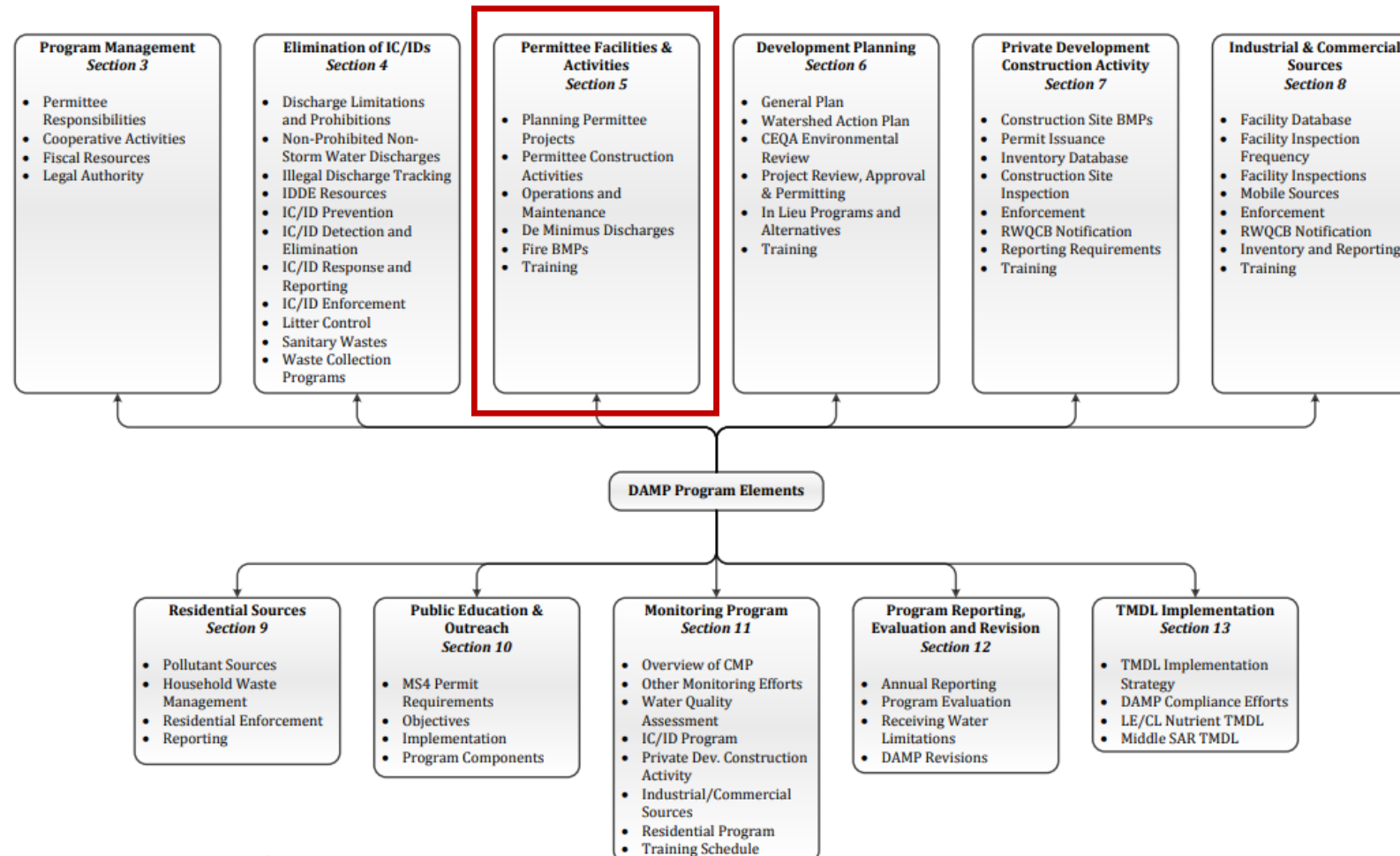
- The DAMP is the document that:
 - addresses the requirements of the MS4 Permit
 - describes program elements
 - provides guidance to the Co-Permittees in the development and implementation of their Local Implementation Plans (LIPs)

