

Biological Technical Assessment

52 Soft-Bottom Channel Reaches Santa Clara River and Antelope Valley Watersheds

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1.0 INTRODUCTION

This Biological Technical Assessment Report (Report) has been prepared to satisfy requirements of Waste Discharge Requirement Order No. R4-2010-0021 (WDR) adopted by the California Regional Water Quality Control Board (RWQCB), Los Angeles Region, on February 4, 2010, for the Soft-Bottom Flood Control Channels Project maintained by the Los Angeles County Flood Control District (LACFCD). The WDR requires that a Feasibility Study be conducted for all watersheds containing soft-bottom channel (SBC) reaches that are maintained by the LACFCD. As required by the WDR, the first Feasibility Study (FS) was conducted for the 24 SBC reaches in the Los Angeles River Watershed. The second FS was comprised of the nine SBC reaches in the San Gabriel Watershed. The third FS combined the Dominguez Channel (two SBC reaches) and Malibu Creek (nine SBC reaches) Watersheds. This Report covers the 52 SBC reaches of the Santa Clara River and Antelope Valley Watersheds (see Table 1).

As stated in the WDR (Condition 45), the purpose of the Feasibility Study is to provide an “on-going assessment of channel conditions and hydraulic capacity” in order to “determine where a potential may exist for native vegetation to remain within the soft-bottom portion of the channel or if additional hydraulic capacity is needed”. As required by the WDR (Condition 48), a Work Plan was prepared and submitted (LACFCD June 2015) to the RWQCB that provided proposed study methods for the Feasibility Study, including an “assessment of biological functions and values of these reaches” so that “comparisons of habitat type, maturity and extent of native or invasive plants can be made between reaches”. The WDR (Condition 50) requires that the LACFCD “include an assessment of the biological function and values for each reach”.

This Report assesses the biological function and values for each SBC reach, as required by the WDR (Condition 50). The results of this assessment are incorporated into the final recommendations identifying which SBC reaches can sustain additional vegetation and/or replacement of non-native with native vegetation, without affecting the reaches’ hydraulic capacity.

TABLE 1
BIOLOGICAL TECHNICAL ASSESSMENT REPORT
52 SOFT-BOTTOM CHANNEL REACHES
SANTA CLARA RIVER WATERSHED

Reach No.	Reach Name	Reach Limits		Reach Length (ft)	Area (acres)
		Upstream	Downstream		
45	Sand Canyon (PD T1307) Main Channel Inlet	2,018 ft u/s of Soledad Canyon Road	1,916 ft u/s of Soledad Canyon Road	102	0.05
46	Sand Canyon (PD T1307) Main Channel Outlet	1,100 ft u/s of Soledad Canyon Road	1,020 ft u/s of Soledad Canyon Road	84	0.03
47	Santa Clara River Main Channel (PD 1733 unit 1)	d/s edge of State Route 14	1,875 ft d/s of State Route 14	1,658	0.76
48	Mint Canyon Channel between Sierra Highway and Adon Ave	Sierra Highway	1,800 ft d/s Sierra Highway	2,501	3.1
49	Mint Canyon Channel between Adon Ave and Scherzinger Lane	Under Adon Ave	382 ft d/s Adon Ave	385	0.68
50	Mint Canyon Channel between Solamint Rd and Soledad Canyon Rd	768 ft u/s of Soledad Canyon Road	99 ft u/s of Soledad Canyon Road	735	1.54
51	Mint Canyon Main Channel Outlet (PD 1894)/Santa Clara River – Main Channel	1,044 ft d/s of Soledad Canyon Road	Santa Clara River on d/s of Sierra Hwy	931	6.4
52	Sierra Hwy Road Drainage (CDR 523.081)	253 ft southwest of intersection of centerline of Dolan Way and east edge of Sierra Hwy	Confluence with Mint Canyon Channel	772	0.4
53	Santa Clara River Non-Main Channel (PD 832) Main Channel Inlet	25 ft d/s of Sierra Hwy	70 ft d/s of Sierra Hwy	35	0.03
54	Santa Clara River Non-Main Channel (PD 832) Main Channel Outlet	821 ft d/s of Sierra Hwy	1,098 ft d/s of Sierra Hwy	316	0.31
55	Santa Clara River Main Channel – Right Bank Reach (PD's 910, 832, 1758, and 1562 Unit 2)	Sierra Hwy	3,518 ft d/s of Sierra Hwy	3,518	1.63
56	Santa Clara River Main Channel – Left Bank Reach (PD 832)	600 ft d/s Sierra Hwy	2,946 ft d/s of Sierra Hwy	2,346	0.47
57	Whites Canyon (PD T7094) Main Channel Inlet	1,449 ft u/s of Foxlane	753 ft u/s of Foxlane	695	2.64
58 ¹	Santa Clara River Main Channel – Right Bank Reach (PD 374)	2,644 ft u/s of old Soledad Canyon Road bridge (aka Penlon Road; about at Hidaway Ave, produced)	D/s side of new Soledad Canyon Road bridge	2,644	1.21

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Reach No.	Reach Name	Reach Limits		Reach Length (ft)	Area (acres)
		Upstream	Downstream		
60	Santa Clara River Main Channel – Right Bank Reach (PD's 1339 and 374)	D/s side of new Soledad Canyon Road bridge	Confluence with PD 313 (d/s of Newhouse Street, produced)	3,166	1.5
61 ²	Santa Clara River Main Channel (PD 659 and 754)	D/s of new Soledad Canyon Road bridge	Honby Ave, produced	4,715	4.3
63	Oak Road Drainage (CDR 523.081)	Approx. 1,400 ft North of Soledad Canyon Road at SCE Powerlines, West of Oak Ave along eastern power lines	Approx. 2,300 ft North of Soledad Canyon Road at SCE Powerlines, West of Oak Ave along eastern power lines	914	2.8
64	Soledad Canyon Road Drain (CDR 523.071 D Outlet)	Adjacent to (on East side of) Los Angeles Aqueduct North of Soledad Canyon Road approx.. 980 ft.	Approx. 1,250 ft Northwest of intersection of Soledad Canyon Road and Los Angeles Aqueduct	574	0.85
66	Santa Clara River Main Channel (PD 1538)	1,417 ft u/s of Bouquet Canyon Road	706 ft u/s of Bouquet Canyon Road	710	1.04
67	Bouquet Canyon Upper (PD's 1201, 802, 700B, and 625)	63 ft downstream of Hob Ave, produced	153 ft u/s of Urbandale Ave	6,344	16.3
69	Bouquet Canyon Middle (PD's 722, 773, 1365 1065, and 451)	122 ft d/s of Urbandale Ave	54 ft d/s of middle crossing, Bouquet Canyon Road	7,326	12.51
70	Bouquet Canyon Lower (PD's 544 and 345)	2,866 ft u/s lower crossing, Bouquet Canyon Road	D/s side of lower crossing, Bouquet Canyon Road	3,503	854
71	Santa Clara River Main Channel (PD 1946)	276 ft u/s of McBean Parkway (confluence with South Fork Santa Clara River)	D/s edge of McBean Parkway	242	1.01
72	South Fork – Santa Clara River (Smizer Ranch Main Channel Inlet)	1,150 ft u/s Wiley Canyon Road	1,050 ft u/s Wiley Canyon Road	101	0.14
73	Wildwood Canyon Channel (PD T361) Main Channel Inlet	109 ft u/s of Cedartown Street	U/s of Cedartown Street	83	0.05
74	Wildwood Canyon Channel (PD T361)	161 ft d/s of Cedartown Street	277 ft d/s of Cedartown Street	116	0.02
75	South Fork – Santa Clara River (PD's 725, 916, 1041, and 1300)	255 ft d/s of Lyons Ave	D/s edge of Magic Mountain Parkway	14,075	18.92
76	Pico Canyon (PD 813)	Vista Valenica Golf Course	South Fork Santa Clara River	4,116	4.26
77	Newhall Creek Outlet	1,040 ft d/s of 15 th Street	Confluence with South Fork Santa Clara River	2,092	6.29
78	Placerita Creek	D/s edge of San Fernando Road	Confluence with Newhall Creek	376	1.16

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Reach No.	Reach Name	Reach Limits		Reach Length (ft)	Area (acres)
		Upstream	Downstream		
79	South Fork – Santa Clara River (Valencia Boulevard Bridge Stabilizer)	D/s edge of Valencia Blvd	167 ft d/s of Valencia Blvd	168	1.17
80	South Fork Santa Clara River (PD's 1947 and 1946)	3,080 ft u/s of Valencia Blvd	276 ft u/s of McBean Parkway (confluence with Santa Clara River)	2,686	8.18
82	Santa Clara River Main Channel (PD 2278)	1,063 ft u/s of McBean Parkway, north of Newhall Ranch Road	175 ft u/s of McBean Parkway, north of Newhall Ranch Road	849	4.80
86	Violin Canyon Main Channel Outlet	1,021 ft d/s Ridge Route Road	Confluence with Castaic Creek	1,006	1.3
87	Castaic – Old Road Drainage (CDR 525.012 D) Outlet	610 ft d/s of Hasley Canyon Road, east of The Old Road	Confluence with Castaic Creek	225	0.19
88	Hasley Canyon Upper (PD T1496)	755 ft u/s of Sharp Road	330 ft d/s of Sharp Road	1,051	0.42
89	Hasley Canyon South Fork (PD T1496)	331 ft u/s of Romero Canyon Road along South Fork	160 ft u/s of Romero Canyon Road	341	0.28
90	Hasley Canyon Lower (North Fork PD T1496)	1,089 ft u/s of Romero Canyon Road along Main Line	100 ft d/s of Romero Canyon Road	1,051	0.68
91	San Martinez Chiquito Canyon Channel u/s of Keningston Road	530 ft u/s of centerline of San Martinez Road (West of Boron Street)	Keningston Road	599	0.31
92	San Martinez Chiquito Canyon (North Fork) unnamed channel	920 ft u/s of centerline of San Martinez Road	Confluence with San Martinez Chiquito Canyon Channel	768	0.29
93	San Martinez Chiquito Canyon between Keningston Road and Val Verde Park	400 ft d/s of Keningston Road	1,054 ft ds of Keningston Road	1,072	0.56
94	San Martinez Chiquito Canyon from Val Verde Park to d/s of Madison Street	1,092 ft u/s of Chiquito Canyon Road	268 ft d/s of Madison Street	2,446	1.57
95	Project No. 1224	Ave T	Confluence with Little Rock Creek	1,823	7.95
97	PD T1982, Castaic Creek	300 ft d/s of The Old Road	2,300 ft d/s of The Old Road	2,002	2.3
101	Violin Canyon (PD 2312)	2,637 ft u/s of Lake Hughes Road	820 ft u/s of Lake Hughes Road	1,818	5.04
102	Violin Canyon (PD 2275)	1,072 ft u/s of d/s face of Sierra Oak Trail Reinforced Concrete Pipe	94 ft u/s of d/s face of Sierra Oak Trail Reinforced Concrete Pipe	975	1.76
103	Bouquet Canyon Channel (PD 2225)	173 ft d/s of centerline of Newhall Ranch Road (beginning of Grouted Stone Toe)	MWD Fee Right of Way on the Right Bank. Embankment turn at the Santa Clara River on the Left Bank.	1,348	7.31
104	Castaic Creek (PD 2441 Unit 2)	669 ft u/s of Muirfield Lane Centerline	478 ft d/s of Turnberry Lane Centerline	2,223	38.12

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Reach No.	Reach Name	Reach Limits		Reach Length (ft)	Area (acres)
		Upstream	Downstream		
105	San Francisquito Canyon Channel (PD 2456)	417 ft u/s of Decoro Drive Centerline	416 ft d/s of Decoro Drive Centerline	833	13.8
106	Castaic Drain Outlet	Toe of Grouted Riprap Apron	751 ft d/s of Grouted Riprap Apron	751	1.46
107	The Old Road Channel	230 ft u/s of driveway into 24136 The Old Road	U/s of Concrete line channel	1,028	0.51
108	Pico Canyon (PD 2528)	Stevenson Ranch Debris Basin	The Old Road	3,100	1.38
109	Santa Clara River – South Bank west of McBean Parkway (MTD 1510)	371 ft u/s McBean Parkway Centerline	PD 1946	372	5.34
110	Hasley Canyon Channel (PD 2262)	PD 2508	Castaic Creek	3,737	7.79
Sources: LACFCD as provided in WDR Order No. R4-2010-0021 and Table 1 (Project Location) of Streambed Alteration Agreement 1600-2014-0238-R5					
¹ Reaches 58 and 59 were combined to form SBC Reach 58.					
² Reaches 61 and 62 were combined to form SBC Reach 61.					

2.0 LITERATURE REVIEW

A literature review was conducted to review and update existing information gathered through the SBC maintenance program about plant and wildlife species that (1) have been afforded special status by federal, State, and local resource agencies and organizations and (2) have potential to occur in the Santa Clara River Watershed.

Sources reviewed include the following: (1) special status species lists from the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS), and the California Native Plant Society (CNPS); (2) the U.S. Geological Survey's (USGS') Littlerock, Mint Canyon, Newhall, Oat Mountain, Val Verde, Warm Springs Mountain, and Whitaker Peak 7.5-minute quadrangles in the CDFW's California Natural Diversity Database (CNDDDB) (CDFW 2014) and the CNPS' Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014); (3) the most recent *Federal Register* listing package and critical habitat determination for each federally listed Endangered or Threatened species potentially occurring in the Santa Clara River Watershed; (4) the CDFW Annual Report on the status of California's listed Threatened and Endangered plants and wildlife; and (5) other biological studies conducted in the Santa Clara River Watershed that were relevant to this Report, including those conducted previously by Psomas for the LACFCD.

The information gathered during the literature search, including the above CNDDDB database searches, was used by the biologists to develop appropriate survey methods.

3.0 BIOLOGICAL SURVEYS

Biological surveys for plant and wildlife species were performed at each of the 52 SBC reaches (see Table 1). The survey area for each of the 52 SBC reaches included habitats within the channel and on the adjacent channel banks. Most of the surveys were conducted in the spring and summer seasons prior to LACFCD's annual maintenance activities, which are performed during the fall. The surveys at each of these 52 SBC reaches included mapping of vegetation types; focused searches for special status species including Threatened and Endangered plant and wildlife species; and summer season bird surveys. In addition, migratory bird surveys were conducted at Reach 75 on the South Fork Santa Clara River. The methods used to complete these surveys are described below.

3.1 VEGETATION MAPPING SURVEYS

A total of thirty-nine (39) vegetation types and six (6) other non-vegetation type areas were identified during the vegetation mapping surveys of the 52 SBC reaches in this Report (Table 2). Mapping of the vegetation types was accomplished concurrent with the summer season bird surveys and the final focused plant surveys conducted in 2014 for each of these SBC reaches. Recent aerial photographs at a scale of 1 inch = 500 feet were used to map vegetation types. Nomenclature for the vegetation types identified in these surveys generally follows the *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFW 2010b). The vegetation types identified in the surveys generally reflect the vegetation shown on the aerial maps along the alignment of each SBC reach. The survey area for vegetation mapping was greater than some SBC reach dimensions listed in Table 1 because of unclear reach boundaries. The vegetation maps for each SBC reach are included in Appendix A.

TABLE 2
VEGETATION TYPES

Vegetation Type	Reach Numbers
Scale-Broom Scrub Vegetation Types	
scale-broom scrub	47, 51, 54, 55, 56, 58, 60, 61, 66, 70, 75, 77, 78, 80, 82, 88, 89/90, 92, 97, 101, 102, 105, 110
disturbed scale-broom scrub	48, 64, 70, 75, 77, 78, 89/90, 93, 97, 101
scale-broom scrub/mixed willow thicket	75, 80
scale-broom scrub/mule fat thicket	75
scale-broom scrub/tamarisk thicket	87, 97
Mixed Willow Thicket Vegetation Types	
mixed willow thicket	47, 67, 69, 70, 71, 75, 80, 97, 104, 108, 110
mixed willow thicket/cattail marsh	97
mixed willow thicket/mule fat thicket	75
mixed willow thicket/scale-broom scrub	75
mixed willow thicket/ruderal	75
mixed willow thicket/non-native grassland/ruderal	67
sandbar willow thicket	110
Mule Fat Thicket Vegetation Types	
mule fat thicket	48, 55, 56, 69, 75, 79, 80, 82, 101, 103, 104, 105, 106, 107, 110
disturbed mule fat thicket	75, 105
mule fat thicket/scale-broom scrub	75
mule fat thicket/tamarisk thicket	97, 101, 102, 104, 110
Fremont Cottonwood Forest Vegetation Types	
Fremont cottonwood forest	60, 61, 64, 70, 72, 75, 77, 80, 82, 86, 87, 97, 102, 103, 104, 105, 106, 109, 110
Fremont cottonwood forest-coast live oak woodland	107
Fremont cottonwood forest/mule fat thicket	75, 105
Fremont cottonwood forest/mule fat thicket/scale-broom scrub	75
Fremont cottonwood forest/tamarisk thicket	80, 87, 97
Fremont cottonwood forest/disturbed	80
Fremont cottonwood forest/ruderal	80
Fremont cottonwood forest/ruderal/tamarisk thicket	80
individual Fremont cottonwood tree	57, 64, 91, 94
Miscellaneous Vegetation Types	
disturbed coastal sage scrub	104
revegetated sage scrub	109
cattail marsh	55, 56, 69, 72, 76, 97, 102, 108
individual coast live oak trees	45, 54, 74, 89/90, 91, 92, 93, 94
revegetated riparian scrub	105
Non-Native Vegetation Types	
arundo	103, 109
non-native grassland	67, 74, 76, 80, 94, 106
non-native grassland/ruderal	67, 106
ornamental	48, 54, 73, 74, 91, 92, 93, 94

**TABLE 2
VEGETATION TYPES**

Vegetation Type	Reach Numbers
riparian herb	55, 56, 75, 79
ruderal	47, 48, 52, 55, 56, 60, 60, 61, 66, 67, 69, 75, 77, 82, 88, 89/90, 91, 92, 93, 94, 102, 105, 109
ruderal/arundo	70
tamarisk thicket	80, 86, 94, 97, 104, 106
Non-Vegetation Type Areas	Reach Numbers
disturbed	46, 48, 54, 55, 56, 66, 71, 73, 74, 75, 86, 87, 88, 92, 94, 95, 105, 106, 109
Unvegetated wash	45, 47, 48, 49, 50, 51, 52, 54, 55, 56, 57, 58, 60, 61, 63, 66, 67, 69, 70, 75, 76, 77, 78, 79, 80, 87, 88, 89/90, 91, 92, 93, 94, 97, 101, 102, 103, 104, 105, 109, 110
open water	46, 61, 64, 67, 69, 72, 75, 76, 80, 86, 87, 92, 94, 97
ungROUTED riprap	47, 55, 56, 60, 61, 61, 66, 69, 75, 76, 80, 87, 89/90, 94, 97, 104, 105
grouted riprap	54, 55, 56, 72, 75, 88, 105
developed	45, 47, 50, 51, 52, 54, 55, 56, 57, 58, 61, 67, 69, 70, 75, 76, 77, 78, 79, 80, 82, 86, 87, 89/90, 94, 101, 102, 104, 105, 108, 110

3.1.1 Description of Vegetation Types

Scale-Broom Scrub Vegetation Types

Scale broom scrub is present in various amounts and densities in SBC Reaches 47, 51, 54, 55, 56, 58, 60, 61, 66, 70, 75, 77, 78, 80, 82, 88, 89/90, 92, 97, 101, 102, 105, and 110. This native vegetation type is dominated by one or more of the following species: California sagebrush (*Artemisia californica*), scale broom (*Lepidospartum squamatum*), California buckwheat (*Eriogonum fasciculatum*), and thick-leaved yerba santa (*Eriodictyon crassifolium*). Other shrubs sometimes present include white sage (*Salvia apiana*) and mule fat (*Baccharis salicifolia*). The understory varies at each reach in the proportion of herbaceous plant cover to unvegetated wash under the canopy. The understory is relatively open and dominated by small native annual forbs commonly including strigose lotus (*Acmispon strigosus*), sessileflower goldenaster (*Heterotheca sessiliflora*), popcorn flower (*Cryptantha* spp.), and non-native grasses.

Disturbed scale broom scrub is present in various amounts and densities in SBC Reaches 48, 64, 70, 75, 77, 78, 89/90, 93, 97, and 101. This native vegetation type has a similar species composition as the scale broom scrub described above. The shrub cover is much less dense in these areas due to disturbance and the understory consists of a larger percentage of non-native forbs than native forbs, including tocalote (*Centaurea melitensis*), shortpod mustard (*Hirschfeldia incana*), Italian thistle (*Carduus pycnocephalus*), and non-native grasses.

Scale-broom scrub/mixed willow thicket is present in SBC Reaches 75 and 80. This native vegetation type is dominated by one or more of the following species: scale broom (*Lepidospartum squamatum*), California buckwheat (*Eriogonum fasciculatum*), thick-leaved yerba santa (*Eriodictyon crassifolium*), and mixed willow species (*Salix* spp.). The understory is relatively open and dominated by small native annual forbs including strigose lotus (*Acmispon strigosus*), sessileflower goldenaster (*Heterotheca sessiliflora*), popcorn flower (*Cryptantha* spp.), and non-native grasses.

Scale-broom scrub/mule fat thicket is present in SBC Reach 75. This native vegetation type is dominated by one or more of the following species: scale broom (*Lepidospartum squamatum*), California buckwheat (*Eriogonum fasciculatum*), thick-leaved yerba santa (*Eriodictyon crassifolium*), and mulefat (*Baccharis salicifolia*). The understory is relatively open and dominated by small native annual forbs including strigose lotus (*Acmispon strigosus*), sessileflower goldenaster (*Heterotheca sessiliflora*), popcorn flower (*Cryptantha* spp.), and non-native grasses.

Scale-broom scrub/tamarisk thicket is present in SBC Reaches 87 and 97. This native vegetation type is dominated by one or more of the following species: scale broom (*Lepidospartum squamatum*), California buckwheat (*Eriogonum fasciculatum*), thick-leaved yerba santa (*Eriodictyon crassifolium*), and tamarisk (*Tamarix ramosissima*). The understory is relatively open and dominated by small native annual forbs including strigose lotus (*Acmispon strigosus*), sessileflower goldenaster (*Heterotheca sessiliflora*), popcorn flower (*Cryptantha* spp.), and non-native grasses.

Mixed Willow Thicket Vegetation Types

Mixed willow thicket is present in various amounts and densities at Reaches 47, 67, 69, 70, 71, 75, 80, 97, 104, 108, and 110. This native vegetation type consists of riparian vegetation typically dominated by one or more of the following species: arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), Goodding's black willow (*Salix goodingii*), and narrow-leaved willow (*Salix exigua*) with scattered Fremont cottonwood trees (*Populus fremontii*) and mule fat (*Baccharis salicifolia*). The willows are of various sizes and heights due to differing frequencies of scouring from rain events. The willows range from seedlings to trees, the tallest of which are approximately 20 feet high. The understory varies at each reach in the proportion of herbaceous plant cover to unvegetated wash under the canopy. The understory vegetation commonly consists of herbaceous species such as mugwort (*Artemisia douglasiana*), cattails (*Typha* sp.), smilo grass (*Stipa miliacea*), Italian thistle (*Carduus pycnocephalus*), and rigput grass (*Bromus diandrus*).

Mixed willow thicket/cattail marsh is present in SBC Reach 97. This native vegetation type consists of riparian vegetation typically dominated by one or more of the following species: arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), Goodding's black willow (*Salix goodingii*), and narrow-leaved willow (*Salix exigua*) and cattails (*Typha* sp.) with scattered Fremont cottonwood trees (*Populus fremontii*) and mule fat (*Baccharis salicifolia*). The willows are of various sizes and heights due to differing frequencies of scouring from rain events. The willows range from seedlings to trees, the tallest of which are approximately 20 feet high. The understory vegetation consists of herbaceous species such as red brome (*Bromus madritensis* var. *rubens*), common horseweed (*Erigeron canadensis*), shortpod mustard (*Hirschfeldia incana*), deerweed (*Acmispon glaber*), and jimson weed (*Datura wrightii*). Tamarisk (*Tamarix ramosissima*) and giant reed (*Arundo donax*) are present in this vegetation type.

Mixed willow thicket/mulefat thicket is present in Reach 75. This native vegetation type consists of riparian vegetation typically dominated by one or more of the following species: arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), Goodding's black willow (*Salix goodingii*), and narrow-leaved willow (*Salix exigua*) and mule fat (*Baccharis salicifolia*) with scattered Fremont cottonwood trees (*Populus fremontii*). The willows are of various sizes and heights due to differing frequencies of scouring from rain events. The willows range from seedlings to trees, the tallest of which are approximately 20 feet high. The understory vegetation consists of herbaceous species such as cryptantha (*Cryptantha* spp.), fiddleneck (*Amsinkia* spp.), shortpod mustard (*Hirschfeldia incana*), and Mediterranean schismus (*Schismus barbatus*).

Mixed willow thicket/scale-broom scrub is present in SBC Reach 75. This native vegetation type consists of riparian vegetation typically dominated by one or more of the following species:

arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), Goodding's black willow (*Salix goodingii*), and narrow-leaved willow (*Salix exigua*) and scale-broom (*Lepidospartum squamatum*) with scattered Fremont cottonwood trees (*Populus fremontii*) and mule fat (*Baccharis salicifolia*). The willows are of various sizes and heights due to differing frequencies of scouring from rain events. The willows range from seedlings to trees, the tallest of which are approximately 20 feet high. The understory vegetation consists of herbaceous species such as cryptantha (*Cryptantha* spp.), fiddleneck (*Amsinkia* spp.), shortpod mustard (*Hirschfeldia incana*), and Mediterranean schismus (*Schismus barbatus*).

Mixed willow thicket/ruderal is present in Reach 75. This native vegetation type consists of riparian vegetation typically dominated by one or more of the following species: arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), Goodding's black willow (*Salix goodingii*), and narrow-leaved willow (*Salix exigua*) and exotic herbaceous weeds with scattered Fremont cottonwood trees (*Populus fremontii*) and mule fat (*Baccharis salicifolia*). The willows are of various sizes and heights due to differing frequencies of scouring from rain events. The willows range from seedlings to trees, the tallest of which are approximately 20 feet high. The understory was likely disturbed by past activity, allowing it to be vegetated by weedy herbaceous species, such as cryptantha (*Cryptantha* spp.), fiddleneck (*Amsinkia* spp.), shortpod mustard (*Hirschfeldia incana*), and Mediterranean schismus (*Schismus barbatus*).

Mixed willow thicket/non-native grassland/ruderal is present at Reach 67. This native vegetation type is dominated by willow riparian vegetation including Goodding's black willow (*Salix goodingii*) and narrow-leaved willow (*Salix exigua*), non-native grasses including annual beardgrass (*Polypogon monspeliensis*), ripgut grass (*Bromus diandrus*), Bermuda grass (*Cynodon dactylon*), and exotic herbaceous species, including Russian thistle (*Salsola tragus*), shortpod mustard (*Hirschfeldia incana*), tocalote (*Centaurea melitensis*), English plantain (*Plantago lanceolata*), prickly lettuce (*Lactuca serriola*), and white sweetclover (*Melilotus alba*). The willows are of various sizes and heights due to differing frequencies of scouring from rain events. The willows appear to be mowed regularly. The understory was likely disturbed by past activity, allowing it to be vegetated by weedy herbaceous species, such as annual bur-sage (*Ambrosia acanthicarpa*), lamb's quarters (*Chenopodium album*), heliotrope (*Heliotropium curassavicum*), and deerweed (*Acmispon glaber*).

Sandbar willow thicket is present in SBC Reach 110. This native vegetation type is dominated by narrow-leaved willow (*Salix exigua*). The willows range from seedlings to trees, the tallest of which are approximately 20 feet high. The understory vegetation consists of herbaceous species such as California burclover (*Medicago polymorpha*), locoweed (*Astragalus tricopodus*), annual beard grass (*Polypogon monspeliensis*), weedy cudweed (*Pseudognaphalium luteoalbum*), and Bermuda grass (*Cynodon dactylon*).

Mule Fat Thicket Vegetation Types

Mule fat thicket is present in various amounts and densities in SBC Reaches 48, 55, 56, 69, 75, 79, 80, 82, 101, 103, 104, 105, 106, 107, and 110. This native vegetation type is dominated by mule fat (*Baccharis salicifolia*), with scattered willows (*Salix* spp.) and Fremont cottonwood trees (*Populus fremontii*). The understory varies at each reach in the proportion of herbaceous plant cover to unvegetated wash under the canopy. The understory vegetation commonly consists of herbaceous species such as annual bur-sage (*Ambrosia acanthicarpa*), common cryptantha (*Cryptantha intermedia*), jimsonweed (*Datura wrightii*), whispering bells (*Emmenanthe penduliflora*), heliotrope (*Heliotropium curassavicum*), telegraphweed (*Heterotheca grandiflora*), shortpod mustard (*Hirschfeldia incana*), London rocket (*Sisymbrium irio*), and non-native grasses.

Disturbed mule fat thicket is present in SBC Reaches 75 and 105. This native vegetation type is dominated by mule fat (*Baccharis salicifolia*), with scattered willows (*Salix* spp.) and cottonwood trees (*Populus fremontii*). The shrub cover is much less dense in these areas due to disturbance. The understory vegetation consists of a larger percentage of non-native herbaceous species than in undisturbed habitat, including herbaceous species such as annual bur-sage (*Ambrosia acanthicarpa*), common cryptantha (*Cryptantha intermedia*), jimsonweed (*Datura wrightii*), whispering bells (*Emmenanthe penduliflora*), heliotrope (*Heliotropum curassavicum*), telegraphweed (*Heterotheca grandiflora*), shortpod mustard (*Hirschfeldia incana*), London rocket (*Sisymbrium irio*), and non-native grasses.

Mule fat thicket/scale-broom scrub is present in SBC Reach 75. This native vegetation type is dominated by mule fat (*Baccharis salicifolia*) and scale-broom (*Lepidospartum squamatum*), with scattered willows (*Salix* spp.) and cottonwood trees (*Populus fremontii*). The understory vegetation consists of herbaceous species such as annual bur-sage (*Ambrosia acanthicarpa*), common cryptantha (*Cryptantha intermedia*), jimsonweed (*Datura wrightii*), whispering bells (*Emmenanthe penduliflora*), heliotrope (*Heliotropum curassavicum*), telegraphweed (*Heterotheca grandiflora*), shortpod mustard (*Hirschfeldia incana*), London rocket (*Sisymbrium irio*), and non-native grasses.

Mule fat thicket/tamarisk thicket is present in various amounts and densities in SBC Reaches 97, 101, 102, 104, and 110. This native vegetation type is dominated by mule fat (*Baccharis salicifolia*) and tamarisk (*Tamarix ramossisima*), with scattered willows (*Salix* spp.) and cottonwood trees (*Populus fremontii*). The understory in mule fat thicket/tamarisk thicket varies at each SBC reach in the amount of non-native and native herbaceous species to unvegetated wash under the trees. The understory vegetation commonly consists of herbaceous species such as annual bur-sage (*Ambrosia acanthicarpa*), common cryptantha (*Cryptantha intermedia*), jimsonweed (*Datura wrightii*), whispering bells (*Emmenanthe penduliflora*), heliotrope (*Heliotropum curassavicum*), telegraphweed (*Heterotheca grandiflora*), shortpod mustard (*Hirschfeldia incana*), London rocket (*Sisymbrium irio*), and non-native grasses.

Fremont Cottonwood Forest Vegetation Types

Fremont cottonwood forest is present in various amounts and densities in SBC Reaches 60, 61, 64, 70, 72, 75, 77, 80, 82, 86, 87, 97, 102, 103, 104, 105, 106, 109, and 110. This native vegetation type is dominated by Fremont cottonwood trees (*Populus fremontii*), with scattered willows (*Salix* spp.) and mule fat (*Baccharis salicifolia*). Most cottonwood trees are less than 30 feet in height. The understory varies at each reach in the proportion of herbaceous plant cover to unvegetated wash under the canopy. The understory vegetation commonly consists of herbaceous species such as annual bur-sage (*Ambrosia acanthicarpa*), common cryptantha (*Cryptantha intermedia*), jimson weed (*Datura wrightii*), whispering bells (*Emmenanthe penduliflora*), heliotrope (*Heliotropium curassavicum*), telegraphweed (*Heterotheca grandiflora*), shortpod mustard (*Hirschfeldia incana*), London rocket (*Sisymbrium irio*), and non-native grasses.

Fremont cottonwood forest-coast live oak woodland is present in SBC Reach 107. This native vegetation type is dominated by Fremont cottonwood trees (*Populus fremontii*) and coast live oaks (*Quercus agrifolia*) with scattered willows (*Salix* spp.) and mule fat (*Baccharis salicifolia*). Most cottonwood trees are less than 30 feet in height. The understory vegetation consists of herbaceous species such as branching phacelia (*Phacelia ramossisima*), mugwort (*Artemisia douglasiana*), deerweed (*Acmispon glaber*), bush monkeyflower (*Mimulus aurantiacus*), shortpod mustard (*Hirschfeldia incana*), and red brome (*Bromus madritensis* var. *rubens*).

Fremont cottonwood forest/mule fat thicket is present in SBC Reaches 75 and 105. This native vegetation type is dominated by Fremont cottonwood trees (*Populus fremontii*) and mule fat

(*Baccharis salicifolia*) with scattered willows (*Salix* spp.). Most cottonwood trees are less than 30 feet in height. The understory vegetation consists of herbaceous species such as sour clover (*Melilotus indica*), black mustard (*Brassica nigra*), deerweed (*Acmispon glaber*), heliotrope (*Heliotropium curassavicum*), cattail (*Typha* sp.), and foxtail barley (*Hordeum murinum*).

Fremont cottonwood forest/mule fat thicket/scale-broom scrub is present in Reach 75. This native vegetation type is dominated by Fremont cottonwood trees (*Populus fremontii*), mule fat (*Baccharis salicifolia*), and scale-broom (*Lepidospartum squamatum*) with scattered willows (*Salix* spp.). Most cottonwood trees are less than 30 feet in height. The understory vegetation consists of herbaceous species such as sour clover (*Melilotus indica*), black mustard (*Brassica nigra*), deerweed (*Acmispon glaber*), heliotrope (*Heliotropium curassavicum*), cattail (*Typha* sp.), and foxtail barley (*Hordeum murinum*).

Fremont cottonwood forest/tamarisk thicket is present in various amounts and densities in SBC Reaches 80, 87, and 97. This native vegetation type is dominated by Fremont cottonwood trees (*Populus fremontii*) and tamarisk (*Tamarix ramosissima*) with scattered willows (*Salix* spp.) and mule fat (*Baccharis salicifolia*). Most cottonwood trees are less than 30 feet in height. The understory varies at each reach in the proportion of herbaceous plant cover to unvegetated wash under the canopy. The understory vegetation consists of herbaceous species such as annual bur-sage (*Ambrosia acanthicarpa*), deerweed (*Acmispon glaber*), shortpod mustard (*Hirschfeldia incana*), red-stemmed filaree (*Erodium cicutarium*), caterpillar phacelia (*Phacelia cicutaria*), and stinging lupine (*Lupinus hirsutissimus*).

Fremont cottonwood forest/disturbed is present in SBC Reach 80. This native vegetation type is dominated by Fremont cottonwood trees (*Populus fremontii*), with scattered willows (*Salix* spp.) and mule fat (*Baccharis salicifolia*). Most cottonwood trees are less than 30 feet in height. The substrate under the canopy appears to have been disturbed by natural or unnatural means. The understory has sparse and scattered weedy herbaceous species such as annual bur-sage (*Ambrosia acanthicarpa*), deerweed (*Acmispon glaber*), shortpod mustard (*Hirschfeldia incana*), red-stemmed filaree (*Erodium cicutarium*), caterpillar phacelia (*Phacelia cicutaria*), and stinging lupine (*Lupinus hirsutissimus*).

Fremont cottonwood forest/ruderal is present in SBC Reach 80. This native vegetation type is dominated by Fremont cottonwood trees (*Populus fremontii*) and exotic herbaceous species, with scattered willows (*Salix* spp.) and mule fat (*Baccharis salicifolia*). Most cottonwood trees are less than 30 feet in height. The understory was likely disturbed by past activity, allowing it to now be vegetated by weedy herbaceous species such as annual bur-sage (*Ambrosia acanthicarpa*), deerweed (*Acmispon glaber*), shortpod mustard (*Hirschfeldia incana*), red-stemmed filaree (*Erodium cicutarium*), caterpillar phacelia (*Phacelia cicutaria*), and stinging lupine (*Lupinus hirsutissimus*).

Fremont cottonwood forest/ruderal/tamarisk thicket is present in SBC Reach 80. This native vegetation type is dominated by Fremont cottonwood trees (*Populus fremontii*), exotic herbaceous species, and tamarisk (*Tamarix ramosissima*) with scattered willows (*Salix* spp.) and mule fat (*Baccharis salicifolia*). Most cottonwood trees are less than 30 feet in height. The understory was likely disturbed by past activity, allowing it to now be vegetated by weedy herbaceous species such as annual bur-sage (*Ambrosia acanthicarpa*), deerweed (*Acmispon glaber*), shortpod mustard (*Hirschfeldia incana*), red-stemmed filaree (*Erodium cicutarium*), caterpillar phacelia (*Phacelia cicutaria*), and stinging lupine (*Lupinus hirsutissimus*).

Individual Fremont cottonwood tree is present in various amounts and densities in SBC Reaches 57, 64, 91, and 94. This native vegetation type consists of individual Fremont cottonwood trees (*Populus fremontii*) that are typically large, mature, and isolated from other

cottonwood trees. The understory varies at each SBC reach in the amount of non-native and native herbaceous species to unvegetated wash under the trees. Most cottonwood trees are less than 30 feet in height. The understory varies at each reach in the proportion of herbaceous plant cover to unvegetated wash under the canopy. It is sparse and dominated by cottonwood saplings, leaf litter, and herbaceous species, commonly including annual bur-sage (*Ambrosia acanthicarpa*), common cryptantha (*Cryptantha intermedia*), jimsonweed (*Datura wrightii*), whispering bells (*Emmenanthe penduliflora*), heliotrope (*Heliotropium curassavicum*), telegraphweed (*Heterotheca grandiflora*), shortpod mustard (*Hirschfeldia incana*), London rocket (*Sisymbrium irio*), and non-native grasses.

Miscellaneous Vegetation Types

Disturbed coastal sage scrub is present in SBC Reach 104. This native vegetation type is dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*) with scattered scale broom (*Lepidospartum squamatum*) and laurel sumac (*Malosma laurina*). The shrub cover is much less dense in this area and the understory consists of a larger percentage of non-native herbaceous species than native herbaceous species, including tocalote (*Centaurea melitensis*), shortpod mustard (*Hirschfeldia incana*), red brome (*Bromus madritensis* var. *rubens*), red-stemmed filaree (*Erodium cicutarium*), and Mediterranean schismus (*Schismus barbata*).

Revegetated sage scrub is present in SBC Reach 109. This native vegetation type is dominated by California buckwheat (*Eriogonum fasciculatum*), coyote brush (*Baccharis pilularis*), big saltbush (*Atriplex lentiformis*), and black sage (*Salvia mellifera*). It is assumed these individuals are mostly planted from a previous unrelated project. The understory vegetation consists of herbaceous species including shortpod mustard (*Hirschfeldia incana*), tumble mustard (*Sisymbrium altissimum*), caterpillar phacelia (*Phacelia cicutaria*), mugwort (*Artemisia douglasiana*), and annual bur-sage (*Ambrosia acanthicarpa*).

Cattail marsh is present in various amounts and densities in SBC Reaches 55, 56, 69, 72, 76, 97, 102, and 108. This native vegetation type is dominated by cattails (*Typha* spp.), which are emergent plants that grow in one or more feet of water. Cattails readily hybridize between the three species known to occur in California, these species include *T. angustifolia*, *T. domingensis*, and *T. latifolia*. This vegetation type's boundaries and densities are constantly changing due to fluctuations in the water levels and the rapid growth of the species. Plant species in low densities within the cattails include rush (*Juncus* spp.), sedge (*Carex* spp.), and watercress (*Nasturtium officinale*).

Individual coast live oak trees is present in SBC Reaches 45, 54, 74, 89/90, 91, 92, 93, 94. This native vegetation type consists of individual coast live oak trees (*Quercus agrifolia*) typically large, mature, and isolated from other oak trees. The understory is sparse, and dominated by differing proportions of oak saplings, leaf litter, and native and exotic herbaceous species, including caterpillar phacelia (*Phacelia cicutaria*), jimson weed (*Datura wrightii*), common sow thistle (*Sonchus oleraceus*), and cheeseweed (*Malva parviflora*).

Revegetated riparian scrub is present in SBC Reach 105. This native vegetation type consists of mule fat (*Baccharis salicifolia*), stunted cottonwood (*Populus fremontii*), purple sage (*Salvia leucophylla*), white sage (*Salvia apiana*), and California buckwheat (*Eriogonum fasciculatum*). This vegetation type appears to be planted during a previous unrelated project because old irrigation pipes are still present. The gaps between the shrubs are very weedy, consisting of shortpod mustard (*Hirschfeldia incana*) and tree tobacco (*Nicotiana glauca*).

Non-Native Vegetation Types

Arundo is present in SBC Reaches 103 and 109. This non-native vegetation type consists of giant reed (*Arundo donax*). Giant reed generally grows in very dense clumps, displacing other plant species. It is a noxious weed and will spread unless controlled. Other species that commonly grow with giant reed are tamarisk (*Tamarix ramosissima*) and willows (*Salix* spp.).

Non-native grassland occurs in various amounts and densities in SBC Reaches 67, 74, 76, 80, 94, and 106. Annual grassland vegetation is dominated by an understory of annual grass species including perennial ryegrass (*Festuca perennis*), ripgut grass (*Bromus diandrus*), red brome (*Bromus madritensis* var. *rubens*), rattail fescue (*Festuca myuros*), and wild oat (*Avena* sp.), at these SBC reaches. There is no overstory of shrubs or trees. Additional non-native forbs that can be scattered throughout this vegetation type include tocalote (*Centaurea melitensis*), Italian thistle (*Carduus pycnocephalus*), and white sweetclover (*Melilotus alba*).

Non-native grassland/ruderal is present in SBC Reaches 67 and 106. This non-native vegetation type is dominated by an understory with an even mix of exotic grass species and exotic herbaceous species. There is no overstory of shrubs or trees. The exotic grasses can include ripgut grass (*Bromus diandrus*), red brome (*Bromus madritensis* var. *rubens*), and wild oat (*Avena* sp.). The exotic herbaceous species include tocalote (*Centaurea melitensis*), Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*), and white sweetclover (*Melilotus alba*).

Ornamental is present in various amounts and densities in SBC Reaches 48, 54, 73, 74, 91, 92, 93, 94. This non-native vegetation type is typically dominated by non-native trees and shrubs that often originate from propagules from nearby landscaping. These species commonly include gum (*Eucalyptus* sp.), tree of heaven (*Ailanthus altissima*), beech (*Fagus* sp.), Chinese elm (*Ulmus parvifolia*), oleander (*Nerium oleander*), and Spanish broom (*Spartium junceum*). The understory will commonly be dominated by leaf litter and exotic weeds.

Riparian herb is present in various amounts and densities in SBC Reaches 55, 56, 75, and 79. This vegetation type is located in or adjacent to open water. It can be dominated by varying densities of native or non-native herbaceous species with no overstory. The understory vegetation typically consists of scattered cattails (*Typha* sp.), annual beard grass (*Polypogon monspeliensis*), yellow water weed (*Ludwigia peploides*), willow weed (*Persicaria lapathifolia*), and watercress (*Nasturtium officinale*).

Ruderal vegetation is present in various amounts and densities in SBC Reaches 47, 48, 52, 55, 56, 60, 60, 61, 66, 67, 69, 75, 77, 82, 88, 89/90, 91, 92, 93, 94, 102, 105, and 109. This non-native vegetation type generally consists of exotic herbaceous species typically in the more upland areas of the SBC reaches. This vegetation type is characteristic of areas that have been previously disturbed and now consist primarily of weedy species that are well-adapted to disturbed conditions. Species observed throughout the ruderal areas of these SBC reaches include shortpod mustard (*Hirschfeldia incana*), Russian thistle (*Salsola tragus*), tocalote (*Centaurea melitensis*), Italian thistle (*Carduus pycnocephalus*), telegraph weed (*Heterotheca grandiflora*), red brome (*Bromus madritensis* var. *rubens*), ripgut grass (*Bromus diandrus*), annual beard grass (*Polypogon monspeliensis*), white sweetclover (*Melilotus alba*), lamb's quarters (*Chenopodium album*), fiddleneck (*Amsinkia* sp.), and annual bur-sage (*Ambrosia acanthicarpa*).

Ruderal/arundo is present in SBC Reach 70. This non-native vegetation type is dominated by exotic herbaceous species and arundo (*Arundo donax*). It is typically in the more upland areas of the SBC reaches. This vegetation type is characteristic of areas that have been previously disturbed and now consist primarily of weedy species that are well-adapted to disturbed conditions. Species observed throughout the ruderal areas of these SBC reaches include

shortpod mustard (*Hirschfeldia incana*), Russian thistle (*Salsola tragus*), tocalote (*Centaurea melitensis*), Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*), telegraph weed (*Heterotheca grandiflora*), red brome (*Bromus madritensis* var. *rubens*), ripgut grass (*Bromus diandrus*), annual beard grass (*Polypogon monspeliensis*), white sweetclover (*Melilotus alba*), lamb's quarters (*Chenopodium album*), annual bur-sage (*Ambrosia acanthicarpa*), and fiddleneck (*Amsinkia* spp.)

Tamarisk thicket is present in various amounts and densities in SBC Reaches 80, 86, 94, 97, 104, and 106. This non-native vegetation type consists of a dense canopy of tamarisk (*Tamarix ramosissima*). Tamarisk trees send deep roots down to the water table, allowing it to out-compete nearby plant species. It is a noxious weed because of its prolific seed production and will spread unless controlled. Other species that commonly grow with tamarisk are giant reed (*Arundo donax*) and willows (*Salix* spp.).

Non-Vegetation Type Areas

Disturbed areas are present in various amounts in SBC Reaches 46, 48, 54, 55, 56, 66, 71, 73, 74, 75, 86, 87, 88, 92, 94, 95, 105, 106, and 109. This is not a vegetation type, but is delineated as a mapping unit on the vegetation maps. In these SBC reaches, it consists of dirt roads, tilled river-bottom or banks, or any kind of disturbed soil. These areas typically contain exposed soil without concrete or development and little to no vegetation.

Unvegetated wash is present in various amounts in SBC Reaches 45, 47, 48, 49, 50, 51, 52, 54, 55, 56, 57, 58, 60, 61, 63, 66, 67, 69, 70, 75, 76, 77, 78, 79, 80, 87, 88, 89/90, 91, 92, 93, 94, 97, 101, 102, 103, 104, 105, 109, and 110. Unvegetated wash is not a vegetation type, but is delineated as a mapping unit on the vegetation maps. It occurs where flood events have scoured an area and the water has since evaporated, but vegetation has not yet begun to grow. These areas are typically colonized by riparian vegetation following an unpredictable amount of time after scouring events. Unvegetated wash consists of bare sand or silt that does not contain any vegetation.

Open water is present at the time of surveys and mapped in SBC Reaches 46, 61, 64, 67, 69, 72, 75, 76, 80, 86, 87, 92, 94, and 97. Open water is not a vegetation type, but is delineated as a mapping unit on the vegetation maps. Open water typically consists of fresh water in the center of the SBC reaches that was either flowing or ponding. These areas occasionally contain a few cattails and/or duckweed.

UngROUTED Riprap is present in SBC Reaches 47, 55, 56, 60, 61, 61, 66, 69, 75, 76, 80, 87, 89/90, 94, 97, 104, and 105. UngROUTED riprap consists of boulders placed on channel banks to prevent erosion. It is sometimes mapped as developed areas on vegetation maps. UngROUTED riprap can support a limited amount of ornamental or weedy plant species that may grow in the small cracks between the boulders. As a result, it is delineated as a separate mapping unit on the vegetation maps for the SBC reaches.

Grouted riprap is present in SBC Reaches 54, 55, 56, 72, 75, 88, and 105. Grouted riprap consists of boulders placed on channel banks to prevent erosion, and concrete has been poured between the boulders to prevent them from dropping. The grout prevents sun and precipitation exposure to the soil underneath like in ungrouted riprap, preventing any vegetation from growing. Grouted riprap is sometimes mapped as developed areas on vegetation maps due to its complete lack of vegetation. As a result, grouted riprap is delineated as a separate mapping unit on the vegetation maps for the SBC reaches.

Developed areas occur in SBC Reaches 45, 47, 50, 51, 52, 54, 55, 56, 57, 58, 61, 67, 69, 70, 75, 76, 77, 78, 79, 80, 82, 86, 87, 89/90, 94, 101, 102, 104, 105, 108, and 110. In the SBC reaches, developed areas are generally structures such as concrete levees. These structures support minimal vegetation, if any. Developed areas are not a vegetation type, but are delineated as mapping units on the vegetation maps.

3.2 SPECIAL STATUS PLANT SURVEYS

Focused surveys for special status plant species are conducted on a periodic basis for the SBC reaches maintained by the LACFCD, including the Santa Clara River Watershed. These special status plant species surveys are discussed in more detail below for the 52 SBC reaches in this Report.

Literature reviews and habitat assessments conducted for the LACFCD's SBC maintenance program in 2002 identified two listed species, the slender-horned spineflower (*Dodecahema leptoceras*) and Nevin's barberry (*Berberis nevini*), as potentially occurring in the SBC reaches. Potentially suitable habitat for the federally and State-listed Endangered slender-horned spineflower was identified at several SBC reaches in the Santa Clara River Watershed. Surveys for this species were not conducted in 2002, however, due to drought conditions. The slender-horned spineflower is an annual species that appears only after seasons with sufficient rainfall. The federally and State-listed Endangered Nevin's barberry is a large and conspicuous shrub that can be identified year-round. Focused surveys were conducted in 2002 at all SBC reaches identified as having potentially suitable habitat for this species. In the Santa Clara River Watershed, these surveys were conducted in 2002 at the following 25 SBC reaches: 45, 46, 47, 55, 56, 58, 60, 61, 66, 71, 75, 77, 78, 79, 80, 82, 86, 87, 88, 89, 90, 91, 92, 93, and 94. The results of the 2002 surveys for Nevin's barberry were negative at all SBC reaches.

After a season of sufficient rainfall, focused surveys were conducted in 2003 at all SBC reaches identified in 2002 as having potentially suitable habitat for this slender-horned spineflower. In the Santa Clara River Watershed, these surveys were conducted at the following 15 SBC reaches: 45, 47, 55, 56, 58, 60, 61, 66, 75, 77, 78, 79, 88, 89, and 92. The results of these 2003 surveys for slender-horned spineflower were negative at all SBC reaches. After the focused plant surveys conducted in 2002 and 2003, no further surveys for the slender-horned spineflower and Nevin's barberry were recommended in the SBC reaches as long as the existing maintenance plan and associated access routes were followed (BonTerra 2003).

As part of this Report, focused surveys for special status plant species were performed in 2014 at each of the 52 SBC reaches in the Santa Clara River Watershed. The surveys were conducted by Psomas Senior Biologists Brian Daniels, Jennifer Pareti and Allison Rudalevige, Psomas Biologists Jason Mintzer and Sarah Thomas, and Leatherman Consulting Senior Botanist Sandra Leatherman. The survey dates and personnel are listed below in Table 3. Early and late spring surveys were conducted in all reaches in April, May, and June for spring and early summer blooming special status plant species. Summer surveys were conducted for Reaches 87 and 97 because the early surveys determined that suitable habitat for summer/fall blooming special status plant species were present along these reaches. In addition, vegetation transects surveys were conducted at all soft bottom reaches in the fall months allowing for additional observations to occur for fall blooming species.

TABLE 3
FOCUSED PLANT SURVEY DATES AND PERSONNEL

Reach	Early Spring Survey	Surveyors	Late Spring Survey	Surveyors
45	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
46	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
47	April 25, 2014	Leatherman, Mintzer	June 3, 2014	Pareti, Mintzer
48	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
49	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
50	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
51	April 25, 2014	Leatherman, Mintzer	June 2, 2014	Pareti, Rudalevige
52	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
53	May 9, 2014	Pareti, Mintzer	June 11, 2014	Leatherman, Thomas, Daniels
54	April 10, 2014	Pareti, Mintzer	June 2, 2014	Pareti, Rudalevige
55	April 25, 2014	Leatherman, Mintzer	June 2, 2014	Pareti, Rudalevige
56	April 25, 2014	Leatherman, Mintzer	June 2, 2014	Pareti, Rudalevige
57	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
58 ¹	April 25, 2014	Leatherman, Mintzer	June 2, 2014	Leatherman, Thomas
60	April 28, 2014	Leatherman, Pareti, Mintzer, Thomas,	June 2, 2014	Leatherman, Thomas
61 ²	April 28, 2014	Pareti, Mintzer	June 2, 2014	Leatherman, Thomas
63	April 28, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
64	April 28, 2014	Leatherman, Thomas	June 3, 2014	Pareti, Mintzer
66	April 28, 2014	Leatherman, Thomas	June 3, 2014	Pareti, Mintzer
67	April 7, 2014	Leatherman, Pareti	May 27, 2014	Leatherman, Mintzer
69	April 7, 2014	Leatherman, Pareti	May 27, 2014	Leatherman, Mintzer
70	April 7, 2014	Leatherman, Pareti	May 27, 2014	Leatherman, Mintzer
71	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Leatherman, Thomas
72	May 9, 2014	Pareti, Mintzer	June 3, 2014	Leatherman, Thomas
73	April 25, 2014	Pareti, Rose	June 11, 2014	Leatherman, Thomas, Daniels
74	April 24, 2014	Pareti, Rose	June 11, 2014	Leatherman, Thomas, Daniels
75	April 29, 2014	Pareti, Rudalevige, Rose	May 28, 2014	Leatherman, Pareti
76	April 25, 2014	Pareti, Rose	May 28, 2014	Leatherman, Pareti
77	April 25, 2014	Pareti, Rose	May 28, 2014	Leatherman, Pareti
78	April 25, 2014	Pareti, Rose	May 28, 2014	Leatherman, Pareti
79	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Leatherman, Thomas
80	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Leatherman, Thomas
82	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Pareti, Mintzer
86	April 25, 2014	Rudalevige, Thomas	May 27, 2014	Leatherman, Mintzer
87 ³	May 1, 2014	Pareti, Mintzer	June 10, 2014	Leatherman, Thomas, Daniels
88	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
89	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
90	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
91	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
92	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
93	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
94	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
95	April 28, 2014	Thomas, Mintzer	May 28, 2014	Leatherman, Pareti

TABLE 3
FOCUSED PLANT SURVEY DATES AND PERSONNEL

Reach	Early Spring Survey	Surveyors	Late Spring Survey	Surveyors
97 ³	May 1, 2014	Pareti, Mintzer	June 10, 2014	Leatherman, Thomas, Daniels
101	April 25, 2014	Rudalevige, Thomas	May 27, 2014	Leatherman, Mintzer
102	May 1, 2014	Pareti, Mintzer	May 27, 2014	Leatherman, Mintzer
103	April 29, 2014	Leatherman, Mintzer	June 10, 2014	Leatherman, Thomas, Daniels
104	May 1, 2014	Pareti, Mintzer	June 10, 2014	Leatherman, Thomas, Daniels
105	May 9, 2014	Pareti, Mintzer, Thomas	June 3, 2014	Leatherman, Thomas
106	May 1, 2014	Pareti, Mintzer	June 10, 2014	Leatherman, Thomas, Daniels
107	May 9, 2014	Pareti, Mintzer, Thomas	June 3, 2014	Leatherman, Thomas
108	May 9, 2014	Pareti, Mintzer, Thomas	June 10, 2014	Leatherman, Thomas, Daniels
109	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Leatherman, Thomas
110	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Leatherman, Thomas, Daniels
¹ Reaches 58 and 59 were combined to form SBC Reach 58. ² Reaches 61 and 62 were combined to form SBC Reach 61. ³ Reaches 87 and 97 were surveyed during the summer blooming window for white rabbit-tobacco (<i>Pseudognaphalium leucocephalum</i>) on August 7, 2014 by Leatherman, Mintzer and on August 19, 2014 by Leatherman, Thomas.				

Two special status plant species, white rabbit-tobacco (*Pseudognaphalium leucocephalum*) and Southern California black walnut (*Juglans californica*), were observed during these 2014 focused plant surveys. The white rabbit-tobacco is a biennial herb that occurs in sandy or gravelly benches and dry stream beds (Baldwin et al. 2012). This species has a California Rare Plant Rank (CRPR) of 2B.2, which is a designation for plants that are “rare, threatened, or endangered in California but more common elsewhere.” The white rabbit-tobacco was observed in SBC reaches 87 and 97. The Southern California black walnut is a tree that occurs on hillsides and in canyons at elevations between approximately 100 to 3,000 feet above mean sea level (Baldwin et al. 2012). This species has a CRPR of 4.2, which is a “watch list” for plants of limited distribution. Southern California black walnuts were observed in SBC reaches 72, and 107. The complete focused plant survey is included in Appendix B.

3.3 SPECIAL STATUS WILDLIFE SURVEYS

Focused surveys for special status wildlife species are conducted on a regular basis for the 100 plus SBC reaches managed by the LACFCD. Table 4 provides the 2015 and 2016 survey results for SBC reaches in this Report. These special status wildlife species including the State- and federally listed Endangered unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) are discussed in more detail below.

TABLE 4
2016-2017 SURVEY RESULTS FOR SPECIAL STATUS WILDLIFE

Reach Number	Unarmored Threespine Stickleback 2016 Results	Arroyo Toad 2017 Results	Southwestern Willow Flycatcher 2017 Results	Least Bell's Vireo 2017 Results	Yellow-billed Cuckoo 2016 Results
47	Negative	N/A	N/A	N/A	N/A
51	Negative	N/A	N/A	N/A	N/A
54	Negative	N/A	N/A	N/A	N/A
55	Negative	N/A	N/A	N/A	N/A
56	Negative	N/A	N/A	N/A	N/A
58	Negative	N/A	N/A	N/A	N/A
60	Negative	N/A	N/A	N/A	N/A
61	Negative	N/A	N/A	N/A	N/A
63	Negative	N/A	N/A	N/A	N/A
64	Negative	N/A	N/A	N/A	N/A
66	Negative	N/A	N/A	N/A	N/A
67	Potential	N/A	N/A	N/A	N/A
69	Potential	N/A	N/A	N/A	N/A
70	Negative	N/A	N/A	N/A	N/A
71	Negative	Negative	Negative	Negative	Negative
75	Negative	Negative	Negative	Negative	N/A
79	Negative	Negative	Negative	Negative	Negative
80	Negative	Negative	Negative	Negative	Negative
82	Negative	Negative	Negative	Negative	Negative
86	Negative	Negative	Negative	Negative	N/A
87	Negative	Negative	Negative	Negative	Negative
97	Negative	Negative	Negative	Negative	Negative
103	Potential	N/A	Negative	1 territory (Pair fledged at least two young)	Negative
104	Negative	Negative	Negative	Negative	Negative
105	Negative	Negative	Negative	Negative	N/A
106	N/A	N/A	Negative	Negative	N/A
109	Negative	Negative	Negative	Negative	Negative
110	N/A	N/A	Negative	Negative	N/A

N/A: Not applicable (i.e., no survey conducted because there is no potential habitat for the species at that channel reach)..

3.3.1 Unarmored Threespine Stickleback

As required by the regulatory permits, annual pre-clearing surveys for the unarmored threespine stickleback (UTS) are conducted in those SBC reaches with potential for UTS in the Santa Clara River Watershed. Habitat assessments conducted in 2002 and 2003 for the LACFCD's Soft-Bottom Flood Control Channels Project identified SBC Reaches 47, 51, 54, 55, 56, 58, 60, 61, 63, 64, 66, 67, 69, 70, 71, 79, 80, 82, 86, 87, and 97 as having the potential to support suitable UTS habitat (i.e. flowing or ponding water in waterways that support the species). Even though clearing activities have not yet been performed at SBC Reaches 101 thru 110, the potential for suitable UTS habitat has been identified at SBC Reaches 103, 104, 105, and 109, and the annual pre-clearing surveys have included these four SBC reaches in order to gather baseline information. The pre-clearing surveys are conducted in late summer when most of these SBC reaches are dry. Water that is present during the summer season, is an urban runoff product that is often ephemeral.

The pre-clearing surveys first detected UTS in the SBC Reaches after the 2004-2005 rain season, which was one of the wettest seasons on record for the region. The 2005 pre-clearing surveys observed UTS in four Bouquet Canyon SBC reaches (67, 69, 70, and 103) and in two Castaic Creek SBC reaches (87 and 97). The UTS did not persist at the Castaic Creek SBC reaches and have not been detected during pre-clearing surveys conducted from 2006 to 2015 at SBC Reaches 87 and 97. UTS did persist in the Bouquet Canyon SBC Reaches until 2007 when a fire in the watershed resulted in an emergency clearing of SBC Reaches 67, 69, and 70. An agency approved relocation effort in January 2008 found only one individual UTS in Reach 67 (BonTerra 2008). Since only one individual UTS was located during this effort, the decision was made to leave it in its refuge and avoid the pond and surrounding vegetation during the emergency clearing activities. UTS was not observed during pre-clearing surveys conducted from 2008 to 2011 in SBC Reaches 67, 69, and 70. UTS was observed again in SBC Reach 69 during the 2012 pre-clearing surveys and clearing activities were not conducted in SBC Reaches 67 and 69. The pre-clearing surveys were again negative in 2013 at SBC Reaches 67 and 69 and clearing activities resumed at those two SBC reaches in 2013. For the 2014-2015 rain season, the LACFCD regulatory permits were renewed for only the non-sensitive SBC reaches. As a result, pre-clearing surveys were not conducted in 2014 at those SBC reaches (47, 51, 54, 55, 56, 58, 60, 61, 63, 64, 66, 67, 69, 70, 71, 79, 80, 82, 86, 87, and 97) with potential to support suitable UTS habitat. The 2015 and 2016 pre-clearing survey methods were adjusted from presence/absence surveys to surveys for potentially suitable UTS habitat to be avoided during clearing activities¹.

Of the four new SBC reaches with potential to support suitable UTS habitat, UTS has been present in SBC Reaches 103 and 109. The UTS was observed in SBC Reach 103 from 2005 to 2008, but not from 2009 to 2013. Surveys for UTS began at SBC Reach 109 in 2009 and it was observed in 2009, 2010, and 2011, but not from 2012 and 2013. SBC Reaches 103 and 109 contained potentially suitable habitat for UTS in 2015 and 2016.

¹ Although the USFWS does issue incidental take permits for UTS, this change in survey methods was necessitated because UTS is a California Fully Protected Species for which the CDFW cannot issue any such take permits.

3.3.2 Arroyo Toad

Focused surveys for the federally listed Endangered arroyo toad (*Anaxyrus californicus*) were conducted at 11 SBC reaches in the Santa Clara River Watershed in 2015: Castaic Creek SBC Reaches 86, 87, 97, and 104; San Francisquito Wash SBC Reach 105; South Fork Santa Clara River SBC Reaches 75 (but only the northern part of this channel reach from Magic Mountain Parkway upstream to the Via Princessa bridge) and 79; SBC Reach 80 at the confluence of the Santa Clara and South Fork Santa Clara Rivers; and Santa Clara River SBC Reaches 71, 82, and 109. These SBC reaches may provide suitable breeding habitat during the spring season for the arroyo toad when water is present. Portions of these SBC reaches also provide potentially suitable aestivating and foraging habitat. As shown above in Table 4, the arroyo toad was not detected during the 2015 focused surveys at these 11 SBC reaches.

The arroyo toad was not detected during the 2017 surveys; however, two adult arroyo toads were observed in the Santa Clara River near SBC Reaches 71 and 82 during the 2003 focused surveys (BonTerra 2003, Psomas 2017). Adult arroyo toads can move over 0.63 mile (1.0 kilometer [km]) along streams (USFWS 1999). As a result, SBC Reaches 71 and 82 were considered to be occupied by the arroyo toad and a Biological Opinion was rendered for the LACFCD's Soft-Bottom Flood Control Channels Project (USFWS 2004). The results of focused surveys for the arroyo toad since 2003 have been negative at all 11 SBC reaches with potentially suitable habitat (BonTerra 2005, 2007, 2009, 2011, 2013, BonTerra Psomas 2015, and Psomas 2017).

The critical habitat final rule released on February 9, 2011, included 98,366 acres in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties, California (USFWS 2011). SBC Reaches 82, 87, 97, and 104 are located within Subunit 6b of this critical habitat. Unit 6b encompasses approximately 2.6 miles (4.2 km) of Castaic Creek from the downstream edge of The Old Road right-of-way (adjacent to I-5) down to the confluence with the Santa Clara River and 4.0 miles (6.4 km) of the Santa Clara River from the confluence with San Francisquito Creek down to the confluence with Castaic Creek. The closest known population for this species occurs in Subunit 6a in Castaic Creek upstream of the reservoir approximately 7.5 miles north of Reach 86, Violin Canyon Main Channel Outlet (USFWS 2011). The 2015 Focused Survey Results for arroyo toad are included as Appendix C.

3.3.3 Southwestern Willow Flycatcher and Least Bell's Vireo

Focused surveys for the southwestern willow flycatcher (*Empidonax traillii extimus*) and least Bell's vireo (*Vireo bellii pusillus*), which are both State- and federally listed Endangered Species, were conducted in 14 SBC reaches in the Santa Clara River Watershed in 2015: Castaic Creek SBC Reaches 86, 87, 97, 104, and 106²; Hasley Canyon Channel SBC Reach 110; Bouquet Canyon Channel SBC Reach 103; San Francisquito Wash SBC Reach 105; South Fork Santa Clara River SBC Reaches 75 (but only the northern part of this channel reach from Magic Mountain Parkway upstream to the Orchard Village Drive) and 79; SBC Reach 80 at the confluence of the Santa Clara and South Fork Santa Clara Rivers; and Santa Clara River SBC Reaches 71, 82, and 109. These SBC reaches provide potentially suitable breeding habitat for the southwestern willow flycatcher and least Bell's vireo. As shown above in Table 4, the southwestern willow flycatcher was not detected during the 2017 focused surveys at these 14 SBC reaches, but the least Bell's vireo was observed at SBC Reach 103 (territory occupied by pair that fledged at least two young least Bell's vireos).

² SBC Reach 106 ends in a field south of the Castaic Sports Complex Park and is actually not connected to Castaic Creek.

Since 2002, the southwestern willow flycatcher has not been detected at any of the SBC reaches in the Santa Clara River Watershed (BonTerra 2002, 2003, 2005, 2007, 2009, 2011, 2013, BonTerra Psomas 2015, and Psomas 2017). There were no sightings of least Bell's vireo in the SBC reaches of the Santa Clara River Watershed until 2011 when a transient male was observed in SBC Reach 71 on May 21, 2011 (BonTerra 2011). That same bird or another transient male was then observed at SBC Reach 105 on June 10, 2011 (BonTerra 2011). This was followed by another transient male observed in SBC Reach 80 on April 11, 2013 (BonTerra 2013). In 2014, a least Bell's vireo pair was present in SBC Reach 103 and attempted nest-building in an adjacent back-yard; nesting success was not determined for this pair (ESA 2014). The following year at SBC Reach 103, a singing male established a territory late in the season from June 8 to 18, 2015, but never paired with a female (BonTerra Psomas 2015). The successful nesting in 2017 at Reach 103 represent the first breeding success by the least Bell's vireo in the SBC reaches maintained by the LACFCD in the Santa Clara River Watershed.

The USFWS issued a final rule for the southwestern willow flycatcher on January 3, 2013, that designated critical habitat covering 2,090 stream miles in California, Nevada, Utah, Colorado, Arizona, and New Mexico (USFWS 2013). This final rule uses a slightly different methodology to designate critical habitat. For example, it includes areas that are considered essential for the recovery of the species even if they were not occupied at the time of the species' listing. These new stream segments include Castaic Creek (3.0 miles), Little Tujunga (1.4 miles), Big Tujunga (3.0 miles), and the San Gabriel River (8.8 miles) (USFWS 2013). The SBC reaches of the Santa Clara River Watershed located in this critical habitat are SBC Reaches 87, 97, and 104.

The USFWS issued a final rule for the least Bell's vireo on February 2, 1994, that designated critical habitat of approximately 37,560 acres of land in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties, California (USFWS 1994). Designated critical habitat in Los Angeles County is located only in the Santa Clara River from the I-5 (Golden State) Freeway west to the Ventura County line. None of the Santa Clara River Watershed SBC reaches are within this critical habitat for least Bell's vireo. The 2015 Focused Survey Results for southwestern willow flycatcher and the least Bell's vireo are included as Appendix C.

3.3.4 Yellow-billed Cuckoo

Although State-listed Threatened on June 27, 1971, and State-listed Endangered on March 26, 1988 (CDFW 2016), focused surveys for the yellow-billed cuckoo were not conducted prior to 2016 at any SBC reaches due to the general lack of sufficiently large areas of potentially suitable riparian habitats that this species requires for breeding. Furthermore, the yellow-billed cuckoo has been considered extirpated as a breeder in Los Angeles County since the 1950s (Garrett and Dunn 1981; Allen et al. 2016). On November 3, 2014, however, the western distinct population segment of the yellow-billed cuckoo was federally listed as Threatened (USFWS 2014). Following this, the USACE issued a Nationwide Permit No. 31 to the LACFCD on November 23, 2015, for SBC reaches 1 – 100 that included a new condition requiring protocol surveys for the yellow-billed cuckoo at 13 SBC reaches. Six of these 13 SBC reaches (71, 79, 80, 82, 87, and 97) are in the Santa Clara River Watershed.

The 13 SBC reaches selected for yellow-billed cuckoo surveys are not large enough to support breeding habitat for this species, but they are adjacent to larger areas of open space that may provide potentially suitable breeding habitat. Therefore, survey areas were identified that included multiple SBC reaches with large buffer areas of contiguous habitat. For the six SBC reaches in the Santa Clara River Watershed, three survey areas were identified: (1) Reaches 71, 79, 80, and 103; (2) Reaches 82 and 109; and (3) Reaches 87, 97, and 104. Note that the list includes soft-bottom channel reaches 103, 104, and 109 that are not yet permitted. Non-permitted channel

reaches are included in annual monitoring surveys and, if appropriate, focused surveys for Threatened and Endangered species in order to facilitate their future permitting. There were no sightings of the yellow-billed cuckoo during the 2016 protocol surveys (BonTerra Psomas 2016).

As with the southwestern willow flycatcher and least Bell's vireo, the yellow-billed cuckoo is a migratory species that is present in Southern California only during the summer breeding season. These three species have departed their breeding grounds in the region by mid-September. As required by the LACFCD's regulatory permits, maintenance activities occur outside the time period (i.e., after September 15) in those soft-bottom channels with potential habitat for these species. The 2016 Focused Survey Results for yellow-billed cuckoo are included as Appendix D.

3.3.5 Summer Season Bird Surveys

In conjunction with the plant surveys discussed above, summer season surveys for birds were conducted at each of the 52 SBC reaches in this Report. These surveys focused on detecting and identifying all birds using the habitats within each SBC reach (Tables 5, 6, and 7). These surveys were conducted on May 5 and 6; June 5, 10, 11, 17, 18, 19, 23, and 24; and July 1, 2014 by Psomas Senior Biologist Brian Daniels and Psomas Biologist Sarah Thomas. Except for the May surveys (Reaches 101, 102, 107, and 109 on Table 7), these surveys were performed after the spring migration season when most of the bird species recorded can be assumed to be breeding or potentially breeding in or near the SBC reach in which they were observed.

TABLE 5
RESULTS OF SUMMER SEASON BIRD SURVEYS

Species	Reach Numbers																
	45	46	47	48	49	50	51	52	53	54	55/56	57	58	60	61	63	64
mallard (<i>Anas platyrhynchos</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
California quail (<i>Callipepla californica</i>)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Cooper's hawk (<i>Accipiter cooperii</i>)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Red-tailed hawk (<i>Buteo jamaicensis</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
killdeer (<i>Charadrius vociferous</i>)	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-
Rock pigeon (<i>Columba livia</i>)	-	-	1	-	-	-	-	-	-	-	4	-	-	-	-	-	-
Eurasian collared-dove (<i>Streptopelia decaocto</i>)	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-
mourning dove (<i>Zenaida macroura</i>)	-	-	2	1	-	5	2	-	-	2	1	-	-	-	-	-	1
White-throated swift (<i>Aeronautes saxatalis</i>)	-	-	-	-	-	-	-	-	2	-	1	-	3	6	-	-	-
Anna's hummingbird (<i>Calypte anna</i>)	-	-	-	1	-	1	-	-	-	-	3	-	-	1	-	-	-
Allen's hummingbird (<i>Selasphorus sasin</i>)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
black phoebe (<i>Sayornis nigricans</i>)	-	-	1	2	-	-	1	-	-	1	1	-	-	1	-	-	2
Say's phoebe (<i>Sayornis saya</i>)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Cassin's kingbird (<i>Tyrannus vociferans</i>)	-	-	-	4	-	-	1	-	-	-	-	-	-	-	-	-	-
western scrub-jay (<i>Aphelocoma californica</i>)	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2	-	4
American crow (<i>Corvus brachyrhynchos</i>)	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	3
Common raven (<i>Corvus corax</i>)	-	-	1	-	-	-	3	-	-	1	4	-	1	-	1	-	2
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	-	-	-	-	-	-	-	-	2	1	-	-	2	2	1	-	2
Cliff swallow (<i>Petrochelidon pyrrhonota</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
oak titmouse (<i>Baeolophus inornatus</i>) ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
bushtit (<i>Psaltriparus minimus</i>)	-	-	-	1	-	-	-	-	-	1	-	-	-	5	4	-	-
house wren (<i>Troglodytes aedon</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Bewick's wren (<i>Thryomanes bewickii</i>)	-	-	-	1	-	-	-	-	-	1	-	-	-	1	3	-	-
California thrasher (<i>Toxostoma redivivum</i>)	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
northern mockingbird (<i>Mimus polyglottos</i>)	-	-	-	3	-	-	1	-	-	-	-	1	-	-	-	-	-
European starling (<i>Sturnus vulgaris</i>)	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-
California towhee (<i>Melospiza crissalis</i>) ²	-	1	-	2	-	-	-	-	-	-	-	-	2	-	-	-	-
hooded oriole (<i>Icterus cucullatus</i>)	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 5
RESULTS OF SUMMER SEASON BIRD SURVEYS

Species	Reach Numbers																
	45	46	47	48	49	50	51	52	53	54	55/56	57	58	60	61	63	64
house finch (<i>Haemorhous mexicanus</i>)	-	1	2	25	-	1	5	-	-	4	1	4	3	3	6	-	7
lesser goldfinch (<i>Spinus psaltria</i>)	-	-	-	10	-	-	-	-	-	-	1	-	-	-	-	-	2
house sparrow (<i>Passer domesticus</i>)*	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL SPECIES	0	2	6	17	0	4	7	0	2	8	10	5	5	10	10	0	9
TOTAL INDIVIDUALS	0	2	8	80	0	8	15	0	4	12	18	8	11	23	21	0	23
<p>* Introduced non-native species with established breeding population in California.</p> <p>** Exotic or escaped non-native species that may or may not be breeding in California</p> <p>The survey areas for Reaches 55 and 56 were combined since the reach limits overlap.</p> <p>¹ Listed as a California Bird Species of Special Concern (Shuford and Gardali 2008)</p> <p>² On the Los Angeles County Bird Watchlist (Los Angeles County Sensitive Bird Species Working Group 2009)</p>																	

TABLE 6
RESULTS OF SUMMER SEASON BIRD SURVEYS

Species	Reach Numbers																	
	66	67	69	70	71	72	73	74	75	76	77	78	79	80	82	86	87	88
mallard (<i>Anas platyrhynchos</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
California quail (<i>Callipepla californica</i>)	-	-	3	-	-	-	-	-	-	-	10	-	2	12	-	-	-	-
Turkey vulture (<i>Cathartes aura</i>)	-	-	-	-	-	-	-	-	4	-	-	-	-	1	-	-	-	1
Cooper's hawk (<i>Accipiter cooperii</i>)	-	-	-	-	-	-	-	-	1	1	1	-	-	-	1	-	-	-
Red-tailed hawk (<i>Buteo jamaicensis</i>)	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
killdeer (<i>Charadrius vociferous</i>)	-	1	1	-	-	-	-	-	-	-	2	-	-	1	-	4	-	-
Eurasian collared-dove (<i>Streptopelia decaocto</i>)	-	-	-	-	-	-	-	-	3	1	-	-	-	-	-	3	-	-
mourning dove (<i>Zenaida macroura</i>)	-	2	4	-	2	-	-	-	10	2	-	-	1	6	3	3	-	-
white-throated swift (<i>Aeronautes saxatalis</i>)	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
black-chinned hummingbird (<i>Archilochus alexandri</i>)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Anna's hummingbird (<i>Calypte anna</i>)	-	1	-	-	-	1	-	-	6	-	-	-	-	-	1	-	-	-
Costa's hummingbird (<i>Calypte costae</i>)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Allen's hummingbird (<i>Selasphorus sasin</i>)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Allen's/rufous hummingbird (<i>Selasphorus sasin</i> or <i>rufus</i>)	-	-	-	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	-	1	1	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
American kestrel (<i>Falco sparverius</i>)	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
black phoebe (<i>Sayornis nigricans</i>)	-	2	1	-	-	-	-	-	9	2	1	-	-	-	-	-	1	-
Say's phoebe (<i>Sayornis saya</i>)	-	2	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-
Cassin's kingbird (<i>Tyrannus vociferans</i>)	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
western scrub-jay (<i>Aphelocoma californica</i>)	-	-	-	-	-	-	-	-	6	1	-	-	-	2	1	-	-	-
American crow (<i>Corvus brachyrhynchos</i>)	-	-	-	-	-	-	-	1	15	-	1	-	-	-	-	-	-	-
Common raven (<i>Corvus corax</i>)	2	4	7	-	-	-	-	-	5	-	-	-	1	2	2	3	-	1
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	-	-	1	-	-	-	-	-	8	-	2	-	2	4	-	-	5	-
Cliff swallow (<i>Petrochelidon pyrrhonota</i>)	-	-	-	-	1	-	-	-	5	-	-	-	-	1	-	-	-	-
barn swallow (<i>Hirundo rustica</i>)	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
oak titmouse (<i>Baeolophus inornatus</i>) ²	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bush tit (<i>Psaltriparus minimus</i>)	-	2	12	-	-	-	-	-	15	-	-	-	3	1	4	-	-	-
Bewick's wren (<i>Thryomanes bewickii</i>)	-	-	-	-	-	-	-	-	6	-	-	-	-	1	-	-	1	-
wrentit (<i>Chamaea fasciata</i>)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-

TABLE 6
RESULTS OF SUMMER SEASON BIRD SURVEYS

Species	Reach Numbers																	
	66	67	69	70	71	72	73	74	75	76	77	78	79	80	82	86	87	88
western bluebird (<i>Sialia mexicana</i>)	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-
California thrasher (<i>Toxostoma redivivum</i>)	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-
northern mockingbird (<i>Mimus polyglottos</i>)	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-
European starling (<i>Sturnus vulgaris</i>)	-	-	1	-	-	-	-	-	10	2	-	-	-	6	-	-	-	-
common yellowthroat (<i>Geothlypis trichas</i>)	-	2	4	-	-	-	-	-	9	2	-	-	-	-	2	-	-	-
yellow warbler (<i>Setophaga petechia</i>) ¹	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-
spotted towhee (<i>Pipilo maculatus</i>)	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	1	-	1
California towhee (<i>Melospiza crissalis</i>) ²	-	1	-	-	-	1	-	-	6	1	-	-	1	1	1	1	-	-
Lark sparrow (<i>Chondestes grammacus</i>)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-
song sparrow (<i>Melospiza melodia</i>)	-	6	8	-	-	-	-	-	4	2	-	-	-	-	-	-	-	-
Blue grosbeak (<i>Passerina caerulea</i>)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Red-winged blackbird (<i>Agelaius phoeniceus</i>)	-	3	5	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Great-tailed grackle (<i>Quiscalus mexicanus</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Brown-headed cowbird (<i>Molothrus ater</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
hooded oriole (<i>Icterus cucullatus</i>)	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-
Bullock's oriole (<i>Icterus bullockii</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
house finch (<i>Haemorhous mexicanus</i>)	7	6	20	1	2	-	-	-	30	8	3	4	5	10	5	10	-	-
lesser goldfinch (<i>Spinus psaltria</i>)	-	3	3	1	-	1	-	-	15	2	-	-	-	-	4	3	-	-
Lawrence's goldfinch (<i>Spinus lawrencei</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
house sparrow (<i>Passer domesticus</i>) [*]	-	20	25	-	-	-	-	3	-	5	-	-	-	-	-	-	-	-
TOTAL SPECIES	2	18	18	3	4	3	0	2	36	15	7	1	7	17	12	13	3	4
TOTAL INDIVIDUALS	9	59	99	3	6	3	0	4	211	32	20	4	15	53	27	33	7	4
* Introduced non-native species with established breeding population in California.																		
** Exotic or escaped non-native species that may or may not be breeding in California																		
The survey areas for Reaches 55 and 56 were combined since the reach limits overlap.																		
¹ Listed as a California Bird Species of Special Concern (Shuford and Gardali 2008)																		
² On the Los Angeles County Bird Watchlist (Los Angeles County Sensitive Bird Species Working Group 2009)																		

**TABLE 7
RESULTS OF SUMMER SEASON BIRD SURVEYS**

Species	Reach Numbers																	
	89	90	91	92	93	94	95	97	101	102	103	104	105	106	107	108	109	110
California quail (<i>Callipepla californica</i>)	-	-	-	-	-	7	-	-	-	-				-	-		-	
Turkey vulture (<i>Cathartes aura</i>)	-	1	-	1	-	-	-	3	-	-				-	-		-	
Cooper's hawk (<i>Accipiter cooperii</i>)	-	-	2	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
red-shouldered hawk (<i>Buteo lineatus</i>)	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
killdeer (<i>Charadrius vociferous</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Eurasian collared-dove (<i>Streptopelia decaocto</i>)	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-
mourning dove (<i>Zenaida macroura</i>)	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-
White-throated swift (<i>Aeronautes saxatalis</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
black-chinned hummingbird (<i>Archilochus alexandri</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Anna's hummingbird (<i>Calypte anna</i>)	1	1	2	4	1	2	-	3	-	2	1	-	-	-	2	-	1	2
Costa's hummingbird (<i>Calypte costae</i>)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Allen's hummingbird (<i>Selasphorus sasin</i>)	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-
Allen's/rufous hummingbird (<i>Selasphorus sasin</i> or <i>rufus</i>)	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-
acorn woodpecker (<i>Melanerpes formicivorus</i>)	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	-	-	-	-	-	-	-	1	-	1	1	-	-	1	1	-	2	-
Hairy woodpecker (<i>Picoides villosus</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Western wood-pewee (<i>Contopus sordidulus</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Willow flycatcher (<i>Empidonax traillii</i>)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Pacific-slope flycatcher (<i>Empidonax difficilis</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
black phoebe (<i>Sayornis nigricans</i>)	-	1	-	-	-	-	-	2	-	1	1	-	1	1	-	-	1	1
Say's phoebe (<i>Sayornis saya</i>)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-
Western kingbird (<i>Tyrannus verticalis</i>)	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Bell's vireo (<i>Vireo bellii</i>)	-	-	-	-	-	-	-	-	-	-	1 ³	-	-	-	-	-	-	-
Warbling vireo (<i>Vireo gilvus</i>)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
western scrub-jay (<i>Aphelocoma californica</i>)	1	1	-	-	-	1	-	2	-	-	-	-	3	-	-	1	1	3
Common raven (<i>Corvus corax</i>)	1	-	-	-	-	-	-	2	-	1	1	2	2	-	-	-	1	-
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	-	1	-	-	1	-	-	5	-	-	-	4	1	-	-	-	1	-

**TABLE 7
RESULTS OF SUMMER SEASON BIRD SURVEYS**

Species	Reach Numbers																		
	89	90	91	92	93	94	95	97	101	102	103	104	105	106	107	108	109	110	
Cliff swallow (<i>Petrochelidon pyrrhonota</i>)	-	-	-	-	-	-	-	-	-	-	3	-	1	-	-	-	-	1	
barn swallow (<i>Hirundo rustica</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	
oak titmouse (<i>Baeolophus inornatus</i>) ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	
bushtit (<i>Psaltriparus minimus</i>)	-	-	-	-	1	2	-	-	2	2	-	-	-	-	2	-	2	1	
house wren (<i>Troglodytes aedon</i>)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	
Bewick's wren (<i>Thryomanes bewickii</i>)	-	-	-	3	-	1	-	1	1	-	3	2	2	-	-	1	-	1	
Swainson's thrush (<i>Catharus ustulatus</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
northern mockingbird (<i>Mimus polyglottos</i>)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	
European starling (<i>Sturnus vulgaris</i>)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phainopepla (<i>Phainopepla nitens</i>)	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	
Nashville warbler (<i>Oreothlypis ruficapilla</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
common yellowthroat (<i>Geothlypis trichas</i>)	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-	1	
yellow warbler (<i>Setophaga petechia</i>) ¹	-	-	-	-	-	-	-	-	-	1	2	-	1	-	1	-	1	-	
Wilson's warbler (<i>Cardellina pusilla</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	
spotted towhee (<i>Pipilo maculatus</i>)	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-	1	5	
California towhee (<i>Melospiza crissalis</i>) ²	-	2	1	-	-	1	-	1	2	-	-	-	1	1	-	-	-	2	
song sparrow (<i>Melospiza melodia</i>)	-	-	-	-	-	-	-	2	-	-	9	-	1	3	-	1	1	-	
Western tanager (<i>Piranga ludoviciana</i>)	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	
black-headed grosbeak (<i>Pheucticus melanocephalus</i>) ²	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	
Blue grosbeak (<i>Passerina caerulea</i>)	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-	
Lazuli bunting (<i>Passerina amoena</i>)	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	
Red-winged blackbird (<i>Agelaius phoeniceus</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	
Brown-headed cowbird (<i>Molothrus ater</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	
hooded oriole (<i>Icterus cucullatus</i>)	-	-	2	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	
Bullock's oriole (<i>Icterus bullockii</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	
house finch (<i>Haemorhous mexicanus</i>)	-	4	-	1	2	4	-	8	2	4	8	-	2	2	2	3	2	4	
lesser goldfinch (<i>Spinus psaltria</i>)	-	-	3	-	-	2	-	2	1	10	2	2	2	1	3	-	-	1	

**TABLE 7
RESULTS OF SUMMER SEASON BIRD SURVEYS**

Species	Reach Numbers																		
	89	90	91	92	93	94	95	97	101	102	103	104	105	106	107	108	109	110	
Lawrence's goldfinch (<i>Spinus lawrencei</i>)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
house sparrow (<i>Passer domesticus</i>) [*]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-
TOTAL SPECIES	3	7	5	6	4	13	0	21	7	13	19	8	14	11	8	8	19	13	
TOTAL INDIVIDUALS	3	11	10	11	5	26	0	52	10	36	43	14	21	20	14	15	23	25	
<p>[*] Introduced non-native species with established breeding population in California. ^{**} Exotic or escaped non-native species that may or may not be breeding in California The survey areas for Reaches 55 and 56 were combined since the reach limits overlap. ¹ Listed as a California Bird Species of Special Concern (Shuford and Gardali 2008) ² On the Los Angeles County Bird Watchlist (Los Angeles County Sensitive Bird Species Working Group 2009)</p>																			

The presence of water in SBC reaches, especially during the summer, can be an important component of high quality habitat for birds. For most of the SBC reaches in this Report, dryness is the prevailing condition during the summer season. If water is present at this season, it's because of urban excesses rather than a natural condition. For these surveys performed in 2014, surface water was present in about 30 of the 52 SBC reaches in this Report. Surface water was most substantial in the Bouquet Canyon channel reaches (Reaches 67, 69, and 103) where it was flowing in a well-defined low-flow channel. Elsewhere it consisted of ponding water located either in the low-flow channel or at side outlets of larger SBC reaches such as those in the main-stem Santa Clara River (e.g., Reaches 47, 55, and 82). Surface water at these locations is often ephemeral – lasting just a few days before drying up, only to return as a byproduct of ongoing urban water uses.

For all SBC reaches in this Report, the highest species totals were recorded at Reaches 75 (South Fork Santa Clara River) and 97 (Castaic Creek) with 36 and 21 species, respectively. Both of these SBC reaches contain protected³ riparian habitats that provide potentially suitable habitat for the southwestern willow flycatcher and least Bell's vireo, although neither species has yet been detected during the focused surveys conducted at these two SBC reaches since 2002 (see Section 3.3.3 for a discussion of these surveys). A singing male least Bell's vireo was observed at Reach 103 (Bouquet Canyon Channel) during these summer season surveys (see Table 7); however, this was the only observation of this Endangered species during these surveys. Focused surveys consist of multiple surveys conducted throughout the breeding season that employ methods intended to find each individual of the species; other species recorded are incidental to the purpose of those surveys. The summer season bird surveys were one-day surveys that employed methods intended to measure the diversity and abundance of all species that use the SBC reach.

Tables 8, 9, and 10 above ranks the 52 SBC reaches of this Report from high to low based on bird density derived from the one-day summer season bird surveys. The 52 SBC reaches are sorted by size with the large SBC reaches defined as those greater than five acres, medium-sized SBC reaches as less than five acres but greater than or equal to one acre, and the small SBC reaches less than one acre. Density measurements for linear shaped SBC reaches, especially very narrow SBC reaches less than 20 or 30 feet wide (e.g., Reaches 48 and 94), are confounded by edge effects – a bird's presence may be due to adjacent habitats outside the SBC reach rather than habitats within the SBC reach. Additionally, density measurements for small SBC reaches, especially for very small SBC reaches less than one-tenth of an acre, tend to be inaccurate means by which to evaluate habitat value for birds. For example, Reaches 74 (Wildwood Canyon) and 53 (Santa Clara River Non-Main Channel Inlet) scored the highest bird density values in the small SBC reach group (see Table 10), but these two SBC reaches provide relatively poor habitat value based on other survey results in this Report.

³ Protected habitats in the SBC reaches are defined as vegetation polygons allowed to remain during the 1997-1998 maintenance season whose removal would require compensatory mitigation.

TABLE 8
SUMMER BIRD DIVERSITY AND ABUNDANCE AT LARGE
SOFT-BOTTOM CHANNEL REACHES (GREATER THAN FIVE ACRES)

Reach Number*	Reach Name	Area (acres)	Total Bird Species/ Species Diversity (species per acre)	Total Bird Abundance/ Bird Density (birds per acre)
75	South Fork – Santa Clara River (PD's 725, 916, 1041, and 1300)	18.92	36/1.9	211/11.2
69	Bouquet Canyon Middle (PD's 722, 773, 1365 1065, and 451)	12.51	18/1.4	99/7.9
80	South Fork Santa Clara River (PD's 1947 and 1946)	8.18	17/2.1	53/6.5
103	Bouquet Canyon Channel (PD 2225)	7.31	19/2.6	43/5.9
109	Santa Clara River – South Bank west of McBean Parkway (MTD 1510)	5.34	19/3.6	23/4.3
67	Bouquet Canyon Upper (PD's 1201, 802, 700B, and 625)	16.3	18/1.1	59/3.6
110	Hasley Canyon Channel (PD 2262)	7.79	13/1.7	25/3.2
77	Newhall Creek Outlet	6.29	7/1.1	20/3.2
51	Mint Canyon Main Channel Outlet (PD 1894)/Santa Clara River – Main Channel	6.4	7/1.1	15/2.3
101	Violin Canyon (PD 2312)	5.04	7/1.4	10/2.0
105	San Francisquito Canyon Channel (PD 2456)	13.8	14/1.0	21/1.5
104	Castaic Creek (PD 2441 Unit 2)	38.12	8/0.2	14/0.4
70	Bouquet Canyon Lower (PD's 544 and 345)	8.54	3/0.4	3/0.4
95	Project No. 1224	7.95	0/0	0/0
Ranked high to low for bird diversity				

TABLE 9
SUMMER BIRD DIVERSITY AND ABUNDANCE AT MEDIUM-SIZE
SOFT-BOTTOM CHANNEL REACHES (BETWEEN ONE AND FIVE ACRES)

Reach Number	Reach Name	Area (acres)	Total Bird Species/ Species Diversity (species per acre)	Total Bird Abundance/ Bird Density (birds per acre)
48	Mint Canyon Channel between Sierra Highway and Adon Ave	3.10	17/5.5	80/25.8
86	Violin Canyon Main Channel Outlet	1.30	13/1.0	33/25.4
97	PD T1982, Castaic Creek	2.30	21/9.1	52/22.6
102	Violin Canyon (PD 2275)	1.76	13/7.4	36/20.5
94	San Martinez Chiquito Canyon from Val Verde Park to d/s of Madison Street	1.57	13/8.3	26/16.6
60	Santa Clara River Main Channel – Right Bank Reach (PD's 1339 and 374)	1.50	10/6.7	23/15.3
106	Castaic Drain Outlet	1.46	11/7.5	20/13.7
79	South Fork – Santa Clara River (Valencia Boulevard Bridge Stabilizer)	1.17	7/6.0	15/12.8
108	Pico Canyon (PD 2528)	1.38	8/5.8	15/10.9
58	Santa Clara River Main Channel – Right Bank Reach (PD 374)	1.21	5/4.1	11/9.1
66	Santa Clara River Main Channel (PD 1538)	1.04	2/1.9	9/8.7
55/56	Santa Clara River Main Channel – Right Bank and Left Bank Reaches (PD's 910, 832, 1758, and 1562 Unit 2; and PD 832)	2.10	10/4.8	18/8.6
76	Pico Canyon (PD 813)	4.26	15/3.5	32/7.5
71	Santa Clara River Main Channel (PD 1946)	1.01	4/4.0	6/5.9
82	Santa Clara River Main Channel (PD 2278)	4.80	12/2.5	27/5.6
50	Mint Canyon Channel between Solamint Rd and Soledad Canyon Rd	1.54	4/2.6	8/5.2
61	Santa Clara River Main Channel (PD 659 and 754)	4.30	10/2.3	21/4.9
78	Placerita Creek	1.16	1/0.9	4/3.4
57	Whites Canyon (PD T7094) Main Channel Inlet	2.64	5/1.9	8/3.0
63	Oak Road Drainage (CDR 523.081)	2.8	0/0	0/0
Ranked high to low for bird density.				

TABLE 10
SUMMER BIRD DIVERSITY AND ABUNDANCE AT SMALL
SOFT-BOTTOM CHANNEL REACHES (LESS THAN ONE ACRE)

Reach Number*	Reach Name	Area (acres)	Total Bird Species/ Species Diversity (species per acre)	Total Bird Abundance/ Bird Density (birds per acre)
74	Wildwood Canyon Channel (PD T361)	0.02	2/100	4/200
53	Santa Clara River Non-Main Channel (PD 832) Main Channel Inlet	0.03	2/66.7	4/133.3
46	Sand Canyon (PD T1307) Main Channel Outlet	0.03	2/66.7	2/66.7
54	Santa Clara River Non-Main Channel (PD 832) Main Channel Outlet	0.31	8/25.8	12/38.7
92	San Martinez Chiquito Canyon (North Fork) unnamed channel	0.29	6/20.7	11/37.9
87	Castaic – Old Road Drainage (CDR 525.012 D) Outlet	0.19	3/15.8	7/36.8
91	San Martinez Chiquito Canyon Channel u/s of Keningston Road	0.31	5/16.1	10/32.3
107	The Old Road Channel	0.51	8/15.7	14/27.5
64	Soledad Canyon Road Drain (CDR 523.071 D Outlet)	0.85	9/10.6	23/27.1
72	South Fork – Santa Clara River (Smizer Ranch Main Channel Inlet)	0.14	3/21.4	3/21.4
93	San Martinez Chiquito Canyon between Keningston Road and Val Verde Park	0.56	4/7.1	5/8.9
90	Hasley Canyon Lower (North Fork PD T1496)	0.68	7/10.3	11/16.2
89	Hasley Canyon South Fork (PD T1496)	0.28	3/10.7	3/10.7
47	Santa Clara River Main Channel (PD 1733 unit 1)	0.76	6/7.9	8/10.5
88	Hasley Canyon Upper (PD T1496)	0.42	4/9.5	4/9.5
49	Mint Canyon Channel between Adon Ave and Scherzinger lane	0.66	0/0	0/0
52	Sierra Hwy Road Drainage (CDR 523.081)	0.4	0/0	0/0
45	Sand Canyon (PD T1307) Main Channel Inlet	0.05	0/0	0/0
73	Wildwood Canyon Channel (PD T361) Main Channel Inlet	0.05	0/0	0/0

Ranked high to low for bird density.

3.4 MIGRATORY BIRD SURVEYS

Migratory bird surveys were performed at two separate sections of Reach 75 (South Fork Santa Clara River), the lower section from Magic Mountain Parkway upstream to Orchard Village Road and the upper section from Orchard Village Road upstream to Lyons Avenue. The LACFCD's maintenance plan contains different clearing methods for these two sections of Reach 75. In the lower section, a 20-foot wide zone at the base of the concrete levee and 45 degree low-flow channels to the center of the watercourse are cleared annually of all vegetation. The remaining vegetation in the lower sections is allowed to remain and totals 15.37 acres. Most of this protected 15.37 acres consist of willow or mule fat dominated vegetation types (see Exhibits A-44 through A-52 of Appendix A). In the upper section, the vegetation is cleared annually bank to bank from Orchard Village Road to Lyons Avenue.

The migratory bird surveys were conducted prior to LACFCD's annual clearing activities on September 5 and 12, 2014, by Psomas Senior Biologist Brian Daniels and Psomas Biologist Sarah Thomas. Because of unexpected delays in the renewal of the LACFCD's Nationwide Permit No. 31 with the U.S. Army Corps of Engineers (USACE), clearing activities were not performed during the 2014-15 rain season at "sensitive" SBC reaches. Those SBC reaches that support or potentially support listed species are identified as "sensitive" by the permits. Reach 75 has been identified as "sensitive" due to its potential in the lower section to support the arroyo toad, southwestern willow flycatcher, and least Bell's vireo.

