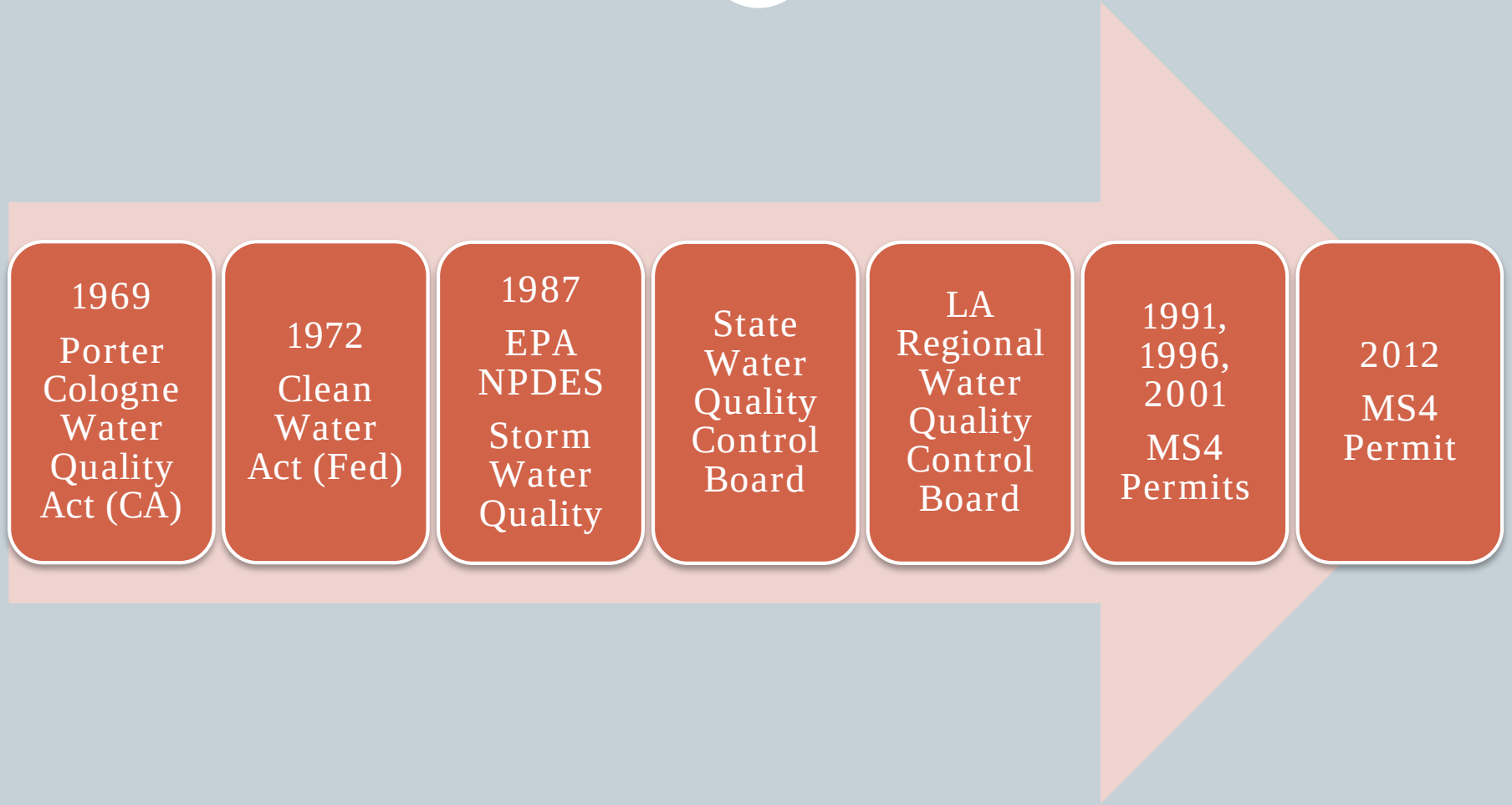
Palos Verdes Peninsula Enhanced Watershed Management Program Community Workshop

Presentation Outline

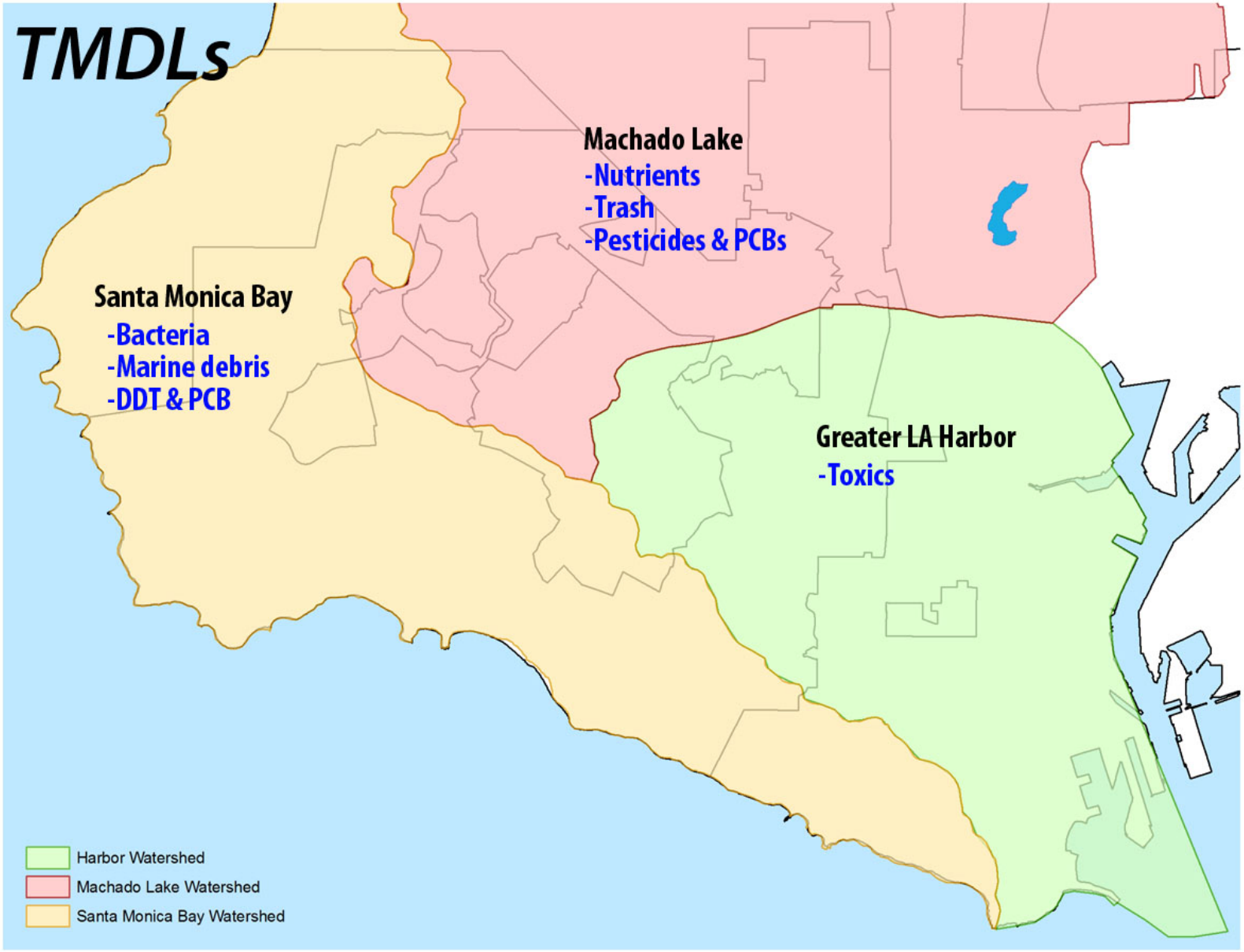
- History of the Stormwater Permit and Stormwater Management Program
- Regulatory Background
- Enhanced Watershed Management Program
- Water Quality Priorities
- Control Measures to Address Water Quality Priorities
- Modeling (Reasonable Assurance Analysis)
- Monitoring
- Next Steps

Municipal Separate Storm Sewer System (MS4)

