



## Legislation Text

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**City Council Meeting Date:** November 5, 2019

**To:** Mayor and City Council  
City Administrator

**From:** David Bennett, Public Works Director/City Engineer  
Sean Simonson, Engineering Manager

**Subject:**

Consider Resolution Accepting Feasibility Report and Call for Improvement Hearing - 2020 Mill and Overlay Project.

**Action Requested:**

The Northfield City Council considers adopting the attached Resolution Option 1 Accepting Feasibility Report and Calling for Improvement Hearing - 2020 Mill and Overlay Project or Resolution Option 2 Accepting Feasibility Report with on-street College Street cycle track and Calling for Improvement Hearing - 2020 Mill and Overlay Project.

**Summary Report:**

The feasibility report has been completed and finds that the 2020 Street Reclamation Project is necessary, feasible, and cost effective. See attachments for the project process (Attachment 3) and location map (Attachment 4). A link to the feasibility report is below:

<https://www.ci.northfield.mn.us/1313/2020-Mill-and-Overlay-Project>

At the August 20, 2019 City Council meeting, Council passed Resolution 2019-091 which directed staff to prepare a feasibility report for the 2020 Mill and Overlay Project. The feasibility report provides costs for all segments of the project. The project segments are as follows:

- First Street - College Street to Maple Street
- Second Street - Washington Street to Oak Street
- Third Street - Washington Street to Oak Street
- Fourth Street - Nevada Street to Prairie Street
- Union Street - First Street to Second Street
- College Street - First Street to Third Street
- Winona Street - First Street to Fourth Street
- Nevada Street - First Street to Fourth Street
- Maple Street - First Street to Fourth Street
- Elm Street - Second Street to Fifth Street
- Oak Street - Second Street to Fourth Street

- Heritage Drive - TH 3 to Hidden Valley Apartments
- Jefferson Road - Hidden Valley Road to Heritage Drive
- Seventh Street - Water Street to West dead end
- Eight Street - Water Street to Linden Street

The next step in moving this project forward is for the City Council to receive the feasibility report and call for a public hearing on the improvements.

### ***Existing Conditions***

The proposed streets for the project are generally in neighborhood residential areas and have older infrastructure, and mature trees. All the streets within the project area are classified as local roadways and experience relatively low volumes of traffic, with the exception of Fourth Street and Jefferson Road, which are classified as urban collectors in the City's current Transportation Plan. Along with public utilities in the project area, there are also private utilities, including both overhead and underground power, gas, and communications.

### **Streets**

The streets within the project area are all bituminous surfaced with concrete curb and gutter. Pavement widths vary, ranging from 30' to 44' along through street segments, all measured from curb face to curb face. As-built information on the streets within the project areas indicate that they were originally constructed in the 1990's. There is also record of varying levels of maintenance being completed on these streets, such as sealcoating, mill & overlays and reclamations. The streets are aged and exhibit wear and distress to different degrees. The pavement is generally in fair condition but does exhibit transverse and longitudinal cracking, some alligator cracking, potholes, and rutting. Some street segments have settlements, which allow water to pond, infiltrate and weaken the subgrade. This has led to frost heaving, and additional transverse cracking during freeze-thaw cycles.

The existing concrete curb and gutter is in good to fair condition throughout the project area. Curb settlements have caused areas of poor drainage along the edge of the pavement in various locations.

The boulevards along the project corridor generally have an approximate width of 15-20 feet and contain a number of varying diameter trees, bushes and shrubs, and retaining walls. There are also power poles for electric service and streetlights located in the boulevards in various locations throughout the project area.

A geotechnical evaluation of the project area was completed to gain information on the subsurface conditions of the streets within the project area. This information is used to ensure native soils are adequate to support the recommended improvements and identify areas in need of further improvements. 24 soil borings were taken throughout the project area to obtain the necessary data representative of the project as a whole. The geotechnical evaluation report and adjoining soil boring location map can be found in Appendix D of the Feasibility Report.

