

13 IMPLEMENTATION PROGRAM AND CIP SCHEDULE

13.1 Prioritization Criteria

A priority ranking was developed in conjunction with the City for all proposed facilities. The goal of the priority ranking system is to determine the projects of greatest importance and determine which projects should be constructed first when funding becomes available. The three priorities are summarized below:

- **Priority 1**
 - **Existing Broken Storm Drains:** Existing storm drain systems classified as being in severe, heavy, or average defect condition per CCTV 2015 and 2012 inspections, or when calculated flooding depth or velocity will inundate structures or create a threat to human life.
 - **Arterial Street:** Existing storm drain systems for which the recommended size is 12 inches or more than the existing storm drain size.
 - **Private Property:** Existing storm drain systems in which the upstream collects runoff water from an existing arterial street with access to main public facilities, and the recommended size is 12 inches or more than the existing storm drain size.
 - **Other:** Streets for which there is a deficient storm drain, and a street improvement project is scheduled.
- **Priority 2**
 - **Existing Broken Storm Drains:** Existing storm drain systems classified as moderate or minor defect condition per CCTV 2015 and 2012 inspection.
 - **Arterial Street:** Existing storm drain systems for which a size increase is recommended.
 - **Private Property:** Storm drain systems in which the upstream collects runoff water from an existing arterial street, and a size increase is recommended.
- **Priority 3**
 - **Local Streets:** Existing storm drain systems for which a size increase is recommended.

Table 13-1 summarizes the priorities assigned to each storm drain segment for which a recommended improvement was proposed and/or the system was found to be in a defect condition per the CCTV 2014-2015 and 2012 inspections. Appendix C-1 and C-2 include the tables completed by the City for the CCTV condition assessment. The priority type column explains the priority reasoning:

- EX = Existing Broken Storm Drains
- ART = Arterial Street
- PP = Private Property
- OTHER
- LS = Local Streets

Table 13-1: Prioritization Pipes to be Improved										
System	Upstream Structure ID	Downstream Structure ID	Pipe ID	Atlas Map	Existing Size (in)	Proposed Size (in)	Street	Priority	Priority Type	CCTV Condition
Ocean South South										
1	CB0973	CB0972	SD0309	13C	18	24	Amber Sky Drive	1	EX	Severe
	CB0972	MC0971	SD0315		18	24				
2	CB0977	OS0976	SD0316	13D	18	24	Oceanaire Drive	1	EX	Severe
3	CB3456	GB3458	SD2466	24C	24	30	Palos Verdes Drive South at Peper tree Drive	1	EX-ART	Heavy
	GB3458	TS19313	SD13126		30	36				
	TS19313	JS4019	SD18731		24	36				
	JS4019	OS19712	SD3824		24	36				
4	IS54000	JS54001	SD52000	24C	-	24	Palos Verdes Drive South	1	ART	-
	JS54001	OS54002	SD52001		-	24				
Ocean South South - CCTV										
5	JS03292	MH00996		13C	30	-	Crenshaw Boulevard	1	EX	Severe
	IS03291	JS03292			30					
6	CB00990	GB02204		13C	18	-	Crenshaw Boulevard	1	EX	Heavy
	GB02204	MH00996			18					
Ocean South East A										
1	TS7317	MH1912	SD3035	25C	42	48	Dauntless Drive	3	LS	-
	MH1912	GB1913	SD0741		36	48				
	GB1913	GB1911	SD0740		36	48				
	GB1911	MH0507	SD0738		36	48				
	MH0507	GB1910	SD0737		36	48				
	GB1910	JS3425	SD2414		36	48				
	JS3425	GB1909	SD2415		36	48				
	GB1909	MH0516	SD0736		36	48				
2	GB1919	GB0517	SD0753	25C	30	36	Schooner Drive	3	LS	Good
	GB0517	JS1918	SD0754		30	36				
	JS1918	MH0516	SD0750		30	36				
3	JS1947	JS1948	SD0783	28A	45	60	Schooner Drive	1	ART	-
	JS1948	JS3614	SD3422		45	60				
	JS3614	TS0514	SD0784		45	60				
	TS0514	MH0489	SD0755		48	60				
	MH0489	OS0513	SD0530		48	60				
4	GB2648	GB2649	SD1685	25D	18	24	Ganado Drive	3	LS	-
	GB2649	JS2650	SD1686		18	24				
	JS2650	GB0418	SD1688		18	24				
	GB0418	OS0417	SD1687		18	24				
5	CB3134	GB3135	SD2128	28A	18	24	Maritime Road	3	LS	-
	GB3135	GB3137	SD2129		18	24				
	GB3137	GB3136	SD2130		18	24				
	GB3136	OS3138	SD2131		18	24				
6	GB4914	OS4031	SD3830	24D	48	60	Seawall Road	3	LS	-
7	CB0389	CB0411	SD3038	26C	21	30	Casilina Drive and Hawksmoor Drive	2	EX	Light
	CB0411	GB0410	SD3039	25D	21	30		1	EX	Severe
	GB0410	GB2375	SD1332		18	30				
	GB2375	MH0409	SD1333		18	30				
	MH0409	MH2371	SD1326		27	30				

