City of Plainview
Infrastructure Management Plan

Council Workshop Discussion

October 3, 2019

Key Points

- Smart Infrastructure Planning
  - Prioritizing Needs
  - Maximize Value with dollars spent
- Considering All Infrastructure Needs
  - Pavements & Utilities

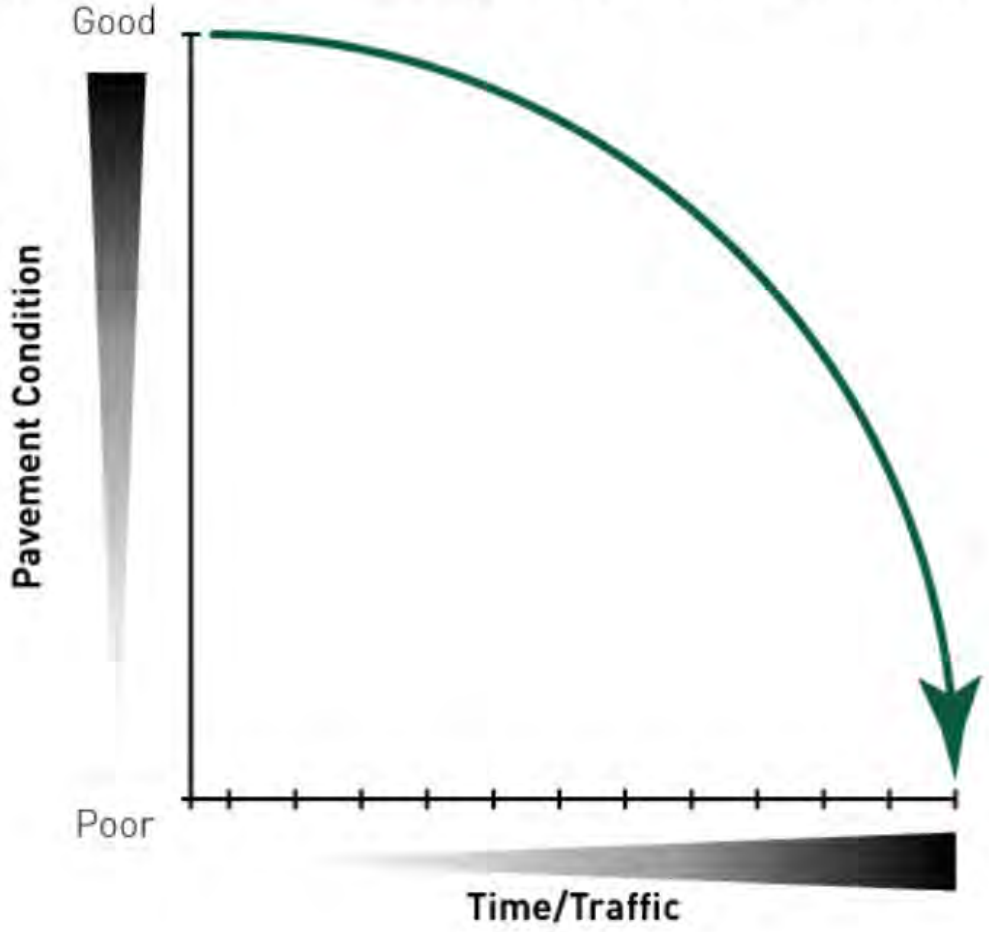
Overall Goal – Provide City Leaders with the understanding to make informed decisions.

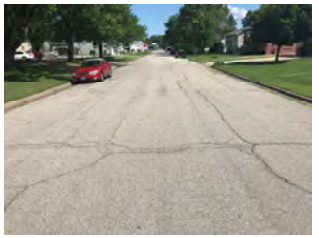
Outline

- Pavements
  - Life Cycle Characteristics
  - Improvement Options
- Utilities
  - Water System
  - Sanitary System
- How to Use Infrastructure Management Plan with Capital Improvement Plan

Pavement Life Cycle

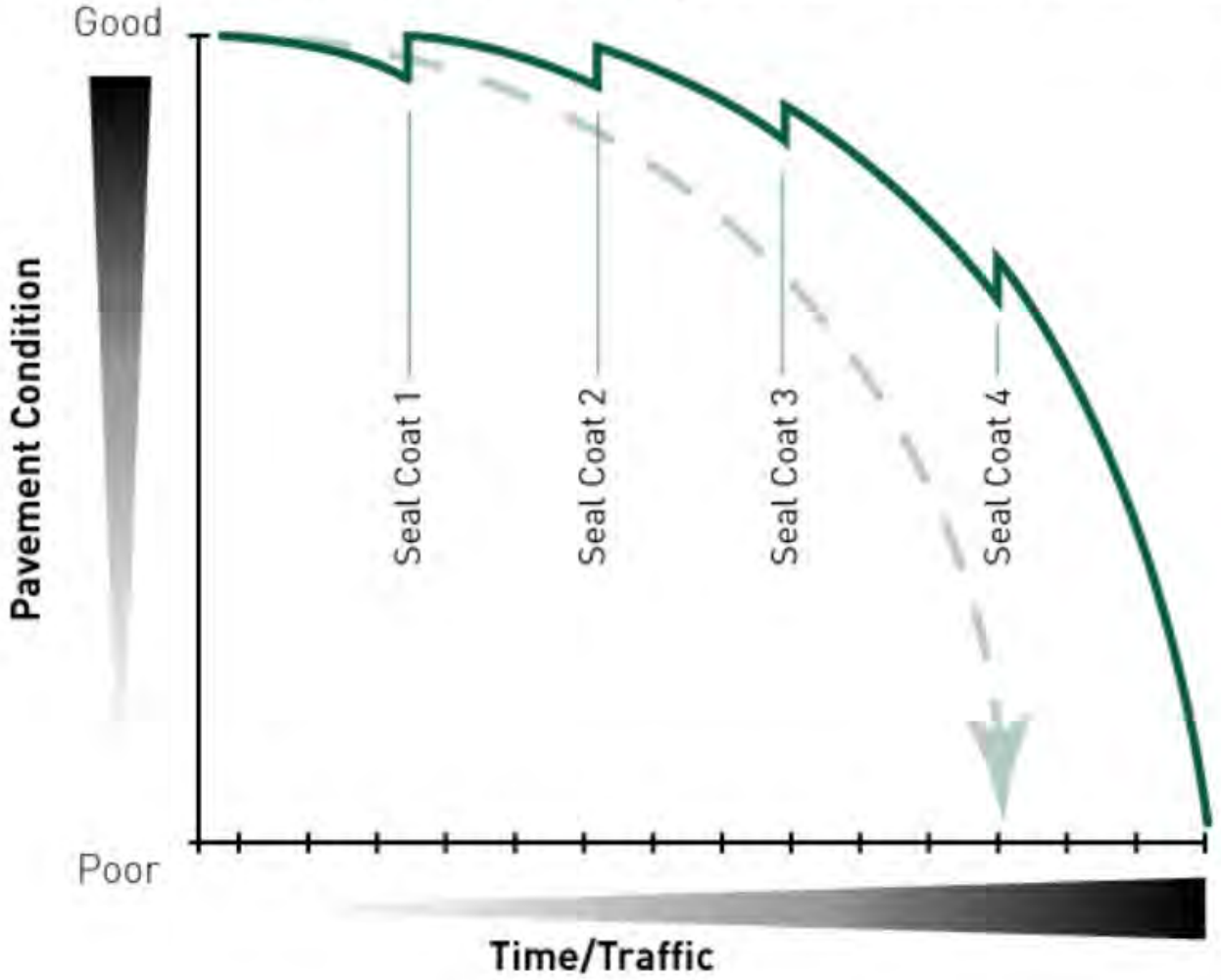
Figure 1: Typical Pavement Lifecycle No Seal Coat, Crack Fill or Overlay





