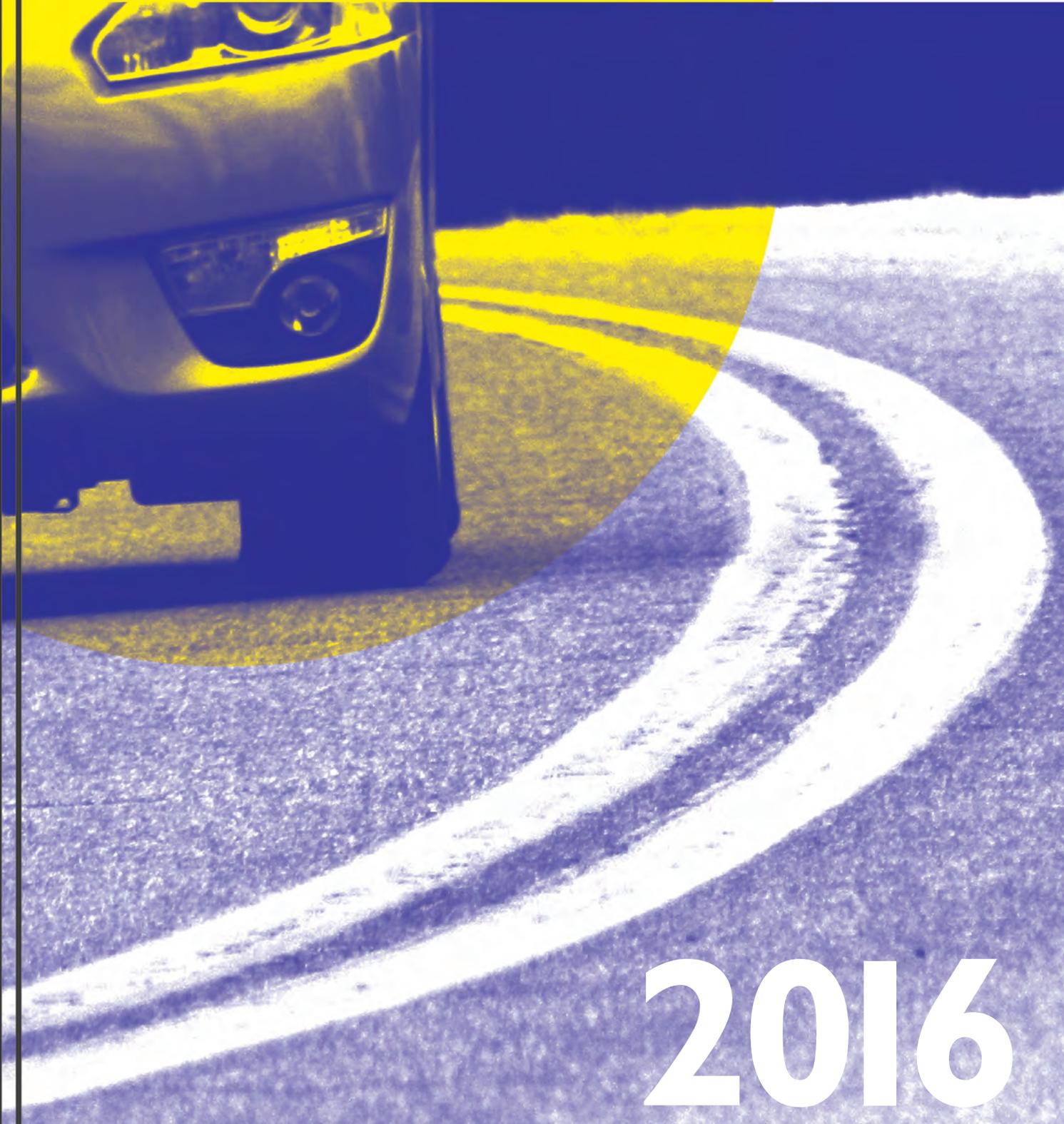




Connecting Communities

Crawford County | 2016 TIGER Grant



2016

Table of Contents

1 - Executive Summary	3
Background	8
Demographic Data	9
Need for Project	10
2 - Project Parties	11
3 - Grant Funds & Sources/Uses of Project Funds	12
4 - Selection Criteria	13
Long-Term Outcomes	
State of Good Repair	13
Economic Competitiveness	14
Quality of Life	15
Environmental Sustainability	15
Safety	16
Secondary Selection Criteria	19
Innovations	19
Partnership	19
Results of Cost Benefit Analysis	20
5 - Project Readiness	21
Technical Feasibility	21
Financial Feasibility	22
Project Schedule	23
Planning/Permit Approvals and NEPA	23
6 - Federal Wage Rate Certification	1



Improving Access

Executive Summary

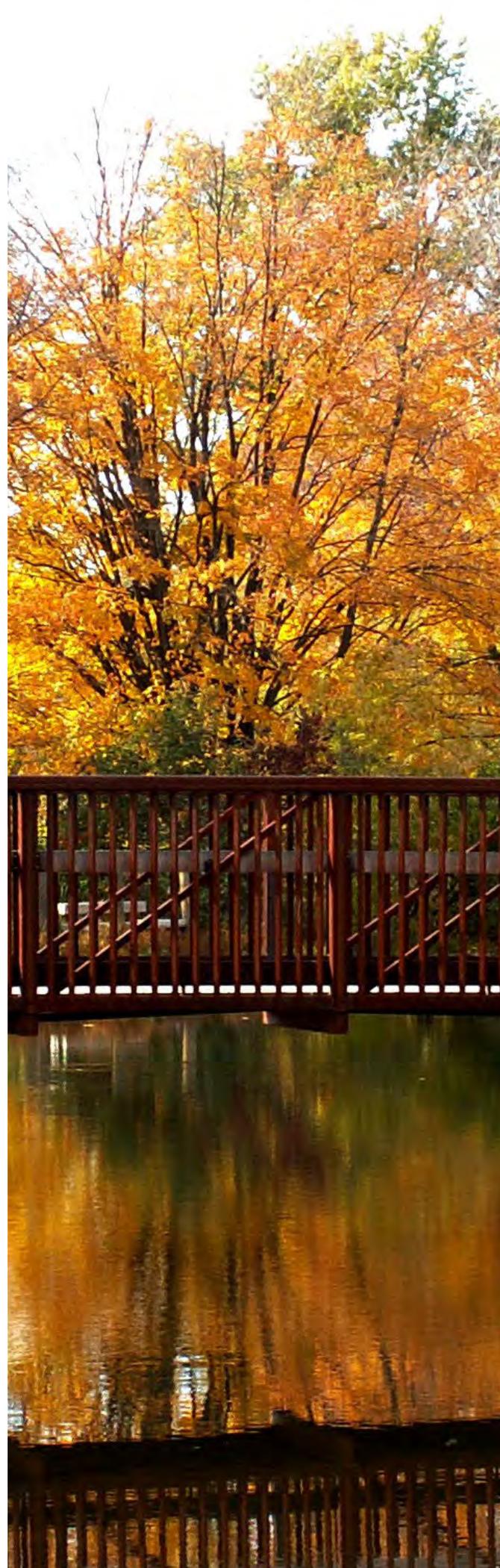
The Grayling Region I-75 Access Project is an opportunity to improve access to and build up the community of Grayling, Michigan. This project exemplifies the focus of the TIGER Grant to generate economic development and improve access to the area.

The I-75/North Down River Road Interchange is heavily utilized by the community, industry, visitors and healthcare providers in the area. Though Grayling is known in the area as the “Gateway to the North”, access to the interchange for northbound travelers is currently very limited. Travelers accessing Grayling or areas to the east must exit at the south end of the City and travel over three miles through busy and congested city streets, causing delays for emergency responders, traffic congestion, and extensive wear on the Grayling city streets. Crawford County, Michigan is a rural, economically-distressed area in the center of the northern portion of Michigan’s Lower Peninsula.

The City of Grayling, is the most populous municipality in this rural county and is located just north of the confluence of I-75 and US-127, two major north-south interstate freeways. 42 U.S. Code 3161 designates the Crawford County as an Economically Distressed Area (EDA). The county is in the heart of the Huron-Manistee National Forest. While residents and visitors enjoy expanse of recreation land and water, Crawford County has one of the lowest tax bases in the State of Michigan, largely due to the fact that 74% of the land in the County is either federally- or state-owned. As such, this area has struggled for years to improve the transportation system in this county and region, where two federal highways, two state highways and a railroad converge.