Compliance documents can be found here:
<http://rcflood.org/npdes/SantaAnaWS.aspx>



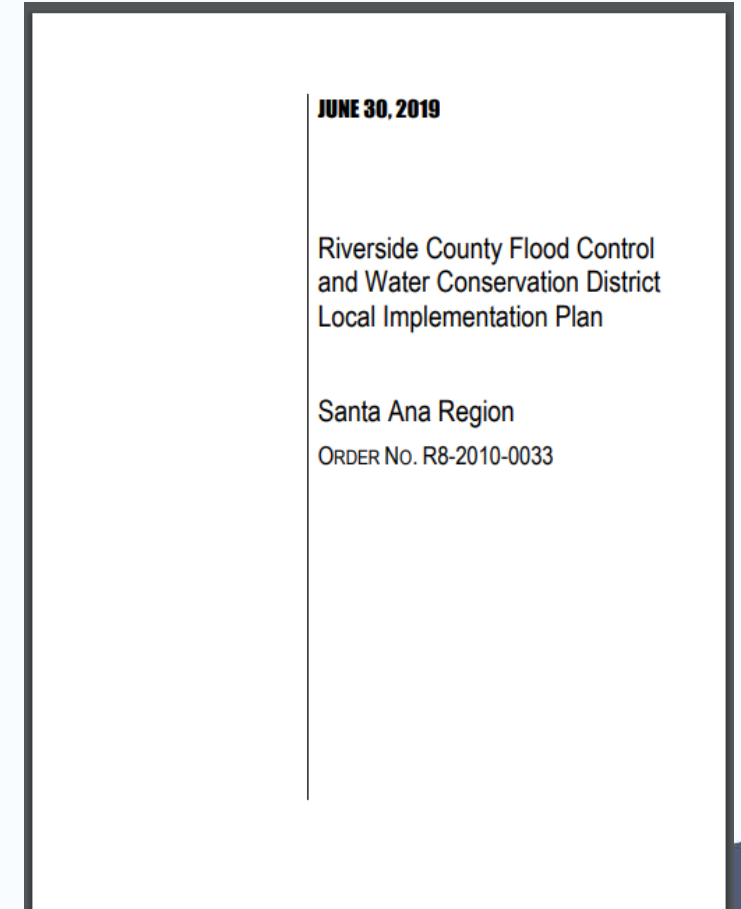
Program Elements of DAMP

Figure 2-1. Program Elements of DAMP



Local Improvement Plan (LIP)

- The LIP describes each city's specific runoff management (water quality) program and activities that will be implemented to comply with the requirements of the MS4 Permit.
 - LIP is reviewed annually
 - Updates as necessary



Operation and Maintenance of Co-Permittee Facilities

Operation and Maintenance – Catch Basin and MS4 Facility Maintenance

- Co-permittees must develop clean-out schedules and frequencies per DAMP Section 5.3.1.
- Open channels, catch basins, retention/detention basins, and wetlands
- Waste and materials removed must be disposed of per local laws and appropriate BMPs

Facility	Annually	Every 2 Years
Open Channels	80%	100%
Catch Basins	80%	100%
Retention/Detention Basins	80%	100%
Created Wetlands	80%	100%

Operation and Maintenance – Catch Basin and MS4 Facility Maintenance



- Regularly scheduled maintenance of catch basins and storm drain inlets
 - Removes sediments, leaves, debris, and trash
 - Reduces the potential of discharging pollutants to receiving waterbodies

Operation and Maintenance – Catch Basin and MS4 Facility Maintenance



Santa Ana River Watershed

- Scheduled sweeping of streets and medians manages the transport of pollutants
 - Removes sediments, leaves, debris, and trash
 - Highly effective program for managing the sediment transport of pollutants such as nutrients, metals, oils and grease, and bacteria

Operation and Maintenance – Catch Basin and MS4 Facility Maintenance



- Storm Drain Signage
 - BMP alerts public of dumping prohibitions and ultimate destination of storm drain discharge
 - Stenciling or marker
 - Periodic visual inspections needed
 - Repair or replace as necessary

