



Ventura Countywide Stormwater Quality Management Program

CAMARILLO
COUNTY OF VENTURA
FILLMORE
MOORPARK
OJAI
OXNARD
PORT HUENEME
SANTA PAULA
SIMI VALLEY
THOUSAND OAKS
VENTURA

VENTURA COUNTY WATERSHED PROTECTION DISTRICT

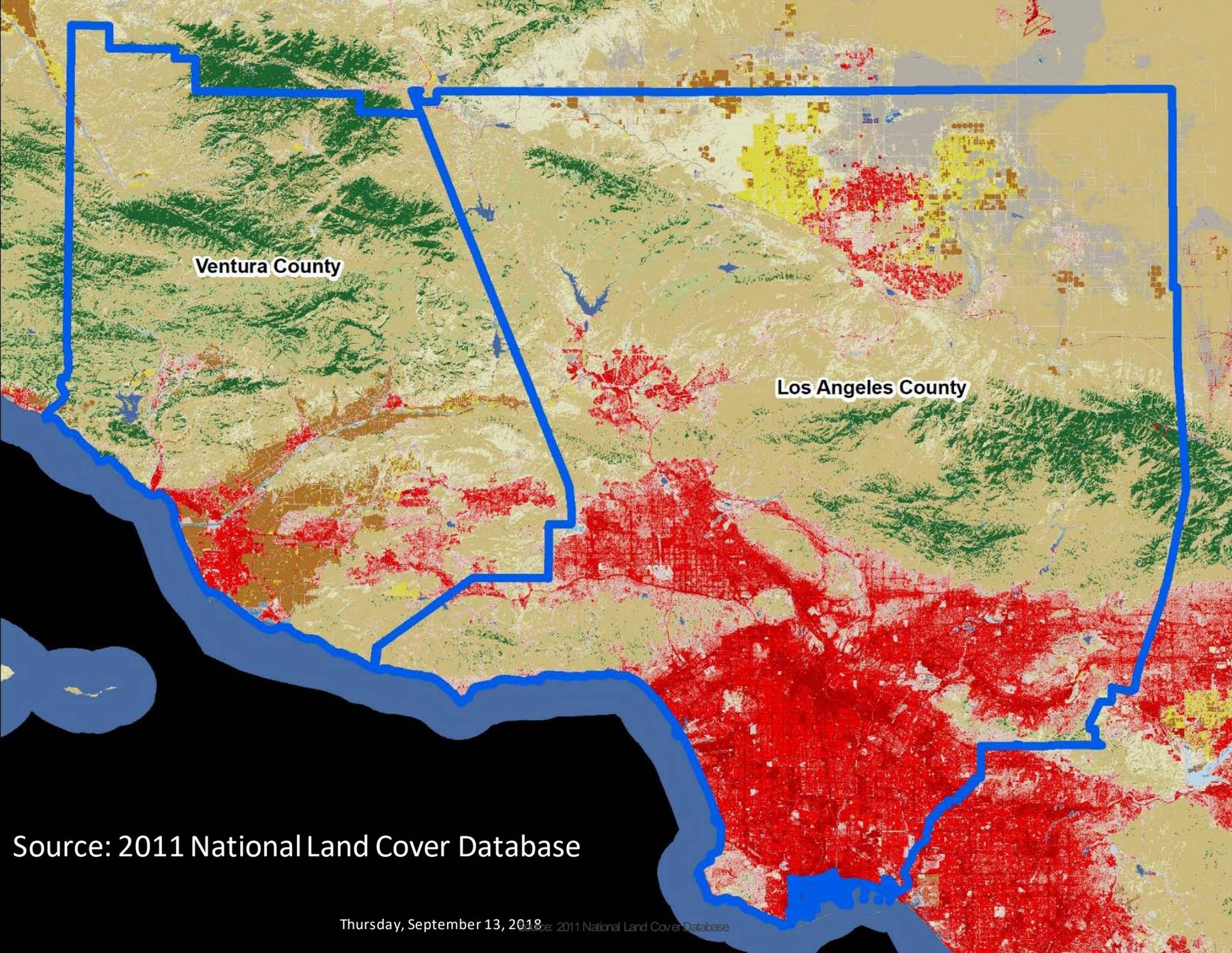
Ventura Countywide Stormwater Quality Management Program (VCSQMP)

- Ventura County Overview
- Monitoring
- Minimum Control Measures
- TMDLs
- Michael Powers, County Executive Officer





*Ventura Countywide
Stormwater Quality
Management Program*

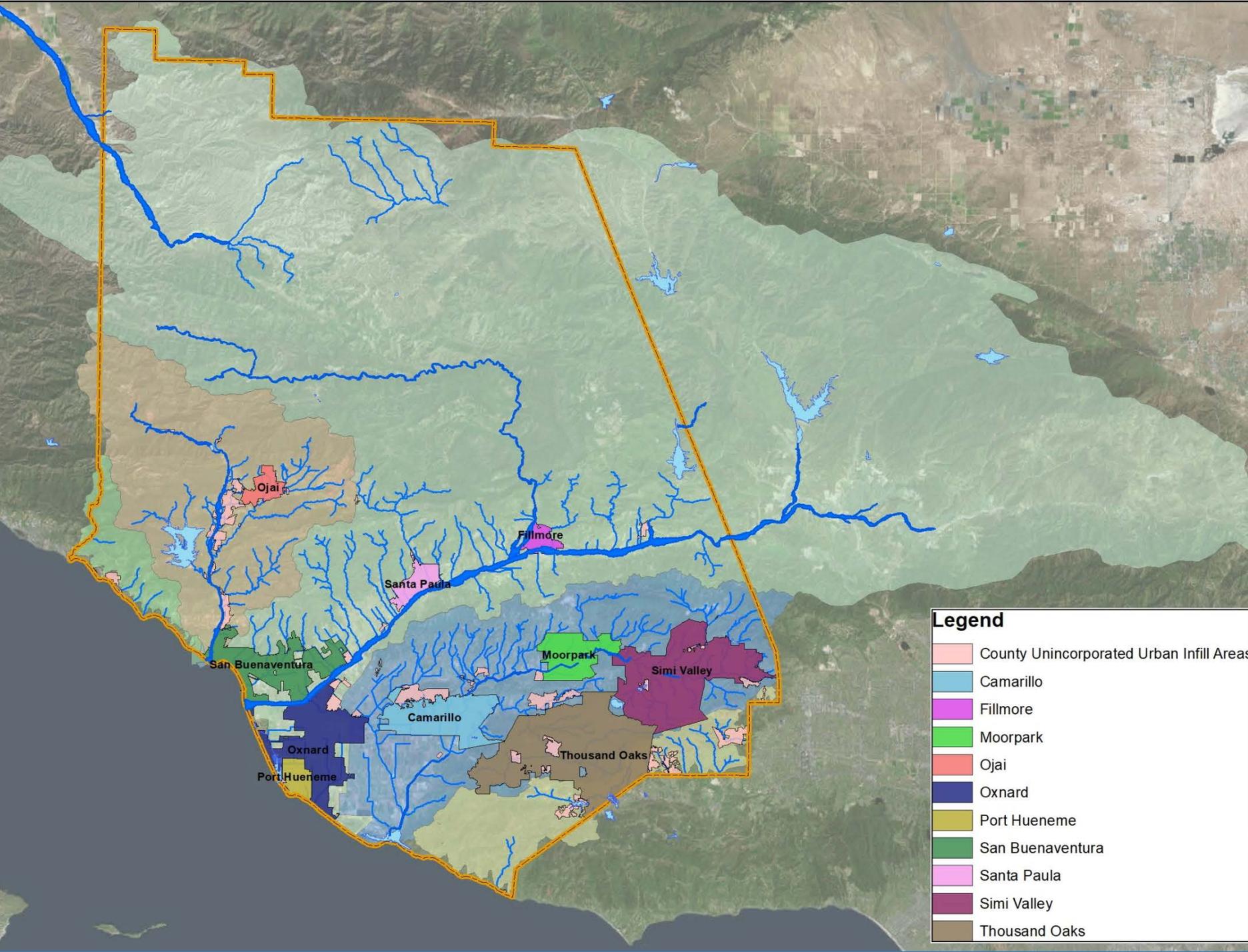


Ventura County

Los Angeles County

-  Development
-  Agriculture
-  Open Space

Source: 2011 National Land Cover Database

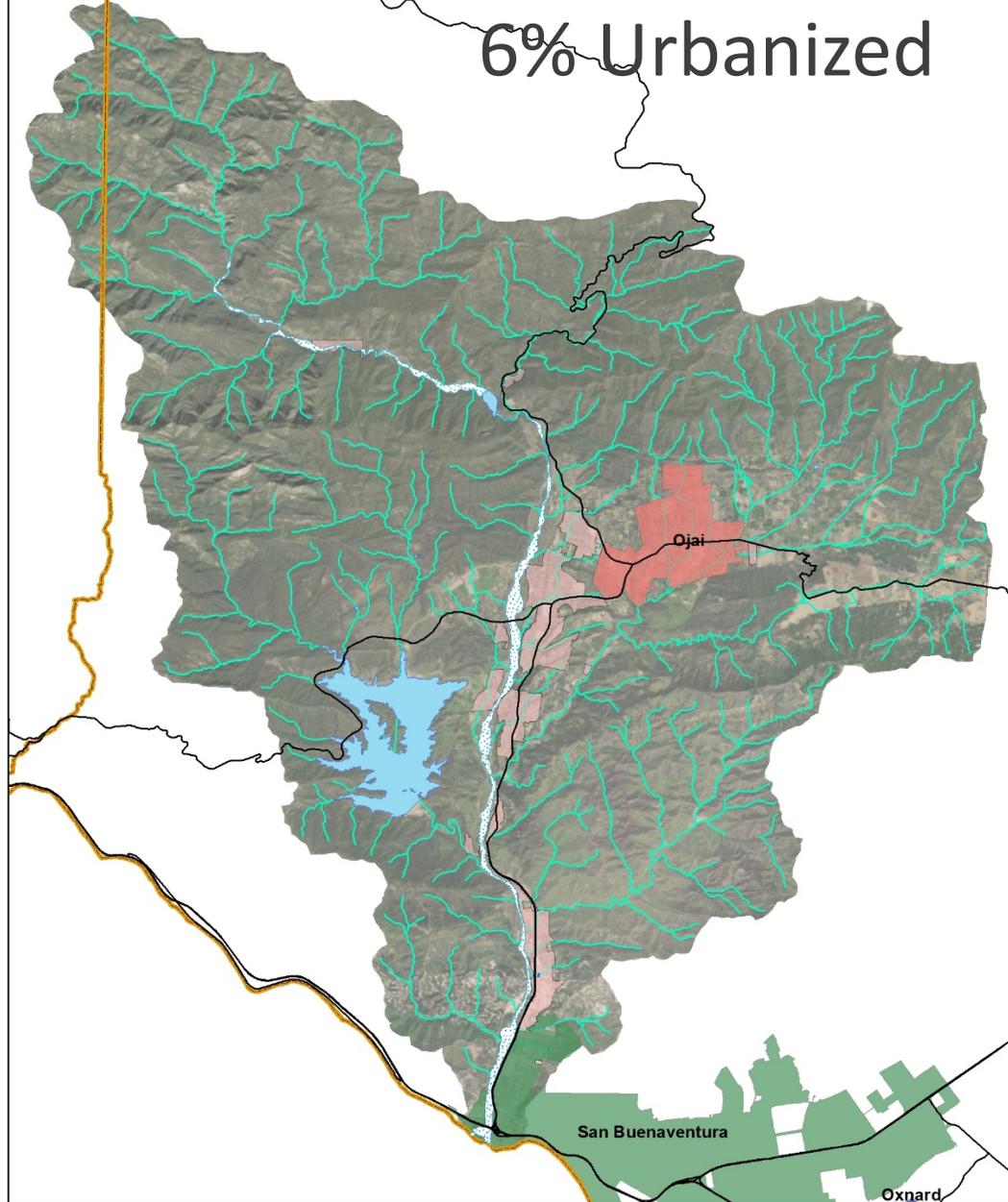


- “Once again, Ventura had a stellar summer season with 100% A grades”
- “Wet grades improved from last year, with 100% A or B grades”
 - 90% A grades
 - 10% B grades

- Heal the Bay Beach Report Card (2017/18)

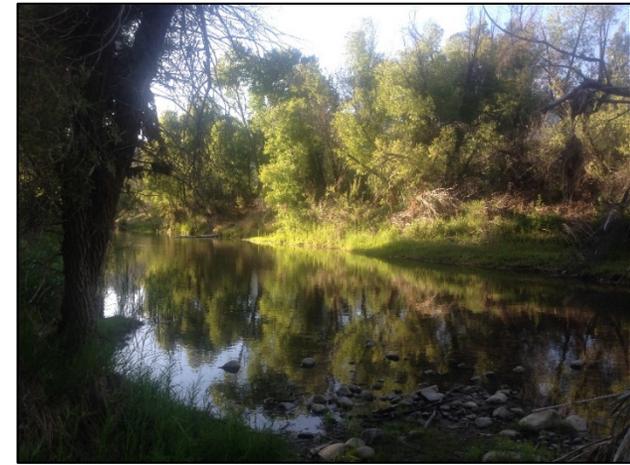
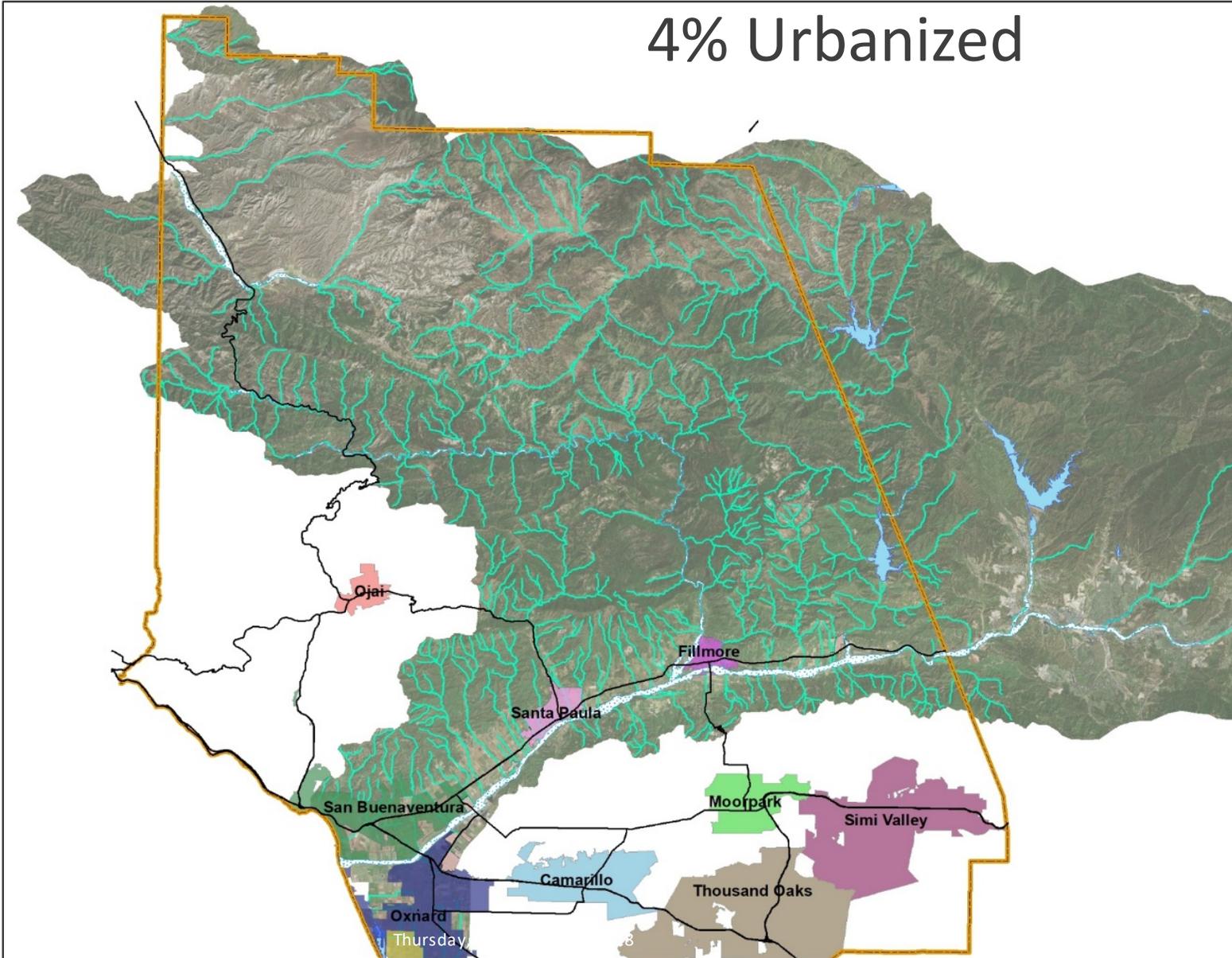
Ventura River Watershed