An Arborist Report was completed to evaluate the condition of the existing trees and to provide recommendations for removal, protection and trimming as a part of the proposed construction. This report can be found in Appendix C of the Feasibility Report. Removals will also follow the guidelines of the City's Emerald Ash Borer Management Plan, which calls for Ash trees to be removed that are under 13" in diameter, all trees with fair or worse rating condition, and Ash trees less than 19" not deemed in great or excellent shape.

### **Pedestrian and Bike Facilities**

The project area has existing concrete sidewalk on one, if not both sides of the road. There are also some existing on street bike facilities. The existing sidewalk is in good to fair condition overall with cracking, settling, and heaving in some areas. There are areas where spot replacement is necessary and locations where new sidewalks were evaluated to complete missing gaps in the pedestrian transportation system. Along with these upgrades and repairs, all existing pedestrian ramps will be updated to current ADA standards.

### **Storm Sewer**

The condition of the existing storm sewer system was determined from as-built information and discussions with City Staff. There are no known storm drainage issues in the proposed project area and all piping is assumed to be in adequate condition. The current pipe network consists of Reinforced Concrete Pipe (RCP) and some Polyvinyl Chloride Pipe (PVC) with sizes ranging from 12” to 36” in diameter. The catch basins in the project area consist of precast concrete and block structures with 2’x3’ castings.

The conditions of the storm structures will be evaluated during final design to determine if maintenance activities are required. It is anticipated that all castings will need to be reset or replaced and that some storm structures may be in need of grouting, sealing, or replacement to better contain storm water runoff in the system.

### **Sanitary Sewer**

The existing sanitary sewer is currently being evaluated within the proposed project area. Conditions of the sanitary sewer system have been determined from as-built information, sewer televising reports, as well as discussions with the City Staff. Televising reports of the existing sanitary sewer system have not been completed at this time, but will be performed prior to final design to address any issues observed. From the information that has been gathered, it is expected that the sewers in the project corridor would be classified in an overall good to fair condition and with some maintenance, will last the life cycle of the street maintenance being recommended until a full reconstruction is warranted.

The sanitary sewer manholes along the project area are primarily pre-cast concrete and are in good to fair condition. Castings throughout the project will be inventoried to ensure castings with open pick-holes are replaced to reduce unwanted inflow of storm water into the sanitary system. In addition to replacing/resetting castings, minor grouting or sealing of the structures is warranted in some locations.

### **Watermain**

The existing watermain was evaluated within the proposed project area. Conditions of the watermain system have been determined from as-built information and discussions with the City Staff. The current system is in good operational condition and has sufficient capacity and redundancy for the service area. There is not a history of watermain breaks in the area and the system will last the life cycle of the street maintenance recommended until a full reconstruction is warranted. The water system in the project area contains hydrants and gate valves that were installed the same time as the mains and services.

### ***Proposed Improvements***

The 2020 Mill & Overlay Project will utilize a 2-inch mill and overlay to rehabilitate the existing street system. Geotechnical results show the existing bituminous to be in generally good condition with sufficient thickness

averaging about 4-inches. The existing aggregate base had a variable thickness and the subsurface soils had ranging conditions but were generally fair to good. The geotechnical report indicated that the overall conditions of the streets evaluated in the project area are suitable for a mill & overlay rehabilitation of the streets. It did indicate that deeper repairs and potential subgrade corrections may be required in isolated areas where severe distresses are present. This report and associated soil boring location map can be found in Appendix D of the Feasibility Report. An Arborist Report was completed for the entire project and each tree within the project area's right-of-way was analyzed. The report can be found in Appendix C of the Feasibility Report. During the design phase of the project, the project team will work with private utilities to coordinate other utility improvements in conjunction with the street reconstruction project. Final details, including tree impacts and drainage issues will be addressed during the final design phase of the project improvements.

### **Streets**

The streets proposed for improvement include First Street, Second Street, Third Street, Fourth Street, Union Street, College Street, Winona Street, Nevada Street, Maple Street, Elm Street, Oak Street, Seventh Street, Eighth Street, Heritage Drive, and Jefferson Road. All of these streets have deteriorating pavement sections, but are not considered to be in bad enough condition that a complete reconstruction is necessary. The underlying utilities are in fair condition as well and further supports the planned non-reconstruction improvement.

