ATTACHMENT B - 2015 EXISTING AND FUNDED NETWORK -- CONSTRUCTION COSTS

County	Route	From	To	Distance (Lane Miles) WB	Distance (Lane Miles) EB	Distance (Lane Miles) SB	Distance (Lane Miles) NB	HOT Cost (millions) Estimated Upgrade Costs	Comments
CC	SR4	SR 160	Port Chicago Highway	15.3	15.4			$ 108.98	**50% Medium and 50% High Cost Option:** Soundwall to outside makes widening difficult.
Total Corridor SR4				**15.3**	**15.4**			**$ 108.98**	
CC		Carquinez Bridge	Central Ave (Alameda County Line)	16.0	14.6			$ 134.85	**High Cost Option:** Total median width about 6' throughout the corridor (2' either side pluss 2' median barrier). Approx. 10 bridge
ALA	I-80	Central Ave (Alameda County Line)	Bay Bridge Toll Plaza	5.9	6.0			$ 52.44	structures.
SOL	I-80	Air Base Pkwy IC	SR 12	6.6	6.7			$ 35.81	**Medium Cost Option**
Total Corridor I-80				**28.5**	**27.3**			**$ 223.11**	
ALA	SR 84	Newark Blvd	Paseo Padre/Thornton incl. Toll Plaza Dumbarton Bridge	3.5				$ 15.42	**High Cost Option:** PSR describes only 1 mile of HOV widening with possible ROW take. No specific plan details.
Total Corridor SR 84				**3.5**				**$ 15.42**	
SC	SR 85	US 101 (South San Jose)	US 101 (Mountain View)			26.5	26.3	$ 119.89	**Medium Cost Option:** North of I-280 (approx 5 miles). **50% Low Cot Option and 50% Medium Cost Option** south of I-280. Standard outside and inside shoulders
Total Corridor SR 85						**26.5**	**26.3**	**$ 119.89**	
SC	SR 87	US 101	SR 85			9.1	9.2	$ 29.97	**Low Cost Option:** Construction cost for the VTA HOV segment on this route (7 miles) was $68 Million. Input from VTA suggests using a low range cost to convert to HOT lane.
Total Corridor SR 87						**9.1**	**9.2**	**$ 29.97**	
ALA	SR 92	Hesperian	Toll Plaza - San Mateo Bridge	1.6				$ 7.05	**High Cost Option**
Total Corridor SR 92				**1.6**				**$ 7.05**	
SM	US 101	Whipple Ave	San Mateo/Santa Clara County Line			7.0	7.0	$ 61.70	**High Cost Option**
SC	US 101	San Mateo/Santa Clara County Line	Cochrane			35.0	34.0	$ 145.98	**75% segment is Low Cost Option** (South of San Jose to Cochrane) and **25% of segment is equally split between High and Medium Cost Option:** From San Jose to north
MAR	US 101	SB 101/Seminary Ave & NB 101/SR1	SR 37			13.8	14.9	$ 82.01	**25% Low and 50 % Medium Cost Option:** Novato, **25% High Cost Option**: Southern Marin
SON	US 101	Old Redwood Highway (Petaluma)	Windsor River Rd			21.7	21.2	$ 115.52	**Medium Cost Option:** Santa Rosa.
Total Corridor US 101						**77.5**	**77.1**	**$ 405.21**	
SC	SR 237	I-880	Mathilda I/C	7.0	7.0			$ 61.70	**High Cost Option:** Outside shoulders 12'. Median shoulders vary from areas with 6' median shoulder to 10' -12' . Highway segment includes 11 bridge structures
Total Corridor SR 237				**7.0**	**7.0**			**$ 61.70**	
SC	I-280	Magdelena Ave	Leland Ave			11.5	11.1	$ 60.86	**Medium Cost Option**
Total Corridor SR I-280						**11.5**	**11.1**	**$ 60.86**	
ALA	I-580	Hacienda	Greenville		10.8			$ 29.08	**Medium Cost Option:** Widen to outside
Total Corridor I-580					**10.8**			**$ 29.08**	
SC	I-680	Caleveras	Alameda/Santa Clara County Line			2.5	2.5	$ 12.98	**Medium Cost Option:** NB direction. Cost of SB HOT lane from I-680 Smart Carpool Project (2.5 mill/lane mile)
ALA	I-680	Alameda/Santa Clara County Line	SR 84			11.5	10.8	$ 57.83	**Medium Cost Option:** NB direction. Cost of SB HOT lane from I-680 Smart Carpool Project (2.5 mill/lane mile)
CC	I-680	Marina Vista	Alcosta Blvd.			26.0	22.3	$ 130.06	**Medium Cost Option**
Total Corridor I-680						**40.0**	**35.6**	**$ 200.88**	
ALA	I-880	Marina	SR 237			25.0	22.9	$ 128.98	**Medium Cost Option**
ALA	I-880	16 th Street	Merge with I-80 W				1.8	$ 6.39	**50 % Medium to 50 % High Cost Option;** Appears that median shoulder widen for future lane and shld.
Total Corridor I-880						**25.0**	**24.7**	**$ 135.37**	
Sub-Total Lane Miles and Total Cost				**55.9**	**60.5**	**189.6**	**184.0**	**$ 1,397.51**	
Total Lane Miles all Directions				**490.0**				*$2.9 M/mile*	

