State of the Municipal Infrastructure—Summary Status Through Year End 2005

City of Shreveport

Department of Operational Services

H. M. Strong, Director

February 15, 2006

Underlying Assumptions Related to Infrastructure Assets Valuation and Condition

This report represents a summary of a methodology for systematic approach to infrastructure asset management. This systematic asset management involves development and analyses of large amounts of data related to infrastructure assets inventory, condition, and valuation parameters.

Over time these parameters change due to inflation, construction cost increases, deteriorating physical assets, etc. Since it is not possible to continuously and accurately monitor and adjust all the parameters due to these changes, the data reflected herein should be viewed as the best available data resulting from a reasonable amount of data development and analysis.

The trends of data reflected herein should be considered more representative of the state of infrastructure assets renewal rather than the exact numbers contained herein.

Due to recent events that have significantly affected infrastructure assets costs throughout the Gulf South Area, it is the intent of the Department of Operational Services (DOS) to completely re-evaluate and update the infrastructure assets parameters before the next year-end report is issued.

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PROJECTS OF SPECIAL CONCERN

Infrastructure asset management as described herein and as practiced by the Department of Operational Services (DOS), City of Shreveport, involves ongoing analysis of the complete system of components comprising each infrastructure asset category.

The following is a summary of some special or high priority infrastructure projects/concerns which are identified here to highlight their unique characteristics and to emphasize the importance in timing for addressing these projects.

While these specific projects are identified as high priority, the other projects identified as a part of the DOS systematic infrastructure assets improvement management must also be addressed as scheduled to prevent deterioration of the infrastructure categories to levels which will affect the City's ability to meet customer expectations.

The following are descriptions of some of the special infrastructure projects/concerns:

- **CROSS LAKE DAM:**

  The combined usage of the Cross Lake Dam as both a containment structure for raw water supply to the City of Shreveport's only water treatment plant and as structural support for two existing rail lines for Kansas City Southern Railroad provide an unusual situation requiring a unique balance of responsibilities and accountability related to caretaking of the dam structure and surrounding area.

  The dam was built in the 1920's and needs structural improvements to meet current industry and regulatory standards of dam design, construction, and maintainability. It is estimated that approximately $1 million would be required to construct the necessary structural improvements to the dam.

  In addition, the existence of an active railroad on the top of the dam and the structural configuration of portions of the dam combine to provide the potential for accidental release of materials into Cross Lake which could render the lake unusable as a water supply for an extended period. The City does not currently have an alternative raw water supply capable of providing peak flow water quantities. The railroad/dam configuration also provides a vulnerable sabotage target. It is estimated that approximately $3 million would be required to construct alternative support structures and move the rail lines further from the edge of Cross Lake.

- **INCREASED WATER TREATMENT FACILITY CAPACITY:**

  The T. L. Amiss Water Treatment Facility is aging and requires significant investment to maintain its treatment capacity of 90 million gallons per day (mgd).

  One management alternative for assuring the City adequate water treatment capacity for the next 20 to 50 years would be to construct additional water treatment capacity of between 30 mgd and 60 mgd. By constructing two 30 mgd water treatment plants the City could see relief in water pressure issues in the southern part of the City as well as giving redundancy (of water treatment capacity) in case one plant should become inoperable. These two plants are estimated to cost approximately $150 million each to construct.

  DOS is in the process of performing alternative water treatment pilot testing to provide data for use in optimizing the capacity size; source raw water; and physical location of a second water treatment plant. The estimated cost of this preliminary pilot testing of water treatment technologies and associated engineering analysis is $450,000.

- **SOUTHEAST REGION WATER PRESSURE/SUPPLY PROBLEMS:**

  Low water pressure in this area is due to a combination of inadequate water transmission capacity to specific zones of the water distribution system and inadequate pumping/pressuring capacity for specific elevation differentials in some of these zones.

  Included in the near-term projects which have been identified to address these low water pressure problems are the following three projects:

  1) 36” Water Distribution Main—Walker Road and Inner Loop Parkway (from Walker Road and Meriwether to St. Vincent Avenue):

     The purpose of this project is to install approximately 21,000 linear feet of 36” water main from the existing 36” water main at Walker Road and Meriwether to the existing 16” main at St. Vincent Avenue. This will require the acquisition of servitudes/Right-of-Way and Special Permit Agreements from DOTD and other property owners along the proposed Route as recommended in the 1999 Water Distribution System Report prepared by Black and Veatch LLP. This main will provide a stronger

hydraulic connection between Amiss WTP and the Southeast portion of Shreveport. The estimated project budget is $4,935,000.

2) Inner Loop Pump Station and 36” Inner Loop Parkway Water Distribution Main (from St. Vincent Avenue to Bert Kouns Industrial Loop):

A new ground storage and a pumping facility to serve southeast Shreveport. The facility should be located along the Inner Loop Parkway, just west of the Industrial Loop and should be constructed on high ground to reduce pumping head requirements and minimize pumping costs. The first stage of this facility should include two 10 mgd pumps, one 5 mgd pump, a 5 million gallon storage reservoir, and rechlorination facilities. This will require property acquisition for the facility. The estimated project budget is $6,500,000.

The scope of the second portion of this work is a project to include installing approximately 10,000 linear feet of 36” water main along the Inner Loop Parkway from the proposed 36” main at St. Vincent Avenue and the Inner Loop to Bert Kouns Industrial Loop. This will require the acquisition of servitudes/Right-of-Way and Special Permit Agreements from DOTD and other property owners along the proposed route as recommended in the 1999 Water Distribution System Report prepared by Black and Veatch LLP. This main will provide a stronger hydraulic connection between Amiss WTP and the southeast portion of Shreveport. The estimated project budget is $2,350,000.

3) 60” Water Main From Amiss Water Plant to West College:

The purpose of this project is to install approximately 6,200 linear feet of 60” water main from Amiss High Service Pumping Station to the existing 60 inch water main on West College. This will require the acquisition of servitudes/Right-of-Way from KCS Railroad and other property owners along the proposed route as recommended in the 1999 Water Distribution System Report prepared by Black and Veatch LLP. The estimated project budget is $4,650,000.

Subdivisions in the high-growth area of southeast Shreveport are particularly vulnerable to continuing low water pressure problems. It is recommended that no additional subdivisions be added to the water system in this area until adequate water pressures are realized through these projects.

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OPERATIONS METRICS

In addition to strategically managing over $1 billion in municipal infrastructure physical assets, the Department of Operational Services (DOS) provides extensive customer services each day.

While all of these services may not be directly related to infrastructure assets improvements, they are a necessary part of providing the level of water, sewer, storm drainage, and roadway serviceability that the citizens of the Shreveport municipal area expect.

Attachment 6: Water and Wastewater Operations Metrics includes some selected metrics which reflect the level of effort of some of the customer service activities provided by DOS.

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EXECUTIVE SUMMARY

HISTORY

Infrastructure asset management has been given understandable emphasis at the national level (U.S. Environmental Protection Agency (EPA), the General Accounting Office (GAO), American Society of Civil Engineers (ASCE)) and at the local and state levels. [1]

The City of Shreveport developed and implemented an infrastructure asset management program which dates to 1997 and makes it one of the earliest cities to have implemented a comprehensive asset management approach. [2]

The emphasis on infrastructure asset management is being driven by the widely accepted fact that cities historically have managed their infrastructure poorly. This has resulted in a national concern for municipal infrastructure which is in poor condition and is continuing to deteriorate to the point of negatively impacting the economic strength of cities, as well as health concerns of citizens. [3]

Asset management is not new, but is considered a relatively new concept when applied to municipal infrastructure.

In its simplest form, infrastructure asset management is a systematic program to inventory and evaluate the condition of infrastructure assets combined with a management and improvements program which integrates operations and maintenance with capital renewal/improvements.

When implemented and managed properly, an infrastructure assets management program can provide a municipality with an infrastructure which meets expected performance levels **at the lowest possible cost**.

Minimization of expenditures on municipal infrastructure is not the least cost alternative to infrastructure management—it only defers needed expenditures until infrastructure assets' failure require replacement—almost always at a much greater cost due to parts, labor, method of repair and collateral damages. These increased costs are often hidden but are real costs that unnecessarily increase the water and sewer rates that municipal customers pay and negatively affect the quality of water and sewer services provided to customers.

The Department of Operational Services is in the process of implementing a comprehensive infrastructure assets management program for the water and sewer infrastructure that was initiated in 1997.

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BACKGROUND

This briefing document is to summarize the management principles underlying the infrastructure assets management approach used by the City of Shreveport; to report the current status of the condition of the infrastructure (and the infrastructure management system); and to make recommendations about the most cost effective actions which will continue to improve the municipal infrastructure.

In 1997 and 1998, a comprehensive infrastructure asset management program was developed and implemented for the water and sewerage department. In the interim period, numerous reports on the status of the water and sewer infrastructure and the progress of the asset management program have been produced for the U. S. EPA and the Louisiana DEQ, and for internal City use.

In 2003, the Infrastructure Committee of the City Council requested that streets and drainage be added to the monitoring of infrastructure status.

Although most of the following detailed comments relate to the management of the water and wastewater infrastructure asset management program, the general approach applies to streets and drainage as well. The July 6, 2004, memorandum from H. M. Strong goes into great detail concerning water & sewerage infrastructure and fiscal responsibility.

The primary management objective for the water and wastewater municipal infrastructure is to reach and maintain a sustainable level of municipal infrastructure operation, maintenance, and renewal which:

- Provides planned service levels of the water and wastewater infrastructure at the most cost-effective user rates.

- Provides service levels which contribute to attracting and retaining residential, business, and commercial water and wastewater customers.

The following management tools, which were developed and initiated in 1997 and are currently in various stages of implementation, are necessary to achieve these objectives:

- Improved budget preparation, analysis, and management which allow tracking of costs for water and wastewater operations and assets.

- Development of a finance plan which links the water and wastewater operating budget with the capital budget.

- Implementation of an asset inventory system.

- Development and implementation of an asset condition evaluation system.

- Development and implementation of a comprehensive computerized management information system for the identification, prioritization, and monitoring of infrastructure capital improvements projects.

BASIC ELEMENTS OF AN INFRASTRUCTURE ASSETS MANAGEMENT PROGRAM

The most basic tools necessary for implementation and utilization of an infrastructure assets management program consist of:

- A system which provides the ability to inventory the assets. This enables the management of the infrastructure as a whole with the implementation of preventive maintenance and to help avoid a reactive failure repair approach to asset replacement.

