SECTION 2 EXISTING FACILITIES

The Flood Control District owns and operates numerous facilities to provide flood and debris flow risk management, water conservation, and sediment management. This section describes those facilities and the areas in which they are located. This section also discusses facilities which are not owned by the Flood Control District, but have been or could be used in relation to sediment management operations. The information provided in this section was current as of October 2012.

2.1 FLOOD MAINTENANCE AREAS

For operational purposes, the Flood Control District has been divided into three separately managed Flood Maintenance Areas – East, West, and South – as shown in Figure 2-1. The Flood Maintenance Areas were used to group the debris basins and associated sediment management needs for this Strategic Plan.

2.1.1 EAST FLOOD MAINTENANCE AREA

The East Flood Maintenance Area (East Area) covers roughly 659 square miles, approximately half of which is open space in the Angeles National Forest. It comprises the portion of the San Gabriel Mountains between Highway 2 (Angeles Crest Highway) and the eastern boundary of the Flood Control District. The San Gabriel Mountains are one of the most active sediment generation areas in the County. The East Area is responsible for managing the sediment that is captured by the Flood Control District facilities in these mountains and their foothills. The foothills in this area are almost fully developed. Therefore, construction of new debris basins will be limited.

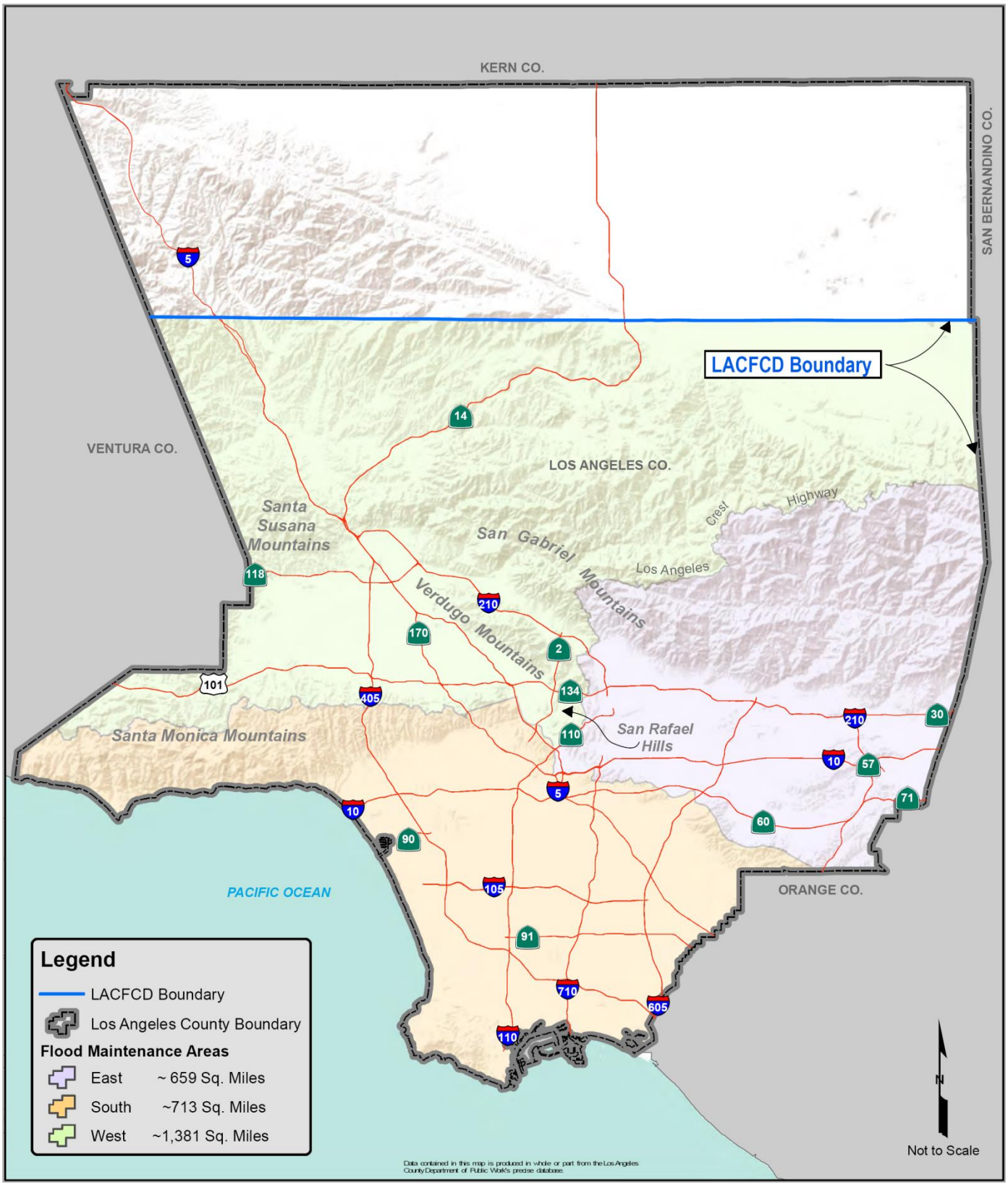
2.1.2 WEST FLOOD MAINTENANCE AREA

The West Flood Maintenance Area (West Area) covers approximately 1,381 square miles, making it the largest of the three flood maintenance areas. It includes the portion of the San Gabriel Mountains west and north of Highway 2 (Angeles Crest Highway), approximately half of the Santa Susana Mountains, the Verdugo Mountains, San Rafael Hills, a small portion of the Santa Monica Mountains, and numerous smaller mountains in the portion of the Santa Clara Watershed within the Flood Control District. The West Area is responsible for managing the sediment that is captured by the Flood Control District facilities in these mountains and their foothills. The San Gabriel Mountains and the Verdugo Mountains are the most active sediment generation areas in the County. The Santa Clara River Watershed Area, in the northern part of the West Area, still has potential for significant development. It is expected that this will result in a number of new debris basins and an increase in the flood maintenance area's sediment management need.

2.1.3 SOUTH FLOOD MAINTENANCE AREA

The South Flood Maintenance Area (South Area) covers approximately 713 square miles. It includes the majority of the Santa Monica Mountains. Construction of new debris basins in this area will be limited due to minimal development potential.

Figure 2-1 The Flood Control District and its Flood Maintenance Areas



2.2 RESERVOIRS

The dams and reservoirs in the County were constructed mainly during the 1920-30s for the management of risks associated with floods and debris flows and for water conservation purposes. At one point, there were 15 dams owned and operated by the Flood Control District. Since Sawpit Dam was decommissioned in 1999, the Flood Control District now owns and operates the 14 dams shown in Figure 2-2.

