
MARINA COAST WATER DISTRICT STAKEHOLDER COMMITTEE MEETING #1 MONTEREY SUBBASIN

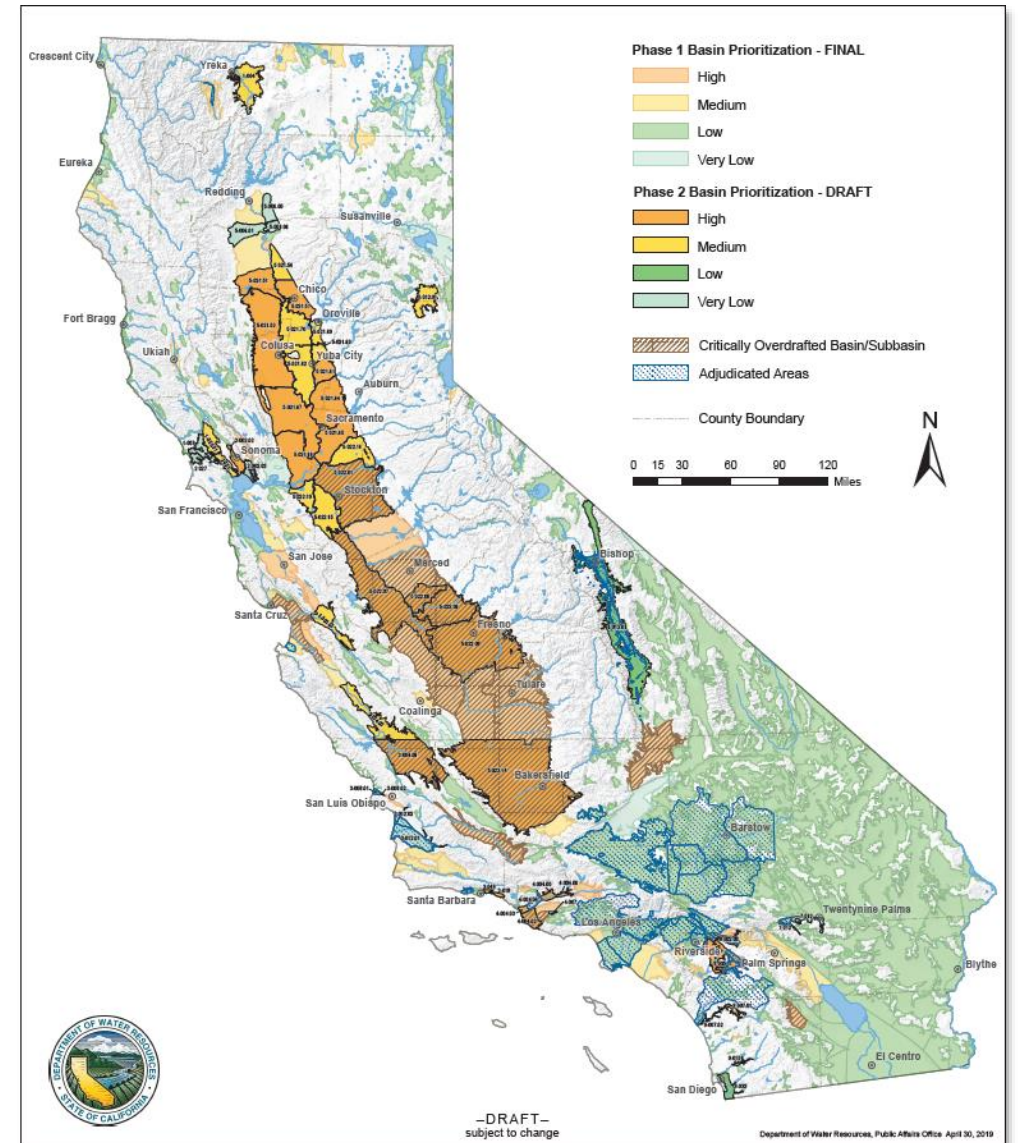
25 AUGUST 2020

PRESENTATION OUTLINE

- Sustainable Groundwater Management Act (SGMA) Overview
- Monterey Subbasin Groundwater Sustainability Plan (GSP)
- Stakeholder Engagement Overview
- GSP Requirements and Schedule
- Overview of GSP Chapters 1 through 4
- Next Steps

THE CALIFORNIA SUSTAINABLE GROUNDWATER MANAGEMENT ACT OF 2014

- Commonly referred to as SGMA (“sigma”)
- Signed into CA Law in September 2014
- “Requires governments and water agencies of high and medium priority basins to halt groundwater overdraft and bring groundwater basins into balanced levels of pumping and recharge”⁽¹⁾
- Applies to 94 Subbasins in California



⁽¹⁾ DWR, 2018.

<https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management>

SGMA – KEY REQUIREMENTS

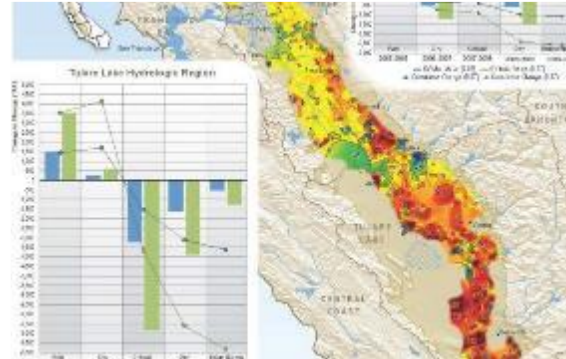
For all High and Medium Priority Basins:

- Requires formation of Groundwater Sustainability Agencies (GSAs)
- Development of Groundwater Sustainability Plans (GSPs)
- Sustainable management of entire basins and avoidance of “Undesirable Results”

