

Real People. Real Solutions.

2022 Street Improvements City of Grand Meadow, Minnesota

February 2022

Submitted by:

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Certification

Feasibility Report

For

2022 Street & Utility Improvements

City of Grand Meadow, Minnesota H19.121164

February 2022

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

By: mar Berek P. Olinger, P.E.

License No. 54287

Date: 2/14/2021

I. PROJECT INTRODUCTION

As part of an on-going effort to manage and maintain the condition of the street network within Grand Meadow, the City is proposing street and utility improvements to the following streets:

Table 1 – Project Location					
Street	From	То			
2 nd St SW	~100' S of 1^{st} Ave SW	2 nd Ave SW			
1 st St SW	~100' S of 1^{st} Ave SW	South Terminus			
Main St S	2 nd Ave SW	South Terminus			
2 nd Ave SW	140' E of Stier Ln SW	Main St S			
3 rd Ave SW	1 st St SW	Main St S			
4 th Ave SW	1 st St SW	Main St S			
Southern City Property (vacated R/W)	1 st St SW	Main St S			

Figure 1 (attached) illustrates the proposed project location.

In accordance with City Policy and Minnesota Statutes, Chapter 429, the City Council has authorized the preparation of a report to define feasibility and determine the scope of the proposed project. The specific objectives of this report are to:

- 1. Evaluate the project need
- 2. Determine the necessary improvements
- 3. Provide preliminary cost estimates
- 4. Determine tentative project schedule
- 5. Determine the feasibility of the project

Additional details can be found in the remainder of this report.

II. EXISTING CONDITIONS

The project area is residentially developed and consists of paved asphalt streets with concrete curb and gutter. Existing street dimensioning is noted in the table below:

Table 2 – Street Dimensioning					
Street	Pavement Width	Right-of-Way Width			
2 nd St SW	36 ft	80 ft			
1 st St SW	36 ft	80 ft			
Main St S	36 ft	80 ft			
2 nd Ave SW	36 ft	66 ft			
3 rd Ave SW	36 ft	80 ft			
4 th Ave SW	36 ft	80 ft			
Southern City Property (vacated R/W)	Not Paved – Green Space	N/A			

Pavements and curb & gutter are in fair condition throughout the project, with only minor localized cracking or flat spots.

Sidewalks throughout the project area are non-continuous and the existing intersection pedestrian ramps are not in compliance with current ADA standards.

Several photos of the project area are included below.



Exhibit 1 – Street Condition, 2nd Avenue at 1st Street



Exhibit 2 – Curb Condition, 1st Street at 2nd Avenue



Exhibit 3 – Street Condition, 1st Street at 4th Avenue



Exhibit 4 – Street Condition, Main Street at 4th Avenue

Sanitary sewers within the project area are comprised of gravity mains and services. Mainlines consist of mostly 8-inch clay pipe in moderately poor to very poor condition, as determined by a 2019 sewer televising and inflow and infiltration (I & I) investigation. The northernmost block of 1st St SW was previously lined; however, there is still evidence of significant infiltration at service connections. In general, the city has realized significant issues with I & I into its sanitary system, leading to additional wear on equipment, emergency discharges and extra costs associated with the wastewater treatment system. Based on the condition of sanitary sewer, replacement is warranted.

Figure 2 (attached) illustrates the results of the 2019 sewer investigation.

Watermains throughout the project consist of 4-inch cast iron pipe. This pipe material and size no longer meets standards for public water systems. Cast iron is commonly susceptible to leaks and breaks due to its brittleness and corrosion. In addition, 4-inch mains severely limit the available fire flow from hydrants. For these reasons, the replacement of watermains is recommended.

There are no water or sanitary mains within 3rd and 4th Ave SW. The green space utility crossing on the south end of the project contains no sanitary mains. Utility service for properties adjacent to these segments is provided from 1st St SW or Main St S.