The U.S. Army Corps of Engineers (Army Corps of Engineers) also owns and operates five dams within the Flood Control District boundaries; namely, Hansen, Lopez, Santa Fe, Sepulveda, and Whittier Narrows Dams (these are also referred to as Flood Control Basins). The Army Corps of Engineers independently operates and maintains its dams; therefore, maintenance of the Army Corps of Engineers facilities is not part of this Strategic Plan. However, due to the relationship between the Army Corps of Engineers facilities and the Flood Control District's facilities, the two agencies coordinate operation of their facilities.

Table 2-1 below provides information about the reservoirs behind the Flood Control District's 14 dams, including historic sediment removal and recently determined available capacities. For a description of the Flood Control District's reservoir cleanout operations by sluicing and excavation please refer to Section 3.3.4.

Table 2-1 Reservoirs in the Flood Control District

Reservoir	Original Capacity (MCY)	Historic Sediment Removal		Conditions as of the Last Survey				
		Sluiced (MCY)	Excavated (MCY)	Date of Last Survey	Sediment Quantity in the Reservoir (MCY)	Available Capacity[(a)] (MCY)	Percent of Capacity Taken Up by Sediment[(b)]	Percent of Capacity Available[(c)]
Big Dalton	1.7	0.0	1.6	Jul 2008	0.0	1.7	0%	100%
Big Tujunga	10.1	3.1	10.4	Aug 2011	2.0	8.1	20%	80%
Cogswell	19.8	1.3	4.4	Aug 2011	3.9	16.8	20%	80%
Devils Gate	7.4	2.2	5.9	Mar 2011	3.9	3.7	53%	47%
Eaton	1.5	0.0	3.3	May 2010	0.5	1.1	33%	67%
Live Oak	0.4	0.0	0.6	Nov 2008	0.008	0.4	2%	98%
Morris	52.1	2.6	0.0	Dec 2010	13.1	36.4	25%	75%
Pacoima	9.8	2.2	0.0	Sep 2010	5.1	4.7	52%	48%
Puddingstone	28.1	0.0	0.0	Sep 2004	1.7	26.4	6%	94%
Puddingstone Diversion	0.2	0.0	1.5	May 2005	0.0	0.4[(d)]	0%	100%
San Dimas	2.4	0.2	4.4	Aug 2009	0.0	2.5[(d)]	0%	100%
San Gabriel	86.1	11.8	24.3	Dec 2010	14.4	71.7	17%	83%
Santa Anita	2.2	1.9	0.8	Dec 2010	0.3	1.2	14%	86%
Thompson	1.0	0.0	0.4	Jun 2004	0.2	0.8	20%	80%

Notes

a. Available Capacity = Original Capacity – Sediment Quantity in the Reservoir, or as determined based on the surveys.
   Example: San Gabriel Reservoir's Available Capacity = 86.1 MCY – 14.4 MCY = 71.7 MCY
b. Percent of Capacity Taken up by Sediment = Sediment Quantity in the Reservoir / Original Capacity.
   Example: San Gabriel Reservoir's Capacity Taken Up by Sediment = 14.4 MCY / 86.1 MCY = 17%
c. Percent of Capacity Available = 100% - Percent of Capacity Taken Up by Sediment
   Example: San Gabriel Reservoir's Percent of Capacity Available = 100% - 17% = 83%
d. When a reservoir's available capacity is greater than the original capacity, it could be that the reservoir was overexcavated at some point. Alternatively, it could be a reflection of the inaccuracy of bathymetric surveys, which are used to determine sediment quantities in reservoirs.

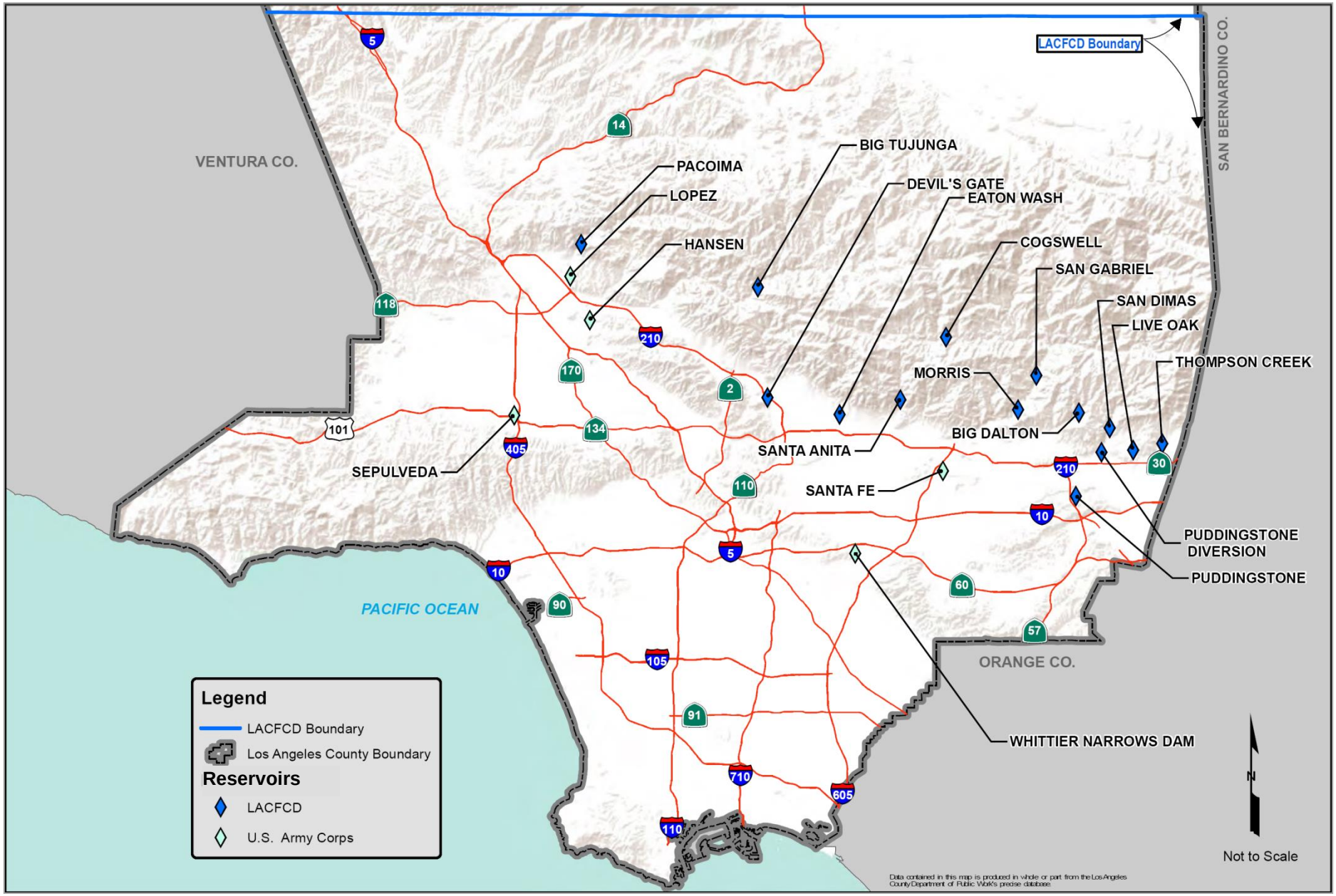
For the purposes of this Strategic Plan, the reservoirs have been categorized into two groups, large reservoirs and small reservoirs. Of the 14 reservoirs, 9 are considered large. Large reservoirs are larger than some of the other reservoirs in respect to the size of the dam, reservoir, drainage area, and sediment accumulation. All the large reservoirs except for Devil's Gate Reservoir are operated with a pool of water.

