



10-Year Capital Improvements Implementation Plan

Submitted by: Richard K. Tanaka, District Manager



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Providing Engineering, Surveying and Planning Services



APPROVED BY: _____

Michelle Kaelker-Boor, President

DATE: DECEMBER 15, 2015

BURBANK SANITARY DISTRICT 10-YEAR CAPITAL IMPROVEMENT PROGRAM

1.0 BACKGROUND

1.1 Condition Assessment

In July 10, 2014, District completed the Condition Assessment for the Burbank Sanitary District sewer infrastructures. This report consisted of a condition assessment of both sewer mains and manholes. A brief summary of the findings are as follows:

CCTV results concluded that the sanitary sewer system pipes contained many blockages due to debris, grease, and roots, with several pipe sags, cracks, break and deformation. Much of the sanitary sewer system is composed of vitrified clay pipe, a material not used in modern sanitary sewer construction. The inspection results are summarized in Table A-1.

Table A-1: Summary of Sanitary Sewer System Condition

Condition	Sanitary Sewer Pipe	Sanitary Sewer Manholes
Excellent	818 feet (2.64%)	(0%)
Good	3742 feet (12.52%)	9 (15.25%)
Fair	12,423 feet (41.57%)	50 (84.75%)
Poor	12,898 feet (43.16%)	(0%)
Total	29,881 feet	59

- PACP Pipe Rating
 - Rating from 1 to 5
 - Pipes rated 5 should be repaired immediately.
- 70% of all district mains are rated in the PACP 4 and 5 range, which represent pipes in distressed conditions and needs to be repaired or replaced.
- Laterals were **not** inspected as part of this condition assessment

1.2 Development Process of Capital Project Needs

From July 2014 through November 2014, District reviewed condition assessment and performed preliminary engineering analysis to develop project priority and cost estimates. The District determined there are two (2) specific unique zones based on the conditions assessment report as follows:

- Zone A (located between Scott Street and I-280)
Sewer mains in Zone A area are located in the backyards between two properties and will require all sewer mains to be fully replaced. Because mains are located in the backyards and difficulty of constructing the mains in the backyard, it was determined that there are three possible ways to implement these improvements as follows:
 - Open cut trenching with estimated cost of \$1.4 to \$1.6 million
 - Pipe bursting with estimated cost of \$1.4 million
 - Abandon existing main and replace with new main in the street with estimated cost of \$1.7 million
- Zone B is all other portions of the District north of Zone A
All sewer mains in Zone B are located in the street and majority of the repairs can be accomplished with spot repairs in lieu of full pipe replacement. Zone B was estimated to cost \$1.9 million



With this information, in November 10, 2014, the first public outreach meeting was conducted to inform of the District strategy for the implementation of the capital improvements program. The 10 year program included in priority for Zone B spot repair projects as follows:

Year	Location	Description	Cost
1	Arleta Avenue & Irving Avenue	20 Spot repairs	\$246,000
2	Brooklyn Ave & Leland Avenue	27 Spot repairs	\$430,000
4	Boston Avenue & Bailey Avenue	15 spot repairs	\$246,000
5	Cleveland Avenue	4 spot repairs & 1 Full Replacement	\$47,500 – Spot Repairs \$237,000 - Full replacement
6	Laswell Avenue & Richmond Avenue	20 Spot repairs	\$165,500
7	Rutland Avenue & Vaughn Avenue	12 Spot repairs	\$174,000
8	Bascom Avenue, Wabash Avenue & Leigh Avenue	11 Spot repairs	\$137,000
9	Cecil Avenue, Clifton Avenue & Raymond Avenue	9 Spot repairs	\$141,000
10	Forest Avenue & Arleta Avenue	3 Spot repairs	\$51,000
Total			\$1.9 m

As a result of this public outreach meeting, following action items were implemented for Zone A:

- Determine the best implementation approach by:
 - Conducting property owners survey
 - Perform detailed inspections
 - Develop detailed mapping
 - Perform further engineering analysis for best approach to replace pipe
- Segregate commercial areas adjacent to Zone A as a separate Zone, labelled Zone C.
- Develop a 10 year CIP implementation Strategy

On January 9, 2015, request to conduct investigation letters sent out to all property owners. District staff performed field inspection of all properties in Zone A during the week of February 18th and 25th. A detailed mapping was also completed at 1"=10' scale level detail on March 15, 2015. Thereafter, District performed further engineering analysis.

