

SECTION 10

CAPITAL IMPROVEMENT PROGRAM

10-1 GENERAL

The primary goal of the Capital Improvement Program (CIP) is to provide the City of Seal Beach with a long-range planning tool for implementing its storm drain infrastructure improvements in an orderly manner, and as a basis for financing these improvements.

The recommended improvements are based upon the information currently available. With the exception of the Seal Beach Storm Drain (OCFCD Facility No. C00P02) and the Seal Beach Pump Station (C00PS1), this study did not include the Orange County Flood Control District system. Therefore, prior to the development of final plans and specifications, preliminary design studies including detailed hydrologic and hydraulic studies should be conducted. These studies should include the determination of the control water surface elevations, the capacity available at the OCFCD facilities, as well as the OCFCD facility precise horizontal and vertical alignments and sizes.

If capacity is not available in either the City or County storm drains, new developments and redevelopment projects that may increase runoff should provide on-site or off-site detention to mitigate the impact of their projects.

All new development projects or redevelopment that would increase runoff must prepare a sub-area master plan detailing how the drainage from the development/redevelopment would be conveyed to a regional facility. The sub-area master plans must include detailed hydrologic and hydraulic analyses in accordance with the established criteria.

10-2 CAPITAL IMPROVEMENT PROJECT PRIORITIES

The capital improvement projects were selected to minimize the possibility of flooding which can result in property damage, and to provide public safety. The projects that can eliminate or minimize the existing storm drain deficiencies are prioritized based upon the hydraulic analyses conducted during this study as well as the City's history of flooding. The capacity improvement projects were prioritized as follows:

High Priority	Storm drains and pump stations serving sump areas, areas with design or preliminary design work completed
Medium Priority	Storm drain extensions on the upstream end of high priority projects that will provide compliance with the flood protection goals in arterial and local streets
Low Priority	Storm drain extensions on the upstream end of existing or future medium priority projects that will provide compliance with the flood protection goals in local streets

The High Priority improvement projects were ranked to help further specify the implementation order for the more critical areas. The recommended projects that would improve the inundation problems in the areas that the City has identified were given the highest priority. The area tributary to the proposed projects, the cost of

the projects, and the 2005 Ad Hoc Community Report project recommendations were also analyzed when ranking the High Priority Projects.

The storm drain improvement recommendations were not grouped by location. The intent is that each year the City can select the projects to take advantage of concurrent construction such as street paving projects or adjacent infrastructure work.

It may not be feasible to implement some small projects as one single project. In such cases, several projects can be combined into one construction package. Some large projects may be broken down into smaller components to fit the City's budgetary and other obligations.

10-3 CAPITAL IMPROVEMENT PROGRAM

The Capital Improvement Program is based upon the results of the hydraulic analyses and priorities as described in Subsection 10-2. The recommended drainage improvement projects are illustrated on Figures 10-1, 10-2, 10-3, and 10-4. The projects recommended by the 2005 Ad Hoc Committee Report are identified in these figures. The priority of capacity improvement projects for the existing storm drains are listed in Table 10-1 and 10-2. Figures 10-2 and 10-3 and Tables 10-1 and 10-2 describe the two College Park East Drainage Area alternatives. Details of each specific improvement project are provided in Subsection 9-1 through Subsection 9-3.

The construction unit cost for storm drains is based upon \$25 per diameter inch per foot of pipe for 30-inch and smaller pipes, and \$23 per diameter inch per foot of pipe for 33-inch through 54-inch pipes, and \$22 per diameter inch per foot for larger pipes. Cost estimate for reinforced concrete box (RCB) is based upon \$1,400 per cubic yard of reinforced concrete, which includes all material and labor costs for constructing these facilities. Engineering and administration costs, and contingencies are estimated at 40 percent of the construction cost. These costs can be considered to be based upon the current (June 2008) Engineering News Record Index for Los Angeles Area (ENRLA) of 9265.94.

The recommended CIP has been based upon the best information currently available. It should be updated as new information becomes available. The cost estimates for future projects should be updated based upon ENRLA.

The two alternatives recommended for the College Park East Drainage Area affect the total system improvement cost summaries. Alternative No. 1 recommends improvements through the existing four drainage outlets to the Old Ranch Golf Course. Alternative No. 2 recommends constructing a pump station facility at Bluebell Street and Almond Avenue. The total system improvement costs are estimated as follows for each of the College Park East Drainage Area alternatives:

High Priority Improvement Projects

High Priority Rank	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost
1	WE 1	Electric Avenue and Corsair Way	Electric Avenue North and Marina Drive	Double 8'(W) x 4'3" (H) RCB	710	2,615,693	2,615,693
2	WE 4	Marina Drive and Electric Avenue North	Marina Street and Electric Avenue South	Double 8'(W) x 4'3" (H) RCB	208	766,287	2,608,459
		Electric Avenue North and Marina Drive	Electric Avenue North and 7th Street	Double 8'(W) x 3'6" (H) RCB	296	1,042,139	
		Electric Avenue North and 7th Street	Electric Avenue north, and 8th Street	42" RCP	322	435,473	
3	WE 5A	Marina Drive and Electric Avenue	Marina Drive and 7th Street	48" RCP	515	795,984	998,844
		Marina Drive and 7th Street	Marina Drive and Pacific Coast Highway	42" RCP	150	202,860	
4	SG 2A	Marina Drive and San Gabriel River	Proposed Pump Station	42" RCP	800	1,081,920	7,581,920
High Priority Totals						6,500,000	13,804,916

Medium Priority Improvement Projects

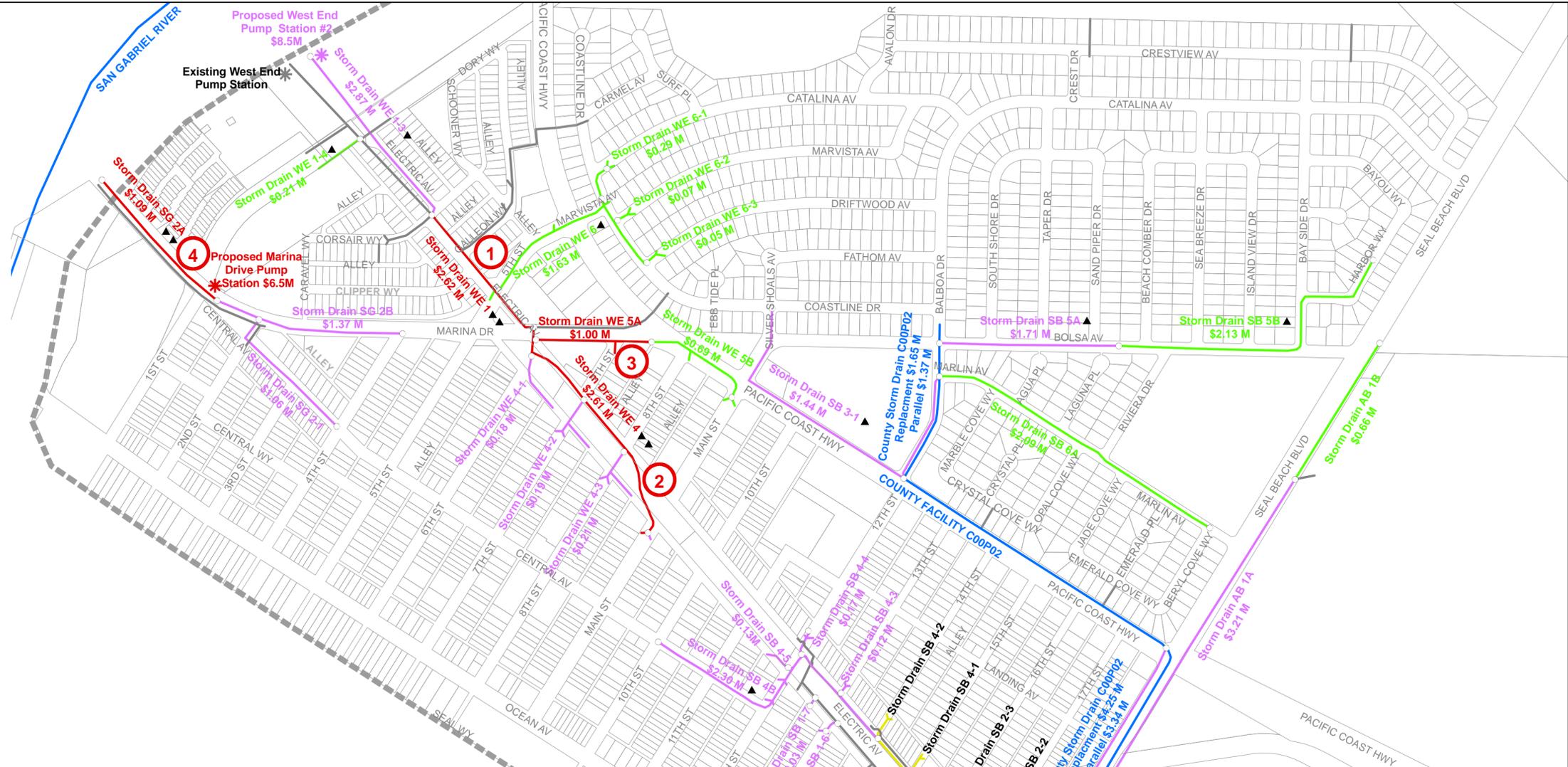
Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost
Medium	AB 1A	Seal Beach Boulevard and Anaheim Bay	Seal Beach Boulevard, south of RR R/W	76"(W) x 3'(H) RCB	260	438,148	3,206,316
		Seal Beach Boulevard, south of RR R/W	Seal Beach Boulevard at RR R/W	76"(W) x 3'(H) RCB	157	264,574	
		Seal Beach Boulevard at RR R/W	Seal Beach Blvd RR R/W	76"(W) x 3'(H) RCB	61	102,796	
		Seal Beach Blvd RR R/W Crossing	Seal Beach Boulevard and Pacific Coast Highway	76"(W) x 3'(H) RCB	464	781,926	
		Seal Beach Boulevard and Pacific Coast Highway	Seal Beach Boulevard, Pacific Coast Highway crossing	76"(W) x 3'(H) RCB	118	198,852	
Medium	SB 1-6	13th Street west of Electric Avenue South	13th Street west of Electric Avenue South	24" RCP	73	61,320	61,320
		Alley between 12th Street and 13th Street west of Electric Avenue South	Alley between 12th Street and 13th Street west of Electric Avenue South	18" RCP	39	24,570	
Medium	SB 4B	Electric Avenue North and 14th Street	Electric Avenue North and 13th Street	66" RCP	253	514,298	2,299,164
		Electric Avenue North and 13th Street	Electric Avenue North and 12th Street	66" RCP	217	441,118	
		Electric Avenue North and 12th Street	Electric Avenue North, 12th Street Crossing	66" RCP	67	136,198	
		Electric Avenue North, 12th Street Crossing	12th Street, south of Electric Avenue	66" RCP	80	162,624	
		12th Street, south of Electric Avenue	12th Street, South of Central Avenue	48" RCP	57	88,099	
		12th Street, South of Central Avenue	12th Street, north of Central Avenue	48" RCP	127	196,291	
Medium	SB 5A	Bolsa Avenue and Balboa Drive	Bolsa Avenue east of South Shore Dr.	66" RCP	380	772,464	1,705,704
		Bolsa Avenue east of South Shore Dr.	Bolsa Avenue east of Sand Piper Dr.	60" RCP	505	933,240	
Medium	SB3-1	Pacific Coast Highway and Balboa Drive	Pacific Coast Highway and Silver Shoals Avenue	36" RCP	900	1,043,280	1,437,030
		Pacific Coast Highway and Silver Shoals Avenue	Silver Shoals Avenue and Coastline Drive	30" RCP	375	393,750	
Medium	SB4-3	Proposed 66" SD	13th Street	36" RCP	100	115,920	115,920
Medium	SB4-4	Proposed 66" SD	12th Street (North)	42" RCP	121	163,640	163,640
Medium	SB4-5	Proposed 66" SD	East of 11th Street	24" RCP	150	126,000	126,000
Medium	SG 2-1	Proposed Pump Station	Central Avenue and 4th Street	5'(W) x 2'(H) RCB	810	1,058,400	1,058,400
Medium	SG 2B	Marina Drive and 1st Street	Marina Drive and 2nd Street	5'6"(W) x 2.5'(H) RCB	300	413,778	1,361,111
Medium	WE 1-3	Marina Drive and 2nd Street	Marina Drive and 4th Street	5'(W) x 2'(H) RCB	725	947,333	11,367,407
		Proposed Pump Station on Oakwood Apartments Property	Electric Avenue and Corsair Way	Double 5'(W) x 4'3" (H) RCB	1,000	2,867,407	
Pump Station, West End						8,500,000	
Medium	WE 4-1	6th Street and Electric Avenue North	7th Street and Electric Avenue South	24" RCP	210	176,400	176,400
Medium	WE 4-2	7th Street and Electric Avenue North	7th Street and Electric Avenue South	36" RCP	160	185,472	185,472
Medium	WE 4-3	8th Street and Electric Avenue North	8th Street and Electric Avenue South	36" RCP	175	202,860	202,860
Medium Priority Totals						23,491,315	23,491,315