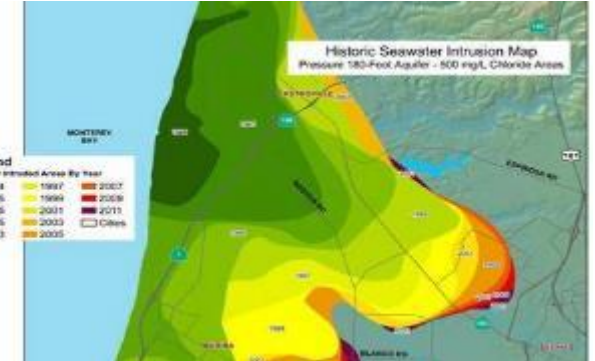
UNDESIRABLE RESULTS⁽¹⁾



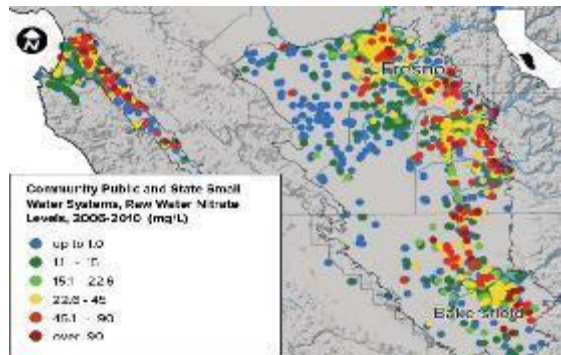
Lowering of Groundwater Levels



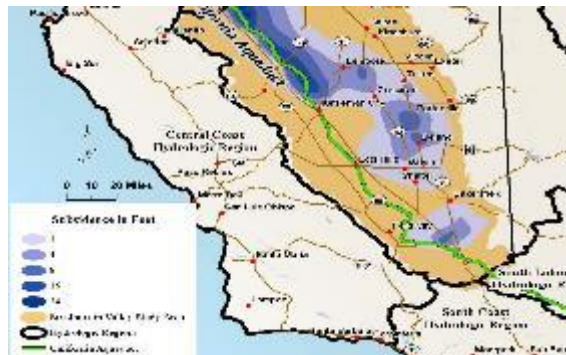
Reduction of Groundwater Storage



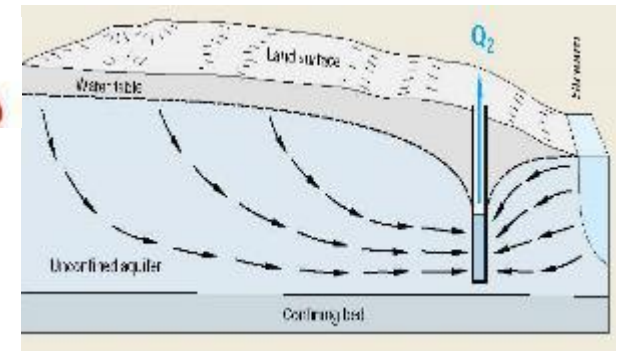
Seawater Intrusion



Groundwater Quality Degradation



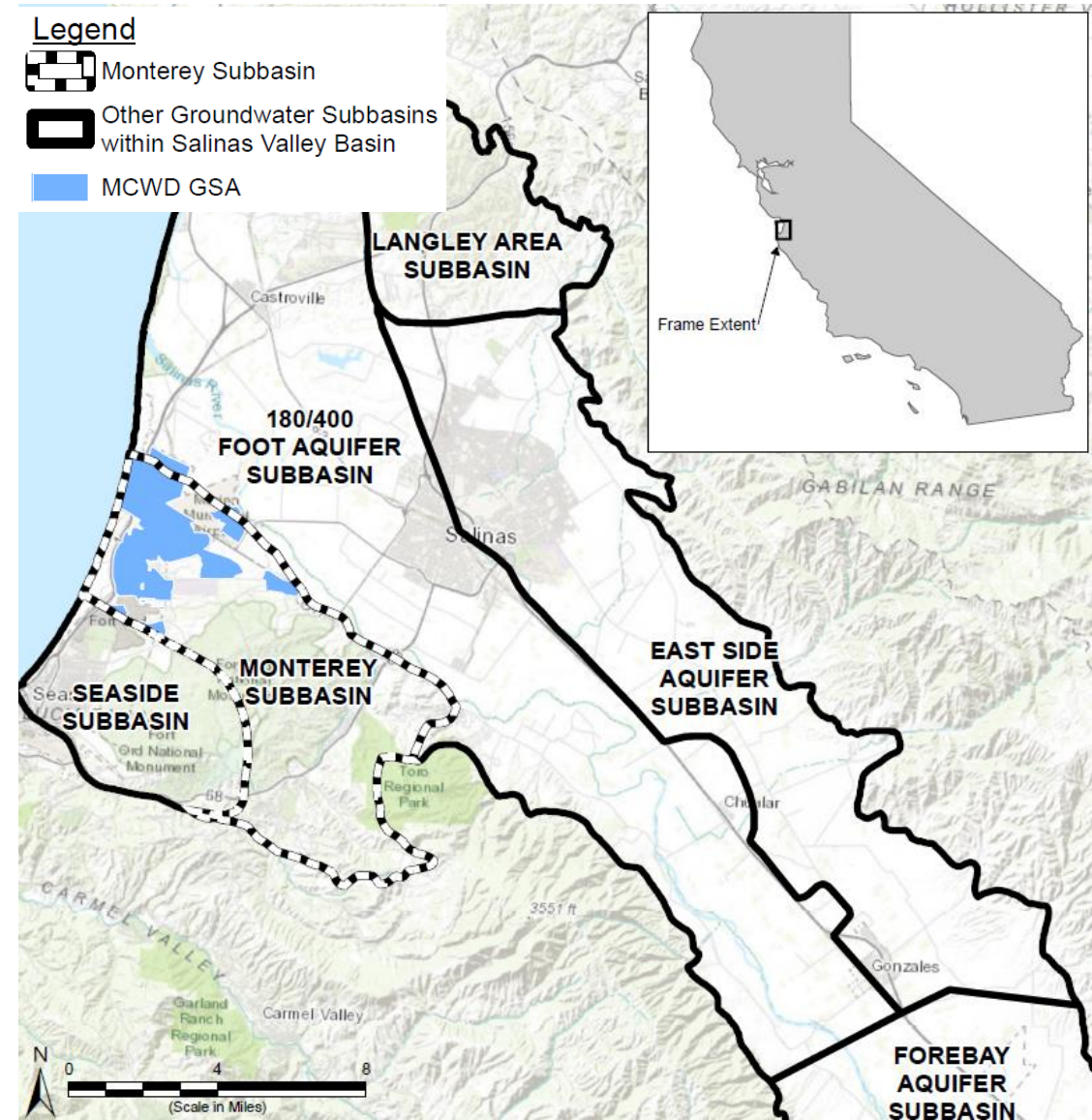
Land Subsidence



Depletion of Interconnected Surface Water

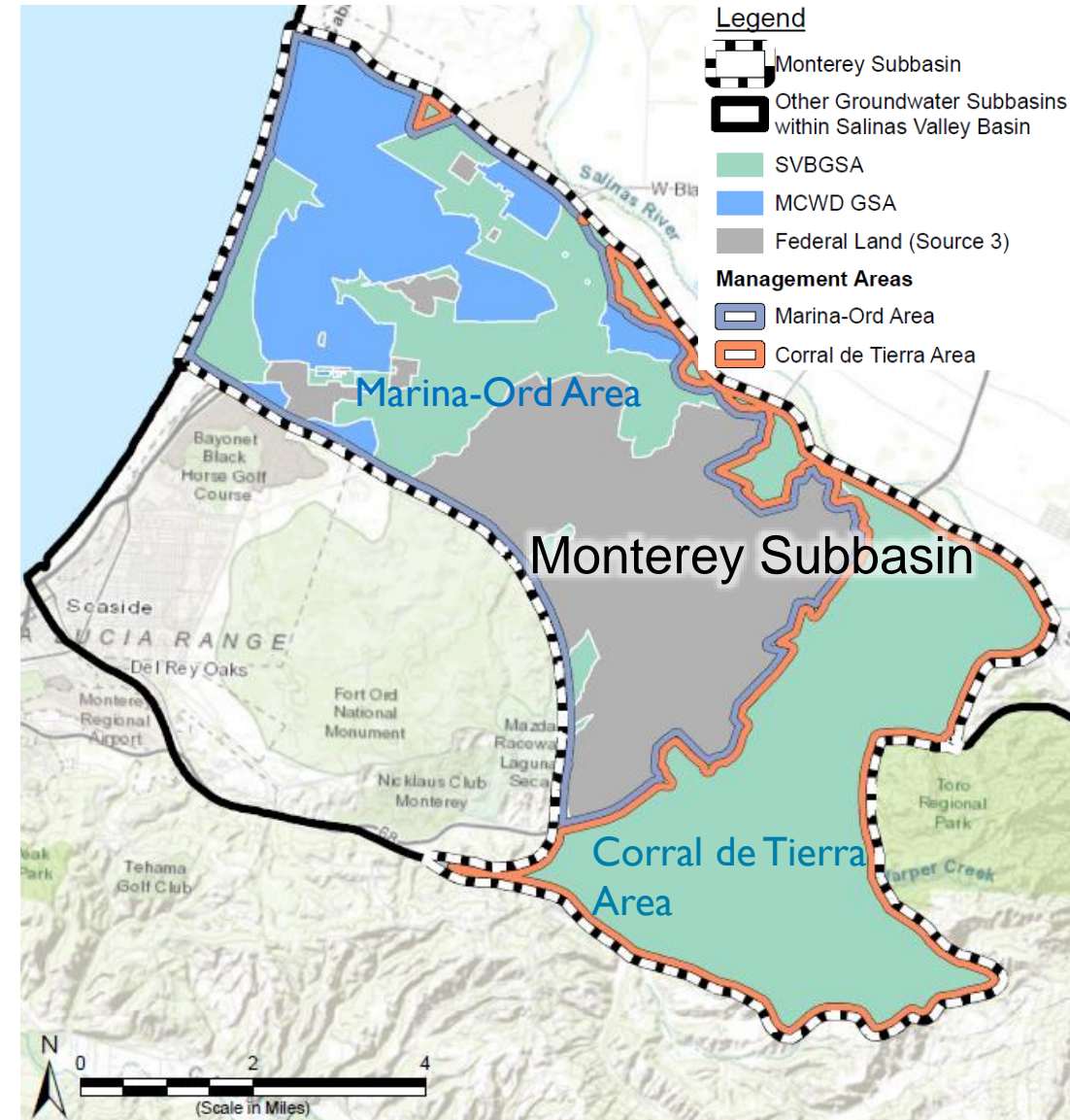
MONTEREY SUBBASIN

- One of nine Subbasins located in Salinas Valley Groundwater Basin (SVB)
- Two Groundwater Sustainability Agencies (GSAs):
 - Marina Coast Water District (MCWD) GSA
 - Salinas Valley Basin GSA (SVBGSA)
- **Medium Priority Subbasin**
- Groundwater Sustainability Plan (GSP)
 - (due 31 January 2022)



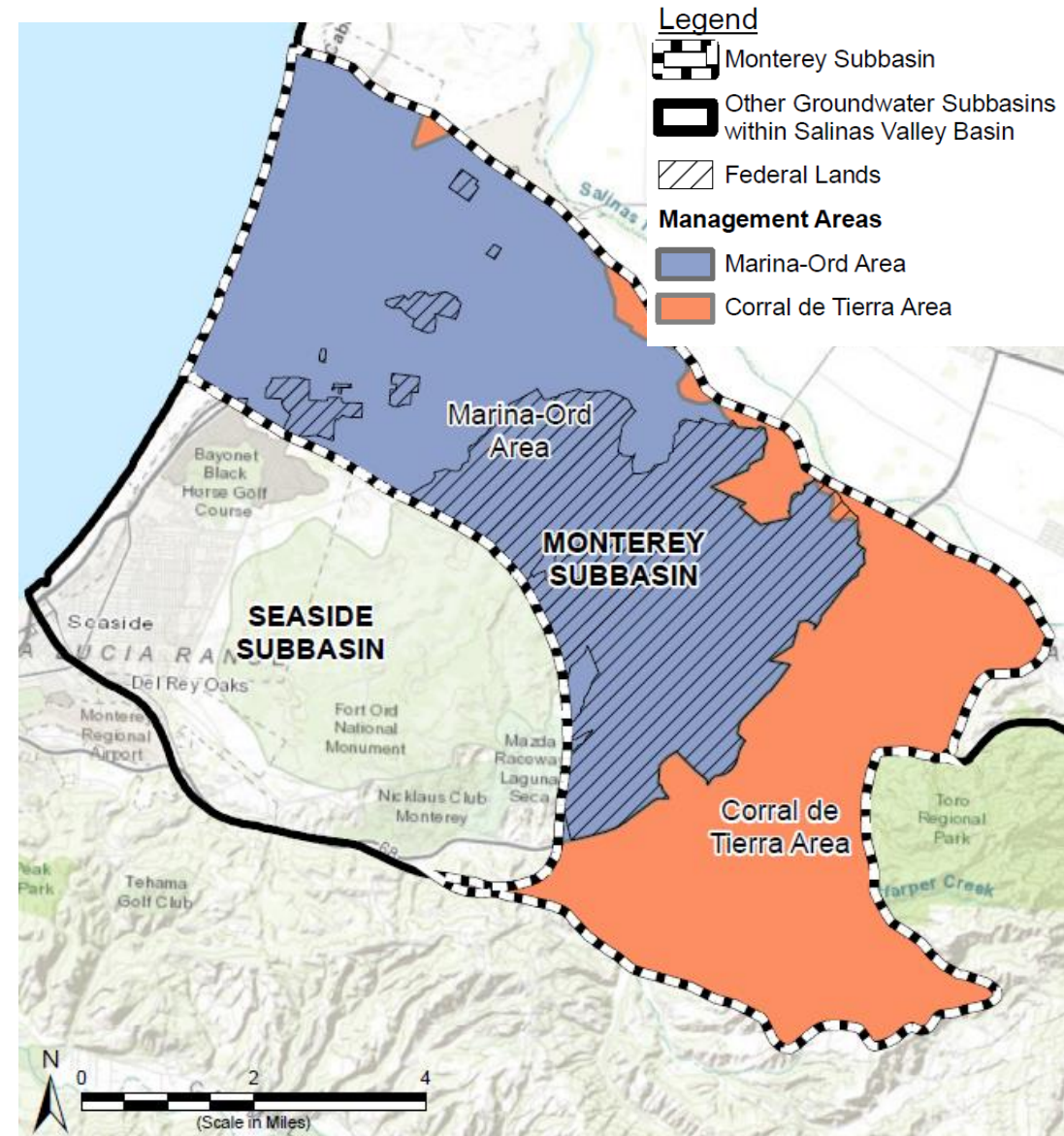
MONTEREY SUBBASIN GSP BEING DEVELOPED BY MCWD GSA AND SVBGSA

- One GSP covering the entire basin to be adopted by two GSAs
- GSP developed pursuant to Framework agreement between MCWD and SVBGSA
- GSP development subdivided by Management Area:
 - MCWD: Marina-Ord Area
 - SVBGSA: Corral de Tierra Area



MANAGEMENT AREAS

- Based on jurisdictional and hydrogeological differences
- Boundaries pending finalization
- Marina-Ord Area includes:
 - MCWD's service area, Sphere of Influence, and Future Planning areas (currently no water use, but will be served by MCWD upon development)
 - Includes Federal lands (not subject to SGMA)
- Corral de Tierra includes:
 - Remainder of the Subbasin
 - Primarily communities by Hwy 68
- Management Areas are hydrogeologically distinct



STAKEHOLDER ENGAGEMENT OVERVIEW

OPPORTUNITIES FOR STAKEHOLDER ENGAGEMENT DURING GSP DEVELOPMENT

- Stakeholder Committee Meetings
 - Quarterly meetings; open to public
 - Presentation of draft contents and discussion of planning topics
 - Draft chapters will be made available concurrently
- MCWD GSA Board Meeting Updates
 - Interim GSP update to MCWD Board scheduled in January and July 2021
- MCWD GSA website
 - Posting of draft chapters
 - Submit comments, opinions, and recommendations, comment letters online (select GSA Feedback Form under GSA dropdown at www.mcwd.org or visit <https://form.jotform.com/202364609327051>)

PUBLIC MEETINGS SCHEDULE

Months	2020					2021		
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Meetings	MCWD Stakeholder Committee #1			MCWD Stakeholder Committee #2			MCWD Stakeholder Committee #3	
	Today					MCWD Board Meeting Update #1		

Months	2021								2022	
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Meetings		MCWD Stakeholder Committee #4			Public Process (Meetings TBD)				MCWD Board Meetings (Public Hearing)	(Allowance for public hearing continuance)
				MCWD Board Meeting Update #2						

SVBGSA STAKEHOLDER ENGAGEMENT DURING GSP DEVELOPMENT

- SVBGSA Subcommittee meetings being held independently for Corral de Tierra
 - (see svbgsa.org for schedule)
- SVBGSA holding educational workshops on groundwater topics

SVBGSA PUBLIC WORKSHOPS

Subbasin Committee Workshops (optional and open to the public)

Date	Topic	Time
July 22th	Brown Act and Conflict of Interest Training	1:00 - 2:00
July 28th	Sustainable Management Criteria	1:00 - 3:00
August 10th	Water Law	10:00 - 12:00
August 26th	Watershed Overview	1:00 - 3:00
September	Interconnected Surface Water and Groundwater Dependent Ecosystems	TBD
October	Models: SVIHM and SVOM	TBD
November	Data Gaps	TBD
January	Water Charges Framework	TBD
March	Integrated Sustainability Plan	TBD



GSP REQUIREMENTS AND SCHEDULE

GSP CHAPTER OUTLINE

1. Introduction and Agency Information
2. Plan Area
3. Stakeholder Engagement and Communication
4. Hydrogeological Conceptual Model (HCM)
5. Groundwater Conditions Assessment
6. Water Budget
7. Monitoring Network
8. Sustainable Management Criteria (SMCs)
9. Projects & Management Actions (P&MAs)
10. GSP Implementation



