



TITLE PAGE / EXECUTIVE SUMMARY

- 1. Project Title** Grayling Region I-75 Access Project
- 2. 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 military base, the regional hospital, downtown Grayling, and emergency response facilities. This project also provides an all-season roadway access to the railhead located at the westerly terminus of North Down River Road.
- 3. Applicant** Crawford County Road Commission
Donald Babcock, Managing Director
500 Huron Street
Grayling, MI 49738
- 4. CCR Number** 5XJC9
- 5. DUNS Number** 085900793
- 6. Project Location** State of Michigan, Crawford County, 1st Congressional District
- 7. Urban or Rural** This project is located in a rural area
- 8. Funding Source**

	<u>Phase 1</u>	<u>Phase 2</u>	<u>Total</u>
Local Government		\$ 356,404	\$ 356,404
Private Commitment	\$ 70,000		\$ 70,000
MDOT Commitment	\$ 1,766,131		\$ 1,766,131
State of Michigan*		\$3,860,000	\$ 3,860,000
TIGER Request	\$ 7,873,683	\$1,099,098	\$ 8,972,781
TOTAL PROJECT COST	<u>\$ 9,709,814</u>	<u>\$5,315,502</u>	<u>\$15,025,316</u>

*Anticipated appropriation from State of Michigan. Refer to April 25, 2014 letter from Representative Bruce Rendon in Appendix IV.



TABLE OF CONTENTS

I.	INTRODUCTION/PROJECT DESCRIPTION	1
	A. Background.....	4
	B. Demographic Data	5
	C. Need for Project.....	6
II.	PROJECT PARTIES	10
III.	GRANT FUNDS & SOURCES/USES OF PRODUCT FUNDS	11
IV.	SELECTION CRITERIA.....	12
	A. Long-Term Outcomes	12
	i. State of Good Repair	12
	ii. Economic Competitiveness.....	14
	iii. Quality of Life	17
	iv. Environmental Sustainability.....	18
	v. Safety	19
	B. Secondary Selection Criteria	21
	i. Innovations.....	21
	ii. Partnership	22
	C. Results of Cost Benefit Analysis	22
V.	PROJECT READINESS.....	24
	A. Technical Feasibility	24
	B. Financial Feasibility	26
	C. Project Schedule	27
	D. Assessment of Project Risks and Mitigation Strategies.....	28
	E. Planning/Permit Approvals and NEPA.....	30
VI.	FEDERAL WAGE RATE CERTIFICATION	30



LIST OF FIGURES AND TABLES

I.	FIGURE 1: Project Location Map – State of Michigan	1
II.	FIGURE 2: Project Location Map – Crawford County	1
III.	FIGURE 3: Project Scope Overview	2
IV.	FIGURE 4: Project Scope.....	3
V.	FIGURE 5: Camp Grayling Throughput	5
VI.	FIGURE 6: Camp Grayling	7
VII.	FIGURE 7: Emergency Services Proximity	8
VIII.	FIGURE 8: Wilcox Bridge Road Pavement Condition	12
IX.	FIGURE 9: North Down River Road Bridge	12
X.	FIGURE 10: North Down River Road Bridge Condition.....	14
XI.	FIGURE 11: Gas & Oil Wells in Northern Lower Michigan	15
XII.	FIGURE 12: Job Creation	16
XIII.	FIGURE 13: Wildfire Risk Map	20
XIV.	FIGURE 14: Present Value of Benefits/Costs vs. Time	22
XV.	FIGURE 15: North Down River Road Bridge Concept Drawing	25
XVI.	FIGURE 16: Project Schedule.....	28
XVII.		
XVIII.	TABLE 1: Cost Summary	11
XIX.	TABLE 2: North Down River Road Bridge Load Rating Summary.....	13
XX.	TABLE 3: Risk and Mitigation Strategies	29



APPENDICES

APPENDIX I: BENEFIT/COST ANALYSIS

<http://crawford-crc.com/tigergrant2014/appendixcostbenefit.html>

APPENDIX II: DETAILED COST ESTIMATES

<http://crawford-crc.com/tigergrant2014/appendixiiestimate.html>

APPENDIX III: DRAWINGS

<http://crawford-crc.com/tigergrant2014/appendixiiiiprojdwgs.html>

APPENDIX IV: LETTERS OF SUPPORT

<http://crawford-crc.com/tigergrant2014/appendixivsupportors.html>

APPENDIX V: RIGHTS-OF-WAY

<http://crawford-crc.com/tigergrant2014/appendixvrow.html>

APPENDIX VI: ENVIRONMENTAL ASSESSMENT AND PERMIT DOCUMENTS

<http://crawford-crc.com/tigergrant2014/appendixvieapermits.html>

APPENDIX VII: GRAYLING TRANSPORTATION STUDY

<http://crawford-crc.com/tigergrant2014/appendixviiitransstudy.html>

APPENDIX VIII: CACTF NARRATIVE DESCRIPTION

<http://crawford-crc.com/tigergrant2014/appendixviiicactfnarr.html>

APPENDIX IX: FEDERAL WAGE RATE CERTIFICATION

<http://crawford-crc.com/tigergrant2014/appendixixfedwage.html>

I. INTRODUCTION/PROJECT DESCRIPTION

Crawford County, Michigan is a rural, economically distressed area in the center of the northern portion of Michigan's Lower Peninsula. 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. The Grayling area experiences high traffic volumes from military, industry, emergency services, and recreational travelers without direct access to I-75. Figure 1 shows Crawford County's position at the heart of Michigan's Lower Peninsula. Figure 2 shows the project location and the major transportation facilities that converge in Grayling. ***TIGER funding is the only viable hope to finance this project.***

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, widen and improve about a mile and a half of North Down River Road and replace the old North Down River Road bridge over the East Branch of The Au Sable River. It accomplishes the following goals:



Figure 1 - Project Location Map, State of Michigan

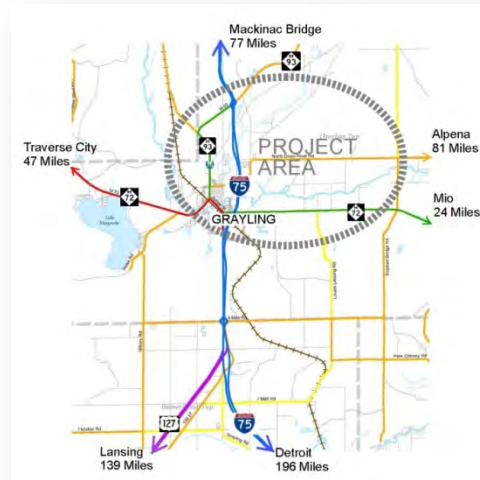


Figure 2 - Project Location Map, Crawford County

- 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;
- Provides a direct route for heavy military traffic between portions of the Camp Grayling Joint Maneuver Training Facility;
- Greatly improves public safety through improved emergency response times;
- 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 study¹ demonstrated that these improvements would have dramatic influence on traffic flow.

