Mound Road Industrial Corridor Technology and Innovation Project

Partners: Macomb County, City of Sterling Heights, and City of Warren, MI
Contact: John Crumm, Director of Planning, Macomb County Department of Roads
(586) 469-5285; JCrumm@RCMCWeb.org
www.innovatemound.org/INFRA

Project Name	Mound Road Industrial Corridor Technology and Innovation Project
Was an INFRA application for this project submitted previously?	No
If yes, what was the name of the project in the previous application?	N/a
Previously Incurred Project Cost	$67,797
Future Eligible Project Cost	$216,860,000
Total Project Cost	$216,927,797
INFRA Request	$130,116,000
Total Federal Funding (including INFRA)	$130,116,000 (60% of total cost)
Are matching funds restricted to a specific project component? If so, which one?	No
Is the project or a portion of the project currently located on a National Highway Freight Network?	Yes
Is the project or a portion of the project located on the National Highway System? • **Does the project add capacity to the Interstate system?** • **Is the project in a national scenic area?**	Yes No No
Do the project components include a railway-highway grade crossing or grade separation project? ○ **If so, please include the grade crossing ID**	No N/a
Do the project components include an intermodal or freight rail project, or freight project within the boundaries of a public or private freight rail, water (including ports) or intermodal facility?	No
If answered yes to either of the two component questions above, how much of requested INFRA funds will be spent on each of these projects components?	N/a
State(s) in which project is located?	Michigan
Small or Large project?	Large

Urbanized Area in which project is located, if applicable?	Detroit, MI
Population of Urbanized area?	3,731,521 (ACS 2015 data)
Is the project currently programmed in the: • TIP • STIP • MPO Long Range Transportation Plan • State Long Range Transportation Plan • State Freight Plan?	 No No Yes, in the 2040 RTP: Mound Road (17-19 Mile Road), reconstruct and add one lane in each direction, 2021-2025, $2 Million and Mound Road (19 Mile – M59), reconstruct and add one lane in each direction, 2026-2030, $2,868,128 No No
If selected, would you be interested in participating in the Environmental Review Permitting and Pilot?	Yes

TABLE OF CONTENTS

PROJECT DESCRIPTION

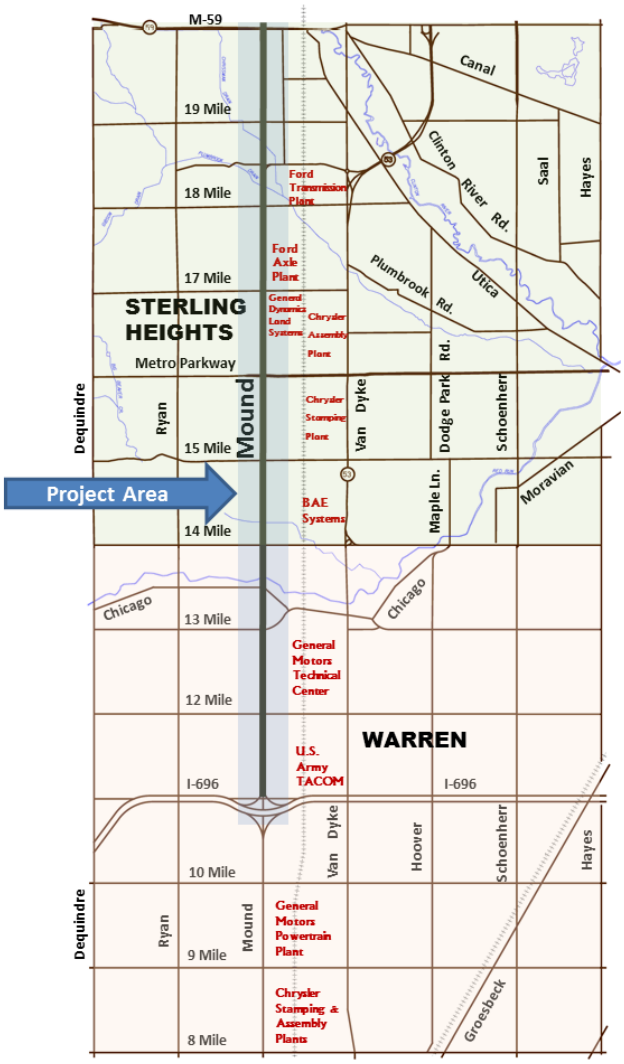
The Mound Road Industrial Corridor Technology and Innovation (MTIC) Project is a partnership of Macomb County, the City of Sterling Heights and the City of Warren, Michigan, which is seeking $130,116,000 in INFRA grant funds (60% of the total cost) to transform 9 miles of the Mound Road Corridor, part of the National Freight Highway Network, from a 30-year-old, 8-lane roadway strewn with potholes and a decaying roadbed to a next-generation critical commercial corridor, providing:

- reduced congestion and greater safety for the aerospace, defense, and auto manufacturing employers and freight movement on the corridor;
- cutting-edge vehicle-to-vehicle technology for automobiles and trucks on the corridor;
- greater safety for pedestrians, bicyclists and transit users, by better access to transit and improved bicycle and pedestrian paths – including new pedestrian bridges over the corridor - and a connection to the 1,273-mile Iron Belle Trail running from Detroit to the Wisconsin/Michigan border.

