

# *FINAL REPORT - APPENDIX* **CALIFORNIA HIGH-SPEED RAIL CORRIDOR EVALUATION**



*Prepared for:*



*Prepared by:*



*In Association with:*

**SYSTRA Consulting, Inc.**  
**The Duffey Company**  
**Valley Research and Planning Associates**

**DECEMBER 30, 1999**

**HSR - 98004**

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# FINAL REPORT CALIFORNIA HIGH-SPEED RAIL CORRIDOR EVALUATION

## APPENDIX

**Prepared For:**  
**California High-Speed Rail Authority**

Prepared By:  
**Parsons Brinckerhoff Quade & Douglas, Inc.**

In Association with:  
**SYSTRA Consulting, Inc.**  
**The Duffey Company**  
**Valley Research and Planning Associates**

December 30, 1999

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# APPENDIX A

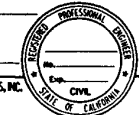
## Typical Cross Sections



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
				3	112

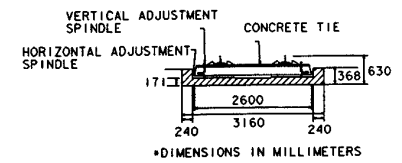
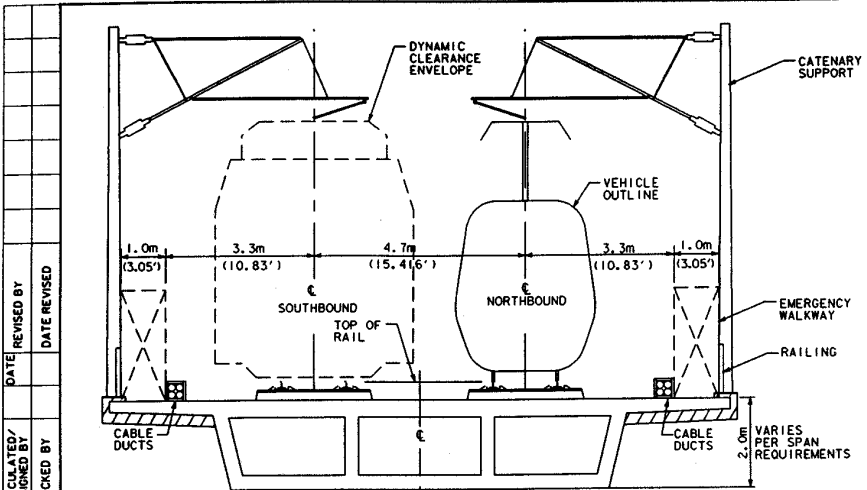


REGISTERED CIVIL ENGINEER



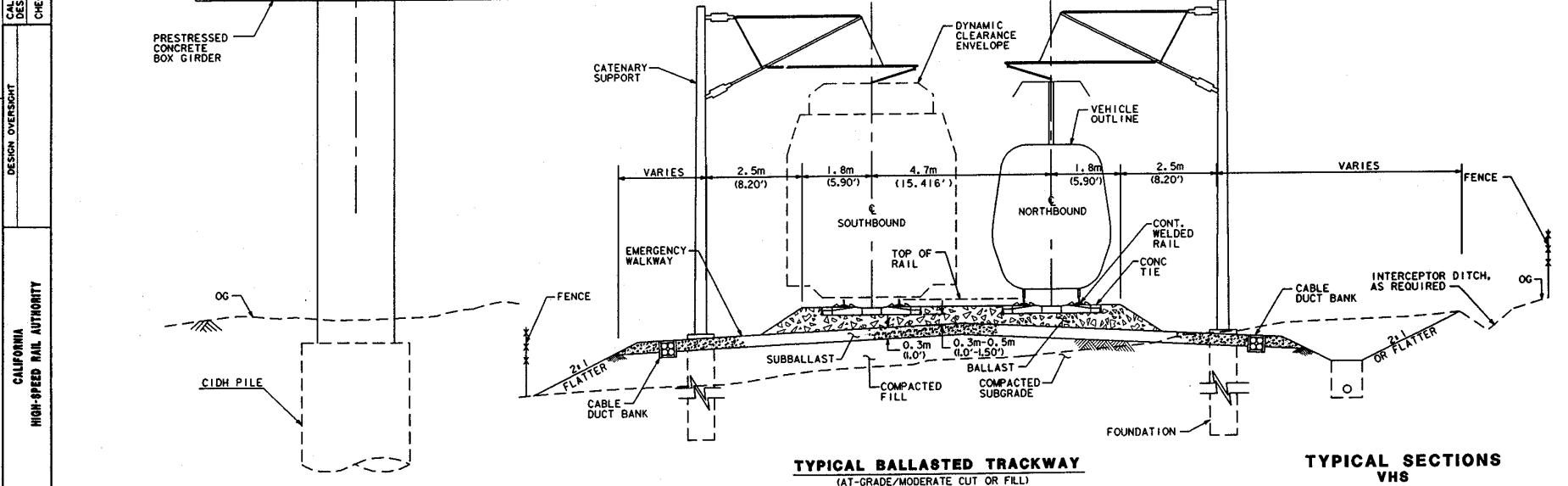
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ALTERNATIVE (RHEDA) CONCRETE SLAB TRACK

NOTE:  
 TRACK SPACING VARIES ACCORDING  
 TO DESIGN SPEED.



TYPICAL BALLASTED TRACKWAY  
 (AT-GRADE/MODERATE CUT OR FILL)  
 (VHS)

TYPICAL SECTIONS  
 VHS

SCALE 1:50

X-1



NOTE: PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE

CALIFORNIA  
 HIGH-SPEED RAIL AUTHORITY

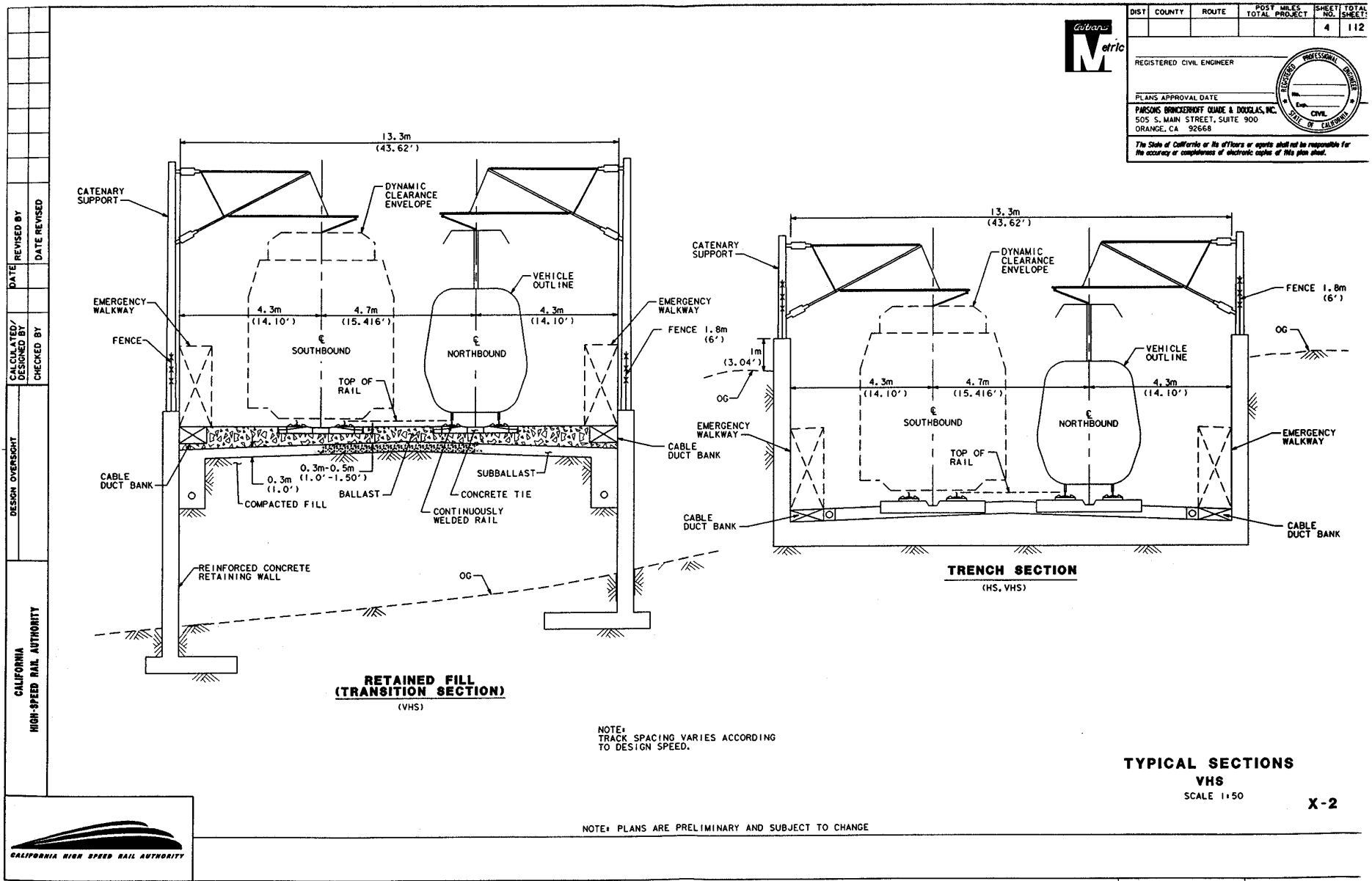


FOR REDUCED PLANS 0 1 2

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				4	112


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**TYPICAL SECTIONS**  
VHS  
SCALE 1:150  
X-2



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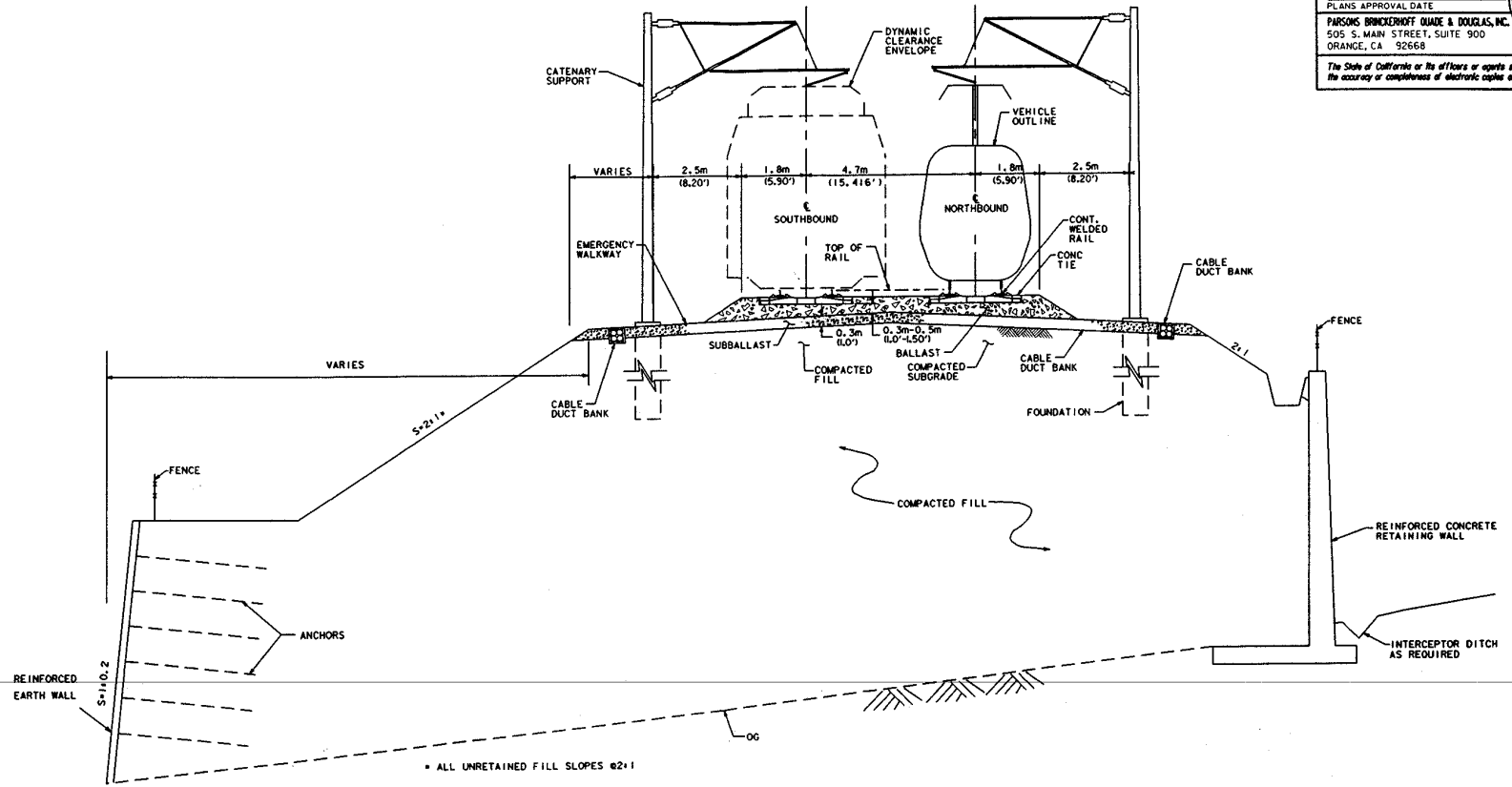
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**RETAINED FILL SECTION (VHS)**  
(HIGH FILLS)

NOTE: TRACK SPACING VARIES ACCORDING TO DESIGN SPEED.

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**TYPICAL SECTIONS**  
HS/VHS  
SCALE 1:60 X-3





DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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REGISTERED CIVIL ENGINEER

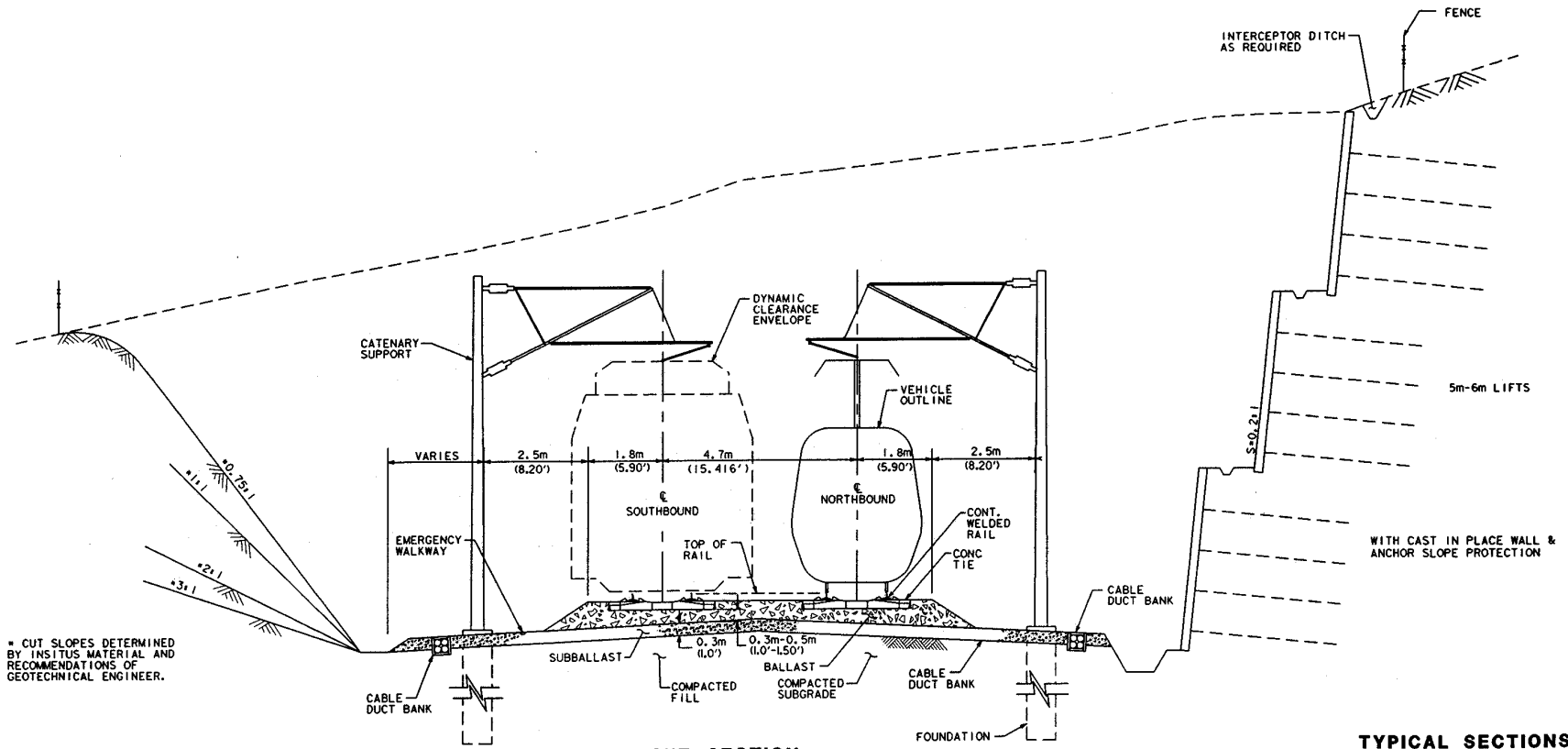
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PROFESSIONAL SEAL  
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 STATE OF CALIFORNIA

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\* CUT SLOPES DETERMINED BY INSITU MATERIAL AND RECOMMENDATIONS OF GEOTECHNICAL ENGINEER.

**CUT SECTION (VHS)**

**TYPICAL SECTIONS VHS**


SCALE 1:50

NOTE: TRACK SPACING VARIES ACCORDING TO DESIGN SPEED.

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DIST	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEET
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 REGISTERED CIVIL ENGINEER

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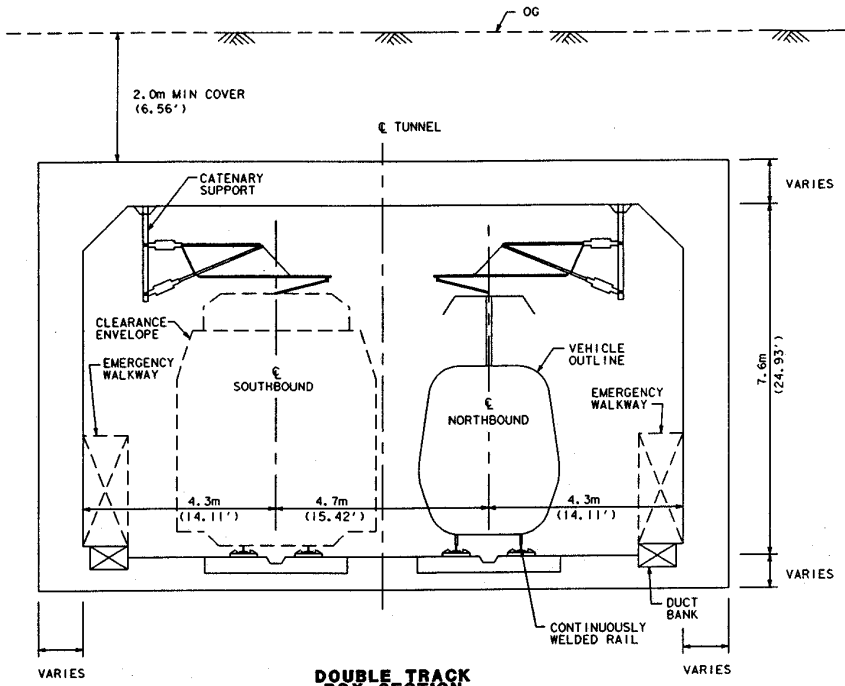
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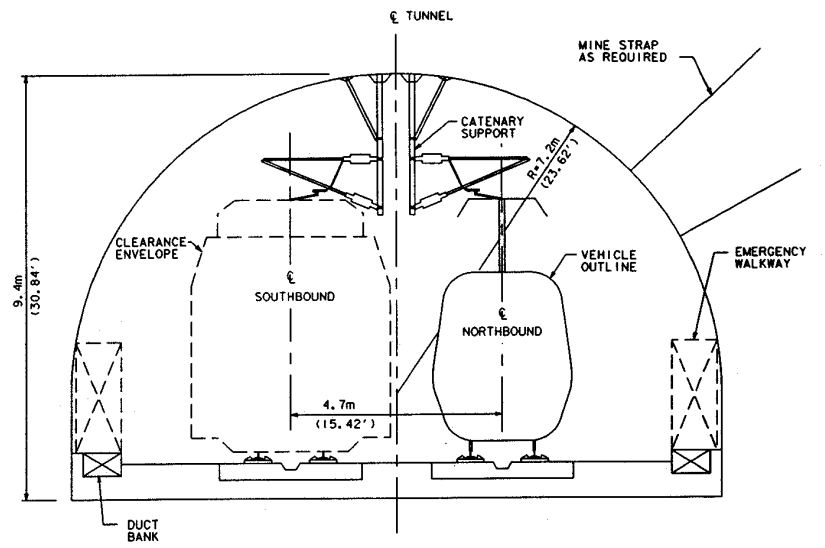


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**DOUBLE TRACK BOX SECTION**  
(VHS)



**DOUBLE TRACK TUNNEL**  
(VHS)

NOTE:  
TUNNEL AND BOX SECTION AREA  
AND TRACK SPACING VARIES ACCORDING  
TO DESIGN SPEED.

NOTE:  
MINED TUNNELS SHALL BE FINISHED  
AS FOLLOWS IN ACCORDANCE  
WITH RECOMMENDATION OF  
GEOTECHNICAL ENGINEER AND SHALL BE:  
1. ROCK DOWELS,  
2. PATTERN ROCK DOWEL,  
3. SHOTCRETE AND DOWELS,  
4. LATTICE GIRDERS AND CAST-IN-PLACE  
CONCRETE LININGS.

**TYPICAL SECTIONS**  
**VHS**  
SCALE 1:50

X-5

NOTE: PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE





DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

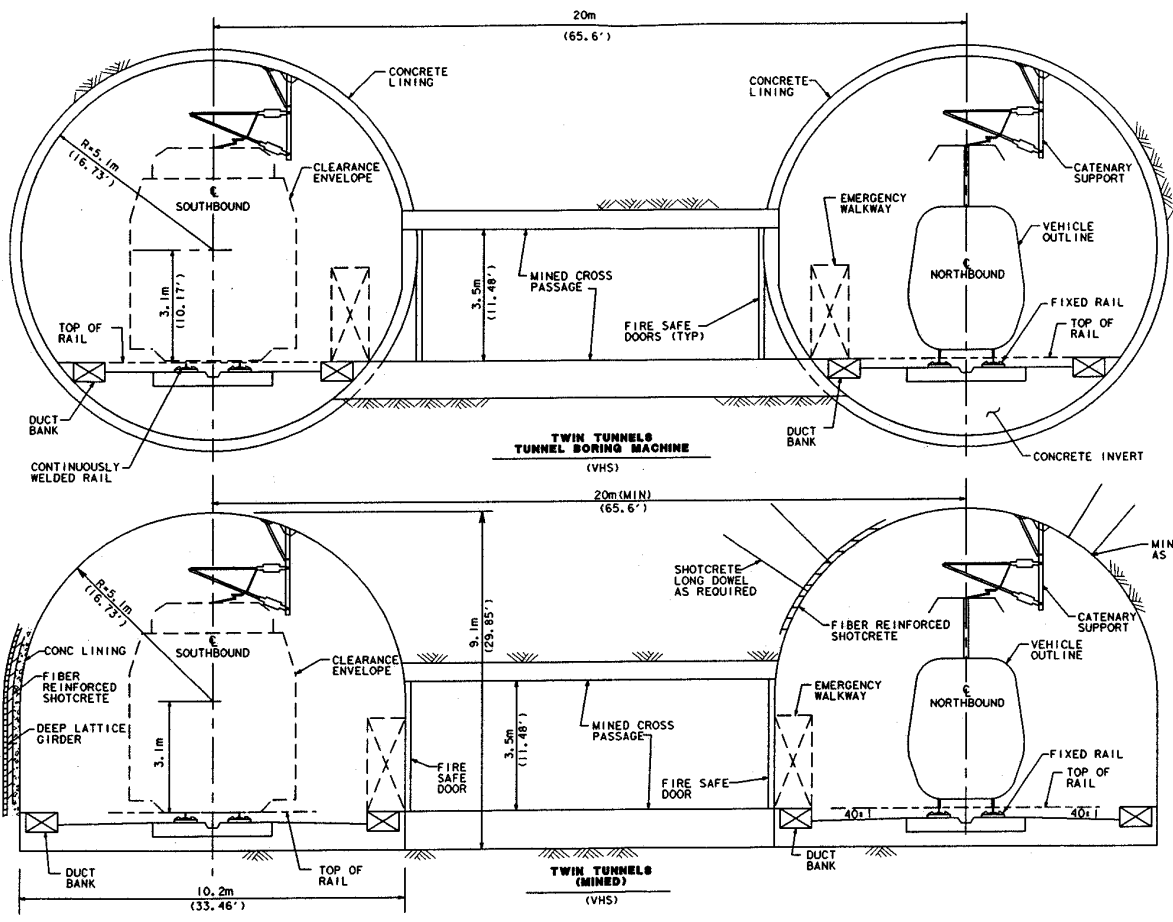
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CALIFORNIA HIGH-SPEED RAIL AUTHORITY



NOTE: TUNNEL RADIUS VARIES ACCORDING TO DESIGN SPEED.

NOTE: MINED TUNNELS SHALL BE FINISHED AS FOLLOWS IN ACCORDANCE WITH RECOMMENDATION OF GEOTECHNICAL ENGINEER AND SHALL BE:

1. ROCK DOWELS.
2. PATTERN ROCK DOWEL.
3. SHOTCRETE AND DOWELS.
4. LATTICE GIRDERS AND CAST-IN-PLACE CONCRETE LININGS.

**TYPICAL SECTIONS**  
**VHS**  
SCALE 1:60

X-6

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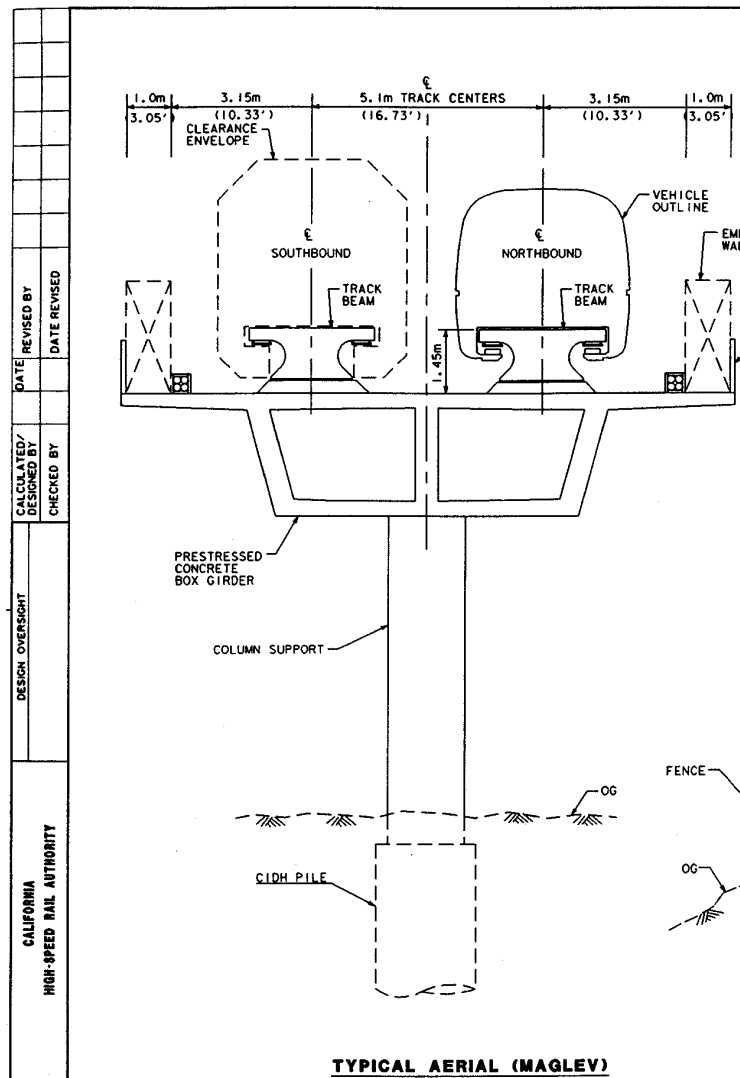
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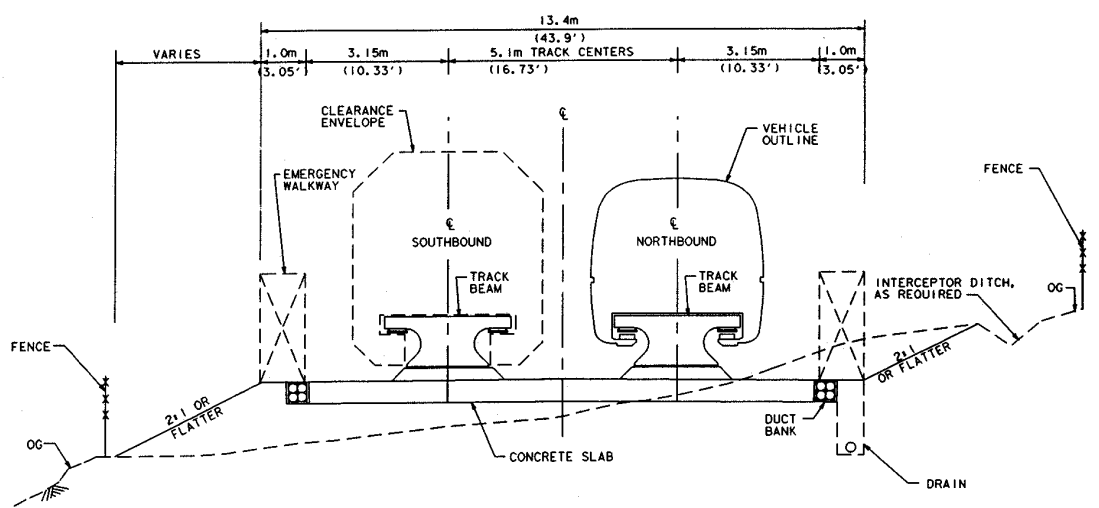
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**TYPICAL AERIAL (MAGLEV)**



**TYPICAL SECTIONS**  
 MODERATE CUT OR FILL

**TYPICAL SECTIONS**  
 SCALE 1:50 X-7

NOTE: GUIDEWAY SPACING VARIES ACCORDING TO DESIGN SPEED.

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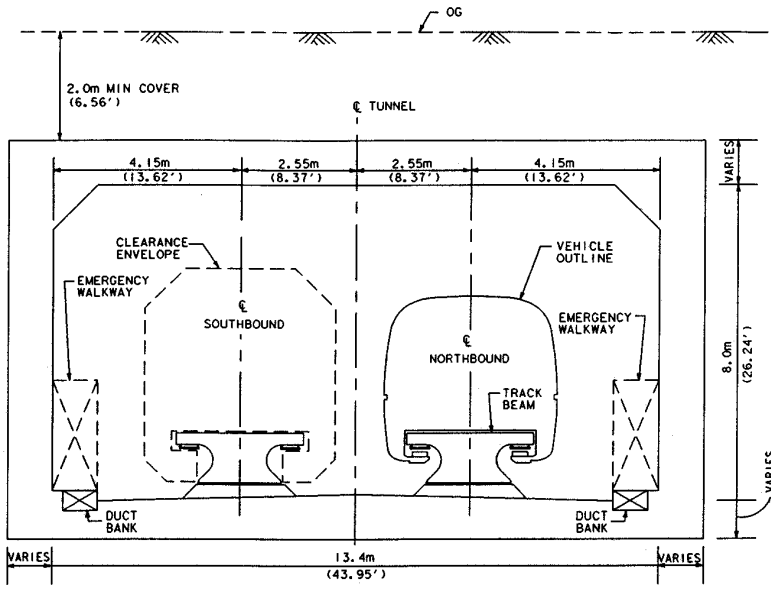
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 REGISTERED CIVIL ENGINEER

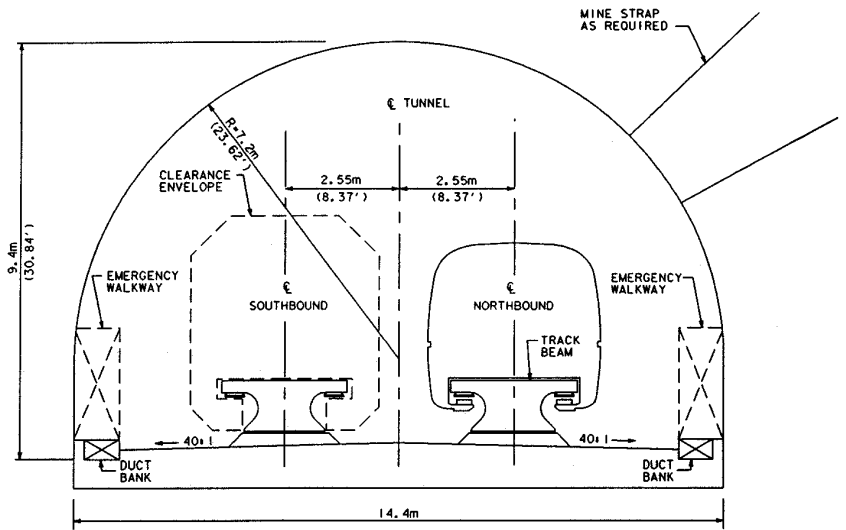
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**DOUBLE TRACK-BOX SECTION (MAGLEV)**



**DOUBLE TRACK TUNNEL (MAGLEV)**

NOTE: TUNNEL AND BOX SECTION AREA AND GUIDEWAY SPACING VARIES ACCORDING TO DESIGN SPEED.

NOTE: MINED TUNNELS SHALL BE FINISHED AS FOLLOWS IN ACCORDANCE WITH RECOMMENDATION OF GEOTECHNICAL ENGINEER AND SHALL BE:  
 1. ROCK DOWELS.  
 2. PATTERN ROCK DOWEL.  
 3. SHOTCRETE AND DOWELS.  
 4. LATTICE GIRDERS AND CAST-IN-PLACE CONCRETE LININGS.

**TYPICAL SECTIONS**

SCALE 1:50

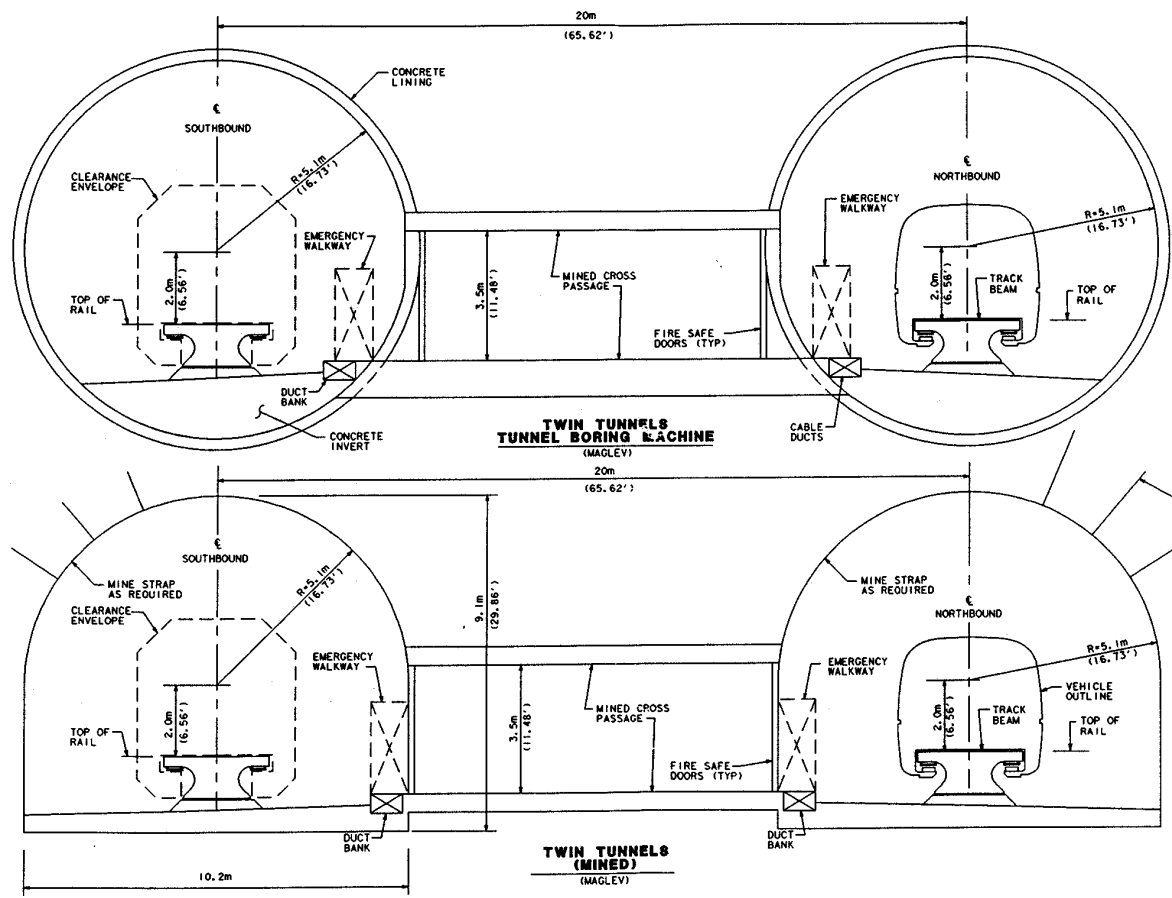
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NOTE:  
TUNNEL RADIUS VARIES ACCORDING TO DESIGN SPEED.

