7.0 Capital Improvement Projects

7.1 Maintenance and CCTV Inspection Costs

In the 2004 Master Plan a recommendation was made that the entire system be cleaned for a cost of approximately $1,185,000 dollars (est. at $1.50/foot). Since that time the County has recognized its compliance responsibility for the WDRs and has commenced with a program that results in the entire system being cleaned and CCTV inspected in less than 10 years. Currently the rehabilitation portion of the budget is being performed through the LACSMD.

Given the overflow frequency, the City should augment the county's efforts to complete the total inspection and cleaning of the system within five (5) years. Note that there are special coordination efforts and program management functions that would be necessary to expedite repair of pipes found deficient by the City. If the City desires to augment this portion of the project the efforts should be coordinated with the City to minimize duplication of effort. For budgeting purposes it is assumed that the City would CCTV and clean over 300,000 feet of pipeline. The costs are subject to reduction on receipt of the County's reports for fiscal years 2006/7 and 2007/8. The following table describes the approximate costs.

Table 7-1 CCTV Inspection and Cleaning

System Length	744,470
2004 CCTV City	47,000
2005/2006 County	76,591
Estimated remaining	620,879
One Half System	310,440
Total Cost ($1.50 / foot)	$465,659
Years to complete	5
Average annual cost	$ 93,132

7.2 CIP Project Determination

To develop the CIP project list, many factors were considered. The areas of CCTV pipeline were superimposed with the capacity related problems as determined by HYDRA. A priority level of high, medium, or low was assigned to each pipe segment based on their capacity and maintenance condition. Pipe segments showing capacity problems under the existing flow conditions and or a PACP rating of 4 or 5 were given a ranking of "high". Pipe segments over capacity for the 2.5 factor of safety case and or a PACP rating of 3 were given a ranking of "medium". Pipe segments that did not have a capacity problem and did not show any observed structural or maintenance problems (receiving a PACP ranking of 1) were not considered as a potential project. These rankings are shown in Figure 7-1.

For pipe segments that were not continuous and could therefore not be considered a project, they were placed into the Miscellaneous category. These segments did not have sufficient capacity to convey the existing flows or the 2.5 factor of safety flows. The pipes in the Miscellaneous category are for a new size of 12 inches, based on the recommended new pipe sizes from Hydra. Miscellaneous projects are performed when other work is scheduled in the area (resurfacing, storm drain replacement, other major repairs, etc.)

7.3 CIP Project Costs

Costs associated with these projects were based on $14.50 in/linear foot. The new sizes for the replacement projects were determined from the hydraulic analysis program. These sizes along with their costs are shown in Table 7-2. Pipelines labeled "miscellaneous" have capacity problems and widely scattered funding should be set aside for these to effect their replacement through other programs.

Table 7-2 Capacity Related Projects

Year	Rank	New Name	New Size (in)	Length of Project (ft)	Cost ($14.5in/ft)
2010	1	Ironwood Street	15	930	$202,275.00
	2	Palos Verdes Drive South between Conqueror Drive and Schooner Drive	15	2,377	$516,997.50
	3	Palos Verdes Drive South between Sea Cove Drive and Abalone Cove Shoreline Park	15	748	$162,690.00
2020	4	Basswood Avenue	12	564	$98,136.00
	5	Parallel to Basswood Avenue	15	1,540	$334,950.00
	6	West General Street	12	560	$97,440.00
	7	Ginger Root Lane	12	952	$165,648.00
		Miscellaneous	12	1,951	$339,474.00
Total Cost $1,917,610.00					

7.4 Year 2010 Pipeline Improvements

Ironwood Street and Silver Spur Road Pipeline.
The 8 inch, 930 foot long pipeline partly along Ironwood Street and running through the easement along Silver Spur Road has approximately 50% of its length over capacity for each of the flow scenarios analyzed (existing, future and factor of safety of 2.5). This reach of pipeline is given a high priority ranking due to a portion of the pipe being assigned a PACP grade of 5. 50% of the length of the project is also over capacity for the future flow conditions. It is recommended that this length of pipe be upsized to a 15 inch diameter at an approximate cost of $202,275.00.

Palos Verdes Drive South between Conqueror Drive and Schooner Drive.
The 8 and 10 inch, 2,377 foot long pipelines along Palos Verdes Drive South between Conqueror Drive and Schooner Drive has approximately 75% of its length over capacity for the 2.5 safety factor flow scenario, and 25% over capacity for the existing conditions. Since this length of pipe was not CCTV inspected in 2006 it is unknown what structural and maintenance condition it is in. Based on capacity alone, this length of pipe was given an overall priority ranking of high. 50% of the length of the project is also over capacity for the future flow conditions. It is recommended that this pipeline be upsized to 18 inches at a cost of $516,997.50.