The large reservoirs are further divided, separating the large and complex system of reservoirs along the San Gabriel River, as seen in Table 2-2. Sections 7-9 of this Strategic Plan comprise the reservoir alternatives analysis according to these categorizations.

Table 2-2 General Categories of Reservoirs

Large Reservoirs		**Small Reservoirs**
San Gabriel River Reservoirs	***Other Large Reservoirs***	
Cogswell	Big Tujunga	Big Dalton
San Gabriel	Devil's Gate	Eaton
Morris	Pacoima	Live Oak
	Puddingstone	Puddingstone Diversion
	San Dimas	Thompson
	Santa Anita	

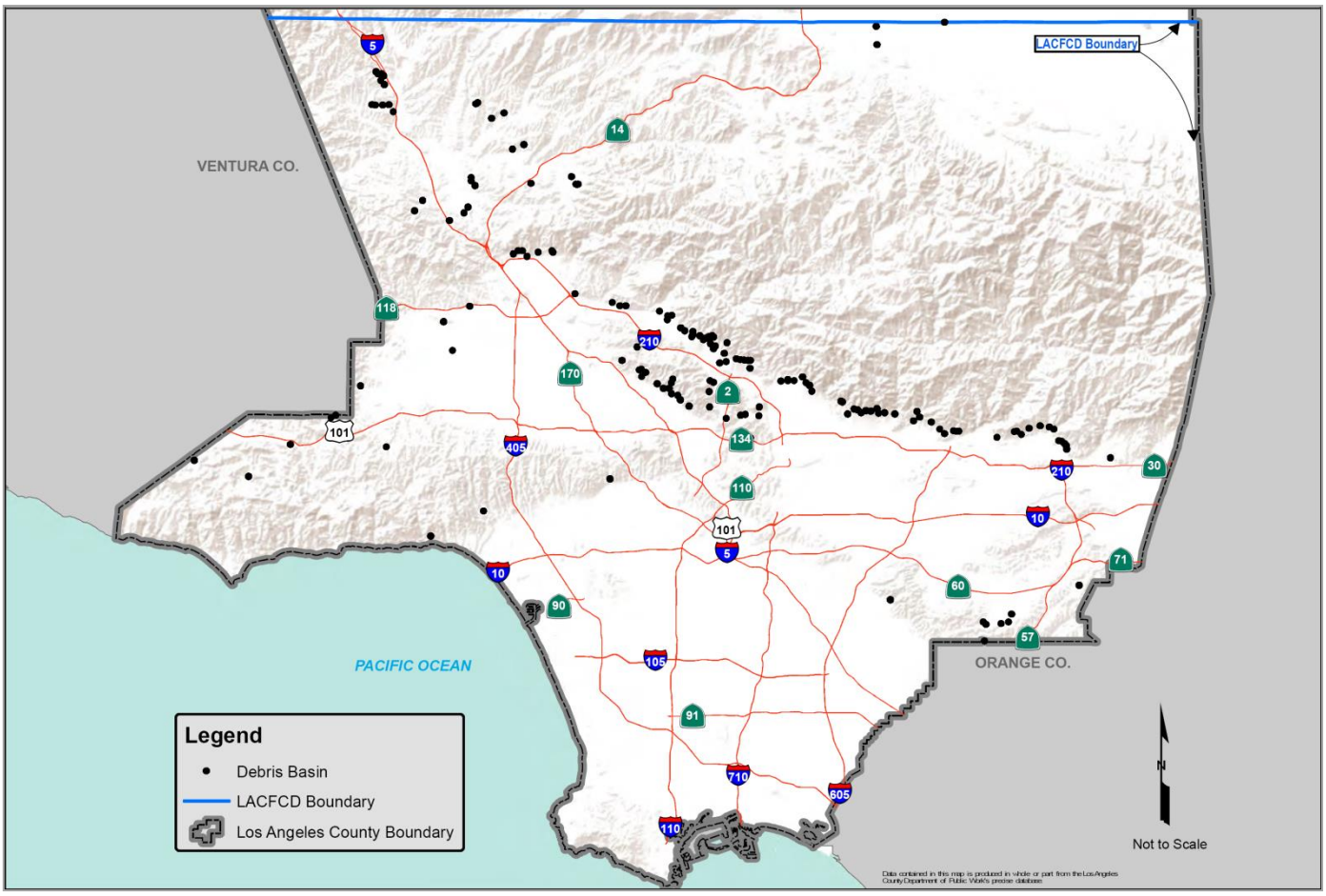
Figure 2-2 Reservoir Locations



2.3 DEBRIS BASINS

Debris basins are instrumental components of the flood risk management system. They are typically located at the mouths of canyons and are used to manage the risk of flooding due to flood water, floatable debris, sediment, boulders, and debris flows that flow from canyons during storms. By settling out the aforementioned materials and allowing the clarified water to flow through, debris basins protect the downstream system. The capacity of most debris basins ranges from 20,000 to 70,000 cubic yards. As of 2012, the Flood Control District was responsible for maintaining the 162 debris basins shown in Figure 2-3. The number of debris basins maintained by the Flood Control District could increase in the future if the maintenance of additional debris basins built by developers is transferred to the Flood Control District.