The recommended improvements consist of milling approximately 2 inches of the existing street pavement and then replacing it with 2 inches of new bituminous pavement. Isolated locations with severe distresses will be corrected with deeper bituminous patches and subgrade correction, if necessary. A mill and overlay is considered a maintenance operation that involves the removal of the top layer of pavement and installation of a new wearing surface that prolongs the expected life of the pavement by 15 years. This maintenance ensures continued serviceability to users and keeps the road's entire life cycle cost low. Spot concrete curb and gutter will be replaced if it is severely damaged or settled/heaved and not allowing proper drainage.

### **Pedestrian/ Bicycle Facilities**

In addition to the street improvements in this area, there are also sidewalk improvements planned. These include spot concrete sidewalk repairs, improvements to all of the existing pedestrian ramps to current ADA standards, evaluation for new concrete sidewalk incorporation, and evaluation for bump-out incorporation. These improvements will be assessed for their conformance with the City's Complete Streets Policy and will follow the direction set forth by the City of Northfield Pedestrian, Bike, and Trail System Final Report, which provides recommendations on the development of the City's trail, bicycle, and sidewalk network. (Attachment 6)

### *Sidewalks*

All existing sidewalks will be assessed for significant cracking, settling, and heaving that necessitates spot replacement. These spot replacements to the existing concrete sidewalks will be completed in conjunction with the upgrades to each of the existing pedestrian ramps to meet current ADA standards. Pedestrian ramp upgrades involve the removal and replacement of the concrete curb and gutter, ramps and truncated domes, landings, and concrete sidewalk to the proper longitudinal and transverse grades at each crosswalk location. Concrete 'v-curb' may be necessary behind the walk at some locations with difficult grades.

New concrete sidewalk was evaluated for installation on the south side of Third Street, from Maple Street to Oak Street. This addition would link a gap in the pedestrian system to existing sidewalk

locations. There is no sidewalk existing in this area, but there are notable geographic challenges through this two-block corridor that would require significant grading and tree removal or realignment of the street to accommodate the new walk. Three design concept options and their considerations were evaluated and presented to residents at the first Neighborhood Informational Meeting. These sidewalk options that were evaluated can be seen in Figure 4 through Figure 6 of Appendix B of the Feasibility Report. After receiving feedback from residents, two additional options were generated and presented to the City Council for direction. Option 4 was a combination of Option 1 and Option 3 that proposed narrowing the street by six feet and installing a six-foot walk right at the back of curb. After discussion, the Council decided to move forward with Option 5, which was no new sidewalk along this section of Third Street within the project. This still aligns with the City's Complete Streets Policy, which allows for deviation due to topographic challenges and significant tree loss, but it does not follow the recommendation of the City's Pedestrian, Bike, and Trail System Plan.

### Bumpouts

The entire project area was evaluated for the incorporation of bump-outs at intersection crosswalk locations. Bumpouts are design features that, in this case, involves radially pushing the curb line out to the inside edge of the parking lane/outside edge of the driving lane. Bumpouts are an effective means of traffic calming by narrowing the usable roadway for drivers and provide enhanced visibility between drivers and pedestrians at crosswalks while also shortening the distance required to cross the street, which improves safety for pedestrians at these locations. Bumpouts have been utilized in previous City projects through the downtown corridors.

The project area was observed on numerous occasions in the fall season and varying times throughout the day, including into the evening, to obtain a basis for the general pedestrian flows at each intersection to determine which may be candidates for having bumpouts added as part of this project. It was generally observed that nearly all crosswalks throughout the project area were used by pedestrians in some capacity during observation, but the highest concentration of crossings occurred near specific destinations, such as educational facilities and parks. This finding correlates with the expected results of the trip generation model of transportation forecasting which predicts the volume of trips that originate or are destined for a particular location. The locations with higher concentrations of pedestrian crossings were grouped into medium density and high density. The high-density locations were generally found to have double the observed crossings, or more, in comparison to the typical medium density location.