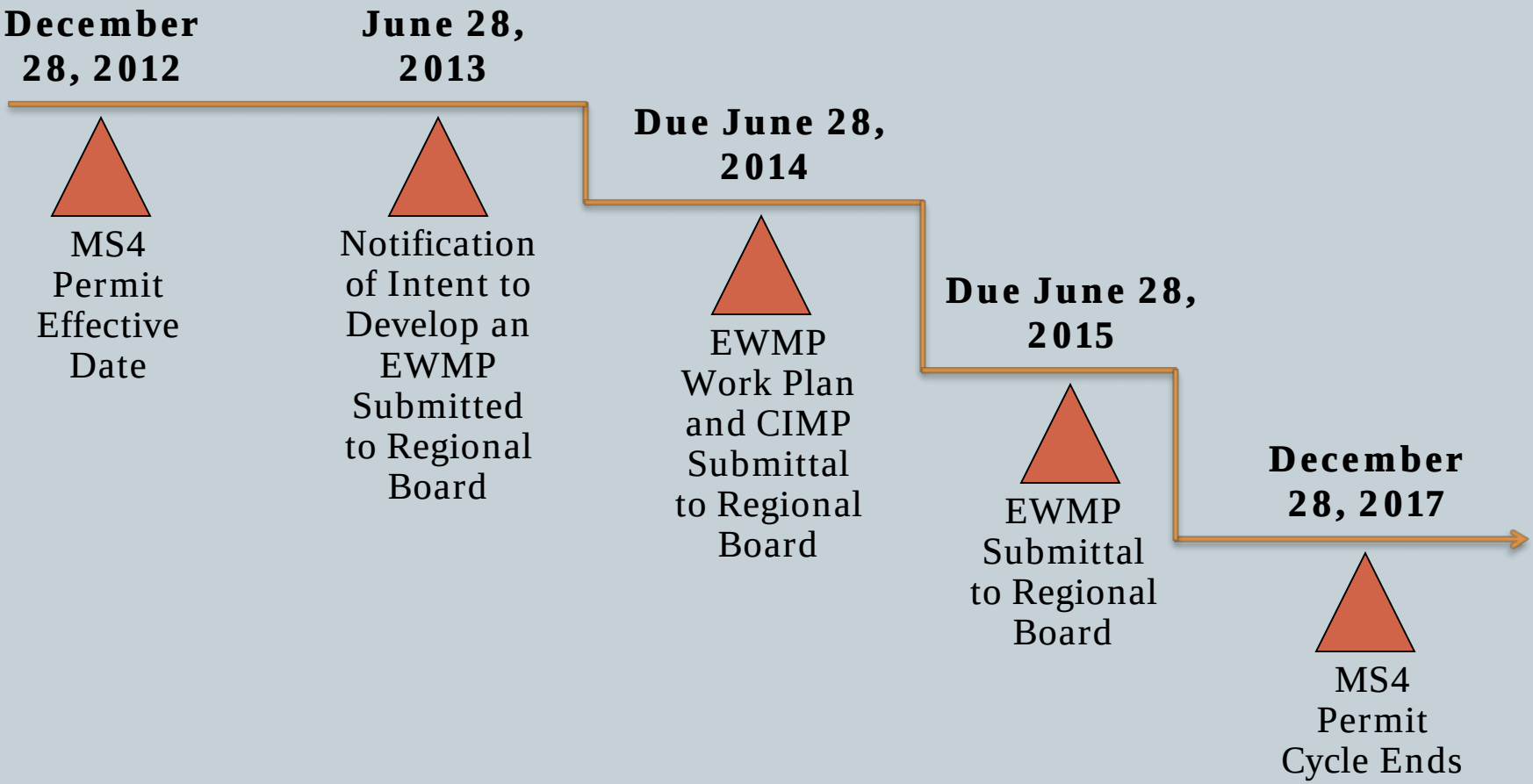


History of the Stormwater Quality Management Program on the Peninsula

- Previous Stormwater (MS4) Permits (1991, 1996, 2001)
  - Required Pollutant Reduction "to the maximum extent practicable" through the use of Best Management Practices (BMPs)
  - Development of the Stormwater Quality Management Plan
- Total Maximum Daily Loads (TMDLs) – Early 2000s


TMDLs
Machado Lake
-Nutrients
-Trash
-Pesticides & PCBs
Santa Monica Bay
-Bacteria
-Marine debris
-DDT & PCB
Greater LA Harbor
-Toxics
Harbor Watershed
Machado Lake Watershed
Santa Monica Bay Watershed

MS4 Permit Timeline



Enhanced Watershed Management Program

- One of the compliance mechanisms in the MS4 Permit
- Outlines water quality priorities and goals
- Requires regional multi-agency efforts
- Modeling required to provide reasonable assurance that implementation efforts will achieve water quality goals

Participating Agencies:

