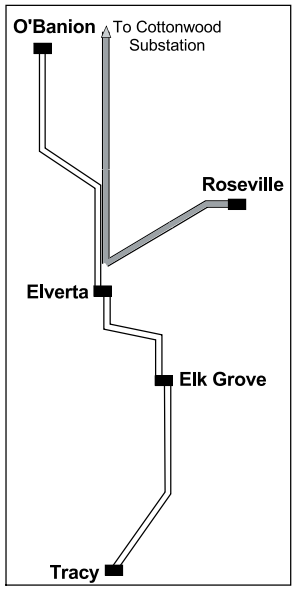
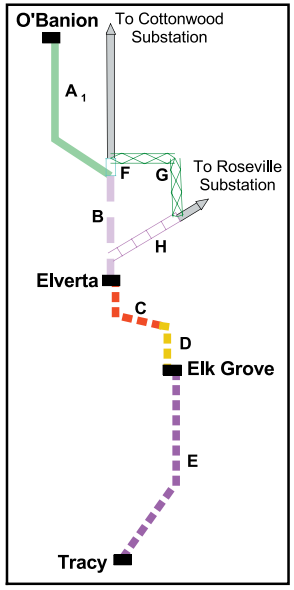
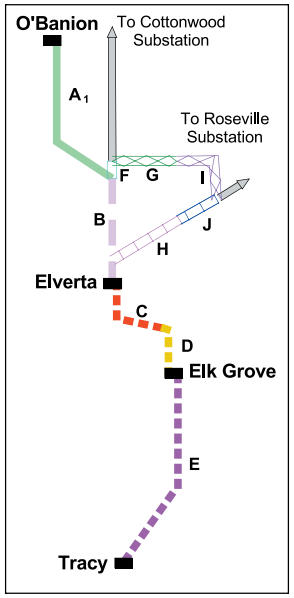


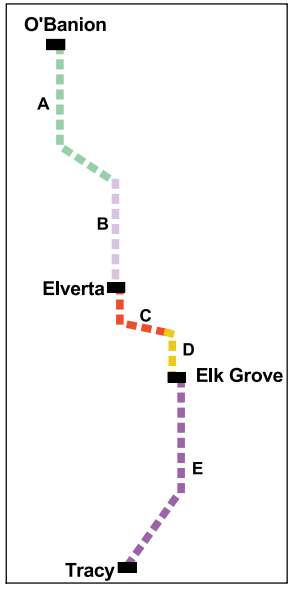
Existing 230-kV Transmission Line System No Action



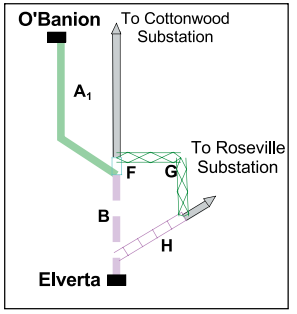
Proposed Action with Option A



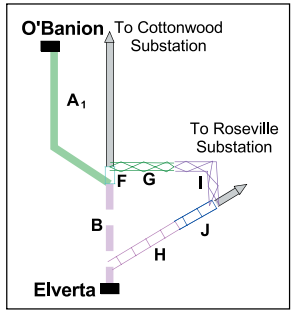
Proposed Action with Option B



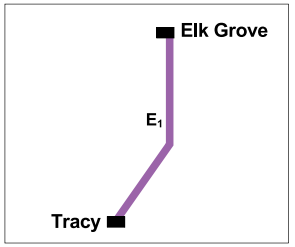
Alternative 1



Alternative 2 with Option A



Alternative 2 with Option B



Alternative 3

Existing 230-kV Transmissiom Line

Additional Transmission Routes

New Construction Within New ROW

New Construction Within Existing ROW

Realignment

Abandonment

Reconductoring

Substation

Segments within Proposed Action and Alternatives

Proposed Action with Option A	: A_1, B, C, D, E, F, G, H
Proposed Action with Option B	: A_1, B, C, D, E, F, G (mileposts 0.0 TO 1.7), H, I, J
Alternative 1	: A, B, C, D, E
Alternative 2 with Option A	: A_1, B, F, G, H
Alternative 2 with Option B	: A_1, B, F, G (mileposts 0.0 TO 1.7), H, I, J
Alternative 3	: E_1

Notes:
- Colored segments correspond to route segments on Figure ES-2
- Table ES-1 describes activities for each alternative
- Segments A and E are reconductoring
- Segments A_1 and E_1 are new construction