"Migratory birds" refer to those species that regularly migrate to and from distant areas where they nest and spend the winter. In North America, about 75 percent of breeding birds migrate, with the rest remaining year-round in the same general area (Sibley 2001). Peak migration periods in North America occur during the spring (April–May) and fall (September–October) seasons, but many bird migrations take place throughout the year, especially in warmer regions such as Southern California. Depending on the species, migrations occur at night (nocturnal) or during the day (diurnal) and are subject to a variety of environmental influences, particularly weather. The results are presented below in Table 11.

TABLE 11
MIGRATORY BIRD SURVEYS

Species	South Fork Santa Clara River - Lower Section Reach 75 from Orchard Village Road to Magic Mountain Parkway		South Fork Santa Clara River - Upper Section Reach 75 from Lyons Ave to Orchard Village Road	
	Sept. 5, 2014	Sept 12, 2015	Sept. 5, 2014	Sept 12, 2014
mallard (<i>Anas platyrhynchos</i>)				4
black-crowned night-heron (<i>Nycticorax nycticorax</i>)			1	1
turkey vulture (<i>Cathartes aura</i>)	3			
Cooper's hawk (<i>Accipiter cooperii</i>)				1
red-shouldered hawk (<i>Buteo lineatus</i>)		1		
mourning dove (<i>Zenaida macroura</i>)	1	2	1	
black-chinned hummingbird (<i>Archilochus alexandri</i>)	1			
Anna's hummingbird (<i>Calypte anna</i>)	6	4	9	
Allen's hummingbird (<i>Selasphorus sasin</i>)	1		4	4
Allen's/rufous hummingbird (<i>Selasphorus sasin</i> or <i>rufus</i>)	1	1	8	7
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	2	1		
Willow flycatcher (<i>Empidonax traillii</i>)	1			
black phoebe (<i>Sayornis nigricans</i>)	2	2	6	
western scrub-jay (<i>Aphelocoma californica</i>)		3		
American crow (<i>Corvus brachyrhynchos</i>)	6		10	8
common raven (<i>Corvus corax</i>)	2	5	4	3
bushtit (<i>Psaltriparus minimus</i>)		16	10	
house wren (<i>Troglodytes aedon</i>)	2		2	1
Bewick's wren (<i>Thryomanes bewickii</i>)	2	2		
wrentit (<i>Chamaea fasciata</i>)	2	2		
western bluebird (<i>Sialia mexicana</i>)	2			
California thrasher (<i>Toxostoma redivivum</i>)	6	5		

**TABLE 11
MIGRATORY BIRD SURVEYS**

Species	South Fork Santa Clara River - Lower Section Reach 75 from Orchard Village Road to Magic Mountain Parkway		South Fork Santa Clara River - Upper Section Reach 75 from Lyons Ave to Orchard Village Road	
	Sept. 5, 2014	Sept 12, 2015	Sept. 5, 2014	Sept 12, 2014
orange-crowned warbler (<i>Oreothlypis celata</i>)	2	1	2**	1
MacGillivray's warbler (<i>Geothlypis tolmiei</i>)	1			
common yellowthroat (<i>Geothlypis trichas</i>)	2	1	6	4
yellow warbler (<i>Setophaga petechia</i>)	3	3		
Wilson's warbler (<i>Cardellina pusilla</i>)	1			
California towhee (<i>Melospiza crissalis</i>)	3	4		
lark sparrow (<i>Chondestes grammacus</i>)			3	2
song sparrow (<i>Melospiza melodia</i>)	6	6	13	11
Western tanager (<i>Piranga ludoviciana</i>)		1		
lazuli bunting (<i>Passerina amoena</i>)	2		10	
red-winged blackbird (<i>Agelaius phoeniceus</i>)				1
house finch (<i>Haemorhous mexicanus</i>)	8	3	5	65
lesser goldfinch (<i>Spinus psaltria</i>)	30	25	4	4
TOTAL SPECIES	26	20	17	15
TOTAL BIRD ABUNDANCE	98	88	103	132
* Introduced Species – Non-native species that have received recognition by the California Bird Records Committee (CBRC) as having established breeding populations in California.				
** Including one gray-headed <i>orestera</i> type				

The survey results for Reach 75 show relatively few species that are confidently identified as “transients” or “passage migrants” (terms used for migratory birds that occur at a location for a relatively short stay during migration). The willow flycatcher (*Empidonax traillii*), MacGillivray's warbler (*Geothlypis tolmiei*), Wilson's warbler (*Cardellina pusilla*), western tanager (*Piranga ludoviciana*), and lazuli bunting (*Passerina amoena*) are transients because they do not breed or expected to winter at this location. The house wren (*Troglodytes aedon*), orange-crowned warbler (*Oreothlypis celata*), and lark sparrow (*Chondestes grammacus*) potentially nest and winter at this location, although they were not detected during the summer season bird survey (see Table 6). As a result, these three species are considered migrants, but are not identified as transients since they may stay to winter and still have the potential to nest in future summer seasons at this location. Both the black-chinned hummingbird (*Archilochus alexandri*) and yellow warbler (*Setophaga petechia*) were observed at Reach 75 during the summer season bird survey, but both species are not expected to stay for the winter at this location. At this date, however, the black-chinned hummingbird is expected to be a migrant since this species departs its breeding grounds beginning in July. Yellow warblers often remain on their breeding grounds, at least in the coastal southern California region, into September and likely at this time and date represent summering birds that have not yet departed.

In migration, willows and other trees provide valuable foraging habitat for a wide variety of bird species. As shown by the vegetation maps (see Exhibits A-44 through A-52 of Appendix A), willows and other mature vegetation types dominate much of the lower section of Reach 75 from

Orchard Village Drive to Magic Mountain Parkway. This is in contrast with the upper section of Reach 75 where clearing occurs bank to bank from Orchard Village Drive to Lyons Avenue. The vegetation maps show a mix of low growing vegetation types dominated by non-native grasses, ruderal (herbaceous vegetation dominated by non-native “weedy” species), and riparian herb (in wet areas). These vegetation types also support a wide variety of birds, but typically not as diverse as more complex vegetation types such as found in the lower section of Reach 75. The survey results for Reach 75 show higher bird diversity for the lower section compared to the upper section (average of 23 species vs. 16 species). The upper section, however, supported higher overall bird activity than the lower section of Reach 75 (average of 117.5 individual birds vs. 93 birds).

3.5 VEGETATION TRANSECTS

Psomas biologists quantitatively assessed the percent cover of the vegetation within each of the 52 SBC reaches in this Report. The quantification was accomplished by selecting transect locations that were correlated to the Manning’s or hydraulic roughness coefficient values (n values) developed by hydrologists for the reaches. Transects were conducted before and after LACFCD’s annual fall season maintenance activities. Each transect was conducted perpendicular to the flow of water (i.e., across the width of each reach). Global Positioning System (GPS) points were taken at both the beginning and ending locations for each transect. The start point of each transect was generally located at the top of the bank to the right when facing upstream.

The point-intercept method at one-foot intervals along each transect was used to collect data. Except for sites with high diversity of plant species, the results of the line-intercept method do not differ significantly from the point-intercept method. Since the point-intercept method is less time consuming and since flood-control channels generally support relatively low diversity, the line-intercept method was selected as the most appropriate method for the vegetation transects. Table 12 below lists each reach and the distance of each transect. Data included identification and documentation of each plant species and the ground cover that occurred at one-foot intervals along each transect. Non-native grass species were generally compiled together into one non-native grass category. Tree sizes were identified as mature, medium shrub, or seedling. Trees and other plants rooted on upper banks outside the drainage were not included in the data (i.e., the tree canopy of a tree rooted outside the channel was not included⁴). Photographs were also taken from the starting and ending points of each transect or transect segment.

⁴ Note that this differs from the methods used to map vegetation types of some of the SBC reaches in the Los Angeles River Watershed as tree canopies of trees rooted outside the banks of the channel were used to determine the vegetation type.

**TABLE 12
VEGETATION ANALYSIS TRANSECTS**

Reach No.	Transect No.	Transect Length (ft)	Reach No.	Transect No.	Transect Length (ft)	Reach No.	Transect No.	Transect Length (ft)	
45	1	30	70	1	160	94	1	40	
46	1	20		2	155		2	50	
47	1	590		3	170		3	40	
	2	485 ¹	72	1	60	95	1	32	
48	1	35	73	1	22	97	1	240	
	2	22	74	1	8		2	230	
49	1	24	75	1	344		3	315	
50	1	25		2	315	101	1	160	
	2	18		3	525		2	180	
51	1	434		4	589	102	1	65	
52	1	25		5	510		2	70	
53	1	35		6	128		3	195	
54	1	40		76	7	140	103	1	165
	2	X ²			8	145		2	310
55 (&56)	1	445	1		100	104		3	420
	2	500	2		80		1	150	
	3	676	77		1		150	2	200
57	1	110	78		2	400	3	200	
	2	140	79		1	125	105	1	200
58 (&59)	1	505			1	180		2	200
	2	580		80	1	370		3	200
	3	767	2		400	1	100		
60	1	612	3		162	106	2	110	
	2	820	82	1	150		3	140	
	3	889		2	125		107	1	40
61 (&62)	1	559	86	1	40	108	2	30	
	2	560		2	100		1	85	
63	1	25	87	1	30	109	2	70	
	2	35		2	70		1	100	
64	1	30	88	1	90	110	2	100	
	2	100		2	55		1	135	
66	1	240		89/90	3		20	2	130
	2	200	1		145	3	135		
67	1	145	2		100	4	140		
	2	140	90	3	50				
	3	145	91	1	35				
69	1	140	92	1	20				
	2	145	93	1	35				
	3	145							

¹ Use shorter of two distances (pre- and post-clearing lengths) as the official transect length
² The master Santa Clarita Transect Data Excel table no shows 54-2, but their old master summary table shows it as 40 ft.

3.5.1 Pre- and Post-Clearing Vegetation Transects

Pre-transect data was collected at each of the SBC reaches in this Report by Psomas Biologists Jonathan Aguayo, Lindsay Messett, Jason Mintzer Aga Napiatek, Jennifer Pareti, Allison Rudalevige, Sarah Thomas, and Leatherman BioConsulting Botanist Sandra Leatherman. Transects were completed on July 15, 17, 24, 29, and 31, 2014; August 5, 14, 18, and 19, 2014, prior to the beginning of LACFCD annual maintenance activities. These are the “pre-clearing” vegetation transects shown below in Table 13.

Post-vegetation clearing transect data were collected after completion of maintenance activities by Psomas Biologists Ian Cain, Brian Daniels, Katie Gallagher, Cristhian Mace, Ms. Messett, Ms. Napiatek, Ms. Pareti, Ms. Rudalevige, Ms. Thomas, Jordan Zylstra, and Leatherman BioConsulting’s Ms. Leatherman. Because of unexpected delays in the renewal of the LACFCD’s Nationwide Permit No. 31 with the USACE, clearing activities were performed late at “non-sensitive” SBC reaches and not performed at all at “sensitive” SBC reaches during the 2014-15 rain season. As explained above in Section 3.5, “sensitive” SBC reaches are those that support or potentially support species listed as threatened and/or endangered. Post-clearing surveys were conducted at “non-sensitive” SBC reaches on March 11, 13, and 17, 2015, and at “sensitive” SBC reaches on November 20, 2015; December 1, 4, 11, 16, 17, and 18, 2015; and January 1 and 18, 2016. These transects were conducted at the same locations as the pre-clearing vegetation transects and as soon as possible following clearing activities. The results are presented below in Table 13.

**TABLE 13
TOTAL VEGETATED AND UNVEGETATED PERCENT COVER**

Reach	Transect	Pre-Vegetation Clearing			Post-Vegetation Clearing			Vegetation Clearing Effect on Percent Cover (Post-Clearing minus Pre-Clearing)		
		% Native	% Non-native	% Unvegetated	% Native	% Non-native	% Unvegetated	% Native	% Non-native	% Unvegetated
45	1	23.3	0.0	76.7	0.0	0.0	100.0	-23.3	0.0	23.3
46	1	10.0	30.0	60.0	0.0	0.0	100.0	-10.0	-30.0	40.0
47	1	6.4	3.9	90.0	7.4	0.0	92.6	1.0	-3.9	2.6
	2	18.3	6.2	76.1	6.9	0.4	92.7	-11.4	-5.8	16.6
48	1	28.6	65.7	25.7	0.0	57.1	42.9	-28.6	-8.6	17.2
	2	40.9	18.2	40.9	50.0	100.0	0.0	9.2	81.8	-40.9
49	1	0.0	4.2	95.8	0.0	0.0	100.0	0.0	-4.2	4.2
50	1	8.0	20.0	80.0	0.0	0.0	100.0	-8.0	-20.0	20.0
	2	0.0	16.7	83.3	0.0	0.0	100.0	0.0	-16.7	16.7
51	1	12.5	6.2	81.4	13.6	4.2	82.2	1.1	-2.0	0.8
52	1	0.0	8.0	92.0	0.0	0.0	100.0	0.0	-8.0	8.0
53	1	11.4	25.7	68.6	0.0	0.0	100.0	-11.4	-25.7	31.4
54	1	25.0	7.5	67.5	0.0	0.0	100.0	-25.0	-7.5	32.5
55-56	1	4.0	4.1	92.1	5.0	0.2	94.8	1.0	-3.9	2.7
	2	3.2	3.2	93.6	7.0	0.0	93.0	3.8	-3.2	-0.6
	3	5.4	0.4	94.1	6.3	0.3	93.4	0.9	-0.1	-0.7
57	1	0.0	2.7	97.3	0.0	0.0	100.0	0.0	-2.7	2.7
	2	3.6	6.4	92.9	0.0	0.0	100.0	-3.6	-6.4	7.1

TABLE 13
TOTAL VEGETATED AND UNVEGETATED PERCENT COVER

Reach	Transect	Pre-Vegetation Clearing			Post-Vegetation Clearing			Vegetation Clearing Effect on Percent Cover (Post-Clearing minus Pre-Clearing)		
		% Native	% Non-native	% Unvegetated	% Native	% Non-native	% Unvegetated	% Native	% Non-native	% Unvegetated
58 (59)	1	3.7	6.0	90.0	9.5	4.4	85.1	5.8	-1.6	-4.9
	2	3.0	0.2	96.8	6.4	0.2	93.4	3.4	0.0	-3.4
	3	4.2	0.4	95.4	6.3	2.1	91.6	2.1	1.7	-3.8
60	1	25.6	3.0	73.1	9.6	0.5	90.0	-16.0	-2.5	16.9
	2	12.6	4.1	83.5	16.1	1.0	83.5	3.5	-3.1	0.0
	3	15.1	8.3	77.8	15.1	2.0	83.7	0.0	-6.3	5.9
61 (62)	1	4.4	3.6	92.0	8.1	1.3	90.6	3.7	-2.3	-1.4
	2	14.2	6.1	81.3	11.2	0.2	88.6	-3.0	-5.9	7.3
63	1	4.0	0.0	96.0	0.0	0.0	100.0	-4.0	0.0	4.0
	2	0.0	8.6	91.4	0.0	0.0	100.0	0.0	-8.6	8.6
64	1	3.3	46.7	50.0	50.0	0.0	50.0	46.7	-46.7	0.0
	2	49.0	23.0	31.0	23.0	1.0	76.0	-26.0	-22.0	45.0
66	1	39.3	22.2	42.2	15.3	0.3	84.3	-24.0	-6.9	42.1
	2	47.0	11.5	43.0	15.5	5.0	81.0	-31.5	-6.5	3.8
67	1	36.4	53.3	39.6	15.0	9.5	80.0	-21.4	-43.8	40.4
	2	25.0	32.5	49.0	16.0	9.5	80.5	-9.0	-23.0	31.5
	3	28.2	56.7	38.8	21.5	12.5	73.5	-6.7	-44.2	34.7
69	1	8.3	10.5	82.3	0.0	2.5	97.5	-8.3	-8.0	15.2
	2	12.0	22.9	68.6	13.0	12.1	78.4	1.0	-10.8	9.8
	3	11.8	44.2	55.8	34.6	17.0	48.4	22.8	-27.2	-7.4
70	1	2.3	2.3	95.3	0.0	0.0	100.0	-2.3	-2.5	4.7
	2	1.8	2.4	95.8	1.5	0.0	98.5	-0.3	-2.4	2.7
	3	66.1	12.1	33.9	60.3	1.5	38.2	-5.8	-10.6	4.3
72	1	46.7	56.7	28.3	18.3	35.0	53.3	-28.4	-21.7	25.0
73	1	0.0	40.9	59.1	0.0	13.6	86.4	0.0	-27.3	27.3
74	1	50.0	75.0	25.0	0.0	50.0	50.0	-50.0	-25.0	25.0
75	1	37.0	7.0	56.5	50.7	0.0	49.3	13.7	-7.0	-7.2
	2	36.3	2.3	63.3	32.3	0.8	67.8	-4.0	-1.5	4.5
	3	51.7	13.2	42.0	51.5	1.8	48.3	-0.2	-11.4	6.3
	4	25.7	9.0	66.8	28.1	5.0	67.1	2.4	-4.0	0.3
	5	12.0	10.4	77.6	20.8	9.2	70.0	8.8	-1.2	-7.6
	6	8.0	23.1	68.9	11.8	8.1	80.1	3.8	-15.0	11.2
	7	31.2	54.7	37.2	0.0	1.3	98.8	-31.2	-53.4	61.6
	8	15.3	64.1	24.1	0.0	4.8	95.2	-15.3	-59.3	71.1
76	1	0.0	61.0	39.0	0.0	35.0	65.0	0.0	-26.0	26.0
	2	8.8	57.5	42.5	0.0	13.8	86.3	-8.8	-43.7	43.8
77	1	31.3	10.7	58.0	16.7	18.0	69.3	-14.6	7.3	11.3
	2	27.0	12.8	64.8	29.8	31.0	52.5	2.8	18.2	-12.3
78	1	11.0	21.5	67.5	10.5	9.0	85.0	-0.5	-12.5	17.5

TABLE 13
TOTAL VEGETATED AND UNVEGETATED PERCENT COVER

Reach	Transect	Pre-Vegetation Clearing			Post-Vegetation Clearing			Vegetation Clearing Effect on Percent Cover (Post-Clearing minus Pre-Clearing)		
		% Native	% Non-native	% Unvegetated	% Native	% Non-native	% Unvegetated	% Native	% Non-native	% Unvegetated
79	1	42.6	23.8	55.3	21.7	7.8	70.6	-20.9	-16.0	15.3
80	1	10.5	0.0	89.5	14.8	0.8	84.5	4.3	0.8	-5.0
	2	14.3	2.8	83.8	15.0	0.3	84.8	0.7	-2.5	1.0
	3	26.3	0.0	73.7	35.1	1.6	63.3	8.8	1.6	-10.4
82	1	84.0	18.5	15.0	94.0	25.5	5.0	10.0	7.0	-10.0
	2	6.5	56.5	37.5	11.5	70.0	28.5	5.0	-45.0	-9.0
86	1	0.0	17.5	82.5	0.0	12.5	87.5	0.0	-5.0	5.0
87	1	0.0	20.0	80.0	0.0	3.3	96.7	0.0	-16.7	16.7
	2	94.3	4.3	5.7	14.3	18.6	67.1	-80.0	14.3	61.4
88	1	54.4	0.0	45.6	58.9	4.4	40.0	4.5	4.4	-5.6
	2	18.2	1.8	80.0	9.1	10.9	80.0	-9.1	9.1	0.0
	3	20.0	10.0	80.0	5.0	10.0	85.0	-15.0	0.0	5.0
89-90	1	13.0	7.0	80.0	18.0	27.0	57.0	5.0	20.0	-23.0
	2	9.0	5.6	86.4	5.0	6.5	88.5	-4.0	0.9	2.1
90	3	24.0	0.0	76.0	22.0	28.0	52.0	-2.0	28.0	-24.0
91	1	20.0	0.0	80.0	20.0	0.0	80.0	0.0	0.0	0.0
92	1	40.0	5.0	55.0	25.0	55.0	40.0	-15.0	50.0	75.0
93	1	0.0	31.4	68.6	0.0	11.4	88.6	0.0	-20.0	20.0
94	1	12.5	7.5	85.0	0.0	7.5	92.5	-12.5	0.0	7.5
	2	0.0	14.0	86.0	0.0	18.0	82.0	0.0	4.0	-4.0
	3	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0
95	1	0.0	3.1	96.9	0.0	3.1	96.9	0.0	0.0	0.0
97	1	29.7	38.0	36.0	3.7	35.7	60.7	-26.0	-2.3	24.7
	2	10.2	2.3	87.4	0.7	0.3	99.0	-9.5	-2.0	11.6
	3	2.4	3.6	94.0	3.5	5.5	91.0	1.1	1.9	-3.0
AVERAGE		18.8	17.3	68.2	13.3	10.3	78.4	-5.5	-7.3	10.9

* n/a indicates that a post-clearing survey was not completed because vegetation at this transect location had not been cleared. As a result, the pre-vegetation clearing data for those five transects (all 4 Reach 33 transects and 1 of the 3 Reach 37 transects are excluded) are not used in calculation of overall averages.

Table 13 shows the results of the pre- and post-clearing transects of percent cover of native vegetation, non-native vegetation, and unvegetated areas for 44 of the 52 SBC reaches in this Report. SBC reaches 100 – 110 were excluded since they were not permitted for clearing activities during the time period of this Report. Survey areas overlapped for SBC reaches 55-56 and 89-90; therefore, transects were located to cover both SBC reaches.

The data in Table 13 also summarize the net changes in percent cover between pre- and post-clearing transects to measure the effect of vegetation clearing on percent cover relative to native vegetation, non-native vegetation, and unvegetated areas. The combined totals of the 44 pre- and post-clearing vegetation transects on Table 13 an average net loss of 5.5 percent cover and 7.3 percent cover for native and non-native vegetation, respectively, and an average net gain of 10.9 percent cover for unvegetated areas following LACFCD clearing activities in the 2014-2015 rain season for “non-sensitive” and the 2015-2016 rain season for “sensitive” SBC reaches. These results are below the range of previous results for net loss of percent cover for native and non-native vegetation found in the previous three FSs (-11.0 to -16.3 percent cover and -8.1 to -32.8 percent cover for native and non-native vegetation, respectively) and net gain for unvegetated areas (13.1 to 31.5 percent cover). The continuing drought in the region must be a contributing factor for these relatively low percent cover results in this Report, but the most important factor is assumed to be the more inland and arid regional location of the Santa Clara River Watershed compared to the coastal watersheds of the other FSs.

4.0 CALIFORNIA RAPID ASSESSMENT METHOD ANALYSIS

4.1 METHODS/INTRODUCTION

The California Rapid Assessment Method (CRAM) is a wetland monitoring tool that is designed to quickly evaluate the overall condition of a wetland and identify stressors that affect its condition. CRAM scores result from the evaluation of four equally-weighted attributes: (1) Buffer and Landscape Context; (2) Hydrology; (3) Physical Structure; and (4) Biotic Structure (CWMW 2013). A summary of the ten metrics and six sub-metrics that comprise these attributes is provided in Table 14.

TABLE 14
SUMMARY OF CRAM ATTRIBUTES AND METRICS

Attribute	Metric	Description	
Buffer and Landscape Context	Landscape Connectivity	Measures connectivity along the riparian corridor for wildlife movement; non-buffer land types are identified 500 meters upstream and downstream of Assessment Area.	
	Buffer Condition	Combination of the three sub-metric scores described below.	
	Sub-metrics	Percent of Assessment Area with Buffer	Measures percentage of Assessment Area perimeter that contains land cover types that provide a buffer.
		Average Buffer Width	Measures the average width of identified buffer land types around Assessment Area.
		Buffer Condition	Qualitatively evaluates buffer condition .
Hydrology	Water Source	Qualitatively evaluates impacts to the extent, duration, and frequency of saturated or ponded conditions.	
	Hydroperiod/Channel Stability	Qualitatively evaluates channel equilibrium, degradation, or aggradation.	
	Hydrologic Connectivity	Measures the entrenchment of the channel to determine the ability for water to inundate adjacent upland areas.	
Physical Structure	Structural Patch Richness	Measures the diversity of physical riparian features that may potentially provide habitat for aquatic species (e.g., vegetated islands, pools, riffles).	
	Topographic Complexity	Qualitatively evaluates the variety of elevations (i.e. micro-topographic heterogeneity).	
Biotic Structure	Plant Community	Average of the three sub-metric scores described below.	
	Sub-metrics	Number of Plant Layers	Identifies of number of plant strata.
		Number of Co-dominant Species	Identifies the number of co-dominant plant species based on visual estimation.
		Percent Invasive Species	Measures the percent of invasive plant species among the co-dominant species identified above.
	Horizontal Interspersion	Qualitatively evaluates the variety and distribution of plant associations.	
Vertical Biotic Structure	Identifies the number and distribution of plant strata.		

In 2006, the U.S. Environmental Protection Agency recommended a framework for comprehensive wetland monitoring to help States meet the requirements described in the Clean Water Act. This framewo consists of the following three-tiered approach (USEPA 2006):

- Level 1 assessments: map-based inventories of wetland resources;
- Level 2 assessments: evaluation of general wetland condition using relatively simple field indicators; and
- Level 3 assessments: collection of quantitative data about selected functions or beneficial uses of wetlands

CRAM is designed as a Level 2 assessment tool that provides scientifically defensible, standardized data on the trends and condition of wetlands as well as stressors that affect wetlands (CWMW 2013). The ten metrics (and six sub-metrics) used in CRAM evaluations are derived from Level 3 studies that are designed to show relationships between the ecological functions of the wetlands and anthropogenic stress. Stein et al (2009) tested the validity of the CRAM approach by correlating CRAM scores to existing monitoring and assessment data on avian diversity,

benthic macroinvertebrate indices, and plant community composition. The results of this analysis indicated that rapid assessment methods, including CRAM, can provide a meaningful and reliable tool for assessing wetland condition.

Each of the CRAM metrics is given a score of A (12 points), B (9 points), C (6 points), or D (3 points). CRAM scores for each of the four attributes range from 25 to 100. The four attribute scores are then averaged to determine the final CRAM score for a site. The final score is a relative measurement to indicate how an individual site compares to the best achievable conditions. For context, personnel associated with the Southern California Coastal Water Research Project (SCCWRP 2010) performed CRAM evaluations throughout the San Gabriel River watershed. The highest score in this study was 91, recorded in areas of the upper San Gabriel River watershed, while the lowest score was 35, recorded in the channelized mainstem of the river.

Psomas Regulatory Specialists David Hughes and Allison Rudalevige visited each of the channel reaches in this feasibility study on July 10, 14, 15, and 18; and August 5, 8, 12, 14, 21, 22, and 29, 2014. Both Mr. Hughes and Ms. Rudalevige are fully-trained CRAM practitioners and were assisted by Psomas Biologists Jason Mintzer and Agnieszka Napiatek. Prior to visiting each channel reach, one or more Assessment Areas (AA) were identified on aerial photographs, consistent with CRAM guidelines. The AA is the CRAM study area for each channel reach; the number of AAs is dependent on the size of the area to be assessed and the variability of conditions.

Field investigation at each of these channel reaches consisted of performing channel measurements, visually estimating conditions, and identifying features on standardized checklists to determine scores for the following metrics and sub-metrics: buffer condition, hydroperiod/channel stability, hydrologic connectivity, structural patch richness, topographic complexity, number of plant layers, number of do-dominant species, percent invasive species, horizontal interspersion, and vertical biotic structure. The following metrics were initially analyzed in the office via aerial photo analysis with results confirmed or adjusted in the field: landscape connectivity, percent of AA with buffer, average buffer width, and water source.

As noted above, CRAM scores can range from a minimum score of 25 to a maximum score of 100. This range of scores can be split into five equal ranges that allows categorization of ecological functioning as summarized in Table 15. This categorization is not described in the CRAM User's Manual, but it is provided herein for the purpose of broadly categorizing each reach.

TABLE 15
FUNCTIONAL RATING

CRAM Score	Functional Rating
85.0 – 100.0	Very High
70.0 – 84.9	High
55.0 – 69.9	Moderate
40.0 – 54.9	Low
25.0 – 39.9	Very Low

4.2 RESULTS

A total of 55 channel reaches in the Santa Clara River watershed were evaluated using CRAM. Several of the longer channels or those that had variable conditions were evaluated with more than one AA. This included reaches 67, 69, 75, 80, and 110. When more than one AA was used, the results are averaged to give a single score for each reach.

Table 16 provides a summary of CRAM scores for each channel reach with an accompanying functional rating that is described above. Of the 55 channel reaches that were evaluated, 22 scored in the “moderate” range (40 percent), 22 scored in the “low” range (40 percent), and 11 scored in the “very low” range (20 percent). A summary of field conditions that determined the CRAM scores for each attribute is provided below.

TABLE 16
SUMMARY OF CRAM ATTRIBUTE SCORES

Channel Reach No.	Linear Feet	CRAM Attributes				Final Score ^a	Functional Rating
		Buffer and Landscape Context	Hydrology	Physical Structure	Biotic Structure		
45	102	48.9	83.3	50.0	30.6	53.2	Low
46	80	27.4	41.7	25.0	38.9	33.3	Very Low
47	1,656	62.5	58.3	37.5	38.9	49.3	Low
48	1,800	25.0	50.0	37.5	40.3	38.2	Very Low
49	394	25.0	33.3	25.0	33.3	29.2	Very Low
50	669	30.2	33.3	25.0	33.3	30.5	Very Low
51	932	62.5	58.3	37.5	38.9	49.3	Low
52	880	33.5	33.3	25.0	25.0	29.2	Very Low
53	45	25.0	33.3	25.0	33.3	29.2	Very Low
54	298	41.0	41.7	37.5	72.2	48.1	Low
55	3,805	62.5	58.3	37.5	38.9	49.3	Low
56	452	62.5	58.3	37.5	38.9	49.3	Low
57	696	30.2	58.3	37.5	33.3	39.8	Very Low
58/59	2,064	86.4	58.3	37.5	36.1	54.6	Low
60	3,258	78.5	58.3	37.5	41.7	54.0	Low
61	1,634	87.5	83.3	37.5	36.1	61.1	Moderate
62	3,032	100.0	66.7	50.0	44.4	65.3	Moderate
63	900	42.2	58.3	37.5	25.0	40.8	Low
64	577	52.8	66.7	50.0	63.9	58.4	Moderate
66	711	43.1	58.3	62.5	58.3	55.6	Moderate
67 ^p	6,176	62.5	50.0	25.0	47.2	46.2	Low
69 ^p	6,812	50.0	41.7	25.0	54.2	42.7	Low
70	2,954	37.5	41.7	25.0	33.3	34.4	Very Low
71	346	74.3	62.5	68.8	63.9	67.4	Moderate
72	100	34.2	41.7	37.5	63.9	44.3	Low
73	82	25.0	33.3	25.0	33.3	29.2	Very Low
74	116	25.0	33.3	25.0	47.2	32.6	Very Low
75 ^p	14,056	55.9	66.7	54.2	51.9	57.2	Moderate
76	4,120	62.5	50.0	37.5	47.2	49.3	Low
77	2,136	43.1	58.3	37.5	36.1	43.8	Low

TABLE 16
SUMMARY OF CRAM ATTRIBUTE SCORES

Channel Reach No.	Linear Feet	CRAM Attributes				Final Score ^a	Functional Rating
		Buffer and Landscape Context	Hydrology	Physical Structure	Biotic Structure		
78	440	79.7	58.3	37.5	36.1	52.9	Low
79	167	80.6	50.0	50.0	50.0	57.7	Moderate
80 ^b	2,804	74.3	62.5	68.8	63.9	67.4	Moderate
82	865	90.3	75.0	37.5	58.3	65.3	Moderate
86	946	62.5	33.3	25.0	33.3	38.5	Very Low
87	240	50.0	75.0	75.0	69.4	67.4	Moderate
88	1,085	78.5	75.0	50.0	33.3	59.2	Moderate
89	341	90.3	83.3	37.5	44.4	63.9	Moderate
90	1,189	90.3	83.3	37.5	44.4	63.9	Moderate
91	530	71.0	83.3	37.5	30.6	55.6	Moderate
92	637	90.3	83.3	50.0	47.2	67.7	Moderate
93	654	82.9	66.7	37.5	25.0	53.0	Low
94	2,445	75.0	58.3	37.5	25.0	49.0	Low
95	1,883	67.7	66.7	25.0	33.3	48.2	Low
97	2,000	50.0	75.0	75.0	69.4	67.4	Moderate
101	1,817	25.0	75.0	62.5	47.2	52.4	Low
102	978	51.6	91.7	50.0	50.0	60.8	Moderate
103	1,824	43.1	75.0	50.0	52.8	55.2	Moderate
104	2,186	59.0	75.0	37.5	52.8	56.1	Moderate
105	833	80.6	66.7	50.0	55.6	63.2	Moderate
106	174	37.5	75.0	37.5	61.1	52.8	Low
107	943	71.0	58.3	37.5	52.8	54.9	Low
108	2,910	50.0	50.0	25.0	50.0	43.8	Low
109	371	93.3	66.7	50.0	33.3	60.8	Moderate
110 ^b	4,391	62.5	62.5	50.0	58.3	58.3	Moderate

^a Final score is calculated as the average of the four attribute scores
^b More than one Assessment Area was utilized for these channel reaches; the final score reflects the average score of the Assessment Areas.

5.0 BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE

Scores for this attribute varied significantly; reaches that are located in portions of the main stems of the larger streams (e.g., Santa Clara River, San Francisquito Creek, and Castaic Creek) received high scores for the Aquatic Area Abundance metric (previously Landscape Connectivity) as these are wide channels that allow wildlife to move easily through them. On the other hand, many reaches that are tributaries to the larger streams are generally adjacent to concrete-lined channels or underground culverts that are generally inhospitable to the movement of aquatic wildlife movement, which often resulted in a minimum score of 'D'. Most of the channel reaches are bordered by residential or industrial areas which has left most channels without a significant buffer. For channels that do have a buffer, their condition is generally compromised by the presence of non-native species and compacted soils.

6.0 HYDROLOGY ATTRIBUTE

Most of the reaches received a score of 'C' for the Water Source metric due to the adjacent development areas that are located in the vicinity of these reaches. Land development in the vicinity of these reaches results in urban runoff and altered hydrology that causes this low score. The Channel Stability metric scores were generally high for the reaches that were located in the main stems of the larger streams and lower for the smaller tributary channels. The lower scores for these tributaries are the result of the presence of either hardened channel bottoms or channel banks or drop structures that cause sediment to accumulate. Hydrological Connectivity scores are generally low, with most channels receiving a score of 'D'. This is due to engineered banks that are common to these reaches which prevent flood waters from affecting adjacent upland areas.

7.0 PHYSICAL STRUCTURE ATTRIBUTE

The Structural Patch Richness metric for this attribute requires identification of various streambed features that may occur within an AA. Very few of these features were observed in the various channel reaches and as a result, most reaches received a score of 'D'. This is generally due to ephemeral nature of these streams combined with many being disturbed for flood control maintenance.

Most of the smaller reaches received a low score of 'C' or 'D' for the Topographic Complexity metric. This is due to the generally uniform stream banks in these areas or the hardened banks that are common to the reaches that do not provide micro-habitat niches for aquatic wildlife. The larger streams are in a more natural state, often with braided conditions. Therefore, the banks along the braided channels had benches that resulted in a score of 'B'.

8.0 BIOTIC STRUCTURE ATTRIBUTE

The scores for this attribute were generally low, the result of low vegetation cover that was common to many of the reaches. Most reaches contain moderately sparse cover of shrub species common to alluvial streambeds (e.g., scale broom [*Lepidospartum squamatum*], California buckwheat [*Eriogonum fasciculatum*]) along with non-native grasses. Tree species, such as Fremont cottonwood (*Populus fremontii*) occur in these reaches but often not to an extent sufficient to constitute a plant layer. Therefore, most channel reaches contained one or two plant layers resulting in a score of 'C' or 'D'. Species diversity is fairly low in these reaches, also resulting in a score of 'C' or 'D'. Invasive species occur in almost every channel reach to some extent, though scores varied widely with no discernable pattern. Common non-native species that were encountered generally included herbaceous or grass species such as red brome (*Bromus madritensis*) and shortpod mustard (*Hirschfeldia incana*), where non-native woody species were less common.

The Horizontal Interspersion metric (also referred to as the Plant Zonation metric) received low scores, either 'C' or 'D', as plant zonation was fairly uniform within each of the AAs. Many of the reaches are sparsely vegetated overall. Where stream conditions were wetter, vegetation was denser with willow (*Salix* spp.) and mule fat (*Baccharis salicifolia*), but were still uniform overall. As described above, vegetation is generally sparse and the number of plant layers is generally low. As a result, overlap between plant layers is very low which is reflected in the scores for Vertical Biotic Structure.

Interestingly, the reaches that were in an unnatural state with excess urban runoff entering them had higher scores in this attribute. The excess water encouraged the establishment of willows, mule fat, and cattails (*Typha* sp.) and a variety of non-native herbaceous plants (e.g., rabbitsfoot grass [*Polypogon monspeliensis*], white sourclover [*Melilotus alba*], and water speedwell [*Veronica anagalis-aquatica*]). As a result, these areas often had more species diversity, more plant layers, and more species overlap, which raised the scores of the Number of Plant Layers, Number of Co-dominant Species, and Vertical Biotic Structure metrics.

9.0 DISCUSSION

Maintenance of channel reaches largely consists of vegetation maintenance to protect side levees and to allow adequate conveyance of storm water. Therefore, implementation of maintenance activities will mostly affect the Biotic Structure attribute. Some maintenance activities occur in the buffer portions of channel reaches which would affect the Buffer and Landscape Context attribute. Trimming or removal of vegetation would be expected to reduce scores for the Vertical Biotic Structure and Horizontal Interspersion metrics, though these received low scores during the CRAM evaluation. Though vegetation management would also affect the amount of vegetation within these reaches, the disturbance footprint associated with maintenance activities would likely not remove sufficient vegetation to affect the scores for the three plant community sub-metrics (Number of Plant Layers, Number of Co-dominant species, Percent Invasive Species). As discussed above, the most vegetation to be removed would likely occur in areas that are affected by unnatural inflows of storm water which has allowed excessive amounts of vegetation to accumulate.

9.1 STRESSORS

Several stressors are associated with each of the reaches in this study. The most common stressors include the presence of development in the general vicinity of the reaches (both residential and industrial), unnatural inflows, non-point source discharges, and the location of the reaches in engineered channels. Other stressors are associated with the maintenance activities within the reaches, such as vegetation management, removal of woody debris, presence of trash, and treatment of non-native plants.

10.0 RECOMMENDATIONS

In order to provide the LACFCD with recommendations for allowing additional vegetation in those SBC reaches identified by the hydraulic analysis as having sufficient flood-control capacity to allow such vegetation, Psomas developed biological value rankings for all 52 SBC reaches. The biological value rankings are a synthesis of results from all biological surveys conducted for this Report, including the CRAM analysis. The results are presented below in Tables 17 and 18. Note that Table 18, as it did in the biological technical assessment reports for the Los Angeles and San Gabriel River Watersheds, shows a strong correlation between CRAM scores and higher Biological Value scores.

TABLE 17
SUMMARY OF BIOLOGICAL VALUES

Reach Number	Native Vegetation Types ^a	Special Status Plants	Special Status Wildlife ^b	Summer (Breeding) Birds ^c	Transects - Native Vegetation ^d	CRAM Results ^e	Final Score
45	1.0	-	-	-	-	-	1.0
46	-	-	-	0.5	-	-0.5	0.0
47	1.0	-	0.5	-	-	-	1.5
48	1.0	-	-	0.5	0.5	-0.5	1.5
49	-	-	-	-	-	-0.5	-0.5
50	-	-	-	-	-	-0.5	-0.5
51	1.0	-	0.5	-	-	-	1.5
52	-	-	-	-	-	-0.5	-0.5
53	-	-	-	-	-	-0.5	-0.5
54	1.0	-	0.5	-	0.5	-	2.0
55	1.0	-	0.5	-	-	-	1.5
56	1.0	-	0.5	-	-	-	1.5
57	1.0	-	-	-	-	-0.5	0.5
58	1.0	-	0.5	0.5	-	-	2.0
60	1.0	-	0.5	-	-	-	1.5
61	1.0	-	0.5	0.5	-	0.5	2.5
63	-	-	0.5	-	-	-	0.5
64	1.0	-	0.5	-	0.5	0.5	2.5
66	1.0	-	0.5	-	0.5	0.5	2.5
67	1.0	-	1.0	0.5	0.5	-	3.0
69	1.0	-	1.0	-	-	-	2.0
70	1.0	-	0.5	0.5	-	-0.5	1.5
71	1.0	-	1.0	-	-	0.5	2.5
72	1.0	1.0	-	0.5	0.5	-	3.0
73	-	-	-	-	-	-0.5	-0.5
74	1.0	-	-	-	1.0	-0.5	1.5
75	1.0	-	1.0	1.5	0.5	0.5	4.5
76	1.0	-	-	0.5	-	-	1.5
77	1.0	-	-	-	0.5	-	1.5
78	1.0	-	-	-	-	-	1.0
79	1.0	-	1.0	0.5	0.5	0.5	3.5
80	1.0	-	1.0	0.5	-	0.5	3.0
82	1.0	-	1.5	0.5	0.5	0.5	4.0
86	1.0	-	1.0	0.5	-	-0.5	2.0
87	1.0	1.0	1.0	-	0.5	0.5	4.0
88	1.0	-	-	-	0.5	0.5	2.0
89	1.0	-	-	-	-	0.5	1.5
90	1.0	-	-	0.5	-	0.5	2.0
91	1.0	-	-	0.5	-	0.5	2.0
92	1.0	-	-	-	0.5	0.5	2.0
93	1.0	-	-	-	-	-	1.0
94	1.0	-	-	0.5	-	-	1.5
95	-	-	-	-	-	-	0.0

TABLE 17
SUMMARY OF BIOLOGICAL VALUES

Reach Number	Native Vegetation Types ^a	Special Status Plants	Special Status Wildlife ^b	Summer (Breeding) Birds ^c	Transects - Native Vegetation ^d	CRAM Results ^e	Final Score
97	1.0	1.0	1.0	0.5	-	0.5	4.0
101	1.0	-	-	0.5	1.0	-	2.5
102	1.0	-	-		1.0	0.5	2.5
103	1.0	-	1.5		1.0	0.5	4.0
104	1.0	-	1.0		1.0	0.5	3.5
105	1.0	-	1.0	0.5	1.0	0.5	4.0
106	1.0	-	0.5	0.5	1.0	-	3.0
107	1.0	1.0	-	0.5	1.0	-	3.5
108	1.0	-	-		1.0	-	2.0
109	1.0	-	1.0		1.0	0.5	3.5
110	1.0	-	0.5	0.5	1.0	0.5	3.5

^a A score of 1 was assigned if a native vegetation type was present in the reach; score was reduced by one-half if the native vegetation type was identified as disturbed (see Table 2).

^b A half-point was assigned to a reach with potential habitat for Threatened or Endangered species, but a score of 1 was assigned if the Threatened or Endangered species was located during focused surveys or the reach was found to support aquatic habitat potentially occupied by the unarmored threespine stickleback (see Table 4). Additionally, if a reach has potential habitat for Threatened and Endangered species from more than one taxonomic class, then an additional half-point was assigned to this column score.

^c A score of 1 was assigned to this column if a California Bird Species of Special Concern was located in the reach during the summer breeding bird surveys (see Table 5); an additional half-point was assigned to this column score if one or more species on the Los Angeles County Bird Watchlist was present during the summer breeding bird surveys (see Table 5).

^d A score of 1 was assigned if the pre-clearing transects produced greater than 50% native vegetation on average for the reach; a half-point was assigned to this column score if the native vegetation averaged more than 25% but less than 50% for the reach. Note that no vegetation transects were conducted at Reaches 101 – 110 because maintenance activities were not yet permitted at the time of these surveys, so a score of 1.0 was assigned to these SBC reaches based on existing conditions observed during the surveys.

^e A score of 1 was assigned to those SBC reaches with high CRAM functional rating; a score of one-half for SBC reaches with moderate CRAM functional rating; no score for SBC reaches with a low CRAM functional rating; and a negative score of one-half for those SBC reaches with a very low CRAM functional rating.

TABLE 18
BIOLOGICAL VALUE SCORES RANKED HIGH TO LOW

Reach Number	Native Vegetation Types	Special Status Plants	Special Status Wildlife	Summer (Breeding) Birds	Transects Native Vegetation	CRAM Results	Final Score ^a
75	1.0	-	1.0	1.5	0.5	0.5	4.5
97	1.0	1.0	1.0	0.5	-	0.5	4.0
87	1.0	1.0	1.0	-	0.5	0.5	4.0
82	1.0	-	1.5	0.5	0.5	0.5	4.0
105	1.0	-	1.0	0.5	1.0	0.5	4.0
103	1.0	-	1.5		1.0	0.5	4.0
109	1.0	-	1.0		1.0	0.5	3.5
110	1.0	-	0.5	0.5	1.0	0.5	3.5
79	1.0	-	1.0	0.5	0.5	0.5	3.5
104	1.0	-	1.0		1.0	0.5	3.5
107	1.0	1.0	-	0.5	1.0	-	3.5
80	1.0	-	1.0	0.5	-	0.5	3.0
106	1.0	-	0.5	0.5	1.0	-	3.0
67	1.0	-	1.0	0.5	0.5	-	3.0
72	1.0	1.0	-	0.5	0.5	-	3.0
71	1.0	-	1.0	-	-	0.5	2.5
61	1.0	-	0.5	0.5	-	0.5	2.5
102	1.0	-	-		1.0	0.5	2.5
64	1.0	-	0.5	-	0.5	0.5	2.5
66	1.0	-	0.5	-	0.5	0.5	2.5
101	1.0	-	-	0.5	1.0	-	2.5
92	1.0	-	-	-	0.5	0.5	2.0
90	1.0	-	-	0.5	-	0.5	2.0
88	1.0	-	-	-	0.5	0.5	2.0
91	1.0	-	-	0.5	-	0.5	2.0
58	1.0	-	0.5	0.5	-	-	2.0
54	1.0	-	0.5	-	0.5	-	2.0
108	1.0	-	-		1.0	-	2.0
69	1.0	-	1.0	-	-	-	2.0
86	1.0	-	1.0	0.5	-	-0.5	2.0
89	1.0	-	-	-	-	0.5	1.5
60	1.0	-	0.5	-	-	-	1.5
55	1.0	-	0.5	-	-	-	1.5
56	1.0	-	0.5	-	-	-	1.5
47	1.0	-	0.5	-	-	-	1.5
76	1.0	-	-	0.5	-	-	1.5
94	1.0	-	-	0.5	-	-	1.5
77	1.0	-	-	-	0.5	-	1.5
48	1.0	-	-	0.5	0.5	-0.5	1.5
70	1.0	-	0.5	0.5	-	-0.5	1.5
74	1.0	-	-	-	1.0	-0.5	1.5
45	1.0	-	-	-	-	-	1.0

TABLE 18
BIOLOGICAL VALUE SCORES RANKED HIGH TO LOW

Reach Number	Native Vegetation Types	Special Status Plants	Special Status Wildlife	Summer (Breeding) Birds	Transects Native Vegetation	CRAM Results	Final Score ^a
93	1.0	-	-	-	-	-	1.0
78	1.0	-	-	-	-	-	1.0
63	-	-	0.5	-	-	-	0.5
57	1.0	-	-	-	-	-0.5	0.5
95	-	-	-	-	-	-	0.0
46	-	-	-	0.5	-	-0.5	0.0
50	-	-	-	-	-	-0.5	-0.5
49	-	-	-	-	-	-0.5	-0.5
52	-	-	-	-	-	-0.5	-0.5
53	-	-	-	-	-	-0.5	-0.5
73	-	-	-	-	-	-0.5	-0.5

^a Final scores of equal value were sorted from high to low based on their final CRAM score (see Table 17).

As noted in the Hydraulic Analysis Technical Assessment Report prepared for the LACFCD, 51 of the 52 SBC reaches were found to lack sufficient hydraulic capacity to support additional vegetation. No recommendations for additional vegetation were therefore made for these 51 SBC reaches. The LACFCD requested that Psomas develop recommendations for additional vegetation for the remaining three SBC Reaches (88, 102, and 103) that had capacity for additional vegetation. The recommendations for these three SBC Reaches, following review by LACFCD channel maintenance personnel, are provided below. Note that they are presented in order according to their ranked biological value from high to low (see Table 18).

Reach 103, Bouquet Canyon Channel. Mechanically clear vegetation on a 15-foot wide path along the toe of both levee slopes. At the drainage outlet, mechanically clear woody vegetation from a 10-foot-wide entrainment channel that would extend for 50 feet at a 20-degree angle and involve re grading roughly 56 cubic yards of sediment. Mechanically clear woody vegetation and re-grade a 20-foot wide low-flow channel through the center of the channel. Mechanically clear all vegetation and remove 3,000 cubic yards of sediment over the grouted riprap (upstream limit to 300 feet downstream). Remove woody vegetation bi annually and alternately between the grouted riprap and the middle of the length of the channel. Downstream of the grouted riprap, a 20-foot strip of vegetation on both sides of the low-flow channel will remain protected. As vegetation thickens over time in these protected 20-foot strips, the plant removal is allowed in the same footprint in the same manner, but the intensity of removal and regrading of sediment would be lessened. A total of 100 cubic yards of sediment is expected to be re-graded or removed across all activities in the channel annually.

Reach 102, Violin Canyon. Remove all vegetation within 15 ft of the toe of the levee. Also, remove all vegetation within a 15-foot wide low flow to center of channel (no more than 30 ft in length) from the side outlet at a 45-degrees to the levee. Within area of identified capacity, from 15 ft to 41 ft from the toe of the levee, remove all non-native vegetation and remove any newly established native or non-native trees. Allow native shrubs to remain and expand overtime and allow existing mature native trees to remain. All existing vegetation will be subject to maintenance practices allowed under existing permits (e.g. the “lollipopping” of individual trees, and the removal of invasive species).

Reach 88, Hasely Canyon Upper. Remove all vegetation within 15 ft of the toe of the levee. Within area of identified capacity, from 15 ft to 39 ft from the toe of the levee, remove all non-native vegetation and remove any newly established native or non-native trees. Allow native shrubs to remain and expand overtime and allow existing mature native trees to remain. All existing vegetation will be subject to maintenance practices allowed under existing permits (e.g. the “lollipopping” of individual trees, and the removal of invasive species).

Please note that these recommendations are subject to change based on regulatory agency review, input, and approval.

11.0 CONCLUSION

The LACFCD has completed the required FS analyses for the earth-bottom channel reaches that it maintains within the Santa Clara River Watershed. As discussed above, allowing additional native vegetation and/or replacement of non-native with native vegetation is recommended for the following three earth-bottom reaches: 88, 102, and 103. This additional vegetation may allow the LACFCD to offset some mitigation required in other reaches.

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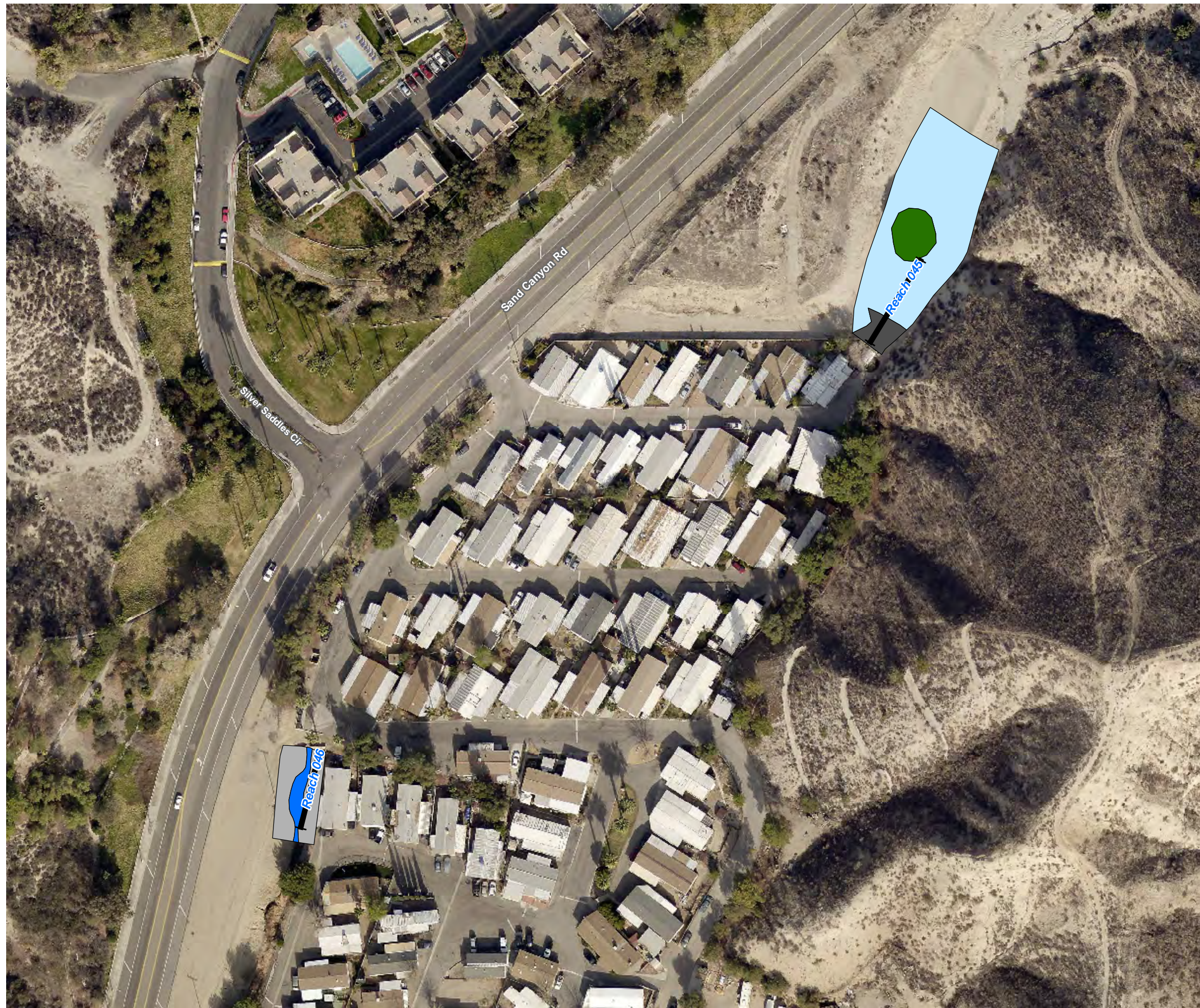
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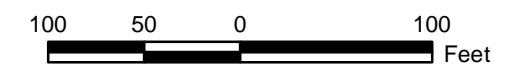
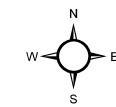
APPENDIX A
VEGETATION MAPS

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- ➡ Reach
- Vegetation Type**
- 29, individual coast live oak trees
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash
- 41, open water
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



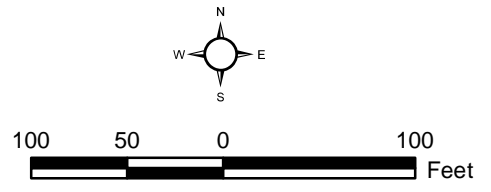
Aerial Source: LAR-IAC 2014

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- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 6, mixed willow thicket
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 42, ungrouted riprap
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



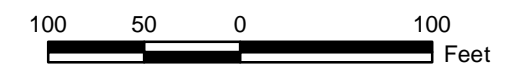
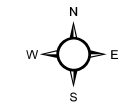
Aerial Source: LAR-IAC 2014

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- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 42, ungrouted riprap
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-3
Vegetation Types - Reach 47

Santa Clara River Watershed
Feasibility Study

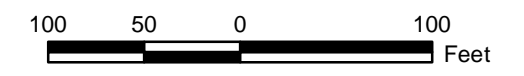
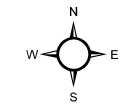


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- ➔ Reach
- Vegetation Type**
- 2, disturbed scale-broom scrub
- 34, ornamental
- 36, ruderal
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-4
Vegetation Types - Reach 48

Santa Clara River Watershed
Feasibility Study

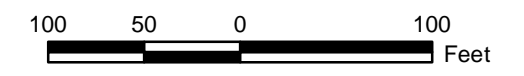
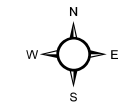




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- ➡ Reach
- Vegetation Type**
- 2, disturbed scale-broom scrub
- 13, mule fat thicket
- 34, ornamental
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash

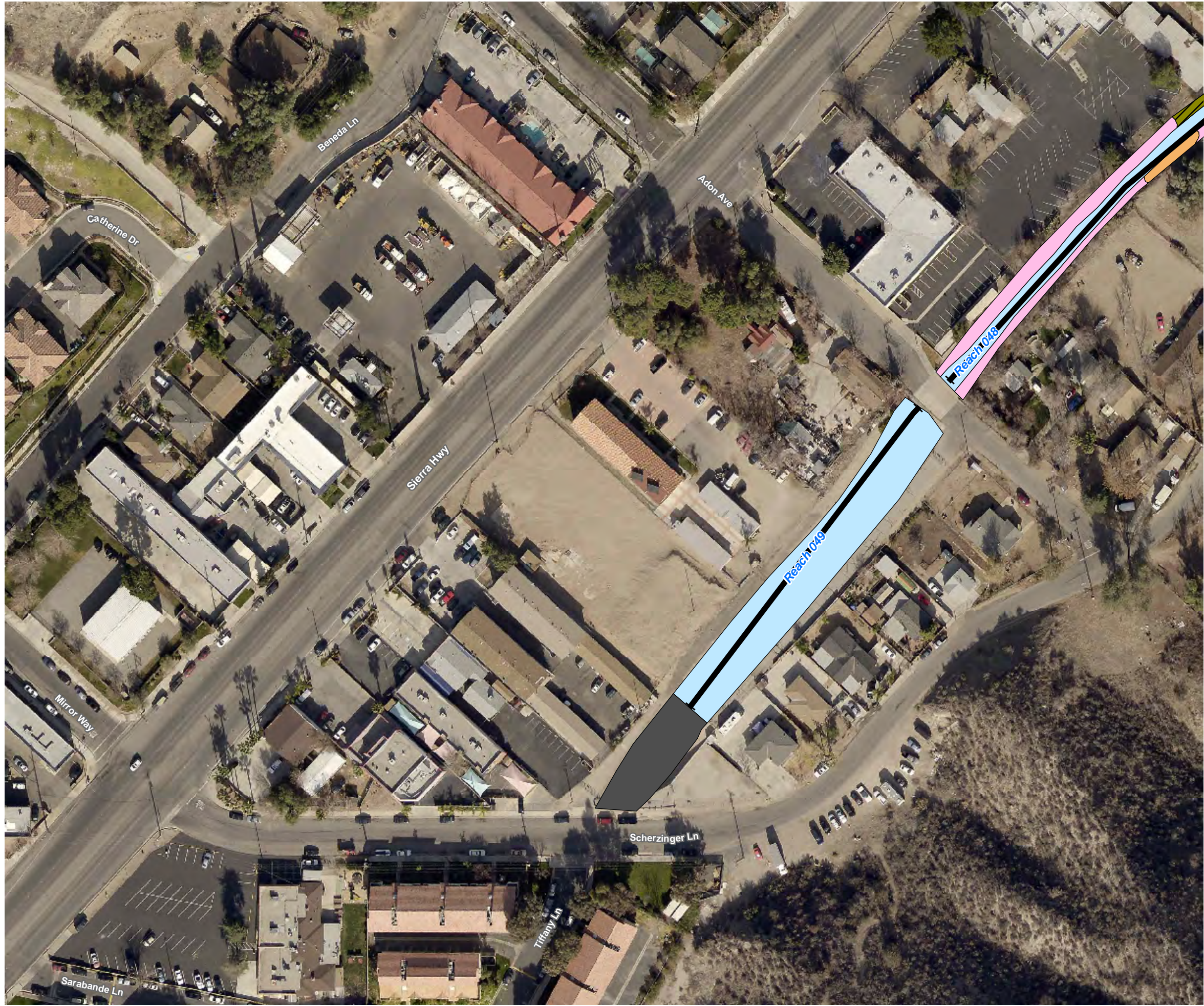
Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

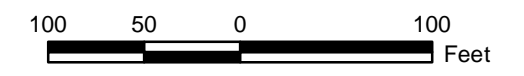
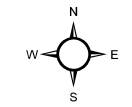
Appendix A-5
Vegetation Types - Reach 48

Santa Clara River Watershed
Feasibility Study



- ➡ Reach
- Vegetation Type**
- 2, disturbed scale-broom scrub
- 13, mule fat thicket
- 34, ornamental
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

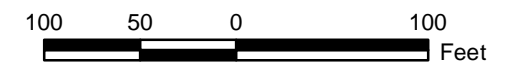
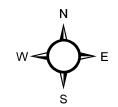
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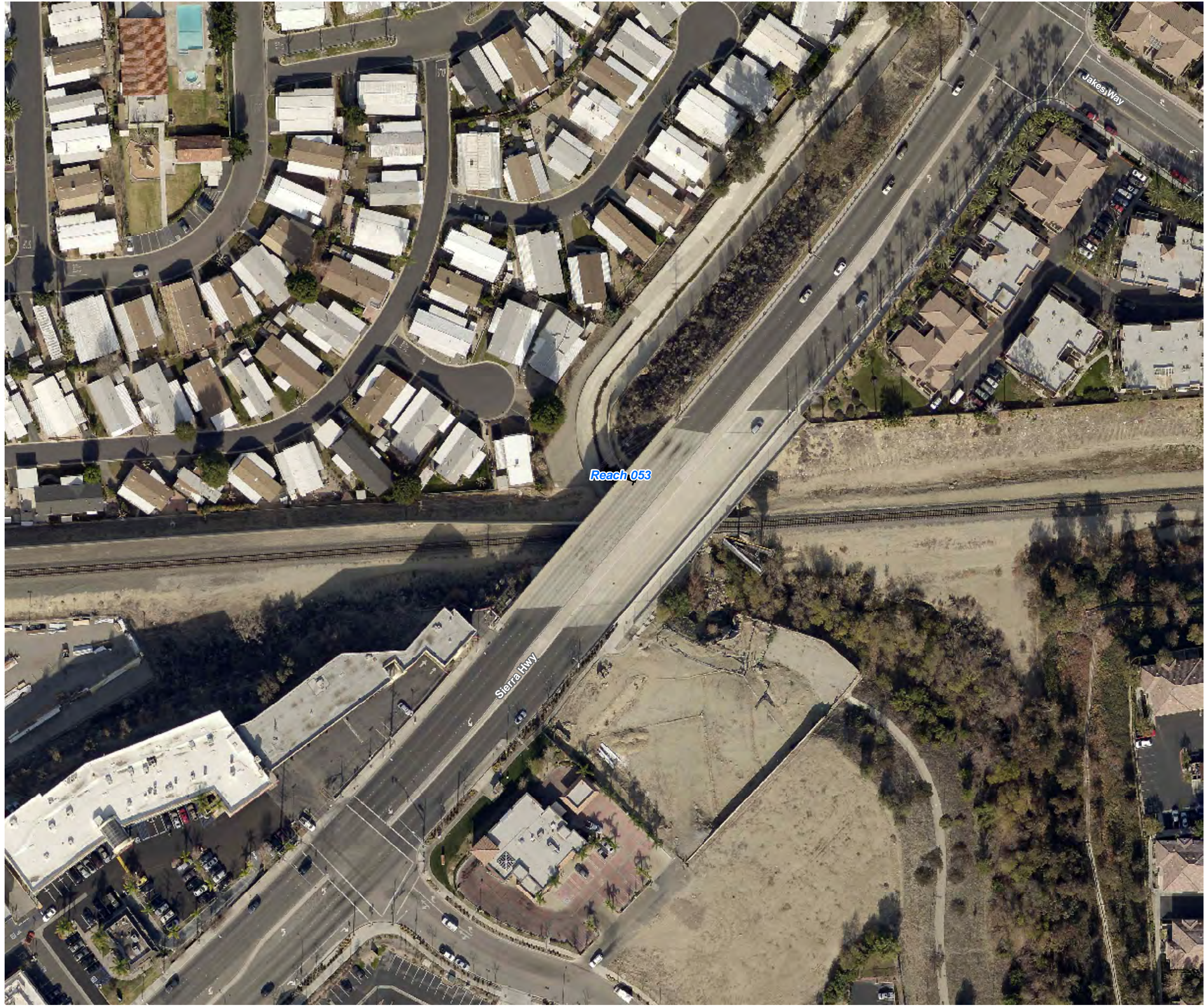
- Reach
- Vegetation Type**
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



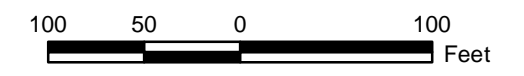
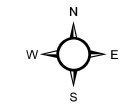
Aerial Source: LAR-IAC 2014

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← Reach

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
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088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-8
Vegetation Types - Reach 53

Santa Clara River Watershed
Feasibility Study

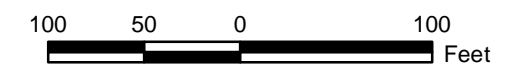
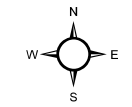


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- Reach
- Vegetation Type**
- 1, scale-broom scrub
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



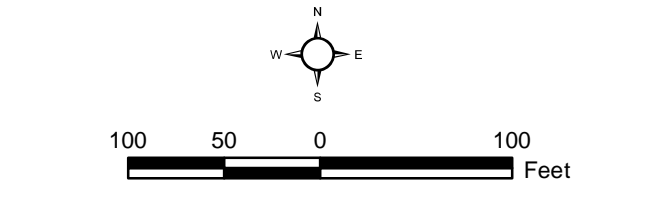
Aerial Source: LAR-IAC 2014

Appendix A-9
Vegetation Types - Reach 51/55

*Santa Clara River Watershed
 Feasibility Study*



Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
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107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

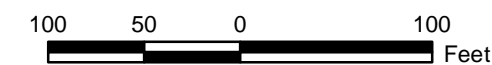
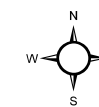
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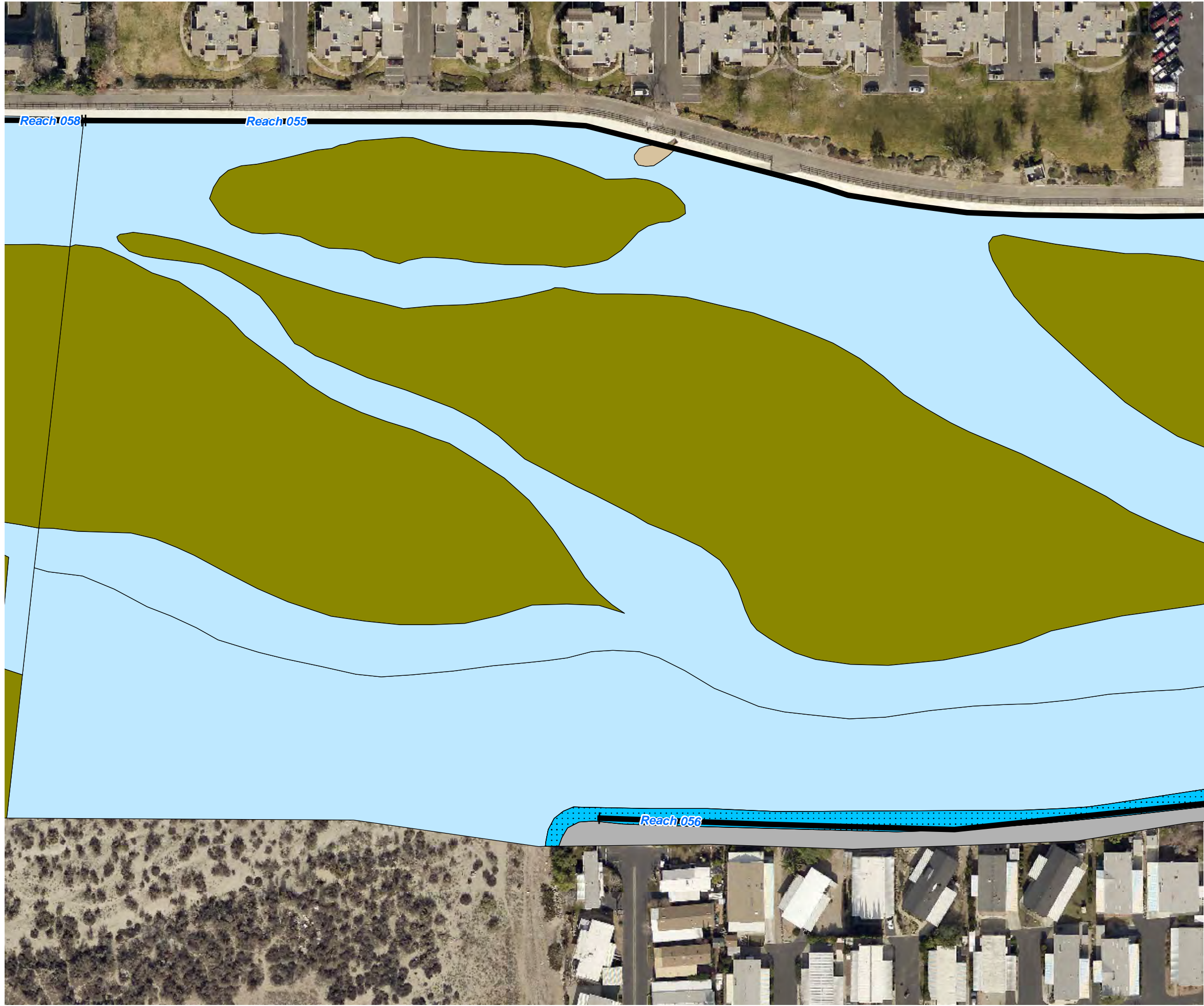


- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 36, ruderal
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash
- 42, ungrouted riprap
- 43, grouted riprap
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
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073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
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103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95

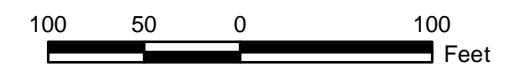
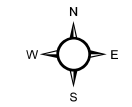


Aerial Source: LAR-IAC 2014



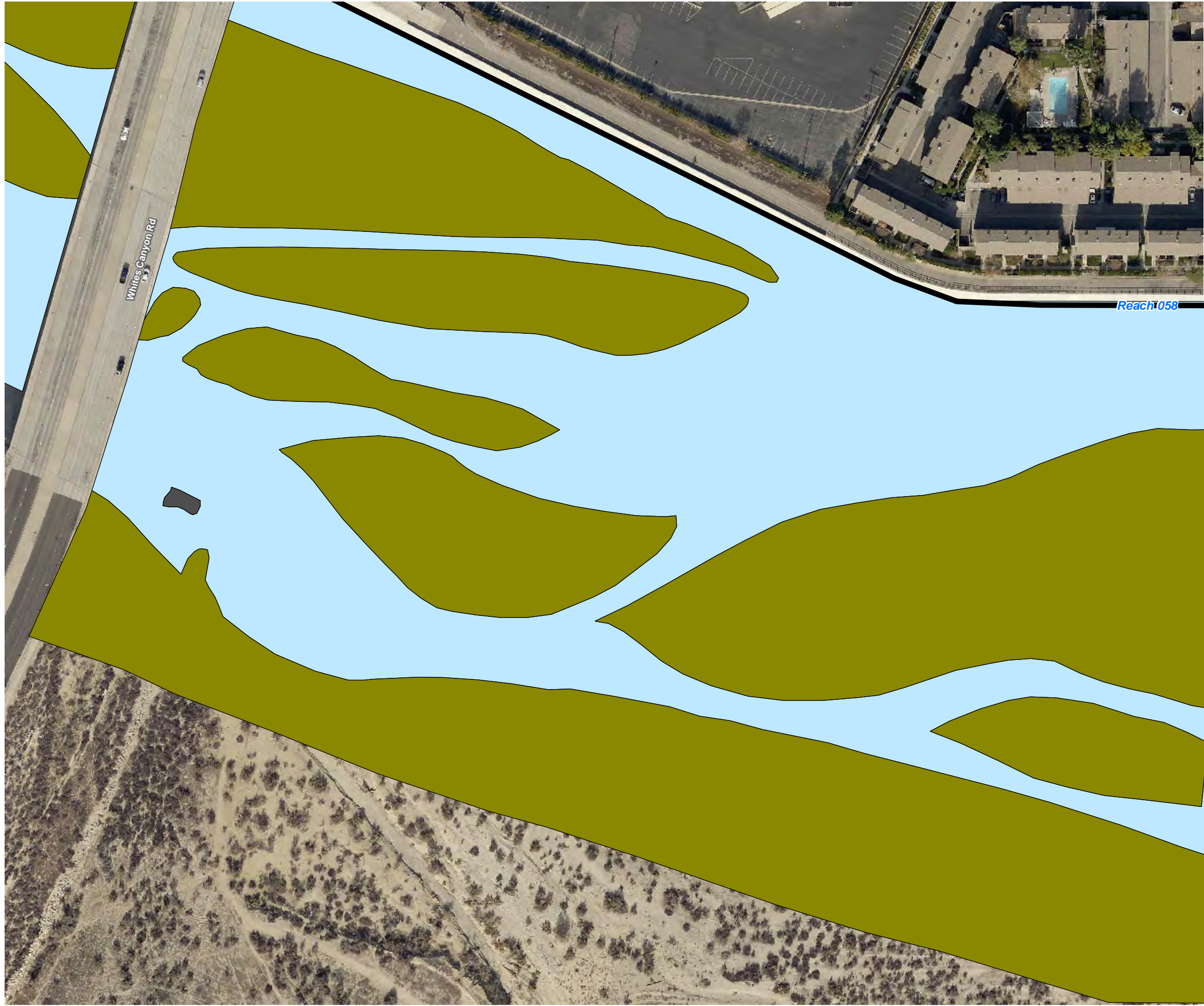
- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 35, riparian herb
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash
- 42, ungrouted riprap

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
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097	65-67
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108	90-92
109	39
110	93-95



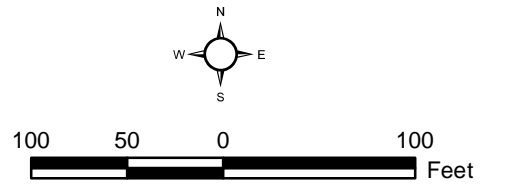
Aerial Source: LAR-IAC 2014

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- Reach
- Vegetation Type**
- 1, scale-broom scrub
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

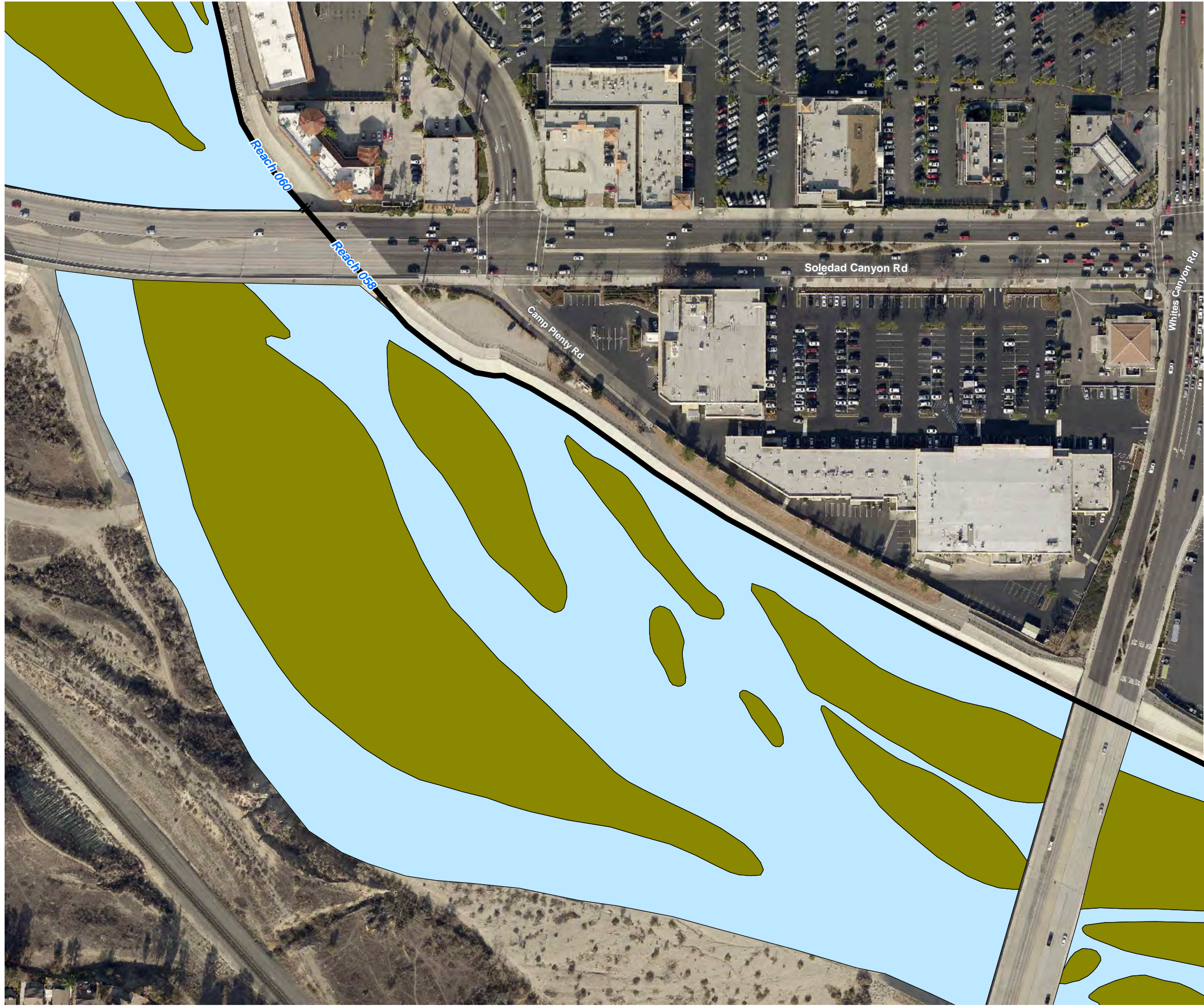
Reach	Page Range
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046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
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080	39-41
082	63
086	64
087	65
088	68-69
089	70
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093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
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107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

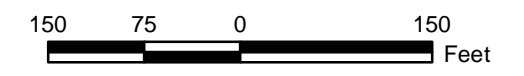
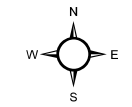
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- Reach
- Vegetation Type**
- 1, scale-broom scrub
- Non-Vegetation Type**
- 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
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079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
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105	86-87
106	88
107	89
108	90-92
109	39
110	93-95

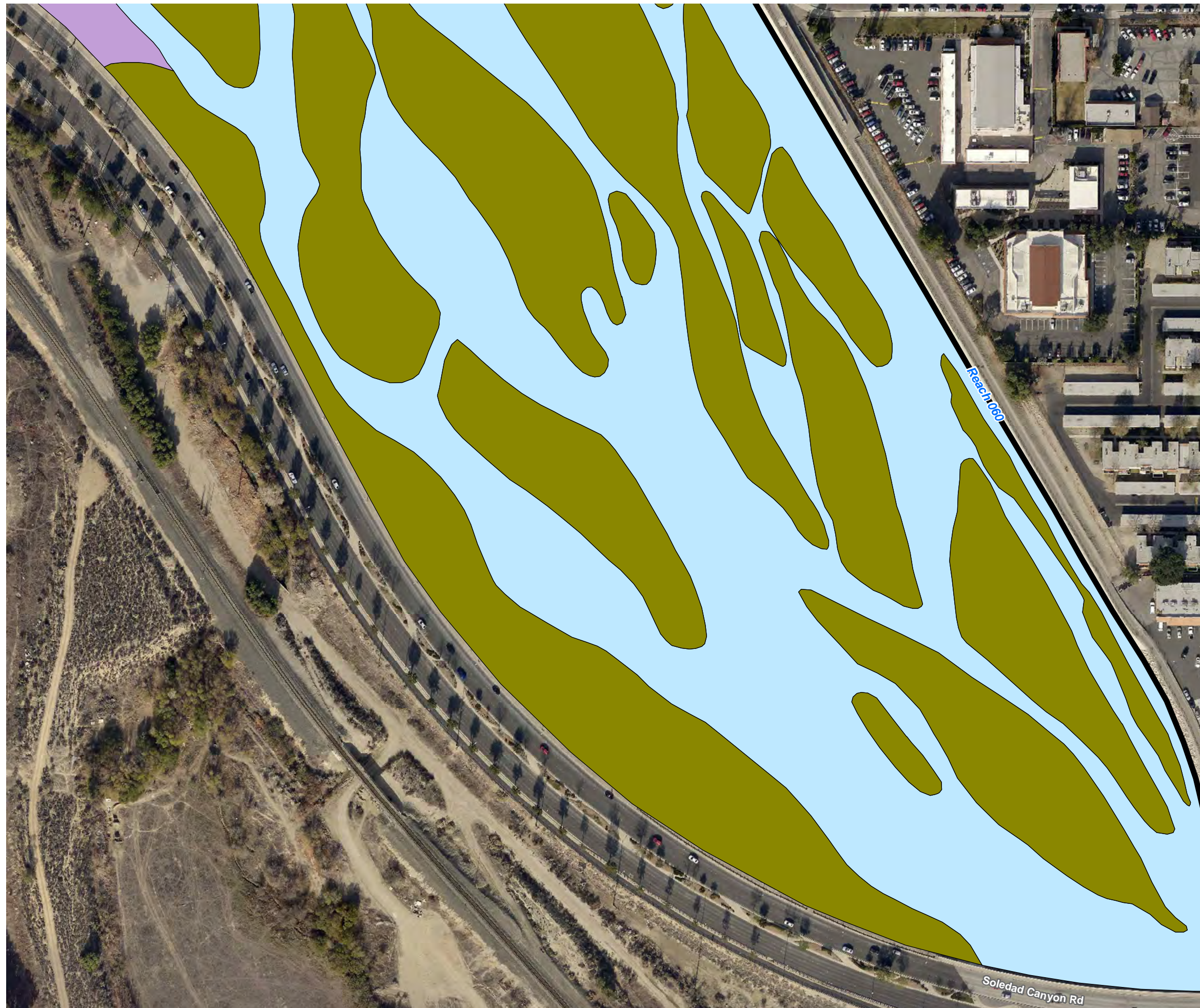


Aerial Source: LAR-IAC 2014

Appendix A-14
Vegetation Types - Reach 058

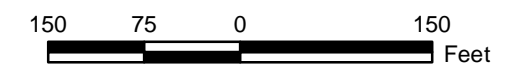
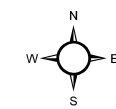
Santa Clara River Watershed
Feasibility Study

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- ➡ Reach
- Vegetation Type**
- 1, scale-broom scrub
 - 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
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090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-15
Vegetation Types - Reach 060

Santa Clara River Watershed
 Feasibility Study



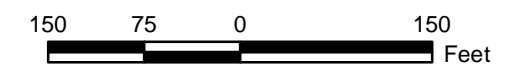
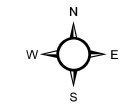
Soledad Canyon Rd

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- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 17, Fremont cottonwood forest
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 42, ungrouted riprap
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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070	36-38
071	39
072	42
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090	69-70
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092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-16
Vegetation Types - Reach 110

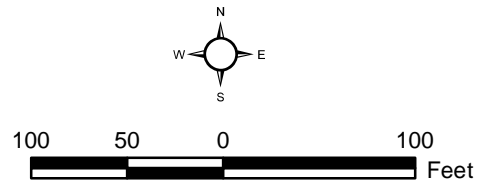
Santa Clara River Watershed
Feasibility Study





- Reach
- Vegetation Type**
- 1, scale-broom scrub
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
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071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
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080	39-41
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086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-17
Vegetation Types - Reach 61

Santa Clara River Watershed
Feasibility Study

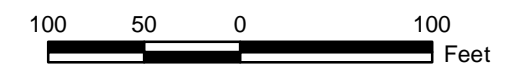
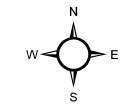


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Reach
Non-Vegetation Type
 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
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070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
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086	64
087	65
088	68-69
089	70
090	69-70
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094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-18
Vegetation Types - Reach 61

Santa Clara River Watershed
 Feasibility Study



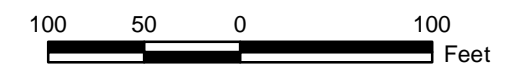
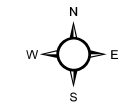
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- Reach
- Vegetation Type**
- 17, Fremont cottonwood forest
- Non-Vegetation Type**
- 40, unvegetated wash
- 41, open water
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
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067	24-29
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070	36-38
071	39
072	42
073	43
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075	44-52,54,58-61
076	55-58
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078	53
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087	65
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089	70
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093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-19
Vegetation Types - Reach 61

Santa Clara River Watershed
Feasibility Study

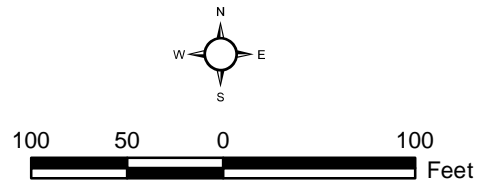




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- ➡ Reach
- Vegetation Type**
- 25, individual Fremont cottonwood tree
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
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097	65-67
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110	93-95



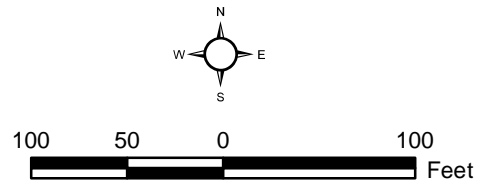
Aerial Source: LAR-IAC 2014

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Reach
Non-Vegetation Type
40, unvegetated wash








Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
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086	64
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090	69-70
091	72
092	71-72
093	72-73
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095	77-78
097	65-67
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109	39
110	93-95



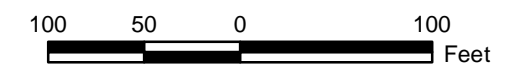
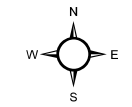
Aerial Source: LAR-IAC 2014

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-  Reach
- Vegetation Type**
-  2, disturbed scale-broom scrub
-  17, Fremont cottonwood forest
-  25, individual Fremont cottonwood tree
-  34, ornamental
- Non-Vegetation Type**
-  39, disturbed
-  41, open water

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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060	14-16
061	16-19
063	21
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066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
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075	44-52,54,58-61
076	55-58
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078	53
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080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
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110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-22 Vegetation Types - Reach 64

Santa Clara River Watershed
Feasibility Study

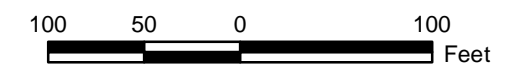
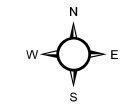


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- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 36, ruderal
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash
- 42, ungrouted riprap

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
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070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
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103	82-83
104	84-85
105	86-87
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107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-23
Vegetation Types - Reach 66

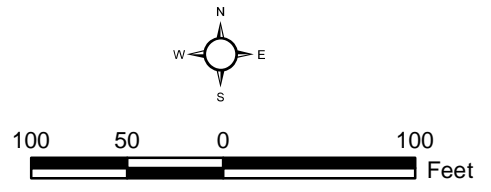
Santa Clara River Watershed
Feasibility Study





Reach
Vegetation Type
 6, mixed willow thicket
 11, mixed willow thicket/non-native grassland/ruderal
 33, non-native grassland/ruderal
 36, ruderal
Non-Vegetation Type
 44, developed

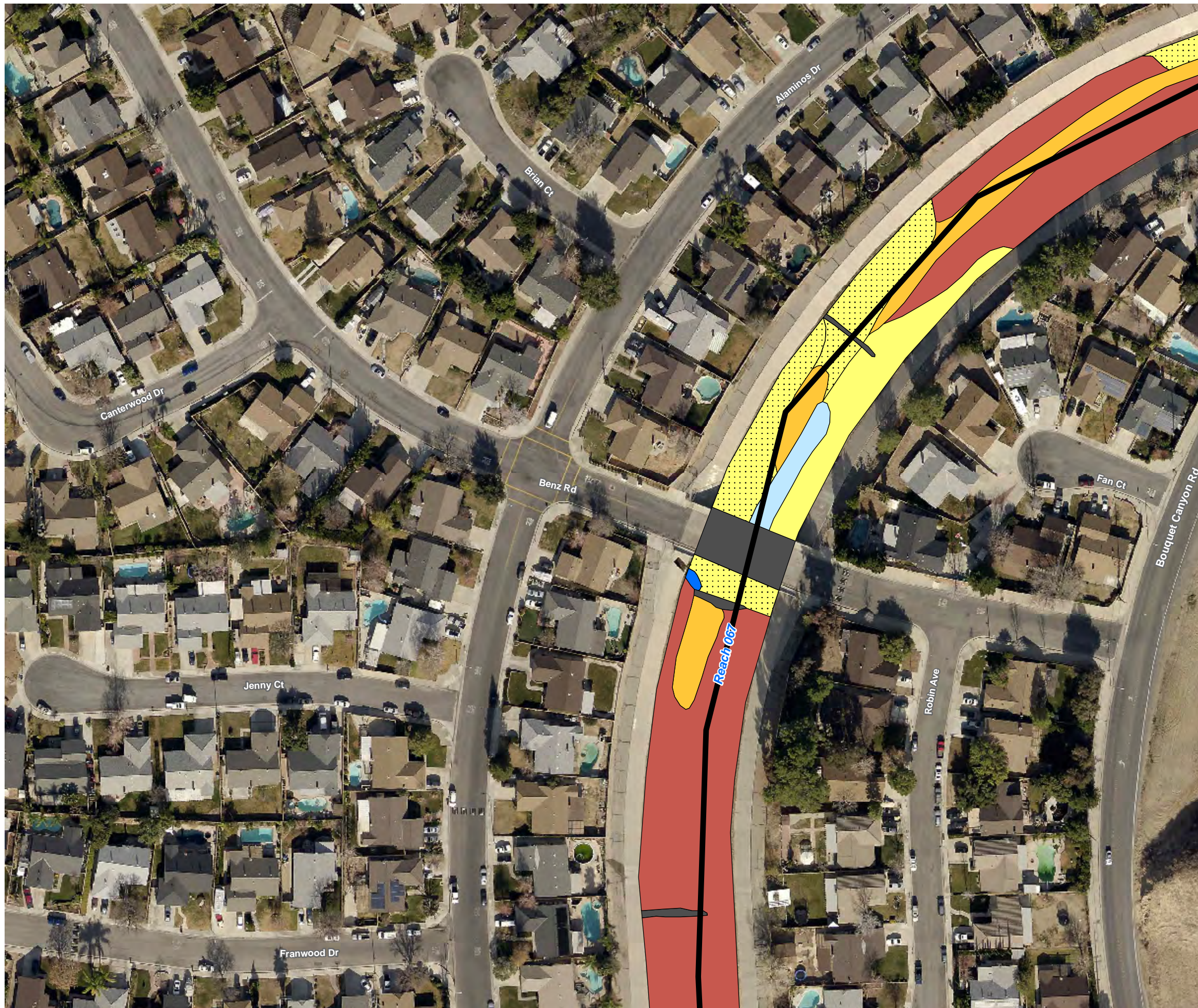
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046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
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107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

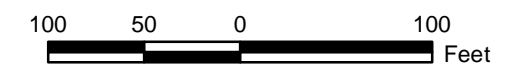
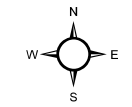
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Reach	Page Range
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046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
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055	10-12
056	10-12
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074	43
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078	53
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086	64
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093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95

- Reach**
- Vegetation Type**
- 6, mixed willow thicket
 - 11, mixed willow thicket/non-native grassland/ruderal
 - 32, non-native grassland
 - 33, non-native grassland/ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
 - 41, open water
 - 44, developed



Aerial Source: LAR-IAC 2014

Appendix A-25
Vegetation Types - Reach 67

Santa Clara River Watershed
Feasibility Study

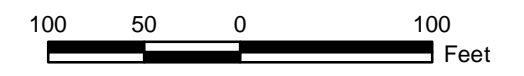
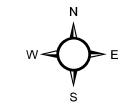


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Reach	Page Range
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046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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061	16-19
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071	39
072	42
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075	44-52,54,58-61
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077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
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090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95

- Reach
- Vegetation Type**
- 11, mixed willow thicket/non-native grassland/ruderal
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

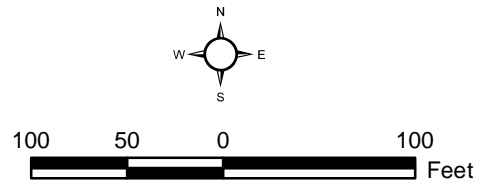


Aerial Source: LAR-IAC 2014



- Reach
- Vegetation Type**
- 6, mixed willow thicket
- 11, mixed willow thicket/non-native grassland/ruderal
- 32, non-native grassland
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
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110	93-95



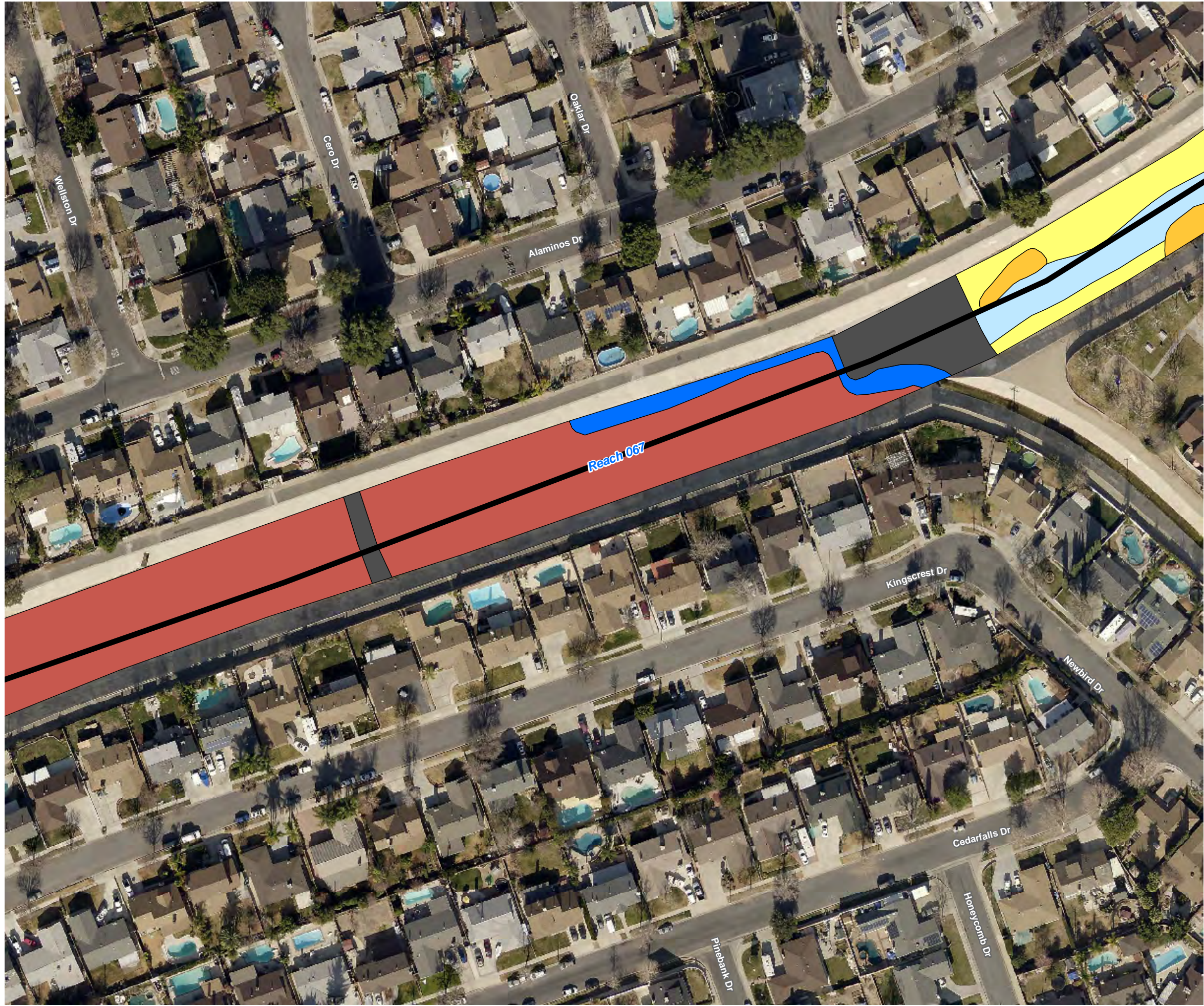
Aerial Source: LAR-IAC 2014

Appendix A-27
Vegetation Types - Reach 67

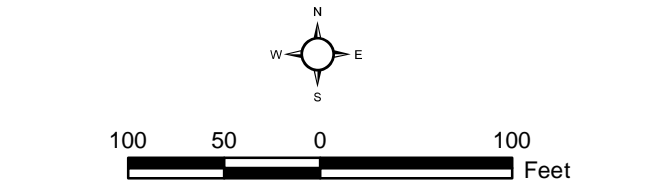
Santa Clara River Watershed
Feasibility Study