The following locations were observed to have a medium density of pedestrian crossings: the west side of Seventh Street & Water Street (between commercial properties), the intersection of Third Street & Oak Street (near the Laura Baker Services Association), the intersection of Third Street & Winona Street (to Central Park), the north side of Fourth Street & Winona Street (to Central Park), the intersection of First Street & Nevada Street (to Carleton College), and the intersection of First Street & Winona Street (to Carleton College).

The following locations were observed to have a higher density of pedestrian crossings: the intersection of Third Street & College Street (between Carleton College and Weitz Center for Creativity), the intersection of Second Street & College Street (between Carleton College and Weitz Center for Creativity), the intersection of First Street & College Street (between Carleton College and Weitz Center for Creativity), and the north side of Second Street & Union Street (between Carleton College and downtown).

Bumpouts have limitations, which do not allow for installation on streets without parking lanes adjacent

to the curb, such as streets with bikeways on them, in their application to this project. This restricts any proposed bumpouts to only one direction, or possibly does not allow for installation at all on streets with existing or proposed bikeways and other limiting factors. In addition, organizations with truck deliveries in the area will need to be further consulted during final design to determine any impacts to their delivery routes. Carleton College has noted a delivery route for trucks turning from Second Street north onto Union Street which makes this location undesirable.

Taking all of this information into account, after analyzing the feasibility of bumpout installations at various locations, bumpouts are proposed at two intersection locations. The bumpouts are proposed at the intersection of Third Street & Winona Street in all four crossing directions and at the intersection of Third Street & College Street in the north/south crossing directions. These locations were selected because of their proximity to Central Park and the Weitz Center for Creativity, their observed pedestrian crossings, their entire intersections are within the project area, and there are no significant limitations on their design.

### Bicycle Facilities

Several bikeway improvements are also planned for the project area including upgrading existing facilities and adding new facilities. These improvements will be assessed for their conformance with the City's Complete Streets Policy and will follow the direction set forth by the City of Northfield Pedestrian, Bike, and Trail System Final Report, which provides recommendations on the development of the City's trail, bicycle, and sidewalk network.

The City of Northfield Pedestrian, Bike, and Trail System Plan calls for bikeways on the following streets within the project area:

- Fourth Street (Nevada Street to Prairie Street)
- Second Street (Washington Street to Oak Street)
- Nevada Street (First Street to Fourth Street)
- Eighth Street (Linden Street to Water Street)
- Heritage Drive (Trunk Highway 3 to 500 feet west of Hidden Valley Road)
- Jefferson Road (Heritage Drive to Hidden Valley Road)

At the August 20, 2019 City Council Meeting, the Council also added College Street (First Street to Third Street) for evaluation of a bikeway.

Multiple options were developed for each road segment based on the City of Northfield Bikeways Design Concepts Final Report from September 2019 and discussions with City Staff. Each option was evaluated for its desired use and its fit with the overall Pedestrian, Bike, and Trail System Plan beyond this project area. Each improvement will work towards connecting important portions of the bikeway system throughout the City.

### Fourth Street

Fourth Street from Nevada Street to Prairie Street currently has two drive lanes with existing on-street bike lanes and a parking lane on the south side of the road. Three concepts were developed for the inclusion of a new, updated bikeway facility along this road segment and were presented to residents at the first Neighborhood Informational Meeting and subsequently to the City Council for direction. These

bikeway options that were evaluated can be seen in Figure 7 and Figure 8 of Appendix B of the Feasibility Report. After discussion, the Council recommended to move forward with inclusion of the On-Street Cycle Track concept option for the Fourth Street corridor. This option fits within the existing street footprint, maintains two drive lanes but eliminates the parking lane, and adds a 12-foot on-street cycle track that is separated from vehicular traffic with a 4-foot painted buffer. This creates a higher visibility of cyclists but does not include a physical barrier.

#### College Street

College Street from First Street to Third Street currently has two drive lanes with two parking lanes. Three concepts were developed for the inclusion of a new, proposed bikeway facility along this road segment and were presented to residents at the first Neighborhood Informational Meeting and subsequently to the City Council for direction. These bikeway options that were evaluated can be seen in Figure 9, Appendix B of the Feasibility Report. After discussion, the Council motion failed 3-3 tie vote to approved Option 2 the on street cycle track. This two-block stretch will still be included for mill and overlay street rehabilitation and all other aspects of the project scope. The street will be constructed to the existing conditions and will include two drive lanes with two parking lanes.