Note 1: **HOT upgrade cost may be a combination of the different costing options (low, medium, high) or one option is chosen due to specific information available.**

Note: All Costs are in 2006 Dollars (2006 $)

ATTACHMENT C - HOT NETWORK SEGMENTS ADDED 2015 and 2030 CONSTRUCTION COSTS

County	Route	From	To	Distance (Lane Miles) Added		Distance (Lane Miles) Added		Total Lane Miles HOT Lane Network (2015+2030)				HOV Lanes Added in 2030 Network	HOT Cost (millions)	Total HOT Cost and HOV Cost	Comments
												Cost /Lane Mile (1) $ 8.00	Estimated Upgrade Costs	(in Millions)	
				WB	EB	SB	NB	WB	EB	SB	NB				
CC	SR4	Port Chicago Highway	I-680	4.1	3.7			19.4	19.1			$ 77.22	$ 27.69	$ 104.91	**50% Medium and 50% High Cost Option: Soundwall to outside makes widening difficult. Used $ 9.9 million per lane mile for HOV estimate based on PSRs available for the corridor.**
CC	SR 4/I-680	HOV Connector Facility										$ 75.00	$ -	$ 75.00	No cost to convert HOV connector to HOT lane due to no additional ITS elements or striping requirements
Total Corridor SR4				**4.1**	**3.7**			**19.4**	**19.1**			**$ 152.22**	**$ 27.69**	**$ 179.91**	
ALA/CC	I-80	Pomona/San Pablo thru IC and to Cummings (Carquinez Bridge)	Bay Bridge Toll Plaza					21.9	20.6						
SOL	I-80	Yolo County Line	SR 37	32.7	32.5			32.7	32.5			$ 521.60	$ 141.17	$ 662.77	50% Low and 50% Medium Cost Option: Outside shoulder widths vary (10'-13') and the median shoulder width varies from 20' (south of SR 37) to 30' (north of Vallejo). 7 bridge structures (No PSR)
SOL	I-80	SR 37	Carquinez Bridge	4.6	4.6			4.6	4.6			$ 73.60	$ 24.77	$ 98.37	**Medium Cost Option: PSR shows $48 mill. Need to be confirmed HOV widening assumed to be funded in Transportation 2030 Plan**
SOL	I-80	Air Base Pkwy IC	Suisun Valley Rd/I-680					6.6	6.7						
Total Corridor I-80				**37.3**	**37.1**			**65.8**	**64.4**			**$ 595**	**$ 166**	**$ 761**	
ALA	SR 84	I-880/Newark Blvd	Paseo Padre/Thornton incl. Toll Plaza Dumbarton Bridge					3.5							
Total Corridor SR 84								**3.5**							
SC	SR 85	SR 87 Almaden	Moffett US 101							26.4	26.1				
Total Corridor SR 85										**26.4**	**26.1**				
SC	SR 87	US 101 Skyport	Capitol Expwy SR 85							9.1	9.2				
Total Corridor SR 87										**9.1**	**9.2**				
ALA	SR 92	Clawiter	Toll Plaza - San Mateo Bridge					1.6							
Total Corridor SR 92								**1.6**							
SM	US 101	Millbrae Ave	Whipple Ave			11.4	11.7			11.4	11.7	$ 184.80	$ 101.80	$ 286.60	**High Cost Option, No PSR**
SC	US 101	Cochrane	SR 25			14.9	14.6			56.9	55.6	$ 182.90	$ 48.31	$ 231.21	**Low Cost Option, HOV Costs based on VTP 2030, Approx. 6.2 million/lane mile**
MAR	US 101	SR37	San Antonio Rd			9.7	9.4					$ 285.19	$ 51.43	$ 336.62	**Medium Cost Option for HOT conversion. HOV cost is 17.32 mill/lane mile based on estimate from the Marin/Sonoma Narrows project provided to MTC. HOV widening assumed funded in Transportation 2030 Plan**
SON	US 101	San Antonio Rd	Old Redwood Highway (Petaluma)			7.8	7.6			53.0	53.1	$ 229.95	$ 41.47	$ 271.42	**Medium Option for HOT conversion. HOV cost is 17.32 mill/lane mile based on estimate from the Marin/Sonoma Narrows project provided to MTC. HOV widening assumed funded in Transportation 2030 Plan**