Being Discussed Today

MCWD GSP DEVELOPMENT SCHEDULE

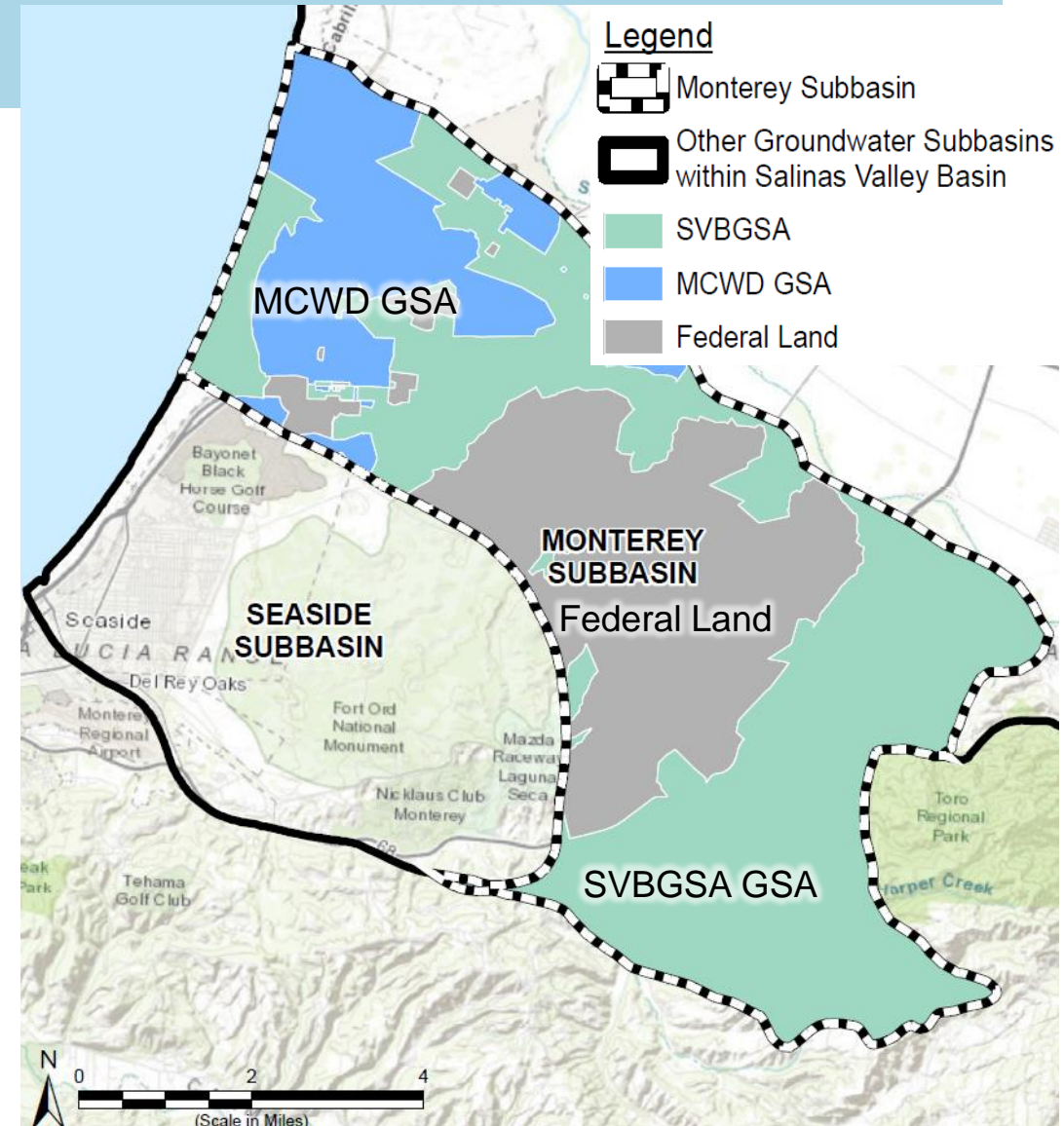
Stakeholder Meeting Dates	Draft Chapters Presentation and Release Schedule
August 2020	Chapter 1: Introduction Chapter 2: Plan Area Chapter 3: Stakeholder Engagement Chapter 4: Hydrogeologic Conceptual Model
Nov 2020	Chapter 5: Groundwater Conditions Chapter 6: Water Budget or Chapter 8: Sustainable Management Criteria based on Model status
Feb 2021	Chapter 7: Monitoring Network Chapter 8: Sustainable Management Criteria
May 2021	Chapter 9: Projects and Management Actions Chapter 10: Implementation

OVERVIEW OF GSP CHAPTERS 1-4

(FOCUSING ON MARINA-ORD AREA)

CHAPTER 1: INTRODUCTION AND AGENCY INFORMATION

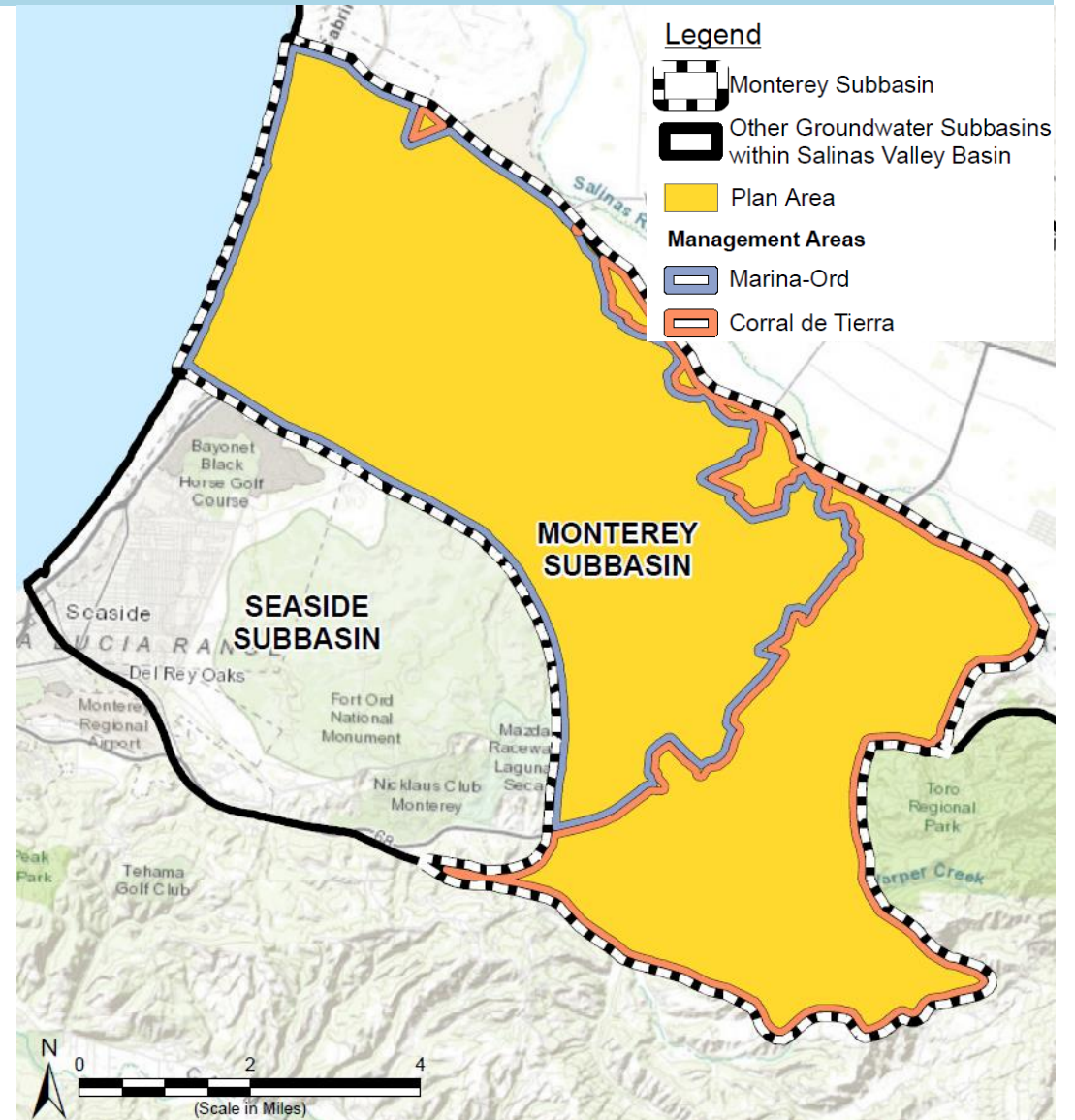
- Provides an overview of the plan
- Describe administrative information and legal authority of the plan preparation GSAs



CHAPTER 2: PLAN AREA

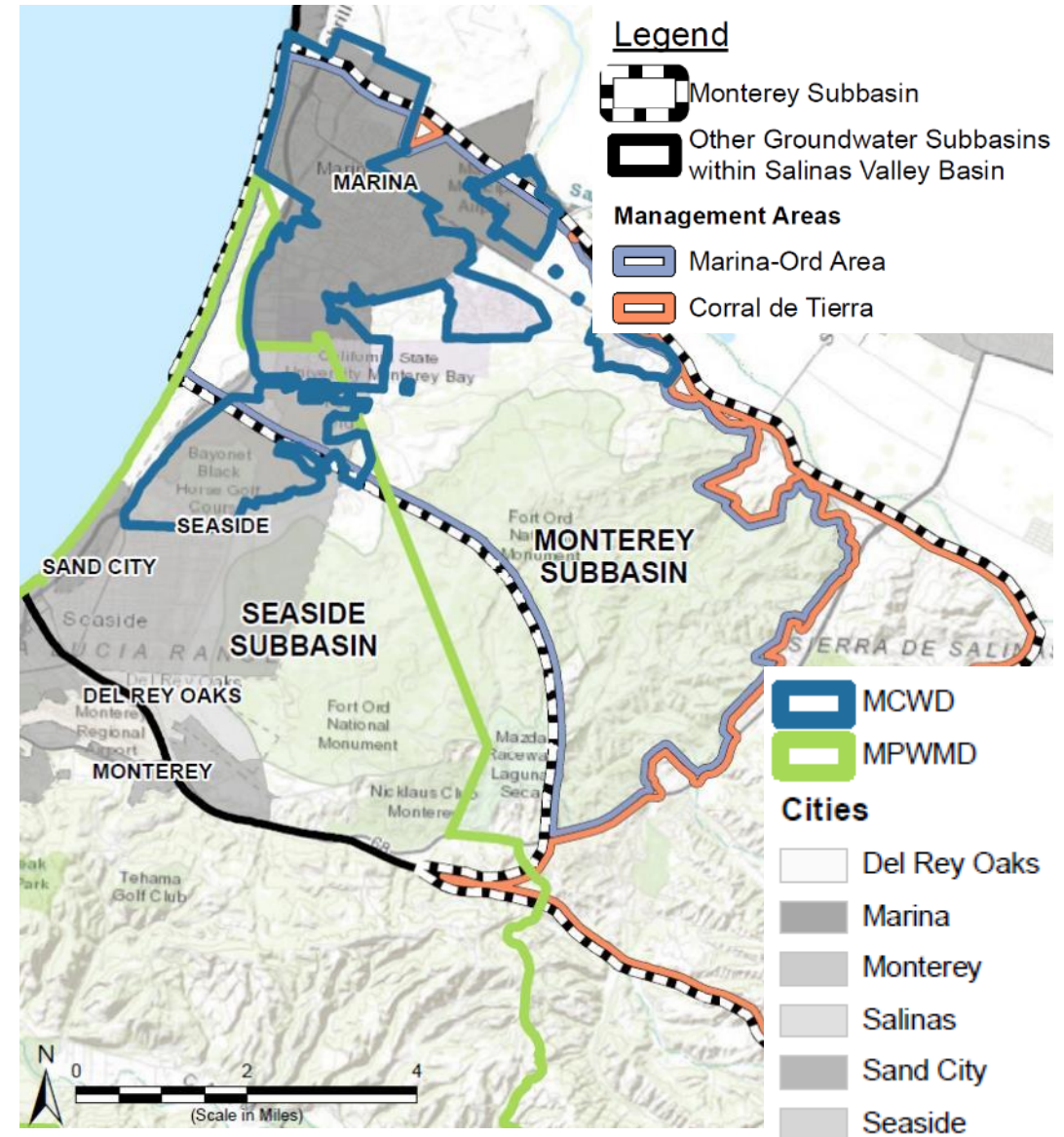
- Describes area covered by GSP including a summary of jurisdictional areas
- Describes existing water resources management programs and land use elements

“Each Plan shall include a description of the geographic areas covered”



