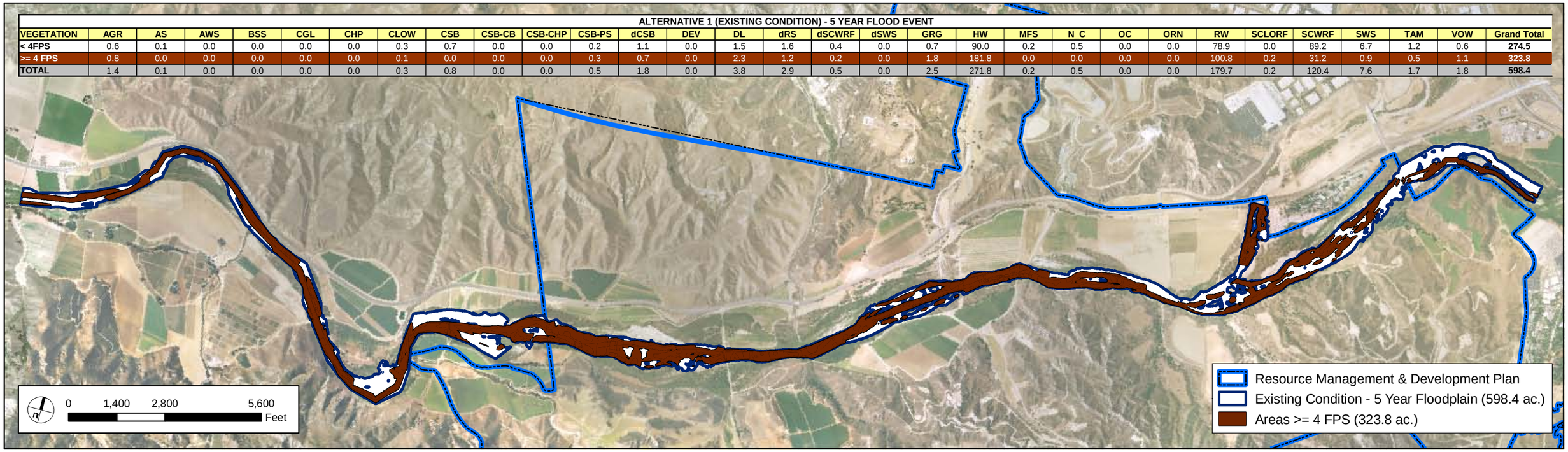
ENTRIX, Inc., "Focused Special-Status Fish Species Habitat Assessment—Santa Clara River and Tributary Drainages, Newhall Ranch, Los Angeles County, California" (2009)
PART 4 OF 5

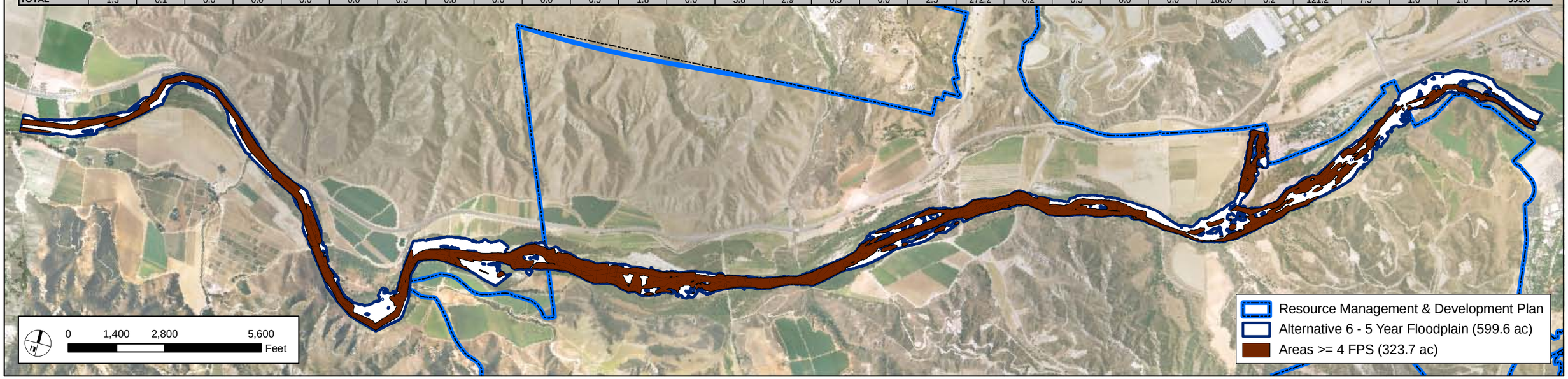
ALTERNATIVE 1 (EXISTING CONDITION) - 5 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	0.6	0.1	0.0	0.0	0.0	0.0	0.3	0.7	0.0	0.0	0.2	1.1	0.0	1.5	1.6	0.4	0.0	0.7	90.0	0.2	0.5	0.0	0.0	78.9	0.0	89.2	6.7	1.2	0.6	**274.5**
>= 4 FPS	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.7	0.0	2.3	1.2	0.2	0.0	1.8	181.8	0.0	0.0	0.0	0.0	100.8	0.2	31.2	0.9	0.5	1.1	**323.8**
TOTAL	1.4	0.1	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.5	1.8	0.0	3.8	2.9	0.5	0.0	2.5	271.8	0.2	0.5	0.0	0.0	179.7	0.2	120.4	7.6	1.7	1.8	**598.4**



ALTERNATIVE 6 - 5 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	0.5	0.1	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.2	1.1	0.0	1.5	1.6	0.4	0.0	0.7	90.1	0.2	0.5	0.0	0.0	79.6	0.0	90.2	6.6	1.2	0.6	**275.9**
>= 4 FPS	0.7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.7	0.0	2.4	1.2	0.2	0.0	1.8	182.1	0.0	0.0	0.0	0.0	100.4	0.2	31.1	0.9	0.5	1.1	**323.7**
TOTAL	1.3	0.1	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.5	1.8	0.0	3.8	2.9	0.5	0.0	2.5	272.2	0.2	0.5	0.0	0.0	180.0	0.2	121.2	7.5	1.6	1.8	**599.6**



SOURCE: PACE 2008

FIGURE 1.4-2

EXISTING CONDITION AND
ALTERNATIVE 6 - 5 YEAR FLOOD EVENT

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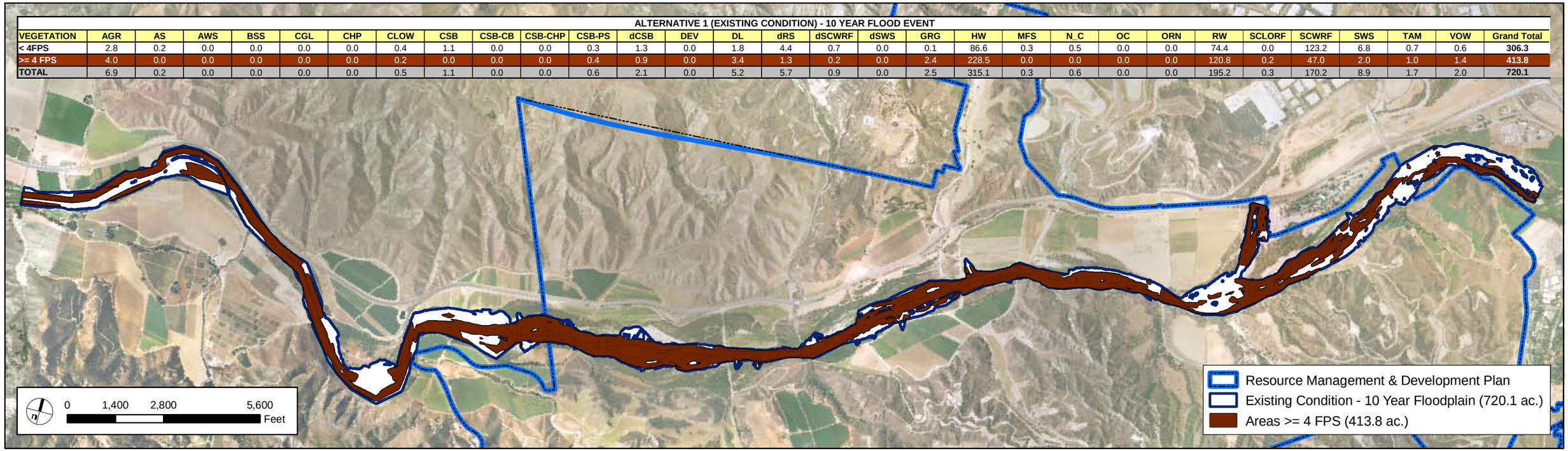
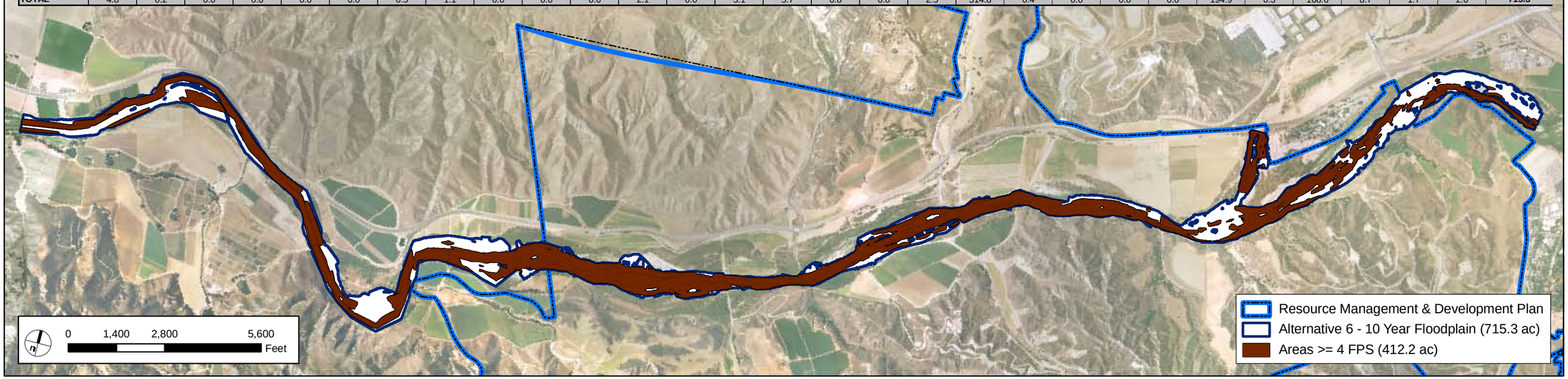
ALTERNATIVE 1 (EXISTING CONDITION) - 10 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	2.8	0.2	0.0	0.0	0.0	0.0	0.4	1.1	0.0	0.0	0.3	1.3	0.0	1.8	4.4	0.7	0.0	0.1	86.6	0.3	0.5	0.0	0.0	74.4	0.0	123.2	6.8	0.7	0.6	**306.3**
>= 4 FPS	4.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.9	0.0	3.4	1.3	0.2	0.0	2.4	228.5	0.0	0.0	0.0	0.0	120.8	0.2	47.0	2.0	1.0	1.4	**413.8**
TOTAL	6.9	0.2	0.0	0.0	0.0	0.0	0.5	1.1	0.0	0.0	0.6	2.1	0.0	5.2	5.7	0.9	0.0	2.5	315.1	0.3	0.6	0.0	0.0	195.2	0.3	170.2	8.9	1.7	2.0	**720.1**



ALTERNATIVE 6 - 10 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	1.4	0.2	0.0	0.0	0.0	0.0	0.3	1.1	0.0	0.0	0.3	1.2	0.0	1.6	4.4	0.6	0.0	0.1	86.5	0.4	0.6	0.0	0.0	74.4	0.0	121.8	6.9	0.7	0.6	**303.1**
>= 4 FPS	3.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.9	0.0	3.5	1.3	0.2	0.0	2.4	228.2	0.0	0.0	0.0	0.0	120.6	0.2	46.8	1.7	1.0	1.4	**412.2**
TOTAL	4.8	0.2	0.0	0.0	0.0	0.0	0.5	1.1	0.0	0.0	0.6	2.1	0.0	5.1	5.7	0.8	0.0	2.5	314.8	0.4	0.6	0.0	0.0	194.9	0.3	168.6	8.7	1.7	2.0	**715.3**



SOURCE: PACE 2008

FIGURE 1.4-3

EXISTING CONDITION AND
ALTERNATIVE 6 - 10 YEAR FLOOD EVENT

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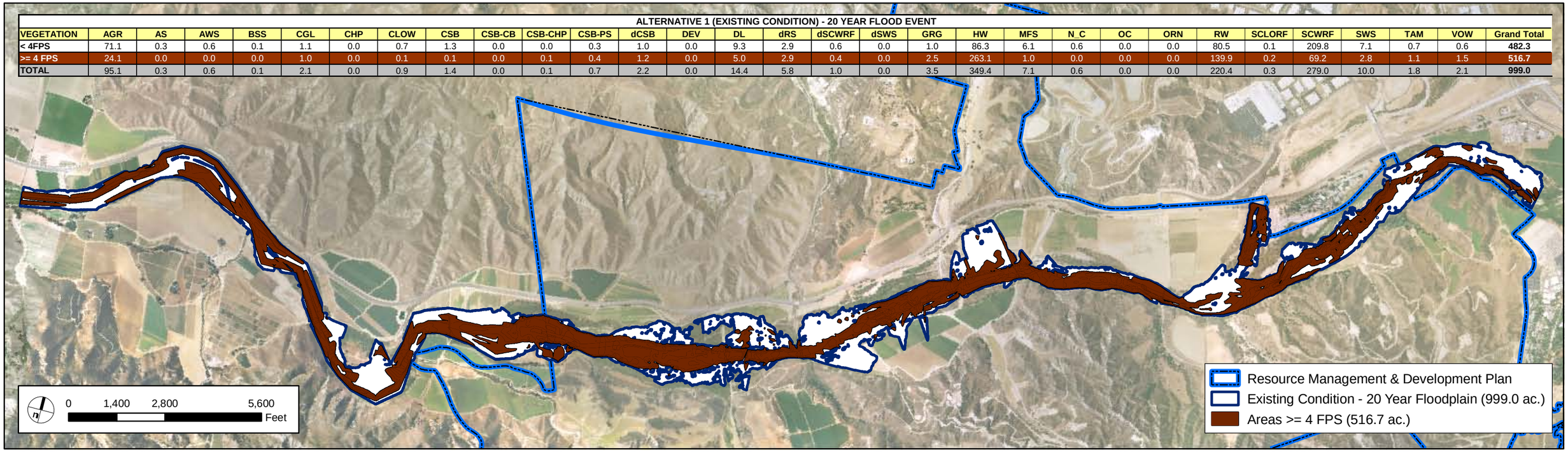
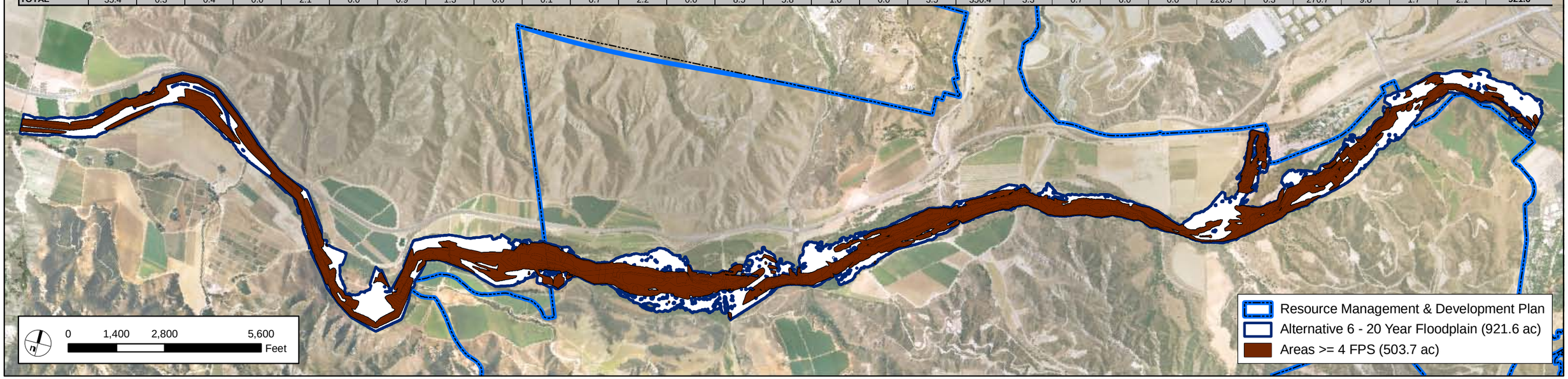
ALTERNATIVE 1 (EXISTING CONDITION) - 20 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	71.1	0.3	0.6	0.1	1.1	0.0	0.7	1.3	0.0	0.0	0.3	1.0	0.0	9.3	2.9	0.6	0.0	1.0	86.3	6.1	0.6	0.0	0.0	80.5	0.1	209.8	7.1	0.7	0.6	**482.3**
>= 4 FPS	24.1	0.0	0.0	0.0	1.0	0.0	0.1	0.1	0.0	0.1	0.4	1.2	0.0	5.0	2.9	0.4	0.0	2.5	263.1	1.0	0.0	0.0	0.0	139.9	0.2	69.2	2.8	1.1	1.5	**516.7**
TOTAL	95.1	0.3	0.6	0.1	2.1	0.0	0.9	1.4	0.0	0.1	0.7	2.2	0.0	14.4	5.8	1.0	0.0	3.5	349.4	7.1	0.6	0.0	0.0	220.4	0.3	279.0	10.0	1.8	2.1	**999.0**