Total Corridor US 101						**43.8**	**43.3**			**121.3**	**120.4**	**$ 882.84**	**$ 243.01**	**$ 1,125.85**	
SC	SR 237	Mathilda	SR 85	2.7	2.9			9.7	9.9			$ 44.80	$ 24.68	$ 69.48	**High Cost Option: Outside shoulders 12'. Median shoulders vary from areas with 6' median shoulder to 10' -12' . Highway segment includes 11 bridge structures HOV widening from Mathilda to SR 85 assumed funded in Transportation 2030 Plan**
Total Corridor SR 237				**2.7**	**2.9**			**9.7**	**9.9**			**$44.80**	**$ 24.68**	**$ 69.48**	
SC	I-280	Leland Ave	US 101			3.5	4.2			15.0	15.3	$ -	$ 20.73	$ 20.73	**Medium Cost Option, No PSR**
Total Corridor I-280						**3.5**	**4.2**			**15.0**	**15.3**	**$ -**	**$ 20.73**	**$ 20.73**	
ALA	I-580	Greenville	San Joaquin County Line		10.2							$ 102.00	$ 27.47	$ 129.47	**Medium Cost Option;PSR for part of segment shows $10 mil/HOV lane mi WB HOV from Greenville to Tassajara assumed funded in Transportation 2030 Plan**
ALA	I-580	San Joaquin County Line	I-680	20.9				20.9	21.0			$ 107.30	$ 56.28	$ 163.58	**Medium Cost Option;PSR for part of segment shows $10 mil/HOV lane mi WB HOV from Greenville to Tassajara assumed funded in Transportation 2030 Plan**
ALA	I-580/I-680	Connector Facility										$ 325.00	$ -	$ 325.00	**No cost to convert HOV connector to HOT lane due to no additional ITS elements or striping requirements. Note that the connector cost comes from a preliminary cost estimate and is subject to change.**
Total Corridor I-580				**20.9**	**10.2**			**20.9**	**21.0**			**$ 534.30**	**$ 83.75**	**$ 618.05**	
ALA	I-680	SR 84	Calveras/SR 237							14.0	13.3				
SC	I-680	Caleveras	US 101			9.0	9.0			9.0	9.0	$ -	$ 48.47	$ 48.47	**Medium Cost Option**
ALA	I-680	Alcosta Blvd	SR 84			10.6	10.5			10.6	10.5	$ 137.15	$ 56.82	$ 193.97	**Medium Cost Option, HOV estimate for portion of NB 680 equal to 6.5 million/lane mile $2006**
CC	I-680/80	HOV Connector										***No cost available at this time***			**No cost to convert HOV connector to HOT lane due to no additional ITS elements or striping requirements**
CC	I-680	N/O Waterfront (Benicia Bridge)	Alcosta Blvd.			1.2	3.6			27.2	25.9	$ 38.40	$ 12.93	$ 51.33	**Medium Cost Option, No PSR**
SOL	I-680	I-80	I-780			12.4	12.3			12.4	12.3	$ 197.60	$ 66.51	$ 264.11	**Medium Cost Option**
Total Corridor I-680						**33.2**	**35.4**			**73.2**	**71.0**	**$ 373.15**	**$ 184.72**	**$ 557.87**	
ALA	I-880	98th Ave	Marina (SB) and Lewellling (NB)			3.3	4.3					$ 26.00	$ 20.33	$ 46.33	**Medium Cost Option, No PSR**
SC	I-880	SR 237	US 101			3.3	4.3			31.5	31.5	$ -	$ 20.33	$ 20.33	**Medium Cost Option, No PSR**
ALA	I-880	I-880 SFOBB approach prior to off ramp to I-80 E	I-880 SFOBB approach prior to merge with I-80 W								1.8				
Total Corridor I-880						**6.5**	**8.6**			**31.5**	**33.3**	**$ 26.00**	**$ 40.66**	**$ 66.66**	
Sub-Total Lane Miles and Cost				**65.0**	**53.9**	**87.0**	**91.5**	**120.9**	**114.4**	**276.5**	**275.3**	**$ 2,609**	**$ 791**	**$ 3,400**	
Total Lane Miles all Directions/Total Upgrade Cost				**297.4**				**787.1**				*$ 11.43*	**$ 3,400**		

