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SECTION 1
INTRODUCTION

1.1 BACKGROUND

The City of Roseville is a Charter City that was founded in 1909 and began constructing its sewage collection system in 1911. After 95 years, the City has replaced only a small portion of its original system and has continued to add new pipelines. Today, Roseville has approximately 500 miles of sewer pipe in its inventory.

The City began work on a rehabilitation plan in 2000 with a goal of meeting the financial need of replacing its pipelines without having to borrow money. This Capital Improvement Plan is one piece of a plan in place to forecast the funds needed to replace or rehabilitate the infrastructure so that the City can adequately maintain the needed funds for the future.

1.2 INTRODUCTION

The City of Roseville (City) retained Camp Dresser & McKee (CDM) and Kimley Horn & Associates (KHA) in May 2005 to perform a comprehensive condition assessment of approximately 130,000 feet, or approximately 5%, of the City's sewer network. The pipe chosen for this initial assessment included those pipelines greater than 75 years of age as well as pipelines currently on the City's quarterly maintenance schedule.

This document includes discussion of:

- Inspections performed to develop the assessments
- Applicable rehabilitation techniques
- Course of action for each pipe segment
- Cost estimate for rehabilitation projects
- Prioritization of pipe segments to be rehabilitated
- Discussion of future assessments

SECTION 2
COLLECTION SYSTEM ASSESSMENT

Table 1 presents a summary of the City's collection system inventory (size and length) constructed through 1927, representing the City's pipeline inventory that is greater than 75 years old. Pipe materials used during this period were almost exclusively vitrified clay pipe (VCP) with the exception of pipe constructed in 1927 when reinforced concrete pipe (RCP) was used. There are approximately 415 pipe segments and manholes included in this inventory of pipes greater than 75 years old. Most manholes are constructed of reinforced concrete; however, many of the older manholes are constructed of brick and mortar. Pipe segments range in length from 14 feet to 800 feet with an average length of approximately 290 feet.

Table 1
Summary of Pipe Size and Footage

Installation Date	Feet of Pipe by Diameter					
	6	8	10	12	21	Total
Pipe Greater Than 75 Years Old						
1911	45,116	1,105	7,782	5,636		59,639
1924	5,011					5,011
1925	44,216	4,993	2,308			51,517
1926	1,530		657			2,187
1927					1,885	1,885
Total	**95,873**	**6,098**	**10,747**	**5,636**	**1,885**	**120,239**
Pipe on Quarterly Maintenance List						
1948	873					873
1953	238					238
1954	425					425
1959	506	270				776
1960	1,087					1,087
1961	471					471
1964	515					515
1972				210		210
1974			90			90
1975		661				661
1976	1,254	254				1,508
1977	597					597
1978	1,268	835				2,103
1979	260					260
1983		250				250
1985	649					649
1988	130					130
2002	314					314
Total	**8,587**	**2,270**	**90**	**210**	**-**	**11,157**
GRAND TOTAL	**104,460**	**8,368**	**10,837**	**5,846**	**1,885**	**131,396**

The group of pipe segments evaluated under this assessment is the first of 24 pipe groups in the system; the City intends to evaluate all 24 groups.

2.1 Common Defects

The portion of the City's collection system evaluated in this work effort is in fairly good condition. The most common defect in the City's sewer pipelines are light to moderate root intrusion in main lines and laterals. This is fairly standard in VCP pipe systems. Other localized defects such as hairline cracks, broken pipes, sagging, infiltration/exfiltration, debris, and grease, are also found in numerous segments.

2.1.1 Root Intrusion

When roots enter a sewer lateral or mainline, they grow rapidly, causing separation and cracking of pipe joints. Root intrusion is most commonly due to defects in laterals and mainlines; mainly open joints and breaks and can be initiated by exfiltration.

Roots at a Service Lateral

Root intrusion increases the rate of infiltration/exfiltration in sewer lines by expanding an existing joint or break. This opening allows the soil surrounding the pipeline to enter through the defects, damaging the pipelines and ultimately leading to breakage and collapse of the pipe. Infiltration of ground water, or infiltration/exfiltration caused by surcharging of the sewer, washes in surrounding soil particles thereby deteriorating the support and allowing the pipe to move. The soil particles cause further deformation of the pipe and promote the development of small cracks into fractures. With increased deformation, the pipe will become increasingly likely to collapse. Root intrusion is more common in sewer laterals, which are shallow and usually not constructed as well as sewer mains.

Roots can also have a detrimental effect on hydraulic condition in the sewers by creating flow restriction, especially in areas with grease present as the roots tend to trap the grease and form an obstruction. These hydraulic restrictions increase the possibility of surcharge.

Studies conducted by the Urban Institute for the U.S. Department of Housing and Urban Development revealed that 50% of stoppages in laterals and collection systems are related to root intrusion. Root intrusion costs owners the greatest amount of money and is considered the single most destructive problem in maintaining collection systems.

Offset Joint

2.1.2 Defective Joints

The City's main source of root intrusion is defective joints (joints which are offset or open). The defective joints may be caused by improper pipe installation, use of an inferior quality gasket, or utilization of a non-acid resistant gasket.

2.1.3 Cracked and Broken Pipes

Cracked and broken pipes are considered the most critical issue affecting the City's sewer lines, varying from hairline cracks to multiple single fractures (circumferential and longitudinal) to large holes and collapsed pipe.

Hole in Pipe

2.1.4 Infiltration/Exfiltration

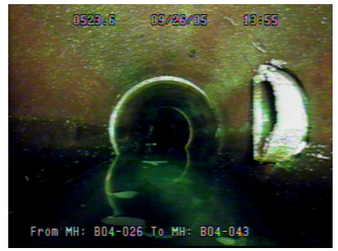
Infiltration/exfiltration is related to cracks and breaks in the pipeline as well as root intrusion problems attributed to joint defects and breaks. Sealing/repairing the holes and cracks as well as reducing root intrusion will work to minimize the quantity of infiltration that enters the City's system.

2.1.5 Sagging (Dip)

Sagging is the existence of a void in the soil surrounding the pipeline caused by poor workmanship (i.e. poor bedding compaction), defective joints, or cracks which have led to infiltration/exfiltration.

Sags may reduce velocities to the point where debris and solids may settle out, reducing the capacity of the pipe.

Of the 446 pipe segments surveyed, sags were recorded on 289 segments. Of the 74 pipe segments on the Slugger's List that were surveyed, 68 had sags recorded. Since these segments have proven to have a history of maintenance problems, we can assume that some of this is due to the sag. Therefore, these segments were flagged for replacement.



Protruding Service Lateral

2.1.6 Other Defects

Other defects found in collections system include: debris, grease, improper connections between piping, break-ins, illegal connections, and protruding connections. Based upon the CCTV data that was reviewed, the City appears to have isolated incidents of debris, grease, and protruding connections. An expanded public education program may reduce the occurrence of debris and grease in the system.

Hole Due to Corrosion

2.2 Data Used in Assessment

Field inspections were conducted by City staff between September and December 2005. The inspections were conducted to determine the structural integrity of the sewer system and to identify localized defects. The City utilized CCTV inspections for pipeline inspection and manual inspection for manholes. In order to provide a consistent means of evaluating the pipelines, the City crews were trained in using the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment and Certification Program (PACP). {Please refer to the CCTV Field Inspection Protocol for additional information.}

2.2.1 Pipelines

Inspections were conducted to determine the internal structural integrity of the pipelines, to identify localized or segmental defects, to establish the overall performance of the sewer system, and to ascertain the need for rehabilitation or replacement. CCTV inspections were performed to inspect all accessible sewer lines.

City staff used the Pipelogix "Flexidata" program to enter defect data in the field during the CCTV inspections. Electronic copies of the CCTV inspections and the Flexidata reports were delivered to CDM for quality control review.

Still color photographs were taken of typical conditions and defects within each pipe segment.

2.2.2 Manhole Inspections

Manholes are an integral part of any sewer system and were inspected to: locate sources of Inflow/Infiltration (I/I), examine structural integrity, and examine the condition of other manhole components, including cover, frame, frame seal, chimney, cone, wall, joint seal, bench, channel, and steps. Inspection of manholes consisted of video, inspection logs (see sample form on following pages), and still photos.

2.3 Pipeline Condition Assessment Procedure

The primary objectives of a pipeline condition assessment include evaluating the structural integrity as well as the hydraulic adequacy of the sewer system. Careful review and analysis of the inspection video and log sheet results are essential to identifying problems like internal localized defects and failure potential. Ultimately, a pipeline condition assessment serves to establish priorities for rehabilitation or replacement.

For the City of Roseville project, a complete program was established for condition assessment using the NASSCO PACP standard rating system and Flexidata software. Data was transferred from Hansen to Roseville crews in the field via a Neztek interface and then back to Hansen through the same Neztek interface. A separately bound document, CCTV Field Inspection Protocol, provides a step by step procedure for this entire process.

2.3.1 Pipeline Condition

The pipeline inspection videos, log sheets, and still photographs were examined and evaluated. Pipeline condition was assessed using a two-tiered rating system; each pipe segment is given a probability score and a criticality score. The probability score gives a snapshot of how likely a particular pipe segment is to have a failure in the next several years; it takes into account the structural and O&M scores developed through the CCTV process as well as the pipe segment's maintenance history. The criticality score indicates how much of impact a pipe's failure would have.

SANITARY SEWER MANHOLE INSPECTION FORM

Inspection No.:	Report Date:
Group Project No.:	Submitted by:
Manhole No.:	

INSPECTION DETAILS

Street No.:		Street Name:		Cross St./Nearest:			
Wrong Location on Map:	Y or N	New Asset not on map:	Y or N	Man Entry:	Y or N	Flow split:	Y or N

PHYSICAL DATA

Below grade subject to Runoff or Ponding	Y or N	Drainage Area: (ft x ft)		Surcharge:	Y, N, E	Rim to Surcharge (ft):	
Surface Cracked	Y or N	Camera No.:		Picture No.:		Video Name:	

	Material	Size (feet)	Infiltration	Debris	Condition	Comments / Pics
Cover						
Frame						
Rings						
Cone						
Wall						
Bench						
Channel						
Base						
Steps Y or N						
					Overall Rating	

PENETRATIONS

Pipe No.	Size (inches)	Material	Comments

N

Signature _____

Front of sample manhole inspection form

SANITARY SEWER MANHOLE INSPECTION CONTINUATION FORM

NOTES / COMMENTS

Structural Defect Coding

Crack	
CL Crack	2
CC Crack Circumferential	1
CM Crack Multiple	3
CS Crack Spiral	2

Fracture	
FL Fracture Longitudinal	3
FC Fracture Circumferential	2
FM Fracture Multiple	4
FS Fracture Spiral	3

Broken	
BSV Broken Soil Visible	5
BVV Broken Void Visible	5

Hole	
HSV Hole Soil Visible	5
HVV Hole Void Visible	5

Deformed	
DV Deformed Vertically	5
DH Deformed Horizontally	5

S Surface Damage*	
SRI Roughness Increased	1
SAV Aggregate Visible	3
SAP Aggregate Projecting	3
SAM Aggregate Missing	4
SRV Reinforcement Visible	5
SRP Reinforcement Projecting	5
SRC Reinforcement Corroding	5
SMW Missing Wall	5
SSS Surface Spalling	2
SZ Other	

**each code in surface damage category may utilize the following modifiers:*
C Chemical Attack
M Mechanical
Z Not Evident

Operational and Maintenance Coding

D Deposits	
DA Deposits Attached	**
DAE Encrustation	**
DAGS Grease	**
DAR Ragging	**
DAZ Other	**
DS Deposits Settled	
DSF Fine	**
DSGV Gravel	**
DSC Hard / Compacted	**
DSZ Other	**
DN Deposits Ingress	
DNF Fine (Silt and Sand)	**
DNGV Gravel	**
DNZ Other	**

I Infiltration	
IW Weeper	2
ID Dripper	3
IR Runner	4
IG Gusher	5

Roots	
RF Roots Fine	1
RT Roots Tap	2
RM Roots Medium	3
RB Root Ball	4

Vermin	
VR Rat	2
VC Cockroach	1
VZ Other	1

OB Obstacles/Obstructions	
OBB Brick or Masonry	**
OBM Pipe Material in Invert	**
OBI Object Protruding through wall	**
OBP External Pipe or Cable	**
OBS Object Built into Structure	**
OBN Construction Debris	**
OBR Rocks	**
OBZ Other	**

*** Use judgment to code O&M issues based on table below*

The following general guidelines will be used when assigning a 1-5 priority rating to a given defect.

Priority 1:	No Defect, No Rehabilitation Required
Priority 2:	Light to Moderate, Rehabilitation &/or Routine Maintenance is Probable, Long-Term
Priority 3:	Moderate to Medium, Rehabilitation is Necessary, Mid-Term
Priority 4:	Medium to Severe, Rehabilitation is Urgent, Short-Term
Priority 5:	Severe, Rehabilitation is Emergency, Immediate

Back of Sample Manhole Inspection Form

2.3.2 RATING EXAMPLE

The following is an example of how a pipeline segment would be rated. In this example, we are assessing 250 feet of 8-inch vitrified clay pipe installed in 1911 which has had 4 work orders each year and shows the following defects:

	Defects*	Group*	Rating*
1	Circumferential crack	Structural	1
2	Roots at joint (tap)	O&M	1
3	Tap - break-in, intruding 20%	O&M	3
4	Deposits attached ragging, 20%	O&M	3
5	Fracture – multiple	Structural	4

* See pages D1-D-12 of NASSCO's PACP Reference Manual for Defects, Group and Rating details.

Structural Score:

To determine the structural score, we take three separate scores based on the Structural defects, sum them, and assign a score of 1 to 5 based on this sum.

1) Highest score * 100: The highest score in this example is 4 – times 100 equals 400.
2) Sum of defect scores: (1 + 4) equals 5.
3) Average score per 100-ft of pipe: total score divided by segment length times 100: 5 / 250 * 100 = 2.0.

The sum of these is then 400+5+2 = 407

Total Structural Score	Structural Rating
< 150	1
150 – 249.99	2
250 – 349.99	3
350 – 449.99	4
> 450	5

Using the table to the right, the structural score is assigned. In this case, the score is a 4.

O&M Score

The O&M score is determined in a similar manner to the structural score; we take three separate scores based on the O&M defects, sum them, and assign a score of 1 to 5 based on this sum.

1) Highest score * 100: The highest score in this example is 3 – times 100 equals 300.
2) Sum of defect scores (1+3+3) equals 7.
3) Average score per 100-ft of pipe: total score divided by segment length times 100:
   7 / 250 * 100 = 2.8.

The total is then 300+7+2.8 = 309.8

Total O&M Score	O&M Rating
< 150	1
150 – 249.99	2
250 – 349.99	3
350 – 449.99	4
> 450	5

Using the table to the right, the structural score is assigned. In this case, the score is a 3.

Maintenance History Score:

Maintenance history data from Hansen was reviewed for the Slugger's List (those pipes which require a great deal of maintenance) and for those pipe segments included in the assessment. The minimum, average, and maximum number of calls per year are presented in the table below. Since the fact that a pipeline is on the Slugger's List indicates maintenance problems, those pipes on the Slugger's List should be given a poor (or high) maintenance score. The scores were assigned as shown in the table above such that a pipe segment with the average number of calls on the Slugger's List was given a 5 (the worst score). Additionally, this means that approximately 90% of the segments on the slugger's list would be given a rating of 5. In terms of the remaining segments in the assessment (those not included on the Slugger's List), less than 10 percent of them would receive a score of 5. For this example, 4 work orders per year results in a maintenance history score of 4.

Calls Per Year	Maintenance History Score
<2	1
2 – 2.9	2
3 – 3.9	3
4 – 4.9	4
=>5	5

Calls Per Year	Slugger's List	All other Segments
Minimum	0.6	0.1
Average	6.8	2.2
Maximum	19.6	8.3

Capacity Data

For this example, we will assume that the City's capacity model finds that flow at design ultimate flow conditions within the pipe is less than 70% of the diameter. Since the City indicated that they would like to keep ultimate flows at or below a d/D of 0.7, this was given a score of 1. The City also indicated that they would consider up-sizing a pipe at a flow condition of 85% d/D, so this was given a score of 5. Our example yields a score of 1.

d/D	Capacity Score
< 0.70	1
0.70 – 0.75	2
0.75 – 0.80	3
0.80 – 0.85	4
> 0.85	5

Location Data

The highest of the three possible Location Data scores will be used for this item. For our example, upstream manhole is less than 50 feet from a storm drain inlet which is about 800 feet from a creek. This information yields a score of 5.

Location	Public Impact Score
> 1000 feet from public facilities, limited public traffic, limited economic impact	1
within 1000 feet of public facilities, moderate public traffic, moderate economic impact	3
within 100 feet of public facilities, significant public traffic, significant economic impact, high construction cost	5

Location	Environmental Score
> 100 feet from storm drain inlet and **> 2000 feet** of storm drain pipe before waterway discharge	1
Between 50 feet and 100 feet from storm drain inlet and **> 2000 feet** of storm drain pipe before waterway discharge	2
< 50 feet from storm drain inlet and **> 2000 feet** of storm drain pipe before waterway discharge	3
< 50 feet from storm drain inlet and **between 1000 feet and 2000 feet** of storm drain pipe before waterway discharge	4
< 50 feet from storm drain inlet and < **1000 feet** of storm drain pipe before waterway discharge	5

Location	Access/Safety Score
In roadway, residential street, main sewer	1
In roadway, arterial roadway, collector sewer	2
Not in roadway, can access with truck, trunk sewer	3
Not in roadway, must walk equipment to site	4
Not in roadway, no safe working area, under buildings	5

Asset Data:

VCP yields a pipe material score of 3; a 94 year old pipe yields an age score of 4. The higher of the two is taken for an asset score of 4.

Pipe Age	Asset Score
1 – 25	1
26 – 50	2
51 – 75	3
76 – 100	4
> 100	5

Pipe Material*	Asset Score
CSB, CSU, FRP, GRC, PE, PP, PVC, RCP	1
CP, DIP, SP	2
CAS, RPM, VCP, WD	3
CT,	4
AC, CMP, OB, TTE	5

* See page 2-10 of NASSCO's PACP Reference Manual for Abbreviations

Table 2 summarizes the assessment criteria and weighting factors. The criteria have been divided into two groups, probability criteria and criticality criteria to provide a breakdown of how likely a pipe is to require repair versus the consequences on non-repair.

Weighting factors have been tentatively assigned and may be adjusted during the assessment and rating process.

Table 2
Criteria and Weighting Factors

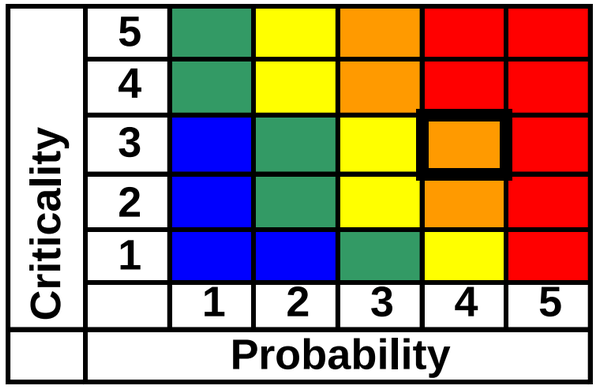
Criteria	Weighting Factor	Example Score	Total Example Score
Probability Criteria			
Structural	5	4	20
O&M	3	3	9
Maintenance History	2	4	8
PROBABILITY TOTAL			**37**
Criticality Criteria			
Capacity Data	5	1	4
Location Data	4	5	20
Asset Data	1	4	4
CRITICALITY TOTAL			**28**

The weightings given in Table 2 yield a total weighting factor of ten for each criteria grouping (probability criteria and criticality criteria) which yields score ranges of between 10 (minimum possible score) and 50 (maximum possible score) for each grouping. (These ranges will vary with differing weighting factors.) Given this range of possible scores, the following table was developed:

Score	Rating
10 – 16	1
17 – 24	2
25 – 32	3
33 – 42	4
42 – 50	5

Using the ranges to the right, the segment probability score would be 4 and the segment criticality score would be 3.

Finally, using the Matrix to the left, the overall segment score for this pipe would be a four (orange) which would be the highest score a pipe would receive without it receiving emergency repair during the assessment.



The decision to rehabilitate or replace a pipe segment is based on this overall score as detailed in the table below.

Table 3
Pipeline Rating System and Implication

Rating	Condition	Condition for Severity	Implication	Recommendations
1	Excellent	None	Acceptable structural and localized condition	Periodic monitoring & maintenance
2	Good	Minor root intrusion	Minimal collapse risk, but further deterioration possible	Periodic monitoring & maintenance
3	Minor	Moderate root intrusion, cracks and sagging	Collapse unlikely but further deterioration imminent	Rehabilitate
4	Fair	Extensive root intrusion. Multiple cracks, breaks, and sagging	Collapse likely in foreseeable future	Rehabilitate
5	Poor	Collapsed pipe, holes in pipe, severe offset joints	Pipe has collapsed or collapse is imminent	Rehabilitate

Evaluation of the inspection results reveals that deterioration of the pipelines is mainly linked to pipeline age, root intrusion, and various cracks and breaks.

2.3.2 Evaluation and Rating

Figure 1 on the following page provides a graphic representation of the City's sewer system and identifies the overall rating of each pipe after spot repairs. The data are also provided in Table 4.

City of Roseville Wastewater Collection System Condition Assessment Program

CITY OF ROSEVILLE CALIFORNIA

Legend:

Overall Rating

- Not in Study Area
- 1
- 2
- 3
- 4
- 5

Pipeline annotation refers to rating prior to repairing most significant defects

F

0 250 500 1,000 1,500 2,000 Feet

Figure 1
Overall Rating
After Required
Spot Repairs are
Completed

May 26, 2006

CDM

Table 4: Segment Scores

UPID	DNID	COMP KEY	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Action	Cost*	Year
A04-017	A04-016	15215	2	2	2			Maintain	$ -	
A04-039	A04-026	15101	3	3	3			Replace	$ 38,411	FY10
A04-074	A04-081	15106	2	1	1		2	Replace	$ 24,881	FY10
A04-088	A04-089	15182	2	1	1		8	Replace	$ 47,538	FY10
A04-081	A04-093	15108	3	2	3		3	Replace	$ 34,750	FY10
A04-097	A04-098	15179	2	1	1		6	Replace	$ 21,823	FY10
A04-089	A04-099	15183	3	1	2			Replace	$ 36,279	FY10
A04-098	A04-099	15180	2	1	1		6	Replace	$ 36,835	FY10
A04-118	A04-119	15148	2	1	1		4	Replace	$ 31,970	FY10
A05-017	A05-003	13906	3	3	3			CIPP	$ 13,599	FY10
A05-029	A05-016	13903	2	3	2		2	Maintain	$ -	
A05-016	A05-017	13905	4	3	4			CIPP	$ 5,324	FY09
A05-044	A05-033	13851	2	2	2			Replace	$ 20,519	FY10
A05-033	A05-034	13852	2	1	1			Replace	$ 6,390	FY10
A05-055	A05-044	13850	2	3	2		9	Maintain	$ -	
A05-063	A05-055	13845	2	1	1		4	Maintain	$ -	
A05-058	A05-063	13844	1	2	1		2	Maintain	$ -	
A05-074	A05-075	13837	2	1	1		2	Replace	$ 18,070	FY10
A05-086	A05-087	13832	2	2	2		4	Maintain	$ -	
A06-018	A06-013	13753	3	3	3		2	CIPP	$ 9,550	FY12
A06-032	A06-018	13751	2	3	2		6	Maintain	$ -	
A06-039	A06-032	13744	2	3	2			Maintain	$ -	
A06-060	A06-032	13749	2	2	2		6	Maintain	$ -	
A06-048	A06-039	13739	4	3	4	1	1	CIPP	$ 8,427	FY09
A06-062	A06-048	13735	2	3	2		2	Maintain	$ -	
A06-068	A06-062	13729	2	3	2			Maintain	$ -	
A06-226	A06-250	13656	2	1	1		7	Replace	$ 50,874	FY10
A07-003	A07-002	12674	2	3	2		4	Replace	$ 48,511	FY10
A07-061	A07-067	12642	3	3	3			Replace	$ 12,774	FY10
A07-063	A07-072	12470	2	2	2		4	Maintain	$ -	
A07-082	A07-072	12508	2	2	2		2	Replace	$ 20,155	FY10
B03-028	B03-027	15360	4	1	3	3	8	CIPP	$ 93,845	FY11
B03-029	B03-028	15359	2	1	1		3	Maintain	$ -	
B03-030	B03-029	15358	5	1	5	4	1	CIPP	$ 49,989	FY08
B03-027	B03-034	15361	4	1	3	5		CIPP	$ 20,714	FY11
B03-034	B03-037	15362	3	1	2	4	1	Spot Repair	$ -	FY11
B04-007	B04-006	14850	3	1	2			Maintain	$ -	
C04-230	B04-006	16480	4	3	4		2	Replace	$ 44,247	FY07
B04-008	B04-007	14849	3	2	3		3	CIPP	$ 40,611	FY11
B04-338	B04-009	9337997	3	1	2	2	2	Spot Repair	$ -	FY11
B04-009	B04-010	11052	4	1	3	1	1	CIPP	$ 6,246	FY11
B04-011	B04-010	11050	4	2	4		1	CIPP	$ 13,672	FY09
B05-005	B04-011	11049	4	2	4		1	CIPP	$ 12,175	FY09
B04-258	B04-013	9304768	4	2	4	1	8	RS	RS	RS
B04-256	B04-015	9304766	1	3	1		23	RS	RS	RS
B04-010	B04-016	14761	4	2	4		24	CIPP	$ 47,892	FY09
B04-259	B04-017	9304770	3	2	3		14	CIPP	$ 20,749	FY10
B04-013	B04-018	14777	4	2	4	1	12	RS	RS	RS
B04-021	B04-020	14772	3	3	3			RS	RS	RS
B04-022	B04-021	14767	3	3	3		1	CIPP	$ 24,132	FY10
B04-016	B04-023	14762	4	1	3	2	30	CIPP	$ 50,931	FY10
B04-232	B04-025	9304785	4	2	4		5	CIPP	$ 6,621	FY09
B04-027	B04-026	14781	2	1	1		2	Maintain	$ -	
B04-017	B04-027	14780	4	1	3	1	19	CIPP	$ 27,947	FY10
B04-028	B04-027	14779	1	1	1		4	Maintain	$ -	
B04-261	B04-027	9337992	4	2	4	2	4	CIPP	$ 10,145	FY09
B04-018	B04-028	14778	4	2	4		22	RS	RS	RS
B04-029	B04-028	14775	3	3	3		3	RS	RS	RS
B04-233	B04-028	9304773	4	2	4	1	1	CIPP	$ 20,057	FY09
B04-020	B04-029	14774	2	3	2			RS	RS	RS
B04-263	B04-029	9304777	3	2	3		3	RS	RS	RS
B04-036	B04-031	14769	4	2	4	1	12	CIPP	$ 19,098	FY09
B04-046	B04-035	14783	5	2	5	2	12	CIPP	$ 21,332	FY08
B04-262	B04-035	9337995	4	2	4	4	21	CIPP	$ 28,032	FY09
B04-265	B04-036	9304789	4	2	4	3	12	RS	RS	RS
B04-041	B04-040	14803	4	2	4		6	CIPP	$ 33,768	FY09
B04-042	B04-041	14801	3	2	3		4	CIPP	$ 24,094	FY10
B04-260	B04-041	9304787	4	2	4	1		CIPP	$ 16,490	FY09
B04-025	B04-042	14798	4	3	4	3	28	CIPP	$ 39,973	FY09
B04-043	B04-042	14800	4	3	4	1	7	CIPP	$ 28,277	FY09
B04-026	B04-043	14782	5	2	5		24	Replace	$ 107,663	FY08
B04-044	B04-043	14796	2	1	1		6	Maintain	$ -	
B04-045	B04-044	14793	4	2	4		8	CIPP	$ 12,577	FY09
B04-049	B04-044	14795	1	1	1		3	Maintain	$ -	
B04-035	B04-045	14788	2	2	2			Maintain	$ -	
B04-050	B04-045	14790	4	1	3	2	9	CIPP	$ 21,140	FY10
B04-264	B04-046	9304775	2	2	2		2	RS	RS	RS
B04-270	B04-046	9304781	2	2	2		11	RS	RS	RS
B04-040	B04-047	14805	3	2	3		1	CIPP	$ 27,737	FY10

Segment Scores

2.4 Manhole Condition Assessment

The primary objectives of the manhole condition assessment are to evaluate the condition of various manhole components and determine the need for rehabilitation or replacement. Thorough review, analysis, and evaluation of inspection data are important for the structural evaluation of manholes.

2.4.1 Evaluation and Rating

Accessible manholes were inspected from the ground surface and recorded using a video camera. The inspections included a rating of the defects of the manhole components such as cover, frame, cone, wall, and channel. The defects were tabulated in a standard log sheet and the highest defect score was used as the manhole rating.

The manhole condition evaluation revealed that the various components of manholes, covers, frames, cones, and the structural condition of the walls, are generally in fairly good condition, though lightly corroded. The channels are generally lightly to moderately corroded, but are structurally in satisfactory condition and without leakage or flow obstruction. Overall, the incoming and outgoing pipes do not show leakage.

Table 5 provides a break-down of how the manholes were rated. Additional information on the rating of individual manholes is available in the CCTV Field Inspection Protocol.

Table 5
Manhole Scores

Structural Score	Defect / Recommendation	# of Manholes
1	No Defect / Maintenance only	53
2	Minor Defect / Maintenance only	47
3	Moderate Defect / Rehabilitate in near-term	134
4	Medium to Severe Defects / Rehabilitate short-term	33
5	Severe Defect / Immediate Rehabilitation	21
	TOTAL	288

Section 3
Applicable Pipeline Rehabilitation and Repair Techniques

Several trenchless methods are available to repair defects in existing pipelines as well as to reduce inflow and infiltration into sanitary sewer systems. Trenchless methods offer advantages over traditional open-cut methods in the following aspects:

- Disturbance to important surface structures and traffics can be reduced or avoided;
- In many urban areas, especially in roadways, existing utilities are congested, thus leaving no corridor for open-cut operation. The existing sewer line may be the only corridor available for construction;
- Some techniques allow sewer lines to be operable during construction;
- Dewatering may be avoided;
- Some trenchless methods offer cost savings over open-cut methods.

Trenchless repair methods can be broken down into the following five categories which will be discussed in the following sections.

- Cured-in-place pipe (CIPP)
- Slip-lining
- In-line replacement
- Close-fit pipe
- Point-source repair

In addition, open –cut construction will be discussed as a comparison.

3.1 Cured-In-Place Pipe (CIPP)

Cured-in-place pipe (CIPP) is a rehabilitation technique whereby a flexible, resin-impregnated tube is installed into an existing pipe and then cured to a hard finish. When cured, the resin will provide the primary structural component of the system. The resin used most often in gravity sewer applications are unsaturated polyester resins.

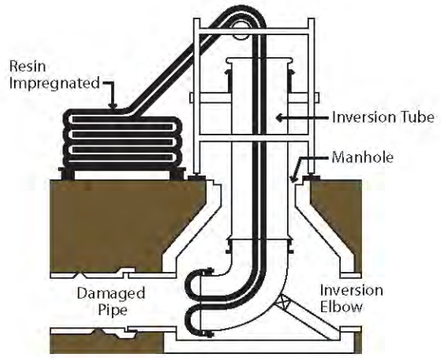


Figure 1

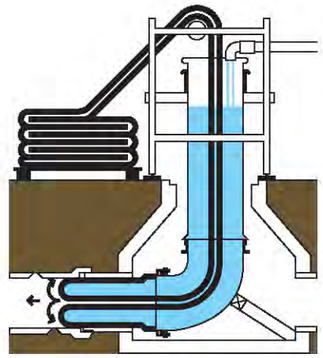


Figure 2

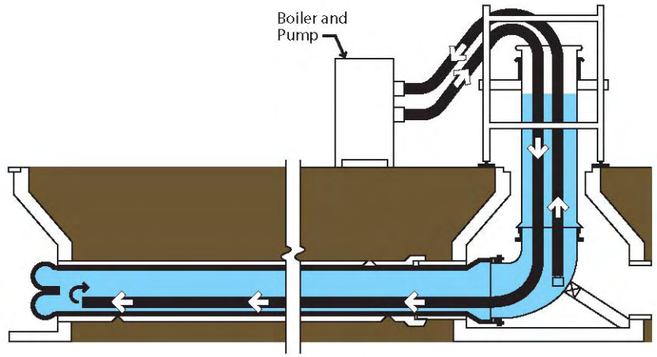


Figure 3

The tube, which provides a means to carry and support the resin until it has cured, is made of a flexible fabric. The fabric must be strong enough to withstand the installation methods but also flexible enough to form to the pipe irregularities. The tube may also provide additional reinforcement to the plastic once it has set.