6% Urbanized



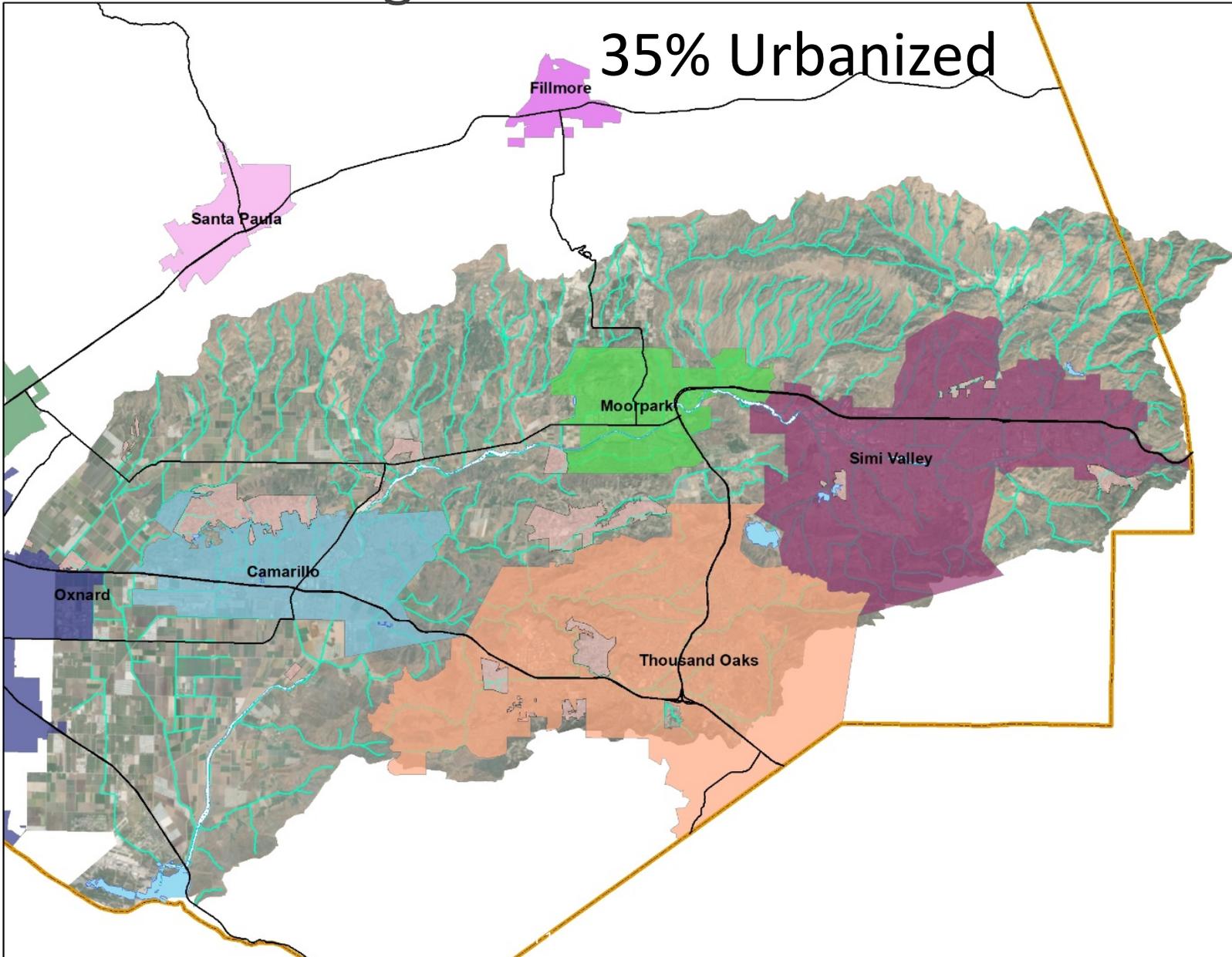
Santa Clara River Watershed

4% Urbanized

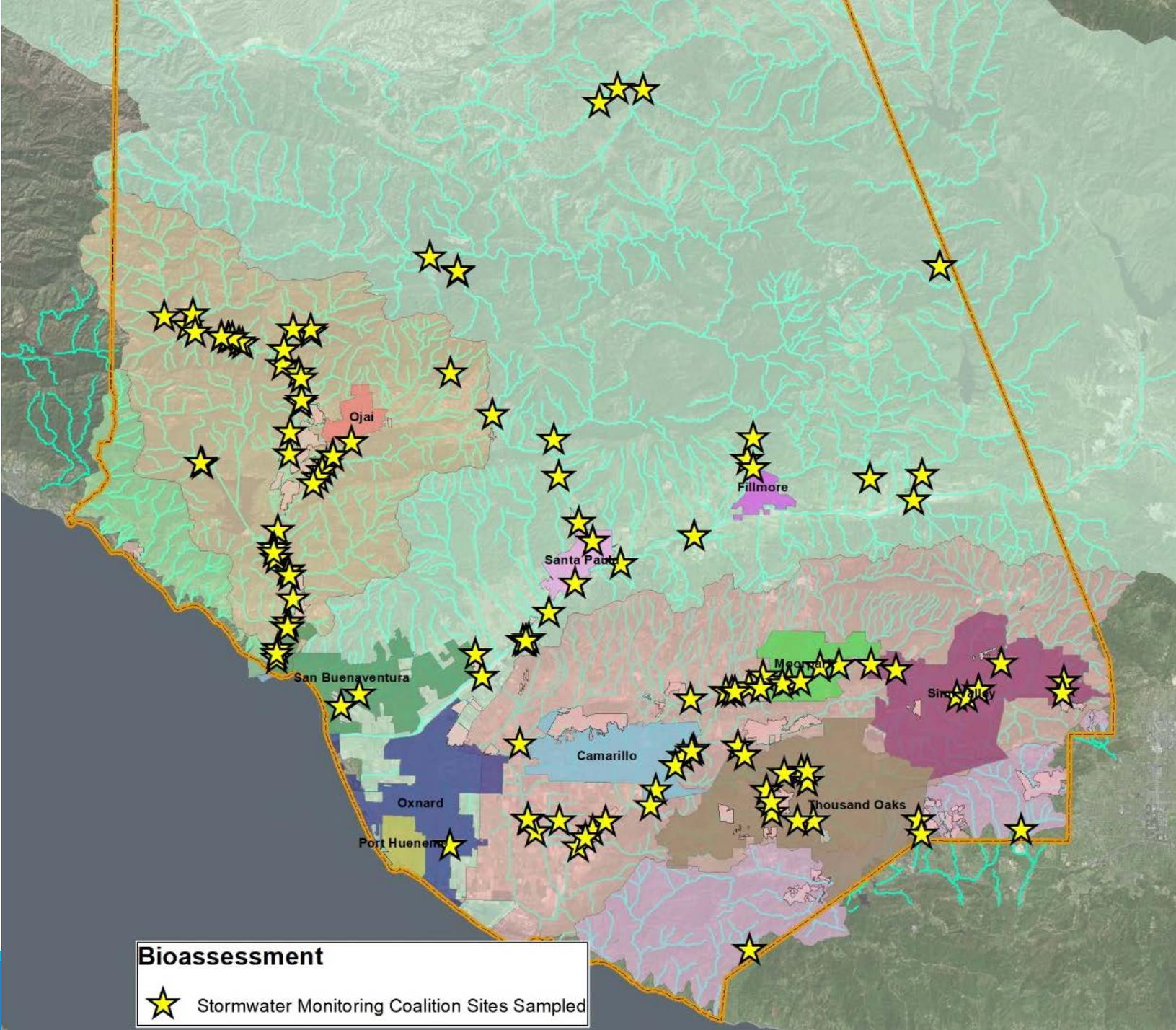


Calleguas Creek Watershed

35% Urbanized



Map of Bioassessment Sampling Sites (2009-2017)



Bioassessment
★ Stormwater Monitoring Coalition Sites Sampled

Bioassessment Studies – Random Sites

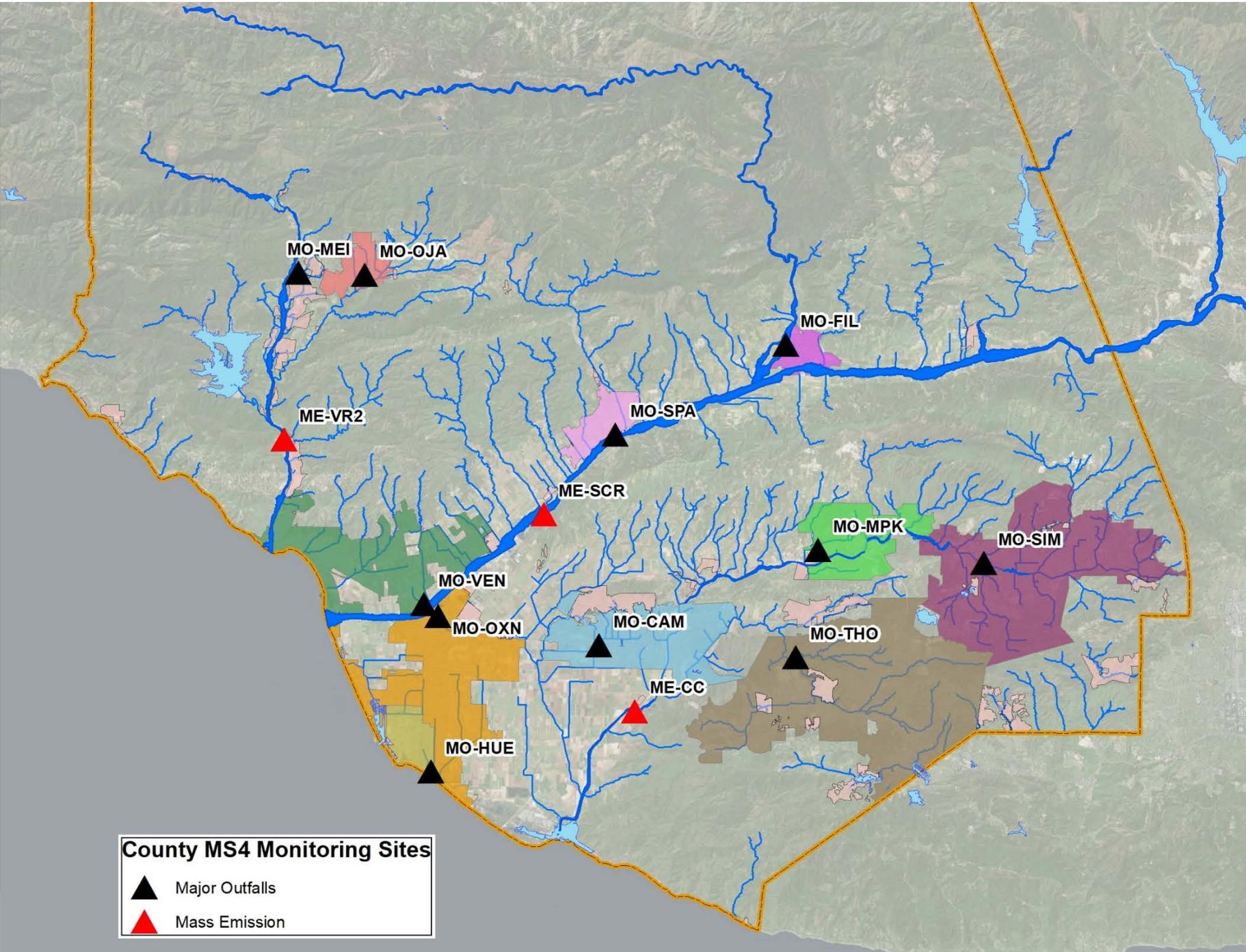


*Ventura Countywide
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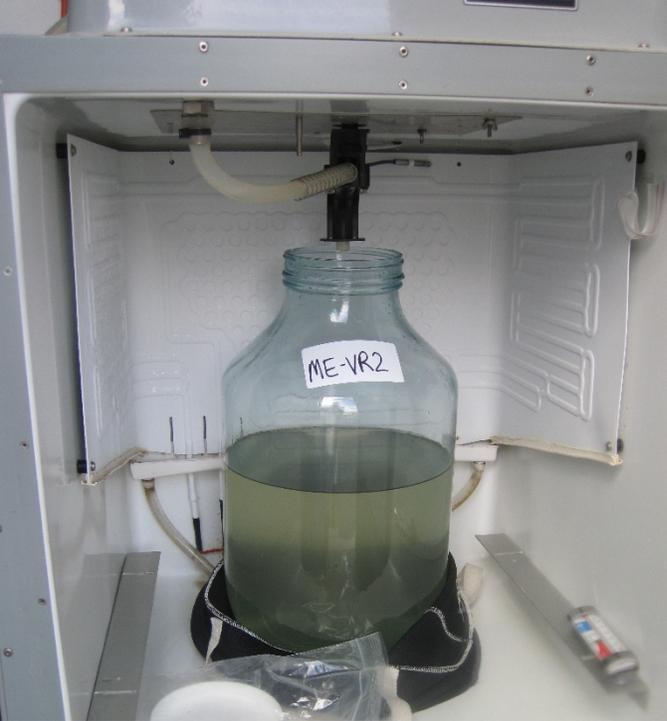


MS4 Monitoring Sites

- Receiving Waters
- Major Outfalls



County MS4 Monitoring Sites
▲ Major Outfalls
▲ Mass Emission



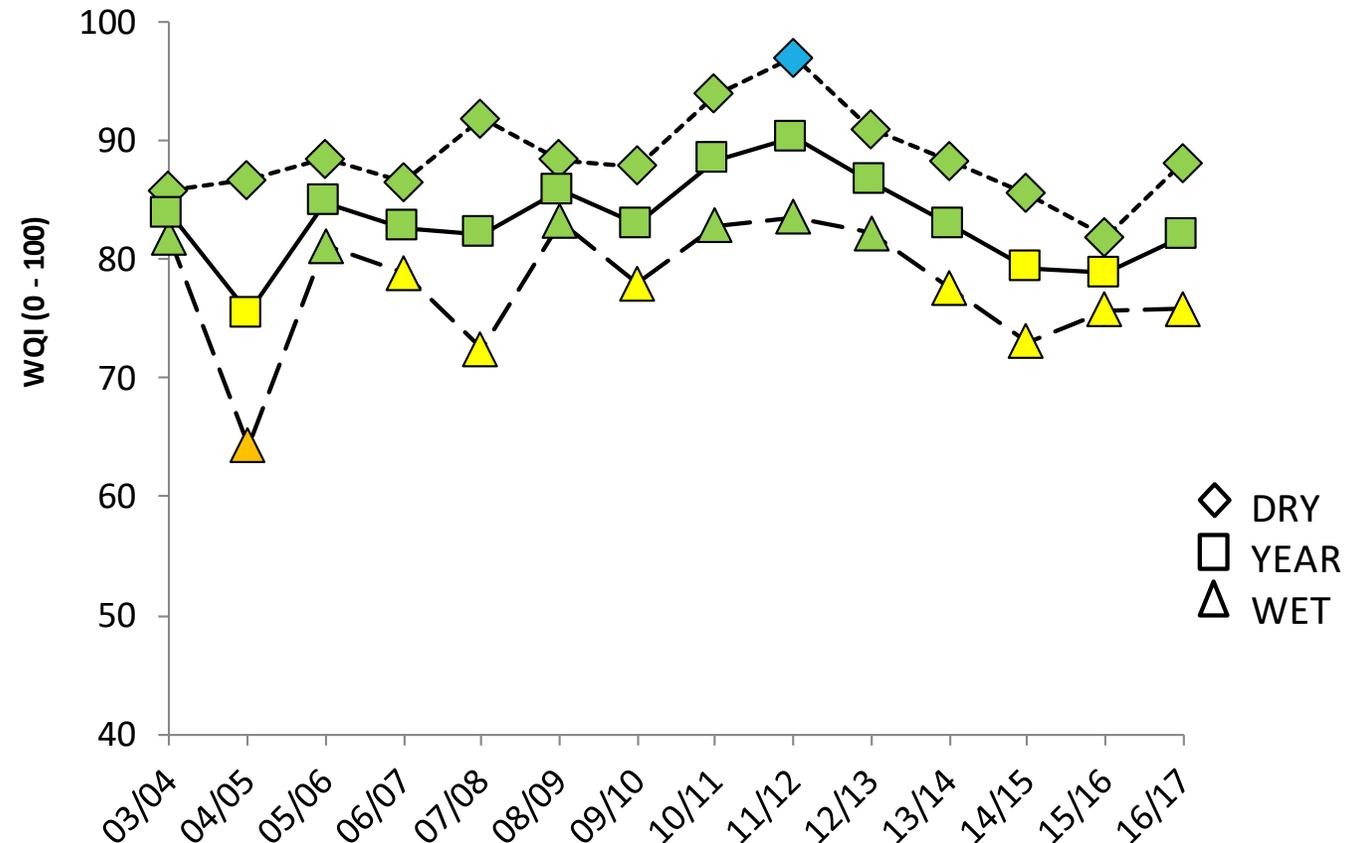
Receiving Waters Overall Trend

Water Quality Index

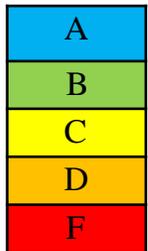
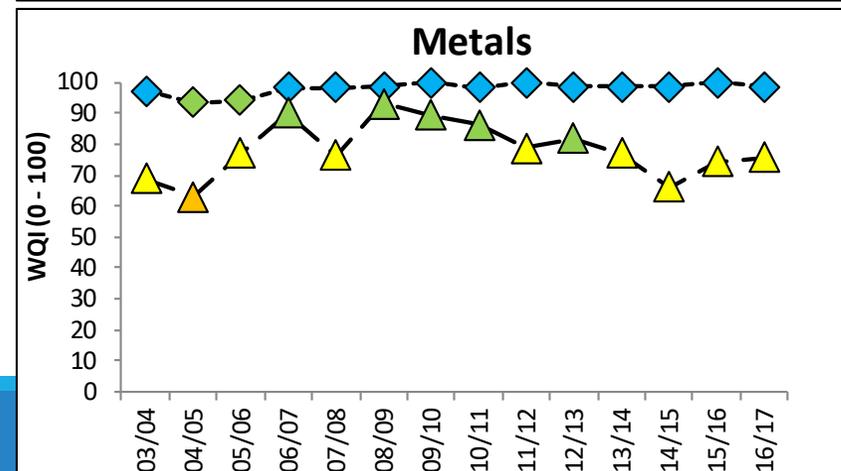
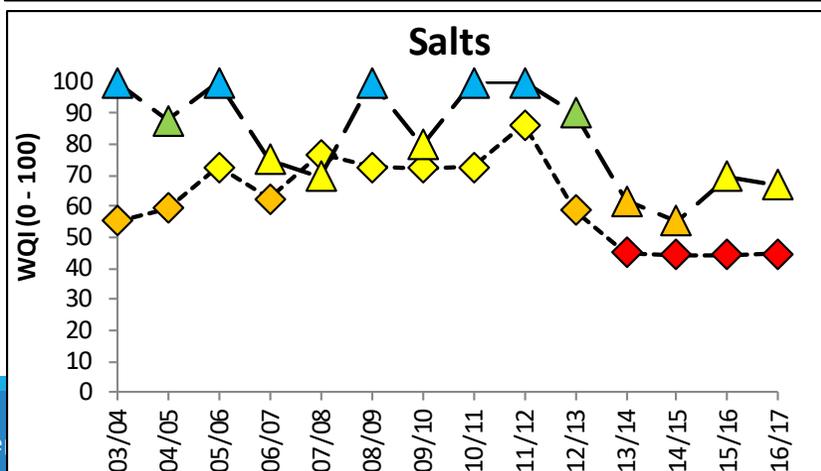
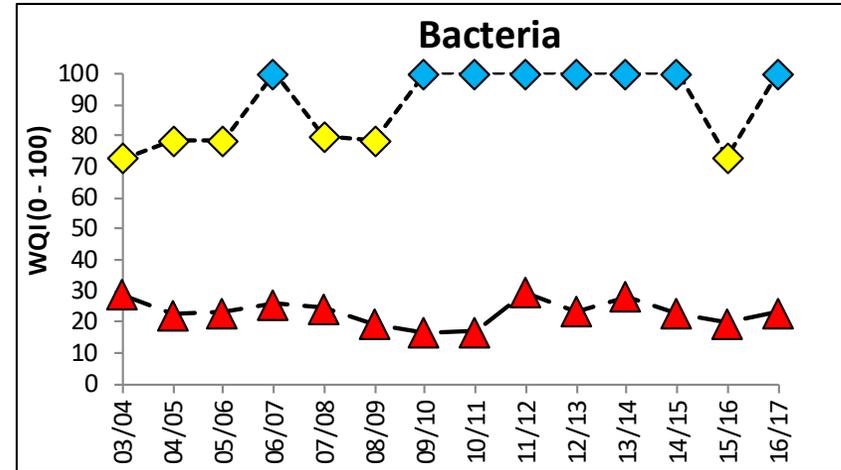
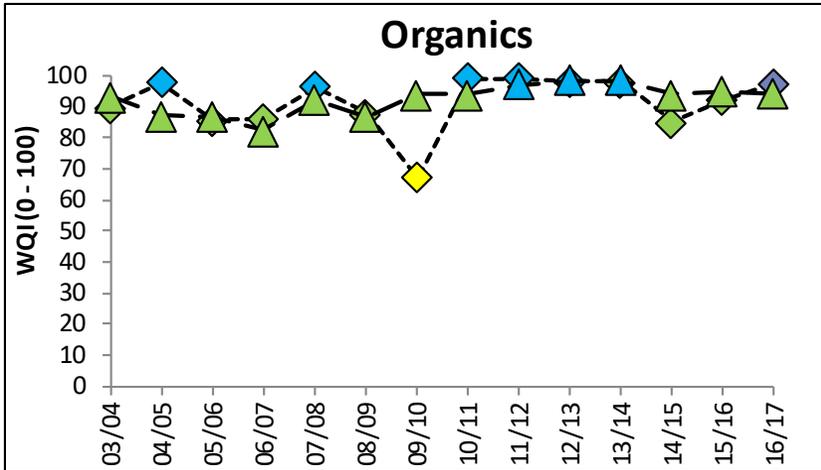
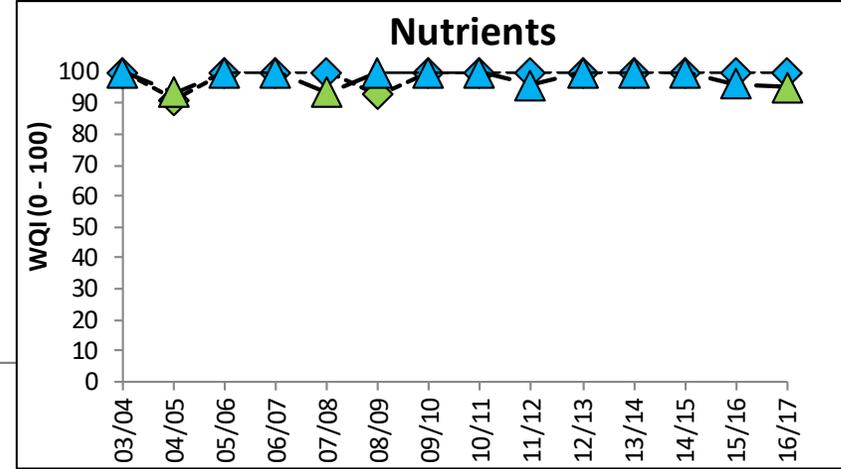
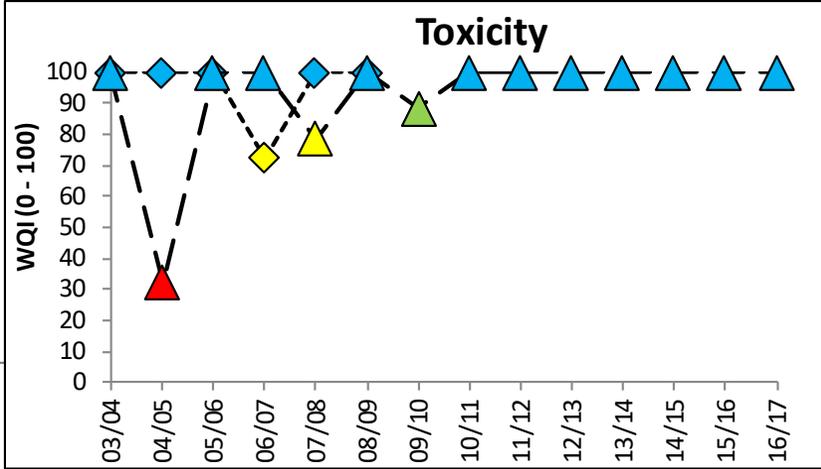
- Compiles over 200 analyses per event
- Incorporates more than basin plan
- Lower scores driven by large storms
- Groundwater affecting scores during drought

