



## CITY of NOVI CITY COUNCIL

**Agenda Item K**  
**April 1, 2019**

**SUBJECT:** Adoption of Resolution requesting the Michigan Department of Transportation (MDOT) include the existing bridge on 9 Mile Road over Thornton Creek in the State Local Bridge Program List for Replacement. If MDOT selects this bridge, the City of Novi will accept 100% of the design engineering costs and 5% of the total construction costs.

**SUBMITTING DEPARTMENT:** Department of Public Works, Engineering Division

**CITY MANAGER APPROVAL:** 

### **BACKGROUND INFORMATION:**

The City of Novi has retained OHM Advisors to complete the 2018 Annual Bridge Inspection of 12 city-owned and maintained bridges. Two bridges were recommended to be added to the inventory, including the bridge on 9 Mile Road over Thornton Creek. OHM Advisors concluded that the bridge on 9 Mile Road over Thornton Creek is in need of removal and replacement over the next 5 to 7 years.

This bridge qualifies as a candidate for the Michigan Department of Transportation (MDOT) Local Bridge Program for replacement. MDOT is currently accepting applications for the FY 2022 Local Bridge Program, which has an estimated \$35 million budget. OHM Advisors will submit an application to MDOT to include this bridge in the Local Bridge Program. If MDOT selects this bridge, the City will only be responsible for 5% of the construction costs. Currently, the application includes bridge replacement cost estimation sheets totaling \$1,285,000 (see Appendix A). The City will still be responsible for 100% of the associated design engineering fees in the amount of \$83,525 (6.5% of \$1,285,000). The estimated construction cost that the City would be responsible for is \$64,250 (5% of \$1,285,000).

As part of the application process, the applicant is required to provide a current resolution, signed and dated, from the governing board supporting the project. The adoption of the proposed resolution would demonstrate to MDOT that City Council supports the replacement of the bridge and will do all that is reasonably necessary in order to accomplish this effort. Any application not containing a signed resolution will be considered incomplete and will be rejected.

The City Attorney has reviewed the resolution and sees no legal impediment (Beth Saarela, March 20, 2019).

**RECOMMENDED ACTION:** Adoption of Resolution requesting that the Michigan Department of Transportation (MDOT) include the existing bridge on 9 Mile Road over Thornton Creek in the State Local Bridge Program List for Replacement. If MDOT selects this bridge, the City of Novi will accept 100% of the design engineering costs and 5% of the total construction costs.

# Candidate for MDOT Bridge Program Funding

## Location Map



Map Author: Joseph Akers  
 Date: April 1, 2019  
 Project: 9 Mile Bridge over Thornton Creek  
 Version: 1

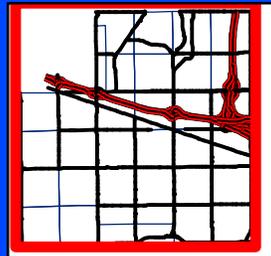
Amended By:  
 Date:  
 Department:

**MAP INTERPRETATION NOTICE**

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.



Proposed Bridge Candidate



**City of Novi**  
 Engineering Division  
 Department of Public Works  
 26300 Lee BeGole Drive  
 Novi, MI 48375  
 cityofnovi.org



1 inch = 4,235 feet



ELIZABETH KUDLA SAARELA  
esaarela@rsjalaw.com

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Farmington Hills, Michigan 48331  
P 248.489.4100 | F 248.489.1726  
rsjalaw.com



ROSATI | SCHULTZ  
JOPPICH | AMTSBUECHLER

March 20, 2019

George Melistas, Senior Engineering Manager  
City of Novi  
Department of Public Works  
Field Services Complex  
26300 Lee BeGole Drive  
Novi, MI 48375

**Re: MDOT Local Bridge Program – Nine Mile Over Thornton Creek**

Dear Mr. Melistas:

We have received and reviewed the proposed Resolution Requesting that the Michigan Department of Transportation Include the Bridge on 9 Mile Road Over Thornton Creek in the State Local Bridge Program List for Preventative Maintenance.

The Resolution is provided for the limited purpose of acknowledging that the City agrees pay 5% of the bridge replacement cost and 100% of the design and construction engineering cost in the event that a grant is awarded by MDOT.

Based on the limited purpose of the Resolution, we see no legal impediment to City Council approving the enclosed version of the Resolution.

If you have any questions regarding the above, please do not hesitate to contact me.

Very truly yours,

ROSATI SCHULTZ JOPPICH  
& AMTSBUECHLER PC

A handwritten signature in blue ink, appearing to read 'Elizabeth Kudla Saarela', is written over a horizontal line.

Elizabeth Kudla Saarela

Enclosure

C: Cortney Hanson, Clerk (w/ Enclosure)  
Jeffrey Herczeg, Director of Public Works (w/Enclosure)  
Thomas R. Schultz, Esquire (w/Enclosure)

CITY OF NOVI

COUNTY OF OAKLAND, MICHIGAN

**RESOLUTION REQUESTING THAT THE MICHIGAN DEPARTMENT OF TRANSPORTATION INCLUDE THE BRIDGE ON 9 MILE ROAD OVER THORNTON CREEK IN THE STATE LOCAL BRIDGE PROGRAM LIST FOR REPLACEMENT**

Minutes of a Meeting of the City Council of the City of Novi, County of Oakland, Michigan, held in the City Hall of said City on April 1, 2019, at 7 o'clock P.M. Prevailing Eastern Time.

PRESENT: Councilmembers \_\_\_\_\_

ABSENT: Councilmembers \_\_\_\_\_

The following preamble and Resolution were offered by Councilmember \_\_\_\_\_ and supported by Councilmember \_\_\_\_\_.