- A condition assessment system which relates assets condition to expected service levels. This condition assessment system must look at the infrastructure systems as whole units rather than as a conglomeration of unrelated individual assets. This allows decisions on trade-offs between asset maintenance and asset replacement.

- A systematic, quantitative system for evaluating costs of operation/maintenance compared with asset renewal/replacement. This is an aspect of asset management which utilizes data to make management decisions concerning costs of operation/maintenance versus renewal/replacement of assets.

Most cities will say they perform all of the above at least in the form of subjective consideration by management personnel without a formalized asset management approach. However, if this subjective management approach was effective, most municipalities would not have the deteriorated infrastructures they currently have.

An infrastructure assets management program systematically and quantitatively utilizes all of the above tools to continually assess and improve the infrastructure as a whole system (to maintain operability levels) rather than considering the infrastructure as independent discrete assets which are repaired as they fail.

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STATE OF THE MUNICIPAL INFRASTRUCTURE

The following sections summarize the status of investment in the water, sewer, streets, and stormwater drainage infrastructure in the City of Shreveport. The graphs and the data represented therein are updated through mid-year 2005.

MAJOR COMPONENTS OF MUNICIPAL INFRASTRUCTURE

The municipal infrastructure as defined herein consists of the following three major categories:

1) Water and wastewater infrastructure.

2) Roadways infrastructure.

3) Stormwater drainage infrastructure.

INFRASTRUCTURE ASSETS LIFE-CYCLE MANAGEMENT

Asset life-cycle management involves optimizing the following three inter-related costs of a capital asset over its useful economic life:

- Initial capital cost of an asset.
- The cost of operating and maintaining (O&M) that asset over its useful (economic) life.
- The replacement cost of that asset at the end of its economically useful life.

A critical aspect of infrastructure assets management is that maintenance and capital renewal of individual assets are considered interrelated. Maintenance of the assets should be performed until the point where it is more cost effective to replace or rehabilitate the asset to retain the asset's expected operability.

Infrastructure asset management, when performed properly, looks at systems and subsystems as a whole and focuses investment in maintenance and capital replacement on the weakest links in the system.

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TOTAL MUNICIPAL INFRASTRUCTURE

For the purposes of this report, the total municipal infrastructure is considered to be comprised of (1) water and sewer infrastructure assets; (2) roadways infrastructure assets; and (3) stormwater drainage infrastructure assets.

Following are brief discussions with graphs of the annual investment expenditure in infrastructure assets by various categories.

Discussion and explanation of specific asset categories are included with each asset category investment status.

In addition, comments related to the audit of the status of infrastructure asset management for the water and wastewater infrastructure are included.

When reviewing these graphs, the following general guidelines should be noted:

1) The intent of the graphs is to indicate the general investment by infrastructure asset category related to the target annual infrastructure asset renewal rate.

2) The annual infrastructure asset renewal rate is intended to represent a best estimate of the percentage of infrastructure assets which become economically inoperable each year and need to be replaced. The estimated useful economic life of infrastructure assets (other than rotating or other high-wear equipment) is 50 years. Therefore, a first estimate of infrastructure asset annual renewal to replace assets becoming inoperable is 2%.

3) The annual asset renewal rate (2% as indicated above) is applied to the estimated infrastructure assets replacement value. Conservative infrastructure asset replacement values have been used to calculate an estimated annual obsolescent rate of $33 million (for total municipal infrastructure).

4) The better the infrastructure asset management system implemented by the City, the closer to the lower ($33 million) annual investment figure the City will be able to use while improving and sustaining its infrastructure at planned operability levels.

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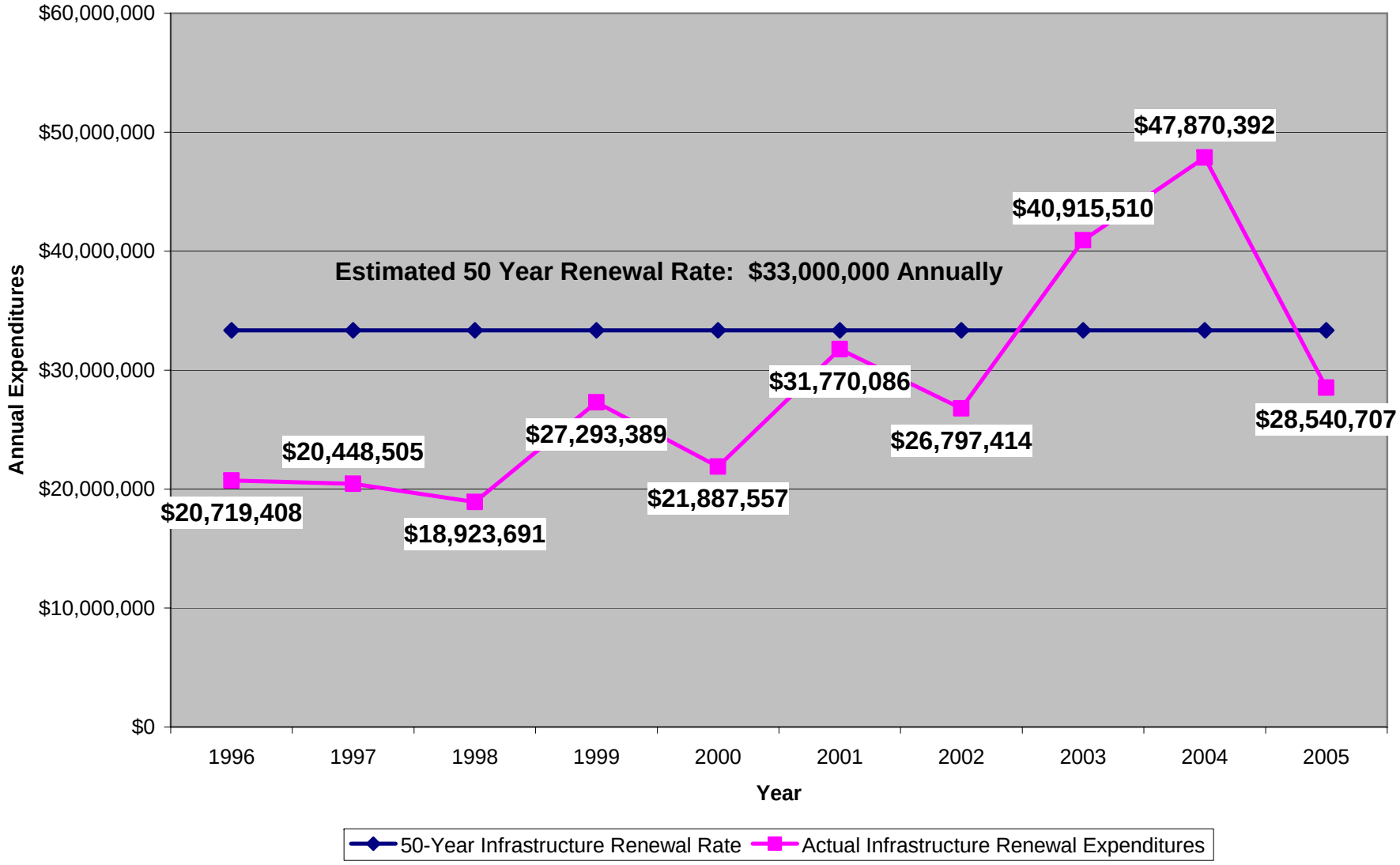
TOTAL MUNICIPAL INFRASTRUCTURE ANNUAL RENEWAL



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WATER AND SEWER INFRASTRUCTURE

Water and sewer infrastructure assets are physical structures with related equipment, piping, and appurtenances which treat and transport water and wastewater.

The level of water and sewer service is highly dependent upon the condition and functional capability of the water and sewer infrastructure assets.

CATEGORIES OF WATER AND SEWER INFRASTRUCTURE ASSETS

The four major categories of water and wastewater infrastructure assets are:

1) Water Supply and Treatment Facilities.
2) Water Distribution System (Piping and Pumping).
3) Wastewater Collection System (Piping and Pumping).
4) Wastewater Treatment Facilities.

The following graphs indicate the historical investment in infrastructure by the above water and wastewater infrastructure asset categories.

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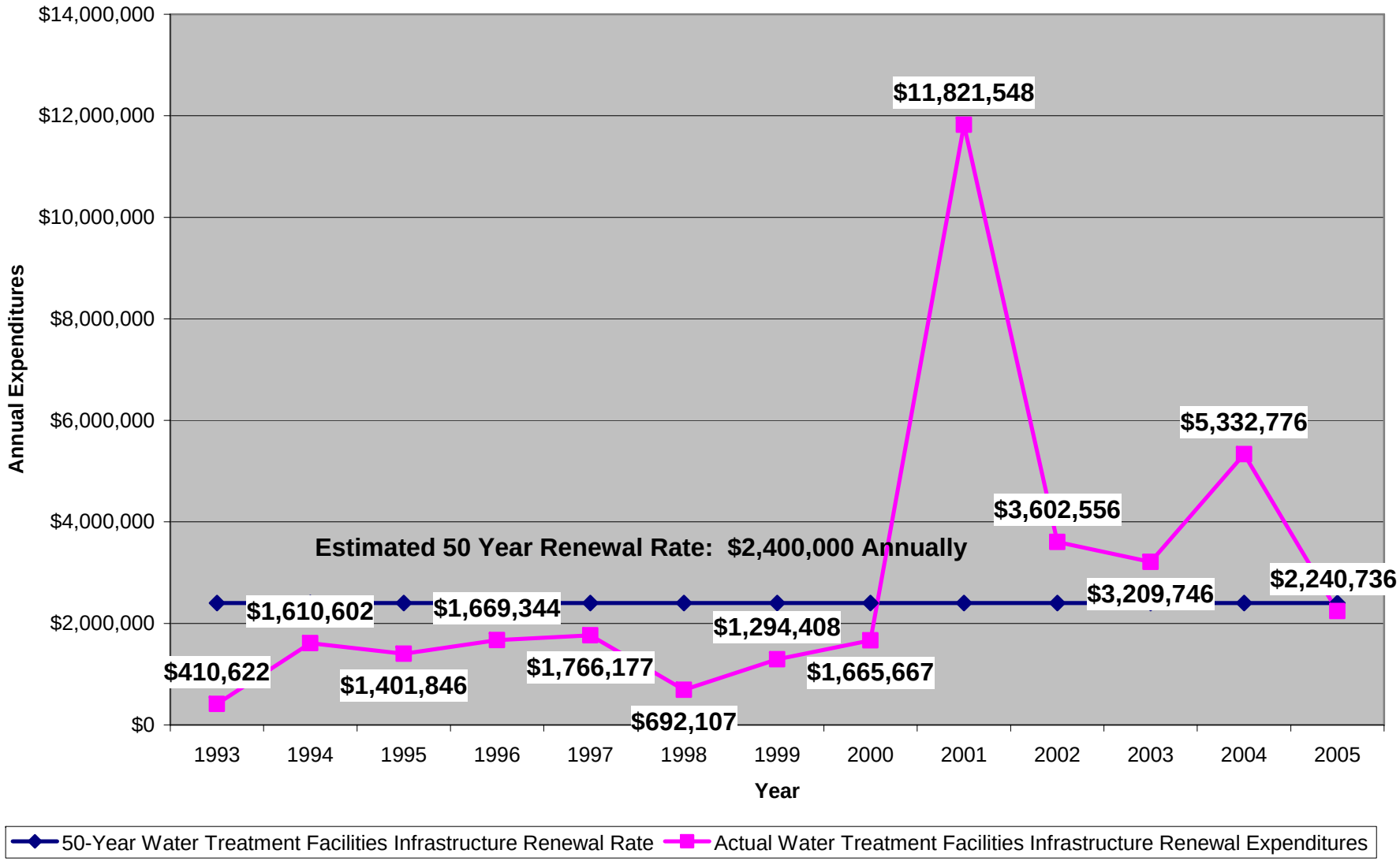
ANNUAL WATER TREATMENT FACILTIES INFRASTRUCTURE RENEWAL RATE