NOTE:  
MINED TUNNELS SHALL BE FINISHED AS FOLLOWS IN ACCORDANCE WITH RECOMMENDATION OF GEOTECHNICAL ENGINEER AND SHALL BE:  
1. ROCK DOWELS.  
2. PATTERN ROCK DOWEL.  
3. SHOTCRETE AND DOWELS.  
4. LATTICE GIRDERS AND CAST-IN-PLACE CONCRETE LININGS.

**TYPICAL SECTIONS**  
SCALE 1:60

X-9

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# APPENDIX B

## Capital Unit Costs



## Appendix B

### Alignment Unit Costs

#### Track and Guideway Items

Item No.	Item Description	English		Metric	
		Unit	Unit Price	Unit	Unit Price
1	HS/VHS Track - Ballasted	mile	\$1,257,000	km	\$781,000
2	HS/VHS Track - Direct Fixation	mile	\$2,376,000	km	\$1,477,000
3	Maglev - At Grade Slab & Track Beam	mile	\$5,303,990	km	\$3,295,600
4	Maglev - Track Beam (Aerial and Tunnel)	mile	\$3,487,130	km	\$2,166,750
5	Special Trackwork (VHS)	%	15% of Mainline Trackwork	%	15% of Mainline Trackwork
6	Special Trackwork (UHS)	%	15% of Mainline Trackwork	%	15% of Mainline Trackwork

#### Earthwork and Related Items

Item No.	Item Description	Unit	Unit Price	Unit	Unit Price
1	Site Preparation	acre	\$3,850	hectare	\$9,500
2	Earthwork	Cu-yd	\$5.35	Cu-m	\$7.00
3	Imported Borrow	Cu-yd	\$8	Cu-m	\$10.50
4	Landscaping/Erosion Control	acre	\$2,570	hectare	\$6,350
5	Fencing (Both Sides of R/W)	mile	\$144,000	km	\$80,000
6	Drainage Facilities	%	(5% of Earthwork Cost)	%	(5% of Earthwork Cost)

#### Structures, Tunnels and Walls

Item No.	Item Description	Unit	Unit Price	Unit	Unit Price
1	Standard Aerial Structures	mile	\$17,284,000	km	\$10,800,000
2	Special Aerial Structures	mile	\$47,283,000	km	\$29,550,000
3	Cut and Cover Tunnels	mile	\$33,730,000	km	\$20,960,000
4	Double Track Tunnels - Drill and Blast	mile	\$38,530,000	km	\$23,940,000
5	Double Track Tunnels - Mined (soft soil)	mile	\$103,400,000	km	\$64,270,000
6	2 Single Track Tunnels - Drill and Blast	mile	\$75,640,000	km	\$47,000,000
7	2 Single Track Tunnels - Tunnel Boring Machine	mile	\$50,600,000	km	\$31,440,000
8	Seismic Chamber	EA	\$60,680,000	EA	\$60,680,000
9	Retaining Walls	mile	\$5,570,000	km	\$3,460,000
10	Crash Walls	mile	\$1,900,000	km	\$1,180,000
11	Sound Walls	mile	\$724,000	km	\$450,000



## Appendix B

### Alignment Unit Costs

#### Grade Separations

Item No.	Item Description	Unit	Unit Price	Unit	Unit Price
1	Under Crossing - (Dense Urban, Urban)	EA	\$14,100,000	EA	\$14,100,000
2	Over Crossing - (Dense Urban, Urban)	EA	\$13,500,000	EA	\$13,500,000
3	Under Crossing - (Dense Suburban)	EA	\$5,400,000	EA	\$5,400,000
4	Over Crossing - (Dense Suburban)	EA	\$5,100,000	EA	\$5,100,000
5	Under Crossing - (Suburban, Undeveloped)	EA	\$910,000	EA	\$910,000
6	Over Crossing - (Suburban, Undeveloped)	EA	\$860,000	EA	\$860,000
7	Close Existing At Grade Crossing	EA	\$140,000	EA	\$140,000
8	Waterway Crossing - Primary	EA	\$5,400,000	EA	\$5,400,000
9	Waterway Crossing - Secondary	EA	\$2,700,000	EA	\$2,700,000
10	Irrigation/Canal Crossing	EA	\$320,000	EA	\$320,000

#### Building Items

Item No.	Item Description	Unit	Unit Price	Unit	Unit Price
1	Terminal	LS	\$88,000,000	LS	\$88,000,000
3	Site Development/Parking (Terminal Station)	LS	\$22,000,000	LS	\$22,000,000
2	Urban	LS	\$44,000,000	LS	\$44,000,000
4	Site Development/Parking (Urban Station)	LS	\$11,000,000	LS	\$11,000,000
5	Suburban	LS	\$22,000,000	LS	\$22,000,000
6	Site Development/Parking (Suburban Station)	LS	\$5,500,000	LS	\$5,500,000
7	Rural	LS	\$11,000,000	LS	\$11,000,000
8	Site Development/Parking (Rural Station)	LS	\$2,200,000	LS	\$2,200,000

#### Rail and Utility Relocation

Item No.	Item Description	Unit	Unit Price	Unit	Unit Price
1	Existing R/R Relocation	mile	\$1,609,000	km	\$1,000,000
2	Utility Relocation - Dense Urban	mile	\$1,127,000	km	\$700,000
3	Utility Relocation - Urban	mile	\$861,000	km	\$535,000
4	Utility Relocation - Dense Suburban	mile	\$604,000	km	\$375,000
5	Utility Relocation - Suburban	mile	\$346,000	km	\$215,000
6	Utility Relocation - Undeveloped	mile	\$17,700	km	\$11,000

#### Right of Way

Item No.	Item Description	Unit	Unit Price	Unit	Unit Price
1	Right-of-way - Dense Urban <u>(50' Corridor)</u>	mile	\$7,920,000	km	\$4,920,000
2	Right-of-way - Urban <u>(50' Corridor)</u>	mile	\$5,280,000	km	\$3,280,000
3	Right-of-way - Dense Suburban <u>(50' Corridor)</u>	mile	\$2,640,000	km	\$1,640,000
4	Right-of-way - Suburban <u>(100' Corridor)</u>	mile	\$1,848,000	km	\$1,150,000
5	Right-of-way - Undeveloped <u>(100' Corridor)</u>	mile	\$1,320,000	km	\$820,000

## Appendix B

### Alignment Unit Costs

#### Environmental Impact Mitigation

Item No.	Item Description	Unit	Unit Price	Unit	Unit Price
2	Environmental Mitigation	%	( 3% of Construction )	%	( 3% of Construction )

#### Signaling & Communication

Item No.	Item Description	Unit	Unit Price	Unit	Unit Price
1	Signaling <u>(ATC)</u> - VHS	mile	\$1,070,000	km	\$665,000
2	Communications -VHS <u>(w/Fiber Optic Backbone)</u>	mile	\$885,000	km	\$550,000
3	Signaling <u>(ATC)</u> - Maglev	mile	\$1,239,000	km	\$770,000
4	Communications - Maglev <u>(w/Fiber Optic Backbone)</u>	mile	\$885,000	km	\$550,000
<b>5</b>	<b>Wayside Protection Systems (VHS &amp; Maglev)</b>	mile	\$85,000	km	\$52,800

#### Electrification

Item No.	Item Description	Unit	Unit Price	Unit	Unit Price
1	Traction Power <u>Supply</u> - VHS	mile	\$547,000	km	\$340,000
2	Traction Power Distribution - VHS	mile	\$1,020,000	km	\$634,000
3	Traction Power <u>Supply</u> - Maglev	mile	\$1,030,000	km	\$640,000
4	Traction Power Distribution - Maglev	mile	\$3,927,000	km	\$2,440,000

# APPENDIX C

## Conceptual Operating Plan

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Baseline Conceptual Operating Plan  
Revised Conceptual Operating Plan  
Example Weekday Train Schedule



Appendix C

**BASELINE CONCEPTUAL SERVICE PLAN**

(Weekday Operation)

-- Revised March 18, 1999 --

**Station Legend**

SD = San Diego      LA = Los Angeles Union Sta      BAK = Bakersfield      SJ = San Jose      PLE = Pleasonton      SF = San Francisco  
 ESC = Escondido      BUR = Burbank      TUL = Tulare County      MOD = Modesto      NW = Newark      STO = Stockton  
 RIV = Riverside      SC = Santa Clarita      FRO = Fresno      TRA = Tracy/Altamont Pass      RC = Redwood City      SAC = Sacramento  
 ONT = Ontario      PLM = Palmdale      MER = Merced      SFO = San Francisco Airport

**NORTHBOUND**

Train No.	Service Assumptions				Station Stops																			Total Stops					
	Origin	Destination	Departs LA	Service Type	SD	ESC	RIV	ONT	LA	BUR	SC	PLM	BAK	TUL	FRO	MER	MOD	TRA	PLE	NW	SJ	RC	SFO		SF	STO	SAC		
38	LA	SF	500	Express					*															*				0	
39	SD	SF/SJ	510	Local	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	18
40	SD	SJ	520	Semi -Ex	*				*				*		*		*					*						4	
41	LA	SAC	530	Express					*																	*	*	1	
42	SD	SF	540	Suburb-Ex	*				*									*	*	*		*	*	*				6	
43	SD	SJ	550	Suburb-Ex	*				*									*	*	*	*							4	
44	SD	SJ	600	Express	*				*															*				1	
45	SD	SF/SJ/SAC	610	Local	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	20
46	LA	SAC	630	Express					*																	*		0	
47	SD	SAC	645	Semi -Ex	*				*				*		*		*								*	*		5	
48	LA	SF	700	Express					*															*				0	
49	LA	SF/SJ	710	Local	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	18
50	LA	SF	720	Semi -Ex					*				*		*		*							*				3	
51	SD	SF	800	Express	*				*															*				1	
52	SD	SF/SJ/SAC	810	Local	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	20
<b>TOTAL TRAINS</b>					<b>34</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>52</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>24</b>	<b>12</b>	<b>24</b>	<b>12</b>	<b>24</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>20</b>	<b>14</b>	<b>14</b>	<b>33</b>	<b>15</b>	<b>19</b>			











**Appendix C**

**Revised Conceptual Service Plan**

(Weekday Operation)

**Station Legend**

SD = San Diego

MM = Mira Mesa

ESC = Escondido

TEM = Temecula

RIV = Riverside

ONT = Ontario

ESG = East San Gabriel Valley

LA = Los Angeles Union Station

BUR = Burbank

SC = Santa Clarita

PLM = Palmdale

BAK = Bakersfield

TUL = Tulare County SJ = San Jose

FRO = Fresno

LB = Los Banos

GIL = Gilroy

RC = Redwood City

SFO = San Francisco Airport

SF = San Francisco

MER = Merced

MOD = Modesto

STO = Stockton

SAC = Sacramento

**SOUTHBOUND**

Train No.	Service Assumptions		Station Stops																										Total Stops					
	Origin	Destination	Departs Origin	Service Type	SD	MM	ESC	TEM	RIV	ONT	ESG	LA	BUR	SC	PLM	BAK	TUL	FRO	LB	GIL	SJ	RC	SFO	SF	MER	MOD	STO	SAC						
30	SF	LA	900	Express					*													*												0
31	SF	SD	910	Local					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	18	
32	SAC	SD	920	Semi-Ex	*	*	*								*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5		
33	SF	SD	940	Suburb-Ex					*	*	*	*	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	15		
34	SF	SAC	945	Reg.-Semi Ex	*				*			*																				1		
35	SF	SD	1000	Suburb-Ex					*	*	*	*	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	15		
36	SF	LA	1005	Express					*													*										0		
37	SAC	SD	1010	Local	*	*	*	*							*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	16		
38	SF	SAC	1040	Reg.-Semi Ex	*				*			*																				1		
39	SF	LA	1110	Semi-Ex					*			*			*			*		*		*		*		*		*		*		3		
40	SF	SD	1130	Local					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	18		
41	SAC	SD	1135	Suburb-Ex	*	*												*	*	*	*	*	*	*	*	*	*	*	*	*	*	12		
42	SF	SD	1200	Express					*													*										1		
43	SF	SD	1205	Semi-Ex					*			*			*		*		*		*		*		*		*		*		*	4		
44	SAC	SD	1230	Express <sup>1</sup>	*																	*	*	*	*	*	*	*	*	*	*	7		
45	SF	SD	1230	Express <sup>1</sup>					*			*										*	*	*	*	*	*	*	*	*	*	8		
46	SF	SD	1250	Suburb-Ex					*	*	*	*	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	15		
47	SF	SD	100	Express <sup>1</sup>					*													*	*	*	*	*	*	*	*	*	*	7		
48	SF	SD	110	Suburb-Ex					*	*	*	*	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	15		
49	SF	SD	120	Semi-Ex <sup>1</sup>					*			*			*		*		*		*		*		*		*		*		*	10		
50	SF	SAC	140	Reg.-Semi Ex	*				*			*																				1		
51	SF	SAC	145	Reg.-Semi Ex	*				*			*																				1		
52	SF	SD	200	Express					*													*									*	1		
53	SF	SD	210	Local					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	18		
54	SF	SAC	230	Reg.-Semi Ex	*				*			*																				1		
55	SF	SD	235	Semi-Ex					*			*			*		*		*		*		*		*		*		*		*	4		
56	SF	SD	240	Suburb-Ex					*	*	*	*	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	15		
57	SF	SAC	255	Reg.-Semi Ex	*				*			*																				1		
58	SAC	SD	335	Suburb-Ex	*	*												*	*	*	*	*	*	*	*	*	*	*	*	*	*	12		





**Example Weekday Train Schedule - Year 2016**  
**California High Speed Rail**

**Southbound Service**

Train Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34		
Service Type	R	R	L	SUB	SUB	E	S	SUB	SUB	E	L	SUB	E	L	SUB	S	E	S	E	E	SUB	E	L	S	SUB	E	L	SUB	S	L	SUB	E	S	E <sup>L</sup>		
<b>Sacramento</b>				<b>520</b>				<b>645</b>			<b>710</b>		<b>730</b>			<b>755</b>			<b>830</b>					<b>930</b>			<b>1010</b>						<b>1145</b>		<b>1230</b>	
Stockton				542				707			732					817								952			1032					1207				
Modesto				▼				▼			▼		▼			829								1004			1044					▼				
Merced				▼				▼			801													1004			1101					▼				
<b>San Francisco</b>			<b>510</b>		<b>540</b>	<b>550</b>	<b>640</b>		<b>650</b>	<b>700</b>		<b>725</b>		<b>735</b>	<b>745</b>		<b>805</b>	<b>820</b>		<b>840</b>	<b>850</b>	<b>900</b>	<b>910</b>		<b>940</b>	<b>955</b>			<b>1010</b>	<b>1100</b>	<b>1130</b>		<b>1155</b>	<b>1210</b>		
SFO			524		554				704			739			749		759						904		924		954			1024			1144			
Redwood City			535		605				715			750			800		810						915		935		1005			1035			1155			
San Jose			551		621		711		731			806			816		826		851			911		931		1021			1051		1131		1211		1241	
Gilroy			606		636				746			821			831		841						946		1006		1036			1106			1226			
Los Banos			622												847										1022							1242				
Fresno			648				759					822			913		901		939					1048		1036			1122		1219		108	1243		129
Tulare			705									839			930										1105				1139			125				
Bakersfield	500	600	731				836		817	856		905			956		938		1016				1056		1131	1113	1146		1205	1216	1256	151	118		206	
Santa Clarita	532	632	803	718	812			849	928		937	957			1028	1017							1128		1203		1218		1237	1248		223	150			
Burbank	547	647	818	733	827			904	943		952	1012			1043	1032							1143		1218		1233		1252	103		238	205			
<b>Los Angeles</b>	<b>558</b>	<b>658</b>	<b>829</b>	<b>744</b>	<b>838</b>	<b>820</b>	<b>925</b>	<b>915</b>	<b>954</b>	<b>930</b>	<b>1003</b>	<b>1023</b>	<b>939</b>	<b>1054</b>	<b>1043</b>	<b>1027</b>	<b>1035</b>	<b>1105</b>	<b>1039</b>	<b>1115</b>	<b>1154</b>	<b>1130</b>	<b>1229</b>	<b>1202</b>	<b>1244</b>	<b>1225</b>	<b>103</b>	<b>114</b>	<b>145</b>	<b>249</b>	<b>216</b>	<b>225</b>	<b>255</b>	<b>239</b>		
E. San Gabriel	615	715	846	801	855			932	1011		1020	1040			1111	1100							1211		1246		101		120	131		306	233		256	
Ontario	627	727	858	813	907			944	1023		1032	1052			1123	1112							1223		1258		113		132	143		318	245		308	
Riverside	639	739	910	825	919			956	1035		1044	1104			1135	1124							1235		110		125		144	155		330	257		320	
Temecula	656	756	927	842	936			1013	1052		1101	1121			1152	1141							1252		127		142		201	212		347	314		337	
Escondido	711	811	942	857	951			1028	1107		1116	1136			1207	1156							107		142		157		216	227		402	329		352	
Mira Mesa	721	821	952	907	1001			1038	1117		1126	1146			1217	1206							117		152		207		226	237		412	339		402	
<b>San Diego</b>	<b>728</b>	<b>828</b>	<b>959</b>	<b>914</b>	<b>1008</b>	<b>922</b>		<b>1045</b>	<b>1124</b>		<b>1133</b>	<b>1153</b>	<b>1041</b>	<b>1224</b>	<b>1213</b>		<b>1137</b>	<b>1207</b>				<b>124</b>		<b>159</b>	<b>104</b>	<b>214</b>		<b>233</b>	<b>244</b>		<b>419</b>	<b>346</b>	<b>327</b>	<b>357</b>	<b>409</b>	

Train Number	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	
Service Type	E <sup>L</sup>	SUB	E <sup>L</sup>	SUB	L	SUB	E	S <sup>L</sup>	SUB	SUB	S	E <sup>L</sup>	R	L	E	SUB	S	L	E	R	E	S	SUB	SUB	SUB	E	S	SUB	L	E <sup>L</sup>	S	L	L	E	
<b>Sacramento</b>						<b>155</b>				<b>300</b>				<b>410</b>		<b>450</b>		<b>505</b>				<b>525</b>				<b>605</b>							<b>900</b>		
Stockton						217				322				432		512							547										922		
Modesto						▼				▼				444		524							559										934		
Merced						▼				▼				501		▼							▼			▼						951			
<b>San Francisco</b>	<b>1230</b>	<b>1250</b>	<b>100</b>	<b>110</b>	<b>125</b>		<b>205</b>	<b>215</b>	<b>240</b>		<b>325</b>	<b>350</b>	<b>400</b>		<b>425</b>	<b>435</b>		<b>500</b>		<b>510</b>	<b>520</b>		<b>530</b>	<b>540</b>	<b>600</b>		<b>605</b>	<b>620</b>	<b>630</b>	<b>640</b>	<b>730</b>	<b>845</b>		<b>930</b>	
SFO	▼	104	▼	124	139		▼	▼	254		▼	▼	414		▼	449		514		524	▼		544	554	614	▼	634	644	▼	▼	859		▼		
Redwood City	▼	115	▼	135	150		▼	▼	305		▼	▼	425		▼	500		525		535	▼		555	605	625	▼	645	655	▼	▼	910		▼		
San Jose	101	131	▼	151	206		▼	246	321		356	▼	441		▼	516		541		551	▼		611	621	641	636	701	711	▼	801	926		▼		
Gilroy	▼	146	▼	206	221		▼	▼	336		▼	▼	456		▼	531		556		606	▼		626	636	656	▼	716	726	▼	▼	941		▼		
Los Banos	▼	▼	▼	▼	237		▼	▼	▼		▼	▼	512		▼	▼		612		622	▼		▼	▼	▼	▼	716	726	▼	▼	957		▼		
Fresno	▼	221	▼	▼	303	253	▼	334	▼	▼	444	▼	538	522	▼	▼	556	638	▼	648	▼		631	▼	▼	724	▼	808	▼	849	1023	1012	▼	▼	
Tulare	▼	▼	▼	▼	320	▼	▼	▼	▼	▼	▼	▼	▼	539	▼	▼	655	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	1040	1029	▼	▼	
Bakersfield	▼	256	▼	316	346	328	▼	411	▼	▼	521	▼	▼	605	▼	▼	633	721	▼	▼	▼	708	▼	746	▼	801	▼	851	▼	926	1106	1055	▼	▼	
Santa Clarita	▼	328	▼	348	418	400	▼	▼	512	456	▼	▼	637	▼	707	▼	753	▼	▼	▼	▼	▼	802	818	832	▼	852	923	▼	▼	1138	1127	▼	▼	
Burbank	▼	343	▼	403	433	415	▼	▼	527	511	▼	▼	652	▼	722	▼	808	▼	▼	▼	▼	▼	817	833	847	▼	907	938	▼	▼	1153	1142	▼	▼	
<b>Los Angeles</b>	<b>305</b>	<b>354</b>	<b>330</b>	<b>414</b>	<b>444</b>	<b>426</b>	<b>435</b>	<b>500</b>	<b>538</b>	<b>522</b>	<b>610</b>	<b>620</b>		<b>703</b>	<b>655</b>	<b>733</b>	<b>722</b>	<b>819</b>	<b>714</b>		<b>750</b>	<b>757</b>	<b>828</b>	<b>844</b>	<b>858</b>	<b>814</b>	<b>850</b>	<b>918</b>	<b>949</b>	<b>910</b>	<b>1015</b>	<b>1204</b>	<b>1153</b>	<b>1200</b>	
E. San Gabriel	322	411	347	431	501	443	▼	517	555	539	▼	637	720	▼	750	▼	836	▼	▼	▼	▼	▼	845	901	915	▼	935	1006	927	▼	▼	▼	▼	▼	
Ontario	334	423	359	443	513	455	▼	529	607	551	▼	649	732	▼	802	▼	848	▼	▼	▼	▼	▼	857	913	927	▼	947	1018	939	▼	▼	▼	▼	▼	
Riverside	346	435	411	455	525	507	▼	541	619	603	▼	701	744	▼	814	▼	900	▼	▼	▼	▼	▼	909	925	939	▼	959	1030	951	▼	▼	▼	▼	▼	
Temecula	403	452	428	512	542	524	▼	558	636	620	▼	718	801	▼	831	▼	917	▼	▼	▼	▼	▼	926	942	956	▼	1016	1047	1008	▼	▼	▼	▼	▼	
Escondido	418	507	443	527	557	538	▼	613	651	635	▼	733	816	▼	846	▼	932	▼	▼	▼	▼	▼	941	957	1011	▼	1031	1102	1023	▼	▼	▼	▼	▼	
Mira Mesa	428	517	453	537	607	548	▼	623	701	645	▼	743	826	▼	856	▼	942	▼	▼	▼	▼	▼	951	1007	1021	▼	1041	1112	1033	▼	▼	▼	▼	▼	
<b>San Diego</b>	<b>435</b>	<b>524</b>	<b>500</b>	<b>544</b>	<b>614</b>	<b>556</b>	<b>539</b>	<b>630</b>	<b>708</b>	<b>652</b>	<b>712</b>	<b>750</b>		<b>833</b>	<b>757</b>	<b>903</b>	<b>824</b>	<b>949</b>				<b>859</b>	<b>958</b>	<b>1014</b>	<b>1028</b>		<b>954</b>	<b>1048</b>	<b>1119</b>	<b>1040</b>	<b>1117</b>				

**North Regional Service (SF-S**

# APPENDIX D

## Data Sources



## DATA SOURCES

- Threatened and Endangered Species/Habitat - California Natural Diversity Data Base - Rare Find, April 1998
- Hazardous Materials/Waste Sites - VISTA Information Solutions, Inc. - December 1998
- Terrain - USGS Digital Elevation Models
- Floodplain - Federal Emergency Management Agency Q3 Flood Data, 1996
- Census - 1990 U.S. Census Bureau STF1, STF3
- Farmland - Office of Land Conservation, Department of Conservation, State of California
- Soils - Natural Resources Conservation Service, United States Department of Agriculture, October 1994
- Real Estate Data - DataQuick Information Services (on-line data information service)
- Satellite Imagery - EROS Data Center, United States Geological Survey, Sioux Falls, SD.
  - *Thematic Mapper Scene (Path 43, Row 35)*. March 11, 1984.
  - *Thematic Mapper Scene (Path 42, Row 36)*. October 27, 1984.
  - *Thematic Mapper Scene (Path 43, Row 34)*. March 11, 1984.
  - *Thematic Mapper Scene (Path 41, Row 36)*. February 25, 1985.
  - *Thematic Mapper Scene (Path 44, Row 33)*. October 25, 1984.
  - *Thematic Mapper Scene (Path 40, Row 37)*. March 23, 1984.
  - *Thematic Mapper Scene (Path 44, Row 34)*. October 25, 1984.
  - *Thematic Mapper Scene (Path 43, Row 36)*. March 11, 1984.
  - *Thematic Mapper Scene (Path 41, Row 37)*. March 29, 1985.
  - *Thematic Mapper Scene (Path 40, Row 36)*. March 22, 1985.
  - *Thematic Mapper Scene (Path 42, Row 35)*. March 20, 1985.
- Wetlands - *National Wetlands Inventory*, United States Department of Interior, U.S. Fish and Wildlife Service.
- Transportation, Hydrography - United States Geological Survey
  - *Bakersfield (1:250,000 Scale)*. 1975.
  - *Bakersfield DEM Data (ID # 34116-A1)*. N.d.
  - *Cambria DLG Hydrography and Transportation Data (ID # 35121-E1)*. N.d.
  - *Coalinga (1:100,000 Scale)*. 1987.
  - *Coalinga DLG Hydrography and Transportation Data (ID # 36120-A1)*. N.d.
  - *Cuyama DLG Hydrography and Transportation Data (ID # 34119-E1)*. N.d.
  - *Delano (1:100,000 Scale)*. 1993.
  - *Delano DLG Hydrography and Transportation Data (ID # 35119-E1)*. N.d.
  - *Fresno (1:100,000 Scale)*. 1982.
  - *Fresno (1:250,000 Scale)*. 1971.
  - *Fresno DEM Data (ID # 36118-A1)*. N.d.
  - *Fresno DLG Hydrography and Transportation Data (ID # 36119-E1)*. N.d.
  - *Isabella Lake DLG Hydrography and Transportation Data (ID # 35118-E1)*. N.d.
  - *Lancaster (1:100,000 Scale)*. 1981.
  - *Los Angeles (1:100,000 Scale)*. 1979.
  - *Lancaster DLG Hydrography and Transportation Data (ID # 34118-E1)*. N.d.
  - *Lodi DLG Hydrography and Transportation Data (ID # 38121-A1)*. N.d.
  - *Long Beach (1:250,000 Scale)*. 1978.
  - *Long Beach DEM Data (ID # 33118-A1)*. N.d.
  - *Long Beach DLG Hydrography and Transportation Data (ID # 33118-E1)*. N.d.
  - *Los Angeles (1:250,000 Scale)*. 1975.
  - *Los Angeles DEM Data (ID # 34118-A1)*. N.d.
  - *Los Angeles DLG Hydrography and Transportation Data (ID # 34118-A1)*. N.d.
  - *Mariposa DEM Data (ID # 37118-A1)*. N.d.
  - *Mendota (1:100,000 Scale)*. 1982.
  - *Mendota DLG Hydrography and Transportation Data (36120-E1)*. N.d.
  - *Merced (1:100,000 Scale)*. 1983.
  - *Merced DLG Hydrography and Transportation Data (ID # 37120-A1)*. N.d.
  - *Monterey (1:250,000 Scale)*. 1974.
  - *Monterey DEM Data (ID # 36120-A1)*. N.d.

- Monterey DLG Hydrography and Transportation Data (ID # 36121-E1). N.d.
- Napa DLG Hydrography and Transportation Data (ID # 38122-A1). N.d.
- Oceanside DLG Hydrography and Transportation Data (ID # 33117-A1). N.d.
- Palm Springs DLG Hydrography and Transportation Data (ID # 33116-E1). N.d.
- Palo Alto (1:100,000 Scale). 1982.
- Palo Alto DLG Hydrography and Transportation Data (ID # 37122-A1). N.d.
- Paso Robles DLG Hydrography and Transportation Data (ID # 35120-E1). N.d.
- Point Conception DLG Hydrography and Transportation Data (ID # 34120-A1). N.d.
- Point Sur DLG Hydrography and Transportation Data (ID # 36121-A1). N.d.
- Sacramento (1:250,000 Scale). 1970.
- Sacramento DEM Data (ID # 38120-A1). N.d.
- Sacramento DLG Hydrography and Transportation Data (ID # 38121-A1). N.d.
- San Bernardino (1:250,000 Scale). 1969.
- San Bernardino DEM Data (ID # 34116-A1). N.d.
- San Bernardino DLG Hydrography and Transportation Data (ID # 34117-A1). N.d.
- San Diego (1:250,000 Scale). 1978.
- San Diego DEM Data (ID # 32116-A1). N.d.
- San Diego DLG Hydrography and Transportation Data (ID # 32117-E1). N.d.
- San Francisco (1:100,000 Scale). 1978.
- San Francisco (1:250,000 Scale). 1980.
- San Francisco DEM Data (ID # 37122-A1). N.d.
- San Francisco DLG Hydrography and Transportation Data (ID # 37120-A1). N.d.
- San Jose (1:100,000 Scale). 1978.
- San Jose (1:250,000 Scale). 1969.
- San Jose DEM Data (ID # 37120-A1). N.d.
- San Jose DLG Hydrography and Transportation Data (ID # 37121-A1). N.d.
- San Luis Obispo (1:250,000 Scale). 1979.
- San Luis Obispo DEM Data (ID # 35120-A1). N.d.
- San Luis Obispo DLG Hydrography and Transportation Data (ID # 35120-A1). N.d.
- Santa Ana (1:250,000 Scale). 1979.
- Santa Ana DEM Data (ID # 33116-A1). N.d.
- Santa Ana DLG Hydrography and Transportation Data (ID # 33117-E1). N.d.
- Santa Barbara DLG Hydrography and Transportation Data (ID # 34119-A1). N.d.
- Santa Maria (1:250,000 Scale). 1989.
- Santa Maria DEM Data (ID # 34120-A1). N.d.
- Santa Maria DLG Hydrography and Transportation Data (ID # 34120-E1). N.d.
- Shaver Lake DLG Hydrography and Transportation Data (ID # 37119-A1). N.d.
- Stockton (1:100,000 Scale). 1989.
- Stockton DLG Hydrography and Transportation Data (ID # 37121-E1). N.d.
- Taft (1:100,000 Scale). 1981.
- Taft DLG Hydrography and Transportation Data (ID # 35119-A1). N.d.
- Tehachapi (1:100,000 Scale). 1978.
- Tehachapi DLG Hydrography and Transportation Data (ID # 35118-A1). N.d.
- Visalia (1:100,000 Scale). 1993.
- Visalia DLG Hydrography and Transportation Data (ID # 36119-A1). N.d.