Despite the constraints of being a rural community with limited options for generating revenue, Grayling has been able to position itself as a prime area for several notable entities that provide regional and national resources. These endeavors also meet the selection criteria detailed by the TIGER grant;

- State of Good Repair
- Economic Competitiveness
- Quality of Life
- Environmental Stability
- Safety



Healthcare

Munson Healthcare's Grayling Hospital lies at the intersection of North Down River Road and Michigan Avenue, a half-mile from the interchange. This is a regional hospital and serves a seven county area and employs nearly 600 people. This facility is continuing to grow and expand its services and operations. Police and fire services are located on North Down River Road about a mile to the west. Full access to the interchange would decrease access time to the hospital from North bound I-75 from 5-6 minutes to 1-2 minutes. **When seconds count in an emergency, the improved access will help save lives**



Military

The location of the county has proven viable for State of Michigan military training. Camp Grayling was founded in 1913 when a Grayling timber baron donated land to the State. Camp Grayling provides a wide variety of training scenarios to meet unit readiness requirements for soldiers not only in Michigan, but nationally as well. The Camp contributes an estimated \$35 million in community impact annually. While the Camp brings much needed revenue to the area, it also contributes to the heavy usage of the I-75/North Down River Interchange. **This project will benefit the community by improving access for an important community partner and alleviating congestion and delays for the community as a whole.**



Tourism

Tourism is a significant contributor to the local economy. Most notable are two pristine rivers: the main branch of the Au Sable River flowing easterly toward Lake Huron, and the Manistee River which flows south and west to Lake Michigan. This region is the heart of the Huron-Manistee National Forest. Hartwick Pines State Park is located just north of Grayling and offers biking and hiking trails as well as historical attractions. Additional attractions include skiing, fishing, canoeing, and many other outdoor activities. Grayling is the start of the Au Sable River Canoe Race, a world-class marathon. **Improving access to Grayling will make it more attractive to current and potential visitors and increase the community's ability to generate sustainable income.**



While the communities of Grayling and Crawford County are economically under-served, Crawford County has shown great determination in working with the resources available to them and commitment to maximizing those resources. Crawford County has engaged their local partners to improve access to and build up those entities providing revenue to the area. Project partners have committed additional matching funds for this project, as well as access agreements and easements. This project complies with regional planning activities such as outlined in the County's STIP, as well as regional economic development strategies as outlined in the Northeast Michigan Council of Government's Comprehensive Economic Development Strategy.

The Grayling I-75 interchange project can improve access to and help build up the community of Crawford County. The Crawford County Road Commission and its partners are seeking the assistance of the Tiger Discretionary Grant to upgrade the I-75/North Down River Road interchange, improve the capacity of connecting roadways, and provide multi-modal connections for the vital entities that help bolster the economy of this small rural community.



Project Information

Project Title

Connecting Communities - Grayling Region 1-75 Access Project

Type of Application

This road and bridge capital investment/construction project upgrades the existing I-75/North Down River Road interchange from half to full access; improves the capacity of connecting roadways and provides multi-modal connections serving the regional hospital, emergency response facilities, downtown Grayling, and the military base.

Applicant

Crawford County Road Commission

Donald Babcock, Managing Director
500 Huron Street
Grayling, MI 49738

CCR Number - 5XJC9

DUNS Number - 085900793

Project Location - State of Michigan, Crawford County, 1st Congressional District

Urban or Rural - This project is in a rural area

Funding Source

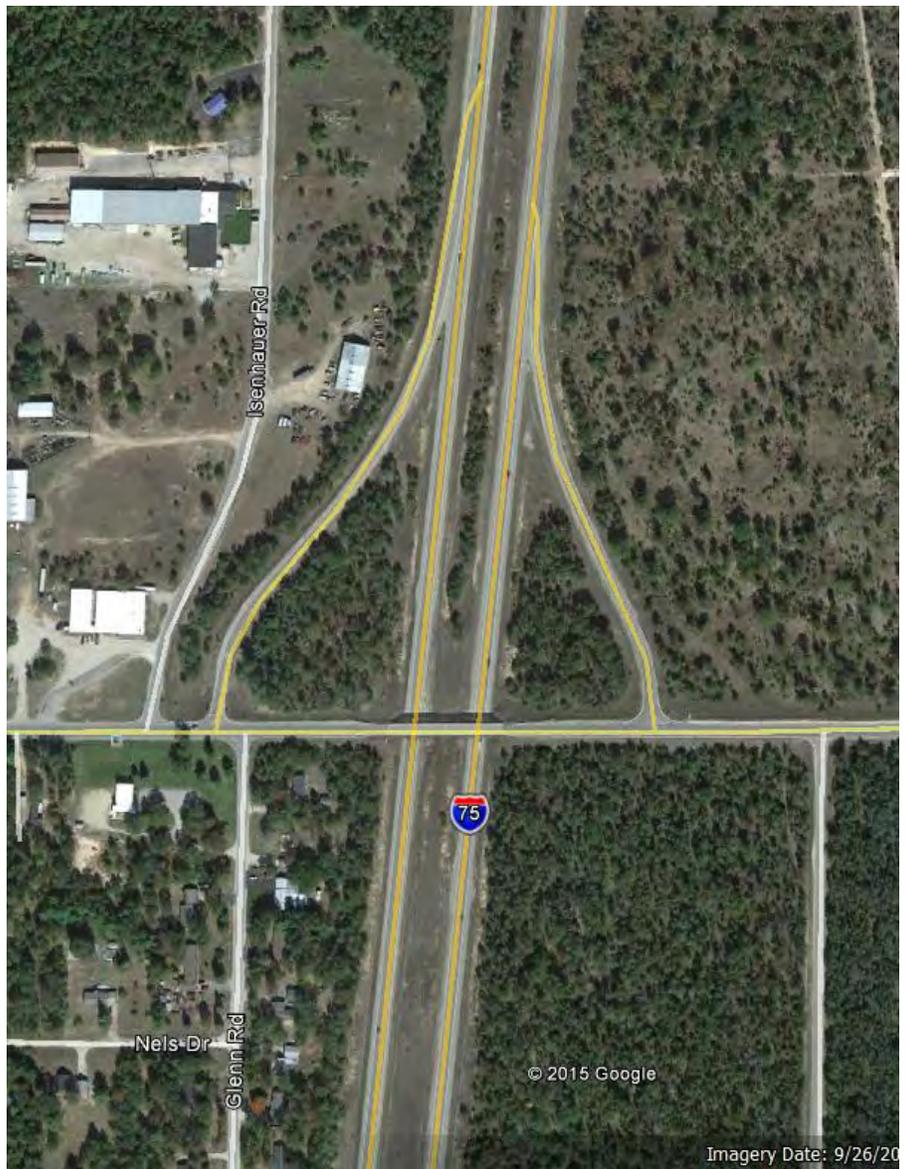
Local Government	\$100,000
Private Commitment	\$70,000
MDOT Commitment	\$1,409,289
TIGER Request	\$6,946,446
Total	\$8,525,735

Project Description

The Grayling Region I-75 Access Project is a construction project to upgrade the I-75/North Down River Road interchange from half- to full-access. The existing ramps only allow for traffic to enter northbound I-75 and exit from southbound I-75.

Improvements include reconstruction of the existing southbound exit and northbound entrance ramps to meet current standards and new construction of a southbound entrance ramp and a northbound exit ramp. In addition, the existing North Down River Road overpass bridge will be replaced with a new 345' long by 64' wide bridge with three lanes, shoulders, sidewalk and railings.

This improvement will provide full access between the North Down River Road corridor and I-75, particularly to and from the south. Other projects to improve the corridor are on-going, including replacement of the North Down River Road Bridge over the East Branch of the Au Sable River, and North Down River Road street reconstruction. Improvements to Wilcox Bridge Road (which will serve as a detour route during bridge and interchange construction) were completed last year. Recently, \$3.8 million of construction funds plus engineering study and design effort have been invested in the corridor.