Index score	Grade	Interpretation
96 – 100	A	Excellent – Guidelines almost always met
81 – 95	B	Very Good
66 – 80	C	Fair
46 – 65	D	Marginal
0 – 45	F	Poor – high frequency of exceedances

Ventura County Water Quality Index (all locations)

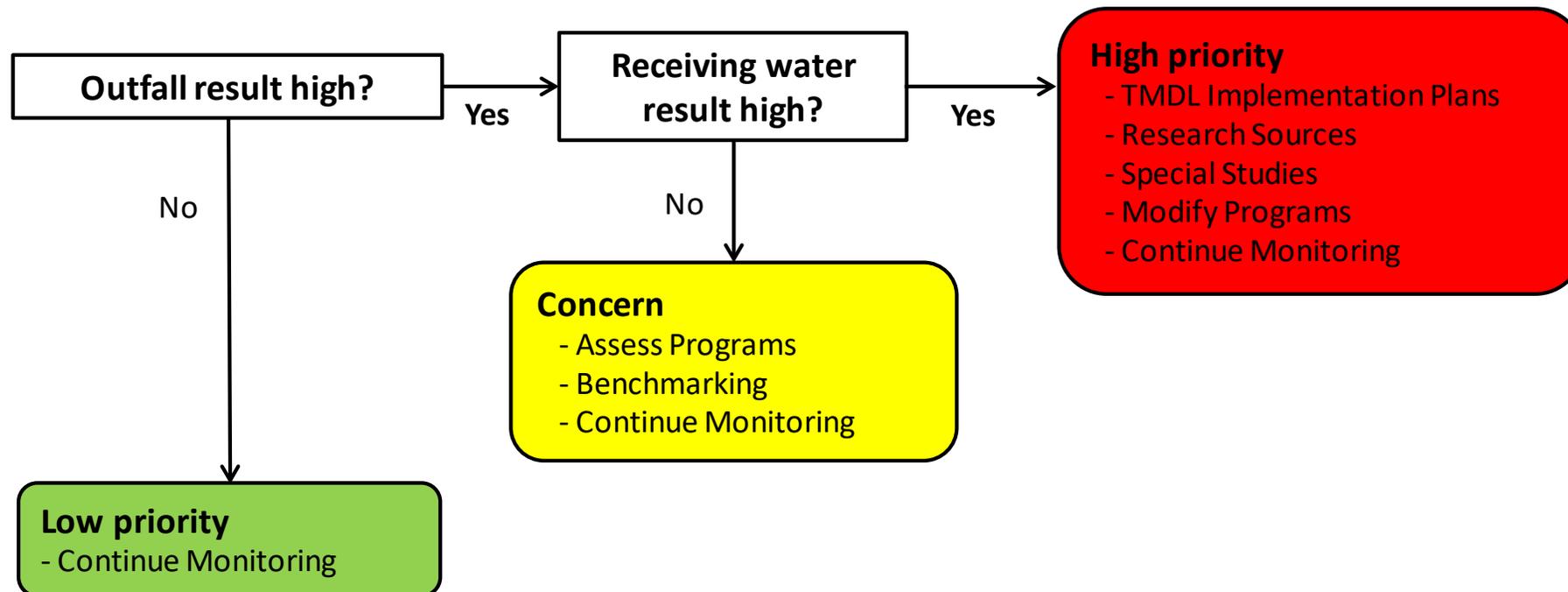


Water Quality Index Pollutant Classes



Outfall Pollutant Prioritization

Over 200 constituents at each outfall are evaluated for elevated levels and compared to receiving waters



Wet Weather Outfall Pollutant Prioritization



Ventura Countywide
Stormwater Quality
Management Program

Comprehensive assessment of monitoring data providing pollutant prioritization, and water quality trends.

Low Priority	199
Concern	11
High Priority	6
Total	216

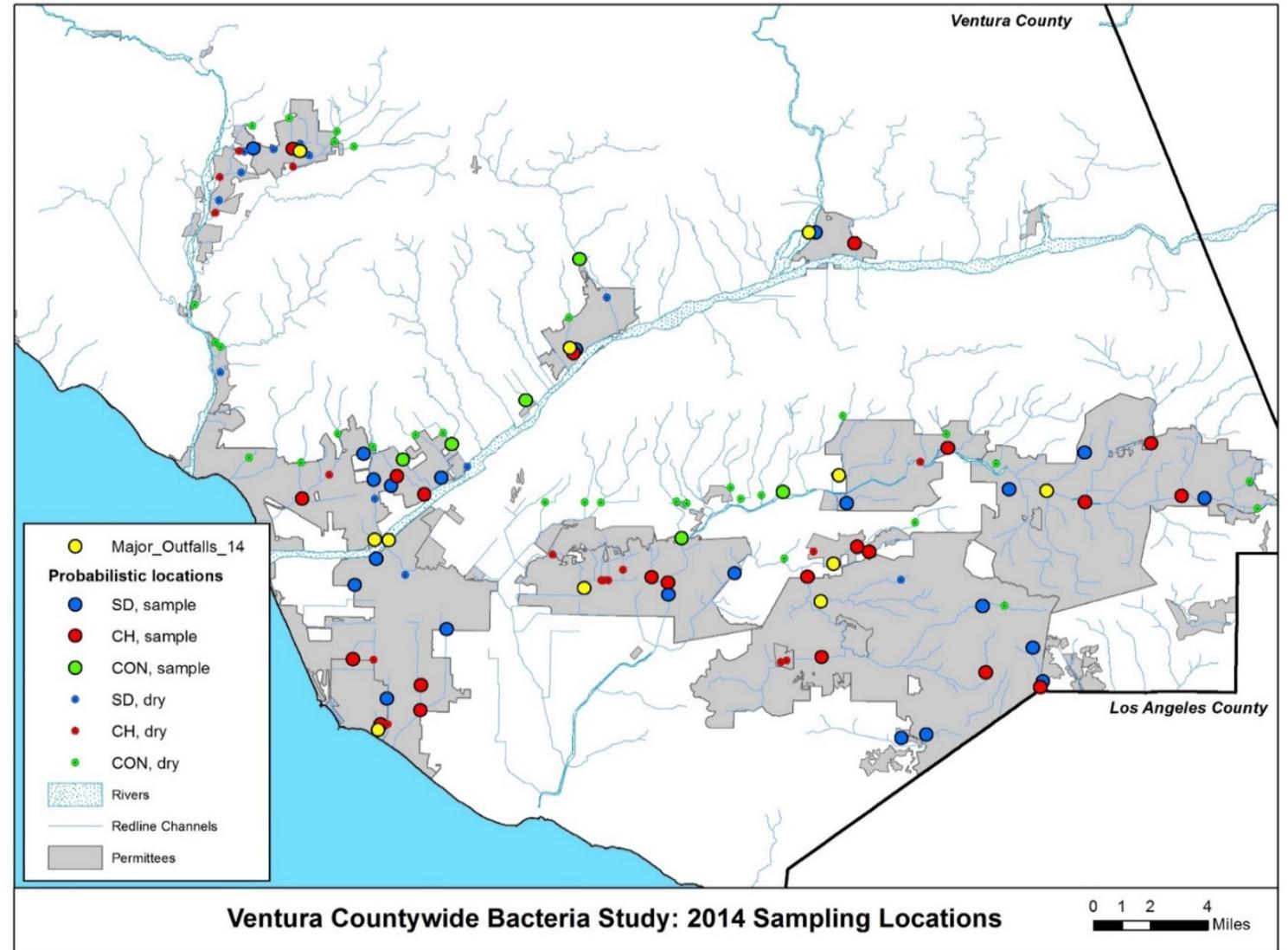
Constituent	Wet Weather Frequency of Pollutant Priority (2009/10 - 2015/16)										
	OJA	MEI	OXN	VEN	SPA	FIL	CAM	THO	SIM	MPK	HUE
<i>E. coli</i>	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Yellow
Aluminum, t	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green
DEHP	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Red	Red	Green	Red	Yellow
DO	Green	Green	Green	Green	Green	Yellow	Green	Green	Yellow	Green	Yellow
pH	Yellow	Green	Yellow	Green	Yellow	Green	Yellow	Green	Green	Green	Green
NH3	Yellow	Green	Yellow	Green	Yellow	Green	Yellow	Green	Green	Green	Green
Chloride	Yellow	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green
TDS	Green	Green	Green	Green	Yellow	Green	Yellow	Green	Green	Green	Green
MBAS	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	Green	Yellow
Perchlorate	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Yellow	Green
Arsenic, t	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green
Cadmium, t	Green	Green	Green	Green	Green	Red	Green	Green	Green	Yellow	Green
Chromium, t	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green
Copper, d	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	Green	Green
Zinc, d	Green	Green	Yellow	Yellow	Yellow	Green	Green	Green	Green	Green	Green
Benzo(a)pyrene	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Yellow
Pentachlorophenol	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	Green	Green	Yellow	Green

Addressing Priorities

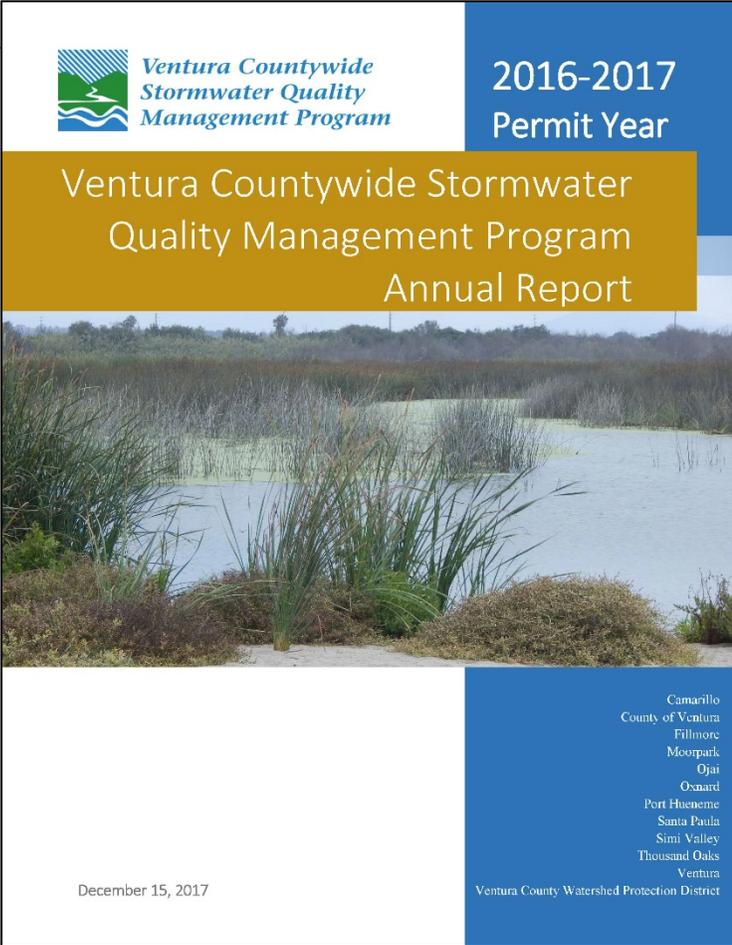


Ventura Countywide
Stormwater Quality
Management Program

- Bacteria Source Marker Study
 - Human 0%
 - Dog 33%
 - Birds 68%
- Wet Weather Aluminum Natural Source Study



Priority Actions



Ventura Countywide
Stormwater Quality
Management Program

2016-2017
Permit Year

Ventura Countywide Stormwater
Quality Management Program
Annual Report

Camarillo
County of Ventura
Fillmore
Moorpark
Ojai
Oxnard
Port Hueneme
Santa Paula
Simi Valley
Thousand Oaks
Ventura

December 15, 2017

Ventura County Watershed Protection District

- Examples of actions taken in response to pollutants observed at elevated levels:
 - Participated in working group to get legislation passed (SB-346) to reduce the level of copper in brake pads
 - Additional outfall screening/source identification
 - Focused public education to address specific pollutants of concern
 - Increased street sweeping
 - Enforcement actions against over-irrigation and dry weather runoff
 - Installation of cigarette butt collection receptacles



Minimum Control Measures

- Public Information & Participation
- Industrial/Commercial Businesses
- Planning & Land Development
- Development Construction
- Public Agency Activities
- Illicit Connections & Illicit Discharges
- Reporting

Public Information & Participation Program



Industrial/Commercial Businesses Program



Ventura Countywide
Stormwater Quality
Management Program



TRABAJANDO PARA MANTENER NUESTRA CUENCA HIDROGRÁFICA LIMPIA

Nuestra cuenca hidrográfica es el área total de terreno, incluyendo sus áreas comerciales, que desgran a nuestro río y mar. El uso inadecuado de la irrigación puede llevar contaminantes al sistema de alcantarillado. Este es una amplia cadena de alcantarillas, tuberías y canales diseñados para dirigir el flujo de agua no tratada directamente de nuestras alcantarillas a nuestro río y zonas cercanas de agua. Los materiales que desechamos pueden dañar o destruir plantas nativas, peces y la vida salvaje, y también pueden deteriorar la calidad de nuestro agua.

Solamente el agua de lluvia debe correr por las alcantarillas. Es ilegal, como cualquier otro tipo de materiales desechados en otros sistemas de alcantarillado.

Considere las normas de su empresa para que sean parte de una cuenca hidrográfica limpia siguiendo estas consejos y Mejores Prácticas Admisivas para Vivores y Negocios

<p>✓HAGA!</p> <p>Prevencción de Desechos de Irrigación Inspeccione regularmente el sistema de irrigación por posibles fugas y prevenga el uso excesivo de agua. Cuando se usa un sistema de irrigación superficial, reduzca la cantidad de fertilizantes y aplique los pesticidas directamente sobre el área afectada para así minimizar el exceso de irrigación y desechos. Convierta áreas pavimentadas en terrenos naturales o de vegetación que pueden disminuir y absorber los desechos donde sea posible.</p>	<p>NO HAGA!</p> <p>Carga y Desecho Lleve áreas de desechos desechos dañados o leales este cargar y transporte los en exposición a la usando métodos barrando con</p>
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CLEAN WORKING IN OUR WATERSHED

The watershed is the total land area, including your business, which drains to our streams and rivers. Runoff from your irrigation practices can carry pollutants from your farm, yard, or business to a wet reservoir of streams, ponds and wetlands, designed for flood control, which drains runoff untreated from the watershed straight into our streams, rivers and the bodies of water. The polluted runoff can kill or damage sensitive plants, fish and wildlife, and can degrade the quality of our water. Nothing but rain water may be discharged to a storm drain. It's illegal, so will be harmful, to allow waste materials of any kind into the storm drain system.

Make your business part of the clean watershed equities with these simple Best Management Practices for Businesses.

<p>✓DO!</p> <p>Irrigation & Runoff Prevention Regularly inspect irrigation systems for leaks and to prevent excessive runoff. When using overhead sprinklers for irrigation, minimize the use of fertilizer injection and apply pesticides directly to the target minimizing drift and overage. Cover paved areas to bare soil or vegetator areas that will slow and absorb runoff whenever possible.</p>	<p>NO DON'T!</p> <p>Loading & Unloading Conduct loading and unloading of materials on a paved surface to contain spills or leaks. Report any leaking or damaged containers to haulers from suppliers. If possible, avoid loading/unloading in wet weather or move activities to a covered area to reduce exposure to rain. Clean spills immediately using dry methods and broom sweep to remove debris.</p>
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Storage & Disposal
Store fertilizers, pesticides and other toxic garden materials in a covered area and in a secure waterproof container. Pallets should be stored away from waterways and storm drain inlets, and storm drains cover them. Keep liquid waste out of dumpsters and area dumpster users should to reduce exposure to rain and wind.

Equipment Maintenance & Operation
Maintain your equipment and vehicles to prevent oil and fluid leaks. Perform vehicle maintenance on an impervious pad located concrete with a roof to prevent rain from washing automotive fluids into the watershed. Use drip pans under trucks and fuel tanks in parking areas or when working on engines or machinery.

Building & Grounds Maintenance
Dispose of grass clippings, leaves, sticks, or other collected vegetation by composting, as green waste where service is available, or in garbage. Keep landscaping waste out of streets, waterways and storm drains. Regularly sweep outdoor areas, including parking lots and dumpster areas.

THE WATERSHED SHOULD ONLY SHED WATER
cleanwatershed.org

COMMUNITY FOR A CLEAN WATERSHED
cleanwatershed.org

Illicit Discharge Prevention for Business Owners

Learn more about the watershed and how you can help protect it.

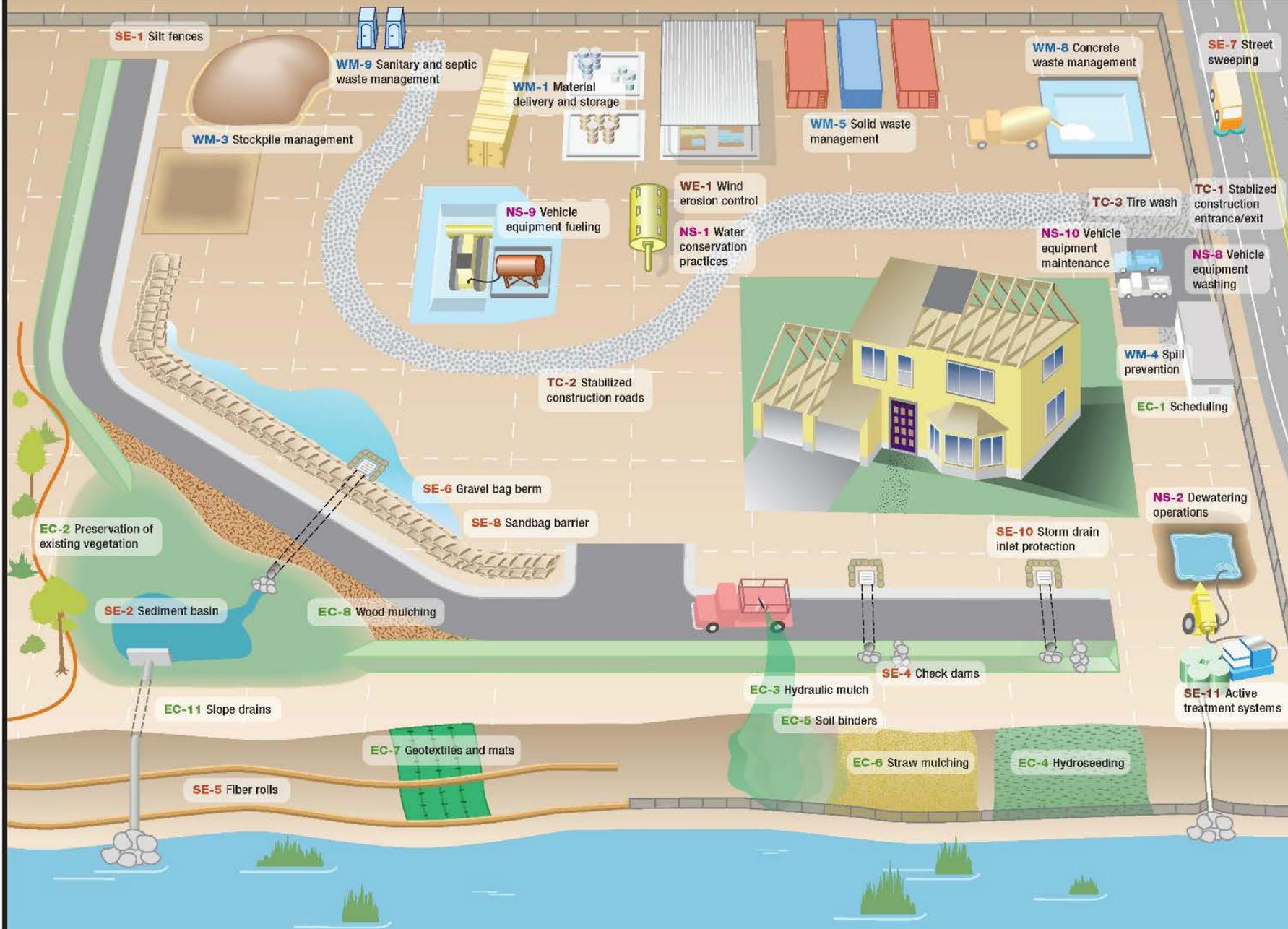
Prevencción de descargos ilicitos para los propietarios de negocios

Conozca más sobre la cuenca hidrográfica y cómo ayudar a protegerla.