# APPENDIX E

## Capital Cost Summary Sheets

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**HSR Corridor Evaluation**

Alternative Comparison: Staff Recommended Corridor  
LOSSAN-C, Grapevine, West 99, Pacheco 1

**VHS Cost Estimate**

Segment No.	Station Name	Station Cost	Length		CAPITAL COSTS										Segment Subtotals	
					Track & Guideway System			Earthwork and Related Items	Structures, Tunnels & Crash and Sound Walls	Grade Separation	Right of Way	Environmental Impact Mitigation	Rail & Utility Relocation	Signals & Communications		Electrification Items
					Ballasted	Direct Fixation	Special Trackwork									
(km)	(miles)															
<b>San Diego to Los Angeles</b>																
I/5-13 c			6.17	3.83	\$905,960	\$0	\$135,894	\$638,819	\$0	\$115,200,000	\$4,920,000	\$4,028,572	\$112,000	\$5,999,436	\$6,373,632	\$138,314,313
I/5-14 c			17.70	11.00	\$6,240,190	\$0	\$936,029	\$15,091,486	\$47,880,000	\$14,100,000	\$4,920,000	\$3,600,757	\$4,893,000	\$7,680,247	\$18,284,288	\$123,625,997
I/5-12 c			106.75	66.33	\$51,491,330	\$0	\$7,723,700	\$87,453,318	\$402,897,000	\$103,130,000	\$14,760,000	\$25,639,706	\$40,936,000	\$35,965,369	\$110,300,160	\$880,296,583
I/5-11 c	Union Station	\$95,000,000	73.52	45.69	\$16,791,500	\$0	\$2,518,725	\$7,187,868	\$84,190,000	\$381,130,000	\$17,220,000	\$18,407,236	\$0	\$28,570,220	\$75,966,208	\$726,981,757
<b>Subtotals =</b>		<b>\$95,000,000</b>	<b>204.1</b>	<b>126.9</b>	<b>\$75,428,980</b>	<b>\$0</b>	<b>\$11,314,347</b>	<b>\$110,371,491</b>	<b>\$534,967,000</b>	<b>\$613,560,000</b>	<b>\$41,820,000</b>	<b>\$51,676,271</b>	<b>\$45,941,000</b>	<b>\$78,215,272</b>	<b>\$210,924,288</b>	<b>\$1,869,218,649</b>
<b>Riverside to Los Angeles</b>																
LA-3	Riverside	\$110,000,000	28.84	17.92	\$20,637,925	\$8,514,905	\$4,372,925	\$6,164,926	\$80,142,556	\$143,400,000	\$73,871,543	\$12,583,808	\$10,191,933	\$40,810,482	\$31,353,060	\$542,044,062
LA-4	Ontario, E. San Gabriel	\$82,500,000	66.47	41.30	\$41,771,785	\$15,382,955	\$8,573,211	\$11,979,686	\$172,831,308	\$576,300,000	\$166,966,528	\$35,235,412	\$37,457,233	\$81,012,420	\$62,238,600	\$1,292,249,139
<b>Subtotals =</b>		<b>\$192,500,000</b>	<b>95.3</b>	<b>59.2</b>	<b>\$62,409,710</b>	<b>\$23,897,860</b>	<b>\$12,946,136</b>	<b>\$18,144,612</b>	<b>\$252,973,864</b>	<b>\$719,700,000</b>	<b>\$240,838,072</b>	<b>\$47,819,219</b>	<b>\$47,649,167</b>	<b>\$121,822,902</b>	<b>\$93,591,660</b>	<b>\$1,834,293,201</b>
<b>Los Angeles to Bakersfield</b>																
C-1 (At Grade)	Union Station, Burbank	\$165,000,000	40.09	24.91	\$14,632,535	\$31,540,390	\$6,925,939	\$1,703,814	\$288,625,944	*	\$122,588,445	\$17,226,112	\$18,312,900	\$50,826,102	\$39,047,660	\$756,429,840
I/5-1 (3.5%)	Santa Clarita	\$27,500,000	92.03	57.19	\$41,674,245	\$54,323,900	\$14,399,722	\$367,993,668	\$1,039,431,128	*	\$98,139,024	\$54,764,448	\$7,444,050	\$114,279,492	\$87,796,360	\$1,907,746,035
SR/99-6 a			44.78	27.83	\$26,878,095	\$16,224,883	\$6,465,447	\$61,169,767	\$14,725,460	*	\$47,374,582	\$8,346,604	\$3,604,181	\$57,558,120	\$44,219,600	\$286,566,739
<b>Subtotals =</b>		<b>\$192,500,000</b>	<b>176.9</b>	<b>109.9</b>	<b>\$83,184,874</b>	<b>\$102,089,173</b>	<b>\$27,791,107</b>	<b>\$430,867,249</b>	<b>\$1,342,782,532</b>	<b>\$0</b>	<b>\$268,102,051</b>	<b>\$80,337,164</b>	<b>\$29,361,130</b>	<b>\$222,663,714</b>	<b>\$171,063,620</b>	<b>\$2,950,742,614</b>
<b>Bakersfield to Stockton</b>																
SR/99-10	Bakersfield	\$27,500,000	129.58	80.52	\$101,037,970	\$310,170	\$15,202,221	\$28,179,919	\$15,376,140	\$67,580,000	\$143,928,912	\$20,172,756	\$10,317,419	\$164,281,524	\$126,210,920	\$720,097,950
SR/99-35	Tulare County	\$13,200,000	24.69	15.34	\$19,282,890	\$0	\$2,892,434	\$5,485,872	\$247,542	\$89,060,000	\$25,864,874	\$5,999,400	\$1,796,356	\$31,301,982	\$24,048,060	\$219,179,409
SR/99-37			18.76	11.66	\$14,651,560	\$0	\$2,197,734	\$4,195,705	\$112,583	\$30,720,000	\$17,138,142	\$3,356,773	\$820,529	\$23,783,928	\$18,272,240	\$115,249,193
SR/99-39	Fresno	\$27,500,000	15.43	9.59	\$12,050,830	\$0	\$1,807,625	\$3,400,518	\$113,596	\$40,100,000	\$14,367,567	\$3,217,928	\$833,161	\$19,562,154	\$15,028,820	\$137,982,199
SR/99-20			61.90	38.46	\$48,125,220	\$413,560	\$7,280,817	\$13,508,732	\$21,171,693	\$19,220,000	\$72,603,872	\$9,851,571	\$7,294,395	\$78,476,820	\$60,290,600	\$338,237,280
SR/99-22	Merced	\$13,200,000	27.23	16.92	\$21,184,625	\$155,085	\$3,200,957	\$5,974,602	\$7,904,758	\$10,630,000	\$30,588,467	\$4,292,863	\$2,412,720	\$34,522,194	\$26,522,020	\$160,588,289
SR/99-27a	Modesto	\$13,200,000	63.05	39.18	\$49,187,380	\$103,390	\$7,393,616	\$13,292,248	\$10,937,200	\$197,300,000	\$101,724,492	\$16,667,294	\$34,292,643	\$79,934,790	\$61,410,700	\$585,443,752
<b>Subtotals =</b>		<b>\$94,600,000</b>	<b>340.6</b>	<b>211.7</b>	<b>\$265,520,475</b>	<b>\$982,205</b>	<b>\$39,975,402</b>	<b>\$74,037,595</b>	<b>\$55,863,510</b>	<b>\$454,610,000</b>	<b>\$406,216,324</b>	<b>\$63,558,585</b>	<b>\$57,767,222</b>	<b>\$431,863,392</b>	<b>\$331,783,360</b>	<b>\$2,276,778,071</b>
<b>Central Valley to San Jose - Pacheco 1</b>																
SR/99-46			26.40	16.40	\$20,509,060	\$206,780	\$3,107,376	\$5,776,065	\$1,925,417	\$16,550,000	\$29,327,285	\$4,166,699	\$2,304,469	\$33,469,920	\$25,713,600	\$143,056,671
SR/99-42			39.29	24.41	\$30,494,145	\$361,865	\$4,628,402	\$8,575,766	\$3,284,304	\$848,816	\$43,646,554	\$5,500,495	\$3,429,644	\$49,811,862	\$38,268,460	\$188,850,312
SR/99-23b	Los Banos	\$13,200,000	28.70	17.83	\$21,922,670	\$930,510	\$3,427,977	\$4,677,831	\$6,153,368	\$7,080,000	\$31,882,313	\$4,287,587	\$2,505,237	\$36,385,860	\$27,953,800	\$160,407,154
SR/99-34	Gilroy	\$13,200,000	55.94	34.76	\$27,639,590	\$28,801,500	\$8,466,164	\$536,954,454	\$521,195,342	\$160,780,000	\$73,961,036	\$44,773,010	\$11,583,188	\$69,589,542	\$53,462,860	\$1,550,406,686
US/101-1	San Jose	\$55,000,000	57.25	35.58	\$20,602,780	\$44,014,600	\$9,692,607	\$11,455,825	\$352,968,400	\$169,180,000	\$107,519,981	\$25,702,183	\$15,719,614	\$71,022,156	\$64,563,480	\$937,441,627
<b>Subtotals =</b>		<b>\$81,400,000</b>	<b>207.6</b>	<b>129.0</b>	<b>\$121,168,245</b>	<b>\$74,315,255</b>	<b>\$29,322,525</b>	<b>\$567,439,941</b>	<b>\$885,526,831</b>	<b>\$354,438,816</b>	<b>\$286,337,169</b>	<b>\$84,429,974</b>	<b>\$35,542,153</b>	<b>\$260,279,340</b>	<b>\$199,962,200</b>	<b>\$2,980,162,449</b>
<b>San Jose to San Francisco</b>																
US/101-3	Palo Alto	\$27,500,000	28.70	17.83	\$13,042,700	\$17,724,000	\$4,615,005	\$6,351,885	\$151,378,083	\$152,270,000	\$76,610,718	\$15,415,602	\$27,812,790	\$36,221,046	\$27,827,180	\$556,769,009
C-5 a	SFO	\$55,000,000	18.80	11.68	\$12,781,065	\$5,073,495	\$2,678,184	\$51,208,215	\$59,890,680	\$79,610,000	\$50,499,900	\$9,875,621	\$23,058,180	\$25,102,440	\$19,285,200	\$394,062,979
C-5 b	4th and Townsend	\$110,000,000	22.05	13.70	\$14,058,000	\$4,874,100	\$2,839,815	\$39,736,513	\$235,094,640	\$140,540,000	\$65,327,100	\$17,368,671	\$28,735,200	\$20,746,200	\$706,324,379	
<b>Subtotals =</b>		<b>\$192,500,000</b>	<b>69.6</b>	<b>43.2</b>	<b>\$39,881,765</b>	<b>\$27,671,595</b>	<b>\$10,133,004</b>	<b>\$97,296,612</b>	<b>\$446,363,403</b>	<b>\$372,420,000</b>	<b>\$192,437,718</b>	<b>\$42,659,894</b>	<b>\$79,606,170</b>	<b>\$88,327,626</b>	<b>\$67,858,580</b>	<b>\$1,657,156,367</b>
<b>Stockton to Sacramento</b>																
SR/99-41 a	Stockton, Sacramento	\$123,200,000	92.87	57.71	\$64,081,050	\$15,981,140	\$12,009,329	\$23,293,369	\$176,890,228	\$261,000,000	\$247,903,742	\$32,798,308	\$83,922,102	\$117,740,586	\$90,455,380	\$1,249,275,234
<b>Subtotals =</b>		<b>\$123,200,000</b>	<b>92.9</b>	<b>57.7</b>	<b>\$64,081,050</b>	<b>\$15,981,140</b>	<b>\$12,009,329</b>	<b>\$23,293,369</b>	<b>\$176,890,228</b>	<b>\$261,000,000</b>	<b>\$247,903,742</b>	<b>\$32,798,308</b>	<b>\$83,922,102</b>	<b>\$117,740,586</b>	<b>\$90,455,380</b>	<b>\$1,249,275,234</b>
<b>Subtotals =</b>		<b>\$971,700,000</b>	<b>1187</b>	<b>737.6</b>	<b>\$711,675,099</b>	<b>\$244,937,228</b>	<b>\$143,491,849</b>	<b>\$1,321,450,870</b>	<b>\$3,695,367,368</b>	<b>\$2,775,728,816</b>	<b>\$1,683,655,076</b>	<b>\$403,279,415</b>	<b>\$379,788,943</b>	<b>\$1,320,912,832</b>	<b>\$1,165,639,088</b>	<b>\$4,817,626,585</b>

Program Implementation (25.5%) =	\$3,778,494,779
Contingency (25%) =	\$3,704,406,646
Vehicle Costs =	\$1,178,000,000
Support Facility Costs =	\$304,000,000
<b>Alternative Total =</b>	<b>\$23,782,528,010</b>

**HSR Corridor Evaluation**

**Alternative Comparison: Authority Option A**

Qualcomm, Inland Empire, Palmdale/Mojave, West 99, Pacheco 1

**VHS Cost Estimate**

Segment No.	Station Name	Station Cost	Length		CAPITAL COSTS											
					Track & Guideway System			Earthwork and Related Items	Structures, Tunnels & Crash and Sound Walls	Grade Separation	Right of Way	Environmental Impact Mitigation	Rail & Utility Relocation	Signals & Communications	Electrification Items	Segment Subtotals
					Ballasted	Direct Fixation	Special Trackwork									
(km)	(miles)															
<b>San Diego to Los Angeles</b>																
SD-5	E. Mission Valley	\$110,000,000	10.60	6.59	\$0	\$15,656,200	\$2,348,430	\$1,104,047	\$115,031,412	\$0	\$23,202,446	\$5,527,872	\$3,156,775	\$13,438,680	\$10,324,400	\$299,790,262
SD-6	Mira Mesa	\$27,500,000	5.48	3.41	\$1,054,350	\$6,100,010	\$1,073,154	\$1,034,750	\$49,610,365	\$13,500,000	\$13,576,749	\$3,004,799	\$1,925,511	\$6,947,544	\$5,337,520	\$130,664,751
SD-7			23.70	14.73	\$0	\$35,004,900	\$5,250,735	\$4,631,772	\$273,761,456	\$0	\$60,235,209	\$13,217,390	\$8,564,943	\$30,046,860	\$23,083,800	\$453,797,065
SD-8	Escondido	\$27,500,000	47.10	29.27	\$20,692,595	\$31,467,485	\$7,824,012	\$298,198,561	\$350,940,737	\$92,020,000	\$65,681,502	\$29,454,969	\$7,849,381	\$60,600,840	\$46,557,200	\$1,038,787,282
LA-1	Temecula	\$27,500,000	49.30	30.64	\$35,843,995	\$155,085	\$5,399,862	\$15,625,535	\$24,461,288	\$293,640,000	\$64,013,140	\$16,714,393	\$14,884,734	\$58,318,800	\$44,804,000	\$601,360,832
LA-2			11.15	6.93	\$6,915,755	\$2,281,965	\$1,379,658	\$8,229,454	\$48,245,592	\$75,600,000	\$15,992,371	\$5,579,053	\$4,008,918	\$13,185,120	\$10,129,600	\$191,547,487
LA-3	Riverside	\$55,000,000	28.84	17.92	\$20,637,925	\$8,514,905	\$4,372,925	\$6,164,926	\$80,142,556	\$143,400,000	\$73,871,543	\$12,583,808	\$10,191,933	\$40,810,482	\$31,353,060	\$487,044,062
LA-4	Ontario, E. San Gabriel	\$82,500,000	66.47	41.30	\$41,771,785	\$15,382,955	\$8,573,211	\$11,979,686	\$172,831,308	\$576,300,000	\$166,966,528	\$35,235,412	\$37,457,233	\$81,012,420	\$62,238,600	\$1,292,249,139
<b>Subtotals =</b>		<b>\$330,000,000</b>	<b>242.6</b>	<b>150.8</b>	<b>\$126,916,405</b>	<b>\$114,563,505</b>	<b>\$36,221,987</b>	<b>\$346,968,730</b>	<b>\$1,115,024,715</b>	<b>\$1,194,460,000</b>	<b>\$483,539,488</b>	<b>\$121,317,696</b>	<b>\$88,039,430</b>	<b>\$304,360,746</b>	<b>\$233,828,180</b>	<b>\$4,495,240,881</b>
<b>Los Angeles to Bakersfield</b>																
C-1 (At Grade)	Union Station, Burbank	\$165,000,000	40.09	24.91	\$14,632,535	\$31,540,390	\$6,925,939	\$1,703,814	\$288,625,944	-	\$122,588,445	\$17,226,112	\$18,312,900	\$50,826,102	\$39,047,660	\$756,429,840
SR/99-1	Santa Clarita	\$27,500,000	48.51	30.14	\$23,554,636	\$25,951,504	\$7,425,921	\$134,587,750	\$449,124,233	-	\$46,342,203	\$24,094,125	\$9,150,125	\$60,512,094	\$46,489,020	\$854,731,609
SR/99-3	Palmdale	\$27,500,000	12.35	7.67	\$8,263,712	\$2,317,505	\$1,587,183	\$37,565,608	\$28,399,100	-	\$18,654,940	\$3,825,286	\$2,713,158	\$15,498,958	\$158,834,836	
SR/99-4			124.73	77.51	\$84,521,120	\$21,428,811	\$15,892,490	\$347,312,603	\$359,371,931	-	\$134,406,778	\$37,894,712	\$25,087,217	\$155,597,094	\$119,539,020	\$1,301,051,775
SR/99-7	Downtown Bakersfield	\$55,000,000	4.78	2.97	\$0	\$13,326,850	\$1,041,285	\$199,245	\$102,847,404	-	\$19,514,640	\$5,265,569	\$8,656,344	\$16,563,300	\$13,369,910	\$235,784,547
SR/99-9			14.50	9.01	\$11,144,870	\$0	\$1,671,731	\$2,026,010	\$904,199	\$37,770,000	\$34,117,529	\$3,728,251	\$4,650,202	\$18,091,506	\$13,898,980	\$128,003,277
<b>Subtotals =</b>		<b>\$275,000,000</b>	<b>245.0</b>	<b>152.2</b>	<b>\$142,116,873</b>	<b>\$94,565,059</b>	<b>\$34,544,547</b>	<b>\$523,395,030</b>	<b>\$1,229,272,810</b>	<b>\$37,770,000</b>	<b>\$375,624,534</b>	<b>\$92,034,055</b>	<b>\$68,569,946</b>	<b>\$317,089,054</b>	<b>\$244,853,976</b>	<b>\$3,434,835,884</b>
<b>Bakersfield to Stockton</b>																
SR99-10			129.58	80.52	\$101,037,970	\$310,170	\$15,202,221	\$28,179,919	\$15,376,140	\$67,580,000	\$143,928,912	\$20,172,756	\$10,317,419	\$164,281,524	\$126,210,920	\$692,597,950
SR99-35	Tulare County	\$13,200,000	24.69	15.34	\$19,282,890	\$0	\$2,892,434	\$5,485,872	\$247,542	\$89,060,000	\$25,864,874	\$5,999,440	\$1,796,356	\$31,301,982	\$24,048,060	\$219,179,409
SR99-37			18.76	11.66	\$14,651,560	\$0	\$2,197,734	\$4,195,705	\$112,583	\$30,720,000	\$17,138,142	\$3,356,773	\$820,529	\$23,783,928	\$115,249,193	
SR99-39	Fresno	\$27,500,000	15.43	9.59	\$12,050,830	\$0	\$1,807,625	\$3,400,518	\$113,596	\$40,100,000	\$14,367,567	\$3,217,928	\$833,161	\$19,562,154	\$15,028,820	\$137,982,199
SR99-20			61.90	38.46	\$48,125,220	\$413,560	\$7,280,817	\$13,508,732	\$21,171,693	\$19,220,000	\$72,603,872	\$9,851,571	\$7,294,395	\$78,476,820	\$60,290,600	\$338,237,280
SR99-22	Merced	\$13,200,000	27.23	16.92	\$21,184,625	\$155,085	\$3,200,957	\$5,974,602	\$7,904,758	\$10,630,000	\$30,588,467	\$4,292,863	\$2,412,720	\$34,522,194	\$26,522,020	\$160,588,289
SR99-27a	Modesto	\$13,200,000	63.05	39.18	\$49,187,380	\$103,390	\$7,393,616	\$13,292,248	\$10,937,200	\$197,300,000	\$101,724,492	\$16,667,294	\$34,292,643	\$79,934,790	\$61,410,700	\$585,443,752
<b>Subtotals =</b>		<b>\$67,100,000</b>	<b>340.6</b>	<b>211.7</b>	<b>\$265,520,475</b>	<b>\$982,205</b>	<b>\$39,975,402</b>	<b>\$74,037,595</b>	<b>\$55,863,510</b>	<b>\$454,610,000</b>	<b>\$406,216,324</b>	<b>\$63,558,585</b>	<b>\$57,767,222</b>	<b>\$431,863,392</b>	<b>\$331,783,360</b>	<b>\$2,249,278,071</b>
<b>Central Valley to San Jose - Pacheco 1</b>																
SR/99-46			26.40	16.40	\$20,509,060	\$206,780	\$3,107,376	\$5,776,065	\$1,925,417	\$16,550,000	\$29,327,285	\$4,166,899	\$2,304,469	\$33,469,920	\$25,713,600	\$143,056,671
SR/99-42			39.29	24.41	\$30,494,145	\$361,865	\$4,628,402	\$8,575,766	\$3,284,304	\$848,816	\$43,646,554	\$5,500,495	\$3,429,644	\$49,811,862	\$38,268,460	\$188,850,312
SR/99-23b	Los Banos	\$13,200,000	28.70	17.83	\$21,922,670	\$930,510	\$3,427,977	\$4,677,831	\$6,153,368	\$7,080,000	\$31,882,313	\$4,287,587	\$2,505,237	\$36,385,860	\$27,953,800	\$160,407,154
SR/99-34	Gilroy	\$13,200,000	55.94	34.76	\$27,639,590	\$28,801,500	\$8,466,164	\$536,954,454	\$521,195,342	\$160,780,000	\$73,961,036	\$44,773,010	\$11,583,188	\$69,589,542	\$53,462,860	\$1,550,406,686
US/101-1	San Jose	\$55,000,000	57.25	35.58	\$20,620,780	\$44,014,600	\$9,692,607	\$11,455,825	\$352,968,400	\$169,180,000	\$107,519,981	\$25,702,183	\$15,719,614	\$71,022,156	\$54,563,480	\$937,441,627
<b>Subtotals =</b>		<b>\$81,400,000</b>	<b>207.6</b>	<b>129.0</b>	<b>\$121,168,245</b>	<b>\$74,315,255</b>	<b>\$29,322,525</b>	<b>\$567,439,941</b>	<b>\$885,526,831</b>	<b>\$354,438,816</b>	<b>\$286,337,169</b>	<b>\$84,429,974</b>	<b>\$35,542,153</b>	<b>\$260,279,340</b>	<b>\$199,962,200</b>	<b>\$2,980,162,449</b>
<b>San Jose to San Francisco</b>																
US/101-3	Palo Alto	\$27,500,000	28.70	17.83	\$13,042,700	\$17,724,000	\$4,615,005	\$6,351,885	\$151,378,083	\$152,270,000	\$76,610,718	\$15,415,602	\$27,812,790	\$36,221,046	\$27,827,180	\$556,769,009
C-5 a	SFO	\$55,000,000	18.80	11.68	\$12,781,065	\$5,073,495	\$2,678,184	\$51,208,215	\$59,890,680	\$79,610,000	\$50,499,900	\$9,875,621	\$23,058,180	\$25,102,440	\$19,285,200	\$394,062,979
C-5 b	4th and Townsend	\$110,000,000	22.05	13.70	\$14,058,000	\$4,874,100	\$2,839,815	\$39,736,513	\$235,094,640	\$140,540,000	\$65,327,100	\$17,368,671	\$28,735,200	\$27,004,140	\$20,746,200	\$706,324,379
<b>Subtotals =</b>		<b>\$192,500,000</b>	<b>69.6</b>	<b>43.2</b>	<b>\$39,881,765</b>	<b>\$27,671,595</b>	<b>\$10,133,004</b>	<b>\$97,296,612</b>	<b>\$446,363,403</b>	<b>\$372,420,000</b>	<b>\$192,437,718</b>	<b>\$42,659,894</b>	<b>\$79,606,170</b>	<b>\$88,327,626</b>	<b>\$67,858,580</b>	<b>\$1,657,156,367</b>
<b>Stockton to Sacramento</b>																
SR/99-41 a	Stockton, Sacramento	\$123,200,000	92.87	57.71	\$64,081,050	\$15,981,140	\$12,009,329	\$23,293,369	\$176,890,228	\$261,000,000	\$247,903,742	\$32,798,308	\$83,922,102	\$117,740,586	\$90,455,380	\$1,249,275,234
<b>Subtotals =</b>		<b>\$123,200,000</b>	<b>92.9</b>	<b>57.7</b>	<b>\$64,081,050</b>	<b>\$15,981,140</b>	<b>\$12,009,329</b>	<b>\$23,293,369</b>	<b>\$176,890,228</b>	<b>\$261,000,000</b>	<b>\$247,903,742</b>	<b>\$32,798,308</b>	<b>\$83,922,102</b>	<b>\$117,740,586</b>	<b>\$90,455,380</b>	<b>\$1,249,275,234</b>
<b>Subtotals =</b>		<b>\$1,069,200,000</b>	<b>1198</b>	<b>745</b>	<b>\$759,684,813</b>	<b>\$328,078,759</b>	<b>\$162,206,793</b>	<b>\$1,632,431,278</b>	<b>\$3,908,941,496</b>	<b>\$2,674,698,816</b>	<b>\$1,992,058,976</b>	<b>\$436,798,511</b>	<b>\$413,447,022</b>	<b>\$1,519,660,744</b>	<b>\$1,168,741,676</b>	<b>\$16,065,948,885</b>

<b>Program Implementation (25.5%) =</b>	<b>\$4,096,816,966</b>
<b>Contingency (25%) =</b>	<b>\$4,016,487,221</b>
<b>Vehicle Costs =</b>	<b>\$1,178,000,000</b>
<b>Support Facility Costs =</b>	<b>\$304,000,000</b>
<b>Alternative Total =</b>	<b>\$25,661,253,072</b>

**HSR Corridor Evaluation**

**Alternative Comparison: Authority Option A**

Qualcomm, Inland Empire, Palmdale/Mojave, West 99, Pacheco 1

**Maglev Cost Estimate**

Segment No.	Station Name	Station Cost	Length		CAPITAL COSTS											
					Track & Guideway System			Earthwork and Related Items	Structures, Tunnels & Crash and Sound Walls	Grade Separation	Right of Way	Environmental Impact Mitigation	Rail & Utility Relocation	Signals & Communications	Electrification Items	Segment Subtotals
					Ballasted	Direct Fixation	Special Trackwork									
(km)	(miles)															
<b>San Diego to Los Angeles</b>																
SD-5	E. Mission Valley	\$110,000,000	10.60	6.59	\$0	\$22,967,550	\$3,445,133	\$1,104,047	\$115,031,412	\$0	\$23,202,446	\$5,527,872	\$3,156,775	\$14,551,680	\$32,648,000	\$331,634,915
SD-6	Mira Mesa	\$27,500,000	5.48	3.41	\$4,449,060	\$8,948,678	\$2,009,661	\$1,034,750	\$49,610,365	\$13,500,000	\$13,576,749	\$3,004,799	\$1,925,511	\$7,522,944	\$16,878,400	\$149,960,915
SD-7			23.70	14.73	\$0	\$51,351,975	\$7,702,796	\$4,631,772	\$273,761,456	\$0	\$60,235,209	\$13,217,390	\$8,564,943	\$32,535,360	\$72,996,000	\$524,996,902
SD-8	Escondido	\$27,500,000	47.10	29.27	\$87,316,922	\$46,162,609	\$20,021,930	\$298,198,561	\$350,940,737	\$92,020,000	\$65,681,502	\$29,454,969	\$7,849,381	\$65,619,840	\$147,224,000	\$1,237,990,450
LA-1	Temecula	\$27,500,000	49.30	30.64	\$151,251,562	\$227,509	\$22,721,861	\$15,625,535	\$24,461,288	\$293,640,000	\$64,013,140	\$16,714,393	\$14,884,734	\$63,148,800	\$141,680,000	\$835,868,821
LA-2			11.15	6.93	\$29,182,538	\$3,347,629	\$4,879,525	\$8,229,454	\$48,245,592	\$75,600,000	\$15,992,371	\$5,579,053	\$4,008,918	\$14,277,120	\$32,032,000	\$241,374,201
LA-3	Riverside	\$55,000,000	28.84	17.92	\$87,086,230	\$12,491,314	\$14,936,632	\$6,146,926	\$80,142,556	\$143,400,000	\$73,871,543	\$12,583,808	\$10,191,933	\$44,190,432	\$99,145,200	\$639,204,573
LA-4	Ontario, E. San Gabriel	\$82,500,000	66.47	41.30	\$176,265,166	\$22,566,701	\$29,824,780	\$11,979,686	\$172,831,308	\$576,300,000	\$166,966,528	\$35,235,412	\$37,457,233	\$87,721,920	\$196,812,000	\$1,596,460,735
<b>Subtotals =</b>		<b>\$330,000,000</b>	<b>242.6</b>	<b>150.8</b>	<b>\$535,551,478</b>	<b>\$168,063,964</b>	<b>\$105,542,316</b>	<b>\$346,968,730</b>	<b>\$1,115,024,715</b>	<b>\$1,194,460,000</b>	<b>\$483,539,488</b>	<b>\$121,317,696</b>	<b>\$88,039,430</b>	<b>\$329,568,096</b>	<b>\$739,415,600</b>	<b>\$5,557,491,512</b>
<b>Los Angeles to Bakersfield</b>																
C-1 (At Grade)	Union Station, Burbank	\$165,000,000	40.09	24.91	\$59,132,102	\$47,987,570	\$16,067,951	\$1,703,814	\$306,471,864	\$-	\$122,588,445	\$17,226,112	\$18,312,900	\$55,035,552	\$127,512,000	\$937,038,309
SR/99-1	Santa Clarita	\$27,500,000	48.51	30.14	\$103,168,130	\$35,589,282	\$20,813,612	\$134,587,750	\$448,523,981	\$-	\$46,342,203	\$24,094,125	\$9,150,125	\$65,523,744	\$146,866,592	\$1,062,159,542
SR/99-3	Palmdale	\$27,500,000	12.35	7.67	\$35,207,511	\$3,178,217	\$5,757,859	\$37,561,518	\$28,319,527	\$-	\$18,654,940	\$3,825,286	\$2,713,158	\$17,260,977	\$39,595,508	\$219,574,502
SR/99-4			124.73	77.51	\$359,771,139	\$29,387,384	\$58,373,779	\$347,312,603	\$358,636,166	\$-	\$134,406,778	\$37,894,712	\$25,087,217	\$168,483,744	\$366,119,900	\$1,885,473,421
SR/99-7	Downtown Bakersfield	\$55,000,000	4.78	2.97	\$0	\$10,183,725	\$1,527,559	\$194,937	\$102,847,404	\$-	\$14,514,640	\$5,265,569	\$8,656,344	\$18,449,000	\$42,319,000	\$263,958,178
SR/99-9			14.50	9.01	\$47,028,212	\$0	\$7,054,232	\$2,026,010	\$904,199	\$37,770,000	\$-	\$3,728,521	\$4,650,202	\$19,589,856	\$43,951,600	\$200,820,901
<b>Subtotals =</b>		<b>\$275,000,000</b>	<b>245.0</b>	<b>152.2</b>	<b>\$604,307,095</b>	<b>\$126,326,178</b>	<b>\$109,594,991</b>	<b>\$523,386,632</b>	<b>\$1,245,703,141</b>	<b>\$37,770,000</b>	<b>\$375,624,534</b>	<b>\$92,034,055</b>	<b>\$68,569,946</b>	<b>\$344,342,873</b>	<b>\$766,364,600</b>	<b>\$4,569,024,044</b>
<b>Bakersfield to Stockton</b>																
SR99-10			129.58	80.52	\$426,351,772	\$455,018	\$64,021,018	\$28,179,919	\$15,376,140	\$67,580,000	\$143,928,912	\$20,172,756	\$10,317,419	\$177,887,424	\$399,106,400	\$1,353,376,777
SR99-35	Tulare County	\$13,200,000	24.69	15.34	\$81,368,364	\$0	\$12,205,255	\$5,485,872	\$247,542	\$89,060,000	\$25,864,874	\$5,999,400	\$1,796,356	\$33,894,432	\$76,045,200	\$345,167,294
SR99-37			18.76	11.66	\$61,825,456	\$0	\$9,273,818	\$4,195,705	\$112,583	\$30,720,000	\$17,138,142	\$3,356,773	\$820,529	\$25,753,728	\$57,780,800	\$210,977,533
SR99-39	Fresno	\$27,500,000	15.43	9.59	\$50,851,108	\$0	\$7,627,666	\$3,400,518	\$113,596	\$40,100,000	\$14,367,567	\$3,217,928	\$833,161	\$21,182,304	\$47,524,400	\$216,718,249
SR99-20			61.90	38.46	\$203,074,872	\$606,690	\$30,552,234	\$13,508,732	\$21,171,693	\$64,680,000	\$72,603,872	\$9,851,571	\$7,294,395	\$84,976,320	\$190,652,000	\$698,972,379
SR99-22	Merced	\$13,200,000	27.23	16.92	\$89,393,150	\$227,509	\$13,443,099	\$5,974,602	\$7,904,758	\$10,630,000	\$30,588,467	\$4,292,863	\$2,412,720	\$37,381,344	\$83,868,400	\$299,316,910
SR99-27a	Modesto	\$13,200,000	63.05	39.18	\$207,556,888	\$151,673	\$31,156,284	\$13,292,248	\$10,937,200	\$197,300,000	\$101,724,492	\$16,667,294	\$34,292,643	\$86,555,040	\$194,194,000	\$907,027,761
<b>Subtotals =</b>		<b>\$67,100,000</b>	<b>340.6</b>	<b>211.7</b>	<b>\$1,120,421,610</b>	<b>\$1,440,889</b>	<b>\$168,279,375</b>	<b>\$74,037,595</b>	<b>\$55,863,510</b>	<b>\$500,070,000</b>	<b>\$406,216,324</b>	<b>\$63,558,585</b>	<b>\$57,767,222</b>	<b>\$467,630,592</b>	<b>\$1,049,171,200</b>	<b>\$4,031,556,902</b>
<b>Central Valley to San Jose - Pacheco 1</b>																
SR/99-46			26.40	16.40	\$86,542,456	\$303,345	\$13,026,870	\$5,776,065	\$1,925,417	\$16,550,000	\$29,327,285	\$4,166,699	\$2,304,469	\$36,241,920	\$81,312,000	\$277,476,526
SR/99-42			39.29	24.41	\$128,676,702	\$530,854	\$19,381,133	\$8,575,766	\$3,284,304	\$848,816	\$43,646,554	\$5,500,495	\$3,429,644	\$53,937,312	\$121,013,200	\$388,824,780
SR/99-23 b	Los Banos	\$13,200,000	28.70	17.83	\$92,507,492	\$1,365,053	\$14,080,882	\$4,677,831	\$6,153,368	\$7,080,000	\$31,882,313	\$4,287,587	\$2,505,237	\$39,399,360	\$88,396,000	\$305,535,123
SR/99-34	Gilroy	\$13,200,000	55.94	34.76	\$116,631,284	\$42,251,625	\$23,832,436	\$536,954,454	\$521,195,342	\$160,780,000	\$73,961,036	\$44,773,010	\$11,583,188	\$75,352,992	\$169,061,200	\$1,789,576,568
US/101-1	San Jose	\$55,000,000	57.25	35.58	\$86,937,928	\$64,569,150	\$22,726,062	\$11,455,825	\$352,968,400	\$169,180,000	\$107,519,981	\$25,702,183	\$15,719,614	\$76,904,256	\$172,541,600	\$1,161,224,999
<b>Subtotals =</b>		<b>\$81,400,000</b>	<b>207.6</b>	<b>129.0</b>	<b>\$511,295,862</b>	<b>\$109,020,026</b>	<b>\$93,047,383</b>	<b>\$567,439,941</b>	<b>\$885,526,831</b>	<b>\$354,438,816</b>	<b>\$286,337,169</b>	<b>\$84,429,974</b>	<b>\$35,542,153</b>	<b>\$281,835,840</b>	<b>\$632,324,000</b>	<b>\$3,922,637,996</b>
<b>San Jose to San Francisco</b>																
US/101-3	Palo Alto	\$27,500,000	28.70	17.83	\$55,036,520	\$26,001,000	\$12,155,628	\$6,351,885	\$151,378,083	\$152,270,000	\$76,610,718	\$15,415,602	\$27,812,790	\$39,220,896	\$87,995,600	\$677,748,722
C-5 a	SFO	\$55,000,000	18.80	11.68	\$53,932,494	\$7,442,786	\$9,206,292	\$51,208,215	\$59,890,680	\$79,610,000	\$50,499,900	\$9,875,621	\$23,058,180	\$27,181,440	\$60,984,000	\$487,889,608
C-5 b	4th and Townsend	\$110,000,000	22.05	13.70	\$59,320,800	\$7,150,275	\$9,970,661	\$39,736,513	\$235,094,640	\$140,540,000	\$65,327,100	\$17,368,671	\$28,735,200	\$29,240,640	\$65,604,000	\$808,088,500
<b>Subtotals =</b>		<b>\$192,500,000</b>	<b>69.6</b>	<b>43.2</b>	<b>\$168,289,814</b>	<b>\$40,594,061</b>	<b>\$31,332,581</b>	<b>\$97,296,612</b>	<b>\$446,363,403</b>	<b>\$372,420,000</b>	<b>\$192,437,718</b>	<b>\$42,659,894</b>	<b>\$79,606,170</b>	<b>\$95,642,976</b>	<b>\$214,583,600</b>	<b>\$1,973,726,830</b>
<b>Stockton to Sacramento</b>																
SR/99-41 a	Stockton, Sacramento	\$123,200,000	92.87	57.71	\$270,403,980	\$23,444,235	\$44,077,232	\$23,293,369	\$176,890,228	\$261,000,000	\$247,903,742	\$32,798,308	\$83,922,102	\$127,491,936	\$286,039,600	\$1,700,464,732
<b>Subtotals =</b>		<b>\$123,200,000</b>	<b>92.9</b>	<b>57.7</b>	<b>\$270,403,980</b>	<b>\$23,444,235</b>	<b>\$44,077,232</b>	<b>\$23,293,369</b>	<b>\$176,890,228</b>	<b>\$261,000,000</b>	<b>\$247,903,742</b>	<b>\$32,798,308</b>	<b>\$83,922,102</b>	<b>\$127,491,936</b>	<b>\$286,039,600</b>	<b>\$1,700,464,732</b>
<b>Subtotals =</b>		<b>\$1,069,200,000</b>	<b>1198</b>	<b>745</b>	<b>\$3,210,269,839</b>	<b>\$468,889,353</b>	<b>\$551,873,879</b>	<b>\$1,632,422,880</b>	<b>\$3,925,371,827</b>	<b>\$2,720,158,816</b>	<b>\$1,992,058,976</b>	<b>\$436,798,511</b>	<b>\$413,447,022</b>	<b>\$1,646,512,313</b>	<b>\$3,687,898,600</b>	<b>\$21,754,902,016</b>

Program Implementation (25.5%) =	\$5,547,500,014
Contingency (25%) =	\$5,438,725,504
Vehicle Costs =	\$1,116,000,000
Support Facility Costs =	\$304,000,000
<b>Alternative Total =</b>	<b>\$34,161,127,534</b>