As a result of these further investigations, Staff determined that all pipes can be replaced in the backyard by pipe bursting method and open cut to connect all laterals. This alternative was then selected as the preferred implementation approach because of the lowest cost alternative, less disruptions to property owners, and ease of implementation.

In Spring of 2015, District held another public meeting to inform of the District's intent to raise the rates to cover these improvements. Public Hearing was held on June 16, 2015 to fund the District 10 year CIP and its' operating expenses.

10 Year CIP program was included as part of the presentation on June 16, 2015. Those that were in attendance supported the District effort to upgrade and implement the District 10-Year CIP. New rates were adopted based on this support.

2.0 DISTRICT 10-YEAR CAPITAL IMPROVEMENT PROGRAM (CIP)

With adoption of the FY budget 2015-16 and rate increases from the Public Hearing Date of June 16, 2015, the District 10-Year CIP is adopted as follows:

YEAR	ZONE	LOCATON	DESCRIPTION	COST
1	B	Arleta Ave, Irving Ave	20 spot repairs	\$246,000
2	B	Brooklyn Ave, Leland Avenue	27 spot repairs	\$430,000
3	A	All Streets, includes Scott St	Pipe Bursting	\$1,575,000
4	B	Boston Avenue, Bailey Avenue	15 Spot repairs	\$246,000
5	B	Cleveland Avenue	4 Spot repairs + Replacement	\$285,000
6	B	Laswell Avenue, Richmond Avenue	20 Spot repairs	\$166,000
7	B	Rutland Avenue, Vaughn Avenue	12 Spot repairs	\$174,000
8	B	Bascom Avenue, Wabash Avenue, Leigh Avenue	11 Spot repairs	\$137,000
9	B	Cecil Avenue, Clifton Avenue, Raymond Avenue	9 Spot repairs	\$141,000
10	B	Forest Avenue, Arleta Avenue	3 Spot repairs	\$51,000

The above total cost is estimated at \$3,451,000. In third year, this program assumed that all Zone A would be designed and District would apply for State Revolving Fund Program to construct all improvements in Zone A at one time. If the District is unable to secure SRF Loan, Zone A would be divided into three separate projects in 3rd, 5th and 7th years.

Appendix:

- 1) Zone A & B Improvement Plans
- 2) Detailed Cost Estimates
- 3) Zone A Property Survey Results

Appendix 1:

Zone A & B

Improvement

Plans

BURBANK SANITARY DISTRICT
SPOT & FULL REPAIRS

























LEGEND

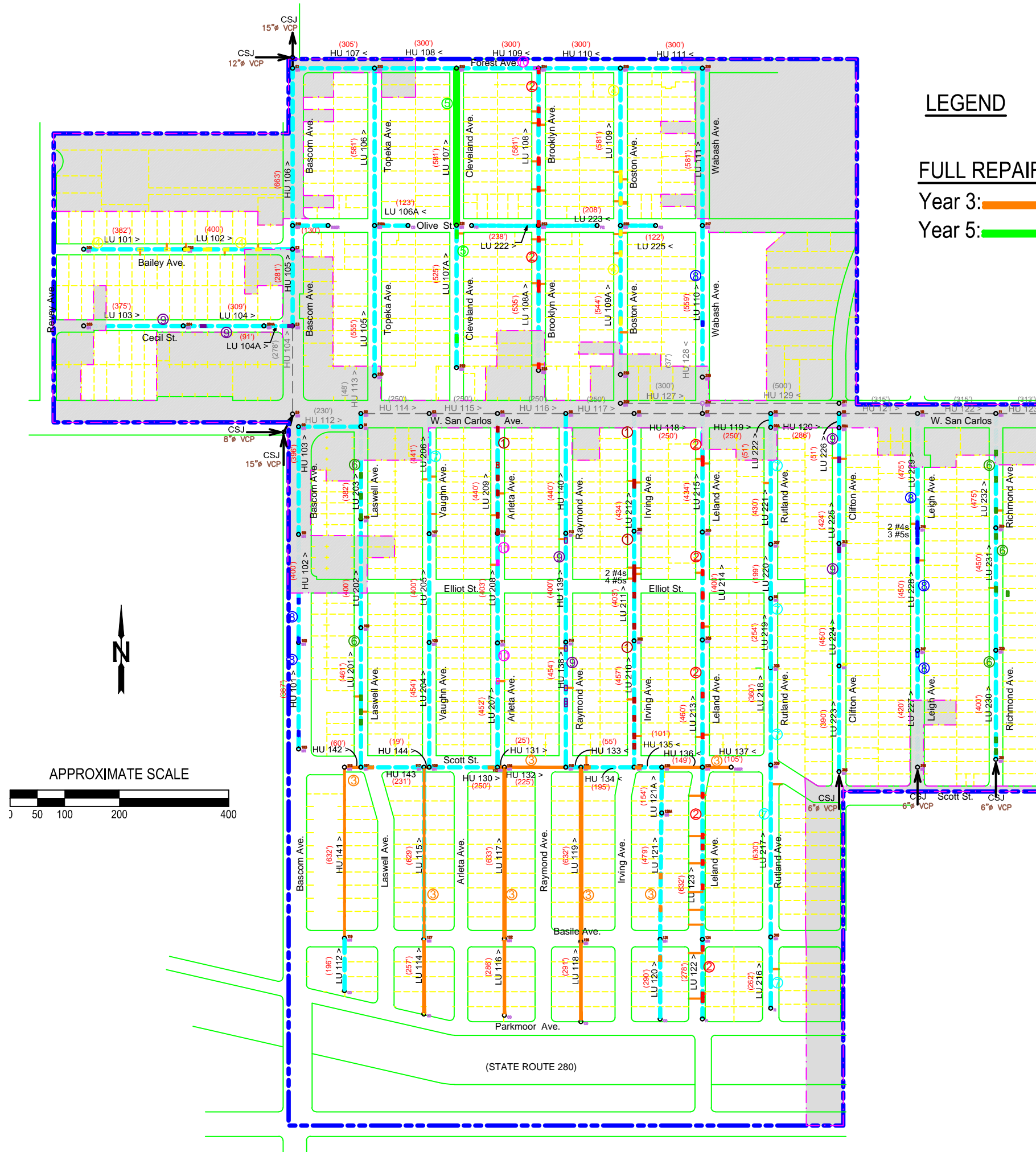
FULL REPAIRS

Year 3: 

Year 5: 

SPOT REPAIRS

- | | | | |
|---|--------------------------------|---|---------------------------------|
|  | - Lateral to be Replaced | | |
|  | - Year 1, Spot Repair Defect 4 |  | - Year 6, Spot Repair Defect 5 |
|  | - Year 1, Spot Repair Defect 5 |  | - Year 7, Spot Repair Defect 4 |
|  | - Year 2, Spot Repair Defect 4 |  | - Year 7, Spot Repair Defect 5 |
|  | - Year 2, Spot Repair Defect 5 |  | - Year 8, Spot Repair Defect 3 |
|  | - Year 3, Spot Repair Defect 4 |  | - Year 8, Spot Repair Defect 4 |
|  | - Year 3, Spot Repair Defect 5 |  | - Year 8, Spot Repair Defect 5 |
|  | - Year 4, Spot Repair Defect 3 |  | - Year 9, Spot Repair Defect 3 |
|  | - Year 4, Spot Repair Defect 4 |  | - Year 9, Spot Repair Defect 4 |
|  | - Year 4, Spot Repair Defect 5 |  | - Year 9, Spot Repair Defect 5 |
|  | - Year 5, Spot Repair Defect 4 |  | - Year 10, Spot Repair Defect 3 |
|  | - Year 5, Spot Repair Defect 5 |  | - Year 10, Spot Repair Defect 4 |
|  | - Year 6, Spot Repair Defect 4 | | |