COMMUNITY FOR A CLEAN WATERSHED
cleanwatershed.org

Development Construction Program





Stormwater runoff in the County drains directly into local creeks and into the ocean. Implementing Best Management Practices (BMPs) to keep construction site runoff clean is an important part of the County's program. This brochure describes BMPs that must be implemented for high risk construction projects within the County.

Erosion Control

- EC-1 Scheduling
- EC-2 Preservation of existing vegetation
- EC-3 Hydraulic mulch
- EC-4 Hydroseeding
- EC-5 Soil binders
- EC-6 Straw mulching
- EC-7 Geotextiles and mats
- EC-8 Wood mulching
- EC-11 Slope drains

Sediment Control

- SE-1 Silt fences
- SE-2 Sediment basin
- SE-4 Check dams
- SE-5 Fiber rolls
- SE-6 Gravel bag berms
- SE-7 Street sweeping and vacuuming
- SE-8 Sandbag barrier
- SE-10 Storm drain inlet protection

Additional Controls

- WE-1 Wind erosion or dust control
- TC-1 Stabilized construction entrance/exit
- TC-2 Stabilized construction roads
- TC-3 Tire wash
- SE-11 Active treatment systems

Non-Stormwater Management

- NS-1 Water conservation practices
- NS-2 Dewatering operations
- NS-8 Vehicle and equipment washing
- NS-9 Vehicle equipment fueling
- NS-10 Vehicle equipment maintenance

Waste Management

- WM-1 Material delivery and storage
- WM-3 Stockpile management
- WM-4 Spill prevention
- WM-5 Solid waste management
- WM-8 Concrete waste management
- WM-9 Sanitary and septic waste management

Planning & Land Development Program

Ventura County Technical Guidance Manual for Stormwater Quality Control Measures (TGM)

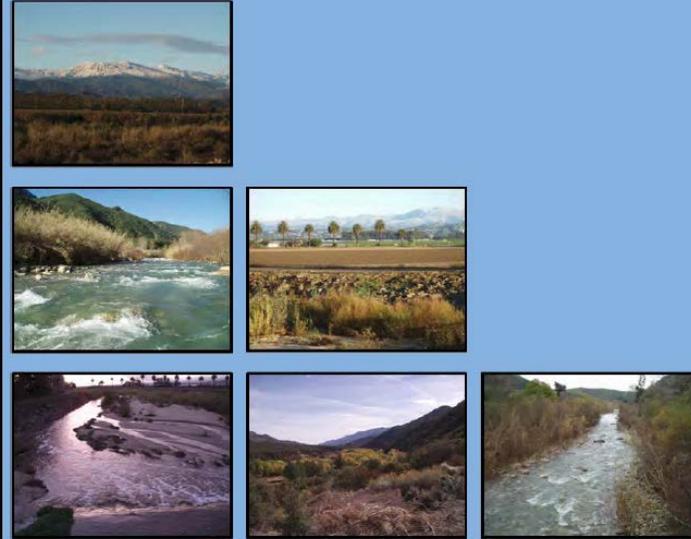
TGM development timeline:

- 2002
- 2011
- 2015 (errata update)
- 2018 (errata update)

Extensive training and outreach to development community & City/County Staff

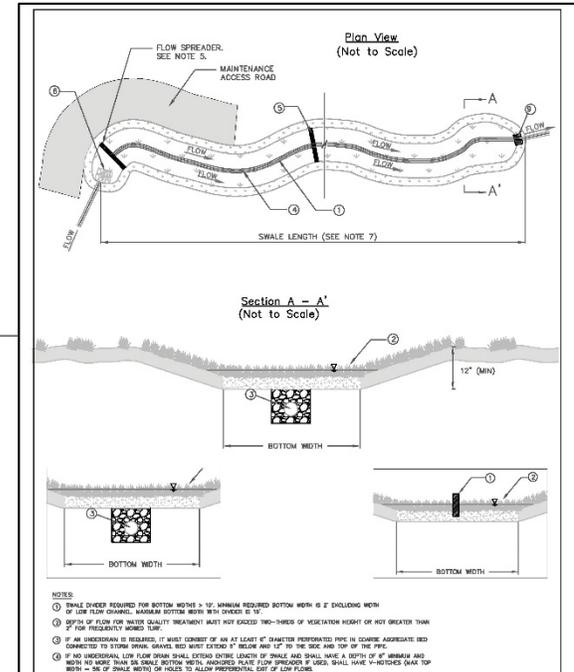
Ventura County Technical Guidance Manual for Stormwater Quality Control Measures

Manual Update 2011
Errata Update 2018



Prepared by
Larry Walker Associates 707 Fourth Street, Suite 200 Davis, CA 95616
Geosyntec Consultants 1111 Broadway, 6th Floor Oakland, CA 94607

Errata Update June 29, 2018



TCM-1: DRY EXTENDED DETENTION BASIN

Where:

- Z = interior side slope as length per unit height (H:V)
- d_b = freeboard depth (ft)

3) Calculate the width of the active volume surface area including the internal berm but excluding freeboard (F), (W_{act}):

$$W_{act} = W_{in} - 2Zd_b \quad \text{(Equation 6-40)}$$

4) Calculate the total active volume surface area including the internal berm and excluding freeboard, (A_{act}):

$$A_{act} = L_{in} \times W_{act} \quad \text{(Equation 6-41)}$$

5) Calculate the area of the berm, (A_{berm}):

$$A_{berm} = W_{in} \times L_{berm} \quad \text{(Equation 6-42)}$$

Where:

- W_{in} = width of the internal berm
- L_{berm} = length of the internal berm (= width excluding freeboard, $W_{in} - d_b$)

6) Calculate the surface area excluding the internal berm and freeboard, A_{av} :

$$A_{av} = A_{act} - A_{berm} \quad \text{(Equation 6-43)}$$

Step 4: Determine Dimensions of Forebay

The forebay should be sized to at least 5 to 15% of the basin active volume (V_a). Calculate the active volume of the forebay, (V_f):

$$V_f = \frac{V_a \times \%V_f}{100} \quad \text{(Equation 6-44)}$$

Where:

- $\%V_f$ = percent of V_a in forebay (%)
- V_a = total active volume (ft³)

7) Calculate the surface area for the active volume of forebay (A_f):

Planning & Land Development Program



*Ventura Countywide
Stormwater Quality
Management Program*

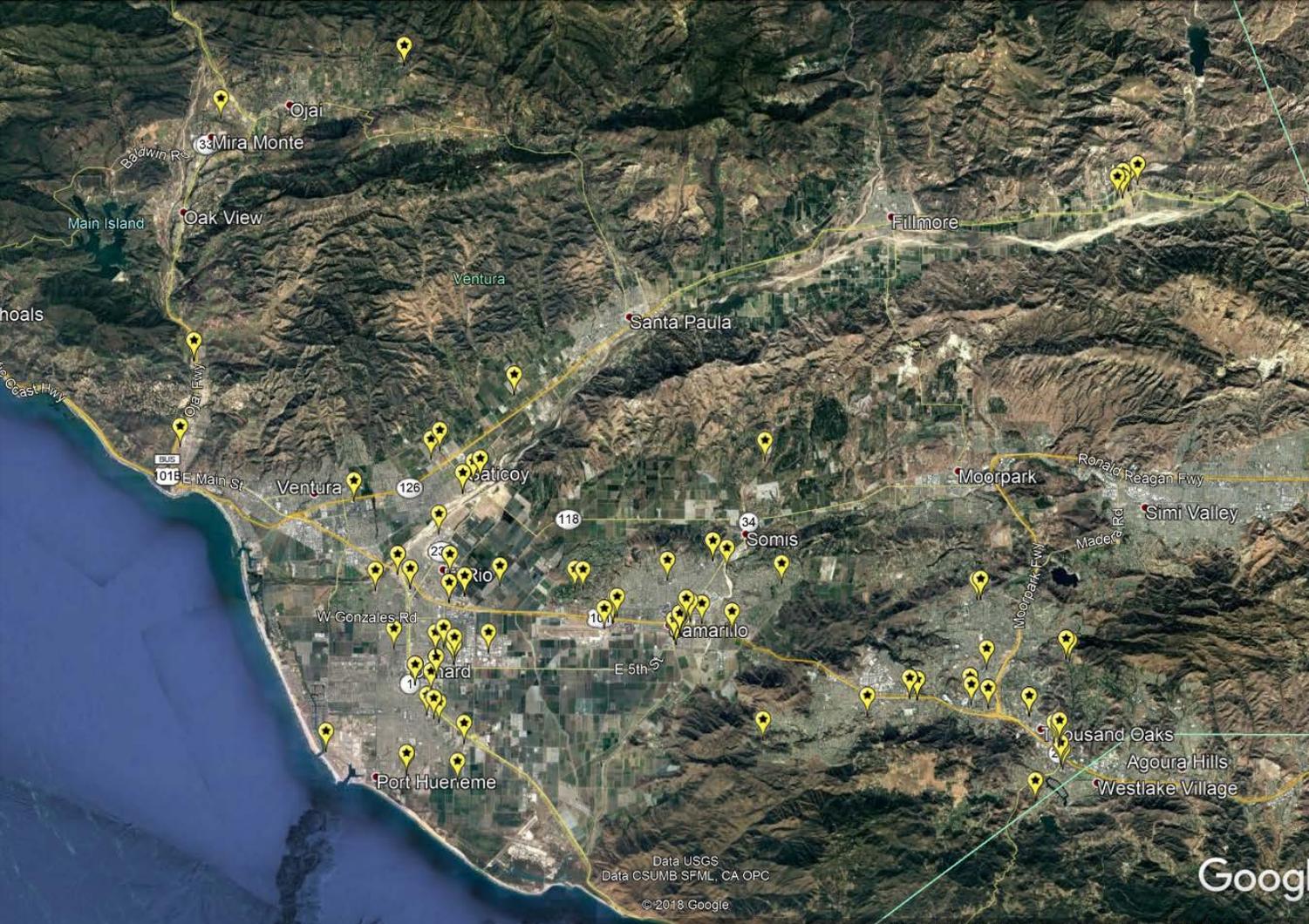
- 2018 Technical Guidance Manual Training



Planning & Land Development Program



Examples of large scale projects conditioned to provide stormwater infiltration.



Public Agency Activities Program

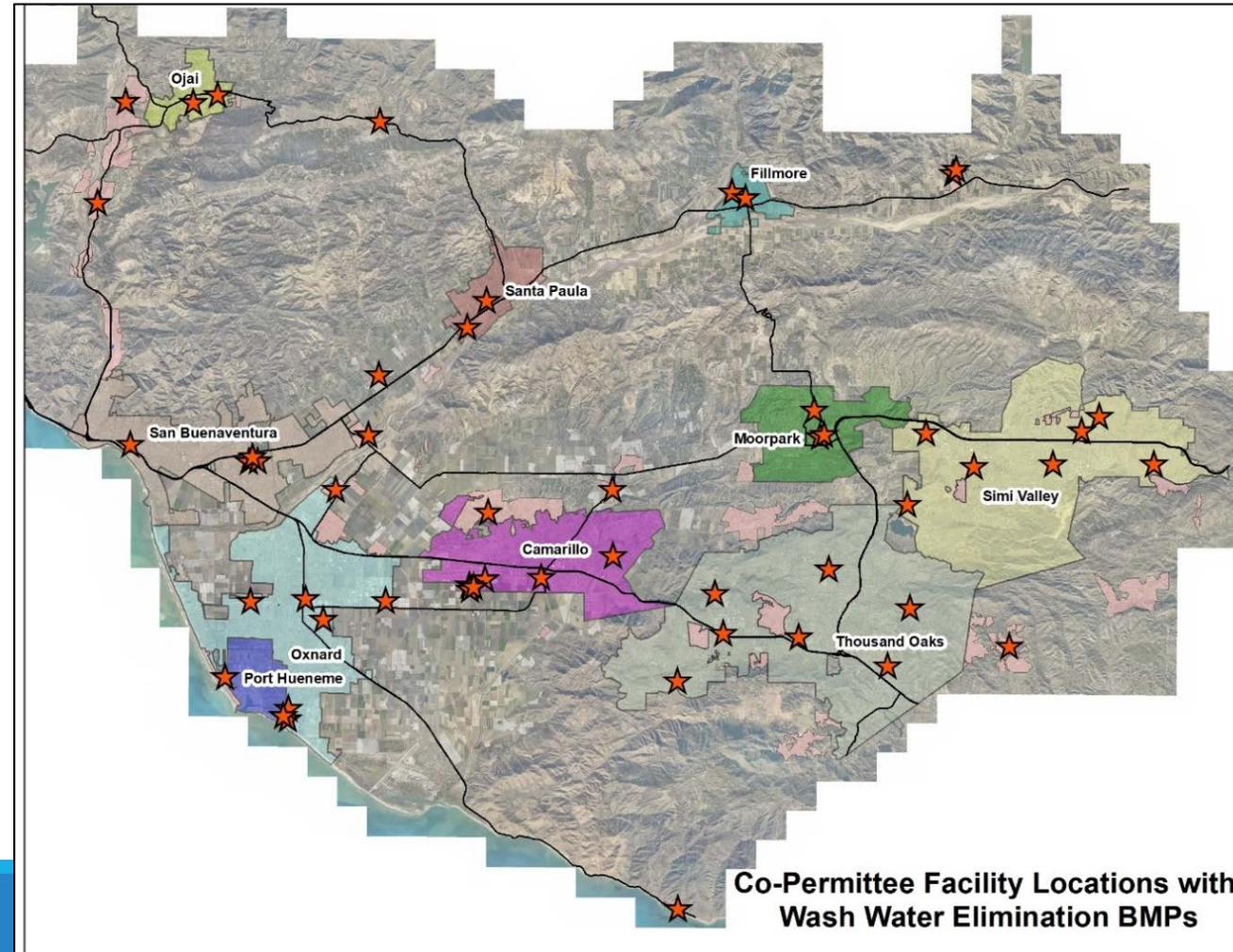
Trash Full Capture Devices



Public Agency Activities Program

Eliminate wash water runoff from
municipal facilities

- \$1,200,000 to upgrade County Fire Stations



City of Moorpark –

Arroyo Vista Community Park

- 2 infiltration basins
- Pervious concrete



September 13, 2018

Walnut Acres Park

• On-Site

Two on-site Linear trenches are designed for surface ponding and subsurface infiltration

• Off-Site

Infiltration trench on Second Street



College View Dog Park

- All stormwater runoff diverted to infiltration basins
- 100% water retention during average rainfall periods



Public Agency Activities Program

Stormwater Quality Improvement Projects

City of Thousand Oaks & Conejo Recreation and Park District – Michael Drive Park Restoration Project

- Relieve roadway flooding
- Improve stormwater quality



City of Ventura - Downtown Parking Lot Retrofits



- Curb cuts
- Bioswale
- Permeable Pavers



Kellogg Park Bioinfiltration Demonstration Project

- Captures onsite and street runoff
- Partnered with Trust for Public Lands for funding

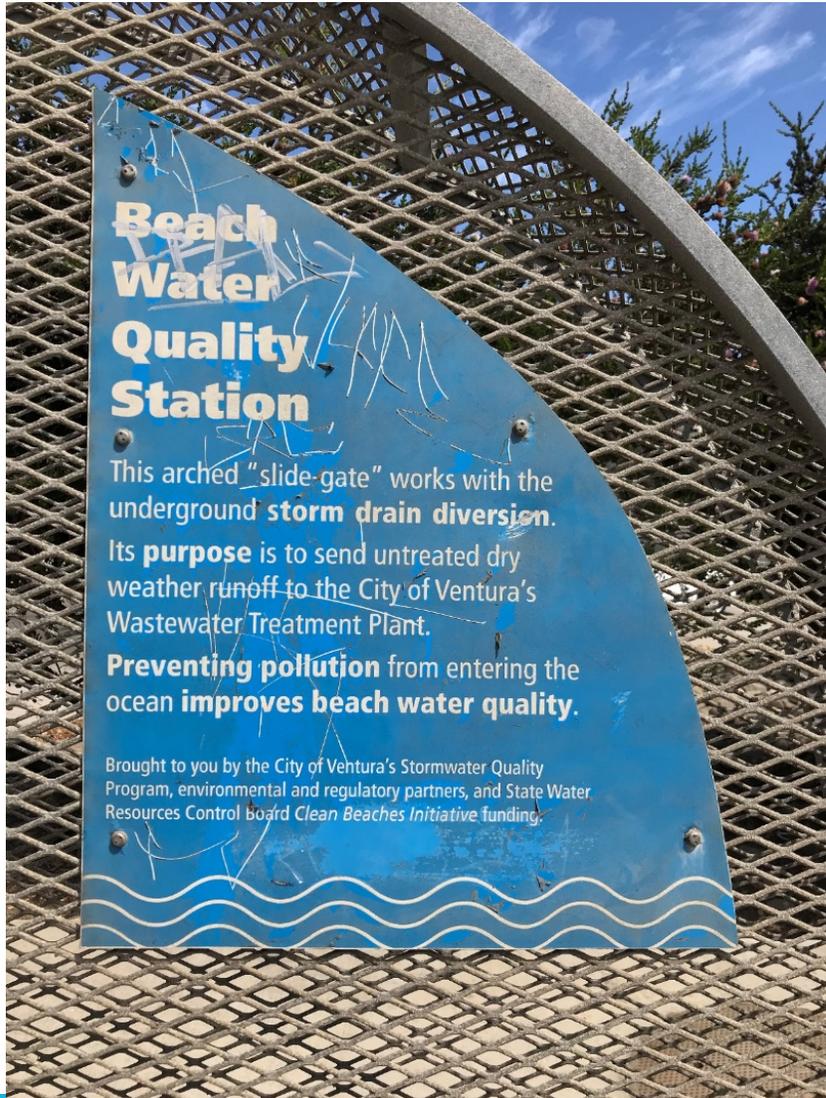


Hartman Dr. Green Street Project

- Green Street demonstration project
- Permeable pavement
- Curb cuts
- Bioretention with infiltration



City of Ventura – Low Flow Stormdrain Diversion Structures



- Funding from State Water Board Clean Beaches Initiative Fund
- 3 low flow diversions to sanitary sewer for dry weather flows
- Outfalls discharge to most heavily recreated beach in Ventura.
- Dry weather water quality improvements



[Back](#) **Select an Issue**

Graffiti
Graffiti on public or private buildings, structures or signs. If you are witnessing the act in progress, call 911.

Illegal Dumping/ Trash Service/ Litter >

Streets
Report street related issues such as potholes, obstructed street signs, faded street markings, broken sidewalks and broken curb and gutters. >

Abandoned Vehicle
Report abandoned vehicles on public or private property.

General Questions
Submit a non emergency request to the city if you don't find the appropriate category. Ask a general question or send us a message. For non emergency police issues such as nuisances or noise complaints, that need immediate attention, please call 805-385-7600. For downed power lines please call 911.

Overgrown Landscape
Overgrown grass, weeds, or limbs which need attention.

Streetlight Out
Please submit street light outage to Southern California Edison

Home Nearby **+** Notifications Profile

HOME ABOUT THE AGENCY OUR DEPARTMENTS SERVICES CONTACT **REPORT A CONCERN**

VCPWA CONNECT!

Available on the App Store **PUBLIC VENTURA COUNTY WORKS**

App Store 11:01 AM 99%

PUBLIC VENTURA COUNTY WORKS

[View Requests](#)

Submit Request
The primary tool of PublicStuff, used to submit service requests.

911
For an emergency, call 911

VCPWA
Website for the Ventura County Public Works Agency.

Home Nearby **+** Notifications Profile

App Store 11:02 AM 99%

[Back](#) **Select an Issue**

General Questions, Comments and Concerns
Submit a non emergency request to the Ventura County Public Works Agency.

Report Road Maintenance Issue
Report issues with County owned roads, to include debris removal, graffiti, overgrown vegetation, shoulders, flooding issues, curb/gutter repair, weed spraying, snow or ice, etc.

Report a Downed Stop Sign
Report a downed stop sign

Report a Traffic Related Issue
Report issues with County owned crosswalks, signs, lighting, signals, striping, speed humps, etc.

Report Possible Sewage Spill
Click here to report suspected sewage spill.
If it is after-hours please call the emergency line - 805-378-3000

Report Graffiti in or near a Channel
Report inappropriate or gang-related graffiti in or around channel structures. If you are witnessing the act in progress, call 911.