Operation and Maintenance – Landscaping

- Promote use of native vegetation into landscape design



Operation and Maintenance – Landscaping Irrigation

- Implement schedules for irrigation
 - Do not water on rainy days!
 - Comply with state and local requirements
- Over irrigation contributes to nutrient loading. Look for evidence of over watering.
 - Stained concrete
 - Pooling water



Operation and Maintenance – Landscaping

- Mulch can be applied to landscaped areas where soil is exposed
 - Prevents erosion and controls weed growth
 - Know your supplier. Not all mulches are the same!
 - Can contain trash, debris, fragments of glass
 - If not properly composted, can pass on disease to existing vegetation



Operation and Maintenance – Pesticide Application

- Pesticide and fertilizer applications in parks and landscaped areas
 - Use non-chemical solutions when practical
 - Follow all federal, state and local regulations regarding use, storage, disposal and training
 - Follow product instructions
 - Do not apply prior to predicted rain events
 - Minimize use to targeted areas
 - Only use pesticides if there is an actual problem
 - Must be trained and certified to apply pesticides



Operation and Maintenance – Construction Activities

- Municipal construction activities that don't require NPDES Permits still have the potential to discharge sediments to the MS4
 - Provide inlet protection and check dams to downstream inlets with the potential of receiving project runoff
 - Provide a barrier to slow down runoff and allow sediments and debris to settle.



Operation and Maintenance – Construction Activities

- Ensure BMPs are maintained
 - Repair and replace damaged BMPs
 - Report any BMP deficiencies
- Silt fencing was used as perimeter control for this municipal project
 - Over time, the silt fence was damaged (e.g., holes in fencing, broken lath)
 - Crews removed silt fencing and replaced with gravel bags



Operation and Maintenance – Construction Activities

- Ensure that the perimeter of the project is free from sediment
 - Implement sweeping schedule into daily general housekeeping activities
 - Increase sweeping frequencies if excessive sediment is observed



Facility Pollution Prevention Plan (FPPP)

FPPP – What Is It For?

- Purpose
 - To eliminate or reduce the discharge of pollutants from municipal facilities and activities
 - To comply with NPDES Permit requirements to manage pollutant discharges from municipal facilities and activities

SANTA ANA REGION
FACILITY POLLUTION
PREVENTION PLAN

Facility Name: _____

Address: _____

Contact Person: _____
Telephone No: _____

Prepared by: _____
Date: _____

FPPP – Which Facilities Need an FPPP?

Facility Type	Activities of Concern Conducted
Corporate Yards ¹	Loading, unloading, handling, and storage of animal wastes, anti-freeze, asphalt, batteries, chemicals, concrete, diesel wastes, emulsions, fertilizer, fuel, green wastes, hazardous materials, new and used oil, paint products, pesticides, scrap metal, solvents, trash and debris, and wash water Filling of aboveground and underground storage tanks (ASTs and USTs) with fuels Dispensing of fuels to vehicles, equipment, and portable fuel containers Vehicle and equipment parking and storage Vehicle, equipment, and material washing and steam cleaning Leak and spill cleanup Landscape, garden, and general maintenance and cleaning
Warehouses	Loading, unloading, handling, and storage of materials
Animal Shelters	Loading, unloading, handling, and storage of animal wastes for offsite recycling, chemicals, and fuel Vehicle, equipment, and material washing Leak and spill cleanup Landscape, garden, and general maintenance and cleaning
Swimming Pools	Storage and use of chemicals, including chlorine Filter maintenance and backwashing Landscape, garden, and general maintenance and cleaning
Water Treatment Facilities	Loading, unloading, handling, and storage of materials Filling of ASTs and USTs with fuels Vehicle washing and steam cleaning Leak and spill cleanup Landscape, garden, and general maintenance and cleaning

Table 5-2 of DAMP

FPPP – What Does It Address?