**HSR Corridor Evaluation**

**Alternative Comparison: Authority Option B**

Qualcomm, Inland Empire, Grapevine, West 99, Pacheco 1

**VHS Cost Estimate**

Segment No.	Station Name	Station Cost	Length		CAPITAL COSTS											
					Track & Guideway System			Earthwork and Related Items	Structures, Tunnels & Crash and Sound Walls	Grade Separation	Right of Way	Environmental Impact Mitigation	Rail & Utility Relocation	Signals & Communications	Electrification Items	Segment Subtotals
					Ballasted	Direct Fixation	Special Trackwork									
(km)	(miles)															
<b>San Diego to Los Angeles</b>																
SD-5	E. Mission Valley	\$110,000,000	10.60	6.59	\$0	\$15,656,200	\$2,348,430	\$1,104,047	\$115,031,412	\$0	\$23,202,446	\$5,527,872	\$3,156,775	\$13,438,680	\$10,324,400	\$299,790,262
SD-6	Mira Mesa	\$27,500,000	5.48	3.41	\$1,054,350	\$6,100,010	\$1,073,154	\$1,034,750	\$49,610,365	\$13,500,000	\$13,576,749	\$3,004,799	\$1,925,511	\$6,947,544	\$5,337,520	\$130,664,751
SD-7			23.70	14.73	\$0	\$35,004,900	\$5,250,735	\$4,631,772	\$273,761,456	\$0	\$60,235,209	\$13,217,390	\$8,564,943	\$30,046,860	\$23,083,800	\$453,797,065
SD-8	Escondido	\$27,500,000	47.10	29.27	\$20,692,595	\$31,467,485	\$7,824,012	\$298,198,561	\$350,940,737	\$92,020,000	\$65,681,502	\$29,454,969	\$7,849,381	\$60,600,840	\$46,557,200	\$1,038,787,282
LA-1	Temecula	\$27,500,000	49.30	30.64	\$35,843,995	\$155,085	\$5,399,862	\$15,625,535	\$24,461,288	\$293,640,000	\$64,013,140	\$16,714,393	\$14,884,734	\$58,318,800	\$44,804,000	\$601,360,832
LA-2			11.15	6.93	\$6,915,755	\$2,281,965	\$1,379,658	\$8,229,454	\$48,245,592	\$75,600,000	\$15,992,371	\$5,579,053	\$4,008,918	\$13,185,120	\$10,129,600	\$191,547,487
LA-3	Riverside	\$55,000,000	28.84	17.92	\$20,637,925	\$8,514,905	\$4,372,925	\$6,164,926	\$80,142,556	\$143,400,000	\$73,871,543	\$12,583,808	\$10,191,933	\$40,810,482	\$31,353,060	\$487,044,062
LA-4	Ontario, E. San Gabriel	\$82,500,000	66.47	41.30	\$41,771,785	\$15,382,955	\$8,573,211	\$11,979,686	\$172,831,308	\$576,300,000	\$166,966,528	\$35,235,412	\$37,457,233	\$81,012,420	\$62,238,600	\$1,292,249,139
<b>Subtotals =</b>		<b>\$330,000,000</b>	<b>242.6</b>	<b>150.8</b>	<b>\$126,916,405</b>	<b>\$114,563,505</b>	<b>\$36,221,987</b>	<b>\$346,968,730</b>	<b>\$1,115,024,715</b>	<b>\$1,194,460,000</b>	<b>\$483,539,488</b>	<b>\$121,317,696</b>	<b>\$88,039,430</b>	<b>\$304,360,746</b>	<b>\$233,828,180</b>	<b>\$4,495,240,881</b>
<b>Los Angeles to Bakersfield</b>																
C-1 (At Grade)	Union Station, Burbank	\$165,000,000	40.09	24.91	\$14,632,535	\$31,540,390	\$6,925,939	\$1,703,814	\$288,625,944	*	\$122,588,445	\$17,226,112	\$18,312,900	\$50,826,102	\$39,047,660	\$756,429,840
I/5-1 (3.5%)	Santa Clarita	\$27,500,000	92.03	57.19	\$41,674,245	\$54,323,900	\$14,399,722	\$367,993,668	\$1,039,431,128	*	\$98,139,024	\$54,764,448	\$7,444,050	\$114,279,492	\$87,796,360	\$1,907,746,035
SR 99-6 a			44.78	27.83	\$26,878,095	\$16,224,883	\$6,465,447	\$61,169,767	\$14,725,460	*	\$47,374,582	\$8,346,604	\$3,604,181	\$57,558,120	\$44,219,600	\$286,566,739
<b>Subtotals =</b>		<b>\$192,500,000</b>	<b>176.9</b>	<b>109.9</b>	<b>\$83,184,874</b>	<b>\$102,089,173</b>	<b>\$27,791,107</b>	<b>\$430,867,249</b>	<b>\$1,342,782,532</b>	<b>\$0</b>	<b>\$268,102,051</b>	<b>\$80,337,164</b>	<b>\$29,361,130</b>	<b>\$222,663,714</b>	<b>\$171,063,620</b>	<b>\$2,950,742,614</b>
<b>Bakersfield to Stockton</b>																
SR99-10	Bakersfield	\$27,500,000	129.58	80.52	\$101,037,970	\$310,170	\$15,202,221	\$28,179,919	\$15,376,140	\$67,580,000	\$143,928,912	\$20,172,756	\$10,317,419	\$164,281,524	\$126,210,920	\$720,097,950
SR99-35	Tulare County	\$13,200,000	24.69	15.34	\$19,282,890	\$0	\$2,892,434	\$5,485,872	\$247,542	\$89,060,000	\$25,864,874	\$5,999,400	\$1,796,356	\$31,301,982	\$24,048,060	\$219,179,409
SR99-37			18.76	11.66	\$14,651,560	\$0	\$2,197,734	\$4,195,705	\$112,583	\$30,720,000	\$17,138,142	\$3,356,773	\$820,529	\$23,783,928	\$18,272,240	\$115,249,193
SR99-39	Fresno	\$27,500,000	15.43	9.59	\$12,050,830	\$0	\$1,807,625	\$3,400,518	\$113,596	\$40,100,000	\$14,367,567	\$3,217,928	\$833,161	\$19,562,154	\$15,028,820	\$137,982,199
SR99-20			61.90	38.46	\$48,125,220	\$413,560	\$7,280,817	\$13,508,732	\$21,171,693	\$19,220,000	\$72,603,872	\$9,851,571	\$7,294,395	\$78,476,820	\$60,290,600	\$338,237,280
SR99-22	Merced	\$13,200,000	27.23	16.92	\$21,184,625	\$155,085	\$3,200,957	\$5,974,602	\$7,904,758	\$10,630,000	\$30,588,467	\$4,292,863	\$2,412,720	\$34,522,194	\$26,522,020	\$160,588,289
SR99-27a	Modesto	\$13,200,000	63.05	39.18	\$49,187,380	\$103,390	\$7,393,616	\$13,292,248	\$10,937,200	\$197,300,000	\$101,724,492	\$16,667,294	\$34,292,643	\$79,934,790	\$61,410,700	\$585,443,752
<b>Subtotals =</b>		<b>\$94,600,000</b>	<b>340.6</b>	<b>211.7</b>	<b>\$265,520,475</b>	<b>\$982,205</b>	<b>\$39,975,402</b>	<b>\$74,037,595</b>	<b>\$55,863,510</b>	<b>\$454,610,000</b>	<b>\$406,216,324</b>	<b>\$63,558,585</b>	<b>\$57,767,222</b>	<b>\$431,863,392</b>	<b>\$331,783,360</b>	<b>\$2,276,778,071</b>
<b>Central Valley to San Jose - Pacheco 1</b>																
SR/99-46			26.40	16.40	\$20,509,060	\$206,780	\$3,107,376	\$5,776,065	\$1,925,417	\$16,550,000	\$29,327,285	\$4,166,699	\$2,304,469	\$33,469,920	\$25,713,600	\$143,056,671
SR/99-42			39.29	24.41	\$30,494,145	\$361,865	\$4,628,402	\$8,575,766	\$3,284,304	\$848,816	\$43,646,554	\$5,500,495	\$3,429,644	\$49,811,862	\$38,268,460	\$188,850,312
SR/99-23b	Los Banos	\$13,200,000	28.70	17.83	\$21,922,670	\$930,510	\$3,427,977	\$4,677,831	\$6,153,368	\$7,080,000	\$31,882,313	\$4,287,587	\$2,505,237	\$36,385,860	\$27,953,800	\$160,407,154
SR/99-34	Gilroy	\$13,200,000	55.94	34.76	\$27,639,590	\$28,801,500	\$8,466,164	\$536,954,454	\$521,195,342	\$160,780,000	\$73,961,036	\$44,773,010	\$11,583,188	\$69,589,542	\$53,462,860	\$1,550,406,686
US/101-1	San Jose	\$55,000,000	57.25	35.58	\$20,602,780	\$44,014,600	\$9,692,607	\$11,455,825	\$352,968,400	\$169,180,000	\$107,519,981	\$25,702,183	\$15,719,814	\$71,022,156	\$54,563,480	\$937,441,627
<b>Subtotals =</b>		<b>\$81,400,000</b>	<b>207.6</b>	<b>129.0</b>	<b>\$121,168,245</b>	<b>\$74,315,255</b>	<b>\$29,322,525</b>	<b>\$567,439,941</b>	<b>\$885,526,831</b>	<b>\$354,438,816</b>	<b>\$286,337,169</b>	<b>\$84,429,974</b>	<b>\$35,542,153</b>	<b>\$260,279,340</b>	<b>\$199,962,200</b>	<b>\$2,980,162,449</b>
<b>San Jose to San Francisco</b>																
US/101-3	Palo Alto	\$27,500,000	28.70	17.83	\$13,042,700	\$17,724,000	\$4,615,005	\$6,351,885	\$151,378,083	\$152,270,000	\$76,610,718	\$15,415,602	\$27,812,790	\$36,221,046	\$27,827,180	\$556,769,009
C-5 a	SFO	\$55,000,000	18.80	11.68	\$12,781,065	\$5,073,495	\$2,678,184	\$51,208,215	\$59,890,680	\$79,610,000	\$50,499,900	\$9,875,621	\$23,058,180	\$25,102,440	\$19,285,200	\$394,062,979
C-5 b	4th and Townsend	\$110,000,000	22.05	13.70	\$14,058,000	\$4,874,100	\$2,839,815	\$39,736,513	\$235,094,640	\$140,540,000	\$65,327,100	\$17,368,671	\$28,735,200	\$27,004,140	\$20,746,200	\$706,324,379
<b>Subtotals =</b>		<b>\$192,500,000</b>	<b>69.6</b>	<b>43.2</b>	<b>\$39,881,765</b>	<b>\$27,671,595</b>	<b>\$10,133,004</b>	<b>\$97,296,612</b>	<b>\$446,363,403</b>	<b>\$372,420,000</b>	<b>\$192,437,718</b>	<b>\$42,659,894</b>	<b>\$79,606,170</b>	<b>\$88,327,626</b>	<b>\$67,858,580</b>	<b>\$1,657,156,367</b>
<b>Stockton to Sacramento</b>																
SR/99-41 a	Stockton, Sacramento	\$123,200,000	92.87	57.71	\$64,081,050	\$15,981,140	\$12,009,329	\$23,293,369	\$176,890,228	\$261,000,000	\$247,903,742	\$32,798,308	\$83,922,102	\$117,740,586	\$90,455,380	\$1,249,275,234
<b>Subtotals =</b>		<b>\$123,200,000</b>	<b>92.9</b>	<b>57.7</b>	<b>\$64,081,050</b>	<b>\$15,981,140</b>	<b>\$12,009,329</b>	<b>\$23,293,369</b>	<b>\$176,890,228</b>	<b>\$261,000,000</b>	<b>\$247,903,742</b>	<b>\$32,798,308</b>	<b>\$83,922,102</b>	<b>\$117,740,586</b>	<b>\$90,455,380</b>	<b>\$1,249,275,234</b>
<b>Subtotals =</b>		<b>\$1,014,200,000</b>	<b>1130.2</b>	<b>702.3</b>	<b>\$700,752,814</b>	<b>\$335,602,873</b>	<b>\$155,453,353</b>	<b>\$1,539,903,497</b>	<b>\$4,022,451,219</b>	<b>\$2,636,928,816</b>	<b>\$1,884,536,492</b>	<b>\$425,101,620</b>	<b>\$374,238,206</b>	<b>\$1,425,235,404</b>	<b>\$1,094,951,320</b>	<b>\$15,609,355,615</b>

Program Implementation (25.5%) =	\$3,980,385,682
Contingency (25%) =	\$3,902,338,904
Vehicle Costs =	\$1,178,000,000
Support Facility Costs =	\$304,000,000
<b>Alternative Total =</b>	<b>\$24,974,080,201</b>

# APPENDIX F

## Travel Time/Speed Summary Sheets

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**HSR Corridor Evaluation**

**Alternative Comparison: Staff Recommended Corridor**

English Units

**VHS Time Estimate**

**San Diego to Los Angeles**

Segments		Length (miles)	Local Travel Time							Express Travel Time						
Station Range	End		Max V (mph)	Ta (Min)	Tv (Min)	Td (Min)	Tss (Min)	Tt* (Min)	(Avg) (mph)	Max V (mph)	Ta (Min)	Tv (Min)	Td (Min)	Tt* (Min)	Avg V (mph)	
San Diego	U. Town Center	12.78	124	2.14	4.22	1.75	0.0	8.60	89	124	2.14	5.10	0.0	7.67	100	
U. Town Center	Oceanside	24.54	124	2.14	9.90	1.75	2.0	16.74	88	124	0.0	11.85	0.0	12.56	117	
Oceanside	Irvine	45.30	202	3.47	10.30	2.85	2.0	19.74	138	202	0.0	13.46	0.0	14.27	191	
Irvine	Anaheim	14.48	124	2.14	5.04	1.75	2.0	11.59	75	124	0.0	6.99	0.0	7.41	117	
Anaheim	Norwalk	14.48	93	1.60	7.86	1.32	2.0	13.55	64	93	0.0	9.32	0.0	9.88	88	
Norwalk	Union Station	15.28	93	1.60	8.38	1.32	2.0	14.09	65	93	0.0	9.18	1.32	11.12	82	
<b>Total Length =</b>		<b>126.9</b>	<b>Total Travel Time =</b>							<b>84.3</b>	<b>Total Travel Time =</b>					<b>62.9</b>
<b>Riverside to Los Angeles</b>																
Riverside	Ontario	17.92	155	2.67	4.49	2.19	0.0	9.91	108	155	2.67	5.59	0.0	8.75	123	
Ontario	E. San Gabriel	16.09	155	2.67	3.78	2.19	2.0	11.28	86	155	0.0	6.21	0.0	6.59	147	
E. San Gabriel	Union Station	25.22	124	2.14	10.23	1.75	2.0	17.09	89	124	0.0	11.30	1.75	13.83	109	
<b>Total Length =</b>		<b>59.2</b>	<b>Total Travel Time =</b>							<b>38.3</b>	<b>Total Travel Time =</b>					<b>29.2</b>
<b>Los Angeles to Bakersfield</b>																
Union Station	Burbank	11.13	93	1.60	5.70	1.32	2.0	11.26	59	93	1.60	6.36	0.0	8.44	79	
Burbank	Santa Clarita	21.07	124	2.14	8.22	1.75	2.0	14.96	84	124	0.0	10.17	0.0	10.78	117	
Santa Clarita	Bakersfield	77.73	186	3.21	22.10	2.63	2.0	31.73	147	186	0.0	25.02	0.0	26.52	176	
<b>Total Length =</b>		<b>109.9</b>	<b>Total Travel Time =</b>							<b>58.0</b>	<b>Total Travel Time =</b>					<b>45.7</b>
<b>Bakersfield to Fresno</b>																
Bakersfield	Tulare County	69.56	217	3.74	15.78	3.07	2.0	26.07	160	217	0.0	19.19	0.0	20.34	205	
Tulare County	Suburban Fresno	38.04	217	3.74	7.09	3.07	2.0	16.85	135	217	0.0	10.49	0.0	11.12	205	
<b>Total Length =</b>		<b>107.6</b>	<b>Total Travel Time =</b>							<b>42.9</b>	<b>Total Travel Time =</b>					<b>31.5</b>
<b>Fresno to San Jose</b>																
Suburban Fresno	Pacheco Junction <sup>1</sup>	27.24	217	3.74	5.65	0.00	0.0	9.95	164	217	0.0	7.52	0.0	7.97	205	
Pacheco Junction <sup>1</sup>	Los Banos	41.88	217	0.00	10.02	3.07	2.0	15.99	157	217	0.0	11.55	0.0	12.25	205	
Los Banos	Gilroy	36.97	217	3.74	6.80	3.07	2.0	16.54	134	217	0.0	10.20	0.0	10.81	205	
Gilroy	San Jose	29.91	171	2.94	7.83	2.41	0.0	13.97	128	171	0.0	9.30	2.41	12.41	145	
<b>Total Length =</b>		<b>136.0</b>	<b>Total Travel Time =</b>							<b>56.5</b>	<b>Total Travel Time =</b>					<b>43.4</b>
<b>San Jose to San Francisco</b>																
San Jose	Redwood City	21.44	124	2.14	8.40	1.75	2.0	15.15	85	124	2.14	9.28	0.0	12.10	106	
Redwood City	SFO	11.68	124	2.14	3.69	1.75	2.0	10.16	69	124	0.0	5.64	0.0	5.98	117	
SFO	Downtown	13.70	93	1.60	7.36	1.32	2.0	13.02	63	93	0.0	8.16	1.32	10.05	82	
<b>Total Length =</b>		<b>46.8</b>	<b>Total Travel Time =</b>							<b>38.3</b>	<b>Total Travel Time =</b>					<b>28.1</b>
<b>San Jose to Oakland</b>																
San Jose	Newark	17.27	124	2.14	6.39	1.75	2.0	13.02	80	124	2.14	7.27	0.0	9.97	104	
Newark	Oakland Airport	18.46	124	2.14	6.96	1.75	2.0	13.63	81	124	0.0	8.91	0.0	9.44	117	
Oakland Airport	Oakland	7.33	93	1.60	3.26	1.32	2.0	8.67	51	93	0.0	4.06	1.32	5.70	77	
<b>Total Length =</b>		<b>43.1</b>	<b>Total Travel Time =</b>							<b>35.3</b>	<b>Total Travel Time =</b>					<b>25.1</b>
<b>Fresno to Sacramento</b>																
Suburban Fresno	Suburban Merced	52.91	217	3.74	11.19	3.07	2.0	21.20	150	217	0.0	14.60	0.0	15.47	205	
Suburban Merced	Suburban Modesto	37.52	217	3.74	6.95	3.07	2.0	16.70	135	217	0.0	10.35	0.0	10.97	205	
Suburban Modesto	Stockton	21.54	217	3.74	2.54	3.07	2.0	12.03	107	217	0.0	5.94	0.0	6.30	205	
Stockton	Sacramento	50.71	186	3.21	13.40	2.63	2.0	22.51	135	186	0.0	15.00	2.63	18.69	163	
<b>Total Length =</b>		<b>162.7</b>	<b>Total Travel Time =</b>							<b>72.4</b>	<b>Total Travel Time =</b>					<b>51.4</b>
<b>Sacramento to San Jose</b>																
Sacramento	Stockton	50.71	186	3.21	13.40	2.63	2.0	22.51	135	186	3.21	14.72	0.0	19.00	160	
Stockton	Modesto	21.54	217	3.74	2.54	3.07	2.0	12.03	107	217	0.0	5.94	0.0	6.30	205	
Modesto	Merced	37.52	217	3.74	6.95	3.07	2.0	16.70	135	217	0.0	10.35	0.0	10.97	205	
Merced	Los Banos	38.71	217	3.74	7.28	3.07	2.0	17.05	136	217	0.0	10.68	0.0	11.32	205	
Los Banos	Gilroy	36.97	217	3.74	6.80	3.07	2.0	16.54	134	217	0.0	10.20	0.0	10.81	205	
Gilroy	San Jose	29.91	171	2.94	7.83	2.41	0.0	13.97	128	171	0.0	9.30	2.41	12.41	145	
<b>Total Length =</b>		<b>215.4</b>	<b>Total Travel Time =</b>							<b>98.8</b>	<b>Total Travel Time =</b>					<b>70.8</b>

**HSR Corridor Evaluation**

**Alternative Comparison: Authority Option A**

Qualcomm, Inland Empire, Palmdale/Mojave, West 99, Pacheco 1

**English Units**

**VHS Time Estimate**

**San Diego to Los Angeles**

Segments			Local Travel Time							Express Travel Time						
Station Range		Length	Max V	Ia	Iv	Id	Iss	It*	(Avg)	Max V	Ia	Iv	Id	It*	Avg V	
Begin	End	(miles)	(mph)	(Min)	(Min)	(Min)	(Min)	(Min)	(mph)	(mph)	(Min)	(Min)	(Min)	(Min)	(mph)	
East Mission Valley	Mira Mesa	9.99	155	2.67	1.43	2.19	0.0	6.67	90	155	2.67	2.52	0.0	5.51	109	
Mira Mesa	Escondido	14.73	155	2.67	3.26	2.19	2.0	10.73	82	155	0.0	5.69	0.0	6.03	147	
Escondido	Temecula	29.27	202	3.47	5.53	2.85	2.0	14.69	120	202	0.0	8.70	0.0	9.22	191	
Temecula	Riverside	37.56	202	3.47	8.00	2.85	2.0	17.30	130	202	0.0	11.16	0.0	11.83	191	
Riverside	Ontario	17.92	155	2.67	4.49	2.19	2.0	12.03	89	155	0.0	6.92	0.0	7.34	147	
Ontario	E. San Gabriel	16.09	155	2.67	3.78	2.19	2.0	11.28	86	155	0.0	6.21	0.0	6.59	147	
E. San Gabriel	Union Station	25.22	124	2.14	10.23	1.75	2.0	17.09	89	124	0.0	11.30	1.75	13.83	109	
<b>Total Length =</b>		<b>150.8</b>		<b>Total Travel Time =</b>					<b>89.8</b>		<b>Total Travel Time =</b>					<b>60.3</b>
<b>Los Angeles to Bakersfield</b>																
Union Station	Burbank	11.13	93	1.60	5.70	1.32	2.0	11.26	59	93	1.60	6.36	0.0	8.44	79	
Burbank	Santa Clarita	15.99	124	2.14	5.78	1.75	2.0	12.37	78	124	0.00	7.72	0.0	8.19	117	
Santa Clarita	Palmdale	36.75	186	3.21	8.91	2.63	2.0	17.75	124	186	0.0	11.83	0.0	12.54	176	
Palmdale	Bakersfield	88.31	202	3.47	23.07	2.85	2.0	33.28	159	202	0.0	26.24	0.0	27.81	191	
<b>Total Length =</b>		<b>152.2</b>		<b>Total Travel Time =</b>					<b>74.7</b>		<b>Total Travel Time =</b>					<b>57.0</b>
<b>Bakersfield to Fresno</b>																
Bakersfield	Tulare County	69.56	217	3.74	15.78	3.07	2.0	26.07	160	217	0.0	19.19	0.0	20.34	205	
Tulare County	Suburban Fresno	38.04	217	3.74	7.09	3.07	2.0	16.85	135	217	0.0	10.49	0.0	11.12	205	
<b>Total Length =</b>		<b>107.6</b>		<b>Total Travel Time =</b>					<b>42.9</b>		<b>Total Travel Time =</b>					<b>31.5</b>
<b>Fresno to San Jose</b>																
Suburban Fresno	Pacheco Junction <sup>1</sup>	27.24	217	3.74	5.65	0.0	0.0	9.95	164	217	0.0	7.52	0.0	7.97	205	
Pacheco Junction <sup>1</sup>	Los Banos	41.88	217	0.0	10.02	3.07	2.0	15.99	157	217	0.0	11.55	0.0	12.25	205	
Los Banos	Gilroy	36.97	217	3.74	6.80	3.07	2.0	16.54	134	217	0.0	10.20	0.0	10.81	205	
Gilroy	San Jose	29.91	171	2.94	7.83	2.41	0.0	13.97	128	171	0.0	9.30	2.41	12.41	145	
<b>Total Length =</b>		<b>136.0</b>		<b>Total Travel Time =</b>					<b>56.5</b>		<b>Total Travel Time =</b>					<b>43.4</b>
<b>San Jose to San Francisco</b>																
San Jose	Redwood City	21.44	124	2.14	8.40	1.75	2.0	15.15	85	124	2.14	9.28	0.0	12.10	106	
Redwood City	SFO	11.68	124	2.14	3.69	1.75	2.0	10.16	69	124	0.0	5.64	0.0	5.98	117	
SFO	Downtown	13.70	93	1.60	7.36	1.32	2.0	13.02	63	93	0.0	8.16	1.32	10.05	82	
<b>Total Length =</b>		<b>46.8</b>		<b>Total Travel Time =</b>					<b>38.3</b>		<b>Total Travel Time =</b>					<b>28.1</b>
<b>Fresno to Sacramento</b>																
Suburban Fresno	Suburban Merced	52.91	217	3.74	11.19	3.07	2.0	21.20	150	217	0.0	14.60	0.0	15.47	205	
Suburban Merced	Suburban Modesto	37.52	217	3.74	6.95	3.07	2.0	16.70	135	217	0.0	10.35	0.0	10.97	205	
Suburban Modesto	Stockton	21.54	217	3.74	2.54	3.07	2.0	12.03	107	217	0.0	5.94	0.0	6.30	205	
Stockton	Sacramento	50.71	186	3.21	13.40	2.63	2.0	22.51	135	186	0.0	15.00	2.63	18.69	163	
<b>Total Length =</b>		<b>162.7</b>		<b>Total Travel Time =</b>					<b>72.4</b>		<b>Total Travel Time =</b>					<b>51.4</b>
<b>Sacramento to San Jose</b>																
Sacramento	Stockton	50.71	186	3.21	13.40	2.63	2.0	22.51	135	186	3.21	14.72	0.0	19.00	160	
Stockton	Modesto	21.54	217	3.74	2.54	3.07	2.0	12.03	107	217	0.0	5.94	0.0	6.30	205	
Modesto	Merced	37.52	217	3.74	6.95	3.07	2.0	16.70	135	217	0.0	10.35	0.0	10.97	205	
Merced	Los Banos	38.71	217	3.74	7.28	3.07	2.0	17.05	136	217	0.0	10.68	0.0	11.32	205	
Los Banos	Gilroy	36.97	217	3.74	6.80	3.07	2.0	16.54	134	217	0.0	10.20	0.0	10.81	205	
Gilroy	San Jose	29.91	171	2.94	7.83	2.41	0.0	13.97	128	171	0.0	9.30	2.41	12.41	145	
<b>Total Length =</b>		<b>215.4</b>		<b>Total Travel Time =</b>					<b>98.8</b>		<b>Total Travel Time =</b>					<b>70.8</b>



**HSR Corridor Evaluation**

**Alternative Comparison: Authority Option A**

Qualcomm, Inland Empire, Palmdale/Mojave, West 99, Pacheco 1

**Maglev Time Estimate**

**San Diego to Los Angeles**

Segments			Local Travel Time							Express Travel Time						
Station Range		Length	Max V	Ia	Iv	Id	Iss	It*	(Avg)	Max V	Ia	Iv	Id	It*	Avg V	
Begin	End	(miles)	(mph)	(Min)	(Min)	(Min)	(Min)	(Min)	(mph)	(mph)	(Min)	(Min)	(Min)	(Min)	(mph)	
East Mission Valley	Mira Mesa	9.99	171	1.70	1.87	1.58	0.0	5.46	110	171	1.70	2.66	0.0	4.62	130	
Mira Mesa	Escondido	14.73	217	2.16	1.98	2.01	2.0	8.64	102	217	0.0	4.06	0.0	4.31	205	
Escondido	Temecula	29.27	249	2.47	4.68	2.30	2.0	12.14	145	249	0.0	7.07	0.0	7.49	234	
Temecula	Riverside	37.56	249	2.47	6.68	2.30	2.0	14.26	158	249	0.0	9.07	0.0	9.61	234	
Riverside	Ontario	17.92	186	1.85	3.98	1.72	2.0	10.13	106	186	0.0	5.77	0.0	6.11	176	
Ontario	E. San Gabriel	16.09	186	1.85	3.39	1.72	2.0	9.50	102	186	0.0	5.18	0.0	5.49	176	
E. San Gabriel	Union Station	25.22	155	1.54	8.25	1.44	2.0	14.02	108	155	0.0	9.02	1.44	11.09	136	
<b>Total Length =</b>		<b>150.8</b>		<b>Total Travel Time =</b>					<b>74.1</b>		<b>Total Travel Time =</b>					<b>48.7</b>
<b>Los Angeles to Bakersfield</b>																
Union Station	Burbank	11.13	124	1.23	4.18	1.15	2.0	9.08	74	124	1.23	4.76	0.0	6.35	105	
Burbank	Santa Clarita	15.99	155	1.54	4.69	1.44	2.0	10.25	94	155	0.0	6.18	0.0	6.55	147	
Santa Clarita	Palmdale	36.75	249	2.47	6.49	2.30	2.0	14.05	157	249	0.0	8.87	0.0	9.40	234	
Palmdale	Bakersfield	88.31	295	2.93	15.12	2.73	2.0	24.15	219	295	0.0	17.95	0.0	19.03	278	
<b>Total Length =</b>		<b>152.2</b>		<b>Total Travel Time =</b>					<b>57.5</b>		<b>Total Travel Time =</b>					<b>41.3</b>
<b>Bakersfield to Fresno</b>																
Bakersfield	Tulare County	69.56	311	3.09	10.45	2.87	2.0	19.52	214	311	0.0	13.43	0.0	14.24	293	
Tulare County	Suburban Fresno	38.04	311	3.09	4.37	2.87	2.0	13.07	175	311	0.0	7.35	0.0	7.79	293	
<b>Total Length =</b>		<b>107.6</b>		<b>Total Travel Time =</b>					<b>32.6</b>		<b>Total Travel Time =</b>					<b>22.0</b>
<b>Fresno to San Jose</b>																
Suburban Fresno	Pacheco Junction <sup>1</sup>	27.24	311	3.09	2.28	2.87	0.0	8.74	187	311	0.0	5.26	0.0	5.58	293	
Pacheco Junction <sup>1</sup>	Los Banos	41.88	311	3.09	5.11	2.87	2.0	13.85	181	311	0.0	8.09	0.0	8.57	293	
Los Banos	Gilroy	36.97	280	2.78	5.25	2.59	2.0	13.37	166	280	0.0	7.93	0.0	8.41	264	
Gilroy	San Jose	29.91	217	2.16	6.17	2.01	0.0	10.96	164	217	0.0	7.25	2.01	9.81	183	
<b>Total Length =</b>		<b>136.0</b>		<b>Total Travel Time =</b>					<b>46.9</b>		<b>Total Travel Time =</b>					<b>32.4</b>
<b>San Jose to San Francisco</b>																
San Jose	Redwood City	21.44	155	1.54	6.79	1.44	2.0	12.48	103	155	1.54	7.51	0.0	9.59	134	
Redwood City	SFO	11.68	155	1.54	3.02	1.44	2.0	8.48	83	155	0.0	4.51	0.0	4.78	147	
SFO	Downtown	13.70	124	1.23	5.42	1.15	2.0	10.40	79	124	0.0	6.04	1.15	7.62	108	
<b>Total Length =</b>		<b>46.8</b>		<b>Total Travel Time =</b>					<b>31.4</b>		<b>Total Travel Time =</b>					<b>22.0</b>
<b>Fresno to Sacramento</b>																
Suburban Fresno	Suburban Merced	52.91	311	3.09	7.24	2.87	2.0	16.11	197	311	0.0	10.22	0.0	10.83	293	
Suburban Merced	Suburban Modesto	37.52	311	3.09	4.27	2.87	2.0	12.96	174	311	0.0	7.25	0.0	7.68	293	
Suburban Modesto	Stockton	21.54	311	3.09	1.18	2.87	2.0	9.69	133	311	0.0	4.16	0.0	4.41	293	
Stockton	Sacramento	50.71	264	2.62	8.99	2.44	2.0	17.02	179	264	0.0	10.30	2.44	13.51	225	
<b>Total Length =</b>		<b>162.7</b>		<b>Total Travel Time =</b>					<b>55.8</b>		<b>Total Travel Time =</b>					<b>36.4</b>
<b>Sacramento to San Jose</b>																
Sacramento	Stockton	50.71	264	2.62	8.99	2.44	2.0	17.02	179	264	2.62	10.21	0.0	13.60	224	
Stockton	Modesto	21.54	311	3.09	1.18	2.87	2.0	9.69	133	311	0.0	4.16	0.0	4.41	293	
Modesto	Merced	37.52	311	3.09	4.27	2.87	2.0	12.96	174	311	0.0	7.25	0.0	7.68	293	
Merced	Los Banos	38.71	311	3.09	4.50	2.87	2.0	13.20	176	311	0.0	7.48	0.0	7.92	293	
Los Banos	Gilroy	36.97	280	2.78	5.25	2.59	2.0	13.37	166	280	0.0	7.93	0.0	8.41	264	
Gilroy	San Jose	29.91	217	2.16	6.17	2.01	0.0	10.96	164	217	0.0	7.25	2.01	9.81	183	
<b>Total Length =</b>		<b>215.4</b>		<b>Total Travel Time =</b>					<b>77.2</b>		<b>Total Travel Time =</b>					<b>51.8</b>

**HSR Corridor Evaluation**

**Alternative Comparison: Authority Option B**

Qualcomm, Inland Empire, Grapevine, West 99, Pacheco 1

**English Units**

**VHS Time Estimate**

**San Diego to Los Angeles**

Segments		Length (miles)	Local Travel Time							Express Travel Time						
Station Range	Max V (mph)		Ia (Min)	Iv (Min)	Id (Min)	Iss (Min)	Ii* (Min)	(Avg) (mph)	Max V (mph)	Ia (Min)	Iv (Min)	Id (Min)	Ii* (Min)	Avg V (mph)		
Begin	End															
East Mission Valley	Mira Mesa	9.99	155	2.67	1.43	2.19	0.0	6.67	90	155	2.67	2.52	0.0	5.51	109	
Mira Mesa	Escondido	14.73	155	2.67	3.26	2.19	2.0	10.73	82	155	0.0	5.69	0.0	6.03	147	
Escondido	Temecula	29.27	202	3.47	5.53	2.85	2.0	14.69	120	202	0.0	8.70	0.0	9.22	191	
Temecula	Riverside	37.56	202	3.47	8.00	2.85	2.0	17.30	130	202	0.0	11.16	0.0	11.83	191	
Riverside	Ontario	17.92	155	2.67	4.49	2.19	2.0	12.03	89	155	0.0	6.92	0.0	7.34	147	
Ontario	E. San Gabriel	16.09	155	2.67	3.78	2.19	2.0	11.28	86	155	0.0	6.21	0.0	6.59	147	
E. San Gabriel	Union Station	25.22	124	2.14	10.23	1.75	2.0	17.09	89	124	0.0	11.30	1.75	13.83	109	
<b>Total Length =</b>		<b>150.8</b>	<b>Total Travel Time =</b>							<b>89.8</b>	<b>Total Travel Time =</b>					<b>60.3</b>
<b>Los Angeles to Bakersfield</b>																
Union Station	Burbank	11.13	93	1.60	5.70	1.32	2.0	11.26	59	93	1.60	6.36	0.0	8.44	79	
Burbank	Santa Clarita	21.07	124	2.14	8.22	1.75	2.0	14.96	84	124	0.00	10.17	0.0	10.78	117	
Santa Clarita	Bakersfield	77.73	186	3.21	22.10	2.63	2.0	31.73	147	186	0.0	25.02	0.0	26.52	176	
<b>Total Length =</b>		<b>109.9</b>	<b>Total Travel Time =</b>							<b>58.0</b>	<b>Total Travel Time =</b>					<b>45.7</b>
<b>Bakersfield to Fresno</b>																
Bakersfield	Tulare County	69.56	217	3.74	15.78	3.07	2.0	26.07	160	217	0.0	19.19	0.0	20.34	205	
Tulare County	Suburban Fresno	38.04	217	3.74	7.09	3.07	2.0	16.85	135	217	0.0	10.49	0.0	11.12	205	
<b>Total Length =</b>		<b>107.6</b>	<b>Total Travel Time =</b>							<b>42.9</b>	<b>Total Travel Time =</b>					<b>31.5</b>
<b>Fresno to San Jose</b>																
Suburban Fresno	Pacheco Junction <sup>1</sup>	27.24	217	3.74	5.65	0.0	0.0	9.95	164	217	0.0	7.52	0.0	7.97	205	
Pacheco Junction <sup>1</sup>	Los Banos	41.88	217	0.0	10.02	3.07	2.0	15.99	157	217	0.0	11.55	0.0	12.25	205	
Los Banos	Gilroy	36.97	217	3.74	6.80	3.07	2.0	16.54	134	217	0.0	10.20	0.0	10.81	205	
Gilroy	San Jose	29.91	171	2.94	7.83	2.41	0.0	13.97	128	171	0.0	10.50	0.00	11.13	161	
<b>Total Length =</b>		<b>136.0</b>	<b>Total Travel Time =</b>							<b>56.5</b>	<b>Total Travel Time =</b>					<b>42.2</b>
<b>San Jose to San Francisco</b>																
San Jose	Redwood City	21.44	124	2.14	8.40	1.75	2.0	15.15	85	124	0.00	10.35	0.0	10.97	117	
Redwood City	SFO	11.68	124	2.14	3.69	1.75	2.0	10.16	69	124	0.0	5.64	0.0	5.98	117	
SFO	Downtown	13.70	93	1.60	7.36	1.32	2.0	13.02	63	93	0.0	8.16	1.32	10.05	82	
<b>Total Length =</b>		<b>46.8</b>	<b>Total Travel Time =</b>							<b>38.3</b>	<b>Total Travel Time =</b>					<b>27.0</b>
<b>Fresno to Sacramento</b>																
Suburban Fresno	Suburban Merced	52.91	217	3.74	11.19	3.07	2.0	21.20	150	217	0.0	14.60	0.0	15.47	205	
Suburban Merced	Suburban Modesto	37.52	217	3.74	6.95	3.07	2.0	16.70	135	217	0.0	10.35	0.0	10.97	205	
Suburban Modesto	Stockton	21.54	217	3.74	2.54	3.07	2.0	12.03	107	217	0.0	5.94	0.0	6.30	205	
Stockton	Sacramento	50.71	186	3.21	13.40	2.63	2.0	22.51	135	186	0.0	15.00	2.63	18.69	163	
<b>Total Length =</b>		<b></b>	<b>Total Travel Time =</b>							<b>72.4</b>	<b>Total Travel Time =</b>					<b>51.4</b>
<b>Sacramento to San Jose</b>																
Sacramento	Stockton	50.71	186	3.21	13.40	2.63	2.0	22.51	135	186	3.21	14.72	0.0	19.00	160	
Stockton	Modesto	21.54	217	3.74	2.54	3.07	2.0	12.03	107	217	0.0	5.94	0.0	6.30	205	
Modesto	Merced	37.52	217	3.74	6.95	3.07	2.0	16.70	135	217	0.0	10.35	0.0	10.97	205	
Merced	Los Banos	38.71	217	3.74	7.28	3.07	2.0	17.05	136	217	0.0	10.68	0.0	11.32	205	
Los Banos	Gilroy	36.97	217	3.74	6.80	3.07	2.0	16.54	134	217	0.0	10.20	0.0	10.81	205	
Gilroy	San Jose	29.91	171	2.94	7.83	2.41	0.0	13.97	128	171	0.0	9.30	2.41	12.41	145	
<b>Total Length =</b>		<b></b>	<b>Total Travel Time =</b>							<b>98.8</b>	<b>Total Travel Time =</b>					<b>70.8</b>

