

TECHNICAL APPENDIX 9 PROJECT COST ESTIMATES

Introduction

Project cost estimates are developed by SANDAG in coordination with Caltrans, MTDB, NCTD, and the Cities and County. Summaries of the cost estimates used in the 2030 RTP are presented below.

Discussion

Arterial System Cost Summary

SANDAG has identified three levels of regional arterial networks: (1) 103 miles of arterials in the Congestion Management Program (CMP) network; (2) 343 miles of arterials in the Regionally Significant Transportation Network; and (3) 777 miles in the Regional Arterial System.

The 40 arterial widening and extension projects shown in Table TA 9.1 are part of the Regionally Significant Transportation Network and would add 136 lane-miles. At an average cost of \$5 million per added lane-mile, the projects would cost \$680 million. The estimated cost to finish interconnecting all traffic signals on the Regional Arterial System is \$10 million. (A total of \$30 million of Congestion Mitigation and Air Quality (CMAQ) funds were previously provided by SANDAG for this purpose). The estimated cost to install permanent traffic monitoring stations on the Congestion Management Program (CMP) network is \$10 million. This brings the total estimated regional arterial cost to \$700 million (see Table TA 9.2). A combination of local, state, and federal funds would be used to fund this effort.

**TABLE TA 9.1—CITIES/COUNTY PROPOSED ARTERIAL WIDENING AND EXTENSION
REGIONALLY SIGNIFICANT TRANSPORTATION NETWORK**

ARTERIAL	LIMITS	TYPE	JURISDICTION
1	Balboa Ave.	Kearny Villa Rd. - Ruffin Rd.	Widen City of San Diego
2	Bear Valley Pkwy.	Canyon Rd. - Valley Pkwy.	Widen City of Escondido
3	Black Mountain Rd.	Mercy Rd. - Mira Mesa Blvd.	Widen City of San Diego
4	Black Mountain Rd.	Emden Rd. - Carmel Valley Rd.	Extend City of San Diego
5	Cannon Rd.	Hidden Valley Rd. - Frost Rd.	Extend City of Carlsbad
6	Cannon Rd.	El Camino Real - Mystra Dr.	Extend City of Carlsbad
7	Cannon Rd.	Melrose Dr. - SR 78	Extend County of San Diego
8	Citracado Pkwy.	I-15 - Scenic Trail Way	Extend City of Escondido
9	Citracado Pkwy.	Ave.nida Del Diablo - VineyaRd. Ave.	Extend City of Escondido
10	College Ave.	Montezuma Rd. - Alvarado	Widen City of San Diego
11	College Blvd.	El Camino Real - Carlsbad Village Dr.	Extend City of Carlsbad
12	College Blvd.	SR 78 - Town Center	Widen City of Oceanside
13	Deer Springs Rd.	I-15 - Twin Oaks Valley Rd.	Widen County of San Diego
14	Del Dios Hwy	Via Rancho Pkwy. - Valley Pkwy.	Widen City of Escondido
15	East Valley Pkwy.	East Valley Blvd. - Bear Valley Pkwy.	Widen City of Escondido
16	El Camino Real	Camino Santa Fe - El Camino Real	Widen City of San Diego
17	El Camino Real	Manchester Ave. - Tamarack Ave.	Widen City of Carlsbad
18	El Camino Real	Tamarack Ave. - SR-76	Widen City of Oceanside
19	Friars Rd.	Colusa St - Via Las Cumbres	Widen City of San Diego
20	Friars Rd.	SR-163 - Frazee Rd.	Widen City of San Diego
21	Genesee Ave.	I-5 to Campus Point Dr.	Widen City of San Diego
22	Genesee Ave.	Osler St - Marlesta Dr.	Widen City of San Diego
23	H Street	Bonita Vista High - Otay Lakes	Widen City of Chula Vista
24	Harbor Dr.	Pacific Hwy - California St.	Widen City of San Diego
25	Heritage Rd.	Airway Rd. - Siempre Viva Rd.	Extend City of San Diego
26	Jamacha Blvd.	Omega St - Pointe Pkwy.	Widen County of San Diego
27	Kearny Villa Rd.	SR 52 - Ruffin Rd.	Widen City of San Diego
28	Manchester Ave.	I-5 - Lux Canyon Dr.	Widen City of Encinitas
29	Melrose Dr.	Spur Ave. - N Santa Fe Ave.	Extend City of Oceanside
30	Melrose Dr.	Aspen Way - Palomar Airport Rd.	Extend City of Carlsbad
31	Mission Ave.	Enterprise St - Centre City Pkwy.	Widen City of Escondido
32	Oceanside Blvd.	Oceanside Blvd. - Rancho Del Oro	Widen City of Oceanside
33	Siempre Viva Rd.	Heritage Rd. - La Media Rd.	Widen City of San Diego
34	South Santa Fe Ave.	Mar Vista Dr. - Bosstick Blvd.	Widen County of San Diego
35	Torrey Pines Rd.	N. of Callan Rd. - S. of Carmel Valley Rd.	Widen City of San Diego
36	Twin Oaks Valley Rd.	CrAve.n Rd. - Rancho Santa Fe Rd.	Extend City of San Marcos
37	Twin Oaks Valley Rd.	Deer Springs Rd. - CrAve.n Rd.	Widen City of San Marcos
38	Via de la Valle	Camino Santa Fe - El Camino Real	Widen City of San Diego
39	Vista Sorrento Pkwy.	Rose Coral Rw - Sorrento Valley Blvd.	Extend City of San Diego
40	Vista Way	Emerald Dr. - Melrose Dr.	Widen City of Vista