Drainage within the project area is conveyed to an urban storm sewer system which ultimately directs stormwater to the south end of the Main Street. From here, stormwater is directed to the east and discharges into a ditch on the east side of County Road 8. Within the project limits, the existing storm sewer piping is partially undersized and the system as a whole lacks the adequate number of inlets to properly convey runoff to the storm sewer during larger rain events. The outfall pipe and ditch along County Road 8 has filled with sediment and does not currently provide positive drainage away from the project. This element has the largest impact on the system performance.

III. PROPOSED IMPROVEMENTS

Streets and curbs throughout the project area will be heavily impacted by the open-cut replacement of sanitary sewer mains, watermains, storm sewers and service lines. For this reason, curb and gutter and pavements will be reconstructed entirely, with the exception of 4th Ave SW. This street segment contains no underlying utilities and will not be impacted by other construction. As such, 4th Ave SW will be milled and overlayed with new asphalt pavement.

Table 3 – Street Width				
Street	Existing Width	Proposed Width		
2 nd St SW	36 ft	36 ft		
1 st St SW	36 ft	$33^1 - 36^2$ ft		
Main St S	36 ft	36 ft		
2 nd Ave SW	36 ft	36 ft		
3 rd Ave SW	36 ft	33 ft		
4 th Ave SW	36 ft	36 ft		
Southern City Property (vacated R/W)	Not Paved –	Not Paved –		
	Green Space	Green Space		

Street pavement widths are provided in the table below:

Notes: ¹2nd Ave to South End of Project ² North end of Project to 2nd Ave

As part of the reconstruction, sidewalks near street intersections and above utility services will be impacted. At intersections, existing connections will be replaced with ADA-compliant curb ramps, landings and transitions. Where sidewalk is impacted by utilities, the surface will be replaced in kind as needed to allow for extension of new service lines up to the right-of-way.

Sanitary sewer mains will be removed entirely and replaced with new 8-inch diameter, gasketed PVC pipe and reinforced concrete manholes. The sanitary main at the west end of 2nd Ave SW will be deepened to accommodate a future gravity sewer extension to the west. The new system will be designed to provide a watertight system. Service connections for each property connected to the new mains will be replaced with new 4- or 6-inch diameter PVC pipe up to the right-of-way line.

The existing watermains will be replaced with new PVC pipe. All replacement mains will be 8inches in diameter, except for 2nd Ave SW, which will use 10-inch mains in order to provide adequate flows for future development to the west. Hydrants and valves within the project limits will also be replaced and spaced properly to meet public system standards. Similar to the sanitary sewer, water services will be replaced within the right-of-way with 1-inch diameter piping and shutoff valves.

Both sanitary sewer and water mains and services will be installed with tracer wire systems, in order to keep these systems in compliance with current statutes regarding utility locating.

Storm sewers within the project area will be replaced with new, larger pipe. Curb inlet structures and manholes will be replaced and supplemented with additional inlets to provide adequate capacity for conveying runoff from the surface to the pipe system. The system will continue to discharge to the outlet pipe at the south end of Main Street. The remainder of the outlet pipe replacement and ditch grading will not be addressed with this project. Assuming the downstream conveyance pipe and ditch is replaced at a later date, the new system will provide the conduit necessary to convey runoff from a 3 to 5-year (33% to 20% return frequency) rain event with minimal surface ponding. Although the additional catch basins should comparatively reduce street flooding during larger events, the system will operate at a reduced capacity until downstream improvements are made.

Figure 3 illustrates a preliminary layout of the proposed improvements. Additional detail can be found in the preliminary construction plans. Those plan sheets are available for review, upon request to the City.

Other Considerations

Some private utilities such as gas, communications, and power lines may be impacted during construction. Prior to bidding, a coordination meeting will be held to coordinate the relocation of these facilities prior to or during construction.

It is possible that portions of the project may impact private property. If requested by the city, temporary construction easements may be secured to formalize these encroachments. If not requested, construction personnel will coordinate with property owners on an as-needed basis to allow for construction of the new facilities.

