



MARSHALL  
CULTIVATING THE BEST IN US

# FEASIBILITY REPORT

## Project Z82

**N. 1<sup>st</sup> St. / W. Redwood St. / W. Marshall St.  
Reconstruction Project**

**October 1, 2020**



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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

# FEASIBILITY REPORT

## PROJECT Z82 N. 1ST ST. / W. REDWOOD ST. / W. MARSHALL ST. 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 North 1<sup>st</sup> Street between East Main Street to West Marshall Street and includes West Redwood and West Marshall Streets between East College Drive and North 1<sup>st</sup> Street. All utilities will be replaced, including watermain, sanitary sewer, and storm sewer on North 1<sup>st</sup> Street and West Redwood Street. Sanitary sewer will be replaced on West Marshall Street. Other items of work included in this project are pavement removal, aggregate base, bituminous surfacing, concrete surfacing, sidewalks, curb and gutter and other minor work.

## 2.0 BACKGROUND / EXISTING CONDITIONS

### Street

City records indicate that these streets were originally constructed in 1956. The existing pavement surface is beginning to show its age with considerable cracking. There are numerous patches in the street due to pavement degradation.

The existing street width varies between 39 and 43-FT as measured from back of curb to back of curb. The segment of North 1<sup>st</sup> Street between East Main Street and West Lyon Street measures approximately 43-FT, the segment of North 1<sup>st</sup> Street between West Lyon Street and West Marshall Street measures approximately 39-FT, the segment of West Redwood Street measures approximately 41-FT, and the segment of West Marshall Street measures approximately 46-FT. Currently, the existing street widths on North 1<sup>st</sup> Street, West Redwood Street and West Marshall Street accommodate two travel lanes with parallel parking on both sides of the street.

There is currently 5-FT wide sidewalk on both sides of North 1<sup>st</sup> Street between East Main Street and West Redwood Street with some cracking, buckling, and heaving observed. On North 1<sup>st</sup> Street between West Redwood Street and West Marshall Street, there is only 4.5-FT sidewalk along the

south side of the street. On West Redwood Street, there is 5-FT wide sidewalk on the west side of the street and 5.5-FT wide sidewalk on the east side of the street, both sides showing some surface distressing. There is currently 5-FT wide sidewalk on the west side of West Marshall Street with some cracking and buckling observed. There is sidewalk on the east side of West Marshall Street in Liberty Park. Many of the existing pedestrian ramps are not ADA compliant.

## **Utilities**

The existing watermain along North 1<sup>st</sup> Street and West Redwood Street is cast iron pipe (CIP) for most of the segments. The 10" polyvinyl chloride (PVC) watermain coming from East Main Street terminates at the water valve adjacent to the Block 11 alleyway. The existing 6" CIP watermain extends halfway down the Block 11 alleyway to the northwest where it is currently capped. The remaining CIP watermain continues northeast on North 1<sup>st</sup> Street as a 6" CIP until West Lyon Street. At West Lyon Street, the existing watermain continues northeast as a 4" CIP. The existing 4" CIP main continues northeast until it reaches West Redwood Street then proceeds northwest along West Redwood Street. A 4" CIP branch main extends from North 1<sup>st</sup> Street to service Bremer Bank. This 4" DIP has experienced numerous breaks resulting in costly repairs and outages for the business. There is an existing 6" PVC watermain along West Marshall Street in good condition. Replacement of this segment of watermain is not currently in the scope of this project.

The existing sanitary sewer main along North 1<sup>st</sup> Street between East Main Street and West Redwood Street is 8" vitrified clay pipe (VCP). In the Block 13 alleyway, the existing sanitary sewer main is currently a 6" VCP. The age and condition of the sewer in these segments make this sewer a good candidate for replacement with this project. The existing sanitary sewer in West Marshall Street is an 8" PVC in good condition. Replacement of this segment of sanitary sewer is not currently in the scope of this project.

There are several segments of separate existing storm sewer. One segment comes into the project area from the northwest along the Block 11 alleyway. The storm sewer in this area is a 12" reinforced concrete pipe that continues downstream to the southeast to the manhole on North 1<sup>st</sup> Street. Here the storm sewer collects the stormwater runoff from 3 catch basins at the intersection of North 1<sup>st</sup> Street and West Lyon Street. From the manhole, the storm sewer continues southeast and outlets directly into the Redwood River. Another segment collects the stormwater from 3 catch basins at the intersection of North 1<sup>st</sup> Street and West Redwood Street. From here, the storm sewer continues downstream to the southeast and outlets directly into the Redwood River. Another segment collects stormwater from 2 catch basins at the intersection of North 1<sup>st</sup> Street and West Marshall Street and continues downstream which outlets to the southeast directly into the Redwood River. The final segment on this project collects stormwater at 1 catch basin at the east curb of the northwest end of West Marshall Street and outlets directly into the Redwood River to the northeast. The pipe system is undersized for the existing fully developed watershed, and various intersections along the corridor flood on a regular basis.