Burbank Sanitary District 10-Year CIP Program

ZONE B - SPOT REPAIRS			
Year	Location	Description	Cost
1	Arleta Avenue Irving Avenue	20 Spot repairs	\$246,000
2	Brooklyn Ave Leland Avenue	27 Spot repairs	\$430,000
4	Boston Avenue Bailey Avenue	15 spot repairs	\$246,000
5	Cleveland Avenue	4 spot repairs	\$47,500
6	Laswell Avenue Richmond Avenue	20 Spot repairs	\$165,500
7	Rutland Avenue Vaughn Avenue	12 Spot repairs	\$174,000
8	Bascom Avenue Wabash Avenue Leigh Avenue	11 Spot repairs	\$137,000
9	Cecil Avenue Clifton Avenue Raymond Avenue	9 Spot repairs	\$141,000
10	Forest Avenue Arleta Avenue	3 Spot repairs	\$51,000
Total			\$1,638,000

ZONE B - FULL REPLACEMENT

ZONE B - FULL REPLACEMENT			
5	Cleveland Avenue	1 Full main line replacement	\$237,500

ZONE A

ZONE A			
3	Easements	Pipe bursting approach	\$1,325,000
	Scott Street	6 Full main line replacements and 4 spot repairs	\$188,000
	Irving-Ieland Easements	3 Spot repairs	\$62,000
		Total	\$1,575,000

Total	\$3,450,500
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Appendix 2:

Detailed Cost

Estimate

Year 1: Spot Repair - Segment LU-209 (Arleta Ave) 6 Spot Repairs
Spot Repair Estimate: \$42,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$15,540
Total Estimate: \$67,340

Spot Repair - Segment LU-210 (Irving Ave) 4 Spot Repairs
Spot Repair Estimate: \$28,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$11,340
Total Estimate: \$49,140

Spot Repair - Segment LU-211 (Irving St) 8 Spot Repairs
Spot Repair Estimate: \$56,000
Lateral Repair Estimate (4 Laterals): \$19,600
Estimate Engineering Cost (30%): \$22,680
Total Estimate: \$98,280

Spot Repair - Segment LU-212 (Irving Ave) 2 Spot Repairs
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$7,140
Total Estimate: \$30,940

Year 1 Total Estimate: \$245,700

Year 2: Spot Repair - Segment LU-108 (Brooklyn Ave) 8 Spot Repairs
Spot Repair Estimate: \$56,000
Lateral Repair Estimate (6 Laterals): \$29,400
Estimate Engineering Cost (30%): \$25,620
Total Estimate: \$111,020

Spot Repair - Segment LU-108A (Brooklyn Ave) 3 Spot Repairs
Spot Repair Estimate: \$21,000
Lateral Repair Estimate (4 Laterals): \$19,600
Estimate Engineering Cost (30%): \$12,180
Total Estimate: \$52,780

Spot Repair - Segment LU-122 (Leland Ave) 3 Spot Repairs
Spot Repair Estimate: \$21,000
Lateral Repair Estimate (3 Laterals): \$14,700
Estimate Engineering Cost (30%): \$10,710
Total Estimate: \$46,410

Spot Repair - Segment LU-123 (Leland Ave) 5 Spot Repairs
Spot Repair Estimate: \$35,000
Lateral Repair Estimate (8 Laterals): \$39,200
Estimate Engineering Cost (30%): \$22,260
Total Estimate: \$96,460

Spot Repair - Segment LU-213 (Leland Ave) 2 Spot Repairs
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$7,140
Total Estimate: \$30,940

Spot Repair - Segment LU-214 (Leland Ave) 4 Spot Repairs
Spot Repair Estimate: \$28,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$11,340
Total Estimate: \$49,140

Spot Repair - Segment LU-215 (Leland Ave) 2 Spot Repairs
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$7,140
Total Estimate: \$30,940