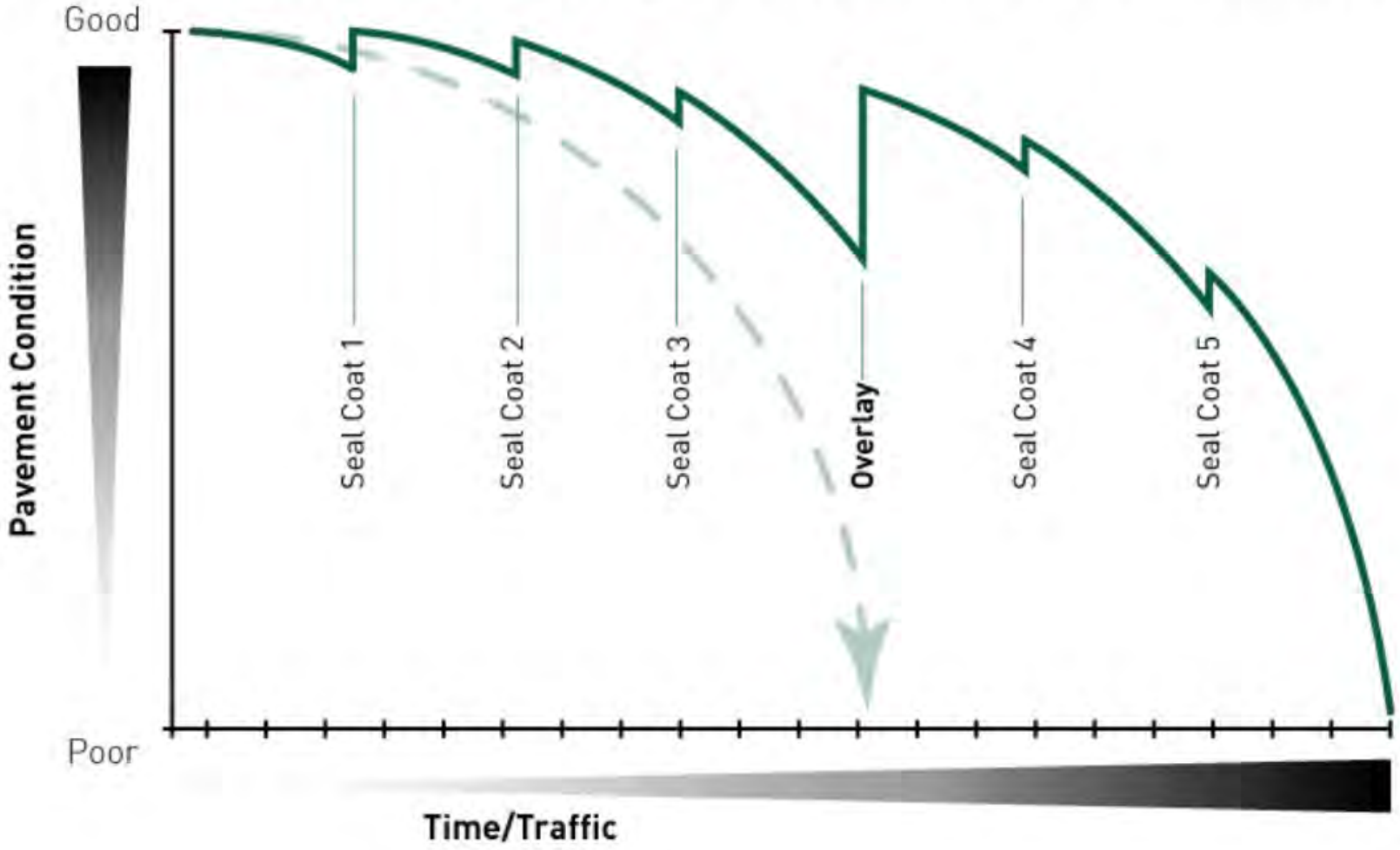
Pavement Life Cycle

Figure 2: Typical Pavement Lifecycle w/ Seal Coating & Crack Filling



Pavement Life Cycle

Figure 3: Typical Pavement Lifecycle w/ Seal Coating, Crack Filling and Overlays



Life Cycle Cost Analysis

Table 1 – Pavement Life Cycle Cost Analysis			
Item	Year	Approx. Cost Per Foot of Street	
		With Maintenance	Without Maintenance
Initial Construction	0	$250.00	$250.00
Crack Fill & Chip Seal	7	$11.00	
Crack Fill & Chip Seal	14	$11.00	
Mill & Overlay	20	$92.00	
Crack Seal	22	$1.75	
Reconstruction	25		$220.00
Chip Seal	27	$9.25	
Crack Fill & Chip Seal	35	$11.00	
Mill & Overlay	40	$92.00	
Crack Fill	42	$1.75	
Chip Seal	47	$9.25	
Salvage Value Adjustment	50	$170.00	$250.00
Life Cycle Cost per Foot		**$659.00**	**$720.00**
Difference		**-$61.00**	-

Good Pavement Condition
Fair Pavement Condition
Poor Pavement Condition

*Costs indicated above are based on typical costs for the area in 2019 dollars. Unit pricing per foot is based on an average 36-foot wide residential street pavement.

Pavement Conditional Ratings

Table 2 – Pavement Conditional Ratings Description		
Conditional Rating	**Condition Description**	**Typical Recommended Maintenance Activity**
7 – 10	Excellent to Good	Crack Fill & Seal Coat Program (every 6-8 years)
5 – 6	Good to Fair	Mill & Overlay, Patching as needed
1 – 4	Fair to Very Poor	Full Depth Reconstruction

Goals

- Maximize Life of Pavement,
- Minimize Cost
- Increase Quality

Pavement Conditional Ratings

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Pavement Conditional Ratings

Pavement Conditional Ratings (2018)