The 9 miles of Mound Road connecting to Interstate 696 and State Route M-59 constitute a unique and nationally-significant industrial corridor – supporting a direct employment total of 20,200 people which support 17,720 jobs in Macomb County and an additional 98,100 jobs in the state of Michigan - featuring vital national automotive, aerospace, defense, and advanced manufacturing installations, including the Warren General Motors Technical Center, the Sterling Heights Ford Axle Plant, the Sterling Heights Chrysler Assembly Plant, and the U.S. Army's Tank-Automotive and Armaments Command (TACOM) and Tank Automotive Research, Development and Engineering Center (TARDEC) facilities.

Given the current dilapidated infrastructure conditions along the corridor and the number of manufacturing and research facilities of vital national importance, the project aims to renovate and establish a next-generation critical commercial corridor with the following project components:

- High performance concrete pavement for improved surface rideability and extensive service life;
- Enhanced egress to and from the U.S. Army's TACOM and TARDEC facilities;
- Intelligent Transportation Systems (ITS) for optimized traffic operations and proactive incident management;
- Connected vehicle technology deployment to enhance freight movement and facilitate overall real-time communication between vehicle and infrastructure (V2I);
- Comprehensive signal infrastructure and signage improvements to improve traffic flow and safety along the corridor for passenger and commercial/industrial freight;
- Two grade separated pedestrian crossings supplemented by the installation of non-motorized multi-use paths to improve non-motorized user safety, mobility and promote regional trails; and
- Install energy efficient unified lighting to increase visibility along the corridor and reduce energy consumption



Check out our short video of the project filmed by an aerial drone commissioned by the project sponsors, which can be accessed at www.innovatemound.org/INFRA.

PROJECT LOCATION

The Mound Road Industrial Corridor Technology and Innovation Project is located on 9 miles of Mound Road in the Cities of Sterling Heights and Warren, Michigan, starting at the intersection with Interstate 696 and proceeding north to the intersection with State Route M-59. This section of Mound Road is in the Detroit Urbanized Area and is part of the National Highway System and the National Highway Freight Network. According to 2015 traffic volume data, the corridor has an average annual daily traffic of approximately 70,000 vehicles, split almost equally by direction.

Mound Road is a critical connection between heavily travelled I-696 and M-59, which in turn connect to 1-94 and I-75, two of the longest

interstates in the country. Additionally, M-59 leads directly to Selfridge Airforce National Guard Base, now a major site for defense-related research and development. It also facilitates easy access between major employers on the corridor and the University Research Corridor, which incorporates the combined resources of Michigan State University, University of Michigan, and Wayne State University.

PROJECT PARTIES

The Mound Road Industrial Corridor Technology and Innovation (MTIC) Project is a partnership of Macomb County, the City of Sterling Heights and the City of Warren. The lead applicant is the Macomb County Department of Roads, which will administer the project. Warren and Sterling Heights – the 3rd and 4th largest cities in Michigan with a combined population of 265,000 – are contributing non-federal matching funds to the project along with the County and will also participate in decision-making in all phases of the project. Resolutions from the Cities of Sterling Heights and Warren and a letter from Macomb County affirming their commitment to providing a non-federal match can be accessed at www.innovatemound.org/INFRA.

The project has significant community support and, in December 2016, a community presentation and listening session, hosted by Macomb County, Sterling Heights, and Warren was held to provide details of the project to private and government employers and workers in the Corridor, with over 100 community representatives participating – including U.S. Members of Congress and U.S. Department of

MOUND ROAD EXECUTIVE COMMITTEE

1. County Executive Mark Hackel, Macomb County, MI
2. Mayor Michael Taylor, City of Sterling Heights, MI
3. Mayor James Fouts, City of Warren, MI
4. Samuel Hillhouse, Deputy Garrison Manager – U.S. Army, U.S. Army Detroit Arsenal
5. Thomas Lindquist, Director of Manufacturing Logistics Management/Global Manufacturing Logistics Engineering, Fiat Chrysler Automobiles (FCA) US LLC
6. Brad Simmons, Director of Government and Stakeholder Relations, Ford Motor Company
7. Gary Whited, President, General Dynamics Land Systems
8. Kenneth L. Kelzer, Vice President of Global Vehicle Components and Subsystems, General Motors
9. Ron Klinger, Vice President, AM Specialties, Inc.
10. Angela Lommen, Program Director, Support and Technical Services, BAE Systems
11. Bruno Casadei, President, Casadei Steel, Inc.
12. Mike Brzoska, President, Chardam Gear Company
13. Warren Wintermantel, Vice President, Conti Corporation
14. Ron Lamparter, Founder/Chairman, Defense Corridor Center for Collaboration and Synergy
15. Nate Tallman, Vice President of Operations, Metro Wire & Cable Corp.
16. Melanie Davis, President & CEO, Sterling Heights Regional Chamber of Commerce & Industry

Defense officials. From this group, (see below table) the project sponsors created a 16-person Community Executive Committee to provide input and advice for the project and to participate in advocacy for the project, including a May 2017 trip to Washington, D.C., for key meetings with Members of Congress and Department of Transportation officials. Letters of support from the community may be viewed at www.innovatemound.org/INFRA.