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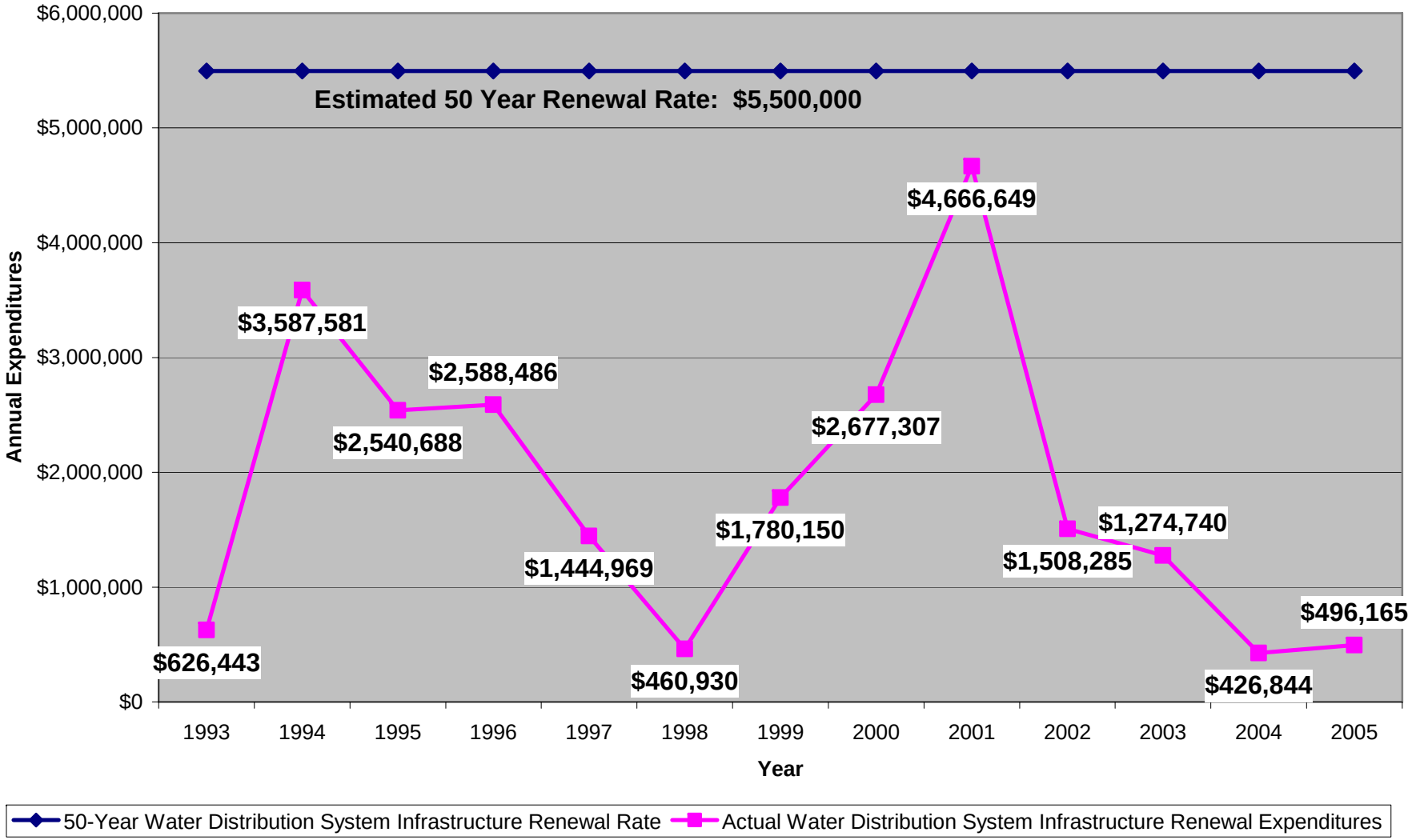
ANNUAL WATER DISTRIBUTION SYSTEM [WATER PIPING] INFRASTRUCTURE RENEWAL RATE



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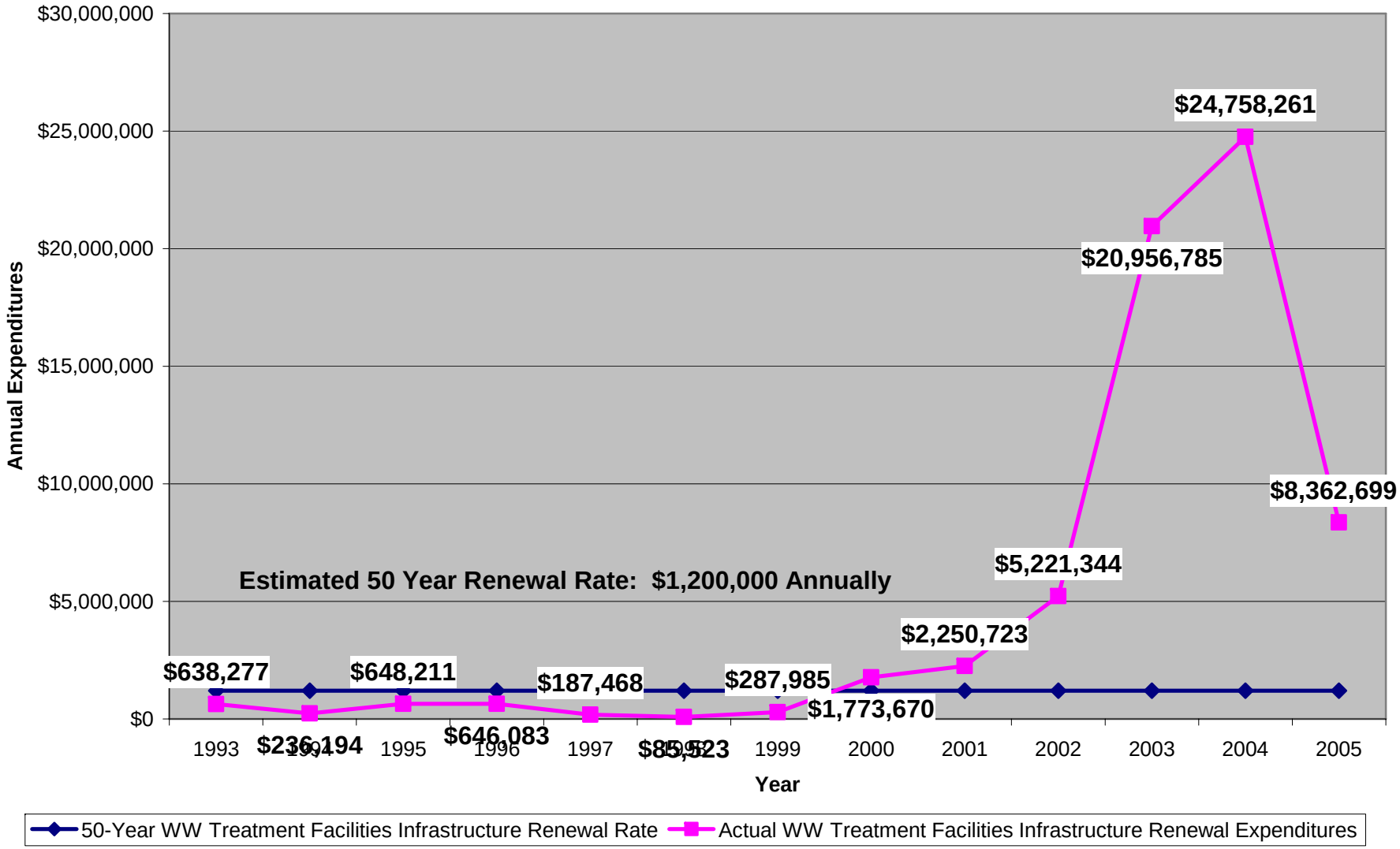
ANNUAL WASTEWATER TREATMENT FACILITIES INFRASTRUCTURE RENEWAL RATE