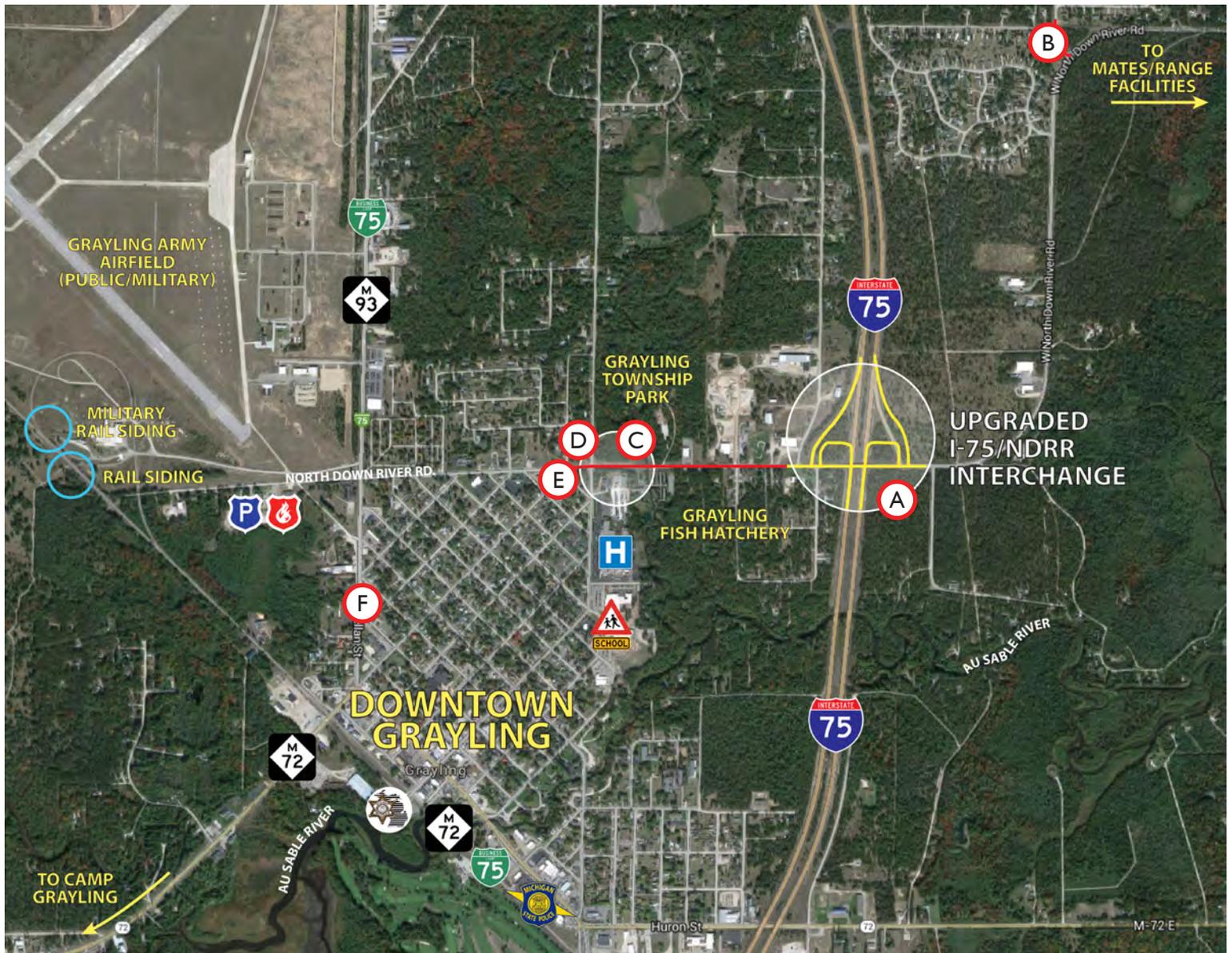
Existing Half Interchange



Project Location - Michigan



Project Location - Crawford County



LEGEND

- (A)** Proposed new I-75 Interchange (focus of the 2016 TIGER Grant)
- (B)** Reconstructed Wilcox Bridge road to M-93
- (C)** Reconstruct NDRR Bridge over E branch of the Au Sable River (in progress)
- (D)** Reconstruct North Down River road (in progress)
- (E)** New bike lanes and sidewalk (in progress)
- (F)** Existing bike lanes

Project Goals

- Provides direct access to the I-75 corridor, military installations, emergency services, airport, rail head, commercial and industrial facilities and public lands;
- Alleviates traffic congestion downtown;
- Promotes multi-modal connectivity; and
- Creates a real savings in dollars, efficiencies and emissions reduction on a local, state and national level.

This project solves a host of existing transportation challenges that have been studied for over fifteen years. It organizes and enhances links between roadway, rail, airport, and non-motorized transportation facilities, delivering benefits on a regional, state, and national scale. A recent transportation study demonstrated that these improvements would have dramatic influence on traffic flow.

Background

Crawford County is located in the center of Northern Michigan's Lower Peninsula, approximately 77 miles south of the Mackinac Bridge. The City of Grayling, which is the most populous municipality in this rural county, is located just north of the confluence of I-75 and US-127, two major north-south interstate freeways. It is at the junction of I-75 and M-72, a major east-west state arterial.

The residents and visitors of this region enjoy vast expanses of recreation lands and waters, 74% of which is owned by the State of Michigan and the Federal government. Tourism is a significant contributor to the local economy. Most notable are two pristine rivers: the main branch of the Au Sable River flowing easterly toward Lake Huron, and the Manistee River which flows south and west to Lake Michigan. This region is the heart of the Huron-Manistee National Forest. Hartwick Pines State Park is located just north of Grayling and offers biking and hiking trails as well as historical attractions.

The timber, oil and gas industries are vitally important economic components for this region and generate a great deal of heavy traffic. With its location at the confluence of two major federal highways and two major state thoroughfares, Grayling is a hub for heavy industrial traffic. While the surrounding area continues to grow despite its challenges, the existing roads, highways, and access have not been improved or expanded to meet the new demands associated with the growing vehicular, non-motorized, and military needs of the community and the need to efficiently address regional transportation demands.



Munson Healthcare's Grayling Hospital

Hospitals and Emergency Facilities

Munson Healthcare's Grayling Hospital's (previously Mercy Hospital) medical complex lies at the intersection of North Down River Road and Michigan Avenue, a half-mile from the interchange. This is a critical regional facility, recently ranked as one of the top 100 hospitals in the nation. It serves a seven county area and employs nearly 600 people. This hospital handles over 20,000 emergency room visits per year, resulting in over 3,500 admissions. Outpatient services exceed 130,000 patients per year. This facility is continuing to grow and expand its services and operations. Police and fire services are located on North Down River Road about a mile to the west.

Military Facilities

Grayling is also home to the Camp Grayling Joint Maneuver Training Center, which is an important component of our nation's defense and a primary economic engine for the area. Camp Grayling is the largest National Guard training site in the United States, and is an important component of the US military's training capability.

Year-round training is conducted on its 147,000 acres by all branches of the US military, including the National Guard and active military troops and reserves from the Army, Navy, Marines, Air Force, and Coast Guard, plus traditional law enforcement and international military personnel.

Camp Grayling provides year-round employment for hundreds of people and requires year-round resourcing from the surrounding community to support its operation. Due to the reduction of deployed military overseas, Camp Grayling use has begun to change.



Demographic Data

The rural community of Grayling (population 1,884) is the largest municipality in Crawford County and is the county seat. The median household income for Crawford County per the 2010 US Census is \$35,866 – 20% LESS than the median household income for the State of Michigan and 29% LESS than that of the United States. Additionally, 19.2% of Crawford County's population lives below the poverty level, compared to 16.1% for the State of Michigan and 14.3% for the United States. Finally, Crawford County's per capita income of \$21,420 is 21% LOWER than that of the United States.

Crawford County meets the guidelines set forth in 42 U.S.C. 3161 as an Economically Distressed Area (EDA). Crawford County's tax base is relatively small, owing to the large percentage of publicly-owned land, making any improvements a financial hardship to the community.

2010 US Census Data

	Median	Below Poverty	Per Capita
Crawford	\$35,866	19.2%	\$21,420
Michigan	\$46,692	16.1%	\$26,143
Federal	\$50,502	14.3%	\$28,555



Need for Project

This project will address the following concerns:

First, it will provide easier, more direct access for motorists, emergency vehicles, military transports and commercial traffic. The project will provide easier, more direct access for motorists traveling to or from the Grayling area from the east and south. Currently, northbound travelers accessing Grayling or areas to the east must exit at the I-75 Business Loop (BL-75) exit ramp at the south end the City and travel over three miles through busy and congested city streets to reach destinations to the east via North Down River Road. This extra distance increases operating costs, emissions, and travel time.

Secondly, this project will alleviate traffic congestion in the city center, increasing safety for both motorists and non-motorists, alike. With the construction of a full access interchange, motorists have an additional rout option and the bulk of commercial and military traffic could circumvent the downtown Grayling area, reducing traffic congestion and increasing safety for the civilian population.



Project Parties



Crawford County Road Commission (Applicant)

The Crawford County Road Commission will be responsible for the project and for the maintenance of the county road upon project completion. They will handle all administrative functions and coordination with the MDOT and will provide engineering support. The road commission has committed \$100,000 toward this project, and has committed property for the Right-of-Way. This is in addition to the \$160,000 already spent on the Environmental Assessment (EA) and the Interchange Access Change Report (IACR).

Michigan Department of Transportation



The Michigan Department of Transportation (MDOT) maintains the interchange ramps and bridges. MDOT has committed a match of 20% of the interchange construction costs.

City of Grayling

The City of Grayling has been involved with planning efforts from the beginning. The City has committed funds for the EA and IACR.



Grayling Township

Grayling Township has been involved in the planning efforts of this project since its inception. They have committed funds toward the EA and IACR, as well as property for other corridor improvements.



Crawford County Board of Commissioners

Crawford County Board of Commissioners has committed right-of-way to other projects in the corridor and supports the improvements.



Michigan Department of Natural Resources

The MDNR has been involved and will continue to be involved in the planning efforts for this project. Due to the expansive acreage of state-owned land in this region, the MDNR has a vital interest in this project to provide improved access and response times for fire units.

Crawford County Transportation Authority

The Crawford County Transportation Authority is the local bus service provider in the area. Full interchange access would allow them to better serve the public with improved response times, as well as maintain financial efficiency with more direct routes.