Crawford County recognizes the magnitude of this undertaking and has conceived a two-phased approach to complete the project. In total, the project includes the scope of construction described below and as depicted in Figures 3 and 4. This application presents the entire project and each phase separately, recognizing that the USDOT may prefer to invest in a portion of the whole.

Phase 1: I-75/North Down River Road Interchange

This top priority phase has two basic parts: First, to construct a full access interchange at I-75 and North Down River Road, replacing the existing half (partial) interchange. 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. It will alleviate traffic congestion in the city center by providing heavy military, commercial, and other traffic an alternative route.

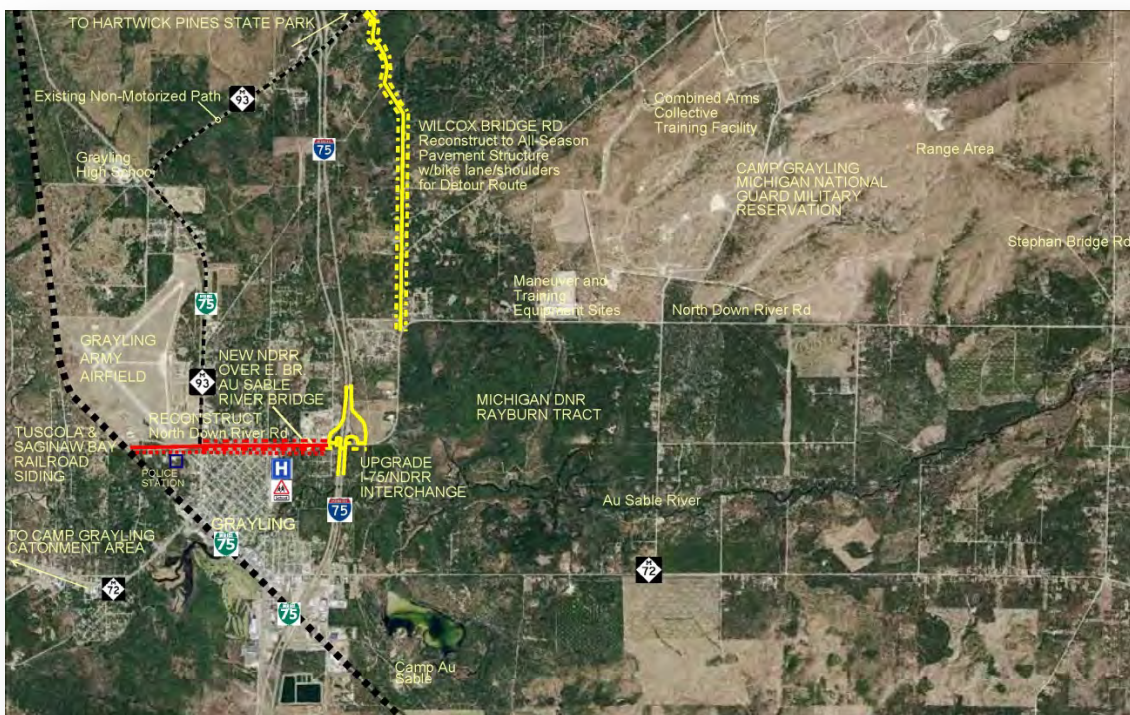


Figure 3 - Overview of project area and segments. Phase 1, highest priority segments shown in yellow, Phase 2 shown in red.

¹ URS et al (2008). Grayling Area Transportation Study. Prepared for Northeast Michigan Council of Governments.

Second, reconstruct Wilcox Bridge Road from North Down River Road to M-93. Unfortunately, any project including bridge work needs to plan for alternative traffic routing during construction. Wilcox Bridge Road is the only roadway in the area with an existing bridge, having a load rating high enough to accommodate commercial traffic. Wilcox Bridge Road is a local county two-lane road in poor condition, with a failed bituminous surface and gravel roadway. This improvement will reconstruct the severely distressed surface to all-season standards, providing a detour route during the construction of the North Down River Road bridges over I-75 and the East Branch of the Au Sable River. Work will improve the horizontal alignment to the AASHTO minimum 40 mph design speed and provide paved bike lanes that will connect to the existing non-motorized path along M-93.

Phase 2 – North Down River Road from Railhead to I-75

Phase 2 also has two parts. First, North Down River Road will be reconstructed from the railhead east of Business Loop-75 to I-75. This will widen an existing two-lane county roadway to three traffic lanes to improve turning movements and traffic flow, add bicycle lanes, and add traffic signals at the BL-75 and Michigan Avenue intersections. This reconstruction will also provide connectivity between rail and road transportation modes and improve access for police and fire responders.

Second, the North Down River Road Bridge over the East Branch of the Au Sable River will be replaced. This aging, deteriorating bridge, located on a commercial corridor, is structurally deficient and functionally obsolete. Its posted load limit has recently been downgraded due to its condition.



Figure 4 -Project Scope: Phase 1, highest priority shown in yellow, Phase 2 shown in red

This bridge replacement will reap immediate benefits by eliminating detours military and commercial traffic must now make to avoid it. This bridge replacement demonstrates innovation and planning by providing an ADA-accessible pedestrian walkway below the structure and along the river, providing access between the Grayling Fish Hatchery and the Charter Township of Grayling's Park, providing safe ingress and egress to those popular public properties.

A. 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.

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. It is capable of training all weapon systems in the US Army's inventory. The largest concentrations of the installation's activities are centered on the main post, three miles southwest of the City of Grayling. However, live fire ranges, maneuver areas, and support facilities are located throughout Crawford County and in adjacent Kalkaska and Otsego Counties. A Maneuver Area Training Equipment Site (MATES), Combined Arms Collective Training Facility (CACTF), and a Multi-Purpose Range Complex (MPRC) are all located off North Down River Road, just a few miles east of the City of Grayling and I-75. 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. Beginning in 2014 through 2016, it will experience a 400% increase in use. Much of this increase is related to units now training locally instead of at deployment locations. However, changes in how the US Army trains has resulted in two to four large training exercises being scheduled annually over the next several years. Each exercise will bring several thousand additional service members per event, and as many as 1,000 contracted facilitators and 600 additional vehicles to the area. In the past 7 years, usage has averaged about 200,000 man-days per year. Man-days are defined as one person training on-site for one day. In 2014, use has already grown to an expected 270,000 man-days and planned use for 2015 and 2016 are 390,000 man-days and 920,000 man-days, respectively. The Michigan Army National Guard is also currently in discussions with the leadership of the 55th and 56th Brigade Combat Teams to assess a plan to station a battalion or more of armor assets at Camp Grayling. This increase of

military personnel in and around Camp Grayling also will bring a similar increase in wheeled and tracked military vehicle traffic; primarily between the headquarters area southwest of Grayling and the northern training areas off North Down River Road.