- Information on storm water regulations
- Description of the facility
- Identifies the Pollution Prevention Team
- Description of BMPs specific to facility
- Defines authorized and unauthorized non-storm water discharges
- Describes activities and potential pollutants associated with facility activities
- Describes Annual Facility/Activity Assessment

FPPP – Minimum BMPs For Facility Activities



Potential Source Control BMPs for Municipal Facilities and Activities

Activities	BMP References from Industrial & Commercial Handbook ⁽¹⁾														BMP References from Municipal Handbook ⁽²⁾																								
	SC-10	SC-11	SC-20	SC-21	SC-22	SC-30	SC-31	SC-32	SC-33	SC-34	SC-35 ⁽³⁾	SC-40	SC-41 ⁽³⁾	SC-42	SC-43	SC-44	SC-10	SC-11	SC-20	SC-21	SC-22	SC-30	SC-31	SC-32	SC-33	SC-34	SC-41	SC-43	SC-60 ⁽³⁾	SC-61 ⁽³⁾	SC-70	SC-71	SC-72	SC-73 ⁽³⁾	SC-74	SC-75	SC-76		
Material Loading/Unloading/Handling/Storage						X	X	X	X								X	X				X	X		X													X	
Waste Handling and Disposal	X						X			X							X									X		X											
Filling of ASTs/USTs			X															X	X																				
Dispensing Fuel			X															X	X																				
Vehicle/Equipment Maintenance/Repair					X						X							X			X			X															
Vehicle/Equipment Parking and Storage																																							
Vehicle and Equipment Cleaning	X			X			X			X							X			X											X								
Leak and Spill Cleanup	X	X					X	X									X	X											X										
Construction														X																									
Landscaping, Garden, and General Maintenance and Cleaning	X										X	X	X	X	X	X	X											X	X	X	X	X	X	X	X	X	X		X

Notes: (1) California Stormwater Quality Association. January 2003. California Stormwater Best Management Practice Handbook – Industrial and Commercial. <http://www.cabmphandbooks.com/> or CASQA, P.O. Box 2105, Menlo Park, California, 94026-2105.

(2) California Stormwater Quality Association. January 2003. California Stormwater Best Management Practice Handbook – Municipal. <http://www.cabmphandbooks.com/> or CASQA, P.O. Box 2105, Menlo Park, California, 94026-2105.

(3) These are minimum BMPs per Section XIV.C.6 of the 2010 MS4 Permit. Note not all of the minimum BMPs are applicable to all of the activities.

*Excerpt of DAMP
Appendix F*

FPPP – Additional BMPs For Fire Fighting Agencies

- Fire fighting agencies require additional BMPs.
- BMPs located in Appendix G of the DAMP
- Activities addressed
 - Fire prevention
 - Non-emergency
 - Emergency