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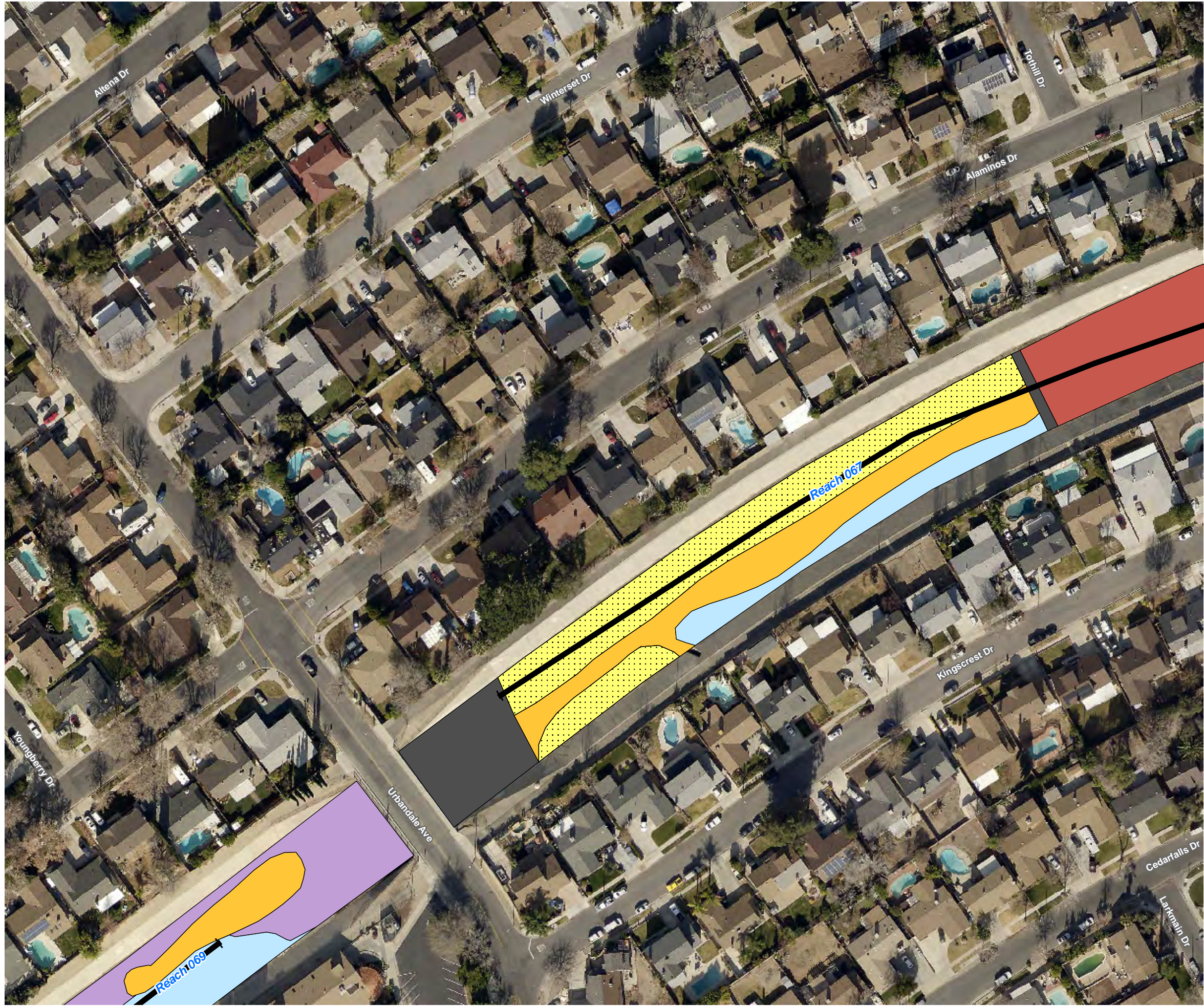


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055	10-12
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097	65-67
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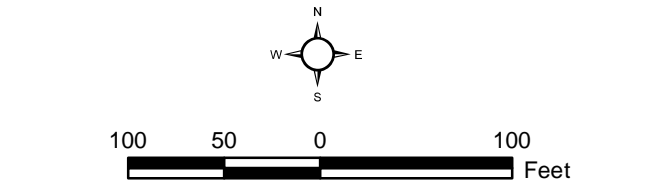


Aerial Source: LAR-IAC 2014

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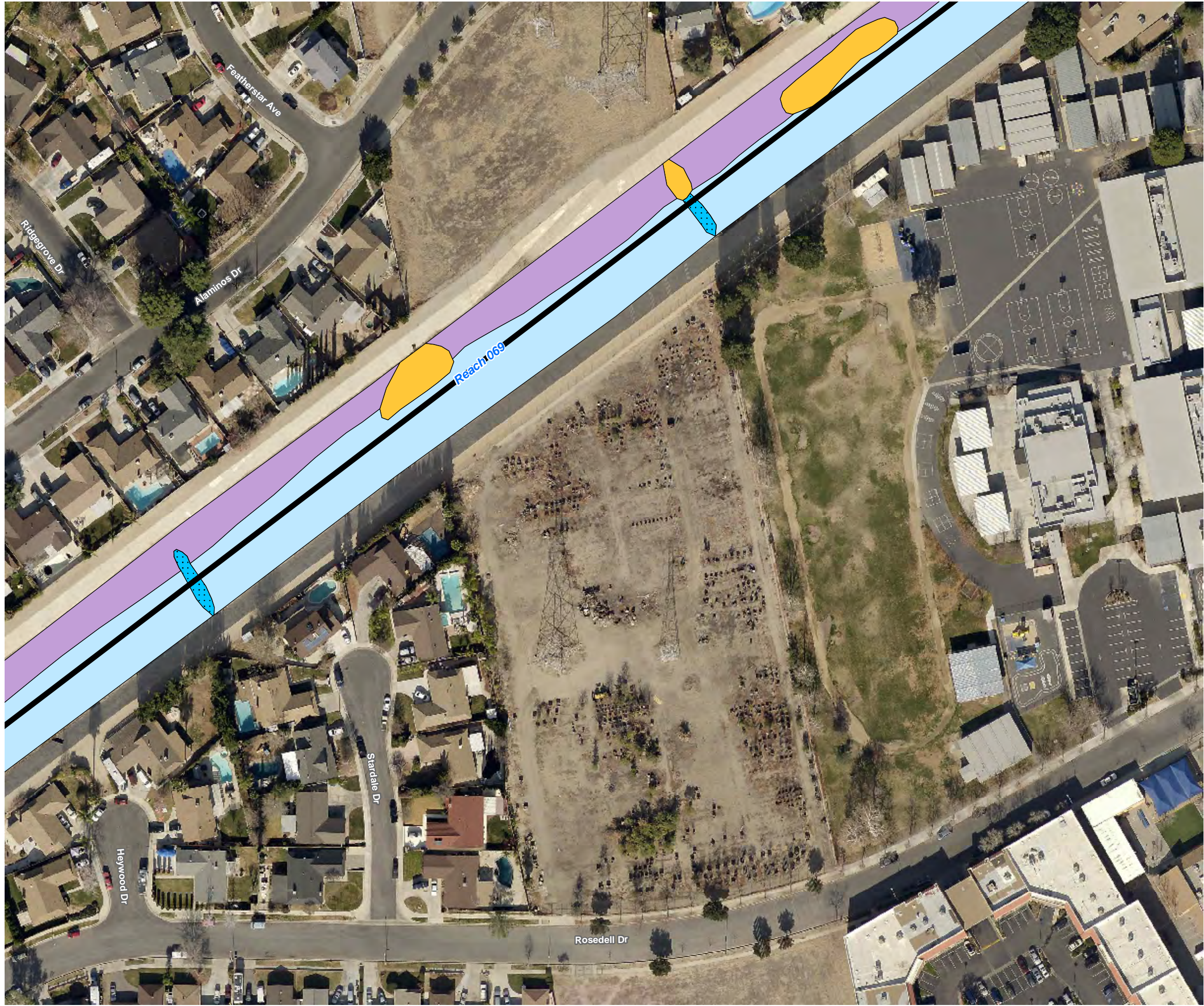


Reach	Page Range
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072	42
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097	65-67
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108	90-92
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110	93-95



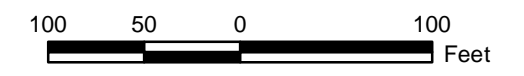
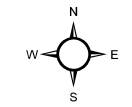
Aerial Source: LAR-IAC 2014

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- Reach
- Vegetation Type**
- 6, mixed willow thicket
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 42, ungrouted riprap

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
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064	22
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072	42
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107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-30
Vegetation Types - Reach 69

Santa Clara River Watershed
Feasibility Study

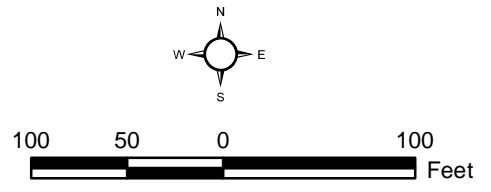


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- Reach
Vegetation Type
 6, mixed willow thicket
 28, cattail marsh
 36, ruderal
Non-Vegetation Type
 40, unvegetated wash
 41, open water
 42, ungrouted riprap
 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
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097	65-67
101	79-80
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103	82-83
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105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-31
Vegetation Types - Reach 69

Santa Clara River Watershed
Feasibility Study



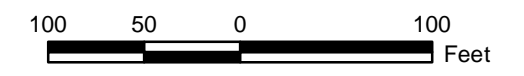
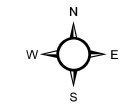
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- Reach
- Vegetation Type**
- 6, mixed willow thicket
- 28, cattail marsh
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 41, open water
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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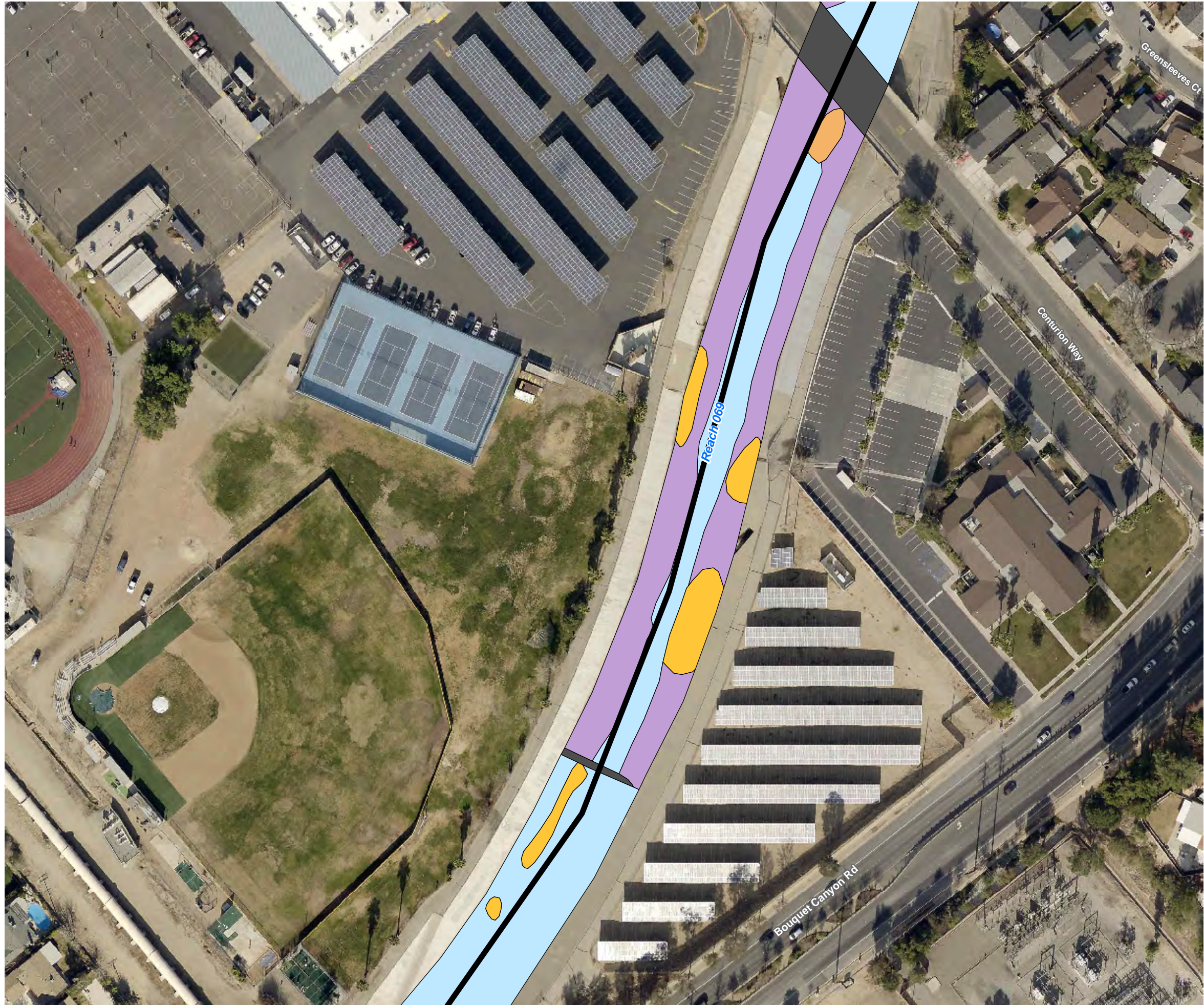
Aerial Source: LAR-IAC 2014

Appendix A-32
Vegetation Types - Reach 69

Santa Clara River Watershed
Feasibility Study

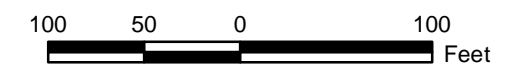
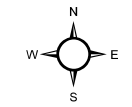


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- Reach
- Vegetation Type**
- 6, mixed willow thicket
- 13, mule fat thicket
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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075	44-52,54,58-61
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094	74-76
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097	65-67
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109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-33
Vegetation Types - Reach 69

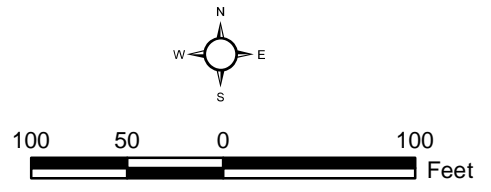
Santa Clara River Watershed
Feasibility Study





- Reach
- Vegetation Type**
- 6, mixed willow thicket
- Non-Vegetation Type**
- 40, unvegetated wash
- 42, ungrouted riprap
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
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075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
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092	71-72
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094	74-76
095	77-78
097	65-67
101	79-80
102	81
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108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

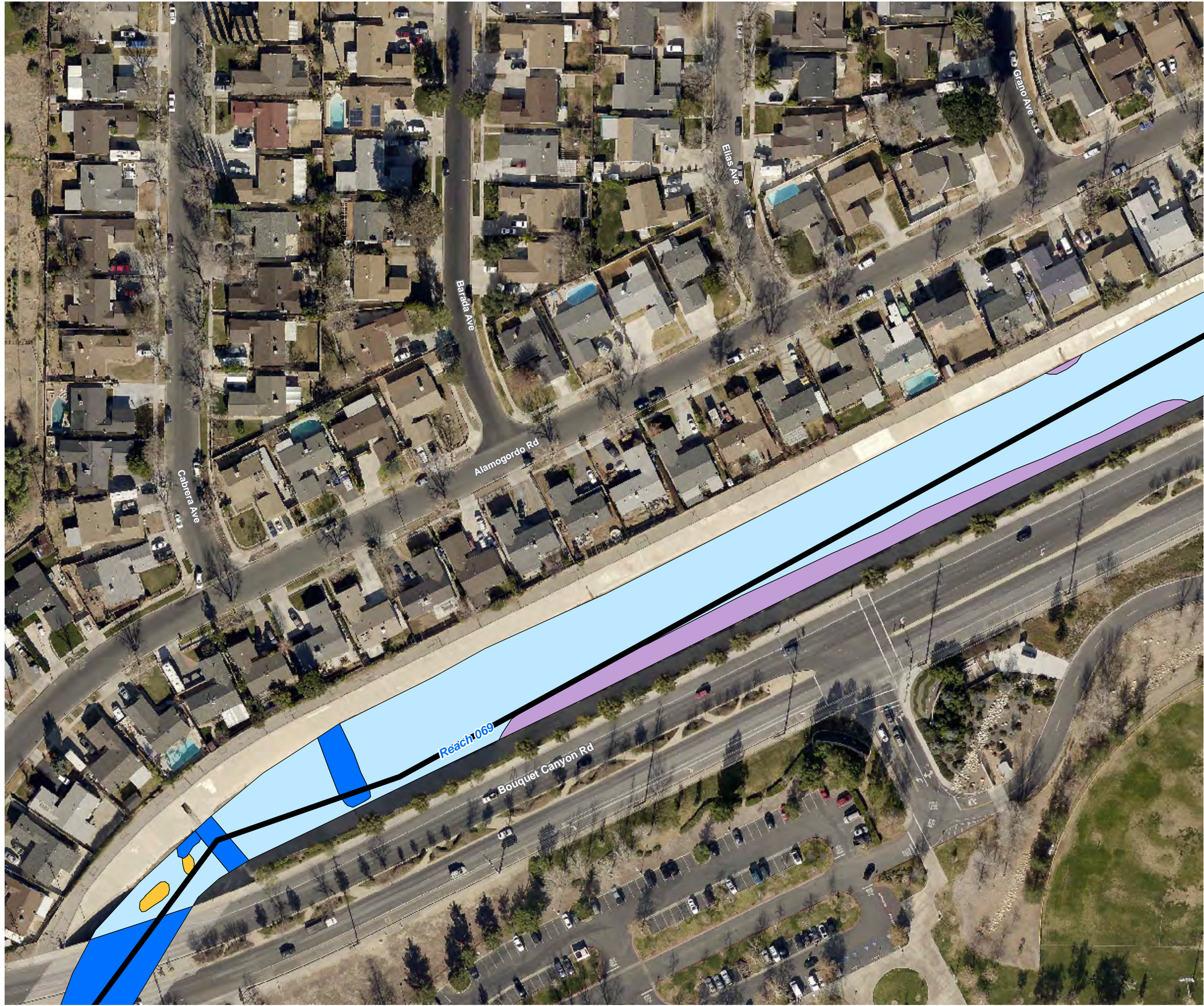
Appendix A-34
Vegetation Types - Reach 69

Santa Clara River Watershed
Feasibility Study



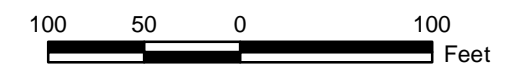
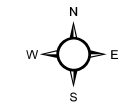
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- ➡ Reach
- Vegetation Type**
- 6, mixed willow thicket
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 41, open water

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
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104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95

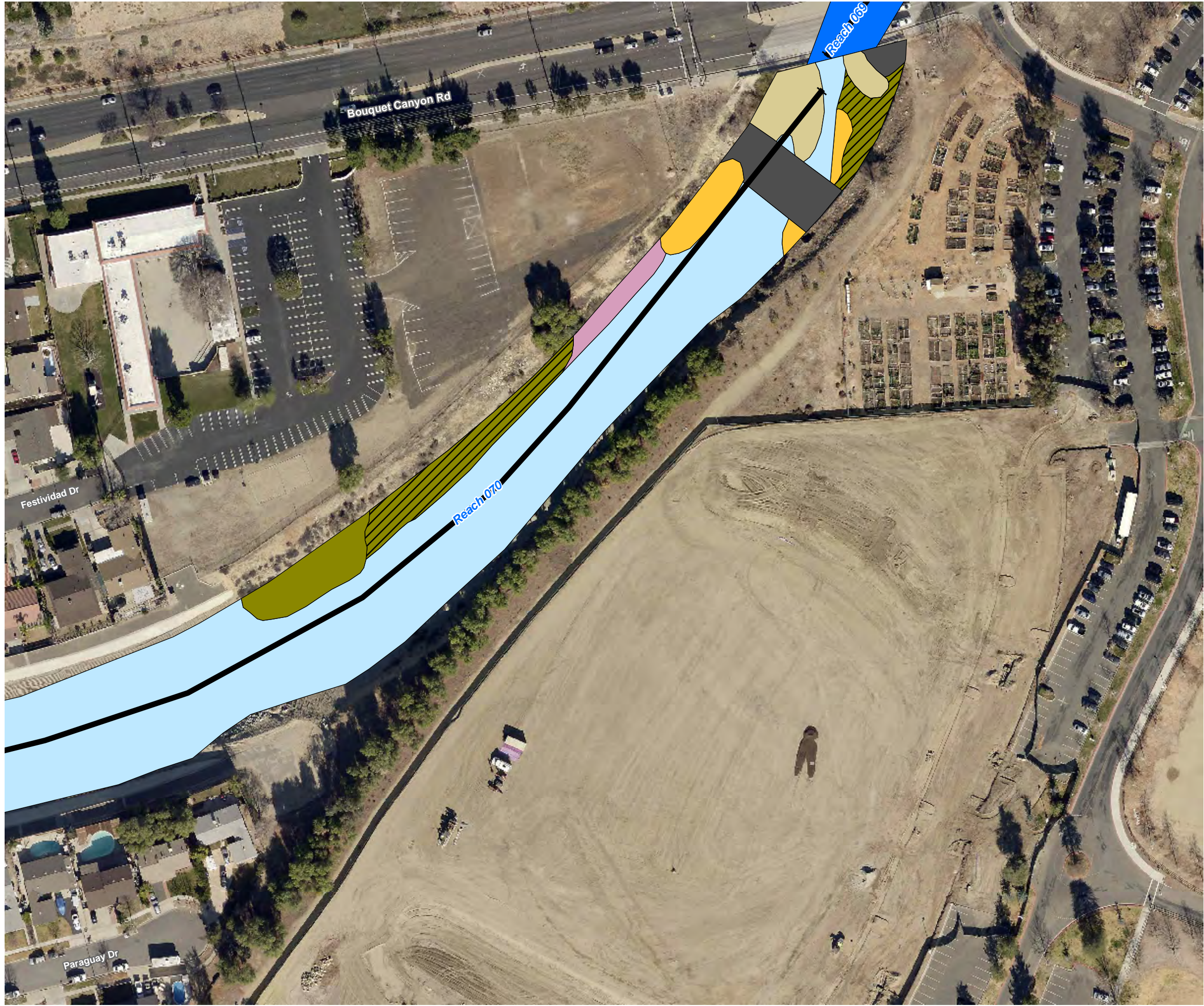


Aerial Source: LAR-IAC 2014

Appendix A-35
Vegetation Types - Reach 69

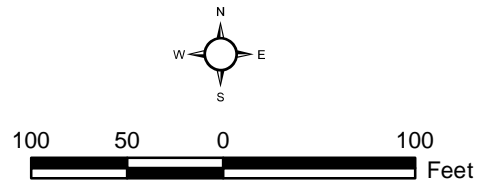
Santa Clara River Watershed
Feasibility Study

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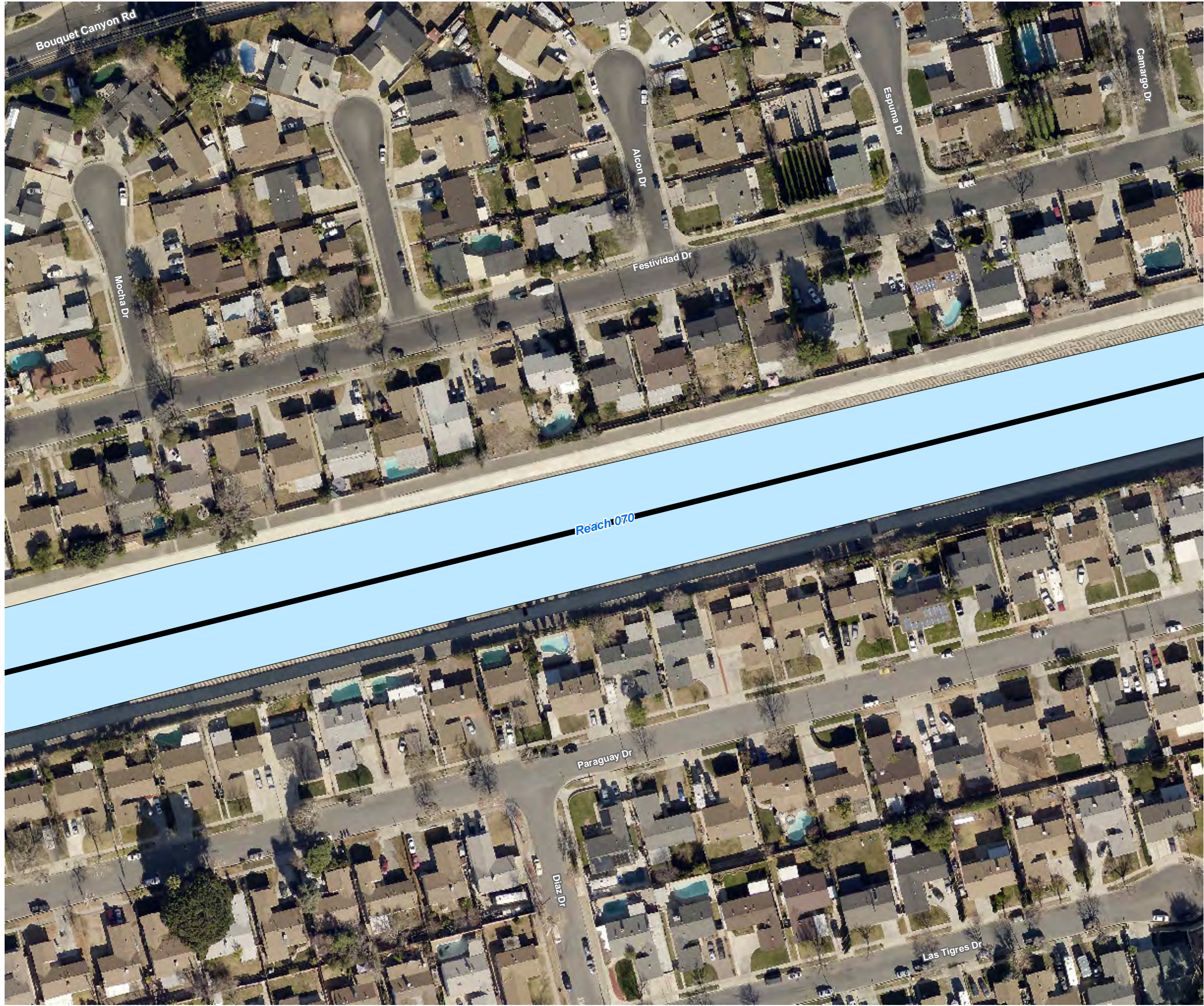


- Reach**
- Vegetation Type**
- 1, scale-broom scrub
 - 2, disturbed scale-broom scrub
 - 6, mixed willow thicket
 - 17, Fremont cottonwood forest
 - 37, ruderal/arundo
- Non-Vegetation Type**
- 40, unvegetated wash
 - 41, open water
 - 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
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074	43
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097	65-67
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108	90-92
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110	93-95

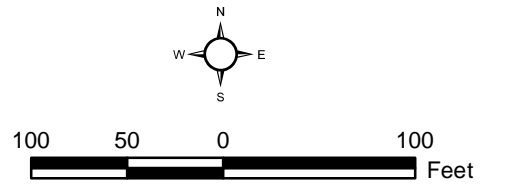


Aerial Source: LAR-IAC 2014



Reach
Non-Vegetation Type
 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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095	77-78
097	65-67
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109	39
110	93-95



Aerial Source: LAR-IAC 2014

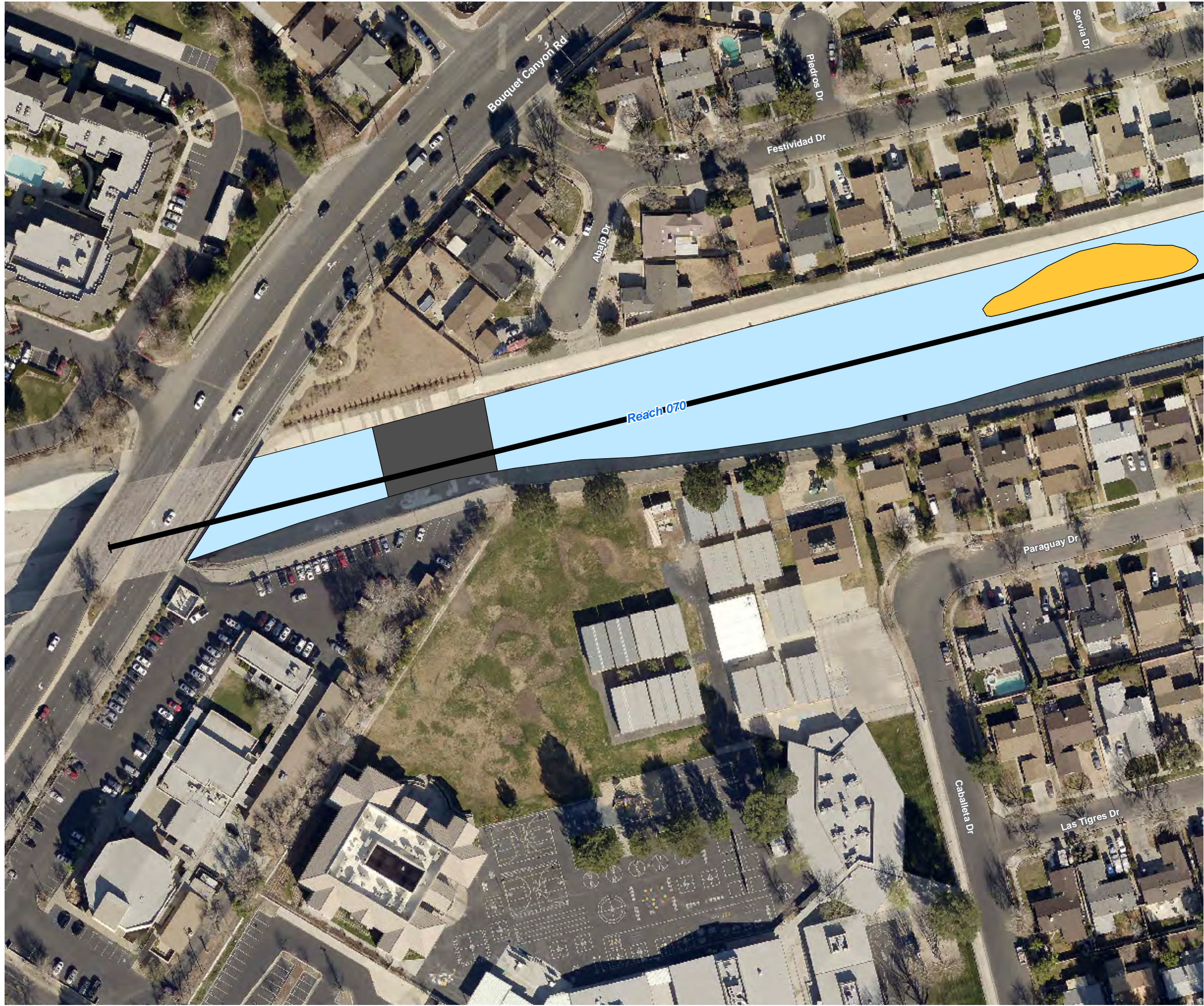
Appendix A-37
Vegetation Types - Reach 70

Santa Clara River Watershed
 Feasibility Study



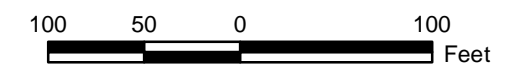
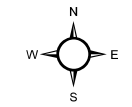
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- Reach
- Vegetation Type**
- 6, mixed willow thicket
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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057	20
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097	65-67
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103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
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110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-38
Vegetation Types - Reach 70

Santa Clara River Watershed
Feasibility Study

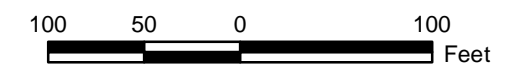
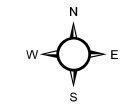


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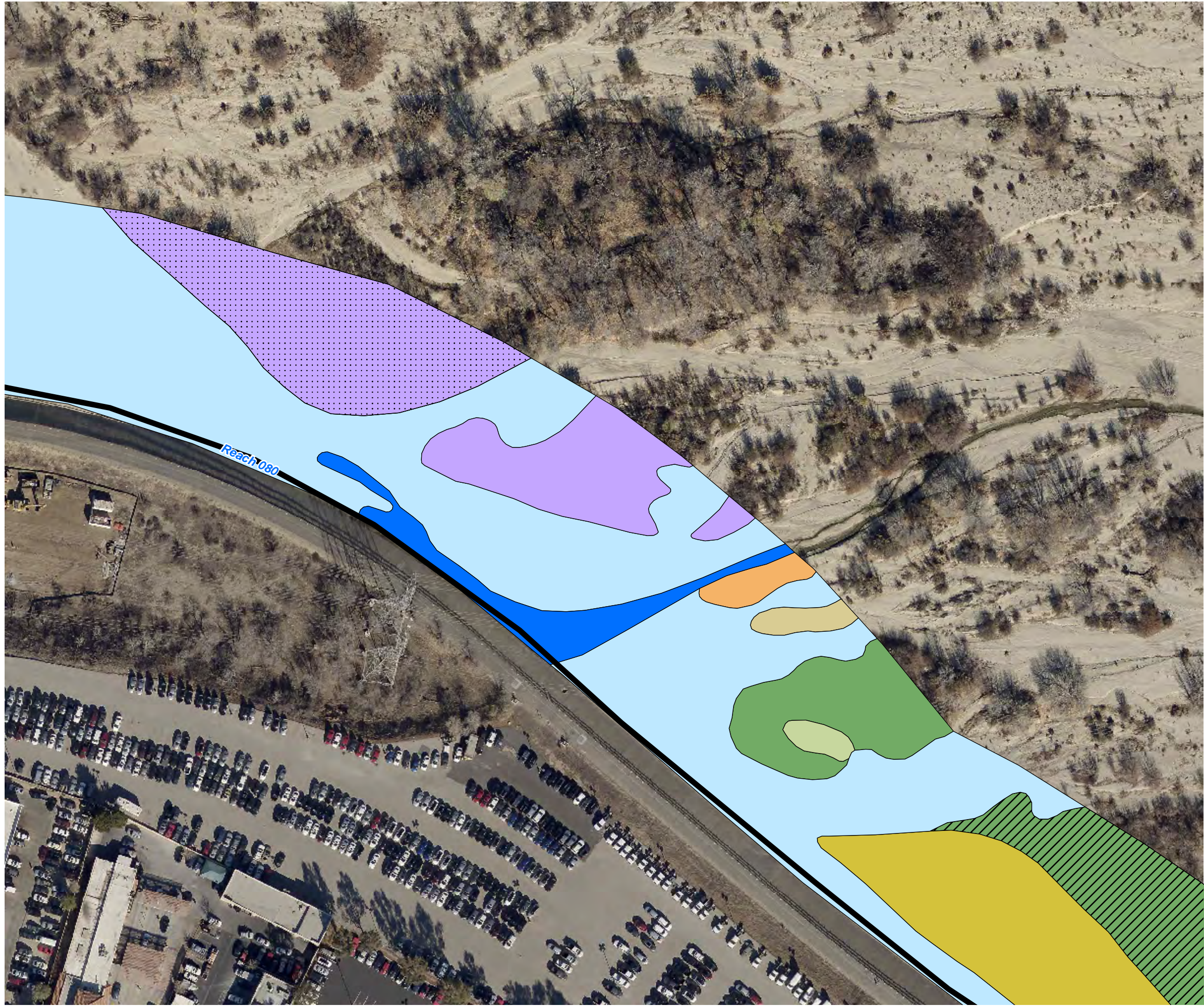
- ➡ Reach
- Vegetation Type**
- 6, mixed willow thicket
- 13, mule fat thicket
- 17, Fremont cottonwood forest
- 27, revegetated sage scrub
- 31, arundo
- 36, ruderal
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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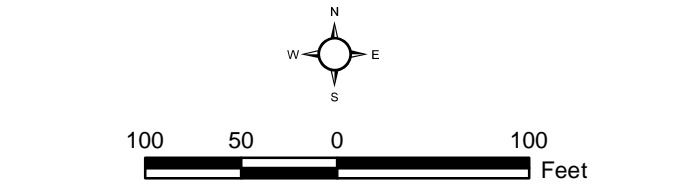


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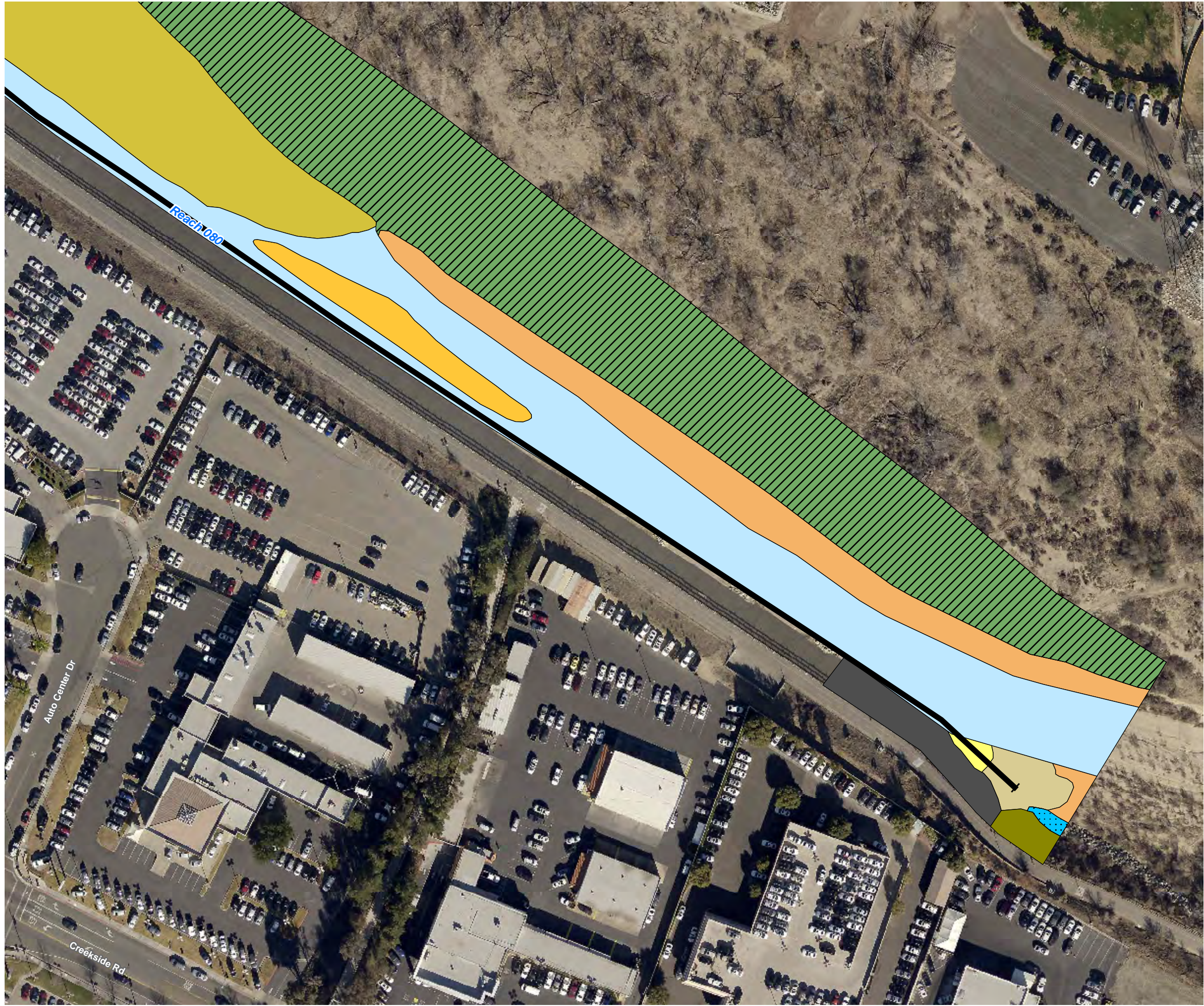


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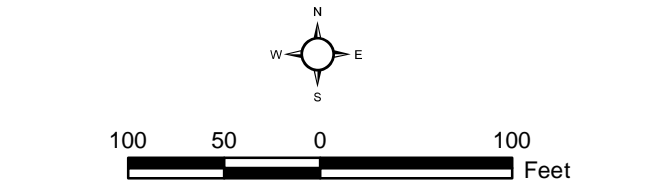


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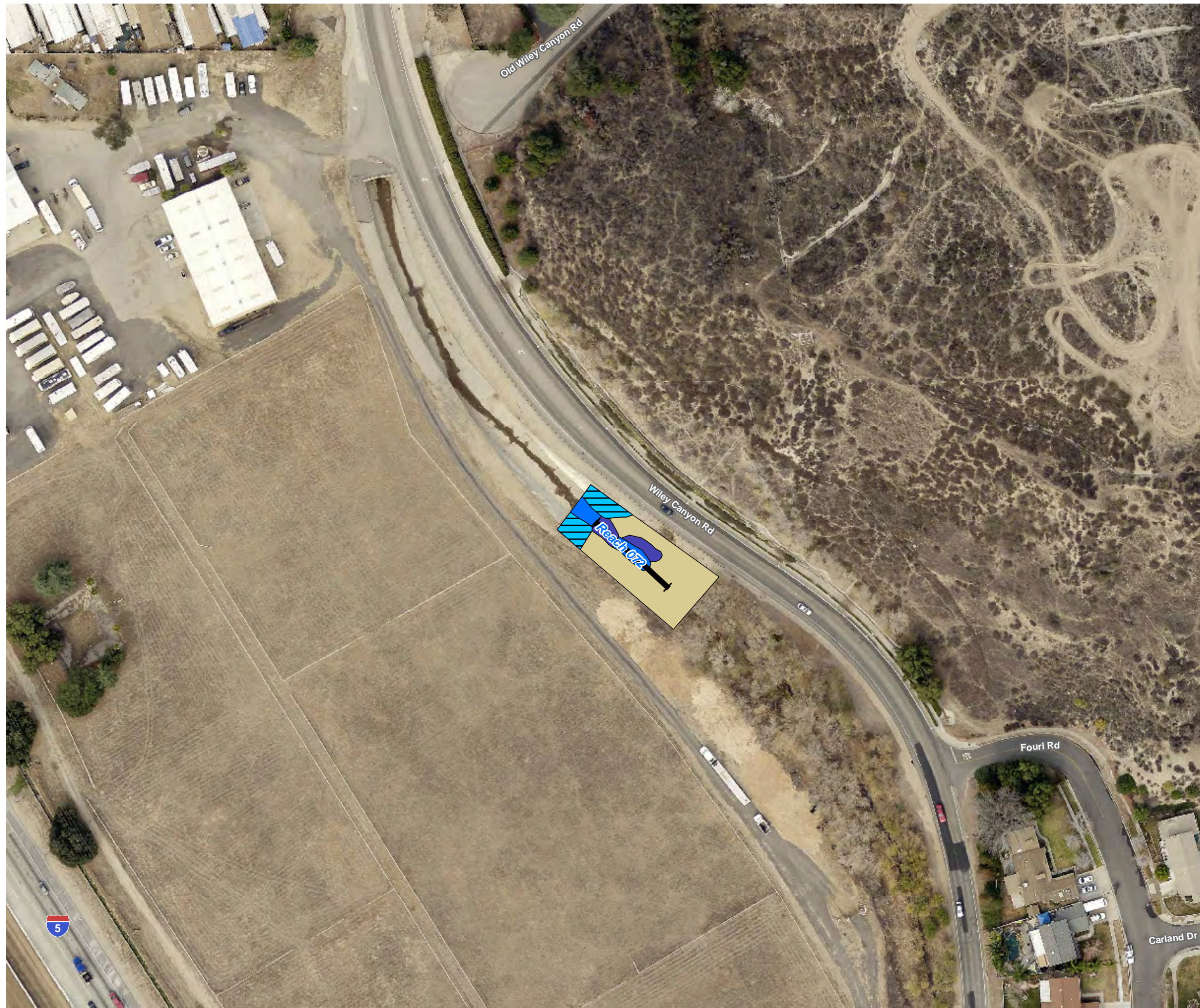


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072	42
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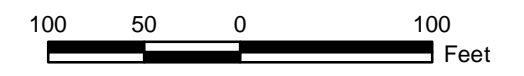
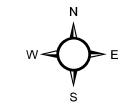
Aerial Source: LAR-IAC 2014

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- Reach
- Vegetation Type**
- 17, Fremont cottonwood forest
- 28, cattail marsh
- Non-Vegetation Type**
- 41, open water
- 43, grouted riprap

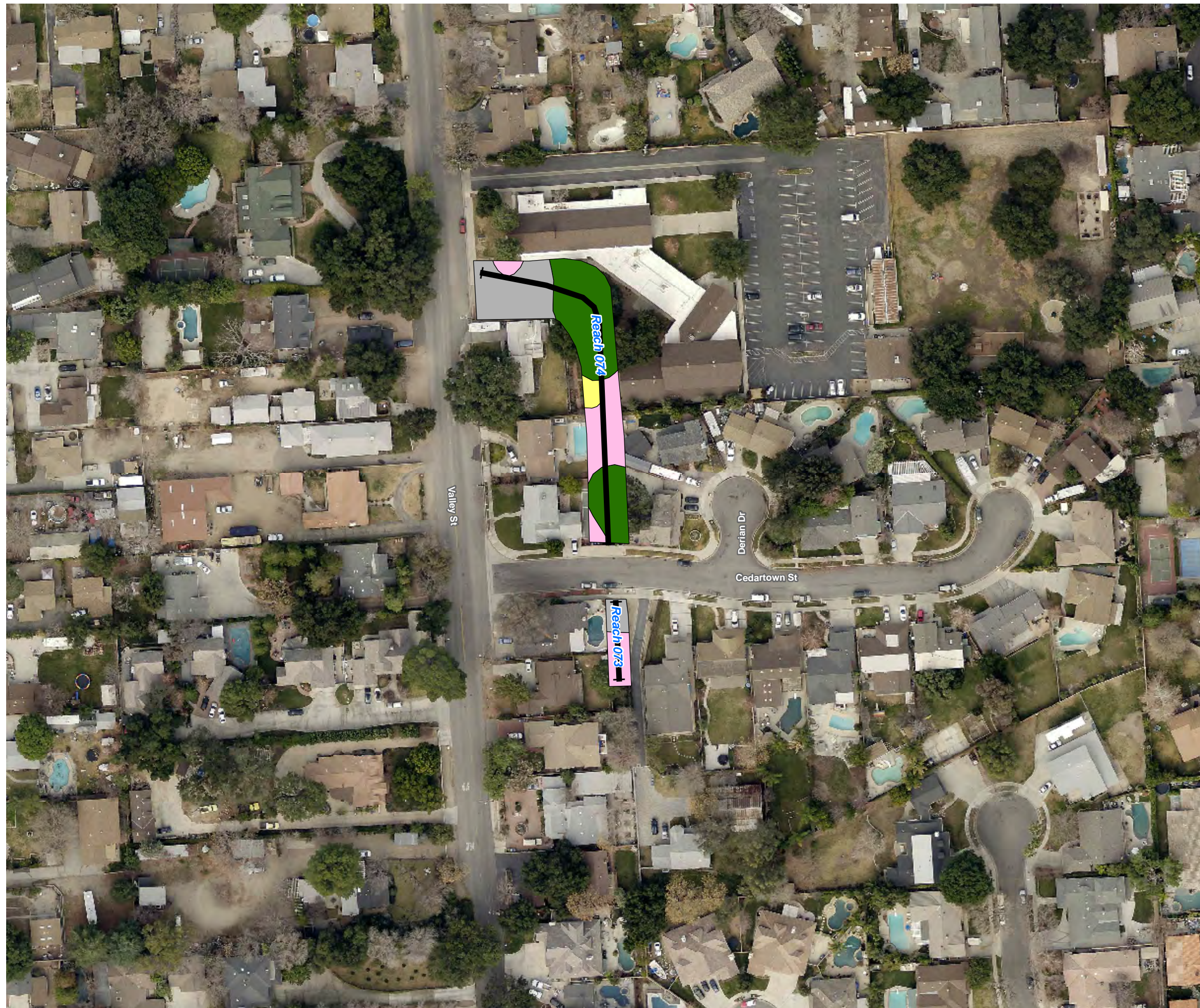
Reach	Page Range
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047	2-3
048	4-6
049	6
050	7
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052	7
053	8
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055	10-12
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063	21
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066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
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110	93-95



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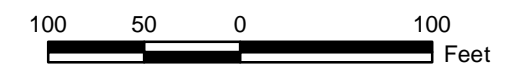
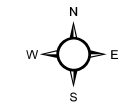
Appendix A-42
Vegetation Types - Reach 72

Santa Clara River Watershed
 Feasibility Study



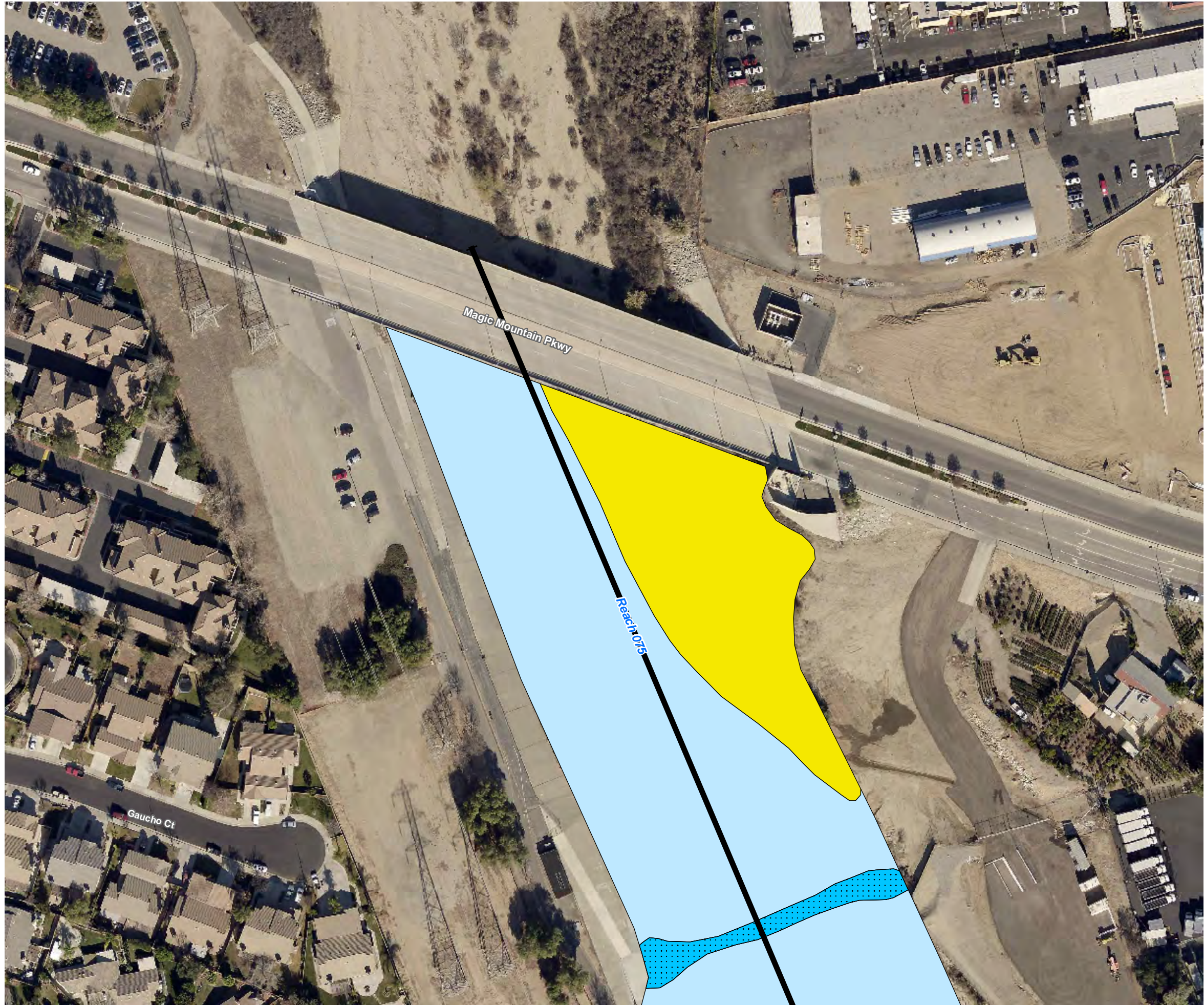
- ➡ Reach
- Vegetation Type**
- 29, individual coast live oak trees
- 32, non-native grassland
- 34, ornamental
- Non-Vegetation Type**
- 39, disturbed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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076	55-58
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079	62
080	39-41
082	63
086	64
087	65
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089	70
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093	72-73
094	74-76
095	77-78
097	65-67
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108	90-92
109	39
110	93-95

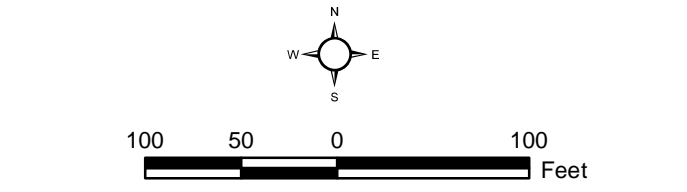


Aerial Source: LAR-IAC 2014

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Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
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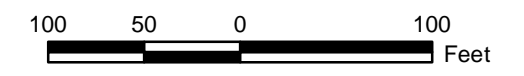
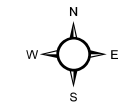


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- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 6, mixed willow thicket
- 17, Fremont cottonwood forest
- Non-Vegetation Type**
- 40, unvegetated wash
- 41, open water

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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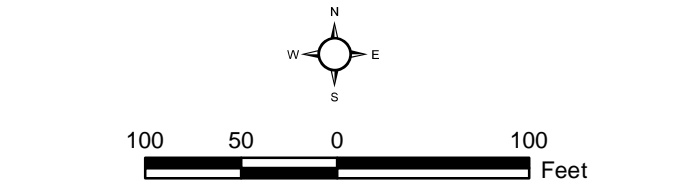


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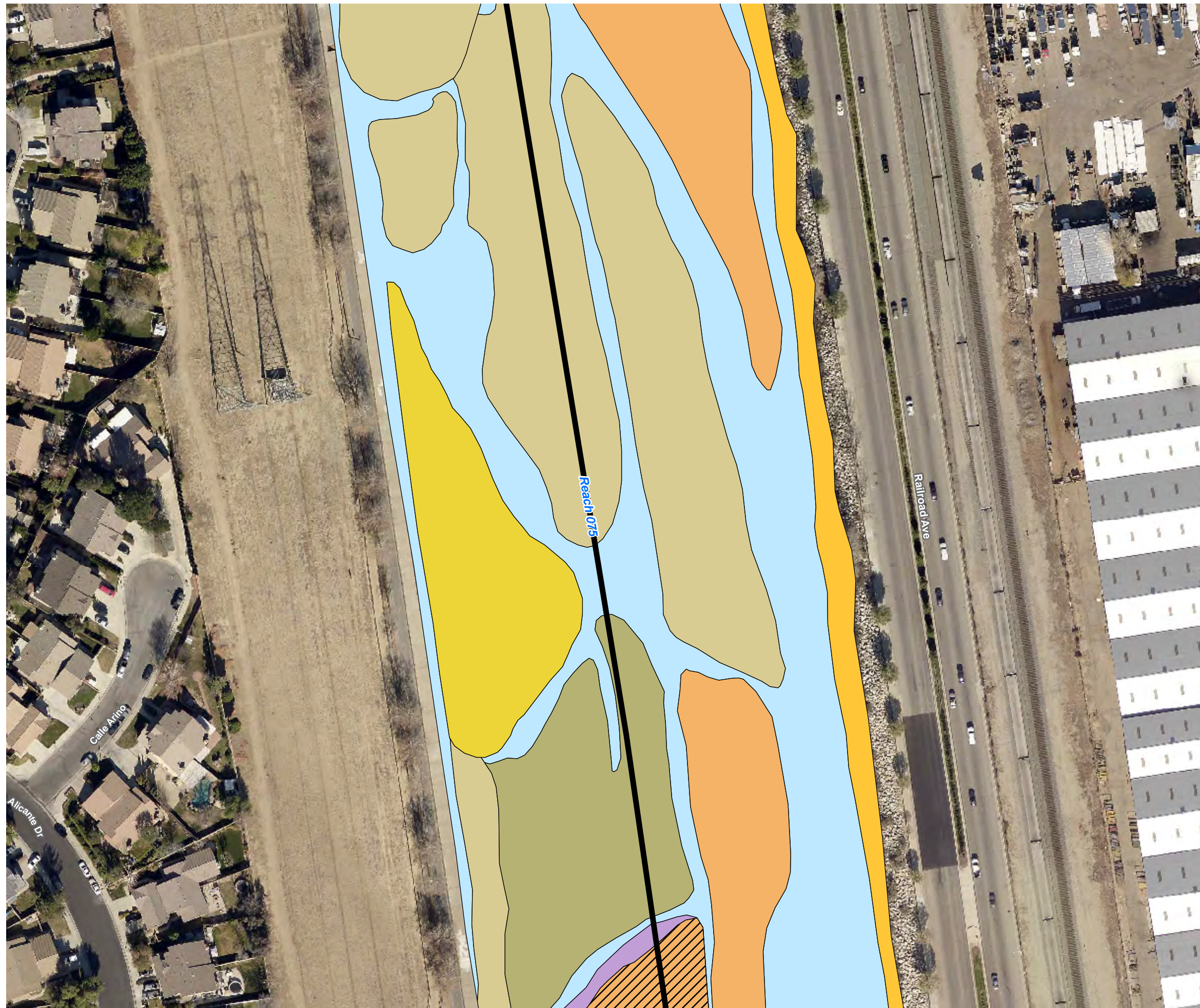


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Aerial Source: LAR-IAC 2014

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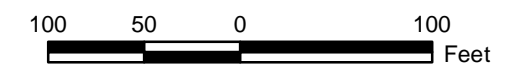
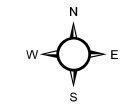
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050	7
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052	7
053	8
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055	10-12
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078	53
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089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95

Vegetation Type

- 6, mixed willow thicket
- 13, mule fat thicket
- 14, disturbed mule fat thicket
- 17, Fremont cottonwood forest
- 19, Fremont cottonwood forest/mule fat thicket
- 20, Fremont cottonwood forest/mule fat thicket/scale-broom scrub
- 36, ruderal

Non-Vegetation Type

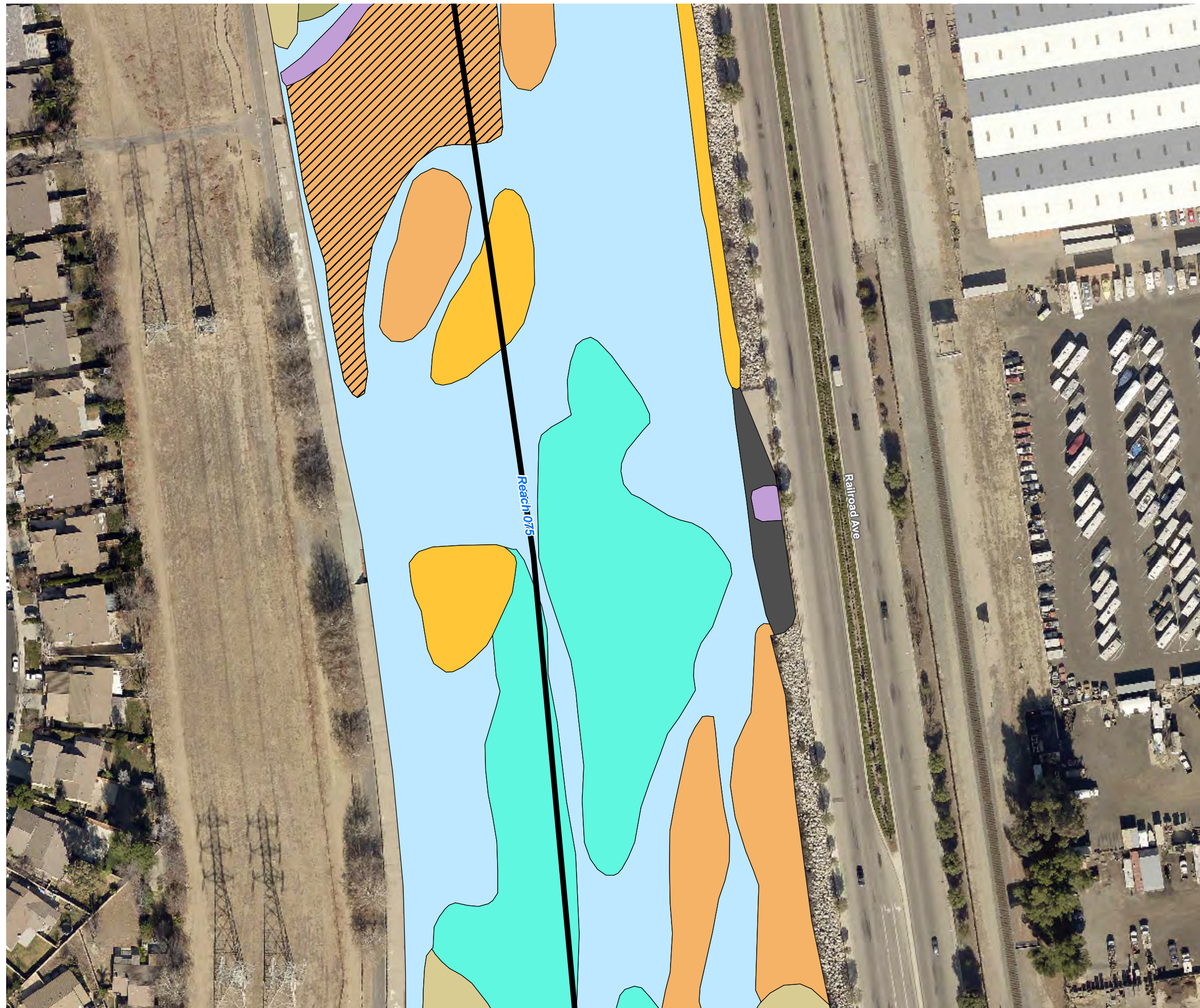
- 40, unvegetated wash



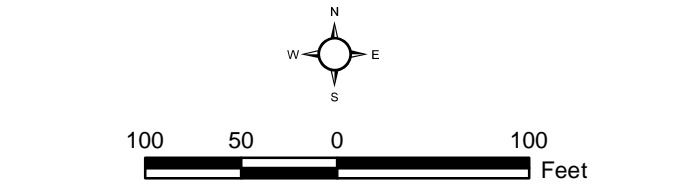
Aerial Source: LAR-IAC 2014

Appendix A-47
Vegetation Types - Reach 75

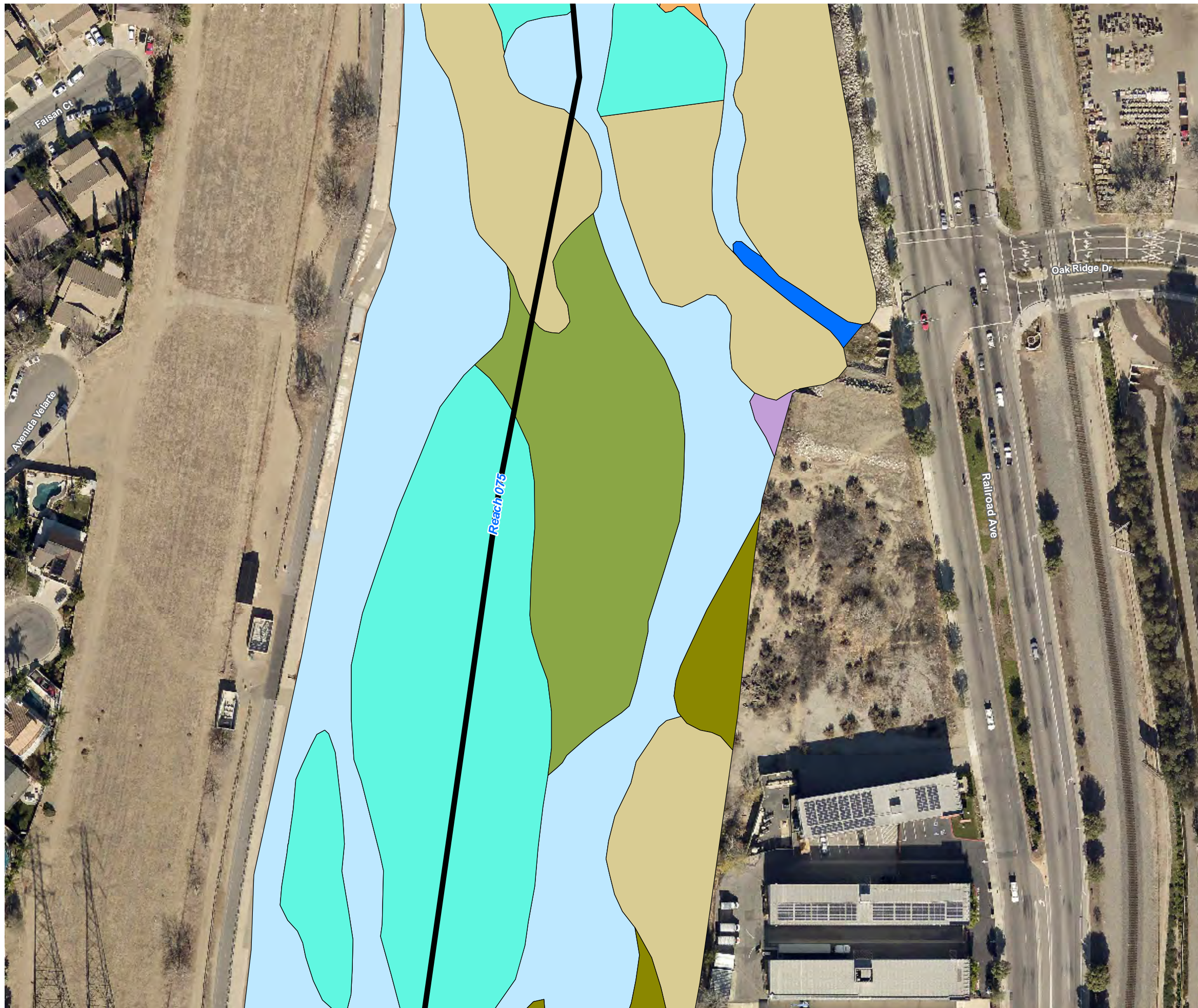
Santa Clara River Watershed Feasibility Study



Reach	Page Range
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047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
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105	86-87
106	88
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108	90-92
109	39
110	93-95

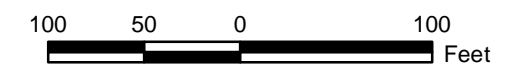
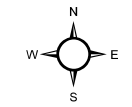


Aerial Source: LAR-IAC 2014

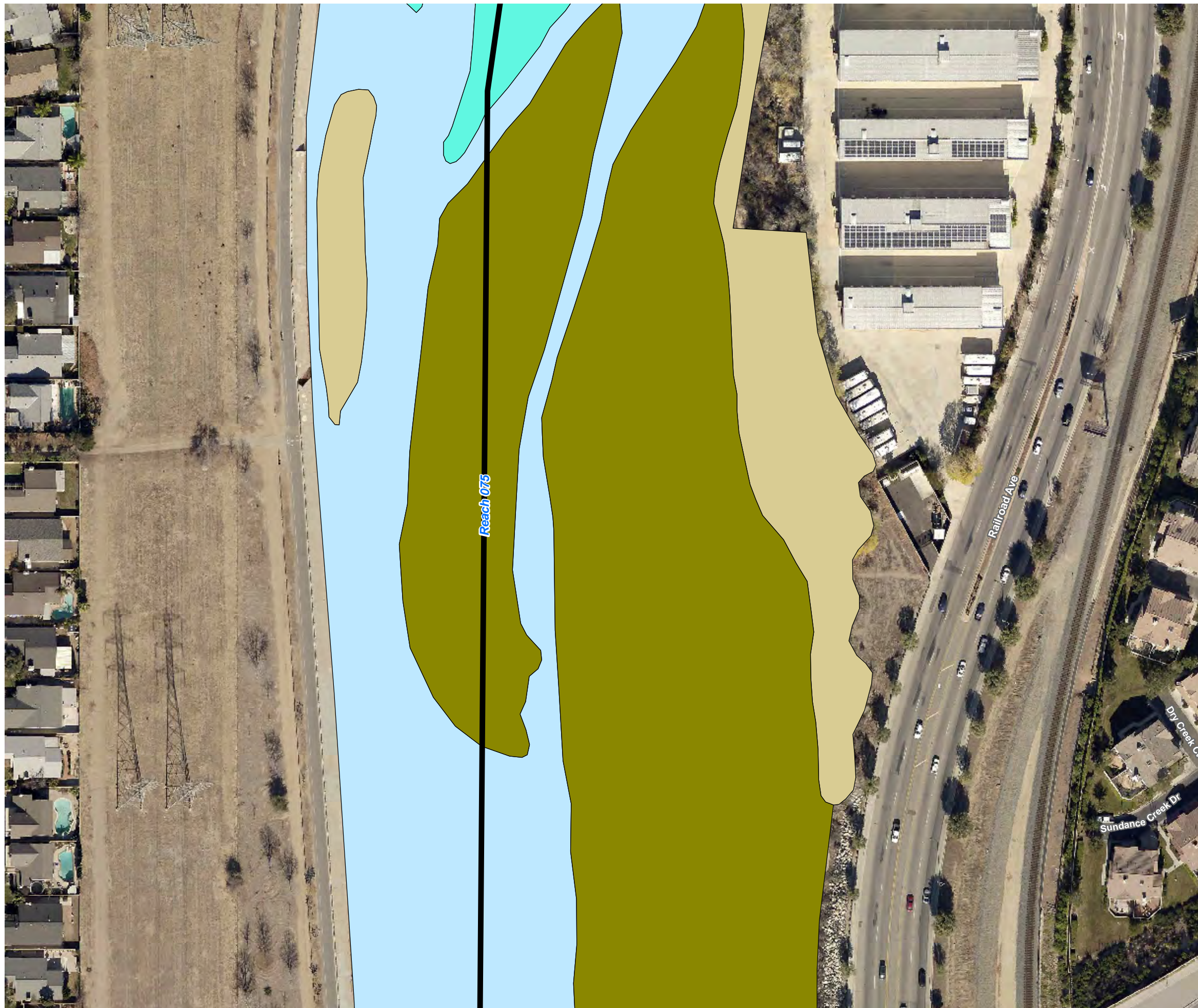


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050	7
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052	7
053	8
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057	20
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060	14-16
061	16-19
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064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
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103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95

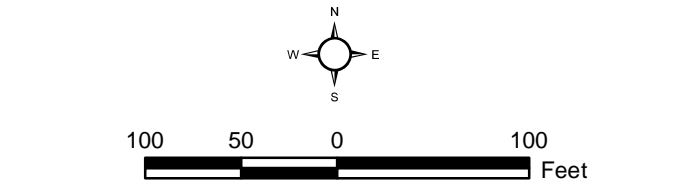
- Reach**
- Vegetation Type**
- 1, scale-broom scrub
 - 9, mixed willow thicket/scale-broom scrub
 - 13, mule fat thicket
 - 15, mule fat thicket/scale-broom scrub
 - 17, Fremont cottonwood forest
 - 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
 - 41, open water



Aerial Source: LAR-IAC 2014



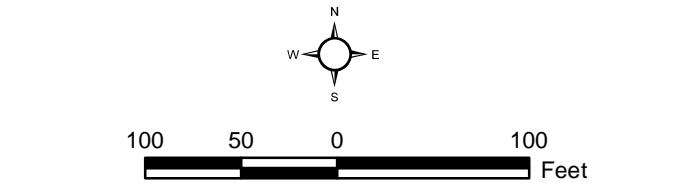
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048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014



Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
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080	39-41
082	63
086	64
087	65
088	68-69
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090	69-70
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093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
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108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

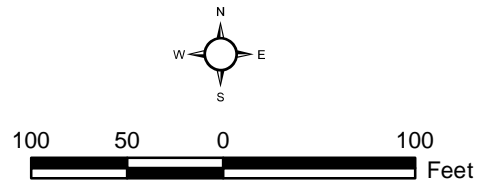
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D:\Projects\CAD\ADPW\2461\MXD\Ex_Feasibility_20160406.mxd

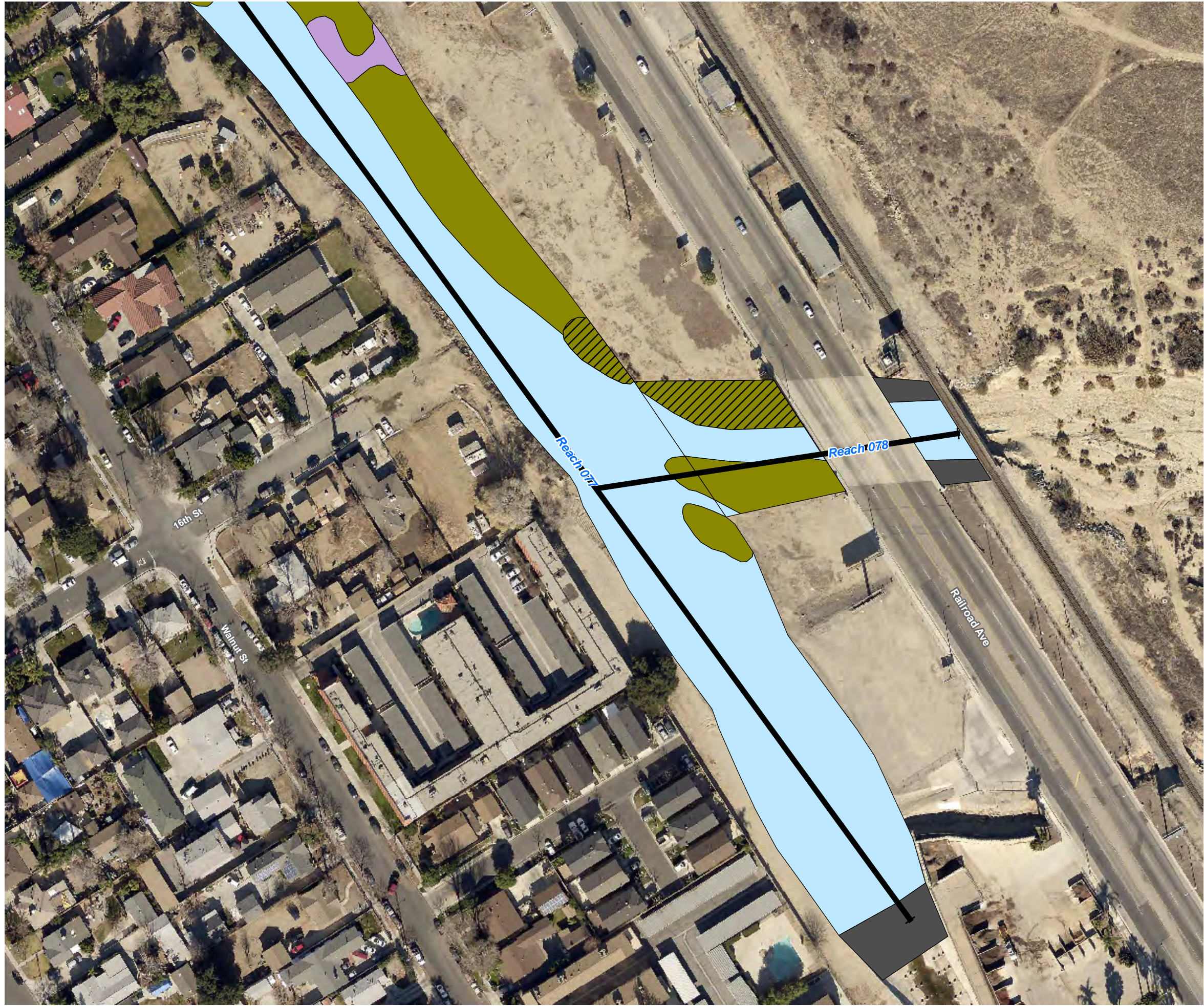


- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 6, mixed willow thicket
- 13, mule fat thicket
- 17, Fremont cottonwood forest
- 36, ruderal
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash
- 43, grouted riprap
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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077	51,53
078	53
079	62
080	39-41
082	63
086	64
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094	74-76
095	77-78
097	65-67
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110	93-95

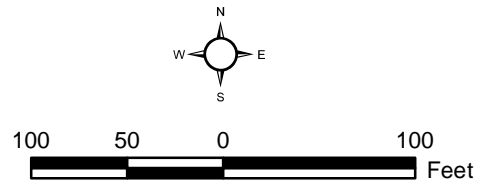


Aerial Source: LAR-IAC 2014



- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 2, disturbed scale-broom scrub
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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097	65-67
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108	90-92
109	39
110	93-95

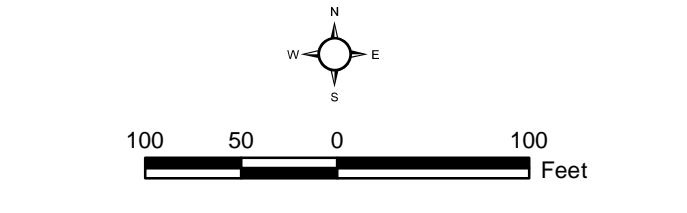


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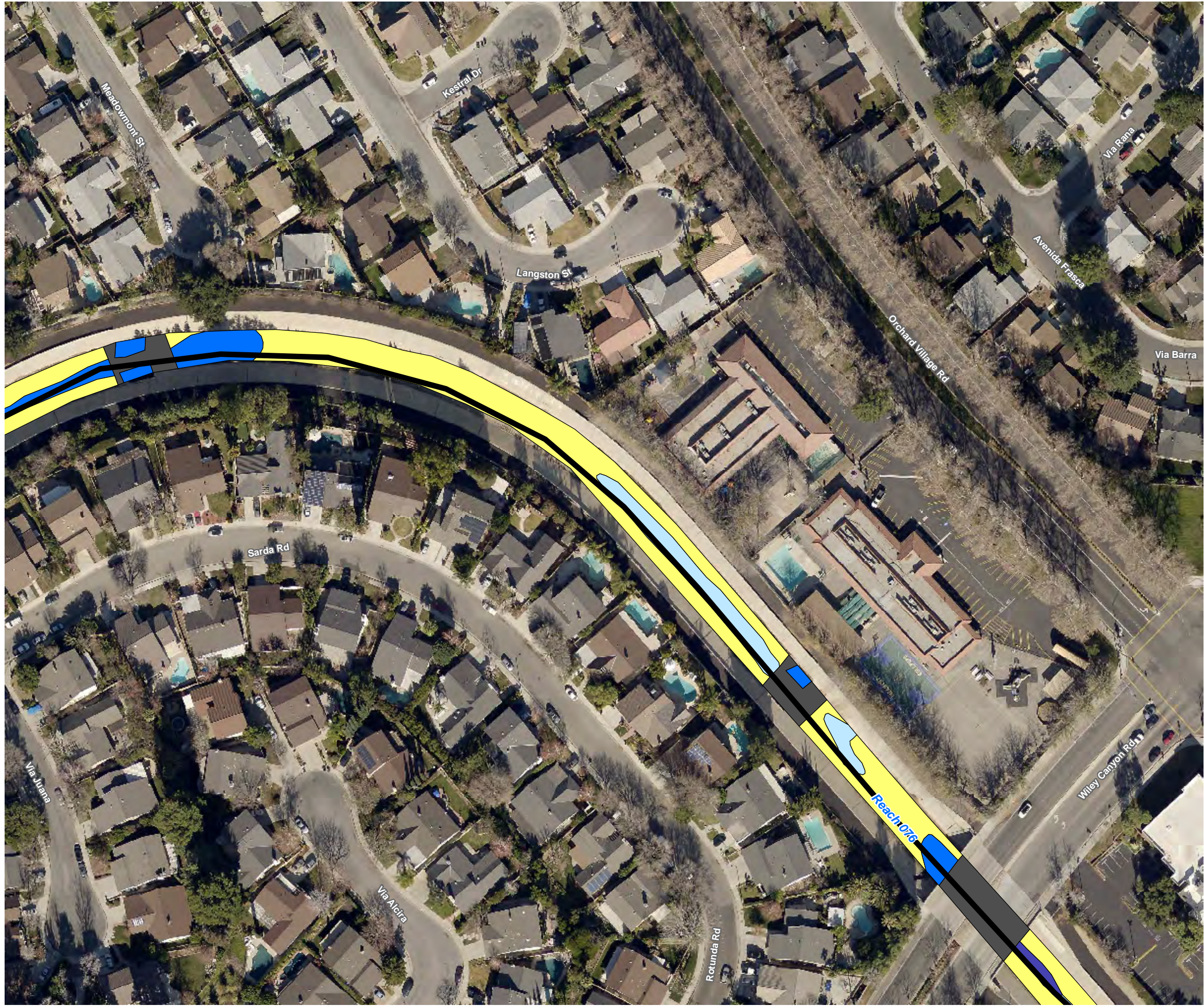
Reach	Page Range
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046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
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055	10-12
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057	20
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060	14-16
061	16-19
063	21
064	22
066	23
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074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
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094	74-76
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097	65-67
101	79-80
102	81
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106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

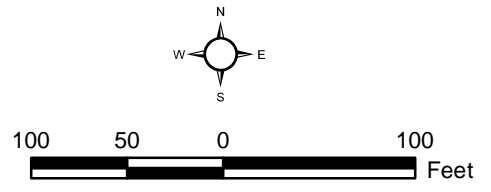
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- ➡ Reach
- Vegetation Type**
- 28, cattail marsh
- 32, non-native grassland
- Non-Vegetation Type**
- 40, unvegetated wash
- 41, open water
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
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066	23
067	24-29
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070	36-38
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072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
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079	62
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087	65
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095	77-78
097	65-67
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102	81
103	82-83
104	84-85
105	86-87
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108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-55
Vegetation Types - Reach 76

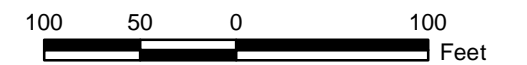
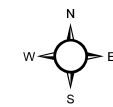
Santa Clara River Watershed
Feasibility Study

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- ➡ Reach
- Vegetation Type**
- 32, non-native grassland
- Non-Vegetation Type**
- 41, open water
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
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075	44-52,54,58-61
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095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-56
Vegetation Types - Reach 76

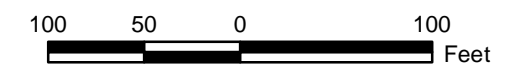
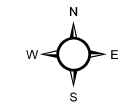
Santa Clara River Watershed
Feasibility Study





- Reach
- Vegetation Type**
- 32, non-native grassland
- Non-Vegetation Type**
- 41, open water
- 42, ungrouted riprap
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
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075	44-52,54,58-61
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077	51,53
078	53
079	62
080	39-41
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086	64
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094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

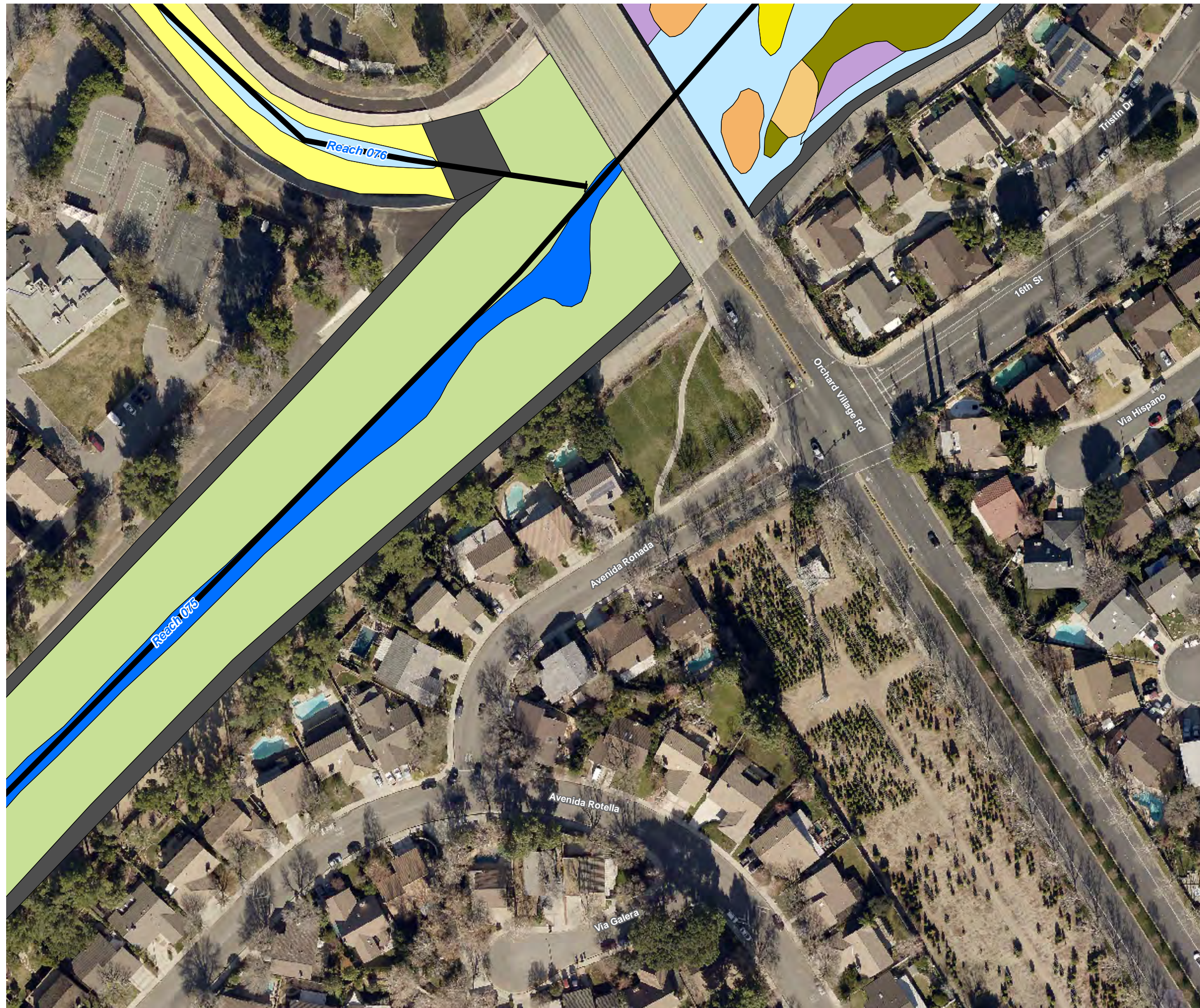
Appendix A-57
Vegetation Types - Reach 76

Santa Clara River Watershed
Feasibility Study



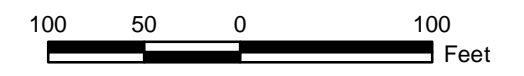
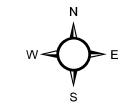
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Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
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076	55-58
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094	74-76
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097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95

- Reach**
- 045
 - 046
 - 047
 - 048
 - 049
 - 050
 - 051
 - 052
 - 053
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 - 057
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 - 101
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 - 103
 - 104
 - 105
 - 106
 - 107
 - 108
 - 109
 - 110
- Vegetation Type**
- 1, scale-broom scrub
 - 4, scale-broom scrub/mule fat thicket
 - 8, mixed willow thicket/mule fat thicket
 - 10, mixed willow thicket/ruderal
 - 13, mule fat thicket
 - 32, non-native grassland
 - 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash
 - 41, open water
 - 44, developed

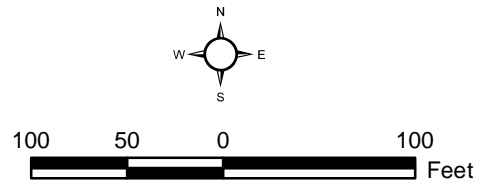


Aerial Source: LAR-IAC 2014



- Reach
Vegetation Type
 10, mixed willow thicket/ruderal
Non-Vegetation Type
 41, open water
 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
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092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-59
Vegetation Types - Reach 75

Santa Clara River Watershed
Feasibility Study

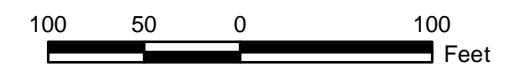
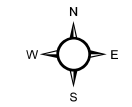


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- ➔ Reach
- Vegetation Type**
- 10, mixed willow thicket/ruderal
- Non-Vegetation Type**
- 41, open water
 - 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
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075	44-52,54,58-61
076	55-58
077	51,53
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079	62
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087	65
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090	69-70
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093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-60
Vegetation Types - Reach 75

Santa Clara River Watershed
Feasibility Study



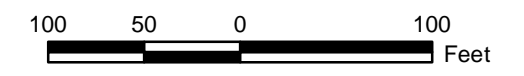
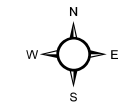
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- ➔ Reach
- Vegetation Type**
- 10, mixed willow thicket/ruderal
- Non-Vegetation Type**
- 41, open water
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
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104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



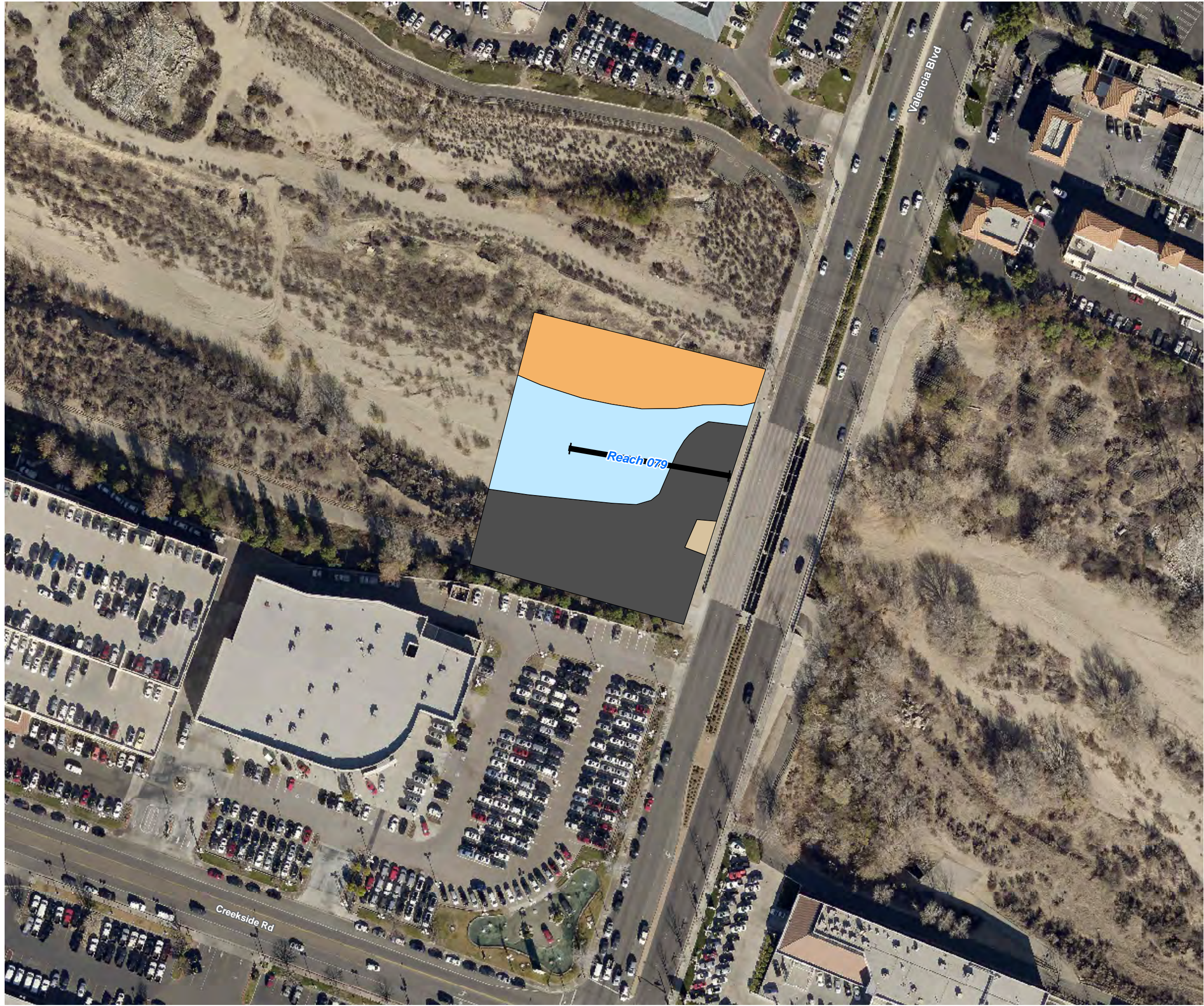
Aerial Source: LAR-IAC 2014

Appendix A-61
Vegetation Types - Reach 75

Santa Clara River Watershed
Feasibility Study

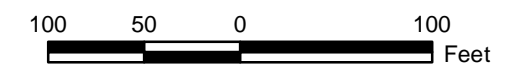
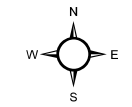


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- ➔ Reach
- Vegetation Type**
- 13, mule fat thicket
- 35, riparian herb
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
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075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-62 Vegetation Types - Reach 79

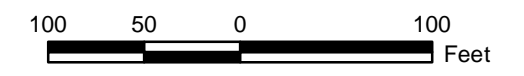
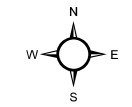
Santa Clara River Watershed
Feasibility Study





- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 13, mule fat thicket
- 17, Fremont cottonwood forest
- 36, ruderal
- Non-Vegetation Type**
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
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107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

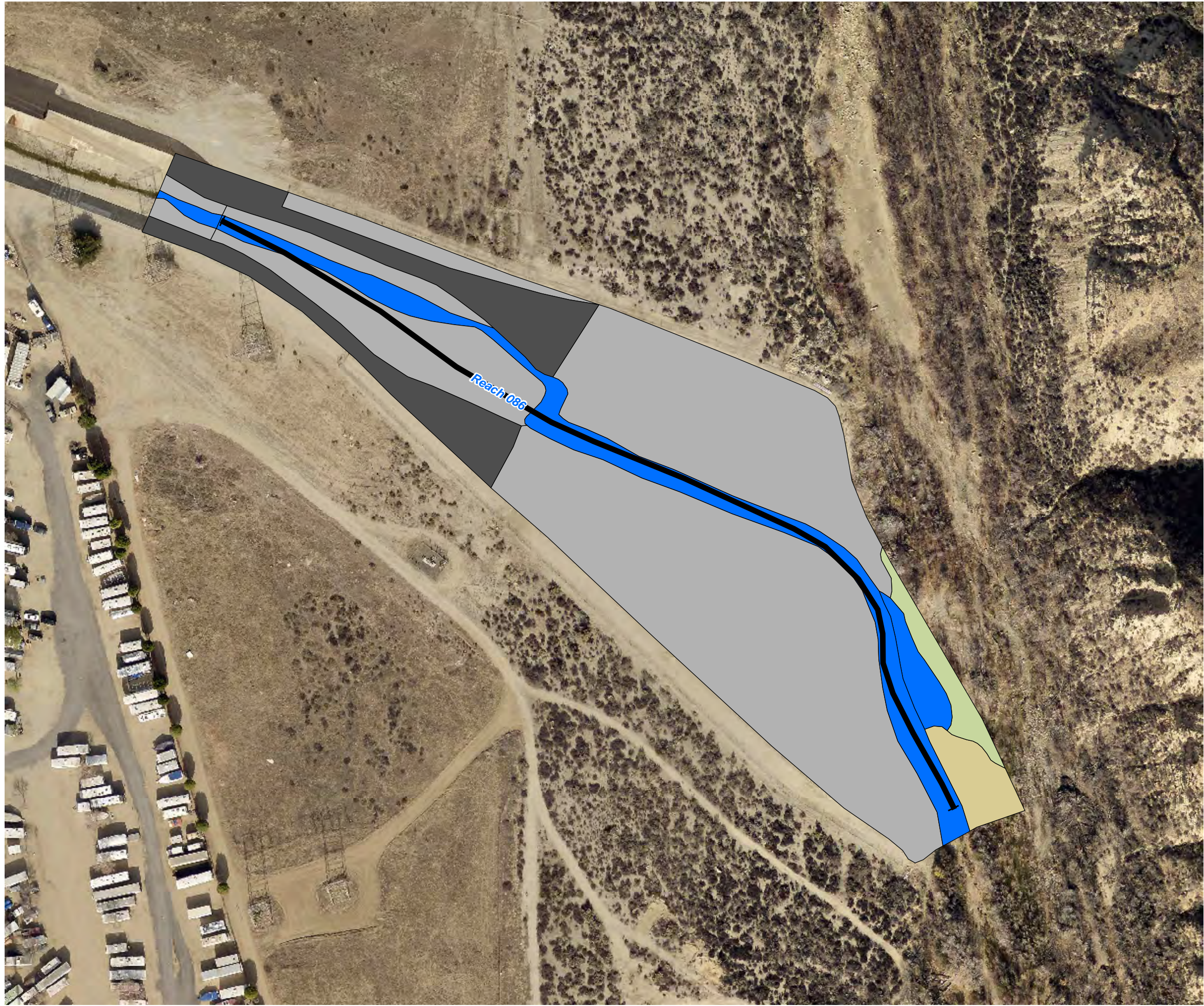
Appendix A-63
Vegetation Types - Reach 82

Santa Clara River Watershed
Feasibility Study



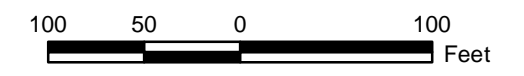
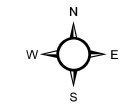
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- Reach
- Vegetation Type**
- 17, Fremont cottonwood forest
- 38, tamarisk thicket
- Non-Vegetation Type**
- 39, disturbed
- 41, open water
- 44, developed

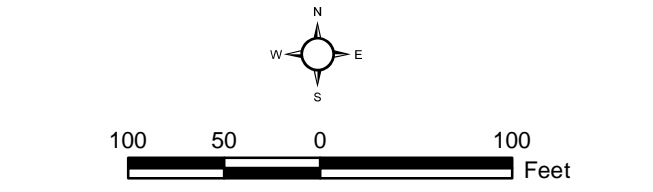
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048	4-6
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053	8
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055	10-12
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057	20
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061	16-19
063	21
064	22
066	23
067	24-29
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070	36-38
071	39
072	42
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097	65-67
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105	86-87
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107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014



Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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061	16-19
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Aerial Source: LAR-IAC 2014

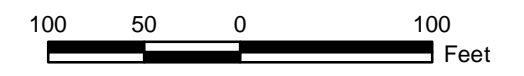
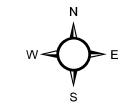
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Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95

- Vegetation Type**
- 1, scale-broom scrub
 - 2, disturbed scale-broom scrub
 - 5, scale-broom scrub/tamarisk thicket
 - 7, mixed willow thicket/cattail marsh
 - 16, mule fat thicket/tamarisk thicket
 - 17, Fremont cottonwood forest
 - 21, Fremont cottonwood forest/tamarisk thicket
 - 28, cattail marsh
 - 38, tamarisk thicket
- Non-Vegetation Type**
- 40, unvegetated wash
 - 41, open water
 - 42, ungrouted riprap