ALTERNATIVE 6 - 20 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	20.8	0.3	0.4	0.0	1.2	0.0	0.7	1.2	0.0	0.0	0.3	1.0	0.0	3.6	2.9	0.6	0.0	1.0	88.2	2.8	0.7	0.0	0.0	81.0	0.0	202.6	7.2	0.7	0.6	**417.8**
>= 4 FPS	14.6	0.0	0.1	0.0	1.0	0.0	0.1	0.1	0.0	0.1	0.4	1.2	0.0	4.8	2.9	0.4	0.0	2.5	262.1	0.5	0.0	0.0	0.0	139.4	0.2	68.1	2.7	1.1	1.5	**503.7**
TOTAL	35.4	0.3	0.4	0.0	2.1	0.0	0.9	1.3	0.0	0.1	0.7	2.2	0.0	8.5	5.8	1.0	0.0	3.5	350.4	3.3	0.7	0.0	0.0	220.3	0.3	270.7	9.8	1.7	2.1	**921.6**



SOURCE: PACE 2008

FIGURE 1.4-4

EXISTING CONDITION AND
ALTERNATIVE 6 - 20 YEAR FLOOD EVENT

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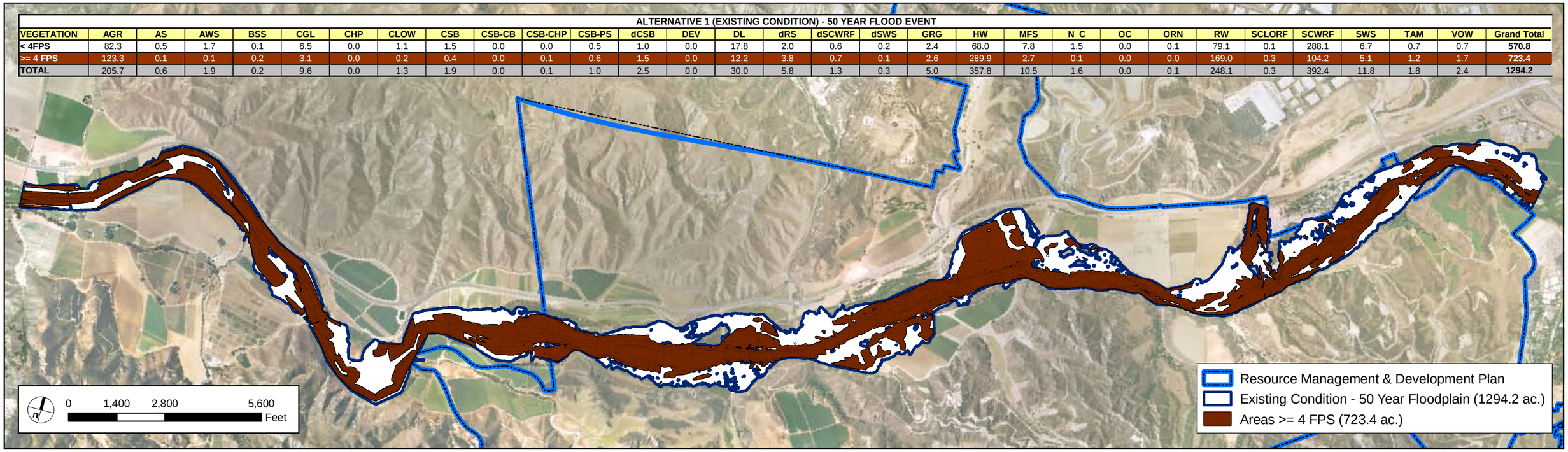
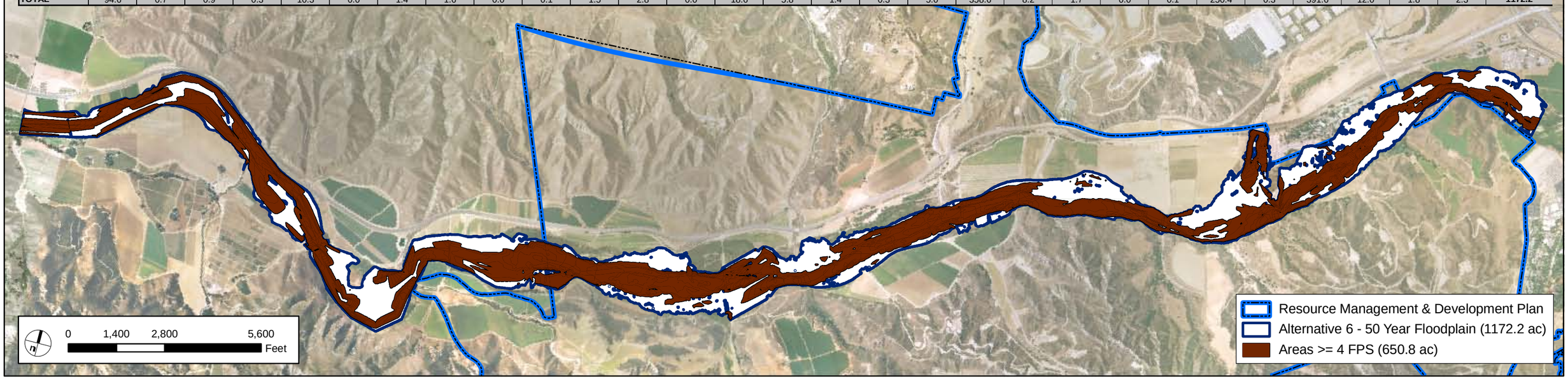
ALTERNATIVE 1 (EXISTING CONDITION) - 50 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	82.3	0.5	1.7	0.1	6.5	0.0	1.1	1.5	0.0	0.0	0.5	1.0	0.0	17.8	2.0	0.6	0.2	2.4	68.0	7.8	1.5	0.0	0.1	79.1	0.1	288.1	6.7	0.7	0.7	**570.8**
>= 4 FPS	123.3	0.1	0.1	0.2	3.1	0.0	0.2	0.4	0.0	0.1	0.6	1.5	0.0	12.2	3.8	0.7	0.1	2.6	289.9	2.7	0.1	0.0	0.0	169.0	0.3	104.2	5.1	1.2	1.7	**723.4**
TOTAL	205.7	0.6	1.9	0.2	9.6	0.0	1.3	1.9	0.0	0.1	1.0	2.5	0.0	30.0	5.8	1.3	0.3	5.0	357.8	10.5	1.6	0.0	0.1	248.1	0.3	392.4	11.8	1.8	2.4	**1294.2**



ALTERNATIVE 6 - 50 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	40.2	0.5	0.6	0.1	7.6	0.0	1.2	1.2	0.0	0.0	0.9	1.4	0.0	9.7	2.1	0.7	0.2	2.3	69.7	5.8	1.5	0.0	0.1	80.7	0.1	285.3	8.1	0.6	0.6	**521.4**
>= 4 FPS	54.4	0.1	0.3	0.2	2.8	0.0	0.2	0.4	0.0	0.1	0.6	1.4	0.0	8.9	3.6	0.8	0.1	2.7	288.9	2.3	0.2	0.0	0.0	169.6	0.3	106.3	3.9	1.2	1.7	**650.8**
TOTAL	94.6	0.7	0.9	0.3	10.3	0.0	1.4	1.6	0.0	0.1	1.5	2.8	0.0	18.6	5.8	1.4	0.3	5.0	358.6	8.2	1.7	0.0	0.1	250.4	0.3	391.6	12.0	1.8	2.3	**1172.2**



SOURCE: PACE 2008

FIGURE 1.4-5

EXISTING CONDITION AND
ALTERNATIVE 6 - 50 YEAR FLOOD EVENT

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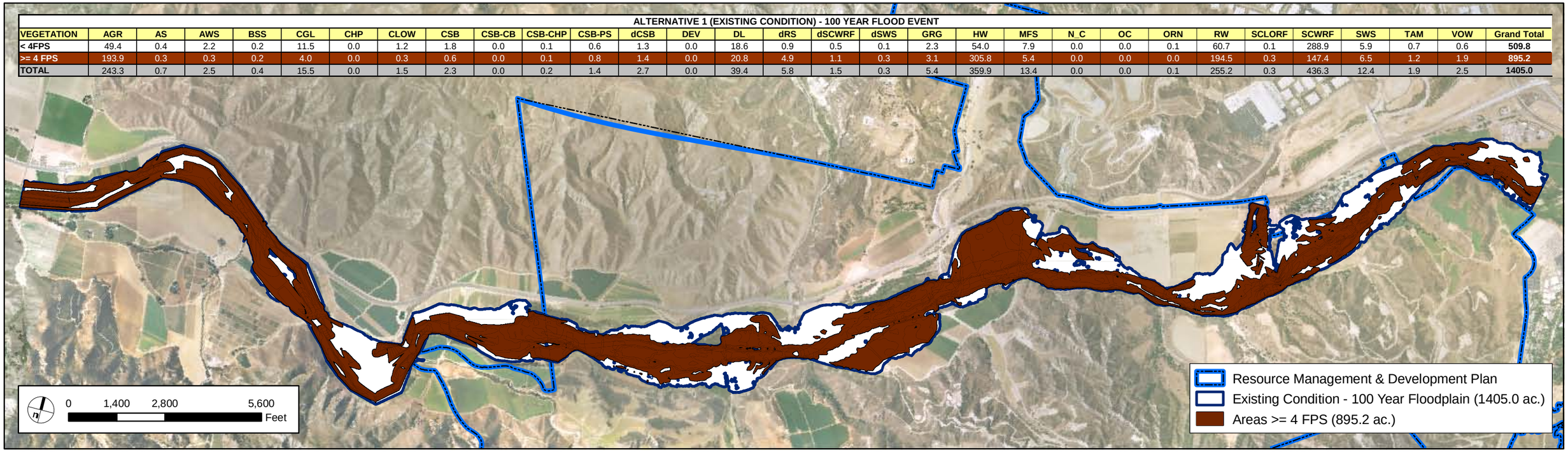
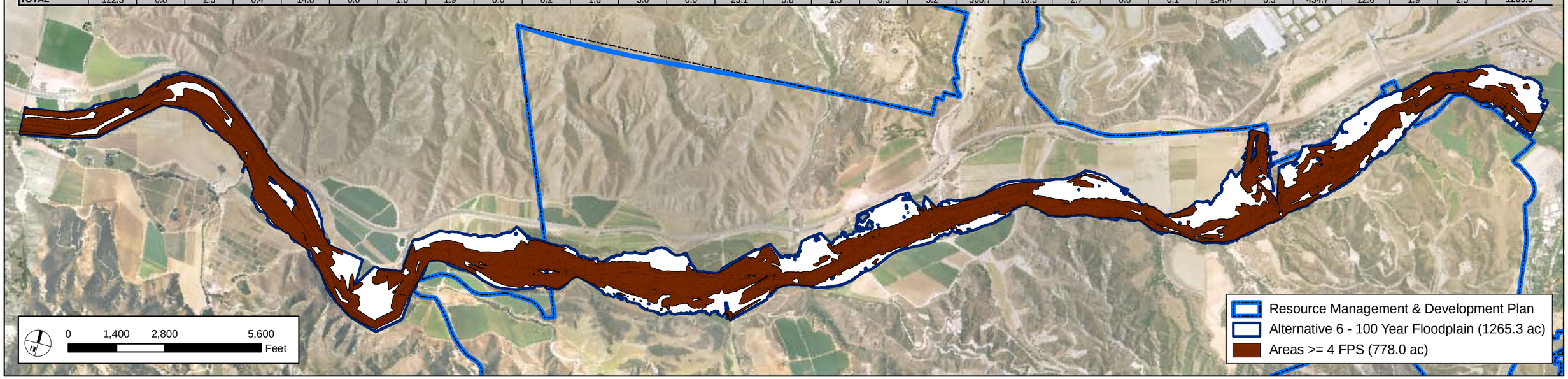
ALTERNATIVE 1 (EXISTING CONDITION) - 100 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	49.4	0.4	2.2	0.2	11.5	0.0	1.2	1.8	0.0	0.1	0.6	1.3	0.0	18.6	0.9	0.5	0.1	2.3	54.0	7.9	0.0	0.0	0.1	60.7	0.1	288.9	5.9	0.7	0.6	**509.8**
>= 4 FPS	193.9	0.3	0.3	0.2	4.0	0.0	0.3	0.6	0.0	0.1	0.8	1.4	0.0	20.8	4.9	1.1	0.3	3.1	305.8	5.4	0.0	0.0	0.0	194.5	0.3	147.4	6.5	1.2	1.9	**895.2**
TOTAL	243.3	0.7	2.5	0.4	15.5	0.0	1.5	2.3	0.0	0.2	1.4	2.7	0.0	39.4	5.8	1.5	0.3	5.4	359.9	13.4	0.0	0.0	0.1	255.2	0.3	436.3	12.4	1.9	2.5	**1405.0**