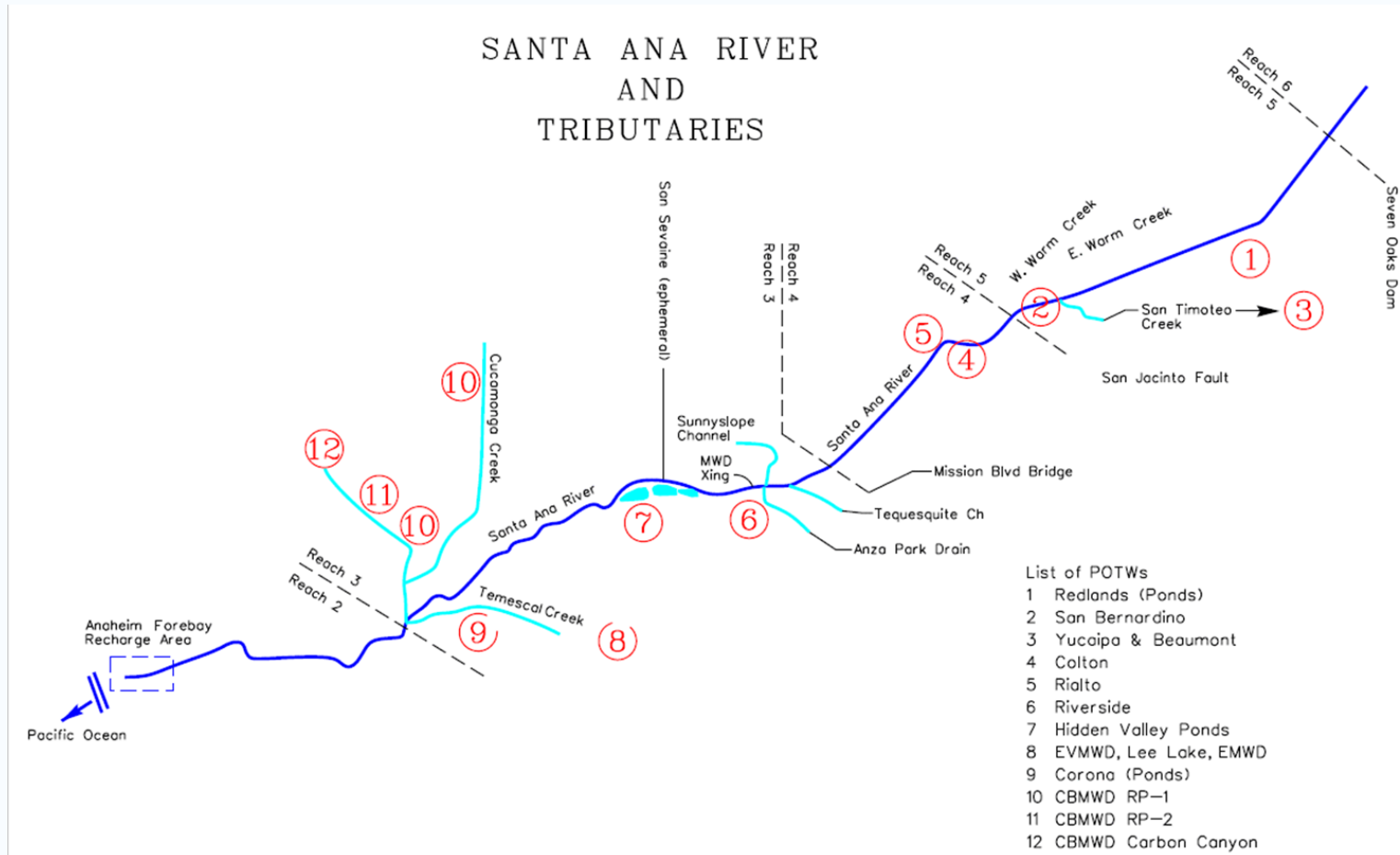
BEST MANAGEMENT
PRACTICES
Plan for
URBAN RUNOFF MANAGEMENT

PARTICIPATING RIVERSIDE COUNTY
FIRE FIGHTING AGENCIES

City of Corona Fire Department
City of Hemet Fire Department
City of Norco Fire Department
City of Riverside Fire Department
County of Riverside Fire Department/CDF
Idyllwild Fire Protection District
Murrieta Fire Protection District

July 2011

FPPP – Are Additional BMPs For Facility Activities Needed?



- Know current water quality impairments to determine what additional BMPs may need to be implemented

What Pollutants Should I Be Concerned About?



Figure 2-1. Receiving Waters and 303(d) Listings

Receiving Water	303(d) Listings
Canyon Lake	Nutrients, Pathogens
Chino Creek, Reach 1B	Pathogens, Nutrients, Chemical Oxygen Demand
Cucamonga Creek, Reach 1	Cadmium, Coliform Bacteria, Copper, Lead, Zinc
Lake Elsinore	Nutrients, PCBs, Sediment Toxicity
Fulmore Lake	Pathogens
Mill Creek (Prado Area)	Nutrients
Santa Ana River, Reach 3	Pathogens, Lead, Copper
Santa Ana River, Reach 4	Pathogens
Prado Park Lake	Nutrients, Pathogens
Temescal Creek, Reach 1	pH
Temescal Creek, Reach 6	Indicator bacteria

Let's take a look at some typical activities
and BMP implementation at municipal
facilities...

Municipal Corporate Yard – Outdoor Material Storage

- Equipment and supplies with the potential to contaminate runoff must be stored in such a way that they are not exposed to storm water
 - Equipment and supplies are stored underneath an awning
 - Supplies such as road signs and barricades do not have to be covered.