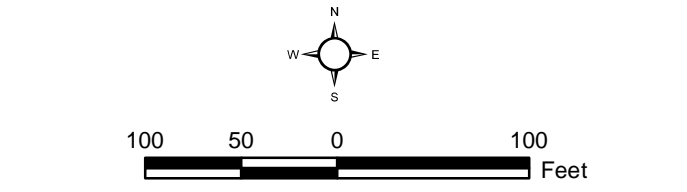


Aerial Source: LAR-IAC 2014

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Reach	Page Range
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046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
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053	8
054	10
055	10-12
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110	93-95



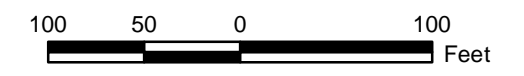
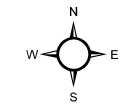
Aerial Source: LAR-IAC 2014

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- ➔ Reach
- Vegetation Type**
- 1, scale-broom scrub
- 36, ruderal
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
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069	29-36
070	36-38
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072	42
073	43
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079	62
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095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-68
Vegetation Types - Reach 88

Santa Clara River Watershed
Feasibility Study

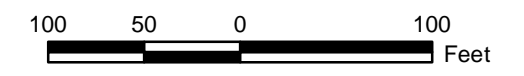
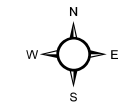


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- ➡ Reach
- Vegetation Type**
- 1, scale-broom scrub
- 36, ruderal
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash
- 43, grouted riprap

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
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064	22
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067	24-29
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070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
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090	69-70
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092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

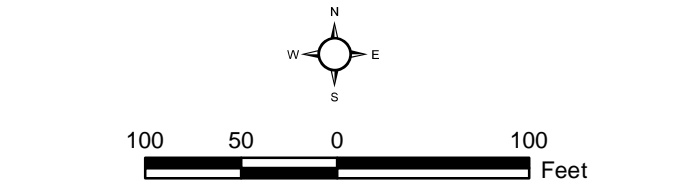
Appendix A-69
Vegetation Types - Reach 88/90

Santa Clara River Watershed
Feasibility Study

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Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
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071	39
072	42
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078	53
079	62
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082	63
086	64
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091	72
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093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
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103	82-83
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108	90-92
109	39
110	93-95



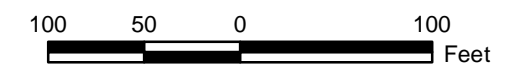
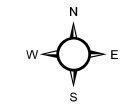
Aerial Source: LAR-IAC 2014

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- Reach
- Vegetation Type**
- 1, scale-broom scrub
- 29, individual coast live oak trees
- 34, ornamental
- 36, ruderal
- Non-Vegetation Type**
- 39, disturbed
- 40, unvegetated wash
- 41, open water

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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070	36-38
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072	42
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078	53
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090	69-70
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094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
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108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-71
Vegetation Types - Reach 92

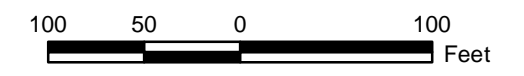
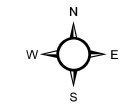
Santa Clara River Watershed
Feasibility Study

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- ➡ Reach
- Vegetation Type**
- 25, individual Fremont cottonwood tree
- 29, individual coast live oak trees
- 34, ornamental
- 36, ruderal
- Non-Vegetation Type**
- 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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097	65-67
101	79-80
102	81
103	82-83
104	84-85
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108	90-92
109	39
110	93-95







Aerial Source: LAR-IAC 2014




Reach

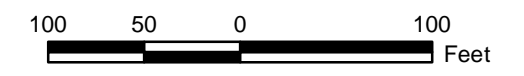
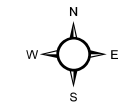
Vegetation Type

-  2, disturbed scale-broom scrub
-  29, individual coast live oak trees
-  34, ornamental
-  36, ruderal

Non-Vegetation Type

-  40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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093	72-73
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097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-73
Vegetation Types - Reach 93

Santa Clara River Watershed
Feasibility Study



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Reach

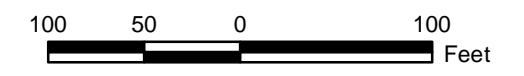
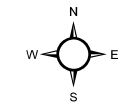
Vegetation Type

- 29, individual coast live oak trees
- 32, non-native grassland
- 36, ruderal

Non-Vegetation Type

- 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-74
Vegetation Types - Reach 94

Santa Clara River Watershed
Feasibility Study





Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
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105	86-87
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107	89
108	90-92
109	39
110	93-95

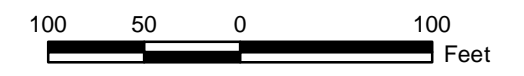
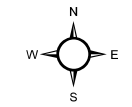
➡ Reach

Vegetation Type

- 25, individual Fremont cottonwood tree
- 29, individual coast live oak trees
- 32, non-native grassland
- 34, ornamental
- 36, ruderal
- 38, tamarisk thicket

Non-Vegetation Type

- 39, disturbed
- 40, unvegetated wash
- 41, open water
- 42, ungrouted riprap
- 44, developed



Aerial Source: LAR-IAC 2014

Appendix A-75
Vegetation Types - Reach 94

Santa Clara River Watershed
Feasibility Study



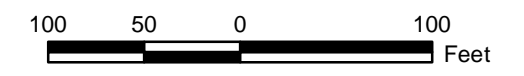
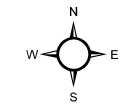
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- ➡ Reach
- Vegetation Type**
- 29, individual coast live oak trees
- 34, ornamental
- 36, ruderal
- Non-Vegetation Type**
- 41, open water
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
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077	51,53
078	53
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080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-76
Vegetation Types - Reach 94

Santa Clara River Watershed
Feasibility Study



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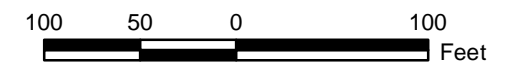
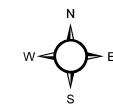


Reach

Non-Vegetation Type

40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
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105	86-87
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108	90-92
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110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-77



Vegetation Types - Reach 95

Santa Clara River Watershed
Feasibility Study

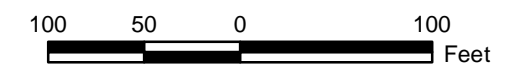
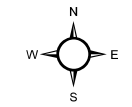


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-  Reach
- Non-Vegetation Type**
-  40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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060	14-16
061	16-19
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064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
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074	43
075	44-52,54,58-61
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080	39-41
082	63
086	64
087	65
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097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-78
Vegetation Types - Reach 95

Santa Clara River Watershed
 Feasibility Study



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Reach

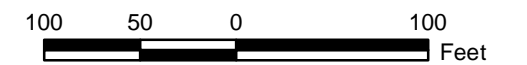
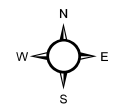
Vegetation Type

- 1, scale-broom scrub
- 2, disturbed scale-broom scrub
- 13, mule fat thicket
- 16, mule fat thicket/tamarisk thicket

Non-Vegetation Type

- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
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095	77-78
097	65-67
101	79-80
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103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-79
Vegetation Types - Reach 101

Santa Clara River Watershed
 Feasibility Study





Reach

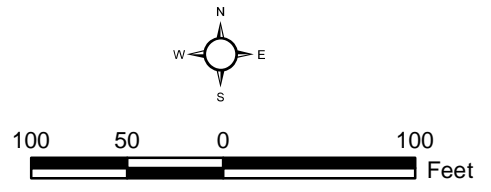
Vegetation Type

- 1, scale-broom scrub
- 16, mule fat thicket/tamarisk thicket

Non-Vegetation Type

- 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
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060	14-16
061	16-19
063	21
064	22
066	23
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070	36-38
071	39
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073	43
074	43
075	44-52,54,58-61
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079	62
080	39-41
082	63
086	64
087	65
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089	70
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091	72
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093	72-73
094	74-76
095	77-78
097	65-67
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108	90-92
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110	93-95



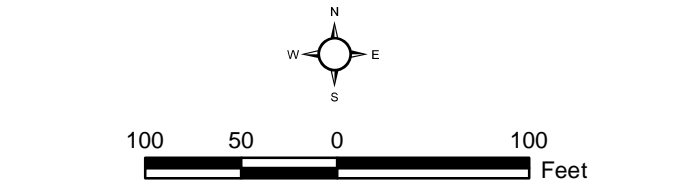
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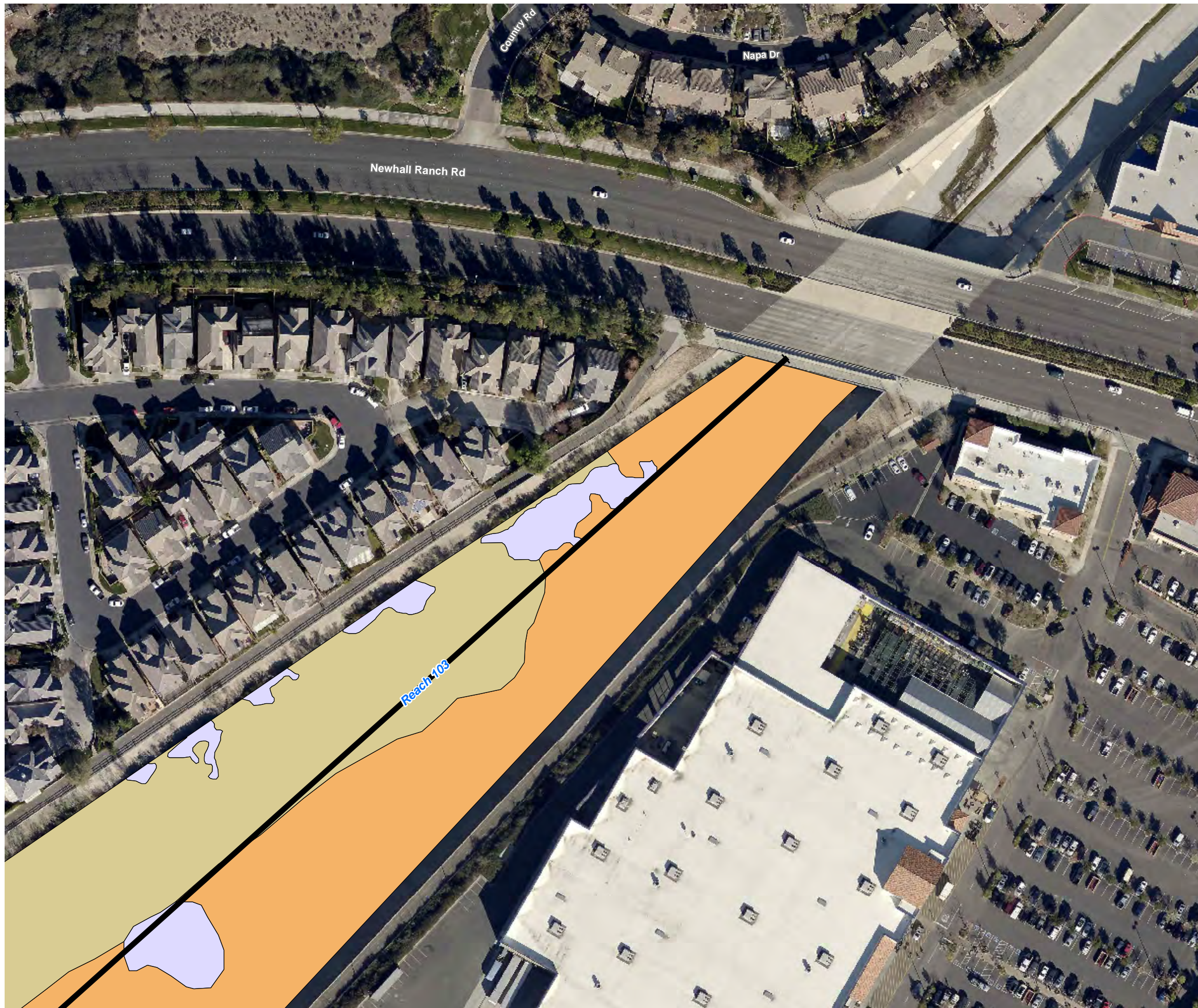


Reach	Page Range
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046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
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108	90-92
109	39
110	93-95



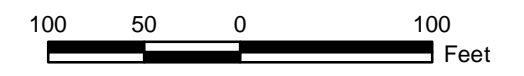
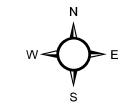
Aerial Source: LAR-IAC 2014

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- ➔ Reach
- Vegetation Type**
- 13, mule fat thicket
 - 17, Fremont cottonwood forest
 - 31, arundo

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
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060	14-16
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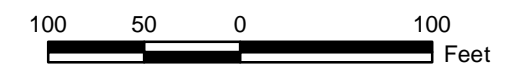
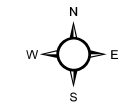
Aerial Source: LAR-IAC 2014

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- Reach
- Vegetation Type**
- 13, mule fat thicket
- 17, Fremont cottonwood forest
- 31, arundo
- Non-Vegetation Type**
- 40, unvegetated wash

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
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063	21
064	22
066	23
067	24-29
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070	36-38
071	39
072	42
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075	44-52,54,58-61
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097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
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108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-83
Vegetation Types - Reach 103

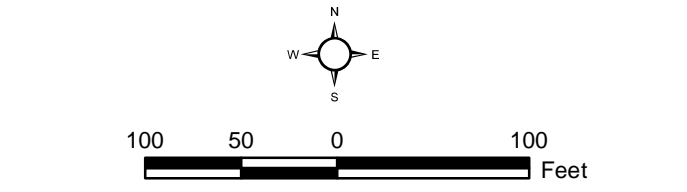
Santa Clara River Watershed
Feasibility Study



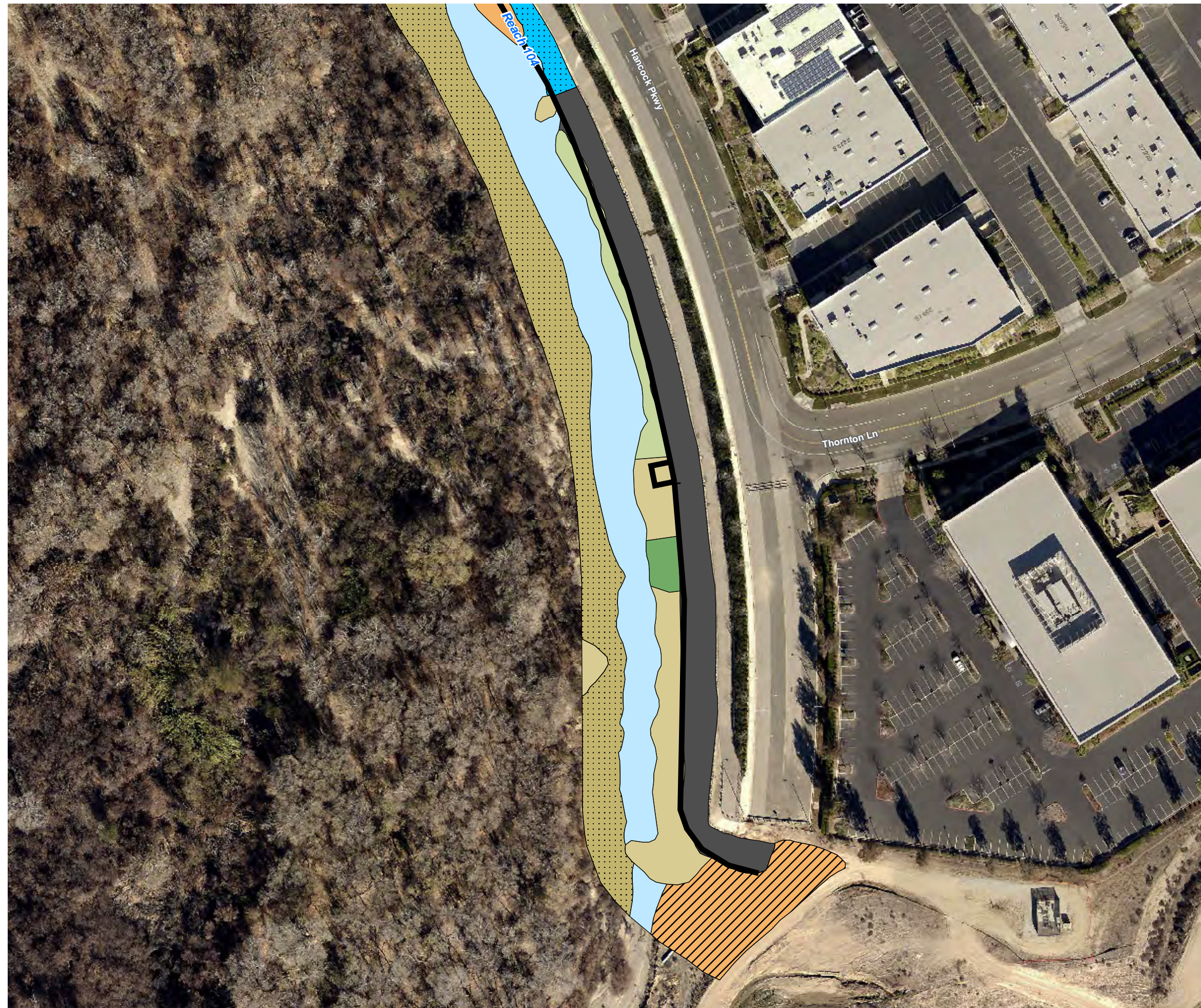
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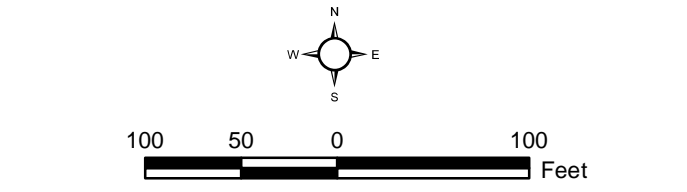
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047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
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055	10-12
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057	20
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060	14-16
061	16-19
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064	22
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069	29-36
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076	55-58
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078	53
079	62
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082	63
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095	77-78
097	65-67
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110	93-95



Aerial Source: LAR-IAC 2014



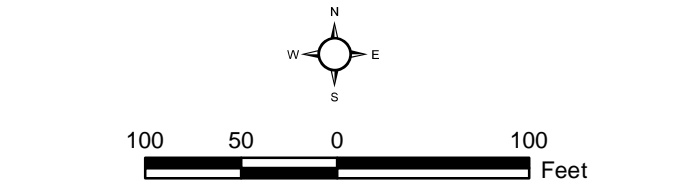
Reach	Page Range
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047	2-3
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103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014



Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
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061	16-19
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108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

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Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
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055	10-12
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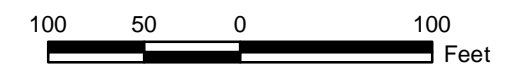
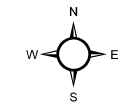
Reach

Vegetation Type

- 1, scale-broom scrub
- 13, mule fat thicket
- 17, Fremont cottonwood forest
- 30, revegetated riparian scrub

Non-Vegetation Type

- 40, unvegetated wash
- 42, ungrouted riprap
- 43, grouted riprap
- 44, developed



Aerial Source: LAR-IAC 2014

Appendix A-87
Vegetation Types - Reach 105

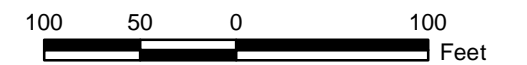
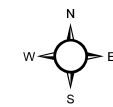
Santa Clara River Watershed
Feasibility Study





- Reach
- Vegetation Type**
- 13, mule fat thicket
- 17, Fremont cottonwood forest
- 32, non-native grassland
- 33, non-native grassland/ruderal
- 38, tamarisk thicket
- Non-Vegetation Type**
- 39, disturbed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-88
Vegetation Types - Reach 106

Santa Clara River Watershed
 Feasibility Study



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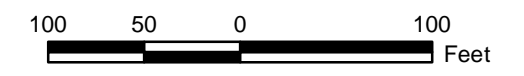
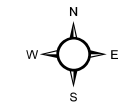
Reach

Vegetation Type

13, mule fat thicket

18, Fremont cottonwood forest-coast live oak woodland

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-89
Vegetation Types - Reach 107

Santa Clara River Watershed
Feasibility Study

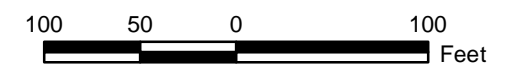
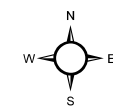


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- ➔ Reach
- Vegetation Type**
- 6, mixed willow thicket
- 28, cattail marsh
- Non-Vegetation Type**
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-90
Vegetation Types - Reach 108

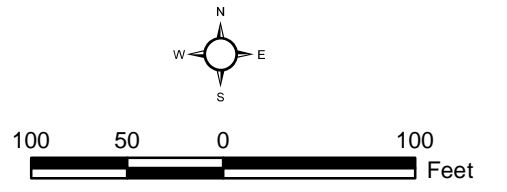
Santa Clara River Watershed
Feasibility Study





- ➔ Reach
- Vegetation Type**
- 6, mixed willow thicket
- 28, cattail marsh
- Non-Vegetation Type**
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-91
Vegetation Types - Reach 108

Santa Clara River Watershed
Feasibility Study



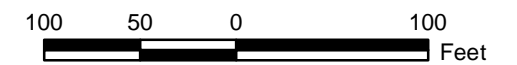
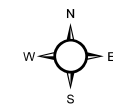
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- ➔ Reach
- Vegetation Type**
- 6, mixed willow thicket
- 28, cattail marsh
- Non-Vegetation Type**
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-92
Vegetation Types - Reach 108

Santa Clara River Watershed
Feasibility Study

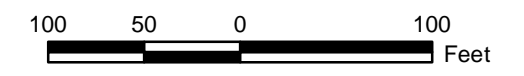
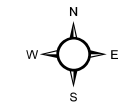


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- ➡ Reach
- Vegetation Type**
- 1, scale-broom scrub
- 6, mixed willow thicket
- 13, mule fat thicket
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-93
Vegetation Types - Reach 110

Santa Clara River Watershed
Feasibility Study

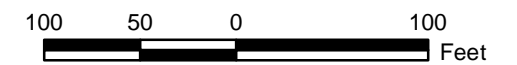
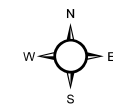


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- ➡ Reach
- Vegetation Type**
- 1, scale-broom scrub
- 6, mixed willow thicket
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

Appendix A-94
Vegetation Types - Reach 110

Santa Clara River Watershed
Feasibility Study

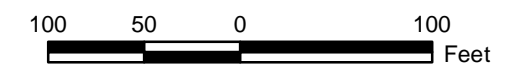
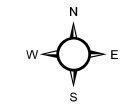


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- Reach
- Vegetation Type**
- 6, mixed willow thicket
- 12, sandbar willow thicket
- 13, mule fat thicket
- 16, mule fat thicket/tamarisk thicket
- 17, Fremont cottonwood forest
- Non-Vegetation Type**
- 40, unvegetated wash
- 44, developed

Reach	Page Range
045	1
046	1
047	2-3
048	4-6
049	6
050	7
051	9-10
052	7
053	8
054	10
055	10-12
056	10-12
057	20
058	12-14
060	14-16
061	16-19
063	21
064	22
066	23
067	24-29
069	29-36
070	36-38
071	39
072	42
073	43
074	43
075	44-52,54,58-61
076	55-58
077	51,53
078	53
079	62
080	39-41
082	63
086	64
087	65
088	68-69
089	70
090	69-70
091	72
092	71-72
093	72-73
094	74-76
095	77-78
097	65-67
101	79-80
102	81
103	82-83
104	84-85
105	86-87
106	88
107	89
108	90-92
109	39
110	93-95



Aerial Source: LAR-IAC 2014

APPENDIX B
FOCUSED PLANT SURVEY



September 1, 2015

Ms. Jemellee Cruz, P.E.
Los Angeles County Flood Control District
Flood Maintenance Division
900 South Fremont Avenue, Annex Building, 2nd Floor
Alhambra, California 91803

VIA EMAIL
jcruz@dpw.lacounty.gov

Subject: Results of Special Status Plant Surveys for the 54 Soft-Bottom Flood Control Channel Reaches in the Santa Clara River Watershed, Los Angeles County, California

Dear Ms. Cruz:

This Letter Report presents the findings of focused surveys for special status plant species conducted in the 54 Soft-Bottom Flood Control Channel Reaches of the Santa Clara River Watershed in Los Angeles County. All 54 channel reaches are maintained by the Los Angeles County Flood Control District (LACFCD). These focused surveys were performed for the Santa Clara River Watershed Feasibility Study. Table 1 below lists the number, length, and name of each channel reach, and their locations in a Thomas Guide.

TABLE 1
CHANNEL REACH INFORMATION

26 Soft-Bottom Channel Reaches			
Reach No.	Reach Length (feet)	Reach Name	Thomas Guide Location
45	102	Sand Canyon (PD T1307) Main Channel Inlet	4552-C1
46	84	Sand Canyon (PD T1307) Main Channel Outlet	4552-C1
47	1,658	Santa Clara River Main Channel (PD 1733 Unit 1)	4552-A3 to 4551-J3
48	2,501	Mint Canyon Channel - Sierra Hwy to Adon Ave	4552-A1 to 4551-J2
49	385	Mint Canyon Channel - Adon Ave to Scherzinger Lane	4551-J2
50	735	Mint Canyon Channel - Solamint Rd to Soledad Canyon Rd	4551-J2 to J3
51	931	Mint Canyon Main Channel Outlet (PD 1894)/Santa Clara River	4551-J3 to H3
52	772	Sierra Hwy Rd Drainage (CDR 523.203)	4551-J3
53	35	Santa Clara River Non-main Channel (PD 832)	4551-H4
54	316	Santa Clara River Non-main Channel (PD 832)	4551-H3 to H4
55*	3,518	Santa Clara River Main Channel (PD's 910, 832, 1758, 1562 Unit 2)	4551-H3 to G4

**TABLE 1
CHANNEL REACH INFORMATION**

26 Soft-Bottom Channel Reaches			
Reach No.	Reach Length (feet)	Reach Name	Thomas Guide Location
56*	2,346	Santa Clara River Main Channel (PD 832)	4551-G3
57	695	Whites Canyon (PD T704) Main Channel Inlet	4551-G1
58	2,644	Santa Clara River Main Channel (PD 374)	4551-G3 to F3
60	3,166	Santa Clara River Main Channel (PD 1339 & 374)	4551-F3 to E2
61	4,715	Santa Clara River Main Channel (PD 659 and 754)	4551-E2
63	914	Oak Ave Rd Drainage (CDR 523.081)	4551-C2
64	574	Soledad Canyon Rd Drain (CDR 523.071 D outlet)	4551-B2
66	710	Santa Clara River Main Channel (PD 1538)	4550-H2
67	6,344	Bouquet Canyon Upper (PD's 1201, 802, 700B, & 625)	4461-D1 to C6
69	7,326	Bouquet Canyon Middle (PD's 722, 773, 1365, 1065, & 451)	4461-C6 to A7
70	3,503	Bouquet Canyon Lower (PD's 544 & 345)	4550-J1 to H1
71	242	Santa Clara River Main Channel (PD 1946)	4550-E2
72	101	South Fork – Santa Clara River (Smizer Ranch Main Channel Inlet)	4640-F2
73	83	Wildwood Canyon Channel (PD T361) M.C.I.	4640-H2
74	116	Wildwood Canyon Channel (PD T361)	4640-H2
75	14,075	South Fork – Santa Clara River (PD's 725, 916, 1041, & 1300)	4640-F1 to 4550-G3
76	4,116	Pico Canyon (PD 813)	4550-F7 to G7
77	2,092	Newhall Creek Outlet	4550-H6
78	376	Placerita Creek	4550-H6
79	168	South Fork – Santa Clara River (Valencia Blvd Bridge Stabilizer)	4550-G3
80	2,686	South Fork – Santa Clara River (PD's 1947 & 1946)	4550-F2
82	849	Santa Clara River Main Channel (PD 2278)	4550-D1
86	1,006	Violin Canyon Main Channel Outlet	4369-J7
87**	225	Castaic - Old Road Drain (CDR 525.021D)	4459-H5
88	1,051	Hasley Canyon Upper (PD T1496)	4459-C3
89	341	Hasley Canyon South Fork (PD T1496)	4459-C3
90	1,051	Hasley Canyon Lower (North Fork PD T1496)	4459-C3
91	599	San Martinez Chiquito Canyon - u/s Keningston Rd	4459-A6 to B6
92	768	San Martinez Chiquito Canyon (N. Fork) unnamed channel	4459-A6
93	1,072	San Martinez Chiquito Canyon - Keningston Rd to Val Verde Park	4459-B6
94	2,446	San Martinez Chiquito Canyon - Val Verde Park to d/s of Madison St	4459-C6 to D7
95	1,823	Project No 1224	4287-H5
97**	2,002	PD T1982, Castaic Creek	4459-H5 to H6
101	1,818	Violin Canyon (PD 1707 & 2312)	4369-G5 to G6
102	975	Violin Canyon (PD 2275)	4369-E5 to F5
103	1,348	Bouquet Canyon Channel (PD 2225)	4550-H1, H2, & G2
104	2,223	Castaic Creek (PD 2441 Units 1 & 2)	4459-H6 to H7
105	833	San Francisquito Canyon Channel (PD 2456)	4460-F6
106	751	Castaic Drain Outlet	4460-B7

26 Soft-Bottom Channel Reaches			
Reach No.	Reach Length (feet)	Reach Name	Thomas Guide Location
107	1,028	The Old Road Channels (RMD Channel)	4640-F4
108	3,100	Pico Canyon (PD 2528)	4550-B6 to G6
109	372	Santa Clara River – South Bank West of McBean Pkwy MTD1510	4550-E2
110	3,737	Hasley Canyon Channel (PD 2262)	4369-F5 to G6
*Reaches 55 & 56 combined for survey effort			
**Reaches 87 & 97 combined for survey effort			

METHODS

Botanical surveys were floristic in nature and consistent with the protocols created by the California Department of Fish and Wildlife (CDFW) (CDFG 2009). Prior to the field surveys, a literature search was conducted to identify special status plant species reported from the vicinity of the project site. Sources reviewed include the USGS Littlerock, Mint Canyon, Newhall, Oat Mountain, Val Verde, Warm Springs Mountain, and Whitaker Peak 7.5-minute quadrangles in the California Native Plant Society's (CNPS') Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014) and the CDFW's California Natural Diversity Database (CNDDDB) (CDFW 2014).

Rainfall received in the winter and spring determines the germination of many annual and perennial herb species. According to the National Weather Service (NWS), the region (data taken from Bob Hope Airport in Burbank) received 5.33 inches of precipitation between October 1, 2013 and May 31, 2014, which was approximately 11.55 inches below normal for that time period (NWS 2014).

Reference populations were monitored for annual and difficult-to-detect target species to ensure that the surveys were comprehensive. This is especially relevant during periods of unusual rainfall patterns or below average rainfall. If conditions at a nearby reference population are suitable for germination and growth, then it can be inferred that conditions would also be suitable within the survey areas. Table 2 summarizes the flowering status of known reference populations monitored during the 2014 special status plant survey period. Reference populations were not monitored for large perennials (e.g., Nevin's barberry [*Berberis nevinii*] and short-joint beavertail [*Opuntia basilaris* var. *brachyclada*]), which would be identifiable throughout the year.

TABLE 2
REFERENCE POPULATION BLOOMING DATES

Species	Area Monitored for Blooming	Date Observed Blooming
<i>California macrophylla</i> round-leaved filaree	Simi Hills	April 16, 2014
<i>Calochortus clavatus</i> var. <i>gracilis</i> x <i>C.c.</i> var. <i>clavatus</i> slender/club-haired mariposa lily hybrid	Castaic	April 17, 2014
<i>Calochortus plummerae</i> Plummer's mariposa lily	San Gabriel Mountains	June 1, 2014
<i>Chorizanthe parryi</i> var. <i>fernandina</i> San Fernando Valley spineflower	West of the San Fernando Valley	April 11, 2014 (detectable but not blooming)
<i>Dodecahema leptoceras</i> slender-horned spineflower	Santa Clarita	April 28, 2014 (detectable but not blooming)
<i>Symphotrichum</i> [Aster] <i>greatae</i> Greata's aster	Angeles National Forest near Hidden Springs/Singing Springs	September 4, 2014

Surveys were conducted by BonTerra Psomas Senior Biologists Brian Daniels, Jennifer Pareti and Allison Rudalevige, BonTerra Psomas Biologists Jason Mintzer, and Sarah Thomas, and Leatherman Consulting Senior Botanist Sandra Leatherman. The survey dates and personnel are listed below in Table 3. Early and late spring surveys were conducted in all reaches in April, May, and June for spring and early summer blooming special status plant species. Summer surveys were conducted for Reaches 87 and 97 because the early surveys determined that suitable habitat for summer/fall blooming special status plant species were present along these reaches. In addition, vegetation transects surveys were conducted at all soft bottom reaches in the fall months allowing for addition observations to occur for fall blooming species.

A total of 200 person-hours were spent conducting all focused plant surveys. In addition, vegetation transects surveys were conducted at all soft bottom reaches in the fall months allowing for addition observations to occur for fall blooming species.

TABLE 3
SURVEY DATES AND PERSONNEL

Reach	Early Spring Survey	Surveyors	Late Spring Survey	Surveyors
45	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
46	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
47	April 25, 2014	Leatherman, Mintzer	June 3, 2014	Pareti, Mintzer
48	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
49	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
50	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
51	April 25, 2014	Leatherman, Mintzer	June 2, 2014	Pareti, Rudalevige
52	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
53	May 9, 2014	Pareti, Mintzer	June 17, 2014	Leatherman, Thomas, Daniels
54	April 10, 2014	Pareti, Mintzer	June 2, 2014	Pareti, Rudalevige

TABLE 3
SURVEY DATES AND PERSONNEL

Reach	Early Spring Survey	Surveyors	Late Spring Survey	Surveyors
55	April 25, 2014	Leatherman, Mintzer	June 2, 2014	Pareti, Rudalevige
56	April 25, 2014	Leatherman, Mintzer	June 2, 2014	Pareti, Rudalevige
57	April 10, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
58	April 25, 2014	Leatherman, Mintzer	June 2, 2014	Leatherman, Thomas
59	April 25, 2014	Leatherman, Mintzer	June 2, 2014	Leatherman, Thomas
60	April 28, 2014	Leatherman, Pareti, Mintzer, Thomas,	June 2, 2014	Leatherman, Thomas
61	April 28, 2014	Pareti, Mintzer	June 2, 2014	Leatherman, Thomas
62	April 28, 2014	Leatherman, Thomas	June 2, 2014	Pareti, Rudalevige
63	April 28, 2014	Pareti, Mintzer	June 3, 2014	Pareti, Mintzer
64	April 28, 2014	Leatherman, Thomas	June 3, 2014	Pareti, Mintzer
66	April 28, 2014	Leatherman, Thomas	June 3, 2014	Pareti, Mintzer
67	April 7, 2014	Leatherman, Pareti	May 27, 2014	Leatherman, Mintzer
69	April 7, 2014	Leatherman, Pareti	May 27, 2014	Leatherman, Mintzer
70	April 7, 2014	Leatherman, Pareti	May 27, 2014	Leatherman, Mintzer
71	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Leatherman, Thomas
72	May 9, 2014	Pareti, Mintzer	June 3, 2014	Leatherman, Thomas
73	April 25, 2014	Pareti, Rose	June 11, 2014	Leatherman, Thomas, Daniels
74	April 24, 2014	Pareti, Rose	June 11, 2014	Leatherman, Thomas, Daniels
75	April 29, 2014	Pareti, Rudalevige, Rose	May 28, 2014	Leatherman, Pareti
76	April 25, 2014	Pareti, Rose	May 28, 2014	Leatherman, Pareti
77	April 25, 2014	Pareti, Rose	May 28, 2014	Leatherman, Pareti
78	April 25, 2014	Pareti, Rose	May 28, 2014	Leatherman, Pareti
79	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Leatherman, Thomas
80	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Leatherman, Thomas
82	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Pareti, Mintzer
86	April 25, 2014	Rudalevige, Thomas	May 27, 2014	Leatherman, Mintzer
87**	May 1, 2014	Pareti, Mintzer	June 10, 2014	Leatherman, Thomas, Daniels
88	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
89	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
90	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
91	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
92	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
93	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
94	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Pareti, Mintzer
95	April 28, 2014	Thomas, Mintzer	May 28, 2014	Leatherman, Pareti
97**	May 1, 2014	Pareti, Mintzer	June 10, 2014	Leatherman, Thomas, Daniels
101	April 25, 2014	Rudalevige, Thomas	May 27, 2014	Leatherman, Mintzer
102	May 1, 2014	Pareti, Mintzer	May 27, 2014	Leatherman, Mintzer

**TABLE 3
 SURVEY DATES AND PERSONNEL**

Reach	Early Spring Survey	Surveyors	Late Spring Survey	Surveyors
103	April 29, 2014	Leatherman, Mintzer	June 17, 2014	Leatherman, Daniels Thomas,
104	May 1, 2014	Pareti, Mintzer	June 10, 2014	Leatherman, Daniels Thomas,
105	May 9, 2014	Pareti, Mintzer, Thomas	June 3, 2014	Leatherman, Thomas
106	May 1, 2014	Pareti, Mintzer	June 10, 2014	Leatherman, Daniels Thomas,
107	May 9, 2014	Pareti, Mintzer, Thomas	June 3, 2014	Leatherman, Thomas
108	May 9, 2014	Pareti, Mintzer, Thomas	June 17, 2014	Leatherman, Daniels Thomas,
109	April 29, 2014	Leatherman, Mintzer	June 3, 2014	Leatherman, Thomas
110	May 1, 2014	Rudalevige, Thomas	June 10, 2014	Leatherman, Daniels Thomas,
<p>**Reaches 87 and 97 were surveyed during the summer blooming window for white rabbit-tobacco (<i>Pseudognaphalium leucocephalum</i>) on August 7, 2014 by Leatherman, Mintzer and on August 19, 2014 by Leatherman, Thomas.</p>				

All potentially suitable habitats for special status plant species within the survey areas were systematically surveyed. The survey areas included habitats on the earthen bottom of each channel reach but also on the adjacent channel banks where appropriate. All plant species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified to the taxonomic level necessary to determine whether or not they are a special status species. Plants were identified using taxonomic keys, descriptions, and illustrations in Baldwin et al. (2011), Hickman (1993), Munz (1974), Abrams (1923, 1944, 1951), and Abrams and Ferris (1960). Taxonomy and nomenclature follows Baldwin et al. (2011), Hickman (1993), and current scientific journals for scientific and common names. Any voucher specimens collected will be deposited with the herbarium at Rancho Santa Ana Botanic Gardens in Claremont, California.

SURVEY RESULTS

Table 3 identifies the special status plants with potential to in the surveyed reaches and the survey results. A list of all plants observed on the project site during the surveys can be found in Attachment A. Special status species observed during the survey effort are discussed below; CNDDDB forms for each species observed are included as Attachment B.

TABLE 4
SPECIAL STATUS PLANT SPECIES REPORTED FROM
THE PROJECT SITE VICINITY

Species	Status			Potential to Occur In Surveyed Reaches; Results of Survey
	USFWS	CDFW	CRPR	
<i>Allium howellii</i> var. <i>clokeyi</i> Mount Pinos onion	-	-	1B.3	Outside elevation range; not expected to occur.
<i>Astragalus brauntonii</i> Braunton's milk-vetch	-	-	1B.1	Marginally suitable habitat; not observed during focused surveys.
<i>Berberis nevinii</i> Nevin's barberry	FE	SE	1B.1	Suitable habitat; not observed during focused surveys
<i>California macrophylla</i> round-leaved filaree	-	-	1B.1	Marginally suitable habitat; not observed during focused surveys.
<i>Calochortus clavatus</i> var. <i>gracilis</i> slender mariposa lily	-	-	1B.2	Marginally suitable habitat; not observed during focused surveys.
<i>Calochortus plummerae</i> Plummer's mariposa lily	-	-	4.2	Marginally suitable habitat; not observed during focused surveys.
<i>Calystegia peirsonii</i> Peirson's morning-glory	-	-	4.2	No suitable habitat; not expected to occur.
<i>Chorizanthe parryi</i> var. <i>fernandina</i> San Fernando Valley spineflower	FC	SE	1B.1	Suitable habitat; not observed during focused surveys.
<i>Deinandra minthornii</i> Santa Susana tarplant	-	SR	1B.2	Marginally suitable habitat; not observed during focused surveys.
<i>Dodecahema leptoceras</i> slender-horned spineflower	FE	SE	1B.1	Suitable habitat; not observed during focused surveys.
<i>Galium grande</i> San Gabriel bedstraw	-	-	1B.2	No suitable habitat; not expected to occur.
<i>Harpagonella palmeri</i> Palmer's grapplinghook	-	-	4.2	Marginally suitable habitat; not observed during focused surveys.
<i>Helianthus inexpectatus</i> Newhall sunflower	-	-	1B.1	Marginally suitable habitat; not observed during focused surveys.
<i>Juglans californica</i> Southern California black walnut	-	-	4.2	Suitable habitat; observed in reaches 72, 75, 107.
<i>Lepechinia rossii</i> Ross' pitcher sage	-	-	1B.2	No suitable habitat; not expected to occur.
<i>Lilium humboldtii</i> ssp. <i>ocellatum</i> ocellated Humboldt lily	-	-	4.2	Marginally suitable habitat; not observed during focused surveys.
<i>Malacothamnus davidsonii</i> Davidson's bush-mallow	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Navarretia fossalis</i> spreading navarretia	FT	-	1B.1	No suitable habitat; not expected to occur.
<i>Navarretia ojaiensis</i> Ojai navarretia	-	-	1B.1	Suitable habitat; not observed during focused surveys.
<i>Navarretia setiloba</i> Piute Mountains navarretia	-	-	1B.1	Outside elevation range; not expected to occur.
<i>Opuntia basilaris</i> var. <i>brachyclada</i> short-joint beavertail	-	-	1B.2	Outside elevation range; not expected to occur.
<i>Orcuttia californica</i> California Orcutt grass	FE	SE	1B.1	No suitable habitat; not expected to occur.
<i>Potentilla newberryi</i> Newberry's cinquefoil	-	-	2B.3	Outside elevation range; not expected to occur.

**TABLE 4
 SPECIAL STATUS PLANT SPECIES REPORTED FROM
 THE PROJECT SITE VICINITY**

Species	Status			Potential to Occur In Surveyed Reaches; Results of Survey
	USFWS	CDFW	CRPR	
<i>Pseudognaphalium leucocephalum</i> White rabbit-tobacco	–	–	2B.2	Suitable habitat; observed in reaches 87 and 97.
<i>Senecio aphanactis</i> chaparral ragwort	–	–	2B.2	Marginally suitable habitat; not observed during focused surveys.
<i>Symphotrichum greatae</i> Greata's aster	–	–	1B.3	Marginally suitable habitat; not observed during focused surveys.
LEGEND:				
USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; CRPR: California Rare Plant Rank.				
<u>Federal (USFWS)</u> <u>State (CDFG)</u>				
FE Endangered SE Endangered				
FT Threatened SR Rare				
FC Candidate Species				
<u>California Rare Plant Rank (CRPR)</u>				
1B Plants Rare, Threatened, or Endangered in California and Elsewhere				
2B Plants Rare, Threatened, or Endangered in California But More Common Elsewhere				
4 Plants of Limited Distribution – A Watch List				
<u>CRPR Threat Rank Extensions</u>				
.1 Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)				
.2 Fairly Endangered in California (20–80% of occurrences threatened)				
.3 Not Very Threatened in California (low degree/immediacy of threat or no current threats known)				

White Rabbit-Tobacco

White rabbit-tobacco (*Pseudognaphalium leucocephalum*) has a CRPR of 2B.2. It typically blooms between July and October (Baldwin et al. 2012). This biennial herb occurs in sandy or gravelly benches and in dry stream bottoms (Baldwin et al. 2012). It occurs in the southern South Coast Ranges, San Bernardino Mountains, Peninsular Ranges of California and into Arizona, New Mexico and Mexico at elevations between sea level and approximately 1,650 feet above msl (Baldwin et al. 2012).

A total of 144 individuals of white rabbit-tobacco were observed in the combined survey area of Reaches 87 and 97 on August 7, 2014 (Table 5; Exhibit [x]). The 5 population locations occurred in an open cobble wash with sparse vegetation. The associated species occurring with the identified while-rabbit tobacco included scale-broom (*Lepidospartum squamatum*), deerweed (*Acmispon glaber*), shortpod mustard (*Hirschfeldia incana*), red brome (*Bromus madritensis* ssp. *rubens*). These plants were observed on flat or gently sloping areas mapped as having Riverwash and sandy alluvial soils. A CNDDDB form for the white rabbit-tobacco occurrence is included as Appendix B.

**TABLE 5
 WHITE RABBIT-TOBACCO POPULATIONS OCCURRING IN THE COMBINED
 SURVEY AREA OF REACHES 87 AND 97**

Location	Number of Individuals	Percent Phenology		
		Vegetative	Flowering	Fruiting
1	3	67	33	0
2	11	45	55	0
3	128	22	78	0
4	1	0	100	0
5	1	0	100	0
Total	144	N/A	N/A	N/A

Southern California Black Walnut

Southern California black walnut (*Juglans californica*) has a CRPR of 4.2. It typically blooms between March and May (Baldwin et al. 2012). This monoecious tree occurs on hillsides and in canyons at elevations between approximately 98 and 2,953 feet above msl (Baldwin et al. 2012). It is known from the outer South Coast Ranges and throughout southwestern California (Baldwin et al. 2012).

A total of 46 southern California black walnut trees were observed within 3 soft-bottom reaches: Reach 72 (1 tree), Reach 75 (30 trees), and Reach 107 (15 trees) (Table 6; Exhibit [x]). The associated species occurring with the identified southern California black walnut trees included Fremont cottonwood (*Populus fremontii*), red willow (*Salix leavigata*), blue elderberry (*Sambucus nigra*), sandbar willow (*Salix exigua*), thick-leaf yerba santa (*Eriodictyon crassifolium*), (*Artemisia tridentata*), (*Artemisia douglasiana*), (*Lepidium lapatifolium*), shortpod mustard, red brome. These plants were observed on sandy areas within the riverbottom adjacent riverbanks. Mapped soils included Yolo loam soils. A CNDDDB form for the southern California black walnut tree occurrences is included as Appendix B.

Section 17.02 of the Los Angeles County Ordinance No. 177404 details the protection of Southern California native tree species within Los Angeles County (http://cityplanning.lacity.org/Code_Studies/Other/ProtectedTreeOrd.pdf). Southern California black walnut is a protected species under this ordinance, and a permit from the County would be required prior to any removal or disturbance of this species.

**TABLE 6
 SOUTHERN CALIFORNIA BLACK WALNUT TREE POPULATIONS
 OCCURRING IN REACHES 75 AND 107**

Reach	Location	Number of Individuals	Percent Phenology		
			Vegetative	Flowering	Fruiting
72	1	1	0	0	100
75	1	2	0	100	0
75	2	1	100	0	0
75	3	16	56	6	38
75	4	4	75	0	25
75	5	1	100	0	0
75	6	1	100	0	0
75	7	5	80	0	20
107	1	2	0	0	100
107	2	2	0	0	100
107	3	4	100	0	0
107	4	2	0	0	100
107	5	2	100	0	0
107	6	2	100	0	0
107	7	1	100	0	0
	Total	46	N/A	N/A	N/A

CONCLUSIONS/RECOMMENDATIONS

Based on overall species distribution, size, and listing status (CRPR 2.2), impacts on the white-rabbit tobacco would likely be considered significant. Avoidance and preservation of the white-rabbit tobacco populations during vegetation clearing is recommended, to the extent feasible. For populations that cannot be avoided, mitigation measures may be necessary. A conceptual mitigation plan should be prepared and implemented to compensate for impacts on white-rabbit tobacco.

Given the CRPR of southern California black walnut (i.e., 4.2) and that southern California black walnut trees are protected under the Los Angeles County Ordinance No. 177404, any impacts to these trees would require a permit from the Los Angeles County.

Although reference populations and regional rainfall amounts were monitored to ensure the scientific adequacy of these focused surveys, there is always a minimal potential for false negative survey results as species could possibly be present on a site but may not be detectable at the time of the surveys.

If you have any comments or questions, please call Marc Blain at (626) 351-2000.

Sincerely,
BonTerra Psomas



Marc T. Blain
Senior Project Manager

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APPENDIX C
SBC 2015 FOCUSED SURVEY REPORT

2015 Focused Survey Results

Los Angeles County Flood Control District Soft-Bottom Channels Maintenance Clearing

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September 2015



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EXECUTIVE SUMMARY

Focused surveys for Threatened and Endangered species are conducted on a regular basis at selected soft-bottom channel reaches maintained by the Los Angeles County Flood Control District (LACFCD). Annual biological monitoring and periodic habitat assessments of all LACFCD channel reaches provides a means by which to update and revise, when necessary, the particular channel reaches and species for which surveys are recommended. The following summary is of three federally and/or State-listed Endangered animal species for which focused surveys were conducted at 23 channel reaches in 2015 and includes a maintenance overview with respect to these species. The 2015 survey results are also summarized below in Table ES-1.

AMPHIBIANS

ARROYO TOAD

Focused surveys for the arroyo toad (*Anaxyrus californicus*) were conducted at 11 channel reaches in 2015: Castaic Creek Reaches 86, 87, 97, and 104; San Francisquito Wash Reach 105; South Fork Santa Clara River Reaches 75 (but only the northern part of this channel reach from Magic Mountain Parkway upstream to the Via Princessa bridge) and 79; Reach 80 at the confluence of the Santa Clara and South Fork Santa Clara Rivers; and Santa Clara River Reaches 71, 82, and 109. These channel reaches may provide suitable breeding habitat during the spring season for the arroyo toad when water is present. Portions of these channel reaches also provide potentially suitable aestivating and foraging habitat. These surveys followed the U.S. Fish and Wildlife Service (USFWS) 1999 protocol for this species. Since the protocol does not require handling of the species, a Section 10(a)(1)(A) Recovery permit for “take” under the Endangered Species Act is not necessary for performance of these surveys. Although not detected during the 2015 surveys, previous focused surveys have detected the arroyo toad at Reaches 71 and 82 (BonTerra 2003) and these two channel reaches are considered to be occupied (USFWS 2004). No arroyo toads were observed during the 2015 focused surveys.

The arroyo toad is not typically active during the time period when the soft-bottom channel maintenance occurs (September to November), except for a limited number of juveniles that stay near the active channel and for increased activity of some adults after storms (Ramirez 2003). Since maintenance activities avoid the active channel and do not occur during storms, impacts on arroyo toads would not be expected even in the unlikely event of their occurrence during the fall season (September to November). The arroyo toad would not be expected to aestivate in the maintenance area because the area that is maintained has compacted soil; therefore, the maintenance activities would not be expected to affect aestivation of this species.

BIRDS

LEAST BELL'S VIREO AND SOUTHWESTERN WILLOW FLYCATCHER

Focused surveys for the least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) were scheduled to be conducted in 2015 at a total of 23 channel reaches where they have potential to occur: 3 channel reaches in the Los Angeles River Watershed (Reaches 7, 12, and 14); 1 channel reach in the Dominguez Channel Watershed (Reach 27); 1 channel reach in the Malibu Creek Watershed (Reach 28); 4 channel reaches in the San Gabriel River (Reaches 39, 40b, 43a, and 43b); and 14 channel reaches in the Santa Clara River Watershed (Reaches 71, 75, 79, 80, 82, 86, 87, 97, 103, 104, 105, 106, 109, and 110). At the request of the Ventura USFWS office, however, protocol surveys for the southwestern willow flycatcher were not performed at eight Santa Clara River Watershed channel reaches (Reaches 71, 75, 79, 80, 82, 103, 105, and 109) because of overlapping survey areas with another

project that had been issued prior notice to proceed with the same surveys in 2015. The USFWS was concerned that concurrent protocol surveys could result in undue harassment of any potentially present southwestern willow flycatchers. Surveys for this project followed the USFWS protocol for both species, except for Reaches 71, 75, 79, 80, 82, 103, 105, and 109 where only the least Bell's vireo protocol was fully implemented. The southwestern willow flycatcher was not present during the 2015 focused surveys or during previous surveys in 2013, 2011, 2009, 2007, 2005, 2003, and 2002. The least Bell's vireo was present during the 2015 surveys with a total of 17 territories at 6 channel reaches. Table ES-1 below presents a summary of the 2015 survey results for southwestern willow flycatcher and least Bell's vireo.

**TABLE ES-1
SUMMARY OF 2015 RESULTS OF FOCUSED SURVEYS FOR THE
LOS ANGELES COUNTY SOFT-BOTTOM CHANNELS**

Reach Number	Reach Name	Focused Surveys for Arroyo Toad	Focused Surveys for Least Bell's Vireo	Focused Surveys for Southwestern Willow Flycatcher
Los Angeles River Watershed				
7	Bull Creek	N/A	3 territories (2 pairs/1 unpaired male)	Negative
12	Haines Canyon Main Channel Outlet	N/A	Negative	Negative
14	May Channel (Main Channel Outlet into Pacoima Canyon)	N/A	2 territories (1 pair/1 unpaired male)	Negative
Dominguez Channel Watershed				
27	Wilmington Drain	N/A	1 transient male	Negative
Malibu Creek Watershed				
28	Triunfo Creek (PD T2200)	N/A	Negative	Negative
San Gabriel River Watershed				
39	Beatty Channel Outlet at San Gabriel River 25+99.00+50'	N/A	1 territory (1 pair)	Negative
40b	San Gabriel River – Interstate 10 (Monica) Freeway to Thienes Ave	N/A	6 territories (6 pairs/2 transient males)	Negative
43a	San Gabriel River – Upper	N/A	4 territories (1 pair/3 unpaired males)	Negative
43b	San Gabriel River – Lower	N/A	Negative	Negative
Santa Clara River Watershed				
71	Santa Clara River Main Channel (PD 1946)	Negative	Negative	Negative*
75	South Fork – Santa Clara River (PDs 725, 916, 1041, 1300)	Negative	Negative	Negative*
79	South Fork – Santa Clara River (Valencia Blvd Bridge Stabilizer)	Negative	Negative	Negative*
80	South Fork – Santa Clara River (PDs 1947 and 1946)	Negative	Negative	Negative*
82	Santa Clara River Main Channel (PD 2278)	Negative	1 transient male	Negative*

**TABLE ES-1
SUMMARY OF 2015 RESULTS OF FOCUSED SURVEYS FOR THE
LOS ANGELES COUNTY SOFT-BOTTOM CHANNELS**

Reach Number	Reach Name	Focused Surveys for Arroyo Toad	Focused Surveys for Least Bell's Vireo	Focused Surveys for Southwestern Willow Flycatcher
86	Violin Canyon Main Channel Outlet	Negative	Negative	Negative
87	Castaic – Old Road Drain (CDR 525.021D) Outlet	Negative	Negative	Negative
97	Castaic Creek – The Old Road (PD 1982)	Negative	Negative	Negative
103	Bouquet Canyon Channel (PD 2225)	N/A	1 territory (1 unpaired male)	Negative*
104	Castaic Creek (PD 2441 Units 1 and 2)	Negative	Negative	Negative
105	San Francisquito Canyon Channel (PD 2456)	Negative	Negative	Negative*
106	Castaic Drain Outlet (RMD Channel)	N/A	Negative	Negative
109	Santa Clara River – South Bank West of McBean Pkwy (MTD 1510)	Negative	Negative	N/A
110	Hasley Canyon Channel (PD 2262)	N/A	Negative	Negative

N/A: Not applicable (i.e., no survey conducted at the request of USFWS or because there is no potential habitat for the species).
Negative* : Negative survey results obtained from other source (Bloom Biological 2015).

The 2015 survey results for least Bell's vireo are shown below in Table ES-2 with the previous survey results for this species under the LACFCD soft-bottom channel maintenance program. Although migrant or transitory least Bell's vireos have been detected at other channel reaches in these focused surveys, only these eight channel reaches have ever supported least Bell's vireo territories.

Both the least Bell's vireo and southwestern willow flycatcher are migratory species that are only present in Southern California from about March through mid-September. As required by the permits (see U.S. Army Corps of Engineers Nationwide Permit 31 dated September 30, 2010, with Informal USFWS Section 7 Consultation), in order to avoid and/or minimize impacts on these species, all channel maintenance clearing work occurs outside this time period (i.e., after September 15); additionally, seasonally occupied habitat is identified and protected by flagging and clearing activities that are monitored by qualified Biologists.

**TABLE ES-2
SUMMARY OF LEAST BELL'S VIREO SURVEY RESULTS SINCE 2002 FOR THE
SOFT-BOTTOM CHANNEL MAINTENANCE PROGRAM**

Reach Number	Reach Name	2015	2013	2011	2009	2007	2005	2003	2002
Los Angeles River Watershed									
7	Bull Creek	3 territories (2 pair/1 unpaired male)	No Survey*	No Survey*	No Survey*	Negative	Negative	Negative	Negative
14	May Channel (Main Channel Outlet into Pacoima Canyon)	2 territories (1 pair/1 unpaired male)	2 territories (1 pair/1 unpaired male)	3 territories (3 pairs)	2 territories (2 unpaired males)	Negative	1 territory (1 pair)	Negative	Negative
Dominguez Channel Watershed									
27	Wilmington Drain	1 transient male	1 territory (1 unpaired male)	1 territory (1 unpaired male)	Negative	1 territory (1 unpaired male)	Negative	Negative	Negative
San Gabriel River Watershed									
39	Beatty Channel Outlet	1 territory (1 pair)	2 territories (2 pairs)	3 territories (3 pairs)	4 territories (3 pairs/1 unpaired male)	2 territories (2 pairs)	1 territory (1 pair)	Negative	No survey
40b	San Gabriel River – Interstate 10 (Santa Monica) Freeway to Thienes Ave	6 territories (6 pairs)	5 territories (4 pairs/1 unpaired male)	4 territories (4 pairs)	2 territories (1 pair/1 unpaired male)	3 territories (3 unpaired males)	Negative	Negative	2 territories (1 pair/1 unpaired male)
43a	San Gabriel River – Upper	4 territories (1 pair/3 unpaired males)	3 territories (2 pairs/1 unpaired male)	4 territories (2 pairs/2 unpaired males)	4 territories (3 pairs/1 unpaired male)	1 territory (pair)	1 territory (1 pair)	1 territory (1 unpaired male)	1 territory (1 pair)
43b	San Gabriel River – Lower	Negative	Negative	Negative	1 territory (unpaired male)	Negative	Negative	Negative	1 territory (1 pair)
Santa Clara River Watershed									
103	Bouquet Canyon Channel (PD 2225)	1 territory (1 unpaired male)	Negative	Negative	Negative	Negative	Negative	No Survey**	No Survey**
Total Territories		17	13	15	13	7	3	1	4
<p>No Survey*: In 2008, the vegetation in Bull Creek in the Sepulveda Basin, which included Reach 7, was temporarily removed for the Bull Creek restoration project managed by the City of Los Angeles in conjunction with the U.S. Army Corps of Engineers.</p> <p>No Survey**: Not under LACFCD's ownership at the time.</p> <p>Sources: BonTerra 2002, 2003, 2005, 2007, 2009, 2011, 2013</p>									

1.0 INTRODUCTION

In 2002, focused surveys and habitat assessments were conducted at 54 soft-bottom channel reaches that included 53 of the original channel reaches plus 1 new channel reach identified as Reach 101 (Violin Canyon – PD 2312). All 53 original channel reaches have continued to be maintained by the Los Angeles County Flood Control District (LACFCD) under the required regulatory permits, but Reach 101 and other new channel reaches have yet to be permitted. The purpose of the 2002 surveys was to provide baseline information on the occurrence or potential occurrence of Threatened or Endangered plant and wildlife species for permitted and non-permitted channel reaches. This information is updated annually during the pre- and post-clearing surveys of all permitted and non-permitted soft-bottom channel reaches managed by the LACFCD.

1.1 ENVIRONMENTAL SETTING

1.1.1 Regional Setting

The topography in Los Angeles County is diverse, containing coastline, flatlands, mountains, and desert within approximately 4,000 square miles. Elevations in the County range from sea level to over 10,000 feet above mean sea level (msl). The climate ranges from mild near the coast to severe in the high mountains and in the desert. This variation in environments has created a unique and diverse collection of biological resources (England and Nelson 1976).

The San Gabriel Mountains are a prominent topographic feature that include a portion of the headwaters of the Santa Clara, Los Angeles, Rio Hondo, and San Gabriel Rivers, and are the source of streams that drain into the Antelope and Fremont Valleys. The San Gabriel Mountains rise 7,000 feet above msl from the Antelope and Santa Clarita Valleys, and exert considerable influence on the climate, hydrology, and ecology of the lands around them. The San Andreas and other numerous faults have fractured the mountains so that they erode at a rapid rate. Hence, the stream basins along the northern slope are generally characterized by steep headwaters and sloping alluvial beds on the adjacent flatlands (CRA et al. 2001).

The Santa Monica Mountains are also a prominent topographic feature and include the headwaters of Malibu Creek and Topanga Creek; these are the source of streams that drain the Malibu Coast. The Santa Monica Mountains are up to 10 miles wide and reach an elevation of 3,100 feet above msl at Sandstone Peak. The Santa Monica Mountains have a complex structure because they have been uplifted and then eroded several times over the past 200 million years (Dale 1986; England and Nelson 1976).

There are 4 major rivers in Los Angeles County: the Los Angeles River is approximately 51 miles long (main stem) and drains 830 square miles; the Rio Hondo River is approximately 20 miles long (main stem) and drains 125 square miles; the San Gabriel River is approximately 59 miles long (main stem) and drains 350 square miles; and the Santa Clara River is approximately 75 miles long (main stem) and drains 1,616 square miles (LACDPW 2007). Numerous other streams also occur in Los Angeles County. Surface water in streams and rivers is generally only present during the winter and spring, in particular after storm events. Many storms do not generate sufficient runoff to sustain surface flow in all streams. In some areas, flows are supplemented with reclaimed water and agricultural and urban runoff. Particularly intense storms can result in flash floods or debris flows which can carry large amounts of sediment, rocks, and debris to be deposited in the valley below (CRA et al. 2001).

The Los Angeles River system has been extensively channelized to provide flood protection as it passes through several cities on its way to the Pacific Ocean. The Los Angeles River tributaries

include Bell Creek, Calabasas Creek, Burbank Western Channel, Pacoima Wash, Tujunga Wash, Verdugo Wash, Arroyo Seco, Compton Creek, and the Rio Hondo River (LACDPW 2007). There are now over 400 miles of concrete-lined tributaries that feed into the main channel. Approximately 47.9 miles of the 51.0-mile river is concrete-lined. The two stretches where the river is not lined (i.e., soft or earthen bottom channels) include the Sepulveda Flood Control Basin through the Glendale Narrows and south of Willow Street in Long Beach (LACDPW 2007). Reclaimed water enters the Los Angeles River at the Sepulveda Basin where the Department of Water and Power releases as much as 75 million gallons of reclaimed water daily from the Donald C. Tillman Water Reclamation Plant.

The San Gabriel River begins in the Angeles National Forest and also flows through several cities on its way to the Pacific Ocean. The San Gabriel River tributaries include Walnut Creek, San Jose Creek, Coyote Creek, and numerous storm drains (LACDPW 2007). The headwaters of the San Gabriel River begin just north of Pasadena and northwest of Mount Wilson, where they flow through a steep canyon to Cogswell Reservoir. The west fork of the river then merges with the east fork and flows into the San Gabriel Reservoir. Below the reservoir, the east fork converges with the main stem of the San Gabriel River and flows through San Gabriel Canyon to Morris Reservoir. Below Morris Reservoir, the river flows through cities from Azusa to Seal Beach and empties into Long Beach Harbor.

The Santa Clara River is unique because it is the only major unchannelized river that drains the San Gabriel Mountains. The Santa Clara River is fed by five major tributaries: Sand Canyon, Mint Canyon, Bouquet Canyon, South Fork, and San Francisquito Canyon (LACDPW 2007). Further west, Castaic, Piru, Sespe, and Santa Paula Creeks join the river (CRA et al. 2001). The headwaters of the Santa Clara River are located near Acton, and the river runs approximately 100 miles to its outlet in the City of Ventura in Ventura County. Most development adjacent to the river is located in or near the City of Santa Clarita (LACDPW 2007).

The Malibu Creek Watershed is a system of independent streams that drains approximately 109 square miles in northwest Los Angeles County from the Santa Monica Mountains to the Pacific Ocean. These include Las Virgenes, Triunfo, and Cold Creeks, as well as other small streams that flow from the Santa Monica Mountains to Santa Monica Bay. These creeks flow through the cities of Agoura Hills, Calabasas, Malibu, Thousand Oaks, Westlake Village, unincorporated Los Angeles County, and Ventura County (LACDPW 2007).

The Ballona Creek Watershed is a ten-mile-long flood-control channel that drains the Los Angeles basin from the Santa Monica Mountains to the north, the Harbor Freeway (I-110) to the east, and the Baldwin Hills to the south. All together, the Ballona Creek Watershed drains approximately 130 square miles of the Los Angeles Basin. Creeks or drainages of this watershed include Centinela Creek, Sepulveda Channel, and Benedict Canyon Channel. These drainages pass through the communities of Beverly Hills, Culver City, Inglewood, Los Angeles, and West Hollywood (LACDPW 2007).

The Dominguez Watershed is situated in south Los Angeles County and drains approximately 133 square miles of the Los Angeles Basin into the Los Angeles Harbor. Parts of the communities of Hawthorne, Torrance, Gardena, Carson, and Wilmington drain into the Dominguez Channel. Over 40 percent of this watershed consists of industrial, commercial, and transportation land uses (CRA et al. 2001; LACDPW 2007).

The Antelope Valley Watershed is a system of independent streams that drains approximately 1,200 square miles in north Los Angeles County from the San Gabriel Mountains and Kern County into the valley floor. These include Little Rock, Big Rock, and Mill Creeks, as well as other small streams that flow from the San Gabriel Mountains into the Antelope Valley. Due to the surrounding topography, these streams do not drain into the sea, but into dry lakebeds on the valley floor, with

most surface flows infiltrating into groundwater basins or evaporating (CRA et al. 2001; LACDPW 2007). Because the valley lacks defined natural channels outside the foothills, it is subject to unpredictable sheet flow patterns. The portion of the Antelope Valley Watershed in Los Angeles County includes the cities of Lancaster and Palmdale, with scattered clusters of sparse development outside these cities (LACDPW 2007). None of the channel reaches discussed in this report are located in the Antelope Valley Watershed.

1.1.2 **Local Setting**

In 2002, the LACFCD maintained 95 soft-bottom channel reaches located within its district boundaries, consisting of 885.58 acres that require management. Since 2002, ten soft-bottom channel reaches have been lost due to development or ownership change, but several more have been added to the list. As of 2015, the LACFCD manages 108 channel reaches (1 thru 119¹) that are located in 9 identified watersheds or regions of Los Angeles County:

- Los Angeles River Watershed: 26 channel reaches
- Dominguez Channel Watershed: 2 channel reach
- Malibu Creek Watershed: 9 channel reaches
- San Gabriel River Watershed: 10 channel reaches
- Santa Clara River Watershed: 55 channel reaches
- Ballona Creek Watershed: 2 channel reaches
- Santa Monica Bay: 2 channel reaches
- Antelope Valley: 1 channel reach
- Cerritos Channel: 1 channel reach

In 1997, the 95 soft-bottom flood-control channel reaches encompassed 885.58 acres that included 205.27 acres of vegetation. Based on vegetation categories developed at the time, the 205.27 acres of vegetation included an estimated 105.32 acres of riparian vegetation, 63.40 acres of mule fat vegetation, and 36.55 acres of scrub vegetation (BonTerra 1999). The acreages noted above have not been updated since that time and are presented to indicate the large amount of habitat under LACFCD jurisdiction.

Survey Areas

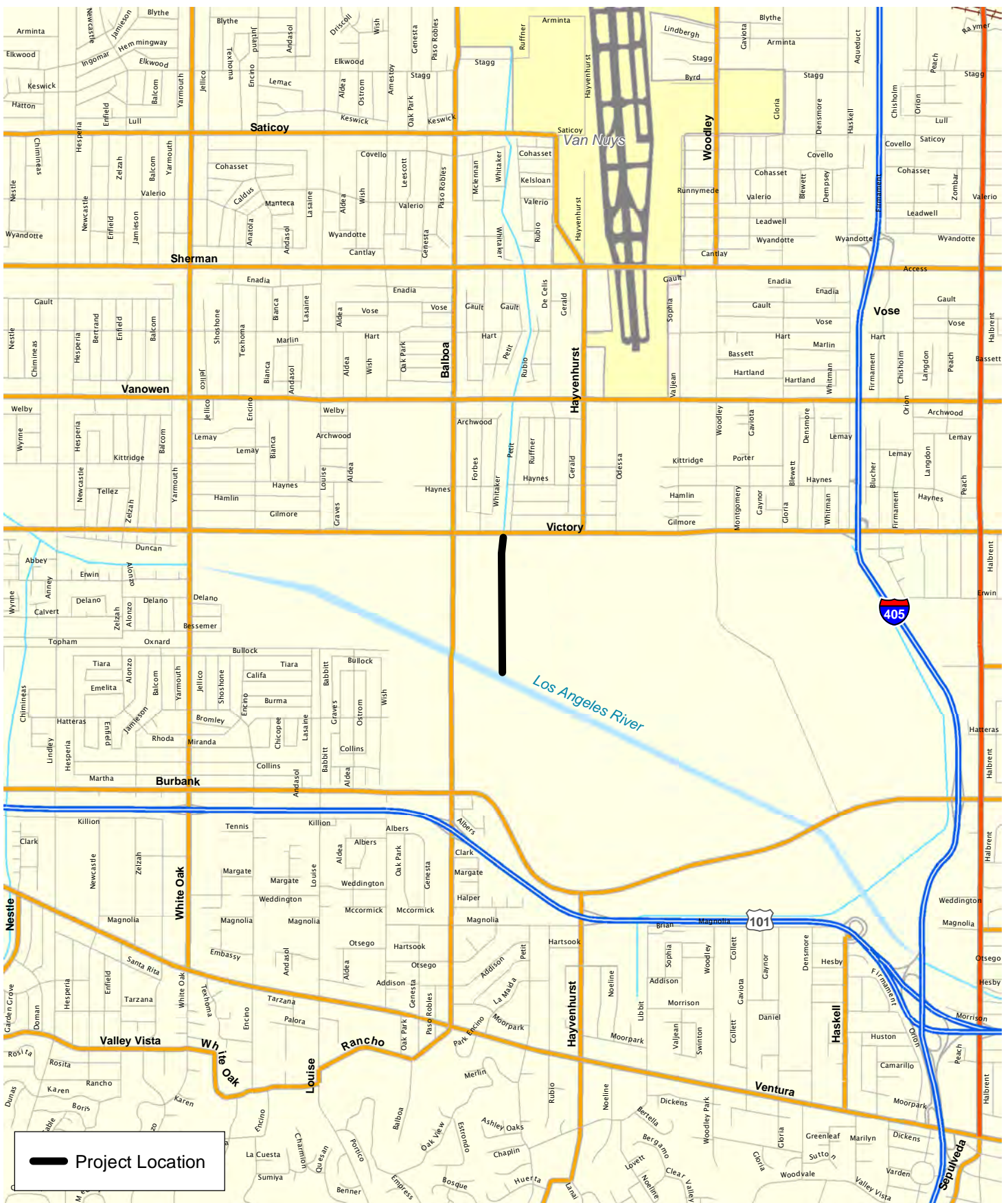
Of the 108 channel reaches managed by the LACFCD, 23 reaches have been determined to contain potential habitat for federally and/or State-listed Threatened or Endangered amphibian (arroyo toad) and/or bird (southwestern willow flycatcher and least Bell's vireo) species. These channel reaches are the subject of the focused survey effort and are described below.

Los Angeles River Watershed

Reach 7: Bull Creek

Reach 7, Bull Creek Main Channel Outlet, is located in the Los Angeles River Watershed, approximately 0.25 mile southeast of the Victory Boulevard and Balboa Boulevard intersection in the Sepulveda Dam Recreation Area in the City of Los Angeles (Exhibit 1a). The limits of Reach 7 are approximately 165 feet downstream of Victory Boulevard to the confluence with the Los

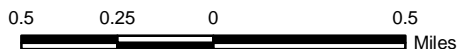
¹ Numbers of channel reaches that have been developed or had their ownership transferred are no longer in use.



Reach 7: Bull Creek

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1a



Angeles River. Reach 7 is 2,602 feet in total length. The reach is found on the U.S. Geological Survey's (USGS) Van Nuys 7.5 x 15-minute quadrangle map.

Reach 12: Haines Canyon Main Channel Outlet

Reach 12, Haines Canyon Main Channel Outlet, is located in Tujunga Wash approximately one mile northwest of the Mount Gleason Avenue and Foothill Boulevard intersection, in the community of Sunland in the City of Los Angeles (Exhibit 1b). Reach 12 is 437 feet in total length, extending 791 to 1,228 feet downstream of Wentworth Street. It is found on the USGS Sunland 7.5-minute quadrangle map.

Reach 14: May Channel (Main Channel Outlet into Pacoima Canyon)

Reach 14, May Channel (Main Channel Outlet into Pacoima Canyon), is located in Pacoima Wash, approximately 1.25 miles east of the Interstate 210 (Foothill Freeway) and Hubbard Street intersection in the City of Los Angeles (Exhibit 1c). The limits of Reach 14 are 3,038 feet downstream of Hubbard Street to approximately 3,728 feet downstream of the confluence of Hubbard Street with Pacoima Canyon. Reach 14 is 690 feet in total length. The reach is found on the USGS San Fernando 7.5 x 15-minute quadrangle map.

Dominguez Channel Watershed

Reach 27: Wilmington Drain

Reach 27, Wilmington Drain, is located in the Dominguez Channel Watershed in unincorporated Los Angeles County and in the Wilmington community of the City of Los Angeles (Exhibit 1d). The limits of Reach 27 are I-110 to Pacific Coast Highway. Reach 27 is approximately 3,584 feet in total length. The reach is found on the USGS Torrance 7.5 x 15-minute quadrangle map.

Malibu Creek Watershed

Reach 28: Triunfo Creek (PD T2200)

Reach 28, Triunfo Creek (PD T2200), is located in the Malibu Creek Watershed in unincorporated Los Angeles County, approximately 0.1 mile east of the Mulholland Highway and Troutdale Drive intersection (Exhibit 1e). The limits of Reach 28 are approximately 384 feet upstream of Mulholland Highway to the downstream edge of Mulholland Highway. Reach 28 is approximately 474 feet in total length. The reach is found on the Point Dume USGS 7.5 x 15-minute quadrangle map.

San Gabriel River Watershed

Reach 39: Beatty Channel Outlet at San Gabriel River

Reach 39, Beatty Channel Outlet at San Gabriel River 25+99.00±50', is located in the San Gabriel River Watershed, approximately 0.8 mile north of the Foothill Boulevard and Irwindale Avenue intersection in the City of Azusa (Exhibit 1f). The limits of Reach 39 are approximately 2,323 feet downstream of Todd Avenue to approximately 2,415 feet downstream of Todd Avenue. Reach 39 is 145 feet in total length. The reach is found on the USGS Azusa 7.5 x 15-minute quadrangle map.



 Project Location

Reach 12: Haines Canyon Main Channel Outlet
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1b



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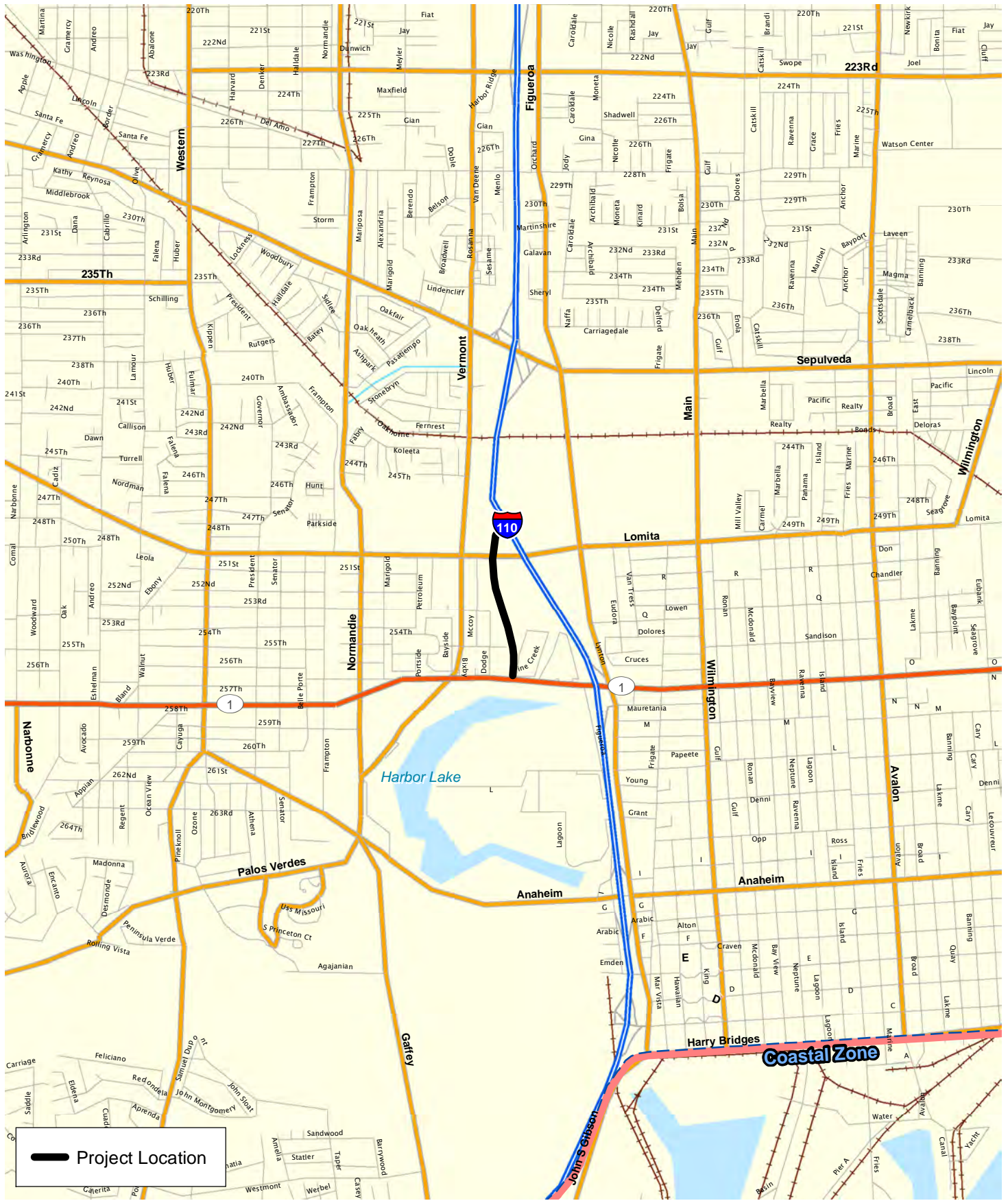


Reach 14: May Channel (Main Channel Outlet into Pacoima Canyon)
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1c



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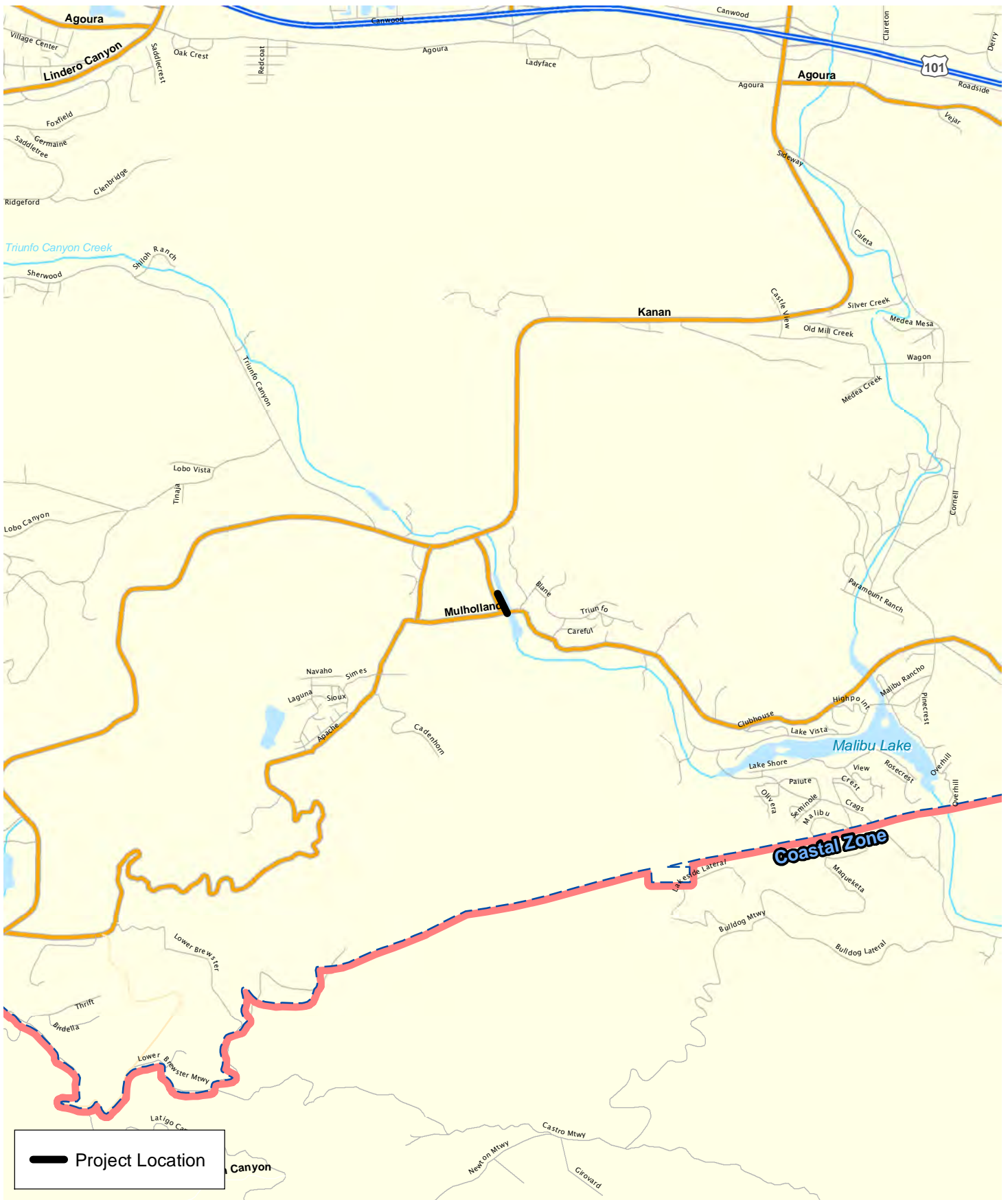


Reach 27: Wilmington Drain
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1d



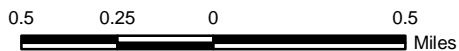
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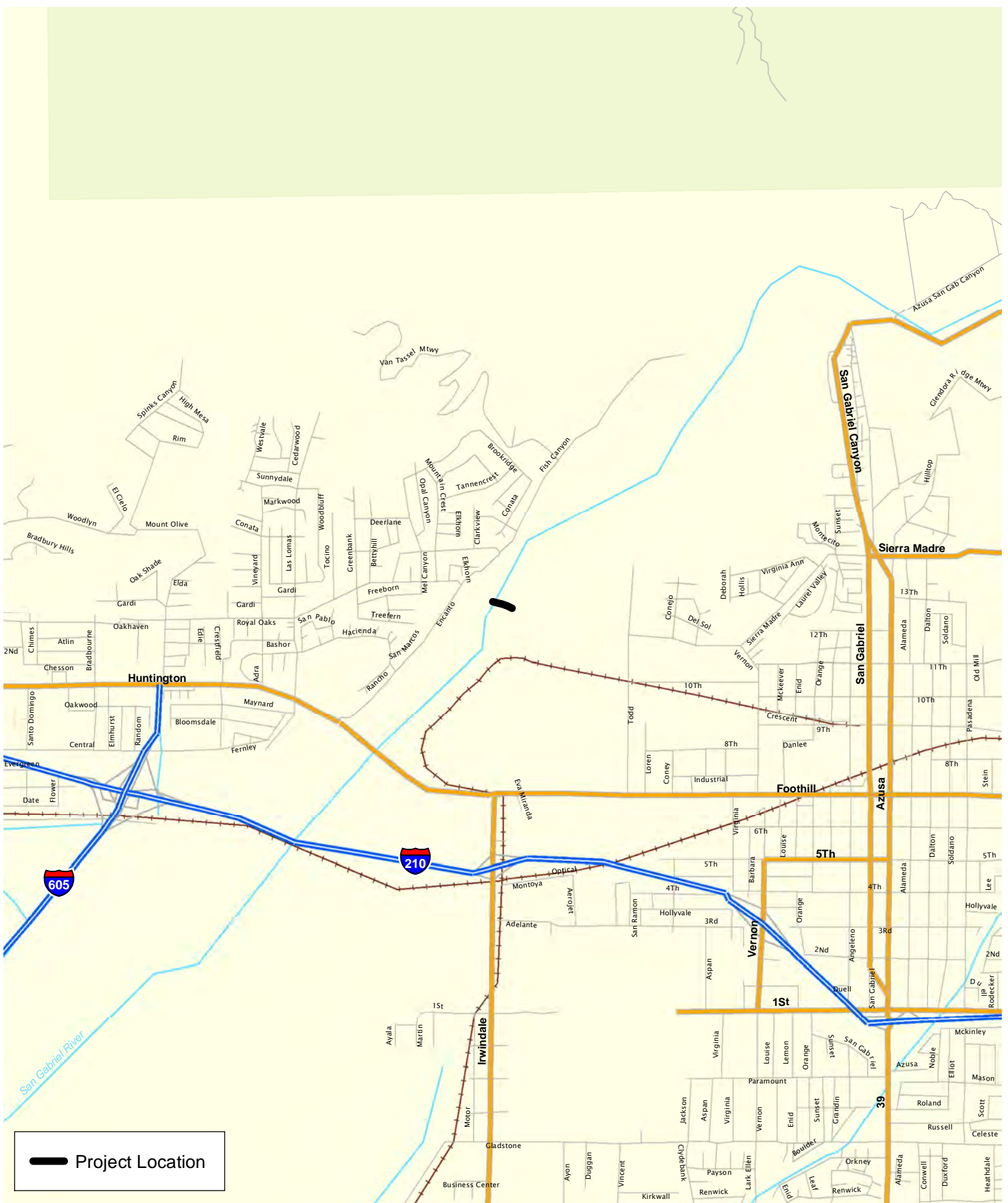


Reach 28: Triunfo Creek (PD T2200)

Exhibit 1e

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

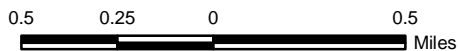




Reach 39: Beatty Channel Outlet at San Gabriel River (25 + 99.00 + 50')

Exhibit 1f

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



Reach 40b: San Gabriel River – Interstate 10 (Santa Monica) Freeway to Thienes Avenue

Reach 40b, San Gabriel River – I-10 (Santa Monica) Freeway to Thienes Avenue, is located in the San Gabriel River Watershed in the San Gabriel Valley area (Exhibit 1g). The limits of Reach 40b are I-10 (upstream) and Thienes Avenue (downstream). Reach 40b has a total length of approximately 10,800 feet. The reach is found on the USGS Baldwin Park 7.5 x 15-minute quadrangle map.

Reach 43a: San Gabriel River – Upper

Reach 43a, San Gabriel River – Upper, is located in the San Gabriel River Watershed in the San Gabriel Valley area (Exhibit 1h). The limits of Reach 43a are between Whittier Narrows Dam and San Gabriel River Parkway. Reach 43a has a total length of approximately 3,450 feet. The reach is found on the USGS Whittier 7.5 x 15-minute quadrangle map.

Reach 43b: San Gabriel – Lower

Reach 43b, San Gabriel River – Lower, is located in the San Gabriel River Watershed in the San Gabriel Valley area (Exhibit 1i). The limits of Reach 43b are San Gabriel River Parkway (upstream) and Beverly Boulevard (downstream). Reach 43b has a total length of approximately 3,050 feet. The reach is found on the USGS Whittier 7.5 x 15-minute quadrangle map.

Santa Clara River Watershed

Reach 71: Santa Clara River Main Channel (PD 1946)

Reach 71, Santa Clara River Main Channel (PD 1946), is located in the Santa Clara River Watershed in the City of Santa Clarita (Exhibit 1j). The limits of Reach 71 are approximately 276 feet upstream of McBean Parkway (at the confluence with the South Fork of the Santa Clara River) to the downstream edge of McBean Parkway. Reach 71 is 346 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

Reach 75: South Fork – Santa Clara River (PDs 725, 916, 1041, 1300)

Reach 75, South Fork – Santa Clara River (PDs 725, 916, 1041, 1300), is located in the Santa Clara River Watershed in the City of Santa Clarita (Exhibit 1k). The limits of Reach 75 are approximately 255 feet downstream of Lyons Avenue to the downstream edge of Magic Mountain Parkway. Reach 75 is 13,965 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

Reach 79: South Fork – Santa Clara River (Valencia Boulevard Bridge Stabilizer)

Reach 79, South Fork – Santa Clara River (Valencia Boulevard Bridge Stabilizer), is located in the Santa Clara River Watershed (Exhibit 1l). The limits of Reach 79 are the downstream edge of Valencia Boulevard to approximately 167 feet downstream of Valencia Boulevard. Reach 79 is 167 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

Reach 80: South Fork – Santa Clara River (PDs 1947 and 1946)

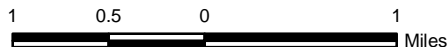
Reach 80, South Fork – Santa Clara River (PDs 1947 and 1946), is located in the Santa Clara River Watershed (Exhibit 1m). The limits of Reach 80 are approximately 3,080 feet upstream of McBean Parkway to approximately 276 feet upstream of McBean Parkway and the confluence



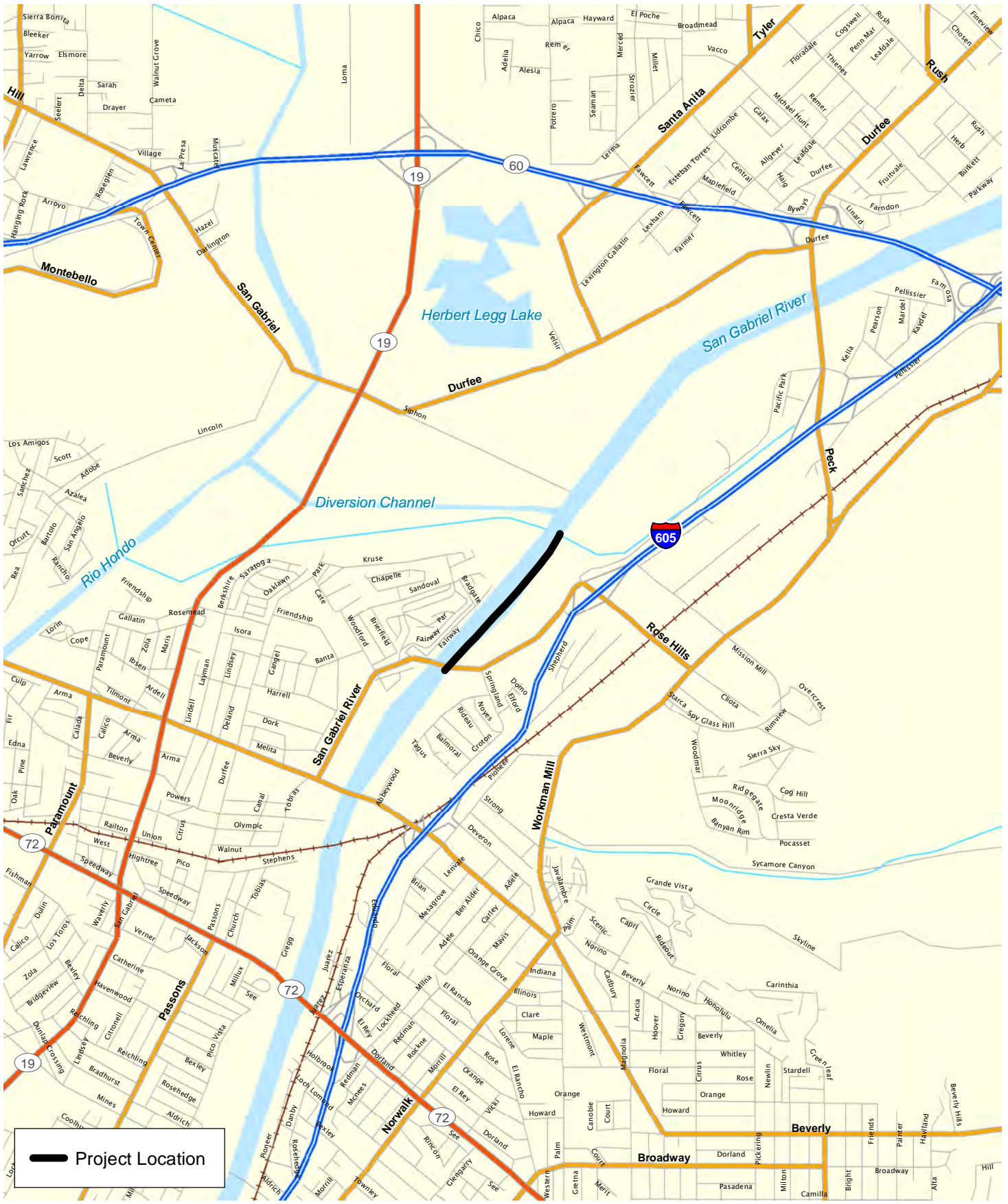
Project Location


Reach 40b: San Gabriel River - I-10 Freeway to Thienes Avenue
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1g



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 Project Location


Reach 43a: San Gabriel River - Upper
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1h





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 Project Location

Reach 43b: San Gabriel River - Lower
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1i

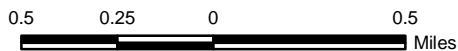




Reach 71: Santa Clara River Main Channel (PD 1946)

Exhibit 1j

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



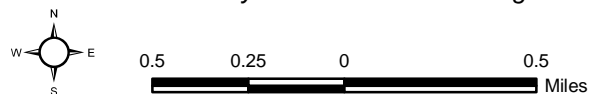


Project Location

Reach 75: South Fork – Santa Clara River (PDs 725, 916, 1041, 1300)

Exhibit 1k

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



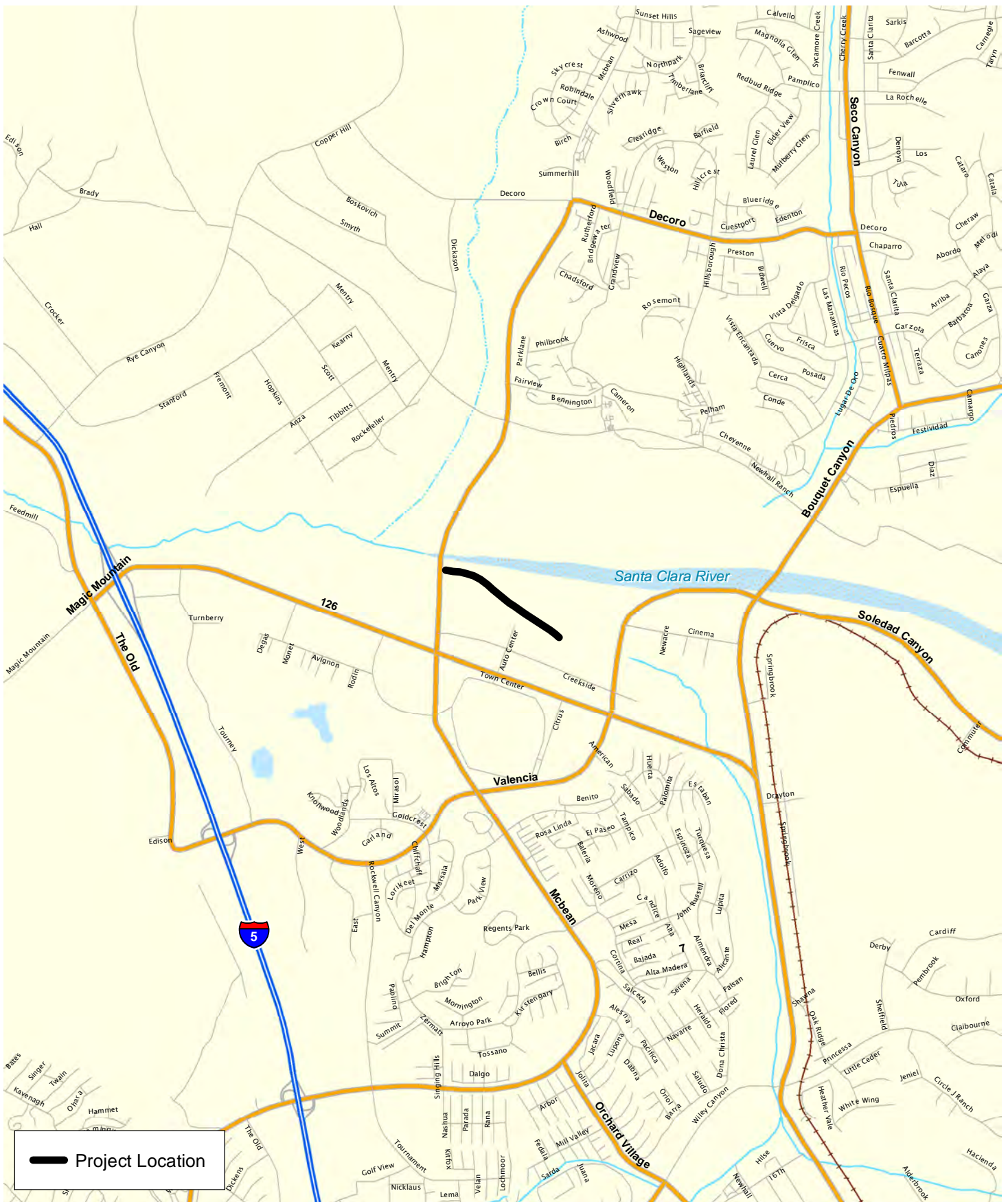


 Project Location

Reach 79: South Fork – Santa Clara River (Valencia Boulevard Bridge Stabilizer)
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 11





Reach 80: South Fork – Santa Clara River (PDs 1947 and 1946)
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1m



with Santa Clara River. Reach 80 is 2,804 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

Reach 82: Santa Clara River Main Channel (PD 2278)

Reach 82, Santa Clara River Main Channel (PD 2278), is located in the Santa Clara River Watershed approximately 0.75 mile east of the I-5 and Magic Mountain Parkway intersection in the City of Santa Clarita (Exhibit 1n). The upstream limits of Reach 82 are approximately 740 feet southeast of the intersection of Hopkins Avenue and Rockefeller Avenue to just south of the intersection of Hopkins Avenue and Rockefeller Avenue. Reach 82 is 865 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

Reach 86: Violin Canyon Main Channel Outlet

Reach 86, Violin Canyon Main Channel Outlet, is located in the Santa Clara River Watershed approximately 0.5 miles southeast of the I-5 and Lake Hughes intersection in the community of Castaic in unincorporated Los Angeles County (Exhibit 1o). The upstream limits of Reach 86 are approximately 1,021 feet downstream of Ridge Route Road to the confluence with Castaic Creek. Reach 86 is 946 feet in total length. The reach is found on the USGS Newhall USGS 7.5 x 15-minute quadrangle map.