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Ocean South East B										
1	IS0095	CB0093	SD0443	26A	18	24	Crest Road	2	PP	-
	CB0093	MH0094	SD2616		18	24				
	MH0094	MH0092	SD0448		18	24				
	MH0092	OS3564	SD2617		2 x 1.2	4 x 2				
2	GB34124	MH0075	SD0473	26C	21	30	Dianora Drive and Crest Road	2	ART-PP	Good
	MH0075	JS0076	SD0474		21	30				
	JS0076	MH0074	SD0476		21	30				
	MH0074	GB34125	SD32740		21	30				
	GB34125	GB34126	SD32741		21	30				
	GB34126	GB34127	SD0479		21	30				
	GB34127	MH0073	SD32742		24	30				
	MH0073	CB0067	SD0480		24	36				
3	IS0967	GB0333	SD0540	27A	18	24	Palos Verdes Drive East	2	ART	-
	GB0333	SD2322	SD1257		21	24				
	SD2322	TS2321	SD1256		21	24				
	TS2321	MH0332	SD1261		21	24				
4	CB36128	CB36129	SD35141	27A	18	24	Tarapaca Road	3	LS	-
Ocean South East - CCTV										
1	CB0369	JS0392		28A	18	-	Seacliff Drive	1	EX	Severe
2	IS2436	TS3466		25A & C	30	-	Forrestal Drive	1	EX	Severe
	TS3466	JS2437			30					
	JS2437	JS2438			30					
	JS2438	MH2439			30					
3	IS0519	TS3468		25A & C	30	-	Forrestal Drive	1	EX	Average
	TS3468	JS2434			30					
	JS2434	JS2435			30					
	JS2435	MH3467			30					
4	CB0296	GB0297		27A	24	-	Tarapaca Road	1	EX	Average
	GB0297	GB1906			24					
	GB1906	OS0298			24					
5	CB3198	CB3199		25A	24	-	Intrepid Drive	1	EX	Moderate
6	CB0085	CB0084		26C	18	-	Lucania Drive	1	EX	Moderate
7	CB0079	MH0082		26C	18	-	Deluna Drive	1	EX	Moderate
8	CB0300	MH0301		27A	24	-	San Ramon Drive	1	EX	Moderate
	MH0301	GB3429			24					
	GB3429	OS0302			24					
9	MH3521	MH3467		25A & C	30	-	Forrestal Drive	1	EX	Heavy
10	CB0080	CB0079		26C	18	-	Deluna Drive	2	EX	Light
11	IS43325	IS43324		26C	24	-	Crestridge Road	2	EX-ART	Light
	IS0064	IS34136			24					
	MH0066	JS34137			24					
	JS34137	CB34138			24					
	CB34138	IS0065			24					
12	CB3199	JS3200		25A	24	-	Intrepid Drive	2	EX	Light

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Ocean South West										
1	GB1743	IS0549	SD3266	22B	30	42	Palos Verdes Drive South	1	ART	-
	IS0549	MH41325	SD3002		24	42				
	MH41325	MH13709	SD2999		24	42				
2	MH0675	GB0674	SD0745	23B	36	48	Arrowroot Lane	3	LS	Good
	GB0674	OS0673	SD0426		36	48				
3	CB0552	MH0554	SD2994	22B	18	24	Palos Verdes Drive South Terranea Way	2	ART	-
	MH0554	MH0553	SD3001		18	24				
	MH0553	MH25729	SD42740		18	24				
	MH25729	MH36518	SD35532		18	24				
	MH36518	MH36519	SD35533	22D	18	24				
	MH36519	MH25741	SD25547		18	24				
	MH25741	MH36520	SD25560		18	24				
4	MH36520	MH25730	SD35534	22D	18	24	Terranea Way	3	LS	-
	IS40930	JS25771	SD39944		18	24				
	JS25771	MH36522	SD35535		18	24				
	MH36522	MH36523	SD35536		18	24				
	MH36523	MH36521	SD25589		18	24				
5	MH36521	MH25770	SD35537	12D	24	30	Crest Road	2	ART	-
	CB1065	CB1064	SD1729		24	30				
CB1064	CB1063	SD1730								
Ocean South West - CCTV										
6	CB0679	JS3538		23A	18	-	Seacove Drive	1	EX	Severe
7	CB2911	GB2913		19A	18	-	Rhone Drive	1	EX	Severe
	GB2913	GB2914			18					
	GB2914	GB2915			18					
	GB2915	MH2910			18					
8	MH1619	GB1900		19C	24	-	Marne Drive	1	EX	Severe
	GB1900	GB1899			24					
	GB1899	GB1897			24					
	GB1897	GB1898			24					
	GB1898	GB1896			24					
	GB1896	OS0720			24					
9	CB0739	MH0741		20B	24	-	Alta Vista Drive	1	EX	Average
10	CB3552	MH3550		23A	18	-	Palos Verdes Drive South	1	EX-ART	Average
11	MH0680	MH0689		23A	54	-	Palos Verdes Drive South	1	EX-ART	Average
12	CB0657	OS0659		23A	21	-	Sea Gate Drive	1	EX	Average
13	CB0747	MH0759		19A	30	-	Cartier Drive	1	EX	Average
14	CB0592	CB0587		22B	30	-	Hawthorne Boulevard	1	EX-ART	Average
15	CB2819	JS2820		20D	8	-	Via La Cresta	1	EX	Average
16	CB2863	GB2864		23A	18	-	Via Pacifica	1	EX	Moderate
	GB2864	OS2865			18					
17	JS2868	GB2870		23A	18	-	Via Baron	1	EX	Moderate
	GB2870	OS2869			18					
18	CB2817	JS2816		20D	18	-	La Cresta Road	1	EX	Moderate
19	IS2805	CB2804		22B	18	-	Hawthorne Boulevard	1	EX-ART	Moderate
20	CB1059	OS1058		12D	21	-	Sunmist Drive	1	EX	Heavy
21	CB0740	CB0739		20B	18	-	Alta Vista Drive	1	EX	Heavy
22	CB0745	JS0742		20B	36	-	Hawthorne Boulevard	1	EX-ART	Heavy

