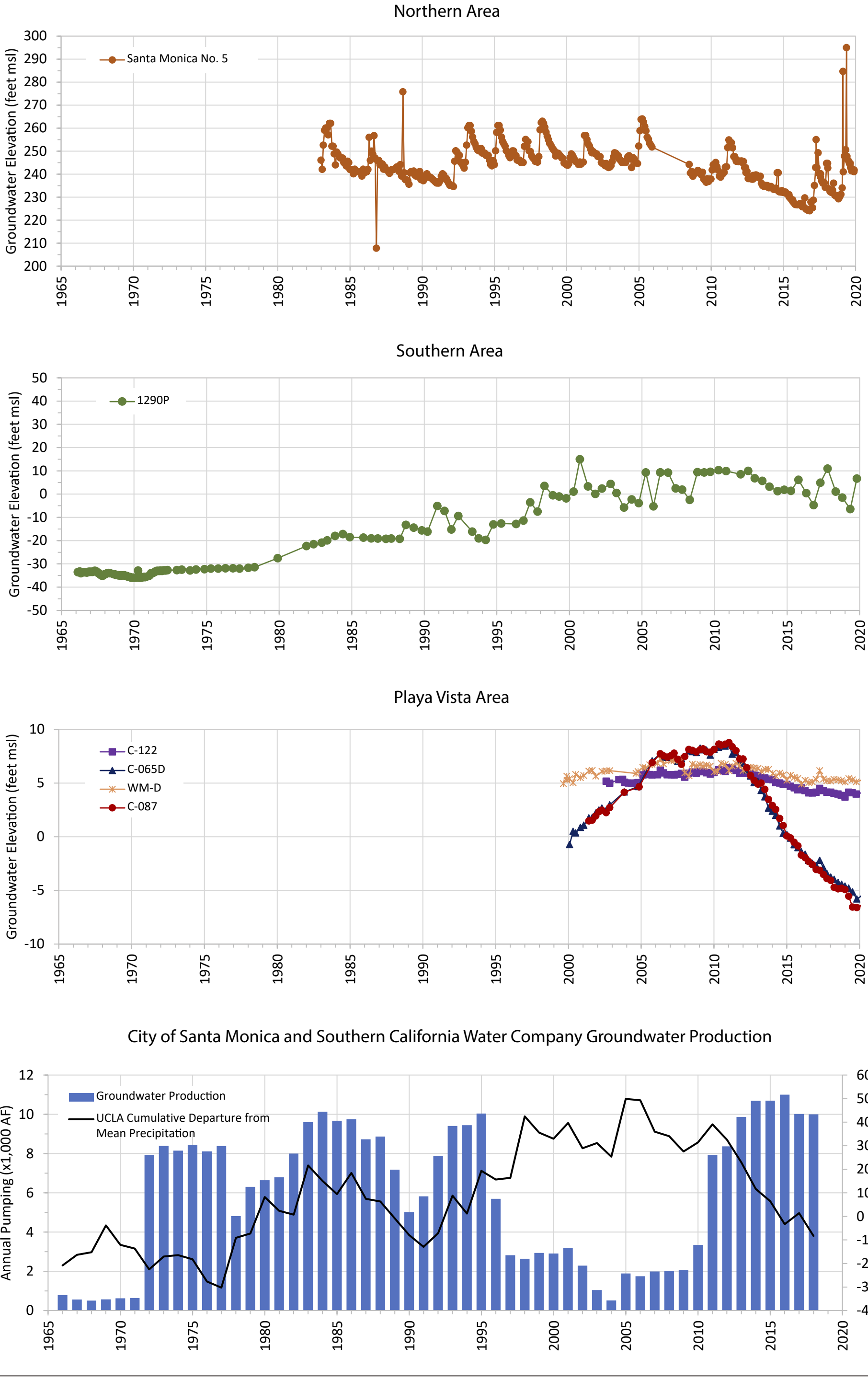


SOURCE: City of Santa Monica; State Water Resources Control Board; County of Los Angeles

FIGURE 2-29C

Groundwater Elevation Hydrographs in the Silverado Aquifer - Northern, Southern, and Playa Vista Areas

Groundwater Sustainability Plan for the Santa Monica Subbasin

DUDEK

INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)

Well used to Evaluate Groundwater Elevation Trends

- Santa Monica Production
- Inactive Santa Monica Production
- Silverado Aquifer Monitoring
- Shallow/Ballona Aquifer Monitoring
- C Zone (Silverado) Aquifer
- Ballona Aquifer Monitoring
- Playa Vista Monitoring

Well ID	Depth (ft bgs)	Screen (ft bgs)
1290P	360	230-240
Arc No. 4	235	85-215
C-065D	122	104-114
C-087	125	102-117
C-122	115	100-110
Cnk No. 16	410	220-390
Cnk No. 7	400	174-290
MW-B	60	47-57
MW-D	97	85-95
MW-M	70	40-60
OB-14C	222	186-216
OB-2	280	247-277
RMW-28	174	157-172
RMW-3	202	180-200
RMW-57	145	130-145
RPZ-4	79	63-78
RPZ-9	72	55-70
SM No. 4	560	200-540
SM No. 5	255	145-235

Notes:
Arc = Arcadia; SM = Santa Monica;
Cnk = Charnock

ft bgs = feet below ground surface

*Wells are not necessarily screened across entire length. Values represent top and bottom of screened interval.

SOURCE: ESRI; DWR; SWRCB; County of Los Angeles

DUDEK

0 1 2 Miles

FIGURE 2-30

Location of Wells used for Elevation Trends

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)
- Approximate Extent Ballona Aquifer
- Groundwater Elevation Contour (ft msl)

Groundwater Monitoring Wells

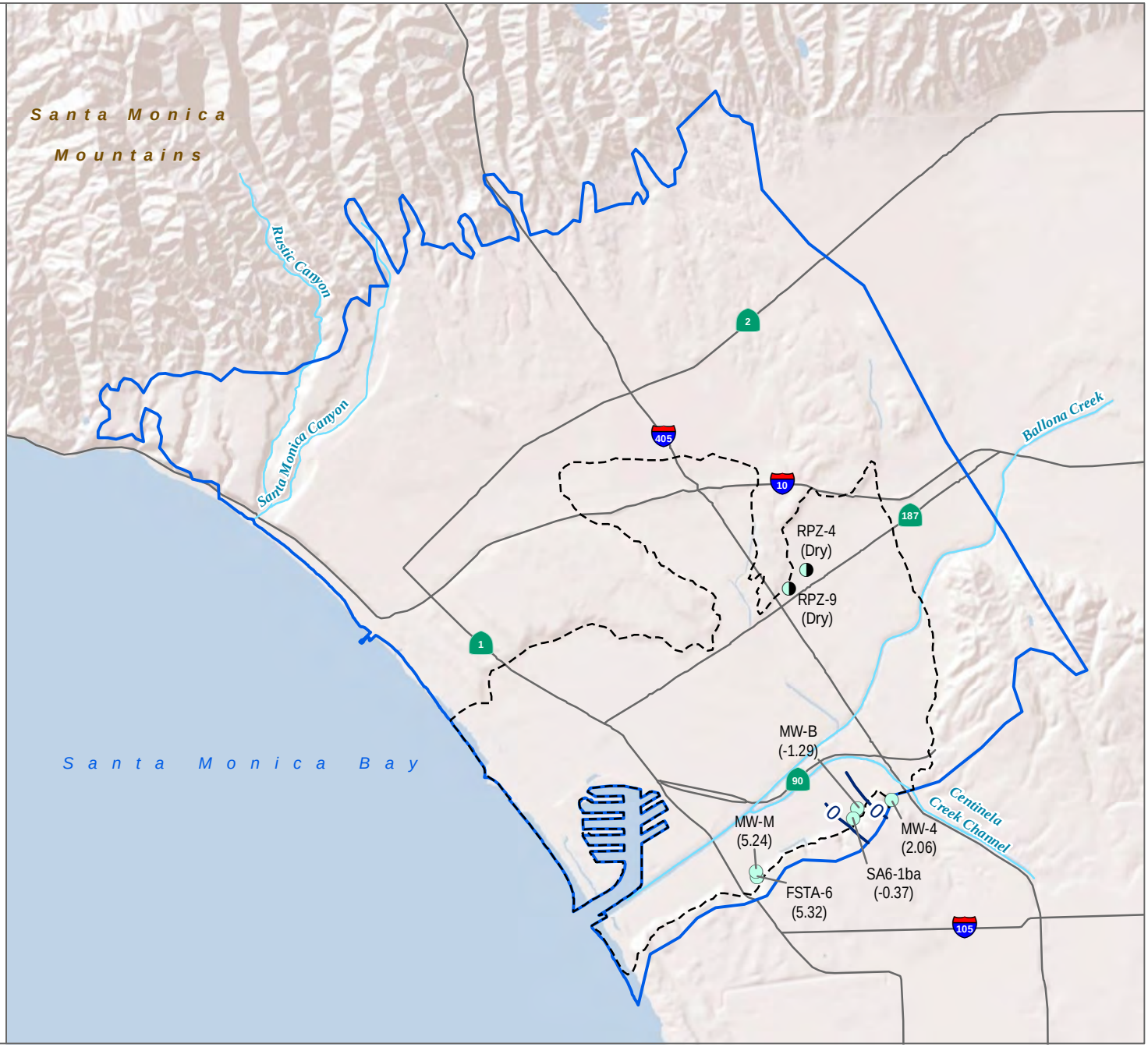
- Shallow/Ballona Aquifer
- Ballona Aquifer

MW-M Well ID

(5.24) Groundwater Elevation (ft msl)

Well ID	Measurement Date	Elevation Measured (ft msl)
MW-4	12/15/2018	2.06
FSTA-6	10/5/2018	5.32
MW-B	10/9/2018	-1.29
MW-M	10/5/2018	5.24
RPZ-4	7/18/2018	DRY
RPZ-9	7/18/2018	DRY
SA6-1ba	10/8/2018	-0.37

Note:
msl = mean sea level



SOURCE: SWRCB; City of Santa Monica

DUDEK

0 0.5 1 Miles

FIGURE 2-31

Groundwater Elevations in the Ballona Aquifer: Second Half of 2018

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)
- Approximate Extent Ballona Aquifer
- Groundwater Elevation Contour (ft msl)

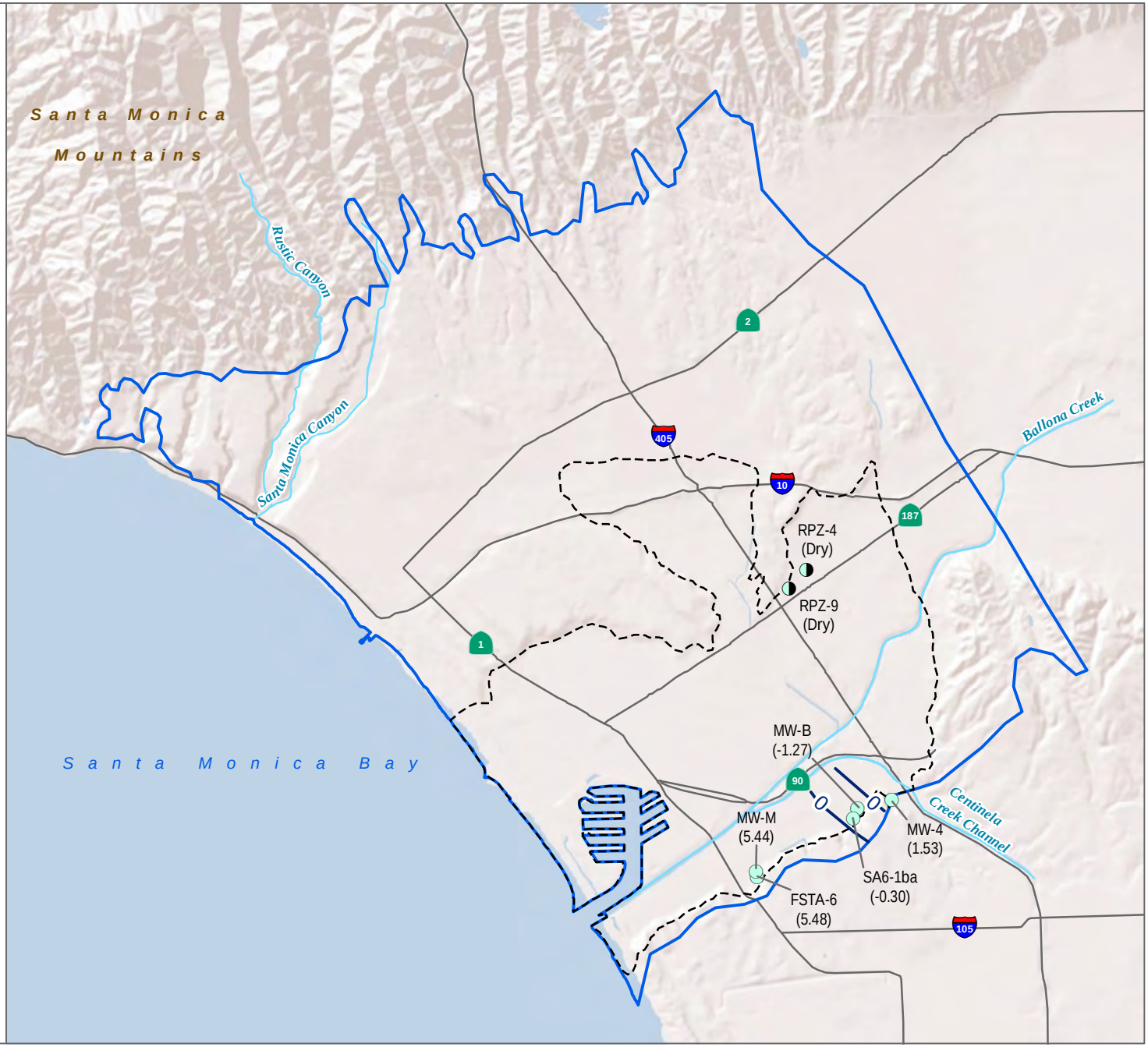
Groundwater Monitoring Wells

- Shallow/Ballona Aquifer
- Ballona Aquifer

MW-M Well ID

(5.44) Groundwater Elevation (ft msl)

Well ID	Measurement Date	Elevation Measured (ft msl)
MW-4	6/1/2019	1.53
FSTA-6	4/8/2019	5.48
MW-B	4/4/2019	-1.27
MW-M	4/8/2019	5.44
RPZ-4	4/29/2019	DRY
RPZ-9	4/29/2019	DRY
SA6-1ba	4/3/2019	-0.30



SOURCE: SWRCB; City of Santa Monica

DUDEK

0 0.5 1 Miles

FIGURE 2-32

Groundwater Elevations in the Ballona Aquifer: First Half of 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)
- Groundwater Elevation Contour (ft msl; dashed where inferred)

Groundwater Monitoring Wells

- C Zone (Silverado) Aquifer
- Silverado Aquifer

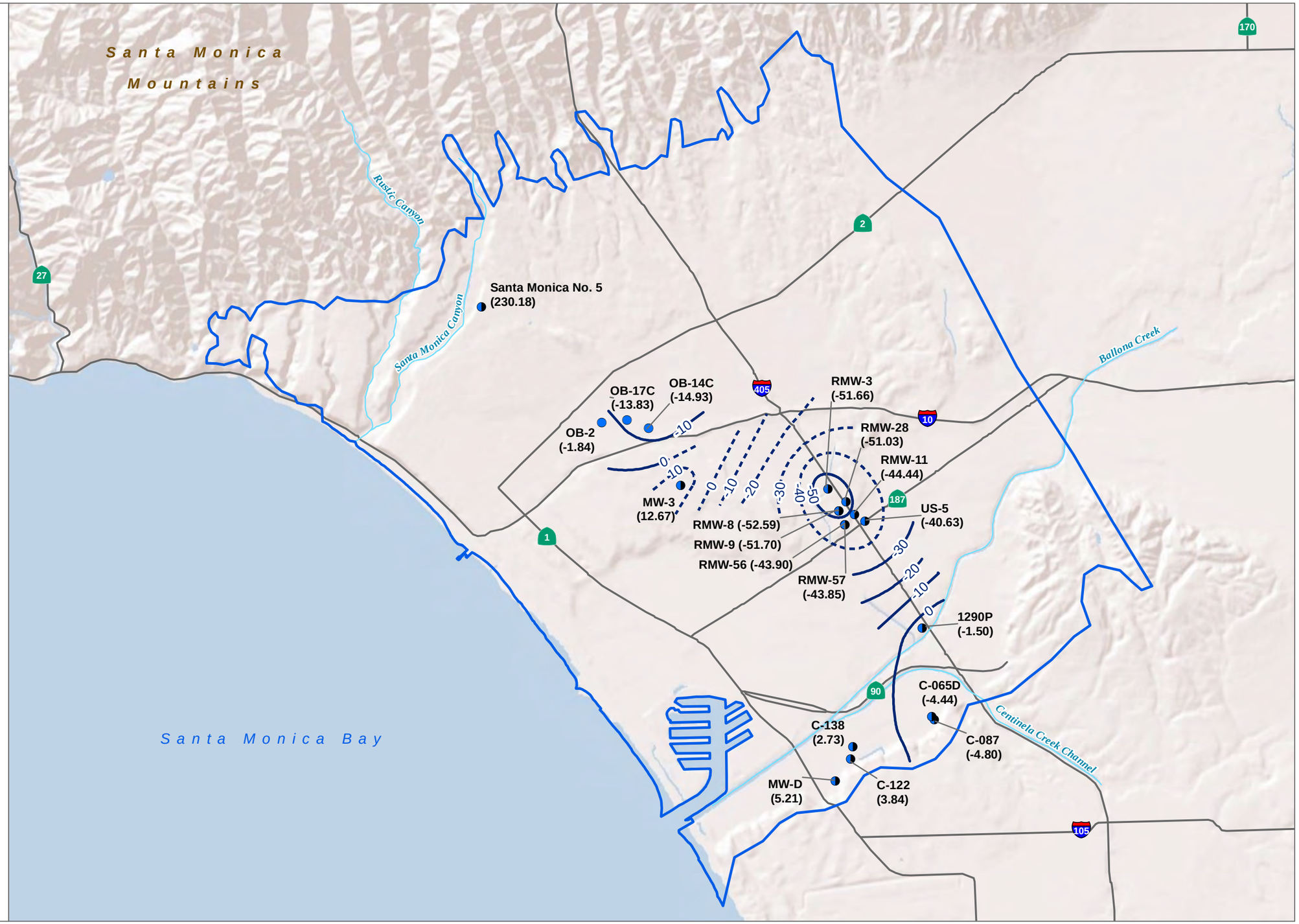
OB-2 Well ID

(-1.84) Groundwater Elevation (ft msl)

Well ID	Measurement Date	Elevation Measured (ft msl)
1290P	10/26/2018	-1.50
C-065D	10/9/2018	-4.44
C-087	10/9/2018	-4.80
C-122	10/2/2018	3.84
C-138	10/2/2018	2.73
MW-3	7/5/2018	12.67
MW-D	10/5/2018	5.21
OB-14C	11/13/18	-14.93
OB-17C	11/13/18	-13.83
OB-2	11/13/18	-1.84
RMW-11	7/18/2018	-44.44
RMW-28	7/18/2018	-51.03
RMW-3	7/18/2018	-51.66
RMW-56	7/18/2018	-43.90
RMW-57	7/18/2018	-43.85
RMW-8	7/18/2018	-52.59
RMW-9	7/18/2018	-51.70
SM No. 5	10/1/2018	230.18
US-5	11/27/18	-40.63

Notes:

*Santa Monica No. 5 not contoured



SOURCE: ESRI; DWR; SWRCB; City of Santa Monica; County of Los Angeles

DUDEK

0 1 2 Miles

FIGURE 2-33

Groundwater Elevations in the Silverado Aquifer: Second Half of 2018

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)
- Groundwater Elevation Contour (ft msl; dashed where inferred)

Groundwater Monitoring Wells

- C Zone (Silverado) Aquifer
- Silverado Aquifer

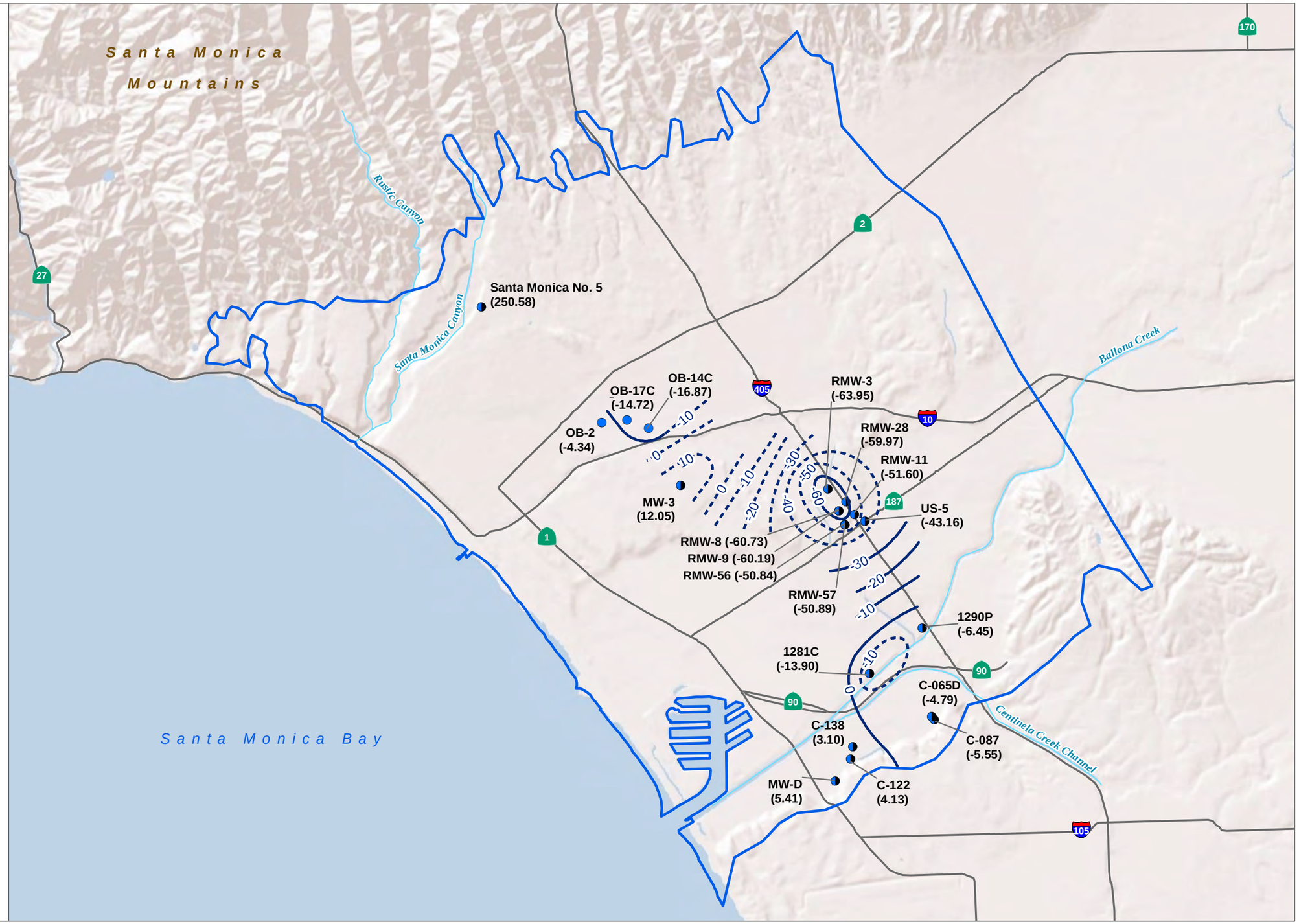
OB-2 Well ID

(-4.34) Groundwater Elevation (ft msl)

Well ID	Measurement Date	Elevation Measured (ft msl)
1290P	5/12/2019	-6.45
1281C	5/12/2019	-13.90
C-065D	4/4/2019	-4.79
C-087	4/4/2019	-5.55
C-122	4/5/2019	4.13
C-138	4/3/2019	3.10
MW-3	1/28/2019	12.05
MW-D	4/8/2019	5.41
OB-14C	05/21/19	-16.87
OB-17C	05/21/19	-14.72
OB-2	05/21/19	-5.14
RMW-11	4/29/2019	-51.60
RMW-28	4/29/2019	-59.97
RMW-3	4/29/2019	-63.95
RMW-56	4/29/2019	-50.84
RMW-57	4/29/2019	-50.89
RMW-8	4/29/2019	-60.73
RMW-9	4/29/2019	-60.19
SM No. 5	5/1/2019	250.58
US-5	04/02/19	-43.16

Notes:

*Santa Monica No. 5 not contoured



SOURCE: ESRI; DWR; SWRCB; City of Santa Monica; County of Los Angeles

DUDEK

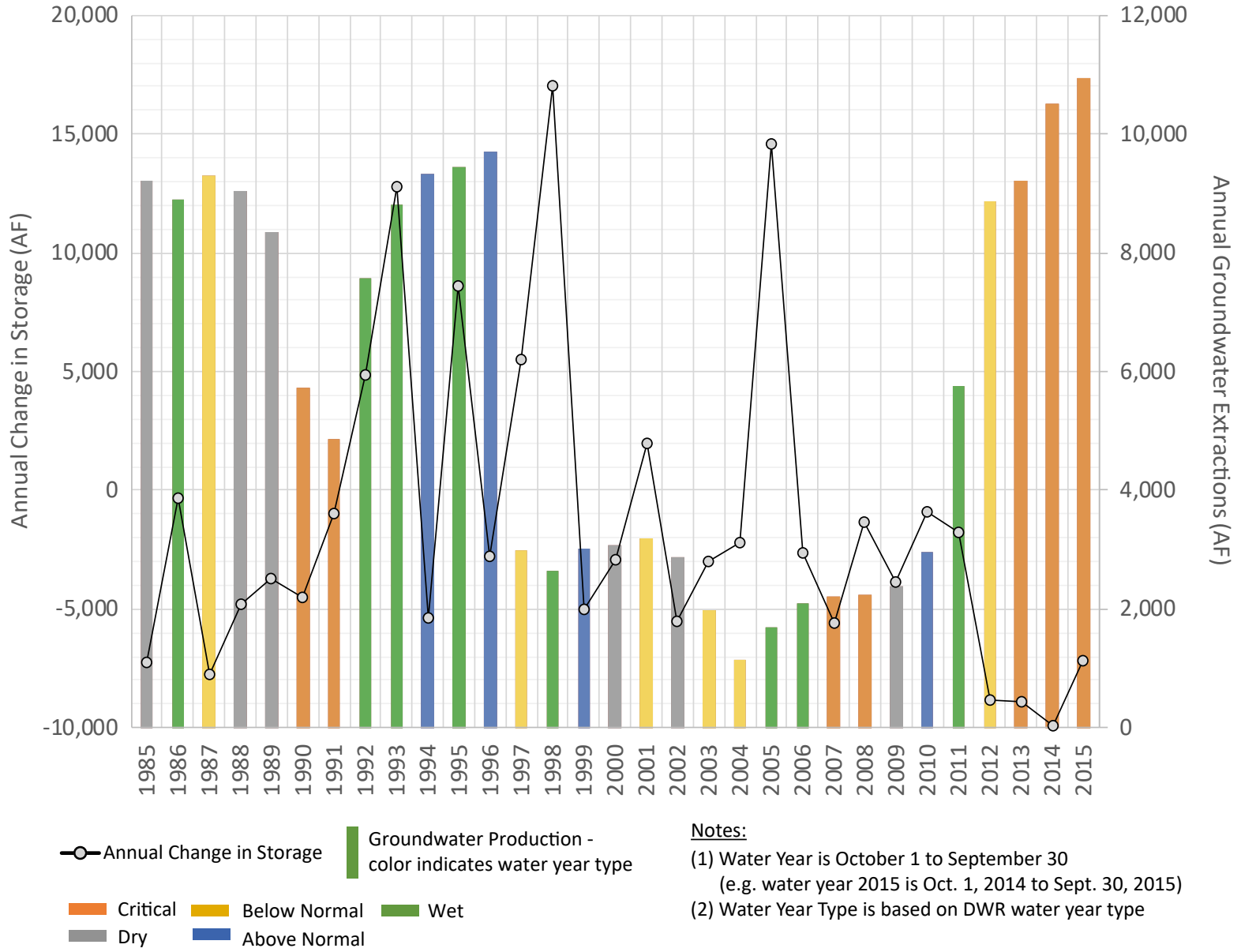
0 1 2 Miles

FIGURE 2-34

Groundwater Elevations in the Silverado Aquifer: First Half of 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: DWR

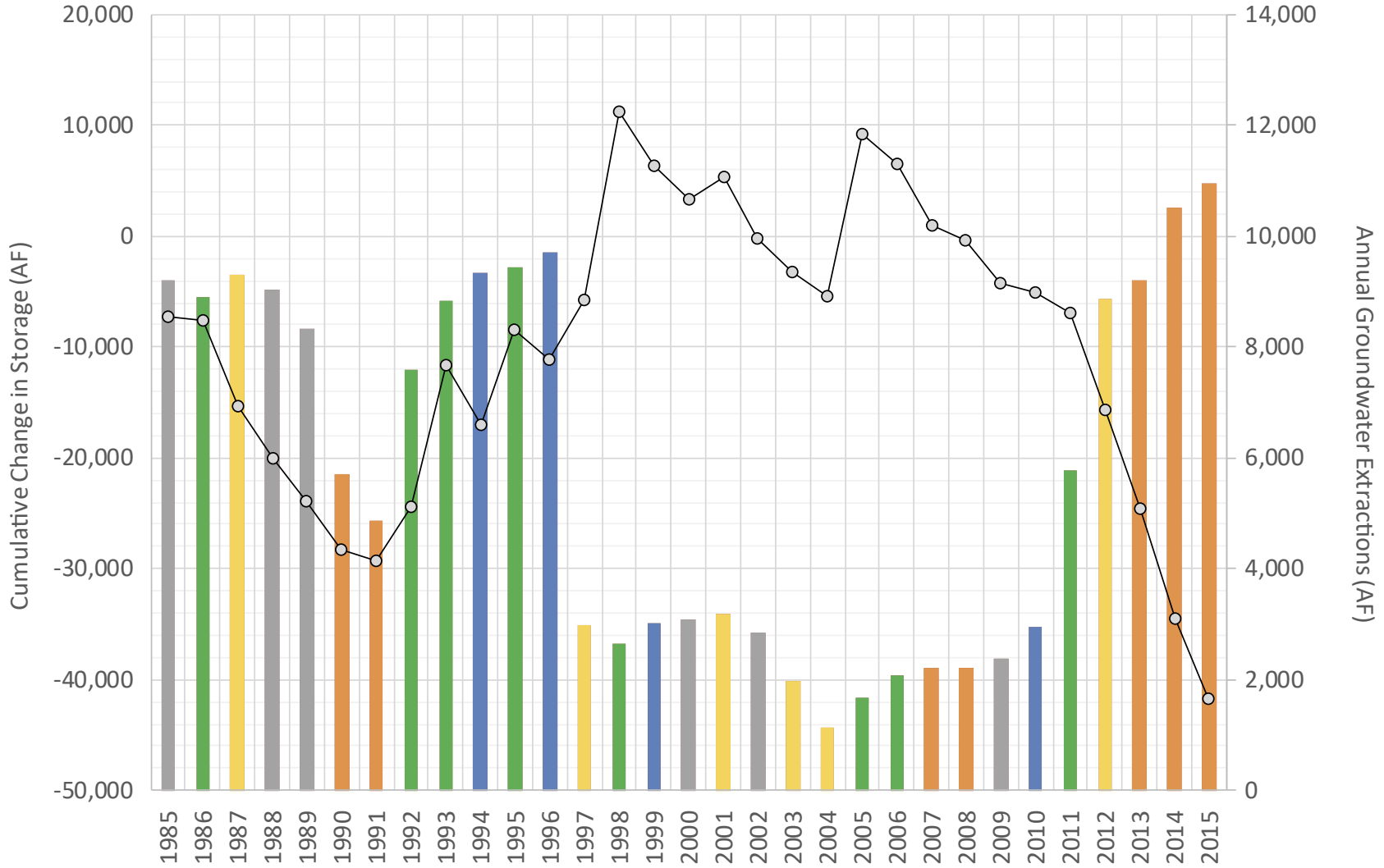
FIGURE 2-35

Annual Change in Groundwater in Storage Between 1985 and 2015

Groundwater Sustainability Plan for the Santa Monica Subbasin

DUDEK

INTENTIONALLY LEFT BLANK



Notes:

(1) Water Year is October 1 to September 30 (e.g. water year 2015 is Oct. 1, 2014 to Sept. 30, 2015)

(2) Water Year Type is based on DWR water year type

(3) Cumulative change in storage sums each annual change in storage. The declining limb of the curve shows periods of declining storage. Rising limbs show periods of increasing storage.

SOURCE: DWR

FIGURE 2-36

Cumulative Change in Groundwater in Storage Between 1985 and 2015

Groundwater Sustainability Plan for the Santa Monica Subbasin

DUDEK

INTENTIONALLY LEFT BLANK

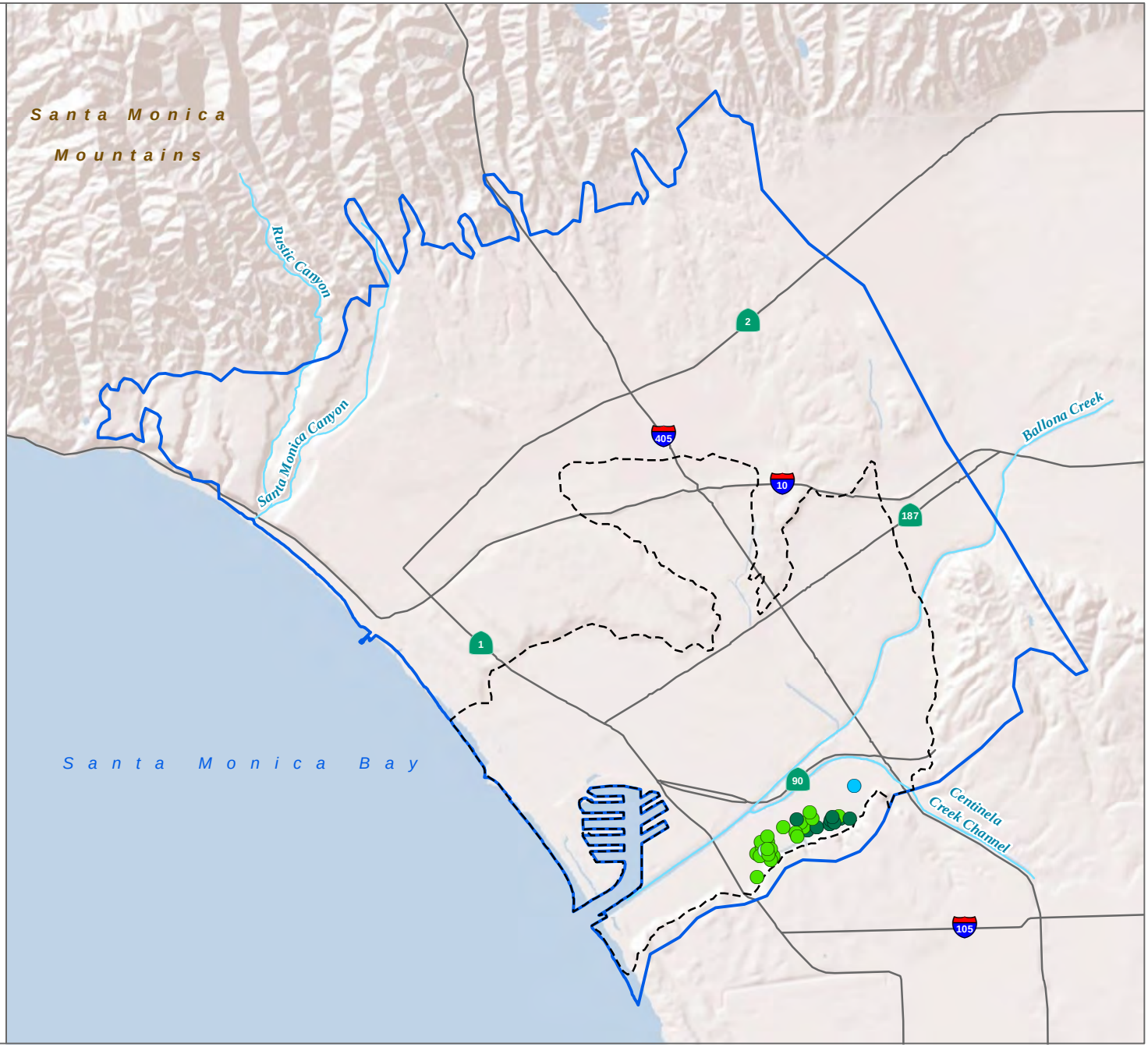
Legend

- Santa Monica Subbasin (4-011.01)
- Approximate Extent Ballona Aquifer

Chloride Concentration at Monitoring Well (mg/L)

- <100
- 101-200
- 201-300
- 301-400

Well ID	Sample Date	Chloride (mg/L)
C-056	10/29/2015	110
C-075BA	11/5/2015	94
C-076BA	11/5/2015	100
C-077BA	11/9/2015	88
C-084BA	11/5/2015	93
C-085ABA	10/22/2015	91
C-092	7/25/2016	160
C-093	7/25/2016	200
C-096	10/27/2015	140
C-103	7/25/2016	180
C-105A	10/28/2015	160
C-128	8/2/2016	140
C-130	7/27/2016	170
C-131	7/25/2016	200
C-132	7/26/2016	180
C-133	10/23/2015	210
C-134	7/28/2016	160
C-135	7/26/2016	140
C-140B	11/6/2015	330
C-155	10/22/2015	180
C-158ABA	11/16/2015	98
C-159BA	11/12/2015	150
C-160BA	11/9/2015	140
C-161BA	11/10/2015	150
D2-BA02	11/12/2015	140
D2-BA04A	11/11/2015	100
D2-BA05	11/11/2015	130
D2-BA06	11/13/2015	180
D2-BA08	11/11/2015	160
FSTA-6	10/19/2015	160



SOURCE: SWRCB; City of Santa Monica

DUDEK

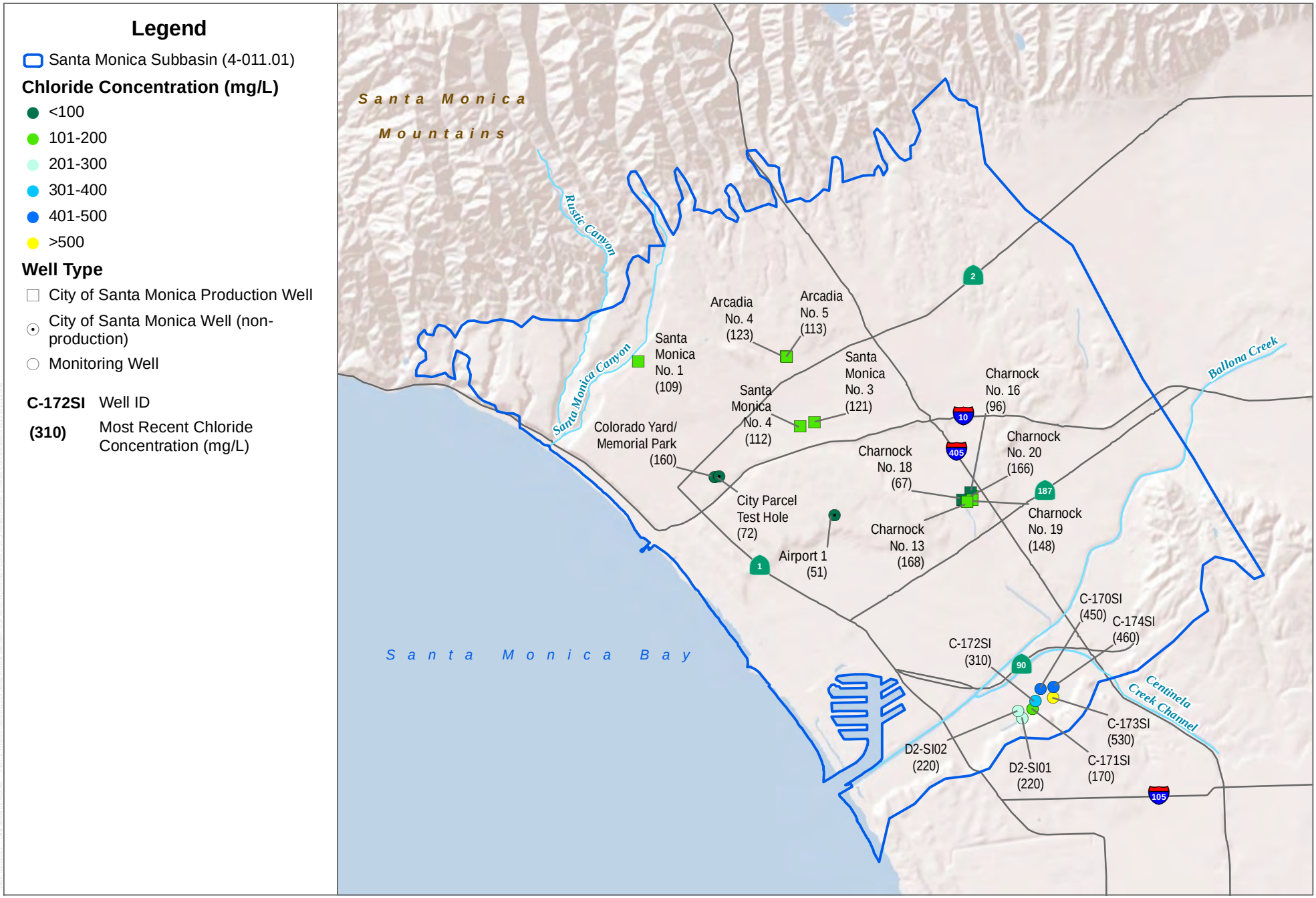
0 0.5 1 Miles

FIGURE 2-37

Ballona Aquifer Chloride Concentrations 2015 to 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: SWRCB; City of Santa Monica

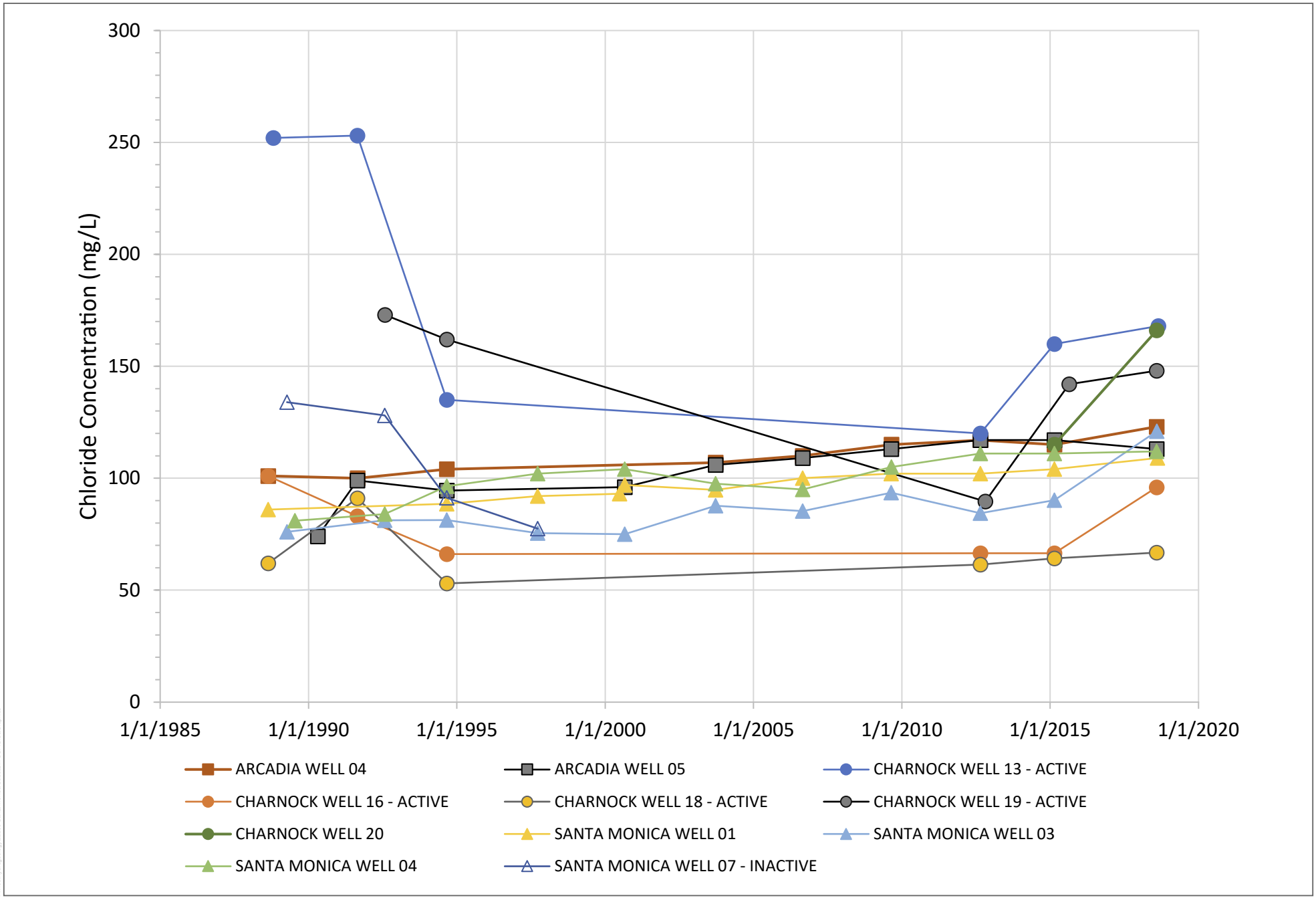
DUDEK

FIGURE 2-38

Silverado Aquifer Chloride Concentrations 2015 to 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: DWR; USGS

FIGURE 2-39

Groundwater Quality Hydrographs - Chloride Concentrations in the City of Santa Monica Production Wells

INTENTIONALLY LEFT BLANK

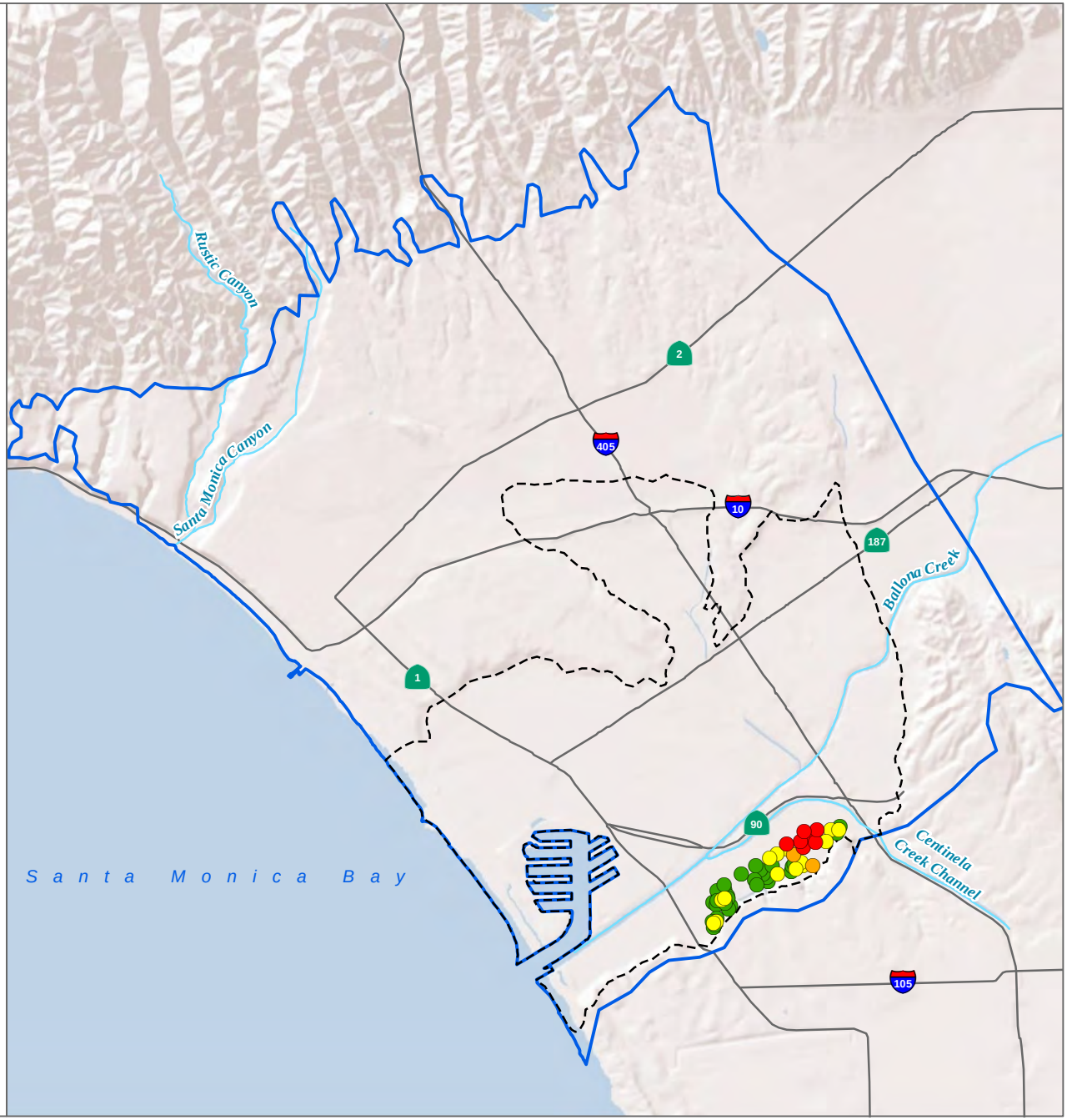
Legend

- Santa Monica Subbasin (4-011.01)
- Approximate Extent Ballona Aquifer

Total Dissolved Solids (TDS) Concentration at Monitoring Well (mg/L)

- <1000
- 1001 - 1500
- 1501 - 2000
- >2000

Well ID	Sample Date	TDS (mg/L)	Well ID	Sample Date	TDS (mg/L)
C-036	11/10/2015	1480	C-139A	11/16/2015	2140
C-056	10/29/2015	1080	C-140B	11/6/2015	2780
C-070A	10/27/2015	1420	C-149	10/29/2015	2010
C-072ABA	11/11/2015	2710	C-150	10/29/2015	2620
C-075BA	11/5/2015	745	C-155	10/22/2015	1060
C-076BA	11/5/2015	770	C-157ABA	11/13/2015	625
C-077BA	11/9/2015	1040	C-158ABA	11/16/2015	810
C-079BA	11/4/2015	1100	C-159BA	11/12/2015	765
C-080ABA	11/16/2015	2270	C-160BA	11/9/2015	720
C-081BA	11/10/2015	2840	C-161BA	11/10/2015	665
C-082ABA	11/10/2015	1140	C-169BA	11/17/2015	1470
C-083BA	11/13/2015	1540	D2-BA02	11/12/2015	710
C-084BA	11/5/2015	890	D2-BA04A	11/11/2015	1030
C-085ABA	10/22/2015	1540	D2-BA05	11/11/2015	985
C-092	7/25/2016	775	D2-BA06	11/13/2015	1300
C-093	7/25/2016	790	D2-BA07	11/10/2015	790
C-096	10/27/2015	670	D2-BA08	11/11/2015	665
C-103	7/25/2016	800	FSTA-6	10/19/2015	975
C-104	10/28/2015	785	FSTA-9	8/2/2016	1160
C-105A	10/28/2015	575	HP-D1079	11/5/2015	790
C-128	8/2/2016	620	HP-D1080	11/9/2015	1120
C-130	7/27/2016	725	HP-D1081	11/9/2015	825
C-131	7/25/2016	865	HP-D928	8/1/2016	745
C-132	7/26/2016	750	HP-D929	8/2/2016	1200
C-133	10/23/2015	1020	HP-D930	8/2/2016	790
C-134	7/28/2016	685	HP-D940	10/28/2015	740
C-135	7/26/2016	710	MW-M	11/11/2015	745



SOURCE: SWRCB; City of Santa Monica

DUDEK

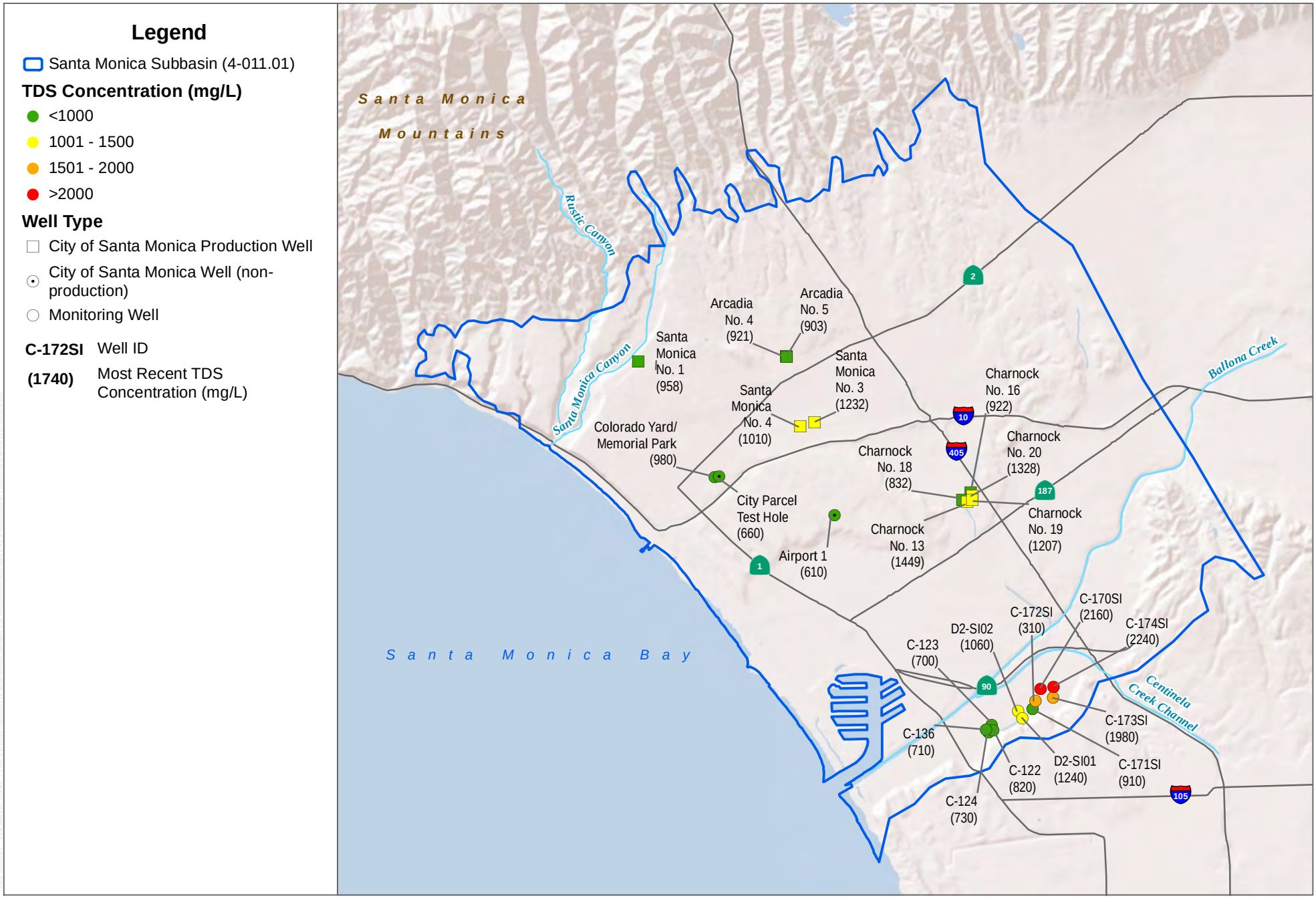
0 0.5 1 Miles

FIGURE 2-40

Ballona Aquifer TDS Concentrations 2015 to 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: SWRCB; City of Santa Monica

DUDEK

FIGURE 2-41

Silverado Aquifer TDS Concentrations 2015 to 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

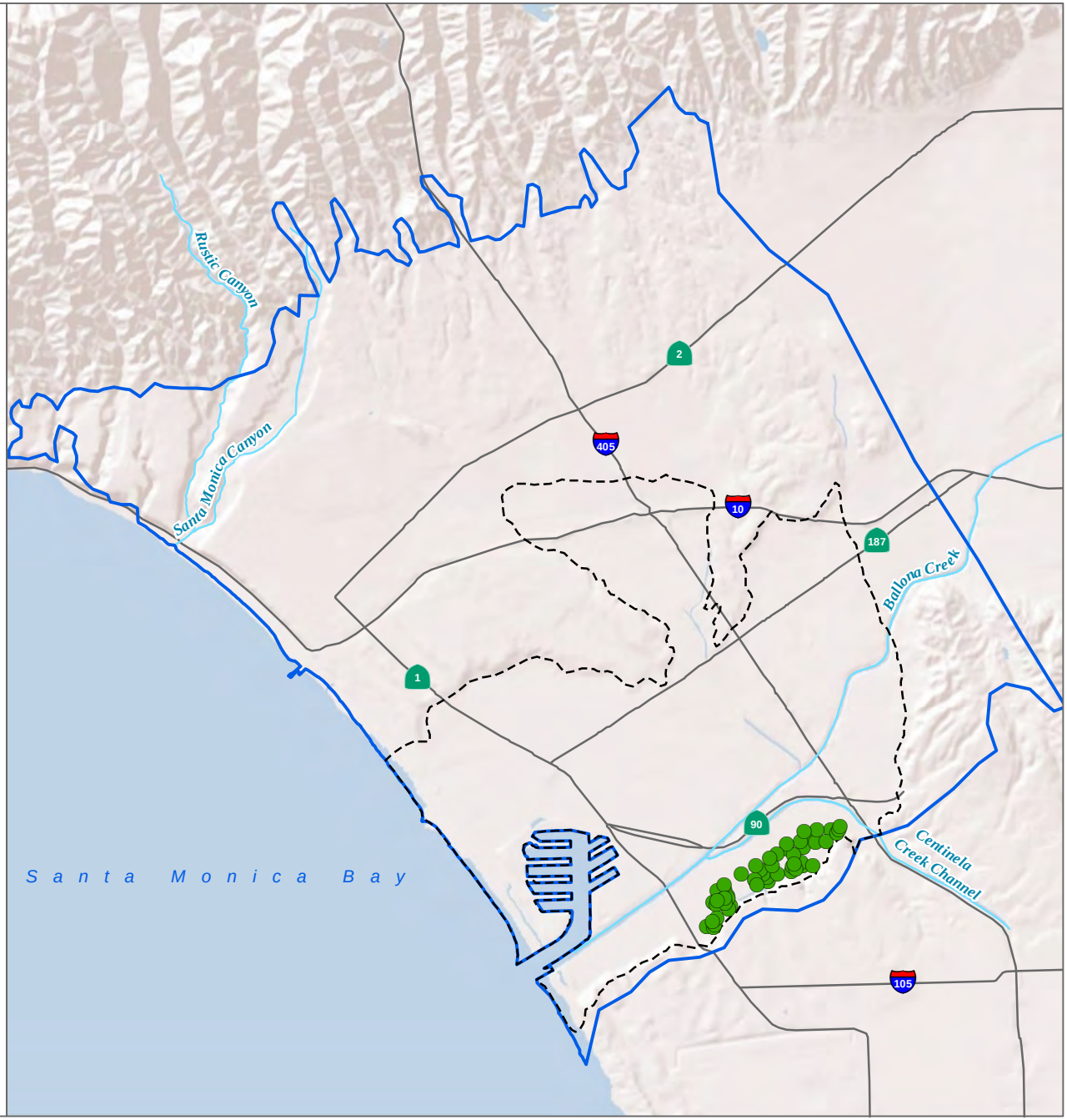
Legend

- Santa Monica Subbasin (4-011.01)
- Approximate Extent Ballona Aquifer

Nitrate as Nitrogen Concentrations at Monitoring Well (mg/L)

- <0.5

Well ID	Sample Date	Nitrate (mg/L)	Well ID	Sample Date	Nitrate (mg/L)
C-036	11/10/2015	<0.1	C-139A	11/16/2015	<0.1
C-056	10/29/2015	<0.1	C-140B	11/6/2015	<0.1
C-070A	10/27/2015	<0.1	C-149	10/29/2015	<0.1
C-072ABA	11/11/2015	<0.1	C-150	10/29/2015	<0.1
C-075BA	11/5/2015	<0.1	C-155	10/22/2015	<0.1
C-076BA	11/5/2015	<0.1	C-157ABA	11/13/2015	<0.1
C-077BA	11/9/2015	<0.1	C-158ABA	11/16/2015	<0.1
C-079BA	11/4/2015	<0.1	C-159BA	11/12/2015	<0.1
C-080ABA	11/16/2015	<0.1	C-160BA	11/9/2015	<0.1
C-081BA	11/10/2015	0.07	C-161BA	11/10/2015	<0.1
C-082ABA	11/10/2015	<0.1	C-168BA	2/15/2015	<0.1
C-083BA	11/13/2015	<0.1	C-169BA	11/17/2015	<0.1
C-084BA	11/5/2015	<0.1	D2-BA02	11/12/2015	<0.1
C-085ABA	10/22/2015	<0.1	D2-BA04A	11/11/2015	<0.1
C-092	7/25/2016	<0.1	D2-BA05	11/11/2015	<0.1
C-093	7/25/2016	0.06	D2-BA06	11/13/2015	<0.1
C-096	10/27/2015	<0.1	D2-BA07	11/10/2015	<0.1
C-103	7/25/2016	<0.1	D2-BA08	11/11/2015	<0.1
C-104	10/28/2015	<0.1	FSTA-6	10/19/2015	<0.1
C-105A	10/28/2015	<0.1	HP-D1079	11/5/2015	<0.1
C-128	8/2/2016	<0.1	HP-D1080	11/9/2015	<0.1
C-130	7/27/2016	<0.1	HP-D1081	11/9/2015	<0.1
C-131	7/25/2016	<0.1	HP-D928	8/1/2016	<0.1
C-132	7/26/2016	<0.1	HP-D929	8/2/2016	<0.1
C-133	10/23/2015	<0.1	HP-D930	8/2/2016	<0.1
C-134	7/28/2016	<0.1	HP-D940	10/28/2015	<0.1
C-135	7/26/2016	<0.1	MW-M	11/11/2015	<0.1



SOURCE: SWRCB; City of Santa Monica

DUDEK

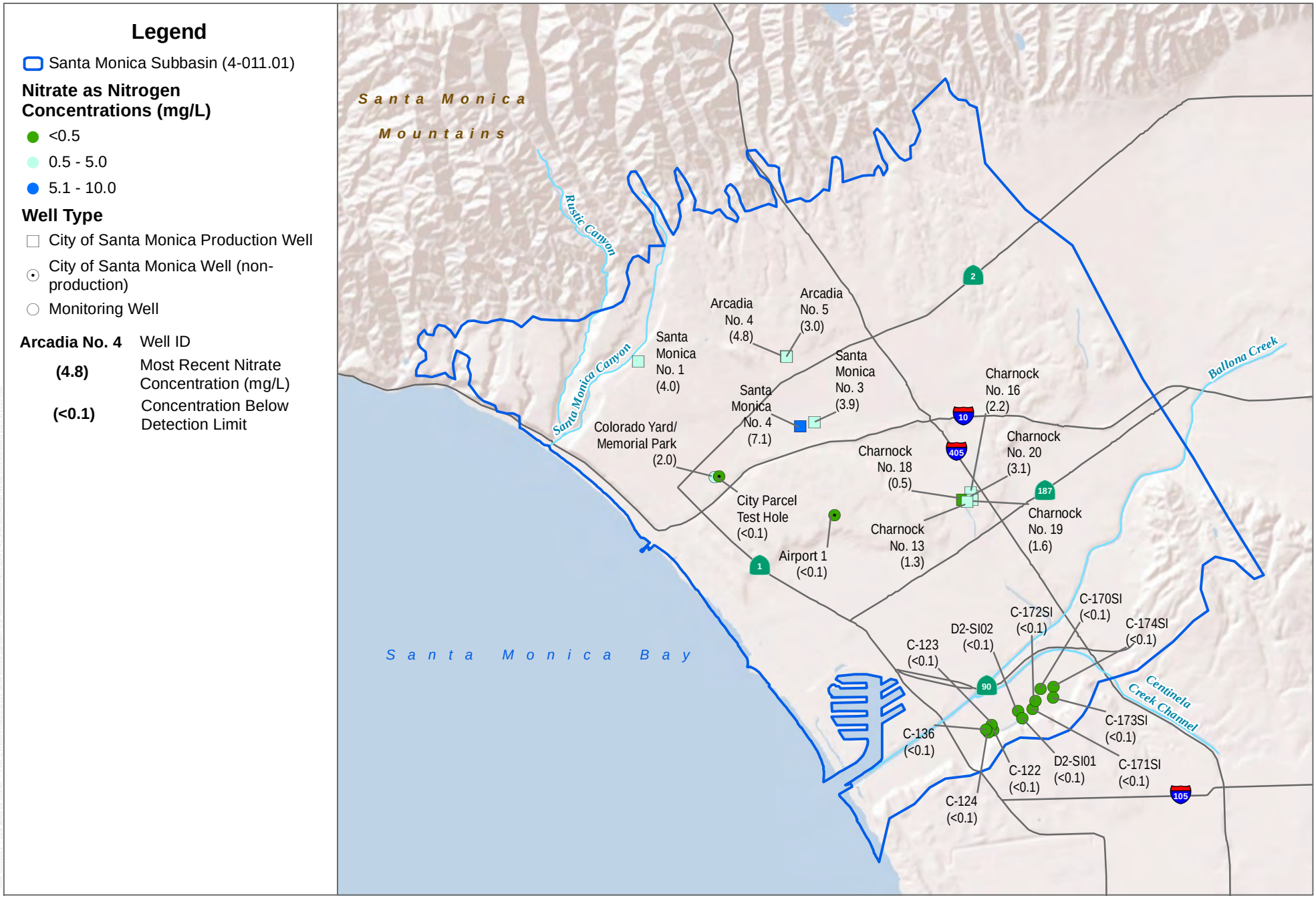
0 0.5 1 Miles

FIGURE 2-42

Ballona Aquifer Nitrate Concentrations 2015 to 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: SWRCB; City of Santa Monica

DUDEK

FIGURE 2-43

Silverado Aquifer Nitrate Concentrations 2015 to 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