Note 1: Use $ 8 million per lane mile if no PSR is available

Note 2: HOT upgrade cost may be a combination of the different costing options (low, medium, high) or one option is chosen due to specific information available.

Note: All Costs are in 2006 Dollars (2006 $)

ATTACHMENT D: 2030 CONNECTED NETWORK (2015 Network Plus Segments Added Through 2030) CONSTRUCTION

County	Route	From	To	Total Lane Miles HOT Lane Network (2015+2030)				HOT Upgrade Cost (millions)	Total HOT Cost and HOV Cost	Comments
				WB	EB	SB	NB	Estimated Upgrade Costs (2)	(in Millions)	
CC	SR4	SR 160	I-680	19.4	19.1			$ 136.67	$ 213.89	**Medium to High Cost Option:** Soundwall to outside makes widening difficult.
CC	SR 4/I-68(	HOV Connector Facility						$ -	$ 75.00	No cost to convert HOV connector to HOT lane due to no additional ITS elements or striping requirements
Total Corridor SR4				**19.4**	**19.1**			**$ 136.67**	**$ 288.89**	
CC	I-80	Carquinez Bridge	Central Ave (Alameda County Line)	16.0	14.6			$ 134.85	$ 134.85	**High Cost Option:** Total median width about 6' throughout the corridor (2' either side pluss 2' median barrier). Approx. 10 bridge structures.
ALA	I-80	Central Ave (Alameda County Line)	Bay Bridge Toll Plaza	5.9	6.0			$ 52.44	$ 52.44	**High Cost Option:** Total median width about 6' throughout the corridor (2' either side pluss 2' median barrier). Approx. 10 bridge structures.
SOL	I-80	Yolo County Line	SR 37	32.7	32.5			$ 141.17	$ 662.77	Low and Medium Cost Option: Outside shoulder widths vary (10'-13') and the median shoulder width varies from 20' (south of SR 37) to 30' (north of Vallejo). 7 bridge structures
SOL	I-80	SR 37	Carquinez Bridge	4.6	4.6			$ 24.77	$ 98.37	**Medium Cost Option** HOV widening assumed to be funded in Transportation 2030 Plan
SOL	I-80	Air Base Pkwy IC	Suisun Valley Rd/I-680	6.6	6.7			$ 35.81	$ 35.81	**Medium Cost Option**
Total Corridor I-80				**65.8**	**64.4**			**$ 389.05**	**$ 984.25**	
ALA	SR 84	Newark Blvd	Paseo Padre/Thornton incl. Toll Plaza Dumbarton Bridge	3.5				$ 15.42	$ 15.42	**High Cost Option:** PSR describes only 1 mile of HOV widening with possible ROW take. No specific plan details.
Total Corridor SR 84				**3.5**				**$ 15.42**	**$ 15.42**	
SC	SR 85	US 101 (South San Jose)	US 101 (Mountain View)			26.5	26.3	$ 119.89	$ 119.89	**Medium Cost Option:** North of I-280 (approx 7 miles). **Low Cost Option and Medium Cost Option** south of I-280. Standard outside and inside shoulders
Total Corridor SR 85						**26.5**	**26.3**	**$ 119.89**	**$ 119.89**	
SC	SR 87	US 101	SR 85			9.1	9.2	$ 29.97	$ 29.97	**Low Cost Option:** Construction cost for the VTA HOV segment on this route (7 miles) was $68 Million. Input from VTA suggests using a low range cost to convert to HOT lane.
Total Corridor SR 87						**9.1**	**9.2**	**$ 29.97**	**$ 29.97**	
ALA	SR 92	Hesperian	Toll Plaza - San Mateo Bridge	1.6				$ 7.05	$ 7.05	**High Cost Option**
Total Corridor SR 92				**1.6**				**$ 7.05**	**$ 7.05**	
SM	US 101	Millbrae Ave	Whipple Ave			11.4	11.7	$ 101.80	$ 286.60	**High Cost Option:** Soundwalls to outside and minimal median shoulder.