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23	CB2823	CB2824		20D	8	-	Via La Cresta	1	EX	Heavy
24	CB0725	CB0728		19C	18	-	Hawthorne Boulevard	1	EX-ART	Heavy
25	MH3532	JS3535		23A	18	-	Barkentine Road	1	EX	Heavy
	JS3535	JS3538			18					
	JS3538	JS3533			18					
	JS3533	MH3528			18					
26	MH2632	GB2634		19B	30	-	Sea View Avenue	2	EX	Light
	GB2634	TS2635			30					
	TS2635	GB2636			30					
	GB2636	OS2633			30					
27	CB0724	JS0727		20C	18	-	Palos Verdes Drive West	2	EX-ART	Light
28	CB0721	OS0726		19C	48	-	Hawthorne Boulevard	2	EX-ART	Light
29	CB3541	MH3539		23A	18	-	Sea Gate Drive	2	EX	Light
30	CB0587	OS0591		22B	30	-	Hawthorne Boulevard	2	EX-ART	Light
31	CB0746	CB0745		20B	18	-	Hawthorne Boulevard	2	EX-ART	Light
Ocean West										
1	GB2310	GB1207	SD1236	11C	21	30	Via Borica	3	LS	-
	GB1207	GB2309	SD1235		21	30				
	GB2309	GB2308	SD1234		21	30				
	GB2308	MH2306	SD1233		30	42				
2	MH1191	GB32121	SD31535	11C	36	42	Berry Hill Drive	3	LS	-
3	CB1189	JS1186	SD0291	11C	18	36	Via Cambron	3	LS	-
4	JS2675	GB46942	SD45156	11C	39	48	Via Cambron Palos Verdes Drive West	1	ART	Good
	GB46942	MH1185	SD0301		39	48				
	MH1185	GB46943	SD45157		30	48				
	GB46943	OS1184	SD0305		30	54				
5	GB3310	JS3303	SD2294	11C	18	24	Rue La Fleur	1	EX-LS	Severe
6	IS0632	CB0735	SD0362	20B	24	36	Alta Vista Drive	3	LS	-
Ocean West - CCTV										
7	CB1096	JS48132		12C	36	-	Hawthorne Boulevard	1	EX-ART	Severe
	JS48132	MH1101			36					
8	MH0629	MH0628		20B	36	-	Camino Porvernir	1	EX	Severe
9	GB1179	CB2216		11D	36	-	Camino Porvenir	1	EX	Average
	MH1141	GB1179			36			1	EX	Average
10	IS1156	MH1157		11D	18	-	Avenida Selecta	1	EX	Average
11	CB3128	CB1245		11C	18	-	Alida Place	1	EX	Moderate
12	CB1249	CB1248		11C	18	-	Palos Verdes Drive West	1	EX-ART	Moderate
13	MH1247	CB3076		11C	18	-	Palos Verdes Drive West	1	EX-ART	Moderate
14	CB0583	CB0584		20D	18	-	Hawthorne Boulevard	1	EX-ART	Moderate
15	CB1115	CB1154		20B	36	-	Hawthorne Boulevard	1	EX-ART	Heavy
16	IS1683	CB1682		20B	15	-	Via Del Cielo	1	EX	Heavy
17	MH3129	MH3131		11C & 11A	24	-	Alida Place	1	EX	Heavy
18	CB1133	GB2315		11C	21	-	Via Victoria	1	EX	Heavy
	GB2315	CB1134			21					
19	CB3302	GB3304		20A & 11C	30	-	Rue Langlois	1	EX	Heavy

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	GB3304	JS3307			30					
	JS3307	GB3308			30					
	GB3308	GB3309			30					
	GB3309	GB3310			30					
	GB3310	JS3303			30					
20	CB1628	CB0613		20A	18	-	Palos Verdes Drive West	1	EX-ART	Heavy
21	IS2843	MH2845		20D	42	-	Via Del Mar	1	EX	Heavy
22	CB2837	GB2838		20D	18	-	Via Del Mar	1	EX	Heavy
	GB2838	MH2835			UNK					
23	CB1096	JS48132		12C	18	-	Hawthorne Boulevard	2	EX-ART	Light
24	CB1695	GB1696		20C	18	-	Via Vicente	2	EX	Light
	GB1696	MH1694			18					
25	IS3601	MH3600		22A	24	-	Palos Verdes Drive West	2	EX-ART	Light
Los Angeles Harbor South										
1	CB0124	CB0123	SD3099	26C	18	24	Deluna Drive	1	EX	Average
	CB0123	JS34128	SD32743		18	24				
	JS34128	GB34131	SD32744		18	24				
	GB34131	GB34132	SD32745		18	24				
	GB34132	JS34133	SD32749		18	24				
	JS34133	GB34129	SD0454		18	24				
	GB34129	GB34130	SD32746		18	24				
2	CB0058	OS0059	SD3027	26C	18	24	Palos Verdes Drive East	2	ART	-
3	CB0053	CB0054	SD0487	26C	18	24	Santa Luna Drive	3	LS	Good
	CB0054	GB1904	SD0730		18	24				
	GB1904	GB1902	SD0727		18	24				
	GB1902	GB1903	SD0729		18	24				
	GB1903	OS0055	SD0728		18	24				
4*	CB0294	CB0293	SD0519	26D	18	18	Vista Mesa Drive	3	LS	Good
	CB0293	GB0292	SD0731		18	18				
	GB0292	GB1905	SD0732		18	18		1	EX	Severe
	GB1905	GB42524	SD0733		18	18				
5	CB0254	CB0253	SD2980	26B	12	18	Via Colinita	1	EX	Heavy
	CB0253	CB0252	SD2979		12	18				
	CB0252	OS0251	SD2985		12	18				
6	CB0247	CB0250	SD2964	26B	12	18	Via Colinita Kingsridge Road	1	EX	Heavy
	CB0250	CB0249	SD2965		12	18				
	CB0249	OS0248	SD2966		12	18				
7	CB0785	JS2704	SD0383	16C	21	30	Grandpoint Lane at Highpoint Road	3	LS	Good
	JS2704	OS0783	SD0385		24	30				
8	CB0814	CB0815	SD0387	16C	18	24	Crownview Drive	3	LS	Good
	CB0815	GB3110	SD2105		18	24				
	GB3110	GB3111	SD2106	16D	18	24				
	GB3111	GB3113	SD2107		18	24				
	GB3113	GB3112	SD2108		18	24				
	GB3112	OS0816	SD0391		18	24				
9	GB0819	CB0820	SD2912	16C & 16D	24	36	Knoll View Drive	1	EX	Average
	CB0820	CB0818	SD2910		24	36				

