



> NORWALK COMMUNITY INFRASTRUCTURE STUDY

RESULTS OF INFRASTRUCTURE INVESTIGATION



WHAT'S THE PROBLEM

- Infrastructure wears out just like everything else
 - Water System
 - Sanitary Sewer System
 - Storm Sewer System
 - Roads
- As Infrastructure Ages It Requires
 - Maintenance
 - Repairs
 - Replacement
 - Upgrades



Essential Corporate Purpose



Water System



Storm Sewer



Sanitary Sewer



Streets

INFRASTRUCTURE CATEGORIES

The **Norwalk Community Infrastructure Study (NCIS)** is primarily focusing on the four major infrastructure categories which service properties located within the community.

Electric, Gas, Telephone, and Cable TV are privately owned and operated utilities within the City of Norwalk



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STUDY AREA



Also included Holly Drive from Knoll Lane to Shady Lane

WATER SYSTEM




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SYSTEM COMPONENTS INVESTIGATED

Hydrant Inspection Form
City of Norwalk, Iowa MEC Project No. 201927

Hydrant Number _____
Location _____

Reason Not Inspected Broken/Weathered/Sealed or Damaged Inoperable/Under Repair Other _____

Inspection Details

Inspector _____ **Condition** Good Fair Poor Failed

Ground Condition Dry Wet Slippery Other _____

Hydrant Details

Type _____
Manufacturer _____
Model _____
Location _____
Hydrant Code _____
Tracer Wire _____
Buy Date _____
Surface Elevation _____
Height to Pumping No. _____
Color _____

Water Valve Inspection Form
City of Norwalk, Iowa MEC Project No. 201927

Valve Number _____
Location _____

Reason Not Inspected Broken/Weathered/Sealed or Damaged Inoperable/Under Repair Other _____

Inspection Details

Inspector _____ **Condition** Good Fair Poor Failed

Ground Condition Dry Wet Slippery Other _____

Valve Box

Alignment Good Fair Poor Failed Other _____

Material Cast Iron Plastic Other _____

Valve Details

Type Gate Plug Ball Butterfly Other _____

Size 6" 8" 10" 12" 14" 16" _____

Location Above Ground Below Ground Other _____

Valve Box Present Absent Other _____

Tracer Wire Present Absent Other _____

Depth to Operating Nut _____

Surface Elevation _____

Operating Details

Valve Operation Easy Hard Other _____

Direction to Close Clockwise Counter-Clockwise Other _____

Leaking After Closed No Yes _____

Difficulty to Operate Easy Medium Difficult _____

Hydrant Photo

Photo Number _____
Taken By _____
Subject _____

Valve Photo

Photo Number _____
Taken By _____
Subject _____

Valve Photo

Photo Number _____
Taken By _____
Subject _____

Valve Photo

Photo Number _____
Taken By _____
Subject _____

Fire Hydrants



Water Valves



DEFECT AND REPAIR REPORT

- Old and Worn Paint
- Grade Adjustments Needed
- Valve Box Adjustments Needed

- Most Defects Low Priority

- Most Work Could Be Done By City Crews Over Time

- Total Cost = \$ 8,750



STORM SEWER SYSTEM



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SYSTEM COMPONENTS INVESTIGATED



Inlets/Outlets



Intakes



Manholes

Storm Inlet / Outlet Inspection Form
City of Norwalk, Iowa MEC Project No. 2311037

norwalk **MCCCLURE**

Structure Number _____
Location _____
Connecting M/W's / Inlet's _____

Inspection Details
Inspection Date _____
Ground Condition _____

Inlet/Outlet Details
Type _____
Facing _____
Appl. _____
Wing Wall _____
Apron Guard _____
Inlet Form _____
Outlet T _____

Connecting Pipe Details
Connecting Pipe M _____
Pipe Dia _____
Inlet/Outlet Elevations _____
Diameter _____
Hydraulic _____
Degree of Deposition _____
Deposition Material _____

Inlet / Outlet Photo
Photo Number _____
Taken By _____
Subject _____

Inlet / Outlet Photo
Photo Number _____
Taken By _____
Subject _____

Storm Intake Inspection Form
City of Norwalk, Iowa MEC Project No. 2311037

norwalk **MCCCLURE**

Intake Number _____
Location of MIH _____
Connecting M/W's / Inlet's _____

Inspection Details
Inspection Date _____
Inlet's _____
Ground Condition _____

Intake Details
Dimensions L x W _____
Intake Type _____

Casting #1
Casting Type _____
Visual Condition _____
Dimensions L x W _____

Casting #2
Casting Type _____
Visual Condition _____
Dimensions L x W _____

Inlet Slope
Construction Material _____
Condition _____

Pipe 1
Pipe Direction _____
Depth _____
Size _____
Material _____

Pipe 2
Pipe Direction _____
Depth _____
Size _____
Material _____

Storm Manhole Inspection Form
City of Norwalk, Iowa MEC Project No. 2311037

norwalk **MCCCLURE**

Manhole Number _____
Location of MIH _____
Connecting M/W's / Inlet's _____
Reason Not Inspected _____
Minimum Vertical Structural Depth - Proposed Cover - MIH _____

Inspection Details
Inspection Date _____
Weather _____
Ground Condition _____

Location and Surface Next to MIH
Level with Lid _____
Location _____
Type _____

Rim and Invert Elevations
Rim Elevation _____
MIH Depth _____
Connecting Pipe Dia _____
Connecting Pipe M _____

Channel
Construction _____
Hydraulic _____
Degree of Deposition _____
Deposition Material _____

Manhole Slope
Construction Material _____
Condition _____

Pipe 1
Pipe Direction _____
Depth _____
Size _____
Material _____

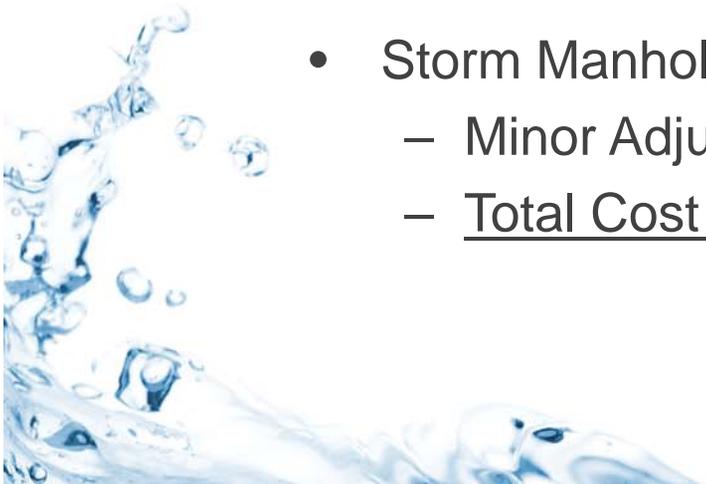
Pipe 2
Pipe Direction _____
Depth _____
Size _____
Material _____