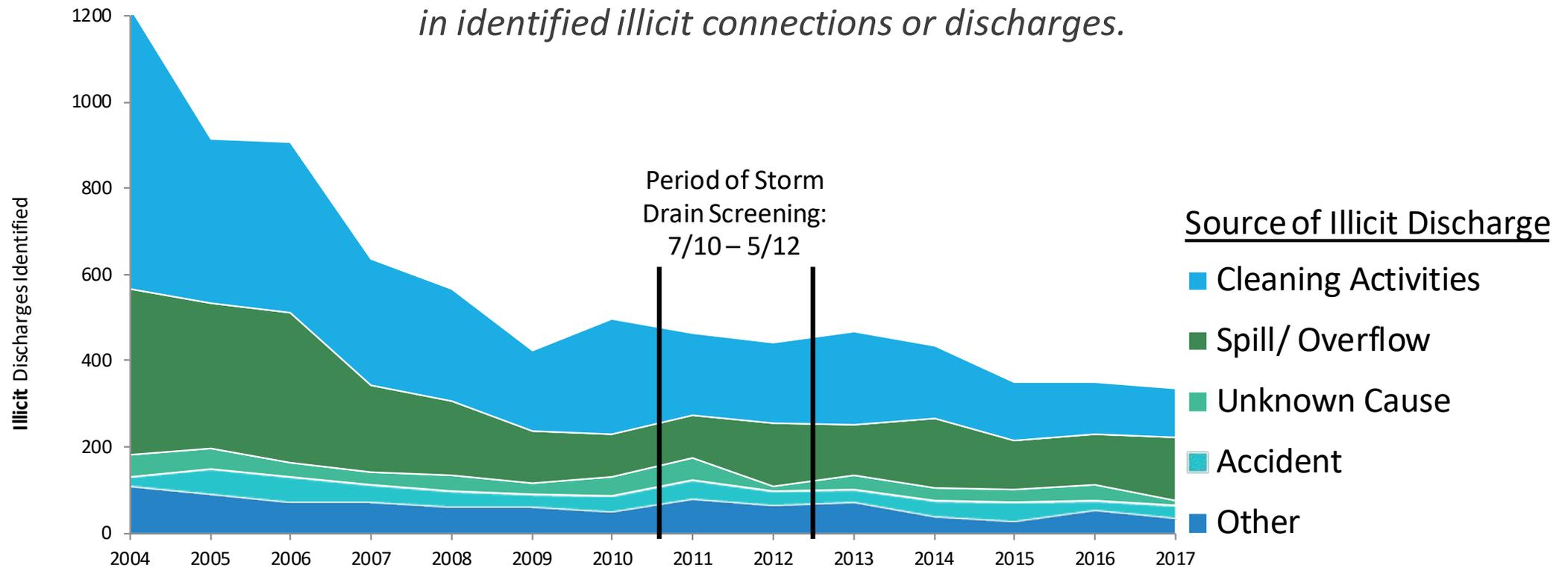
Report Illegal Grading

Home Nearby **+** Notifications Profile

Illicit Connections & Illicit Discharges Elimination Program



Storm drain screening did not result in an increase in identified illicit connections or discharges.



Illicit Connections & Illicit Discharges Elimination Program

Eight Household Hazardous Waste Collection Facilities Countywide

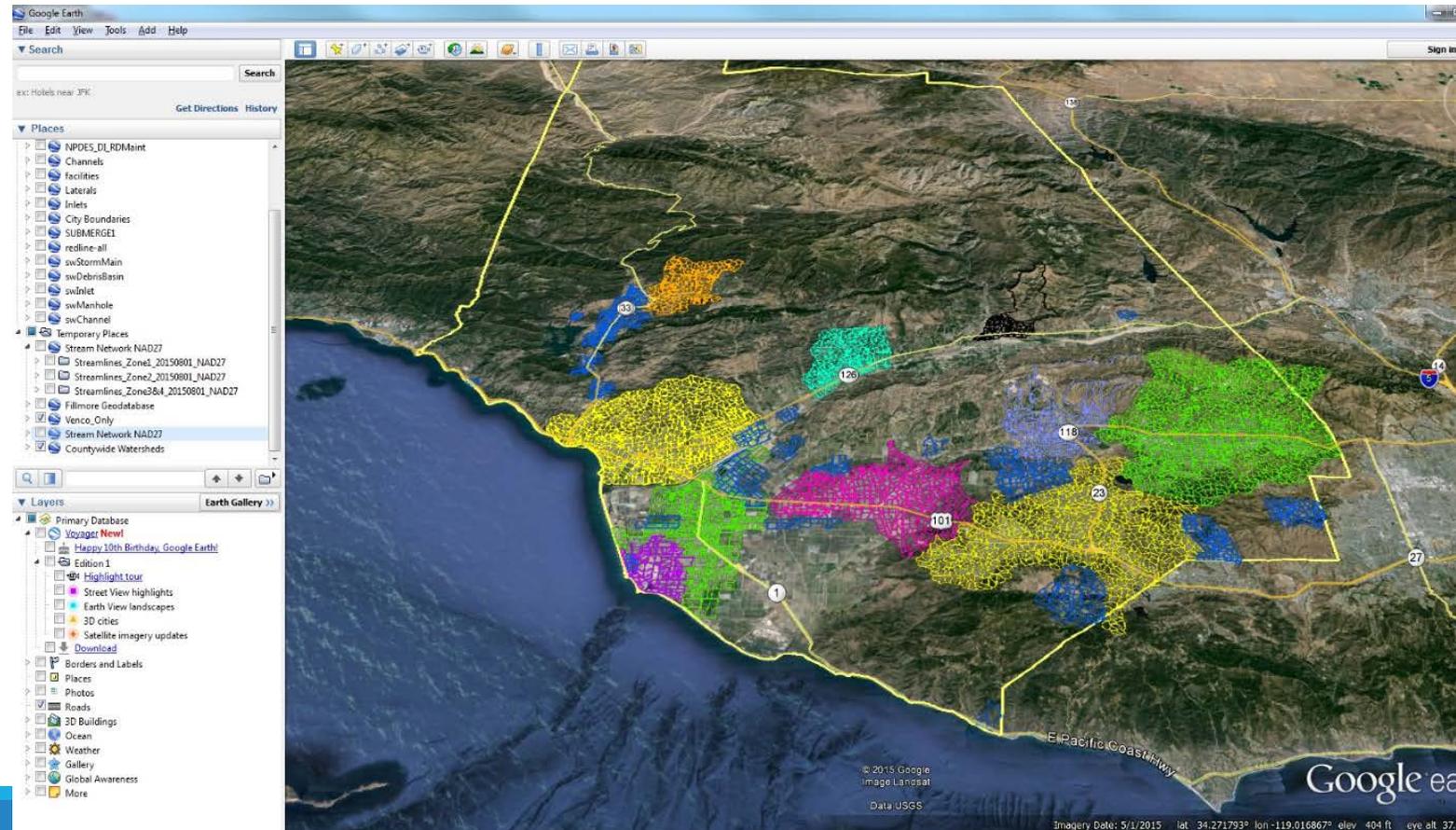


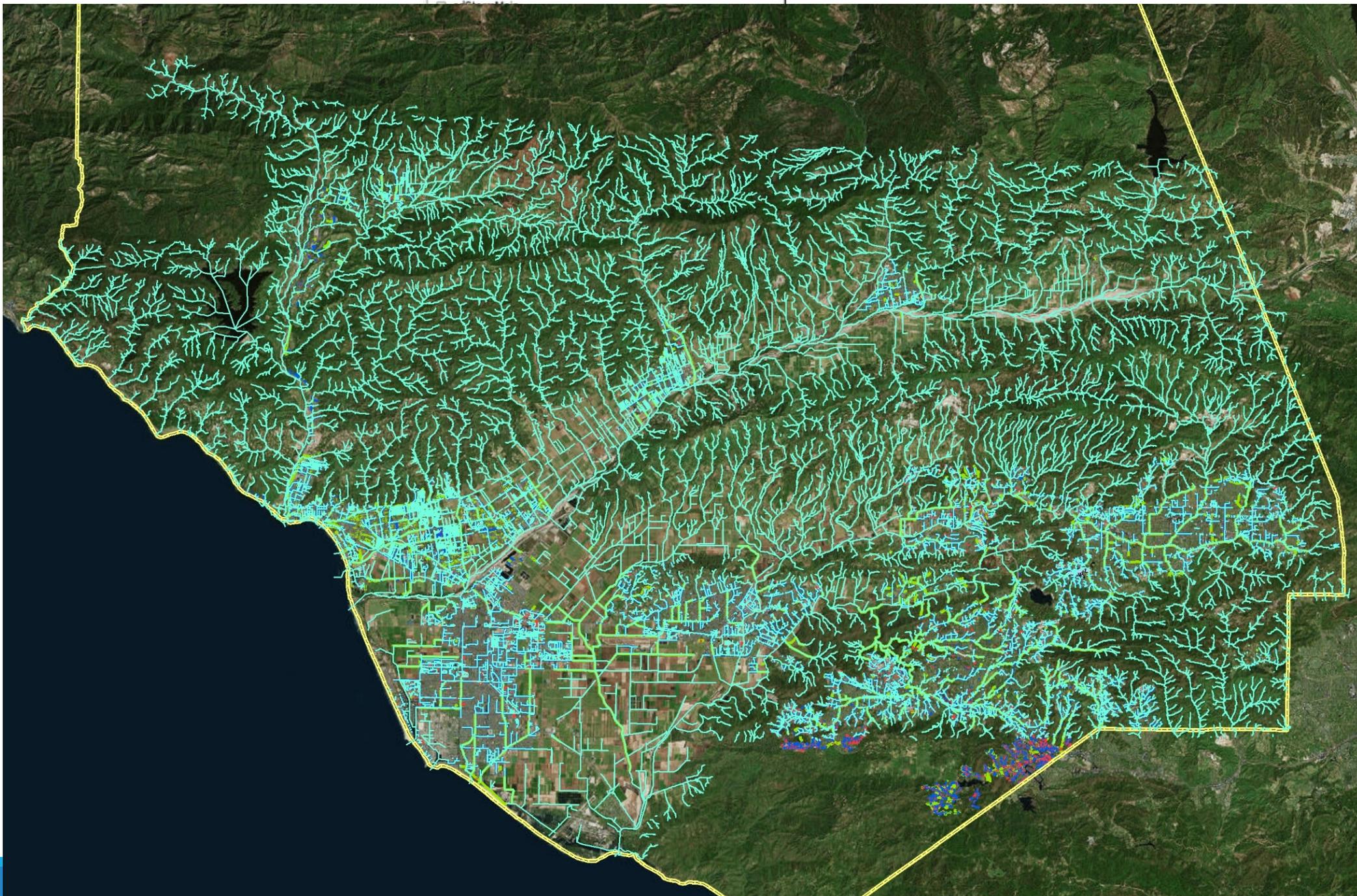
Illicit Connections & Illicit Discharges Elimination Program

Unified Ventura Countywide Storm Drain Geodatabase

Seamless data layers include:

- Watershed sub-catchments
- Topographic contours
- Stream and storm drain networks
- Links to as-built plans





Reporting Program

Annual Reporting

- Electronic Reporting Format Submitted to Board May 7, 2010
- Over 50 Performance Measures developed in conjunction with Regional Board staff to show compliance and efforts beyond Permit requirements
- Effectiveness Assessment for each program element based CASQA outcome levels
- Thorough discussion of water quality exceedances and Permittees efforts
- Available online at www.vcstormwater.org/

Annual Report Data Summary Sheet

Illicit Discharge and Illicit Connections
2016-2017

Performance Measures

Permittee: **Santa Paula**

Public Notifications	
Did the Permittee document the procedures of the ID/IC Program and make them available for public review?	Yes
Did the Permittee maintain a phone hotline to receive reports of ID/IC?	Yes
Did the Permittee maintain a web site to receive/direct reports of ID/IC?	Yes
Legal Authority	
Does the Permittee have legal authority to prevent and remove illicit connections and illicit discharges?	Yes
Response	
Did the Permittee respond within one business day or discovery or report of a suspected illicit discharge and abate, contain, and/or cleanup the discharge?	Yes
Did the Permittee investigate illicit discharges during or immediately following containment and cleanup activities?	Yes
Did the Permittee take appropriate enforcement action to eliminate the illicit discharge?	Yes
Did the Permittee keep records of all illicit discharge discoveries, reports, responses, and formal enforcement?	Yes

Ventura Countywide

Total Maximum Daily Loads



PUBLIC
VENTURA COUNTY
WORKS



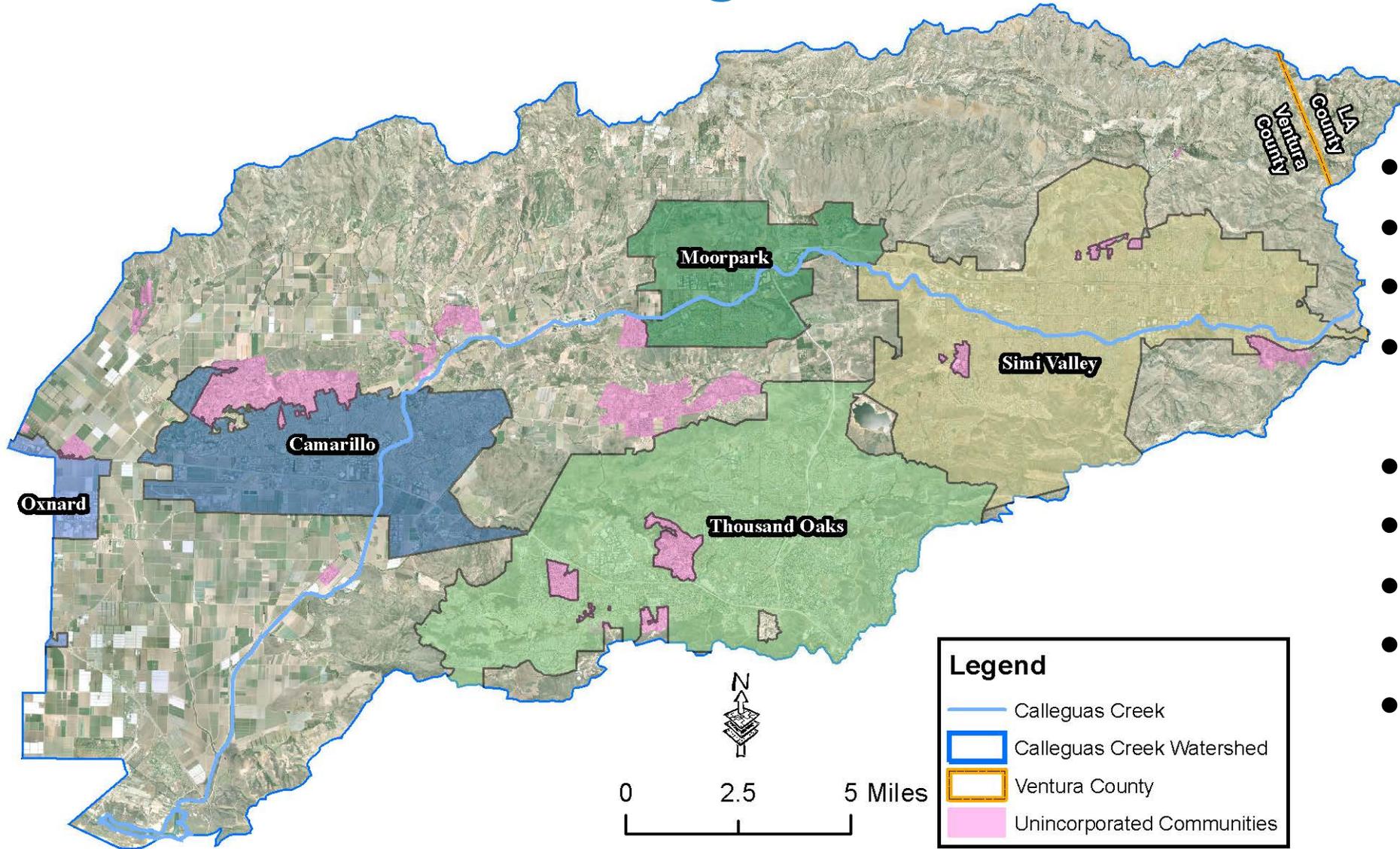
Ventura Countywide TMDLs Overview

- TMDLs for MS4 Dischargers in Ventura County
- TMDLs per Watershed:
 - Partnerships & MOAs,
 - TMDL Monitoring & Reporting,
 - TMDL Implementation, and
 - Compliance Actions.
- Summary & Lessons Learned

Ventura Countywide TMDLs



Calleguas Creek Watershed



TMDLs:

- Nitrogen Compounds,
- Toxicity,
- OC Pesticides,
- Chlorpyrifos, Diazinon, & PCBs,
- Siltation,
- Metals & Selenium,
- Salts,
- Trash (RS/BW), &
- Pesticides, PCBs, & Sediment Toxicity (Oxnard Drain No. 3)

CCW TMDL Memorandum of Agreement (MOA)

□ MOA since 2008 including 2009 Amendment No. 1 & 2018 Amendment No. 2

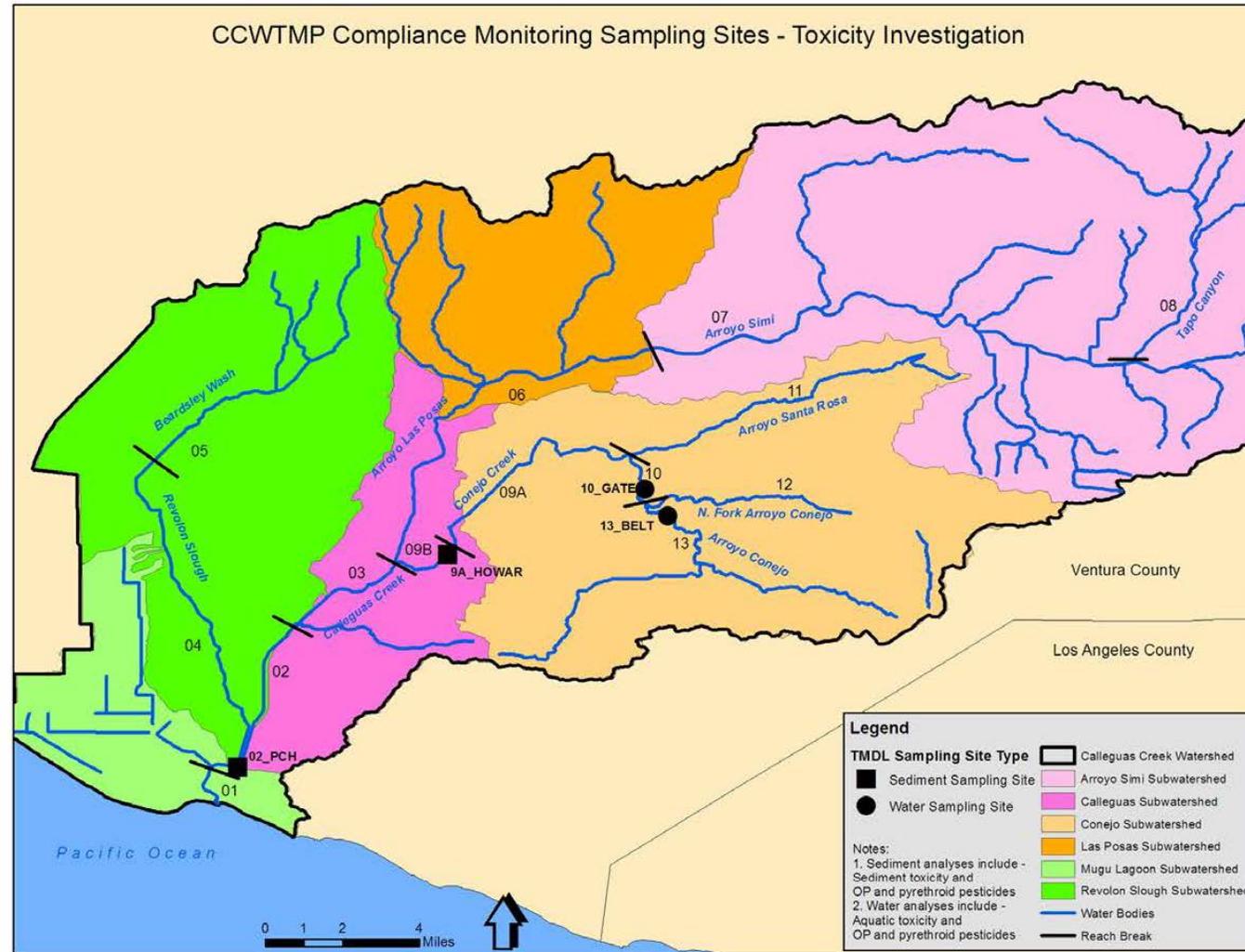
□ 13 MOA Parties

- Ag Dischargers
- Water Districts
- Sanitary Districts
- MS4s
- US Navy
- Caltrans