Prior to the insertion of the lining tube, laterals are plugged or rendered non-operational and any obstructions are removed and the pipe cleaned. The lining is then inserted into the carrier pipe and cured. Once a fully cured lining has been achieved the connections to the renovated pipe are then opened up.

The CIPP method can accommodate small variations in pipe diameter and is able to negotiate small bends.

There are two primary methods of installation: inverting in place and winching in place. In the inverted-in-place method, one end of the tube is clamped around an inversion ring and inserted from an existing access point (manhole). Manufacturers use a number of different systems to invert the tube including water, steam or compressed air. During inversion the lining tube turns inside out and travels down the pipeline resulting in the plastic outer sleeve surface becoming the inner surface of the repaired pipe with the resin system being in contact with the pipeline.

A pre-liner may be used to ensure that the resin does not come into contact with the pipe or is not lost from the fabric by traveling up a connection.

Pressure inside the inverted tube, due to water, steam or compressed air, presses the resin impregnated tube against the carrier pipe wall. Once the tube has reached the far end of the pipe section under repair, either heated water or steam are fed into the inverted tube to cure the thermosetting resin (some systems use ultraviolet light to cure the resin.). This results in a hard structural cured-in-place pipe the ends of which are cut and trimmed. The internal pressure used to keep the lining tube against the pipe wall can create a dimple in the lining tube at laterals. A robotic cutter may be used to reopen laterals to restore flow, and a final CCTV inspection is then carried out.

In the winched-in-place method, linings are pulled into the host pipe as collapsed tubes, inflated and cured. Inflation is generally carried out using compressed air, and cured using steam. One system inserts a PVC hose inside the lining and fills with water to keep the lining pressed against the wall of the host pipe while it cures at ambient temperature. The PVC pipe is then removed

3.2 SLIPLINING

Method of lining a gravity or pressure pipe by pushing or pulling a new pipe of smaller diameter into a deteriorated host pipe; usually the annular space between the new pipe and host pipe is grouted. If the annulus is not grouted, the liner is not considered a structural liner.

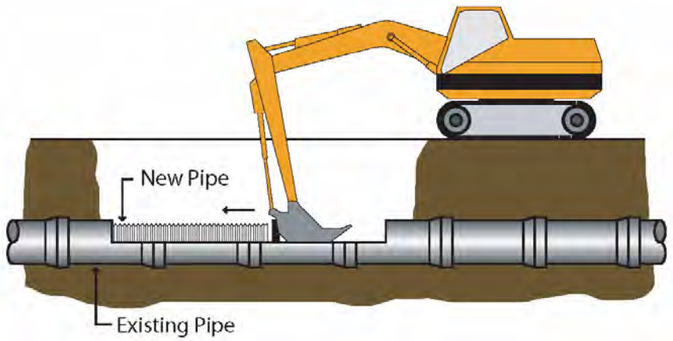
Even though the smaller diameter reduces the cross-sectional area, often the hydraulic capacity of the pipeline is increased due to the smoothness of the new pipe.

Bypass pumping is not required during the construction as lining can be accomplished while there is flow in the pipe, however laterals must be reinstated. This method is most applicable for interceptors, outfalls, or other lines that are long, relatively straight, and include few connections. The sliplining technique has successful applications where existing lines have been repaired for over 1,000 feet. The slip lining will deform around some irregularities however, it will not repair offset joints and remain at the same grade as the host pipe. Sliplining requires excavation only in the area where the lining is inserted. There are three categories within sliplining: continuous, segmental, and spiral-wound. All three methods require laterals to be re-connected by excavation or by a remote-cutter.

In the continuous sliplining method, a continuous length of high density polyethylene (HDPE) is used to line the pipe. The HDPE pipe to be inserted is sized to fit tightly within the existing pipe and to withstand both internal and external pressures. The HDPE pipe is pulled into the existing pipe by a winch system. (An installation shaft (manhole) wide enough to handle the bending radius of the HDPE is required.)

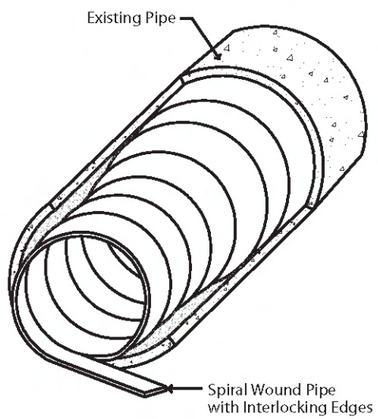
Prior to insertion, the HDPE is pushed through a series of profiled rollers or a die which reduce its outside diameter. This process holds the diameter until the pipe is inserted into the existing line. Following insertion, the HDPE pipe reverts to its original diameter, which was sized to create a close fit to the pipe to be lined. The reversion is accomplished either naturally or by filling the interior of the HDPE pipe with water under pressure at ambient temperature. Flow is bypassed during installation. Applicable size range is from as small as one inch to as large as the HDPE can be manufactured (AWWA C906 shows a 63-inch maximum diameter pipe).

The segmental sliplining method is similar to the continuous method except that instead of a continuous length of HDPE, individual segments of pipe are used. Pipe segments, made of glass reinforced polyester (GRP), PVC, polypropylene (PP), or polyethylene (PE) with low-profile joints to minimize diameter, are assembled at an entrance shaft before being pushed into the host pipe. An installation shaft 3 to 6 feet longer than the pipe segment is required. When this area requirement is not accommodated by a manhole, an insertion pit is required. In these cases, the method is not completely trenchless; however it requires considerably less excavation than conventional dig-and-replace methods.



The benefit of segmental lining versus continuous is that bypassing of flow is not required. In fact, the presence of some flow can assist in the installation by floating the new pipe and lowering the frictional resistance. This method is used in diameters of greater than 12 inches with typical diameters greater than 24-inches.

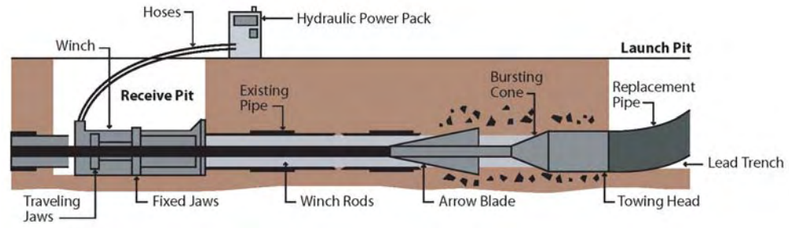
The spiral-wound sliplining method is similar to segmental lining but uses a special type pf pipe, ribbed PVC with interlocking edges. This technique has the advantages of being able to accommodate variations in cross section and large radius bends. It is usually necessary to grout the annulus and there is often significant loss of capacity. A variation of the system allows expansion, by reverse winding of an inserted undersized lining to form a close fit with the existing pipe, avoiding the need for annulus grouting. The system has been used for pipes in the range of 4 to 100 inches in diameter.



3.3 In-line Replacement

In-line replacement is relatively expensive since the existing pipe is removed and replaced. This method is considered to repair minor sags, when the pipeline no longer has sufficient capacity, or when it has structurally failed. In-line replacement requires that one of the manholes be removed to allow the launch of the equipment. In addition, all service sewer laterals connected to the mainline must be disconnected prior to construction. Upstream sewage flows and service lateral flows need to be diverted to allow construction. After the new sewer line is installed in place, disconnected sewer laterals can be reconnected into the mainline by angled drilling. This method is further broken down into two categories: pipe bursting and pipe removal.

Pipe bursting uses radial force from inside the existing pipe to break the pipe and push the fragments into the surrounding soil. Since the existing pipe must be broken from within, this method works on existing pipe materials which are friable (such as VCP, concrete, or asbestos cement). A new pipe is then pulled into the hole formed by the expansion device. A cone expander can be added after the bursting equipment to ream the hole to allow larger diameter pipe to be installed. The new pipe is installed either by towing the new pipe behind the bursting device or by conventional jacking techniques.

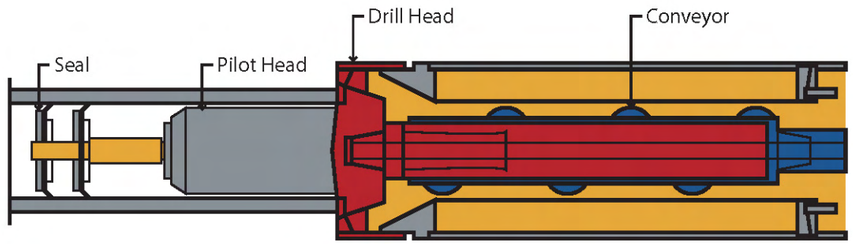


Due to the capability of the pipe bursting machine, the new pipe cannot substantially deviate from the existing pipe corridor and thus pipe bursting is not usually capable of repairing severe swales. Another drawback of this technique is that for shallow sewers, the pressure that the pipe bursting machine exerts to the surrounding soils may exceed the earth pressure, causing ground heaving problems.

Pipe bursting is also known as Pipe Cracking and Pipe Splitting.

Pipe removal, also referred to as “pipe eating,” uses a modified remote-controlled microtunneling system. This system is able to remove existing pipe (consisting of VCP, PVC, asbestos-cement, or non-reinforced concrete) and simultaneously replace it with new pipe of equal or larger diameter.

The tunneling machine is equipped with a cutterhead having spirally placed carbide-tipped teeth that grind and pulverize the existing pipe. The pipe particles are conveyed to the manhole or jacking pit where they are removed via vacuum truck or slurry pump for disposal. The new pipe is attached behind the mandrel and follows the cutterhead as it progresses.



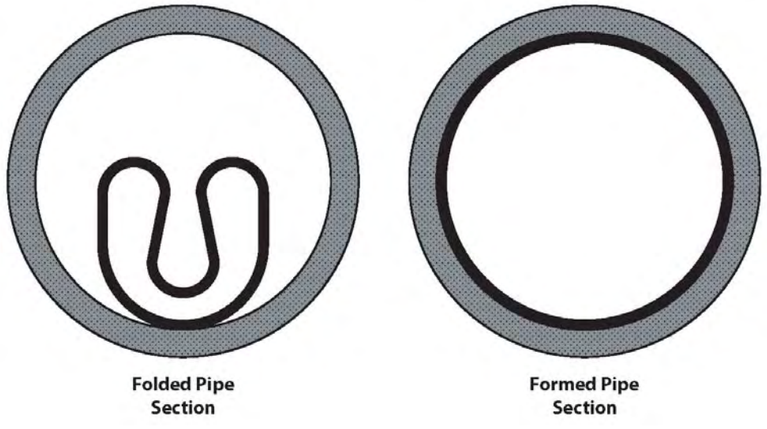
Since the MTBM can drill a straight pipeline corridor independent of existing sewer alignment, this method is suitable for repairing sewers with severe swale problems. This method can replace the existing pipes with a new rigid pipe, such as VCP, ductile iron or concrete. This method is not capable of replacing existing sewer lines with a curve-shaped alignment. However, the existing curve-shaped alignment can be replaced by segmented straight alignments with manholes at each angle point. Similar to pipe bursting, ground heaving can be a potential problem for shallow sewer rehabilitation applications.

This technique has had little use in the United States due to high equipment costs.

3.4 Close-Fit Pipe

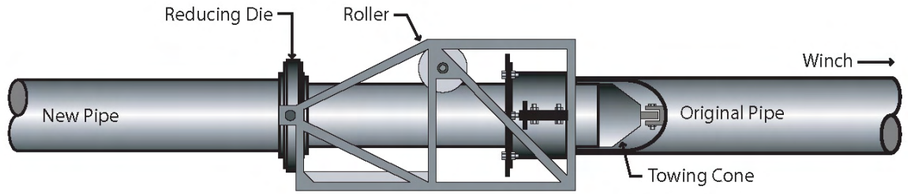
This pipeline renewal method installs coiled, deformed, material which is then expanded to its original size and shape after placement and provides a close fit to the existing pipe. Due to the close fit produced, less of the pipe cpapcity is lost with close-fit pipe than with sliplining. Most lining material is deformed at the manufacturing plant, shipped to the job site, inserted into the existing pipe, and finally re-formed either by heat and pressure or naturally. Close-fit technology does not require a long curing process; therefore with all other factors being the same, this process is quicker to complete than CIPP.

The modified cross-section method uses a jointless extruded PVC or HDPE pipe folded or deformed to reduce its cross-sectional area. The folded pipe is mechanically pulled into the existing pipe and then formed to the shape of the existing pipeline using heat, pressure, and in some cases a mechanized rounding device. Another method of obtaining a close fit between the new lining and existing pipe is to temporarily compress the liner before it is drawn into the existing pipe.



The drawdown method (swageliningTM is a form of drawdown) slip-lines the existing pipe with HDPE whose joints have been butt-fused and whose diameter has been chemically reduced. The reduction takes place by heating the liner and passing it through a reducing die. A chemical reaction between the die and the liner temporarily reduces the liner's diameter by 7 to 15 percent. As the liner cools, it expands to its original diameter. Once the liner has been pulled into the pipe, the liner cools and reverts to its original size. Pressure may be applied to the inside of the pipe to speed up the reversion process. Once the pipe has reverted to its original diameter, usually no annular space remains and grouting is not required. This method can be utilized on pipes 3 to 24 inches in diameter.

The roll-down system is similar to draw-down except that the liner is reduced by mechanical means. A series of rollers are used to reduce the diameter and produce a liner with thicker walls, minimizing elongation. As with the deform and reform methods, heat and pressure are applied to expand the liner to tits original diameter.



3.5 Point-Source Repair

Point-source repairs can be used when local defects are found in an otherwise structurally sound pipe. This method covers a broad range of techniques including: robotic repairs, grouting, spray-on linings, link-sleeve, and CIPP.

In robotic repair, robots are used to structurally repair isolated defect areas. First, a robot is used to grind the defect area, exposing a clean, smooth surface. The grooved surface is then injected with an epoxy-based resin which bonds to the host pipe, creating a permanent structural barrier impervious to chemicals or objects. Due to the epoxy hardness and structural adhesion, use at cracks halts further cracking.

Robotic repairs are carried out by an operator controlling robotic functions by remote control while observing via CCTV. Robotic repair can be used on circumferential longitudinal, and spiral cracks; repairing broken or open joints; repairing protruding or recessed laterals; or can be used in conjunction with another repair method.

Grouting is one of the oldest methods of pipe repair, however, there have been recent improvements.

Chemical grouting is typically used to reduce infiltration and inflow (I/I) in pipes and manhole structures, usually in structurally sound structures. Sometimes, slight circumferential cracks, small holes, slightly cracked pipe joints, and other minor areas of structural damage can be successfully sealed using chemical grouts.

Grouts give best results in cohesive soils. In manhole repairs, grouts are normally applied under pressure through grout holes drilled into manhole walls to fill voids and stabilize soils behind the walls.

A wide range of chemical grouts are available. Each type is for a specific application and requires a specific method and equipment. Some grouts are best suited to repair pipe joints, while others are designed to provide an impervious barrier to

groundwater leakage on the exterior of the pipe joint or manhole structure. In both cases, the use of chemical grout is to fill large open voids.

By design, chemical grouts have minimal compressive strength, and where large voids and loss of structural support may exist, a grout repair must be supplemented by other structural methods. Chemical grouting will, however, curtail the loss of soil and backfill material through leaking pipe joints and manholes, prolonging the life of sewer line and preventing the formation of larger void areas caused by continued leakage. All chemical grouts are applied under pressure after appropriate cleaning and testing of the joint or the location where grout is going to be applied.

In the spray-on lining method, a thin mortar lining or a resin coating is sprayed onto pipes. This is a well-established technique. Spray-on lining systems use either epoxy resins or cement mortar to form a continuous lining within the host pipe. These systems result in improved corrosion resistance and hydraulic characteristics. However, except for shotcrete and gunite, spray-on linings have little value to enhance the structural integrity of the pipe.

For worker-entry pipes of diameters of 36 to 142 inches in diameter, structural reinforced sprayed mortars (shotcrete or gunite) are effective and widely used for renewing pressure pipes and gravity sewers.

Acid-resistant mortars have been used in industry as linings in tanks or as mortar bricks. Development of mechanical in-line application methods (centrifugal and mandrel) has established mortar lining as a successful and viable rehabilitation technique for sewer lines, manholes, and other structures. Specialty concretes containing sulfate-resistant additives such as potassium silicate and calcium aluminate have shown greater resistance than typical concrete to acid attack on sewer pipes and manhole structures. As with any other trenchless pipeline renewal, the pipeline must be thoroughly cleaned and dried before a renewal method can be applied.

If the lining is carried by machine or carts and applied manually with a trowel, the application distance is limited by the length of hose available and the distance between valves, bends, tees, etc. For non-worker-entry pipes of 4 to 36 inches in diameter, the lining is sprayed directly onto pipe walls using a remote-controlled traveling sprayer. The lining materials include concrete sealers, coal tar epoxy, epoxy, polyester, silicone, urethane, vinyl ester, and polyurethane. These linings are intended to form an acid-resistant layer that protects the host pipe from corrosion.

The link sleeve method of pipeline renewal uses a sleeve to correct localized structural damage. Spot repairs can be conducted with this method on pipe ranging from 6 to 110 inches in diameter. For diameters of 6 to 24 inches, a stainless steel sleeve wrapped in polyethylene foam is used. This sleeve and an inflatable sewer plug are placed over the damaged area. With the aid of a TV camera, the plug is inflated until the sleeve lock is in place. The plug is then deflated, and a visual inspection takes place.

There are different proprietary techniques for this method. Before the operation, the pipe must be thoroughly cleaned and a TV inspection is performed to identify all the obstructions such as displaced joints, crushed pipes, and protruding service laterals. The operation then continues according to instructions from the system manufacturer and type of application.

The application of point CIPP is for pipelines that are structurally sound, but may contain isolated pipe lengths that have structurally failed. The materials used in point CIPP repair are the same as those in regular CIPP methods with more than two decades of proven performance.

Point CIPP installation involves pulling the resin-saturated fabric liner and an inflation hose through the existing sewer line. The alignment of the liner is closely monitored by a closed-circuit TV camera positioned in the sewer line. Once the liner is properly aligned, the inner hose is inflated via a combination of air and water pressure, causing the liner to regain its original circular shape.

Hot water is then introduced and recirculated within the CIPP. The hot water accelerates the curing of the fabric liner in a tight fit against the existing sewer line wall.

3.6 Open-Cut Replacement

The North American Society for Trenchless Technology (NASTT) defines open cut construction as “the method by which access is gained to the required level underground for the installation, maintenance or inspection of a pipe, conduit or cable. The excavation is then backfilled and the surface restored.”

In open-cut replacement, the damaged pipe is excavated and removed and replaced. Due to the excavation, this method requires the greatest construction corridor resulting in the greatest impacts to the public including traffic impacts. In addition, soil disposal may be necessary and costs could escalate is soil contamination is found. Finally in areas with a high groundwater table, dewatering may be necessary.

Open-cut replacement offers the following advantages over trenchless methods:

- Pipe swales caused by poor pipe bedding material compaction can be eliminated;
- Pipe grade can be established in a more precise manner;
- Can repair sewer lines with tight curves;
- Does not require the new pipe to withstand jacking load, hence provides pipe material cost savings;
- Eliminates the possibility of ground heaving associated with some trenchless methods, such as pipe bursting.
- Can be cost effective for heavily damaged sewer lines and/or manholes.

However it also has the following disadvantages:

- Open cut replacement cannot maintain the deteriorated sewer in service during construction and bypass pumping is required.
- The damaged sewer lines and service laterals must be disconnected from the service system prior to excavation.

3.7 Manhole Rehabilitation

A variety of manhole restoration techniques utilizing various compounds and materials are available. Some techniques are suited for restoring the structural integrity of the manhole while others provide little structural benefit, but are more effective in reducing infiltration.

Cementitious coating systems can be applied to manholes to restore manhole structures for several years. The coating process includes cleaning and surface preparation followed by application of a cementitious material containing Portland cement, finely graded mineral fillers, and chemical additives. Coating systems can be used for the entire manhole, including reconstruction of the benching and invert.

Chemical Grouting is a cost-effective option for manhole rehabilitation. The success of chemical grouting in sealing existing leaks depends upon soil and groundwater conditions, injection patterns, gel time and component mixture, containment of excessive grout migration, and selection of the proper type of grout. There are several available urethane grouts for manhole rehabilitation. The chemical grouting process involves cleaning the manhole, drilling holes in the manhole wall for grout injection, and injecting a grout/water component mixture into these holes under pressure. The grout is pumped until the grout/water mixture is observed entering back into the manhole through existing cracks or precast seam faults and the sealant forms (gels) a new foam gasket material.

Similar to that for pipeline rehabilitation, cured-in-place liners can be used in manholes as well.

Table 6
Comparison of Pipe Rehabilitation Methods

	Rehabilitation Methods	CIPP		In-line Replacement		Sliplining			Close-Fit			Point-Source Repair					Open-Cut Replacement
		Inverted in Place	Winched in Place	Pipe Bursting	Pipe Removal	Continuous	Segmental	Spiral Wound	Modified Cross-Section	Draw-down	Roll-down	Robotic	Grouting	Spray-on Lining	Link Sleeve	Point CIPP	
Applications, Capabilities and Requirements	Applicable in Manholes	✖											✖	✖			✖
	Diameters (inches)	4 - 108	4 – 54	4 – 32	Up to 36	4 – 63	12 – 160	4 – 100	4 – 15	3 – 24	3 – 24	8 – 30	Any	3 – 180	4 – 24	4 – 24	Any
	Minor Swale	✖	✖	✖	✖												✖
	Major Swale				✖												✖
	Offset Joints			✖	✖												✖
	Curve-Shaped Alignment	✖	✖	✖		✖		✖									✖
	Maintain Existing Line in Service During Construction						✖	✖									✖ (if new pipe is not in same location)
	Repair Structural Deficiencies	✖	✖	✖	✖	✖			✖	✖	✖						✖
	Repair Inadequate Bedding Compaction																✖
	Laterals Disconnected or Plugged for Repair	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖						✖
	Proprietary Pipe Required	✖	✖					✖	✖	✖	✖						
	Gravity (G) or Pressure (P) Pipeline	GP	GP	GP	GP	GP	GP	G	GP	GP	GP	G	GP	GP	GP	G	GP
	Maximum Length (ft)	3,000	500	1,000	300	1,000	5,600	1,000	700	1,000	1,000	N/A	N/A	500	N/A	50	N/A
Potential Problems	Traffic Impact	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↑
	Cost ($/LF for 6” pipe)*	$41	$41	$61	↑	$59	↓	$69	$52	↑	↑	↓	↓	↓	↓	↓	$139
	Ground Heaving			✖	✖												

↓ = Low
↑ = High
* - costs include traffic control, bypass pumping, and other costs for mainline, but do not include lateral reinstatement costs

SECTION 4
REHABILITATION PLAN

The rehabilitation plan is based on the results from the pipeline condition assessment. The recommended rehabilitation plan should enhance the structural integrity and maintain/improve the hydraulic capacity of the pipelines. The plan should also identify areas of immediate concern and prioritize the pipelines in those areas. The implementation plan will be used to further define the City's anticipated future rehabilitation requirements. The plan is also based on an improved quality of work, to reduce cost and project duration.

4.1 PIPELINE REHABILITATION PLAN

Rehabilitation of pipe segments were prioritized based on the rating determined during the condition assessment. Initially, it was assumed that all rehabilitation and construction work would be contracted out to construction companies. However, the City decided that they could use internal manpower to complete spot repairs necessary, so the segments were provided a new overall score based on the condition the pipe would be in after these spot repairs had been completed.

Figure 1 provides a graphical representation of the effect of completing the spot repairs on the pipe segment scores. Each segment is color-coded based on its score AFTER spot repairs and is annotated with a number which represents the score prior to spot repairs. Table 4 reflects the scores after spot repairs have been completed but also includes the number of spot repairs that will be required on each segment.

4.1.1 METHODOLOGY

Figure 2 illustrates the methodology developed by CDM and the City of Roseville to determine the action to be taken on each pipe segment. The steps taken for each pipe segment are explained below:

1. Segments included on the City's quarterly maintenance list (Slugger's List) are a burden to the personnel. Therefore, the first criteria is whether a pipe segment, regardless of score is on this list. If a segment is on the Slugger's List and a sag was identified during the assessment, this segment will be replaced by open cut methods.

2. Those segments with an overall score of 1 or 2 after spot repairs require no further action and will be placed on the regular maintenance schedule. Inspection frequency is recommended at once every five years.

3. Remaining pipes that have an overall rating of 3, 4, or 5 after spot repairs have been accounted for. Of these segments, if a segment has a capacity rating of 5 (pipe is considered small in diameter relative to expected future flows), it is identified for an increase in diameter by either trenchless or open cut methods.

4. Remaining pipes (those with an overall rating of 3, 4, or 5 with a capacity score less than 5) will be evaluated on a cost basis to determine whether the pipe should be rehabilitated or replaced. If rehabilitation is within 80% or $5,000 of the replacement cost, the pipe will be replaced.

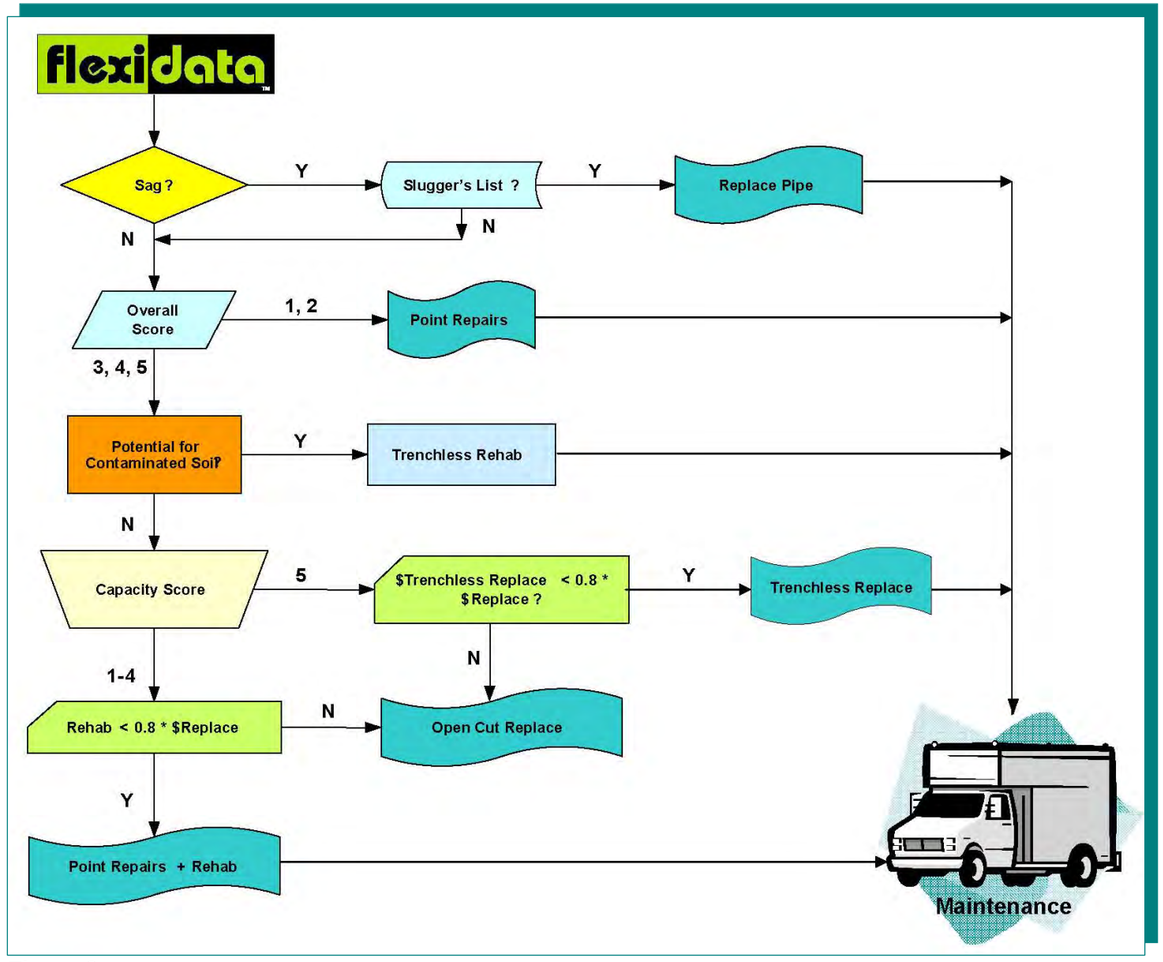


Figure 2
Repair / Replacement Methodology

4.2 Manhole Rehabilitation Plan

Similar to the pipe segments, manholes were evaluated based on the rating given them during the assessment. Those manholes given a rating of 1 or 2 were considered to be in good condition; those with a rating of 3, 4, or 5 were evaluated to see if the manhole should be repaired or replaced. Those pipeline segments selected to be replaced would require the entire segment to be excavated (for open cut replacement) or would require a pit (for trenchless replacement). Since, these areas would require excavation, manholes on either end of these segments will be replaced. Those manholes which lie on segments that will be lined or that require no rehabilitation will be lined.

Since most of the damage witnessed during the assessment was due to corrosion, the City has decided to use an epoxy lining system.

Section 5
Cost Estimate

As discussed in Section 4, after the condition assessment of the pipelines had been completed, pipeline rehabilitation or replacement techniques were reviewed for applicability. Since it is relatively inexpensive and able to repair a variety of problems cured in place pipe (CIPP) was assigned as the repair method to most pipe segments. However, there are situations where CIPP will not be the least expensive or will not be able to repair the defects present. Since CIPP is not able to repair holes or broken pipe, these areas would require grouting or "spot repairs" where the pipe segment would be excavated and replaced. It was assumed that all holes or breaks would require a spot repair.

Additionally, even though active laterals can be reinstated without excavation using CIPP, there is additional cost to reinstate the lateral. Based on previous bid data, lateral reinstatement for CIPP was assumed to cost $475 per active lateral.

Pipe segments for which several spot repairs and/or several lateral reinstatements are required, open cut replacement of the entire segment may be more cost-effective.

5.1 Pipeline Rehabilitation and Repair Costs

Factors such as work volume, length, diameter, condition of the pipeline, accessibility, straightness, number of laterals, and flow bypassing affect the cost of pipe rehabilitation and repair. Mobilization and demobilization are fixed costs and depend on the magnitude of the project. In large volume projects, mobilization costs are low and can significantly reduce unit prices.

Rehabilitation and repair costs for this project are based largely on the unit costs for recently executed projects utilizing the applicable rehabilitation techniques and from the Survey of Bid Prices for Trenchless Rehabilitation and Replacement of Pipelines and Manholes Report published by the Trenchless Technology Center (TTC), Construction and Rehabilitation Costs for Buried Pipe with a Focus on Trenchless Technology published by the National Research Council (NRC), and prices obtained from individual licensees and installers.

Table 7
Estimated Unit Costs

Method	Estimated Cost					
	6-in pipe ($/LF)	8-in pipe ($/LF)	10-in pipe ($/LF)	12-in pipe ($/LF)	15-in pipe ($/LF)	21-in pipe ($/LF)
CIPP*	$41.22	$47.99	$55.66	$64.15	$78.24	$110.77
Pipe Bursting*	$60.92	$72.76	$85.37	$98.63	$119.56	$164.53
Open Cut	$139.00	$142.00	$147.00	$151.00	$160.00	$210.00

* CIPP and pipe bursting costs do not include spot repair and lateral reinstatement costs

Estimated unit costs are presented in Table 7 and include:

- Labor and equipment

- Traffic control
- Liner installation
- Post inspection
- Testing and bonding

Costs do not include:

- Mobilization and demobilization
- Lateral reinstatement
- Flow bypass

5.2 Manhole Rehabilitation and Repair Costs

Costs for manhole rehabilitation and repair are based on recent bids from the Survey of Bid Prices for Trenchless Rehabilitation and Replacement of Pipelines and Manholes Report, published by TTC, from Construction and Rehabilitation Costs for Buried Pipe with a Focus on Trenchless Technology published by NRC, and from recent bid results.

Costs for rehabilitation of manholes are affected by many factors such as the volume of work, site conditions, preparatory work, extent of corrosion, exposed re-bar, physical access, flow bypassing requirements, and traffic control.