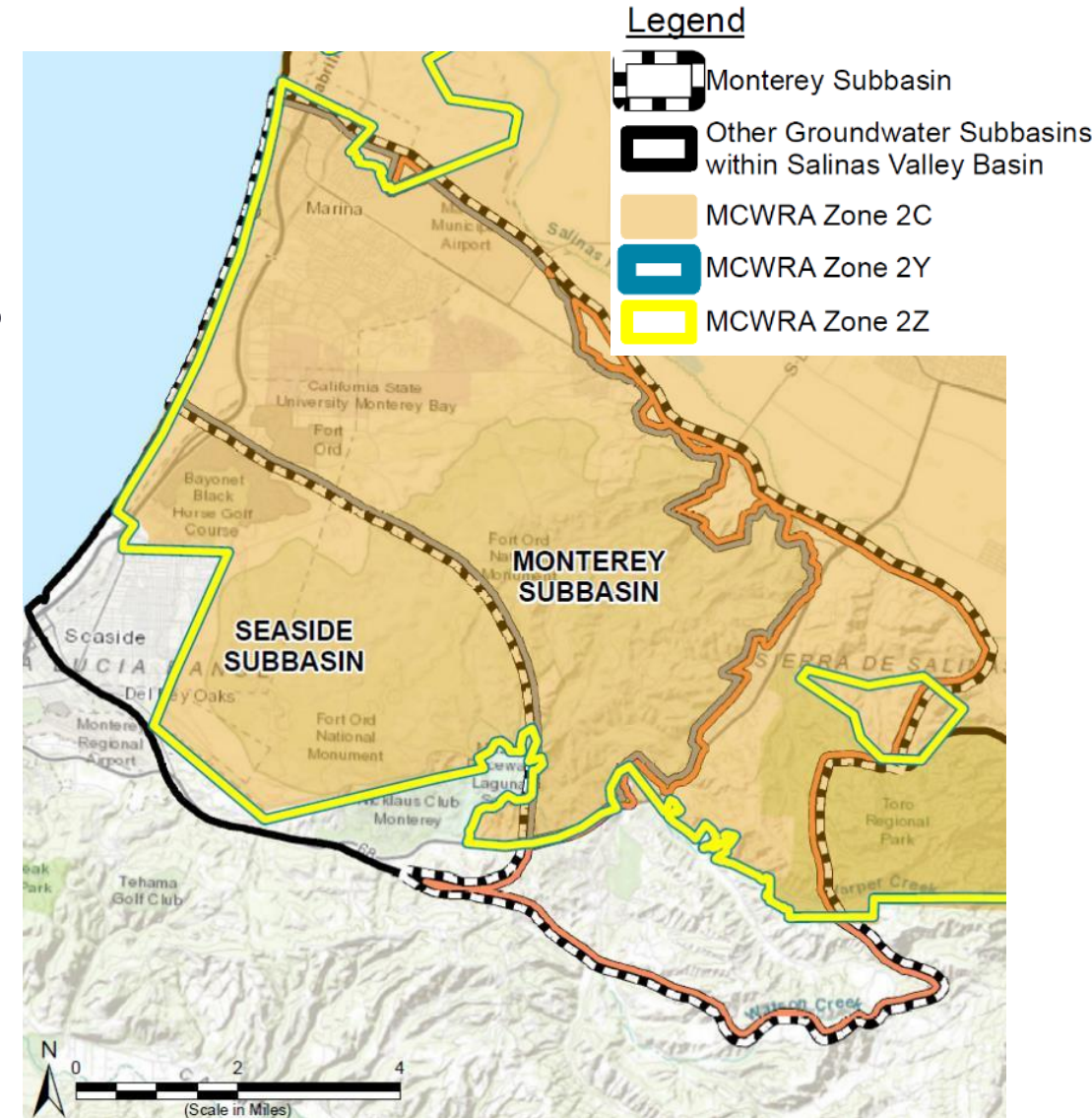
JURISDICTIONAL BOUNDARIES WITHIN THE MARINA-ORD AREA

- Includes City of Marina and City of Seaside
- MCWD is the exclusive water purveyor
- Other agencies with water management responsibilities
 - Monterey Peninsula Water Management District (MPWMD)
 - Monterey County Water Resources Agency (MCWRA)



MCWRA ZONES OF BENEFIT

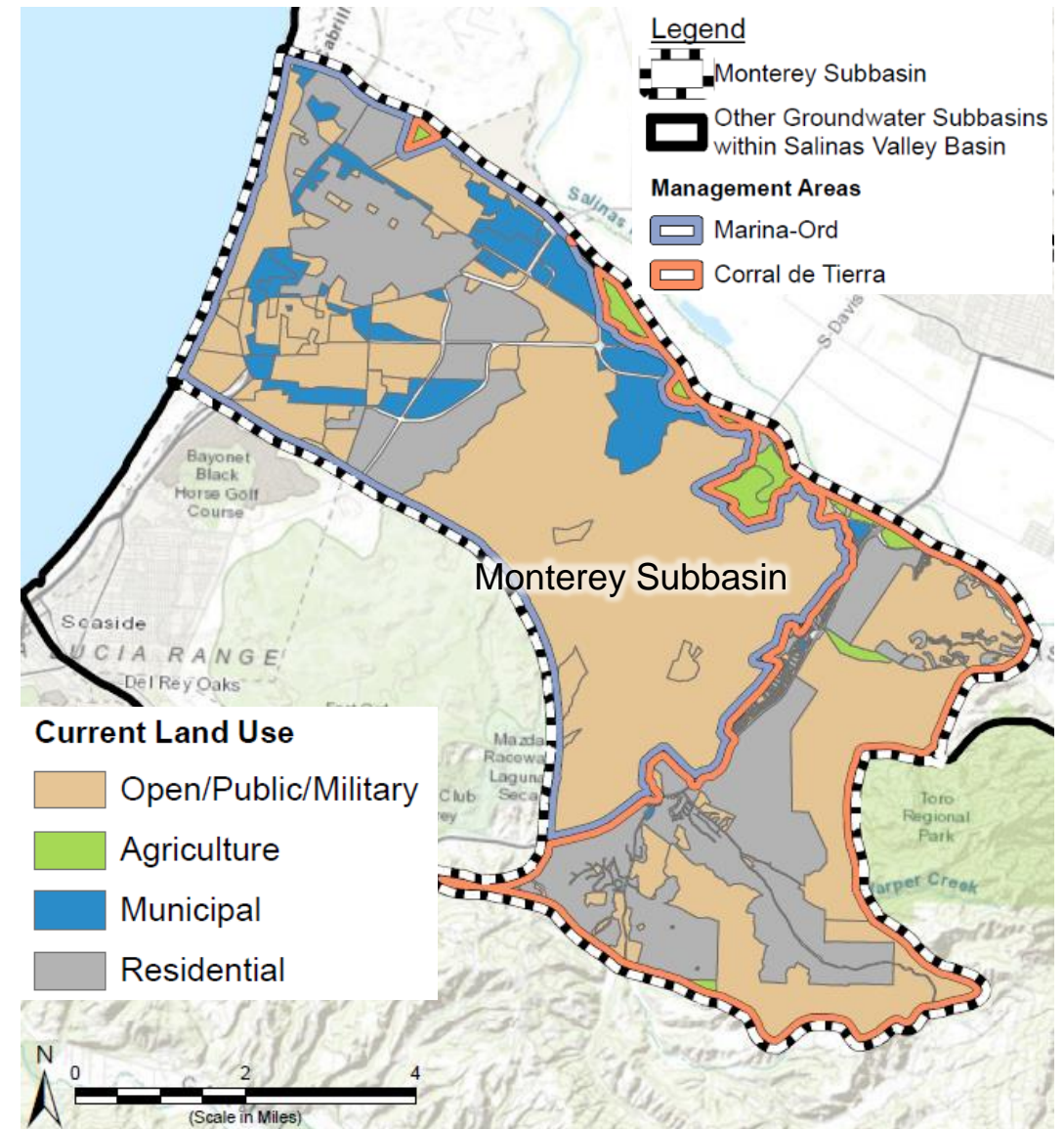
- MCWRA formed in 1947 to develop projects and programs to reduce seawater intrusion
- Federal government (Fort Ord) and MCWD entered into Annexation Agreements with MCWRA (1993 and 1996¹)
 - Recognize that MCWD and the Federal government had been pumping groundwater for many years and had strong claims to groundwater rights
 - Stipulate that MCWD and Federal government would pay assessments to MCWRA Zones of Benefit for regional projects to protect the Salinas Valley Groundwater Basin and reduce seawater intrusion
 - Developed water allocation formulas
 - Obligated MCWRA to protect the Deep Aquifer for MCWD's use
- In 2001, Federal government transferred all infrastructure and applicable water rights associated with Fort Ord to MCWD²



1. MCWRA; U.S. Army, 1993. Agreement Between the United States of America and the Monterey County Water Resources Agency Concerning Annexation of Fort Ord Into Zones 2 and 2A of the Monterey County Water Resources Agency.
2. MCWRA; MCWD, 1996. Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands.
3. Via a quitclaim deed dated October 23, 2001 from the Federal Government to the Fort Ord Reuse Authority (FORA) and a quitclaim deed dated October 24, 2001 from FORA to MCWD.

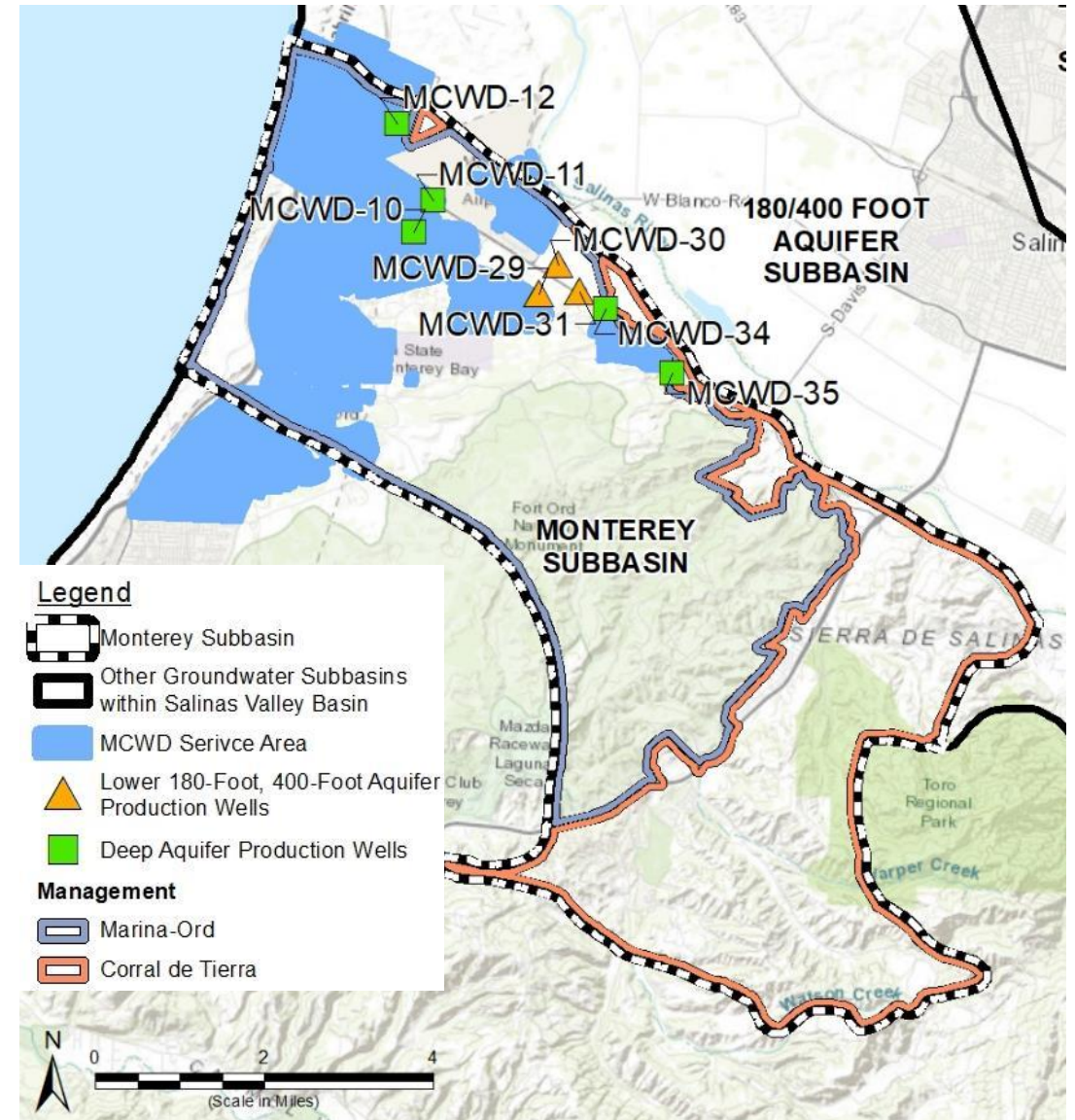
LAND USE AND WATER USE IN MARINA-ORD AREA

- Large portion of the Marina-Ord Area is undeveloped as open space (habitat), public, or military uses
- Water use associated with municipal and residential land uses
- Some groundwater extraction and re-infiltration for Fort Ord remediation purposes