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	CB0818	OS0817	SD0402		30	36				
10	CB0834	CB0833	SD2909	16D	12	18	Via Siena	3	LS	-
	CB0833	CB0832	SD2911		12	18				
	CB0832	OS0831	SD2915		12	18				
11	IS0235	OS0232	SD2939	26B	30	48	Via Colinita	3	LS	-
Los Angeles Harbor South - CCTV										
12	CB0228	OS0227		26B	12	-	Corsini Place	1	EX	Severe
13	CB0051	OS0052		26B	12	-	Via Colinita	1	EX	Severe
14	MH3565	OS0098		26A	18	-	Starline Drive	1	EX	Average
	CB0099	MH3565			18					
15	CB0124	CB0123		26A	18	-	Deluna Drive	1	EX	Average
16	CB0257	OS0258		26B	12	-	Via Colinita	1	EX	Heavy
17	CB0822	CB0821		16C	18	-	Grandpoint Lane	2	EX	Light
18	CB0111	OS0112		26B	12	-	Palos Verdes Drive East	2	EX-ART	Light
19	CB0119	OS0120		26B	24	-	Palos Verdes Drive East	1	EX-ART	Severe
Los Angeles Harbor East										
1	CB1908	MH3210	SD40739	33C	24	30	Santa Rena Drive Western Drive	1	EX-ART	Heavy
	MH3210	GB3211	SD2216		24	30				
	GB3211	JS3212	SD2206		24	30				
2	IS0876	CB0877	SD1733	16A	12	30	Palos Verdes Drive East	3	LS	Good
	CB0877	CB0875	SD2841		12	30				
	CB0875	OS0872	SD2840		12	30				
3	CB3272	CB3271	SD2260	15D	18	24	Golden Spur Lane	2	EX	Light
4	CB0851	TS0852	SD2386	16B	12	18	Via Canada	3	LS	-
5	IS0858	GB3403	SD2384	16B	21	24	Via Canada	3	LS	-
	GB3403	MH0857	SD2385		21	24				
	MH0857	GB3401	SD2381		21	24				
	GB3401	CB0856	SD2382		15	24				
	CB0856	GB0855	SD0355		24	-				
	GB0855	GB0854	SD0354		21	24				
6	CB0127	CB0128	SD2832	34A	18	24	Beecham Drive	3	LS	-
	CB0128	GB52139	SD2829		18	24				
	GB52139	GB52140	SD50773	33C	18	24				
	GB52140	GB0129	SD50774		18	24				
7	MH1914	JS45732	SD2826	33C	36	60	Western Avenue	1	EX-ART	Severe
	JS45732	JS45733	SD2825		36	60				
	JS45733	MH2941	SD2823		42	60				
8	CB0864	JS0865	SD2857	16B	12	18	Via Canada	3	LS	-
	JS0865	OS0866	SD2853		12	18				
9	IS0915	OS0916	SD2787	15D	18	24	Rocking Horse Road	3	LS	-
10	IS0029	GB3414	SD2397	16D	18	24	North Enrose Avenue	3	LS	Good
	GB3414	JS34133	SD2398		18	24				
	JS34133	GB3415	SD2399		1X1.083	4X2				
	GB3415	OS0028	SD2400		1X1.084	4X2				
11	JS3411	JS34128	SD2395	16D	1X1.083	4X2	North Enrose Avenue	3	LS	-
	JS34128	OS0024	SD2396	1X1.083	4X2					
12	IS0027	JS3410	SD2393	16D	1X1.083	4X2	North Enrose Avenue	3	LS	-
	JS3410	OS0026	SD2392	1X1.083	4X2					
13	CB0786	CB0787	SD0382	16C	18	24	Crownview Drive	3	LS	Good
	CB0787	GB3118	SD0381		18	24		2	EX	Moderate

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	GB3118	GB3120	SD2113		18	24				
	GB3120	GB3119	SD2115		18	24				
	GB3119	OS0788	SD2114		18	24				
14	JS3419	MH46528	SD14729	34C	24	48	North Western Avenue	1	ART	Good
	MH46528	MH0012	SD43943	34A	30	48				
	MH0012	MH46131	SD43945		24	48				
15	CB0007	GB41729	SD40747	34A	18	24	Homeworth Drive	3	LS	Good
	GB41729	GB41730	SD40748		18	24				
	GB41730	OS0008	SD2859		18	24				
Los Angeles Harbor East – CCTV										
17	CB0156	CB0158		33C	18	-	Santa Rena Drive	1	EX	Average
18	CB0838	CB0837		16D	12	-	Via Siena	1	EX	Average
19	CB0015	CB0014		34C	18	-	MacArthur Street	1	EX	Moderate
20	CB0839	CB0838		16D	12	-	Via Siena	1	EX	Moderate
21	CB0021	CB0022		34C	24	-	Bayend Drive	2	EX	Light
22	CB0020	CB0022		34C	24	-	Noble View Drive	2	EX	Light
23	CB3420	GB14907		34C	18	-	Upland Street	2	EX	Light
24	CB0005	GB0004		34C	30	-	General Street	2	EX	Light
	GB0004	GB1922			30					
	GB1922	JS1927			30					
	JS1927	MH1926			30					
25	MH1926	GB0001		34C	36	-	Summerland Street	2	EX	Light
	GB0001	MH1928			36					
26	CB0837	CB0836		16D	12	-	Miraleste	2	EX-ART	Light
27	CB0166	CB0167	SD3331	33A	18	-	Western Avenue	1	EX-ART	Average
Los Angeles Harbor North										
Los Angeles Harbor North - CCTV										
1	CB0213	GB0212		32C	24	-	Western Avenue	1	EX-ART	Severe
2	MH0223	TS14135		32A	30	-	Peninsula Verde Drive	1	EX	Average
	TS14135	TS0222			30					
	TS0222	OS0221			30					
3	MH0190	GB1956		33A	96	-	Western Avenue	1	EX-ART	Average
	GB1956	OS0189			96					
4	CB0882	OS3202		15A	24	-	Martingale Drive	1	EX	Moderate
5	IS0214	CB0215		32A	18	-	Peninsula Verde Drive	2	EX	Light
6	IS0164	OS0166		15D	27	-	Santa Rena Drive	1	EX	Severe
7	IS0027	OS0026		16D	12	-	Enrose Avenue	1	EX	Severe
	IS0027	JS3410			12					
Palos Verdes Estates North										
1	CB1569	GB2093	SD0953	4B	18	24	Woodfern Drive	3	LS	-
	GB2093	MC3436	SD2437		18	24				
	MC3436	MH1568	SD2436		18	24				
2	CB1570	MH1566	SD0024	4B	24	36	Lightfoot Place	1	EX	Average
3	CB1591	MH1592	SD0014	2D	18	24	Montemalaga Drive	1	EX-ART	Heavy
4	GB48129	JS2089	SD46742	4B	21	30	Montemalaga Drive Ironwood Street	2	ART	Severe
	JS2089	CB1588	SD3365		21	30				
	CB1588	CB1589	SD2666	2D	24	36		1	EX-ART	
	CB1589	MH1590	SD0018		30	42				
	MH1590	MH1592	SD0016		30	42				
	MH1592	JS3559	SD0015		36	42			Severe	
5	TS3560	OS1596	SD0007	2D	30	42	Ironwood Street	1	EX	Heavy
6	CB1563	CB48134	SD3329	4B	24	30	Montemalaga Drive	2	EX-ART	Moderate