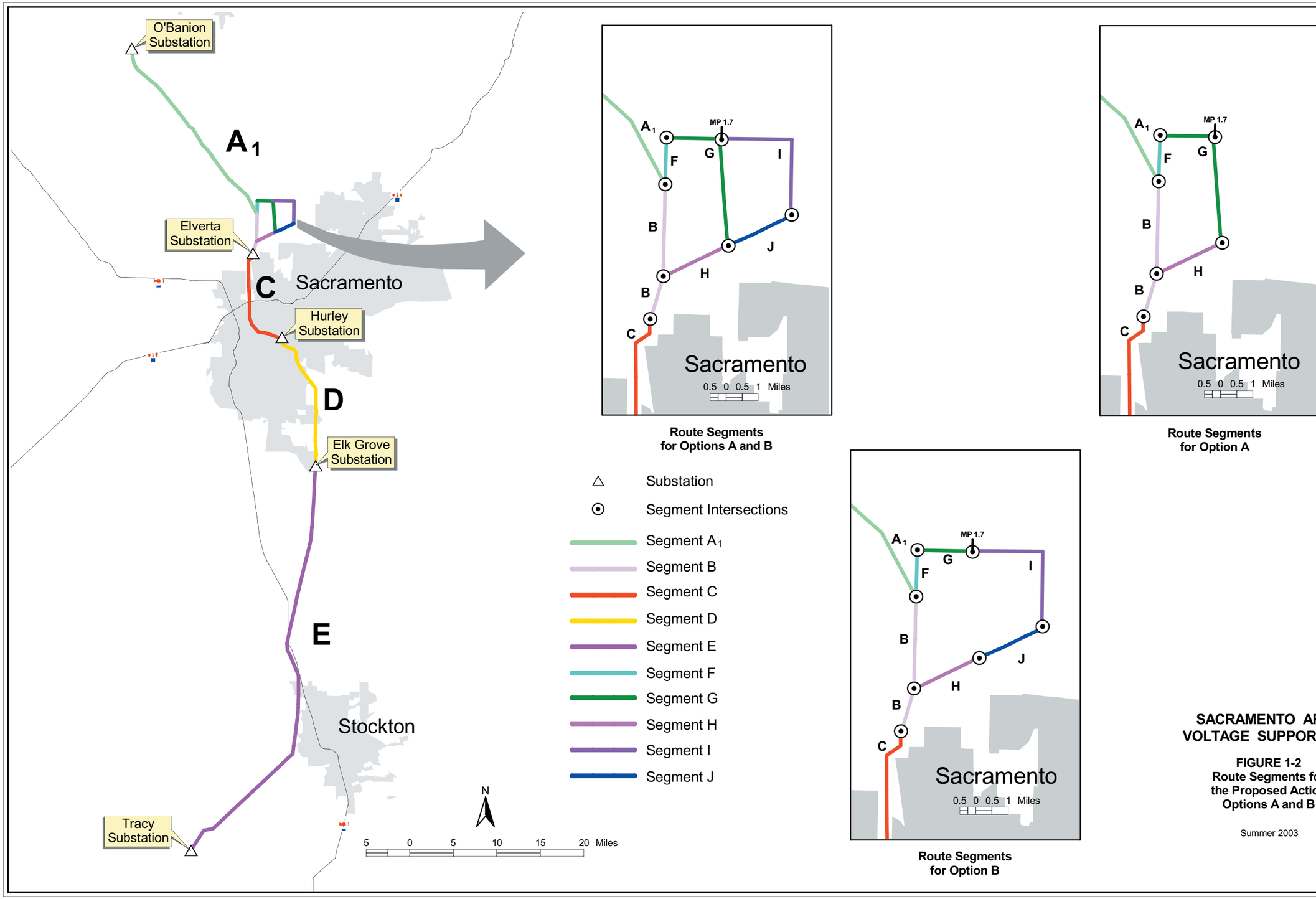
N

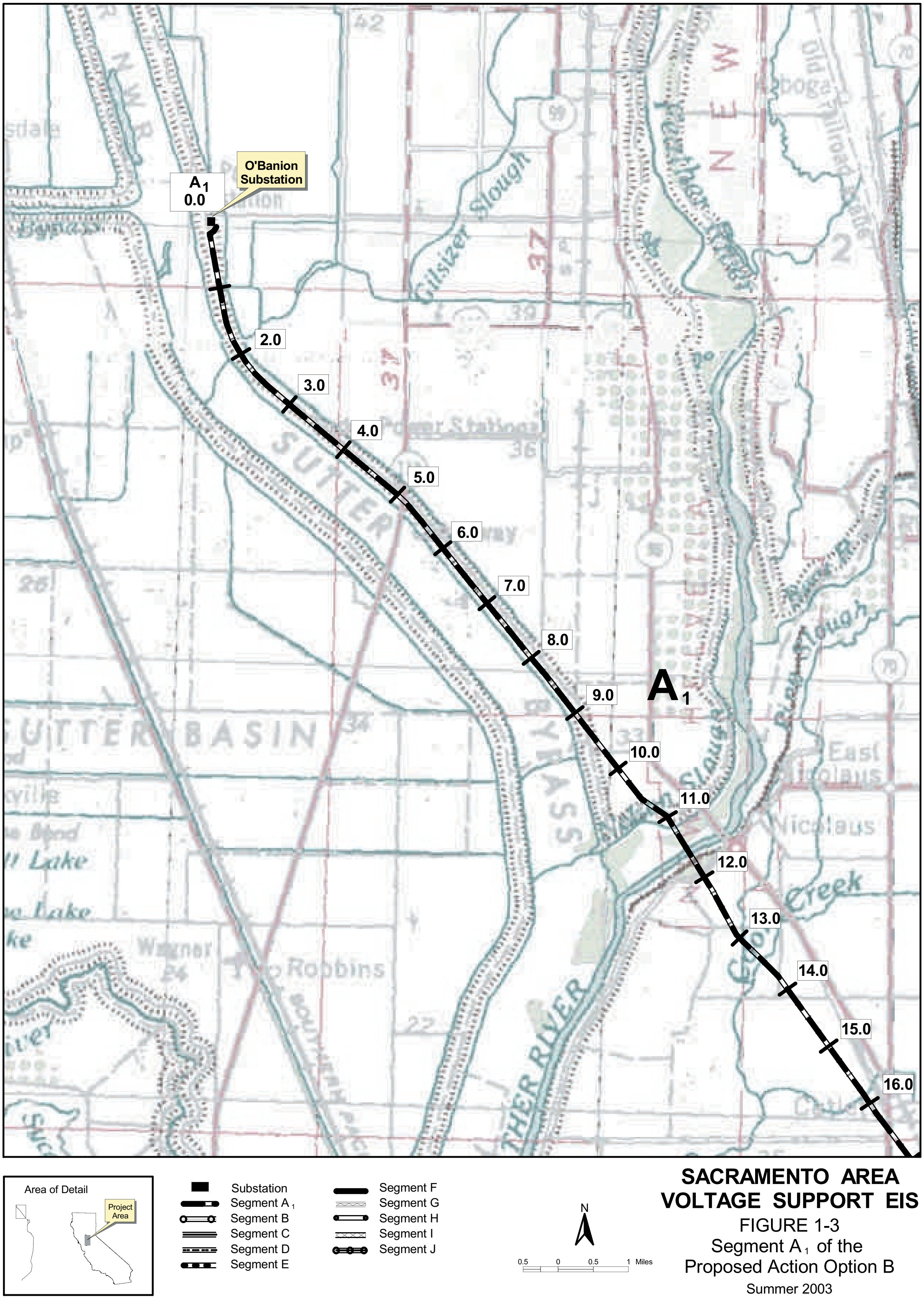
Figures not to Scale

SACRAMENTO AREA VOLTAGE SUPPORT EIS

FIGURE 1-1
General Layout of Proposed Action and Alternatives

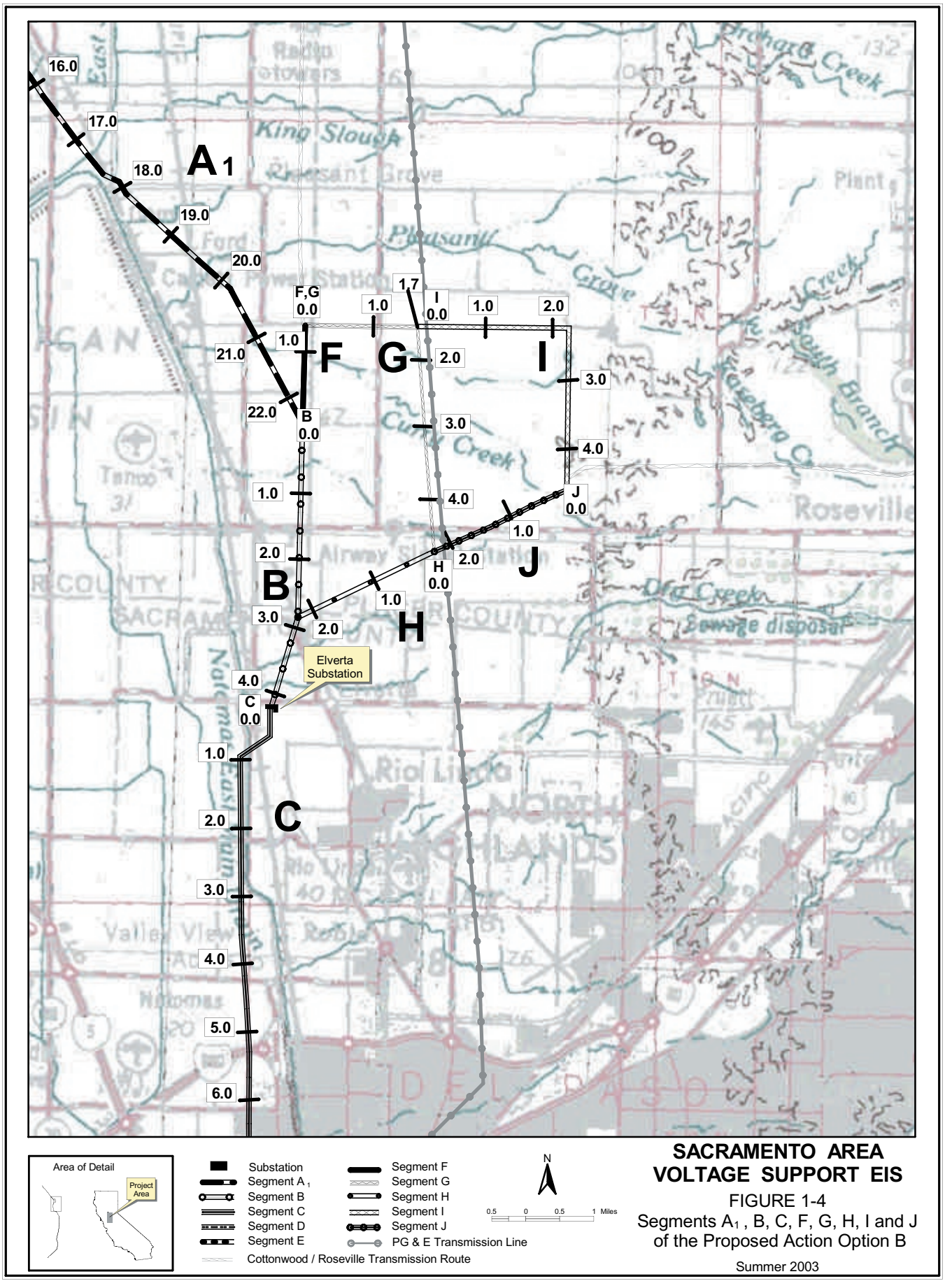
Summer 2003

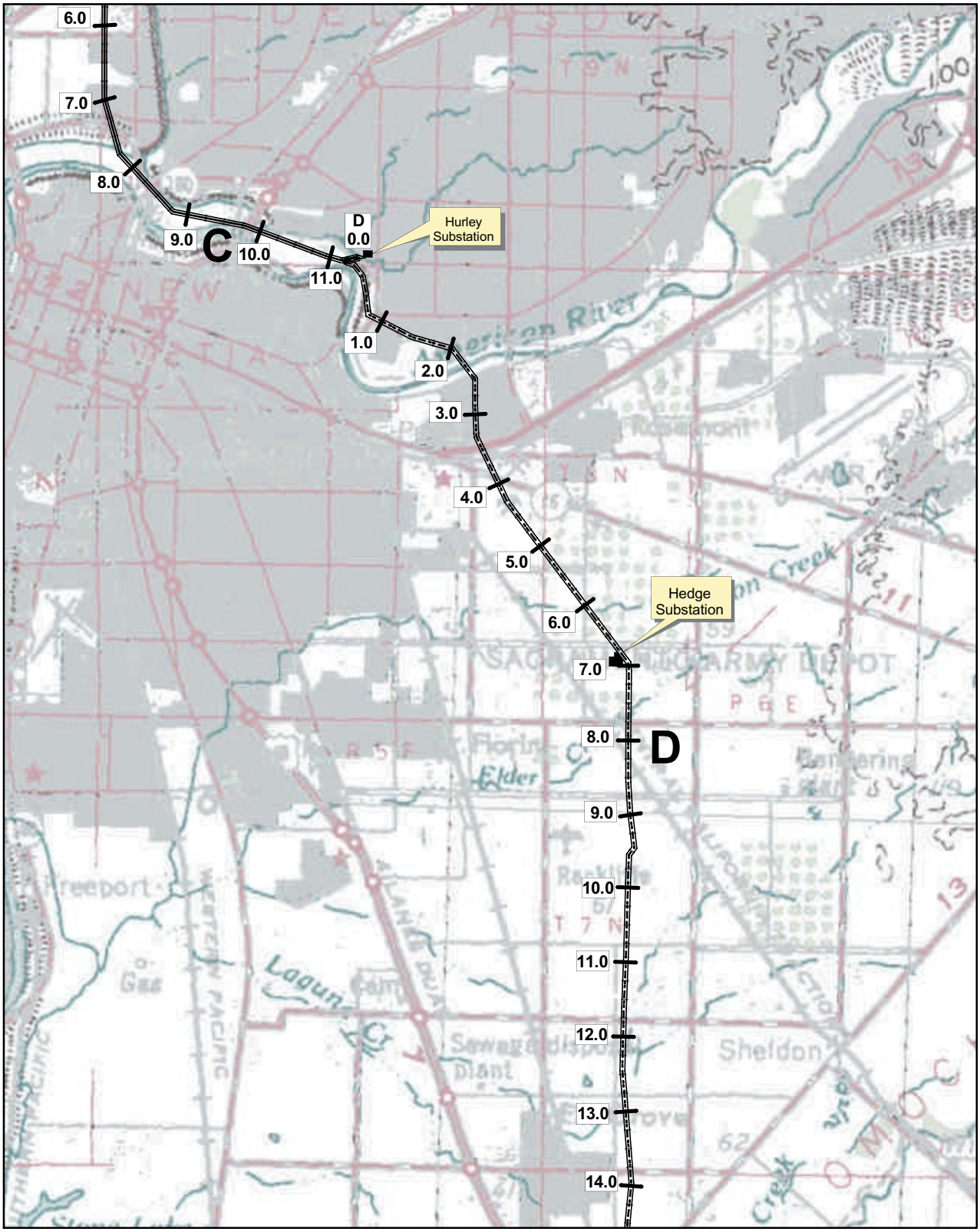

O'Banion Substation
A1
Elverta Substation
C
Sacramento
Hurley Substation
D
Elk Grove Substation
E
Stockton
Tracy Substation
N
5 0 5 10 15 20 Miles
Substation
Segment Intersections
Segment A1
Segment B
Segment C
Segment D
Segment E
Segment F
Segment G
Segment H
Segment I
Segment J
A1
MP 1.7
F
G
I
B
J
H
B
C
Sacramento
0.5 0 0.5 1 Miles
Route Segments for Options A and B
Route Segments for Option A
Route Segments for Option B
SACRAMENTO AREA VOLTAGE SUPPORT EIS
FIGURE 1-2
Route Segments for the Proposed Action Options A and B
Summer 2003