SM	US 101	Whipple Ave	San Mateo/Santa Clara County Line			7.0	7.0	$ 61.70	$ 61.70	**High Cost Option:** Soundwalls to outside and minimal median shoulder.
SC	US 101	San Mateo/Santa Clara County Line	SR 25			49.9	48.6	$ 194.29	$ 377.19	**Low Cost Option:** South of San Jose to Cochrane, **High & Medium Cost Option:** From San Jose to north
MAR	US 101	SB 101/Seminary Ave & NB 101/SR1	San Antonio Rd			24.0	24.0	$ 133.44	$ 418.63	**Low and Medium Cost Option:** Novato, **High Cost Option**: Southern Marin. HOV widening from Petaluma to Novato assumed funded in Transporation 2030 Plan
SON	US 101	San Antonio Rd	Windsor River Rd			29.0	29.1	$ 156.99	$ 386.94	**Medium Cost Option**
Total Corridor US 101						**121.3**	**120.4**	**$ 648.21**	**$ 1,531.05**	
SC	SR 237	I-880	SR 85	9.7	9.9			$ 86.38	$ 131.18	**High Cost Option:** Outside shoulders 12'. Median shoulders vary from areas with 6' median shoulder to 10' -12' . Highway segment includes 11 bridge structures HOV widening from Mathilda to SR 85 assumed funded in Transportation 2030 Plan
Total Corridor SR 237				**9.7**	**9.9**			**$ 86.38**	**$ 131.18**	
SC	I-280	Magdalena Ave	US 101			15.0	15.3	$ 81.59	$ 81.59	**Medium Cost Option**
Total Corridor I-280						**15.0**	**15.3**	**$ 81.59**	**$ 81.59**	
ALA	I-580/680	HOV Connector						$ -	$ 325.00	No cost to convert HOV connector to HOT lane due to no additional ITS elements or striping requirements
ALA	I-580	San Joaquin County Line	I-680	20.9	21.0			$ 112.83	$ 322.13	**Medium Cost Option:** Roadway median already widen for future lane and shoulder. WB HOV from Greenville to Tassajara assumed funded in Transportation 2030 Plan
Total Corridor I-580				**20.9**	**21.0**			**$ 112.83**	**$ 647.13**	
SC	I-680	Caleveras	US 101			9.0	9.0	$ 48.47	$ 48.47	**Medium Cost Option**
SC	I-680	Alameda/Santa Clara County Line	Caleveras			2.5	2.5	$ 12.98	$ 12.98	**Medium Cost Option**
ALA	I-680	SR 84	Alameda/Santa Clara County Line			11.5	10.8	$ 57.83	$ 57.83	
ALA	I-680	Alcosta	SR 84			10.6	10.5	$ 56.82	$ 193.97	**Medium Cost Option**
CC	I-680/80	HOV Connector								No cost to convert HOV connector to HOT lane due to no additional ITS elements or striping requirements
CC	I-680	Marina Vista	Alcosta Blvd.			27.2	25.9	$ 142.99	$ 181.39	**Medium Cost Option**
SOL	I-680	I-80	I-780			12.4	12.3	$ 66.51	$ 264.11	**Medium Cost Option:** Standard outside shoulders with median shoulders varying from 10'-20'.
Total Corridor I-680						**73.2**	**71.0**	**$ 385.60**	**$ 758.75**	
ALA	I-880	98th Ave	Marina (SB) and Lewellling (NB)			28.3	27.2	$ 149.31	$ 175.31	**Medium Cost Option**
SC	I-880	SR 237	US 101			3.3	4.3	$ 20.33	$ 20.33	**Medium Cost Option**
ALA	I-880	16th Street	Merge with I-80 W				1.8	$ 6.39	$ 6.39	**Medium and High Cost Option;** Appears that median shoulder will be widened for future lane and shld.
Total Corridor I-880						**31.5**	**33.3**	**$ 176.03**	**$ 202.03**	
Sub-Total Lane Miles and Total Cost				**120.9**	**114.4**	**276.6**	**275.5**	**$ 2,189**	**$ 4,797**	
Total Lane Miles all Directions/Total Upgrade Costs including 2030HOV				**787.4**				**$ 4,797**		