□ Partners: CMWD, VLT, CCC, & CSUCI



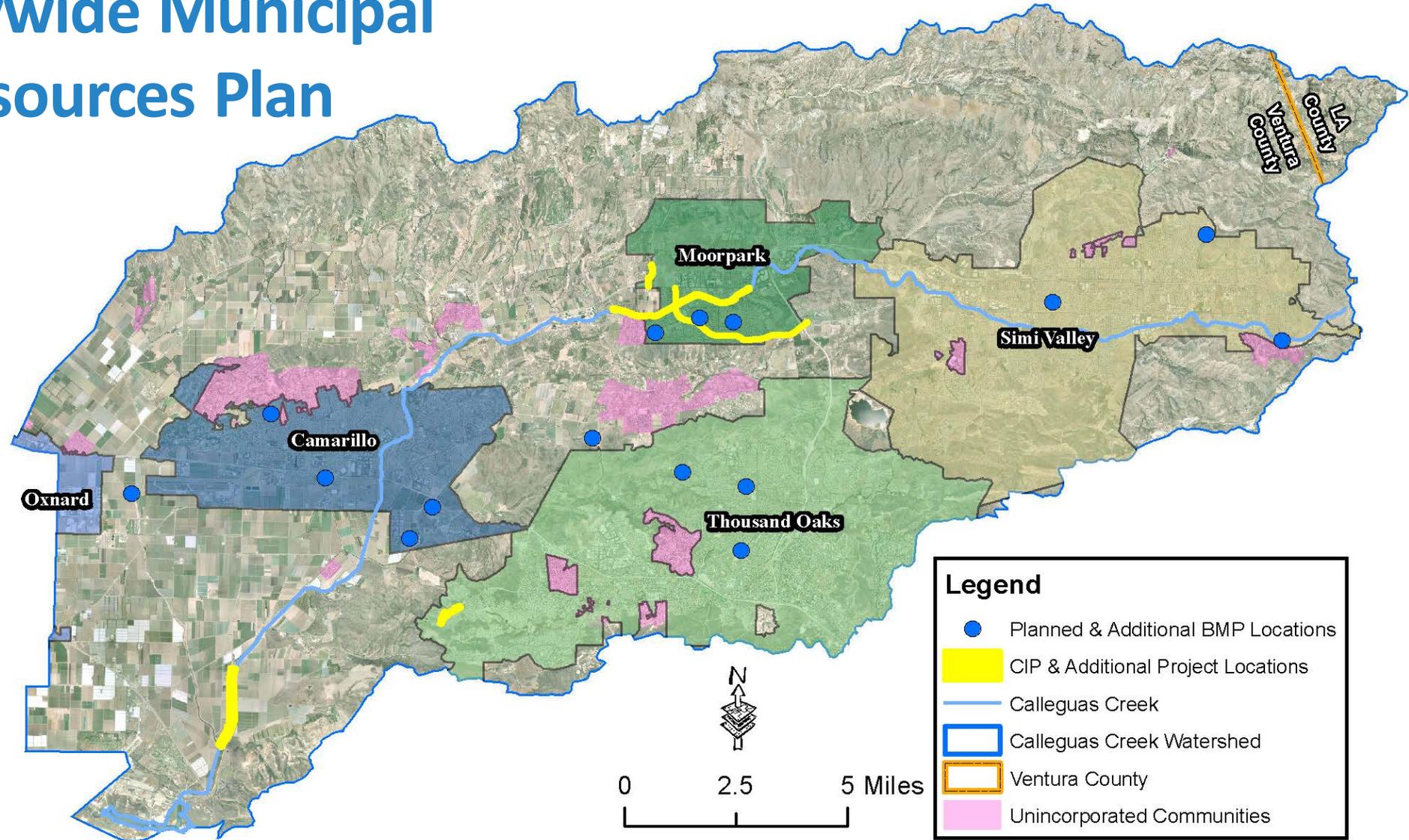
CCW TMDL Monitoring Locations



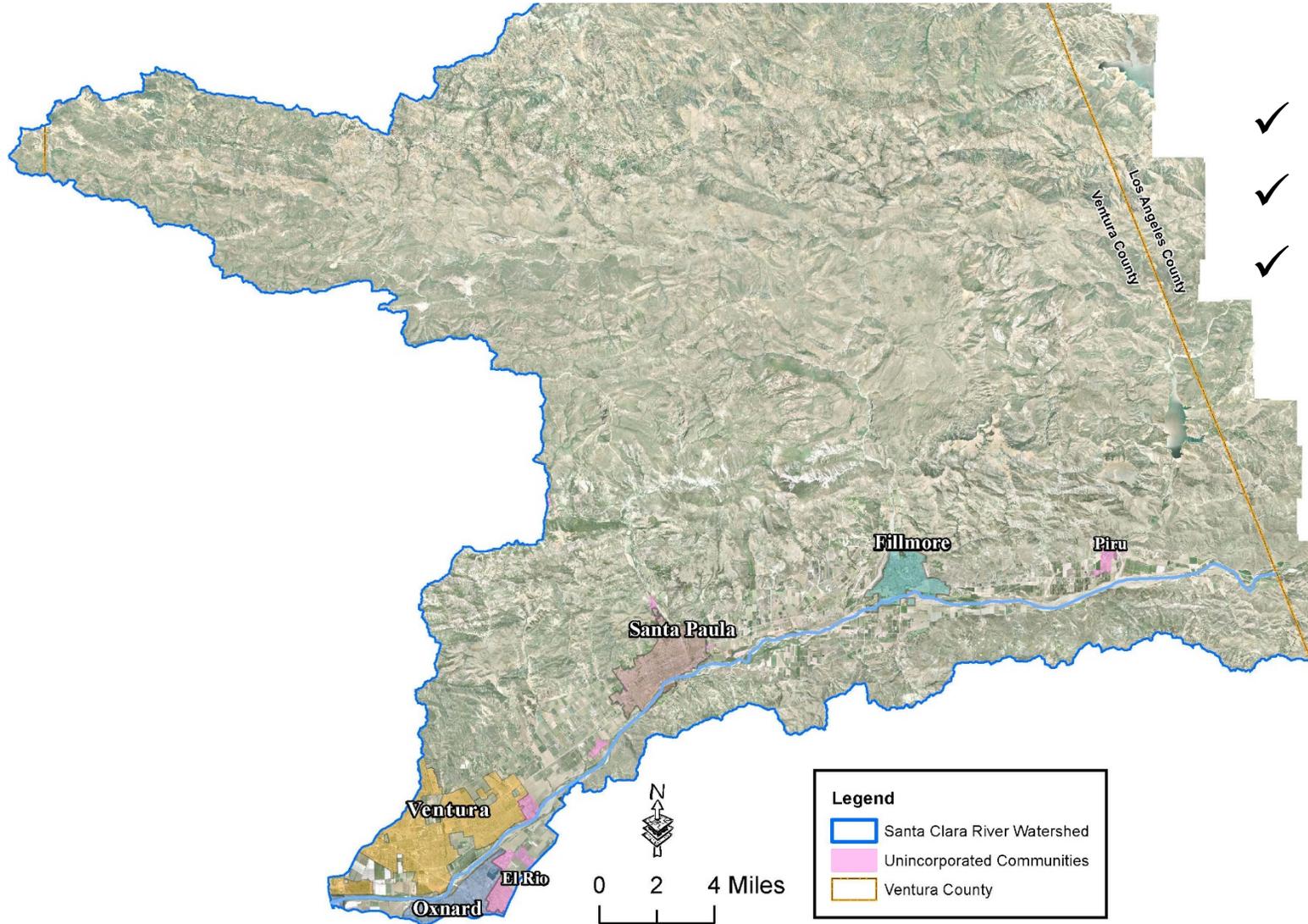
CCW TMDL Accomplishments

- ✓ Significantly reduced toxicity;
- ✓ Decreasing trends in concentrations of DDT and other legacy pesticides;
- ✓ Meeting metals TMDL requirements in most of the watershed area;
- ✓ 100% point sources compliance for Revolon Slough & Beardsley Wash Trash TMDL:
 - County (completed) and Cities (in progress);
- ✓ Demonstrated no water quality impairment from sediment in Mugu Lagoon; and
- ✓ Continued active engagement in RWQCB and SWRCB policies.

Draft CCW TMDL Implementation Plan & Ventura Countywide Municipal Stormwater Resources Plan



Lower Santa Clara River Watershed



TMDLs:

- ✓ Chloride
- ✓ Nitrogen Compounds (2016 delisting)
- ✓ Bacteria Indicators (2012)



Lower SCR Bacteria TMDL

- ✓ MOAs and MOA Amendments since 2012
- ✓ Receiving Water Monitoring Plan in 2013
- ✓ Monitoring and reporting since 2016
- ✓ Implementation Plan & Outfall Monitoring Plan in 2015
 - Prop. 84 El Rio Green Streets Retrofit (completed in 2016)
 - Prop. 1 Piru Stormwater Capture for Groundwater Recharge (construction in 2019)
 - Central Ave Drain Diversion (planning & design in progress)



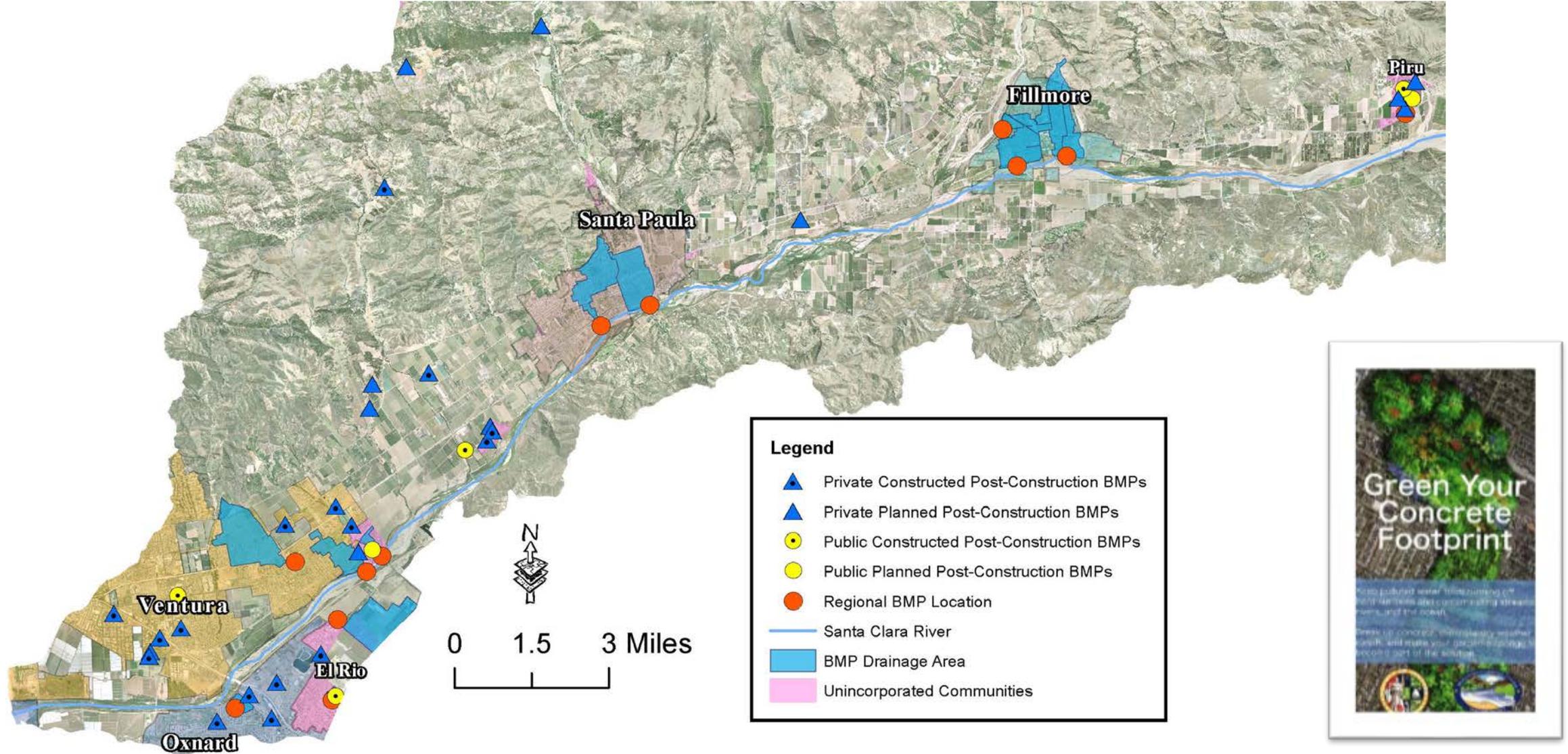
PUBLIC
VENTURA COUNTY
WORKS



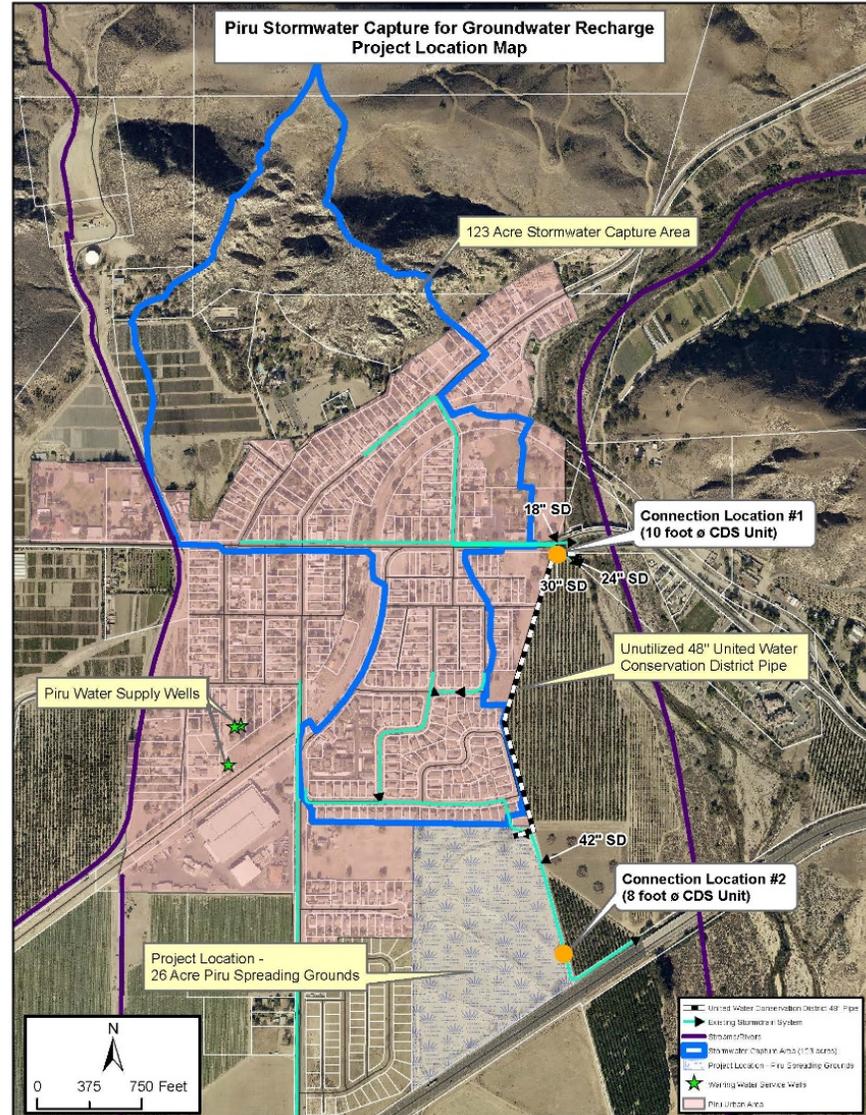
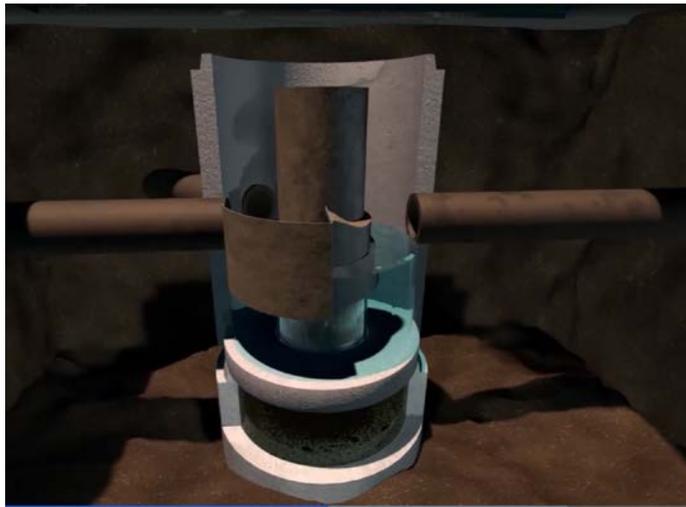
CITY OF
OXNARD
CALIFORNIA



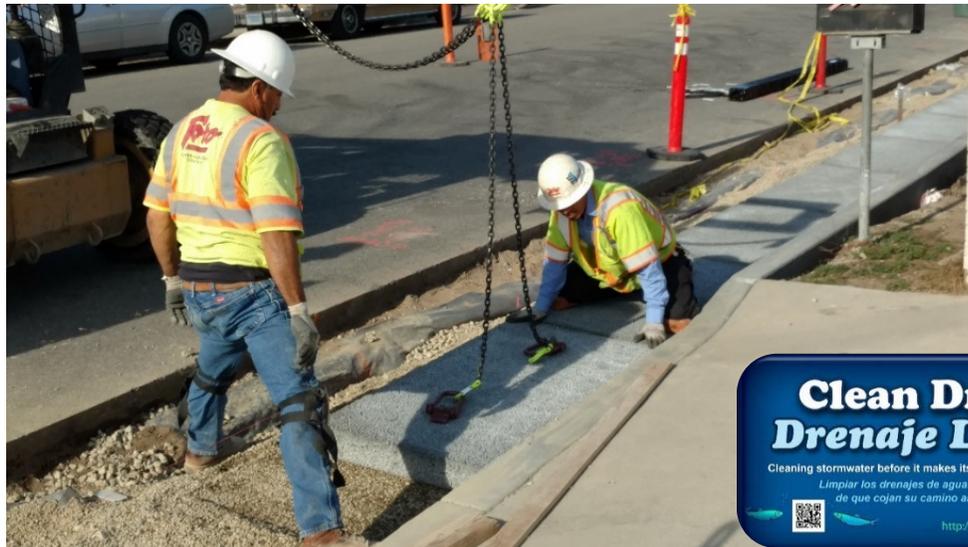
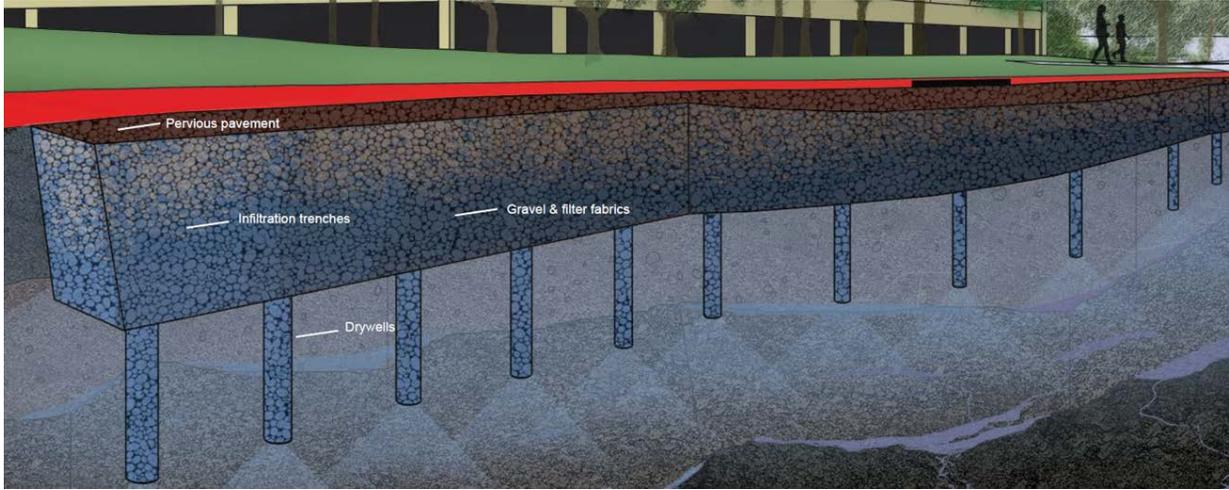
LSCR Bacteria TMDL Implementation Plan & VC MSRP



Piru Stormwater Capture for Groundwater Recharge



Green Streets Retrofits – Pervious Gutters



Clean Drain
Drenaje Limpio

Cleaning stormwater before it makes its way to the Ventura River
Limpia los drenajes de aguas pluviales antes de que cojan su camino al Rio Ventura