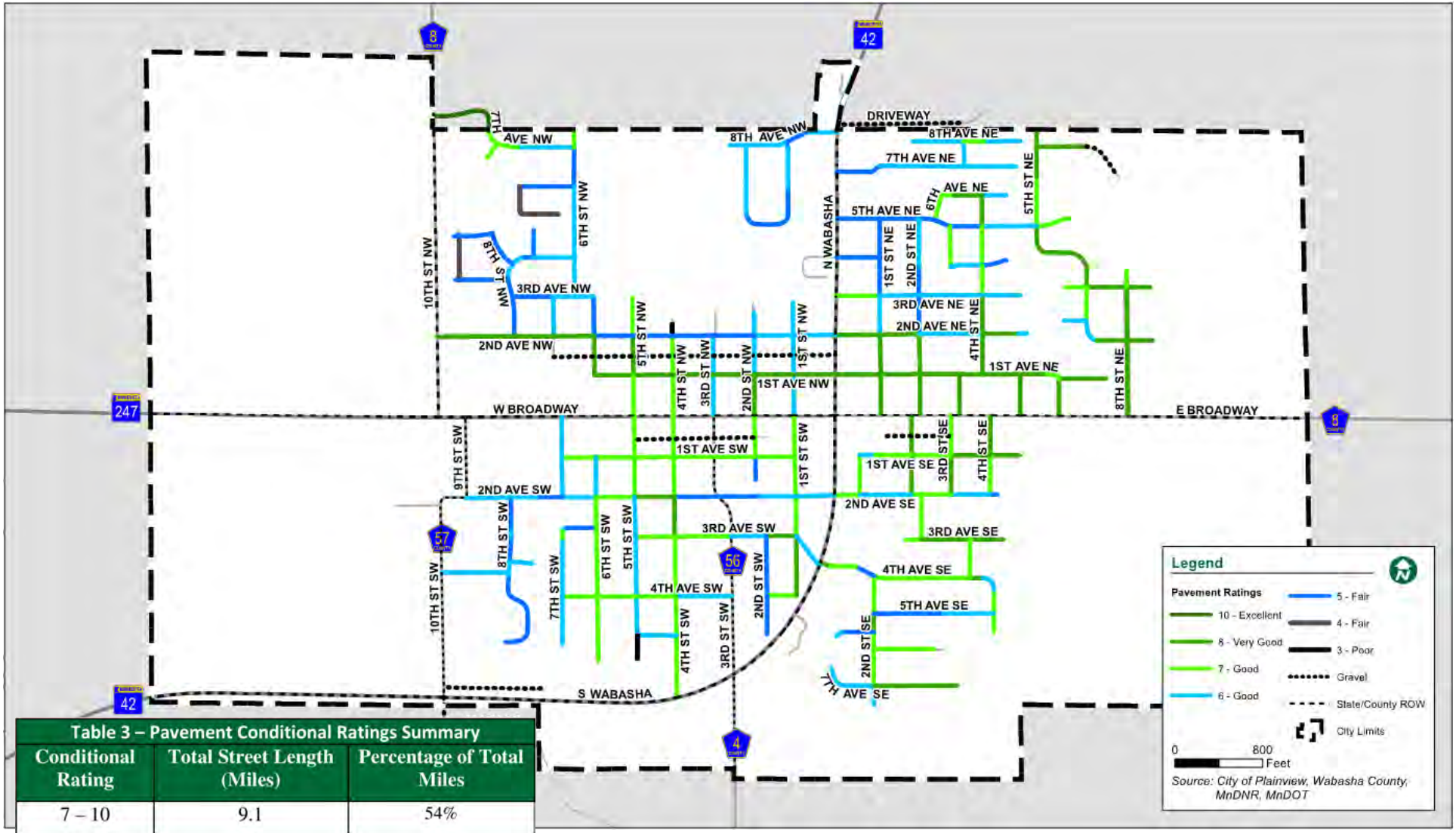


Table 3 – Pavement Conditional Ratings Summary

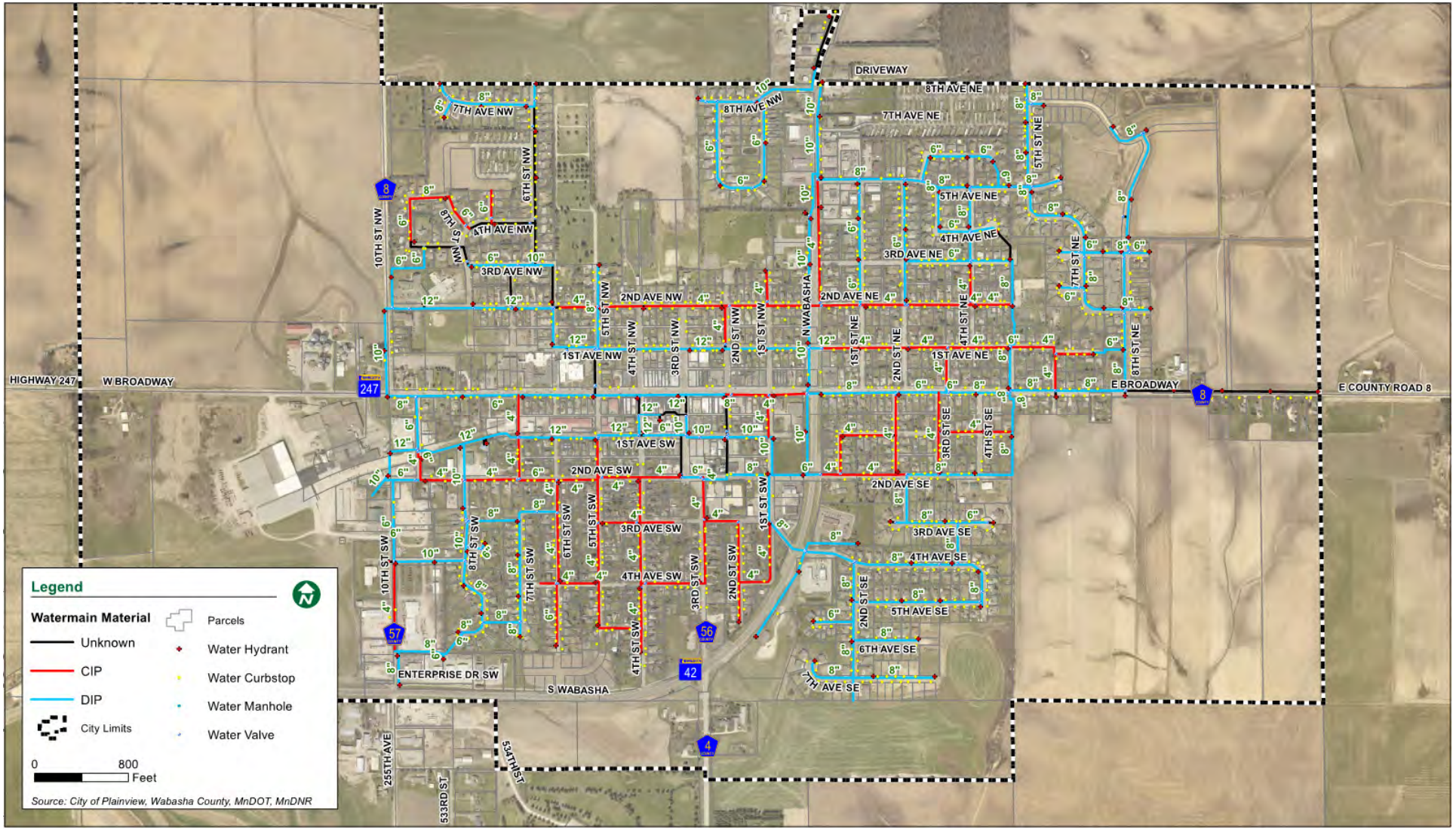
Conditional Rating	Total Street Length (Miles)	Percentage of Total Miles
7 – 10	9.1	54%
5 – 6	7.1	43%
1 – 4	0.5	3%
Total	**16.7**	**100%**