ALTERNATIVE 6 - 100 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	39.5	0.5	1.9	0.2	10.0	0.0	1.3	1.3	0.0	0.1	0.9	1.5	0.0	10.7	0.9	0.5	0.0	2.3	54.7	7.1	1.4	0.0	0.1	58.9	0.1	284.3	8.0	0.7	0.6	**487.3**
>= 4 FPS	82.9	0.3	0.4	0.2	4.9	0.0	0.3	0.6	0.0	0.1	0.9	1.6	0.0	12.4	4.9	1.1	0.3	3.0	305.9	3.2	1.2	0.0	0.0	195.4	0.3	150.4	4.6	1.2	1.9	**778.0**
TOTAL	122.3	0.8	2.3	0.4	14.8	0.0	1.6	1.9	0.0	0.2	1.8	3.0	0.0	23.1	5.8	1.5	0.3	5.2	360.7	10.3	2.7	0.0	0.1	254.4	0.3	434.7	12.6	1.9	2.5	**1265.3**



SOURCE: PACE 2008

FIGURE 1.4-6

EXISTING CONDITION AND
ALTERNATIVE 6 - 100 YEAR FLOOD EVENT

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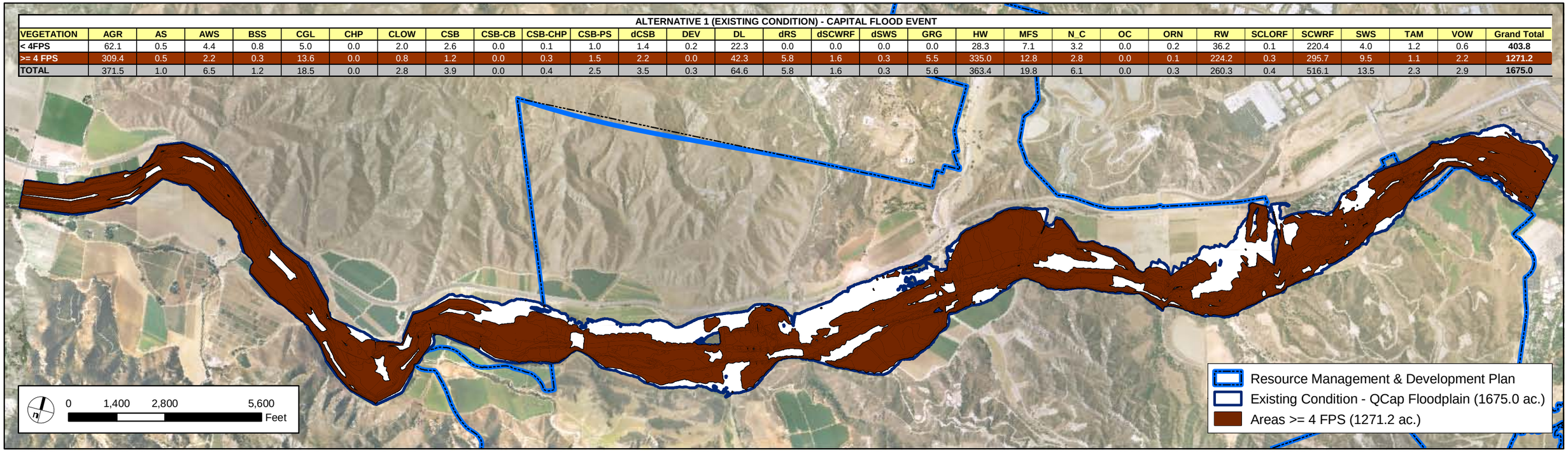
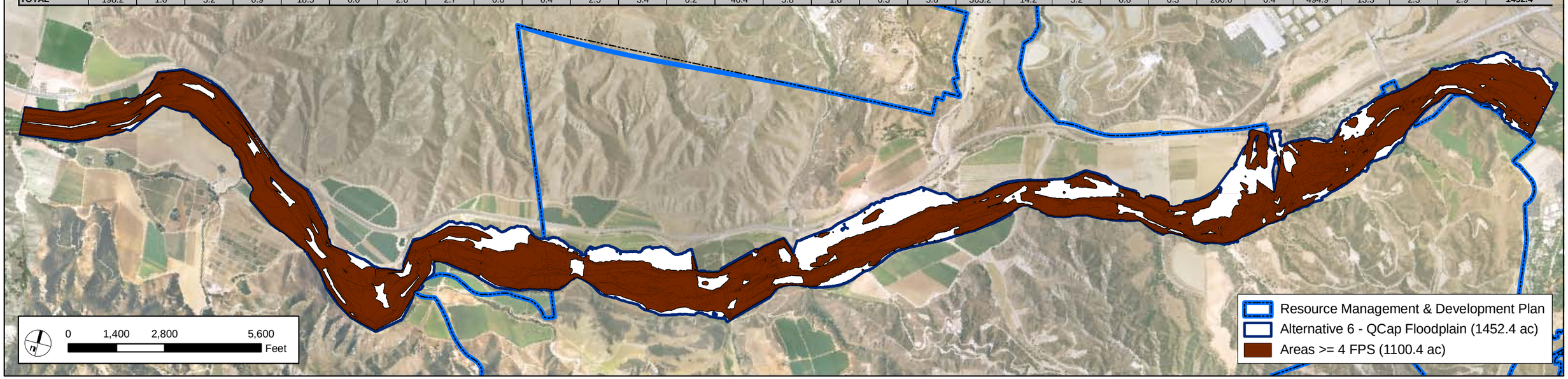
ALTERNATIVE 1 (EXISTING CONDITION) - CAPITAL FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	62.1	0.5	4.4	0.8	5.0	0.0	2.0	2.6	0.0	0.1	1.0	1.4	0.2	22.3	0.0	0.0	0.0	0.0	28.3	7.1	3.2	0.0	0.2	36.2	0.1	220.4	4.0	1.2	0.6	**403.8**
>= 4 FPS	309.4	0.5	2.2	0.3	13.6	0.0	0.8	1.2	0.0	0.3	1.5	2.2	0.0	42.3	5.8	1.6	0.3	5.5	335.0	12.8	2.8	0.0	0.1	224.2	0.3	295.7	9.5	1.1	2.2	**1271.2**
TOTAL	371.5	1.0	6.5	1.2	18.5	0.0	2.8	3.9	0.0	0.4	2.5	3.5	0.3	64.6	5.8	1.6	0.3	5.6	363.4	19.8	6.1	0.0	0.3	260.3	0.4	516.1	13.5	2.3	2.9	**1675.0**



ALTERNATIVE 6 - CAPITAL FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	44.5	0.5	3.4	0.7	5.0	0.0	1.8	1.5	0.0	0.1	0.9	1.3	0.2	20.1	0.0	0.0	0.0	0.0	27.9	6.0	2.4	0.0	0.2	35.5	0.1	194.9	3.6	1.2	0.6	**352.0**
>= 4 FPS	153.7	0.5	1.8	0.3	13.5	0.0	0.8	1.2	0.0	0.3	1.6	2.2	0.0	26.3	5.8	1.6	0.3	5.5	335.3	8.2	2.7	0.0	0.1	225.1	0.3	300.0	9.7	1.1	2.2	**1100.4**
TOTAL	198.2	1.0	5.2	0.9	18.5	0.0	2.6	2.7	0.0	0.4	2.5	3.4	0.2	46.4	5.8	1.6	0.3	5.6	363.2	14.2	5.2	0.0	0.3	260.6	0.4	494.9	13.3	2.3	2.9	**1452.4**



SOURCE: PACE 2008

FIGURE 1.4-7

EXISTING CONDITION AND
ALTERNATIVE 6 - QCAP FLOOD EVENT

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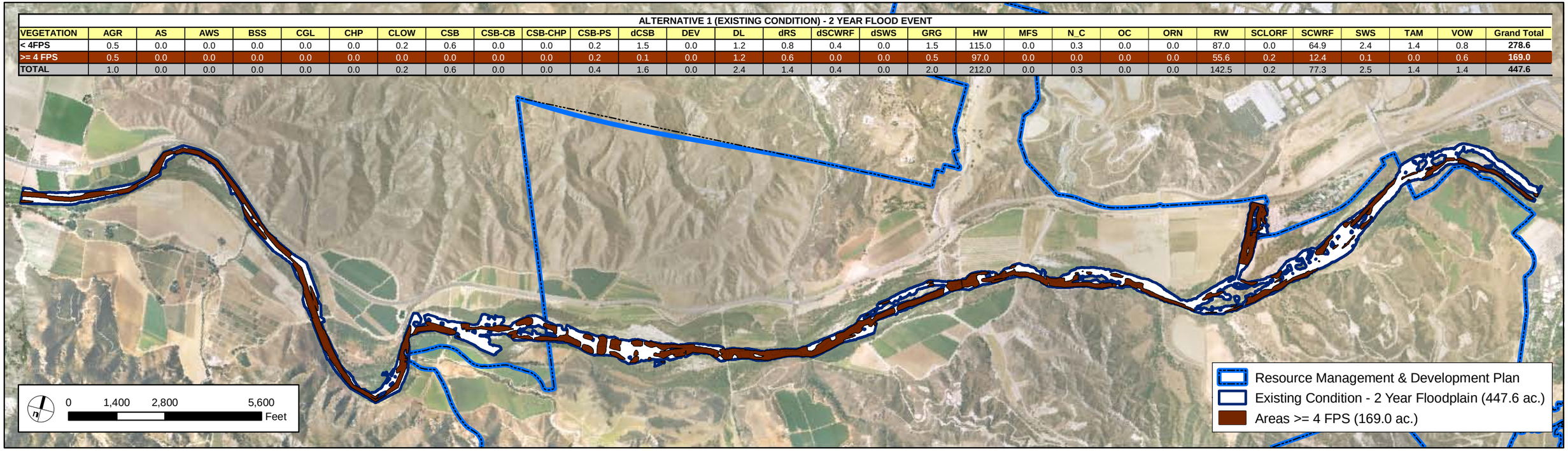
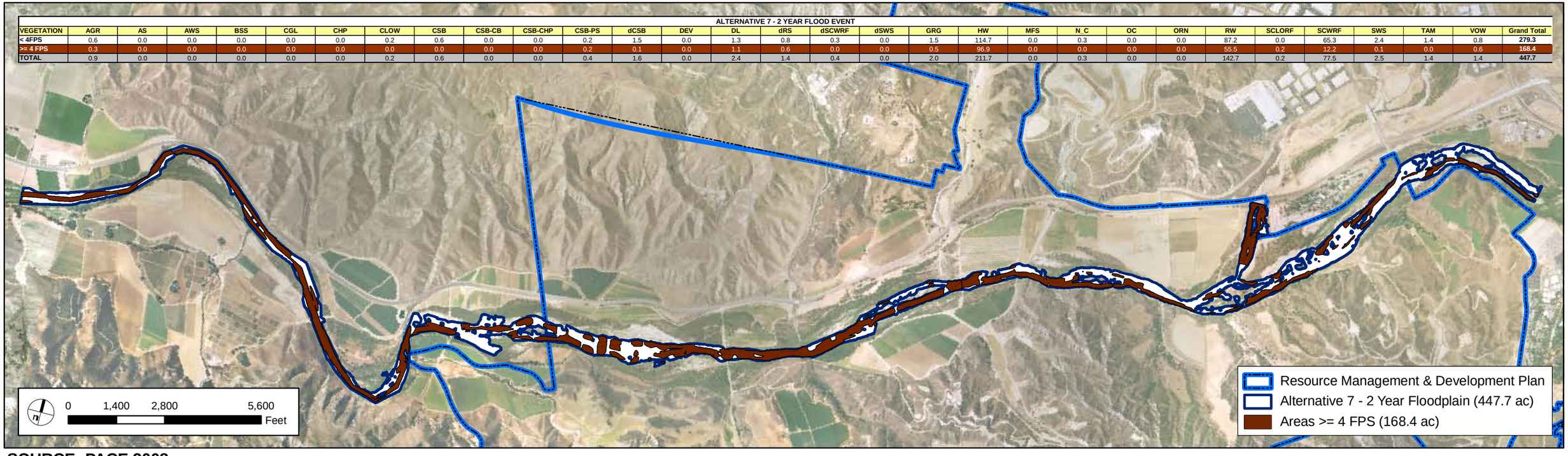
ALTERNATIVE 1 (EXISTING CONDITION) - 2 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.0	0.0	0.2	1.5	0.0	1.2	0.8	0.4	0.0	1.5	115.0	0.0	0.3	0.0	0.0	87.0	0.0	64.9	2.4	1.4	0.8	**278.6**
>= 4 FPS	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	1.2	0.6	0.0	0.0	0.5	97.0	0.0	0.0	0.0	0.0	55.6	0.2	12.4	0.1	0.0	0.6	**169.0**
TOTAL	1.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.0	0.0	0.4	1.6	0.0	2.4	1.4	0.4	0.0	2.0	212.0	0.0	0.3	0.0	0.0	142.5	0.2	77.3	2.5	1.4	1.4	**447.6**



ALTERNATIVE 7 - 2 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.0	0.0	0.2	1.5	0.0	1.3	0.8	0.3	0.0	1.5	114.7	0.0	0.3	0.0	0.0	87.2	0.0	65.3	2.4	1.4	0.8	**279.3**
>= 4 FPS	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	1.1	0.6	0.0	0.0	0.5	96.9	0.0	0.0	0.0	0.0	55.5	0.2	12.2	0.1	0.0	0.6	**168.4**
TOTAL	0.9	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.0	0.0	0.4	1.6	0.0	2.4	1.4	0.4	0.0	2.0	211.7	0.0	0.3	0.0	0.0	142.7	0.2	77.5	2.5	1.4	1.4	**447.7**