<http://aninc.vcstormwater.org>



Ventura River Watershed

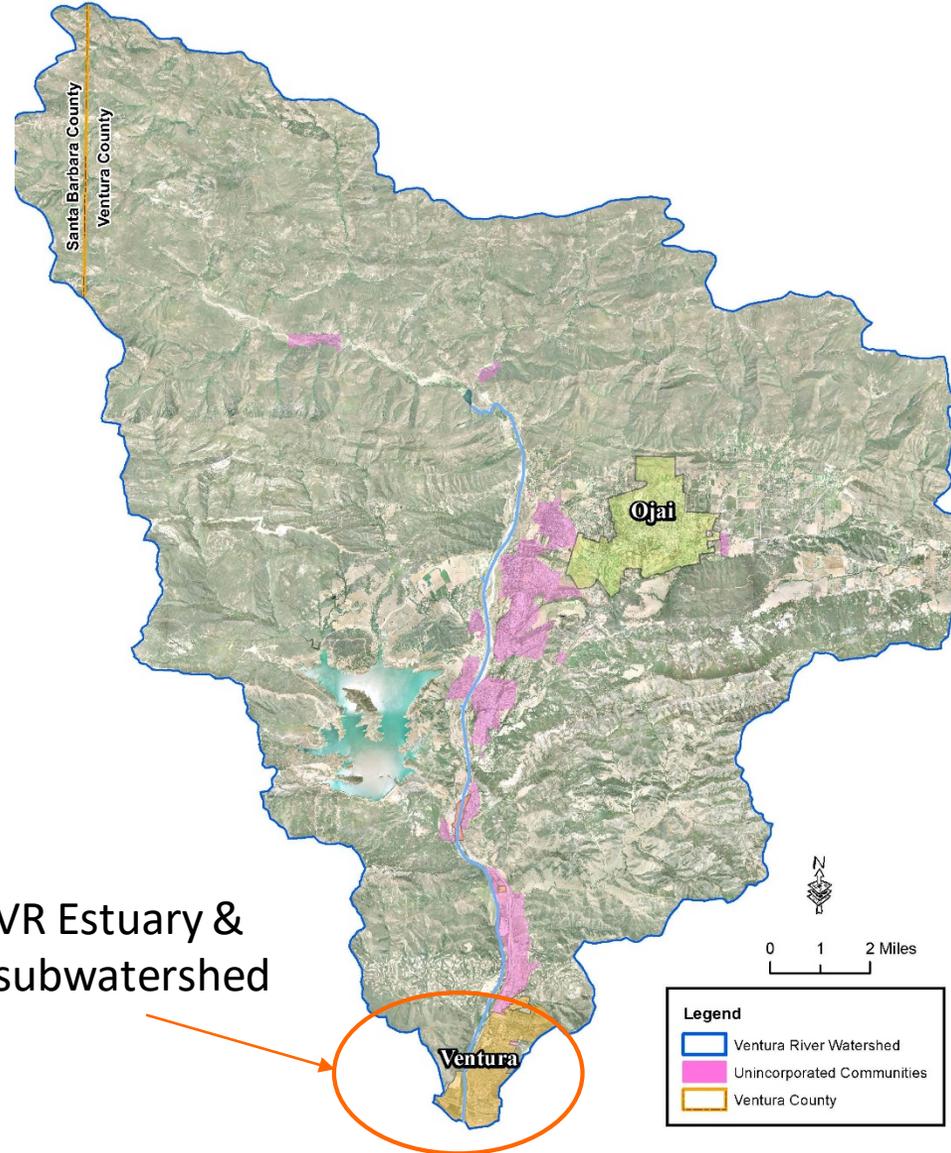


TMDLs:

- Trash (Estuary),
- Algae, Nutrients, and Eutrophic Conditions (2013), &
- Pumping & Water Diversion – Related Water Quality Impairments for Reaches 3&4 (USEPA 2013)



Ventura River Estuary Trash TMDL

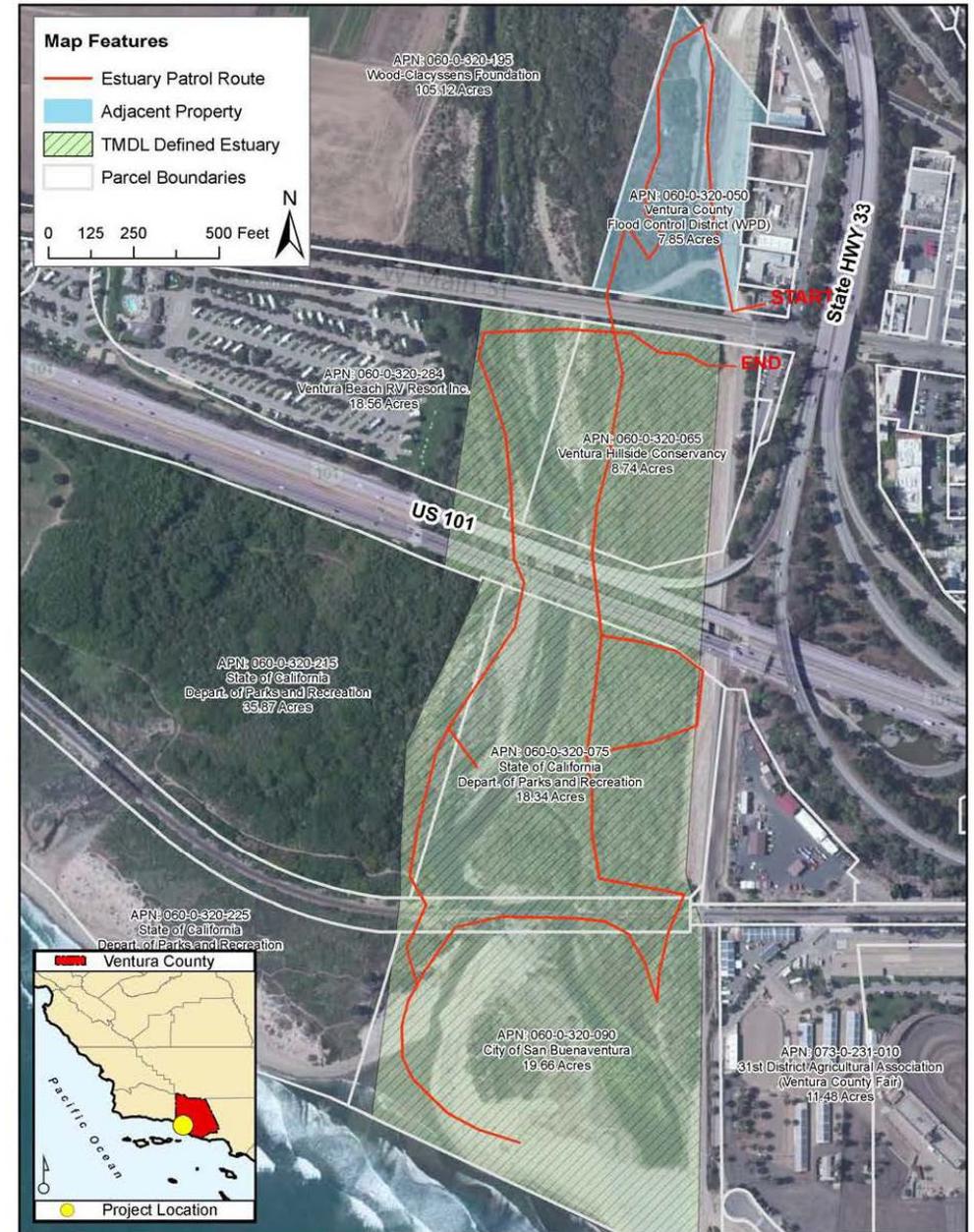


- 2009 MOA,
- 2010, 2011, and 2016 MOA Amendments,
- 2009 Trash Monitoring & Reporting Plan (TMRP),
- 2014 TMRP Amendment No. 1.

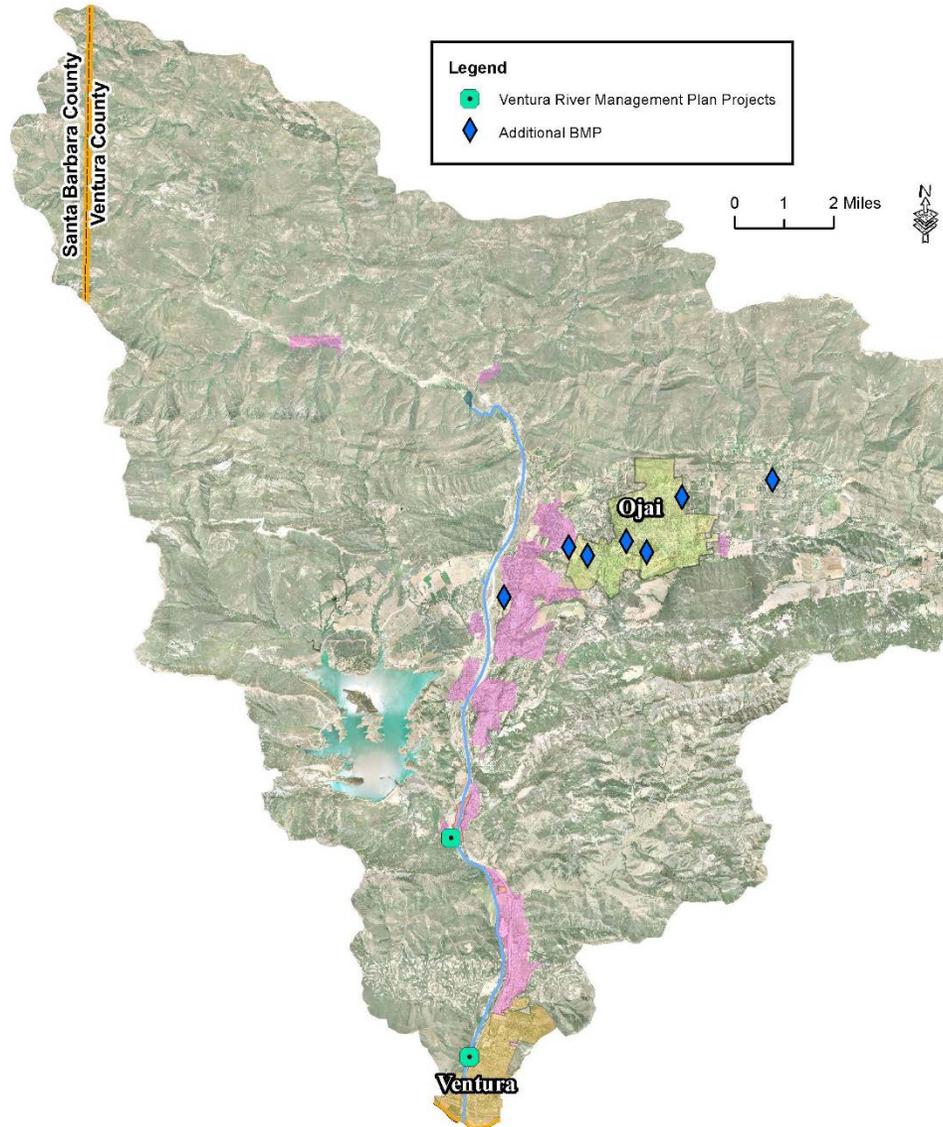


Ventura River Estuary Trash TMDL

- ✓ 100% full trash capture by MS4s,
- ✓ Weekly patrols,
- ✓ Monthly volunteer cleanups,
- ✓ Quarterly visual assessments, &
- ✓ Annual reporting



Ventura River Algae TMDL (2013)



- ✓ MOA and MOA Amendments
- ✓ In-Stream Monitoring Plan in 2013
- ✓ Monitoring and reporting since 2016
- ✓ Implementation Plan & Outfall Monitoring Plan in 2015
 - Water Conservation
 - Happy Valley Bioswale (completed 2016)



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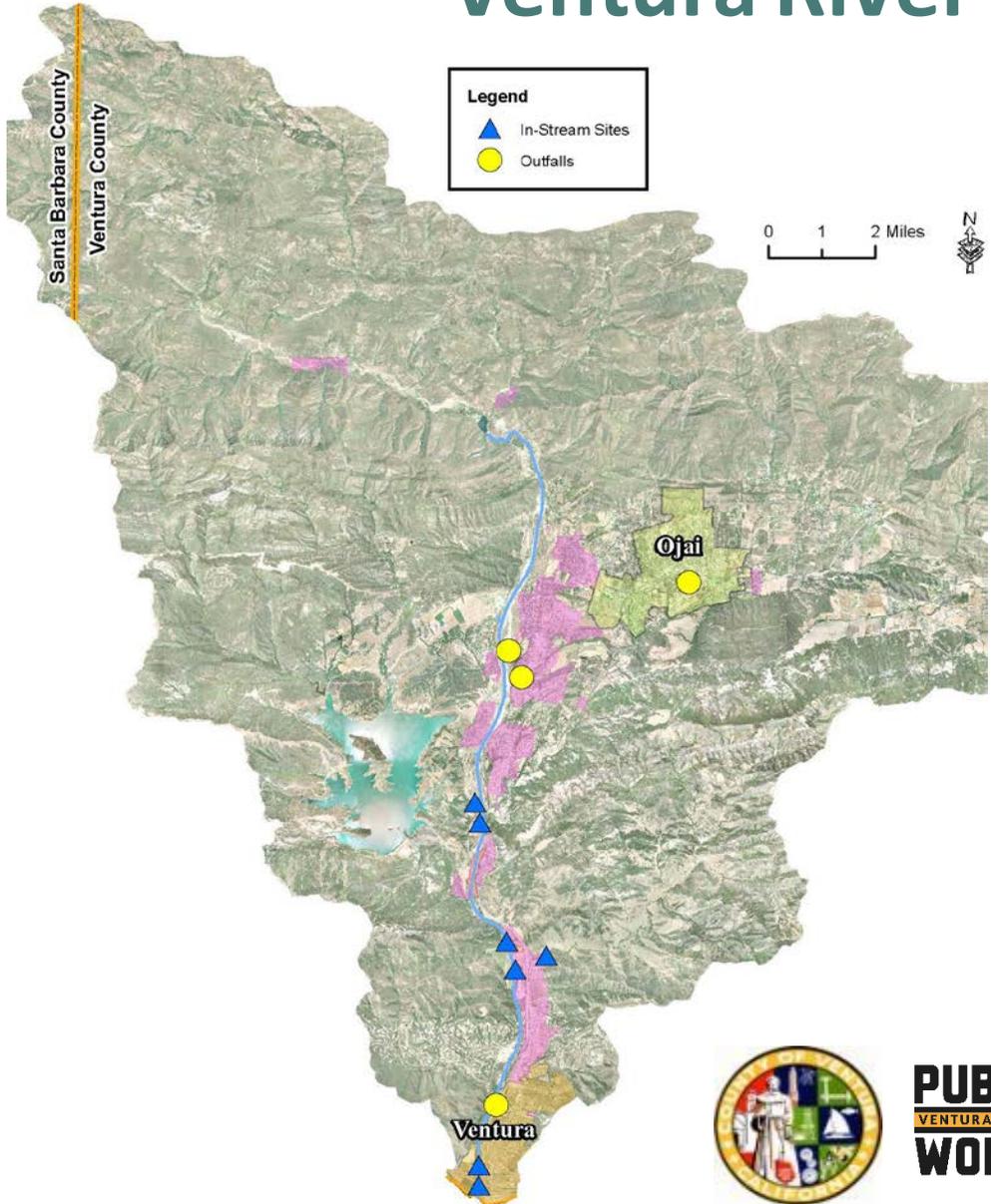


VENTURA COUNTY
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CITY OF
VENTURA



Ventura River Algae TMDL Monitoring



- In-Stream Monitoring
- Future Outfall Monitoring



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VENTURA



WFG Seminars and Hands-on Workshops



Surfrider
Foundation®



Happy Valley Bioswale in Meiners Oaks, CA



Drone picture before construction



Drone picture after construction



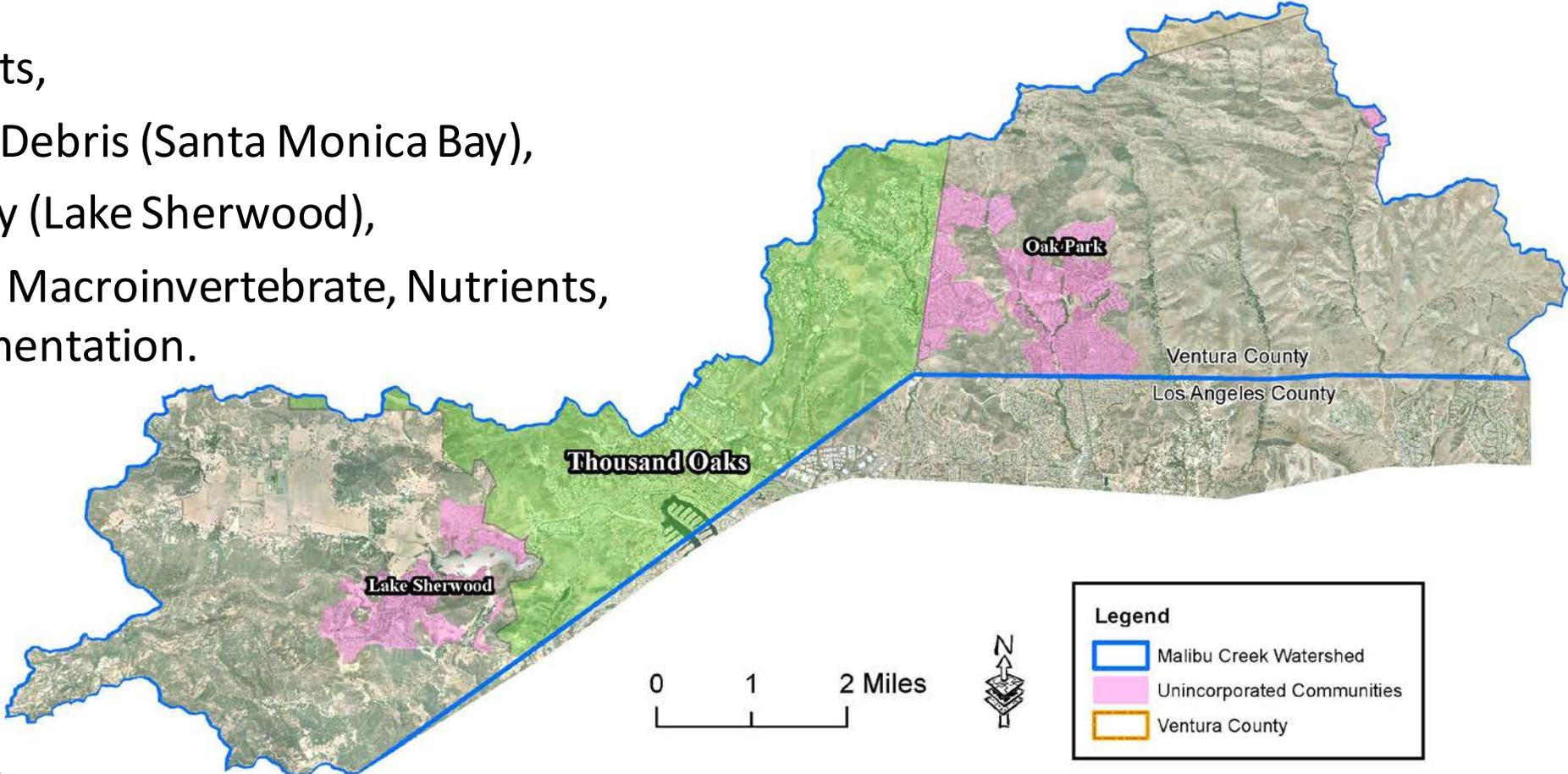
Spring 2018



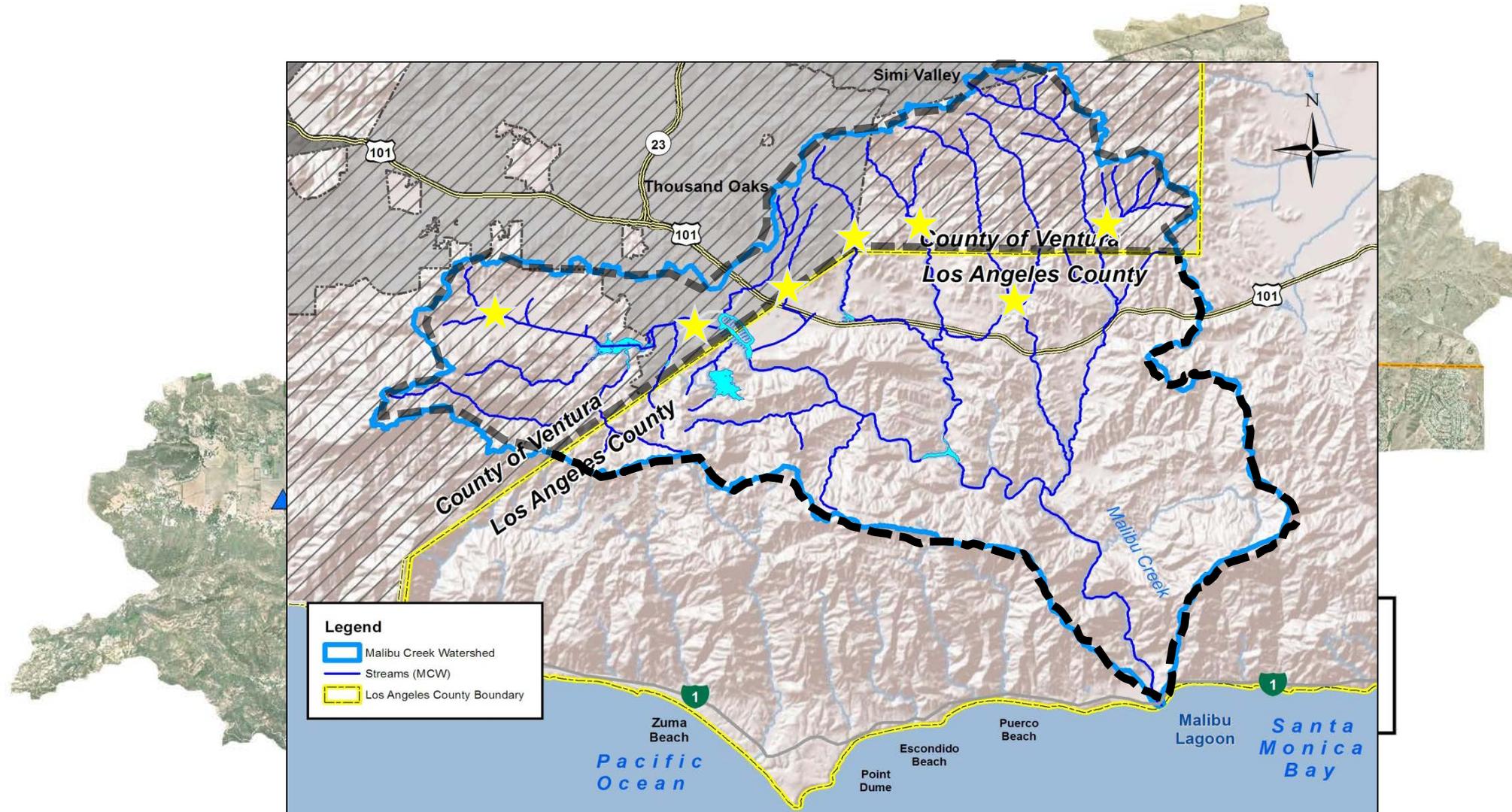
Upper Malibu Creek Watershed

TMDLs:

- Bacteria Indicators,
- Trash,
- Nutrients,
- Marine Debris (Santa Monica Bay),
- Mercury (Lake Sherwood),
- Benthic Macroinvertebrate, Nutrients, & Sedimentation.

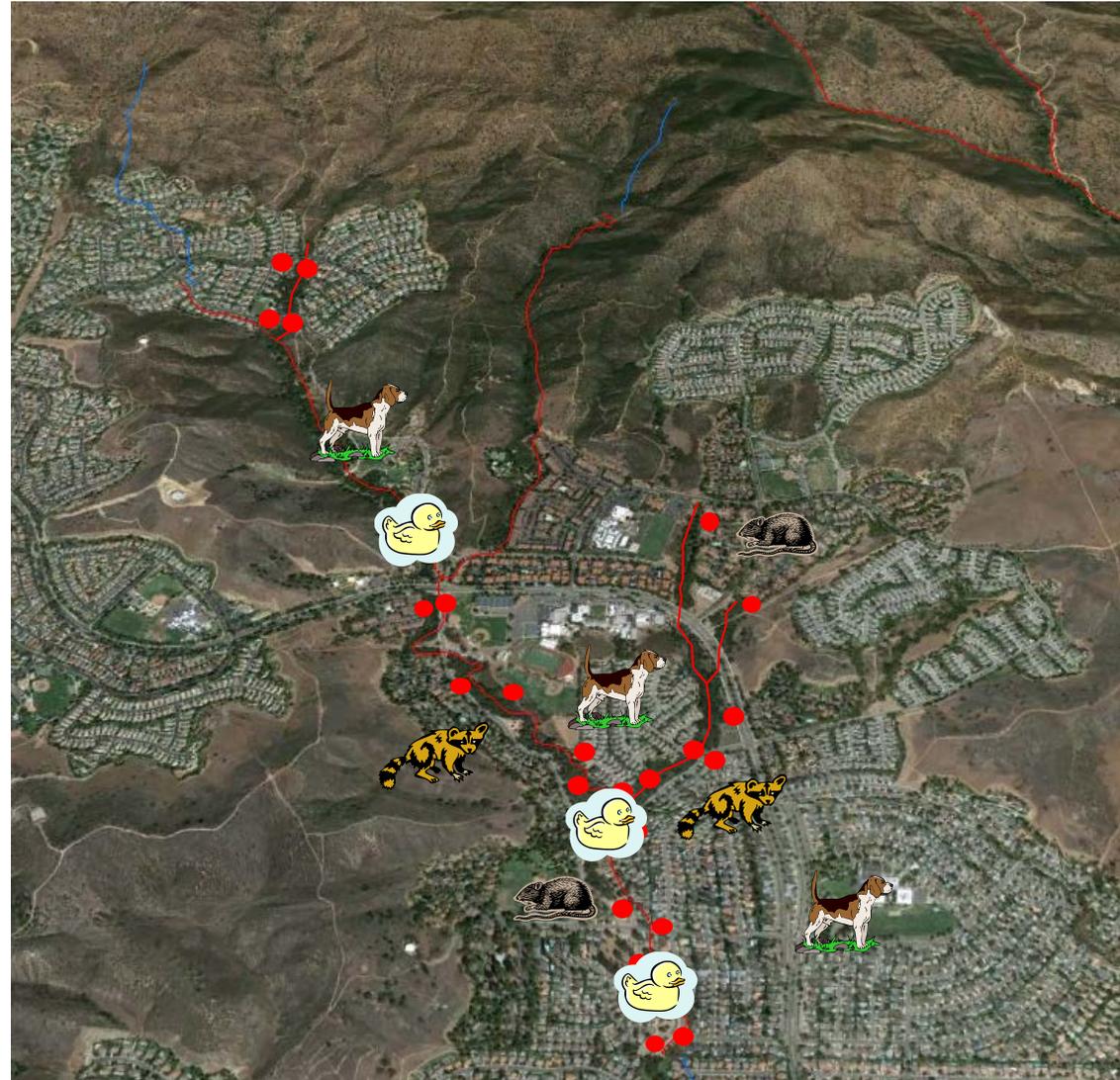
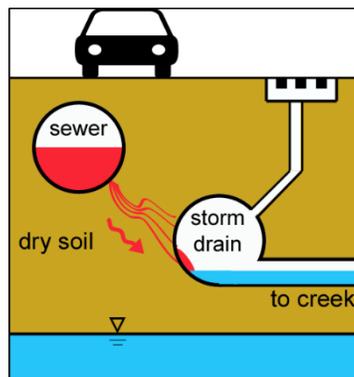


Weekly Bacteria Monitoring Locations & Proposed Outfalls



2013 & 2015 Bacteria Source ID Studies

- Urban runoff
 - Sewage
 - Human waste
 - Dogs
- Birds
- Wildlife
- Natural flows



Oak Park Green Streets Urban Retrofit



10/31/17, 1:25 PM Site 9

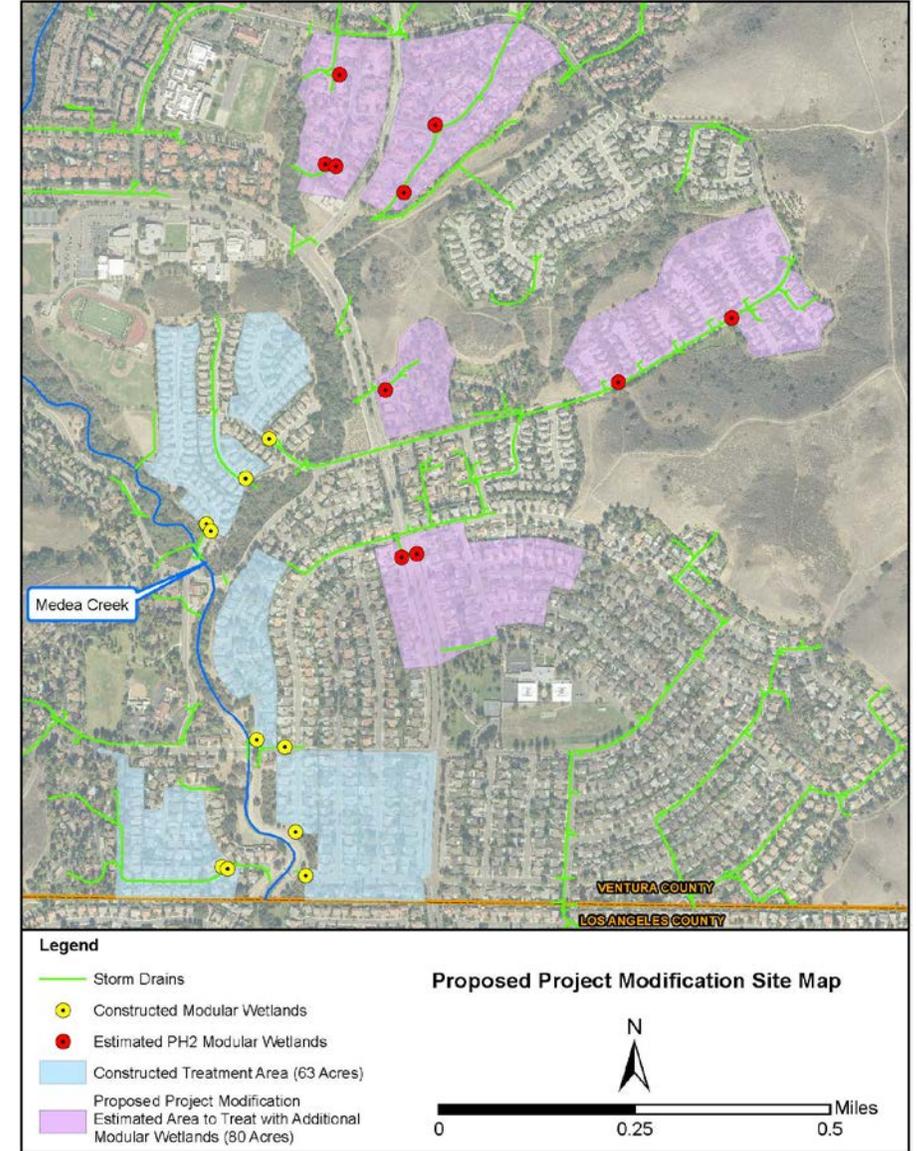
**OAK PARK GREEN STREETS URBAN RETROFIT
PHASE 1 CONSTRUCTION**

Installation of underground Modular Wetlands™ for treatment of runoff entering Medea Creek

PUBLIC WORKS
VENTURA COUNTY

Contact No. (805) 650-4064

Funding for this project has been provided in part through an agreement with the State Water Resources Control Board



Ocean/Watershed Friendly Garden Seminars and Hands-on Workshops



Ocean Friendly Gardens™ Class

Reduce Urban Runoff Pollution • Conserve Water

When: Saturday, October 26, 2013 • 9:00 a.m. to 12:00 noon
Where: Oak Park Community Center, 1000 Kanan Rd. in Oak Park

Sign Up Today! It's **FREE**
Space is Limited!

Call Now!
818-889-8996

Registration Deadline:
 October 23

Attend this interactive, action-packed class taught by a Green Gardens Group landscape designer and learn to develop an **Ocean Friendly Garden™**

- Install permeable surfaces and on-site water retaining systems
- Use native, water-wise plants
- Understand water-efficient irrigation devices

Use **Surfrider Foundation's Principles of CPR®** (Conservation • Permeability • Retention) to transform your thirsty landscape into an ocean friendly asset that saves time and money, helps prevent beach and ocean pollution, and creates wildlife habitat.

Questions? Call 818-889-8996 or email opwater@tribalsan Gabriel.com

Join us for five **FREE** and fantastic workshops to transform your garden into a Watershed Friendly Garden!

Get the Basics on Saturday, September 24, 2016 and come to the Watershed Basics Class to get oriented with your landscape. We will provide an introduction to the essential principles of the watershed friendly approach and how to apply them to your property.

Then, come and get your hands dirty!



Site Evaluation Workshop

You will learn how to take the first step in turning your yard into a Watershed Friendly Garden. Evaluate your current landscape's strengths and weaknesses, develop a plan to reduce runoff on your property, and improve the soil.

Saturday, October 1st



Design Workshop

You will be given an opportunity to bring your own plan and design to a professional for review. We will help you understand your audience, create a watershed wise list of plants and create strategies for concerning obstacles.

Saturday, October 8th



Sheet Mulching & Grading for Rainwater Capture Workshop

You will learn how to remove your lawn without the use of chemicals. Discover how to build rich, healthy soil, the foundation for all Watershed Friendly Gardens using the sheet mulching method.

Saturday, October 29th



Planting & Irrigation Workshop

You will learn how to ensure that the new native plants in your Watershed Friendly Garden thrive. You will understand how to reduce your landscape water use by installing a drip irrigation system on your own.

Saturday, November 5th

Each workshop is from 9am to 12pm, **Oak Park High School**
 899 Kanan Road, Oak Park



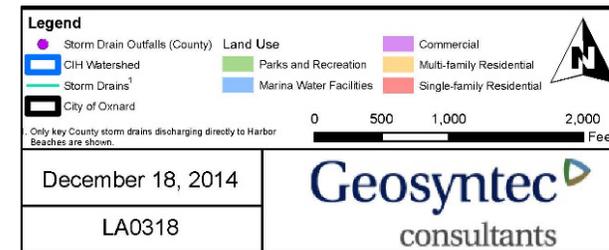
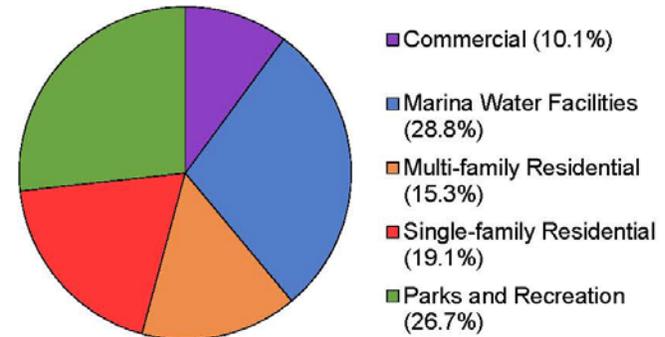
Details and registration at:
<http://greengardensgroup.com/events/tags/ventura>



Ventura Coastal: Kiddie and Hobie Beaches

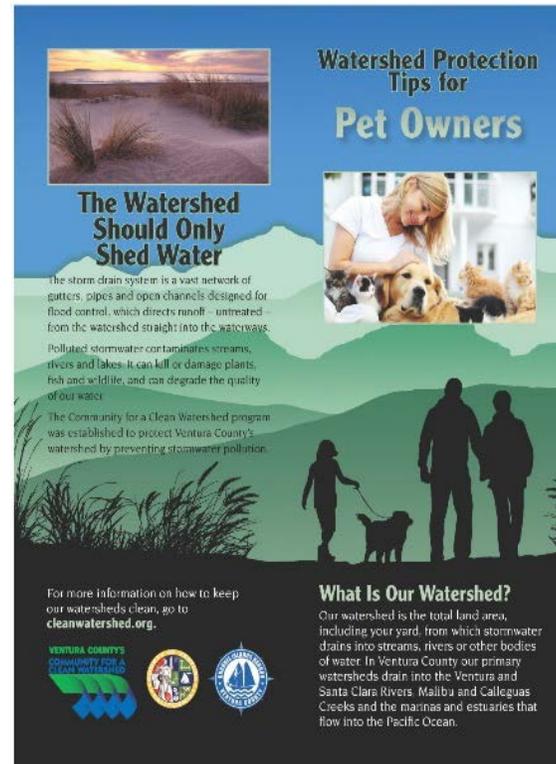


County Land Uses in CIH Watershed



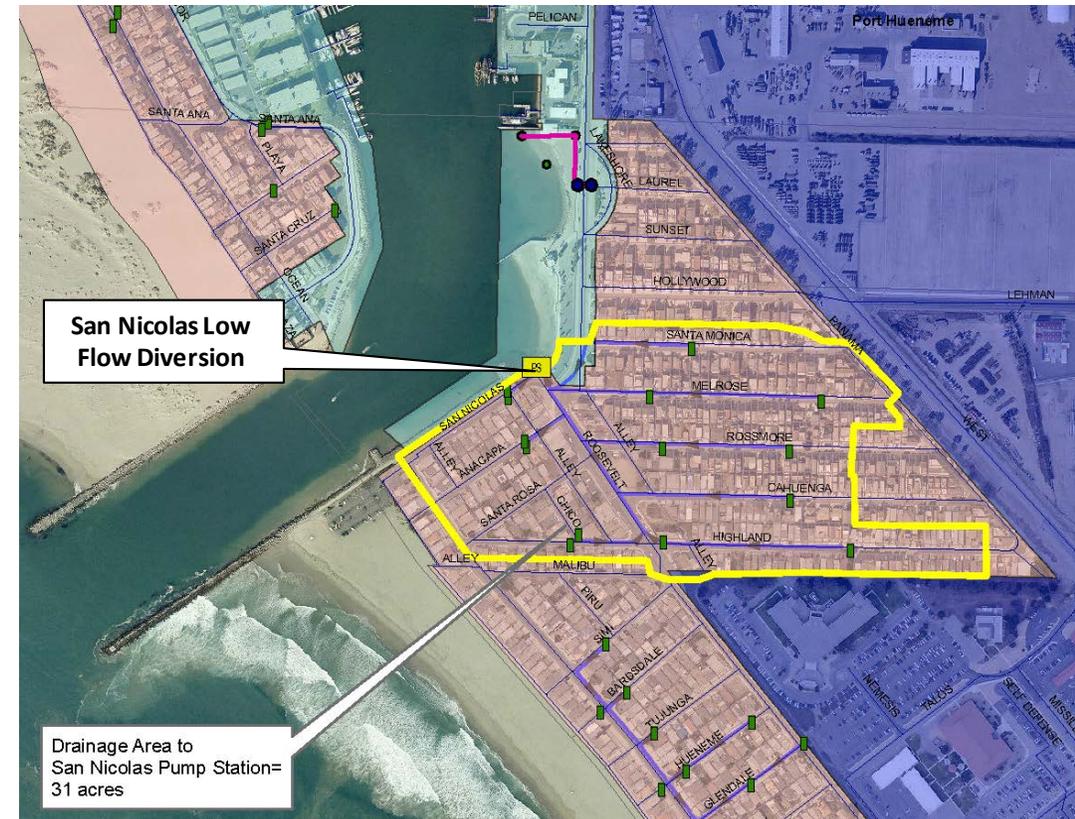
Kiddie & Hobie Beaches Bacteria TMDL

- ✓ MOAs among County of Ventura, VC Watershed Protection District, & City of Oxnard,
- ✓ AB 411 weekly beach monitoring since 2009,
- ✓ TMDL Implementation Plans:
 - 2009 dry weather &
 - 2010 wet weather
- ✓ 2014, 2016, & 2018 Compliance Reports
- ✓ Several Special Studies
- ✓ Public Outreach



Bacteria TMDL Dry Weather Compliance

- ✓ Kiddie Beach Diversion
 - Year-round dry weather diversion at VCWPD's San Nicolas Pump Station
 - MOA among VCWPD, Channel Island Beach Community Services District (CIBCSD) and City of Oxnard
- ✓ Weekly monitoring at two inlets for dry weather compliance by the City of Oxnard



Wet Weather Bacteria Source ID Study



Ventura Countywide TMDLs Summary

- Many Challenges
 - Low bacteria objectives
 - Zero trash objective
 - Technical challenges – infeasibility, site conditions, property ownership, regulatory limitations, acceptance from the community
 - Financial challenges – cost of compliance up to \$2B Countywide
- Collaboration & Partnerships
- Future watershed-based implementation & compliance



Ventura Countywide Stormwater Quality Management Program

VENTURA COUNTY'S
COMMUNITY FOR A
CLEAN WATERSHED