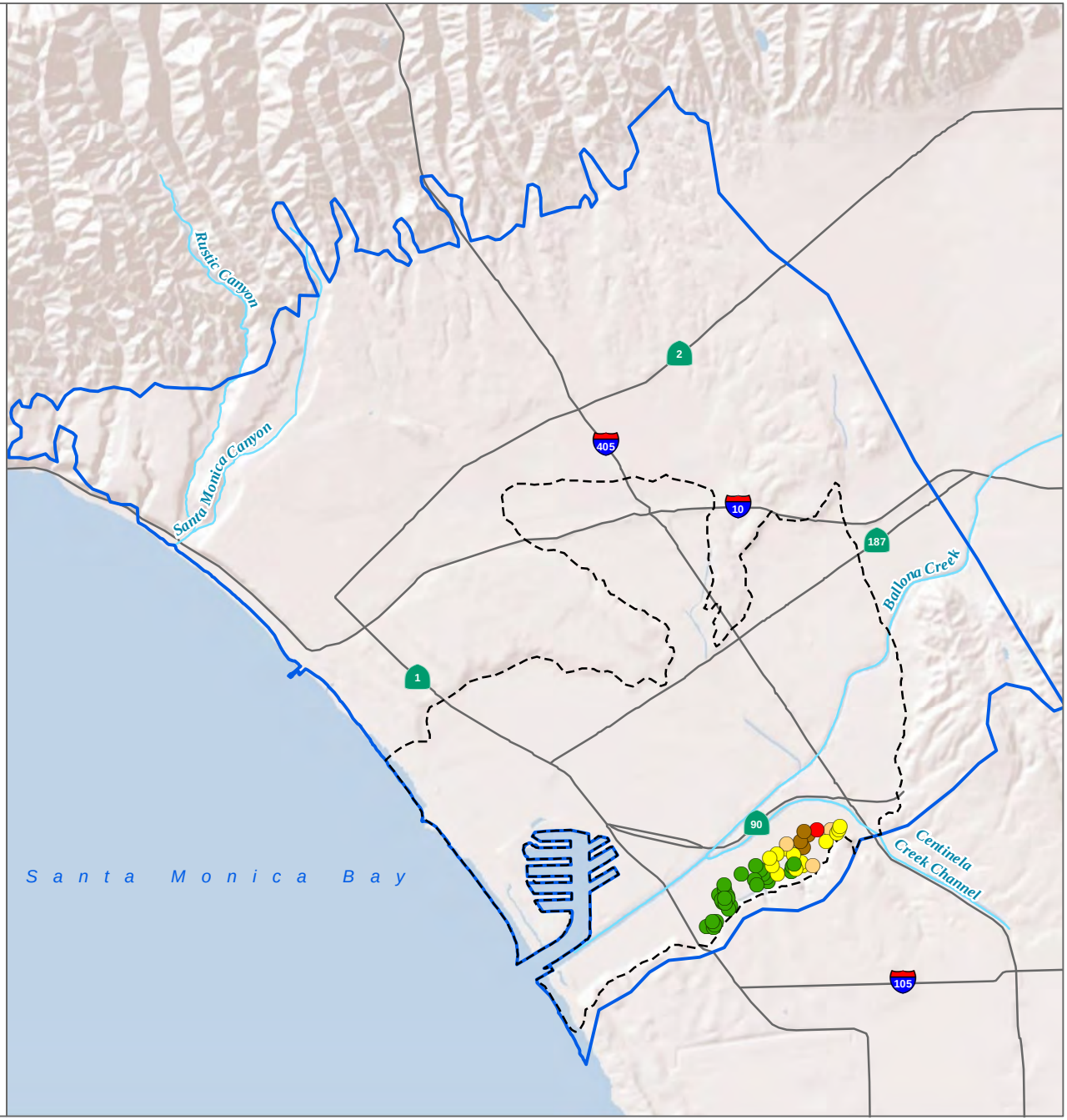
Legend

- Santa Monica Subbasin (4-011.01)
- Approximate Extent Ballona Aquifer

Sulfate Concentration in Monitoring Well (mg/L)

- <250
- 251 - 500
- 501 - 750
- 751 - 1000
- >1000

Well ID	Sample Date	Sulfate (mg/L)	Well ID	Sample Date	Sulfate (mg/L)
C-036	11/10/2015	490	C-149	10/29/2015	640
C-056	10/29/2015	400	C-150	10/29/2015	890
C-070A	10/27/2015	670	C-155	10/22/2015	5.9
C-072ABA	11/11/2015	1000	C-157ABA	11/13/2015	180
C-075BA	11/5/2015	190	C-158ABA	11/16/2015	180
C-076BA	11/5/2015	210	C-159BA	11/12/2015	140
C-077BA	11/9/2015	330	C-160BA	11/9/2015	150
C-079BA	11/4/2015	410	C-161BA	11/10/2015	130
C-080ABA	11/16/2015	900	C-168BA	2/15/2015	17
C-082ABA	11/10/2015	390	C-169BA	11/17/2015	440
C-083BA	11/13/2015	470	D2-BA02	11/12/2015	200
C-084BA	11/5/2015	250	D2-BA04A	11/11/2015	400
C-085ABA	10/22/2015	690	D2-BA05	11/11/2015	340
C-093	7/25/2016	4.8	D2-BA06	11/13/2015	410
C-096	10/27/2015	1.8	D2-BA07	11/10/2015	140
C-103	7/25/2016	22	D2-BA08	11/11/2015	6.1
C-104	10/28/2015	12	FSTA-6	10/19/2015	100
C-105A	10/28/2015	4.3	FSTA-9	8/2/2016	220
C-128	8/2/2016	0.77	HP-D1079	11/5/2015	340
C-130	7/27/2016	0.44	HP-D1080	11/9/2015	320
C-131	7/25/2016	49	HP-D1081	11/9/2015	260
C-133	10/23/2015	17	HP-D925	8/1/2016	0.35
C-134	7/28/2016	2.4	HP-D928	8/1/2016	0.31
C-135	7/26/2016	0.64	HP-D929	8/2/2016	330
C-139A	11/16/2015	770	HP-D930	8/2/2016	1.1
C-140B	11/6/2015	1200	MW-M	11/11/2015	130



SOURCE: SWRCB; City of Santa Monica

DUDEK

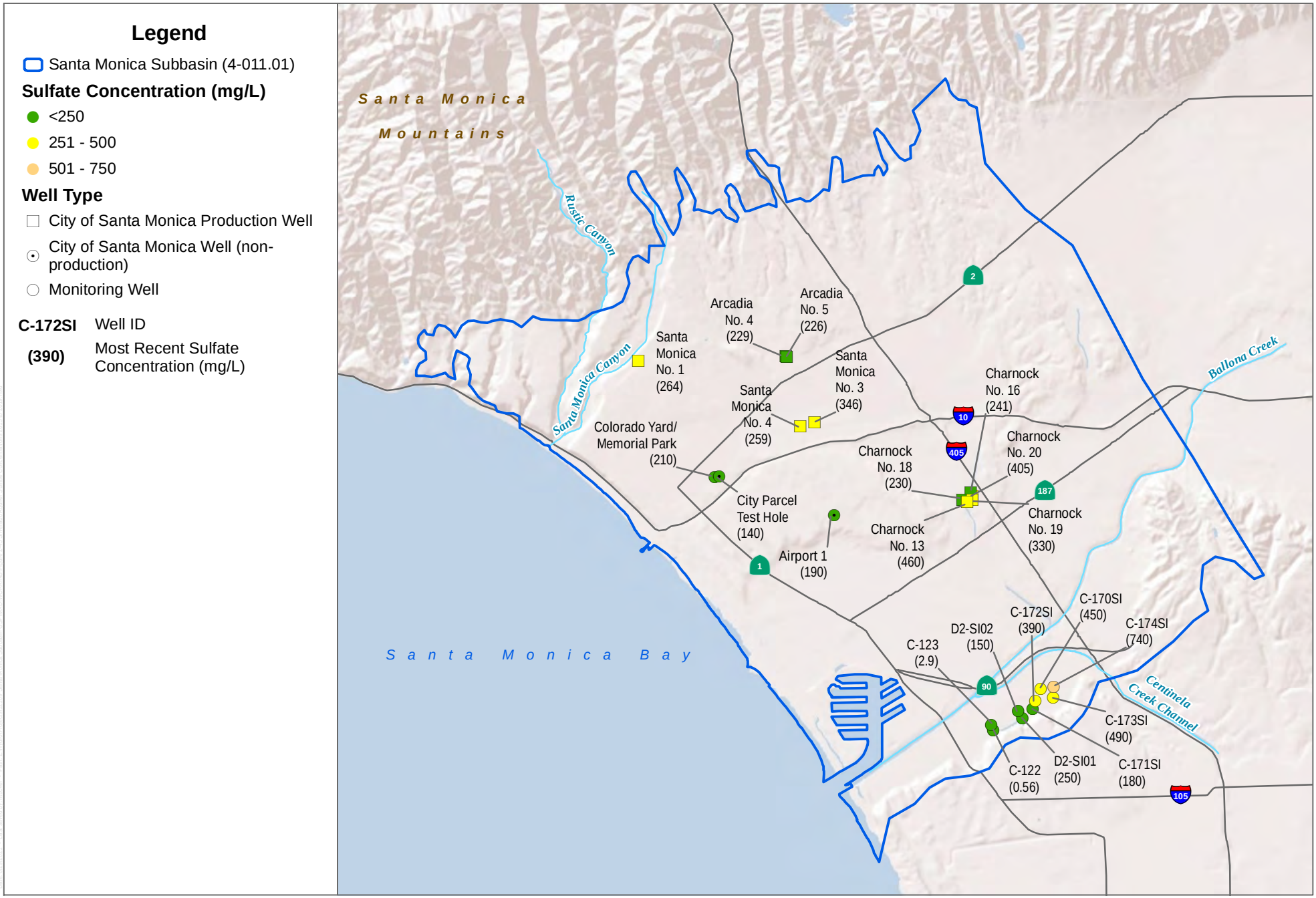
0 0.5 1 Miles

FIGURE 2-44

Ballona Aquifer Sulfate Concentrations 2015 to 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: SWRCB; City of Santa Monica

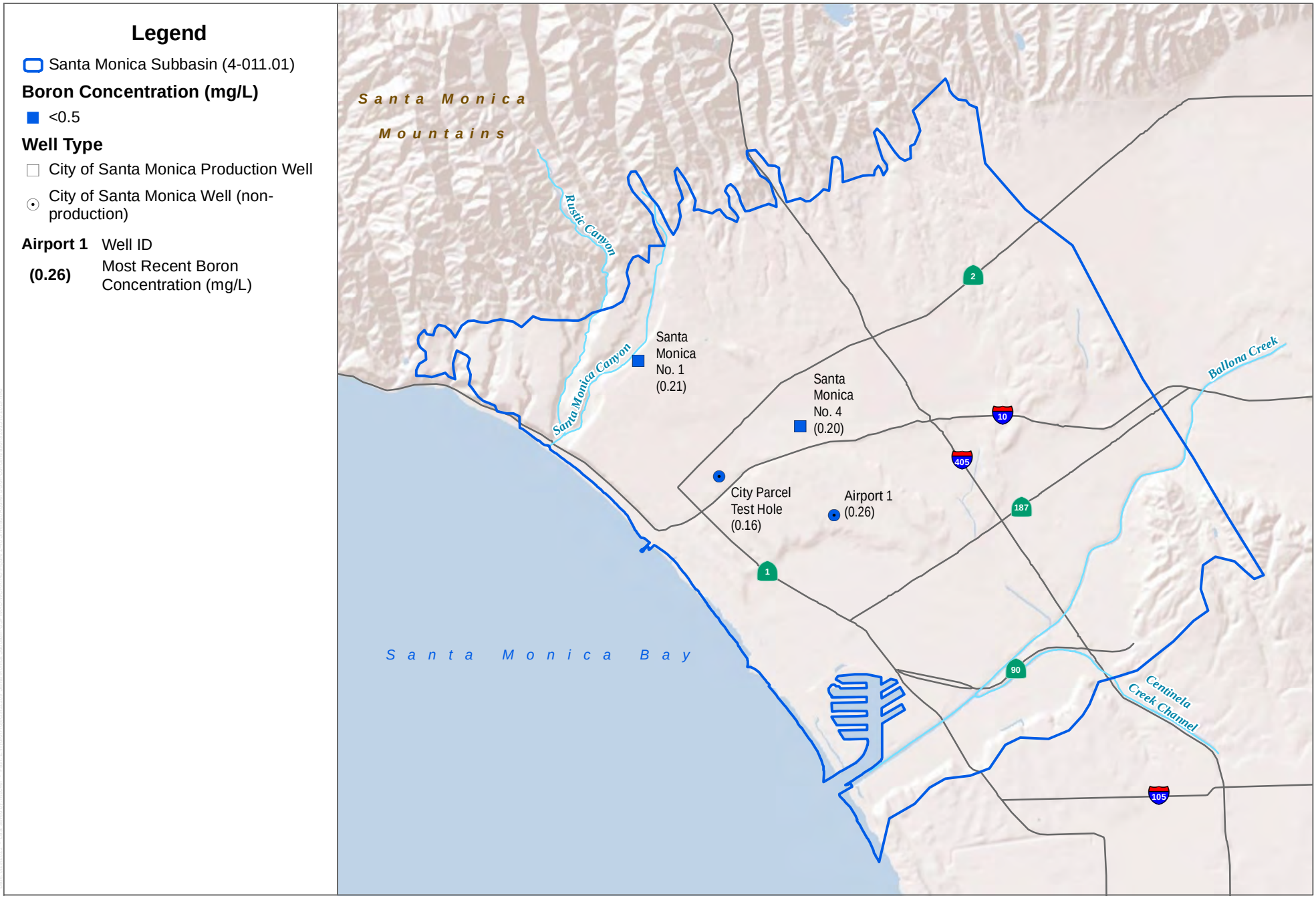
DUDEK

FIGURE 2-45

Silverado Aquifer Sulfate Concentrations 2015 to 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: SWRCB; City of Santa Monica

DUDEK

0 0.5 1 Miles

FIGURE 2-46

Silverado Aquifer Boron Concentrations 2015 to 2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

Legend

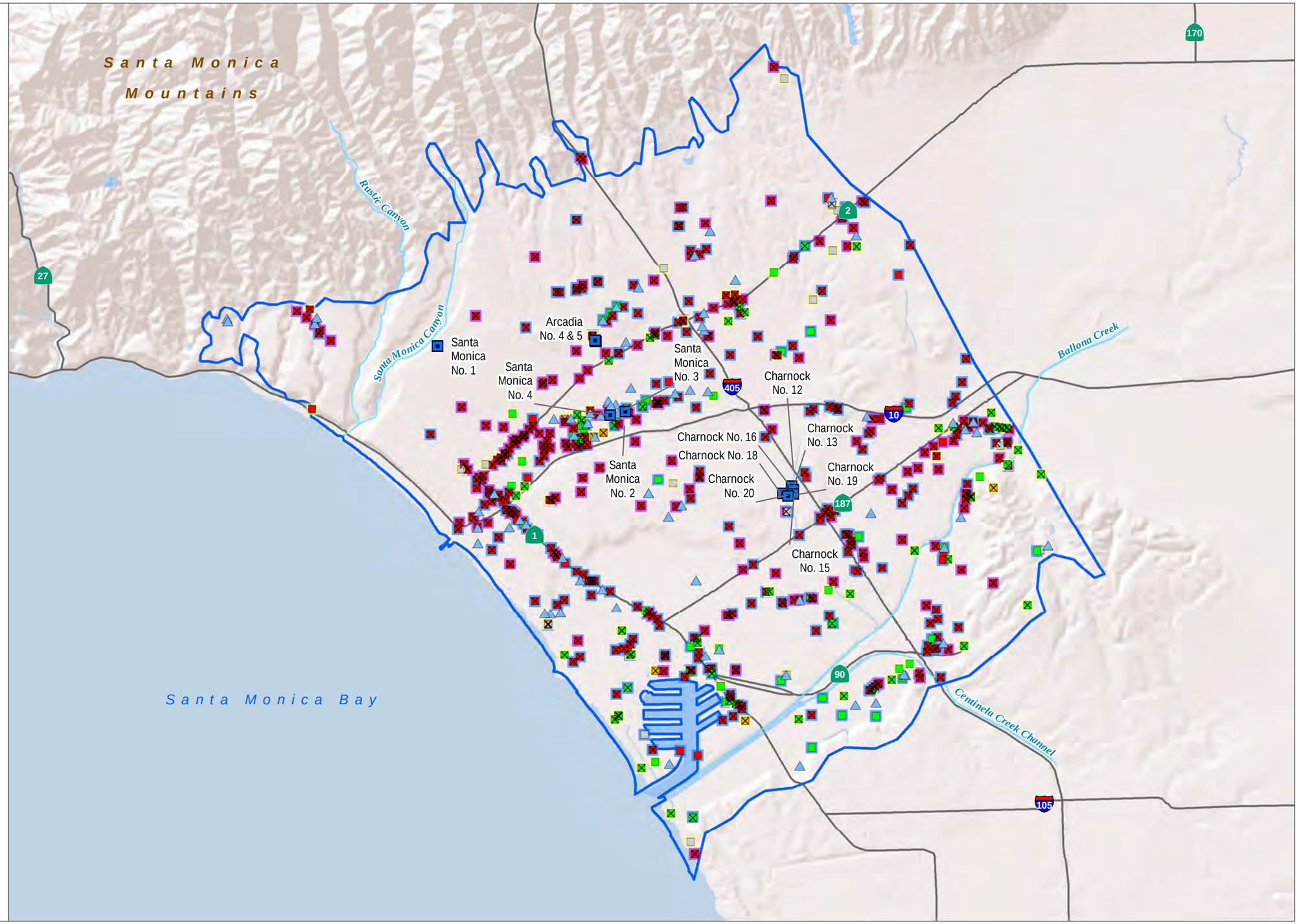
- Santa Monica Subbasin (4-011.01)
- City of Santa Monica Production Wells
- Envirostor Sites and Facilities

GeoTracker Sites and Facilities

- Cleanup Program Sites
- LUST Cleanup Sites
- Land Disposal Site
- Other Sites
- Case Closed

Potential Media of Concern

- Soil
- Undefined / Under Investigation
- Groundwater / Aquifer Concerns



SOURCE:SWRCB 2020; DTSC 2020

DUDEK

0 1 2 Miles

FIGURE 2-47

Regulatory Cleanup Sites in the Santa Monica Subbasin

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

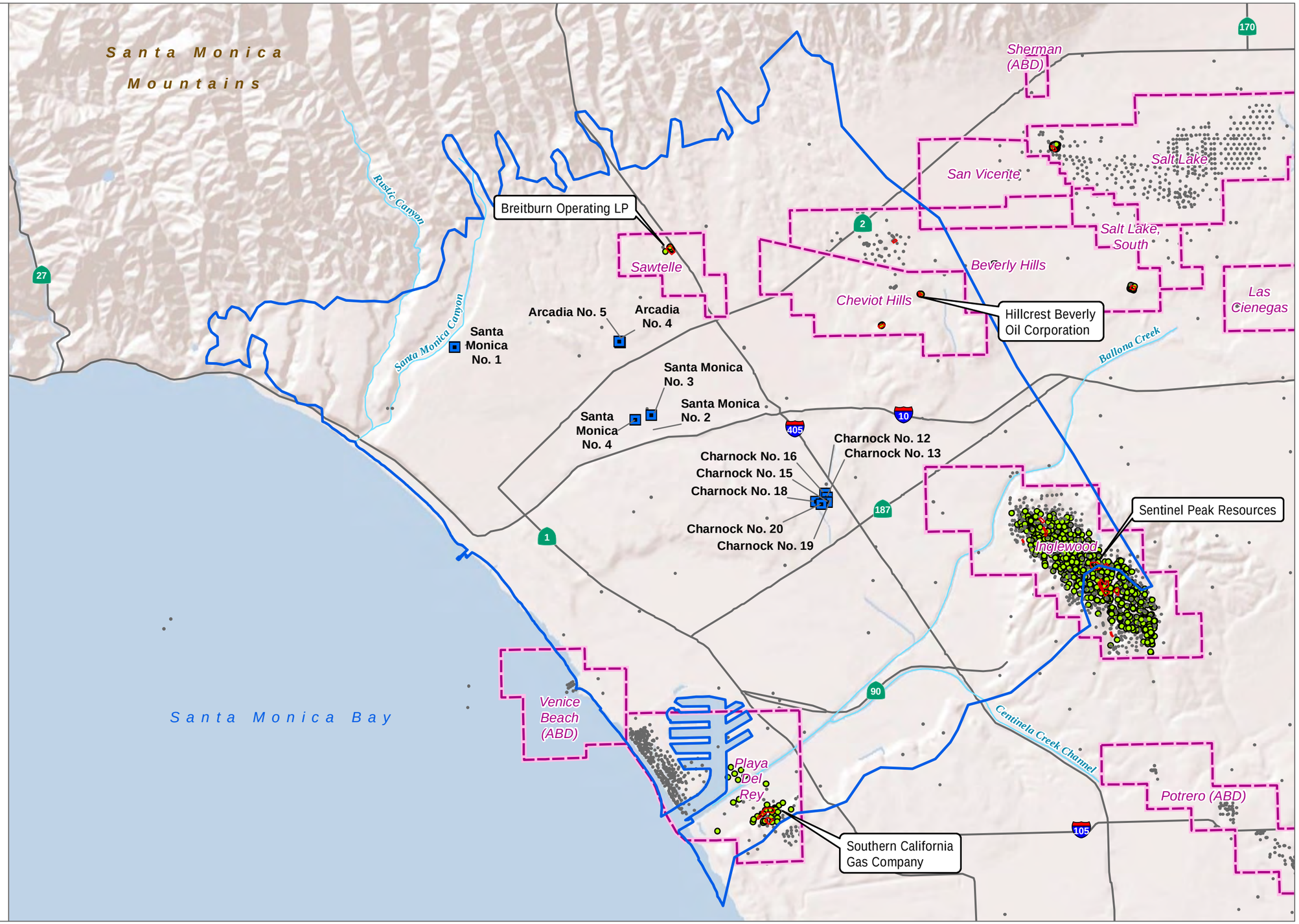
Legend

- Santa Monica Subbasin (4-011.01)
- Santa Monica Production Wells
- Oil & Gas Field Boundaries (Administrative)

Oil and Gas Facilities

- Active Well (All Types)
- Plugged, Idle, or Other
- Surface Facility (tank, pit/sump, setting, etc)

Note:
ABD = Abandoned



SOURCE:CalGEM 2020 (Geologic Energy Division)

DUDEK

0 1 2 Miles

FIGURE 2-48

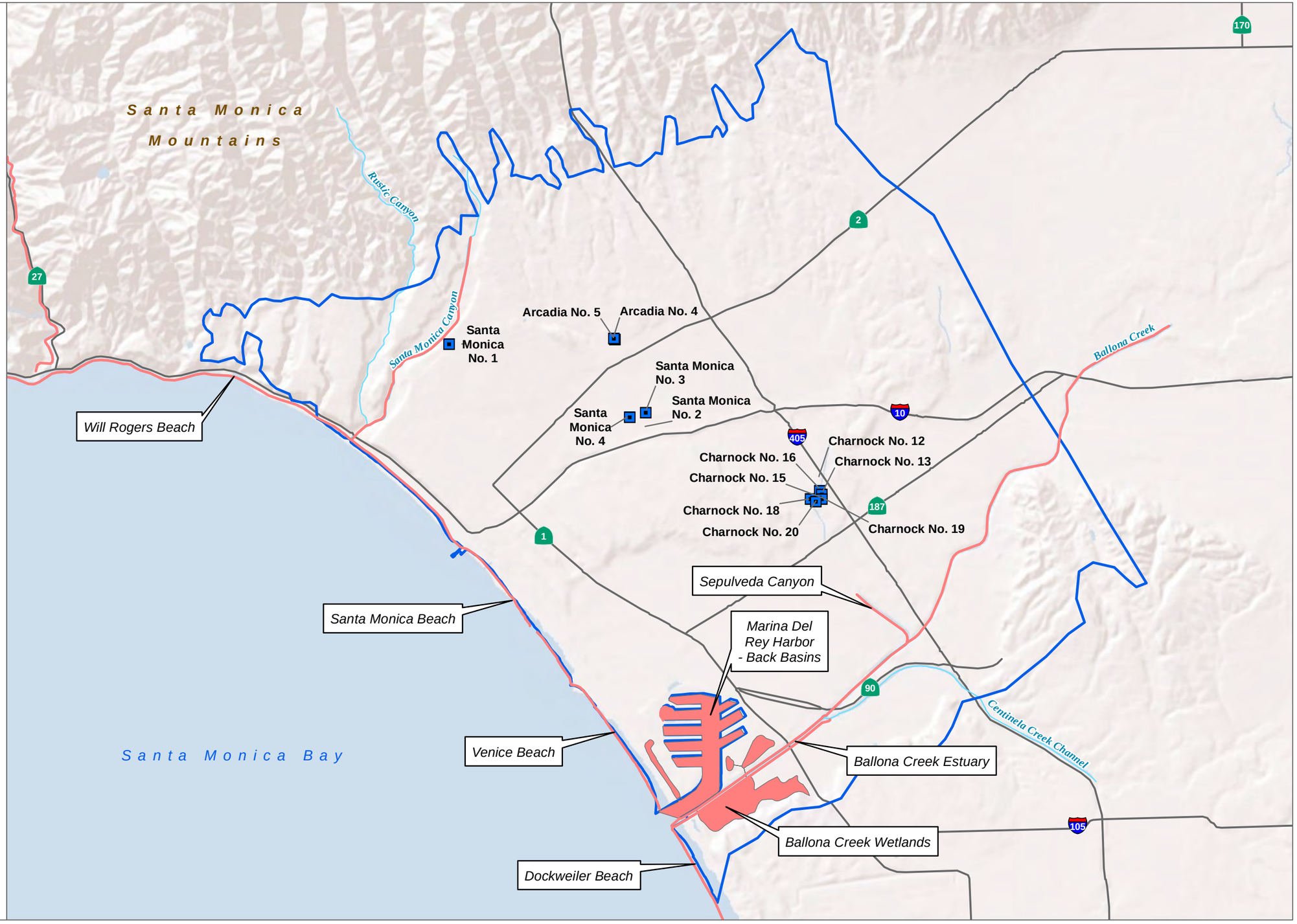
Oil and Gas Fields in the Santa Monica Subbasin

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)
- Santa Monica Production Wells
- Impaired Surface Waters - 303(d) Listed Reaches



SOURCE:SWRCB 2016

DUDEK

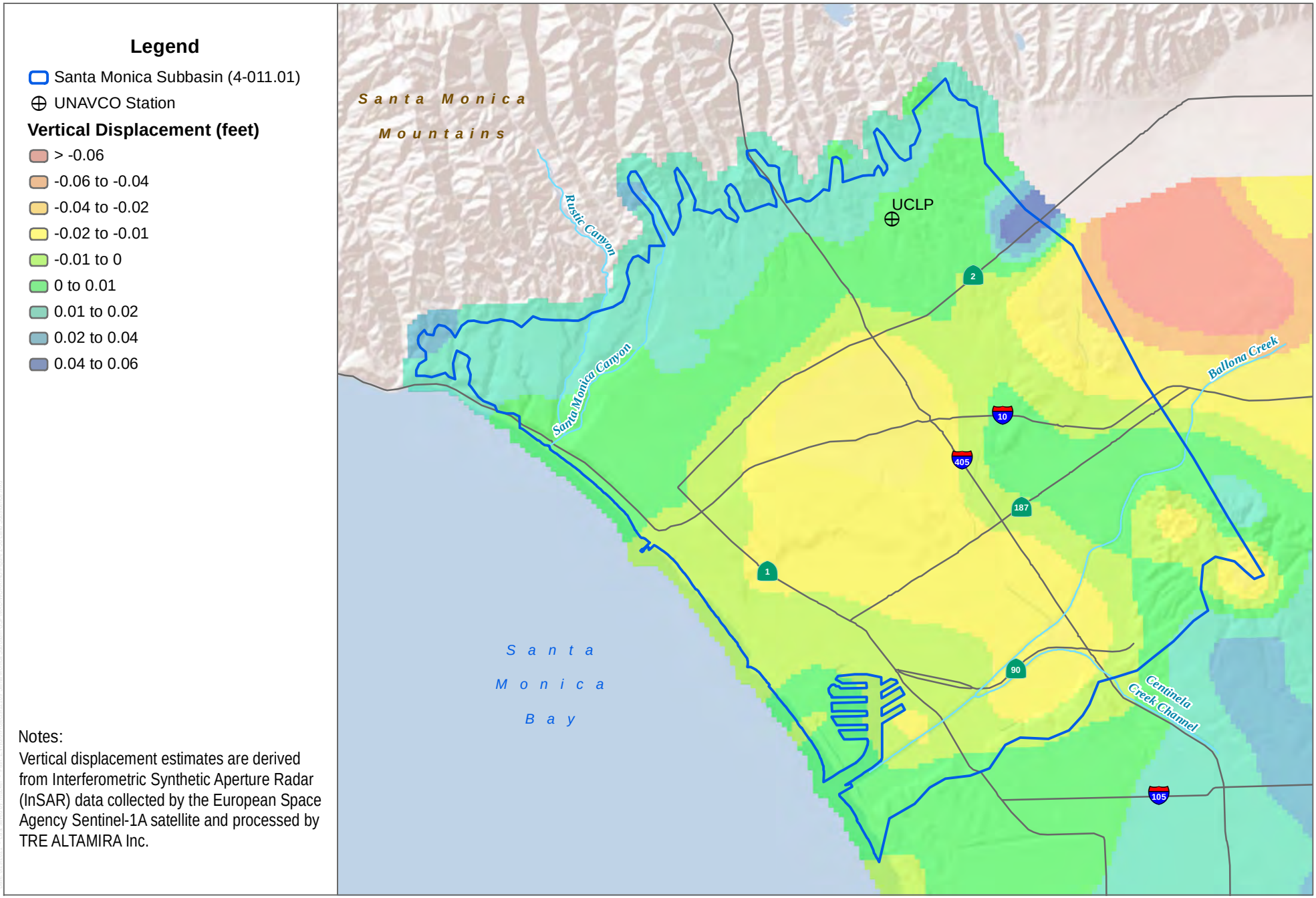
0 1 2 Miles

FIGURE 2-49

Impaired Surface Waters in the Vicinity of the Santa Monica Subbasin

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



Notes:
Vertical displacement estimates are derived from Interferometric Synthetic Aperture Radar (InSAR) data collected by the European Space Agency Sentinel-1A satellite and processed by TRE ALTAMIRA Inc.

SOURCE: ESRI; DWR; USGS; UNAVCO

DUDEK

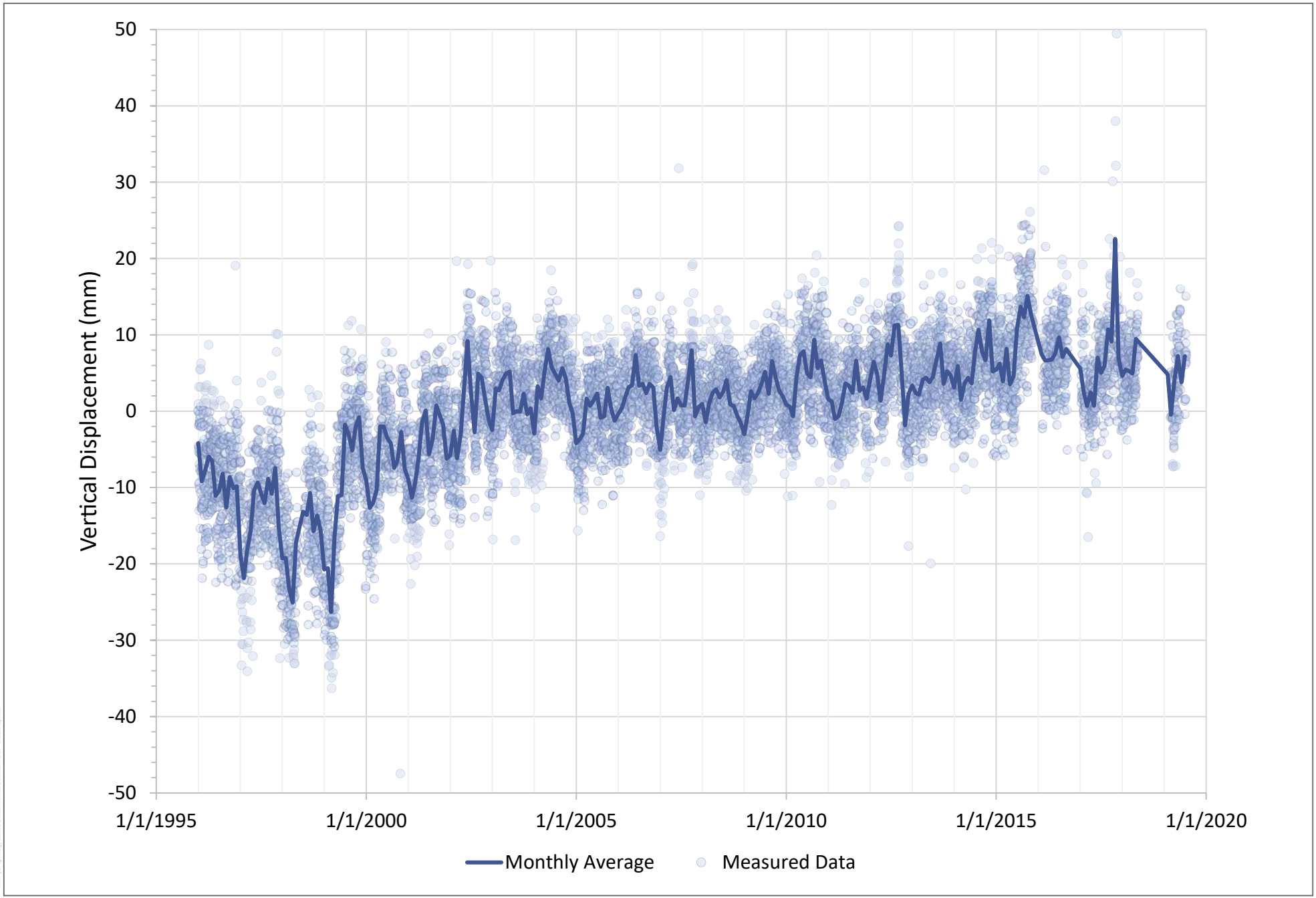
0 0.5 1 Miles

FIGURE 2-50

InSAR Vertical Land Displacement: 2015-2019

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: UNAVCO

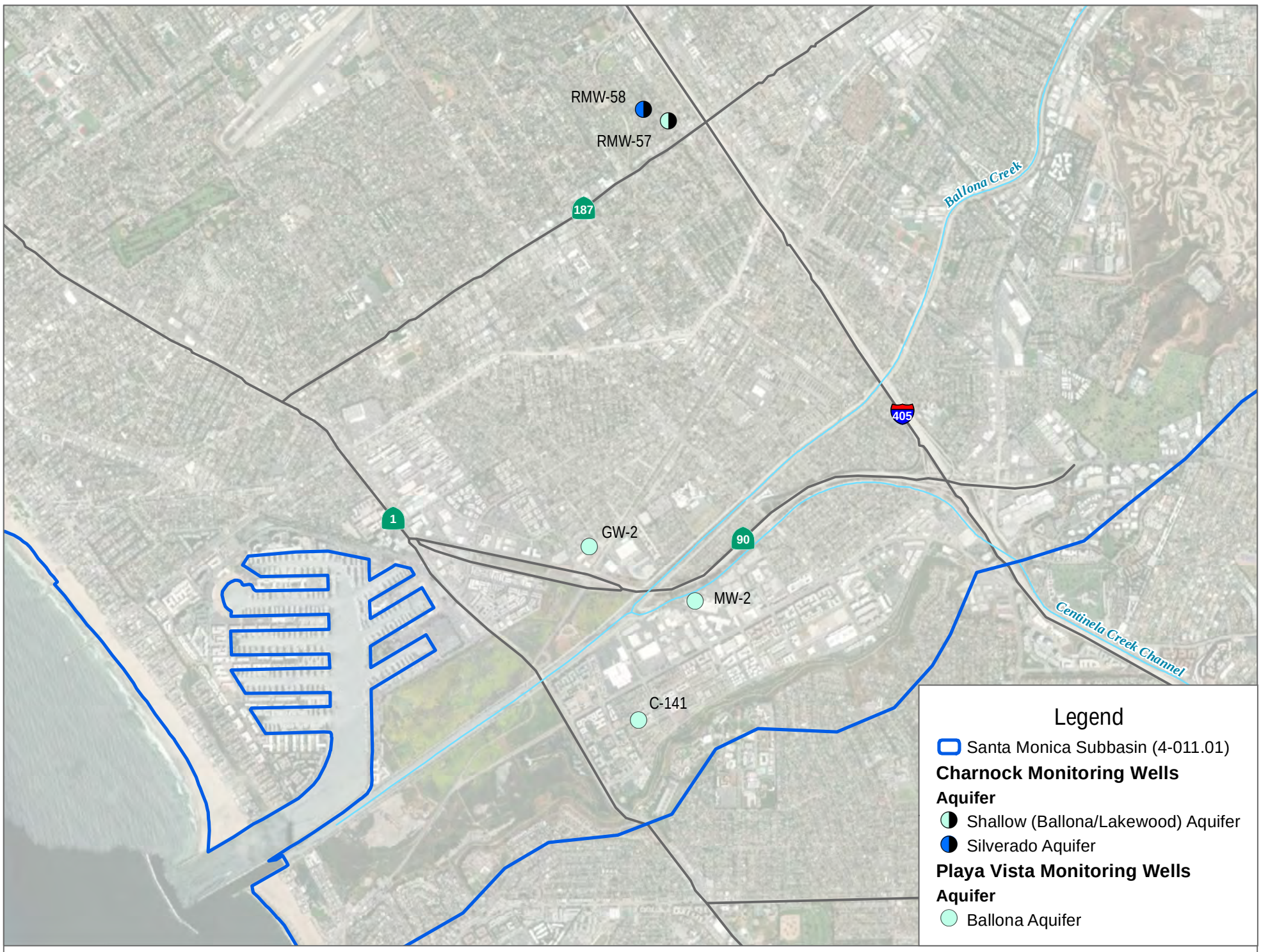
FIGURE 2-51

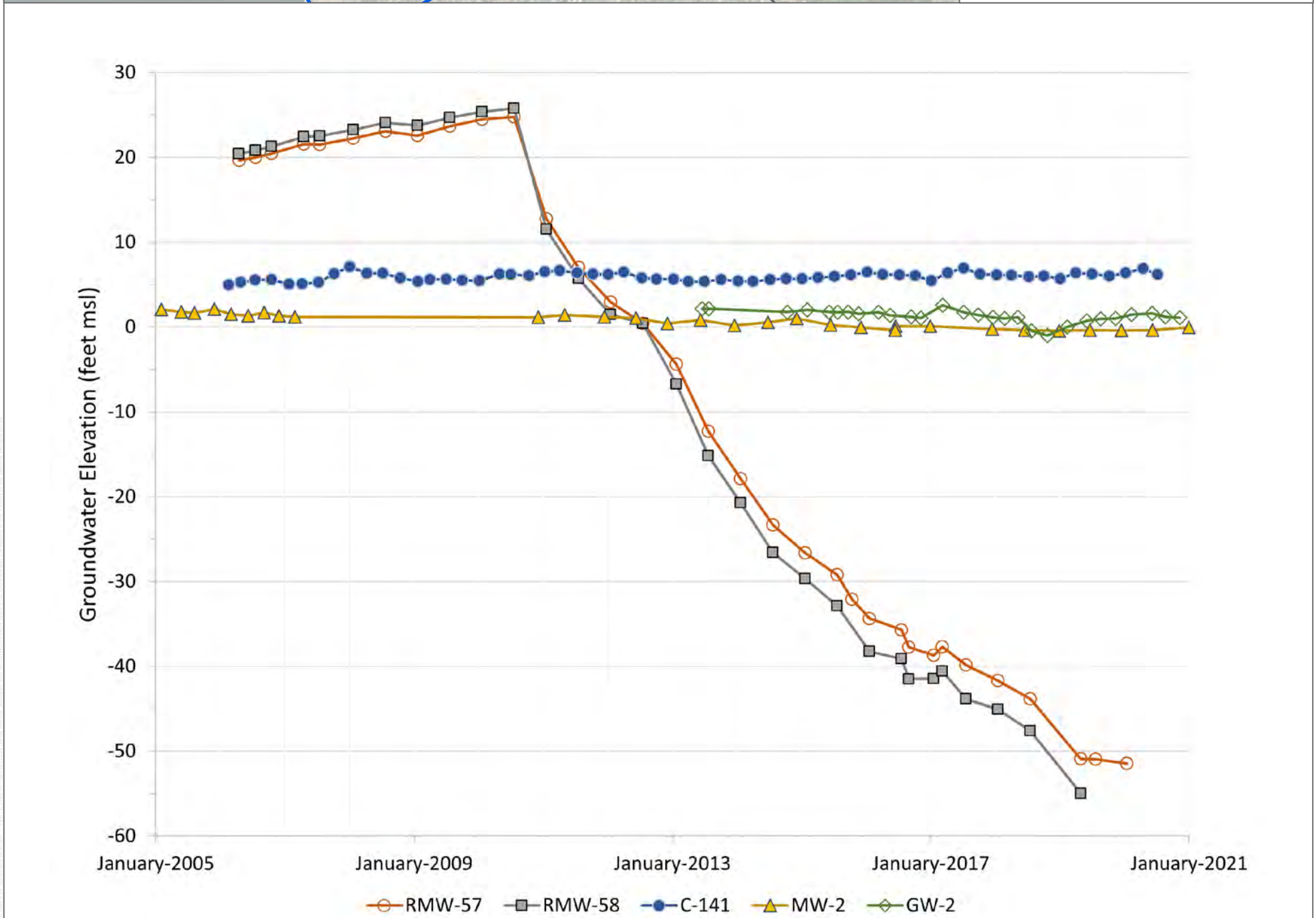
UNAVCO Station UCLP Vertical Displacement

Groundwater Sustainability Plan for the Santa Monica Subbasin

DUDEK

INTENTIONALLY LEFT BLANK





SOURCE: ESRI; DWR; USGS; SWRCB; City of Santa Monica

DUDEK

0 0.25 0.5 Miles

FIGURE 2-52

Groundwater Elevations In the Vicinity of the Ballona Wetlands

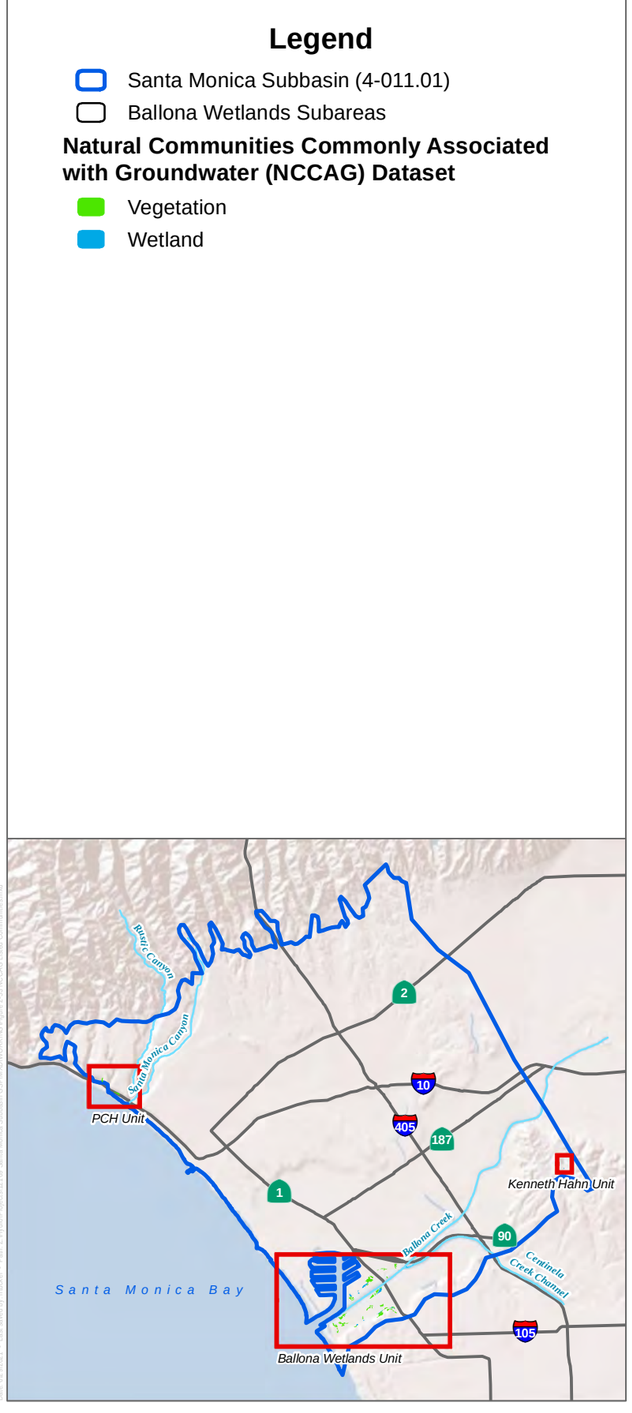
INTENTIONALLY LEFT BLANK

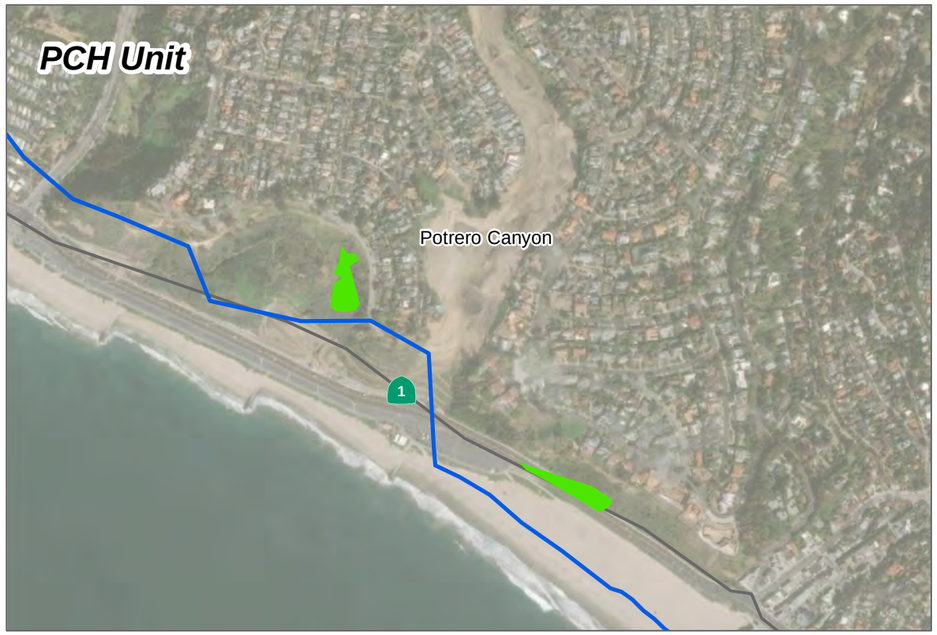
Legend

- Santa Monica Subbasin (4-011.01)
- Ballona Wetlands Subareas

Natural Communities Commonly Associated with Groundwater (NCCAG) Dataset

- Vegetation
- Wetland





SOURCE: ESRI; DWR; USGS; NCCAG; USACE/CDFW 2017

FIGURE 2-53

NCCAG Listed Communities in the Santa Monica Subbasin

Groundwater Sustainability Plan for the Santa Monica Subbasin

DUDEK

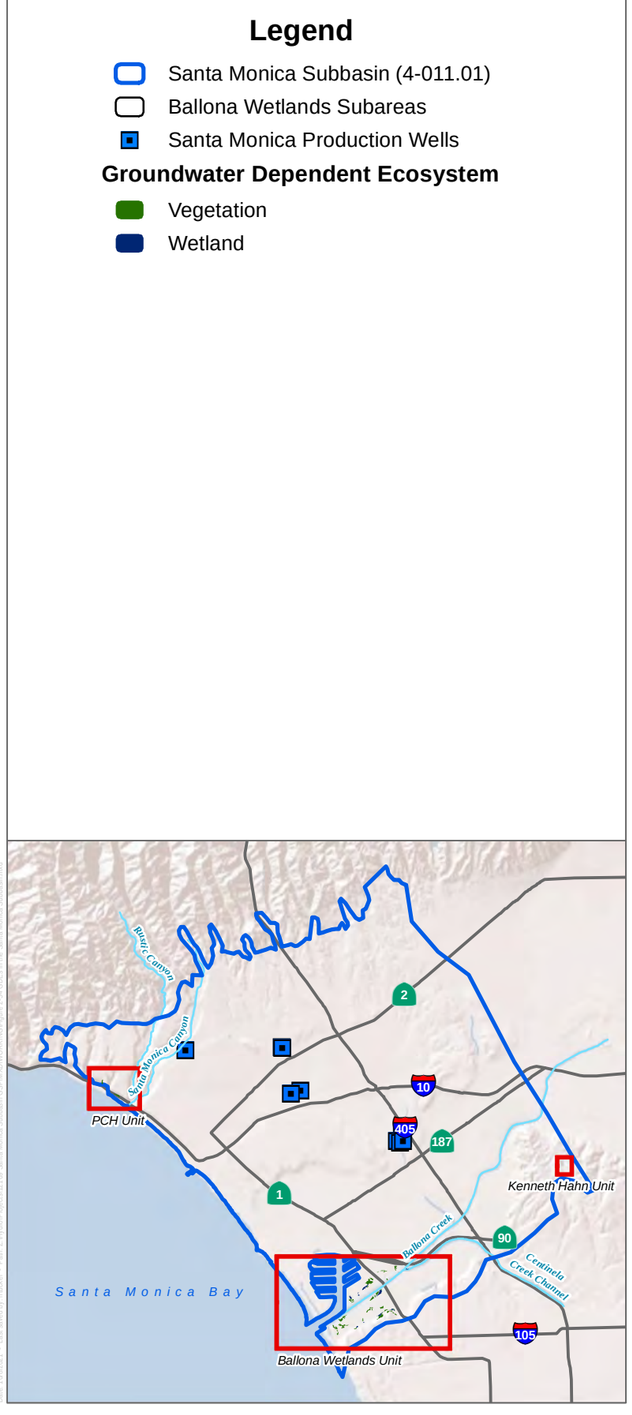
INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)
- Ballona Wetlands Subareas
- Santa Monica Production Wells

Groundwater Dependent Ecosystem

- Vegetation
- Wetland



SOURCE: ESRI; DWR; USGS; NCCAG; USACE/CDFW 2017

FIGURE 2-54

Groundwater Dependent Ecosystems in the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

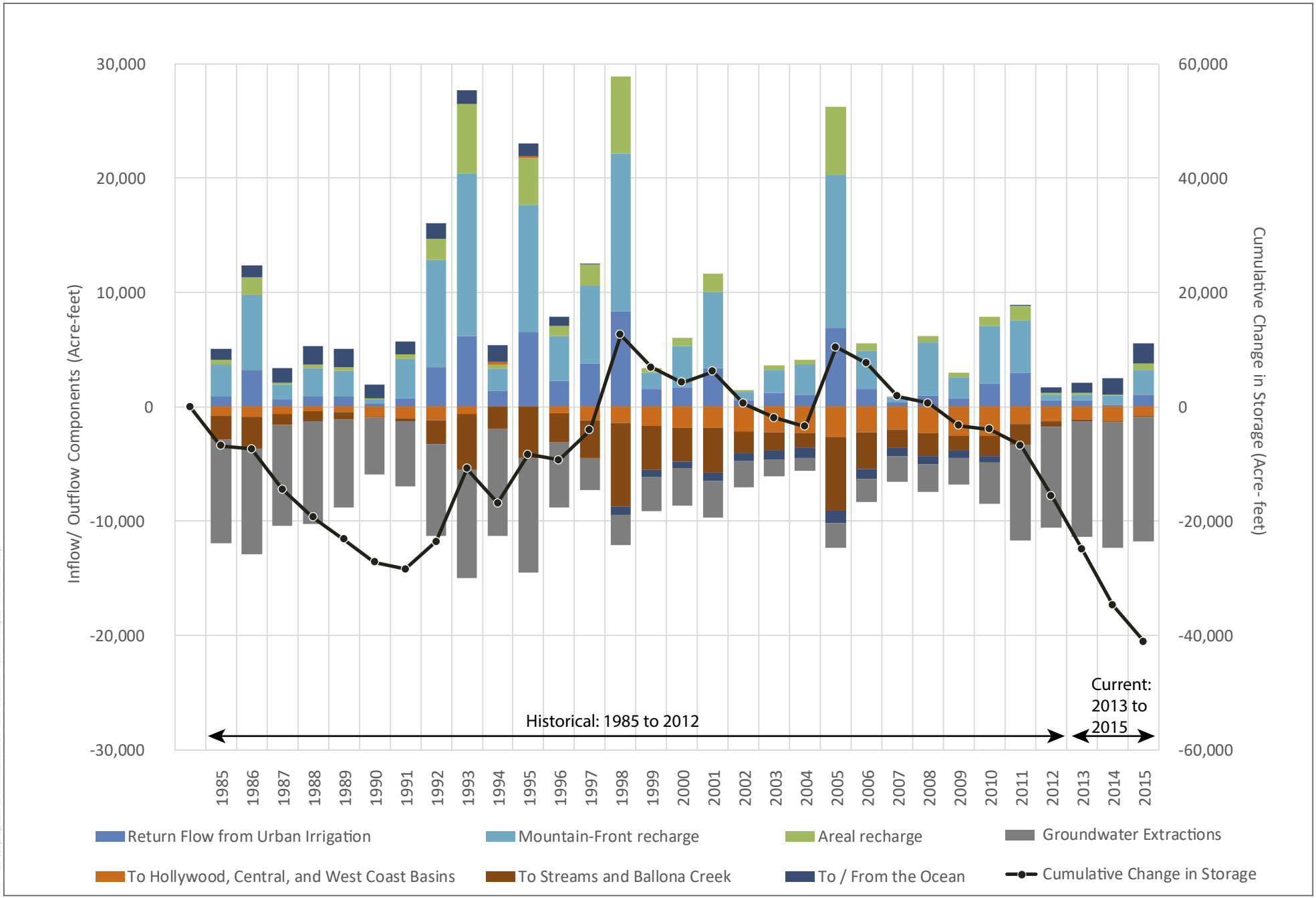


FIGURE 2-55

Historical and Current Water Budget

Groundwater Sustainability Plan for the Santa Monica Subbasin

DUDEK

INTENTIONALLY LEFT BLANK

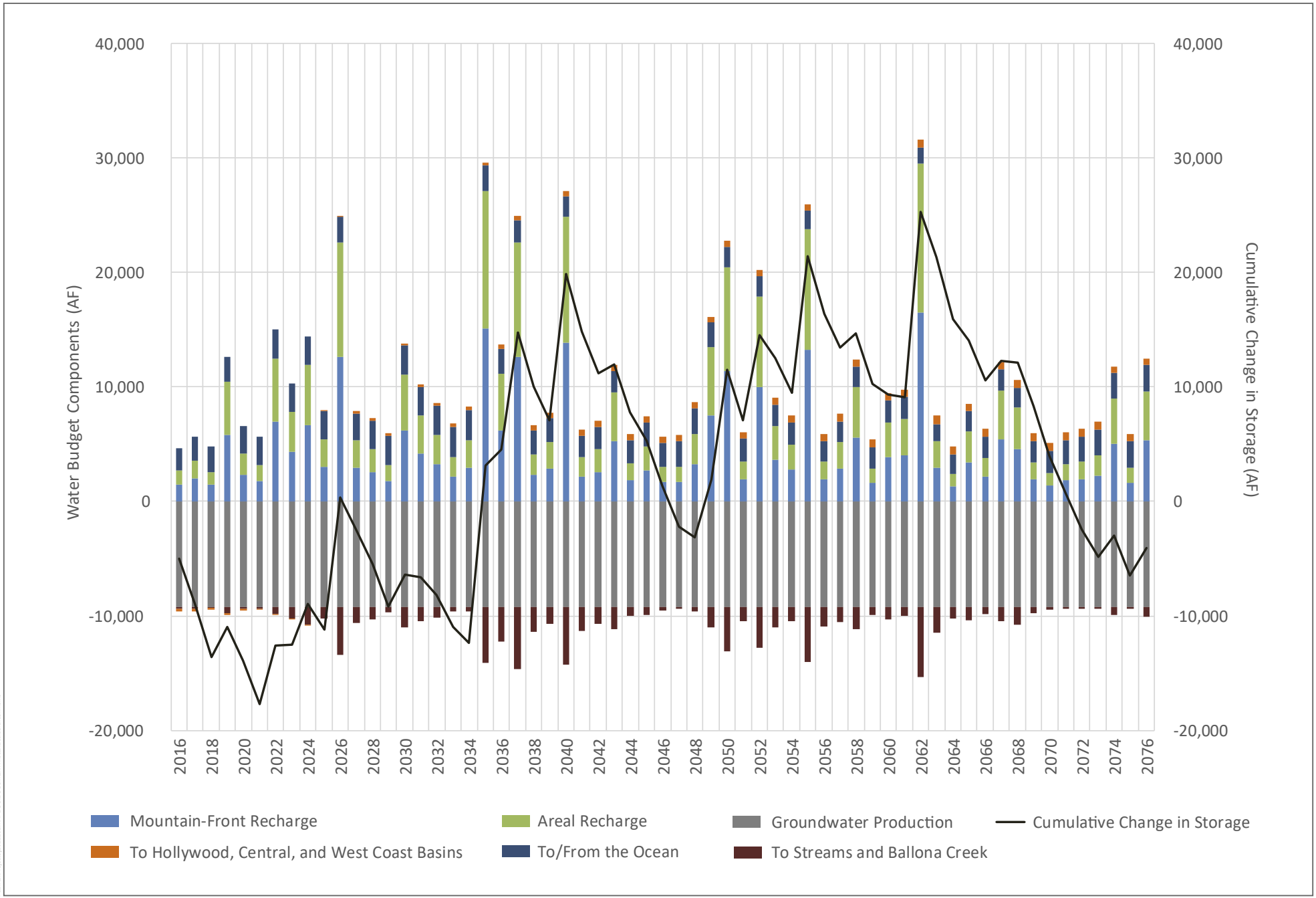


FIGURE 2-56

Projected Water Budget

Groundwater Sustainability Plan for the Santa Monica Subbasin

DUDEK

INTENTIONALLY LEFT BLANK

3 Sustainable Management Criteria

This chapter of the GSP presents the sustainable management criteria that define whether groundwater conditions in the Subbasin are being managed sustainably to avoid undesirable results. These criteria are based on the sustainability goal for the Subbasin, which is discussed in Section 3.1. Both general and specific undesirable results for the Subbasin are discussed in Section 3.2. The minimum thresholds are discussed in Section 3.3, and the measurable objectives are discussed in Section 3.4. The monitoring network described in Section 3.5 is designed to be able to measure the groundwater conditions that form the basis of the sustainable management criteria. The monitoring network has been configured to assess developing conditions within the Subbasin and recommendations are made to fill the data gaps that have been identified. The sustainable management criteria defined in this GSP will be periodically re-evaluated and adjusted as needed to maintain groundwater conditions in the Subbasin that avoid undesirable results.

3.1 Sustainability Goal

The sustainability goal for the Subbasin is to ensure the long-term health and availability of groundwater resources for current and future stakeholders through ongoing, proactive stewardship. Long-term health and availability include:

- Maintaining sufficient groundwater in storage to allow for continued groundwater production that meets the operational demands and regulatory commitments of the City of Santa Monica as well as other groundwater producers and stakeholders.
- Ensuring groundwater conditions in the Subbasin support sufficient seaward flow of fresh water to prevent significant and unreasonable seawater intrusion in the Silverado aquifer.
- Continuing groundwater production at rates and in aquifers that do not impact the ability of groundwater dependent ecosystems to access groundwater.

The sustainability goal for the Subbasin was developed using historical data, including groundwater elevations, estimates of groundwater in storage, and groundwater quality, discussed in detail in Chapter 2 of this GSP. Over the past 30 years groundwater in storage has fluctuated, increasing between 1995 and 2010, when the City of Santa Monica's groundwater production was greatly reduced, and declining in recent years when production resumed (see Section 2.5.5.1 Quantification of Historical Water Budget). Overall, there has been a decline in groundwater in storage since 1985, with the bulk of that decline occurring between water years 2013 and 2015, in response to increased groundwater production and reduced groundwater recharge. The decrease in groundwater in storage is reflected in the measured groundwater elevations in the Charnock and Olympic Wellfields, which were lower in 2015 than they were in 1985 (see Section 2.4.1 Groundwater Elevation Data). However, the Subbasin did not experience land subsidence, reduction of interconnected surface and groundwater, or apparent seawater intrusion related to groundwater production during the period from 1985 to 2015, and available data indicates that it is not currently experiencing these undesirable results related to groundwater production.

The City of Santa Monica has worked with the Los Angeles RWQCB, State Water Resources Control Board Division of Drinking Water (DDW), and private parties responsible for groundwater contamination in the Subbasin to remediate groundwater that has been impacted by VOCs, MTBE, and other industrial contaminants. These contaminants have caused undesirable results related to groundwater quality in the Subbasin; However, the undesirable results were not caused by groundwater production. The City of Santa Monica is providing hydraulic control in the areas of contaminated groundwater adjacent to the Charnock and Olympic Wellfields (see Sections

2.1.2.3 Water Quality and 2.4.4 Groundwater Quality). This prevents impacted groundwater from migrating into areas with potable groundwater and removes the contaminated groundwater, thereby reducing contamination over time. Thus, groundwater production is critical to restoring beneficial use of the groundwater in parts of the Subbasin impacted by industrial contamination.

In 2017, the cities of Santa Monica, Los Angeles, Culver, and Beverly Hills, and the County of Los Angeles became the GSA for the Subbasin. The GSA has the ability, authority, and responsibility to continue to ensure long-term sustainable management of the groundwater resources within its jurisdiction. This authority includes monitoring and adjusting groundwater production from all wells, including but not limited to the City of Santa Monica's wells, in the Subbasin. The undesirable results, minimum thresholds, and measurable objectives discussed in this Chapter (see Sections 3.2 Undesirable Results through 3.4 Measurable Objectives) are intended to provide the metrics by which the GSA will decide if pumping adjustments or other projects or management actions are necessary. The GSA will continue to work with stakeholders to ensure sustainable management of the groundwater conditions within the Subbasin throughout the 50-year GSP planning and implementation horizon.

3.2 Undesirable results

Under SGMA, undesirable results occur when the effects caused by groundwater conditions occurring throughout the Subbasin cause significant and unreasonable impacts to any of six sustainability indicators. The definition of significant and unreasonable for each of the six indicators is determined by the GSA using the processes and criteria described in this GSP. The GSA is required to characterize undesirable results for each indicator, unless "undesirable results to one or more sustainability indicators are not present and are not likely to occur in the basin," (23 CCR 354.26 (d)). Each of the six sustainability indicators has the potential to occur within the Subbasin, but the Subbasin is not currently experiencing undesirable results for any of the six sustainability indicators as a result of groundwater production. General undesirable results in the Subbasin would be:

- Chronic Lowering of Groundwater Levels
- Significant and Unreasonable Reduction of Groundwater in Storage
- Significant and Unreasonable Seawater Intrusion Resulting from Groundwater Withdrawal
- Significant and Unreasonable Degradation of Water Quality Resulting from Groundwater Withdrawal
- Significant and Unreasonable Land Subsidence Resulting from Groundwater Withdrawal
- Significant and Unreasonable Reduction of Interconnected Surface Water and Groundwater Resulting from Groundwater Withdrawal

Sustainability indicators for which there are data gaps or too little data to fully evaluate the related undesirable results will be further defined by the development and implementation of additional monitoring capabilities through GSP implementation.

Undesirable results could occur within the Subbasin if groundwater production exceeds the sustainable yield. Projected groundwater production is anticipated to be approximately 9,000 AFY in the Subbasin. At this rate of production and incorporating additional assumptions about future mountain front and aerial recharge, groundwater in storage is projected to decline by approximately 2,200 AFY in the future (see Section 2.5.6.3 Projected Water Budget). This rate of decline is within the uncertainty of the model (see Section 2.6), groundwater elevations in the Subbasin are not projected to reach the minimum thresholds discussed in Section 3.3, and undesirable results are not anticipated to occur in the Subbasin related to groundwater elevation declines or change in storage. However,

based on future projected conditions in the Subbasin, the future sustainable yield may roughly equal the planned future groundwater extractions of 9,000 AFY (the historical sustainable yield for the Subbasin ranges from 10,800 AFY to 19,700 AFY; see Section 2.6). Future extractions that exceed this volume may cause undesirable results.

A description of the undesirable results applicable to the sustainability indicators is provided in Sections 3.2.1 through 3.2.6. Each section describes the cause of groundwater conditions throughout the Subbasin that would lead to undesirable results and the potential effects of undesirable results on the beneficial uses and users of groundwater in the Subbasin.

The criteria used to define groundwater conditions at which undesirable results occur are described in Section 3.2.7. These criteria are based on a quantitative combination of minimum threshold exceedances for each sustainability indicator.

3.2.1 Chronic Lowering of Groundwater Levels

Potential Causes of Chronic Lowering of Groundwater Levels

Chronic lowering of groundwater levels is an undesirable result applicable to, but not currently occurring within, the Subbasin. The primary cause of groundwater conditions that would lead to chronic lowering of groundwater levels is groundwater production in excess of natural and artificial recharge over a period that contains both wet and dry water years.

Relationship Between Chronic Lowering of Groundwater Levels and Other Sustainability Indicators

Chronic lowering of groundwater levels is also associated with a reduction of groundwater in storage, potential seawater intrusion, and potential land subsidence in the Subbasin. Under projected operations, the volume of freshwater in storage is expected to decrease in the Subbasin between 2016 and 2076 (see Section 2.5.5.3 Quantification of Projected Water Budget). Some reductions in groundwater storage may be required for the operation of water quality management projects that mitigate historical groundwater quality degradation in the Subbasin, however seawater intrusion related to groundwater withdrawal is not desirable within the Subbasin. The City of Santa Monica and the GSA will monitor for potential seawater intrusion using chloride concentrations in the groundwater, rather than water levels (see Section 3.2.3 Seawater Intrusion).

There is no historical evidence of chronic lowering of groundwater levels causing significant and unreasonable degradation of groundwater quality in the Subbasin. However, chronic lowering of groundwater levels does have the potential to impact existing groundwater quality remediation programs in the Subbasin (see Section 3.2.4 Significant and Unreasonable Degradation of Water Quality).

Land subsidence may occur in the Subbasin if groundwater levels drop below historical low groundwater levels for a sufficient time to allow for the collapse of pore-structures and settling of clay rich sediments, which are prone to subsidence (see Section 3.2.5 Land Subsidence). However, there are no clay rich sediments within the Silverado aquifer, groundwater elevations are projected to stay within the Silverado aquifer, and DWR has classified the Subbasin as having a low risk for future land subsidence resulting from groundwater withdrawals (DWR 2014). The City of Santa Monica and the GSA will monitor for potential land subsidence using publicly available GPS and InSAR data for the Subbasin (see Section 3.2.5 Land Subsidence).