# APPENDIX G

## Travel Time Matrices (Express and Local)

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Staff Recommended Corridor - Local Travel Times

	San Diego	U. Town Center	Oceanside	Irvine	Anaheim	Norwalk	Los Angeles	Riverside	Ontario	E. San Gabriel	Burbank	Santa Clarita	Bakersfield	Tulare County	Fresno	Los Banos	Gilroy	San Jose	Redwood City	SFO	San Francisco	Merced	Modesto	Stockton	Sacramento
San Diego	-	9	25	45	57	70	84	123	113	101	96	111	142	168	185	211	228	243	259	270	284	206	223	235	258
U. Town Center	9	-	17	36	48	62	76	114	104	93	87	102	134	160	177	203	219	234	250	261	275	198	214	227	249
Oceanside	25	17	-	20	31	45	59	97	87	76	70	85	117	143	160	186	202	217	233	245	259	181	198	210	232
Irvine	45	36	20	-	12	25	39	78	68	56	50	65	97	123	140	166	183	198	214	225	239	161	178	190	213
Anaheim	57	48	31	12	-	14	28	66	56	45	39	54	86	112	129	154	171	186	202	213	227	150	166	178	201
Norwalk	70	62	45	25	14	-	14	52	42	31	25	40	72	98	115	141	157	172	189	200	214	136	153	165	187
Los Angeles	84	76	59	39	28	14	-	38	28	17	11	26	58	84	101	127	143	158	174	186	200	122	139	151	173
Riverside	123	114	97	78	66	52	38	-	10	21	50	65	96	122	139	165	182	197	213	224	238	160	177	189	212
Ontario	113	104	87	68	56	42	28	10	-	11	40	55	86	112	129	155	172	187	203	214	228	150	167	179	202
E. San Gabriel	101	93	76	56	45	31	17	21	11	-	28	43	75	101	118	144	160	175	192	203	217	139	156	168	190
Burbank	96	87	70	50	39	25	11	50	40	28	-	15	47	73	90	116	132	147	163	174	188	111	128	140	162
Santa Clarita	111	102	85	65	54	40	26	65	55	43	15	-	32	58	75	101	117	132	148	159	173	96	113	125	147
Bakersfield	142	134	117	97	86	72	58	96	86	75	47	32	-	26	43	69	85	100	117	128	142	64	81	93	115
Tulare	168	160	143	123	112	98	84	122	112	101	73	58	26	-	17	43	59	74	90	102	116	38	55	67	89
Fresno	185	177	160	140	129	115	101	139	129	118	90	75	43	17	-	26	42	57	74	85	99	21	38	50	72
Los Banos	211	203	186	166	154	141	127	165	155	144	116	101	69	43	26	-	17	32	48	59	73	17	34	46	68
Gilroy	228	219	202	183	171	157	143	182	172	160	132	117	85	59	42	17	-	15	31	42	56	34	50	62	85
San Jose	243	234	217	198	186	172	158	197	187	175	147	132	100	74	57	32	15	-	16	27	41	49	65	77	100
Redwood City	259	250	233	214	202	189	174	213	203	192	163	148	117	90	74	48	31	16	-	11	25	65	81	93	116
SFO	270	261	245	225	213	200	186	224	214	203	174	159	128	102	85	59	42	27	11	-	14	76	93	105	127
San Francisco	284	275	259	239	227	214	200	238	228	217	188	173	142	116	99	73	56	41	25	14	-	90	107	119	141
Merced	206	198	181	161	150	136	122	160	150	139	111	96	64	38	21	17	34	49	65	76	90	-	17	29	51
Modesto	223	214	198	178	166	153	139	177	167	156	128	113	81	55	38	34	50	65	81	93	107	17	-	12	35
Stockton	235	227	210	190	178	165	151	189	179	168	140	125	93	67	50	46	62	77	93	105	119	29	12	-	23
Sacramento	258	249	232	213	201	187	173	212	202	190	162	147	115	89	72	68	85	100	116	127	141	51	35	23	-

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	San Diego	U. Town Center	Oceanside	Irvine	Anaheim	Norwalk	Los Angeles	Riverside	Ontario	E. San Gabriel	Burbank	Santa Clarita	Bakersfield	Tulare County	Fresno	Los Banos	Gilroy	San Jose	Redwood City	SFO	San Francisco	Merced	Modesto	Stockton	Sacramento
San Diego	-	9	21	36	43	52	63	90	83	76	71	82	108	129	140	160	171	183	195	202	212	156	167	173	190
U. Town Center	9	-	15	29	36	46	56	84	76	70	64	75	102	123	134	154	165	176	188	195	205	149	160	166	183
Oceanside	21	15	-	18	24	34	45	72	64	58	52	63	90	111	122	142	153	165	176	183	193	137	148	155	172
Irvine	36	29	18	-	10	19	30	57	50	43	37	48	75	96	107	127	138	150	161	168	178	122	133	140	157
Anaheim	43	36	24	10	-	12	22	49	42	35	29	40	67	88	99	119	130	142	154	161	171	115	126	132	149
Norwalk	52	46	34	19	12	-	12	39	32	25	20	31	58	78	89	109	120	132	144	151	161	105	116	122	139
Los Angeles	63	56	45	30	22	12	-	29	22	15	9	20	47	68	79	99	110	122	133	140	150	94	105	112	129
Riverside	90	84	72	57	49	39	29	-	10	17	37	48	75	95	106	126	137	149	161	168	178	122	133	139	156
Ontario	83	76	64	50	42	32	22	10	-	9	29	40	67	88	99	119	130	142	153	160	170	114	125	132	149
E. San Gabriel	76	70	58	43	35	25	15	17	9	-	22	33	60	81	92	112	123	135	146	153	164	107	118	125	142
Burbank	71	64	52	37	29	20	9	37	29	22	-	13	40	60	72	92	103	114	126	133	143	87	98	104	121
Santa Clarita	82	75	63	48	40	31	20	48	40	33	13	-	30	50	61	82	92	104	116	123	133	77	88	94	111
Bakersfield	108	102	90	75	67	58	47	75	67	60	40	30	-	24	35	55	66	78	90	96	107	51	62	68	85
Tulare	129	123	111	96	88	78	68	95	88	81	60	50	24	-	15	35	46	58	69	76	86	30	41	47	65
Fresno	140	134	122	107	99	89	79	106	99	92	72	61	35	15	-	24	35	46	58	65	75	19	30	36	53
Los Banos	160	154	142	127	119	109	99	126	119	112	92	82	55	35	24	-	15	26	38	45	55	15	26	32	49
Gilroy	171	165	153	138	130	120	110	137	130	123	103	92	66	46	35	15	-	15	27	34	44	26	37	43	60
San Jose	183	176	165	150	142	132	122	149	142	135	114	104	78	58	46	26	15	-	14	21	31	37	48	55	72
Redwood City	195	188	176	161	154	144	133	161	153	146	126	116	90	69	58	38	27	14	-	9	19	49	60	66	83
SFO	202	195	183	168	161	151	140	168	160	153	133	123	96	76	65	45	34	21	9	-	12	56	67	73	90
San Francisco	212	205	193	178	171	161	150	178	170	164	143	133	107	86	75	55	44	31	19	12	-	66	77	83	100
Merced	156	149	137	122	115	105	94	122	114	107	87	77	51	30	19	15	26	37	49	56	66	-	15	21	38
Modesto	167	160	148	133	126	116	105	133	125	118	98	88	62	41	30	26	37	48	60	67	77	15	-	10	27
Stockton	173	166	155	140	132	122	112	139	132	125	104	94	68	47	36	32	43	55	66	73	83	21	10	-	21
Sacramento	190	183	172	157	149	139	129	156	149	142	121	111	85	65	53	49	60	72	83	90	100	38	27	21	-

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	E. Mission Valley	Mira Mesa	Escondido	Temecula	Riverside	Ontario	E. San Gabriel	Los Angeles	Burbank	Santa Clarita	Palmdale	Bakersfield	Tulare County	Fresno	Los Banos	Gilroy	San Jose	Redwood City	SFO	San Francisco	Merced	Modesto	Stockton	Sacramento
<b>E. Mission Valley</b>	-	7	17	32	49	61	73	90	101	113	131	164	191	207	233	250	265	281	292	306	229	245	257	280
<b>Mira Mesa</b>	7	-	11	25	43	55	66	83	94	107	125	158	184	201	227	243	258	274	285	299	222	239	251	273
<b>Escondido</b>	17	11	-	15	32	44	55	72	84	96	114	147	173	190	216	232	247	264	275	289	211	228	240	262
<b>Temecula</b>	32	25	15	-	17	29	41	58	69	81	99	132	158	175	201	218	233	249	260	274	196	213	225	248
<b>Riverside</b>	49	43	32	17	-	12	23	40	52	64	82	115	141	158	184	200	215	232	243	257	179	196	208	230
<b>Ontario</b>	61	55	44	29	12	-	11	28	40	52	70	103	129	146	172	188	203	220	231	245	167	184	196	218
<b>E. San Gabriel</b>	73	66	55	41	23	11	-	17	28	41	58	92	118	135	161	177	192	208	219	233	156	173	185	207
<b>Los Angeles</b>	90	83	72	58	40	28	17	-	11	24	41	75	101	118	144	160	175	191	202	216	139	155	168	190
<b>Burbank</b>	101	94	84	69	52	40	28	11	-	12	30	63	89	106	132	149	164	180	191	205	128	144	156	179
<b>Santa Clarita</b>	113	107	96	81	64	52	41	24	12	-	18	51	77	94	120	136	151	168	179	193	115	132	144	166
<b>Palmdale</b>	131	125	114	99	82	70	58	41	30	18	-	33	59	76	102	119	134	150	161	175	97	114	126	149
<b>Bakersfield</b>	164	158	147	132	115	103	92	75	63	51	33	-	26	43	69	85	100	117	128	142	64	81	93	115
<b>Tulare County</b>	191	184	173	158	141	129	118	101	89	77	59	26	-	17	43	59	74	90	102	116	38	55	67	89
<b>Fresno</b>	207	201	190	175	158	146	135	118	106	94	76	43	17	-	26	42	57	74	85	99	21	38	50	72
<b>Los Banos</b>	233	227	216	201	184	172	161	144	132	120	102	69	43	26	-	17	32	48	59	73	17	34	46	68
<b>Gilroy</b>	250	243	232	218	200	188	177	160	149	136	119	85	59	42	17	-	15	31	42	56	34	50	62	85
<b>San Jose</b>	265	258	247	233	215	203	192	175	164	151	134	100	74	57	32	15	-	16	27	41	49	65	77	100
<b>Redwood City</b>	281	274	264	249	232	220	208	191	180	168	150	117	90	74	48	31	16	-	11	25	65	81	93	116
<b>SFO</b>	292	285	275	260	243	231	219	202	191	179	161	128	102	85	59	42	27	11	-	14	76	93	105	127
<b>San Francisco</b>	306	299	289	274	257	245	233	216	205	193	175	142	116	99	73	56	41	25	14	-	90	107	119	141
<b>Merced</b>	229	222	211	196	179	167	156	139	128	115	97	64	38	21	17	34	49	65	76	90	-	17	29	51
<b>Modesto</b>	245	239	228	213	196	184	173	155	144	132	114	81	55	38	34	50	65	81	93	107	17	-	12	35
<b>Stockton</b>	257	251	240	225	208	196	185	168	156	144	126	93	67	50	46	62	77	93	105	119	29	12	-	23
<b>Sacramento</b>	280	273	262	248	230	218	207	190	179	166	149	115	89	72	68	85	100	116	127	141	51	35	23	-

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	E. Mission Valley	Mira Mesa	Escondido	Temecula	Riverside	Ontario	E. San Gabriel	Los Angeles	Burbank	Santa Clarita	Palmdale	Bakersfield	Tulare County	Fresno	Los Banos	Gilroy	San Jose	Redwood City	SFO	San Francisco	Merced	Modesto	Stockton	Sacramento
E. Mission Valley	-	7	13	22	34	41	48	60	68	76	89	117	138	149	169	180	191	203	210	220	164	175	181	198
Mira Mesa	7	-	9	18	30	37	44	56	64	72	85	113	133	145	165	176	187	199	206	216	160	171	177	194
Escondido	13	9	-	13	24	31	38	51	58	66	79	107	128	139	159	170	182	193	157	210	154	165	172	189
Temecula	22	18	13	-	15	22	29	41	49	57	70	98	119	130	150	161	173	184	191	201	145	156	162	180
Riverside	34	30	24	15	-	10	17	29	37	45	58	86	106	117	138	148	160	172	179	189	133	144	150	167
Ontario	41	37	31	22	10	-	9	22	29	38	51	79	99	110	130	141	153	165	172	182	126	137	143	160
E. San Gabriel	48	44	38	29	17	9	-	15	22	31	44	72	92	103	123	134	146	158	165	175	119	130	136	153
Los Angeles	60	56	51	41	29	22	15	-	9	18	31	58	79	90	110	121	133	145	151	162	106	117	123	140
Burbank	68	64	58	49	37	29	22	9	-	10	23	51	72	83	103	114	126	137	144	154	98	109	116	133
Santa Clarita	76	72	66	57	45	38	31	18	10	-	16	44	64	75	95	106	118	130	137	147	91	102	108	125
Palmdale	89	85	79	70	58	51	44	31	23	16	-	31	52	63	83	94	106	117	124	134	78	89	95	113
Bakersfield	117	113	107	98	86	79	72	58	51	44	31	-	24	35	55	66	78	90	96	107	51	62	68	85
Tulare County	138	133	128	119	106	99	92	79	72	64	52	24	-	15	35	46	58	69	76	86	30	41	47	65
Fresno	149	145	139	130	117	110	103	90	83	75	63	35	15	-	24	35	46	58	65	75	19	30	36	53
Los Banos	169	165	159	150	138	130	123	110	103	95	83	55	35	24	-	15	26	38	45	55	15	26	32	49
Gilroy	180	176	170	161	148	141	134	121	114	106	94	66	46	35	15	-	15	27	34	44	26	37	43	60
San Jose	191	187	182	173	160	153	146	133	126	118	106	78	58	46	26	15	-	14	21	31	37	48	55	72
Redwood City	203	199	193	184	172	165	158	145	137	130	117	90	69	58	38	27	14	-	9	19	49	60	66	83
SFO	210	206	157	191	179	172	165	151	144	137	124	96	76	65	45	34	21	9	-	12	56	67	73	90
San Francisco	220	216	210	201	189	182	175	162	154	147	134	107	86	75	55	44	31	19	12	-	66	77	83	100
Merced	164	160	154	145	133	126	119	106	98	91	78	51	30	19	15	26	37	49	56	66	-	15	21	38
Modesto	175	171	165	156	144	137	130	117	109	102	89	62	41	30	26	37	48	60	67	77	15	-	10	27
Stockton	181	177	172	162	150	143	136	123	116	108	95	68	47	36	32	43	55	66	73	83	21	10	-	21
Sacramento	198	194	189	180	167	160	153	140	133	125	113	85	65	53	49	60	72	83	90	100	38	27	21	-

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	E. Mission Valley	Mira Mesa	Escondido	Temecula	Riverside	Ontario	E. San Gabriel	Los Angeles	Burbank	Santa Clarita	Palmdale	Bakersfield	Tulare County	Fresno	Los Banos	Gilroy	San Jose	Redwood City	SFO	San Francisco	Merced	Modesto	Stockton	Sacramento
<b>E. Mission Valley</b>	-	5	14	26	40	51	60	74	83	93	108	132	151	164	187	200	212	226	235	247	180	193	203	220
<b>Mira Mesa</b>	5	-	9	21	35	45	55	69	78	88	102	126	146	159	181	195	207	220	230	241	175	188	198	215
<b>Escondido</b>	14	9	-	12	26	37	46	60	69	79	93	118	137	150	173	186	198	212	221	232	166	179	189	206
<b>Temecula</b>	26	21	12	-	14	24	34	48	57	67	81	105	125	138	161	174	186	199	209	220	154	167	177	194
<b>Riverside</b>	40	35	26	14	-	10	20	34	43	53	67	91	111	124	146	160	172	185	195	206	140	153	163	180
<b>Ontario</b>	51	45	37	24	10	-	10	24	33	43	57	81	101	114	136	150	162	175	185	196	130	143	152	169
<b>E. San Gabriel</b>	60	55	46	34	20	10	-	14	23	33	47	72	91	104	127	140	152	166	175	186	120	133	143	160
<b>Los Angeles</b>	74	69	60	48	34	24	14	-	9	19	33	58	77	90	113	126	138	152	161	172	106	119	129	146
<b>Burbank</b>	83	78	69	57	43	33	23	9	-	10	24	48	68	81	104	117	129	142	152	163	97	110	120	137
<b>Santa Clarita</b>	93	88	79	67	53	43	33	19	10	-	14	38	58	71	93	107	119	132	142	153	87	100	110	127
<b>Palmdale</b>	108	102	93	81	67	57	47	33	24	14	-	24	44	57	79	93	105	118	128	139	73	86	95	113
<b>Bakersfield</b>	132	126	118	105	91	81	72	58	48	38	24	-	20	33	55	69	81	94	103	115	49	62	71	88
<b>Tulare County</b>	151	146	137	125	111	101	91	77	68	58	44	20	-	13	36	49	61	74	84	95	29	42	52	69
<b>Fresno</b>	164	159	150	138	124	114	104	90	81	71	57	33	13	-	23	36	48	61	71	82	16	29	39	56
<b>Los Banos</b>	187	181	173	161	146	136	127	113	104	93	79	55	36	23	-	13	25	39	48	60	13	26	36	53
<b>Gilroy</b>	200	195	186	174	160	150	140	126	117	107	93	69	49	36	13	-	12	25	35	46	27	40	49	66
<b>San Jose</b>	212	207	198	186	172	162	152	138	129	119	105	81	61	48	25	12	-	13	23	34	39	51	61	78
<b>Redwood City</b>	226	220	212	199	185	175	166	152	142	132	118	94	74	61	39	25	13	-	9	21	52	65	75	92
<b>SFO</b>	235	230	221	209	195	185	175	161	152	142	128	103	84	71	48	35	23	9	-	11	61	74	84	101
<b>San Francisco</b>	247	241	232	220	206	196	186	172	163	153	139	115	95	82	60	46	34	21	11	-	73	86	96	113
<b>Merced</b>	180	175	166	154	140	130	120	106	97	87	73	49	29	16	13	27	39	52	61	73	-	13	23	40
<b>Modesto</b>	193	188	179	167	153	143	133	119	110	100	86	62	42	29	26	40	51	65	74	86	13	-	10	27
<b>Stockton</b>	203	198	189	177	163	152	143	129	120	110	95	71	52	39	36	49	61	75	84	96	23	10	-	17
<b>Sacramento</b>	220	215	206	194	180	169	160	146	137	127	113	88	69	56	53	66	78	92	101	113	40	27	17	-



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	E. Mission Valley	Mira Mesa	Escondido	Temecula	Riverside	Ontario	E. San Gabriel	Los Angeles	Burbank	Santa Clarita	Palmdale	Bakersfield	Tulare County	Fresno	Los Banos	Gilroy	San Jose	Redwood City	SFO	San Francisco	Merced	Modesto	Stockton	Sacramento
<b>E. Mission Valley</b>	-	5	10	18	27	33	39	49	54	61	71	90	104	112	126	135	144	153	159	167	121	131	135	147
<b>Mira Mesa</b>	5	-	7	14	24	30	35	45	51	57	67	87	101	109	123	131	141	150	156	164	120	127	132	144
<b>Escondido</b>	10	7	-	10	20	25	31	41	47	53	63	82	97	105	119	127	136	146	152	160	115	123	127	139
<b>Temecula</b>	18	14	10	-	12	18	23	34	39	46	56	75	89	97	111	119	129	138	144	152	108	116	120	132
<b>Riverside</b>	27	24	20	12	-	8	13	24	29	36	46	65	79	87	101	110	119	128	134	142	98	106	110	122
<b>Ontario</b>	33	30	25	18	8	-	8	18	23	30	40	59	73	81	95	103	113	122	128	136	92	100	104	116
<b>E. San Gabriel</b>	39	35	31	23	13	8	-	12	17	24	34	53	68	75	90	98	107	117	122	130	86	94	98	110
<b>Los Angeles</b>	49	45	41	34	24	18	12	-	7	14	24	43	57	65	79	87	97	106	112	120	76	83	88	100
<b>Burbank</b>	54	51	47	39	29	23	17	7	-	8	18	37	52	59	73	82	91	101	106	114	70	78	82	94
<b>Santa Clarita</b>	61	57	53	46	36	30	24	14	8	-	12	31	46	53	67	76	85	95	100	108	64	72	76	88
<b>Palmdale</b>	71	67	63	56	46	40	34	24	18	12	-	22	36	44	58	67	76	85	91	99	55	63	67	79
<b>Bakersfield</b>	90	87	82	75	65	59	53	43	37	31	22	-	18	25	39	48	57	67	72	80	36	44	48	60
<b>Tulare County</b>	104	101	97	89	79	73	68	57	52	46	36	18	-	11	25	33	43	52	58	66	22	29	34	46
<b>Fresno</b>	112	109	105	97	87	81	75	65	59	53	44	25	11	-	21	26	35	44	50	58	14	22	26	38
<b>Los Banos</b>	126	123	119	111	101	95	90	79	73	67	58	39	25	21	-	11	21	30	36	44	11	19	23	35
<b>Gilroy</b>	135	131	127	119	110	103	98	87	82	76	67	48	33	26	11	-	12	21	27	35	19	27	31	43
<b>San Jose</b>	144	141	136	129	119	113	107	97	91	85	76	57	43	35	21	12	-	11	17	25	29	36	41	53
<b>Redwood City</b>	153	150	146	138	128	122	117	106	101	95	85	67	52	44	30	21	11	-	7	15	38	46	50	62
<b>SFO</b>	159	156	152	144	134	128	122	112	106	100	91	72	58	50	36	27	17	7	-	9	44	52	56	68
<b>San Francisco</b>	167	164	160	152	142	136	130	120	114	108	99	80	66	58	44	35	25	15	9	-	52	60	64	76
<b>Merced</b>	121	120	115	108	98	92	86	76	70	64	55	36	22	14	11	19	29	38	44	52	-	11	15	27
<b>Modesto</b>	131	127	123	116	106	100	94	83	78	72	63	44	29	22	19	27	36	46	52	60	11	-	8	20
<b>Stockton</b>	135	132	127	120	110	104	98	88	82	76	67	48	34	26	23	31	41	50	56	64	15	8	-	15
<b>Sacramento</b>	147	144	139	132	122	116	110	100	94	88	79	60	46	38	35	43	53	62	68	76	27	20	15	-

Authority Recommended Corridor Option B (VHS) - Local Travel Times

	E. Mission Valley	Mira Mesa	Escondido	Temecula	Riverside	Ontario	E. San Gabriel	Los Angeles	Burbank	Santa Clarita	Bakersfield	Tulare County	Fresno	Los Banos	Gilroy	San Jose	Redwood City	SFO	San Francisco	Merced	Modesto	Stockton	Sacramento
E. Mission Valley	-	7	17.4	32	49.4	61	72.7	90	101	116	148	174	191	217	233	248	264	275	289	212	229	241	263
Mira Mesa	7	-	11	25.4	43	54.8	66	83.1	94	109	141	167	184	210	226	241	258	269	283	205	222	234	256
Escondido	17	11	-	15	32	44	55	72	84	99	130	156	173	199	216	231	247	258	272	194	211	223	246
Temecula	32	25	15	-	17	29	41	58	69	84	116	142	159	185	201	216	232	243	257	180	196	209	231
Riverside	49	43	32	17	-	12	23	40	52	67	98	124	141	167	184	199	215	226	240	162	179	191	214
Ontario	61	55	44	29	12	-	11	28	40	55	86	112	129	155	172	187	203	214	228	150	167	179	202
E. San Gabriel	73	66	55	41	23	11	-	17	28	43	75	101	118	144	160	175	192	203	217	139	156	168	190
Los Angeles	90	83	72	58	40	28	17	-	11	26	58	84	101	127	143	158	174	186	200	122	139	151	173
Burbank	101	94	84	69	52	40	28	11	-	15	47	73	90	116	132	147	163	174	188	111	128	140	162
Santa Clarita	116	109	99	84	67	55	43	26	15	-	32	58	75	101	117	132	148	159	173	96	113	125	147
Bakersfield	148	141	130	116	98	86	75	58	47	32	-	26	43	69	85	100	117	128	142	64	81	93	115
Tulare County	174	167	156	142	124	112	101	84	73	58	26	-	17	43	59	74	90	102	116	38	55	67	89
Fresno	191	184	173	159	141	129	118	101	90	75	43	17	-	26	42	57	74	85	99	21	38	50	72
Los Banos	217	210	199	185	167	155	144	127	116	101	69	43	26	-	17	32	48	59	73	17	34	46	68
Gilroy	233	226	216	201	184	172	160	143	132	117	85	59	42	17	-	15	31	42	56	34	50	62	85
San Jose	248	241	231	216	199	187	175	158	147	132	100	74	57	32	15	-	16	27	41	49	65	77	100
Redwood City	264	258	247	232	215	203	192	174	163	148	117	90	74	48	31	16	-	11	25	65	81	93	116
SFO	275	269	258	243	226	214	203	186	174	159	128	102	85	59	42	27	11	-	14	76	93	105	127
San Francisco	289	283	272	257	240	228	217	200	188	173	142	116	99	73	56	41	25	14	-	90	107	119	141
Merced	212	205	194	180	162	150	139	122	111	96	64	38	21	17	34	49	65	76	90	-	17	29	51
Modesto	229	222	211	196	179	167	156	139	128	113	81	55	38	34	50	65	81	93	107	17	-	12	35
Stockton	241	234	223	209	191	179	168	151	140	125	93	67	50	46	62	77	93	105	119	29	12	-	23
Sacramento	263	256	246	231	214	202	190	173	162	147	115	89	72	68	85	100	116	127	141	51	35	23	-

Authority Recommended Corridor Option B (VHS) - Express Travel Times

	E. Mission Valley	Mira Mesa	Escondido	Temecula	Riverside	Ontario	E. San Gabriel	Los Angeles	Burbank	Santa Clarita	Bakersfield	Tulare County	Fresno	Los Banos	Gilroy	San Jose	Redwood City	SFO	San Francisco	Merced	Modesto	Stockton	Sacramento
E. Mission Valley	-	7	12.7	22	34.1	41	47.7	60	67.7	79	106	126	137	159	170	180	192	199	209	153	164	170	187
Mira Mesa	7	-	9	18.2	30	37	44	56.2	64	74.6	102	122	133	155	166	176	188	195	205	149	160	166	183
Escondido	13	9	-	13	24	31	38	51	58	69	96	117	128	150	160	171	182	189	199	143	154	160	178
Temecula	22	18	13	-	15	22	29	41	49	60	87	107	118	140	151	161	173	180	190	134	145	151	168
Riverside	34	30	24	15	-	10	17	29	37	48	75	95	106	128	139	149	161	168	178	122	133	139	156
Ontario	41	37	31	22	10	-	9	22	29	40	67	88	99	121	132	142	153	160	170	114	125	132	149
E. San Gabriel	48	44	38	29	17	9	-	15	22	33	60	81	92	114	125	135	146	153	164	107	118	125	142
Los Angeles	60	56	51	41	29	22	15	-	9	20	47	68	79	101	111	122	133	140	150	94	105	112	129
Burbank	68	64	58	49	37	29	22	9	-	13	40	60	72	93	104	114	126	133	143	87	98	104	121
Santa Clarita	79	75	69	60	48	40	33	20	13	-	30	50	61	83	94	104	116	123	133	77	88	94	111
Bakersfield	106	102	96	87	75	67	60	47	40	30	-	24	35	57	68	78	90	96	107	51	62	68	85
Tulare County	126	122	117	107	95	88	81	68	60	50	24	-	15	35	46	58	69	76	86	30	41	47	65
Fresno	137	133	128	118	106	99	92	79	72	61	35	15	-	24	35	46	58	65	75	19	30	36	53
Los Banos	159	155	150	140	128	121	114	101	93	83	57	35	24	-	15	26	38	45	55	15	26	32	49
Gilroy	170	166	160	151	139	132	125	111	104	94	68	46	35	15	-	15	27	34	44	26	37	43	60
San Jose	180	176	171	161	149	142	135	122	114	104	78	58	46	26	15	-	14	21	31	37	48	55	72
Redwood City	192	188	182	173	161	153	146	133	126	116	90	69	58	38	27	14	-	9	19	49	60	66	83
SFO	199	195	189	180	168	160	153	140	133	123	96	76	65	45	34	21	9	-	12	56	67	73	90
San Francisco	209	205	199	190	178	170	164	150	143	133	107	86	75	55	44	31	19	12	-	66	77	83	100
Merced	153	149	143	134	122	114	107	94	87	77	51	30	19	15	26	37	49	56	66	-	15	21	38
Modesto	164	160	154	145	133	125	118	105	98	88	62	41	30	26	37	48	60	67	77	15	-	10	27
Stockton	170	166	160	151	139	132	125	112	104	94	68	47	36	32	43	55	66	73	83	21	10	-	21
Sacramento	187	183	178	168	156	149	142	129	121	111	85	65	53	49	60	72	83	90	100	38	27	21	-

# APPENDIX H

## Environmental Constraints Tables

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**TABLE H-1  
SAN DIEGO REGION**

<b>Environmental Issue</b>	<b>Miramar Road</b>		<b>SR-52</b>		<b>I-15</b>
	<b>Downtown</b>	<b>Airport</b>	<b>Downtown</b>	<b>Airport</b>	<b>Qualcomm</b>
<b>Land Cover</b>	Rural/Suburban to Dense Urban Development – Airport Area, Downtown	Rural/Suburban to Urban Development	Rural/Suburban to Dense Urban Development – Airport Area, Downtown	Rural/Suburban to Urban Development	Rural/Suburban to Urban Development
<b>Environmental Justice (Demographics)</b>	Potential Minority Population Impacts - Downtown	No Minority or Low-Income Populations Identified	Potential Minority Population Impacts - Downtown	No Minority or Low-Income Populations Identified	No Minority or Low-Income Populations Identified
<b>Threatened and Endangered Species</b>	Potential for Impacts to Threatened & Endangered Species – Gnatcatcher, Least Tern, Salt Marsh Bird’s Beak	Potential for Impacts to Threatened & Endangered Species – Gnatcatcher, Least Tern	Highest Potential for Impacts to Threatened & Endangered Species – Gnatcatcher, Least Tern, Orcutt Grass, Salt Marsh Bird’s Beak	High Potential for Impacts to Threatened & Endangered Species – Gnatcatcher, Least Tern, Orcutt Grass	Potential for Impacts to Threatened & Endangered Species – Gnatcatcher, Least Bell’s Vireo, San Diego Mesa Mint
<b>Water Resources</b>	Water Crossings – San Diego River, Rose Canyon	Water Crossings – San Diego River, Rose Canyon	Major Water Crossings – San Diego River, Rose Canyon, San Clemente Canyon	Major Water Crossings – San Diego River, Rose Canyon, San Clemente Canyon	Water Crossings –Rose Canyon, San Clemente Canyon
<b>Floodplain</b>	Major Floodplain Encroachment – Rose Canyon	Major Floodplain Encroachment – Rose Canyon	Minor Floodplain Encroachment	Minor Floodplain Encroachment	Minor Floodplain Encroachment
<b>Parks and Recreation</b>	Park Impacts – Marian Bear Memorial Park, Old Town San Diego State Historic Park	Park Impacts – Marian Bear Memorial Park, Old Town San Diego State Historic Park	Park Impacts – Marian Bear Memorial Park, Standley Park, Old Town San Diego State Historic Park	Park Impacts – Marian Bear Memorial Park, Standley Park, Old Town San Diego State Historic Park	Minor Park Impacts
<b>Visual Quality</b>	Visual Impact with Elevated Guideway – Mission Bay, Downtown	Visual Impact with Elevated Guideway – Mission Bay	Visual Impact with Elevated Guideway – Mission Bay, Downtown	Visual Impact with Elevated Guideway – Mission Bay	Visual Impact with Elevated Guideway
<b>Cultural Resources</b>	Historic Property Impacts – Old Town, Downtown	Historic Property Impacts – Old Town	Historic Property Impacts – Old Town, Downtown	Historic Property Impacts – Old Town	No Historic Properties Identified
<b>Hazardous Materials/Waste</b>	Major Hazardous Materials/ Waste – military, industrial, and aviation sites	Hazardous Materials/ Waste – military and industrial sites	Major Hazardous Materials/ Waste – military, industrial, and aviation sites	Hazardous Materials/ Waste – military and industrial sites	Minor Hazardous Materials/ Waste Constraints
<b>Intermodal Connections</b>	Amtrak, San Diego Trolley, Bus	San Diego Trolley, Bus	Amtrak, San Diego Trolley, Bus	San Diego Trolley, Bus	San Diego Trolley, Bus

**TABLE H-2  
LOS ANGELES ALIGNMENTS**

<b>Environmental Issue</b>	<b>LAX</b>	<b>Orange Branch</b>	<b>Baseline</b>	<b>91/MetroLink</b>
<b>Land Cover</b>	Urban to Dense Urban Development – Airport Area, Downtown LA	Urban to Dense Urban Development – Orange and LA County	Rural/Suburban to Dense Urban Development – Riverside, San Bernardino, Ontario, Pomona, City of Industry, LA County, and Downtown	Rural/Suburban to Dense Urban Development – Riverside, Corona, Orange County, LA County, and Downtown
<b>Environmental Justice (Demographics)</b>	Potential Minority and Low-Income Population Impacts – City of Los Angeles	Potential Minority Population Impacts – Los Angeles and Orange County	Potential Minority Population Impacts – Los Angeles and San Bernardino County	Potential Minority Population Impacts – Los Angeles and Orange County
<b>Threatened and Endangered Species</b>	Least Potential for Impacts to Threatened & Endangered Species	Least Potential for Impacts to Threatened & Endangered Species	High Potential for Impacts to Threatened & Endangered Species – Kangaroo Rat, Gnatcatcher	High Potential for Impacts to Threatened & Endangered Species – Kangaroo Rat, Woolly Star
<b>Water Resources</b>	Minor Water Crossings – Dominguez Creek	Water Crossings – LA River, Rio Hondo, San Gabriel River, North Fork Coyote Creek, La Mirada Creek, Coyote Creek, Brea Creek, Fullerton Creek, Carbon Creek	Major Water Crossings – LA River, Rio Hondo, San Gabriel River, San Jose Creek, Lemon Creek, San Antonio Wash, Deer Creek, Etiwanda Wash, Etiwanda/San Sevaive Flood Channel, Rialto Channel, Santa Ana River, California Aqueduct, Gage Channel	Major Water Crossings – LA River, Rio Hondo, San Gabriel River, North Fork Coyote Creek, La Mirada Creek, Coyote Creek, Brea Creek, Fullerton Creek, Carbon Creek, Santa Ana River, Prado Basin, Temescal Wash, Riverside Channel, MWD Aqueduct, Gage Channel, California Aqueduct
<b>Floodplain</b>	Minor Floodplain Encroachment	Minor Floodplain Encroachment	Floodplain Encroachment – Crosses Santa Ana River Area and areas in San Bernardino County	Major Floodplain Encroachment – Parallels Santa Ana River Area
<b>Parks and Recreation</b>	No Park or Recreation Impacts	Park & Recreation Impacts – Zimmerman Park, Amerige Park, Citrus Park	Park & Recreation Impacts – Rose Hill Memorial Park, Box Springs Mountain Reserve	Major Park & Recreation Impacts – Zimmerman Park, Amerige Park, Featherly Regional Park, Chino Hills State Park, Box Springs Mountain Reserve
<b>Visual Quality</b>	Minor Visual Impacts	Visual Impact with Elevated Guideway – Fullerton to Anaheim	Visual Impact with Elevated Guideway – Riverside	Visual Impact with Fills, Elevated Guideway – Santa Ana Canyon
<b>Cultural Resources</b>	Historic Property Impacts – Union Station, LA Plaza	Historic Property Impacts – Union Station, LA Plaza, Fullerton/Anaheim properties	Historic Property Impacts – Union Station, LA Plaza, Pomona/Ontario properties	Historic Property Impacts – Union Station, LA Plaza, Fullerton properties
<b>Farmland</b>	No Farmland	No Farmland	Farmland Impacts – San Bernardino County (less than 1 sq. mile)	Farmland Impacts – Riverside County (less than 0.5 sq. mile)
<b>Hazardous Materials/Waste</b>	Hazardous Materials/Waste – aviation, industrial, and petroleum sites	Hazardous Materials/Waste – industrial, petroleum, and packaging sites (Los Angeles, Santa Fe Springs, Anaheim)	Hazardous Materials/Waste – industrial, petroleum, and aviation sites (Los Angeles, City of Industry, Ontario)	Major Hazardous Materials/Waste – industrial, petroleum, and packaging sites (Los Angeles, Santa Fe Springs, Riverside)
<b>Intermodal Connections</b>	LAX Airport, Bus	Amtrak, Red Line, Blue Line, Metrolink, CenterLine (OCTA proposed), Bus	Amtrak, Red Line, Blue Line, Metrolink, Ontario International Airport, Bus	Amtrak, Red Line, Blue Line, Metrolink, CenterLine (OCTA proposed), Bus

