

Stormwater Utility

Summer 2020 Public Presentation



Stormwater Utility

- ▶ What is the stormwater utility?
- ▶ Storm sewer system - The Infrastructure
 - ▶ Pipes, manholes, catchbasins, ditches, culverts, tunnels,...
 - ▶ Storm and Sanitary sewers are two separate systems
- ▶ Operation of the storm sewer system
 - ▶ Staff – field crews, engineering, office personnel,...
 - ▶ Equipment, vehicles, offices/shops/garages,...
 - ▶ Policies, procedures, permits (MPCA/DNR)



Stormwater Utility

- ▶ Why do we need a storm sewer system?
 - ▶ Rainfall and snow melt must be captured and conveyed to Lake Superior
 - ▶ Public safety and protection of roads, infrastructure and property
 - ▶ Storm sewer system and natural drainage ways – **Community Drainage System**
 - ▶ The City's storm sewer system is part of the overall **Community Drainage System**.
 - ▶ City, MnDOT, County, UMD, Railroad, Private – commercial/industrial/housing
 - ▶ Protect Duluth's High Quality Water Resources, Lake Superior, St. Louis River, 16 trout streams, wetlands and other 46 creeks.



Stormwater Utility

- ▶ City of Duluth's Storm Sewer:
 - ▶ 411 miles of pipe (8" and bigger)
 - ▶ 10,931 catch basins
 - ▶ 5,044 manholes
 - ▶ 2,486 culverts
 - ▶ 19 miles
 - ▶ Cross culverts and driveway
 - ▶ Ditches
 - ▶ 100+ miles
 - ▶ 85 Structural BMPs (water quality)



Age of Storm Sewer System

Decade	Age	Number of Manholes	Number of Catch Basins	Length of Pipe (Miles)
1880-1889	129-138	141	260	8.4
1890-1899	119-128	137	229	8.5
1900-1909	109-118	135	229	8.8
1910-1919	99-108	136	255	10.1
1920-1929	89-98	372	527	23.5
1930-1939	79-88	573	720	31.9
1940-1949	69-78	185	254	10.1
1950-1959	59-68	205	310	13.5
1960-1969	49-58	444	895	30.1
1970-1979	39-48	403	766	32.2
1980-1989	29-38	658	1463	34.4
1990-1999	19-28	590	1724	72.1
2000-2009	9-18	700	2053	89.9
2010-2018	0-8	369	1241	37.9
2020-2030	-	?	?	?

Stormwater Utility – Life Expectancy

STORM SEWER SYSTEM CAPITAL PROJECT NEEDS		
Item	Life Expectancy*	Annual
Description	Years	Cost
Storm Sewer Pipe - Replacement (12" and larger) (feet)	100	\$ 1,584,000
Manholes - Replacement (each)	100	\$ 461,250
Large Stream Culverts - Replacement (each)	100	\$ 300,000
BMP WQ Treatment Structure - Replacement (each)	100	\$ 17,000
Catch Basins - Replacement (each)	75	\$ 1,017,613
Culverts - Replacement (each)	35	\$ 653,143
Ditches - Grading to re-establish flow line (feet)	30	\$ 440,000
New Storm Sewer Pipe - Expansion (feet)	----	\$ 125,000
New BMP WQ Structures to meet MS4 Permit (each)	----	\$ 100,000
*Optimistic asset life span - replacement cycle	Annual Need	\$ 4,698,006
	Current Budget	\$ 1,100,000
	Budget Shortfall	\$ 3,598,006



Stormwater Utility

- Stormwater Sewer Replacement Costs
 - To fully replace or to install one city block of storm system – approximately 500 lineal feet is \$86,000.
 - To replace one mile of storm system is \$907,000.
 - 2nd Street Reconstruction 2020 bid: \$110k/block, \$1.1M/mile.
 - Current annual capital budget is \$1,100,000.
 - Future street improvement program needs? How many miles per year? Most cost effective to combine projects.
 - If streets are not fully reconstructed, but are rehabilitated with other methods, storm repairs and improvements are still needed.