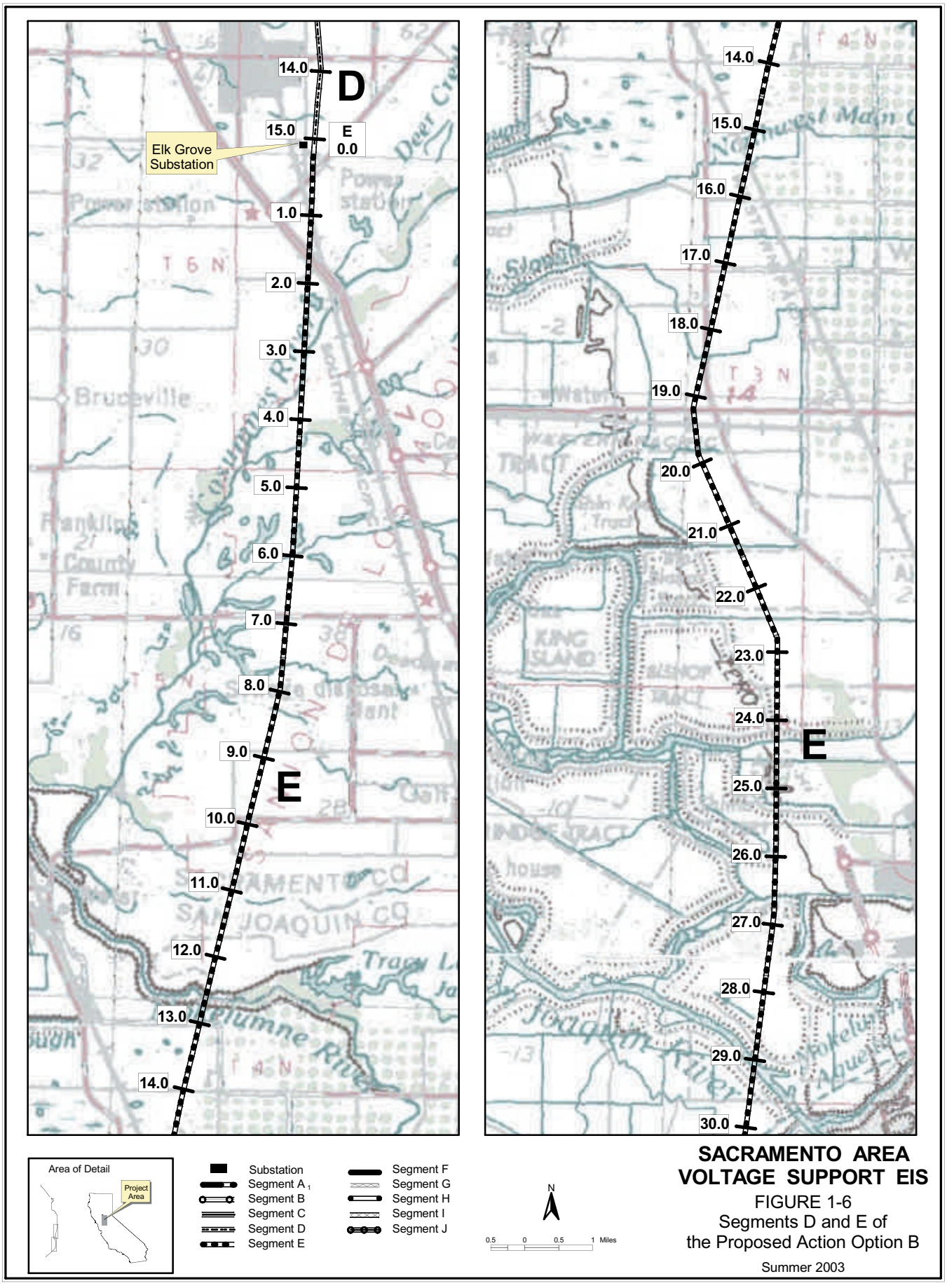


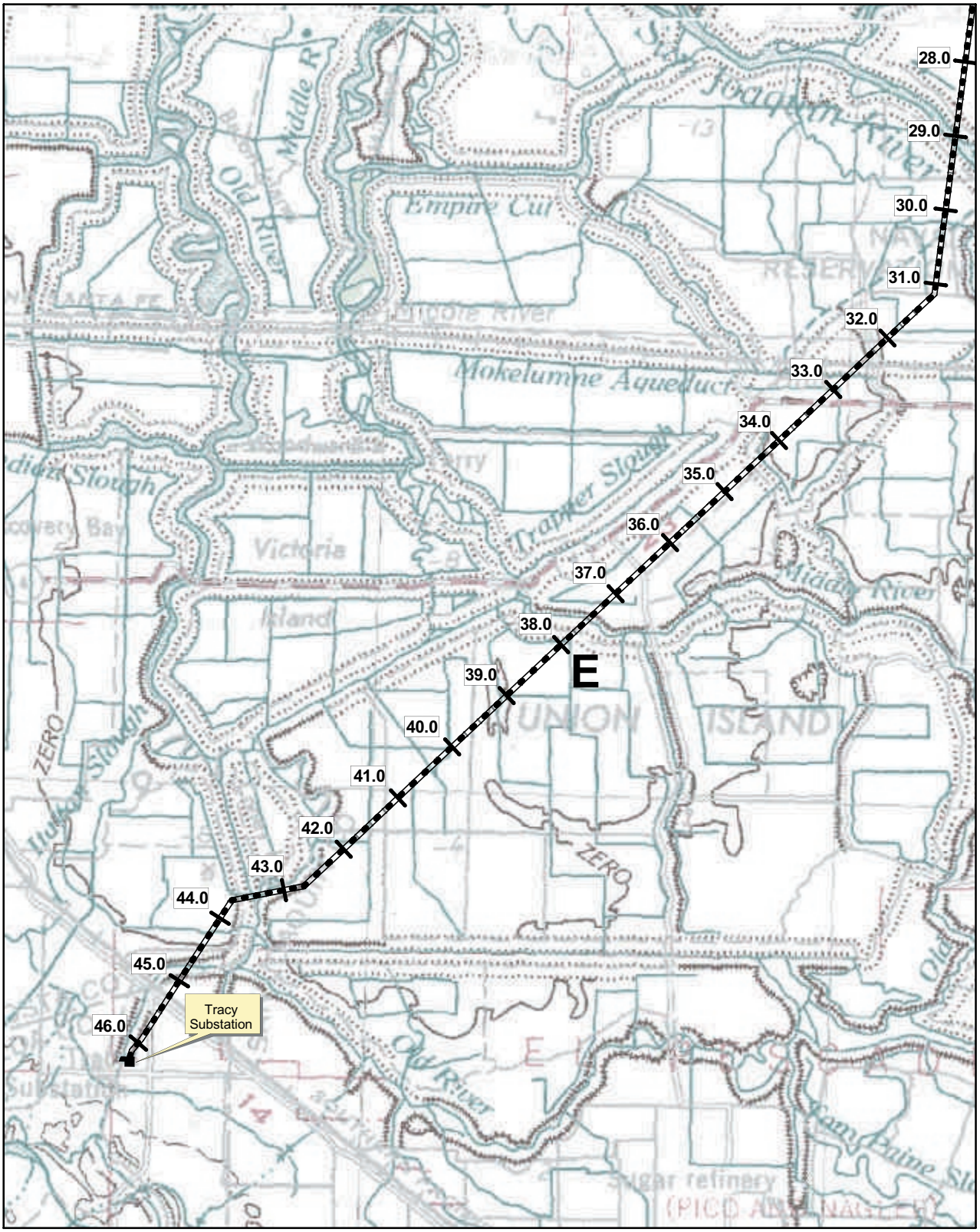
SACRAMENTO AREA VOLTAGE SUPPORT EIS

FIGURE 1-3
Segment A_1 of the Proposed Action Option B
Summer 2003


16.0
17.0
18.0
A1
19.0
20.0
21.0
22.0
F,G
0.0
1.0
F
1.7
I
0.0
1.0
2.0
G
2.0
I
3.0
B
0.0
3.0
4.0
1.0
4.0
J
0.0
1.0
2.0
2.0
B
H
0.0
J
1.0
3.0
2.0
H
Elverta
Substation
4.0
C
0.0
1.0
2.0
C
3.0
4.0
5.0
6.0
Area of Detail
Project Area
Substation
Segment A1
Segment B
Segment C
Segment D
Segment E
Segment F
Segment G
Segment H
Segment I
Segment J
PG & E Transmission Line
Cottonwood / Roseville Transmission Route
N
0.5 0 0.5 1 Miles
SACRAMENTO AREA
VOLTAGE SUPPORT EIS
FIGURE 1-4
Segments A1 , B, C, F, G, H, I and J
of the Proposed Action Option B
Summer 2003


6.0
7.0
8.0
9.0
C
10.0
11.0
D
0.0
Hurley Substation
1.0
2.0
3.0
4.0
5.0
6.0
Hedge Substation
7.0
8.0
D
9.0
10.0
11.0
12.0
13.0
14.0
Area of Detail
Project Area
Substation
Segment A1
Segment B
Segment C
Segment D
Segment E
Segment F
Segment G
Segment H
Segment I
Segment J
N
0.5 0 0.5 1 Miles
SACRAMENTO AREA VOLTAGE SUPPORT EIS
FIGURE 1-5
Segments C and D of the Proposed Action Option B
Summer 2003