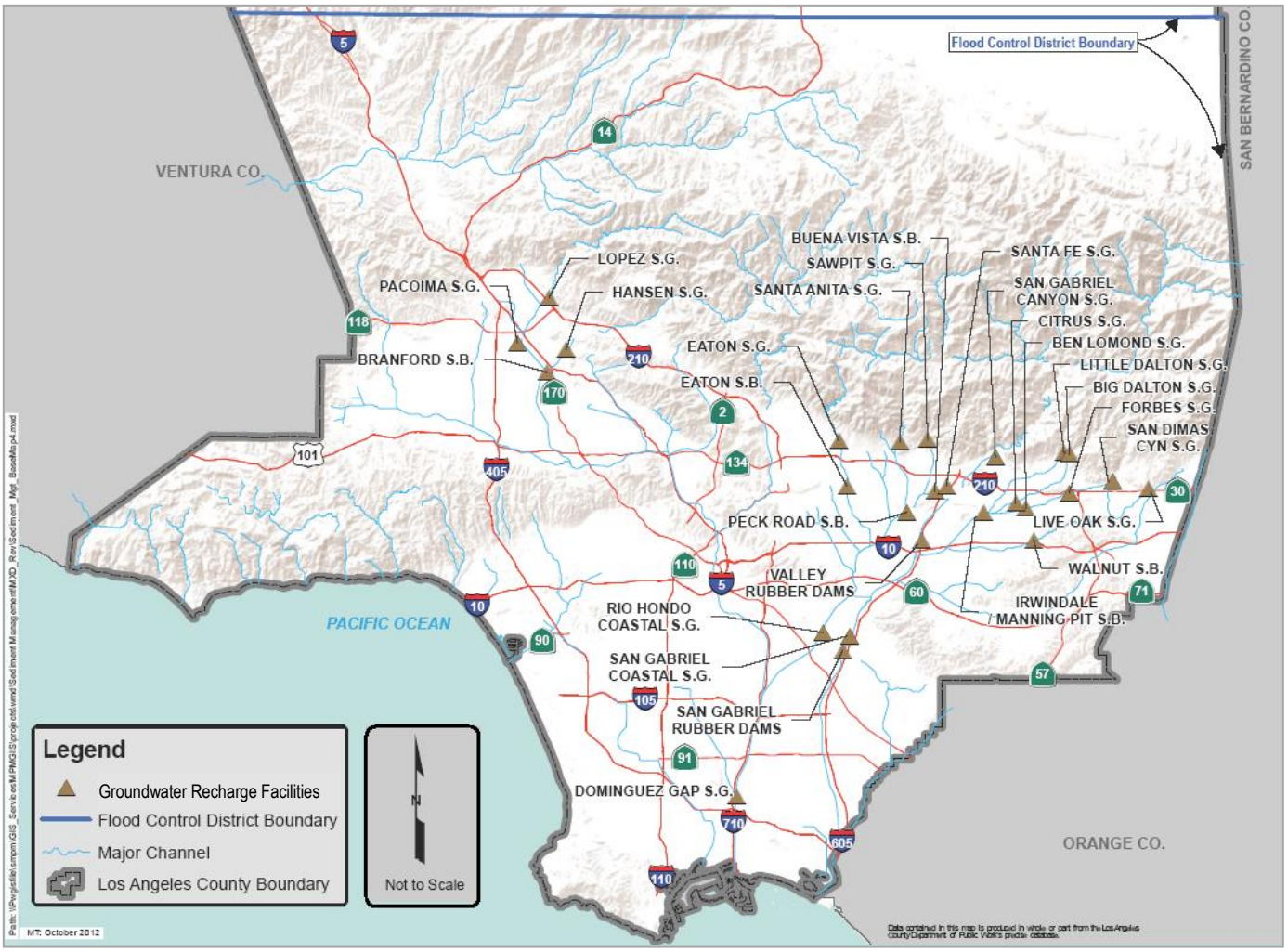
Figure 2-3 Debris Basin Locations



2.4 GROUNDWATER RECHARGE FACILITIES

Groundwater recharge facilities are areas designed for deliberate recharge of groundwater. They are located downstream of reservoirs. This allows for controlled amounts of water in the reservoirs to be released to the recharge facilities in order to recharge groundwater supplies. Groundwater recharge facilities are also used to infiltrate imported water into groundwater aquifers. Groundwater recharge facilities include spreading grounds and riverbed percolation areas. The Flood Control District owns and operates the 26 groundwater recharge facilities shown in Figure 2-4. Additionally, the Flood Control District operates several groundwater recharge facilities for various other agencies. An average of 280,000 acre-feet of water is recharged annually in all. Sediment management operations at reservoirs could potentially impact spreading facilities and their ability to infiltrate water.

Figure 2-4 Groundwater Recharge Facility Locations



2.5 SEDIMENT PLACEMENT SITES

Sediment placement sites (SPSs) are sites developed by the Flood Control District throughout the County to be strategically filled with sediment resulting from the cleanout of the facilities it maintains. Typically, sediment from the debris basins, reservoirs, and spreading facilities maintained by the Flood Control District has been permanently placed at the SPSs. In addition, sediment from the facilities maintained by the Army Corps of Engineers is sometimes deposited at the SPSs. Most of the SPSs used by the Flood Control District are owned in fee; however, there are some that are used under a permit or agreement. Ideally the SPSs are located adjacent to the facilities

they serve in order to reduce haul distances. This is especially important to quickly manage the sediment accumulated in debris basins affected by fires.

For the purpose of this Strategic Plan, the SPSs in the Flood Control District have been categorized into three statuses: active, near-capacity, and potential. An active SPS has capacity to receive sediment and is used when necessary. A near-capacity SPS may be able to receive minimal quantities of sediment depending on the site. A potential SPS was intended to operate as an SPS, but currently does not. The potential SPS category includes sites which have previously been used as an SPS. Development of some of the potential SPSs has not yet been pursued. Others have constraints, which include permitting issues or strong community opposition. Figure 2-5 illustrates the location and status of the SPSs in the Flood Control District.