**WHEREAS;** OHM Advisors, Consulting Engineers for the City of Novi, completed the 2018 annual inspection of twelve bridges in the City, one of which was the bridge on 9 Mile Road over Thornton Creek; and

**WHEREAS;** based on the inspections, the Consulting Engineers prepared a 2018 Bridge Inspection Report; and

**WHEREAS;** the 2018 Bridge Inspection Report concludes that the bridge on 9 Mile Road over Thornton Creek is in need of replacement; and

**WHEREAS;** based on the findings and recommendations of OHM Advisors, the DPW Director recommends that City Council authorize OHM Advisors to submit the LAP Bridge Applications to the Michigan Department of Transportation for the bridge on 9 Mile Road over Thornton Creek on the Local Bridge Program for Replacement funding; and

**WHEREAS;** the City of Novi's cost participation amount would be 5% of the total cost and 100% of the design and construction engineering cost; and

**WHEREAS;** the Mayor and City Clerk are authorized to execute said resolution.

**NOW THEREFORE, IT IS THEREFORE RESOLVED** that the City of Novi is actively seeking financial participation to replace the bridge on 9 Mile Road over Thornton

Creek and authorizes OHM Advisors to submit the LAP Bridge application to the Michigan Department of Transportation to include this bridge on the State Local Bridge Program List for Replacement, to make application for financial assistance from the State of Michigan and Federal Government and to do those things reasonably necessary or required in order to accomplish the replacement of this bridge.

**AYES:**

**NAYS:**

RESOLUTION DECLARED ADOPTED.

\_\_\_\_\_  
Cortney Hanson, City Clerk

**CERTIFICATION**

I hereby certify that the foregoing is a true and complete copy of a resolution adopted by the City Council of the City of Novi, County of Oakland, and State of Michigan, at a regular meeting held this \_\_\_\_ day of \_\_\_\_\_, 2019, and that public notice of said meeting was given pursuant to and in full compliance with Act No. 267, Public Acts of Michigan, 1976, and that the minutes of said meeting have been kept and made available to the public as required by said Act.

\_\_\_\_\_  
Cortney Hanson, City Clerk  
City of Novi

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 14274

CULVERT SAFETY INSPECTION REPORT

|  |   |   |  |  |
|--|---|---|--|--|
| <b>Facility</b><br>9 MILE ROAD                   | <b>Latitude / Longitude</b><br>42.4519 / -83.4841   | <b>MDOT Structure ID</b><br>634489000010C02     | <b>Structure Condition</b><br>Poor Condition(4)        |  |
| <b>Feature</b><br>THORNTON CREEK                 | <b>Length / Width / Spans</b><br>26.6 / 0 / 2       | <b>Owner</b><br>City: NOVI(4890)                |  |  |
| <b>Location</b><br>0.5 MI W OF NOVI RD           | <b>Built / Recon. / Paint / Ovly.</b><br>1970 / / / | <b>TSC</b><br>Oakland(23)                       | <b>Operational Status</b><br>A Open, no restriction(A) |  |
| <b>Region / County</b><br>Metro(7) / Oakland(63) | <b>Material / Design</b><br>3 Steel / 19 Culvert    | <b>Last NBI Inspection</b><br>11/12/2018 / T2V1 | <b>Scour Evaluation</b><br>8 Stable Above Footing      |  |

CULVERT INSPECTION

T2V1

|  |   |                          |                                 |
|--|---|--------------------------|---------------------------------|
| <b>Inspector Name</b><br>Adam Rychwalski | <b>Agency / Company Name</b><br>Orchard Hiltz & McCliment Inc | <b>Insp. Freq.</b><br>12 | <b>Insp. Date</b><br>11/12/2018 |
|--|---|--------------------------|---------------------------------|

GENERAL NOTES

Adjacent CMP arch pipe approximately 280' long each at heavy skew to 9 Mile road. Heavy corrosion and deterioration in first 40-70 feet of each pipe from inlet. Pipe shape change from CMP arch to CMP ellipse leaving exposed joint. Several blind taps with heavy corrosion at taps. Rust and scaling along the waterline for full length with the exception of the last 30 feet or so which appears to be new pipe. Large area of deflected pipe in east pipe at approximately 166' in from inlet. detailed inspection is difficult without robotics due to low rise of pipe.

NBI INSPECTION

01/01 11/18

- 1. Culvert Rating (SIA-62) 4 (11/18) (01/01) ()
- 2. Channel (SIA-61) 6 Upstream and downstream ends are aligned with channel. there is a 45 degree kink in the pipe approximately 30' from outlet. upstream end has rock ladder controlling stream profile. (11/18) (01/01) ()
- 3. Scour 7 armoring at both ends. no scour noted. (11/18) (01/01) ()

AASHTO ELEMENTS

(English Units)

| Element Number | Element Name  | Total Quantity | Unit | Good CS1  | Fair CS2   | Poor CS3   | Severe CS4 |
|----------------|---------------|----------------|------|-----------|------------|------------|------------|
| 240            | Steel Culvert | 560            | ft   | 60<br>11% | 350<br>62% | 140<br>25% | 10<br>2%   |

Adjacent CMP arch pipe approximately 280' long each at heavy skew to 9 Mile road. Heavy corrosion and deterioration in first 40-70 feet of each pipe from inlet. Pipe shape change from CMP arch to CMP ellipse leaving exposed joint subject to attacking water from normal flow. Several blind taps with heavy corrosion at taps. Rust and scaling along the waterline for full length with the exception of the last 30 feet or so which appears to be new pipe. Large area of deflected pipe in east pipe at approximately 166' in from inlet. detailed inspection is difficult without robotics due to low rise of pipe. Robotic inspection is still difficult due to small riprap that has washed into pipe.