5.3 Estimated Total Costs

Using the raw unit cost information presented above and adding provisions for engineering, administration, and mobilization, the total estimated cost to rehabilitate or replace each of the pipe segments and manholes requiring repair was estimated at $6.5 million.

Subtotal (from “raw” unit costs)	$6,846,000
Mobilization (5%)	$342,000
Total Construction Cost:	**$7,188,000**
Engineering (15%)	$1,078,000
Administration (10%)	$719,000
Subtotal:	**$8,985,000**
Contingency (25%)	$2,246,000
Spot Repairs (to be done by City)	$267,000
TOTAL:	**$11,498,000**

Section 6
Capital Improvement Plan (CIP)

6.1 Capital Improvement Plan (CIP)

The goal of the capital improvement plan (CIP) is to develop annual project bundles of approximately $1.5 million. Using the prioritization based on pipe segment rating as a basis, the CIP prioritization includes one additional factor, street repairs. In order to minimize disruption to newly paved streets, those streets that the City anticipates to repair during the 2007/2008 fiscal year were given highest priority.

Fiscal Year	Criteria
2006/2007	■ Pipelines / manholes to be excavated within street to be repaired during 2007/2008
2007/2008	■ Pipe segments with a criticality rating of 4 or more or a probability rating of 5 or more
2008/2009	■ Pipe segments with an overall rating of 4 or more
2009/2010	■ Remaining pipe segments within streets to be repaired during 2010/2011
2010/2011	■ Remaining pipe segments with an overall rating of 3
2011/2012	■ Remaining pipe segments with a probability rating of 2 or more And a structural rating of 4 or more

Due to the large number of streets to be repaired during the 2007/2008 and 2010/2011 years, the cost to repair/replace pipe segments and manholes lying within these streets exceeds the $1.5 million goal. Additionally, some of projects tentatively scheduled for the 2010/2011 fiscal year may be delayed until the following year.

	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	Total
Subtotal	$1,216,557	$1,151,198	$1,191,251	$1,004,856	$1,877,176	$404,712	**$6,845,750**
Mobilization (5%)	$60,828	$57,560	$59,563	$50,243	$93,859	$20,236	**$342,288**
Total Construction Cost	$1,277,385	$1,208,758	$1,250,814	$1,055,099	$1,971,035	$424,947	**$7,188,038**
Engineering (15%)	$191,608	$181,314	$187,622	$156,265	$295,655	$63,742	**$1,078,206**
Administration (10%)	$127,739	$120,876	$125,081	$105,510	$197,103	$42,495	**$718,804**
Subtotal:	$1,596,732	$1,510,948	$1,563,517	$1,318,874	$2,463,793	$531,184	**$8,985,047**
Contingency (25%)	$399,183	$377,737	$390,879	$329,718	$615,948	$132,796	**$2,246,262**
Spot Repairs	$15,000	$48,000	$64,000	$14,000	$120,000	$6,000	**$267,000**
TOTAL:	**$2,010,915**	**$1,936,685**	**$2,018,396**	**$1,662,592**	**$3,199,742**	**$669,980**	**$11,498,309**

6.2 SUBSEQUENT ASSESSMENTS

The assessment performed for this project is the first of approximately 24 assessments that the City plans to conduct. The CIP will be adjusted after each assessment as follows:

- Emergency repairs will be done immediately and will not be included in the CIP.
- Priority will be given to those assets which lie in a street to be paved such that the repair is done prior to street repaving
- Pipe segments will continue to be rated on the 1 to 5 scale with 5 being the highest priority and 1s being the lowest. So a 5 from the 2006 assessment would be given priority over a 4 from the 2005 assessment.

As an example we have the following eight segments from the 2005 assessment:

UPID	DNID	Overall Rating	Street Repair	Action	Year
A04-017	A04-016	1		Maintain	
A04-039	A04-026	3	2010-2011	PB	2009
A05-016	A05-017	3		CIPP	2010
A06-018	A06-013	4		CIPP	2008
B03-030	B03-029	5		CIPP	2007
B04-008	B04-007	3	2007-2008	CIPP	2006
B04-009	B04-010	2		Spot Repair	2010
B04-010	B04-016	4	2010-2011	CIPP	2008

One pipe segment is flagged for repair during the 2006/2007 fiscal year because it lies within a street that is to be repaved during the following year. Once the following year's assessment has been conducted, the pipes have been rated, and costs have been estimated, the list will be re-prioritized.

In the following table, the remaining segments from the 2005 assessment are in yellow and segments from the 2006 assessment are not highlighted. Note that the year has changed for some of the 2005 segments to accommodate 2006 segments of higher priority.

UPID	DNID	Overall Rating	Street Repair	Action	Year
A04-017	A04-016	1		Maintain	
A04-039	A04-026	3	2010-2011	PB	2009
A05-016	A05-017	3		CIPP	**2011**
A06-018	A06-013	4		CIPP	**2009**
B03-030	B03-029	5		CIPP	2007
B04-009	B04-010	2		Spot Repair	2010
B04-010	B04-016	4	2010-2011	CIPP	**2009**
C08-002	C08-003	5		CIPP	2007
C09-032	C09-256	3	2010-2011	CIPP	2009
D01-200	D01-010	1		Maintain	

The re-prioritization also looks at annual cost, trying to limit costs in any single year to approximately $1.5 million. As such, the CIP will be updated annually after the most recent group of pipe segments have been evaluated.

SECTION 7
FUTURE CONDITION ASSESSMENTS AND STANDARD PRACTICES

This section will outline the future condition assessment plan and establish standard practices for the Condition Assessment Program and the Rehabilitation and Replacement Program.

7.1 FUTURE ASSESSMENTS

As stated in Section 1, this project has been performed for certain pipeline segments in the City's collection system. Pipeline segments greater than 75 years in age, representing the oldest of the collection system and most likely to reveal a defect due to age, poor construction, or weaker pipe materials, as well as those portions included in a more intensified maintenance program were included in the study. The total footage inspected was in excess of 130,000 feet of the more than 400 miles of collection system pipeline system. With this project now complete, the City has continued its inspections with pipe segments less than 75 years old, beginning with the oldest assets.

Existing Pipelines

Pipeline segments in the remainder of the system were listed and sorted by year-in-service. Group 1, completed in this study, totaled approximately 130,000 feet of pipe and represented a manageable inspection group. A total of 22 inspection groups have been defined, representing all pipelines constructed to date. Group inspection lengths range from 50,000 to 165,000 feet in length. Inspection of the first of these groups (Group Two) was begun on March 20, 2006. Other group inspections will follow.

Table 8 presents a summary of the inspection groups currently identified. Figure 3 presents a preliminary schedule to complete the inspections of the remainder of the collection system. This schedule will be adjusted as inspection production is completed.

Figure 3: Inspection Schedule

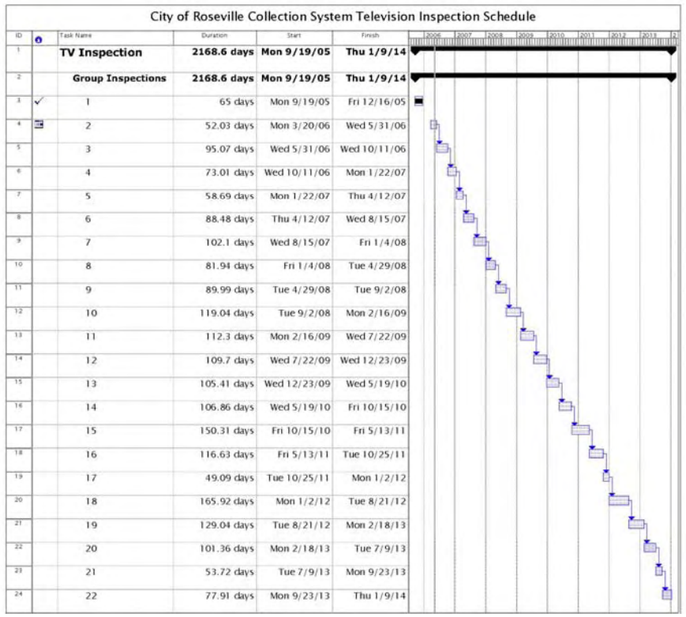


Table 8. Future Inspection Groups

Group No.	Year in Service		Footage	Inspection Time (Weeks)
	From	To		
1	1911	1937	130,397	16
2	1938	1955	52,034	10
3	1956	1960	95,073	19
4	1961	1970	73,012	15
5	1971	1975	58,693	12
6	1976	1978	88,478	18
7	1979	1982	102,104	20
8	1983	1985	81,939	16
9	1986	1987	89,990	18
10	1988	1988	119,043	24
11	1989	1990	112,300	22
12	1991	1991	109,701	22
13	1992	1993	105,406	21
14	1994	1994	106,862	21
15	1995	1996	150,313	30
16	1997	1998	116,631	23
17	1999	1999	49,091	10
18	2000	2000	165,918	33
19	2001	2001	129,043	26
20	2002	2002	101,358	20
21	2003	2003	53,715	11
22	2004	2005	77,906	16

7.1.1 NEW PIPELINES

As new pipelines are constructed and added to the system, they must have benchmark inspections completed similar to those completed under this study. Upon completion of a new pipeline segment by a Contractor, an inspection is normally performed by City crews as a condition of acceptance of the work. Since the new asset does not yet have an identifier in the City CMMS, this inspection would not result in a PACP-coded inspection log. Rather, the inspection is performed on a Pass/Fail basis and notification is made as a construction communication.

A warranty inspection will be performed approximately one year after Notice of Completion. This inspection will be based on asset information and identification (e.g.: manholes numbered, etc) from the City CMMS and will result in a complete PACP-coded inspection which will provide the basis for the benchmark inspection of the new asset. If warranty repairs are made by the Contractor, such repairs will be made and a second inspection will be made. The final warranty inspection will constitute the benchmark inspection for the new asset.

7.2 DATA MANAGEMENT

As discussed in previous sections, the inspection data are collected using Flexidata and remain within the Flexidata utility for reference and use. The inspections are stored on a shared server for access. These data include asset data from the CMMS, the detailed defect coding logged during the inspection, and video and still photo files of the inspection. With the exception of video files, the completed inspections are uploaded back into the CMMS to complete the work order prepared for each inspection bundle. That data resides in the CMMS. Certain protocols have been adopted to manage the data that are collected.

- As pipeline and manhole assets are replaced, their asset identifier (compkey) remains in use. For example, an asset constructed in 1927 that has been replaced in 2007 will be a new physical asset yet would otherwise show maintenance and inspection data for the older, non-existent asset. The data will be inapplicable to the current asset.
  - Solution: A new Year-in-Service date will be entered into the CMMS and the maintenance and inspection data deleted from the CMMS. That data would otherwise no longer be applicable to the new asset and as such would only confuse any future queries or use.
- As pipeline assets are rehabilitated, their asset identifier (compkey) remains in use and the original pipeline remains in place as an asset. Past maintenance data, inspection logs and inspection video will still apply to the host pipeline however a rehabilitation liner or other technique will have been applied to the pipeline.
  - Solution: The original Year-in-Service date will remain in the CMMS as the original asset is still in service. The CMMS will reflect the fact that a rehabilitation has been made to the pipeline with information on which technique (liner, spot repair, etc.) has been applied.

7.3 Rehabilitation and Replacement Monitoring

As the program proceeds in future years additional inspections will be performed, the CIP will be expanded to include additional rehabilitation and replacement of segments, and many pipelines will be rehabilitated and replaced. Several items will need to be tracked to monitor the productivity and success of the program including the following:

- Pipe footage inspected
- Pipe footage replaced
- Pipe footage rehabilitated

This will be performed in two ways.

7.3.1 RPAVM

RPAVM is the replacement planning model that the City uses to plan for rehabilitation and replacement (R&R) funding needs. It is used to project funding requirements associated with the R&R program. For pipeline assets, it includes an inventory of asset information such as year in service, diameter, material, and length. This information is linked to the CMMS and updated annually.

RPAVM differs from the CMMS in that it considers the asset useful life to project replacement needs whereas the CMMS represents a detailed inventory of actual asset information. A pipe segment that has been replaced under the condition assessment program will have the new Year-in-Service date noted in the CMMS, however, a rehabilitated pipe will keep the original Year-in-Service noted. This poses difficulty in RPAVM in that the future pipe replacement will be based on the original Year-in-Service. This could cause replacement planning in just a few short years for a pipe constructed say in 1911 but rehabilitated in 2008.

To alleviate this, RPAVM will be adjusted to reflect a new Year-in-Service for any pipeline asset that is replaced or rehabilitated. The accurate Year-in-Service will remain in the CMMS.

7.3.2 Tracking Spreadsheet

A tracking spreadsheet has been created to plan for future inspections. This is discussed earlier in this Section. The spreadsheet will be modified to track the following:

- inspections performed to date (asset and footage),
- assets replaced (asset, footage, type of replacement technology, and cost)
- assets rehabilitated (asset, footage, type of rehabilitation, and cost)

Reports will be generated to enable monitoring the progress of the program and report status to city management, City Council and Public Utilities Commission.

Section 8
References

The International Society of Trenchless Technology website, http://www.istt.com;

The North American Society for Trenchless Technology website, http://www.nastt.org/

Buried Pipe Design (2nd edition), A.P. Moser, 2001.

Collections Systems O&M Fact Sheet – Trenchless Sewer Rehabilitation, U.S. EPA 832-F-99-032, September 1999.

Sekisui SPR Americas, LLC, http://www.sekisui-spr.com/

APPENDIX A

MAP

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- 1
- 2
- 3
- 4
- 5

Pipeline annotation indicates the number or required spot repairs

0 125 250 500 750 1,000 Feet

Appendix A
Overall Rating
Prior to Making
Spot Repairs Required
for CIPP

CDM

June 23, 2006

APPENDIX B

MAPS BY FISCAL YEAR

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Regular Maintenance
- Pipe Bursting
- Replacement
- Spot Repair

0 125 250 500 750 1,000 Feet

Appendix B-1
Fiscal Year 2007
Rehabilitation Program

June 23, 2006

CDM

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Regular Maintenance
- CIPP
- Pipe Bursting
- Replacement

0 125 250 500 750 1,000 Feet

Appendix B-2
Fiscal Year 2008
Rehabilitation Program

June 23, 2006

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- CIPP
- Replacement

N

0 125 250 500 750 1,000 Feet

Appendix B-3
Fiscal Year 2009
Rehabilitation Program

June 23, 2006

CDM

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- CIPP
- Replacement

0 125 250 500 750 1,000 Feet

Appendix B-4
Fiscal Year 2010
Rehabilitation Program

June 23, 2006

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- CIPP
- Replacement
- Spot Repair

N

0 125 250 500 750 1,000 Feet

Appendix B-5
Fiscal Year 2011
Rehabilitation Program

June 23, 2006

CDM

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- CIPP
- Replacement
- Spot Repair

N

0 125 250 500 750 1,000 Feet

Appendix B-6
Fiscal Year 2012
Rehabilitation Program

June 23, 2006

CDM

APPENDIX C

MAPS BY OVERALL SCORE

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- Maintain
- Riverside
- Replacement
- Spot Repair

N

0 125 250 500 750 1,000 Feet

Appendix C-1
Rehabilitation Program
For Overall Rating of 1

CDM

June 23, 2006

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- Maintain
- Riverside
- Replacement
- Spot Repair

N

0 125 250 500 750 1,000 Feet

Appendix C-2
Rehabilitation Program
For Overall Rating of 2

CDM

June 23, 2006

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- CIPP
- Pipe Bursting
- Riverside
- Replacement

N

0 125 250 500 750 1,000 Feet

Appendix C-3
Rehabilitation Program
For Overall Rating of 3

June 23, 2006

CDM

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- CIPP
- Pipe Bursting
- Riverside
- Replacement

N

0 125 250 500 750 1,000 Feet

Appendix C-4
Rehabilitation Program
For Overall Rating of 4

CDM

June 23, 2006

City of Roseville Wastewater Collection System Condition Assessment Program

Legend:

- Not in Study Area
- CIPP
- Pipe Bursting
- Replacement

N

0 125 250 500 750 1,000 Feet

Appendix C-5
Rehabilitation Program
For Overall Rating of 5

CDM

June 23, 2006

APPENDIX D

PIPELINE RATING TABLES

CITY OF ROSEVILLE
TRADITION • PRIDE • PROGRESS

PIPELINE CONDITION ASSESSMENT TABLE

UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
A04-017	A04-016	15215	125.0				6	VCP	1	2	1			**$0**	$17,375		Maintain	$ -	
A04-039	A04-026	15101	270.5		Y	Y	8	VCP	2	4	3			**$0**	$38,411	2010-2011	Replace	$ 38,411	FY08
A04-074	A04-081	15106	179.0		Y	Y	6	VCP	1	1	1		2	**$0**	$24,881	2010-2011	Replace	$ 24,881	FY10
A04-081	A04-093	15108	250.0		Y	Y	6	VCP	2	2	2		3	**$0**	$34,750	2010-2011	Replace	$ 34,750	FY10
A04-088	A04-089	15182	342.0		Y	Y	6	VCP	1	1	1		8	**$0**	$47,538	2010-2011	Replace	$ 47,538	FY10
A04-089	A04-099	15183	261.0		Y	Y	6	VCP	2	1	1			**$0**	$36,279	2010-2011	Replace	$ 36,279	FY10
A04-097	A04-098	15179	157.0		Y	Y	6	VCP	1	1	1		6	**$0**	$21,823	2010-2011	Replace	$ 21,823	FY10
A04-098	A04-099	15180	265.0		Y	Y	6	VCP	1	1	1		6	**$0**	$36,835	2010-2011	Replace	$ 36,835	FY10
A04-118	A04-119	15148	230.0		Y	Y	6	VCP	1	1	1		4	**$0**	$31,970	2010-2011	Replace	$ 31,970	FY10
A05-016	A05-017	13905	83.0				12	VCP	3	3	3			**$5,324**	$12,533		CIPP	$ 5,324	FY11
A05-017	A05-003	13906	212.0		Y	N	12	VCP	2	3	2			**$0**	$32,012	2010-2011	Maintain	$ -	
A05-029	A05-016	13903	303.8				8	VCP	2	3	2		2	**$0**	$43,140		Maintain	$ -	
A05-033	A05-034	13852	45.0		Y	Y	8	VCP	1	1	1			**$0**	$6,390	2010-2011	Replace	$ 6,390	FY10
A05-044	A05-033	13851	144.5		Y	Y	8	VCP	1	2	1			**$0**	$20,519	2010-2011	Replace	$ 20,519	FY10
A05-055	A05-044	13850	323.0		Y	N	8	VCP	1	3	1		9	**$0**	$45,866	2010-2011	Maintain	$ -	
A05-058	A05-063	13844	125.0				6	VCP	1	2	1		2	**$0**	$17,375	2007-2008	Maintain	$ -	
A05-063	A05-055	13845	324.1		Y	N	8	VCP	1	1	1		4	**$0**	$46,022	2010-2011	Maintain	$ -	
A05-074	A05-075	13837	130.0		Y	Y	6	DIP	1	1	1		2	**$0**	$18,070	2010-2011	Replace	$ 18,070	FY10
A05-086	A05-087	13832	170.0				6	VCP	2	2	2		4	**$0**	$23,630	2007-2008	Maintain	$ -	
A06-018	A06-013	13753	208.6				6	VCP	3	4	4		2	**$9,550**	$28,995		CIPP	$ 9,550	FY08
A06-032	A06-018	13751	492.0				6	VCP	1	4	2		6	**$0**	$68,388		Maintain	$ -	
A06-039	A06-032	13744	204.0				6	VCP	2	3	2			**$0**	$28,356		Maintain	$ -	
A06-048	A06-039	13739	192.9				6	VCP	4	3	4	1	1	**$9,427**	$26,813		CIPP	$ 8,427	FY09
A06-060	A06-032	13749	457.7				6	VCP	1	2	1		6	**$0**	$63,620		Maintain	$ -	
A06-062	A06-048	13735	416.8				6	VCP	1	3	1		2	**$0**	$57,935		Maintain	$ -	
A06-068	A06-062	13729	136.0				6	VCP	1	3	1			**$0**	$18,904		Maintain	$ -	
A06-226	A06-250	13656	366.0		Y	Y	6	VCP	1	1	1		7	**$0**	$50,874	2010-2011	Replace	$ 50,874	FY10
A07-003	A07-002	12674	349.0		Y	Y	6	VCP	1	3	1		4	**$0**	$48,511	2010-2011	Replace	$ 48,511	FY10
A07-061	A07-067	12642	91.9		Y	Y	6	VCP	2	3	2			**$0**	$12,774	2010-2011	Replace	$ 12,774	FY10
A07-063	A07-072	12470	270.0		Y	N	6	VCP	1	4	2		4	**$0**	$37,530	2010-2011	Maintain	$ -	
A07-082	A07-072	12508	145.0		Y	Y	6	VCP	1	2	1		2	**$0**	$20,155	2010-2011	Replace	$ 20,155	FY10
B03-027	B03-034	15361	187.0				21	VCP	4	1	3	5		**$25,714**	$39,270		CIPP	$ 20,714	FY11
B03-028	B03-027	15360	812.9				21	VCP	4	1	3	3	8	**$96,845**	$170,709		CIPP	$ 93,845	FY11
B03-029	B03-028	15359	291.0				21	RCP	2	1	1		3	**$0**	$61,110		Maintain	$ -	
B03-030	B03-029	15358	447.0				21	VCP	5	1	5	4	1	**$53,989**	$93,870		CIPP	$ 49,989	FY08
B03-034	B03-037	15362	165.0				21	ZZZ	3	1	2	4	1	**$4,000**	$34,650		Spot Repair	$ -	FY11
B04-007	B04-006	14850	156.0				12	VCP	3	4	4			**$15,386**	$23,556	2007-2008	PB	$ 15,386	FY07
B04-008	B04-007	14849	610.9				12	VCP	3	2	3		3	**$40,611**	$92,246	2007-2008	CIPP	$ 40,611	FY11
B04-009	B04-010	11052	140.0				6	VCP	4	1	3	1	1	**$7,246**	$19,460		CIPP	$ 6,246	FY11
B04-010	B04-016	14761	655.6				10	VCP	4	2	4		24	**$47,892**	$96,373	2010-2011	CIPP	$ 47,892	FY09
B04-011	B04-010	11050	275.0				8	VCP	4	2	4		1	**$13,672**	$39,050		CIPP	$ 13,672	FY09
B04-013	B04-018	14777	460.0				6	VCP	4	2	4	1	12	**RS**	$63,940	2010-2011	RS	RS	RS
B04-016	B04-023	14762	659.0				10	VCP	4	2	4	2	30	**$52,931**	$96,873	2010-2011	CIPP	$ 50,931	FY09
B04-017	B04-027	14780	459.0				6	VCP	4	1	3	1	19	**$28,947**	$63,801	2010-2011	CIPP	$ 27,947	FY10
B04-018	B04-028	14778	467.0				6	VCP	4	2	4		22	**RS**	$64,913	2010-2011	RS	RS	RS

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UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
B04-020	B04-029	14774	74.0				12	VCP	2	4	3			**RS**	$11,174	2010-2011	RS	RS	RS
B04-021	B04-020	14772	194.0				12	VCP	3	4	4			**RS**	$29,294	2010-2011	RS	RS	RS
B04-022	B04-021	14767	368.8				12	VCP	3	3	3		1	**$24,132**	$55,689	2010-2011	CIPP	$ 24,132	FY10
B04-025	B04-042	14798	647.0				6	VCP	4	3	4	3	28	**$42,973**	$89,933	2010-2011	CIPP	$ 39,973	FY09
B04-026	B04-043	14782	713.0		Y	Y	12	VCP	4	4	5		24	**$0**	$107,663	2010-2011	Replace	$ 107,663	FY08
B04-027	B04-026	14781	196.5				12	VCP	2	4	3		2	**$21,381**	$29,672	2010-2011	PB	$ 21,381	FY08
B04-028	B04-027	14779	383.0				12	VCP	1	4	2		4	**$0**	$57,833	2010-2011	Maintain	$ -	
B04-029	B04-028	14775	186.0				12	VCP	3	3	3		3	**RS**	$28,086	2010-2011	RS	RS	RS
B04-035	B04-045	14788	14.0				6	VCP	2	2	2			**$0**	$1,946	2010-2011	Maintain	$ -	
B04-036	B04-031	14769	325.0				6	VCP	4	2	4	1	12	**$20,098**	$45,175	2010-2011	CIPP	$ 19,098	FY09
B04-040	B04-047	14805	425.0				12	VCP	3	3	3		1	**$27,737**	$64,175	2010-2011	CIPP	$ 27,737	FY10
B04-041	B04-040	14803	482.0				12	VCP	4	4	5		6	**$53,539**	$72,782	2010-2011	PB	$ 53,539	FY08
B04-042	B04-041	14801	346.0				12	VCP	3	4	4		4	**$38,126**	$52,246	2010-2011	PB	$ 38,126	FY08
B04-043	B04-042	14800	389.0				12	VCP	4	5	5	1	7	**$45,367**	$58,739	2010-2011	PB	$ 45,367	FY08
B04-044	B04-043	14796	155.0				6	VCP	2	1	1		6	**$0**	$21,545	2010-2011	Maintain	$ -	
B04-045	B04-044	14793	212.9				6	VCP	4	2	4		8	**$12,577**	$29,593	2010-2011	CIPP	$ 12,577	FY09
B04-046	B04-035	14783	379.2				6	VCP	5	2	5	2	12	**$23,332**	$52,709	2010-2011	CIPP	$ 21,332	FY08
B04-047	B04-061	14806	287.0				12	VCP	3	5	4			**RS**	$43,337	2010-2011	RS	RS	RS
B04-048	B04-064	14838	294.3				6	VCP	3	2	3		4	**$14,032**	$40,908	2010-2011	CIPP	$ 14,032	FY10
B04-049	B04-044	14795	252.0				6	VCP	1	1	1		3	**$0**	$35,028	2010-2011	Maintain	$ -	
B04-050	B04-045	14790	409.1				6	VCP	4	1	3	2	9	**$23,140**	$56,865	2010-2011	CIPP	$ 21,140	FY10
B04-054	B04-070	14817	129.0		Y	Y	6	VCP	2	3	2			**RS**	$17,931	2010-2011	RS	RS	RS
B04-055	B04-054	14815	354.0		Y	Y	6	VCP	4	2	4	1	8	**$0**	$49,206	2010-2011	Replace	$ 49,206	FY09
B04-062	B04-061	14841	359.0		Y	Y	6	VCP	1	4	2		2	**$0**	$49,901	2010-2011	Replace	$ 49,901	FY08
B04-063	B04-273	9337984	56.4				6	VCP	4	3	4		2	**$3,275**	$7,840	2010-2011	Replace	$ 7,840	FY09
B04-064	B04-063	14839	54.7		Y	Y	6	VCP	2	2	2		1	**$0**	$7,603	2010-2011	Replace	$ 7,603	FY10
B04-065	B04-257	111558	89.0				6	VCP	3	2	3		3	**$5,094**	$12,371	2010-2011	CIPP	$ 5,094	FY10
B04-066	B04-065	14828	257.0		Y	Y	6	VCP	3	2	3	1	6	**$0**	$35,723	2010-2011	Replace	$ 35,723	FY10
B04-067	B04-066	14825	262.0		Y	Y	6	VCP	3	1	2		3	**$0**	$36,418	2010-2011	Replace	$ 36,418	FY10
B04-068	B04-067	14820	240.0		Y	Y	6	VCP	3	2	3		5	**$0**	$33,360	2010-2011	Replace	$ 33,360	FY10
B04-069	B04-068	14819	156.0		Y	Y	6	VCP	3	1	2		1	**$0**	$21,684	2010-2011	Replace	$ 21,684	FY10
B04-070	B04-069	14818	222.0		Y	Y	6	VCP	2	3	2		1	**RS**	$30,858	2010-2011	RS	RS	RS
B04-230	B04-062	16998	138.9		Y	Y	6	VCP	3	3	3		3	**$0**	$19,307	2010-2011	Replace	$ 19,307	FY10
B04-232	B04-025	9304785	103.0				6	VCP	4	2	4		5	**$6,621**	$14,317	2010-2011	CIPP	$ 6,621	FY09
B04-233	B04-028	9304773	475.0				6	VCP	4	2	4	1	1	**$21,057**	$66,025	2010-2011	CIPP	$ 20,057	FY09
B04-234	B04-067	9304784	120.0				6	VCP	4	1	3	3	2	**$8,897**	$16,680	2010-2011	CIPP	$ 5,897	FY10
B04-256	B04-015	9304766	566.3				6	VCP	1	3	1		23	**RS**	$78,716	2010-2011	RS	RS	RS
B04-257	B04-064	9304796	310.0				6	VCP	5	2	5		5	**$15,155**	$43,090	2010-2011	CIPP	$ 15,155	FY08
B04-258	B04-013	9304768	266.5				6	VCP	4	2	4	1	8	**RS**	$37,044	2010-2011	RS	RS	RS
B04-259	B04-017	9304770	342.0				6	VCP	3	2	3		14	**$20,749**	$47,538	2010-2011	CIPP	$ 20,749	FY10
B04-260	B04-041	9304787	400.0				6	VCP	4	2	4	1		**$17,490**	$55,600	2010-2011	CIPP	$ 16,490	FY09
B04-261	B04-027	9337992	200.0				6	VCP	4	2	4	2	4	**$12,145**	$27,800	2010-2011	CIPP	$ 10,145	FY09
B04-262	B04-035	9337995	438.0				6	VCP	4	2	4	4	21	**$32,032**	$60,882	2010-2011	CIPP	$ 28,032	FY09
B04-263	B04-029	9304777	251.0				6	VCP	3	2	3		3	**RS**	$34,889	2010-2011	RS	RS	RS
B04-264	B04-046	9304775	186.0				6	VCP	2	2	2		2	**RS**	$25,854	2010-2011	RS	RS	RS
B04-265	B04-036	9304789	485.0				6	VCP	4	2	4	3	12	**RS**	$67,415	2010-2011	RS	RS	RS
B04-270	B04-046	9304781	358.8				6	VCP	2	2	2		11	**RS**	$49,873	2010-2011	RS	RS	RS
B04-271	B04-069	9304779	173.0				6	VCP	3	2	3	2	2	**RS**	$24,047	2010-2011	RS	RS	RS
B04-272	B04-068	9304783	373.0				6	VCP	4	1	3	2	6	**$20,227**	$51,847	2010-2011	CIPP	$ 18,227	FY10
B04-273	B04-230	9304795	508.0				6	VCP	5	2	5	2	15	**$30,067**	$70,612	2010-2011	CIPP	$ 28,067	FY08
B04-285	B04-048	9337985	164.8				6	VCP	3	1	2		4	**$0**	$22,907	2010-2011	Maintain	$ -	