TABLE TA 9.2—REGIONAL ARTERIAL COSTS

Network Arterial Widening and Extension	\$680 million
Regional Arterial System Traffic Signal Interconnection	\$10 million
Congestion Management Program Traffic Monitoring Stations	\$10 million
Total	\$700 million

Highway System Cost Summary

There are approximately 600 miles of state highways in the San Diego region. Approximately 300 miles are freeways and expressways, and the remaining 300 miles are conventional highways. A combination of federal, state, and local funds would be used to complete and expand the existing system of freeways, expressways, and conventional highways.

The cost of completing or expanding the existing highway network is influenced by a number of factors. Right of way, terrain, mitigation of environmental impacts, construction complexity, and other factors all have an affect on the average cost per mile of new or expanded facilities. The cost to design, acquire right of way, and construct a mile of a single lane (known as a lane-mile) can vary significantly. Average costs per lane-mile included in Table 9.3 range from approximately \$5 million to \$20 million. There are much higher cost estimates for some projects, such as the widening of Central I-5 through downtown San Diego or the widening of the I-805 Mission Valley Viaduct, which have high right of way costs, complex structural work, and other factors. Lower average costs tend to occur typically with widening of highways that can be accommodated within the existing rights of ways and with minimal earthwork.

Table 9.4 was major highway capital costs for the Mobility Network.