Scour Countermeasure

|  |                     |     |       |             |         |           |         |
|--|---------------------|-----|-------|-------------|---------|-----------|---------|
| 830                                    | Plain Riprap        | 400 | sq.ft | 400<br>100% | 0<br>0% | 0<br>0%   | 0<br>0% |
| new riprap at outlet in good condition |                     |     |       |             |         |           |         |
| 837                                    | Other Scour Protect | 20  | ft    | 10<br>50%   | 0<br>0% | 10<br>50% | 0<br>0% |

Slope paving at upstream end is crumbling and allowing for material loss around pipe.

MISCELLANEOUS

| Guard Rail Item | Rating | Other Items Item | Rating |
|-----------------|--------|------------------|--------|
|                 |        |                  |        |

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 14274

CULVERT SAFETY INSPECTION REPORT

|  |   |   |  |   |
|--|---|---|--|---|
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| <b>Feature</b><br>THORNTON CREEK                 | <b>Length / Width / Spans</b><br>26.6 / 0 / 2       | <b>Owner</b><br>City: NOVI(4890)                |  |   |
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|                                     |   |                                |   |
|-------------------------------------|---|--------------------------------|---|
| <b>36A. Bridge Railings</b>         | N | <b>71. Water Adequacy</b>      | 6 |
| <b>36B. Transitions</b>             | N | <b>72. Approach Alignment</b>  | 4 |
| <b>36C. Approach Guardrail</b>      | N | <b>Special Insp. Equipment</b> | 9 |
| <b>36D. Approach Guardrail Ends</b> | N | <b>Underwater Insp. Method</b> | 1 |

RECOMMENDATIONS & ACTION ITEMS

| Recommendation Type | Priority | Description   |
|---------------------|----------|---|
| Culvert Repl.       | H        | Replace culvert due to poor condition, pipe damage, pipe alignment. |

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 14274

STRUCTURE INVENTORY AND APPRAISAL

|  |   |   |  |   |
|--|---|---|--|---|
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**Bridge History, Type, Materials**

|                            |        |
|----------------------------|--------|
| 27 - Year Built            | 1970   |
| 106 - Year Reconstructed   |        |
| 202 - Year Painted         |        |
| 203 - Year Overlay         |        |
| 43 - Main Span Bridge Type | 3   19 |
| 44 - Appr Span Bridge Type |        |
| 77 - Steel Type            |        |
| 78 - Paint Type            |        |
| 79 - Rail Type             | 0      |
| 80 - Post Type             |        |
| 107 - Deck Type            | N      |
| 108A - Wearing Surface     | 6      |
| 108B - Membrane            | N      |
| 108C - Deck Protection     | 0      |

**Structure Dimensions**

|                           |      |
|---------------------------|------|
| 34 - Skew                 | 64   |
| 35 - Struct Flared        | N    |
| 45 - Num Main Spans       | 2    |
| 46 - Num Apprs Spans      | 0    |
| 48 - Max Span Length      | 12.2 |
| 49 - Structure Length     | 26.6 |
| 50A - Width Left Curb/SW  | 0    |
| 50B - Width Right Curb/SW | 0    |
| 33 - Median               | 0    |
| 51 - Width Curb to Curb   | 0    |
| 52 - Width Out to Out     | 0    |
| 112 - NBIS Length         | Y    |

**Inspection Data**

|                              |            |
|------------------------------|------------|
| 90 - Inspection Date         | 11/12/2018 |
| 91 - Inspection Freq         | 12         |
| 92A - Frac Crit Req/Freq     | N          |
| 93A - Frac Crit Insp Date    |            |
| 92B - Und Water Req/Freq     | N          |
| 93B - Und Water Insp Date    |            |
| 92C - Oth Spec Insp Req/Freq | N          |
| 93C - Oth Spec Insp Date     |            |
| 92D - Fatigue Req/Freq       | N          |
| 93D - Fatigue Insp Date      |            |
| 176A - Und Water Insp Method | 1          |
| 58 - Deck Rating             | N          |
| 58A/B - Deck Surface/Bottom  |            |
| 59 - Superstructure Rating   | N          |
| 59A - Paint Rating           |            |
| 60 - Substructure Rating     | N          |
| 61 - Channel Rating          | 6          |
| 62 - Culvert Rating          | 4          |

**Navigation Data**

|                            |   |
|----------------------------|---|
| 38 - Navigation Control    |   |
| 39 - Vertical Clearance    | 0 |
| 40 - Horizontal Clearance  | 0 |
| 111 - Pier Protection      |   |
| 116 - Lift Brgd Vert Clear | 0 |

**Route Carried By Structure(ON Record)**

|                              |               |
|------------------------------|---------------|
| 5A - Record Type             | 1             |
| 5B - Route Signing           | 5             |
| 5C - Level of Service        | 1             |
| 5D - Route Number            | 00000         |
| 5E - Direction Suffix        | 0             |
| 10L - Best 3m Unclr-Lt       | 0   0         |
| 10R - Best 3m Unclr-Rt       | 0   0         |
| PR Number                    |               |
| Control Section              |               |
| 11 - Mile Point              | 0             |
| 12 - Base Highway Network    | 0             |
| 13 - LRS Route-Subroute      | 0000006336 03 |
| 19 - Detour Length           | 4             |
| 20 - Toll Facility           | 3             |
| 26 - Functional Class        | 16            |
| 28A - Lanes On               | 2             |
| 29 - ADT                     | 8260          |
| 30 - Year of ADT             | 2014          |
| 32 - Appr Roadway Width      | 24            |
| 32A/B - Ap Pvt Type/Width    | 4   24        |
| 42A - Service Type On        | 1             |
| 47L - Left Horizontal Clear  | 0.0           |
| 47R - Right Horizontal Clear | 24.0          |
| 53 - Min Vert Clr Ov Deck    | 99   99       |
| 100 - STRAHNET               | 0             |
| 102 - Traffic Direct         | 2             |
| 109 - Truck %                | 0             |
| 110 - Truck Network          | 0             |
| 114 - Future ADT             | 9500          |
| 115 - Year Future ADT        | 2034          |
| Freeway                      | 0             |