Michigan Department of Military and Veterans Affairs/National Guard

Michigan National Guard fully supports this project in order to enhance the mobility of military traffic in and around the region. The guard has been a key contributor to the planning efforts from the beginning and recognizes the benefit of this project from a safety and mobility standpoint.



Munson Healthcare Grayling Hospital (formerly Mercy Hospital – Grayling)

This nationally-ranked Top 100 hospital serves a seven county area in this region. Access to the hospital and emergency room as well as direct ambulance access and improved response times are critical factors regarding their involvement in this project.

Crawford County Multi-Purpose Trails Committee

This committee has been in existence for over 15 years and developed the first recreational trails in the area. This committee has been active in initiating the development of trails and streetscape projects in excess of \$3 million. They are an active partner in this project by providing technical support and coordination in relation to the non-motorized component of this project and other improvements in the corridor.

Private Landowners

Recognizing the importance of this project and the economic, social and safety benefits that will result, two private landowners have agreed to donate a part of their properties to the County to accommodate the land and rights-of-way requirements for the interchange. This property value is estimated at \$70,000. See Appendix V, Rights-of-Way.



Grant Funds and Sources/ Uses of Project Funds

Funding Source

Local Government	\$100,000
Private Commitment	\$70,000
MDOT Commitment	\$1,409,289
TIGER Request	\$6,946,446
Total	\$8,525,735

Cost Summary

Phase 1	Engineering & R/W	Construction	Total
1-75/NDRR Interchange	\$774,645	\$7,751,090	\$8,525,735
GRAND TOTAL	\$774,645	\$7,751,090	\$8,525,735

Selection Criteria

Long-Term Outcomes

State of Good Repair

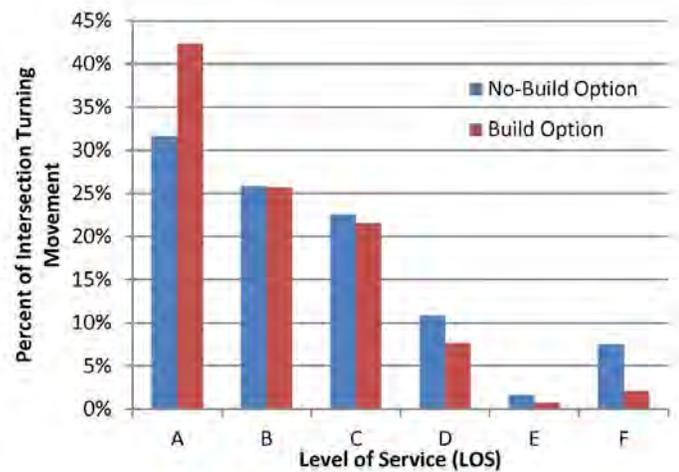
By completing the North Down River Road interchange, the resilience of the regional transportation system will be improved by providing additional routes and decreasing congestion.

The Grayling Area Transportation Study (URS, 2008) estimates that without improvements, 20% of the intersections will be operating at a Level of Service of D, E, or F by 2027. With the improvements, that number will be limited to only 10%.

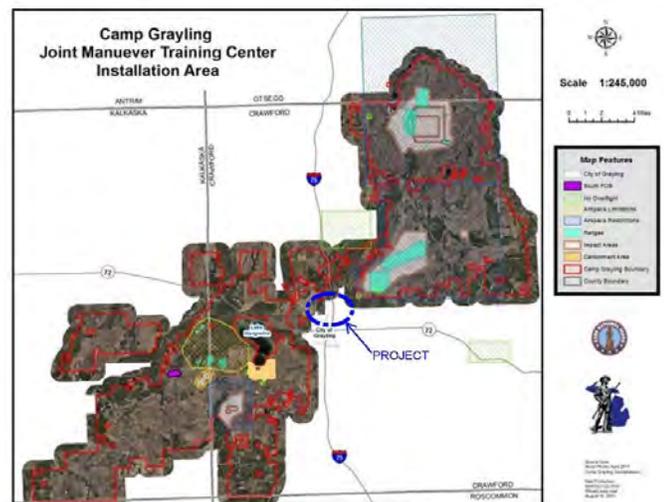
Each day, many military vehicles traveling between the MATES facility and the Camp Grayling Main post travel the North Down River Road/I-75/M-93/M-72 business loop through Grayling because the lack of a southbound on-ramp at North Down River Road prevents them from using a safer, better suited route to the Camp via I-75/Four Mile Road/Military Road. On average, about 18 tractor/trailer transfers of heavy equipment occur pass through the Grayling business loop. These vehicles are imposing figures. The tractors alone are approximately 30 feet in length and weigh over 25 tons. The trailers are typically 50 feet in length and weigh over 15 tons empty. These vehicles are frequently 14 feet wide. Maneuvering these monoliths through local city streets is a daunting task and impacts daily travel. This is especially concerning when it impacts emergency response travel.

Additionally, the State of Michigan Department of Military and Veterans Affairs construction on the new CACTF off of North Down River Road has recently been completed. A continued increase in military and civilian law enforcement traffic to this state of the art training facility is certain. Much of the traffic bound for the site will come from the south, on northbound I-75. Without the proposed interchange improvements, that traffic will be inconvenienced and the increased volume will exacerbate the current transportation issues in the Grayling area.

The city center is a key route for hauling operations, whether the loads are timber, oil and gas, or material goods. Navigation in the city with the size of these tractor/trailers is difficult at best, and lends itself to the congestion problems the city currently faces.



Grayling Area Transportation System Projected Average LOS



Camp Grayling Training Area in Relation to Project

This then increases the difficulty for emergency vehicles – whether it’s police, fire or ambulance – to navigate the city streets which delay their ability to respond to the emergency at hand.

The geometry of the existing North Down River Road interchange ramps does not meet current AASHTO design standards. Similarly, the clear width of the bridge over I-75 does not meet current standards for new construction. The bridge deck is showing signs of deterioration, according to its Structure Inventory and Appraisal. These deficiencies will be corrected by the proposed project.

All road and bridge construction will be completed to current AASHTO and all-season standards for function, safety, and durability.

Currently, the facilities are maintained using Michigan Transportation Funds, which will continue to be utilized for long-term maintenance purposes.



Economic Competitiveness

The Grayling Region I-75 Access Project will improve economic competitiveness for Crawford County, the northern Michigan region and the nation through improvements to long-term efficiency of the transportation system. **With 19.2% poverty rate, and incomes 20% less than the national figures, Crawford County is an Economically Distressed Area (EDA) as defined by 42 U.S.C. 3161.**

The Michigan National Guard facilities contribute an estimated \$35 million in community impact annually, currently employing over 100 full-time personnel on the main post and an additional 65 full-time personnel at the MATES facility. The increase in Camp Grayling throughput will increase the number of employed and contracted personnel. In addition, retail and service businesses in the area depend on the thousands of personnel that work and train at Camp Grayling annually. The ability to move heavy armored equipment and personnel efficiently between portions of the Joint Maneuver Training Center will be critical in the success of Michigan National Guard’s programs. In return, the Camp Grayling facility is an important contributor to the region’s and state’s economy - even bringing foreign dollars as international military personnel will travel to the facility for training – and is important to our Nation’s defense readiness.



Because the MATES facility and two major range complexes are located on the east side of Grayling while the main post at Camp Grayling is on the west side, the Grayling M-93/M-72/I-75 business loop supports a sizable volume of military traffic. Currently, this business loop provides traffic traveling to and from Camp Grayling with the shortest, fastest and most convenient access to North Down River Road and the military facilities and ranges located there.

While military operations occur at Camp Grayling year-round, the highest concentration of activity occurs during the summer months, which coincides with the large volume of traffic on this route. If a full access interchange is constructed at North Down River Road, military traffic could easily and quickly circumvent the City of Grayling, accessing the MATES facility and range complexes via the Military Road/4 Mile Road/I-75 connection, a route well-suited for handling a high volume of military and commercial traffic. This would reduce congestion on the Grayling business loop, especially during the summer peak travel months and increase safety of the civilian population.

The Grayling Region I-75 Access Project will have a significant impact on job creation.

As indicated in the figure below, 110 job years will be created by the construction expenditures. This estimate is pursuant to the NOFA/Federal Register references “*Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009.*”

Quality of Life

This project addresses the following livability principles as identified by HUD, EPA and DOT:

- Provide more transportation choices
- Enhances economic competitiveness
- Supports existing communities
- Values communities and neighborhoods

This project is a combined effort of many agencies, municipalities and individuals with the primary purpose of creating a more livable community that is not limited by municipal boundaries and makes this region more accessible for all transportation users to enjoy the many opportunities and resources available here.

Economically, this project will not only create jobs during the construction phase, but will result in cost and time savings to motorists, emergency responders, commercial haulers and military personnel as well as open access to commercial and industrial properties located east of the I-75 corridor along North Down River Road.