Palos Verdes Drive South between Sea Cove Drive and Abalone Cove Shoreline Park.
The 8 inch, 748 foot long length of pipe running along Palos Verdes Drive South between Sea Cove Drive and Abalone Cove Shoreline Park is over capacity for the existing flow conditions. Since this pipeline was not CCTV inspected in 2006, its priority ranking of high was based solely on the capacity conditions. It is recommended that this pipeline be upsized to 15 inches in diameter at a cost of $162,690.00.

7.5 Year 2020 Pipeline Improvements

Basswood Avenue between Mossbank Drive and Shorewood Road.
The 8 inch, 564 foot length of pipe running along Basswood Avenue between Mossbank Drive and Shorewood Road has the entire length over capacity for the 2.5 factor of safety flow run, and 50% with a PACP grade of 3. This length of pipe was given a priority ranking of medium. It is recommended that the pipes be upsized to 12 inches at a cost of $98,136.00.

Parallel to Basswood Avenue between Mossbank Drive and Mazur Drive.
The 10 inch, 1,850 foot length of pipe parallel to Basswood Avenue between Mossbank Drive and Mazur Drive is over capacity for the 2.5 factor of safety flow condition. This entire length of pipe was CCTV inspected in 2006 and showed no maintenance or structural problems. This project was given a priority rank of medium. It is recommended that this length of pipe be upsized to 15 inches at a cost of $334,950.00.

West General Street between Bernice Drive and West Crestwood Street.
The 8 inch, 560 foot length of pipe on West General Street between Bernice Drive and West Crestwood Street is over capacity for the 2.5 factor of safety flow condition. These pipes were not CCTV inspected, so their priority ranking of medium is based on their capacity restrictions. It is recommended that these pipes be upsized to 12 inches at a cost of $97,440.00.

Ginger Root Lane between Narcissa Drive and Cinnamon Lane.
The 8 inch, 952 foot length of pipe on Ginger Root Lane between Narcissa Drive and Cinnamon Lane is over capacity for the 2.5 factor of safety flow condition. These pipes were not CCTV inspected, so their priority ranking of medium is based on their capacity restrictions. It is recommended that these pipes be upsized to 15 inches at a cost of $165,648.00.

7.6 Conclusions and Recommendations

The collection system has been thoroughly re-evaluated through a combination of physical inspection, data analysis and computer modeling. Three primary needs have been identified which are related to (1) Physical condition of the system (2) Special considerations for the Abalone Cove Sewer System and (3) Hydraulic Capacity Projects.

The physical inspections reveal continued problems with the old, cracked pipes and root intrusion. These problems are currently being addressed through systematic rehabilitation by the County. It is recommended that the City augment the County to expedite their activities knowing the physical condition of the entire system. This project anticipates the City performing half of the remaining inspection and cleaning of the system through specialty contractors.

The Abalone Cove area is in need of special attention to assure its improved funding and operations. As currently operated there is uncertainty regarding the funding, planning, operations and maintenance of the system. A special study is needed immediately to identify the primary concerns and to address these issues through a separate sewer system management plan. This plan would include identifying the funding levels necessary for sustainability and the assignment of operational responsibility to the most equitable party.

The Hydraulic Capacity Analysis as performed through hydraulic modeling revealed few areas in need of immediate attention. The areas flagged should be carefully watched and any improvements coordinated with other public works activities. The following table represents the approximate year and estimated cost for the capacity related projects. The recommended program total is approximately $2.7 Million with an average annual cost in the first five years of $362,098.