SOURCE: PACE 2008

FIGURE 1.5-1

EXISTING CONDITION AND
ALTERNATIVE 7 - 2 YEAR FLOOD EVENT

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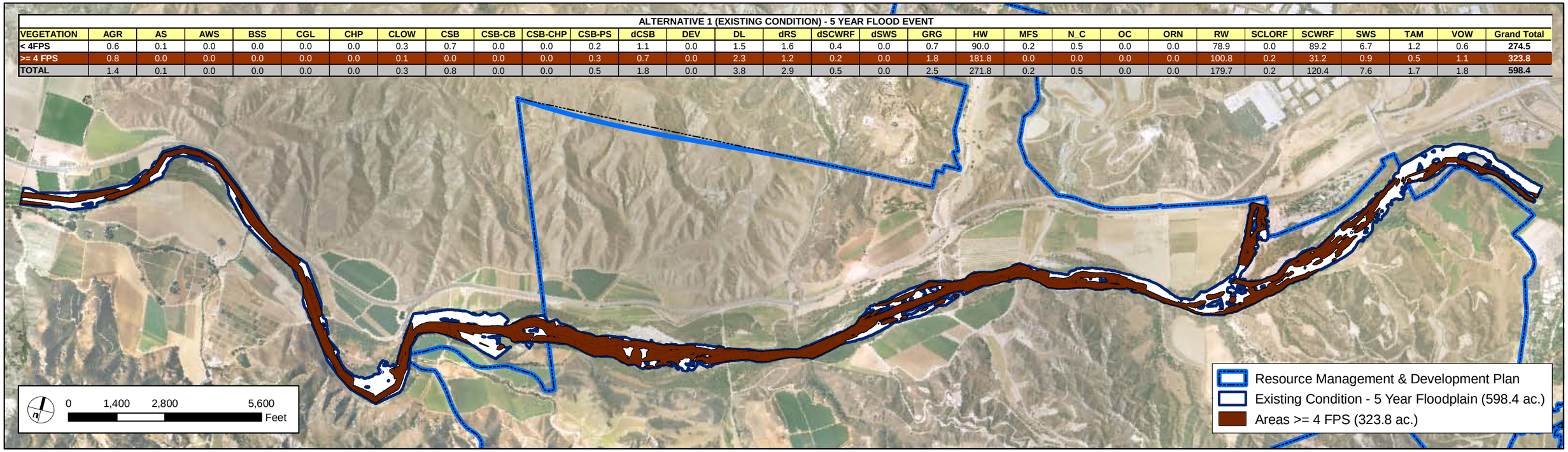
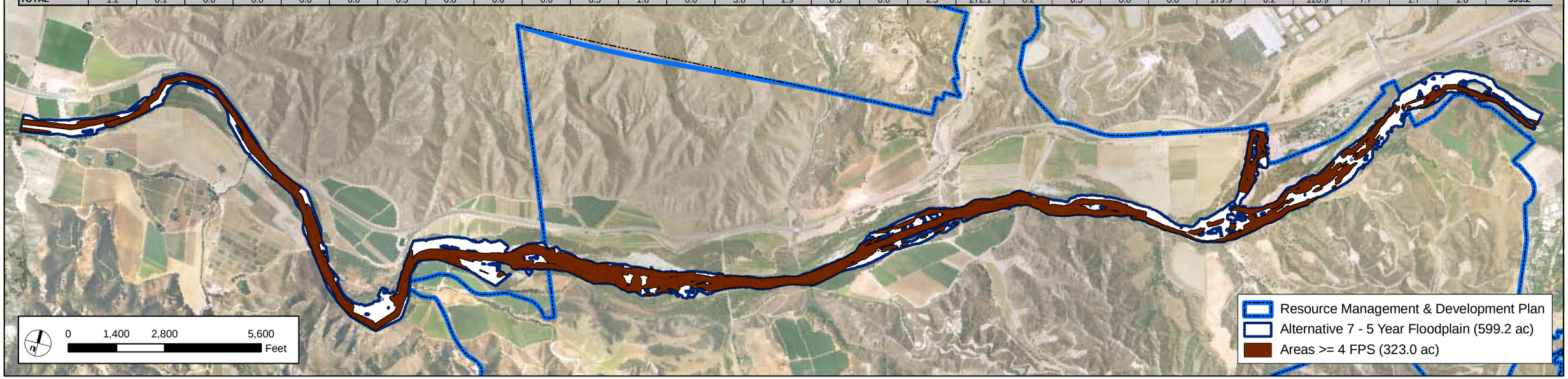
ALTERNATIVE 1 (EXISTING CONDITION) - 5 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	0.6	0.1	0.0	0.0	0.0	0.0	0.3	0.7	0.0	0.0	0.2	1.1	0.0	1.5	1.6	0.4	0.0	0.7	90.0	0.2	0.5	0.0	0.0	78.9	0.0	89.2	6.7	1.2	0.6	**274.5**
>= 4 FPS	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.7	0.0	2.3	1.2	0.2	0.0	1.8	181.8	0.0	0.0	0.0	0.0	100.8	0.2	31.2	0.9	0.5	1.1	**323.8**
TOTAL	1.4	0.1	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.5	1.8	0.0	3.8	2.9	0.5	0.0	2.5	271.8	0.2	0.5	0.0	0.0	179.7	0.2	120.4	7.6	1.7	1.8	**598.4**



ALTERNATIVE 7 - 5 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	0.6	0.1	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.2	1.1	0.0	1.6	1.6	0.4	0.0	0.7	90.5	0.2	0.5	0.0	0.0	79.5	0.0	89.8	6.7	1.2	0.6	**276.2**
>= 4 FPS	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.7	0.0	2.3	1.2	0.2	0.0	1.8	181.6	0.0	0.0	0.0	0.0	100.4	0.2	31.1	0.9	0.5	1.1	**323.0**
TOTAL	1.2	0.1	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.5	1.8	0.0	3.8	2.9	0.5	0.0	2.5	272.1	0.2	0.5	0.0	0.0	179.9	0.2	120.9	7.7	1.7	1.8	**599.2**



SOURCE: PACE 2008

FIGURE 1.5-2

EXISTING CONDITION AND
ALTERNATIVE 7 - 5 YEAR FLOOD EVENT

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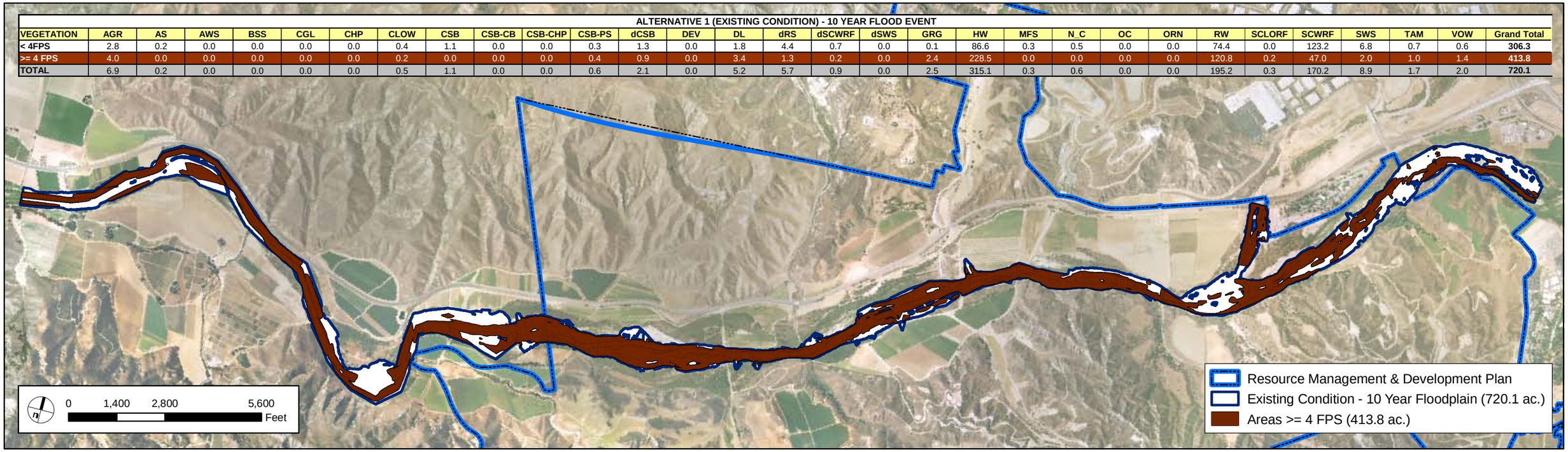
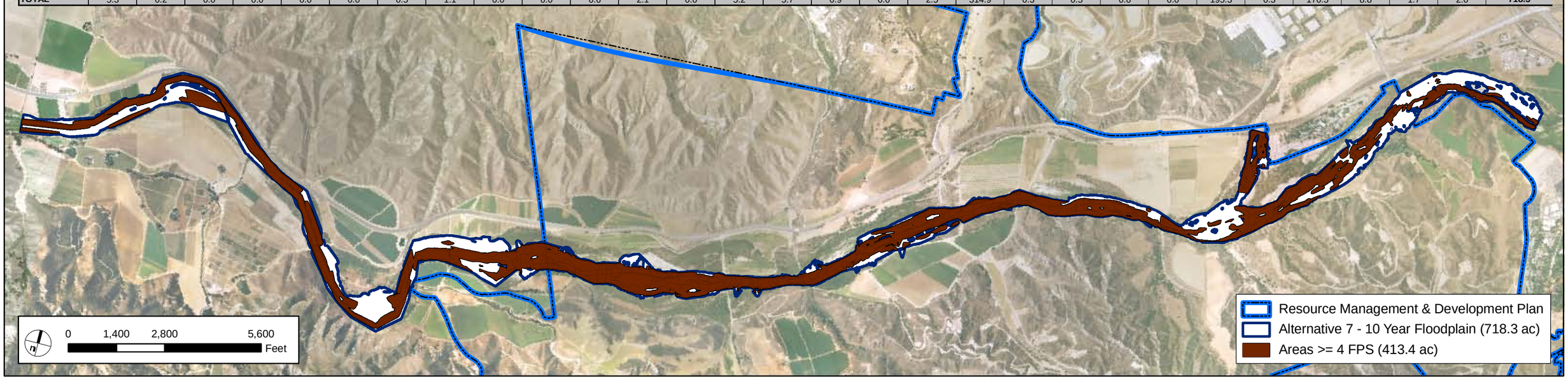
ALTERNATIVE 1 (EXISTING CONDITION) - 10 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	2.8	0.2	0.0	0.0	0.0	0.0	0.4	1.1	0.0	0.0	0.3	1.3	0.0	1.8	4.4	0.7	0.0	0.1	86.6	0.3	0.5	0.0	0.0	74.4	0.0	123.2	6.8	0.7	0.6	**306.3**
>= 4 FPS	4.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.9	0.0	3.4	1.3	0.2	0.0	2.4	228.5	0.0	0.0	0.0	0.0	120.8	0.2	47.0	2.0	1.0	1.4	**413.8**
TOTAL	6.9	0.2	0.0	0.0	0.0	0.0	0.5	1.1	0.0	0.0	0.6	2.1	0.0	5.2	5.7	0.9	0.0	2.5	315.1	0.3	0.6	0.0	0.0	195.2	0.3	170.2	8.9	1.7	2.0	**720.1**



ALTERNATIVE 7 - 10 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	2.0	0.2	0.0	0.0	0.0	0.0	0.3	1.0	0.0	0.0	0.3	1.3	0.0	1.8	4.4	0.7	0.0	0.1	86.5	0.3	0.5	0.0	0.0	74.2	0.0	123.1	6.8	0.7	0.6	**305.0**
>= 4 FPS	3.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.9	0.0	3.4	1.3	0.2	0.0	2.4	228.4	0.0	0.0	0.0	0.0	121.1	0.2	47.1	2.0	1.0	1.4	**413.4**
TOTAL	5.3	0.2	0.0	0.0	0.0	0.0	0.5	1.1	0.0	0.0	0.6	2.1	0.0	5.2	5.7	0.9	0.0	2.5	314.9	0.3	0.5	0.0	0.0	195.3	0.3	170.3	8.8	1.7	2.0	**718.3**



SOURCE: PACE 2008

FIGURE 1.5-3

EXISTING CONDITION AND
ALTERNATIVE 7 - 10 YEAR FLOOD EVENT

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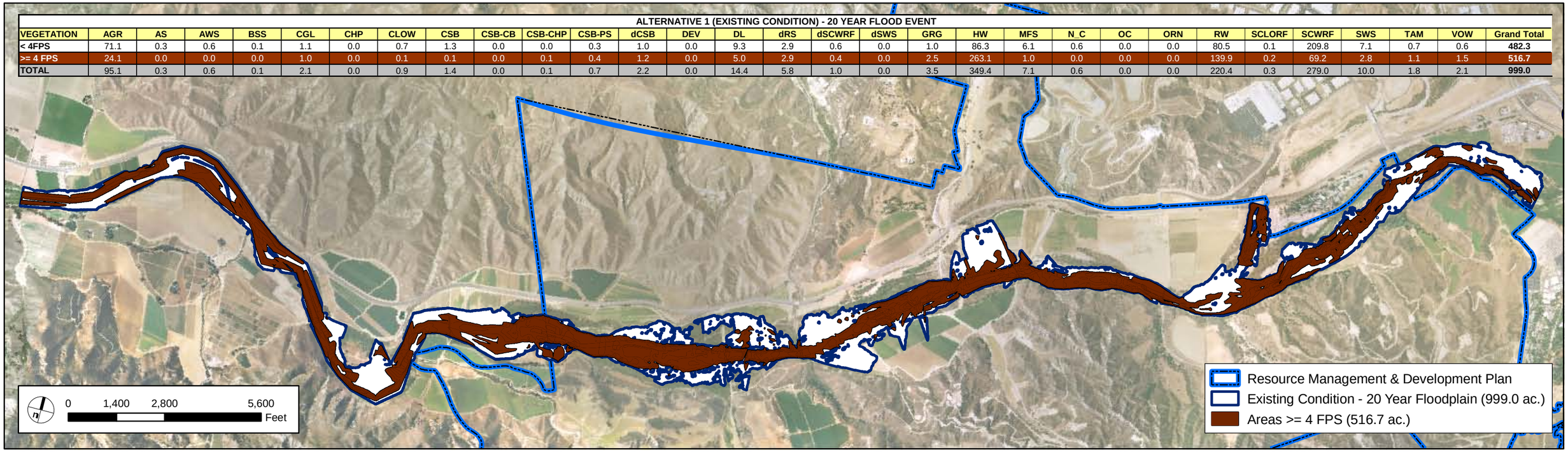
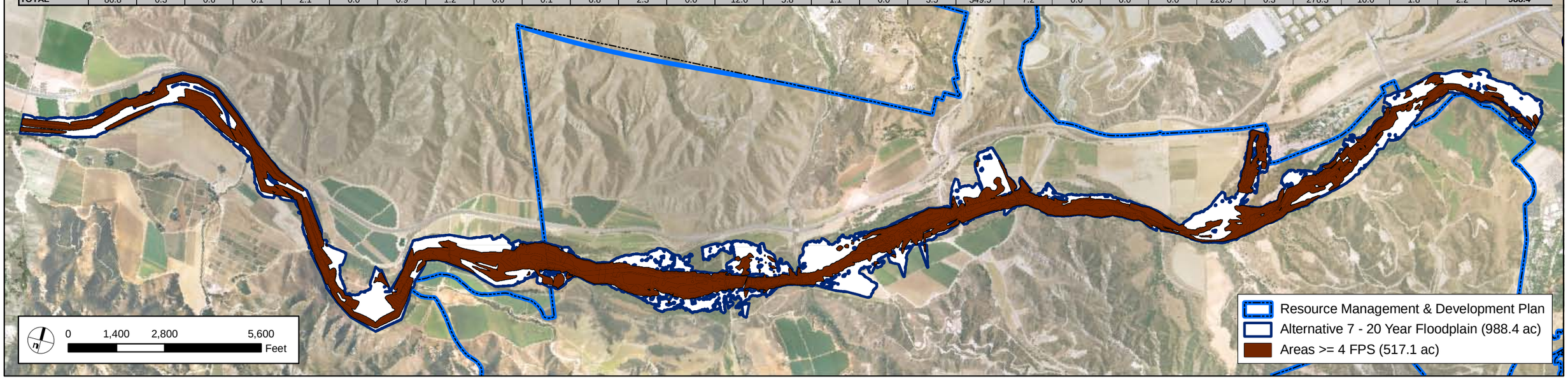
ALTERNATIVE 1 (EXISTING CONDITION) - 20 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	71.1	0.3	0.6	0.1	1.1	0.0	0.7	1.3	0.0	0.0	0.3	1.0	0.0	9.3	2.9	0.6	0.0	1.0	86.3	6.1	0.6	0.0	0.0	80.5	0.1	209.8	7.1	0.7	0.6	**482.3**
>= 4 FPS	24.1	0.0	0.0	0.0	1.0	0.0	0.1	0.1	0.0	0.1	0.4	1.2	0.0	5.0	2.9	0.4	0.0	2.5	263.1	1.0	0.0	0.0	0.0	139.9	0.2	69.2	2.8	1.1	1.5	**516.7**
TOTAL	95.1	0.3	0.6	0.1	2.1	0.0	0.9	1.4	0.0	0.1	0.7	2.2	0.0	14.4	5.8	1.0	0.0	3.5	349.4	7.1	0.6	0.0	0.0	220.4	0.3	279.0	10.0	1.8	2.1	**999.0**