Pipe 3
Pipe Direction _____
Depth _____
Size _____
Material _____

Pipe 4
Pipe Direction _____
Depth _____
Size _____
Material _____

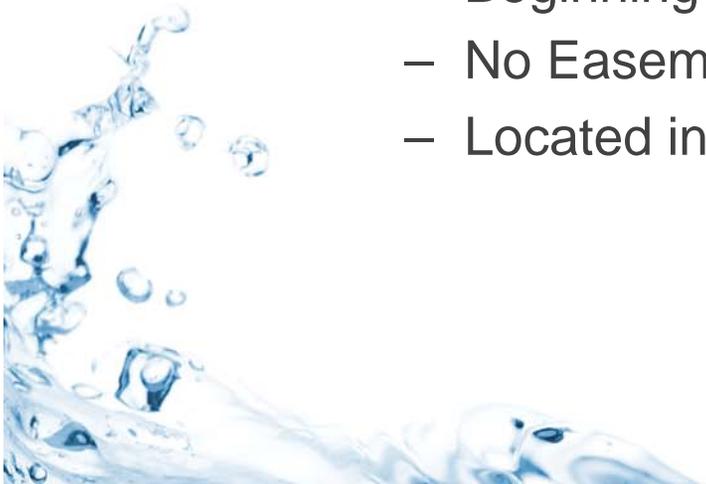
DEFECT AND REPAIR REPORT

- Inlets / Outlets
 - Couple of Replacements
 - Erosion Repair and Rip Rap Placement
 - Total Cost \$ 6,000
- Intakes
 - Little over ½ Require Complete Replacement
 - Total Cost \$ 72,500
- Storm Manholes
 - Minor Adjustments and Cleaning
 - Total Cost \$ 3,000



DEFECT AND REPAIR REPORT

- Storm Sewer Pipes
 - No budget for televising
 - Most could be inspected from surface
- Most to be Replaced with Street Projects
- One Large 72" Diameter CMP (Metal Pipe)
 - Severe Corrosion
 - Beginning to suck in earth from above
 - No Easement
 - Located in rear yards with many structures



DEFECT AND REPAIR REPORT



DEFECT AND REPAIR REPORT

- Recommended Repair
 - Structural Concrete Lining of CMP Pipe
 - Total Cost \$ 156,250



Structurally Rehabilitated Storm Culvert



Centrifugally Cast Concrete Pipe

Corrugated Pipe, Before

Corrugated Pipe, After CCCP



SANITARY SEWER SYSTEM




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SYSTEM COMPONENTS INVESTIGATED MANHOLES

Sanitary Manhole Inspection Form
City of Norwalk, Iowa 502 Project No. 2017027

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Manhole Number: _____
 Location of MH: _____
 Connecting MH's: _____ Reason Not Inspected: _____

Inspection Details

Inspection Date: _____ Weather: _____ Ground Condition: _____
 Level with Lid: _____ Location: _____ Type: _____

Manhole Details

Structure: _____ Manhole Top: _____ Adjoining Pipe ID: _____ # of Rings: _____ Condition of Ring: _____ Chimey Set: _____

Cover and Casting

Cover Type: _____ Visual Condition: _____ Coated or Sealed: _____ Diameter: _____

Manhole Slope

Construction Material: _____ Condition: _____
 Infiltration: _____

Manhole Wall

Construction Material: _____ Condition: _____ Infiltration: _____

Run and Invert Elevations

Run Elevation: _____ MH Depth: _____ Connecting Pipe Size: _____ Connecting Pipe Mat: _____

Channel

Construction: _____ Hydraulic: _____ Infiltration: _____ Degree of Disposition: _____ Deposition Material: _____

Pipe 1

Pipe Direction: _____ Depth: _____ Size: _____ Material: _____

Pipe 2

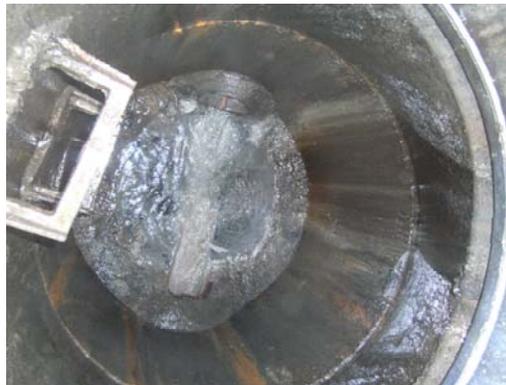
Pipe Direction: _____ Depth: _____ Size: _____ Material: _____

Pipe 3

Pipe Direction: _____ Depth: _____ Size: _____ Material: _____

Pipe 4

Pipe Direction: _____ Depth: _____ Size: _____ Material: _____



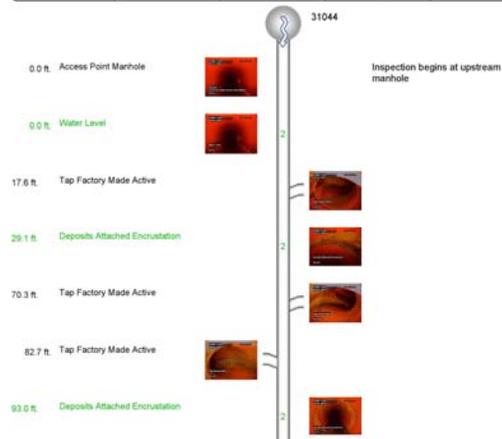
SYSTEM COMPONENTS INVESTIGATED PIPES

InspectIT
4021 Alexander Blvd
Albuquerque, NM
505-341-0109

Defect Listing Plot with Images

Pipe Segment Info:	City	Street	Material	Location Co-Ordinate	Sewer Use
31044 to 31043	Norwalk	Woodmyra Cr	Verified Clay Pipe	Assessment R:	Sanitary
Upstream MH 31044		Year Last Circular		Location Details	
CG Number 31043	Total Length 402.7	Year Renewed	Height 8	Width 8	Pipe Joint