Medium Priority Improvement Projects (County Facility)

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost
OCFCD Facility No C00P02							
Replacement							
Medium	C00P02A	Seal Beach Boulevard and Electric Avenue	Seal Beach Boulevard and Pacific Coast Highway	84" RCP	1,640	4,243,008	4,243,008
Medium	C00P02B	Pacific Coast Highway and Balboa Drive	Balboa Drive and Bolsa Avenue	72" RCP	740	1,641,024	1,641,024
County Totals						2,380	5,884,032
Parallel							
Medium	C00P02A	Seal Beach Boulevard and Electric Avenue	Seal Beach Boulevard and Pacific Coast Highway	66" RCP	1,640	3,333,792	3,333,792
Medium	C00P02B	Pacific Coast Highway and Balboa Drive	Balboa Drive and Bolsa Avenue	60" RCP	740	1,367,520	1,367,520
County Totals						7,140	4,701,312

Low Priority Improvement Projects

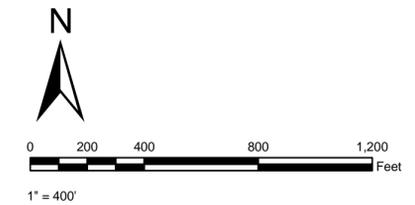
Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost
Low	AB 1B	Seal Beach Boulevard north of Marlin Avenue	Seal Beach Boulevard and Bolsa Avenue	24" RCP	780	655,200	655,200
Low	SB 5B	Bolsa Avenue east of Sand Piper Dr.	Bolsa Avenue, east of Beach Comber Drive	54" RCP	250	434,700	2,120,160
		Bolsa Avenue, east of Beach Comber Drive	Bolsa Avenue, east of Sea Breeze Drive	48" RCP	250	386,400	
		Bolsa Avenue, east of Sea Breeze Drive	Bolsa Avenue and Bay Side Drive	42" RCP	400	540,960	
Low	SB 6	Bolsa Avenue and Bay Side Drive	Bay Side Drive and Harbor Way	42" RCP	250	338,100	2,086,560
		Bay Side Drive and Harbor Way	Harbor Way, west of Bayou Way	30" RCP	400	420,000	
		Marlin Avenue and Balboa Drive	Marlin Avenue and Marble Cove Way	48" RCP	350	540,960	
Low	WE 1-4	Marlin Avenue and Marble Cove Way	Marlin Avenue and Riviera Drive	48" RCP	650	1,004,640	210,000
		Marlin Avenue and Riviera Drive	Marlin Avenue and Beryl Cove Way	42" RCP	400	540,960	
		First Street (south R/W) and Electric Avenue	First Street (south R/W) south of Electric Avenue	24" RCP	250	210,000	
Low	WE 5B	Pacific Coast Highway and Marina Drive	Pacific Coast Highway and 8th Street	42" RCP	210	284,004	683,928
		Pacific Coast Highway and 8th Street	Main Street and Pacific Coast Highway	36" RCP	345	399,924	
		5th Street and Electric Avenue	5th Street, Pacific Coast Highway Crossing	51" RCP	375	615,825	
Low	WE 6	5th Street, Pacific Coast Highway Crossing	Marvista Avenue and Pacific Coast Highway	48" RCP	135	208,656	1,624,329
		Marvista Avenue and Pacific Coast Highway	Marvista Avenue and Coastline Drive	48" RCP	210	324,576	
		Marvista Avenue and Coastline Drive	Coastline Drive, Marvista Avenue Crossing	48" RCP	90	139,104	
Low	WE 6-1	Coastline Drive and Marvista Avenue	Coastline Drive and Driftwood Avenue	36" RCP	190	220,248	289,800
		Catalina Drive and Catalina Avenue	Catalina Avenue, east of Coastline Drive	36" RCP	60	69,552	
		Coastline Drive and Catalina Avenue	Marvista Avenue east of Coastline Drive	30" RCP	60	63,000	
Low	WE 6-2	Marvista Avenue and Coastline Drive	Driftwood Avenue east of Coastline Drive	36" RCP	40	46,368	46,368
Low	WE 6-3	Driftwood Avenue and Coastline Drive	Driftwood Avenue east of Coastline Drive	36" RCP	40	46,368	46,368
Low Priority Totals						5,985	7,779,345



Legend

- 1 High Priority Rank
- High Priority
- Medium Priority
- Low Priority
- 2008 Budgeted Planned Improvements
- Existing City Storm Drain (Protect in Place)
- County Facility
- Parcel
- City Boundary
- * Pump Station
- ▲▲ High Priority Project
- ▲ Moderate Priority Project

2005 AD - HOC Committee Report Recommendations





High Priority Improvement Projects

High Priority Rank	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost
5	CPE 1A Alt 1	Westerly extension of Guava Avenue and Old Ranch Golf Course	Lampson Avenue Crossing, near Guava Avenue	Double 6'(W) x 3'(H) RCB	120	339,733	531,378
		Lampson Avenue Crossing, near Guava Avenue	Guava Avenue and Ironwood Avenue R/W (N)	6'(W) x 3'(H) RCB	120	191,644	
6	CPE 2A Alt 1	Westerly extension of Elder Avenue and Old Ranch Golf Course	Lampson Avenue Crossing	Double 6'(W) x 3'(H) RCB	120	339,733	531,378
		Lampson Avenue Crossing	Elder Avenue and Ironwood Avenue R/W (N)	6'(W) x 3'(H) RCB	120	191,644	
7	CPE 4A Alt 1	Westerly extension of Basswood Avenue and Old Ranch Golf Course	West of Lampson Avenue	9'(W) x 2'9"(H) RCB	31	61,885	1,109,941
		West of Lampson Avenue	Lampson Avenue Crossing, near Basswood Street	9'(W) x 2'9"(H) RCB	95	189,648	
		Lampson Avenue Crossing, near Basswood Street	Basswood Avenue and Aster Street	9'(W) x 2'9"(H) RCB	430	858,407	
8	BC 1A	Bolsa Chica Channel 250' north of freeway	Wisteria Street	6'(W) x 3'(H) RCB	103	164,495	589,148
		Wisteria Street	Violet Street north of Almond Avenue	42" RCP	314	424,654	
9	BC 2A	Bolsa Chica Channel and easterly extension of Fir Avenue	Wisteria Street and Fir Avenue	48" RCP	130	200,928	200,928
High Priority Totals					1,583	2,962,773	2,962,773

Medium Priority Improvement Projects

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost
Medium	BC 1-1	Wisteria Lane 250' north of freeway	Wisteria Lane and Candleberry Avenue	30" RCP	485	509,250	509,250
Medium	BC 1B	Violet Street north of Almond Avenue	Almond Avenue, east at Teaberry Circle	36" RCP	300	347,760	526,260
		Almond Avenue, east at Teaberry Circle	Almond Avenue east of Sunflower Circle	30" RCP	170	178,500	
Medium	BC 2B	Wisteria Street and Fir Avenue	Wisteria Street at Hazelnut Avenue	3'(W) x 2'(H) RCB	250	254,074	471,852
		Wisteria Street at Hazelnut Avenue	Wisteria Street and Ironwood Avenue	2'6"(W) x 1'6"(H) RCB	250	217,778	
Medium	CPE 1B Alt 1	Guava Avenue and Ironwood Avenue R/W (N)	Guava Avenue and Hazelnut Avenue	Double 6'(W) x 2'3'(H) RCB	370	987,078	4,428,511
		Hazelnut Avenue and Guava Avenue	Hazelnut Avenue and Heather Street	Double 6'(W) x 2'3'(H) RCB	1,290	3,441,433	
Medium	CPE 2B Alt 1	Elder Avenue and Ironwood Avenue R/W (N)	Elder Avenue and Fuchsia Street	Double 6'(W) x 2'3'(H) RCB	1,550	4,135,056	4,135,056
Medium	CPE 3-1B Alt 1	Candleberry Avenue and Aster Street	Candleberry Avenue and Fuschia Street	10'8"(W) x 3'(H) RCB	1,800	4,095,093	4,095,093
Medium	CPE 3-4B Alt 1	Birchwood and Aster Street	Birchwood Avenue and Bluebell Street	7'(W) x 2'3'(H) RCB	200	326,667	2,484,481
		Birchwood Avenue and Bluebell Street	Birchwood Avenue and Daisy Circle	6'(W) x 2'3'(H) RCB	1,450	2,157,815	
Medium	CPE 5 Alt 1	Cal Trans Open Channel	Lampson Avenue	24" RCP	75	63,000	63,000
Medium Priority Totals					8,190	16,713,503	16,713,503

