Engineer’s Report

2020 Mill & Overlay Project

Industrial Street (Crest View Drive to Hanley Road) and Stageline Road
(Carmichael Road to 530' east of Center Drive)

February 7, 2020
CERTIFICATION

I hereby certify that this 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 Wisconsin.

__________________________________________________________
Dean G. Chamberlain, PE – City Engineer

Date: 02/11/2020 License Number: E-47484

STATEMENT OF BENEFIT

This project benefits the properties proposed to be assessed. According to Wisconsin State Statutes 66.0703, the City of Hudson intends to exercise its police power to collect special assessments for this project. Attached to this report in Appendix A is the schedule of proposed assessments.
Introduction
The City of Hudson is committed to maintaining its infrastructure in a condition that allows for the safe and efficient movement of people and goods within our community. A significant part of our infrastructure system is our street pavement system, which is vitally important to keep maintained in a serviceable condition to promote the vitality of the community.

Industrial Street and Stageline Road have been identified as candidates for improvements based on their worsening pavement surface conditions. This report will describe the background information collected as well as an evaluation of alternatives for each street.

In summary, this report recommends a mill & overlay for both Industrial Street between Crest View Drive and Hanley Road and Stageline Road between Carmichael Road and approximately 530 feet east of Center Drive (at the pavement transition). As a part of the project, certain curb & gutter sections are recommended to be replaced along with all of the signing and pavement markings on the project streets.

Background

Industrial Street
Industrial Street serves as a north-south collector street running between Crest View Drive and Mayer Road. Many industrial and commercial properties front Industrial Street in the project area lending the street its name.

Industrial Street between Crest View Drive and Hanley Road was originally constructed in the late 1960’s to mid 1970’s, which was when the current roadway pavement, curbs, and utilities were constructed. The City does not have good records as to the maintenance activities on the street in the past, but from visual inspection it seems that the street was seal coated as its last maintenance activity. The seal coat has exceeded its useful life, so it is likely that the seal coat was applied over 10 years ago.

Stageline Road
Stageline Road serves as an east-west collector street connecting Carmichael Road (and thus I-94 Exit 2) with the residential subdivisions on the southeast side of the city as well as the Hudson Memorial Hospital property. Stageline Road turns into St Croix County Highway N as it leaves the city limits and thus connects to the county’s regional highway system.

The portion of Stageline Road being studied for improvements was constructed in 2001, including the underground utilities. Although it is unclear what maintenance activities have occurred on Stageline Road since it was constructed, it is likely that no major maintenance has occurred on Stageline Road since it was constructed.

Existing Conditions

Pavement Condition/PASER Ratings
The Wisconsin Department of Transportation maintains a system of rating pavement conditions called the PASER rating system. Each municipality in the state is responsible for rating the pavements in their street systems every odd year. The PASER Rating scale ranges from 1 to 10 with 1 representing pavement that has failed to carry the traffic loads it is intended to and 10 being a brand new pavement surface without any significant defects.
In 2019, Industrial Street from Crest View Drive to Hanley Road rated as a 3 out of 10, and Stageline Road from Carmichael Road to the hospital roundabout rated as a 4 out of 10. Ratings in the 3-4 out of 10 range are generally considered as candidates for a mill & overlay to increase the longevity of the pavement without needing to completely reconstruct the pavement surface.

Generally, asphalt pavements with proper maintenance can last up to 60 years without construction. After that point, the lower parts of the pavement begin losing strength and treating the pavement surface becomes more time- and cost-intensive. Industrial Street is approaching the point of needing pavement replacement, but it is not required at this point.

Curb & Gutter
Both streets being studied currently are urban section streets meaning that they have curb & gutter to convey drainage to a storm sewer system.

Due to the age of the curb & gutter on Industrial Street, there are many sections of the existing curb & gutter that are in need of replacement. In particular, there are sections of curb that are not properly conveying water to the catch basins and instead puddling water in the curb line. Also, there are many sections of curbs that have cracking, spalling, or joint separation that is causing water to infiltrate the gutters and cause freeze/thaw damage. Additionally, there are some driveway locations that do not contain drainage across the driveways (in the form of a valley gutter or concrete apron) and thus the water does not reach the storm sewer system without puddling and flowing into the roadway. The remaining curbs along Industrial Street are approaching the age of replacement, but the City intends to replace the remaining curbs with a surface reconstruction in approximately 10 years.