Year 2 Total Estimate: \$417,690 - (\$430,220 after inflation)

Year 4: Spot Repair - Segment LU-109 (Boston Ave) 4 Spot Repairs
Spot Repair Estimate: \$28,000
Lateral Repair Estimate (5 Laterals): \$24,500
Estimate Engineering Cost (30%): \$15,750
Total Estimate: \$68,250

Spot Repair - Segment LU-109A (Boston Ave) 4 Spot Repairs
Spot Repair Estimate: \$28,000
Lateral Repair Estimate (4 Laterals): \$19,600
Estimate Engineering Cost (30%): \$14,280
Total Estimate: \$61,880

Spot Repair - Segment LU-101 (Bailey Ave) 2 Spot Repairs - Def.3
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$7,140
Total Estimate: \$30,940

Spot Repair - Segment LU-102 (Bailey Ave) 5 Spot Repairs
Spot Repair Estimate: \$35,000
Lateral Repair Estimate (3 Laterals): \$14,700
Estimate Engineering Cost (30%): \$14,910
Total Estimate: \$64,610

Year 4 Total Estimate: \$225,680 - (\$246,000 after inflation)

Year 5: Full Pipe Replacement - Segment LU-107 (Cleveland Ave)
Pipe Replacement Estimate: \$55,195
Lateral Replacement Estimate (22 Laterals): \$107,800
Estimate Engineering Cost (30%): \$48,900
Total Estimate: \$211,895

Spot Repair - Segment LU-107A (Cleveland Ave) 4 Spot Repairs
Spot Repair Estimate: \$28,000
Lateral Repair Estimate (1 Lateral): \$4,900
Estimate Engineering Cost (30%): \$9,870
Total Estimate: \$42,770

Year 5 Total Estimate: \$254,665 - (\$285,000 after inflation)

Year 6: Spot Repair - Segment LU-201 (Laswell Ave) 3 Spot Repairs
Spot Repair Estimate: \$21,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$9,240
Total Estimate: \$40,040

Spot Repair - Segment LU-203 (Laswell Ave) 3 Spot Repairs
Spot Repair Estimate: \$21,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$6,300
Total Estimate: \$27,300

Spot Repair - Segment LU-230 (Richmond Ave) 2 Spot Repairs
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$4,200
Total Estimate: \$18,200

Spot Repair - Segment LU-231 (Richmond Ave) 2 Spot Repairs
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (1 Lateral): \$4,900
Estimate Engineering Cost (30%): \$5,670
Total Estimate: \$24,570

Spot Repair - Segment LU-232 (Richmond Ave) 3 Spot Repairs
Spot Repair Estimate: \$211,000
Lateral Repair Estimate (1 Lateral): \$4,900
Estimate Engineering Cost (30%): \$7,770
Total Estimate: \$33,670

Year 6 Total Estimate: \$143,780 - (\$165,500 after inflation)

Year 7: Spot Repair - Segment LU-206 (Vaughn Ave) 3 Spot Repairs
Spot Repair Estimate: \$21,000
Lateral Repair Estimate (3 Laterals): \$14,700
Estimate Engineering Cost (30%): \$10,710
Total Estimate: \$46,410

Spot Repair - Segment LU-216 (Rutland Ave) 3 Spot Repairs
Spot Repair Estimate: \$21,000
Lateral Repair Estimate (1 Lateral): \$4,900
Estimate Engineering Cost (30%): \$7,770
Total Estimate: \$33,670

Spot Repair - Segment LU-217 (Rutland Ave) 2 Spot Repairs
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (1 Lateral): \$4,900
Estimate Engineering Cost (30%): \$5,670
Total Estimate: \$24,570

Spot Repair - Segment LU-218 (Rutland Ave) 2 Spot Repairs
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$4,200
Total Estimate: \$18,200

Spot Repair - Segment LU-219 (Rutland Ave) 1 Spot Repairs
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (3 Laterals): \$0
Estimate Engineering Cost (30%): \$2,100
Total Estimate: \$9,100