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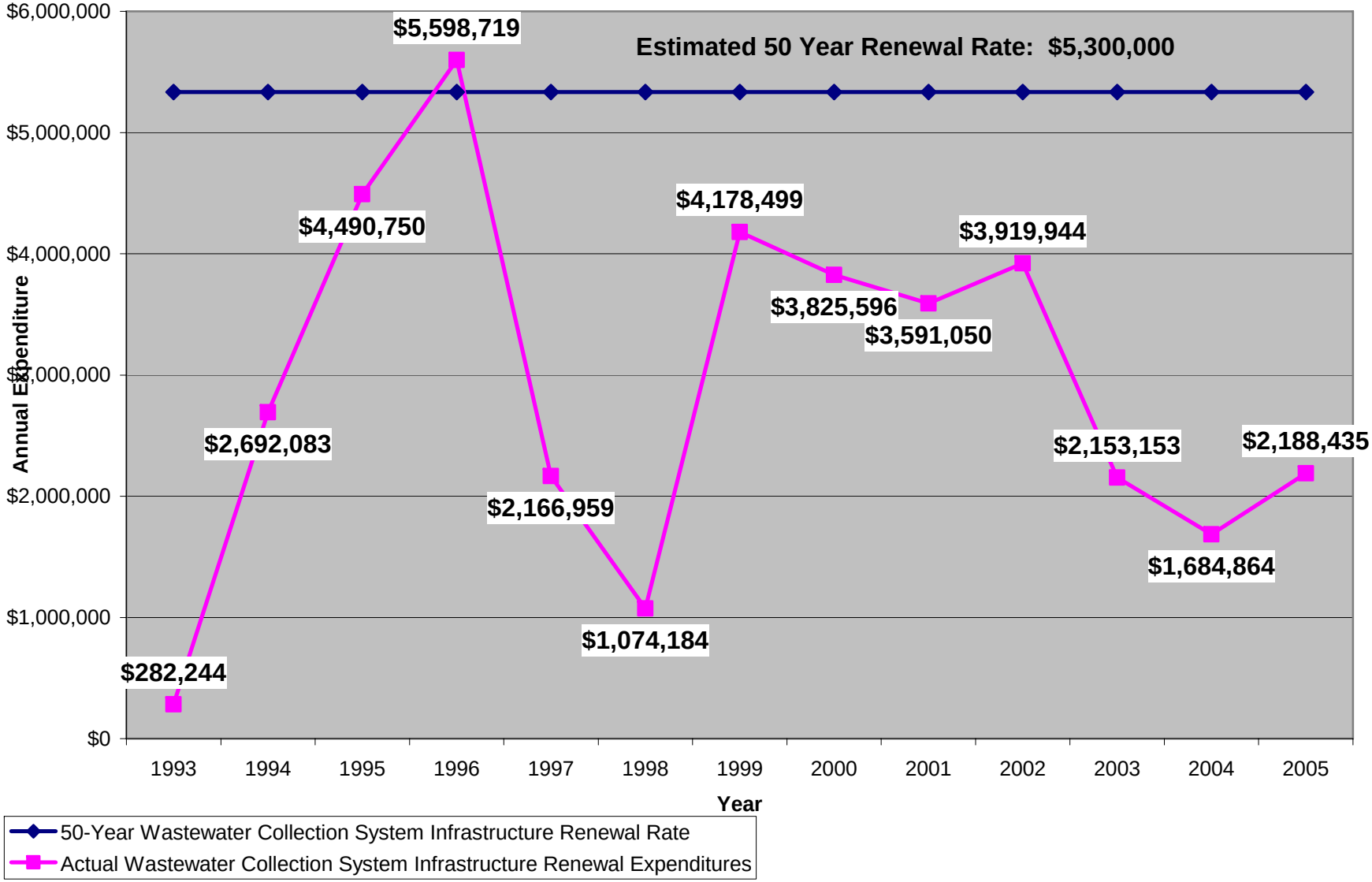
ANNUAL WASTEWATER COLLECTION SYSTEM [SEWER PIPING] INFRASTRUCTURE RENEWAL RATE



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Roadways Infrastructure

Roadways infrastructure assets are the physical road structures with related bridges, overpasses, and appurtenance which are used by vehicular traffic.

The level of operability as reflected by such parameters as lost time due to alternative routing for detours is highly dependent upon the condition and functional capability of the roadway infrastructure assets.

Categories of Roadway Infrastructure Assets

The two major categories of roadway infrastructure assets are (1) concrete roadways and appurtenances and (2) asphalt roadways and appurtenance.

The following is a graph of roadway annual investment.

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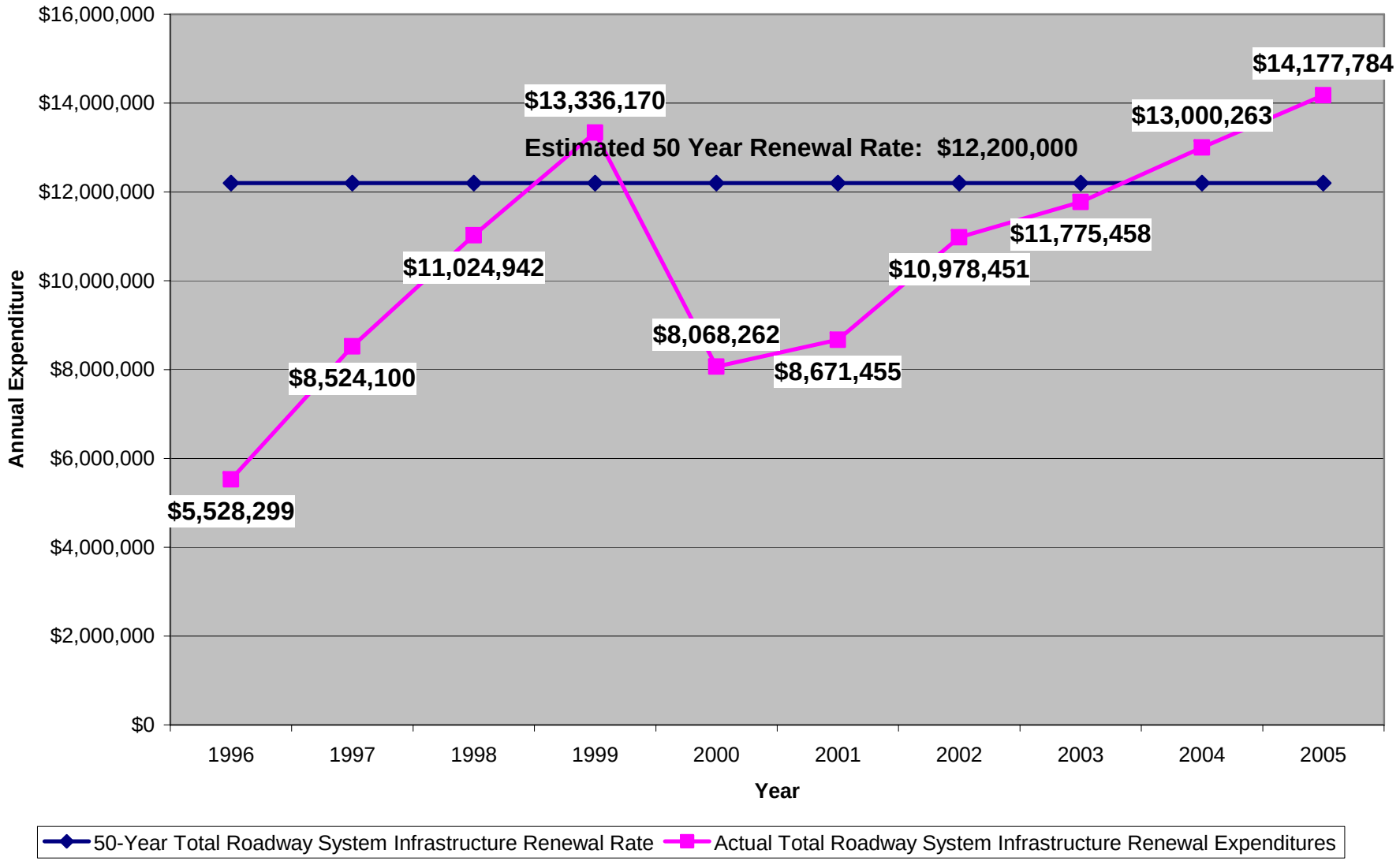
TOTAL ROADWAY SYSTEM ANNUAL RENEWAL RATE



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Stormwater Drainage Infrastructure

Stormwater drainage infrastructure assets are the physical structures which convey stormwater to waterways.

The level of operability as reflected by such parameters as annual liability costs due to flooding is highly dependent upon the condition and functional capability of the stormwater system.

Categories of Stormwater Infrastructure Assets

The major categories of stormwater infrastructure assets are (1) open ditches and channels and (2) closed conduit, pumping, and piping systems.

The following is a graph of stormwater infrastructure annual investment.

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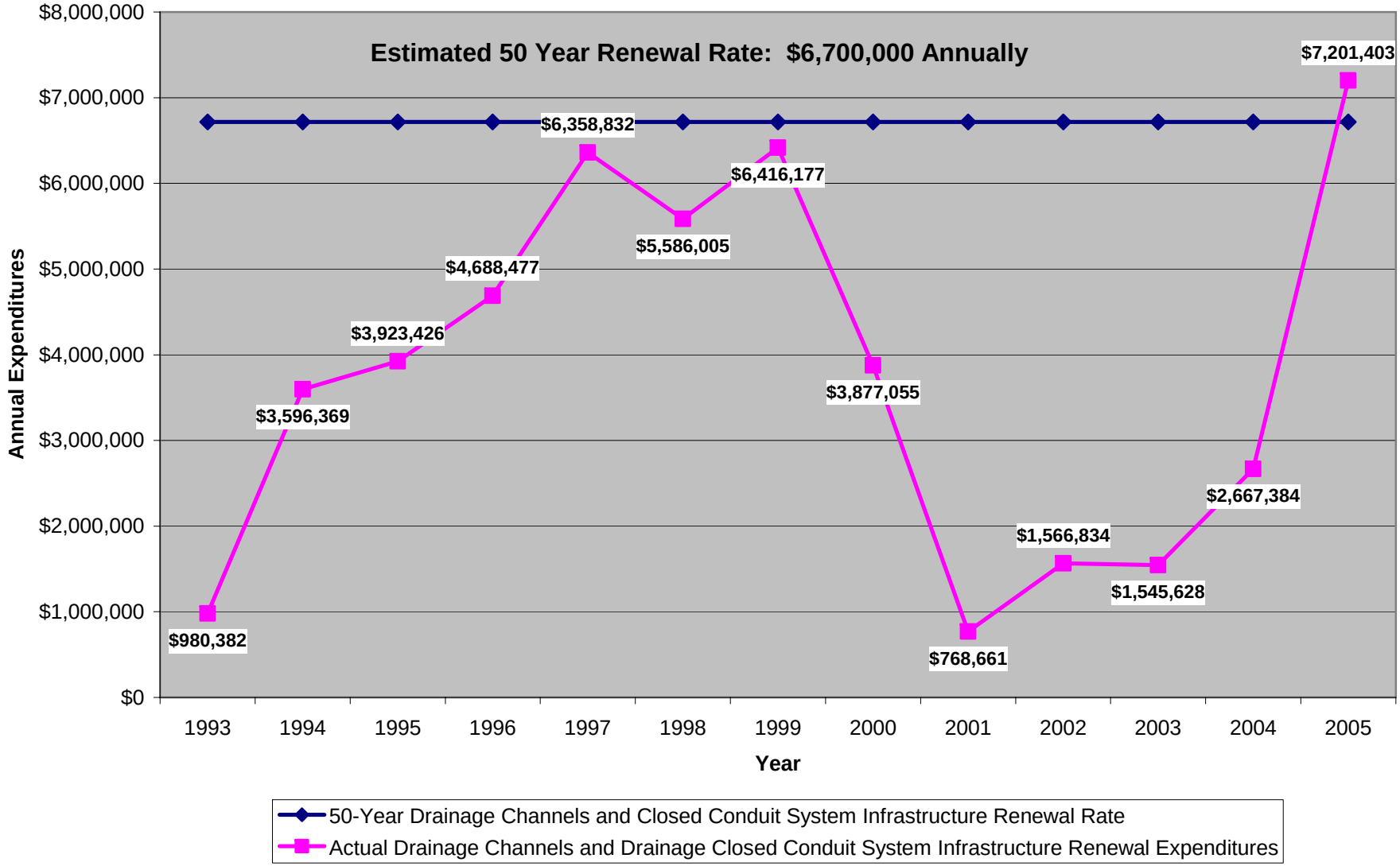
TOTAL DRAINAGE INFRASTRUCTURE RENEWAL RATE



Finance Plan

In 1997 and 1998, a finance plan was developed for the water and sewerage department as an integral part of the implementation of the water and sewerage infrastructure asset management program. This finance plan was updated and correlated to the Water and Wastewater Infrastructure Master Plan which was completed in 1999. The purpose of this finance plan was to provide a basis for budget planning and management of:

- Personnel and physical resources,
- Capital investment levels, and
- Water and sewer rates.