Water Distribution System

Cast Iron – Brittle, Corrosion Issues, Reduced Capacity

New Watermain – Ductile Iron or PVC, Upgrade Valves/Hydrants

Water Distribution System

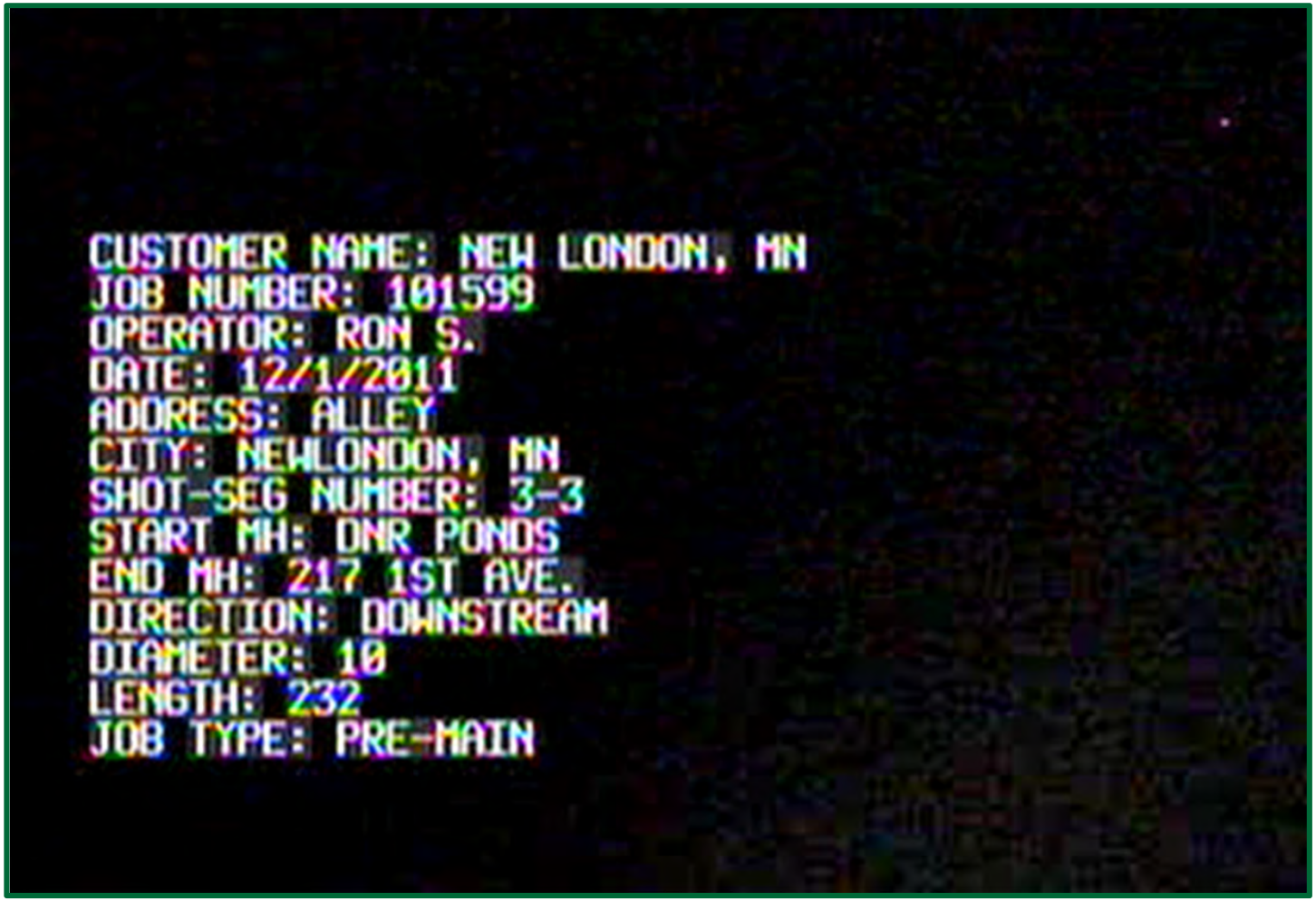


Sanitary Sewer System

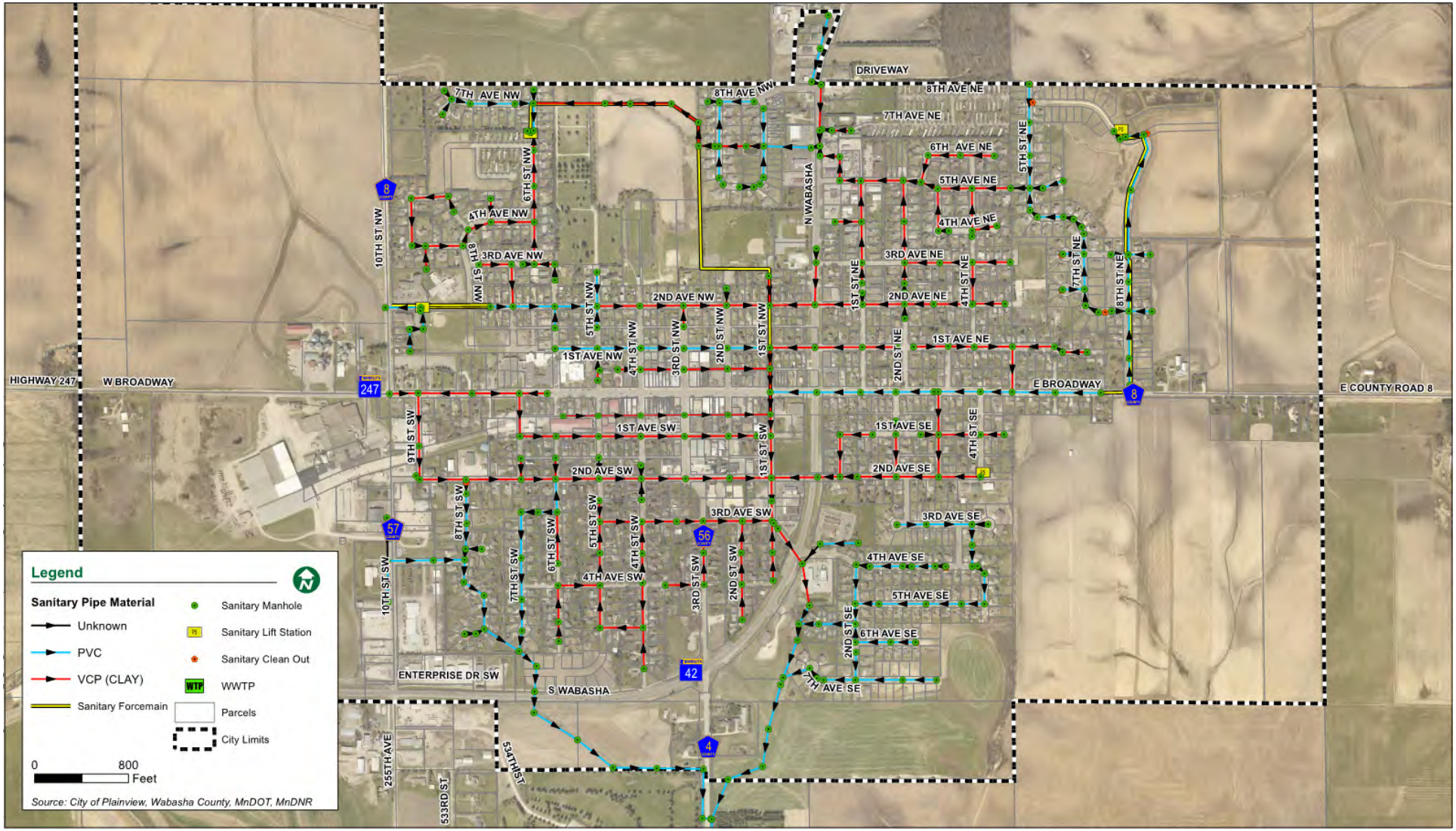
Clay Sewers – Problematic, Open Joints, Susceptible to I&I