Low Priority Improvement Projects

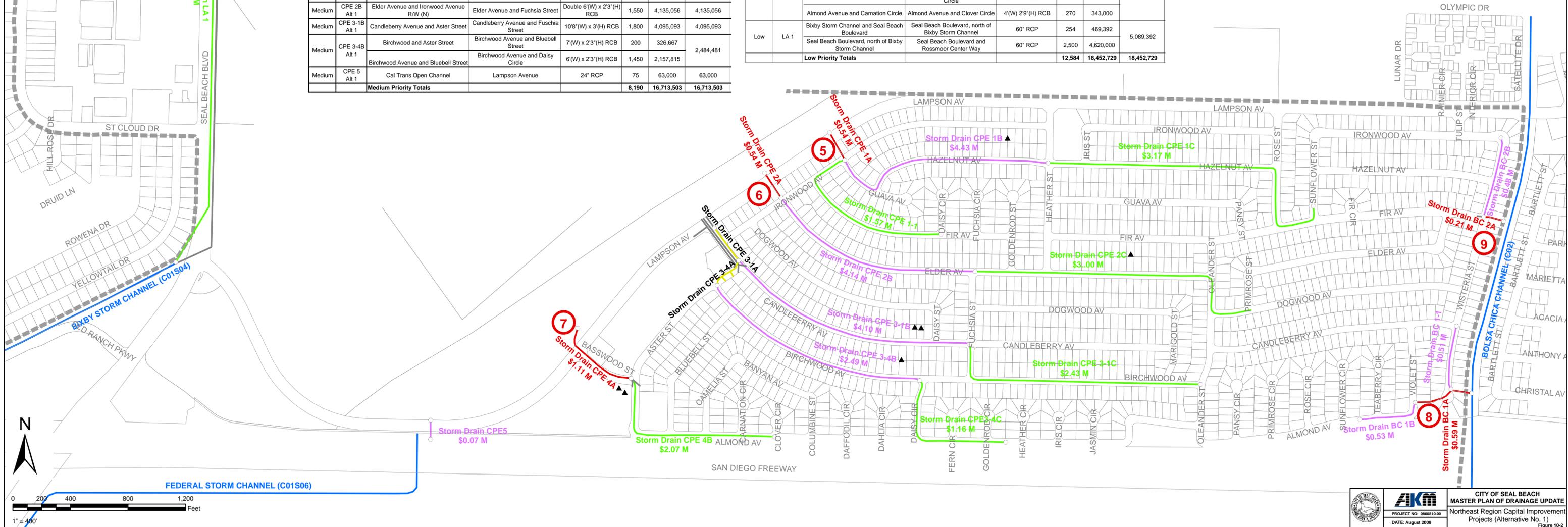
Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost
Low	CPE 1-1 Alt 1	Ironwood Avenue and Guava Avenue	Fir Avenue, east of Ironwood Avenue	5'(W) x 2'(H) RCB	450	588,000	1,563,644
		Fir Avenue, east of Ironwood Avenue	Fir Avenue, West of Daisy Circle	4'6"(W) x 2'(H) RCB	640	789,807	
		Fir Avenue, West of Daisy Circle	Fir Avenue and Daisy Circle	4'(W) x 2'(H) RCB	160	185,837	
Low	CPE 1C Alt 1	Hazelnut Avenue and Heather Street	Hazelnut Avenue and Iris Street	8'(W) x 2'3'(H) RCB	270	480,200	3,165,789
		Hazelnut Avenue and Iris Street	Hazelnut Avenue, east of Iris Street	8'(W) x 2'3'(H) RCB	340	604,696	
		Hazelnut Avenue, east of Iris Street	Hazelnut Avenue and Rose Street	5'(W) x 2'3'(H) RCB	1,010	1,356,393	
		Hazelnut Avenue and Rose Street	Rose Street and Fir Avenue	30" RCP	340	357,000	
		Rose Street and Fir Avenue	Fir Avenue and Sunflower Street	30" RCP	250	262,500	
		Fir Avenue and Sunflower Street	Sunflower Street north of Fir Avenue	30" RCP	100	105,000	
Low	CPE 2C Alt 1	Elder Avenue and Fuchsia Street	Elder Avenue and Heather Street	8'(W) x 2'3'(H) RCB	500	889,259	2,990,690
		Elder Avenue and Heather Street	Elder Avenue west of Oleander Street	8'(W) x 2'3'(H) RCB	750	1,116,111	
		Elder Avenue west of Oleander Street	Elder Avenue and Oleander Street	36" RCP	350	405,720	
		Elder Avenue and Oleander Street	Oleander Street and Dogwood Avenue	36" RCP	250	289,800	
		Oleander Street and Dogwood Avenue	Dogwood Avenue and Primrose Street	36" RCP	250	289,800	
		Fuchsia Street and Candleberry Avenue	Fuchsia Street and Birchwood Avenue	5'(W) x 3'(H) RCB	200	290,370	
Low	CPE 3-1C Alt 1	Fuchsia Street and Birchwood Avenue	Birchwood Avenue, east of Fuchsia Street	5'(W) x 3'(H) RCB	500	725,926	2,423,110
		Birchwood Avenue, east of Fuchsia Street	Birchwood Avenue, west of Marigold Street	4'(W) x 3'(H) RCB	500	653,333	
		Birchwood Avenue, west of Marigold Street	Birchwood Avenue and Oleander Street	36" RCP	650	753,480	
Low	CPE 3-4C Alt 1	Daisy Circle and Birchwood Avenue	Daisy Circle and Birchwood Avenue	36" RCP	400	463,680	1,159,200
		Daisy Circle and Birchwood Avenue	Almond Avenue east of Goldenrod Circle	36" RCP	600	695,520	
Low	CPE 4B Alt 1	Aster Street and Basswood Avenue	Aster Street and Almond Avenue	7'(W) x 2'9"(H) RCB	370	631,193	2,060,904
		Aster Street and Almond Avenue	Almond Avenue, east of Buebell Street	6'6"(W) x 2'9"(H) RCB	350	571,667	
		Almond Avenue, east of Buebell Street	Almond Avenue and Carnation Circle	6'(W) x 2'9"(H) RCB	330	515,044	
Low	LA 1	Almond Avenue and Carnation Circle	Almond Avenue and Clover Circle	4'(W) 2'9"(H) RCB	270	343,000	5,089,392
		Bixby Storm Channel and Seal Beach Boulevard	Seal Beach Boulevard, north of Bixby Storm Channel	60" RCP	254	469,392	
		Seal Beach Boulevard, north of Bixby Storm Channel	Seal Beach Boulevard and Rossmoor Center Way	60" RCP	2,500	4,620,000	
Low Priority Totals					12,584	18,452,729	18,452,729

Legend

- 5 High Priority Rank
- High Priority
- Medium Priority
- Low Priority
- 2008 Budgeted Planned Improvements
- Existing City Storm Drain (Protect in Place)
- County Facility
- Parcel
- City Boundary

2005 AD - HOC Committee Report Recommendations

- ▲▲ High Priority Project
- ▲ Moderate Priority Project



High Priority Improvement Projects

High Priority Rank	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost	
5	CPE6 Alt 2	Aster Street, south of Basswood Street	Aster Street and Birchwood Avenue	90" RCP	1,000	2,772,000	18,700,080	
		Aster Street and Birchwood Avenue	Candleberry Avenue and Aster Street	84" RCP	200	517,440		
		Candleberry Avenue and Aster Street	Ironwood Avenue and Candleberry Avenue	72" RCP	700	1,552,320		
		Ironwood Avenue and Candleberry Avenue	Guava Avenue and Ironwood Avenue	60" RCP	500	924,000		
		Basswood Street and Aster Street	Old Ranch Golf Course Detention Basin	Double 54" Forcemain	700	2,434,320		
		Pump Station, Aster Street, south of Basswood Street	Pump Station	----	----	10,500,000		
6	BC 1A	Bolsa Chica Channel 250' north of freeway	Wisteria Street	6'(W) x 3'(H) RCB	103	164,495	589,148	
		Wisteria Street	Violet Street north of Almond Avenue	42" RCP	314	424,654		
7	BC 2A	Bolsa Chica Channel and easterly extension of Fir Avenue	Wisteria Street and Fir Avenue	48" RCP	130	200,928	200,928	
High Priority Totals						3,647	19,490,156	19,490,156

Medium Priority Improvement Projects

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost	
Medium	BC 1-1	Wisteria Lane 250' north of freeway	Wisteria Lane and Candleberry Avenue	30" RCP	485	509,250	509,250	
Medium	BC 1B	Violet Street north of Almond Avenue	Almond Avenue, east of Teaberry Circle	36" RCP	300	347,760	526,260	
		Almond Avenue, east of Teaberry Circle	Almond Avenue east of Sunflower Circle	30" RCP	170	178,500		
Medium	BC 2B	Wisteria Street and Fir Avenue	Wisteria Street at Hazelnut Avenue	3'(W) x 2'(H) RCB	250	254,074	471,852	
		Wisteria Street at Hazelnut Avenue	Wisteria Street and Ironwood Avenue	2'6"(W) x 1'6"(H) RCB	250	217,778		
Medium	CPE 1B Alt 2	Guava Avenue and Ironwood Avenue R/W (N)	Hazelnut Avenue and Heather Street	54" RCP	1,660	2,886,408	2,886,408	
Medium	CPE 2B Alt 2	Elder Avenue and Ironwood Avenue R/W (N)	Elder Avenue and Fuchsia Street	54" RCP	1,550	2,695,140	2,695,140	
Medium	CPE 3-5B Alt 2	Candleberry Avenue and Aster Street	Candleberry Avenue and Fuschia Street	54" RCP	1,800	3,129,840	3,129,840	
Medium	CPE 3-4B Alt 2	Birchwood and Aster Street	Birchwood Avenue and Daisy Circle	42" RCP	1,650	2,231,460	2,231,460	
Medium	CPE 5	Cal Trans Open Channel	Lampson Avenue	24" RCP	75	63,000	63,000	
Medium Priority Totals						8,190	12,513,210	12,513,210