**Structure Appraisal**

|                           |   |
|---------------------------|---|
| 36A - Bridge Railing      | N |
| 36B - Rail Transition     | N |
| 36C - Approach Rail       | N |
| 36D - Rail Termination    | N |
| 67 - Structure Evaluation |   |
| 68 - Deck Geometry        |   |
| 69 - Underclearance       |   |
| 71 - Waterway Adequacy    | 6 |
| 72 - Approach Alignment   | 4 |
| 103 - Temporary Structure |   |
| 113 - Scour Criticality   | 8 |

**Miscellaneous**

|                              |   |
|------------------------------|---|
| 37 - Historical Significance | 5 |
| 98A - Border Bridge State    |   |
| 98B - Border Bridge %        | 0 |
| 101 - Parallel Structure     | N |
| EPA ID                       |   |
| Stay in Place Forms          |   |
| 143 - Pin & Hanger Code      | 0 |
| 148 - No. of Pin & Hangers   | 0 |

**Route Under Structure (UNDER Record)**

|                              |         |
|------------------------------|---------|
| 5A - Record Type             |         |
| 5B - Route Signing           |         |
| 5C - Level of Service        |         |
| 5D - Route Number            |         |
| 5E - Direction Suffix        |         |
| 10L - Best 3m Unclr-Lt       |         |
| 10R - Best 3m Unclr-Rt       |         |
| PR Number                    |         |
| Control Section              |         |
| 11 - Mile Point              |         |
| 12 - Base Highway Network    |         |
| 13 - LRS Route-Subroute      |         |
| 19 - Detour Length           |         |
| 20 - Toll Facility           |         |
| 26 - Functional Class        |         |
| 28B - Lanes Under            |         |
| 29 - ADT                     |         |
| 30 - Year of ADT             |         |
| 42B - Service Type Under     | 5       |
| 47L - Left Horizontal Clear  |         |
| 47R - Right Horizontal Clear |         |
| 54A - Left Feature           |         |
| 54B - Left Underclearance    | 99   99 |
| 54C - Right Feature          |         |
| 54D - Right Clearance        | 99   99 |
| Under Clearance Year         | 0       |
| 55A - Reference Feature      | N       |
| 55B - Right Horiz Clearance  | 0       |
| 56 - Left Horiz Clearance    | 0       |
| 100 - STRAHNET               |         |
| 102 - Traffic Direct         |         |
| 109 - Truck %                |         |
| 110 - Truck Network          |         |
| 114 - Future ADT             |         |
| 115 - Year Future ADT        |         |
| Freeway                      |         |