## 3.0 PROPOSED IMPROVEMENTS

### Street

A combination of bituminous and concrete pavement section will be 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 38-FT travel way (as measured from curb face to curb face) on North 1<sup>st</sup> Street and West Redwood Street. The project proposes two 11-FT travel lanes and two 8-FT parallel parking lanes. The proposed segment of North 1<sup>st</sup> Street between East Main Street and West Lyon Street will be 4-FT narrower than the existing street. The remaining two blocks on North 1<sup>st</sup> Street from West Lyon Street to West Marshall Street will match the existing roadway width. The proposed segment of West Redwood Street will be 2-FT narrower than the existing street. The proposed roadway on West Marshall Street (as measured from curb face to curb face) will be 46-FT. The project proposes two 11-FT travel lanes, one 8-FT parallel parking lane in the southbound direction, and one 16-FT 45-degree angled parking lane in the northbound direction. The purpose for the 45-degree angled parking is to accommodate for the demand for parking for events at the bandshell in Liberty Park. 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 corridors.

A 5-FT sidewalk with a 1-FT grass buffer is proposed on North 1<sup>st</sup> Street between East Main Street and West Marshall Street on the south side of the street and between East Main Street and West Redwood Street on the north side of the street. This replaces existing sidewalk adjacent to North 1<sup>st</sup> Street where there is currently sidewalk. There is currently no existing sidewalk on the north side of North 1<sup>st</sup> Street between West Redwood Street and West Marshall Street. A 5-FT sidewalk with a 1-FT grass buffer is proposed on both sides of West Redwood Street. This replaces existing sidewalk adjacent to West Marshall Street where there is currently sidewalk. A 5-FT sidewalk with a 1-FT grass buffer is proposed on the east side of West Marshall Street. This replaces existing sidewalk adjacent to West Marshall Street where there is currently sidewalk. There is existing sidewalk on the east side of West Marshall Street within Liberty Park that will remain in place.

### Utilities

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

The watermain improvements will consist of replacing all CIP watermain with Polyvinyl Chloride (PVC) watermain pipe. Watermain improvements are planned in close coordination with MMU staff input. The existing 4" and 6" CIP on North 1<sup>st</sup> Street between East Main Street and West Redwood

Street will be replaced with 10" PVC pipe. The 4" CIP along West Redwood Street will be replaced with 8" PVC pipe. An 8" PVC watermain will be stubbed to the north on West Lyon Street to accommodate future development and tie into a future road project. A new 10" PVC watermain pipe will be installed on North 1<sup>st</sup> Street between West Redwood Street and West Marshall Street, connecting the new main on West Redwood Street and the existing main on West Marshall Street to better meet MMU water system goals.

The sanitary sewer system improvements will include replacing all manholes, sewer main, and sewer services along North 1<sup>st</sup> Street and West Redwood Street. Generally, the 8" VCP main will be replaced with 10" PVC main. All sewer services will be replaced to the right-of-way (ROW) with a minimum 4" pipe size. An 8" PVC sanitary sewer main will be stubbed to the north on West Lyon Street to accommodate future development and tie into a future road project.

The storm sewer system improvements will include 3 targeted areas. The existing storm sewer pipe size in the Block 11 alley southeast of the existing catch basin, the main from West Lyon Street to the manhole southeast of Block 11, and the main continuing southeast to the outfall at the Redwood River will be increased to better address drainage in this area. The work in this area will also include replacing all existing manholes, catch basins and catch basin leads. The second targeted area will be at the intersection of North 1<sup>st</sup> Street and West Redwood Street. The work at this intersection will include replacing the existing manhole, catch basin and catch basin leads. The main connecting the manhole to the outfall at the Redwood River will be left in place. At the intersection of North 1<sup>st</sup> Street and West Marshall Street, the catch basins will be adjusted if it will be constructible to do so. The catch basin at the southeast corner of East College Drive and West Marshall Street will be replaced. The storm sewer pipe connecting the catch basin to the outfall into the Redwood River will remain in place.