ALTERNATIVE 7 - 20 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	63.0	0.3	0.6	0.1	1.2	0.0	0.7	1.2	0.0	0.0	0.3	1.1	0.0	7.5	2.9	0.7	0.0	1.0	86.3	6.2	0.6	0.0	0.0	80.2	0.1	209.0	7.1	0.7	0.6	**471.4**
>= 4 FPS	23.8	0.0	0.0	0.0	1.0	0.0	0.1	0.1	0.0	0.1	0.4	1.2	0.0	5.0	2.9	0.4	0.0	2.5	263.2	1.0	0.0	0.0	0.0	140.3	0.2	69.3	2.9	1.1	1.5	**517.1**
TOTAL	86.8	0.3	0.6	0.1	2.1	0.0	0.9	1.2	0.0	0.1	0.8	2.3	0.0	12.6	5.8	1.1	0.0	3.5	349.5	7.2	0.6	0.0	0.0	220.5	0.3	278.3	10.0	1.8	2.2	**988.4**



SOURCE: PACE 2008

FIGURE 1.5-4

EXISTING CONDITION AND
ALTERNATIVE 7 - 20 YEAR FLOOD EVENT

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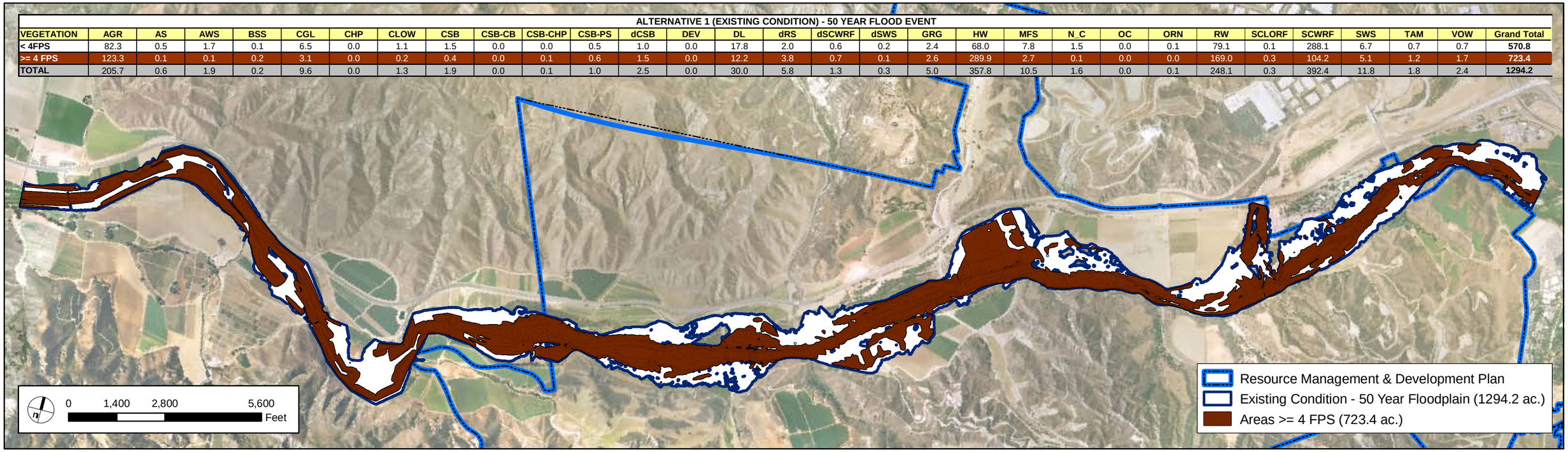
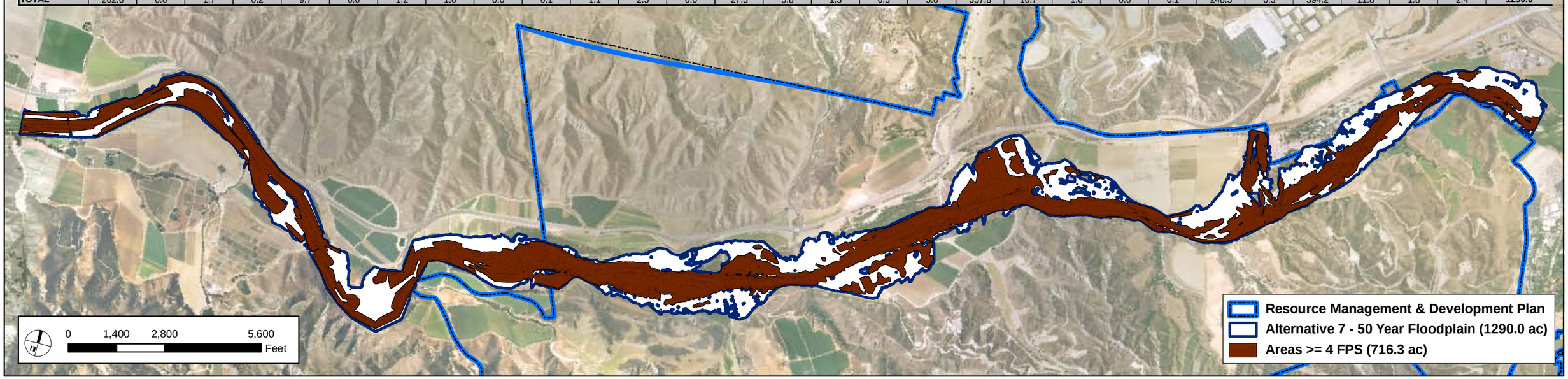
ALTERNATIVE 1 (EXISTING CONDITION) - 50 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	82.3	0.5	1.7	0.1	6.5	0.0	1.1	1.5	0.0	0.0	0.5	1.0	0.0	17.8	2.0	0.6	0.2	2.4	68.0	7.8	1.5	0.0	0.1	79.1	0.1	288.1	6.7	0.7	0.7	**570.8**
>= 4 FPS	123.3	0.1	0.1	0.2	3.1	0.0	0.2	0.4	0.0	0.1	0.6	1.5	0.0	12.2	3.8	0.7	0.1	2.6	289.9	2.7	0.1	0.0	0.0	169.0	0.3	104.2	5.1	1.2	1.7	**723.4**
TOTAL	205.7	0.6	1.9	0.2	9.6	0.0	1.3	1.9	0.0	0.1	1.0	2.5	0.0	30.0	5.8	1.3	0.3	5.0	357.8	10.5	1.6	0.0	0.1	248.1	0.3	392.4	11.8	1.8	2.4	**1294.2**



ALTERNATIVE 7 - 50 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	87.3	0.5	1.6	0.1	6.2	0.0	1.0	1.2	0.0	0.0	0.5	1.0	0.0	15.2	2.0	0.6	0.2	2.3	68.1	7.9	1.4	0.0	0.1	78.9	0.1	289.7	6.7	0.7	0.7	**573.7**
>= 4 FPS	115.3	0.1	0.1	0.2	3.5	0.0	0.2	0.4	0.0	0.1	0.6	1.5	0.0	12.2	3.8	0.7	0.1	2.7	289.7	2.8	0.2	0.0	0.0	169.4	0.2	104.5	5.1	1.1	1.7	**716.3**
TOTAL	202.6	0.6	1.7	0.2	9.7	0.0	1.2	1.6	0.0	0.1	1.1	2.5	0.0	27.3	5.8	1.3	0.3	5.0	357.8	10.7	1.6	0.0	0.1	248.3	0.3	394.2	11.8	1.8	2.4	**1290.0**



SOURCE: PACE 2008

FIGURE 1.5-5

EXISTING CONDITION AND
ALTERNATIVE 7 - 50 YEAR FLOOD EVENT

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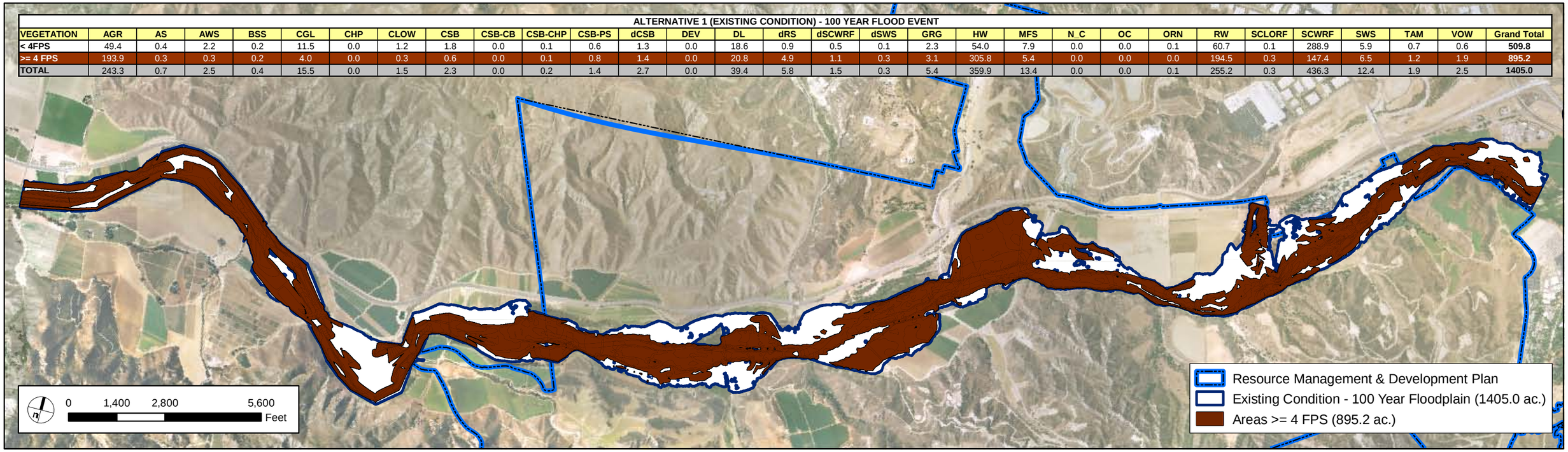
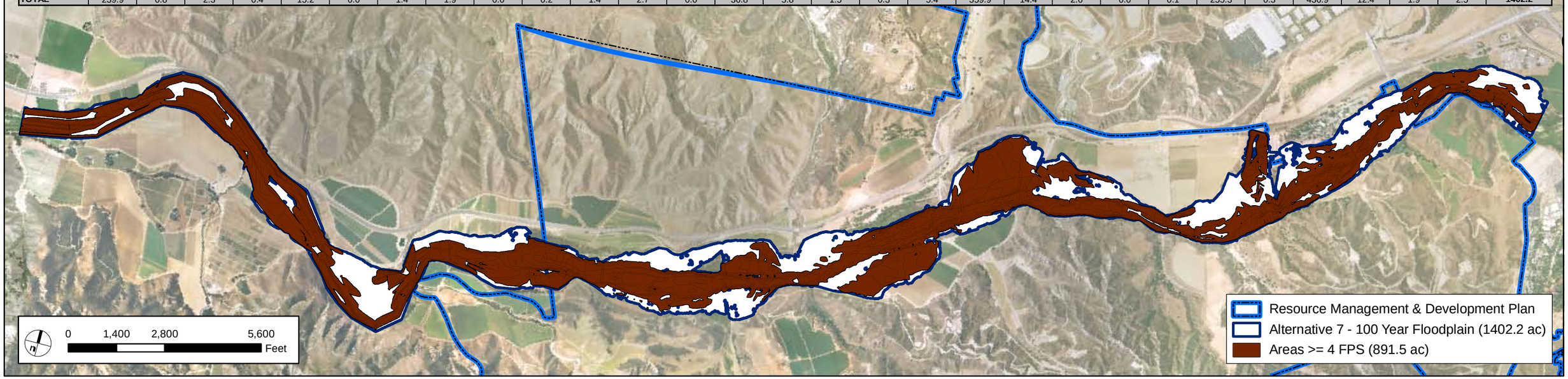
ALTERNATIVE 1 (EXISTING CONDITION) - 100 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	49.4	0.4	2.2	0.2	11.5	0.0	1.2	1.8	0.0	0.1	0.6	1.3	0.0	18.6	0.9	0.5	0.1	2.3	54.0	7.9	0.0	0.0	0.1	60.7	0.1	288.9	5.9	0.7	0.6	**509.8**
>= 4 FPS	193.9	0.3	0.3	0.2	4.0	0.0	0.3	0.6	0.0	0.1	0.8	1.4	0.0	20.8	4.9	1.1	0.3	3.1	305.8	5.4	0.0	0.0	0.0	194.5	0.3	147.4	6.5	1.2	1.9	**895.2**
TOTAL	243.3	0.7	2.5	0.4	15.5	0.0	1.5	2.3	0.0	0.2	1.4	2.7	0.0	39.4	5.8	1.5	0.3	5.4	359.9	13.4	0.0	0.0	0.1	255.2	0.3	436.3	12.4	1.9	2.5	**1405.0**



ALTERNATIVE 7 - 100 YEAR FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	51.8	0.4	2.0	0.2	11.2	0.0	1.0	1.3	0.0	0.0	0.6	1.3	0.0	17.0	0.9	0.5	0.0	2.3	53.5	8.9	1.3	0.0	0.1	60.0	0.1	289.3	5.7	0.7	0.6	**510.7**
>= 4 FPS	188.1	0.3	0.3	0.2	4.0	0.0	0.3	0.6	0.0	0.1	0.8	1.4	0.0	19.8	4.9	1.1	0.3	3.1	306.4	5.5	1.3	0.0	0.0	195.3	0.3	147.6	6.7	1.2	1.9	**891.5**
TOTAL	239.9	0.8	2.3	0.4	15.2	0.0	1.4	1.9	0.0	0.2	1.4	2.7	0.0	36.8	5.8	1.5	0.3	5.4	359.9	14.4	2.6	0.0	0.1	255.3	0.3	436.9	12.4	1.9	2.5	**1402.2**