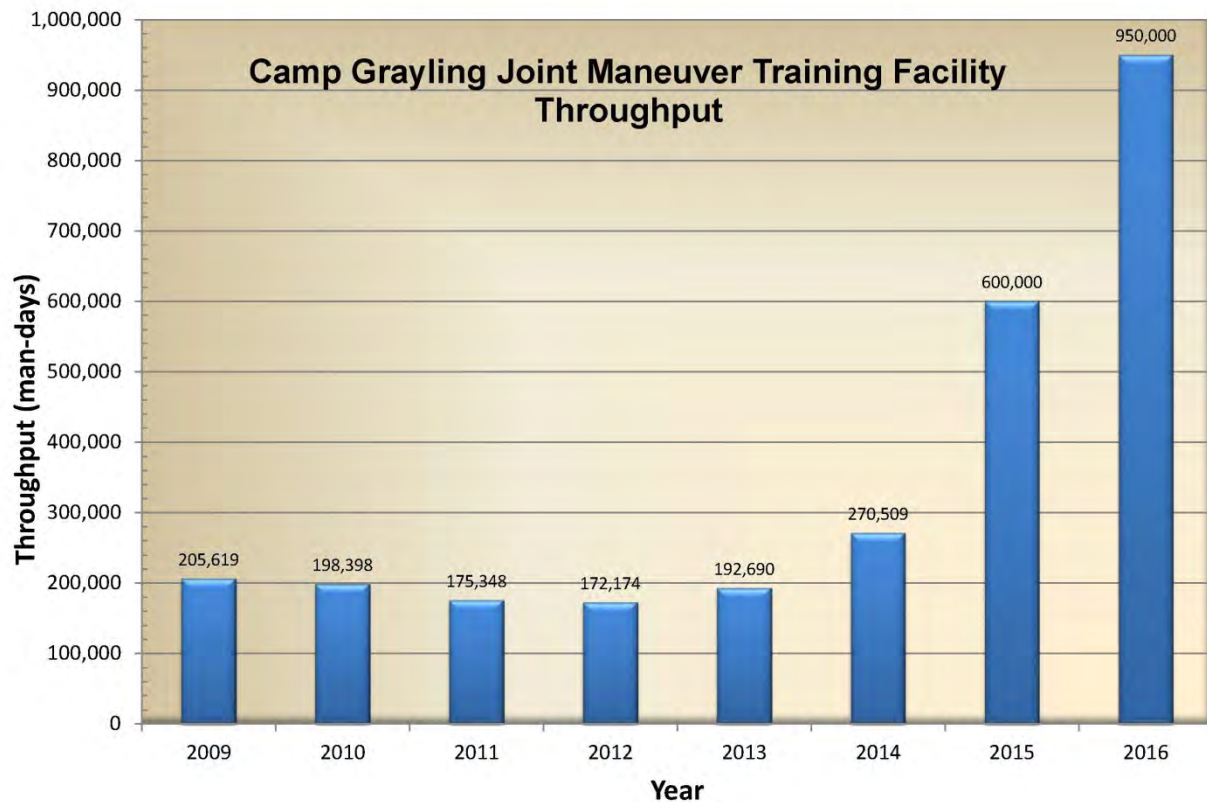


Figure 5 - Camp Grayling Throughput

Mercy Hospital’s medical complex lies at the intersection of North Down River Road and Michigan Avenue. This is a critical regional facility, recently ranked as one of the top 100 hospitals in the nation. It serves a six 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.

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.

B. 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.

C. Need for Project

Portions of the proposed project are in a failed or near-failed condition, while the rest are rapidly aging. Without reconstruction, this congested transportation network will rapidly degrade, severely affecting the ability for people and goods to access the City of Grayling, the I-75 freeway, military facilities, and the region as a whole. Phase 1 of this project is a critical component toward addressing this issue, with the full access interchange the critical axis of this multi-phased project. With a high poverty rate, low median household incomes, and a relatively small tax base, TIGER is the only funding mechanism available to make this project a reality. Per the attached participation letter (Appendix IV) from the MDOT Director, Kirk Steudle, the State of Michigan supports this project; however, they simply do not have enough funds to prioritize this project.

The Grayling Region I-75 Access Project's two phases combine to make a logical project with great public benefits. Either phase on its own has obvious logic. It entails improvements to an interstate highway and a federal-aid eligible county highway, yet there are no feasible funding sources other than TIGER. The project is truly multi-modal. It is far too large for local funding and too diverse to qualify for funding under any state or other federal programs. This project will address the following concerns:

First, it will provide easier, more direct access for military transports, motorists, emergency vehicles, and commercial traffic. 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 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.

A critical component of this project is to significantly improve access for the National Guard between Camp Grayling, the MATES facility, the MPRC, and the CACTF. The MATES facility is located on North Down River Road, approximately two miles east of the I-75 interchange. The MATES stores, maintains, and issues heavy armored equipment used by the units conducting weekend and annual training at Camp Grayling. Essentially, it is a large motor pool for wheeled and tracked vehicles.

On-hand equipment is frequently cycled in and out of the inventory to support depot level maintenance, transfer equipment to or from mobilizing/demobilizing units, etc. This is done on a regular basis, and most of these transfers are done by tractor/trailer heavy transport, both military and commercial. Because the majority of shipments to and from the MATES facility either originate or are destined for locations south of Grayling, these shipments cannot access

I-75 directly at North Down River Road and typically require drivers to use the I-75/M-93 interchange to the north to execute a rather convoluted U-turn. The proposed plan to station a battalion of Stryker and/or Bradley Fighting Vehicles at the MATES would dramatically increase the movement of heavy equipment in and out of the facility.