GRANT FUNDS, SOURCES AND USES OF ALL PROJECT FUNDING

Previously Incurred Costs

Macomb County, Sterling Heights and Warren have jointly contributed to the planning and initial design phases of the project, sharing previously incurred expenses of $67,797 for engineering, an economic impact study, and project consulting, as of August 7, 2017.

Previously Incurred Costs	Amount
Economic Impact Study, March 2017	$ 3,400
Preliminary engineering and design	$38,461
Project consulting	$25,936
Total	$67,797

Total Project Costs and Sources of Funding

Source	Amount	Percentage of Total Cost
INFRA grant	$130,116,000	60%
Macomb County, MI	$43,372,000	20%
City of Sterling Heights, MI	$29,059,240	13.4%
City of Warren, MI	$14,312,760	6.6%
Total	$216,860,000	100%

Cost Breakdown of Eligible Project Costs and Sources of Funding

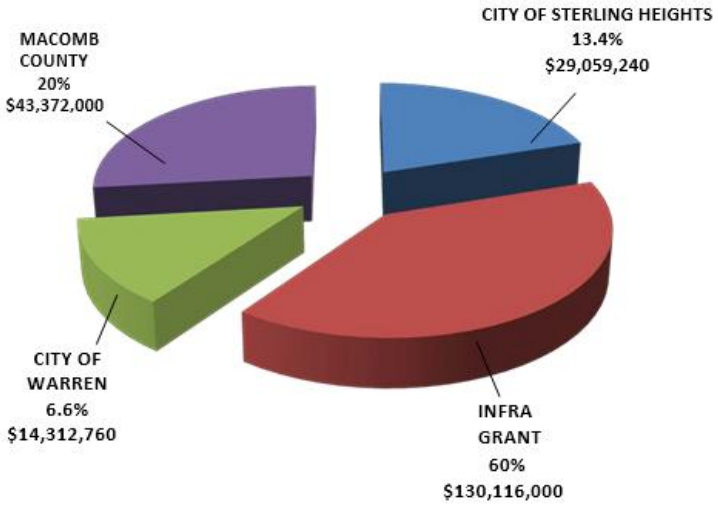
Attached below are 3 charts of the breakdown of eligible project costs with the amounts and percentages of all sources of funding included. A chart that includes the per-mile segments of the project to demonstrate the total scalability of the project may be found at www.innovatemound.org/INFRA.

Project Component	Budget Amount	Percentage of Project
Mobilization	$10,000,000	4.6%
Earthwork	$13,000,000	6.0%

Pavement Base	$20,000,000	9.2%
Drainage	$15,000,000	6.9%
Curb & Gutter and Driveways	$ 4,500,000	2.1%
Concrete Pavement	$46,000,000	21.2%
Temporary Traffic Control	$ 7,000,000	3.2%
Restoration and Landscaping	$ 4,500,000	2.1%
Non-Motorized Multi-Use Path	$ 2,100,00	1.0%
Pedestrian Bridge (2 locations)	$10,000,000	4.6%
Signal Modernizations	$11,300,000	5.2%
Connected Vehicle Technology	$ 1,500,000	0.7%
Fiber Optic Communication	$ 1,200,000	0.6%
ITS Technology	$ 1,800,000	0.8%
Fixed Automotive Spray Technology with Weather Station	$ 1,300,000	0.6%
Electrical and Lighting	$ 1,200,000	0.6%
Traffic Signs	$ 4,000,000	1.8%
Permanent Pavement Markings	$ 500,000	0.2%
TOTAL CONSTRUCTION COSTS	**$154,900,000**	
Contingencies @ 15% of construction costs	$ 23,235,000	10.7%
Engineering @ 13% of construction costs	$ 20,137,000	9.3%
Construction Engineering @ 12% of construction costs	$ 18,588,000	8.6%
TOTAL BUDGET	**$216,860,000**	**100%**

Macomb County, Sterling Heights and Warren will contribute a total of $86.9 million to the project (40% of the total cost). Letters and resolutions committing the jurisdictions to their share of the non-federal matching amounts may be accessed at www.innovatemound.org/INFRA.