The only remaining areas of interconnected surface water and groundwater in this highly urbanized Subbasin occur adjacent to the coast, where the Ballona and Silverado aquifers are separated from the surface water system by the Bellflower aquitard (see Section 2.4.6 Interconnected Groundwater and Surface Water, and 2.4.7 Groundwater Dependent Ecosystems). Therefore, loss of interconnected surface water is not related to chronic lowering of groundwater levels from groundwater production in the Ballona and Silverado aquifers that, by necessity, occurs inland from the coast to prevent seawater intrusion.

Effects on Beneficial Uses and Users of Groundwater

Chronic lowering of groundwater levels has the potential to impact beneficial uses and users of groundwater, including groundwater production, and can impact groundwater quality treatment if wells must be taken offline as a result of decreasing groundwater levels. Undesirable results related to chronic lowering of groundwater levels will prevent the municipal and private well operators from meeting their water demand obligations using local groundwater sources. If wells go dry or if deepened wells draw water from formations with reduced water quality, the cost of groundwater would increase for all users. Additionally, loss of groundwater production from municipal wells in the Subbasin will result in a higher demand for imported water from outside the Subbasin, which will result in increased carbon emissions and broader environmental impacts. These impacts could result in higher water costs for all users in the Subbasin.

Criteria Used to Determine Undesirable Results Related to Chronic Declines in Groundwater Levels

Under projected operations, groundwater elevations in 2076 are expected to be similar to those in 2016 (Figure 3-1). However, the City of Santa Monica is preparing to replace existing, aging production wells in the Charnock wellfield with deeper wells. Production from these deeper wells may induce additional drawdown at the wellfield, not accounted for in the future simulations conducted for this GSP. Additional drawdown at the Charnock wellfield is not anticipated to impact groundwater remediation activities, and the City of Santa Monica actively monitors plume containment. Impacts from groundwater level declines will continue to be monitored and evaluated throughout the planning and implementation horizon for this GSP.

Chronic lowering of groundwater levels in the Subbasin could cause undesirable results if groundwater levels drop to elevations below which:

- Water quality degradation management projects' effectiveness is impaired,
- The volume of groundwater available is insufficient for municipal/industrial supplies,
- Significant and unreasonable seawater intrusion is induced, or
- Subsidence that substantially interferes with land use is induced.

Well construction information, production history, and previous investigations were used to assess the potential levels at which the Subbasin may experience a depletion of groundwater supply related to groundwater elevation. The data reviewed suggest that chronic lowering of groundwater levels indicating a depletion of groundwater supply may occur when pumping groundwater elevations in the San Pedro Formation fall below the approximate mid-point elevation of the combined Silverado and Sunnyside aquifers (City of Santa Monica 2013; City of Santa Monica 2018). At this elevation, which varies in the Subbasin but is approximately -300 ft MSL in the vicinity of the Charnock well field, groundwater modeling suggests that water levels would recover at a slower rate than if groundwater elevations were maintained at a higher elevation (City of Santa Monica 2013; City of Santa Monica 2018). A reduced

rate of recovery has the potential to limit operational flexibility if longer-term drought conditions persist in the Subbasin and groundwater resources continue to be relied on as a source of drinking water.

Additionally, at the mid-point elevation of the combined Silverado and Sunnyside aquifers, three of the City of Santa Monica's current drinking water production wells would go dry (Charnock 13, 16, and 19). While the City of Santa Monica intends to conduct a review of the existing well infrastructure and replace older wells with deeper wells in the future, a loss of three wells in the Charnock Wellfield would reduce the City's current ability to produce groundwater by approximately 50%. This would constitute an undesirable result for the City, which is the sole producer of groundwater and a primary stakeholder in the Subbasin. The City of Santa Monica reviewed the minimum threshold criteria to determine the elevation at which undesirable results could occur.

Because the impacts to Subbasin stakeholders occur at production wells and the minimum thresholds are defined in representative monitoring wells, the criteria used to define undesirable results associated with chronic lowering of groundwater levels are static groundwater elevations that correspond to a pumping groundwater level at 50% of the combined thickness of the Silverado and Sunnyside aquifers, where present, in the Subbasin. These groundwater elevations are lower than historical low groundwater levels. Groundwater elevations that drop below historical low groundwater levels may be required in certain areas to maintain operational flexibility for groundwater quality management projects, to protect potable groundwater in the aquifers, and ensure ongoing beneficial use of groundwater for municipal and industrial supplies.

3.2.2 Significant and Unreasonable Reduction of Groundwater Storage

Potential Causes of Reduction of Groundwater in Storage

Significant and unreasonable reduction of groundwater in storage is an undesirable result applicable to, but not currently occurring within, the Subbasin. Reduction of groundwater in storage is directly related to chronic lowering of groundwater levels (see Section 3.2.1 Chronic Lowering of Groundwater Levels). The primary cause of a reduction of groundwater in storage is groundwater production in excess of natural and artificial recharge during a period containing both wet and dry water years. Additionally, in the Subbasin fresh groundwater in storage may be replaced by seawater over time. Seawater intrusion is discussed separately in Section 3.3.3 Significant and Unreasonable Seawater Intrusion.

Relationship Between Reduction of Groundwater in Storage and Other Sustainability Indicators

Reduction of groundwater in storage is directly related to chronic lowering of groundwater levels (see Section 3.2.1 Chronic Lowering of Groundwater Levels).

Effects on Beneficial Uses and Users of Groundwater

Significant and unreasonable reduction of groundwater in storage would impact beneficial uses and users of groundwater in the Subbasin by limiting the volume of groundwater available for municipal and industrial supplies and private golf courses, as well as potentially limiting the operational capacity and flexibility of water quality management projects. These impacts are directly related to the impacts from chronic lowering of groundwater levels (see Section 3.2.1 Chronic Lowering of Groundwater Levels) and could result in higher water costs for all users in the Subbasin.

Criteria Used to Determine Undesirable Results Related to Reduction of Groundwater in Storage

Significant and unreasonable reduction of groundwater in storage may occur in the vicinity of the City of Santa Monica's wellfields, if groundwater elevations decline to a level where recharge rates are too slow to replace groundwater removed from storage over a period of wet and dry years. Because the minimum thresholds for chronic lowering of groundwater levels were selected to prevent water levels from falling below the point at which recharge rates are anticipated to decline, and groundwater elevations are directly related to groundwater in storage, groundwater elevations in the Subbasin will be used to determine whether significant and unreasonable reduction of groundwater in storage occurs.

Well construction information, production history, and previous investigations indicate that significant and unreasonable reduction of groundwater storage would occur when pumping groundwater levels fall below 50% of the combined thickness of the Silverado and Sunnyside aquifers. At this elevation, groundwater recharge rates may decline and may no longer be sufficient to replace groundwater removed from storage over a cycle of wet and dry years (City of Santa Monica 2013; City of Santa Monica 2018). Additionally, if groundwater levels reach this elevation, the City of Santa Monica would lose approximately 50% of its current groundwater production capacity, which is a significant and unreasonable impact to Subbasin stakeholders. Therefore, the criterion used to define significant and unreasonable results associated with reduction of groundwater storage are static groundwater elevations that correspond to a pumping groundwater level at 50% of the combined thickness of the Silverado and Sunnyside aquifers. These static and pumping groundwater elevations are lower than historical low groundwater levels. However, reduction of groundwater storage beyond that previously experienced in the Subbasin may be required to maintain operational flexibility for groundwater quality management projects, protect potable aquifer, and ensure ongoing beneficial use of groundwater for municipal/industrial use.

3.2.3 Significant and Unreasonable Seawater Intrusion

Potential Causes of Significant and Unreasonable Seawater Intrusion

Significant and unreasonable seawater intrusion is an undesirable result that is applicable to, but not currently occurring, in the Santa Monica Subbasin. Seawater intrusion is related to chronic lowering of groundwater levels as groundwater elevations in the inland aquifers can induce a landward gradient that draws seawater into the Subbasin. The primary cause of seawater intrusion is groundwater production in excess of natural and artificial recharge during a period containing both wet and dry water years. Additionally, seawater intrusion may occur in the future, even if groundwater production rates are within the current understanding of the Subbasin water balance, as global sea level elevations rise.

Relationship Between Seawater Intrusion and Other Sustainability Indicators

Seawater intrusion has the potential to be induced by chronic lowering of groundwater levels if groundwater production occurs too close to the coast, or if groundwater production from inland wells results in a landward gradient at the coast. This impact was observed historically when groundwater production in the Ballona aquifer occurred close to the coast (see Section 2.4.3 Seawater Intrusion). As seawater intrusion occurs, it replaces fresh groundwater in storage, and degrades water quality. Seawater intrusion will not induce land subsidence. Seawater intrusion in shallow sediments will impact the water quality of interconnected surface water and groundwater adjacent to the coast.

Effects on Beneficial Uses and Users of Groundwater

Significant and unreasonable seawater intrusion would impact beneficial uses and users of groundwater in the Subbasin by limiting the volume of fresh groundwater available for municipal and industrial supplies, requiring additional treatment to be developed for groundwater produced from the City of Santa Monica's production wells, and limiting the operational capacity and flexibility of groundwater quality management projects. Significant and unreasonable seawater intrusion would result in higher water costs for all users in the Subbasin.

Criteria Used to Determine Undesirable Results Related to Seawater Intrusion

Seawater intrusion has occurred historically in limited areas of the Ballona aquifer, as determined by chloride concentrations greater than 500 mg/L in groundwater samples (see Section 2.4.3). Seawater intrusion has not been observed historically in the Silverado aquifer, which is the primary drinking water aquifer in the Subbasin, despite periods of time during which groundwater elevations were below sea level. There is no correlation between groundwater levels and chloride concentration in the observed data. Additionally, the existing numerical model of the Subbasin is sensitive to parameters that impact the rate of simulated seawater intrusion without impacting simulated groundwater levels (see Section 3.2.1 Chronic Lowering of Groundwater Levels). Therefore, modeled groundwater levels are also not a good indicator of seawater intrusion. Therefore, groundwater levels cannot be used as a proxy for seawater intrusion at this time and the minimum threshold for seawater intrusion is instead defined using measured chloride concentrations.

Because groundwater elevations do not currently correlate with chloride concentrations, where measured, chloride concentrations in the Subbasin will be used to determine whether significant and unreasonable seawater intrusion occurs.

Although seawater intrusion may result from declining groundwater elevations within the Subbasin, the primary aquifers within the San Pedro Formation outcrop several miles offshore, at the shelf break. Prior to development of groundwater resources in the Subbasin, freshwater would have flowed offshore driven by higher groundwater elevations onshore than off. Therefore, the groundwater stored in these aquifers offshore provides a buffer between today's groundwater production and instantaneous onshore seawater intrusion impacts.

Seawater intrusion has been documented within the Ballona aquifer however, current chloride concentrations are below the Basin Plan Objective of 200 mg/L in the Ballona and Silverado aquifers and seawater intrusion is not impacting beneficial uses of groundwater in the principal aquifers (see Section 2.4.3 Seawater Intrusion). Additional monitoring wells are recommended for the area between Marina del Rey and the Charnock wellfield in order to provide chloride concentration trends closer to the coast that could act as an early warning for potential seawater intrusion.

Until additional monitoring wells are installed in the Subbasin, the City of Santa Monica's production wells will be used to monitor for seawater intrusion. The Subbasin may experience an undesirable result if chloride concentrations at the City of Santa Monica's Charnock and Olympic Wellfields reach 500 mg/L, which corresponds with the lower limit of brackish groundwater chloride concentrations. This concentration was selected because of the potential impacts to beneficial uses and users of groundwater that could as a result of chloride concentrations that exceed 500 mg/L. These impacts include additional maintenance and cost for the City of Santa Monica's groundwater production facilities, which may experience increased risk of corrosion and will require additional energy expenditures to remove higher concentrations of chloride from the groundwater.

The minimum threshold concentration of chloride is higher than the secondary MCL for chloride, which is 250 mg/L, and higher than the Basin Plan Objective for chloride, which is 200 mg/L. However, the City of Santa Monica is

already treating all groundwater to drinking water standards as a result of historical anthropogenic contamination of the Subbasin and has the ability to reduce chloride concentrations in groundwater through its treatment facilities. Therefore, all water served by the City of Santa Monica will continue to meet Title 22 drinking water standards, even if chloride concentrations in the groundwater increase.

3.2.4 Significant and Unreasonable Degradation of Water Quality

Potential Causes of Significant and Unreasonable Degradation of Water Quality Related to Groundwater Production

Degradation of groundwater quality caused by groundwater production is an undesirable result that is not occurring within the Subbasin and is not likely to occur within the Subbasin. The primary recharge to the Subbasin occurs via infiltration of precipitation and runoff in the Santa Monica Mountains. The quality of the water that recharges the Subbasin is equal to or greater water quality than the existing groundwater in the Subbasin, which has experienced degradation of groundwater quality from industrial contamination. As a result of this historical contamination, the groundwater produced at the primary wellfields in the Subbasin requires treatment before it can be served as drinking water. Where not impacted by historical industrial contamination, the occurrence of inorganic constituents in groundwater is consistent with natural recharge, independent of anthropogenic activities (see Section 2.4.4.2 Current and Historical Groundwater Quality).

Where contaminants have impacted the City of Santa Monica production wellfields, the City has constructed facilities that treat the groundwater to drinking water standards before distribution. Additional facilities are planned as part of the City's Sustainable Water Master Plan, the implementation of which will increase groundwater production from the Olympic Wellfield (City of Santa Monica 2018). These treatment facilities will, over time, improve the groundwater quality of the Subbasin, by removing the existing contaminants from the groundwater. The City of Santa Monica is committed to the full restoration of the groundwater quality in the Subbasin through its active groundwater treatment program.

Relationship Between Degradation of Groundwater Quality and Other Sustainability Indicators

Degradation of groundwater quality is not related to chronic lowering of groundwater levels within the freshwater aquifers of the Subbasin, significant and unreasonable reduction of groundwater in storage, significant and unreasonable land subsidence related to groundwater withdrawal, or significant and unreasonable reduction of interconnected surface water and groundwater. Degradation of groundwater quality will occur if significant and unreasonable seawater intrusion occurs in the Subbasin.

Effects on Beneficial Uses and Users of Groundwater

If significant and unreasonable degradation of water quality resulting from groundwater production were to occur in the Subbasin, uses and users of groundwater may be impacted because the cost to treat and serve the groundwater may increase. However, the current groundwater quality has been highly impacted by historical industrial contamination and is already being treated prior to distribution to the public. This existing treatment is not paid for by water users, but rather by the parties responsible for the historical contamination.

Criteria Used to Determine Undesirable Results Related to Degradation of Groundwater Quality Related to Groundwater Production

Because there is no historical evidence of groundwater production causing significant and unreasonable degradation of groundwater quality in the Subbasin, natural recharge is of equal or greater quality than the current groundwater in the Subbasin, groundwater level minimum thresholds will prevent groundwater production from occurring in deeper formations with potentially reduced groundwater quality, industrial contamination of the Subbasin occurred prior to 2015, and the City of Santa Monica is actively remediating this contamination under the regulatory oversight of the SWRCB, DDW, and RWQCB, this GSP does not define additional undesirable results for groundwater degradation within the Subbasin. The City of Santa Monica and the GSA will continue to review groundwater quality data generated to meet the existing regulatory requirements in the Subbasin. These data will be incorporated into the periodic evaluation of the GSP and will be used to assess whether undesirable results for groundwater quality may need to be established in the future.

3.2.5 Significant and Unreasonable Land Subsidence Resulting from Groundwater Withdrawal

Potential Causes of Significant and Unreasonable Land Subsidence Related to Groundwater Production

Land Subsidence resulting from groundwater withdrawal in the Subbasin is a sustainability indicator that is applicable to the Subbasin, but significant and unreasonable land subsidence resulting from groundwater withdrawal is not currently occurring within the Subbasin (see Section 2.4.5 Subsidence). Groundwater levels that are below historical conditions may cause land subsidence because groundwater acts to reduce the effective stress needed to maintain pore-structures in the aquifer. As groundwater levels decline, pressure on the aquifer matrix increases, which may cause the pore-structure to collapse, causing the land surface to subside. Fine grained sediments such as silts and clays are most prone to subsidence resulting from pore pressure declines as a result of groundwater production.

Relationship Between Land Subsidence Related to Groundwater Withdrawal and Other Sustainability Indicators

Land subsidence related to groundwater withdrawal in the Subbasin is directly related to chronic lowering of groundwater levels if groundwater levels drop below historical lows and these declines occur within fine-grained sediments prone to subsidence. Land subsidence related to groundwater withdrawal in the Subbasin is also influenced by seawater intrusion, which tends to maintain pressure in the sedimentary pore space, thereby limiting the potential for subsidence. Significant and unreasonable seawater intrusion is discussed in Section 3.2.3, Seawater Intrusion. Land subsidence related to groundwater withdrawal in the Subbasin is not related to degradation of water quality or reduction of interconnected surface water and groundwater.

Effects on Beneficial Uses and Users of Groundwater

Land subsidence resulting from groundwater withdrawal in the Subbasin that substantially interferes with surface land uses has the potential to impact beneficial uses and users of groundwater in the Subbasin by negatively impacting surface infrastructure including roads, pipelines, and buildings. In the urban environment of the Subbasin infrastructure impacts from differential changes in the land surface elevation include shifting and cracking of building foundations, damaged or less efficient sewer lines, cracked roadways, and water conveyance utilities. Once

damage has occurred, the cost to fix the infrastructure can be substantial and would impact the Subbasin stakeholders who would have to pay for repairs to damaged infrastructure.

Criteria Used to Determine Undesirable Results Related to Land Subsidence Related to Groundwater Production

Historical records of land subsidence in the Subbasin do not indicate that past groundwater production from the principal aquifers and aquitards of the Subbasin has caused land subsidence that substantially interfered with surface land uses. Subsidence related to groundwater production from the principal aquifers and aquitards of the Subbasin has not occurred the primary aquifers in the Subbasin are composed of fine sands and gravels, which hold their structure through changes in groundwater elevation and are less prone to subsidence. There are clay layers associated with the Bellflower aquitard that overlie the primary production aquifers of the Subbasin. These layers have already experienced groundwater elevation changes that would have reduced the effective stress and caused settling of the particles in the past, and are also prone to seawater intrusion, which maintains pore pressure in the shallow sediment and limits subsidence. Additional declines in groundwater elevation within the production aquifers will not induce subsidence in these shallow sediments. Consequently, the Subbasin is at low risk for inelastic land subsidence resulting from groundwater withdrawal (see Section 2.4.5, Land Subsidence).

Although at a low risk for land subsidence induced by groundwater withdrawal, it should be noted that the Subbasin is prone to tectonically induced land subsidence, which cannot be prevented. Therefore, monitoring for land subsidence in the Subbasin must include an understanding of the background rate of land surface elevation change as a result of tectonic forces in order to distinguish between tectonically induced land subsidence and land subsidence induced by groundwater withdrawal.

The undesirable result for land subsidence related to groundwater production within the Subbasin is defined as inelastic land subsidence resulting from groundwater withdrawals from the Subbasin's principal aquifers that substantially interferes with surface land uses or infrastructure. Currently, the groundwater elevation minimum thresholds for chronic declines in groundwater levels and significant and unreasonable reduction of groundwater storage will be used to prevent significant and unreasonable land subsidence resulting from groundwater withdrawal in the principal aquifers. These elevations limit groundwater declines within the Silverado aquifer to levels that remain above thick subsurface clay layers. Therefore, future declines in groundwater elevation will only occur within sand and gravel aquifers that are not prone to land subsidence as a result of reduction in the effective stress. Although groundwater elevation thresholds that prevent chronic declines in groundwater levels will be used as a proxy for direct measurement of land subsidence rates in the Subbasin, the GSA will continue to monitor land subsidence using publicly available InSAR and / or GPS data. If land subsidence linked to groundwater withdrawal from the principal aquifers is established in the future, the City of Santa Monica and the GSA will evaluate the need to select specific groundwater level thresholds for land subsidence.

3.2.6 Significant and Unreasonable Reduction of Interconnected Surface Water and Groundwater

Potential Causes of Significant and Unreasonable Reduction of Interconnected Surface Water and Groundwater

Significant and unreasonable reduction of interconnected surface water and groundwater is an undesirable result that is not occurring within the Subbasin and is unlikely to occur in the Subbasin. The Subbasin is characterized by channels that are lined with concrete to facilitate flood protection (ACOE 1982). Where channels are lined, there is little opportunity for interconnection except for outflow of groundwater through weep holes and

channel drains and no opportunity for the establishment of GDEs due to the absence of consistent substrate. Where unlined, discharge areas are primarily estuary environments which receive water from both marine and freshwater sources.

Relationship Between Significant and Unreasonable Reduction of Interconnected Surface Water and Groundwater and Other Sustainability Indicators

Significant and unreasonable reduction of interconnected surface water and groundwater would occur if chronic lowering of groundwater levels occurred in the Bellflower aquitard in the vicinity of the two GDE units identified in the Subbasin. However, there is no groundwater production from the Bellflower aquitard, and the shallow groundwater in the Bellflower aquitard is disconnected from the underlying Ballona and Silverado aquifers, which support groundwater production.

Significant and unreasonable reduction of interconnected surface water and groundwater is not linked to reduction of groundwater in storage, which can occur within the principal aquifers of the Subbasin, seawater intrusion, degradation of water quality, or land subsidence.

Effects on Beneficial Uses and Users of Groundwater

Significant and unreasonable reduction of interconnected surface water and groundwater in the vicinity of the two GDE units would have the potential to impact beneficial uses and users of groundwater in the Subbasin by converting current freshwater habitat to saltwater or brackish water habitat (see Section 2.4.7 Groundwater Dependent Ecosystems). This may occur if groundwater elevations are lowered within or adjacent to the two GDEs in the Subbasin, both of which are adjacent to the Pacific Ocean. However, in preparation for anticipated sea level rise as a result of climate change, and in response to historical degradation of the existing BWER habitat, CDFW is planning to undertake a restoration project for the BWER, the largest identified GDE in the Subbasin (CDFW 2019). This project will alter current distribution of estuarine aquatic and associated upland habitats (CDFW 2019). Therefore, the beneficial uses and users of groundwater in the BWER are slated to change over the duration of the project and the potential impacts to potential future beneficial uses and users of groundwater cannot be assessed at this time.

Criteria Used to Determine Undesirable Results Related to Land Subsidence Related to Groundwater Production

Potential wetlands, shallow groundwater (less than 30 feet[1]), and GDEs have been identified in the PCH Unit and BWER in the Subbasin (see Section 2.4.7, Groundwater Dependent Ecosystems). Depletion of groundwater supporting these areas is not currently occurring and will not occur as a result of groundwater production for three primary reasons. First, the groundwater that supports the two identified GDE habitats occurs within the Bellflower aquitard, a shallow surface layer that is hydraulically disconnected from the underlying Ballona and Silverado aquifers in much, though not all, of the Subbasin (see Section 2.3.2, Principal Aquifers and Aquitards). Second, both the BWER and the PCH GDE unit are over one mile from the primary production wells in the Subbasin and water level changes observed in the vicinity of the production wellfield are not observed in shallow groundwater wells adjacent to the Pacific Ocean. Third, future development of groundwater resources near the coast is not planned due to the combined risk of inducing sweater intrusion, which has occurred historically in shallow groundwater production wells west of Lincoln Boulevard, and the risk of infrastructure disruption by sea level rise. If any future projects do propose to develop shallow groundwater resources within one mile of documented

[1] 30-foot depth is identified by the Nature Conservancy as representative of groundwater conditions that may sustain common phreatophytes and wetland ecosystems (Rohde et al. 2018).

wetlands or GDEs, they must evaluate their potential to cause significant and unreasonable depletion of interconnected surface water and groundwater, including potential impacts to GDEs, in order to demonstrate compliance with this GSP.

Because the identified GDE habitat in the Subbasin is not supported by groundwater in the Ballona or Silverado aquifers, where the majority of the groundwater in the Subbasin is produced, and no groundwater production is planned for the Bellflower aquitard within one mile of the existing habitat, specific undesirable results related to interconnected surface water and groundwater are not defined in this GSP. However, in the event that future groundwater production is planned within a mile of the BWER, additional investigations should be performed to assess whether the planned production may cause significant and unreasonable depletion of interconnected surface water and groundwater that negatively impacts GDEs.

3.2.7 Defining Undesirable Results

Groundwater conditions in the Subbasin are currently monitored with a network of over 93 wells in the GSP monitoring network, and an additional 108 wells with known screen intervals in the Ballona and Silverado aquifers (see Section 3.5.2 Description of Existing Monitoring Network). Eight of the GSP monitoring network wells were selected as representative monitoring points (RMPs) for groundwater elevations in the Subbasin and ten were selected for seawater intrusion (Figure 3-2; see Section 3.5.6 Representative Monitoring). The two sets of wells do not overlap, because seawater intrusion is being measured by chloride concentration in the groundwater at the City of Santa Monica's production wells, at which chloride concentrations have been measured for over 20 years, while the groundwater elevation RMPs are dedicated monitoring wells that measure static groundwater level conditions in the aquifers. Although minimum thresholds used to assess whether the Subbasin is experiencing undesirable results were only selected at the eight groundwater level, and ten seawater intrusion RMPs, groundwater elevation and groundwater quality measurements will continue to be collected from the broader monitoring network.

Undesirable results in the Subbasin will be identified by comparing groundwater elevation and concentrations from the 18 RMPs to the respective minimum threshold for the applicable sustainability indicator (Table 3-1). Undesirable results related to chronic declines in groundwater elevation, significant and unreasonable loss of groundwater in storage, and significant and unreasonable land subsidence resulting from groundwater withdrawal will be determined using the ten groundwater elevation RMPs (Table 3-1). Undesirable results related to significant and unreasonable seawater intrusion will be determined using ten of the 18 RMPs (Table 3-1).

Table 3-1. Representative Monitoring Points in the Subbasin

RMP Casing Name	Groundwater Monitoring Program[a]	Screen Interval (s) (ft bgs)	Sustainability Indicator(s)[b] Monitored
RMW-3	CASGEM; Charnock R	179.5—199.5	Levels, Storage, Subsidence
RMW-8	CASGEM; Charnock R	240—269.5	Levels, Storage, Subsidence
RMW-9	CASGEM; Charnock R; Charnock E	164—184	Levels, Storage, Subsidence
RMW-28	CASGEM; Charnock R	157—172	Levels, Storage, Subsidence
OB-7	CASGEM; Olympic	215—246	Levels, Storage, Subsidence
OB-9B	CASGEM; Olympic	202.15—222.15	Levels, Storage, Subsidence
OB-9C	CASGEM; Olympic	305.33—335.33	Levels, Storage, Subsidence
OB-17C	CASGEM; Olympic	295.6—325.6	Levels, Storage, Subsidence
Arcadia No. 4	DDW	85-218	Seawater Intrusion
Arcadia No. 5	DDW	122—222	Seawater Intrusion

Table 3-1. Representative Monitoring Points in the Subbasin

RMP Casing Name	Groundwater Monitoring Program[a]	Screen Interval (s) (ft bgs)	Sustainability Indicator(s)[b] Monitored
Santa Monica No. 1	DDW	151—250	Seawater Intrusion
Santa Monica No. 3	DDW	210—270; 300—380; 410—430; 490—530	Seawater Intrusion
Santa Monica No. 4	DDW	200—410; 470—540	Seawater Intrusion
Charnock No. 16	DDW	230—390	Seawater Intrusion
Charnock No. 18	DDW	240—455	Seawater Intrusion
Charnock No. 19	DDW	200—450	Seawater Intrusion
Charnock No. 20	DDW	242—295; 315—385	Seawater Intrusion
City Hall Well	—	60—90; 120—160	Seawater Intrusion

Notes:

[a] The majority of the RMPs are associated with existing groundwater monitoring programs discussed further in Section 2.1.2 Water Resources Monitoring and Management Programs. CASGEM = California Statewide Groundwater Elevation Monitoring; Charnock R = Charnock Groundwater Management Program; Charnock E = Charnock Early Warning Groundwater Quality Monitoring; DDW = Division of Drinking Water; Olympic = Olympic Wellfield Groundwater Monitoring Program

[b] Levels = Chronic Decline in Groundwater Levels, Subsidence = Land Subsidence resulting from groundwater withdrawals, Storage = Reduction of Groundwater Storage

3.2.7.1 Groundwater Elevation Undesirable Results

Groundwater elevations measured at wells RMW-3, RMW-8, RMW-9, RMW-28, OB-7, OB-9B, OB-9C, and OB-17C will be used to assess whether an undesirable result associated with chronic lowering of groundwater levels ("Levels", Table 3-1), significant and unreasonable reduction of groundwater storage ("Storage", Table 3-1), and significant and unreasonable land subsidence related to groundwater withdrawals ("Subsidence", Table 3-1) has occurred in the Subbasin (Figure 3-2). These eight wells were chosen based on their proximity to areas of active groundwater production, well construction, records of measurement, and inclusion in existing monitoring programs in the Subbasin (see Section 3.5.6 Representative Monitoring). Historical groundwater elevations at these wells are representative of groundwater conditions in each of the wellfields and reflect the observed changes in groundwater levels and experienced in the Subbasin between 1985 and 2019 (Figure 3-3).

Because groundwater levels are locally impacted by municipal and industrial extractions and operations of groundwater quality management projects, a groundwater level minimum threshold exceedance at a single well is not considered undesirable. In addition, because groundwater levels in the Subbasin respond to changing production patterns and periods of elevated groundwater recharge, minimum threshold exceedances during a single monitoring event would not be indicative of undesirable results in the Subbasin.

Undesirable results for chronic lowering of groundwater levels, significant and unreasonable reduction of groundwater in storage, and significant and unreasonable land subsidence resulting from groundwater withdrawals are defined as groundwater elevations that are below the minimum threshold at five out of the eight groundwater level representative monitoring points for two consecutive spring monitoring events.

3.2.7.2 Seawater Intrusion Undesirable Results

Chloride concentrations will be measured at ten RMPs to characterize undesirable results associated with significant and unreasonable seawater intrusion (Table 3-1). Nine of these ten wells are active groundwater production wells operated by the City of Santa Monica (Figure 3-2). The tenth well, located in the vicinity of the Santa Monica City Hall will be added to the monitoring network in order to provide a well that is closer to the coast.

Since the late 1980s, the chloride concentration in groundwater samples collected from wells in the Charnock, Olympic, and Arcadia wellfields has ranged from approximately 53 mg/L at Charnock No. 18 to 252 mg/L at well Charnock No. 13 (Figure 2-39). With the exception of the first two samples collected from Charnock 13, chloride concentrations at the City of Santa Monica's production wells have all been below the basin plan objective of 200 mg/L (see Section 2.4.4 Groundwater Quality).

The Subbasin would be experiencing undesirable results related to significant and unreasonable seawater intrusion if the concentration of chloride exceeds 500 mg/L at six of the ten water quality representative monitoring points for two consecutive annual groundwater quality sampling events.

3.3 Minimum Thresholds

This section describes the minimum thresholds established for chronic lowering of groundwater levels, significant and unreasonable reduction of groundwater in storage, significant and unreasonable land subsidence, and significant and unreasonable seawater intrusion. Minimum thresholds for degradation of groundwater quality and interconnected surface water are not established in this GSP (see Sections 3.2.4 Significant and Unreasonable Degradation of Groundwater Quality and 3.2.6 Significant and Unreasonable Depletion of Interconnected Surface Water and Groundwater).

Table 3-2. Minimum Thresholds

RMP Casing Name	Chronic Decline in Groundwater Levels (ft MSL)	Significant and Unreasonable Reduction of Groundwater Storage (ft MSL)	Significant and Unreasonable Land Subsidence Related to Groundwater Withdrawal (ft MSL)	Significant and Unreasonable Seawater Intrusion (Chloride – mg/L)
RMW-3	-175	-175	-175	—
RMW-8	-165	-165	-165	—
RMW-9	-165	-165	-165	—
RMW-28	-160	-160	-160	—
OB-7	5	5	5	—
OB-9B	20	20	20	—
OB-9C	-95	-95	-95	—
OB-17C	-85	-85	-85	—
Arcadia No. 4	—	—	—	500
Arcadia No. 5	—	—	—	500
Santa Monica No. 1	—	—	—	500
Santa Monica No. 3	—	—	—	500
Santa Monica No. 4	—	—	—	500
Charnock No. 16	—	—	—	500

Table 3-2. Minimum Thresholds

RMP Casing Name	Chronic Decline in Groundwater Levels (ft MSL)	Significant and Unreasonable Reduction of Groundwater Storage (ft MSL)	Significant and Unreasonable Land Subsidence Related to Groundwater Withdrawal (ft MSL)	Significant and Unreasonable Seawater Intrusion (Chloride – mg/L)
Charnock No. 18	—	—	—	500
Charnock No. 19	—	—	—	500
Charnock No. 20	—	—	—	500
City Hall Well	—	—	—	500

Notes:
Interconnected surface water-groundwater and degradation of groundwater quality related to groundwater production minimum thresholds are not established because they are not undesirable results applicable to the Subbasin.

The minimum thresholds discussed below are groundwater elevations and chloride concentrations that avoid undesirable results (Table 3-2). As discussed in Section 3.2.7 Defining Undesirable Results, undesirable results are defined as:

- Pumping groundwater elevations below 50% of the combined thicknesses of the Silverado and Sunnyside aquifers.
- Chloride concentrations that exceed 500 mg/L at the City of Santa Monica's production wellfields.

Groundwater level minimum thresholds were established based on historical groundwater elevation data, well construction information, previous investigations, an analysis of projected groundwater levels based on simulation results from the LACPGM, and discussions with stakeholders regarding well operation requirements and potential impacts from minimum threshold levels. The projected groundwater levels used in the analysis of minimum thresholds were simulated over the 61-year period from water year 2016 to 2076 and incorporate the impact of future climate change scenarios (see Section 2.5.6.3 Projected Water Budget).

Seawater intrusion minimum thresholds were established based on current and historical groundwater quality data, the concentration threshold for brackish groundwater, a review of state and federal water quality standards, and discussions with stakeholders.

The data reviewed and analyzed during determination of minimum thresholds for chronic declines in groundwater levels, significant and unreasonable reduction of groundwater in storage, land subsidence related to groundwater withdrawal that substantially interferes with surface land uses, and significant and unreasonable seawater intrusion are discussed in the following sections.

3.3.1 Chronic Lowering of Groundwater Levels

3.3.1.1 Method Used to Establish the Minimum Threshold

Minimum threshold groundwater elevations established at the eight groundwater elevation RMPs are based on correlations established between groundwater elevations in the City of Santa Monica production wells and static groundwater levels in nearby monitoring wells. The undesirable result for chronic declines in groundwater elevation is pumping groundwater levels that fall below the mid-point of the combined thickness of the Silverado and Sunnyside aquifers. In the Charnock wellfield, this corresponds to a pumping groundwater level of approximately -

300 ft MSL, while in the Olympic Wellfield this corresponds to a pumping groundwater level of approximately -330 ft MSL. The corresponding static groundwater levels at the RMPs in the Charnock wellfield range from -175 ft MSL to -160 ft MSL (Table 3-2). At the Olympic Wellfield the corresponding static groundwater levels at the RMPs range from -75 ft MSL to 10 ft MSL. The groundwater level minimum thresholds provide operational flexibility for stakeholders in the Subbasin while ensuring ongoing beneficial use of groundwater by maintaining 50% of the groundwater available for municipal and industrial supplies in the Silverado and Sunnyside aquifers. By definition, the minimum threshold groundwater elevations will prevent chronic lowering of groundwater levels because they provide a lower limit on groundwater elevation declines within the Subbasin.

Projected groundwater levels calculated using the LACPGM model indicate that at a production rate of 9,000 AFY, groundwater elevations at the RMPs will decline and recover based on the volume of recharge available in the Subbasin (Figure 3-1). Groundwater elevations at the end of each of the future scenarios are projected to be higher than they are at the beginning of the scenario. Therefore, chronic lowering of groundwater levels is not anticipated to occur within the Subbasin.

Over the GSP planning and implementation horizon, the groundwater elevation minimum thresholds allow for groundwater extractions that exceed historical levels while protecting against long-term aquifer supply depletion. Groundwater elevations measured at each of the RMPs will be reported to DWR in the annual reports that will follow the submittal of this GSP. As funding becomes available, it is recommended that each of these wells be instrumented with a pressure transducer capable of recording daily groundwater levels. The groundwater elevation in each well will be compared to the minimum threshold to determine whether the Subbasin is experiencing undesirable results associated with chronic declines of groundwater levels.

3.3.1.2 Relationship to Other Sustainability Indicators

Reduction of Groundwater in Storage. The minimum thresholds for chronic declines in groundwater level are the same as those for reduction of groundwater in storage. Therefore, they will not interfere with the ability of the Subbasin to avoid undesirable results related to reduction of groundwater in storage.

Seawater Intrusion. The minimum thresholds for chronic declines in groundwater level are separate from the chloride concentrations that will be used to determine whether or not the Subbasin is experiencing undesirable results from seawater intrusion. In the event that groundwater levels at the RMPs remain above the minimum thresholds for chronic declines in groundwater level, while chloride concentrations at the RMPs exceed the minimum thresholds, the GSA will take action to mitigate the impact of seawater intrusion. Therefore, the minimum thresholds for chronic declines in groundwater elevation will not interfere with the ability of the Subbasin to avoid undesirable results related to seawater intrusion.

Degradation of Groundwater Quality. This GSP does not define additional undesirable results, beyond those that impacted the Subbasin prior to 2015, for groundwater degradation within the Subbasin. The minimum thresholds for chronic declines in groundwater level were selected to avoid negatively impacting existing groundwater remediation activities in the Subbasin.

Land Subsidence Related to Groundwater Production. The minimum thresholds for chronic declines in groundwater level are the same as those for land subsidence related to groundwater production in the Subbasin. Therefore, they will not interfere with the ability of the Subbasin to avoid undesirable results related to land subsidence caused by groundwater production from the Subbasin.

Interconnected Surface Water and Groundwater. This GSP does not define specific undesirable results for interconnected surface water and groundwater because the only identified GDEs in the Subbasin are adjacent to the coast and supported by shallow groundwater that occurs within the Bellflower aquitard. This shallow groundwater is disconnected from the primary aquifers in the Subbasin. Therefore, the minimum thresholds for chronic declines in groundwater level will not impact the GDEs in the Subbasin.

3.3.1.3 Effects on Neighboring Basins

West Coast Basin adjudicated area. If groundwater elevations in the Santa Monica Subbasin reach the minimum thresholds for chronic declines in groundwater levels, flow from the Santa Monica Subbasin to the West Coast Basin adjudicated area may diminish or reverse. On average, between 1985 and 2015 numerical groundwater model results suggest that approximately 1,900 AFY flowed from the Santa Monica Subbasin to the West Coast Basin adjudicated area. The current conditions are lower, with numerical modeling results suggesting that approximately 1,000 AF flowed from the Santa Monica Subbasin to the West Coast Basin adjudicated area in 2015. Future groundwater production is anticipated to reverse these flows, resulting in annual inflows to the Santa Monica Subbasin of approximately 400 AFY. In the event that water levels in the Santa Monica Subbasin reach the minimum thresholds for chronic declines in groundwater levels these flows may be larger. Refinement of the numerical groundwater model is required to investigate the likelihood of these flow changes and the potential impacts to the West Coast Basin adjudicated area. The magnitude of these changes, however, is not anticipated to limit the ability of the West Coast Basin watermaster to sustainably manage this adjudicated area.

Hollywood Subbasin. The Hollywood Subbasin is separated from the Santa Monica Subbasin by the Newport-Inglewood fault. This fault limits the flow of water between the two subbasins. Therefore, the minimum thresholds for chronic declines in groundwater elevation are not anticipated to impact the Hollywood Subbasin.

Central Subbasin. The Central Subbasin is separated from the Santa Monica Subbasin by the Newport-Inglewood fault. This fault limits the flow of water between the two subbasins. Therefore, the minimum thresholds for chronic declines in groundwater elevation are not anticipated to impact the Central Subbasin.

3.3.1.4 Effects on Beneficial Uses and Users of Groundwater

Municipal Well Operators and Public and Private Water Purveyors. The chronic lowering of groundwater level minimum thresholds were selected to protect the long-term beneficial use of the Subbasin's groundwater for municipal well operators. The minimum thresholds may require new municipal wells that are deeper than existing municipal wells over time. The City of Santa Monica, which is the only municipal well owner operating in the Subbasin has planned for that contingency and will incorporate the minimum thresholds into the design of future wells that will replace existing, aging wells in the Subbasin.

Local Land Use Planning Agencies. With the exception of the City of Santa Monica, none of the local land use planning agencies rely on groundwater produced from the Subbasin. Therefore, the minimum thresholds for chronic lowering of groundwater levels will not impact existing water use or land use plans developed by these agencies. The minimum thresholds for chronic lowering of groundwater levels will, however, protect against long-term depletion and undesirable results in the Subbasin, thereby maintaining the groundwater resources for use in the future.

Environmental Users. The environmental communities that rely on groundwater in the Subbasin do not rely on groundwater that is connected to the primary production aquifers, but rather on shallow groundwater that occurs

within the Bellflower aquitard. Water levels in the Bellflower aquitard are influenced by localized precipitation and proximity to the Pacific Ocean. These water levels are not correlated with groundwater levels in the production aquifers. Therefore, the minimum thresholds selected for chronic lowering of groundwater levels, which are selected for representative monitoring points in the Ballona and Silverado aquifers, will not impact environmental users of groundwater in the Subbasin.

Disadvantaged Communities. The chronic lowering of groundwater level minimum thresholds were selected to protect the long-term beneficial use of the Subbasin's groundwater for municipal groundwater production. There are no private domestic wells in the Subbasin and the only disadvantaged communities that rely on groundwater in the Subbasin are connected to the City of Santa Monica's water distribution system. Because the chronic lowering of groundwater level minimum thresholds protect the beneficial use of groundwater by the City of Santa Monica, these thresholds will protect the beneficial use of groundwater for disadvantaged communities.

3.3.1.5 Relevant Federal, State, or Local Standards

There are no federal, state, or local standards for chronic lowering of groundwater levels.

3.3.1.6 Method for Quantitative Measurement of Minimum Thresholds

Groundwater elevations will be measured at the RMPs in accordance with the Best Management Practices (BMPs) published by DWR on monitoring protocols and discussed further in Section 3.5.6 Protocols for Data Collection and Monitoring (DWR 2016a).

3.3.2 Significant and Unreasonable Reduction of Groundwater in Storage

3.3.2.1 Method Used to Establish the Minimum Threshold

Minimum threshold groundwater elevations established at the eight groundwater elevation RMPs coincide with pumping groundwater levels at the mid-point of the Silverado and Sunnyside aquifers (Table 3-2). Pumping groundwater levels that are below the mid-point of the Silverado and Sunnyside aquifers would be an undesirable result. The same data and criteria used to evaluate undesirable results associated with chronic lowering of groundwater levels were used to define significant and unreasonable reduction of groundwater storage.

Pumping groundwater elevations at the mid-point of the Silverado and Sunnyside aquifers are lower than historical low groundwater levels. The operational requirements of groundwater quality management projects, historical groundwater conditions in the Subbasin, and local well construction information were used to evaluate the aquifer saturation at which undesirable results may occur. This analysis suggests that maintaining groundwater levels above the mid-point of the Silverado and Sunnyside aquifers will protect against long-term aquifer supply depletion and provide necessary operational flexibility for municipal, industrial, and private groundwater users.

Future projected conditions generated with the LACPGM indicate that groundwater elevations are expected to remain above the groundwater level minimum thresholds throughout the future simulation period (Figure 3-1). Correspondingly, there is no projected cumulative storage loss during the projected period. However, the future projections include a reversal of flow leaving the Subbasin to the West Coast Basin, and potential seawater intrusion. The cumulative change of freshwater in storage over the simulation period could be as high as 128,000

AF (see Section 2.5.6 Quantification of Current, Historical, and Projected Water Budget). For comparison, the cumulative loss of storage between 1985 and 2018 was estimated to be approximately 41,000 AF.

Groundwater levels measured at the eight RMPs used to set minimum thresholds for reduction of groundwater in storage will be reported to DWR in the annual reports that will follow the submittal of this GSP. As funding becomes available, it is recommended that each of these wells be instrumented with a pressure transducer capable of recording daily groundwater levels. The groundwater elevation in each well will be compared to the minimum threshold assigned in Table 3-2 to determine whether the Subbasin is experiencing undesirable results related to reduction in groundwater storage.

3.3.2.2 Relationship to Other Sustainability Indicators

The minimum thresholds for reduction of groundwater in storage are the same as those for chronic declines in groundwater level. Therefore, they will not interfere with the ability of the Subbasin to avoid undesirable results related to chronic declines in groundwater level, seawater intrusion, or land subsidence related to groundwater production in the Subbasin, as discussed in Section 3.3.1.2 Relationship to Other Sustainability Indicators. This GSP does not define additional undesirable results, beyond those that impacted the Subbasin prior to 2015, for groundwater degradation, or specific undesirable results for interconnected surface water and groundwater.

3.3.2.3 Effects on Neighboring Basins

The minimum thresholds for reduction of groundwater in storage are the same as those for chronic declines in groundwater level. Therefore the anticipated effects on neighboring basins will be the same as those discussed in Section 3.3.1.3 Effects on Neighboring Basins.

3.3.2.4 Effects on Beneficial Uses and Users of Groundwater

The minimum thresholds for reduction of groundwater in storage are the same as those for chronic declines in groundwater level. Therefore, the anticipated effects on beneficial uses and users of groundwater will be the same as those discussed in Section 3.3.1.4 Effects on Beneficial Uses and Users of Groundwater.

3.3.2.5 Relevant Federal, State, or Local Standards

There are no federal, state, or local standards for reduction of groundwater in storage.

3.3.2.6 Method for Quantitative Measurement of Minimum Thresholds

Groundwater elevations will be used as a proxy for groundwater in storage. These elevations will be measured at the RMPs in accordance with the Best Management Practices (BMPs) published by DWR on monitoring protocols and discussed further in Section 3.5.6 Protocols for Data Collection and Monitoring (DWR 2016a).

3.3.3 Significant and Unreasonable Seawater Intrusion

3.3.3.1 Method Used to Establish the Minimum Threshold

The minimum threshold chloride concentration established at the ten seawater intrusion RMPs is 500 mg/L, which coincides with the chloride concentration indicative of the onset of brackish water conditions (Table 3-2). The minimum threshold concentration of 500 mg/L was selected because replacing fresh groundwater with brackish groundwater at the Olympic and Charnock Wellfields, would be an undesirable result for the Subbasin. Chloride concentrations in the Subbasin are not correlated with groundwater elevations, therefore the seawater intrusion minimum threshold is distinct from the minimum thresholds established for chronic declines in groundwater elevation, significant and unreasonable groundwater in storage, and significant and unreasonable land subsidence.

Current chloride concentrations at the Charnock and Olympic Wellfields range from 67 to 166 mg/L (see Section 2.4.3 Seawater Intrusion). However, future simulations suggest that landward flow averaging approximately 2,100 AFY may occur across the western boundary of the Subbasin (see Section 2.5.5.3 Quantification of Projected Water Budget). There is uncertainty in both the volume of potential flow and the chloride concentration of the groundwater to the west of the Subbasin. Therefore, this GSP recommends installing additional monitoring wells for seawater intrusion in the area between Marina del Rey and the Charnock Wellfield. These wells will be used to help refine the model estimates of flow and can be added as RMPs for seawater intrusion after they have been installed.

Chloride concentrations measured at the ten RMPs used to set minimum thresholds for seawater intrusion will be reported to DWR in the annual reports that will follow the submittal of this GSP. The concentration of chloride in groundwater at each well will be compared to the minimum threshold chloride concentration assigned in Table 3-2 to determine whether the Subbasin is experiencing undesirable results related to seawater intrusion.

3.3.3.2 Relationship to Other Sustainability Indicators

Chronic Declines in Groundwater Level. The minimum thresholds for seawater intrusion are defined by chloride concentration, rather than groundwater elevation. In the event that chloride concentrations remain below the minimum thresholds for seawater intrusion, while groundwater elevations at the RMPs exceed the minimum thresholds for chronic declines in groundwater level, the GSA will take action to mitigate the impact of chronic declines in groundwater level. Therefore, the minimum thresholds for seawater intrusion will not interfere with the ability of the Subbasin to avoid undesirable results related to chronic declines in groundwater level.

Reduction of Groundwater in Storage. The minimum thresholds for reduction of groundwater in storage are the same as those for chronic declines in groundwater level. Because the minimum thresholds for seawater intrusion will not interfere with the ability of the Subbasin to avoid undesirable results related to chronic declines in groundwater level, they will not interfere with the ability of the Subbasin to avoid undesirable results related to reduction of groundwater in storage.

Degradation of Groundwater Quality. This GSP does not define additional undesirable results, beyond those that impacted the Subbasin prior to 2015, for groundwater degradation within the Subbasin. The minimum thresholds for seawater intrusion were selected to avoid impacting existing groundwater remediation activities in the Subbasin.

Land Subsidence Related to Groundwater Production. The minimum thresholds for land subsidence related to groundwater production in the Subbasin are the same as those for chronic declines in groundwater level. Because the minimum thresholds for seawater intrusion will not interfere with the ability of the Subbasin to avoid undesirable

results related to chronic declines in groundwater level, they will not interfere with the ability of the Subbasin to avoid undesirable results related to land subsidence from groundwater production in the Subbasin.

Interconnected Surface Water and Groundwater. This GSP does not define specific undesirable results for interconnected surface water and groundwater because the only identified GDEs in the Subbasin are adjacent to the coast and supported by shallow groundwater that occurs within the Bellflower aquitard. This shallow groundwater is disconnected from the primary aquifers in the Subbasin. Therefore, the minimum thresholds for seawater intrusion in the primary aquifers will not impact the GDEs in the Subbasin.

3.3.3.3 Effects on Neighboring Basins

The minimum thresholds for seawater intrusion are defined as chloride concentrations within the Santa Monica Subbasin. These chloride concentrations will not impact the Hollywood or Central Subbasins, which lie to the east of the Santa Monica Subbasin. They will also not impact the West Coast Basin adjudicated area which has an active seawater intrusion barrier and is actively managed under the jurisdiction of a watermaster.

3.3.3.4 Effects on Beneficial Uses and Users of Groundwater

Municipal Well Operators and Public and Private Water Purveyors. The minimum thresholds for seawater intrusion were selected to protect the long-term beneficial use of the Subbasin's groundwater for municipal well operators. The minimum thresholds may require additional treatment for groundwater produced from the City of Santa Monica's wells over time. However, City of Santa Monica, which is the only municipal well owner operating in the Subbasin, has planned for that contingency and is already treating the groundwater produced from the Subbasin as a result of historical industrial contamination that occurred prior to 2015. Additional treatment will not interfere with the City of Santa Monica's ability to continue to serve safe, clean drinking water.

Local Land Use Planning Agencies. With the exception of the City of Santa Monica, none of the local land use planning agencies rely on groundwater produced from the Subbasin. Therefore, the minimum thresholds for seawater intrusion will not impact existing water use or land use plans developed by these agencies. The minimum thresholds for seawater intrusion will protect against long-term depletion and undesirable results in the Subbasin, thereby maintaining the groundwater resources for use in the future.

Environmental Users. The environmental communities that rely on groundwater in the Subbasin do not rely on groundwater that is connected to the primary production aquifers, but rather on shallow groundwater that occurs within the Bellflower aquitard. Water levels in the Bellflower aquitard are influenced by localized precipitation and proximity to the Pacific Ocean. These water levels are not correlated with groundwater levels in the production aquifers. Therefore, the minimum thresholds selected for seawater intrusion resulting from groundwater production in the primary aquifers, will not impact environmental users of groundwater in the Subbasin.

Disadvantaged Communities. The chronic lowering of groundwater level minimum thresholds were selected to protect the long-term beneficial use of the Subbasin's groundwater for municipal groundwater production. There are no private domestic wells in the Subbasin and the only disadvantaged communities that rely on groundwater in the Subbasin are connected to the City of Santa Monica's water distribution system. Because the chronic lowering of groundwater level minimum thresholds protect the beneficial use of groundwater by the City of Santa Monica, these thresholds will protect the beneficial use of groundwater for disadvantaged communities.

3.3.3.5 Relevant Federal, State, or Local Standards

There are no federal, state, or local standards for seawater intrusion.

3.3.3.6 Method for Quantitative Measurement of Minimum Thresholds

Chloride concentrations will be used as a proxy for seawater intrusion. These concentrations will be measured in groundwater samples collected from the RMPs in accordance with the Best Management Practices (BMPs) published by DWR on monitoring protocols and discussed further in Section 3.5.6 Protocols for Data Collection and Monitoring (DWR 2016a).

3.3.4 Significant and Unreasonable Degradation of Water Quality

Minimum thresholds for significant and unreasonable degradation of groundwater quality were not established for the Subbasin because the groundwater quality in the Subbasin was impacted by industrial activity prior to 2015. The City of Santa Monica is actively remediating this contamination under the regulatory oversight of the SWRCB, DDW, and RWQCB, and there is no evidence for groundwater quality degradation induced by groundwater production in the Subbasin. If future groundwater production is found to induce groundwater quality degradation, additional characterization of the source of that degradation, and subsequent reassessment of groundwater quality degradation minimum thresholds, may be required.

3.3.5 Significant and Unreasonable Land Subsidence Related to Groundwater Withdrawal

3.3.5.1 Method Used to Establish the Minimum Threshold

Minimum threshold groundwater elevations established at the eight groundwater elevation RMPs coincide with pumping groundwater levels at the mid-point of the Silverado and Sunnyside aquifers (Table 3-3). Pumping groundwater levels that are below the mid-point of the Silverado and Sunnyside aquifers would be an undesirable result. These groundwater levels are also used to define the groundwater levels below which significant and unreasonable land subsidence related to groundwater withdrawal may occur, as clay layers in the subsurface occur below these minimum threshold groundwater elevations.

Pumping groundwater elevations at the mid-point of the Silverado and Sunnyside aquifers are lower than historical low groundwater levels. However, these groundwater levels are not anticipated to induce significant and unreasonable land subsidence related to groundwater withdrawals, because these groundwater levels stay within the sands of the Silverado aquifer, and remain above the clay rich sediments that separate the Silverado from the Sunnyside aquifers. Clayey sediments are more prone to subsidence than are sandy sediments.

Furthermore, minimum thresholds for significant and unreasonable land subsidence related to groundwater withdrawal must be associated with groundwater elevations in the Santa Monica Subbasin, which is located in an active tectonic area. Subsidence that occurs as a result of tectonic forces cannot be separated from subsidence related to groundwater withdrawal with the current InSAR or UNAVCO data (see Section 2.4.5 Subsidence). While the City of Santa Monica's operational requirements may require some groundwater elevation declines in the future, projected groundwater elevations are expected to remain above the groundwater level minimum thresholds

throughout the future simulation period (Figure 3-1). Given the projected groundwater conditions, and the geologic materials in which future groundwater elevation declines may occur, the minimum threshold for chronic declines in groundwater elevation is also used for land subsidence in this GSP.

Groundwater levels measured at the eight RMPs used to set minimum thresholds for chronic declines in groundwater elevation and reduction of groundwater in storage will be reported to DWR in the annual reports that will follow the submittal of this GSP. As funding becomes available, it is recommended that each of these wells be instrumented with a pressure transducer capable of recording daily groundwater levels. The groundwater elevation in each well will be compared to the minimum threshold assigned in Table 3-2 to determine whether the Subbasin may experience significant and unreasonable land subsidence related to groundwater withdrawal.

Additionally, the GSA proposes to monitor land subsidence using publicly available InSAR data which will be evaluated and reported to DWR contemporaneously with the GSP periodic reporting (approximately every 5 years). Because localized lowering of surface elevation may occur from causes other than land subsidence, including excavation or grading for construction, consideration will be given to the areal extent of the subsidence and any coincidence with infrastructure disruption and/or groundwater elevations below historical low elevations. If warranted, inelastic land subsidence will be re-evaluated as an undesirable result.

3.3.5.2 Relationship to Other Sustainability Indicators

The minimum thresholds for land subsidence related to groundwater production in the Subbasin are the same as those for chronic declines in groundwater level. Therefore, they will not interfere with the ability of the Subbasin to avoid undesirable results related to chronic declines in groundwater level, reduction of groundwater in storage, or seawater intrusion in the Subbasin, as discussed in Section 3.3.1.2 Relationship to Other Sustainability Indicators. This GSP does not define additional undesirable results, beyond those that impacted the Subbasin prior to 2015, for groundwater degradation, or specific undesirable results for interconnected surface water and groundwater.

3.3.5.3 Effects on Neighboring Basins

The minimum thresholds for land subsidence related to groundwater production in the Subbasin are the same as those for chronic declines in groundwater level. Therefore, the anticipated effects on neighboring basins will be the same as those discussed in Section 3.3.1.3 Effects on Neighboring Basins.

3.3.5.4 Effects on Beneficial Uses and Users of Groundwater

The minimum thresholds for land subsidence related to groundwater production in the Subbasin are the same as those for chronic declines in groundwater level. Therefore, the anticipated effects on beneficial uses and users of groundwater will be the same as those discussed in Section 3.3.1.4 Effects on Beneficial Uses and Users of Groundwater.

3.3.5.5 Relevant Federal, State, or Local Standards

There are no federal, state, or local standards for land subsidence related to groundwater production in the Subbasin.

3.3.5.6 Method for Quantitative Measurement of Minimum Thresholds

Groundwater elevations will be used as a proxy for land subsidence related to groundwater production in the Subbasin. These elevations will be measured at the RMPs in accordance with the Best Management Practices (BMPs) published by DWR on monitoring protocols and discussed further in Section 3.5.6 Protocols for Data Collection and Monitoring (DWR 2016a).

3.3.6 Significant and Unreasonable Reduction of Interconnected Surface Water and Groundwater

Minimum thresholds for significant and unreasonable reduction of interconnected surface water and groundwater were not established for the Subbasin because the surface water that supports GDEs in the Subbasin occurs within the Bellflower aquitard, which is not directly connected to the Ballona and Silverado aquifers in the vicinity of the primary production wellfields (see Sections 2.4.7 Groundwater Dependent Ecosystems and 3.2.6 Interconnected Surface Water). If future groundwater production is planned for the Bellflower aquitard within 1 mile of the identified GDEs, additional characterization of interconnected surface water, and subsequent reassessment of interconnected surface water minimum thresholds, will be required.

3.4 Measurable Objectives

Measurable objectives are "quantifiable goals for the maintenance and improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin" (23 CCR §351. Definitions). Based on the sustainability goal (see Section 3.1 Sustainability Goal) and undesirable results (see Section 3.2 Undesirable Results) in the Subbasin, measurable objectives were set for the sustainability indicators relevant to the Subbasin.

Table 3-3. Measurable Objectives

RMP Casing Name	Chronic Decline in Groundwater Levels (ft MSL)	Significant and Unreasonable Reduction of Groundwater Storage (ft MSL)	Significant and Unreasonable Land Subsidence Related to Groundwater Withdrawal (ft MSL)	Significant and Unreasonable Seawater Intrusion (Chloride – mg/L)
RMW-3	-115	-115	-115	—
RMW-8	-110	-110	-110	—
RMW-9	-110	-110	-110	—
RMW-28	-105	-105	-105	—
OB-7	30	30	30	—
OB-9B	45	45	45	—
OB-9C	-40	-40	-40	—
OB-17C	-30	-30	-30	—
Arcadia No. 4	—	—	—	200
Arcadia No. 5	—	—	—	200
Santa Monica No. 1	—	—	—	200
Santa Monica No. 3	—	—	—	200
Santa Monica No. 4	—	—	—	200

Table 3-3. Measurable Objectives

RMP Casing Name	Chronic Decline in Groundwater Levels (ft MSL)	Significant and Unreasonable Reduction of Groundwater Storage (ft MSL)	Significant and Unreasonable Land Subsidence Related to Groundwater Withdrawal (ft MSL)	Significant and Unreasonable Seawater Intrusion (Chloride – mg/L)
Charnock No. 16	—	—	—	200
Charnock No. 18	—	—	—	200
Charnock No. 19	—	—	—	200
Charnock No. 20	—	—	—	200
City Hall Well	—	—	—	200

Notes:
Interconnected surface water-groundwater and degradation of groundwater quality related to groundwater production minimum thresholds are not established because they are not undesirable results applicable to the Subbasin.

Historical groundwater levels, well construction details, projected municipal/ industrial and other groundwater demands, previous investigations and projected groundwater level declines were analyzed during the selection of the measurable objectives for chronic declines in groundwater levels, groundwater in storage, and land subsidence related to groundwater withdrawal. The groundwater level measurable objectives, which range from 20 to 60 feet higher than the groundwater level minimum thresholds, provide a reasonable margin of operational flexibility under adverse conditions, by allowing for changes to groundwater production to occur before the groundwater levels reach an elevation at which undesirable results would occur.

Seawater intrusion chloride concentration measurable objectives were established using the Basin Plan Objective for chloride concentrations in the Subbasin. The Basin Plan Objective for chloride concentration is 200 mg/L and is based on the historical water quality in the Subbasin (RWQCB 2019).

A description of the data reviewed and analyzed during determination of the measurable objectives for chronic declines in groundwater levels, reduction of groundwater in storage, seawater intrusion, and land subsidence related to groundwater withdrawal are discussed in the following sections.

3.4.1 Chronic Lowering of Groundwater Levels

The measurable objectives for groundwater levels are static groundwater elevations in the eight groundwater level RMPs that correspond to pumping groundwater elevations in the production wellfields that are 100 feet higher than the minimum threshold groundwater elevation. The pumping groundwater levels are within 50 feet of the top of the Silverado aquifer, and are over 300 feet above the base of the Sunnyside aquifer. These pumping groundwater levels are also approximately 50 feet below the historical low groundwater elevation in the Subbasin at each of the City of Santa Monica's groundwater production wells.

Groundwater elevations in the production wells that are 100 feet higher than the minimum threshold groundwater elevations were selected as the basis for the measurable objective water levels because they are anticipated to provide the City of Santa Monica with a five to ten year buffer of water supply between when groundwater elevations reach the measurable objective water level and when they reach the minimum threshold water level, based on declines in groundwater elevation observed in the production wells between 2015 and 2020. Groundwater elevations between the measurable objective and minimum threshold prevent undesirable results, will be monitored to determine if projects or management actions may need to be implemented as groundwater elevations

approach the minimum threshold, and provide sufficient time for planning. Therefore, the measurable objective water levels provide for operational flexibility in the Subbasin, while also preventing undesirable results.

The static groundwater levels at the RMPs that correspond to a pumping groundwater level of -200 ft MSL in the Charnock wellfield range from -105 ft MSL to -115 ft MSL (Table 3-3). At the Olympic Wellfield the corresponding static groundwater levels at the RMPs range from -40 ft MSL to 45 ft MSL. Current groundwater elevations in the Subbasin are 10 to 50 feet higher than the measurable objective groundwater elevation at the RMPs.

Projected groundwater levels calculated using the LACPGM model indicate that at a production rate of 9,200 AFY, groundwater elevations at the RMPs will decline and recover based on the volume of recharge available in the Subbasin (Figure 3-1). It should be noted that the starting groundwater elevations in the numerical model simulations are not an exact match to the historical water levels in the vicinity of the Charnock and Olympic Wellfields. The model was calibrated to water levels in monitoring wells that are not adjacent to the production wellfields and the screen intervals of the representative monitoring wells adjacent to the production wellfields do not necessarily correspond with an exact layer in the numerical model. Therefore, the projected groundwater levels in the numerical model likely reflect a mixed hydraulic response. The USGS is currently working with the City of Santa Monica to develop a refined model of the Subbasin, which will address the discrepancies in predicted and observed water levels identified as part of this GSP.

While the predicted groundwater elevations in the future model scenarios are not expected to precisely match the observed groundwater elevations, the predictive simulations can still be used to assess trends in groundwater elevations. At the end of each of the future scenarios, groundwater elevations are projected to be higher than they are at the beginning of the scenario. Current groundwater elevations are between 40 and 50 feet higher than the measurable objective groundwater elevations near the Charnock Wellfield, and are 15 to 20 feet higher than the measurable objective groundwater elevation near the Olympic Wellfield. The projected water levels at the monitoring points near the Charnock Wellfield decline initially, but recover throughout the simulation, with a total variation of 15 to 20 feet between the high and low elevation (Figure 3-1). Near the Olympic Wellfield, projected variability in groundwater elevation is approximately 20 feet in the shallower wells (Wells OB-7 and OB-9B) and closer to 10 feet in the deeper wells (Wells OB-9C and OB-17C). Therefore, although groundwater elevations will vary in the future they are anticipated to remain above the measurable objective during the planning and implementation horizon for this GSP.

In the event that groundwater elevations do decline below the measurable objective, the minimum threshold groundwater levels are 25 to 50 feet lower than the measurable objective groundwater levels at the RMPs. This allows for operational flexibility for the stakeholders in the Subbasin and, should groundwater levels decline below the measurable objectives, provides sufficient time for groundwater producers to react before groundwater levels reach the minimum thresholds.

Interim Milestones for Groundwater Levels

Interim milestones for chronic lowering of groundwater levels were not established because groundwater levels in the Subbasin are currently higher than the measurable objective groundwater levels.

3.4.2 Reduction of Groundwater in Storage

The measurable objectives for groundwater in storage are static groundwater levels that correspond to a pumping groundwater level at the Charnock and Olympic Wellfields of approximately -200 feet MSL (see Section 3.4.1

Groundwater Levels). Historical groundwater elevations have remained above this threshold without causing undesirable results in the Subbasin, while still allowing for beneficial use of the groundwater by stakeholders. This has been true even during this historic drought conditions experienced by the Subbasin between 2011 and 2016. Thus, the established groundwater level measurable objectives have been shown to ensure sufficient groundwater supply for ongoing beneficial use in the Subbasin during adverse conditions without causing significant and unreasonable loss of groundwater storage.

Interim Milestones for Reduction of Groundwater Storage

Interim milestones for groundwater levels (the indicator for groundwater in storage) were not selected because groundwater levels in the Subbasin are currently higher than the established measurable objective groundwater levels.