Note 1: Use $ 8 million per lane mile if no PSR is available

Note 2: HOT upgrade cost may be a combination of the different costing options (low, medium, high) or one option is chosen due to specific information available.

Note: All Costs are in 2006 Dollars ($2006)

Attachment E: Bay Are HOT Network Phasing Plan - Corridor Opening Sequence

Opening Year	I-680 Group		SC/SM Group		I-80 Group		Marin-Sonoma		I-880	
	Corridor	Comment		Comment	Corridor	Comment	Corridor	Comment	Corridor	Comment
By 2015 for demo projects	**Calveras** Note this includes: (a) ALA-680 SB SR 84 to ALA/SCL County line and (b) SCL-680 SB ALA/SCL County line to Calaveras.	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2035	**SR 85 SC**	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2020						
	I-580 ALA EB from Hacienda to Greenville	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2035	**SR 101 SC from San Mateo/Santa Clara Co line to Cochrane**	Begins HOT lane operation with HOV requirement at 2+; HOV occupancy increases to 3+ in 2035						
2015					**I-80 ALA Central Ave (ALA Co line) to Bay Bridge Toll Plaza**	Begins HOT lane operation at 3+ and stays at 3+ (test in 2nd scenario even though lane appears full)			**SR 84 (bridge approach)**	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2025
			SR 87 from US 101 to SR 85	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2040	**I-80 CC Carquinez Bridge to Central Ave (ALA Co line)**	Begins HOT lane operation at 3+ and stays at 3+ (test in 2nd scenario even though lane appears full)			**SR 92 (bridge approach)**	Begins HOT lane operation at HOV requirement of 2+; HOV lane requirement stays at 2+
			SR 237 I-880 to Mathilda	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2035					**I-880 ALA 16th St to merge with I-80 W**	Begins HOT lane operation at 3+ and stays at 3+
	Calaveras. Note this includes: (a) ALA-680 NB SR 84 to ALA/SCL County line and (b) SCL-680 NB ALA/SCL county line to Calaveras.	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2035	**I-880 SC from SR 237 to US 101**	Begins HOT lane operation with HOV requirement at 2+; HOV occupancy increases to 3+ in 2030	**I-80 SOL from Airbase Parkway IC to SR 12**	Begins HOT lane function at HOV occupancy of 2+ and HOV occupancy increases to 3+ in 2040			**I-880 ALA/SC Marina to SR 237**	Begins HOT lane function at HOV occupancy of 2+ and HOV occupancy increases to 3+ in 2025
	SR 4 CC from SR 160 to Port Chicago Highway	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2040	**SR 237 SC Mathilda to SR 85**	Begins HOT lane at HOV requirement of 2+ and HOV requirement goes to 3+ in 2035	**I-80 SOL thru Vallejo (Carquinez Bridge through SR37)**	HOV occupancy of 2+ with HOV occupancy increase at Carquinez bridge; HOV occupancy requirement increases to 3+ in 2040			**I-880 ALA 98th to Marina/Lewelling**	Begins HOT lane function at HOV occupancy of 2+ and HOV occupancy increases to 3+ in 2025
	I-680 CC from Benicia Bridge to Alcosta. Includes segments described as: Marina Vista to Alcosta (in E&F), N/O Waterfront (Benicia Bridge) to Alcosta (Connected Network); and NB segment between Rudyear and North Main (Connected Network)	Begins HOT lane operation when HOV lane requirement increases to 3+ in 2020	**US 101 SM Whipple to County Line**	Begins HOT lane function with HOV lane at 2+ and HOV goes to 3+ at 2035 due to SC 101 segment						
	I-580 ALA WB SJ Co to I-680	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2035	**I-280 SC from Magdalena to Leland Ave**	Begins operation with HOV lane at 2+ and HOV goes to 3+ at 2035						
	I-580 ALA EB Greenville to SJ Co	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2035								
	SR 4 CC from Port Chicago Hwy to I-680	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2040								
	SR4/I-680 CC HOV Connector Facility									
	I-680 ALA from Alcosta to SR 84	HOV requirement at 3+ due to adjoining segment of I-680 being at 3+								
2020	**I-580/I-680 ALA Connector**									
	I-680 SOL from I-80 to I-780	Begins HOT Lane operation with HOV lane requirement at 2+	**US 101 SC Cochrane to SR 25**	Begins operation with HOV lane at 2+ and HOV stays at 2+	**I-80 SOL from SR 37 to SR 12 and from Airbase Parkway to Yolo Co line**	Begins HOT lane operation with HOV requirement at 2+; HOV requirement increases to 3+ in 2040	**US 101 Marin SB 101/Seminary and NB 101/SR 1 to SR 37**	Begins HOT lane operation with HOV requirement at 3+		
	I-680/I-80 SOL Connector		**US 101 SM Whipple to Millbrae**	Begins HOT lane at HOV requirement of 2+ and HOV requirement goes to 3+ in 2040			**US 101 Marin SR 37 to San Antonio Road**	Begins HOT lane operation with HOV requirement at 3+ (5 years earlier than the HOV volumes would suggest going to 3+)		
			I-680 Calaveras to US 101	Begins HOT lane at HOV requirement of 2+ and HOV requirement goes to 3+ in 2035			**US 101 Sonoma San Antonio Road to Old Redwood Highway**	Begins HOT lane operation with HOV requirement at 3+ (5 years earlier than the HOV volumes would suggest going to 3+)		
2025			**I-280 SC from Leland to US 101**	Begins operation with HOV lane at 2+ and HOV goes to 3+ at 2035			**US 101 Sonoma Old Redwood Hwy to Windsor River Rd**	Begins HOT lane operation with HOV requirement at 3+		