By providing an improved traffic network, Level of Service (LOS) and delay at intersections are improved and transportation route choices are increased. Considering future traffic volume estimates and comparing intersection delays for the future "Build" or "No Build" scenarios in the Grayling Area Transportation Study, the decreased delay at the intersections in the City of Grayling will significantly reduce travel times in the area, again improving the livability by reducing congestion and increasing safety. This project also complies with the Northeast Michigan Council of Governments Comprehensive Economic Development Strategies for the northeast Michigan region. Strategy One is to "Provide for Economic Growth and Prosperity in the Northeast Region by maintaining critical infrastructure such as high-speed internet access, sewer, water, and transportation that is necessary for all aspects of the traditional and new economy."

Environmental Sustainability

The draft Environmental Assessment (Appendix VI) has been reviewed by the Michigan Department of Transportation and has been forwarded to the FHWA for their review. (Appendix IV, Letters of Support). (The FHWA will not formally review the EA until the project is funded.) Great care has been taken in the preliminary design to minimize negative impacts of the construction, especially long term. We anticipate a Finding of No Significant Impact (FONSI) as a result of that review. A noise analysis, as required for the EA, was recently completed.



Au Sable River

This project will reduce distances traveled, delays at intersections, provide connectivity between modes of transportation and provide the public with a viable transportation network. All of these components will reduce emissions, improve energy efficiency, and dependence on foreign oil.

The project will reduce emissions due to reduced distances traveled and utilizing alternative modes of transportation.

By improving access to I-75 a, approximately three million miles will be saved per year, with a reduction of 28,885 metric tons of carbon dioxide that will otherwise be released into the atmosphere. This is a societal benefit estimated at nearly \$1 million.

Though not explicitly quantified, other damaging emissions, such as VOCs, nitrogen oxide, particulates and sulfur dioxide will likewise be reduced, due to distance traveled and reduced idle time at intersections. This correlates to reduced fuel consumption – an economic and environmental consideration. Quantification of this benefit is included in the per mile operating cost in the Cost/Benefit Analysis.

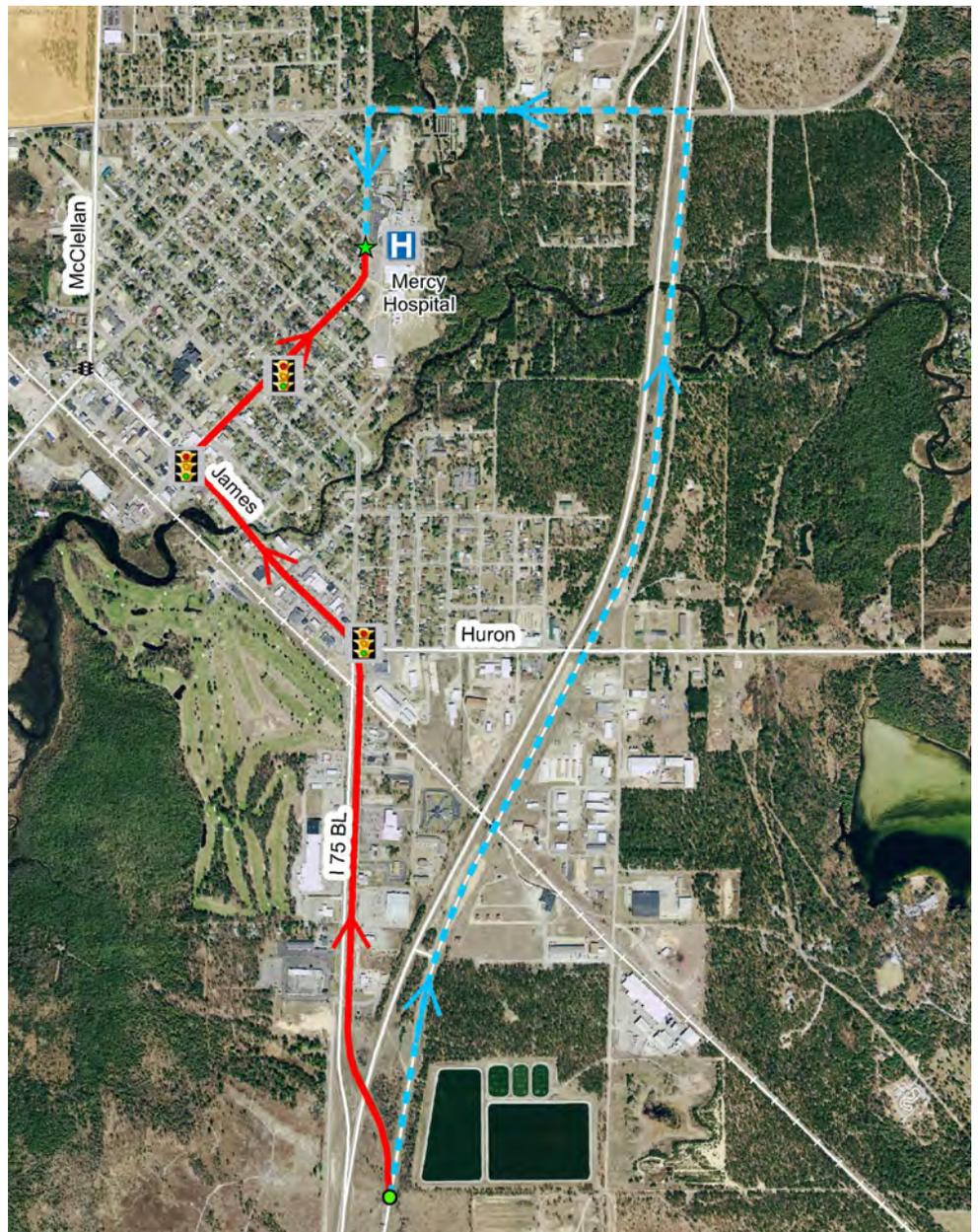
In total, the proposed project will provide very significant environmental benefits over the long term, and will protect the resources for which this area is known.

Safety

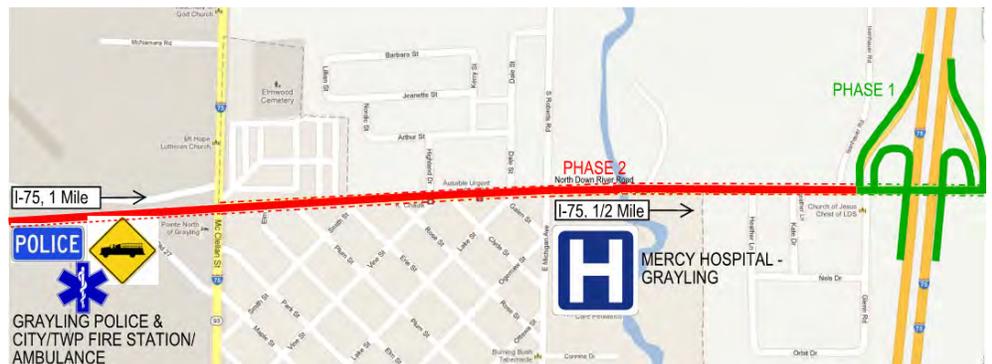
By reducing congestion, increasing Level of Service (LOS), and bringing the routes up to current design standards, safety will be markedly improved. The Grayling Transportation Study of 2008 (Appendix VII) provides crash and injury data for the impacted roadways. Accidents ranged from property damage only (PDO) to fatalities. Reduction of the number of accidents and injuries and their severity is difficult to predict and quantify. It is reasonable and conservative to assume that **the proposed improvements will, by updating the segments to current standards, reduce the rate of accidents and injuries by at least 10%.**

Similarly, reducing congestion and improving the level of service at the intersections will further reduce the probability of accidents by providing more time for safe turning movements and allowing for more space between vehicles. The analysis also assumes that the average injury is an AIS Level 3 (Serious) on the Abbreviated Injury Scale (AIS), which ranks injury severity on a scale of 1 (Minor) to 6 (Unsurvivable).

Even more difficult to quantify, but perhaps even more significant, is the potential improvement in response times for emergency responders. Certainly, high traffic volumes and high delays at the intersections within the study areas add a significant amount of time to responders attempting to provide aid in the event of an accident, fire, or other emergency. The hospital, police station, and fire department are all located along the North Down River Road corridor. The hospital is only 0.5 miles from the interchange while the police and fire station is only 1 mile away. Because of the current configuration of the interchanges, an emergency on I-75 between the I-75 BL interchange and the North Down River Road ramps is very difficult for responder to reach, requiring driving out of their way by a mile or more and potentially entering busy freeway traffic in a hazardous manner. **City of Grayling emergency personnel indicate that it can conservatively take an additional 5 to 10 minutes to respond to an emergency.** This does not include the additional time required to transport and injured person to the hospital, which may again require driving over a mile or more out of the way.