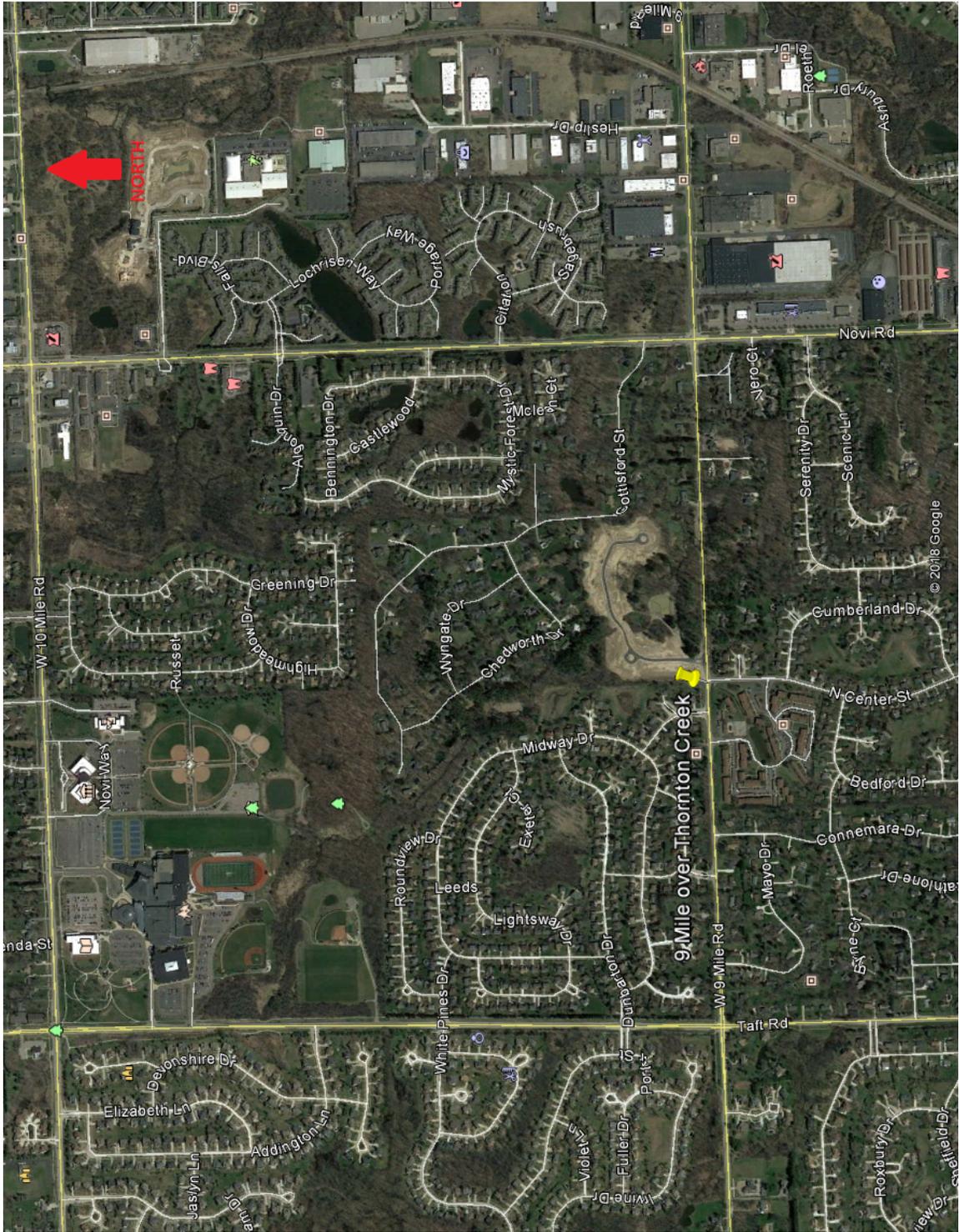
**Proposed Improvements**

|                            |  |
|----------------------------|--|
| 75 - Type of Work          |  |
| 76 - Length of Improvement |  |
| 94 - Bridge Cost           |  |
| 95 - Roadway Cost          |  |
| 96 - Total Cost            |  |
| 97 - Year of Cost Estimate |  |

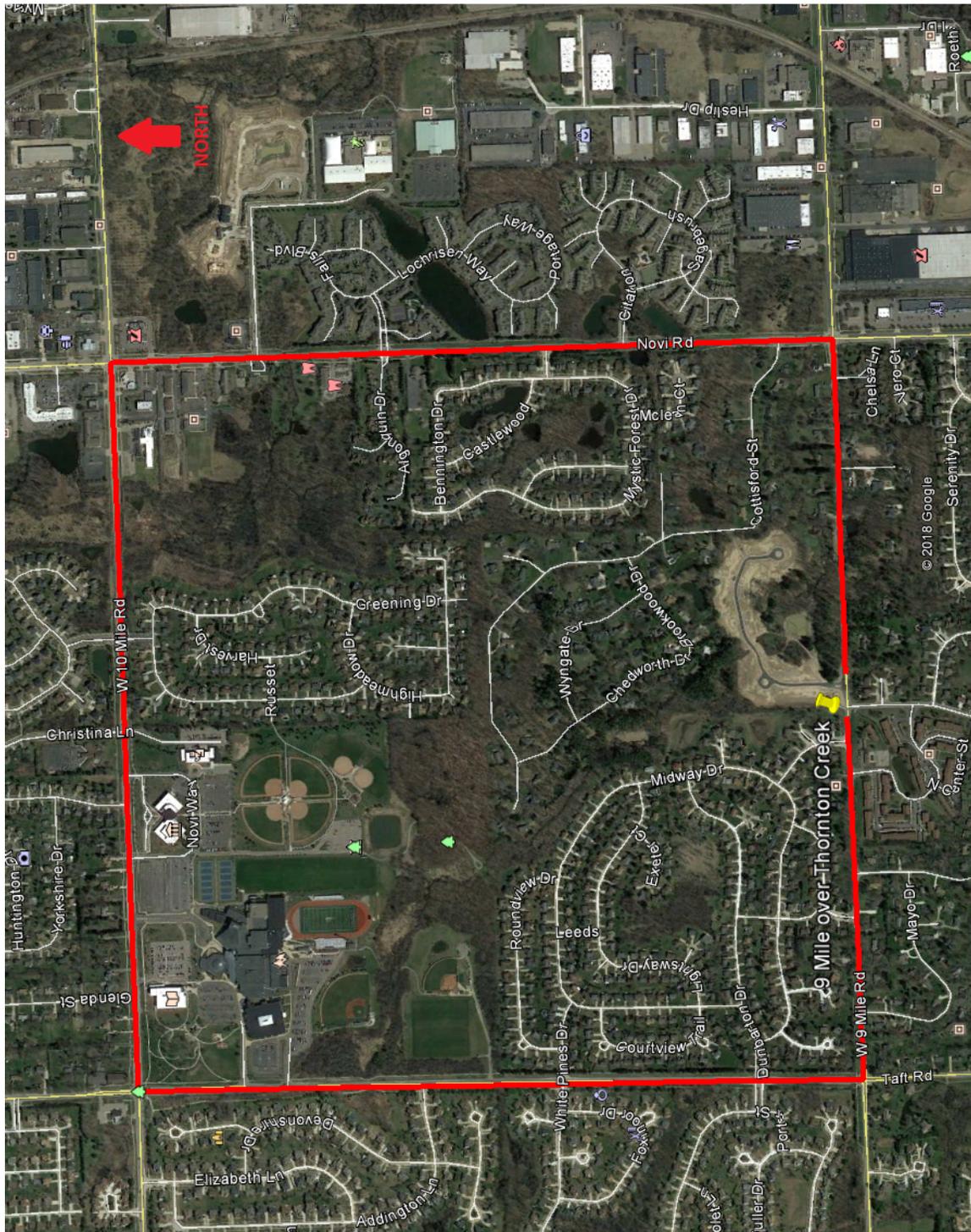
**Load Rating and Posting**

|                             |       |
|-----------------------------|-------|
| 31 - Design Load            | 0     |
| 41 - Open, Posted, Closed   | A     |
| 63 - Fed Oper Rtg Method    | 0     |
| 64F - Fed Oper Rtg Load     | 1.67  |
| 64MA - Mich Oper Rtg Method | 0     |
| 64MB - Mich Oper Rtg        | 1     |
| 64MC - Mich Oper Truck      | 18    |
| 65 - Inv Rtg Method         | 0     |
| 66 - Inventory Load         | 1     |
| 70 - Posting                | 5     |
| 141 - Posted Loading        |       |
| 193 - Overload Class        | A   N |

## 2a. Situation Map



## 2b. Detour Map



9 Mile Rd to Novi Rd  
To 10 Mile Rd  
To Taft Rd  
To 9 Mile Rd

Detour Length: 3.97 Miles

### 3. Photographs



South end



North pipe damage



North pipe damage



North pipe damage



South pipe out of round



Patch and surface condition at kink in neighborhood entrance

#### **4. Application Requirements for 9 Mile Road over Thornton Creek**

##### **A. Local Agency Contact Person**

George Melistas  
Engineering Senior Manager  
City of Novi  
Field Services Complex  
Department of Public Services  
26300 Lee BeGole Drive  
Novi, MI 48375

##### **B. The purpose of this application is for the replacement of the bridge for 9 Mile Road over Thornton Creek.**

##### **C. Economic Importance of the Structure**

This structure is located approximately 2.8 miles west and 1 mile north of the interchange of I-275 and 8 Mile Road. 9 Mile Road is an east west road in Novi, servicing various neighborhoods, commercial and light industrial businesses, and schools in the area. The structure sees approximately 8,300 vehicles a day according to SEMCOG traffic counts.