The finance plan analysis allowed the evaluation (i.e., sensitivity analysis) of the effects of the interrelationships among the above three budget factors for various levels of revenues and costs.

Conclusions/Recommendations

The City of Shreveport municipal infrastructure assets are currently in unsustainable condition due to previous decades of neglect.

To reach a sustainable level of infrastructure condition, the City needs to:

1) Finalize implementation of management tools and systems to allow systematic management of the infrastructure (integrated management of operations, maintenance, and capital improvements).

2) Assure that operations/maintenance management of assets as well as ongoing systematic evaluation of operability (i.e., adequate service level) of assets are included as integral parts of the decision process in the determination of capital improvements.

3) Invest to make infrastructure asset improvements to essentially ‘catch up’ on previously neglected improvements.

   As provided in documents previously, DOS recommends an accelerated $130 million water/sewer infrastructure investment program to restore the water/sewer infrastructure to a sustainable condition which meets service level requirements for customers. Of this $130 million, $75 million was approved by the City Council in 2004.

4) Initiate systematic annual renewal investment of infrastructure assets which replaces assets that no longer provide an adequate service level (i.e., annually replace those assets whose condition no longer allow them to be adequately functional).

As provided in documents previously and as reflected in the pertinent following graphs, it is estimated that approximately $14 million to $15 million annually is needed to replace water/sewer infrastructure assets which become operationally obsolete.

5) Implement a budget which reflects a water and sewer rate structure which supports all of the above aspects of cost-effective, systematic infrastructure assets management.

6) Potential Funding Sources:

- Impact fees for water, sewage, and roadway infrastructure.
- Implementation of a stormwater utility enterprise fund.
- Implementation of a dedicated sales tax for infrastructure.
- Implementation of a dedicated property tax for infrastructure.
- Implementation of a taxing authority around Cross Lake for upkeep of the lake.
- General Obligation Bonds issued for water and sewerage infrastructure.

[1] 'Water Infrastructure: Comprehensive Asset Management Has Potential to Help Utilities Better Identify Needs and Plan Future Investments', GAO: United States General Accounting Office: Report to the Ranking Minority Member, Committee on Environment and Public Works, U. S. Senate, March 2004.

[2] 'State of the Water and Sewer Infrastructure Report: City of Shreveport, 1998, 1999, 2000, 2001, 2002, 2003, 2004', by M. G. Hogan, P.E.

[3] Report Card for America's Infrastructure, 2003 Progress Report: An Update to the 2001 Report Card, American Society of Civil Engineers.

CITY OF SHREVEPORT
DEPARTMENT OF OPERATIONAL SERVICES
WATER & SEWERAGE BOND ISSUE

$75,000,000

FACILITIES

	Project Name	Estimated Cost
1.	Water Treatment Plant Improvements: Improvements to Low Service Pump Station and Electrical Switchgear	$500,000
2.	Water Treatment Plant Improvements: Improvements to McNeill Water Pump Station and Storage	$1,500,000
3.	Water Treatment Plant Improvements: Improvements to Plant 2/2E Flocculation/Sedimentation Systems	$6,000,000
4.	Water Treatment Plant Improvements: Improvements to Lime System Design/Ozone or Alternative System Improvements Design	$1,500,000
5.	Electrical Switchgear Improvements at the T. L. Amiss Water Treatment Plant	$1,500,000
6.	Water Treatment Plant Improvements: Amiss High Service Pumping Station Improvements	$2,300,000
7.	Water Treatment Plant Improvements: Auxiliary Electric Power System (Amiss and Pump Stations)	$4,200,000
8.	Basins 1 - 6 @ Amiss	$8,000,000
	Subtotal	**$25,500,000**

LIFT STATIONS

Project Name		Estimated Cost
1.	**Wallace Lift Station** Replace entire lift station with modern facility, URS currently doing design	$8,000,000
2.	**Woolworth Road Sewer Extension, Force Main and Lift Station** Lift station and force main from landfill to end of gravity on Woolworth Road	$350,000
3.	**Long Lake Lift Station** Replace pumps and station piping (existing package LS) with new package LS providing higher head & larger motors.	$130,000
4.	**Stratmore Lift Station** Replace pumps and station piping.	$80,000
5.	**Darien Lift S**tation Replace pumps, station piping, bar screen, and flowmeter.	$800,000
6.	**Looney Lift Station** Replace "can" LS with new package LS and wet well.	$150,000
7.	**Agurs Lift Station** Replace pumps, station piping, bar screen, flowmeter, and force main.	$2,090,000
8.	**Legardy Lift Station** $410,000 Replace pumps, station piping, and flowmeter; add bar screen.	
9.	**Hattie Lift Station** Replace pumps and station piping with new package LS that includes equipment enclosure and replace force main.	$190,000
10.	**Querbes Lift Station Odor & Climate Control Systems** Lift Station improvements	$375,000
11.	**Lucas Lift Station** Improvements and odor control	$500,000
12.	**Cedar Grove Lift Station, Odor Control** Odor Control	$350,000

13.	**Bickham Bayou Lift Station, Pines Rd Interceptor Boxes** Odor Control	$250,000
14.	**Broadmoor - 6000 Blk. Fern Ave. Lift Station Odor Control Systems** Lift Station improvements	$350,000
15.	**Broadmoor Lift St**ation Replace pumps, station piping, bar screen, and flowmeter.	$1,000,000
16.	**Cedar Grove Lift Station** Replace check valves & suction valves, replace & replace PLC & VFD units	$250,000
17.	**Marjorie Lift Station** Replace pump and station piping with new package LS that includes backup pump and equipment enclosure.	$120,000
18.	**Mirador Lift** Station Replace/upgrade electrical equipment and misc. repairs to LS climate control and structure.	$20,000
19.	**Oak Forest Lift Station** Replace pumps and station piping with new package LS that includes equipment enclosure and replace force main.	$270,000
20.	**Fannin Lift Station** Replace “can” LS with new built in place LS. Replace force main and add bar screen.	$930,000
21.	**Dixie Garden Lift Station** Replace pumps, station piping, and flowmeter; alternatively install new package LS and larger wet well.	$180,000
22.	**Pine Hills Estates Lift Station** Replace “can” LS with new package LS and wet well.	$150,000
23.	**Pine Hill Road Lift Station** Replace/upgrade electrical equipment, misc. repairs to LS climate control and structure, and wet well rehabilitation.	$30,000
24.	**LaCaze Lift Station** Replace pumps and station piping with new package LS that includes equipment enclosure.	$110,000
25.	**Willow Point II Lift Station** Replace pumps and station piping.	$20,000

26.	**David Raines Lift Station** Replace pump and station piping with new package LS that includes backup pump and equipment enclosure.	$110,000
27.	**South Highland Lift Station** Replace pumps, station piping, bar screen, and flowmeter.	$800,000
28.	**North Pierre Lift Station** Modify MCC room and install climate control & HVAC	$100,000
29.	**Hardy Lift Station** Replace pumps, station piping, bar screen, and flowmeter	$770,000
30.	**Pinecrest Lift Station** Replace suction lines & valves, check valves & discharge valves, install motor & pump unit complete.	$95,000
31.	**Sunset Lift Station** Replace/upgrade electrical equipment and misc. repairs to LS structure.	$20,000
	Subtotal	**$19,000,000**

SEWER MAINS

Sewer Projects		Estimated Cost
1.	**Rehabilitation and renewal for City wide deteriorated and aging sewer mains and manholes** Estimate sewer mains for rehab or replacement using CIPP, directional bore, pipe-bursting, or open cut methods, and concurrently rehab/replace manholes	$6,000,000
2.	**Corbitt Area Sewer and Water Improvements, Phases 1-3** 20,650 LF of sewer and 5900 LF of water over three phases	$5,000,000
3.	**CIPP - Lining Sewer & Manhole Rehabilitation** 4330 LF 8", 2325 LF 21" and 24", and 1190 LF 8" and 10" sewer and manhole rehabilitation	$1,500,000
4.	**Querbes Force Main Replacement** 7590 LF 20" sewer force main replacement	$2,400,000
5.	**Hearne from Midway to Westover** 3000 LF 15" sewer replacement	$600,000
	Subtotal	**$15,500,000**

Summary:

Facilities	**$25,500,000**
Lift Stations	**$19,000,000**
Water Mains	**$15,000,000**
Sewer Mains	**$15,500,000**
Total	**$75,000,000**

WATER MAINS

Water Projects

		Estimated Cost
1.	**Renewal and size upgrade for City wide undersized and aging water mains.** Replace undersized diameter water mains and replace any other deteriorated water mains. Water mains will need upgrade or replacement using directional bore or open cut methods.	$8,535,000
2.	**Hearne Ave from Milam St to North Market Water Main Improvements** 13300 LF 20" water main	$5,000,000
3.	**West Laurel Street Area (Exposition, Arkansas, Chestnut, Maple, & Caperton)** 8500 LF 8" water replacement	$1,000,000
4.	**Pine St from Ford to Garden Water Improvements** 1050 LF 8" water main replacement of 2"	$150,000
5.	**Patzman from Western to Pierre Water Main Improvements** 1325 LF 8" water main replacement of 2"	$200,000
6.	**1500 Block of Andrew Ave Water Improvements** 600 LF 8" water main replacement of 2"	$115,000
	Subtotal	**$15,000,000**

Street Projects by City Council District

Summary of Cost Estimates 1

District	Streets
A	**$29,873,860**
B	**$32,991,760**
C	**$13,310,360**
D	**$26,674,710**
E	**$25,210,360**
F	**$8,401,860**
G	**$9,885,360**
City-wide Total	**$146,348,270**

1: Includes district-wide renewal projects which span 2003-2008.