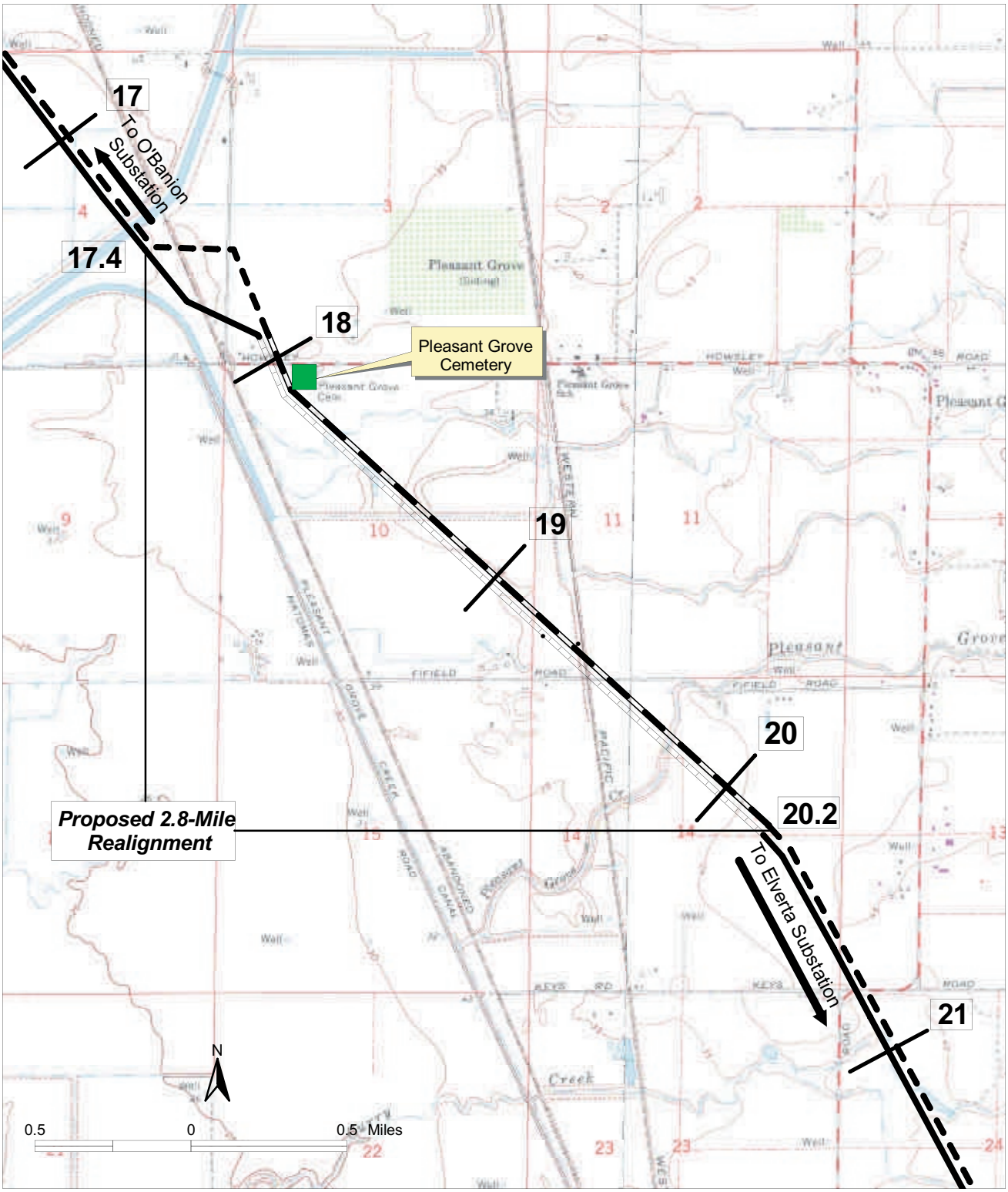

14.0
D
15.0
E
0.0
Elk Grove
Substation
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
E
10.0
11.0
12.0
13.0
14.0
14.0
15.0
16.0
17.0
18.0
19.0
20.0
21.0
22.0
23.0
24.0
E
25.0
26.0
27.0
28.0
29.0
30.0
Area of Detail
Project Area
Substation
Segment A1
Segment B
Segment C
Segment D
Segment E
Segment F
Segment G
Segment H
Segment I
Segment J
N
0.5 0 0.5 1 Miles
SACRAMENTO AREA
VOLTAGE SUPPORT EIS
FIGURE 1-6
Segments D and E of
the Proposed Action Option B
Summer 2003



SACRAMENTO AREA VOLTAGE SUPPORT EIS

FIGURE 1-7
Segment E of
the Proposed Action Option B

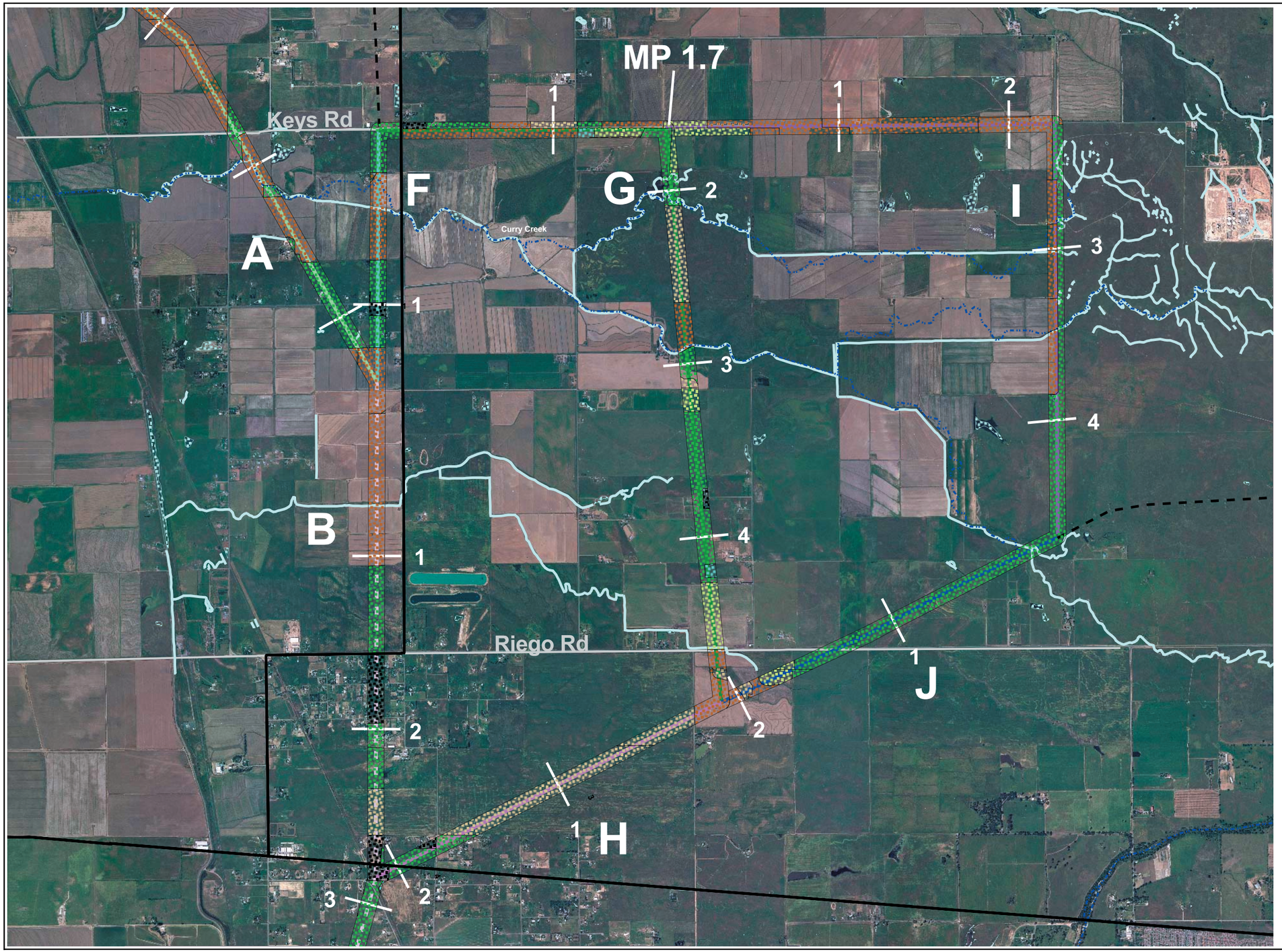
Summer 2003



SACRAMENTO AREA VOLTAGE SUPPORT EIS

Figure 1-8
Pleasant Grove Cemetery
Segment A_1 Realignment for the Proposed Action and Alternative 2

Summer 2003



Legend

Transmission Line Segments

- A and A_1
- B
- C
- D
- E
- F
- G
- H
- I
- J

DWR Land Use Categories

- Idle
- Pasture
- Rice
- Native Vegetation
- Semi Agricultural & Incidental to Agriculture
- Urban
- Wetland Areas
- Linear Wetland Features
- Streams and Rivers
- 1 Milepost

Source: Aerial Photographs 2001
Delineations provided by
Western Area Power Administration
2001 and DWR 1995, 1996