TABLE TA 9.3—ESTIMATED HIGHWAY COSTS

HOV and Managed Lane Facilities								Cost (millions)			
Route	From	To	Existing	Improvement	Length (miles)	Added Lane-Miles	Cost per Lane-Mile	Construction	Right of Way	Engineering	Total Cost*
I-5	SR 905	SR 54	8F	8F+2HOV	6.3	12.6	\$11	\$82	\$25	\$25	\$130
I-5	SR 54	I-15	8F	8F+2HOV	3.5	7.0	\$28	\$109	\$46	\$42	\$200
I-5	I-15	I-8	8F	10F	7.4	14.8	\$34	\$296	\$104	\$104	\$500
I-5	I-8	I-805	8F	10F+2HOV	10.9	43.6	\$10	\$262	\$87	\$87	\$440
I-5	I-8	I-805	8F	8F+2HOV	10.9	21.8	\$10	\$131	\$44	\$44	\$220
I-5	Del Mar Heights	Vandegrift	8F	8F+4ML	20.3	81.2	\$11	\$560	\$162	\$162	\$890
I-5	Del Mar Heights	SR 78	8F	8F+4ML	17.1	68.4	\$10	\$410	\$137	\$103	\$650
I-5	Vandegrift	Orange Co.	8F	8F+2HOV	18	36.0	\$5	\$137	\$11	\$29	\$180
I-8	SR 125	SR 67	8F	8F+2HOV	4.1	8.2	\$8	\$41	\$12	\$12	\$70
I-8	SR 67	Second St	6F	6F+2HOV	2.1	4.2	\$11	\$27	\$10	\$8	\$50
I-8	Second Street	Los Coches	4F	6F	3.3	6.6	\$10	\$40	\$13	\$13	\$70
I-15	SR 94	SR 163	6F/8F	8F+2HOV	10	20.0	\$10	\$100	\$70	\$26	\$200
I-15	I-5	SR 94	6F	8F	2.3	4.6	\$8	\$21	\$7	\$7	\$30
I-15	SR 163	SR 78	8F	8F+4ML/MB	19.4	77.6	\$9	\$388	\$155	\$116	\$660
I-15	SR 78	Riverside Co.	8F	8F+2HOV	22.7	45.4	\$3	\$118	\$5	\$23	\$150
I-15	Centre City Pkwy.	Riverside Co.	8F	6F+2HOV	20.4	13.5	\$3	\$28	\$1	\$5	\$40
I-15	SR 78	Riverside Co.	8F	6F+2HOV (Restripe)	22.7	45.4	\$0	\$2.0	\$0.0	\$0.5	\$2.5
I-15	SR 78	Centre City Pkwy.	8F	8F+2HOV	2.6	5.2	\$3	\$14	\$1	\$3	\$20
SR 52	I-5	I-805	4F	6F	2.85	5.7	\$14	\$65	\$1	\$13	\$80
SR 52	I-805	SR 125	4F	6F+2ML (Reversible)	11	37.0	\$6	\$166	\$7	\$48	\$220
SR 54/SR 125	I-5	SR 94	6F/4F+2HOV	6F+2HOV	10.2	20.4	\$5	\$65	\$10	\$20	\$100
SR 56	I-5	I-15	4F	6F+2HOV	9.2	36.8	\$5	\$140	\$7	\$29	\$180
SR 94/SR 125	I-5	I-8	8F/6F	8F+2HOV	12.3	30.8	\$16	\$292	\$108	\$101	\$500
SR 125	Telegraph Cyn.	San Miguel Road	4T	6T	3	6.0	\$4	\$18	\$2	\$5	\$30
SR 241	Orange Co.	I-5	4F	4F+2HOV	6.6	13.2	\$9	\$86	\$5	\$26	\$120
I-805	SR 905	SR 54	8F	8F+4ML/MB	7.05	28.2	\$11	\$183	\$56	\$56	\$300
I-805	SR 54	I-8	8F	8F+4ML/MB	8.8	35.2	\$13	\$246	\$130	\$70	\$450
I-805	Mission Valley Viaduct		8F	8F+4ML/MB	0.75	3.0	\$84	\$195	\$12	\$45	\$250
I-805	I-8	I-5	8F	8F+4ML/MB	10.1	40.4	\$10	\$242	\$81	\$81	\$400

*Total Cost is rounded to nearest \$10 million.

Transit System Cost Summary

Implementation of the transit services included in MOBILITY 2030 depends on a combination of roadway and transit capital improvements (see Table TA 9.5). For transit services operating on freeways, Managed/HOV Lanes are required in order for transit to operate in uncongested conditions. A number of Direct Access Ramps also are included that will enable transit vehicles to exit and enter these Managed/HOV facilities directly from the transit stations. There are 25 pairs of Direct Access Ramps totaling \$1,085 billion. These costs were estimated in conjunction with Caltrans and MTDB.