Summary of Cost Estimates for 2005 & 2006 Project Start Priority 2

District	Streets	Percent of Overall Total
A	$290,000	**1%**
B	$6,927,900	**21%**
C	$1,526,500	**11%**
D	$6,208,000	**23%**
E	$2,696,500	**11%**
F	$258,000	**3%**
G	$2,511,500	**25%**
City-wide Total	**$20,418,400**	**14%**

2: Does not include district-wide renewal projects which span 2003-2(

Number of projects 3

District	Streets
A	10
B	15
C	11
D	14
E	14
F	8
G	11
City-wide Total	**83**

3: Includes in the count the district-wide renewal projects which span 2005-2010.

$73,000,000

CITY OF SHREVEPORT
DEPARTMENT OF OPERATIONAL SERVICES
TRANSPORTATION PROGRAM

$73,000,000

ROADWAY IMPROVEMENTS:		**Cost**
Ellerbe Road Widening (3 Lanes), Including Intersection @ Norris Ferry Rd. Norris Ferry to Flournoy-Lucas		$ 7,000,000
Linwood Avenue Widening (4 Lanes) Industrial Loop to Southern Loop		10,000,000
Kings Highway Corridor Improvements Youree to I-49 (widen & off-street parking)		7,500,000
Flournoy-Lucas Rd. Widening (3 Lanes) Kingston to Linwood		4,500,000
	Total	**$ 29,000,000**

BRIDGES:		
Murphy Street Viaduct remove/replace west abutment		$ 1,000,000
	Total	**$1,000,000**

INTERSECTION IMPROVEMENTS:		
E. 70th @ Gilbert Add turn lanes		$ 750,000
Line @ Ockley Add turn lanes		1,250,000
	Total	**$ 2,000,000**

SUMMARY

BRIDGES	**$ 1,000,000**
ROADWAY IMPROVEMENTS	**$ 29,000,000**
INTERSECTION IMPROVEMENTS	**$ 2,000,000**
GENERAL CITYWIDE	
Sidewalk Program	$ 7,000,000
Traffic Signals	10,000,000
Street Lighting	2,000,000
RR Crossing	1,000,000
Neighborhood Street Improvements	15,000,000
Economic Development	5,000,000
GIS Program	1,000,000
Total Program	**$ 73,000,000**

$196,000,000

CITY OF SHREVEPORT
DEPARTMENT OF OPERATIONAL SERVICES
TRANSPORTATION PROGRAM

$196,000,000

ROADWAY IMPROVEMENTS:	**Cost**
Ellerbe Road Widening (3 Lanes), Including Intersection @ Norris Ferry Rd. Norris Ferry to Flournoy-Lucas	$ 7,000,000
Linwood Avenue Widening (4 Lanes) Industrial Loop to Southern Loop	10,000,000
Kings Highway Corridor Improvements Youree to I-49 (widen & off-street parking)	7,500,000
Flournoy-Lucas Rd. Widening (3 Lanes) Kingston to Linwood	4,500,000
Pines Road Widening (3 Lanes) 70th to Bert Kouns	6,500,000
E. Southfield Extension to E. 70th New Roadway	3,200,000
Buncombe Road Widening (3 lanes) W. 70th to Bert Kouns	12,300,000
Extension of LA 526 (Ind. Loop) Jefferson Paige to Greenwood Road	7,250,000
Total	**$ 58,250,000**

BRIDGES:	
Murphy Street Viaduct remove/replace west abutment	$ 1,000,000
Millicent Avenue Extension / Bridge (3 Lanes) Creswell to Camelback	2,000,000
Linwood Overpass Replacement	13,000,000
US 171 @ Midway RR Bridge (Improve Drainage)	1,000,000
Total	**$ 17,000,000**

INTERSECTION IMPROVEMENTS:

E. 70th @ Gilbert Add turn lanes		$ 750,000
Line @ Ockley Add turn lanes		1,250,000
Hollywood @ Mansfield Add turn lanes		1,000,000
E. 70th @ Creswell Add turn lanes		750,000
	Total	**$ 3,750,000**

SUMMARY

BRIDGES	**$17,000,000**
ROADWAY IMPROVEMENTS	**58,250,000**
INTERSECTION IMPROVEMENTS	**3,750,000**
GENERAL CITYWIDE	
Sidewalk Program	21,000,000
Traffic Signals	30,000,000
Street Lighting	3,000,000
RR Crossing	2,000,000
Neighborhood Street Improvements	45,000,000
Economic Development	10,000,000
GIS Program	6,000,000
Total Program	**$196,000,000**

$450,000,000

CITY OF SHREVEPORT
DEPARTMENT OF OPERATIONAL SERVICES
TRANSPORTATION PROGRAM

$450,000,000

ROADWAY IMPROVEMENTS:	**Cost**
Ellerbe Road Widening (3 Lanes), Including Intersection @ Norris Ferry Rd. Norris Ferry to Flournoy-Lucas	$ 7,000,000
Linwood Avenue Widening (4 Lanes) Industrial Loop to Southern Loop	10,000,000
Kings Highway Corridor Improvements Youree to I-49 (widen & off-street parking)	7,500,000
Flournoy-Lucas Rd. Widening (3 Lanes) Kingston to Linwood	4,500,000
Pines Road Widening (3 Lanes) 70th to Bert Kouns	6,500,000
E. Southfield Extension to E. 70th New Roadway	3,200,000
Buncombe Road Widening (3 lanes) W. 70th to Bert Kouns	2,300,000
Extension of LA 526 (Ind. Loop) Jefferson Paige to Greenwood Road	7,250,000
Wallace Lake Road Widening (5 Lanes) Bert Kouns to Southern Loop	13,600,000
Southern Loop Extension Linwood to LA 526 (Four Lane w/Median)	35,400,000
Kingston Road Extension (3 Lanes) Williamson Way to Southern Loop	3,300,000
LA 3132; Flournoy Lucas to Hwy. 1 (Four Lane w/Median)	32,000,000
Williamson Way Extension Kingston to Linwood (asphalt with shoulders)	1,500,000

Roy Road Widening (4 Lanes) Shreveport-Blanchard to Old Mooringsport		9,300,000
Fant Parkway Extension Mayfair to Ravendale (Four Lane w/Median)		21,000,000
South Lakeshore (4 Lane) Lakeshore Drive to Lakeshore Dr.		4,200,000
Curtis Lane (3 Lane) Greenwood to Lakeshore		2,600,000
Red River Crossing @ 70th St.(New Bridge) (Est. $25,000,000)		5,000,000
	Total	**$ 186,150,000**

BRIDGES:

Murphy Street Viaduct remove/replace west abutment		$ 1,000,000
Millicent Avenue Extension / Bridge (3 Lanes) Creswell to Camelback		2,000,000
Linwood Overpass Replacement		13,000,000
US 171 @ Midway RR Bridge (Improve Drainage)		1,000,000
Stoner Avenue Overpass over Line Avenue (replacement)		5,000,000
	Total	**$22,000,000**

INTERSECTION IMPROVEMENTS:

E. 70th @ Gilbert Add turn lanes		$ 750,000

Line @ Ockley Add turn lanes	1,250,000
Hollywood @ Mansfield Add turn lanes	1,000,000
E. 70th @ Creswell Add turn lanes	750,000
Kings @ Hearne (Fairgrounds Entrance Improvements)	1,600,000
Fant Parkway Overpass @Knight St. Extension	2,500,000
Total	**$ 7,850,000**

SUMMARY

BRIDGES	**$ 22,000,000**
ROADWAY IMPROVEMENTS	**186,150,000**
INTERSECTION IMPROVEMENTS	**7,850,000**
GENERAL CITYWIDE	
Sidewalk Program	35,000,000
Traffic Signals	30,000,000
Street Lighting	7,000,000
RR Crossing	7,000,000
Neighborhood Street Improvements	125,000,000
Economic Development	15,000,000
GIS Program	15,000,000
Total Program	**$450,000,000**

Water Supply and Water Treatment Priority Projects
2004 - 2014

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	Project Name/Description	Design Capacity (MG,MGD,kW)	Planned Completion Date	Project Status	Cost Estimate
1	T. L. Amiss Wter Treatment Plant Chemical System Improvements	90 MGD	2005	Construction	$7,000,000
2	12 Mile Bayou Pump Station Improvements - Replace Pump Units and Switchgear (2 pumps, 70 MGD each)	70 MGD each (2 pumps)	2005/2008	Planned	$2,100,000
3	12 Mile Bayou Pump Station Improvements - New 60-inch Raw Water Line	100 MGD	2005/2008	Planned	$3,300,000
4	Water Treatment Plant Improvements: Improvements to Low Service Pump Station and Electrical Switchgear	TBD	2004/2005	Design	$1,000,000
5	Electrical Switchgear Improvements at the T. L. Amiss Water Treatment Plant	TBD	2004/2006	Design	$1,500,000
6	Water Treatment Plant Improvements: Ozone or Alternative System Imrprovements	TBD	2006/2010	Planned	$30,000,000
7	Water Treatment Plant Improvements: Improvements to McNeill Water Pump Station and Storage	TBD	2004/2005	Pending Funding	$1,500,000
8	Water Treatment Plant Improvements: Improvements to Plant 2/2E Flocculation/Sedimentation Systems	50 MGD	2004/2007	Pending Funding	$6,580,000
9	Water Treatment Plant Improvements: Improvements to Lime System	90 MGD	2005/2007	Design	$5,000,000
10	Water Treatment Plant Improvements: Auxiliary Electric Power System (Amiss and Pump Stations)	TBD	2005/2010	Design	$4,200,000
11	Improvements to Cross Lake Dam	N/A	2004/2006	Preliminary Vegetation Removal Complete; Dam Structural Pending Funding	$1,500,000
12	Water Treatment Plant Improvements: Amiss High Service Pumping Station Improvements	15 MGD	2005/2008	Design; Pending Funding	$2,300,000
13	Additional Low Service Pump Station with Lowered Raw Water Intake (per Corps of Engr)	90 MGD	2005/2010	Pending Funding	$4,500,000
14	New Water Treatment Facility	100 MGD	2010/2015	Pending Funding	$300,000,000
15	New High Service Line (Southeast from Amiss Plant)	TBD	2005/2008	Pending Funding	$2,500,000
16	Pump Station and Sludge Line to North Regional WWTP from Amiss WTP	TBD	2005/2008	Pending Funding	$2,500,000
17	New High Service Line (North from Amiss Plant)	TBD	2005/2008	Pending Funding	$2,500,000