Table 13-1: Prioritization Pipes to be Improved										
System	Upstream Structure ID	Downstream Structure ID	Pipe ID	Atlas Map	Existing Size (in)	Proposed Size (in)	Street	Priority	Priority Type	CCTV Condition
Palos Verdes Estates North - CCTV										
7	CB1552	CB1559		5A	24	-	Montemalaga Drive	1	EX-ART	Heavy
8	CB2751	CB2750		4D	24	-	Basswood Avenue	1	EX	Moderate
9	CB2754	CB2755		5C	24	-	Basswood Avenue	1	EX	Moderate
Palos Verdes Estates West										
1	PC1250	Node2106	SD-108	9B	-	18	Eddinghill Drive	3	LS	-
	Node2106	CB1273	ST-03		-	18				
2	TS2931	MH1582	SD2682	4C	30	42	Granvia Altamira at Monero Drive	1	EX-ART	Severe
	MH1582	MH1583	SD2673		30	36				
	MH1583	MH2907	SD2671		30	36				
	MH2907	GB3037	SD3410		30	36				
Palos Verdes Estates West - CCTV										
5	CB1338	JS28915		8C	36	-	Hawthorne Boulevard	1	EX-ART	Severe
	JS28915	MH1345			36					
6	CB1339	GB2446		8C	36	-	Hawthorne Boulevard	1	EX-ART	Average
	MH1345	GB2446			36					
7	CB2713	TS2714		8D	18	-	Via Costa Verde	1	EX	Average
	TS2714	OS2715			18					
8	CB2728	JS2730		8D	24	-	Via Porto Grande	1	EX	Moderate
9	CB1431	JS28515		12A	18	-	Hawthorne Boulevard	1	EX-ART	Moderate
10	CB1251	PC1250		9B	18	-	Plainfield Drive	1	EX	Heavy
11	CB1424	GB2483		8C	18	-	Parklynn Drive	1	EX	Heavy
	GB2483	MH2522			18					
12	JS2725	MH2726		8D	24	-	Via Malona	2	EX	Light
	MH2733	JS2725			24					
13	MH2731	MH2733		8D	24	-	Via Malona	2	EX	Light
	GB2732	MH2731			24					
	JS2730	GB2732			24					
14	CB2729	JS2730		8D	18	-	Via Porto Grande	2	EX	Light
15	CB1372	OS1373		16C	18	-	Lomo Drive	2	EX	Light
16	CB1430	MH1434		12A	24	-	Hawthorne Boulevard	2	EX-ART	Light
Rolling Hills Estates										
1	GB3487	JS3488	SD2519	13A	39	48	Crestridge Road	1	EX	Good
	JS3488	MH3489	SD2517		39	48				
	MH3489	OS1015	SD2520		36	48				
2	IS1014	JS2683	SD2736	13A	24	48	Middlecrest Road	3	LS	Good
	JS2683	JS2684	SD2734		24	48				
	JS2684	OS1013	SD2731		24	48				
3	JS2686	MH1489	SD2687	7A	21	24	Hawthorne Boulevard Hawkhurst Drive	1	EX-ART	Average
	MH1489	JS48136	SD2674	5C	21	24				
	JS48136	MH1521	SD46770		21	30				
	MH1521	GB2490	SD1495		24	30				
	GB2490	MH1513	SD1496		27	36				
	MH1513	MH1514	SD0039		24	36				
	MH1514	JS2492	SD1498		24	36				
	JS2492	MH1515	SD1499		24	36				
	MH1515	MH1516	SD0038		24	36				
	MH1516	GB2493	SD1500		24	36				
	GB2493	TS1522	SD1501		24	36				
TS1522	MH1523	SD0035	30		36					
4	CB1452	JS3297	SD2705	8B	24	6X2	Hawthorne	2	ART	-

Table 13-1: Prioritization Pipes to be Improved										
System	Upstream Structure ID	Downstream Structure ID	Pipe ID	Atlas Map	Existing Size (in)	Proposed Size (in)	Street	Priority	Priority Type	CCTV Condition
	JS3297	MH3293	SD2279		24	6X2	Boulevard			
	MH3293	JS3295	SD2280		24	6X2				
5	TS3146	CB3143	SD2136	5C	18	24	Via de la Vis Shadow Wood	1	EX-PP	Severe
	CB3143	CB3144	SD2137		18	24				
	CB3144	CB3145	SD2138		18	24				
	CB3145	OS1536	SD2139		18	24				
6	MC3434	GB3435	SD2434	5C	24	30	Hawthorne Boulevard	1	EX-ART	Severe
	GB3435	OS1538	SD2435		24	30				
7	CB1465	CB1467	SD0090	7B	18	30	Browndeer Lane	3	LS	-
	CB1467	CB1470	SD0088		21	30				
	CB1470	GB2385	SD1344		27	30				
	GB2385	JS2389	SD1348		27	30				
	JS2389	GB1469	SD1349		27	30				
	GB1469	OS1468	SD1352		27	30				
8	JS2685	GB1482	SD2438	7B	24	30	Browndeer Lane	3	LS	-
	GB1482	GB3437	SD2439		24	36				
	GB3437	GB3438	SD2440		18	36				
	GB3438	GB3439	SD2441		18	36				
	GB3439	GB3440	SD2442		18	36				
	GB3440	GB3441	SD2443		18	36				
	GB3441	OS1481	SD2444		18	36				
9	MH1553	MH1558	SD0021	5A	24	30	Ironwood Street	3	LS	Good
	TS1557	OS1556	SD0023		24	30				
Rolling Hills Estates - CCTV										
10	CB3447	MH3399		13A	18	-	Crenshaw Boulevard	1	EX-ART	Severe
11	JS48534	MH1006		13A	30	-	Crenshaw Boulevard	1	EX-ART	Average
	JS3399	JS48534			30					
12	CB1463	MH3473		7D	24	-	Longhill Drive	2	EX	Light
	MH3473	GB3474			24					
	GB3474	OS1464			24					
13	CB1459	CB1458		7D	18	-	Golden Arrow Drive	2	EX	Light
14	CB1458	MC3470		7D	18	-	Golden Arrow Drive	2	EX	Light
	MC3470	GB3471			18					
	GB3471	GB3472			18					
	GB3472	OS1457			18					
15	CB1017	MH3489		13A	24	-	Crestridge Road	2	EX-ART	Light