As we currently understand, the permits and plan reviews required for this project include a Minnesota Pollution Control Agency (MPCA) General Construction Storm Water Permit and a Minnesota Department of Health Plan Review for watermain construction.

IV. PROJECT COSTS AND FUNDING

The estimated project costs are summarized in the table below. A detailed cost estimate is attached.

Table 2 – Preliminary Cost Estimate				
Item		Estimated Cost ¹		
Street & Site Construction		\$3,315,100		
Sanitary Sewer Construction		\$812,600		
Water Construction		\$1,055,700		
Storm Sewer Construction		\$808,000		
	Estimated Project Total	\$ 5,991,400		

Notes: ¹ Includes estimated construction, 7.5% contingency, engineering, administration, and legal costs

Funding for sanitary sewer costs will be made through a Minnesota Public Facilities Authority (PFA) low interest loan. All other costs will be funded through the sale of bonds. The loan will be repaid through annual tax levy, utility revenue funds, and special assessments to adjacent or benefitting properties.

Assessments are calculated in accordance with the City's Assessment Policy. To summarize, the costs of reconstruction, including streets, sanitary sewer, watermain, and storm sewer are assessable. Assessments for individual lots are based on the frontage (width of a lot adjacent to the improvements).

A summary of the assessment calculation method is provided below:

Total Assessable Cost = Total Project Cost × 25% Assessment Rate = Total Assessable Cost ÷ Total Assessable Project Frontage Individual Property Assessment = Assessment Rate × Assessable Frontage

Assessable frontage for side yard widths on corner lots is applied at a rate of 50%. Front yard widths on corner lots are applied at the full width and are defined by the property address. The council may choose to adjust the assessments, as desired, anytime prior to approval of the final assessment roll.

A preliminary assessment roll has been prepared and is on file at City Hall. The special assessment notice and public hearing process will be completed in accordance with Chapter 429 of the Minnesota Statutes. This process includes the preparation of this report, a public "improvement" hearing, and the final assessment hearing. Final assessments will be based on actual construction bid costs. Additional detail regarding the assessment approval process and repayment procedures for property owners will be provided at future meetings.

V. TENTATIVE PROJECT SCHEDULE

The table below provides a list of tentative dates related to the project assessment and implementation. Dates are subject to change.

Table 3 – Tentative Project Schedule				
Present Feasibility Report to City Council	2/14/22			
Resolution: Receiving Report and Calling on Improvement Hearing				
Advertise for Improvement Hearing (2x in Official Newspaper, at least 1 week apart, last	3/3/22, 3/10/22			
publication at least 3 days prior to hearing)				
Mail Notices for Improvement Hearing (postmarked at least 10 days prior to hearing)	3/3/22			
Neighborhood Informational Meeting	3/10/22			
Public Improvement Hearing	3/14/22			
(Resolution: Ordering Improvement)				
Finalize Construction Plans and Specifications	4/8/22			
Council Meeting: Receive Completed Plans & Specifications	4/11/22			
Advertise for Bids	4/14/22			
Bid Opening	5/5/22			
Council Meeting: Receive Bids & Call for Assessment Hearing	5/9/22			
Resolution: Order Preparation of Assessment Roll & Advertisement of Assessment Hearing				
Resolution: Awarding Bid (can occur before or after assessment hearing)				
Advertise Assessment Hearing (1x in Official Newspaper, minimum 10 days prior to hearing)	5/26/22			
Mail Assessment Hearing Notice (postmarked at least 10 days prior to hearing)	5/26/22			
Neighborhood Informational Meeting	6/10/22			
Hold Assessment Hearing (Resolutions: Approving Final Assessment Roll, Awarding Project)	6/13/22			
Construction (2 phases)	Jun/Jul 2022 – Jul 2024			

VI. CONCLUSION & RECOMMENDATIONS

The existing utilities and storm sewer within the project area are deteriorated and/or undersized for their intended use and replacement is warranted. From an engineering standpoint, this project is feasible, cost effective, necessary, and can be best accomplished by letting competitive bids. Due to the size of the project, we also recommend that the construction be split into two separate stages for construction in 2022 and 2023.