Low Priority Improvement Projects

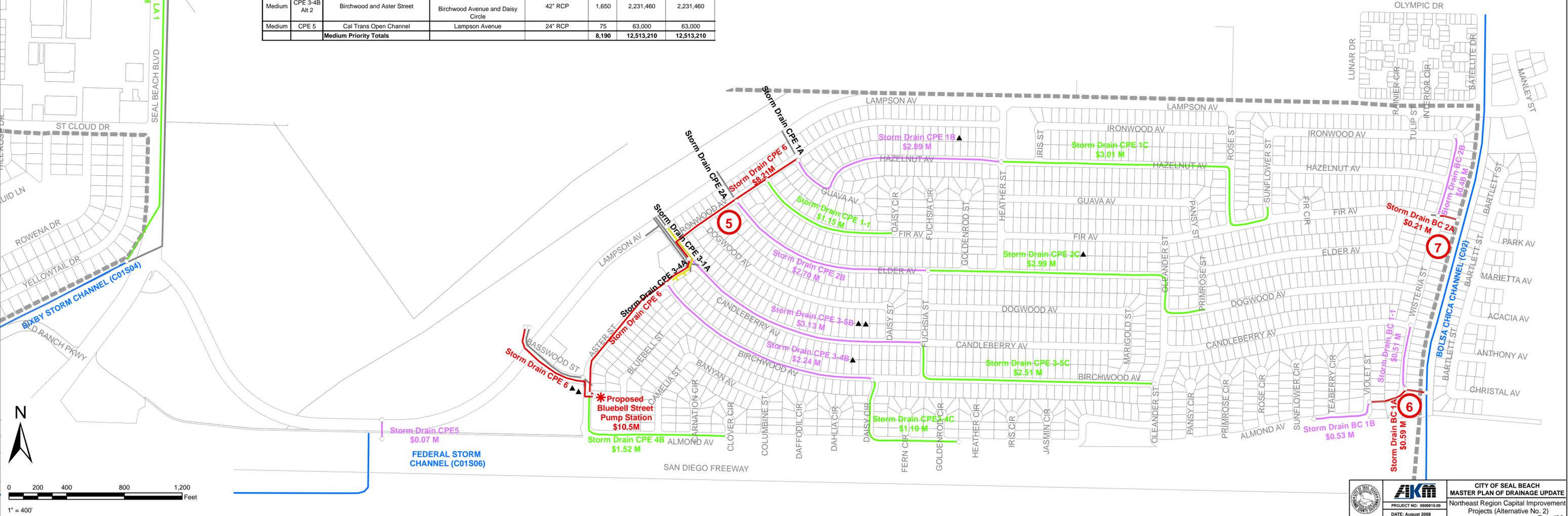
Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost	
Low	LA 1	Bixby Storm Channel and Seal Beach Boulevard	Seal Beach Boulevard, north of Bixby Storm Channel	60" RCP	254	469,392	5,089,392	
		Seal Beach Boulevard, north of Bixby Storm Channel	Seal Beach Boulevard and Rossmoor Center Way	60" RCP	2,500	4,620,000		
Low	CPE 1-1 Alt 2	Fir Avenue and Ironwood Avenue	Fir Avenue, West of Daisy Circle	36" RCP	840	973,728	1,141,728	
		Fir Avenue, West of Daisy Circle	Fir Avenue and Daisy Circle	30" RCP	160	168,000		
Low	CPE 1C Alt 2	Hazelnut Avenue and Heather Street	Hazelnut Avenue and Iris Street	48" RCP	270	417,312	3,004,680	
		Hazelnut Avenue and Iris Street	Hazelnut Avenue and Rose Street	42" RCP	1,350	1,825,740		
		Hazelnut Avenue and Rose Street	Rose Street and Fir Avenue	36" RCP	340	394,128		
		Rose Street and Fir Avenue	Sunflower Street and Fir Avenue	30" RCP	250	262,500		
Low	CPE 2C Alt 2	Sunflower Street and Fir Avenue	Sunflower Street north of Fir Avenue	30" RCP	100	105,000	2,984,940	
		Elder Avenue west of Oleander Street	Elder Avenue west of Oleander Street	48" RCP	1,250	1,932,000		
		Elder Avenue west of Oleander Street	Elder Avenue and Oleander Street	42" RCP	350	473,340		
Low	CPE 3-5C Alt 2	Fuchsia Street and Candleberry Avenue	Birchwood Avenue and Oleander Street	42" RCP	1,850	2,501,940	2,501,940	
		Fuchsia Street and Candleberry Avenue	Birchwood Avenue and Oleander Street	42" RCP	1,850	2,501,940		
Low	CPE 3-4C Alt 2	Daisy Circle and Birchwood Avenue	Daisy Circle and Almond Avenue	36" RCP	400	463,680	1,093,680	
		Daisy Circle and Almond Avenue	Almond Avenue east of Goldenrod Circle	30" RCP	600	630,000		
Low	CPE 4B Alt 2	Aster Street and Basswood Avenue	Aster Street and Almond Avenue	42" RCP	280	378,672	1,518,048	
		Aster Street and Almond Avenue	Almond Avenue, east of Buebell Street	42" RCP	350	473,340		
		Almond Avenue, east of Buebell Street	Almond Avenue and Carnation Circle	36" RCP	330	382,536		
		Almond Avenue and Carnation Circle	Almond Avenue and Clover Circle	30" RCP	270	283,500		
Low Priority Totals						27,419	17,334,408	17,334,408

Legend

- 5 High Priority Rank
- High Priority
- Medium Priority
- Low Priority
- 2008 Budgeted Planned Improvements
- Existing City Storm Drain (Protect in Place)
- County Facility
- Parcel
- City Boundary

2005 AD - HOC Committee Report Recommendations

- ▲▲ High Priority Project
- ▲ Moderate Priority Project

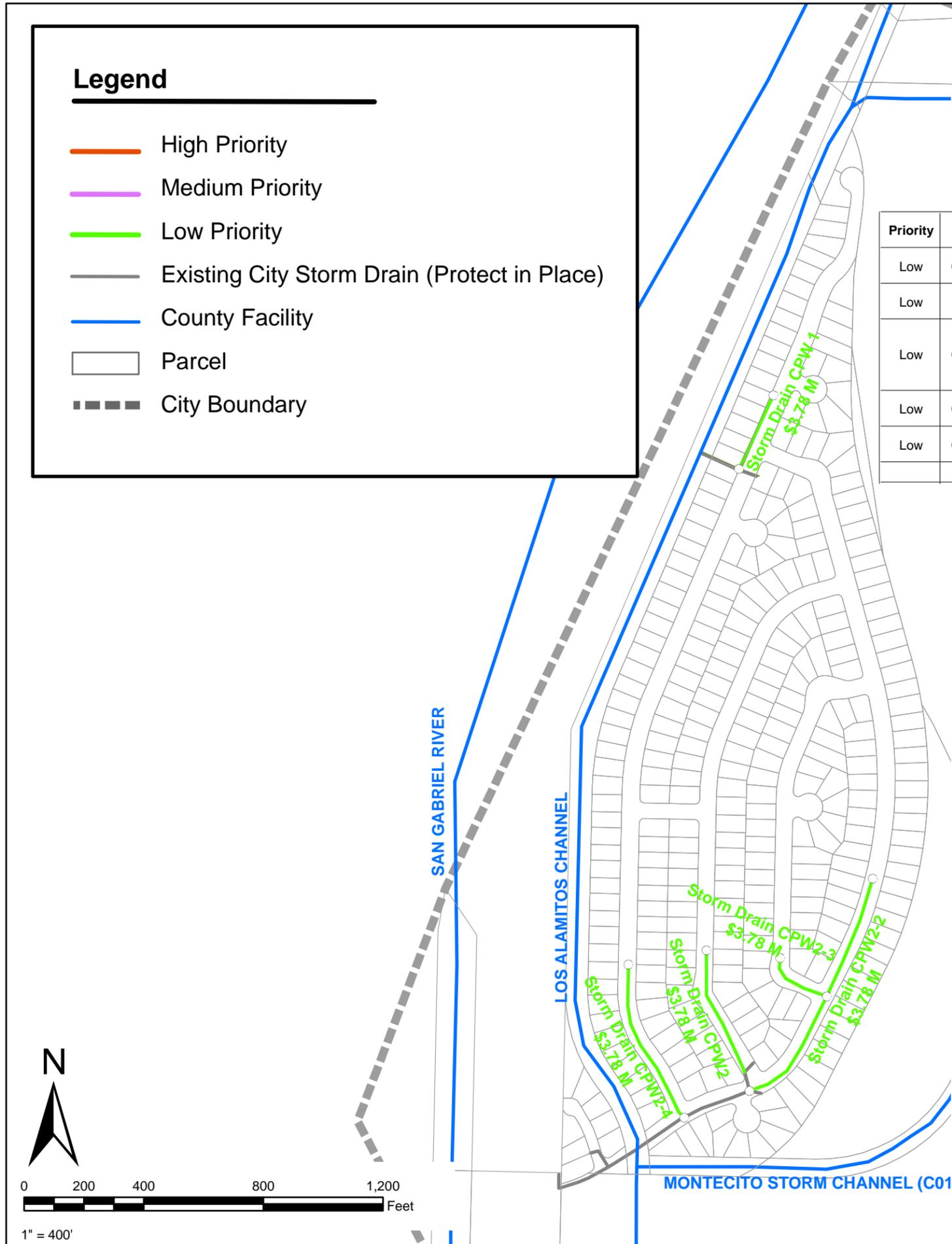


Legend

- High Priority
- Medium Priority
- Low Priority
- Existing City Storm Drain (Protect in Place)
- County Facility
- Parcel
- - - - City Boundary

Low Priority Improvement Projects

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Total Cost	Total Project Cost
Low	CPW1-1	Harvard Lane, South of College Park Drive	Harvard Lane and Darthmouth Circle	18" RCP	250	157,500	157,500
Low	CPW2	College Park Drive and Stanford Lane	Stanford Lane, North of College Park Drive	30" RCP	500	525,000	525,000
Low	CPW2-2	Stanford Lane and College Park Drive	College Park Drive and Yale Lane	36" RCP	400	463,680	799,680
		College Park Drive and Yale Lane	College Park Drive, north of Yale Lane	24" RCP	400	336,000	
Low	CPW2-3	College Park Drive and Yale Lane	Yale Lane, north of College Park Drive	24" RCP	250	210,000	210,000
Low	CPW2-4	College Park Drive and Harvard Lane	Harvard Lane, north of College Park Drive	24" RCP	600	504,000	504,000
Low Priority Totals					2,400	2,196,180	2,196,180