13.2 Capital Improvement Projects Schedule

The recommended Capital Improvement Projects (CIP) were scheduled for the storm drain systems that were found to be deficient per the hydraulic analysis, using the criteria defined below.

1. Identified all projects within each priority classification: 1, 2 or 3.
2. Differentiated between two different types of projects:
 - a. Type I: storm drain systems that were classified as deficient systems per this MPD (capacity deficient).
 - b. Type II: storm drain systems that have capacity deficiencies and that have condition deficiencies per the CCTV inspection.
3. Type II projects were scheduled first.

4. Recognized the following project characteristics for risk assessment:
 - a. Located under an arterial street.
 - b. Calculated total tributary area to storm drain system.
 - c. Identified if there was a downstream deficient system.
5. Scheduled the project depending on the risk assessment criteria.

According to the City, collections from a storm drain user fee contribute around \$1.3 million annually. This fee expires in June of 2016. However, for this MPD, it is assumed the fee will be renewed. Using \$1.3 million per year as the fee revenue cap, the years highlighted in red will require identification of additional funding sources. Table 13-2 summarizes the CIP schedule cost per year and the priority ranks for storm drain systems to be improved in the given year. Recommended improvement projects priority 2 and 3 that are located downstream of a priority 1 project were schedule first.

Table 13-2: CIP Schedule Summary		
Year	Cost	Priority
1	\$1,769,000.00	1 & 2
2	\$2,229,000.00	1 & 2
3	\$1,729,000.00	1,2 & 3
4	\$2,629,000.00	1 & 3
5	\$1,798,000.00	2 & 3
6	\$1,471,000.00	2 & 3
7	\$1,988,000.00	3
8	\$1,243,000.00	3
9	\$1,507,000.00	3
10	\$1,251,000.00	3
Total	\$17,614,000.00	

Tables 13-3, 13-4, and 13-5 summarize the schedule for projects considered priorities 1, 2 and 3, respectively.

Table 13-3: CIP Schedule Priority 1 Projects								
Drainage Area	System	Upstream Structure ID	Downstream Structure ID	Atlas Map	Street	Priority	Project Cost	Year Schedule
LAE	7	MH1914	JS45732	33C	Western Avenue	1	\$163,000.00	
		JS45732	JS45733					
		JS45733	MH2941					
LAE	1	CB1908	MH3210	33C	Santa Rena Drive Western Drive	1	\$181,000.00	
		MH3210	GB3211					
		GB3211	JS3212					
PVN	3	CB1591	MH1592	2D	Montemalaga Drive Ironwood Street	1	\$681,000.00	
		4	GB48129	JS2089		4B		
	JS2089		CB1588	2D		1		
	CB1588		CB1589					
	CB1589		MH1590					
	MH1590		MH1592					
	MH1592	JS3559						
5	TS3560	OS1596	2D	Ironwood Street	1			
PVW	2	TS2931	MH1582	4C	Granvia Altamira at Monero Drive	1	\$744,000.00	
		MH1582	MH1583					
		MH1583	MH2907					
		MH2907	GB3037					
TOTAL							\$1,769,000.00	1
OSS	3	CB3456	GB3458	24C	Palos Verdes Drive South at Peper tree Drive	1	\$811,000.00	
		GB3458	TS19313					
		TS19313	JS4019					
		JS4019	OS19712					
RHE	3	JS2686	MH1489	5C & 7A	Hawthorne Boulevard Hawkhurst Drive	2*	\$1,418,000.00	
		MH1489	JS48136					
		JS48136	MH1521					
		MH1521	GB2490					
		GB2490	MH1513					
		MH1513	MH1514					
		MH1514	JS2492					
		JS2492	MH1515					
		MH1515	MH1516					
		MH1516	GB2493					
		GB2493	TS1522					
TS1522	MH1523							
TOTAL							\$2,229,000.00	2
RHE	6	MC3434	GB3435	5C	Hawthorne Boulevard	1	\$52,000.00	
		GB3435	OS1538					
RHE	5	TS3146	CB3143	5C	Via de la Vis Shadow Wood	1	\$188,000.00	
		CB3143	CB3144					
		CB3144	CB3145					
		CB3145	OS1536					
OSS	1	CB0973	CB0972	13C	Amber Sky Drive	1	\$90,000.00	
		CB0972	MC0971					