SOURCE: PACE 2008

FIGURE 1.5-6

EXISTING CONDITION AND
ALTERNATIVE 7 - 100 YEAR FLOOD EVENT

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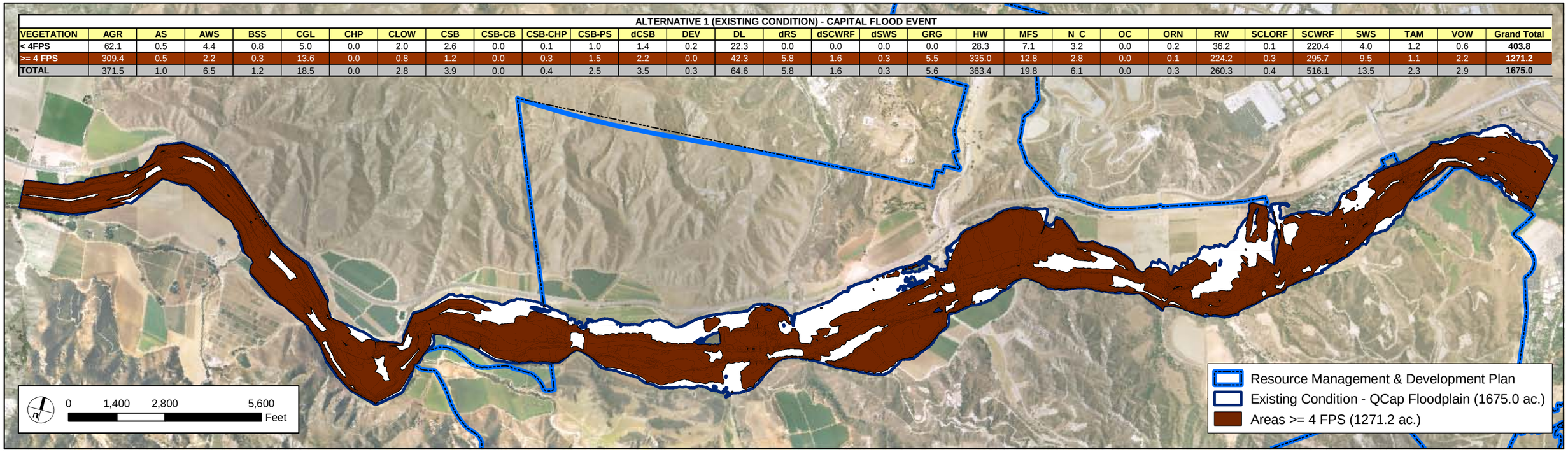
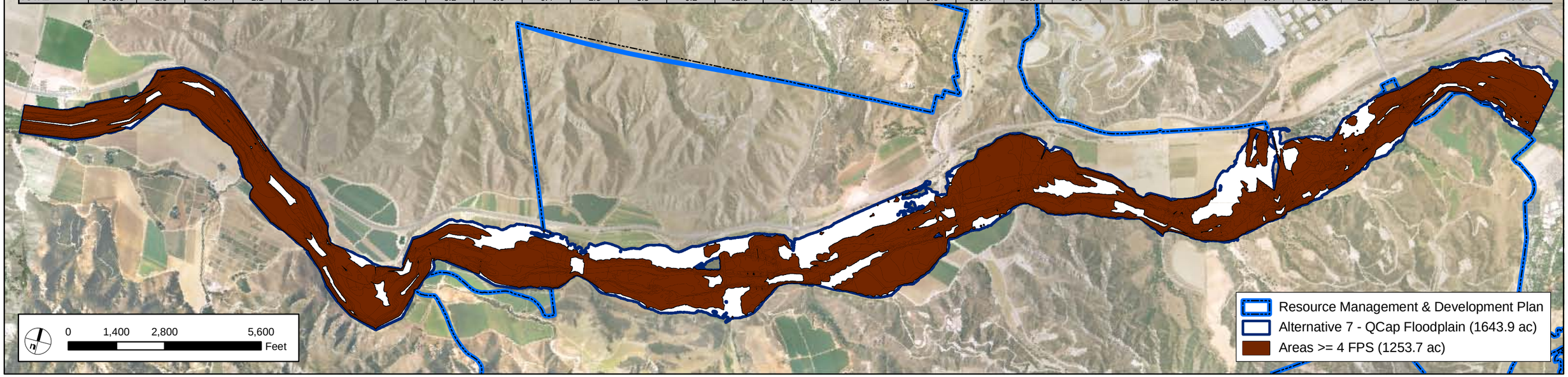
ALTERNATIVE 1 (EXISTING CONDITION) - CAPITAL FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	62.1	0.5	4.4	0.8	5.0	0.0	2.0	2.6	0.0	0.1	1.0	1.4	0.2	22.3	0.0	0.0	0.0	0.0	28.3	7.1	3.2	0.0	0.2	36.2	0.1	220.4	4.0	1.2	0.6	**403.8**
>= 4 FPS	309.4	0.5	2.2	0.3	13.6	0.0	0.8	1.2	0.0	0.3	1.5	2.2	0.0	42.3	5.8	1.6	0.3	5.5	335.0	12.8	2.8	0.0	0.1	224.2	0.3	295.7	9.5	1.1	2.2	**1271.2**
TOTAL	371.5	1.0	6.5	1.2	18.5	0.0	2.8	3.9	0.0	0.4	2.5	3.5	0.3	64.6	5.8	1.6	0.3	5.6	363.4	19.8	6.1	0.0	0.3	260.3	0.4	516.1	13.5	2.3	2.9	**1675.0**



ALTERNATIVE 7 - CAPITAL FLOOD EVENT

VEGETATION	AGR	AS	AWS	BSS	CGL	CHP	CLOW	CSB	CSB-CB	CSB-CHP	CSB-PS	dCSB	DEV	DL	dRS	dSCWRF	dSWS	GRG	HW	MFS	N_C	OC	ORN	RW	SCLORF	SCWRF	SWS	TAM	VOW	Grand Total
< 4FPS	50.9	0.5	4.2	0.8	5.0	0.0	1.7	2.0	0.0	0.1	1.0	1.4	0.2	22.2	0.0	0.0	0.0	0.0	28.2	6.0	3.2	0.0	0.2	36.4	0.1	220.4	3.9	1.2	0.6	**390.2**
>= 4 FPS	292.7	0.5	2.2	0.3	13.6	0.0	0.8	1.2	0.0	0.3	1.5	2.2	0.0	40.6	5.8	1.6	0.3	5.5	335.2	13.8	2.8	0.0	0.1	224.0	0.3	295.6	9.6	1.1	2.2	**1253.7**
TOTAL	343.6	1.0	6.4	1.1	18.6	0.0	2.5	3.2	0.0	0.4	2.5	3.5	0.2	62.8	5.8	1.6	0.3	5.6	363.4	19.7	6.0	0.0	0.3	260.4	0.4	516.0	13.5	2.3	2.9	**1643.9**



SOURCE: PACE 2008

FIGURE 1.5-7

EXISTING CONDITION AND
ALTERNATIVE 7 - QCAP FLOOD EVENT

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APPENDIX E

AQUATIC HABITAT SURVEY OF THE TRIBUTARIES TO THE SANTA CLARA RIVER IN THE RMDP PROJECT AREA

E N T R I X

MEMO

ENTRIX, Inc.
2140 Eastman Avenue, Suite 200
Ventura, CA 93003
(805) 644-5948

To: Matt Carpenter, Newhall Land and Farming

From: Joel Mulder
Camm Swift

Date: June 26, 2007

Re: **Aquatic Habitat Survey of the Tributaries to the Santa Clara River in the RMDP Project Area**
Los Angeles County, California

The memo has been prepared to present the results of our focused assessment of fish presence and aquatic habitat quality and quantity in the tributary drainages to the Santa Clara River located within the Newhall Ranch Resource Management and Development Plan (RMDP) project area. The field surveys were conducted on May 4, 7, and 8, and June 13 and 22, 2007, and included all tributaries entering the mainstem Santa Clara River from Salt Creek Canyon upstream to the Old Road Bridge.

The objectives of the surveys were as follows:

- To identify and evaluate current or potential aquatic habitat for State and Federally-listed unarmored threespine stickleback and other fish species including arroyo chub and Santa Ana sucker;
- To identify any barriers that may prevent upstream access to tributaries by fish during high flow periods; and,
- To classify reaches of all tributaries as ephemeral, intermittent, or perennial in nature.

The survey results are used to characterize existing aquatic habitat conditions and evaluate potential impacts to the target fish species due to implementation of the RMDP. The following sections describe the methods used during the surveys, the results of the surveys for each tributary, and a discussion of the results.

Survey Methods

The tributaries were surveyed by ENTRIX biologists, Camm Swift and Joel Mulder, and provide greater detail for areas that were partially surveyed by Glen Amadic [sic], Matt Carpenter, and Camm Swift in 2004 and Swift and Steve Howard in 2005 and 2006. Most tributaries were walked in their entirety or were walked to a point where the remainder of the drainage was easily visible. Some tributaries were partially surveyed

from a vehicle in areas where access roads were situated adjacent to the stream channel. Particular emphasis was given to the canyon mouth areas where fish could find refuge during flood events.

During the surveys, fish presence was determined by direct observation and using dip nets (4 feet long overall, opening 16 X 12 inches with one eighth inch mesh). Aquatic habitat was characterized visually. At each tributary, the first barrier to upstream fish passage from the Santa Clara River was identified and mapped. Along each tributary, reaches were classified as either ephemeral, intermittent, or perennial based on evidence such as the presence of water and thickness of riparian vegetation indicating duration of water presence. The reach classifications were based on the US Army Corp of Engineers definitions as defined in the Part 330 – Nationwide Permit Program. The definitions used are as follows:

- Ephemeral- an ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
- Intermittent - An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
- Perennial - A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Survey Results

The following provides the survey results for each tributary that was surveyed. The tributary locations and the first upstream passage barrier and the hydrologic classification (ephemeral, intermittent, or perennial) for each tributary are shown in Figure 1.

Potrero Canyon

Potrero Canyon was initially surveyed on May 4, 2007. The survey began where Potrero Creek passed under the Potrero Canyon road, just south of the river crossing. The creek flowed under the road through a six foot diameter, corrugated, metal culvert. The culvert had a half meter drop in the middle due to a junction or down-sloping bend in the corrugated pipe. The drop slope was approximately 20% with fast water flowing over debris and cobbles. The culvert represents the first barrier to upstream fish passage for UTS, chubs, and suckers. A heavy crust of mineral deposit was present along the margins of the culvert at the waterline. A small pool just below the drop inside the

culvert had two arroyo chubs present. Water temperature just downstream of the culvert was 13 Celsuis (C) at 09:30. Approximately 10 meters (m) downstream of the culvert, a southwestern pond turtle was observed basking on the stream bank.

A few meters downstream, the main channel split into two braids, and a flowing tributary channel entered the main channel on the west bank. This tributary channel leads approximately 25 m upstream to a large marshy spring area located out in the open field to the west of the main road gate. The spring begins below a dirt road as a series of boggy marsh areas comprised of sedges and algae. This marshy area was approximately 5 m wide and continued another 50 m downstream to a 1.5 m head cut. Downstream of the head cut, the marsh became an increasingly entrenched and definable channel a few meters wide. After crossing a fence line at the bottom edge of this spring area, a 1.25 m high head cut was observed and was a barrier to upstream fish passage. A small trickle of flow emerged from the base of the head cut and continued downstream, gradually increasing in volume before entering a thick willow mass and joining a braid of the main Potrero Creek. No aquatic organisms were observed in the marsh or tributary stream.

Approximately 20 meters downstream of the main channel road crossing, a pool about 30 centimeters (cm) deep, one meter wide, and 1.5 m long had 30-40 arroyo chubs and two African clawed frogs present. The vegetation downstream of the culvert, all the way to the river floodplain, consisted of very thick riparian growth comprised of willow, mulefat, and salt cedar, with occasional sedges on the banks. Canopy cover was very thick, estimated at 80-95 percent coverage. Some green algae was observed in several pools. Along this stretch, the stream was on average 5 to 10 cm deep and a half meter to a meter wide.

As the main channel reached the river flood plain, it fanned out into many very shallow braids ranging from one to several meters wide and only a few centimeters deep. This marshy area was thickly inundated with salt cedar and mulefat, and with increasing numbers of cottonwood trees, as the stream approached the main Santa Clara River floodplain. After entering the flood plain, a raised sandy berm about 50 m wide, kept the stream separated from the main river channel and directed it west such that it ran parallel to the river for about one mile. This berm area was densely covered in riparian vegetation, mostly cottonwood, willow, rose, sedges, and grasses. After making the turn westward, the stream braids began to come back together and the stream channel stayed against the cliff line, along the south edge of the river floodplain. Stream channel width was about 50 cm to 1 m wide, and depth was on average 3 to 5 cm. Riparian vegetation continued to be very thick, with large amounts of salt cedar, willow, mulefat, and cottonwoods completely obscuring much of the channel. Moving downstream, flow decreased gradually and green algae increased in the wetted areas. No fish were observed along this stretch. The creek went dry approximately one third of a mile after turning westward, just before a very small ravine enters from the south. The stream stayed dry all the way to the channel's intersection with the Santa Clara River. Near the confluence, the stream channel separates into several small braided channels which empty into the main river channel at various spots along the river bank. In the river, at

the confluence, larval arroyo chub and suckers were observed. The river temperature was 21 C at 12:20.

On June 13, 2007 the upper portions of Potrero Canyon were surveyed, beginning at the road crossing culvert barrier. Upstream of the culvert, the channel was historically relocated to the east edge of the canyon floor. Surface water flows were present immediately upstream of the road crossing and the channel had a thick canopy cover of willow for about 40 meters upstream of the crossing. After crossing a barbed wire fence line, the willows disappeared and the channel was exposed with numerous head cuts, and grass or reed covered banks with obvious grazing impact. Flow steadily decreased moving upstream to just beyond a small ranching complex where the flow emerged from a small (2 inch diameter) pipe in an open, meadow–like area with heavy salt deposits across the ground surface. Upstream of the pipe, the channel was consistently very dry, with occasional willow or mulefat patches. Oil facilities were adjacent to the channel at several locations.

At the upper end of the drainage, several small arms branching east were ephemeral and dry. The main stem remained dry as the gradient increased, and more brush and oak trees were occasionally present along the channel margins. At the top of the drainage, two forks split east and west. Both were very dry and ephemeral. The eastern fork had a small tributary canyon that branched south and which was mostly accessible by road. This canyon contained thick riparian growth such as willows, oak trees, and poison oak. At the top of the canyon, a series of small seeps were present emerging from the bedrock exposed on the canyon walls. Heavy salt deposits were present throughout this area. No pools were observed, and the small amount of flowing water present was only a few centimeters deep and approximately 8 to 12 cm wide. The flow appeared to go subsurface after only a few meters in a thick mass of riparian growth. This wet area had insufficient aquatic habitat for fish but could potentially be inhabited by amphibians such as tree frogs and slender salamanders.

Salt Canyon

Salt Canyon was initially surveyed on May 4, 2007 starting at the confluence with the Santa Clara River. No water was present in Salt Creek at the confluence, but the channel substrate was moist indicating recent flow. The channel was about 1 to 1.2 m wide in the river floodplain, and the substrate consisted primarily of fine silt with occasional cobbles. Thick willow and mulefat riparian vegetation was present at the river confluence, but then became sparse in the channel up to the first road crossing where the channel became entrenched 3 to 5 meters.