9 Mile Road is used by the Novi School District for busing to its elementary, middle, and high schools. Novi High School is approximately 1 mile north of the structure and Thornton Creek Elementary is approximately 1 mile east of the structure on 9 mile road. Fire and police stations also use it to reach the homes and businesses in the area for emergencies.

Many light industrial businesses are located adjacent to the CSX railroad 1 mile east of the structure on 9 Mile Road. A commercial area is also located 0.5 miles east of the structure at the intersection of 9 Mile and Novi Roads.

The current structure is a twin barrel 64 inch wide by 42 inch tall corrugated metal pipe arch culvert. The two barrels are separated by 1 foot. The structure is at a severe skew of 64 degrees underneath 9 Mile Road. It also has a kink on the north side due to an extension being placed to re-route the culvert for a new subdivision entrance. The condition of the structure is poor and has approximately one foot of cover over the culvert. The two barrels have considerable damage resulting in the pipes being pushed inwards with large areas of rust due to minimal amount of cover. Additional areas are out of round and have been bent. There is significant rust at the waterline in areas. The bankfull width of the Thornton Creek is also wider than the existing structure which can result in erosion around the structure and overtopping.

Due to the poor condition, existing damage and bankfull width, it is recommended that it be removed and replaced. To increase the cover over the

culverts to extend their life additional roadwork should be completed to raise the road.

**D. If there is a current detour, what does it affect?**

Currently the bridge is open to traffic and there is no detour.

**E. If the structure were to be closed, what would the detour affect?**

If the structure were to be closed, the commercial and light industrial areas on 9 Mile Road would be impacted due to traffic having to be detoured. The commercial area would lose business because of the additional travel time it would take to reach their location. The light industrial companies would have costs associated with longer delivery routes. Both of these impacts could result in economic harm to the area due to lost jobs. Local residents would also have to change their commuting routes. The increased route for all traffic will add to pollution, fuel costs, and lost productive time in traffic. Emergency services would also take longer to reach the neighborhoods as they would have to detour around the bridge. As every second matters in an emergency, this could lead to public safety concerns. School buses would have to change their routes to be less efficient, costing the school district money. As schools are already struggling with funding, this would further stress the school's budgets.

**F. The structure is not currently closed.**

**G. Maintenance of the Structure**

No known work has been done to the structure.

**5. Estimated Rehabilitation Costs**

|                              |                 |
|------------------------------|-----------------|
| <u>Structure Replacement</u> |                 |
| A. Road Construction         | \$ 307,000.00   |
| B. Structure Construction    | \$ 978,000.00   |
| Total (A & B)                | \$ 1,285,000.00 |

For a breakdown of Construction costs, see Appendix A.

**6. Priority List**

**1. 9 Mile Road**

**7. Resolution**

The resolution is attached in Appendix B.

## **8. Previous Applications**

It is understood that all previous applications have been discarded and that this application will be used to select funding.

## **APPENDIX A**

2019

LAP - BRIDGE COST ESTIMATE WORKSHEET  
- CPM, REHAB, REPLACE -

REV: 2/1/2019

DATE: 3/18/2019

|  |                      |                    |              |                     |
|--|----------------------|--------------------|--------------|---------------------|
| OWNER: NOVI                                | FISCAL YEAR: 2022    | Out to Out         | Curb to Curb | ENGINEER: KSO       |
| REGION: Metro                              |                      | LENGTH             | WIDTH        | STRUCTURE ID: 14274 |
| TSC: Oakland                               | PR: 633603 MP: 5.699 | 26.6               | 0.0          | 24.0                |
| LOCATION: 9 MILE ROAD over THORNTON CREEK  |                      | BRIDGE ID:         |              |                     |
| PRIMARY WORK ACTIVITY: Culvert Replacement |                      | DECK AREA: N/A     | SFT          | STR. TYPE: Steel    |
| OTHER WORK: Approach Work                  |                      | CLEAR ROADWAY: 638 | SFT          | Culvert             |