GROUNDWATER IS THE SOLE SOURCE OF WATER SUPPLY

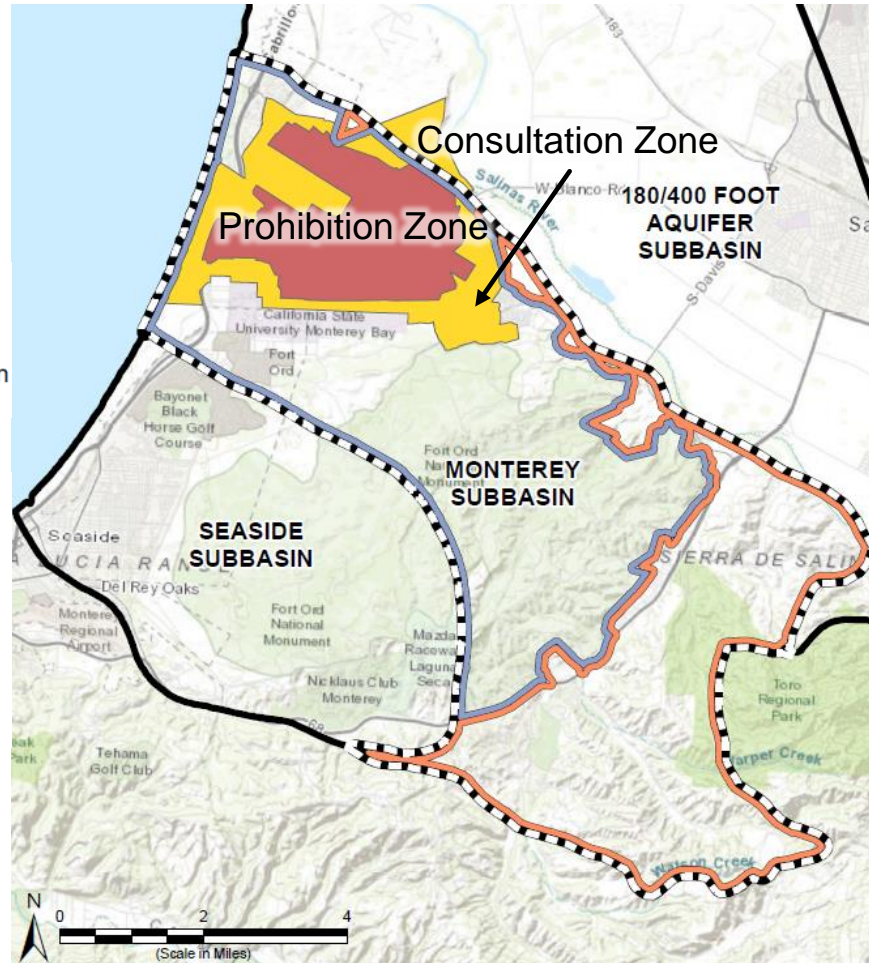
- MCWD is the only water supplier in Marina-Ord Area
- MCWD currently serves 3,200 to 4,200 acre-feet per year to its customers
 - Some of which are located in the Seaside and 180/400 Foot Subbasin



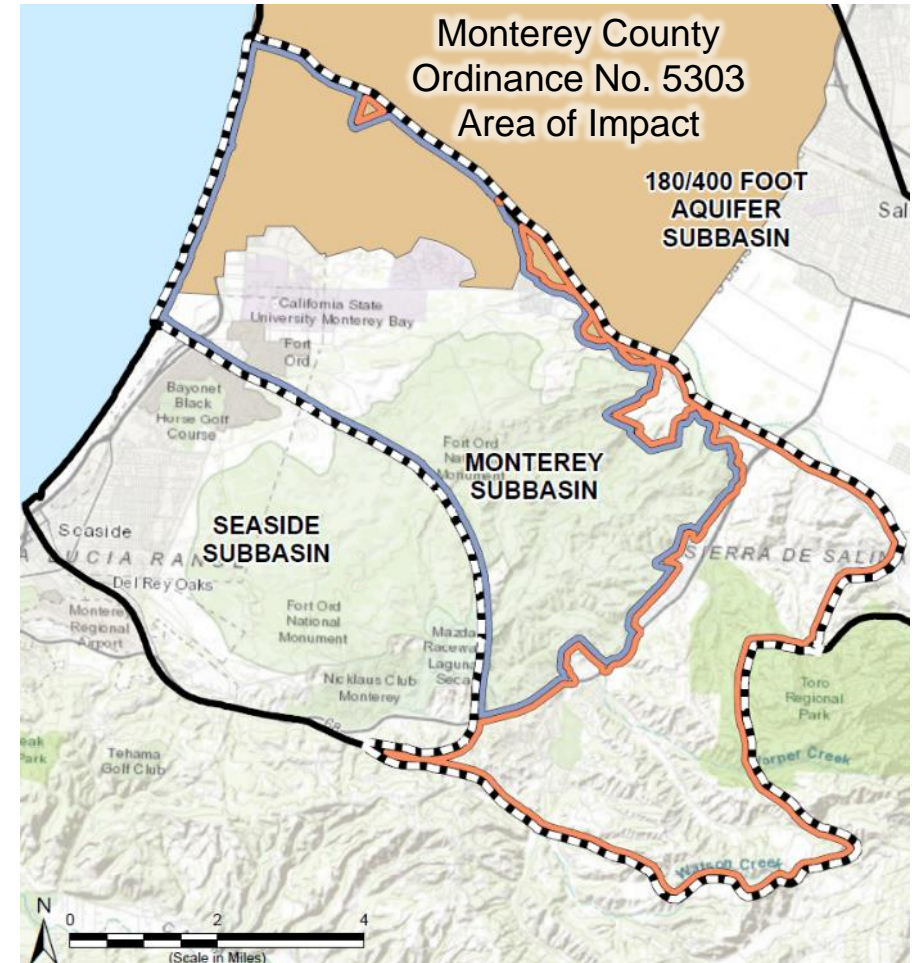
WELL CONSTRUCTION RESTRICTION AREAS

Legend

-  Monterey Subbasin
-  Other Groundwater Subbasins within Salinas Valley Basin
-  Area of Impact
- Management Areas**
-  Marina-Ord
-  Corral de Tierra
- Fort Ord Special Groundwater Protection Zones**
-  Prohibition Zone
-  Consultation Zone



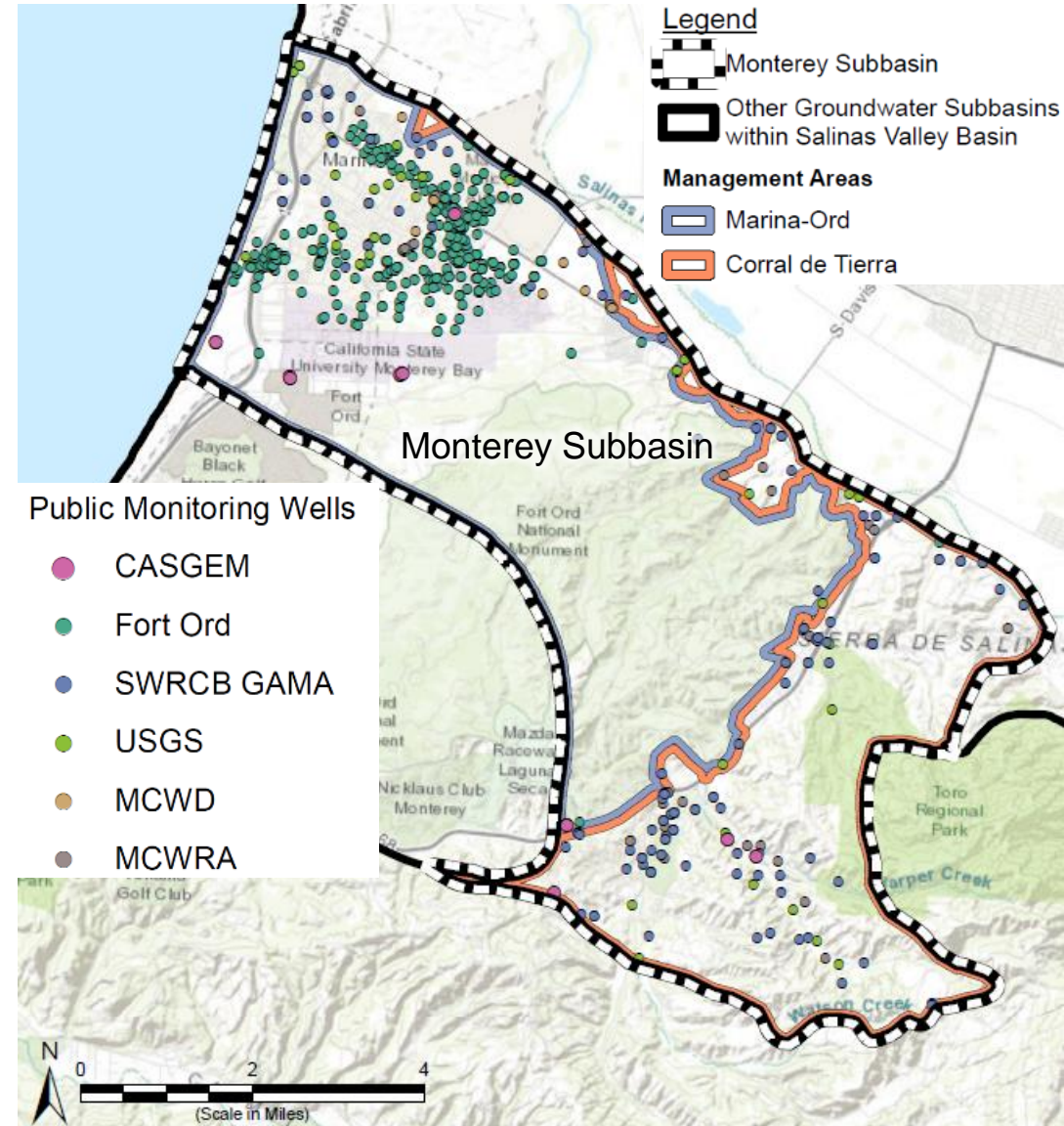
Well Construction Restrictions due to Legacy Fort Ord Groundwater Contamination



Well Construction Restrictions due to Seawater Intrusion

GROUNDWATER MANAGEMENT PROGRAMS OF THE MARINA-ORD AREA

- Local management and monitoring entities
 - MCWRA & MPWMD / Seaside Basin Watermaster
 - Fort Ord (U.S. Army Corps of Engineers)
 - MCWD
- Data gathering and DMS construction
 - >100,000 water level & water quality records from >1,000 wells
 - Lithology & well construction from >2,000 wells
 - MCWD production well data (20 years)
 - Airborne Electromagnetic Surveys (2017-2019)
 - Numerous publicly available field studies, water level/quality data, hydrogeologic investigations, etc.