We recommend that the City Council accept this report and call for a hearing on the proposed improvements (i.e. Improvement Hearing).

Attachments:

Figure 1 – Project Location

Figure 2 – Sanitary Sewer Televising Results

Figure 3 – Proposed Improvements

Preliminary Engineer's Estimate



Figure 1: Project Location

2022 Street & Utility Improvements



This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information, and data located in various city, county, and state offices, and other sources affecting the area shown, and is to be used for reference purposes only. The City of Grand Meadow is not responsible for any inaccuracies herein contained.

BOLTON & MENK

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Disclaimer:

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500 Feet

2019 I&I INVESTIGATION

CITY OF GRAND MEADOW



Figure 2: SANITARY SEWER TELEVISING RESULTS JANUARY 2020





ADDITIONAL DETAILS ON THE CONDITION OF SANITARY MAINLINE AND RECOMMENDATIONS FOR FUTURE REPLACEMENT • PIPE SEGMENTS WITH A SCORE OF 1 OR 2 APPEAR TO BE IN SATISFACTORY OR BETTER WORKING CONDITION AND SHOULD NOT REQUIRE REPLACEMENT IN THE NEAR FUTURE. SATISFACTORY RATINGS WERE SEPARATED, ACCORDING TO

O PVC PIPES ARE TYPICALLY INSTALLED WITH WATERTIGHT GASKETS AND ARE MUCH LESS SUSCEPTIBLE TO

0 ALTHOUGH VCP PIPE MAY APPEAR TO BE IN SATISFACTORY CONDITIONS, THEY MAY ALLOW GROUNDWATER TO INFILTRATE THROUGH SMALL OPENINGS IN JOINTS.

• PIPE SEGMENTS WITH A SCORE OF 3 OR 4 (SLIGHTLY TOO MODERATELY POOR) ARE EXHIBITING SIGNS OF DETERIORATION AND ARE NEGATIVELY AFFECTING THE PERFORMANCE OF THE SYSTEM AS A WHOLE. WE RECOMMEND THAT THESE REACHES OF PIPE BE CONSIDERED FOR REPLACEMENT IN THE FORESEEABLE FUTURE.

• VERY POOR (SCORE OF 5) MAINLINE SEGMENTS ARE SHOWING SIGNS OF HEAVY DETERIORATION AND IN SOME CASES, HAVE ALERADY EXPERIENCED ONE OR MORE STRUCTURAL FAILURES. IT IS OUR OPINION THAT THESE PORTIONS OF MAINLINE SEWER POSE THE HIGHEST RISK FOR BACK-UPS IN THE SYSTEM. WE RECOMMEND REPLACEMENT OF THESE MAINLINE SEGMENTS BE PLACED HIGH ON THE PROJECT PRIORITY LIST.