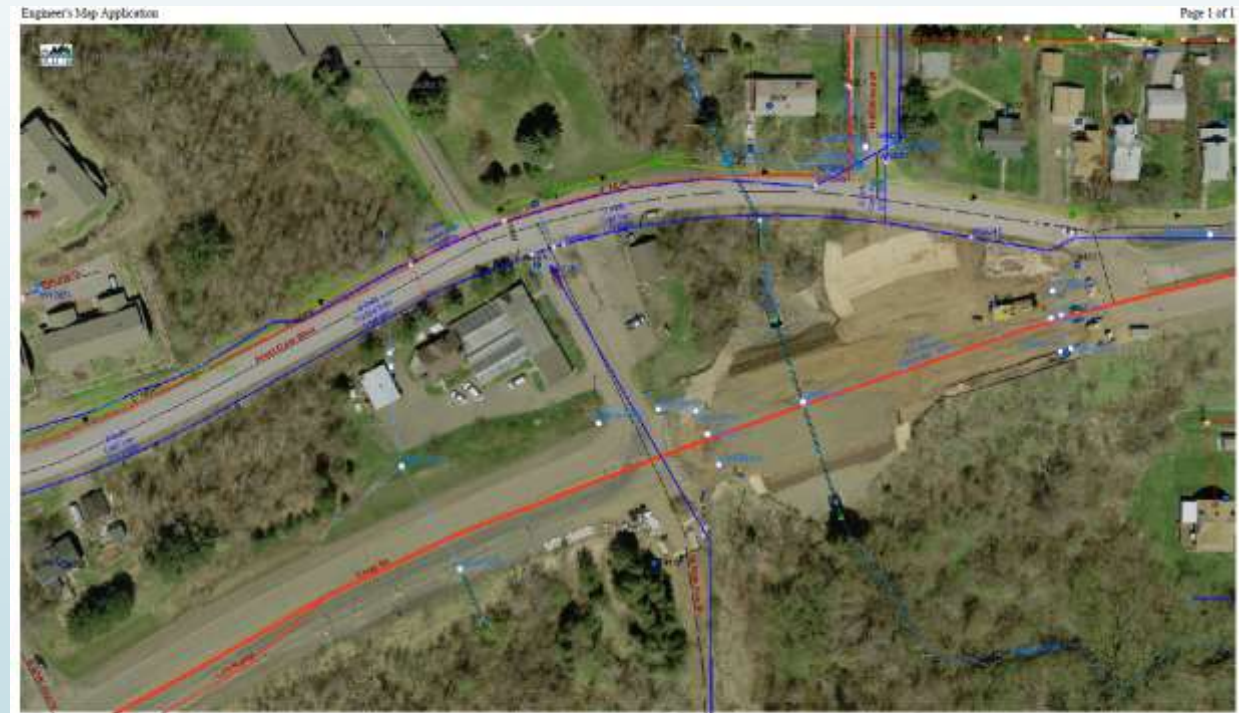


Stormwater Utility

- ▶ Reasons to replace storm sewer system:
 - ▶ Public Safety – driving conditions, road failure – sink holes, washouts
 - ▶ Protection of private property from flooding
 - ▶ Protection of utility infrastructure within roadway
 - ▶ Street improvement projects, the storm system needs to be replaced as roads are reconstructed
 - ▶ Preservation of road pavements increases with proper drainage
 - ▶ Protection of water resources
 - ▶ Increase capacity of system to handle more runoff from larger storms
 - ▶ Storm Sewer Asset Management – inspect/plan/budget the work

Stormwater Utility

- Cody Street – Keene Creek Crossing – May 2010 – 102" steel culvert failed – 35' below road
- Total replacement project \$1.3M, completed late summer 2011, 10'x12' box culvert bridge.
- Funding for comprehensive asset management: inspections/documentation, timely repairs and schedule replacement and budgeting. Scheduled inspection and timely repairs of this culvert could have saved 80% of the project costs, approximately \$1M.



Cody St 2011 – Construction Phase

2019 -Complete

Stormwater Utility

- Provide City improvements to help property owners.

2210 Anderson Road – drainage issue, ponding water with no options within owner's property. City to extent storm sewer within ROW to allow residents to improved their drainage.