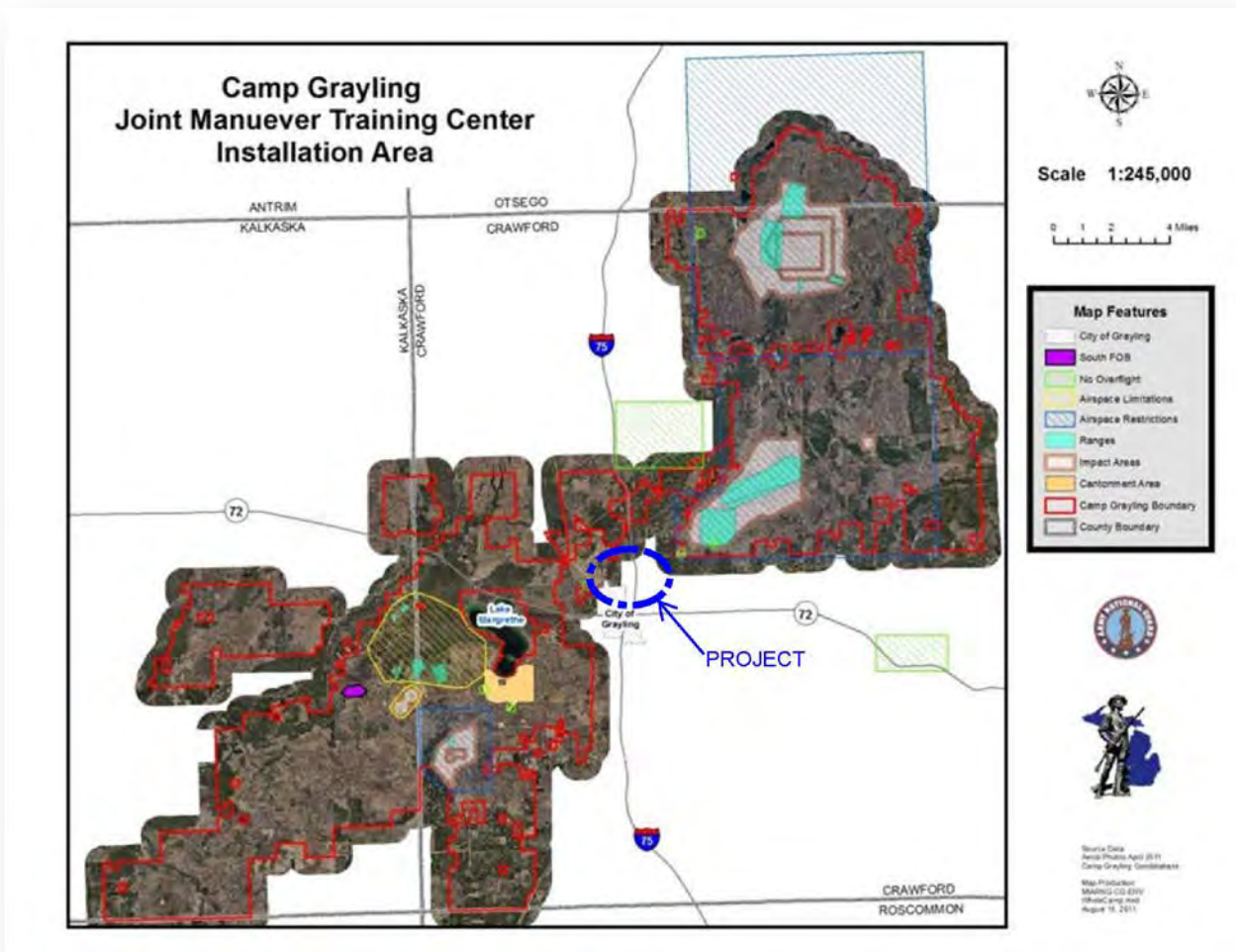


Figure 6 - Camp Grayling

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.

As noted earlier, the State of Michigan Department of Military Affairs expects to see a substantial increase in the utilization of ranges on North Down River Road as military units return from deployments and resume traditional home station training. The recent commissioning of the CACTF, which provides military and civilian law enforcement agencies with a state of the art urban training environment, will also increase traffic along North Down River Road. The majority of traffic bound for these sites will come from Camp Grayling or from locations south of Grayling on the I-75/I-127 corridor. Events such as the XCTC and the pending plan to reinstitute armor training at Camp Grayling will add to the traffic demands on this route. North Down River Road also provides direct access to the Grayling Army Airfield and the Alpena Air National Guard Combat Readiness Training Center. This is an important strategic link for Army and Air National Guard coordination – another regionally and nationally significant reason for completing the I-75 interchange and North Down River Road improvements.

The military's increased use of this unique facility is certain and has far-reaching economic implications. Its sustainability is dependent on this project.

Finally, 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



Figure 7 - Emergency Services Proximity to Interchange

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. 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. Mercy Hospital-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. Currently, EMS and others attempting to access the emergency room from the south must exit at BL-75 and navigate through busy city streets. Note that 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. The hospital, police and fire stations are on the North Down River Road corridor – the hospital is only a half mile from the interchange, while police and fire are only a mile. Improved access at North Down River Road through the construction of a full access interchange will decrease response times, a significant improvement when seconds could be the determination between life and death.

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, the bulk of military and commercial traffic could circumvent the downtown Grayling area, reducing traffic congestion and increasing safety for the civilian population. Each day, many military vehicles traveling between the MATES facility and the Camp Grayling Main post are forced to 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 at the MATES facility on a weekly basis. 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.

Camp Grayling traffic also includes about ten civilian and military trucks per day for inbound and outbound shipments. Since the majority of these operations either originate or have final destinations south of Grayling, they are commonly inconvenienced by the lack of a northbound off-ramp at the North Down River Road interchange.

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.

Congestion in the city center is not just created by military transport vehicles. This 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. 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.

Finally, this project promotes multi-modal connections to existing rail and airport facilities and connects non-motorized facilities. The Tuscola & Saginaw Bay railroad siding is located on the south side of the Grayling Army Airfield. The National Guard uses the rail system to move their heavy equipment in times where great numbers of units come into Camp Grayling at one time, or use the rail system in times of quick deployment when vast amounts of equipment, armament and vehicles are ever needed in a “Fast Response” scenario. The equipment shipped either to or from the rail head will have a direct access to I-75, both north and south, and unrestricted access to the east to the MATES facility upon completion of this full access interchange and local road and bridge improvements. Camp Grayling is currently working on a massive railhead project. To fulfill its mission, the Camp must be able to mobilize a battalion-sized force in 3 days. With 4,000 troops, materiel, and heavy armored equipment rail is an efficient way to move into and out of the area. The railhead is envisioned as a public-private partnership, which will benefit not only the military, but industry as well.

Grayling is also popular for bicycling and other non-motorized pursuits. Numerous non-motorized paths and bicycling opportunities exist in the area. However, the existing trails lack the connectivity required to create a true network. By incorporating bicycle lanes into the design and providing ADA access in the bridge design at the Au Sable River, this project will aid in the connectivity of existing trails and increase the safety for users.

II. PROJECT PARTIES

See Appendix IV for Letters of Support

Crawford County Road Commission (Applicant) – The Crawford County Road Commission will be responsible for the project and for the maintenance of the county roads 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 (MDOT) – The Michigan Department of Transportation 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, and will manage the streets and non-motorized trails within the city limits and will be responsible for the maintenance of such upon project completion. The City has committed \$250,000 in construction funds toward this project, committed additional funds for the EA and IACR, and will also provide additional expertise from the City Engineer.

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. In addition, the Township has committed to the release of Township property needed for the Right-of-Way in the form of an easement, at a value of \$6,404.

Crawford County Board of Commissioners – Crawford County Board of Commissioners is donating 0.39 acres of property for needed right-of-way for the North Down River Road over the East Branch of the Au Sable River Bridge. This property is valued at \$3,421.

Michigan Department of Natural Resources – The MDNR has been involved and will continue to be involved in the planning efforts for this multi-modal 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.

Michigan Department of Military and Veterans Affairs/National Guard – The 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.

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 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.

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.

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.