PROJECT NO: 0900810.00
DATE: August 2008

**CITY OF SEAL BEACH
MASTER PLAN OF DRAINAGE UPDATE**
Northwest Region Capital
Improvement Projects
Figure 10-4

**TABLE 10-1
STORM DRAIN CAPITAL IMPROVEMENT PROGRAM, ALTERNATIVE 1**

High Priority Rank	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
1	WE 1	Electric Avenue and Corsair Way	Electric Avenue North and Marina Drive	Double 8'(W) x 4'3" (H) RCB	710	2,631	1,868,352	747,341	2,615,693	2,615,693
2	WE 4	Marina Drive and Electric Avenue North	Marina Street and Electric Avenue South	Double 8'(W) x 4'3" (H) RCB	208	2,631	547,348	218,939	766,287	2,608,459
		Electric Avenue North and Marina Drive	Electric Avenue North and 7th Street	Double 8'(W) x 3'6"(H) RCB	296	2,515	744,385	297,754	1,042,139	
		Electric Avenue North and 7th Street	Electric Avenue north, and 8th Street	42" RCP	322	966	311,052	124,421	435,473	
		Electric Avenue north, and 8th Street	Electric Avenue south and Main Street	24" RCP	434	600	260,400	104,160	364,560	
3	WE 5A	Marina Drive and Electric Avenue	Marina Drive and 7th Street	48" RCP	515	1,104	568,560	227,424	795,984	998,844
		Marina Drive and 7th Street	Marina Drive and Pacific Coast Highway	42" RCP	150	966	144,900	57,960	202,860	
4	SG 2A	Marina Drive and San Gabriel River	Proposed Pump Station	42" RCP	800	966	772,800	309,120	1,081,920	1,081,920
5	CPE 1A Alt 1	Westerly extension of Guava Avenue and Old Ranch Golf Course	Lampson Avenue Crossing, near Guava Avenue	Double 6'(W) x 3'(H) RCB	120	2,022	242,667	97,067	339,733	531,378
		Lampson Avenue Crossing, near Guava Avenue	Guava Avenue and Ironwood Avenue R/W (N)	6'(W) x 3'(H) RCB	120	1,141	136,889	54,756	191,644	
6	CPE 2A Alt 1	Westerly extension of Elder Avenue and Old Ranch Golf Course	Lampson Avenue Crossing	Double 6'(W) x 3'(H) RCB	120	2,022	242,667	97,067	339,733	531,378
		Lampson Avenue Crsossing	Elder Avenue and Ironwood Avenue R/W (N)	6'(W) x 3'(H) RCB	120	1,141	136,889	54,756	191,644	
7	CPE 4A Alt 1	Westerly extension of Basswood Avenue and Old Ranch Golf Course	West of Lampson Avenue	9'(W) x 2'9"(H) RCB	31	1,426	44,204	17,681	61,885	1,109,941
		West of Lampson Avenue	Lampson Avenue Crossing, near Basswood Street	9'(W) x 2'9"(H) RCB	95	1,426	135,463	54,185	189,648	
		Lampson Avenue Crossing, near Basswood Street	Basswood Avenue and Aster Street	9'(W) x 2'9"(H) RCB	430	1,426	613,148	245,259	858,407	
8	BC 1A	Bolsa Chica Channel 250' north of freeway	Wisteria Street	6'(W) x 3'(H) RCB	103	1,141	117,496	46,999	164,495	589,148
		Wisteria Street	Violet Street north of Almond Avenue	42" RCP	314	966	303,324	121,330	424,654	
9	BC 2A	Bolsa Chica Channel and easterly extension of Fir Avenue	Wisteria Street and Fir Avenue	48" RCP	130	1,104	143,520	57,408	200,928	200,928
High Priority Totals					5,018		7,334,063	2,933,625	10,267,689	10,267,689

TABLE 10-1 (CONTINUED)
STORM DRAIN CAPITAL IMPROVEMENT PROGRAM ALTERNATIVE 1

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
Medium	AB 1A	Seal Beach Boulevard and Anaheim Bay	Seal Beach Boulevard, south of RR R/W	7'6" (W) x 3'(H) RCB	260	1,204	312,963	125,185	438,148	3,206,316
		Seal Beach Boulevard, south of RR R/W	Seal Beach Boulevard at RR R/W	7'6" (W) x 3'(H) RCB	157	1,204	188,981	75,593	264,574	
		Seal Beach Boulevard at RR R/W	Seal Beach Blvd RR R/W Crossing	7'6" (W) x 3'(H) RCB	61	1,204	73,426	29,370	102,796	
		Seal Beach Blvd RR R/W Crossing	Seal Beach Boulevard and Pacific Coast Highway	7'6" (W) x 3'(H) RCB	464	1,204	558,519	223,407	781,926	
		Seal Beach Boulevard and Pacific Coast Highway	Seal Beach Boulevard, Pacific Coast Highway crossing	7'6" (W) x 3'(H) RCB	118	1,204	142,037	56,815	198,852	
		Seal Beach Boulevard, Pacific Coast Highway crossing	Seal Beach Boulevard north of Marlin Avenue	42" RCP	1,050	966	1,014,300	405,720	1,420,020	
Medium	BC 1-1	Wisteria Lane 250' north of freeway	Wisteria Lane and Candleberry Avenue	30" RCP	485	750	363,750	145,500	509,250	509,250
Medium	BC 1B	Violet Street north of Almond Avenue	Almond Avenue, east at Teaberry Circle	36" RCP	300	828	248,400	99,360	347,760	526,260
		Almond Avenue, east at Teaberry Circle	Almond Avenue east of Sunflower Circle	30" RCP	170	750	127,500	51,000	178,500	
Medium	BC 2B	Wisteria Street and Fir Avenue	Wisteria Street at Hazelnut Avenue	3'(W) x2'(H) RCB	250	726	181,481	72,593	254,074	471,852
		Wisteria Street at Hazelnut Avenue	Wisteria Street and Ironwood Avenue	2'6"(W) x 1'6"(H) RCB	250	622	155,556	62,222	217,778	
Medium	CPE 1B Alt 1	Guava Avenue and Ironwood Avenue R/W (N)	Guava Avenue and Hazelnut Avenue	Double 6'(W) x 2'3'(H) RCB	370	1,906	705,056	282,022	987,078	4,428,511
		Hazelnut Avenue and Guava Avenue	Hazelnut Avenue and Heather Street	Double 6'(W) x 2'3'(H) RCB	1,290	1,906	2,458,167	983,267	3,441,433	
Medium	CPE 2B Alt 1	Elder Avenue and Ironwood Avenue R/W (N)	Elder Avenue and Fuchsia Street	Double 6'(W) x 2'3'(H) RCB	1,550	1,906	2,953,611	1,181,444	4,135,056	4,135,056
Medium	CPE 3-1B Alt 1	Candleberry Avenue and Aster Street	Candleberry Avenue and Fuschia Street	10'8"(W) x 3'(H) RCB	1,800	1,625	2,925,067	1,170,027	4,095,093	4,095,093
Medium	CPE 3-4B Alt 1	Birchwood and Aster Street	Birchwood Avenue and Bluebell Street	7'(W) x 2'3'(H) RCB	200	1,167	233,333	93,333	326,667	2,484,481
		Birchwood Avenue and Bluebell Street	Birchwood Avenue and Daisy Circle	6'(W) x 2'3'(H) RCB	1,450	1,063	1,541,296	616,519	2,157,815	
Medium	CPE 5 Alt 1	Cal Trans Open Channel	Lampson Avenue	24" RCP	75	600	45,000	18,000	63,000	63,000
Medium	SB 1-6	13th Street and Electric Avenue South	13th Street west of Electric Avenue South	24" RCP	73	600	43,800	17,520	61,320	61,320
Medium	SB 1-7	Alley between 12th Street and 13th Street and Electric Avenue South	Alley between 12th Street and 13th Street west of Electric Avenue South	18" RCP	39	450	17,550	7,020	24,570	24,570
Medium	SB 4B	Electric Avenue North and 14th Street	Electric Avenue North and 13th Street	66" RCP	253	1,452	367,356	146,942	514,298	2,299,164
		Electric Avenue North and 13th Street	Electric Avenue North and 12th Street	66" RCP	217	1,452	315,084	126,034	441,118	
		Electric Avenue North and 12th Street	Electric Avenue North, 12th Street Crossing	66" RCP	67	1,452	97,284	38,914	136,198	
		Electric Avenue North, 12th Street Crossing	12th Street, south of Electric Avenue	66" RCP	80	1,452	116,160	46,464	162,624	
		12th Street, south of Electric Avenue	12th Street, South of Central Avenue	48" RCP	57	1,104	62,928	25,171	88,099	
		12th Street, South of Central Avenue	12th Street, north of Central Avenue	48" RCP	127	1,104	140,208	56,083	196,291	
		12th Street, north of Central Avenue	Central Avenue and 11th Street	36" RCP	330	828	273,240	109,296	382,536	
		Central Avenue and 11th Street	Central Avenue and 10th Street	30" RCP	360	750	270,000	108,000	378,000	
Medium	SB 5A	Bolsa Avenue and Balboa Drive	Bolsa Avenue east of South Shore Dr.	66" RCP	380	1,452	551,760	220,704	772,464	1,705,704
		Bolsa Avenue east of South Shore Dr.	Bolsa Avenue east of Sand Piper Dr.	60" RCP	505	1,320	666,600	266,640	933,240	
Medium	SB3-1	Pacific Coast Highway and Balboa Drive	Pacific Coast Highway and Silver Shoals Avenue	36" RCP	900	828	745,200	298,080	1,043,280	1,437,030
		Pacific Coast Highway and Silver Shoals Avenue	Silver Shoals Avenue and Coastline Drive	30" RCP	375	750	281,250	112,500	393,750	
Medium	SB4-3	Proposed 66" SD	13th Street	36" RCP	100	828	82,800	33,120	115,920	115,920
Medium	SB4-4	Proposed 66" SD	12th Street (North)	42" RCP	121	966	116,886	46,754	163,640	163,640
Medium	SB4-5	Proposed 66" SD	East of 11th Street	24" RCP	150	600	90,000	36,000	126,000	126,000
Medium	SG 2-1	Proposed Pump Station	Central Avenue and 4th Street	5'(W) x2'(H) RCB	810	933	756,000	302,400	1,058,400	1,058,400
Medium	SG 2B	Marina Drive and 1st Street	Marina Drive and 2nd Street	5'6"(W) x 2.5'(H) RCB	300	985	295,556	118,222	413,778	1,361,111
		Marina Drive and 2nd Street	Marina Drive and 4th Street	5'(W) x 2'(H) RCB	725	933	676,667	270,667	947,333	
Medium	WE 1-3	Proposed Pump Station on Oakwood Apartments Property	Electric Avenue and Corsair Way	Double 5'(W) x 4'3'(H) RCB	1,000	2,048	2,048,148	819,259	2,867,407	2,867,407
Medium	WE 4-1	6th Street and Electric Avenue North	7th Street and Electric Avenue South	24" RCP	210	600	126,000	50,400	176,400	176,400
Medium	WE 4-2	7th Street and Electric Avenue North	7th Street and Electric Avenue South	36" RCP	160	828	132,480	52,992	185,472	185,472
Medium	WE 4-3	8th Street and Electric Avenue North	8th Street and Electric Avenue South	36" RCP	175	828	144,900	57,960	202,860	202,860
Medium Priority Totals					17,814		22,646,299	9,058,520	31,704,819	31,704,819