PVC Sewers – Gasketed Joints, Water Tight

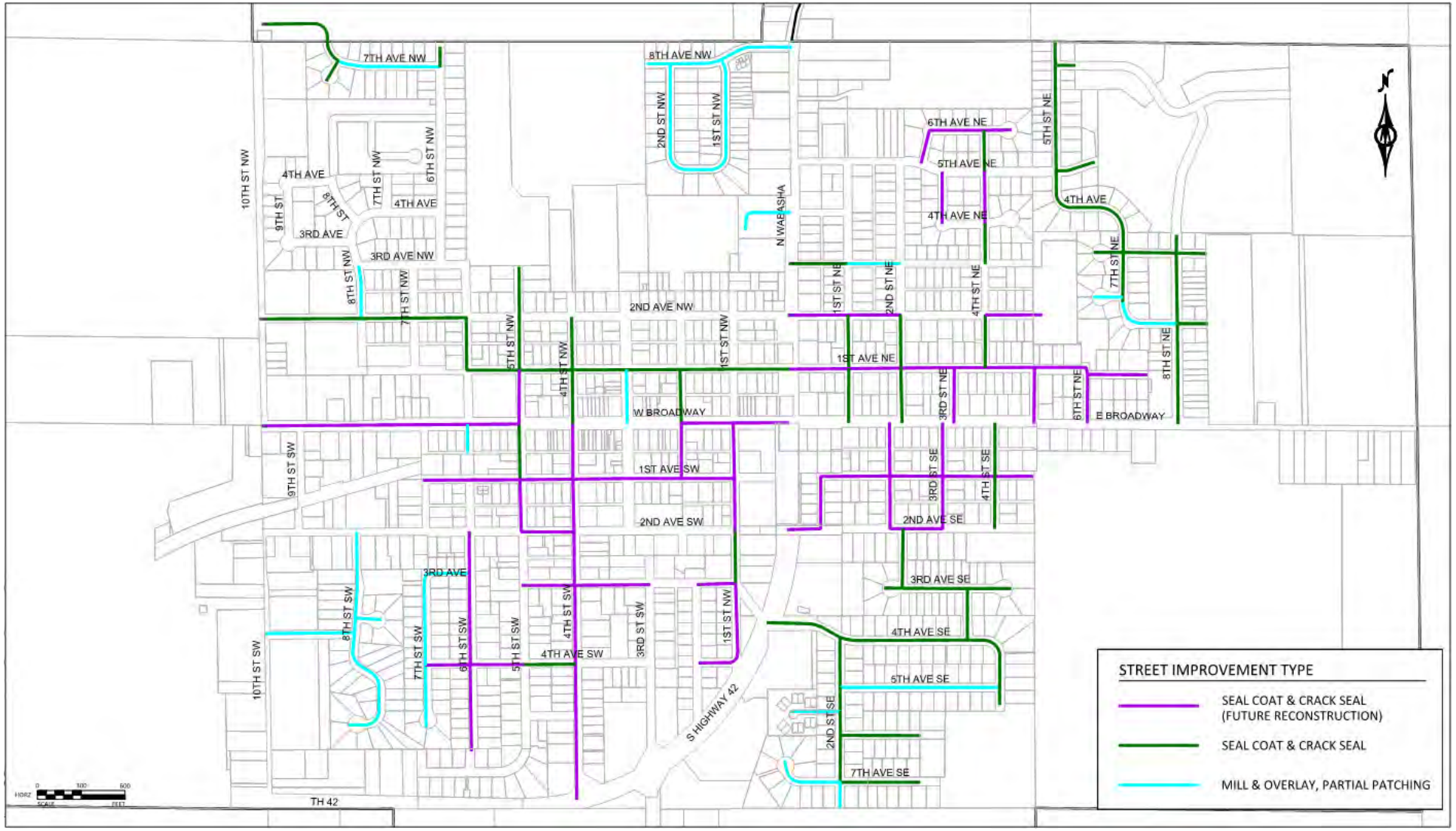
Sanitary Sewer System



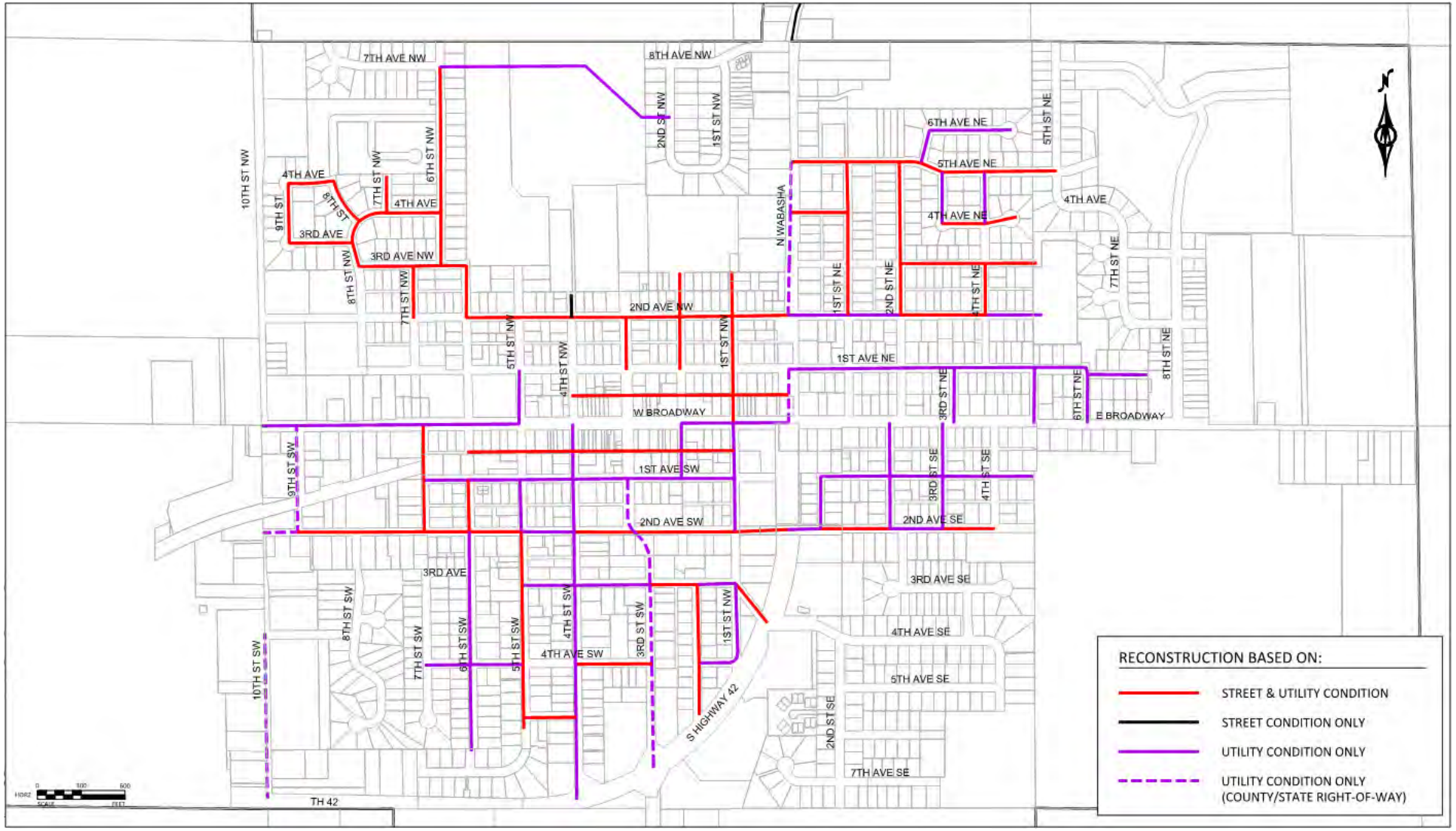
Sanitary Sewer System



Street Maintenance Map

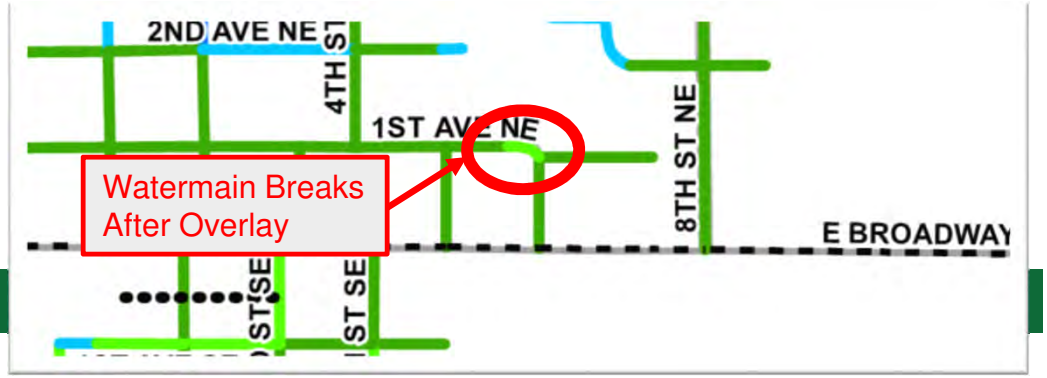


Reconstruction Map



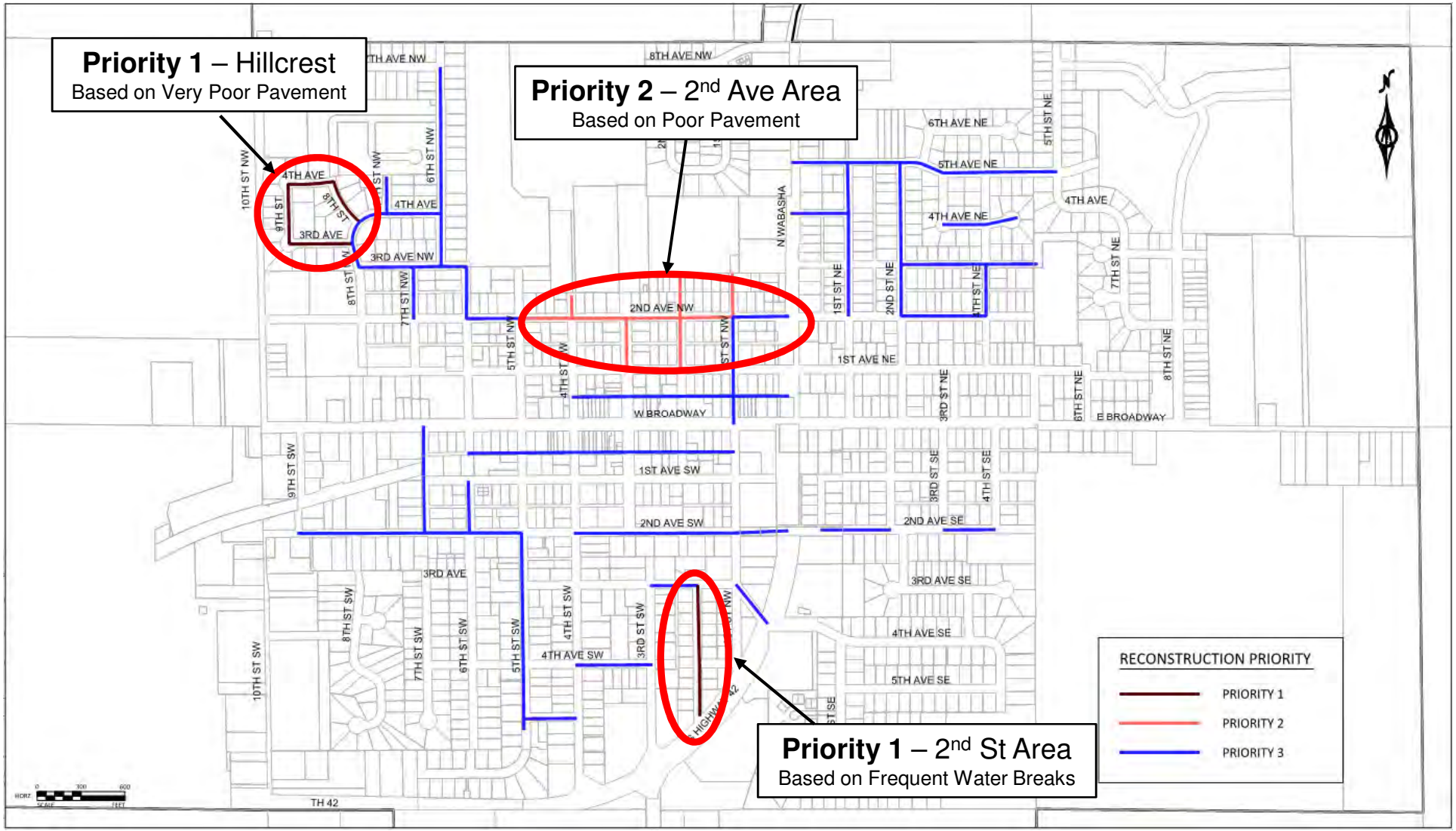
Discussion

- What if you can only afford surface improvements?
  - Mill & Overlay life 20-25 years
  - Risks:
    - Utility Failure prior to pavement failure
      - Example: 80 yr old WMN will be 100+ yrs at end of pavement life
    - Added pavement replacement costs
    - Patch decreases pavement quality
- Sometimes necessary – Point is that the City understands these risks during the decision-making process.