State of Michigan – The State Legislature has identified the importance of this project and has requested that \$3.86 million of the \$115 million appropriated in FY2014 for the Roads and Risk Reserve Fund be used to complete the local roads and bridge portions of project. See Appendix IV, Letters of Support.

III. GRANT FUNDS AND SOURCES/USES OF PROJECT FUNDS

See Appendix II for detailed cost estimates.

Funding Source	Phase 1	Phase 2	Total
Local Government		\$ 356,404	\$ 356,404
Private Commitment	\$ 70,000		\$ 70,000
MDOT Commitment	\$1,766,131		\$ 1,766,131
State Commitment		\$3,860,000	\$ 3,860,000
TIGER Request	\$7,873,683	\$1,099,098	\$ 8,972,781

TABLE 1 – COST SUMMARY			
Phase 1	Engineering & R/W	Construction	Total
I-75/NDRR Interchange	\$712,993	\$7,002,816	\$7,715,809
Wilcox Bridge Rd.	\$166,167	\$1,827,838	\$1,994,005
Total	\$879,160	\$8,830,654	\$9,709,814
Phase 2			
NDRR Bridge over Au Sable River	\$90,828	\$999,108	\$1,089,936
NDRR: Michigan Ave. to I-75	\$148,548	\$1,563,593	\$1,712,141
NDRR: BL-75 to Michigan Ave.	\$145,587	\$1,601,459	\$1,747,046
NDRR: RR to BL-75	\$63,865	\$702,514	\$766,379
Total	\$448,828	\$4,866,674	\$5,315,502
GRAND TOTAL PHASES 1 AND 2	\$1,327,988	\$13,697,328	\$15,025,316

IV. SELECTION CRITERIA

A. Long-Term Outcomes

i. State of Good Repair

The existing transportation facilities that will be upgraded by this project are in an aged condition. Pavement Surface Evaluation and Rating (PASER) data compiled by the Crawford County Road Commission and the Michigan Department of Transportation also show that over half of the roadways that will be reconstructed by this project have a PASER rating of 2. For pavements, a rating of “2” or “Very Poor” typically includes alligator cracking of 25% of the surface, severe distortions over two inches deep, extensive patching in poor condition, and/or potholes.² Reconstruction with extensive base repair is normally warranted to remedy this severe deterioration. 70% of the project’s roadways currently have a surface condition rating of 5 or less. A rating of 5 indicates “*moderate to severe raveling. Longitudinal and transverse cracks show first sign of slight raveling and secondary cracks. First signs of longitudinal cracks near pavement edge. Block cracking up to 50% of surface. Extensive to severe flushing or polishing. Some patching or edge wedging in good condition.*”³ These conditions typically require at least milling and/or an overlay to repair, and these repairs generally extend pavement life by five to ten years.



Figure 8 - Wilcox Bridge Road Pavement Conditions

Of particular note is Wilcox Bridge Road. This roadway has a PASER rating of 2. The northern portion of Wilcox Bridge Road is not paved, but has a gravel surface. Both roads are subject to seasonal loads restrictions due to frost laws, severely limiting commercial traffic movements through the region. The Crawford County Road Commission expends significant resources maintaining these roadways each year, patching potholes and grading the gravel surface and shoulders to keep them from becoming completely unserviceable.

The North Down River Road Bridge over the East Branch of the Au Sable River was constructed in 1948. Its *Bridge Safety Inspection Report and*



Figure 9 - North Down River Road over East Branch Au Sable River Bridge

² Asphalt PASER Manual. University of Wisconsin-Madison Transportation Information Center, 2002.

³ Asphalt PASER Manual. University of Wisconsin-Madison Transportation Information Center, 2002.

Structure Inventory and Appraisal indicate that it is in generally poor to fair condition, indicating minor to “advanced section loss, deterioration, spalling, or scour.”⁴ Its load capacity does not meet current AASHTO, Michigan, or military standards, with a posted load capacity of 42 tons for 3-unit trucks, 36 tons for 2-unit trucks, and 29 tons for one-unit trucks, severely limiting use by commercial & military traffic. It is also important to note that Michigan has very liberal trucking laws and posts operating ratings rather than inventory ratings, allowing for an overstress of 30%. It is also functionally obsolete, being narrower than AASHTO standards for the current traffic volume and far too narrow for future needs. The current clear width of the bridge is 29 feet; the project proposes to expand that to the required 50 feet.

TABLE 2 – NORTH DOWN RIVER ROAD BRIDGE LOAD RATING SUMMARY		
Truck	Legal Load Limit (Tons)	Posting Load Limit (Tons)
1-Unit	42	29
2-Unit	77	36
3-Unit	82	42

In 2000, the Road Commission replaced the railing and removed the sidewalk to provide needed width for vehicular traffic at the expense of pedestrians use. In 2002, the deck was repaired. This bridge’s current condition is not from lack of maintenance efforts. Now, its beams are not strong enough and it is simply too narrow. Replacement is truly the only option and no other funding sources are available at this time. The most recent bridge inspection was performed in November 2012, reporting its Federal Sufficiency Rating as 49. This bridge is not only functionally obsolete, but is “structurally deficient.” However, despite its limited load capacity, it is not competitive for Michigan’s Local Bridge Program funds, the only other source of funding available for the badly needed replacement. In summary, this bridge’s condition is as sound as possible due to the diligent maintenance efforts of the Crawford County Road Commission, yet its current condition and geometry present a significant limit to the movement of military and commercial traffic through the region.

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.

⁴ Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation’s Bridges/ FHWA-PD-96-001.

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.

All road and bridge construction will be completed to current AASHTO and all-season standards for function, safety and durability. Portions of the project are in a failed or near-failed condition, while the rest is rapidly aging.

Without reconstruction, this congested transportation network will rapidly degrade. Funding is not sufficient to reconstruct or rehabilitate these roads and they are in too poor condition for capital preventive maintenance to be effective.

The new construction will significantly decrease the cost of operation and maintenance, as these aging facilities require frequent attention to maintain a serviceable state. Currently, the facilities are maintained using Michigan Transportation Funds, which will continue to be utilized for long-term maintenance purposes. The project will preclude the need for major maintenance in the next several years, as detailed in the Benefit-Cost Analysis.

ii. 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. (See *Demographic Data*, page 6.)

Like many northern Michigan communities, the Grayling area grew as a result of the lumber industry in the late 1800s. As that industry waned over the years, manufacturing became the primary employer in the region. Today, the primary employment sector for this area is healthcare and education, employing nearly 19% of the working population. This area has benefited from recent expansions at Mercy Hospital – Grayling, which includes supplementary health-related businesses nearby. Mercy currently employs nearly 600 people in this region. It can be estimated that, as access to this facility is improved, service delivery and demand is increased, necessitating the potential for additional jobs. Retail is the second largest employment sector - not surprising considering



Figure 10 - North Down River Road Bridge corroded and undersized beams

that tourism is a major economic engine for this region with its abundant natural resources and associated activities. In any event, the project will have a direct impact on job retention, as well.