3.4.3 Seawater Intrusion

The measurable objectives for seawater intrusion are chloride concentrations in groundwater at the ten seawater intrusion RMPs of 200 mg/L (Table 3-3). Chloride concentrations measured in 2018 at the nine of the ten[2] RMPs were below the measurable objective concentration, which corresponds to the Basin Plan Objective concentration for chloride in the groundwater (Figure 2-39; RWQCB 2019). Because the measurable objective for seawater intrusion is a chloride concentration that equals the Basin Plan Objective for chloride and the Basin Plan Objective was selected by the RWQCB to be protective of beneficial use of groundwater in the Subbasin, the measurable objective will, by definition, be protective of beneficial groundwater use in the Subbasin. Furthermore, the measurable objectives chloride concentration is 300 mg/L less than the minimum threshold chloride concentration, which provides operational flexibility for stakeholders in the Subbasin by allowing time for groundwater producers to reduce or offset groundwater production before the chloride concentrations reach the minimum thresholds.

Interim Milestones for Reduction of Groundwater Storage

Interim milestones for seawater intrusion were not selected because chloride concentrations in the Subbasin are currently lower than the established measurable objective chloride concentrations.

3.4.4 Degraded Water Quality

Measurable objectives for degradation of groundwater quality were not established for the Subbasin because the groundwater quality in the Subbasin was impacted by industrial activity prior to 2015. The City of Santa Monica is actively remediating this contamination under the regulatory oversight of the SWRCB, DDW, and RWQCB, and there is no evidence for groundwater quality degradation induced by groundwater production in the Subbasin. Additionally, the City of Santa Monica routinely tests groundwater samples for all title 22 constituents. This sampling is required to continue in the future because the City of Santa Monica is a provider of drinking water within the City's service area. If future groundwater production is found to induce groundwater quality degradation, additional characterization of the source of that degradation, and subsequent reassessment of groundwater quality degradation measurable objectives, may be required.

[2] Chloride concentration was not measured at the City Hall well in 2018. The City Hall well is being added to the monitoring network for this GSP.

3.4.5 Land Subsidence Related to Groundwater Withdrawal

Inelastic land subsidence related to groundwater withdrawal is not presently, nor is it likely to become an undesirable result within the Subbasin. The measurable objectives for land subsidence corresponding to inelastic land subsidence related to groundwater withdrawal are the groundwater elevations selected as the measurable objectives for chronic declines in groundwater levels and reduction of groundwater in storage (Table 3-3). These groundwater elevations are approximately equal to the historical low groundwater elevations in the Olympic Wellfield but are up to 60 feet lower than the historical low groundwater elevations in the Charnock wellfield (Figure 3-1). As previously noted, the Subbasin is designated as a low risk area for future subsidence (DWR 2014). Accordingly, groundwater level objectives below historical lows, but within the Silverado aquifer at the Charnock wellfield are not anticipated to induce subsidence that interferes with land use.

3.4.6 Depletions of Interconnected Surface Water

Measurable objectives for significant and unreasonable reduction of interconnected surface water and groundwater were not established for the Subbasin because the surface water that supports GDEs in the Subbasin occurs within the Bellflower aquitard, which is not directly connected to the Ballona and Silverado aquifers in the vicinity of the primary production wellfields (see Sections 2.4.7 Groundwater Dependent Ecosystems and 3.2.6 Interconnected Surface Water). If future groundwater production is planned for the Bellflower aquitard within 1 mile of the identified GDEs, additional characterization of interconnected surface water, and subsequent reassessment of interconnected surface water minimum thresholds, may be required.

3.5 Monitoring Network

3.5.1 Monitoring Network Objectives

The objective of the monitoring network in the Subbasin is to track and monitor parameters that demonstrate groundwater conditions, and associated factors that influence groundwater conditions. In order to accomplish this objective, the monitoring network in the Subbasin must be capable of:

- Monitoring changes in groundwater conditions
- Monitoring groundwater conditions relative to the sustainable management criteria
- Quantifying annual changes in water budget components

The Subbasin has an existing network of wells used to monitor groundwater conditions. This network includes both dedicated monitoring wells and production wells. Additionally, surface conditions are monitored at eight weather stations and one stream gauge within the Subbasin see Section 2.1.2 Water Resources Monitoring and Management Programs). The current network of groundwater wells and related surface conditions is capable of representing groundwater conditions and the surface processes that influence those conditions in the Subbasin. The network will continue to be used to monitor groundwater conditions to assess long and short-term trends in groundwater elevation and groundwater quality.

3.5.2 Groundwater Monitoring Network

There are approximately 2,044[3] wells in the Subbasin. Of these, ten are City of Santa Monica production wells and 83 are monitoring wells overseen by the City of Santa Monica as part of programs developed to address groundwater contamination and groundwater production at the City's Charnock and Olympic Wellfields (Figure 3-4 and Table 3-4). Of the remaining wells, 108 wells that are a part of the investigation and remediation of the Playa Vista site in the southern Subbasin have known screen intervals within the Ballona and Silverado aquifers. These wells, while not formally included in the GSP monitoring network, are used to constrain groundwater conditions in the southern part of the Subbasin. For the purposes of this GSP, the 83 monitoring wells and 10 production wells overseen by the City of Santa Monica will compose the GSP implementation monitoring network and are referred to as the "GSP monitoring network."

Monitoring wells associated with groundwater remediation efforts that have not impacted the City of Santa Monica's wellfields, and are screened in the shallow subsurface or have unknown screen intervals, are not included in the GSP monitoring network because do not adequately characterize groundwater conditions in the Ballona and Silverado aquifers. Furthermore, these wells are under the jurisdiction of the individual responsible parties and the RWQCB, not the GSA member agencies. When possible and where relevant, the GSA will utilize groundwater elevation and quality data collected from wells associated with RWQCB cleanup sites in the Subbasin to inform the overall understanding of groundwater conditions in the relevant production aquifers.

Of the 93 wells in the GSP monitoring network, all are monitored for groundwater elevation, 60 are monitored for groundwater quality, and 10 are monitored for production (Table 3-4).

Table 3-4. GSP Monitoring Network Summary by Location and Measurement Type

Number of Wells by Measurement Types				
Production Areas	*Extraction-Level-Quality*	*Level-Quality*	*Level*	*Total*
Arcadia	3	0	1	**4**
Olympic	2	27	3	**32**
Charnock	5	23	29	**57**
Total	**10**	**50**	**33**	**93**

The wells in the GSP monitoring network are found in the three areas of active groundwater production in the Subbasin and are screened in both the Ballona and Silverado aquifers (Table 3-5; Figure 3-4). In the Charnock regional monitoring network there are 27 "shallow" monitoring wells, 23 Upper Silverado wells, and 2 lower Silverado wells associated. The shallow monitoring wells are associated with the Ballona aquifer and the Lakewood Formation (City of Santa Monica 2007). In the Olympic Wellfield monitoring network, there are 14 "B-zone" monitoring wells, and 16 "C-zone" monitoring wells. The B-zone aquifer is correlated with the Lakewood Formation and the C-zone aquifer is correlated with the Silverado aquifer (City of Santa Monica 2015).

The existing network of groundwater production and monitoring wells is capable of delineating the groundwater conditions in the areas of the Subbasin that are impacted by the City of Santa Monica groundwater production wells and has been used for this purpose for the past 20 years. The current groundwater well network will be used to monitor groundwater conditions moving forward in order to continue to assess long-term trends in groundwater elevation and quality, and groundwater in storage, in the Subbasin. Recommendations for future improvements to the monitoring network are discussed in Section 3.5.8 Assessment and Improvement of Monitoring Network.

[3] This is the total number of wells in the GAMA Groundwater Information System database, (https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/) downloaded March 2020. The status of the vast majority of these wells is categorized in the database as "unknown" and some of these wells may have been destroyed.

INTENTIONALLY LEFT BLANK

Table 3-5. GSP Monitoring Network Wells

Common Well Name	State Well Identification (SWID)	Latitude	Longitude	Well Use	Aquifer	Groundwater Monitoring Networks			Monitoring Program				
						Elevation	*Quality*	*Production*	*Charnock Regional Monitoring*	*Charnock Early Warning*	*Olympic*	*DDW*	*CASGEM*
Arcadia Wellfield													
Santa Monica No. 1	01S15W31E001S	34.043148	-118.4996	Production	Silverado	X	X	X	–	–	–	X	–
Santa Monica No. 5	01S15W30P001S	34.049807	-118.4941	Monitoring	Silverado	X	–	–	–	–	–	–	X
Arcadia No. 4	01S15W32A005S	34.043656	-118.4663	Production	Silverado	X	X	X	–	–	–	X	–
Arcadia No. 5	01S15W32A006S	34.043472	-118.4662	Production	Silverado	X	X	X	–	–	–	X	–
Charnock Wellfield													
Charnock No. 13	–	34.016885	-118.425	Production	Silverado	X	X	X	–	–	–	X	–
Charnock No. 16	–	34.017516	-118.4253	Production	Silverado	X	X	X	–	–	–	X	–
Charnock No. 18	–	34.0162	-118.4272	Production	Silverado	X	X	X	–	–	–	X	–
Charnock No. 19	–	34.016106	-118.425	Production	Silverado	X	X	X	–	–	–	X	–
Charnock No. 20	–	34.015744	-118.4261	Production	Silverado	X	X	X	–	–	–	X	–
MW-1	–	34.015603	-118.4266	Monitoring	Shallow	X	X	–	X	–	–	–	–
MW-2	–	34.01787	-118.4251	Monitoring	Shallow	X	X	–	X	–	–	–	–
MW-3	–	34.017278	-118.4246	Monitoring	Shallow	X	–	–	X	–	–	–	–
MW-4	–	34.016559	-118.4246	Monitoring	Shallow	X	–	–	X	–	–	–	–
RMW-3	–	34.018273	-118.4257	Monitoring	Upper Silverado	X	X	–	X	–	–	–	X
RMW-4A	–	34.018345	-118.4255	Monitoring	Shallow	X	–	–	X	–	–	–	X
RMW-5	–	34.013338	-118.4188	Monitoring	Upper Silverado	X	–	–	X	–	–	–	–
RMW-6	–	34.013459	-118.4189	Monitoring	Upper Silverado	X	X	–	X	–	–	–	–
RMW-7	–	34.013265	-118.4187	Monitoring	Shallow	X	–	–	X	–	–	–	–
RMW-8	–	34.014672	-118.4236	Monitoring	Lower Silverado	X	X	–	X	–	–	–	X
RMW-9	–	34.014609	-118.4236	Monitoring	Upper Silverado	X	X	–	X	X	–	–	X
RMW-10	–	34.014634	-118.4236	Monitoring	Shallow	X	–	–	X	X	–	–	X
RMW-11	–	34.013918	-118.4204	Monitoring	Upper Silverado	X	X	–	X	–	–	–	X
RMW-12	–	34.013877	-118.4204	Monitoring	Shallow	X	–	–	X	–	–	–	X
RMW-13	–	34.015245	-118.4228	Monitoring	Upper Silverado	X	X	–	X	–	–	–	–
RMW-14	–	34.015865	-118.4233	Monitoring	Upper Silverado	X	X	–	X	–	–	–	–
RMW-15	–	34.015888	-118.4233	Monitoring	Lower Silverado	X	X	–	X	–	–	–	–
RMW-16A	–	34.015796	-118.4232	Monitoring	Shallow	X	–	–	X	–	–	–	–
RMW-17	–	34.016479	-118.4238	Monitoring	Upper Silverado	X	X	–	X	–	–	–	–
RMW-18	–	34.016511	-118.4238	Monitoring	Shallow	X	–	–	X	–	–	–	–
RMW-19	–	34.012876	-118.4196	Monitoring	Upper Silverado	X	X	–	X	X	–	–	–
RMW-20	–	34.012901	-118.4196	Monitoring	Shallow	X	–	–	X	X	–	–	–
RMW-21	–	34.014182	-118.422	Monitoring	Upper Silverado	X	X	–	X	–	–	–	–
RMW-22	–	34.014204	-118.422	Monitoring	Shallow	X		–	X	–	–	–	X
RMW-23	–	34.015106	-118.4213	Monitoring	Upper Silverado	X	X	–	X	–	–	–	–
RMW-24	–	34.015082	-118.4213	Monitoring	Shallow	X	–	–	X	–	–	–	–
RMW-25	–	34.012208	-118.4198	Monitoring	Shallow	X	–	–	X	–	–	–	–
RMW-27	–	34.015215	-118.4228	Monitoring	Shallow	X	–	–	X	–	–	–	–
RMW-28	–	34.016025	-118.4222	Monitoring	Upper Silverado	X	X	–	X	–	–	–	X
RMW-29	–	34.016007	-118.4222	Monitoring	Shallow	X	–	–	X	–	–	–	X

Table 3-5. GSP Monitoring Network Wells

Common Well Name	State Well Identification (SWID)	Latitude	Longitude	Well Use	Aquifer	Groundwater Monitoring Networks			Monitoring Program				
						Elevation	*Quality*	*Production*	*Charnock Regional Monitoring*	*Charnock Early Warning*	*Olympic*	*DDW*	*CASGEM*
RMW-30	—	34.015773	-118.4207	Monitoring	Upper Silverado	X	X	—	X	—	—	—	—
RMW-31	—	34.015796	-118.4207	Monitoring	Shallow	X	—	—	X	—	—	—	—
RMW-32	—	34.014539	-118.426	Monitoring	Upper Silverado	X	—	—	X	—	—	—	—
RMW-33	—	34.014515	-118.426	Monitoring	Shallow	X	—	—	X	—	—	—	—
RMW-48	—	34.01448	-118.4208	Monitoring	Shallow	X	—	—	X	—	—	—	X
RMW-49	—	34.014447	-118.4208	Monitoring	Upper Silverado	X	X	—	X	—	—	—	—
RMW-50	—	34.01513	-118.4202	Monitoring	Upper Silverado	X	X	—	X	—	—	—	—
RMW-51	—	34.015106	-118.4202	Monitoring	Shallow	X	—	—	X	—	—	—	—
RMW-52	—	34.014589	-118.4186	Monitoring	Upper Silverado	X	X	—	X	—	—	—	—
RMW-53	—	34.014566	-118.4186	Monitoring	Shallow	X	—	—	X	—	—	—	—
RMW-54	—	34.013109	-118.4224	Monitoring	Upper Silverado	X	X	—	X	X	—	—	—
RMW-55	—	34.013085	-118.4224	Monitoring	Shallow	X	—	—	X	X	—	—	—
RMW-56	—	34.012325	-118.4224	Monitoring	Upper Silverado	X	—	—	X	—	—	—	X
RMW-57	—	34.012336	-118.4224	Monitoring	Shallow	X	—	—	X	—	—	—	X
RMW-58	—	34.01306	-118.4235	Monitoring	Upper Silverado	X	—	—	X	—	—	—	—
RMW-59	—	34.013079	-118.4235	Monitoring	Shallow	X	—	—	X	—	—	—	—
RPZ-4	—	34.017975	-118.4135	Monitoring	Shallow	X	—	—	X	X	—	—	—
RPZ-5	—	34.017954	-118.4135	Monitoring	Upper Silverado	X	X	—	X	X	—	—	—
RPZ-6	—	34.026662	-118.4214	Monitoring	Upper Silverado	X	X	—	X	X	—	—	X
RPZ-7	—	34.026641	-118.4214	Monitoring	Shallow	X	—	—	X	X	—	—	—
RPZ-8	—	34.015028	-118.4168	Monitoring	Upper Silverado	X	X	—	X	X	—	—	—
RPZ-9	—	34.015055	-118.4169	Monitoring	Shallow	X	—	—	X	X	—	—	—
Olympic Wellfield													
Santa Monica No. 3	02S15W04C002S	34.031121	-118.4602	Production	Silverado	X	X	X	X	—	—	X	—
Santa Monica No. 4	02S15W04A001S	34.03044	-118.4634	Production	Silverado	X	X	X	X	—	—	X	—
GW-30-3	—	34.028401	-118.4648	Monitoring	C	X	X	—	—	—	X	—	—
GW-30-5	—	34.028401	-118.4648	Monitoring	C	X	X	—	—	—	X	—	—
GW-30-6	—	34.028401	-118.4648	Monitoring	B	X	X	—	—	—	X	—	—
KMW-12	—	34.028048	-118.468	Monitoring	C	X	X	—	—	—	X	—	—
MW-11	—	34.028829	-118.4674	Monitoring	B	X	X	—	—	—	X	—	—
OB-1	—	34.028011	-118.4666	Monitoring	C	X	X	—	—	—	X	—	—
OB-2	—	34.029887	-118.4701	Monitoring	C	X	X	—	—	—	X	—	—
OB-3	—	34.031466	-118.4679	Monitoring	C	X	X	—	—	—	X	—	—
OB-4	—	34.030364	-118.471	Monitoring	B	X	X	—	—	—	X	—	X
OB-5	—	34.031798	-118.4731	Monitoring	B	X	X	—	—	—	X	—	X
OB-6C	—	34.028051	-118.4737	Monitoring	C	X		—	—	—	X	—	X
OB-6D	—	34.028051	-118.4737	Monitoring	C	X	X	—	—	—	X	—	—
OB-7	—	34.03143	-118.468	Monitoring	B	X	X	—	—	—	X	—	X
OB-8	—	34.030603	-118.4662	Monitoring	B	X	X	—	—	—	X	—	—
OB-9B	—	34.030458	-118.4635	Monitoring	B	X	—	—	—	—	X	—	X
OB-9C	—	34.030458	-118.4635	Monitoring	C	X	—	—	—	—	X	—	X

Table 3-5. GSP Monitoring Network Wells

Common Well Name	State Well Identification (SWID)	Latitude	Longitude	Well Use	Aquifer	Groundwater Monitoring Networks			Monitoring Program				
						Elevation	*Quality*	*Production*	*Charnock Regional Monitoring*	*Charnock Early Warning*	*Olympic*	*DDW*	*CASGEM*
OB-10B	—	34.030453	-118.4745	Monitoring	B	X	X	—	—	—	X	—	—
OB-10C	—	34.030453	-118.4745	Monitoring	C	X	X	—	—	—	X	—	—
OB-11B	—	34.032261	-118.465	Monitoring	B	X	X	—	—	—	X	—	—
OB-11C	—	34.032261	-118.465	Monitoring	C	X	X	—	—	—	X	—	—
OB-12B	—	34.032803	-118.4626	Monitoring	B	X	X	—	—	—	X	—	—
OB-12C	—	34.032803	-118.4626	Monitoring	C	X	X	—	—	—	X	—	—
OB-13C	—	—	—	Monitoring	C	X	X	—	—	—	X	—	—
OB-14B	–	34.029027	-118.4607	Monitoring	B	X	X	—	—	—	X	—	—
OB-14C	–	34.029027	-118.4607	Monitoring	C	X	X	—	—	—	X	—	—
OB-15B	–	34.029035	-118.47	Monitoring	B	X	X	—	—	—	X	—	—
OB-15C	–	34.029035	-118.47	Monitoring	C	X	X	—	—	—	X	—	X
OB-16B	–	34.029151	-118.4665	Monitoring	B	X	X	—	—	—	X	—	—
OB-17B	–	34.030267	-118.4653	Monitoring	B	X	X	—	—	—	X	—	X
OB-17C	–	34.030267	-118.4653	Monitoring	C	X	X	—	—	—	X	—	X

Sources: City of Santa Monica 2007, City of Santa Monica 2015, City of Santa Monica 2019, City of Santa Monica 2020b, City of Santa Monica 2020c.

INTENTIONALLY LEFT BLANK

3.5.2.1 Groundwater Elevation

GSP Monitoring Network

Within the GSP monitoring network, groundwater elevation monitoring is currently conducted for the Olympic Wellfield Groundwater Monitoring Program, the Charnock Groundwater Management Program, and CASGEM (Table 3-5). Groundwater elevations are measured quarterly for the wells in the Olympic Wellfield Groundwater Monitoring Program and semi-annually (two times per year) for the wells in the Charnock Groundwater Management Program. Ten of the wells in the Olympic Wellfield Groundwater Monitoring Program, and 14 of the wells in the Charnock Groundwater Management Program are also used as CASGEM monitoring wells for the Subbasin. Additionally, the CASGEM monitoring network includes one well in the Arcadia Production Area. Under the CASGEM program, the City of Santa Monica, reports semi-annual (two times per year) groundwater elevations to DWR for inclusion in the CASGEM database (Table 3-6). Although 11 of the CASGEM wells are sampled quarterly, 10 of which are associated with the Olympic Wellfield Monitoring Program and the remaining well, Santa Monica 5, is in the Arcadia Production Area, water levels from these wells are only reported to DWR twice per year.

Table 3-6. Groundwater Elevation Monitoring Schedule

Monitoring Program					
	Olympic	*Charnock*	*CASGEM**	*Production*	*Playa Vista*
Monitoring Frequency	*# of Wells*				
Annual	—	—	—	—	11
Semi-Annual	—	50	14	—	83
Quarterly	30	—	11	—	14
Monthly	—	—	—	10	—

Note:
* CASGEM wells are a subset of the Olympic and Charnock monitoring program wells.

Monitoring Wells Outside the GSP Monitoring Network – Playa Vista Site

In addition to the GSP monitoring network, there are 88 wells screened in the Ballona aquifer and 20 wells screened in the Silverado aquifer at the Playa Vista Site (Playa Capital Company 2020). Groundwater elevations are measured annually at seven of the Silverado aquifer wells, semi-annually (two times per year) at eleven of the Silverado aquifer wells, and quarterly (four times per year) at two of the Silverado aquifer wells (Playa Capital Company 2020). In the Ballona aquifer, groundwater elevations are measured quarterly in 12 wells, semi-annually (two times per year) in 72 wells, and annually in four wells. Playa Vista monitoring wells in the Ballona and Silverado aquifers were included in the assessment of the current and historical groundwater conditions in the Subbasin (see Section 2.4.1 Groundwater Elevation Data). The GSA will continue to use data from these wells to supplement the understanding of groundwater conditions in the Subbasin, but these wells are not included in the GSP monitoring network.

3.5.2.2 Seawater Intrusion

Groundwater quality is monitored at 10 production wells and 37 groundwater monitoring wells in the Charnock and Olympic Wellfields. The 10 active municipal supply wells are monitored monthly for VOCs, quarterly for physical and select chemical parameters, and every 3 years for general mineral and physical and inorganic constituents as part of Title 22 compliance (Table 3-7). The Olympic Wellfield Monitoring Program has 14 wells sampled quarterly for

VOCs in the Silverado aquifer and 8 sampled quarterly for VOCs in the Ballona aquifer. Chloride concentrations are not currently measured at any of the Olympic monitoring wells.

Groundwater quality samples are collected from 23 wells as part of the Charnock Groundwater Management Program. These wells are sampled for VOCs and fuel parameters Additionally, a subset of 12 of these wells is sampled for the full list of constituents under Title 22 California Code of Regulations. These 12 wells are sentry wells under the Early Warning Groundwater Quality monitoring program at the Charnock wellfield. Two sentry wells are sampled annually, four are sampled every two years, and the remaining six are sampled every three years.

Table 3-7. Groundwater Quality Monitoring Schedule

Monitoring Frequency	Title 22	Physical Parameters	Chemical Parameters	VOCs
Production Wells [a]				
Monthly	—	—	—	10
Quarterly	—	10	10	—
Every Three Years	10	—	—	—
Charnock Groundwater Management Program [b]				
Semiannual	—	12	—	12*
Annually	—	6	—	6
Every Three Years	—	5	—	5
Charnock Sentry Wells [c]				
Annual	2	—	—	—
Every Two Years	4	—	—	—
Every Three Years	6	—	—	—
Olympic Wellfield Monitoring Program [d]				
Quarterly	—	22	—	22

Notes:
* Includes additional fuel parameters, *for list of all parameters*:
[a] City of Santa Monica 2020a
[b] City of Santa Monica 2020b
[c] City of Santa Monica 2019
[d] City of Santa Monica 2020b

Monitoring Wells Outside the GSP Monitoring Network – Playa Vista Site

In addition to the GSP monitoring network, 19 wells screened in the Silverado aquifer and 88 wells screened in the Ballona aquifer are sampled for groundwater quality at the Playa Vista site. All of the wells are monitored for VOCs, 4 wells are monitored for 1,4-Dioxane, and 1 well is monitored for a large suite of parameters including: TPH, total manganese, total iron, dissolved organic carbon, methane, ethene, ethane, sulfate, nitrate, nitrite, chloride, alkalinity, carbon dioxide, and hydrogen sulfide. Of the 107 wells, 11 are sampled annually, 83 are sampled semi-annually, and 14 are sampled quarterly.

Playa Vista monitoring wells in the Ballona and Silverado aquifers were included in the assessment of the current and historical groundwater conditions in the Subbasin (see Section 2.4.3 Seawater Intrusion). The GSA will continue

to use data from these wells to supplement the understanding of groundwater conditions in the Subbasin, but these wells are not included in the GSP monitoring network.

3.5.3.3 Groundwater Extraction

The City of Santa Monica monitors monthly groundwater extraction at the 10 active municipal supply wells in the Charnock, Olympic, and Arcadia wellfields. In addition to the City of Santa Monica groundwater production wells, there are at least seven private wells associated with three golf courses and the Holy Cross Catholic Cemetery in the Subbasin. Groundwater production rates from these wells, if measured, are not currently publicly available. While the current groundwater extraction monitoring network is sufficient to capture the majority of the groundwater production from the Subbasin, improvements to this network are discussed in Section 3.5.8 Assessment and Improvement of Monitoring Network.

3.5.3 Surface Conditions Monitoring

The primary surface conditions that impact groundwater conditions in the Subbasin are surface water flows and precipitation. The monitoring networks for both surface conditions are discussed in this section.

Surface Water

Surface flows in the Subbasin are monitored by a single stream gauge located on Ballona Creek and maintained by the County of Los Angeles. Surface water flows in Ballona Creek have been recorded daily since October 1931 and hourly since November 1992. Surface flows in Ballona Creek are disconnected from the underlying groundwater aquifers upstream of this stream gauge, as Ballona Creek is a lined storm water channel upstream of the gauge. Santa Monica Canyon and Rustic Canyon Channels, the two other primary drainages in the Subbasin, are also lined storm water channels. Therefore, the historical and existing spatial and temporal coverage from the single surface water flow gauge provides adequate coverage for the short-term, seasonal, and long-term surface flow conditions in the Subbasin.

Precipitation

There are eight currently active weather stations in the Subbasin (See Section 2.1.2.1 Precipitation and Streamflow). The precipitation gauges are maintained, and the data collected, by the County of Los Angeles, NOAA and DWR.

Precipitation in the Subbasin has been recorded for more than a century. Although the locations of individual precipitation gauges have changed through time, with some gauges being removed from service and others added, there is overlap between the records collected from the various gauges. Therefore, a continuous precipitation record can be constructed for the Subbasin to demonstrate long-term trends. More recent data, collected with greater frequency, can be used to demonstrate short-term and seasonal trends in precipitation.

In addition to providing adequate temporal coverage of the Subbasin, the current network of precipitation gauges provides sufficient spatial coverage to document precipitation in the Subbasin and to connect the precipitation measurements to both streamflow and groundwater conditions. Additional precipitation monitoring locations are not currently recommended for characterizing surface conditions in the Subbasin.

3.5.4 Monitoring Network Relationship to Sustainability Indicators

The existing groundwater network will be used to monitor and document changes in groundwater conditions related to the four sustainability indicators relevant to the Subbasin. This network includes the wells that have been designated as RMPs for reporting purposes to DWR. Minimum thresholds and measurable objectives were established for the RMPs (Table 3-2 and Table 3-3). An assessment of groundwater conditions and the potential for undesirable results will be based on the conditions measured at the RMPs. The broader groundwater monitoring network, including the RMPs, will be used to document conditions in the Subbasin and provide support for recommendations and findings based on the conditions recorded at the RMPs.

3.5.4.1 Chronic Lowering of Groundwater Levels

The groundwater monitoring network must accomplish the following to adequately monitor conditions related to chronic lowering of groundwater levels:

- Track short-term, seasonal, and long-term trends in groundwater elevation.
- Demonstrate groundwater elevations in mid-March and mid-October for the aquifer system.
- Record groundwater elevations at RMPs for which minimum thresholds and measurable objectives have been identified.

Spatial Coverage

The Subbasin monitoring well density for groundwater elevation is currently approximately 2 wells per square mile (Subbasin is approximately 50-square miles). While there is no definitive rule for the density of groundwater monitoring points needed in a basin, for comparison the monitoring well density recommended by CASGEM Groundwater Elevation Monitoring Guidelines ranges from 1 to 10 wells per 100 square miles (DWR 2010). Additional California DWR guidelines recommend a well network with a density of 1 observation per 16 square miles (DWR 2010, 2016b). Therefore, the density of wells in the monitoring network for the Subbasin meets the criteria for adequate coverage for chronic lowering of groundwater levels; however, well density alone does not ensure collection of sufficient data to detect changes in groundwater conditions. Spatial (both lateral and vertical) and temporal representation need to be considered in assessment of the ability of the monitoring network to demonstrate short-term, seasonal, and long-term trends.

The current groundwater monitoring network is densely clustered in 3 areas: Olympic Wellfield, Charnock Wellfield, and the Playa Vista Area (Figure 3-5). Additional monitoring wells are needed in the area between Marina del Rey and the Charnock wellfield, and as data gaps are addressed, more monitoring wells may be recommended. In the future, to the extent possible, additional dedicated monitoring wells will be incorporated into the existing monitoring network (see Section 3.5.8, Assessment and Improvement of Monitoring Network). The wells could include existing wells or new monitoring wells and will provide information on groundwater conditions in geographic locations and/or at depths where data gaps have been identified.

Temporal Coverage

Groundwater elevation data will be collected from the network of groundwater wells to provide groundwater elevation conditions in the spring and fall of each year. Further discussion of the monitoring schedule is provided in Section 3.5.5, Monitoring Network Implementation.

3.5.4.2 Reduction of Groundwater in Storage

To monitor conditions related to reduction of groundwater storage, the groundwater monitoring network must be structured to accomplish the following:

- Track short-term, seasonal, and long-term trends in groundwater in storage.
- Calculate year-over-year (mid-March to mid-March) change in storage.
- Provide data from which lateral hydraulic gradients within the aquifer can be calculated.

The requirements for documenting reduction in groundwater storage are similar to those for chronic lowering of groundwater levels (see Section 3.5.5.1), because these two sustainability indicators are interrelated. The primary difference between the two sets of requirements is the need to document potential gradients between aquifers. These gradients influence the movement of groundwater between aquifers, which in turn influences storage in the aquifer.

Upon GSP adoption, estimated volumes of annual change in storage will be reported by in annual reports. These volumes may come from model estimates or a standardized method to calculate the change in storage that relies solely on water elevations within each aquifer, rather than on a numerical model.

The spatial and temporal density of groundwater elevation data necessary to document groundwater storage changes in the aquifers of the Subbasin is the same as that necessary to document groundwater elevation changes. The current network of wells is capable of documenting changes to both sustainability indicators.

3.5.4.3 Seawater Intrusion

To monitor conditions related to seawater intrusion, groundwater elevations will be measured, and groundwater quality samples will be collected, in such a way as to accomplish the following:

- Track short-term, seasonal, and long-term trends in groundwater elevation and chloride concentrations.
- Record chloride concentrations in RMPs for which minimum thresholds and measurable objectives have been identified.

While gathering additional data on groundwater elevations may help establish a relationship between groundwater elevation and chloride concentration, chloride concentration in groundwater is the metric by which seawater intrusion will be assessed (see Section 3.3 Minimum Thresholds and Section 3.4 Measurable Objectives).

Spatial Coverage

The groundwater wells at which chloride concentrations will be measured are located over 1 mile inland from the coast. Although the density of wells used to document chloride concentrations in the Subbasin is adequate, additional monitoring wells closer to the coast, in the area between Marina del Rey and the Charnock wellfield could be used to improve spatial coverage for groundwater elevation and quality monitoring related to seawater intrusion

Water Quality Constituents

Groundwater samples will continue to be collected and analyzed for chloride in order to assess trends in groundwater quality related to seawater intrusion. The only wells in which chloride concentration is regularly monitored are the City of Santa Monica production wells. The network of existing wells is capable of providing an adequate assessment of groundwater quality trends for chloride until additional monitoring wells can be constructed.

Temporal Resolution

Historically, groundwater quality samples have been collected with insufficient temporal resolution to identify seawater intrusion in the aquifers of the Subbasin. Annual groundwater quality samples are required to document changes in chloride and TDS concentration associated with seawater intrusion.

3.5.4.4 Degraded Water Quality

Degradation of groundwater quality from industrial contamination has occurred historically within the Subbasin but there is no historical evidence of groundwater production causing significant and unreasonable degradation of water quality in the Subbasin. The City of Santa Monica is actively remediating this industrial groundwater contamination under the regulatory oversight of the SWRCB, DDW, and RWQCB, and the monitoring networks developed for those programs have been approved by the relevant regulatory agency. Therefore, this GSP does not create an additional water quality monitoring program in the Subbasin. The City of Santa Monica and the SMBGSA will continue to review groundwater quality data generated to meet the existing regulatory requirements in the Subbasin. These data will be incorporated into the periodic evaluation of the GSP and will be used to assess whether undesirable results for groundwater quality may need to be established in the future.

3.5.4.5 Land Subsidence

Groundwater elevations are being used as a proxy for land subsidence in the Subbasin. Based on the subsurface geology and projected groundwater levels in the Subbasin, specific land subsidence monitoring is not anticipated to be required. However, as part of the 5-year GSP evaluation process, the GSA will review and analyze land subsidence data made available by DWR and UNAVCO to ensure that the groundwater elevation thresholds provide adequate protection against significant and unreasonable land subsidence in the Subbasin.

Spatial Coverage

The current groundwater monitoring network is densely clustered in the areas adjacent to the groundwater production wellfields (Figure 3-5). This spatial distribution is adequate to assess the potential for land subsidence related to groundwater withdrawals in the Subbasin.

Temporal Coverage

Groundwater elevation data will be collected from the network of groundwater wells to provide groundwater elevation conditions in the spring and fall of each year. This temporal distribution is adequate to track trends in groundwater elevation and correlate these trends to any observed trends in direct measurements of land subsidence.

3.5.4.6 Depletions of Interconnected Surface Water

Surface waters within the Subbasin are not connected to the primary groundwater production aquifers in the Subbasin (see Section 2.4.6 Groundwater-Surface Water Connections), and no known groundwater production

occurs within the Bellflower aquitard within a mile of the BWER. Therefore, specific sustainability criteria for interconnected surface water have not been defined in this GSP and no specific monitoring for depletion of interconnected surface water is required. However, surface water flows will continue to be monitored as described in Section 3.5.3 Surface Conditions Monitoring.

3.5.5 Monitoring Network Implementation

3.5.5.1 Groundwater Elevation Monitoring Schedule

Following the guidance provided by DWR (DWR 2016a), groundwater elevation measurements will be collected from all accessible wells in the monitoring network two times per year in order to capture the spring high and fall low groundwater levels (Table 3-8). Spring groundwater levels should be collected during the month of March and fall groundwater levels should be collected during the month of October. By conducting the groundwater sampling for each seasonal event within a single month time period, the groundwater level data can be used to generate groundwater elevation contours and assess the hydraulic gradient. Data collection over longer time periods are less useful for analyzing the hydraulic gradient and groundwater elevation contours that are intended to represent a discrete period of time.

INTENTIONALLY LEFT BLANK

Table 3-8. GSP Monitoring Schedule

Common Well Name	State Well Identification (SWID)	Latitude	Longitude	Well Use	Aquifer	Existing Groundwater Monitoring Frequency			Groundwater Monitoring Method		
						Elevation	*Quality*	*Production*	*Elevation*	*Quality*	*Production*
Arcadia Wellfield											
Santa Monica No. 1	01S15W31E001S	34.043148	-118.4996	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
Santa Monica No. 5	01S15W30P001S	34.049807	-118.4941	Monitoring	Silverado	Quarterly	—	—	—	Dedicated Pump	Totalizer
Arcadia No. 4	01S15W32A005S	34.043656	-118.4663	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
Arcadia No. 5	01S15W32A006S	34.043472	-118.4662	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
Charnock Wellfield											
Charnock No. 13	—	34.016885	-118.425	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
Charnock No. 16	—	34.017516	-118.4253	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
Charnock No. 18	—	34.0162	-118.4272	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
Charnock No. 19	—	34.016106	-118.425	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
Charnock No. 20	—	34.015744	-118.4261	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
MW-1	—	34.015603	-118.4266	Monitoring	Shallow	Semiannual	Annual	—	Sounder	—	—
MW-2	—	34.01787	-118.4251	Monitoring	Shallow	Semiannual	Annual	—	Sounder	—	—
MW-3	—	34.017278	-118.4246	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
MW-4	—	34.016559	-118.4246	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-3	—	34.018273	-118.4257	Monitoring	Upper Silverado	Semiannual	Annual	—	Sounder	Purge and low flow	—
RMW-4A	—	34.018345	-118.4255	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-5	—	34.013338	-118.4188	Monitoring	Upper Silverado	Semiannual	—	—	Sounder	—	—
RMW-6	—	34.013459	-118.4189	Monitoring	Upper Silverado	Semiannual	Annual	—	Sounder	Purge and low flow	—
RMW-7	—	34.013265	-118.4187	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-8	—	34.014672	-118.4236	Monitoring	Lower Silverado	Semiannual	Every 3 Years	—	Sounder	Purge and low flow	—
RMW-9	—	34.014609	-118.4236	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-10	—	34.014634	-118.4236	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-11	—	34.013918	-118.4204	Monitoring	Upper Silverado	Semiannual	Annual	—	Sounder	Purge and low flow	
RMW-12	—	34.013877	-118.4204	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-13	—	34.015245	-118.4228	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-14	—	34.015865	-118.4233	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-15	—	34.015888	-118.4233	Monitoring	Lower Silverado	Semiannual	Every 3 Years	—	Sounder	Purge and low flow	—
RMW-16A	—	34.015796	-118.4232	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-17	—	34.016479	-118.4238	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-18	—	34.016511	-118.4238	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-19	—	34.012876	-118.4196	Monitoring	Upper Silverado	Semiannual	Annual	—	Sounder	Purge and low flow	—
RMW-20	—	34.012901	-118.4196	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-21	—	34.014182	-118.422	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-22	—	34.014204	-118.422	Monitoring	Shallow	Semiannual	-	—	Sounder	—	—
RMW-23	—	34.015106	-118.4213	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-24	—	34.015082	-118.4213	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-25	—	34.012208	-118.4198	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-27	—	34.015215	-118.4228	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-28	—	34.016025	-118.4222	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-29	—	34.016007	-118.4222	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-30	—	34.015773	-118.4207	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-31	—	34.015796	-118.4207	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—

Table 3-8. GSP Monitoring Schedule

Common Well Name	State Well Identification (SWID)	Latitude	Longitude	Well Use	Aquifer	Existing Groundwater Monitoring Frequency			Groundwater Monitoring Method		
						Elevation	*Quality*	*Production*	*Elevation*	*Quality*	*Production*
RMW-32	—	34.014539	-118.426	Monitoring	Upper Silverado	Semiannual	—	—	Sounder	—	—
RMW-33	—	34.014515	-118.426	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-48	—	34.01448	-118.4208	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-49	—	34.014447	-118.4208	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-50	—	34.01513	-118.4202	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-51	—	34.015106	-118.4202	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-52	—	34.014589	-118.4186	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-53	—	34.014566	-118.4186	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-54	—	34.013109	-118.4224	Monitoring	Upper Silverado	Semiannual	Semiannual	—	Sounder	Purge and low flow	—
RMW-55	—	34.013085	-118.4224	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-56	—	34.012325	-118.4224	Monitoring	Upper Silverado	Semiannual	—	—	Sounder	—	—
RMW-57	—	34.012336	-118.4224	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RMW-58	—	34.01306	-118.4235	Monitoring	Upper Silverado	Semiannual	—	—	Sounder	—	—
RMW-59	—	34.013079	-118.4235	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RPZ-4	—	34.017975	-118.4135	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RPZ-5	—	34.017954	-118.4135	Monitoring	Upper Silverado	Semiannual	Every 3 Years	—	Sounder	Purge and low flow	—
RPZ-6	—	34.026662	-118.4214	Monitoring	Upper Silverado	Semiannual	Every 3 Years	—	Sounder	Purge and low flow	—
RPZ-7	—	34.026641	-118.4214	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
RPZ-8	—	34.015028	-118.4168	Monitoring	Upper Silverado	Semiannual	Every 3 Years	—	Sounder	Purge and low flow	—
RPZ-9	—	34.015055	-118.4169	Monitoring	Shallow	Semiannual	—	—	Sounder	—	—
Olympic Wellfield											
Santa Monica No. 3	02S15W04C002S	34.031121	-118.4602	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
Santa Monica No. 4	02S15W04A001S	34.03044	-118.4634	Production	Silverado	Monthly	Monthly	Monthly	Steel tape	Dedicated Pump	Totalizer
GW-30-3	—	34.028401	-118.4648	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
GW-30-5	—	34.028401	-118.4648	Monitoring	C	Quarterly	—	—	Sounder	—	—
GW-30-6	—	34.028401	-118.4648	Monitoring	B	Quarterly	—	—	Sounder	—	—
KMW-12	—	34.028048	-118.468	Monitoring	C	Quarterly	Quarterly	—	Sounder	Bailer	—
MW-11	—	34.028829	-118.4674	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-1	—	34.028011	-118.4666	Monitoring	C	Quarterly	Quarterly	—	Sounder	Bailer	—
OB-2	—	34.029887	-118.4701	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-3	—	34.031466	-118.4679	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-4	—	34.030364	-118.471	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-5	—	34.031798	-118.4731	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-6C	—	34.028051	-118.4737	Monitoring	C	—	—	—	—	—	—
OB-6D	—	34.028051	-118.4737	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-7	—	34.03143	-118.468	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—

Table 3-8. GSP Monitoring Schedule

Common Well Name	State Well Identification (SWID)	Latitude	Longitude	Well Use	Aquifer	Existing Groundwater Monitoring Frequency			Groundwater Monitoring Method		
						Elevation	*Quality*	*Production*	*Elevation*	*Quality*	*Production*
OB-8	—	34.030603	-118.4662	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-9B	—	34.030458	-118.4635	Monitoring	B	Quarterly	—	—	Sounder	—	—
OB-9C	—	34.030458	-118.4635	Monitoring	C	Quarterly	—	—	Sounder	—	—
OB-10B	—	34.030453	-118.4745	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-10C	—	34.030453	-118.4745	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-11B	—	34.032261	-118.465	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-11C	—	34.032261	-118.465	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-12B	—	34.032803	-118.4626	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-12C	—	34.032803	-118.4626	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-13C	—	—	—	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-14B	–	34.029027	-118.4607	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-14C	–	34.029027	-118.4607	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-15B	–	34.029035	-118.47	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-15C	–	34.029035	-118.47	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-16B	–	34.029151	-118.4665	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-17B	–	34.030267	-118.4653	Monitoring	B	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
OB-17C	–	34.030267	-118.4653	Monitoring	C	Quarterly	Quarterly	—	Sounder	Installed dedicated sampling pump	—
Additional Subbasin Wells											
1290P*	02S015W13P007S	33.994694	-118.406216	Monitoring		Semiannually	Annual	—	Sounder	Purge and low flow	—
Airport 1*	–	34.013662	-118.456065	Monitoring		Semiannually	Annual	—	Sounder	Purge and low flow	—
City Hall Well*	–	34.012105	-118.492062	Monitoring		Semiannually	Annual	—	Sounder	Purge and low flow	—

Notes:
* These wells are not currently monitored regularly for groundwater elevation and groundwater quality but will be added to the monitoring network as part of the GSP implementation.

INTENTIONALLY LEFT BLANK

3.5.5.2 Groundwater Storage Monitoring Schedule

Groundwater storage is directly related to groundwater elevation. Consequently, the schedule for monitoring groundwater storage is the same as that for monitoring groundwater elevations.

3.5.5.3 Seawater Intrusion Monitoring Schedule

The City of Santa Monica will continue to conduct groundwater quality sampling throughout the Subbasin. Chloride concentration will be measured annually in groundwater samples collected from the City of Santa Monica production wells. Additionally, if possible, the City of Santa Monica will collect groundwater samples from a well located at the City of Santa Monica City Hall. Samples from this well will also be analyzed for chloride to augment the existing monitoring network.

3.5.5.4 Groundwater Extraction Monitoring Schedule

Monitoring of groundwater extraction rates from the City of Santa Monica's production wells takes place continuously, using flowmeters and telemetry equipment installed on individual wellheads. Monthly totals of pumped water are transmitted to a central database. Groundwater extraction monitoring is also recommended for all wells that produce greater than 2 AFY of groundwater per year from the Subbasin. A monitoring schedule will be adopted for these wells as they are identified and equipped with a flowmeter to record extracted groundwater volumes.

3.5.6 Protocols for Data Collection and Monitoring

Protocols for collecting groundwater level measurements and water quality samples, as well as downloading transducers and logging the boreholes of newly drilled wells, are included in the Monitoring Protocols Best Management Practices (BMPs) published by DWR (DWR 2016a). Consistent with the *Monitoring Protocols, Standards, and Sites Best Management Practices* BMP, depth to groundwater measurements are currently taken from surveyed reference points at the top of the well casing or sounding tube and are measured to a minimum accuracy of 0.1 foot. Currently depth to groundwater measurements are collected over a period of several months. Moving forward, efforts will be made to minimize the timeframe over which depth to groundwater measurements are collected such that the spring groundwater levels will be collected during the month of March, and the fall depth to groundwater measurements are collected during the month of October. The *Monitoring Protocols, Standards, and Sites Best Management Practices* BMP recommends depth to groundwater measurement be collected within as short a time as possible (DWR 2016b).

The City of Santa Monica collects groundwater quality samples in accordance with standard operating procedures for each groundwater quality monitoring program. Samples are collected, using low-flow purge and sample techniques or a mobile or dedicated pump after depth to groundwater has been recorded, and a minimum of three (3) well volumes of water have been purged from the well. Groundwater quality samples are collected in dedicated bottles and are transported to the City of Santa Monica's on-site state-certified laboratory. The City of Santa Monica will continue to use the existing groundwater quality monitoring protocols when collecting groundwater quality samples as part of the reporting requirements for this GSP.

3.5.7 Representative Monitoring

3.5.7.1 Groundwater Elevation, Groundwater in Storage, and Land Subsidence Related to Groundwater Withdrawal RMPs

Eight wells: RMW-3, RMW-8, RMW-9, RMW-28, OB-7, OB-9B, OB-9C, and OB-17 were selected to be RMPs for groundwater elevations in the Subbasin. Linear correlations between groundwater elevations at an RMP and groundwater elevations at nearby production wells were assessed in order to determine whether groundwater elevations measured at the RMPs were representative of aquifer conditions. Screen interval, length of groundwater level measurement record, and location were also reviewed while selecting the RMPs. Groundwater elevation trends at the eight groundwater elevation RMPs were determined to be representative of the groundwater elevations and trends in the Charnock and Olympic groundwater production areas and adequate for characterizing groundwater conditions related to groundwater production in the Subbasin (Figure 3-3).

Groundwater elevation is related to groundwater in storage through the LACPGM (USGS 2021). Therefore, use of groundwater elevation as a proxy for groundwater in storage is adequate to assess groundwater conditions in the Subbasin. Groundwater elevation is also used as a proxy for land subsidence induced by groundwater production. Land subsidence in the Subbasin has the potential to occur both as a result of tectonic forcing and as a result of groundwater withdrawal, although the Subbasin is considered to be at a low risk for land subsidence resulting from groundwater withdrawal (see Section 2.4.5 Subsidence). As a result of the potential for tectonic subsidence, measuring groundwater elevations is a better proxy for land subsidence induced by groundwater withdrawals than measuring total land subsidence, because the tectonic and groundwater elevation components of the total subsidence measurement cannot be separated from each other.

The GSA will evaluate the ongoing representativeness of the current RMPs during the 5-year GSP evaluation and update process. Current RMPs may be removed in the event that groundwater elevations at that RMP are found to no longer represent groundwater conditions in the surrounding aquifer, or if changes are made to access agreements or well construction. In the event that an RMP must be removed from the list, the GSA will undertake a review of potential replacement wells in the vicinity.

3.5.7.2 Seawater Intrusion RMPs

Ten wells: Arcadia 4, Arcadia 5, Santa Monica 1, Santa Monica 3, Santa Monica 4, Charnock 16, Charnock 18, Charnock 19, Charnock 20, and the City Hall well were selected to be RMPs for seawater intrusion in the Subbasin. Chloride concentrations at the seawater intrusion RMPs are similar, ranging from 67 mg/L at Charnock 18 to 166 mg/L at Charnock 20 in 2019 (Figure 2-38). These wells are screened in the Silverado aquifer and adequately represent chloride concentrations in the Subbasin. The Subbasin is not currently experiencing groundwater quality impairment from chloride, and the groundwater quality RMPs were selected to act as sentinel wells that would provide data to assess whether chloride concentration trends are increasing as a result of seawater intrusion.

As discussed above, the representativeness of the chloride concentration data collected from the City of Santa Monica production wells and the City Hall well, will be evaluated during the 5-year GSP evaluation and update process. Current RMPs may be removed in the event that groundwater quality data at that RMP are found to no longer represent groundwater quality in the surrounding aquifer. In the event that an RMP must be removed from the list, the GSA will undertake a review of potential replacement wells in the vicinity of the RMP that was removed.

This GSP recommends adding at least two groundwater quality RMPs in the area between Marina del Rey and the Charnock wellfield. During implementation of the GSP, the City of Santa Monica will evaluate the feasibility of installing these additional wells and review potential funding partners to assist with the costs of the well installation.

3.5.8 Assessment and Improvement of Monitoring Network

3.5.8.1 Temporal Data Gaps in Groundwater Level Measurements

The DWR Monitoring Protocol BMP (DWR 2016a) states the following:

> Groundwater elevation data … should approximate conditions at a discrete period in time. Therefore, all groundwater levels in a basin should be collected within as short a time as possible, preferably within a 1 to 2-week period.

The DWR Monitoring Networks BMP (DWR 2016b) states the following:

> Groundwater levels will be collected during the middle of October and March for comparative reporting purposes.

Groundwater elevation monitoring currently occurs over a longer time period than the two-week window recommended by the DWR guidance documents. The City of Santa Monica will review the feasibility of collecting groundwater elevations over a shorter time period, working toward groundwater elevations that are collected during a two-week window in March to represent spring groundwater conditions, and a two-week window in October to represent fall groundwater conditions. However, the timing of groundwater level measurements in the Subbasin is also constrained by existing groundwater monitoring and remediation programs. Therefore, groundwater elevations may be measured over longer time periods than suggested by DWR guidance for SGMA purposes during the initial implementation of the GSP.

Installation of pressure transducers capable of recording daily groundwater conditions in the RMPs wells could alleviate the need for staff to take manual measurements from every well in the monitoring network within a two-week window. Pressure transducers could be downloaded after the two-week window has passed and recorded data from within the two-week window would be incorporated into groundwater elevation maps and calculations of groundwater in storage. In the event that funding becomes available and pressure transducers can be installed in select monitoring wells, the recommended two-week window during which groundwater elevations should be collected is March 9 to 22 for the spring and October 9 to 22 for the fall.

3.5.8.2 Spatial Data Gaps in Water Level Measurements

Additional monitoring wells could be used to improve spatial coverage for groundwater elevation measurements in the areas of the Subbasin where no existing monitoring wells are located. Wells that are added to the network should be dedicated monitoring wells screened in a single aquifer.

Currently three new wells have been identified as either future or potential new wells for the monitoring network (Figure 3-6). Santa Monica No. 8 is a new production well that has been constructed but is not yet active. Well 1290P is a Los Angeles County Department of Public Works monitoring well that is measured twice a year. The City Hall Well is a well owned by the City of Santa Monica and has not been regularly monitored but is recommended for inclusion as an RMP for seawater intrusion. Additionally, this GSP recommends investigating options for collecting groundwater samples for chloride analysis at the Santa Monica airport and installing two new groundwater monitoring wells in the area between Marina del Rey and the Charnock wellfield.

3.5.8.3 Groundwater Extraction Metering

Currently groundwater extraction volumes are metered at the City of Santa Monica production wells. Groundwater extractions at the remaining wells in the Subbasin, including wells that supply the Holy Cross Catholic Cemetery and the Riviera Country Club, Brentwood Country Club, and Los Angeles Country Club golf courses are not publicly available. In order to better characterize the aquifer response to groundwater production, GSA is planning to require meters be installed (or offer to install meters) on all wells that produce greater than 2 AFY from the Subbasin.

3.5.8.4 Seawater Intrusion Monitoring

Additional monitoring wells could be used to improve spatial coverage for groundwater elevation and quality monitoring related to seawater intrusion in the coastal areas of the Subbasin where no existing monitoring wells are located. The City Hall Well and two additional wells between Marina del Rey and the Charnock wellfield would provide spatial information to better characterize chloride concentrations and the potential for seawater intrusion in the Subbasin.

3.6 References Cited

City of Santa Monica. 2007. Charnock Annual Groundwater Monitoring Report (January 1 to June 30, 2007). Charnock Sub-Basin; Los Angeles, California. Prepared by: ENVIRON International Corporation. July 2007.

City of Santa Monica. 2013. Conceptual Groundwater Basin Model and Assessment of Available Groundwater Supplies Santa Monica Groundwater Basin. Prepared by Richard C. Slade and Associates for The City of Santa Monica, Los Angeles County, California. February 2013.

City of Santa Monica. 2015. Olympic Wellfield Site Conceptual Model City of Santa Monica, California. October. Prepared by ICF International.

City of Santa Monica. 2018. Sustainable Water Master Plan Update. City of Santa Monica. December 2018.

City of Santa Monica. 2019. Early Warning Groundwater Quality Monitoring Report, Charnock Wellfield Restoration Project. Prepared by Advisian Americas for The City of Santa Monica. January 7, 2019.

City of Santa Monica. 2020a. Annual Water Quality Report. 2020. City of Santa Monica, Water Resources Division, June 2020.

City of Santa Monica. 2020b. Charnock Annual Groundwater Monitoring Report (January – June 2020). Prepared by: Ramboll. July 2020.

City of Santa Monica. 2020c. Olympic Wellfield Groundwater Monitoring Report, Third Quarter 2020. Prepared by: ICF International. October 2020.

DWR (California Department of Water Resources). 2010. Department of Water Resources Groundwater Elevation Monitoring Guidelines. December 2010.

DWR (Department of Water Resources). 2014. Summary of Recent, Historical, and Estimated Potential for Future Land Subsidence in California.

DWR. 2016a. Best Management Practices for the Sustainable Management of Groundwater: Monitoring Protocols, Standards, and Sites. December 2016.

DWR. 2016b. Best Management Practices for the Sustainable Management of Groundwater: Monitoring Networks and Identification of Data Gaps. December 2016.

Playa Capital Company, LLC. 2020. Third Quarter 2020 Groundwater Monitoring and Remediation System Progress Report. Prepared by: CDM Smith. November.

Rohde, M. M., S. Matsumoto, J. Howard, S. Liu, L. Riege, and E. J. Remson. 2018. Groundwater Dependent Ecosystems Under the Sustainable Groundwater Management Act. Guidance for Preparing Sustainability Plans. The Nature Conservancy, San Francisco, California. January.

RWQCB (Los Angeles Regional Water Quality Control Board). 2019. Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, Chapter 3: Water Quality Objectives (https://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.html). Accessed: May 6, 2019.

USGS (United States Geological Survey). 2021. Development of a Groundwater-Simulation Model in the Los Angeles Coastal Plain, Los Angeles County, California, Draft Documentation, Received March 09, 2020.

INTENTIONALLY LEFT BLANK

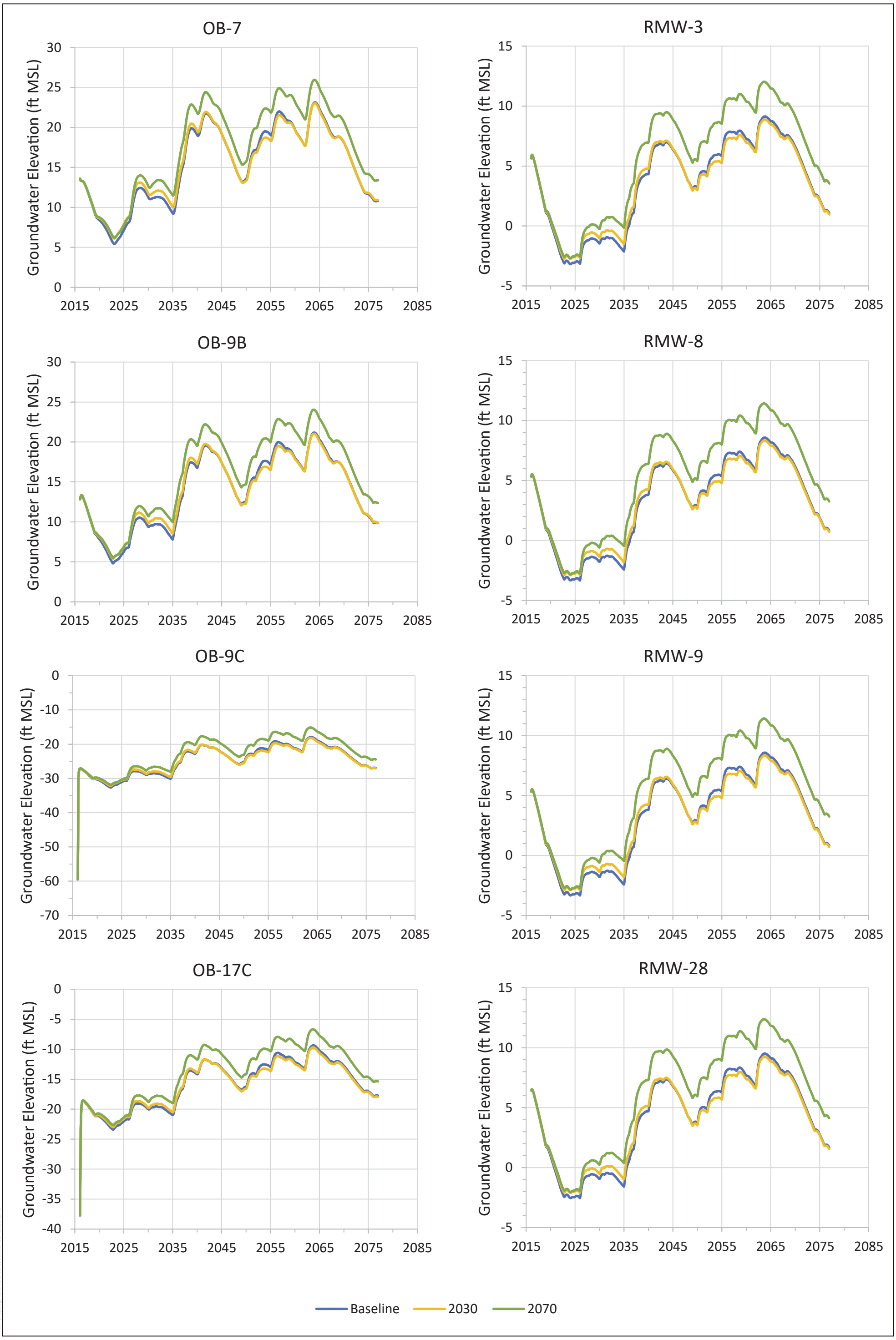


FIGURE 3-1

Projected Groundwater Elevations at the RMPs

Groundwater Sustainability Plan for the Santa Monica Subbasin

DUDEK

INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)

Representative Monitoring Points

Sustainability Indicator

- Levels, Storage, Subsidence
- Seawater Intrusion

RMP Casing Name	Chronic Decline in Groundwater Levels (ft MSL)	
	Minimum Threshold	Measurable Objective
RMW-3	-175	-115
RMW-8	-165	-110
RMW-9	-165	-110
RMW-28	-160	-105
OB-7	5	30
OB-9B	20	45
OB-9C	-95	-40
OB-17C	-85	-30

RMP Casing Name	Seawater Intrusion (Chloride – mg/L)	
	Minimum Threshold	Measurable Objective
Arcadia No. 4	500	200
Arcadia No. 5	500	200
Santa Monica No. 1	500	200
Santa Monica No. 3	500	200
Santa Monica No. 4	500	200
Charnock No. 16	500	200
Charnock No. 18	500	200
Charnock No. 19	500	200
Charnock No. 20	500	200
City Hall Well	500	200

SOURCE:Geotracker GAMA; City of Santa Monica

DUDEK

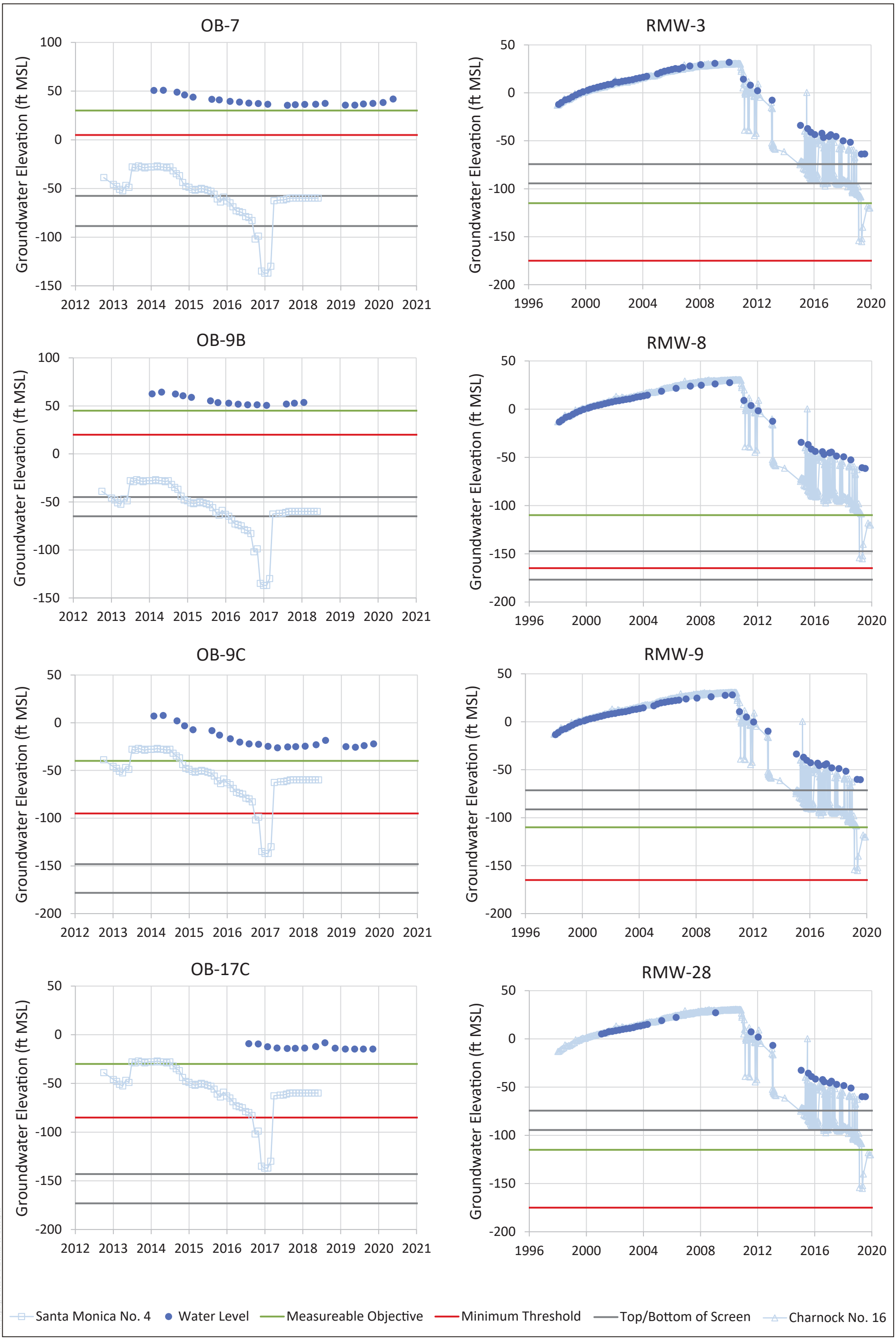
0 1 2 Miles

FIGURE 3-2

Representative Monitoring Points

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: City of Santa Monica

FIGURE 3-3

Historical Groundwater Elevations at the RMPs

Groundwater Sustainability Plan for the Santa Monica Subbasin

DUDEK

INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)
- City of Santa Monica; City of Santa Monica/County
- Private/Irrigation Wells
- Inactive Santa Monica Production Well
- CASGEM Wells
- Playa Vista Wells

Charnock Regional Monitoring Wells

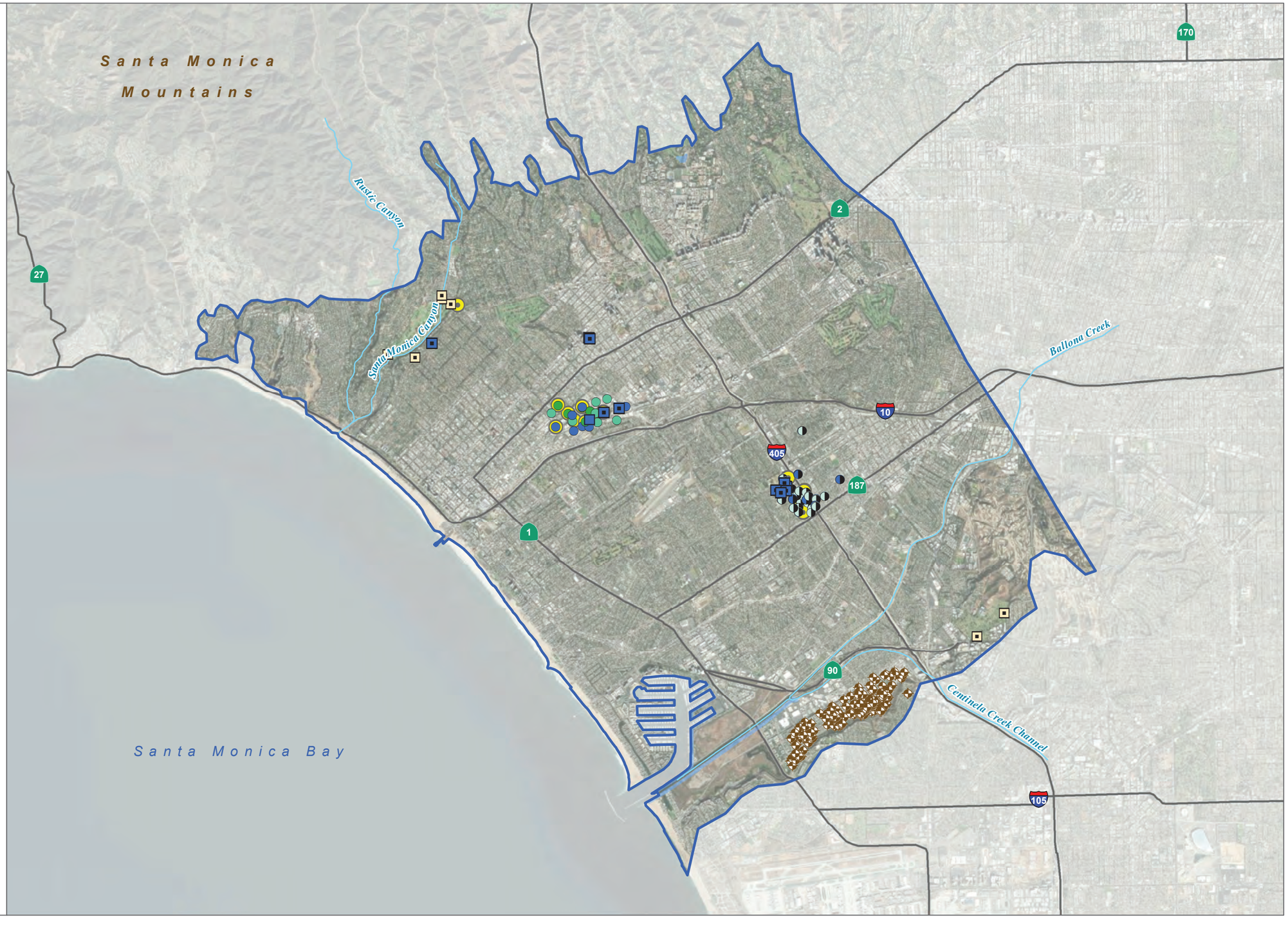
Aquifer

- Shallow (Ballona/Lakewood) Aquifer
- Silverado Aquifer

Olympic Well Field Management Plan Monitoring Wells

Zone

- B Zone (Lakewood) Aquifer
- B and C Zones (Lakewood/Silverado) Aquifer
- C Zone (Silverado) Aquifer