SPR	N/A	MFR	18	PG Number	Customer
SPR	N/A	MFR	1.8	Work Order	City of Norwalk
QPR	N/A	GMR	3125	Purpose	Routine Assessment
QPR	18	Surveyed By	18	Direction	Downstream
QPR	1.8	Check Number	U-312-14753	No Pre-Cleaning	Time
Result	Present	Date Cleaned	10.12	Weather	Very Dry
				Situation	
				Additional Info	



InspectIT
4021 Alexander Blvd
Albuquerque, NM
505-341-0109

Image Report 4/Page

Pipe Segment Info:	City	Street	Material	Location Co-Ordinate	Sewer Use
31044 to 31043	Norwalk	Woodmyra Cr	Verified Clay Pipe	Assessment R:	Sanitary
Upstream MH 31044		Year Last Circular		Location Details	
CG Number 31043	Total Length 402.7	Year Renewed	Height 8	Width 8	Pipe Joint



Distance: 210.1 ft. Grade: N/A
Condition: Tap Factory Made Active
Remarks: N/A



Distance: 220.4 ft. Grade: 1
Condition: Roots Fine Joint
Remarks: N/A



Distance: 235.4 ft. Grade: 1
Condition: Roots Fine Joint
Remarks: N/A

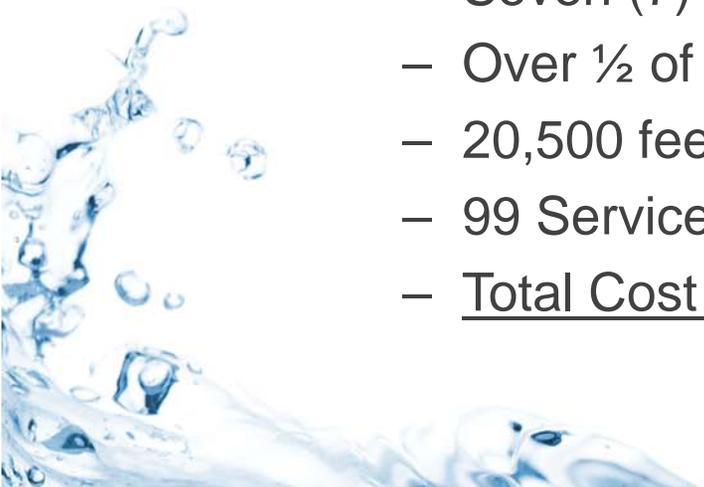


Distance: 276.3 ft. Grade: 1
Condition: Roots Fine Joint
Remarks: N/A

DEFECT AND REPAIR REPORT

- Manholes
 - Grout Leaks
 - Minor Adjustments
 - 28 Total Manholes
 - Total Cost \$ 21,000

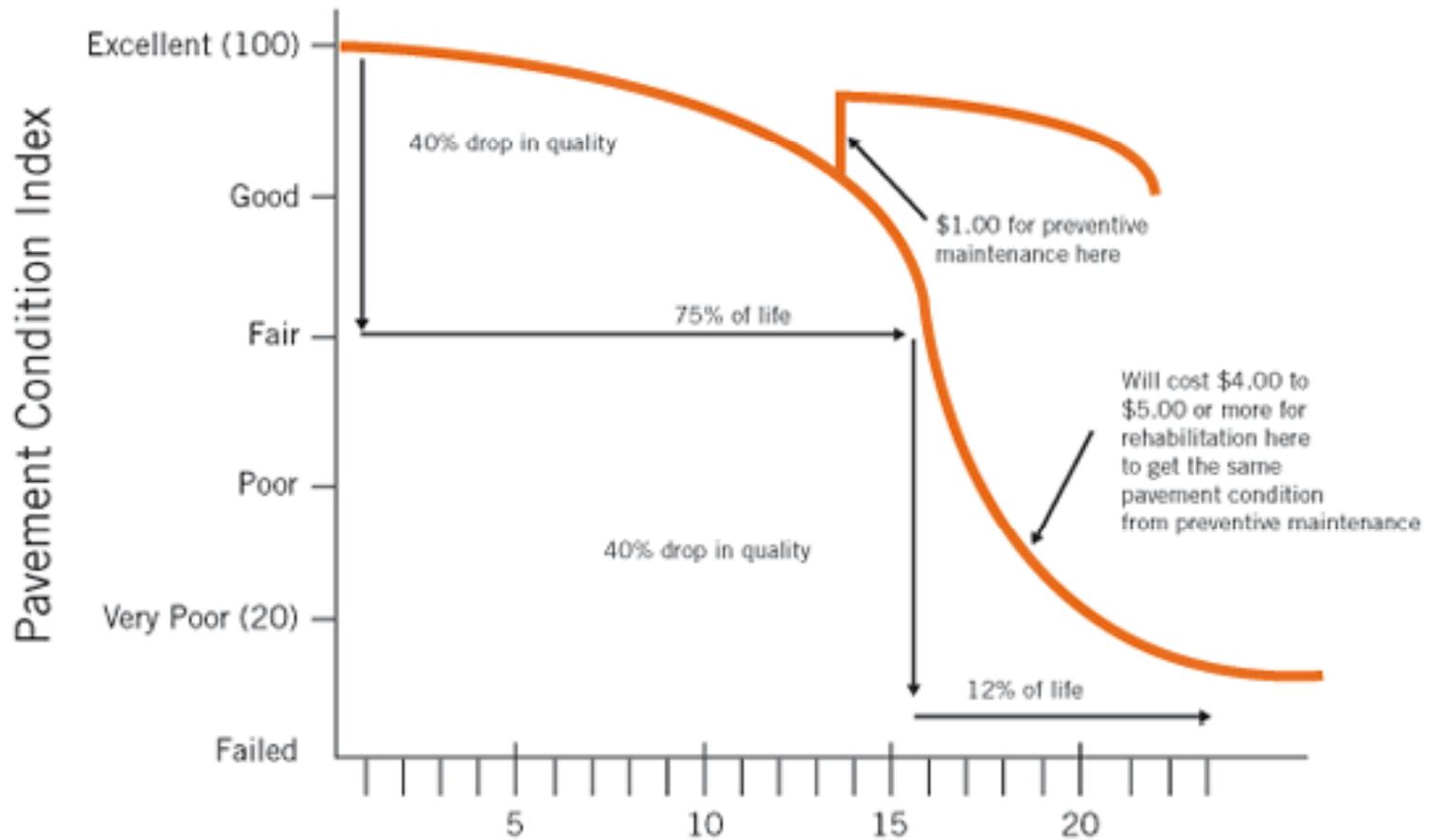
- Pipes
 - Four (4) structural defects which need repair
 - Seven (7) pipes with remaining root problems
 - Over ½ of pipes with root problems
 - 20,500 feet of pipe lining recommended
 - 99 Services recommended for lining
 - Total Cost \$ 884,940



