



MARSHALL

**FEASIBILITY REPORT**

**PROJECT Z76  
SOUTH 1<sup>ST</sup> STREET  
RECONSTRUCTION PROJECT**

**CITY OF  
MARSHALL, MINNESOTA**

**March 10, 2020**

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

By:

Jason R. Anderson, P.E.  
Registration No. 53322

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**1.0 SCOPE**

This Feasibility Report as authorized by the City Council, covers the following proposed improvements: reconstruction and utility replacement on South 1<sup>st</sup> Street generally between Southview Drive and George Street. Water, sanitary sewer, and storm sewer catch basins will be replaced along South 1<sup>st</sup> Street in this area. Sidewalk is proposed to be installed along the west side of South 1<sup>st</sup> Street from Southview Drive to a point approximately 215 FT north of George Street. In addition to the utility replacement and street reconstruction on South 1<sup>st</sup> Street, sanitary sewer force main improvements are proposed at the intersection of South 1<sup>st</sup> Street and DeSchepper Street.

**2.0 BACKGROUND / EXISTING CONDITIONS**

**Street**

City records indicate that this segment of South 1<sup>st</sup> Street was originally constructed in 1971. The existing pavement surface last received a 1.5" mill and overlay treatment in 2005. The existing street width is 40 FT as measured from back of curb to back of curb. There is currently no sidewalk along South 1<sup>st</sup> Street between Southview Drive and George Street. There is existing sidewalk along the north side of Southview Drive at the southern limits of the project and there is sidewalk along the west side of South 1<sup>st</sup> Street approximately 215 FT north of George Street.

**Utilities**

The existing watermain along South 1<sup>st</sup> Street is 6" ductile iron pipe (DIP). Water pipe of this vintage and pipe material typically begin to fail around this age due to the corrosive nature of the soils in our area. Marshall Municipal Utilities (MMU) staff place a priority on replacing ductile iron pipe that is left in our water system. Water main exists below the entire length of the project limits.

The existing gravity sanitary sewer main is 8" vitrified clay pipe (VCP) along South 1<sup>st</sup> Street and is located between Gray Place and George Street. There is no sewer pipe between Southview Drive and Gray Place. An 8" PVC sanitary sewer force main connects from the north to the manhole that is located at the intersection of George Street and South 1<sup>st</sup> Street.

The existing storm sewer main is 30" reinforced concrete pipe (RCP) between Southview Drive and Gray Place and 36" RCP between Gray Place to a point approximately 140 FT

north of James Avenue. At this point the 36" RCP main flows east through the side yard of two homes on its path toward its outfall at the 66" RCP main that runs parallel to Saratoga Street. There is 18" RCP from the point that is 140 FT north of James Avenue to the intersection of George and South 1<sup>st</sup> Street.

### **3.0 PROPOSED IMPROVEMENTS**

#### **Street**

A bituminous pavement section is being proposed and discussed in this feasibility report. Staff is proposing a street section comprised of 4" of bituminous surfacing and 12" of Class 5 aggregate base. A geotextile fabric will be placed on the subgrade prior to the placement of the aggregate base. A 6" perforated drain tile shall be installed at the back of the curb below the aggregate base to provide subsurface drainage for the street section.

The proposed roadway will be 36 FT as measured from the back of curbs. The proposed street will be 4 FT narrower than the existing street. The purpose for the narrowing is to reduce project costs. It is the opinion of staff that the proposed road width will be adequate to serve the corridor.

#### **Utilities**

The proposed utility improvements include replacing existing 8" VCP sanitary sewer, existing 6" DIP watermain, and existing catch basin castings, grates, and catch basin structures.

The watermain improvements will consist of replacing all DIP water main with Polyvinyl Chloride (PVC) watermain pipe and replacing all water service lines to the curb stop (valve) that is located near the property line of each residence. Watermain improvements are planned in close coordination with MMU staff input. All 6" DIP water main will be replaced with 6" PVC water main.

The sanitary sewer system improvements will include replacing all manholes, sewer main, and sewer services along the corridor. The 8" VCP main will be replaced with 12" PVC sewer main. All sewer services will be replaced to the right-of-way (ROW) with a minimum 4" pipe size.