Table 7-3 Summary CIP Table

Rancho Palos Verdes Collection System CIP				Near Term					Long Term		
Category		Total Cost	Years	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015-2020	2020-2025	2025-2030
Administrative											
	Abalone Cove Analysis	$ 50,000	1	$ 50,000							
	CCTV Program Management	$ 93,132	5	$ 18,626	$ 18,626	$ 18,626	$ 18,626	$ 18,626			
System Evaluation											
	CCTV-Cleaning	$ 465,659	5	$ 93,132	$ 93,132	$ 93,132	$ 93,132	$ 93,132	Revert to 10 year cycle (County)		
General Projects											
	Abalone Cove Upgrades	$ 150,000	3		$ 50,000	$ 50,000	$ 50,000				
Capacity Projects											
Ironwood Street		$ 202,275	3	$ 67,425	$ 67,425	$ 67,425					
PV Drive S. ,Conqueror to Schooner		$ 516,998	3		$ 172,333	$ 172,333	$ 172,333				
PV Drive S., Sea Cove to Abalone Cove S		$ 162,690	3			$ 54,230	$ 54,230	$ 54,230			
Basswood Avenue		$ 98,136	3						$ 98,136		
Parallel to Basswood Avenue		$ 334,950	3							$ 334,950	
West General Street		$ 97,400	3								$ 97,400
Ginger Root Lane		$ 165,648	3								$ 165,648
Miscellaneous 12"		$ 339,474	10	$ 33,947	$ 33,947	$ 33,947	$ 33,947	$ 33,947	$ 169,737		
Total		$ 2,676,361	**Period Total**	$ 263,131	$ 435,463	$ 489,693	$ 422,268	$ 199,936	$ 267,873	$ 334,950	$ 263,048