**TABLE H-3  
TEHACHAPI ALIGNMENTS**

<b>Environmental Issue</b>	<b>I-5/Grapevine</b>		<b>Palmdale/Aqueduct</b>		<b>Palmdale/Mojave</b>
	<b>3.5%</b>	<b>5%</b>	<b>3.5%</b>	<b>5%</b>	
<b>Land Cover</b>	Rural and Suburban Development – Santa Clarita, suburban Bakersfield		Rural and Suburban/Urban Development – Santa Clarita, Palmdale, Quartz Hill, suburban Bakersfield		Rural and Suburban/Urban Development – Santa Clarita, Palmdale, Lancaster, Rosamond, Tehachapi, suburban Bakersfield
<b>Environmental Justice (Demographics)</b>	Potential Low Income Population Impacts – Castaic area		No Minority or Low-Income Populations Identified		Potential Low Income Population Impacts – Lancaster area
<b>Threatened and Endangered Species</b>	Potential for Impacts to Threatened & Endangered Species – Unarmored Threespine Stickleback, San Joaquin Kit Fox		High Potential for Impacts to Threatened & Endangered Species – Unarmored Threespine Stickleback, San Joaquin Kit Fox, Blunt-Nosed Leopard Lizard		High Potential for Impacts to Threatened & Endangered Species – Unarmored Threespine Stickleback, Bakersfield Cactus, San Joaquin Kit Fox, California Jewel-flower, San Joaquin Woollythreads
<b>Water Resources</b>	Major Water Crossings – Edison Channel, Tecuya Creek, California Aqueduct, Grapevine Creek, Cuddy Canyon, Gorman Creek, Apple Canyon, Pyramid Lake, Cherry Canyon, Canton Canyon, Violin Canyon, Castaic Lake, Castaic Creek, Santa Clara River, Pico Canyon, Gavin Canyon, Newhall Canyon		Major Water Crossings – Eastside Canal, Edison Channel, Tecuya Creek, Grapevine Creek, Pastoria Creek, Los Alamos Creek, Little Sycamore Canyon, Big Sycamore Canyon, Myrick Canyon, Willow Springs Canyon, Amargosa Creek, Lake Palmdale, Palmdale Ditch, California Aqueduct, Kentucky Springs Canyon, Soledad Canyon, Bee Box Canyon, Bootlegger Canyon, Soledad Canyon, Bee Canyon, Oak Spring Canyon, Santa Clara River, Soledad Canyon, Placerita Creek, Whitney Canyon		Major Water Crossings – Rodeo Canyon, Tweedy Creek, Whiterock Creek, Cache Creek, LA Aqueduct, Oak Creek, Amargosa Creek, Lake Palmdale, Palmdale Ditch, California Aqueduct, Kentucky Springs Canyon, Soledad Canyon, Bee Box Canyon, Bootlegger Canyon, Hughes Canyon, Bobcat Canyon, Long Canyon, Aqua Dulce Canyon, Bee Canyon, Oak Spring Canyon, Santa Clara River, Soledad Canyon, Placerita Creek, Whitney Canyon
<b>Floodplain</b>	Major Floodplain Encroachment – Area near Lamont, Grapevine Creek, Santa Clara River		Major Floodplain Encroachment – Area near Lamont, Grapevine Creek, North of Los Angeles Aqueduct, Soledad Canyon, Santa Clara River		Major Floodplain Encroachment – Area around Caliente and Tehachapi Creeks, Rosamond, Lancaster, and Palmdale; Soledad Canyon; Santa Clara River
<b>Parks and Recreation</b>	Major Park & Recreation Impacts –Angeles National Forest, Hungry Valley State Vehicular Recreational Area, Pyramid Lake Recreation Area, Castaic Lake Recreation Area	Major Park & Recreation Impacts –Fort Tejon State Historic Park, Castac Lake, Angeles National Forest, Hungry Valley State Vehicular Recreational Area, Pyramid Lake Recreation Area, Castaic Lake Recreation Area	Park & Recreation Impacts – Antelope Valley California Poppy Reserve, Pacific Crest National Scenic Trail, Angeles National Forest		Park & Recreation Impacts – Pacific Crest National Scenic Trail, Angeles National Forest

<b>Environmental Issue</b>	<b>I-5/Grapevine</b>		<b>Palmdale/Aqueduct</b>		<b>Palmdale/Mojave</b>
	<b>3.5%</b>	<b>5%</b>	<b>3.5%</b>	<b>5%</b>	
<b>Visual Quality</b>	Major Visual Impacts – I-5 travelers, Pyramid Lake, Castaic Lake	Major Visual Impacts – I-5 travelers, Fort Tejon, Castac Lake, Pyramid Lake, Castaic Lake	Visual Impacts – Pacific Crest National Scenic Trail		Visual Impacts – Pacific Crest National Scenic Trail,
<b>Cultural Resources</b>	No Historic Properties Identified	Historic Property Impacts – Fort Tejon	No Historic Properties Identified		No Historic Properties Identified
<b>Farmland</b>	Farmland Impacts – Lamont/Weedpatch and Castaic		Farmland Impacts – Lamont/Weedpatch and Antelope Valley		Farmland Impacts – Edison area
<b>Hazardous Materials/Waste</b>	Hazardous Materials/Waste – refining and metal work sites		Hazardous Materials/Waste – refining and metal work sites		Major Hazardous Materials/Waste – refining, trucking, and auto repair sites



**TABLE H-4  
CENTRAL VALLEY ALIGNMENTS**

<b>Environmental Issue</b>	<b>West 99</b>	<b>UP</b>	<b>BNSF</b>	<b>East 99</b>
<b>Land Cover</b>	Rural and Suburban Development – Minter Village, Delano, Tulare, Madera	Rural and Suburban/Urban Development – Minter Village, Delano, Tulare, Kingsburg, Selma, Fowler, Fresno, Madera, Chowchilla, Merced, Atwater, Livingston, Turlock, Modesto, Ripon, Bakersfield	Rural and Suburban/Urban Development – Shafter, Wasco, Corcoran, Hanford, Fresno, Madera, Planada, Merced, Hughson, Empire, Riverbank, Bakersfield	Rural and Suburban Development – Minter Village, Dinaba, Reedly, Fresno, Planada, Hughson, Empire, Riverbank, Bakersfield
<b>Environmental Justice (Demographics)</b>	No Low-Income Populations Identified Potential Minority Populations Impacts – Bakersfield	Potential Low-Income Population Impacts – Modesto, Turlock, Merced  Potential Minority Populations Impacts – Modesto, Turlock, Atwater, Merced, Bakersfield	Potential Low-Income Population Impacts – Merced  Potential Minority Populations Impacts – Merced, Fresno, Bakersfield	Potential Low-Income Population Impacts – northern and southern area of Merced  Potential Minority Populations Impacts – Merced, Terra Bella, Bakersfield
<b>Threatened &amp; Endangered Species</b>	Potential for Impacts to Threatened & Endangered Species – Valley Elderberry Longhorn Beetle, Giant Garter Snake, Swainson’s Hawk, Fresno Kangaroo Rat, Blunt Noised Leopard Lizard, San Joaquin Woollythreads, California Jewel Flower, San Joaquin Kit Fox, Tipton Kangaroo Rat	Highest Potential for Impacts to Threatened & Endangered Species – Valley Elderberry Longhorn Beetle, Giant Garter Snake, Greene’s Tuctoria, San Joaquin Valley Orcutt Grass, Vernal Pool Fairy Shrimp, California Tiger Salamander, Vernal Pool Tadpole Shrimp, Tipton Kangaroo Rat, Blunt Noised Leopard Lizard, San Joaquin Woollythreads, California Jewel Flower, San Joaquin Kit Fox	Highest Potential for Impacts to Threatened & Endangered Species – Colusa Grass, Valley Elderberry Longhorn Beetle, Giant Garter Snake, Greene’s Tuctoria, Vernal Pool Fairy Shrimp, California Tiger Salamander, Vernal Pool Tadpole Shrimp, Tipton Kangaroo Rat, Fresno Kangaroo Rat, Blunt Noised Leopard Lizard, San Joaquin Woollythreads, California Jewel Flower, San Joaquin Kit Fox	Highest Potential for Impacts to Threatened & Endangered Species – Colusa Grass, Valley Elderberry Longhorn Beetle, Giant Garter Snake, Greene’s Tuctoria, San Joaquin Valley Orcutt Grass, Vernal Pool Fairy Shrimp, California Tiger Salamander, Vernal Pool Tadpole Shrimp, Tipton Kangaroo Rat, Blunt Noised Leopard Lizard, San Joaquin Woollythreads, California Jewel Flower, San Joaquin Kit Fox
<b>Water Resources</b>	Major Water Crossings – Stanislaus River, Hetch Hetchy Aqueduct, Tuolumne River, Lower Lateral, Ceres Main Canal, Highline Canal, Merced River, Livingston Drain, Atwater Canal, Black Rascal Creek, Bear Creek, South Slough, Hantley Slough, Duck Slough, Dutchman Creek, Chowchilla River, Ash Slough, Berendo Slough, Berendo Creek, Dry Creek, Fresno River, Cottonwood Creek, San Joaquin River, Flum Ditch, Houghton Canal, Dry Creek Canal, Fresno Colony Canal, West Perrin Canal, Smith Ditch, Elkhorn Ditch, Weber Ditch, Cole Slough, Kings River, Peoples Ditch, Lakeland Canal, Cross Creek, Mosquito Creek, Mill	Major Water Crossings – Stanislaus River, Hetch Hetchy Aqueduct, Turlock River, Highline Canal, Merced River, Atwater Canal, Fahrens Creek, Bear Creek, Miles Creek, Owens Creek, Duck Slough, Mariposa Creek, Deadman Creek, Dutchman Creek, Chowchilla River, Ash Slough, Berendo Slough, Berendo Creek, Dry Creek, Schmidt Creek, Fresno River, Cottonwood Creek, San Joaquin River, Herndon Ditch, Dry Creek, Drycreek Canal, Fresno Colony Canal, Washington Colony Canal, Briggs Canal, Kirby Canal, Elkhorn Ditch, Fower Switch Canal, Walnut Ditch, Kingsburg Canal, Kings River, McClanahan Ditch, Traver Canal,	Major Water Crossings – San Joaquin Main Canal, Stanislaus River, Hetch Hetchy Aqueduct, Lateral #6, Dry Creek, Tuolumne River, Turlock Main Canal, Highline Canal, Merced River, Canal Creek, Bear Creek, Miles Creek, Owens Creek, Mariposa Creek, Deadman Creek, Dutchman Creek, Chowcilla River, Ash Slough, Berendo Creek, Dry Creek, Schmith Creek, Fresno River, Cottonwood Creek, Forkner Canal, Enterprise Canal, Gould Canal, Dry Creek Canal, Fresno Colony Canal, Washington Colony Canal, Smith Ditch, Davis Ditch, Elkhorn Ditch, Liberty Ditch, Murphy Slough, Kings River, Chance Ditch, Peoples Ditch, Lakeside	Major Water Crossings – San Joaquin Main Canal, Stanislaus River, Hetch Hetchy Aqueduct, Lateral #6, Dry Creek, Tuolumne River, Turlock Main Canal, Highline Canal, Merced River, Jones Drain, Canal Creek, Fahrens Creek, Black Rascal Creek, Bear Creek, Miles Creek, Owens Creek, Mariposa Creek, Deadman Creek, Dutchman Creek, Chowchilla River, Ash Slough, Berendo Slough, Berendo Creek, Dry Creek, Fresno River, several small creeks between Little Dry Creek and Fresno River (12), Little Dry Creek, Root Creek, San Joaquin River, Enterprise Canal, Dry Creek, Gould Canal, Mill Ditch, Fancer Creek, Briggs Canal, Fowler Ditch, Garfield Ditch,

<b>Environmental Issue</b>	<b>West 99</b>	<b>UP</b>	<b>BNSF</b>	<b>East 99</b>
<b>Water Resources</b>	Creek, Tulare Creek, Rockford Ditch, Kaweah Canal, Hooper Ditch, Tulare Canal, Elk Bayou, Tule River, Deer Creek, White River, Posa Creek, Lerdo Canal, Beardsley Canal, Calloway Canal, Kern Canal, Kern River	Banks Ditch, Cottonwood Creek, Cross Creek, Mill Creek, Packwood Creek, Railroad Ditch, Tulare Canal, Elk Bayou, Tule River, Deer Creek, White River, Faint Kern Canal, Posa Creek, Lerdo Canal, Beardsley Canal, Calloway Canal, Kern Island Canal, Kern River	Ditch, Cross Creek, Sweet Canal, Tule River, Tayler Canal, Lakeland Canal, Deer Creek, Posa Creek	McCalli Ditch, Kingsburg Ditch, Santa Fe Canal, Kings River, Traverse Creek, Horseman Ditch, Sand Creek, Cottonwood Creek, Wutchuma Ditch, St. Johns River, Kaweah River, Outside Creek, Lewis Creek, Kern Canal, Pioneer Ditch, Porter Slough, Tule River, Deer Creek, Deer Ditch, White River, Posa Creek, Lerdo Canal, Beardsley Canal, Caloway Canal, Kern Canal, Kern River
<b>Farmland</b>	Major Farmland Impacts – 188 acres of prime, unique, or farmland of statewide importance	Major Farmland Impacts – 254 acres of prime, unique, or farmland of statewide importance	Farmland Impacts – 103 acres of prime, unique, or farmland of statewide importance	Farmland Impacts – 156 acres of prime, unique, or farmland of statewide importance
<b>Floodplain</b>	Major Floodplain Encroachment – Stanislaus River, Merced River, Owens Creek, Duck Slough, Dutchman Creek, Cottonwood Creek, San Joaquin River, Kings River, Cross Creek, large area north of Tulare, Tule River, large area between White River and Deer Creek, White River, east of Lake Woollamos, Poso Creek	Major Floodplain Encroachment – Stanislaus River, Merced River, Owens Creek, Duck Slough, Dutchman Creek, Cottonwood Creek, San Joaquin River, Kings River, Cross Creek, large area north of Tulare, Tule River, large area between White River and Deer Creek, White River, east of Lake Woollamos, Poso Creek	Floodplain Encroachment – Stanislaus River, Merced River, Bear Creek, Owens Creek, Duck Slough, South of Merced, Cottonwood Creek, San Joaquin River, Dry Creek, Murphy Slough, Kings River, Cross Creek and Percolation Basin, Tule River, Deer Creek, Duck Pond, Poso Creek	Floodplain Encroachment – Stanislaus River, Merced River, Duck Slough, Owens Creek, South of Merced, Kings River, Cottonwood Creek, Tule River, large area at Deer Creek, White River, Poso Creek, East of Lake Woollomes
<b>Parks &amp; Recreation</b>	Minor Parks & Recreation Impacts – Fruitvale Norris Park	Parks & Recreation Impacts – Ceres Cemetary, Stanislaus Fairgrounds, Broadway Park, Central Park, McConnell State Recreation Area, Cemetery (south part of Merced), Chaffee Zoological Park, Fresno Amphitheater, Roeding Park, Continental Park, Albany Park, Cecil Park, Weill Perk, Riverview Park	Major Parks & Recreation Impacts – Jacob Meyer Park, Zerillo Park, Esther Staley Park, Castle Park, Laton Kingston Park, Kingston Regional Park, Hidden Valley Park, Cob Park, Pixley National Wildlife Refuge, Allensworth State Historical Park	Parks & Recreation Impacts – Jacob Meyer Park, Zerillo Park, Esther Staley Park, Castle Park, Airways Golf Course, Sierra Vista Shopping Area, Reedly Beach Park, Rosa Ana Vuich Park, Dinuba Recreation Park, Roy Park
<b>Cultural Resources</b>	Historic Property Impacts – Taoist Temple, Hanford Carnegie Library, Allensworth Historical District, Wasco Union High School Auditorium, Shafter Research Station, Santa Fe Passenger and Freight Depot	Major Historic Property Impacts – Major George Beecher House, U.S. Post Office-Bell Station, U.S. Post Office-El Viejo Station, Thomas H. Leggett House, Merced County Courthouse, Bloss Mansion, Daniel Whitmore House, Turlock Carnegie Library, Hotel Covell, Forester Underground Gardens, Frank Romain House, Southern Pacific Passenger Depot	Major Historic Property Impacts – Major George Beecher House, Merced County High School, Kaehler, Rector House, Leggett House, Merced County Courthouse, Riverbank Branch Library, Old Administration Building, Twining Laboratories, Kindler House, Old Fresno Water Tower, Physicians Bldg, Rehorn House, Santa Fe Passenger Depot, Maulbridge Apartments, Warehouse Row, Holy Trinity Armenian Aposto, Alexander Pantages Theater, Meux House, Valencia House	Minor Historic Property Impacts – Riverbank Branch Library, Kern Branch Beale Memorial Library, Tevis Block

<b>Environmental Issue</b>	<b>West 99</b>	<b>UP</b>	<b>BNSF</b>	<b>East 99</b>
<b><i>Visual Quality</i></b>	Minor Visual Impacts – around major water crossings, Fruitvale Norris Park	Major Visual Impacts – around major water crossings, minor parks, Stanislaus Fairgrounds, McConnell State Recreation Area, Chaffee Zoological Park, Fresno Amph.	Major Visual Impacts – around major water crossings, minor parks, Kingston Regional Park, Pixley National Wildlife Refuge, Allensworth State Historical Park	Visual Impacts – around major water crossings, minor parks, Sierra Vista Shopping Area, Dinuba Recreation Park
<b><i>Hazardous Materials/Waste</i></b>	Hazardous Materials/Waste – aviation, agriculture, industrial	Major Hazardous Materials/Waste – agricultural, chemical, petroleum, aviation, automotive, industrial	Major Hazardous Materials/Waste – dump sites, petroleum, agricultural, chemical	Hazardous Materials/Waste – aviation, chemical, gas/oil, agriculture
<b><i>Intermodal Connections</i></b>	Amtrak (San Joaquin – Bakersfield), Bus	Bus	Amtrak (San Joaquin – Bakersfield, Hanford, Fresno, Riverbank), Bus	Amtrak (San Joaquin – Bakersfield, Riverbank), Fresno-Yosemite International Airport, Bus

**TABLE H-5  
BAY AREA ACCESS ALIGNMENTS**

<b>Environmental Issue</b>	<b>Altamont Pass</b>	<b>Pacheco Pass</b>
<b>Land Cover</b>	Rural and Suburban/Urban Development – San Jose, Newark, Pleasanton, Livermore, Tracy, Manteca	Rural and Suburban/Urban Development – San Jose, Morgan Hill, Gilroy, San Juan Bautista, Los Banos
<b>Environmental Justice (Demographics)</b>	Potential Low-Income Population Impacts – west Pleasanton, east Livermore  Potential Minority Population Impacts – San Jose, Union City, west Pleasanton, Tracy, Manteca	Potential Low-Income Population Impacts – south San Jose  Potential Minority Population Impacts – San Jose, Morgan Hill, Gilroy, San Juan Bautista, west Hollister, Los Banos
<b>Threatened &amp; Endangered Species</b>	High Potential for Impacts to Threatened & Endangered Species – Salt-Marsh Harvest Mouse, San Joaquin Kit Fox, California Red-Legged Frog, Contra Costa Goldfields, California Clapper Rail, California Least Tern	Potential for Impacts to Threatened & Endangered Species – San Joaquin Kit Fox, California Tiger Salamander, Giant Garter Snake
<b>Water Resources</b>	Water Crossings – Stanislaus River, Main District Canal, Niles Canyon, Stony Brook Canyon, Polomares Creek, Sinbad Creek, Mocho Creek, South Bay Aqueduct, Arroyo Creek, Patterson Run, California Aqueduct, Delta Mendota Canal, Lower and Upper Main Canal, Tom Paine Slough, Paradise Cut, San Joaquin River	Major Water Crossings – Coyote Creek, Little Llagos Creek, Llagos Creek, Bodfish Creek, Uvas Creek, Miller Slough, San Ysidro Creek, Jones Creek, Elephant Head Creek, Cedar Creek, Pacheco Creek, South Fork, San Luis Reservoir, California Aqueduct, Delta Mendota Canal, Los Banos Creek, Main Canal, 21 Crossings between San Joaquin River and the city of Los Banos, San Joaquin River, Mariposa Slough, Deadman Creek, Duck Slough, Owens River, Moles Creek, Hartley Slough
<b>Farmland</b>	Major Farmland Impacts – Large area of prime farmland from Tracy to the south end of Stockton.	Major Farmland Impacts – Long stretch of farmland of statewide importance from Morgan Hill to Hollister. Mixture of prime, unique, and farmland or statewide importance from Los Banos to Chowchilla
<b>Floodplain</b>	Floodplain Encroachment – north San Jose, Milpitas, Fremont, Tracy	Floodplain Encroachment – south end of San Jose, San Juan Bautista, and east of Los Banos
<b>Parks &amp; Recreation</b>	Parks & Recreation Impacts – Oakwood Lake Resort, Shadow Cliffs Recreation Area	Major Parks & Recreation Impacts – San Luis State Recreation Area, San Luis National Wildlife Area, O'Neill Forebay
<b>Visual Quality</b>	Visual Impacts – Residential Areas	Major Visual Impacts – San Luis Reservoir State Recreation Area, National Wildlife Area, O'Neill Forebay, Residential Areas
<b>Cultural Resources</b>	Historic Property Impacts – Kottinger Adobe Barn, Murphy House, Tracy City Hall and Jail, West Side Bank, Bank of Italy, Bank of Tracy, Riverbank Branch Library	Major Historic Property Impacts – Santa Clara Depot, Holloway House, Live Oak Creamery, Old City Hall, Building at 27 Fountain Alley, Leib Carriage House, Villa Mira Monte, Christian Church of Gilroy, Hayes Mansion, Santa Clara Verein, Gilroy Free Library, Southern Pacific Depot (10 on site)
<b>Hazardous Materials/Waste</b>	Hazardous Materials/Waste – aviation, agriculture, industrial (San Jose, Newark, Livermore)	Hazardous Materials/Waste – dump sites, petroleum, agricultural, chemical (San Jose, Gilroy)
<b>Intermodal Connections</b>	Altamont Commuter Express (ACE), Amtrak (Capitol Corridor, Coast Starlight), CalTrain, BART, Santa Clara LRT, Bus	Altamont Commuter Express (ACE), Amtrak (Capitol Corridor, Coast Starlight), CalTrain, Santa Clara LRT, Bus

**TABLE H-6  
BAY AREA ALIGNMENTS**

<b>Environmental Issue</b>	<b>Peninsula</b>	<b>East Bay</b>
<b>Land Cover</b>	Suburban/Urban Development – San Francisco, Brisbane, South San Francisco, San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, Palo Alto, San Jose	Suburban/Urban Development – Oakland, Alameda, San Leandro, San Lorenzo, Hayward, Newark, Union City, Fremont, Milpitas, San Jose
<b>Environmental Justice (Demographics)</b>	Potential Low-Income Impacts – San Francisco, East San Mateo Potential Minority Impacts – San Francisco, San Bruno, Millbrae, East Palo Alto, Mountain View, San Jose	Potential Low-Income Impacts – Oakland, San Lazerno, San Carlos Potential Minority Impacts – Oakland, San Leandro, Hayward, Milpitas, San Jose
<b>Threatened &amp; Endangered Species</b>	Potential for Impacts to Threatened & Endangered Species – California Clapper Rail, California Red-Legged Frog, California Tiger Salamander	Potential for Impacts to Threatened & Endangered Species – Salt-Marsh Harvest Mouse, Contra Costa Goldfields, Western Snowy Plover
<b>Water Resources</b>	Water Crossings – San Leonardo Creek, San Lorenzo Creek, Ward Creek, Alameda Creek, Morrison Canyon, Scott Creek, Coyote Creek	Major Water Crossings – Mills Creek, Sanchez Creek, San Mateo Creek, Laurel Creek, Reimons Creek, Cordillaras Creek, Hetch Hetchy Aqueduct, San Fransisquito Creek, Maradero Creek, Barron Creek, Adobe Creek, Permante Creek, Stevens Creek, Calabazas Creek, Soratoga Creek
<b>Floodplain</b>	No Floodplain Encroachment Identified	Floodplain Encroachment – Union City, Fremont, Milpitas, north San Jose
<b>Parks &amp; Recreation</b>	Parks & Recreation Impacts – Posey Park, Lions Field Park, Washington Park, Holbrook Palmer Park, El Camino Park, Peers Park, Robles Park, Rengstroff Park	Major Parks & Recreation Impacts – San Leandro Bay Regional Shoreline Park, Ardenwood Regional Park, Sunny Hills Golf Course, Saint James Park
<b>Visual Quality</b>	Major Visual Impacts – Residential Areas, Cultural Resources, Downtown San Francisco, San Francisco Bay	Visual Impacts – Residential Areas, Parks, Water Resources, Downtown Oakland, San Francisco Bay
<b>Cultural Resources</b>	Major Historic Property Impacts – Hotel St. Mathew, Diridon Station, Santa Clara Depot, Irving Murray School, Burlingame Railroad Station, Menlo Park Railroad Station, Redwood City Historic Commercial Buildings, Morse House, Hostess House, Rincon Annex, Lathrop House, San Mateo County Courthouse, Ramona Street Architectural District, Barron-Latham-Hopkins Gate Lodge, Watkins House, Professorville Historic District, Santa Clara Verein, U.S. Postal Main Office-San Mateo, Federal Reserve Bank of San Francisco, Fraternal Hall Building, U.S. Customhouse, APOLLO (Storeship), New Sequoia Theater Building, Sequoia Union High School, Matson Building and Annex, University African Methodist Episcopal Zion Church, Palo Alto Southern Pacific Railroad Depot, Martin Building, National Bank of San Mateo	Historic Property Impacts – Santa Clara Depot, Diridon Station, Cohen House, Dunns Block, Patterson House, Oakland Iron Works, United Works, Remillard Brick Company, M.V. Santa Rosa, Santa Clara Verein, City of Oakland (USS HOGA) Lightship, USS POTOMAC, Oakland Free Library, Agnews Insane Asylum
<b>Hazardous Materials/Waste</b>	Hazardous Materials/Waste – aviation, commercial, chemical, industrial (San Francisco, San Bruno, Millbrae, San Mateo, Redwood City, Palo Alto, San Jose)	Hazardous Materials/Waste – dump Sites, petroleum, industrial, commercial, aviation, chemical (Oakland, San Leandro, Hayward, Union city, Fremont, Milpitas, San Jose)
<b>Intermodal Connections</b>	Amtrak, CalTrain, Santa Clara LRT, BART, MUNI, San Francisco International Airport, Ferry, Bus	Amtrak (Capitol Corridor, Coast Starlight), BART, Santa Clara LRT, Oakland International Airport, Ferry, Bus

**TABLE H-7  
OVERALL CORRIDOR COMPARISON\***

<b>Environmental Issue</b>	<b>Staff Recommended Corridor</b>	<b>Authority Option A</b>	<b>Authority Option B</b>
<b>Land Cover</b>	<p align="center"><b>High</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (LOSSAN)</i>: Rural/Suburban to Dense Urban Development – Los Angeles County, Orange County, Camp Pendleton, San Diego County.</li> <li>• <i>Los Angeles (UP/MetroLink)</i>: Rural/Suburban to Dense Urban Development – Riverside, San Bernardino, Ontario, Pomona, City of Industry, LA County, and Downtown</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Rural and Suburban Development – Santa Clarita, suburban Bakersfield</li> <li>• <i>Central Valley (West 99)</i>: Rural and Suburban Development – Minter Village, Delano, Tulare, Madera</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Rural and Suburban/Urban Development – San Jose, Morgan Hill, Gilroy, San Juan Bautista, Los Banos</li> <li>• <i>Bay Area (Peninsula)</i>: Suburban/Urban Development – San Francisco, Brisbane, South San Francisco, San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, Palo Alto, San Jose</li> </ul>	<p align="center"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Rural/Suburban to Urban Development</li> <li>• <i>Los Angeles (UP/MetroLink)</i>: Rural/Suburban to Dense Urban Development – Riverside, San Bernardino, Ontario, Pomona, City of Industry, LA County, and Downtown</li> <li>• <i>Tehachapi (Palmdale/Mojave)</i>: Rural and Suburban/Urban Development – Santa Clarita, Palmdale, Lancaster, Rosamond, Tehachapi, suburban Bakersfield</li> <li>• <i>Central Valley (West 99)</i>: Rural and Suburban Development – Minter Village, Delano, Tulare, Madera</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Rural and Suburban/Urban Development – San Jose, Morgan Hill, Gilroy, San Juan Bautista, Los Banos</li> <li>• <i>Bay Area (Peninsula)</i>: Suburban/Urban Development – San Francisco, Brisbane, South San Francisco, San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, Palo Alto, San Jose</li> </ul>	<p align="center"><b>Low</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Rural/Suburban to Urban Development</li> <li>• <i>Los Angeles (UP/MetroLink)</i>: Rural/Suburban to Dense Urban Development – Riverside, San Bernardino, Ontario, Pomona, City of Industry, LA County, and Downtown</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Rural and Suburban Development – Santa Clarita, suburban Bakersfield</li> <li>• <i>Central Valley (West 99)</i>: Rural and Suburban Development – Minter Village, Delano, Tulare, Madera</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Rural and Suburban/Urban Development – San Jose, Morgan Hill, Gilroy, San Juan Bautista, Los Banos</li> <li>• <i>Bay Area (Peninsula)</i>: Suburban/Urban Development – San Francisco, Brisbane, South San Francisco, San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, Palo Alto, San Jose</li> </ul>
<b>Environmental Justice (Demographics)</b>	<p align="center"><b>High</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (LOSSAN)</i>: Potential Minority Population Impacts – Pico Rivera, Santa Fe Springs, and La Mirada.</li> <li>• <i>Los Angeles (UP/MetroLink)</i>: Potential Minority Population Impacts – Los Angeles and San Bernardino County</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Potential Low Income Population Impacts – Castaic area</li> <li>• <i>Central Valley (West 99)</i>: No Low-Income Populations Identified. Potential Minority Populations Impacts – Bakersfield</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Potential Low-Income Population Impacts – south San Jose.</li> </ul>	<p align="center"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: No Minority or Low-Income Populations Identified</li> <li>• <i>Los Angeles (UP/MetroLink)</i>: Potential Minority Population Impacts – Los Angeles and San Bernardino County</li> <li>• <i>Tehachapi (Palmdale/Mojave)</i>: Potential Low Income Population Impacts – Lancaster area</li> <li>• <i>Central Valley (West 99)</i>: No Low-Income Populations Identified. Potential Minority Populations Impacts – Bakersfield</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Potential Low-Income Population Impacts – south San Jose. Potential Minority Population Impacts – San Jose,</li> </ul>	<p align="center"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: No Minority or Low-Income Populations Identified</li> <li>• <i>Los Angeles (UP/MetroLink)</i>: Potential Minority Population Impacts – Los Angeles and San Bernardino County</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Potential Low Income Population Impacts – Castaic area</li> <li>• <i>Central Valley (West 99)</i>: No Low-Income Populations Identified. Potential Minority Populations Impacts – Bakersfield</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Potential Low-Income Population Impacts – south San Jose. Potential Minority Population Impacts – San Jose,</li> </ul>

\* - Rankings of High, Moderate, and Low are only used for relative comparative purposes and are not related to potential level of impact.

Environmental Issue	Staff Recommended Corridor	Authority Option A	Authority Option B
<b>Environmental Justice (Demographics)</b>	Potential Minority Population Impacts – San Jose, Morgan Hill, Gilroy, San Juan Bautista, west Hollister, Los Banos <ul style="list-style-type: none"> <li>• <i>Bay Area (Peninsula)</i>: Potential Low-Income Impacts – San Francisco, East San Mateo. Potential Minority Impacts – San Francisco, San Bruno, Millbrae, East Palo Alto, Mountain View, San Jose</li> </ul>	Morgan Hill, Gilroy, San Juan Bautista, west Hollister, Los Banos <ul style="list-style-type: none"> <li>• <i>Bay Area (Peninsula)</i>: Potential Low-Income Impacts – San Francisco, East San Mateo. Potential Minority Impacts – San Francisco, San Bruno, Millbrae, East Palo Alto, Mountain View, San Jose</li> </ul>	Morgan Hill, Gilroy, San Juan Bautista, west Hollister, Los Banos <ul style="list-style-type: none"> <li>• <i>Bay Area (Peninsula)</i>: Potential Low-Income Impacts – San Francisco, East San Mateo. Potential Minority Impacts – San Francisco, San Bruno, Millbrae, East Palo Alto, Mountain View, San Jose</li> </ul>
<b>Threatened and Endangered Species</b>	<p style="text-align: center;"><b>High</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (LOSSAN)</i>: High Potential for Impacts to Threatened &amp; Endangered Species – birds commonly found in the adjacent lagoons, such as Light-footer Clapper Rail, California Least Tern, Belding Savannah Sparrow, Salt Marsh Bird's Beak, Snowy Plover, Brown Pelican, Least Bell's Vireo, and American Peregrine Falcon</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: High Potential for Impacts to Threatened &amp; Endangered Species – Kangaroo Rat, Gnatcatcher, Woolly Star</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Potential for Impacts to Threatened &amp; Endangered Species – Unarmored Threespine Stickleback, San Joaquin Kit Fox</li> <li>• <i>Central Valley (West 99)</i>: Potential for Impacts to Threatened &amp; Endangered Species – Valley Elderberry Longhorn Beetle, Giant Garter Snake, Swainson's Hawk, Fresno Kangaroo Rat, Blunt Noised Leopard Lizard, San Joaquin Woollythreads, California Jewel Flower, San Joaquin Kit Fox, Tipton Kangaroo Rat</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Potential for Impacts to Threatened &amp; Endangered Species – San Joaquin Kit Fox, California Tiger Salamander, Giant Garter Snake</li> <li>• <i>Bay Area (Peninsula)</i>: Potential for Impacts to Threatened &amp; Endangered Species – California Clapper Rail, California Red-Legged Frog, California Tiger Salamander</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Potential for Impacts to Threatened &amp; Endangered Species – Gnatcatcher, Least Bell's Vireo, San Diego Mesa Mint</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: High Potential for Impacts to Threatened &amp; Endangered Species – Kangaroo Rat, Gnatcatcher, Woolly Star</li> <li>• <i>Tehachapi (Palmdale/Mojave)</i>: High Potential for Impacts to Threatened &amp; Endangered Species – Unarmored Threespine Stickleback, Bakersfield Cactus, San Joaquin Kit Fox, California Jewel-flower, San Joaquin Woollythreads</li> <li>• <i>Central Valley (West 99)</i>: Potential for Impacts to Threatened &amp; Endangered Species – Valley Elderberry Longhorn Beetle, Giant Garter Snake, Swainson's Hawk, Fresno Kangaroo Rat, Blunt Noised Leopard Lizard, San Joaquin Woollythreads, California Jewel Flower, San Joaquin Kit Fox, Tipton Kangaroo Rat</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Potential for Impacts to Threatened &amp; Endangered Species – San Joaquin Kit Fox, California Tiger Salamander, Giant Garter Snake</li> <li>• <i>Bay Area (Peninsula)</i>: Potential for Impacts to Threatened &amp; Endangered Species – California Clapper Rail, California Red-Legged Frog, California Tiger Salamander</li> </ul>	<p style="text-align: center;"><b>Low</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Potential for Impacts to Threatened &amp; Endangered Species – Gnatcatcher, Least Bell's Vireo, San Diego Mesa Mint</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: High Potential for Impacts to Threatened &amp; Endangered Species – Kangaroo Rat, Gnatcatcher, Woolly Star</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Potential for Impacts to Threatened &amp; Endangered Species – Unarmored Threespine Stickleback, San Joaquin Kit Fox</li> <li>• <i>Central Valley (West 99)</i>: Potential for Impacts to Threatened &amp; Endangered Species – Valley Elderberry Longhorn Beetle, Giant Garter Snake, Swainson's Hawk, Fresno Kangaroo Rat, Blunt Noised Leopard Lizard, San Joaquin Woollythreads, California Jewel Flower, San Joaquin Kit Fox, Tipton Kangaroo Rat</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Potential for Impacts to Threatened &amp; Endangered Species – San Joaquin Kit Fox, California Tiger Salamander, Giant Garter Snake</li> <li>• <i>Bay Area (Peninsula)</i>: Potential for Impacts to Threatened &amp; Endangered Species – California Clapper Rail, California Red-Legged Frog, California Tiger Salamander</li> </ul>
<b>Water Resources</b>	<p style="text-align: center;"><b>High</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (LOSSAN)</i>: Major Water Crossings – Los Penasquitos Lagoon, San Diequito Lagoon, San Elino Lagoon, Baticuitos Lagoon, Agua Hedionda Lagoon, Buena Vista Lagoon, Loma Alta</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Water Crossings – Rose Canyon, San Clemente Canyon</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Major Water Crossings – LA River, Rio Hondo, San Gabriel</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Water Crossings – Rose Canyon, San Clemente Canyon</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Major Water Crossings – LA River, Rio Hondo, San Gabriel</li> </ul>

\* - Rankings of High, Moderate, and Low are only used for relative comparative purposes and are not related to potential level of impact.