## 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.

<i>Street and Curb and Gutter</i>	<i>\$752,000.00</i>
<i>Watermain Replacement</i>	<i>\$146,000.00</i>
<i>Sanitary Sewer Replacement</i>	<i>\$117,000.00</i>
<i>Storm Sewer Replacement</i>	<i><u>\$92,000.00</u></i>
<i>Subtotal Estimated Construction Cost</i>	<i>\$1,107,000.00</i>
<i>Contingencies (10%)</i>	<i><u>\$111,000.00</u></i>
<i>Total Estimated Construction Cost</i>	<i>\$1,218,000.00</i>
<i>Estimated Engineering, &amp; Administration (16%)</i>	<i><u>\$195,000.00</u></i>
<i>Total Estimated Project Cost</i>	<i><u>\$1,413,000.00</u></i>

## 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 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

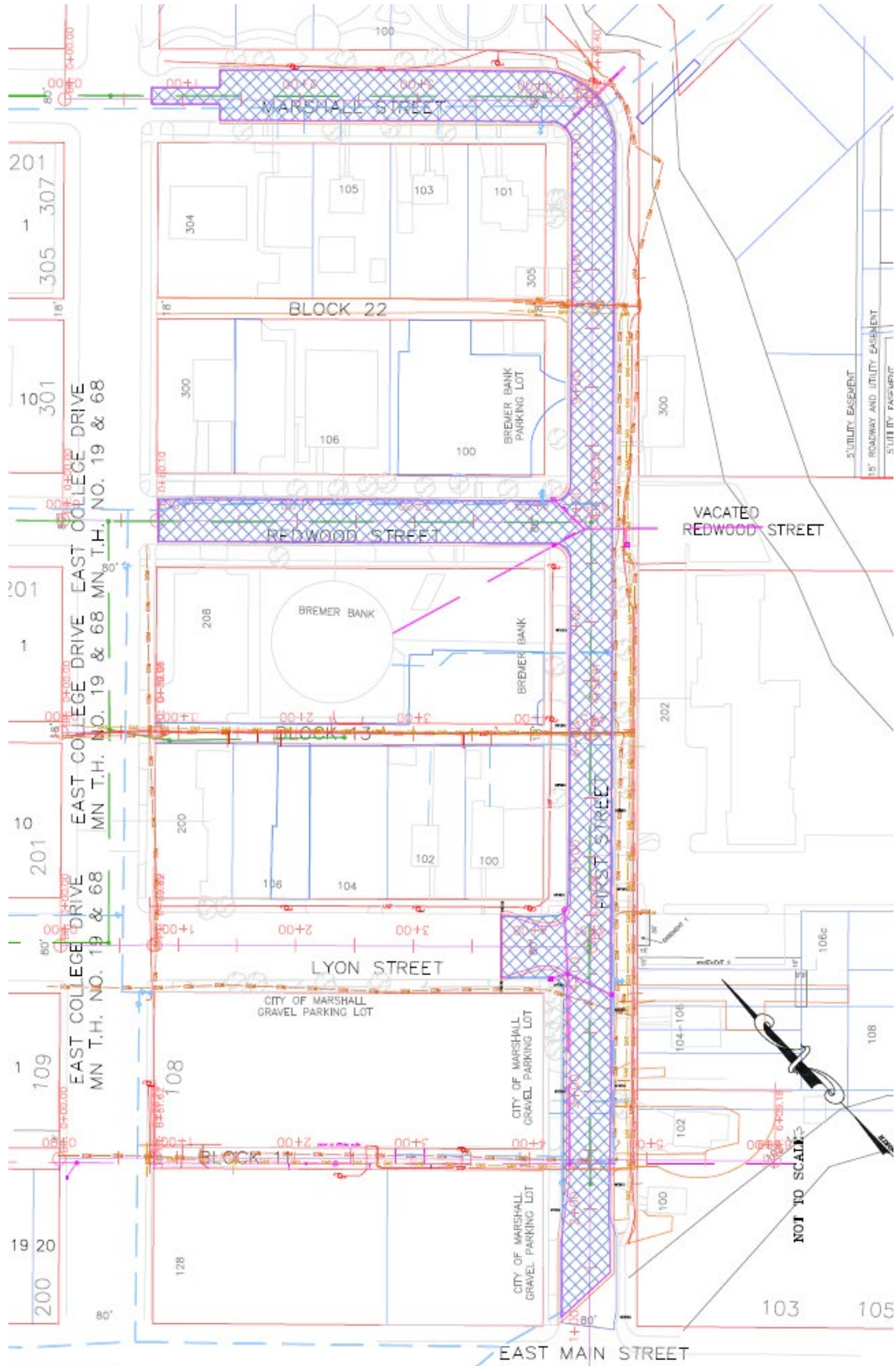
The following is the anticipated schedule for the project, assuming the City Council elects to proceed with the proposed improvements.