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UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
B04-338	B04-009	9337997	201.0				6	VCP	3	1	2	2	2	**$2,000**	$27,939		Spot Repair	$ -	FY11
B05-002	B05-344	9299908	173.0				6	VCP	4	1	3		3	**$8,557**	$24,047		CIPP	$ 8,557	FY12
B05-003	C05-267	16208	496.0				6	VCP	4	1	3		9	**$24,723**	$68,944		CIPP	$ 24,723	FY11
B05-005	B04-011	11049	283.8				6	VCP	4	2	4		1	**$12,175**	$39,448		CIPP	$ 12,175	FY09
B05-006	B05-005	11047	200.0				6	VCP	4	2	4	1	1	**$9,720**	$27,800		CIPP	$ 8,720	FY09
B05-007	B05-006	11046	191.0				6	VCP	2	2	2		1	**$0**	$26,549		Maintain	$ -	
B05-035	B05-048	14584	249.4				8	VCP	4	3	4		5	**$14,343**	$35,415	2010-2011	CIPP	$ 14,343	FY09
B05-046	B05-074	14596	657.0				6	VCP	5	1	5	2	29	**$42,860**	$91,323	2010-2011	CIPP	$ 40,860	FY08
B05-047	B05-006	14597	653.7				6	VCP	4	1	3	2	28	**$42,249**	$90,864	2010-2011	CIPP	$ 40,249	FY10
B05-048	B05-057	14585	314.0				8	VCP	4	3	4		7	**$18,394**	$44,588	2010-2011	CIPP	$ 18,394	FY09
B05-057	B05-426	14586	293.0				8	VCP	3	3	3		3	**$15,486**	$41,606	2010-2011	CIPP	$ 15,486	FY10
B05-076	B05-426	9335994	174.0				6	VCP	3	1	2		1	**$0**	$24,186	2010-2011	Maintain	$ -	
B05-086	B05-077	14591	247.0				6	VCP	4	1	3	1	4	**$13,083**	$34,333	2010-2011	CIPP	$ 12,083	FY10
B05-112	B05-086	14590	377.2				6	VCP	4	3	4		3	**$16,975**	$52,431	2010-2011	CIPP	$ 16,975	FY09
B05-116	B05-112	14588	261.4				6	VCP	4	3	4		2	**$11,726**	$36,335	2010-2011	CIPP	$ 11,726	FY09
B05-149	B05-150	14348	215.0		Y	Y	6	VCP	1	1	1		3	**$0**	$29,885	2010-2011	Replace	$ 29,885	FY10
B05-150	B05-151	14349	303.0		Y	N	6	VCP	2	1	1		5	**$0**	$42,117	2010-2011	Maintain	$ -	
B05-151	B05-152	14350	313.6				6	VCP	2	2	2		1	**$0**	$43,590		Maintain	$ -	
B05-269	B05-254	14453	98.0		Y	Y	10	VCP	1	1	1			**$0**	$14,406	2010-2011	Replace	$ 14,406	FY10
B05-276	B05-275	14106	501.9		Y	Y	6	VCP	1	2	1	1		**$0**	$69,764	2010-2011	Replace	$ 69,764	FY10
B05-381	C05-273	112039	78.0				6	VCP	2	1	1		1	**$0**	$10,842		Maintain	$ -	
B05-382	C05-279	9297233	156.0				6	VCP	2	1	1		5	**$0**	$21,684		Maintain	$ -	
B05-383	C05-268	112090	503.7				6	VCP	4	1	3	2	28	**$36,065**	$70,014		CIPP	$ 34,065	FY11
B05-386	B05-046	9299957	576.0				6	VCP	5	1	5		17	**$31,821**	$80,064	2010-2011	CIPP	$ 31,821	FY08
B05-387	B05-007	9299959	96.7				6	VCP	1	1	1		2	**$0**	$13,441		Maintain	$ -	
B05-388	B05-007	9299961	565.5				6	VCP	3	1	2		10	**$0**	$78,605	2010-2011	Maintain	$ -	
B05-391	B05-047	9299965	448.0				6	VCP	4	1	3	3	16	**$29,069**	$62,272	2010-2011	CIPP	$ 26,069	FY10
B05-392	B05-076	9299967	130.0				6	VCP	4	1	3		1	**$5,834**	$18,070	2010-2011	CIPP	$ 5,834	FY10
B05-426	B05-077	9335995	19.0				8	VCP	1	1	1			**$0**	$2,698	2010-2011	Maintain	$ -	
B05-435	B05-434	9354110	31.0		Y	N	6	VCP	2	3	2			**$0**	$4,309	2007-2008	Maintain	$ -	
B05-436	B05-435	9354109	19.0		Y	N	6	VCP	2	3	2			**$0**	$2,641	2007-2008	Maintain	$ -	
B06-020	B06-030	15673	241.0		Y	Y	8	VCP	1	2	1			**$0**	$34,222	2007-2008	Replace	$ 34,222	FY07
B06-030	B06-056	15674	296.0		Y	Y	6	VCP	1	2	1			**$0**	$41,144	2007-2008	Replace	$ 41,144	FY07
B06-049	B06-060	15818	365.0		Y	N	6	VCP	1	1	1		11	**$0**	$50,735	2007-2008	Maintain	$ -	
B06-055	B06-037	15676	398.1		Y	N	8	VCP	1	1	1		10	**$0**	$56,530	2007-2008	Maintain	$ -	
B06-056	B06-055	15675	309.0		Y	N	8	VCP	1	1	1		6	**$0**	$43,878	2007-2008	Maintain	$ -	
B06-060	B05-056	14391	179.5		Y	Y	6	VCP	2	1	1		2	**$0**	$24,951	2007-2008	Replace	$ 24,951	FY07
B06-108	B06-357	15642	138.1				10	VCP	1	3	1			**$0**	$20,301		Maintain	$ -	
C03-229	C03-243	9311	128.3				8	VCP	1	1	1			**$0**	$18,219		Maintain	$ -	
C03-230	C03-229	9309	59.0				8	VCP	2	1	1			**$0**	$8,378		Maintain	$ -	
C03-244	C03-243	9317	375.5				6	VCP	1	1	1	1	14	**$1,000**	$52,195		Spot Repair	$ -	FY12
C04-010	C04-011	10105	234.9		Y	N	6	VCP	4	3	4		6	**$12,534**	$32,651	2007-2008	CIPP	$ 12,534	FY09
C04-025	C04-281	112134	65.0				6	VCP	4	3	4	1	3	**$5,105**	$9,035	2007-2008	Replace	$ 9,035	FY07
C04-055	C05-059	9572	422.9				6	VCP	5	1	5		13	**$23,609**	$58,783		CIPP	$ 23,609	FY08
C04-059	C04-069	9534	180.1				6	VCP	4	2	4		2	**$8,375**	$25,034		CIPP	$ 8,375	FY09
C04-060	C04-070	9543	186.0				6	VCP	4	2	4		2	**$8,618**	$25,854		CIPP	$ 8,618	FY09
C04-061	C04-060	9542	420.0				6	VCP	4	1	3	2	13	**$25,489**	$58,380		CIPP	$ 23,489	FY11
C04-062	C04-319	9573	175.6				6	VCP	3	2	3			**$7,239**	$24,408		CIPP	$ 7,239	FY11
C04-063	C04-073	9575	190.0				6	VCP	3	1	2			**$0**	$26,410		Maintain	$ -	
C04-068	C04-069	9535	405.0				6	VCP	3	1	2		13	**$0**	$56,295		Maintain	$ -	
C04-069	C04-081	9536	360.0				6	VCP	1	1	1		4	**$0**	$50,040		Maintain	$ -	

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C04-070	C04-082	9544	360.0				6	VCP	4	2	4		3	**$16,266**	$50,040		CIPP	$ 16,266	FY09
C04-071	C04-070	9548	395.0				6	VCP	4	2	4		11	**$21,509**	$54,905		CIPP	$ 21,509	FY09
C04-072	C04-319	9351665	4.8				6	VCP	2	3	2		1	**$0**	$667		Maintain	$ -	
C04-073	C04-074	9577	530.0				6	VCP	4	1	3	2	23	**$34,774**	$73,670		CIPP	$ 32,774	FY11
C04-074	C04-075	9578	57.3				6	VCP	2	1	1		1	**$0**	$7,965		Maintain	$ -	
C04-075	C05-068	9580	430.0				6	VCP	4	1	3		16	**$25,327**	$59,770		CIPP	$ 25,327	FY11
C04-080	C04-090	9538	360.0				8	VCP	3	1	2		7	**$0**	$51,120		Maintain	$ -	
C04-081	C04-080	9537	405.0				8	VCP	4	1	3		3	**$20,861**	$57,510		CIPP	$ 20,861	FY11
C04-083	C04-082	9552	459.0				6	VCP	4	1	3	1	15	**$27,047**	$63,801		CIPP	$ 26,047	FY11
C04-084	C04-083	9551	458.0				6	VCP	5	1	5	2	11	**$26,106**	$63,662		CIPP	$ 24,106	FY08
C04-085	C04-084	9550	565.0				6	VCP	5	1	5	5	20	**$37,792**	$78,535		CIPP	$ 32,792	FY08
C04-086	C05-088	9582	307.4				6	VCP	4	1	3	1	8	**$17,473**	$42,729		CIPP	$ 16,473	FY11
C04-090	C04-102	9540	186.4				8	VCP	3	1	2		2	**$0**	$26,469	2007-2008	Maintain	$ -	
C04-091	C04-090	16449	267.0				6	VCP	4	2	4	4	11	**$20,232**	$37,113		CIPP	$ 16,232	FY09
C04-092	C04-093	16450	460.0				6	VCP	5	1	5	2	13	**$27,138**	$63,940		CIPP	$ 25,138	FY08
C04-093	C04-103	9546	150.0				10	VCP	2	2	2		3	**$0**	$22,050		Maintain	$ -	
C04-094	C04-093	9554	459.0				6	VCP	5	2	5		13	**$25,097**	$63,801		CIPP	$ 25,097	FY08
C04-095	C04-094	9553	458.0				6	VCP	4	1	3		13	**$25,056**	$63,662		CIPP	$ 25,056	FY11
C04-096	C04-097	9584	697.0				6	VCP	5	1	5	2	30	**$44,984**	$96,883		CIPP	$ 42,984	FY08
C04-097	C05-105	9585	319.0				6	VCP	4	1	3	1	5	**$16,526**	$44,341		CIPP	$ 15,526	FY11
C04-099	C04-100	9375	293.0		Y	Y	8	VCP	1	1	1		4	**$0**	$41,606	2007-2008	Replace	$ 41,606	FY07
C04-100	C04-101	9376	252.0		Y	Y	8	VCP	2	2	2		3	**$0**	$35,784	2007-2008	Replace	$ 35,784	FY07
C04-101	C04-110	9377	36.0		Y	Y	8	VCP	1	3	1			**$0**	$5,112	2007-2008	Replace	$ 5,112	FY07
C04-102	C04-110	9541	418.0				8	VCP	4	2	4		7	**$23,384**	$59,356	2007-2008	CIPP	$ 23,384	FY09
C04-105	C04-104	9557	373.0				6	VCP	4	2	4	3	7	**$21,702**	$51,847	2007-2008	CIPP	$ 18,702	FY09
C04-106	C04-105	9556	310.0				6	VCP	3	2	3		4	**$14,680**	$43,090	2007-2008	CIPP	$ 14,680	FY12
C04-110	C04-111	9378	151.8		Y	Y	8	VCP	4	2	4	1	1	**$0**	$21,556	2007-2008	Replace	$ 21,556	FY07
C04-111	C04-115	9379	174.0				8	VCP	4	1	3		2	**$9,300**	$24,708	2007-2008	CIPP	$ 9,300	FY11
C04-112	C04-119	9997	181.4				6	VCP	4	3	4	1	1	**$8,953**	$25,215	2007-2008	CIPP	$ 7,953	FY09
C04-115	C04-126	9380	163.1		Y	Y	8	VCP	3	1	2			**$0**	$23,160	2007-2008	Replace	$ 23,160	FY07
C04-116	C04-115	16452	402.0				6	VCP	4	1	3	3	12	**$25,272**	$55,878	2007-2008	CIPP	$ 22,272	FY11
C04-117	C04-128	10021	154.0	Y			6	VCP	2	2	2		1	**$0**	$21,406	2007-2008	Maintain	$ -	
C04-118	C04-130	10005	456.0				6	VCP	5	2	5	1	14	**$26,449**	$63,384	2007-2008	CIPP	$ 25,449	FY08
C04-119	C05-120	9999	216.0				6	VCP	4	3	4	1	5	**$12,280**	$30,024	2007-2008	CIPP	$ 11,280	FY09
C04-126	C04-136	9381	164.0		Y	Y	8	VCP	2	2	2		2	**$0**	$23,288	2007-2008	Replace	$ 23,288	FY07
C04-128	C04-144	10022	490.0	Y			6	VCP	5	2	5	1	19	**$30,225**	$68,110	2007-2008	CIPP	$ 29,225	FY08
C04-129	C04-130	10006	285.0	Y			6	VCP	4	2	4		6	**$14,599**	$39,615	2007-2008	CIPP	$ 14,599	FY09
C04-130	C04-146	10007	315.0	Y			6	VCP	3	2	3		8	**$16,786**	$43,785	2007-2008	CIPP	$ 16,786	FY11
C04-136	C04-155	9382	306.0		Y	Y	10	VCP	3	1	2		5	**$0**	$44,982	2007-2008	Replace	$ 44,982	FY07
C04-137	C04-136	16454	362.0				6	VCP	4	1	3	1	11	**$21,148**	$50,318	2007-2008	CIPP	$ 20,148	FY11
C04-138	C04-143	16455	307.0	Y			6	VCP	4	1	3		4	**$14,556**	$42,673	2007-2008	CIPP	$ 14,556	FY11
C04-144	C04-159	10024	375.0	Y			6	VCP	5	2	5		12	**$21,159**	$52,125	2007-2008	CIPP	$ 21,159	FY08
C04-145	C04-130	10008	546.0	Y			6	VCP	4	1	3		23	**$33,434**	$75,894	2007-2008	CIPP	$ 33,434	FY12
C04-145	C04-169	10015	320.0	Y			6	VCP	4	1	3		9	**$17,467**	$44,480	2007-2008	CIPP	$ 17,467	FY12
C04-146	C04-160	10010	388.1	Y			6	VCP	3	2	3		10	**$20,749**	$53,946	2007-2008	CIPP	$ 20,749	FY12
C04-155	C04-179	9383	308.0				10	VCP	3	1	2		4	**$0**	$45,276	2007-2008	Maintain	$ -	
C04-159	C04-183	10025	308.0				6	VCP	4	2	4		8	**$16,497**	$42,812	2007-2008	CIPP	$ 16,497	FY09
C04-160	C04-170	10012	102.0	Y			10	VCP	4	2	4		1	**$6,152**	$14,994	2007-2008	CIPP	$ 6,152	FY09
C04-167	C04-181	16464	475.0	Y			6	VCP	5	1	5	1	20	**$30,082**	$66,025	2007-2008	CIPP	$ 29,082	FY08
C04-168	C04-183	10019	102.0	Y			10	VCP	2	3	2			**$0**	$14,994	2007-2008	Maintain	$ -	
C04-169	C04-168	10017	221.0	Y			10	VCP	2	3	2		5	**$0**	$32,487	2007-2008	Maintain	$ -	

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UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
C04-170	C04-169	10014	267.0	Y			10	VCP	2	3	2	1	1	**$1,000**	$39,249	2007-2008	Spot Repair	$ -	FY07
C04-179	C04-203	9384	620.0		Y	Y	10	VCP	4	1	3		10	**$0**	$91,140	2007-2008	Replace	$ 91,140	FY07
C04-180	C04-186	16465	325.0	Y			6	VCP	4	1	3	1	7	**$17,723**	$45,175	2007-2008	CIPP	$ 16,723	FY11
C04-181	C04-182	16463	301.0	Y			6	VCP	4	2	4	2	3	**$15,834**	$41,839	2007-2008	CIPP	$ 13,834	FY09
C04-186	C04-187	16466	290.9	Y			6	VCP	4	1	3	3	8	**$18,792**	$40,435	2007-2008	CIPP	$ 15,792	FY11
C04-187	C04-207	16467	445.0	Y			6	VCP	4	1	3	2	15	**$27,470**	$61,855	2007-2008	CIPP	$ 25,470	FY11
C04-188	C04-220	16500	692.0	Y	Y	Y	6	VCP	4	1	3		33	**$0**	$96,188	2007-2008	Replace	$ 96,188	FY07
C04-196	C04-207	16468	317.0	Y			6	VCP	4	1	3		5	**$15,443**	$44,063	2007-2008	CIPP	$ 15,443	FY11
C04-203	C04-204	16474	149.0		Y	Y	10	VCP	3	1	2		1	**$0**	$21,903	2007-2008	Replace	$ 21,903	FY07
C04-204	C04-226	16475	310.2		Y	Y	10	VCP	4	1	3		10	**$0**	$45,599	2007-2008	Replace	$ 45,599	FY07
C04-205	C04-218	16482	29.0				6	VCP	1	1	1		2	**$0**	$4,031	2007-2008	Maintain	$ -	
C04-206	C04-222	9338034	299.0	Y			6	VCP	3	1	2	1	6	**$1,000**	$41,561	2007-2008	Spot Repair	$ -	FY07
C04-218	C04-204	16483	155.0				6	VCP	4	2	4	2	2	**$9,340**	$21,545	2007-2008	CIPP	$ 7,340	FY09
C04-222	C04-228	16487	357.5	Y			6	VCP	3	1	2		13	**$0**	$49,693	2007-2008	Maintain	$ -	
C04-223	C04-229	16502	380.0	Y	Y	Y	6	VCP	3	3	3	1	11	**$0**	$52,820	2007-2008	Replace	$ 52,820	FY07
C04-226	C04-230	16476	357.0		Y	Y	10	VCP	4	4	5		13	**$0**	$52,479	2007-2008	Replace	$ 52,479	FY07
C04-229	C04-233	16499	316.0	Y			12	VCP	4	2	4		4	**$22,170**	$47,716	2007-2008	CIPP	$ 22,170	FY09
C04-230	B04-006	16480	301.0		Y	Y	10	VCP	4	5	5		2	**$0**	$44,247	2007-2008	Replace	$ 44,247	FY07
C04-232	C04-230	16477	153.0				6	VCP	2	1	1			**$0**	$21,267	2007-2008	Maintain	$ -	
C04-257	C04-138	101278	355.0				6	VCP	4	1	3	2	11	**$21,860**	$49,345	2007-2008	CIPP	$ 19,860	FY11
C04-258	C04-117	112375	118.1				6	VCP	3	1	2		1	**$0**	$16,416	2007-2008	Maintain	$ -	
C04-259	C04-106	112122	353.0				6	VCP	4	1	3		9	**$18,827**	$49,067	2007-2008	CIPP	$ 18,827	FY11
C04-261	C04-137	112106	356.0				6	VCP	3	1	2		13	**$0**	$49,484	2007-2008	Maintain	$ -	
C04-262	C04-143	101273	514.6	Y			6	VCP	3	1	2	1	9	**$1,000**	$71,529	2007-2008	Spot Repair	$ -	FY07
C04-264	C04-157	101274	250.0	Y			6	VCP	3	1	2		3	**$0**	$34,750	2007-2008	Maintain	$ -	
C04-265	C04-180	112119	202.0	Y			6	VCP	3	1	2		4	**$0**	$28,078	2007-2008	Maintain	$ -	
C04-267	C04-180	112118	258.0	Y			6	VCP	4	1	3		6	**$13,486**	$35,862	2007-2008	CIPP	$ 13,486	FY12
C04-268	C04-196	112117	521.0	Y			6	VCP	4	1	3	1	20	**$31,978**	$72,419	2007-2008	CIPP	$ 30,978	FY11
C04-269	C04-158	112128	282.0	Y			6	VCP	4	1	3			**$11,625**	$39,198	2007-2008	CIPP	$ 11,625	FY12
C04-270	C04-189	112127	300.0	Y			6	VCP	1	1	1			**$0**	$41,700	2007-2008	Maintain	$ -	
C04-272	C04-196	9304728	240.2	Y			6	VCP	4	1	3	1	8	**$14,702**	$33,388	2007-2008	CIPP	$ 13,702	FY11
C04-273	C04-219	112034	94.0	Y			6	VCP	3	1	2		3	**$0**	$13,066	2007-2008	Maintain	$ -	
C04-275	C04-227	101261	261.0				6	VCP	3	1	2	1	2	**$1,000**	$36,279	2007-2008	Spot Repair	$ -	FY07
C04-276	C04-138	101279	257.0	Y			6	VCP	3	1	2	1	5	**$1,000**	$35,723	2007-2008	Spot Repair	$ -	FY07
C04-277	C04-127	112125	155.0	Y			6	VCP	2	1	1		5	**$0**	$21,545	2007-2008	Maintain	$ -	
C04-278	C04-117	112124	299.0	Y			6	VCP	4	1	3		11	**$17,551**	$41,561	2007-2008	CIPP	$ 17,551	FY11
C04-279	C04-129	112123	416.3	Y			6	VCP	2	1	1		13	**$0**	$57,866	2007-2008	Maintain	$ -	
C04-282	C04-086	111856	148.0				6	VCP	4	1	3	1	3	**$8,526**	$20,572		CIPP	$ 7,526	FY11
C04-285	C04-157	101266	439.7	Y			6	VCP	3	1	2	1	15	**$1,000**	$61,118	2007-2008	Spot Repair	$ -	FY07
C04-287	C04-205	9300151	160.0	Y			6	VCP	3	1	2			**$0**	$22,240	2007-2008	Maintain	$ -	
C04-290	C04-232	9300152	300.0				6	VCP	1	1	1	1	2	**$1,000**	$41,700	2007-2008	Spot Repair	$ -	FY07
C04-292	C04-196	101275	155.0	Y			6	VCP	2	1	1		1	**$0**	$21,545	2007-2008	Maintain	$ -	
C04-293	C04-222	101269	245.0	Y			6	VCP	1	1	1		4	**$0**	$34,055	2007-2008	Maintain	$ -	
C04-294	C04-145	112105	559.0	Y			6	VCP	3	1	2		17	**$0**	$77,701	2007-2008	Maintain	$ -	
C04-295	C04-146	112108	377.9				6	VCP	4	1	3	2	13	**$23,754**	$52,528	2007-2008	CIPP	$ 21,754	FY11
C04-296	C04-140	112110	581.0				6	VCP	4	1	3	1	6	**$27,802**	$80,759	2007-2008	CIPP	$ 26,802	FY11
C04-297	C04-118	112112	271.4				6	VCP	4	1	3	1	7	**$15,513**	$37,725	2007-2008	CIPP	$ 14,513	FY11
C04-298	C04-112	112114	91.7				6	VCP	4	1	3		4	**$5,680**	$12,746	2007-2008	CIPP	$ 5,680	FY12
C04-299	C04-119	112116	204.7				6	VCP	3	1	2		6	**$0**	$28,453	2007-2008	Maintain	$ -	
C04-300	C04-096	101177	194.0				6	VCP	4	1	3	1	6	**$11,848**	$26,966		CIPP	$ 10,848	FY11
C04-301	C04-095	101176	237.3				6	VCP	4	1	3	1	13	**$16,958**	$32,985		CIPP	$ 15,958	FY11

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C04-302	C04-116	112130	409.4				6	VCP	4	1	3	4	18	**$29,427**	$56,907	2007-2008	CIPP	$ 25,427	FY11
C04-304	C04-305	112139	98.0				6	VCP	1	1	1			**$0**	$13,622		Maintain	$ -	
C04-305	C04-306	9300154	291.0				6	VCP	4	1	3	5	6	**$19,846**	$40,449	2007-2008	CIPP	$ 14,846	FY11
C04-306	C04-307	112136	3.0				6	VCP	1	1	1		1	**$0**	$417	2007-2008	Maintain	$ -	
C04-308	C04-092	101175	256.0				6	VCP	4	1	3	1	2	**$12,504**	$35,584		CIPP	$ 11,504	FY11
C04-310	C04-085	101174	431.5				6	VCP	4	1	3	1	21	**$28,764**	$59,979		CIPP	$ 27,764	FY11
C04-311	C04-104	76809	242.3				6	VCP	4	1	3	1	5	**$13,364**	$33,680	2007-2008	CIPP	$ 12,364	FY11
C04-313	C04-081	112384	339.0				6	VCP	3	1	2	2	11	**$2,000**	$47,121		Spot Repair	$ -	FY12
C04-314	C04-069	112386	387.0				6	VCP	4	1	3	2	11	**$23,179**	$53,793		CIPP	$ 21,179	FY11
C04-315	C04-059	112388	334.0				6	VCP	4	1	3	1	10	**$19,519**	$46,426		CIPP	$ 18,519	FY11
C04-316	C04-059	112390	424.0				6	VCP	2	1	1		8	**$0**	$58,936		Maintain	$ -	
C04-317	C04-061	112392	159.0				6	VCP	4	1	3		2	**$7,505**	$22,101		CIPP	$ 7,505	FY11
C04-318	C04-072	112394	393.2				6	VCP	4	1	3	1	18	**$25,760**	$54,655		CIPP	$ 24,760	FY11
C04-319	C04-073	9574	452.4				6	VCP	4	1	3	7	17	**$33,725**	$62,884		CIPP	$ 26,725	FY11
C04-320	C04-074	112401	72.0				6	VCP	1	1	1			**$0**	$10,008		Maintain	$ -	
C04-321	C04-063	112403	306.0				6	VCP	4	1	3	1	6	**$16,465**	$42,534		CIPP	$ 15,465	FY11
C04-322	C04-063	112405	315.0				6	VCP	4	1	3		9	**$17,261**	$43,785		CIPP	$ 17,261	FY12
C04-326	C04-061	112414	160.6				6	VCP	4	1	3		4	**$8,521**	$22,323		CIPP	$ 8,521	FY11
C04-329	C04-180	112479	391.8				6	VCP	3	1	2		9	**$0**	$54,460	2007-2008	Maintain	$ -	
C04-331	C04-225	112485	799.3				6	VCP	3	1	2		16	**$0**	$111,103		Maintain	$ -	
C04-349	C04-091	9333808	70.0				6	VCP	1	1	1		5	**$0**	$9,730		Maintain	$ -	
C05-004	C05-005	10110	80.9		Y	N	6	VCP	2	3	2		3	**$0**	$11,245	2007-2008	Maintain	$ -	
C05-006	C05-013	10074	188.0		Y	Y	6	VCP	4	2	4	5	3	**$0**	$26,132	2007-2008	Replace	$ 26,132	FY07
C05-007	C05-008	10062	57.0				6	VCP	4	1	3	3	1	**$5,825**	$7,923		Replace	$ 7,923	FY11
C05-008	C05-009	10063	349.0				6	VCP	5	1	5	3	8	**$21,187**	$48,511	2007-2008	CIPP	$ 18,187	FY08
C05-009	C05-018	10070	494.0				6	VCP	5	2	5	2	15	**$29,490**	$68,666	2007-2008	CIPP	$ 27,490	FY08
C05-010	C05-014	10076	190.6				6	VCP	4	1	3		4	**$9,757**	$26,493	2007-2008	CIPP	$ 9,757	FY11
C05-013	C05-021	10075	274.0		Y	Y	6	VCP	4	3	4		2	**$0**	$38,086	2007-2008	Replace	$ 38,086	FY07
C05-014	C05-021	10077	440.0				6	VCP	4	1	3		8	**$21,939**	$61,160	2007-2008	CIPP	$ 21,939	FY12
C05-016	C05-017	10086	617.0		Y	Y	6	VCP	4	1	3		16	**$0**	$85,763	2007-2008	Replace	$ 85,763	FY07
C05-017	C05-020	10087	184.0		Y	Y	6	VCP	4	2	4	4	2	**$0**	$25,576	2007-2008	Replace	$ 25,576	FY07
C05-018	C05-029	10071	465.0				6	VCP	4	3	4	3	4	**$24,070**	$64,635	2007-2008	CIPP	$ 21,070	FY09
C05-019	C05-030	10059	463.0				6	VCP	5	3	5		19	**$28,112**	$64,357	2007-2008	CIPP	$ 28,112	FY08
C05-020	C05-028	10100	193.0		Y	Y	8	VCP	4	2	4	1	2	**$0**	$27,406	2007-2008	Replace	$ 27,406	FY07
C05-021	C05-020	10078	29.0				6	VCP	3	3	3			**$1,196**	$4,031		Replace	$ 4,031	FY12
C05-022	C05-029	10072	192.0				6	VCP	4	2	4		2	**$8,865**	$26,688	2007-2008	CIPP	$ 8,865	FY09
C05-025	C05-026	10082	201.0				6	VCP	4	1	3	1	5	**$11,661**	$27,939	2007-2008	CIPP	$ 10,661	FY11
C05-026	C05-027	10083	346.0				6	VCP	3	1	2		8	**$0**	$48,094	2007-2008	Maintain	$ -	
C05-027	C05-020	10085	208.0				6	VCP	4	1	3		1	**$9,050**	$28,912	2007-2008	CIPP	$ 9,050	FY11
C05-028	C05-041	10101	379.2		Y	Y	8	VCP	4	2	4	2	4	**$0**	$53,846	2007-2008	Replace	$ 53,846	FY07
C05-029	C05-041	10073	479.0				6	VCP	4	3	4		13	**$25,922**	$66,581	2007-2008	CIPP	$ 25,922	FY09
C05-030	C05-042	10060	465.0				6	VCP	4	3	4	1	16	**$27,770**	$64,635	2007-2008	CIPP	$ 26,770	FY09
C05-031	C05-026	10081	128.5				6	VCP	2	2	2		2	**$0**	$17,862	2007-2008	Maintain	$ -	
C05-035	C05-048	10173	509.0				6	VCP	5	1	5	1	19	**$31,008**	$70,751	2007-2008	CIPP	$ 30,008	FY08
C05-036	C05-031	10080	54.5				6	VCP	3	1	2			**$0**	$7,576	2007-2008	Maintain	$ -	
C05-040	C05-031	10079	264.0				6	VCP	4	2	4		1	**$11,358**	$36,696	2007-2008	CIPP	$ 11,358	FY09
C05-041	C05-055	10102	420.0				10	VCP	4	2	4		5	**$25,753**	$61,740	2007-2008	CIPP	$ 25,753	FY09
C05-042	C05-055	10061	473.0				6	VCP	4	2	4	2	16	**$29,099**	$65,747	2007-2008	CIPP	$ 27,099	FY09
C05-045	C05-035	10172	191.6				6	VCP	4	1	3	2		**$9,899**	$26,632	2007-2008	CIPP	$ 7,899	FY11
C05-046	C05-027	10084	389.0				6	VCP	4	1	3		6	**$18,886**	$54,071	2007-2008	CIPP	$ 18,886	FY11
C05-047	C05-060	10098	583.0				6	VCP	4	1	3	2	15	**$33,159**	$81,037	2007-2008	CIPP	$ 31,159	FY11