The specific amounts per jurisdiction may be found in the below chart:



ITEM	% OF BUDGET	INFRA GRANT FUNDS	MACOMB COUNTY FUNDS	CITY OF WARREN FUNDS	CITY OF STERLING HEIGHTS FUNDS
Mobilization	4.6%	$ 6,000,000	$ 2,000,000	$ 660,000	$ 1,340,000
Earthwork	6.0%	$ 7,800,000	$ 2,600,000	$ 858,000	$ 1,742,000
Pavement Base	9.2%	$ 12,000,000	$ 4,000,000	$ 1,320,000	$ 2,680,000
Drainage	6.9%	$ 9,000,000	$ 3,000,000	$ 990,000	$ 2,010,000
Curb & Gutter and Driveways	2.1%	$ 2,700,000	$ 900,000	$ 297,000	$ 603,000
Concrete Pavement	21.2%	$ 27,600,000	$ 9,200,000	$ 3,036,000	$ 6,164,000
Temporary Traffic Control	3.2%	$ 4,200,000	$ 1,400,000	$ 462,000	$ 938,000
Restoration & Landscaping	2.1%	$ 2,700,000	$ 900,000	$ 297,000	$ 603,000
Non-Motorized Multi-Use Path	1.0%	$ 1,260,000	$ 420,000	$ 138,600	$ 281,400
Pedestrian Bridge (2 locations)	4.6%	$ 6,000,000	$ 2,000,000	$ 660,000	$ 1,340,000
Signal Modernizations	5.2%	$ 6,780,000	$ 2,260,000	$ 745,800	$ 1,514,200
Connected Vehicle Technology	0.7%	$ 900,000	$ 300,000	$ 99,000	$ 201,000
Fiber Optic Communication	0.6%	$ 720,000	$ 240,000	$ 79,200	$ 160,800
ITS Technology	0.8%	$ 1,080,000	$ 360,000	$ 118,800	$ 241,200
Fixed Automated Spray Technology with Weather Station	0.6%	$ 780,000	$ 260,000	$ 85,800	$ 174,200
Electrical and Lighting	0.6%	$ 720,000	$ 240,000	$ 79,200	$ 160,800
Traffic Signs	1.8%	$ 2,400,000	$ 800,000	$ 264,000	$ 536,000
Permanent Pavement Markings	0.2%	$ 300,000	$ 100,000	$ 33,000	$ 67,000
Construction Costs		**$ 92,940,000**	**$ 30,980,000**	**$ 10,223,400**	**$ 20,756,600**
Contingencies @ 15% of Construction Costs	10.7%	$ 13,941,000	$ 4,647,000	$ 1,533,510	$ 3,113,490
Engineering @ 13% of Construction Costs	9.3%	$ 12,082,200	$ 4,027,400	$ 1,329,042	$ 2,698,358
Construction Engineering @ 12% of Construction Costs	8.6%	$ 11,152,800	$ 3,717,600	$ 1,226,808	$ 2,490,792
TOTAL BUDGET	**100%**	**$ 130,116,000**	**$ 43,372,000**	**$ 14,312,760**	**$ 29,059,240**
		60%	**20%**	**6.6%**	**13.4%**

PROJECT CRITERIA

1. Support for National or Regional Economic Vitality

The Mound Road industrial corridor is a vitally-important national asset that employs tens of thousands of workers and facilitates freight movement for key aerospace, defense and automotive manufacturing facilities – including the Warren General Motors Technical Center, the Sterling Heights Ford Axle Plant, the Sterling Heights Chrysler Assembly Plant, the U.S. Army's Tank-Automotive and Armaments Command (TACOM) and Tank Automotive Research, Development and Engineering Center (TARDEC) facilities, General Dynamics Land Systems and BAE Systems.

Benefit Cost Analysis

As required by the INFRA Grant's Notice of Funding Opportunity and pursuant to DOT's revised guidance for INFRA and TIGER grant applications, a benefit-cost analysis was conducted by Hubbell, Roth & Clark, Inc. (HRC) for those project improvements and benefit/cost categories which are reasonably expected to have an impact on the affected users of the project.

The primary items included in this assessment consist of an analysis of the following categories:

- Travel Time Savings
- Safety Benefits
- Emissions Reduction
- Vehicle Operating Cost Savings (i.e. Fuel)
- ITS & Connected Vehicle Technology Savings
- Capital Expenditures
- Operating & Maintenance Expenditures

The results of the benefit-cost analysis are based on the key parameters listed above, a 2016 baseline year, a 2020 to 2022 construction period, and a 20-year 2023 to 2042 analysis period. The results indicate the following benefits discounted at 7%, producing a benefit-cost ratio of 5.66:

BCA CATEGORY	TOTAL DISCOUNTED AT 7%
Travel Time Savings	$ 284,943,820
Safety Benefits	$ 232,161,183
Emission Reduction Benefits	$ 5,136,765
Vehicle Operating Cost Savings	$ 17,974,215
ITS & Connected Vehicle Technology Savings	$ 289,979,213
Capital Expenditures	$(154,947,662)
Operating & Maintenance Expenditures	$ 46,556,394
NPV at 7%	$ 721,803,927
Benefit-Cost Ratio (BCR)	**5.66**

The full benefit cost analysis and supporting data can be found at: innovatemound.org/INFRA.

Mound Road Project Economic Impact Study, March 2017

Earlier this year, the project sponsors commissioned an economic impact study for the project, *Economic Impact Analysis of the Mound Road Corridor*, released in March 2017, which found that there is a total of 20,200 people employed along Mound Road and the adjacent corridor, Van Dyke/M53 Road. These jobs support another 17,720 jobs in Macomb County. Combined, these 37,400 employees earn $2.8 billion annually and total taxes on production are nearly $191 million.