Environmental Issue	Staff Recommended Corridor	Authority Option A	Authority Option B
<p><b>Water Resources</b></p>	<p>Creek, San Luis Rey River, Santa Margarita River, Santa Ana River</p> <ul style="list-style-type: none"> <li>• <i>Los Angeles (UP/Metrolink)</i>: Major Water Crossings – LA River, Rio Hondo, San Gabriel River, San Jose Creek, Lemon Creek, San Antonio Wash, Deer Creek, Etiwanda Wash, Etiwanda/San Sevaine Flood Channel, Rialto Channel, Santa Ana River, California Aqueduct, Gage Channel</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Major Water Crossings – Edison Channel, Tecuya Creek, California Aqueduct, Grapevine Creek, Cuddy Canyon, Gorman Creek, Apple Canyon, Pyramid Lake, Cherry Canyon, Canton Canyon, Violin Canyon, Castaic Lake, Castaic Creek, Santa Clara River, Pico Canyon, Gavin Canyon, Newhall Canyon</li> <li>• <i>Central Valley (West 99)</i>: Major Water Crossings – Stanislaus River, Hetch Hetchy Aqueduct, Tuolumne River, Lower Lateral, Ceres Main Canal, Highline Canal, Merced River, Livingston Drain, Atwater Canal, Black Rascal Creek, Bear Creek, South Slough, Hantley Slough, Duck Slough, Dutchman Creek, Chowchilla River, Ash Slough, Berendo Slough, Berendo Creek, Dry Creek, Fresno River, Cottonwood Creek, San Joaquin River, Flum Ditch, Houghton Canal, Dry Creek Canal, Fresno Colony Canal, West Perrin Canal, Smith Ditch, Elkhorn Ditch, Weber Ditch, Cole Slough, Kings River, Peoples Ditch, Lakeland Canal, Cross Creek, Mosquito Creek, Mill Creek, Tulare Creek, Rockford Ditch, Kaweah Canal, Hooper Ditch, Tulare Canal, Elk Bayou, Tule River, Deer Creek, White River, Posa Creek, Lerdo Canal, Beardsley Canal, Calloway Canal, Kern Canal, Kern River</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Water Crossings – Coyote Creek, Little Llagos Creek, Llagos Creek, Bodfish Creek, Uvas Creek, Miller Slough, San Ysidro Creek, Jones Creek, Elephant Head Creek, Cedar Creek, Pacheco Creek, South Fork, San Luis Reservoir, California Aqueduct, Delta Mendota Canal, Los Banos Creek, Main Canal, 21 Crossings between San Joaquin River and the city of Los Banos, San Joaquin River, Mariposa Slough, Deadman Creek, Duck Slough,</li> </ul>	<p>River, San Jose Creek, Lemon Creek, San Antonio Wash, Deer Creek, Etiwanda Wash, Etiwanda/San Sevaine Flood Channel, Rialto Channel, Santa Ana River, California Aqueduct, Gage Channel</p> <ul style="list-style-type: none"> <li>• <i>Tehachapi (Palmdale/Mojave)</i>: Major Water Crossings – Rodeo Canyon, Tweedy Creek, Whiterock Creek, Cache Creek, LA Aqueduct, Oak Creek, Amargosa Creek, Lake Palmdale, Palmdale Ditch, California Aqueduct, Kentucky Springs Canyon, Soledad Canyon, Bee Box Canyon, Bootlegger Canyon, Hughes Canyon, Bobcat Canyon, Long Canyon, Aqua Dulce Canyon, Bee Canyon, Oak Spring Canyon, Santa Clara River, Soledad Canyon, Placerita Creek, Whitney Canyon</li> <li>• <i>Central Valley (West 99)</i>: Major Water Crossings – Stanislaus River, Hetch Hetchy Aqueduct, Tuolumne River, Lower Lateral, Ceres Main Canal, Highline Canal, Merced River, Livingston Drain, Atwater Canal, Black Rascal Creek, Bear Creek, South Slough, Hantley Slough, Duck Slough, Dutchman Creek, Chowchilla River, Ash Slough, Berendo Slough, Berendo Creek, Dry Creek, Fresno River, Cottonwood Creek, San Joaquin River, Flum Ditch, Houghton Canal, Dry Creek Canal, Fresno Colony Canal, West Perrin Canal, Smith Ditch, Elkhorn Ditch, Weber Ditch, Cole Slough, Kings River, Peoples Ditch, Lakeland Canal, Cross Creek, Mosquito Creek, Mill Creek, Tulare Creek, Rockford Ditch, Kaweah Canal, Hooper Ditch, Tulare Canal, Elk Bayou, Tule River, Deer Creek, White River, Posa Creek, Lerdo Canal, Beardsley Canal, Calloway Canal, Kern Canal, Kern River</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Water Crossings – Coyote Creek, Little Llagos Creek, Llagos Creek, Bodfish Creek, Uvas Creek, Miller Slough, San Ysidro Creek, Jones Creek, Elephant Head Creek, Cedar Creek, Pacheco Creek, South Fork, San Luis Reservoir, California Aqueduct, Delta Mendota Canal, Los Banos Creek, Main Canal, 21 Crossings between San Joaquin River and the city of Los Banos, San Joaquin River, Mariposa Slough, Deadman Creek, Duck Slough,</li> </ul>	<p>River, San Jose Creek, Lemon Creek, San Antonio Wash, Deer Creek, Etiwanda Wash, Etiwanda/San Sevaine Flood Channel, Rialto Channel, Santa Ana River, California Aqueduct, Gage Channel</p> <ul style="list-style-type: none"> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Major Water Crossings – Edison Channel, Tecuya Creek, California Aqueduct, Grapevine Creek, Cuddy Canyon, Gorman Creek, Apple Canyon, Pyramid Lake, Cherry Canyon, Canton Canyon, Violin Canyon, Castaic Lake, Castaic Creek, Santa Clara River, Pico Canyon, Gavin Canyon, Newhall Canyon</li> <li>• <i>Central Valley (West 99)</i>: Major Water Crossings – Stanislaus River, Hetch Hetchy Aqueduct, Tuolumne River, Lower Lateral, Ceres Main Canal, Highline Canal, Merced River, Livingston Drain, Atwater Canal, Black Rascal Creek, Bear Creek, South Slough, Hantley Slough, Duck Slough, Dutchman Creek, Chowchilla River, Ash Slough, Berendo Slough, Berendo Creek, Dry Creek, Fresno River, Cottonwood Creek, San Joaquin River, Flum Ditch, Houghton Canal, Dry Creek Canal, Fresno Colony Canal, West Perrin Canal, Smith Ditch, Elkhorn Ditch, Weber Ditch, Cole Slough, Kings River, Peoples Ditch, Lakeland Canal, Cross Creek, Mosquito Creek, Mill Creek, Tulare Creek, Rockford Ditch, Kaweah Canal, Hooper Ditch, Tulare Canal, Elk Bayou, Tule River, Deer Creek, White River, Posa Creek, Lerdo Canal, Beardsley Canal, Calloway Canal, Kern Canal, Kern River</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Water Crossings – Coyote Creek, Little Llagos Creek, Llagos Creek, Bodfish Creek, Uvas Creek, Miller Slough, San Ysidro Creek, Jones Creek, Elephant Head Creek, Cedar Creek, Pacheco Creek, South Fork, San Luis Reservoir, California Aqueduct, Delta Mendota Canal, Los Banos Creek, Main Canal, 21 Crossings between San Joaquin River and the city of Los Banos, San Joaquin River, Mariposa Slough, Deadman Creek, Duck Slough, Owens River, Moles Creek, Hartley Slough</li> </ul>

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Environmental Issue	Staff Recommended Corridor	Authority Option A	Authority Option B
<b>Water Resources</b>	Owens River, Moles Creek, Hartley Slough <ul style="list-style-type: none"> <li>• <i>Bay Area (Peninsula)</i>: Water Crossings – San Leonardo Creek, San Lorenzo Creek, Ward Creek, Alameda Creek, Morrison Canyon, Scott Creek, Coyote Creek</li> </ul>	Owens River, Moles Creek, Hartley Slough <ul style="list-style-type: none"> <li>• <i>Bay Area (Peninsula)</i>: Water Crossings – San Leonardo Creek, San Lorenzo Creek, Ward Creek, Alameda Creek, Morrison Canyon, Scott Creek, Coyote Creek</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Bay Area (Peninsula)</i>: Water Crossings – San Leonardo Creek, San Lorenzo Creek, Ward Creek, Alameda Creek, Morrison Canyon, Scott Creek, Coyote Creek</li> </ul>
<b>Floodplain</b>	<p style="text-align: center;"><b>High</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (LOSSAN)</i>: Floodplain Encroachment – near lagoons, creeks, and along the coastline.</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Floodplain Encroachment – Crosses Santa Ana River Area and areas in San Bernardino County</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Major Floodplain Encroachment – Area near Lamont, Grapevine Creek, Santa Clara River</li> <li>• <i>Central Valley (West 99)</i>: Major Floodplain Encroachment – Stanislaus River, Merced River, Owens Creek, Duck Slough, Dutchman Creek, Cottonwood Creek, San Joaquin River, Kings River, Cross Creek, large area north of Tulare, Tule River, large area between White River and Deer Creek, White River, east of Lake Woollamos, Poso Creek</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Floodplain Encroachment – south end of San Jose, San Juan Bautista, and east of Los Banos</li> <li>• <i>Bay Area (Peninsula)</i>: No Floodplain Encroachment Identified</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Minor Floodplain Encroachment</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Floodplain Encroachment – Crosses Santa Ana River Area and areas in San Bernardino County</li> <li>• <i>Tehachapi (Palmdale/Mojave)</i>: Major Floodplain Encroachment – Area around Caliente and Tehachapi Creeks, Rosamond, Lancaster, and Palmdale; Soledad Canyon; Santa Clara River</li> <li>• <i>Central Valley (West 99)</i>: Major Floodplain Encroachment – Stanislaus River, Merced River, Owens Creek, Duck Slough, Dutchman Creek, Cottonwood Creek, San Joaquin River, Kings River, Cross Creek, large area north of Tulare, Tule River, large area between White River and Deer Creek, White River, east of Lake Woollamos, Poso Creek</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Floodplain Encroachment – south end of San Jose, San Juan Bautista, and east of Los Banos</li> <li>• <i>Bay Area (Peninsula)</i>: No Floodplain Encroachment Identified</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Minor Floodplain Encroachment</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Floodplain Encroachment – Crosses Santa Ana River Area and areas in San Bernardino County</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Major Floodplain Encroachment – Area near Lamont, Grapevine Creek, Santa Clara River</li> <li>• <i>Central Valley (West 99)</i>: Major Floodplain Encroachment – Stanislaus River, Merced River, Owens Creek, Duck Slough, Dutchman Creek, Cottonwood Creek, San Joaquin River, Kings River, Cross Creek, large area north of Tulare, Tule River, large area between White River and Deer Creek, White River, east of Lake Woollamos, Poso Creek</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Floodplain Encroachment – south end of San Jose, San Juan Bautista, and east of Los Banos</li> <li>• <i>Bay Area (Peninsula)</i>: No Floodplain Encroachment Identified</li> </ul>
<b>Parks and Recreation</b>	<p style="text-align: center;"><b>High</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (LOSSAN)</i>: Major Park &amp; Recreation Impacts – estimated 32 city and county parks, 9 state beaches</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Park &amp; Recreation Impacts – Rose Hill Memorial Park, Box Springs Mountain Reserve</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Major Park &amp; Recreation Impacts – Angeles National Forest, Hungry Valley State Vehicular Recreational Area, Pyramid Lake Recreation Area, Castaic Lake Recreation Area</li> <li>• <i>Central Valley (West 99)</i>: Minor Parks &amp; Recreation Impacts – Fruitvale Norris Park</li> </ul>	<p style="text-align: center;"><b>Low</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Minor Park &amp; Recreation Impacts</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Park &amp; Recreation Impacts – Rose Hill Memorial Park, Box Springs Mountain Reserve</li> <li>• <i>Tehachapi (Palmdale/Mojave)</i>: Park &amp; Recreation Impacts – Pacific Crest National Scenic Trail, Angeles National Forest</li> <li>• <i>Central Valley (West 99)</i>: Minor Parks &amp; Recreation Impacts – Fruitvale Norris Park</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Minor Park &amp; Recreation Impacts</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Park &amp; Recreation Impacts – Rose Hill Memorial Park, Box Springs Mountain Reserve</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Major Park &amp; Recreation Impacts – Angeles National Forest, Hungry Valley State Vehicular Recreational Area, Pyramid Lake Recreation Area, Castaic Lake Recreation Area</li> <li>• <i>Central Valley (West 99)</i>: Minor Parks &amp; Recreation Impacts – Fruitvale Norris Park</li> </ul>

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Environmental Issue	Staff Recommended Corridor	Authority Option A	Authority Option B
<b>Parks and Recreation</b>	<ul style="list-style-type: none"> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Parks &amp; Recreation Impacts – San Luis State Recreation Area, San Luis National Wildlife Area, O’Neill Forebay</li> <li>• <i>Bay Area (Peninsula)</i>: Parks &amp; Recreation Impacts – Posey Park, Lions Field Park, Washington Park, Holbrook Palmer Park, El Camino Park, Peers Park, Robles Park, Rengstroff Park</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Parks &amp; Recreation Impacts – San Luis State Recreation Area, San Luis National Wildlife Area, O’Neill Forebay</li> <li>• <i>Bay Area (Peninsula)</i>: Parks &amp; Recreation Impacts – Posey Park, Lions Field Park, Washington Park, Holbrook Palmer Park, El Camino Park, Peers Park, Robles Park, Rengstroff Park</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Parks &amp; Recreation Impacts – San Luis State Recreation Area, San Luis National Wildlife Area, O’Neill Forebay</li> <li>• <i>Bay Area (Peninsula)</i>: Parks &amp; Recreation Impacts – Posey Park, Lions Field Park, Washington Park, Holbrook Palmer Park, El Camino Park, Peers Park, Robles Park, Rengstroff Park</li> </ul>
<b>Visual Quality</b>	<p style="text-align: center;"><b>High</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (LOSSAN)</i>: Major Visual Impacts – elevated guideway for 35% of corridor, parks and beaches, I-5 travelers, residential areas</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Visual Impact with Elevated Guideway – Riverside</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Major Visual Impacts – I-5 travelers, Pyramid Lake, Castaic Lake</li> <li>• <i>Central Valley (West 99)</i>: Minor Visual Impacts – around major water crossings, Fruitvale Norris Park</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Visual Impacts – San Luis Reservoir State Recreation Area, National Wildlife Area, O’Neill Forebay, Residential Areas</li> <li>• <i>Bay Area (Peninsula)</i>: Major Visual Impacts – Residential Areas, Cultural Resources, Downtown San Francisco, San Francisco Bay</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Visual Impact with Elevated Guideway</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Visual Impact with Elevated Guideway – Riverside</li> <li>• <i>Tehachapi (Palmdale/Mojave)</i>: Major Visual Impacts – elevated guideway through Bakersfield, Pacific Crest National Scenic Trail, and Angeles National Forest</li> <li>• <i>Central Valley (West 99)</i>: Minor Visual Impacts – around major water crossings, Fruitvale Norris Park</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Visual Impacts – San Luis Reservoir State Recreation Area, National Wildlife Area, O’Neill Forebay, Residential Areas</li> <li>• <i>Bay Area (Peninsula)</i>: Major Visual Impacts – Residential Areas, Cultural Resources, Downtown San Francisco, San Francisco Bay</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: Visual Impact with Elevated Guideway</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Visual Impact with Elevated Guideway – Riverside</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Major Visual Impacts – I-5 travelers, Pyramid Lake, Castaic Lake</li> <li>• <i>Central Valley (West 99)</i>: Minor Visual Impacts – around major water crossings, Fruitvale Norris Park</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Visual Impacts – San Luis Reservoir State Recreation Area, National Wildlife Area, O’Neill Forebay, Residential Areas</li> <li>• <i>Bay Area (Peninsula)</i>: Major Visual Impacts – Residential Areas, Cultural Resources, Downtown San Francisco, San Francisco Bay</li> </ul>
<b>Cultural Resources</b>	<p style="text-align: center;"><b>High</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (LOSSAN)</i>: Major Historic Property Impacts – Mission San Juan Capistrano, Old Town in San Diego, and rail stations in Los Angeles and San Diego</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Historic Property Impacts – Union Station, LA Plaza, Pomona/Ontario</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: No Historic Properties Identified</li> <li>• <i>Central Valley (West 99)</i>: Historic Property Impacts – Taoist Temple, Hanford Carnegie Library, Allensworth Historical District, Wasco</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: No Historic Properties Identified</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Historic Property Impacts – Union Station, LA Plaza, Pomona/Ontario</li> <li>• <i>Tehachapi (Palmdale/Mojave)</i>: No Historic Properties Identified</li> <li>• <i>Central Valley (West 99)</i>: Historic Property Impacts – Taoist Temple, Hanford Carnegie Library, Allensworth Historical District, Wasco Union High School Auditorium, Shafter Research Station, Santa Fe Passenger and Freight Depot</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>San Diego (I-15/Qualcomm)</i>: No Historic Properties Identified</li> <li>• <i>Los Angeles (UP/Metrolink)</i>: Historic Property Impacts – Union Station, LA Plaza, Pomona/Ontario</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: No Historic Properties Identified</li> <li>• <i>Central Valley (West 99)</i>: Historic Property Impacts – Taoist Temple, Hanford Carnegie Library, Allensworth Historical District, Wasco Union High School Auditorium, Shafter Research Station, Santa Fe Passenger and Freight Depot</li> </ul>

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Environmental Issue	Staff Recommended Corridor	Authority Option A	Authority Option B
<b>Cultural Resources</b>	<p>Union High School Auditorium, Shafter Research Station, Santa Fe Passenger and Freight Depot</p> <ul style="list-style-type: none"> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Historic Property Impacts – Santa Clara Depot, Holloway House, Live Oak Creamery, Old City Hall, Building at 27 Fountain Alley, Leib Carriage House, Villa Mira Monte, Christian Church of Gilroy, Hayes Mansion, Santa Clara Verein, Gilroy Free Library, Southern Pacific Depot (10 on site)</li> <li>• <i>Bay Area (Peninsula)</i>: Major Historic Property Impacts – Hotel St. Mathew, Diridon Station, Santa Clara Depot, Irving Murray School, Burlingame Railroad Station, Menlo Park Railroad Station, Redwood City Historic Commercial Buildings, Morse House, Hostess House, Rincon Annex, Lathrop House, San Mateo County Courthouse, Ramona Street Architectural District, Barron-Latham-Hopkins Gate Lodge, Watkins House, Professorville Historic District, Santa Clara Verein, U.S. Postal Main Office-San Mateo, Federal Reserve Bank of San Francisco, Fraternal Hall Building, U.S. Customhouse, APOLLO (Storeship), New Sequoia Theater Building, Sequoia Union High School, Matson Building and Annex, University African Methodist Episcopal Zion Church, Palo Alto Southern Pacific Railroad Depot, Martin Building, National Bank of San Mateo</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Historic Property Impacts – Santa Clara Depot, Holloway House, Live Oak Creamery, Old City Hall, Building at 27 Fountain Alley, Leib Carriage House, Villa Mira Monte, Christian Church of Gilroy, Hayes Mansion, Santa Clara Verein, Gilroy Free Library, Southern Pacific Depot (10 on site)</li> <li>• <i>Bay Area (Peninsula)</i>: Major Historic Property Impacts – Hotel St. Mathew, Diridon Station, Santa Clara Depot, Irving Murray School, Burlingame Railroad Station, Menlo Park Railroad Station, Redwood City Historic Commercial Buildings, Morse House, Hostess House, Rincon Annex, Lathrop House, San Mateo County Courthouse, Ramona Street Architectural District, Barron-Latham-Hopkins Gate Lodge, Watkins House, Professorville Historic District, Santa Clara Verein, U.S. Postal Main Office-San Mateo, Federal Reserve Bank of San Francisco, Fraternal Hall Building, U.S. Customhouse, APOLLO (Storeship), New Sequoia Theater Building, Sequoia Union High School, Matson Building and Annex, University African Methodist Episcopal Zion Church, Palo Alto Southern Pacific Railroad Depot, Martin Building, National Bank of San Mateo</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Historic Property Impacts – Santa Clara Depot, Holloway House, Live Oak Creamery, Old City Hall, Building at 27 Fountain Alley, Leib Carriage House, Villa Mira Monte, Christian Church of Gilroy, Hayes Mansion, Santa Clara Verein, Gilroy Free Library, Southern Pacific Depot (10 on site)</li> <li>• <i>Bay Area (Peninsula)</i>: Major Historic Property Impacts – Hotel St. Mathew, Diridon Station, Santa Clara Depot, Irving Murray School, Burlingame Railroad Station, Menlo Park Railroad Station, Redwood City Historic Commercial Buildings, Morse House, Hostess House, Rincon Annex, Lathrop House, San Mateo County Courthouse, Ramona Street Architectural District, Barron-Latham-Hopkins Gate Lodge, Watkins House, Professorville Historic District, Santa Clara Verein, U.S. Postal Main Office-San Mateo, Federal Reserve Bank of San Francisco, Fraternal Hall Building, U.S. Customhouse, APOLLO (Storeship), New Sequoia Theater Building, Sequoia Union High School, Matson Building and Annex, University African Methodist Episcopal Zion Church, Palo Alto Southern Pacific Railroad Depot, Martin Building, National Bank of San Mateo</li> </ul>
<b>Farmland</b>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>Los Angeles (UP/Metrolink)</i>: Farmland Impacts – San Bernardino County (less than 1 sq. mile) Riverside County (less than 0.5 sq. mile)</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Farmland Impacts – Lamont/Weedpatch and Castaic</li> <li>• <i>Central Valley (West 99)</i>: Major Farmland Impacts – 188 acres of prime, unique, or farmland of statewide importance</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Farmland Impacts – Long stretch of farmland of statewide importance form Morgan Hill to Hollister. Mixture of prime, unique, and farmland or statewide importance from Los Banos to Chowchilla</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>Los Angeles (UP/Metrolink)</i>: Farmland Impacts – San Bernardino County (less than 1 sq. mile) Riverside County (less than 0.5 sq. mile)</li> <li>• <i>Tehachapi (Palmdale/Mojave)</i>: Farmland Impacts – Edison area</li> <li>• <i>Central Valley (West 99)</i>: Major Farmland Impacts – 188 acres of prime, unique, or farmland of statewide importance</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Farmland Impacts – Long stretch of farmland of statewide importance form Morgan Hill to Hollister. Mixture of prime, unique, and farmland or statewide importance from Los Banos to Chowchilla</li> </ul>	<p style="text-align: center;"><b>Moderate</b></p> <ul style="list-style-type: none"> <li>• <i>Los Angeles (UP/Metrolink)</i>: Farmland Impacts – San Bernardino County (less than 1 sq. mile) Riverside County (less than 0.5 sq. mile)</li> <li>• <i>Tehachapi (I-5/Grapevine)</i>: Farmland Impacts – Lamont/Weedpatch and Castaic</li> <li>• <i>Central Valley (West 99)</i>: Major Farmland Impacts – 188 acres of prime, unique, or farmland of statewide importance</li> <li>• <i>Bay Area Access (Pacheco Pass)</i>: Major Farmland Impacts – Long stretch of farmland of statewide importance form Morgan Hill to Hollister. Mixture of prime, unique, and farmland or statewide importance from Los Banos to Chowchilla</li> </ul>

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Environmental Issue	Staff Recommended Corridor	Authority Option A	Authority Option B
<p><b>Hazardous Materials/Waste</b></p>	<p><b>Moderate</b></p> <ul style="list-style-type: none"> <li>● <i>San Diego (LOSSAN)</i>: Major Hazardous Materials/Waste – industrial, military, and aviation sites (San Diego, Orange and Los Angeles counties)</li> <li>● <i>Los Angeles (UP/Metrolink)</i>: Hazardous Materials/Waste – industrial, petroleum, and aviation sites (Los Angeles, City of Industry, Ontario, Riverside)</li> <li>● <i>Tehachapi (I-5/Grapevine)</i>: Hazardous Materials/Waste – refining and metal work sites</li> <li>● <i>Central Valley (West 99)</i>: Hazardous Materials/Waste – aviation, agriculture, industrial</li> <li>● <i>Bay Area Access (Pacheco Pass)</i>: Hazardous Materials/Waste – dump sites, petroleum, agricultural, chemical (San Jose, Gilroy)</li> <li>● <i>Bay Area (Peninsula)</i>: Hazardous Materials/Waste – aviation, commercial, chemical, industrial (San Francisco, San Bruno, Millbrae, San Mateo, Redwood City, Palo Alto, San Jose)</li> </ul>	<p><b>Moderate</b></p> <ul style="list-style-type: none"> <li>● <i>San Diego (I-15/Qualcomm)</i>: Minor Hazardous Materials/Waste</li> <li>● <i>Los Angeles (UP/Metrolink)</i>: Hazardous Materials/Waste – industrial, petroleum, and aviation sites (Los Angeles, City of Industry, Ontario, Riverside)</li> <li>● <i>Tehachapi (Palmdale/Mojave)</i>: Major Hazardous Materials/Waste – refining, trucking, and auto repair sites</li> <li>● <i>Central Valley (West 99)</i>: Hazardous Materials/Waste – aviation, agriculture, industrial</li> <li>● <i>Bay Area Access (Pacheco Pass)</i>: Hazardous Materials/Waste – dump sites, petroleum, agricultural, chemical (San Jose, Gilroy)</li> <li>● <i>Bay Area (Peninsula)</i>: Hazardous Materials/Waste – aviation, commercial, chemical, industrial (San Francisco, San Bruno, Millbrae, San Mateo, Redwood City, Palo Alto, San Jose)</li> </ul>	<p><b>Low</b></p> <ul style="list-style-type: none"> <li>● <i>San Diego (I-15/Qualcomm)</i>: Minor Hazardous Materials/ Waste Constraints</li> <li>● <i>Los Angeles (UP/Metrolink)</i>: Hazardous Materials/Waste – industrial, petroleum, and aviation sites (Los Angeles, City of Industry, Ontario, Riverside)</li> <li>● <i>Tehachapi (I-5/Grapevine)</i>: Hazardous Materials/Waste – refining and metal work sites</li> <li>● <i>Central Valley (West 99)</i>: Hazardous Materials/Waste – aviation, agriculture, industrial</li> <li>● <i>Bay Area Access (Pacheco Pass)</i>: Hazardous Materials/Waste – dump sites, petroleum, agricultural, chemical (San Jose, Gilroy)</li> <li>● <i>Bay Area (Peninsula)</i>: Hazardous Materials/Waste – aviation, commercial, chemical, industrial (San Francisco, San Bruno, Millbrae, San Mateo, Redwood City, Palo Alto, San Jose)</li> </ul>

\* - Rankings of High, Moderate, and Low are only used for relative comparative purposes and are not related to potential level of impact.

# APPENDIX I

## O&M Calculation Worksheets



**RECOMMENDED CORRIDOR - OPERATIONS AND MAINTENANCE COST SUMMARY (2015)**

**Staff Recommended Corridor**

LOSSAN-C, Grapevine, West 99, Pacheco 1

LIMITS	SEGMENTS		DISTANCE IN MILES	NO. OF TRAINS PER DAY (Both Directions)	DAILY TOTAL TRAIN MILES	O&M UNIT COSTS PER TRAIN MILE				TOTAL		TOTAL	
						L.T.A.C		ENERGY COSTS		WEEKDAY COSTS		ANNUAL COSTS	
	Begin	End				VHS	UHS	VHS	UHS	VHS	UHS	VHS	UHS
San Diego to Los Angeles	San Diego	U. Town Center	12.78	96	1227	19.70	18.73	2.99	3.43	\$27,838	\$27,188	\$9,225,482	\$9,009,991
	U. Town Center	Oceanside	24.54	96	2356	19.70	18.73	2.99	3.43	\$53,454	\$52,205	\$17,714,659	\$17,300,874
	Oceanside	Irvine	45.30	96	4349	19.70	18.73	2.99	3.43	\$98,674	\$96,369	\$32,700,654	\$31,936,822
	Irvine	Anaheim	14.48	96	1390	19.70	18.73	2.99	3.43	\$31,541	\$30,804	\$10,452,659	\$10,208,503
	Anaheim	Norwalk	14.48	96	1390	19.70	18.73	2.99	3.43	\$31,541	\$30,804	\$10,452,659	\$10,208,503
	Norwalk	Union Station	15.28	96	1467	19.70	18.73	2.99	3.43	\$33,284	\$32,506	\$11,030,154	\$10,772,509
Riverside to Los Angeles	Riverside	Ontario	17.92	36	645	19.70	18.73	2.99	3.43	\$14,638	\$14,296	\$4,850,958	\$4,737,648
	Ontario	E. San Gabriel	16.09	36	579	19.70	18.73	2.99	3.43	\$13,143	\$12,836	\$4,355,575	\$4,253,837
	E. San Gabriel	Union Station	25.22	36	908	19.70	18.73	2.99	3.43	\$20,601	\$20,120	\$6,827,074	\$6,667,605
Los Angeles to Bakersfield	Union Station	Burbank	11.13	132	1469	19.70	18.73	2.99	3.43	\$33,335	\$32,557	\$11,047,299	\$10,789,252
	Burbank	Santa Clarita	21.07	132	2781	19.70	18.73	2.99	3.43	\$63,106	\$61,632	\$20,913,440	\$20,424,937
	Santa Clarita	Bakersfield	77.73	132	10260	19.70	18.73	2.99	3.43	\$232,808	\$227,370	\$77,152,428	\$75,350,278
Bakersfield to Fresno	Bakersfield	Tulare County	69.56	128	8904	19.70	18.73	2.99	3.43	\$202,024	\$197,306	\$66,950,919	\$65,387,059
	Tulare County	Suburban Fresno	38.04	128	4869	19.70	18.73	2.99	3.43	\$110,480	\$107,900	\$36,613,182	\$35,757,960
Fresno to San Jose*	Suburban Fresno	Pacheco Junction	27.24	96	2615	19.70	18.73	2.99	3.43	\$59,335	\$57,949	\$19,663,704	\$19,204,394
	Pacheco Junction	Los Banos	41.88	132	5528	19.70	18.73	2.99	3.43	\$125,434	\$122,504	\$41,568,811	\$40,597,834
	Los Banos	Gilroy	36.97	132	4880	19.70	18.73	2.99	3.43	\$110,728	\$108,142	\$36,695,295	\$35,838,155
	Gilroy	San Jose	29.91	132	3948	19.70	18.73	2.99	3.43	\$89,583	\$87,490	\$29,687,754	\$28,994,298
San Jose to San Francisco	San Jose	Redwood City	21.44	132	2830	19.70	18.73	2.99	3.43	\$64,215	\$62,715	\$21,280,690	\$20,783,609
	Redwood City	SFO	11.68	132	1542	19.70	18.73	2.99	3.43	\$34,983	\$34,165	\$11,593,212	\$11,322,414
	SFO	Downtown	13.70	132	1808	19.70	18.73	2.99	3.43	\$41,033	\$40,074	\$13,598,202	\$13,280,571
Fresno to Sacramento*	Suburban Fresno	Suburban Merced	52.91	36	1905	19.70	18.73	2.99	3.43	\$43,219	\$42,209	\$14,322,778	\$13,988,222
	Suburban Merced	Suburban Modesto	37.52	36	1351	19.70	18.73	2.99	3.43	\$30,648	\$29,932	\$10,156,693	\$9,919,450
	Suburban Modesto	Stockton	21.54	36	775	19.70	18.73	2.99	3.43	\$17,595	\$17,184	\$5,830,895	\$5,694,695
	Stockton	Sacramento	50.71	36	1826	19.70	18.73	2.99	3.43	\$41,422	\$40,454	\$13,727,236	\$13,406,591

**Note :**

L.T.A.C = Long Term Avoidable Cost (Non-Power Cost)

Number of trains during a Weekend is equal to 70% of the Weekday number of trains

Assumed 253 weekdays and 112 weekend days (including 8 holidays) in a year

\* Includes trains between Sacramento and San Jose, 18 trains per direction per day.

<b>TOTAL</b>	<b>\$538,412,414</b>	<b>\$525,836,011</b>
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**RECOMMENDED CORRIDOR - OPERATIONS AND MAINTENANCE COST SUMMARY (2015)**

Authority Recommended Corridor - Option A  
 Qualcomm, Inland Empire, Palmdale/Mojave, West 99, Pacheco 1

LIMITS	SEGMENTS		DISTANCE IN MILES	NO. OF TRAINS PER DAY (Both Directions)	DAILY TOTAL TRAIN MILES	O&M UNIT COSTS PER TRAIN MILE				TOTAL WEEKDAY COSTS		TOTAL ANNUAL COSTS	
						L.T.A.C		ENERGY COSTS		VHS	UHS	VHS	UHS
	Begin	End				VHS	UHS	VHS	UHS				
San Diego to Los Angeles	East Mission Vly	Mira Mesa	9.99	106	1059	19.70	18.73	2.99	3.43	\$24,027	\$23,466	\$7,962,663	\$7,776,669
	Mira Mesa	Escondido	14.73	106	1561	19.70	18.73	2.99	3.43	\$35,428	\$34,600	\$11,740,744	\$11,466,500
	Escondido	Temecula	29.27	106	3103	19.70	18.73	2.99	3.43	\$70,398	\$68,754	\$23,330,046	\$22,785,095
	Temecula	Riverside	37.56	106	3981	19.70	18.73	2.99	3.43	\$90,337	\$88,227	\$29,937,701	\$29,238,407
	Riverside	Ontario	17.92	106	1900	19.70	18.73	2.99	3.43	\$43,100	\$42,093	\$14,283,376	\$13,949,741
	Ontario	E. San Gabriel	16.09	106	1706	19.70	18.73	2.99	3.43	\$38,699	\$37,795	\$12,824,750	\$12,525,186
	E. San Gabriel	Union Station	25.22	106	2673	19.70	18.73	2.99	3.43	\$60,658	\$59,241	\$20,101,939	\$19,632,392
Los Angeles to Bakersfield	Union Station	Burbank	11.13	132	1469	19.70	18.73	2.99	3.43	\$33,335	\$32,557	\$11,047,299	\$10,789,252
	Burbank	Santa Clarita	15.99	132	2111	19.70	18.73	2.99	3.43	\$47,891	\$46,773	\$15,871,186	\$15,500,462
	Santa Clarita	Palmdale	36.75	132	4851	19.70	18.73	2.99	3.43	\$110,069	\$107,498	\$36,476,930	\$35,624,890
	Palmdale	Bakersfield	88.31	132	11657	19.70	18.73	2.99	3.43	\$264,496	\$258,317	\$87,653,814	\$85,606,369
Bakersfield to Fresno	Bakersfield	Tulare County	69.56	128	8904	19.70	18.73	2.99	3.43	\$202,024	\$197,306	\$66,950,919	\$65,387,059
	Tulare County	Suburban Fresno	38.04	128	4869	19.70	18.73	2.99	3.43	\$110,480	\$107,900	\$36,613,182	\$35,757,960
Fresno to San Jose*	Suburban Fresno	Pacheco Junction	27.24	96	2615	19.70	18.73	2.99	3.43	\$59,335	\$57,949	\$19,663,704	\$19,204,394
	Pacheco Junction	Los Banos	41.88	132	5528	19.70	18.73	2.99	3.43	\$125,434	\$122,504	\$41,568,811	\$40,597,834
	Los Banos	Gilroy	36.97	132	4880	19.70	18.73	2.99	3.43	\$110,728	\$108,142	\$36,695,295	\$35,838,155
	Gilroy	San Jose	29.91	132	3948	19.70	18.73	2.99	3.43	\$89,583	\$87,490	\$29,687,754	\$28,994,298
San Jose to San Francisco	San Jose	Redwood City	21.44	132	2830	19.70	18.73	2.99	3.43	\$64,215	\$62,715	\$21,280,690	\$20,783,609
	Redwood City	SFO	11.68	132	1542	19.70	18.73	2.99	3.43	\$34,983	\$34,165	\$11,593,212	\$11,322,414
	SFO	Downtown	13.70	132	1808	19.70	18.73	2.99	3.43	\$41,033	\$40,074	\$13,598,202	\$13,280,571
Fresno to Sacramento*	Suburban Fresno	Suburban Merced	52.91	36	1905	19.70	18.73	2.99	3.43	\$43,219	\$42,209	\$14,322,778	\$13,988,222
	Suburban Merced	Suburban Modesto	37.52	36	1351	19.70	18.73	2.99	3.43	\$30,648	\$29,932	\$10,156,693	\$9,919,450
	Suburban Modesto	Stockton	21.54	36	775	19.70	18.73	2.99	3.43	\$17,595	\$17,184	\$5,830,895	\$5,694,695
	Stockton	Sacramento	50.71	36	1826	19.70	18.73	2.99	3.43	\$41,422	\$40,454	\$13,727,236	\$13,406,591

<b>TOTAL</b>	<b>\$592,919,820</b>	<b>\$579,070,216</b>
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**Note :**

L.T.A.C = Long Term Avoidable Cost (Non-Power Cost)

Number of trains during a Weekend is equal to 70% of the Weekday number of trains

Assumed 253 weekdays and 112 weekend days (including 8 holidays) in a year

\* Includes trains between Sacramento and San Jose, 18 trains per direction per day.