Spot Repair - Segment LU-221 (Rutland Ave) 1 Spot Repairs
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (1 Laterals): \$4,900
Estimate Engineering Cost (30%): \$3,570
Total Estimate: \$15,470

Year 7 Total Estimate: \$147,420 - (\$174,000 after inflation)

Year 8: Spot Repair - Segment HU-101 (Bascom Ave) 1 Spot Repairs
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$2,100
Total Estimate: \$9,100

Spot Repair - Segment HU-102 (Bascom Ave) 2 Spot Repairs
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$4,200
Total Estimate: \$18,200

Spot Repair - Segment LU-110 (Wabash Ave) 1 Spot Repairs
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$2,100
Total Estimate: \$9,100

Spot Repair - Segment LU-227 (Leigh Ave) 1 Spot Repairs - Def.3
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$2,100
Total Estimate: \$9,100

Spot Repair - Segment LU-228 (Leigh Ave) 4 Spot Repairs
Spot Repair Estimate: \$28,000
Lateral Repair Estimate (1 Lateral): \$4,900
Estimate Engineering Cost (30%): \$9,870
Total Estimate: \$42,770

Spot Repair - Segment LU-229 (Leigh Ave) 2 Spot Repairs
Spot Repair Estimate: \$14,000
Lateral Repair Estimate (1 Lateral): \$4,900
Estimate Engineering Cost (30%): \$5,670
Total Estimate: \$24,570

Year 8 Total Estimate: \$112,840 - (\$137,000 after inflation)

Year 9: Spot Repair - Segment LU-103 (Cecil St) 1 Spot Repair
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$2,100
Total Estimate: \$9,100

Spot Repair - Segment LU-104 (Cecil St) 1 Spot Repairs
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$2,100
Total Estimate: \$9,100

Spot Repair - Segment LU-224 (Clifton Ave) 1 Spot Repairs
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$2,100
Total Estimate: \$9,100

Spot Repair - Segment LU-225 (Clifton Ave) 1 Spot Repairs
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$5,040
Total Estimate: \$21,840

Spot Repair - Segment HU-138 (Raymond Ave) 4 Spot Repairs - Def.3
Spot Repair Estimate: \$28,000
Lateral Repair Estimate (2 Laterals): \$9,800
Estimate Engineering Cost (30%): \$11,340
Total Estimate: \$49,140

Spot Repair - Segment HU-139 (Raymond Ave) 1 Spot Repair - Def.3
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (1 Lateral): \$4,900
Estimate Engineering Cost (30%): \$3,570
Total Estimate: \$15,470

Year 9 Total Estimate: \$113,750 - (\$141,000 after inflation)

Year 10: Spot Repair - Segment HU-109 (Forest Ave) 1 Spot Repairs
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (0 Laterals): \$0
Estimate Engineering Cost (30%): \$2,100
Total Estimate: \$9,100

Spot Repair - Segment LU-207 (Arleta Ave) 1 Spot Repairs - Def.3
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (1 Laterals): \$4,900
Estimate Engineering Cost (30%): \$3,570
Total Estimate: \$15,470

Spot Repair - Segment LU-208 (Arleta Ave) 1 Spot Repairs
Spot Repair Estimate: \$7,000
Lateral Repair Estimate (1 Laterals): \$4,900
Estimate Engineering Cost (30%): \$3,570
Total Estimate: \$15,470

Year 10 Total Estimate: \$40,040 - (\$51,000 after inflation)

Zone A – Year-3 Cost Estimate

***Pipe Burst in Easement Area:**

3,400 LF @ \$80/LF = **\$272,000**

114 laterals @ \$4,500 each = **\$513,000**

Miscellaneous (includes removing fence, shed, concrete, etc.) @ \$1,000 each = **\$150,000**

Engineering Cost (30%) = **\$280,000**

TOTAL = \$1,215,000

TOTAL (After 3 years inflation) = \$1,325,000

***Spot Repairs in Easement Area:**

3 @ \$7,000/EA = **\$21,000**

4 laterals @ \$4,500 each = **\$18,000**

Miscellaneous (includes removing fence, shed, concrete, etc.) @ \$1,000 each = **\$5,000**