Additionally, the 20,200 jobs along Mound Road support another 98,100 jobs in the Michigan economy outside of Macomb County. These are supplier jobs to those businesses along Mound or Van Dyke or expenditure-induced jobs from employee spending (expenditure-induced jobs are defined as employment that is created or supported when the direct employees or supplier company employees spend their paychecks). Including the 20,200 direct jobs on located on Mound and Van Dyke Roads, there are a total of 135,500 jobs in Michigan that rely on the economic activity generated by the Mound Road corridor, for a total jobs multiplier of 6.72. This means that for every job on Mound or Van Dyke, there are another 5.72 jobs in Michigan. A copy of the full report is attached at www.innovatemound.org/INFRA.

2. Leveraging of Federal Funding

The non-federal sponsors are contributing 40% of the total cost of the project and have, to date, expended $67,797 in previously-incurred eligible costs. The reconstruction and repaving of an 8-lane, 9-mile roadbed and surface does not lend itself readily to attracting private investment and that is the reason that the dollars in this project are from public sector sources. However, if the project's impact on manufacturing investment and jobs is taken as a whole, it would be important to note the billions of dollars that have been spent in the last 10 years by the private sector corporations lining the Mound Road Corridor to ensure that they are doing their part to maintain the region's employment levels. Below are examples of private sector investment along the Mound Road Corridor:

- Fiat Chrysler Automobiles (FCA) is investing $1.4 billion to retool the Sterling Heights Assembly Plant in the project area on Mound Road to produce the 2018 Dodge Ram 1500 Pick-up truck, creating 700 new jobs with an economic impact of $140 million to the regional economy.

- In 2015, Ford Motor Company invested $400 million in its Sterling Axle facility on Mound Road and added an additional 150 jobs to support production of the all-new, aluminum-alloy F-150. Ford has additional investments planned for the future in Sterling Heights.

- In 2015, General Motors announced that it was investing $1 billion in a 4-year plan in its Warren Technical Center in the project area on Mound Road and will add about 2,600 jobs

to the current 19,000 GM employees who work at the 710-acre campus where the bulk of GM's engineering, advanced technology and safety research is focused. It will break ground in mid-2018 on a 360,000-square-foot studio building, which will surround its historic design dome, auditorium and viewing patio. The new studio will connect to the company's existing 350,000-square-foot design center. The project is expected to take two to three years and includes the addition of a parking structure underway at the southwest corner of the campus. The new space will help his team be better prepared to develop cutting-edge designs for emerging autonomous vehicles and popular services such as ride sharing and ride hailing. The tech center campus earned National Historic Landmarks status in 2014. It opened in 1956 with a lavish dedication ceremony attended by President Dwight Eisenhower and was considered the pinnacle of engineering, design and advanced technology at the time.

- Immediately south of the project area on Mound Road, the General Motors Powertrain Plant spent $332 million to expand its facility in 2006 and add 100 additional jobs. In 2016, General Motors announced a joint venture with DTE Energy by unveiling a power solar array at the plant, which will be the largest solar array on a GM site in the state.

- In 2011, BAE Systems built a $60 million Land and Armaments Headquarters on Mound Road that employs over 500 engineer and technical staff.

- In total, the Mound Road Corridor alone (approximately 12 square miles) has more manufacturing jobs (61,625) and higher gross regional product ($11,775,843,780) than 10 states (Maine, West Virginia, South Dakota, Nevada, Rhode Island, Vermont, New Mexico, Delaware, North Dakota, Montana).

3. Potential for Innovation

Macomb County has a history of intelligent transportation capabilities on Mound Road and several data towers are currently located on the corridor. Funding from this project would allow the county to greatly expand its smart technology along the corridor to provide real-time information for automobiles and trucks using a county-provided smart-phone application to provide information from vehicle to vehicle on road conditions.

As planned, each primary traffic signal on the corridor will be equipped with advanced ITS technologies to significantly improve safety and intersection operational efficiency. These include:

- Video surveillance capabilities through closed-circuit televisions;
- Performance measures and Purdue Coordination Diagram (PCD) modules and customizations;
- Video analytics program running in concert with Oculairs to assist in incident management
- Work zone ITS/connected vehicle technology to enhance safety and improve mobility during construction;

- Dilemma zone detection equipment at all intersections for the Mound Road approaches; and
- Eberle Design Inc (EDI) data aggregator to provide cost effective remote access to real-time traffic data and corresponding measures of effectiveness (MOE) for various data points from any isolated or network intersection or arterial roadway.

To support future advancements and innovations in roadway safety and operations, connected vehicle technology will be deployed throughout the corridor. This includes the installation of approximately 50 roadside units (RSU) at strategic locations along all nine miles of Mound Road. To make immediate use of the roadside units, up to 50 on-board connected vehicle units will be made available for emergency response vehicles or public transit vehicles. Communications for the technology will be supported via the installation of 12 total miles of fiber optic communication cabling installed along the network. It is the intent of this project that the capabilities of existing automotive facilities will be leveraged in concert with all the Vehicle to Infrastructure (V2I) deployments to further the advancement of the development of connected vehicles applications and testing with Original Equipment Manufacturers (OEM).