For transit services operating on arterials, there are a number of improvements, such as signal priority treatments, queue jumper lanes, and grade separated intersections. MOBILITY 2030 assumes that all signals have the ability to give transit vehicles priority at intersections. These signal costs, as well as software costs for each jurisdiction, are based on work done by the Metropolitan Transit Authority in Los Angeles in their bus rapid transit efforts. Twenty-five percent of intersections also are assumed to include special queue jumper lanes that allow the transit vehicle to move out ahead of the traffic queue. The costs are estimated from recent similar projects completed by MTDB. Thirty-five intersections are assumed to be grade separated. These costs are based on recent studies, such as SANDAG's North Coast Transportation Study.

There are three extensions planned for the San Diego Trolley. Construction is underway on the Mission Valley East light rail segment by MTDB. NCTD has received a full funding grant agreement from the federal government for the Oceanside-Escondido Rail project. Costs for double tracking the rail line were developed in conjunction with NCTD staff. The proposed Oceanside-Escondido rail extension to North County Fair is based on costs originally developed for the 2020 RTP. The MidCoast light rail segment is currently under study by MTDB. Costs for both the Balboa Segment and the University City extension of MidCoast have been developed by MTDB.

Two grade separated transitways dedicated to transit have been included in MOBILITY 2030 and are used by several Regional and Corridor Services. The Sorrento Mesa Transitway is an 8.1-mile transitway in the Sorrento Mesa/University City area of San Diego. The Kearny Mesa Transitway is a four-mile transitway paralleling I-15 between Qualcomm Stadium and SR 52. Costs for these projects are estimated and will be refined with subsequent project analysis by SANDAG, Caltrans, and MTDB.

A total of \$420 million in improvements are planned for the coastal rail corridor. These include a number of grade separations, double tracking, sidings, and other improvements along the coastal rail line between Orange County and downtown San Diego. These costs were developed by Amtrak for the California Passenger Rail System 20-year Improvement Plan Technical Report released in March 2001. Two tunnels are included for the coastal rail corridor in the Del Mar and University City areas in order to remove the tracks from sensitive coastal bluff areas and improve the capacity and reliability of the rail line. These costs also were developed as part of the Amtrak study and are estimated at \$1.25 billion for both tunnels. Note that for both the coastal rail double tracking improvements and coastal rail tunnels, 25 percent of these costs are assumed from local sources. The remaining 75 percent is assumed to be funded by Amtrak and Caltrans for the corridor and from new sources such as the California High-Speed Rail Authority.