2022 Street & Utility Improvements

Figure 3: Proposed Improvements



February 2022







PRELIMINARY ENGINEER'S ESTIMATE

2022 STREET & UTILITY IMPROVEMENTS CITY OF GRAND MEADOW, MN BMI PROJECT NO.: H19121164

Updated: 2/14/2022

NO.	ITEM	QTY	UNIT	UNIT PRICE	TOTAL
STRE	ET	<u> </u>	0	011111102	
1	MOBILIZATION	1	IS	\$275 000 00	\$275 000 00
2	TRAFFIC CONTROL	1	LS	\$15,000.00	\$15,000.00
3	TREE TRIMMING / CLEAR & GRUB	21	EA	\$950.00	\$19.950.00
4	CLEAR & GRUB	0.35	AC	\$13,000.00	\$4,550.00
5	REMOVE CURB & GUTTER	10085	LF	\$3.75	\$37,818.75
6	REMOVE DRIVEWAY PAVEMENT	1720	SY	\$9.00	\$15,480.00
7	REMOVE CONC WALK	5500	SF	\$1.10	\$6,050.00
8	2" EDGE MILLING	4452	SY	\$3.00	\$13,356.00
9	COMMON EXCAVATION (P)	15850	CY	\$15.00	\$237,750.00
10	SUBGRADE EXCAVATION	2160	CY	\$15.00	\$32,400.00
11	STABILIZING AGGREGATE	2160	CY	\$34.00	\$73,440.00
12	SELECT GRANULAR BORROW (10") (CV, P)	6560	CY	\$28.00	\$183,680.00
13	AGGREGATE BASE CLASS 5 (8") (CV,P)	4850	CY	\$34.00	\$164,900.00
14	AGGREGATE SURFACING CL 2	40	TON	\$35.00	\$1,400.00
15	GEOTEXTLE FABRIC	23590	SY	\$3.00	\$70,770.00
16	BITUMINOUS NON WEAR COURSE (2 1/2")	19000	SY	\$14.00	\$266,000.00
17	BITUMINOUS WEAR COURSE (1 1/2")	19000	SY	\$8.50	\$161,500.00
18	BITUMINOUS WEAR COURSE (2" OVERLAY)	1015	SY	\$11.25	\$11,418.75
19	BITUMINOUS DRIVEWAY PATCH	250	SY	\$20.00	\$5,000.00
20	CONSTRUCT CONCRETE DRIVEWAY	1470	SY	\$85.00	\$124,950.00
21	CONCRETE CURB & GUTTER (B624)	10325	LF	\$20.00	\$206,500.00
22	4" CONC WALK	5500	SF	\$10.00	\$55,000.00
23	6" PVC UNDERDRAIN	10325	LF	\$18.00	\$185,850.00
24	6" UNDERDRAIN CLEANOUT	10	EA	\$350.00	\$3,500.00
25	SUMP PUMP SERVICE	85	EA	\$900.00	\$76,500.00
25	AMENDED TOPSOIL BORROW (LV)	2000	CY	\$32.00	\$64,000.00
26	INLET PROTECTION	46	EA	\$325.00	\$14,950.00
27	SEED, FERTILIZE & MULCH (25-151)	12700	SY	\$9.00	\$114,300.00
28	STABILIZED CONTRUCTION EXIT/ENTRANCE	4	EA	\$1,500.00	\$6,000.00
29	EROSION & SEDIMENT CONTROL	1	LS	\$20,000.00	\$20,000.00
				SUBTOTAL:	\$2,467,013.50
SANIT	ARY SEWER				
30	REMOVE SANITARY MANHOLE	12	EA	\$550.00	\$6,600.00
31	CONSTRUCT SANITARY MANHOLE DES 4007C	121	LF	\$520.00	\$62,920.00
32	ADJUST SANITARY MANHOLE/I&L BARRIER	13	EA	\$900.00	\$11,700.00
33	SANITARY SEWER CASTING ASSEMBLY	13	EA	\$700.00	\$9,100.00
34	CONNECT TO EXIST SANITARY	3	EA	\$1,000.00	\$3,000.00
35	CONNECT TO EXIST FORCEMAIN	2	EA	\$500.00	\$1,000.00
35	8" SANITARY SEWER	4325	LF	\$56.00	\$242,200.00
36	8" X 6" SANITARY WYE	85	EA	\$325.00	\$27,625.00
37	6" SANITARY SEWER	3540	LF	\$40.00	\$141,600.00
38	2" PRESSURE SEWER SERVICE	225	LF	\$35.00	\$7,875.00
39	IMPROVED PIPE FOUNDATION	7865	LF	\$6.50	\$51,122.50
40	DEWATERING	1	LS	\$40,000.00	\$40,000.00
				SUBTOTAL:	\$604,742.50