Engineering Cost (30%) = **\$13,000**

TOTAL = \$57,000

TOTAL (After 3 years inflation) = \$62,000

***Scott Street Repairs (Full and Spot):**

4 spot repairs

7 full pipe replacement

TOTAL = \$172,000

TOTAL (After 3 years inflation) = \$188,000

YEAR 3 TOTAL COST ESTIMATE = \$1,444,000

YEAR 3 TOTAL COST ESTIMATE (AFTER 3 YEARS INFLATION) = \$1,574,000

SEWER MAIN SEGMENTS RECOMMENDED FOR REHABILITATION WITHIN 10 YEARS

Note: *Used \$80 / lf for 4-inch lateral

*Used 30 ft Lateral length

*Used \$2,500 / Wye

*30% Engineer Cost

Repair Type	Segment	Length (LF)	Repair Cost	Lateral Cost	30% Engr. Cost	Total Estimate
Pipe Replacement	LU-115	629	\$59,755	\$55,000	\$34,427	\$149,182
Pipe Replacement	HU-132	225	\$28,125	\$14,700	\$12,848	\$55,673
Pipe Replacement	LU-117	633	\$60,135	\$55,000	\$34,541	\$149,676
Spot Repair (3 Spots)	LU-206	441	\$21,000	\$14,700	\$10,710	\$46,410
Spot Repair (8 Spots)	LU-211	403	\$56,000	\$19,600	\$22,680	\$98,280
Spot Repair (8 Spots)	LU-108	581	\$56,000	\$29,400	\$25,620	\$111,020
Pipe Replacement	LU-119	632	\$60,040	\$55,000	\$34,512	\$149,552
Spot Repair (4 Spots)	LU-214	400	\$28,000	\$9,800	\$11,340	\$49,140
Pipe Replacement	LU-107	581	\$55,195	\$107,800	\$48,899	\$211,894
Spot Repair (3 Spots)	LU-203	382	\$21,000	\$0	\$6,300	\$27,300
Pipe Replacement	LU-121	633	\$60,135	\$25,000	\$25,541	\$110,676
Pipe Replacement	HU-131	25	\$3,125	\$0	\$938	\$4,063
Spot Repair (6 Spots)	LU-209	440	\$42,000	\$9,800	\$15,540	\$67,340
Spot Repair (1 Spot)	HU-130	250	\$7,000	\$0	\$2,100	\$9,100
Pipe Replacement	HU-141	632	\$60,040	\$52,500	\$33,762	\$146,302
Spot Repair (4 Spots)	LU-107A	525	\$28,000	\$4,900	\$9,870	\$42,770
Spot Repair (4 Spots)	LU-109A	544	\$28,000	\$19,600	\$14,280	\$61,880
Spot Repair (5 Spots)	LU-123	632	\$35,000	\$29,400	\$19,320	\$83,720
Spot Repair (5 Spots)	LU-102	400	\$35,000	\$14,700	\$14,910	\$64,610
Spot Repair (3 Spots)	LU-108A	535	\$21,000	\$19,600	\$12,180	\$52,780
Spot Repair (4 Spots)	LU-109	581	\$28,000	\$24,500	\$15,750	\$68,250