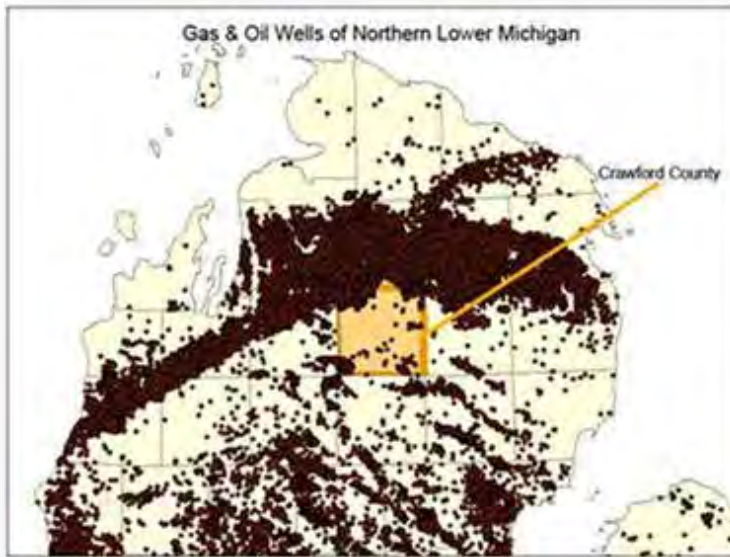


Figure 11 - Gas and Oil Wells of Northern Lower Michigan

The oil and gas industry is also growing in this region. There are over 14,000 active gas and oil wells in northern Lower Michigan along, and nearly 3,000 more brine wells, most of which surround Crawford County and the I-75 corridor this project proposes to improve. These operations generate traffic with extremely heavy loads, which are subject to current seasonal weight restrictions.

As of 2010, Michigan had over 19.3 million acres of forested land, covering 53% of the State. Michigan's timberland acreage is the fifth largest in the United States.

Although the forest products industry has experienced an overall decline, as has nearly every other industry in Michigan, the raw materials for this industry are renewable, and the biomass industry is an emerging sector in this market. Woody biomass accounts for 30% of Michigan's renewable energy and generates nearly \$68 million per year. There are six biomass plants within a 60 mile radius of Grayling, and one located just outside the City. As technology improves so will the growth of this sector. Crawford County and the surrounding are well-positioned to take advantage of this potential due to its direct access to natural resources and its central and strategic location to major thoroughfares for transport of the raw materials.

The North Down River Road Corridor is a key route to natural resources and the land and capital that fuel these industries. The State and Federal forest lands served by this proposed project are vast. Logging activity to the east generates heavy traffic bound for I-75 and markets in northern Michigan or Canada, or to the urban areas to the south. Either way, the most efficient route is I-75. This project makes getting to and from I-75 much more economical. Transportation costs are a significant component of overall operating costs for any industry requiring transport of goods. Hauling operations will be more efficient when North Down River Road and Wilcox Bridge Road are upgraded to all-season standards since the hauling on these roads will no longer be limited by seasonal weight restrictions or by limits currently imposed on the North Down River Road Bridge over the East Branch of the Au Sable River. **Completing the interchange will improve**

long-term efficiency and increase economic productivity by providing costs savings for haulers and provide the opportunity for these businesses to be more competitive.

The project will improve accessibility to natural resources at a reduced cost. The net effect is a potential improvement in the value of these natural resources. Since significant percentages of these natural resources are on State and Federal lands, the impact is felt on a regional, state and national level. Any enhancement in the production costs for forest products in northern Michigan helps reduce our reliance on the Canadian forest products industry. The same can be said for oil and gas operations – any improvement helps reduce our nation’s reliance on others. The value differences due to this project are small on a unit basis; however, over the long term, it is certainly worthy of merit.

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.

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.

The Grayling Region I-75 Access Project will have a significant impact on job creation. As indicated in the figure below, 194 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.”*

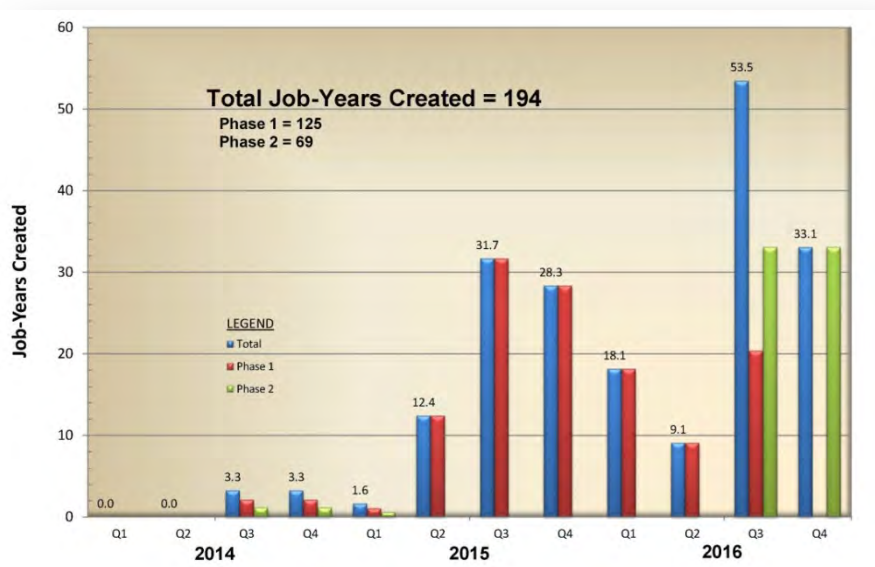


Figure 12 - Job Creation

It is important to note that every industry uses different employment multipliers as determined by the US Bureau of Labor Statistics. Oil and gas extraction, a growing industry in this region, has a job multiplier of 6.9. Therefore, if 20 jobs are created in that industry as a result of improved transportation access for these operations, 138 indirect jobs will be created as a result of that growth. The timber

industry boasts a multiplier of 5.6. Understanding the importance of the affordable transport of these goods, the potential beneficial impact of this project on regional economics is staggering.

It is anticipated that construction will begin in 2015 and conclude by November 2016. Per the Wage Rate Certification (Appendix IX), contractors will be required to meet all state and federal wage requirements. Many local and regional contractors work with the Michigan Works! Service Centers when seeking employees and every effort will be made to utilize those services. All bidding requirements set forth by USDOT and best practices will be followed when awarding contracts.

iii. 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

The Grayling area currently does not have a livable transportation system. 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. No community will function properly without a planned transportation system. All of the factors above are key components toward making that determination. Economically, this project will not only create jobs during the construction phase, but will result in cost savings to motorists, 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*⁵, 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. Economic productivity is enhanced through savings in time and operation expenses. The value of time saved due to improved intersection function is approximately \$18 million in the next 20 years.