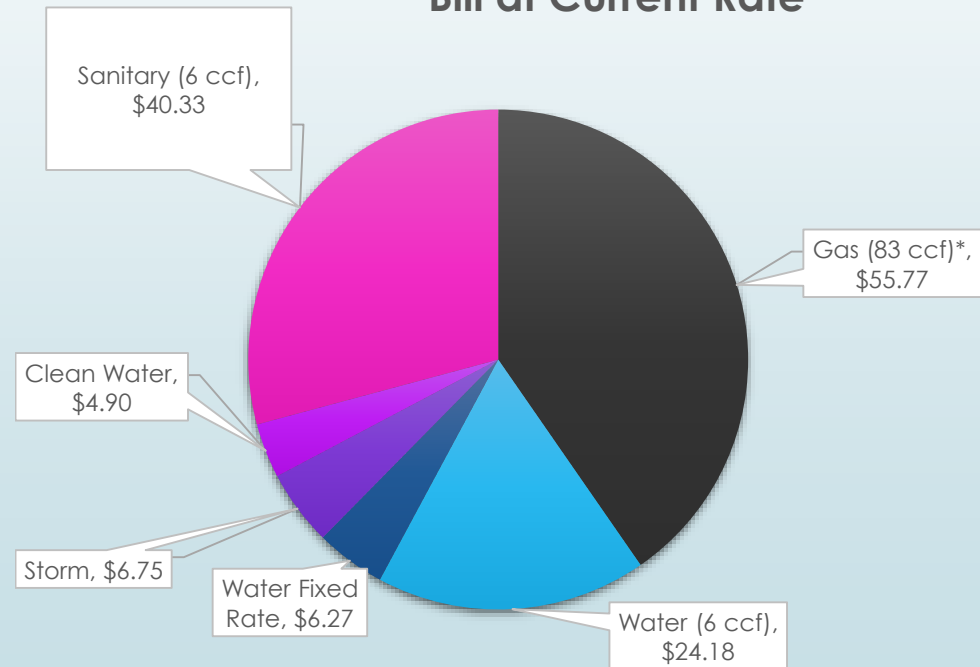
4630 Otsego St. – Heaved inlet and curb/gutter – icing issues, flow diverted around inlet, driveway apron issues.

Stormwater Utility

► City of Duluth Utility Billing

- Utility billing – each utility funded separately.
- Fee based budget, no general funds.
- Storm fee is a small percentage of total bill.

Average Residential Monthly Utility Bill at Current Rate



Stormwater Utility Billing

► Residential

- Billed as an Equivalent Residential Unit (ERU)
- 1 ERU = 1,708 sqft (Average Duluth home's impervious surface area, used in non-residential properties billing)
- Example:
 - Residential home is billed 1 ERU
 - Duplex is billed 2 ERU's



Stormwater Utility - Billing

- ▶ **Non-residential property** is billed by actual impervious surface area converted into ERUs.
 - ▶ Impervious surface is parking lots, driveways, roofs, sidewalks, pavement or gravel surfaces.
 - ▶ Non-residential customers can get a credit or discount for a structural BMP.
 - ▶ BMP – Best Management Practice
 - ▶ Actual impervious area / 1708 sqft = X ERU
Example: 20,000 sq.ft. parking lot = 11.7 ERU
Less the BMP credit and area contribution.
 - ▶ Per UDC, all new/re-developments projects require BMPs,
 - ▶ Retrofitting existing properties for credit is encouraged.



Stormwater Utility – Fee Credits

- ▶ The Non-residential customers can receive a credit for a structural BMP, that provides water quality and/or flood control benefits. The areas that flow to a BMP will get the credit.
 - ▶ 20% for water quality structure
 - ▶ 25% for water quality via green infrastructure
 - ▶ 30% for water quality with 5 year flood control reduction
 - ▶ 35% for water quality with 10 year flood control reduction
 - ▶ 40% for water quality with 25 year flood control reduction
 - ▶ 50% for water quality with 100 year flood control reduction
 - ▶ 80% for waterfront properties with water quality structure.
- ▶ BMPs include but not limited to wet ponds, dry ponds, underground storage systems, engineered swales, green roofs, sand filters, rain gardens, pervious pavers, water quality manholes/vaults.
- ▶ Flood control BMPs require a licensed engineer to certify the design, and is based on pre-development flows.



Stormwater Utility

- ▶ Stormwater Utility Rates (per ERU):
 - ▶ 1998 \$3.75 beginning of the stormwater utility
 - ▶ 2006 \$5.20 – first rate increase
 - ▶ 2008 \$6.08
 - ▶ 2016 \$6.75 (\$0.67 increase offset by clean water fund decrease of \$0.67)

Stormwater Utility

- ▶ The Duluth Public Utilities Commission is recommending a 11.25% rate increase each year for 6 years to reach the capital budget need of \$4.6M/year by 2026.

YEAR	2020	2021	2022	2023	2024	2025	2026
\$/ERU	\$6.75	\$7.51	\$8.35	\$9.29	\$10.34	\$11.50	\$12.80
Capital Budget	\$1.1M	\$1.3M	\$1.6M	\$2.2M	\$2.9M	\$3.7M	\$4.6M

Stormwater Utility

Questions?

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THE CITY OF DULUTH



STORMWATER
WORKING TO PROTECT LAKE SUPERIOR