Figure 7-1 Priority Ranking

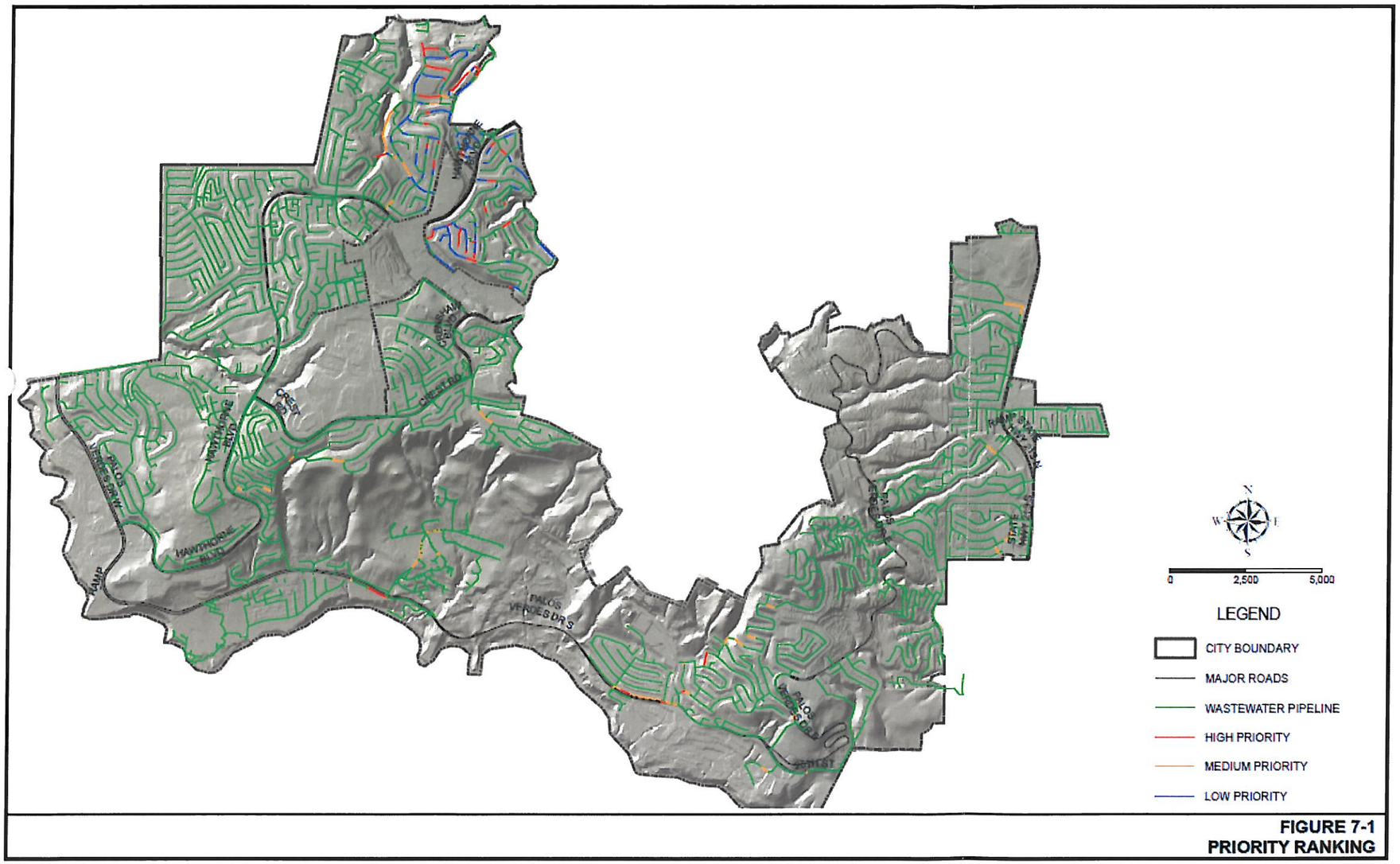

FIGURE 7-1
PRIORITY RANKING

Figure 7-2 Capacity Related Projects

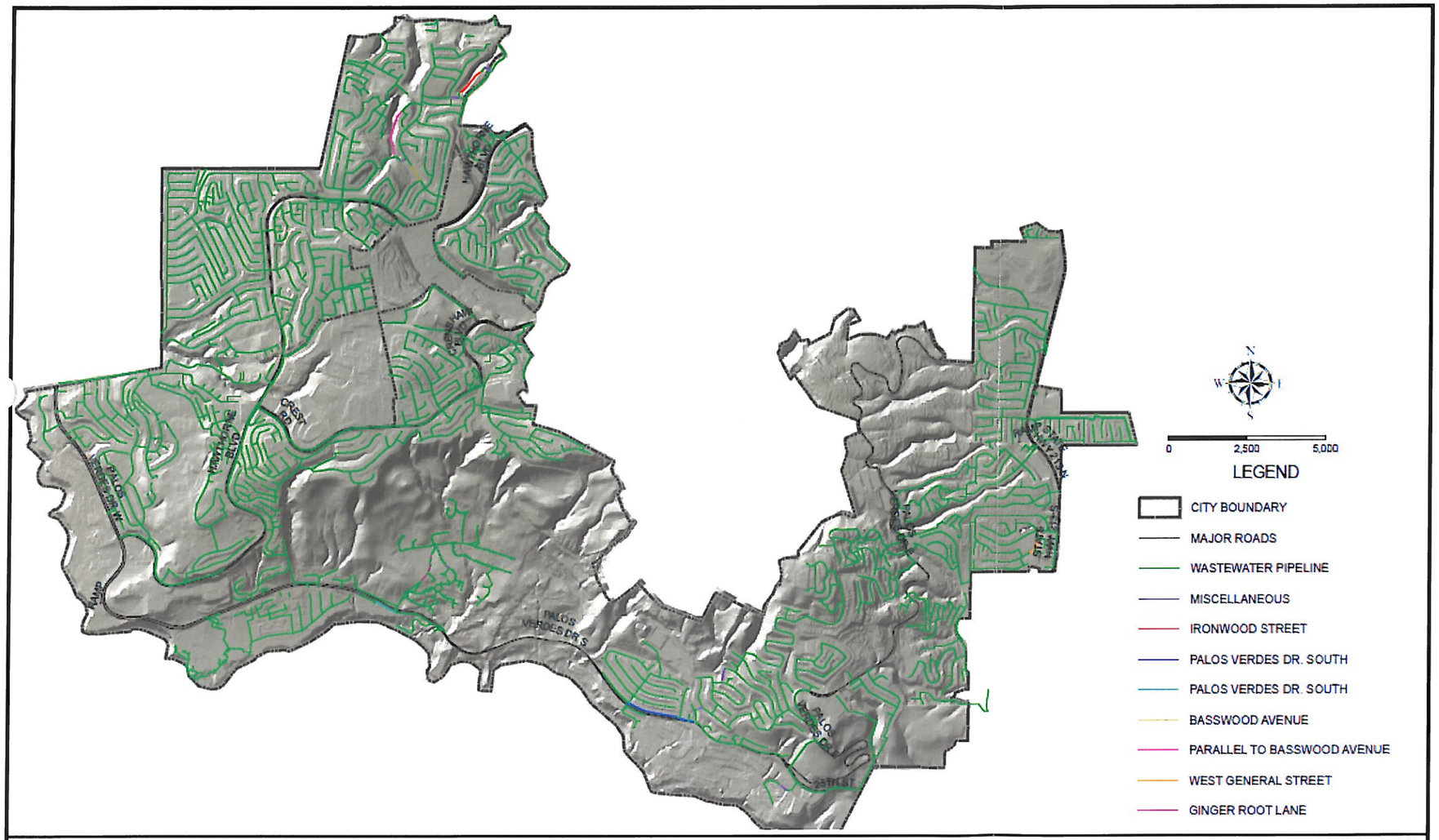

FIGURE 7-2
CAPACITY RELATED PROJECTS

APPENDICES

Appendix A – Hydraulic Model Results

Appendix B – Authorization

Appendix C – County CCTV Results