TABLE TA 9.4—MAJOR HIGHWAY CAPITAL IMPROVEMENTS – MOBILITY NETWORK

HOV and Managed Lane Facilities								Cost (millions)			
Route	From	To	Existing	Improvement	Length (miles)	Added Lane-Miles	Cost per Lane-Mile	Construction	Right of Way	Engineering	Total Cost*
I-5	SR 905	SR 54	8F	8F+2HOV	6.3	12.6	\$11	\$82	\$25	\$25	\$130
I-5	SR 54	I-8	8F	8F+2HOV	10.3	30.9	\$29	\$464	\$278	\$155	\$900
I-5	I-8	I-805	8F	10F+2HOV	10.9	43.6	\$10	\$262	\$87	\$87	\$440
I-5	I-805	SR 56	16F	16F+4ML	2.3	9.2	\$3	\$26	\$2	\$4	\$30
I-5	SR 56	Leucadia Blvd.	8F	10F+4ML	9.8	58.7	\$9	\$323	\$106	\$106	\$530
I-5	Leucadia Boulevard	Vandegrift	8F	8F+4ML	11.2	44.8	\$8	\$242	\$67	\$63	\$370
I-8	SR 125	SR 67	8F	8F+2HOV	4.1	8.2	\$16	\$87	\$21	\$21	\$130
I-8	SR 67	Second Street	6F	6F+2HOV	2.1	4.2	\$10	\$25	\$10	\$8	\$40
I-15	SR 94	SR 163	6F/8F	8F+2HOV	10	20.0	\$10	\$100	\$70	\$26	\$200
I-15	SR 163	Centre City Pkwy.	8F	8F+4ML/MB	15.3	61.0	\$9	\$317	\$122	\$98	\$540
I-15	Centre City Pkwy.	SR 78	8F	8F+4ML	4.13	16.5	\$7	\$74	\$26	\$20	\$120
SR 52	I-805	I-15	6F	6F+2HOV	3.5	7.0	\$10	\$49	\$7	\$14	\$70
SR 52	I-15	SR 125	4F	6F+2ML (Reversible)	7.4	29.6	\$6	\$130	\$6	\$38	\$170
SR 54/SR 125	I-5	SR 94	6F/4F+2HOV	6F+2HOV	10.2	20.4	\$6	\$71	\$16	\$31	\$120
SR 56	I-5	I-15	4F	6F+2HOV	9.2	36.8	\$5	\$140	\$7	\$29	\$180
SR 78	I-5	I-15	6F	6+2HOV	16.5	33.0	\$15	\$257	\$165	\$73	\$500
SR 94/SR 125	I-5	I-8	8F/6F	8F+2HOV	12.3	30.8	\$16	\$292	\$108	\$101	\$500
SR 241	Orange Co.	I-5	--	4F+2HOV	6.6	39.6	\$11	\$238	\$99	\$79	\$420
I-805	SR 905	SR 54	8F	8F+4ML	7.05	28.2	\$11	\$183	\$56	\$56	\$300
I-805	SR 54	I-8	8F	8F+4ML	8.8	35.2	\$13	\$246	\$130	\$70	\$450
I-805	Mission Valley Viaduct		8F	8F+4ML	0.75	3.0	\$84	\$195	\$12	\$45	\$250
I-805	I-8	I-5	8F	8F+4ML	10.1	40.4	\$10	\$238	\$73	\$73	\$380

*Total Cost is rounded to nearest \$10 million.

\$6,770

HOV to HOV Connections							Cost (millions)			
Freeway	Intersecting Freeway	Existing	Improvement			Construction	Right of Way	Engineering	Total Cost*	
I-5	I-805	--	N to N, S to S			\$0	\$0	\$0	\$180	
I-15	SR 78	--	E to S, N to W			\$0	\$0	\$0	\$200	
I-15	SR 94	--	S to W, E to N			\$0	\$0	\$0	\$150	
I-805	SR 52	--	W to N, S to E			\$0	\$0	\$0	\$150	

*Overall cost provided for HOV to HOV connections

\$680

Highway System Completion								Cost (millions)			
Route	From	To	Existing	Improvement	Length (miles)	Added Lane-Miles	Cost per Lane-Mile	Construction	Right of Way	Engineering	Total Cost*
I-5	805 Realignment				0	1.0	\$20	\$11	\$6	\$3	\$20
SR 11	SR 905	Mexico	--	4F	4	16.0	\$12	\$120	\$32	\$40	\$190
SR 52	SR 125	SR 67	--	4F	3.1	12.4	\$24	\$119	\$131	\$43	\$290
SR 56	Camino Ruiz	Carmel Country	--	4F	4.8	19.2	\$7	\$65	\$42	\$23	\$130
SR 125	SR 905	San Miguel Road	--	4T	9.5	38.0	\$11	\$179	\$171	\$49	\$400
SR 125	San Miguel Road	SR 54	--	4F	1.6	6.4	\$22	\$90	\$24	\$28	\$140
SR 125	Jamacha Road	SR 94	--	6F	2	12.0	\$14	\$96	\$48	\$22	\$170
SR 125	Navajo Road	Grossmont	--	6F	1.4	8.4	\$9	\$28	\$40	\$6	\$70
SR 905	I-805	Mexico	--	6F	6.3	37.8	\$8	\$181	\$68	\$42	\$290

*Total Cost is Rounded to Nearest \$10 million.