Reach 87: Castaic – Old Road Drain (CDR 525.012D) Outlet

Reach 87, Castaic – Old Road Drain (CDR 525.021D) Outlet, is located in Castaic Creek in the Santa Clara River Watershed, approximately one mile northwest of the I-5 and Henry Mayo Drive (State Route [SR] 126) in the Castaic Junction community of unincorporated Los Angeles County (Exhibit 1p). The limits of Reach 87 are approximately 610 feet downstream of the intersection of Hasley Canyon Road and The Old Road to the confluence with Castaic Creek. Reach 87 is 240 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

Reach 97: Castaic Creek – The Old Road (PD 1982)

Reach 97, Castaic Creek – The Old Road (PD 1982), is located in Castaic Creek in the Santa Clara River Watershed in the Castaic Junction community of unincorporated Los Angeles County (Exhibit 1q). The limits of Reach 97 are approximately 300 feet downstream to 2,300 feet downstream of The Old Road. Reach 97 is 2,000 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle maps.

Reach 103: Bouquet Canyon Channel (PD 2225)

Reach 103, Bouquet Canyon Channel (PD 2225), is located in the Santa Clara River Watershed (Exhibit 1r). The limits of Reach 103 are approximately 173 feet downstream of the centerline of Newhall Ranch Road (beginning of Grouted Stone Toe) to the Metropolitan Water District's (MWD) Fee Right-of-Way on the right bank and the embankment turn at the Santa Clara River on the left bank. Reach 103 is 1,824 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

Reach 104: Castaic Creek (PD 2441 – Units 1 and 2)

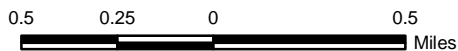
Reach 104, Castaic Creek (PD 2441 Unit 2), is located in Castaic Creek in the Santa Clara River Watershed. The limits of Reach 104 are approximately 669 feet upstream of the Muirfield Lane centerline to 478 feet downstream of the Turnberry Lane centerline (Exhibit 1s). Reach 104 is 2,186 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

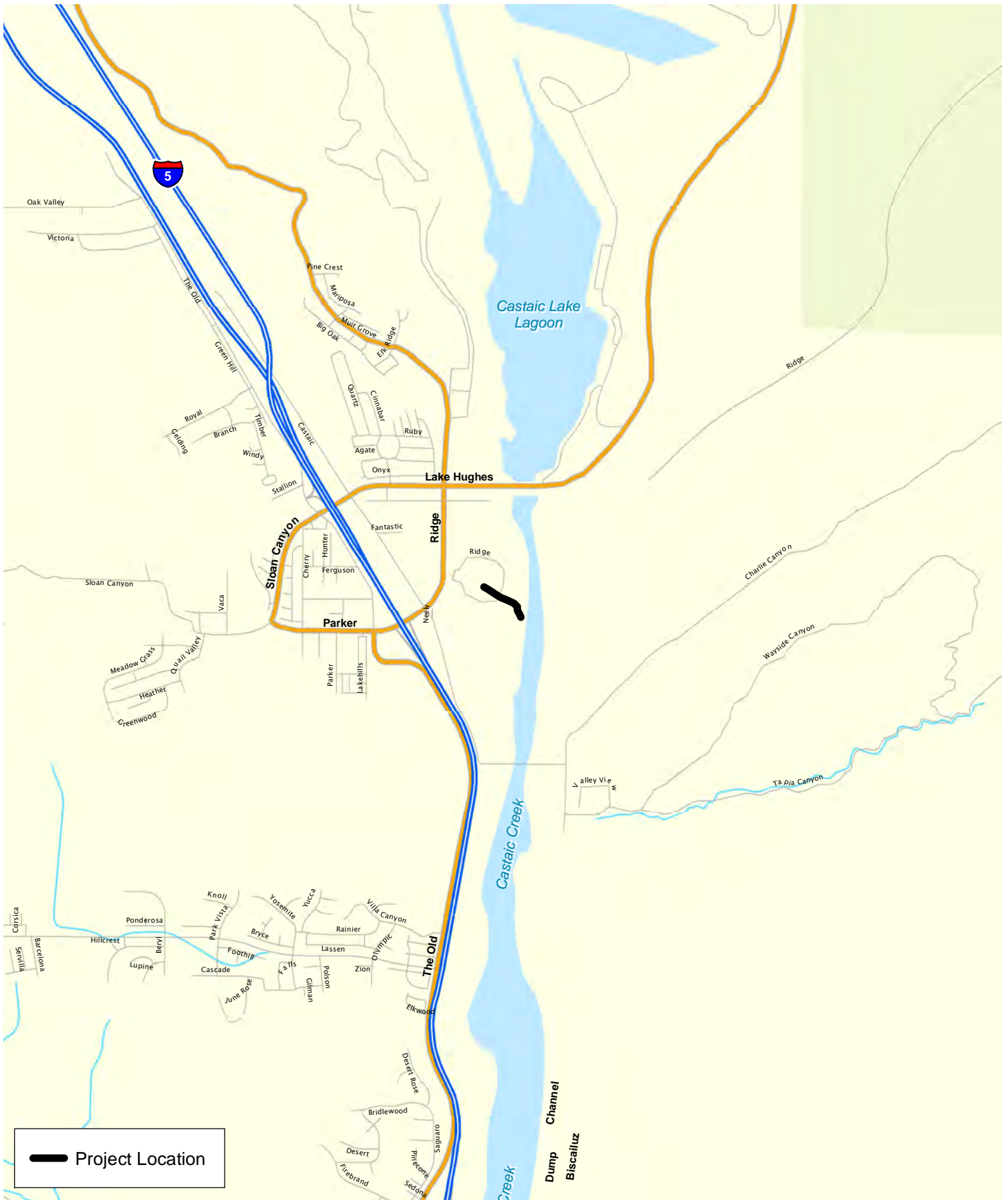


Reach 82: Santa Clara River Main Channel (PD 2278)

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

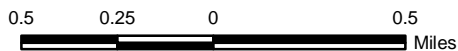
Exhibit 1n





Reach 86: Violin Canyon Main Channel Outlet

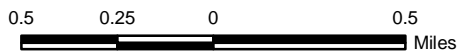
2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels





Reach 87: Castaic - The Old Road Drain (CDR 525.021D) Outlet
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1p

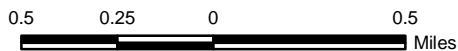


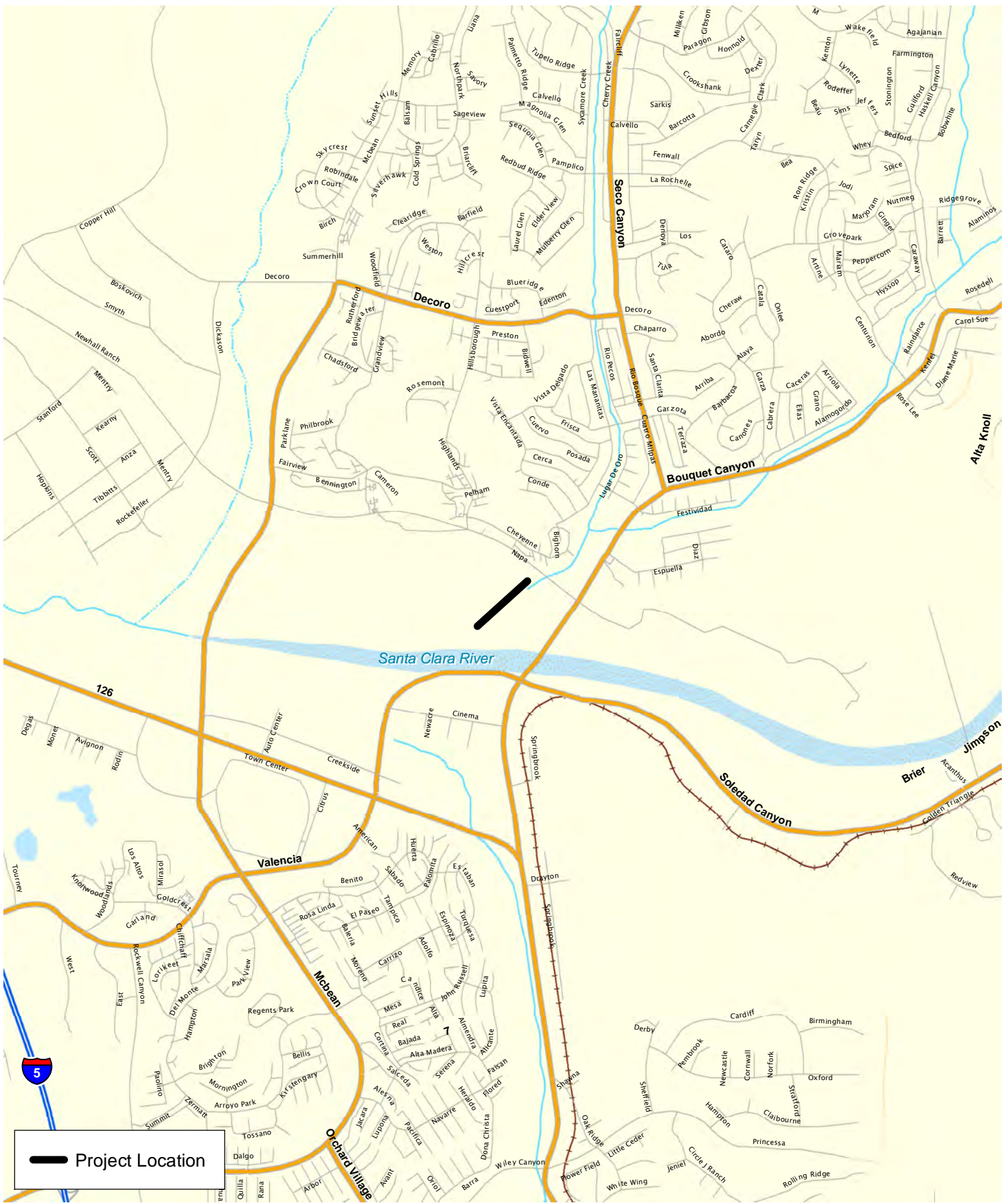


Reach 97: Castaic (PD 1982)

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1q

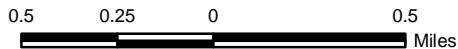


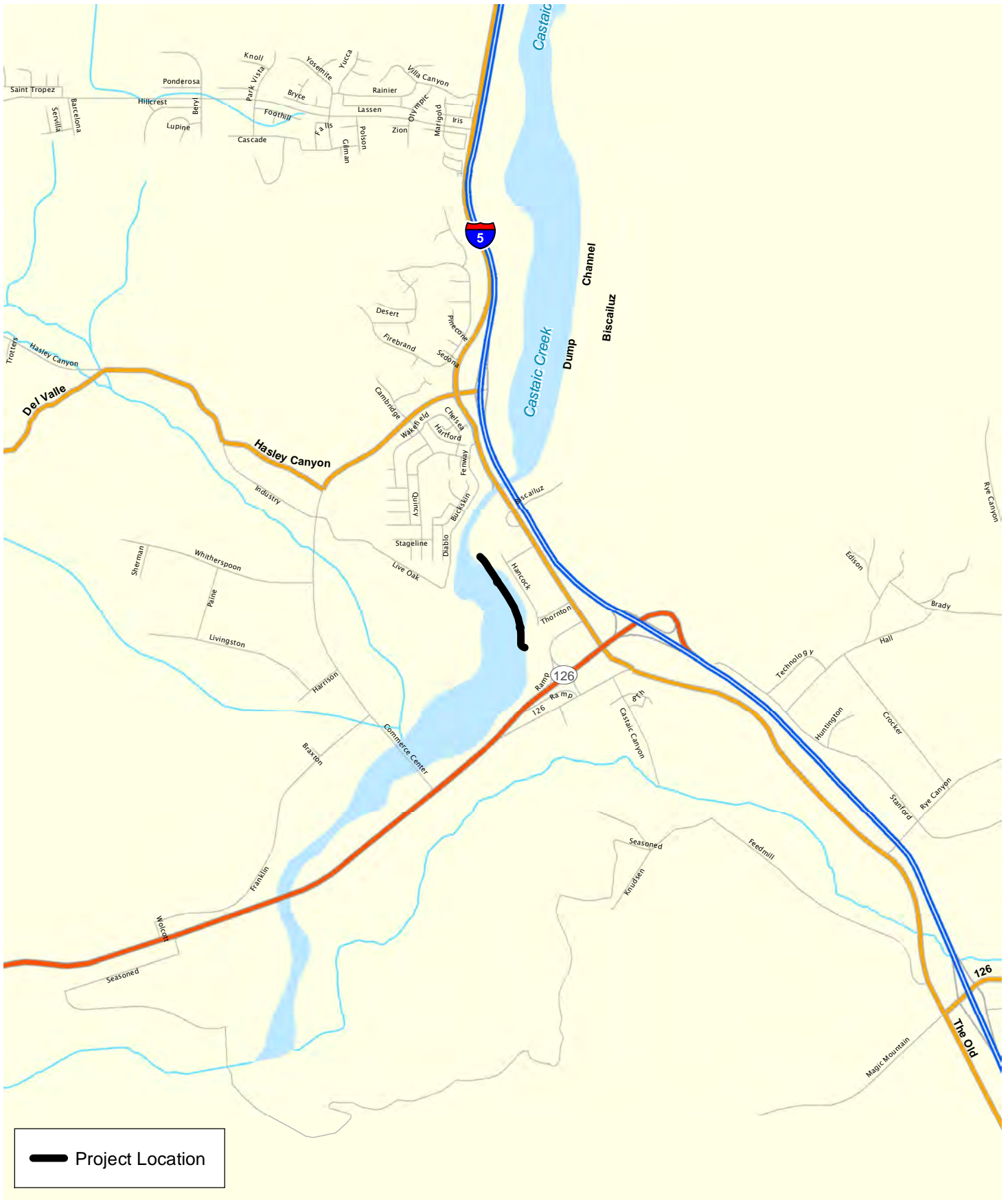


Reach 103: Bouquet Canyon Channel (PD 2225)

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1r

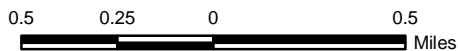




Reach 104 - Castaic (PD 2441 Units 1 and 2)

Exhibit 1s

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



Reach 105: San Francisquito Canyon Channel (PD 2456)

Reach 105, San Francisquito Canyon Channel (PD 2456), is located in the Santa Clara River Watershed in unincorporated Los Angeles County (Exhibit 1t). The limits of Reach 105 are approximately 417 feet upstream of the Decoro Drive centerline to 416 feet downstream of the Decoro Drive centerline. Reach 105 is 833 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

Reach 106: Castaic Drain Outlet (RMD Channel)

Reach 106, Castaic Drain Outlet (RMD Channel), is located in the Santa Clara River Watershed. The limits of Reach 106 are approximately the toe of grouted riprap apron to approximately 147 feet downstream of grouted riprap apron (Exhibit 1u). Reach 106 is 147 feet in total length. The reach is found on the USGS Newhall 7.5 x 15-minute quadrangle map.

Reach 109: Santa Clara River – South Bank West of McBean Parkway (MTD 1510)

Reach 109, Santa Clara River – South Bank West of McBean Parkway (MTD 1510), is an outlet located on the south bank (concrete levee) just west or downstream of McBean Parkway (Exhibit 1v). Reach 109 extends 371 feet from approximately 185 feet to 556 feet downstream of the McBean Parkway centerline. Reach 109 is found the USGS Newhall 7.5-minute quadrangle map.

Reach 110: Hasley Canyon Channel (PD 2262)

Reach 110, Hasley Canyon Channel (PD 2262), is located in the Santa Clara River Watershed (Exhibit 1w). It is a narrow channel of about ½ mile long with a relatively steep gradient. The reach is found on the USGS Val Verde (and close to the edge of Newhall) 7.5-minute quadrangle map.

1.2 PROPOSED PROJECT**1.2.1 Background**

To effectively control flood waters from the mountainous watersheds surrounding the Los Angeles Basin, the U.S. Army Corps of Engineers (USACE) and the LACFCD constructed concrete-bottom and earth-bottom channels leading from dams and debris basins located along the frontal slopes of the San Gabriel, Santa Monica, Verdugo, and Santa Susanna Mountains. Construction began in the 1930s. These channels, as a system, provide flood protection for Los Angeles County.

Channel maintenance activities have been performed regularly in Flood Control District channels for over 50 years. Originally constructed by the USACE, upon completion, most of the channel facilities were transferred to the LACFCD for cyclic maintenance. The USACE's maintenance guidelines require that "debris, objectionable growth, shoals, and waste materials must not encroach on the invert. Excess materials that will not move readily with low flows must be removed. Measures must be taken to control objectionable growth by approved chemical or mechanical means" (USACE 1996).

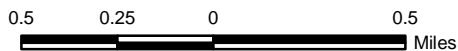
The County formerly maintained channels clear of any vegetation, as required under the *Code of Federal Regulations* (CFR, specifically Title 33, Section 208.10), until the California Department of Fish and Wildlife (CDFW) began requiring the County to clear vegetation on alternating sides of the channels each year. The USACE allowed limited clearing to occur between 1993 and 1995. Anticipated heavy rains during the 1997/1998 storm season caused by El Niño conditions resulted in a statewide need to remove vegetation and sediment from soft-bottom channels to restore their

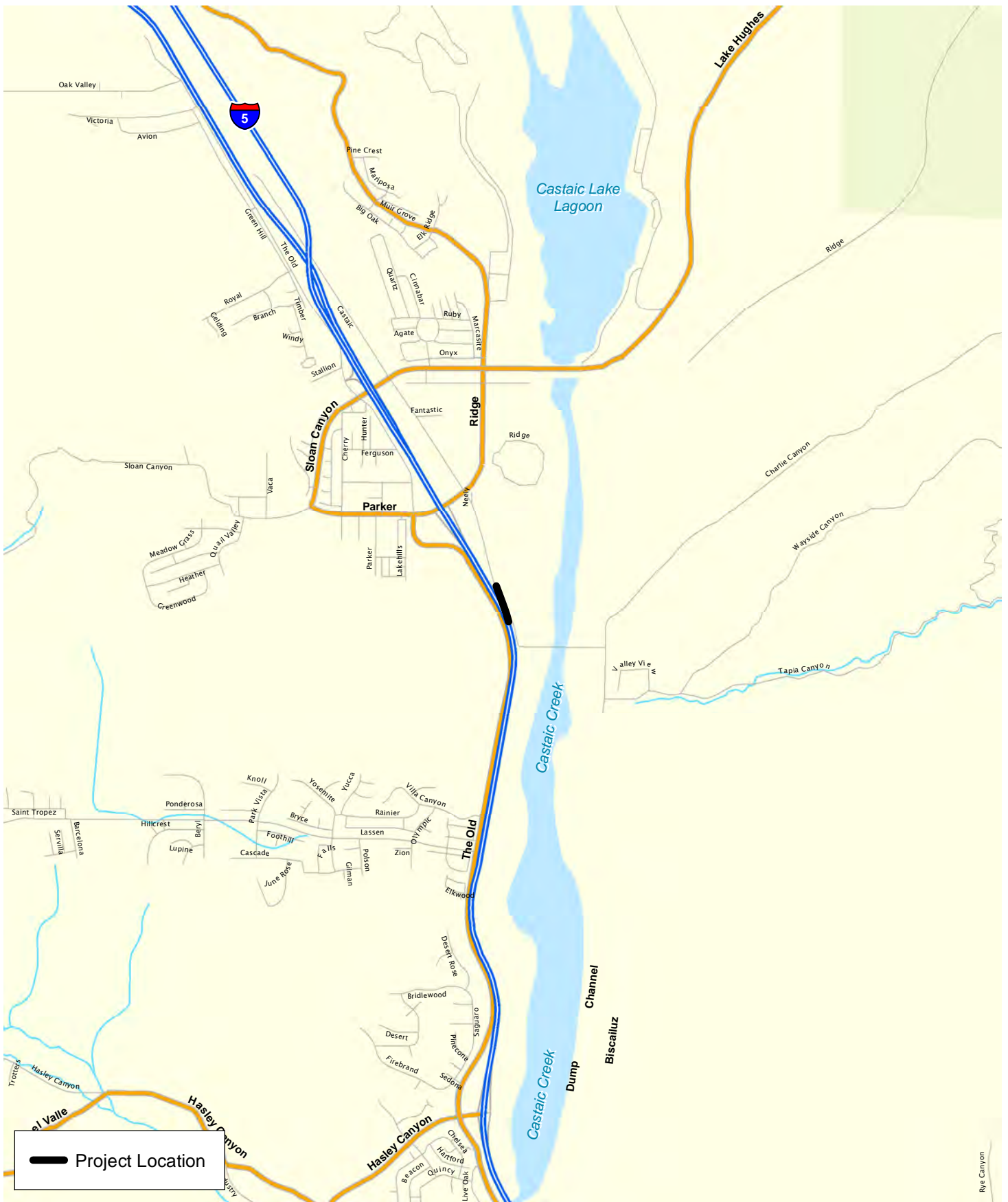


Reach 105: San Francisco Canyon Channel (PD 2456)

Exhibit 1t

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

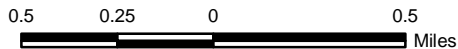





Reach 106: Castaic Drain Outlet (RMD Channel)

Exhibit 1u

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



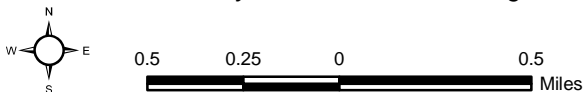


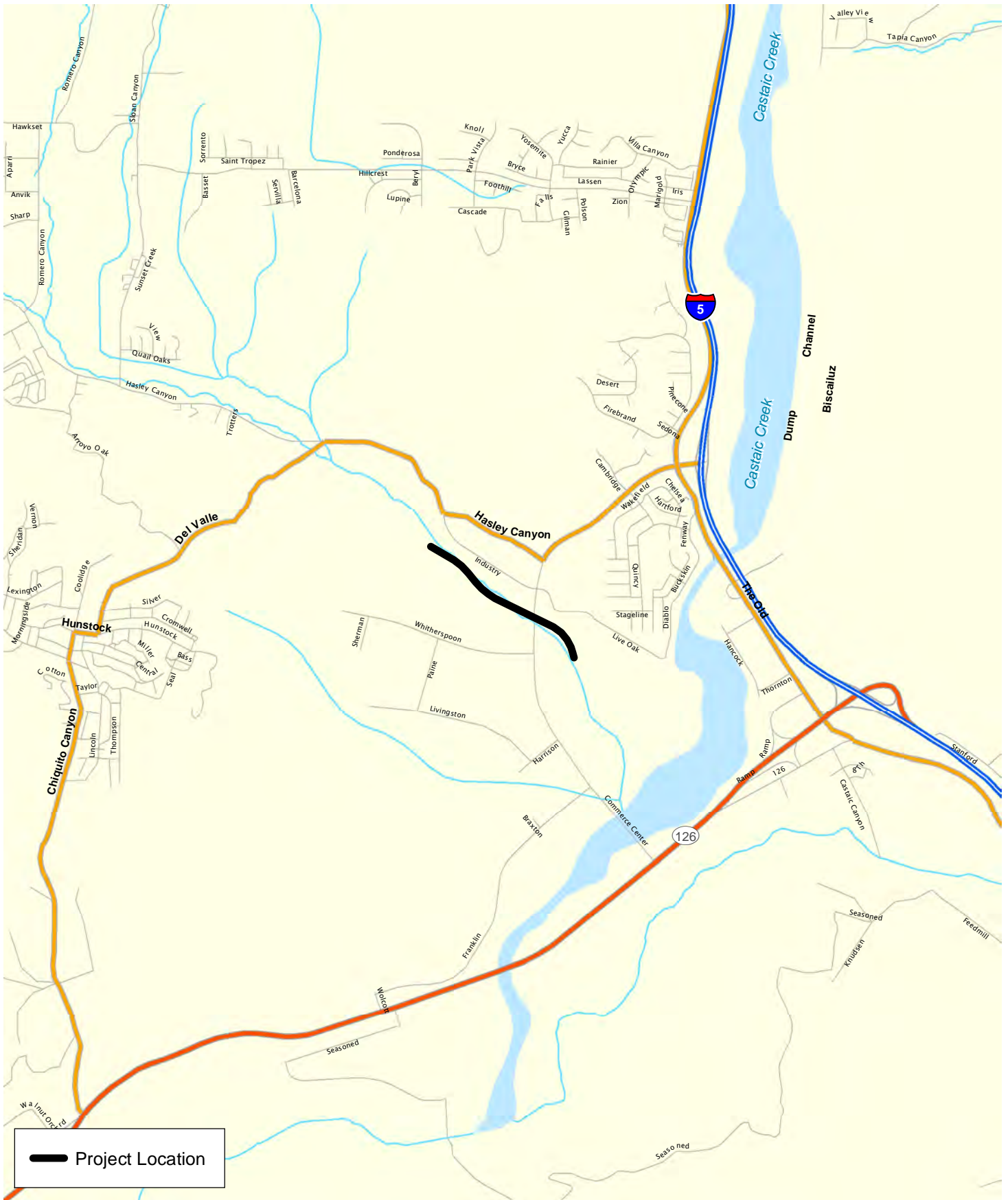
 Project Location


Reach 109: Santa Clara River – South Bank West of McBean Pkwy (MTD 1510)

Exhibit 1v

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



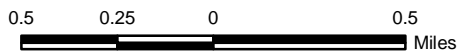


 Project Location

Reach 110: Hasley Canyon Channel (PD 2262)

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 1w



flood-carrying capacity. The LACFCD obtained all necessary permits to conduct this work in the 1997/1998 storm season and has continued the ongoing maintenance as approved by the permits.

1.2.2 Project Description

Vegetative growth in a channel system reduces channel capacity. All soft-bottom channels were designed and constructed as relatively clean, unvegetated channels. As vegetation grows more densely, the roughness of the channel increases and the velocity of flows decrease, which corresponds to a loss in the channel's carrying capacity. The vegetation also traps some of the sediments being transported by flood flows which, when deposited, further reduce channel capacity. Studies have shown that increased vegetation and sediments in the channels result in reduced flow area with a concomitant decrease in flow velocity. A loss of carrying capacity in the channels could cause flood flows to escape the channel systems and impact adjacent properties (LACDPW 1996).

Vegetation can also affect the structural integrity of bridges during a major storm event. Vegetation slows flood flows, which creates a backwater effect and increases water surface elevations upstream. Bridges are not normally designed to withstand the forces that result from significantly increased flood water elevations. Additionally, increased flood depths upstream can result in flooding of adjacent properties and erosion of channel banks.

The LACFCD performs minor grading and annual vegetation clearing in channels to retrain channel flows consistent with the clearing limits established by the permitted maintenance plan (BonTerra 1999). This ongoing program is necessary to maintain the design capacities of the channels and to ensure the proper functioning of these facilities located within the LACFCD boundaries.

Within each reach, the LACFCD proposes to clear the same areas (and acreage) that have been cleared annually since 1997. Biological impacts to these channel reaches associated with the initial clearing of vegetation for maintenance activities were previously mitigated through maintaining and enhancing 62.7 acres of riparian habitats at the Big Tujunga Wash Mitigation Bank site (BonTerra 1999).

Channel clearing activities are performed primarily by mechanical means, using heavy equipment (such as trucks, bulldozers, dump trucks, and loaders), as well as other specialized equipment designed for this type of work. Hand clearing is conducted in areas where mechanical equipment cannot be used or where important biological resources exist nearby. Herbicides approved by regulatory agencies are applied, as necessary, to eradicate invasive and/or non-native vegetation including, but not limited to, giant reed (*Arundo donax*) and castor bean (*Ricinus communis*).

The channel clearing activities are performed under an existing Maintenance Plan approved by the Los Angeles Regional Water Quality Control Board (RWQCB) and USACE and modified by the CDFW under the existing Streambed Alteration Agreement between CDFW and the LACFCD. BonTerra Psomas has reviewed the Maintenance Plan and has extensive knowledge of channel clearing activities in all channel reaches, having worked with the LACFCD since 1997 to provide biological monitoring of flood-control channel maintenance work. Pre-clearing and post-clearing photos have been taken every year to document the biological resources in these channel reaches in compliance with the mitigation requirements of existing permits from the USACE, RWQCB, and CDFW.

1.3 SPECIAL STATUS SPECIES BACKGROUND

In order to comply fully with the regulatory permits issued to the LACFCD, surveys are performed for a variety of special status species at soft-bottom channel reaches where suitable or potentially suitable habitat has been identified. For example, the permits require annual pre-clearing surveys for the federally and State-listed Endangered unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) and federally listed Threatened Santa Ana sucker (*Catostomus santaanae*). Results of these fish surveys were included with previous survey efforts (BonTerra 2002, 2003), but have since been reported separately to the LACFCD. This report provides the results of surveys for the arroyo toad (*Anaxyrus californicus*), least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*). Table 1 below shows the federal and State status of these three species.

**TABLE 1
STATUS OF SPECIES ADDRESSED**

Species	Status	
	USFWS	CDFW
Amphibians		
<i>Anaxyrus californicus</i> arroyo toad	FE	SSC
Birds		
<i>Vireo bellii pusillus</i> least Bell's vireo	FE	SE
<i>Empidonax traillii extimus</i> southwestern willow flycatcher	FE	SE*
USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Game USFWS FE Federally Endangered CDFW SE State Endangered SSC State Species of Special Concern * The State listing included all subspecies of willow flycatcher that breed in California.		

1.3.1 Arroyo Toad

The arroyo toad was listed as a federally Endangered species by the USFWS on January 17, 1995 (CDFW 2015a) and is a California Species of Special Concern (CDFW 2015b). At the time of listing, the arroyo toad was one of two subspecies of the southwestern toad (*Bufo microscaphus*), but subsequent genetic studies resulted in the separation of arroyo toad (*B. californicus*) from the Arizona toad (*B. microscaphus*) (Gergus 1998). Recent research placed both species in the genus *Anaxyrus* (Frost et al. 2006).

This is a rather uniformly warty and stocky toad with a light-colored stripe across the head that includes the eyelids. The parotoid glands are oval-shaped, widely separated, and pale toward the front. The underside of the arroyo toad is usually buff-colored and unspotted, and the cranial crests are absent or weak. The typical size (snout to vent) range of reproductive adult toads is 2 to 2.6 inches for males and 2.6 to 3.1 inches for females (Sweet 1992, 1993). Tadpoles reach an average maximum length of 1.3 inches (maximum of 1.6 inches) and are black at hatching. Soon after hatching, the tadpoles develop a tan-colored dorsum with crossbars on the tail and an opaque, white abdomen (venter) before metamorphosing (Sweet 1992).

Early descriptions of the habitat requirements for the arroyo toad are based on detailed life history studies conducted over a period of years by Sweet (1992, 1993). Much of that work was

conducted in the Los Padres National Forest in Santa Barbara County. Subsequent to this work, additional studies of populations in other portions of the range have resulted in a somewhat broader habitat description (e.g., Griffin et al. 1999; Ramirez 1999, 2000, 2001, 2002a, 2002b, 2002c). It can generally be said that the arroyo toad frequents third order washes, streams, and arroyos in semiarid parts of the southwest. Stream substrates range from sands to small cobble, with sandy banks supporting mule fat (*Baccharis salicifolia*), willows (*Salix* spp.), cottonwoods (*Populus* spp.), and/or sycamores (*Platanus racemosa*). The arroyo toad breeds both within streams and in small backwater pools that form along the stream margins, usually in relatively shallow water (about four inches) with sand or gravel substrate.

Arroyo toads are primarily nocturnal, except during the breeding season when they are sometimes active during daylight hours. These toads will move extensively in upland habitats, at least seasonally. Adult males will sometimes travel 1.2 to 1.9 miles along a stream course, often becoming more sedentary once reaching a large size. Females are more sedentary, typically maintaining an area of movement less than 330 feet in diameter. Adults mostly feed on ants, particularly nocturnal ants such as the trail-forming tree ants (*Liometopum occidentale*), but will also consume other invertebrates. Tadpoles are substrate gleaners, feeding on detritus and microbial mats from just beneath the surface layer of fine sediments or within the interstices of gravel deposits (Sweet 1992).

During the breeding season, typically from February to July, males will make advertisement vocalizations above water from shallow areas along the creek margins. The advertisement call is a whistling trill that lasts from 4 to 9 seconds in duration and is audible up to 300 meters under ideal conditions (Gergus et al. 1997). Egg strings of 2,000 to 10,000 eggs are deposited in shallow water (less than 4 inches in depth) on fine sediment with very low current and hatch 4 to 6 days later. Larval stage length ranges from 65 to 80 days post-hatching (Sweet 1992).

On February 7, 2001, the USFWS published a final rule designating 182,360 acres of land in California including parts of Monterey, Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties as critical habitat for the arroyo toad (USFWS 2005a). Following the designation of critical habitat, several lawsuits were filed challenging various aspects of the designation. In response to these lawsuits, the critical habitat designation was vacated and the USFWS was instructed by the court to re-evaluate its previous position.

On April 28, 2004, the USFWS published a final rule designating 11,695 acres of critical habitat for the arroyo toad in portions of Santa Barbara, Ventura, Los Angeles, San Bernardino, and Riverside Counties (USFWS 2005a). Further lawsuits were filed that successfully challenged this final rule and resulted in another proposed rule for revised critical habitat that was published in the *Federal Register* on October 13, 2009 (USFWS 2009). The revised critical habitat final rule was released on February 9, 2011, and included 98,366 acres in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties, California (USFWS 2011).

Reaches 87, 97, and 104 are located within Subunit 6b of critical habitat. Unit 6b encompasses approximately 2.6 miles (mi, which is 4.2 kilometers [km]) of Castaic Creek from the downstream edge of The Old Road right-of-way (adjacent to I-5) down to the confluence with the Santa Clara River and 4 mi (6.4 km) of the Santa Clara River from the confluence with San Francisquito Creek down to the confluence with Castaic Creek. The closest known population for this species occurs in Subunit 6a in Castaic Creek upstream of the reservoir approximately 7.5 miles north of Reach 86, Violin Canyon Main Channel Outlet.

In December 2011, USFWS received a petition to reclassify the arroyo toad from Endangered to Threatened based on analysis and recommendations contained in the August 2009 5-year status review of the species. After review, USFWS found the petitioned action was warranted, and

proposed to reclassify the arroyo toad from an Endangered species to a Threatened species on the Federal List of Endangered and Threatened Wildlife on March 27, 2014 (USFWS 2014b). The comment period on the petition closed on November 17, 2014 and a determination was expected by March 27, 2015 (USFWS 2014a); however, a final determination has not yet been announced.

1.3.2 Least Bell's Vireo

The least Bell's vireo was formerly a common, even locally abundant summer resident of Southern California's lowland riparian woodlands (Grinnell and Miller 1986). The substantial population decline of this avian species over the latter half of the twentieth century is attributable to the loss and degradation of riparian habitats and, perhaps more importantly, brood parasitism by the brown-headed cowbird (*Molothrus ater*). The least Bell's vireo was listed by the CDFW as State Endangered on October 2, 1980, and by the USFWS as federally Endangered on May 2, 1986 (CDFW 2015a).

The Bell's vireo is a neotropical migrant that breeds in central and southwestern North America from northern Mexico to Southern California, Nevada, and Utah, east to Louisiana, and north to North Dakota, Wisconsin, and Indiana in the central U.S. (AOU 1998). The winter range of this vireo, although not well known, is believed to be the west coast of Central America from southern Sonora south to northwest Nicaragua, including the cape region of Baja California, Mexico (Brown 1993). Of the four Bell's vireo subspecies, only two breed in California: the least Bell's vireo and the Arizona Bell's vireo (*V. b. arizonae*), which occurs in the Colorado River Valley (Garrett and Dunn 1981; Rosenberg et al. 1991). Though the least Bell's vireo was formerly considered a common breeder in riparian habitats throughout the Central Valley and other low elevation river systems in California and Baja California, Mexico, it had been eliminated from much of its historical range by the time of its listing in 1986 (Franzreb 1989; Brown 1993). Recovery efforts since its listing have included habitat protection, removal of exotic species (particularly giant reed), and brown-headed cowbird trapping programs. The least Bell's vireo population has increased tenfold from 291 territories in the early 1980s to an estimated 2,968 territories 20 years later (USFWS 2006). After a decade or more of absence in Los Angeles County, the least Bell's vireo returned by the mid-1980s with a pair reported from Whittier Narrows in 1985 and 1986 (Long 1993). Numbers of least Bell's vireo have continued to increase since that time, and it is now known to occur at several other locations in Los Angeles County such as the San Fernando (Van Norman) Dam; the San Gabriel River at Fish Canyon and Van Tassel Canyon; the Sepulveda Basin Wildlife Area; and the Castaic Lagoon Recreation Area (CDFW 2015c). The two largest populations in the county are at Hansen Dam in the northeastern corner of the San Fernando Valley where 44 least Bell's vireo territories were present in 2009 (Griffith Wildlife Biology 2009) and on the Santa Clara River from I-5 downstream to the Las Brisas Bridge where 56 least Bell's vireo territories were present in 2007 (Bloom Biological, Inc. 2007).

Least Bell's vireo breeding habitat is primarily riparian habitats dominated by willows with dense understory vegetation. Shrubs such as mule fat and California rose (*Rosa californica*) are often a component of the understory (Goldwasser 1981). The least Bell's vireo is often found in areas that include trees such as willow, sycamore, or cottonwood, particularly where the canopy is within or immediately adjacent to an understory layer of vegetation (Salata 1983). The least Bell's vireo generally nests in early successional stages of riparian habitats, with vireo nest sites frequently located in willows that are between four and ten years of age (RECON 1988; Franzreb 1989). The most critical factor in habitat structure is the presence of a dense understory shrub layer from approximately two feet to ten feet above ground (Goldwasser 1981; Salata 1983; Franzreb 1989).

On February 2, 1994, the USFWS published a final critical habitat for the least Bell's vireo designating approximately 37,560 acres of land in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties, California (USFWS 1994b). Designated critical habitat in Los Angeles County is located only in the Santa Clara River from the I-5

(Golden State) Freeway west to the Ventura County line. The surveyed soft-bottom channel reaches are all located outside the critical habitat for this species.

1.3.3 Southwestern Willow Flycatcher

The southwestern willow flycatcher was formerly a common summer resident of Southern California's lowland riparian woodlands and up into mountain canyons (Garrett and Dunn 1981). By the 1970s, the southwestern willow flycatcher was considered to be absent as a breeder in Southern California (McCaskie 1975). The virtual extirpation of this species as a breeder in Southern California has been attributed to the loss and degradation of riparian habitats and brood parasitism by the brown-headed cowbird. All willow flycatchers breeding in California—which include the subspecies *E. t. brewsteri* and *E. t. adastus* in addition to the southwestern willow flycatcher—were listed by the CDFW as State Endangered on January 2, 1991 (CDFW 2015a). The USFWS listed the southwestern willow flycatcher as federally Endangered on February 7, 1995 (USFWS 1993b).

The willow flycatcher is a neotropical migrant that breeds in the west from northern Baja California, Mexico to central British Columbia, Canada and generally east through the northern half of the United States to the Atlantic coast (AOU 1998). The willow flycatcher winters in Central America from Nayarit, Mexico (Pacific coast) and Honduras (Gulf of Mexico coast) to Panama and also to northern Colombia and northwest Venezuela. Depending on the authority, there are four or five recognized subspecies of willow flycatcher (Sedgwick 2000). The breeding range of the southwestern willow flycatcher includes Southern California, Arizona, New Mexico, western Texas, and extreme southern parts of Nevada and Utah (USFWS 1993b).

The California population of southwestern willow flycatchers breeds along the coast north of Baja California to the Santa Ynez River, Santa Barbara County, and north in the interior to about Independence, Inyo County (Unitt 1987). Besides the Colorado River, there are five drainages in California that support major breeding populations of southwestern willow flycatcher: the South Fork of the Kern River in Kern County; the Santa Margarita River on Camp Pendleton and the San Luis Rey River in San Diego County; the Santa Ana River in Riverside and San Bernardino Counties; and the Owen's River in Inyo and Mono Counties (Durst et al. 2007). In the 1970s, the southwestern willow flycatcher was believed to have been extirpated from coastal Southern California (Remsen 1978), but small numbers were found during the late 1970s and early 1980s in San Diego County (Unitt 1984). An early population estimate for the southwestern willow flycatcher in California was 70 pairs (USFWS 1993b). More recent population estimates are higher, such as 200 territories in 2004 and 190 territories in 2006, and are more likely the result of increased survey effort rather than a population increase (Durst et al. 2005; Durst et al. 2007).

The southwestern willow flycatcher breeds in willow-dominated riparian habitats that are similar to least Bell's vireo nesting habitats. The southwestern willow flycatcher differs from least Bell's vireo in that it shows a stronger dependency on willow thickets for all its requirements (Grinnell and Miller 1986). In addition, the southwestern willow flycatcher appears to have a preference for sites with surface water in the vicinity, such as along streams, on the margins of a pond or lake, and at wet mountain meadows (Grinnell and Miller 1986; Flett and Sanders 1987; Harris et al. 1987); in Arizona, the southwestern willow flycatcher invariably nests near surface water (Phillips et al. 1964). Recently, the southwestern willow flycatcher has adapted to introduced vegetation present in riparian vegetation types, such as tamarisk (*Tamarix* sp.) and Russian olive (*Elaeagnus angustifolia*) (USFWS 1993b).

The willow flycatcher is a common migrant in the interior of California and a rare to uncommon migrant along the coastal slope, with most birds moving through Southern California between May 15 and June 20 during the spring season (Garrett and Dunn 1981; Unitt 1987). The spring migration of southwestern willow flycatcher is earlier than that of the northern subspecies

(Unitt 1987; USFWS 1993b). As a result, surveys for nesting southwestern willow flycatchers are complicated by the presence of more abundant subspecies migrating through its range during its breeding season.

On October 19, 2005, the USFWS published a final rule designating critical habitat for the southwestern willow flycatcher (USFWS 2013). This final rule designated 120,824 acres in Arizona, California, Nevada, New Mexico, and Utah as critical habitat. Following lawsuits, the USFWS recently issued a revised final rule on January 3, 2013. This final rule designates critical habitat that covers 2,090 stream miles in California, Nevada, Utah, Colorado, Arizona, and New Mexico. This final rule uses a slightly different methodology to designate critical habitat. For example, it includes areas that are considered essential for the recovery of the species even if they were not occupied at the time of the species' listing. These new stream segments include Castaic Creek (3.0 miles), Little Tujunga (1.4 miles), Big Tujunga (3.0 miles), and the San Gabriel River (8.8 miles) (USFWS 2013). Three Castaic Creek channel reaches (Reaches 71, 80, 82, and 109), and one San Gabriel River channel reach (Reach 39) are located within this revised critical habitat.

2.0 SURVEY METHODS

BonTerra Psomas has worked with the LACFCD since 1997 to provide biological monitoring of flood-control channel maintenance work in soft-bottom channel reaches. In addition to the biological monitoring of the maintenance work, pre-clearing and post-clearing photos have been taken every year to document the biological resources in these channel reaches in compliance with the mitigation requirements of existing permits from the USACE, RWQCB, and CDFW. BonTerra Psomas has assisted the LACFCD in preparing their maintenance plan for the channels, which follows permit conditions from the USACE, RWQCB, and CDFW. These permit conditions recommend surveys for arroyo toad, least Bell's vireo, and southwestern willow flycatcher where there is suitable habitat for these species; these conditions have been incorporated into the LACFCD's *Maintenance Plan for the Annual Clearing of Soft-bottom Flood Control Channels*.

For each species surveyed, the surveys were conducted according to USFWS protocols. The biologists conducted the surveys at the most appropriate time of day to ensure maximum opportunity to observe the species.

2.1 SPECIAL STATUS AMPHIBIAN SPECIES

2.1.1 Arroyo Toad

The initial studies conducted in 2002 included a background literature review and habitat assessment for each of the soft-bottom channel reaches that represented suitable arroyo toad breeding and/or upland habitat. The literature review included the reviewing relevant literature on the presence of the arroyo toad within and/or adjacent to each reach including areas both upstream and downstream. This included review of *Federal Register* listings, protocols, and species data provided by the USFWS; review of the CDFW's California Natural Diversity Database (CNDDDB); consultation with qualified experts familiar with the distribution and natural history of the arroyo toad; and review of unpublished biological resource letter reports and assessments conducted in the region.

Focused surveys for the arroyo toad were conducted in 2015 at 11 channel reaches: Castaic Creek Reaches 86, 87, and 97, and Reach 104; San Francisquito Wash Reach 105; South Fork Santa Clara River Reaches 75 (but only the northern part of Reach 75 from Magic Mountain Parkway upstream to the Via Princessa bridge) and 79; Reach 80 at the confluence of the Santa Clara and South Fork Santa Clara Rivers; and Santa Clara River Reaches 71, 82, and 109.

The surveys followed the guidelines presented in the USFWS' *Survey Protocol for the Arroyo Toad* (1999). Each of the channel reaches were surveyed on foot to characterize aquatic (breeding) and upland habitat (refugia) types and to document any characteristic sign (e.g., clutches, larvae, juveniles, adults). Also, as stated in the USFWS protocol, areas within 0.6 mile of documented arroyo toad sites (previously documented by the presence of eggs, larvae, juveniles, or adults) that have suitable habitat would be presumed to have arroyo toads (USFWS 1999). In addition to following the guidelines outlined above, all field surveys adhered to recommended equipment decontamination procedures outlined in Attachment B of the California Red-legged Frog survey guidelines (USFWS 2005b).

Six surveys following the USFWS' recommended protocol were conducted at each of the channel reaches. These surveys included both a diurnal and nocturnal component. The initial (diurnal) surveys included walking each reach in an effort to assess and document the suitability of breeding and upland habitat for the arroyo toad. These initial surveys also focused on locating

any areas of inundation that may have represented suitable breeding pools (egg clutches and/or tadpoles). These surveys identified portions within each reach with the highest probability to support the arroyo toad. Following the initial surveys, areas identified during the daytime surveys were visited again at night in order to detect active toads. The same routes were covered repeatedly throughout the evening to ensure that no individuals went undetected. Survey data is presented in Table 2. A list of wildlife species recorded by Reach during these surveys is in Attachment B of this report.

**TABLE 2
SUMMARY OF 2015 ARROYO TOAD SURVEY CONDITIONS***

Survey	Reaches Surveyed	Surveying Biologists	Survey Date (2015)	Survey Conditions			
				Wind (mph)	Temperature (°F)	Relative Humidity (%)	Lunar Phase (% illuminated)
1	80, 82, 105, 109	S. Stewart, C. Demetropoulos	3/31	0-3	64-82	18-35	80
1	71, 75, 79	S. Stewart, C. Demetropoulos	4/1	0-1	50-77	16-28	83
1	86, 87, 97, 104	S. Stewart, J. Mintzer	4/2	0-2	52-78	7-25	86
2	80, 82, 105, 109	S. Stewart, J. Mintzer	4/9	0-6	50-76	13-65	0
2	71, 75, 79	S. Stewart, C. Demetropoulos	4/16	0-3	52-77	7-27	0
2	86, 87, 97, 104	S. Stewart, J. Mintzer	4/17	0-6	53-82	8-22	0
3	80, 82, 105, 109	S. Stewart, J. Mintzer	4/24	0-7	55-61	65-77	45
3	71, 75, 79	S. Stewart, J. Mintzer	4/30	0-9	53-86	8-21	70
3	86, 87, 97, 104	S. Stewart, J. Mintzer	5/7	0-7	47-58	50-87	0
4	80, 82, 105, 109	S. Stewart, C. Demetropoulos	5/14	0-3	49-52	68-88	0
4	71, 75, 79	S. Stewart, J. Mintzer	5/21	2-7	55-61	52-66	0
4	86, 87, 97, 104	S. Stewart, J. Mintzer	5/22	0-6	56-62	50-74	45
5	80, 82, 105, 109	S. Stewart, J. Mintzer	5/29	0-2	60-89	23-56	79
5	71, 75, 79	S. Stewart, J. Mintzer	6/4	0-3	61-89	23-54	0
5	86, 87, 97, 104	S. Stewart, C. Demetropoulos	6/11	0-4	62-90	27-73	77
6	80, 82, 105, 109	S. Stewart, J. Mintzer	6/18	0-3	70-98	11-35	0
6	71, 75, 79	S. Stewart, J. Mintzer	6/25	0-6	68-93	9-49	2
6	86, 87, 97, 104	S. Stewart, J. Mintzer	6/29	0-3	70-100	10-55	0

mph: miles per hour; °F: degrees Fahrenheit
* All measurements taken with a Kestrel 3500 weather meter

2.2 SPECIAL STATUS BIRD SPECIES

The initial literature review in 2002 included all relevant and available documentation on the presence of the least Bell's vireo and southwestern willow flycatcher in Los Angeles County. This included review of *Federal Register* listings, protocols, and species data provided by the USFWS; the CDFW's CNDDDB; consultation with qualified experts familiar with the distribution and natural history of the least Bell's vireo and southwestern willow flycatcher; and review of unpublished biological resource letter reports and assessments.

Based on the results of prior BonTerra Psomas surveys of the channel reaches, the 2015 focused surveys for the least Bell's vireo and southwestern willow flycatcher were scheduled to be conducted at 23 channel reaches where they have potential to occur: 3 channel reaches in the Los Angeles River Watershed (Reaches 7, 12, and 14); 1 channel reach in the Dominguez Channel Watershed (Reach 27); 1 channel reach in the Malibu Creek Watershed (Reach 28); 4 channel reaches in the San Gabriel River (Reaches 39, 40b, 43a, and 43b); and 14 channel reaches in the Santa Clara River and Castaic Creek drainages (Reaches 71, 75, 79, 80, 82, 86, 87, 97, 103, 104, 105, 106, 109, and 110). At the request of the Ventura USFWS, however, protocol surveys for the southwestern willow flycatcher were not performed at eight Santa Clara River Watershed channel reaches (Reaches 71, 75, 79, 80, 82, 103, 105, and 109) because of overlapping survey areas with another project that had been issued prior notice to proceed with the same surveys in 2015. The USFWS was concerned that concurrent protocol surveys could result in undue harassment of any potentially present southwestern willow flycatcher. Surveys for this project followed the USFWS protocol for both species, except for Reaches 71, 75, 79, 80, 82, 103, 105, and 109 where only the least Bell's vireo protocol was fully implemented. These surveys were conducted by BonTerra Psomas Biologists Brian Daniels (Recovery Permit No. 821401-4), Jonathan Feenstra (Recovery Permit No. 128462-2), Sarah Thomas, and Steve Morris, and Consulting Biologist James Pike (Recovery Permit No. 832946-4).

The USFWS survey protocol for southwestern willow flycatcher was updated in June 2010 (Sogge et al. 2010). The changes affected the timing of surveys, not the number or method of conducting each survey. A minimum of five surveys must still be performed to determine absence from a project site. As previously, the five surveys must be performed within three specified time periods at least five days apart. As before, the first survey must still be conducted between May 15 and May 31, but now two surveys are required in the second survey window which has been increased in length by three days from June 1 to June 24. The third survey window is now three days shorter, but only two surveys need to be conducted between June 25 and July 17. The survey protocol for least Bell's vireo remains the same with a minimum of eight surveys being conducted at least ten days apart between April 10 and July 31. Surveys for the least Bell's vireo and southwestern willow flycatcher can be performed simultaneously because of their similar habitat requirements.

The survey area consisted of all riparian habitats in each reach. The riparian habitat was systematically surveyed by walking slowly and methodically along two transects (downstream then upstream or the reverse) with some variance depending on streambed width. Recorded vocalizations of southwestern willow flycatcher were used to elicit a response from any potentially territorial southwestern willow flycatcher; recorded vocalizations of least Bell's vireo were not used according to the protocol for this species. If no southwestern willow flycatchers were detected after the initial playing of the vocalization, the recording was usually replayed at least once. Any observations of willow flycatcher (all subspecies) and least Bell's vireo, including any pertinent behavior, were recorded and their locations mapped in the field. It should be noted that all subspecies of breeding willow flycatcher in California are listed as State Endangered species; however, only breeding locations are protected.

The surveys were conducted under optimal weather conditions and during the early morning hours when bird activity is at its peak. Numbers were recorded for all bird species detected during the surveys, including notable observations of any special status species or other birds such as the brown-headed cowbird. Survey data are presented in Table 2. Daily tallies of all bird species recorded during these surveys are included in Attachment A.

**TABLE 3
SPECIAL STATUS BIRD SURVEY DATA**

Reaches Surveyed	Survey Dates	Surveying Biologist
7, 27, 28	4/14/2015	S. Morris
	4/24/2015	B. Daniels
	5/5/2015	S. Morris
	5/16/2015	
	5/27/2015	
	6/9/2015	
	6/19/2015	
	6/30/2015	
	7/12/2015	
7/12/2015	B. Daniels	
12, 14, 39	4/13/2015	S. Morris
	4/20/2015	S. Thomas
	5/4/2015	S. Morris
	5/14/2015	
	5/30/2015	J. Feenstra
	6/10/2015	
	6/20/2015	B. Daniels
	6/28/2015	J. Feenstra
	7/12/2015	
40b, 43a, 43b	4/10/2015	J. Pike
	4/20/2015	
	5/2/2015	
	5/13/2015	
	5/23/2015	
	6/2/2015	
	6/12/2015	
	6/26/2015	
	7/10/2015	
71, 75, 79, 80	4/11/2015	J. Pike
	4/22/2015	
	5/4/2015	
	5/16/2015	
	5/26/2015	S. Morris
	6/5/2015	
	6/17/2015	
	6/29/2015	

**TABLE 3
SPECIAL STATUS BIRD SURVEY DATA**

Reaches Surveyed	Survey Dates	Surveying Biologist
82, 105, 109	4/11/2015	S. Morris
	4/21/2015	
	5/1/2015	
	5/12/2015	
	5/22/2015	
	6/3/2015	
	6/15/2015	
	6/25/2015	
87, 97, 104, 106	4/10/2015	S. Morris
	4/20/2015	
	4/30/2015	
	5/11/2015	
	5/25/2015	J. Pike
	6/4/2015	
	6/14/2015	
	6/28/2015	
7/12/2015		
86, 103, 110	4/12/2015	S. Morris
	4/22/2015	
	5/3/2015	
	5/13/2015	
	5/26/2015	B. Daniels
	6/8/2015	
	6/18/2015	
	6/29/2015	
	7/10/2015	

3.0 SURVEY RESULTS

The following section presents the results of the 2015 focused surveys conducted in the survey areas described above in Section 1.1.2. No arroyo toads were observed during these surveys. A total of 17 least Bell's vireo territories were established in Reaches 7, 14, 39, 40b, 43a, and 103 during the 2015 surveys (see Tables ES-1 and ES-2). Four transient male least Bell's vireos were observed during these surveys with one in Reach 27, two in Reach 40b, and one in Reach 82 (see below for result discussions by Reach for details). Migrant willow flycatchers were observed in four channel reaches (Reaches 12, 14, 40b, 80, 103, and 110), but no southwestern willow flycatcher territories were established during the 2015 surveys. These results are discussed below by Reach. Table ES-1 above summarizes the survey results for 2015.

3.1 LOS ANGELES RIVER WATERSHED

3.1.1 Reach 7: Bull Creek

Least Bell's Vireo

Three least Bell's vireo territories were established in or adjacent to Reach 7 during these surveys (Exhibits 2a and 3a²). The main Bull Creek channel supported two least Bell's vireo territories consisting of males paired with females (shown as LBV1 and LBV2 on Exhibits 2a and 3a). Both of these territories were active throughout the survey period (nine surveys from April 14 – July 12); the southernmost territory (LBV2) contained at least one begging fledgling least Bell's vireo on July 12. The third least Bell's vireo territory consisted of an unpaired male and was active from at least May 5 to May 16 in a side channel west of the main Bull Creek channel (shown as LBV3 on Exhibits 2a and 3a). The side channel was created during the Bull Creek restoration project managed by the City of Los Angeles in conjunction with the USACE.

3.1.2 Reach 12: Haines Canyon Main Channel Outlet

Southwestern Willow Flycatcher

Migrant willow flycatchers of undetermined subspecies were present in Reach 12 on May 14 (one), May 30 (two), and June 10 (one) (see Reach 12 Bird Compendia Table in Attachment A).

3.1.3 Reach 14: May Channel (Main Channel Outlet into Pacoima Canyon)

Least Bell's Vireo

Two least Bell's vireo territories were established in or adjacent to Reach 14 during these surveys (Exhibits 2b and 3b). An unpaired male established a territory in the May Channel from at least April 13 to May 4 (shown as LBV1 on Exhibits 2b and 3b), but was not detected thereafter. The second least Bell's vireo territory was in the side drainage on the opposite side of Pacoima Wash from the May Channel and consisted of a male paired with a female (shown as LBV2 on Exhibits 2b and 3b). No nesting success was detected during these surveys for this least Bell's vireo pair. On June 28, the male of this pair was singing from the same side drainage east of Pacoima Wash and the female was foraging in the May Channel west of Pacoima Wash. On July 12, the male was not detected, but the presumed adult female was again silently foraging in the May Channel.

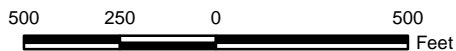
² Least Bell's vireo locations shown on maps typically depict either where the vireo was first detected or its most representative location observed during the surveys.



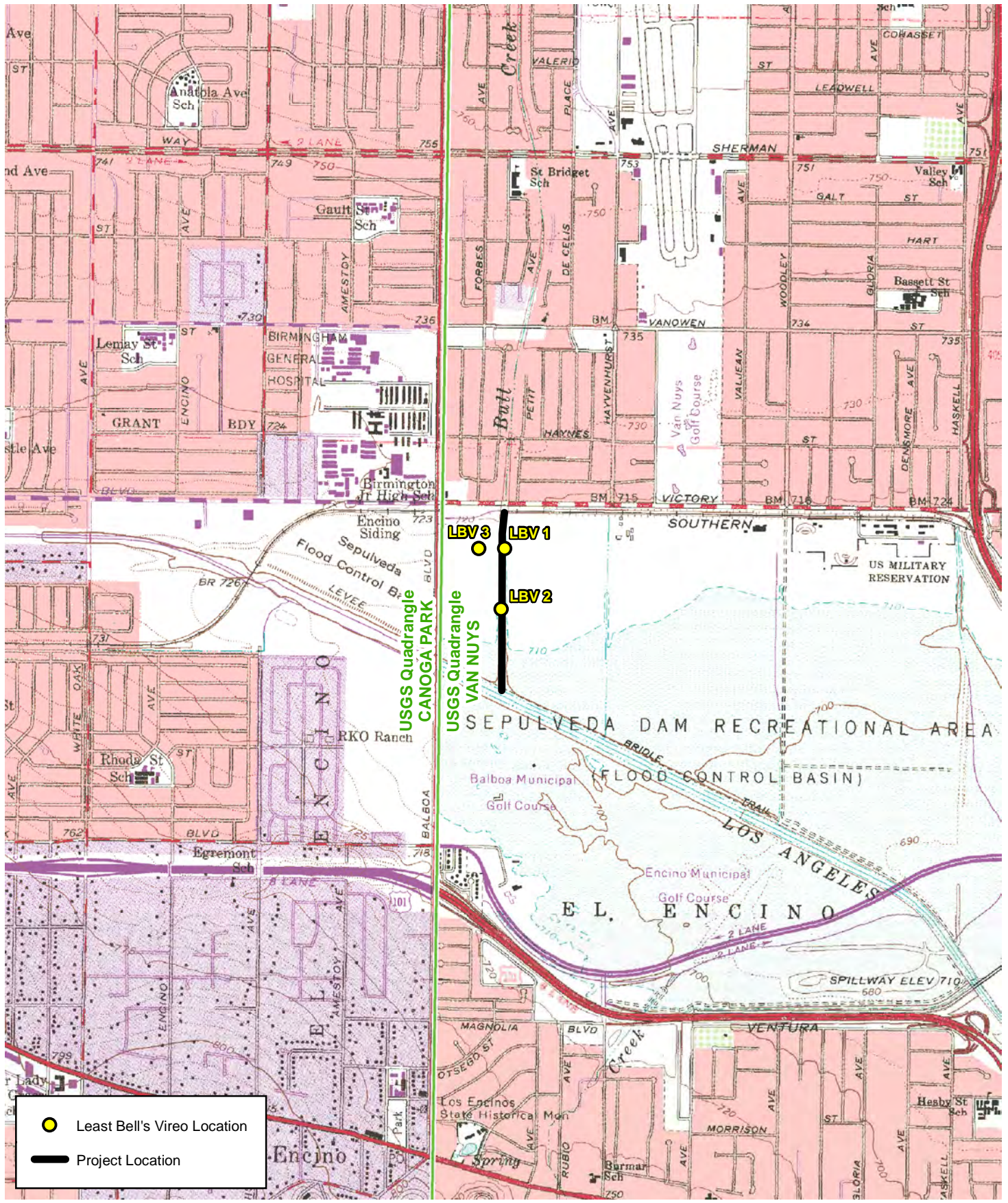
Reach 7: Bull Creek

Exhibit 2a

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



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Reach 7: Bull Creek

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

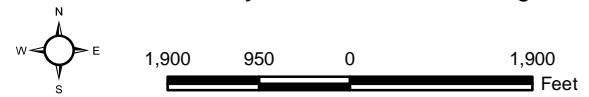


Exhibit 3a

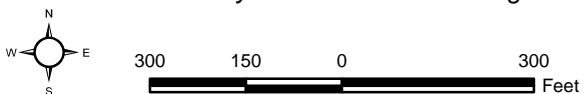




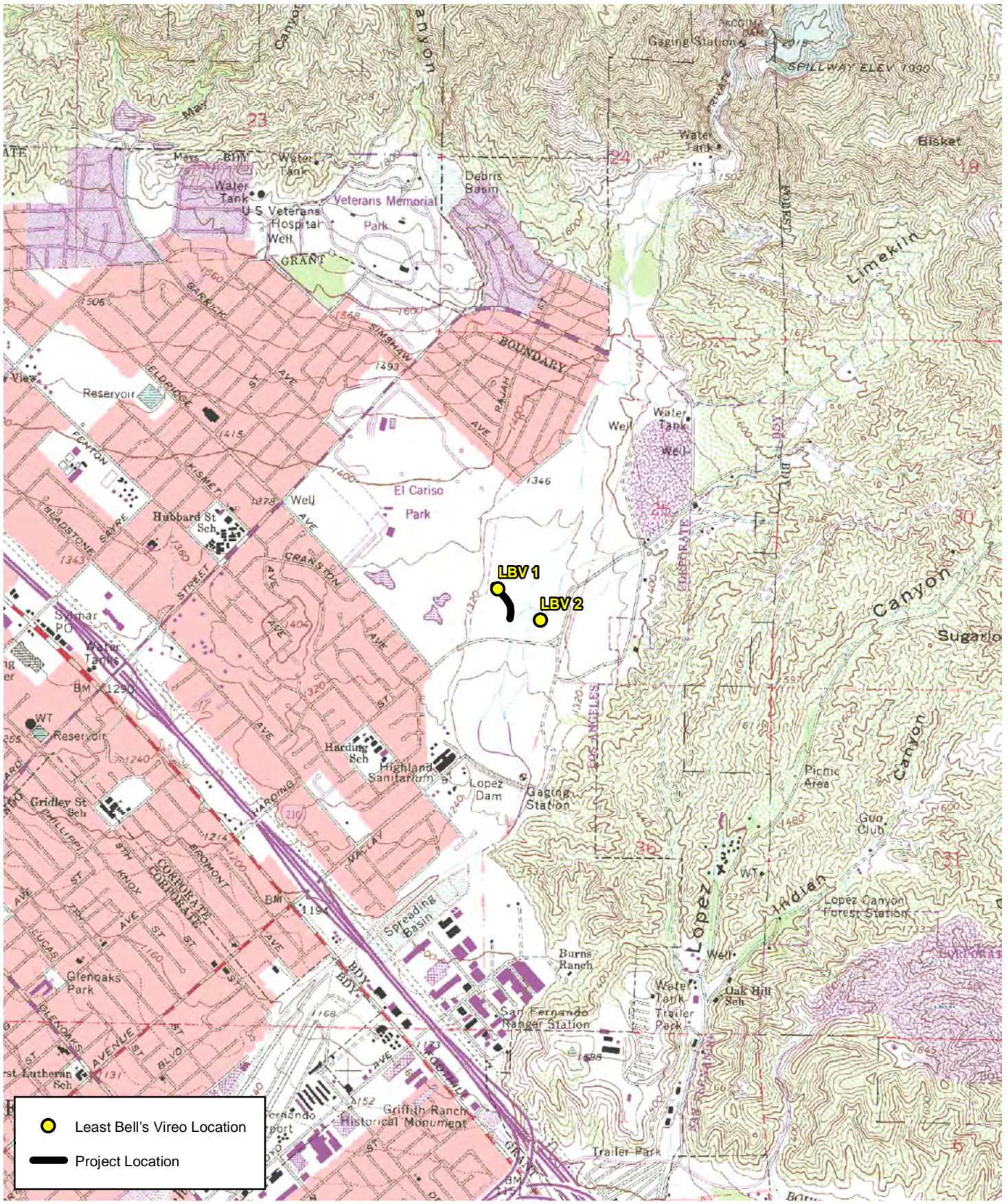
Reach 14: May Channel (Main Channel Outlet into Pacoima Canyon)

Exhibit 2b

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



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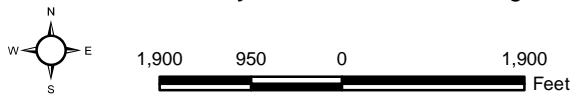


Least Bell's Vireo Location
 Project Location

Reach 14: May Channel (Main Channel Outlet into Pacoima Canyon)

Exhibit 3b

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



Southwestern Willow Flycatcher

A migrant willow flycatcher of undetermined subspecies was present in Reach 14 on May 30 (see Reach 14 Bird Compendia Table in Attachment A).

3.2 DOMINGUEZ CHANNEL WATERSHED

3.2.1 Reach 27: Wilmington Drain

Least Bell's Vireo

A transient adult male least Bell's vireo was present in Reach 27 on the last survey date of July 12. This male sang a few times but was mostly silent as it foraged in willows north of Lomita Boulevard on the west side of the Wilmington Drain (380662, 3740509). This male least Bell's vireo likely was a failed breeder that wandered north in the Wilmington Drain from Ken Malloy Regional Park south of Pacific Coast Highway.

3.3 SAN GABRIEL RIVER WATERSHED

3.3.1 Reach 39: Beatty Channel Outlet at San Gabriel River (25+99.00+50')

Least Bell's Vireo

One least Bell's vireo territory was established in or adjacent to Reach 39 during these surveys (Exhibits 2c and 3c). This territory consisted of a male paired with a female (shown as LBV1 on Exhibits 2c and 3c). At least two nesting attempts were detected, but both nests failed for unknown reasons and no least Bell's vireo was detected here after June 10. The quality of the riparian habitats in the San Gabriel River at Reach 39 have been adversely affected by the drought and multiple fires that appear to have originated from homeless encampments.

3.3.2 Reach 40b: San Gabriel River – Interstate 10 (Santa Monica) Freeway to Thienes Avenue

Least Bell's Vireo

Six least Bell's vireo territories were established in Reach 40b during these surveys (Exhibits 2d and 3d³). The males of these six territories were all present on April 10. The furthest south or downstream territory (closest to Thienes Avenue and shown as LBV1 on Exhibits 2d and 3d) had a nest in narrow-leaved willow (*Salix exigua*) that contained two eggs on April 10 and four eggs on April 20. This nest then had three nestlings on May 2 and three fledglings were detected on May 13. The proximate territory to the north (shown as LBV2 on Exhibits 2d and 3d) had a nest in narrow-leaved willow that contained three eggs on May 13; two newly hatched nestlings and one egg on May 23; and three fledglings on June 2. The next territory to the north (shown as LBV3 on Exhibits 2d and 3d) had a nest in narrow-leaved willow with three eggs on May 13 and two newly hatched young and one egg on May 23. This nest was found to be depredated on June 2. The next territory to the north (shown as LBV4 on Exhibits 2d and 3d) had a nest in narrow-leaved willow with two one-day-old nestlings and one non-viable egg on April 20. Two fledglings were present on May 2. The next territory north (shown as LBV5 on Exhibits 2d and 3d) had a nest in arroyo willow (*Salix lasiolepis*) on June 12. This nest contained two newly hatched nestlings and one egg on June 26, but was found to be depredated on July 10. The northernmost territory (shown as LBV6 on Exhibits 2d and 3d) had a nest in mule fat on April 20. On subsequent

³ Locations on maps for Reach 40b are nest locations for each territorial male, as opposed to where the vireo was first detected or the vireo's most representative location.



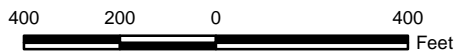
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Aerial Source: LAR-IAC 2011

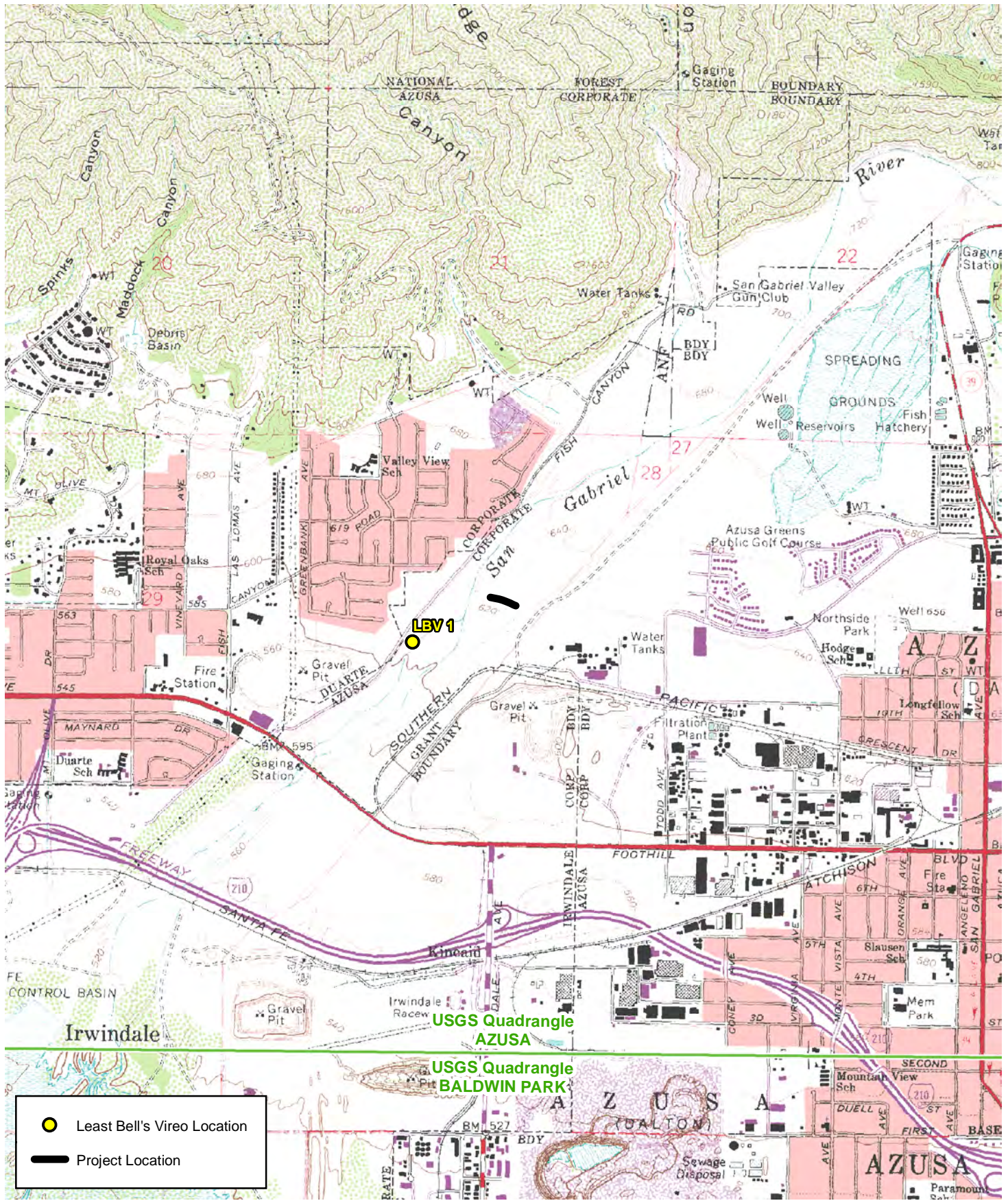
Reach 39: Betty Channel Outlet at San Gabriel River (25+99.00+50')

Exhibit 2c

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



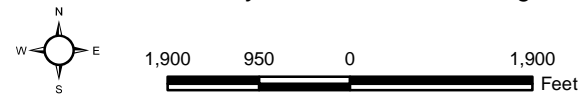
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Reach 39: Betty Channel Outlet at San Gabriel River (25+99.00+50')

Exhibit 3c

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



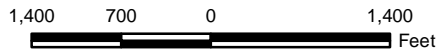


Aerial Source: LAR-IAC 2011

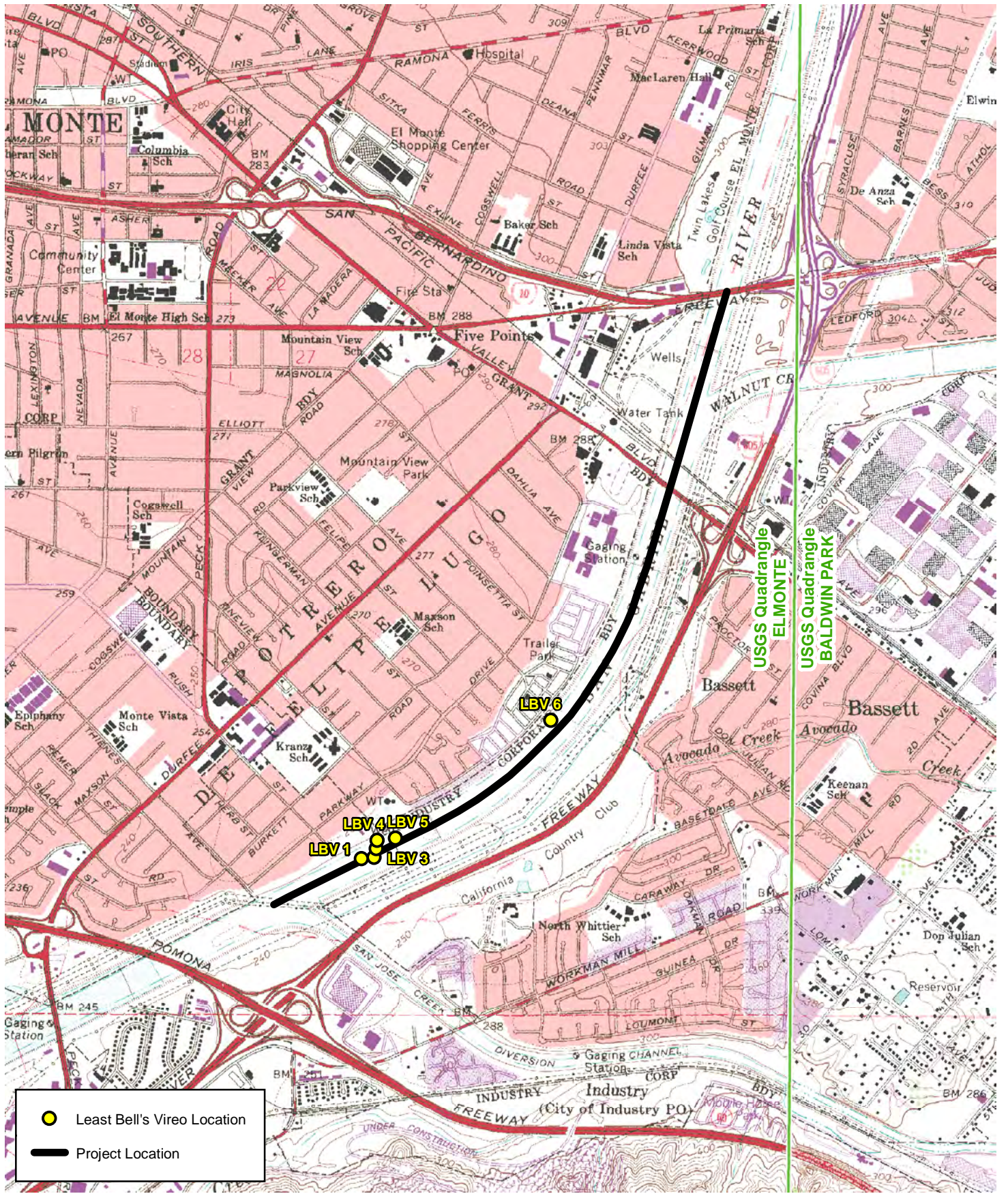
Reach 40b: San Gabriel River – I-10 Freeway to Thienes Avenue

Exhibit 2d

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



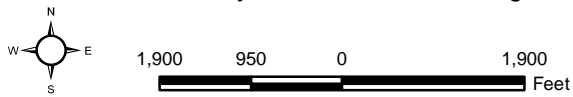
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Least Bell's Vireo Location
 Project Location

Reach 40b: San Gabriel River - I-10 Freeway to Thienes Avenue
 2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 3d



surveys, the male least Bell's vireo continued to be in close proximity to this difficult-to-access nest site, but by May 23 it was evident that the nest had failed for unknown reasons. Two transient adult male least Bell's vireos were also present in Reach 40b with the first observed on May 13 (406583, 3767865) and the second on June 2 (405338, 3767025).

Southwestern Willow Flycatcher

A migrant willow flycatcher of undetermined subspecies was present in Reach 40b on May 23 (see Reach 40b Bird Compendia Table in Attachment A).

3.3.3 Reach 43a: San Gabriel River – Upper

Least Bell's Vireo

Four least Bell's vireo territories were established in Reach 43a during these surveys (Exhibits 2e and 3e). Three males were present on April 10 and the fourth male was present on April 20. Only the centrally located male paired with a female (shown as LBV1 on Exhibits 2e and 3e). This least Bell's vireo pair constructed a nest in poison hemlock (*Conium maculatum*) that contained three eggs on June 2 and three 5-day old nestlings on June 12. Three fledglings were present in this territory on June 26. The territories of two unpaired or solitary males were north of the pair near the dam (shown as LBV2 and LBV3 on Exhibits 2e and 3e). The southernmost unpaired male was just upstream of San Gabriel River Parkway and wandered more than the other male least Bell's vireos.

3.4 Santa Clara River Watershed

3.4.1 Reach 80: South Fork Santa Clara River (PDs 1947 and 1946)

Southwestern Willow Flycatcher

A migrant willow flycatcher of undetermined subspecies was present in Reach 80 on May 16 and May 26 (see Reach 71, 79, and 80 Bird Compendia Table in Attachment A).

3.4.2 Reach 82: Santa Clara River Main Channel (PD 2278)

Least Bell's Vireo

A transient adult male least Bell's vireo was present in Reach 82 on April 11 (355631, 3810786), but not detected afterwards. This least Bell's vireo was about 200 feet due west of the downstream end of the Reach 82 levee.

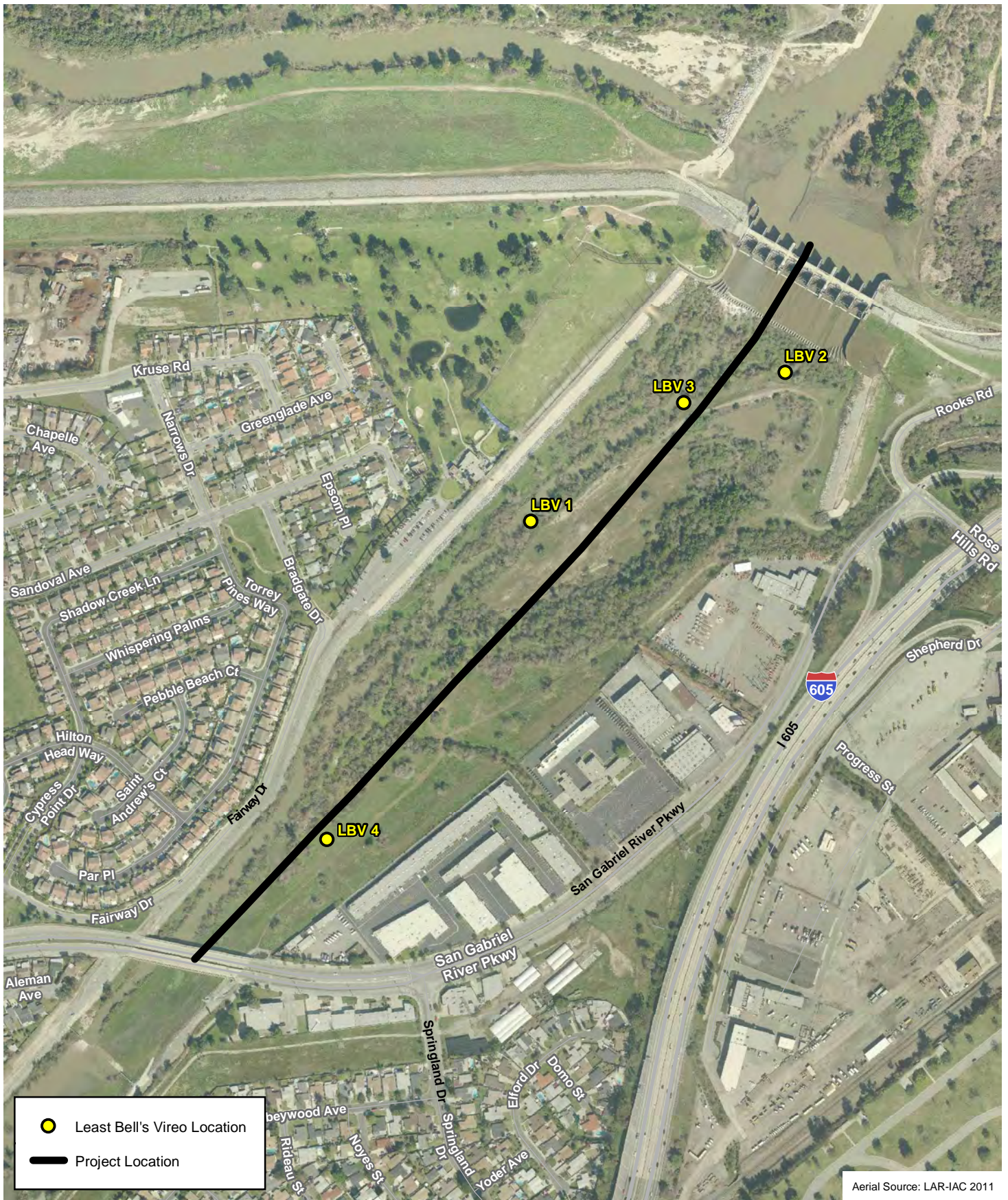
3.4.3 Reach 103: Bouquet Canyon Channel (PD 2225)

Least Bell's Vireo

One male least Bell's vireo established a territory in Reach 103 late in the season. It was present at the upper end of Reach 103 from at least June 8 to June 18 (shown as LBV1 on Exhibits 2f and 3f). This male was not detected on the last two survey dates. It is possible that this was the same individual observed downstream at Reach 82 on April 11.

Southwestern Willow Flycatcher

A migrant willow flycatcher of undetermined subspecies was present in Reach 103 on May 13 (see Reach 103 Bird Compendia Table in Attachment A).

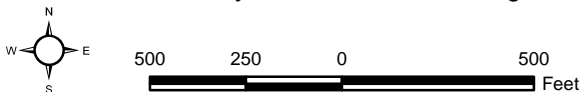


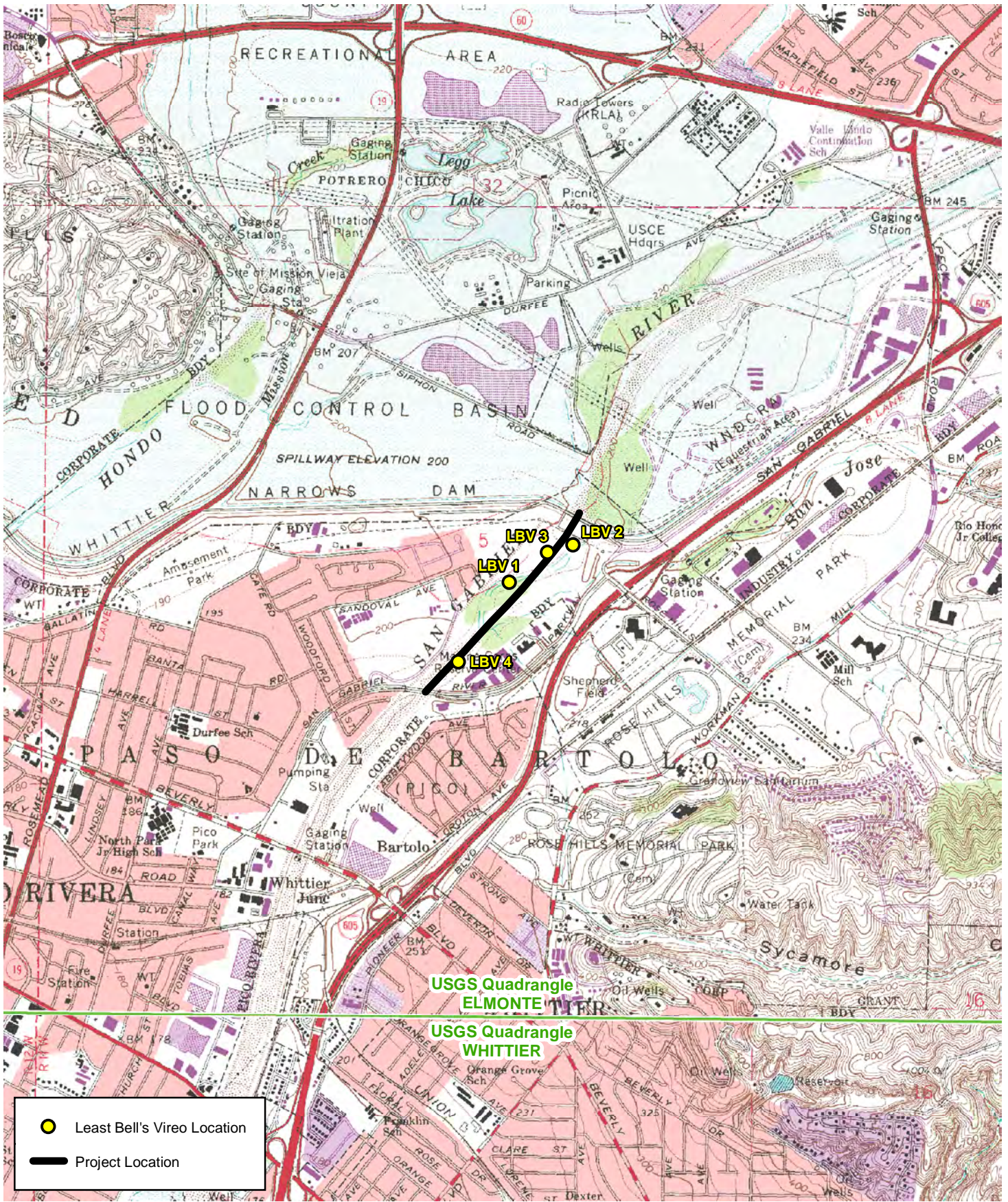
Aerial Source: LAR-IAC 2011

Reach 43a: San Gabriel River - Upper

Exhibit 2e

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

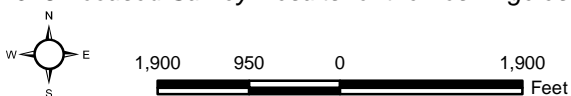






Reach 43a: San Gabriel River – Upper

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels

Exhibit 3e





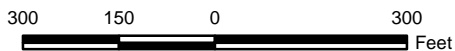
 Least Bell's Vireo Location
 Project Location

Aerial Source: LAR-IAC 2011

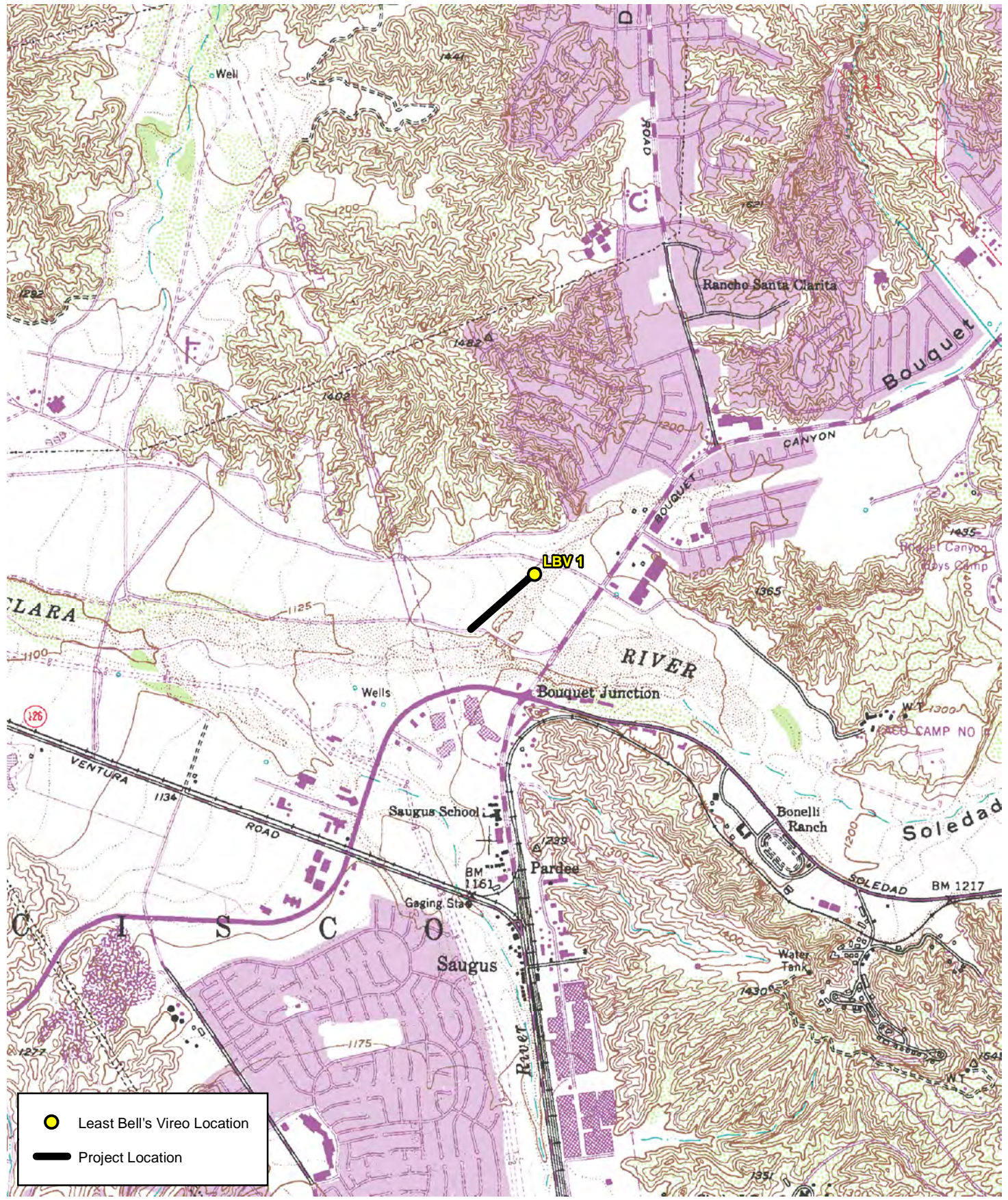
Reach 103: Bouquet Canyon Channel (PD 2225)

Exhibit 2f

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



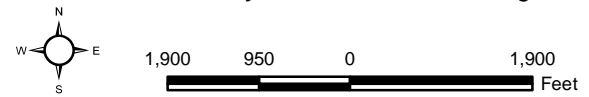
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Reach 103: Bouquet Canyon Channel (PD 2225)

Exhibit 3f

2015 Focused Survey Results for the Los Angeles County Soft-Bottom Channels



3.4.4 Reach 110: Hasley Canyon Channel (PD 2262)

Southwestern Willow Flycatcher

Two migrant willow flycatchers of undetermined subspecies were present in Reach 110 on May 13 (see Reach 110 Bird Compendia Table in Attachment A).