Another major component to livability is supporting and valuing existing communities. This region boasts plentiful natural resources and has already made investments in multi-modal alternatives for residents and visitors. Grayling is popular for its bicycling and several non-motorized paths and bicycling opportunities exist in the area. To increase the connectivity of these non-motorized routes, this project will include bicycle lanes with the road reconstruction and an ADA-compliant pedestrian walkway under the North Down

⁵ URS, 2008. http://www.nemcog.org/downloads/grayling_area_transportation_study_1.pdf

River Road Bridge at the Au Sable River. The resulting recreational, mobility, health and decreased auto use benefits are included in our Benefit-Cost Analysis, Appendix I.

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.”⁶

iv. 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). 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 is required by FHWA to complete the assessment. This study is underway and is expected to be completed by July 1, 2014. Preliminary analyses by URS indicated that noise impacts are not expected. If the noise analysis indicates otherwise, noise abatement measures such as vegetative plantings or noise curtains can be included in the project.

This project will reduce distances travelled, 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. This project will also make ecologically beneficial improvements at the North Down River Road crossing over the pristine East Branch of the Au Sable River.

The project will reduce emissions due to reduced distances travelled and utilizing alternative modes of transportation, including non-motorized. By improving access to I-75 and eliminating the need for detour routing around the low-capacity bridge, approximately three million miles will be saved per year, with a reduction of 30,272 metric tons of carbon dioxide that will otherwise be released into the atmosphere. This is a societal benefit estimated at nearly \$1 million. The non-motorized components provide reduced emissions, lower fuel consumption as well as safety for those alternative transportation modes.

Though not explicitly quantified, other damaging emissions, such as VOCs, nitrogen oxide, particulates and sulphur dioxide will likewise be reduced, due to distance travelled 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.

The linkage between highways and the rail siding at the south end of the airport provided by this project is also an environmental benefit. The heavy military machinery moved in and out of Camp Grayling will be more logically shipped by rail when the project is

⁶ Northeast Michigan Council of Governments Comprehensive Economic Development Strategies, p. 7, http://www.nemcog.org/downloads/nemcog_ceds_2012_updatefinal_updated_0612.pdf

complete and the rail siding to MATES route is not limited by bridge load or width restrictions. Rail transport of these heavy loads is far more energy efficient than highway transport. More frequent use of the railroad is an environmental benefit, one that the military recognizes for the transport of their heavy equipment.

The proposed replacement bridge at North Down River Road's crossing over the East Branch of the Au Sable River will improve the river's hydraulic capacity, flow regime, and aquatic organism passage. Groundwater driven, cold water streams such as the Au Sable are globally rare, so protecting this valuable resource is a great priority. The Michigan Department of Environmental Quality has made practical input into the design, resulting in the new crossing returning the stream conditions to a more natural state. The Au Sable is a legally protected State Natural River. Michigan Department of Natural Resources Natural Rivers Program staff has reviewed the design and find it to be a positive environmental improvement. The stream improvements at the bridge are being coordinated with another stream restoration project immediately downstream at the fish hatchery. River hydraulics will be modeled in detail as part of the final design to assure performance not only for flood flows, but for normal and low flow periods, important to fish and other aquatic organisms. According to the MDEQ, mitigation is not expected to be required for the bridge replacement.

Wilcox Bridge Road's alignment has been designed to a minimum design speed in order to minimize wetland impacts. The design will result in a "no net take" of wetlands. Wetland impacts have been inspected by Jeff Silagy of the MDEQ-Gaylord office and the impacts have been considered as part of the MDEQ's Preliminary Environmental Review process which was completed February 2012. Wetland impact area is estimated at less than 0.1 acre. In addition, the road paving will reduce airborne dust on the part of Wilcox Bridge Road that will be improved from gravel to surface.

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. Most significant will be energy and energy emission reductions and the long term improvements to the pristine waters of the Au Sable.

v. 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 2008⁷ (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 benefit-cost analysis quantification of this benefit assumes a 10% reduction in the accident and injury rate for

⁷ http://www.nemcog.org/downloads/grayling_area_transportation_study_1.pdf

each increase in LOS. 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. 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

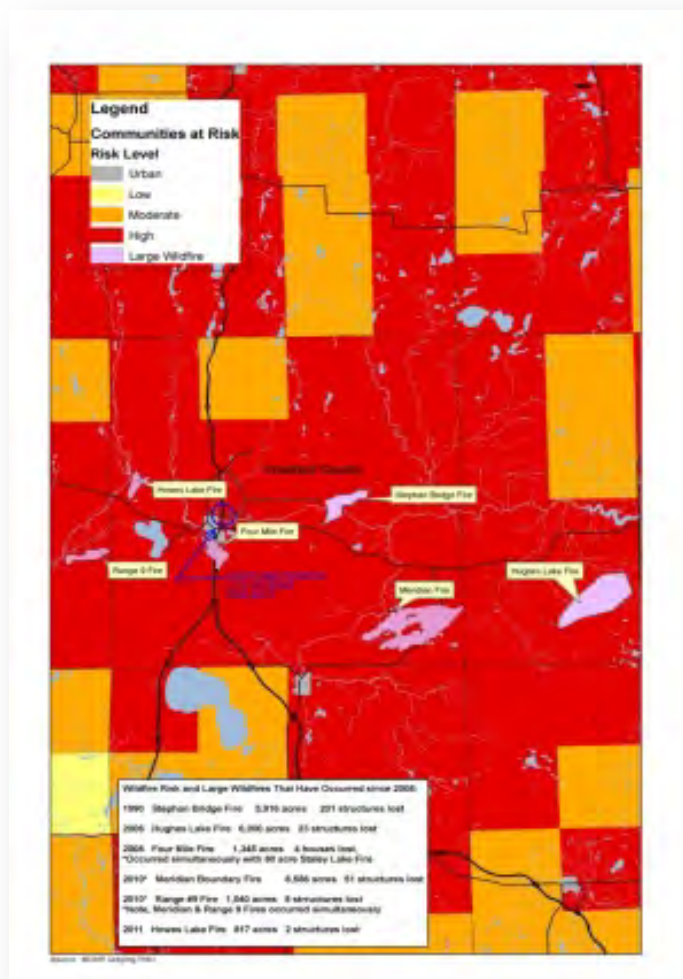


Figure 13 - Wildfire Risk Map

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.

Similarly, access to emergency facilities at Mercy Hospital – Grayling 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. Mercy 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 estimating that acuity levels will be improved for 1% of the most critical ER visits, this equates a monetized benefit of over \$151 million in the first 20 years. The total benefit of the project due to safety improvements is over \$24 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 \$175 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 Mercy Hospital – Grayling 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, as well as promotes the easier transport of goods that are exported from this region. In addition, the benefit to the Camp Grayling Joint Maneuver Training center will improve our nation's defense readiness.