N

2000 0 2000 Feet

SACRAMENTO AREA VOLTAGE SUPPORT EIS

FIGURE 2-1
Land Use Aerial Photographs
Segments A, B, F, G, H, I and J

Summer 2003

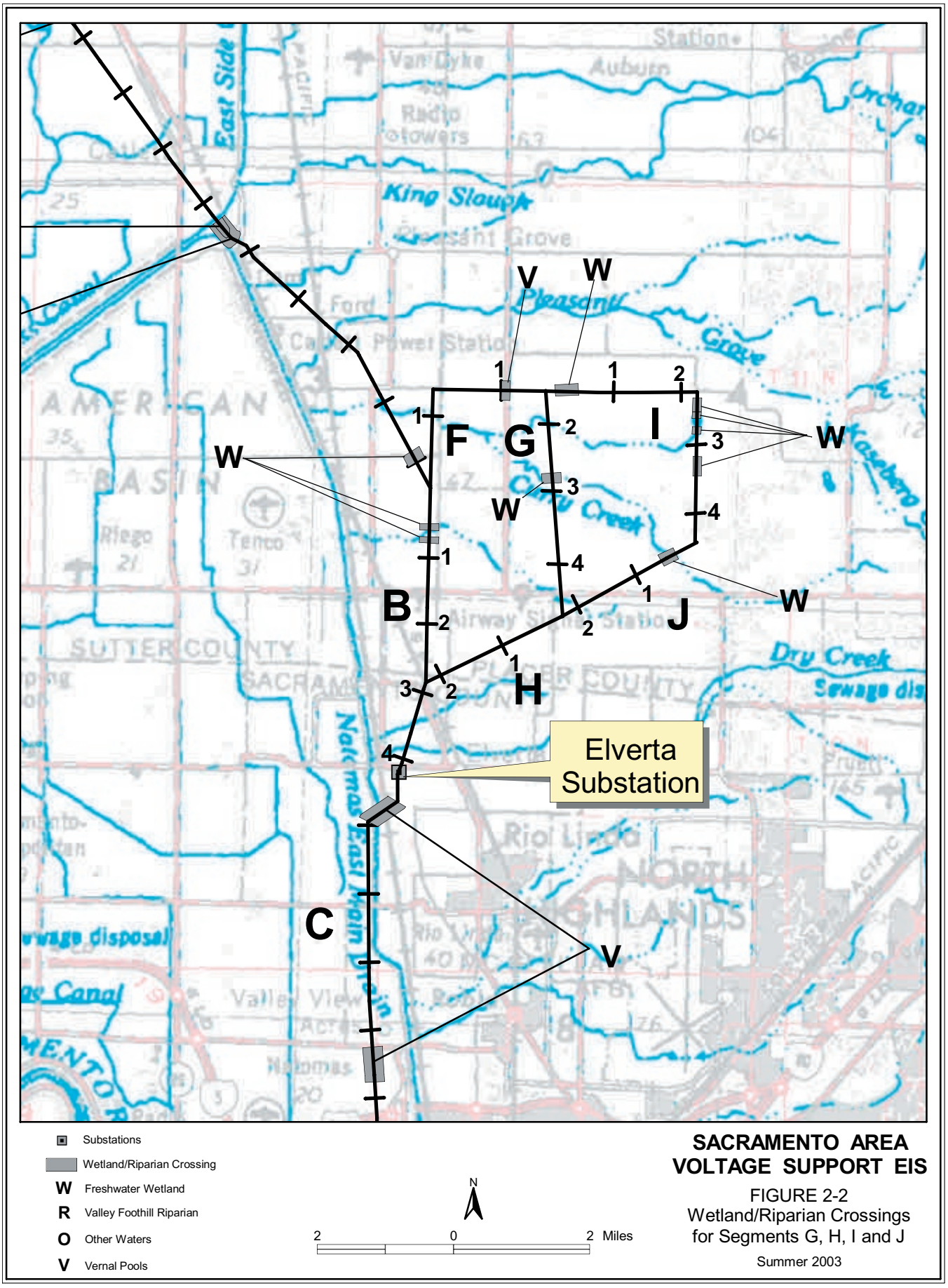

Elverta Substation
F
G
I
J
B
H
C
V
W
R
O
Substations
Wetland/Riparian Crossing
Freshwater Wetland
Valley Foothill Riparian
Other Waters
Vernal Pools
N
2 0 2 Miles
SACRAMENTO AREA VOLTAGE SUPPORT EIS
FIGURE 2-2
Wetland/Riparian Crossings for Segments G, H, I and J
Summer 2003

Table 1-1. Activities for the Proposed Action and Alternatives

Alternative	Specific Operations	
Proposed Action Option A: New Transmission O'Banion Substation to Elverta Substation; Realignment; Reconductoring Elverta Substation to Tracy Substation		
Construct and maintain 26.6 miles of new 230-kV double-circuit transmission line from O'Banion Substation to Elverta Substation (Segments A_1 and B). Realign and maintain 230-kV, single-circuit transmission line. (Construct transmission line around the Pleasant Grove Cemetery, construct 5 miles of Segment G, and abandon 3.6 miles of Segments F and H). Reconductor and maintain 73.2 miles of 230-kV, double-circuit transmission line from Tracy Substation to Elverta Substation (Segments C, D, and E).	107.8 167 163 17 28 581 66	Miles ROW length New structures Existing structures replaced Structures abandoned Miles of new access roads Acres short-term disturbed Acres long-term disturbed
Proposed Action Option B: New Transmission O'Banion Substation to Elverta Substation; Realignment; Reconductoring Elverta Substation to Tracy Substation		
Construct and maintain 26.6 miles of new 230-kV, double-circuit transmission line from O'Banion Substation to Elverta Substation (Segments A_1 and B). Realign and maintain 230-kV, single-circuit transmission line. (Construct transmission line around the Pleasant Grove Cemetery, construct 1.8 miles of Segment G and 4.3 miles of Segment I, and abandon 5.8 miles of Segments F, H, and J). Reconductor and maintain 73.2 miles of 230-kV, double-circuit transmission line from Tracy Substation to Elverta Substation (Segments C, D, and E).	111 175 163 28 29 603 69	Miles ROW length New structures Existing structures replaced Structures abandoned Miles of new access roads Acres short-term disturbed Acres long-term disturbed
Alternative 1: Reconductoring O'Banion Substation to Tracy Substation		
Reconductor and maintain 99.8 miles of 230-kV, double-circuit transmission line from O'Banion Substation to Tracy Substation (Segments A, B, C, D, and E).	99.2 199 84.6	Miles ROW length Existing structures replaced Acres short-term disturbed
Alternative 2 Option A: New Transmission O'Banion Substation to Elverta Substation and Realignment		
Construct and maintain 26.6 miles of new 230-kV, double-circuit transmission line from O'Banion Substation to Elverta Substation (Segments A_1 and B). Realign and maintain 230-kV, double-circuit transmission line (Construct transmission line around the Pleasant Grove Cemetery, construct 5 miles of Segment G, and abandon 3.6 miles of Segments F and H).	35.2 167 17 28 485.7 66	Miles ROW length New structures Structures abandoned Miles of new access roads Acres short-term disturbed Acres long-term disturbed
Alternative 2 Option B: New Transmission O'Banion Substation to Elverta Substation and Realignment		
Construct and maintain 26.6 miles of new 230-kV, double-circuit transmission line from O'Banion Substation to Elverta Substation (Segments A_1 and B). Realign and maintain 230-kV, single-circuit transmission line. (Construct transmission line around the Pleasant Grove Cemetery, construct 1.8 miles of Segment G and 4.3 miles of Segment I, and abandon 5.8 miles of Segments F, H, and J).	38.5 175 28 29 537 69	Miles ROW length New structures Structures abandoned Miles of new access roads Acres short-term disturbed Acres long-term disturbed
Alternative 3: New Transmission Elk Grove Substation to Tracy Substation		
Construct and maintain 46.2 miles of new 230-kV, double-circuit transmission line from Elk Grove Substation to Tracy Substation (Segment E_1).	46.2 225 47 855.2 108	Miles ROW length New structures Miles new access roads Acres short-term disturbed Acres long-term disturbed
No Action Alternative: Existing Transmission Line from O'Banion Substation to Tracy Substation		
Maintain 99.1 miles of 230-kV, single- and double-circuit transmission line from O'Banion Substation to Tracy Substation (Segments A, B, C, D, and E).	99.1	Miles ROW length

05-13-03
Acronyms:
kV: kilovolt
ROW: right-of-way

Table 1-2. Summary of New Disturbance

SEGMENT DESCRIPTION				MILES				NEW ROW REQUIREMENTS (in acres)		NEW STRUCTURES[b]			ACCESS ROADS[c]			PULLING SITES[d]		MATERIAL STORAGE[e]		TOTAL SHORT-TERM ACRES	TOTAL LONG-TERM ACRES
	New Construction	Reconductor	Abandon	New Construction	Reconductor	Abandon	Total Miles	New[a] Construction Short-term acres	Reconductor Short-Term Acres	Number	Short-term Acres	Long-term Acres	Miles	Short-term Acres	Long-term Acres	Number	Short-term Acres	Number	Short-term Acres		
A		A			22.4		22.4		0	32	7.4	0	0			10	4	1	5	16.4	0
A_1	A_1			22.4			22.4	339.8		126	29	12.6	23	41.8	41.8	10	4	1	5	419.6	54.4
B		B			4.2		4.2		0	4	0.9	0	0			2	0.8	0	0	1.7	0
B	B			4.2			4.2	0		16	3.7	0	0			2	0.8	0	0	4.5	0
C		C			11.2		11.2		0	20	4.6	0	0			5	2	0	0	6.6	0
D		D			15.2		15.2		0	30	6.9	0	0			11	4.4	1	5	16.3	0
E		E			46.2		46.2		0	113	26	0	0			19	7.6	2	10	43.6	0
E_1	E_1			46.2			46.2	700.3		225	51.8	22.5	47	85.5	85.5	19	7.6	2	10	855.2	108
F			F			1.4	1.4			0	0	0	0			0	0	0	0	0	0
G (Option A)	G			5			5	74.7		25	5.8	2.5	5	9.1	9.1	2	0.8	0	0	90.4	11.6
G (Option B)	G (MP 0.0 to 1.7)			1.8			1.8	27.3		10	2.3	1	1.8	3.3	3.3	2	0.8	0	0	33.7	4.3
H			H			2.2	2.2			0	0	0	0			0	0	0	0	0	0
I	I			4.3			4.3	65.1		23	5.3	2.3	4.3	7.8	7.8	2	0.8	0	0	79	10.1
J			J			2.2	2.2			0	0	0	0			0	0	0	0	0	0
Option A Realignment[f]				**5**	**0**	**2.2**	**7.2**	**74.7**	**0**	**25**	**5.8**	**2.5**	**5**	**9.1**	**9.1**	**2**	**0.8**	**0**	**0**	**90.4**	**11.6**
Option B Realignment[g]				**6.1**	**0**	**4.4**	**10.5**	**92.4**	**0**	**33**	**7.6**	**3.3**	**6.1**	**11.1**	**11.1**	**4**	**1.6**	**0**	**0**	**112.7**	**14.4**
Proposed Action Option A[h]				**31.6**	**72.6**	**3.6**	**107.8**	**414.5**	**0**	**330**	**76**	**15.1**	**28**	**50.9**	**50.9**	**49**	**19.6**	**4**	**20**	**581**	**66**
Proposed Action Option B[i]				**32.7**	**72.6**	**5.8**	**111.1**	**432.2**	**0**	**338**	**77.8**	**15.9**	**29.1**	**52.9**	**52.9**	**51**	**20.4**	**4**	**20**	**603**	**69**
Alternative 1[j]				**0**	**99.2**	**0**	**99.2**	**0**	**0**	**199**	**45.8**	**0**	**0**	**0**	**0**	**47**	**18.8**	**4**	**20**	**85**	**0**
Alternative 2 Option A[k]				**31.6**	**0**	**3.6**	**35.2**	**414.5**	**0**	**167**	**38.5**	**15.1**	**28**	**50.9**	**50.9**	**14**	**5.6**	**1**	**5**	**515**	**66**
Alternative 2 Option B[l]				**32.7**	**0**	**5.8**	**38.5**	**432.2**	**0**	**175**	**40.3**	**15.9**	**29.1**	**52.9**	**52.9**	**16**	**6.4**	**1**	**5**	**537**	**69**
Alternative 3[m]				**46.2**	**0**	**0**	**46.2**	**700.3**	**0**	**225**	**51.8**	**22.5**	**47**	**85.5**	**85.5**	**19**	**7.6**	**2**	**10**	**855**	**108**
No Action				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