EMS Routes to Hospital



Emergency Services Proximity to Interchange

Because time can be so important when responding to emergencies, it is conceivable that the severity of many injuries, at least 25%, can be reduced by this significant reduction in response time, from an AIS 3 (Serious) to an AIS 2 (Moderate). We have not attempted to quantify reduction in property damage from reduced emergency responder response time. We expect reductions in fire damage or theft if response times were decreased.

The improvement in response times for emergency responders attempting to provide aid in the event of an accident, fire or other emergency is a very significant and critical project benefit. Because of the current configuration of the interchanges, an emergency on I-75 between the I-75 business loop interchange and the North Down River Road ramps is very difficult for responders to reach, requiring them to drive out of their way and potentially entering busy freeway traffic in a hazardous manner.

City of Grayling emergency personnel indicate that it can conservatively take an additional five to ten minutes to respond to an emergency. This does not include the additional time required to transport an injured person to the hospital. Munson Healthcare - Grayling conducted a study, indicating that it takes approximately five to six minutes to access the hospital from northbound I-75, using the business loop, if traffic is light. During congested periods, this time can be considerably more. Currently, EMS and others attempting to access the emergency room from the south must exit at BL-75 and navigate through busy city streets. Because time can be so critical when responding to emergencies, it is conceivable that the severity of many injuries can be reduced by this significant reduction in response time.



Of the 127 interchanges along the 396 miles of I-75 in Michigan, the North Down River Road interchange is the only partial interchange that accesses a hospital.

With this project, access to emergency facilities at Munson Healthcare's Grayling Hospital will be improved. Currently, EMS and others attempting to access the emergency room from the south must exit at BL-75 and navigate through busy city streets. The full-access interchange will allow these patients to access the ER from North Down River Road, saving valuable time (5 to 10 minutes), as the Hospital is only 0.5 miles from the North Down River Road interchange.

Munson Healthcare's Grayling Hospital records show 21,815 ER visits in 2011, 62% from the south, which would be affected by the interchange. Though the literature does not provide hard numbers for time versus severity, it is evident that reduced time to medical treatment results in improved outcomes. Conservatively estimating that acuity levels will be improved for 1% of the most critical ER visits, this equates a monetized benefit of over \$142 million in the first 20 years. The total benefit of the project due to reduced first responder time is over \$15 million in the first 20 years of the project's life. **This combined with the monetized benefit from improved acuity levels equates to a total benefit of approximately \$157 million in overall safety improvements over 20 years.**

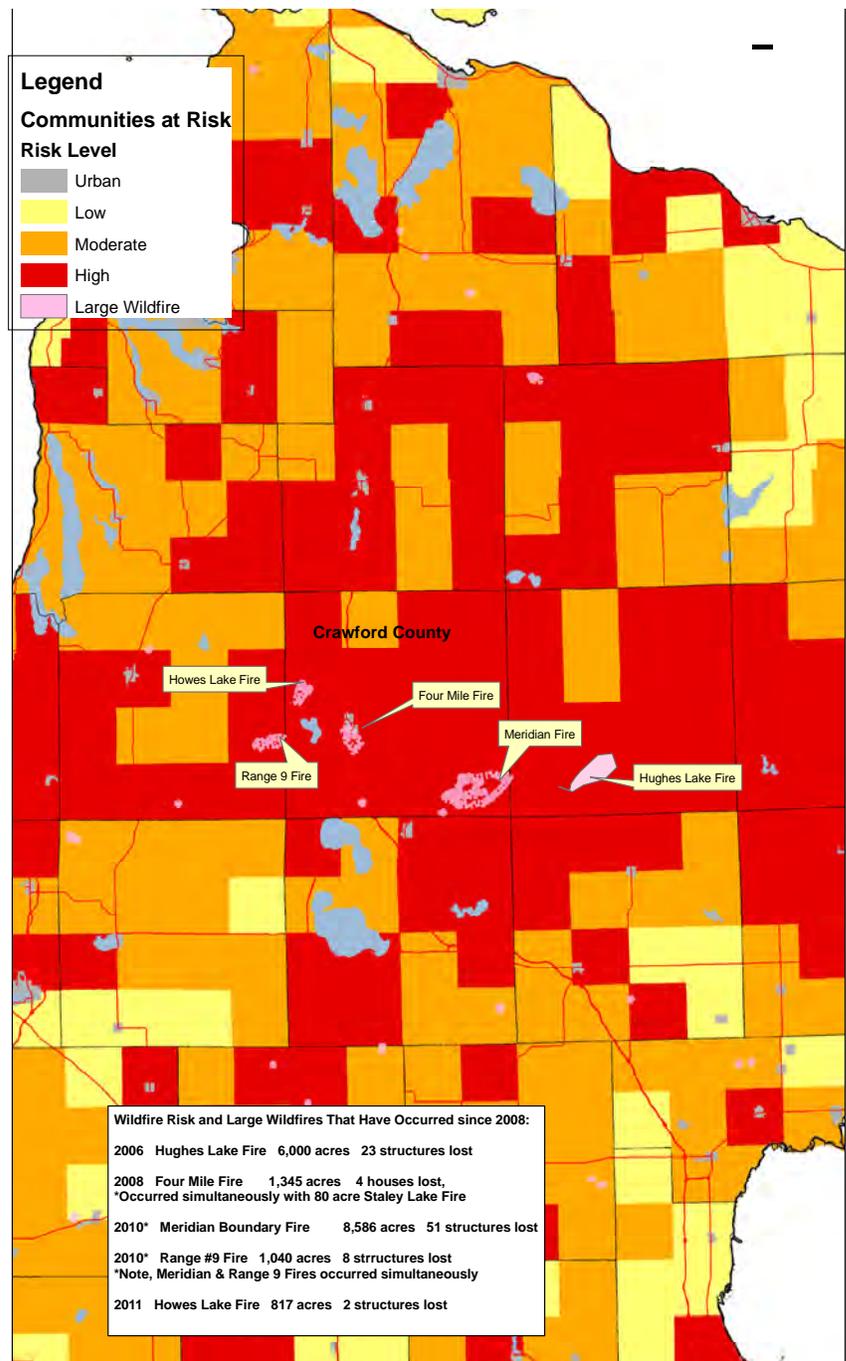
Emergency response times are not limited to hospital transports, however. Crawford County, which is well over 50% percent forested land, is centered in a region of high fire danger. This area has been described as a “true definition of a wildland urban interface setting with homes and businesses intertwined with jack pine forest.”

Response times are critical in order to stop a wildland fire before it gets to the treetops and makes a running crown fire. Just since 1990, there have been over 700 wildfires in Crawford County. In recent years, six larger fires burned over 24,000 acres and nearly 300 structures. Significant acreage and structures are lost annually and wildfire is a constant threat for Crawford County and the region surrounding it.

Response times are critical to stop a wildfire before it becomes too large and difficult to control. The MDNR’s goal is to be on the scene within 15 minutes of dispatch to attempt to contain a wildfire to ten acres or less. Rapid response time is the critical factor to minimizing damage from wildfire; the full access interchange proposed by this project is a critical component to meet that goal.

From a local standpoint, the importance of these safety benefits is obvious. However, these benefits translate on a regional, state and national scale.

Since Munson Healthcare’s Grayling Hospital serves people on a regional level, the I-75/North Down River Road interchange provides access to and for the entire region. Nationally speaking, this project directly impacts the ability to protect vast state- and federally-owned land in this region. In addition, the benefit to the Camp Grayling Joint Maneuver Training center will improve our nation’s defense readiness.



Wildfire Risk Map



2008 4 Mile Road Fires Near Grayling

Secondary Selection Criteria

Innovation

Crawford County is a region with just over 14,000 persons, with poverty rates approximately 20% higher and average household income approximately 20% lower than national figures. Crawford County has one of the lowest tax bases in the State of Michigan, largely due to the fact that 74% of the land in the County is either federally- or state-owned. This community has to be innovative in garnering funding for projects from state and federal resources. Private landowners, realizing the importance of the project, have worked together to donate portions of their land needed for construction of the new interchange ramps, at a value of \$70,000. (Appendix V) They have worked together to split the remaining property in order to provide road access for both owners. This community is innovative in its multi-partner approach to view the big picture and sharing resources by connecting multi-modal projects and aggressively pursuing multiple funding options for this long term goal of connectivity, safety, and livability.

Partnership

As described in Section II, Project Parties, the list demonstrates the cross-section of jurisdictional and stakeholder collaborations to make this and other projects in the region a reality.

All of these organizations and/or individuals have a common goal: to create improvements to their community and region in order to grow and expand economically while protecting its vital natural resources.

These partners realize that these goals can only be accomplished through collaboration and cooperation. To demonstrate their commitment to this project, project partners have contributed over \$160,000 already to pay for engineering and the environmental assessment study that is necessary to even be considered for TIGER funding. Project partners have committed additional matching funds for this project, as well as access agreements and easements. This project complies with regional planning activities such as outlined in the County's STIP, as well as regional economic development strategies as outlined in the Northeast Michigan Council of Government's Comprehensive Economic Development Strategy.