#### Second Street

Second Street from Washington Street to Oak Street currently has two drive lanes with two parking lanes. Three concepts were developed for the inclusion of a new, proposed bikeway facility along this road segment and were presented to residents at the first Neighborhood Informational Meeting. These bikeway options that were evaluated can be seen in Figure 10 of Appendix B in the Feasibility Report. Based on feedback received, it is recommended to move forward with inclusion of the On-Street Cycle Track concept option for the Second Street corridor. The On-Street Cycle Track is recommended because it aligns with the City's plans and goals, such as those laid out in the City's Pedestrian, Bike, and Trail System Plan, the infrastructure remains flexible, and it is cost-effective. This option fits within the existing street footprint, maintains two drive lanes but eliminates both parking lanes, and adds a 12-foot on-street cycle track that is separated from vehicular traffic with a 4-foot painted buffer. This creates a higher visibility of cyclists but does not include a physical barrier.

#### Nevada Street & Eighth Street

Nevada Street from First Street to Fourth Street and Eighth Street from Linden Street to Water Street both currently have two drive lanes with two parking lanes. Two concepts were developed for the inclusion of a new, proposed bikeway facility along these road segments and were presented to residents at the first Neighborhood Informational Meeting. These bikeway options that were evaluated can be seen in Figure 12 of Appendix B in the Feasibility Report. Based on feedback received, it is recommended to move forward with inclusion of the On-Street Bike Lanes concept option for both the Nevada Street and Eighth Street corridors. The On-Street Bike Lanes is recommended because it aligns with the City's plans and goals, such as those laid out in the City's Pedestrian, Bike, and Trail System Plan, while still maintaining parking on one side of the road to continue to allow for visitor parking. This option fits within the existing street footprint, maintains two drive lanes but eliminates one parking lane leaving parking on only one side of the road, and adds two 5.5-foot on-street bike lanes; one in each direction. These will be striped to delineate them as bicycle lanes, but does not provide for a buffer space between cyclists and motorists lending this to be more of a commuter use bicycle facility.

#### Heritage Drive

Heritage Drive from Trunk Highway 3 to 500 feet west of Hidden Valley Road currently has two drive lanes with two parking lanes. Two concepts were developed for the inclusion of a new, proposed

bikeway facility along this road segment and were presented to residents at the first Neighborhood Informational Meeting. These bikeway options that were evaluated can be seen in Figure 11 of Appendix B in the Feasibility Report. Based on feedback received, it is recommended to move forward with inclusion of the On-Street Cycle Track concept option for the Heritage Drive corridor. The On-Street Cycle Track is recommended because it aligns with the City's plans and goals, such as those laid out in the City's Pedestrian, Bike, and Trail System Plan, the infrastructure remains flexible, and it is cost-effective. This option fits within the existing street footprint, maintains two drive lanes but eliminates one parking lane leaving parking on only one side of the road, and adds a 10-foot on-street cycle track that is separated from vehicular traffic with a 4-foot painted buffer. This creates a higher visibility of cyclists but does not include a physical barrier.

### Jefferson Road

Jefferson Road from Heritage Drive to Hidden Valley Road currently has two drive lanes, with one shared parking/biking lane and another bike lane in the opposite direction. No changes to the existing layout are proposed along this road segment in order to match this same layout that continues further north on Jefferson Road.

### **Storm Sewer**

The City of Northfield has reviewed the condition on the existing storm sewer system located within the boundaries of the project and have determined that it is in satisfactory condition. As such, limited rehabilitation work is needed to the storm sewer system at this time.

Work on the storm sewer as part of this project includes adjusting/replacing the storm sewer castings and covers to provide a smooth/drivable street surface in conjunction with the street resurfacing portion of the project. This work will include the replacement of all concrete adjustment rings for each structure. Minor grouting and concrete patching of the structures may also be completed to prevent infiltration/exfiltration in/out of the storm sewer manholes for a majority of the applicable structures. Structures with significant deterioration may be replaced/reconstructed in lieu of rehabilitation.