Estimated Priority Improvements to Water Supply and Water Treatment Facilities: $377,980,000

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Sewer Projects in District A

Project Name	Quarter Section	Project Description	Cost Estimate	Priority	Date Completed	status
900 Block Charlotte Street Sewer & Water Improvements	R-52	500 LF 8" sewer main and 500 LF 8" water main	$160,000		December 19, 2003	
3200 Block Marjorie Street Sewer Improvements	P-43	880 LF 8" sewer improvements	$150,000	2003-2007		Design
3200 Block Sidney Street Sewer Improvements	P-43	730 LF 8" sewer improvements	$150,000	2003-2007		Design
North Regional Manhole and Main Rehabilitation for large lines to WWTP	Various bounded by M-48, R-46, V-50	Rehabilitate manholes and mains on the large carrier pipes into the North Regional WWTP in order to reduce or eliminate I&I; Project costs are partially granted by EPA	$2,700,000	2003-2005	October 19, 2005	
Rehabilitation and renewal for district wide deteriorated and aging sewer mains and manholes	District-wide	Estimate sewer mains for rehab or replacement using CIPP, directional bore, pipe-bursting, or open cut methods, and concurrently rehab/replace manholes	$6,000,000	2003-2008		Planned
2900 Block Hattie Street Sewer Improvements	Q-45	920 LF 8" sewer improvements	$215,000	2004-2007		Planned
Manhole and Line Repair - northeast of the North Regional WWTP (Augurs 14"FM discharge)	R-49	2 manholes (MH#12 & MH#10) and CIPP rehab on 15" sewer line	$150,000	2005-2007		Design
Off of North Maket and Poleman Rd - Sewer line rehab and/or replacement (northwest of North Market and MLK)	M-48, N-49	Clean, TV, and repair 21" gravity sewer approximately 3200 LF (identified repairs needed on: M-48 MH 3 to 6, N-49 MH 27 to 3 & 4 to 5)	$450,000	2005-2006		
Agurs LS	Q-51	Replace pumps, station piping, bar screen, flowmeter, and force main.	$2,000,000	2005-2006		Design - BBC
David Raines LS	R-45	Abandon and Replace Lift Station	$110,000	2005-2006	Jun-05	
Hattie LS	Q-45	Replace pumps and station piping with new package LS that includes equipment enclosure and replace force main.	$190,000	2005-2006		Design - Cothern
Legardy LS	P-47	Replace pumps, station piping, and flowmeter; add bar screen.	$410,000	2005-2006		Design - Balar
Marjorie LS	P-43	Replace pump and station piping with new package LS that includes backup pump and equipment enclosure.	$120,000	2005-2006		Design - EJES
Mirador LS	X-44	Replace/upgrade electrical equipment and misc. repairs to LS climate control and structure.	$20,000	2005-2006		Planned
Oak Forest LS	Q-44	Replace pumps and station piping with new package LS that includes equipment enclosure and replace force main.	$270,000	2005-2006		Construction
Pine Hills Estates LS	P-43	Replace "can" LS with new package LS and wet well.	$150,000	2005-2006		Design - ARE
Pine Hill Road LS	K-47	Replace/upgrade electrical equipment, misc. repairs to LS climate control and structure, and wet well rehabilitation.	$30,000	2005-2006		Planned
Willow Point II LS	V-46	Replace pumps and station piping.	$20,000	2005-2006		Planned
600 Block Aero Drive Sewer Improvements	R-52, S-52	Sewer main extension; in review for need and scope	$150,000	2005-2007		Planned
North Hearne Lift Station Improvements	Q-52	Install complete wet well and submersible pumps & controls	$125,000	2007-2008		Planned
Blanchard Rd/Havana St, MLK Drive Widening Project	P-44, Various	Upgrade undersized sewer and water mains, eliminate a pump station in conjunction with MLK widening by LA DOTD; project on hold	$2,200,000	DOTD (2005-2010)		Planned
Total			**$15,610,000**			**20**

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Water Projects in District A

Project Name	Quarter Section	Project Description	Cost Estimate	Priority	Date Completed	status
Portland Ave (900 - 1100 Blocks) Water Improvements	V-51	1267 LF 8" water main replacement	$120,000		August 26, 2003	
1500 Block of Andrew Ave Water Improvements	W-51	600 LF 8" water main replacement of 2"	$115,000	2003-2007		Design
Grimmett Dr from Kansas City Ave to Freestate Blvd water main improvements	R-52, R-53	2500 LF 8" water main replacement of 6" & 4"	$375,000	2003-2007	Oct. 11, 2005	
McKinley from Kansas City Ave to Thomas St and Thomas St from Grimmet to North Market	R-52, R-53	2100 LF 8" water main replacement of 2"	$300,000	2003-2005		Planned
Phase1: N.Market to Aero, Hearne Ave from Milam St to North Market Water Main Improvements (phase2 Aero to Milam)	Various QS bounded by V-51 and Q-52	4400 LF 20" water main	$550,000		July 1, 2005	
Phase 2: Aero to Milam, Hearne Ave from Milam St to North Market Water Main Improvements (phase1 N.Market to Aero)	Various QS bounded by V-51 and Q-52	12000 LF 20" water main	$3,000,000	2003-2006		Pre-Bid
Renewal and size upgrade for district wide undersized and aging water mains	District-wide	Replace undersized diameter water mains and replace any other deteriorated water mains. Estimate water mains will need upgrade or replaced using directional bore or open cut methods.	$4,500,000	2003-2008		Planned
Patzman from Western to Pierre Water Main Improvements	U-53	1325 LF 8" water main replacement of 2"	$200,000	2004-2005		Design - Fenner
Clay from Western to Allen and Western from Clay south to mid block	U-53	850 LF 8" water main replacement of 2" and additional undersized lines adjacent to project	$500,000	2004-2005		Planned
Alston from Webster to Dale	U-52	1000 LF 8" water main replacement of 2" and additional undersized lines adjacent to project	$500,000	2004-2005		Planned
Garden from Holzeman to Norma	U-51, U-52	1400 LF 8" water main replacement of 2" and additional undersized lines adjacent to project	$500,000	2004-2005		Planned
2000 Garden from EOL to Holzeman - Emerg.	U-51	6" water main replacement of 2"	$75,000	2004-2006	August 17, 2005	
Russell Rd. from Nash to Regional and Regional from Russell to existing water line	R-48	Replacement and installation of 16" water line	$600,000	2004-2006		Design - Sephan
Texas Street Bridge at Lakeshore Drive	X-52, W-52	24" water main attached to bridge structure	$175,000	2004-2006		Planned
Wells Island Rd Water Main Extension	P-53	1600 LF 10" water main along Wells Island Rd West of Mayfair Dr	$200,000	2004-2006		Planned
Fullerton Drive Water Main Extention	R-51, R-52, S-51, S-52	2550 LF 12" and 2025 LF 8" water main with addtional Fire Hydrants	$520,000	2005-2007		Design - EJES
Aero Drive Water Main Extention	R-52, S-52	3000 LF 12" Water Main	$450,000	2005-2007		Planned
Audry, Falcon Loop, Towers, Aline, and Thatcher Streets Water Main Improvements	P-45 & P-46, O-48, R-48, S-54	5000 - 7000 LF of 8" water main Audry from MLK to Doll, Falcon Loop from Hawkins to Towers, Towers from Montana to Hawkins, Aline from Sampson to Northside, Thatcher from Airport to EOL	$600,000	2005-2008		Planned
Lakeshore from Willowridge to east of I-220 (Lakeshore widening to Curtis Ln)	X-44, X-45	2500 LF 24" water main improvements, associated with DOTD	$600,000		July 24, 2003	
Twelve Mile Bayou Water Main Bridge Relocation (Old Mooringsport Rd)	O-51	Relocate utility bridge and water main, Coordinate with LA DOTD	$250,500		March 12, 2003	
Shreveport Blanchard Hwy Water Main Improvements (from Hearne to MLK)	Various QS bounded by Q-44 and U-50	22000 LF 20" water main; coordinate/evaluate impacts with LA DOTD street widening project	$3,500,000	DOTD (2005-2010)		Planned
Downtown Airport Water and Sewer Extensions	Q-54	3500 LF 10" water main, sewer LS, and force main; coordinate with Airport Authority	$300,000	Hold		Design Complete
Total			**$16,960,000**			**18**

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Drainage Projects in District F

Project Name	Project Description	Cost Estimate	Priority	Project Status
Wallace Drainage	67th to 70th Streets	$865,000	2003	Oct-03
Brush Bayou Drainage		$750,000	2003-2004	Under Construction
Airport Ditch Repairs	Wyngate Drive	$1,300,000	2006-2007	Pending Funding
Total		**$2,915,000**		

Drainage Projects in District G

Project Name	Project Description	Cost Estimate	Priority	Project Status
Missouri / Andrew Drainage, Phase II		$800,000	2003-2004	Bid Phase
6603 Santa Monica Drainage		$138,000	2003-2004	Dec-04
2600 Leaf Lane Drainage		$460,000	2004-2005	Dec-04
Total		**$1,398,000**		

$30,000,000

CITY OF SHREVEPORT
DEPARTMENT OF OPERATIONAL SERVICES
DRAINAGE IMPROVEMENT PROGRAM
$30,000,000

DRAINAGE IMPROVEMENTS	COST
Airport Ditch Repairs (Wyngate Drive)	**$ 1,300,000**
Pierremont Park Ditch-Gilbert Lateral	**1,500,000**
Gilmer Bayou Overflow Bridge West of Dean Road At Colquitt (Reduce flooding in Southern Oaks area)	**1,380,000**
Brush Bayou Clearing & Dredging Inner Loop to Flournoy-Lucas Road	**3,870,000**
Brookwood Ditch (Replace Hawthorne Street crossings)	**420,000**
Summer Grove Ditch Repairs (Baird Road to Williamson Way)	**1,300,000**
Jones-Mabry Lateral Paving (Improves major earthen ditch in MLK area)	**1,840,000**
MLK Ditch Paving (Linear Street upstream to existing paved section - 1994)	**1,610,000**
Juniper Place-River Oaks Ditch Improvements (Improve an existing earthen ditch to accommodate future development in the area)	**650,000**
Green Forest Drive Ditch Paving	**160,000**
Albert Street Drainage (from Youree east to Anniston Street)	**680,000**
Box Culvert/Ditch along Bert Kouns from Town South Apartments to Sand Beach Bayou	**980,000**
Kingston Road Drainage North of Williamson Way, south of Willow Drive	**560,000**