Prioritizing Projects

Prioritizing Projects



How to Use Maps

Pavement Condition

Utility Condition

Street Maintenance

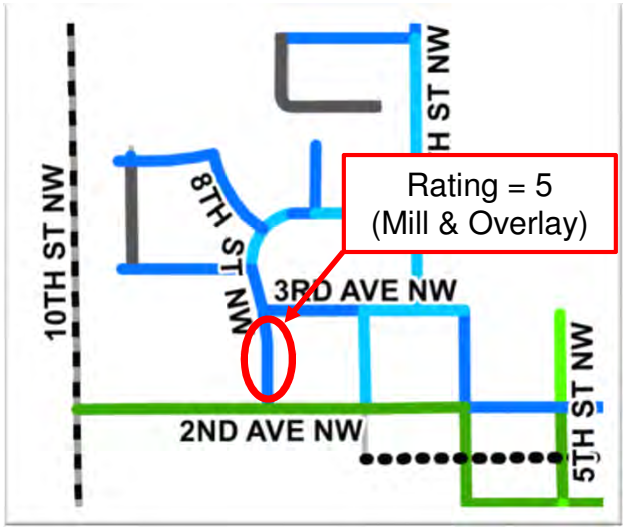
Or

Reconstruction Map

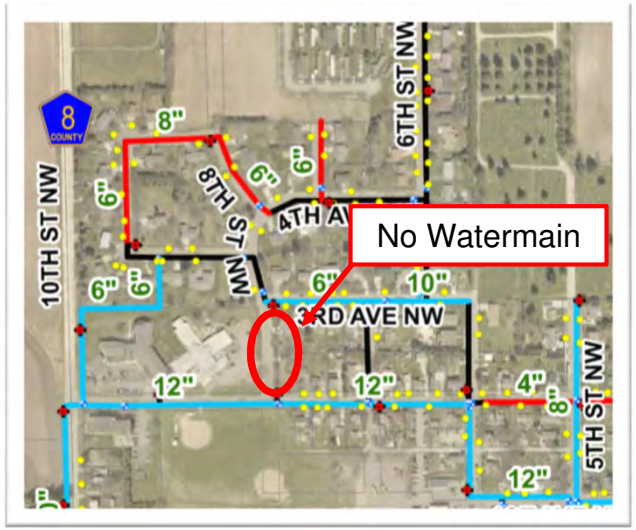
Planning Level Cost Estimates

How to Use Maps

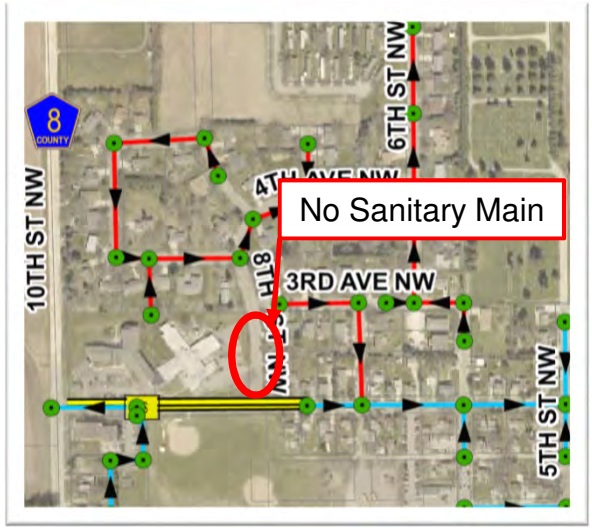
Step 1: Street Rating Map



Step 2: Water System Map



Step 3: Sanitary System Map



Example:

8th St NW (2nd to 3rd)

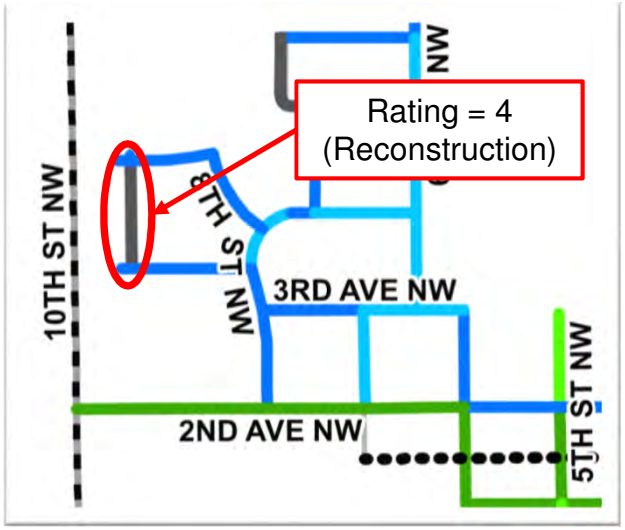
Approx. *Budget = $37,120*

Appendix C-2

Street Maintenance Map

How to Use Maps

Step 1: Street Rating Map



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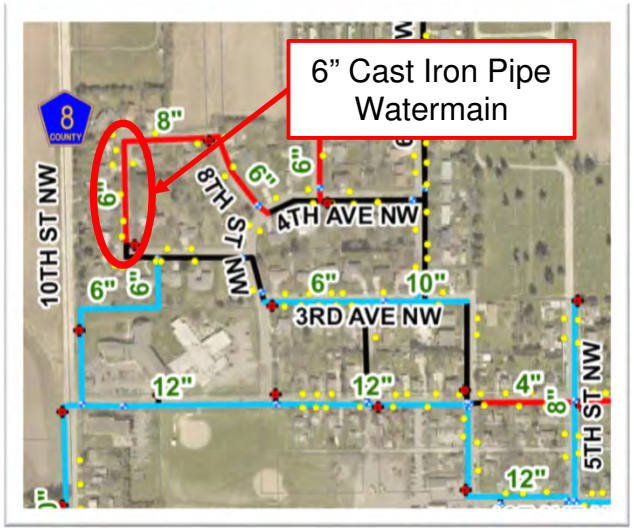

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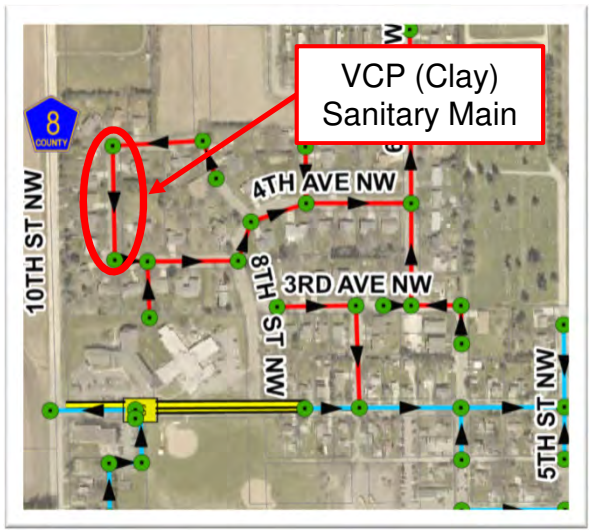


Example:

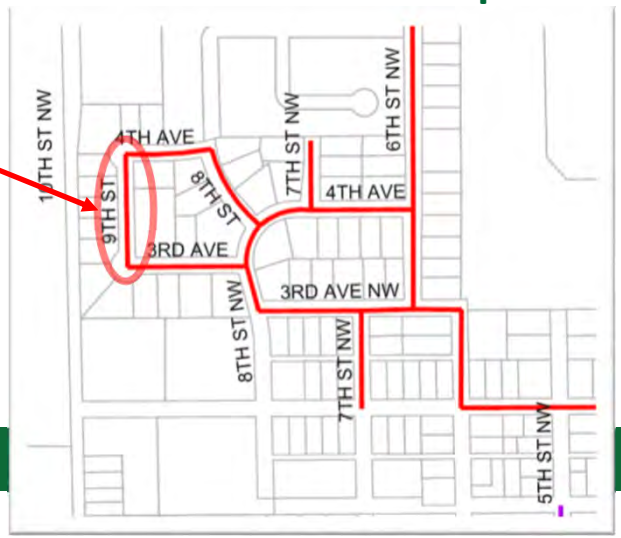
9th St NW (3rd to 4th)

Approx. *Budget = $360,000*

Appendix C-3

Reconstruction Map

Red = Reconstruction (Based on Street & Utility Need)



How to Use Maps

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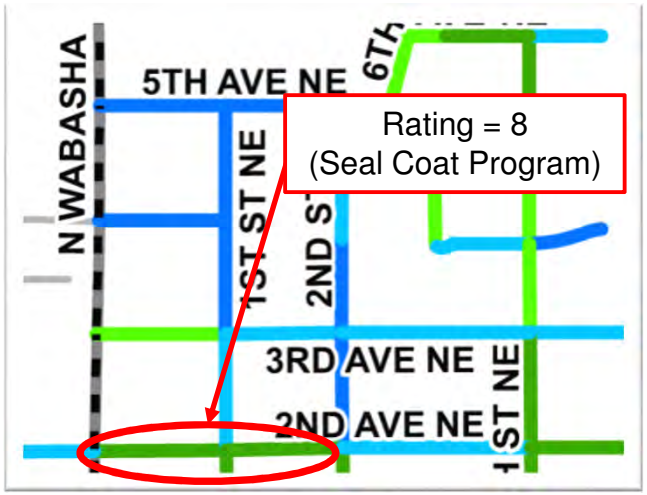
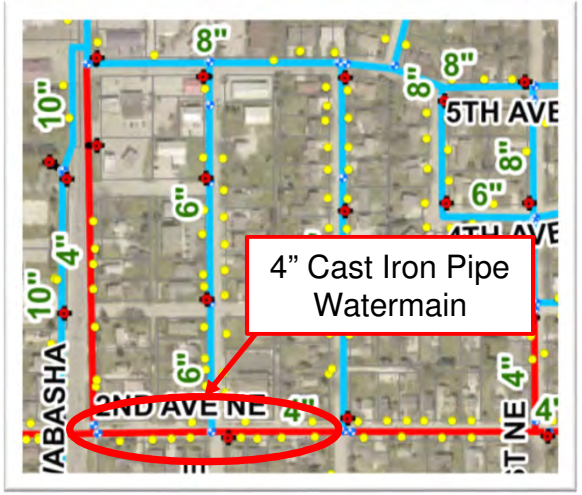
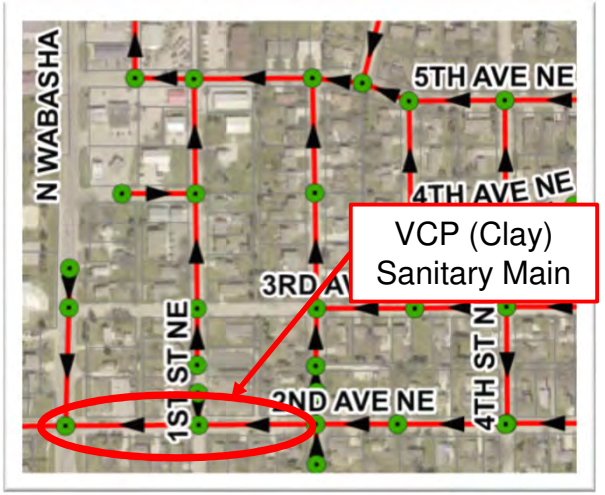


Step 2: Water System Map



Step 3: Sanitary System Map

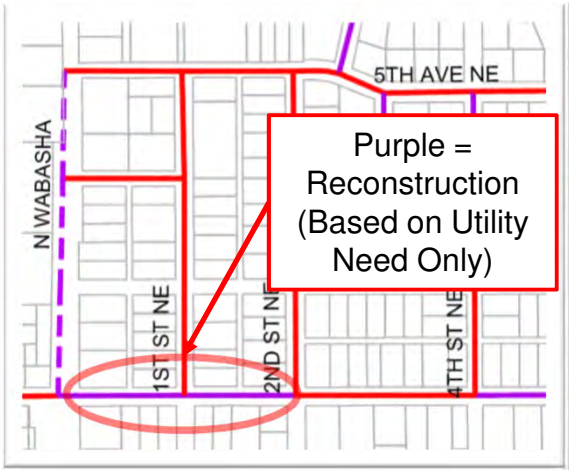


Example:

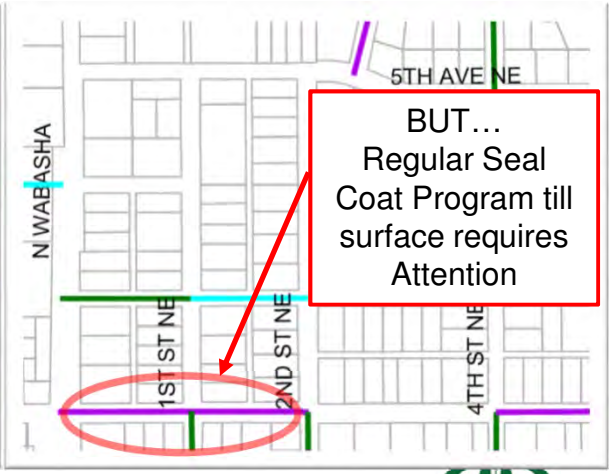
2nd Ave NE (Hwy 42 to 2nd)

Approx. *Budget =*
$8,141 (Sealing)
$675,000 (Reconstruction)

Reconstruction Map



Street Maintenance Map



Budgeting

Seal Coating & Crack Filling

- Priority #1 (Preserve Good Pavement Conditions)
- Most cost effective method
- 6-8 Year Cycle
- Recommended Annual Budget $70,000
  - See Appendix C-1
  - Some Crack Filling left in current cycle
  - Most of annual budget will be Chip Sealing
  - May be adjusted over time

Budgeting

Mill & Overlay & Patching

- Short turnaround needed
- Consider underlying utilities
- 20-30 year cycle (typical)
- Current Need =~$1.2 Million
  - Consider completing within next 5-10 years

Budgeting

Reconstruction

- Prioritize overall needs to Maximize Value
- Minimize improvements to streets outside CIP
- 50+ year cycle
- High Priority Needs

  =~$22.8 Million

  - Prepare Capital Improvement Plan
  - Select high priority projects
  - Stay within CIP budget

Capital Improvement Plan

City of Plainview, Minnesota
Projects, Debt & Revenue Allocation Worksheet

2019 Original Capital Financial Plan

Baseline	Cap. Outlay
Sewer Fund	10,000
Water Fund	30,000

75,000	Rebuild General Fund	2020 Beg Year / 2025 End Year
100,000	Annual Street Maint from Street Reco Fund (2020+)	

Graph Options

	yes	< prevent rate reductions? (yes,no)
	150,000	< value of "typical" homestead for impact
	5,000	< typical water usage per month
2019		
12%	3%	< market value inflation factor
2020	3%	< construction inflation factor
12%	3%	< Spending Increase % (GF, Water, Sewer,etc.)
	3%	< Tax Base Growth Assumption
	-	*Water Xfr to Streets*
	-	*Sewer Xfr to Streets*

5	Population Growth/Year
1.92	Households/Year
1.0%	Water 2020
1.0%	Water 2021+
1.0%	Sewer 2020
1.0%	Sewer 2021+
2%	Sewer District Increases

500,000	2019 Talk Street to Cap Outlay
-	LGA Cuts (increase) 2020+
-	Offsets
-	Net Increase in Levy
350,000	Capital Projects Fund 2020+
50%	% to Street Reco
50%	% to Cap Outlay