Approximately one-half mile upstream, the creek passed under an agricultural road via a six foot high, elliptical, corrugated metal culvert. The culvert does not appear to be a barrier to fish passage. Upstream of the crossing, the creek was channelized along agricultural fields, with the channel measuring approximately 5 to 8 m wide and the bankfull width measuring approximately 3 m wide. The stream remained dry up to

approximately 125 m upstream of the crossing. The flow here was very slow, with depths around 2-4 cm. The water was choked with algae and surrounded by a thick canopy of willow and mulefat. No fish were observed, but 10-12 pacific tree frog larvae were seen. Low flow and very thick riparian vegetation continued upstream for about a mile to where the creek and road turned south and crossed a cattle fence. The creek went dry just below an agricultural road that crosses the stream bed adjacent to the barbed wire cattle fence. Signs of heavy cattle grazing were obvious upstream of this fence.

For about the half mile upstream of the fence, the stream channel was very dry, with mostly sand/silt substrate interspersed with cobbles and an occasional boulder. Very little stream bank vegetation was present, likely due to heavy grazing. Low water flow was present on the surface after half a mile, just below the second set of overhead power lines spanning the creek, and continued upstream another half-mile to where the canyon and road split, near a pair of double gates on the road. At this split, a small marshy area with salt grass and reeds was present just below a 1.5 m high head cut that was the first encountered barrier to upstream fish movement. The head cut had a small flow of water trickling over it. Just above the barrier, the stream split. One arm continued up the main fork of Salt Canyon, and the other up an unnamed tributary canyon to the south. Flow from the tributary canyon was intermittent well beyond the RMDP boundary. Just upstream of the split, the main channel of Salt Creek passed under the road through a pair of 24 inch plastic corrugated culverts. Upstream of the road crossing was another broad marshy area measuring about 20 x 30 m. Upstream of this marshy area, low flow continued to be present up the main canyon along a broad, dry wash for another 100 m before going dry again.

Very little potential aquatic habitat was identified in the lower section of Salt Canyon. After the first road crossing, the creek was channelized but had good riparian cover and could potentially provide good habitat if there was increased flow. Potential aquatic habitat in the upstream reaches, between the first passage barrier and the first livestock fence, was not present due to the intermittent nature of the stream and the degraded channel as a result of heavy grazing impacts.

On June 13, 2007 the upper portion of the easternmost main arm of Salt Canyon was surveyed. The survey began at ridgeline separating the Salt Canyon drainage from Potrero Canyon drainage. The majority of the center fork of this branch was visible and was completely dry, with a steep rocky channel. No riparian vegetation was present. Following the northeastern arm of the branch downstream, the channel was also very dry, with incised dirt and cobble banks. Channel width was about 1 to 2 m wide. Just after the first branch to the south, the channel had intermittent areas of mulefat riparian growth, and a few isolated moist areas were present. No standing water was seen. Riparian growth gradually decreased downstream, until reaching the very large branch heading due south. Here the channel had increased in size to become a broad wash 10 to 12 m wide with sand, gravel and cobble substrate. The channel remained dry down to the marshy area above the first fish passage barrier observed in the May 2007 surveys. No

aquatic habitat or surface water was seen in any of the upper surveyed reaches of the eastern arm of Salt Canyon.

Unnamed Canyon A and Homestead Canyon

These drainages were surveyed on May 4, 2007. Unnamed Canyon A is located just west of Homestead Canyon. Both were small, dry, ephemeral channels that ran down small hillside ravines, north of Highway 126. Both were then artificially channeled around a small agricultural field by a concrete and dirt ditch network. The two channels joined together, before passing under Highway 126 via a concrete box culvert that was a barrier to upstream fish passage due to a 1.5 m head cut at the outlet end. This head cut had some rock riprap and plastic sheeting around it, apparently for erosion control. Downstream of the road, the stream was confined to an artificial ditch running between two agricultural fields, straight down to the river. No water and very little riparian vegetation were present in the ditch. At the river floodplain, the channel fanned out into dense riparian vegetation along the river bank. No defined stream channels were visible joining to the river. No aquatic habitat or potential aquatic habitat was observed in either of these drainage systems.

Off-Haul Canyon

Off Haul Canyon was surveyed on May 4, 2007. This small, dry, ephemeral stream emerged from a small canyon on the north side of Highway 126 and was directed into an agricultural ditch. It then passed under the highway through a double concrete box culvert, which could be a velocity barrier to upstream fish movement when flowing. Even if fish were to pass through the culvert, the agricultural drain system upstream would likely prevent any further fish movement. Downstream of the culvert, the channel consisted of a heavily scoured and incised agricultural ditch approximately 3 to 5 m wide and 3 to 5 m deep. No water and only sparse riparian vegetation were present in this channel. At the river floodplain, the channel fanned out into dense riparian vegetation along the river bank. No defined stream channels were visible joining to the river. No aquatic habitat or potential aquatic habitat was observed in the drainage.

Chiquita Canyon

Chiquita Canyon was surveyed on May 7, 2007. This small, dry, ephemeral channel emerged from a small hillside ravine north of Highway 126, where it was diverted into an agricultural ditch and ran under highway 126 through a concrete box culvert, then under an agricultural dirt road via a 6 ft diameter, corrugated, metal culvert. The agricultural road culvert had a 2 m drop at the outlet which was a fish passage barrier. No water was present in the ditch, and very little vegetation was present. Substrate in the ditch was primarily sand and silt, with dirt banks and the ditch was on average 20 m wide and 2 to 3 m deep. The ditch ran straight to the river floodplain where it fanned out just upstream of a temporary road crossing. Some isolated pools were present in this confluence area which contained arroyo chub juveniles and pacific tree frog larvae. The pools were likely

associated with the road crossing construction or backwater buildup, rather than with the Chiquita canyon stream confluence. No aquatic habitat or potential aquatic habitat was observed along the stream channel.

Chiquito Canyon

Chiquito Canyon was surveyed from the RMDP boundary downstream to the Santa Clara River confluence on May 7, 2007. Upstream of the RMDP boundary, the stream was accessed via the Lincoln Avenue stream crossing, which consists of two corrugated metal pipe culverts almost completely filled with sediment. Moving downstream, the creek was dry, with the substrate primarily consisting of sand. Thick riparian vegetation comprised of willows and mulefat was present along the banks, with cottonwoods increasing along the upper banks.

Approximately 100 m downstream of Lincoln Avenue a small spring seep was encountered in a side channel to the west of the main channel. The spring area had water emerging from a cut bank and trickling into a pool about 2 x 3 m wide and 5 to 15 cm deep. This spring appeared to likely be perennial. The pool was surrounded by thick cattails and willow growth. About 20 pacific tree frog larvae were observed in this pool. A small stream of water flowed out of the pool and joined the main creek channel about 8 m downstream. The flow continued under a dense willow canopy for approximately 70 m before going subsurface. The dense willow canopy ended just beyond this point. The flow through this area was very low, averaging only a few centimeters in depth and with a wetted width of 25 to 75 cm. the water temperature in the stream was 20 C at 12:00. The rest of the creek was dry down to the river.

Downstream of the flowing portion, the creek channel became a wide sandy wash with mostly sandy bottom mixed with occasional cobbles and boulders. The channel was down the center of Chiquito Canyon, paralleling Chiquito Canyon Road, until it crossed under the road, beneath a bridge with a concrete lined floor. A 15 to 20 cm drop at the downstream end of the bridge floor could prevent small fish, such as UTS, from passing upstream. Downstream of the bridge, the creek remained a sandy wash, passing under an old arch bridge just before passing through a triple concrete box culvert under Highway 126. Downstream of the highway, the channel ran directly to the river. Almost no riparian vegetation was present along the channel's dirt banks. This stretch of channel was on average 20 to 25 m wide and 2 to 3 m deep. At the river floodplain the channel ended and fanned out into an old, dry river channel braid. Downstream of Highway 126, no aquatic habitat or potential aquatic habitat was observed.

Mid-Martinez Canyon

Mid-Martinez Canyon was surveyed on May 7, 2007. The canyon consists of a small, dry ephemeral stream that emerges from a dry canyon in the hillside to the north of Highway 126. The stream was then diverted into an agricultural ditch. This stretch of ditch was dry with no riparian vegetation. The ditch ran through an agricultural field, to a

double concrete box culvert, under Highway 126. Downstream of the culvert, a pair of corrugated, metal, pipe culverts provides passage under an agricultural road. These culverts may create a velocity barrier to upstream movement of small fish (such as UTS) when flowing. Downstream of the culverts, the agricultural channel continues straight to the river. The channel in this reach was about 2 m wide and a meter deep, with heavy vegetation on the banks comprised of mostly willows and thistles. Upon reaching the river floodplain, the artificial ditch ends abruptly and the natural channel fans out and disappears onto a sandy flat. No water was seen anywhere in this drainage. No aquatic habitat or potential aquatic habitat was observed in this drainage.

San Martinez Grande Canyon

San Martinez Grande Canyon was surveyed form the RMDP boundary down to the river confluence on May 7, 2007. Upstream of Highway 126, the stream flowed down a large, broad canyon. The channel was primarily a sandy, steep banked gully measuring 25 to 30m wide and 2 to 3 m deep. Bottom substrate throughout was primarily sand and cobbles. At the RMDP boundary, the stream had a small amount of flow present. Water depth was only 2 to 4 cm and the wetted width was about 25 to 30cm. One small, deeper pool was about 20 cm deep and had a temperature measured at 18.5 C at the bottom and 22 C at the surface at 13:10. One pacific tree frog larvae was observed in the pool. As the flow continued downstream, a large amount of red colored algae was present on the bottom substrate. Flow was present for approximately 150 m downstream before becoming intermittent, and then going completely dry. Patches of cattails and sedges were present throughout the wetted stretch. The channel remained dry, with steep dirt banks, sandy bottom, and with consistent riparian vegetation along the margins, down to Highway 126.

Heavy salt deposits were present along the banks through much of the lower reach of channel. Just downstream of the channel's passage under the highway 126 bridge, a small drop was present over a series of boulders. The drop was about 75 cm high and would likely be a barrier to upstream movement of small fish such as UTS. From the drop, the channel continued to be a dry, sandy wash with cut dirt banks and intermittent overhanging riparian vegetation the remainder of the way to the river floodplain, where the channel joined with the active Santa Clara River channel. Very little potential aquatic habitat was observed downstream of Highway 126.

Ayres Canyon

Ayres Canyon was surveyed on May 7, 2007. At the mouth of the canyon, just before entering the river floodplain, the creek falls over the cut bank of the river floodplain. The cut bank was about 1.5 m high and is a fish passage barrier. At the base of this cut, water was seeping out into a large marshy area of watercress and cattails. A few large pools, approximately 1 x 3 m and 1 x 2 m wide were present. The deepest area was about 75 cm, and water temp in that pool was 16 C at 14:40. No fish or amphibians were observed in the pools. This wet, marshy area extended out into the river floodplain and became a

patchwork of intermittent wet areas and small shallow pools. Thick cattails, watercress and Arundo were present throughout this wet area. No defined channel was present connecting to the active river channel.

Approximately 4 m upstream of the cut bank barrier was a dirt road with a corrugated, metal, pipe culvert under it. The culvert was almost completely filled in with sediment. A small amount of water was draining from the pipe and flowed downstream for about 3 m before going subsurface just before the cut bank barrier. Upstream of the road crossing, the stream continued to have a small amount of flow. The wetted width was about 10 cm and depth was 2 to 4 cm. Upstream, the stream flowed down a small, steep canyon with very dense riparian vegetation, oak trees, and poison oak, which made it inaccessible for further survey. Due to the steep gradient of the canyon, this stream is likely not usable by fish. The large amount of thick vegetative cover, along with the consistent flow observed during the survey, suggests this stream may be perennial.

Long Canyon

Long Canyon was surveyed on May 7, 2007. The first 1000 m of channel, starting at the river floodplain, consists of a manmade agricultural ditch through agricultural fields. No vegetation was present and the channel substrate was silt and sand, with dirt banks. About 15 m upstream of the river floodplain connection, the channel was directed under a dirt road through a 48 inch corrugated plastic culvert pipe. At the upper end of the agricultural ditch, another dirt road crossing had three corrugated plastic pipe culverts with a 1m drop at the outlets, making it a fish passage barrier. Upstream of the crossing, the creek returns to its natural channel and continues up Long Canyon. The entire canyon appeared very dry, and the channel was primarily a broad, sandy, wash approximately 7 to 10 m wide. Almost no riparian vegetation was observed throughout the canyon and the channel margin vegetation was primarily upland brush. Channel substrate was uniformly sand and cobble mixture throughout the canyon. Approximately 1.5 to 2 miles upstream of the river, the main Long Canyon dirt road crosses the stream at an Arizona style crossing. Just below the concrete crossing, a large head cut with a 2 m drop presented another barrier to fish passage. The stream was surveyed all the way to the headwaters, and no aquatic habitat was present.

Humble Canyon

Humble Canyon was surveyed on May 7, 2007. The majority of the upper portion of Humble Canyon was a steep, dry ravine with no riparian vegetation. The dry channel was approximately 2 m wide, and had steep, scoured banks. Channel substrate was primarily sand and cobbles. No water was present in the upper portion of the canyon. At the lower end of the canyon, the gradient decreased considerably. Approximately 200 m upstream of the river floodplain confluence, a small side canyon enters from the west. At the intersection, the main creek passed through a large oak stand. In the center of the oak stand, about 10 m above the side canyon confluence, a 2 m high head cut presented the first barrier to upstream fish passage. At the base of the head cut, a small amount of

water was seeping out and flowing downstream. The channel from the side canyon was dry.

Downstream of the side canyon junction the channel was about 1 to 2 m wide, with mostly cobble and sandy silt substrate, and willows overhanging scoured, vertical banks. The wetted width of the small flow was approximately 10 to 15 cm and was only a few centimeters deep. Flow continued for about 100 m before going dry approximately 50 m from the canyon mouth. Water temperature in the seep, at the base of the head cut, was 17 C at 17:01. At the mouth, the channel ends at the river floodplain and no channel was evident connecting to the active river channel approximately 20 m away. No aquatic habitat was present upstream of the oak grove. Suitable habitat could be present downstream of the head cut barrier if more water was present. The low flow section encountered during the survey is probably intermittent and goes dry later in the year.

Unnamed Canyon B

This canyon is located approximately one half mile west of Humble Canyon and was surveyed on May 8, 2007. The canyon is a very small, dry and ephemeral with a steep gradient channel measuring approximately 30 cm in width. The canyon was surveyed from the mouth, upstream several hundred meters until the entire headwaters of the drainage were completely visible. The canyon had dense upland brush throughout, with very little riparian vegetation present near the channel. Large portions of the channel were incised with vertical cut dirt banks. The mouth of the canyon opened on to a small plateau elevated 1 to 1.5 m above the Santa Clara River floodplain. Upon reaching this plateau, the channel began to braid and fan out, eventually becoming indiscernible among the grasses and oaks covering the plateau area. The cut bank around the plateau area would be a barrier to upstream fish passage if water ever made it beyond the dissipated channel. No water was observed anywhere in this canyon.