CHAPTER 3 – STAKEHOLDER ENGAGEMENT AND COMMUNICATIONS

- Documents stakeholder communication conducted by the GSAs (as outlined herein)
- To be completed before public draft

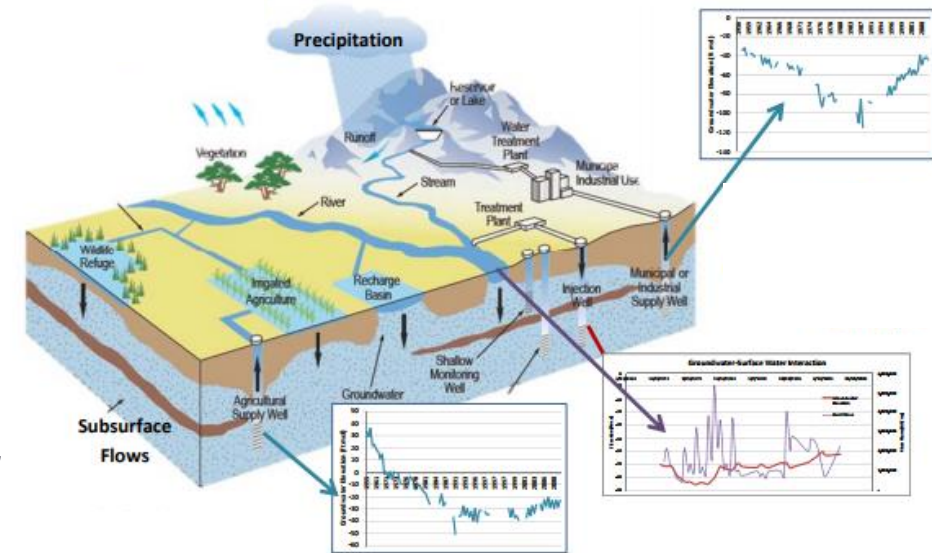
“Each Plan shall include a summary of information relating to notification and communication by the Agency with other agencies and interested parties”



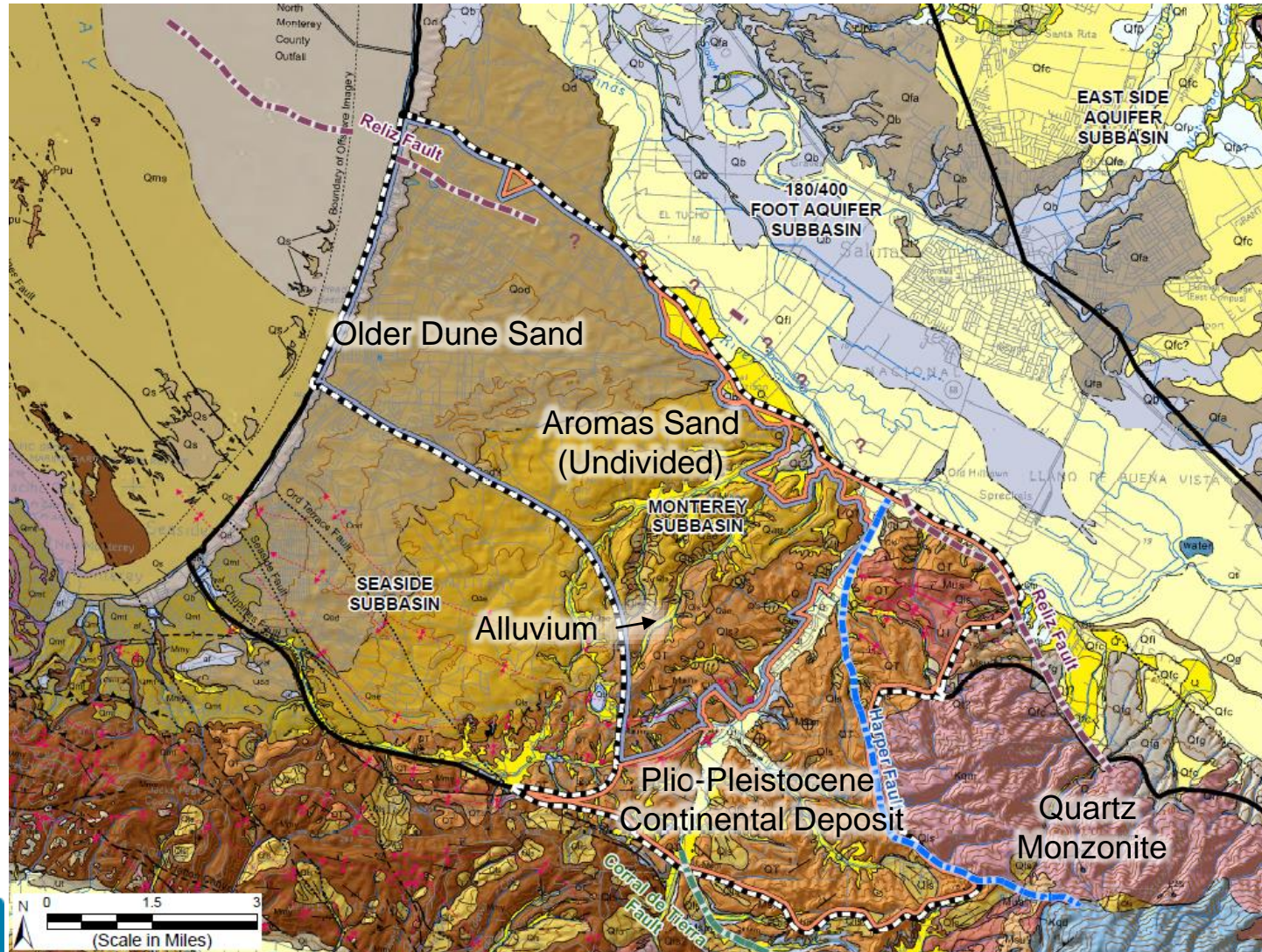
CHAPTER 4 – HYDROGEOLOGIC CONCEPTUAL MODEL

- Defines the geology and hydrology of the Basin, including the definition of the “Principal Aquifer”
- Includes graphical information (maps and cross-sections)

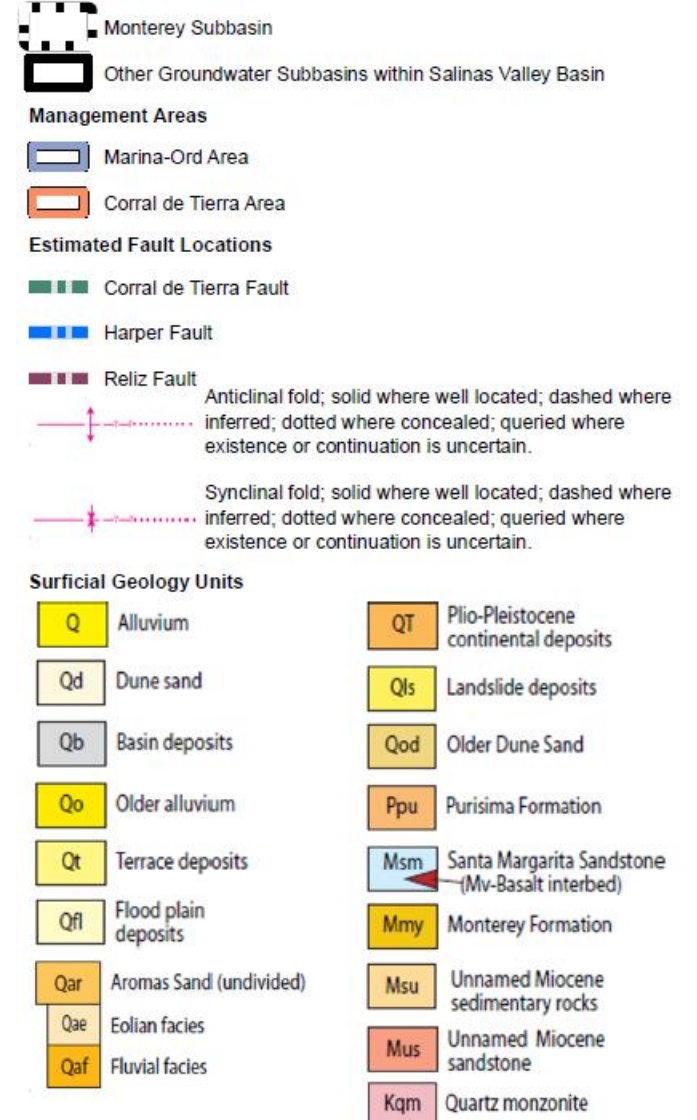
“Each Plan shall include a descriptive hydrogeologic conceptual model of the basin based on technical studies and qualified maps that characterizes the physical components and interaction of the surface water and groundwater systems in the basin.”