> STREETS



PCI PAVEMENT CONDITION INDEX



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PCI PAVEMENT CONDITION INDEX

	PCI	PCI	REPRESENTATIVE PAVEMENT SURFACE	REPAIR ALTERNATIVE
ROUTINE MAINTENANCE	86 - 100	90		Pavements with PCIs above 85 will benefit from routine maintenance actions, such as periodic crack sealing, periodic joint resealing, or patching.
PAVEMENT PRESERVATION	56-85	65		Pavements with a PCI of 56 (65 for PCC pavements) to 85 may require pavement preservation, such as a surface treatment, thin overlay, or PCC joint resealing.
MAJOR REHABILITATION	0 - 55	25		Pavement allowed to deteriorate below a PCI of 56 (65 for PCC) will require costly reconstruction to restore it to operational condition.

DEFECT AND REPAIR REPORT

- Projects
 - 33 Total Projects Identified
 - 5 Full Reconstruction
 - 22 Crack and Seat
 - 6 No Action Recommended
 - Total Cost \$16,359,000

DEFECT AND REPAIR REPORT

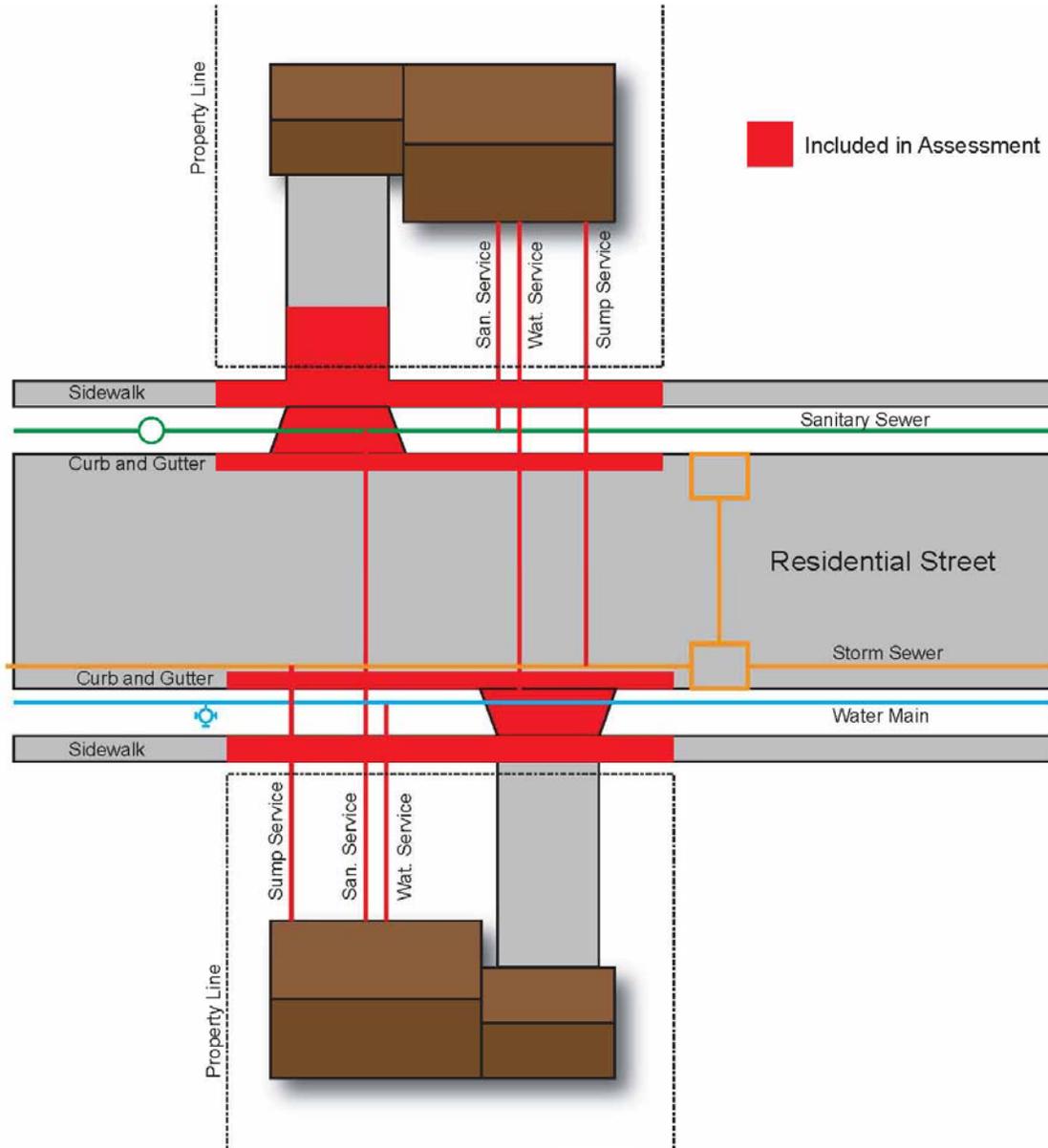
**Table 7-11
Streets Defect and Repair Report
Norwalk, Iowa
MEC# 2211027**