**RECOMMENDED CORRIDOR - OPERATIONS AND MAINTENANCE COST SUMMARY (2015)**

Authority Recommended Corridor - Option B  
 Qualcomm, Inland Empire, Grapevine, West 99, Pacheco 1

LIMITS	SEGMENTS		DISTANCE IN MILES	NO. OF TRAINS PER DAY (Both Directions)	DAILY TOTAL TRAIN MILES	O&M UNIT COSTS PER TRAIN MILE				TOTAL WEEKDAY COSTS		TOTAL ANNUAL COSTS	
						L.T.A.C		ENERGY COSTS		VHS	UHS	VHS	UHS
	Begin	End				VHS	UHS	VHS	UHS	VHS	UHS	VHS	UHS
San Diego to Los Angeles	East Mission Vly	Mira Mesa	9.99	106	1059	19.70	18.73	2.99	3.43	\$24,027	\$23,466	\$7,962,663	\$7,776,669
	Mira Mesa	Escondido	14.73	106	1561	19.70	18.73	2.99	3.43	\$35,428	\$34,600	\$11,740,744	\$11,466,500
	Escondido	Temecula	29.27	106	3103	19.70	18.73	2.99	3.43	\$70,398	\$68,754	\$23,330,046	\$22,785,095
	Temecula	Riverside	37.56	106	3981	19.70	18.73	2.99	3.43	\$90,337	\$88,227	\$29,937,701	\$29,238,407
	Riverside	Ontario	17.92	106	1900	19.70	18.73	2.99	3.43	\$43,100	\$42,093	\$14,283,376	\$13,949,741
	Ontario	E. San Gabriel	16.09	106	1706	19.70	18.73	2.99	3.43	\$38,699	\$37,795	\$12,824,750	\$12,525,186
	E. San Gabriel	Union Station	25.22	106	2673	19.70	18.73	2.99	3.43	\$60,658	\$59,241	\$20,101,939	\$19,632,392
Los Angeles to Bakersfield	Union Station	Burbank	11.13	132	1469	19.70	18.73	2.99	3.43	\$33,335	\$32,557	\$11,047,299	\$10,789,252
	Burbank	Santa Clarita	21.07	132	2781	19.70	18.73	2.99	3.43	\$63,106	\$61,632	\$20,913,440	\$20,424,937
	Santa Clarita	Bakersfield	77.73	132	10260	19.70	18.73	2.99	3.43	\$232,808	\$227,370	\$77,152,428	\$75,350,278
Bakersfield to Fresno	Bakersfield	Tulare County	69.56	128	8904	19.70	18.73	2.99	3.43	\$202,024	\$197,306	\$66,950,919	\$65,387,059
	Tulare County	Suburban Fresno	38.04	128	4869	19.70	18.73	2.99	3.43	\$110,480	\$107,900	\$36,613,182	\$35,757,960
Fresno to San Jose*	Suburban Fresno	Pacheco Junction	27.24	96	2615	19.70	18.73	2.99	3.43	\$59,335	\$57,949	\$19,663,704	\$19,204,394
	Pacheco Junction	Los Banos	41.88	132	5528	19.70	18.73	2.99	3.43	\$125,434	\$122,504	\$41,568,811	\$40,597,834
	Los Banos	Gilroy	36.97	132	4880	19.70	18.73	2.99	3.43	\$110,728	\$108,142	\$36,695,295	\$35,838,155
	Gilroy	San Jose	29.91	132	3948	19.70	18.73	2.99	3.43	\$89,583	\$87,490	\$29,687,754	\$28,994,298
San Jose to San Francisco	San Jose	Redwood City	21.44	132	2830	19.70	18.73	2.99	3.43	\$64,215	\$62,715	\$21,280,690	\$20,783,609
	Redwood City	SFO	11.68	132	1542	19.70	18.73	2.99	3.43	\$34,983	\$34,165	\$11,593,212	\$11,322,414
	SFO	Downtown	13.70	132	1808	19.70	18.73	2.99	3.43	\$41,033	\$40,074	\$13,598,202	\$13,280,571
Fresno to Sacramento*	Suburban Fresno	Suburban Merced	52.91	36	1905	19.70	18.73	2.99	3.43	\$43,219	\$42,209	\$14,322,778	\$13,988,222
	Suburban Merced	Suburban Modesto	37.52	36	1351	19.70	18.73	2.99	3.43	\$30,648	\$29,932	\$10,156,693	\$9,919,450
	Suburban Modesto	Stockton	21.54	36	775	19.70	18.73	2.99	3.43	\$17,595	\$17,184	\$5,830,895	\$5,694,695
	Stockton	Sacramento	50.71	36	1826	19.70	18.73	2.99	3.43	\$41,422	\$40,454	\$13,727,236	\$13,406,591

<b>TOTAL</b>	<b>\$550,983,758</b>	<b>\$538,113,710</b>
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L.T.A.C = Long Term Avoidable Cost (Non-Power Cost)

Number of trains during a Weekend is equal to 70% of the Weekday number of trains

Assumed 253 weekdays and 112 weekend days (including 8 holidays) in a year

\* Includes trains between Sacramento and San Jose, 18 trains per direction per day.



# APPENDIX J

## Express Commute Analysis

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**Table 1**

**Express Commute Service - Intercity Capacity Analysis**

Intercity Service								
Commuter Alignment	Station	Peak Period Intercity Train Runs (Local, Sub Express, Reg Local)				Total Daily Available Capacity <sup>2</sup>	Total Daily Demand (Both Directions)	Amount Served by Intercity
		Load Factor <sup>1</sup>	AM	PM	Total			
<b>LA County - Option A</b>	Palmdale	76%	5	11	16	4096	6400	28%
	Santa Clarita	69%	5	11	16	4824	15120	
	Burbank	60%	5	11	16	5760	17100	
	LA Union Station	70%	5	11	16	4720		
<b>LA County - Option A</b>	Santa Clarita	84%	5	11	16	3264	8560	31%
	Burbank	72%	5	11	16	4512	10540	
	LA Union Station	77%	5	11	16	3992		
<b>Riverside - Option A</b>	Temecula	46%	15	11	26	11726	7400	70%
	Riverside	50%	15	11	26	11050	7700	
	Ontario Airport	52%	15	11	26	10712	10900	
	E. San Gabriel	67%	15	11	26	8177	11600	
	LA Union Station	58%	15	11	26	9698		
<b>Riverside - Option B</b>	Temecula	47%	15	11	26	11557	7400	59%
	Riverside	53%	15	11	26	10543	7700	
	Ontario Airport	55%	15	11	26	10205	10900	
	E. San Gabriel	75%	15	11	26	6825	11600	
	LA Union Station	67%	15	11	26	8177		
<b>San Diego - Option A</b>	Temecula	42%	2	9	11	5247	80	100%
	Escondido	27%	2	9	11	6319.5	680	
	Mira Mesa	22%	2	9	11	6677	710	
	E. Mission Valley	0%	2	9	11	8250		
<b>San Diego - Option B</b>	Temecula	43%	2	9	11	5175.5	80	100%
	Escondido	27%	2	9	11	6319.5	680	
	Mira Mesa	22%	2	9	11	6677	710	
	E. Mission Valley	0%	2	9	11	8250		
<b>Bay Area - Option A</b>	Los Banos	72%	8	12	20	5640	200	100%
	Gilroy	63%	8	12	20	6810	500	
	San Jose	48%	8	12	20	8760	5300	
	Redwood City	32%	8	12	20	10840	10300	
	SFO	25%	8	12	20	11750	10400	
	Downtown SF	0%	8	12	20	15000		
<b>Bay Area - Option B</b>	Los Banos	82%	8	12	20	4340	200	100%
	Gilroy	72%	8	12	20	5640	500	
	San Jose	55%	8	12	20	7850	5300	
	Redwood City	37%	8	12	20	10190	10300	
	SFO	29%	8	12	20	11230	10400	
	Downtown SF	0%	8	12	20	15000		

1) Source Charles River Associates

2) Assumes capacity of 650 Intercity passengers plus 100 commute passengers.

## Table 2

### Express Commute Service - Operations and Maintenance Costs

Comparison of Intercity and Commuter Unit Costs

Item	VHS Technology		Maglev Technology	
	Intercity Cost / Train-mile	Commuter Cost / Train-mile	Intercity Cost / Train-mile	Commuter Cost / Train-mile
Train Operations	\$ 6.08	\$ 6.08	\$ 6.08	\$ 6.08
Equipment Maintenance	\$ 7.13	\$ 21.39	\$ 6.42	\$ 19.26
Station Services	\$ 0.50	\$ 1.00	\$ 0.50	\$ 1.00
Marketing and Reservations	\$ 1.28	\$ 1.28	\$ 1.28	\$ 1.28
Insurance	\$ 1.22	\$ 1.22	\$ 1.22	\$ 1.22
General Support	\$ 0.88	\$ 1.06	\$ 0.88	\$ 1.06
Maintenance of Way	\$ 2.61	\$ 2.61	\$ 2.35	\$ 2.61
<b>Subtotal Non-Power Cost Components</b>	<b>\$ 19.70</b>	<b>\$ 34.64</b>	<b>\$ 18.73</b>	<b>\$ 32.51</b>
Power	\$ 2.99	\$ 3.74	\$ 3.43	\$ 4.29
<b>Total</b>	<b>\$ 22.69</b>	<b>\$ 38.37</b>	<b>\$ 22.16</b>	<b>\$ 36.79</b>

**Table 3**

**Express Commute Service - Operations and Maintenance**

**Authority Recommended Corridor - Option A**

Qualcomm, Inland Empire, Palmdale/Mojave, West 99, Pacheco 1

REGION	LIMITS		DISTANCE IN MILES	ADDITIONAL COMMUTE TRAIN RUNS REQUIRED		DAILY TOTAL TRAIN MILES <sup>7</sup>		O&M UNIT COSTS PER TRAIN MILE		TOTAL ANNUAL COMMUTE O&M COSTS	
	BEGIN	END		(SEPARATE)	(INTEGRATED) <sup>6</sup>	(SEPARATE)	(INTEGRATED)	L.T.A.C (VHS)	ENERGY COSTS (VHS)	(SEPARATE)	(INTEGRATED) <sup>8</sup>
San Diego	Temecula	Qualcomm	55.31	24	0 <sup>3</sup>	1991	0	34.64	3.74	\$19,334,442	\$0
Los Angeles	Temecula	LA Union Station	93.69	24	8	2811	1124	34.64	3.74	\$27,292,290	\$10,916,916
	Palmdale	LA Union Station	63.87	28 <sup>4</sup>	22	2555	2044	34.64	3.74	\$24,807,466	\$19,845,973
San Francisco	Los Banos	San Francisco	117.16	48 <sup>5</sup>	0 <sup>3</sup>	5624	0	34.64	3.74	\$54,606,720	\$0

<b>TOTAL</b>	\$126,040,919	\$41,779,754
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**Authority Recommended Corridor - Option B**

Qualcomm, Inland Empire, Grapevine, West 99, Pacheco 1

REGION	LIMITS		DISTANCE IN MILES	ADDITIONAL COMMUTE TRAIN RUNS REQUIRED		DAILY TOTAL TRAIN MILES <sup>7</sup>		O&M UNIT COSTS PER TRAIN MILE		TOTAL ANNUAL COMMUTE O&M COSTS	
	BEGIN	END		(SEPARATE)	(INTEGRATED) <sup>6</sup>	(SEPARATE)	(INTEGRATED)	L.T.A.C (VHS)	ENERGY COSTS (VHS)	(SEPARATE)	(INTEGRATED) <sup>8</sup>
San Diego	Temecula	Qualcomm	55.31	24	0 <sup>3</sup>	1991	0	34.64	3.74	\$19,334,442	\$0
Los Angeles	Temecula	LA Union Station	93.69	24	10	2811	1312	34.64	3.74	\$27,292,290	\$12,736,402
	Santa Clarita	LA Union Station	32.19	24	18	1223	901	34.64	3.74	\$11,877,637	\$8,751,943
San Francisco	Los Banos	San Francisco	117.16	48 <sup>5</sup>	0 <sup>3</sup>	5624	0	34.64	3.74	\$54,606,720	\$0

<b>TOTAL</b>	\$113,111,090	\$31,853,693
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Note :

- 1) L.T.A.C = Long Term Avoidable Cost (Non-Power Cost)
- 2) Assumed 253 weekdays
- 3) Capacity available on intercity local service; however, does not meet commute frequency assumptions. Thus revenue estimate may be inflated.
- 4) Additional trains required to meet forecasted demand.
- 5) Commute service assumed in both directions for this corridor.
- 6) Number of trains reduced by the amount of commute demand served by intercity trainsets.
- 7) Includes return trips.
- 8) Includes additional Intercity O&M associated with additional coach cars.

**Table 4**

**Express Commute Service - Capital Costs**

**Authority Recommended Corridor- Option A**

REGION	LIMITS		NUMBER OF TRAINSETS REQUIRED FOR PURCHASE <sup>1</sup>		EQUIPMENT CAPITAL COST			
					TOTAL <sup>2</sup>		ANNUAL <sup>3</sup>	
	BEGIN	END	SEPARATE	INTEGRATED	SEPARATE	INTEGRATED	SEPARATE	INTEGRATED
San Diego	Temecula	Qualcomm	8	0	\$160,000,000	\$0	\$12,896,000	\$0
Los Angeles	Temecula	LA Union Station	11	3	\$220,000,000	\$60,000,000	\$17,732,000	\$4,836,000
	Palmdale	LA Union Station	10	8	\$200,000,000	\$160,000,000	\$16,120,000	\$12,896,000
San Francisco	Los Banos	San Francisco	15	0	\$300,000,000	\$0	\$24,180,000	\$0
Intercity			0	25 <sup>4</sup>	\$0	\$62,500,000	\$0	\$5,037,500

<b>TOTAL</b>	\$880,000,000	\$282,500,000	\$70,928,000	\$22,769,500
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- 1) Assumes a 20% maintenance/spare ratio
- 2) Based on new commuter trainset (different from Long Distance Intercity trainsets) with 650 seat capacity and a cost of \$20 million per trainset
- 3) Assumes franchise period of 30 years annualized at 7%
- 4) 25 coach cars added to the Intercity trains which would carry commuters, at \$2.5 million each.

**Authority Recommended Corridor- Option B**

REGION	LIMITS		NUMBER OF TRAINSETS REQUIRED FOR PURCHASE <sup>1</sup>		EQUIPMENT CAPITAL COST			
					TOTAL <sup>2</sup>		ANNUAL <sup>3</sup>	
	BEGIN	END	SEPARATE	INTEGRATED	SEPARATE	INTEGRATED	SEPARATE	INTEGRATED
San Diego	Temecula	Qualcomm	8	0	\$160,000,000	\$0	\$12,896,000	\$0
Los Angeles	Temecula	LA Union Station	11	4	\$220,000,000	\$80,000,000	\$17,732,000	\$6,448,000
	Santa Clarita	LA Union Station	6	5	\$120,000,000	\$100,000,000	\$9,672,000	\$8,060,000
San Francisco	Los Banos	San Francisco	15	0	\$300,000,000	\$0	\$24,180,000	\$0
Intercity			0	25 <sup>4</sup>	\$0	\$62,500,000	\$0	\$5,037,500

<b>TOTAL</b>	\$800,000,000	\$242,500,000	\$64,480,000	\$19,545,500
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- 1) Assumes a 20% maintenance/spare ratio
- 2) Based on new commuter trainset (different from Long Distance Intercity trainsets) with 650 seat capacity and a cost of \$20 million per trainset
- 3) Assumes franchise period of 30 years annualized at 7%
- 4) 25 coach cars added to the Intercity trains which would carry commuters, at \$2.5 million each.

# APPENDIX K

## Implementation / Capital Phasing

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**PROJECT CAPITAL PHASING (TOTAL)**  
**HSR Corridor Evaluation (VHS)**  
**Based on Preliminary Cost Estimate for the Authority Recommended System Option A**  
**(\$Millions of 1999 Dollars)**  
Phasing Plan 1

Item	Year																Total	% of Total			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					
<b>PE/Environmental</b>																					
Program Environmental	\$ 10	\$ 10																\$ 20	0%		
Prelim Engr/EIS/EIR			\$ 75	\$ 100	\$ 100	\$ 75												\$ 350	1%		
<b>Right of Way</b>							\$ 278	\$ 556	\$ 390	\$ 390	\$ 877							\$ 2,490	10%		
<b>Design-Build - Civil</b>																					
Stations								\$ 83	\$ 165	\$ 165			\$ 231	\$ 231	\$ 231	\$ 231	\$ 1,337	5%			
Line Construction								\$ 531	\$ 797	\$ 797	\$ 1,399	\$ 1,735	\$ 1,735	\$ 1,735	\$ 868		\$ 11,333	44%			
<b>DBOM - Vehicles</b>								\$ 98	\$ 98	\$ 98	\$ 98		\$ 196	\$ 196	\$ 196	\$ 196	\$ 1,178	5%			
<b>DBOM - Systems</b>																					
Trackwork								\$ 22	\$ 66	\$ 66	\$ 66	\$ 134	\$ 268	\$ 268	\$ 268	\$ 268	\$ 1,562	6%			
Electrification								\$ 20	\$ 61	\$ 61	\$ 61	\$ 126	\$ 252	\$ 252	\$ 252	\$ 252	\$ 1,461	6%			
Signaling and Comm								\$ 26	\$ 79	\$ 79	\$ 79	\$ 164	\$ 327	\$ 327	\$ 327	\$ 327	\$ 1,900	7%			
Support Facilities								\$ 30	\$ 53	\$ 53	\$ 15		\$ 43	\$ 43	\$ 43	\$ 24	\$ 304	1%			
<b>Program Implementation (Admin, PM &amp; CM)</b>								\$ 186	\$ 198	\$ 361	\$ 410	\$ 522	\$ 484	\$ 522	\$ 522	\$ 373	\$ 149	\$ 3,727	15%		
<b>Total</b>	<b>\$10</b>	<b>\$10</b>	<b>\$75</b>	<b>\$100</b>	<b>\$100</b>	<b>\$75</b>	<b>\$1,193</b>	<b>\$1,990</b>	<b>\$2,070</b>	<b>\$2,683</b>	<b>\$3,558</b>	<b>\$3,110</b>	<b>\$3,575</b>	<b>\$3,575</b>	<b>\$2,540</b>	<b>\$1,000</b>	<b>\$25,661</b>	<b>100%</b>			
<b>% of Total Cost</b>	<b>0.04%</b>	<b>0.04%</b>	<b>0.29%</b>	<b>0.39%</b>	<b>0.39%</b>	<b>0.29%</b>	<b>5%</b>	<b>8%</b>	<b>8%</b>	<b>10%</b>	<b>14%</b>	<b>12%</b>	<b>14%</b>	<b>14%</b>	<b>10%</b>	<b>4%</b>	<b>\$25,661</b>	<b>100%</b>			

**PROJECT CAPITAL PHASING (TOTAL)**  
**HSR Corridor Evaluation (Maglev)**  
**Based on Preliminary Cost Estimate for the Authority Recommended System Option A**  
**(\$Millions of 1999 Dollars)**  
Phasing Plan 1

Item	Year																Total	% of Total	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
<b>PE/Environmental</b>																			
Program Environmental	\$ 10	\$ 10															\$ 20	0%	
Prelim Engr/EIS/EIR			\$ 75	\$ 100	\$ 100	\$ 75											\$ 350	1%	
<b>Right of Way</b>							\$ 278	\$ 556	\$ 390	\$ 390	\$ 877						\$ 2,490	7%	
<b>Design-Build - Civil</b>																			
Stations								\$ 83	\$ 165	\$ 165			\$ 231	\$ 231	\$ 231	\$ 231	\$ 1,337	4%	
Line Construction								\$ 531	\$ 797	\$ 797	\$ 1,407	\$ 1,751	\$ 1,751	\$ 1,751	\$ 875		\$ 11,410	33%	
<b>DBOM - Vehicles</b>								\$ 93	\$ 93	\$ 93	\$ 93			\$ 186	\$ 186	\$ 186	\$ 186	\$ 1,116	3%
<b>DBOM - Systems</b>																			
Trackwork								\$ 73	\$ 219	\$ 219	\$ 219	\$ 456	\$ 912	\$ 912	\$ 912	\$ 912	\$ 456	\$ 5,289	15%
Electrification								\$ 64	\$ 191	\$ 191	\$ 191	\$ 397	\$ 794	\$ 794	\$ 794	\$ 794	\$ 397	\$ 4,610	13%
Signaling and Comm								\$ 28	\$ 85	\$ 85	\$ 85	\$ 177	\$ 355	\$ 355	\$ 355	\$ 355	\$ 177	\$ 2,058	6%
Support Facilities								\$ 30	\$ 53	\$ 53	\$ 15		\$ 43	\$ 43	\$ 43	\$ 24		\$ 304	1%
<b>Program Implementation (Admin, PM &amp; CM)</b>								\$ 207	\$ 362	\$ 362	\$ 466	\$ 673	\$ 673	\$ 777	\$ 777	\$ 621	\$ 259	\$ 5,178	15%
<b>Total</b>	<b>\$10</b>	<b>\$10</b>	<b>\$75</b>	<b>\$100</b>	<b>\$100</b>	<b>\$75</b>	<b>\$1,305</b>	<b>\$2,439</b>	<b>\$2,356</b>	<b>\$3,031</b>	<b>\$4,331</b>	<b>\$4,528</b>	<b>\$5,048</b>	<b>\$5,048</b>	<b>\$3,999</b>	<b>\$1,706</b>	<b>\$34,161</b>	<b>100%</b>	
<b>% of Total Cost</b>	<b>0.03%</b>	<b>0.03%</b>	<b>0.22%</b>	<b>0.29%</b>	<b>0.29%</b>	<b>0.22%</b>	<b>4%</b>	<b>7%</b>	<b>7%</b>	<b>9%</b>	<b>13%</b>	<b>13%</b>	<b>15%</b>	<b>15%</b>	<b>12%</b>	<b>5%</b>		<b>100%</b>	



**PROJECT CAPITAL PHASING (TOTAL)**  
**HSR Corridor Evaluation (VHS)**  
*Based on Preliminary Cost Estimate for the Authority Recommended System Option B*  
*(\$Millions of 1999 Dollars)*  
Phasing Plan 1

Item	Year																Total	% of Total		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
<b>PE/Environmental</b>																				
Program Environmental	\$ 10	\$ 10															\$ 20	0%		
Prelim Engr/EIS/EIR			\$ 75	\$ 100	\$ 100	\$ 75											\$ 350	1%		
<b>Right of Way</b>							\$ 271	\$ 542	\$ 363	\$ 363	\$ 816						\$ 2,356	9%		
<b>Design-Build - Civil</b>																				
Stations								\$ 83	\$ 165	\$ 165				\$ 214	\$ 214	\$ 214	\$ 214	\$ 1,268	5%	
Line Construction								\$ 531	\$ 797	\$ 797	\$ 1,390	\$ 1,718	\$ 1,718	\$ 1,718	\$ 1,718	\$ 859		\$ 11,248	45%	
<b>DBOM - Vehicles</b>								\$ 98	\$ 98	\$ 98	\$ 98				\$ 196	\$ 196	\$ 196	\$ 196	\$ 1,178	5%
<b>DBOM - Systems</b>																				
Trackwork								\$ 22	\$ 66	\$ 66	\$ 66	\$ 127	\$ 254	\$ 254	\$ 254	\$ 254	\$ 127	\$ 1,490	6%	
Electrification								\$ 20	\$ 61	\$ 61	\$ 61	\$ 117	\$ 233	\$ 233	\$ 233	\$ 233	\$ 117	\$ 1,369	5%	
Signaling and Comm								\$ 26	\$ 79	\$ 79	\$ 79	\$ 152	\$ 304	\$ 304	\$ 304	\$ 304	\$ 152	\$ 1,782	7%	
Support Facilities								\$ 30	\$ 53	\$ 53	\$ 15	\$ -	\$ 43	\$ 43	\$ 43	\$ 24	\$ -	\$ 304	1%	
<b>Program Implementation (Admin, PM &amp; CM)</b>								\$ 181	\$ 289	\$ 325	\$ 361	\$ 505	\$ 433	\$ 505	\$ 505	\$ 361	\$ 144	\$ 3,610	14%	
<b>Total</b>	<b>\$10</b>	<b>\$10</b>	<b>\$75</b>	<b>\$100</b>	<b>\$100</b>	<b>\$75</b>	<b>\$1,180</b>	<b>\$2,068</b>	<b>\$2,007</b>	<b>\$2,598</b>	<b>\$3,436</b>	<b>\$2,985</b>	<b>\$3,468</b>	<b>\$3,468</b>	<b>\$2,446</b>	<b>\$950</b>	<b>\$24,974</b>	<b>100%</b>		
<b>% of Total Cost</b>	<b>0.04%</b>	<b>0.04%</b>	<b>0.30%</b>	<b>0.40%</b>	<b>0.40%</b>	<b>0.30%</b>	<b>5%</b>	<b>8%</b>	<b>8%</b>	<b>10%</b>	<b>14%</b>	<b>12%</b>	<b>14%</b>	<b>14%</b>	<b>10%</b>	<b>4%</b>		<b>100%</b>		

**PROJECT CAPITAL PHASING (TOTAL)**  
**HSR Corridor Evaluation (VHS)**  
**Based on Preliminary Cost Estimate for the Authority Recommended System Option A**  
**(\$Millions of 1999 Dollars)**  
Phasing Plan 2

Item	Year																Total	% of Total	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
<b>PE/Environmental</b>																			
Program Environmental	\$ 10	\$ 10															\$ 20	0%	
Prelim Engr/EIS/EIR			\$ 75	\$ 100	\$ 100	\$ 75											\$ 350	1%	
<b>Right of Way</b>							\$ 423	\$ 423	\$ 564				\$ 360	\$ 360	\$ 360			\$ 2,490	10%
<b>Design-Build - Civil</b>																			
Stations										\$ 184	\$ 184	\$ 184	\$ 184	\$ 120	\$ 240	\$ 240	\$ 1,337	5%	
Line Construction							\$ 1,108	\$ 1,108	\$ 1,108	\$ 1,108	\$ 1,108	\$ 1,108	\$ 1,171	\$ 1,171	\$ 1,171	\$ 1,171	\$ 11,333	44%	
<b>DBOM - Vehicles</b>										\$ 196	\$ 196	\$ 196	\$ 295	\$ 98	\$ 98	\$ 98	\$ 1,178	5%	
<b>DBOM - Systems</b>																			
Trackwork							\$ 100	\$ 200	\$ 200	\$ 200	\$ 200	\$ 200	\$ 156	\$ 169	\$ 169	\$ 169	\$ 1,562	6%	
Electrification							\$ 95	\$ 189	\$ 189	\$ 189	\$ 189	\$ 189	\$ 146	\$ 155	\$ 155	\$ 155	\$ 1,461	6%	
Signaling and Comm							\$ 123	\$ 246	\$ 246	\$ 246	\$ 246	\$ 246	\$ 190	\$ 201	\$ 201	\$ 201	\$ 1,900	7%	
Support Facilities							\$ 43	\$ 43	\$ 43	\$ 43	\$ 24	\$ 30	\$ 53	\$ 53	\$ 15	\$ 15	\$ 304	1%	
<b>Program Implementation (Admin, PM &amp; CM)</b>							\$ 298	\$ 381	\$ 381	\$ 381	\$ 381	\$ 381	\$ 381	\$ 381	\$ 381	\$ 381	\$ 3,727	15%	
<b>Total</b>	<b>\$10</b>	<b>\$10</b>	<b>\$75</b>	<b>\$100</b>	<b>\$100</b>	<b>\$75</b>	<b>\$1,829</b>	<b>\$2,230</b>	<b>\$2,730</b>	<b>\$2,547</b>	<b>\$2,547</b>	<b>\$2,889</b>	<b>\$2,913</b>	<b>\$2,708</b>	<b>\$2,468</b>	<b>\$2,430</b>	<b>\$25,661</b>	<b>100%</b>	
<b>% of Total Cost</b>	<b>0.04%</b>	<b>0.04%</b>	<b>0.29%</b>	<b>0.39%</b>	<b>0.39%</b>	<b>0.29%</b>	<b>7%</b>	<b>9%</b>	<b>11%</b>	<b>10%</b>	<b>10%</b>	<b>11%</b>	<b>11%</b>	<b>11%</b>	<b>10%</b>	<b>9%</b>		<b>100%</b>	

Note: Assumes Los Angeles to San Francisco opens for revenue service at the beginning of Year 14.

**PROJECT CAPITAL PHASING (TOTAL)**  
**HSR Corridor Evaluation (Maglev)**  
**Based on Preliminary Cost Estimate for the Authority Recommended System Option A**  
**(\$Millions of 1999 Dollars)**  
Phasing Plan 2

Item	Year																Total	% of Total		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
<b>PE/Environmental</b>																				
Program Environmental	\$ 10	\$ 10															\$ 20	0%		
Prelim Engr/EIS/EIR			\$ 75	\$ 100	\$ 100	\$ 75											\$ 350	1%		
<b>Right of Way</b>							\$ 423	\$ 423	\$ 564				\$ 360	\$ 360	\$ 360			\$ 2,490	7%	
<b>Design-Build - Civil</b>																				
Stations										\$ 184	\$ 184	\$ 184	\$ 184	\$ 120	\$ 240	\$ 240	\$ 1,337	4%		
Line Construction										\$ 1,121	\$ 1,121	\$ 1,121	\$ 1,121	\$ 1,121	\$ 1,171	\$ 1,171	\$ 1,171	\$ 1,171	\$ 11,410	33%
<b>DBOM - Vehicles</b>										\$ 186	\$ 186	\$ 186	\$ 279	\$ 93	\$ 93	\$ 93	\$ 1,116	3%		
<b>DBOM - Systems</b>																				
Trackwork									\$ 343	\$ 686	\$ 686	\$ 686	\$ 686	\$ 529	\$ 558	\$ 558	\$ 558	\$ 5,289	15%	
Electrification									\$ 298	\$ 596	\$ 596	\$ 596	\$ 596	\$ 461	\$ 489	\$ 489	\$ 489	\$ 4,610	13%	
Signaling and Comm									\$ 133	\$ 266	\$ 266	\$ 266	\$ 266	\$ 206	\$ 218	\$ 218	\$ 218	\$ 2,058	6%	
Support Facilities									\$ 43	\$ 43	\$ 43	\$ 24	\$ 30	\$ 53	\$ 53	\$ 15	\$ 304	1%		
<b>Program Implementation (Admin, PM &amp; CM)</b>									\$ 414	\$ 529	\$ 529	\$ 529	\$ 529	\$ 529	\$ 529	\$ 529	\$ 529	\$ 5,178	15%	
<b>Total</b>	<b>\$10</b>	<b>\$10</b>	<b>\$75</b>	<b>\$100</b>	<b>\$100</b>	<b>\$75</b>	<b>\$1,958</b>	<b>\$2,847</b>	<b>\$3,805</b>	<b>\$3,611</b>	<b>\$3,611</b>	<b>\$3,953</b>	<b>\$3,750</b>	<b>\$3,591</b>	<b>\$3,351</b>	<b>\$3,313</b>	<b>\$34,161</b>	<b>100%</b>		
<b>% of Total Cost</b>	<b>0.03%</b>	<b>0.03%</b>	<b>0.22%</b>	<b>0.29%</b>	<b>0.29%</b>	<b>0.22%</b>	<b>6%</b>	<b>8%</b>	<b>11%</b>	<b>11%</b>	<b>11%</b>	<b>12%</b>	<b>11%</b>	<b>11%</b>	<b>10%</b>	<b>10%</b>		<b>100%</b>		

Note: Assumes Los Angeles to San Francisco opens for revenue service at the beginning of Year 14.

**PROJECT CAPITAL PHASING (TOTAL)**  
**HSR Corridor Evaluation (VHS)**  
**Based on Preliminary Cost Estimate for the Authority Recommended System Option B**  
**(\$Millions of 1999 Dollars)**  
Phasing Plan 2

Item	Year																Total	% of Total		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
<b>PE/Environmental</b>																				
Program Environmental	\$ 10	\$ 10															\$ 20	0%		
Prelim Engr/EIS/EIR			\$ 75	\$ 100	\$ 100	\$ 75											\$ 350	1%		
<b>Right of Way</b>							\$ 383	\$ 383	\$ 510				\$ 360	\$ 360	\$ 360			\$ 2,356	9%	
<b>Design-Build - Civil</b>																				
Stations										\$ 167	\$ 167	\$ 167	\$ 167	\$ 120	\$ 240	\$ 240	\$ 1,268	5%		
Line Construction										\$ 1,094	\$ 1,094	\$ 1,094	\$ 1,094	\$ 1,094	\$ 1,171	\$ 1,171	\$ 1,171	\$ 1,171	\$ 11,248	45%
<b>DBOM - Vehicles</b>																				
<b>DBOM - Systems</b>																				
Trackwork									\$ 93	\$ 185	\$ 185	\$ 185	\$ 185	\$ 149	\$ 169	\$ 169	\$ 169	\$ 1,490	6%	
Electrification									\$ 85	\$ 171	\$ 171	\$ 171	\$ 171	\$ 137	\$ 155	\$ 155	\$ 155	\$ 1,369	5%	
Signaling and Comm									\$ 111	\$ 222	\$ 222	\$ 222	\$ 222	\$ 178	\$ 201	\$ 201	\$ 201	\$ 1,782	7%	
Support Facilities									\$ 43	\$ 43	\$ 43	\$ 24	\$ 30	\$ 53	\$ 53	\$ 15	\$ 304	1%		
<b>Program Implementation (Admin, PM &amp; CM)</b>									\$ 289	\$ 369	\$ 369	\$ 369	\$ 369	\$ 369	\$ 369	\$ 369	\$ 369	\$ 3,610	14%	
<b>Total</b>	<b>\$10</b>	<b>\$10</b>	<b>\$75</b>	<b>\$100</b>	<b>\$100</b>	<b>\$75</b>	<b>\$1,766</b>	<b>\$2,135</b>	<b>\$2,594</b>	<b>\$2,447</b>	<b>\$2,447</b>	<b>\$2,789</b>	<b>\$2,856</b>	<b>\$2,696</b>	<b>\$2,456</b>	<b>\$2,418</b>	<b>\$24,974</b>	<b>100%</b>		
<b>% of Total Cost</b>	<b>0.04%</b>	<b>0.04%</b>	<b>0.30%</b>	<b>0.40%</b>	<b>0.40%</b>	<b>0.30%</b>	<b>7%</b>	<b>9%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>	<b>11%</b>	<b>11%</b>	<b>11%</b>	<b>10%</b>	<b>10%</b>		<b>100%</b>		

Note: Assumes Los Angeles to San Francisco opens for revenue service at the beginning of Year 14.