SOURCE:Geotracker GAMA; City of Santa Monica

DUDEK

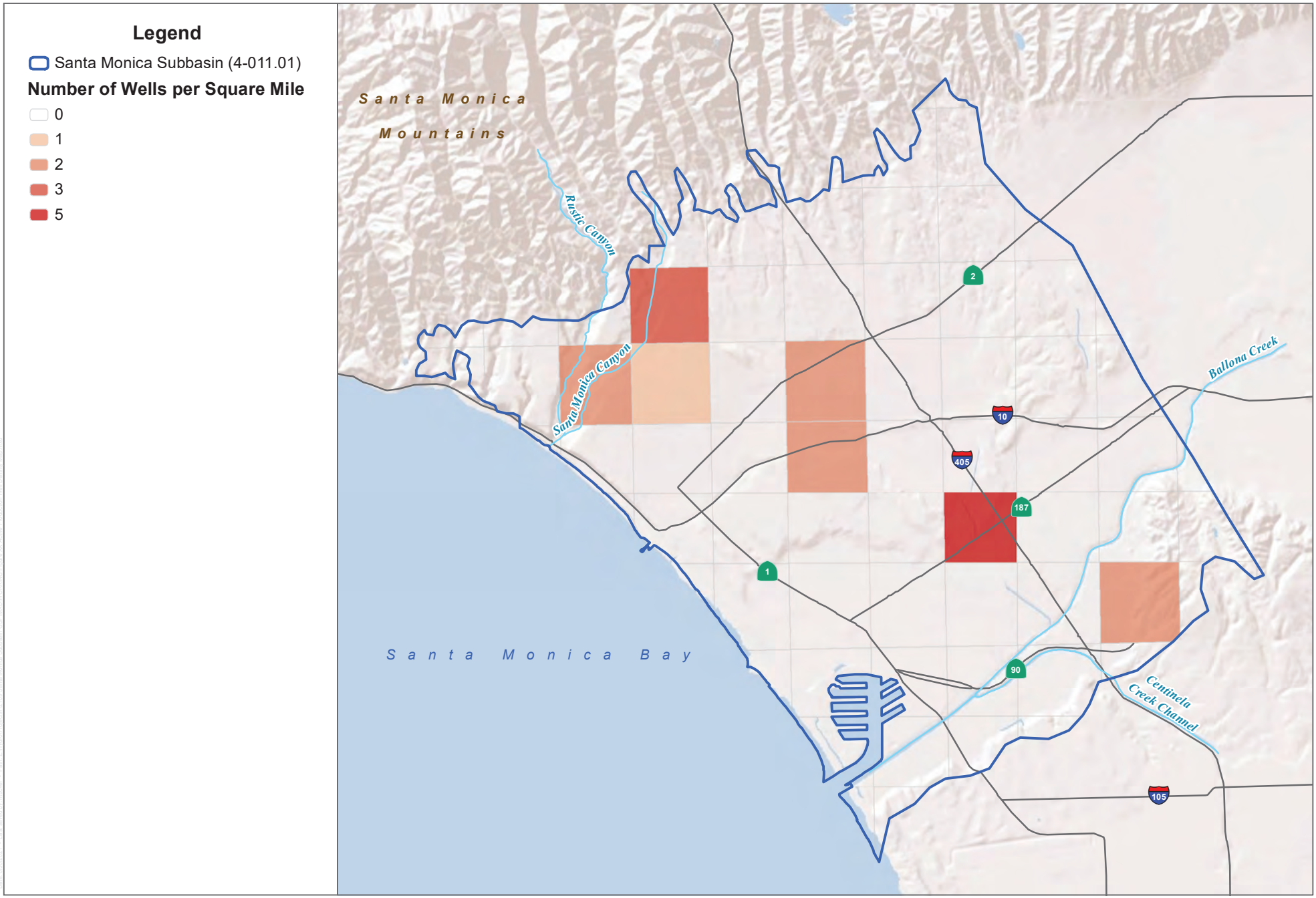
0 1 2 Miles

FIGURE 3-4

Groundwater Monitoring Network

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: ESRI; DWR; USGS; City of Santa Monica

DUDEK

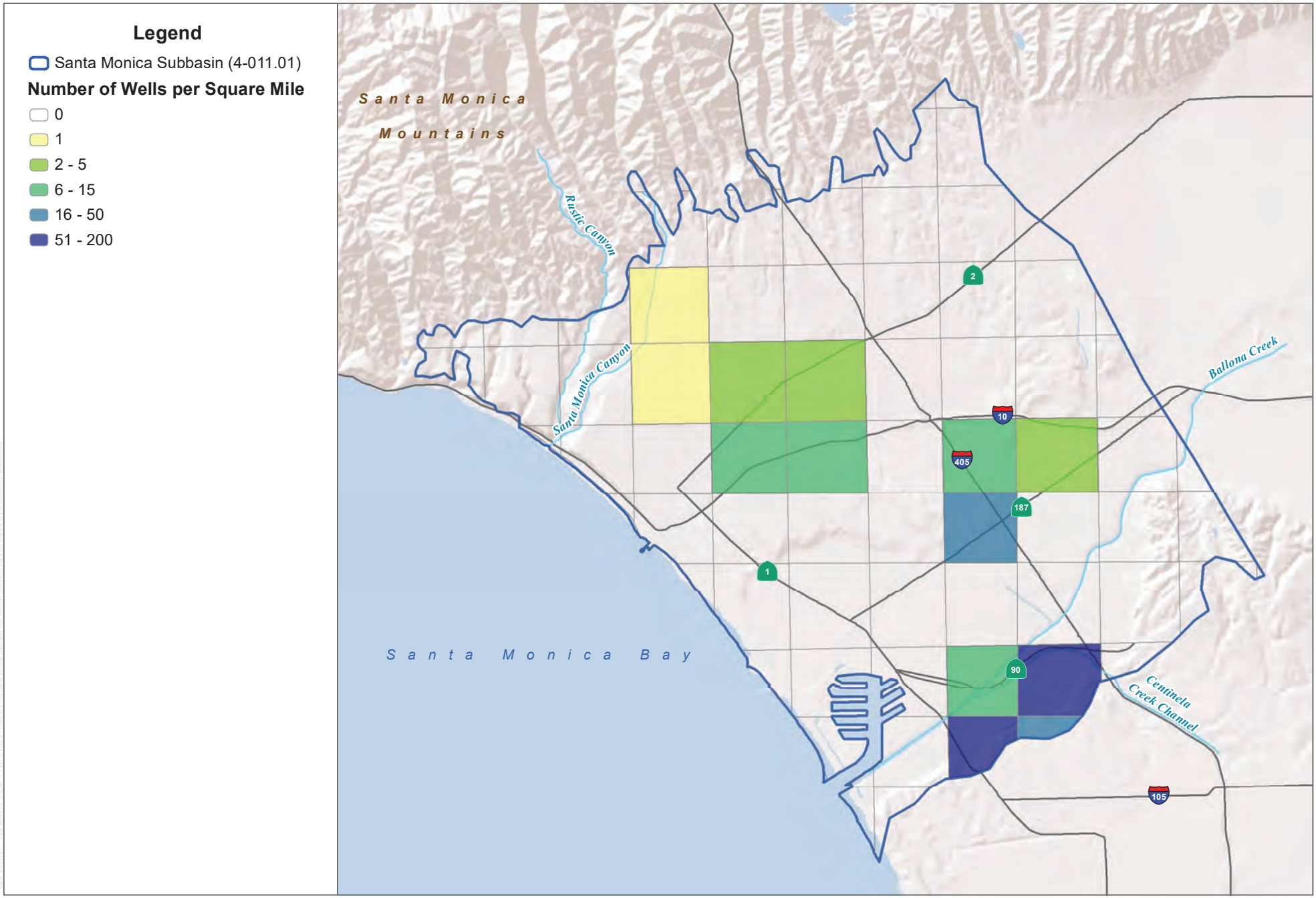
0 0.5 1 Miles

FIGURE 3-5

Production Well Density

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: ESRI; Geotracker GAMA; USGS; City of Santa Monica

DUDEK

0 0.5 1 Miles

FIGURE 3-6

Density of the Monitoring Network

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

Legend

- Santa Monica Subbasin (4-011.01)
- Potential New Monitoring Network Wells
- Area of Investigation for Potential New Seawater Intrusion Monitoring Well

GSP Monitoring Network

- Active City of Santa Monica Production Wells
- Inactive Santa Monica Production Well
- CASGEM Wells

Charnock Regional Monitoring Wells

Aquifer

- Shallow (Ballona/Lakewood) Aquifer
- Silverado Aquifer

Olympic Well Field Management Plan Monitoring Wells

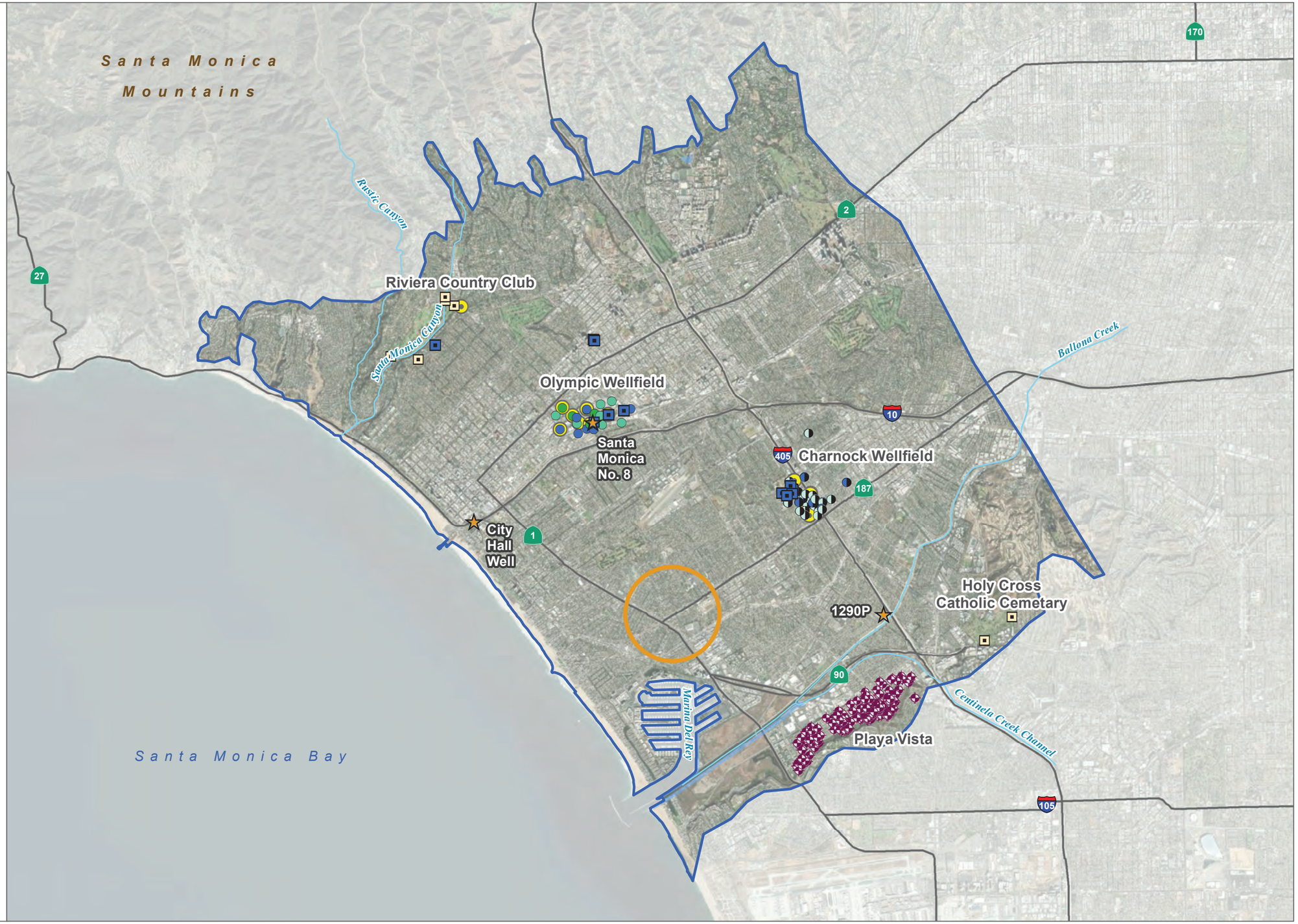
Zone

- B Zone (Lakewood) Aquifer
- B and C Zones (Lakewood/Silverado) Aquifer
- C Zone (Silverado) Aquifer

Additional Subbasin Wells

- Private/Irrigation Wells
- Playa Vista Wells

Note: Only potential new monitoring wells are labeled.



SOURCE:Geotracker GAMA; City of Santa Monica

DUDEK

0 1 2 Miles

FIGURE 3-7

Future/Potential New Monitoring Network Wells

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

4 Projects and Management Actions

The projects and management actions in this Chapter document potential actions that the SMBGSA could undertake in the event that the current understanding of the hydrogeologic conceptual model of the Subbasin, and the numerical groundwater modeling based on that conceptual model, have not sufficiently captured the long-term groundwater conditions in the Subbasin. Projects and management actions are not necessary to achieve sustainability in the Subbasin, which has experienced periods of both rising and declining groundwater levels historically but has not experienced undesirable results (see Sections 2.4.1 Groundwater Elevation Data and 2.4.2 Estimated Change in Storage). However, projects and management actions may be necessary to respond to changing conditions in the Subbasin. These projects and management actions are discussed in this chapter.

In order to maintain sustainable use of the groundwater resources in the Subbasin for current and future stakeholders, the City of Santa Monica has planned and implemented several projects designed to reduce water demand in the Subbasin, improve groundwater quality, and increase the reliability of groundwater supplies in the Subbasin. These projects, which are documented in components one and two of the City of Santa Monica 2018 Sustainable Water Master Plan Update, include increasing water conservation to achieve a 38% reduction in imported water purchases, increasing recycled water production from the Santa Monica Urban Runoff Recycling Facility (SMURRF), constructing a new advanced water treatment facility that would produce advanced treated recycled water to recharge local groundwater aquifers, and increasing production at the Arcadia Water Treatment Plant (WTP) by enhancing its production efficiency (City of Santa Monica 2018). The impacts on groundwater elevations and storage from these projects are incorporated in the future baseline scenarios (see Section 2.5.5.3 Quantification of Future Water Budget).

Of the projects and management actions discussed below, only increased recharge to local aquifers was explicitly incorporated into the future baseline scenarios (see Section 2.5.5.3 Quantification of Future Water Budget). The future baseline scenarios also included estimated future groundwater demands, which incorporate increased water conservation and treatment efficiency. Specific management actions were not modeled for this GSP. The results of the future baseline scenarios suggest that groundwater elevations in the Subbasin will remain above both the measurable objective and minimum threshold at every RMP throughout the 50-year planning and implementation horizon. In the event that changing conditions in the Subbasin necessitate implementation of the projects and management actions listed below, additional modeling may be conducted to evaluate their effectiveness.

4.1 Management Action #1 – Adjust Groundwater Production As-Needed to Meet Water Level and/or Seawater Intrusion Objectives

The City of Santa Monica is committed to environmental stewardship. This includes becoming carbon neutral by 2050 (City of Santa Monica 2018). As part of this effort the City of Santa Monica is committed to reducing the volume of imported water to the greatest extent possible. While the City of Santa Monica is implementing projects to reduce reliance on imported water, the City will maintain the two MWD turnouts that deliver water to the Subbasin to provide added water security in case groundwater production causes undesirable results in the Subbasin, or in case of a natural disaster or other emergency. This allows the City of Santa Monica to adjust the volume of groundwater produced in different geographic areas while maintaining the overall flow needed to meet anticipated consumer demand. If concentrations of chloride in groundwater begin to approach the minimum threshold at 6 of

10 seawater intrusion RMPs, the City of Santa Monica may need to adjust groundwater production to reverse the gradient and limit additional migration of seawater. Similarly, if groundwater elevations decline at a rate that exceeds the projected rate of decline and water levels begin to approach the minimum thresholds for groundwater elevation at one or more of the RMPs, the City of Santa Monica can shift production from one groundwater production area to another in order to allow groundwater elevations to recover in the impacted production area.

Additionally, if groundwater levels at five of the eight groundwater elevation RMPs fall below the minimum thresholds, the City of Santa Monica could reduce its overall groundwater production from the Subbasin, in order to allow groundwater elevations to recover. Historically, groundwater elevations have recovered in the Subbasin during times of reduced production (see Section 2.4.1 Groundwater Elevation), and undesirable results have not occurred in the Subbasin. During these times, groundwater was replaced with imported water. Given the City of Santa Monica's commitment to carbon neutrality, the City of Santa Monica and the SMBGSA will consider the potential climate and other environmental impacts of increased imported water use before implementing this management action.

4.1.1 Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, groundwater in storage, and seawater intrusion would benefit from implementation of this management action if implementation becomes necessary. Groundwater conditions in the Subbasin are currently above the measurable objectives, and the Subbasin is not currently experiencing undesirable results related to any of the sustainability indicators.

4.1.2 Expected Benefits and Evaluation

The volume of groundwater in storage would increase, chronic declines in groundwater elevation would be reversed, and seawater intrusion induced by groundwater production would cease or reverse with reduced groundwater production. Groundwater in storage will be measured using groundwater elevations as a proxy. If groundwater elevations stabilize or rise at the groundwater level RMPs, the management action will have succeeded in increasing the volume of groundwater in storage, preventing chronic declines in groundwater. Seawater intrusion will be measured using chloride concentration. If increasing trends in chloride concentration measured at the relevant RMPs are ceased or reversed, the management action will have succeeded in preventing further migration of seawater into the freshwater aquifers.

4.1.3 Circumstances for Implementation

This management action would be implemented if groundwater levels approach the minimum threshold groundwater elevation at five or more groundwater level RMPs, or if the concentration of chloride in six or more seawater intrusion RMPs approaches 500 mg/L.

4.1.4 Public Noticing

Public noticing is not required for this management action, which would be undertaken under the City of Santa Monica's authority to operate its groundwater production wells and water treatment facilities. Stakeholders would not be impacted by this management action because it does not impose restrictions on private groundwater producers in the Subbasin.

4.1.5 Permitting and Regulatory Process

No additional permitting or regulatory oversight is necessary to implement this management action, which would be undertaken under the City of Santa Monica's authority to operate its groundwater production wells and water treatment facilities.

4.1.6 Implementation Schedule

There is no specific implementation schedule for this management action as future groundwater level projections currently suggest this management action will not be required. The City of Santa Monica has the ability to implement this management action within six months of determining that one of the criteria for implementation described in Section 4.1.3 has been met.

4.1.7 Legal Authority

The City of Santa Monica, as a water purveyor, already has the legal authority necessary to operate groundwater production and water treatment facilities in the Subbasin. No additional legal authority is required.

4.1.8 Estimated Costs

This management action could be incurred at no cost to the City of Santa Monica, or to its customers, if the total volume produced remains the same and the water quality is similar. In the event that groundwater production is reduced overall, additional cost may be incurred if groundwater is replaced by imported water.

4.2 Management Action #2 – Impose Replenishment or Imported Water Purchase/ Pumping Offset Fee

The City of Santa Monica is currently both the largest producer of groundwater and the sole producer of drinking water within the Subbasin. Since at least 1985, the combined groundwater extractions from the City of Santa Monica wells and private wells have not exceeded the sustainable yield of the Subbasin (See Section 2.5.5.1 Quantification of Historical Water Budget). Projected groundwater extractions from the City of Santa Monica were incorporated into the future baseline scenarios. These projected extractions are not anticipated to cause undesirable results in the Subbasin. Projected groundwater extractions are, however, anticipated to approximately equal the sustainable yield of the Subbasin. Therefore, new projects that rely on groundwater production, or that increase groundwater production rates from existing wells, would exceed the production rates modeled in the future baseline scenarios and may cause undesirable results in the Subbasin.

In the event that groundwater conditions within the Subbasin warrant additional management by the SMBGSA, the GSA may impose a replenishment fee, or a water purchase / pumping offset fee for groundwater users in the Subbasin. In the case of the replenishment fee, the fees would be used to develop and support projects that would increase recharge, and therefore increase the sustainable yield in the Subbasin. Alternatively, water purchase / pumping offset fees would be used to purchase additional imported water to meet the City of Santa Monica customer demands, while offsetting the City of Santa Monica groundwater use. It should be noted that the majority of the City of Santa Monica groundwater extraction wells are linked to regional efforts to improve groundwater

quality and restore beneficial uses of groundwater in the Subbasin. Therefore, while purchasing imported water may be an option to offset some the City of Santa Monica production, such a program could not interfere with the City of Santa Monica's regulatory obligations to improve water quality in the Subbasin.

Furthermore, the City of Santa Monica is committed to achieving carbon neutrality by 2050. Therefore, the City of Santa Monica and the SMBGSA will consider the potential climate and other environmental impacts of increased imported water use before implementing this management action.

Potential projects that could be supported by a fee imposed on groundwater production would require additional feasibility studies before being implemented. The feasibility studies would assess whether suitable hydrogeologic conditions exist, the potential influence of the projects on existing groundwater quality in the Subbasin, as well as whether sufficient water can be obtained from suitable sources to support the project. Before the SMBGSA would impose a replenishment fee, the City of Santa Monica would undertake the necessary hydrogeologic studies to assess the feasibility of recharge within the Subbasin. Funding the feasibility study may require a fee imposed on groundwater extractions.

The feasibility of purchasing imported water in order to offset groundwater production is likely to be impacted by additional demands on imported water from groundwater basins across the State of California. While many GSAs, including the SMBGSA, are increasing groundwater production in order to develop a more drought-resistant water supply portfolio, several GSAs managing critically over-drafted basins are looking to increase purchases of imported water. The increased demand from these basins is likely to exceed the reduced demand from basins that have not been critically over-drafted. Therefore, the City of Santa Monica and the SMBGSA will have to investigate the volume of water that may be available for purchase, and whether that volume is sufficient to offset the overdraft conditions, before developing a fee structure to support purchase of additional imported water.

4.2.1 Measurable Objective Expected to Benefit

The measurable objectives for seawater intrusion, chronic declines in groundwater levels, and groundwater in storage would benefit from implementation of this management action.

4.2.2 Expected Benefits and Evaluation

Groundwater in storage would increase and chronic declines in groundwater would be reversed, and seawater intrusion induced by groundwater production would cease or reverse with reduced groundwater production resulting from implementing groundwater recharge projects in the Subbasin or purchasing imported water to offset groundwater production. Groundwater in storage will be measured using groundwater elevations as a proxy. If groundwater elevations stabilize or rise at the groundwater level RMPs, the management action will have succeeded in increasing the volume of groundwater in storage and preventing chronic declines in groundwater. If concentrations of chloride stabilize or decline at the seawater intrusion RMPs, the management action will have succeeded in eliminating the landward migration of a seawater intrusion front.

4.2.3 Circumstances for Implementation

This management action may be implemented if groundwater elevations fall below the measurable objective and approach the minimum threshold at five or more groundwater level RMPs as a result of increased production in wells that were not included in the future baseline scenarios. For example, if a new project that relies on

groundwater production is approved in the Subbasin, and that project will result in overdraft conditions in the Subbasin, this management action may be implemented. Similarly, if changes in groundwater use for private and municipal golf courses or other high water demand land uses, result in increased production from the Subbasin beyond that incorporated into the future baseline scenarios, thereby causing overdraft of the Subbasin, this management action may be implemented.

4.2.4 Public Noticing

Imposing a fee for groundwater recharge activities, or for the purchase of additional imported water, would require substantial public input and noticing. The SMBGSA would need public input to understand the potential impacts of imposing a fee on groundwater extractions, and the SMBGSA anticipates gathering public input using multiple methods, including multiple public meetings. In the event that the SMBGSA decides a fee would be necessary, per subdivision (a) of Section 6 of Article XIII D of the California Constitution, the SMBGSA will conduct a public hearing on the proposed fee no less than 45 days after mailing a notice of the proposed fee to the owners of each parcel upon which the fee is proposed. Published and written notice of the public hearing will be provided as required by the provisions of the Municipal Water District Law of 1911, specifically Sections 71632, 71638, 71638.4 and 71674 of the California Water Code (CWC).

4.2.5 Permitting and Regulatory Process

Imposing a fee for groundwater recharge activities, or for the purchase of additional imported water, would not require any permitting or regulatory oversight. This fee would have to comply with all applicable sections of the CWC and the California Constitution.

4.2.6 Implementation Schedule

There is no firm implementation schedule for this management action because it is not currently required in the Subbasin. Implementation would only be considered in the event that groundwater production volumes exceeding those accounted for in future baseline scenarios result in overdraft conditions in the Subbasin. In the event that this management action needs to be implemented, a schedule will be developed and changes or updates to the implementation schedule will be reported to DWR as part of the 5-year GSP evaluation process (CWC § 10733.8). It is anticipated that one to two years of planning and outreach would be required before this fee could be implemented.

4.2.7 Legal Authority

The SMBGSA has the authority to impose fees on the extraction of groundwater in order to fund costs of groundwater management in the Subbasin after it adopts this GSP (CWC §10730.2 (a)). The fees that would be imposed under this management action must be adopted by the GSA in accordance with subdivisions (a) and (b) of Section 6 of Article XIII D of the California Constitution (CWC §10730.2 (c)).

4.2.8 Estimated Costs

The costs associated with this management action have not yet been estimated. The cost to conduct the initial study and public outreach may require a one-time assessment on groundwater users in the Subbasin. Ongoing

administrative costs of this management action would be incorporated into the groundwater fee structure so that the program would be self-supporting.

4.3 Management Action #3 – Develop a Salt Nutrient Management Plan for the Subbasin

The Santa Monica Subbasin does not currently have a salt and nutrient management plan (SNMP) to address the use of advanced treated recycled water (e.g., groundwater augmentation via direct injection) in the Subbasin, and its potential impacts on groundwater quality. Recycled water may play an integral role in maintaining the sustainability of groundwater conditions in the Subbasin, as it could be used to replenish groundwater pumped in production areas, as a seawater injection barrier, or for other municipal and industrial uses. The SNMP for the Subbasin would be prepared by the relevant GSA member agencies, not by the SMBGSA itself, and the relevant member agencies would work in collaboration with Subbasin stakeholders and other interested parties, as well as LADPW, the Sanitation Districts of Los Angeles County, and any other relevant wastewater entities. The SNMP process was designated by the SWRCB as the appropriate way to address salt and nutrient issues and ensure attainment of water quality objectives and protection of beneficial uses.

The City of Santa Monica prepared a local Antidegradation Study for injection of advance treated recycled water at the Olympic Wellfield (City of Santa Monica 2020). This study found that the proposed groundwater augmentation operations at the Olympic Wellfield are protective of beneficial uses of groundwater, consistent with the State of California Antidegradation Policy, and will improve water quality with respect to chloride, sulfate, and TDS. Boron and nitrate concentrations may increase with injection of advance treated recycled water, but these increases are below 10% of the assimilative capacity and concentrations of boron and nitrate in the groundwater are projected to remain below the water quality objectives for the Subbasin (City of Santa Monica 2020).

A SNMP will provide a comprehensive evaluation of the assimilative capacity of the Subbasin and may allow for implementation of recharge projects not currently proposed in this GSP. Such projects, proposed and implemented after development of the SNMP, can provide additional operational flexibility to the Subbasin stakeholders while ensuring that any changes to concentrations of constituents in the groundwater are consistent with the maximum benefit to the people of the State.

4.3.1 Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, groundwater in storage, and seawater intrusion all have the potential to benefit from implementation of this management action.

4.3.2 Expected Benefits and Evaluation

Use of advanced treated recycled water in the Subbasin has the potential to reduce demand on groundwater production, replenish groundwater aquifers, and / or act as a barrier to seawater intrusion if such a barrier becomes necessary in the future. An adopted SNMP for the Subbasin will allow for appropriate use of advanced treated recycled water that maintains beneficial uses of groundwater. This management action will have been effective if a SNMP for the Subbasin is developed by the stakeholders and accepted by the RWQCB.

4.3.3 Circumstances for Implementation

This GSP recommends beginning the process to implement this management action within the first five years after adoption of the GSP. The SNMP development process can take many years and should be started before groundwater quality conditions in the Subbasin no longer have assimilative capacity. Therefore, implementation of this management action is recommended independently from groundwater condition triggers in the Subbasin.

4.3.4 Public Noticing

Developing a SNMP requires substantial public input. This would, however, be undertaken by the municipalities, and water and wastewater agencies participating in the development of the SNMP, rather than the SMBGSA. Scoping meetings for a basin plan amendment would be noticed and held by the RWQCB.

4.3.5 Permitting and Regulatory Process

The California Environmental Quality Act (CEQA) needs to be followed if the Basin Plan is amended as a result of the SNMP. The public agencies that participate in the process can be the lead agencies for CEQA and the RWQCB can act as the responsible agency when adopting a basin plan amendment. Alternatively, the RWQCB can act as the lead agency and request that stakeholders prepare the necessary documentation.

4.3.6 Implementation Schedule

There is no firm implementation schedule for this management action because it is not under the supervision of the SMBGSA. However, this GSP recommends beginning the SNMP development process in 2022.

4.3.7 Legal Authority

The SMBGSA does not assume legal authority to develop an SNMP, but recommends that relevant individual municipalities, who do have legal authority to develop an SNMP implement this management action.

4.3.8 Estimated Costs

The costs associated with this management action have not been estimated but would be borne by the relevant municipalities and participants developing the SNMP.

4.4 Management Action #4 – Develop a Groundwater Allocation for the Subbasin

Projected groundwater extractions from the City of Santa Monica and private pumpers are anticipated to approximately equal the sustainable yield of the Subbasin (see Sections 2.5.5.3 Quantification of Future Water Balance and 2.6 Sustainable Yield Estimate). Although these projected extractions are not anticipated to cause undesirable results, new projects that rely on groundwater production, or that increase groundwater production rates from existing wells, would exceed the production rates modeled in the future baseline scenarios. Production at rates higher than those modeled in the future simulations may lead to undesirable results.

In the event that groundwater production rates approximately equal or exceed the estimated sustainable yield of the Subbasin, the City of Santa Monica and SMBGSA may develop a groundwater allocation in the Subbasin. Any groundwater allocation would be developed in conjunction with the stakeholders in the Subbasin and is anticipated to incorporate historical groundwater production from existing stakeholders and the City of Santa Monica. After the groundwater allocation is developed, the SMBGSA will work to develop a fee structure for groundwater production in excess of the allocated amounts. This management action would be developed with stakeholder input after the GSP is adopted.

4.4.1 Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, groundwater in storage, and seawater intrusion would benefit from implementation of this management action.

4.4.2 Expected Benefits and Evaluation

Groundwater in storage would increase and chronic declines in groundwater elevation would cease or reverse with reduced groundwater production resulting from implementing a groundwater allocation because there would be a financial disincentive to produce groundwater in excess of the sustainable yield of the basin. Similarly, seawater intrusion that results from groundwater production could be stopped or reversed if groundwater production is reduced as part of this management action.

As an additional potential benefit of this management action, fees collected for groundwater produced in excess of the sustainable yield could be used to develop and implement groundwater replenishment projects or purchase imported water to offset groundwater production. Groundwater in storage will be measured using groundwater elevations as a proxy. If groundwater elevations stabilize or rise at the groundwater level RMPs, the management action will have succeeded in increasing the volume of groundwater in storage, preventing chronic declines in groundwater elevation. Chloride concentrations measured at the City of Santa Monica Production wells will be used to assess whether or not seawater intrusion is occurring in the Subbasin. If chloride concentrations stabilize or decline at the RMPS, the management action will have succeeded in eliminating landward progression of a seawater intrusion front.

4.4.3 Circumstances for Implementation

This management action may be implemented if groundwater production exceeds the estimated sustainable yield of the Subbasin and undesirable results are determined to be occurring or likely to occur.

4.4.4 Public Noticing

Developing a groundwater allocation would require substantial public input and noticing. The SMBGSA would require public input to understand the potential impacts of the allocation and the most appropriate method for developing the allocation. The SMBGSA anticipates gathering public input using multiple methods, including multiple public meetings. Published and written notice of the public hearing will be provided as required by the provisions of the Municipal Water District Law of 1911, specifically Sections 71632, 71638, 71638.4 and 71674 of the California Water Code (CWC).

4.4.5 Permitting and Regulatory Process

Developing a groundwater allocation would not require any permitting or regulatory oversight.

4.4.6 Implementation Schedule

There is no firm implementation schedule for this management action because it is not currently required in the Subbasin. Implementation would only be considered in the event that groundwater production volumes exceeding those accounted for in future baseline scenarios result in overdraft conditions in the Subbasin. In the event that this management action needs to be implemented, a schedule will be developed and changes or updates to the implementation schedule will be reported to DWR as part of the 5-year GSP evaluation process (CWC § 10733.8).

4.4.7 Legal Authority

The SMBGSA has the authority to develop a groundwater allocation after it adopts this GSP (CWC §10726.4 (a)(2)).

4.4.8 Estimated Costs

The costs associated with this management action have not yet been estimated. Ongoing administrative costs of this management action would be incorporated into the groundwater fee structure so that the program would be self-supporting.

4.5 Management Action #5 – Increase Water Conservation

The City of Santa Monica has successfully implemented water conservation measures that have reduced the average per capita water use to 103 gallons per capita per day (City of Santa Monica 2021). The City intends to continue to advance its efforts to increase water conservation through continuation of existing water saving programs and implementation of new incentives and programs (City of Santa Monica 2018). These programs include a marketing and messaging program for "conservation as a way of life" and potential drought resurgence, flow measuring and irrigation controller device incentives, water use consultations, rebate incentive programs for fixtures, and partnership program with Santa Monica Malibu Unified School District (City of Santa Monica 2021). Some of the new incentives and programs the City will implement to further reduce water use in the Subbasin moving forward include a partnership with the Discovery Science Center of Los Angeles to educate students and their families on water use efficiency and conservation, replacement of multi-family common area laundry machines with more efficient apparatus, and installation of City approved greywater systems at private residences and businesses to provide a cost-effective alternative water supply for irrigation and other non-potable uses (City of Santa Monica 2021). The existing and new incentives and programs will together save an estimated 764 acre-feet per year by 2025 and 1,952 acre-feet per year by 2040 (City of Santa Monica 2021).

4.5.1 Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, groundwater in storage and seawater intrusion are all expected benefit from implementation of this management action because the management action reduces demand for groundwater.

4.5.2 Expected Benefits and Evaluation

The primary expected benefit from this management action is a reduction in the demand for groundwater in the Santa Monica Subbasin. The success of this management action will be evaluated based on the aggregate volume of per capita water use by the City of Santa Monica.

4.5.3 Circumstances for Implementation

This management action is currently being implemented and future opportunities to increase water conservation will continue to be evaluated moving forward.

4.5.4 Public Noticing

Public noticing is not required for this management action, which would be undertaken under the City of Santa Monica's authority to incentivize water conservation. Stakeholders would not be impacted by this management action because it does not impose restrictions on private groundwater producers in the Subbasin.

4.5.5 Permitting and Regulatory Process

Implementing water conservation programs would not require any permitting or regulatory oversight.

4.5.6 Implementation Schedule

This management action is already being implemented. Over the next 3 years, the City of Santa Monica will continue to conduct programs that incentivize replacement of high water use landscaping, existing indoor water fixtures, and existing appliances (City of Santa Monica 2018). The City of Santa Monica will also continue to engage in public outreach and partnership programs that bring increased awareness of and participation in the program.

4.5.7 Legal Authority

The City of Santa Monica already has the legal authority necessary to implement water conservation programs in the Subbasin. No additional legal authority is required.

4.5.8 Estimated Costs

The costs associated with this management action are already factored into the City of Santa Monica's operating budget.

4.6 Project #1 – Increase Recycled Water Production for Non-Potable and Potable Reuse

The City of Santa Monica intends to reduce reliance on imported water and reduce demand for local groundwater by increasing production of recycled water at its SMURRF facility and constructing a new below-ground SWIP AWTF at the Civic Center Parking Lot (City of Santa Monica 2018). Recycled water production at the SMURRF, which has a maximum capacity of 560 AFY, has decreased in recent years to approximately 98 AFY in conjunction with the successful implementation of water conservation measures (City of Santa Monica 2018). In order to increase production at the SMURRF, the City is in the process of installing a containerized brackish/ saline reverse osmosis unit that will provide advance treatment for dry and wet weather runoff and brackish groundwater. This project, which is anticipated to be completed in 2022 will provide approximately 462 AFY additional supply for the City of Santa Monica's non-potable system, as well as for groundwater recharge.

In addition to upgrading the SMURRF, the City of Santa Monica is also constructing a new below-ground SWIP AWTF at the Civic Center Parking Lot that will advance treat approximately 1,120 AFY of municipal wastewater for non-potable reuse and potable reuse – groundwater augmentation via direct injection (City of Santa Monica 2018). The City of Santa Monica is engaging in discussions with the necessary regulatory agencies to eventually permit advanced treated recycled water from the SWIP AWTF for groundwater recharge in adjacent to the Olympic Wellfield (City of Santa Monica 2018).

4.6.1 Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, groundwater in storage, and seawater intrusion would benefit from implementation of this project if recycled water production offsets groundwater production or, after proper permitting, is used for groundwater recharge.

4.6.2 Expected Benefits and Evaluation

The primary expected benefit from this project is a reduction in the demand for groundwater in the Santa Monica Subbasin. The success of this project will be evaluated based on the volume of water produced at the SMURRF and AWPF.

4.6.3 Circumstances for Implementation

This project is underway and expected to be completed in 2022.

4.6.4 Public Noticing

Public noticing is not required for this project, which would be undertaken under the City of Santa Monica's authority to optimize water use within its jurisdiction. Stakeholders would not be impacted by this management action because it does not impose restrictions on private groundwater producers in the Subbasin.

4.6.5 Permitting and Regulatory Process

Use of recycled water to offset groundwater extractions for non-potable uses would require permitting and regulatory oversight by the SWRCB.

4.6.6 Implementation Schedule

This project is underway and expected to be completed in 2022.

4.6.7 Legal Authority

The City of Santa Monica has the authority to optimize use of water within its service area. No additional legal authority is needed.

4.6.8 Estimated Costs

The costs for this project have already been incorporated into the City of Santa Monica's budget. Funding will come from state revolving fund loans, Wastewater Fund, and Stormwater Fund (City of Santa Monica 2018).

4.7 Project #2 – Recharge Local Groundwater Aquifers

As described in Section 4.5, the City of Santa Monica plans to construct a new SWIP AWTF and upgrade SMURRF which, after proper permitting, will provide advanced treated recycled water and diluent water to recharge groundwater aquifers adjacent to the Olympic Wellfield and offset imported water purchases by approximately 1,100 AFY (City of Santa Monica 2018). The new SWIP AWTF will include a proposed treatment system consisting of bioreactor membrane, reverse osmosis, and advance oxidation with ultraviolet disinfection and peroxide purification processes, and chlorine disinfection. The proposed design will provide advanced treated recycled water that meets or exceeds drinking water quality requirements (City of Santa Monica 2018). This project was included in the future groundwater model simulations used to assess the future water budget in the Subbasin (see Section 2.5.5.3 Quantification of Future Water Budget). Prior to implementation, however, this project will require permitting from RWQCB and DDW.

4.7.1 Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, groundwater in storage, and seawater intrusion would benefit from implementation of this project if aquifer recharge results in an increase in groundwater elevations and groundwater in storage.

4.7.2 Expected Benefits and Evaluation

Increased aquifer recharge would offset groundwater production and increase the sustainable yield of the Subbasin. If the project is implemented, the success of the project will be evaluated based on the volume of water that recharges the groundwater aquifers.

4.7.3 Circumstances for Implementation

This project is anticipated to be implemented after permits are obtained from DDW.

4.7.4 Public Noticing

Public noticing is not required for this project, which would be undertaken under the City of Santa Monica's authority to optimize water use within its jurisdiction. Stakeholders would not be impacted by this management action because it does not impose restrictions on private groundwater producers in the Subbasin.

4.7.5 Permitting and Regulatory Process

Drilling and permitting new or existing artificial recharge well(s) would require permitting and regulatory oversight by the SWRCB DDW.

4.7.6 Implementation Schedule

The City of Santa Monica plans to implement this project following upgrade of the existing SMURRF and construction of the AWPF. The City would undertake the necessary hydrogeologic studies and modeling efforts to assess the feasibility of recharge within the Subbasin prior to implementation of this project.

4.7.7 Legal Authority

The City of Santa Monica has the legal authority to undertake this project after obtaining the necessary permits from the SWRCB to inject treated water into the aquifers of the Santa Monica Subbasin.

4.7.8 Estimated Costs

The costs for this project have already been incorporated into the City of Santa Monica's budget. Funding will come from issuance of a water revenue bond, a contribution from the Wastewater Fund to the Water Fun, and from water-contamination settlement funds (City of Santa Monica 2018).

4.8 Project #3 – Production Efficiency Enhancement at Arcadia WTP

The City of Santa Monica Arcadia WTP is currently capable of producing approximately 9,900 AFY treated water, from 11,300 AFY of raw water (City of Santa Monica 2018). This equals an approximate recovery, or efficiency, rate of 82%. Improving the efficiency of the treatment process will yield additional treated water from the equivalent volume of raw groundwater, which will help reduce groundwater demand. The City of Santa Monica is in the process of upgrading the efficiency of the treatment process at the Arcadia WTP to approximately 90%, using high recovery reverse osmosis technology to extract additional treated water from the reverse osmosis concentrate stream. The upgraded efficiency is anticipated to yield approximately 1,200 AFY of treated water and reduce the volume of concentrate discharged from the Arcadia WTP to the sewer.

4.8.1 Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, groundwater in storage, and seawater intrusion would benefit from implementation of this project if enhanced production efficiency at the Arcadia WTP offsets groundwater production demand.

4.8.2 Expected Benefits and Evaluation

Increased production efficiency would result in a greater volume of treated water produced per gallon groundwater pumped and would reduce the volume of the reverse osmosis concentrate stream that is discharged to the sewer. The success of this project will be evaluated based on the increased efficiency achieved at the Arcadia WTP.

4.8.3 Circumstances for Implementation

This project is currently being evaluated for implementation.

4.8.4 Public Noticing

Public noticing is not required for this project, which would be undertaken under the City of Santa Monica's authority to maintain and improve its water treatment facilities. Stakeholders would not be impacted by this management action because it does not impose restrictions on other groundwater producers in the Subbasin.

4.8.5 Permitting and Regulatory Process

The City of Santa Monica will obtain any required permits for the efficiency upgrade to the Arcadia WTP.

4.8.6 Implementation Schedule

The City of Santa Monica is currently working to implement this project as a component of the City's Sustainable Water Master Plan, and it is anticipated to be completed in 2023 (City of Santa Monica 2018).

4.8.7 Legal Authority

The City of Santa Monica has the authority to maintain and improve its water treatment facilities.

4.8.8 Estimated Costs

The costs for this project have already been incorporated into the City of Santa Monica's budget. Funding will come from a loan from a $10 million grant through the California Department of Water Resources' Water Desalination Program (via Proposition 1) and water revenue bonds.

4.9 Project #4 – Install Additional Monitoring Wells

The current hydrogeologic understanding of the Subbasin is based on extensive historical documentation and monitoring of groundwater conditions in the Subbasin. While the groundwater monitoring network is adequate to document conditions in the Subbasin, it could be improved by the addition of two wells in the area between Marina Del Rey and the Charnock wellfield. These wells could be used to help refine the understanding of the hydrostratigraphy and aquifer properties in this area and would be incorporated into the water level and seawater intrusion monitoring networks for the Subbasin. The City of Santa Monica and the SMBGSA will investigate potential partnership opportunities with DWR and the USGS to construct multi-port or nested monitoring wells that are capable of providing information at discrete depth intervals in the subsurface.

4.9.1 Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, groundwater in storage, and seawater intrusion may all benefit from the installation of additional monitoring wells as data gained from these wells can be used to refine the hydrogeologic conceptual model of the Subbasin.

4.9.2 Expected Benefits and Evaluation

The data from additional monitoring wells would be used to help refine the hydrogeologic conceptual model, provide additional warning of potential seawater intrusion related to groundwater production, and evaluate the effectiveness of the current measurable objectives and minimum thresholds at preventing undesirable results in the Subbasin.

4.9.3 Circumstances for Implementation

This project would be implemented if adequate funding and/or partner funding agencies are identified, and parcels suitable for monitoring wells can be obtained.

Public noticing is not required for this project, which would be undertaken under the City of Santa Monica's authority to maintain and improve its water treatment facilities. Stakeholders would not be impacted by this management action because it does not impose restrictions on other groundwater producers in the Subbasin.

4.9.5 Permitting and Regulatory Process

The City of Santa Monica and/or the SMBGSA will obtain any required permits for installing additional monitoring wells in the Subbasin.

4.9.6 Implementation Schedule

There is no firm implementation schedule for this management action because funding and partner agencies have not yet been identified. When the feasibility of implementing this project has been established, a schedule will be developed and changes or updates to the implementation schedule will be reported to DWR as part of the 5-year GSP evaluation process (CWC § 10733.8).

4.9.7 Legal Authority

The City of Santa Monica and the other SMBGSA member agencies have the authority to install monitoring wells in the Subbasin.

4.9.8 Estimated Costs

The preliminary estimated to install a single nested monitoring well in the Subbasin is approximately $300,000. This cost could change depending on multiple factors including well construction, parcel availability, and subsurface conditions encountered.

4.10 Project #5 – Conduct Additional Investigations and/or Technical Studies

Projected groundwater elevations in the Subbasin are not expected to approach either the measurable objectives, or the minimum thresholds at any of the groundwater level RMPs during the 50-year planning and implementation horizon under the future baseline scenarios (see Section 2.5.5.3 Quantification of Future Water Budget). There is, however, uncertainty inherent in any numerical model projection and uncertainty in the hydrogeologic conceptual model that could be reduced in the future. Therefore, measured future groundwater conditions may differ from the projected conditions. If the management actions listed above fail to control groundwater level declines or increases in chloride concentration at the RMPs, the City of Santa Monica will conduct additional investigations and/or technical studies to fill in data gaps and improve the understanding of the primary controls on groundwater conditions in the Subbasin.

4.10.1 Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, groundwater in storage, and/or seawater intrusion would benefit from this project.

4.10.2 Expected Benefits and Evaluation

Identifying the potential pathways for seawater intrusion, and the linkages between groundwater production at the City of Santa Monica's wellfields and seawater intrusion would benefit water quality management in the Subbasin. Additionally, reducing data gaps and identifying new projects and management actions that would improve control of groundwater elevations within the Subbasin would benefit groundwater storage management in the Subbasin.

Evaluation of the effectiveness of this project would be measured after additional infrastructure is constructed or additional management actions are implemented. If chloride concentrations stabilize, or decrease at the seawater intrusion RMPs, the newly implemented projects or management actions that were identified as part of this project will have been successful. If groundwater elevations, which would be used as a proxy for groundwater in storage, stabilize or rise at the groundwater level RMPs as a result of additional management actions or infrastructure identified as part of this project, this project will have been successful.

4.10.3 Circumstances for Implementation

This project would be implemented if groundwater levels approach the minimum threshold groundwater elevation at three or more groundwater elevation RMPs, or the concentration of chloride in three or more seawater intrusion RMPs approaches 500 mg/L, and other projects and management actions have failed to improve the groundwater conditions in the Subbasin.

4.10.4 Public Noticing

Public noticing is not required for this project, which would be undertaken under the City of Santa Monica's authority to assess projects that may be needed to optimize use of the groundwater from its wellfields in the Subbasin. Stakeholders would not be impacted by this project, because it only authorizes the initiation of additional investigations and/or technical studies. In the event that the investigations and/or technical studies identify projects that are approved by the City of Santa Monica City Council, the City of Santa Monica would comply with all CEQA and public noticing requirements prior to and during project implementation.

4.10.5 Permitting and Regulatory Process

Additional investigations and/or technical studies may require permitting or regulatory oversight, depending on the nature of the investigation or technical study. The City of Santa Monica will comply with any permitting or regulatory requirements associated with the proposed investigation or technical study.

4.10.6 Implementation Schedule

There is no firm implementation schedule for this project because it is not anticipated to be necessary for sustainable management of the groundwater resources in the Subbasin. An implementation schedule will be developed in the event that groundwater conditions suggest this project may be necessary. Changes or updates to the implementation schedule will be reported to DWR as part of the 5-year GSP evaluation process.

4.10.7 Legal Authority

The City of Santa Monica has the authority to conduct investigations and technical studies within its service area.

4.10.8 Estimated Costs

The estimated cost of this project will depend on the type of investigation or technical study required. Cost estimates will be developed in the event that groundwater conditions suggest this project may be necessary. Changes or updates to the cost estimates and methods for funding will be reported to DWR as part of the 5-year GSP evaluation process.

4.11 Adaptive Management

The projects and management actions included in this Chapter are part of a broad portfolio of management strategies that the City of Santa Monica has successfully employed to sustainably manage groundwater conditions in the Subbasin to date. The City of Santa Monica and the SMBGSA have adopted an adaptive management strategy for the Subbasin. Because projects have been implemented to improve water quality in the Subbasin, the decision

to pursue or implement the projects and management actions in this Chapter will be based on an evaluation of potential impacts to future groundwater conditions, including groundwater quality, in the Subbasin. This allows for additional data to be collected, which will help reduce uncertainty and inform future decision-making.

Consistent with SGMA, the projects and management actions suggested in this GSP will be evaluated every five years, at a minimum. New projects or management actions may be proposed, and the current projects and management actions may be modified or eliminated during the 5-year evaluation process.

4.12 References Cited

California Water Code (CWC) Sections 10720 through 10736. Sustainable Groundwater Management Act and Related Provisions.

City of Santa Monica. 2018. Sustainable Water Master Plan Update. City of Santa Monica. December 2018.

City of Santa Monica. 2020. Antidegradation Study. Prepared by: Stantec Consulting Services Inc. and ICF. May 2020.

5 Plan Implementation

5.1 Implementation of the GSP

The primary activities associated with implementing the GSP are anticipated to be connected with management and administration associated with managing the Plan Area. Included with these activities are data collection, validation and analysis of the data collected. Annual reporting of the data and analysis to DWR will be required. Finally, the GSP will need to be evaluated every five (5) years and the GSA must provide a written assessment of this evaluation to DWR.

Data Collection, Validation, and Analysis

The City of Santa Monica has historically collected groundwater elevation and quality samples to monitor groundwater conditions in the Subbasin. LACDPW maintains both stream and precipitation gauges in the Subbasin, and NOAA maintains additional precipitation gauges in the Subbasin. Both are public agencies that provide the data to the general public and other agencies via a web interface, free of charge. The existing monitoring locations, which are discussed in Section 3.5, Monitoring Network, are anticipated to continue to be used for monitoring associated with this GSP. As discussed in Section 3.5, the monitoring schedule may change in order to ensure that groundwater quality samples are collected within a 12 month period at each monitoring well, and that groundwater elevation data are collected within the month of March, for spring groundwater elevations, and the month of October, for fall groundwater elevations.

During the initial 5-year period after the GSP is adopted, GSA will explore options for filling data gaps identified in this GSP. The primary data gaps identified were temporal gaps in groundwater elevation measurements, which cannot currently be collected within a one-month time period, extraction data gaps for wells in which extractions are estimated rather than measured, and a spatial gap in the monitoring network for seawater intrusion. As discussed in Section 3.5.7, Monitoring Network Improvements, pressure transducers could be installed in some of the wells in the monitoring network to reduce the time-window over which groundwater elevations are collected. However, the cost effectiveness of purchasing, installing, and maintaining pressure transducers has not yet been assessed. The cost of this assessment and eventual purchase, installation, and maintenance of the pressure transducers would be associated with GSP implementation.

Additionally, in order to reduce the uncertainty in groundwater extractions from the Subbasin, GSA may install extraction meters on wells from which extractions are currently estimated. Neither the logistics nor the cost-effectiveness of purchasing, installing, and maintaining extraction meters on private wells has been assessed. The cost of assessing these factors, and the potential cost of purchasing, installing, and maintaining extraction meters is associated with GSP implementation.

Annual Report Preparation

Details of the information that will be included in the annual reports are presented in Section 5.3, Annual Reporting. It is currently anticipated that the annual reports will be produced by the City of Santa Monica with the assistance of consultants and the costs associated with these reports will be incorporated in the City's annual operating budget.

Preparation of the 5-Year Evaluation

Every fifth year of GSP implementation and whenever the GSP is amended, the GSA is required to prepare and submit an Agency Evaluation and Assessment Report to DWR together with the annual report for that year. The tasks associated with preparing this report include evaluating any new information that has been made available since the GSP adoption and assessing whether changes to assumptions or descriptions in the GSP are required (See Section 5.5 Periodic Reporting). Additionally, the evaluation will provide an assessment of the pumping and groundwater conditions in the Subbasin. It is currently anticipated that the 5-year evaluation reports will be produced by the City of Santa Monica staff with the assistance of consultants and that the costs associated with these reports will be incorporated in the City's annual operating budget .

5.2 GSP Implementation Schedule

The GSA has developed a schedule that outlines the approximate times at which the various monitoring and reporting components of the GSP will be implemented over the next five years (Figure 5-1). This schedule includes projects that have been incorporated into the future baseline model scenario. The actual start dates may vary from those shown in the schedule.

5.3 Estimated GSP Implementation costs

The primary costs associated with implementing the GSP are anticipated to be connected with the following activities:

- Data collection, validation, and analysis
- Annual report preparation
- Management, administration, and other associated activities
- Preparation of the 5-year GSP evaluation

The estimated costs for implanting the GSP over the first five-year review cycle are presented in Table 5-1.

Table 5-1. GSP Implementation Planning-Level Cost Estimate

Activity	Estimated Cost	Frequency	Anticipated Cost: 2022-2027
Ongoing GSP Administration, Public Engagement, Maintenance	$40,000.00	Annually	$200,000.00
		Subtotal	*$200,000.00*
Technical Studies	$50,000.00	Periodically	$200,000.00
		Subtotal	*$400,000.00*
Ongoing Groundwater Monitoring Program			
Groundwater Extraction Monitoring	$40,000.00	Quarterly	$800,000.00
Groundwater Quality Monitoring	$125,000.00	Quarterly	$2,500,000.00
Groundwater Level Monitoring	$20,000.00	Quarterly	$400,000.00
Inactive Well Capping and Sealing Program	$250,000.00	Single	$250,000.00
		Subtotal	*$3,950,000.00*
GSP Annual Report	$85,000.00	Annually	$425,000.00
		Subtotal	*$425,000.00*

Table 5-1. GSP Implementation Planning-Level Cost Estimate

Activity	Estimated Cost	Frequency	Anticipated Cost: 2022-2027
GSP 5-Year Periodic Evaluation			
Report Preparation	$250,000.00	Single	$250,000.00
Refine, update, and recalibrate groundwater model	$250,000.00	Single	$250,000.00
		Subtotal	*$500,000.00*
		Total	**$4,425,000.00**

The City of Santa Monica, as the sole producer of drinking water in the Subbasin, performs all activities related to groundwater sampling and groundwater monitoring. Funding for these activities is provided through a settlement fund established to allow the City to remediate the MTBE contamination of the drinking water aquifer that occurred in the 1990's (see Sections 2.1.2.3 Water Quality, and 2.4.4 Groundwater Quality). Funding for direct reporting to DWR on GSP related activities, including annual reports and five-year evaluations, will be provided by the City of Santa Monica Water Resources Division and LADWP.

5.4 Annual Reporting

The City of Santa Monica has prepared monitoring reports for the Olympic and Charnock wellfields since 2011 and 2007, respectively, and has participated in the CASGEM water level monitoring program since 2012 (City of Santa Monica 2007; City of Santa Monica 2011). The City of Santa Monica, as a member agency of the GSA, will prepare an annual report for the Subbasin and submit it to DWR by April 1 of each year.

The annual report for the Subbasin will include the following components for the preceding water year (23 CCR §356.2):

- General information, including an executive summary and a location map depicting the basin, jurisdictional boundaries, and Subbasin covered by the report.
- A detailed description and graphical representation of:
  - Groundwater elevation data from wells identified in the monitoring network,
  - Groundwater extractions for the preceding water year,
  - Change in groundwater in storage,
  - Surface water supply used or available for use, and
  - Total water use.
- A description of progress toward implementing the GSP, including implementation of projects or management actions since the previous annual report.

The description and graphical representation of groundwater elevations will include groundwater elevation contour maps for the Subbasin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions. Additionally, hydrographs of groundwater elevations and water year type using historical data to the extent available, including from January 1, 2015, to current reporting year, will be included in the annual report. As described in Section 3.5, Monitoring Network, relevant data collected by LACDPW, NOAA, the City of Santa Monica, and other groundwater producers in the Subbasin will be used to prepare the GSP annual reports.

The description and graphical representation of change in groundwater storage will include a graph depicting water year type, based on the precipitation in the Subbasin (see Section 2.5.3.1 Water Year Type Characterization), groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the Subbasin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

5.5 Periodic Reporting

GSA will evaluate the GSP every five (5) years. This 5-year evaluation will be provided as a written assessment to DWR that will describe whether the Plan implementation, including implementation of projects and management actions, are suitable to maintain sustainable groundwater use in the Subbasin. The evaluation will include the following:

- A description of current groundwater conditions for each applicable sustainability indicator relative to measurable objectives and minimum thresholds.
- A description of the implementation of any projects or management actions, and the effect on groundwater conditions resulting from those projects or management actions.
- Revisions, if any, to the basin setting, the identification of undesirable results, the minimum thresholds, or the measurable objectives.
- An evaluation of the basin setting in light of significant new information or changes in water use, and an explanation of any significant changes.
- A description of the monitoring network within the Subbasin, including whether data gaps exist.
- A description of significant new information that has been made available since GSP adoption, amendment, or the last 5-year assessment.
- A description of relevant actions taken by the GSA, including a summary of regulations or ordinances related to management of the Plan Area or the GSP.
- Information describing any enforcement or legal actions taken by the GSA in furtherance of the sustainability goal for the Plan Area.
- A description of completed or proposed GSP amendments.

5.6 References Cited

23 CCR (California Code of Regulations) 356.2 Annual Reports. In Subchapter 2: Groundwater Sustainability Plans.

City of Santa Monica. 2007. Charnock Annual Groundwater Monitoring Report (January 1 to June 30, 2007). Charnock Sub-Basin; Los Angeles, California. Prepared by: ENVIRON International Corporation. July 2007.

City of Santa Monica. 2011. Olympic Wellfield Groundwater Monitoring Report. Third Quarter 2011. Prepared by: ICF International. October 2011.