Unnamed Canyon C

This canyon was surveyed on May 8, 2007 and is located approximately one-half mile west of Unnamed Canyon B and about a mile east of Long Canyon. The canyon was surveyed from the mouth to approximately 200 m upstream, and the majority of the headwater area of the canyon was visible. The canyon had a very step gradient channel that was deeply incised with vertical cut dirt banks ranging from1 to 2 m in height. Channel substrate was a mixture of cobbles and boulders, and no riparian vegetation was present in the canyon. The channel terminates at 75 cm drop at the river floodplain which was a barrier to upstream fish movement. No water was seen in the canyon, and the drainage appeared to be an ephemeral stream that likely only transports flash flows during storm events. This drainage's ephemeral nature in conjunction with the steep gradient provided no aquatic habitat anywhere in the canyon.

Lion Canyon

Lion Canyon was surveyed on May 8, 2007 and has two main branches splitting approximately one-quarter mile upstream of the canyon mouth. The entirety of the western arm could be observed from the dirt road rimming the agricultural plateau above and west of the arm. The channel was primarily a broad, sand and gravel wash up to the uppermost reaches where it split into several steep ravines choked with upland brush. The entire arm was very dry, and no riparian vegetation or potential aquatic habitat was present. Cattle were present in the area, and some channel banks appeared degraded from grazing activity. At the mouth of the west arm, the channel was completely dammed by a dirt road berm across the channel. Any flow in the arm would be gathered at this dam, perhaps for cattle use.

The east arm of Lion Canyon was also mainly a broad, sand and gravel wash with dirt roads present along much of the banks. The arm was very dry with no riparian vegetation and no aquatic habitat. Downstream of the junction of the two main arms, the channel continued as a broad, dry wash ranging from 3 to 5 m wide. At the mouth of the canyon, the channel runs along the vertical, east canyon wall before ending at a large 2 m drop into the main river floodplain. Below this fish passage barrier, the channel fanned out and became undefined towards the active river channel. No aquatic habitat or potential aquatic habitat was observed anywhere in the canyon.

Exxon Canyon

Exxon Canyon was surveyed on May 8, 2007. This ephemeral drainage was very dry with no riparian vegetation seen anywhere in the drainage. At the canyon mouth, the channel was 1 to 2 m wide and was a deeply cut, moderately steep gradient ravine which opened abruptly to the main river floodplain where it became undefined. The channel's scoured dirt banks were 1 to 3 m high in this lower section and the substrate was mostly sand and cobbles. The steep gradient is likely a barrier to upstream movement of small fish like UTS. About 40 m upstream of the mouth, the channel splits into two arms. Just upstream of this split, the channels in each arm were completely dammed by filled earth road crossings, indicating this canyon rarely has water present. Upstream, each arm continued as a dry, sandy wash inundated with upland brush. No aquatic habitat or potential aquatic habitat was observed anywhere in this canyon.

Dead End Canyon

Surveyed on May 8, 2007, this drainage was observed to be heavily impacted and degraded by extensive dirt road and graded bare areas throughout this small, dry canyon. The drainage appeared ephemeral, with the channel mainly being a small dry wash alongside a dirt road. Channel width was 1 to 2 m with sandy silt substrate and heavy upland brush throughout. No riparian vegetation was present in the drainage. At the mouth of the canyon, the channel opens onto a broad flat area (San Jose Flats) and disappears completely. These flats were covered with bare soil, grasses, and forbs. The

flats were raised above the river floodplain by a few meters, which would present a barrier to fish movement if flow were to make it across the flats and empty into the river. It appears that this canyon mouth may have historically been artificially dammed with a berm. No aquatic habitat or potential aquatic habitat was seen anywhere in this drainage.

Middle Canyon

Middle Canyon was surveyed on May 8, 2007 from the headwater area down to the mouth. The majority of this canyon, upstream of the final road crossing before the mouth, is a wide, sandy wash. No water and very little riparian vegetation were present. Inundation by upland brush increased moving upstream. The channel was 1 to 3 m wide and large portions of both banks had dirt road or graded bare areas present. No aquatic habitat was observed above the most downstream road crossing. Just downstream of this road crossing, on the east bank, a large water pump was actively pumping water to two large agricultural irrigation systems which were irrigating large flat areas of grasses and forbs. The channel below the road crossing had increasing amounts of riparian growth such as willows and large cottonwood trees. About 40 m downstream of the crossing and pump, water began intermittently flowing. Flowing sections ranged from about 20 to 100 cm wide and just a few centimeters deep, except for a few deeper pools that were 8 to 10 cm deep. One such pool had a water temperature of 16 C at 12:15. The flow became more consistent moving down stream, and riparian vegetation along the banks increased towards the canyon mouth. Approximately 20 m from the mouth of the channel, a 1 m high drop formed a barrier to upstream fish passage. The channel then fans out into the river floodplain amongst thick willow, mulefat, and cottonwood growth. The flowing water went dry in this area and the channel became undefined. No fish were observed in the wetted areas of Middle Canyon, and the low flow that was present may have been a result of the irrigation that was occurring just upstream. This lower wet stretch is likely intermittent in its natural state and would probably have little to no flow for most of the year without irrigation influence.

Unnamed Canyon D

This canyon is located approximately one mile east of Middle Canyon and was surveyed on May 8, 2007. This drainage was a steep, dry ravine with a deep cut channel about a meter wide, and with 1 to 1.5 m vertical, scoured banks. The channel substrate was mostly very fine silt, with occasional cobbles. No water was seen in the drainage, but the channel substrate was moist and a moist alluvial silt deposit was present at the channel opening onto the river floodplain. The entire drainage was only about 150 m long before reaching the top of an agricultural plateau. The evidence of recent flow and the high amount of silt suggests periodic runoff from the agricultural fields upstream had been occurring. Ten meters upstream of the canyon mouth a 1 m head cut created a barrier to upstream fish movement. Upstream of the barrier, the ravine had primarily upland brush growth. Downstream of the barrier drop, dense willow, Arundo and oak choked the channel mouth. Directly adjacent to the channel mouth, the remnants of an old road were observed. The road as obviously abandoned and overgrown, but its path could still be

seen ascending the hillside to the east. A 24 inch corrugated metal pipe culvert was emerging from und the old roadbed with its outlet just a few meters east of the canyon channel mouth. The inlet to the pipe was not found, and may have directed the canyon channel under the road previously, or is perhaps an agricultural drainage pipe draining from the top of the plateau area. No aquatic habitat or potential suitable aquatic habitat was observed in this drainage.

Castaic Creek

Castaic Creek has been extensively examined in previous surveys, and, therefore, was not surveyed in depth during these tributary surveys. Castaic Creek is known to be dry during most of the year. When flow is released from Castaic Lake upstream or when rain events maintain surface flow for an extended period of time, adequate aquatic habitat exists to support various fish species found in the Santa Clara River watershed. Surface flow is intermittent and the creek eventually goes dry either stranding fish or receding at a slow rate where fish can migrate downstream to the Santa Clara River. Previous surveys found exotic non-native fishes to be more common in the main river downstream of the mouth of Castaic Creek, suggesting it may be the source of some of these exotics.

Hasley Canyon

Hasley Canyon was surveyed on June 13, 2007. This canyon is a tributary to Castaic Creek. Its confluence with Castaic Creek was just upstream of the Commerce Center Drive Bridge over Castaic Creek. From the confluence, upstream approximately 900 m the channel was a very wide, sandy wash with cut dirt banks, and small amounts of scattered riparian growth. At 900 m upstream of the confluence, a very large boulder rip-rap structure was present at the base of the large concrete channel that Hasley Creek was confined to upstream. This rip-rap structure was a barrier to upstream fish movement. Flowing water, estimated at 2 cfs, was present in the concrete channel, spilled over the riprap structure, and continued down the wash for approximately 100 m before going intermittent and then disappearing subsurface. The flowing water in the concrete channel was observed to be very turbid, with high amounts of suspended sediment. Riparian growth of willows and mulefat was very thick, with excellent canopy cover within the concrete channel. The concrete channel bottom was inaccessible and so was surveyed from the channel's edge upstream to the Commerce Center Drive Bridge crossing. If any aquatic organisms were present, they were not able to be detected from along the high channel banks and due to the low water visibility.

Unnamed Canyon E

This small canyon was surveyed on June 13, 2007 starting at the end of Magic Mountain Parkway, the canyon's terminus. No obvious channel was evident at the bottom of the canyon, near the road's end, though a drainage inlet structure was present at the fence line of Magic Mountain. Approximately 40 m upstream, a small channel emerged. The channel increased in size heading upstream from 1 to 2 m in width and was a very dry,

shallow wash with sand and cobble substrate. No riparian vegetation was present, and no water was observed in any portion of the canyon or its small headwater ravines. No aquatic habitat was present anywhere in the canyon.

Unnamed Canyon F

This canyon was surveyed on June 13, 2007 and is located south-east of the main entrance to Magic Mountain, with its headwaters at the Tournament PlAyres Club golf community in the City if Santa Clarita. Downstream the culvert crossing under Magic Mountain Parkway, the drainage was channelized into a concrete lined channel running along the edge of Magic Mountain to the river floodplain. Upstream of the Magic Mountain Parkway crossing, the drainage was a broad canyon, with a large dry wash running down the middle. The channel had primarily sand and cobble substrate, with incised, cut dirt banks approximately 1 m high. The channel width ranged from 10 to 15m wide between these cut banks. Moving upstream, the next 600 m continued as a dry, sinuous wash. Approximately 600 to 650 m upstream of Magic Mountain Parkway, the channel narrowed considerably and was confined between deeply incised banks 2 to 3 m high. Approximately 20 m upstream of this area, the channel widened and returned to a broad wash, with 1 to 2 m banks. About 80 to 100 m upstream of the constricted area, the sandy channel substrate began having intermittent patches of moisture, until surface flow was seen just beyond a large natural gas pipeline that crosses the channel.

This flow was coming out of a large concrete outlet structure another 60 m upstream. Flow was estimated to be less than 1 cfs. Throughout the surface flow below the outlet, 30 or 40 juvenile, recently morphed, western toads were observed. The outlet structure had rock rip-rap imbedded in a concrete apron, with concrete wing walls. A 1 m drop was present at the end of the apron. Pooled water up to 20 cm deep was present in the apron, and approximately 10 western toad larvae were observed in the pool. The outlet structure appeared to drain from the Tournament PlAyres Club golf course and residential community along the ridgeline, immediately south and upstream of the outlet. No channel or surface water was observed upstream of the culvert however, and the water may come from a storm drainage system in this community, or be the result of golf course runoff.

Magic Mountain Canyon

Magic Mountain Canyon was surveyed on June 22, 2007. The survey began at the Magic Mountain property boundary, where the channel is directed under the property fence and into a concrete lined, trapezoidal channel. Upstream of Magic Mountain, the channel was a dry wash with scoured banks up to one meter high, and with sand, gravel and cobble substrate. Channel width ranged from 3 to 6 m. A few isolated stands of mulefat were present just above the concrete channel, but no riparian vegetation was seen throughout the rest of the canyon. Approximately 800 m upstream of Magic Mountain, the canyon splits. Both branches had very dry, ephemeral, channels. No aquatic habitat was observed anywhere in Magic Mountain Canyon.

Discussion of Results

The survey results indicate that limited amounts of aquatic habitat are present in 10 of the 23 tributaries within the RMDP area. The tributaries with some amount of aquatic habitat include:

- Potrero Canyon;
- Salt Canyon;
- Chiquito Canyon;
- San Martinez Canyon;
- Ayres Canyon;
- Humble Canyon;
- Middle Canyon;
- Castaic Creek;
- Hasley Canyon; and,
- Unnamed Canyon F.

The remaining tributaries consist of dry, ephemeral drainages with no observable aquatic habitat or potential aquatic habitat. These tributaries include Homestead Canyon, Off-Haul Canyon, Chiquita Canyon, Mid Martinez Canyon, Long Canyon, Lion Canyon, Dead End Canyon, Magic Mountain Canyon and Unnamed Canyons A, B, C, D and E.

Potrero Canyon

Potrero Canyon had some of the best aquatic habitat of any tributary surveyed. The lower section of the stream, where it is within the river floodplain, had very little water in the upper section and no water was present in the lower section. However, if water levels were higher or if the river level was raised enough to flood this channel, the thick canopy cover along this reach would provide good protection for fish. Farther upstream, out of the flood plain, several deeper pools were observed to have arroyo chubs, clawed frogs, and a southwestern pond turtle. This stretch was only about 40 m long, but was the best habitat in Potrero Canyon. The pools ands flow in this area appeared perennial so this habitat would be present for aquatic organism use year round. Upstream of the culvert crossing there remained ample flow to support aquatic organisms, but shoreline habitat quickly became degraded moving upstream as a result of grazing pressure. Furthermore, the culvert crossing under the dirt road is a barrier to fish movement and therefore the portion of stream upstream of the culvert is inaccessible for fish utilization.

Salt Canyon

Salt Canyon had very limited amounts of aquatic habitat present in its lower section. Although some tree frog larvae were seen in some areas, lack of pools and deep water suggests that the few intermittent areas that were identified in the survey provide very marginal habitat that is probably insufficient to support fish during the majority of the year. Two marshy areas existed just above and below the head cut that was the first

barrier to upstream movement, at the first major canyon branch. While enough water is present to support tree frogs and perhaps other amphibians, there appeared to be insufficient habitat to support fish.

Chiquito Canyon

Chiquito Canyon contained a very small amount of aquatic habitat below the small, perennial spring near the NRMP project boundary. The pool at the base of the spring had adequate depth and size to provide limited fish and amphibian habitat, and a few tree frog larvae were seen utilizing the pool. However, because the pool is so far upstream and because there exists a barrier to upstream movement under a bridge downstream, it is unlikely this area is accessible for use by fish. Downstream of the spring area a small amount of flow was present with good riparian canopy cover, but an insufficient amount of water is likely present for the majority of the year to provide appropriate habitat for fish or amphibians.

San Martinez Grande Canyon

A small amount of habitat was present in the upper portion of San Martinez Grande Canyon. One very small pool had one tree frog tadpole in it. The small amount of flow observed existed for only a short distance before disappearing. The reach appeared intermittent and so does not have water year round and would therefore not support a permanent fish population. Additionally, a barrier downstream of this area, beyond the highway 126 bridge, would prevent access to the area by fish moving upstream from the river.

Ayres Canyon

Ayres Canyon was one of the few drainages that appeared to have perennial flow through most of it. However, a large barrier right at the river floodplain, a steep gradient, and low flows make the majority of this canyon unusable by fish. Just downstream of the barrier, along the edge of the river floodplain, a series of deep, cool pools could provide fish and amphibian habitat. While not normally connected to the river, during high water events when connection is established, this area could potentially be used as a backwater refugia area for fish.

Humble Canyon

Humble Canyon had a very small amount of intermittent flow present in the lower reach. Flows here would generally be insufficient and seasonal, and would therefore not provide good fish habitat. A large barrier just upstream of this intermittent area prevents fish access to any upstream portion of the canyon, none of which had any aquatic potential. During periods of high flows, fish could potentially move up the into Humble canyon as far as the barrier, but unstable banks, lack of spawning areas, and the intermittent nature of this reach would only support fish for a limited time.