November 24, 2020	Public Hearing on Improvement/Order Plans & Specs
December 22, 2020	Approve Plans & Specs/Authorize Call for Bids
January 1 and 8, 2020	Advertise for Bids
January 13, 2020	Bid Opening Date
January 26, 2021	Award Contract
April 16, 2021	Notice to Proceed
April 2021	Begin Construction
September 21, 2021	Public Hearing on Assessment/Adopt Assessment
September 2021	End Construction



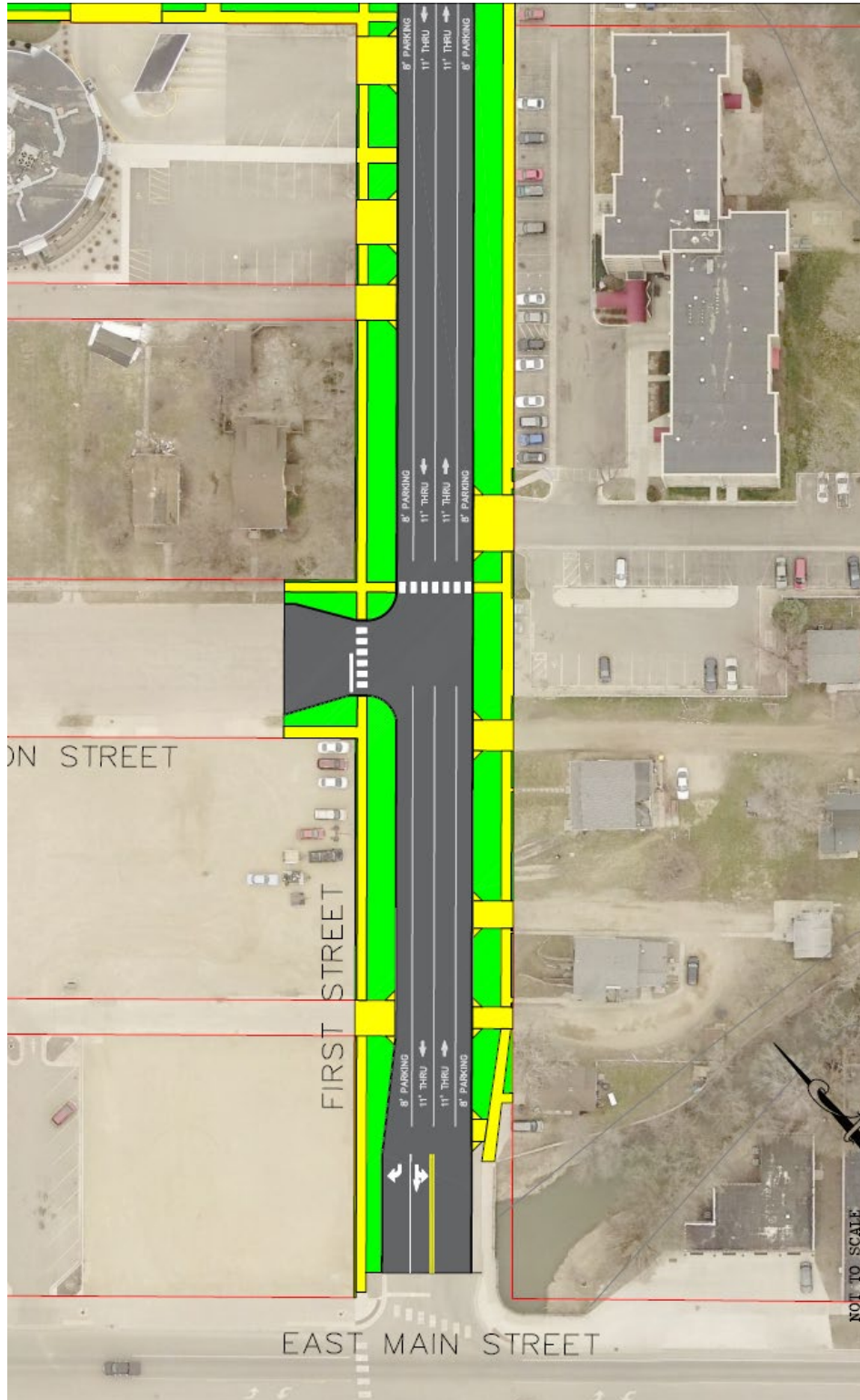
# APPENDIX

# PROJECT LIMITS

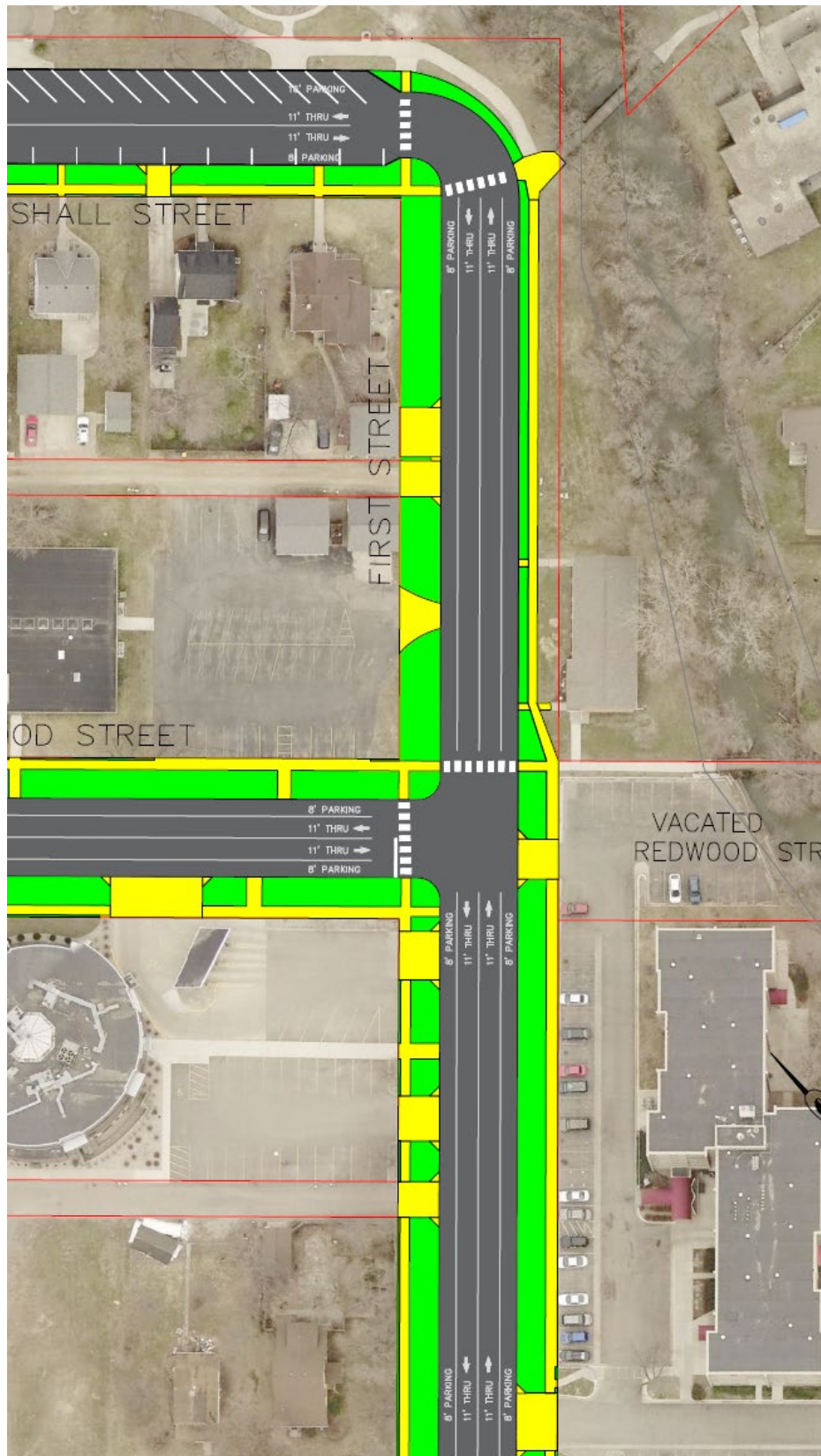


# PROJECT LAYOUTS

## North 1<sup>st</sup> Street – East Main Street to West Redwood Street



# North 1<sup>st</sup> Street – West Redwood Street to West Marshall Street



# West Redwood Street – East College Drive to North 1<sup>st</sup> Street



West Marshall Street – East College Drive to North 1<sup>st</sup> Street