Municipal Corporate Yard – Outdoor Material Storage

- Keep areas free of sediment, trash and debris
 - Waste containers with workable lids
 - Daily sweeping activities



Municipal Corporate Yard – Outdoor Material Storage

- Stockpile management
 - Berm stockpiles to prevent the discharge of sediments
 - Cover stockpiles when not in use and prior to rain events
- Stockpile located in concrete storage bunker
 - Fiber roll berm placed at perimeter
 - Covered with plastic
 - Gravel bags placed on top of the plastic to keep plastic in place



Municipal Corporate Yard – Solid Waste Management

- All solid waste must be placed in solid waste containers and must be covered when not in use
- Containers that do not have workable lids should be covered with a tarp
- Keep area clean and free of debris



Municipal Corporate Yard – Hazardous Waste Management

- Hazardous waste must have secondary containment and must be protected from stormwater
- In this example, hazardous waste is placed on secondary containment pallets, but is not protected from stormwater
 - Prior to a rain event, cover all hazardous waste containers and pallets or move containers indoors
 - If containers and pallets are not properly covered, stormwater will overflow from the pallets and discharge to the MS4



Municipal Corporate Yard – Hazardous Material Storage

- Hazardous liquid storage using a tank system
 - Fuel stored in double-walled tank
 - Concrete berm is used for secondary containment to prevent leaks from entering the environment



Municipal Corporate Yard – Vehicle Fueling

- Fueling areas must be covered so that precipitation cannot come into contact with fueling area
 - Spill kit should be kept in fueling area for quick cleanup
 - Area needs to be free of sediment and debris
 - Trash container with workable lid should be kept in the fueling area to address solid waste disposal



Municipal Corporate Yard – Vehicle Washing

- Vehicle washing should be conducted in a manor in which wash waters are discharged to a clarifier or landscaping
- Vehicle washing at this corporate yard is conducted indoors
 - All wash water drains to a clarifying system that is connected to the sanitary sewer
 - Clarifiers must have a maintenance schedule to prevent backups



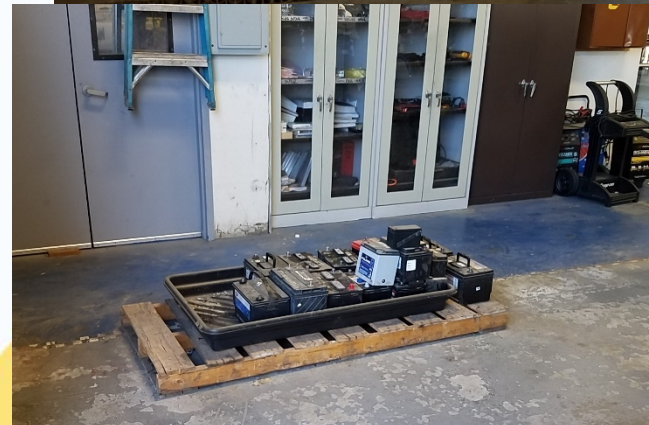
Municipal Corporate Yard – Vehicle Storage and Parking

- Vehicle storage and parking areas contribute multiple pollutants that can reach surface waters through stormwater runoff
 - Establish sweeping schedules to keep areas free of sediments and debris
 - Place drip pans under leaking vehicles and equipment
 - Schedule repairs



Municipal Corporate Yard – Vehicle Maintenance

- Vehicle maintenance should be kept indoors if feasible
 - Facilities should have a berm or clarifier to prevent spills from entering the environment
 - Hazardous materials must have secondary containment
 - Spill kits need to be easily accessible for quick clean up
- If repairs are conducted outdoors
 - Lay down a tarp to protect surface from potential leaks
 - Use drip pans for leaks



Fire Fighting Non-Emergency Activities

- Discharges associated with fire training activities and testing activities
 - Conducted on non-rainy days
 - Contain runoff or direct runoff to landscaped/greenbelt areas
 - Ensure erosion is not occurring from discharge
 - Prior to conducting activities, remove all sediment and debris



Fire Fighting Non-Emergency Activities

- Activities at a training facility may include the use of fire fighting foams
 - Foams have potential to negatively impact the environment
 - Increase nutrient loading in surface waters, harm aquatic life, pose risk to ground water supplies
- Clean up of foam and proper disposal required
 - Vacuum trucks
 - Hand-held equipment, such as shovel, mops or absorbent materials



IC/IDs

What is “Stormwater” and “Non-Stormwater”?