Priority No.	Street Name	Section Number	Repair Type	Total Cost
1	Woodmayr Circle	(01)	Full Reconstruction	\$ 1,046,680.80
2	Woodmayr Drive	(01)	Full Reconstruction	\$ 723,516.75
3	Holly Drive		Full Reconstruction	\$ 918,835.83
4	Golden Valley Drive	(01)	Full Reconstruction	\$ 674,808.75
5	Lakewood Drive	(02)	Crack and Seat	\$ 1,272,767.10
6	Lakewood Drive	(03)	Crack and Seat	\$ 627,521.40
7	Wakonda Drive	(02) (03)	Crack and Seat	\$ 1,326,142.95
8	Wakonda Drive	(05)	Crack and Seat	\$ 740,632.20
9	Oxford Drive	(01)	Crack and Seat	\$ 316,297.58
10	Medina Drive	(01)	Crack and Seat	\$ 329,184.90
11	Oakwood Drive	(01)	Crack and Seat	\$ 523,543.35
12	Lakewood Drive (01) Lakewood Circle (01)	(01) (01)	Full Reconstruction	\$ 1,078,611.60
13	Ponderosa Drive	(01)	Crack and Seat	\$ 272,697.15
14	Maplecrest Drive	(01)	Crack and Seat	\$ 497,227.50
15	Elmcrest Drive	(01)	Crack and Seat	\$ 547,829.70
16	Golden Valley Drive	(02)	Crack and Seat	\$ 575,972.10
17	Oakcreek Drv (02) Woodmayr Drv (02) Grandview Drv (01)	(02) (02) (01)	Crack and Seat	\$ 669,193.80
18	Candlewick Drive	(01)	Crack and Seat	\$ 902,315.70
19	Devlin Drive	(01)	Crack and Seat	\$ 407,320.65
20	Old Orchard Drive	(01)	Crack and Seat	\$ 332,567.40
21	Agusta Circle	(01)	Crack and Seat	\$ 234,644.03
22	Hyperion Drive (01) Oakwood Drive (02)	(01) (02)	Crack and Seat	\$ 820,797.45
23	Waveland Drive	(01)	Crack and Seat	\$ 233,223.38
24	Old Orchard Drive	(02)	Crack and Seat	\$ 306,014.78
25	Happy Hollow Drive	(02)	Crack and Seat	\$ 400,420.35
26	Waveland Drive	(02)	Crack and Seat	\$ 174,503.18
27	Lakewood Pointe Drive	(01)	Crack and Seat	\$ 405,967.65
28	Wakonda Drive	(01) (04)	None	\$ -
29	Lakewood Circle	(01)	None	\$ -
30	Oakcreek Drive	(01)	None	\$ -
31	Clearwater Drive	(01)	None	\$ -
32	Happy Hollow Drive	(01)	None	\$ -
33	Old Orchard Drive	(03)	None	\$ -
Total Program				\$ 16,359,238.01



> COST SHARING PROGRAM





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> TOTAL COST IDENTIFIED



TOTAL COST OF WORK IDENTIFIED

**Table 7-1
Total Cost Summary Table
Norwalk, Iowa
MEC# 2211027**



Table #	Street Name	Total Cost	City Wide Benefit	Property Benefit
7-2	Sanitary Manholes	\$ 21,000	\$ 21,000	
7-3	Sanitary Pipes	\$ 884,940	\$ 607,440	\$ 247,500
7-4	Curb Intakes	\$ 72,500	\$ 72,500	
7-5	Storm Manholes	\$ 3,000	\$ 3,000	
7-6	Flared End Sections	\$ 6,000	\$ 6,000	
7-7	Storm Sewer Pipes	\$ 156,250	\$ 156,250	
7-8	Road Culverts	\$ 2,650	\$ 2,650	
7-9	Fire Hydrants	\$ 8,750	\$ 8,750	
7-10	Water Valves	\$ 9,200	\$ 9,200	
7-11	Streets	\$ 16,359,238	\$ 10,385,736	\$ 5,973,502
		\$ 17,523,528	\$ 11,272,526	\$ 6,221,002



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GENERAL OBLIGATION BONDS

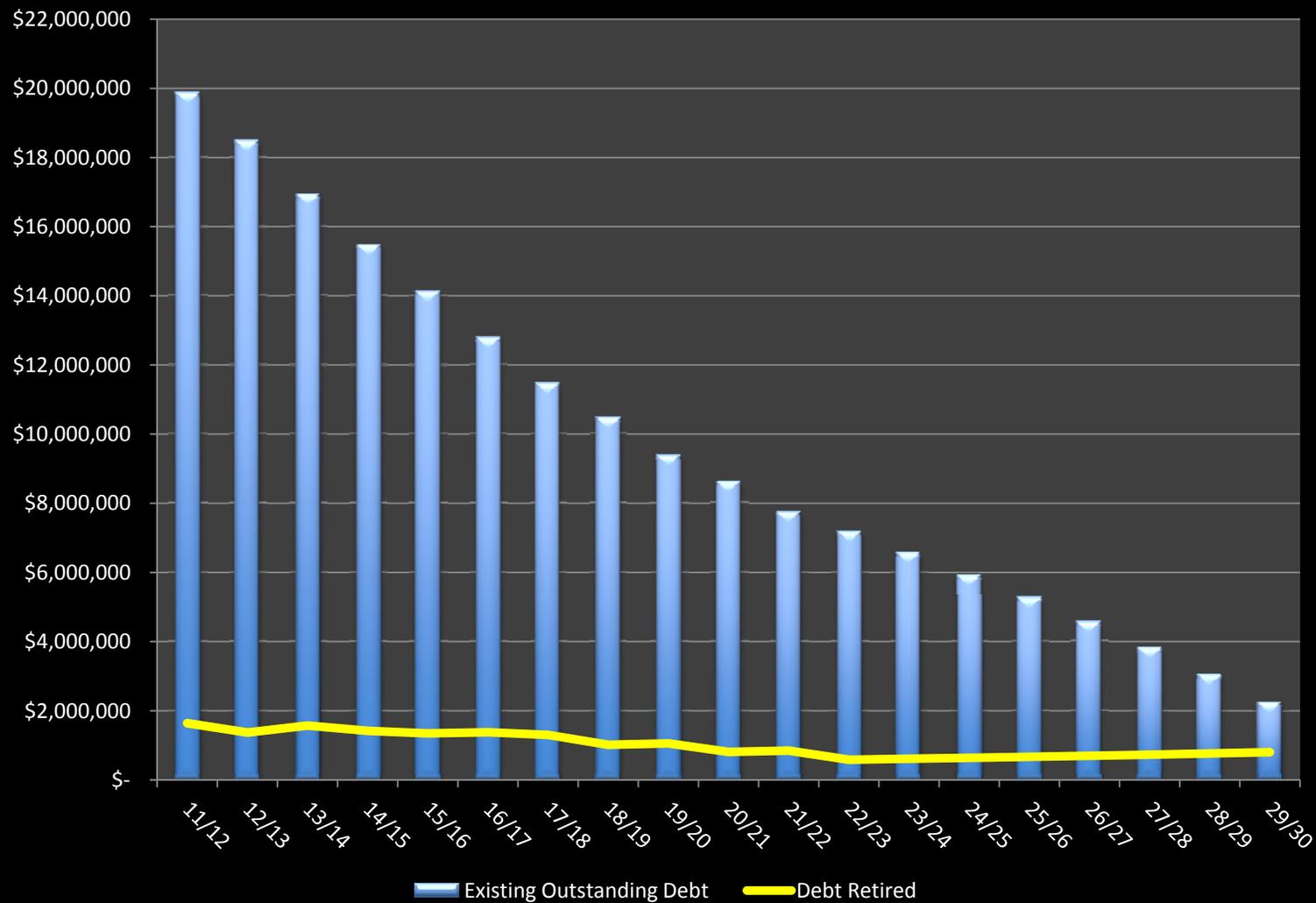
WHAT CAN BE ACCOMPLISHED WITHIN EXISTING DEBT SERVICE LEVY