The new sanitary sewer main will be installed at a lower elevation to help facilitate reconnection of the existing 8" PVC force main at a better elevation to help optimize flow characteristics. Further, lowering the elevation of the sanitary sewer allows the city to lower sanitary sewer service line connections in George Street between S. 1<sup>st</sup> Street and Williams Street during a future reconstruction project. In the aforementioned block there are three sanitary sewer service lines that are installed through the existing 18" RCP storm sewer.

Additional sanitary sewer force main work will occur at the intersection of South 1<sup>st</sup> Street and DeSchepper Street. Currently, there are two 4" force main pipes to discharge wastewater from the lift station located near this intersection that connect to a single 8" force main



discharge pipe that flows south to the intersection of South 1<sup>st</sup> Street and George Street. Through conversations with the City Wastewater Department and review from the Engineering Department, staff has determined that it is advantageous to separate the two 4” force main pipes and cause them to discharge each to their own dedicated pipe. One pipe will flow to the north, the other pipe will flow to the south as both currently do today. By separating the discharge pipes, we separate the flow from the two pumps in the lift and send them into different drainage basins. It is staff’s belief that this switch will help relieve stress on the sanitary sewer system to the south while also not overwhelming the drainage system to the north.

The storm sewer system improvements will include replacing all existing catch basins and inlet grates and castings. The new inlet grates and castings offer greater water interception capacity than the existing grates. The storm sewer main will remain in place and not disturbed during this project. Televising reports indicate that the existing storm sewer main is in good condition and does not warrant replacement at this time.

**4.0 STATEMENT OF PROBABLE COST**

The estimated costs to complete the proposed improvements are shown below. The estimated construction costs include a 10% allowance for contingencies and a 16% allowance for administrative and engineering costs. The unit prices for each item of work used in determining the estimated cost of construction is based on previous projects similar in nature and is subject to change.

Street and Curb and Gutter	\$475,000.00
Watermain Replacement	\$120,000.00
Sanitary Sewer Replacement	\$130,000.00
Storm Sewer Replacement	<u>\$55,000.00</u>
Subtotal Estimated Construction Cost	\$780,000.00
Contingencies (10%)	<u>\$78,000.00</u>
Total Estimated Construction Cost	\$858,000.00
Estimated Engineering, & Administration (16%)	<u>\$137,300.00</u>
Total Estimated Project Cost	<u>\$995,300.00</u>

**5.0 PROPOSED ASSESSMENTS**

The adjacent properties will not be assessed for the watermain improvements. All costs for watermain and related work will be paid by MMU.

The adjacent properties will not be assessed for sanitary sewer main improvements. All costs for sanitary sewer main will be paid by the City of Marshall Wastewater Department. Sanitary sewer service lines and connection points to the main will be assessed to the adjacent property owners according to current sanitary sewer assessment procedures.

Costs for the street replacement will be partially assessed to the adjacent property owners in accordance with the most recent Special Assessment Policy and partially funded by the Wastewater Department, MMU, and Surface Water Management Utility fund.

A preliminary assessment roll showing the estimated assessments for each benefiting parcel, City Participation, and utility participation will be prepared at a later date for consideration by the City Council in accordance with the most recent special assessment policy.

## **6.0 FEASIBILITY/CONDITIONS/QUALIFICATIONS**

The proposed improvements as described in this report are necessary, cost-effective, and feasible from an engineering standpoint. The feasibility of this project is contingent upon the findings of the City Council pertaining to project financing and public input.

## **7.0 PROPOSED PROJECT SCHEDULE**

The following is the anticipated schedule for the project, assuming the City Council elects to proceed with the proposed improvements.

March 24, 2020	Public Hearing on Improvement/Order Plans & Specs
April 14, 2020	Approve Plans & Specs/Authorize Call for Bids
April 24 & May 1, 2020	Advertise for Bids
May 19, 2020	Bid Opening Date
May 26, 2020	Award Contract
June 1, 2020	Notice to Proceed
June 2020	Begin Construction
September 22, 2020	Public Hearing on Assessment/Adopt Assessment
October 2020	End Construction





**CITY ENGINEERS OFFICE  
 344 WEST MAIN STREET  
 MARSHALL, MINNESOTA  
 56258**

776 South 1st Street

DATE  
 1/23/2020

Proposed Project Limits

SHEET NO.  
 1 OF 1