- Stormwater
 - Stormwater means rainfall runoff, snow melt runoff, and stormwater surface runoff and drainage.
- Non-Stormwater
 - Non-Stormwater consists of all discharges to and from a stormwater conveyance system that do not originate from precipitation events.
 - Non-stormwater includes illegal discharges, non-prohibited discharges and NPDES permitted discharges.
 - Non-Stormwater Discharge means any discharge to storm sewer systems that is not composed entirely of stormwater.

Non-Stormwater Discharges



RIVERSIDE COUNTY
WATERSHED PROTECTION



Non-Stormwater Discharges, Cont.





Allowed MS4 Permit Non-Stormwater Discharges

1. Discharges composed entirely of stormwater
2. Air conditioning condensate
3. Irrigation water from agricultural sources
4. Discharges covered by a NPDES permit, Waste Discharge Requirements, or waivers issued by the Regional Board or State Board
5. Discharges from landscape irrigation, lawn/garden watering and other irrigation waters
6. Passive foundation drains
7. Passive footing drains
8. Water from crawl space pumps
9. Non-commercial vehicle washing
10. Dechlorinated swimming pool discharges
11. Diverted stream flows



Allowed MS4 Permit Non-Stormwater Discharges

12. Rising groundwaters and natural springs.
13. Uncontaminated groundwater infiltration and Uncontaminated Pumped Groundwater
14. Flows from riparian habitats and wetlands
15. Emergency firefighting flows
16. Waters not otherwise containing wastes as defined in California Water Code Section 13050 (d)
17. Other types of discharges identified and recommended by the District and approved by the Regional Board

Remember local ordinances may have additional restrictions on non-storm water discharges. Know your codes!



May require BMPs if identified as a source of pollution.

What is an Illicit Connection/ Illegal Discharge (IC/ID)?

- What is an illicit connection?
 - Any connection to the storm drain system that is prohibited under local, state or federal statutes, ordinances, codes, or regulations. Includes all non-stormwater discharges and connections except those permitted.
- What is an illegal discharge?
 - Any disposal, either intentionally or **unintentionally**, of material or waste to land or MS4s that can pollute stormwater or create a nuisance. Includes any discharge to MS4 that is not entirely made up of stormwater.



IC/ID Reporting

- Identify and contact responsible agency.
- Follow reporting procedure in Section 4 of the Permittee's LIP

JANUARY 29, 2014

Riverside County Flood Control
and Water Conservation District
Local Implementation Plan

Santa Ana Region

ORDER NO. R8-2010-0033

IC/ID Reporting

- The responsible party must investigate within 24 hours and determine if the IC/ID is an emergency situation that poses an immediate threat to human health or the environment:
 - sewage spill over 1,000 gallons
 - could impact water contact recreation
 - any oil spill that could impact wildlife
 - any hazardous materials spill where residents are evacuated
 - any spill of reportable quantities of hazardous waste
 - or any spill reportable to Cal EMA
- If discharge is a threat, must be reported immediately:
 - Cal EMA at (800) 852-7550
 - And the Regional Water Board

Illicit Discharges

- Dechlorinated swimming pool discharges are discharges
 - controlled by statute, ordinance, permit, contract, order, or similar means
- This is an example of a swimming pool discharge that is not compliant with permitted conditions.
 - Homeowner improperly treated pool water
 - Result was a purple discharge that contained copper, high levels of cyanuric acid, and a white, powdery residue
 - toxic to receiving waters