Table 13-3: CIP Schedule Priority 1 Projects								
Drainage Area	System	Upstream Structure ID	Downstream Structure ID	Atlas Map	Street	Priority	Project Cost	Year Schedule
RHE	2	IS1014	JS2683	13A	Middlecrest Road	3*	\$87,000.00	
		JS2683	JS2684					
		JS2684	OS1013					
OSS	2	CB0977	OS0976	13D	Oceanaire Drive	1	\$68,000.00	
OWW	5	GB3310	JS3303	11C	Rue La Fleur	1	\$20,000.00	
OSS	4	IS54000	JS54001	24C	Palos Verdes Drive South	1	\$344,000.00	
		JS54001	OS54002					
OSEA	7	CB0389	CB0411	25D & 26C	Casilina Drive and Hawksmoor Drive	2*	\$293,000.00	
		CB0411	GB0410			1		
		GB0410	GB2375					
		GB2375	MH0409					
		MH0409	MH2371					
LAS	5	CB0254	CB0253	26B	Via Colinita	1	\$236,000.00	
		CB0253	CB0252					
		CB0252	OS0251					
LAS	4	CB0294	CB0293	26D	Vista Mesa Drive	3*	\$103,000.00	
		CB0293	GB0292			1		
		GB0292	GB1905					
		GB1905	GB42524					
LAS	6	CB0247	CB0250	26B	Via Colinita Kingsridge Road	1	\$248,000.00	
		CB0250	CB0249					
		CB0249	OS0248					
TOTAL							\$1,729,000.00	3
RHE	1	GB3487	JS3488	13A	Crestridge Road	1	\$270,000.00	
		JS3488	MH3489					
		MH3489	OS1015					
PVN	2	CB1570	MH1566	4B	Lightfoot Place	1	\$111,000.00	
LAS	11	IS0235	OS0232	26B	Via Colinita	3*	\$126,000.00	
LAS	9	GB0819	CB0820	16C & 16D	Knoll View Drive	1	\$411,000.00	
		CB0820	CB0818					
		CB0818	OS0817					
LAS	1	CB0124	CB0123	26C	Deluna Drive	1	\$156,000.00	
		CB0123	JS34128			3*		
		JS34128	GB34131					
		GB34131	GB34132					
		GB34132	JS34133					
		JS34133	GB34129					
		GB34129	GB34130					
		GB34130	OS0125					
OSEA	3	JS1947	JS1948	28A	Schooner Drive	1	\$451,000.00	
		JS1948	JS3614					
		JS3614	TS0514					
		TS0514	MH0489					
		MH0489	OS0513					
OWW	3	CB1189	JS1186	11C	Via Cambron Palos Verdes Drive West	3*	\$303,000.00	
		JS2675	GB46942	11C		1		
	GB46942	MH1185						
	MH1185	GB46943						

Table 13-3: CIP Schedule Priority 1 Projects								
Drainage Area	System	Upstream Structure ID	Downstream Structure ID	Atlas Map	Street	Priority	Project Cost	Year Schedule
		GB46943	OS1184					
LAE	14	JS3419	MH46528	34C	North Western Avenue	1	\$532,000.00	
		MH46528	MH0012	34A				
		MH0012	MH46131					
OSW	1	GB1743	IS0549	22B	Palos Verdes Drive South	1	\$269,000.00	
		IS0549	MH41325					
		MH41325	MH13709					
TOTAL							\$2,629,000.00	4
*Projects scheduled first, because an upstream system is considered priority 1.								

Table 13-4: CIP Schedule Priority 2 Projects								
Drainage Area	System	Upstream Structure ID	Downstream Structure ID	Atlas Map	Street	Priority	Project Cost	Year Schedule
LAE	3	CB3272	CB3271	15D	Golden Spur Lane	2	\$24,000.00	
LAE	13	CB0786	CB0787	16C	Crownview Drive	3	\$145,000.00	
		CB0787	GB3118					
		GB3118	GB3120					
		GB3120	GB3119					
		GB3119	OS0788					
PVN	6	CB1563	CB48134	4B	Montemalaga Drive	2	\$201,000.00	
OSEB	2	GB34124	MH0075	26C	Dianora Drive and Crest Road	2	\$274,000.00	
		MH0075	JS0076					
		JS0076	MH0074					
		MH0074	GB34125					
		GB34125	GB34126					
		GB34126	GB34127					
		GB34127	MH0073					
		MH0073	CB0067					
OSW	5	CB1065	CB1064	12D	Crest Road	2	\$41,000.00	
		CB1064	CB1063					
OSEB	1	IS0095	CB0093	26A	Crest Road	2	\$186,000.00	
		CB0093	MH0094					
		MH0094	MH0092					
		MH0092	OS3564					
OSEB	3	IS0967	GB0333	27A	Palos Verdes Drive East	2	\$93,000.00	
		GB0333	SD2322					
		SD2322	TS2321					
		TS2321	MH0332					
RHE	4	CB1452	JS3297	8B	Hawthorne Boulevard	2	\$834,000.00	
		JS3297	MH3293					
		MH3293	JS3295					
TOTAL							\$1,798,000.00	5

Table 13-4: CIP Schedule Priority 2 Projects								
Drainage Area	System	Upstream Structure ID	Downstream Structure ID	Atlas Map	Street	Priority	Project Cost	Year Schedule
OSW	3	CB0552	MH0554	22B	Palos Verdes Drive South Terranea Way	2	\$619,000.00	
		MH0554	MH0553					
		MH0553	MH25729					
		MH25729	MH36518	22D				
		MH36518	MH36519					
		MH36519	MH25741					
		MH25741	MH36520					
		MH36520	MH25730					
LAS	2	CB0058	OS0059	26C	Palos Verdes Drive East	2	\$49,000.00	
TOTAL							\$668,000.00	6

Table 13-5: CIP Schedule Priority 3 Projects								
Drainage Area	System	Upstream Structure ID	Downstream Structure ID	Atlas Map	Street	Priority	Project Cost	Year Schedule
OSEB	4	CB36128	CB36129	27A	Tarapaca Road	3	\$60,000.00	
OSEA	1	TS7317	MH1912	25C	Dauntless Drive	3	\$743,000.00	
		MH1912	GB1913					
		GB1913	GB1911					
		GB1911	MH0507					
		MH0507	GB1910					
		GB1910	JS3425					
		JS3425	GB1909					
		GB1909	MH0516					
TOTAL							\$803,000.00	
TOTAL YEAR 6 (Priority 2 and 3)							\$1,471,000.00	6
OSEA	2	GB1919	GB0517	25C	Schooner Drive	3	\$311,000.00	
		GB0517	JS1918					
		JS1918	MH0516					
OWW	2	MH1191	GB32121	11C	Berry Hill Drive	3	\$92,000.00	
OSEA	6	GB4914	OS4031	24D	Seawall Road	3	\$253,000.00	
LAE	5	IS0858	GB3403	16B	Via Canada	3	\$229,000.00	
		GB3403	MH0857					
		MH0857	GB3401					
		GB3401	CB0856					
		CB0856	GB0855					
		GB0855	GB0854					
		GB0854	OS3402					
OSW	2	MH0675	GB0674	23B	Arrowroot Lane	3	\$281,000.00	
		GB0674	OS0673					
RHE	8	JS2685	GB1482	7B	Browndeer Lane	3	\$222,000.00	
		GB1482	GB3437					
		GB3437	GB3438					
		GB3438	GB3439					
		GB3439	GB3440					
		GB3440	GB3441					