| WORK ACTIVITY  | Michigan Bridge Design Manual                            | QUANTITY | UNIT | UNIT COST        | TOTAL              |
|--|--|----------|------|------------------|--------------------|
| <b>NEW BRIDGE</b> (increase deck area based on design standards and hydraulic requirements)    |  |          |      |                  |                    |
| Single or Multiple Spans, Grade Separation   | (add demo, approach, MOT)                                |          | SFT  | \$220.00/SFT     |                    |
| Single Span, Over Water  | Length < 100ft (add demo, approach, MOT)                 |          | SFT  | \$300.00/SFT     |                    |
| Multiple Spans, Over Water   | Length > 100ft (add demo, approach, MOT)                 |          | SFT  | \$220.00/SFT     |                    |
| Precast Culvert  | (add demo, approach, MOT)                                | 280.0    | FT   | \$2,000.00/FT    | \$560,000          |
| Excavation and Backfill  |  | 1,700.0  | CYD  | \$50.00/CYD      | \$85,000           |
| <b>NEW SUPERSTRUCTURE</b>  |  |          |      |                  |                    |
| New Superstructure, Grade Separation   | (incl. remove exist deck/super; add MOT & approach)      |          | SFT  | \$160.00/SFT     |                    |
| New Superstructure, Over Water   | (incl. remove exist deck/super; add MOT & approach)      |          | SFT  | \$200.00/SFT     |                    |
| <b>WIDENING</b>  |  |          |      |                  |                    |
| Structure Widening, _____ ft   | (incl. deck/super/sub widening, add approach transition) |          | SFT  | \$270.00/SFT     |                    |
| <b>NEW DECK</b>  |  |          |      |                  |                    |
| New Bridge Deck & Barrier  | (incl. remove exist deck/railing, add approach, MOT)     |          | SFT  | \$75.00/SFT      |                    |
| <b>DEMOLITION</b>  |  |          |      |                  |                    |
| Entire Structure, Grade Separation   |  |          | SFT  | \$33.00/SFT      |                    |
| Entire Structure, Over Water   |  |          | SFT  | \$46.00/SFT      |                    |
| Other (Culvert Removal)  |  | 1.0      | LSUM | \$20,000.00/LSUM | \$20,000           |
| <b>DECK REPAIR / TREATMENTS</b>  |  |          |      |                  |                    |
| Bridge Railing Replacement   | (incl. removal and replacement)                          |          | FT   | \$400.00/FT      |                    |
| Concrete Brush Block / Curb Patch  | (incl. hand chipping and formwork)                       |          | FT   | \$20.00/FT       |                    |
| Concrete Barrier Patch   | (incl. hand chipping and formwork)                       |          | SFT  | \$60.00/SFT      |                    |
| Concrete Deck Patch  | (incl. hand chipping)                                    |          | SFT  | \$30.00/SFT      |                    |
| Deep Overlay   | (incl. joint repl & hydro)                               |          | SFT  | \$32.00/SFT      |                    |
| Epoxy Overlay  | (incl. warranty)   |          | SYD  | \$30.00/SYD      |                    |
| Expansion Joint Gland Replacement  | (remove and replace elastomeric gland)                   |          | FT   | \$85.00/FT       |                    |
| Expansion Joint Replacement  | (incl. removal)  |          | FT   | \$550.00/FT      |                    |
| Full Depth Patch   |  |          | SFT  | \$65.00/SFT      |                    |
| Healer / Sealer  | (penetrates cracks in bridge deck)                       |          | SYD  | \$15.00/SYD      |                    |
| HMA Overlay with WP membrane   |  |          | SYD  | \$52.00/SYD      |                    |
| Overlay Removal  | (Epoxy: \$8/syd   Latex: \$16/syd   HMA: \$7/syd)        |          | SYD  | \$16.00/SYD      |                    |
| Reseal Bridge Joints   |  |          | FT   | \$16.00/FT       |                    |
| Shallow Overlay  | (incl. joint repl & hydro)                               |          | SFT  | \$22.00/SFT      |                    |
| <b>SUPERSTRUCTURE REPAIR</b>   |  |          |      |                  |                    |
| Bearing Realignment / Replacement  | (incl. temporary supports)                               |          | EA   | \$5,000.00/EA    |                    |
| Heat Straightening   | (incl. clean and coat)                                   |          | EA   | \$50,000.00/EA   |                    |
| Pack Rust Repair   | (greater than 3/8" separation)                           |          | FT   | \$500.00/FT      |                    |
| Paint - Complete   | (incl. clean & coat)                                     |          | SFT  | \$20.00/SFT      |                    |
| Paint - Partial / Spot / Zone  | (incl. clean & coat - \$20k minimum)                     |          | SFT  | \$40.00/SFT      |                    |
| PCI Beam End Blockout  | (incl. temporary supports)                               |          | EA   | \$7,200.00/EA    |                    |
| Pin & Hanger Replacement   | (incl. temporary supports)                               |          | EA   | \$7,000.00/EA    |                    |
| Structural Steel Repair  | (based on 6ft length; for stiffeners use \$1,200 ea)     |          | EA   | \$3,000.00/EA    |                    |
| <b>SUBSTRUCTURE REPAIR</b>   |  |          |      |                  |                    |
| Substructure Patching  | (measured x 2) replace if repair area > 30%              |          | CFT  | \$260.00/CFT     |                    |
| Substructure Replacement   | (incl. temporary supports, excavation)                   |          | CFT  | \$140.00/CFT     |                    |
| Substructure Horizontal Surface Sealer   |  |          | SYD  | \$35.00/SYD      |                    |
| Temporary Supports   | (add \$1,200 for ea steel beam - stiffeners)             |          | EA   | \$2,000.00/EA    |                    |
| <b>MISCELLANEOUS</b>   |  |          |      |                  |                    |
| Articulating Concrete Block System (ACB)   |  |          | SYD  | \$200.00/SYD     |                    |
| Concrete Surface Coating   |  |          | SYD  | \$24.00/SYD      |                    |
| Culvert Cleanout   |  |          | FT   | \$30.00/FT       |                    |
| Epoxy Crack Injection  | (structural crack repair)                                |          | FT   | \$40.00/FT       |                    |
| Metal Mesh Panels  | (48" width, max 6'-6" length)                            |          | SFT  | \$15.00/SFT      |                    |
| Pressure Relief Joint  | (use when approach concrete roadway exceeds 1,000ft)     |          | FT   | \$100.00/FT      |                    |
| Riprap   | (assume 10ft distance around perimeter of substructure)  |          | SYD  | \$160.00/SYD     |                    |
| Silane Treatment   | (penetrating sealer for concrete surfaces)               |          | SFT  | \$3.50/SFT       |                    |
| Slope Protection Repairs   |  |          | SYD  | \$100.00/SYD     |                    |
| Other  | (Scour Counter Measures)                                 | 1.0      | LSUM | \$15,000.00/LSUM | \$15,000           |
| <b>STRUCTURE CONSTRUCTION BUDGET</b>   |  |          |      |                  | <b>\$680,000</b>   |
| <b>ROAD WORK</b>   |  |          |      |                  |                    |
| Approach Pavement, 12" RC  | (incl. removal; add curb, gutter, guardrail) 20' ea. end |          | SYD  | \$175.00/SYD     |                    |
| Approach Curb & Gutter   | (incl. removal) 20' ea. quadrant                         |          | FT   | \$54.00/FT       |                    |
| Guardrail Anchorage to Bridge  | (each quadrant)  |          | EA   | \$1,500.00/EA    |                    |
| Guardrail  | (incl. removal) < 200ft beyond reference line            |          | FT   | \$22.00/FT       |                    |
| Guardrail Terminal   | (each quadrant)  |          | EA   | \$2,200.00/EA    |                    |
| Roadway Approach Work  | (beyond approach pavement)                               |          | LSUM | LSUM             |                    |
| HMA  |  | 770.0    | TON  | \$90.00/TON      | \$69,300           |
| Pavement Removal   |  | 2,800.0  | SYD  | \$10.00/SYD      | \$28,000           |
| Remove and Replace Curb and Gutter   |  | 1,200.0  | FT   | \$30.00/FT       | \$36,000           |
| Utilities  |  | 1.0      | LSUM | \$30,000.00/LSUM | \$30,000           |
| <b>TRAFFIC CONTROL</b> <i>Unit Cost to be determined by Region or TSC Traffic &amp; Safety</i> |  |          |      |                  |                    |
| Part Width Construction  |  |          | LSUM | LSUM             |                    |
| Crossovers   |  |          | EA   | \$300,000.00/EA  |                    |
| Temporary Traffic Signals  |  |          | set  | \$25,000.00/set  |                    |
| RR Flagging  |  |          | LSUM | LSUM             |                    |
| Detour   |  | 1.0      | LSUM | \$50,000.00/LSUM | \$50,000           |
| <b>RELATED ROAD/TRAFFIC CONSTRUCTION BUDGET</b>  |  |          |      |                  | <b>\$213,300</b>   |
| <b>CONTINGENCY</b>   | (10% - 20%) (use higher contingency for small projects)  | 20       | %    | \$893,000.00     | \$179,000          |
| <b>MOBILIZATION</b>  | (estimate at 10%)  | 10       | %    | \$1,072,000.00   | \$107,000          |
| <b>INFLATION</b>   | (assume 3% per year, beginning in 2020)                  | 9        | %    | \$1,179,000.00   | \$106,000          |
| <b>TOTAL CONSTRUCTION BUDGET</b>   |  |          |      |                  | <b>\$1,285,000</b> |