GEOLOGIC SETTING OF THE MARINA-ORD AREA

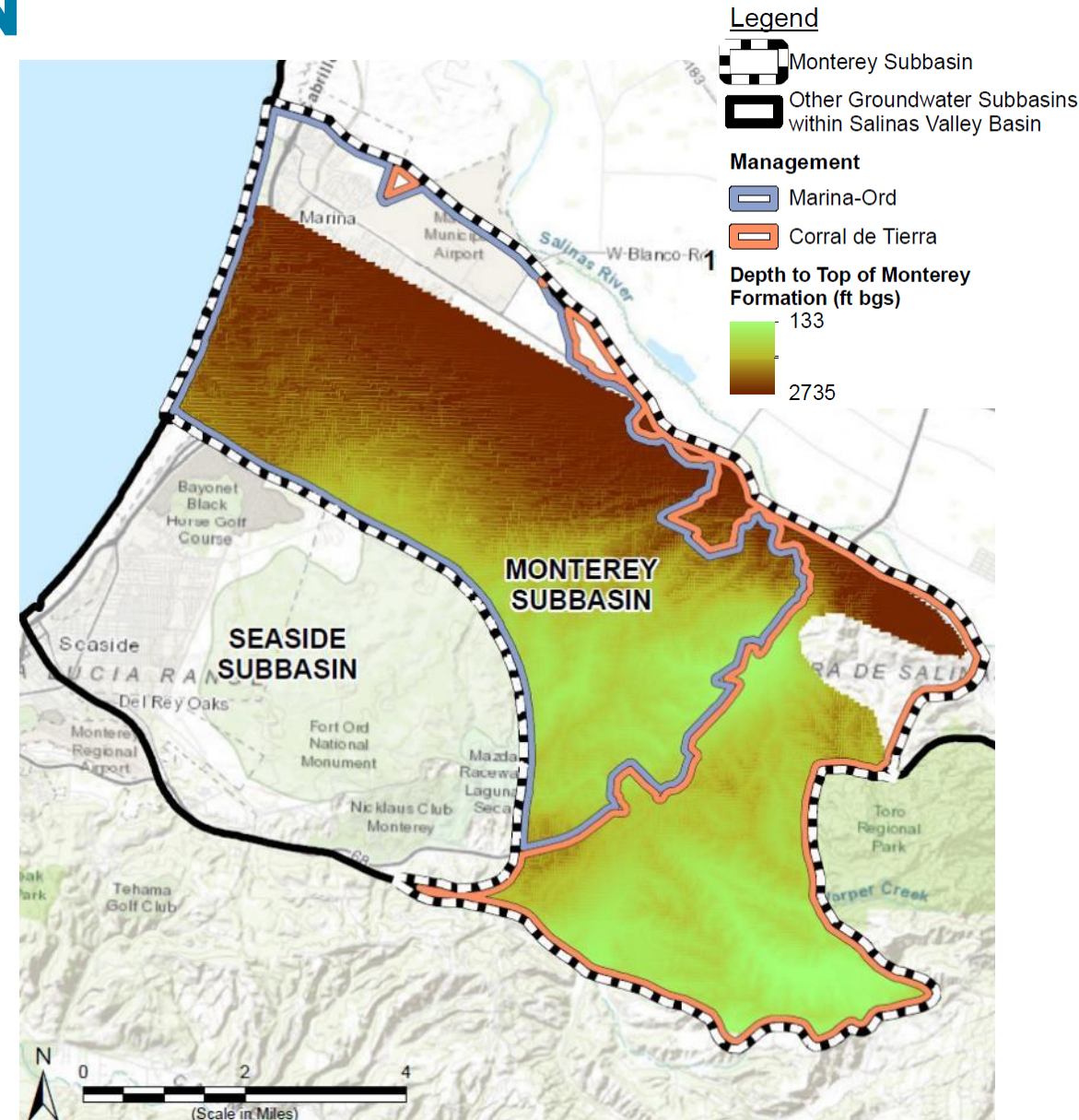


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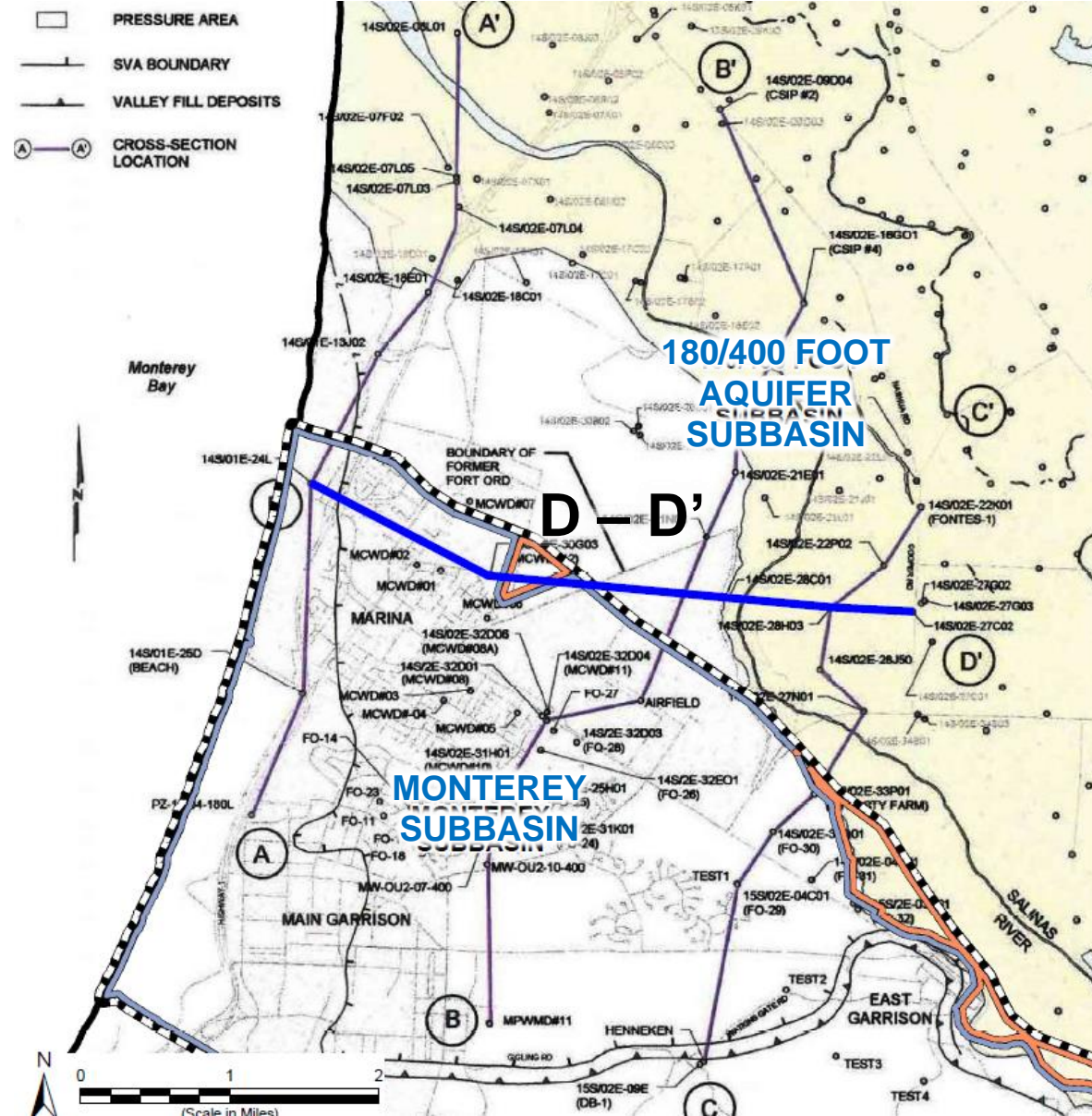


DEPTH TO BOTTOM OF BASIN

- Bottom of the basin defined as the top of the Monterey Formation
- Depth to the bottom of the basin ranges from 400 ft to 2,700 ft in the Marina-Ord Area



GEOLOGIC CROSS-SECTIONS



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

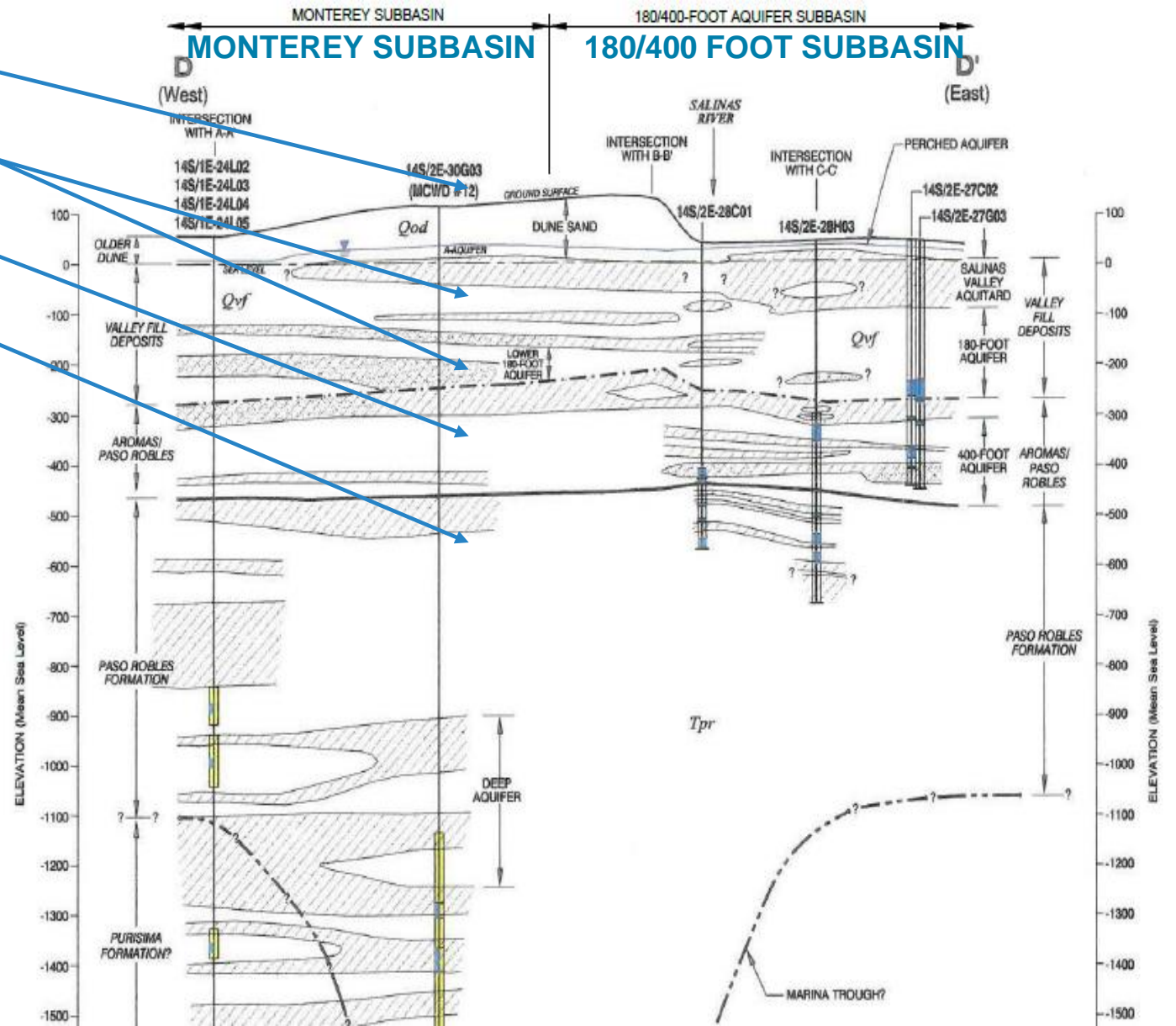
Management Areas

- Marina-Ord Area
- Corral de Tierra Area

GEOLOGIC CROSS-SECTIONS

- Dune Sand Aquifer
- 180-Foot Aquifer
- 400-Foot Aquifer
- Deep Aquifer

- 180-Foot Aquifer, 400-Foot Aquifer, and Deep Aquifers in direct connection to adjacent 180/400-Foot Aquifer Subbasin



PRINCIPAL AQUIFERS AND AQUITARDS

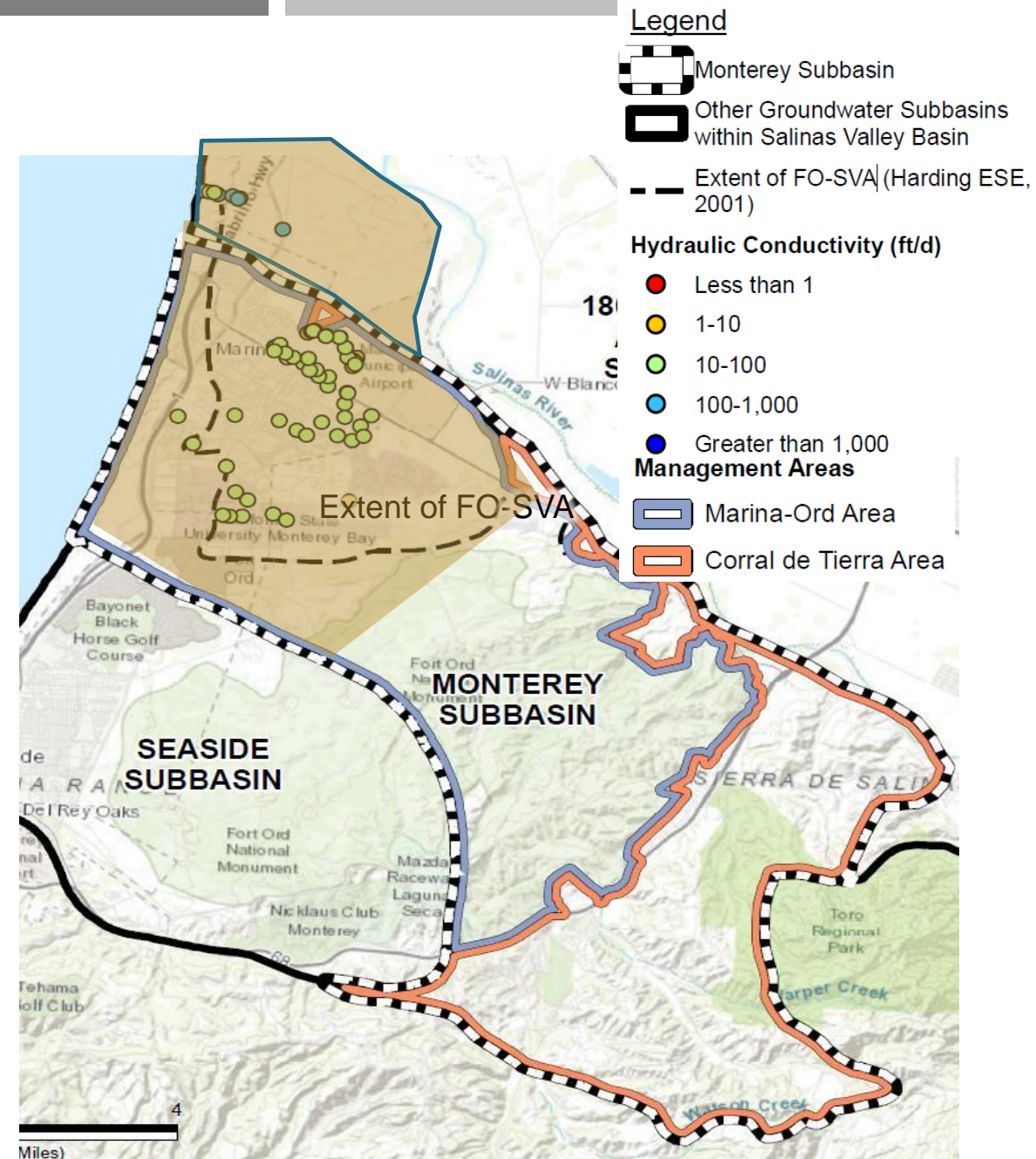
Principal Aquifers and Aquitards		Geological Unit
Marina-Ord Area	Corral de Tierra Area	
Dune Sand Aquifer	Landslides, older and younger flood plain deposits, undifferentiated Alluvium	Recent Dune Sand (Qd) Older Dune Sand (Qod)
Salinas Valley Aquitard		Old Alluvium / Valley Fill Deposits (Qo/Qvf)
180-Foot Aquifer		
Middle Aquitard	Aromas Sand/Paso Robles Formation Aquifer; Santa Margarita Formation Aquifer	Aromas Sand (Qae);
400-Foot Aquifer		Paso Robles Formation (QT)
Deep Aquitard		
Deep Aquifers		Purisima Formation (Ppu) Santa Margarita Formation (Msm)



Principal aquifers are **bolded**

DUNE SAND AQUIFER




- Exists in western portion of Monterey Subbasin and South of Salinas River
- Permeable, Hydraulic conductivity 10 to 100 ft/day
- Provides recharge to lower aquifers
- Perched at some locations above the Salinas Valley Aquitard (SVA)
- Connected with the 180-Foot Aquifer near the coast where the SVA pinches out