Table 13-5: CIP Schedule Priority 3 Projects								
Drainage Area	System	Upstream Structure ID	Downstream Structure ID	Atlas Map	Street	Priority	Project Cost	Year Schedule
OWW	1	GB3441	OS1481	11C	Via Borica	3	\$127,000.00	
		GB2310	GB1207					
		GB1207	GB2309					
		GB2309	GB2308					
		GB2308	MH2306					
OWW	6	IS0632	CB0735	20B	Alta Vista Drive	3	\$473,000.00	
TOTAL							\$1,988,000.00	7
RHE	7	CB1465	CB1467	7B	Browndeer Lane	3	\$145,000.00	
		CB1467	CB1470					
		CB1470	GB2385					
		GB2385	JS2389					
		JS2389	GB1469					
		GB1469	OS1468					
LAE	9	IS0915	OS0916	15D	Rocking Horse Road	3	\$61,000.00	
RHE	9	MH1553	MH1558	5A	Ironwood Street	3	\$344,000.00	
		TS1557	OS1556					
LAE	6	CB0127	CB0128	34A	Beecham Drive	3	\$162,000.00	
		CB0128	GB52139	33C				
		GB52139	GB52140					
		GB52140	GB0129					
LAS	8	CB0814	CB0815	16C	Crownview Drive	3	\$205,000.00	
		CB0815	GB3110	16D				
		GB3110	GB3111					
		GB3111	GB3113					
		GB3113	GB3112					
		GB3112	OS0816					
LAS	7	CB0785	JS2704	16C	Grandpoint Lane at Highpoint Road	3	\$102,000.00	
		JS2704	OS0783					
LAE	2	IS0876	CB0877	16A	Palos Verdes Drive East	3	\$109,000.00	
		CB0877	CB0875					
		CB0875	OS0872					
LAS	10	CB0834	CB0833	16D	Via Siena	3	\$115,000.00	
		CB0833	CB0832					
		CB0832	OS0831					
TOTAL							\$1,243,000.00	8

LAE	10	IS0029	GB3414	16D	North Enrose Avenue	3	\$548,000.00	
		GB3414	JS34133					
		JS34133	GB3415					
		GB3415	OS0028					
LAE	12	IS0027	JS3410	16D	North Enrose Avenue	3	\$399,000.00	
		JS3410	OS0026					
PVW	1	PC1250	Node2106	9B	Eddinghill Drive	3	\$286,000.00	
		Node2106	CB1273					
LAE	15	CB0007	GB41729	34A	Homeworth Drive	3	\$93,000.00	
		GB41729	GB41730					
		GB41730	OS0008					

Table 13-5: CIP Schedule Priority 3 Projects								
Drainage Area	System	Upstream Structure ID	Downstream Structure ID	Atlas Map	Street	Priority	Project Cost	Year Schedule
LAE	8	CB0864	JS0865	16B	Via Canada	3	\$181,000.00	
		JS0865	OS0866					
TOTAL							\$1,507,000.00	9
OSEA	4	GB2648	GB2649	25D	Ganado Drive	3	\$107,000.00	
		GB2649	JS2650					
		JS2650	GB0418					
		GB0418	OS0417					
OSEA	5	CB3134	GB3135	28A	Maritime Road	3	\$89,000.00	
		GB3135	GB3137					
		GB3137	GB3136					
		GB3136	OS3138					
OSW	4	IS40930	JS25771	22D	Terranea Way	3	\$288,000.00	
		JS25771	MH36522					
		MH36522	MH36523					
		MH36523	MH36521					
		MH36521	MH25770					
PVN	1	CB1569	GB2093	4B	Woodfern Drive	3	\$80,000.00	
		GB2093	MC3436					
		MC3436	MH1568					
LAE	11	JS3411	JS34128	16D	North Enrose Avenue	3	\$502,000.00	
		JS34128	OS0024					
LAE	4	CB0851	TS0852	16B	Via Canada	3	\$55,000.00	
LAS	3	CB0053	CB0054	26C	Santa Luna Drive	3	\$130,000.00	
		CB0054	GB1904					
		GB1904	GB1902					
		GB1902	GB1903					
		GB1903	OS0055					
TOTAL							\$1,251,000.00	10

13.3 Future Considerations

Master Plan of Drainage studies are planning-level documents focused on identifying a citywide storm drainage system to reduce flooding risk. Implementation of any facility identified in this document as deficient should be supplemented with detailed hydrology and hydraulic calculations during the final design process. Additional studies that should be performed during final design include detailed geotechnical investigations, utility surveying, catch basin design, and utility relocation.

In this MPD, the entire storm drain system located within the City's jurisdiction was analyzed. The most updated storm drain information was used in conjunction with a coupled hydrology and hydraulics model in XP-SWMM. The comprehensive model's basis of GIS data, integrated with the Michael Baker Model Builder, makes the XP-SWMM model a valuable tool for future design projects. The models are divided by drainage area to facilitate updates. The City would have to purchase an XP-SWMM license and have staff trained in the use of the program to maintain the model in house. The model will require knowledge of the County of Los Angeles hydrology and hydraulic methods to efficiently model future improvements.

One of the main goals of this comprehensive model was to provide the City with a living document and model that could be revised as significant changes in the storm drain system are completed. These changes include but are not limited to roadway improvements, tract developments, and storm drain improvements. Generally, the MPD for any city should be updated every ten years, and Michael Baker recommends that the City review this MPD in ten years. However, the approach used in this MPD allows the City to continuously revise the models, which could result in lower overall costs to produce future master plans. Future revisions to consider include addition of currently missing or incomplete storm drain infrastructure data, analysis of current recommended Capital Improvement Projects as they are design and constructed, other storm drain improvements, updates to rainfall data by the County of Los Angeles, and changes in County of Los Angeles hydrology and hydraulic methods.