To combat winter icing conditions on bridges, the project proposes to install an environmental sensing station in the corridor along with Fixed Automated Spray Technology (FAST) units on the bridge decks crossing four separate drains: the Red Run Drain, the Beaver Creek, the Sterling Relief Drain, and the Plumbrook Drain. The FAST system is being deployed to support and supplement winter maintenance operations by monitoring winter weather conditions and preventing snow and ice from bonding to the surface by automatically spraying anti-icing solutions at the applicable areas. The FAST system will improve service delivery to the motoring public with the safe, timely, and rapid application of chemicals on the bridge roadway surfaces. Currently these locations are more prone to crashes when the pavement condition is icy.

Additionally, the project sponsors will be eager to work with U.S. Department of Transportation officials on a pilot program to streamline the environmental review and permitting process to designate a lead agency for issuing the results of reviews and permits. At this point, the Mound Road Project has just started its environmental review, so participating in the pilot would be very timely.

4. Performance and Accountability

The project sponsors propose to condition funding availability on the timely completion of project milestones. Below are the specific milestones events, along with target dates and the relationship to funding from the INFRA grant program.

Project Milestones	**Expected Completion Date**
Preliminary Design and Engineering	February 1, 2018, which will be completed with only non-federal funds
FY17+FY18 INFRA Large Project Awards	May 1, 2018 (expected)

Environmental review: categorical exclusion expected for existing right-of-way and Environmental Impact Review (EIR) for added lane	October 1, 2018, which will be accomplished after the awarding of INFRA funds in Spring 2018 and the used of the Environmental Review and Permitting Pilot
Project Bids Solicited + Funds Obligated	January 1, 2019
Start of Construction	April 1, 2020

Additionally, the Mound Road Industrial Corridor Technology and Innovation Project puts safety as a key priority for measuring performance and accountability, particularly the elimination of fatal and injury crashes. Currently Mound Road is characterized by a relatively high frequency of crashes. A review of 2011-2015 crashes obtained from the Traffic Improvement Association (TIA) Traffic Crash Analysis Tool (TCAT) reported a total of 3,914 total crashes along the Mound Road Corridor, 1% of which were reported as fatal and incapacitating injury crashes and approximately 21% involved some other level of injury. These 3,914 crashes involved 8,209 vehicles, resulted in 10 fatalities, incapacitating injuries to 38 individuals, and included some other form of injury to an additional 1,118 individuals.

Crash attributes for the Mound Road corridor appear to be typical for divided roadways. However, the large number of crashes and particular emphasis on specific crash types does present an opportunity to improve safety along the corridor to significantly reduce rear-end, angle, single vehicle, and sideswipe same crashes, several of which also present a safety risk in terms of fatal and severe injuries. In concert with the existing safety deficiencies and existing crash patterns, significant safety components are designed into the Mound Road project to directly rectify safety deficiencies, which will include:

- New concrete pavement with increased pavement friction performance
- Recessed durable pavement marking
- Improved lighting
- MUTCD conforming signs
- Improved traffic flow progression as a result of signal optimization, signal upgrades, connected vehicle technology, updated signage etc.
- Two new pedestrian bridges at strategic locations along the corridor
- Installation of FAST systems at four locations to apply deicing chemicals to the bridge decks

Primary intersection safety improvements include:

- Mast arm signal configuration with one signal head per lane
- 12” LED signal heads
- LED illuminated case signs
- Backplates
- Pedestrian countdown signals (audible)
- High-visibility crosswalks

- Improved traffic flow progression as a result of signal optimization, signal upgrades, connected vehicle technology etc.

For a more detailed discussion of safety benefits, please see Sec. 3.2 of the Benefit-Cost Report, starting on page 14, which can be accessed at www.innovatemound.org/INFRA.

Per the INFRA NOFO on the discussion on barriers to project completion, the Mound Road Project would be pleased to be part of an environmental streamlining pilot program to complete the necessary environmental reviews in a more timely fashion (see the "required approvals section on page 16).

PROJECT READINESS

Technical Feasibility

The preliminary design and engineering of the project has been performed by Hubbell, Roth & Clark, Inc. The project includes the following components:

- Removal of current road surface and roadbed
- Reconstruction of roadbed and resurfacing
- Construction of two pedestrian bridges and adjacent contiguous pedestrian paths
- Installation of new signage
- Installation of additional ITS improvements

The budget contains a contingency amount of 15% of the construction costs in the amount of $23,253,000 as a contingency allotment.