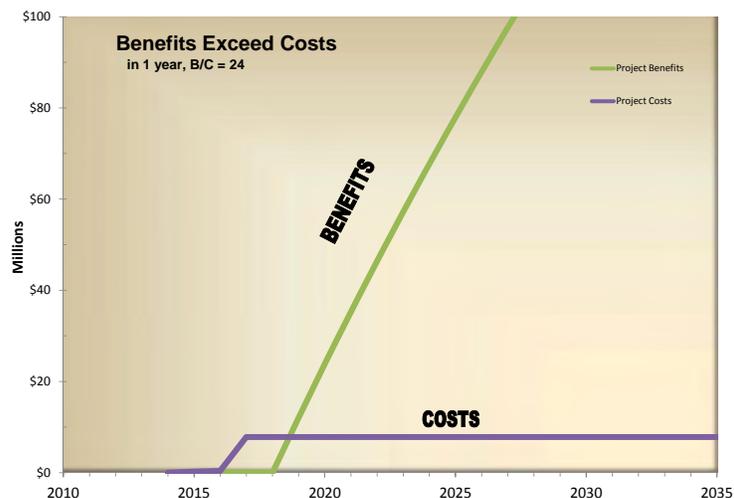
Results of the Cost-Benefit Analysis

The Grayling Region I-75 Access project benefits users and the region in several ways. The project will provide easier, more direct access for motorists traveling between the Grayling area (especially regions to the east) and areas south. Currently, northbound travelers accessing Grayling or areas to the east must exit at the I-75 Business Loop (I-75 BL) exit south of town and travel through 3.18 miles through busy, sometimes congested, city streets to reach their destination near North Down River Road. Not only does this extra distance increase operating costs of personal, commercial, and response vehicles (including fuel consumption and maintenance costs) and emissions, but also increases travel time by about 7 minutes per vehicle (0.12 hours), reducing livability for area residents and visitors and severely reducing productivity for commercial traffic. **The present value of the time, distance, and emission savings for the improved access to I-75 is almost \$37 million dollars in the first 20 years of the project.**

estimating that acuity levels will be improved for 1% of the most critical ER visits, these emergency response and ER access benefits equate to a monetized benefit of over \$157 million in the first 20 years.

The project will result in a great reduction of emissions due to reduced distance traveled, as outlined in Section IV, A. iv. Environmental Sustainability. Approximately 3 million miles will be saved per year, with a reduction of 29,000 metric tons of carbon dioxide; a societal benefit of almost \$1 million in 20 years.

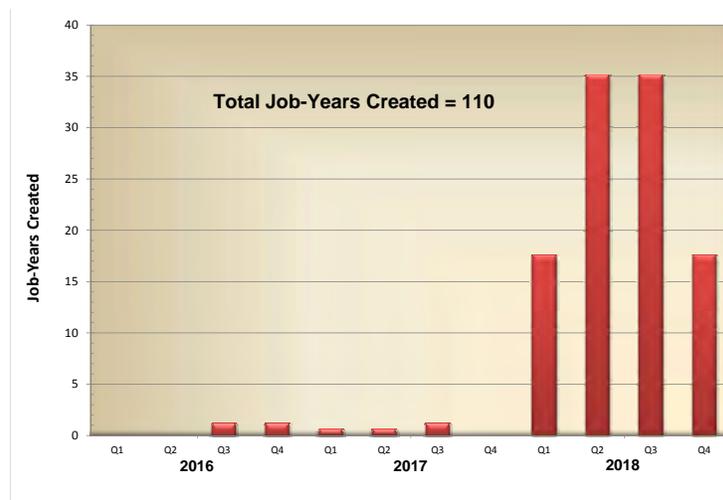
Considering a 3% discount rate, the present value of the project benefits over the first 20 years is over \$194 million. Comparing this to the present value of the total project cost of about \$8.1 million results in a Benefit/Cost Ratio of 24.1. The benefits will pay back the costs within the first year of operation.



Benefit/Cost vs. Time - Payback Period

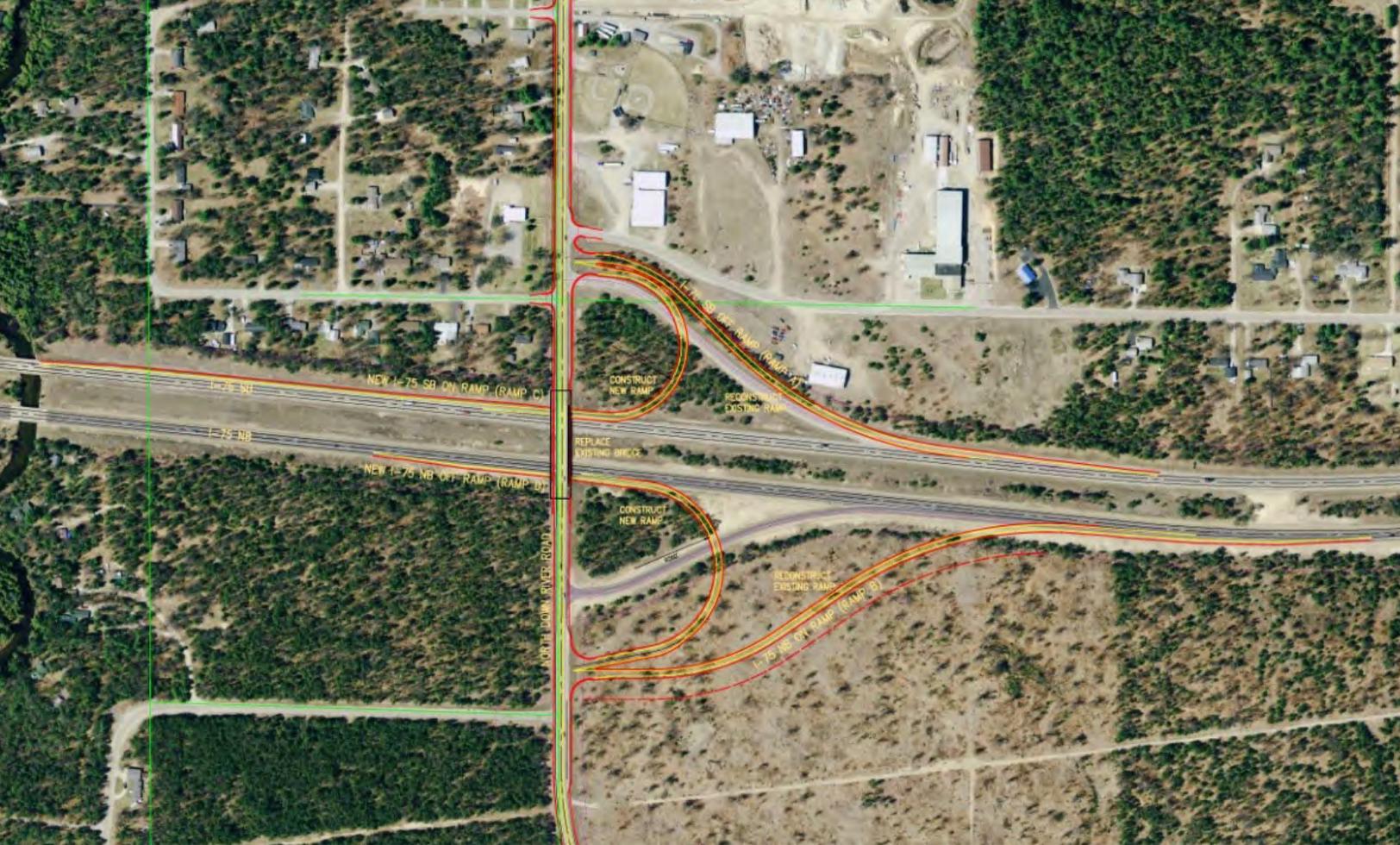
Access to emergency facilities at Munson's Healthcare's Grayling Hospital will be improved. Emergency responders originating from the North Down River Road corridor must weave a circuitous route through sometimes congested city streets to access scenes to the south, adding precious minutes to emergency response times. Similarly, EMS and others attempting to access the emergency room from the south must exit at BL-75 and navigate through busy city streets. The full-access interchange will allow these patients to access the ER from North Down River Road, saving valuable time (5 to 10 minutes), as the Hospital is only 0.5 miles from the North Down River Road interchange. Grayling Hospital records show 21,815 ER visits in 2011, 62% from the south. Though the literature does not provide hard numbers for time versus severity, it is evident that reduced time to medical treatment results in improved outcomes. Conservatively

Also included in the quantified travel time benefits are benefits to the Michigan Army National Guard's Camp Grayling Joint Maneuver Training Center. Greater detail regarding this project's critical nature to Camp Grayling's operations is discussed in Section I, A. Background and C. Need For Project. This facility is playing an increasingly important role in our nation's defense readiness. Since traffic counts used in the analyses did not separate military traffic, they were included in the commercial and non-commercial traffic and resulting benefits. The traffic values and the resulting economic analyses did not include the four-fold increase in military traffic that is now projected for the area. The economic benefits are therefore clearly conservative. Other benefits to the Camp and to national defense were not



Job Creation

Using the guidance of the Council of Economic Advisors for estimating job creation from transportation infrastructure funding, project expenditures will result in the creation of 110 job-years, spread over the period of construction, which will provide a critical boost to the depressed local economy.