\$1,700

Highway and Arterial Widening								Cost (millions)			
Route	From	To	Existing	Improvement	Length (miles)	Added Lane-Miles	Cost per Lane-Mile	Construction	Right of Way	Engineering	Total Cost*
I-5	805 Merge		10F	16F	10.3	41.2	\$5	\$144	\$16	\$29	\$190
I-8	Second St	Los Coches	4F	6F	3.3	6.6	\$5	\$144	\$33	\$33	\$30
SR 52	I-5	I-805	4F	6F	2.85	5.7	\$14	\$470	\$4	\$95	\$80
SR 67	Mapleview Street	Dye Road	2C	4C	15.9	31.8	\$8	\$159	\$25	\$57	\$240
SR 75/ SR 282	Glorietta Boulevard	Alameda Blvd.	6C	6C+2TL	1.7	3.5	\$85	\$209	\$35	\$52	\$300
SR 76	Melrose Drive	I-15	2C	4C	8.8	17.6	\$10	\$116	\$21	\$39	\$180
SR 94	SR 125	Jamacha Road	4F/4C	6F	4.5	9.0	\$7	\$49	\$5	\$12	\$70
SR 94	Jamacha Road	Steele Cyn Road	2C	4C	2.5	5.0	\$5	\$15	\$4	\$5	\$20
SR 125	SR 905	San Miguel Road	4T	8T	9.5	38.0	\$3	\$84	\$8	\$23	\$110
SR 125	San Miguel Road	SR 54	4F	8F	1.6	6.4	\$9	\$37	\$5	\$13	\$60
Regionally Significant Arterials			Various		0	0.0		\$340	\$75	\$85	\$500

*Total Cost is rounded to nearest \$10 million.

\$1,780

Freeway to Freeway Connections						Cost (millions)			
	Freeway	Intersecting Freeway	Existing	Improvement		Construction	Right of Way	Engineering	Total Cost*
	I-5	I-8	--	E to N, S to W		\$135	\$25	\$40	\$200
	I-5	SR 56	--	W to N, S to E		\$85	\$30	\$25	\$140
	I-5	SR 78	--	W to S, S to E		\$100	\$30	\$20	\$150
	SR 94	SR 125	--	W to N, S to E		\$67	\$23	\$16	\$110

*Total Cost is rounded to nearest \$10 million.

\$600

TABLE TA 9.5—TRANSIT CAPITAL COSTS

1. Direct Access Ramps

<i>Project</i>	<i>Environmental</i>	<i>Right of Way</i>	<i>Construction</i>	<i>Contingency/ Other</i>	<i>Total Cost (millions)</i>
I-5/Manchester Avenue	\$3	\$15	\$18	\$9	\$45
I-5/Del Mar Heights Road	\$4	\$20	\$20	\$6	\$50
I-5/San Ysidro	\$1	\$10	\$25	\$9	\$45
I-8/Magnolia Drive	\$2	\$5	\$12	\$6	\$25
I-15/Hale Street	\$1	\$2	\$10	\$7	\$20
I-15/Del Lago	\$1	\$2	\$20	\$7	\$30
I-15/Rancho Bernardo	\$1	\$2	\$18	\$9	\$30
I-15/Ted Williams Parkway	\$1	\$2	\$18	\$9	\$30
I-15/Mira Mesa (Hillery) DAR	\$1	\$2	\$22	\$10	\$35
I-15/Stadium Transit Center	\$4	\$20	\$30	\$16	\$70
I-15/Imperial Avenue	\$1	\$8	\$20	\$11	\$40
I-15/National Avenue	\$3	\$20	\$30	\$17	\$70
SR 52 Kearny Mesa Transitway	\$1	\$1	\$35	\$13	\$50
I-805 and UTC Transit Center	\$1	\$3	\$20	\$6	\$30
I-805/Nobel Drive	\$1	\$3	\$15	\$6	\$25
I-805/H Street Transit Center	\$2	\$5	\$18	\$10	\$35
I-805/47th St Trolley Station	\$3	\$12	\$20	\$10	\$45
I-805/Palomar Drive	\$2	\$20	\$20	\$3	\$45
I-805/Plaza Blvd	\$2	\$14	\$18	\$11	\$45
SR 52/Cuyamaca St	\$3	\$40	\$35	\$22	\$100
SR 54/Plaza Bonita and I-805/Plaza Bonita	\$5	\$15	\$40	\$15	\$75
SR 94/30th St	\$2	\$10	\$14	\$9	\$40
SR 905/Otay Mesa Road	\$1	\$3	\$18	\$8	\$30
Sea World Access Ramps to Station					\$70
					<u>\$1,080</u>