Projects & Debt

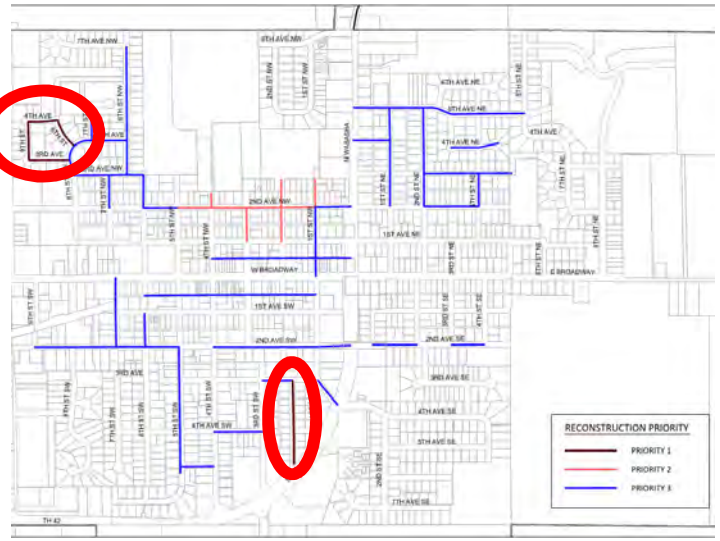
# Project	2019 Street Project	City Hall Roof	Streets	treets	Streets	Ladder Truck	Library, Ambulance & City Hall Remodel	Street	
Est Year 2019 Cost	1,350,000	200,000	2,000,000	2,500,000	2,500,000	900,000	325,000		2,000,000
NET Financed (Inflation Less Cash)	925,000	-	1,000,000	1,985,131	2,759,791	477,000	-		2,121,800
GO Bond or Cash	GO	Cash	GO	GO	GO	GO	Cash		GO
Term	10	10	10	10	10	10	20		10
Rate	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	1.00%		4.00%
Bond Pymt	114,044	-	123,291	244,749	340,257	58,810	-		261,599
Yr Built	2019	2021	2020	2025	2029	2020	2019		2021

Repayment Sources

CASH	Street Reconstruction	-	-	260,000	1,000,000	600,000	-	-	-
	Capital Outlay Fund	-	212,180	-	-	-	-	325,000	-
	Grants / Other	425,000	-	-	-	-	450,000	-	-
	Water Fund	-	-	400,000	-	-	-	-	-
	Sewer Fund	-	-	400,000	-	-	-	-	-
DEBT	Other Revenues	0%	0%	0%	0%	0%	0%	0%	0%
	NET Assmts	0%	0%	0%	0%	0%	0%	0%	0%
	Electric Rates/Fees	0%	0%	0%	0%	0%	0%	0%	0%
	Storm Funds	0%	0%	0%	0%	0%	0%	0%	0%
	Sewer Rates/Fees	50%	0%	50%	0%	15%	0%	0%	50%
	Water Rates/Fees	50%	0%	50%	0%	15%	0%	0%	50%
	Tax Levies	0%	100%	0%	100%	70%	100%	100%	0%
		100%	100%	100%	100%	100%	100%	100%	100%

Project Planning Process

1. Define Project Budget from CIP
   - Example (2020 – $2.0 Million)
2. Update Infrastructure Management Plan
   - Street Ratings, Utility Map Details, Project Priority List
3. Select Project Area
   - Based on updated Project Priority List
   - Hillcrest Loop & 2nd St SW – Priority 1 Areas
     - 9th St NW (3rd – 4th) $360,000
     - 8th St NW (4th – 4th) $132,000
     - 4th Ave NW (9th – 8th) $328,500
     - 3rd Ave NW (9th – 8th) $454,500
     - 2nd St SW (3rd – 4th) $481,500
     - 2nd St SW (4th – South) $319,500



Hillcrest
$1,275,000

2nd St
$801,000

Total
$2,076,000

Project Planning Process

4. Prepare Feasibility Report
   - Refine Scope & Budget
5. Hold Public Hearings/Meetings
   - Need varies based on special assessment
6. Final Design & Bidding
7. Construction
8. Move on to next scheduled project

Recap

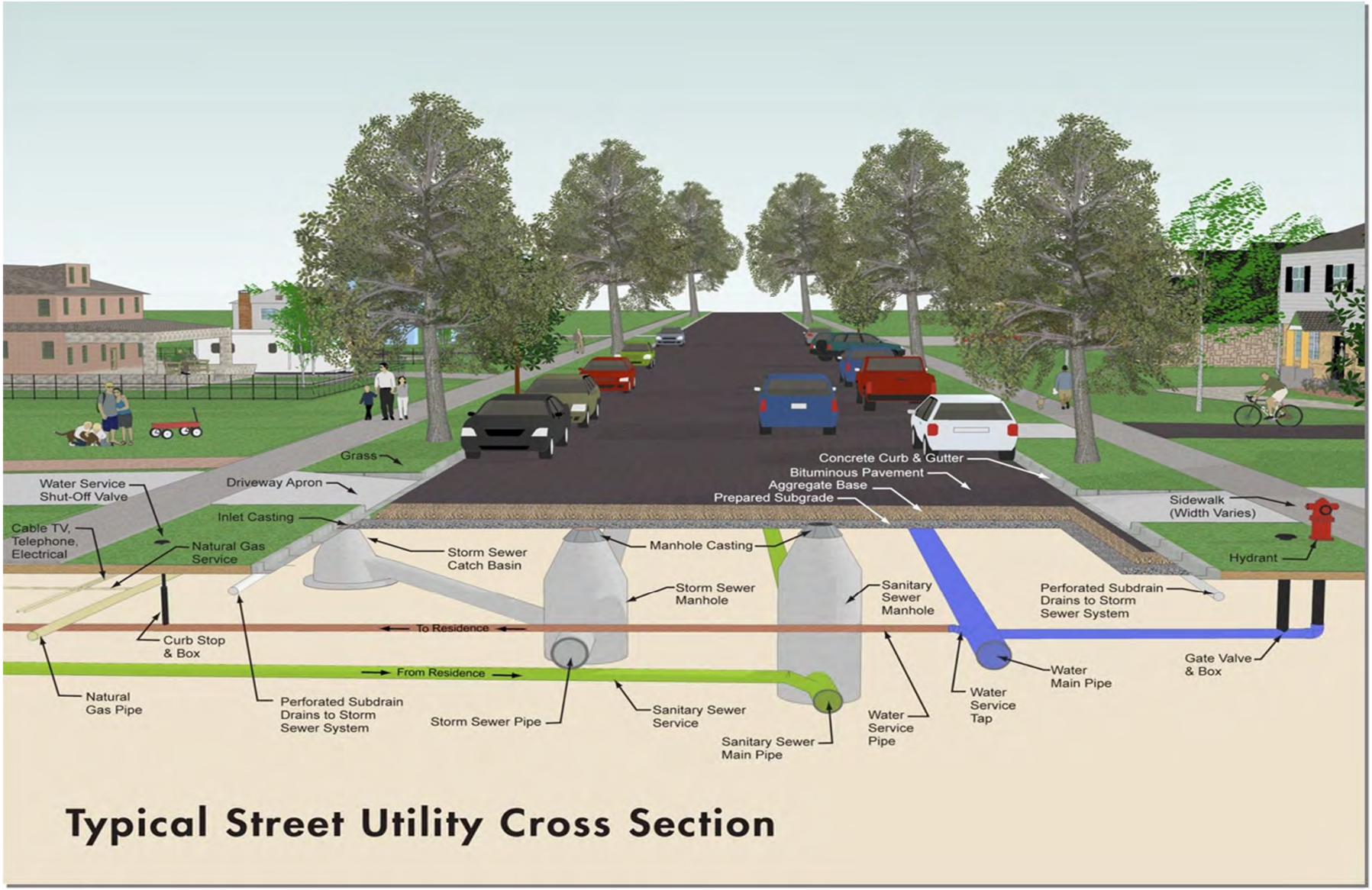
- Smart Infrastructure Planning
  - Prioritizing Needs
    - Preventative Maintenance, then Overlays/Reconstructions
  - Maximize Value with dollars spent
    - Plan reconstructions for projects with Pavement & Utility needs, when possible
  - Update Maps/Cost Estimates regularly

Overall Goal – Provide City Leaders with the understanding to make informed decisions.

Discussion

PLAINVIEW

The perfect place to be you



Typical Street Utility Cross Section