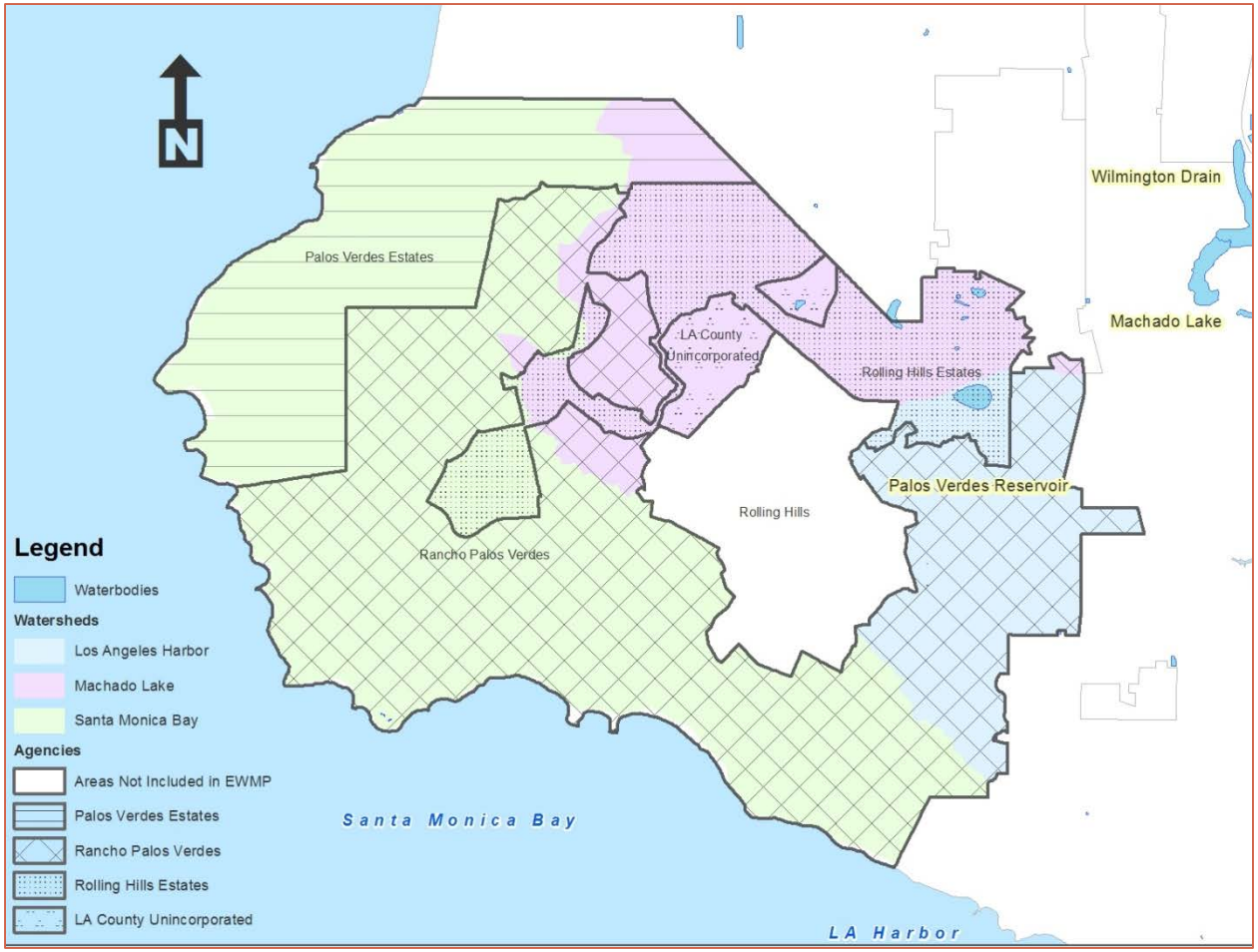
Rancho Palos Verdes

Palos Verdes Estates

Rolling Hills Estates

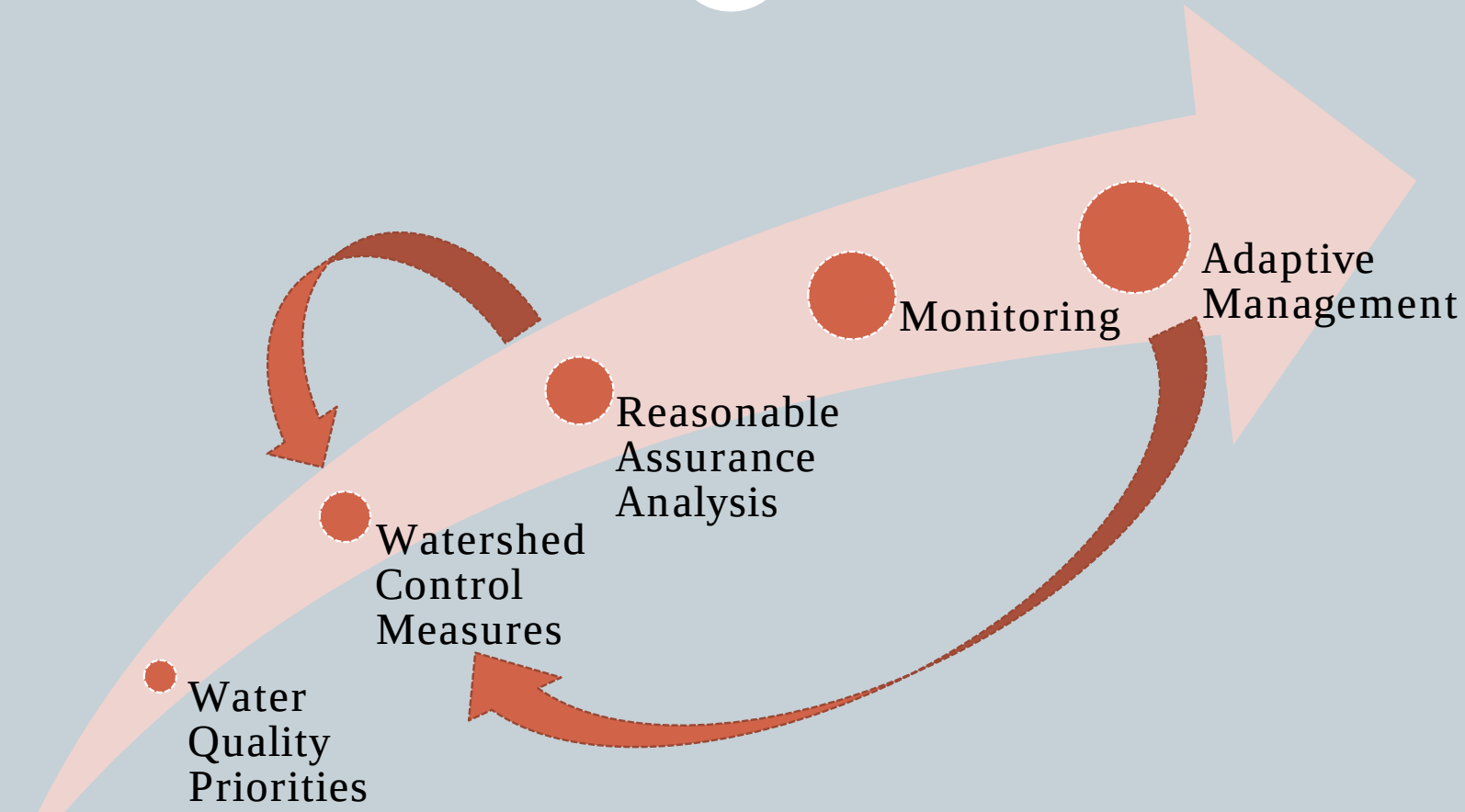
County of Los Angeles

Los Angeles County Flood Control District



Peninsula EWMP Agencies

EWMP Development Process



Water Quality Priorities

- Highest Priority – TMDL pollutants
- High Priority – 303(d) listed pollutants
- Medium Priority – all other pollutants known to exceed applicable water quality objectives

Common Sources of Stormwater Pollutants

- **Residential**
  - Over-applying fertilizers *(nutrients)*
  - Over-Irrigating *(nutrients)*
  - Pet Waste *(nutrients and bacteria)*
  - *Improper Septic Management (bacteria)*
- **Equestrian**
  - Exposed manure (*nutrients and bacteria*)
  - Pesticide Use (*nutrients*)
- **Construction**
  - Exposed soil *(sediment)*
- **Vehicles**
  - Leaks *(oil/grease, organics)*
  - Brake dust and tires *(metals)*
  - Washing to street *(oil/grease)*

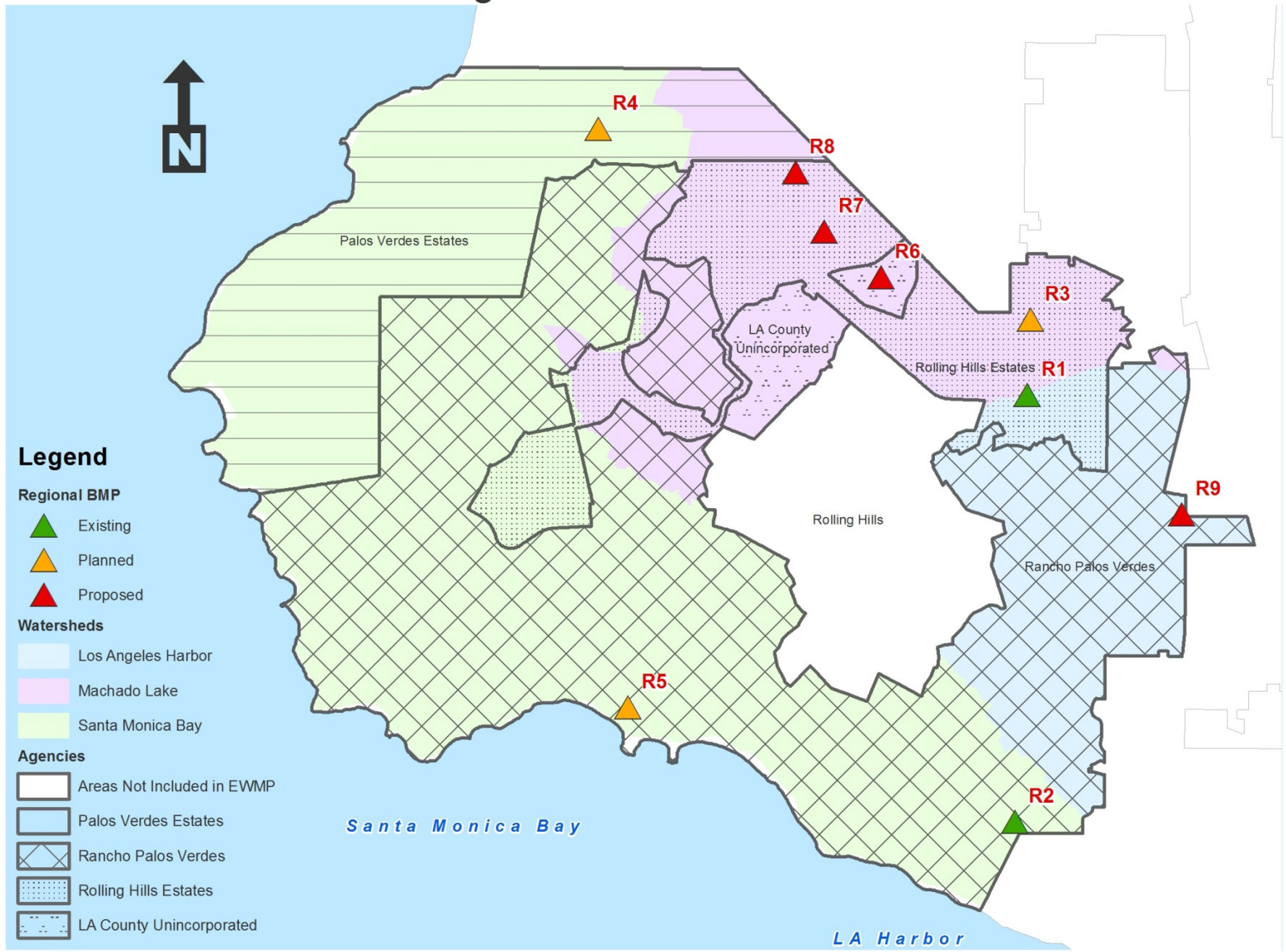
Watershed Control Measures

- Watershed Control Measures (aka BMPs) will be implemented to achieve water quality goals
  - Distributed BMPs – Site specific BMPs that collect runoff from small area (i.e. single parcel)
  - Regional BMPs – Projects that capture runoff from large, multi-parcel area
  - Institutional (Non-structural) BMPs – Public Outreach Program, Clean Bay Restaurant Program, Illicit Discharges Detection and Elimination Program