TABLE 10-1 (CONTINUED)
STORM DRAIN CAPITAL IMPROVEMENT PROGRAM ALTERNATIVE 1

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
Low	AB 1B	Seal Beach Boulevard north of Marlin Avenue	Seal Beach Boulevard and Bolsa Avenue	24" RCP	780	600	468,000	187,200	655,200	655,200
Low	CPE 1-1 Alt 1	Ironwood Avenue and Guava Avenue	Fir Avenue , east of Ironwood Avenue	5'(W) x 2'(H) RCB	450	933	420,000	168,000	588,000	1,563,644
		Fir Avenue , east of Ironwood Avenue	Fir Avenue , West of Daisy Circle	4'6"(W) x2'(H) RCB	640	881	564,148	225,659	789,807	
		Fir Avenue , West of Daisy Circle	Fir Avenue and Daisy Circle	4'(W) x 2'(H) RCB	160	830	132,741	53,096	185,837	
Low	CPE 1C Alt 1	Hazlenut Avenue and Heather Street	Havelnut Avenue and Iris Street	8'(W) x 2'3"(H) RCB	270	1,270	343,000	137,200	480,200	3,165,789
		Havelnut Avenue and Iris Street	Hazelnut Avenue, east of Iris Street	8'(W) x 2'3"(H) RCB	340	1,270	431,926	172,770	604,696	
		Hazelnut Avenue, east of Iris Street	Hazelnut Avenue and Rose Street	5'(W) x 2'3"(H) RCB	1,010	959	968,852	387,541	1,356,393	
		Hazelnut Avenue and Rose Street	Rose Street and Fir Avenue	30" RCP	340	750	255,000	102,000	357,000	
		Rose Street and Fir Avenue	Fir Avenue and Sunflower Street	30" RCP	250	750	187,500	75,000	262,500	
		Fir Avenue and Sunflower Street	Sunflower Street north of Fir Avenue	30" RCP	100	750	75,000	30,000	105,000	
Low	CPE 2C Alt 1	Elder Avenue and Fuchsia Street	Elder Avenue and Heather Street	8'(W) x 2'3"(H) RCB	500	1,270	635,185	254,074	889,259	2,990,690
		Elder Avenue and Heather Street	Elder Avenue west of Oleander Street	8'(W) x 2'3"(H) RCB	750	1,063	797,222	318,889	1,116,111	
		Elder Avenue west of Oleander Street	Elder Avenue and Oldeander Street	36" RCP	350	828	289,800	115,920	405,720	
		Elder Avenue and Oldeander Street	Oleander Street and Dogwood Avenue	36" RCP	250	828	207,000	82,800	289,800	
		Oleander Street and Dogwood Avenue	Dogwood Avenue and Primrose Street	36" RCP	250	828	207,000	82,800	289,800	
Low	CPE 3-1C Alt 1	Fuchsia Street and Candleberry Avenue	Fuchsia Street and Birchwood Avenue	5'(W) x 3'(H) RCB	200	1,037	207,407	82,963	290,370	2,423,110
		Fuchsia Street and Birchwood Avenue	Birchwood Avenue , east of Fuchia Street	5'(W) x 3'(H) RCB	500	1,037	518,519	207,407	725,926	
		Birchwood Avenue , east of Fuchia Street	Birchwood Avenue, west of Marigold Street	4'(W) x 3'(H) RCB	500	933	466,667	186,667	653,333	
		Birchwood Avenue, west of Marigold Street	Birchwood Avenue and Oleander Street	36" RCP	650	828	538,200	215,280	753,480	
Low	CPE 3-4C Alt 1	Daisy Circle and Birchwood Avenue	Daisy Circle and Birchwood Avenue	36" RCP	400	828	331,200	132,480	463,680	1,159,200
		Daisy Circle and Birchwood Avenue	Almond Avenue east of Goldenrod Circle	36" RCP	600	828	496,800	198,720	695,520	
Low	CPE 4B Alt 1	Aster Street and Basswood Avenue	Aster Street and Almond Avenue	7'(W) x 2'9"(H) RCB	370	1,219	450,852	180,341	631,193	2,060,904
		Aster Street and Almond Avenue	Almond Avenue, east of Buebell Street	6'6"(W) x 2'9"(H) RCB	350	1,167	408,333	163,333	571,667	
		Almond Avenue, east of Buebell Street	Almond Avenue and Carnation Circle	6'(W) x 2'9"(H) RCB	330	1,115	367,889	147,156	515,044	
		Almond Avenue and Carnation Circle	Almond Avenue and Clover Circle	4'(W) 2'9"(H) RCB	270	907	245,000	98,000	343,000	
Low	LA 1	Bixby Storm Channel and Seal Beach Boulevard	Seal Beach Boulevard, north of Bixby Storm Channel	60" RCP	254	1,320	335,280	134,112	469,392	5,089,392
		Seal Beach Boulevard, north of Bixby Storm Channel	Seal Beach Boulevard and Rossmoor Center Way	60" RCP	2,500	1,320	3,300,000	1,320,000	4,620,000	
Low	CPW1-1 Alt 1	Harvard Lane, South of College Park Drive	Harvard Lane and Darthmouth Circle	18" RCP	250	450	112,500	45,000	157,500	157,500
Low	CPW2 Alt 1	College Park Drive and Stanford Lane	Stanford Lane, North of College Park Drive	30" RCP	500	750	375,000	150,000	525,000	525,000
Low	CPW2-2 Alt 1	Stanford Lane and College Park Drive	College Park Drive and Yale Lane	36" RCP	400	828	331,200	132,480	463,680	799,680
		College Park Drive and Yale Lane	College Park Drive, north of Yale Lane	24" RCP	400	600	240,000	96,000	336,000	
Low	CPW2-3 Alt 1	College Park Drive and Yale Lane	Yale Lane, north of College Park Drive	24" RCP	250	600	150,000	60,000	210,000	210,000
Low	CPW2-4 Alt 1	College Park Drive and Harvard Lane	Harvard Lane, north of College Park Drive	24" RCP	600	600	360,000	144,000	504,000	504,000
Low	SB 5B	Bolsa Avenue east of Sand Piper Dr.	Bolsa Avenue, east of Beach Comber Drive	54" RCP	250	1,242	310,500	124,200	434,700	2,120,160
		Bolsa Avenue, east of Beach Comber Drive	Bolsa Avenue, east of Sea Breeze Drive	48" RCP	250	1,104	276,000	110,400	386,400	
		Bolsa Avenue, east of Sea Breeze Drive	Bolsa Avenue and Bay Side Drive	42" RCP	400	966	386,400	154,560	540,960	
		Bolsa Avenue and Bay Side Drive	Bay Side Drive and Harbor Way	42" RCP	250	966	241,500	96,600	338,100	
		Bay Side Drive and Harbor Way	Harbor Way, west of Bayou Way	30" RCP	400	750	300,000	120,000	420,000	
Low	SB 6	Marlin Avenue and Balboa Drive	Marlin Avenue and Marble Cove Way	48" RCP	350	1,104	386,400	154,560	540,960	2,086,560
		Marlin Avenue and Marble Cove Way	Marlin Avenue and Riviera Drive	48" RCP	650	1,104	717,600	287,040	1,004,640	
		Marlin Avenue and Riviera Drive	Marlin Avenue and Beryl Cove Way	42" RCP	400	966	386,400	154,560	540,960	

**TABLE 10-1 (CONTINUED)
STORM DRAIN CAPITAL IMPROVEMENT PROGRAM ALTERNATIVE 1**

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
Low	WE 1-4	First Street (south R/W) and Electric Avenue	First Street (south R/W) south of Electric Avenue	24" RCP	250	600	150,000	60,000	210,000	210,000
Low	WE 5B	Pacific Coast Highway and Marina Drive	Pacific Coast Highway and 8th Street	42" RCP	210	966	202,860	81,144	284,004	683,928
		Pacific Coast Highway and 8th Street	Main Street and Pacific Coast Highway	36" RCP	345	828	285,660	114,264	399,924	
Low	WE 6	5th Street and Electric Avenue	5th Street, Pacific Coast Highway Crossing	51" RCP	375	1,173	439,875	175,950	615,825	1,624,329
		5th Street, Pacific Coast Highway Crossing	Marvista Avenue and Pacific Coast Highway	48" RCP	135	1,104	149,040	59,616	208,656	
		Marvista Avenue and Pacific Coast Highway	Marvista Avenue and Coastline Drive	48" RCP	210	1,104	231,840	92,736	324,576	
		Marvista Avenue and Coastline Drive	Coastline Drive, Marvista Avenue Crossing	48" RCP	90	1,104	99,360	39,744	139,104	
		Coastline Drive, Marvista Avenue Crossing	Coastline Drive and Driftwood Avenue	36" RCP	290	828	240,120	96,048	336,168	
Low	WE 6-1	Coastline Drive and Marvista Avenue	Coastline Drive and Catalina Avenue	36" RCP	190	828	157,320	62,928	220,248	289,800
		Catalina Drive and Catalina Avenue	Catalina Avenue, east of Coastline Drive	36" RCP	60	828	49,680	19,872	69,552	
Low	WE 6-2	Marvista Avenue and Coastline Drive	Marvista Avenue east of Coastline Drive	30" RCP	60	750	45,000	18,000	63,000	63,000
Low	WE 6-3	Driftwood Avenue and Coastline Drive	Driftwood Avenue east of Coastline Drive	36" RCP	40	828	33,120	13,248	46,368	46,368
Low Priority Totals					20,969		20,305,896	8,122,358	28,428,254	28,428,254

OCFCD Facility No C00P02										
Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
Replacement										
Medium	C00P02A	Seal Beach Boulevard and Electric Avenue	Seal Beach Boulevard and Pacific Coast Highway	84" RCP	1,640	1,848	3,030,720	1,212,288	4,243,008	4,243,008
Medium	C00P02B	Pacific Coast Highway and Balboa Drive	Balboa Drive and Bolsa Avenue	72" RCP	740	1,584	1,172,160	468,864	1,641,024	1,641,024
County Totals					2,380		4,202,880	1,681,152	5,884,032	5,884,032
Parallel										
Medium	C00P02A	Seal Beach Boulevard and Electric Avenue	Seal Beach Boulevard and Pacific Coast Highway	66" RCP	1,640	1,452	2,381,280	952,512	3,333,792	3,333,792
Medium	C00P02B	Pacific Coast Highway and Balboa Drive	Balboa Drive and Bolsa Avenue	60" RCP	740	1,320	976,800	390,720	1,367,520	1,367,520
County Totals					7,140		3,358,080	1,343,232	4,701,312	4,701,312