The curb & gutter on Stageline Road is in relatively better shape than Industrial Street due to its newer age. There are some curb locations on Stageline Road that also have cracked or settled that should be replaced to avoid water infiltration.

Utilities
The utility mains, laterals, and manholes were constructed in the late 1960’s to mid 1970’s along Industrial Street. Generally, utilities have a longer lifespan than the street pavements above them. Although the utility mains have not been inspected for their condition, they are not likely in need of replacement at this time.

City public works and utility staff have inspected all of the manholes and catch basins along the proposed project area and have noted many locations where catch basin or manhole adjustment rings have degraded and are no longer functioning.

City staff has also identified two locations where additional storm sewer improvements (storm laterals and catch basin structures) are desired to improve drainage. Those locations are both on Industrial Street, the first just south of Webster Street and the second at the intersection with Livingston Road.

Multimodal Transportation
Industrial Street does not currently have any sidewalk, trail, or on-street facilities to accommodate pedestrian or bicycle traffic.
Stageline Road between Carmichael Road and Center Drive does not currently include any sidewalks, trails, or on-street facilities for pedestrian or bicycle traffic. East of Center Drive, there is a sidewalk along the south side of Stageline Road connecting the hospital property with the Center Drive commercial area.

At the intersection of Stageline Road and Carmichael Road, there is a pedestrian push button to activate the crosswalk signal crossing Carmichael Road, but the push button is located in an area that is not accessible to those with disabilities (no ADA-compliant pedestrian ramp is provided).

At the intersection of Stageline Road and Center Drive, the pedestrian ramps providing access across Center Drive at the intersection are not ADA-compliant. The end limits of the project are south of the crosswalk, so this crosswalk is included in the project limits.

**Other**
The signing along both Industrial Street and Stageline Road is aging and in need of replacement. The No Parking signing along Industrial Street also is ambiguous as to where parking restrictions begin and end and may not be enforceable.

The pavement markings along both streets are also in need of replacement. With any pavement surface maintenance, it is likely that all of the pavement markings will need to be replaced.

**Project Alternatives and Recommendations**

**Pavement Surface**
A number of pavement surface maintenance options are available to address the poor condition of the pavements along Industrial Street and Stageline Road as well as replacement of the roadway pavement. The pavement options studied are as follows:

- Seal Coat
- Mill & Overlay
- Pavement Replacement

After consideration of the existing pavement conditions, a mill & overlay is recommended for each street in the project area. The pavement surfaces are likely too poor for a seal coat to be effective, and the pavement surfaces have not deteriorated to the point of requiring replacement.

**Curb & Gutter**
It is recommended to replace curb & gutter sections along Industrial Street and Stageline Road to minimize the potential water freeze/thaw damage on those streets. Not replacing the damaged and non-functional curbs & gutters will cause the existing curbs and pavements to deteriorate more quickly than if the curbs were not replaced.

**Utilities**
It is recommended to replace the catch basin and manhole ring sections where identified to prevent further deterioration of the rings and structures.

Further, it is recommended that the identified drainage improvements (laterals and catch basins) be installed with this project to avoid the additional cost of adding them at a later date.
Multimodal Transportation

The City does not intend to add sidewalks, trails, or on-street pedestrian or bicycle facilities with this project apart from those identified in this section. The future surface reconstruction of Industrial Street will allow a better and more cost-effective opportunity to add pedestrian and bicycle facilities. The section of Stageline Road being studied for this project has also been identified for future replacement when WisDOT reconstructs the Exit 2 interchange. Pedestrian facilities have been identified with that project.

There are a few sidewalk improvements that are proposed to be implemented with this project:

- Replacement of the pedestrian curb ramps at the Stageline Road/Center Drive intersection to be ADA compliant
- Addition of a pedestrian ramp at the southeast corner of Stageline Road and Carmichael Road to allow for all users to access the crosswalk push button and to provide a refuge area for pedestrians to wait to cross Carmichael Road.

Other

All of the signs and pavement markings along Industrial Street and Stageline Road in the project area are proposed to be replaced due to their ages and the proposed nature of the pavement maintenance work.

Funding

Capital Improvement Program

Capital Improvement Program (CIP) funding for the Industrial Street portion of the project was identified in the City’s 2020-2024 CIP. As the project was developed further, City staff realized that the CIP funding would be more than sufficient for the mill & overlay work on Industrial Street and thus Stageline Road was added to the project.