Distributed Structural BMPs

Distributed Structural BMPs – Trash Inserts

Regional BMP Locations



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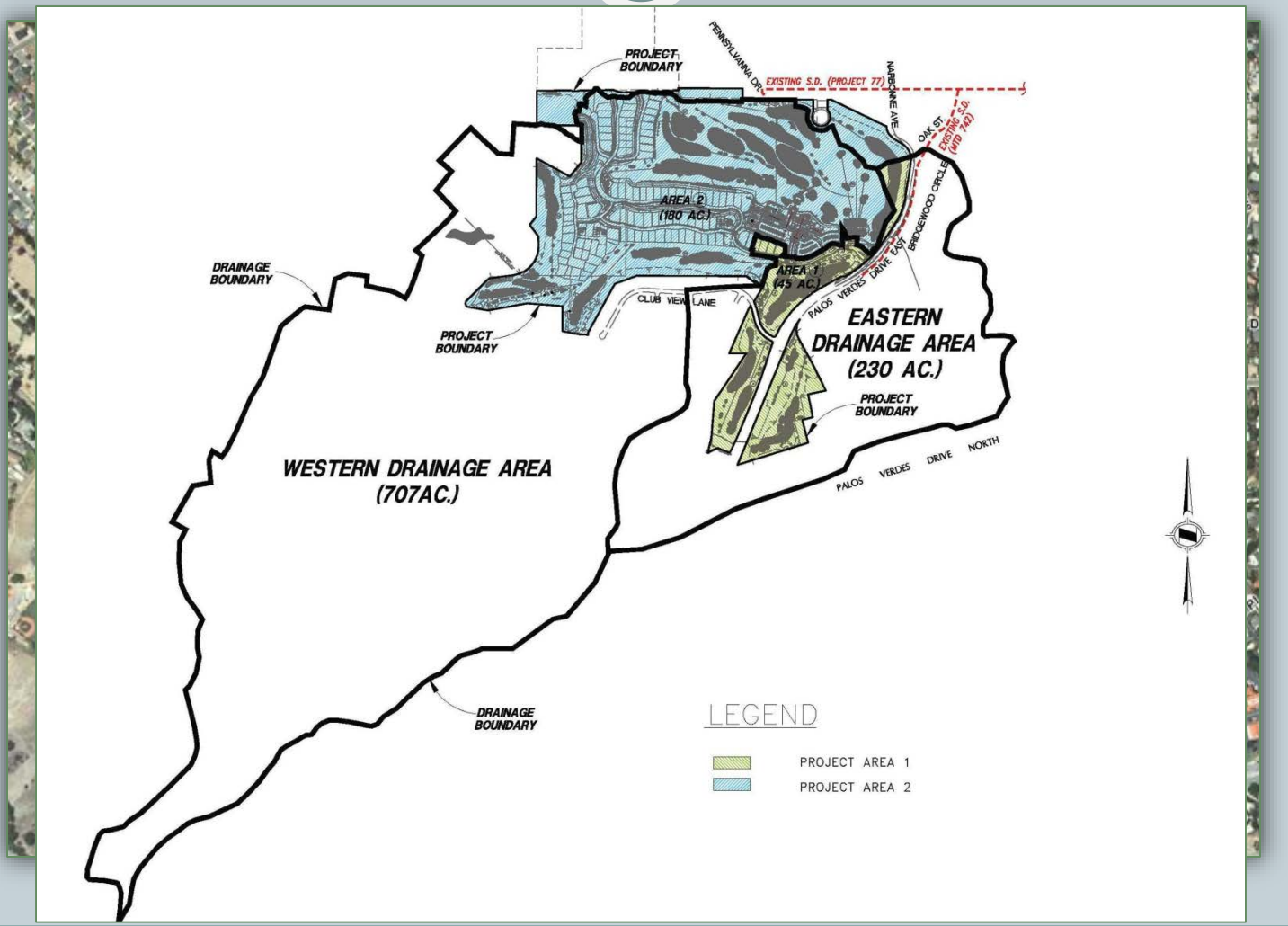
Regional BMPs - Casaba Estates (Butcher Ranch)

- Completed
- Approximately 8.55 acres
- Located in Rolling Hills Estates
- A portion of the pre-existing ravine was re-graded to remove standing water conditions
- Inundated area will be rehabilitated into a vegetated riparian area designed as a bioretention system to retain and infiltrate runoff from the site
- Drainage area is approximately 28.62 acres
- Riparian area designed to retain and infiltrate onsite and offsite runoff in a volume greater than the pre-existing design storage capacity for the 50-year storm event (5.1 acre-feet)

Regional BMPs - San Ramon Canyon

- Completed September 2014
- Located in the City of Rancho Palos Verdes
- Erosion Reduction
- Landslide Stabilization
- Ecosystem Restoration

Regional BMPs - Chandler Quarry Project

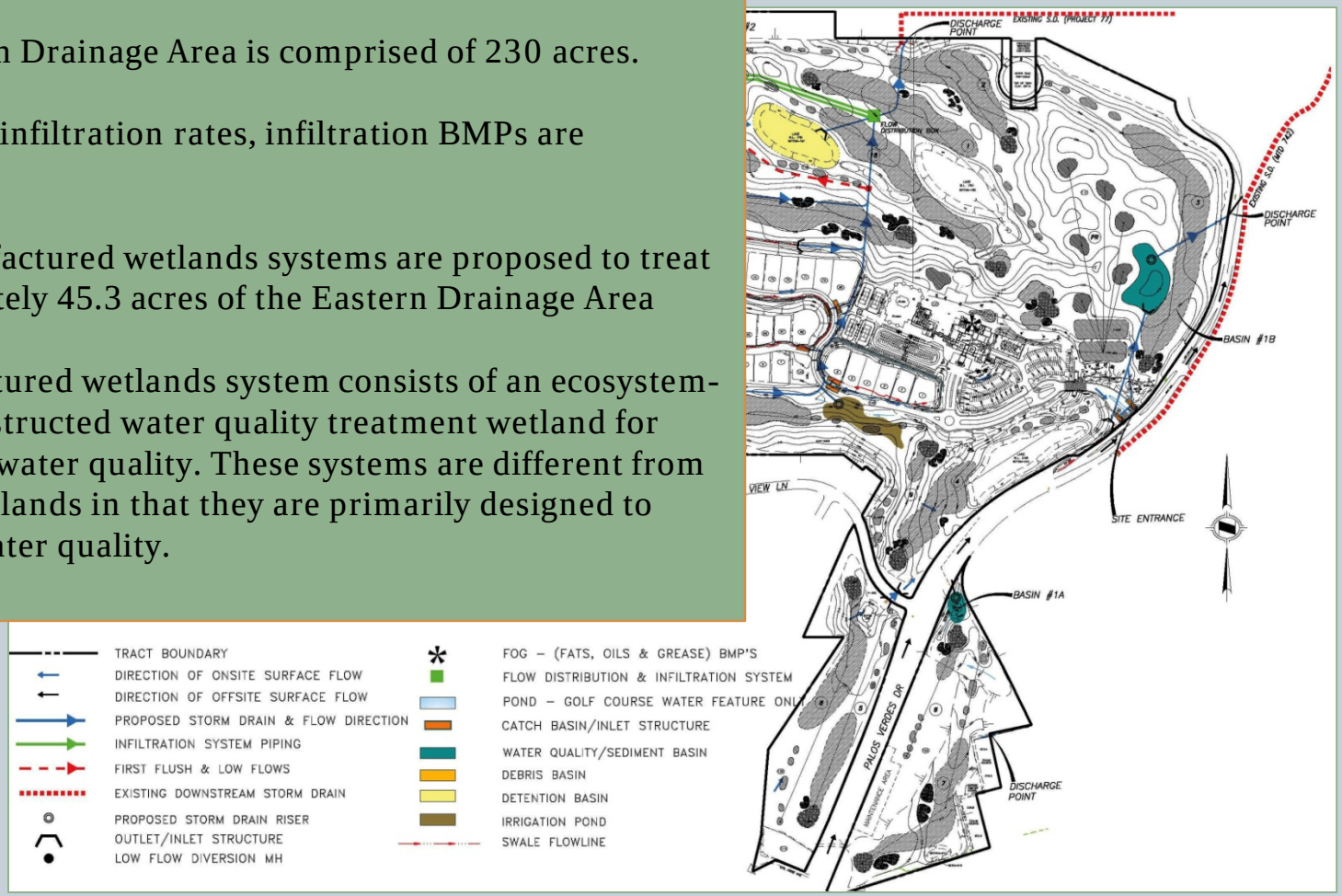


Regional BMPs - Chandler Quarry Project Western Drainage Area

- The Western Drainage Area is comprised of approximately 707 acres, including approximately 467 acres of offsite flows.
- Proposed facilities in the Western Drainage Area will preserve the hydraulic and water quality function of the existing Chandler Quarry which is an existing regional infiltration BMP undergoing redevelopment and will include the following:
  - **Debris Basins:** Two debris basins will be located in the southwest corner of the project site which will intercept and remove debris from the storm runoffs in the two watercourses draining the off-site areas to the project site.
  - **Water Quality/Sediment Basin:** The onsite low-flows and first-flush runoffs generated in the Western Drainage Area will be diverted to a water quality/sediment basin. Outflow from the basin will be conveyed to an infiltration system.
  - **Flow Infiltration System:** An infiltration system will eliminate any stormwater runoff from exiting the Western Drainage Area, for up to a 50-year storm event (approximately 12.7 acre feet).