Project Schedule

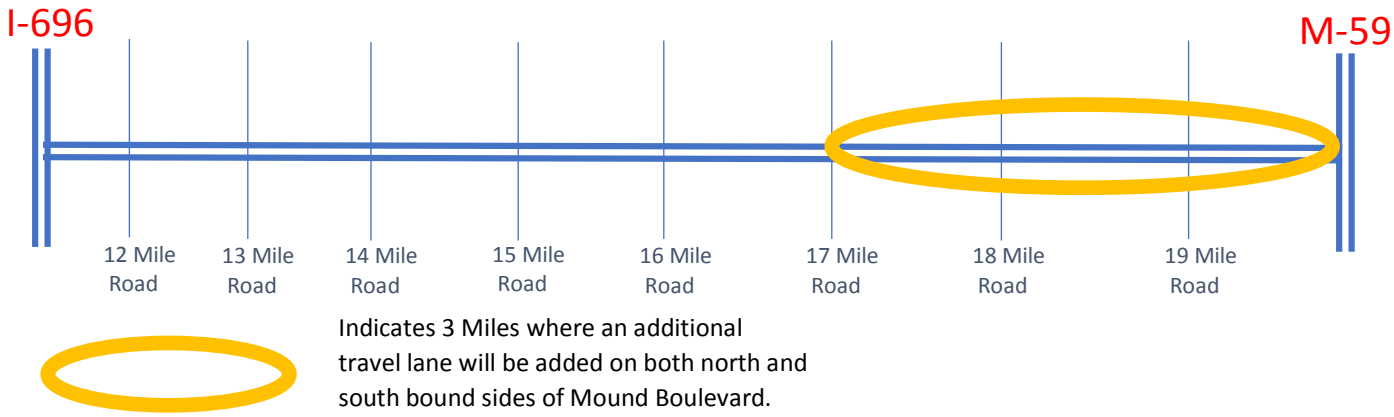
The project schedule is as follows:

Project Milestones	**Timeline**
Preliminary design and engineering	Current through February 1, 2018
State and local planning approvals	Current through October 1, 2018
Environmental review: categorical exclusion expected for existing right of way	February 1, 2018 through July 1, 2019
Final design	November 1, 2019
Project bids solicited	January 1, 2020
Project bids accepted and published	March 1, 2020
Start of construction	April 1, 2020
Environmental Assessment for 17 Mile to M-59 segment	April 1, 2020, through April 1, 2022
Project construction completed	November 1, 2023

Required Approvals

National Environmental Protection Act Review (NEPA)

The miles of Mound between I-696 and 16 Mile are expected to be constructed under an approved modified categorical exclusion in an existing right-of-way. For the 17 Mile Road to M-59 segment, the project would include the addition of one more through lane in both the north- and south-bound direction, which will require the expansion of the footprint of the road and will, therefore require an Environmental Assessment for this portion of the project.



Since the footprint of this road and the proposed technological advancement will only aid in the better flow and safer movement of traffic, this area will have no major increase in the size of the footprint of the infrastructure. However, certain new environmental evaluations that address issues not only related to the expansion of facilities will need to be addressed.

These include:

- Endangered Species Act Review
- Coordination with Federal Highway for review of Native American relics in the project area and/or identification of any historically and culturally significant sites.
- Noise Analysis – Review for Need and Feasibility of Construction of Sound Walls
- Air Quality Analysis
- Historic Preservation Review – Administered through State Historic Preservation Office
- Water quality issues would be covered under the Michigan Department of Environmental Quality review of discharge permits and would not have to be included in this modified categorical exclusion review.

Since this is a reconstruction of existing infrastructure with only improvements to assist in the safety and better flow of traffic, there is a feeling that formal public hearings would not be required. Macomb County Department of Roads would have informal hearings around the corridor to include public involvement in the development and location of pedestrian facilities. The Innovative Mound

Road project has already requested and obtained public input in the need for geometric and design changes to better serve those along the corridor. Since this process has been well under way for over a year, the Department would continue to seek the informal involvement of those in the corridor to augment the process.

From the initiating of these reviews to acceptance by Michigan Federal Highway Administration, Macomb County Road Department believes that this would take between 12 and 15 months.

From 17 Mile Road to M-59 the project would include the addition of one more through lane in both the north- and south-bound direction. Since this proposal would require the expansion of the footprint of the road, an Environmental Assessment would be required to be conducted under existing rules. Review of in-house right-of-way records shows that the entire corridor is under control of the Macomb County Department of Roads. There is no need for further acquisition of land. This will dramatically increase the time to finish all the environmental review pre-construction requirements. Under current conditions and based on past construction projects, this EA process is determined to take 24 months. This process would begin at the start of the construction of the southern portion and therefore would be complete when the Department is ready to proceed to construction within the 17 Mile to M-59 area of Mound Road.

Although this proposed plan to meet the National Environmental Protection Act Review can be accomplished without hampering the proposed construction timeline, Macomb County Department of Roads would be open to participating in piloting efforts to streamline this effort. One great time saver that could be considered that would have little impact on meeting the current review process and period for comment is to allow the environmental review process to proceed immediately after the funds have been awarded. Typically, the process does not begin until the funds have been awarded and distributed down to the local unit of government that requires coordination with the State of Michigan Department of Transportation. This is sometimes delayed because of lack of staff at the state level. If the local NEPA review process began immediately after the announcement of the grant award this process could be met in the proposed timeline or potentially even expedited without any changes to the current review process.