GENERAL OBLIGATION BONDS (G.O.)

This is a bond the City may sell for “essential corporate purposes”, which is backed up by the Taxing Authority for repayment. Typically when a bond is sold, property taxes are raised to generate enough revenue to pay the debt service (principal and interest) to retire the debt.

Legal Bonding Limit:	5% of Gross Assessed Value
Norwalk Gross Assessed Valuation:	\$ 566,252,136
Legal Bonding Limit (5%):	\$ 28,312,607
Self Imposed Bonding Limit (none): Rule of Thumb is 75%	\$ 21,234,455
Current Outstanding G.O. Debt F.Y. 12/13:	\$ 18,485,382
Remaining G.O. Capacity:	\$ 2,749,073

Outstanding G.O. Debt within Debt Service Levy



GENERAL OBLIGATION BONDS (G.O.)

Project Cost Financed with G.O.: \$1,500,000

G.O. Bond Financing at 3% for 10 Years

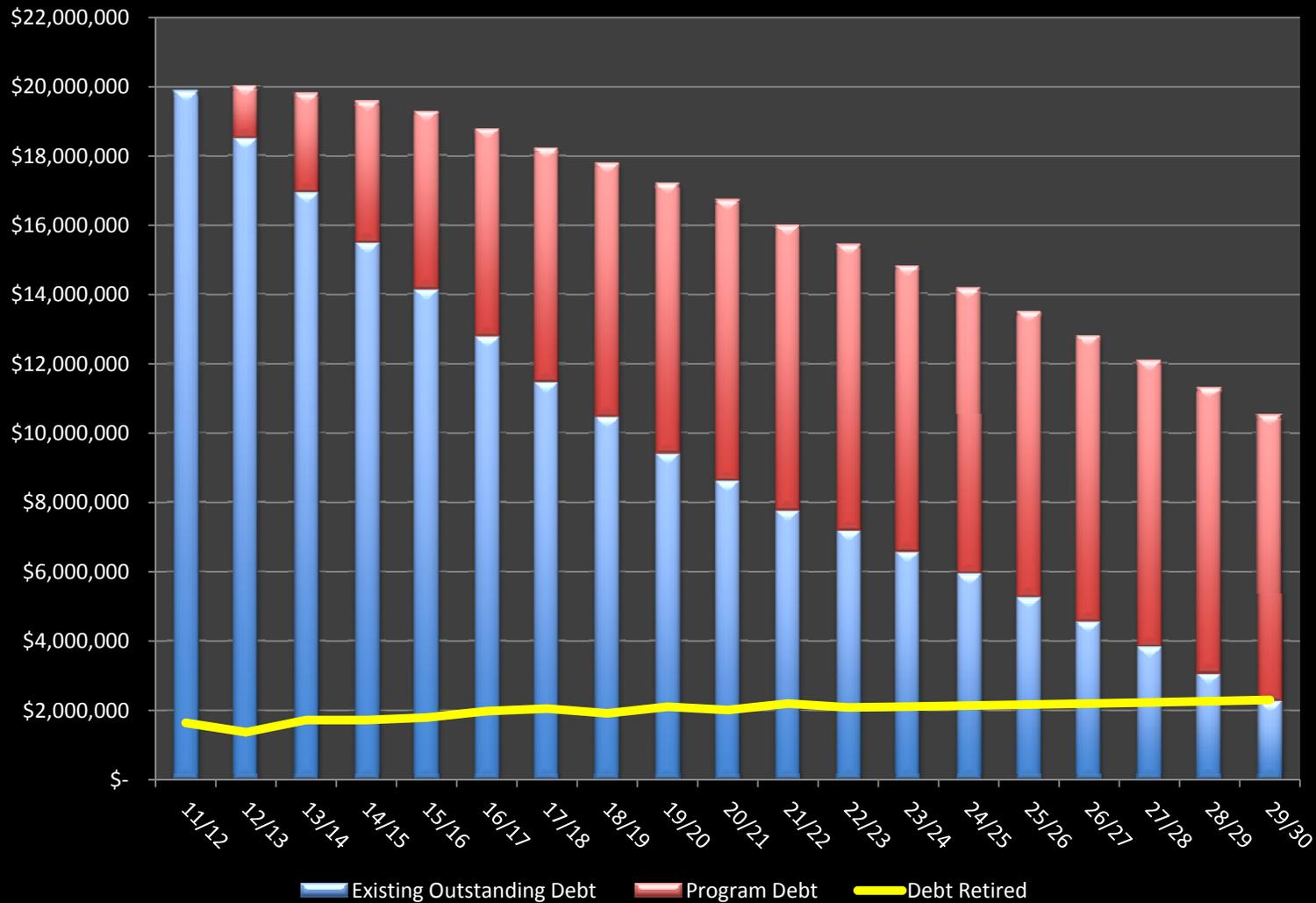
Annual Principal and Interest Payment: \$ 175,846