Regional BMPs - Chandler Quarry Project Eastern Drainage Area

- The Eastern Drainage Area is comprised of 230 acres.
- Due to low infiltration rates, infiltration BMPs are infeasible.
- Two manufactured wetlands systems are proposed to treat approximately 45.3 acres of the Eastern Drainage Area
- A manufactured wetlands system consists of an ecosystem-based, constructed water quality treatment wetland for improving water quality. These systems are different from natural wetlands in that they are primarily designed to improve water quality.



Regional BMPs - South Coast Botanic Garden

- The SCBG developed a "Vision Plan," which focuses on returning the stream corridor back to the original form and configuration of the Creek Garden and Lake

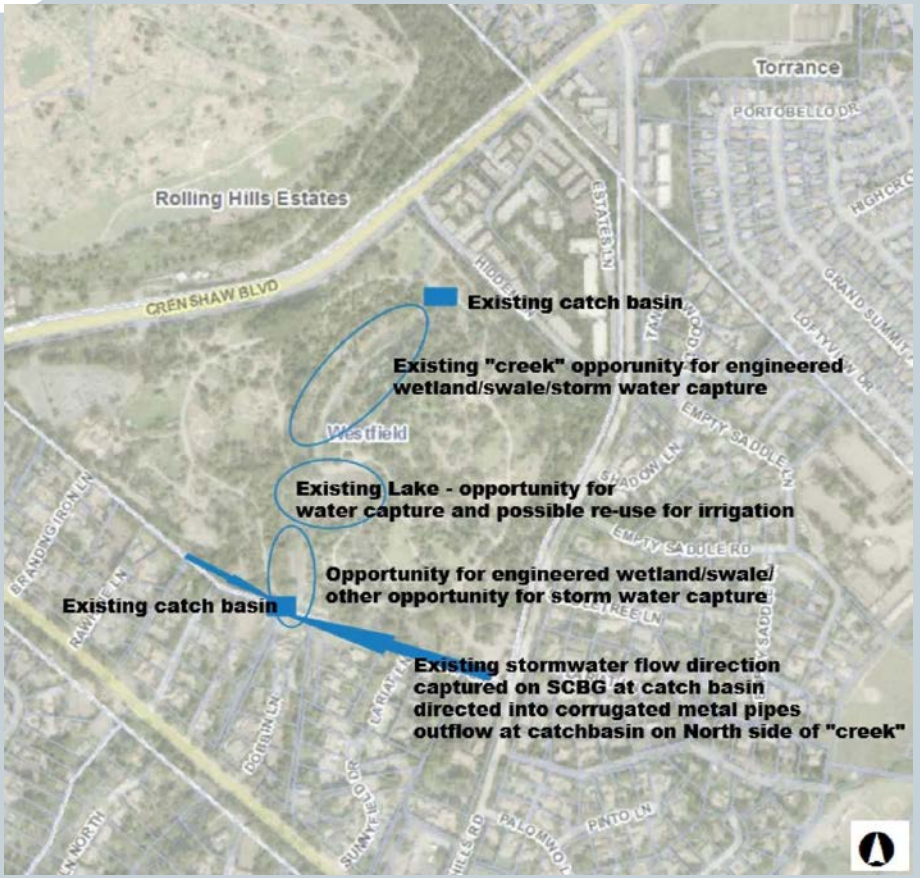
- As a part of the Vision Plan, which is conceptual and has yet to be finalized, additional enhancements are being considered:

  - An existing creek which could potentially be developed into an **engineered wetland, swale, or stormwater capture facility**

  - An existing lake which provides an opportunity for **stormwater capture and possible reuse** for irrigation

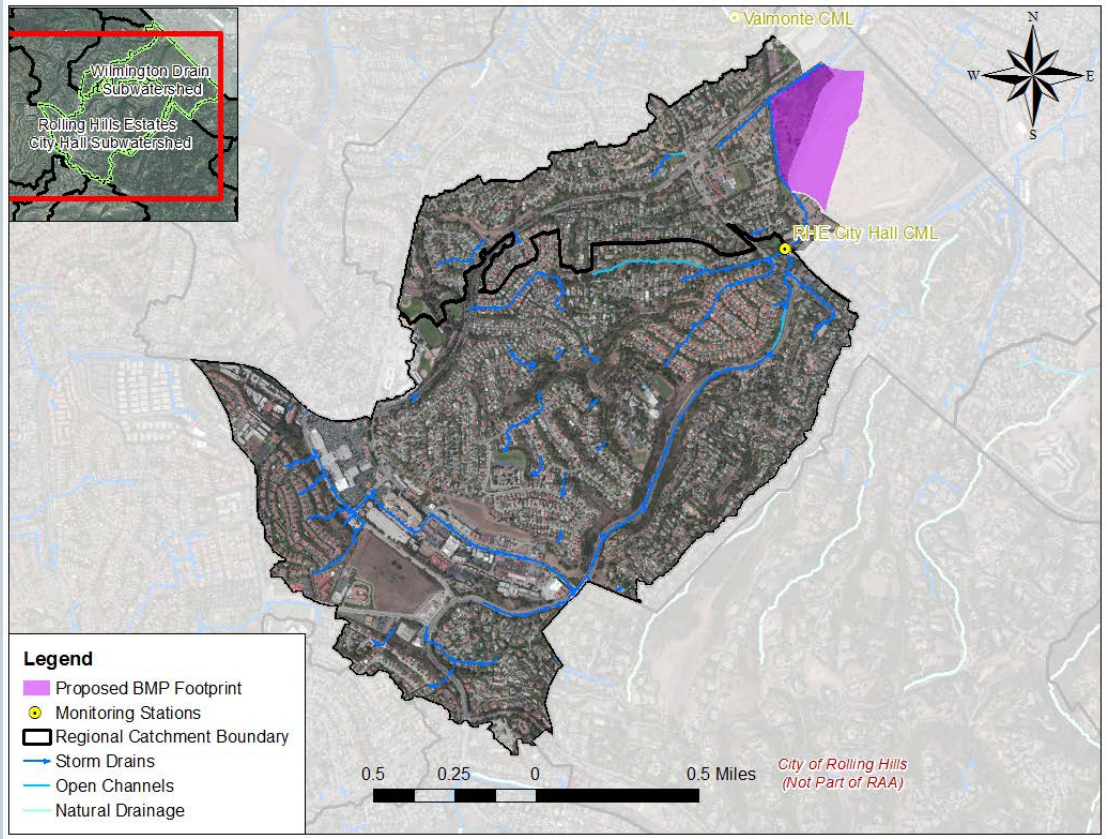
  - An existing open space which provides an opportunity for an **engineered wetland, swale, or stormwater capture facility**

  - An existing catch basin which provides an opportunity to **divert upstream flows to a Regional BMP**