Figure 2-5 SPS Location and Status

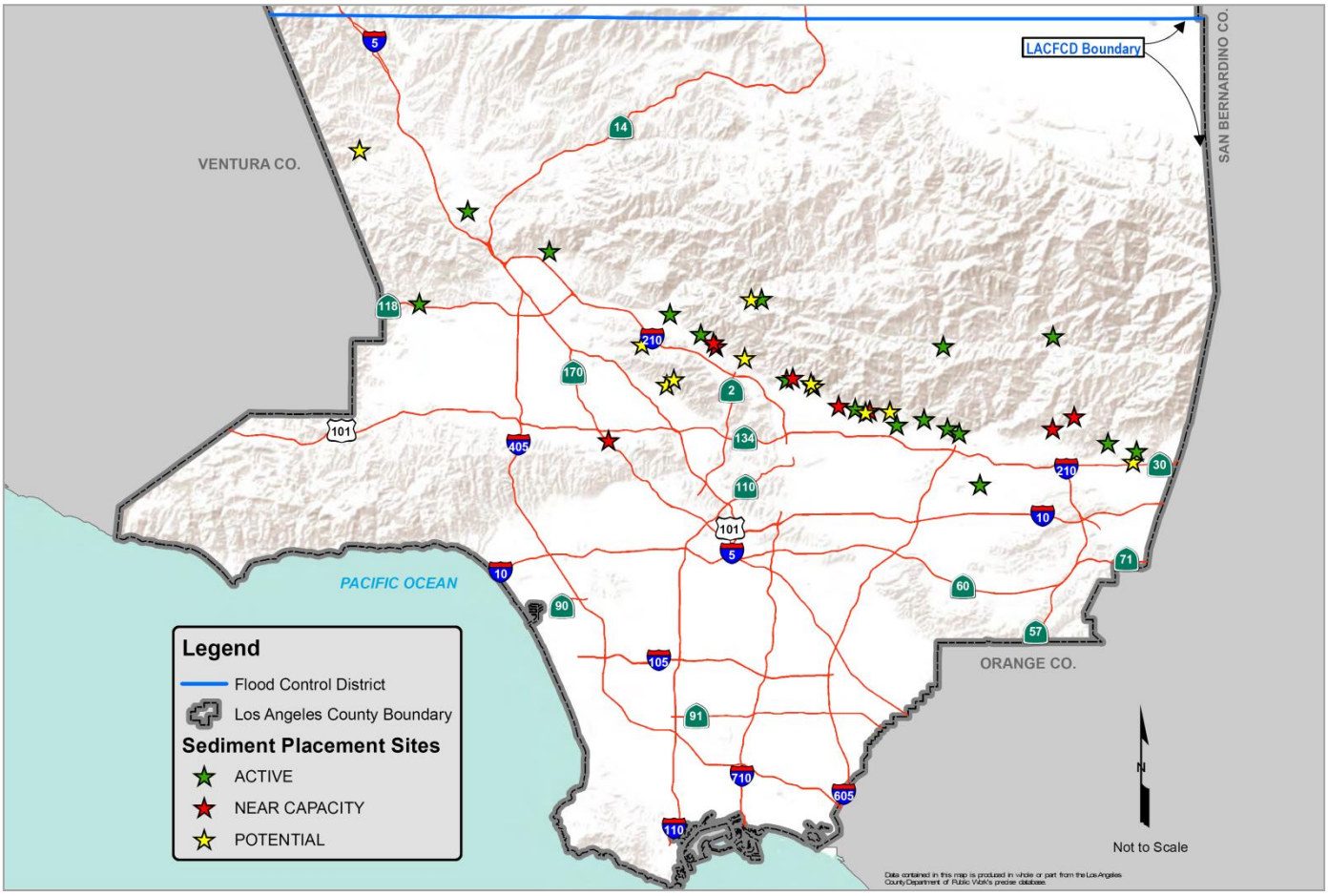


Table 2-3 lists the SPSs by activity status and Flood Maintenance Area as of November 2012. The table also provides information on the estimated remaining capacity. At this time there are 17 SPSs considered active with a combined estimated capacity of 48 MCY. One site in particular, Burro Canyon SPS, has a remaining capacity of approximately 29 MCY, accounting for the bulk of the remaining capacity at all sites. In addition, there are 8 near-capacity SPSs and 11 potential SPSs. The specific predominant constraint or requirement for each potential SPS is detailed in Table 2-4.

Table 2-3 SPS Activity Status and Capacities

Status	Flood Maintenance Area	Facility	Original Capacity (CY)	Estimated Remaining Capacity as of January 2011 (CY)
Active (17 SPSs)	East	Burro[a]	47,175,000	29,425,000
		Cogswell[a]	5,600,000	3,200,000
		Hastings	210,000	80,000
		Lincoln	270,000	12,000
		Maddock	475,000	415,000
		Manning	4,155,000	2,020,000
		San Dimas	Unknown	200,000
		Santa Anita	4,525,000	2,990,000
		Sawpit	1,550,000	390,000
		Spinks	1,150,000	635,000
		Webb	805,000	500,000
	West	Browns	405,000	60,000
		Dunsmuir	2,030,000	560,000
		Maple[b]	12,000,000	4,000,000
		May	4,970,000	3,300,000
		Wildwood	75,000	7,000
		Zachau	510,000	220,000
Near-Capacity (8 SPSs)	East	Auburn	20,000	5,000
		Big Dalton	Unknown	<1,000
		Dalton	1,635,000	<1,000
		Eaton	110,000	<1,000
		West Ravine	Unknown	<1,000
	West	Aqua Vista	40,000	10,000
		Eagle	145,000	<1,000
		Shields	Unknown	<1,000
Potential (11 SPSs)	East	Bailey	130,000	130,000
		Lannan	Unknown	60,000
		Las Flores	15,000	15,000
		Live Oak	295,000	295,000
		Rubio	60,000	25,000
	West	Big Tujunga	5,940,000	150,000
		Del Valle	Unknown	350,000
		Hay	85,000	80,000
		La Tuna	9,000,000	9,000,000
		Sunset Lower	205,000	205,000
		Sunset Upper	345,000	345,000

Notes

a. Cogswell SPS and Burro SPS are designated exclusively for the disposal of sediment from Cogswell and San Gabriel Reservoirs, respectively.

b. The Flood Control District is pursuing the renewal of the U.S. Forest Service Special Use Permit for Maple SPS.

Table 2-4 Potential SPS Status

Potential SPS	Constraint / Other
Bailey	The site is being used as a city park even though the site is owned by the Flood Control District. . It is expected that any attempt to use the site as previously planned, that is, as a sediment placement site, would be met with a high degree of public opposition.
Big Tujunga	Special Use Permit has not been renewed by the issuing agency.
Del Valle	Sites are not developed.
Hay	
Lannan	
Las Flores	
La Tuna	
Live Oak	
Rubio	
Sunset Lower	
Sunset Upper	

2.6 FACILITIES IN THE EAST FLOOD MAINTENANCE AREA

In the East Area there are 12 reservoirs, 17 spreading facilities, 11 active SPSs, 5 SPSs near capacity, and 5 potential SPSs. The East Area maintains 53 debris basins, including 2 debris basins (Fullerton and Harbor Boulevard Debris Basins) located within the boundaries of the South Area. The location of these facilities can be found on Figure 2-6 and Figure 2-7. Table 2-5 provides an alphabetized list of the 53 debris basins in the East Area.