Attachment G: Unit Costs for "Rapid Delivery" HOT Network Approach

MTC UNIT COST COMPARISON FOR HOT LANE NETWORK - Conversion, Low, Medium, and High Range Costs Per Lane Mile

	Converted HOV to HOT Lanes[1]		Added HOT Lanes/Low Cost[2]		Added HOT Lanes/Medium Cost to inside[3]		Medium Cost-widening includes to outside[4]		High Cost[5]	
Item	Lane Mile Cost	Comments/Assumptions	Lane Mile Cost	Comments/Assumptions	Lane Mile Cost	Comments/Assumptions	Lane Mile Cost	Comments/Assumptions	Lane Mile Cost	Comments/Assumptions
Roadway Excavation			$ 220,000		$ 150,000		$ 135,000		$ 135,000	
Aggregate Base			$ 420,000		$ 300,000		$ 265,000		$ 265,000	
Asphalt Concrete			$ 640,000		$ 450,000		$ 400,000		$ 400,000	
Drainage Modifications			$ 65,000		$ 65,000	Inlet modifications	$ 65,000	Inlet modifications	$ 65,000	Inlet modifications etc. along shoulder
Metal Beam Guardrailing							$ 42,000	Replace 25% per lane mile	$ 42,000	Replace 25% per lane mile
Concrete Barrier[5]	$ -		$ 175,000	Remove/Replace	$ 175,000	Remove/Replace				
Temporary K-rail			$ 22,500	0.25 mile of placement per mile	$ 22,500	0.25 mile of placement per mile	$ 45,000	0.5 mile of placement per mile	$ 45,000	0.5 mile of placement per mile
Temporary Striping	$ -		$ 2,000		$ 4,000		$ 5,000		$ 5,000	
Remove Striping			$ 3,000		$ 8,000		$ 10,000		$ 10,000	
Permanent Striping	$ -				$ 16,000		$ 20,000		$ 20,000	
Traffic Markings for HOT lanes	$ 3,000		$ 3,000		$ 3,000		$ 3,000		$ 3,000	
HOT Lane Striping	$ 15,000		$ 15,000		$ 15,000		$ 15,000		$ 15,000	
Enforcement Area	$ 40,000	Use of median shoulder every 4 miles	$ 40,000	Use of median shoulder every 4 miles	$ 40,000	Use of median shoulder every 4 miles	$ 40,000	Use of median shoulder every 4 miles		Assume no room for enforcement areas
Misc.Sign Allowance	$ 10,000	Small signs posted on median barrier	$ 10,000	Small signs posted on median barrier	$ 10,000	Small signs posted on median barrier	$ 10,000	Small signs posted on median barrier	$ 10,000	Small signs posted on median barrier
Guide Sign Allowance	$ 22,500	3 prior to start of each HOT every 10 miles	$ 22,500	3 prior to start of each HOT every 10 Miles	$ 22,500	3 prior to start of each HOT every 10 Miles	$ 22,500	3 prior to start of each HOT every 10 Miles	$ 22,500	3 prior to start of each HOT every 10 miles
CMS/VMS	$ 37,500	1 per 4 lane mile @ 150,000 ea.	$ 37,500	1 per 4 lane miles @ 150,000 ea.	$ 37,500	1 per 4 lane miles @ 150,000 ea.	$ 37,500	1 per 4 lane miles @ 150,000 ea.	$ 37,500	1 per 4 lane miles @ 150,000 ea.