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ATTACHMENT A
BIRD COMPENDIA

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BIRD COMPENDIA TABLE OF CONTENTS**

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REACH 7 BULL CREEK

Species	Survey Dates (2015)								
	14-Apr	24-Apr	5-May	16-May	27-May	9-Jun	19-Jun	30-Jun	12-Jul
mallard (<i>Anas platyrhynchos</i>)	2	5	1	3	1		5	3	2
great blue heron (<i>Ardea herodias</i>)						1			
green heron (<i>Butorides virescens</i>)		1		1				1	
Cooper's hawk (<i>Accipiter cooperii</i>)							1		
American coot (<i>Fulica americana</i>)	1	1			1			1	1
mourning dove (<i>Zenaida macroura</i>)	6	4	5	5	5	4	3	3	8
white-throated Swift (<i>Aeronautes saxatalis</i>)				1	1				
Vaux's swift (<i>Chaetura vauxi</i>)		30							
black-chinned hummingbird (<i>Archilochus alexandri</i>)									1
Anna's hummingbird (<i>Calypte anna</i>)	2		3		1		1	1	1
Allen's hummingbird ^a (<i>Selasphorus sasin</i>)				2					
Allen's/rufous hummingbird (<i>Selasphorus</i> sp.)		1					1		
belted kingfisher (<i>Megaceryle alcyon</i>)	1								
Nuttall's woodpecker (<i>Picoides nuttallii</i>)								1	
Pacific-slope flycatcher (<i>Empidonax oberholseri</i>)					1				
black phoebe (<i>Sayornis nigricans</i>)	1	2	1	1	1	5	2	2	
Say's phoebe (<i>Sayornis saya</i>)						2			
western kingbird (<i>Tyrannus verticalis</i>)							1		
Bell's vireo (<i>Vireo bellii</i>)	2	1	3	3	2	2	2	2	2
Warbling vireo (<i>Vireo gilvus</i>)		1							
common raven (<i>Corvus corax</i>)	1		1						
tree swallow (<i>Tachycineta bicolor</i>)		10				3			

REACH 7 BULL CREEK

Species	Survey Dates (2015)								
	14-Apr	24-Apr	5-May	16-May	27-May	9-Jun	19-Jun	30-Jun	12-Jul
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	1		6	1	2	2			
cliff swallow (<i>Petrochelidon pyrrhonota</i>)	6	20	10	15	10	10	10	5	10
barn swallow (<i>Hirundo rustica</i>)	1		4	1	1			2	1
bush-tit (<i>Psaltriparus minimus</i>)	15	2	10	15		20		10	
Bewick's wren (<i>Thryomanes bewickii</i>)	1	1				1	2		
American robin (<i>Turdus migratorius</i>)	2							3	
California thrasher (<i>Toxostoma redivivum</i>)			1	1	2	1	1		
northern mockingbird (<i>Mimus polyglottos</i>)		1					1		3
European starling ^b (<i>Sturnus vulgaris</i>)				1					
cedar waxwing (<i>Bombycilla cedrorum</i>)	40			2					
orange-crowned warbler (<i>Oreothlypis celata</i>)	1								
common yellowthroat (<i>Geothlypis trichas</i>)						3		1	1
yellow warbler (<i>Setophaga petechia</i>)	4	2	5	6	2	6	1	5	3
Wilson's warbler (<i>Cardellina pusilla</i>)	1		1	1					
yellow-breasted chat (<i>Icteria virens</i>)					1	1			
spotted towhee (<i>Pipilo maculatus</i>)	1	1	1	2		2		2	3
California towhee (<i>Melospiza crissalis</i>)	2		2	3	1	1	4	2	2
song sparrow (<i>Melospiza melodia</i>)	5	12	2	5	5	15	6	5	1
northern cardinal (<i>Cardinalis cardinalis</i>)		1							
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)				1				1	
blue grosbeak (<i>Passerina caerulea</i>)				1			1	2	1
red-winged blackbird (<i>Agelaius phoeniceus</i>)	2		3	2				3	

**REACH 7
BULL CREEK**

Species	Survey Dates (2015)								
	14-Apr	24-Apr	5-May	16-May	27-May	9-Jun	19-Jun	30-Jun	12-Jul
great-tailed grackle (<i>Quiscalus mexicanus</i>)				1				1	
brown-headed cowbird (<i>Molothrus ater</i>)	3	2		2	1	2		4	
Bullock's oriole (<i>Icterus bullockii</i>)	2			1			1		
house finch (<i>Haemorhous mexicanus</i>)	7		6	3	15			5	4
lesser goldfinch (<i>Spinus psaltria</i>)	4	5		1	1	1			
American goldfinch (<i>Spinus tristis</i>)				4		3	2	1	2
^a males only ^b Introduced non-native species with established breeding population in California									

**REACH 12
HAINES CANYON MAIN CHANNEL OUTLET**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
mallard (<i>Anas platyrhynchos</i>)					1	2	2	2	3
California quail (<i>Callipepla californica</i>)	2				2	1			
snowy egret (<i>Egretta thula</i>)									1
red-shouldered hawk (<i>Buteo lineatus</i>)							1		
red-tailed hawk (<i>Buteo jamaicensis</i>)						1		1	1
band-tailed pigeon (<i>Patagioenas fasciata</i>)			1						
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)					2			1	1
mourning dove (<i>Zenaida macroura</i>)	2			1	5	5	4	7	5
black-chinned hummingbird (<i>Archilochus alexandri</i>)					1				
Anna's hummingbird (<i>Calypte anna</i>)	2		1	1	4		4	2	5
Costa's hummingbird (<i>Calypte costae</i>)			1			1	1		
Allen's hummingbird ^b (<i>Selasphorus sasin</i>)				1	1	2		5	1
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)							3		5
acorn woodpecker (<i>Melanerpes formicivorus</i>)	1				1	1	1		2
Nuttall's woodpecker (<i>Picoides nuttallii</i>)					2		1		
downy woodpecker (<i>Picoides pubescens</i>)	2								
willow flycatcher (<i>Empidonax traillii</i>)				1	2	1			
Pacific-slope flycatcher (<i>Empidonax oberholseri</i>)									
black phoebe (<i>Sayornis nigricans</i>)	1		1	1		2		2	3
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)			1			3			2
warbling vireo (<i>Vireo gilvus</i>)			1						

**REACH 12
HAINES CANYON MAIN CHANNEL OUTLET**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
Cassin's kingbird (<i>Tyrannus vociferans</i>)	1					2	1	2	1
western kingbird (<i>Tyrannus verticalis</i>)						1	1		1
Hutton's vireo (<i>Vireo huttoni</i>)						1			
warbling vireo (<i>Vireo gilvus</i>)	1								
western scrub-jay (<i>Aphelocoma californica</i>)						1		1	2
American crow (<i>Corvus brachyrhynchos</i>)	1		1	2	2	3	3	3	2
common raven (<i>Corvus corax</i>)	1		2	1	2				2
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	2		2	2		1	2	3	5
cliff swallow (<i>Petrochelidon pyrrhonota</i>)					5				
barn swallow (<i>Hirundo rustica</i>)	4			1	1	1	4	2	1
bush-tit (<i>Psaltriparus minimus</i>)			10		10				
Bewick's wren (<i>Thryomanes bewickii</i>)				1	5	2	1	2	3
cactus wren (<i>Campylorhynchus brumneicapillus</i>)						1			
western bluebird (<i>Sialia mexicana</i>)			1		3				2
California thrasher (<i>Toxostoma redivivum</i>)						1			
northern mockingbird (<i>Mimus polyglottos</i>)	2		3	1	3	3	1	4	7
European starling ^a (<i>Sturnus vulgaris</i>)					2	10		2	7
cedar waxwing (<i>Bombycilla cedrorum</i>)			10	25					
common yellowthroat (<i>Geothlypis trichas</i>)			1	2	1	3		6	3
yellow warbler (<i>Setophaga petechia</i>)	1		2	3	4	3	3	4	7
yellow-rumped warbler (<i>Setophaga coronata</i>)	1								

**REACH 12
HAINES CANYON MAIN CHANNEL OUTLET**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
Wilson's warbler (<i>Cardellina pusilla</i>)	2		2	2					
spotted towhee (<i>Pipilo maculatus</i>)					1	2	2		
California towhee (<i>Melospiza crissalis</i>)			1		1	6		2	3
song sparrow (<i>Melospiza melodia</i>)			1	3	3	2	6	5	2
white-crowned sparrow (<i>Zonotrichia leucophrys</i>)	3								
western tanager (<i>Piranga ludoviciana</i>)			3	3	1				
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)	1								
indigo bunting (<i>Passerina cyanea</i>)									1
red-winged blackbird (<i>Agelaius phoeniceus</i>)					1			2	
brown-headed cowbird (<i>Molothrus ater</i>)					1				
hooded oriole (<i>Icterus cucullatus</i>)			2	2	4	3	5	2	1
Bullock's oriole (<i>Icterus bullockii</i>)	1		1			2	3	4	4
house finch (<i>Haemorhous mexicanus</i>)			2	2	7	6	6	6	5
lesser goldfinch (<i>Spinus psaltria</i>)	2		3	4	3	2	8	2	5
American goldfinch (<i>Spinus tristis</i>)	1					1			
house sparrow ^a (<i>Passer domesticus</i>)								2	1
^a Introduced non-native species with established breeding population in California									
^b males only									

**REACH 14
MAY CHANNEL
(MAIN CHANNEL OUTLET INTO PACOIMA CANYON)**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
California quail (<i>Callipepla californica</i>)							5	20	18
Indian peafowl (<i>Pavo cristatus</i>)								1	
double-crested cormorant (<i>Phalacrocorax auritus</i>)						2			
red-shouldered hawk (<i>Buteo lineatus</i>)					1				
red-tailed hawk (<i>Buteo jamaicensis</i>)				1		1		1	1
rock pigeon ^a (<i>Columbia livia</i>)	1						1		
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)					1				
mourning dove (<i>Zenaida macroura</i>)	5			5		12	1	2	13
greater roadrunner (<i>Geococcyx californianus</i>)	1		1	1					
lesser nighthawk (<i>Chordeiles acutipennis</i>)				1					
white-throated swift (<i>Aeronautes saxatalis</i>)					2				
black-chinned hummingbird (<i>Archilochus alexandri</i>)			1	1		1		3	
Anna's hummingbird (<i>Calypte anna</i>)	1		1	4	2	2	2	3	10
Costa's hummingbird (<i>Calypte costae</i>)				1					
Allen's Hummingbird ^b (<i>Selasphorus sasin</i>)				1	2	6		5	
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)	1								4
Nuttall's woodpecker (<i>Picoides nuttallii</i>)						1		3	
merlin (<i>Falco columbarius</i>)	1								
western wood-pewee (<i>Contopus sordidulus</i>)				1					
willow flycatcher (<i>Empidonax traillii</i>)						1			
black phoebe (<i>Sayornis nigricans</i>)				1				1	2
Say's phoebe (<i>Sayornis saya</i>)			1	1		1		1	

**REACH 14
MAY CHANNEL
(MAIN CHANNEL OUTLET INTO PACOIMA CANYON)**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	1			1	2				
Cassin's kingbird (<i>Tyrannus vociferans</i>)	1			1	3	2		2	1
western kingbird (<i>Tyrannus verticalis</i>)			1						
Bell's vireo (<i>Vireo bellii</i>)	2		3	2		2	1	1	1
western scrub-jay (<i>Aphelocoma californica</i>)	1		2	1	2				
American crow (<i>Corvus brachyrhynchos</i>)	1		1	3	3	2	2	1	2
common raven (<i>Corvus corax</i>)	2		4	4	1	3		2	4
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	1		1	2	2		2	1	
cliff swallow (<i>Petrochelidon pyrrhonota</i>)			10	4	4	2	2	6	15
barn swallow (<i>Hirundo rustica</i>)	2								
bush-tit (<i>Psaltriparus minimus</i>)	2		2	2	10	6	2		10
house wren (<i>Troglodytes aedon</i>)					1				
Bewick's wren (<i>Thryomanes bewickii</i>)	2		2	3	4	3		5	4
blue-gray gnatcatcher (<i>Poliophtila caerulea</i>)				1					
wrentit (<i>Chamaea fasciata</i>)					1		1		
western bluebird (<i>Sialia mexicana</i>)	2			4				4	
Swainson's thrush (<i>Catharus ustulatus</i>)				2					
American robin (<i>Turdus migratorius</i>)	2					1		1	
California thrasher (<i>Toxostoma redivivum</i>)	1				1	2			
northern mockingbird (<i>Mimus polyglottos</i>)	1		1	3	3	1		4	2
European starling ^a (<i>Sturnus vulgaris</i>)									4
orange-crowned warbler (<i>Oreothlypis celata</i>)	1								

**REACH 14
MAY CHANNEL
(MAIN CHANNEL OUTLET INTO PACOIMA CANYON)**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
common yellowthroat (<i>Geothlypis trichas</i>)				1	1				
yellow warbler (<i>Setophaga petechia</i>)			2	3	1			1	
yellow-rumped warbler (<i>Setophaga coronata</i>)	2								
Wilson's warbler (<i>Cardellina pusilla</i>)	2		2	2					
spotted towhee (<i>Pipilo maculatus</i>)	1				2	3	2	1	
rufous-crowned sparrow (<i>Aimophila ruficeps</i>)									1
California towhee (<i>Melospiza crissalis</i>)	2		3	4	3	8	1	7	8
song sparrow (<i>Melospiza melodia</i>)	3		4	5	3	6			
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)			2	1	2				
blue grosbeak (<i>Passerina caerulea</i>)			1	1	2			2	1
hooded oriole (<i>Icterus cucullatus</i>)				2	1	1	1	1	
Bullock's oriole (<i>Icterus bullockii</i>)			1	1	1	1			
house finch (<i>Haemorhous mexicanus</i>)	8		15	25	1	11	4	25	15
lesser goldfinch (<i>Spinus psaltria</i>)	6		5	15	2	7	3	20	2
Lawrence's goldfinch (<i>Spinus lawrencei</i>)	2								1
American goldfinch (<i>Spinus tristis</i>)	5		2	5				2	
house sparrow ^a (<i>Passer domesticus</i>)					2				

^a Introduced non-native species with established breeding population in California
^b males only

**REACH 27
WILMINGTON DRAIN**

Species	Survey Dates (2015)								
	14-Apr	24-Apr	5-May	16-May	27-May	9-Jun	19-Jun	30-Jun	12-Jul
mallard (<i>Anas platyrhynchos</i>)	1	12	9	9	15	10			3
double-crested cormorant (<i>Phalacrocorax pelagicus</i>)		1							
great blue heron (<i>Ardea herodias</i>)			1		1				1
snowy egret (<i>Egretta thula</i>)				1	2			2	1
red-shouldered hawk (<i>Buteo lineatus</i>)				1					
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)			1	1				1	1
mourning dove (<i>Zenaida macroura</i>)	1	1	4	3	2	2	5	6	12
black-chinned hummingbird (<i>Archilochus alexandri</i>)	1								
Anna's hummingbird (<i>Calypte anna</i>)	4	1	3					1	1
Allen's hummingbird ^b (<i>Selasphorus sasin</i>)									1
Allen's/rufous hummingbird (<i>Selasphorus</i> sp.)	2		2	2			2	1	2
downy woodpecker (<i>Picoides pubescens</i>)	1			2				1	
olive-sided flycatcher (<i>Contopus cooperi</i>)					1				
western wood-pewee (<i>Contopus sordidulus</i>)				2	2				
Pacific-slope flycatcher (<i>Empidonax oberholseri</i>)	1								
black phoebe (<i>Sayornis nigricans</i>)	1	2	2	5	3	2	2	2	5
Say's phoebe (<i>Sayornis saya</i>)	1								
Bell's vireo (<i>Vireo bellii</i>)									1
warbling vireo (<i>Vireo gilvus</i>)				1	2				
common raven (<i>Corvus corax</i>)				1			1		
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)		6	6		6	2	4		
barn swallow (<i>Hirundo rustica</i>)		4	5	2	10	5	10	15	12

**REACH 27
WILMINGTON DRAIN**

Species	Survey Dates (2015)								
	14-Apr	24-Apr	5-May	16-May	27-May	9-Jun	19-Jun	30-Jun	12-Jul
bush-tit (<i>Psaltriparus minimus</i>)	2	10	1	10				10	10
American robin (<i>Turdus migratorius</i>)							1		
northern mockingbird (<i>Mimus polyglottos</i>)	1	1	3	4	3				
European starling ^a (<i>Sturnus vulgaris</i>)	2		4	5	4		2		
cedar waxwing (<i>Bombycilla cedrorum</i>)	10			3					
orange-crowned warbler (<i>Oreothlypis celata</i>)	1								
common yellowthroat (<i>Geothlypis trichas</i>)	1		2		2	5	5	5	5
yellow warbler (<i>Setophaga petechia</i>)	1	3	5	3	3	2	2	4	6
Wilson's warbler (<i>Cardellina pusilla</i>)	1		2						
California towhee (<i>Melospiza crissalis</i>)	1	3	3	3	8	5	4	3	4
song sparrow (<i>Melospiza melodia</i>)	2			1		1			
blue grosbeak (<i>Passerina caerulea</i>)								2	
red-winged blackbird (<i>Agelaius phoeniceus</i>)		2	2	4					5
brown-headed cowbird (<i>Molothrus ater</i>)	3	1							
hooded oriole (<i>Icterus cucullatus</i>)	1	1	2	2	5	2		8	2
Bullock's oriole (<i>Icterus bullockii</i>)	1	1			1	1			
house finch (<i>Haemorhous mexicanus</i>)	5	8	15	3	20	8	2	20	10
lesser goldfinch (<i>Spinus psaltria</i>)	6			2			2		
American goldfinch (<i>Spinus tristis</i>)	2	1	3	1	5	3		3	2
scaly-breasted munia ^a (<i>Lonchura punctulata</i>)		2	5	8	3	20	12	25	10

^a Introduced non-native species with established breeding population in California
^b males only

**REACH 28
TRIUNFO CREEK (PD T2200)**

Species	Survey Dates (2015)								
	14-Apr	24-Apr	5-May	16-May	27-May	9-Jun	19-Jun	30-Jun	12-Jul
mallard (<i>Anas platyrhynchos</i>)		2	1		2				
California quail (<i>Callipepla californica</i>)									
Cook's petrel (<i>Pterodroma cookii</i>)		2			2	5	1	5	
great blue heron (<i>Ardea herodias</i>)					1				
snowy egret (<i>Egretta caerulea</i>)		1							
turkey vulture (<i>Cathartes aura</i>)							1		
Cooper's hawk (<i>Accipiter cooperii</i>)						1			3
red-shouldered hawk (<i>Buteo lineatus</i>)							1	1	1
red-tailed hawk (<i>Buteo jamaicensis</i>)						1			1
band-tailed pigeon (<i>Patagioenas fasciata</i>)		2	2	2					1
mourning dove (<i>Zenaida macroura</i>)	2	2	4		2	2	1	2	3
black-chinned hummingbird (<i>Archilochus alexandri</i>)								1	1
Anna's hummingbird (<i>Calypte anna</i>)	2		2	2	1				3
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)					1				
acorn woodpecker (<i>Melanerpes formicivorus</i>)	8	8	2	1	3	5	4	3	3
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	2	2	3	1	1	1	1	3	2
downy woodpecker (<i>Picoides pubescens</i>)	1								
hairy woodpecker (<i>Picoides villosus</i>)									1
American kestrel (<i>Falco sparverius</i>)			1						
red-crowned parrot ^a (<i>Amazona viridigenalis</i>)					2				
black-hooded parakeet ^a (<i>Candayus nenday</i>)	2		4	3					
nanday parakeet ^a (<i>Nandayus nenday</i>)		20			10	5	2	32	10

**REACH 28
TRIUNFO CREEK (PD T2200)**

Species	Survey Dates (2015)								
	14-Apr	24-Apr	5-May	16-May	27-May	9-Jun	19-Jun	30-Jun	12-Jul
Pacific-slope flycatcher (<i>Empidonax oberholseri</i>)		2	1	1	1				2
black phoebe (<i>Sayornis nigricans</i>)		1				1	1	1	2
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)		2	1	1	1	2	1	3	2
Cassin's kingbird (<i>Tyrannus vociferans</i>)	1								
Hutton's vireo (<i>Vireo huttoni</i>)				1					
warbling vireo (<i>Vireo gilvus</i>)		1	1						
western scrub-jay (<i>Apelocoma californica</i>)			1	1	2				1
American crow (<i>Corvus brachyrhynchos</i>)	8	15	4	2	5	8	3	5	8
common raven (<i>Corvus corax</i>)			2						
cliff swallow (<i>Petrochelidon pyrrhonota</i>)				8					
oak titmouse (<i>Baeolophus inornatus</i>)		1	1	4	1	1	2	1	3
bushy tit (<i>Psaltiriparus minimus</i>)	2		1	15				10	6
white-breasted nuthatch (<i>Sitta carolinensis</i>)				1	1	2	1		2
house wren (<i>Troglodytes aedon</i>)	7	10	6	6	5	3	3	1	2
Bewick's wren (<i>Thryomanes bewickii</i>)		3							2
wren tit (<i>Chamaea fasciata</i>)								1	
western bluebird (<i>Sialia mexicana</i>)					2	2	2		2
American robin (<i>Turdus migratorius</i>)		1							
European starling ^a (<i>Sturnus vulgaris</i>)	1	8	5	3	4	1			
orange-crowned warbler (<i>Oreothlypis celata</i>)	1		1	1	1				
common yellowthroat (<i>Geothlypis trichas</i>)									1
Wilson's warbler (<i>Cardellina pusilla</i>)		1	1						

**REACH 28
TRIUNFO CREEK (PD T2200)**

Species	Survey Dates (2015)								
	14-Apr	24-Apr	5-May	16-May	27-May	9-Jun	19-Jun	30-Jun	12-Jul
spotted towhee (<i>Pipilo maculatus</i>)		3	4	2	3	3		5	2
California towhee (<i>Melospiza crissalis</i>)	2	2		2	2	2	1	2	5
song sparrow (<i>Melospiza melodia</i>)		8	1	1	3	3	3	5	2
dark-eyed junco (<i>Junco hyemalis</i>)					1				
western tanager (<i>Piranga ludoviciana</i>)					1				
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)		1		1	1			1	3
brown-headed cowbird (<i>Molothrus ater</i>)	2	1	2	2		1	1	2	2
hooded oriole (<i>Icterus cucullatus</i>)			2	1	1				2
Bullock's oriole (<i>Icterus bullockii</i>)	1	3	1	1		1		1	6
house finch (<i>Haemorhous mexicanus</i>)	2	6	8	1	10	3	2	8	8
lesser goldfinch (<i>Spinus psaltria</i>)	5	2	3	1	1	5	3	2	5
* Introduced non-native species with established breeding population in California									

**REACH 39
BEATTY CHANNEL OUTLET AT SAN GABRIEL RIVER
25+99.00+50'**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
mallard (<i>Anas platyrhynchos</i>)			1		2	1	4		
California quail (<i>Callipepla californica</i>)	2		1		1	5	2	2	2
pieb-billed grebe (<i>Podilymbus podiceps</i>)								1	
double-crested cormorant (<i>Phalacrocorax pelagicus</i>)					1				
great egret (<i>Adrea alba</i>)							1		
snowy egret (<i>Egretta thula</i>)								1	
green heron (<i>Butorides virescens</i>)						1		1	
black-crowned night-heron (<i>Nycticorax nycticorax</i>)						1			
turkey vulture (<i>Cathartes aura</i>)					1				1
Cooper's hawk (<i>Accipiter cooperii</i>)				1	2	3	1	2	3
red-shouldered hawk (<i>Buteo lineatus</i>)					1				
red-tailed hawk (<i>Buteo jamaicensis</i>)						1			
killdeer (<i>Charadrius vociferous</i>)	1			1		1			1
rock pigeon ^a (<i>Columbia livia</i>)			2						
mourning dove (<i>Zenaida macroura</i>)	3		2	3	5	4	6	7	4
white-throated swift (<i>Aeronautes saxatalis</i>)			1	1	2		4		3
black-chinned hummingbird (<i>Archilochus alexandri</i>)	2				1	1	1		
Anna's hummingbird (<i>Calypte anna</i>)				3	2			2	6
Costa's hummingbird (<i>Calypte costae</i>)					1				
Allen's hummingbird ^b (<i>Selasphorus sasin</i>)	1				4	4		1	1
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)	2		2						5

**REACH 39
BEATTY CHANNEL OUTLET AT SAN GABRIEL RIVER
25+99.00+50'**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
Nuttall's woodpecker (<i>Picooides nuttallii</i>)						2			
American kestrel (<i>Falco sparverius</i>)						1			
red-crowned parrot ^a (<i>Amazona viridigenalis</i>)					6				
yellow-chevroned parakeet ^a (<i>Brotogeris Chirin</i>)					2				
black phoebe (<i>Sayornis nigricans</i>)				1	1	2	5	1	4
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)									1
Bell's vireo (<i>Vireo bellii</i>)			1	2	1	1			
western scrub-jay (<i>Aphelocoma californica</i>)				1	2	3	4	3	2
American crow (<i>Corvus brachyrhynchos</i>)			1			1		3	
common raven (<i>Corvus corax</i>)	2		2	2	3	5	2		
violet-green swallow (<i>Tachycineta thalassina</i>)				2					
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)			4	2	3	5	5	5	5
cliff swallow (<i>Petrochelidon pyrrhonota</i>)	4		12	1		7	15	35	2
bush-tit (<i>Psaltriparus minimus</i>)	2			10	4	2	10	4	
Bewick's wren (<i>Thryomanes bewickii</i>)	4		1	2	2	7	4	11	6
wrentit (<i>Chamaea fasciata</i>)	1		2	1	4	3	5	4	10
California thrasher (<i>Toxostoma redivivum</i>)					2	2	1		4
northern mockingbird (<i>Mimus polyglottos</i>)	3		5	3	3	3	3	7	2
European starling ^a (<i>Sturnus vulgaris</i>)	2			3					
cedar waxwing (<i>Bombycilla cedrorum</i>)				3			1		
phainopepla (<i>Phainopepla nitens</i>)	2								

**REACH 39
BEATTY CHANNEL OUTLET AT SAN GABRIEL RIVER
25+99.00+50'**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
orange-crowned warbler (<i>Oreothlypis celata</i>)	1								
common yellowthroat (<i>Geothlypis trichas</i>)	2		4	2	4	3	10	3	4
yellow warbler (<i>Setophaga petechia</i>)			3		1				
Townsend's warbler (<i>Setophaga townsendi</i>)				1					
Wilson's warbler (<i>Cardellina pusilla</i>)			2						
yellow-breasted chat (<i>Icteria virens</i>)					1	1	3		
spotted towhee (<i>Pipilo maculatus</i>)	2			2	5	4		6	2
California towhee (<i>Melospiza crissalis</i>)	1		1	4		1		7	4
Savannah sparrow (<i>Passerculus sandwichensis</i>)	1								
song sparrow (<i>Melospiza melodia</i>)	6		4		4	6	8	6	2
western tanager (<i>Piranga ludoviciana</i>)			1						
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)					2	1	3	1	1
blue grosbeak (<i>Passerina caerulea</i>)					1		1		
red-winged blackbird (<i>Agelaius phoeniceus</i>)	1				3	3	15		
brown-headed cowbird (<i>Molothrus ater</i>)			3				2	1	
hooded oriole (<i>Icterus cucullatus</i>)						1	3		1
house finch (<i>Haemorhous mexicanus</i>)	5		10	10	15	10	10	1	5
purple finch (<i>Haemorhous purpureus</i>)	1								
lesser goldfinch (<i>Spinus psaltria</i>)	4		8	6	7	4	8	2	4
American goldfinch (<i>Spinus tristis</i>)				2				2	1
house sparrow ^a (<i>Passer domesticus</i>)								2	

**REACH 39
BEATTY CHANNEL OUTLET AT SAN GABRIEL RIVER
25+99.00+50'**

Species	Survey Dates (2015)								
	13-Apr	23-Apr	4-May	14-May	30-May	10-Jun	20-Jun	28-Jun	12-Jul
scaly-breasted munia ^a (<i>Lonchura punctulata</i>)					1		5		3
^a Introduced non-native species with established breeding population in California ^b males only									

**REACH 40B
SAN GABRIEL RIVER – INTERSTATE 10 (SANTA MONICA) FREEWAY TO THIENES
AVENUE**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
Canada goose (<i>Branta canadensis</i>)	1			10					
Egyptian goose (<i>Alopochen aegyptiaca</i>)		1							
gadwall (<i>Anas strepera</i>)	2	2							
mallard (<i>Anas platyrhynchos</i>)	10	25	30	20	20	12	2	2	
blue-winged teal (<i>Anas discors</i>)	1								
cinnamon teal (<i>Anas cyanoptera</i>)		1	1		1				
northern shoveler (<i>Anas clypeata</i>)	1								
lesser scaup (<i>Aythya affinis</i>)	4								
bufflehead (<i>Bucephala albeola</i>)	2								
ruddy duck (<i>Oxyura jamaicensis</i>)	25								
pieb-billed grebe (<i>Podilymbus podiceps</i>)	6	2	5	3	2	3	4	2	2
horned grebe (<i>Podiceps auritus</i>)		1							
double-crested cormorant (<i>Phalacrocorax pelagicus</i>)	5	1	1	5	2	2	2	4	5
American bittern (<i>Botaurus lentiginosus</i>)								1	
great blue heron (<i>Ardea herodias</i>)	1	2			1	1			1
great egret (<i>Ardea alba</i>)							3		
snowy egret (<i>Egretta caeulea</i>)		5	2	1	1		4	1	
green heron (<i>Butorides virescens</i>)		2	1	2	1	1	3	1	
black-crowned night-heron (<i>Nycticorax nycticorax</i>)			1					1	
osprey (<i>Pandion haliateus</i>)		1							
sharp-shinned hawk (<i>Accipiter striatus</i>)	1								

REACH 40B
SAN GABRIEL RIVER – INTERSTATE 10 (SANTA MONICA) FREEWAY TO THIENES AVENUE

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
red-tailed hawk (<i>Buteo jamaicensis</i>)	1	1							1
common gallinule (<i>Gallinula galeata</i>)		4	2		1			1	2
American coot (<i>Fulica americana</i>)	2	6	2	8	2	4	1	5	2
black-necked stilt (<i>Himantopus mexicanus</i>)	8	15	10	12	5	8			
American avocet (<i>Recurvirostra americana</i>)	4	3	1	1	1				
killdeer (<i>Charadrius vociferous</i>)	3	5	7	4	8	3	1	3	1
spotted sandpiper (<i>Actitis macularius</i>)			1						
least yellowlegs (<i>Tringa flavipes</i>)				1					
least sandpiper (<i>Calidris minutilla</i>)		15							
long-billed dowitcher (<i>Limnodromus scolopaceus</i>)	1	150	35						
ring-billed gull (<i>Larus delawarensis</i>)	1								
western gull (<i>Larus occidentalis</i>)	2	1				1			
California gull (<i>Larus californicus</i>)	3								
rock pigeon ^a (<i>Columbia livia</i>)	3	4	2		2	6	2		
band-tailed pigeon (<i>Patagioenas fasciata</i>)				2		10			
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)	5	5	8	8	10	8	18	22	10
mourning dove (<i>Zenaida macroura</i>)	4	6	3	6	8	18	2	3	5
white-throated swift (<i>Aeronautes saxatalis</i>)				2	1	3			
Anna's hummingbird (<i>Calypte anna</i>)	2	4	3	3	3	1	1	1	3
Allen's Hummingbird ^b (<i>Selasphorus sasin</i>)	1	2		1	1				
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)	2		2	2	1		1	1	

REACH 40B
SAN GABRIEL RIVER – INTERSTATE 10 (SANTA MONICA) FREEWAY TO THIENES AVENUE

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	1			1			2	1	1
downy woodpecker (<i>Picoides pubescens</i>)			1				1		1
red-crowned parrot ^a (<i>Amazona viridigenalis</i>)				2		6			
yellow-crowned parrot ^a (<i>Amazona ochrocephala</i>)		2					4		
western wood-pewee (<i>Contopus sordidulus</i>)					3				
willow flycatcher (<i>Empidonax traillii</i>)					1				
Pacific-slope flycatcher (<i>Empidonax oberholseri</i>)					1				
black phoebe (<i>Sayornis nigricans</i>)	5	4	4	5	4	6	4	3	3
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)					1				
Cassin's kingbird (<i>Tyrannus vociferans</i>)		2		2				2	
Bell's vireo (<i>Vireo bellii</i>)	6	6	6	8	8	6	5	8	6
warbling vireo (<i>Vireo gilvus</i>)			2	1					
western scrub-jay (<i>Aphelocoma californica</i>)				1	1			1	
American crow (<i>Corvus brachyrhynchos</i>)	1	2	4				4		2
common raven (<i>Corvus corax</i>)	3	6	10	6	3	4	1	2	
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	2	10	3	5	4	14	25		6
cliff swallow (<i>Petrochelidon pyrrhonota</i>)	15	20	20	25	30	35	30	10	12
barn swallow (<i>Hirundo rustica</i>)	12	10	4	10	10	14	3	6	
bushtit (<i>Psaltriparus minimus</i>)	10	16	18	32	24	30	35	26	26
house wren (<i>Troglodytes aedon</i>)								1	
American robin (<i>Turdus migratorius</i>)	1	1					1	1	

**REACH 40B
SAN GABRIEL RIVER – INTERSTATE 10 (SANTA MONICA) FREEWAY TO THIENES
AVENUE**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
northern mockingbird (<i>Mimus polyglottos</i>)	3		10	5	5	7	8	8	4
European starling ^a (<i>Sturnus vulgaris</i>)	10		15	16	25	35	60	16	6
cedar waxwing (<i>Bombycilla cedrorum</i>)		10		14					
orange-crowned warbler (<i>Oreothlypis celata</i>)		2							
Nashville warbler (<i>Oreothlypis ruficapilla</i>)		1							
common yellowthroat (<i>Geothlypis trichas</i>)	16	14	13	12	10	15	12	8	8
American redstart (<i>Setophaga ruticilla</i>)	1	1	1						
yellow warbler (<i>Setophaga petechia</i>)	19	18	22	18	18	17	14	18	11
yellow-rumped warbler (<i>Setophaga coronata</i>)	2								
black-throated gray warbler (<i>Setophaga nigrescens</i>)	1								
Townsend's warbler (<i>Setophaga townsendi</i>)			1	1					
Wilson's warbler (<i>Cardellina pusilla</i>)	1	2	2	2	2				
yellow-breasted chat (<i>Icteria virens</i>)		1		1	1	1	2	1	1
spotted towhee (<i>Pipilo maculatus</i>)		3	1	1	1		1	2	
California towhee (<i>Melospiza crissalis</i>)	3	5	9	6	4	7	6	3	4
song sparrow (<i>Melospiza melodia</i>)	18	20	19	20	18	18	13	6	2
white-crowned sparrow (<i>Zonotrichia leucophrys</i>)	2								
western tanager (<i>Piranga ludoviciana</i>)				1					
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)		1	1	1	1	1	1	2	1
blue grosbeak (<i>Passerina caerulea</i>)			2		1		1	1	1
red-winged blackbird (<i>Agelaius phoeniceus</i>)	8	12	15	16	10	2	4	1	3

**REACH 40B
SAN GABRIEL RIVER – INTERSTATE 10 (SANTA MONICA) FREEWAY TO THIENES
AVENUE**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
great-tailed grackle (<i>Quiscalus mexicanus</i>)	33	12	15	20	20	18	20	12	5
brown-headed cowbird (<i>Molothrus ater</i>)		4	3	2	6	6	4	3	3
hooded oriole (<i>Icterus cucullatus</i>)	1			3	1		1	2	1
Bullock's oriole (<i>Icterus bullockii</i>)	4	5	2	5	8	5	5	2	4
house finch (<i>Haemorhous mexicanus</i>)	18	18	30	26	30	45	50	30	30
lesser goldfinch (<i>Spinus psaltria</i>)	8	6	6	12	6	15	8	4	3
American goldfinch (<i>Spinus tristis</i>)	2	2		4	4	4	3	6	1
house sparrow ^a (<i>Passer domesticus</i>)	22	35	40	50	25	45	50	60	60
northern red bishop ^a (<i>Euplectes franciscanus</i>)						1			
scaly-breasted munia ^a (<i>Lonchura punctulata</i>)					5	2		1	2
^a Introduced non-native species with established breeding population in California									
^b males only									

**REACH 43A
SAN GABRIEL RIVER – UPPER**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
Canada goose (<i>Branta canadensis</i>)			2			2			
mallard (<i>Anas platyrhynchos</i>)	4	5	3	3	5			5	
pied-billed grebe (<i>Podilymbus podiceps</i>)	1								
double-crested cormorant (<i>Phalacrocorax pelagicus</i>)	1	1		1					
American bittern (<i>Botaurus lentiginosus</i>)		1							
great blue heron (<i>Ardea herodias</i>)		1	3			1			
great egret (<i>Ardea alba</i>)	1		1	1		2	4	1	1
snowy egret (<i>Egretta caerulea</i>)	3	1	3	4	1	2	4	1	1
black-crowned night-heron (<i>Nycticorax nycticorax</i>)		1		1					
sharp-shinned hawk (<i>Accipiter striatus</i>)	1								
Cooper's hawk (<i>Accipiter cooperii</i>)	1	2							
red-tailed hawk (<i>Buteo jamaicensis</i>)				1	1				1
whimbrel (<i>Numenius phaeopus</i>)			7						
ring-billed gull (<i>Larus delawarensis</i>)	1								
western gull (<i>Larus occidentalis</i>)					1				
rock pigeon ^a (<i>Columbia livia</i>)		2		53		5	12		10
band-tailed pigeon (<i>Patagioenas fasciata</i>)						1			1
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)	1	3	2	1					
mourning dove (<i>Zenaida macroura</i>)	3	5	2	5	3	12	6	4	10
white-throated swift (<i>Aeronautes saxatalis</i>)	1	2		1				1	

**REACH 43A
SAN GABRIEL RIVER – UPPER**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
black-chinned hummingbird (<i>Archilochus alexandri</i>)						1			
Anna's hummingbird (<i>Calypte anna</i>)	2	2	2	3	3				
Allen's hummingbird ^b (<i>Selasphorus sasin</i>)	1		1						
Allen's/rufous hummingbird (<i>Selasphorus</i> sp.)	2	2	1	3	2	1	1	1	2
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	1		1	1	1		1	1	1
downy woodpecker (<i>Picoides pubescens</i>)	1	3		1	1	1	2	1	
American kestrel (<i>Falco sparverius</i>)							2		
yellow-crowned parrot ^a (<i>Amazona ochrocephala</i>)	4		2						
Pacific-slope flycatcher (<i>Empidonax oberholseri</i>)		1		1		1			
black phoebe (<i>Sayornis nigricans</i>)	4	1	3	5	3	2	2	3	2
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)		1							
Cassin's kingbird (<i>Tyrannus vociferans</i>)	2							3	
Bell's vireo (<i>Vireo bellii</i>)	3	5	3	3	3	4	3	4	2
Hutton's vireo (<i>Vireo huttoni</i>)						1			
warbling vireo (<i>Vireo gilvus</i>)			1						
common raven (<i>Corvus corax</i>)	5	4		3	2			1	
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	2	4	1	2		1			
cliff swallow (<i>Petrochelidon pyrrhonota</i>)	10	15	5	10	15	10	15	20	
barn swallow (<i>Hirundo rustica</i>)		4	2	2		2		1	
bushtit (<i>Psaltriparus minimus</i>)	10	20	18	20	35	25	26	20	40

**REACH 43A
SAN GABRIEL RIVER – UPPER**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
house wren (<i>Troglodytes aedon</i>)	1	4		3	3	3	2	1	1
Bewick's wren (<i>Thryomanes bewickii</i>)						1	1	1	
wrentit (<i>Chamaea fasciata</i>)	1		1	1	1	1	1		
Swainson's thrush (<i>Catharus ustulatus</i>)			1		2	1	2	1	
northern mockingbird (<i>Mimus polyglottos</i>)	1	1	2	2	1	1	1	4	2
European starling ^a (<i>Sturnus vulgaris</i>)		1				6	12		1
cedar waxwing (<i>Bombycilla cedrorum</i>)		35	1	60	10				
orange-crowned warbler (<i>Oreothlypis celata</i>)	1	1	1	1	1				
common yellowthroat (<i>Geothlypis trichas</i>)	6	7	5	9	6	13	10	7	
yellow warbler (<i>Setophaga petechia</i>)	13	15	15	12	18	15	13	12	15
yellow-rumped warbler (<i>Setophaga coronata</i>)	5	1							
black-throated gray warbler (<i>Setophaga nigrescens</i>)	2								
Wilson's warbler (<i>Cardellina pusilla</i>)	2	2	1						
yellow-breasted chat (<i>Icteria virens</i>)	1	5	6	4	4	5	4	3	3
spotted towhee (<i>Pipilo maculatus</i>)	5	6	10	5	4	3	5	4	4
California towhee (<i>Melospiza crissalis</i>)	8	5	8	5	4	6	4	3	5
song sparrow (<i>Melospiza melodia</i>)	12	14	13	16	13	15	10	4	
Lincoln's sparrow (<i>Melospiza lincolni</i>)	1								
white-crowned sparrow (<i>Zonotrichia leucophrys</i>)	5								
western tanager (<i>Piranga ludoviciana</i>)		1							

**REACH 43A
SAN GABRIEL RIVER – UPPER**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)	2	2	2	1	1	1	1	2	
blue grosbeak (<i>Passerina caerulea</i>)			2	2	2	2	2	1	3
lazuli bunting (<i>Passerina amoena</i>)		1	1						
red-winged blackbird (<i>Agelaius phoeniceus</i>)	10		1	1	1				
Brewer's blackbird (<i>Euphagus cyanocephalus</i>)	8							2	
great-tailed grackle (<i>Quiscalus mexicanus</i>)		1							
brown-headed cowbird (<i>Molothrus ater</i>)	5	6	5	6	8	9	3	3	4
hooded oriole (<i>Icterus cucullatus</i>)	1		2	5	2	3		2	3
Bullock's oriole (<i>Icterus bullockii</i>)	1	1				1		3	
house finch (<i>Haemorhous mexicanus</i>)	22	20	34	28	55	35	50	55	56
lesser goldfinch (<i>Spinus psaltria</i>)	20	15	18	22	20	25	40	30	38
Lawrence's goldfinch (<i>Spinus lawrencei</i>)	1		4						
American goldfinch (<i>Spinus tristis</i>)	10	4	6		6	5	5	4	
house sparrow ^a (<i>Passer domesticus</i>)				2					1
scaly-breasted munia ^a (<i>Lonchura punctulata</i>)	15	20	2			4		2	2
^a Introduced non-native species with established breeding population in California ^b males only ** Exotic or escaped non-native species that may or may not be breeding in California									

**REACH 43B
SAN GABRIEL RIVER – LOWER**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
Canada goose (<i>Branta canadensis</i>)	4	5	5		2	4			
mallard (<i>Anas platyrhynchos</i>)	28	30	20	8	20	10	2	1	42
ring-necked duck (<i>Athya collaris</i>)		2							
ruddy duck (<i>Oxyura jamaicensis</i>)		3							
double-crested cormorant (<i>Phalacrocorax pelagicus</i>)			1	1	3			2	
great blue heron (<i>Ardea herodias</i>)	1	1		1	1			1	1
great egret (<i>Ardea alba</i>)	2		2		1		6		
snowy egret (<i>Egretta caerulea</i>)	2	3	20	4	2	20	6		1
black-crowned night-heron (<i>Nycticorax nycticorax</i>)		1	5	1	1				
Cooper's Hawk (<i>Accipiter cooperii</i>)					1		1	2	
red-shouldered hawk (<i>Buteo lineatus</i>)								1	
red-tailed hawk (<i>Buteo jamaicensis</i>)	1	1	1		1			2	
common gallinule (<i>Gallinula galeata</i>)	1								
American coot (<i>Fulica americana</i>)	1	2							
killdeer (<i>Charadrius vociferous</i>)	1	4	1	1		1		1	
spotted sandpiper (<i>Actitis macularius</i>)		2							
whimbrel (<i>Numenius phaeopus</i>)			8						
ring-billed gull (<i>Larus delawarensis</i>)	4								
western gull (<i>Larus occidentalis</i>)				1	1				
California gull (<i>Larus californicus</i>)	1		1						
Caspian tern (<i>Hydroprogne caspia</i>)		3							
rock pigeon ^a (<i>Columbia livia</i>)	14	6	2	4	25	5	3	5	2

**REACH 43B
SAN GABRIEL RIVER – LOWER**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
band-tailed pigeon (<i>Patagioenas fasciata</i>)		2		5					2
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)	6	4	6	8	6	6	2	12	4
mourning dove (<i>Zenaida macroura</i>)	15	5	13	12	6	12	12	1	16
white-throated swift (<i>Aeronautes saxatalis</i>)	1				1	2			1
Anna's hummingbird (<i>Calypte anna</i>)	2	4	5	3	2	1	1	1	1
Allen's/rufous hummingbird (<i>Selasphorus</i> sp.)	1		5	3	1		2	1	2
Nuttall's woodpecker (<i>Picoides nuttallii</i>)								1	
downy woodpecker (<i>Picoides pubescens</i>)		1	1						1
American kestrel (<i>Falco sparverius</i>)	1								
red-crowned parrot ^a (<i>Amazona viridigenalis</i>)		2	2						
western wood-pewee (<i>Contopus sordidulus</i>)					1				
black phoebe (<i>Sayornis nigricans</i>)	3	1	3	4	3	3	4	3	3
Cassin's kingbird (<i>Tyrannus vociferans</i>)	4	2	4	2	2	2	5	3	3
western kingbird (<i>Tyrannus verticalis</i>)				2					
Cassin's vireo (<i>Vireo cassinii</i>)			1						
warbling vireo (<i>Vireo gilvus</i>)			5	1					
western scrub-jay (<i>Aphelocoma californica</i>)					1				1
American crow (<i>Corvus brachyrhynchos</i>)				1				2	
common raven (<i>Corvus corax</i>)	35	14	22	20	75	45	80	90	85
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	2	3	4	2	2		5	3	2
cliff swallow (<i>Petrochelidon pyrrhonota</i>)	20	45	30	25	25	30	50	45	15
barn swallow (<i>Hirundo rustica</i>)	4	8	8	6	10	5	5	5	7

**REACH 43B
SAN GABRIEL RIVER – LOWER**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
bush-tit (<i>Psaltriparus minimus</i>)	8	8	15	26	18	20	52	24	12
house wren (<i>Troglodytes aedon</i>)	2	2	1						
western bluebird (<i>Sialia mexicana</i>)	2			3	1		3		
northern mockingbird (<i>Mimus polyglottos</i>)	5	5	6	6	3	5	8	6	4
European starling ^a (<i>Sturnus vulgaris</i>)	10	1	10	8	5	12	4	8	
cedar waxwing (<i>Bombycilla cedrorum</i>)				10	25				
common yellowthroat (<i>Geothlypis trichas</i>)	5	6	7	7	5	18	12	12	2
yellow warbler (<i>Setophaga petechia</i>)	8	12	17	10	14	8	10	9	7
yellow-rumped warbler (<i>Setophaga coronata</i>)	3								
black-throated gray warbler (<i>Setophaga nigrescens</i>)	1								
Wilson's warbler (<i>Cardellina pusilla</i>)	1		1	2	3				
spotted towhee (<i>Pipilo maculatus</i>)		1	2	1	1	1	1	1	
California towhee (<i>Melospiza crissalis</i>)	2	2	4	5	3	4	4	4	4
song sparrow (<i>Melospiza melodia</i>)	10	9	13	19	15	15	12	3	7
white-crowned sparrow (<i>Zonotrichia leucophrys</i>)	12								
western tanager (<i>Piranga ludoviciana</i>)			1		1				
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)					4	1		1	1
blue grosbeak (<i>Passerina caerulea</i>)		1	2	2		2	4	7	2
lazuli bunting (<i>Passerina amoena</i>)			3	1					
red-winged blackbird (<i>Agelaius phoeniceus</i>)	30	2	9	8	6		12	12	
great-tailed grackle (<i>Quiscalus mexicanus</i>)	8	2				1	1		2
brown-headed cowbird (<i>Molothrus ater</i>)	4	8	2	3	2	4	3	1	4

**REACH 43B
SAN GABRIEL RIVER – LOWER**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	2-May	13-May	23-May	2-Jun	12-Jun	26-Jun	10-Jul
hooded oriole (<i>Icterus cucullatus</i>)	2	2	4	2	2	1	2	1	5
Bullock's Oriole (<i>Icterus bullockii</i>)	1						1		1
house finch (<i>Haemorhous mexicanus</i>)	8	20	16	20	18	25	25	18	25
lesser goldfinch (<i>Spinus psaltria</i>)	6	5		12	6	5	8	3	8
American goldfinch (<i>Spinus tristis</i>)			3						1
house sparrow ^a (<i>Passer domesticus</i>)		4	4	5	5	6	3		3
northern red bishop ^a (<i>Euplectes franciscanus</i>)							1	2	
scaly-breasted munia ^a (<i>Lonchura punctulata</i>)			5					2	8
^a Introduced non-native species with established breeding population in California									

REACHES 71, 79, AND 80
SANTA CLARA RIVER MAIN CHANNEL (PD 1946)
SOUTH FORK – SANTA CLARA RIVER (VALENCIA BLVD. BRIDGE STABILIZER)
SOUTH FORK – SANTA CLARA RIVER (PDs 1947 AND 1946)

Species	Survey Dates (2015)							
	11-Apr	22-Apr	4-May	16-May	26-May	5-Jun	17-Jun	29-Jun
cackling goose (<i>Branta hutchinsii</i>)			1					
Canada goose (<i>Branta canadensis</i>)	2		7					
mallard (<i>Anas platyrhynchos</i>)				1				
California quail (<i>Callipepla californica</i>)	1	2	3	3	2	1	1	2
great egret (<i>Ardea alba</i>)				1				
snowy egret (<i>Egretta thula</i>)		2						
turkey vulture (<i>Cathartes aura</i>)		1						
Cooper's hawk (<i>Accipiter cooperii</i>)				1				
red-tailed hawk (<i>Buteo jamaicensis</i>)		2		2	2	1	2	1
killdeer (<i>Charadrius vociferous</i>)	2	3	3					
western gull (<i>Larus occidentalis</i>)							1	
rock pigeon ^a (<i>Columbia livia</i>)		1	2	2				
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)	1							
mourning dove (<i>Zenaida macroura</i>)	8	6	16	12	5	6	7	4
white-throated swift (<i>Aeronautes saxatalis</i>)		2						
black-chinned hummingbird (<i>Archilochus alexandri</i>)	1							
Anna's hummingbird (<i>Calypte anna</i>)	3	2	6	3	2	3		
Costa's hummingbird (<i>Calypte costae</i>)	1							
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)				2				
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	2	1	2	1	3	1	2	1
western wood-pewee (<i>Contopus sordidulus</i>)		1						

REACHES 71, 79, AND 80
SANTA CLARA RIVER MAIN CHANNEL (PD 1946)
SOUTH FORK – SANTA CLARA RIVER (VALENCIA BLVD. BRIDGE STABILIZER)
SOUTH FORK – SANTA CLARA RIVER (PDs 1947 AND 1946)

Species	Survey Dates (2015)							
	11-Apr	22-Apr	4-May	16-May	26-May	5-Jun	17-Jun	29-Jun
willow flycatcher (<i>Empidonax traillii</i>)				1	1			
Pacific-slope flycatcher (<i>Empidonax difficilis</i>)		1						
black phoebe (<i>Sayornis nigricans</i>)		1	2	1	2	2	4	1
Say's Phoebe (<i>Sayornis saya</i>)		1	1		4	2	2	2
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	2	3	4	2	2	2	3	2
Cassin's kingbird (<i>Tyrannus vociferans</i>)	3	2	7	2	2	1	4	2
western kingbird (<i>Tyrannus verticalis</i>)	1	1	1	4				
warbling vireo (<i>Vireo gilvus</i>)		1	1	1	4			
western scrub-jay (<i>Aphelocoma californica</i>)	8	7	6	2	4	3	2	3
American crow (<i>Corvus brachyrhynchos</i>)					2	2	2	
common raven (<i>Corvus corax</i>)	6	12	14	18	4	4	3	5
horned lark (<i>Eremophila alpestris</i>)							1	
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	2	3	1	3	2	5	10	8
cliff swallow (<i>Petrochelidon pyrrhonota</i>)	1	35	20	2	20	15	5	2
barn swallow (<i>Hirundo rustica</i>)		4						
oak titmouse (<i>Baeolophus inornatus</i>)	2	2		1	2	2		
bush-tit (<i>Psaltriparus minimus</i>)	6	12	18	18	3	10	2	10
Bewick's wren (<i>Thryomanes bewickii</i>)	5	4	4	4	3	4	4	4
western bluebird (<i>Sialia mexicana</i>)					4	4	4	
American robin (<i>Turdus migratorius</i>)		1						
California thrasher (<i>Toxostoma redivivum</i>)	4	4	1	1	2	1	5	1

REACHES 71, 79, AND 80
SANTA CLARA RIVER MAIN CHANNEL (PD 1946)
SOUTH FORK – SANTA CLARA RIVER (VALENCIA BLVD. BRIDGE STABILIZER)
SOUTH FORK – SANTA CLARA RIVER (PDs 1947 AND 1946)

Species	Survey Dates (2015)							
	11-Apr	22-Apr	4-May	16-May	26-May	5-Jun	17-Jun	29-Jun
northern mockingbird (<i>Mimus polyglottos</i>)	1	4	6	4	4	2	6	2
European starling ^a (<i>Sturnus vulgaris</i>)	1	14	8	5	2	6	4	15
cedar waxwing (<i>Bombycilla cedrorum</i>)		15	60					
phainopepla (<i>Phainopepla nitens</i>)		1	1		1	1	1	
orange-crowned warbler (<i>Oreothlypis celata</i>)	4	1	1					
Nashville Warbler (<i>Oreothlypis ruficapilla</i>)		2						
MacGillivray's warbler (<i>Geothlypis tolmiei</i>)		2	1					
common yellowthroat (<i>Geothlypis trichas</i>)		2	2		1	1		
yellow warbler (<i>Setophaga petechia</i>)	3		8	6	1	1	1	
yellow-rumped warbler (<i>Setophaga coronata</i>)	1							
black-throated gray warbler (<i>Setphaga nigrescens</i>)		1						
Wilson's warbler (<i>Cardellina pusilla</i>)	3	7	1					
spotted towhee (<i>Pipilo maculatus</i>)		3	1	1				
California towhee (<i>Melospiza crissalis</i>)	6	3	4	4	1	3	2	2
song sparrow (<i>Melospiza melodia</i>)	2		2	1				
Lincoln's sparrow (<i>Melospiza lincolni</i>)	1							
white-crowned sparrow (<i>Zonotrichia atricapilla</i>)	8							
western tanager (<i>Piranga ludoviciana</i>)		4	5	1				
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)	1	2	3	2				
lazuli bunting (<i>Passerina amoena</i>)		1						
red-winged blackbird (<i>Agelaius phoeniceus</i>)					1			

REACHES 71, 79, AND 80
SANTA CLARA RIVER MAIN CHANNEL (PD 1946)
SOUTH FORK – SANTA CLARA RIVER (VALENCIA BLVD. BRIDGE STABILIZER)
SOUTH FORK – SANTA CLARA RIVER (PDs 1947 AND 1946)

Species	Survey Dates (2015)							
	11-Apr	22-Apr	4-May	16-May	26-May	5-Jun	17-Jun	29-Jun
Brewer's blackbird (<i>Euphagus cyanocephalus</i>)	1	1	5	1				
great-tailed grackle (<i>Quiscalus mexicanus</i>)	1						4	
hooded oriole (<i>Icterus cucullatus</i>)	1				1			
Bullock's oriole (<i>Icterus bullockii</i>)	1	6					1	
house finch (<i>Haemorhous mexicanus</i>)	10	16	46	29	8	12	10	20
lesser goldfinch (<i>Spinus psaltria</i>)	3	2		1	3	4	4	6
house sparrow ^a (<i>Passer domesticus</i>)			3					

^a Introduced non-native species with established breeding population in California

REACH 75
SOUTH FORK – SANTA CLARA RIVER (PDs 725, 916, 1041, AND 1300)

Species	Survey Dates (2015)							
	11-Apr	22-Apr	4-May	16-May	26-May	5-Jun	17-Jun	29-Jun
mallard (<i>Anas platyrhynchos</i>)				2	2			
California quail (<i>Callipepla californica</i>)		2	2		1			
turkey vulture (<i>Cathartes aura</i>)	1				2	4	4	1
Cooper's hawk (<i>Accipiter cooperii</i>)					1	1		
red-tailed hawk (<i>Buteo jamaicensis</i>)					1		2	1
killdeer (<i>Charadrius vociferous</i>)				1				
ring-billed gull (<i>Larus delawarensis</i>)					1			
rock pigeon ^a (<i>Columbia livia</i>)		18					25	10
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)	4			4	5	3	2	3
mourning dove (<i>Zenaida macroura</i>)	3	12	6	10	12	10	12	6
white-throated swift (<i>Aeronautes saxatalis</i>)	10	6	4		2	2	14	8
black-chinned hummingbird (<i>Archilochus alexandri</i>)	3		2	1				
Anna's hummingbird (<i>Calypte anna</i>)	5	3	10	4	3	4	2	1
Costa's hummingbird (<i>Calypte costae</i>)				1	1	1		
Allen's hummingbird ^b (<i>Selasphorus sasin</i>)		1						
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)	7	2	1	4	1	2	2	
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	1	4	3	4	4	3	2	1
downy woodpecker (<i>Picoides pubescens</i>)				1				
western wood-pewee (<i>Contopus sordidulus</i>)				1				
Pacific-slope flycatcher (<i>Empidonax difficilis</i>)		1						
black phoebe (<i>Sayornis nigricans</i>)	3	3	8	3	6	5	11	5

REACH 75
SOUTH FORK – SANTA CLARA RIVER (PDs 725, 916, 1041, AND 1300)

Species	Survey Dates (2015)							
	11-Apr	22-Apr	4-May	16-May	26-May	5-Jun	17-Jun	29-Jun
Say's phoebe (<i>Sayornis saya</i>)		1			4	3	2	
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)				2				
warbling vireo (<i>Vireo gilvus</i>)		3						
Cassin's kingbird (<i>Tyrannus vociferans</i>)	2	1	4	1	2	2	6	3
western kingbird (<i>Tyrannus verticalis</i>)					3		4	4
Cassin's vireo (<i>Vireo cassinii</i>)	2							
Hutton's vireo (<i>Vireo huttoni</i>)	1							
warbling vireo (<i>Vireo gilvus</i>)			5		1			
western scrub-jay (<i>Aphelocoma californica</i>)	5	5	4	2	4	6	7	5
American crow (<i>Corvus brachyrhynchos</i>)	3		3	1	6	15		
common raven (<i>Corvus corax</i>)	10	6	14	12	12	4	10	6
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	13	7	8	6	8	6	13	10
cliff swallow (<i>Petrochelidon pyrrhonota</i>)						5	2	4
oak titmouse (<i>Baeolophus inornatus</i>)	4		1	2			1	
bush-tit (<i>Psaltriparus minimus</i>)	14	20	22	24	4	15	15	10
house wren (<i>Troglodytes aedon</i>)					1			
Bewick's wren (<i>Thryomanes bewickii</i>)	5	4	5	4	4	6	6	5
wrentit (<i>Chamaea fasciata</i>)	1	1	1	1	2	1	1	1
western bluebird (<i>Sialia mexicana</i>)	3	1		10	11	10	1	
California thrasher (<i>Toxostoma redivivum</i>)	7	6	3	3	2	1	2	1
northern mockingbird (<i>Mimus polyglottos</i>)	4	4	8	3	6	5	4	2

REACH 75
SOUTH FORK – SANTA CLARA RIVER (PDs 725, 916, 1041, AND 1300)

Species	Survey Dates (2015)							
	11-Apr	22-Apr	4-May	16-May	26-May	5-Jun	17-Jun	29-Jun
European starling ^a (<i>Sturnus vulgaris</i>)	2	4		2	8	10	1	15
cedar waxwing (<i>Bombycilla cedrorum</i>)			1	10	15			
orange-crowned warbler (<i>Oreothlypis celata</i>)	3	2	1		1			
Nashville warbler (<i>Oreothlypis ruficapilla</i>)	5	3						
MacGillivray's warbler (<i>Geothlypis tolmiei</i>)		1						
common yellowthroat (<i>Geothlypis trichas</i>)	1		1		3	4		
yellow warbler (<i>Setophaga petechia</i>)	1	2	12	4	9	4	3	2
yellow-rumped warbler (<i>Setophaga coronata</i>)	18	5						
black-throated gray warbler (<i>Setphaga nigrescens</i>)	5	2	2					
Wilson's warbler (<i>Cardellina pusilla</i>)		2	4		3			
spotted towhee (<i>Pipilo maculatus</i>)	2	2	2	1	1	2	3	
California towhee (<i>Melozone crissalis</i>)	6	4	10	5	5	6	5	2
song sparrow (<i>Melospiza melodia</i>)	3		3	3			6	1
white-crowned sparrow (<i>Zonotrichia atricapilla</i>)	6							
western tanager (<i>Piranga ludoviciana</i>)		2	8	6	2			
blue grosbeak (<i>Passerina caerulea</i>)			1					
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)				1	1			
lazuli bunting (<i>Passerina amoena</i>)	1	1						
brown-headed cowbird (<i>Molothrus ater</i>)		2		1				
hooded oriole (<i>Icterus cucullatus</i>)	1	1	2	1	1	2	1	
Bullock's oriole (<i>Icterus bullockii</i>)	8	3	4	1	1		3	1

REACH 75
SOUTH FORK – SANTA CLARA RIVER (PDs 725, 916, 1041, AND 1300)

Species	Survey Dates (2015)							
	11-Apr	22-Apr	4-May	16-May	26-May	5-Jun	17-Jun	29-Jun
house finch (<i>Haemorhous mexicanus</i>)	20	18	26	44	25	30	20	15
pine siskin (<i>Spinus pinus</i>)	1							
lesser goldfinch (<i>Spinus psaltria</i>)	8	8	10	22	12	15	12	10
Lawrence's goldfinch (<i>Spinus lawrencei</i>)	1							
American goldfinch (<i>Spinus tristis</i>)	100				1			
house sparrow ^a (<i>Passer domesticus</i>)			3		2			
^a Introduced non-native species with established breeding population in California ^b males only								

**REACHES 82 AND 109
SANTA CLARA RIVER MAIN CHANNEL (PD 2278)
AND
SANTA CLARA RIVER – SOUTH BANK WEST OF MCBRAN PKWY (MTD 1510)**

Species	Survey Dates (2015)							
	11-Apr	21-Apr	1-May	12-May	22-May	3-Jun	15-Jun	25-Jun
Canada goose (<i>Branta canadensis</i>)			3					
California quail (<i>Callipepla californica</i>)	2	1	1	2	2			
Cooper's hawk (<i>Accipiter cooperii</i>)		1	2	2	2	2		
red-shouldered hawk (<i>Buteo lineatus</i>)		1	2	2	1	1	1	2
red-tailed hawk (<i>Buteo jamaicensis</i>)	1							
rock pigeon ^a (<i>Columbia livia</i>)		10						
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)				1				
mourning dove (<i>Zenaida macroura</i>)	3	1	2	2	2	4	3	2
Anna's hummingbird (<i>Calypte anna</i>)	5	6	3	4	5	5	1	1
Costa's hummingbird (<i>Calypte costae</i>)						2		1
Allen's/rufous hummingbird (<i>Selasphorus</i> sp.)	1		1		3			
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	7	2	1	2	3	2	1	2
downy woodpecker (<i>Picoides pubescens</i>)				3	1			
hairy woodpecker (<i>Picoides villosus</i>)		1						
Pacific-slope flycatcher (<i>Empidonax oberholseri</i>)				1				
black phoebe (<i>Sayornis nigricans</i>)		1	1	1	1		2	4
Say's phoebe (<i>Sayornis saya</i>)						1	2	
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	4	4	1	2	1	4	1	2
Bell's vireo (<i>Vireo bellii</i>)	1							
warbling vireo (<i>Vireo gilvus</i>)		1			1			

**REACHES 82 AND 109
SANTA CLARA RIVER MAIN CHANNEL (PD 2278)
AND
SANTA CLARA RIVER – SOUTH BANK WEST OF MCBRAN PKWY (MTD 1510)**

Species	Survey Dates (2015)							
	11-Apr	21-Apr	1-May	12-May	22-May	3-Jun	15-Jun	25-Jun
western kingbird (<i>Tyrannus verticalis</i>)				1				
warbling vireo (<i>Vireo gilvus</i>)				1				
western scrub-jay (<i>Aphelocoma californica</i>)	9	5	2	6	8	3	6	4
American crow (<i>Corvus brachyrhynchos</i>)		3	3	2	4	6	8	5
common raven (<i>Corvus corax</i>)	11	4	2	7	4	5	7	4
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	1	1		2	3			
cliff swallow (<i>Petrochelidon pyrrhonota</i>)				1	6	1		
oak titmouse (<i>Baeolophus inornatus</i>)	4	1	1			2		3
bushtit (<i>Psaltriparus minimus</i>)	9	7	16	12	25	12	4	12
white-breasted nuthatch (<i>Sitta carolinensis</i>)	1	1					1	
house wren (<i>Troglodytes aedon</i>)	1							
Bewick's wren (<i>Thryomanes bewickii</i>)	10	5	6	6	7	7	4	8
western bluebird (<i>Sialia mexicana</i>)	2	1		3	1	3		
Swainson's thrush (<i>Catharus ustulatus</i>)				4	2			
American robin (<i>Turdus migratorius</i>)	1							
California thrasher (<i>Toxostoma redivivum</i>)	1	4	1	3	4	1	3	
northern mockingbird (<i>Mimus polyglottos</i>)	2	6	4	3	2	1	3	5
European starling ^a (<i>Sturnus vulgaris</i>)	2	1						1
cedar waxwing (<i>Bombycilla cedrorum</i>)		3	5	20	15	4		
phainopepla (<i>Phainopepla nitens</i>)			1	1				

**REACHES 82 AND 109
SANTA CLARA RIVER MAIN CHANNEL (PD 2278)
AND
SANTA CLARA RIVER – SOUTH BANK WEST OF MCBRAN PKWY (MTD 1510)**

Species	Survey Dates (2015)							
	11-Apr	21-Apr	1-May	12-May	22-May	3-Jun	15-Jun	25-Jun
orange-crowned warbler (<i>Oreothlypis celata</i>)	2							
common yellowthroat (<i>Geothlypis trichas</i>)	6	1	2			1	1	1
yellow warbler (<i>Setophaga petechia</i>)	2	2	3	3	4	3	2	2
yellow-rumped warbler (<i>Setophaga coronata</i>)	1							
black-throated gray warbler (<i>Setophaga nigrescens</i>)	4	2						
Townsend's warbler (<i>Setophaga townsendi</i>)		1						
Wilson's warbler (<i>Cardellina pusilla</i>)		2	1	2	2			
spotted towhee (<i>Pipilo maculatus</i>)	5	5	4	3	4	6	3	5
California towhee (<i>Melospiza crissalis</i>)		4	3	5	7	2	3	5
song sparrow (<i>Melospiza melodia</i>)		1	4	5	5	1	6	
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)	5	3	2			3		
brown-headed cowbird (<i>Molothrus ater</i>)	1					2		
hooded oriole (<i>Icterus cucullatus</i>)	2							
house finch (<i>Haemorhous mexicanus</i>)	13	37	26	30	37	40	22	32
pine siskin (<i>Spinus pinus</i>)	6	10						
lesser goldfinch (<i>Spinus psaltria</i>)	3	19	9	15	18	15	9	18

^a Introduced non-native species with established breeding population in California

**REACHE 86
VIOLIN CANYON MAIN CHANNEL OUTLET**

Species	Survey Dates (2015)								
	12-Apr	22-Apr	3-May	13-May	26-May	8-Jun	18-Jun	29-Jun	10-Jul
turkey vulture (<i>Cathartes aura</i>)						1			
red-tailed hawk (<i>Buteo jamaicensis</i>)		2		1	1	1	1	1	1
killdeer (<i>Charadrius vociferous</i>)	1	4	4	4	7	8	8	4	5
least sandpiper (<i>Calidris minutilla</i>)		1							
rock pigeon ^a (<i>Columbia livia</i>)	10	8	7	5					
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)	1	2	1						
mourning dove (<i>Zenaida macroura</i>)		9	7	2	1	2	1		
black-chinned hummingbird (<i>Archilochus alexandri</i>)	1								
Anna's hummingbird (<i>Calypte anna</i>)			2	1					
Costa's hummingbird (<i>Calypte costae</i>)		1		1					
Allen's/rufous hummingbird (<i>Selasphorus</i> sp.)		1	2						
Nuttall's woodpecker (<i>Picoides nuttallii</i>)								1	
black phoebe (<i>Sayornis nigricans</i>)	1			1			1		
Say's Phoebe (<i>Sayornis saya</i>)		1	1				1		
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)		1				1			
Cassin's kingbird (<i>Tyrannus vociferans</i>)		1				1	1		
western kingbird (<i>Tyrannus verticalis</i>)	2	2	2	1			3		2
western scrub-jay (<i>Aphelocoma californica</i>)		1	1	2		1			
American crow (<i>Corvus brachyrhynchos</i>)			2			1			
common raven (<i>Corvus corax</i>)	2	4	2	3	1	2			
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	4	6	1	1	4	2		2	2

**REACHE 86
VIOLIN CANYON MAIN CHANNEL OUTLET**

Species	Survey Dates (2015)								
	12-Apr	22-Apr	3-May	13-May	26-May	8-Jun	18-Jun	29-Jun	10-Jul
cliff swallow (<i>Petrochelidon pyrrhonota</i>)	2	5	18	4		25	3	10	
barn swallow (<i>Hirundo rustica</i>)	1	1		1					
bush-tit (<i>Psaltriparus minimus</i>)	2	2	2						
house wren (<i>Troglodytes aedon</i>)		1							
Bewick's wren (<i>Thryomanes bewickii</i>)		1	2						
American robin (<i>Turdus migratorius</i>)							1		
California thrasher (<i>Toxostoma redivivum</i>)		1		1					
European starling ^a (<i>Sturnus vulgaris</i>)	8	5	2	1					
MacGillivray's warbler (<i>Geothlypis tolmiei</i>)		1							
yellow-rumped warbler (<i>Setophaga coronata</i>)	1								
Wilson's warbler (<i>Cardellina pusilla</i>)		1	1	1					
spotted towhee (<i>Pipilo maculatus</i>)		1	1				1		
California towhee (<i>Melospiza crissalis</i>)		1	1	1		1	2	1	1
Cassin's sparrow (<i>Peucaea cassinii</i>)					1				
lark sparrow (<i>Chondestes grammacus</i>)	1	2				1			
lark bunting (<i>Calamospiza melanocorys</i>)		1	1						
Savannah sparrow (<i>Passerculus sandwichensis</i>)	6	12							
song sparrow (<i>Melospiza melodia</i>)					1				
white-crowned sparrow (<i>Zonotrichia leucophrys</i>)		1							
western tanager (<i>Piranga ludoviciana</i>)					1				
blue grosbeak (<i>Passerina caerulea</i>)						1	1		

**REACHE 86
VIOLIN CANYON MAIN CHANNEL OUTLET**

Species	Survey Dates (2015)								
	12-Apr	22-Apr	3-May	13-May	26-May	8-Jun	18-Jun	29-Jun	10-Jul
lazuli bunting (<i>Passerina amoena</i>)		1							
red-winged blackbird (<i>Agelaius phoeniceus</i>)			1						
Brewer's blackbird (<i>Euphagus cyanocephalus</i>)				1					
great-tailed grackle (<i>Quiscalus mexicanus</i>)		2	2						
brown-headed cowbird (<i>Molothrus ater</i>)	1	3					1		
Bullock's oriole (<i>Icterus bullockii</i>)	3	1		1		1			
house finch (<i>Haemorhous mexicanus</i>)	8	20	20	6	5	3	3	4	10
lesser goldfinch (<i>Spinus psaltria</i>)	4	4		1					5
Lawrence's goldfinch (<i>Spinus lawrencei</i>)	2								
^a Introduced non-native species with established breeding population in California									

**REACHES 87 AND 97
CASTAIC – OLD ROAD DRAIN (CDR 525.012D) OUTLET
AND
CASTAIC CREEK – THE OLD ROAD**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	30-Apr	11-May	25-May	4-Jun	14-Jun	28-Jun	12-Jul
Cooper's hawk (<i>Accipiter cooperii</i>)								1	
red-shouldered hawk (<i>Buteo lineatus</i>)						1		2	
killdeer (<i>Charadrius vociferous</i>)					1				
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)			1		1	6	20	4	2
mourning dove (<i>Zenaida macroura</i>)	2	1	1	2					4
black-chinned hummingbird (<i>Archilochus alexandri</i>)					1				
Anna's hummingbird (<i>Calypte anna</i>)	3	1	3	1	6	6	3	4	4
Allen's hummingbird ^b (<i>Selasphorus sasin</i>)	1			1					
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)	3	1	2		3	1	2	1	1
Nuttall's woodpecker (<i>Picoides nuttallii</i>)					2	3	2		1
black phoebe (<i>Sayornis nigricans</i>)					2	1			
Say's phoebe (<i>Sayornis saya</i>)									1
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)		1		1	1				
Cassin's kingbird (<i>Tyrannus vociferans</i>)					1				1
western scrub-jay (<i>Aphelocoma californica</i>)	2	1	2	1	10	8	5	5	7
American crow (<i>Corvus brachyrhynchos</i>)				1	1	1	4	10	18
common raven (<i>Corvus corax</i>)	2	2	1	2	4	1			1
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	3	2	4	1	6	4	2	3	2
cliff swallow (<i>Petrochelidon pyrrhonota</i>)			1	1		1	4		
barn swallow (<i>Hirundo rustica</i>)							1	2	

**REACHES 87 AND 97
CASTAIC – OLD ROAD DRAIN (CDR 525.012D) OUTLET
AND
CASTAIC CREEK – THE OLD ROAD**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	30-Apr	11-May	25-May	4-Jun	14-Jun	28-Jun	12-Jul
oak titmouse (<i>Baeolophus inornatus</i>)						1	2	1	1
bush-tit (<i>Psaltriparus minimus</i>)	10	10	2	10	6	15			
Bewick's wren (<i>Thryomanes bewickii</i>)	1	1	2	1	3	3	3	2	5
ruby-crowned kinglet (<i>Regulus calendula</i>)	1								
wrentit (<i>Chamaea fasciata</i>)								1	
hermit thrush (<i>Catharus guttatus</i>)	1								
American robin (<i>Turdus migratorius</i>)	1							1	1
California thrasher (<i>Toxostoma redivivum</i>)			1	2	3	2	1	2	2
northern mockingbird (<i>Mimus polyglottos</i>)							1		1
European starling ^a (<i>Sturnus vulgaris</i>)					3		1		
cedar waxwing (<i>Bombycilla cedrorum</i>)					28				
orange-crowned warbler (<i>Oreothlypis celata</i>)	2	1							
common yellowthroat (<i>Geothlypis trichas</i>)		1	1						2
yellow warbler (<i>Setophaga petechia</i>)				1	1	1			
Wilson's warbler (<i>Cardellina pusilla</i>)	1	1							
spotted towhee (<i>Pipilo maculatus</i>)			1	2			1		
California towhee (<i>Melospiza crissalis</i>)	4	2	4	2	4	3		2	4
song sparrow (<i>Melospiza melodia</i>)									1
white-crowned sparrow (<i>Zonotrichia leucophrys</i>)	2								
western tanager (<i>Piranga ludoviciana</i>)		1			1				

**REACHES 87 AND 97
CASTAIC – OLD ROAD DRAIN (CDR 525.012D) OUTLET
AND
CASTAIC CREEK – THE OLD ROAD**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	30-Apr	11-May	25-May	4-Jun	14-Jun	28-Jun	12-Jul
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)						1		1	
blue grosbeak (<i>Passerina caerulea</i>)				1					
brown-headed cowbird (<i>Molothrus ater</i>)		1							
hooded oriole (<i>Icterus cucullatus</i>)		1				1	2		4
Bullock's oriole (<i>Icterus bullockii</i>)						1	1	1	
house finch (<i>Haemorhous mexicanus</i>)	2	3	6	3	10	6	4	8	6
lesser goldfinch (<i>Spinus psaltria</i>)		4	2	1			2		3
American goldfinch (<i>Spinus tristis</i>)							1		
house sparrow ^a (<i>Passer domesticus</i>)									8
^a Introduced non-native species with established breeding population in California									
^b males only									

**REACH 103
BOUQUET CANYON CHANNEL (PD 2225)**

Species	Survey Dates (2015)								
	12-Apr	22-Apr	3-May	13-May	26-May	8-Jun	18-Jun	29-Jun	10-Jul
mallard (<i>Anas platyrhynchos</i>)							3		
green heron (<i>Butorides virescens</i>)									1
Cooper's hawk (<i>Accipiter cooperii</i>)			1		1				1
mourning dove (<i>Zenaida macroura</i>)	4	3	4	2	1	3	2	4	2
Anna's hummingbird (<i>Calypte anna</i>)	2	3	3	1	1	2	1		
Costa's hummingbird (<i>Calypte costae</i>)	1	3							
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)	3						2		
Nuttall's woodpecker (<i>Picoides nuttallii</i>)		1		1					1
olive-sided flycatcher (<i>Contopus cooperi</i>)				1					
willow flycatcher (<i>Empidonax traillii</i>)				1					
black phoebe (<i>Sayornis nigricans</i>)	1		2	1	1	3		1	1
Say's phoebe (<i>Sayornis saya</i>)		1							
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	1								
Bell's vireo (<i>Vireo bellii</i>)						1	1		
warbling vireo (<i>Vireo gilvus</i>)		1	1	1					
western scrub-jay (<i>Aphelocoma californica</i>)	1	2	2		3	1	1		
American crow (<i>Corvus brachyrhynchos</i>)		2	2			2		3	1
common raven (<i>Corvus corax</i>)	2	2	4	2	7	3	8	2	5
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	2	1	2	2		2	10	2	2
cliff swallow (<i>Petrochelidon pyrrhonota</i>)				1		1	4	15	
oak titmouse (<i>Baeolophus inornatus</i>)					2				1

**REACH 103
BOUQUET CANYON CHANNEL (PD 2225)**

Species	Survey Dates (2015)								
	12-Apr	22-Apr	3-May	13-May	26-May	8-Jun	18-Jun	29-Jun	10-Jul
bush-tit (<i>Psaltriparus minimus</i>)	4	1	2			10	2		
Bewick's wren (<i>Thryomanes bewickii</i>)	4	2	1	4	3	3	3	2	1
ruby-crowned kinglet (<i>Regulus calendula</i>)	1								
California thrasher (<i>Toxostoma redivivum</i>)	1	1	1						
European starling ^a (<i>Sturnus vulgaris</i>)		2	1						
cedar waxwing (<i>Bombycilla cedrorum</i>)			3						
phainopepla (<i>Phainopepla nitens</i>)	1								
orange-crowned warbler (<i>Oreothlypis celata</i>)	6								
Nashville warbler (<i>Oreothlypis ruficapilla</i>)	2								
common yellowthroat (<i>Geothlypis trichas</i>)	2		2	2	1	3	2	3	2
yellow warbler (<i>Setophaga petechia</i>)	1	4	5	2	1	2	1	3	
yellow-rumped warbler (<i>Setophaga coronata</i>)	3								
black-throated gray warbler (<i>Setophaga nigrescens</i>)	1	1	1						
Townsend's warbler (<i>Setophaga townsendi</i>)		1							
Wilson's Warbler (<i>Cardellina pusilla</i>)	1	5	2	2					
spotted towhee (<i>Pipilo maculatus</i>)	1	1	1			2			1
California towhee (<i>Melospiza crissalis</i>)	1	1	1		1	2			
song sparrow (<i>Melospiza melodia</i>)	4	8	7	4	5	8	8	4	2
western tanager (<i>Piranga ludoviciana</i>)				1					
blue grosbeak (<i>Passerina caerulea</i>)			1						
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)	3	1	2	2	1	1	2	1	4

**REACH 103
BOUQUET CANYON CHANNEL (PD 2225)**

Species	Survey Dates (2015)								
	12-Apr	22-Apr	3-May	13-May	26-May	8-Jun	18-Jun	29-Jun	10-Jul
red-winged blackbird (<i>Agelaius phoeniceus</i>)		1	1						
brown-headed cowbird (<i>Molothrus ater</i>)	2								
hooded oriole (<i>Icterus cucullatus</i>)						1			
Bullock's oriole (<i>Icterus bullockii</i>)	1								
house finch (<i>Haemorhous mexicanus</i>)	13	12	15	8	9	12	10	6	5
pine siskin (<i>Spinus pinus</i>)	1								
lesser goldfinch (<i>Spinus psaltria</i>)	4	3	3	2		2	1	2	3
American goldfinch (<i>Spinus tristis</i>)								1	
^a Introduced non-native species with established breeding population in California									

**REACH 104
CASTAIC CREEK (PD 2441 UNITS 1 AND 2)**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	30-Apr	11-May	25-May	4-Jun	14-Jun	28-Jun	12-Jul
Canada goose (<i>Branta canadensis</i>)				2					
California quail (<i>Callipepla californica</i>)	1	5	1	3		2	2		
red-shouldered hawk (<i>Buteo lineatus</i>)								1	1
red-tailed hawk (<i>Buteo jamaicensis</i>)		1		1					
killdeer (<i>Charadrius vociferous</i>)					2				
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)			2						
western gull (<i>Larus occidentalis</i>)							2		
mourning dove (<i>Zenaida macroura</i>)	1	2	6	4				2	2
greater roadrunner (<i>Geococcyx californianus</i>)		1							
black-chinned hummingbird (<i>Archilochus alexandri</i>)		1							
Anna's hummingbird (<i>Calypte anna</i>)	2	1	3	4	4	4		3	3
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)	1				1			1	
acorn woodpecker (<i>Melanerpes erythrocephalus</i>)		1							
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	1	2		2	3	1	1	2	3
downy woodpecker (<i>Picoides pubescens</i>)					1				
American kestrel (<i>Falco sparverius</i>)		1							
black phoebe (<i>Sayornis nigricans</i>)			1	1	2	1	3	3	3
Say's phoebe (<i>Sayornis saya</i>)									1
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	1	2	4	4	2	3	5	3	6
warbling vireo (<i>Vireo gilvus</i>)					1				
Cassin's kingbird (<i>Tyrannus vociferans</i>)							1		

**REACH 104
CASTAIC CREEK (PD 2441 UNITS 1 AND 2)**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	30-Apr	11-May	25-May	4-Jun	14-Jun	28-Jun	12-Jul
western kingbird (<i>Tyrannus verticalis</i>)							2		
western scrub-jay (<i>Aphelocoma californica</i>)	2	2	4	6	2	2	1	3	3
American crow (<i>Corvus brachyrhynchos</i>)			1			1			
common raven (<i>Corvus corax</i>)	2	2	2	3	3		18	4	2
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	1	2		1	1	4	1		2
cliff swallow (<i>Petrochelidon pyrrhonota</i>)		2		1	2	1		10	
barn swallow (<i>Hirundo rustica</i>)					2				
oak titmouse (<i>Baeolophus inornatus</i>)		1	4	2	1	1	1	1	2
bushtit (<i>Psaltriparus minimus</i>)	2	2		5	12	15	12	14	10
house wren (<i>Troglodytes aedon</i>)	1	2	1	3	1		1		
Bewick's wren (<i>Thryomanes bewickii</i>)	1	1	4	7	4	3	3	2	5
blue-gray gnatcatcher (<i>Polioptila caerulea</i>)				2					
wrentit (<i>Chamaea fasciata</i>)		1			1				1
western bluebird (<i>Sialia mexicana</i>)		1		3				2	
California thrasher (<i>Toxostoma redivivum</i>)	1	1	2	3	2				2
European starling ^a (<i>Sturnus vulgaris</i>)			1						
cedar waxwing (<i>Bombycilla cedrorum</i>)		3							
orange-crowned warbler (<i>Oreothlypis celata</i>)	1	2							
MacGillivray's warbler (<i>Geothlypis tolmiei</i>)				1					
common yellowthroat (<i>Geothlypis trichas</i>)		1	1	2					3
yellow warbler (<i>Setophaga petechia</i>)		1		2					

**REACH 104
CASTAIC CREEK (PD 2441 UNITS 1 AND 2)**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	30-Apr	11-May	25-May	4-Jun	14-Jun	28-Jun	12-Jul
yellow-rumped warbler (<i>Setophaga coronata</i>)	2								
Wilson's warbler (<i>Cardellina pusilla</i>)		1	1	3					
spotted towhee (<i>Pipilo maculatus</i>)	1	2	2	5	2	2	3	1	3
California towhee (<i>Melospiza crissalis</i>)	2	4	8	2	2	4	1	3	4
song sparrow (<i>Melospiza melodia</i>)	1	2	2			1	2		
western tanager (<i>Piranga ludoviciana</i>)		1	1						
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)		1		1		1			2
blue grosbeak (<i>Passerina caerulea</i>)			1			1			1
Brewer's blackbird (<i>Euphagus cyanocephalus</i>)				2					
hooded oriole (<i>Icterus cucullatus</i>)								1	
Bullock's oriole (<i>Icterus bullockii</i>)				1				2	
house finch (<i>Haemorhous mexicanus</i>)	9	2	5	5	2	8	10	22	18
lesser goldfinch (<i>Spinus psaltria</i>)	4	5	4	3	4	4	4		3
Lawrence's goldfinch (<i>Spinus lawrencei</i>)				1		1			

^a Introduced non-native species with established breeding population in California

**REACH 105
SAN FRANCISQUITO CANYON CHANNEL (PD 2456)**

Species	Survey Dates (2015)							
	11-Apr	21-Apr	1-May	12-May	22-May	3-Jun	15-Jun	25-Jun
California quail (<i>Callipepla californica</i>)	2	6	3	3	2	3	4	1
Cooper's hawk (<i>Accipiter cooperii</i>)	2							
red-shouldered hawk (<i>Buteo lineatus</i>)							1	1
killdeer (<i>Charadrius vociferous</i>)	1			1		1	1	
mourning dove (<i>Zenaida macroura</i>)	2	2	2	4	6	2	5	2
greater roadrunner (<i>Geococcyx californianus</i>)		1						
white-throated swift (<i>Aeronautes saxatalis</i>)	1		1					
black-chinned hummingbird (<i>Archilochus alexandri</i>)		1						
Anna's hummingbird (<i>Calypte anna</i>)	2	10	5	4	3	2	2	3
Costa's hummingbird (<i>Calypte costae</i>)	1	6	3	3	1	3	2	4
Allen's hummingbird ^a (<i>Selasphorus sasin</i>)		1	1	1	1			1
Allen's/rufous hummingbird (<i>Selasphorus sp.</i>)		2		1				
Nuttall's woodpecker (<i>Picoides nuttallii</i>)		1	1	1	1		2	2
American kestrel (<i>Falco sparverius</i>)						1		1
western wood-pewee (<i>Contopus sordidulus</i>)						1		
black phoebe (<i>Sayornis nigricans</i>)	1	2		1	3		2	1
Say's phoebe (<i>Sayornis saya</i>)	1	2					1	1
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	1	2	2	1	1	3	2	6
warbling vireo (<i>Vireo gilvus</i>)		1		1				
western kingbird (<i>Tyrannus verticalis</i>)			2					
western scrub-jay (<i>Aphelocoma californica</i>)	2	3	4	2	3	1	2	3

**REACH 105
SAN FRANCISQUITO CANYON CHANNEL (PD 2456)**

Species	Survey Dates (2015)							
	11-Apr	21-Apr	1-May	12-May	22-May	3-Jun	15-Jun	25-Jun
American crow (<i>Corvus brachyrhynchos</i>)		1	1	2	2	1		4
common raven (<i>Corvus corax</i>)	4	4	3	4	4	4	2	2
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	4		2	2	2	1		1
cliff swallow (<i>Petrochelidon pyrrhonota</i>)	5	6	4	1	4		9	10
barn swallow (<i>Hirundo rustica</i>)		1						
oak titmouse (<i>Baeolophus inornatus</i>)		2		1	1	1	2	1
bushtit (<i>Psaltriparus minimus</i>)	2	6	12	2	10	2	10	10
Bewick's wren (<i>Thryomanes bewickii</i>)	2	4	6	2	4	6	4	8
western bluebird (<i>Sialia mexicana</i>)		2	3	1	2	1		
California thrasher (<i>Toxostoma redivivum</i>)			1				1	3
northern mockingbird (<i>Mimus polyglottos</i>)		2	2	2	2	1	1	1
cedar waxwing (<i>Bombycilla cedrorum</i>)			10	5	15			
orange-crowned warbler (<i>Oreothlypis celata</i>)		3						
yellow warbler (<i>Setophaga petechia</i>)		2	5					1
yellow-rumped warbler (<i>Setophaga coronata</i>)		2						
Wilson's warbler (<i>Cardellina pusilla</i>)		15	2	1	1			
Spotted towhee (<i>Pipilo maculatus</i>)		1				1	3	3
California towhee (<i>Melospiza crissalis</i>)		6	1	4	4	5	4	5
song sparrow (<i>Melospiza melodia</i>)				2	2	2	1	
western tanager (<i>Piranga ludoviciana</i>)		1		1				
blue grosbeak (<i>Passerina caerulea</i>)			1	1				2

**REACH 105
SAN FRANCISQUITO CANYON CHANNEL (PD 2456)**

Species	Survey Dates (2015)							
	11-Apr	21-Apr	1-May	12-May	22-May	3-Jun	15-Jun	25-Jun
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)	1	3	1	1				1
hooded oriole (<i>Icterus cucullatus</i>)		1						
Bullock's oriole (<i>Icterus bullockii</i>)			1				1	
house finch (<i>Haemorhous mexicanus</i>)	6	20	25	15	12	20	15	25
lesser goldfinch (<i>Spinus psaltria</i>)	1	18	15	18	15	8	10	15
^a males only								

**REACH 106
CASTAIC DRAIN OUTLET (RMD CHANNEL)**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	30-Apr	11-May	25-May	4-Jun	14-Jun	28-Jun	12-Jul
mallard (<i>Anas platyrhynchos</i>)	1	3	3	1		2			
red-tailed hawk (<i>Buteo jamaicensis</i>)							1	1	
rock pigeon ^a (<i>Columbia livia</i>)						40	10	30	45
Eurasian collared-dove ^a (<i>Streptopelia decaocto</i>)									1
mourning dove (<i>Zenaida macroura</i>)			2	3	2	4			2
black-chinned hummingbird (<i>Archilochus alexandri</i>)						1			
Anna's hummingbird (<i>Calypte anna</i>)	1	1	1	1	1			1	1
Allen's hummingbird ^b (<i>Selasphorus sasin</i>)						2			
Allen's/rufous hummingbird (<i>Selasphorus</i> sp.)			1				1		
black phoebe (<i>Sayornis nigricans</i>)	2	1	2	2	6	2	3	4	2
warbling vireo (<i>Vireo gilvus</i>)				1					
Cassin's kingbird (<i>Tyrannus vociferans</i>)									2
western kingbird (<i>Tyrannus verticalis</i>)	1								
western scrub-jay (<i>Aphelocoma californica</i>)	2	2	2			1		2	2
American crow (<i>Corvus brachyrhynchos</i>)			3			1			
common raven (<i>Corvus corax</i>)	1	1	1	2	4				
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)						1			
cliff swallow (<i>Petrochelidon pyrrhonota</i>)				1				6	
barn swallow (<i>Hirundo rustica</i>)	2	1	2	2	2	1	1	5	9
bush-tit (<i>Psaltriparus minimus</i>)					6				15
Bewick's wren (<i>Thryomanes bewickii</i>)							1		

**REACH 106
CASTAIC DRAIN OUTLET (RMD CHANNEL)**

Species	Survey Dates (2015)								
	10-Apr	20-Apr	30-Apr	11-May	25-May	4-Jun	14-Jun	28-Jun	12-Jul
northern mockingbird (<i>Mimus polyglottos</i>)					1				
European starling ^a (<i>Sturnus vulgaris</i>)					3	2	1		10
cedar waxwing (<i>Bombycilla cedrorum</i>)	3								
yellow warbler (<i>Setophaga petechia</i>)			3	1	3	1			
Wilson's warbler (<i>Cardellina pusilla</i>)			1						
California towhee (<i>Melospiza crissalis</i>)		1					1	2	1
Savannah sparrow (<i>Passerculus sandwichensis</i>)	2		1						
song sparrow (<i>Melospiza melodia</i>)		1	2	1	2	2	3	1	
western tanager (<i>Piranga ludoviciana</i>)				2					
blue grosbeak (<i>Passerina caerulea</i>)									2
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)						1		2	
red-winged blackbird (<i>Agelaius phoeniceus</i>)							1		
brown-headed cowbird (<i>Molothrus ater</i>)	1						2		
hooded oriole (<i>Icterus cucullatus</i>)	2								
Bullock's oriole (<i>Icterus bullockii</i>)		1			3	2	1	3	1
house finch (<i>Haemorhous mexicanus</i>)	5		3	7	6	2	6	8	6
lesser goldfinch (<i>Spinus psaltria</i>)	1	2	2	2	2	3	1	2	2
Lawrence's goldfinch (<i>Spinus lawrencei</i>)			1	2					
a Introduced non-native species with established breeding population in California b males only									

**REACH 110
HASLEY CANYON CHANNEL (PD 2262)**

Species	Survey Dates (2015)								
	12-Apr	22-Apr	3-May	13-May	26-May	8-Jun	18-Jun	29-Jun	10-Jul
California quail (<i>Callipepla californica</i>)	1	1	1		1		1		
turkey vulture (<i>Cathartes aura</i>)		1							
killdeer (<i>Charadrius vociferous</i>)					3		1	1	
mourning dove (<i>Zenaida macroura</i>)	2		2	2	1	2	2		3
black-chinned hummingbird (<i>Archilochus alexandri</i>)	1								
Anna's hummingbird (<i>Calypte anna</i>)		2	2		3		1	1	1
Costa's hummingbird (<i>Calypte costae</i>)		1		1					
Nuttall's Woodpecker (<i>Picoides nuttallii</i>)								1	
western wood-pewee (<i>Contopus sordidulus</i>)	1								
willow flycatcher (<i>Empidonax traillii</i>)				2					
black phoebe (<i>Sayornis nigricans</i>)						2		1	1
ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	1		1						
warbling vireo (<i>Vireo gilvus</i>)			1						
western scrub-jay (<i>Aphelocoma californica</i>)	1	2		1	2	2	3	1	
American crow (<i>Corvus brachyrhynchos</i>)							2	1	
common raven (<i>Corvus corax</i>)	1	2	4	1	2	2	1	1	3
northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	2	2	2						
bush-tit (<i>Psaltiriparus minimus</i>)	6	2	2	2		11		10	5
rock wren (<i>Salpinctes obsoletus</i>)	1	3	3						
house wren (<i>Troglodytes aedon</i>)	1								
Bewick's wren (<i>Thryomanes bewickii</i>)	2	2	4	3	1	2	2	6	5

**REACH 110
HASLEY CANYON CHANNEL (PD 2262)**

Species	Survey Dates (2015)								
	12-Apr	22-Apr	3-May	13-May	26-May	8-Jun	18-Jun	29-Jun	10-Jul
wrentit (<i>Chamaea fasciata</i>)									1
Swainson's thrush (<i>Catharus ustulatus</i>)				1					
California thrasher (<i>Toxostoma redivivum</i>)	1		1		1				
northern mockingbird (<i>Mimus polyglottos</i>)		1			1				
cedar waxwing (<i>Bombycilla cedrorum</i>)				3					
common yellowthroat (<i>Geothlypis trichas</i>)	6								
yellow warbler (<i>Setophaga petechia</i>)			3		1				
yellow-rumped warbler (<i>Setophaga coronata</i>)	4								
black-throated gray warbler (<i>Setophaga nigrescens</i>)	1								
Wilson's warbler (<i>Cardellina pusilla</i>)	1	3	3	2					
spotted towhee (<i>Pipilo maculatus</i>)	2	2	1	2	2	2	2	1	2
California towhee (<i>Melospiza crissalis</i>)		2	3	2	1	3	1	4	1
lark sparrow (<i>Chondestes grammacus</i>)								4	
song sparrow (<i>Melospiza melodia</i>)		1	1	2	1	3	1	1	1
white-crowned sparrow (<i>Zonotrichia leucophrys</i>)	6								
western tanager (<i>Piranga ludoviciana</i>)				1					
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)	1								
blue grosbeak (<i>Passerina caerulea</i>)						1			
brown-headed cowbird (<i>Molothrus ater</i>)	1								
hooded oriole (<i>Icterus cucullatus</i>)						1			
Bullock's oriole (<i>Icterus bullockii</i>)						2			

**REACH 110
HASLEY CANYON CHANNEL (PD 2262)**

Species	Survey Dates (2015)								
	12-Apr	22-Apr	3-May	13-May	26-May	8-Jun	18-Jun	29-Jun	10-Jul
house finch (<i>Haemorhous mexicanus</i>)	5	3	4	3	3	10	6	2	8
lesser goldfinch (<i>Spinus psaltria</i>)	3	4	2	1	1		3	3	2
Lawrence's goldfinch (<i>Spinus lawrencei</i>)						1			
house sparrow (<i>Passer domesticus</i>) ^a								1	

^a Introduced non-native species with established breeding population in California

ATTACHMENT B
WILDLIFE COMPENDIUM

**WILDLIFE SPECIES RECORDED BY REACH
DURING ARROYO TOAD SURVEYS**

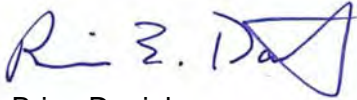
Scientific Name	Common Name	Reach Number
CRUSTACEANS		
PALAEEMONIDAE – SHRIMP		
<i>palaeomonid sp.</i>	palaemonid shrimp	103
FISH		
POECILIDAE – LIVEBEARERS		
<i>Gambusia affinis*</i>	western mosquitofish	103
COTTIDAE – SCULPINS		
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	86, 103
CICHLIDAE - CICHLIDS		
<i>Amatitlania nigrofasciata*</i>	convict cichlid	103
AMPHIBIANS		
BUFONIDAE – TRUE TOADS		
<i>Anaxyrus boreas</i>	western toad	71, 75, 82, 87, 97, 103, 104, 105, 106
HYLIDAE - TREEFROGS		
<i>Pseudacris hypochondriaca</i>	Baja California treefrog	75, 79, 80, 82, 86, 87, 97, 103, 105, 106
RANIDAE – TRUE FROGS		
<i>Lithobates catesbeiana*</i>	American bullfrog	87, 103
PIPIDAE – TONGUELESS FROGS		
<i>Xenopus laevis*</i>	African clawed frog	75, 79, 82, 87, 97, 103, 105, 109

ATTACHMENT C
SURVEYOR CERTIFICATE STATEMENT

APPENDIX C

SURVEYOR CERTIFICATION STATEMENT

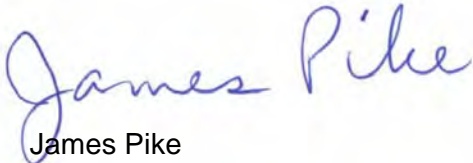
We certify that the information in this survey report and enclosed exhibits fully and accurately present our work.



Brian Daniels
(Recovery Permit No. 821401-4)



Jonathan Feenstra
(Recovery Permit No. 128462-2)



James Pike
Consulting Biologist
(Recovery Permit No. 832946-4)

ATTACHMENT D

WILLOW FLYCATCHER SURVEY AND DETECTION FORMS

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Soft-bottom Channel Reach 7 State: California County: Los Angeles
 USGS Quad Name: Van Nuys Elevation: 215 (meters)
 Creek, River, or Lake Name: Bull Creek

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes X No

Survey Coordinates: Start: E 362452 N 3783773 UTM Datum: WGS84 (See instructions)
 Stop: E 361970 N 3783177 UTM Zone: 11

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding;-potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s): Brian Daniels	Date: 05/27/15	0	0	0	N		0			
	Start: 0930									
	Stop: 1030									
	Total hrs: 1.0									
Survey # 2 Observer(s): Brian Daniels	Date: 06/09/15	0	0	0	N		0			
	Start: 0830									
	Stop: 0945									
	Total hrs: 1.3									
Survey # 3 Observer(s): Brian Daniels	Date: 06/19/15	0	0	0	N		0			
	Start: 0900									
	Stop: 1000									
	Total hrs: 1.0									
Survey # 4 Observer(s): Brian Daniels	Date: 06/30/15	0	0	0	N		0			
	Start: 0800									
	Stop: 0900									
	Total hrs: 1.0									
Survey # 5 Observer(s): Brian Daniels	Date: 07/12/15	0	0	0	N		0			
	Start: 0800									
	Stop: 0845									
	Total hrs: 1.8									
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total survey hrs: <u>5.1</u>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes <u> </u> No <u>X</u> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
		0	0	0	0					

Reporting Individual: Brian E. Daniels Date Report Completed: September 3, 2015
 US Fish & Wildlife Service Permit #: TE821401-4 State Wildlife Agency Permit #: SC-4535

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian E. Daniels Phone # 626 351-2000
 Affiliation BonTerra Psomas E-mail brian.daniels@psomas.com
 Site Name Los Angeles County Flood Control District Channel Reach 7 Date report Completed September 3, 2015
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous yrs? Yes No Not Applicable
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.
 Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles County Flood Control District

Length of area surveyed: 0.63 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
 Mixed native and exotic plants (mostly native, 50 - 90% native)
 Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
 Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix spp., Baccharis salicifolia

Average height of canopy (Do not include a range): 4 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).
Attach additional sheets if necessary.