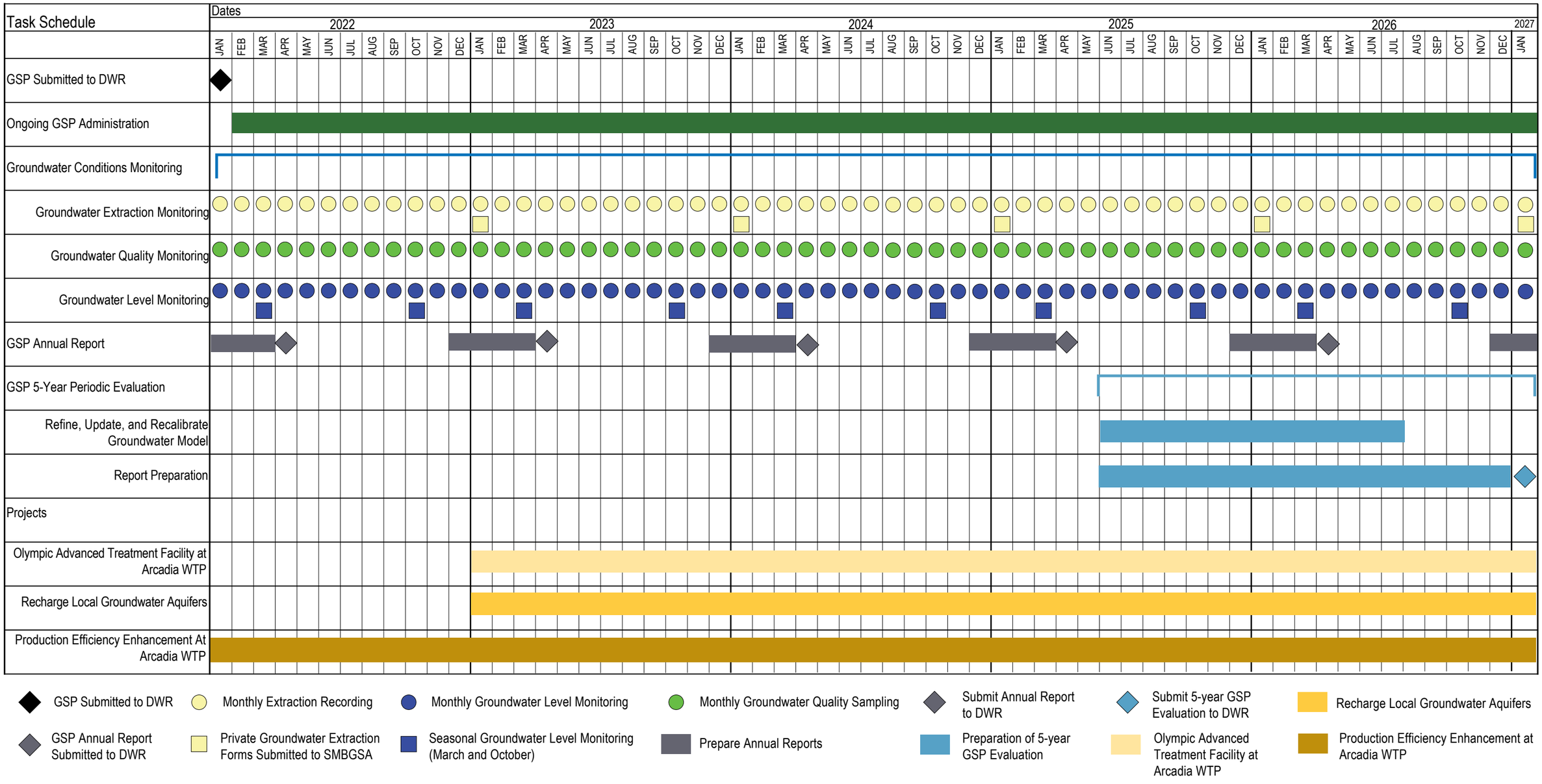


FIGURE 5-1

GSP Implementation Schedule

Groundwater Sustainability Plan for the Santa Monica Subbasin

INTENTIONALLY LEFT BLANK

Appendix A

Preparation Checklist for GSP Submittal

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
Article 3. Technical and Reporting Standards				
352.2		Monitoring Protocols	· Monitoring protocols adopted by the GSA for data collection and management	Section 3.5.6
			· Monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin	Section 3.5.6
Article 5. Plan Contents, Subarticle 1. Administrative Information				
354.4		General Information	· Executive Summary	ES-1 through ES-38
			· List of references and technical studies	Sections 1.5, 2.8, 3.6, and 5.6
354.6		Agency Information	· GSA mailing address	Page 1-3
			· Organization and management structure	Section 1.3.1
			· Contact information of Plan Manager	Page 1-3
			· Legal authority of GSA	Section 1.3.2
			· Estimate of implementation costs	Section 5.3
354.8(a)	10727.2(a)(4)	Map(s)	· Area covered by GSP	Section 2.1 / Figure 2-1
			· Adjudicated areas, other agencies within the basin, and areas covered by an Alternative	Section 2.1.1 / Figure 2-2
			· Jurisdictional boundaries of federal or State land	Section 2.1.1 / Figure 2-2
			· Existing land use designations	Section 2.1.3.1 / Figure 2-7
			· Density of wells per square mile	Sections 3.5.4 and 3.5.8.2 / Figure 3-5 and Figure 3-6
354.8(b)		Description of the Plan Area	· Summary of jurisdictional areas and other features	Section 2.1.1
354.8(c)	10727.2(g)	Water Resource Monitoring and Management Programs	· Description of water resources monitoring and management programs	Section 2.1.2
354.8(d)			· Description of how the monitoring networks of those plans will be incorporated into the GSP	Section 3.5
354.8(e)			· Description of how those plans may limit operational flexibility in the basin	Section 2.1.2.5
			· Description of conjunctive use programs	Section 2.1.2.5

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
354.8(f)	10727.2(g)	Land Use Elements or Topic Categories of Applicable General Plans	· Summary of general plans and other land use plans	Section 2.1.3
			· Description of how implementation of the GSP may change water demands or affect achievement of sustainability and how the GSP addresses those effects	Section 2.1.2.4
			· Description of how implementation of the GSP may affect the water supply assumptions of relevant land use plans	Section 2.1.2.4
			· Summary of the process for permitting new or replacement wells in the basin	Section 2.1.3.4.2
			· Information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management	Section 2.1.3.4.2
354.8(g)	10727.4	Additional GSP Contents	· Description of Actions related to:	
			· Control of saline water intrusion	Sections 2.1.4, 2.4.3, 3.2.3, 3.3.3, and 3.4.3
			· Wellhead protection	Sections 2.1.4 and 2.1.3.3
			· Migration of contaminated groundwater	Sections 2.1.4 and 2.1.2.3
			· Well abandonment and well destruction program	Sections 2.1.4 and 2.1.3.3
			· Replenishment of groundwater extractions	Sections 2.1.4 and 2.5
			· Conjunctive use and underground storage	Sections 2.1.4 and 2.1.2.5
			· Well construction policies	Sections 2.1.4 and 2.1.3.3
			· Addressing groundwater contamination cleanup, recharge, diversions to storage, conservation, water recycling, conveyance, and extraction projects	Sections 2.1.4 and 2.1.2.3
			· Efficient water management practices	Sections 2.1.4, 2.1.2.5, and 2.1.3
			· Relationships with State and federal regulatory agencies	Sections 2.1.4, 2.1.1.1, and 2.1.2
			· Review of land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity	Sections 2.1.4 and 2.1.3
			· Impacts on groundwater dependent ecosystems	Sections 2.1.4, 2.4.6, and 2.4.7

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
354.1		Notice and Communication	· Description of beneficial uses and users	Section 2.1.5.1
			· List of public meetings	Section 2.1.5.2
			· GSP comments and responses	Section 2.1.5.3 and Appendix C
			· Decision-making process	Section 2.1.5.5 and Appendix D
			· Public engagement	Section 2.1.5
			· Encouraging active involvement	Section 2.1.5.5 and Appendix D
			· Informing the public on GSP implementation progress	Section 2.1.5.5 and Appendix D
Article 5. Plan Contents, Subarticle 2. Basin Setting				
354.14		Hydrogeologic Conceptual Model	· Description of the Hydrogeologic Conceptual Model	Section 2.3
			· Two scaled cross-sections	Section 2.3.1 / Figures 2-18 through 2-21
			· Map(s) of physical characteristics: topographic information, surficial geology, soil characteristics, surface water bodies, source and point of delivery for imported water supplies	Sections 2.1.1 and 2.3 / Figures 2-10, 2-15A, 2-15B, 2-16, 2-28, and 2-4
354.14(c)(4)	10727.2(a)(5)	Map of Recharge Areas	· Map delineating existing recharge areas that substantially contribute to the replenishment of the basin, potential recharge areas, and discharge areas	Section 2.3.5 / Figure 2-28
	10727.2(d)(4)	Recharge Areas	· Description of how recharge areas identified in the plan substantially contribute to the replenishment of the basin	Section 2.3.5 / Figure 2-28
354.16	10727.2(a)(1) 10727.2(a)(2)	Current and Historical Groundwater Conditions	· Groundwater elevation data	Section 2.4.1
			· Estimate of groundwater storage	Section 2.4.2
			· Seawater intrusion conditions	Section 2.4.3
			· Groundwater quality issues	Sections 2.1.2.3 and 2.4.4
			· Land subsidence conditions	Section 2.4.5
			· Identification of interconnected surface water systems	Section 2.4.6
			· Identification of groundwater-dependent ecosystems	Section 2.4.7
354.18	10727.2(a)(3)	Water Budget Information	· Description of inflows, outflows, and change in storage	Sections 2.5.1, 2.5.2, and 2.5.5
			· Quantification of overdraft	Section 2.5.6
			· Estimate of sustainable yield	Section 2.6
			· Quantification of current, historical, and projected water budgets	Section 2.5.5
	10727.2(d)(5)	Surface Water Supply	· Description of surface water supply used or available for use for groundwater recharge or in-lieu use	Section 2.5.3
354.2		Management Areas	· Reason for creation of each management area	Section 2.7

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
			· Minimum thresholds and measurable objectives for each management area	N/A
			· Level of monitoring and analysis	N/A
			· Explanation of how management of management areas will not cause undesirable results outside the management area	N/A
			· Description of management areas	N/A
Article 5. Plan Contents, Subarticle 3. Sustainable Management Criteria				
354.24		Sustainability Goal	· Description of the sustainability goal	Section 3.1
354.26		Undesirable Results	· Description of undesirable results	Section 3.2
			· Cause of groundwater conditions that would lead to undesirable results	Sections 3.2.1 through 3.2.6
			· Criteria used to define undesirable results for each sustainability indicator	Sections 3.2.1 through 3.2.6
			· Potential effects of undesirable results on beneficial uses and users of groundwater	Sections 3.2.1 through 3.2.6
354.28	10727.2(d)(1)	Minimum Thresholds	· Description of each minimum threshold and how they were established for each sustainability indicator	Sections 3.3.1.1, 3.3.2.1, 3.3.3.1, 3.3.4, 3.3.5.1, 3.3.6
	10727.2(d)(2)		· Relationship for each sustainability indicator	Sections 3.3.1.2, 3.3.2.2, 3.3.3.2, 3.3.5.2
			· Description of how selection of the minimum threshold may affect beneficial uses and users of groundwater	Sections 3.3.1.4, 3.3.2.4, 3.3.3.4, 3.3.5.4
			· Standards related to sustainability indicators	Sections 3.3.1.5, 3.3.2.5, 3.3.3.5, 3.3.5.5
			· How each minimum threshold will be quantitatively measured	Sections 3.3.1.6, 3.3.2.6, 3.3.3.6, 3.3.5.6
354.3	10727.2(b)(1)	Measureable Objectives	· Description of establishment of the measureable objectives for each sustainability indicator	Sections 3.4.1 through 3.4.6
	10727.2(b)(2)		· Description of how a reasonable margin of safety was established for each measureable objective	Sections 3.4.1 through 3.4.6
	10727.2(d)(1)		· Description of a reasonable path to achieve and maintain the sustainability goal, including a description of interim milestones	Sections 3.4.1 through 3.4.6
	10727.2(d)(2)			
Article 5. Plan Contents, Subarticle 4. Monitoring Networks				
354.34	10727.2(d)(1)	Monitoring Networks	· Description of monitoring network	Sections 3.5.2 and 3.5.3
	10727.2(d)(2)		· Description of monitoring network objectives	Section 3.5.1

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
	10727.2(e)		· Description of how the monitoring network is designed to: demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features; estimate the change in annual groundwater in storage; monitor seawater intrusion; determine groundwater quality trends; identify the rate and extent of land subsidence; and calculate depletions of surface water caused by groundwater extractions	Section 3.5.4
	10727.2(f)		· Description of how the monitoring network provides adequate coverage of Sustainability Indicators	Section 3.5.4
			· Density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends	Section 3.5.5
			· Scientific rational (or reason) for site selection	Section 3.5.7.1
			· Consistency with data and reporting standards	Section3.5.6
			· Corresponding sustainability indicator, minimum threshold, measureable objective, and interim milestone	Section 3.5.4
			· Location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used	Section 3.5.5, Table 3-8, and Figure 3-4
			· Description of technical standards, data collection methods, and other procedures or protocols to ensure comparable data and methodologies	Section 3.5.6
354.36		Representative Monitoring	· Description of representative sites	Section 3.5.7.1
			· Demonstration of adequacy of using groundwater elevations as proxy for other sustainability indicators	Section 3.5.7 and Figure 3-3
			· Adequate evidence demonstrating site reflects general conditions in the area	Section 3.5.7 and Figure 3-3
354.38		Assessment and Improvement of Monitoring Network	Review and evaluation of the monitoring network	Section 3.5.8

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
			Identification and description of data gaps	Section 3.5.8
			Description of steps to fill data gaps	Section 3.5.8
			· Description of monitoring frequency and density of sites	Section 3.5.8
Article 5. Plan Contents, Subarticle 5. Projects and Management Actions				
354.44		Projects and Management Actions	· Description of projects and management actions that will help achieve the basin's sustainability goal	Sections 4.1 through 4.11
			· Measureable objective that is expected to benefit from each project and management action	Sections 4.1.1, 4.2.1, 4.3.1, 4.4.1, 4.5.1, 4.6.1, 4.7.1, 4.8.1, 4.9.1, 4.10.1
			· Circumstances for implementation	Sections 4.1.3, 4.2.3, 4.3.3, 4.4.3, 4.5.3, 4.6.3, 4.7.3, 4.8.3, 4.9.3, 4.10.3
			· Public noticing	Sections 4.1.4, 4.2.4, 4.3.4, 4.4.4, 4.5.4, 4.6.4, 4.7.4, 4.8.4, 4.9.4, 4.10.4
			· Permitting and regulatory process	Sections 4.1.5, 4.2.5, 4.3.5, 4.4.5, 4.5.5, 4.6.5, 4.7.5, 4.8.5, 4.9.5, 4.10.5
			· Time-table for initiation and completion, and the accrual of expected benefits	Sections 4.1.6, 4.2.6, 4.3.6, 4.4.6, 4.5.6, 4.6.6, 4.7.6, 4.8.6, 4.9.6, 4.10.6
			· Expected benefits and how they will be evaluated	Sections 4.1.2, 4.2.2, 4.3.2, 4.4.2, 4.5.2, 4.6.2, 4.7.2, 4.8.2, 4.9.2, 4.10.2
			· How the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.	Sections 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11
			· Legal authority required	Sections 4.1.7, 4.2.7, 4.3.7, 4.4.7, 4.5.7, 4.6.7, 4.7.7, 4.8.7, 4.9.7, 4.10.7
			· Estimated costs and plans to meet those costs	Sections 4.1.8, 4.2.8, 4.3.8, 4.4.8, 4.5.8, 4.6.8, 4.7.8, 4.8.8, 4.9.8, 4.10.8
			· Management of groundwater extractions and recharge	Sections 4.1, 4.2, 4.3, 4.4, 4.7

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
354.44(b)(2)	10727.2(d)(3)		· Overdraft mitigation projects and management actions	Sections 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.11
Article 8. Interagency Agreements				
357.4	10727.6	Coordination Agreements - Shall be submitted to the Department together with the GSPs for the basin and, if approved, shall become part of the GSP for each participating Agency.	Coordination Agreements shall describe the following:	
			· A point of contact	N/A
			· Responsibilities of each Agency	N/A
			· Procedures for the timely exchange of information between Agencies	N/A
			· Procedures for resolving conflicts between Agencies	N/A
			· How the Agencies have used the same data and methodologies to coordinate GSPs	N/A
			· How the GSPs implemented together satisfy the requirements of SGMA	N/A
			· Process for submitting all Plans, Plan amendments, supporting information, all monitoring data and other pertinent information, along with annual reports and periodic evaluations	N/A
			· A coordinated data management system for the basin	N/A
			· Coordination agreements shall identify adjudicated areas within the basin, and any local agencies that have adopted an Alternative that has been accepted by the Department	N/A

Appendix B

GSA Formation Documents

Sustainable Groundwater Management Act
Groundwater Sustainability Agency for the Santa Monica Basin
Public Information Meeting
Windward School, 11350 Palms Blvd, Los Angeles, CA 90066
Wednesday, April 12, 2017

Meeting Minutes

GSA representatives present:

Trish Rhay, City of Beverly Hills
Vince Damasse, City of Beverly Hills
Charles Herbertson, City of Culver City
Jim Clarke, City of Culver City
Mitch Glaser, County of Los Angeles
Gil Borboa, City of Santa Monica
Lisette Gold, City of Santa Monica
Russell Pierson, Los Angeles Department of Water and Power
Heather Yegiazaryan, Los Angeles Department of Water and Power
Thomas Check, Los Angeles Department of Water and Power

Minutes prepared by: Maria Kay, LADWP
Call to order: 6:15 pm
Presenter: Gil Borboa

Opening:

- High-level overview of the Sustainable Groundwater Management Act (SGMA)
- Discussion of how SGMA requires the formation of a Groundwater Sustainability Agency (GSA) for the Santa Monica Basin
- Local public agencies participating in GSA are introduced

PowerPoint Presentation:
For details, please see the copy of the PowerPoint that was emailed to attendees.

- Many water-related events occurred in 2014, including the enacting of SGMA
- SGMA emphasizes local control and is part of an integrated statewide policy concerning California's water supplies
- SGMA emphasizes *sustainable management*
    - Definition provided in PPT
- Undesirable results include "significant and unreasonable":
    - Surface water depletion: Not very applicable to the SMB
    - Reduction of storage
    - Degraded quality: Not a huge issue in the SMB
    - Seawater intrusion: This is possible for the SMB because it is a coastal basin, but we haven't had issues with it yet
    - Land subsidence

    - Lowering groundwater levels
- Groundwater Sustainability Plans (GSPs)
- Maps displaying various aspects of the SMB
- Santa Monica Basin Groundwater Sustainability Agency (SMBGSA)
    - Governance structure: MOU
    - Consists of *local agencies*
    - Must cover entire basin
- Public hearings by local agencies
- What GSAs are empowered to do
- Discussion of CA Water Code sections relating to:
    - Beneficial uses and users of groundwater
    - Maintenance of interested persons list
- Key implementation dates
- Contact info of local public agencies
- Questions?

Question and Answer:

Can you provide clarifications on the reason public meetings are being held?

- This public meeting is being held as outreach to pumpers and interested parties in the Santa Monica Basin.
- Public hearings are required by SGMA before any local public agency elects to enter into the MOU, which will form the GSA that will eventually create the GSP.
- The GSP is not complete. The purpose of this meeting and public hearings is to provide information and obtain input from interested parties regarding GSA formation.
- Will take names of all interested parties for notification of meetings, availability of GSP, and other relevant updates.

Are there any potential models of GSPs?

- Currently, there's no set model but there is a management plan in place for the West Coast Basin which may then be used as a reference in forming the GSP for the SMB. In forming our GSP, we'd like to obtain as much input from all interested parties as possible.

What are the next steps for Plan?

- The following is a high-level overview from GSA formation to GSP implementation:
    - Local public agencies hold public hearings. These are scheduled to happen in April and May.
    - When approved, each local public agency signs the MOU.
    - The Department of Water Resources is notified of the SMBGSA.
    - Begin necessary work for the creation of a GSP
    - Finalize GSP
    - Implementation of Plan
- It is not anticipated that it will take 20 years to implement the GSP even though DWR provides this amount of time for implementation.

Will you consider implementing an advisory group to provide stakeholders background information prior to public meetings?

- Stakeholder input is of value. We will consider implementation of an advisory group.

Can background information be provided prior to public hearings?

- Each local public agency has procedures for releasing information to be considered prior to a board meeting. This info can usually be found on the respective local public agencies' website (usually one week prior to the meeting).
- Handouts that include SGMA and GSA background info were provided on your chairs for this public meeting.

What is the governance structure of the MOU?

- MOU is silent on that and has not been determined at this time.

- Regarding votes and voting rights, the goal is to make them as fair as possible.

Can a copy of the MOU be released prior to next public meeting?

- In most government agencies, the MOU will not be made available until it is on the respective agency's Board or Council agenda, approximately one week prior to the scheduled public hearing.

Will there be agreement with neighboring basins near Santa Monica Basin?

- This is something that will be evaluated when developing the GSP.

What is the procedure for amendments to MOU?

- Amendments must be made in writing and signed by each of the five participating local public agencies.

The 5 agencies listed are the governing board. UCLA is a large institution—we are a city. How can interested parties, such as those interested in capturing stormwater (like UCLA), participate as parties? Will this issue be addressed by the GSP?

- The process to create GSP is broken down into two main components. The first component is technical, which will involve the input of technical experts to assess the conditions of the SMB. The second component involves the engagement of interested parties to ensure they are actively participating in the development of the GSP and the goal of sustainable management.

What is the condition of the SMB right now?

- The SMB has been subject to pumping for periods throughout the drought. During this time, groundwater levels have dropped. Recently, however, there has been some rebound in water levels.

Would it be possible to share the PowerPoint presentation and list of attendees with this group?

- Yes, anyone providing their name and email will receive a copy of the PowerPoint and list of attendees to this meeting.

Meeting adjourned: 6:50 p.m.

Name	Organization	Email
Brian Sullivan	Bel Air Country Club	belairccbrian@aol.com
Curt Welty	California Division of Oil, Gas, and Geothermal Resources	curtis.welty@conservation.ca.gov
Scott McGurk	California Division of Oil, Gas, and Geothermal Resources	scott.mcgurk@conservation.ca.gov
Kenjo Agustsson	Geosyntec Consultants	kagustsson@geosyntec.com
Trish Rhay	City of Beverly Hills	trhay@beverlyhills.org
Vince Damasse	City of Beverly Hills	vdamasse@beverlyhills.org
Arthur Pugsley	Los Angeles Waterkeeper	arthur@lawaterkeeper.org
Steven Johnson	Heal the Bay	sjohnson@healthebay.org
Amy Rosenstein	Ballona Creek Renaissance	arosenstn@aol.com
Brian Partington	Water Replenishment District	bpartington@wrd.org
Gary Clendenin	ICF	gary.clendenin@icf.com
Anthony Hicke	Richard C. Slade & Associates LLC	anthony.hicke@rcslade.com
Richard Slade	Richard C. Slade & Associates LLC	richard.slade@rcslade.com
Daniel Enzler	Brentwood Country Club	generalmanager@brentwoodcc.net
Bonny Bentzin	UCLA	bbentzin@facnet.ucla.edu
Madelyn Glickfeld	UCLA Water Resources Group	madelyn.glickfeld@ioes.ucla.edu
Russell Pierson	LADWP	russell.pierson@ladwp.com
Kris Helm	Kris Helm Consulting	kris@krishelmconsulting.com
Maygan Cline	Geosyntec Consultants	mcline@geosyntec.com
Mitch Glaser	LA County Planning	mglaser@planning.lacounty.gov
Caryn Mandelbaum	Environment Now	cmandelbaum@environmentnow.org
Stephen Murray	Resident - Culver City	stephen@sunstruction.com
Rich Mathis	Golden State Water	richard.mathis@gswater.com
Charles Herbertson	Culver City	charles.herbertson@culvercity.org
Jim Clarke	Culver City	jim.clarke@culvercity.org
Thomas Check	LADWP	thomas.check@ladwp.com
Heather Yegiazaryan	LADWP	heather.yegiazaryan@ladwp.com
Lisette Gold	City of Santa Monica	lisette.gold@smgov.net
Gil Borboa	City of Santa Monica	gil.borboa@smgov.net
Conner Everts	Southern California Watershed Alliance	connere@gmail.com
Chris Wilson	The Los Angeles Country Club	cwilson@thelacc.org

Santa Monica Basin Groundwater Sustainability Agency

June 13, 2017

Mark Nordberg, GSA Project Manager
Sustainable Groundwater Management Section
California Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Re: Notice of Decision to Become a Groundwater Sustainability Agency

Dear Mr. Nordberg,

Per Section 10723.8(a) of the California Water Code, the City of Santa Monica, City of Beverly Hills, Culver City, the Los Angeles County Planning Division, and the City of Los Angeles Department of Water and Power herby give notice of their decision to form the Santa Monica Basin Groundwater Sustainability Agency (SMBGSA) for the entire Santa Monica Groundwater Basin (DWR Bulletin 118 basin number 4-11.01).

The Sustainable Groundwater Management Act (SGMA), passed in 2014, requires that all groundwater basins designated as high- or medium-priority basins that are subject to critical overdraft condition are to be managed under a groundwater sustainability plan (GSP) or coordinated GSPs (Section 10720.7). The Santa Monica Groundwater Basin is classified as a medium-priority basin.

Water Code Section 10723.8(a)(1) requires that a GSA notification with supporting materials be submitted to DWR within 30 days of the decision to form the GSA by its member agencies. This process was completed June 13, 2017. This GSA notification must include information regarding the service area boundaries of the GSA and the boundaries of the basin that the GSA intends to manage. Exhibit 1 is a map that shows the Santa Monica Groundwater Basin boundaries and the SMBGSA boundaries, which are the same. The service areas of the five SMBGSA members are also provided.

On April 12th, all five SMBGSA member agencies held a public meeting regarding the formation of the SMBGSA (Water Code Section 10723.b). All identified stakeholders on a comprehensive list of persons interested in the SMBGSA (Water Code Section 10723.4) were notified of this public meeting. This stakeholder list will be maintained by the SMBGSA and updated as new persons or entities ask to join.

The City of Santa Monica will act as the lead member agency for notifcations and communication. Santa Monica has compiled 5 Resolutions for all member agencies and a memorandum of understanding (MOU) between all 5 member agencies to form the SMBGSA and manage groundwater resources sustainably within the GSA boundary.

If you have any questions or require any clarification regarding the information provided in this GSA Notification submittal, please contact Mr. Gilbert Borboa, P.E., at 310-458-8230.

Sincerely,

Gilbert M. Borboa, Jr., P.E.
Water Resources Manager
City of Santa Monica

City Council Meeting: May 9, 2017 Santa Monica, California

RESOLUTION NO. 11040 (CCS)

(City Council Series)

A RESOLUTION OF THE COUNCIL
OF THE CITY OF SANTA MONICA, AUTHORIZING THE CITY
TO BECOME A GROUNDWATER SUSTAINABILITY AGENCY
TO MANAGE THE SANTA MONICA GROUNDWATER BASIN IN CONCERT
WITH LOS ANGELES, BEVERLY HILLS, CULVER CITY,
AND THE COUNTY OF LOS ANGELES, PURSUANT TO
THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT

WHEREAS, on September 16, 2014, the Sustainable Groundwater Management Act ("SGMA")(Water Code sections 10720 et seq.) was signed into law by the Governor to provide for sustainable management of groundwater by providing local groundwater agencies with the authority to sustainably manage groundwater through the adoption of Groundwater Sustainability Plans; and

WHEREAS, Water Code Section 10723(a) authorizes local agencies with water supply, water management or land use responsibilities overlying a groundwater basin to elect to become a Groundwater Sustainability Agency ("GSA") to manage groundwater within the basin; and

WHEREAS, the City of Santa Monica ("City") is a local agency qualified to become a GSA because City either supplies water, manages water, or has land use

responsibilities over a portion of the Santa Monica Groundwater Basin (Basin Number 4-11.01 DWR Bulletin 118) ("Basin"), a DWR-designated medium-priority basin; and

WHEREAS, the City of Los Angeles ("Los Angeles"), acting through its Department of Water and Power ("LADWP"), is also a local agency qualified to become a GSA because Los Angeles either supplies water, manages water, or has land use responsibilities over a portion of the Basin; and

WHEREAS, the City of Beverly Hills ("Beverly Hills") is also a local agency qualified to become a GSA because Beverly Hills either supplies water, manages water, or has land use responsibilities over a portion of the Basin; and

WHEREAS, the City of Culver City ("Culver City") is also a local agency qualified to become a GSA because Culver City either supplies water, manages water, or has land use responsibilities over a portion of the Basin; and

WHEREAS, Los Angeles County is also a local agency qualified to become a GSA because Los Angeles County either supplies water, manages water, or has land use responsibilities over a portion of the Basin; and

WHEREAS, City held a public hearing on May 9, 2017 after publication of notice pursuant to Government Code Section 6066, to consider adoption of this Resolution; and

WHEREAS, City, Los Angeles, Beverly Hills, Culver City, and Los Angeles County desire to work collaboratively to form a GSA known as the Santa Monica Basin Groundwater Sustainability Agency, which will cover the portion of the Basin shown on the map included in Exhibit "A" attached hereto and incorporated herein; and

WHEREAS, staff for the City, Los Angeles, Beverly Hills, Culver City and County have prepared a draft Memorandum of Understanding ("MOU"), which outlines the framework for cooperative implementation of the Sustainable Groundwater Management Act within the Basin, a copy of which is attached hereto as Exhibit "B"; and

WHEREAS, adoption of this Resolution does not constitute a "Project" under the California Environmental Quality Act (CEQA) pursuant to 15060(c)(3) and 15378 (b)(5) of the State CEQA Guidelines because it is an administrative action that does not result in any direct or indirect physical change in the environment.

NOW THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SANTA MONICA AS FOLLOWS:

SECTION 1. The above recitals and findings are true and correct.

SECTION 2. That City does hereby elect in concert with Los Angeles, Beverly Hills, Culver City, and Los Angeles County to become a Groundwater Sustainability Agency known as Santa Monica Basin Groundwater Sustainability Agency to implement the duties of the Sustainable Groundwater Management Act over the portion of DWR Basin No. 4-11.01 shown on Exhibit "A" attached to this Resolution.

SECTION 3. That the City Manager is hereby authorized to execute the Memorandum of Understanding ("MOU") attached hereto as Exhibit "B" and take all implementing actions necessary effectuate the City's duties under the MOU and its duties as a participating local agency of the Santa Monica Basin Groundwater Sustainability Agency under the Sustainable Groundwater Management Act.

SECTION 4. The City Clerk shall certify to the adoption of this Resolution, and thenceforth and thereafter the same shall be in full force and effect.

APPROVED AS TO FORM:

JOSEPH LAWRENCE
Interim City Attorney

Adopted and approved this 9th day of May, 2017.

Ted Winterer, Mayor

I, Denise Anderson-Warren, City Clerk of the City of Santa Monica, do hereby certify that Resolution No. 11040 (CCS) was duly adopted at a meeting of the Santa Monica City Council held on the 9th day of May, 2017, by the following vote:

AYES: Councilmembers McKeown, Himmelrich, O'Connor, O'Day, Vazquez, Mayor Pro Tem Davis, Mayor Winterer

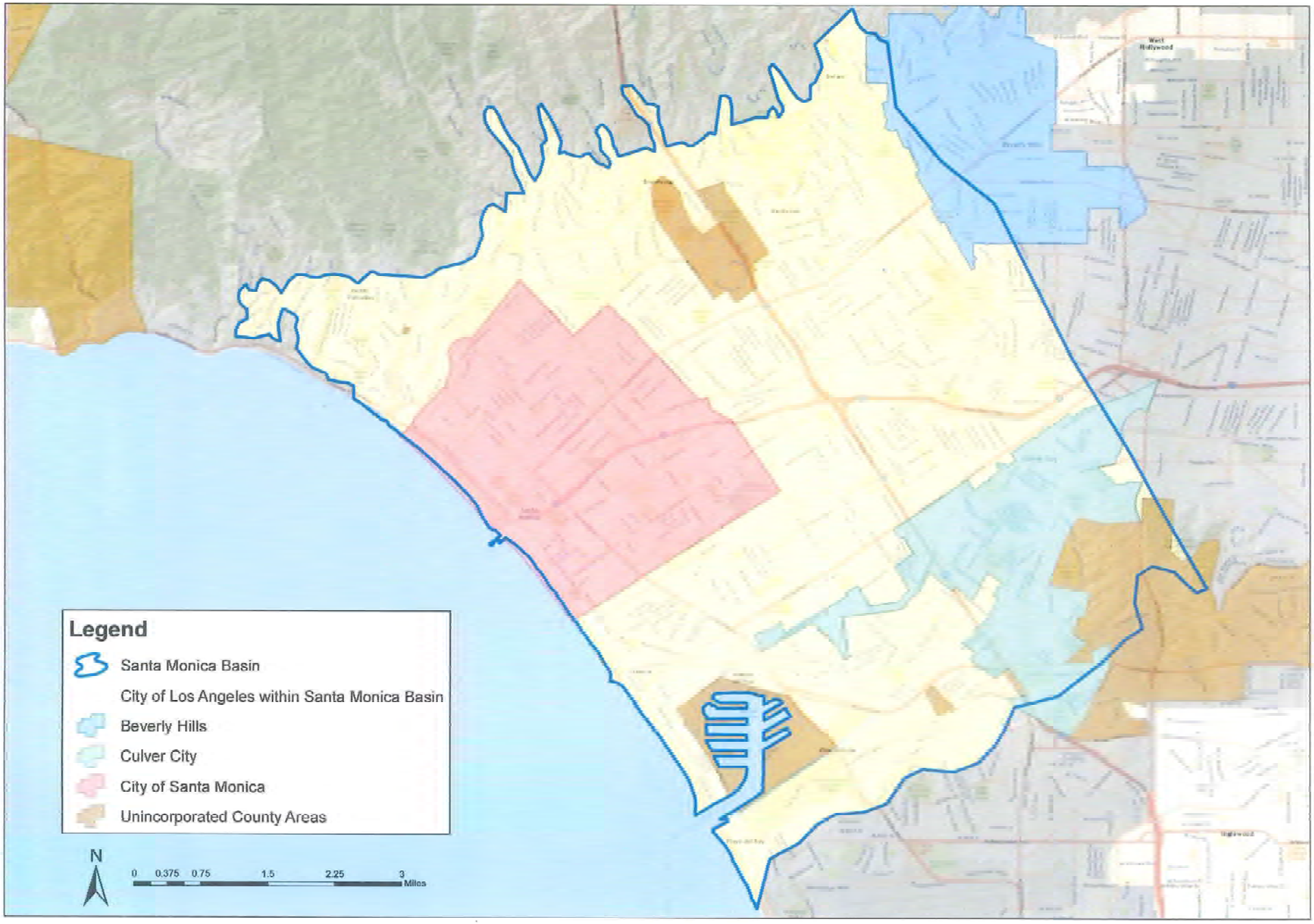
NOES: None

ABSENT: None

ATTEST:

Denise Anderson-Warren, City Clerk

Exhibit A: Santa Monica Basin



Memorandum of Understanding for the Formation of the Santa Monica Basin Groundwater Sustainability Agency

This Memorandum of Understanding for the formation of the Santa Monica Basin Groundwater Sustainability Agency (MOU) is made and entered by and among the City of Santa Monica (Santa Monica), a municipal corporation, the City of Los Angeles, by and through its Department of Water and Power (LADWP), the City of Beverly Hills (Beverly Hills), the City of Culver City (Culver City), and the County of Los Angeles (County), each a "Party" and, collectively, the "Parties."

WHEREAS, the Sustainable Groundwater Management Act (SGMA), as enacted on September 16, 2014, and codified in California Water Code Section 10720 et seq., is intended to enhance local and sustainable management of groundwater; and

WHEREAS, SGMA authorizes local public agencies that have water supply, water management, or land use responsibilities within a groundwater basin to form a Groundwater Sustainability Agency (GSA) to implement SGMA's provisions within that basin; and

WHEREAS, each Party is a local public agency that has water supply, water management, or land use responsibilities within the Santa Monica Basin (Basin Number 4-11.01 DWR Bulletin 118) (Santa Monica Basin); and

WHEREAS, the Parties desire to collectively manage the Santa Monica Basin within their jurisdictional boundaries; and

WHEREAS, the Parties intend to work collaboratively with each other and other interested parties to develop and implement a single Groundwater Sustainability Plan (GSP) to sustainably and cost-effectively manage groundwater in the Santa Monica Basin pursuant to the requirements of SGMA.

NOW, THEREFORE, incorporating the above recitals herein and exhibit attached, it is mutually understood and agreed by the Parties as follows:

1. **PURPOSE.** This MOU is entered into by and among the Parties to facilitate a cooperative and ongoing working relationship to comply with SGMA in the Santa Monica Basin by, among other things, forming a GSA and developing and implementing a single GSP. This MOU is not intended to form a new legal entity.

2. **SANTA MONICA BASIN GROUNDWATER SUSTAINABILITY AGENCY**

   2.1 The Parties hereby establish the Santa Monica Basin Groundwater Sustainability Agency (SMBGSA) to sustainably and cost-effectively manage groundwater in the Santa Monica Basin.

2.2 The SMBGSA shall only operate within the collective jurisdictions of the Parties within the boundaries of Santa Monica Basin, as depicted on the map incorporated herein as Exhibit "A."

2.3 The SMBGSA shall be governed in accordance with this MOU and any bylaws hereinafter adopted by the Parties. If any conflict arises between this MOU and the bylaws, the terms of this MOU shall govern

3 ROLES AND RESPONSIBILITIES OF THE PARTIES

3.1 Each Party covenants that it has the authority to perform the activities required to accomplish the purposes of this MOU, and will cooperate to implement the following activities and other activities consistent with SGMA in the Santa Monica Basin:

a. Preparing and maintaining a list of interested parties.

b. Conducting public outreach and engagement.

c. Submitting notification of the formation of the SMBGSA to the California Department of Water Resources (DWR).

d. Consulting and contracting with the United States, State of California, and adjacent water agencies and individual landowners.

e. Entering into coordination agreements with other GSAs and watermasters.

f. Conducting investigations and analyzing data.

g. Developing, adopting, and implementing a GSP.

h. Approving and collecting groundwater management fees.

i. Pursuing financial assistance through grants or similar opportunities.

j. Obtaining third-party services for groundwater modeling, data collection, reports, and other related tasks.

3.2 Santa Monica shall serve as the coordinating agency on behalf of the SMBGSA to provide a single point of contact with DWR.

3.3 Santa Monica shall assume primary responsibility for coordinating the administrative functions of the SMBGSA, subject to the terms of this MOU and the unanimous consent of the Parties.

4 MEETINGS AND DECISION MAKING PROCESS

4.1 Each Party shall appoint one representative (Party Representative) to participate in the SMBGSA on its behalf. Each Party may appoint an alternate representative (Alternate Representative) in case of the Party Representative's absence or inability to act. A Party may replace its Party Representative or Alternate Representative at any time upon providing notice to the other Parties.

4.2 The Party Representatives shall meet as necessary to fulfill the obligations under this MOU and SGMA, including but not limited to considering the interests of groundwater beneficial users located in the Santa Monica Basin pursuant to California Water Code Section 10723.2. Meetings shall be conducted in accordance with SGMA and any bylaws hereinafter adopted by the Parties.

4.3 All actions undertaken by the SMBGSA shall be by unanimous consent of the Parties. The Parties understand and agree that such consent may require further action by the Parties' respective governing bodies.

5. **FUNDING.** Each Party shall bear its own costs until the SMBGSA becomes the exclusive GSA in the Parties' collective jurisdictions pursuant to California Water Code Section 10723.8. No further costs will be undertaken by or allocated to any of the Parties until a principle for cost distribution is agreed upon and reflected in an amendment to this MOU, bylaws, or another binding document.

6. **TERM.** This MOU shall become effective upon each Party's execution and shall terminate on January 31, 2042. The Parties may terminate this MOU sooner by unanimous written consent.

7. **WITHDRAWAL.** Any Party may unilaterally withdraw from this MOU without causing or requiring termination of the MOU upon providing 30 days prior written notice to the other Parties. Any withdrawing Party shall pay its share of any expenses incurred or accrued in accordance with section 5 of this MOU up to the date of withdrawal. The non-withdrawing Parties may elect to continue implementation of SGMA jointly under this MOU for the governance of the lands lying within the jurisdiction of the non-withdrawing Parties.

8. **AMENDMENTS AND WAIVER.** No amendment or waiver of any provision of this MOU, nor consent to any departure, shall be effective unless in writing and signed by each Party, and then such waiver or consent shall be effective only in the specific instances and for the specific purpose given.

9. **NO LIABILITY.** No Party, nor any board, director, officer, or representative of a Party, shall be responsible for any damage or liability occurring by reason of any other Party's performance or non-performance of its obligations under this MOU.

10. **NOTICES.** All notices and other communications given under the terms of this MOU must be in writing and served personally or by certified U.S. mail. Any such notice shall be addressed to the Parties as set forth as follows or to such other address as the Parties may hereafter designate by written notice. The date of receipt of the notice shall be the date of actual personal service or three days after the postmark on certified mail.

Santa Monica

Gil Borboa
Water Resources Manager
City of Santa Monica
1212 5th Street, 3rd Floor
Santa Monica, CA 90401
(310) 458-8230
Gil.Borboa@smgov.net

LADWP

David R. Pettijohn
Director of Water Resources Division
111 North Hope Street, Rm 1460
Los Angeles, CA 90012
(213) 923-4806
David.Pettijohn@LADWP.com

Beverly Hills

Shana Epstein
Public Works Director
455 North Rexford Drive
Beverly Hills, CA 90210
(310) 285-1000
lepstein@beverlyhills.org

Culver City

Charles D. Herbertson
9770 Culver Boulevard
Culver City, CA 90232
(310) 253-5630
Charles.Herbertson@culvercity.org

County

County of Los Angeles
Mitch Glaser, Assistant Administrator
320 West Temple Street
Los Angeles, CA 90012
Phone: (213) 974-4971
Fax: (213) 626-0434

11. **WATER RIGHTS.** Nothing herein shall be construed or interpreted as authorizing the SMBGSA to make a binding determination regarding the water rights of any person or entity, including, without limitation, any Party.

12. **LAND USE AUTHORITY.** Nothing herein shall be interpreted as superseding the land use authority of cities and counties, including the city or county general plans, within the Santa Monica Basin.

13. **RELATIONSHIP OF PARTIES.** The Parties shall remain at all times as to each other, wholly independent entities. No Party shall have the authority to incur any debt, obligation, or liability on behalf of another Party unless expressly provided by written agreement of the Parties. No employee, agent, or officer of a Party shall be deemed for any purpose whatsoever to be an agent, employee or officer of another Party.

14. **GOVERNING LAW.** This MOU shall be interpreted, construed, and governed according to the laws of the State of California without regard to conflict of law principles.

15. **VENUE.** Any suit, action, or proceeding brought under the scope of this MOU shall be filed in the County of Los Angeles, State of California. The foregoing, however, shall not limit any Party's right to seek a change of venue under applicable law.

16. **NO ATTORNEYS' FEES.** The Parties agree that, in any action to enforce the terms of this MOU, each Party shall bear its own attorneys' fees and costs.

17. **JOINTLY DRAFTED.** Each Party acknowledges that it was represented by its legal counsel during the negotiation and execution of this MOU, and that it has had a full and fair opportunity to review and revise the terms of this MOU. Each Party further agrees that this MOU has been jointly drafted, and that no term contained herein shall be construed against or in favor of another Party.

18. **SEVERABILITY.** If one or more of the provisions contained in this MOU are invalid, illegal, or unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not be affected or impaired in any manner.

19. **HEADINGS.** Section headings in this MOU are included for convenience of reference only and shall not be given any substantive effect.

20. **ENTIRE AGREEMENT.** This MOU constitutes the entire understanding of the Parties with respect to the subject matter hereof and supersedes all prior or contemporaneous agreements, whether written or oral, with respect thereto.

21. **COUNTERPART EXECUTION.** This Agreement may be executed in counterparts and each executed counterpart shall be effective as the original.

22. **NO THIRD PARTY BENEFICIARIES.** This MOU is not intended, and will not be construed, to confer a benefit or create any right on a third party or the power or right to bring an action to enforce any of its terms.

[signature pages follow]

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES BY
BOARD OF WATER AND POWER COMMISSIONERS

By: _____
DAVID H. WRIGHT
General Manager

Date: _____

And: _____
BARBARA E. MOSCHOS
Secretary

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

CITY OF SANTA MONICA
a municipal corporation

ATTEST:

By: _____
RICK COLE
City Manager

_____
DENISE ANDERSON-WARREN
City Clerk

APPROVED AS TO FORM:

_____
JOSEPH LAWRENCE
Interim City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

CITY OF BEVERLY HILLS

By: _____
SHANA EPSTEIN
Public Works Director

APPROVED AS TO FORM:

_____
JIM MARKMAN
City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

CITY OF CULVER CITY

ATTEST:

By: _____

JEREMY GREEN
City Clerk

JOHN M. NACHBAR
City Manager

APPROVED AS TO FORM:

_____
CAROL SCHWAB
City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

COUNTY OF LOS ANGELES

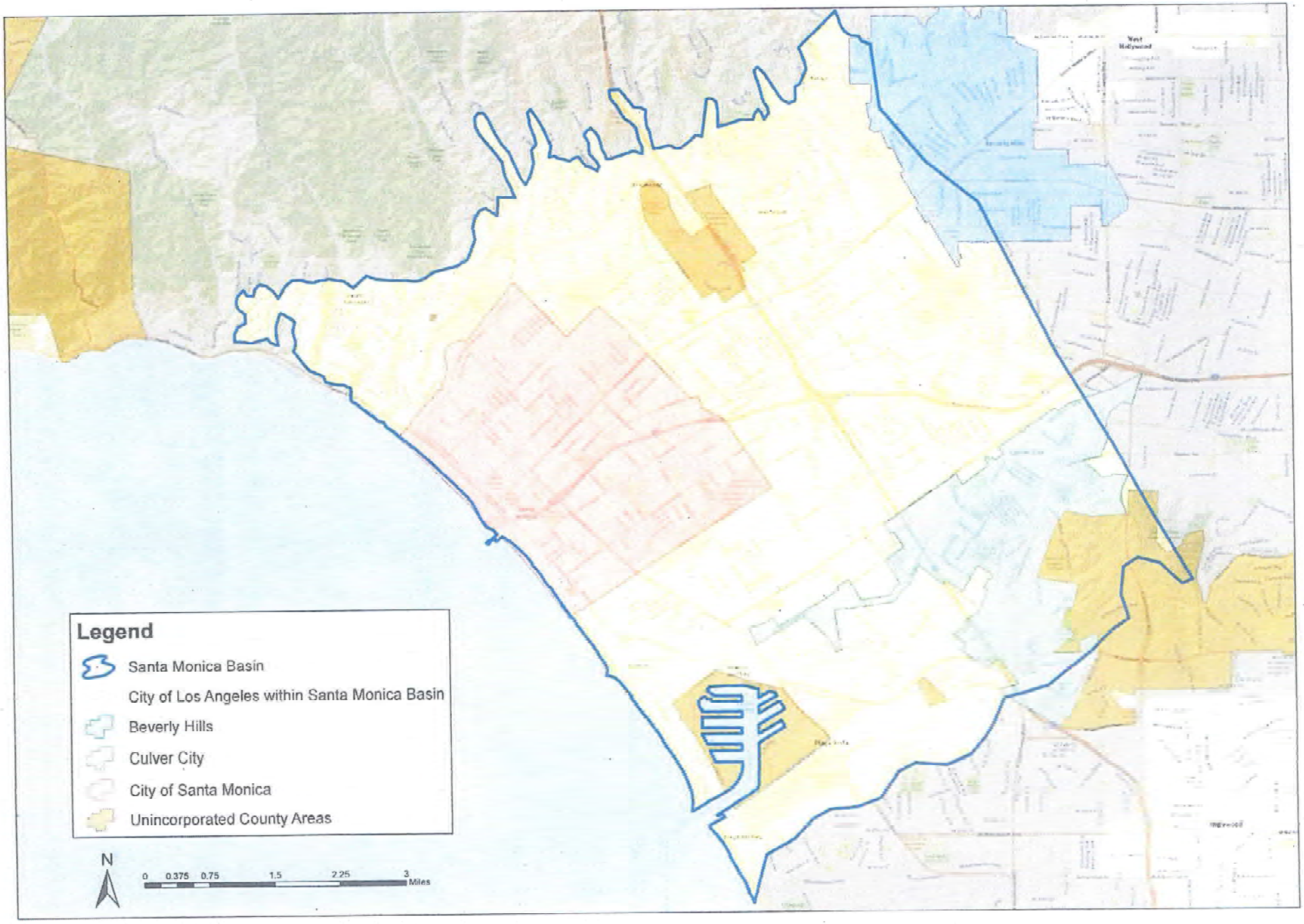
APPROVED AS TO FORM:

By: _____

MARY C. WICKHAM
County Counsel

RICHARD J. BRUCKNER
Director of Regional Planning

Exhibit A: Santa Monica Basin



Memorandum of Understanding for the Formation of the Santa Monica Basin Groundwater Sustainability Agency

This Memorandum of Understanding for the formation of the Santa Monica Basin Groundwater Sustainability Agency (MOU) is made and entered by and among the City of Santa Monica (Santa Monica), a municipal corporation, the City of Los Angeles, by and through its Department of Water and Power (LADWP), the City of Beverly Hills (Beverly Hills), the City of Culver City (Culver City), and the County of Los Angeles (County), each a "Party" and, collectively, the "Parties."

WHEREAS, the Sustainable Groundwater Management Act (SGMA), as enacted on September 16, 2014, and codified in California Water Code Section 10720 et seq., is intended to enhance local and sustainable management of groundwater; and

WHEREAS, SGMA authorizes local public agencies that have water supply, water management, or land use responsibilities within a groundwater basin to form a Groundwater Sustainability Agency (GSA) to implement SGMA's provisions within that basin; and

WHEREAS, each Party is a local public agency that has water supply, water management, or land use responsibilities within the Santa Monica Basin (Basin Number 4-11.01 DWR Bulletin 118) (Santa Monica Basin); and

WHEREAS, the Parties desire to collectively manage the Santa Monica Basin within their jurisdictional boundaries; and

WHEREAS, the Parties intend to work collaboratively with each other and other interested parties to develop and implement a single Groundwater Sustainability Plan (GSP) to sustainably and cost-effectively manage groundwater in the Santa Monica Basin pursuant to the requirements of SGMA.

NOW, THEREFORE, incorporating the above recitals herein and exhibit attached, it is mutually understood and agreed by the Parties as follows:

1. **PURPOSE.** This MOU is entered into by and among the Parties to facilitate a cooperative and ongoing working relationship to comply with SGMA in the Santa Monica Basin by, among other things, forming a GSA and developing and implementing a single GSP. This MOU is not intended to form a new legal entity.

2. **SANTA MONICA BASIN GROUNDWATER SUSTAINABILITY AGENCY**

   2.1 The Parties hereby establish the Santa Monica Basin Groundwater Sustainability Agency (SMBGSA) to sustainably and cost-effectively manage groundwater in the Santa Monica Basin.

2.2 The SMBGSA shall only operate within the collective jurisdictions of the Parties within the boundaries of Santa Monica Basin, as depicted on the map incorporated herein as Exhibit "A."

2.3 The SMBGSA shall be governed in accordance with this MOU and any bylaws hereinafter adopted by the Parties. If any conflict arises between this MOU and the bylaws, the terms of this MOU shall govern

3 ROLES AND RESPONSIBILITIES OF THE PARTIES

3.1 Each Party covenants that it has the authority to perform the activities required to accomplish the purposes of this MOU, and will cooperate to implement the following activities and other activities consistent with SGMA in the Santa Monica Basin:

a. Preparing and maintaining a list of interested parties.

b. Conducting public outreach and engagement.

c. Submitting notification of the formation of the SMBGSA to the California Department of Water Resources (DWR).

d. Consulting and contracting with the United States, State of California, and adjacent water agencies and individual landowners.

e. Entering into coordination agreements with other GSAs and watermasters.

f. Conducting investigations and analyzing data.

g. Developing, adopting, and implementing a GSP.

h. Approving and collecting groundwater management fees.

i. Pursuing financial assistance through grants or similar opportunities.

j. Obtaining third-party services for groundwater modeling, data collection, reports, and other related tasks.

3.2 Santa Monica shall serve as the coordinating agency on behalf of the SMBGSA to provide a single point of contact with DWR.

3.3 Santa Monica shall assume primary responsibility for coordinating the administrative functions of the SMBGSA, subject to the terms of this MOU and the unanimous consent of the Parties.

4 MEETINGS AND DECISION MAKING PROCESS

4.1 Each Party shall appoint one representative (Party Representative) to participate in the SMBGSA on its behalf. Each Party may appoint an alternate representative (Alternate Representative) in case of the Party Representative's absence or inability to act. A Party may replace its Party Representative or Alternate Representative at any time upon providing notice to the other Parties.

4.2 The Party Representatives shall meet as necessary to fulfill the obligations under this MOU and SGMA, including but not limited to considering the interests of groundwater beneficial users located in the Santa Monica Basin pursuant to California Water Code Section 10723.2. Meetings shall be conducted in accordance with SGMA and any bylaws hereinafter adopted by the Parties.

4.3 All actions undertaken by the SMBGSA shall be by unanimous consent of the Parties. The Parties understand and agree that such consent may require further action by the Parties' respective governing bodies.

5. **FUNDING.** Each Party shall bear its own costs until the SMBGSA becomes the exclusive GSA in the Parties' collective jurisdictions pursuant to California Water Code Section 10723.8. No further costs will be undertaken by or allocated to any of the Parties until a principle for cost distribution is agreed upon and reflected in an amendment to this MOU, bylaws, or another binding document.

6. **TERM.** This MOU shall become effective upon each Party's execution and shall terminate on January 31, 2042. The Parties may terminate this MOU sooner by unanimous written consent.

7. **WITHDRAWAL.** Any Party may unilaterally withdraw from this MOU without causing or requiring termination of the MOU upon providing 30 days prior written notice to the other Parties. Any withdrawing Party shall pay its share of any expenses incurred or accrued in accordance with section 5 of this MOU up to the date of withdrawal. The non-withdrawing Parties may elect to continue implementation of SGMA jointly under this MOU for the governance of the lands lying within the jurisdiction of the non-withdrawing Parties.

8. **AMENDMENTS AND WAIVER.** No amendment or waiver of any provision of this MOU, nor consent to any departure, shall be effective unless in writing and signed by each Party, and then such waiver or consent shall be effective only in the specific instances and for the specific purpose given.

9. **NO LIABILITY.** No Party, nor any board, director, officer, or representative of a Party, shall be responsible for any damage or liability occurring by reason of any other Party's performance or non-performance of its obligations under this MOU.

10. **NOTICES.** All notices and other communications given under the terms of this MOU must be in writing and served personally or by certified U.S. mail. Any such notice shall be addressed to the Parties as set forth as follows or to such other address as the Parties may hereafter designate by written notice. The date of receipt of the notice shall be the date of actual personal service or three days after the postmark on certified mail.

Santa Monica

Gil Borboa
Water Resources Manager
City of Santa Monica
1212 5th Street, 3rd Floor
Santa Monica, CA 90401
(310) 458-8230
Gil.Borboa@smgov.net

LADWP

David R. Pettijohn
Director of Water Resources Division
111 North Hope Street, Rm 1460
Los Angeles, CA 90012
(213) 923-4806
David.Pettijohn@LADWP.com

Beverly Hills

Shana Epstein
Public Works Director
455 North Rexford Drive
Beverly Hills, CA 90210
(310) 285-1000
lepstein@beverlyhills.org

Culver City

Charles D. Herbertson
9770 Culver Boulevard
Culver City, CA 90232
(310) 253-5630
Charles.Herbertson@culvercity.org

County

County of Los Angeles
Mitch Glaser, Assistant Administrator
320 West Temple Street
Los Angeles, CA 90012
Phone: (213) 974-4971
Fax: (213) 626-0434

11. **WATER RIGHTS.** Nothing herein shall be construed or interpreted as authorizing the SMBGSA to make a binding determination regarding the water rights of any person or entity, including, without limitation, any Party.

12. **LAND USE AUTHORITY.** Nothing herein shall be interpreted as superseding the land use authority of cities and counties, including the city or county general plans, within the Santa Monica Basin.

13. **RELATIONSHIP OF PARTIES.** The Parties shall remain at all times as to each other, wholly independent entities. No Party shall have the authority to incur any debt, obligation, or liability on behalf of another Party unless expressly provided by written agreement of the Parties. No employee, agent, or officer of a Party shall be deemed for any purpose whatsoever to be an agent, employee or officer of another Party.

14. **GOVERNING LAW.** This MOU shall be interpreted, construed, and governed according to the laws of the State of California without regard to conflict of law principles.

15. **VENUE.** Any suit, action, or proceeding brought under the scope of this MOU shall be filed in the County of Los Angeles, State of California. The foregoing, however, shall not limit any Party's right to seek a change of venue under applicable law.

16. **NO ATTORNEYS' FEES.** The Parties agree that, in any action to enforce the terms of this MOU, each Party shall bear its own attorneys' fees and costs.

17. **JOINTLY DRAFTED.** Each Party acknowledges that it was represented by its legal counsel during the negotiation and execution of this MOU, and that it has had a full and fair opportunity to review and revise the terms of this MOU. Each Party further agrees that this MOU has been jointly drafted, and that no term contained herein shall be construed against or in favor of another Party.

18. **SEVERABILITY.** If one or more of the provisions contained in this MOU are invalid, illegal, or unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not be affected or impaired in any manner.

19. **HEADINGS.** Section headings in this MOU are included for convenience of reference only and shall not be given any substantive effect.

20. **ENTIRE AGREEMENT.** This MOU constitutes the entire understanding of the Parties with respect to the subject matter hereof and supersedes all prior or contemporaneous agreements, whether written or oral, with respect thereto.

21. **COUNTERPART EXECUTION.** This Agreement may be executed in counterparts and each executed counterpart shall be effective as the original.

22. **NO THIRD PARTY BENEFICIARIES.** This MOU is not intended, and will not be construed, to confer a benefit or create any right on a third party or the power or right to bring an action to enforce any of its terms.

[signature pages follow]

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES BY
BOARD OF WATER AND POWER COMMISSIONERS

By: _____
DAVID H. WRIGHT
General Manager

Date: 5.23.2017

And: _____
BARBARA E. MOSCHOS
Secretary

AUTHORIZED BY RES. 017231
MAY 02 2017

APPROVED AS TO FORM AND LEGALITY
MICHAEL N. FEUER, CITY ATTORNEY

APR 18 2017
BY _____
MELANIE A. TORY
DEPUTY CITY ATTORNEY

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

ATTEST:

DENISE ANDERSON-WARREN
City Clerk

CITY OF SANTA MONICA
a municipal corporation

By: _____
RICK COLE
City Manager
5.16.17

APPROVED AS TO FORM:

JOSEPH LAWRENCE
Interim City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

CITY OF BEVERLY HILLS

By: _____
SHANA EPSTEIN
Director of Public Works

APPROVED AS TO FORM:

(GM)
_____
LARRY WIENER
City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

ATTEST:

JEREMY GREEN
City Clerk

APPROVED AS TO FORM:

CAROL SCHWAB
City Attorney

CITY OF CULVER CITY

By: _____

JOHN M. NACHBAR
City Manager

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

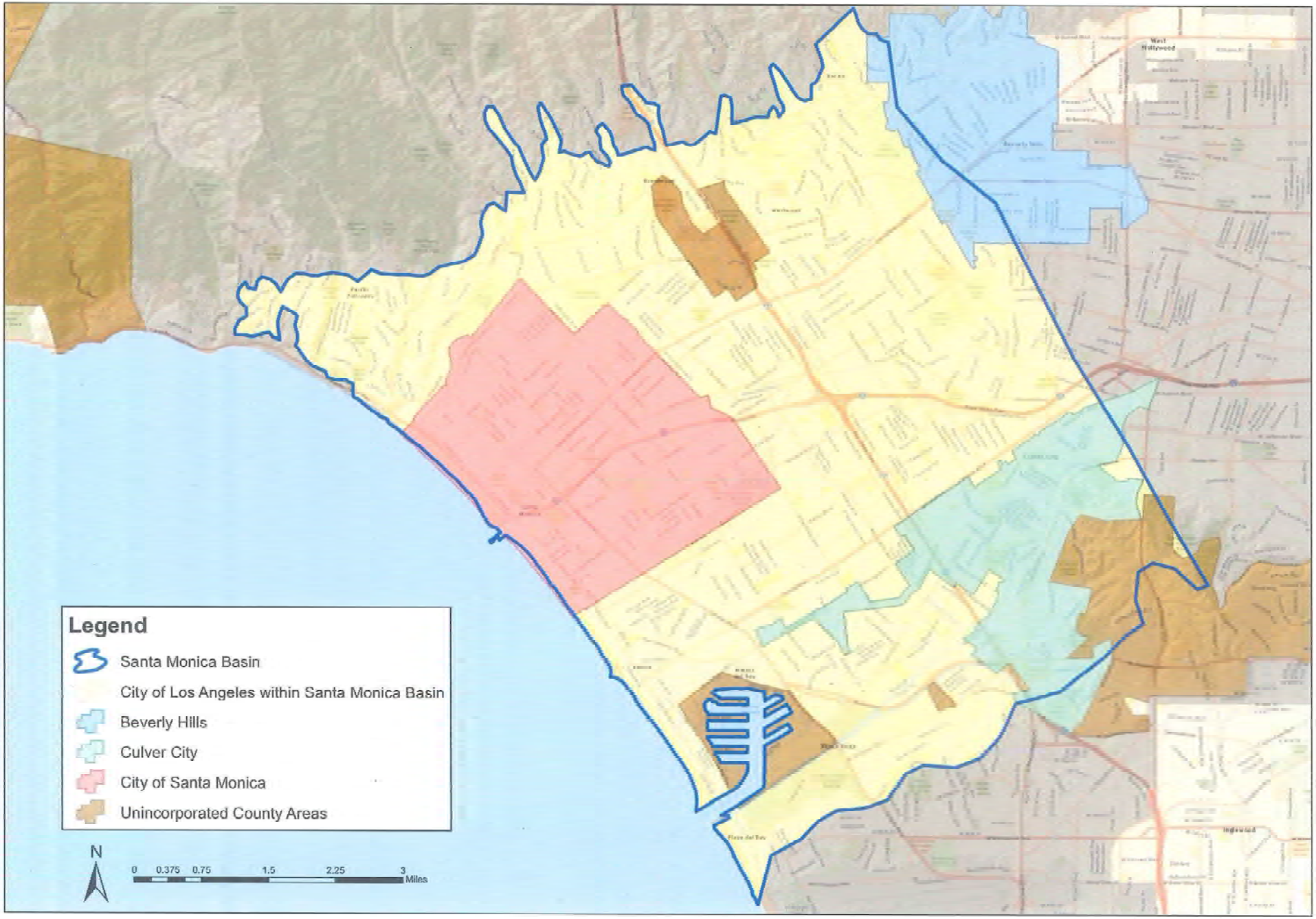
COUNTY OF LOS ANGELES

APPROVED AS TO FORM:

MARY C. WICKHAM
County Counsel

By: _____
RICHARD J. BRUCKNER
Director of Regional Planning

Exhibit A: Santa Monica Basin



RESOLUTION NO. 017231

WHEREAS, the Sustainable Groundwater Management Act (SGMA), as enacted on September 16, 2014, and codified in California Water Code Section 10720 et seq., is intended to enhance local and sustainable groundwater management; and

WHEREAS, SGMA authorizes local public agencies that have water supply, water management, or land use responsibilities within a groundwater basin to form one or more groundwater sustainability agencies (GSA) to implement SGMA's provisions within that basin; and

WHEREAS, the Los Angeles Department of Water and Power (LADWP), the cities of Beverly Hills, Culver City, and Santa Monica, and the County of Los Angeles (Parties) are local agencies that have water supply, water management, or land use responsibilities within the Santa Monica Basin (SMB); and

WHEREAS, the Parties propose to enter into a Memorandum of Understanding (MOU) to form the Santa Monica Basin Groundwater Sustainability Agency (SMBGSA) to collectively manage the SMB; and

WHEREAS, the Parties propose to work collaboratively through the SMBGSA and with other interested parties to develop and implement a single groundwater sustainability plan to sustainably and cost-effectively manage groundwater in the SMB pursuant to the requirements of SGMA; and

WHEREAS, the Board of Water and Power Commissioners (Board) held a public hearing on May 2, 2017, in the County of Los Angeles relating to said proposal, following publication of notice pursuant to California Government Code Section 6066; and

WHEREAS, the governing bodies of the other Parties have held or intend to hold similar public hearings, also following publication of notice pursuant to California Government Code Section 6066.

NOW, BE IT RESOLVED, that the proposed MOU, approved as to form and legality by the City Attorney and filed with the Secretary of the Board, is hereby approved.

BE IT FURTHER RESOLVED, that the President or Vice President of the Board or the General Manager or such person as the General Manager shall designate in writing and the Secretary, Assistant Secretary or the Acting Secretary of the Board are hereby authorized to execute said MOU for and on behalf of LADWP.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of a Resolution adopted by the Board of Water and Power Commissioners of the City of Los Angeles at its meeting held MAY 02 2017

APPROVED AS TO FORM AND LEGALITY
MICHAEL N. FEUER, CITY ATTORNEY

APR 12 2017
BY _____
MELANIE A. TORY
DEPUTY CITY ATTORNEY

Barbara E. Moschos
Secretary

RESOLUTION NO. 2017-R050

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CULVER CITY, CALIFORNIA, AUTHORIZING THE CITY OF CULVER CITY TO BECOME A GROUNDWATER SUSTAINABILITY AGENCY TO MANAGE THE SANTA MONICA GROUNDWATER BASIN IN CONCERT WITH THE CITIES OF SANTA MONICA, LOS ANGELES, AND BEVERLY HILLS AND THE COUNTY OF LOS ANGELES, PURSUANT TO THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT.

WHEREAS, on September 16, 2014, the Sustainable Groundwater Management Act ("SGMA")(Water Code sections 10720 et seq.) was signed into law by the Governor to provide for sustainable management of groundwater by providing local groundwater agencies with the authority to sustainably manage groundwater through the adoption of Groundwater Sustainability Plans; and

WHEREAS, Water Code Section 10723(a) authorizes local agencies with water supply, water management or land use responsibilities overlying a groundwater basin to elect to become a Groundwater Sustainability Agency ("GSA") to manage groundwater within the basin; and

WHEREAS, the City of Culver City ("Culver City") is a local agency qualified to become a GSA because Culver City either supplies water, manages water, or has land use responsibilities over a portion of the Santa Monica Groundwater Basin (Basin Number 4-11.01 DWR Bulletin 118) ("Basin"), a DWR-designated medium-priority basin; and

WHEREAS, the City of Santa Monica ("Santa Monica") is also a local agency qualified to become a GSA because Santa Monica either supplies water, manages water, or has land use responsibilities over a portion of the Basin; and

WHEREAS, the City of Los Angeles ("Los Angeles"), acting through its Department of Water and Power ("LADWP"), is also a local agency qualified to become a GSA because Los Angeles either supplies water, manages water, or has land use responsibilities over a portion of the Basin; and

WHEREAS, the City of Beverly Hills ("Beverly Hills") is also a local agency qualified to become a GSA because Beverly Hills either supplies water, manages water, or has land use responsibilities over a portion of the Basin; and

WHEREAS, Los Angeles County is also a local agency qualified to become a GSA because Los Angeles County either supplies water, manages water, or has land use responsibilities over a portion of the Basin; and

WHEREAS, the City Council for the City of Culver City held a public hearing on May 30, 2017 after publication of notice pursuant to Government Code Section 6066, to consider adoption of this Resolution; and

WHEREAS, Culver City, Santa Monica, Los Angeles, Beverly Hills, and Los Angeles County desire to work collaboratively to form a GSA known as the Santa Monica Basin Groundwater Sustainability Agency ("SMBGSA"), which will cover the portion of the Basin shown on the map included in Exhibit "A" attached hereto and incorporated herein; and

WHEREAS, staff for Culver City, Santa Monica, Los Angeles, Beverly Hills and County have prepared a draft Memorandum of Understanding ("MOU"), which outlines the framework for cooperative implementation of the Sustainable Groundwater Management Act within the Basin, a copy of which is attached hereto as Exhibit "B"; and

WHEREAS, adoption of this Resolution does not constitute a "Project" under the California Environmental Quality Act (CEQA) pursuant to 15060(c)(3) and 15378 (b)(5)

of the State CEQA Guidelines because it is an administrative action that does not result in any direct or indirect physical change in the environment.

NOW, THEREFORE, the City Council of the City of Culver City, California, DOES HEREBY RESOLVE:

SECTION 1. The above recitals and findings are true and correct.

SECTION 2. Culver City does hereby elect, in concert with Santa Monica, Los Angeles, Beverly Hills and Los Angeles County, to become a Groundwater Sustainability Agency known as Santa Monica Basin Groundwater Sustainability Agency ("SMBGSA") to implement the duties of the Sustainable Groundwater Management Act ("SGMA") over the portion of DWR Basin No. 4-11.01 shown on Exhibit "A" attached to this Resolution.

SECTION 3. The City Council hereby authorizes the City Manager to execute the Memorandum of Understanding ("MOU"), attached hereto as Exhibit "B", and take all implementing actions necessary to effectuate Culver City's duties under the MOU, and its duties as a participating local agency of the SMBGSA under the SGMA.

SECTION 4. This Resolution shall become effective immediately upon adoption.

APPROVED and ADOPTED this 30 day of May 2017.

JEFFREY COOPER, MAYOR
City of Culver City, California

ATTEST:

JEREMY GREEN, City Clerk

APPROVED AS TO FORM:

CAROL A. SCHWAB, City Attorney

A17-00267

EXHIBIT "A" TO RESOLUTION NO. 2017-R 050
SANTA MONICA BASIN

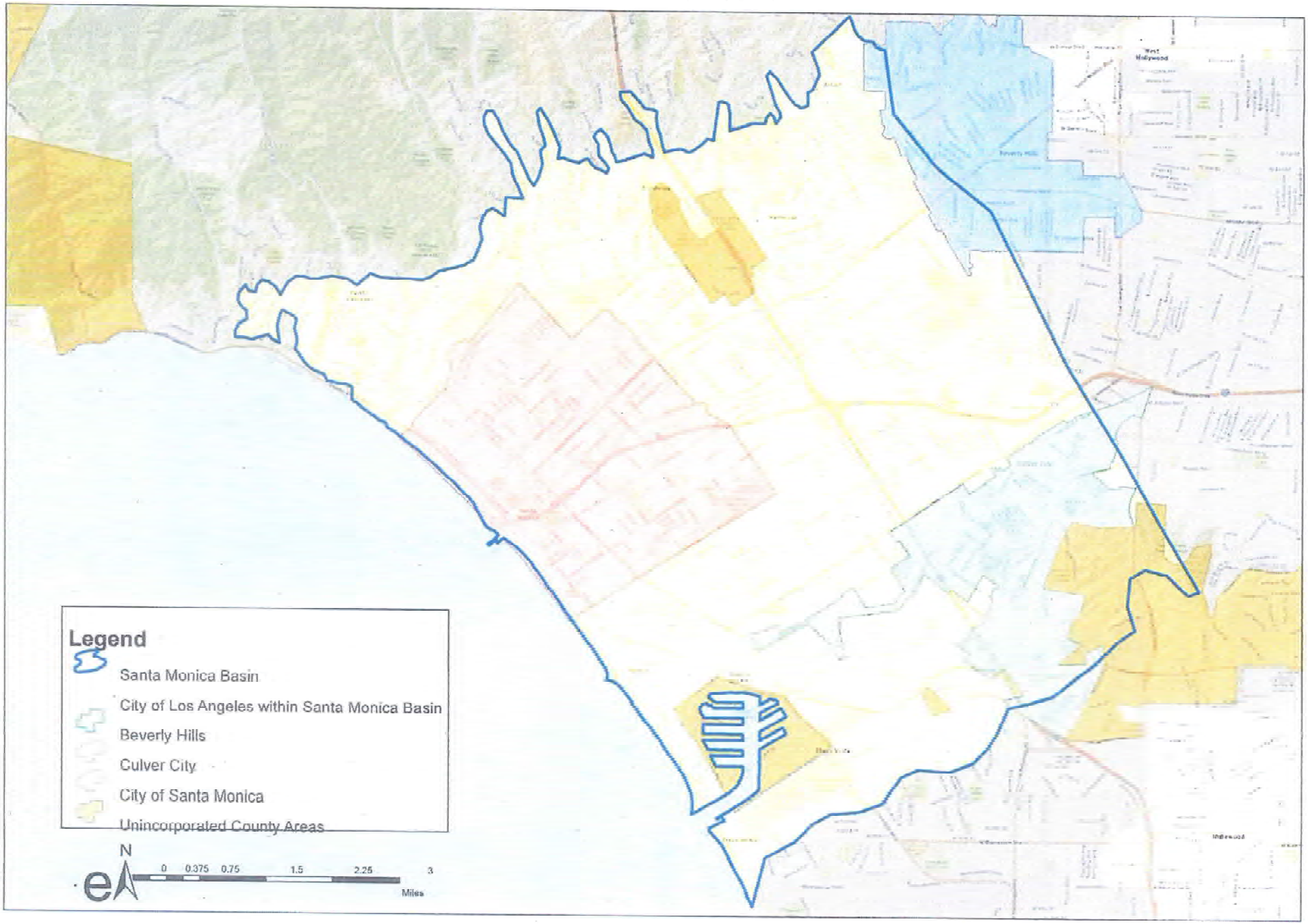


EXHIBIT "B" TO RESOLUTION NO. 2017-R 050

Memorandum of Understanding for the Formation of the Santa Monica Basin Groundwater Sustainability Agency

This Memorandum of Understanding for the formation of the Santa Monica Basin Groundwater Sustainability Agency (MOU) is made and entered by and among the City of Santa Monica (Santa Monica), a municipal corporation, the City of Los Angeles, by and through its Department of Water and Power (LADWP), the City of Beverly Hills (Beverly Hills), the City of Culver City (Culver City), and the County of Los Angeles (County), each a "Party" and, collectively, the "Parties."