Utility Relocation Allowance							$ 40,000		$ 40,000	
Sign Relocation/Adjustment Allowance							$ 30,000		$ 30,000	
Structure Modification	$ -		$ -	None Assumed	$ 1,000,000	$500/sq.ft due to addition of substructure, assume 2000 sq ft widening/mile	$ 1,250,000	$500/sq.ft due to addition of substructure, assume 2500 sq ft widening/mile	$ 1,250,000	$500/sq.ft due to addition of substructure, assume 2500 sq ft widening/mile
Sound Walls	$ -		$ -	None Assumed	$ -	None Assumed	$ 2,300,000	70% of corridor	$ 2,300,000	70% of corridor
Retaining Walls							$ 50,000	Assume 500 sq ft/mile	$ 50,000	Assume 500 sq ft/mile
ITS Elements	$ 400,000		$ 400,000		$ 400,000		$ 400,000		$ 400,000	
Sub-total	**$ 528,000**		**$ 2,075,500**		**$ 2,718,500**		**$ 5,185,000**		**$ 5,145,000**	
Mobilization 10%	$ 52,800		$ 207,550		$ 271,850		$ 518,500		$ 514,500	
Contingency	$ 116,160	Assume 20%	$ 684,915	Assume 30%	$ 897,105	Assume 30%	$ 1,711,050	Assume 30%	$ 2,263,800	40% Contingency; greater uncertainty with ROW acquisition and structure replacement
Total	**$ 696,960**		**$ 2,967,965**		**$ 3,887,455**		**$ 7,414,550**		**$ 7,923,300**	
Traffic Management	$ 69,696	Assume 10% of total	$ 296,797	Assume 10% of total	$ 388,746	Assume 10% of total	$ 519,019	Assume 7% of total	$ 554,631	Assume 7% of total
BMP/Erosion Control	$ 6,970	Assume 1% of total	$ 59,359	Assume 2% of total	$ 77,749	Assume 2% of total	$ 148,291	Assume 2% of total	$ 158,466	Assume 2% of total
Design and Construction Management	$ 139,392	Assume 20% of total	$ 593,593	Assume 20% of total	$ 777,491	Assume 20% of total	$ 1,482,910	Assume 20% of total	$ 1,584,660	Assume 20% of total
Contingency	$ 181,210	Assume 20%	$ 771,671	Assume 20%	$ 1,010,738	Assume 20%	$ 1,883,296	Assume 20%	$ 2,012,518	Assume 20%
Grand Total	**$ 1,094,000**		**$ 4,689,000**		**$ 6,142,000**		**$ 11,448,000**		**$ 12,234,000**	

[1] Assumes no additional pavement or structure widening required, no buffer is accounted for between HOT lane and GP Lanes
[2] Assumes 12' lane, 10' shoulder, 4' buffer (total widening 27')
[3] Assumes 12' lane, 2' shoulder, 4' buffer (total widening 19')
[4] Assumes 12' lane, 2' shoulder, 4' buffer, general purpose lanes reduced to 11' (total widening 17')
[5] 50% of Cost, Assumes companion side will include other 50%
Costs of environmental mitigation not included.