



STORM DRAINAGE SYSTEM

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The Storm Drainage Facilities Improvements Program consists of four major components:

- The Storm Water Management Program (SWMP), which is to reduce the risk of structural flooding by protecting properties from flood damage during a 100-year (1% probability) rainfall event. The program targets local drainage systems and integrates with the primary drainage channels and bayous, which are the responsibility of the Harris County Flood Control District (HCFCD). The FY2009-2013 SWMP projects include the continuation of drainage improvements in the TMC as well as several other projects. This includes: Rustling Oaks; Edloe; Whiteheather and Kirby Relief Phase IV. FY2009-2013 SWMP construction projects total approximately \$204 million.
- The Localized Drainage Improvements Program, which consists of small drainage improvement projects, typically less than \$500,000.

There is a backlog of small drainage issues which when resolved can protect many homes from structural flooding. In many cases one section of pipe, a missing overflow section, or inadequate inlets are the only improvements needed to solve the problem. A quick solution will resolve the problems of an otherwise adequate system. On-call engineering and construction contacts will be used to address these problems quickly and cost effectively. The FY2009-2013 program totals approximately \$15.5 million.

- The Comprehensive Drainage Plan (CDP), which prioritizes projects based on specific criteria such as the number of reported structural flooding incidents and repetitive loss properties, has identified more than \$2 billion of inadequate systems in the City to be upgraded. This program prioritizes, scopes, designs, and constructs solution to the inadequacies identified for this long-term program.

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- The projects selected to start this program have the highest numbers of flood-damaged properties by drainage area. Each project will be designed to keep the localized drainage in the piping or street sheet flow system to protect the structures from flooding during the 100-year rainfall event. Properties within a riverine 100-year flood zone will be protected from local drainage flooding, but may not be protected from the riverine flooding until the Harris County Flood Control District projects are completed. Funding for these projects total approximately \$100 million.

- Street reconstruction projects sponsored by TxDOT require the local sponsor (City of Houston) to pay for storm drainage improvements associated with its street reconstruction projects. The FY2008-2013 program has identified approximately \$4 million to support these projects.

Projects supported by Community Development Block Grants (CDBG) funding includes \$4 million in FY2009-2013. Eligible projects identified for CDBG participation includes: Braes Boulevard and Academy Street (M-0255), Astoria and Flushing Meadows (M-0276), and Riptide Area (M-0283).

In summary, the FY2009-2013 Storm Drainage Facilities Improvements Program totals \$281.3 million and is funded primarily by general obligation debt including voter-authorized bonds and commercial paper. Other funding sources include County and State participation, and federal grants (CDBG and FEMA), for \$14 million.

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2009-2013 CAPITAL IMPROVEMENT PLAN (\$ Thousands)

CIP No.	Project Name	Estimated 2008	Fiscal Year Planned Appropriations					2009-2013
			2009	2010	2011	2012	2013	
M-000126	Local Drainage Improvement Projects	3,106	2,000	2,500	3,000	4,000	4,000	15,500
M-000209	Wycliffe Dr Relief Storm Sewer (Brittmoore)		400		3,750			4,150
M-000220	Stormwater Program Management, Planning & Technical Services	1,750	1,600	1,300	1,100	1,100	1,100	6,200
M-000230	Kirby Relief Storm Sewer			9,500				9,500
M-000241	Stormwater Pump Station Improvements at Various Underpasses	3,000	3,000					3,000
M-000247	Kirkwood: Memorial to I-10		585			10,800	7,000	18,385
M-000249	Memorial Area Storm Sewer Improvements	12,274	6,200					6,200
M-000250	Kirkwood Briar Forest Drainage Improvements	450	600		3,000			3,600
M-000253	Edloe Street Area Storm Sewer Relief	649	7,050					7,050
M-000255	Braes Boulevard and Academy Street Storm Drainage Trunk Line	5,052	510	8,200				8,710
M-000260	Texas Medical Center Drainage Improvements	8,823						
M-000261	Buffalo Bayou Detention Basin		600	7,600				8,200
M-000262	Whiteheather Storm Sewer Improvements (Fuqua, Buffalo Speedway to Hiram Clark)	10,932	8,650	7,500	7,500			23,650
M-000263	Sherwood Forest Storm Sewer System (I-10: Antoine to Silber)			400			9,000	9,400
M-000265	Renwick Street Drainage Improvements			1,000	1,000	10,000		12,000
M-000266	Kirkwyn, Sagemont Park Area Drainage Improvements	2,047						
M-000267	Shepherd Drive: Buffalo Bayou to Westheimer	650			650	5,500		6,150
M-000269	Wayside from Laura Koppe to Crestview	5,083						

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CIP No.	Project Name	Estimated 2008	Fiscal Year Planned Appropriations					2009-2013
			2009	2010	2011	2012	2013	
M-000271	Braesheather, Doud, and Endicott Street Drainage Improvements				600			600
M-000272	Martin Luther King Boulevard from Orem to Airport	500		8,150				8,150
M-000273	Broadway from Bellfort to Park Place		645		3,000			3,645
M-000276	Astoria from Flushing Meadows to Binghamton	460	380		3,900			4,280
M-000277	Crestridge Drainage Improvements from Mykawa to Doolittle				2,150		3,400	5,550
M-000278	Upper Kirby		5,750					5,750
M-000279	Braesheather Drainage Improvements						250	250
M-000280	Boone from Harwin to Oakcenter Drainage Improvements		670		13,750			14,420
M-000281	Meyerland, Westbury				500			500
M-000282	Homestead Road Area Drainage Improvements	250	840			10,200		11,040
M-000283	Riptide Area Drainage Improvements		410		4,000			4,410
M-000284	Airline Drive from Canino to Little York Drainage Improvements				600	1,100	5,100	6,800
M-000285	Ella Boulevard from IH-610 to Candlelight Drainage Improvements				400	800	800	2,000
M-000286	Pleasantville				750	750	5,150	6,650
M-000287	Wirt Road from Kempwood to I-10 Drainage Improvements				700		3,300	4,000
M-000288	Edgebrook from Klondike to I-45 Drainage Improvements				800		3,700	4,500
M-000289	Cullen from Schurmier to Orem Drainage Improvements				300			300
M-000290	Fourth Ward, Avondale				1,100		6,100	7,200
M-000291	Sageorchard and Sagearbor Drainage Improvements					300		300

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			2009	2010	2011	2012	2013		
M-000292	Trinity-Houston Gardens (Ernie: Lockwood to Homestead)	6,446							
M-000293	Inwood Forest Area					350		350	
M-000294	Cullen from IH-610 to Old Spanish Trail Drainage Improvements					250	950	1,200	
M-000295	Scott Street from IH-610 to Old Spanish Trail Drainage Improvements						250	250	
M-000296	Regional/Subregional Stormwater Detention		950	3,500	2,500	3,000	10,000	19,950	
M-000582	South Shaver: Gulf Freeway to Highway 3	1,300							
M-000589	Tanner Road: Hempstead to Beltway 8				2,100			2,100	
M-000597	Brittmoore: Hammerly to Clay Detention Basin			2,000				2,000	
M-000771	Kirby Drive Storm Sewer Improvements: Southwest Freeway to Brays Bayou		15,000					15,000	
M-000800	Developer Participation	3,256	1,500	1,500	1,500	1,500	1,500	7,500	
M-001010	Western Village, Sherwood Estates						250	250	
M-001013	Willow Waterhole Area Relief Storm Sewer					500		500	
M-NA	Contingencies				200			200	
	Total:		66,028	57,340	53,350	58,650	50,150	61,850	281,340