The survey area is a soft-bottom flood control channel reach (No. 7) managed by the Los Angeles County Flood Control District. Channel Reach 7 is a segment of Bull Creek in the Sepulveda Flood Basin that is largely managed by the U.S. Army Corps of Engineers (USACE). In 2008, Bull Creek including Reach 7 was rehabilitated as part of the Bull Creek Restoration Project managed by the City of Los Angeles and the USACE. Besides the main Bull Creek channel, there is now a side channel that forms a loop with the main channel. The channel invert contained water through the end of these surveys.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Soft-bottom Channel Reach 12 State: California County: Los Angeles
 USGS Quad Name: Sunland Elevation: 353 (meters)
 Creek, River, or Lake Name: Haines Canyon Main Channel Outlet in Tujunga Wash

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes X No

Survey Coordinates: Start: E 378432 N 3792715 UTM Datum: WGS84 (See instructions)
 Stop: E 378233 N 3792737 UTM Zone: 11

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, Diorhabda spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s): Jon Feenstra	Date: 05/30/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0730						0			
	Stop: 0815									
	Total hrs: 1.25									
Survey # 2 Observer(s): Jon Feenstra	Date: 06/10/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0745						0			
	Stop: 0840									
	Total hrs: 0.9									
Survey # 3 Observer(s): Brian Daniels	Date: 06/20/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0630						0			
	Stop: 0730									
	Total hrs: 1.0									
Survey # 4 Observer(s): Jon Feenstra	Date: 06/28/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0720						0			
	Stop: 0800									
	Total hrs: 0.7									
Survey # 5 Observer(s): Jon Feenstra	Date: 07/12/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0725						0			
	Stop: 0825									
	Total hrs: 1.0									
Overall Site Summary <small>Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.</small>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes <u> </u> No <u>X</u> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
Total survey hrs: <u>4.9</u>	0	0	0	0						

Reporting Individual: Brian E. Daniels/Jonathan Feenstra Date Report Completed: September 3, 2015
 US Fish & Wildlife Service Permit #: TE821401-4/128462-2 State Wildlife Agency Permit #: SC-4535

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian E. Daniels Phone # 626 351-2000
 Affiliation BonTerra Psomas E-mail brian.daniels@psomas.com
 Site Name Los Angeles County Flood Control District Channel Reach 12 Date report Completed September 3, 2015
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous yrs? Yes No Not Applicable
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.
 Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles County Flood Control District

Length of area surveyed: 0.2 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
 Mixed native and exotic plants (mostly native, 50 - 90% native)
 Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
 Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix spp; Populus fremontii

Average height of canopy (Do not include a range): 6 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).
Attach additional sheets if necessary.

The survey area for this channel reach is a dense strip of willows and cottonwoods at the outlet of the concrete Haines Canyon flood control channel on the south side of Tujunga Wash adjacent to residential Sunland. Water pools at the outlet and the main channel downstream of the outlet contained surface flow throughout the survey period.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Soft-bottom Channel Reach 14 State: California County: Los Angeles
 USGS Quad Name: Sunland Elevation: 400 (meters)
 Creek, River, or Lake Name: May Channel Outlet in Pacoima Wash

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes X No

Survey Coordinates: Start: E 370215 N 3797657 UTM Datum: WGS84 (See instructions)
 Stop: E 370286 N 3797496 UTM Zone: 11

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s): Jon Feenstra	Date: 05/30/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0600						0			
	Stop: 0655									
	Total hrs: 0.9									
Survey # 2 Observer(s): Jon Feenstra	Date: 06/10/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0605						0			
	Stop: 0730									
	Total hrs: 1.4									
Survey # 3 Observer(s): Brian Daniels	Date: 06/20/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0630						0			
	Stop: 0730									
	Total hrs: 1.0									
Survey # 4 Observer(s): Jon Feenstra	Date: 06/28/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0600						0			
	Stop: 0705									
	Total hrs: 1.1									
Survey # 5 Observer(s): Jon Feenstra	Date: 07/12/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0555						0			
	Stop: 0705									
	Total hrs: 1.2									
Overall Site Summary <small>Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.</small>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes <u> </u> No <u>X</u> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
Total survey hrs: 5.6	0	0	0	0						

Reporting Individual: Brian E. Daniels/Jonathan Feenstra Date Report Completed: September 3, 2015
 US Fish & Wildlife Service Permit #: TE821401-4/128462-2 State Wildlife Agency Permit #: SC-4535

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian E. Daniels Phone # 626 351-2000
 Affiliation BonTerra Psomas E-mail brian.daniels@psomas.com
 Site Name Los Angeles County Flood Control District Channel Reach 14 Date report Completed September 3, 2015
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous yrs? Yes No Not Applicable
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.
 Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles County Flood Control District

Length of area surveyed: 0.2 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
 Mixed native and exotic plants (mostly native, 50 - 90% native)
 Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
 Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix spp., Baccharis salicifolia

Average height of canopy (Do not include a range): 5 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).
Attach additional sheets if necessary.

The main survey area for this channel reach includes a strip of disturbed willow scrub on the west bank of Pacoima Wash (May Channel Outlet) that is surrounded by alluvial sage scrub and disturbed (ruderal) habitats. Two unnamed side channels (or outlets) with willow riparian habitats are opposite this channel reach on east side of Pacoima Wash. The May Channel Outlet contained surface water throughout the survey period, but the other two side channels were primarily dry.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Soft-bottom Channel Reach 27 State: California County: Los Angeles
 USGS Quad Name: Torrance Elevation: 8 (meters)
 Creek, River, or Lake Name: Wilmington Drain

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes X No

Survey Coordinates: Start: E 380800 N 3739755 UTM Datum: WGS84 (See instructions)
 Stop: E 380667 N 3740748 UTM Zone: 11

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s): Brian Daniels	Date: 05/27/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0630						0			
	Stop: 0745									
	Total hrs: 1.25									
Survey # 2 Observer(s): Brian Daniels	Date: 06/09/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 1100						0			
	Stop: 1200									
	Total hrs: 1.0									
Survey # 3 Observer(s): Brian Daniels	Date: 06/19/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0600						0			
	Stop: 0715									
	Total hrs: 1.25									
Survey # 4 Observer(s): Brian Daniels	Date: 06/30/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 1015						0			
	Stop: 1130									
	Total hrs: 1.25									
Survey # 5 Observer(s): Brian Daniels	Date: 07/12/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0920						0			
	Stop: 1130									
	Total hrs: 2.2									
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes <u> </u> No <u>X</u>				
Total survey hrs: <u>7.0</u>		0	0	0	0	If yes, report color combination(s) in the comments section on back of form and report to USFWS.				

Reporting Individual: Brian E. Daniels Date Report Completed: September 3, 2015
 US Fish & Wildlife Service Permit #: TE821401-4 State Wildlife Agency Permit #: SC-4535

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian E. Daniels Phone # 626 351-2000
 Affiliation BonTerra Psomas E-mail brian.daniels@psomas.com
 Site Name Los Angeles County Flood Control District Channel Reach 27 Date report Completed September 3, 2015
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous yrs? Yes No Not Applicable
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.
 Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles County Flood Control District

Length of area surveyed: 1.0 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
 Mixed native and exotic plants (mostly native, 50 - 90% native)
 Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
 Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix spp., Baccharis salicifolia, and Populus fremontii

Average height of canopy (Do not include a range): 6 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).
Attach additional sheets if necessary.

The survey area is a well-known birding location (Wilmington Drain) across the street (Pacific Coast Highway) from the "north-end willows" of Ken Malloy Regional Park (aka Harbor Lake). The City of Los Angeles's Proposition "O" Clean Water Project was implemented in 2013 and was nearing completion during these 2015 surveys. This habitat restoration project removed non-native vegetation from Wilmington Drain and replaced it with native species. The homeless were largely absent during the restoration process, but had reoccupied the habitat north of Lomita by the end of this year's surveys.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Soft-bottom Channel Reach 28 State: California County: Los Angeles
 USGS Quad Name: Point Dume Elevation: 353 (meters)
 Creek, River, or Lake Name: Triunfo Creek Channel

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes X No

Survey Coordinates: Start: E 335965 N 3776074 UTM Datum: WGS84 (See instructions)
 Stop: E 335802 N 3776450 UTM Zone: 11

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s): Brian Daniels	Date: 05/27/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 1055						0			
	Stop: 1200									
	Total hrs: 1.1									
Survey # 2 Observer(s): Brian Daniels	Date: 06/09/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0630						0			
	Stop: 0745									
	Total hrs: 1.25									
Survey # 3 Observer(s): Brian Daniels	Date: 06/19/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 1030						0			
	Stop: 1130									
	Total hrs: 1.0									
Survey # 4 Observer(s): Brian Daniels	Date: 06/30/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0600						0			
	Stop: 0700									
	Total hrs: 1.0									
Survey # 5 Observer(s): Brian Daniels	Date: 07/12/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0630						0			
	Stop: 0730									
	Total hrs: 1.0									
Overall Site Summary <small>Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.</small>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes <u> </u> No <u>X</u> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
Total survey hrs: 5.4	0	0	0	0						

Reporting Individual: Brian E. Daniels Date Report Completed: September 3, 2015
 US Fish & Wildlife Service Permit #: TE821401-4 State Wildlife Agency Permit #: SC-4535

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian E. Daniels Phone # 626 351-2000
 Affiliation BonTerra Psomas E-mail brian.daniels@psomas.com
 Site Name Los Angeles County Flood Control District Channel Reach 28 Date report Completed September 3, 2015
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous yrs? Yes No Not Applicable
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.
 Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles County Flood Control District

Length of area surveyed: 0.4 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
 Mixed native and exotic plants (mostly native, 50 - 90% native)
 Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
 Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix spp., Baccharis salicifolia

Average height of canopy (Do not include a range): 6 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).

Attach additional sheets if necessary.

The survey area for this channel reach includes a dense strip of willow woodland upstream of the Mulholland Highway and more scrubby willows with mule fat downstream of the bridge. Oaks, sycamores, and eucalyptus are on the banks downstream of the highway.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Soft-bottom Channel Reach 39 State: California County: Los Angeles
 USGS Quad Name: Azusa Elevation: 195 (meters)
 Creek, River, or Lake Name: Beatty Channel Outlet into San Gabriel River

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes X No

Survey Coordinates: Start: E 413530 N 3778309 UTM Datum: WGS84 (See instructions)
 Stop: E 414168 N 3778620 UTM Zone: 11

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s): Jon Feenstra	Date: 05/30/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0850						0			
	Stop: 1005									
	Total hrs: 1.3									
Survey # 2 Observer(s): Jon Feenstra	Date: 06/10/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0920						0			
	Stop: 1030									
	Total hrs: 1.2									
Survey # 3 Observer(s): Brian Daniels	Date: 06/20/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0910						0			
	Stop: 1200									
	Total hrs: 2.8									
Survey # 4 Observer(s): Jon Feenstra	Date: 06/28/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0835						0			
	Stop: 0930									
	Total hrs: 0.9									
Survey # 5 Observer(s): Jon Feenstra	Date: 07/12/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0855						0			
	Stop: 0950									
	Total hrs: 0.9									
Overall Site Summary <small>Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.</small>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes <u> </u> No <u>X</u> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
Total survey hrs: <u>7.1</u>	0	0	0	0						

Reporting Individual: Brian E. Daniels/Jonathan Feenstra Date Report Completed: September 3, 2015
 US Fish & Wildlife Service Permit #: TE821401-4/128462-2 State Wildlife Agency Permit #: SC-4535

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian E. Daniels Phone # 626 351-2000
 Affiliation BonTerra Psomas E-mail brian.daniels@psomas.com
 Site Name Los Angeles County Flood Control District Channel Reach 39 Date report Completed September 3, 2015
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous yrs? Yes No Not Applicable
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.
 Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles County Flood Control District

Length of area surveyed: 0.7 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
 Mixed native and exotic plants (mostly native, 50 - 90% native)
 Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
 Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix spp., Baccharis salicifolia

Average height of canopy (Do not include a range): 2 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features.

Attach additional sheets if necessary.

The survey area for this side channel outlet into the San Gabriel River is mostly alluvial sage scrub that is dominated by mule fat scrub, but there are scattered willows - one willow clump lost to wildfire. The habitat in this part of the San Gabriel River has been adversely affected by the drought, homeless, and multiple fires. A water "delivery" was sent through the main channel during these surveys, but quickly dried up afterwards. The Beatty Channel contained less water than usual this year.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (<http://www.fws.gov/southwest/es/arizona/>) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Reaches 408/43A/43B/44 State CA County Los Angeles
 USGS Quad Name Baldwin Park Whittier Elevation 61 (meters)
 Creek, River, Wetland, or Lake Name San Gabriel River
 Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: E 0401183 N 3762705 UTM Datum NAD83 (See instructions)
 Stop: E 0406692 N 3768005 UTM Zone 11S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**** Fill in additional site information on back of this page ****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimate d Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) <u>Jim Pike</u>	Date <u>5/13</u> Start <u>0600</u> Stop <u>1055</u> Total hrs <u>4.9</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Survey # 2 Observer(s) <u>Jim Pike</u>	Date <u>6/2</u> Start <u>0600</u> Stop <u>1035</u> Total hrs <u>4.6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Survey # 3 Observer(s) <u>Jim Pike</u>	Date <u>6/12</u> Start <u>0600</u> Stop <u>1030</u> Total hrs <u>4.5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Survey # 4 Observer(s) <u>Jim Pike</u>	Date <u>6/28</u> Start <u>0600</u> Stop <u>1045</u> Total hrs <u>4.8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Survey # 5 Observer(s) <u>Jim Pike</u>	Date <u>7/10</u> Start <u>0615</u> Stop <u>1030</u> Total hrs <u>4.3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>					

Reporting Individual Jim Pike Date Report Completed 8/23/15
 US Fish and Wildlife Service Permit # 832946-4 State Wildlife Agency Permit # 9788

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

32 A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Jim Pike Phone # 714-968-7977
 Affiliation Independent contractor for Psomas E-mail jpikex44@earthlink.net
 Site Name Reaches 40B/43A/43B/44 Date Report Completed 8/23/15
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous years? Yes No Not Applicable
 If site name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.

Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles Dept of Public Works

Length of area surveyed: 6.1 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.
Salix gooddingii, Salix exigua, Baccharis salicifolia

Average height of canopy (Do not include a range): 10 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.)

Onsite degradation of habitat by the homeless continues to be severe

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (<http://www.fws.gov/southwest/es/arizona/>) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Reaches 87/97/104/106 State CA County Los Angeles
 USGS Quad Name Newhall Elevation 305 (meters)
 Creek, River, Wetland, or Lake Name Castaic Creek
 Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: E 0351681 N 3817158 UTM Datum: NAD83 (See instructions)
 Stop: E 0351624 N 3812047 UTM Zone 11S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**** Fill in additional site information on back of this page ****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimate d Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) <u>Jim Pike</u>	Date <u>5/25</u> Start <u>0610</u> Stop <u>1020</u> Total hrs <u>4.2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Survey # 2 Observer(s) <u>Jim Pike</u>	Date <u>6/4</u> Start <u>0550</u> Stop <u>0950</u> Total hrs <u>4</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Survey # 3 Observer(s) <u>Jim Pike</u>	Date <u>6/14</u> Start <u>0610</u> Stop <u>0950</u> Total hrs <u>3.7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Survey # 4 Observer(s) <u>Jim Pike</u>	Date <u>6/28</u> Start <u>0630</u> Stop <u>1000</u> Total hrs <u>3.5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Survey # 5 Observer(s) <u>Jim Pike</u>	Date <u>7/12</u> Start <u>0625</u> Stop <u>0955</u> Total hrs <u>3.5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>					
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>					

Reporting Individual Jim Pike Date Report Completed 8/23/15
 US Fish and Wildlife Service Permit # 832946-4 State Wildlife Agency Permit # 9788
Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

32 A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Jim Pike Phone # 714-968-7977
 Affiliation Independent contractor for E-mail jpike49@earthlink.net
 Site Name Reaches 87/97/104/106 PSomas Date Report Completed 8/23/15
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous years? Yes No Not Applicable
 If site name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.

Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles Dept of Public Works
 Length of area surveyed: 1.8 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.
Populus fremontii, Baccharis salicifolia, Salix spp

Average height of canopy (Do not include a range): 11 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

Extraordinarily dry conditions with concomitant dieback of native vegetation

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Soft-bottom Channel Reach 86 State: California County: Los Angeles
 USGS Quad Name: Newhall Elevation: 344 (meters)
 Creek, River, or Lake Name: Violin Canyon Main Channel Outlet into Castaic Creek

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes X No

Survey Coordinates: Start: E 351852 N 3817867 UTM Datum: WGS84 (See instructions)
 Stop: E 352081 N 3817733 UTM Zone: 11

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s): Brian Daniels	Date: 05/26/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0630						0			
	Stop: 0745									
	Total hrs: 1.25									
Survey # 2 Observer(s): Brian Daniels	Date: 06/08/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0630						0			
	Stop: 0730									
	Total hrs: 1.0									
Survey # 3 Observer(s): Brian Daniels	Date: 06/18/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0630						0			
	Stop: 0730									
	Total hrs: 1.0									
Survey # 4 Observer(s): Brian Daniels	Date: 06/29/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0615						0			
	Stop: 0645									
	Total hrs: 0.5									
Survey # 5 Observer(s): Brian Daniels	Date: 07/10/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0615						0			
	Stop: 0700									
	Total hrs: 0.75									
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes <u> </u> No <u>X</u>				
Total survey hrs: <u>4.5</u>	0					0	0	0	If yes, report color combination(s) in the comments section on back of form and report to USFWS.	

Reporting Individual: Brian E. Daniels Date Report Completed: September 3, 2015
 US Fish & Wildlife Service Permit #: TE821401-4 State Wildlife Agency Permit #: SC-4535

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

*Fill in the following information completely. **Submit form by September 1st**. Retain a copy for your records.*

Reporting Individual Brian E. Daniels Phone # 626 351-2000
 Affiliation BonTerra Psomas E-mail brian.daniels@psomas.com
 Site Name Los Angeles County Flood Control District Channel Reach 86 Date report Completed September 3, 2015
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous yrs? Yes No Not Applicable
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.
 Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles County Flood Control District

Length of area surveyed: 0.25 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.
Salix spp., Baccharis salicifolia, and Populus fremontii

Average height of canopy (Do not include a range): 5 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).
Attach additional sheets if necessary.

The survey area includes the confluence of Violin Canyon with Castaic Creek. The Violin Canyon outlet is maintained free of vegetation, but Castaic Creek is well vegetated at the confluence. Minimal surface water was present in Violin Canyon this survey season and generally did not reach Castaic Creek, which was dry (and usually is at this season in this stretch of the creek).

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Soft-bottom Channel Reach 110 State: California County: Los Angeles
 USGS Quad Name: Newhall and Val Verde Elevation: 361 (meters)
 Creek, River, or Lake Name: Hasley Canyon Channel

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes X No

Survey Coordinates: Start: E 349511 N 3813766 UTM Datum: WGS84 (See instructions)
 Stop: E 350785 N 3812746 UTM Zone: 11

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]. If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s): Brian Daniels	Date: 05/26/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0800						0			
	Stop: 0915									
	Total hrs: 1.25									
Survey # 2 Observer(s): Brian Daniels	Date: 06/08/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0745						0			
	Stop: 0930									
	Total hrs: 1.75									
Survey # 3 Observer(s): Brian Daniels	Date: 06/18/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 1015						0			
	Stop: 1130									
	Total hrs: 1.25									
Survey # 4 Observer(s): Brian Daniels	Date: 06/29/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0700						0			
	Stop: 0800									
	Total hrs: 1.0									
Survey # 5 Observer(s): Brian Daniels	Date: 07/10/15	0	0	0	N		# Birds	Sex	UTM E	UTM N
	Start: 0715						0			
	Stop: 0900									
	Total hrs: 1.75									
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes <u> </u> No <u>X</u> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
Total survey hrs: <u>7.0</u>	0	0	0	0						

Reporting Individual: Brian E. Daniels Date Report Completed: September 3, 2015
 US Fish & Wildlife Service Permit #: TE821401-4 State Wildlife Agency Permit #: SC-4535

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian E. Daniels Phone # 626 351-2000
 Affiliation BonTerra Psomas E-mail brian.daniels@psomas.com
 Site Name Los Angeles County Flood Control District Channel Reach 110 Date report Completed September 3, 2015
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous yrs? Yes No Not Applicable
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.
 Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Los Angeles County Flood Control District

Length of area surveyed: 1.75 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
 Mixed native and exotic plants (mostly native, 50 - 90% native)
 Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
 Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix spp., Baccharis salicifolia, and Populus fremontii

Average height of canopy (Do not include a range): 5 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).
Attach additional sheets if necessary.

The narrow and dry channel that transitions from dense woodland and scrub habitats through most of its length to sparse shrubs at its upstream terminus. There is some pooling water at a couple side outlets. The source of this was is runoff from irrigation of surrounding ornamental vegetation at back of light industrial complex that mostly surrounds this channel reach.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

ATTACHMENT E

LEAST BELL'S VIREO SURVEY DATA SUMMARY SHEETS

LEAST BELL'S VIREO SURVEY DATA SUMMARY

Site Information				
Project Title:	Soft-bottom Channel Reach 40b			
Landowner:	Los Angeles County Flood Control District			
Survey Information				
Surveyors:	Jim Pike	Year:	2015	
Survey Begin Coordinates		Survey End Coordinates		Datum
Northing:	3768485	Northing:	3766927	WGS84
Easting:	406922	Easting:	405226	WGS84
Survey Length (Km)	Total Number of Surveys		Total Number of Survey Hours	
2.4	9		19	
Least Bell's Vireo Detection Information				

Number of males that were:

	Paired:	6	Based on observation of female, nest, young, or nesting behavior (nest-building, food carrying).
	Undetermined Status:		The total number of resident males not confirmed as paired.
	Transient:	2	Only detected once despite repeated surveys, or were not detected at the same location for more than 2 weeks.
	Total number of males:	8	The sum of the three categories above.

Coordinates for LBVI Territories (continue on second sheet if necessary)			
Territory ID	Northing	Easting	Status/Comments (e.g. paired)
1	3767123	405611	three fledglings
2	3767130	405670	three fledglings
3	3767169	405681	nest deperadated
4	3767208	405686	two fledglings
5	3767218	405770	nest deperadated
6	3767667	406402	nest deperadated

APPENDIX D

SBC 2016 FOCUSED SURVEY REPORT FOR YELLOW-BILLED CUCKOO

2016 Focused Survey Results for Yellow-Billed Cuckoo

Los Angeles County Flood Control District Soft-Bottom Channels Maintenance Clearing

Prepared for | Los Angeles County Flood Control District
Flood Maintenance Division
900 South Fremont Avenue
Annex Building, 2nd Floor
Alhambra, California 91802
Contact: Jemellee Cruz, P.E.

Prepared by | BonTerra Psomas
225 South Lake Avenue, Suite 1000
Pasadena, California 91101
T: (626) 351-2000 F: (626) 351-2030
Contact: Brian Daniels

October 2016



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ATTACHMENTS

Attachment

- A Survey Area USGS Maps
- B Survey Area Aerial Maps
- C Site Photographs
- D Avian Compendium
- E USFWS June 22, 2016 Cuckoo Sighting Report
- F Yellow-billed Cuckoo Survey Summary and Site Description Forms
- G Surveyor Certificate Statement

INTRODUCTION

Focused surveys for Threatened and Endangered species are conducted on a regular basis at selected soft-bottom channel reaches maintained by the Los Angeles County Flood Control District (LACFCD). The wildlife species include the unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), Santa Ana sucker (*Catostomus santaanae*), arroyo toad (*Anaxyrus californicus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and least Bell's vireo (*Vireo bellii pusillus*). Annual biological monitoring and periodic habitat assessments of all LACFCD channel reaches provides a means by which to update and revise, when necessary, the particular channel reaches and species for which surveys are recommended. This report presents the results of focused surveys conducted in 2016 at 16 channel reaches for the yellow-billed cuckoo (*Coccyzus americanus*). The 2016 survey results are summarized below in Table 1.

**TABLE 1
SUMMARY OF 2016 RESULTS OF YELLOW-BILLED CUCKOO FOCUSED
SURVEYS AT 16 SOFT-BOTTOM CHANNEL REACHES**

Reach Number	Reach Name	Survey Results
Los Angeles River Watershed		
14	May Channel (Main Channel Outlet into Pacoima Canyon)	Negative
Dominguez Channel Watershed		
27	Wilmington Drain	Observed
San Gabriel River Watershed		
39	Beatty Channel Outlet at San Gabriel River 25+99.00+50'	Negative
40b	San Gabriel River – I-10 Freeway to Thienes Ave	Negative
43a	San Gabriel River – Upper	Negative
43b	San Gabriel River – Lower	Negative
44	San Gabriel River	Negative
Santa Clara River Watershed		
71	Santa Clara River Main Channel (PD 1946)	Negative
79	South Fork – Santa Clara River (Valencia Blvd Bridge Stabilizer)	Negative
80	South Fork – Santa Clara River (PDs 1947 and 1946)	Negative
82	Santa Clara River Main Channel (PD 2278)	Negative
87	Castaic – Old Rd Drain (CDR 525.021D) Outlet	Negative
97	Castaic Creek – The Old Rd (PD 1982)	Negative
103	Bouquet Canyon Channel (PD 2225)	Negative
104	Castaic Creek (PD 2441 Units 1 and 2)	Negative
109	Santa Clara River – South Bank West of McBean Pkwy (MTD 1510)	Negative

As with the southwestern willow flycatcher and least Bell's vireo, the yellow-billed cuckoo is a migratory species that is present in Southern California only during the summer breeding season. These three species have departed their breeding grounds by mid-September. As required by the LACFCD's regulatory permits, maintenance activities occur outside the time period (i.e., after September 15) in those soft-bottom channels with potential habitat for these species. Also required by the LACFCD's regulatory permits, habitat areas seasonally occupied by the least

Bell's vireo that are identified in the focused surveys must be protected by flagging and these areas must be monitored by qualified biologists during clearing activities.

ENVIRONMENTAL SETTING

Regional Setting

The topography in Los Angeles County is diverse, containing coastline, flatlands, mountains, and desert within approximately 4,000 square miles. Elevations in the County range from sea level to over 10,000 feet above mean sea level (msl). The climate ranges from mild near the coast to severe in the high mountains and in the desert. This variation in environments has created a unique and diverse collection of biological resources (England and Nelson 1976).

The San Gabriel Mountains are a prominent topographic feature that include a portion of the headwaters of the Santa Clara, Los Angeles, Rio Hondo, and San Gabriel Rivers and are the source of streams that drain into the Antelope and Fremont Valleys. The San Gabriel Mountains rise 7,000 feet above msl from the Antelope and Santa Clarita Valleys and exert considerable influence on the climate, hydrology, and ecology of the lands around them. The San Andreas and other numerous faults have fractured the mountains so that they erode at a rapid rate. Hence, the stream basins along the northern slope are generally characterized by steep headwaters and sloping alluvial beds on the adjacent flatlands (CRA et al. 2001).

The Santa Monica Mountains are also a prominent topographic feature and include the headwaters of Malibu Creek and Topanga Creek; these are the source of streams that drain the Malibu Coast. The Santa Monica Mountains are up to 10 miles wide and reach an elevation of 3,100 feet above msl at Sandstone Peak. The Santa Monica Mountains have a complex structure because they have been uplifted and then eroded several times over the past 200 million years (Dale 1986; England and Nelson 1976).

There are 4 major rivers in Los Angeles County: the Los Angeles River is approximately 51 miles long (main stem) and drains 830 square miles; the Rio Hondo River is approximately 20 miles long (main stem) and drains 125 square miles; the San Gabriel River is approximately 59 miles long (main stem) and drains 350 square miles; and the Santa Clara River is approximately 75 miles long (main stem) and drains 1,616 square miles (LACDPW 2007). Numerous other streams also occur in Los Angeles County. Surface water in streams and rivers is generally only present during the winter and spring, in particular after storm events. Many storms do not generate sufficient runoff to sustain surface flow in all streams. In some areas, flows are supplemented with reclaimed water and agricultural and urban runoff. Particularly intense storms can result in flash floods or debris flows that can carry large amounts of sediment, rocks, and debris to be deposited in the valley below (CRA et al. 2001).

The Los Angeles River system has been extensively channelized to provide flood protection as it passes through several cities on its way to the Pacific Ocean. The Los Angeles River tributaries include Bell Creek, Calabasas Creek, Burbank Western Channel, Pacoima Wash, Tujunga Wash, Verdugo Wash, Arroyo Seco, Compton Creek, and the Rio Hondo River (LACDPW 2007). There are now over 400 miles of concrete-lined tributaries that feed into the main channel. Approximately 47.9 miles of the 51.0-mile river is concrete-lined. The two stretches where the river is not lined (i.e., soft or earthen-bottom channels) include the Sepulveda Flood Control Basin through the Glendale Narrows and south of Willow Street in Long Beach (LACDPW 2007). Reclaimed water enters the Los Angeles River at the Sepulveda Basin where the Los Angeles Department of Water and Power releases as much as 75 million gallons of reclaimed water daily from the Donald C. Tillman Water Reclamation Plant.

The San Gabriel River begins in the Angeles National Forest and flows through several cities on its way to the Pacific Ocean. The San Gabriel River tributaries include Walnut Creek, San Jose Creek, Coyote Creek, and numerous storm drains (LACDPW 2007). The headwaters of the San Gabriel River begin just north of Pasadena and northwest of Mount Wilson, where they flow through a steep canyon to Cogswell Reservoir. The west fork of the river then merges with the east fork and flows into the San Gabriel Reservoir. Below the reservoir, the east fork converges with the main stem of the San Gabriel River and flows through San Gabriel Canyon to Morris Reservoir. Below Morris Reservoir, the river flows through cities from Azusa to Seal Beach and empties into Long Beach Harbor.

The Santa Clara River is unique because it is the only major unchannelized river that drains the San Gabriel Mountains. The Santa Clara River is fed by five major tributaries: Sand Canyon, Mint Canyon, Bouquet Canyon, South Fork, and San Francisquito Canyon (LACDPW 2007). Further west, Castaic, Piru, Sespe, and Santa Paula Creeks join the river (CRA et al. 2001). The headwaters of the Santa Clara River are located near Acton, and the river runs approximately 100 miles to its outlet in the city of Ventura in Ventura County. Most development adjacent to the river is located in or near the city of Santa Clarita (LACDPW 2007).

The Malibu Creek Watershed is a system of independent streams that drain approximately 109 square miles in northwest Los Angeles County from the Santa Monica Mountains to the Pacific Ocean. These include Las Virgenes, Triunfo, and Cold Creeks, as well as other small streams that flow from the Santa Monica Mountains to Santa Monica Bay. These creeks flow through the cities of Agoura Hills, Calabasas, Malibu, Thousand Oaks, Westlake Village, unincorporated Los Angeles County, and Ventura County (LACDPW 2007).

The Ballona Creek Watershed is a ten-mile-long flood-control channel that drains the Los Angeles Basin from the Santa Monica Mountains to the north, the Interstate (1) 110 Freeway to the east, and the Baldwin Hills to the south. All together, the Ballona Creek Watershed drains approximately 130 square miles of the Los Angeles Basin. Creeks or drainages of this watershed include Centinela Creek, Sepulveda Channel, and Benedict Canyon Channel. These drainages pass through the cities of Beverly Hills, Culver City, Inglewood, Los Angeles, and West Hollywood (LACDPW 2007).

The Dominguez Watershed is situated in south Los Angeles County and drains approximately 133 square miles of the Los Angeles Basin into the Los Angeles Harbor. Parts of the cities of Hawthorne, Torrance, Gardena, and Carson and the community of Wilmington drain into the Dominguez Channel. Over 40 percent of this watershed consists of industrial, commercial, and transportation land uses (CRA et al. 2001; LACDPW 2007).

The Antelope Valley Watershed is a system of independent streams that drain approximately 1,200 square miles in north Los Angeles County from the San Gabriel Mountains and Kern County into the valley floor. These include Little Rock, Big Rock, and Mill Creeks, as well as other small streams that flow from the San Gabriel Mountains into the Antelope Valley. Due to the surrounding topography, these streams do not drain into the sea, but into dry lakebeds on the valley floor, with most surface flows infiltrating into groundwater basins or evaporating (CRA et al. 2001; LACDPW 2007). Because the valley lacks defined natural channels outside the foothills, it is subject to unpredictable sheet-flow patterns. The portion of the Antelope Valley Watershed in Los Angeles County includes the cities of Lancaster and Palmdale, with scattered clusters of sparse development outside these cities (LACDPW 2007).

Local Setting

In 2002, the LACFCD maintained 95 soft-bottom channel reaches located within its district boundaries, consisting of 885.58 acres that require management. Since 2002, ten soft-bottom channel reaches have been lost due to redevelopment or ownership change, but several more have been added to the list. As of 2016, the LACFCD manages 108 channel reaches (1 thru 119¹) that are located in 9 identified watersheds or regions of Los Angeles County:

- Los Angeles River Watershed: 26 channel reaches
- Dominguez Channel Watershed: 2 channel reaches
- Malibu Creek Watershed: 9 channel reaches
- San Gabriel River Watershed: 10 channel reaches
- Santa Clara River Watershed: 55 channel reaches
- Ballona Creek Watershed: 2 channel reaches
- Santa Monica Bay: 2 channel reaches
- Antelope Valley: 1 channel reach
- Cerritos Channel: 1 channel reach

In 1997, the 95 soft-bottom flood-control channel reaches encompassed 885.58 acres that included 205.27 acres of vegetation. Based on vegetation categories developed at the time, the 205.27 acres of vegetation included an estimated 105.32 acres of riparian vegetation, 63.40 acres of mule fat vegetation, and 36.55 acres of scrub vegetation (BonTerra 1999). These acreages have not been updated since that time and are presented here only to indicate the large amount of habitat under the LACFCD's jurisdiction.

PROPOSED PROJECT

Background

To effectively control flood waters from the mountainous watersheds surrounding the Los Angeles Basin, the U.S. Army Corps of Engineers (USACE) and the LACFCD constructed concrete-bottom and earth-bottom channels leading from dams and debris basins located along the frontal slopes of the San Gabriel, Santa Monica, Verdugo, and Santa Susanna Mountains. Construction began in the 1930s. These channels, as a system, provide flood protection for Los Angeles County.

Channel maintenance activities have been performed regularly in LACFCD channels for over 50 years. Originally constructed by the USACE, upon completion, most of the channel facilities were transferred to the LACFCD for cyclic maintenance. The USACE's maintenance guidelines require that "debris, objectionable growth, shoals, and waste materials must not encroach on the invert. Excess materials that will not move readily with low flows must be removed. Measures must be taken to control objectionable growth by approved chemical or mechanical means" (USACE 1996).

The County formerly maintained channels clear of any vegetation, as required under the *Code of Federal Regulations* (CFR, specifically Title 33, Section 208.10), until the California Department of Fish and Wildlife (CDFW) began requiring the County to clear vegetation on alternating sides of the

¹ The total does not add up to 119 because 11 channel reaches have been developed or had their ownership transferred.

channels each year. The USACE allowed limited clearing between 1993 and 1995. Anticipated heavy rains during the 1997/1998 storm season caused by El Niño conditions resulted in a statewide need to remove vegetation and sediment from soft-bottom channels to restore their flood-carrying capacity. The LACFCD obtained all necessary permits to conduct this work in the 1997/1998 storm season and has continued the ongoing maintenance as approved by the permits.

Project Description

Vegetative growth in a channel system reduces channel capacity. All soft-bottom channels were designed and constructed as relatively clean, unvegetated channels. As vegetation grows more dense, the roughness of the channel increases and the velocity of flows decrease, which corresponds to a loss in the channel's carrying capacity. The vegetation also traps some of the sediments being transported by flood flows which, when deposited, further reduce channel capacity. Studies have shown that increased vegetation and sediments in the channels result in reduced flow area with a concomitant decrease in flow velocity. A loss of carrying capacity in the channels could cause flood flows to escape the channel systems and impact adjacent properties (LACDPW 1996).

Vegetation can also affect the structural integrity of bridges during a major storm event. Vegetation slows flood flows, which creates a backwater effect and increases water surface elevations upstream. Bridges are not normally designed to withstand the forces that result from significantly increased flood water elevations. Additionally, increased flood depths upstream can result in flooding of adjacent properties and erosion of channel banks.

The LACFCD performs minor grading and annual vegetation clearing in channels to retrain channel flows consistent with the clearing limits established by the permitted maintenance plan (BonTerra 1999). This ongoing program is necessary to maintain the design capacities of the channels and to ensure the proper functioning of the facilities located within the LACFCD boundaries.

Within each reach, the LACFCD proposes to clear the same areas (and acreage) that have been cleared annually since 1997. Biological impacts to these channel reaches associated with the initial vegetation clearing for maintenance activities were previously mitigated through maintaining and enhancing 62.7 acres of riparian habitats at the Big Tujunga Wash Mitigation Bank site (BonTerra 1999).

Channel clearing activities are performed primarily by mechanical means, using heavy equipment (such as trucks, bulldozers, dump trucks, and loaders), as well as other specialized equipment designed for this type of work. Hand clearing is conducted in areas where mechanical equipment cannot be used or where important biological resources exist nearby. Herbicides approved by regulatory agencies are applied, as necessary, to eradicate invasive and/or non-native vegetation including, but not limited to, giant reed (*Arundo donax*) and castor bean (*Ricinus communis*).

The channel clearing activities are performed under an existing Maintenance Plan approved by the Los Angeles Regional Water Quality Control Board (RWQCB) and USACE and modified by the CDFW under the LACFCD's existing Streambed Alteration Agreement. BonTerra Psomas has reviewed the Maintenance Plan and has extensive knowledge of channel clearing activities in all channel reaches, having worked with the LACFCD since 1997 to provide biological monitoring of flood-control channel maintenance work. Pre-clearing and post-clearing photos have been taken every year to document the biological resources in these channel reaches in compliance with the mitigation requirements of existing permits from the USACE, RWQCB, and CDFW.

SPECIAL STATUS SPECIES BACKGROUND

In order to comply fully with the regulatory permits issued to the LACFCD, surveys are performed for a variety of special status species at soft-bottom channel reaches where suitable or potentially suitable habitat has been identified. For example, the permits require annual pre-clearing surveys for the federally and State-listed Endangered unarmored threespine stickleback and federally listed Threatened Santa Ana sucker. Results of these fish surveys were included with previous focused survey efforts (BonTerra 2002, 2003), but have since been reported separately to the LACFCD. Since the 2002 and 2003 focused survey efforts, surveys for the federally listed Endangered arroyo toad as well as the federally and State-listed Endangered southwestern willow flycatcher and least Bell's vireo have been conducted every other year (BonTerra 2005, 2007, 2009, 2011, 2013, 2015).

Although State-listed Threatened on June 27, 1971, and State-listed Endangered on March 26, 1988 (CDFW 2016), focused surveys for the yellow-billed cuckoo were not conducted prior to 2016 at any soft-bottom channel reaches due to the general lack of sufficiently large areas of potentially suitable riparian habitats that this species requires for breeding. Furthermore, because of the large amount of breeding habitat required, the yellow-billed cuckoo has been considered extirpated as a breeder in Los Angeles County since the 1950s. However, the western distinct population segment of the yellow-billed cuckoo was federally listed Threatened on November 3, 2014 and the U.S. Fish and Wildlife Service (USFWS) and USACE requested the LACFCD provide a summary of the yellow-billed cuckoo's status in the project region in order to renew the Nationwide Permit 31 for soft-bottom channels.

BonTerra Psomas prepared and submitted a Technical Memorandum to the LACFCD on the status of yellow-billed cuckoo in the project region dated August 11, 2015 (BonTerra Psomas 2015). The Technical Memorandum recommended surveys at 11 soft-bottom channel reaches that support or are adjacent to willow-cottonwood habitats extensive enough to be potentially suitable for the yellow-billed cuckoo. These 11 soft-bottom channel reaches formed the following 5 proposed survey areas: (1) Reach 27; (2) Reach 43a; (3) Reaches 71, 79, 80, and 103; (4) Reaches 82 and 109; and (5) Reaches 87, 97, and 104. Note that the list includes soft-bottom channel reaches 103, 104, and 109 that are not yet permitted. Non-permitted channel reaches are included in annual monitoring surveys and, if appropriate, focused surveys for Threatened and Endangered species in order to facilitate their future permitting.

The USACE Nationwide Permit issued on November 23, 2015, covered soft-bottom channel reaches 1 thru 100 and included a requirement for yellow-billed cuckoo surveys at the following 13 channel reaches: 14, 27, 39, 40a, 43a, 43b, 44, 71, 79, 80, 82², 87, and 97. Combined with channel reaches 103, 104, and 109, these 16 soft-bottom channel reaches form the following 9 survey areas:

- Survey Area 1: Reach 14
- Survey Area 2: Reach 27
- Survey Area 3: Reach 39
- Survey Area 4: Reach 40b
- Survey Area 5: Reaches 43a and 43b

² Avoidance and minimization measure 2c of the November 23, 2015, permit lists only 12 soft-bottom channel reaches; however, the appendices of the permit include Table 1, which lists Reach 82 with the other 12 channel reaches requiring "avian bio-monitoring" for the yellow-billed cuckoo, as well as "Not Authorized" channel reaches 103, 104, and 109.

- Survey Area 6: Reach 44
- Survey Area 7: Reaches 71, 79, 80, and 103
- Survey Area 8: Reaches 82 and 109
- Survey Area 9: Reaches 87, 97, and 104

This report provides the results of surveys for the yellow-billed cuckoo at these 9 Survey Areas (i.e., 16 soft-bottom channel reaches). See Attachments A and B for Survey Area Maps and Attachment C for representative photographs for each Survey Area.

Yellow-Billed Cuckoo

The yellow-billed cuckoo formerly bred throughout the western United States to British Columbia, Canada, but has declined dramatically over the past 100 years due to the widespread loss of lowland riparian forests dominated by willows (*Salix* spp.) and cottonwoods (*Populus* spp.) (Hughes 1999). It no longer breeds in western Canada, Washington, Oregon, or Montana, and it continues to decline in California (USFWS 2014). A California statewide survey conducted in 1977 of floodplain riparian forests where this species occurred historically or where habitat appeared suitable, found a total of 141 yellow-billed cuckoos (Gaines and Laymon 1984). Another statewide survey in 1986–1987 found a total of 30 to 33 pairs and 31 unmated male yellow-billed cuckoos at 9 locations; the majority were concentrated along the upper Sacramento River from Red Bluff to Colusa and at the South Fork Kern River (Laymon and Halterman 1989). Recent surveys conducted in 2010, 2012, and 2013 along the Sacramento and Feather Rivers in the Sacramento Valley show a continuing decline in cuckoo numbers despite a net gain in suitable habitats over the last 30 years; causes for the continuing population decline along the Sacramento and Feather Rivers is unknown (Dettling et al. 2015).

During the 1977 statewide survey discussed above, only three yellow-billed cuckoos were found in the Southern California Coastal Region from Ventura County south to San Diego County; all three cuckoos were along the Santa Ana River in the Prado Basin of western Riverside County (Gaines and Laymon 1984). A small local population of yellow-billed cuckoos persisted in the Prado Basin until 1995 with numbers ranging from three in 1985 to seven in 1987 (Pike et al. 2004). After widespread flooding in the basin during spring season 1995, only one or two yellow-billed cuckoos were detected annually until 2001, followed by no detections from 2002 to 2004 (Pike et al. 2004). Far more yellow-billed cuckoos than normal were reported in Southern California during the 2011 summer season, and included one single bird in the Prado Basin on June 23, 2011 (McCaskie and Garrett 2012; Western Riverside MSHCP 2012). As a breeder, the yellow-billed cuckoo appears to have been extirpated from the Santa Ana River Watershed, including the Prado Basin.

This species formerly nested in the Los Angeles, San Gabriel, and the Santa Clara River systems (Allen and Garrett 1996). Breeding persisted until at least 1952 in the San Gabriel River near El Monte (Long 1993; Garrett and Dunn 1981). There has been no documented nesting of this species in Los Angeles County since the late 1950s, although breeding is still “conceivable” in remnant riparian habitat along the Santa Clara River (Allen and Garrett 1996). In recent years, it occurs in Los Angeles County and elsewhere in the Southern California Coastal Region only as a rare migrant (Lehman 2015; Unitt 2004; Hamilton and Willick 1996; Garrett and Dunn 1981; Webster et al. 1980). For example, one yellow-billed cuckoo was at the Piute Ponds in the Antelope Valley, Los Angeles County, from July 1 to 6, 2015 (eBird 2015). The Piute Ponds do not support suitable breeding habitat for this species, but do serve as a migrant “trap” that holds migrants for short stays.

Estimates of how much riparian habitat is needed for breeding varies, but it is clear that the western yellow-billed cuckoo prefers large areas of suitable riparian habitat. The final draft survey protocol for the western yellow-billed cuckoo states that it nests almost exclusively in low to moderate elevation riparian woodlands with native broadleaf trees and shrubs that are 20 hectares (50 acres) or more in extent within arid to semiarid landscapes (Halterman et al. 2015). Yellow-billed cuckoos rarely use smaller patches of habitat (less than 50 acres), particularly when those small patches are distant from other patches of riparian habitat. In California, yellow-billed cuckoos prefer riparian habitats that include 3 hectares (7 acres) or more of closed canopy, with canopy heights of 5 to 30 meters (16.4 to 98.4 feet) and understory vegetation heights of 1 to 6 meters (3.28 to 19.7 feet) (Laymon and Halterman 1989). They are most commonly associated with cottonwood-willow dominated vegetation cover, but the dominant species can vary across the entire range of the western yellow-billed cuckoo. Willows and cottonwoods are the dominant species of cuckoo habitat in California (Halterman et al. 2015).

The Seasonal Reports in the journal *North American Birds* typically contain only reports of yellow-billed cuckoos observed away from known nesting localities, but often state whether or not the observed cuckoo was in an area of suitable breeding habitat. The online database, started in 2002 by the Cornell Lab of Ornithology and the National Audubon Society (eBird) is also contributing information regarding yellow-billed cuckoo distribution. Although there have been no recent confirmed breeding observations in the Southern California Coastal Region, there are multiple observations of yellow-billed cuckoos at some locations with suitable or potentially suitable breeding habitat, including the lower Santa Clara River in Ventura County, the Whittier Narrows area in Los Angeles County, Prado Basin in Riverside and San Bernardino Counties, San Joaquin Marsh in Orange County, and San Luis Rey River near Oceanside in San Diego County. These observations generally consist of single birds, but often occur at times that suggest summering individuals rather than migrants. This species is usually very difficult to see because it can remain motionless for long periods of time and typically stays within dense vegetation cover. It can also be difficult to hear as it calls intermittently on its breeding grounds and may be remain silent for long time periods.

SURVEY METHODS

The USFWS survey protocol for yellow-billed cuckoo requires a minimum of four surveys be conducted in three time periods that span the peak of breeding activity for the western populations of this species (Halterman et al. 2015). The survey protocol is designed to assess whether or not the yellow-billed cuckoo is present at a given site. The use of call-playback detects yellow-billed cuckoos that may otherwise be overlooked and has an 80 percent probability of detecting an individual yellow-billed cuckoo and 95 percent probability of detecting cuckoos present during the breeding season (Halterman et al. 2016). Survey Period 1 is from June 15 to June 30 and only one survey is required in this time period. Migrating yellow-billed cuckoos are passing through, but breeding birds are also arriving during this time period. Two surveys are required during Survey Period 2, which is from July 1 to July 31. Individual cuckoos encountered during this time period are mostly breeders, but are occasionally migrants, wandering individuals, or young of the year. Survey Period 3 is from August 1 to August 15 and only one survey is required in this time period. Most breeding yellow-billed cuckoos have finished breeding activities and are departing during this third survey time period.

BonTerra Psomas Senior Biologist Brian E. Daniels (USFWS Permit No. TE821401-5) and independent consulting biologist Sean P. Rowe (USFWS Permit No. TE64124A) conducted all surveys. Both Mr. Daniels and Mr. Rowe used compact speakers capable of broadcasting recorded bird calls in excess of 70 decibels. Per USFWS survey protocol for the species, the

recorded contact or “kowlp” calls³ of yellow-billed cuckoo were played five times at one-minute intervals at each calling station (or point) established in the each Survey Area. Calling points were recorded on global positioning system (GPS)-capable devices for repeatability. Calling points were established approximately every 100 meters in riparian habitat that provided potentially suitable habitat for the yellow-billed cuckoo. No calling points were established in areas that lacked riparian habitats potentially suitable for the yellow-billed cuckoo. In particular, Survey Area 3 (Reach 39) and Survey Area 6 (Reach 44) lack the tree density in the riparian habitat that yellow-billed cuckoos require (see Attachments B-3, B-6a, and B-6b).

Occasional survey assistance was provided by BonTerra Psomas Biologists Lindsay Messett (USFWS Permit No. TE0607064-2), Jonathan Aguayo (USFWS Permit No. TE96514A-0), Jonathan Feenstra (USFWS Permit No. 128462-2), and Steve Morris. The surveys were conducted under optimal weather conditions and during the early morning hours when bird activity is at its peak. All bird species detected during the surveys were recorded, including all incidental observations of least Bell’s vireo. Survey data are presented below in Table 2. Avian lists for each survey area are provided in Attachment D.

**TABLE 2
YELLOW-BILLED CUCKOO SURVEY DATA**

Survey Area	Survey No.	Surveying Biologists	Survey Date	Survey Conditions			
				Start/End Time	Temp (°F)	Cloud Cover (%)	Wind Speed (mph)
1	1	S. Rowe L. Messett	6/29/16	0600–1000	63–83	5–30	0–3
	2	B. Daniels J. Feenstra	7/17/16	0600–0945	61–77	Clear–Clear	0–3
	3	B. Daniels	7/29/16	0550–0910	72–81	Clear–Clear	0–3
	4	B. Daniels	8/10/16	0600–0915	61–70	Clear–5	0–4
2	1	B. Daniels L. Messett	6/22/16	0645–0930	68–81	100–Clear	1–5
	2	B. Daniels	7/5/16	0610–0845	66–70	100–Clear	0–5
	3	B. Daniels	7/19/16	0600–0845	66–72	5–Clear	1–6
	4	B. Daniels J. Feenstra	8/1/16	0600–0915	71–79	5–25	1–5
3	1	B. Daniels	6/29/16	0545–0730	70–72	5–Clear	0–0
	2	B. Daniels	7/18/16	0615–0815	62–69	Clear–Clear	0–0
	3	B. Daniels	7/30/16	0600–0715	71–74	5–10	0–1
	4	B. Daniels	8/12/16	0600–0715	64–66	5–5	0–2
4	1	B. Daniels	6/28/16	0615–0950	70–91	60–40	0–5
	2	B. Daniels	7/16/16	0545–0950	66–75	100–40	0–4
	3	B. Daniels	7/28/16	0545–1000	72–82	Clear–Clear	0–3
	4	B. Daniels	8/9/16	0550–0945	65–72	100–100	0–6

³ The recorded calls were acquired by attendance at a USFWS sponsored conference for the yellow-billed cuckoo.

**TABLE 2
YELLOW-BILLED CUCKOO SURVEY DATA**

Survey Area	Survey No.	Surveying Biologists	Survey Date	Survey Conditions			
				Start/End Time	Temp (°F)	Cloud Cover (%)	Wind Speed (mph)
5	1	S. Rowe L. Messett	6/28/16	0605–1020	70–93	75–80	0–0
	2	B. Daniels J. Feenstra	7/10/16	0605–0945	66–75	5–Clear	0–4
	3	B. Daniels S. Morris	7/22/16	0545–0930	68–82	Clear–Clear	2–4
	4	B. Daniels	8/3/16	0600–0950	68–89	80–5	2–6
6	1	B. Daniels	6/29/16	0830–1100	75–81	Clear–Clear	0–0
	2	B. Daniels	7/18/16	0900–1115	70–78	Clear–Clear	2–6
	3	B. Daniels	7/30/16	0740–0945	74–79	20–10	3–5
	4	B. Daniels	8/12/16	0745–1000	67–73	Trace–10	4–6
7	1	S. Rowe L. Messett	6/23/16	0617–1120	60–89	Clear–Clear	0–5
	2	B. Daniels J. Feenstra	7/7/16	0610–1035	59–80	Clear–Clear	0–4
	3	B. Daniels	7/20/16	0610–1115	64–92	Clear–Clear	0–5
	4	B. Daniels J. Feenstra	8/2/16	0600–1030	66–82	Clear–Clear	0–4
8	1	B. Daniels S. Morris	6/23/16	0615–1100	60–89	Clear–Clear	0–5
	2	B. Daniels	7/11/16	0600–1050	61–84	Clear–Clear	0–4
	3	B. Daniels J. Feenstra	7/24/16	0600–1100	64–91	Clear–Clear	2–3
	4	B. Daniels	8/6/16	0615–1100	61–83	Clear–Clear	0–0
9	1	S. Rowe L. Messett	6/24/16	0620–1025	67–85	Clear–Clear	0–7
	2	B. Daniels	7/12/16	0640–1050	59–84	Clear–Clear	0–6
	3	B. Daniels	7/26/16	0615–1015	71–91	5–Clear	0–5
	4	B. Daniels	8/8/16	0615–1000	57–75	Clear–Clear	0–5

°F: degrees Fahrenheit; mph: miles per hour

SURVEY RESULTS

One yellow-billed cuckoo was heard and seen on June 22, 2016, in Wilmington Drain (Reach 27 of Survey Area 2; see Attachment B-2). This bird responded to recorded “kowlp” calls at Calling Point No. 9, which was the last calling station of the morning. After the second of five recorded “kowlp” calls, we heard a few distant “kek” notes downstream—we commented in hushed tones that it could be a cuckoo, but we were not sure. The third of five recorded “kowlp” calls then played and received an immediate “kowlp” in response from the willow tree behind us. We were not able to see the cuckoo in the willow, but within seconds we saw it leave the backside of the tree and fly downstream toward where we had heard the distant “kek” notes. Playback of “kowlp” calls ended with the third of five “kowlp” calls on the recording. We continued to listen and search for the cuckoo for the next hour until 0930, but without success. Per terms of Mr. Daniels’s Federal Endangered Species Act (FESA) recovery permit, this observation was reported to the

appropriate U.S. Fish and Wildlife Office within 24 hours of its occurrence (see Attachment E). Also, the Yellow-Billed Cuckoo Summary and Site Description forms are provided as Attachment F.

Survey Area 1

The May Channel (Reach 14) Main Channel Outlet into Pacoima Wash is 588 feet in length and contains an area of 0.63 acre. Willow riparian woodland is present along its length and in the two side outlets on the opposite side of Pacoima Wash. These three small side drainages, however, provide less than two acres of riparian woodland and not nearly enough to support breeding habitat for the yellow-billed cuckoo. As a result, the survey area was extended downstream across Harding Street to include the riparian woodland in the Lopez Debris Basin. The survey area is approximately 80 acres in size, but contains only about 10 acres of riparian woodland.

No yellow-billed cuckoos were detected during these surveys. The southwestern flycatcher was not present, but the least Bell's vireo was recorded during the surveys of Survey Area 1. These data points are presented on Attachment B-1.

Survey Area 2

The June 22, 2016, cuckoo observed at Wilmington Drain (Reach 27) was observed during a time period in which migrants occur in the region. Wilmington Drain and the adjacent Ken Malloy Regional Park (KMRP) are well-known "migrant traps", and this individual cuckoo was most likely a migrant. For the 2016 season, the survey area was confined to the limits of Reach 27 (3,045 feet long; 7.87 acres) because of the ongoing construction and restoration of KMRP.⁴ In future years, the yellow-billed cuckoo survey area for Reach 27 will include the more extensive riparian woodlands south of Pacific Coast Highway in KMRP. The addition of the "north-end" willows of KMRP expands the survey area to about 50 acres, which is expected to include at least 25 or 30 acres of riparian woodland.

Although observed in previous seasons in Wilmington Drain, the least Bell's vireo was not recorded there during these surveys. The southwestern willow flycatcher was also not detected during these surveys at Reach 27.

Survey Area 3

The Beatty Channel Outlet (Reach 39) is located on the east bank of the San Gabriel River upstream of the I-210 Freeway. This small outlet is 406 feet in length and contains an area of 0.26 acre. This stretch is dominated by alluvial sage scrub vegetation with individual or isolated patches of willows. Previous surveys in this stretch of the river have observed least Bell's vireo and the coastal California gnatcatcher (*Polioptila californica californica*). Most of the willow patches have been occupied by homeless. In recent years, the combination of fires and the ongoing drought have negatively affected the habitats in the river, especially the willow clumps. Survey Area 3 for Reach 39 is approximately 50 acres and contains less than 1 acre of riparian woodland.

⁴ The construction phase of the Proposition "O" Restoration project for Wilmington Drain (Reach 27) and Ken Malloy Regional Park (also known as Machado Lake) was completed in 2015 for Wilmington Drain and started in 2014 for Machado Lake.

No yellow-billed cuckoos were detected during these surveys. In addition, the southwestern willow flycatcher and least Bell's vireo were not recorded during these surveys in Survey Area 3.

Survey Area 4

Reach 40b is an approximately 2.25-mile stretch of the San Gabriel River between the I-10 and I-60 Freeways. The upper segment lacks riparian woodland, so only the lower segment at the confluence with San Jose Creek was included in Survey Area 4. This survey area was extended downstream of San Jose Creek to include more riparian woodland habitat that is not part of Reach 40b. Although Survey Area 4 contains about 120 acres, the extent of riparian woodland is limited due to permitted maintenance activities performed annually by the LACFCD. About 12 acres of riparian woodland is present in Survey Area 4.

No yellow-billed cuckoos were detected during these surveys. The southwestern flycatcher was not present, but the least Bell's vireo was recorded during the surveys of Survey Area 4. These data points are presented on Attachment B-4.

Survey Area 5

San Gabriel River Reaches 43a, and 43b are approximately 1.25 miles in length downstream of Whittier Narrows Dam and contain about 75 acres. Reach 43a has an irregular shape and contains more protected vegetation than most flood-control channels managed by the LACFCD. Reach 43b has a more standard shape (i.e., constant width) and maintenance plan (i.e., the trees are trimmed up from the ground). Survey Area 5 does not extend beyond the limits of Reaches 43a and 43b, and contains about 30 acres of riparian woodland.

No yellow-billed cuckoos were detected during these surveys. The southwestern flycatcher was not present, but the least Bell's vireo was recorded during the surveys of Survey Area 5. These data points are presented on Attachment B-5.

Survey Area 6

San Gabriel River Reach 44 is approximately 6 miles in length and contains about 175 acres. However, riparian woodland is found in Reach 44 at only three widely separated areas. The largest area consists a 0.6-mile-long linear row of willows. These and all other willow trees in Reach 44 are trimmed up to head height from the ground. In total, these three willow patches are less than one acre.

No yellow-billed cuckoos were detected during these surveys. In addition, the southwestern willow flycatcher and least Bell's vireo were not recorded during these surveys of Survey Area 6.

Survey Area 7

Survey Area 7 includes LACFCD's Reaches 71, 79, 80, and 103. These four soft-bottom channel reaches are adjacent to an open space area that consists of the Santa Clara River, South Fork Santa Clara River, and Bouquet Canyon Channel. Reaches 71 and 80 are two contiguous segments of the concrete bank that forms the south side of the Santa Clara River and the South Fork of the Santa Clara River from McBean Parkway upstream to near Valencia Boulevard. Reach 79 consists of the stabilizer that is immediately downstream of Valencia Boulevard. Reach 103 is the lower segment of Bouquet Canyon Road from Newhall Ranch Road to the confluence of Bouquet Canyon and the Santa Clara River. All together, these four flood-control facilities contain

about 18 acres. Survey Area 7 for these 4 reaches totals approximately 195 acres and includes about 50 acres of riparian woodland.

No yellow-billed cuckoos were detected during these surveys. The southwestern flycatcher was not present, but the least Bell's vireo was recorded during the surveys of Survey Area 7. These data points are presented on Attachment B-7.

Survey Area 8

Survey Area 8 includes LACFCD's Reaches 82 and 109. These two soft-bottom channel reaches are adjacent to an open space area that consists of the Santa Clara River and San Francisquito Wash. Reach 82 is the concrete bank on the downstream side of the confluence of San Francisquito Wash and the Santa Clara River. Reach 109 is a transfer drain outlet on the south bank of the Santa Clara River just downstream of McBean Parkway. Together, these two facilities contain about ten acres. Survey Area 8 for these 2 reaches totals approximately 140 acres and includes about 80 acres of riparian woodland. Unfortunately, the ongoing drought has negatively affected much of the woodland habitat in Survey Area 8.

No yellow-billed cuckoos were detected during these surveys. In addition, the southwestern willow flycatcher and least Bell's vireo were not recorded during these surveys of Survey Area 8.

Survey Area 9

Survey Area 9 includes LACFCD's Reaches 87, 97 and 104. These three soft-bottom channel reaches are adjacent to an open space area of Castaic Creek. Reach 87 is a small outlet from The Old Road next to the I-5 Freeway. Reach 97 is the concrete bank that extends downstream from Reach 87. Reach 104 is downstream from Reaches 87 and 97 and a reinforced riprap bank on the east side of the creek. Together, these 3 facilities contain about 40 acres. Survey Area 9 for these 3 reaches totals approximately 185 acres and includes about 40 acres of riparian woodland. Unfortunately, the ongoing drought has negatively affected much of the woodland habitat in Survey Area 9.

No yellow-billed cuckoos were detected during these surveys. In addition, the southwestern willow flycatcher and least Bell's vireo were not recorded during these surveys of Survey Area 9.

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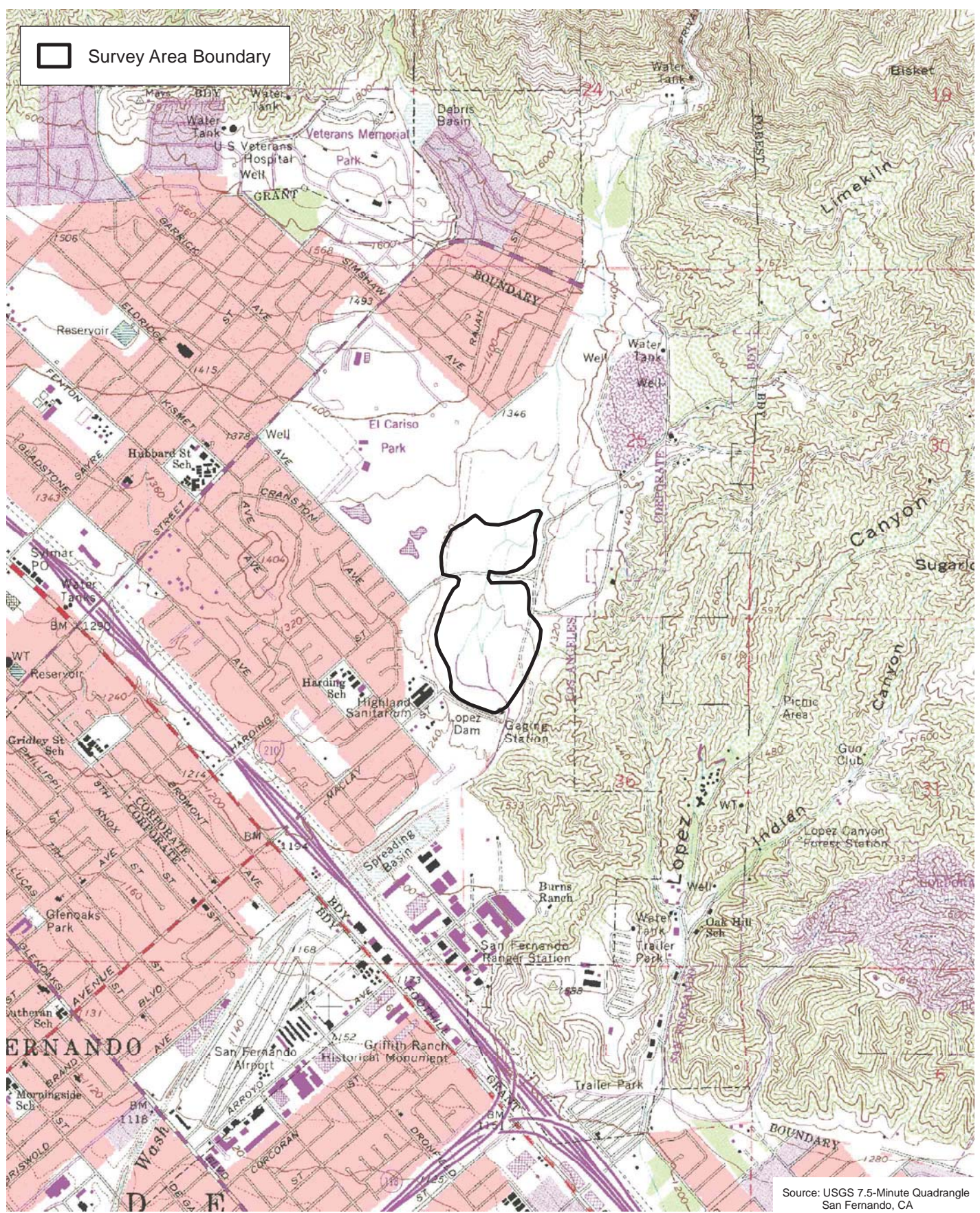
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ATTACHMENT A
SURVEY AREA USGS MAPS

Survey Area Boundary

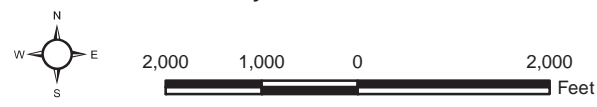


Source: USGS 7.5-Minute Quadrangle San Fernando, CA

Survey Area 1 – Soft-Bottom Channel Reach 14

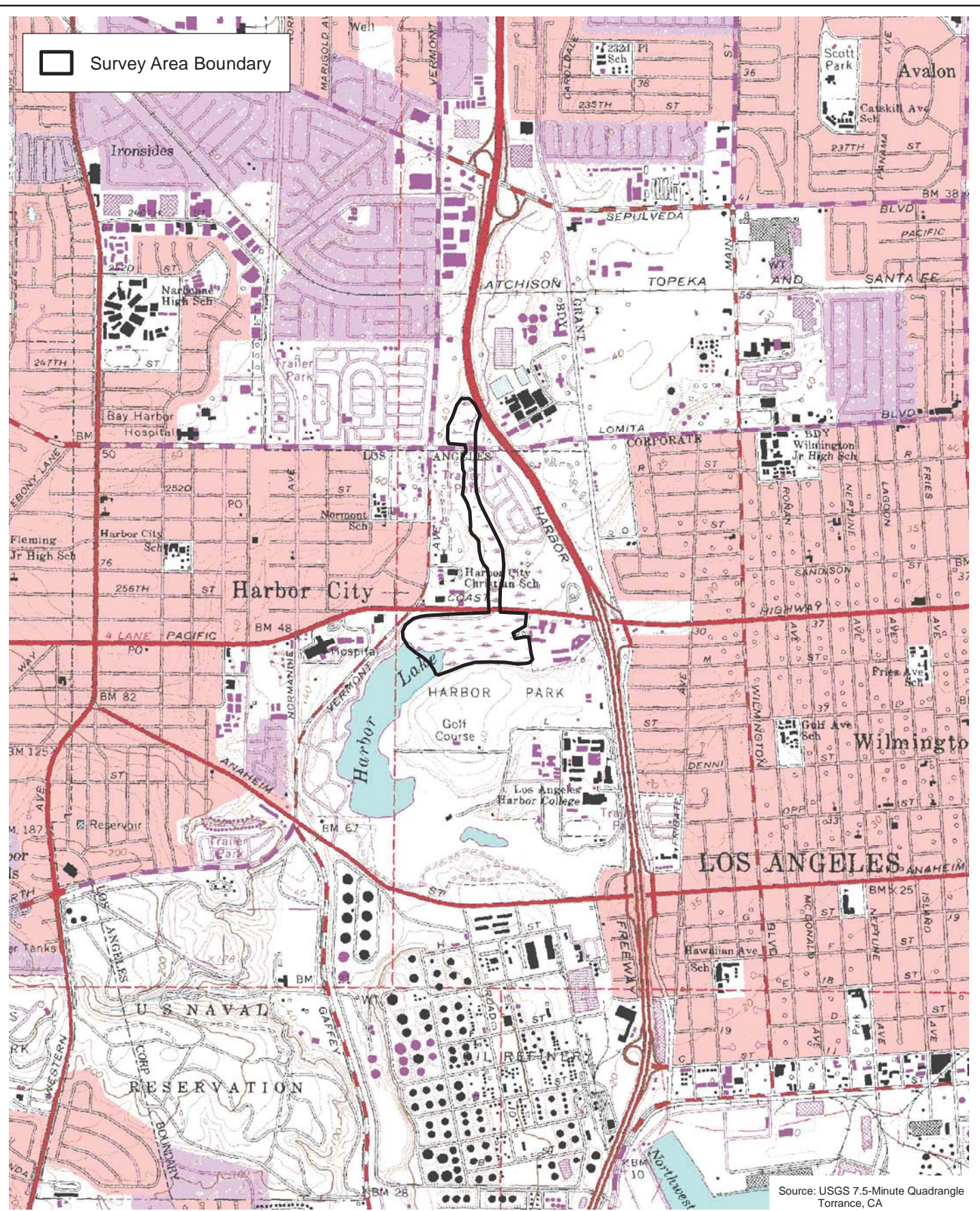
Attachment A-1

2016 Focused Survey Results for Yellow-Billed Cuckoo



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Survey Area Boundary

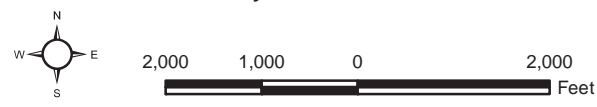


Source: USGS 7.5-Minute Quadrangle
Torrance, CA

Survey Area 2 – Soft-Bottom Channel Reach 27

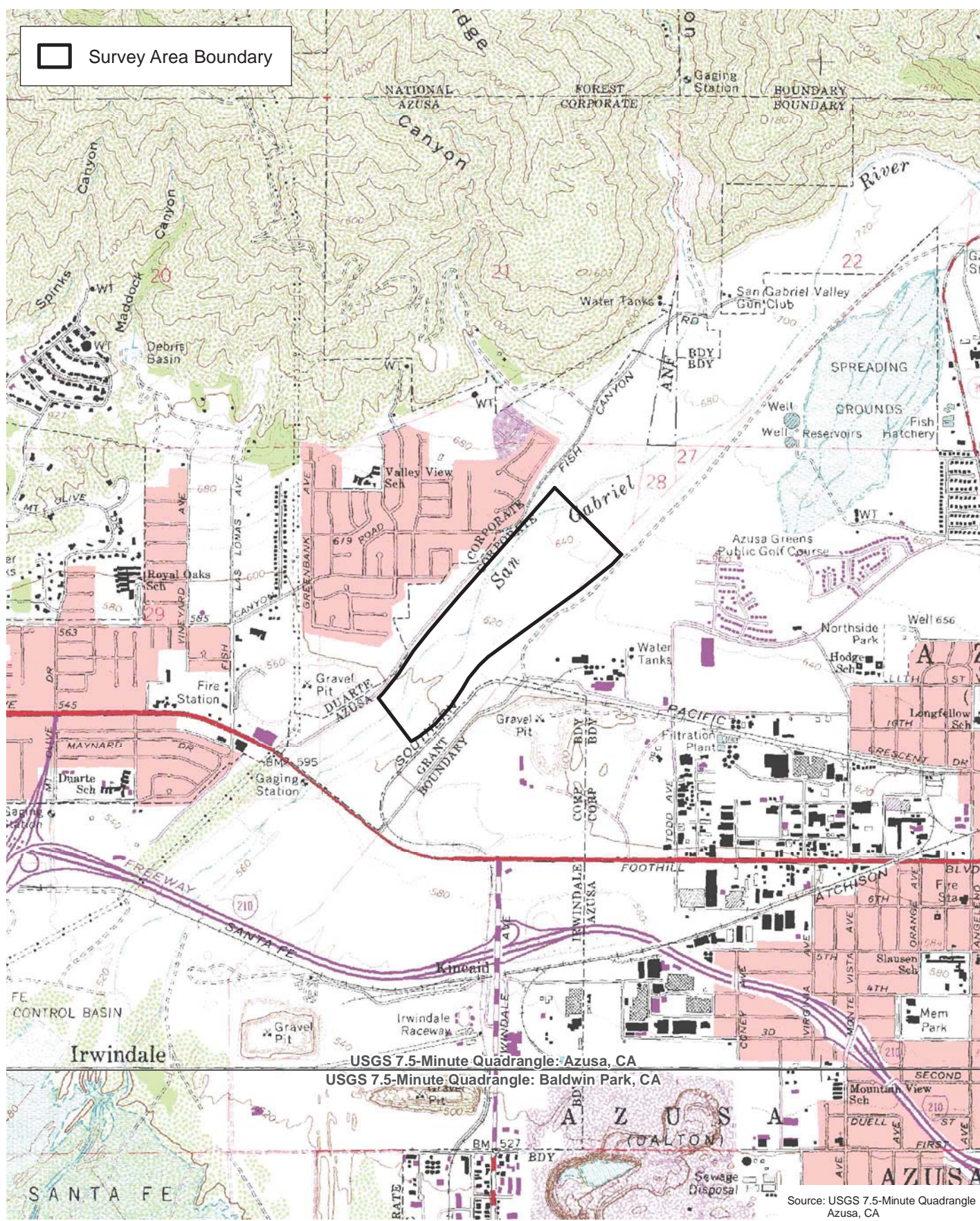
Attachment A-2

2016 Focused Survey Results for Yellow-Billed Cuckoo



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 Survey Area Boundary



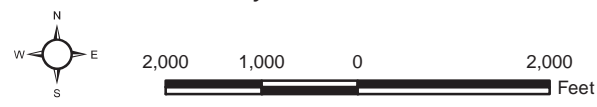
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Source: USGS 7.5-Minute Quadrangle
Azusa, CA

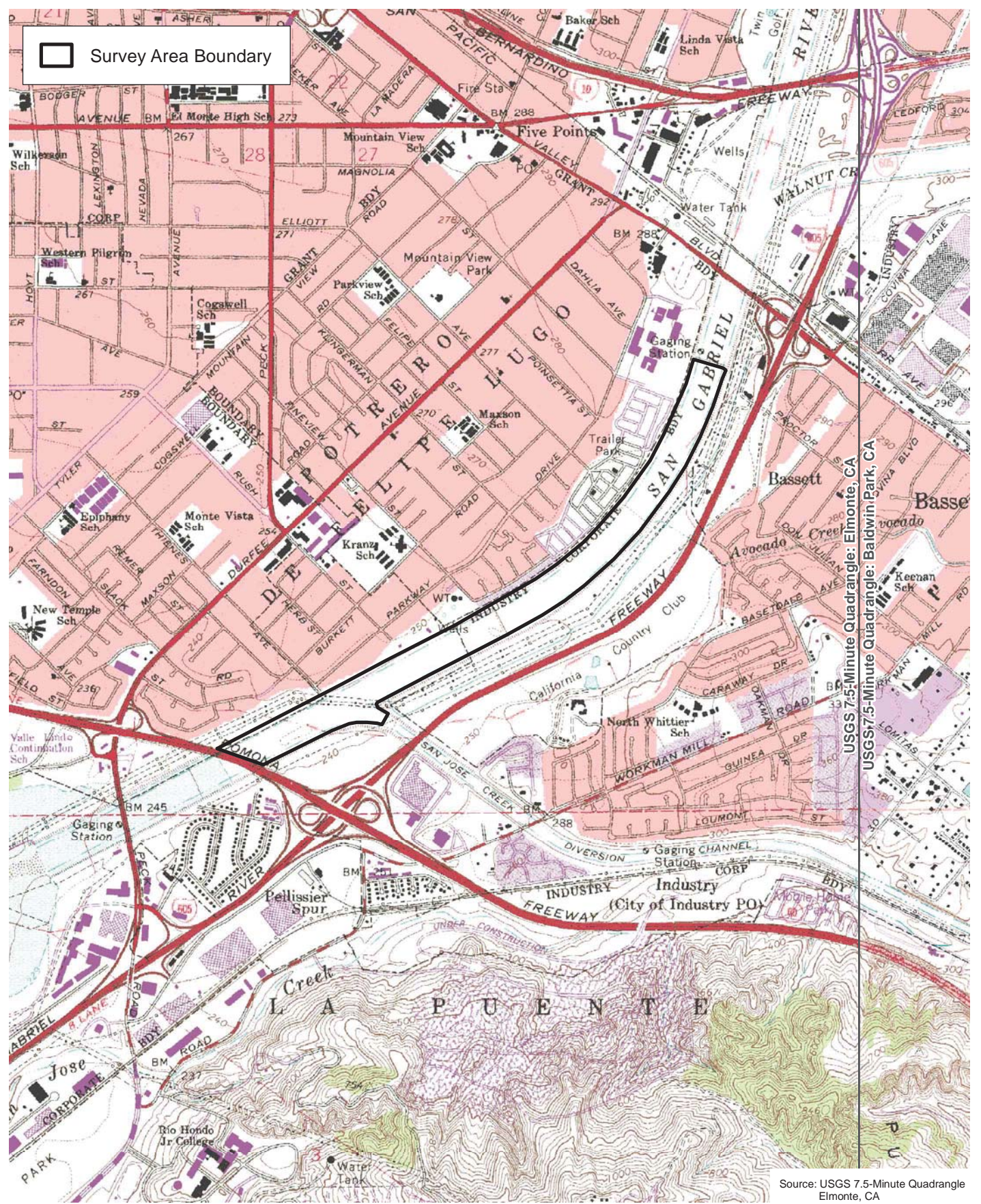
Survey Area 3 – Soft-Bottom Channel Reach 39

Attachment A-3

2016 Focused Survey Results for Yellow-Billed Cuckoo



Survey Area Boundary



USGS 7.5-Minute Quadrangle: Elmonte, CA
USGS 7.5-Minute Quadrangle: Baldwin Park, CA

Source: USGS 7.5-Minute Quadrangle
Elmonte, CA

Survey Area 4 – Soft-Bottom Channel Reach 40b

Attachment A-4

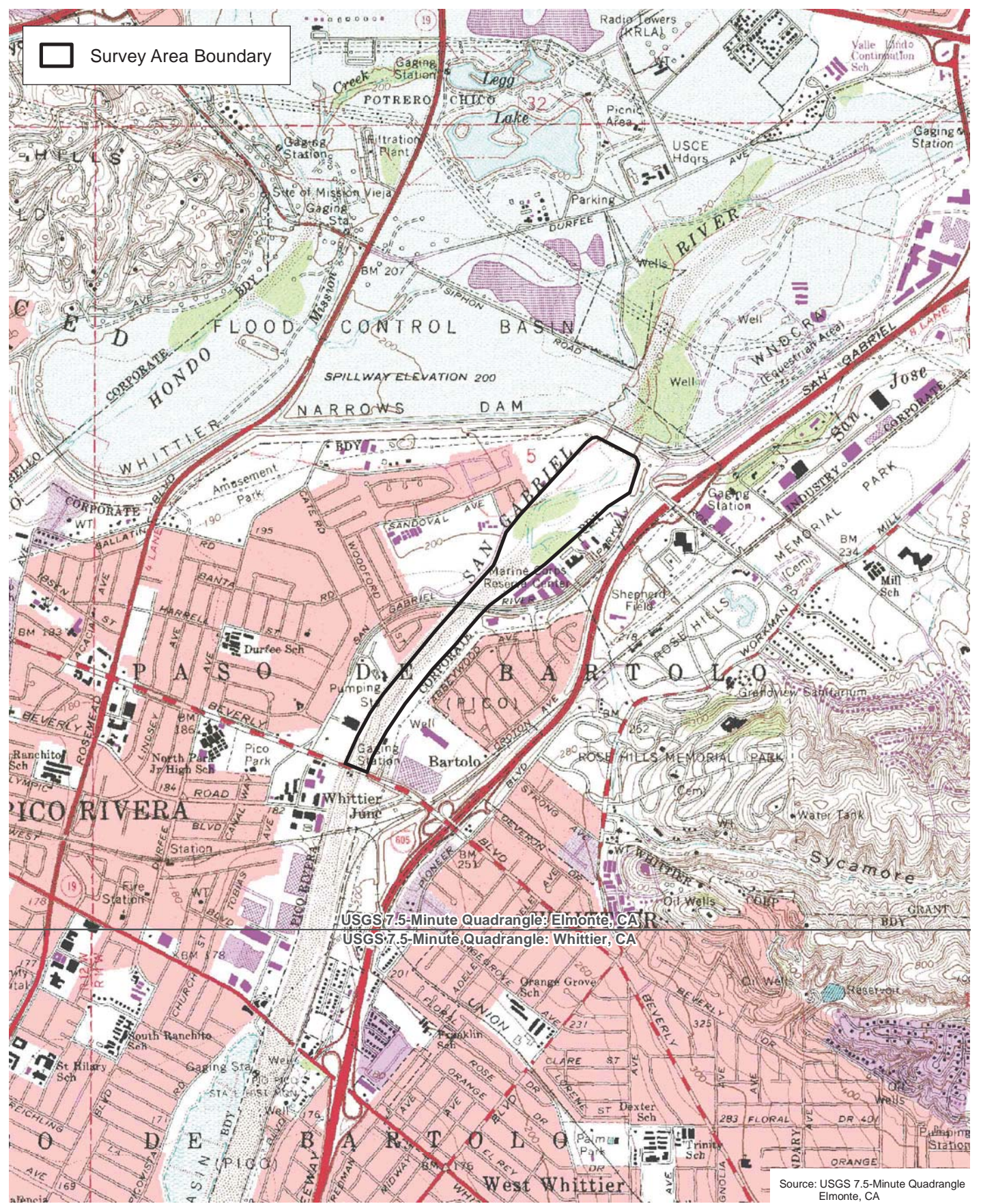
2016 Focused Survey Results for Yellow-Billed Cuckoo



(Rev. 10/06/2016 CJS) R:\Projects\CoLADPW (DPW)\J295\Graphics\Cuckoo_Report\ExA_LV_USGS_20161003.pdf

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□ Survey Area Boundary



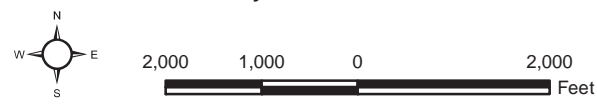
USGS 7.5-Minute Quadrangle: El Monte, CA
USGS 7.5-Minute Quadrangle: Whittier, CA

Source: USGS 7.5-Minute Quadrangle
El Monte, CA

Survey Area 5 – Soft-Bottom Channel Reach 43a and 43b

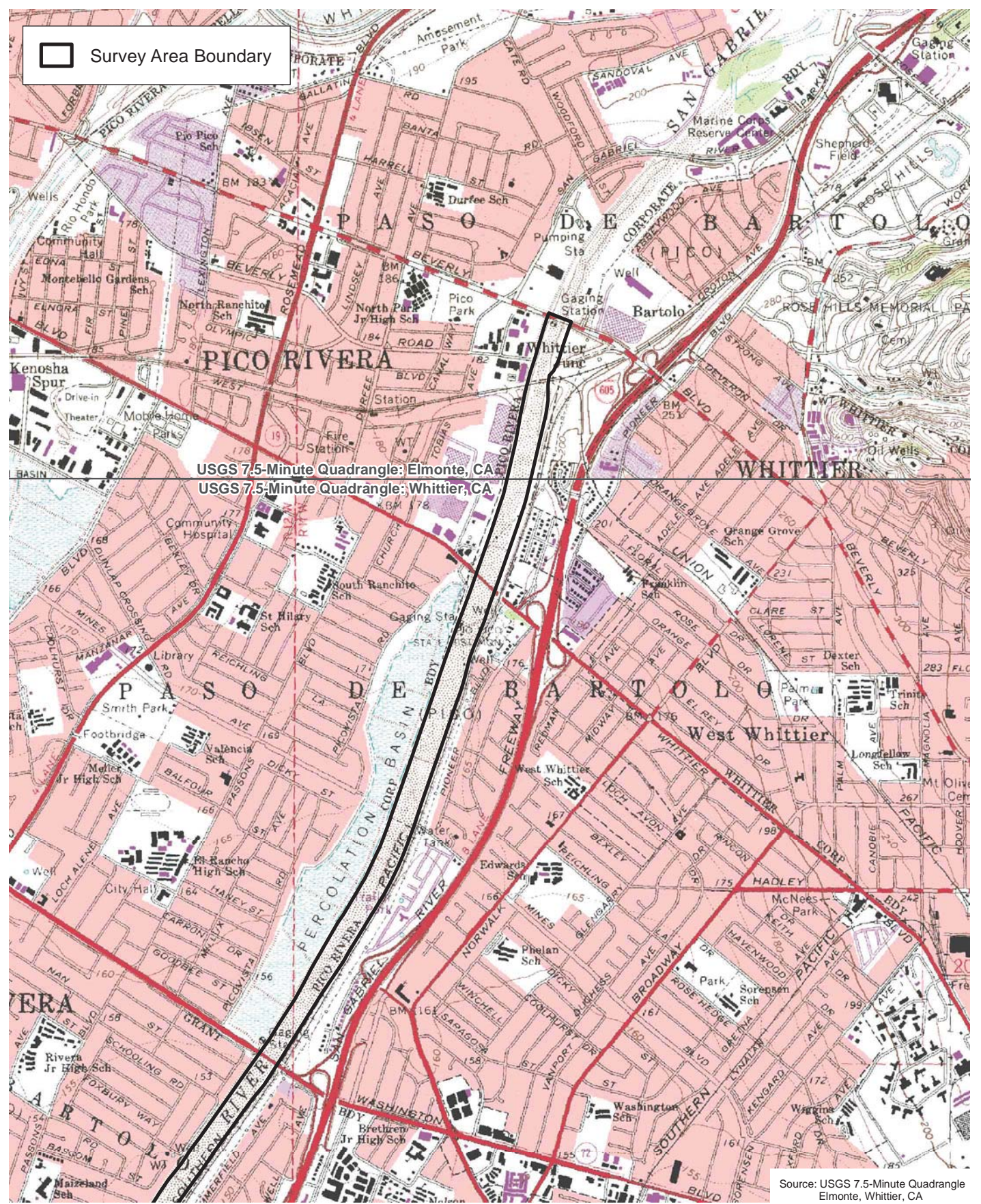
Attachment A-5

2016 Focused Survey Results for Yellow-Billed Cuckoo



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Survey Area Boundary

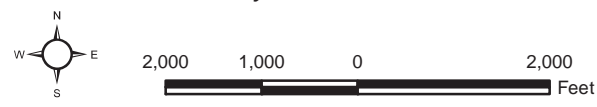


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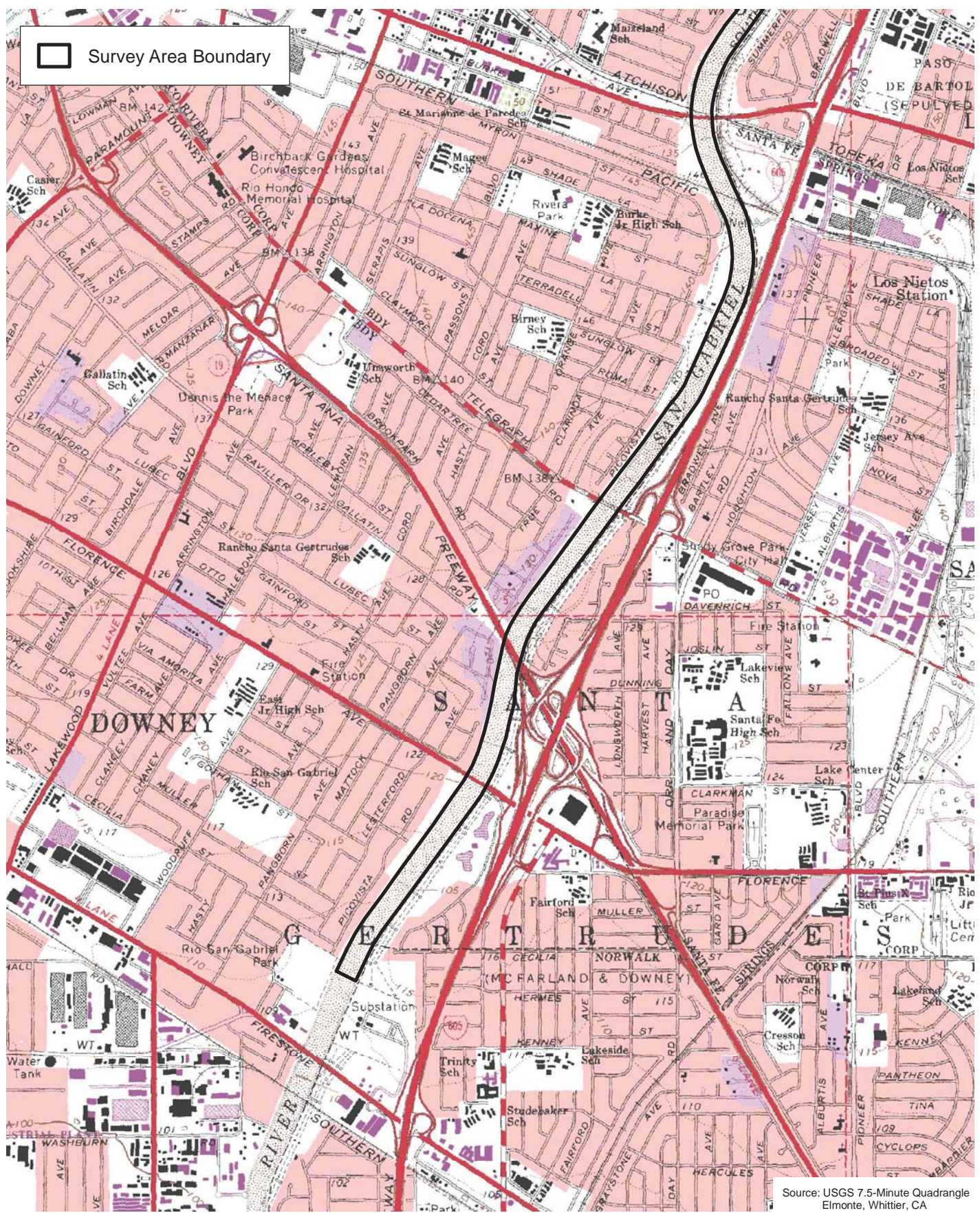
Survey Area 6 – Soft-Bottom Channel Reach 44

Attachment A-6a

2016 Focused Survey Results for Yellow-Billed Cuckoo



Survey Area Boundary

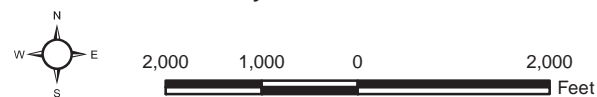


Source: USGS 7.5-Minute Quadrangle
Elmonte, Whittier, CA

Survey Area 6 – Soft-Bottom Channel Reach 44

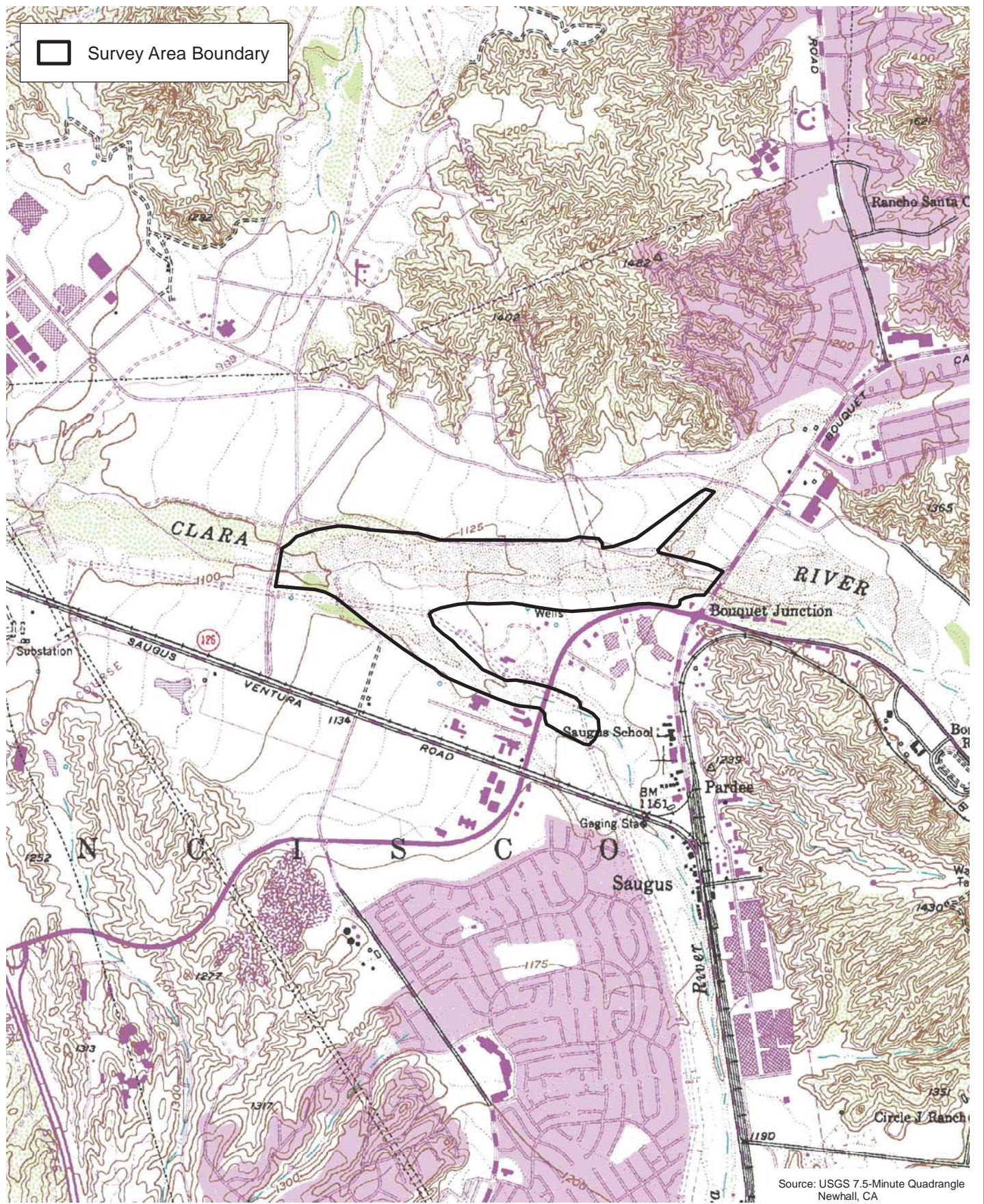
Attachment A-6b

2016 Focused Survey Results for Yellow-Billed Cuckoo



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Survey Area Boundary

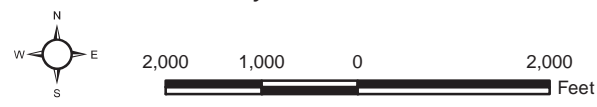


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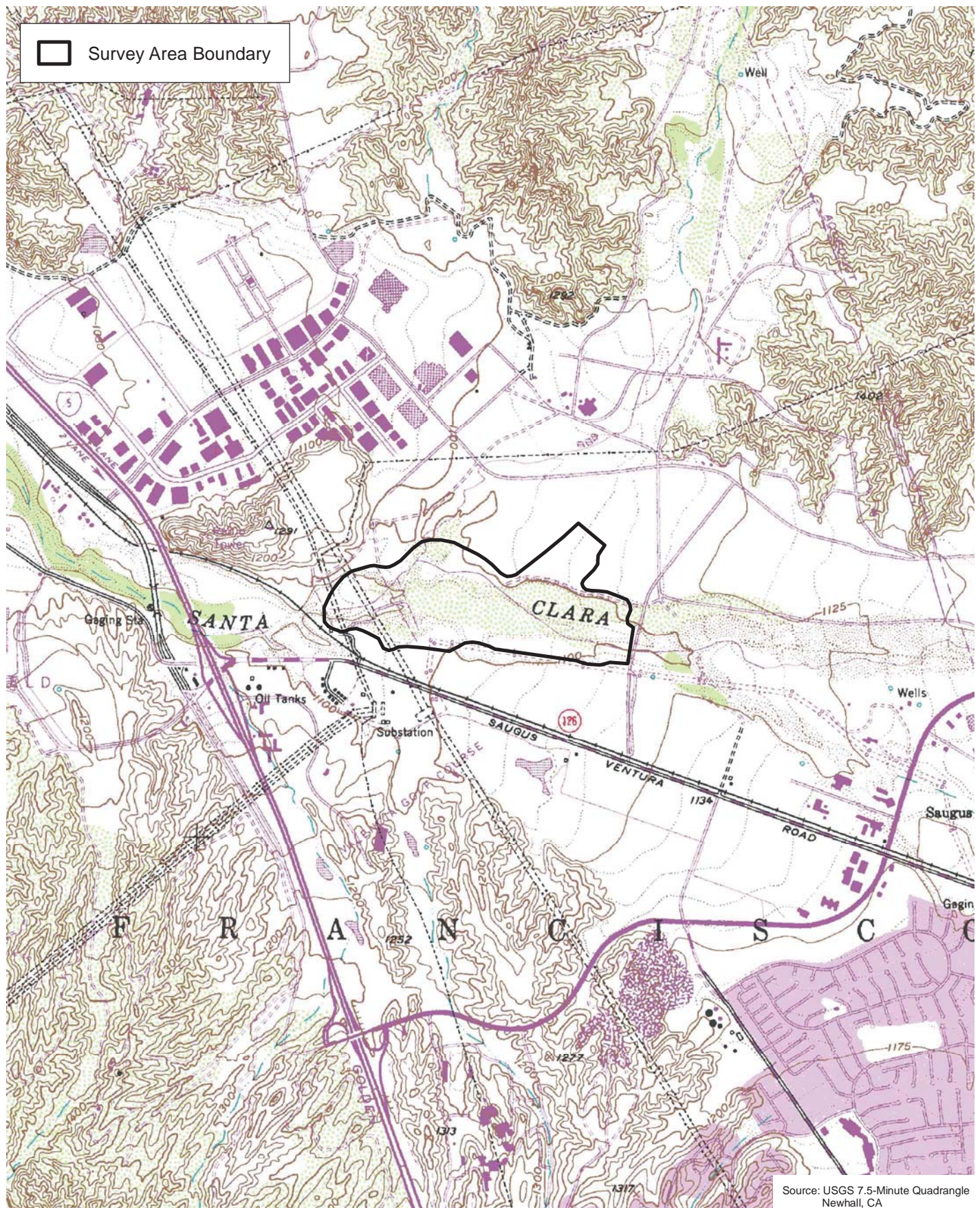
Source: USGS 7.5-Minute Quadrangle Newhall, CA