Public Engagement

On December 15, the project sponsors hosted a community presentation and listening session in the City of Warren with over 100 attendees participating. The project sponsors have also created a 16-person community advisor Executive Committee consisting of public officials and private sector representatives, which has participated in one trip to Washington, D.C. to meet with Congressional and Executive Branch officials and conducts a monthly conference call or meeting with its members. See page 6 of this narrative for more information on project parties and the strong support the community has for this project.

LARGE PROJECT REQUIREMENTS

Large Project Determination	Guidance
1. Does the project generate national or regional economic, mobility, safety benefits?	The Mound Road Corridor, part of the National Highway Freight Network, is home to over 20,200 manufacturing jobs representing the aerospace, defense, and auto manufacturing sectors and is unique in the nation for the concentration of industry along one stretch of highway.
2. Is the project cost effective?	Yes, the project yields a return on investment which far surpasses the total project cost at 4.69-to-1 and 3.43-to-1 for 2 scenarios with and without the ITS/Connected Vehicle option.

3. Does the project contribute to one or more of the Goals listed under 23 U.S.C. 150 (and shown below)? (b) National Goals.—It is in the interest of the United States to focus the Federal-aid highway program on the following national goals: *(1) Safety.—To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.* *(2) Infrastructure condition.—To maintain the highway infrastructure asset system in a state of good repair.* *(3) Congestion reduction.—To achieve a significant reduction in congestion on the NHS.* *(4) System reliability.—To improve the efficiency of the surface transportation system.* *(5) Freight movement and economic vitality.—To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.* *(6) Environmental sustainability.—To enhance the performance of the transportation system while protecting and enhancing the natural environment.* *(7) Reduced project delivery delays.— To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.*	The Mound Road Industrial Corridor Technology and Innovation Project will include the following components to accomplish the Federal-aid Highway Program goals: ○ High performance concrete pavement for improved surface rideability and extensive service life; ○ Intelligent Transportation Systems (ITS) for optimized traffic operations and proactive incident management; ○ Connected vehicle technology deployment to enhance freight movement and facilitate overall real-time communication between vehicle and infrastructure; ○ Comprehensive signal infrastructure and signage improvements to improve traffic flow and safety along the corridor for passenger and commercial / industrial freight; ○ Two grade separated pedestrian crossings supplemented by the installation of non-motorized multi-use paths to improve non-motorized user safety, mobility and promote regional trails; and ○ Install energy efficient unified lighting to increase visibility along the corridor and reduce energy consumption.

4. Is the project based on the results of preliminary engineering?	Yes, preliminary engineering and design work has been completed by Hubbell, Roth & Clark, Inc., which has provided a total cost estimate of $217 million for the project.
5a. With respect to non-Federal financial commitments, does the project have one or more stable and dependable funding or financing sources to construct, maintain, and operate the project?	The $89 million in non-federal commitments arise from Macomb County and the Cities of Sterling Heights and Warren. Copies of commitment letters and resolutions are in the Appendix.
5b. Are contingency amounts available to cover unanticipated cost increases?	The budget contains a contingency amount of 15% of the construction costs in the amount of $23,253,000.
6. Is it the case that the project cannot be easily and efficiently completed without other Federal funding or financial assistance available to the project sponsor?	As a major road project, federal INFRA project funding will be very important to the completion of this project. The roadbed and surface has reached the end of its functional existence and must be replaced at a cost which is far beyond the budget capabilities of the county and the 2 cities in which it lies. Yearly patching by the county soon deteriorates due to the condition of the underlying roadbed.
7. Is the project reasonably expected to begin construction not later than 18 months after the date of obligation of funds for the project?	The obligation dates are expected by early 2020, with the start of construction expected by spring 2020, well in advance of both obligation deadlines.

CONCLUSION

The Mound Road Industrial Corridor Technology and Innovation Project, part of the National Highway Freight Network, will provide an urgently-needed reconstruction and repaving of the 9-mile Mound Road Corridor in Macomb County, MI, that is home to thousands of nationally-significant manufacturing jobs in the aerospace, defense, and automobile manufacturing sectors. The project will reduce congestion and facilitate the more efficient movement of freight through the corridor connecting to Interstate 696 and State Route M-59. The project will also increase safety for non-motorists along a new, contiguous bike and pedestrian path, including the construction of 2 pedestrian bridges over Mound Road.

APPENDIX

All appendix items can be found at www.innovatemound.org/INFRA.

Aerial Drone Video of Project Site
Application Narrative PDF
Application for Federal Assistance (Standard Form 424)
Budget Information for Construction Programs (Standard Form 424C)
Benefit Cost Analysis Report
Benefit Cost Analysis Data
Mound Road Project Economic Impact Study, March 2017
Project Cost Breakdown by Project Function and Jurisdiction
Elected Officials' Letters of Support
Community Letters of Support
Letter and Resolutions Committing Local Jurisdictions to Non-federal Match