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UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
C05-048	C05-034	10174	304.6				6	VCP	5	2	5	2	10	**$19,307**	$42,339	2007-2008	CIPP	$ 17,307	FY08
C05-050	C05-059	10030	215.0				6	VCP	4	1	3	1	1	**$10,338**	$29,885		CIPP	$ 9,338	FY11
C05-052	C05-061	10167	480.0				6	VCP	4	2	4		17	**$27,863**	$66,720	2007-2008	CIPP	$ 27,863	FY09
C05-054	C05-307	10054	500.0				6	VCP	4	2	4	1	14	**$28,262**	$69,500	2007-2008	CIPP	$ 27,262	FY09
C05-055	C05-069	10103	386.0				10	VCP	5	2	5		1	**$21,960**	$56,742	2007-2008	CIPP	$ 21,960	FY08
C05-057	C05-048	10169	195.0				6	VCP	4	1	3		2	**$8,989**	$27,105	2007-2008	CIPP	$ 8,989	FY11
C05-059	C05-068	10031	290.0				6	VCP	4	1	3	1	4	**$14,855**	$40,310		CIPP	$ 13,855	FY11
C05-060	C05-076	10099	472.0				8	VCP	4	1	3		7	**$25,976**	$67,024	2007-2008	CIPP	$ 25,976	FY11
C05-061	C05-057	10168	185.0				6	VCP	4	2	4	2	1	**$10,102**	$25,715		CIPP	$ 8,102	FY09
C05-062	C05-072	10165	280.0				6	VCP	4	2	4		5	**$13,918**	$38,920	2007-2008	CIPP	$ 13,918	FY09
C05-065	C05-070	10178	200.9		Y	Y	6	VCP	4	3	4	1	1	**$0**	$27,925	2007-2008	Replace	$ 27,925	FY07
C05-066	C05-062	10164	190.0				6	VCP	4	1	3	2	2	**$10,783**	$26,410	2007-2008	CIPP	$ 8,783	FY11
C05-068	C05-312	10032	160.0				8	VCP	2	2	2			**$0**	$22,720		Maintain	$ -	
C05-069	C05-076	10104	190.0				10	VCP	3	4	4		2	**$18,220**	$27,930	2007-2008	PB	$ 18,220	FY07
C05-070	C05-091	10180	448.6				6	VCP	5	4	5	4	19	**$46,329**	$62,355	2007-2008	PB	$ 46,329	FY07
C05-072	C05-061	10166	190.1				6	VCP	1	2	1		2	**$0**	$26,424	2007-2008	Maintain	$ -	
C05-073	C05-066	10163	102.0				6	VCP	4	3	4		5	**$6,580**	$14,178	2007-2008	CIPP	$ 6,580	FY09
C05-075	C05-083	10055	161.0				6	VCP	3	1	2		1	**$0**	$22,379	2007-2008	Maintain	$ -	
C05-076	C05-090	10982	423.0				10	VCP	4	4	5		3	**$39,111**	$62,181	2007-2008	PB	$ 39,111	FY07
C05-077	C05-070	10179	144.0				6	VCP	4	1	3		2	**$6,886**	$20,016	2007-2008	CIPP	$ 6,886	FY11
C05-082	C05-073	10162	178.0				6	VCP	4	3	4		3	**$8,763**	$24,742	2007-2008	CIPP	$ 8,763	FY09
C05-083	C05-093	10056	199.0				6	VCP	4	3	4	1	1	**$9,679**	$27,661	2007-2008	CIPP	$ 8,679	FY09
C05-084	C05-069	10058	576.0				6	VCP	4	1	3	1	24	**$36,146**	$80,064	2007-2008	CIPP	$ 35,146	FY11
C05-088	C05-105	10033	360.0				8	VCP	4	1	3		7	**$20,601**	$51,120		CIPP	$ 20,601	FY11
C05-089	C05-095	10984	49.0				10	VCP	1	3	1			**$0**	$7,203	2007-2008	Maintain	$ -	
C05-091	C05-100	10994	477.0				6	VCP	4	4	5	1	12	**$41,059**	$66,303	2007-2008	PB	$ 41,059	FY07
C05-093	C05-084	10057	321.0				6	VCP	4	1	3	1	10	**$18,983**	$44,619	2007-2008	CIPP	$ 17,983	FY11
C05-105	C05-113	10035	169.0				10	VCP	3	3	3			**$9,407**	$24,843		CIPP	$ 9,407	FY11
C05-106	C05-121	10038	250.0				6	VCP	4	2	4	1	4	**$13,206**	$34,750		CIPP	$ 12,206	FY09
C05-107	C05-124	11000	346.3				10	VCP	2	2	2		1	**$0**	$50,906	2007-2008	Maintain	$ -	
C05-113	C05-120	10036	191.0				10	VCP	3	3	3	1	2	**$12,581**	$28,077	2007-2008	CIPP	$ 11,581	FY11
C05-114	C05-107	11026	191.0				6	VCP	4	2	4	1	2	**$9,824**	$26,549	2007-2008	CIPP	$ 8,824	FY09
C05-115	C05-114	11025	59.0				6	VCP	3	2	3			**$2,432**	$8,201		CIPP	$ 2,432	FY12
C05-120	C05-145	10000	370.0				10	VCP	3	3	3		4	**$22,495**	$54,390	2007-2008	CIPP	$ 22,495	FY12
C05-121	C05-136	10044	422.8				8	VCP	3	2	3		14	**$26,940**	$60,038		CIPP	$ 26,940	FY12
C05-122	C05-121	10042	202.0				6	VCP	3	3	3		1	**$8,802**	$28,078		CIPP	$ 8,802	FY12
C05-124	C05-147	11001	638.5				10	VCP	4	3	4	1	18	**$45,090**	$93,860	2007-2008	CIPP	$ 44,090	FY09
C05-125	C05-115	11023	148.2				6	VCP	4	2	4	1	3	**$8,535**	$20,600		CIPP	$ 7,535	FY09
C05-136	C05-145	10051	45.0				8	VCP	2	3	2			**$0**	$6,390	2007-2008	Maintain	$ -	
C05-137	C05-122	10041	112.0				6	VCP	2	3	2			**$0**	$15,568		Maintain	$ -	
C05-138	C05-125	11022	166.0				6	VCP	4	2	4		7	**$10,168**	$23,074	2007-2008	CIPP	$ 10,168	FY09
C05-145	C05-408	9337755	139.0				10	VCP	3	3	3	1		**$8,737**	$20,433		CIPP	$ 7,737	FY11
C05-147	C05-178	11002	446.0				10	VCP	4	3	4	1	15	**$32,950**	$65,562	2007-2008	CIPP	$ 31,950	FY09
C05-148	C05-138	11021	210.0				6	VCP	4	3	4		4	**$10,557**	$29,190	2007-2008	CIPP	$ 10,557	FY09
C05-162	C05-191	11029	445.5				6	VCP	3	3	3		15	**$25,491**	$61,925		CIPP	$ 25,491	FY12
C05-163	C05-179	11027	465.0				6	VCP	5	3	5	3	18	**$30,720**	$64,635		CIPP	$ 27,720	FY08
C05-179	C05-162	11028	199.0				6	VCP	4	2	4	1	3	**$10,629**	$27,661		CIPP	$ 9,629	FY09
C05-194	C05-222	16518	130.0				6	VCP	3	2	3	2	6	**$10,209**	$18,070		CIPP	$ 8,209	FY11
C05-195	C05-196	16515	83.0				6	VCP	2	2	2			**$0**	$11,537		Maintain	$ -	
C05-196	C05-194	16516	153.0				6	VCP	2	2	2		2	**$0**	$21,267	2010-2011	Maintain	$ -	
C05-209	C05-196	16513	217.0				6	VCP	3	1	2		4	**$0**	$30,163		Maintain	$ -	

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C05-214	C05-238	11034	471.6				8	VCP	2	1	1		16	**$0**	$66,967		Maintain	$ -	
C05-219	C05-242	10945	223.0				6	VCP	4	1	3		8	**$12,993**	$30,997		CIPP	$ 12,993	FY11
C05-221	C05-207	16521	157.0				6	VCP	5	3	5	6		**$12,472**	$21,823		CIPP	$ 6,472	FY08
C05-222	C05-221	16520	330.0				6	VCP	3	2	3		7	**$16,929**	$45,870	2010-2011	CIPP	$ 16,929	FY10
C05-223	C05-194	16523	309.0				6	VCP	4	1	3	4	17	**$24,813**	$42,951		CIPP	$ 20,813	FY11
C05-228	C05-249	17078	352.0				6	VCP	4	1	3		19	**$23,536**	$48,928		CIPP	$ 23,536	FY11
C05-229	C05-223	100504	314.0				6	VCP	3	1	2		7	**$0**	$43,646		Maintain	$ -	
C05-230	C05-209	16524	297.0				6	VCP	4	1	3	2	10	**$18,994**	$41,283		CIPP	$ 16,994	FY11
C05-238	C05-247	11019	206.0				10	VCP	2	1	1		1	**$0**	$30,282		Maintain	$ -	
C05-242	C05-241	10946	13.9				6	VCP	1	1	1			**$0**	$1,932	2010-2011	Maintain	$ -	
C05-243	C05-230	16526	369.0				6	VCP	4	1	3		18	**$23,762**	$51,291		CIPP	$ 23,762	FY11
C05-247	C05-253	11020	190.0				10	VCP	3	3	3			**$10,576**	$27,930		CIPP	$ 10,576	FY12
C05-248	C05-260	9300162	316.0				6	VCP	5	3	5	1	18	**$22,577**	$43,924		CIPP	$ 21,577	FY08
C05-249	C05-266	17077	435.0				6	VCP	4	3	4	2	27	**$32,758**	$60,465		CIPP	$ 30,758	FY09
C05-256	C05-253	11041	204.0				6	VCP	4	3	4	2	5	**$12,785**	$28,356		CIPP	$ 10,785	FY09
C05-259	C05-277	16544	427.0				6	VCP	4	1	3	1	14	**$25,253**	$59,353		CIPP	$ 24,253	FY11
C05-260	C05-275	16540	315.0				6	VCP	4	1	3	3	18	**$24,536**	$43,785		CIPP	$ 21,536	FY11
C05-261	C05-229	9300163	459.0				6	VCP	4	1	3		25	**$30,797**	$63,801		CIPP	$ 30,797	FY11
C05-264	C04-234	17082	467.4				10	VCP	5	3	5		17	**$34,091**	$68,708		CIPP	$ 34,091	FY08
C05-266	C05-279	9300165	300.0				6	VCP	4	1	3	2	11	**$19,592**	$41,700	2007-2008	CIPP	$ 17,592	FY11
C05-267	C05-266	16542	414.0		Y	N	6	VCP	3	1	2	3	15	**$3,000**	$57,546		Spot Repair	$ -	FY11
C05-268	C05-267	16543	200.0		Y	N	6	VCP	2	2	2		6	**$0**	$27,800		Maintain	$ -	
C05-273	B05-005	11043	423.0				6	VCP	4	2	4	10	12	**$33,138**	$58,797		CIPP	$ 23,138	FY09
C05-275	C05-278	9338055	109.6				6	VCP	2	2	2		2	**$0**	$15,234	2010-2011	Maintain	$ -	
C05-277	B05-002	16535	283.2				8	VCP	4	3	4	1	9	**$18,865**	$40,214		CIPP	$ 17,865	FY09
C05-278	B05-347	100513	242.0				6	VCP	4	1	3	1	14	**$17,626**	$33,638		CIPP	$ 16,626	FY11
C05-279	C05-278	9300166	331.0				6	VCP	4	1	3		13	**$19,820**	$46,009		CIPP	$ 19,820	FY11
C05-295	C05-010	101263	325.0				6	VCP	3	1	2		6	**$0**	$45,175	2007-2008	Maintain	$ -	
C05-306	C05-055	101208	568.0				6	VCP	4	1	3		23	**$34,341**	$78,952	2007-2008	CIPP	$ 34,341	FY12
C05-307	C05-075	111870	375.0				6	VCP	3	1	2		21	**$0**	$52,125	2007-2008	Maintain	$ -	
C05-309	C05-052	111941	107.0				6	VCP	3	1	2		1	**$0**	$14,873	2007-2008	Maintain	$ -	
C05-311	C05-040	101202	110.0				6	VCP	3	1	2		4	**$0**	$15,290	2007-2008	Maintain	$ -	
C05-312	C05-088	111842	181.2				8	VCP	3	1	2		4	**$0**	$25,730		Maintain	$ -	
C05-315	C05-059	101209	133.4				6	VCP	2	1	1		3	**$0**	$18,543		Maintain	$ -	
C05-316	C05-050	101265	383.7				6	VCP	2	1	1			**$0**	$53,334		Maintain	$ -	
C05-317	C05-068	111843	336.9				6	VCP	4	1	3		13	**$20,064**	$46,829		CIPP	$ 20,064	FY11
C05-318	C05-088	111852	393.0				6	VCP	4	1	3		16	**$23,801**	$54,627		CIPP	$ 23,801	FY12
C05-319	C05-106	101219	281.0				6	VCP	2	1	1		7	**$0**	$39,059		Maintain	$ -	
C05-321	C05-105	9300171	400.0				6	VCP	2	1	1	1	13	**$1,000**	$55,600		Spot Repair	$ -	FY12
C05-322	C05-122	101225	112.8				6	VCP	2	1	1		3	**$0**	$15,679		Maintain	$ -	
C05-323	C05-122	101224	396.2				6	VCP	4	1	3	1	22	**$27,783**	$55,072		CIPP	$ 26,783	FY11
C05-324	C05-046	101206	246.2				6	VCP	4	1	3	1	7	**$14,475**	$34,222	2007-2008	CIPP	$ 13,475	FY11
C05-325	C05-036	101200	137.9				6	VCP	3	1	2		2	**$0**	$19,168	2007-2008	Maintain	$ -	
C05-326	C05-025	101195	95.0				6	VCP	4	1	3	1	6	**$7,766**	$13,205	2007-2008	CIPP	$ 6,766	FY11
C05-328	C05-016	101192	275.9				6	VCP	4	1	3		2	**$12,324**	$38,350	2007-2008	CIPP	$ 12,324	FY12
C05-329	C05-016	101190	242.0				6	VCP	4	1	3	3		**$12,976**	$33,638	2007-2008	CIPP	$ 9,976	FY11
C05-333	C05-041	101205	528.0				6	VCP	3	1	2	2	22	**$2,000**	$73,392	2007-2008	Spot Repair	$ -	FY07
C05-334	C05-028	101198	396.0				6	VCP	4	1	3	1	14	**$23,975**	$55,044	2007-2008	CIPP	$ 22,975	FY11
C05-335	C05-028	111906	266.0				8	VCP	4	1	3	1	7	**$17,090**	$37,772	2007-2008	CIPP	$ 16,090	FY11
C05-336	C05-022	101194	365.0				6	VCP	3	1	2	1	7	**$1,000**	$50,735	2007-2008	Spot Repair	$ -	FY07
C05-337	C05-018	111910	113.8				6	VCP	4	1	3		3	**$6,116**	$15,818	2007-2008	CIPP	$ 6,116	FY12

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C05-340	C05-007	101180	339.3				6	VCP	4	1	3	2	8	**$19,788**	$47,163	2007-2008	CIPP	$ 17,788	FY11
C05-342	C05-019	111922	245.8				6	VCP	4	1	3		6	**$12,983**	$34,166	2007-2008	CIPP	$ 12,983	FY12
C05-344	C05-077	111930	425.5				6	VCP	4	1	3	1	10	**$23,291**	$59,145	2007-2008	CIPP	$ 22,291	FY11
C05-345	C05-057	111932	571.3				6	VCP	4	1	3		16	**$31,152**	$79,411	2007-2008	CIPP	$ 31,152	FY11
C05-346	C05-048	106425	135.0				6	VCP	1	1	1		4	**$0**	$18,765	2007-2008	Maintain	$ -	
C05-347	C05-061	111935	381.0				6	VCP	3	1	2		6	**$0**	$52,959	2007-2008	Maintain	$ -	
C05-348	C05-045	111939	121.0				6	VCP	2	1	1		3	**$0**	$16,819	2007-2008	Maintain	$ -	
C05-350	C05-062	111945	18.0				6	VCP	4	1	3	2	1	**$3,217**	$2,502	2007-2008	Replace	$ 2,502	FY07
C05-352	C05-035	111949	219.0				6	VCP	3	1	2		3	**$0**	$30,441	2007-2008	Maintain	$ -	
C05-353	C05-082	111951	140.0				6	VCP	4	1	3	2	3	**$9,196**	$19,460	2007-2008	CIPP	$ 7,196	FY11
C05-354	C05-072	111953	99.3				6	VCP	3	1	2	1	1	**$1,000**	$13,803	2007-2008	Spot Repair	$ -	FY07
C05-356	C05-261	112060	40.0				6	VCP	1	1	1		3	**$0**	$5,560		Maintain	$ -	
C05-357	C05-115	11024	247.1				6	VCP	4	1	3		9	**$14,462**	$34,347	2007-2008	CIPP	$ 14,462	FY11
C05-358	C05-138	111969	101.0				6	VCP	4	1	3		2	**$5,114**	$14,039	2007-2008	CIPP	$ 5,114	FY12
C05-359	C05-125	111971	202.7				6	VCP	2	1	1		8	**$0**	$28,175	2007-2008	Maintain	$ -	
C05-360	C05-148	111973	94.8				6	VCP	3	1	2		3	**$0**	$13,177	2007-2008	Maintain	$ -	
C05-361	C05-148	111975	151.4				6	VCP	3	1	2		4	**$0**	$21,045	2007-2008	Maintain	$ -	
C05-369	C05-162	111992	458.0				6	VCP	3	3	3		6	**$21,731**	$63,662		CIPP	$ 21,731	FY12
C05-370	C05-179	106426	310.0				6	VCP	4	3	4	2		**$14,780**	$43,090		CIPP	$ 12,780	FY09
C05-371	C05-372	112025	329.3				8	VCP	1	3	1		12	**$0**	$46,761		Maintain	$ -	
C05-372	C05-214	112027	91.0				8	VCP	2	3	2		4	**$0**	$12,922		Maintain	$ -	
C05-376	C05-273	112035	322.0				6	VCP	4	3	4	1	7	**$17,599**	$44,758		CIPP	$ 16,599	FY09
C05-379	C05-273	112047	332.0				4	VCP	2	3	2	2	1	**$2,000**	$42,496		Spot Repair	$ -	FY12
C05-380	C05-264	112049	198.6				6	VCP	5	3	5		6	**$11,037**	$27,605		CIPP	$ 11,037	FY08
C05-381	C05-247	112051	192.0				6	VCP	4	3	4	1	5	**$11,290**	$26,688		CIPP	$ 10,290	FY09
C05-384	C05-221	112057	336.0				6	VCP	5	3	5	3	16	**$24,452**	$46,704	2010-2011	CIPP	$ 21,452	FY08
C05-386	C05-243	112076	513.0				6	VCP	3	3	3	2	13	**$29,323**	$71,307		CIPP	$ 27,323	FY11
C05-388	C05-268	112085	124.8				6	VCP	4	3	4		3	**$6,570**	$17,347		CIPP	$ 6,570	FY09
C05-389	C05-163	118652	60.4				6	VCP	3	3	3	2	1	**$4,965**	$8,396		Replace	$ 8,396	FY11
C05-390	C05-040	118654	457.4				6	VCP	3	3	3		8	**$22,656**	$63,579	2007-2008	CIPP	$ 22,656	FY12
C05-396	C05-219	118648	228.9				6	VCP	2	3	2		5	**$0**	$31,817	2010-2011	Maintain	$ -	
C05-399	C05-247	9337742	347.1				6	VCP	5	3	5	3	14	**$23,959**	$48,247		CIPP	$ 20,959	FY08
C05-401	C05-113	9326532	221.0				6	VCP	2	3	2	1	1	**$1,000**	$30,719	2007-2008	Spot Repair	$ -	FY07
C05-402	C05-069	9326588	472.0				6	VCP	4	1	3		16	**$27,058**	$65,608	2007-2008	CIPP	$ 27,058	FY11
C05-409	C05-253	9337744	59.4				15	VCP	1	3	1			**$0**	$9,504		Maintain	$ -	
C06-011	C05-049	10132	177.2				6	VCP	1	3	1		5	**$0**	$24,631	2007-2008	Maintain	$ -	
D05-100	D05-101	10066	268.8				6	VCP	3	3	3		1	**$11,556**	$37,363		CIPP	$ 11,556	FY11
D05-101	D05-259	9406076	33.6				6	VCP	3	3	3			**$1,385**	$4,670		Replace	$ 4,670	FY11

Pipelines noted for Replacement and highlighted in yellow lie within potentially contaminated soils and will be assessed once soils information has been gained.

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CITY OF ROSEVILLE
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PIPELINE CONDITION ASSESSMENT TABLE (FY07)

UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
B04-007	B04-006	14850	156.0				12	VCP	3	4	4			**$15,386**	$23,556	2007-2008	PB	$ 15,386	FY07
B06-020	B06-030	15673	241.0		Y	Y	8	VCP	1	2	1			**$0**	$34,222	2007-2008	Replace	$ 34,222	FY07
B06-030	B06-056	15674	296.0		Y	Y	6	VCP	1	2	1			**$0**	$41,144	2007-2008	Replace	$ 41,144	FY07
B06-060	B05-056	14391	179.5		Y	Y	6	VCP	2	1	1		2	**$0**	$24,951	2007-2008	Replace	$ 24,951	FY07
C04-025	C04-281	112134	65.0				6	VCP	4	3	4	1	3	**$5,105**	$9,035	2007-2008	Replace	$ 9,035	FY07
C04-099	C04-100	9375	293.0		Y	Y	8	VCP	1	1	1		4	**$0**	$41,606	2007-2008	Replace	$ 41,606	FY07
C04-100	C04-101	9376	252.0		Y	Y	8	VCP	2	2	2		3	**$0**	$35,784	2007-2008	Replace	$ 35,784	FY07
C04-101	C04-110	9377	36.0		Y	Y	8	VCP	1	3	1			**$0**	$5,112	2007-2008	Replace	$ 5,112	FY07
C04-110	C04-111	9378	151.8		Y	Y	8	VCP	4	2	4	1	1	**$0**	$21,556	2007-2008	Replace	$ 21,556	FY07
C04-115	C04-126	9380	163.1		Y	Y	8	VCP	3	1	2			**$0**	$23,160	2007-2008	Replace	$ 23,160	FY07
C04-126	C04-136	9381	164.0		Y	Y	8	VCP	2	2	2		2	**$0**	$23,288	2007-2008	Replace	$ 23,288	FY07
C04-136	C04-155	9382	306.0		Y	Y	10	VCP	3	1	2		5	**$0**	$44,982	2007-2008	Replace	$ 44,982	FY07
C04-170	C04-169	10014	267.0	Y			10	VCP	2	3	2	1	1	**$1,000**	$39,249	2007-2008	Spot Repair	$ -	FY07
C04-179	C04-203	9384	620.0		Y	Y	10	VCP	4	1	3		10	**$0**	$91,140	2007-2008	Replace	$ 91,140	FY07
C04-188	C04-220	16500	692.0	Y	Y	Y	6	VCP	4	1	3		33	**$0**	$96,188	2007-2008	Replace	$ 96,188	FY07
C04-203	C04-204	16474	149.0		Y	Y	10	VCP	3	1	2		1	**$0**	$21,903	2007-2008	Replace	$ 21,903	FY07
C04-204	C04-226	16475	310.2		Y	Y	10	VCP	4	1	3		10	**$0**	$45,599	2007-2008	Replace	$ 45,599	FY07
C04-206	C04-222	9338034	299.0	Y			6	VCP	3	1	2	1	6	**$1,000**	$41,561	2007-2008	Spot Repair	$ -	FY07
C04-223	C04-229	16502	380.0	Y	Y	Y	6	VCP	3	3	3	1	11	**$0**	$52,820	2007-2008	Replace	$ 52,820	FY07
C04-226	C04-230	16476	357.0		Y	Y	10	VCP	4	4	5		13	**$0**	$52,479	2007-2008	Replace	$ 52,479	FY07
C04-230	B04-006	16480	301.0		Y	Y	10	VCP	4	5	5		2	**$0**	$44,247	2007-2008	Replace	$ 44,247	FY07
C04-262	C04-143	101273	514.6	Y			6	VCP	3	1	2	1	9	**$1,000**	$71,529	2007-2008	Spot Repair	$ -	FY07
C04-275	C04-227	101261	261.0				6	VCP	3	1	2	1	2	**$1,000**	$36,279	2007-2008	Spot Repair	$ -	FY07
C04-276	C04-138	101279	257.0	Y			6	VCP	3	1	2	1	5	**$1,000**	$35,723	2007-2008	Spot Repair	$ -	FY07
C04-285	C04-157	101266	439.7	Y			6	VCP	3	1	2	1	15	**$1,000**	$61,118	2007-2008	Spot Repair	$ -	FY07
C04-290	C04-232	9300152	300.0				6	VCP	1	1	1	1	2	**$1,000**	$41,700	2007-2008	Spot Repair	$ -	FY07
C05-006	C05-013	10074	188.0		Y	Y	6	VCP	4	2	4	5	3	**$0**	$26,132	2007-2008	Replace	$ 26,132	FY07
C05-013	C05-021	10075	274.0		Y	Y	6	VCP	4	3	4		2	**$0**	$38,086	2007-2008	Replace	$ 38,086	FY07
C05-016	C05-017	10086	617.0		Y	Y	6	VCP	4	1	3		16	**$0**	$85,763	2007-2008	Replace	$ 85,763	FY07
C05-017	C05-020	10087	184.0		Y	Y	6	VCP	4	2	4	4	2	**$0**	$25,576	2007-2008	Replace	$ 25,576	FY07
C05-020	C05-028	10100	193.0		Y	Y	8	VCP	4	2	4	1	2	**$0**	$27,406	2007-2008	Replace	$ 27,406	FY07
C05-028	C05-041	10101	379.2		Y	Y	8	VCP	4	2	4	2	4	**$0**	$53,846	2007-2008	Replace	$ 53,846	FY07
C05-065	C05-070	10178	200.9		Y	Y	6	VCP	4	3	4	1	1	**$0**	$27,925	2007-2008	Replace	$ 27,925	FY07
C05-069	C05-076	10104	190.0				10	VCP	3	4	4		2	**$18,220**	$27,930	2007-2008	PB	$ 18,220	FY07
C05-070	C05-091	10180	448.6				6	VCP	5	4	5	4	19	**$46,329**	$62,355	2007-2008	PB	$ 46,329	FY07
C05-076	C05-090	10982	423.0				10	VCP	4	4	5		3	**$39,111**	$62,181	2007-2008	PB	$ 39,111	FY07
C05-091	C05-100	10994	477.0				6	VCP	4	4	5	1	12	**$41,059**	$66,303	2007-2008	PB	$ 41,059	FY07
C05-333	C05-041	101205	528.0				6	VCP	3	1	2	2	22	**$2,000**	$73,392	2007-2008	Spot Repair	$ -	FY07
C05-336	C05-022	101194	365.0				6	VCP	3	1	2	1	7	**$1,000**	$50,735	2007-2008	Spot Repair	$ -	FY07
C05-350	C05-062	111945	18.0				6	VCP	4	1	3	2	1	**$3,217**	$2,502	2007-2008	Replace	$ 2,502	FY07
C05-354	C05-072	111953	99.3				6	VCP	3	1	2	1	1	**$1,000**	$13,803	2007-2008	Spot Repair	$ -	FY07
C05-401	C05-113	9326532	221.0				6	VCP	2	3	2	1	1	**$1,000**	$30,719	2007-2008	Spot Repair	$ -	FY07

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CITY OF ROSEVILLE
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PIPELINE CONDITION ASSESSMENT TABLE (FY08)

UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
A04-039	A04-026	15101	270.5		Y	Y	8	VCP	2	4	3			**$0**	$38,411	2010-2011	Replace	$ 38,411	FY08
A06-018	A06-013	13753	208.6				6	VCP	3	4	4		2	**$9,550**	$28,995		CIPP	$ 9,550	FY08
B03-030	B03-029	15358	447.0				21	VCP	5	1	5	4	1	**$53,989**	$93,870		CIPP	$ 49,989	FY08
B04-026	B04-043	14782	713.0		Y	Y	12	VCP	4	4	5		24	**$0**	$107,663	2010-2011	Replace	$ 107,663	FY08
B04-027	B04-026	14781	196.5				12	VCP	2	4	3		2	**$21,381**	$29,672	2010-2011	PB	$ 21,381	FY08
B04-041	B04-040	14803	482.0				12	VCP	4	4	5		6	**$53,539**	$72,782	2010-2011	PB	$ 53,539	FY08
B04-042	B04-041	14801	346.0				12	VCP	3	4	4		4	**$38,126**	$52,246	2010-2011	PB	$ 38,126	FY08
B04-043	B04-042	14800	389.0				12	VCP	4	5	5	1	7	**$45,367**	$58,739	2010-2011	PB	$ 45,367	FY08
B04-046	B04-035	14783	379.2				6	VCP	5	2	5	2	12	**$23,332**	$52,709	2010-2011	CIPP	$ 21,332	FY08
B04-062	B04-061	14841	359.0		Y	Y	6	VCP	1	4	2		2	**$0**	$49,901	2010-2011	Replace	$ 49,901	FY08
B04-257	B04-064	9304796	310.0				6	VCP	5	2	5		5	**$15,155**	$43,090	2010-2011	CIPP	$ 15,155	FY08
B04-273	B04-230	9304795	508.0				6	VCP	5	2	5	2	15	**$30,067**	$70,612	2010-2011	CIPP	$ 28,067	FY08
B05-046	B05-074	14596	657.0				6	VCP	5	1	5	2	29	**$42,860**	$91,323	2010-2011	CIPP	$ 40,860	FY08
B05-386	B05-046	9299957	576.0				6	VCP	5	1	5		17	**$31,821**	$80,064	2010-2011	CIPP	$ 31,821	FY08
C04-055	C05-059	9572	422.9				6	VCP	5	1	5		13	**$23,609**	$58,783		CIPP	$ 23,609	FY08
C04-084	C04-083	9551	458.0				6	VCP	5	1	5	2	11	**$26,106**	$63,662		CIPP	$ 24,106	FY08
C04-085	C04-084	9550	565.0				6	VCP	5	1	5	5	20	**$37,792**	$78,535		CIPP	$ 32,792	FY08
C04-092	C04-093	16450	460.0				6	VCP	5	1	5	2	13	**$27,138**	$63,940		CIPP	$ 25,138	FY08
C04-094	C04-093	9554	459.0				6	VCP	5	2	5		13	**$25,097**	$63,801		CIPP	$ 25,097	FY08
C04-096	C04-097	9584	697.0				6	VCP	5	1	5	2	30	**$44,984**	$96,883		CIPP	$ 42,984	FY08
C04-118	C04-130	10005	456.0				6	VCP	5	2	5	1	14	**$26,449**	$63,384	2007-2008	CIPP	$ 25,449	FY08
C04-128	C04-144	10022	490.0	Y			6	VCP	5	2	5	1	19	**$30,225**	$68,110	2007-2008	CIPP	$ 29,225	FY08
C04-144	C04-159	10024	375.0	Y			6	VCP	5	2	5		12	**$21,159**	$52,125	2007-2008	CIPP	$ 21,159	FY08
C04-167	C04-181	16464	475.0	Y			6	VCP	5	1	5	1	20	**$30,082**	$66,025	2007-2008	CIPP	$ 29,082	FY08
C05-008	C05-009	10063	349.0				6	VCP	5	1	5	3	8	**$21,187**	$48,511	2007-2008	CIPP	$ 18,187	FY08
C05-009	C05-018	10070	494.0				6	VCP	5	2	5	2	15	**$29,490**	$68,666	2007-2008	CIPP	$ 27,490	FY08
C05-019	C05-030	10059	463.0				6	VCP	5	3	5		19	**$28,112**	$64,357	2007-2008	CIPP	$ 28,112	FY08
C05-035	C05-048	10173	509.0				6	VCP	5	1	5	1	19	**$31,008**	$70,751	2007-2008	CIPP	$ 30,008	FY08
C05-048	C05-034	10174	304.6				6	VCP	5	2	5	2	10	**$19,307**	$42,339	2007-2008	CIPP	$ 17,307	FY08
C05-055	C05-069	10103	386.0				10	VCP	5	2	5		1	**$21,960**	$56,742	2007-2008	CIPP	$ 21,960	FY08
C05-163	C05-179	11027	465.0				6	VCP	5	3	5	3	18	**$30,720**	$64,635		CIPP	$ 27,720	FY08
C05-221	C05-207	16521	157.0				6	VCP	5	3	5	6		**$12,472**	$21,823		CIPP	$ 6,472	FY08
C05-248	C05-260	9300162	316.0				6	VCP	5	3	5	1	18	**$22,577**	$43,924		CIPP	$ 21,577	FY08
C05-264	C04-234	17082	467.4				10	VCP	5	3	5		17	**$34,091**	$68,708		CIPP	$ 34,091	FY08
C05-380	C05-264	112049	198.6				6	VCP	5	3	5		6	**$11,037**	$27,605		CIPP	$ 11,037	FY08
C05-384	C05-221	112057	336.0				6	VCP	5	3	5	3	16	**$24,452**	$46,704	2010-2011	CIPP	$ 21,452	FY08
C05-399	C05-247	9337742	347.1				6	VCP	5	3	5	3	14	**$23,959**	$48,247		CIPP	$ 20,959	FY08

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PIPELINE CONDITION ASSESSMENT TABLE (FY09)

UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
A06-048	A06-039	13739	192.9				6	VCP	4	3	4	1	1	**$9,427**	$26,813		CIPP	$ 8,427	FY09
B04-010	B04-016	14761	655.6				10	VCP	4	2	4		24	**$47,892**	$96,373	2010-2011	CIPP	$ 47,892	FY09
B04-011	B04-010	11050	275.0				8	VCP	4	2	4		1	**$13,672**	$39,050		CIPP	$ 13,672	FY09
B04-016	B04-023	14762	659.0				10	VCP	4	2	4	2	30	**$52,931**	$96,873	2010-2011	CIPP	$ 50,931	FY09
B04-025	B04-042	14798	647.0				6	VCP	4	3	4	3	28	**$42,973**	$89,933	2010-2011	CIPP	$ 39,973	FY09
B04-036	B04-031	14769	325.0				6	VCP	4	2	4	1	12	**$20,098**	$45,175	2010-2011	CIPP	$ 19,098	FY09
B04-045	B04-044	14793	212.9				6	VCP	4	2	4		8	**$12,577**	$29,593	2010-2011	CIPP	$ 12,577	FY09
B04-055	B04-054	14815	354.0		Y	Y	6	VCP	4	2	4	1	8	**$0**	$49,206	2010-2011	Replace	$ 49,206	FY09
B04-063	B04-273	9337984	56.4				6	VCP	4	3	4		2	**$3,275**	$7,840	2010-2011	Replace	$ 7,840	FY09
B04-232	B04-025	9304785	103.0				6	VCP	4	2	4		5	**$6,621**	$14,317	2010-2011	CIPP	$ 6,621	FY09
B04-233	B04-028	9304773	475.0				6	VCP	4	2	4	1	1	**$21,057**	$66,025	2010-2011	CIPP	$ 20,057	FY09
B04-260	B04-041	9304787	400.0				6	VCP	4	2	4	1		**$17,490**	$55,600	2010-2011	CIPP	$ 16,490	FY09
B04-261	B04-027	9337992	200.0				6	VCP	4	2	4	2	4	**$12,145**	$27,800	2010-2011	CIPP	$ 10,145	FY09
B04-262	B04-035	9337995	438.0				6	VCP	4	2	4	4	21	**$32,032**	$60,882	2010-2011	CIPP	$ 28,032	FY09
B05-005	B04-011	11049	283.8				6	VCP	4	2	4		1	**$12,175**	$39,448		CIPP	$ 12,175	FY09
B05-006	B05-005	11047	200.0				6	VCP	4	2	4	1	1	**$9,720**	$27,800		CIPP	$ 8,720	FY09
B05-035	B05-048	14584	249.4				8	VCP	4	3	4		5	**$14,343**	$35,415	2010-2011	CIPP	$ 14,343	FY09
B05-048	B05-057	14585	314.0				8	VCP	4	3	4		7	**$18,394**	$44,588	2010-2011	CIPP	$ 18,394	FY09
B05-112	B05-086	14590	377.2				6	VCP	4	3	4		3	**$16,975**	$52,431	2010-2011	CIPP	$ 16,975	FY09
B05-116	B05-112	14588	261.4				6	VCP	4	3	4		2	**$11,726**	$36,335	2010-2011	CIPP	$ 11,726	FY09
C04-010	C04-011	10105	234.9		Y	N	6	VCP	4	3	4		6	**$12,534**	$32,651	2007-2008	CIPP	$ 12,534	FY09
C04-059	C04-069	9534	180.1				6	VCP	4	2	4		2	**$8,375**	$25,034		CIPP	$ 8,375	FY09
C04-060	C04-070	9543	186.0				6	VCP	4	2	4		2	**$8,618**	$25,854		CIPP	$ 8,618	FY09
C04-070	C04-082	9544	360.0				6	VCP	4	2	4		3	**$16,266**	$50,040		CIPP	$ 16,266	FY09
C04-071	C04-070	9548	395.0				6	VCP	4	2	4		11	**$21,509**	$54,905		CIPP	$ 21,509	FY09
C04-091	C04-090	16449	267.0				6	VCP	4	2	4	4	11	**$20,232**	$37,113		CIPP	$ 16,232	FY09
C04-102	C04-110	9541	418.0				8	VCP	4	2	4		7	**$23,384**	$59,356	2007-2008	CIPP	$ 23,384	FY09
C04-105	C04-104	9557	373.0				6	VCP	4	2	4	3	7	**$21,702**	$51,847	2007-2008	CIPP	$ 18,702	FY09
C04-112	C04-119	9997	181.4				6	VCP	4	3	4	1	1	**$8,953**	$25,215	2007-2008	CIPP	$ 7,953	FY09
C04-119	C05-120	9999	216.0				6	VCP	4	3	4	1	5	**$12,280**	$30,024	2007-2008	CIPP	$ 11,280	FY09
C04-129	C04-130	10006	285.0	Y			6	VCP	4	2	4		6	**$14,599**	$39,615	2007-2008	CIPP	$ 14,599	FY09
C04-159	C04-183	10025	308.0				6	VCP	4	2	4		8	**$16,497**	$42,812	2007-2008	CIPP	$ 16,497	FY09
C04-160	C04-170	10012	102.0	Y			10	VCP	4	2	4		1	**$6,152**	$14,994	2007-2008	CIPP	$ 6,152	FY09
C04-181	C04-182	16463	301.0	Y			6	VCP	4	2	4	2	3	**$15,834**	$41,839	2007-2008	CIPP	$ 13,834	FY09
C04-218	C04-204	16483	155.0				6	VCP	4	2	4	2	2	**$9,340**	$21,545	2007-2008	CIPP	$ 7,340	FY09
C04-229	C04-233	16499	316.0	Y			12	VCP	4	2	4		4	**$22,170**	$47,716	2007-2008	CIPP	$ 22,170	FY09
C05-018	C05-029	10071	465.0				6	VCP	4	3	4	3	4	**$24,070**	$64,635	2007-2008	CIPP	$ 21,070	FY09
C05-022	C05-029	10072	192.0				6	VCP	4	2	4		2	**$8,865**	$26,688	2007-2008	CIPP	$ 8,865	FY09
C05-029	C05-041	10073	479.0				6	VCP	4	3	4		13	**$25,922**	$66,581	2007-2008	CIPP	$ 25,922	FY09
C05-030	C05-042	10060	465.0				6	VCP	4	3	4	1	16	**$27,770**	$64,635	2007-2008	CIPP	$ 26,770	FY09
C05-040	C05-031	10079	264.0				6	VCP	4	2	4		1	**$11,358**	$36,696	2007-2008	CIPP	$ 11,358	FY09
C05-041	C05-055	10102	420.0				10	VCP	4	2	4		5	**$25,753**	$61,740	2007-2008	CIPP	$ 25,753	FY09
C05-042	C05-055	10061	473.0				6	VCP	4	2	4	2	16	**$29,099**	$65,747	2007-2008	CIPP	$ 27,099	FY09
C05-052	C05-061	10167	480.0				6	VCP	4	2	4		17	**$27,863**	$66,720	2007-2008	CIPP	$ 27,863	FY09
C05-054	C05-307	10054	500.0				6	VCP	4	2	4	1	14	**$28,262**	$69,500	2007-2008	CIPP	$ 27,262	FY09

RS = Included in Riverside Specific Plan
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PB = Pipe bursting

UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
C05-061	C05-057	10168	185.0				6	VCP	4	2	4	2	1	**$10,102**	$25,715		CIPP	$ 8,102	FY09
C05-062	C05-072	10165	280.0				6	VCP	4	2	4		5	**$13,918**	$38,920	2007-2008	CIPP	$ 13,918	FY09
C05-073	C05-066	10163	102.0				6	VCP	4	3	4		5	**$6,580**	$14,178	2007-2008	CIPP	$ 6,580	FY09
C05-082	C05-073	10162	178.0				6	VCP	4	3	4		3	**$8,763**	$24,742	2007-2008	CIPP	$ 8,763	FY09
C05-083	C05-093	10056	199.0				6	VCP	4	3	4	1	1	**$9,679**	$27,661	2007-2008	CIPP	$ 8,679	FY09
C05-106	C05-121	10038	250.0				6	VCP	4	2	4	1	4	**$13,206**	$34,750		CIPP	$ 12,206	FY09
C05-114	C05-107	11026	191.0				6	VCP	4	2	4	1	2	**$9,824**	$26,549	2007-2008	CIPP	$ 8,824	FY09
C05-124	C05-147	11001	638.5				10	VCP	4	3	4	1	18	**$45,090**	$93,860	2007-2008	CIPP	$ 44,090	FY09
C05-125	C05-115	11023	148.2				6	VCP	4	2	4	1	3	**$8,535**	$20,600		CIPP	$ 7,535	FY09
C05-138	C05-125	11022	166.0				6	VCP	4	2	4		7	**$10,168**	$23,074	2007-2008	CIPP	$ 10,168	FY09
C05-147	C05-178	11002	446.0				10	VCP	4	3	4	1	15	**$32,950**	$65,562	2007-2008	CIPP	$ 31,950	FY09
C05-148	C05-138	11021	210.0				6	VCP	4	3	4		4	**$10,557**	$29,190	2007-2008	CIPP	$ 10,557	FY09
C05-179	C05-162	11028	199.0				6	VCP	4	2	4	1	3	**$10,629**	$27,661		CIPP	$ 9,629	FY09
C05-249	C05-266	17077	435.0				6	VCP	4	3	4	2	27	**$32,758**	$60,465		CIPP	$ 30,758	FY09
C05-256	C05-253	11041	204.0				6	VCP	4	3	4	2	5	**$12,785**	$28,356		CIPP	$ 10,785	FY09
C05-273	B05-005	11043	423.0				6	VCP	4	2	4	10	12	**$33,138**	$58,797		CIPP	$ 23,138	FY09
C05-277	B05-002	16535	283.2				8	VCP	4	3	4	1	9	**$18,865**	$40,214		CIPP	$ 17,865	FY09
C05-370	C05-179	106426	310.0				6	VCP	4	3	4	2		**$14,780**	$43,090		CIPP	$ 12,780	FY09
C05-376	C05-273	112035	322.0				6	VCP	4	3	4	1	7	**$17,599**	$44,758		CIPP	$ 16,599	FY09
C05-381	C05-247	112051	192.0				6	VCP	4	3	4	1	5	**$11,290**	$26,688		CIPP	$ 10,290	FY09
C05-388	C05-268	112085	124.8				6	VCP	4	3	4		3	**$6,570**	$17,347		CIPP	$ 6,570	FY09

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PIPELINE CONDITION ASSESSMENT TABLE (FY10)

UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
A04-074	A04-081	15106	179.0		Y	Y	6	VCP	1	1	1		2	**$0**	$24,881	2010-2011	Replace	$ 24,881	FY10
A04-081	A04-093	15108	250.0		Y	Y	6	VCP	2	2	2		3	**$0**	$34,750	2010-2011	Replace	$ 34,750	FY10
A04-088	A04-089	15182	342.0		Y	Y	6	VCP	1	1	1		8	**$0**	$47,538	2010-2011	Replace	$ 47,538	FY10
A04-089	A04-099	15183	261.0		Y	Y	6	VCP	2	1	1			**$0**	$36,279	2010-2011	Replace	$ 36,279	FY10
A04-097	A04-098	15179	157.0		Y	Y	6	VCP	1	1	1		6	**$0**	$21,823	2010-2011	Replace	$ 21,823	FY10
A04-098	A04-099	15180	265.0		Y	Y	6	VCP	1	1	1		6	**$0**	$36,835	2010-2011	Replace	$ 36,835	FY10
A04-118	A04-119	15148	230.0		Y	Y	6	VCP	1	1	1		4	**$0**	$31,970	2010-2011	Replace	$ 31,970	FY10
A05-033	A05-034	13852	45.0		Y	Y	8	VCP	1	1	1			**$0**	$6,390	2010-2011	Replace	$ 6,390	FY10
A05-044	A05-033	13851	144.5		Y	Y	8	VCP	1	2	1			**$0**	$20,519	2010-2011	Replace	$ 20,519	FY10
A05-074	A05-075	13837	130.0		Y	Y	6	DIP	1	1	1		2	**$0**	$18,070	2010-2011	Replace	$ 18,070	FY10
A06-226	A06-250	13656	366.0		Y	Y	6	VCP	1	1	1		7	**$0**	$50,874	2010-2011	Replace	$ 50,874	FY10
A07-003	A07-002	12674	349.0		Y	Y	6	VCP	1	3	1		4	**$0**	$48,511	2010-2011	Replace	$ 48,511	FY10
A07-061	A07-067	12642	91.9		Y	Y	6	VCP	2	3	2			**$0**	$12,774	2010-2011	Replace	$ 12,774	FY10
A07-082	A07-072	12508	145.0		Y	Y	6	VCP	1	2	1		2	**$0**	$20,155	2010-2011	Replace	$ 20,155	FY10
B04-017	B04-027	14780	459.0				6	VCP	4	1	3	1	19	**$28,947**	$63,801	2010-2011	CIPP	$ 27,947	FY10
B04-022	B04-021	14767	368.8				12	VCP	3	3	3		1	**$24,132**	$55,689	2010-2011	CIPP	$ 24,132	FY10
B04-040	B04-047	14805	425.0				12	VCP	3	3	3		1	**$27,737**	$64,175	2010-2011	CIPP	$ 27,737	FY10
B04-048	B04-064	14838	294.3				6	VCP	3	2	3		4	**$14,032**	$40,908	2010-2011	CIPP	$ 14,032	FY10
B04-050	B04-045	14790	409.1				6	VCP	4	1	3	2	9	**$23,140**	$56,865	2010-2011	CIPP	$ 21,140	FY10
B04-064	B04-063	14839	54.7		Y	Y	6	VCP	2	2	2		1	**$0**	$7,603	2010-2011	Replace	$ 7,603	FY10
B04-065	B04-257	111558	89.0				6	VCP	3	2	3		3	**$5,094**	$12,371	2010-2011	CIPP	$ 5,094	FY10
B04-066	B04-065	14828	257.0		Y	Y	6	VCP	3	2	3	1	6	**$0**	$35,723	2010-2011	Replace	$ 35,723	FY10
B04-067	B04-066	14825	262.0		Y	Y	6	VCP	3	1	2		3	**$0**	$36,418	2010-2011	Replace	$ 36,418	FY10
B04-068	B04-067	14820	240.0		Y	Y	6	VCP	3	2	3		5	**$0**	$33,360	2010-2011	Replace	$ 33,360	FY10
B04-069	B04-068	14819	156.0		Y	Y	6	VCP	3	1	2		1	**$0**	$21,684	2010-2011	Replace	$ 21,684	FY10
B04-230	B04-062	16998	138.9		Y	Y	6	VCP	3	3	3		3	**$0**	$19,307	2010-2011	Replace	$ 19,307	FY10
B04-234	B04-067	9304784	120.0				6	VCP	4	1	3	3	2	**$8,897**	$16,680	2010-2011	CIPP	$ 5,897	FY10
B04-259	B04-017	9304770	342.0				6	VCP	3	2	3		14	**$20,749**	$47,538	2010-2011	CIPP	$ 20,749	FY10
B04-272	B04-068	9304783	373.0				6	VCP	4	1	3	2	6	**$20,227**	$51,847	2010-2011	CIPP	$ 18,227	FY10
B05-047	B05-006	14597	653.7				6	VCP	4	1	3	2	28	**$42,249**	$90,864	2010-2011	CIPP	$ 40,249	FY10
B05-057	B05-426	14586	293.0				8	VCP	3	3	3		3	**$15,486**	$41,606	2010-2011	CIPP	$ 15,486	FY10
B05-086	B05-077	14591	247.0				6	VCP	4	1	3	1	4	**$13,083**	$34,333	2010-2011	CIPP	$ 12,083	FY10
B05-149	B05-150	14348	215.0		Y	Y	6	VCP	1	1	1		3	**$0**	$29,885	2010-2011	Replace	$ 29,885	FY10
B05-269	B05-254	14453	98.0		Y	Y	10	VCP	1	1	1			**$0**	$14,406	2010-2011	Replace	$ 14,406	FY10
B05-276	B05-275	14106	501.9		Y	Y	6	VCP	1	2	1	1		**$0**	$69,764	2010-2011	Replace	$ 69,764	FY10
B05-391	B05-047	9299965	448.0				6	VCP	4	1	3	3	16	**$29,069**	$62,272	2010-2011	CIPP	$ 26,069	FY10
B05-392	B05-076	9299967	130.0				6	VCP	4	1	3		1	**$5,834**	$18,070	2010-2011	CIPP	$ 5,834	FY10
C05-222	C05-221	16520	330.0				6	VCP	3	2	3		7	**$16,929**	$45,870	2010-2011	CIPP	$ 16,929	FY10

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PIPELINE CONDITION ASSESSMENT TABLE (FY11)

UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
A05-016	A05-017	13905	83.0				12	VCP	3	3	3			**$5,324**	$12,533		CIPP	$ 5,324	FY11
B03-027	B03-034	15361	187.0				21	VCP	4	1	3	5		**$25,714**	$39,270		CIPP	$ 20,714	FY11
B03-028	B03-027	15360	812.9				21	VCP	4	1	3	3	8	**$96,845**	$170,709		CIPP	$ 93,845	FY11
B03-034	B03-037	15362	165.0				21	ZZZ	3	1	2	4	1	**$4,000**	$34,650		Spot Repair	$ -	FY11
B04-008	B04-007	14849	610.9				12	VCP	3	2	3		3	**$40,611**	$92,246	2007-2008	CIPP	$ 40,611	FY11
B04-009	B04-010	11052	140.0				6	VCP	4	1	3	1	1	**$7,246**	$19,460		CIPP	$ 6,246	FY11
B04-338	B04-009	9337997	201.0				6	VCP	3	1	2	2	2	**$2,000**	$27,939		Spot Repair	$ -	FY11
B05-003	C05-267	16208	496.0				6	VCP	4	1	3		9	**$24,723**	$68,944		CIPP	$ 24,723	FY11
B05-383	C05-268	112090	503.7				6	VCP	4	1	3	2	28	**$36,065**	$70,014		CIPP	$ 34,065	FY11
C04-061	C04-060	9542	420.0				6	VCP	4	1	3	2	13	**$25,489**	$58,380		CIPP	$ 23,489	FY11
C04-062	C04-319	9573	175.6				6	VCP	3	2	3			**$7,239**	$24,408		CIPP	$ 7,239	FY11
C04-073	C04-074	9577	530.0				6	VCP	4	1	3	2	23	**$34,774**	$73,670		CIPP	$ 32,774	FY11
C04-075	C05-068	9580	430.0				6	VCP	4	1	3		16	**$25,327**	$59,770		CIPP	$ 25,327	FY11
C04-081	C04-080	9537	405.0				8	VCP	4	1	3		3	**$20,861**	$57,510		CIPP	$ 20,861	FY11
C04-083	C04-082	9552	459.0				6	VCP	4	1	3	1	15	**$27,047**	$63,801		CIPP	$ 26,047	FY11
C04-086	C05-088	9582	307.4				6	VCP	4	1	3	1	8	**$17,473**	$42,729		CIPP	$ 16,473	FY11
C04-095	C04-094	9553	458.0				6	VCP	4	1	3		13	**$25,056**	$63,662		CIPP	$ 25,056	FY11
C04-097	C05-105	9585	319.0				6	VCP	4	1	3	1	5	**$16,526**	$44,341		CIPP	$ 15,526	FY11
C04-111	C04-115	9379	174.0				8	VCP	4	1	3		2	**$9,300**	$24,708	2007-2008	CIPP	$ 9,300	FY11
C04-116	C04-115	16452	402.0				6	VCP	4	1	3	3	12	**$25,272**	$55,878	2007-2008	CIPP	$ 22,272	FY11
C04-130	C04-146	10007	315.0	Y			6	VCP	3	2	3		8	**$16,786**	$43,785	2007-2008	CIPP	$ 16,786	FY11
C04-137	C04-136	16454	362.0				6	VCP	4	1	3	1	11	**$21,148**	$50,318	2007-2008	CIPP	$ 20,148	FY11
C04-138	C04-143	16455	307.0	Y			6	VCP	4	1	3		4	**$14,556**	$42,673	2007-2008	CIPP	$ 14,556	FY11
C04-180	C04-186	16465	325.0	Y			6	VCP	4	1	3	1	7	**$17,723**	$45,175	2007-2008	CIPP	$ 16,723	FY11
C04-186	C04-187	16466	290.9	Y			6	VCP	4	1	3	3	8	**$18,792**	$40,435	2007-2008	CIPP	$ 15,792	FY11
C04-187	C04-207	16467	445.0	Y			6	VCP	4	1	3	2	15	**$27,470**	$61,855	2007-2008	CIPP	$ 25,470	FY11
C04-196	C04-207	16468	317.0	Y			6	VCP	4	1	3		5	**$15,443**	$44,063	2007-2008	CIPP	$ 15,443	FY11
C04-257	C04-138	101278	355.0				6	VCP	4	1	3	2	11	**$21,860**	$49,345	2007-2008	CIPP	$ 19,860	FY11
C04-259	C04-106	112122	353.0				6	VCP	4	1	3		9	**$18,827**	$49,067	2007-2008	CIPP	$ 18,827	FY11
C04-268	C04-196	112117	521.0	Y			6	VCP	4	1	3	1	20	**$31,978**	$72,419	2007-2008	CIPP	$ 30,978	FY11
C04-272	C04-196	9304728	240.2	Y			6	VCP	4	1	3	1	8	**$14,702**	$33,388	2007-2008	CIPP	$ 13,702	FY11
C04-278	C04-117	112124	299.0	Y			6	VCP	4	1	3		11	**$17,551**	$41,561	2007-2008	CIPP	$ 17,551	FY11
C04-282	C04-086	111856	148.0				6	VCP	4	1	3	1	3	**$8,526**	$20,572		CIPP	$ 7,526	FY11
C04-295	C04-146	112108	377.9				6	VCP	4	1	3	2	13	**$23,754**	$52,528	2007-2008	CIPP	$ 21,754	FY11
C04-296	C04-140	112110	581.0				6	VCP	4	1	3	1	6	**$27,802**	$80,759	2007-2008	CIPP	$ 26,802	FY11
C04-297	C04-118	112112	271.4				6	VCP	4	1	3	1	7	**$15,513**	$37,725	2007-2008	CIPP	$ 14,513	FY11
C04-300	C04-096	101177	194.0				6	VCP	4	1	3	1	6	**$11,848**	$26,966		CIPP	$ 10,848	FY11
C04-301	C04-095	101176	237.3				6	VCP	4	1	3	1	13	**$16,958**	$32,985		CIPP	$ 15,958	FY11
C04-302	C04-116	112130	409.4				6	VCP	4	1	3	4	18	**$29,427**	$56,907	2007-2008	CIPP	$ 25,427	FY11
C04-305	C04-306	9300154	291.0				6	VCP	4	1	3	5	6	**$19,846**	$40,449	2007-2008	CIPP	$ 14,846	FY11
C04-308	C04-092	101175	256.0				6	VCP	4	1	3	1	2	**$12,504**	$35,584		CIPP	$ 11,504	FY11
C04-310	C04-085	101174	431.5				6	VCP	4	1	3	1	21	**$28,764**	$59,979		CIPP	$ 27,764	FY11
C04-311	C04-104	76809	242.3				6	VCP	4	1	3	1	5	**$13,364**	$33,680	2007-2008	CIPP	$ 12,364	FY11
C04-314	C04-069	112386	387.0				6	VCP	4	1	3	2	11	**$23,179**	$53,793		CIPP	$ 21,179	FY11
C04-315	C04-059	112388	334.0				6	VCP	4	1	3	1	10	**$19,519**	$46,426		CIPP	$ 18,519	FY11

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UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
C04-317	C04-061	112392	159.0				6	VCP	4	1	3		2	**$7,505**	$22,101		CIPP	$ 7,505	FY11
C04-318	C04-072	112394	393.2				6	VCP	4	1	3	1	18	**$25,760**	$54,655		CIPP	$ 24,760	FY11
C04-319	C04-073	9574	452.4				6	VCP	4	1	3	7	17	**$33,725**	$62,884		CIPP	$ 26,725	FY11
C04-321	C04-063	112403	306.0				6	VCP	4	1	3	1	6	**$16,465**	$42,534		CIPP	$ 15,465	FY11
C04-326	C04-061	112414	160.6				6	VCP	4	1	3		4	**$8,521**	$22,323		CIPP	$ 8,521	FY11
C05-007	C05-008	10062	57.0				6	VCP	4	1	3	3	1	**$5,825**	$7,923		Replace	$ 7,923	FY11
C05-010	C05-014	10076	190.6				6	VCP	4	1	3		4	**$9,757**	$26,493	2007-2008	CIPP	$ 9,757	FY11
C05-025	C05-026	10082	201.0				6	VCP	4	1	3	1	5	**$11,661**	$27,939	2007-2008	CIPP	$ 10,661	FY11
C05-027	C05-020	10085	208.0				6	VCP	4	1	3		1	**$9,050**	$28,912	2007-2008	CIPP	$ 9,050	FY11
C05-045	C05-035	10172	191.6				6	VCP	4	1	3	2		**$9,899**	$26,632	2007-2008	CIPP	$ 7,899	FY11
C05-046	C05-027	10084	389.0				6	VCP	4	1	3		6	**$18,886**	$54,071	2007-2008	CIPP	$ 18,886	FY11
C05-047	C05-060	10098	583.0				6	VCP	4	1	3	2	15	**$33,159**	$81,037	2007-2008	CIPP	$ 31,159	FY11
C05-050	C05-059	10030	215.0				6	VCP	4	1	3	1	1	**$10,338**	$29,885		CIPP	$ 9,338	FY11
C05-057	C05-048	10169	195.0				6	VCP	4	1	3		2	**$8,989**	$27,105	2007-2008	CIPP	$ 8,989	FY11
C05-059	C05-068	10031	290.0				6	VCP	4	1	3	1	4	**$14,855**	$40,310		CIPP	$ 13,855	FY11
C05-060	C05-076	10099	472.0				8	VCP	4	1	3		7	**$25,976**	$67,024	2007-2008	CIPP	$ 25,976	FY11
C05-066	C05-062	10164	190.0				6	VCP	4	1	3	2	2	**$10,783**	$26,410	2007-2008	CIPP	$ 8,783	FY11
C05-077	C05-070	10179	144.0				6	VCP	4	1	3		2	**$6,886**	$20,016	2007-2008	CIPP	$ 6,886	FY11
C05-084	C05-069	10058	576.0				6	VCP	4	1	3	1	24	**$36,146**	$80,064	2007-2008	CIPP	$ 35,146	FY11
C05-088	C05-105	10033	360.0				8	VCP	4	1	3		7	**$20,601**	$51,120		CIPP	$ 20,601	FY11
C05-093	C05-084	10057	321.0				6	VCP	4	1	3	1	10	**$18,983**	$44,619	2007-2008	CIPP	$ 17,983	FY11
C05-105	C05-113	10035	169.0				10	VCP	3	3	3			**$9,407**	$24,843		CIPP	$ 9,407	FY11
C05-113	C05-120	10036	191.0				10	VCP	3	3	3	1	2	**$12,581**	$28,077	2007-2008	CIPP	$ 11,581	FY11
C05-145	C05-408	9337755	139.0				10	VCP	3	3	3	1		**$8,737**	$20,433		CIPP	$ 7,737	FY11
C05-194	C05-222	16518	130.0				6	VCP	3	2	3	2	6	**$10,209**	$18,070		CIPP	$ 8,209	FY11
C05-219	C05-242	10945	223.0				6	VCP	4	1	3		8	**$12,993**	$30,997		CIPP	$ 12,993	FY11
C05-223	C05-194	16523	309.0				6	VCP	4	1	3	4	17	**$24,813**	$42,951		CIPP	$ 20,813	FY11
C05-228	C05-249	17078	352.0				6	VCP	4	1	3		19	**$23,536**	$48,928		CIPP	$ 23,536	FY11
C05-230	C05-209	16524	297.0				6	VCP	4	1	3	2	10	**$18,994**	$41,283		CIPP	$ 16,994	FY11
C05-243	C05-230	16526	369.0				6	VCP	4	1	3		18	**$23,762**	$51,291		CIPP	$ 23,762	FY11
C05-259	C05-277	16544	427.0				6	VCP	4	1	3	1	14	**$25,253**	$59,353		CIPP	$ 24,253	FY11
C05-260	C05-275	16540	315.0				6	VCP	4	1	3	3	18	**$24,536**	$43,785		CIPP	$ 21,536	FY11
C05-261	C05-229	9300163	459.0				6	VCP	4	1	3		25	**$30,797**	$63,801		CIPP	$ 30,797	FY11
C05-266	C05-279	9300165	300.0				6	VCP	4	1	3	2	11	**$19,592**	$41,700	2007-2008	CIPP	$ 17,592	FY11
C05-267	C05-266	16542	414.0		Y	N	6	VCP	3	1	2	3	15	**$3,000**	$57,546		Spot Repair	$ -	FY11
C05-278	B05-347	100513	242.0				6	VCP	4	1	3	1	14	**$17,626**	$33,638		CIPP	$ 16,626	FY11
C05-279	C05-278	9300166	331.0				6	VCP	4	1	3		13	**$19,820**	$46,009		CIPP	$ 19,820	FY11
C05-317	C05-068	111843	336.9				6	VCP	4	1	3		13	**$20,064**	$46,829		CIPP	$ 20,064	FY11
C05-323	C05-122	101224	396.2				6	VCP	4	1	3	1	22	**$27,783**	$55,072		CIPP	$ 26,783	FY11
C05-324	C05-046	101206	246.2				6	VCP	4	1	3	1	7	**$14,475**	$34,222	2007-2008	CIPP	$ 13,475	FY11
C05-326	C05-025	101195	95.0				6	VCP	4	1	3	1	6	**$7,766**	$13,205	2007-2008	CIPP	$ 6,766	FY11
C05-329	C05-016	101190	242.0				6	VCP	4	1	3	3		**$12,976**	$33,638	2007-2008	CIPP	$ 9,976	FY11
C05-334	C05-028	101198	396.0				6	VCP	4	1	3	1	14	**$23,975**	$55,044	2007-2008	CIPP	$ 22,975	FY11
C05-335	C05-028	111906	266.0				8	VCP	4	1	3	1	7	**$17,090**	$37,772	2007-2008	CIPP	$ 16,090	FY11
C05-340	C05-007	101180	339.3				6	VCP	4	1	3	2	8	**$19,788**	$47,163	2007-2008	CIPP	$ 17,788	FY11
C05-344	C05-077	111930	425.5				6	VCP	4	1	3	1	10	**$23,291**	$59,145	2007-2008	CIPP	$ 22,291	FY11
C05-345	C05-057	111932	571.3				6	VCP	4	1	3		16	**$31,152**	$79,411	2007-2008	CIPP	$ 31,152	FY11
C05-353	C05-082	111951	140.0				6	VCP	4	1	3	2	3	**$9,196**	$19,460	2007-2008	CIPP	$ 7,196	FY11
C05-357	C05-115	11024	247.1				6	VCP	4	1	3		9	**$14,462**	$34,347	2007-2008	CIPP	$ 14,462	FY11
C05-386	C05-243	112076	513.0				6	VCP	3	3	3	2	13	**$29,323**	$71,307		CIPP	$ 27,323	FY11
C05-389	C05-163	118652	60.4				6	VCP	3	3	3	2	1	**$4,965**	$8,396		Replace	$ 8,396	FY11

RS = Included in Riverside Specific Plan
CIPP = Cured in place pipe
PB = Pipe bursting

UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
C05-402	C05-069	9326588	472.0				6	VCP	4	1	3		16	**$27,058**	$65,608	2007-2008	CIPP	$ 27,058	FY11
D05-100	D05-101	10066	268.8				6	VCP	3	3	3		1	**$11,556**	$37,363		CIPP	$ 11,556	FY11
D05-101	D05-259	9406076	33.6				6	VCP	3	3	3			**$1,385**	$4,670		Replace	$ 4,670	FY11

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CITY OF ROSEVILLE
TRADITION • PRIDE • PROGRESS

PIPELINE CONDITION ASSESSMENT TABLE (FY12)

UPID	DNID	COMP KEY	Length	Located in Pot Bad Soils?	Sluggers List?	Sags?	Pipe Diameter	Material	Probablity Rating	Criticality Rating	Overall Rating	Spot Repairs	Active Connections	Repair Cost	Replacement Cost	Street Repair Year	Action	Cost*	Year
B05-002	B05-344	9299908	173.0				6	VCP	4	1	3		3	**$8,557**	$24,047		CIPP	$ 8,557	FY12
C03-244	C03-243	9317	375.5				6	VCP	1	1	1	1	14	**$1,000**	$52,195		Spot Repair	$ -	FY12
C04-106	C04-105	9556	310.0				6	VCP	3	2	3		4	**$14,680**	$43,090	2007-2008	CIPP	$ 14,680	FY12
C04-145	C04-130	10008	546.0	Y			6	VCP	4	1	3		23	**$33,434**	$75,894	2007-2008	CIPP	$ 33,434	FY12
C04-145	C04-169	10015	320.0	Y			6	VCP	4	1	3		9	**$17,467**	$44,480	2007-2008	CIPP	$ 17,467	FY12
C04-146	C04-160	10010	388.1	Y			6	VCP	3	2	3		10	**$20,749**	$53,946	2007-2008	CIPP	$ 20,749	FY12
C04-267	C04-180	112118	258.0	Y			6	VCP	4	1	3		6	**$13,486**	$35,862	2007-2008	CIPP	$ 13,486	FY12
C04-269	C04-158	112128	282.0	Y			6	VCP	4	1	3			**$11,625**	$39,198	2007-2008	CIPP	$ 11,625	FY12
C04-298	C04-112	112114	91.7				6	VCP	4	1	3		4	**$5,680**	$12,746	2007-2008	CIPP	$ 5,680	FY12
C04-313	C04-081	112384	339.0				6	VCP	3	1	2	2	11	**$2,000**	$47,121		Spot Repair	$ -	FY12
C04-322	C04-063	112405	315.0				6	VCP	4	1	3		9	**$17,261**	$43,785		CIPP	$ 17,261	FY12
C05-014	C05-021	10077	440.0				6	VCP	4	1	3		8	**$21,939**	$61,160	2007-2008	CIPP	$ 21,939	FY12
C05-021	C05-020	10078	29.0				6	VCP	3	3	3			**$1,196**	$4,031		Replace	$ 4,031	FY12
C05-115	C05-114	11025	59.0				6	VCP	3	2	3			**$2,432**	$8,201		CIPP	$ 2,432	FY12
C05-120	C05-145	10000	370.0				10	VCP	3	3	3		4	**$22,495**	$54,390	2007-2008	CIPP	$ 22,495	FY12
C05-121	C05-136	10044	422.8				8	VCP	3	2	3		14	**$26,940**	$60,038		CIPP	$ 26,940	FY12
C05-122	C05-121	10042	202.0				6	VCP	3	3	3		1	**$8,802**	$28,078		CIPP	$ 8,802	FY12
C05-162	C05-191	11029	445.5				6	VCP	3	3	3		15	**$25,491**	$61,925		CIPP	$ 25,491	FY12
C05-247	C05-253	11020	190.0				10	VCP	3	3	3			**$10,576**	$27,930		CIPP	$ 10,576	FY12
C05-306	C05-055	101208	568.0				6	VCP	4	1	3		23	**$34,341**	$78,952	2007-2008	CIPP	$ 34,341	FY12
C05-318	C05-088	111852	393.0				6	VCP	4	1	3		16	**$23,801**	$54,627		CIPP	$ 23,801	FY12
C05-321	C05-105	9300171	400.0				6	VCP	2	1	1	1	13	**$1,000**	$55,600		Spot Repair	$ -	FY12
C05-328	C05-016	101192	275.9				6	VCP	4	1	3		2	**$12,324**	$38,350	2007-2008	CIPP	$ 12,324	FY12
C05-337	C05-018	111910	113.8				6	VCP	4	1	3		3	**$6,116**	$15,818	2007-2008	CIPP	$ 6,116	FY12
C05-342	C05-019	111922	245.8				6	VCP	4	1	3		6	**$12,983**	$34,166	2007-2008	CIPP	$ 12,983	FY12
C05-358	C05-138	111969	101.0				6	VCP	4	1	3		2	**$5,114**	$14,039	2007-2008	CIPP	$ 5,114	FY12
C05-369	C05-162	111992	458.0				6	VCP	3	3	3		6	**$21,731**	$63,662		CIPP	$ 21,731	FY12
C05-379	C05-273	112047	332.0				4	VCP	2	3	2	2	1	**$2,000**	$42,496		Spot Repair	$ -	FY12
C05-390	C05-040	118654	457.4				6	VCP	3	3	3		8	**$22,656**	$63,579	2007-2008	CIPP	$ 22,656	FY12

