



FEASIBILITY REPORT

PROJECT Z75 / SAP 139-124-004 SOUTH 4TH STREET RECONSTRUCTION PROJECT

**CITY OF
MARSHALL, MINNESOTA**

February 11, 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:

A handwritten signature in black ink, appearing to read 'J. R. Anderson', written over a horizontal line.

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

TABLE OF CONTENTS

TITLE PAGE/CERTIFICATION PAGE	1
TABLE OF CONTENTS.....	2
1.0 SCOPE.....	3
2.0 BACKGROUND / EXISTING CONDITIONS	3
3.0 PROPOSED IMPROVEMENTS.....	4
4.0 STATEMENT OF PROBABLE COST.....	5
5.0 PROPOSED ASSESSMENTS	5
6.0 FEASIBILITY CONDITIONS/QUALIFICATIONS	6
7.0 PROPOSED PROJECT SCHEDULE	6
<u>APPENDIX</u>	
Project Area Map	7
American Engineering Testing Report	8

FEASIBILITY REPORT
PROJECT Z75 / SAP 139-124-004
SOUTH 4TH STREET
RECONSTRUCTION PROJECT

CITY OF
MARSHALL, MINNESOTA

1.0 SCOPE

This Feasibility Report as authorized by the City Council, covers the following proposed improvements: reconstruction and utility replacement on South 4th Street between Country Club Drive and Elaine Avenue. All utilities will be replaced, including watermain, sanitary sewer, and storm sewer on South 4th Street. In addition to the utility replacement and street reconstruction on 4th Street, Camden Drive will be realigned to be perpendicular at its intersection with South 4th Street and the on-street bike trail is proposed to be replaced with an 8-FT off-street shared use path on the west side of 4th Street.

2.0 BACKGROUND / EXISTING CONDITIONS

Street

City records indicate that South 4th Street was originally constructed between 1959 and 1963. The segment between Country Club Drive and Southview Drive was constructed in 1959, the segment from Southview Drive to Donita Avenue was constructed in 1962, and the segment from Donita Avenue to Elaine Avenue was constructed in 1963. The street sections typically consist of approximately 6" of bituminous surfacing and 6" of aggregate base. The existing street width is generally 42 to 45-FT as measured from back of curb to back of curb. There is currently 4-FT wide sidewalk along the west side of existing South 4th Street, and the street section typically consists of two 10-FT travel lanes, two 5-FT wide painted on-street bike trails, and two 7-FT parking lanes.

The existing pavement surface is beginning to show its age with considerable cracking. There are numerous patches in the street due to sanitary sewer service line replacements and a few recent water main breaks.

Utilities

The existing watermain along South 4th Street is 8" ductile iron pipe (DIP) for most of the corridor. There is 14" DIP located for a block between Kathryn Avenue and Donita Avenue. The water system in this area is beginning to fail, resulting in costly repairs for Marshall Municipal Utilities (MMU) and potential for outages for the area residents.

The existing sanitary sewer main is 12" vitrified clay pipe (VCP) along South 4th Street between Country Club Drive and Southview Drive. The existing sanitary sewer is 10" VCP

between Southview Drive and Elaine Avenue. The age and condition of the sewer make this sewer a good candidate for replacement with this project.

The existing storm sewer begins, on the upstream end, at the intersection of Kathryn Avenue and South 4th Street and flows to the south to the intersection of James Avenue and South 4th Street. From the intersection of James Avenue and South 4th Street the storm sewer main follows James Avenue to the west to Camden Drive, where the pipe system turns north for a few hundred feet, before heading west across the golf course and draining into the Redwood River. The pipe system is undersized for the existing fully-developed watershed, and various intersections along the corridor flood on a regular basis. The pipe system varies in size from 6-8" High-Density Polyethylene (HDPE) pipe to 18" Reinforced Concrete Pipe (RCP).

3.0 PROPOSED IMPROVEMENTS

Street

American Engineering Testing (AET) has completed soil borings within the project area and has provided a geotechnical engineering review to City staff that provides recommendations for roadway section design for both bituminous pavement surfacing and concrete pavement surfacing. A copy of the report is attached to this feasibility report.

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

The proposed roadway will be 41-FT as measured from the back of curbs. The proposed section will be 3.50-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 due to the removal of the on-street painted bike lanes. The proposed road section will allow for two 12-FT travel lanes and two 8-FT parking lanes as measured between the face (front) of the curbs. An 8-FT shared use path is proposed to be sited along the west side and a 5-FT sidewalk along the east side of South 4th Street.

Utilities

The proposed utility improvements include replacing existing VCP sanitary sewer, existing DIP watermain, and existing storm sewer.

The watermain improvements will consist of replacing all DIP watermain with Polyvinyl Chloride (PVC) watermain pipe. Watermain improvements are planned in close coordination with MMU staff input. The existing 14" DIP pipe along South 4th Street will be increased in size to 16" and replaced with PVC to better meet MMU water system goals. The existing 8" DIP watermain along South 4th Street will be replaced with 8" PVC pipe.

The sanitary sewer system improvements will include replacing all manholes, sewer main, and sewer services along South 4th Street. Generally, the 12" VCP main will be replaced with 12" PVC main and the 10" VCP will be replaced with 10" PVC. Some 8" PVC will be installed in lieu of 10" on the upstream end of the basin where the added pipe size is not required. All sewer services will be replaced to the right-of-way (ROW) with a minimum 4" pipe size.

The storm sewer system improvements will include replacing all existing manholes, catch basins and catch basin leads. More catch basins will be installed, and pipe sizes will be increased to better address drainage in this area. With this project it is proposed to end storm water system improvements at the South 4th Street and James Avenue intersection, though relief from frequent on-street flooding is unlikely until future off-corridor conveyance system improvements can be completed. Necessary conveyance system improvements and water quality improvements between James Avenue and the outfall at the Redwood River have already been identified by staff and can be scheduled for design and construction in a future construction season at the direction of the City Council.

For Project Z75 in 2020, it is proposed to connect our new storm water pipe system to the existing 21" RCP located under James Avenue. The new pipe at the end of our project limits at James Avenue is proposed to be a 51" span pipe (42" RCP-equivalent). The pipe will be span pipe due to limited pipe cover at James Avenue.

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	\$1,600,000.00
Watermain Replacement	\$300,000.00
Sanitary Sewer Replacement	\$400,000.00
Storm Sewer Replacement	<u>\$500,000.00</u>
Subtotal Estimated Construction Cost	\$2,800,000.00
Contingencies (10%)	<u>\$280,000.00</u>
Total Estimated Construction Cost	<u>\$3,080,000.00</u>
Estimated Engineering, & Administration (16%)	<u>\$500,000.00</u>
Total Estimated Project Cost	<u>\$3,580,000.00</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 replacements will be partially assessed and partially funded by the Wastewater Department, MMU, and Surface Water Management Utility fund. The City will utilize Municipal State Aid System funds to cover applicable engineering and construction costs. Items eligible for MSAS funds include design and project administration costs, street section costs, sidewalk and driveway costs, and necessary on-network drainage costs.

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.

February 25, 2020	Public Hearing on Improvement/Order Plans & Specs
March 10, 2020	Approve Plans & Specs/Authorize Call for Bids
March 11 & 20, 2020	Advertise for Bids
April 7, 2020	Bid Opening Date
April 14, 2020	Award Contract
April 22, 2020	Notice to Proceed
May 2020	Begin Construction
September 22, 2020	Public Hearing on Assessment/Adopt Assessment
October 2020	End Construction