(Does not include PE or CE)

## **APPENDIX B**

CITY OF NOVI

COUNTY OF OAKLAND, MICHIGAN

**RESOLUTION REQUESTING THAT THE MICHIGAN DEPARTMENT OF TRANSPORTATION INCLUDE THE BRIDGE ON 9 MILE ROAD OVER THORNTON CREEK IN THE STATE LOCAL BRIDGE PROGRAM LIST FOR REPLACEMENT**

Minutes of a Meeting of the City Council of the City of Novi, County of Oakland, Michigan, held in the City Hall of said City on April 1, 2019, at 7 o'clock P.M. Prevailing Eastern Time.

PRESENT: Councilmembers \_\_\_\_\_

ABSENT: Councilmembers \_\_\_\_\_

The following preamble and Resolution were offered by Councilmember \_\_\_\_\_ and supported by Councilmember \_\_\_\_\_.

**WHEREAS;** OHM Advisors, Consulting Engineers for the City of Novi, completed the 2018 annual inspection of twelve bridges in the City, one of which was the bridge on 9 Mile Road over Thornton Creek; and

**WHEREAS;** based on the inspections, the Consulting Engineers prepared a 2018 Bridge Inspection Report; and

**WHEREAS;** the 2018 Bridge Inspection Report concludes that the bridge on 9 Mile Road over Thornton Creek is in need of replacement; and

**WHEREAS;** based on the findings and recommendations of OHM Advisors, the DPW Director recommends that City Council authorize OHM Advisors to submit the LAP Bridge Applications to the Michigan Department of Transportation for the bridge on 9 Mile Road over Thornton Creek on the Local Bridge Program for Replacement funding; and

**WHEREAS;** the City of Novi's cost participation amount would be 5% of the total cost and 100% of the design and construction engineering cost; and

**WHEREAS;** the Mayor and City Clerk are authorized to execute said resolution.

**NOW THEREFORE, IT IS THEREFORE RESOLVED** that the City of Novi is actively seeking financial participation to replace the bridge on 9 Mile Road over Thornton

Creek and authorizes OHM Advisors to submit the LAP Bridge application to the Michigan Department of Transportation to include this bridge on the State Local Bridge Program List for Replacement, to make application for financial assistance from the State of Michigan and Federal Government and to do those things reasonably necessary or required in order to accomplish the replacement of this bridge.

**AYES:**

**NAYS:**

RESOLUTION DECLARED ADOPTED.

\_\_\_\_\_  
Cortney Hanson, City Clerk

**CERTIFICATION**

I hereby certify that the foregoing is a true and complete copy of a resolution adopted by the City Council of the City of Novi, County of Oakland, and State of Michigan, at a regular meeting held this \_\_\_\_ day of \_\_\_\_\_, 2019, and that public notice of said meeting was given pursuant to and in full compliance with Act No. 267, Public Acts of Michigan, 1976, and that the minutes of said meeting have been kept and made available to the public as required by said Act.

\_\_\_\_\_  
Cortney Hanson, City Clerk  
City of Novi