PRELIMINARY ENGINEER'S ESTIMATE

2022 STREET & UTILITY IMPROVEMENTS CITY OF GRAND MEADOW, MN BMI PROJECT NO.: H19121164

Updated: 2/14/2022

	ITEM	ΟΤΥ			τοται
WATE	RMAIN	QII		GIATTIAGE	TOTAL
41	TEMPORARY WATER SERVICE	1	IS	\$30,000,00	\$30,000,00
42	REMOVE WATERMAIN PIPE	5529	IF	\$6.00	\$33 174 00
43	REMOVE GATE VALVE & BOX	12	 	\$250.00	\$3,000,00
44	REMOVE & SALVAGE HYDRANT	10		\$500.00	\$5,000,00
45	CONNECT TO EXIST WATERMAIN	7	FA	\$1 400 00	\$9,800,00
45	10" GATE VALVE & BOX	5	FA	\$3,000,00	\$15,000,00
46	8" GATE VALVE & BOX	10	EA	\$2,600.00	\$26,000.00
46	6" GATE VALVE & BOX	9	EA	\$2,000.00	\$18,000.00
47	4" GATE VALVE & BOX	3	EA	\$1.700.00	\$5,100.00
47	HYDRANT	9	EA	\$5.300.00	\$47,700.00
48	10" WATERMAIN	1426	LF	\$65.00	\$92.690.00
47	8" WATERMAIN	3916	LF	\$58.00	\$227,128,00
48	6" WATERMAIN	137	LF	\$52.00	\$7,124.00
49	4" WATERMAIN	50	LF	\$48.00	\$2,400.00
50	1" CURB STOP	81	EA	\$500.00	\$40,500.00
51	1" CORPORATION STOP	81	EA	\$400.00	\$32,400.00
52	1" WATER SERVICE PIPE	3120	LF	\$38.00	\$118,560.00
53	WATERMAIN FITTINGS	5144	LB	\$14.00	\$72,016.00
			_	SUBTOTAL:	\$785,592.00
STOR	M SEWER				
54	REMOVE STORM PIPE, ALL SIZES	4540	LF	\$15.00	\$68,100.00
55	REMOVE STORM STRUCTURE	26	EA	\$450.00	\$11,700.00
56	CONNECT TO EXISTING STORM	3	EA	\$925.00	\$2,775.00
57	CONSTRUCT DRAINAGE MANHOLE, DES 4020	120	LF	\$1,000.00	\$120,000.00
58	CONSTRUCT DRAINAGE MANHOLE, DES R-1	104	LF	\$550.00	\$57,200.00
59	STORM SEWER CASTING ASSEMBLY	46	EA	\$700.00	\$32,200.00
60	12" PIPE SEWER	403	LF	\$52.00	\$20,956.00
61	15" PIPE SEWER	464	LF	\$57.00	\$26,448.00
62	18" PIPE SEWER	1171	LF	\$62.00	\$72,602.00
63	24" PIPE SEWER	768	LF	\$75.00	\$57,600.00
64	30" PIPE SEWER	871	LF	\$110.00	\$95,810.00
65	36" PIPE SEWER	144	LF	\$180.00	\$25,920.00
66	STORM SEWER BYPASSING	1	LS	\$10,000.00	\$10,000.00
				SUBTOTAL:	\$601,311.00
		ESTIMATED CON	STRUCTIO	ON SUBTOTAL:	\$4,458,659.00
ESTIMATED CONSTRUCTION CONTINGENCIES (7.5%):			\$334,400.00		
ESTIMATED CONSTRUCTION COST:					\$4,793,059.00

b construction continuencies (7.5%).	
ESTIMATED CONSTRUCTION COST:	\$4

ESTIMATED ENGINEERING, ADMIN & LEGAL: \$1,198,300.00 ESTIMATED PROJECT TOTAL: \$5,991,359.00