Current Debt Service Levy Rate \$4.00854 / \$1,000

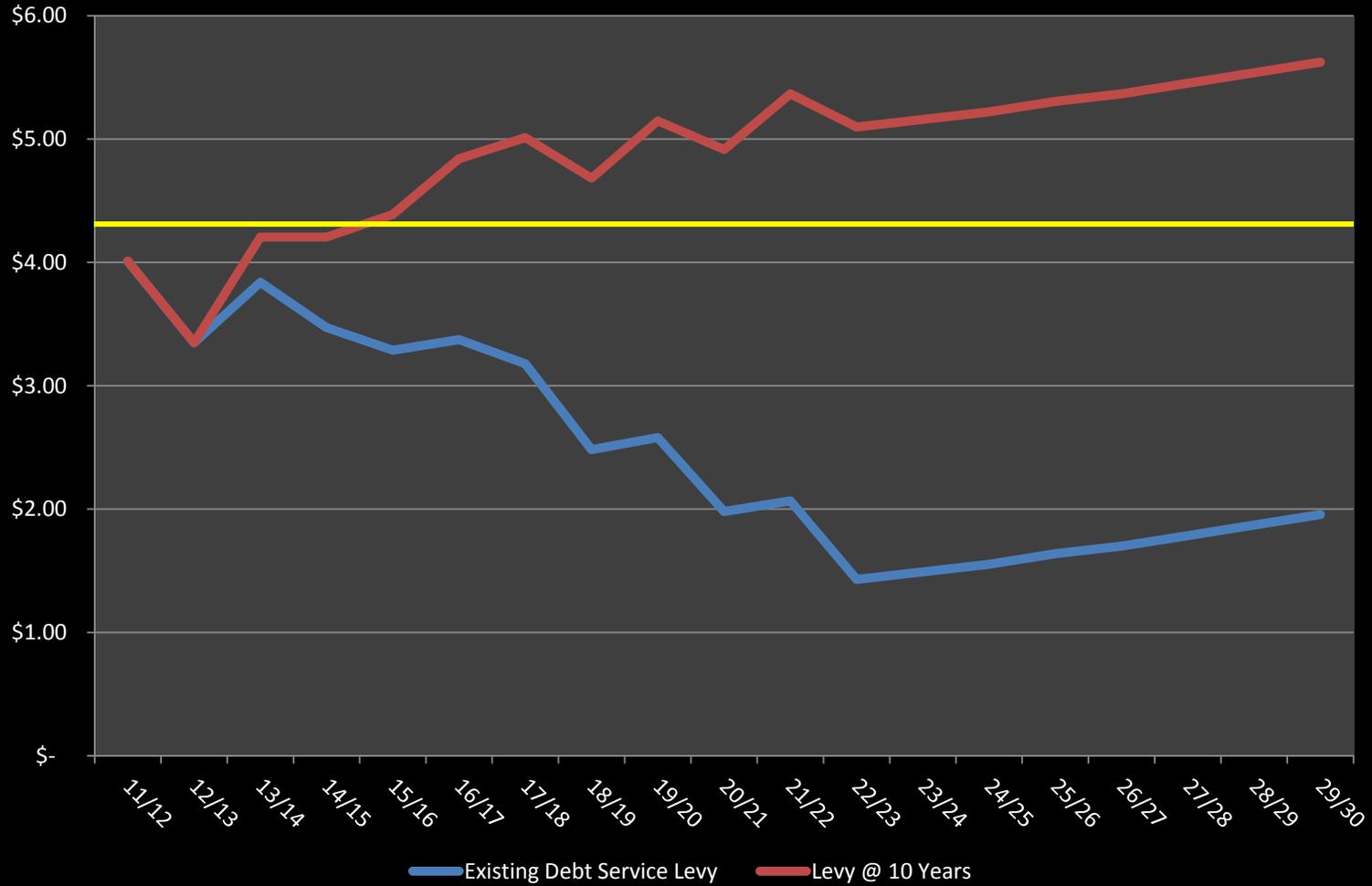
Levy Increase Required \$ 0.61 / \$ 1,000

Home Value	Rollback Value	Annual Tax Increase
\$ 150,000	\$ 72,795	\$ 44.59
\$ 250,000	\$ 121,325	\$ 74.32
\$500,000	\$ 242,650	\$ 148.65
\$750,000	\$ 363,974	\$ 222.97

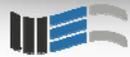
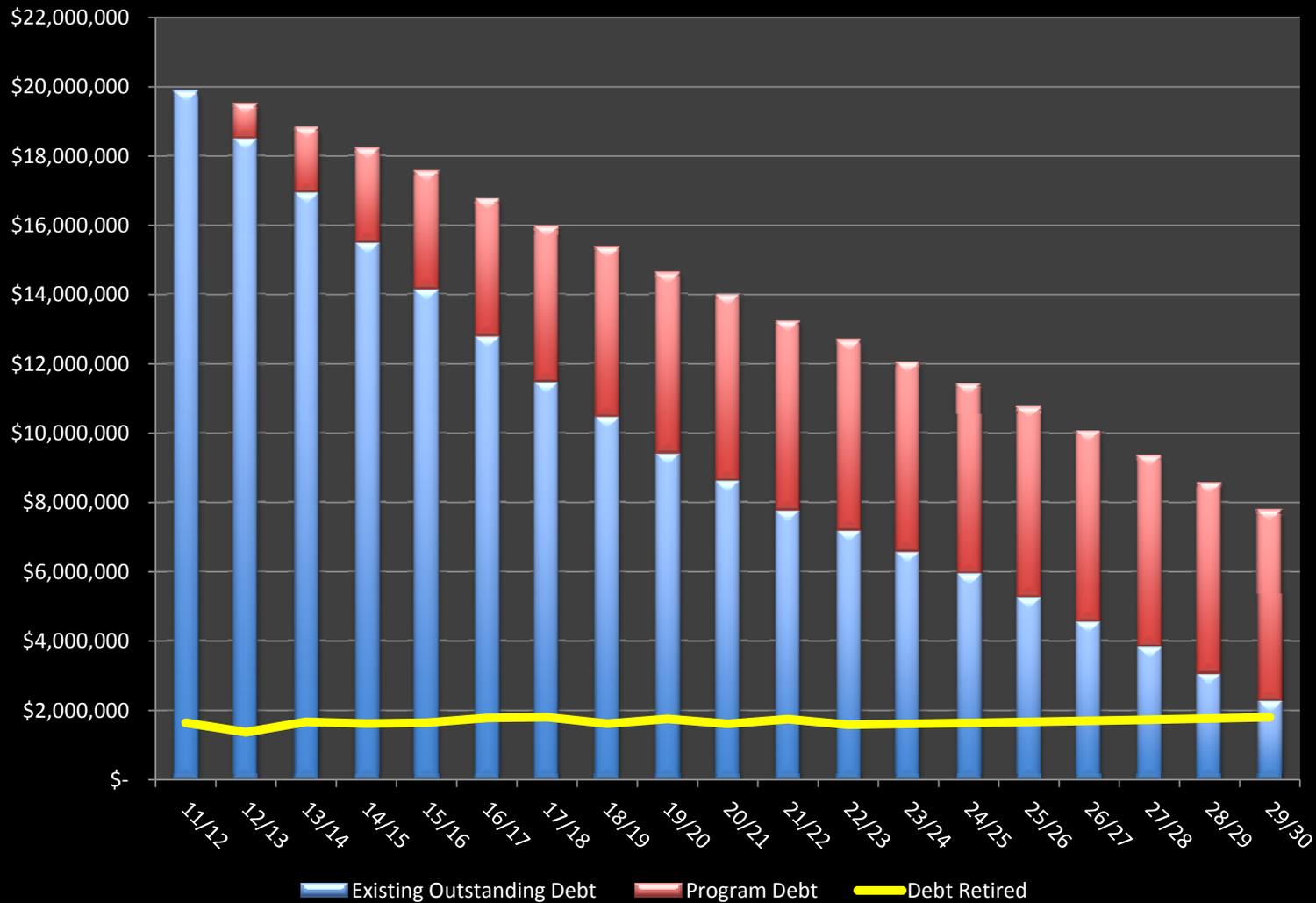
\$1.5 Million/year Program Financed for 10 years