RS = Included in Riverside Specific Plan
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PB = Pipe bursting

APPENDIX E

MANHOLE RATING TABLES

CITY OF ROSEVILLE CALIFORNIA

Manhole Rating Table

MH #	Location Criteria				Structural Criteria									Penetrations												Overall Rating	Manhole	
	Public Impact	Environmental	Access/ Safety	Overall	Cover	Frame	Rings	Cone	Wall	Bench	Channel	Base	Steps	Pene 1	P1 Score	Pene 2	P2 Score	Pene 3	P3 Score	Pene 4	P4 Score	Pene 5	P5 Score	Pene 6	P6 Score		Action	CIP Year
A04-017	1	3	2	3	1	1	1	1	1	1	1	1														1		
A04-039	5	1	5	5																								
A04-074	1	1	1	1							3															3	Replace	FY10
A04-081	1	3	1	3						2	2															2		
A04-088	1	1	1	1						2	2															2		
A04-089	1	1	1	1						3	3															3	Replace	FY10
A04-097	1	1	1	1							3															3	Replace	FY10
A04-098		1		1					2					X		X										2		
A04-118	1	2	1	2						2	2															4	Replace	FY10
A05-016	1	5	3	5	1	1	1	1	1	1	1	1														1		
A05-017	5	2		5					2			2														2		
A05-029	5	1	5	5																								
A05-033				0			1				3			X		X		NOT USED		NOT USED						3	Replace	FY10
A05-044		3		3										X		X		X		X						1		
A05-055	1	5	1	5										X		X		X		X						1		
A05-058	2	3	1	3							3			X		X		X		X						3	Line	FY11
A05-063	1	1	1	1																						1		
A05-074		1		1						2	3			X		X										3	Replace	FY10
A05-086	2	3	1	3			2	2	2		3			GOOD		GOOD		GOOD								3	Line	FY11
A06-018	3	4	5	5							3			X		X		SERVICE								3	Line	FY12
A06-032	2	5	5	5			2	2	2					X		DROP		X								2		
A06-039	2	3	5	5			2				5	5		B	3	X		SAVC	3							5	Line	FY09
A06-048	2	4	5	5			2				3			X		X		X								3	Line	FY09
A06-060	3	2	1	3					2		3			X		X		X		SERVICE						3	Line	FY11
A06-062	3	3	5	5							5			X		X		SAVC	3							5	Line	FY11
A06-068	4	5	5	5										X		X		X								1		
A06-226	1	1	1	1						2	3			X		X										3	Replace	FY10
A07-003	1	5	1	5										X		DROP		X								1		
A07-061	1	5	1	5						2				X		X										2		
A07-063		3		3						3				X		SERVICE		DROP		DROP						3	Line	FY11
A07-082	1	3	1	3			2	2		3				X		CAPPED		X		X						3	Replace	FY10
A07-137	1	5	5	5				3	3	3	3															4	Line	FY11
B03-027	1	1	1	1	1	1	1	1	1	1	1	1	1													1		
B03-034	1	1	1	1	1	1	1	1	1	1	1	1	1													1		
B04-007	1	1	1	1																						1		
B04-008	1	2	1	2				3	3			3														3	Line	FY11
B04-009				0						3	3			X		X										3	Line	FY11
B04-010	1	1	2	2						3				INFALL		OUTFALL										2		
B04-013	3	1	1	3										X		X		X								1		
B04-016	1	1	1	1										INFALL		OUTFALL										1		
B04-017	1	1	1	1										X												3	Line	FY10
B04-018	3	1	1	3						3				X		X										3	RS	RS
B04-020	5	3	2	5						3	3			SAVC	3	X										3	RS	RS
B04-026	1	1	2	2			1	1	3	2	3			X		X		X		X						3	Replace	FY08
B04-026A	1	1	2	2		1	1	2	1	2				X		X										2		
B04-027	1	1	1	1				2			3			X		X		X		X						3	Line	FY09
B04-028	1	1	1	1			2			3				X		X		X		X						3	Line	FY09
B04-029	5	3	2	5						3	2			X		X		X								3	RS	RS
B04-031	1	1	1	1	1	1	2	2		2				X		X										2		
B04-032	1	1	1	1			2		3					X		X										3	Line	FY11
B04-035	2	1	1	2										X		X		X								1		
B04-036	2	1	1	2	1	1	2	2						X		X										2		
B04-037	1	1	1	1		1	3							BSV	5	BSV	5									4	Line	FY11
B04-040	3	1	2	3		1	1		5					X		X		X								5	Line	FY09
B04-041	2	1	2	2	1					2				X		X		X		PLUGGED						2		
B04-042	1	1	2	2	1		1			2	3			X		X		X		PLUGGED						3	Line	FY09
B04-043	1	4	2	4		4	2							X		X		X		PLUGGED		X				4	Line	FY09
B04-044	1	1	1	1						3				X		X		X								2		
B04-045	2	1	1	2						2	5			X		X		X								5	Line	FY09
B04-046	2	2	2	2						5				HVV	5	HVV	5	HVV	5	X						4	Line	FY08
B04-046	3	1	1	3				2			5			HVV	5	HVV	5	HVV	5	X						4	Line	FY08
B04-047	4	1	4	4	1					2				X		X										2		
B04-048	1	1	3	3			2				1			X		X										2		
B04-049	1	1	1	1										X		X										1		
B04-054	5	3	4	5										X		X										3	Replace	FY08

MH #	Location Criteria				Structural Criteria									Penetrations											Overall Rating	Manhole	
	Public Impact	Environmental	Access/ Safety	Overall	Cover	Frame	Rings	Cone	Wall	Bench	Channel	Base	Steps	Pene 1	P1 Score	Pene 2	P2 Score	Pene 3	P3 Score	Pene 4	P4 Score	Pene 5	P5 Score	Pene 6	P6 Score		Action	CIP Year
B04-055	1	4	1	4										X		X		X		X						3	Replace	FY08
B04-062	3	1	1	3				5		3	3			X		X		X								5	Replace	FY09
B04-063	3	2	1	3			3	1		3	2			B	3	B	3	X								3	Replace	FY10
B04-064	1	1	1	1							2			X		X		X								2		
B04-065	2	1	1	2			2		1					X		X		X		X						2		
B04-066	2	1	1	2			1				3			X		X		X								3	Replace	FY09
B04-067	1	1	1	1	1	1	1		3		2		1	X		X		X		X						3	Replace	FY10
B04-068	2	1	1	2	1			1						X		X		X		X						1		
B04-069	1	1	2	2		1		2	3					SSSC	2	X		X								3	Replace	FY10
B04-070	4	5	3	5										X		X										4	RS	RS
B04-230	3	1	1	3				3		3	3			HVV	5	X										3	Replace	FY08
B04-256	4	1	2	4			2	2	4		3			SAVC	3	SAVC	3	SAVC	3	SAVC	3					4	RS	RS
B04-257	2	1	1	2				2						X		X		X								2		
B04-265	1	3	1	3	1	1	2	2		2																		
B04-269	2	2	1	2							5			HVV	5	HVV	5	SSSC	2							4	Line	FY11
B04-273	1	1	1	1		1	2	2	3		2			X		X										3	Replace	FY08
B05-003														X												1		
B05-005	1	3	2	3																						2		
B05-006	1	1	2	2																						2		
B05-007	1	3	2	3																						2		
B05-035	1	5	3	5								3		INFALL		OUTFALL										3	Line	FY09
B05-046	1	1	1	1						3	3	3		SAVC	3	SAVC	3									3	Line	FY08
B05-047	1	5	1									3		OUTFALL		INFALL										3	Line	FY10
B05-048	1	5	4	5						3	3			INFLOW		OUTFALL										3	Line	FY09
B05-057	1	5	3	5								3		OUT		IN		IN								3	Line	FY09
B05-074	1	1	1	1	1	1	1	1						SAVC	3	HSV	5	SAVC	3	HVV	5					5	Line	FY08
B05-112	1	5	1	5					2	3				X		X		X								3	Line	FY09
B05-149		1		1						3				X		DROP		DROP		X						3	Replace	FY10
B05-150	1	1	1	1																						1		
B05-151	4	1	2	4	1	1	1	1	1	1	1	1														1		
B05-269				0										X		SIPHON		SIPHON								1		
B05-276	1	4	1	4																						1		
B05-344	5	5	2		1	1	1	1	1	1	1	1														1		
B05-433	5	1	2	5										DOWNSTREAM				UPSTREAM		UPSTREAM						1		
B05-434	5	1	4	5					1					DOWNSTREAM				UPSTREAM								2		
B05-435	5	1	4	5				2		3	3			X		X		X								3	Line	FY11
B05-436	5	1	4	5								2		DOWNSTREAM		EAST SIDE M/H		SOUTH SIDE M/H		WEST SIDE M/H						2		
B06-020	1	3	1	3			2	2		2	2			GOOD		GOOD										2		
B06-030	1	3	1	3			2				2			X		X		X		X						2		
B06-049	1	1	1	1							3			X		X		SERVICE		SERVICE		SERVICE		SERVICE		3	Line	FY11
B06-055	2	2	1	2			2				3			X		X										3	Line	FY11
B06-056	2	2	1	2			2				3			GOOD		GOOD										2		
B06-060	1	1	1	1		2				2	3			GOOD		GOOD										2		
B06-108	5	3	5	5							3			X		X		X		X						3	Line	FY11
C03-229	1	1	2	2								2														2		
C03-230	1	1	1	1								4														4	Line	FY11
C03-244	1	1	1	1	1	1	1	1	1	1	1	1														1		
C04-010	5	5	2	5			2			2				X		X		X		X						2		
C04-055	1	1	1	1	1	1	1	1	1	1	1	1		X		X										1		
C04-059	5	1	1	5							4															4	Line	FY09
C04-059	1	3	1	3			2		3		1			X		X		X								3	Line	FY09
C04-060	1	3	1	3		1								X		X										1		
C04-061	1	1	1	1		1					1			X		X		X								1		
C04-062	1	3	1	3		1				3				X		X		X		X		X				3	Line	FY11
C04-063	1	1	1	1				3	3																	3	Line	FY11
C04-063	1	1	1	1				4	4					X		X		X								4	Line	FY11
C04-068	1	1	1	1		1	2		3	3	3			HVV	5	X		X								5	Line	FY11
C04-069	1	1	1	1		1		2	1	1	1			X		X		I/I	3	HVV	5					3	Line	FY11
C04-070	1	3	1	3					2					X		X		X								2		
C04-072	1	5	2	5				1						X		X										1		
C04-073	1	1	1	1				3		3				X		X		X								3	Line	FY11
C04-074	1	1	1	1				3		3		3		X		DROP		X								3	Line	FY11
C04-075	1	1	1	1	1	1	1	4	1	1	1	1														4	Line	FY11
C04-080	1	1	1	1			3		4	3	3			X		X		X		X		X				4	Line	FY11
C04-081	1	1	1	1					1	4	3			X		X		X								4	Line	FY11
C04-083	1	1	1	1		1		3		2	1			X		X										3	Line	FY08
C04-084	1	1	1	1		2		2	2	2				X		X										2		
C04-085	1	1	1	1										X		X										1		
C04-086	1	1	1	1					4					X		X		X		ABANDONED						4	Line	FY11
C04-090	1	1	1	1		1	2		2		2		1	HVV	5	X		X								5	Line	FY09
C04-090		1		1										X		X		X								1		
C04-091	2	1	1	2				2	3	2				X		X										3	Line	FY09

MH #	Location Criteria				Structural Criteria									Penetrations											Overall Rating	Manhole	
	Public Impact	Environmental	Access/ Safety	Overall	Cover	Frame	Rings	Cone	Wall	Bench	Channel	Base	Steps	Pene 1	P1 Score	Pene 2	P2 Score	Pene 3	P3 Score	Pene 4	P4 Score	Pene 5	P5 Score	Pene 6	P6 Score		Action	CIP Year
C04-092	1	1	1	1		1		2			2			X		X		X								2		
C04-093	2	3	1	3		2		3		3	3			SAVC	3	HVV	5	HVV	5	HVV	5					5	Line	FY08
C04-094	1	3	1	3		2		3		3				HSV	5	SAVC	3									5	Line	FY08
C04-095	1	1	1	1				2		2	1			HVV	5	X										5	Line	FY11
C04-096	1	1	1	1								3		X		X										3	Line	FY08
C04-097	1	1	1	1					3			3		X		X										3	Line	FY08
C04-099	1	1	2	2				3	2					X		X		LATERAL								3	Replace	FY07
C04-100	3	4	3	4			2	2		3				X		X		X								3	Replace	FY07
C04-101	3	1	4	4			2		2		2			X		X		X		X						2		
C04-102	2	1	1	2								3		X		X		DROP								3	Line	FY09
C04-105	2	1	3	3						2				X		X										2		
C04-106	3	1	3	3			2	2						X		HVV	5									5	Line	FY11
C04-110	1	2	1	2						3	3															3	Replace	FY07
C04-111	1	1	1	1							3															3	Replace	FY07
C04-112	5	3	1	5				3						X		X		X								3	Line	FY09
C04-115	1	1	1	1					3			4		X		X		DROP								4	Replace	FY07
C04-116	1	1	1	1										X		X										1		
C04-117	2	1	2	2			2	3			3			X		X		X		X						3	Line	FY08
C04-119	4	4	1	4			3	3	3	3				X		X		X		X						3	Line	FY09
C04-126		3		3								3		X		X		DROP		DROP						3	Replace	FY07
C04-128	2	1	1	2			2	3			3			X		X										3	Line	FY08
C04-129	2	1	1	2		2		2		2	2			X		X		X								2		
C04-130	2	1	2	2		2			3		3			X		X		X		X						3	Line	FY11
C04-136		1		1					3			3		X		X		DROP								3	Replace	FY07
C04-137	1	1	1	1										X		X										1		
C04-138	1	1	1	1					2					X		DROP		DROP		DROP						2		
C04-139	2	1	1	2					3	3	3			X		X										3	Line	FY11
C04-144	2	1	2	2			2	3			3			X		X										3	Line	FY08
C04-145	1	1	1	1		1		2			1			X		X		X								2		
C04-146	3	1	2	3		2	2		3	3	3			X		X		X								3	Line	FY11
C04-155	1	1	1	1					3					X		X		DROP								3	Replace	FY07
C04-159	2	1	1	2				2	3					X		X										3	Line	FY08
C04-160	1	3	2	3										X		X		X								1		
C04-167		1		1					2	2				X		DROP										3	Line	FY08
C04-168	5	3	5	5			2		4					HVV	5	HVV	5									5	Line	FY11
C04-169	5	4	5	5			2		4	4	3			SAVC	3	DROP		X								4	Line	FY07
C04-170	5	1	5	5			2		3	3	3			X		X										3	Line	FY09
C04-179		1		1										X		X										1		
C04-180		1		1										X		X		DROP		DROP						1		
C04-181		3		3										X		X										1		
C04-186		1		1										X		X										1		
C04-187		1		1										X		X		TAP								1		
C04-188	1	1	1	1										X		X		X								1		
C04-196		1		1										X		X		X		X						1		
C04-203	1	1	1	1						3																3	Replace	FY07
C04-204	1	1	1	1						3	3															3	Replace	FY07
C04-218	1	3	1	3						3				X		X		X								3	Line	FY09
C04-222	1	1	1	1					2	3																2		
C04-223	5	1	1	5			2		3					X		X										3	Replace	FY07
C04-225	4	1	2	4										X		X		X										
C04-226	1	1	1	1						3	3															3	Replace	FY07
C04-229	3	3	2	3					3					X		X		X								3	Replace	FY07
C04-230	3	1	4	4					2		2	2														2		
C04-232	1	1	1	1																						1		
C05-004	1	5	1	5					2	2				X		CAPPED		X		X						2		
C05-006	1	1	3	3			2		3	3	3			SAMC	4	X		X								4	Replace	FY07
C05-007	1	1	1	1		1				1	2			X		X										2		
C05-008	1	1	1	1		1				1				X		X		X								1		
C05-009	1	2	1	2		1			3		3			X		X		X								3	Line	FY08
C05-010	1	1	1	1		1	2	3			1			X		X		X								3	Line	FY11
C05-011	1	1	1	1						3				X		X		X								3	Line	FY11
C05-013	1	5	2	5			2			3	3			SAVC	3	SAVC	3									3	Replace	FY07
C05-014	1	1	1	1		1		3	3	1	3			X		X										3	Line	FY11
C05-016	1	1	1	1		1		3	3		1			X		X		X								3	Replace	FY07
C05-017	1	2	1	2				3		1				X		X										3	Replace	FY07
C05-018	4	1	1	4		1					2			X		DROP		X		DROP						2		
C05-020	2	3	1	3		1				1	1			HVV	5	X		X		X						5	Replace	FY07
C05-021	1	4	2	4							4			X		X		X								4	Replace	FY12
C05-022	3	3	1	3		1				3	3			X		X										3	Line	FY09
C05-025	1	1	1	1		1		1	3		1			X		X		X								3	Line	FY11
C05-026	1	1	1	1		1		3		2				X		DROP		X								3	Line	FY11
C05-027	1	1	1	1		1	2	5		1				HVV	5	X		X								5	Line	FY11

MH #	Location Criteria				Structural Criteria									Penetrations											Manhole	
	Public Impact	Environmental	Access/ Safety	Overall	Cover	Frame	Rings	Cone	Wall	Bench	Channel	Base	Steps	Pene 1	P1 Score	Pene 2	P2 Score	Pene 3	P3 Score	Pene 4	P4 Score	Pene 5	P5 Score	Pene 6	P6 Score	Overall Rating	Action	CIP Year
C05-028	1	1	1	1				4		1				X		X		X		X		X				4	Replace	FY07
C05-029	4	3	1	4		1			3		5			X		X		X								5	Line	FY09
C05-031	1	3	3	3		3				2	3			X		X		X		X						3	Line	FY09
C05-035	1	1	1	1						3				X		X		X		X						3	Line	FY08
C05-036	1	1	1	1		1			1					X		X										1		
C05-040	1	3	1	3		1			3		2			X		X		SERVICE		X						3	Line	FY09
C05-043	1	1	1	1							3			X		X										3	Line	FY11
C05-045				0							3			X		X		X								3	Line	FY11
C05-046	1	1	1	1		1								X		X		ABANDONED								1		
C05-047	1	1	1	1					4	3		3		X		X		DROP								4	Line	FY11
C05-048	1	1	1	1				3						OUT		IN		IN		IN						3	Line	FY08
C05-050	1	1	1	1	1	1	1	1	3	1	1	1		X		X										3	Line	FY11
C05-052	1	3	1	3																						1		
C05-054	2	1	1	2		1	2	3	3	3	3			X		X		DROP								3	Line	FY08
C05-055	2	3	1	3		1								X		X		X		X						1		
C05-057	1	1	1	1		3																				3	Line	FY11
C05-060	1	1	1	1						3				X		X										3	Line	FY11
C05-061	2	1	1	2				3	3		3			X		X		X		X						3	Line	FY09
C05-062	1	3	1	3																						1		
C05-065				0										X		X										1		
C05-068	1	3	1	3	1	1	1	1	1	1	1	1														1		
C05-069	1	1	1	1					5	3		3		X		X		X		X						5	Line	FY11
C05-070	1	1	1	1						3				X		X		DROP								3	Line	FY08
C05-072	1	2	1	2						3																3	Line	FY07
C05-073	2	4	1	4						3																3	Line	FY09
C05-075	1	1	1	1							3															3	Line	FY11
C05-076	1	1	1	1					3			3		X		X		X								3	Line	FY11
C05-077	1	1	1	1								3		X		X		X		X						3	Line	FY11
C05-082	2	4	1	4					3																	3	Line	FY09
C05-083	2	4	1	4		1		3			3			X		X		ABANDONED								3	Line	FY09
C05-084	1	1	1	1		1	2		3	1				X		CAPPED		X		CAPPED						3	Line	FY11
C05-088	1	1	1	1						3																3	Line	FY11
C05-091	1	1	1	1										X		X										1		
C05-093	1	1	1	1		1		3			1			X		X										3	Line	FY09
C05-100	1	1	1	1						3				DROP		X										3	Line	FY11
C05-100	5	1	1	5		1				4				X		X		X								4	Line	FY11
C05-106	3	1	3	3			2	2						SAVC	3	ABANDONED		SAVC	3							3	Line	FY09
C05-107	3	3	3	3					3	3	5			X		X		X								5	Line	FY09
C05-113	5	4	3	5			2	2	2		3	3		X		X		DROP		CAPPED						3	Line	FY11
C05-114	3	1	3	3			2	2		1	3			X		X										3	Line	FY09
C05-115	3	1	3	3					3	2				X		X		X								3	Line	FY11
C05-120	5	2	5	5			2	3	4	3	3			X		X		X								4	Line	FY11
C05-121	3	3	2	3							3			SAVC	3	DROP		SAVC	3							3	Line	FY12
C05-122	5	1	3	5				2	3		3			HVV	5	X		HVV	5	HVV	5					5	Line	FY11
C05-124	4	3	1	4					3	3	3			IR	4	X										4	Line	FY09
C05-125	2	1	1	2			2	1		3	3			X		X		X								3	Line	FY09
C05-126	4	1	1	4						3				ROOTS		CAPPED										3	Line	FY11
C05-136	5	1	5	5						3				SAPC	3	SAPC	3	SAPC	3							4	Line	FY12
C05-137	5	1	3	5			2	2	3		3			SAVC	3	SAVC	3									3	Line	FY11
C05-138	1	1	3	3			2		1	2				X		X		X								2		
C05-145	5	3	5	5					4	3	3			X		X		X		X						4	Line	FY11
C05-147	4	3	1	4	1			2	3		3			X		X		X								3	Line	FY09
C05-148	1	5	1	5		2	2				1			X		X		X		X						2		
C05-162	5	3	2	5	1		2				5			HSV	5	X		HSV	5							5	Line	FY12
C05-163	4	4	2	4						3		3		X		X		X								3	Replace	FY08
C05-179	3	3	2	3		1	2	2		1				X		HSV	5	X								5	Line	FY09
C05-194	1	1	2	2						3				OUTFALL		IN		IN								3	Line	FY11
C05-195	1	1	2	2				4						OUTFALL		INFALL										4	Line	FY11
C05-209	1	1	2	1						3				OUTFALL		INFALL		INFALL								3	Line	FY11
C05-221	5	5	1	5					3	1																3	Line	FY08
C05-222	1	1	2	2				3	3	3																3	Line	FY10
C05-223	1	1	1	1										OUTFALL		INFALL										1		
C05-228									3																	3	Line	FY11
C05-229	1	1	1	1						3	4			X		X		X								4	Line	FY11
C05-247	4	4	1	4					3		1			X		DROP		X		DROP						3	Line	FY08
C05-253A	5	5	2	5		1	2		3	3	3			X		X		X								3	Line	FY11
C05-253B	3	3	2	3		1								X		X										1		
C05-256	5	3	1	5		1	2			2	3			X		PVC		X		X						3	Line	FY09
C05-259	1	1	1	1			3							X		X										3	Line	FY11
C05-260	1	1	1	1			4			3				X		X										4	Line	FY09
C05-261	1	1	1	1						3	2			X		X										3	Line	FY11
C05-264	4	1	2	4			3	3	3	3	3			X		X		X								4	Line	FY08

MH #	Location Criteria				Structural Criteria									Penetrations											Overall Rating	Manhole	
	Public Impact	Environmental	Access/ Safety	Overall	Cover	Frame	Rings	Cone	Wall	Bench	Channel	Base	Steps	Pene 1	P1 Score	Pene 2	P2 Score	Pene 3	P3 Score	Pene 4	P4 Score	Pene 5	P5 Score	Pene 6	P6 Score		Action	CIP Year
C05-266	1	1	1	1				2	3					X		X		X								4	Line	FY08
C05-266	1	1	1	1								2														2		
C05-268	1	2	1	2						2				X		X		X								2		
C05-273	1	1	2	2						4				X		X		X		X						4	Line	FY09
C05-275	1	3	1	3						3																3	Line	FY11
C05-277	5	5	1	5						3																3	Line	FY09
C05-278														OUTFALL		INFALL		INFALL		INFALL						1		
C05-307	1	1	1	1		1	2							X		X										2		
C05-369	5	1	2	5		1	1				1			X		X										1		
C05-402	1	1	1	1							3			X		X										3	Line	FY11
C05-409	5	5	2	5																								
D05-101	5	4	2	5			2							X		CAPPED		X								2		

Manhole Prioritization Table

MH #	Overall	Manhole Depth	D/S Segment				U/S Segment				Manhole			
			MH	MH	Action	Year	MH	MH	Action	Year	Action	Cost	Street Repairs	CIP Year
A04-017	1		A04-017	A04-016	Maintain		A04-016	A04-017	Maintain					
A04-039			A04-039	A04-026	Replace	FY10	A04-026	A04-039	Replace	FY10			2010-2011	
A04-081	2		A04-081	A04-093	Replace	FY10	A04-081	A04-074	Replace	FY10			2010-2011	
A04-088	2		A04-088	A04-089	Replace	FY10							2010-2011	
A04-098	2		A04-098	A04-099	Replace	FY10	A04-098	A04-097	Replace	FY10			2010-2011	
A05-016	1		A05-016	A05-017	CIPP	FY09	A05-016	A05-029	Maintain					
A05-017	2		A05-017	A05-003	CIPP	FY10	A05-017	A05-016	CIPP	FY09			2010-2011	
A05-029			A05-029	A05-016	Maintain									
A05-044	1		A05-044	A05-033	Replace	FY10	A05-044	A05-055	Maintain				2010-2011	
A05-055	1		A05-055	A05-044	Maintain		A05-055	A05-063	Maintain				2010-2011	
A05-063	1		A05-063	A05-055	Maintain		A05-063	A05-058	Maintain				2010-2011	
A06-032	2		A06-032	A06-018	Maintain		A06-032	A06-060	Maintain					
A06-068	1		A06-068	A06-062	Maintain		A06-062	A06-068	Maintain					
A07-003	1		A07-003	A07-002	Replace	FY10	A07-002	A07-003	Replace	FY10			2010-2011	
A07-061	2		A07-061	A07-067	Replace	FY10							2010-2011	
B03-027	1		B03-027	B03-034	CIPP	FY11	B03-027	B03-028	CIPP	FY11				
B03-034	1		B03-034	B03-037	Spot Repair	FY11	B03-034	B03-027	CIPP	FY11				
B04-007	1		B04-007	B04-006	Maintain		B04-007	B04-008	CIPP	FY11			2007-2008	
B04-010	2		B04-010	B04-016	CIPP	FY09	B04-010	B04-011	CIPP	FY09			2010-2011	
B04-013	1		B04-013	B04-018	RS	RS	B04-013	B04-258	RS	RS			2010-2011	
B04-016	1		B04-016	B04-023	CIPP	FY10	B04-016	B04-010	CIPP	FY09			2010-2011	
B04-026A	2												2010-2011	
B04-031	2						B04-031	B04-036	CIPP	FY09			2010-2011	
B04-035	1		B04-035	B04-045	Maintain		B04-035	B04-262	CIPP	FY09			2010-2011	
B04-036	2		B04-036	B04-031	CIPP	FY09	B04-036	B04-265	RS	RS			2010-2011	
B04-041	2	4	B04-041	B04-040	CIPP	FY09	B04-041	B04-260	CIPP	FY09			2010-2011	
B04-044	2		B04-044	B04-043	Maintain		B04-044	B04-049	Maintain				2010-2011	
B04-047	2		B04-047	B04-061	RS	RS	B04-047	B04-040	CIPP	FY10			2010-2011	
B04-048	2	3.1	B04-048	B04-064	CIPP	FY10	B04-048	B04-285	Maintain				2010-2011	
B04-049	1		B04-049	B04-044	Maintain								2010-2011	
B04-064	2		B04-064	B04-063	Replace	FY10	B04-064	B04-257	CIPP	FY09			2010-2011	
B04-065	2	4.8	B04-065	B04-257	CIPP	FY10	B04-065	B04-066	Replace	FY09			2010-2011	
B04-068	1	7.1	B04-068	B04-067	Replace	FY09	B04-068	B04-272	CIPP	FY10			2010-2011	
B04-257	2	4.7	B04-257	B04-064	CIPP	FY09	B04-257	B04-065	CIPP	FY10			2010-2011	
B04-265			B04-265	B04-036	RS	RS							2010-2011	
B05-003	1	3.25	B05-003	C05-267	CIPP	FY11								
B05-005	2	5.75	B05-005	B04-011	CIPP	FY09	B05-005	C05-273	CIPP	FY09				