Special Assessments

The City of Hudson’s special assessment policy applies to the replacement of curb & gutter and driveway aprons according to the following schedule:

- 50% of the cost of replacement of curb & gutter sections is assessed to the fronting property
- 100% of the cost of replacement of driveway aprons is assessed to the property served by the driveway apron

For curb & gutter replacement, the following costs are added together to determine the replacement cost:

- Removal of existing curb & gutter
- Removal of existing valley gutter(s) through driveway(s)
- Removal of asphalt pavement in the street for patching curbs
- New curb & gutter construction
- New asphalt pavement patch in the street
- New concrete valley gutter(s) at driveway(s)
- Drilled tie bars connecting new curb & gutter to existing curb & gutter
- Restoration behind curb
Engineering cost (15% of construction cost)

For driveway replacement, the following costs are added together to determine the replacement cost:

- Removal of existing curb & gutter on radiuses behind valley gutter
- Removal of asphalt pavement behind valley gutter for patching
- Removal of asphalt pavement where needed for construction of new apron or valley gutter
- New asphalt patching behind valley gutter
- New curb & gutter on radiuses behind valley gutter
- New concrete valley gutter or concrete apron pavement where no valley gutter or concrete apron currently exists
- Restoration behind curb
- Engineering cost (15% of construction cost)

Additionally, Planning and Administration Fees are collected to offset the time spent by office administration staff to prepare project-related work, such as project accounting, project correspondence, project hearings, and other work not directly related to the engineering tasks associated with the project. The Planning and Administration Fees are calculated as follows:

- 1.5% on first $250,000 of total assessable costs
- 1.3% on next $750,000
- 1.1% on next $1,000,000
- 1.0% on next $1,000,000
- 0.8% on next $1,000,000
- 0.6% on remainder

Since this project has an estimated assessable cost of $81,421.31, the rate used to calculate the Planning and Administration Fees is 1.5%.

A detailed breakdown of estimated costs is provided in Appendix A of this report.

The assessment amounts in this report are preliminary estimates only and are subject to change based on bid prices received and on the actual amount of each bid item constructed on the project as applicable to each property.

The City of Hudson believes that replacement of curb & gutter as well as driveway pavement constitutes a benefit to the fronting property. Replacement of curb & gutter allows water flows from the impervious surfaces on each property to reach the City’s storm sewer system to be conveyed to sedimentation areas, infiltration areas, and/or discharge points to the St. Croix River. Without a functional curb & gutter system, each site would need to establish a means of conveying or infiltrating their storm water which would be much more cost prohibitive than the assessment amounts being proposed. The City understands that the curb & gutter systems serve more than just the adjacent properties hence the 50% share of replacement costs. Driveway pavement replacement costs are 100% assessed to the property or properties served by the driveway because the driveway solely serves for access to a specific property or properties and is not meant to serve as a means of conveying through traffic to various points on the City’s transportation system.
Summary of Project Funding
A summary of the project funding is as follows:

Expenses:
Estimated Construction Costs: $522,123.00
Estimated Engineering Costs: $78,400.00
Estimated Total Project Costs: $600,523.00

Funding:
Special Assessments (not including Planning and Administration Fees): $81,421.31
Storm Sewer Funds: $82,240.00
Sanitary Sewer and Water Funds: $17,970.00
Street Maintenance Funds: $13,841.69
Capital Funding: $405,050.00
Total Funding: $600,523.00

Project funding levels for each fund may change based on the bids received, quantity of work performed, and actual engineering costs related to the project bid items associated with each fund. Final funding levels for each fund will be determined at the time of project close-out.

Summary
The recommended project for Industrial Street from Crest View Drive to Hanley Road and Stageline Road from Carmichael Road to approximately 530 feet east of Center Drive is as follows:

- Mill & overlay asphalt pavement surface on both streets
- Replace deficient sections of curb & gutter
- Replace failing catch basin and manhole adjustment rings
- Construct drainage improvements as shown on the plans
- Upgrade intersecting pedestrian ramps to be ADA-compliant and add an ADA-compliant pedestrian ramp at the southeast corner of Stageline Road and Carmichael Road
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- Appendix B – Proposed Plans
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APPENDIX A

Proposed Assessments
APPENDIX B
Proposed Plans
APPENDIX C

Proposed Specifications