2. Light Rail Transit

	<i>At opening</i>	<i>Additional Segments</i>	<i>Double- tracking</i>	<i>Total Cost (millions)</i>
Mission Valley East Light Rail Extension	\$450			\$450
MidCoast Light Rail Transit Line	\$140	\$450		\$590
Oceanside-Escondido Rail	\$350	\$90	\$80	\$520
				<u>\$1,560</u>

3. Grade-Separated Transitways

	<i>Total Cost (millions)</i>
Sorrento Mesa Transitway	\$500
Kearny Mesa Transitway	\$300
	<u>\$800</u>

4. Coastal Rail Doubletracking and other Improvements

	<i>Total Cost (millions)</i>
Project Development:	\$62
Right of Way:	\$0
Trackwork/Structures:	\$276
Stations:	\$24
Signal/Systems:	\$37
Grade Crossings:	\$21
	<u>\$420</u>

5. Coastal Rail Tunnels

	<i>Total Cost (millions)</i>
<i>Del Mar Tunnel:</i>	
Project Development:	\$47
Right of Way:	\$0
Trackwork/Structures:	\$300
Stations:	\$0
Signal/Systems:	\$3
Grade Crossings:	\$0
	\$350
<i>University City Tunnel:</i>	
	<i>Total Cost (millions)</i>
Project Development:	\$120
Right of Way:	\$0
Trackwork/Structures:	\$779
Stations:	\$0
Signal/Systems:	\$1
Grade Crossings:	\$0
	\$900

6. Stations

	<i>Cost Per Station</i>	<i>Number of Stations</i>	<i>Total Cost(millions)</i>
New Regional (Yellow Car) Station:	\$12.5	42	\$525
New Corridor (Red Car) Station:	\$8.5	123	\$1,046
Improved Existing Regional Station:	\$3	17	\$51
Improved Existing Corridor Station	\$1	50	\$50
			\$1,670

7. Vehicles

	<i>Cost</i>	<i>Total Cost (millions)</i>
Standard/Flextrolley:	\$750,000 per vehicle x 435 vehicles	\$325
Light Rail Vehicle:	\$3,000,000 per vehicle x 50 vehicles	\$175
Commuter/Heavy Rail Vehicle:	\$12,500,000 per trainset x 4 trainsets	\$50
		\$550

8. Arterial Improvements

	<i>Cost</i>	<i>Total Cost (millions)</i>
Signal Priority	\$25,000 per signal x 200 signals	\$5
Queue Jumper Lanes	\$750,000 per queue jumper x 50 each	\$35
Grade Separations	\$25,000,000 per intersection x 34 each	\$850
		\$890

9. Other

	<i>Cost</i>	<i>Total Cost (millions)</i>
Other Regional Rail Grade Separations	\$25,000,000 x 8 each	\$200
Early Action Projects		\$80
		\$280

Total Transit Capital Cost (millions): \$8,500