05-03 (based on best available data)
[a]New Construction ROW–125 feet wide
[b]Structures–Self-supporting, lattice steel assumption (maximum disturbance per structure: temporary 0.23 acre [100 by 100 feet]. Long-term 0.1 acre [66 by 66 feet] (Slightly less long-term disturbance for single-pole steel).
Assumption: For reconductoring, number of proposed structures assumes 25% of the existing structures proposed for replacement (Segment E has 2 sets of lines in certain locations)
[c]Access Roads–15 feet wide. Assumption: Segments A, B, C, D, E, F, H, and J contain existing access roads.
[d]Pulling Sites–0.4 acre (125 by 125 feet) per site
[e]Material Storage Yards–5.0 acres (400 by 540 feet) per yard
[f]Option A realignment includes Segments G and H
[g]Option B realignment includes Segments G (MP 0.0 to 1.7), H, I, and J
[h]Proposed Action Option A includes Segments A_1, B, C, D, E, F, G, and H
[i]Proposed Action Option B includes Segments A_1, B, C, D, E, F, G (MPs 0.0 to 1.7), H, I, and J
[j]Alternative 1 includes Segments A, B, C, D, and E
[k]Alternative 2 Option A includes Segments A_1, B, F, G, and H
[l]Alternative 2 Option B includes Segments A_1, B, F, G (MPs 0.0 to 1.7), H, I, and J
[m]Alternative 3 includes Segment E_1
Acronyms:
ROW: right-of-way

Table 1-3. Comparison of Alternative Impacts

Resource Issue	Proposed Action with Option A			Proposed Action with Option B			Alternative 1			Alternative 2 with Option A			Alternative 2 with Option B			Alternative 3			No Action		
	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation
Air Quality Air emission standards	Short-term construction emissions exceed PM_{10}, NO_x, and VOC Air District thresholds	Yes	No[1]	Short-term construction emissions exceed PM_{10}, NO_x, and VOC Air District thresholds	Yes	No[1]	Short-term construction emissions exceed PM_{10}, NO_x, and VOC Air District thresholds	Yes	No[1]	Short-term construction emissions exceed PM_{10}, NO_x, and VOC Air District thresholds	Yes	No[1]	Short-term construction emissions exceed PM_{10}, NO_x, and VOC Air District thresholds	Yes	No[1]	Short-term construction emissions exceed PM_{10}, NO_x, and VOC Air District thresholds	Yes	No[1]	No additional air emission impacts	No	No
Biological Resources[2] Designated critical habitat, special status wildlife and plants, sensitive habitat types (vernal pools and riparian)	Short-term effects on critical habitat for the VELB and winter- and spring-run Chinook salmon from ground disturbance during construction activities Removal of elderberry and subsequent effect to VELB Short-term erosion or vegetation removal may impact sensitive habitats	No[3] No[3] No[3]	No[4] No[4] No[5]	Short-term effects on critical habitat for the VELB and winter- and spring-run Chinook salmon from ground disturbance during construction activities Removal of elderberry and subsequent effect to VELB Short-term erosion or vegetation removal may impact sensitive habitats	No[3] No[3] No[3]	No[4] No[4] No[5]	Short-term effects on critical habitat for the VELB and winter- and spring-run Chinook salmon from ground disturbance during construction activities Removal of elderberry and subsequent effect to VELB Short-term erosion or vegetation removal may impact sensitive habitats	No[3] No[3] No[3]	No[4] No[4] No[5]	Short-term effects on critical habitat for the VELB from ground disturbance during construction activities Removal of elderberry and subsequent effect to VELB Short-term erosion or vegetation removal may impact sensitive habitats	No[3] No[3] No[3]	No[4] No[4] No[5]	Short-term effects on critical habitat for the VELB from ground disturbance during construction activities Removal of elderberry and subsequent effect to VELB Short-term erosion or vegetation removal may impact sensitive habitats	No[3] No[3] No[3]	No[4] No[4] No[5]	Short-term effects on critical habitat for the winter- and spring-run Chinook salmon during construction activities Removal of elderberry and subsequent effect to VELB Short-term erosion or vegetation removal may impact sensitive habitats	No[3] No[3] No[3]	No[4] No[4] No[5]	Short-term effects on critical habitat from ground disturbance during maintenance activities Removal of elderberry and subsequent effect to VELB Short-term erosion or vegetation removal may impact sensitive habitats	No No No	No No No
Cultural Resources[6] Prehistoric cultural resources, historic cultural resources, and TCPs	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No	No
Electric and Magnetic Fields Corona, field, and health effects	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs.	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No	No
Environmental Justice Disproportionate adverse health effects or reduced land values to minority or low-income communities	No disproportionate adverse impacts	No	No	No disproportionate adverse impacts	No	No	No disproportionate adverse impacts	No	No	No disproportionate adverse impacts	No	No	No disproportionate adverse impacts	No	No	No disproportionate adverse impacts	No	No	No disproportionate adverse impacts	No	No

Table 1-3. Comparison of Alternative Impacts

Resource Issue	Proposed Action with Option A			Proposed Action with Option B			Alternative 1			Alternative 2 with Option A			Alternative 2 with Option B			Alternative 3			No Action		
	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation
Floodplains[7] Obstruction of flood flows, decreased capacity to convey peak flows, and destabilization of soils	100-year floodplain disturbance Short-term effects on floodplain attributable to temporary construction and work sites Long-term impacts attributable to concrete footings	No[3]	No	100-year floodplain disturbance Short-term effects on floodplain attributable to temporary construction and work sites Long-term impacts attributable to concrete footings	No[3]	No	100-year floodplain disturbance Short-term effects on floodplain attributable to temporary construction and work sites Long-term impacts attributable to concrete footings	No[3]	No	100-year floodplain disturbance Short-term effects on floodplain attributable to temporary construction and work sites Long-term impacts attributable to concrete footings	No[3]	No	100-year floodplain disturbance Short-term effects on floodplain attributable to temporary construction and work sites Long-term impacts attributable to concrete footings	No[3]	No	100-year floodplain disturbance. Short-term effects on floodplain attributable to temporary construction and work sites Long-term impacts attributable to concrete footers	No[3]	No	Insignificant short-term impacts	No	No
Geology Subsidence, landslides, and seismic hazards	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No	No
Health and Safety Hazardous materials/ waste, electrical hazards, and fall hazards	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No	No
Land Use Proximity of new ROW of transmission lines to residences, loss of prime farmland, effects on recreation and open space, and impacts to traffic patterns during construction	<u>Short-term effects</u>: An agricultural outbuilding would require removal for one property owner Reconductoring activities near recreation/open space facilities, tennis club, and the Country Day School Traffic patterns may be suspended during construction <u>Long-term effects</u>: Majority of construction within existing ROW Five residences located within 0.5 mile of new ROW (Segment G) Realigning transmission line to avoid cemetery Loss of 6.7 acres of prime farmland for the entire project would not result in significant impacts	Short-term impact for one property owner	No[8]	<u>Short-term effects</u>: Reconductoring activities near recreation/ open space facilities, tennis club, and the Country Day School Traffic patterns may be suspended during construction <u>Long-term effects</u>: Majority of construction within existing ROW Realigning transmission line to avoid cemetery Loss of 7.6 acres of prime farmland for the entire project would not result in significant impacts Five residences located within 0.5 mile of new ROW (Segments G [MPs 0.0 to 1.7] and I)	No[3]	No	<u>Short-term effects</u>: Reconductoring activities near recreation/ open space facilities, tennis club, and the Country Day School No loss of prime farmland Traffic patterns may be suspended during construction	No[3]	No	<u>Short-term effects</u>: An agricultural outbuilding would require removal for one property owner Reconductoring activities near recreation/ open space facilities, tennis club, and the Country Day School Traffic patterns may be suspended during construction <u>Long-term effects</u>: Five residences located within 0.5 mile of new ROW (Segment G) Realigning transmission line to avoid cemetery Loss of 6.7 acres of prime farmland for the entire project would not result in significant impacts	Short-term impact for one property owner	No[8]	<u>Short-term effects</u>: Reconductoring activities near recreation/ open space facilities, tennis club, and the Country Day School Traffic patterns may be suspended during construction <u>Long-term effects</u>: Five residences located within 0.5 mile of new ROW (Segments G [MPs 0.0 to 1.7] and I) Realigning transmission line to avoid cemetery Loss of 7.6 acres of prime farmland for the entire project would not result in significant impacts	No[3]	No	<u>Short-term effects</u>: New construction activities near recreational park and tennis courts Traffic patterns may be suspended during construction <u>Long-term effects</u>: Construction adjacent to existing ROW. Loss of 15.2 acres of prime farmland	No[3]	No	Short-term impacts when maintenance vehicles cross farmland	No	No