**TABLE 10-2
STORM DRAIN CAPITAL IMPROVEMENT PROGRAM, ALTERNATIVE 2**

High Priority Rank	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
1	WE 1	Electric Avenue and Corsair Way	Electric Avenue North and Marina Drive	Double 8'(W) x 4'3'(H) RCB	710	2,631	1,868,352	747,341	2,615,693	2,615,693
2	WE 4	Marina Drive and Electric Avenue North	Marina Street and Electric Avenue South	Double 8'(W) x 4'3'(H) RCB	208	2,631	547,348	218,939	766,287	2,608,459
		Electric Avenue North and Marina Drive	Electric Avenue North and 7th Street	Double 8'(W) x 3'6"(H) RCB	296	2,515	744,385	297,754	1,042,139	
		Electric Avenue North and 7th Street	Electric Avenue north, and 8th Street	42" RCP	322	966	311,052	124,421	435,473	
		Electric Avenue north, and 8th Street	Electric Avenue south and Main Street	24" RCP	434	600	260,400	104,160	364,560	
3	WE 5A	Marina Drive and Electric Avenue	Marina Drive and 7th Street	48" RCP	515	1,104	568,560	227,424	795,984	998,844
		Marina Drive and 7th Street	Marina Drive and Pacific Coast Highway	42" RCP	150	966	144,900	57,960	202,860	
4	SG 2A	Marina Drive and San Gabriel River	Proposed Pump Station	42" RCP	800	966	772,800	309,120	1,081,920	1,081,920
5	CPE6 Alt 2	Aster Street, south of Basswood Street	Aster Street and Birchwood Avenue	90" RCP	1,000	1,980	1,980,000	792,000	2,772,000	8,200,080
		Aster Street and Birchwood Avenue	Candleberry Avenue and Aster Street	84" RCP	200	1,848	369,600	147,840	517,440	
		Candleberry Avenue and Aster Street	Ironwood Avenue and Candleberry Avenue	72" RCP	700	1,584	1,108,800	443,520	1,552,320	
		Ironwood Avenue and Candleberry Avenue	Guava Avnue and Ironwood Avenue	60" RCP	500	1,320	660,000	264,000	924,000	
		Basswood Street and Aster Street	Old Ranch Golf Course Detention Basin	Double 54" Forcemain	700	2,484	1,738,800	695,520	2,434,320	
6	BC 1A	Bolsa Chica Channel 250' north of freeway	Wisteria Street	6'(W) x 3'(H) RCB	103	1,141	117,496	46,999	164,495	589,148
		Wisteria Street	Violet Street north of Almond Avenue	42" RCP	314	966	303,324	121,330	424,654	
7	BC 2A	Bolsa Chica Channel and easterly extension of Fir Avenue	Wisteria Street and Fir Avenue	48" RCP	130	1,104	143,520	57,408	200,928	200,928
High Priority Totals					7,082		11,639,337	4,655,735	16,295,072	16,295,072

TABLE 10-2 (CONTINUED)
STORM DRAIN CAPITAL IMPROVEMENT PROGRAM ALTERNATIVE 2

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
Medium	AB 1A	Seal Beach Boulevard and Anaheim Bay	Seal Beach Boulevard, south of RR R/W	76"(W) x 3'(H) RCB	260	1,204	312,963	125,185	438,148	3,206,316
		Seal Beach Boulevard, south of RR R/W	Seal Beach Boulevard at RR R/W	76"(W) x 3'(H) RCB	157	1,204	188,981	75,593	264,574	
		Seal Beach Boulevard at RR R/W	Seal Beach Blvd RR R/W Crossing	76"(W) x 3'(H) RCB	61	1,204	73,426	29,370	102,796	
		Seal Beach Blvd RR R/W Crossing	Seal Beach Boulevard and Pacific Coast Highway	76"(W) x 3'(H) RCB	464	1,204	558,519	223,407	781,926	
		Seal Beach Boulevard and Pacific Coast Highway	Seal Beach Boulevard, Pacific Coast Highway crossing	76"(W) x 3'(H) RCB	118	1,204	142,037	56,815	198,852	
		Seal Beach Boulevard, Pacific Coast Highway crossing	Seal Beach Boulevard north of Marlin Avenue	42" RCP	1,050	966	1,014,300	405,720	1,420,020	
Medium	BC 1-1	Wisteria Lane 250' north of freeway	Wisteria Lane and Candleberry Avenue	30" RCP	485	750	363,750	145,500	509,250	509,250
Medium	BC 1B	Violet Street north of Almond Avenue	Almond Avenue, east at Teaberry Circle	36" RCP	300	828	248,400	99,360	347,760	526,260
		Almond Avenue, east at Teaberry Circle	Almond Avenue east of Sunflower Circle	30" RCP	170	750	127,500	51,000	178,500	
Medium	BC 2B	Wisteria Street and Fir Avenue	Wisteria Street at Hazelnut Avenue	3'(W) x2'(H) RCB	250	726	181,481	72,593	254,074	471,852
		Wisteria Street at Hazelnut Avenue	Wisteria Street and Ironwood Avenue	2'6"(W) x 1'6"(H) RCB	250	622	155,556	62,222	217,778	
Medium	CPE 1B Alt 2	Guava Avenue and Ironwood Avenue R/W (N)	Hazelnut Avenue and Heather Street	54" RCP	1,660	1,242	2,061,720	824,688	2,886,408	2,886,408
Medium	CPE 2B Alt 2	Elder Avenue and Ironwood Avenue R/W (N)	Elder Avenue and Fuchsia Street	54" RCP	1,550	1,242	1,925,100	770,040	2,695,140	2,695,140
Medium	CPE 3-5B Alt 2	Candleberry Avenue and Aster Street	Candleberry Avenue and Fuschia Street	54" RCP	1,800	1,242	2,235,600	894,240	3,129,840	3,129,840
Medium	CPE 3-4B Alt 2	Birchwood and Aster Street	Birchwood Avenue and Daisy Circle	42" RCP	1,650	966	1,593,900	637,560	2,231,460	2,231,460
Medium	CPE 5	Cal Trans Open Channel	Lampson Avenue	24" RCP	75	600	45,000	18,000	63,000	63,000
Medium	SB 1-6	13th Street and Electric Avenue South	13th Street west of Electric Avenue South	24" RCP	73	600	43,800	17,520	61,320	61,320
Medium	SB 1-7	Alley between 12th Street and 13th Street and Electric Avenue South	Alley between 12th Street and 13th Street west of Electric Avenue South	18" RCP	39	450	17,550	7,020	24,570	24,570
Medium	SB 4B	Electric Avenue North and 14th Street	Electric Avenue North and 13th Street	66" RCP	253	1,452	367,356	146,942	514,298	2,299,164
		Electric Avenue North and 13th Street	Electric Avenue North and 12th Street	66" RCP	217	1,452	315,084	126,034	441,118	
		Electric Avenue North and 12th Street	Electric Avenue North, 12th Street Crossing	66" RCP	67	1,452	97,284	38,914	136,198	
		Electric Avenue North, 12th Street Crossing	12th Street, south of Electric Avenue	66" RCP	80	1,452	116,160	46,464	162,624	
		12th Street, south of Electric Avenue	12th Street, South of Central Avenue	48" RCP	57	1,104	62,928	25,171	88,099	
		12th Street, South of Central Avenue	12th Street, north of Central Avenue	48" RCP	127	1,104	140,208	56,083	196,291	
		12th Street, north of Central Avenue	Central Avenue and 11th Street	36" RCP	330	828	273,240	109,296	382,536	
		Central Avenue and 11th Street	Central Avenue and 10th Street	30" RCP	360	750	270,000	108,000	378,000	
Medium	SB 5A	Bolsa Avenue and Balboa Drive	Bolsa Avenue east of South Shore Dr.	66" RCP	380	1,452	551,760	220,704	772,464	1,705,704
		Bolsa Avenue east of South Shore Dr.	Bolsa Avenue east of Sand Piper Dr.	60" RCP	505	1,320	666,600	266,640	933,240	
Medium	SB3-1	Pacific Coast Highway and Balboa Drive	Pacific Coast Highway and Silver Shoals Avenue	36" RCP	900	828	745,200	298,080	1,043,280	1,437,030
		Pacific Coast Highway and Silver Shoals Avenue	Silver Shoals Avenue and Coastline Drive	30" RCP	375	750	281,250	112,500	393,750	
Medium	SB4-3	Proposed 66" SD	13th Street	36" RCP	100	828	82,800	33,120	115,920	115,920
Medium	SB4-4	Proposed 66" SD	12th Street (North)	42" RCP	121	966	116,886	46,754	163,640	163,640
Medium	SB4-5	Proposed 66" SD	East of 11th Street	24" RCP	150	600	90,000	36,000	126,000	126,000
Medium	SG 2-1	Proposed Pump Station	Central Avenue and 4th Street	5'(W) x2'(H) RCB	810	933	756,000	302,400	1,058,400	1,058,400
Medium	SG 2B	Marina Drive and 1st Street	Marina Drive and 2nd Street	5'6"(W) x 2.5'(H) RCB	300	985	295,556	118,222	413,778	1,361,111
		Marina Drive and 2nd Street	Marina Drive and 4th Street	5'(W) x 2'(H) RCB	725	933	676,667	270,667	947,333	
Medium	WE 1-3	Proposed Pump Station on Oakwood Apartments Property	Electric Avenue and Corsair Way	Double 5'(W) x 4'3"(H) RCB	1,000	2,048	2,048,148	819,259	2,867,407	2,867,407
Medium	WE 4-1	6th Street and Electric Avenue North	7th Street and Electric Avenue South	24" RCP	210	600	126,000	50,400	176,400	176,400
Medium	WE 4-2	7th Street and Electric Avenue North	7th Street and Electric Avenue South	36" RCP	160	828	132,480	52,992	185,472	185,472
Medium	WE 4-3	8th Street and Electric Avenue North	8th Street and Electric Avenue South	36" RCP	175	828	144,900	57,960	202,860	202,860
Medium Priority Totals					17,814		19,646,089	7,858,436	27,504,525	27,504,525