Survey Area 7 – Soft-Bottom Channel Reaches 71, 79, 80, and 103 Attachment A-7

2016 Focused Survey Results for Yellow-Billed Cuckoo



Survey Area Boundary

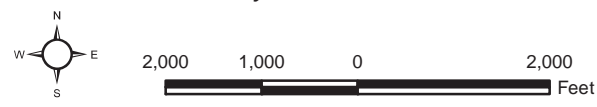


Source: USGS 7.5-Minute Quadrangle Newhall, CA

Survey Area 8 – Soft-Bottom Channel Reaches 82 and 109

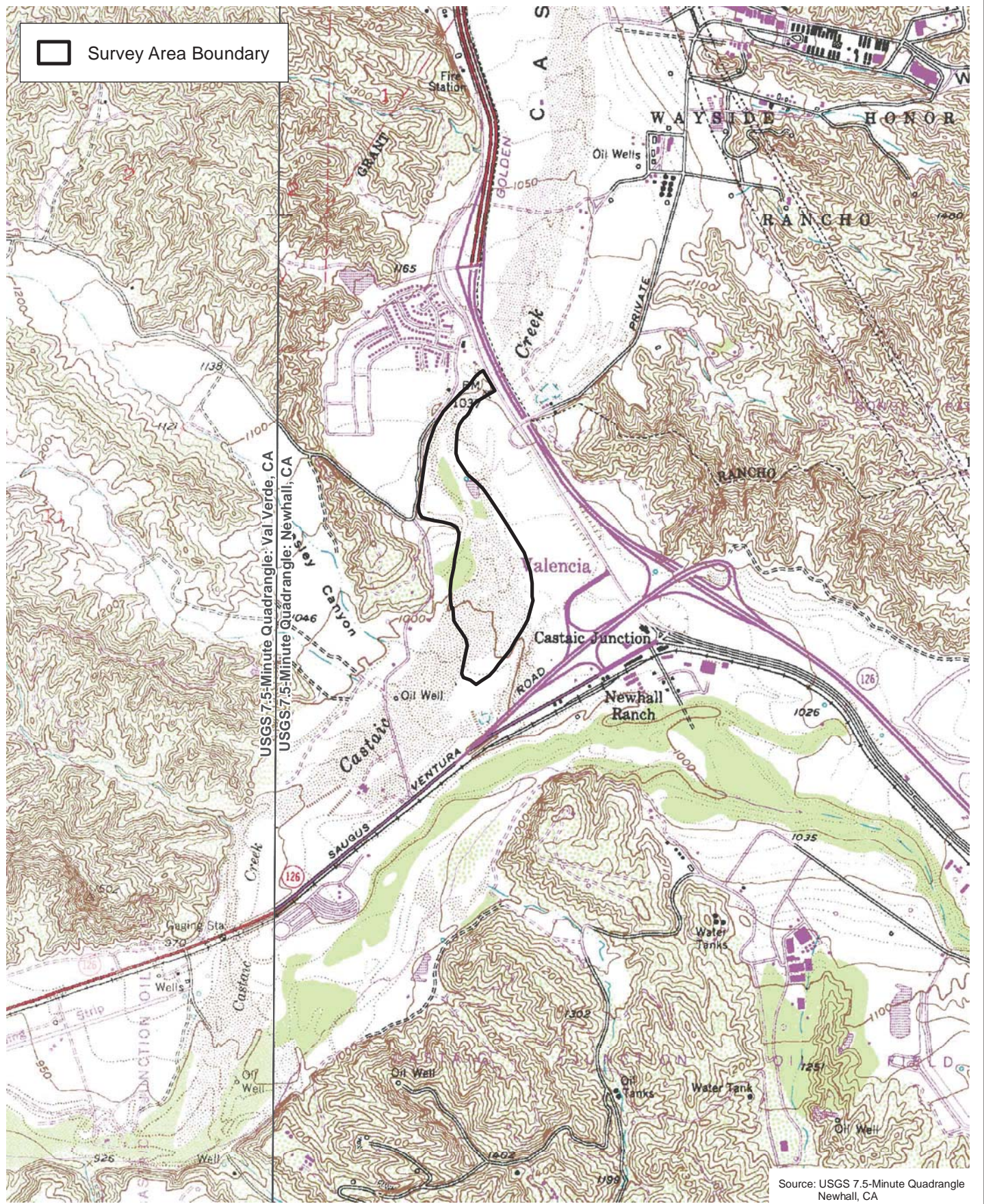
Attachment A-8

2016 Focused Survey Results for Yellow-Billed Cuckoo



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Survey Area Boundary

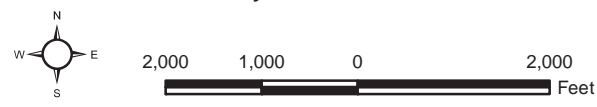


Source: USGS 7.5-Minute Quadrangle Newhall, CA

Survey Area 9 – Soft-Bottom Channel Reaches 87, 97, and 104

Attachment A-9

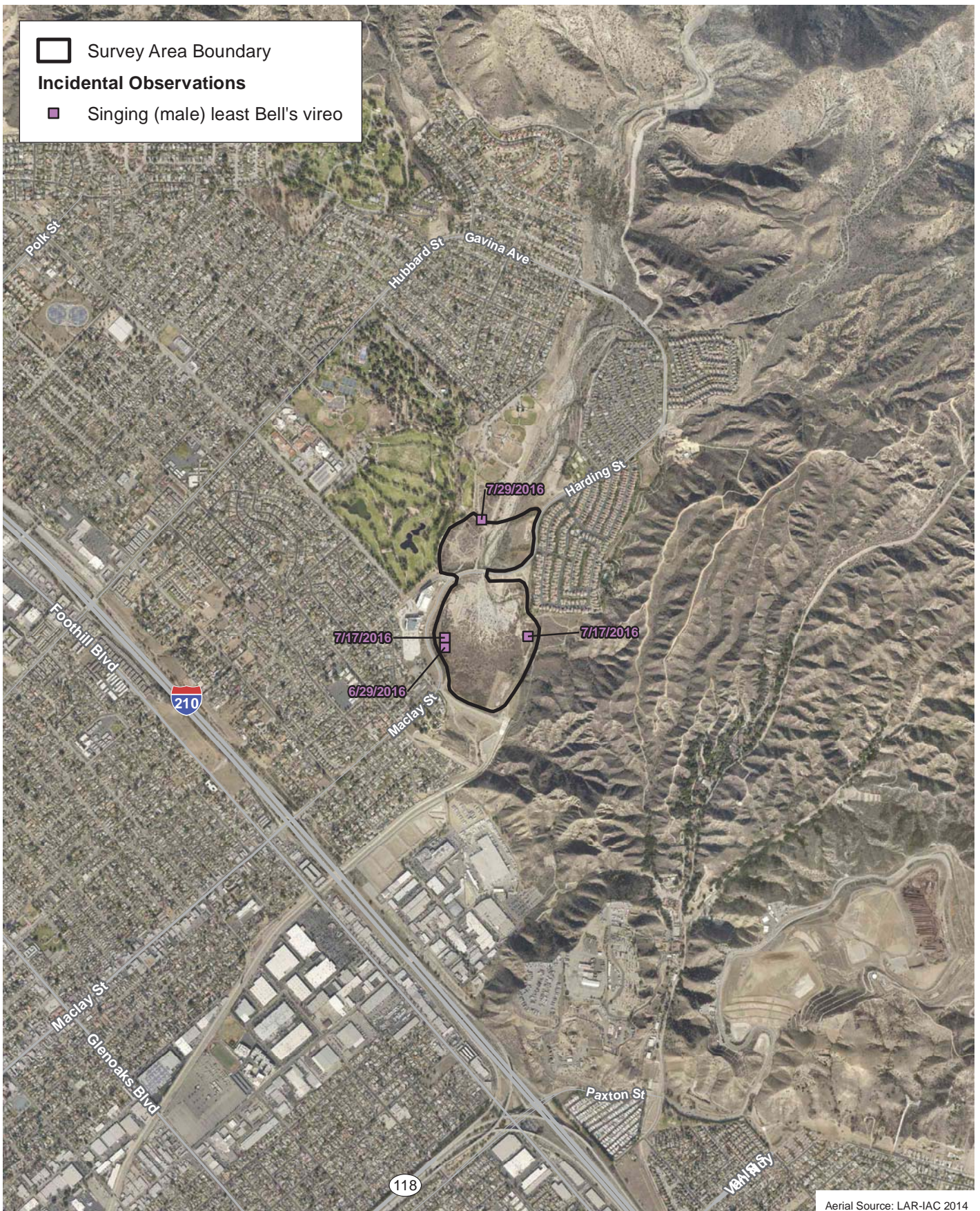
2016 Focused Survey Results for Yellow-Billed Cuckoo



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ATTACHMENT B
SURVEY AREA AERIAL MAPS

- Survey Area Boundary
- Incidental Observations**
- Singing (male) least Bell's vireo





Aerial Source: LAR-IAC 2014

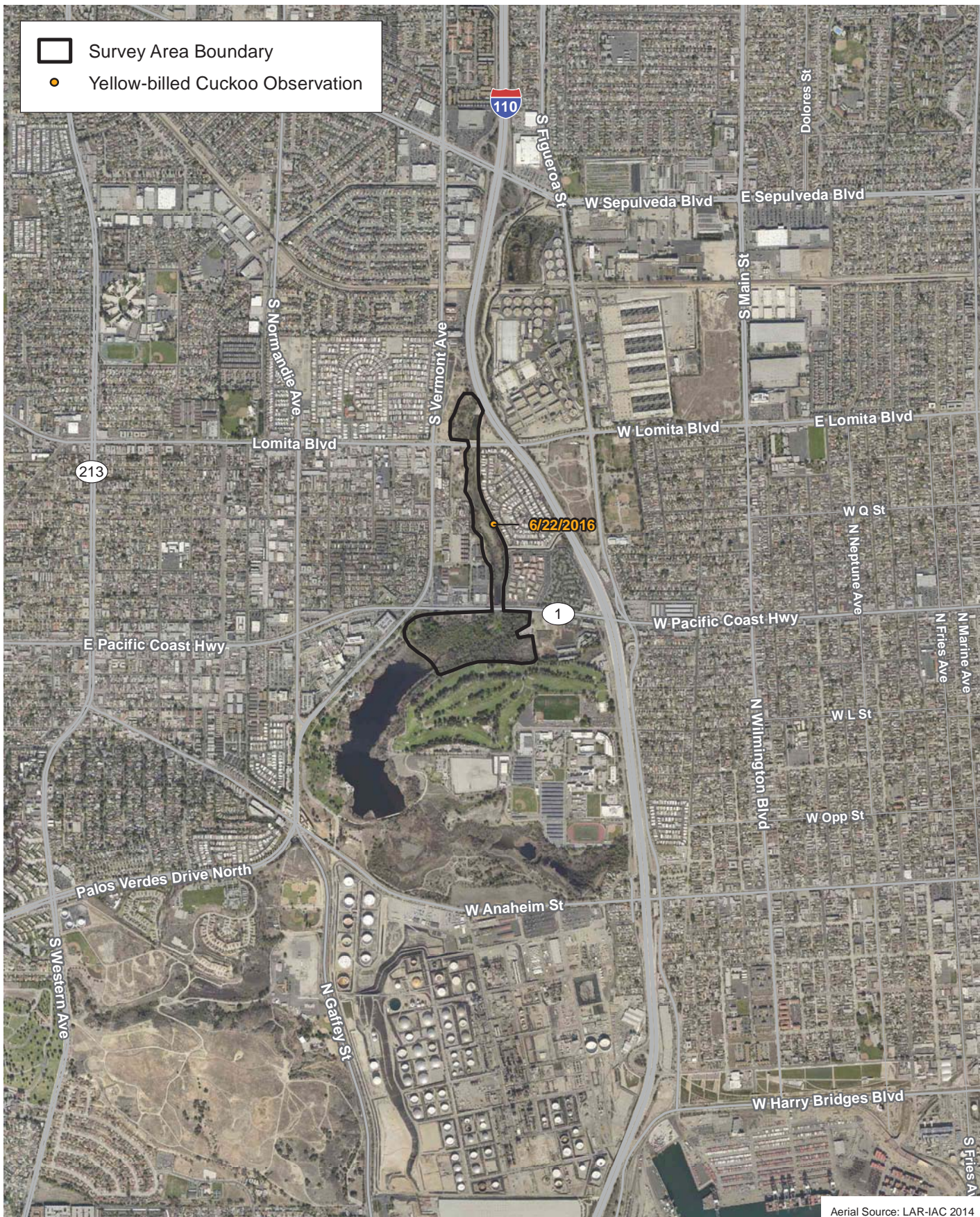
Survey Area 1 — Soft-Bottom Channel Reach 14

Attachment B-1

2016 Focused Survey Results for Yellow-Billed Cuckoo



-  Survey Area Boundary
-  Yellow-billed Cuckoo Observation



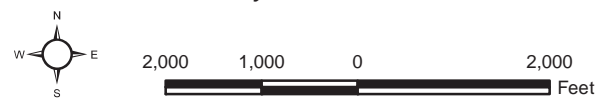
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Aerial Source: LAR-IAC 2014

Survey Area 2 — Soft-Bottom Channel Reach 27

2016 Focused Survey Results for Yellow-Billed Cuckoo

Attachment B-2



Survey Area Boundary



Aerial Source: LAR-IAC 2014




Survey Area 3 — Soft-Bottom Channel Reach 39

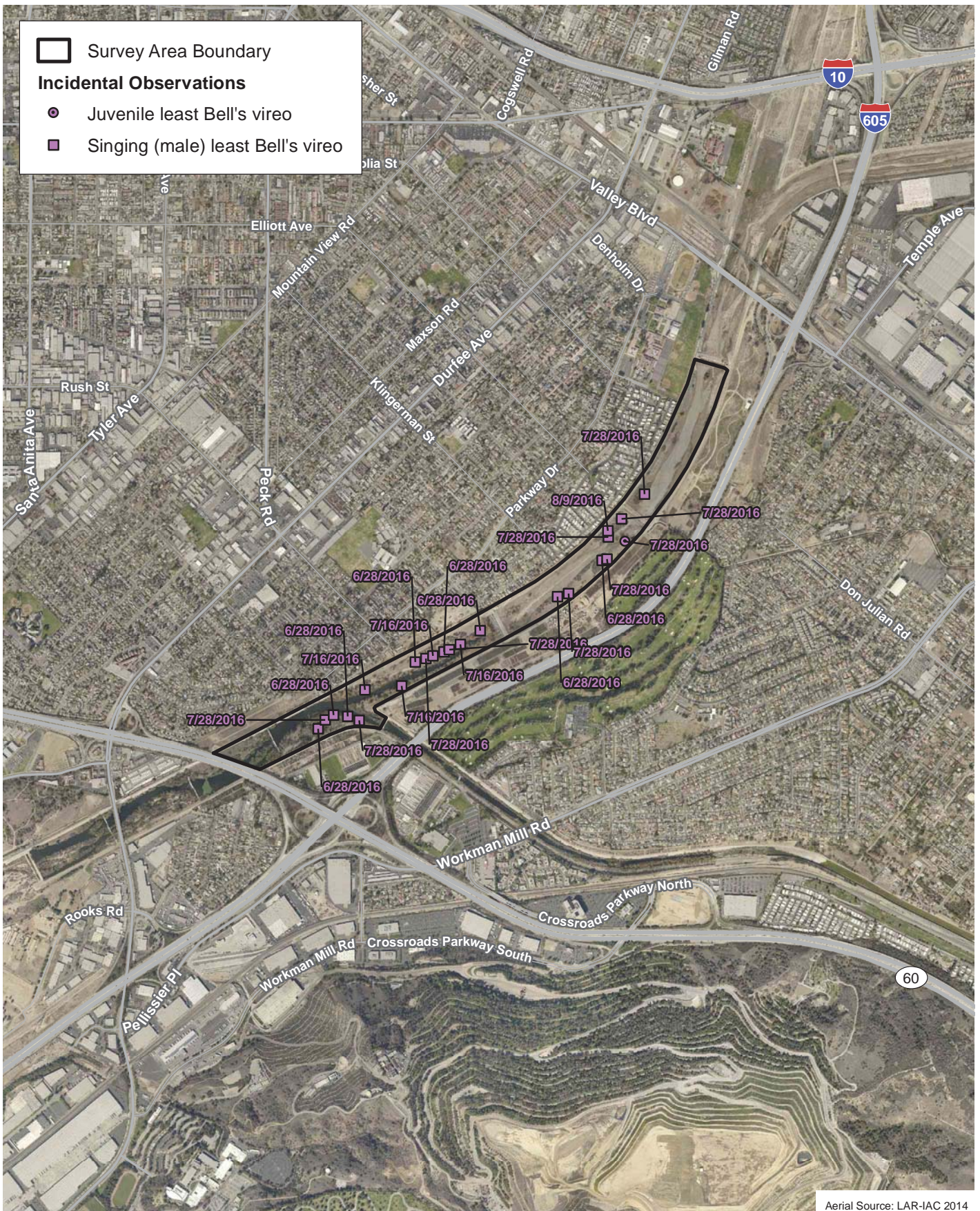
Attachment B-3

2016 Focused Survey Results for Yellow-Billed Cuckoo



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-  Survey Area Boundary
- Incidental Observations**
-  Juvenile least Bell's vireo
-  Singing (male) least Bell's vireo



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Aerial Source: LAR-IAC 2014

Survey Area 4 — Soft-Bottom Channel Reach 40b

Attachment B-4

2016 Focused Survey Results for Yellow-Billed Cuckoo



- Survey Area Boundary
- Incidental Observations**
- Singing (male) least Bell's vireo



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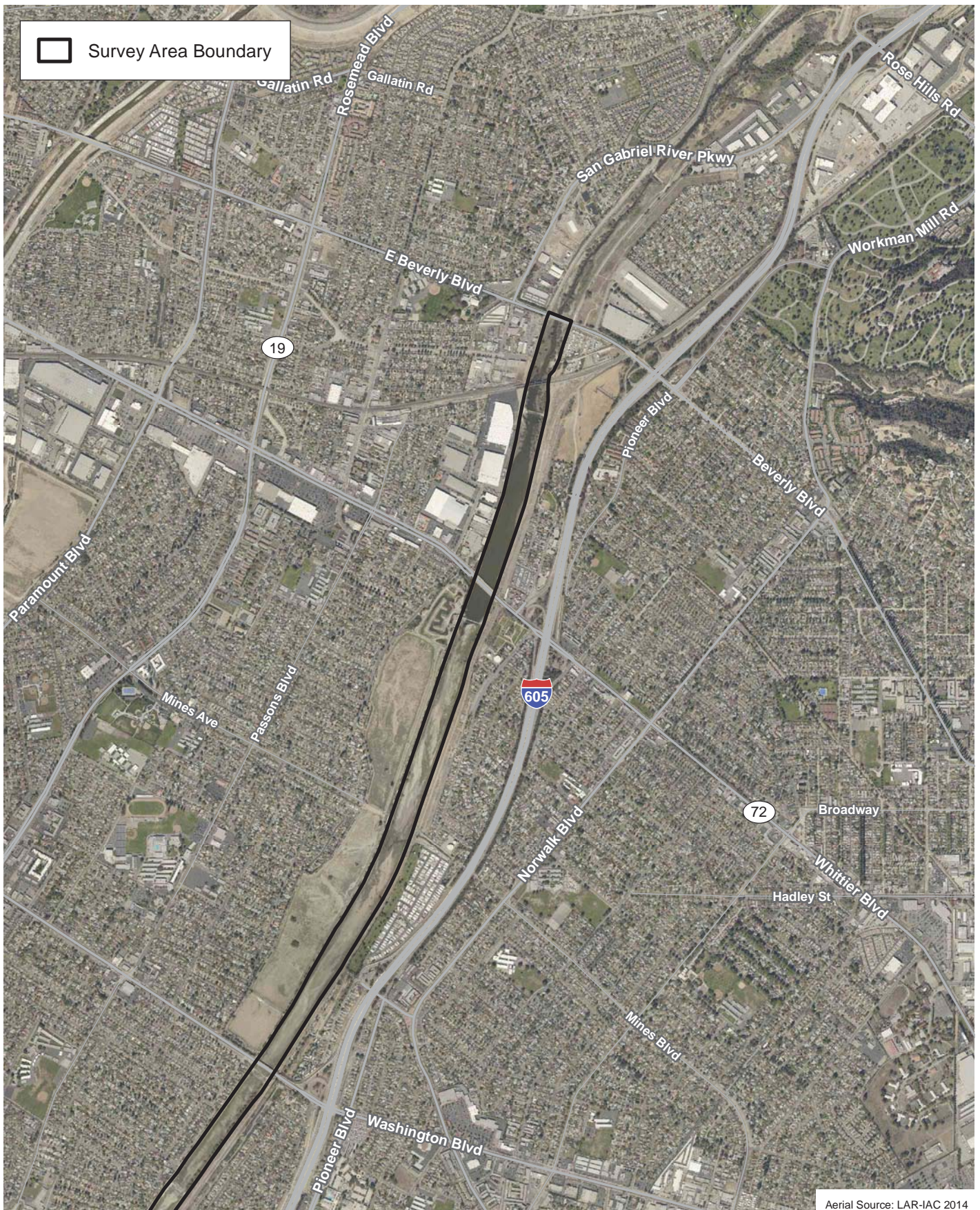
Survey Area 5 — Soft-Bottom Channel Reach 43a and 43b

Attachment B-5

2016 Focused Survey Results for Yellow-Billed Cuckoo



Survey Area Boundary



Aerial Source: LAR-IAC 2014

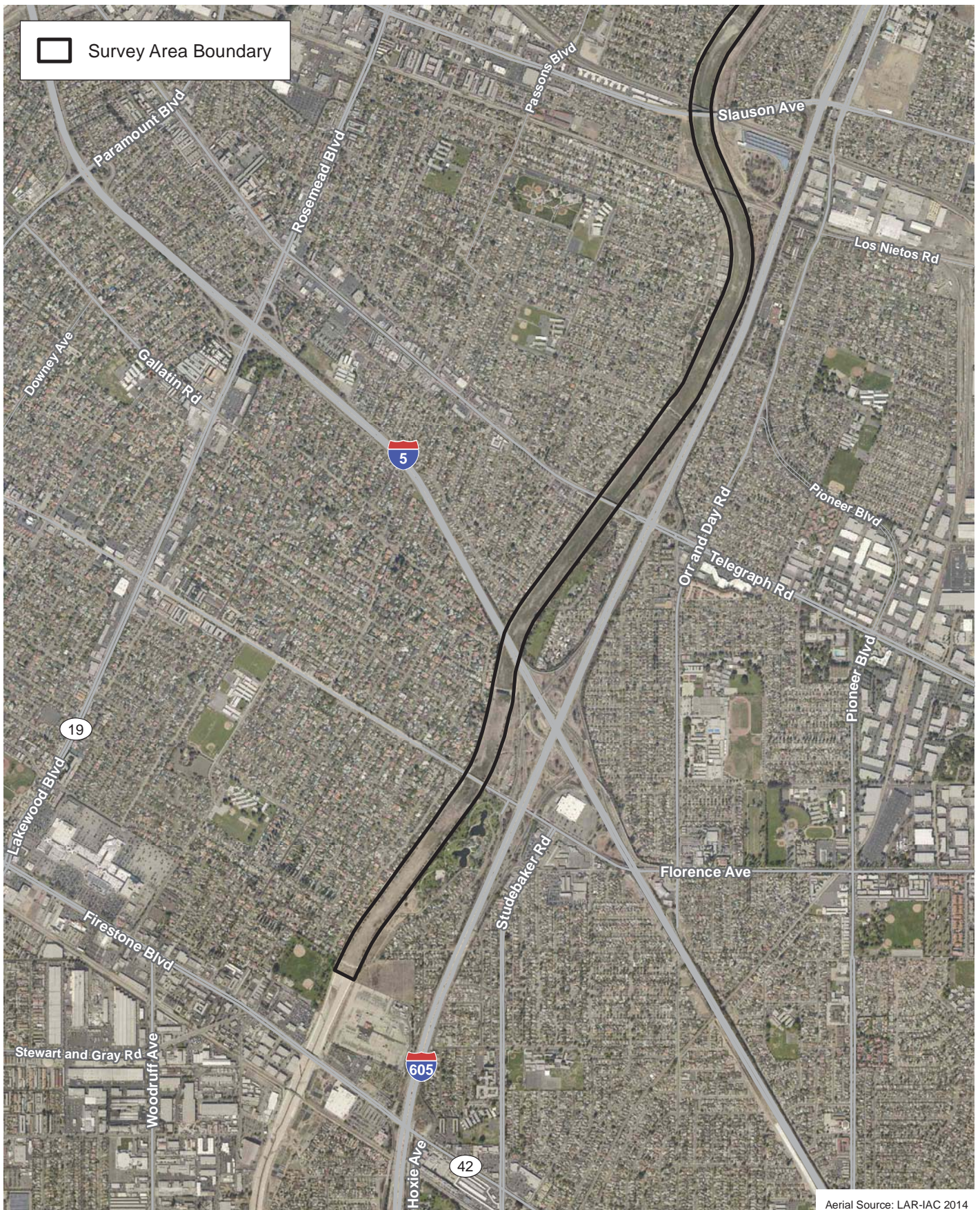
Survey Area 6 — Soft-Bottom Channel Reach 44

Attachment B-6a

2016 Focused Survey Results for Yellow-Billed Cuckoo



□ Survey Area Boundary







Aerial Source: LAR-IAC 2014

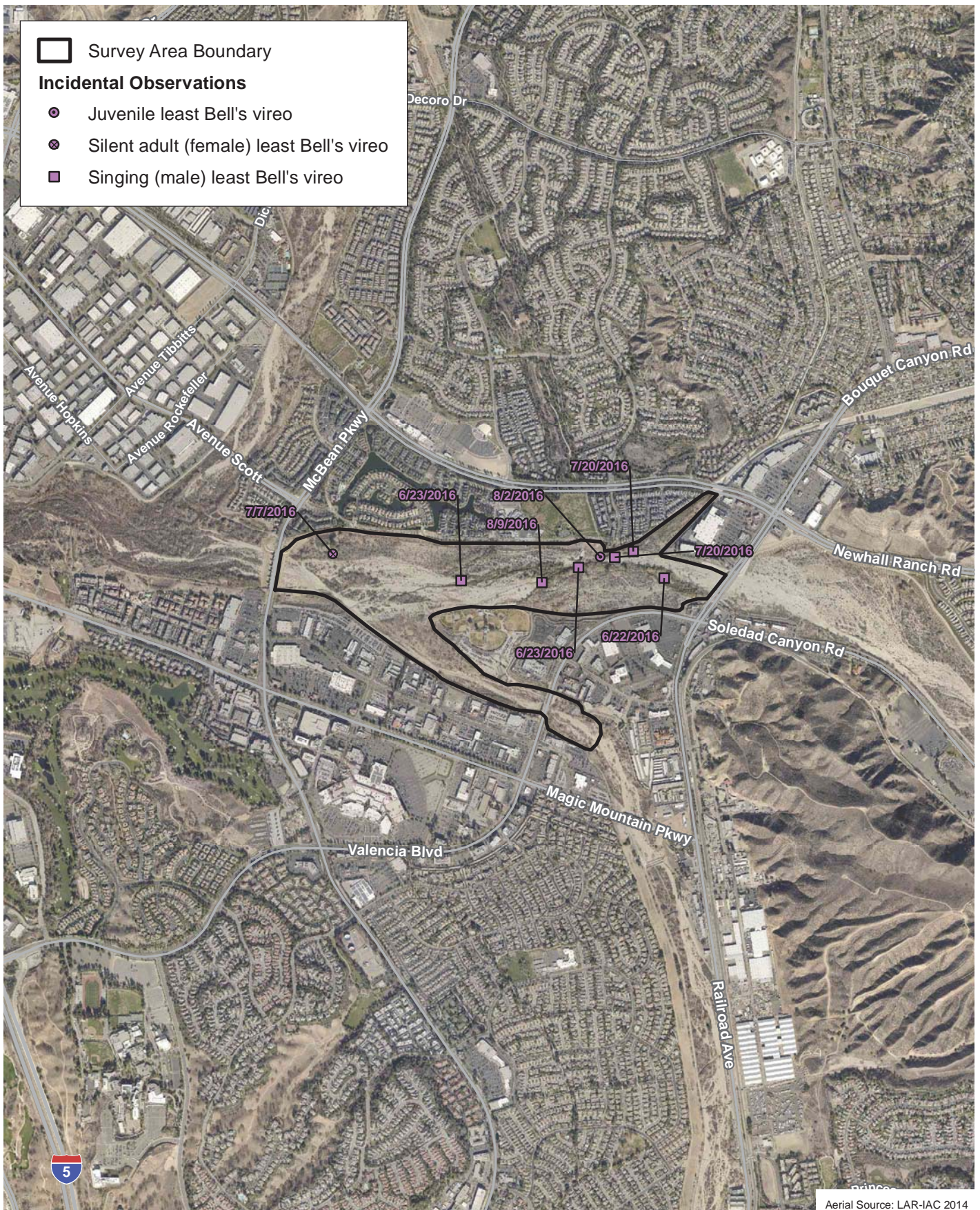
Survey Area 6 — Soft-Bottom Channel Reach 44

Attachment B-6b

2016 Focused Survey Results for Yellow-Billed Cuckoo



-  Survey Area Boundary
- Incidental Observations**
-  Juvenile least Bell's vireo
-  Silent adult (female) least Bell's vireo
-  Singing (male) least Bell's vireo

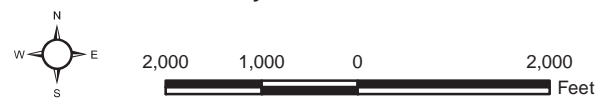


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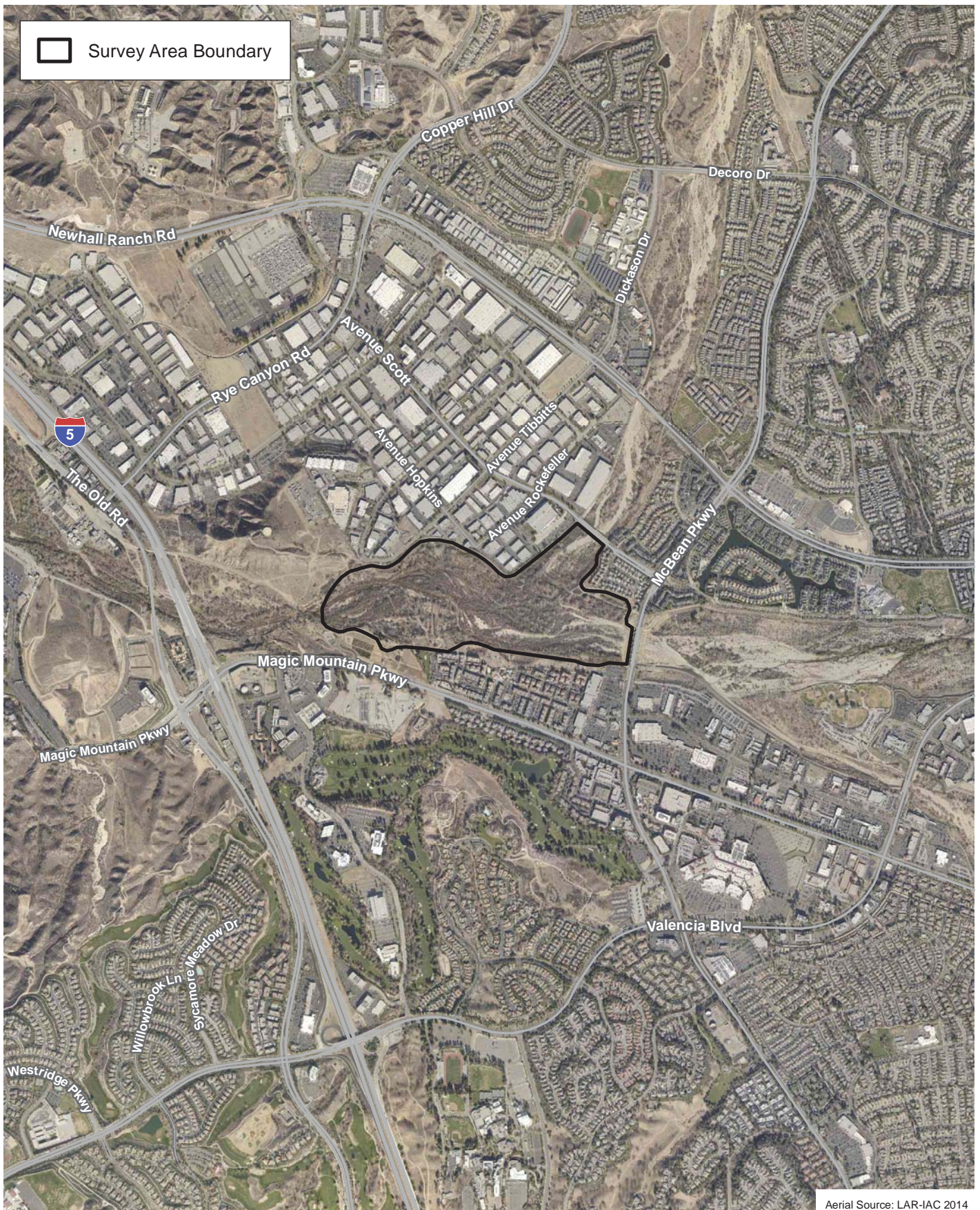
Aerial Source: LAR-IAC 2014

Survey Area 7 — Soft-Bottom Channel Reaches 71, 79, 80, and 103 Attachment B-7

2016 Focused Survey Results for Yellow-Billed Cuckoo



Survey Area Boundary



Aerial Source: LAR-IAC 2014

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Survey Area 8 — Soft-Bottom Channel Reaches 82 and 109

Attachment B-8

2016 Focused Survey Results for Yellow-Billed Cuckoo



Survey Area Boundary



Aerial Source: LAR-IAC 2014

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Survey Area 9 — Soft-Bottom Channel Reaches 87, 97, and 104

Attachment B-9

2016 Focused Survey Results for Yellow-Billed Cuckoo



ATTACHMENT C
SITE PHOTOGRAPHS



August 10, 2016. View from Harding Street of Lopez Debris Basin.



August 10, 2016. View of the May Channel Outlet.

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Site Photographs Survey Area 1 — Soft-Bottom Channel Reach 14

Attachment C-1

2016 Focused Survey Results for Yellow-Billed Cuckoo





August 22, 2016. View of Wilmington Drain from Pacific Coast Highway.



August 22, 2016. View of Wilmington Drain from Lomita Blvd.

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Site Photographs
Survey Area 2 — Soft-Bottom Channel Reach 27
2016 Focused Survey Results for Yellow-Billed Cuckoo

Attachment C-2





August 18, 2016. View of San Gabriel River north of Beatty Channel Outlet.



August 17, 2016. View of San Gabriel River near Encanto Park.

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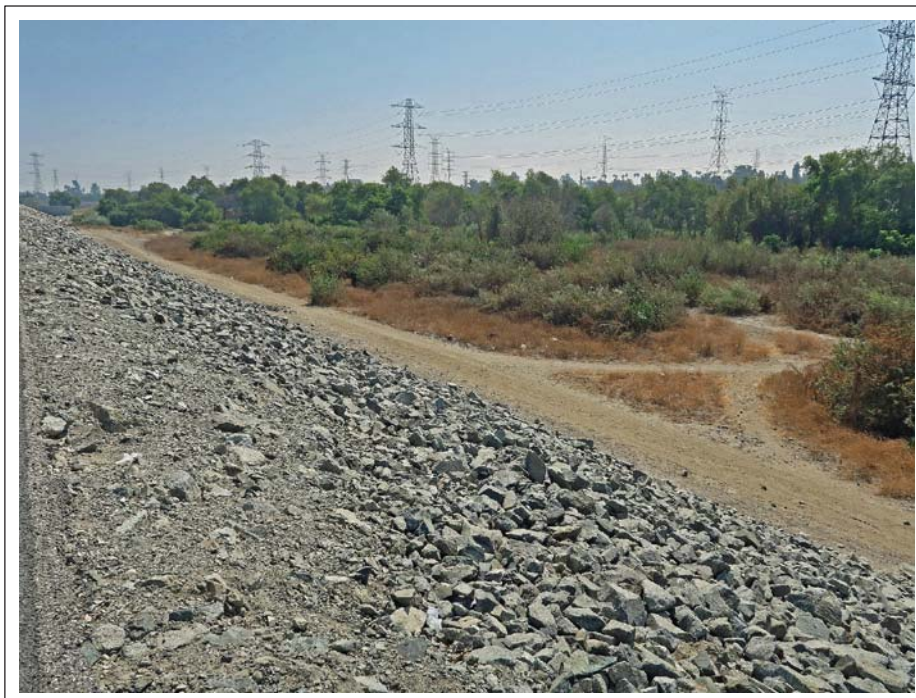
Site Photographs
Survey Area 3 — Soft-Bottom Channel Reach 39
2016 Focused Survey Results for Yellow-Billed Cuckoo

Attachment C-3





August 18, 2016. View of San Gabriel River Confluence with San Jose Creek.



August 18, 2016. View of San Gabriel River Upstream of its Confluence with San Jose Creek.

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Site Photographs

Survey Area 4 — Soft-Bottom Channel Reach 40b

2016 Focused Survey Results for Yellow-Billed Cuckoo

Attachment C-4





August 12, 2016. View of Willows in San Gabriel River Downstream of Florence Avenue.



August 12, 2016. View of Willows on Left Bank of San Gabriel River Downstream of Washington Blvd.

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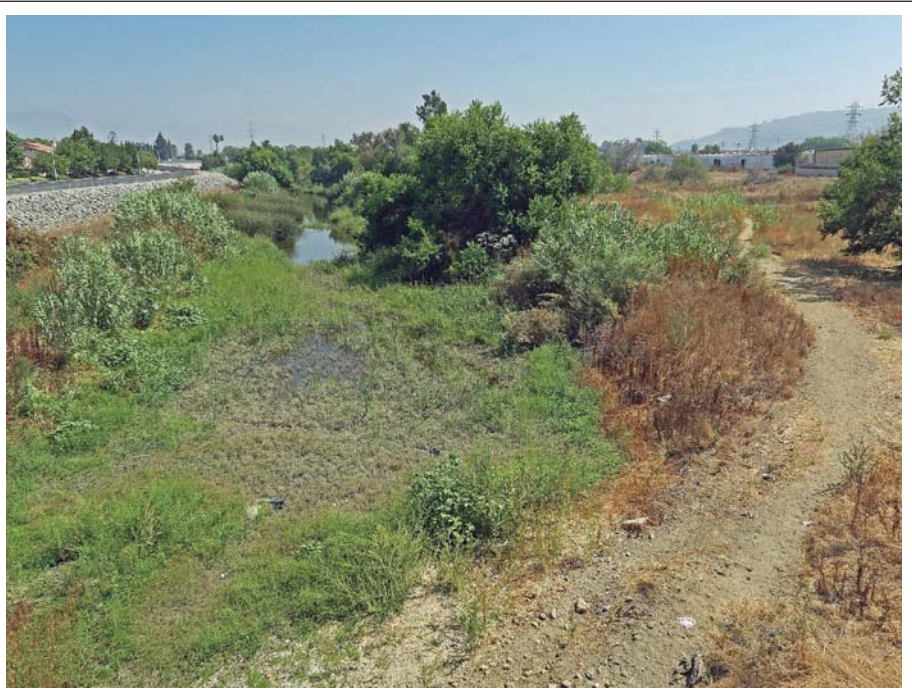
Site Photographs

Survey Area 5 — Soft-Bottom Channel Reaches 43a and 43b

Attachment C-5

2016 Focused Survey Results for Yellow-Billed Cuckoo





August 18, 2016. View of San Gabriel River Upstream of San Gabriel River Parkway.



August 18, 2016. View of San Gabriel River Downstream of San Gabriel River Parkway.

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Site Photographs

Survey Area 6 — Soft-Bottom Channel Reach 44

Attachment C-6

2016 Focused Survey Results for Yellow-Billed Cuckoo





August 30, 2016. View of South Fork Santa Clara River Confluence with Santa Clara River.



August 30, 2016. View of Bouquet Canyon Confluence with Santa Clara River.

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Site Photographs

Survey Area 7 — Soft-Bottom Channel Reaches 71, 79, 80, and 103 Attachment C-7

2016 Focused Survey Results for Yellow-Billed Cuckoo





June 23, 2016. View of San Francisquito Wash and Santa Clara River.



August 25, 2016. View of Santa Clara River downstream of McBean Parkway.

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Site Photographs

Survey Area 8 — Soft-Bottom Channel Reaches 82 and 109

Attachment C-8

2016 Focused Survey Results for Yellow-Billed Cuckoo





August 25, 2016. View of Castaic Creek from Reach 104 Levee.



August 25, 2016. View of Castaic Creek Downstream of The Old Road Bridge.

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Site Photographs

Survey Area 9 — Soft-Bottom Channel Reaches 87, 97, and 104

Attachment C-9

2016 Focused Survey Results for Yellow-Billed Cuckoo



ATTACHMENT D
AVIAN COMPENDIUM

**TABLE D-1
BIRD SPECIES DETECTED DURING 2016 YELLOW-BILLED CUCKOO SURVEYS**

Species	Survey Area 1	Survey Area 2	Survey Area 3	Survey Area 4	Survey Area 5	Survey Area 6	Survey Area 7	Survey Area 8	Survey Area 9
Canada goose <i>Branta canadensis</i>	X			X	X	X			
mallard <i>Anas platyrhynchos</i>		X	X	X	X	X			
California quail <i>Callipepla californica</i>	X		X				X	X	X
pieb-billed grebe <i>Podilymbus podiceps</i>			X	X					
rock pigeon <i>Columba livia</i>		X		X	X	X		X	X
Eurasian collared-dove <i>Streptopelia decaocto</i>		X	X	X	X	X			X
mourning dove <i>Zenaida macroura</i>	X	X	X	X	X	X	X	X	X
yellow-billed cuckoo <i>Coccyzus americanus</i>		X							
greater roadrunner <i>Geococcyx californianus</i>								X	X
black-chinned hummingbird <i>Archilochus alexandri</i>							X		X
Anna's hummingbird <i>Calypte anna</i>	X	X	X	X	X	X	X	X	X
Costa's hummingbird <i>Calypte costae</i>	X						X	X	X
Allen's hummingbird <i>Selasphorus sasin</i>	X	X	X		X		X	X	
rufous/Allen's hummingbird <i>Selasphorus rufus/sasin</i>	X	X	X	X	X	X	X	X	
common gallinule <i>Gallinula galeata</i>				X					
American coot <i>Fulica americana</i>				X					
black-necked stilt <i>Himantopus mexicanus</i>						X			

**TABLE D-1
BIRD SPECIES DETECTED DURING 2016 YELLOW-BILLED CUCKOO SURVEYS**

Species	Survey Area 1	Survey Area 2	Survey Area 3	Survey Area 4	Survey Area 5	Survey Area 6	Survey Area 7	Survey Area 8	Survey Area 9
killdeer <i>Charadrius vociferus</i>				X		X	X		
western gull <i>Larus occidentalis</i>		X		X		X			
Caspian tern <i>Hydroprogne caspia</i>		X		X					
double-crested cormorant <i>Phalacrocorax auritus</i>				X	X				
least bittern <i>Ixobrychus exilis</i>				X					
great blue heron <i>Ardea herodias</i>			X	X	X		X		
great egret <i>Ardea alba</i>			X	X	X	X	X		
snowy egret <i>Egretta thula</i>		X	X	X	X	X			
green heron <i>Butorides virescens</i>		X	X	X	X		X		
black-crowned night-heron <i>Nycticorax nycticorax</i>		X	X	X	X				
turkey vulture <i>Cathartes aura</i>				X			X		
white-tailed kite <i>Elanus leucurus</i>		X							
Cooper's hawk <i>Accipiter cooperii</i>		X		X	X	X	X	X	
red-shouldered hawk <i>Buteo lineatus</i>				X				X	X
red-tailed hawk <i>Buteo jamaicensis</i>	X				X	X	X		X
belted kingfisher <i>Megaceryle alcyon</i>			X	X					
Nuttall's woodpecker <i>Picoides nuttallii</i>	X		X	X	X		X	X	X

**TABLE D-1
BIRD SPECIES DETECTED DURING 2016 YELLOW-BILLED CUCKOO SURVEYS**

Species	Survey Area 1	Survey Area 2	Survey Area 3	Survey Area 4	Survey Area 5	Survey Area 6	Survey Area 7	Survey Area 8	Survey Area 9
downy woodpecker <i>Picoides pubescens</i>		X	X	X	X		X	X	X
hairy woodpecker <i>Picoides villosus</i>							X	X	
American kestrel <i>Falco sparverius</i>						X			X
peregrine falcon <i>Falco peregrinus</i>				X					
red-crowned parrot <i>Amazona viridigenalis</i>					X				
budgerigar <i>Melopsittacus undulatus</i>		X							
Pacific-slope flycatcher <i>Empidonax difficilis</i>			X		X				
black phoebe <i>Sayornis nigricans</i>	X	X	X	X	X	X	X	X	X
Say's phoebe <i>Sayornis saya</i>	X						X	X	
ash-throated flycatcher <i>Myiarchus cinerascens</i>	X		X				X	X	X
Cassin's kingbird <i>Tyrannus vociferans</i>	X	X		X	X	X	X	X	
western kingbird <i>Tyrannus verticalis</i>	X				X		X	X	X
Bell's vireo <i>Vireo bellii</i>	X			X	X		X		
warbling vireo <i>Vireo gilvus</i>			X						
California scrub-jay <i>Aphelocoma californica</i>	X		X				X	X	X
American crow <i>Corvus brachyrhynchos</i>	X	X	X	X	X	X	X	X	X
common raven <i>Corvus corax</i>	X	X	X	X	X	X	X	X	X

**TABLE D-1
BIRD SPECIES DETECTED DURING 2016 YELLOW-BILLED CUCKOO SURVEYS**

Species	Survey Area 1	Survey Area 2	Survey Area 3	Survey Area 4	Survey Area 5	Survey Area 6	Survey Area 7	Survey Area 8	Survey Area 9
northern rough-winged swallow <i>Stelgidopteryx serripennis</i>	X		X	X	X	X	X		
cliff swallow <i>Petrochelidon pyrrhonota</i>	X			X	X		X		
barn swallow <i>Hirundo rustica</i>	X	X	X	X	X	X		X	
oak titmouse <i>Baeolophus inornatus</i>							X	X	X
bush-tit <i>Psaltriparus minimus</i>		X	X	X	X	X	X	X	X
white-breasted nuthatch <i>Sitta carolinensis</i>							X	X	X
rock wren <i>Salpinctes obsoletus</i>	X								
marsh wren <i>Cistothorus palustris</i>		X							
Bewick's wren <i>Thryomanes bewickii</i>	X		X				X	X	X
red-whiskered bulbul <i>Pycnonotus jocosus</i>				X					
wrentit <i>Chamaea fasciata</i>	X		X						
western bluebird <i>Sialia Mexicana</i>								X	X
Swainson's thrush <i>Catharus ustulatus</i>					X				
American robin <i>Turdus migratorius</i>					X				
California thrasher <i>Toxostoma redivivum</i>	X		X				X	X	X
northern mockingbird <i>Mimus polyglottos</i>	X	X	X	X	X	X	X	X	X

**TABLE D-1
BIRD SPECIES DETECTED DURING 2016 YELLOW-BILLED CUCKOO SURVEYS**

Species	Survey Area 1	Survey Area 2	Survey Area 3	Survey Area 4	Survey Area 5	Survey Area 6	Survey Area 7	Survey Area 8	Survey Area 9
European starling <i>Sturnus vulgaris</i>	X	X				X	X	X	
scaly-breasted munia <i>Lonchura punctulata</i>		X	X	X	X	X			
house sparrow <i>Passer domesticus</i>	X	X		X		X			
northern red bishop <i>Euplectes franciscanus</i>		X		X					
pin-tailed whydah <i>Vidua macroura</i>		X			X				
house finch <i>Haemorhous mexicanus</i>	X	X	X	X	X	X	X	X	X
lesser goldfinch <i>Spinus psaltria</i>	X	X	X	X	X		X	X	X
Lawrence's goldfinch <i>Spinus lawrencei</i>								X	
American goldfinch <i>Spinus tristis</i>		X	X	X	X	X			
orange-crowned warbler <i>Oreothlypis celata</i>		X							
common yellowthroat <i>Geothlypis trichas</i>	X	X	X	X	X	X	X	X	
yellow warbler <i>Setophaga petechial</i>		X	X	X	X	X	X	X	X
yellow-breasted chat <i>Icteria virens</i>				X	X		X		
spotted towhee <i>Pipilo maculatus</i>	X				X		X	X	X
California towhee <i>Melospiza crissalis</i>	X	X	X	X	X		X	X	X
lark sparrow <i>Chondestes grammacus</i>	X				X				
song sparrow <i>Melospiza melodia</i>	X	X	X	X	X	X	X	X	

**TABLE D-1
BIRD SPECIES DETECTED DURING 2016 YELLOW-BILLED CUCKOO SURVEYS**

Species	Survey Area 1	Survey Area 2	Survey Area 3	Survey Area 4	Survey Area 5	Survey Area 6	Survey Area 7	Survey Area 8	Survey Area 9
western tanager <i>Piranga flava</i>	X	X							
black-headed grosbeak <i>Pheucticus melanocephalus</i>	X		X	X	X	X	X		
blue grosbeak <i>Passerina caerulea</i>	X	X		X	X	X	X		X
lazuli bunting <i>Passerina amoena</i>	X	X			X		X		
red-winged blackbird <i>Agelaius phoeniceus</i>		X	X	X	X	X			
Brewer's blackbird <i>Euphagus cyanocephalus</i>						X			
great-tailed grackle <i>Quiscalus mexicanus</i>				X			X		
brown-headed cowbird <i>Molothrus ater</i>			X	X	X				
hooded oriole <i>Icterus cucullatus</i>	X	X	X	X	X	X			X
Bullock's oriole <i>Icterus bullockii</i>		X		X					X

ATTACHMENT E

USFWS JUNE 22, 2016 CUCKOO SIGHTING REPORT

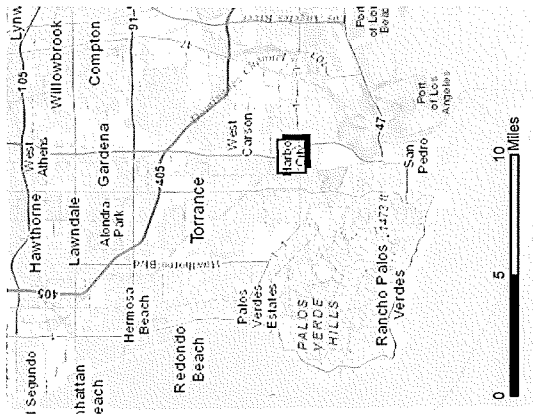
Brian Daniels

From: Brian Daniels
Sent: Wednesday, June 22, 2016 2:21 PM
To: Daniel_Marquez@fws.gov; Stacey_Love@fws.gov; Robert Krijgsman
Cc: Lindsay Messett; Marc Blain
Subject: June 22, 2016 Yellow-billed Cuckoo Observation at Wilmington Drain, Los Angeles County
Attachments: daily_results_20160622.pdf

Good afternoon,

Per Condition 10e of my Native Endangered & Threatened Sp. Recovery permit (TE821401-5), I am reporting a Yellow-billed Cuckoo seen and heard during a focused survey conducted this morning at Wilmington Drain, Los Angeles County. Lindsay Messett and I heard and saw the Yellow-billed Cuckoo at 0830 after playing recorded "kowlp" calls per the survey protocol at Calling Point 9 as shown on the attached exhibit.

Brian Daniels



- Yellow-billed Cuckoo Observation
- Reach Alignment
- Yellow-billed Cuckoo Survey Area



Aerial Source: LAR/MC 2011

Reach 27 - 6/22/2016

Yellow-billed Cuckoo Focused Surveys

Bentley
PSOMAS

Plot: 8-22-2016 03:13 US280GraphicCuckoo_Bentley.dwg 20160622 08:28



ATTACHMENT F
YELLOW-BILLED CUCKOO SURVEY SUMMARY
AND SITE DESCRIPTION FORMS

Yellow Billed Cuckoo Survey Summary Form

Site Name: <u>Reach 14</u>	County: <u>Los Angeles</u>	State: <u>CA</u>	
USGS Quad Name: <u>San Fernando</u>	Elevation: <u>1,310 Ft.</u>		
Creek, River, Wetland, or Lake Name: <u>Pacifica Wash</u>			
Site Coordinates:	Start: E <u>370255</u> N <u>3797649</u>	UTM Zone: <u>11s</u>	
	Stop: E <u>370265</u> N <u>3796793</u>	Datum: <u>WGS84</u>	
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal/County & Federal (ACOE))	Was site surveyed in previous year? Yes No Unknown If yes, what site name was used?		

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	C u c k o o #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1 Observer(s): <u>S. Rowe</u> <u>L. Messett</u>	Date:	Total:												
	<u>6/29/16</u>													
	Start:													
	<u>0600</u>													
	Stop:													
<u>1000</u>														
Total hrs:														
<u>4</u>		<u>0</u>												
Survey Period #2 Observer(s): <u>B. Daniels</u>	Date:	Total:												
	<u>7/17/16</u>													
	Start:													
	<u>0600</u>													
	Stop:													
<u>0945</u>														
Total hrs:														
<u>3.8</u>		<u>0</u>												
Survey Period #3 Observer(s): <u>B. Daniels</u>	Date:	Total:												
	<u>7/29/16</u>													
	Start:													
	<u>0550</u>													
	Stop:													
<u>0910</u>														
Total hrs:														
<u>3.3</u>		<u>0</u>												
Survey Period #4 Observer(s): <u>B. Daniels</u> <u>J. Funston</u>	Date:	Total:												
	<u>2/10/16</u>													
	Start:													
	<u>0600</u>													
	Stop:													
<u>0915</u>														
Total hrs:														
<u>3.3</u>		<u>0</u>												
Survey Period #5 Observer(s):	Date:	Total:												
	Start:													
	Stop:													
	Total hrs:													

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:	
Total YBCUs*	<u>0</u>					<u>14.4</u>	

Notes (refer to Cuckoo # associated with individual detections)	*Include justification for these designations.

VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Coo	COO	Sitting	ST	Carry Food	CF	Feeds Mate	FM
Knock/Alarm	ALA	Foraging	FO	Eats Food	EF	Carry Nest Material	CN
Juvenile Calls	JUVC	Preening	PRE	At Nest	AN	Brooding/Incubating	BI
Other Vocalization	OV	Flying	FLY	Juvenile	JUV	Feeds Nestling	FN
		Distraction Display	DD	Vocal Exchange	VEX	Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		Date Report completed: 9/28/16	
Site Name: Reach 14	State: CA.	County: Los Angeles	
Name of Reporting Individual: B. Daniels	Affiliation: Bonterra Psomas		
Phone #: (626) 351-2000	Email: bricen.daniels@psomas.com		
USFWS Permit #: TR-821401-S	State Permit #: SC-4535		

Site Coordinates:	Start: E 370255	N 3797649	UTM Zone: 11S
	Stop: E 370265	N 3796793	NAD: WGS84
USGS Quad Name(s): San Fernando	Length of area surveyed (in kilometers) 0.85		Elevation: 1,130 Ft.
Name of nearest Creek, River, Wetland, or Lake: Pacoima Wash			
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal/County) + Fed (ACOE)			
Was site surveyed in previous year? Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown		If yes, what site name was used?	
Did you survey the same general area during each visit this year? Yes/No		If no, summarize in comments below	
If "Yes", was the same general area surveyed this year? Yes/No		If no, summarize in comments below	

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):

Native broadleaf plants (>75% native)	<input checked="" type="checkbox"/>	Mixed native and exotic plants (mostly native 51%-75%)	
Exotic/introduced plants (>75% exotic)		Mixed native and exotic plants (mostly exotic 51%-75%)	

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. Salix spp. % cover: 95	2. Populus fremontii % cover: 4	3. Platanus racemosa % cover: 1
4. % cover:	5. % cover:	
Average height of overstory (m)(do not include a range) 7		Estimated Overall Canopy Cover (percent) 10%

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. — % cover:	2. % cover:	3. % cover:
4. % cover:	5. % cover:	
Average height of understory (m)(do not include a range) —		Estimated Overall Cover (percent) —

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland)

alluvial sage scrub is the dominate vegetation type in Pacoima wash and downstream in the Lopez debris basin. There are also stands of mule fat scrub in the basin. Also ruderal (weedy) areas.

List up to five categories of adjacent habitat, and estimate percent cover. Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. alluvial s. scrub % cover: 60	2. Baccharis salicifolia % cover: 15	3. ruderal % cover: 15
4. disturbed % cover: 10	5. % cover:	

Was surface water or saturated soil present at or adjacent to site within 300 meters?	<input checked="" type="radio"/> Yes No (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	Yes <input checked="" type="radio"/> No (circle one)

Comments. Reach 14 is a side outlet (May channel outlet) between golf course and Pacoima Wash. It is 588 ft. long (0.63 acre) and supports a "strip" of riparian trees (mostly willows) along its length and at its mouth in Pacoima Wash. There are two additional side outlets on opposite side of Pacoima Wash. The cuckoo survey area was extended downstream into the debris basin to "capture" more trees. In all, the survey area is about 80 acres and contains about 10 acres of riparian woodland.

Yellow Billed Cuckoo Survey Summary Form

Site Name: <u>Reach 27</u>	County: <u>Los Angeles</u>	State: <u>CA.</u>	
USGS Quad Name: <u>Torrance</u>		Elevation: <u>23 Ft.</u>	
Creek, River, Wetland, or Lake Name: <u>Wilmington Drain</u>			
Site Coordinates: Start: E <u>380689</u> N <u>3740705</u>		UTM Zone: <u>11S</u>	
Stop: E <u>380702</u> N <u>3739757</u>		Datum: <u>NAD83</u>	
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other <u>Municipal/County</u> <u>L.A. City + County</u>			
Was site surveyed in previous year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> If yes, what site name was used?			

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	Cuckoo #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1 Observer(s): <u>B. Daniels</u> <u>L. Messett</u>	Date: <u>6/22/16</u> Start: <u>0645</u> Stop: <u>0930</u> Total hrs: <u>2.8</u>	Total: <u>1</u>	<u>0930</u>	<u>P B</u>	<u>CN</u>	<u>3</u>	<u>NDX</u>	<u>380782</u>	<u>3740112</u>					
Survey Period #2 Observer(s): <u>B. Daniels</u>	Date: <u>7/5/16</u> Start: <u>0610</u> Stop: <u>0845</u> Total hrs: <u>2.6</u>	Total: <u>0</u>												
Survey Period #3 Observer(s): <u>B. Daniels</u>	Date: <u>7/19/16</u> Start: <u>0600</u> Stop: <u>0845</u> Total hrs: <u>2.8</u>	Total: <u>0</u>												
Survey Period #4 Observer(s): <u>B. Daniels</u> <u>J. Feaster</u>	Date: <u>8/1/16</u> Start: <u>0600</u> Stop: <u>0915</u> Total hrs: <u>3.3</u>	Total: <u>0</u>												
Survey Period #5 Observer(s):	Date: Start: Stop: Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:	
Total YBCUs*	<u>1</u>					<u>11.5</u>	
Notes (refer to Cuckoo # associated with individual detections)							*Include justification for these designations.

VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Coo	COO	Sitting	ST	Carry Food	CF	Feeds Mate	FM
Knock/Alarm	ALA	Foraging	FO	Eats Food	EF	Carry Nest Material	CN
Juvenile Calls	JUVC	Preening	PRE	At Nest	AN	Brooding/Incubating	BI
Other Vocalization	OV	Flying	FLY	Juvenile	JUV	Feeds Nestling	FN
		Distraction Display	DD	Vocal Exchange	VEX	Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		Date Report completed: 9/23/16
Site Name: Reach 27	State: CA.	County: Los Angeles
Name of Reporting Individual: B. Daniels	Affiliation: Bon Terra Psomas	
Phone #: (626) 351-2000	Email: brian.daniels@psomas.com	
USFWS Permit #: TE-821401-5	State Permit #: SC-4535	

Site Coordinates:	Start: E 380689	N 3740705	UTM Zone: 11S
	Stop: E 380802	N 3739757	NAD: WGS84
USGS Quad Name(s): Torrance	Length of area surveyed (in kilometers) 1.0		Elevation: 23 Ft.
Name of nearest Creek, River, Wetland, or Lake: Wilmington Drain			
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal County) L.A. City + County			
Was site surveyed in previous year? Yes <input type="radio"/> No <input checked="" type="radio"/> Unknown <input type="checkbox"/>		If yes, what site name was used?	
Did you survey the same general area during each visit this year? <input checked="" type="radio"/> Yes <input type="radio"/> No		If no, summarize in comments below	
If "Yes", was the same general area surveyed this year? <input checked="" type="radio"/> Yes <input type="radio"/> No		If no, summarize in comments below	

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):

Native broadleaf plants (>75% native)	<input checked="" type="checkbox"/>	Mixed native and exotic plants (mostly native 51%-75%)	<input type="checkbox"/>
Exotic/introduced plants (>75% exotic)	<input type="checkbox"/>	Mixed native and exotic plants (mostly exotic 51%-75%)	<input type="checkbox"/>

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. Salix spp. % cover: 90	2. Populus Fremontii % cover: 6	3. Platanus racemosa % cover: 2
4. Alnus rhombifolia % cover: 2	5. % cover:	
Average height of overstory (m)(do not include a range) 5		Estimated Overall Canopy Cover (percent) 40%

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. % cover:	2. % cover:	3. % cover:
4. % cover:	5. % cover:	
Average height of understory (m)(do not include a range) —		Estimated Overall Cover (percent) —

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland)

Wilmington Drain is surrounded by residential and some remnant oil field installations.

List up to five categories of adjacent habitat, and estimate percent cover. Use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. Residential % cover: 60	2. Oil/Industrial % cover: 30	3. Planted scrub % cover: 10
4. % cover:	5. % cover:	

Was surface water or saturated soil present at or adjacent to site within 300 meters?	<input checked="" type="radio"/> Yes <input type="radio"/> No (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	<input checked="" type="radio"/> Yes <input type="radio"/> No (circle one)

Comments. Wilmington Drain (1/2 8 acres) empties into Ken Malloy Regional Park south of Pacific Coast Highway. The Proposition "O" project was implemented about 5 years ago for Wilmington Drain. The habitat was restored and enhanced with additional plantings of native species. The park is now off-limits and under construction, but in future years will be included in the survey area that includes Wilmington Drain. (The above % are only for Reach 27.)

Yellow Billed Cuckoo Survey Summary Form

Site Name: <u>Reach 39</u>	County: <u>Los Angeles</u>	State: <u>CA.</u>	
USGS Quad Name: <u>Azusa</u>		Elevation: <u>625 Ft.</u>	
Creek, River, Wetland, or Lake Name: <u>San Gabriel River</u>			
Site Coordinates:	Start: E <u>414301</u> N <u>3778921</u>	UTM Zone: <u>11S</u>	
	Stop: E <u>413438</u> N <u>3778025</u>	Datum: <u>WGS84</u>	
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal County) <u>+ Federal (ACOE)</u>			
Was site surveyed in previous year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> If yes, what site name was used?			

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	C u c k o o #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1	Date: <u>6/29/16</u>													
Observer(s):	Start: <u>0545</u>													
<u>B. Daniels</u>	Stop: <u>0730</u>													
	Total hrs: <u>1.8</u>													
	Total: <u>0</u>													
Survey Period #2	Date: <u>7/18/16</u>													
Observer(s):	Start: <u>0615</u>													
<u>B. Daniels</u>	Stop: <u>0815</u>													
	Total hrs: <u>2</u>													
	Total: <u>0</u>													
Survey Period #3	Date: <u>7/30/16</u>													
Observer(s):	Start: <u>0600</u>													
<u>B. Daniels</u>	Stop: <u>0715</u>													
	Total hrs: <u>1.3</u>													
	Total: <u>0</u>													
Survey Period #4	Date: <u>2/12/16</u>													
Observer(s):	Start: <u>0600</u>													
<u>B. Daniels</u>	Stop: <u>0715</u>													
	Total hrs: <u>1.3</u>													
	Total: <u>0</u>													
Survey Period #5	Date:													
Observer(s):	Start:													
	Stop:													
	Total hrs:													
	Total:													

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:
Total YBCUs*	<u>0</u>					<u>6.4</u>

Notes (refer to Cuckoo # associated with individual detections)	*Include justification for these designations.

VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Coo	COO	Sitting	ST	Carry Food	CF	Feeds Mate	FM
Knock/Alarm	ALA	Foraging	FO	Eats Food	EF	Carry Nest Material	CN
Juvenile Calls	JUVC	Preening	PRE	At Nest	AN	Brooding/Incubating	BI
Other Vocalization	OV	Flying	FLY	Juvenile	JUV	Feeds Nestling	FN
		Distraction Display	DD	Vocal Exchange	VEX	Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		Date Report completed: 9/28/16
Site Name: Reach 39	State: CA	County: Los Angeles
Name of Reporting Individual: B. Daniels	Affiliation: Bonterra Promas	
Phone #: (626) 351-2000	Email: brian.daniels@psomas.com	
USFWS Permit #: TE 821401-5	State Permit #: SC-4535	

Site Coordinates:	Start: E 414301	N 3778921	UTM Zone: 11S
	Stop: E 413438	N 3778025	NAD: WGS84
USGS Quad Name(s): Azusa	Length of area surveyed (in kilometers): 1.25		Elevation: 625 ft.
Name of nearest Creek, River, Wetland, or Lake: San Gabriel River			
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal/County) Fed (ACOE)			
Was site surveyed in previous year? Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown <input type="checkbox"/> If yes, what site name was used?			
Did you survey the same general area during each visit this year? Yes/No <input checked="" type="radio"/> No <input type="checkbox"/> If no, summarize in comments below			
If "Yes", was the same general area surveyed this year? Yes/No <input checked="" type="radio"/> No <input type="checkbox"/> If no, summarize in comments below			

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):

Native broadleaf plants (>75% native)	<input checked="" type="checkbox"/>	Mixed native and exotic plants (mostly native 51%-75%)	<input type="checkbox"/>
Exotic/introduced plants (>75% exotic)	<input type="checkbox"/>	Mixed native and exotic plants (mostly exotic 51%-75%)	<input type="checkbox"/>

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. Salix spp. % cover: 95	2. Eucalyptus sp. % cover: 4	3. ornamental sp. % cover: 1
4. % cover:	5. % cover:	
Average height of overstory (m)(do not include a range) 7		Estimated Overall Canopy Cover (percent) <1%

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. % cover:	2. % cover:	3. % cover:
4. % cover:	5. % cover:	
Average height of understory (m)(do not include a range) —		Estimated Overall Cover (percent) —

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland). Alluvial sage scrub dominated the San Gabriel River channel in vicinity of the Beatty Channel Outlet (Reach 39). Least Bell's vireo and coastal California gnatcatcher occur here.

List up to five categories of adjacent habitat, and estimate percent cover. Use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. alluvial sage scrub % cover: 90	2. rieveral % cover: 10	3. disturbed % cover: <1
4. % cover:	5. % cover:	

Was surface water or saturated soil present at or adjacent to site within 300 meters?	<input checked="" type="radio"/> Yes No (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	<input checked="" type="radio"/> Yes No (circle one)

Comments. Willows are primarily found in small clumps in the river here upstream of the 210 freeway. Most of these clumps have been occupied by homeless. The combination of fires started at these encampments and the continuing drought has definitely affected the habitat here in negative ways. The alluvial sage scrub and willows are slowly being converted to rieveral habitats.

Yellow Billed Cuckoo Survey Summary Form

Site Name: <u>Reach 40b</u>	County: <u>Los Angeles</u>	State: <u>CA.</u>	
USGS Quad Name: <u>El Monte</u>		Elevation: <u>255 Ft.</u>	
Creek, River, Wetland, or Lake Name: <u>San Gabriel River</u>			
Site Coordinates: Start: E <u>406520</u> N <u>3767801</u>		UTM Zone: <u>11S</u>	
Stop: E <u>404790</u> N <u>3766641</u>		Datum: <u>NAD83</u>	
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal County <u>Alameda</u> <u>ACOE</u>)			
Was site surveyed in previous year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> If yes, what site name was used?			

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	Cuckoo #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1 Observer(s): <u>B. Daniels</u>	Date: <u>6/28/16</u> Start: <u>0615</u> Stop: <u>0950</u> Total hrs: <u>3.6</u>	Total: <u>0</u>												
Survey Period #2 Observer(s): <u>B. Daniels</u>	Date: <u>7/16/16</u> Start: <u>0545</u> Stop: <u>0950</u> Total hrs: <u>4.1</u>	Total: <u>0</u>												
Survey Period #3 Observer(s): <u>B. Daniels</u>	Date: <u>7/28/16</u> Start: <u>0545</u> Stop: <u>1000</u> Total hrs: <u>4.3</u>	Total: <u>0</u>												
Survey Period #4 Observer(s): <u>B. Daniels</u>	Date: <u>8/9/16</u> Start: <u>0550</u> Stop: <u>0945</u> Total hrs: <u>3.9</u>	Total: <u>0</u>												
Survey Period #5 Observer(s):	Date: Start: Stop: Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:	
Total YBCUs*	<u>0</u>					<u>15.9</u>	
Notes (refer to Cuckoo # associated with individual detections)							*Include justification for these designations.

VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Coo	COO	Sitting	ST	Carry Food	CF	Feeds Mate	FM
Knock/Alarm	ALA	Foraging	FO	Eats Food	EF	Carry Nest Material	CN
Juvenile Calls	JUVC	Preening	PRE	At Nest	AN	Brooding/Incubating	BI
Other Vocalization	OV	Flying	FLY	Juvenile	JUV	Feeds Nestling	FN
		Distraction Display	DD	Vocal Exchange	VEX	Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		Date Report completed: 9/28/16
Site Name: Reach 40b	State: CA.	County: Los Angeles
Name of Reporting Individual: B. Daniels	Affiliation: Bon Terra Psomas	
Phone #: (626) 351-2000	Email: brian.daniels@psomas.com	
USFWS Permit #: TE 8214015	State Permit #: SC-4535	

Site Coordinates:	Start: E 406530	N 3767801	UTM Zone: 11S
	Stop: E 404790	N 3766641	NAD: WGS84
USGS Quad Name(s): R1 Monte	Length of area surveyed (in kilometers) 2.15		Elevation: 255 ft.
Name of nearest Creek, River, Wetland, or Lake: San Gabriel River			
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal/County) + Fed (ACOE)			
Was site surveyed in previous year? Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown		If yes, what site name was used?	
Did you survey the same general area during each visit this year?		Yes/No	If no, summarize in comments below
If "Yes", was the same general area surveyed this year?		Yes/No	If no, summarize in comments below

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):

Native broadleaf plants (>75% native) <input checked="" type="checkbox"/>	Mixed native and exotic plants (mostly native 51%-75%)
Exotic/introduced plants (>75% exotic)	Mixed native and exotic plants (mostly exotic 51%-75%)

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. Salix spp. % cover: 98	2. Ornamental spp. % cover: 2	3. Populus fremontii % cover: 51
4. % cover:	5. % cover:	
Average height of overstory (m)(do not include a range) 8		Estimated Overall Canopy Cover (percent) 10%

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. Salix exigua % cover: 95	2. Baccharis salicifolia % cover: 5	3. % cover:
4. % cover:	5. % cover:	
Average height of understory (m)(do not include a range) 2.5		Estimated Overall Cover (percent) 50

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland) The adjacent habitat within the flood control channel is cleared every year per conditions of the regulatory permits required to manage the channel. They come back in spring mostly as reed bed, but some riparian herb depending

List up to five categories of adjacent habitat, and estimate percent cover. Use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. Residential % cover: 50	2. nursery % cover: 35	3. disturbed % cover: 15
4. % cover:	5. % cover:	

Was surface water or saturated soil present at or adjacent to site within 300 meters?	Yes <input checked="" type="radio"/> No <input type="radio"/> (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	Yes <input type="radio"/> No <input checked="" type="radio"/> (circle one)

Comments. on rainfall amounts.

Yellow Billed Cuckoo Survey Summary Form

Site Name: <u>Reaches 43a, b</u>	County: <u>Los Angeles</u>	State: <u>CA</u>	
USGS Quad Name: <u>E1 Monte</u>		Elevation: <u>125 ft.</u>	
Creek, River, Wetland, or Lake Name: <u>San Gabriel River</u>			
Site Coordinates:	Start: E <u>402547</u> N <u>3764877</u>	UTM Zone: <u>11S</u>	
	Stop: E <u>401283</u> N <u>3763435</u>	Datum: <u>WGS84</u>	
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal County + Federal (ACOE))			
Was site surveyed in previous year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/>	If yes, what site name was used?		

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	Cuckoo #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1 Observer(s): <u>S. Rowe</u> <u>L. Messitt</u>	Date: <u>6/28/16</u> Start: <u>0605</u> Stop: <u>1020</u> Total hrs: <u>4.3</u>	Total: <u>0</u>												
Survey Period #2 Observer(s): <u>B. Daniels</u> <u>J. Feinstein</u>	Date: <u>7/10/16</u> Start: <u>0605</u> Stop: <u>0945</u> Total hrs: <u>3.7</u>	Total: <u>0</u>												
Survey Period #3 Observer(s): <u>B. Daniels</u> <u>S. Morris</u>	Date: <u>7/22/16</u> Start: <u>0545</u> Stop: <u>0930</u> Total hrs: <u>3.8</u>	Total: <u>0</u>												
Survey Period #4 Observer(s): <u>B. Daniels</u>	Date: <u>8/3/16</u> Start: <u>0600</u> Stop: <u>0950</u> Total hrs: <u>3.8</u>	Total: <u>0</u>												
Survey Period #5 Observer(s):	Date: Start: Stop: Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:	
Total YBCUs*	<u>0</u>					<u>15.6</u>	

Notes (refer to Cuckoo # associated with individual detections)	

*Include justification for these designations.

VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Coo	COO	Sitting	ST	Carry Food	CF	Feeds Mate	FM
Knock/Alarm	ALA	Foraging	FO	Eats Food	EF	Carry Nest Material	CN
Juvenile Calls	JUVC	Preening	PRE	At Nest	AN	Brooding/Incubating	BI
Other Vocalization	OV	Flying	FLY	Juvenile	JUV	Feeds Nestling	FN
		Distraction Display	DD	Vocal Exchange	VEX	Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		Date Report completed: 9/28/16	
Site Name: Reaches 43a, b	State: CA.	County: Los Angeles	
Name of Reporting Individual: B. Daniels	Affiliation: Bon Terra Consulting		
Phone #: (626) 351-2000	Email: brian.daniels@bonterra.com		
USFWS Permit #: T2-821401-S	State Permit #: SC-4535		

Site Coordinates:	Start: E 402547	N 3764877	UTM Zone: 11S
	Stop: E 401288	N 3763435	NAD: WGS84
USGS Quad Name(s): El Monte	Length of area surveyed (in kilometers) 1.9		Elevation: 185 ft.
Name of nearest Creek, River, Wetland, or Lake: San Gabriel River			
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal/County)			
Was site surveyed in previous year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> If yes, what site name was used?			
Did you survey the same general area during each visit this year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, summarize in comments below			
If "Yes", was the same general area surveyed this year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, summarize in comments below			

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):

Native broadleaf plants (>75% native)	<input checked="" type="checkbox"/>	Mixed native and exotic plants (mostly native 51%-75%)	
Exotic/introduced plants (>75% exotic)		Mixed native and exotic plants (mostly exotic 51%-75%)	

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. Salix spp. % cover: 90	2. Fraxinus sp. % cover: 5	3. Populus fremontii % cover: 2
4. Eucalyptus sp. % cover: 2	5. % cover:	
Average height of overstory (m)(do not include a range) 7		Estimated Overall Canopy Cover (percent) 40%

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. Baccharis sarothamnifolia % cover: 70	2. Salix exigua % cover: 25	3. ornamental spp. % cover: 5
4. % cover:	5. % cover:	
Average height of understory (m)(do not include a range) 2.5		Estimated Overall Cover (percent) 75%

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland) Adjacent habitat in flood control channel is cleared every year per conditions of the regulatory permits required to manage the channel. Prior to clearing, these areas are primarily riparian, but can support young riparian growth especially after wet years.

List up to five categories of adjacent habitat, and estimate percent cover. Use <1%, 10%, 25%, 50%, 75%, 90%, 100%.

1. residential % cover: 40	2. industrial % cover: 25	3. Disturbed % cover: 25%
4. golf course % cover: 10	5. % cover:	

Was surface water or saturated soil present at or adjacent to site within 300 meters?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (circle one)

Comments:

Yellow Billed Cuckoo Survey Summary Form

Site Name: <u>Reach 44</u>	County: <u>Los Angeles</u>	State: <u>CA</u>	
USGS Quad Name: <u>Whittier</u>		Elevation: <u>132 Ft.</u>	
Creek, River, Wetland, or Lake Name: <u>San Gabriel River</u>			
Site Coordinates: Start: E <u>399911</u> N <u>3759918</u>		UTM Zone: <u>11S</u>	
Stop: E <u>399560</u> N <u>3759437</u>		Datum: <u>WGS84</u>	
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal <u>County</u>)			
Was site surveyed in previous year? Yes <input type="radio"/> No <input checked="" type="radio"/> Unknown			

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	Cuckoo #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1 Observer(s): <u>B. Daniels</u>	Date: <u>6/29/16</u> Start: <u>0830</u> Stop: <u>1100</u> Total hrs: <u>2.5</u>	Total: <u>0</u>												
Survey Period #2 Observer(s): <u>B. Daniels</u>	Date: <u>7/13/16</u> Start: <u>0900</u> Stop: <u>1115</u> Total hrs: <u>2.3</u>	Total: <u>0</u>												
Survey Period #3 Observer(s): <u>B. Daniels</u>	Date: <u>7/30/16</u> Start: <u>0740</u> Stop: <u>0945</u> Total hrs: <u>2.1</u>	Total: <u>0</u>												
Survey Period #4 Observer(s): <u>B. Daniels</u>	Date: <u>8/12/16</u> Start: <u>0745</u> Stop: <u>1000</u> Total hrs: <u>2.3</u>	Total: <u>0</u>												
Survey Period #5 Observer(s):	Date: Start: Stop: Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:	
Total YBCUs*	<u>0</u>					<u>9.2</u>	
Notes (refer to Cuckoo # associated with individual detections)							*Include justification for these designations.

VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Coo	COO	Sitting	ST	Carry Food	CF	Feeds Mate	FM
Knock/Alarm	ALA	Foraging	FO	Eats Food	EF	Carry Nest Material	CN
Juvenile Calls	JUVC	Preening	PRE	At Nest	AN	Brooding/Incubating	BI
Other Vocalization	OV	Flying	FLY	Juvenile	JUV	Feeds Nestling	FN
		Distraction Display	DD	Vocal Exchange	VEX	Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		Date Report completed: <u>9/28/16</u>	
Site Name: <u>Reach 44</u>	State: <u>CA.</u>	County: <u>Los Angeles</u>	
Name of Reporting Individual: <u>B. Daniels</u>	Affiliation: <u>Bon Terra Psomas</u>		
Phone #: <u>(626) 351-2000</u>	Email: <u>brian.daniels@psomas.com</u>		
USFWS Permit #: <u>TE821401-5</u>	State Permit #: <u>SC-4535</u>		

Site Coordinates:	Start: E <u>399911</u>	N <u>3759918</u>	UTM Zone: <u>11S</u>
	Stop: E <u>399560</u>	N <u>3759437</u>	NAD: <u>WGS84</u>
USGS Quad Name(s): <u>Whittier</u>	Length of area surveyed (in kilometers) <u>0.6</u>		Elevation: <u>132 ft.</u>
Name of nearest Creek, River, Wetland, or Lake: <u>San Gabriel River</u>			
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other (Municipal <u>County</u>)			
Was site surveyed in previous year? Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown <input type="checkbox"/> If yes, what site name was used?			
Did you survey the same general area during each visit this year? <input checked="" type="radio"/> Yes / No <input type="radio"/> If no, summarize in comments below			
If "Yes", was the same general area surveyed this year? <input checked="" type="radio"/> Yes / No <input type="radio"/> If no, summarize in comments below			

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):

Native broadleaf plants (>75% native)	<input checked="" type="checkbox"/>	Mixed native and exotic plants (mostly native 51%-75%)	
Exotic/introduced plants (>75% exotic)	<input type="checkbox"/>	Mixed native and exotic plants (mostly exotic 51%-75%)	

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. <u>Salix spp.</u> % cover: <u>100</u>	2. % cover:	3. % cover:
4. % cover:	5. % cover:	
Average height of overstory (m)(do not include a range)		Estimated Overall Canopy Cover (percent) <u><1%</u>

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. % cover:	2. % cover:	3. % cover:
4. % cover:	5. % cover:	
Average height of understory (m)(do not include a range)		Estimated Overall Cover (percent)

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland) cleared annually per regulatory permits required for maintenance of this flood control channel.

List up to five categories of adjacent habitat, and estimate percent cover. Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. Residential % cover: <u>75</u>	2. Parks % cover: <u>10</u>	3. Industrial % cover: <u>10</u>
4. Disturbed % cover: <u>5</u>	5. Grasslands % cover: <u>1</u>	

Was surface water or saturated soil present at or adjacent to site within 300 meters?	Yes <input type="radio"/> No <input checked="" type="radio"/> (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	Yes <input type="radio"/> No <input checked="" type="radio"/> (circle one)

Comments. This flood control channel reach of the San Gabriel River is about 6 miles long. Other than isolated trees + shrubs outside the low-flow channel, there are only 3 clumps of willows, the longest of which is 0.6 mile long. All these willows are trimmed up from ground ("lollipopped") during annual maintenance activities (no nesting habitat for Least Pelic vireo).

Yellow Billed Cuckoo Survey Summary Form

Site Name: <u>Reaches 71, 79, 80, 103</u>	County: <u>Los Angeles</u>	State: <u>CA.</u>
USGS Quad Name: <u>Newhall</u>	Elevation: <u>1,160 Ft.</u>	
Creek, River, Wetland, or Lake Name: <u>Santa Clara River</u>		
Site Coordinates: Start: E <u>356440</u> N <u>3810312</u>	UTM Zone: <u>11S</u>	
Stop: E <u>358431</u> N <u>3810218</u>	Datum: <u>WGS84</u>	
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other <u>Municipal County Santa Clara + County</u>		
Was site surveyed in previous year? Yes No Unknown If yes, what site name was used?		

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	C u c k o o #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1 Observer(s): <u>S. Rowe</u> <u>L. Messert</u>	Date: <u>6/23/16</u> Start: <u>0615</u> Stop: <u>1120</u> Total hrs: <u>5.1</u>	Total: <u>0</u>												
Survey Period #2 Observer(s): <u>B. Daniels</u> <u>J. Fenstra</u>	Date: <u>7/7/16</u> Start: <u>0610</u> Stop: <u>1035</u> Total hrs: <u>4.4</u>	Total: <u>0</u>												
Survey Period #3 Observer(s): <u>B. Daniels</u>	Date: <u>7/20/16</u> Start: <u>0610</u> Stop: <u>1115</u> Total hrs: <u>5.1</u>	Total: <u>0</u>												
Survey Period #4 Observer(s): <u>B. Daniels</u> <u>J. Fenstra</u>	Date: <u>8/2/16</u> Start: <u>0600</u> Stop: <u>1030</u> Total hrs: <u>4.5</u>	Total: <u>0</u>												
Survey Period #5 Observer(s):	Date: Start: Stop: Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:
Total YBCUs*	<u>0</u>					<u>19.1</u>

Notes (refer to Cuckoo # associated with individual detections)	*Include justification for these designations.

VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Coo	COO	Sitting	ST	Carry Food	CF	Feeds Mate	FM
Knock/Alarm	ALA	Foraging	FO	Eats Food	EF	Carry Nest Material	CN
Juvenile Calls	JUVC	Preening	PRE	At Nest	AN	Brooding/Incubating	BI
Other Vocalization	OV	Flying	FLY	Juvenile	JUV	Feeds Nestling	FN
		Distraction Display	DD	Vocal Exchange	VEX	Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		Date Report completed: <u>9/28/16</u>	
Site Name: <u>Reaches 71, 79, 80, 103</u>	State: <u>CA.</u>	County: <u>Los Angeles</u>	
Name of Reporting Individual: <u>B. Daniels</u>	Affiliation: <u>Bonterra Psomas</u>		
Phone #: <u>(626)351-2000</u>	Email: <u>brian.daniels@psomas.com</u>		
USFWS Permit #: <u>TE821401-S</u>	State Permit #: <u>SC-4535</u>		

Site Coordinates:	Start: E <u>356440</u>	N <u>3810312</u>	UTM Zone: <u>11S</u>
	Stop: E <u>358431</u>	N <u>3810218</u>	NAD: <u>WGS84</u>
USGS Quad Name(s): <u>Newhall</u>	Length of area surveyed (in kilometers) <u>2.0</u>		Elevation: <u>1,160 ft.</u>
Name of nearest Creek, River, Wetland, or Lake: <u>Santa Clara River</u>			
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other: <u>(Municipal/County) Santa Clarita</u>			
Was site surveyed in previous year? Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown <input type="radio"/>		If yes, what site name was used?	
Did you survey the same general area during each visit this year? <input checked="" type="radio"/> Yes / No <input type="radio"/>		If no, summarize in comments below	
If "Yes", was the same general area surveyed this year? <input checked="" type="radio"/> Yes / No <input type="radio"/>		If no, summarize in comments below	

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):

Native broadleaf plants (>75% native)	<input checked="" type="checkbox"/>	Mixed native and exotic plants (mostly native 51%-75%)	
Exotic/introduced plants (>75% exotic)		Mixed native and exotic plants (mostly exotic 51%-75%)	

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. <u>Salix spp.</u> % cover: <u>90</u>	2. <u>Populus fremontii</u> % cover: <u>10</u>	3. <u>Quercus lobata</u> % cover: <u>1</u>
4. % cover:	5. % cover:	
Average height of overstory (m)(do not include a range) <u>8</u>		Estimated Overall Canopy Cover (percent) <u>25%</u>

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. <u>Baccharis salicifolia</u> % cover: <u>50</u>	2. <u>Salix elaeagn</u> % cover: <u>30</u>	3. <u>Tamarix ramosissima</u> % cover: <u>15</u>
4. <u>Salix spp.</u> % cover: <u>5</u>	5. <u>Typha sp</u> % cover: <u>1</u>	
Average height of understory (m)(do not include a range) <u>2</u>		Estimated Overall Cover (percent) <u>50%</u>

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland) - Great Basin sagebrush scrub, open wash, ~~the~~ disturbed areas, ruderal vegetation, and tamarisk scrub

List up to five categories of adjacent habitat, and estimate percent cover. Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. <u>open wash</u> % cover: <u>50</u>	2. <u>ruderal</u> % cover: <u>15</u>	3. <u>great basin sage</u> % cover: <u>15</u>
4. <u>tamarisk</u> % cover: <u>15</u>	5. <u>disturbed</u> % cover: <u>5</u>	

Was surface water or saturated soil present at or adjacent to site within 300 meters?	<input checked="" type="radio"/> Yes No <input type="radio"/> (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	Yes <input checked="" type="radio"/> No <input type="radio"/> (circle one)

Comments. The highest quality riparian woodland habitat was present in the main Santa Clara River channel ~~at~~ just downstream of its confluence with Bouquet Crn channel (Reach 103). This area is not within the limits of flood control channel reaches 71, 79, 80 or 103, ~~but~~ nor is it in the survey area for least Bell's vined for those 4 reaches, but it is for the cuckoo.

Yellow Billed Cuckoo Survey Summary Form

Site Name: <u>Reaches 32, 109</u>	County: <u>Los Angeles</u>	State: <u>CA.</u>
USGS Quad Name: <u>Newhall</u>	Elevation: <u>1,095 Ft.</u>	
Creek, River, Wetland, or Lake Name: <u>Santa Clara River</u>		
Site Coordinates: Start: E <u>356424</u> N <u>3810411</u>	UTM Zone: <u>11S</u>	
Stop: E <u>355044</u> N <u>3810550</u>	Datum: <u>NAD83</u>	
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other <u>Municipal County Santa Clara + County</u>		
Was site surveyed in previous year? Yes No Unknown If yes, what site name was used?		

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	C u c k o o #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1	Date: <u>6/23/16</u>	Total: <u>0</u>												
Observer(s):	Start: <u>0615</u>													
<u>B. Daniels</u>	Stop: <u>1100</u>													
<u>S. Monis</u>	Total hrs: <u>4.3</u>													
Survey Period #2	Date: <u>7/11/16</u>	Total: <u>0</u>												
Observer(s):	Start: <u>0600</u>													
<u>B. Daniels</u>	Stop: <u>1050</u>													
	Total hrs: <u>4.3</u>													
Survey Period #3	Date: <u>7/24/16</u>	Total: <u>0</u>												
Observer(s):	Start: <u>0600</u>													
<u>B. Daniels</u>	Stop: <u>1100</u>													
<u>J. Reuster</u>	Total hrs: <u>5</u>													
Survey Period #4	Date: <u>8/6/16</u>	Total: <u>0</u>												
Observer(s):	Start: <u>0615</u>													
<u>B. Daniels</u>	Stop: <u>1100</u>													
	Total hrs: <u>4.3</u>													
Survey Period #5	Date:	Total:												
Observer(s):	Start:													
	Stop:													
	Total hrs:													

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:
Total YBCUs*	<u>0</u>					<u>19.4</u>

Notes (refer to Cuckoo # associated with individual detections)	*Include justification for these designations.

VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Coo	COO	Sitting	ST	Carry Food	CF	Feeds Mate	FM
Knock/Alarm	ALA	Foraging	FO	Eats Food	EF	Carry Nest Material	CN
Juvenile Calls	JUVC	Preening	PRE	At Nest	AN	Brooding/Incubating	BI
Other Vocalization	OV	Flying	FLY	Juvenile	JUV	Feeds Nestling	FN
		Distraction Display	DD	Vocal Exchange	VEX	Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		Date Report completed: 9/23/16
Site Name: Ranches 82, 109	State: CA.	County: Los Angeles
Name of Reporting Individual: B. Daniels	Affiliation: Bar Terra Psomas	
Phone #: (626) 351-2000	Email: brian.daniels@psomas.com	
USFWS Permit #: T821401-5	State Permit #: SC-4535	

Site Coordinates:	Start: E 356424	N 3810411	UTM Zone: 11S
	Stop: E 355044	N 3810550	NAD: WGS84
USGS Quad Name(s): Newhall	Length of area surveyed (in kilometers) 1.40		Elevation: 1,095 ft.
Name of nearest Creek, River, Wetland, or Lake: Santa Clara River			
Ownership: BLM Reclamation NPS USFWS USFS Tribal State Private Other Municipal/County Santa Clara			
Was site surveyed in previous year? Yes <input type="radio"/> No <input checked="" type="radio"/> Unknown <input type="radio"/>		If yes, what site name was used?	
Did you survey the same general area during each visit this year? <input checked="" type="radio"/> Yes / No <input type="radio"/>		If no, summarize in comments below	
If "Yes", was the same general area surveyed this year? <input checked="" type="radio"/> Yes / No <input type="radio"/>		If no, summarize in comments below	

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):

Native broadleaf plants (>75% native)	<input checked="" type="checkbox"/>	Mixed native and exotic plants (mostly native 51%-75%)	
Exotic/introduced plants (>75% exotic)		Mixed native and exotic plants (mostly exotic 51%-75%)	

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. Salix spp. % cover: 80	2. Populus Fremontii % cover: 20	3. Eucalyptus sp. % cover: 1
4. % cover:	5. % cover:	
Average height of overstory (m)(do not include a range) 8		Estimated Overall Canopy Cover (percent) 60%

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. Baccharis salicifolia % cover: 50	2. Salix exigua % cover: 20	3. Tamarix ramosissima % cover: 20
4. Salix spp. % cover: 5	5. % cover:	
Average height of understory (m)(do not include a range) 2		Estimated Overall Cover (percent) 60

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland) some sage scrub including Great Basin sagebrush scrub, open wash, ruderal, and disturbed

List up to five categories of adjacent habitat, and estimate percent cover. Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. open wash % cover: 30	2. ruderal % cover: 30	3. Sage scrub % cover: 15
4. tamarisk % cover: 15	5. disturbed % cover: 10	

Was surface water or saturated soil present at or adjacent to site within 300 meters?	<input checked="" type="radio"/> Yes <input type="radio"/> No (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	<input type="radio"/> Yes <input checked="" type="radio"/> No (circle one)

Comments. The center of the channel downstream of McBean Pkwy was a mitigation site. It was densely vegetated until the current drought. Now most of it is dead. Even the long-established cottonwoods in some areas are dying.

Yellow Billed Cuckoo Survey Summary Form

Site Name: <u>Reaches 87,97,104</u>	County: <u>Los Angeles</u>	State: <u>CA</u>
USGS Quad Name: <u>Newhall</u>	Elevation: <u>1,035 ft.</u>	
Creek, River, Wetland, or Lake Name: <u>Castaic Creek</u>		
Site Coordinates: Start: E <u>351616</u> N <u>3813380</u>	UTM Zone: <u>11S</u>	
Stop: E <u>351570</u> N <u>3812029</u>	Datum: <u>WGS84</u>	
Ownership: BLM Reclamation NPS USFWS USFS Tribal State <u>Private</u> Other (Municipal County)		
Was site surveyed in previous year? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> If yes, what site name was used?		

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	Cuckoo #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1 Observer(s): <u>S. Rowe L. Messett</u>	Date: <u>6/24/16</u> Start: <u>0620</u> Stop: <u>1025</u> Total hrs: <u>4.1</u>	Total: <u>0</u>												
Survey Period #2 Observer(s): <u>B. Daniels</u>	Date: <u>7/12/16</u> Start: <u>0640</u> Stop: <u>1050</u> Total hrs: <u>4.2</u>	Total: <u>0</u>												
Survey Period #3 Observer(s): <u>B. Daniels</u>	Date: <u>7/26/16</u> Start: <u>0615</u> Stop: <u>1015</u> Total hrs: <u>4</u>	Total: <u>0</u>												
Survey Period #4 Observer(s): <u>B. Daniels</u>	Date: <u>8/2/16</u> Start: <u>0615</u> Stop: <u>1000</u> Total hrs: <u>3.8</u>	Total: <u>0</u>												
Survey Period #5 Observer(s):	Date: Start: Stop: Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:
Total YBCUs*	<u>0</u>					<u>16.1</u>

Notes (refer to Cuckoo # associated with individual detections)	*Include justification for these designations.

VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Coo	COO	Sitting	ST	Carry Food	CF	Feeds Mate	FM
Knock/Alarm	ALA	Foraging	FO	Eats Food	EF	Carry Nest Material	CN
Juvenile Calls	JUVC	Preening	PRE	At Nest	AN	Brooding/Incubating	BI
Other Vocalization	OV	Flying	FLY	Juvenile	JUV	Feeds Nestling	FN
		Distraction Display	DD	Vocal Exchange	VEX	Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		Date Report completed: 9/28/16	
Site Name: <u>Reaches 87, 97, 104</u>	State: <u>CA.</u>	County: <u>Los Angeles</u>	
Name of Reporting Individual: <u>B. Daniels</u>	Affiliation: <u>San Terra Psomas</u>		
Phone #: <u>(626) 351-2000</u>	Email: <u>bdan.daniels@psomas.com</u>		
USFWS Permit #: <u>TE 821401-S</u>	State Permit #: <u>SC-4535</u>		

Site Coordinates:	Start: E <u>351616</u>	N <u>3813380</u>	UTM Zone: <u>11S</u>
	Stop: E <u>351570</u>	N <u>3812029</u>	NAD: <u>WGS84</u>
USGS Quad Name(s): <u>Newhall</u>	Length of area surveyed (in kilometers) <u>1.4</u>		Elevation: <u>1,035 ft.</u>
Name of nearest Creek, River, Wetland, or Lake: <u>Castaic Creek</u>			
Ownership: BLM Reclamation NPS USFWS USFS Tribal State <u>(Private)</u> Other (Municipal/County)			
Was site surveyed in previous year? Yes <u>(No)</u> Unknown If yes, what site name was used?			
Did you survey the same general area during each visit this year? <u>(Yes)</u> / No If no, summarize in comments below			
If "Yes", was the same general area surveyed this year? <u>(Yes)</u> / No If no, summarize in comments below			

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):			
Native broadleaf plants (>75% native)	<input checked="" type="checkbox"/>	Mixed native and exotic plants (mostly native 51%-75%)	
Exotic/introduced plants (>75% exotic)		Mixed native and exotic plants (mostly exotic 51%-75%)	

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.			
1. <u>Salix spp.</u> % cover: <u>60</u>	2. <u>Populus fremontii</u> % cover: <u>40</u>	3.	% cover:
4.	% cover:	5.	% cover:
Average height of overstory (m)(do not include a range) <u>7</u>		Estimated Overall Canopy Cover (percent) <u>50%</u>	

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%, 10%, 25%, 50%, 75%, 90%, 100%.			
1. <u>Baccharis salicifolia</u> % cover:	2. <u>Tamarix ramosissima</u> % cover:	3. <u>Salix exigua</u> % cover:	
4.	% cover:	5.	% cover:
Average height of understory (m)(do not include a range) <u>2</u>		Estimated Overall Cover (percent) <u>70</u>	

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland) <u>open wash, alluvial sage scrub, tamarisk scrub, tamarisk-mule fat scrub.</u>	
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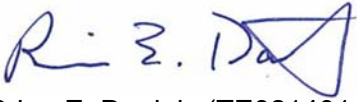
List up to five categories of adjacent habitat, and estimate percent cover. Use <1%, 10%, 25%, 50%, 75%, 90%, 100%.			
1. <u>tamarisk-mule fat</u> % cover: <u>50</u>	2. <u>open wash</u> % cover: <u>30</u>	3. <u>alluvial sage scrub</u> % cover: <u>20</u>	
4.	% cover:	5.	% cover:

Was surface water or saturated soil present at or adjacent to site within 300 meters?	<u>(Yes)</u> No (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	Yes <u>(No)</u> (circle one)

Comments. <u>A mitigation site no longer active produced lots of vegetation in middle of channel (west of Reach 104 reinforced bank + outlets). With the drought, this vegetation is dead and dying. The large cottonwoods were also negatively affected by the ongoing drought.</u>
--

ATTACHMENT G
SURVEYOR CERTIFICATE STATEMENT

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

A handwritten signature in blue ink that reads "B. E. Daniels". The signature is stylized, with the first letters of each name being prominent.

Brian E. Daniels (TE821401-5)

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

A handwritten signature in black ink that reads "Sean Rowe". The signature is written in a cursive, flowing style.

Sean P. Rowe (TE64124A)