WHEREAS, the Sustainable Groundwater Management Act (SGMA), as enacted on September 16, 2014, and codified in California Water Code Section 10720 et seq., is intended to enhance local and sustainable management of groundwater; and

WHEREAS, SGMA authorizes local public agencies that have water supply, water management, or land use responsibilities within a groundwater basin to form a Groundwater Sustainability Agency (GSA) to implement SGMA's provisions within that basin; and

WHEREAS, each Party is a local public agency that has water supply, water management, or land use responsibilities within the Santa Monica Basin (Basin Number 4-11.01 DWR Bulletin 118) (Santa Monica Basin); and

WHEREAS, the Parties desire to collectively manage the Santa Monica Basin within their jurisdictional boundaries; and

WHEREAS, the Parties intend to work collaboratively with each other and other interested parties to develop and implement a single Groundwater Sustainability Plan (GSP) to sustainably and cost-effectively manage groundwater in the Santa Monica Basin pursuant to the requirements of SGMA.

NOW, THEREFORE, incorporating the above recitals herein and exhibit attached, it is mutually understood and agreed by the Parties as follows:

1. **PURPOSE.** This MOU is entered into by and among the Parties to facilitate a cooperative and ongoing working relationship to comply with SGMA in the Santa Monica Basin by, among other things, forming a GSA and developing and implementing a single GSP. This MOU is not intended to form a new legal entity.

2. **SANTA MONICA BASIN GROUNDWATER SUSTAINABILITY AGENCY**

   2.1 The Parties hereby establish the Santa Monica Basin Groundwater Sustainability Agency (SMBGSA) to sustainably and cost-effectively manage groundwater in the Santa Monica Basin.

2.2 The SMBGSA shall only operate within the collective jurisdictions of the Parties within the boundaries of Santa Monica Basin, as depicted on the map incorporated herein as Exhibit "A."

2.3 The SMBGSA shall be governed in accordance with this MOU and any bylaws hereinafter adopted by the Parties. If any conflict arises between this MOU and the bylaws, the terms of this MOU shall govern

3 ROLES AND RESPONSIBILITIES OF THE PARTIES

3.1 Each Party covenants that it has the authority to perform the activities required to accomplish the purposes of this MOU, and will cooperate to implement the following activities and other activities consistent with SGMA in the Santa Monica Basin:

a. Preparing and maintaining a list of interested parties.

b. Conducting public outreach and engagement.

c. Submitting notification of the formation of the SMBGSA to the California Department of Water Resources (DWR).

d. Consulting and contracting with the United States, State of California, and adjacent water agencies and individual landowners.

e. Entering into coordination agreements with other GSAs and watermasters.

f. Conducting investigations and analyzing data.

g. Developing, adopting, and implementing a GSP.

h. Approving and collecting groundwater management fees.

i. Pursuing financial assistance through grants or similar opportunities.

j. Obtaining third-party services for groundwater modeling, data collection, reports, and other related tasks.

3.2 Santa Monica shall serve as the coordinating agency on behalf of the SMBGSA to provide a single point of contact with DWR.

3.3 Santa Monica shall assume primary responsibility for coordinating the administrative functions of the SMBGSA, subject to the terms of this MOU and the unanimous consent of the Parties.

4 MEETINGS AND DECISION MAKING PROCESS

4.1 Each Party shall appoint one representative (Party Representative) to participate in the SMBGSA on its behalf. Each Party may appoint an alternate representative (Alternate Representative) in case of the Party Representative's absence or inability to act. A Party may replace its Party Representative or Alternate Representative at any time upon providing notice to the other Parties.

4.2 The Party Representatives shall meet as necessary to fulfill the obligations under this MOU and SGMA, including but not limited to considering the interests of groundwater beneficial users located in the Santa Monica Basin pursuant to California Water Code Section 10723.2. Meetings shall be conducted in accordance with SGMA and any bylaws hereinafter adopted by the Parties.

4.3 All actions undertaken by the SMBGSA shall be by unanimous consent of the Parties. The Parties understand and agree that such consent may require further action by the Parties' respective governing bodies.

5. **FUNDING.** Each Party shall bear its own costs until the SMBGSA becomes the exclusive GSA in the Parties' collective jurisdictions pursuant to California Water Code Section 10723.8. No further costs will be undertaken by or allocated to any of the Parties until a principle for cost distribution is agreed upon and reflected in an amendment to this MOU, bylaws, or another binding document.

6. **TERM.** This MOU shall become effective upon each Party's execution and shall terminate on January 31, 2042. The Parties may terminate this MOU sooner by unanimous written consent.

7. **WITHDRAWAL.** Any Party may unilaterally withdraw from this MOU without causing or requiring termination of the MOU upon providing 30 days prior written notice to the other Parties. Any withdrawing Party shall pay its share of any expenses incurred or accrued in accordance with section 5 of this MOU up to the date of withdrawal. The non-withdrawing Parties may elect to continue implementation of SGMA jointly under this MOU for the governance of the lands lying within the jurisdiction of the non-withdrawing Parties.

8. **AMENDMENTS AND WAIVER.** No amendment or waiver of any provision of this MOU, nor consent to any departure, shall be effective unless in writing and signed by each Party, and then such waiver or consent shall be effective only in the specific instances and for the specific purpose given.

9. **NO LIABILITY.** No Party, nor any board, director, officer, or representative of a Party, shall be responsible for any damage or liability occurring by reason of any other Party's performance or non-performance of its obligations under this MOU.

10. **NOTICES.** All notices and other communications given under the terms of this MOU must be in writing and served personally or by certified U.S. mail. Any such notice shall be addressed to the Parties as set forth as follows or to such other address as the Parties may hereafter designate by written notice. The date of receipt of the notice shall be the date of actual personal service or three days after the postmark on certified mail.

Santa Monica

Gil Borboa
Water Resources Manager
City of Santa Monica
1212 5th Street, 3rd Floor
Santa Monica, CA 90401
(310) 458-8230
Gil.Borboa@smgov.net

LADWP

David R. Pettijohn
Director of Water Resources Division
111 North Hope Street, Rm 1460
Los Angeles, CA 90012
(213) 923-4806
David.Pettijohn@LADWP.com

Beverly Hills

Shana Epstein
Public Works Director
455 North Rexford Drive
Beverly Hills, CA 90210
(310) 285-1000
lepstein@beverlyhills.org

Culver City

Charles D. Herbertson
9770 Culver Boulevard
Culver City, CA 90232
(310) 253-5630
Charles.Herbertson@culvercity.org

County

County of Los Angeles
Mitch Glaser, Assistant Administrator
320 West Temple Street
Los Angeles, CA 90012
Phone: (213) 974-4971
Fax: (213) 626-0434

11. **WATER RIGHTS.** Nothing herein shall be construed or interpreted as authorizing the SMBGSA to make a binding determination regarding the water rights of any person or entity, including, without limitation, any Party.

12. **LAND USE AUTHORITY.** Nothing herein shall be interpreted as superseding the land use authority of cities and counties, including the city or county general plans, within the Santa Monica Basin.

13. **RELATIONSHIP OF PARTIES**. The Parties shall remain at all times as to each other, wholly independent entities. No Party shall have the authority to incur any debt, obligation, or liability on behalf of another Party unless expressly provided by written agreement of the Parties. No employee, agent, or officer of a Party shall be deemed for any purpose whatsoever to be an agent, employee or officer of another Party.

14. **GOVERNING LAW**. This MOU shall be interpreted, construed, and governed according to the laws of the State of California without regard to conflict of law principles.

15. **VENUE.** Any suit, action, or proceeding brought under the scope of this MOU shall be filed in the County of Los Angeles, State of California. The foregoing, however, shall not limit any Party's right to seek a change of venue under applicable law.

16. **NO ATTORNEYS' FEES.** The Parties agree that, in any action to enforce the terms of this MOU, each Party shall bear its own attorneys' fees and costs.

17. **JOINTLY DRAFTED.** Each Party acknowledges that it was represented by its legal counsel during the negotiation and execution of this MOU, and that it has had a full and fair opportunity to review and revise the terms of this MOU. Each Party further agrees that this MOU has been jointly drafted, and that no term contained herein shall be construed against or in favor of another Party.

18. **SEVERABILITY.** If one or more of the provisions contained in this MOU are invalid, illegal, or unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not be affected or impaired in any manner.

19. **HEADINGS.** Section headings in this MOU are included for convenience of reference only and shall not be given any substantive effect.

20. **ENTIRE AGREEMENT.** This MOU constitutes the entire understanding of the Parties with respect to the subject matter hereof and supersedes all prior or contemporaneous agreements, whether written or oral, with respect thereto.

21. **COUNTERPART EXECUTION.** This Agreement may be executed in counterparts and each executed counterpart shall be effective as the original.

22. **NO THIRD PARTY BENEFICIARIES.** This MOU is not intended, and will not be construed, to confer a benefit or create any right on a third party or the power or right to bring an action to enforce any of its terms.

[signature pages follow]

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES BY
BOARD OF WATER AND POWER COMMISSIONERS

By: _____
DAVID H. WRIGHT
General Manager

Date: _____

And: _____
BARBARA E. MOSCHOS
Secretary

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

CITY OF SANTA MONICA
a municipal corporation

ATTEST:

By: _____
RICK COLE
City Manager

_____
DENISE ANDERSON-WARREN
City Clerk

APPROVED AS TO FORM:

_____
JOSEPH LAWRENCE
Interim City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

CITY OF BEVERLY HILLS

By: _____
SHANA EPSTEIN
Public Works Director

APPROVED AS TO FORM:

_____
JIM MARKMAN
City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

CITY OF CULVER CITY

ATTEST:

By: _____

JEREMY GREEN
City Clerk

JOHN M. NACHBAR
City Manager

APPROVED AS TO FORM:

_____

CAROL SCHWAB
City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

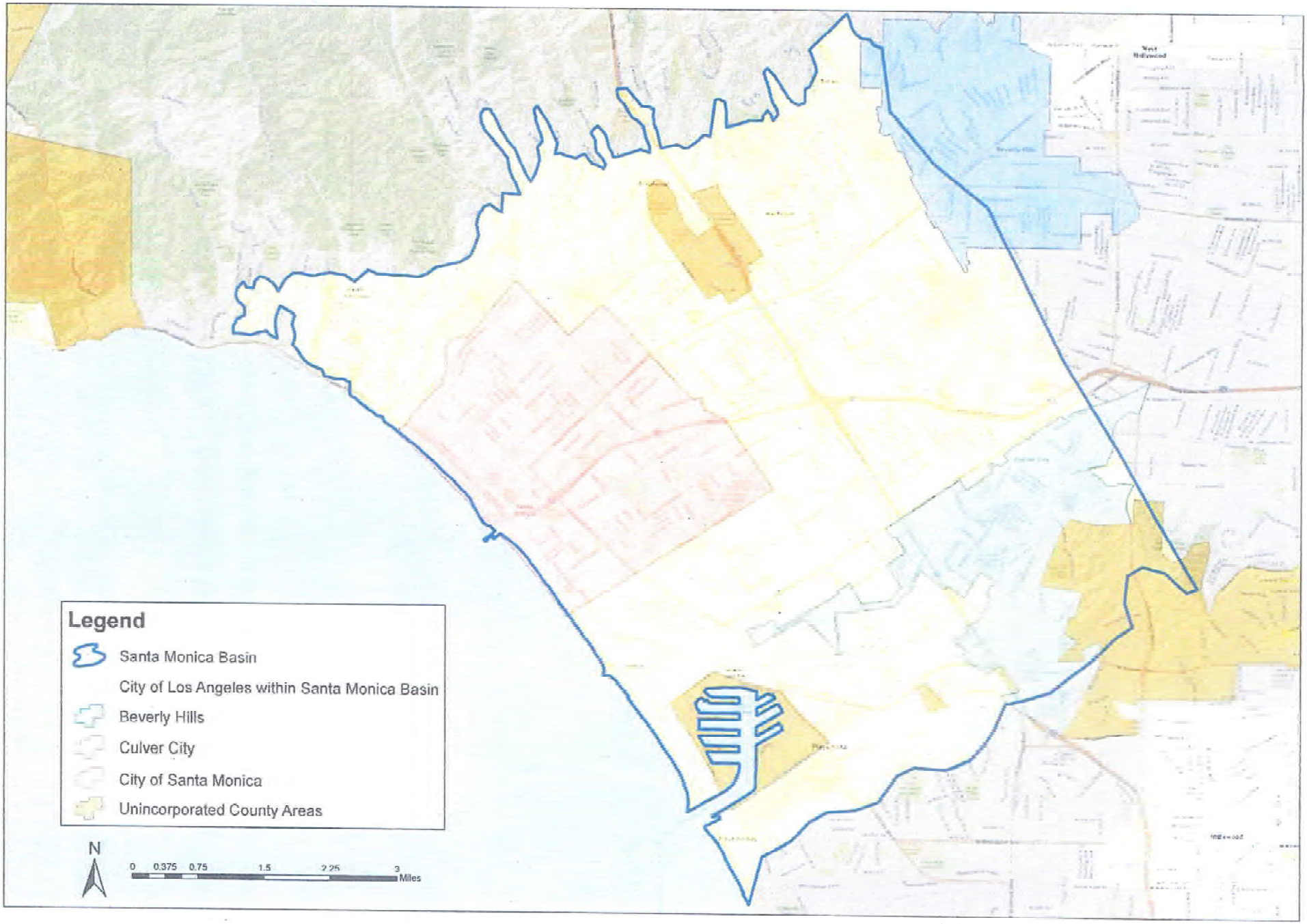
COUNTY OF LOS ANGELES

APPROVED AS TO FORM:

_____
MARY C. WICKHAM
County Counsel

By: _____
RICHARD J. BRUCKNER
Director of Regional Planning

Exhibit A: Santa Monica Basin



ENCLOSURE D

RESOLUTION OF THE BOARD OF SUPERVISORS OF THE COUNTY OF LOS ANGELES, CALIFORNIA, APPROVING THE MEMORANDUM OF UNDERSTANDING TO FORM THE SANTA MONICA BASIN GROUNDWATER SUSTAINABILITY AGENCY

WHEREAS, the Sustainable Groundwater Management Act of 2014, California Water Code section 10720 et. seq. (SGMA), went into effect on January 1, 2015; and

WHEREAS, the legislative intent of SGMA is to provide for the sustainable management of groundwater basins, to enhance local management of groundwater, to establish minimum standards for sustainable groundwater management, and to manage groundwater basins through the actions of local governmental agencies to the greatest extent feasible while minimizing state intervention; and

WHEREAS, SGMA requires that California groundwater basins and subbasins designated by the California Department of Water Resources as high priority or medium priority be managed by one or more Groundwater Sustainability Agencies (GSAs) and that such management be accomplished pursuant to one or more approved Groundwater Sustainability Plans (GSPs) for the basin; and

WHEREAS, California Water Code Section 10721(j) defines a GSA as one or more local agencies that implement the provisions of SGMA; and

WHEREAS, any local public agency that has water supply, water management, or land use responsibilities within a groundwater basin may decide to become a GSA over that basin (California Water Code Sections 10721 and 10723); and

WHEREAS, SGMA provides that a combination of local agencies may form a GSA by a joint powers agreement, a memorandum of agreement, or other legal agreement (Water Code Section 10723.6); and

WHEREAS, County of Los Angeles overlies a portion of the Coastal Plain of Los Angeles – Santa Monica, groundwater basin number 4-011.01 per the State of California, Department of Water Resources Groundwater Bulletin 118, which has been designated by the State of California as a medium priority basin; and

WHEREAS, County of Los Angeles has land use planning responsibilities within the Coastal Plain of Los Angeles – Santa Monica, groundwater basin number 4-011.01; and

WHEREAS, County of Los Angeles has been working cooperatively with other local agencies that also plan to manage groundwater in compliance with SGMA; and

WHEREAS, County of Los Angeles along with its regional partners, City of Santa Monica (Santa Monica), a municipal corporation, the City of Los Angeles, by and through its Department of Water and Power, the City of Beverly Hills, and the City of Culver City intend to jointly form the Santa Monica Basin Groundwater Sustainability Agency through a Memorandum of Understanding to work collaboratively to manage groundwater resources within their respective service areas in the Santa Monica Basin and to comply with SGMA; and

WHEREAS, prior to adopting a resolution of intent to establish County of Los Angeles as a member of the Santa Monica Basin-GSA, Water Code Section 10723 requires County of Los Angeles to hold a public hearing, after publication of notice pursuant to California Government Code Section 6066, on whether to become a member to the GSA; and

WHEREAS, pursuant to Government Code Section 6066, notices of a public hearing on whether or not to adopt a resolution to establish the Santa Monica-GSA through a Memorandum of Understanding were published; and

WHEREAS, adoption of this Resolution does not constitute a project under the California Environmental Quality Act because it does not result in any direct or indirect physical change in the environment;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of the County of Los Angeles does hereby:

1. Elect that County of Los Angeles will participate as a member of the Santa Monica Basin-GSA to manage groundwater within its statutory boundaries of the Santa Monica Basin pursuant to the Memorandum of Understanding to Form the Santa Monica Basin Groundwater Sustainability Agency; and

2. Authorize the Director of the Department of Regional Planning or his designee to execute the "Memorandum of Understanding to Form the Santa Monica Basin Groundwater Sustainability Agency," on behalf of the County of Los Angeles a copy of which is attached hereto; and

3. Authorize the Director of the Department of Regional Planning or his designee to coordinate with the other members of the Santa Monica Basin-GSA to provide a copy of this resolution, a Notice of Intent, and all other necessary documentation to Department of Water Resources within 30 days and to otherwise comply with the requirements of Water Code Section 10723.8; and

4. Authorize the Director of the Department of Regional Planning or his designee to coordinate with the other members of the Santa Monica Basin-GSA to maintain a list of interested parties regarding the newly formed Santa Monica Basin-GSA pursuant to Water Code Section 10723.4.

The foregoing resolution was on the 23rd day of May, 2017, adopted by the Board of Supervisors as the governing body of the County of Los Angeles.

LORI GLASGOW
Executive Officer of the
Board of Supervisors of
the County of Los Angeles

By _____
Deputy

APPROVED AS TO FORM:

MARY C. WICKHAM
County Counsel

By _____
Deputy

RESOLUTION NO. 17-R- 13142

A RESOLUTION OF THE COUNCIL OF THE CITY OF BEVERLY HILLS APPROVING A MEMORANDUM OF UNDERSTANDING FOR THE FORMATION OF THE SANTA MONICA BASIN GROUNDWATER SUSTAINABILITY AGENCY

WHEREAS, the California legislature enacted the Sustainable Groundwater Management Act ("SGMA") on September 16, 2014 intending to enhance local, sustainable management of groundwater resources; and

WHEREAS, SGMA authorizes public entities with water supply, water management, and/or land use responsibilities within a groundwater basin to form a Groundwater Sustainability Agency ("SGA") in order to implement SGMA within that particular basin; and

WHEREAS, the Cities of Beverly Hills, Los Angeles (through its Department of Water & Power) and Culver City and the County of Los Angeles ("the Public Entities") have such responsibilities within the Santa Monica Basin, a groundwater basin identified as Basin Number 4.11.01 in California Department of Water Resources Bulletin 118 ("the Basin" hereinafter); and

WHEREAS, the Public Entities wish to collectively manage the Basin and intend to work cooperatively to develop and implement a single Groundwater Sustainability Plan for the Basin in order to cost-effectively manage the Basin as a sustainable resource pursuant to SGMA in accordance with that document entitled "MEMORANDUM OF UNDERSTANDING FOR THE FORMATION OF THE SANTA MONICA BASIN GROUNDWATER SUSTAINABILITY AGENCY" ("the MOU"), a copy of which is attached hereto as Exhibit "A".

NOW, THEREFORE, the Council of the City of Beverly Hills does resolve as follows:

Section 1. The City Council hereby approves the MOU, authorizes its execution and directs the City Staff to implement its provisions.

Section 2. The City Clerk shall certify to the adoption of this resolution and shall cause this resolution and his certification to be entered in the Book of Resolutions of the City Council of this City.

ADOPTED: June 13, 2017

Lili Bosse

LILI BOSSE
Mayor of the City of Beverly Hills

ATTEST:

_____(SEAL)
BYRON POPE
City Clerk

APPROVED AS TO FORM:

_____
LAURENCE S. WIENER
City Attorney

APPROVED AS TO CONTENT:

_____
MAHDI ALUZRI
City Manager

EXHIBIT A

Memorandum of Understanding for the Formation of the Santa Monica Basin Groundwater Sustainability Agency

This Memorandum of Understanding for the formation of the Santa Monica Basin Groundwater Sustainability Agency (MOU) is made and entered by and among the City of Santa Monica (Santa Monica), a municipal corporation, the City of Los Angeles, by and through its Department of Water and Power (LADWP), the City of Beverly Hills (Beverly Hills), the City of Culver City (Culver City), and the County of Los Angeles (County), each a "Party" and, collectively, the "Parties."

WHEREAS, the Sustainable Groundwater Management Act (SGMA), as enacted on September 16, 2014, and codified in California Water Code Section 10720 et seq., is intended to enhance local and sustainable management of groundwater; and

WHEREAS, SGMA authorizes local public agencies that have water supply, water management, or land use responsibilities within a groundwater basin to form a Groundwater Sustainability Agency (GSA) to implement SGMA's provisions within that basin; and

WHEREAS, each Party is a local public agency that has water supply, water management, or land use responsibilities within the Santa Monica Basin (Basin Number 4-11.01 DWR Bulletin 118) (Santa Monica Basin); and

WHEREAS, the Parties desire to collectively manage the Santa Monica Basin within their jurisdictional boundaries; and

WHEREAS, the Parties intend to work collaboratively with each other and other interested parties to develop and implement a single Groundwater Sustainability Plan (GSP) to sustainably and cost-effectively manage groundwater in the Santa Monica Basin pursuant to the requirements of SGMA.

NOW, THEREFORE, incorporating the above recitals herein and exhibit attached, it is mutually understood and agreed by the Parties as follows:

1. **PURPOSE.** This MOU is entered into by and among the Parties to facilitate a cooperative and ongoing working relationship to comply with SGMA in the Santa Monica Basin by, among other things, forming a GSA and developing and implementing a single GSP. This MOU is not intended to form a new legal entity.

2. **SANTA MONICA BASIN GROUNDWATER SUSTAINABILITY AGENCY**

   2.1 The Parties hereby establish the Santa Monica Basin Groundwater Sustainability Agency (SMBGSA) to sustainably and cost-effectively manage groundwater in the Santa Monica Basin.

2.2 The SMBGSA shall only operate within the collective jurisdictions of the Parties within the boundaries of Santa Monica Basin, as depicted on the map incorporated herein as Exhibit "A."

1.3 The SMBGSA shall be governed in accordance with this MOU and any bylaws hereinafter adopted by the Parties. If any conflict arises between this MOU and the bylaws, the terms of this MOU shall govern

3. ROLES AND RESPONSIBILITIES OF THE PARTIES

3.1 Each Party covenants that it has the authority to perform the activities required to accomplish the purposes of this MOU, and will cooperate to implement the following activities and other activities consistent with SGMA in the Santa Monica Basin:

a. Preparing and maintaining a list of interested parties.

b. Conducting public outreach and engagement.

c. Submitting notification of the formation of the SMBGSA to the California Department of Water Resources (DWR).

d. Consulting and contracting with the United States, State of California, and adjacent water agencies and individual landowners.

e. Entering into coordination agreements with other GSAs and watermasters.

f. Conducting investigations and analyzing data.

g. Developing, adopting, and implementing a GSP.

h. Approving and collecting groundwater management fees.

i. Pursuing financial assistance through grants or similar opportunities.

j. Obtaining third-party services for groundwater modeling, data collection, reports, and other related tasks.

3.2 Santa Monica shall serve as the coordinating agency on behalf of the SMBGSA to provide a single point of contact with DWR.

3.3 Santa Monica shall assume primary responsibility for coordinating the administrative functions of the SMBGSA, subject to the terms of this MOU and the unanimous consent of the Parties.

4. MEETINGS AND DECISION MAKING PROCESS

4.1 Each Party shall appoint one representative (Party Representative) to participate in the SMBGSA on its behalf. Each Party may appoint an alternate representative (Alternate Representative) in case of the Party Representative's absence or inability to act. A Party may replace its Party Representative or Alternate Representative at any time upon providing notice to the other Parties.

4.2 The Party Representatives shall meet as necessary to fulfill the obligations under this MOU and SGMA, including but not limited to considering the interests of groundwater beneficial users located in the Santa Monica Basin pursuant to California Water Code Section 10723.2. Meetings shall be conducted in accordance with SGMA and any bylaws hereinafter adopted by the Parties.

4.3 All actions undertaken by the SMBGSA shall be by unanimous consent of the Parties. The Parties understand and agree that such consent may require further action by the Parties' respective governing bodies.

5. **FUNDING.** Each Party shall bear its own costs until the SMBGSA becomes the exclusive GSA in the Parties' collective jurisdictions pursuant to California Water Code Section 10723.8. No further costs will be undertaken by or allocated to any of the Parties until a principle for cost distribution is agreed upon and reflected in an amendment to this MOU, bylaws, or another binding document.

6. **TERM.** This MOU shall become effective upon each Party's execution and shall terminate on January 31, 2042. The Parties may terminate this MOU sooner by unanimous written consent.

7. **WITHDRAWAL.** Any Party may unilaterally withdraw from this MOU without causing or requiring termination of the MOU upon providing 30 days prior written notice to the other Parties. Any withdrawing Party shall pay its share of any expenses incurred or accrued in accordance with section 5 of this MOU up to the date of withdrawal. The non-withdrawing Parties may elect to continue implementation of SGMA jointly under this MOU for the governance of the lands lying within the jurisdiction of the non-withdrawing Parties.

8. **AMENDMENTS AND WAIVER.** No amendment or waiver of any provision of this MOU, nor consent to any departure, shall be effective unless in writing and signed by each Party, and then such waiver or consent shall be effective only in the specific instances and for the specific purpose given.

9. **NO LIABILITY.** No Party, nor any board, director, officer, or representative of a Party, shall be responsible for any damage or liability occurring by reason of any other Party's performance or non-performance of its obligations under this MOU.

10. **NOTICES.** All notices and other communications given under the terms of this MOU must be in writing and served personally or by certified U.S. mail. Any such notice shall be addressed to the Parties as set forth as follows or to such other address as the Parties may hereafter designate by written notice. The date of receipt of the notice shall be the date of actual personal service or three days after the postmark on certified mail.

Santa Monica

Gil Borboa
Water Resources Manager
City of Santa Monica
1212 5th Street, 3rd Floor
Santa Monica, CA 90401
(310) 458-8230
Gil.Borboa@smgov.net

LADWP

David R. Pettijohn
Director of Water Resources Division
111 North Hope Street, Rm 1460
Los Angeles, CA 90012
(213) 923-4806
David.Pettijohn@LADWP.com

Beverly Hills

Shana Epstein
Public Works Director
455 North Rexford Drive
Beverly Hills, CA 90210
(310) 285-1000
sepstein@beverlyhills.org

Culver City

Charles D. Herbertson
9770 Culver Boulevard
Culver City, CA 90232
(310) 253-5630
Charles.Herbertson@culvercity.org

County

County of Los Angeles
Mitch Glaser, Assistant Administrator
320 West Temple Street
Los Angeles, CA 90012
Phone: (213) 974-4971
Fax: (213) 626-0434

11. **WATER RIGHTS.** Nothing herein shall be construed or interpreted as authorizing the SMBGSA to make a binding determination regarding the water rights of any person or entity, including, without limitation, any Party.

12. **LAND USE AUTHORITY.** Nothing herein shall be interpreted as superseding the land use authority of cities and counties, including the city or county general plans, within the Santa Monica Basin.

13. **RELATIONSHIP OF PARTIES**. The Parties shall remain at all times as to each other, wholly independent entities. No Party shall have the authority to incur any debt, obligation, or liability on behalf of another Party unless expressly provided by written agreement of the Parties. No employee, agent, or officer of a Party shall be deemed for any purpose whatsoever to be an agent, employee or officer of another Party.

14. **GOVERNING LAW**. This MOU shall be interpreted, construed, and governed according to the laws of the State of California without regard to conflict of law principles.

15. **VENUE.** Any suit, action, or proceeding brought under the scope of this MOU shall be filed in the County of Los Angeles, State of California. The foregoing, however, shall not limit any Party's right to seek a change of venue under applicable law.

16. **NO ATTORNEYS' FEES.** The Parties agree that, in any action to enforce the terms of this MOU, each Party shall bear its own attorneys' fees and costs.

17. **JOINTLY DRAFTED.** Each Party acknowledges that it was represented by its legal counsel during the negotiation and execution of this MOU, and that it has had a full and fair opportunity to review and revise the terms of this MOU. Each Party further agrees that this MOU has been jointly drafted, and that no term contained herein shall be construed against or in favor of another Party.

18. **SEVERABILITY.** If one or more of the provisions contained in this MOU are invalid, illegal, or unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not be affected or impaired in any manner.

19. **HEADINGS.** Section headings in this MOU are included for convenience of reference only and shall not be given any substantive effect.

20. **ENTIRE AGREEMENT.** This MOU constitutes the entire understanding of the Parties with respect to the subject matter hereof and supersedes all prior or contemporaneous agreements, whether written or oral, with respect thereto.

21. **COUNTERPART EXECUTION.** This Agreement may be executed in counterparts and each executed counterpart shall be effective as the original.

22. **NO THIRD PARTY BENEFICIARIES.** This MOU is not intended, and will not be construed, to confer a benefit or create any right on a third party or the power or right to bring an action to enforce any of its terms.

[signature pages follow]

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES BY
BOARD OF WATER AND POWER COMMISSIONERS

By: _____
DAVID H. WRIGHT
General Manager

Date: _____

And: _____
BARBARA E. MOSCHOS
Secretary

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

ATTEST:

CITY OF SANTA MONICA
a municipal corporation

By: _____

DENISE ANDERSON-WARREN
City Clerk

RICK COLE
City Manager

APPROVED AS TO FORM:

JOSEPH LAWRENCE
Interim City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

CITY OF BEVERLY HILLS

By: _____
SHANA EPSTEIN
Director of Public Works

APPROVED AS TO FORM:

_____
LARRY WIENER
City Attorney

IN WITNESS WHEREOF, each Party hereby has caused this MOU to be executed as of the date and year written below:

CITY OF CULVER CITY

ATTEST:

_____
JEREMY GREEN
City Clerk

By: _____
JOHN M. NACHBAR
City Manager

APPROVED AS TO FORM:

_____
CAROL SCHWAB
City Attorney

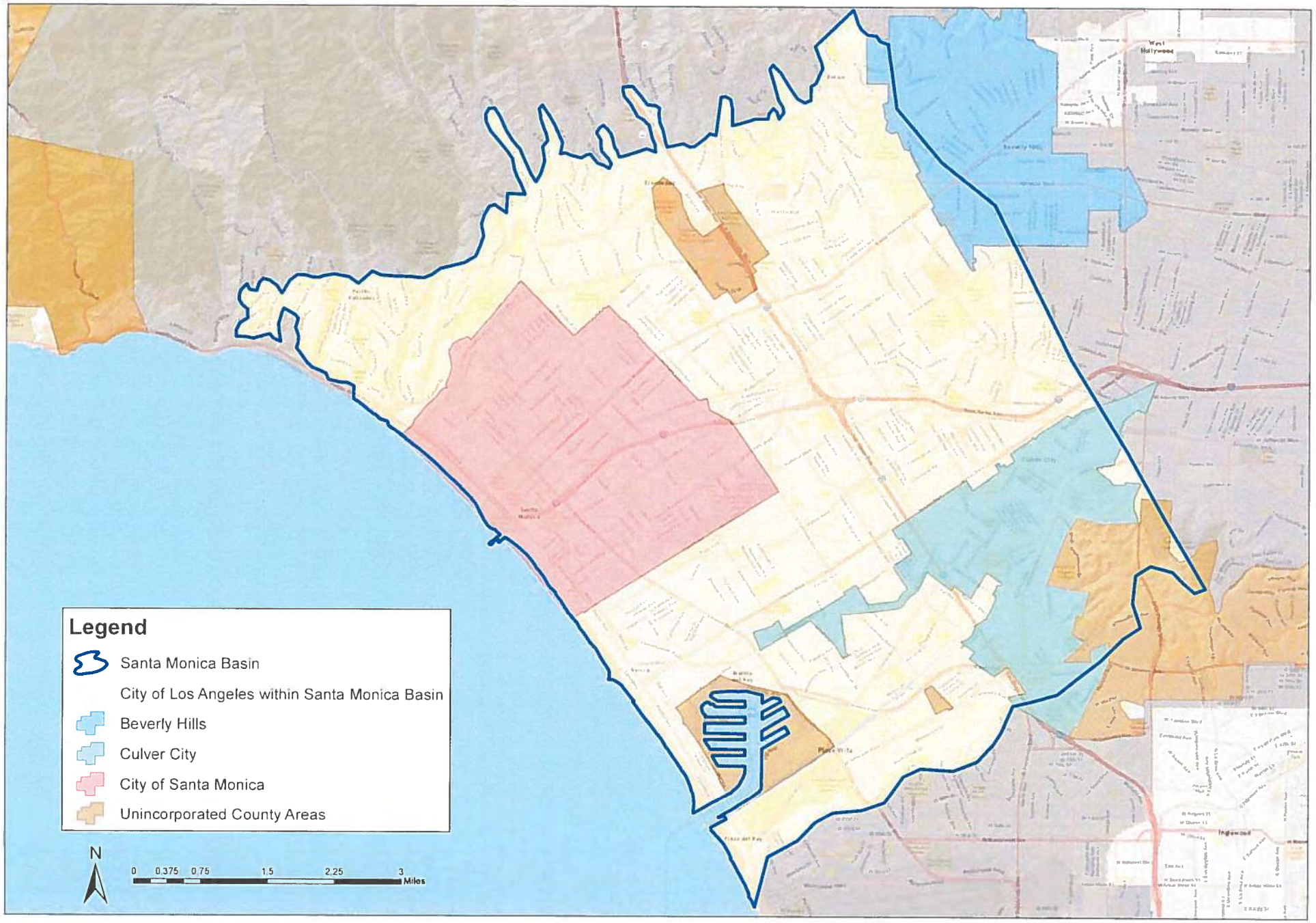
COUNTY OF LOS ANGELES

APPROVED AS TO FORM:

_____
MARY C. WICKHAM
County Counsel

By: _____
RICHARD J. BRUCKNER
Director of Regional Planning

Exhibit A: Santa Monica Basin



LOS ANGELES INDEPENDENT

3731 WILSHIRE BLVD STE 840, LOS ANGELES, CA 90010
Telephone (323) 556-5720 / Fax (213) 835-0584

This space for filing stamp only

VINCE DAMASSE
CITY OF BEVERLY HILLS/PUBLIC WORKS SERVIC
345 FOOTHILL RD
BEVERLY HILLS, CA - 90210

HIN#: 3016506

PROOF OF PUBLICATION

(2015.5 C.C.P.)

State of California)
County of LOS ANGELES) ss

Notice Type: HRG - NOTICE OF HEARING

Ad Description:

A RESOLUTION OF THE COUNCIL OF THE CITY OF

I am a citizen of the United States and a resident of the State of California; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer and publisher of the LOS ANGELES INDEPENDENT, a newspaper published in the English language in the city of LOS ANGELES, county of LOS ANGELES, and adjudged a newspaper of general circulation as defined by the laws of the State of California by the Superior Court of the County of LOS ANGELES, State of California, under date 08/13/1987, Case No. 392931. That the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

06/01/2017, 06/08/2017

Executed on: 06/08/2017
At Los Angeles, California

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Signature

NOTICE OF PUBLIC HEARING

The Beverly Hills City Council, at its regular meeting to be held on **Tuesday, June 13, 2017, at 7:00 p.m.,** in the City Hall Council Chamber, 455 N. Rexford Drive, Beverly Hills, CA, will hold a public hearing to consider adoption of:

A RESOLUTION OF THE COUNCIL OF THE CITY OF
BEVERLY HILLS APPROVING A MEMORANDUM OF
UNDERSTANDING FOR THE FORMATION OF
THE SANTA MONICA BASIN GROUNDWATER
SUSTAINABILITY AGENCY

The proposed resolution would establish a Memorandum of Understanding (MOU) with Santa Monica, the Los Angeles Department of Water & Power (LADWP), Culver City, and Los Angeles County to form a Groundwater Sustainability Agency (GSA) for the Santa Monica Basin under the 2014 Sustainable Groundwater Management Act (SGMA). This legislative act empowers local agencies to adopt groundwater management plans tailored to the resources and needs of their communities. State legislation requires a formal public hearing to receive any public comment on the formation of a GSA via MOU approval.

Copies of the proposed resolution are available for review in the City Clerk's office, Room 290, 455 N. Rexford Drive, Beverly Hills. These documents can also be found on the City's website at www.beverlyhills.org/groundwater. Any interested person may attend the meeting and speak. Written comments may also be submitted and should be addressed to the City Council, c/o City Clerk, 455 N. Rexford Drive, Beverly Hills, CA, 90210. The comments should be received prior to the hearing date. If you need more information, please contact Caitlin Sims at (310) 285-2499.

Please note that if you challenge the Council's action in regard to this matter in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City, either at or prior to the public hearing.

BYRON POPE, CMC
City Clerk

6/1, 6/8/17
HIN-3016506#
LOS ANGELES INDEPENDENT

Email Groundwater Sustainability Plan for the Santa Monica Subbasin *A0004468686* B-72

Bestselling author to appear at Beverly Hills Public Library

Bestselling author and screenwriter Delia Ephron will speak about her new novel, "Siracusa," at the Beverly Hills Public Library on June 14 at 7 p.m.

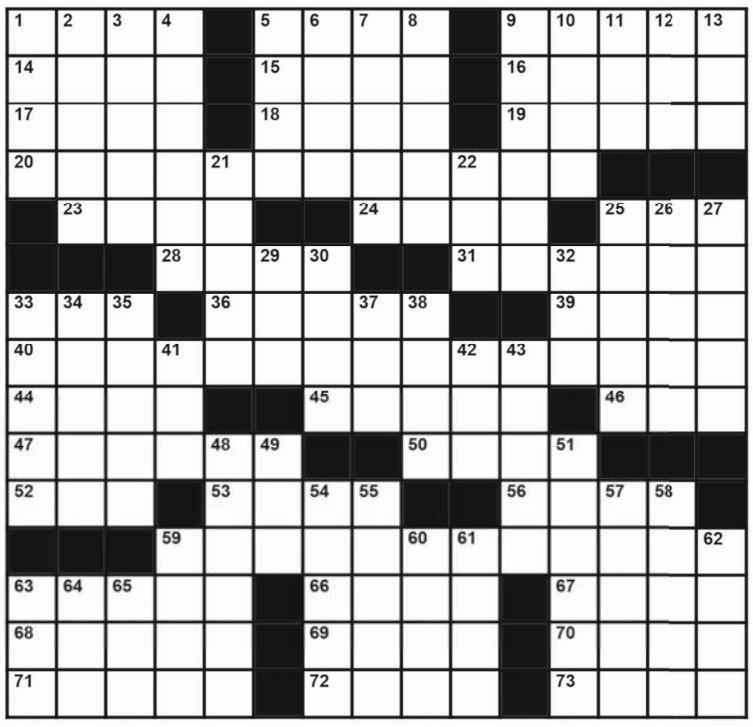
"Siracusa" follows two couples and a child on vacation in Italy. Told Rashomon-style with alternating points of view, the couples stumble upon lies and infidelities past and present. While "Siracusa" has the pace of a psychological thriller, it is also an exploration of marriage, motherhood, friendship and the meaning of travel. Ephron will also speak about her inspiration and writing process. Books will be available for sale and signing following the program.

Ephron's other writings include "The Lion In," "Hanging Up," "How to Eat Like a Child," "Do I Have to Say Hello?" and "Sister Mother Husband Dog (etc.)." Her films include "You've Got Mail," "The Sisterhood of the Traveling Pants," "Hanging Up" and "Michael." Her hit play, "Love, Loss, and What I Wore," ran for more than two years off-Broadway and has been performed all over the world.

The New York Times recently published an Ephron op-ed entitled, "After 54 Years, We Fell in Love. After Five Months, I Got Leukemia." She shares her story about the loss of her husband and finding love again with a man she met 54 years earlier, only to be diagnosed with leukemia weeks later after meeting her new love. Ephron is now in remission, married to her new love and back to writing for a living.

The Beverly Hills Public Library is located at 444 N. Rexford Drive. For information, visit beverlyhills.org/bhpl.

Crossword Puzzle by Myles Mellor



Across
1. Aaron ___ 1801-1805 vice president
5. She-bear and Great bear
9. Forming a bottom
14. Melody sung solo
15. Formative religion
16. Twinkle-toed
17. Conspiratorial clique
18. Corn units
19. Settle
20. Great works
23. Heed
24. Manhandle
25. Wheel center
28. Audience surprise reaction at a game
31. Real go-getter
33. Welsh rabbit ingredient
36. Embezzlement, e.g.
39. "___ Brockovich"
40. English composer
44. Charge
45. It may be fit for a queen
46. "Lucy in the ___ with dia monds" (Beatle song)
47. Street type
50. Lip or otherwise harmonize
52. Little bit
53. Honorariums
56. River across Manhattan from the Hudson
59. Williams character
63. Permeate
66. "Or ___!"
67. "Swimfan" character
68. Palace protectors
69. Carriage
70. Brought to maturity
71. Away
72. Annexes
73. Monster's home

Down
1. Brewers' yeast
2. Husband of Bath-sheba
3. Washer cycle
4. Disheveled
5. Conniver
6. Enjoy profits
7. Curtain fabric
8. Mixed up
9. Just
10. Life times
11. Bit of a draft
12. Chicken ___ king
13. ESPN sportscaster
21. Sister of Urania
22. Cow chew
25. Brings ill to
26. Inuit vessel
27. Good, in Edinburgh
29. Theater sound
30. Up or house?
32. Known as
33. Necktie
34. Jungle climber
35. Sinned
37. Missing persons investigators
38. After-dinner selection
41. "The ___ of Malta," Christopher Marlowe play
42. Hear
43. American swimmer Evans
48. All over again
49. "O.K."
51. Ankle-length cloak
54. Water retention
55. Sound
57. Box in
58. Corners
59. Mongrel
60. Spent
61. Stein and Stiller
62. Pass catchers
63. Intl. fund
64. Farm noise
65. Legal people

See Answers page 26

VINTAGE PARKLABREA NEWS

Bicyclists celebrated as they crossed the finish line in Los Angeles at the end of the California AIDS Ride in this photograph from the June 12, 1997 issue of the Park Labrea News and Beverly Press. The ride from San Francisco to Los Angeles raised approximately $9.4 million for services at the Los Angeles LGBT Center and the San Francisco AIDS Foundation. The annual ride, now called the AIDS/Life Cycle, is occurring this week. Cyclists will pedal along Santa Monica Boulevard on Saturday on their way to the finish line at Fairfax High School. The ride still benefits the Los Angeles LGBT Center and the San Francisco AIDS Foundation, and cyclists raised more than $15.1 million this year. For information, see page 3.

photo courtesy of the Los Angeles Museum of the Holocaust

Holocaust museum seeks volunteer docents

The Los Angeles Museum of the Holocaust is now accepting applications for its annual docent training program.

Volunteer docents lead tours for the thousands of students and other visitors who visit the museum every month. During the training, which begins on Sept. 27 and meets every Wednesday for 10 weeks, trainees will learn about the history of the Holocaust, become familiar with the museum's collection of exhibits, participate in tours, listen to lectures and master gallery teaching techniques.

The Los Angeles Museum of the Holocaust is located at 100 The Grove Drive. For information, contact the museum's director of education Jordanna Gessler at (323)651-9910 or jordanna@lamoth.org.

Renowned artist joins Angel Art

Renowned artist and philanthropist David Hockney has contributed two pieces of art to the annual Angel Art auction benefiting Project Angel Food.

Project Angel Food provides meals for thousands of men, women and children facing life-threatening illnesses. Now in its 21st year, the theme of this year's Angel Art is ART=LOVE. The event will be held at NeueHouse Hollywood, a private workspace located in the landmarked 1938 CBS Radio Building.

"We are honored by the generosity and creativity of this esteemed family of Angel Artists," said Michael Maloney, event chair. "Time and again, these amazing individuals have stepped up and contributed works from the heart to help Project Angel Food."

Hockney was born in England in 1937, attended the Royal College of Art and now resides in Los Angeles. He is a painter, draughtsman, printmaker, stage designer and photographer.

Over 50 artists have contributed this year with all live/silent lots available for viewing and bidding on the website Paddle8.

"Our organization needs over $10,000 each day to continue providing meals, and all proceeds from Angel Art directly fund the meal program," said Richard Ayoub, executive director of Project Angel Food. "We are especially grateful to City National Bank for their support this year."

For information, visit paddle8.com/auction/angel-art or angelfood.com/angelart.

NOTICE OF PUBLIC HEARING

The Beverly Hills City Council, at its regular meeting to be held on Tuesday, June 13, 2017, at 7:00 p.m., in the City Hall Council Chamber, 455 N. Rexford Drive, Beverly Hills, CA, will hold a public hearing to consider adoption of:

A RESOLUTION OF THE COUNCIL OF THE CITY OF BEVERLY HILLS APPROVING A MEMORANDUM OF UNDERSTANDING FOR THE FORMATION OF THE SANTA MONICA BASIN GROUNDWATER SUSTAINABILITY AGENCY

The proposed resolution would establish a Memorandum of Understanding (MOU) with Santa Monica, the Los Angeles Department of Water & Power (LADWP), Culver City, and Los Angeles County to form a Groundwater Sustainability Agency (GSA) for the Santa Monica Basin under the 2014 Sustainable Groundwater Management Act (SGMA). This legislative act empowers local agencies to adopt groundwater management plans tailored to the resources and needs of their communities. State legislation requires a formal public hearing to receive any public comment on the formation of a GSA via MOU approval.

Copies of the proposed resolution are available for review in the City Clerk's office, Room 290, 455 N. Rexford Drive, Beverly Hills. These documents can also be found on the City's website at www.beverlyhills.org/groundwater. Any interested person may attend the meeting and speak. Written comments may also be submitted and should be addressed to the City Council, c/o City Clerk, 455 N. Rexford Drive, Beverly Hills, CA, 90210. The comments should be received prior to the hearing date. If you need more information, please contact Caitlin Sims at (310) 285-2499.

Please note that if you challenge the Council's action in regard to this matter in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City, either at or prior to the public hearing.

BYRON POPE, CMC
City Clerk

Hollywood Fringe Fest spotlights grassroots productions

The Hollywood Fringe Festival, an annual open-access festival of plays celebrating freedom of expression and collaboration in the performing arts community, runs through June 25 at theaters and other venues throughout Hollywood.

Previews run from Thursday, June 1 through Tuesday, June 6 at numerous venues. An opening night party is on Wednesday, June 7 at 7:30 p.m. at Fringe Central, 6510 Santa Monica Blvd. The festival ends on Sunday, June 25, when awards and a closing party will be held at Fringe Central.

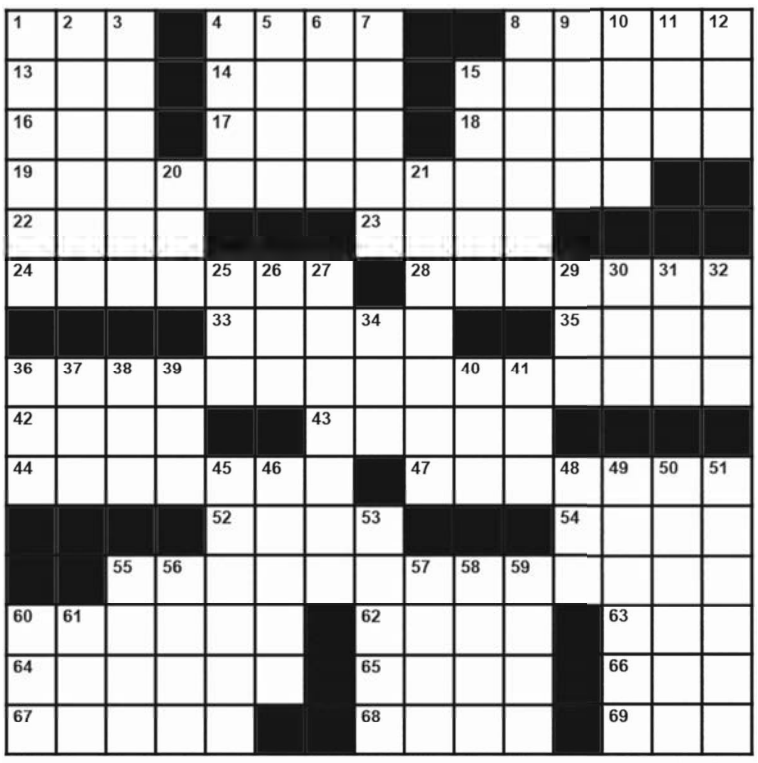
Fringe productions are held at theaters, parks, clubs, churches, restaurants and other locations. Hundreds of productions by local, national and international arts companies and independent performers are included.

Participation in the Hollywood Fringe Festival is open and uncensored. The "free-for-all approach" underscores the festival's mission to be a platform without barriers for artists.

Participating venues include the Actors Company Theater, the Assistance League Playhouse, the Greenway Court Theatre, Asylum, the Complex Theatres, the Hudson Theatres, the Lounge Theatre, the MET Theatre, the Montalban, the Los Angeles LGBT Center, the Loft, Three Clubs, Sacred Fools Theatre and many others.

The Hollywood Fringe Festival is a nonprofit organization. The festival gives 100 percent of box office revenue back to participating artists and venues. For a complete schedule and information, visit hollywoodfringe.org.

Crossword Puzzle by Myles Mellor



Across
1. Besides
4. Duds
8. Parrot landing
13. Bolt
14. "The Kite Runner" protagonist
15. Harsh
16. Ordinal-number ending
17. Nullify
18. Discredits
19. Orwell classic
22. Crescent shaped object
23. Pitch
24. Native
28. Urgent appeal
33. Buddhist who has attained Nirvana
35. Foe of the Iroquois
36. James classic
42. Inkling
43. Old-fashioned rewards
44. Honey or sugar
47. Compose a quick note
52. Put on
54. U.N. agency
55. DH Lawrence classic
60. Baby
62. Cancel
63. Potted
64. Powerful people
65. Was in debt
66. Back to square __
67. Crumbling
68. Hostels
69. Sticky beach problem

Down
1. Go from 3 to 9, say
2. Surpass
3. Present
4. Was philanthropic
5. Word of agreement
6. Confirmation, e.g.
7. Foreheads
8. Jewels from oysters
9. Satanical
10. Sever
11. PC component
12. Guys
15. Lifted, so to speak
20. Victory sign
21. Like platypuses and otters
25. Scratch
26. 401(k) alternative
27. Idle fancy
29. Seafood selection
30. Artistic period
31. British agency
32. Attention-getting call
34. Ingested
36. Card spot
37. Words of honor?
38. Expose to moisture
39. Brown color
40. Organization for health issues
41. Fool
45. Sun shade
46. Parter of the Red Sea
48. Subject of Philadelphia
49. Leopard-like cat
50. Hot breakfast cereal
51. Encourage
53. End of poem
55. A Pharaoh
56. Muscat's land
57. Descending
58. Legal claim
59. Handicap
60. School/parent group for student's welfare
61. Fake

See Answers page 26

VINTAGE
PARKLABREA NEWS

Pink's Hot Dogs celebrated its 60th anniversary in this photograph from the Nov. 18, 1999 issue of the Park Labrea News and Beverly Press. Pink's celebrated the anniversary by rolling back prices on its hot dogs to 60 cents for 60 minutes starting at 6 p.m. for 10 days from Nov. 16-26. Hundreds of customers lined La Brea Avenue during the celebration, which also featured daily appearances by celebrities and dignitaries, such as television host Huell Howser and former Los Angeles Mayor Richard Riordan. The Hollywood Chamber of Commerce is honoring Pink's Hot Dogs today, June 1, with a "Heroes of Hollywood" award during a ceremony at the Taglyan Cultural Complex at 1201 Vine St. For information, see page 10.

photo courtesy of Sébastien Assoignons

Cedars-Sinai Medical Center kidney researcher honored

Stanley C. Jordan (center), director of the Division of Nephrology and medical director of the Kidney Transplant Program at Cedars-Sinai, accepted the Jean Hamburger Award at the World Congress of Nephrology in April. It is the most prestigious award given by the nephrology society for research benefiting kidney patients.

"It is a great honor, and humbling to me personally, to have our work recognized as being among the best in nephrology and immunology," Jordan said. "Dr. Jean Hamburger was a major force in the early development of transplantation immunology. It is a privilege to carry on that tradition."

Jordan's groundbreaking work in transplant immunology led to the development of drug therapy protocols that significantly reduce the risk that a kidney transplant patient's immune system will reject the new organ. Decades of Jordan's research and collaboration with colleagues in pharmacology have improved the treatment of organ transplant patients around the world.

"Dr. Jordan is a pioneering clinician researcher who has advanced the field of organ transplantation by discovering a way to expand the size of the donor pool by reducing the risk that a patient's body will reject a donated organ," said Leon Fine, vice dean of research and graduate research education at Cedars-Sinai.

Jordan was also honored this month by the American Society of Transplantation, receiving the Senior Achievement Award in Clinical Transplantation.

"These awards distinguish him among a field of internationally prominent scientists and are high tributes to the quality and relevance of his research," Fine said.

NOTICE OF PUBLIC HEARING

The Beverly Hills City Council, at its regular meeting to be held on Tuesday, June 13, 2017, at 7:00 p.m., in the City Hall Council Chamber, 455 N. Rexford Drive, Beverly Hills, CA, will hold a public hearing to consider adoption of:

A RESOLUTION OF THE COUNCIL OF THE CITY OF BEVERLY HILLS APPROVING A MEMORANDUM OF UNDERSTANDING FOR THE FORMATION OF THE SANTA MONICA BASIN GROUNDWATER SUSTAINABILITY AGENCY

The proposed resolution would establish a Memorandum of Understanding (MOU) with Santa Monica, the Los Angeles Department of Water & Power (LADWP), Culver City, and Los Angeles County to form a Groundwater Sustainability Agency (GSA) for the Santa Monica Basin under the 2014 Sustainable Groundwater Management Act (SGMA). This legislative act empowers local agencies to adopt groundwater management plans tailored to the resources and needs of their communities. State legislation requires a formal public hearing to receive any public comment on the formation of a GSA via MOU approval.

Copies of the proposed resolution are available for review in the City Clerk's office, Room 290, 455 N. Rexford Drive, Beverly Hills. These documents can also be found on the City's website at www.beverlyhills.org/groundwater. Any interested person may attend the meeting and speak. Written comments may also be submitted and should be addressed to the City Council, c/o City Clerk, 455 N. Rexford Drive, Beverly Hills, CA, 90210. The comments should be received prior to the hearing date. If you need more information, please contact Caitlin Sims at (310) 285-2499.

Please note that if you challenge the Council's action in regard to this matter in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City, either at or prior to the public hearing.

BYRON POPE, CMC
City Clerk

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
COUNTY OF LOS ANGELES

I am a resident of Los Angeles County, over the age of 18 years of age and not a party to or interested in the matter noticed.

The notice, of which the annexed is a printed copy appeared in the

L.A. TIMES

on the following dates:

5/3 5/9

I certify (or declare) under penalty of perjury that the following is true and correct.

Dated at Los Angeles, California on

05/09/17

Signature

CUST REF 3155

Cal-Net Legal Advertising

California Network of Community Newspapers

A Division of Metropolitan News Company

P.O. Box 60859, Los Angeles, CA 90060
Phone: (213) 346-0039 Fax: (213) 687-6509

CN # 00937173 CUST # 012279

Proof of Publication of

NOTICE OF PUBLIC HEARING FOR IMPLEMENTATION OF THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT IN THE COUNTY OF LOS ANGELES

Notice is hereby given pursuant to Section 10723(b) of the California Water Code and Section 6066 of the California Government Code that the County of Los Angeles Board of Supervisors, as the governing body of the County of Los Angeles, Los Angeles County Waterworks District No. 36, Val Verde, Los Angeles County Waterworks District No. 37, Acton, and Los Angeles County Waterworks District No. 40, Antelope Valley, will hold a public hearing on May 23, 2017, at 9:30 a.m., in Room 381B, Kenneth Hahn Hall of Administration, 500 West Temple Street, Los Angeles, California 90012, in the matter of implementation of the Sustainable Groundwater Management Act (SGMA) in Los Angeles County. The purpose of the public hearing will be to hear comments from the public regarding the County's proposed formation of multiple Groundwater Sustainability Agencies (GSAs) in portions of Antelope Valley Basin 6-044, Santa Clara River Valley East Basin 4-004.07, and Coastal Plain of Los Angeles Basin - Santa Monica 4-011.01. At the end of the public hearing, the Board may adopt, revise or modify a resolution of the intent to become the GSAs in any of these basins and to submit notification to the California Department of Water Resources, which shall be posted pursuant to Section 10733.3 of the California Water Code. The notification will include a description of the proposed boundaries of the GSA and the portions of those basins the County intends to manage pursuant to the SGMA. The Board of Supervisors will consider and may approve the actions to implement the SGMA as recommended by the Director of Public Works and the Director of Regional Planning. For further information regarding this matter, please call (626) 300-3300.
CN937173 03155
May 3,9, 2017

Esoteric Astrology as news for week May 17 – 23, 2017

ARIES: You may be dreaming more often, feeling more instinctive, sometimes confused, sensitive, inspired and insightful. Prayer, meditation, study, contemplation are good for you. They create compassion and a deeply caring way of being. When you find yourself in a group calling you to leadership to help create the future the needed skills, tools and virtues appear. The new world is what you are to initiate.

TAURUS: You have one task now – a focus upon health. Tend to joints and bones and your heart, taking more calcium/magnesium, not allowing anxiety or stress, eating calming foods. Swimming in warm salt pools is recommended. Use practicality to care for yourself. You must choose daily – to be out and about socially, leading everyone into the future, or remaining at home, in the garden building toward perfect health. Begin each day facing the early morning Sun. Eyes wide open.

GEMINI: Something revelatory happens between you and the world, you and work, and you and certain groups. You're inspired, encouraged and guided. With careful study, years of preparation, and viewing the past in terms of cultivating your gifts, a spiritual pathway opens. Choices and commitments are more easily made, and gratitude settles in your heart. The next festival is the Gemini festival of Goodwill. Plan to participate.

CANCER: What have you been sensing, feeling and thinking of during these spring festivals? Do you feel you're being introduced to new qualities within yourself, a new identity emerging? Do these days make you feel generous and at home? Is there a new reality or interest presenting itself? You want to participate fully. But you know it's not quite the right timing. Are you gardening, redecorating, expanding your foundation? Love is close by.

LEO: You're becoming more perceptive, intuitive and enlightened and this affects those you work with. Someone, something (words, ideas, memories of someone in particular) will create a shift into greater and deeper awareness of how you have related in previous relationships. Your mind sorts through ideas of intimacy, money, sadness sometimes, and old dreams. Love is good, all the time, even when it hurts, which means you're learning.

VIRGO: You will relate better with others, especially those close to you, if you offer love as unqualified and unconditional. This is something many of us need yet to learn. We don't quite know how to love. But when we do so, we flourish and thrive and discover greater support and the needed guidance. Challenging others doesn't work. Curiosity, listening, care and compassion do. They nourish all hearts.

LIBRA: Think, visualize and pray daily for all that you want and need your life to be. Include art, creativity and loving relationships partnerships. If you're not sure of your needs, ask yourself each day, "What are my hopes, dreams and wishes? What are my abilities and gifts?" In the coming months, you become stronger, more resilient. Take cautionary care with money and resources. You need fishes in a fish bowl and an apricot canary.

SCORPIO: Use your resources and investments in terms of preparing for the future. Find a forward-thinking money manager. Think seriously about a new economy needing to unfold. It will look much different than our present one. Don't speculate in the old economy. Consider precious metals. Study books on greenhouses and bio-shelters and the resources needed to create these environments. You then become forward thinking.

SAGITTARIUS: The planets are affecting your sense of self, your identity, your money, your family, home situation, creativity and possibilities in terms of relationships, partnerships, and for some, marriage. So many different realities pulsing about. Something kind and benevolent, something sacrificial and sad is remembered in your family. Are relatives and loved ones on your mind? Your remembering creates the needed relinquishment.

CAPRICORN: You're thinking optimistically about doing something new about who you are in the world, your talents and gifts. You want to bring more grace, goodness, ease and beauty to your life and the life of humanity. You recognize everyone's doing their very best, especially you, and you're asking for more opportunities in the world. Begin writing (journaling) in earnest and even drawing how you want to serve the world. This is your next creative endeavor.

AQUARIUS: Money and resources are going through a definite change. You want adequate money in order to stabilize yourself in the future. This means more attention to the well-being of your finances. Don't forget to always help others. When we serve others, our needs are always taken care of. The charts show a focus on home, past, present and future. Follow what calls to you. It loves you.

PISCES: Neptune in Pisces brings forth revelations and visions and, at times, confusion. Neptune blends many realities into one reality and specifics dissolve away. Be aware and observe this occurring. Neptune is not the planet of detail. It's the planet of refinement, of parting the veils, of creative imagination and realms where dreams come true. Neptune transits can make us experience exhaustion. Magnesium, Vitamins A, B & D3 help stabilize the body. Tend carefully to health in these times.

Legal Notices-CC

COUNTY OF LOS ANGELES
DEPARTMENT OF THE TREASURER AND TAX COLLECTOR

NOTICE OF DIVIDED PUBLICATION
Made pursuant to Revenue and Taxation Code Section 3381

Pursuant to Revenue and Taxation Code Sections 3381 through 3385, the Notice of Power to Sell Tax-Defaulted Property Subject to the Tax Collector's Power to Sell in and for the County of Los Angeles, State of California, has been divided and distributed to various newspapers of general circulation published in the County. A portion of the list appears in each of such newspapers.

NOTICE OF IMPENDING POWER TO SELL TAX-DEFAULTED PROPERTY
Made pursuant to Revenue and Taxation Code Section 3361

Notice is hereby given that the following parcels listed will become Subject to the Tax Collector's Power to Sell on Saturday, July 1, 2017, at 12:01 a.m. (Pacific Time), by operation of law. The real property taxes and assessments on the parcels listed will have been defaulted five or more years, except for:

1. Nonresidential commercial parcels, which will have been defaulted for three or more years.

2. Parcels on which a nuisance abatement lien have been recorded, which will have been defaulted for three or more years.

3. Parcels that can serve the public benefit and a request has been made by Los Angeles County, a city within Los Angeles County, or nonprofit organization to purchase the parcels through Chapter 8 Agreement Sales, which will have been defaulted for three or more years.

The Tax Collector will record a Notice of Power to Sell unless the property taxes are paid in full or the property owner initiates an installment plan of redemption, as provided by law, prior to 5:00 p.m. (Pacific Time), on Friday, June 30, 2017. The right to initiate an installment plan terminates on Friday, June 30, 2017. Thereafter, the only option to prevent the sale of the property at public auction is to pay the taxes in full.

The right of redemption survives the property becoming Subject to the Tax Collector's Power to Sell, but it terminates at 5:00 p.m. (Pacific Time) on the last business day before the scheduled auction of the property by the Tax Collector.

The Treasurer and Tax Collector's Office will furnish, upon request, information concerning making a payment in full or initiating an installment plan of redemption. For more information, please visit our website at ttc.lacounty.gov.

The amount to redeem the property, in United States dollars and cents, is set forth in the listing opposite each parcel number. This amount includes all defaulted taxes, penalties, and fees that have accrued from the date of tax-default to the date of Friday. June 30, 2017.

I certify, under penalty of perjury, that the foregoing is true and correct. Dated this 8th day of May, 2017.

JOSEPH KELLY
TREASURER AND TAX COLLECTOR
COUNTY OF LOS ANGELES
STATE OF CALIFORNIA

PARCEL NUMBERING SYSTEM EXPLANATION

The Assessor's Identification Number, when used to describe property in this list, refers to the Assessor's map book, the map page, the block on the map, if applicable, and the individual parcel on the map page or in the block. The Assessor's maps and further explanation of the parcel numbering system are available in the Assessor's Office, 500 West Temple Street, Room 225, Los Angeles, California 90012.

The real property that is the subject of this notice is situated in the County of Los Angeles, State of California, and is described as follows:

PROPERTY TAX DEFAULTED IN YEAR 2014 FOR TAXES, ASSESSMENT, AND OTHER CHARGES FOR FISCAL YEAR 2013-2014
1738 $516.3
PLASENCIA,JUAN AIN: 4220-009-039
1743 $1,149.63 APOSTOLIC ASSEMBLY OF THE FAITH IN CHRIST JESUS SITUS:421 S CENTINELA AVE LOS ANGELES CA 90066-5804 AIN 4232-011-008
1744 $126.62 APOSTOLIC ASSEMBLY OF THE FAITH IN CHRIST JESUS SITUS:420 S CENTINELA AVE LOS ANGELES CA 90066-5804 AIN 4232-011-009
PROPERTY TAX DEFAULTED IN YEAR 2012 FOR TAXES ASSESSMENT, AND OTHER CHARGES FOR FISCAL YEAR 2011-2012
1722 $19,239.5
DHARIA,VIKAS SITUS:562 SUMNER WAY CULVER CITY CA 90230-6863 AIN: 4134-009-103
1735 $14,361.2
BEYTIN,ABRAHAM R TR BEYTIN TRUST SITUS:1081 LINDBLADE ST CULVER CITY CA 90230-3742 AIN 4210-023-011
1737 $3,876.0
ROMERO,OLGA SITUS:1188 BRAY ST LOS ANGELES CA 90230-6008 AIN: 4218-016-026
1745 $26,561.4
VICKERY,JOHN E TR MARILYN L GILBERT TRUST SITUS:11404 BIONA DR LOS ANGELES CA 90066-3308 AIN: 4234-008-040
1746 $5,324.7
HENDERSON,MELVIN AND MARY TRS M AND M HENDERSON TRUST SITUS:13351 ZANJA ST LOS ANGELES CA 90066-4165 AIN: 4236-009-037
1753 $37,285.8
BERGAMINI,ROMY A AND DIANA L SITUS:3509 ST SUSAN PL LOS ANGELES CA 90066-2111 AIN: 4249-033-008
1762 $16,703.5
NOONAN,LLOYD JR SITUS:7119 RAINTREE CIR CULVER CITY CA 90230-4411 AIN: 4296-006-003
1763 $3,231.8
WAYNE,GLORIA J SITUS:8312 SUMMERTIME LN CULVER CITY CA 90230-4577 AIN: 4296-011-156
PROPERTY TAX DEFAULTED IN YEAR 2010 FOR TAXES ASSESSMENT, AND OTHER CHARGES FOR FISCAL YEAR 2009-2010
1752 $2,608.63 GRANT,ROLY C TR,GRANT FAMILY TRUST SITUS:12420 ROSE AVE LOS ANGELES CA 90066-1516 AIN: 4247-023-001
CN937708 516 May 18,25 2017

Culver City News
5/18,25/2017 - 68927

City of Culver City
Official Courtesy Notification

Announcement of the Application Period for Culver City Commission, Committee, and Board Appointments

The City Clerk's Office is pleased to announce the application period for 2017 Culver City Commission, Committee, and Board appointments.