Table 1-3. Comparison of Alternative Impacts

Resource Issue	Proposed Action with Option A			Proposed Action with Option B			Alternative 1			Alternative 2 with Option A			Alternative 2 with Option B			Alternative 3			No Action		
	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation
Noise Noise average day-night noise levels (L_{dn})	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No	No
Paleontological Resources Destruction of significant fossils	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No	No
Socio-economics Population growth and related inability to meet demand for schools and housing, adverse effect on income, displacement of residents and disruption of businesses, adverse effect on property values, and disproportionate impacts on minority, low-income or tribal populations	Short-term effects: An agricultural outbuilding used for business would require removal for one property owner Increased employment in the study area Long-term effects: Loss of farmland	Short-term impact for one property owner	No[8]	Short-term effects: Increased employment in the study area Long-term effects: Loss of farmland	No[3]	No	Short-term effects: Increased employment in the study area Long-term effects: Loss of farmland	No[3]	No	Short-term effects: One agricultural outbuilding used for business would require removal Increased employment in the study area Long-term effects: Loss of farmland	Short-term impact for one property owner	No[8]	Short-term effects: Increased employment in the study area Long-term effects: Loss of farmland	No[3]	No	Short-term effects: Increased employment in the study area Long-term effects: Loss of farmland	No[3]	No	No impacts are expected	No	No
Soils Erosion, improper drainage, high water erodibility, steep slopes, and compaction	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No[3]	No	No impacts with implementation of design standards and adherence to EPMs	No	No
Visual Resources Altering existing landscapes, effects to areas of high visual quality or scenic landscapes, and consistency with local and county general plans	Long-term effects: Five residences are located within 0.5 mile of new ROW in Segment G. These residences view two other transmission lines in the general area	No[3]	No	Long-term effects: Five residences located within 0.5 mile of new ROW (Segments G [MPs 0.0 to 1.7] and I) These residences view two other transmission lines in the general area	No[3]	No	Short-term impacts during restringing of transmission lines	No[3]	No	Long-term effects: Five residences are located within 0.5 mile of new ROW in Segment G. These residences view two other transmission lines in the general area	No[3]	No	Long-term effects: Five residences located within 0.5 mile of new ROW (Segments G [MPs 0.0 to 1.7] and I) These residences view two other transmission lines in the general area	No	No	Long-term effects: ROW located at the Cosumnes River Preserve. Other transmission lines are located in the adjacent ROW	No[3]	No	No impacts are expected	No	No

Table 1-3. Comparison of Alternative Impacts

Resource Issue	Proposed Action with Option A			Proposed Action with Option B			Alternative 1			Alternative 2 with Option A			Alternative 2 with Option B			Alternative 3			No Action		
	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation	Impacts	Significant Impact	Mitigation
Water Resources Erosion, compaction, and sedimentation or blockage of drainage; introduction of debris, fill, or contamination into surface water or groundwater; damage to irrigation improvements; and depletion of water resources	Surface water would be spanned, and revegetation would minimize erosion and sedimentation No impacts with implementation of design standards and adherence to EPMs	No[3]	No[6]	Surface water would be spanned, and revegetation would minimize erosion and sedimentation No impacts with implementation of design standards and adherence to EPMs	No[3]	No[6]	No impacts expected are expected	No	No	Surface water would be spanned, and revegetation would minimize erosion and sedimentation No impacts with implementation of design standards and adherence to EPMs	No[3]	No[6]	Surface water would be spanned, and revegetation would minimize erosion and sedimentation No impacts with implementation of design standards and adherence to EPMs	No[3]	No[6]	Surface water would be spanned, and revegetation would minimize erosion and sedimentation No impacts with implementation of design standards and adherence to EPMs	No[3]	No[6]	No impacts are expected	No	No
Wetlands Degradation of biological values and wetland functions from excavation, fill, disturbance, or sedimentation; and increased access by humans or invasive species	Wetlands would be avoided No impacts with implementation of design standards and adherence to EPMs	No[3]	No[6]	Wetlands would be avoided Segment I would cross several miles of native vegetation with wetlands expected to be avoided through design and implementation of EPMs	No[3]	No[6]	Wetlands would be avoided No impacts with implementation of design standards and adherence to EPMs	No[3]	No[6]	Wetlands would be avoided No impacts, with implementation of design standards and adherence to EPMs	No[3]	No[6]	Wetlands would be avoided Segment I would cross several miles of native vegetation with wetlands expected to be avoided through design and implementation of EPMs	No[3]	No[6]	Wetlands would be avoided No impacts with implementation of design standards and adherence to EPMs	No[3]	No[6]	No impacts are expected	No	No

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[1]Western would coordinate with the air districts after a project is selected.
[2]Biological surveys would be conducted for only the action determined in the ROD.
[3]Western would adhere to EPMs to minimize impacts.
[4]Western would coordinate with USFWS and CDFG as part of their Section 7 consultation in case elderberry bushes (the habitat of the VELB) are removed.
[5]Surface water and riparian habitat would be spanned and wetlands avoided; however, if they could not be spanned or avoided, Western would confer with USACE, RWQCB, and USFWS.
[6]Class III inventories would be conducted for only the action determined in the ROD.
[7]Construction in floodplains would require Western to confer with USACE, RWQCB, and the California Reclamation Board.
[8]Western would purchase the property at fair market value in conformance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act*
Acronyms:
EPM: Environmental Protection Measure
MP: milepost
NO_x: nitrogen oxides
PM_{10}: Particulate matter less than or equal to 10 microns in diameter
ROD: Record of Decision
ROW: right-of-way
RWQCB: Regional Water Quality Control Board
TCP: traditional cultural property
USACE: U.S. Army Corps of Engineers
USFWS: U.S. Fish and Wildlife Service
VELB: Valley elderberry longhorn beetle
VOC: volatile organic compounds
Western: Western Area Power Administration

Table 1-4. Environmental Protection Measures

No.	Resource	Environmental Protection Measures
1	Air Quality	All requirements of those entities having jurisdiction over air quality matters would be adhered to and any permits needed for construction activities would be obtained. Open burning of construction trash would not be allowed.
2	Air Quality	Project participant would use reasonably practicable methods and devices to control, prevent, and otherwise minimize atmospheric emissions or discharges of air contaminants.
3	Air Quality	Visible emissions from diesel-powered equipment would be controlled.
4	Air Quality	Emissions from all off-road diesel powered equipment would not exceed 40 percent opacity for more than three minutes in any one hour.
5	Air Quality	Equipment and vehicles that show excessive emissions of exhaust gases due to poor engine adjustments or other inefficient operating conditions would not be operated until corrective repairs or adjustments were made.
6	Air Quality	Vehicles and equipment used in construction and maintenance of the Proposed Action or alternatives would maintain appropriate emissions control equipment and be appropriately permitted.
7	Air Quality	Road construction would include dust-control measures such as watering and other approved suppressing agents for limiting dust generation during construction.
8	Air Quality	Fill material storage piles would include dust-control measures such as water or chemical suppressants.
9	Air Quality	Ground surfaces, which have been significantly disturbed, would be seeded appropriately to prevent wind dispersion of soil.
10	Air Quality	Removal of vegetation and ground disturbance would be limited to the minimum area necessary to complete project construction activities. Vegetative cover would be maintained on all other portions of the project area.
11	Air Quality	Regular watering of exposed soils and unpaved access roads would be conducted during construction periods.
12	Air Quality	Grading activities would cease during periods of high winds (greater than 25 mph averaged over one hour).
13	Air Quality	Trucks transporting loose material would be covered or maintain at least two feet of freeboard and not create any visible dust emissions.
14	Biological Resources	Mitigation measures developed during the consultation period under Section 7 of the ESA would be adhered to as specified in the subsequent Biological Opinion of the USFWS. In addition, mitigation developed in conjunction with state and tribal authorities would be followed.
15	Biological, Cultural, and Paleontological Resources	Before construction, all construction personnel would be instructed on the protection of cultural, paleontological, and ecological resources. To assist in this effort, the construction contract would address Federal, state, and tribal laws regarding antiquities, fossils, plants, and wildlife, including collection and removal, and the importance of these resources and the purpose and necessity of protecting them. Western would instruct that cultural resources might be present in the study area. Construction personnel would be trained to stop work near any discovery, and notify Western's regional environmental manager, who would confirm that the resource is evaluated and avoided. Known cultural resources would be fenced and a minimum distance maintained for work disturbances.
16	Biological Resources	Construction sites located in sensitive habitats would require a qualified biologist to conduct a site survey before clearing vegetation. The purpose of this survey would be to identify any biologically sensitive issues such as wetlands, vernal pools, or habitat of concern. Western would avoid or use best management practices to lessen disturbance.