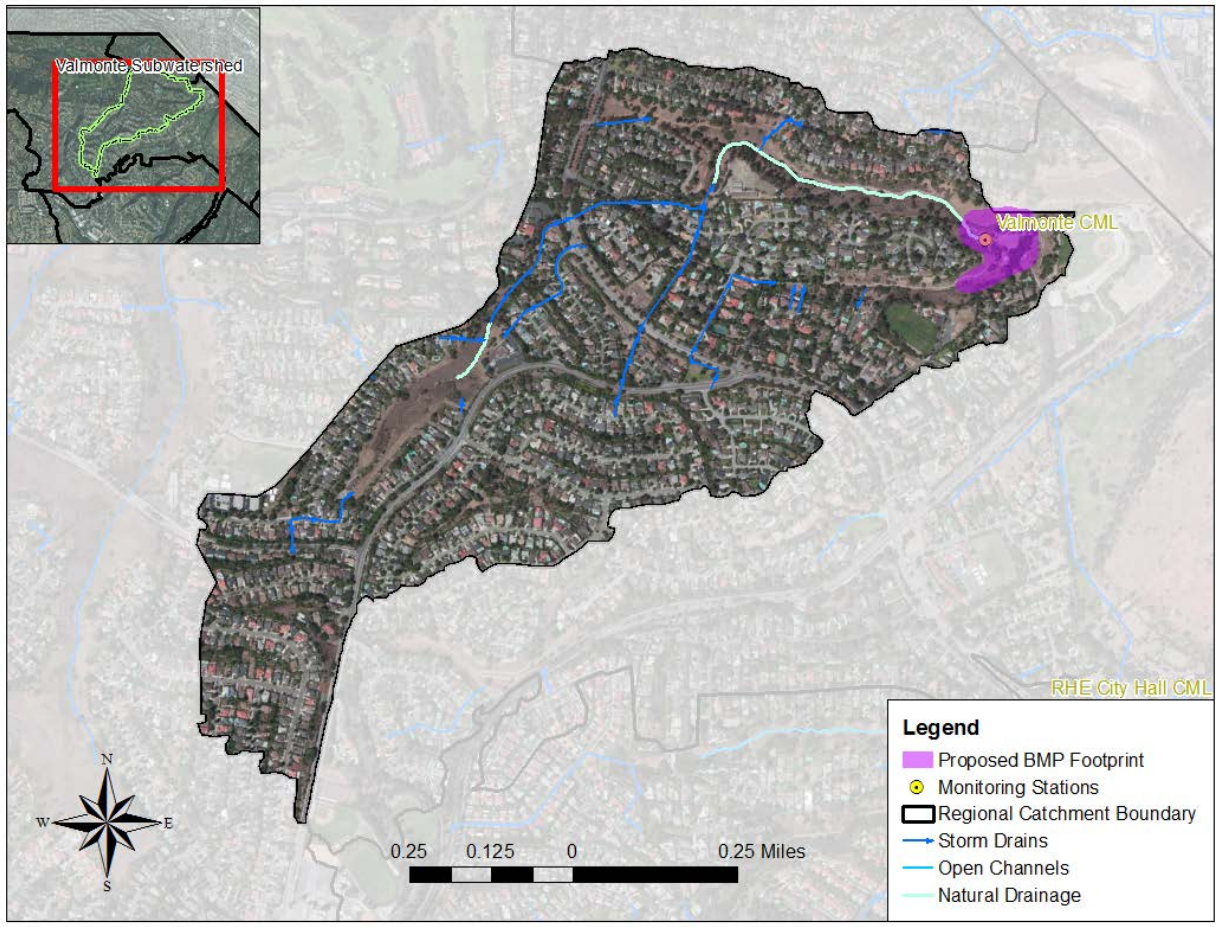
Regional BMPs - Palos Verdes Landfill

- Proposed in the Wilmington Drain and Rolling Hills Estates City Hall (RHECH) subwatersheds:
  - Green street opportunities limited: significant area lacks curb-and-gutter and available right-of-way
  - Infiltration infeasible - geotechnical hazards and lack of available space
- Treatment could consist of either a **storage-and-treatment facility** or a **Subsurface Flow (SSF) wetland**
- Proposed to be located on or adjacent to the closed Palos Verdes Landfill main site, which is approximately 240 acres
- Selected to utilize two large storm drain main lines which join immediately upstream of the landfill at Hawthorne Boulevard, which collect runoff from approximately 1,415 acres



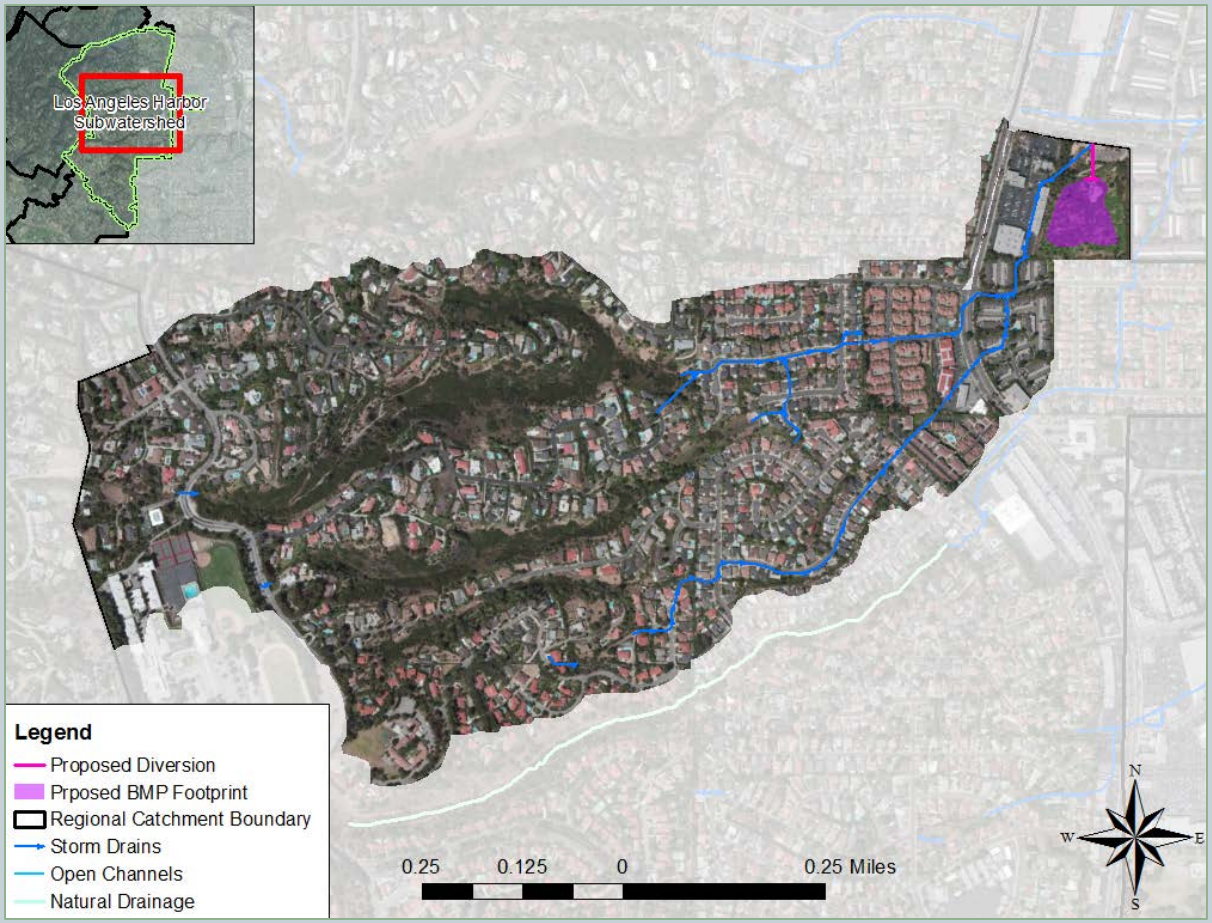
Regional BMPs - Valmonte Regional BMP

- Proposed in the Valmonte subwatershed:
  - Green street opportunities limited: significant area lacks curb-and-gutter and available right-of-way
  - Infiltration infeasible - geotechnical hazards and lack of available space
- Treatment could consist of either a **storage-and-treatment facility** or a **Subsurface Flow (SSF) wetland**
- Proposed to be located on or adjacent to or immediately upstream of the Valmonte compliance monitoring location, which contains approximately 400 acres of tributary area