Applications will be accepted by the City Clerk's Office beginning Monday, April 3rd until Thursday, May 25, 2017 at 5:00 PM. Late applications may not be accepted.

Eighteen (18) Openings are available on the Civil Service Commission (1); Committee on Homelessness (4); Cultural Affairs Commission (2); Fiesta La Ballona (1); Landlord Tenant Mediation Board (1 Tenant, 2 Landlord, and 1 Member-at-Large); Los Angeles Airport (LAX) Area Advisory Committee (1); Parks, Recreation and Community Services Commission (2); Planning Commission (2); and West Los Angeles Vector Control Board (1).

The City Clerk's Office encourages all interested persons to apply for all positions in which they have an interest!

City Council plans to interview applicants at a special meeting on Tuesday, June 6, 2017. Appointments for these openings, which have different start/end dates, are tentatively scheduled to be considered by the City Council on Monday, June 12, 2017. New appointees will be required to attend a Brown Act /AB1234 (Ethics) training on Thursday, June 29, 2017 between 6-9pm. Please save these dates if applying.

Applicants are also encouraged to reach out to City Council members, whose contact information is located on the Culver City website: http://www.culvercity.org/city-hall/city-council.

Applicants can complete and submit applications online at www.culvercity.org/serve.

Applications and additional information are also available in person during business hours from the City Clerk's Office, located on the first floor at City Hall (9770 Culver Boulevard); may be requested by phone at (310) 253-5851, or can be downloaded from the website at www.culvercity.org to complete by hand. Business hours are 7:30 A.M. - 5:30 P.M. City Hall is closed on the following alternate Fridays during the application period: April 14, 28, and May 12, 2017.

Applications will be accepted online, in person, by mail, by fax to 310.253.5830, or electronically via email to city.clerk@culvercity.org.

City of Culver City
Official Notification of Public Hearing

Discussion and Approval of the Formation of a Groundwater Sustainability Agency

The City Council is pleased to invite your participation in a public hearing regarding:

WHAT: **Adoption of a Resolution Authorizing the City to Become a Member of the Groundwater Sustainability Agency for the Santa Monica Groundwater Basin in Concert with Santa Monica, Los Angeles, Beverly Hills and the County of Los Angeles, Pursuant to the Sustainable Groundwater Management Act and Approval of a Memorandum of Understanding Related to the City's Participation in the SMBGSA**

WHERE: Mike Balkman Council Chambers
Culver City City Hall
9770 Culver Boulevard
Culver City, CA 90232

WHEN: Tuesday, May 30, 2017 – 7:00 PM

MORE INFO.: Persons who are unable to attend the meeting but wish to provide City Council with written comment may do so by any of the following means BEFORE 4:00 p.m. on Tuesday, May 30, 2017:

1. By LETTER to the City Clerk, City of Culver City, 9770 Culver Blvd., Culver City, CA 90232;
2. By FAX to the City Clerk at 310-253-5830; or
3. By E-MAIL to city.clerk@culvercity.org.

The City Council Agenda Item Report will be available for viewing on the City's website on or after May 24, 2017 at www.culvercity.org.

If you have any questions regarding this matter, please contact Charles D. Herbertson, Public Works Director, at (310) 253-5635 or charles.herbertson@culvercity.org.

*You may sign up for the City's E-Mail Notification System by logging onto www.culvercity.org or calling the City Clerk's Office at 310-253-5851. A USPS notification system is also available. They are both FREE!

Esoteric Astrology as news for week May 10 - 17

ARIES: In these special and sacred days, tend to all promises, follow all rules, act like a Taurus (which may feel a bit restrictive) and make sure that no aversion or opposition colors your attitude and ways of being with others. Honor is most important and one progresses more easily when the virtues of patience, understanding and grace are cultivated. Like a garden of graces.

TAURUS: Your energy is up and down, high and low, there and not there. Your responsibilities however remain and each day more and more appear. You would rather turn away, find friends to chat with, take short trips to the bank and back, garden, and either envision or research all that's needed for the future. When responsibilities and the need for freedom collide, it's best to simply focus on goals. Or garden. Then you can continue to dream.

GEMINI: Heavens! There are two distinctly polarized situations occurring. One keeps you behind the scenes and the other out in the world where all your values can be seen. So you talk about them because they define you. However, you're also pulled into quietude and silence, a sort of repose before the storm of new Gemini energy coming. Perhaps it's a lot of praise. Or a move. Or a revelation.

CANCER: You consider your resources and wonder if they need redirecting and you wonder if you're using them efficiently for both long and short term needs and then family needs crop up and you worry and fret and don't sleep nights and the past reappears and you're hurting sometimes and sometimes need help. It's hard to ask for help. And hard to trust it will come. But ask. It will.

LEO: Each day more clarity about work and purpose and resources occurs and each day you feel more courage to pursue unusual goals, to fight for what's right, to realize that a values shift is taking place in your life and this shift may create a future you only hoped for. Your hopes are calling up all the hidden dreams and wishes you've ever had. They ask you to follow and open your heart of twelve petals.

VIRGO: The past years have been perplexing, puzzling, demanding and challenging. There's been a shifting of structures, a sense of being captured by a taskmaster giving you many responsibilities to tend to. After all responsibilities are completed and lessons learned you will feel freedom and relief from the taxing demands and tests You should quietly celebrate. And tend now to that new state of awareness growing within.

LIBRA: A more strict and sober view of life is quietly taking hold of your thoughts and feelings. This is good. However, it could feel restrictive. Simply consider it as another step in growing up, being responsible, learning how to tend to the demands of life and how to act with more grace and refinement. There's a struggle for balance, a struggle to be heard and understood. There is no compromise. Be strong and call forth daring, valor and courage.

SCORPIO: You had obligations and responsibilities. Then your dreams came and nestled amidst your obligations. And you had to choose. And then relationship issues (questions?) cropped up and you had more than you could handle. Something is changing you. It's pushing you to break the mold and all previous patterned ways of being. Follow this urging. It's a call from your future compelling you onward. Don't resist.

SAGITTARIUS: Tremendous work was called for this month and it will continue. If you take each day and work slowly through it (like a Taurus), then you will come to the end of each day with feelings of great success and pride of accomplishment. First the Dweller then the Angel of the Presence contacts you. Tend to resources (you as resource) and money very carefully. Be prepared, after a small respite, for new creative endeavors to appear. Rest now.

CAPRICORN: Your creative force can be found in the garden, woods, fields and meadows. It can be found with hands in the earth, growing plants with deep roots, and building a pantry filed with sweet and savory edibles. These comforts will safeguard you in the times to come. Are you called to be out and about and present something to the world? You work hard for all that you have. There's so much good around you to be passionate about.

AQUARIUS: The focus is on communication, how and with whom. It's also on short distance travels, here and there. And siblings. And how you learn. Are many people in your life seeking your attention? Do you feel a bit jittery and unsure, then both delighted and confused (wondering about the future)? Don't be unkind to those who disagree or think at a different pace than you. You want both beauty and security with all interactions and relationships.

PISCES: You are being urged into a new state of independence. Know that you are fully capable and have the essential qualities and gifts to rely upon yourself, to move forward into your future and make correct decisions based upon your needs and no longer the needs of others. Courage is presenting itself. Wear it like a shawl, a mantle and a crown.

CULVER CITY PUBLIC NOTICES

Legal Notices-CC

ORDER TO SHOW CAUSE FOR CHANGE OF NAME YS029770

TO ALL INTERESTED PERSONS: Petitioner: MAYRA ALEJANDRA GOMEZ filed a petition with this court for a decree changing names as follows: MAYRA ALEJANDRA GOMEZ to KYLE GABRIELLE KESSLER.

THE COURT ORDERS that all persons interested in this matter shall appear before this court at the hearing indicated below to show cause, if any, why the petition for change of name should not be granted. Any person objecting to the name changes described above must file a written objection that includes the reasons for the objection at least two court days before the matter is scheduled to be heard and must appear at the hearing to show cause why the petition should not be granted. If no written objection is timely filed, the court may grant the petition without a hearing.

NOTICE OF HEARING
June 9, 2017
8:30 a.m., Dept. B
Superior Court
825 Maple Avenue
Torrance, CA 90503

A copy of this Order to Show Cause shall be published at least once each week for four successive weeks prior to the date set for hearing on the petition in the following newspaper of general circulation, printed in this county: Culver City News

DATE: MAR 01 2017
ERIC C. TAYLOR
Judge of the Superior Court
Culver City News-50928
4/20,27,5/4,11/2017

NOTICE OF PETITION TO ADMINISTER ESTATE OF ISABEL PRECIADO Case No. 17STPB03493

To all heirs, beneficiaries, creditors, contingent creditors, and persons who may otherwise be interested in the will or estate or both, of IS-ABEL PRECIADO

A PETITION FOR PROBATE has been filed by Carol Neese in the Superior Court of California, County of LOS ANGELES.

THE PETITION FOR PROBATE requests that Carol Neese be ap-pointed as personal representative to administer the estate of the dece-dent.

THE PETITION requests authority to administer the estate under the Independent Administration of Estates Act. (This authority will allow the personal representative to take many actions without obtaining court approval. Before taking certain very important actions, however, the personal representative will be required to give notice to interested persons unless they have waived notice or consented to the proposed action.) The independent administration authority will be granted unless an interested person files an objection to the petition and shows good cause why the court should not grant the authority.

A HEARING on the petition will be held on May 22, 2017 at 8:30 AM in Dept. No. 11 located at 111 N. Hill St., Los Angeles, CA 90012.

IF YOU OBJECT to the granting of the petition, you should appear at the hearing and state your objections or file written objections with the court before the hearing. Your appearance may be in person or by your attorney.

IF YOU ARE A CREDITOR or a contingent creditor of the decedent, you must file your claim with the court and mail a copy to the personal representative appointed by the court within the later of either (1) four months from the date of first issuance of letters to a general personal representative, as defined in section 58(b) of the California Probate Code, or (2) 60 days from the date of mailing or personal delivery to you of a notice under section 9052 of the California Probate Code.

Other California statutes and legal authority may affect your rights as a creditor. You may want to consult with an attorney knowledgeable in California law.

YOU MAY EXAMINE the file kept by the court. If you are a person interested in the estate, you may file with the court a Request for Spe-cial Notice (form DE-154) of the filing of an inventory and appraisal of estate assets or of any petition or account as provided in Probate Code section 1250. A Request for Special Notice form is available from the court clerk.

Attorney for petitioner:
VICTORIA VELARDE ESQ SBN 177998
LAW OFFICES OF VICTORIA VELARDE
400 CORPORATE POINTE STE 560
CULVER CITY CA 90230
CN937230 PRECIADO Apr 27, May 4,11, 2017
Culver City News-4/27,5/4,11/2017-51361

City of Culver City
Official Notification of Public Hearing

Discussion and Approval of the Formation of a Groundwater Sustainability Agency

The City Council is pleased to invite your participation in a public hearing regarding:

WHAT: Adoption of a Resolution Authorizing the City to Become a Member of the Groundwater Sustainability Agency for the Santa Monica Groundwater Basin in Concert with Santa Monica, Los Angeles, Beverly Hills and the County of Los Angeles, Pursuant to the Sustainable Groundwater Management Act and Approval of a Memorandum of Understanding Related to the City's Participation in the SMBGSA

WHERE: Mike Balkman Council Chambers
Culver City City Hall
9770 Culver Boulevard
Culver City, CA 90232

WHEN: Tuesday, May 30, 2017 – 7:00 PM

MORE INFO.: Persons who are unable to attend the meeting but wish to provide City Council with written comment may do so by any of the following means BEFORE 4:00 p.m. on Tuesday, May 30, 2017:

1. By LETTER to the City Clerk, City of Culver City, 9770 Culver Blvd., Culver City, CA 90232;
2. By FAX to the City Clerk at 310-253-5830; or
3. By E-MAIL to city.clerk@culvercity.org.

The City Council Agenda Item Report will be available for viewing on the City's website on or after May 24, 2017 at www.culvercity.org.

If you have any questions regarding this matter, please contact Charles D. Herbertson, Public Works Director, at (310) 253-5635 or charles.herbertson@culvercity.org.

*You may sign up for the City's E-Mail Notification System by logging onto www.culvercity.org or calling the City Clerk's Office at 310-253-5851. A USPS notification system is also available. They are both FREE!

NOTICE OF CITY COUNCIL PUBLIC HEARING – FORMATION OF GROUNDWATER SUSTAINABILITY AGENCY (GSA) FOR THE SANTA MONICA BASIN

DATE OF MEETING: TUESDAY, MAY 9, 2017
TIME OF MEETING: 5:30 P.M.
PLACE OF MEETING: COUNCIL CHAMBERS, CITY HALL ROOM 213
1685 MAIN STREET
SANTA MONICA, CA 90401

Notice is hereby given that the Council of the City of Santa Monica will conduct a public hearing, as part of a regularly scheduled Council meeting, to consider authorizing the City to participate in the formation of a Groundwater Sustainability Agency (GSA) governed by a Memorandum of Understanding with the Los Angeles Department of Water and Power, City of Beverly Hills, Culver City, and Los Angeles County over the Santa Monica Basin, in accordance with the Sustainable Groundwater Management Act ("SGMA")(California Water Code sections 10720 et seq.)

In September 2014, the California legislature enacted SGMA to require sustainable groundwater management statewide. Implementation of SGMA is achieved through the formation of GSAs and the preparation and implementation of Groundwater Sustainability Plans (GSPs).

As the primary municipal producer of groundwater from the Santa Monica Basin, the City of Santa Monica would serve as the coordinating agency for the GSA. Santa Monica currently sources approximately 75% of its potable water provided to over 18,000 residential, commercial and institutional water accounts from the Santa Monica Basin, which extends into Beverly Hills, Culver City and Los Angeles. The Santa Monica Basin is designated as a "medium priority" basin by the California Department of Water Resources and is subject to SGMA requirements.

Once the GSA is formed, the City and other entities listed above would jointly develop and implement a GSP that provides a roadmap for managing Santa Monica Basin groundwater on a sustainable basis. Becoming a GSA will allow the participating local agencies to manage the groundwater resources in the Santa Monica Basin more effectively, and preserve access to grant funding or other opportunities that may be available only to GSAs.

The City of Santa Monica is seeking community comments on the proposed Santa Monica Basin GSA Memorandum of Understanding. Copies are available to the public for a community review period ending May 9, 2017 at City Hall, Santa Monica public libraries and on the web at http://www.smgov.net/departments/publicworks/water.aspx.

For additional information or to submit comments, please contact Santa Monica Water Resources Manager Gil Borboa by May 9, 2017 at (310) 458-8230 or via e-mail at: gil.borboa@smgov.net. Correspondence may be addressed to the Water Resources Division at 1212 5th Street, 3rd Floor, Santa Monica, CA 90401. Comments may also be provided in person to the City Council on May 9, 2017.

City Hall Council Chambers are wheelchair accessible. If you have any special disability-related needs/accommodations, including alternative formats of the proposed GSA Memorandum of Understanding, please contact the Water Resources Division.

PRESIDENT
Ross Furukawa
ross@smdp.com

PUBLISHER
Rob Schwenker
schwenker@smdp.com

EDITOR IN CHIEF
Matthew Hall
matt@smdp.com

STAFF WRITERS
Marina Andalon
marina@smdp.com
Kate Cagle
kate@smdp.com

STAFF PHOTOGRAPHER
Morgan Genser
editor@smdp.com

ACCOUNT EXECUTIVE
Andrew Oja
Andrew@smdp.com

CONTRIBUTING WRITERS
David Pisarra, Charles Andrews, Jack Neworth, Sarah A. Spitz, Cynthia Citron, Margarita Rozenbaoum

PRODUCTION MANAGER
Darren Ouellette
production@smdp.com

OPERATIONS/ CIRCULATION/LEGAL SERVICES MANAGER
Josh Heisler
josh@smdp.com

CIRCULATION
Keith Wyatt
josh@smdp.com
Ashling Holliday
josh@smdp.com

To advertise in the Santa Monica Daily Press in print or digital, please call 310-458-7737 or email schwenker@smdp.com

Santa Monica Daily Press
1640 5th Street, Suite 210
Santa Monica, CA 90401
OFFICE (310) 458-PRESS (7737)
FAX (310) 576-9913

smdp Santa Monica Daily Press

The Santa Monica Daily Press publishes Monday - Saturday with a circulation of 10,000 on weekdays and 11,000 on the weekend. The Daily Press is adjudicated as a newspaper of general circulation in the County of Los Angeles and covers news relevant to the City of Santa Monica. The Daily Press is a member of the California Newspaper Publisher's Association, the National Newspaper Association and the Santa Monica Chamber of Commerce. The paper you're reading this on is composed of 100% post consumer content and the ink used to print these words is soy based. We are proud recipients of multiple honors for outstanding news coverage from the California Newspaper Publishers Association as well as a Santa Monica Sustainable Quality Award.

Published by Newlon Rouge, LLC

AWARD WINNER AWARD WINNER WINNER

COMMUNITY BRIEFS

LOS ANGELES

Suspected Los Angeles shooter arrested

A man suspected of shooting at a passing motorist in downtown Los Angeles was taken into custody on Monday after initially refusing to come out of an apartment building for hours.

Police converged on a downtown Los Angeles apartment building Monday afternoon as they searched for a man who they believe shot at a passing motorist before running inside the building.

Los Angeles police Detective Meghan Aguilar said the man was taken into custody about four hours after police responded to a call reporting gunshots at 8th Street and Santee Street.

Los Angeles police officers were first called to the city's fashion district after receiving a 911 call reporting gunshots in the area shortly before noon.

When officers arrived, they were told that a man had shot at a passing vehicle, police spokesman Josh Rubenstein said.

Officers were unable to locate the car and did not find any victims.

The officers were able to obtain a photograph of the suspect and tracked him to a nearby apartment building, Rubenstein said.

He refused to come out at first, but hours later told police he wanted to surrender.

Aguilar said police recovered a gun on the roof of an adjacent apartment building.

– ASSOCIATED PRESS

Sacramento

California road repair deal will raise gas tax, vehicle fees

Fuel taxes and vehicle fees are set to increase for California residents after state lawmakers passed a major transportation funding deal championed by the governor. The legislation, known as SB1, aims to raise $52.4 billion over 10 years to fix a massive backlog in road and bridge repairs. Only one Republican in the Legislature voted for the measure, with opponents saying the state already collects plenty of money but has diverted it to other uses.

Here's where the money would come from:

– $24.4 billion by raising gasoline excise taxes. In November, the tax will increase 12 cents per gallon, or 43 percent above the current rate of 27.8 cents, and it will continue to rise over the next few years. The total California gas tax is projected to be approximately 46.7 cents in July 2018 and 47.3 cents in July 2019. Starting in 2020, the tax will change with inflation.

– $7.3 billion by raising the current 16-cent-a-gallon diesel excise tax by 20 cents – a 125 percent increase.

– $3.5 billion by increasing the state diesel sales tax from 9 percent to 13 percent.

– $16.3 billion from an annual transportation improvement fee based on a vehicle's value, similar to what owners already pay annually to the state Department of Motor Vehicles. The fees range from $25 for vehicles valued at less than $5,000 to $175 for vehicles topping $60,000. The administration says nearly nine-in-10 vehicles would be assessed a fee of $50 or less.

– $200 million from a new $100 annual fee, starting in 2020, on zero-emission vehicles.

– $706 million in repayments of transportation funds that had previously been loaned to the state's General Fund.

The money would be split between state and local governments. Here's where it would go:

– The local share includes $15 billion to fix potholes, $7.5 billion for public transportation and $1 billion for walking and biking trails.

– The state share includes $15 billion for highway repairs, $4 billion for bridge and culvert repairs, $2.5 billion to reduce traffic on major commuter routes.

– ASSOCIATED PRESS

PRISON

FROM PAGE 1

could have faced a statutory maximum sentence of six years in federal prison.

"Federal regulations governing the operation of aircraft and other common carriers are designed to protect the traveling public," United States Attorney Eileen M. Decker said. "The investigation into Mr. Leto shows that he flagrantly violated these rules – and continued to do so after the FAA took action to take him out of the air. A swift and thorough investigation by the Department of Transportation has now improved the safety of all air travelers."

The Department of Transportation Office of Inspector General investigated the case with assistance from the FAA. A Line Service Technician at the Van Nuys airport told the FAA inspector he saw Leto take off with seven or eight passengers without a second pilot April 8 last year, according to court documents. The FAA requires a pilot and co-pilot as minimum crew for the Cessna Model involved in the incident.

In court documents, Leto's attorney argued for leniency, saying Leto cooperated with the FAA and provided information about his own conduct as well as several other people possibly engaged in criminal activity. According to the documents, Leto attempted to organize a sting that "got out of hand" when drug traffickers came to his "home with guns and demanded that he transport 500 pounds of Marijuana." Leto was arrested during the incident.

kate@smdp.com

Los Angeles LA DWP Department of Water & Power

NOTICE OF CITY OF LOS ANGELES DEPARTMENT OF WATER AND POWER (LADWP) PUBLIC HEARING

DATE OF MEETING: TUESDAY, MAY 2, 2017

TIME OF MEETING: 10:00 AM

PLACE OF MEETING: LOS ANGELES DEPARTMENT OF WATER AND POWER, JOHN FERARRO BUILDING, ROOM 1555-H, 111 NORTH HOPE STREET, LOS ANGELES, CA 90012.

PROJECT NAME: RESOLUTION TO FORM A GROUNDWATER SUSTAINABILITY AGENCY FOR THE SANTA MONICA BASIN IN COOPERATION WITH THE CITIES OF SANTA MONICA, BEVERLY HILLS, CULVER CITY, AND LOS ANGELES COUNTY.

FOR ADDITIONAL INFORMATION, PLEASE CONTACT HEATHER YEGIAZARYAN, PROJECT MANAGER, AT (213) 367-5016 / HEATHER.YEGIAZARYAN@LADWP.COM. MORE INFORMATION MAY ALSO BE FOUND ONLINE AT WWW.LADWP.COM/SGMA.

NOTICE IS HEREBY GIVEN that the Board of the Los Angeles Department of Water and Power will conduct a public hearing, as part of a regularly scheduled Board of Commissioners meeting, to consider authorizing LADWP to participate in the formation of a Groundwater Sustainability Agency (GSA) for the Santa Monica Basin with the Cities of Santa Monica, Beverly Hills, Culver City, and Los Angeles County.

Enacted in 2014, the Sustainable Groundwater Management Act (SGMA) requires sustainable groundwater management practices statewide. To comply, local public agencies must form GSAs for basins classified as "medium priority" or higher by the California Department of Water Resources. GSA is then responsible for the creation of a Groundwater Sustainability Plan which details sustainable groundwater management practices to be undertaken in a basin.

The Santa Monica Basin is classified as a medium priority groundwater basin and therefore must comply with SGMA requirements. As the primary municipal producer of groundwater from the Basin, the City of Santa Monica will serve as coordinating agency for the formation of the Santa Monica Basin Groundwater Sustainability Agency. LADWP is proposing to participate in the GSA to take responsibility for implementing SGMA within the City of Los Angeles' boundaries.

Los Angeles Department of Water & Power

NOTICE OF CITY OF LOS ANGELES DEPARTMENT OF WATER AND POWER (LADWP) PUBLIC HEARING

DATE OF MEETING: TUESDAY, MAY 2, 2017

TIME OF MEETING: 10:00 AM

PLACE OF MEETING: LOS ANGELES DEPARTMENT OF WATER AND POWER, JOHN FERARRO BUILDING, ROOM 1555-H, 111 NORTH HOPE STREET, LOS ANGELES, CA 90012.

PROJECT NAME: RESOLUTION TO FORM A GROUNDWATER SUSTAINABILITY AGENCY FOR THE SANTA MONICA BASIN IN COOPERATION WITH THE CITIES OF SANTA MONICA, BEVERLY HILLS, CULVER CITY, AND LOS ANGELES COUNTY.

FOR ADDITIONAL INFORMATION, PLEASE CONTACT HEATHER YEGIAZARYAN, PROJECT MANAGER, AT (213) 367-5016 / HEATHER.YEGIAZARYAN@LADWP.COM. MORE INFORMATION MAY ALSO BE FOUND ONLINE AT WWW.LADWP.COM/SGMA.

NOTICE IS HEREBY GIVEN that the Board of the Los Angeles Department of Water and Power will conduct a public hearing, as part of a regularly scheduled Board of Commissioners meeting, to consider authorizing LADWP to participate in the formation of a Groundwater Sustainability Agency (GSA) for the Santa Monica Basin with the Cities of Santa Monica, Beverly Hills, Culver City, and Los Angeles County.

Enacted in 2014, the Sustainable Groundwater Management Act (SGMA) requires sustainable groundwater management practices statewide. To comply, local public agencies must form GSAs for basins classified as "medium priority" or higher by the California Department of Water Resources. GSA is then responsible for the creation of a Groundwater Sustainability Plan which details sustainable groundwater management practices to be undertaken in a basin.

The Santa Monica Basin is classified as a medium priority groundwater basin and therefore must comply with SGMA requirements. As the primary municipal producer of groundwater from the Basin, the City of Santa Monica will serve as coordinating agency for the formation of the Santa Monica Basin Groundwater Sustainability Agency. LADWP is proposing to participate in the GSA to take responsibility for implementing SGMA within the City of Los Angeles' boundaries.

DECLARATION OF PUBLICATION

STATE OF CALIFORNIA

COUNTY OF LOS ANGELES

KIM HUGHES

DEPT OF WATER AND POWER
COMMUNICATIONS
111 N HOPE ST RM 1510
LOS ANGELES CA 90012

NOTICE OF PUBLIC HEARING
SANTA MONICA GROUDWATER

The undersigned says:

I am over the age of 18 years and a citizen of the United States. I am not a party to and have no interest in this matter. I am a principal clerk of the METROPOLITAN NEWS-ENTERPRISE*, a newspaper of general circulation in the City of Los Angeles, Los Angeles Public Notice District, the County of Los Angeles, and the State of California, as adjudicated in Los Angeles Superior Court Case No. 601165. The notice, a printed copy of which appears hereon, was published on the following date(s): Apr 14,21, 2017

I declare under penalty of perjury that the foregoing is true and correct. Executed at Los Angeles, California on 04/21/17.

signature

Metropolitan News-Enterprise
P.O. Box 60859
Los Angeles, Ca 90060

Phone: (213) 346-0033
Fax: (213) 687-3886

Cust. Num.: 012120 Control Num.: 936466
Cust. Ref. Num.: SANTA MONICA

NOTICE OF CITY OF LOS ANGELES DEPARTMENT OF WATER AND POWER (LADWP) PUBLIC HEARING

DATE OF MEETING: TUESDAY, MAY 2, 2017

TIME OF MEETING: 10:00 AM

PLACE OF MEETING: LOS ANGELES DEPARTMENT OF WATER AND POWER, JOHN FERARRO BUILDING, ROOM 1555-H, 111 NORTH HOPE STREET, LOS ANGELES, CA 90012.

PROJECT NAME: RESOLUTION TO FORM A GROUNDWATER SUSTAINABILITY AGENCY FOR THE SANTA MONICA BASIN IN COOPERATION WITH THE CITIES OF SANTA MONICA, BEVERLY HILLS, CULVER CITY, AND LOS ANGELES COUNTY

FOR ADDITIONAL INFORMATION, PLEASE CONTACT HEATHER YEGIAZARYAN, PROJECT MANAGER, AT (213) 367-5016 / HEATHER.YEGIAZARYAN@LADWP.COM. MORE INFORMATION MAY ALSO BE FOUND ONLINE AT WWW.LADWP.COM/SGMA.

NOTICE IS HEREBY GIVEN that the Board of the Los Angeles Department of Water and Power will conduct a public hearing, as part of a regularly scheduled Board of Commissioners meeting, to consider authorizing LADWP to participate in the formation of a Groundwater Sustainability Agency (GSA) for the Santa Monica Basin with the Cities of Santa Monica, Beverly Hills, Culver City, and Los Angeles County.

Enacted in 2014 the Sustainable Groundwater Management Act (SGMA) requires sustainable groundwater management practices statewide. To comply, local public agencies must form GSAs for basins classified as "medium priority" or higher by the California Department of Water Resources. GSA is then responsible for the creation of a Groundwater Sustainability Plan which details sustainable groundwater management practices to be undertaken in a basin.

The Santa Monica Basin is classified as a medium-priority groundwater basin and therefore must comply with SGMA requirements. As the primary municipal producer of groundwater from the Basin, the City of Santa Monica will serve as coordinating agency for the formation of the Santa Monica Basin Groundwater Sustainability Agency. LADWP is proposing to participate in the GSA to take responsibility for implementing SGMA within the City of Los Angeles' boundaries.

CN936466 SANTA MONICA Apr 14,21, 2017

Appendix C

Public Comments and Response Summary

The Santa Monica Basin GSA released the Draft GSP for public comment on July 15, 2021. The 75-day public review period closed September 28, 2021. The GSA received five comment letters. The letters were from a consortium of non-governmental organizations (The Nature Conservancy, Audubon California, the Local Government Commission, the Union of Concerned Scientists, and Clean Water Action / Clean Water Fund), the Grassroots Coalition, the Ballona Ecosystem Education Foundation, Dr. Margot Griswold, and Mr. Todd Cardiff . All of the letters and comments received are included in this appendix. In general, letter from the consortium of NGOs included several requests for clarification or additional information regarding disadvantaged communities, interconnected surface water, groundwater dependent ecosystems, and climate change. The remainder of the letters focused on the treatment of the Ballona Wetlands Ecological Reserve (BWER) in the GSP. These letters expressed concerns about the certified Final Environmental Impact Report prepared by the California Department of Fish and Wildlife for the BWER as well as activities that have occurred historically, and continue to occur, at the adjacent Playa Vista development.

Where possible, the language in the draft GSP was revised to clarify areas of misunderstanding brought to light by the comment letters and to provide additional information requested by the commenters. This includes language to clarify that there are no private domestic wells in the Subbasin, addition of a discussion of extreme climate scenarios, clarification of the source of the data for determination of GDE acreage, and several other revisions. A specific response is provided to each comment received in the table that follows this comment summary. Additionally, representatives from the consortium of NGOs met with Santa Monica GSA staff to discuss the comments received and better understand how the GSP fits into existing environmental conservation and planning efforts underway in the Santa Monica Subbasin.

Comment Number	Commenter	Comment	Response
1	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Include map and inventory of the location of all domestic wells by location and by depth.	There are no known active domestic drinking water wells in the Santa Monica Subbasin.
2	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Identify the sources of drinking water for DAC members, including an estimate of how many people rely on groundwater (e.g., domestic wells, state small water systems, and public water systems). The GSP states that "DAC block groups are located in portions of the City of Santa Monica, the City of Los Angeles including the UCLA campus and Venice Beach, and the unincorporated area around the West Los Angeles Veterans Affair campus." However the GSP does not currently provide clear information on how and to what extent DAC members rely on groundwater.	Language has been added to the GSP to clarify that all DACs are supplied by the City of Santa Monica or their respective water supplier and that there are no active individual domestic wells within the Santa Monica Subbasin (see Section 2.1.3.2). Furthermore, language was added to clarify that only DACs within the City of Santa Monica receive local groundwater, and these communities are served by the City of Santa Monica's distribution pipeline. The discussion of DACs in Section 2.1.5.1 was improved to clarify which DACs in the Subbasin rely on groundwater, and how those communities are encouraged to participate in decisions regarding groundwater planning and water rates.
3	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Include a map of stream reaches in the subbasin. Label the reaches as interconnected, disconnected, or potential ISWs.	Stream reaches are labeled on Figure 2-3. The figure has been updated to include which streams are listed as intermittent, and which ones are maintained storm channels.
4	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Include the shallow groundwater system as a principal aquifer in this GSP to ensure adequate monitoring and management of this critical groundwater resource for current and future beneficial users.	The GSP conforms with the USGS and DWR classification systems and hydrogeological characterizations of the Santa Monica Subbasin. Consistent with DWR nomenclature, the Ballona and Silverado aquifers are named as principal aquifers and the Bellflower aquitard, the shallowest sedimentary layer in parts of the Subbasin, is named as a principal aquitard. Additionally, the GSP discusses locally named areas of a "Shallow aquifer" (see GSP Section 2.3.1.1). This occurs as local, discontinuous lenses of coarse grained deposits, that are found at different depths in different locations in the Subbasin. This "shallow aquifer" has been documented as part of groundwater contamination remediation efforts in paved and industrialized portions of the Subbasin. It is not used for drinking water production, and is not accessible to environmental users of groundwater.

Comment Number	Commenter	Comment	Response
5	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Provide depth-to-groundwater contour maps using the best practices presented in Attachment D, to aid in the determination of ISWs. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a DEM to estimate depth-to-groundwater contours across the landscape. This will provide accurate contours of depth to groundwater along streams and other land surface depressions where GDEs are commonly found.	The GSP presents groundwater elevation contour maps as required in 23 CCR 345.16 (See GSP Figures 2-31 through 2-34). The majority of the groundwater production in the Subbasin occurs in the Charnock and Olympic Wellfields, which are located in the central part of the Subbasin, in a former industrial and highly urbanized area, distant from any potential interconnected surface water. Additionally, because of industrial contamination of the Subbasin and the lack of a contiguous shallow aquifer production occurs in confined aquifers in the Subbasin. While data are available from the numerous regulatory clean-up sites located throughout the Santa Monica Subbasin (see GSP Figure 2-47), the subsurface geology suggests that a depth to groundwater map produced from these data would compare groundwater elevations in different units, some of which may be confined. Furthermore, these sites are located in paved, urbanized, and industrialized portions of the Subbasin, which do not host ISWs. Because of the complexity of the geology, the urbanization of this Subbasin, and the lack of unlined drainage channels in this Subbasin, groundwater elevation maps for the principal aquifers are sufficient, and a depth to groundwater contour map is not required.
6	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Use seasonal data over multiple water year types to capture the variability in environmental conditions inherent in California's climate, when mapping ISWs.	Seasonal data over multiple water years were reviewed and used to prepare the GSP. All water level data are provided in the appendices, the figures in Chapter 2 include multiple hydrographs over multiple years, and streamflow data from Ballona Creek is provided over multiple years including both above and below average precipitation periods (See GSP Section 2.2.2 and Figures 2-11 through 2-14 and 2-29).
7	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Reconcile ISW data gaps with specific measures (shallow monitoring wells, stream gauges, and nested/clustered wells) along surface water features in the Monitoring Network section of the GSP.	The only ISW in the Plan Area is the Ballona Wetlands Ecological Reserve which is hydrologically disconnected from groundwater production in the principal aquifers (see GSP Section 2.4.6). Furthermore, California Department of Fish and Wildlife (CDFW) has adopted a final EIR to convert this area to a tidal marsh, which would not require additional monitoring wells as part of the GSP implementation effort.
8	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Overlay GDE locations with depth-to-groundwater contour maps. Show well locations on these maps. For the contour maps, note the best practices presented in Attachment D. Specifically, ensure that the first step i s contouring groundwater elevations, and then subtracting this layer from land surface elevations from a digital elevation model (DEM) t o estimate depth to groundwater contours across the landscape.	The locations of the groundwater production wells have been added to the area map on Figure 2-54. Depth-to-groundwater contour maps are not required for this Subbasin (see above response)

Comment Number	Commenter	Comment	Response
9	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Use and describe depth to groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) to determine the range of depth to groundwater around NC dataset polygons. We recommend that a baseline period (10 years from 2005 to 2015) be established to characterize groundwater conditions over multiple water year types. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.	Figure 2-52 includes data from multiple years (starting in 2005) and multiple seasons from monitoring wells adjacent to the Ballona Wetlands NC Dataset Unit. The closest monitoring wells to the Pacific Coast Highway Unit are approximately 0.9 miles away and over 200 vertical feet above the vegetation identified adjacent to the coast (see Figure 2-54). These wells would not provide meaningful data for groundwater elevations adjacent to this GDE. Furthermore, groundwater production is currently located several miles from each GDE identified in the Subbasin. If groundwater production were to move closer to these GDEs, which are adjacent to the Pacific Ocean, it would be more likely to induce seawater intrusion, as was observed in the historical data. Therefore, there are no plans to move groundwater production closer to the coast.
10	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Quantify and present all water use sector demands in the historical, current, and projected water budgets with individual line items for each water use sector including native vegetation and managed wetlands.	A discussion of native vegetation and managed wetlands water demands was added in Section 2.5.2.3 of the GSP.
11	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Include a more detailed and robust Public Outreach and Engagement Plan that describes active and targeted outreach to engage DAC members, domestic well owners, and environmental stakeholders during the remainder of the GSP development process and throughout the GSP implementation phase. Refer to Attachment B for specific recommendations on how to actively engage stakeholders during all phases of the GSP process.	The City of Santa Monica and all SMBGSA member agencies have a documented track record of engaging with environmental and all stakeholders for over 2 decades (e.g. Taskforce on the Environment for the City of Santa Monica). These governmental agencies have made themselves available throughout the development of the GSP and will continue to do so during the implementation phase of the GSP.
12	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Describe direct and indirect impacts on DACs and drinking water users when defining undesirable results for chronic lowering of groundwater levels.	There are no direct or indirect impact to DACs separate from other groundwater users because there are no known active domestic wells in the Subbasin.
13	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Consider and evaluate the impacts of selected minimum thresholds and measurable objectives on DACs and drinking water users within the subbasin. Further describe the impact of passing the minimum threshold for drinking water users. For example, provide the number of domestic wells that would be de-watered at the minimum threshold.	There are no known active domestic wells in the Subbasin, which is highly urbanized. All DAC block group areas are served by a water purveyor.

Comment Number	Commenter	Comment	Response
14	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Establish a monitoring network for the degraded water quality sustainability indicator to ensure that groundwater use and groundwater management does not lead to groundwater quality degradation within the basin.	Groundwater quality and the groundwater quality monitoring network are discussed extensively throughout Sections 2.1.2.3, 2.4.4, and 3.5.4.4. There is already an extensive monitoring network for groundwater quality, including early-warning monitoring wells and protocols for drinking water wells in the Subbasin. Additional monitoring is not required.
15	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Evaluate the cumulative or indirect impacts of degraded water quality on DACs and drinking water users.	There are no cumulative or indirect impacts of degraded water quality on DACs and drinking water users because there are no known active domestic wells in the Subbasin.
16	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	When defining undesirable results for chronic lowering of groundwater levels, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to GDEs. Undesirable results to environmental users occur when 'significant and unreasonable' effects on beneficial users are caused by one of the sustainability indicators (i.e., chronic lowering of groundwater levels, degraded water quality, or depletion of interconnected surface water). Thus, potential impacts on environmental beneficial uses and users need to be considered when defining undesirable results7 in the subbasin. Defining undesirable results is the crucial first step before the minimum thresholds8 can be determined.	The undesirable results were defined based on impacts to all beneficial uses and users of groundwater in the Plan Area. Language has been revised in Section 3.2.1 to further describe the relationship between chronic lowering of groundwater levels and the other sustainability indicators. There is no hydraulic connection between the groundwater production aquifers and the water levels in the Bellflower aquitard adjacent to the GDEs (see GSP Sections 2.4.6 and 2.4.7, and Figure 2-52). Additionally, the largest area of GDE habitat in the subbasin is slated to undergo restoration by the CDFW, which will impact the plant and animal species on the site over the next several years. Therefore, the GSP does not propose monitoring for specific biological responses in the identified GDEs.
17	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	When defining undesirable results for depletion of interconnected surface water, include a description of potential impacts on instream habitats within ISWs when defining minimum thresholds in the subbasin9. The GSP should confirm that minimum thresholds for ISWs avoid adverse impacts to environmental beneficial users of interconnected surface waters as these environmental users could be left unprotected by the GSP. These recommendations apply especially to environmental beneficial users that are already protected under pre-existing state or federal law6,10.	Specific undesirable results were not defined for interconnected surface water and groundwater or GDEs in the Subbasin because there is no hydraulic connection between the groundwater production aquifers and the water levels in the Bellflower aquitard, which supports the GDEs, surface channels in the Subbasin are lined with concrete, and there are no planned projects to produce groundwater closer to the only GDEs in the Subbasin due to the risk of seawater intrusion (see GSP Sections 2.4.6, 2.4.7, and 3.2.6; and Figure 2-52).
18	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Integrate climate extreme wet and dry scenarios into projected water budget for development of sustainable management criteria and projects and management actions.	Language was added to Section 2.2.3.2 to discuss the extreme climate scenarios.

Comment Number	Commenter	Comment	Response
19	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Document how climate change was incorporated into surface water flow inputs for the projected water budget.	Discussion of climate change and inputs to the numerical model is provided in Appendix F: Climate change datasets provided by the DWR were incorporated for predictive modeling. The LACPGM does not have any surface-water boundary conditions, hence climate-change factors did not need to be accounted for surface water flow inputs. The model does include recharge from precipitation (estimated using the INFIL model, which accounts for rainfall, runoff, evapotranspiration, etc). To account for climate change impacts on recharge, DWR-provided precipitation change factors were used to scale future recharge for the predictive models. The precipitation change factors were used to first adjust future precipitation in the basin and then estimate climate-change impacted recharge to groundwater using a regression relationship (developed by the USGS) between precipitation and recharge.
20	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Calculate sustainable yield based on the projected water budget with climate change incorporated.	The water budget developed using the LACGP model indicates potential seawater intrusion in all three future groundwater production scenarios (see GSP Section 2.5.5). However, seawater intrusion has not been observed in the Silverado aquifer historically, and the predicted seawater intrusion rate greatly depends on the vertical conductivity of the model layers, in particular layer 7, and the general head boundary conductance. Therefore, the sustainable yield estimate for this GSP is based on historical investigations of the Subbasin. The SMBGSA is working to fill the data gaps identified in the GSP and improve the model water budget for the Santa Monica Subbasin. The sustainable yield will be re-evaluated as these projects move forward during GSP implementation.
21	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Incorporate climate change scenarios into projects and management actions.	Climate change has been incorporated into the future understanding of the Subbasin, however projects and management actions are triggered by groundwater elevations or groundwater quality impacts to the Subbasin, independent of the future climate. The Subbasin will be managed based on the sustainable management criteria set forth in the GSP.
22	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Provide maps that overlay monitoring well locations with the locations of DACs, domestic wells, GDEs, and ISWs to clearly identify potentially impacted areas. Increase the number of representative monitoring points (RMPs) in the shallow aquifer across the basin for all groundwater condition indicators. Prioritize proximity to GDEs, ISWs, DACs, and drinking water users when identifying new RMPs.	There are no known active domestic wells in the Subbasin, which is highly urbanized. All DAC block group areas are served by a water purveyor. GDEs occur along the Pacific Coast, in an area that is not planned for groundwater development because of the potential to induce seawater intrusion. The representative monitoring points prioritize understanding of groundwater conditions throughout the Subbasin, and were selected based on their ability to accurately represent conditions and assist with management of groundwater production in the Subbasin. These points are a subset of a broader monitoring network, which will continue to be used moving forward (see Section 3.5). The current representative monitoring points are adequate to assess groundwater conditions in the Plan Area.

Comment Number	Commenter	Comment	Response
23	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Provide specific plans to fill data gaps in the monitoring network. Evaluate how the gathered data will be used to identify and map GDEs and ISWs, and identify DACs and shallow domestic well users that are vulnerable to undesirable results.	Project #4 in Chapter 4 (see Section 4.9) discusses the need to install additional monitoring wells to fill data gaps.
24	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Describe biological monitoring that can be used to assess the potential for significant and unreasonable impacts to GDEs or ISWs due to groundwater conditions in the subbasin.	Specific undesirable results were not defined for interconnected surface water and groundwater or GDEs in the Subbasin because there is no hydraulic connection between the groundwater production aquifers and the water levels in the Bellflower aquitard, which supports the GDEs, surface channels in the Subbasin are lined with concrete, and there are no planned projects to produce groundwater closer to the only GDEs in the Subbasin due to the risk of seawater intrusion (see GSP Sections 2.4.6, 2.4.7, and 3.2.6; and Figure 2-52).
25	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	For DACs and domestic well owners, include a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation. Refer to Attachment B for specific recommendations on how to implement a drinking water well mitigation program.	There are no domestic drinking water wells in the DACs within the Santa Monica Subbasin. The City of Santa Monica has invested in early warning monitoring programs, in compliance with its permit from the Division of Drinking Water to produce potable water in the Santa Monica Subbasin.
26	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	For DACs and domestic well owners, include a discussion of whether potential impacts to water quality from projects and management actions could occur and how the GSA plans to mitigate such impacts.	There are no domestic drinking water wells in the DACs within the Santa Monica Subbasin. The City of Santa Monica has invested in early warning monitoring programs, in compliance with its permit from the Division of Drinking Water to produce potable water in the Santa Monica Subbasin.
27	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Recharge ponds, reservoirs, and facilities for managed stormwater recharge can be designed as multiple-benefit projects to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. For guidance on how to integrate multi-benefit recharge projects into your GSP, refer to the “Multi-Benefit Recharge Project Methodology Guidance Document”.	Noted. There is no need for such projects at the current time. The GSA will continue to evaluate need for projects like these over the GSP implementation period.

Comment Number	Commenter	Comment	Response
28	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Develop management actions that incorporate climate and water delivery uncertainties to address future water demand and prevent future undesirable results.	Management actions that prevent future undesirable results and incorporate climate and water delivery uncertainties have already been developed for the GSP. They are: (1) Adjusting groundwater production to meet WL and/ or SWI objectives; (2) Imposing a replenishment or imported water purchase/ pumping offset fee; (3) Developing a salt-nutrient management plan; (4) Developing a groundwater allocation; (5) Increase water conservation. (See GSP Chapter 4).
29	The Nature Conservancy /Audubon California/ Local Government Commission / Union of Concerned Scientists / Clean Water Action/Clean Water Fund	Ensure that public notice and avenue for stakeholder engagement is provided before undertaking all proposed management actions.	The City of Santa Monica and all SMBGSA member agencies have a documented track record of engaging with environmental and all stakeholders for over 2 decades (e.g. Taskforce on the Environment for the City of Santa Monica). These governmental agencies have made themselves available throughout the development of the GSP and will continue to engage with stakeholder during the implementation phase of the GSP.
30	Margot Griswold	1.The Draft GSP relies on inaccurate informa. on and has large, easily remedied data gaps that would provide information for prudent, adequate scientific assessment to quantify the groundwater conditions that are not currently dealt with in the Plan to provide an objective way to determine whether the Subbasin is being managed sustainably in accordance with SGMA.	The SMBGSA prepared the GSP using the best available science (per 23 CCR 354.16). Data gaps were acknowledged (See Sections 2.4.3, 2.5.5, 2.6, 3.2, 3.5.4, and 3.5.8) and will be addressed as the program is implemented (see Chapter 4).
31	Margot Griswold	2.The sustainable management criteria and goal to stop seawater intrusion and maintaining protective groundwater levels are not sufficiently justified and explained.	The sustainable management criteria were derived from historical data and the state-of-the-art numerical groundwater modeling effort conducted for this GSP. This state-of-the art effort fully aligns with the USGS understanding of hydrogeology and aquifer characterization in the Los Angeles Basin and fully complies with the requirements of SGMA. Language was revised in the GSP to clarify the criteria used to determine the undesirable results for each sustainability indicator (See Section 3.2 Undesirable Results).
32	Margot Griswold	3.The Draft GSP does not provide data and/or information to increase freshwater storage potential of the Ballona, Bellflower and Silverado aquifers/aquitard or to prevent negative consequences of seawater intrusion upon the Public Trust lands and water.	Chapter 3 of the GSP addresses, in full compliance with SGMA, the development of and justification for the sustainable management criteria. Historical and current data on groundwater conditions are presented in Sections 2.3 through 2.5.
33	Margot Griswold	4.The Draft GSP has data gaps and does not demonstrate a commitment to eliminate those data gaps. Specifically, the Draft GSP has data gaps for depletion of interconnected surface water and groundwater that is critical to understanding the Ballona Wetlands Ecological Reserve, a Groundwater Dependent Ecosystem. The Draft plan needs this data on groundwater and groundwater pumping to obtain a better understanding of the hydraulic connectivity of surface water and groundwater of the Ballona Wetlands and adjacent area.	The SMBGSA prepared the GSP using the best available science (per 23 CCR 354.16). Data gaps were acknowledged (See Sections 2.4.3, 2.5.5, 2.6, 3.2, 3.5.4, and 3.5.8) and will be addressed as the program is implemented (see Chapter 4).

Comment Number	Commenter	Comment	Response
34	Margot Griswold	5.The Draft GSP does not adequately address the Groundwater Dependent Ecosystem (GDE) at the Ballona Wetlands Ecological Reserve. Only 40 acres are identified over the area of approximately 600 acres as GDE. The entire reserve must be considered as a GDE first, because there are many more acres categorized as wetlands than 40, and that rely on near surface groundwater and surface water that percolates into the ground from rainwater; and second, all the wildlife species that use the entire Ballona Wetlands Ecological Reserve, including endangered, threatened, and rare species, constitute part of the GDE. These wildlife may prey on species that use marsh vegetation while spending other parts of their life in upland buffer vegetation surrounding the wetlands. Therefore, the underestimation of the acreage of GDE in the Ballona Wetlands does not allow adequate planning to protect the Ballona Wetlands Ecological Reserve, a Groundwater Dependent Ecosystem.	The GSP cites the NCCAG, which is "a compilation of 48 publicly available State and Federal agency dataset that map vegetation, wetlands, springs, and seeps in California." The data were compiled and screened by DWR, CDFW, and The Nature Conservancy to "exclude vegetation and wetland types less likely to be associated with groundwater and retain types commonly associated with groundwater." (NCCAG Information page: https://gis.water.ca.gov/app/NCDatasetViewer/sitedocs/#). Estuarine areas were excluded from the database, because "the ocean is their main source of water." (NCCAG Information page: https://gis.water.ca.gov/app/NCDatasetViewer/sitedocs/#). One of the datasets used in the NCCAG is the National Wetlands Inventory (version 2.0) maintained by the U.S. Fish and Wildlife Service (https://www.fws.gov/wetlands/data/Mapper.html). The National Wetlands Inventory maps the majority of the BWER as "estuarine and marine wetland habitat" and was therefore not included in the NCCAG. To clarify between the estuarine/ marine habitat and the palustrine/ freshwater habitat, the language has been changed in the GSP to read "The NCCAG identifies 37.3 acres of freshwater emergent wetland and freshwater forested/shrub wetland vegetation communities within the BWER (Table 2-18)." See GSP Section 2.4.7.3.
35	Margot Griswold	6.The Draft GSP does not provide a detailed explanation of how the varied interests of groundwater uses and users in the Subbasin were considered in developing the sustainable management criteria and how those interests, including the pumping, draining and diversion of clean ground and surface water into the ocean and/or the Los Angeles Sanitation System can be remedied in order to protect the Ballona Wetlands Ecological Reserve (all public trust land and water) a Groundwater Dependent Ecosystem and/or the multiple freshwater aquifers of the Ballona area of the sub basin.	The SMBGSA acknowledges that NPDES permits exist in the vicinity of the Ballona Wetlands and that shallow dewatering is a common practice to prevent damage to infrastructure in the Subbasin. The GSP does not interfere with the jurisdiction of the LARWQCB or the rights of existing permit holders to continue to pump shallow groundwater under the jurisdiction of the LARWQCB. Language was revised in the GSP to clarify the criteria used to clarify the effects on beneficial uses and users of groundwater for each sustainability indicator (See Section 3.2 Undesirable Results).
36	Margot Griswold	7.The Draft GSP does not adequately address the potential for seawater intrusion upon the adjacent West Basin, which currently utilizes roughly 3/4 of its funding to inject freshwater to offset seawater intrusion into this drinking water basin. The Draft GSP cites the CDFW Plan for the Ballona Ecological Reserve, but it does not address the potential for saltwater intrusion into the aquifers from the removal of over 3 million cubic yards of soils to convert Ballona Wetlands into a saltwater bay as described in the CDFW Final EIR for the Ballona Wetlands	Based on the review of historical data and the numerical groundwater modeling conducted for the GSP there is no evidence that removal of shallow soil from the BWER would contribute to seawater intrusion in the Ballona and Silverado aquifers. The Final EIR for the CDFW project has been approved.
37	Margot Griswold	8.The Ballona Wetlands Ecological Reserve, public trust land and water, are also registered as a Sacred Site by John Tommy Rosas, of Tongva Ancestral Territorial Tribal Nation (TATTN). The TATTN issues are not addressed in the Draft GSP and need to be included.	Acknowledged.

Comment Number	Commenter	Comment	Response
38	Todd Cardiff	Water quality in the Subbasin was degraded prior to 2015, the extent of degradation is well characterized, the City of Santa Monica is actively treating the groundwater under programs overseen by DDW, the RWQCB, and the SWRCB, and the degradation was not caused by groundwater production. Therefore, this GSP does not address undesirable results relating to water quality degradation. The Introduction indicates that the GSP need not consider degradation of groundwater caused by sources prior to 2015. It fails to provide a legal citation to such statement. Grassroots Coalition disagrees that ongoing remediation efforts at Playa Vista is not having a significant impact on the adjacent Ballona Wetlands Ecological Reserve. In addition, there is an unknown quantity of water that is being extracted as part of Playa Vista's methane mitigation systems. The cumulative quantity of water that is being extracted from Playa Vista must be identified. The extracted water is being treated to drinking water standards. Instead of using such water to benefit the Ballona Wetlands Ecologic Reserve, such water is either discharged into the sanitary sewer system, or it is discharged into the Ballona Freshwater Marsh, which is a clay lined open water pond, then discharged into the Ballona Channel and out to the Ocean. Such water should be permitted to recharge the aquifer, and aid in maintaining the Ballona Wetlands Ecological Reserve, a groundwater dependent ecosystem. Thus, while perhaps the GSP need not consider existing contamination, it should and must consider ongoing extraction and treatment activities at Playa Vista. Such water could be instrumental in preventing or reversing other impacts, such as salt-water intrusion into the aquifers.	See California Water Code Section 10727.2(b)(4) "The plan may, but is not required to, address undesirable results that occurred before, and have not been corrected by, January 1, 2015…"

Comment Number	Commenter	Comment	Response
39	Todd Cardiff	Sustainability Goals 1-2 Ensuring groundwater conditions in the Subbasin support sufficient seaward flow of fresh water to prevent significant and unreasonable seawater intrusion in the Silverado aquifers. Grassroots Coalition objects to a sustainability goal of preventing significant and unreasonable seawater intrusion in the Silverado Aquifer, when, particularly near the water bearing zones do not appear to have separation. (See, F. Poland, A. A. Garret, and Allen Sinnott "Geology, Hydrology, and Chemical Character of Ground Waters in the Torrance-Santa Monica Area, California, Geological Water Supply Paper 1561 (1959) (hereinafter "Poland Report") As noted in the Poland Report: The complex structure of the San Pedro formation makes it difficult to trace the extent of hydraulic continuity, except were logs are closed spaced wells are available. However, the hydraulic continuity is known to be most free coastward from the Charnock fault, and is very poor to absent inland from the Overland Avenue fault. (Poland Report at 199. See also, Poland Report at 50.) In addition, historically, drinking water has been extracted from shallow aquifers near Playa Del Rey. (Poland Report at 215.) The GSP also states that the Silverado and Ballona aquifers are connected in the Playa Vista area. (GSP Report 2.3.2.2, at 2-60.) Furthermore, the overlying Bellflower Aquifer is incredibly important to the Ballona Wetlands as a Groundwater Dependent Ecosystem (GDE). Contamination of the Bellflower Aquifer will likely not only contaminate the Ballona and Silverado Aquifer but potentially impacts the character of the low, mid and upper marsh habitat. Thus, the sustainability goals should include protecting all freshwater aquifers from further saltwater intrusion. Fifty years in the future, the shallower aquifers may be critical to maintaining sufficient potable water to support the population in the Santa Monica subbasin and groundwater dependent ecosystems such as the Ballona Wetlands.	The Bellflower aquitard from which the BWER derives its water is not a fresh water aquifer. The Poland report, referred to in the GSP as USGS 1959, shows that the chloride concentration in the BWER exceeded 500 mg/L in the 1950s.
40	Todd Cardiff	1.5 References ACOE (Army Corps of Engineers). 1982. Ballona Creek and Tributaries, Los Angeles County Drainage Area, California. December. Is this a map or a study? If it was a study, we were unable to locate such document in the appendices. Can you please insert links into the reference section for easier access to the relevant documents? It would also be useful to provide links to any citations throughout the GSP.	The ACOE 1982 reference is to a study conducted by the US Army Corps of Engineers. It has been included with the other references submitted to DWR along with the GSP. It is also available online here: https://apps.dtic.mil/sti/citations/ADA150322

Comment Number	Commenter	Comment	Response
41	Todd Cardiff	2.1.1.1.1 County/Municipal Dredge material from the straightening of the channel and from the later development of Marina del Rey in the 1960s was deposited in the Ballona Wetlands, raising its elevation (CDFW 2019) Grassroots Coalition disputes that dredge material was placed on Ballona Wetlands raising its elevation. First, the source of such information, the 2019 CDFW EIR on the Ballona Wetlands Restoration Plan, is of dubious quality and is the subject of at least five separate lawsuits based on its inadequacy as a CEQA document. CDFW's EIR does not provide supporting data for such comment and numerous documents supplied by Grassroots Coalition demonstrate that Marina del Rey dredged soils were not deposited on the private lands of the Howard Hughes estate. A comparison of photographs of Ballona Wetlands before the creation of Marina Del Rey, and shortly after Marina Del Rey was established does not support the contention that fill was placed on the private Hughes property, particularly since Area A contained active oil wells along its western edge, adjacent to the Marina Project. The elevation of much of what is now contained in the Ballona Wetland Ecological Reserve does not appear to have been changed. The creation Ballona Channel did provide the soils for the Channel's levees, which on the north side to support access roadways on the former Playa Vista property and another roadway on the levee outside of Area A. But, this is clearly not 2.3 million cubic yards of material. Even the EIR, as poorly written as such document is, admits no fill was placed to the south of the Ballona Creek Channel. We have yet to see documents that support that fill was deposited to the north of Ballona Channel, from the creation of Marina del Rey. It should be noted that the area of BWER was private property in the 1960's owned, in fee, by the Hughes Corporation. The Draft GSP needs to provide supportive data and information for conclusory statements and/or ensure that CDFW has supportive data. One would expect that there would be agreements available for public inspection before the government could deposit significant material on private property for a public. The documents submitted by Grassroots Coalition	CDFW has approved a Final EIR to restore ecosystem function to a full tidal salt water bay in the BWER. The GSP references this Final EIR and incorporates its assumptions into future planning. Artificial fill is identified as extending from 5 to 15 feet below ground surface in Area A, 0 to 20 feet below ground surface in Area B, and 8 to 20 feet below ground surface in Area C in the Geotechnical Investigation Report for the Ballona Wetland Restoration Project, which was prepared by Group Delta Consultants and stamped by three registered professional geotechnical engineers and one registered professional civil engineer (USACE 2017 [Appendix E]). Site specific geotechnical boring logs are presented on pages E-120 through E-203 of this document. Language has been added to Section 2.4.7.3 clarifying the thickness of the surficial fill deposits in Areas A, B, and C.

Comment Number	Commenter	Comment	Response
42	Todd Cardiff	2.1.1.1.2 State CDFW manages and maintains primary ownership of the Ballona Reserve, which is currently being restored, with a smaller interest owned by the California State Lands Commission (CDFW 2019) There are two inaccuracies in this statement. First, the proposed plan, known as the Ballona Wetlands Restoration Project, is not restoration, and, secondly, the project is not currently occurring, nor likely to occur in the near future. First, the proposed plan constitutes the creation of large flood control berms along Area A north of the Ballona Flood Control Channel, and dredging out material to below MLLW, to create a full tidal bay. Multiple studies indicate that, historically, the Ballona Wetlands was primarily a freshwater marsh, closed to the ocean, that would occasionally open to the ocean during major storm events. The mechanisms that created the freshwater nature of the Ballona Wetlands was discussed in a scientific paper prepared pursuant to the National Sea Grant Program (Grant # NA 06OAR4170012.) (Jacobs, Stein and Longcore "Classification of California Estuaries Based on Natural Closure Patterns: Templates for Restoration and Management" Southern California Coastal Water Research Project, Technical Report 619.a (August 2011 revised).) In the paper, Jacobs et. al. opine that: [T]he longshore drift of sand rapidly closed the berm connecting Ballona to the sea after major storms and a large freshwater lake was the rule, rather than the exception for the wetlands, even reaching inland up to five miles presumably as a consequence of perching of water behind a berm during modest stream flow episodes. These data are consistent with core data which show intermittent freshwater conditions in Ballona over the last 4,0000 [sic] years (Palacios-Fest et al. 2006). (Classification of California Estuaries, at 34.) Jacobs et. al., conclude that the Ballona Wetlands is not historically a saltwater marsh subject to tidal influence on a daily basis, but a freshwater wetlands (often a lake) that is	Language has been revised to remove "which is currently being restored." See GSP Section 2.1.1.1.2.
43	Todd Cardiff	Section 2.1.2.3.3 Groundwater Ambient Monitoring and Assessment and Surface Water Ambient Monitoring Program Grassroots Coalition suggests that such section should include the groundwater testing, monitoring, extraction and treatment of contaminated groundwater at Playa Vista. In addition, there should be careful cumulative evaluation of how much water is being extracted.	Acknowledged.
44	Todd Cardiff	Table 2-5. Basin Plan Beneficial Uses, Select Water Quality Objectives, and Water Quality Impairments for Receiving Waters within the Santa Monica Subbasin Grassroots Coalition seeks to understand who determined that the Ballona Wetlands is a 303(d) listed waterbody based on "reduced tidal flushing". (GSP p. 2-15.) We would suggest that it is an impaired waterbody based on reduced freshwater inputs and lowering of the water table from groundwater extraction.	This determination was made by the LARWQCB and approved by the U.S. Environmental Protection Agency. See: https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html

Comment Number	Commenter	Comment	Response
45	Todd Cardiff	2.4.1.2 Historical Groundwater Elevation Trends BALLONA AQUIFER Grassroots Coalition has serious concerns with the accuracy and clarity of this section of the GSP. (GSP Report at 2-64.) it appears that some wells show a significant drop in elevation. In addition, the pump and treat project intentionally creates a gradient to cause the contaminated plume to migrate towards the remediation wells. It is important to properly calculate on an individual and cumulate basis all the extraction activities at Playa Vista before one can determine whether such activities are having a direct impact on the Ballona Aquifer, Bellflower 'aquitard' and possibly the Silverado Aquifer.	The SMBGSA prepared the GSP using the best available science (per 23 CCR 354.16).
46	Todd Cardiff	2.4.3.2 Current Understanding of Chloride and TDS Concentrations Additional monitoring for seawater intrusion may be warranted if groundwater production from the Ballona aquifer increases in the future. Grassroots Coalition would suggest that monitoring for seawater intrusion for both the Ballona, Bellflower and Silverado Aquifers be required if the Ballona Wetlands Restoration Project moves forward. As noted above, there is substantial hydraulic connectivity between the Ballona and Silverado aquifers in the vicinity of Playa Vista and, therefore, the Ballona Wetlands. (GSP Report 2.3.2.2, at 2-60.) Currently, seawater is primarily relegated to Marina Del Mar and the Ballona Channel, which is a lined and grouted water course. Opening the channel for the specific purpose of increasing tidal flushing will introduce saltwater to areas that are currently fresh and brackish water marsh areas. The introduction of seawater could impact also impact the Silverado aquifer in the area. Thus, any GSP should consider a plan on how to handle the increase in saltwater intrusion caused by the Ballona Wetlands "Restoration" Project. No evaluation for potential harm to the West Basin due to the CDFW prpoject has been done by CDFW and/or the GSA and needs to be done per SGMA.	The SMBGSA acknowledges the Grassroots Coalition concerns about conversion from a freshwater ecosystem to a saltwater ecosystem. The SMBGSA does not have jurisdiction to overturn a Final EIR.
47	Todd Cardiff	2.4.7.3 Ballona Wetlands Ecological Reserve The largest area of unfilled wetlands within the BWER are found in Area B (USEPA 2012). (GSP Report at 2-80.) This language seems to indicate, with certainty that Area A and Area C, within the Ballona Wetlands Ecological Reserve have been filled. As indicated earlier, the majority of Area A has not changed in elevation and was not filled. To the extent that fill was deposited, it was to support access roads on the perimeter of Area A. There does not appear to be any evidentiary support that 2.3 million cubic yards of dredge material was placed on the Ballona Wetlands, drastically altering the elevation and habitat. Photographic evidence contradicts this supposed fact.	The SMBGSA prepared the GSP using the best available science (per 23 CCR 354.16) and provides a reference to the U.S. Environmental Protection Agency document *Ballona Creek Wetlands Total Maximum Daily Loads for Sediment and Invasive Exotic Vegetation* which states "… fill was placed on Area A during excavations of Ballona Creek and Marina del Rey." (page 9 US EPA 2012). A copy of this document is included with submission of the GSP to DWR. Additionally, artificial fill is identified as extending from 5 to 15 feet below ground surface in Area A, 0 to 20 feet below ground surface in Area B, and 8 to 20 feet below ground surface in Area C in the Geotechnical Investigation Report for the Ballona Wetland Restoration Project, which was prepared by Group Delta Consultants and stamped by three registered professional geotechnical engineers and one registered professional civil engineer (USACE 2017 [Appendix E]). Site specific geotechnical boring logs are presented on pages E-120 through E-203 of this document. Language has been added to Section 2.4.7.3 clarifying the thickness of the surficial fill deposits in Areas A, B, and C.