Table 1-4. Environmental Protection Measures

No.	Resource	Environmental Protection Measures
17	Biological Resources	During construction, no equipment refueling or oil changing would be conducted within 300 feet of any water body or streams.
18	Biological Resources	Within riverine habitat, ROW clearing would be done by manual methods. Construction activities would not occur within 100 feet of the streambank.
19	Biological Resources	Vegetation would be controlled or removed in accordance with *Western's Integrated Vegetation Management Environmental Guidance Manual* (Western 1999).
20	Biological Resources	To the extent practical, freshwater emergent, lacustrine, and riverine wetlands would be spanned and vehicular traffic would not encroach within 100 feet of the boundary of these wetlands.
21	Biological Resources	To the extent practical, during the wet season, vernal pools would be driven around, spanned, or otherwise avoided.
22	Biological Resources	Reconductoring and/or replacing insulators on structures containing active raptor nests would be conducted after young birds have fledged. Inactive nests would not be removed from structures unless they pose a safety or reliability hazard.
23	Biological Resources	Human activity in the Cosumnes River Preserve during the winter months could disturb foraging behavior and adversely affect sandhill cranes. Western would coordinate construction timing in this area with the Preserve and the USFWS to the extent practical.
24	Biological Resources	Construction between the Cosumnes River and Laguna Creek could result in increased erosion and sedimentation, which may adversely affect fish species occurring in the area. Western would span these water bodies. No construction equipment would cross via the water bodies when water is present. In addition, sedimentation control structures would be used to prevent sediment from reaching riverine habitat.
25	Biological Resources, Floodplains, Water Resources, and Wetlands	Hazardous materials would not be drained onto the ground, into streams, or into drainage areas. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, would be removed to a disposal facility authorized to accept such materials.
26	Biological Resources	Special-status species habitats or other species of particular concern would be considered during post-EIS phases of project implementation in accordance with management policies set forth by the appropriate land-managing agency. This could entail conducting surveys for habitat, plant, and wildlife species of concern. Where such species are identified, appropriate action would be taken to avoid adverse impacts on the species or habitat.
27	Biological Resources, Soils, and Land Use	On completion of the work, all work areas except access trails would be scarified or left in a condition that would facilitate natural or appropriate vegetation, provide for proper drainage, and prevent erosion.
28	Cultural Resources	[1] Cultural resources would be considered during post-EIS phases of project implementation in accordance with the programmatic agreement being developed in conjunction with the EIS. Surveys to inventory and evaluate cultural resources would be conducted.
29	Cultural Resources	Where ground-disturbing activities are identified, cultural resource evaluations would be done to determine the need for field inventory. Construction activities would avoid all historic properties, or a special use permit or mitigation plan would be developed in consultation with SHPO.
30	Cultural Resources, Floodplains, Water Resources, and Wetlands	Irrigation system features, which are eligible for the NRHP, would be avoided during the siting of new transmission line structures and access roads, and most other irrigation system features would be avoided to the extent practicable in the siting of new structures and access roads.
31	Electric and Magnetic Fields	Complaints of radio or television interference generated by the transmission line will be responded to and appropriate actions taken.

Table 1-4. Environmental Protection Measures

No.	Resource	Environmental Protection Measures
32	Floodplains, Soils, Water Resources, and Wetlands	In construction areas (for example, material storage yards, structure sites, and spur roads from existing access roads) where ground disturbance is substantial or where recontouring is required, surface restoration would occur.
33	Floodplains, Soils, Water Resources, and Wetlands	Access roads would be built at right angles to the streams and washes to the extent practicable. Culverts would be installed where needed. All construction activities would be conducted to minimize disturbance to vegetation and drainage channels.
34	Floodplains, Soils, Water Resources, and Wetlands	Excavated material or other construction materials would not be stockpiled or deposited near or on stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff or can encroach, in any way, upon the watercourse.
35	Floodplains, Soils, Water Resources, and Wetlands	Nonbiodegradable debris would not be deposited in the ROW. Slash and other biodegradable debris would be left in place or disposed.
36	Floodplains, Soils, Water Resources, and Wetlands	All soil excavated for structure foundations would be backfilled and tamped around the foundations, and used to provide positive drainage around the structure foundations. Excavated soil excess to these needs would be removed from the site and disposed of appropriately.
37	Floodplains, Water Resources, and Wetlands	To the extent possible, new structures and access roads would be sited out of floodplains. Due to the abundance of floodplains and surface water resources in the study area, complete avoidance may not be possible, and Western will consult with USACE.
38	Floodplains, Water Resources, and Wetlands	Culverts would be installed where needed to avoid surface water impacts during construction of transmission line structures. All construction activities would be conducted in a manner to avoid impacts to water flow.
39	Geology	Geological hazards would be evaluated during final design specification for each structure location and road construction area. Options would include avoidance of a poor site by selection of a site with stable conditions, or correction of the unsuitable slope.
40	Health and Safety	Conform with safety requirements for maintaining the flow of public traffic and would conduct construction operations to offer the least possible obstruction and inconvenience to public transportation.
41	Health and Safety	Comply with all applicable health and safety standards.
42	Health and Safety and Land Use	Some land uses occurring within the ROW would require temporary closure or limited access. Proper signage would be posted in these areas.
43	Health and Safety	For identified locations, structures and/or shield wire would be marked with highly visible devices where required by governmental agencies (for example, the FAA).
44	Land Use	Construction operations would be conducted to prevent unnecessary destructing, scarring, or defacing of the natural surroundings to preserve the natural landscape to the extent practicable.
45	Land Use	No permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey.
46	Land Use	When weather and ground conditions permit, all construction-caused deep ruts that are hazardous to farming operations and to moving equipment would be restored to preconstruction condition, as practical.
47	Land Use	During construction, movement would be limited to the access roads and within a designated area in the ROW to minimize damage to agricultural land.
48	Land Use	Damaged fences and gates would be repaired or replaced to restore them to their preconstruction condition.
49	Noise	All vehicles and equipment would be equipped with required exhaust noise abatement suppression devices.

Table 1-4. Environmental Protection Measures

No.	Resource	Environmental Protection Measures
50	Paleontological Resources	Preconstruction surveys of sensitive paleontological areas may be conducted as agreed upon by the land-managing agency and lead Federal agency.
51	Soils and Geology	A California registered Professional Geotechnical Engineer would evaluate the potential for geotechnical hazards and unstable slopes on the centerline route and areas of new road construction or widening on slopes with over 15 percent gradient.
52	Soils	[2]All construction must be in conformance with Western's *Erosion Control and Revegetation Plan.*
53	Soils	If wet areas cannot be avoided, wide-track or balloon tire vehicles and equipment and or timber mats would be used.
54	Soils, Water Resources, and Wetlands	All construction vehicle movement outside the ROW normally would be restricted to predesignated access, contractor-acquired access, or public roads.
55	Soils, Water Resources, and Wetlands	When feasible, all construction activities would be rerouted around wet areas while ensuring that the route does not cross sensitive resource areas.
56	Soils, Water Resources, and Wetlands	Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses would be conducted to prevent muddy water and eroded materials from entering the streams or watercourses with construction of interceptors.
57	Soils, Water Resources, and Wetlands	Runoff from the construction site would be controlled and meet the RWQCB storm water requirements.
58	Visual Resources	Transmission structures would be constructed of galvanized material.
59	Water Resources and Wetlands	Construction within jurisdictional waters or wetlands may require 401 and 404 permits. These activities would be coordinated with the USACE and RWQCB, as needed.

Source: Western Area Power Administration, Sierra Nevada Region Memorandum: Environmental Protection Measures, 2002
[1]The Programmatic Agreement will not be initiated, but consultation will continue with the appropriate agencies and groups.
[2]The reference to the Erosion Control Plan was incorrect. The correct document is *Western's Integrated Vegetative Management Environmental Guidance Manual* as identified in Table 4-2.

Acronyms:
EIS: Environmental Impact Statement
ESA: *Endangered Species Act*
FAA: Federal Aviation Administration
mph: miles per hour
ROW: right-of-way
NRHP: National Register of Historic Places
RWQCB: Regional Water Quality Control Board
SHPO: State Historic Preservation Officer
USACE: U.S. Army Corp of Engineers
USFWS: U.S. Fish and Wildlife Service

Table 1-5. Potential Coordination, Consultation, Permits, Certifications, and Leases

Coordination, Consultation, Leases, Permits, and Certifications	Reason for Action	Responsible Agency
Coordination with Air Districts	**Coordination.** Construction activities may produce emissions for particulate matter less than or equal to 10 microns in diameter (PM_{10}) and nitrogen oxides (NO_x) that exceed significant thresholds. Western will coordinate with applicable air districts to determine actions after the construction plan has been determined. If rules are issued to control particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$) by the time a project commences, Western would consult with air districts as appropriate.	BAAQMD, FRAQMD, PCAPCD, SJVAPCD, or SMAQMD
Jurisdictional Delineation of Waters of the United States	**Coordination.** Western will complete a survey of the Waters of the United States and coordinate the findings with USACE.	USACE
Section 7 *Endangered Species Act* Consultation	**Consultation.** Western will consult with USFWS, NOAA Fisheries, and CDFG concerning impacts to endangered species and avoidance measures	USFWS, NOAA Fisheries, and CDFG
Nationwide Permit 12 Utility Line Activities	**Permit.** A permit may be required if construction, maintenance, or expansion of a substation facility associated with a power line in nontidal Waters of the United States, excluding nontidal wetlands adjacent to tidal waters, provided the activity does not result in the loss of greater than 0.5 acre of nontidal Waters of the United States.	USACE
Section 404 Permit for Discharge of Dredged or Fill Materials into Waters of the United States	**Permit.** A permit may be required if construction activities result in "fill" or temporary diversion within the ordinary high water mark of Waters of the United States.	USACE
Section 401 Water Quality Certification and/or Waiver	**Certification.** If the construction activities result in discharge into a water body, a certification is required by RWQCB.	RWQCB
Section 1601 Streambed Alteration Agreement	**Coordination.** If the construction will impact a river, stream, lake, or riparian habitat, a streambed alteration agreement is required	CDFG
State Highway Encroachment Permit	**Permit.** If construction activities require entrance into a state, highway right-of-way encroachment permits may be required.	Caltrans
State-owned Fee Land Leases	**Leases.** Construction activities may be within state-owned fee lands of the Old River, Middle River, San Joaquin River, Fourteen Mile Slough, Pixley Slough, Mokelumne River, American River, or Feather River. These waterways are within state-owned lands.	CSLC

May 2003
Acronyms:
$PM_{2.5}$: particulate matter less than or equal to 2.5 microns in diameter
PM_{10}: particulate matter less than or equal to 10 microns in diameter
NO_x: nitrogen oxides
BAAQMD: Bay Area Air Quality Management District
Caltrans: California Department of Transportation
CDFG: California Department of Fish and Game
CSLC: California State Lands Commission
FRAQMD: Feather River Air Quality Management District
NOAA Fisheries: National Marine Fisheries Service
PCAPCD: Placer County Air Pollution Control District
SJVAPCD: San Joaquin Valley Unified Air Pollution Control District
SMAQMD: Sacramento Metropolitan Air Quality Management District
RWQCB: Regional Water Quality Control Board
USACE: U.S. Army Corp of Engineers
USFWS: U.S. Fish and Wildlife Service
Western: Western Area Power Administration