Interchange Alignment

Project Readiness

The Grayling Region I-75 Access Project is ready to move forward quickly upon grant award. This project is technically feasible and fairly straightforward. Its financial feasibility depends only on obtaining TIGER funding and the project schedule is well defined and fits well within the TIGER requirements. Risks to project success are few and strategies are set for mitigating those risks. This section of the narrative defines the status of each project element to date, and why this project is sure to be complete in a timely fashion. This project is ready to proceed upon funding.

Technical Feasibility

Preliminary design has been started and is complete to the point that the project's technical feasibility is defined, the scope of right-of-way acquisition understood, construction costs estimated, and the environmental study and approval process is well underway. Studies for this project were started in the 1990's.

A traffic study that identified this project as the best solution was completed in 2008. It provided design traffic volumes for the various parts of the project. The traffic analysis was updated as part of the environmental assessment. Design plans are now at the early preliminary stage. Highway alignment drawings are in the appendix.

The proposed I-75 interchange geometry has been designed to fit the site's constraints while meeting AASHTO and FHWA standards. Several interchange geometric solutions have been studied. The final solution accommodates all interchange movements by adding a NB I-75 exit ramp, a SB I-75 entrance ramp and relocating and upgrading the existing ramps. Both new ramps are designed as loop ramps. These loop ramps were chosen over diamond ramps or loop ramps with other configurations, in order to avoid impacts to residential properties on both sides of I-75, south of North Down River Road and to avoid the need to widen the existing I-75 bridges over the Au Sable River, to the south.

This solution saves over \$0.5 million in construction costs at the I-75 bridges and eliminates the risk of environmental disturbance to the river.

The new loop ramps require relocation of the existing diamond ramps. The new diamond ramps and ramp terminals have been designed to meet current MDOT standards. The bridge carrying North Down River Road over I-75 will be replaced with a longer structure to accommodate the new SB acceleration and NB deceleration lanes and meet current AASHTO roadside safety requirements. The new bridge will replace the existing functionally obsolete structures and be wide enough to accommodate the three-lane section (plus non-motorized traffic) needed on North Down River Road. The new overpass bridge will have a retaining wall at the south side of the west abutment to avoid disturbance to the adjacent residential property. This final interchange design has been reviewed by MDOT geometrics staff.

Reconstruction of Wilcox Bridge Road was necessary to provide a detour route during construction of the interchange bridge. This project is currently under construction. The design includes new pavement structure for the entire length from North Down River Road to M-93. The new pavement structure has been designed to meet current MDOT Local Agency Programs All-Season Road Pavement Design Standards for rural collectors. Shoulders will be paved with the mainline to provide AASHTO-compliant non-motorized lanes connecting to the existing pathway along M-93. Horizontal geometric improvements are being implemented in two locations to provide the minimum curve design speed, with the maximum 6% superelevation, required to comply with the current MDOT 3R design standard. The project also provide for necessary intersection safety improvements at Lewiston Grade Road.

The construction cost estimate (see appendix) has been generated in line-by-line MDOT pay item format. Construction quantities have been estimated from preliminary plan take-offs and the unit prices used for the estimate are the average unit prices bid on similar items/projects in the vicinity, adjusted for this specific project's conditions. The



construction cost estimates in this application include an estimating and construction contingency of 10%, since they are based on preliminary plans.

The final plans will be prepared, reviewed, and issued for construction in accordance with MDOT Local Agency Program (LAP) standards and we expect the construction bidding and contract documents to be advertised through the LAP process, normal for federally funded projects in Michigan. The construction engineering and contract administration work will follow the normal MDOT LAP process, procedures and quality control and assurance standards.

Financial Feasibility

The Crawford County Road Commission and MDOT are financially strong and stable public road agencies. The financing package for this project is sound and the plan for executing it is backed by the road commission's demonstrated performance on literally hundreds of successfully completed grant-funded projects accomplished since its inception in 1915.

The Crawford County Road Commission (applicant) owns, maintains, and operates all roads and bridges in Crawford County, excepting only those roadways owned by the State of Michigan or the City of Grayling. The road commission maintains the state highways in Crawford County, under an on-going agreement with MDOT. The Crawford County Road Commission has the capacity, management expertise and wherewithal to complete this project if the TIGER funding is made available.

Operation of these facilities, once built, is absolutely certain. Funding for road and bridge maintenance comes to the road commission from gas tax receipts. The road commission will maintain the facilities. Maintenance funds will not change, but the new facilities will require less maintenance, as quantified by the economic analysis. The new ramps represent the only new facilities and the funds for maintaining them will come from MDOT, along with the annual state highway maintenance payments. There is clearly no risk of any failure to operate and maintain this project.

Local matching funds for this project have been committed by the agencies offering the matching funds.

Financial Feasibility

The Crawford County Road Commission understands the FY 2015 TIGER statutory funding obligation deadline of September 30, 2017 and the USDOT's requirement for all necessary preconstruction activities to be complete by June 30, 2017 in order to assure obligation of all funds on time (Figure 15). Major tasks and milestones are shown for the preconstruction activities and the construction is separated by phase. The critical path is indicated in the schedule.

Grayling Region I-75 Access Project

Task Name	Start Date	End Date	2016				2017				2018				2019			
			Q1	Q2	Q3	Q4												
Preconstruction Activities	05/02/16	08/18/17	340d															
TIGER Award	05/02/16	05/27/16	20d															
Right-of-Way Acquisition	05/30/16	08/19/16	60d															
Preliminary Design	05/30/16	01/06/17	160d															
Reviews and Approvals	01/09/17	03/31/17	60d															
Final Design	04/03/17	08/18/17	100d															
Construction - Phase 1	08/21/17	09/28/18	290d															
Bidding & Award	08/21/17	12/22/17	90d															
I-75/NDRR Interchange: Ramps	12/25/17	09/28/18	200d															
I-75/NDRR Interchange: Bridge	12/25/17	09/28/18	200d															

Planning/Permit Approvals and NEPA

The Crawford County Road Commission, Crawford County, the City of Grayling and Grayling Township have all approved over \$160,000 in financial commitments toward the preliminary design activities needed to define environmental impacts, the environmental assessment, necessary state environmental reviews, and the Interchange Access Justification Report. The final draft of the EA has been approved by MDOT, supplemented by a recent noise analysis. FHWA has indicated that they will review the project once funding is secured. We anticipate a FONSI determination as a result of this assessment.

Segments of the Grayling Area I-75 Access Project have been incorporated in the State Transportation Improvement Plan (STIP). Those included are roadways and bridges under the jurisdiction of the Crawford County Road Commission that are eligible to receive Federal and State funding. Other segments such as roadway improvements on roadways under Michigan Department of Transportation jurisdiction cannot be placed on the STIP by the Crawford County Road Commission.

This project does not require any specific legislative approvals, though it has garnered legislative support. State, regional

and local planning agencies have studied the need for an interchange at this location for nearly a decade. MDOT, the Northeast Michigan Council of Governments and local government agencies partnered in a regional traffic study, completed in 2008. The current project scope was conceived as a result of a culmination of these onerous studies and planning efforts. The boards of all impacted local government agencies have planned for the project. It has been fully vetted on the local level, and letters of support are attached in Appendix IV.

Financial Feasibility

See Appendix IX for the signed certification stating that the Crawford County Road Commission will comply with the requirements of sub-chapter IV, of chapter 31 of title 40, United States Code (Federal Wage Requirements).

Appendices

APPENDIX I: Benefits/Cost Analysis

<http://crawford-crc.com/tigergrant2016/appendixicostbenefit.html>

APPENDIX II: Detailed Cost Estimates

<http://crawford-crc.com/tigergrant2016/appendixiiestimate.html>

APPENDIX III: Drawings

<http://crawford-crc.com/tigergrant2016/appendixiiiprojdwgs.html>

APPENDIX IV: Letters of Support

<http://crawford-crc.com/tigergrant2016/appendixivsupportors.html>

APPENDIX V: Rights-of-Way

<http://crawford-crc.com/tigergrant2016/appendixvrow.html>

APPENDIX VI: Environmental Assessment and Permit Documents

<http://crawford-crc.com/tigergrant2016/appendixvieapermits.html>

APPENDIX VII: Grayling Transportation Study

<http://crawford-crc.com/tigergrant2016/appendixviiitransstudy.html>

APPENDIX VIII: CACTF Narrative Description

<http://crawford-crc.com/tigergrant2016/appendixviiiactfnarr.html>

APPENDIX IX: Federal Wage Rate Certification

<http://crawford-crc.com/tigergrant2016/appendixixfedwage.html>