Table 2-5 East Area Debris Basin List

1	Auburn	19	Fullerton	37	Morgan
2	Bailey	20	Gooseberry	38	Mull
3	Beatty	21	Gordon	39	Oak Park
4	Big Dalton	22	Harbor Boulevard	40	Oakglade
5	Bradbury	23	Harrow	41	Rubio
6	Bramhall	24	Hillman	42	Ruby Lower
7	Buena Vista	25	Hook East	43	Santa Anita
8	Carriage House	26	Hook West	44	Sawpit
9	Carter	27	Inverness	45	Sierra Madre Dam
10	Chamberlain	28	Kinneloa East	46	Sierra Madre Villa
11	Crescent Glen	29	Kinneloa West	47	Spinks
12	Crestview	30	Lannan	48	Sturtervant
13	Devonwood	31	Las Flores	49	Sunnyside
14	Emerald East	32	Las Lomas	50	Turnbull
15	Englewild	33	Lincoln	51	Wellington
16	Fair Oaks	34	Little Dalton	52	West Ravine
17	Fern	35	Maddock	53	Westridge
18	Fieldbrook	36	Monument		

Figure 2-6 East Area Debris Basin Map

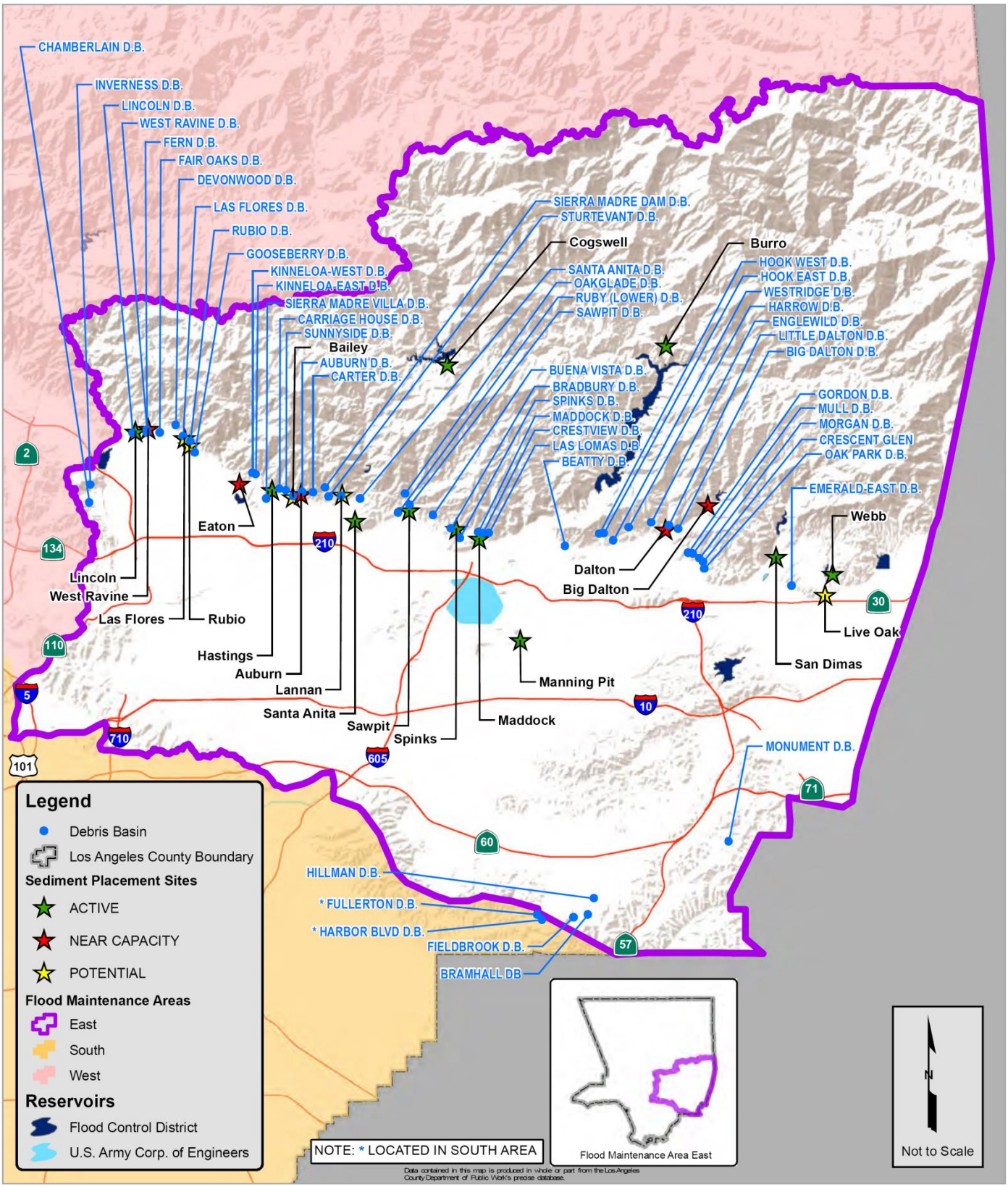
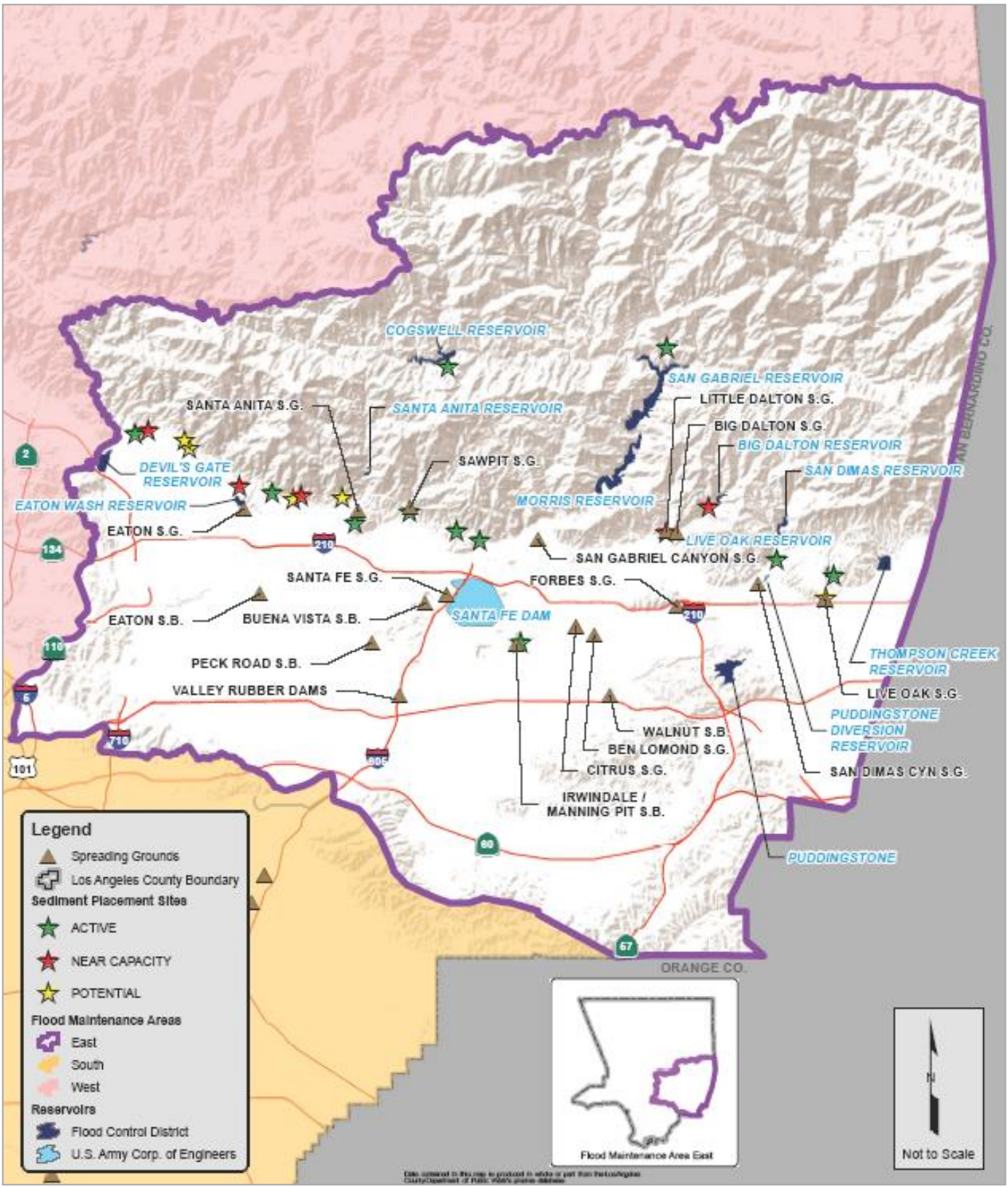