MH #	Overall	Manhole Depth	D/S Segment				U/S Segment				Manhole			
			MH	MH	Action	Year	MH	MH	Action	Year	Action	Cost	Street Repairs	CIP Year
B05-006	2		B05-006	B05-005	CIPP	FY09	B05-006	B05-047	CIPP	FY10				
B05-007	2	4.75	B05-007	B05-006	Maintain		B05-007	B05-388	Maintain					
B05-150	1		B05-150	B05-151	Maintain		B05-150	B05-149	Replace	FY10			2010-2011	
B05-151	1		B05-151	B05-152	CIPP	FY12	B05-151	B05-150	Maintain					
B05-269	1		B05-269	B05-254	Replace	FY10	B05-254	B05-269	Replace	FY10			2010-2011	
B05-276	1		B05-276	B05-275	Replace	FY10	B05-275	B05-276	Replace	FY10			2010-2011	
B05-344	1						B05-344	B05-002	Maintain				2010-2011	
B05-433	1												2010-2011	
B05-434	2						B05-434	B05-435	Maintain				2010-2011	
B05-436	2		B05-436	B05-435	Maintain		B05-435	B05-436	Maintain				2007-2008	
B06-020	2		B06-020	B06-030	Replace	FY07							2007-2008	
B06-030	2		B06-030	B06-056	Replace	FY07	B06-030	B06-020	Replace	FY07			2007-2008	
B06-056	2		B06-056	B06-055	Maintain		B06-056	B06-030	Replace	FY07			2007-2008	
B06-060	2		B06-060	B05-056	Replace	FY07	B06-060	B06-049	Maintain				2007-2008	
C03-229	2		C03-229	C03-243	Maintain		C03-229	C03-230	Maintain					
C03-244	1		C03-244	C03-243	Spot Repair	FY12	C03-243	C03-244	Spot Repair	FY12				
C04-010	2		C04-010	C04-011	CIPP	FY08							2007-2008	
C04-055	1	4.75	C04-055	C05-059	CIPP	FY08								
C04-060	1	3.4	C04-060	C04-070	CIPP	FY09	C04-060	C04-061	CIPP	FY11				
C04-061	1	4.5	C04-061	C04-060	CIPP	FY11	C04-061	C04-326	CIPP	FY11				
C04-070	2	5.8	C04-070	C04-082	CIPP	FY09	C04-070	C04-071	CIPP	FY09				
C04-072	1		C04-072	C04-319	Maintain		C04-072	C04-318	CIPP	FY11				
C04-084	2	6.2	C04-084	C04-083	CIPP	FY08	C04-084	C04-085	CIPP	FY08				
C04-085	1	4.84	C04-085	C04-084	CIPP	FY08	C04-085	C04-310	CIPP	FY11				
C04-090	1	7.5	C04-090	C04-102	Maintain		C04-090	C04-091	CIPP	FY09			2007-2008	
C04-092	2	3.2	C04-092	C04-093	CIPP	FY08	C04-092	C04-308	CIPP	FY11				
C04-101	2		C04-101	C04-110	Replace	FY07	C04-101	C04-100	Replace	FY07			2007-2008	
C04-105	2		C04-105	C04-104	CIPP	FY09	C04-105	C04-106	CIPP	FY12			2007-2008	
C04-116	1		C04-116	C04-115	CIPP	FY11	C04-116	C04-302	CIPP	FY11			2007-2008	
C04-129	2		C04-129	C04-130	CIPP	FY09	C04-129	C04-279	Maintain				2007-2008	
C04-137	1		C04-137	C04-136	CIPP	FY11	C04-137	C04-261	Maintain				2007-2008	
C04-138	2		C04-138	C04-143	CIPP	FY11	C04-138	C04-276	Spot Repair	FY07			2007-2008	
C04-145	2		C04-145	C04-169	CIPP	FY12	C04-145	C04-294	Maintain				2007-2008	
C04-160	1		C04-160	C04-170	CIPP	FY09	C04-160	C04-146	CIPP	FY12			2007-2008	
C04-179	1		C04-179	C04-203	Replace	FY07	C04-179	C04-155	Maintain				2007-2008	
C04-180	1		C04-180	C04-186	CIPP	FY11	C04-180	C04-329	Maintain				2007-2008	
C04-181	1		C04-181	C04-182	CIPP	FY09	C04-181	C04-167	CIPP	FY08			2007-2008	
C04-186	1		C04-186	C04-187	CIPP	FY11	C04-186	C04-180	CIPP	FY11			2007-2008	
C04-187	1		C04-187	C04-207	CIPP	FY11	C04-187	C04-186	CIPP	FY11			2007-2008	
C04-188	1		C04-188	C04-220	Replace	FY07							2007-2008	
C04-196	1		C04-196	C04-207	CIPP	FY11	C04-196	C04-292	Maintain				2007-2008	
C04-222	2		C04-222	C04-228	Maintain		C04-222	C04-293	Maintain				2007-2008	
C04-225		5.8					C04-225	C04-331	Maintain				2007-2008	

MH #	Overall	Manhole Depth	D/S Segment				U/S Segment				Manhole			
			MH	MH	Action	Year	MH	MH	Action	Year	Action	Cost	Street Repairs	CIP Year
C04-230	2		C04-230	B04-006	Replace	FY07	C04-230	C04-232	Maintain				2007-2008	
C04-232	1		C04-232	C04-230	Maintain		C04-232	C04-290	Spot Repair	FY07			2007-2008	
C05-004	2		C05-004	C05-005	CIPP	FY12							2007-2008	
C05-007	2	7.1	C05-007	C05-008	Replace	FY11	C05-007	C05-340	CIPP	FY11				
C05-008	1	8.7	C05-008	C05-009	CIPP	FY08	C05-008	C05-007	Replace	FY11			2007-2008	
C05-018	2	5	C05-018	C05-029	CIPP	FY09	C05-018	C05-337	Maintain				2007-2008	
C05-036	1	3.6	C05-036	C05-031	Maintain		C05-036	C05-325	Maintain				2007-2008	
C05-046	1	3.5	C05-046	C05-027	CIPP	FY11	C05-046	C05-324	CIPP	FY11			2007-2008	
C05-052	1	4.75	C05-052	C05-061	CIPP	FY09	C05-052	C05-309	Maintain				2007-2008	
C05-055	1	8.7	C05-055	C05-069	CIPP	FY08	C05-055	C05-306	CIPP	FY12			2007-2008	
C05-062	1	3.75	C05-062	C05-072	CIPP	FY09	C05-062	C05-350	Replace	FY07			2007-2008	
C05-065	1	4.84	C05-065	C05-070	Replace	FY07							2007-2008	
C05-068	1	5	C05-068	C05-312	Maintain		C05-068	C05-317	Maintain					
C05-091	1	8.25	C05-091	C05-100	CIPP	FY11	C05-091	C05-070	CIPP	FY08			2007-2008	
C05-138	2		C05-138	C05-125	CIPP	FY09	C05-138	C05-358	Maintain				2007-2008	
C05-148	2	3.9	C05-148	C05-138	CIPP	FY09	C05-148	C05-361	Maintain				2007-2008	
C05-223	1	6.25	C05-223	C05-194	CIPP	FY11	C05-223	C05-229	Maintain					
C05-253B	1													
C05-266	2	8	C05-266	C05-279	CIPP	FY08	C05-266	C05-267	CIPP	FY11			2007-2008	
C05-268	2	2.5	C05-268	C05-267	CIPP	FY12	C05-268	C05-388	CIPP	FY09				
C05-278	1	4.75	C05-278	B05-347	CIPP	FY08	C05-278	C05-279	CIPP	FY08				
C05-307	2	9.7	C05-307	C05-075	Maintain		C05-307	C05-054	CIPP	FY08			2007-2008	
C05-369	1	4.2	C05-369	C05-162	CIPP	FY12								
C05-409			C05-409	C05-253	Maintain									
D05-101	2		D05-101	D05-259	Replace	FY11	D05-101	D05-100	CIPP	FY11				
C04-099	3		C04-099	C04-100	Replace	FY07					Replace	$ 2,500	2007-2008	FY07
C04-100	3		C04-100	C04-101	Replace	FY07	C04-100	C04-099	Replace	FY07	Replace	$ 2,500	2007-2008	FY07
C04-110	3		C04-110	C04-111	Replace	FY07	C04-110	C04-102	CIPP	FY09	Replace	$ 2,500	2007-2008	FY07
C04-111	3		C04-111	C04-115	CIPP	FY11	C04-111	C04-110	Replace	FY07	Replace	$ 2,500	2007-2008	FY07
C04-115	4		C04-115	C04-126	Replace	FY07	C04-115	C04-116	CIPP	FY11	Replace	$ 2,500	2007-2008	FY07
C04-126	3		C04-126	C04-136	Replace	FY07	C04-126	C04-115	Replace	FY07	Replace	$ 2,500	2007-2008	FY07
C04-136	3		C04-136	C04-155	Replace	FY07	C04-136	C04-137	CIPP	FY11	Replace	$ 2,500	2007-2008	FY07
C04-155	3		C04-155	C04-179	Maintain		C04-155	C04-136	Replace	FY07	Replace	$ 2,500	2007-2008	FY07
C04-169	4		C04-169	C04-168	Maintain		C04-169	C04-170	Spot Repair	FY07	Line	$ 1,206	2007-2008	FY07
C04-203	3		C04-203	C04-204	Replace	FY07	C04-203	C04-179	Replace	FY07	Replace	$ 2,500	2007-2008	FY07
C04-204	3		C04-204	C04-226	Replace	FY07	C04-204	C04-218	CIPP	FY09	Replace	$ 2,500	2007-2008	FY07
C04-223	3		C04-223	C04-229	Replace	FY07					Replace	$ 2,500	2007-2008	FY07
C04-226	3		C04-226	C04-230	Replace	FY07	C04-226	C04-204	Replace	FY07	Replace	$ 2,500	2007-2008	FY07
C04-229	3		C04-229	C04-233	CIPP	FY09	C04-229	C04-223	Replace	FY07	Replace	$ 2,500	2007-2008	FY07
C05-006	4		C05-006	C05-013	Replace	FY07					Replace	$ 2,500	2007-2008	FY07
C05-013	3		C05-013	C05-021	Replace	FY07	C05-013	C05-006	Replace	FY07	Replace	$ 2,500	2007-2008	FY07
C05-016	3	4.6	C05-016	C05-017	Replace	FY07	C05-016	C05-329	CIPP	FY11	Replace	$ 2,500	2007-2008	FY07
C05-017	3	3.1	C05-017	C05-020	Replace	FY07	C05-017	C05-016	Replace	FY07	Replace	$ 2,500	2007-2008	FY07

MH #	Overall	Manhole Depth	D/S Segment				U/S Segment				Manhole			
			MH	MH	Action	Year	MH	MH	Action	Year	Action	Cost	Street Repairs	CIP Year
C05-020	5	3.3	C05-020	C05-028	Replace	FY07	C05-020	C05-027	CIPP	FY11	Replace	$ 2,500	2007-2008	FY07
C05-028	4	5	C05-028	C05-041	Replace	FY07	C05-028	C05-335	CIPP	FY11	Replace	$ 2,500	2007-2008	FY07
C05-072	3	3	C05-072	C05-061	Maintain		C05-072	C05-354	Spot Repair	FY07	Line	$ 603	2007-2008	FY07
B04-026	3	12.8	B04-026	B04-043	Replace	FY08	B04-026	B04-027	Maintain		Replace	$ 2,500	2010-2011	FY08
B04-046	4		B04-046	B04-035	CIPP	FY08	B04-046	B04-270	RS	RS	Line	$ 1,206	2010-2011	FY08
B04-046	4		B04-046	B04-035	CIPP	FY08	B04-046	B04-270	RS	RS	Line	$ 1,206	2010-2011	FY08
B04-054	3		B04-054	B04-070	RS	RS	B04-054	B04-055	Replace	FY08	Replace	$ 2,500	2010-2011	FY08
B04-055	3		B04-055	B04-054	Replace	FY08	B04-054	B04-055	Replace	FY08	Replace	$ 2,500	2010-2011	FY08
B04-230	3	5.6	B04-230	B04-062	Replace	FY09	B04-230	B04-273	CIPP	FY08	Replace	$ 2,500	2010-2011	FY08
B04-273	3		B04-273	B04-230	CIPP	FY08	B04-273	B04-063	Replace	FY10	Replace	$ 2,500	2010-2011	FY08
B05-046	3		B05-046	B05-074	CIPP	FY08	B05-046	B05-386	CIPP	FY08	Line	$ 1,206	2010-2011	FY08
B05-074	5	6.1					B05-074	B05-046	CIPP	FY08	Line	$ 1,226	2010-2011	FY08
C04-083	3	4.5	C04-083	C04-082	CIPP	FY11	C04-083	C04-084	CIPP	FY08	Line	$ 904		FY08
C04-093	5	5.4	C04-093	C04-103	Maintain		C04-093	C04-094	CIPP	FY08	Line	$ 1,085		FY08
C04-094	5	6.2	C04-094	C04-093	CIPP	FY08	C04-094	C04-095	CIPP	FY11	Line	$ 1,246		FY08
C04-096	3	5.84	C04-096	C04-097	CIPP	FY08	C04-096	C04-300	CIPP	FY11	Line	$ 1,173		FY08
C04-097	3	5.5	C04-097	C05-105	CIPP	FY11	C04-097	C04-096	CIPP	FY08	Line	$ 1,105		FY08
C04-117	3		C04-117	C04-128	Maintain		C04-117	C04-278	CIPP	FY08	Line	$ 1,206	2007-2008	FY08
C04-128	3		C04-128	C04-144	CIPP	FY08	C04-128	C04-117	Maintain		Line	$ 1,206	2007-2008	FY08
C04-144	3		C04-144	C04-159	CIPP	FY08	C04-144	C04-128	CIPP	FY08	Line	$ 1,206	2007-2008	FY08
C04-159	3		C04-159	C04-183	CIPP	FY09	C04-159	C04-144	CIPP	FY08	Line	$ 1,206	2007-2008	FY08
C04-167	3		C04-167	C04-181	CIPP	FY08					Line	$ 1,206	2007-2008	FY08
C05-009	3	5.8	C05-009	C05-018	CIPP	FY08	C05-009	C05-008	CIPP	FY08	Line	$ 1,165	2007-2008	FY08
C05-035	3	3	C05-035	C05-048	CIPP	FY08	C05-035	C05-352	Maintain		Line	$ 603	2007-2008	FY08
C05-048	3	3.5	C05-048	C05-034	CIPP	FY08	C05-048	C05-346	Maintain		Line	$ 703	2007-2008	FY08
C05-054	3	7	C05-054	C05-307	CIPP	FY08					Line	$ 1,407	2007-2008	FY08
C05-070	3	6.5	C05-070	C05-091	CIPP	FY08	C05-070	C05-077	CIPP	FY11	Line	$ 1,306	2007-2008	FY08
C05-163	3	4.1	C05-163	C05-179	CIPP	FY08	C05-163	C05-389	Replace	FY11	Replace	$ 2,500		FY08
C05-221	3	4.5	C05-221	C05-207	CIPP	FY08	C05-221	C05-384	CIPP	FY09	Line	$ 904		FY08
C05-247	3	10.5	C05-247	C05-253	CIPP	FY12	C05-247	C05-399	CIPP	FY08	Line	$ 2,110		FY08
C05-264	4	7.4	C05-264	C04-234	CIPP	FY08	C05-264	C05-380	CIPP	FY08	Line	$ 1,487		FY08
C05-266	4	8	C05-266	C05-279	CIPP	FY08	C05-266	C05-267	CIPP	FY11	Line	$ 1,607	2007-2008	FY08
A06-039	5		A06-039	A06-032	Maintain		A06-039	A06-048	CIPP	FY09	Line	$ 1,206		FY09
A06-048	3		A06-048	A06-039	CIPP	FY09	A06-048	A06-062	Maintain		Line	$ 1,206		FY09
B04-027	3	4.2	B04-027	B04-026	Maintain		B04-027	B04-261	CIPP	FY09	Line	$ 844	2010-2011	FY09
B04-028	3		B04-028	B04-027	Maintain		B04-028	B04-233	CIPP	FY09	Line	$ 1,206	2010-2011	FY09
B04-040	5	6.9	B04-040	B04-047	CIPP	FY10	B04-040	B04-041	CIPP	FY09	Line	$ 1,386	2010-2011	FY09
B04-042	3	4	B04-042	B04-041	CIPP	FY10	B04-042	B04-043	CIPP	FY09	Line	$ 804	2010-2011	FY09
B04-043	4	4	B04-043	B04-042	CIPP	FY09	B04-043	B04-044	Maintain		Line	$ 804	2010-2011	FY09
B04-045	5		B04-045	B04-044	CIPP	FY09	B04-045	B04-050	CIPP	FY10	Line	$ 1,206	2010-2011	FY09
B04-062	5	4.9	B04-062	B04-061	Replace	FY10	B04-062	B04-230	Replace	FY09	Replace	$ 2,500	2010-2011	FY09
B04-066	3	5.7	B04-066	B04-065	Replace	FY09	B04-066	B04-067	Replace	FY10	Replace	$ 2,500	2010-2011	FY09
B05-035	3		B05-035	B05-048	CIPP	FY09					Line	$ 1,206	2010-2011	FY09

MH #	Overall	Manhole Depth	D/S Segment				U/S Segment				Manhole			
			MH	MH	Action	Year	MH	MH	Action	Year	Action	Cost	Street Repairs	CIP Year
B05-048	3		B05-048	B05-057	CIPP	FY09	B05-048	B05-035	CIPP	FY09	Line	$ 1,206	2010-2011	FY09
B05-057	3		B05-057	B05-426	CIPP	FY10	B05-057	B05-048	CIPP	FY09	Line	$ 1,206	2010-2011	FY09
B05-112	3		B05-112	B05-086	CIPP	FY09	B05-112	B05-116	CIPP	FY09	Line	$ 1,206	2010-2011	FY09
C04-059	4	3.2	C04-059	C04-069	CIPP	FY09	C04-059	C04-316	Maintain		Line	$ 643		FY09
C04-059	3	3.2	C04-059	C04-069	CIPP	FY09	C04-059	C04-316	Maintain		Line	$ 643		FY09
C04-090	5	7.5	C04-090	C04-102	Maintain		C04-090	C04-091	CIPP	FY09	Line	$ 1,507	2007-2008	FY09
C04-091	3	5.6	C04-091	C04-090	CIPP	FY09	C04-091	C04-349	Maintain		Line	$ 1,125		FY09
C04-102	3		C04-102	C04-110	CIPP	FY09	C04-102	C04-090	Maintain		Line	$ 1,206	2007-2008	FY09
C04-112	3		C04-112	C04-119	CIPP	FY09	C04-112	C04-298	Maintain		Line	$ 1,206	2007-2008	FY09
C04-119	3		C04-119	C05-120	CIPP	FY09	C04-119	C04-299	Maintain		Line	$ 1,206	2007-2008	FY09
C04-170	3		C04-170	C04-169	Spot Repair	FY07	C04-170	C04-160	CIPP	FY09	Line	$ 1,206	2007-2008	FY09
C04-218	3		C04-218	C04-204	CIPP	FY09	C04-218	C04-205	Maintain		Line	$ 1,206	2007-2008	FY09
C05-022	3		C05-022	C05-029	CIPP	FY09	C05-022	C05-336	Spot Repair	FY07	Line	$ 1,206	2007-2008	FY09
C05-029	5	4.9	C05-029	C05-041	CIPP	FY09	C05-029	C05-022	CIPP	FY09	Line	$ 985	2007-2008	FY09
C05-031	3	3.9	C05-031	C05-026	Maintain		C05-031	C05-040	CIPP	FY09	Line	$ 784	2007-2008	FY09
C05-040	3	2.5	C05-040	C05-031	CIPP	FY09	C05-040	C05-390	Maintain		Line	$ 502	2007-2008	FY09
C05-061	3	4.5	C05-061	C05-057	CIPP	FY09	C05-061	C05-347	Maintain		Line	$ 904		FY09
C05-073	3	4	C05-073	C05-066	CIPP	FY09	C05-073	C05-082	CIPP	FY09	Line	$ 804	2007-2008	FY09
C05-082	3	3	C05-082	C05-073	CIPP	FY09	C05-082	C05-353	CIPP	FY11	Line	$ 603	2007-2008	FY09
C05-083	3	5.8	C05-083	C05-093	CIPP	FY09	C05-083	C05-075	Maintain		Line	$ 1,165	2007-2008	FY09
C05-093	3		C05-093	C05-084	CIPP	FY11	C05-093	C05-083	CIPP	FY09	Line	$ 1,206	2007-2008	FY09
C05-106	3	5.5	C05-106	C05-121	CIPP	FY09	C05-106	C05-319	Maintain		Line	$ 1,105		FY09
C05-107	5	8.3	C05-107	C05-124	Maintain		C05-107	C05-114	CIPP	FY09	Line	$ 1,668	2007-2008	FY09
C05-114	3	8.2	C05-114	C05-107	CIPP	FY09	C05-114	C05-115	CIPP	FY12	Line	$ 1,648	2007-2008	FY09
C05-124	4	9.5	C05-124	C05-147	CIPP	FY09	C05-124	C05-107	Maintain		Line	$ 1,909	2007-2008	FY09
C05-125	3	4.4	C05-125	C05-115	CIPP	FY09	C05-125	C05-359	Maintain		Line	$ 884		FY09
C05-147	3	9.3	C05-147	C05-178	CIPP	FY09	C05-147	C05-124	CIPP	FY09	Line	$ 1,869	2007-2008	FY09
C05-179	5	3.5	C05-179	C05-162	CIPP	FY09	C05-179	C05-370	CIPP	FY09	Line	$ 703		FY09
C05-256	3	5.6	C05-256	C05-253	CIPP	FY09					Line	$ 1,125		FY09
C05-260	4	4	C05-260	C05-275	CIPP	FY11	C05-260	C05-248	CIPP	FY09	Line	$ 804		FY09
C05-273	4		C05-273	B05-005	CIPP	FY09	C05-273	C05-379	Spot Repair	FY12	Line	$ 1,206		FY09
C05-277	3	4	C05-277	B05-002	CIPP	FY09	C05-277	C05-259	CIPP	FY11	Line	$ 804		FY09
A04-074	3		A04-074	A04-081	Replace	FY10					Replace	$ 2,500	2010-2011	FY10
A04-089	3		A04-089	A04-099	Replace	FY10	A04-089	A04-088	Replace	FY10	Replace	$ 2,500	2010-2011	FY10
A04-097	3		A04-097	A04-098	Replace	FY10					Replace	$ 2,500	2010-2011	FY10
A04-118	4		A04-118	A04-119	Replace	FY10					Replace	$ 2,500	2010-2011	FY10
A05-033	3		A05-033	A05-034	Replace	FY10	A05-033	A05-044	Replace	FY10	Replace	$ 2,500	2010-2011	FY10
A05-074	3		A05-074	A05-075	Replace	FY10					Replace	$ 2,500	2010-2011	FY10
A06-226	3		A06-226	A06-250	Replace	FY10					Replace	$ 2,500	2010-2011	FY10
A07-082	3		A07-082	A07-072	Replace	FY10	A07-072	A07-082	Replace	FY10	Replace	$ 2,500	2010-2011	FY10
B04-017	3		B04-017	B04-027	CIPP	FY10	B04-017	B04-259	CIPP	FY10	Line	$ 1,206	2010-2011	FY10
B04-063	3	4.5	B04-063	B04-273	Replace	FY10	B04-063	B04-064	Replace	FY10	Replace	$ 2,500	2010-2011	FY10
B04-067	3	6.1	B04-067	B04-066	Replace	FY10	B04-067	B04-234	CIPP	FY10	Replace	$ 2,500	2010-2011	FY10

MH #	Overall	Manhole Depth	D/S Segment				U/S Segment				Manhole			
			MH	MH	Action	Year	MH	MH	Action	Year	Action	Cost	Street Repairs	CIP Year
B04-069	3	7.5	B04-069	B04-068	Replace	FY10	B04-069	B04-271	RS	RS	Replace	$ 2,500	2010-2011	FY10
B05-047	3		B05-047	B05-006	CIPP	FY10	B05-047	B05-391	CIPP	FY10	Line	$ 1,206	2010-2011	FY10
B05-149	3		B05-149	B05-150	Replace	FY10					Replace	$ 2,500	2010-2011	FY10
C05-222	3	2.8	C05-222	C05-221	CIPP	FY10	C05-222	C05-194	CIPP	FY11	Line	$ 563	2010-2011	FY10
A05-058	3		A05-058	A05-063	Maintain						Line	$ 1,206	2007-2008	FY11
A05-086	3		A05-086	A05-087	Maintain						Line	$ 1,206	2007-2008	FY11
A06-060	3		A06-060	A06-032	Maintain						Line	$ 1,206		FY11
A06-062	5		A06-062	A06-048	Maintain		A06-062	A06-068	Maintain		Line	$ 1,206		FY11
A07-063	3		A07-063	A07-072	Maintain						Line	$ 1,206	2010-2011	FY11
A07-137	4										Line	$ 1,206	2010-2011	FY11
B04-008	3		B04-008	B04-007	CIPP	FY11	B04-007	B04-008	CIPP	FY11	Line	$ 1,206	2007-2008	FY11
B04-009	3	5.26	B04-009	B04-010	CIPP	FY11	B04-009	B04-338	Spot Repair	FY11	Line	$ 1,057		FY11
B04-032	3	6									Line	$ 1,206	2010-2011	FY11
B04-037	4	7.3									Line	$ 1,467	2010-2011	FY11
B04-269	4										Line	$ 1,206	2010-2011	FY11
B05-435	3		B05-435	B05-434	Maintain		B05-435	B05-436	Maintain		Line	$ 1,206	2007-2008	FY11
B06-049	3		B06-049	B06-060	Maintain						Line	$ 1,206	2007-2008	FY11
B06-055	3		B06-055	B06-037	Maintain		B06-055	B06-056	Maintain		Line	$ 1,206	2007-2008	FY11
B06-108	3		B06-108	B06-357	Maintain						Line	$ 1,206		FY11
C03-230	4		C03-230	C03-229	Maintain		C03-229	C03-230	Maintain		Line	$ 1,206		FY11
C04-062	3	3.9	C04-062	C04-319	CIPP	FY11					Line	$ 784		FY11
C04-063	3	4.92	C04-063	C04-073	Maintain		C04-063	C04-322	Maintain		Line	$ 989		FY11
C04-063	4	4.92	C04-063	C04-073	Maintain		C04-063	C04-322	Maintain		Line	$ 989		FY11
C04-068	5		C04-068	C04-069	Maintain						Line	$ 1,206		FY11
C04-069	3	4.1	C04-069	C04-081	Maintain		C04-069	C04-314	CIPP	FY11	Line	$ 824		FY11
C04-073	3	7.25	C04-073	C04-074	CIPP	FY11	C04-073	C04-319	CIPP	FY11	Line	$ 1,457		FY11
C04-074	3	5.5	C04-074	C04-075	Maintain		C04-074	C04-320	Maintain		Line	$ 1,105		FY11
C04-075	4	7	C04-075	C05-068	CIPP	FY11	C04-075	C04-074	Maintain		Line	$ 1,407		FY11
C04-080	4		C04-080	C04-090	Maintain		C04-080	C04-081	CIPP	FY11	Line	$ 1,206		FY11
C04-081	4	7.3	C04-081	C04-080	CIPP	FY11	C04-081	C04-313	Spot Repair	FY12	Line	$ 1,467		FY11
C04-086	4	6.33	C04-086	C05-088	CIPP	FY11	C04-086	C04-282	Spot Repair	FY11	Line	$ 1,272		FY11
C04-095	5	5	C04-095	C04-094	CIPP	FY11	C04-095	C04-301	Spot Repair	FY11	Line	$ 1,005		FY11
C04-106	5		C04-106	C04-105	CIPP	FY12	C04-106	C04-259	CIPP	FY11	Line	$ 1,206	2007-2008	FY11
C04-130	3		C04-130	C04-146	CIPP	FY11	C04-130	C04-145	CIPP	FY12	Line	$ 1,206	2007-2008	FY11
C04-139	3										Line	$ 1,206	2007-2008	FY11
C04-146	3		C04-146	C04-160	CIPP	FY12	C04-146	C04-295	CIPP	FY11	Line	$ 1,206	2007-2008	FY11
C04-168	5		C04-168	C04-183	Maintain		C04-168	C04-169	Maintain		Line	$ 1,206	2007-2008	FY11
C05-010	3	5.3	C05-010	C05-014	CIPP	FY11	C05-010	C05-295	Maintain		Line	$ 1,065	2007-2008	FY11
C05-011	3										Line	$ 1,206	2007-2008	FY11
C05-014	3	8.4	C05-014	C05-021	CIPP	FY12	C05-014	C05-010	CIPP	FY11	Line	$ 1,688	2007-2008	FY11
C05-025	3	7.2	C05-025	C05-026	CIPP	FY11	C05-025	C05-326	CIPP	FY11	Line	$ 1,447	2007-2008	FY11
C05-026	3	7.5	C05-026	C05-027	Maintain		C05-026	C05-031	Maintain		Line	$ 1,507	2007-2008	FY11
C05-027	5	4.5	C05-027	C05-020	CIPP	FY11	C05-027	C05-046	CIPP	FY11	Line	$ 904	2007-2008	FY11

MH #	Overall	Manhole Depth	D/S Segment				U/S Segment				Manhole			
			MH	MH	Action	Year	MH	MH	Action	Year	Action	Cost	Street Repairs	CIP Year
C05-043	3	2.66									Line	$ 534	2007-2008	FY11
C05-045	3	4.16	C05-045	C05-035	CIPP	FY11	C05-045	C05-348	Maintain		Line	$ 836	2007-2008	FY11
C05-047	4	8.5	C05-047	C05-060	CIPP	FY11					Line	$ 1,708	2007-2008	FY11
C05-050	3	8.08	C05-050	C05-059	CIPP	FY11	C05-050	C05-316	Maintain		Line	$ 1,624		FY11
C05-057	3	4.33	C05-057	C05-048	CIPP	FY11	C05-057	C05-345	CIPP	FY11	Line	$ 870	2007-2008	FY11
C05-060	3	5	C05-060	C05-076	CIPP	FY11	C05-060	C05-047	CIPP	FY11	Line	$ 1,005	2007-2008	FY11
C05-069	5	8	C05-069	C05-076	Maintain		C05-069	C05-402	Maintain		Line	$ 1,607	2007-2008	FY11
C05-075	3	7.4	C05-075	C05-083	Maintain		C05-075	C05-307	Maintain		Line	$ 1,487	2007-2008	FY11
C05-076	3	7.66	C05-076	C05-090	CIPP	FY11	C05-076	C05-069	Maintain		Line	$ 1,539	2007-2008	FY11
C05-077	3	4.66	C05-077	C05-070	CIPP	FY11	C05-077	C05-344	CIPP	FY11	Line	$ 936	2007-2008	FY11
C05-084	3	7.9	C05-084	C05-069	CIPP	FY11	C05-084	C05-093	CIPP	FY11	Line	$ 1,587	2007-2008	FY11
C05-088	3	6.5	C05-088	C05-105	CIPP	FY11	C05-088	C05-318	Maintain		Line	$ 1,306		FY11
C05-100	3	13.5					C05-100	C05-091	CIPP	FY11	Line	$ 2,713	2007-2008	FY11
C05-100	4	13.5					C05-100	C05-091	CIPP	FY11	Line	$ 2,713	2007-2008	FY11
C05-113	3	6	C05-113	C05-120	CIPP	FY11	C05-113	C05-401	Spot Repair	FY07	Line	$ 1,206	2007-2008	FY11
C05-115	3	8.1	C05-115	C05-114	CIPP	FY12	C05-115	C05-357	CIPP	FY11	Line	$ 1,628		FY11
C05-120	4		C05-120	C05-145	CIPP	FY12	C05-120	C05-113	CIPP	FY11	Line	$ 1,206	2007-2008	FY11
C05-122	5		C05-122	C05-121	CIPP	FY12	C05-122	C05-323	CIPP	FY11	Line	$ 1,206		FY11
C05-126	3	2.9									Line	$ 583		FY11
C05-137	3		C05-137	C05-122	Maintain						Line	$ 1,206		FY11
C05-145	4		C05-145	C05-408	CIPP	FY11	C05-145	C05-136	Maintain		Line	$ 1,206		FY11
C05-194	3	3.66	C05-194	C05-222	CIPP	FY11	C05-194	C05-223	CIPP	FY11	Line	$ 735		FY11
C05-195	4		C05-195	C05-196	Maintain						Line	$ 1,206		FY11
C05-209	3	3.75	C05-209	C05-196	Maintain		C05-209	C05-230	CIPP	FY11	Line	$ 754		FY11
C05-228	3	5	C05-228	C05-249	CIPP	FY11					Line	$ 1,005		FY11
C05-229	4	6.84	C05-229	C05-223	Maintain		C05-229	C05-261	Maintain		Line	$ 1,374		FY11
C05-253A	3										Line	$ 1,206		FY11
C05-259	3	3.3	C05-259	C05-277	CIPP	FY11					Line	$ 663		FY11
C05-261	3	2.84	C05-261	C05-229	Maintain		C05-261	C05-356	Maintain		Line	$ 571		FY11
C05-275	3		C05-275	C05-278	Maintain		C05-275	C05-260	CIPP	FY11	Line	$ 1,206	2010-2011	FY11
C05-402	3		C05-402	C05-069	Maintain						Line	$ 1,206	2007-2008	FY11
A06-018	3		A06-018	A06-013	CIPP	FY12	A06-018	A06-032	Maintain		Line	$ 1,206		FY12
C05-021	4		C05-021	C05-020	Replace	FY12	C05-021	C05-014	CIPP	FY12	Replace	$ 2,500		FY12
C05-121	3		C05-121	C05-136	CIPP	FY12	C05-121	C05-122	CIPP	FY12	Line	$ 1,206		FY12
C05-136	4		C05-136	C05-145	Maintain		C05-136	C05-121	CIPP	FY12	Line	$ 1,206	2007-2008	FY12
C05-162	5	6.4	C05-162	C05-191	CIPP	FY12	C05-162	C05-369	CIPP	FY12	Line	$ 1,286		FY12
B04-018	3		B04-018	B04-028	RS	RS	B04-018	B04-013	RS	RS	RS		2010-2011	RS
B04-020	3		B04-020	B04-029	RS	RS	B04-020	B04-021	RS	RS	RS		2010-2011	RS
B04-029	3		B04-029	B04-028	RS	RS	B04-029	B04-263	RS	RS	RS		2010-2011	RS
B04-070	4		B04-070	B04-069	RS	RS	B04-070	B04-054	RS	RS	RS		2010-2011	RS
B04-256	4		B04-256	B04-015	RS	RS					RS		2010-2011	RS