Red Stone Ditch Paving **MLK Area from Shreveport-Blanchard Road to MLK Drive**	**980,000**
Earthen Ditch from Bert Kouns to Cromwell Dr. (2500 l.f.)	**650,000**
9200 Block Dawnridge Drive Drainage (Industrial Loop to Cana)	**580,000**
Baywood Drive Drainage (Dean Road East)	**250,000**
Norris Ferry/Harts Island Study Projects (Estimated needs for future projects in the area)	**2,500,000**
100 Block Oakridge Drainage	**130,000**
Gilmer Bayou Ditch Repairs at Quail Ridge Bridge	**175,000**
North Highland Area Drainage (Empire Circle, Dearborn, Deer Park, Timber Lane, Wildwood Avenue)	**850,000**
Wintergarden Ditch Paving Wintergarden to North Market (Approximately 1100 l.f. 8' x 4' ditch paved)	**675,000**
Archer Drainage (3300 block of Youree to the 100 block of Archer)	**860,000**

CITYWIDE PROGRAM

Citywide Drainage Improvements	**2,300,000**
Drainage Ditch Repairs (Citywide to maintain paved drainage infrastructures)	**2,300,000**
Purchase of Flood Prone Properties (Citywide)	**1,000,000**
FEMA Updates & BFE's for "A" Zones	**500,000**
TOTAL	**$30,000,000**

$60,000,000

CITY OF SHREVEPORT
DEPARTMENT OF OPERATIONAL SERVICES
DRAINAGE IMPROVEMENT PROGRAM
$60,000,000

DRAINAGE IMPROVEMENTS	COST
Airport Ditch Repairs (Wyngate Drive)	**$ 1,300,000**
Pierremont Park Ditch-Gilbert Lateral	**1,500,000**
Gilmer Bayou Overflow Bridge West of Dean Road At Colquitt (Reduce flooding in Southern Oaks area)	**1,380,000**
Brush Bayou Clearing & Dredging Inner Loop to Flournoy-Lucas Road	**3,870,000**
Brookwood Ditch (Replace Hawthorne Street crossings)	**420,000**
Summer Grove Ditch Repairs (Baird Road to Williamson Way)	**1,300,000**
Jones-Mabry Lateral Paving (Improves major earthen ditch in MLK area)	**1,840,000**
MLK Ditch Paving (Linear Street upstream to existing paved section - 1994)	**1,610,000**
Juniper Place-River Oaks Ditch Improvements (Improve an existing earthen ditch to accommodate future development in the area)	**650,000**
Green Forest Drive Ditch Paving	**160,000**
Albert Street Drainage (from Youree east to Anniston Street)	**680,000**
Box Culvert/Ditch along Bert Kouns from Town South Apartments to Sand Beach Bayou	**980,000**
Kingston Road Drainage North of Williamson Way, south of Willow Drive	**560,000**
Red Stone Ditch Paving MLK Area from Shreveport-Blanchard Road to MLK Drive	**980,000**
Earthen Ditch from Bert Kouns to Cromwell Dr. (2500 l.f.)	**650,000**

9200 Block Dawnridge Drive Drainage (Industrial Loop to Cana)	**580,000**
Baywood Drive Drainage (Dean Road East)	**250,000**
Norris Ferry/Harts Island Study Projects (Estimated needs for future projects in the area)	**2,500,000**
100 Block Oakridge Drainage	**130,000**
Gilmer Bayou Ditch Repairs at Quail Ridge Bridge	**175,000**
North Highland Area Drainage (Empire Circle, Dearborn, Deer Park, Timber Lane, Wildwood Avenue)	**850,000**
Wintergarden Ditch Paving Wintergarden to North Market (Approximately 1100 l.f. 8' x 4' ditch paved)	**675,000**
Archer Drainage (3300 block of Youree to the 100 block of Archer)	**860,000**
Brush Bayou Paving (Mansfield Rd. @ Sou. Pacific RR South to Mopac RR)	**12,800,000**
Pleasant Hill Road Drainage (City Limit to North of Overton Brooks Drive)	**1,800,000**
Broadacres Road Drainage (70th Street to south of Westwood)	**900,000**
Bickham Bayou Paving (Pines Road @ Tierra to City Limits)	**7,000,000**

CITYWIDE PROGRAM

Citywide Drainage Improvements	**5,800,000**
Drainage Ditch Repairs (Citywide to maintain paved drainage infrastructures)	**5,800,000**
Purchase of Flood Prone Properties (Citywide)	**1,500,000**
FEMA Updates & BFE's for "A" Zones	**500,000**
TOTAL	**$60,000,000**

$75,000,000

CITY OF SHREVEPORT
DEPARTMENT OF OPERATIONAL SERVICES
DRAINAGE IMPROVEMENT PROGRAM
$75,000,000

DRAINAGE IMPROVEMENTS	COST
Airport Ditch Repairs (Wyngate Drive)	**$ 1,300,000**
Pierremont Park Ditch-Gilbert Lateral	**1,500,000**
Gilmer Bayou Overflow Bridge West of Dean Road At Colquitt (Reduce flooding in Southern Oaks area)	**1,380,000**
Brush Bayou Clearing & Dredging Inner Loop to Flournoy-Lucas Road	**3,870,000**
Brookwood Ditch (Replace Hawthorne Street crossings)	**420,000**
Summer Grove Ditch Repairs (Baird Road to Williamson Way)	**1,300,000**
Jones-Mabry Lateral Paving (Improves major earthen ditch in MLK area)	**1,840,000**
MLK Ditch Paving (Linear Street upstream to existing paved section - 1994)	**1,610,000**
Juniper Place-River Oaks Ditch Improvements (Improve an existing earthen ditch to accommodate future development in the area)	**650,000**
Green Forest Drive Ditch Paving	**160,000**
Albert Street Drainage (from Youree east to Anniston Street)	**680,000**
Box Culvert/Ditch along Bert Kouns from Town South Apartments to Sand Beach Bayou	**980,000**
Kingston Road Drainage North of Williamson Way, south of Willow Drive	**560,000**
Red Stone Ditch Paving MLK Area from Shreveport-Blanchard Road to MLK Drive	**980,000**
Earthen Ditch from Bert Kouns to Cromwell Dr. (2500 l.f.)	**650,000**

9200 Block Dawnridge Drive Drainage (Industrial Loop to Cana)	**580,000**
Baywood Drive Drainage (Dean Road East)	**250,000**
Norris Ferry/Harts Island Study Projects (Estimated needs for future projects in the area)	**5,000,000**
100 Block Oakridge Drainage	**130,000**
Gilmer Bayou Ditch Repairs at Quail Ridge Bridge	**175,000**
North Highland Area Drainage (Empire Circle, Dearborn, Deer Park, Timber Lane, Wildwood Avenue)	**850,000**
Wintergarden Ditch Paving Wintergarden to North Market (Approximately 1100 l.f. 8' x 4' ditch paved)	**675,000**
Archer Drainage (3300 block of Youree to the 100 block of Archer)	**860,000**
Brush Bayou Paving (Mansfield Rd. @ Sou. Pacific RR South to Mopac RR)	**12,800,000**
Pleasant Hill Road Drainage (City Limit to North of Overton Brooks Drive)	**1,800,000**
Broadacres Road Drainage (70th Street to south of Westwood)	**900,000**
Bickham Bayou Paving (Pines Road @ Tierra to City Limits)	**7,000,000**
MLK Ditch Paving (Jones Mabry to North of Willis)	**5,000,000**

CITYWIDE PROGRAM

Citywide Drainage Improvements	**10,000,000**
Drainage Ditch Repairs (Citywide to maintain paved drainage infrastructures)	**7,800,000**
Purchase of Flood Prone Properties (Citywide)	**2,000,000**
FEMA Updates & BFE's for "A" Zones	**500,000**
TOTAL	**$75,000,000**

FIELD OPERATIONS MONTHLY REPORT

2005

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ACTIVITIES	YTD Totals
WORK ORDERS RECEIVED	14645
WORK ORDERS COMPLETED	
WORK ORDERS INCOMPLETE	
METER WORK ORDERS RECEIVED	93907
METER WORK ORDERS COMPLETED	
METER WORK ORDERS INCOMPLETE	
COMBINED ORDERS RECEIVED	108552
NUMBER OF EMERGENCY WATER REPAIRS	
'NUMBER OF EMERGENCY SEWER REPAIRS	
NUMBER OF LEAD SERVICES CHANGED OUT	
NUMBER OF DRIVEWAYS REMOVED	
NUMBER OF SIDEWALKS REMOVED	
NUMBER OF CUT HOLES PERMITTED	
NUMBER OF HYDRANTS INSPECTED	
NUMBER OF HYDRANTS REPAIRED	
NUMBER OF HYDRANTS REPLACED	
NUMBER OF HYDRANTS OUT OF SERVICE	
NUMBER OF LOCATES REQUESTED	
NUMBER OF LOCATES MADE	
NUMBER OF HITS DUE TO MISLOCATES	
L.F. WASHED SEWER MAINS (WASH TRUCKS)	
L.F. CLEANED SEWER MAINS (VAC TRUCKS)	

NUMBER OF MANHOLES INSPECTED	
NUMBER OF MANHOLES REPAIRED	
L.F. OF SEWER MAIN SMOKE TESTED	
L.F. OF SEWER MAIN TV. INSPECTED	
NUMBER OF INFLOW PREVENTORS INSTALLED	
SSO'S CAUSED BY ROOTS	123
SSO'S CAUSED BY GREASE	51
SSO'S CAUSED BY LINE FAILURES	16
SSO'S CAUSED BY FORCE MAIN LEAKS	5
SSO'S CAUSED BY RAIN EVENTS	48
SSO'S CAUSED BY UNKNOWN CAUSES	72
TOTAL NUMBER OF SSO'S	315
L.F. OF RIGHT OF WAYS CLEARED	

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