Debt Service Levy Rates per \$1000 Valuation \$1.5 Million/year

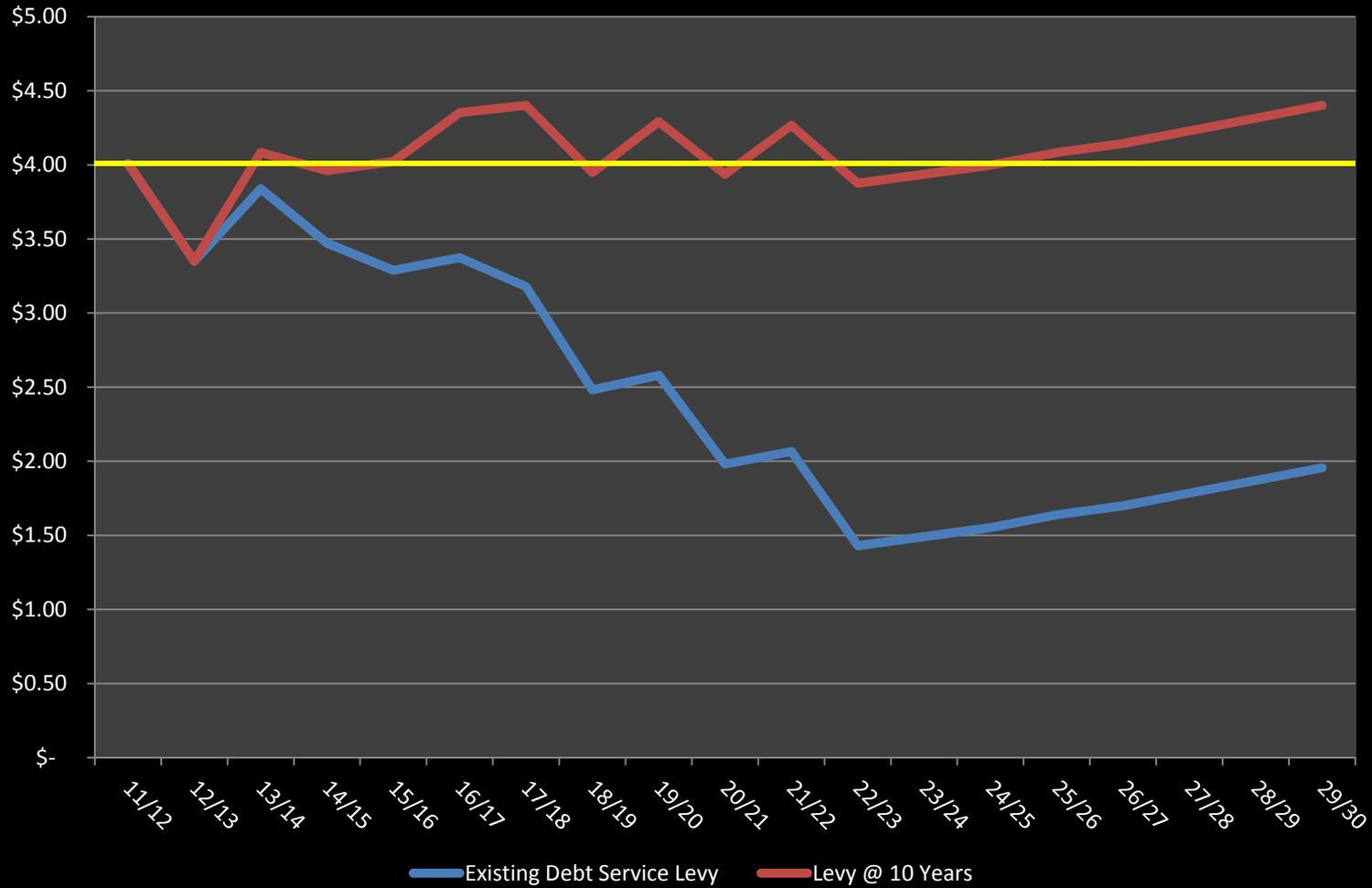


\$1 Million/year Program Financed for 10 years



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Debt Service Levy Rates per \$1000 Valuation \$ 1 Million/year





RECOMMENDATIONS



CAPITAL IMPROVEMENT PROGRAM

- Projects Identified in NCIS limited to project area.
- Work Identified by Public Works
 - Streets: \$ 1,443,165
 - Water: \$ 3,772,503
 - Sewer \$ 1,560,050
 - Storm \$ 2,738,744
- C.I.P. Needs to include whole community
 - Prioritization
 - Other Departments
 - Scoring and Ranking System



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Thank You