Repair Type	Segment	Length (LF)	Repair Cost	Lateral Cost	30% Engr. Cost	Total Estimate
Spot Repair (2 Spots)	LU-229	475	\$14,000	\$4,900	\$5,670	\$24,570
Spot Repair (2 Spots)	LU-231	450	\$14,000	\$4,900	\$5,670	\$24,570
Spot Repair (2 Spots)	HU-102	400	\$14,000	\$0	\$4,200	\$18,200
Spot Repair (2 Spots)	LU-217	630	\$14,000	\$4,900	\$5,670	\$24,570
Spot Repair (1 Spot)	LU-104	400	\$7,000	\$0	\$2,100	\$9,100
Spot Repair (1 Spot)	HU-101	387	\$7,000	\$0	\$2,100	\$9,100
Spot Repair (4 Spot)	LU-228	450	\$28,000	\$4,900	\$9,870	\$42,770
Spot Repair (5 Spots)	LU-232	475	\$21,000	\$4,900	\$7,770	\$33,670
Spot Repair (4 Spots)	LU-210	457	\$28,000	\$9,800	\$11,340	\$49,140
Pipe Replacement	LU-116	286	\$27,170	\$25,000	\$15,651	\$67,821
Spot Repair (3 Spots)	LU-201	461	\$21,000	\$9,800	\$9,240	\$40,040
Spot Repair (3 Spots)	LU-122	278	\$21,000	\$9,800	\$9,240	\$40,040
Spot Repair (3 Spots)	LU-216	262	\$21,000	\$4,900	\$7,770	\$33,670
Pipe Replacement	HU-136	149	\$18,625	\$4,900	\$7,058	\$30,583
Pipe Replacement	HU-137	105	\$9,975	\$4,900	\$4,463	\$19,338
Spot Repair (2 Spots)	LU-213	460	\$14,000	\$9,800	\$7,140	\$30,940
Spot Repair (2 Spots)	LU-230	400	\$14,000	\$0	\$4,200	\$18,200
Spot Repair (2 Spots)	LU-215	434	\$14,000	\$9,800	\$7,140	\$30,940
Spot Repair (1 Spot)	LU-103	375	\$7,000	\$0	\$2,100	\$9,100
Spot Repair (2 Spots)	LU-212	434	\$14,000	\$9,800	\$7,140	\$30,940
Spot Repair (1 Spot)	HU-134	195	\$7,000	\$4,900	\$3,570	\$15,470
Spot Repair (1 Spot)	HU-135	101	\$7,000	\$0	\$2,100	\$9,100
Spot Repair (1 Spot)	HU-143	231	\$7,000	\$4,900	\$3,570	\$15,470
Spot Repair (1 Spot)	LU-104A	91	\$7,000	\$0	\$2,100	\$9,100
Spot Repair (1 Spot)	LU-110	559	\$7,000	\$14,700	\$6,510	\$28,210
Spot Repair (1 Spot)	LU-208	403	\$7,000	\$14,700	\$6,510	\$28,210
Spot Repair (1 Spot)	LU-218	360	\$7,000	\$14,700	\$6,510	\$28,210
Spot Repair (1 Spot)	LU-219	254	\$7,000	\$14,700	\$6,510	\$28,210
Spot Repair (1 Spot)	LU-221	430	\$7,000	\$14,700	\$6,510	\$28,210

Repair Type	Segment	Length (LF)	Repair Cost	Lateral Cost	30% Engr. Cost	Total Estimate
Spot Repair (1 Spot)	LU-224	450	\$7,000	\$14,700	\$6,510	\$28,210
Spot Repair (1 Spot)	LU-225	424	\$7,000	\$14,700	\$6,510	\$28,210
Spot Repair (1 Spot)	HU-109	300	\$7,000	\$9,800	\$5,040	\$21,840
Pipe Replacement	LU-120	290	\$27,550	\$15,000	\$12,765	\$55,315
Pipe Replacement	HU-142	60	\$7,500	\$0	\$2,250	\$9,750
Spot Repair (6 Spots)	HU-138	454	\$28,000	\$44,100	\$21,630	\$93,730
Spot Repair (5 Spots)	LU-207	452	\$35,000	\$39,200	\$22,260	\$96,460
Pipe Replacement	LU-118	291	\$27,645	\$25,000	\$15,794	\$68,439
Pipe Replacement	HU-144	19	\$2,375	\$0	\$713	\$3,088
Spot Repair (3 Spots)	LU-227	420	\$14,000	\$24,500	\$11,550	\$50,050
Spot Repair (2 Spots)	LU-101	382	\$14,000	\$19,600	\$10,080	\$43,680
Spot Repair (1 Spot)	HU-139	400	\$7,000	\$14,700	\$6,510	\$28,210
Spot Repair (1 Spot)	LU-223	390	\$7,000	\$14,700	\$6,510	\$28,210