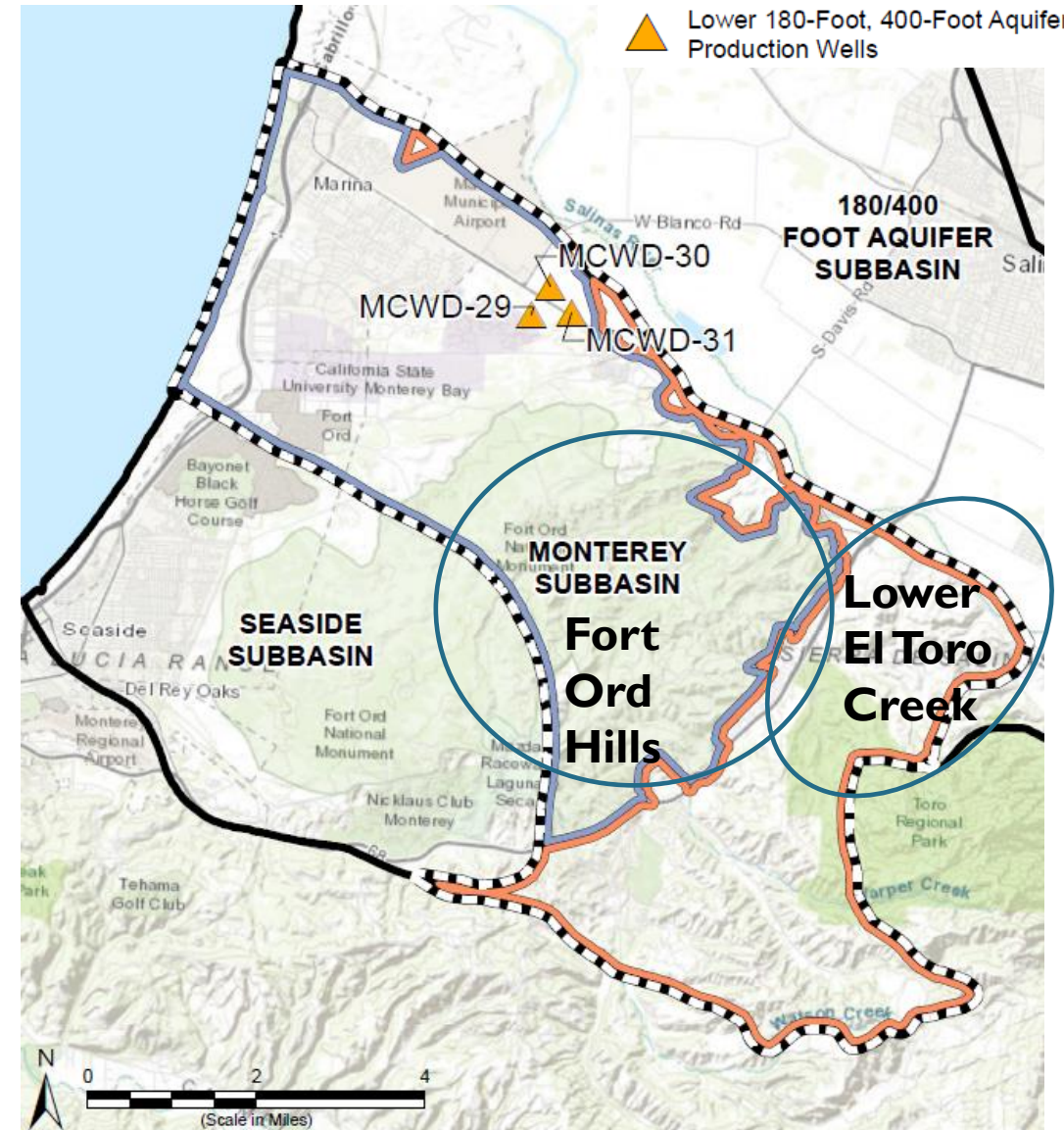


180-FOOT AND 400-FOOT AQUIFERS

- Support approximately 30% of MCWD water demand
- Receive recharge from
 - Dune Sand aquifer
 - Outcrops in Fort Ord and Corral de Tierra upland areas
- Connection between this aquifer system and the Corral de Tierra Area not well understood. Limited data in:
 - Federal Lands area
 - Lower El Toro Creek
- Directly connected to 180/400 Foot Aquifer Subbasin

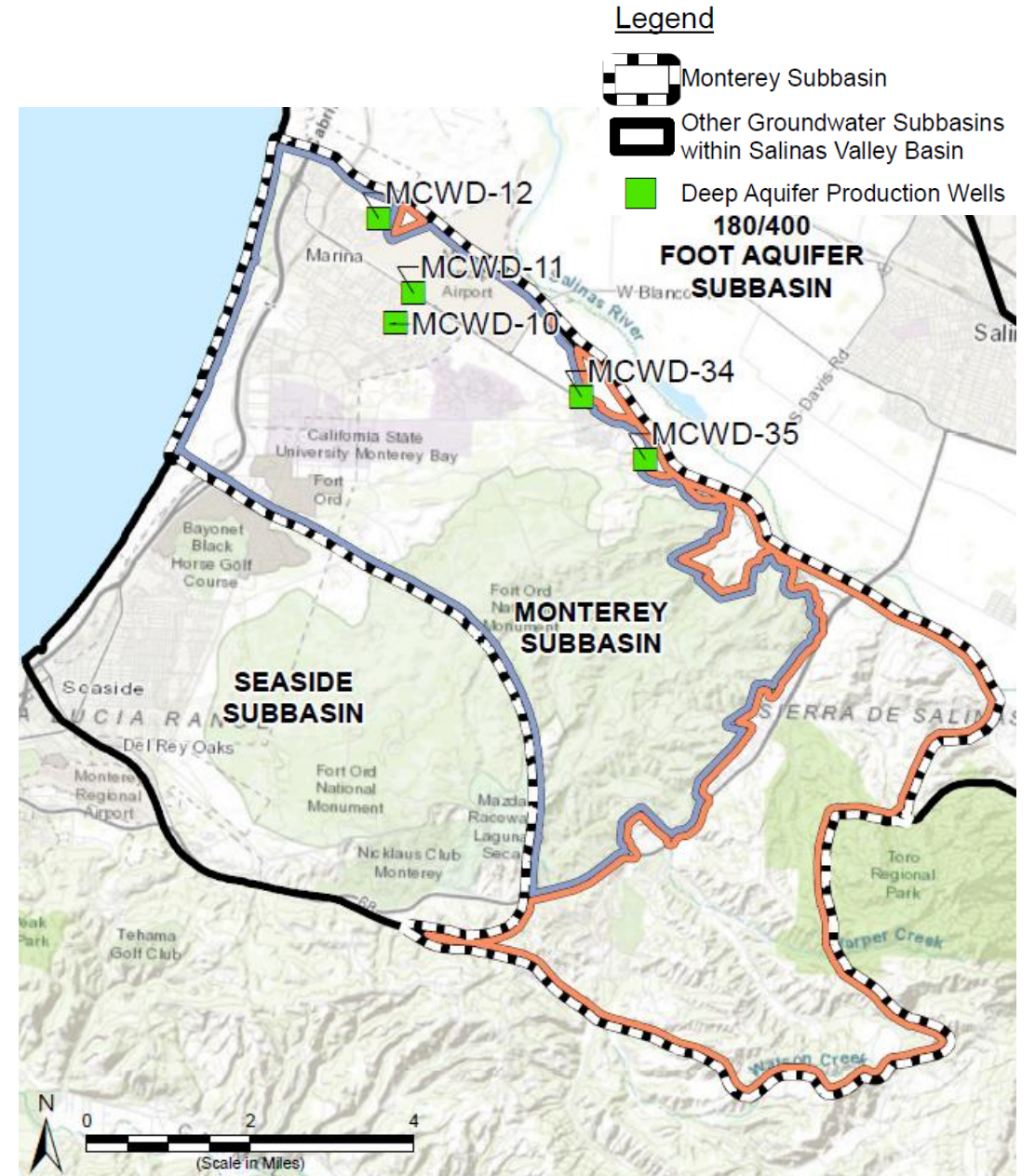
Legend

-  Monterey Subbasin
-  Other Groundwater Subbasins within Salinas Valley Basin
-  Lower 180-Foot, 400-Footer Aquifer Production Wells



DEEP AQUIFER

- Source of MCWD's water supply
- Represents multiple aquifers and aquitards below the 400-Foot Aquifer
- Consists of similar geologic units as the lower portion of Corral de Tierra aquifer system
- Source(s) of recharge not well understood
 - likely some recharge from overlying aquifers



NEXT STEPS

NEXT STEPS

- Draft GSP Chapters
 - Chapter 5 – Groundwater Conditions
 - Chapter 6 – Water Budget
 - Chapter 8 – Sustainable Management Criteria (SMCs)
- Hold Public Workshop #2 (Nov 2020)
 - Groundwater Conditions, Water Budget (or SMCs depending on model construction schedule)

CHAPTER 5 – GROUNDWATER CONDITIONS

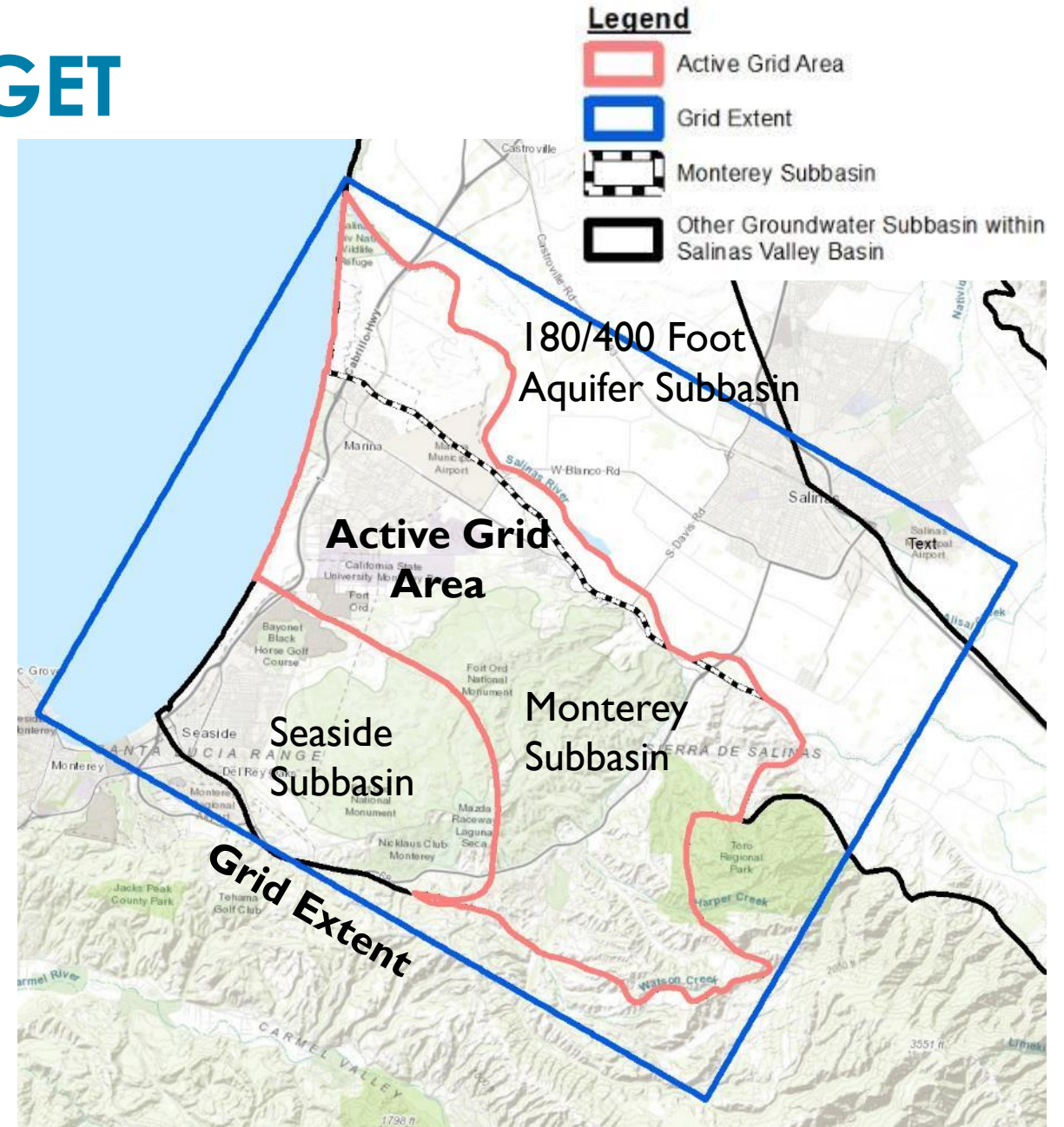
- Description of current and historical groundwater conditions for each Sustainability Indicator

“Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the available information.”



CHAPTER 6 – WATER BUDGET

- Basin Water Budget estimated using Monterey Subbasin Groundwater Model
 - Under development by MCWD in coordination with SVBGSA
 - Reflects basin-specific hydrogeology
- Incorporates information from:
 - Fort Ord Model
 - Seaside Groundwater Model
 - Salinas Valley Integrated Model (SVIGM)
- Will be coordinated with SVIHM once available



CHAPTER 8 – SUSTAINABLE MANAGEMENT CRITERIA

SUSTAINABILITY INDICATORS OF POTENTIAL CONCERN