Figure 2-7 East Area Groundwater Recharge Facilities and Reservoirs Map



2.7 FACILITIES IN THE WEST FLOOD MAINTENANCE AREA

In the West Area there are 2 reservoirs, 6 active SPSs, 2 SPSs near capacity, 6 potential SPSs, and 4 spreading facilities. The West Area maintains 106 debris basins, including 1 debris basin (Hazelnut Debris Basin) located within the boundaries of the South Area. The location of these facilities can be found on Figure 2-8 and Figure 2-9. The key for the debris basins on Figure 2-8 can be found in Table 2-6.

Table 2-6 West Area Debris Basin Key

1	Aliso	36	Gould	71	Rowley
2	Arbor Dell	37	Gould Upper	72	Royal Terminus
3	Avenue S	38	Green Hill # 1	73	Saddeback # 1
4	Avenue T-8	39	Green Hill # 2	74	Saddeback # 2
5	Bakerton	40	Greensbrier	75	Saddeback # 3
6	Bell Creek	41	Halls	76	Schoolhouse
7	Big Briar	42	Harter Lane	77	Schwartz
8	Blanchard	43	Haven Way	78	Shadow
9	Blue Gum	44	Hay	79	Shields (Upper)
10	Brace	45	High Sierra	80	Shields
11	Bracemar	46	Hillcrest	81	Skyridge
12	Brand	47	Hipshot # 1	82	Sloan
13	Caitlyn Circle	48	Hog	83	Snover
14	Calle Robleda	49	Irving Drive	84	Sombrero
15	Camp Plenty	50	Knoll	85	Starfall
16	Cardiff	51	La Salle	86	Stetson
17	Cassara	52	La Tuna	87	Stevenson Ranch
18	Chandler	53	Limekiln	88	Stough
19	Childs	54	Linda Vista	89	Stratford
20	Cloud Creek	55	Line "A"	90	Sunset (Lower)
21	Contento	56	Lopez Canyon	91	Sunset (Upper)
22	Cooks	57	May No. 1	92	Sunset Canyon - Deer
23	Cooks M1-A	58	May No. 2	93	Thousand Oaks
24	Copper Hill Line "B"	59	Montana	94	Verdugo
25	Cordoba	60	Moondust	95	Victoria
26	Crystal Springs # 1	61	Mountbatten	96	Ward
27	Deer	62	Mullally	97	Wedgewood
28	Denivelle	63	Mustang	98	Whitney
29	Dry Canyon - South Fork	64	Oak	99	Wilbur
30	Dunsmuir	65	Oakdale	100	Wildwood
31	Eagle	66	Oakmont View Drive	101	William S. Hart Park
32	Elmwood	67	Oliver	102	Wilson
33	Fort Tejon Road	68	Pickens	103	Winery
34	Gold Club Drive	69	Pinelawn	104	Yucca
35	Goss Inlet	70	Rowley (Upper)	105	Zachau
				106	Hazelnut