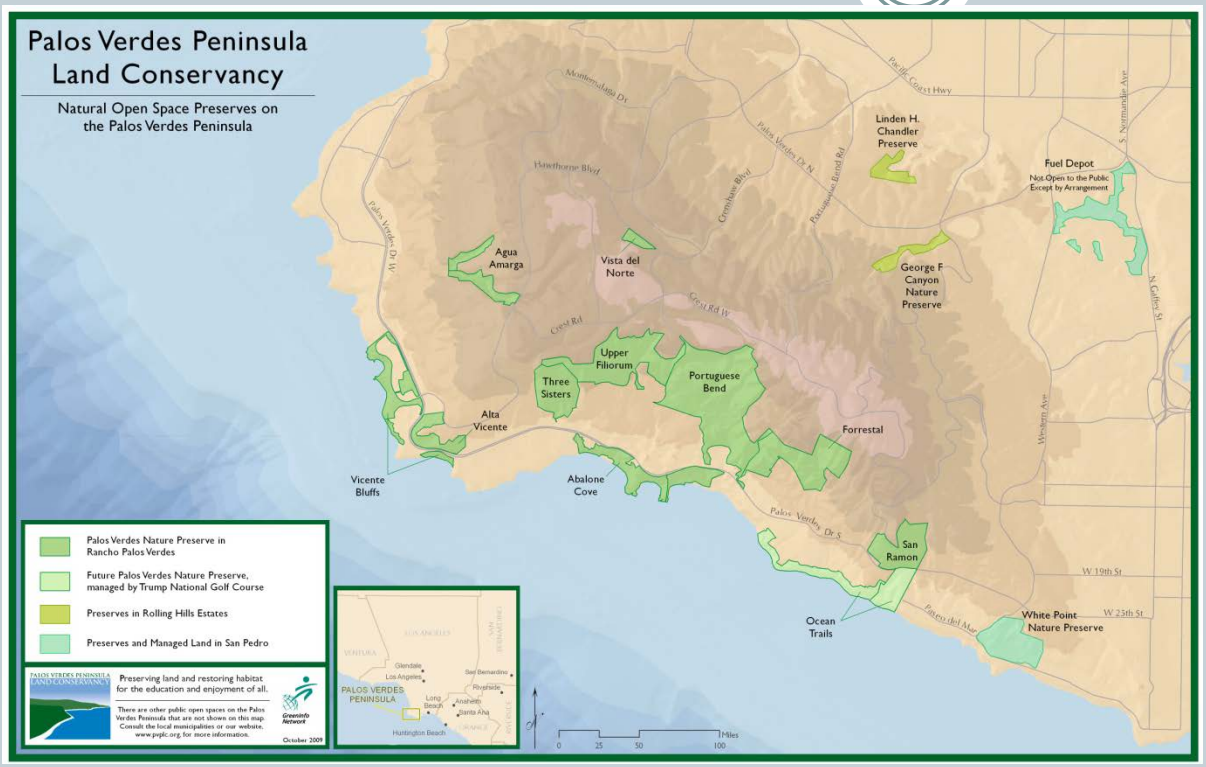


Regional BMPs - Eastview Park

- Eastview Park is a large green space near the southeast corner of the intersection of Western Avenue and Westmont Drive in Rancho Palos Verdes
- A large storm drain main runs adjacent to the park, draining approximately 350 acres
- A subsurface infiltration BMP capable of capturing the 1.25-inch design storm is proposed
- Assuming a depth of 6 feet, the project footprint would be approximately 3.5 acres



Regional BMPs – Palos Verdes Peninsula Land Conservancy



- During the last Peninsula EWMP Stakeholder Meeting held in May 2014, the PVPLC expressed an interest in participating in the Peninsula EWMP.
- To follow up, the Peninsula WMG invited the PVPLC to attend a focused meeting on February 12th, 2015 regarding opportunities to work together.
- There are many opportunities to work with the PVPLC to incorporate drought-tolerant, native plants and habitat restoration within the watershed
- Projects were not specifically identified to be included in the EWMP at this time; however, the Peninsula WMG will continue to look for opportunities to work with the Peninsula WMG and PVPLC
- Benefits of habitat restoration and incorporating drought-tolerant, native plants include:
  - Reduced non-stormwater flow
  - reduced nutrients
  - reduced sediment discharge

Regional BMPs – Water Reuse

Malaga Cove & Abalone Cove Water Reuse

- The Cities of Palos Verdes Estates and Rancho Palos Verdes have implemented dewatering measures to prevent nuisance groundwater from damaging homes and businesses
- The nuisance groundwater removed from these dewatering sites is currently discharged into the local storm drain system and/or to the nearby Pacific Ocean
- These projects propose to divert this water to existing golf course sand potentially a school in Palos Verdes Estates for irrigation use

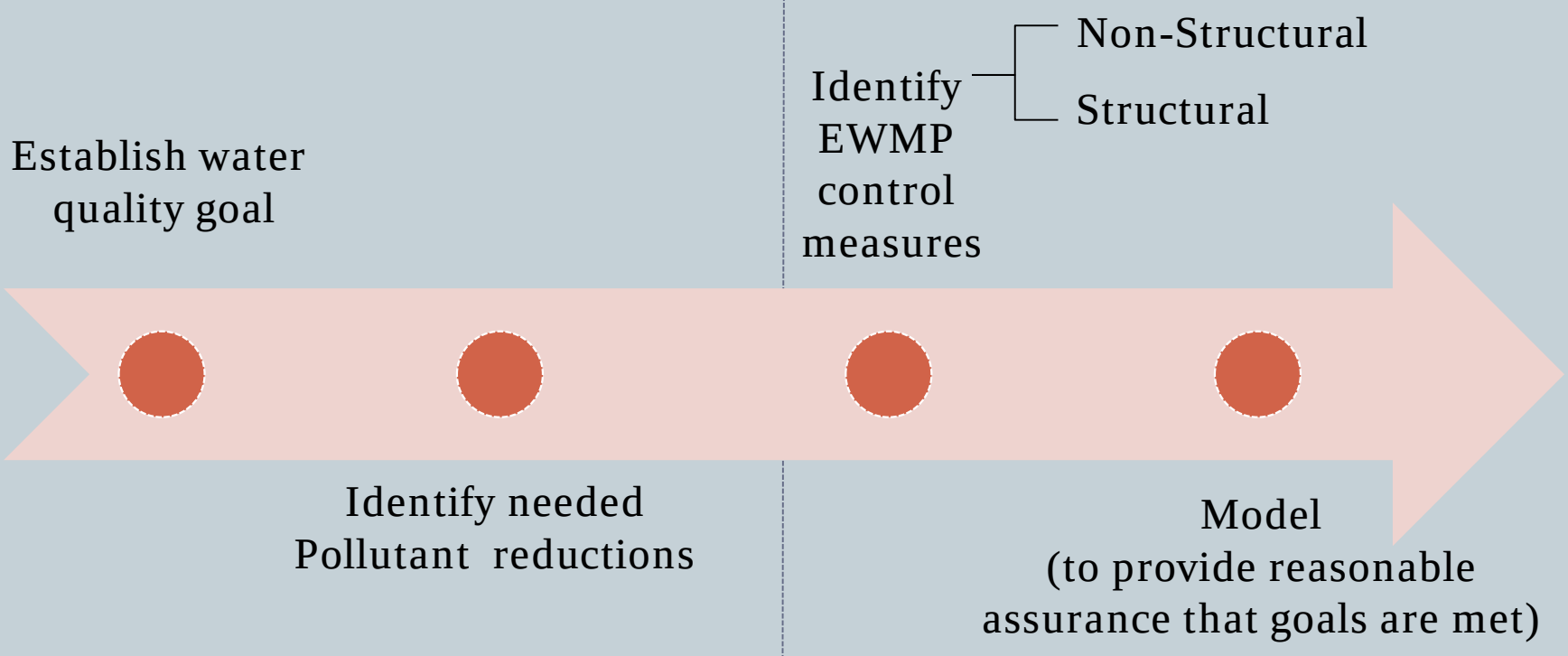
Palos Verdes Golf Course

- The Palos Verdes Golf Course is city-owned and privately operated, located within Palos Verdes Estates
- The facility is dual-plumbed to allow for a secondary source of water for irrigation purposes
- The golf course is in the process of weighing options for their secondary source of water
- Since stormwater capture is not a consistent supply, the best available source that could potentially benefit the Peninsula WMG is the dry weather flow discharging to Malaga Creek

Institutional BMPs

- Public Outreach Program
- Illicit Discharges and Connections Detection and Elimination
- Industrial/Commercial Facilities Control Program
- Public Agency Activities Program
- Planning and Land Development Program
- Construction Activities Control Program
- Clean Bay Restaurant Program
- Water Efficient Landscaping Ordinance
- Horse Manure Management Ordinance
- Green Building Ordinance

Reasonable Assurance Analysis (RAA)



Approach is consistent with Regional Board's 2014 RAA Guidance

Peninsula CIMP

Coordinated Integrated Monitoring Plan (CIMP)

Participating Agencies:

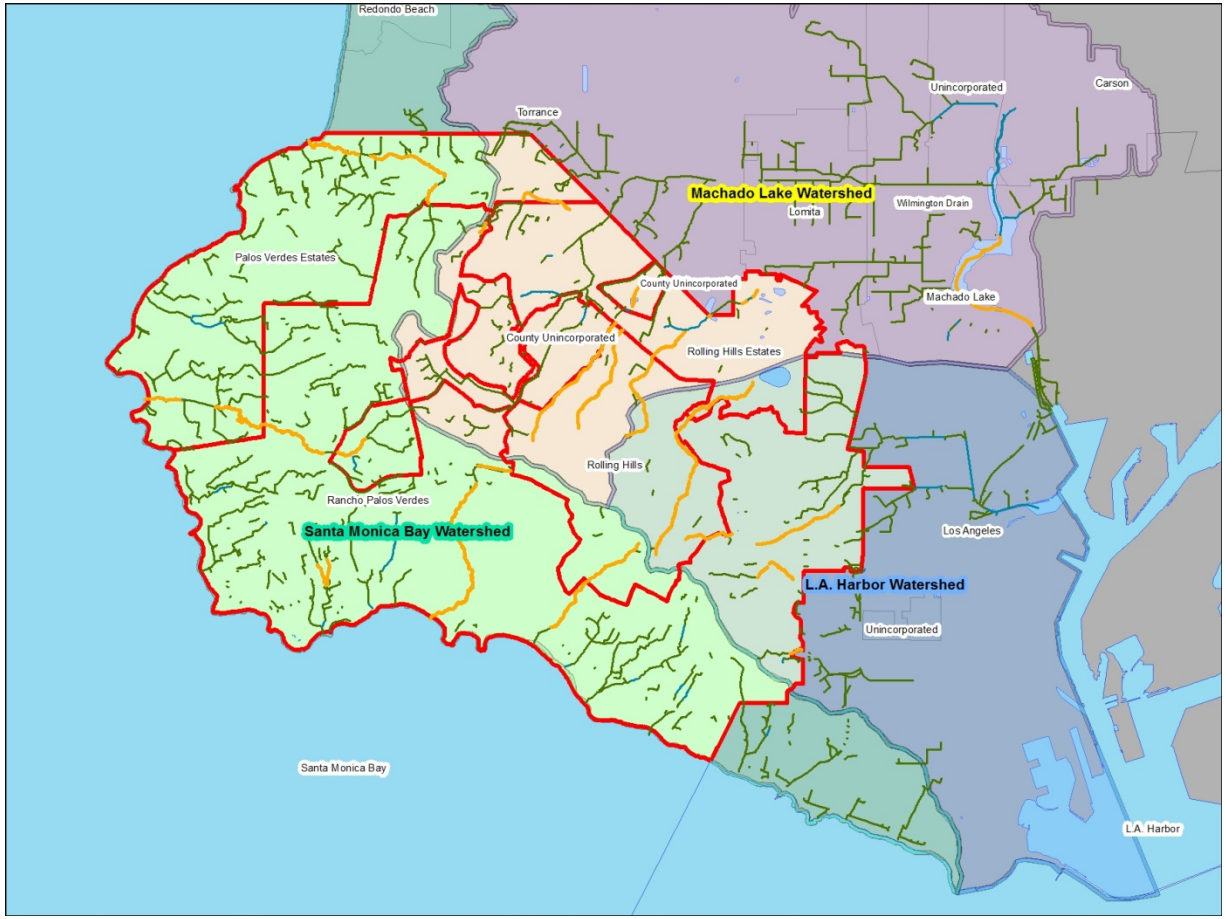
Rancho Palos Verdes

Palos Verdes Estates

Rolling Hills Estates

Rolling Hills

County of Los Angeles



Peninsula CIMP Program Area

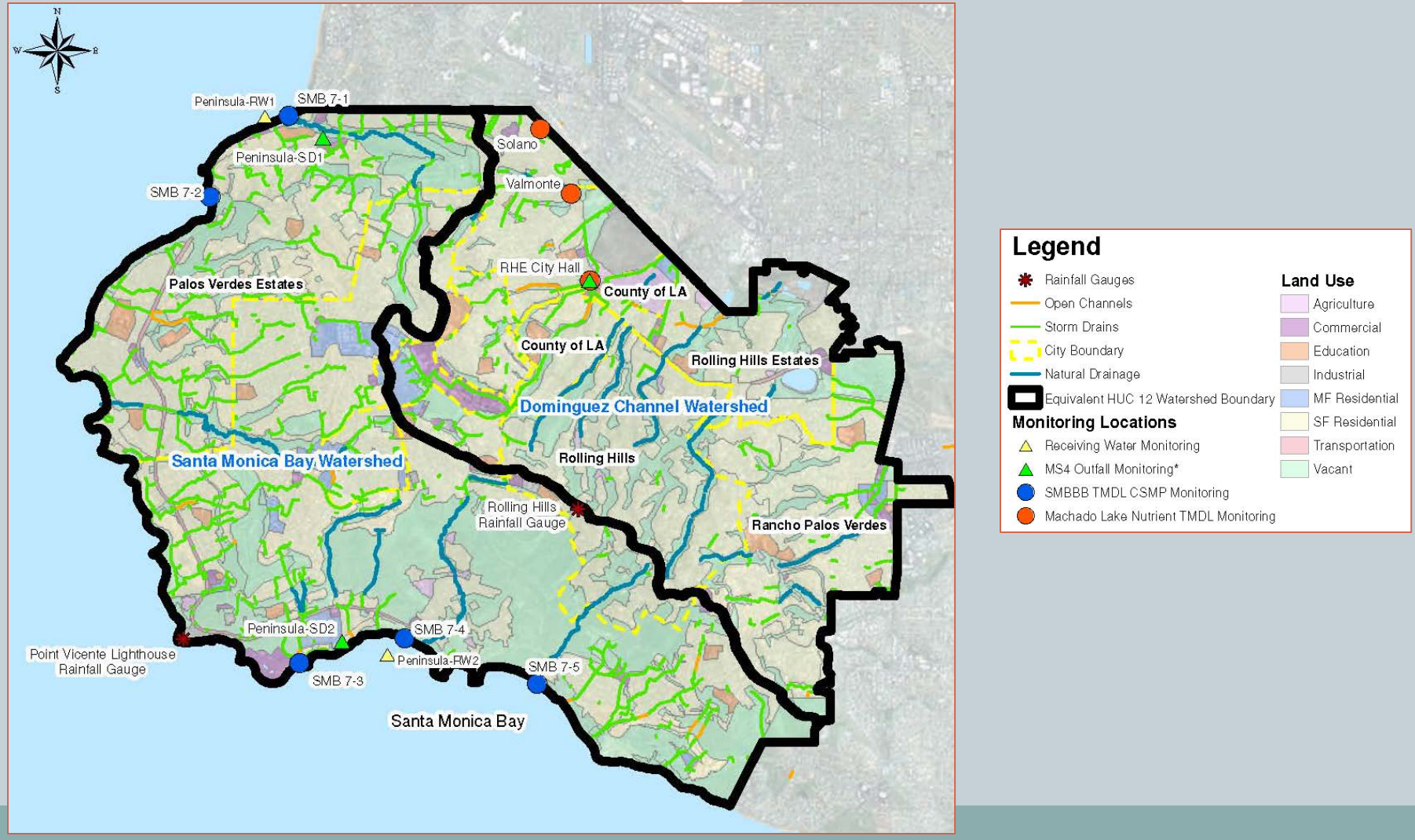
Five Primary Objectives of CIMP Are to Assess:

1. Pollutant loads in MS4 discharges
2. Whether water quality standards are met
3. Sources of pollutants in MS4 discharges
4. Chemical, physical, and biological impacts on receiving waters from Peninsula MS4 discharges
   - Santa Monica Bay
   - Machado Lake
   - LA Harbor
5. Effectiveness of EWMP

Required Elements

- **Receiving Water Monitoring:**
  - Wet weather - 3x per year
  - Dry weather - 2x per year
- **Storm Water Outfall Monitoring:**
  - Representative locations to reflect mix of land use
  - Wet weather - 3x per year
  - Dry weather - 4x per year
- **Non-stormwater Outfall Screening and Monitoring Program**
  - Systematic screening for significant non stormwater flows
  - Track to identify source
  - Eliminate or monitor
- **Regional/Special Studies**

CIMP Monitoring Locations



How much will it cost?

- We don't know… exactly
- Orders of magnitude higher than what is being spent now
- For example:
  - Machado Lake Rehabilitation Project - $112 Million
  - 3 Peninsula WMG Projects - $90 M to $130 M
  - Maintenance - $1 M to $1.5 M annually

Financial Strategy

- To be established by each City Council / County BOS
- General Fund – currently used
- State Bonds & Grants – competitive & uncertain
- Dedicated Fee – Prop 218, LACFCD
- Need to develop strategies!

How Can Residents/Businesses Help

- Minimize use of fertilizer and pesticides
- Keep a lid on outdoor trash cans
- Wash cars at commercial carwash
- Fix oil leaks promptly
- Deposit pet waste in the trash
- Compost or recycle yard waste and manure

- Replace turf with landscape that requires less water, fertilizers, pesticides
- Convert to drip or high efficiency irrigation
- Use porous paving for driveways and patios
- Divert roof drains to vegetated areas
- Instruct contractors and gardeners to use green waste bins, and not to dispose of debris or wash water into streets, storm drains or canyons

Next Steps

- CIMP - May 23, 2015
- EWMP - June 28, 2015
- Comment Card