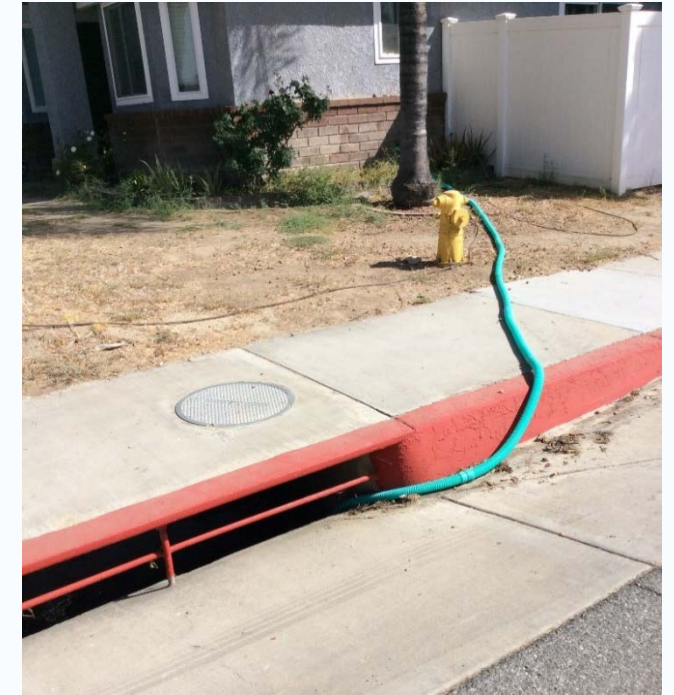
Illicit Discharges



- Wastewater from sanitary sewer systems is a source of nitrogen and phosphorous from human waste, food, and detergents
- Wastewater from leaking sewers can be tracked throughout the City and can pose a serious health and water quality problems
 - If possible, block off or redirect pedestrian and vehicle traffic until spill is cleaned up

Class Interaction - Discussion

- Which picture(s) is an IC/ID?



Class Interaction - Discussion

- A discharge from the trash enclosure is observed. The discharge is pooling in a low point of the parking lot. The source of the discharge is an improperly maintained grease container. Is this an illicit discharge?



Class Interaction - Discussion



Santa Ana River Watershed



- Discharge from a vehicle washing area is not being contained within the washing area. The discharge is entering a catch basin with a direct connection to the city's storm drain. Is this an illicit discharge?
- Do you see any other issues in photos?

Municipal Facility Inspections

Inspections of Co-Permittee Areas and Activities



- Each Permittee conducts annual inspections of its fixed facilities and field operations identified in Table 5-3 of the DAMP to ensure that they do not contribute pollutants to receiving waters
 - Record findings in the inspection form provided in Appendix C of the Facility Pollution Prevention Plan (DAMP Appendix F)
 - Each Permittee implements BMPs to manage the application, storage, and disposal of pesticides, herbicides, and fertilizers associated with their facilities and activities

Inspections of Co-Permittee Areas and Activities



- Co-Permittees must conduct annual inspections on structural post-construction BMPs installed after January 29, 2010
 - Conducted prior to the rainy season
 - Inspections are also made as needed in response to complaint calls
 - Where vector problems are observed, the Permittees will contact the local vector control agency to remedy the problems
 - Must complete Structural Post-Construction BMP Inspection Form provided in Appendix L of the DAMP

Let's do an inspection at a municipal
corporate yard...

Class Interaction No. 1

- The inspector observes that there are no compliance issues in the vehicle storage area.
 - No trash and debris
 - No visible staining on pavement
- Should the inspector provide education to staff at the yard?



Class Interaction No. 2

- During the inspection, the inspector observes a hose that is leaking. Discharge from the leak is flowing to an inlet that is not marked.
- What recommendations should the inspector provide?



Class Interaction No. 3

- The facility stores empty hazardous drums that used to contain hazardous liquids on pallets.
- Does the facility need to provide secondary containment?



Class Interaction No. 4

- There is an earthen stockpile that is not in active use. The stockpile has no BMPs.
- What types of BMPs are needed?



Class Interaction No. 5

- What corrective actions need to be implemented?



Class Interaction No. 6

- Sheetflow from this landscaped area directly discharges to a creek adjacent to the facility. The creek is impaired for nutrients.
- What recommendations should the inspector provide?



Class Interaction No. 7

- The inspector observes
 - All vehicle repairs are conducted indoors
 - Secondary containment for hazardous materials
 - Spill kits readily available
 - All discharges from inside the shop drain to clarifying system
- Is the inspection of the shop over?



CONGRATULATIONS!!! You Have Successfully Completed the SAR Municipal Training



- Questions may be asked via:
 - Contacting your NPDES Coordinator
 - Contacting Charlene Warren at RCFC & WCD, cwarren@rivco.org
 - Contacting the CASC presenter, msotelo@cascinc.com