Drainage will be evaluated during final design for new grades at intersections to determine adequacy of existing storm structure placements. Storm sewer catch basins may be added at locations near existing storm structures to improve the existing drainage and better collect storm water runoff. Other storm structure additions will be considered to accommodate possible new infrastructure that changes the existing layout and/or drainage, such as new pedestrian bump-outs or bikeway facilities. Opportunities for additional stormwater treatment will also be evaluated during final design.

### **Sanitary Sewer**

The City of Northfield is in the process of evaluating the condition of the existing sanitary sewer system located within the project area and will complete the evaluation prior to final design. The existing sanitary sewer system is expected to be in satisfactory condition based on preliminary information available. As such, limited rehabilitation work is anticipated to be needed for the sanitary sewer system at this time.

Work on the sanitary sewer as a part of this project is proposed to include adjusting the sanitary sewer castings and covers to provide a smooth/drivable street surface in conjunction with the street resurfacing portion of the project. This work will include the replacement of all concrete adjustment rings for each structure. Castings and covers that are damaged or allow for inflow of storm water will be replaced. Minor grouting and concrete patching of the structures may also be completed to seal the structures and



prevent infiltration/exfiltration in/out of the sanitary sewer manholes.

**Watermain**

The City of Northfield has reviewed the condition of the existing watermain system located within the boundaries of the project and have determined that it is in satisfactory condition. As such, limited rehabilitation work is needed to the watermain system at this time.

Work on the watermain system as part of this project includes adjusting the water gate valve boxes and covers to provide a smooth/drivable street surface in conjunction with the street resurfacing portion of the project. Some damaged valve box tops may require replacement. Hydrants are not expected to be affected by the proposed work, but if pedestrian or bikeway improvements do impact the existing hydrants, relocation may be necessary.

**Alternative Options:**

City Council could adopt Resolution Option #2, which would add an On-Street Cycle Track on College Street between First Street and Third Street this would increase the project cost by \$20,000. Carleton College has indicated they will 100% fund the Cycle Track improvements on College Street.

**Financial Impacts:**

This project will be funded through a variety of sources, including assessments, enterprise funds, and bonding. See below of the proposed costs and funding at the time of feasibility:

ESTIMATED TOTAL PROJECT COSTS	
	ESTIMATED COSTS
Street	\$2,881,327
Storm Sewer	\$230,490
Sanitary Sewer	\$27,550
Watermain	\$14,575
<b>Subtotal</b>	<b>\$3,153,942</b>
<i>Art (1%)</i>	<i>\$31,539</i>
<b>Subtotal with Art</b>	<b>\$3,185,481</b>
Contingency (10%)	\$318,548
<b>Construction Total</b>	<b>\$3,504,030</b>
<i>Overhead (20%)</i>	<i>\$700,806</i>
<b>PROJECT COSTS</b>	<b>\$4,204,835</b>

TOTAL PROJECT FUNDING	
FUNDING SOURCE	ESTIMATED FUNDING
Bonding	\$2,995,552
Assessments	\$848,559
Storm Fund	\$304,984
Sanitary Fund	\$36,454
Water Fund	\$19,286
<b>TOTAL FUNDING</b>	<b>\$4,204,835</b>

At the August Council budget retreat, staff discussed the proposed CIP and the 2020 Mill and Overlay bonding at \$2,379,939. The current estimate with the Feasibility Report is \$2,995,552 in Bonding. This will increase the debt levy by 0.75% in 2021 and have a projected total City debt levy increase of 5.6% in 2021.

A Benefit Appraisal will be performed by a licensed certified general real estate property appraiser. This Benefit Appraisal calculates an opinion of the special value benefits, if any, accruing to the subject properties resulting from the proposed Reclamation Project. Staff recommends using a combination of a *Front Foot Method* and *Per Lot Method* for calculating assessments. Staff is scheduled to meet with the appraiser prior to the completion of the benefit appraisal to ensure a variety of lots are appraised to obtain a suitable cross section of properties that are included in this proposed project. Funding will be updated when the Benefit Appraisal is completed.

**Tentative Timelines:**

See attached Project Process (Attachment 3).