Figure 2-8 West Area Debris Basin Map

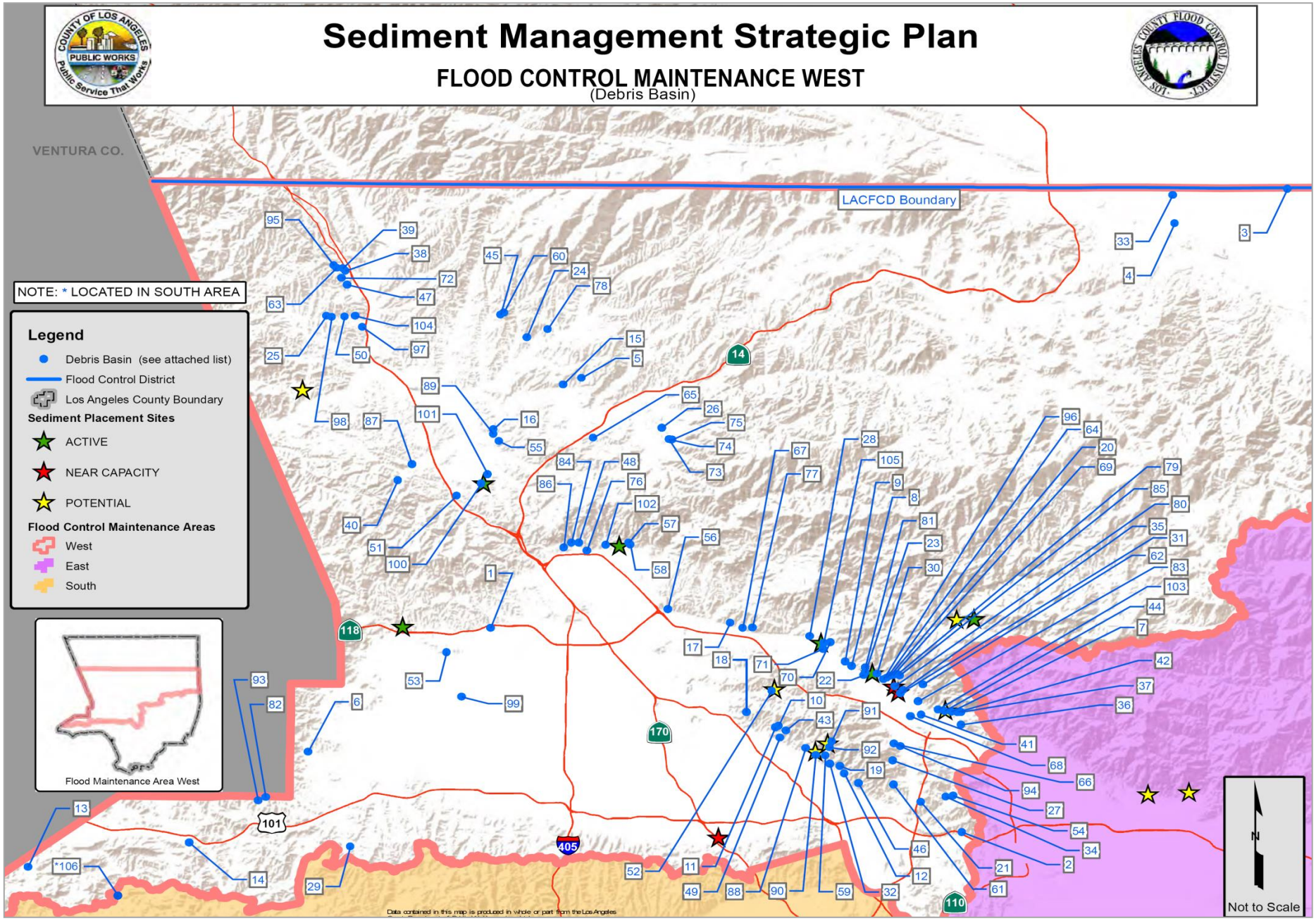
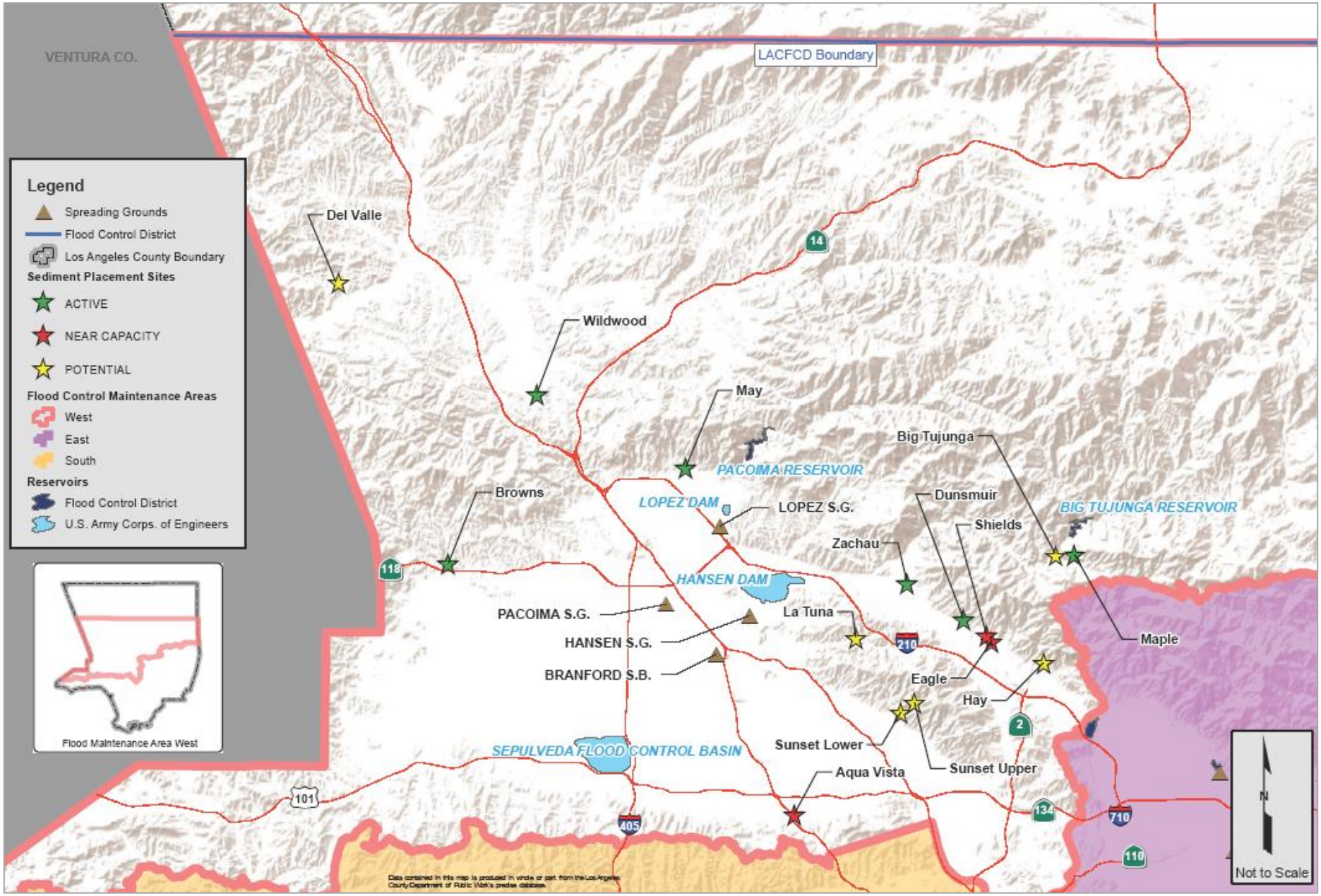


Figure 2-9 West Area Spreading Ground and Reservoir Map



2.8 FACILITIES IN THE SOUTH FLOOD MAINTENANCE AREA

In the South Area there are 8 debris basins, 5 which are maintained by the South Area, 1 by the East Area, and 2 by the West Area. The South Area also has 4 spreading facilities and no reservoirs. The location of these facilities is shown on Figure 2-10.

Figure 2-10 South Area Debris Basin and Spreading Facility Map

2.9 OTHER ENTITIES' FACILITIES RELEVANT TO SEDIMENT MANAGEMENT

While conducting sediment management operations, the Flood Control District sometimes uses facilities owned by other agencies. In the past, the Flood Control District has utilized various solid waste landfills, inert landfills, and inert debris engineered fill operations for sediment placement.

Inactive quarries have the potential of being acquired and developed as SPSs by the Flood Control District, such as was the case for Manning Pit SPS. Additionally, mining does not have to cease before a quarry is able to accept inert debris. This is exemplified by Peck Road Gravel Pit, which in January 2011 was identified as a permitted mining facility and also an inert landfill.

These sediment placement options are addressed further in Sections 6 thru 10.