TABLE 10-2 (CONTINUED)
STORM DRAIN CAPITAL IMPROVEMENT PROGRAM ALTERNATIVE 2

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
Low	AB 1B	Seal Beach Boulevard north of Marlin Avenue	Seal Beach Boulevard and Bolsa Avenue	24" RCP	780	600	468,000	187,200	655,200	655,200
Low	LA 1	Bixby Storm Channel and Seal Beach Boulevard	Seal Beach Boulevard, north of Bixby Storm Channel	60" RCP	254	1,320	335,280	134,112	469,392	5,089,392
Low		Seal Beach Boulevard, north of Bixby Storm Channel	Seal Beach Boulevard and Rossmoor Center Way	60" RCP	2,500	1,320	3,300,000	1,320,000	4,620,000	
Low	CPE 1-1 Alt 2	Fir Avenue and Ironwood Avenue	Fir Avenue, West of Daisy Circle	36" RCP	840	828	695,520	278,208	973,728	1,141,728
Low		Fir Avenue, West of Daisy Circle	Fir Avenue and Daisy Circle	30" RCP	160	750	120,000	48,000	168,000	
Low	CPE 1C Alt 2	Hazelnut Avenue and Heather Street	Hazelnut Avenue and Iris Street	48" RCP	270	1,104	298,080	119,232	417,312	3,004,680
		Hazelnut Avenue and Iris Street	Hazelnut Avenue and Rose Street	42" RCP	1,350	966	1,304,100	521,640	1,825,740	
		Hazelnut Avenue and Rose Street	Rose Street and Fir Avenue	36" RCP	340	828	281,520	112,608	394,128	
		Rose Street and Fir Avenue	Sunflow Street and Fir Avenue	30" RCP	250	750	187,500	75,000	262,500	
		Sunflow Street and Fir Avenue	Sunflower Street north of Fir Avenue	30" RCP	100	750	75,000	30,000	105,000	
Low	CPE 2C Alt 2	Elder Avenue and Fuchsia Street	Elder Avenue west of Oleander Street	48" RCP	1,250	1,104	1,380,000	552,000	1,932,000	2,984,940
		Elder Avenue west of Oleander Street	Elder Avenue and Oldeander Street	42" RCP	350	966	338,100	135,240	473,340	
		Elder Avenue and Oldeander Street	Oleander Street and Dogwood Avenue	36" RCP	250	828	207,000	82,800	289,800	
		Oleander Street and Dogwood Avenue	Dogwood Avenue and Primrose Street	36" RCP	250	828	207,000	82,800	289,800	
Low	CPE 3-5C Alt 2	Fuchsia Street and Candleberry Avenue	Birchwood Avenue and Oleander Street	42" RCP	1,850	966	1,787,100	714,840	2,501,940	2,501,940
Low	CPE 3-4C Alt 2	Daisy Circle and Birchwood Avenue	Daisy Circle and Almond Avenue	36" RCP	400	828	331,200	132,480	463,680	1,093,680
		Daisy Circle and Almond Avenue	Almond Avenue east of Goldenrod Circle	30" RCP	600	750	450,000	180,000	630,000	
Low	CPE 4B Alt 2	Aster Street and Basswood Avenue	Aster Street and Almond Avenue	42" RCP	280	966	270,480	108,192	378,672	1,518,048
		Aster Street and Almond Avenue	Almond Avenue, east of Buebell Street	42" RCP	350	966	338,100	135,240	473,340	
		Almond Avenue, east of Buebell Street	Almond Avenue and Carnation Circle	36" RCP	330	828	273,240	109,296	382,536	
		Almond Avenue and Carnation Circle	Almond Avenue and Clover Circle	30" RCP	270	750	202,500	81,000	283,500	
Low	CPW1-1	Harvard Lane, South of College Park Drive	Harvard Lane and Dartmouth Circle	18" RCP	250	450	112,500	45,000	157,500	157,500
Low	CPW2	College Park Drive and Stanford Lane	Stanford Lane, North of College Park Drive	30" RCP	500	750	375,000	150,000	525,000	525,000
Low	CPW2-2	Stanford Lane and College Park Drive	College Park Drive and Yale Lane	36" RCP	400	828	331,200	132,480	463,680	799,680
		College Park Drive and Yale Lane	College Park Drive, north of Yale Lane	24" RCP	400	600	240,000	96,000	336,000	
Low	CPW2-3	College Park Drive and Yale Lane	Yale Lane, north of College Park Drive	24" RCP	250	600	150,000	60,000	210,000	210,000
Low	CPW2-4	College Park Drive and Harvard Lane	Harvard Lane, north of College Park Drive	24" RCP	600	600	360,000	144,000	504,000	504,000
Low	SB 5B	Bolsa Avenue east of Sand Piper Dr.	Bolsa Avenue, east of Beach Comber Drive	54" RCP	250	1,242	310,500	124,200	434,700	2,120,160
		Bolsa Avenue, east of Beach Comber Drive	Bolsa Avenue, east of Sea Breeze Drive	48" RCP	250	1,104	276,000	110,400	386,400	
		Bolsa Avenue, east of Sea Breeze Drive	Bolsa Avenue and Bay Side Drive	42" RCP	400	966	386,400	154,560	540,960	
		Bolsa Avenue and Bay Side Drive	Bay Side Drive and Harbor Way	42" RCP	250	966	241,500	96,600	338,100	
		Bay Side Drive and Harbor Way	Harbor Way, west of Bayou Way	30" RCP	400	750	300,000	120,000	420,000	
Low	SB 6	Marlin Avenue and Balboa Drive	Marlin Avenue and Marble Cove Way	48" RCP	350	1,104	386,400	154,560	540,960	2,086,560
		Marlin Avenue and Marble Cove Way	Marlin Avenue and Riviera Drive	48" RCP	650	1,104	717,600	287,040	1,004,640	
		Marlin Avenue and Riviera Drive	Marlin Avenue and Beryl Cove Way	42" RCP	400	966	386,400	154,560	540,960	

TABLE 10-2 (CONTINUED)
STORM DRAIN CAPITAL IMPROVEMENT PROGRAM ALTERNATIVE 2

Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
Low	WE 1-4	First Street (south R/W) and Electric Avenue	First Street (south R/W) south of Electric Avenue	24" RCP	250	600	150,000	60,000	210,000	210,000
Low	WE 5B	Pacific Coast Highway and Marina Drive	Pacific Coast Highway and 8th Street	42" RCP	210	966	202,860	81,144	284,004	683,928
		Pacific Coast Highway and 8th Street	Main Street and Pacific Coast Highway	36" RCP	345	828	285,660	114,264	399,924	
Low	WE 6	5th Street and Electric Avenue	5th Street, Pacific Coast Highway Crossing	51" RCP	375	1,173	439,875	175,950	615,825	1,624,329
		5th Street, Pacific Coast Highway Crossing	Marvista Avenue and Pacific Coast Highway	48" RCP	135	1,104	149,040	59,616	208,656	
		Marvista Avenue and Pacific Coast Highway	Marvista Avenue and Coastline Drive	48" RCP	210	1,104	231,840	92,736	324,576	
		Marvista Avenue and Coastline Drive	Coastline Drive, Marvista Avenue Crossing	48" RCP	90	1,104	99,360	39,744	139,104	
		Coastline Drive, Marvista Avenue Crossing	Coastline Drive and Driftwood Avenue	36" RCP	290	828	240,120	96,048	336,168	
Low	WE 6-1	Coastline Drive and Marvista Avenue	Coastline Drive and Catalina Avenue	36" RCP	190	828	157,320	62,928	220,248	289,800
		Catalina Drive and Catalina Avenue	Catalina Avenue, east of Coastline Drive	36" RCP	60	828	49,680	19,872	69,552	
Low	WE 6-2	Marvista Avenue and Coastline Drive	Marvista Avenue east of Coastline Drive	30" RCP	60	750	45,000	18,000	63,000	63,000
Low	WE 6-3	Driftwood Avenue and Coastline Drive	Driftwood Avenue east of Coastline Drive	36" RCP	40	828	33,120	13,248	46,368	46,368
Low Priority Totals						20,629	19,507,095	7,802,838	27,309,933	27,309,933

OCFCD Facility No C00P02										
Priority	Storm Drain	Downstream Location	Upstream Location	Size	Length	Unit Cost	Construct Cost	Admin and Engin Cost	Total Cost	Total Project Cost
Replacement										
Medium	C00P02A	Seal Beach Boulevard and Electric Avenue	Seal Beach Boulevard and Pacific Coast Highway	84" RCP	1,640	1,848	3,030,720	1,212,288	4,243,008	4,243,008
Medium	C00P02B	Pacific Coast Highway and Balboa Drive	Balboa Drive and Bolsa Avenue	72" RCP	740	1,584	1,172,160	468,864	1,641,024	1,641,024
County Totals						2,380	4,202,880	1,681,152	5,884,032	5,884,032
Parallel										
Medium	C00P02A	Seal Beach Boulevard and Electric Avenue	Seal Beach Boulevard and Pacific Coast Highway	66" RCP	1,640	1,452	2,381,280	952,512	3,333,792	3,333,792
Medium	C00P02B	Pacific Coast Highway and Balboa Drive	Balboa Drive and Bolsa Avenue	60" RCP	740	1,320	976,800	390,720	1,367,520	1,367,520
County Totals						7,140	3,358,080	1,343,232	4,701,312	4,701,312

Storm Drain Improvements (With College Park East Alternative No. 1)		
High Priority Storm Drains	\$10.2	Million
Medium Priority Storm Drains	\$31.7	Million
Low Priority Storm Drains	\$28.4	Million
Marina Drive and 1 st Street Pump Station	\$6.5	Million
<u>West End Pump Station No.2</u>	<u>\$8.5</u>	<u>Million</u>
Total Estimated Cost	\$85.4	Million
<i>C00P02 Replacement Cost</i>	<i>\$ 5.9</i>	<i>Million</i>
<i>C00P02 Parallel Facility Cost</i>	<i>\$ 4.7</i>	<i>Million</i>

Note: These improvement costs do not include the projects in design stages budgeted for the 2008 fiscal year.

Storm Drain Improvements (With College Park Alternative No. 2)		
High Priority Storm Drains	\$16.3	Million
Medium Priority Storm Drains	\$27.5	Million
Low Priority Storm Drains	\$27.3	Million
Marina Drive and 1 st Street Pump Station	\$6.5	Million
Bluebell Street and Almond Avenue Pump Station	\$10.5	Million
<u>West End Pump Station No.2</u>	<u>\$8.5</u>	<u>Million</u>
Total Estimated Cost	\$96.6	Million
<i>C00P02 Replacement Cost</i>	<i>\$ 5.9</i>	<i>Million</i>
<i>C00P02 Parallel Facility Cost</i>	<i>\$ 4.7</i>	<i>Million</i>

Note: These improvement costs do not include the projects in design stages budgeted for the 2008 fiscal year.

With the implementation of Alternative No. 1, the Capital Improvement Program developed by this study includes 43,800 feet (8.37 miles) of improvement projects and two pump station upgrades at an estimated cost of \$85.4 million dollars. The cost of completing the two pump station projects is estimated at \$15.0 million.

The Capital Improvement Program developed for Alternative 2 includes 45,500 feet (8.62 miles) of improvement projects and three pump station upgrades at an estimated cost of \$96.6 million dollars. The cost of completing the three pump station projects is estimated at \$25.5 million.

To analyze just the College Park East Drainage Area improvements costs, the estimated summary to implement the two alternatives are as follows:

College Park East Alternative No. 1 Storm Drain Improvements		
High Priority Storm Drains	\$2.2	Million
Medium Priority Storm Drains	\$15.1	Million
<u>Low Priority Storm Drains</u>	<u>\$13.4</u>	<u>Million</u>
Total Estimated Cost	\$30.7	Million

College Park East Alternative No. 2 Storm Drain Improvements		
High Priority Storm Drains	\$8.2	Million
Medium Priority Storm Drains	\$11.0	Million
Low Priority Storm Drains	\$12.3	Million
<u>Bluebell Street and Almond Avenue Street Pump Station</u>	<u>\$10.5</u>	<u>Million</u>
Total Estimated Cost	\$41.9	Million

Note: These improvement costs do not include the projects in design stages budgeted for the 2008 fiscal year.

The College Park East Drainage Area Alternative No. 2 is roughly \$11.2 million dollars more expensive than Alternative No. 1, because it requires the additional tributary storm drains as well as the construction of a new pump station. The advantage of Alternative No. 2 over Alternative No. 1 is that the recommended improvements will fully satisfy the flood protection criteria in the College Park East Drainage Area.