B. Secondary Selection Criteria

i. Innovation

Crawford County is a region with just over 14,000 persons, with poverty rates approximately 20% higher and incomes 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. The stream improvements at the bridge are being coordinated with another stream restoration project immediately downstream at the fish hatchery. River hydraulics will be modeled in detail as part of the final design to assure performance not only for flood flows, but for normal and low flow periods, important to fish and other aquatic organisms. 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.

ii. 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 \$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.

C. Results of the Cost-Benefit Analysis

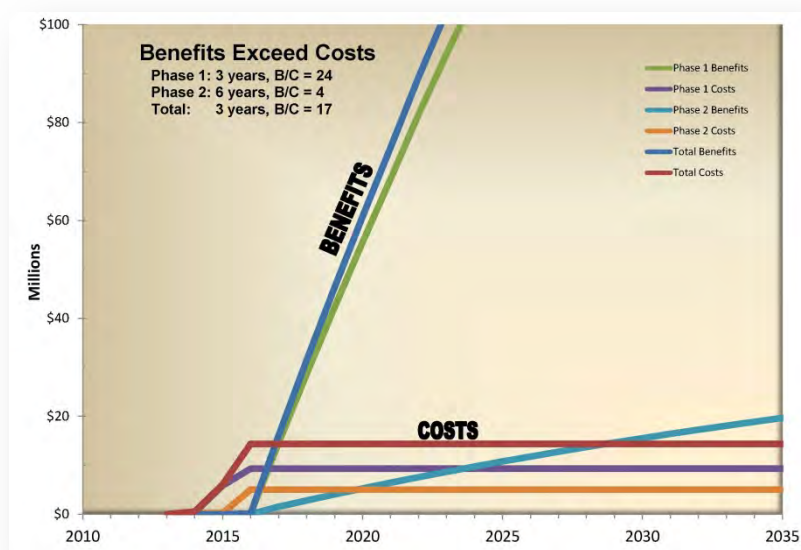


Figure 14 - Benefit/Cost vs. Time - Payback Period

reach their destination near North Down River Road. Not only does this extra distance increase operating costs of both personal, commercial, and military vehicles (including fuel consumption and maintenance costs) and emissions, but also increases travel time by

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

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 \$38 million dollars in the first 20 years of the project.**

Similarly, access to emergency facilities at Mercy Hospital – Grayling 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. Mercy 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 estimating that acuity levels will be improved for 1% of the most critical ER visits, this equates a monetized benefit of over \$146 million in the first 20 years.

One cannot put a price on public safety regarding its value to communities. Safety Benefits are outlined in great detail in Section IV, A. v. *Safety*, on page 20. **The total benefit of the project due to safety improvements is almost \$24 million in the first 20 years of the project's life, and will continue to provide these benefits in the future.**

By providing a more functional traffic network, Level of Service (LOS) and delay at intersections are improved. Considering future traffic volume estimates (and comparing intersection delay for the future “Build” and No Build” scenarios in the Grayling Area Transportation Study (URS, 2008), the decreased delay at the in-town intersections will significantly reduce travel times in the area, again improving livability and economic productivity. **The value of time saved due to better functioning intersections and the resulting reduced delay is almost \$17 million in the project's first 20 years.**

With the No Build option, major maintenance must occur within the next 20 years to maintain the roadways in a state of good repair, including grading, shoulder maintenance, overlays, and bridge rehabilitation. The proposed project will preclude the need for these costs, totaling almost \$1 million.

Wilcox Bridge Road will provide an important detour route during construction of the improvements along North Down River Road. Beside this important function of its improvements, travel time will be reduced for users of this route by increasing the safe travel speed of the roadway. **Though difficult to quantify, conceptual design documents suggest an increase in safe speed of 10 mph or more, saving over 1,500 hours of time per year, representing about \$436,000 in benefit to society in the project's first 20 years.**

Currently, weight restrictions of the existing North Down River Road Bridge over the East Branch of the Au Sable River require heavy commercial traffic traveling east – west along North Down River Road to detour, typically to the M-93/I-75 interchange to the north – an additional distance of 4.55 miles and about 6 minutes per vehicle – increasing operating costs and emissions and decreasing productivity. **This benefit totals about \$272,000 in 20**

years. With the increased use of Camp Grayling in the coming years, this amount will be even greater.

The project will result in a great reduction of emissions due to reduced distance traveled, as outlined in Section IV, A. iii. *Quality of Life*. 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 almost \$247 million. **Comparing this to the present value of the total project cost of about \$14.4 million, results in a Benefit/Cost Ratio of 17.2.** The benefits will pay back the costs by the end of 2017, only 3 years after grant award (assuming grant award in Q2 2014).

Also included in the quantified benefits are benefits to the Michigan Army National Guard's Camp Grayling Joint Maneuver Training Center. Great 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. Benefits to the Camp and to national defense were not quantified.

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 194 job-years, spread over the period of construction, which will provide a critical boost to the depressed local economy.

V. 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. 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 go upon funding.

A. 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 re-worked as part of the environmental assessment. Design plans are now at the early preliminary

stage. Highway alignment drawings for the interchange and Wilcox Bridge Road, and plan and perspective drawings for the North Down River Road over East Branch Au Sable River Bridge are in the appendices.

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



Figure 15 - NDRR over E. Br. Au Sable River Bridge South Elevation Perspective

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 is necessary to provide a detour route during construction of the interchange bridge. The design will include 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 needed 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 plans also provide for necessary intersection safety improvements at Lewiston Grade Road.

Plans call for North Down River Road to be widened from its west end to I-75. The western portion will have new storm sewer connecting to an existing settling basin at the discharge to the East Branch Au Sable River. New water mains and sanitary sewers will be installed to replace the aging existing pipes between BL-75 and Michigan Avenue. The design follows the existing horizontal alignment and will provide a full three-lane section with paved shoulders for bike lanes connecting to the existing pathway system. This section is wide enough to be changed to a four-lane section in the future, should actual traffic volumes exceed predictions. Between Michigan Avenue and I-75 the vertical alignment will be changed to provide a more gradual approach west of the Michigan Avenue intersection and across the new East Branch Au Sable River Bridge.

Structural work includes two new bridges on North Down River Road: the overpass over I-75, discussed above and the new bridge over the East Branch Au Sable River. Both structures will have concrete superstructures and approach slabs. The overpass bridge will have shallow foundations and the bridge over the river will have steel pile-supported concrete curtain wall abutments. Both bridges will have aesthetic treatments, as indicated in the perspective views and approved by the MDNR Natural Rivers Program staff. The East Branch Au Sable River bridge span will be significantly longer than the existing structure, as shown on the plans. Its width will accommodate the three-lane section with bike lanes. It will have a long concrete retaining wall at its southeast quadrant to support the widened road, avoid impacts to the adjacent fish hatchery and provide an ADA walkway under the bridge along the east river bank. Sheet pile cofferdams will be left-in-place on the east bank to retain the walkway fill. The structure designs meet AASHTO, FHWA and MDOT standards.

The construction cost estimates (see appendix) have 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. We are highly confident of the precision of these cost estimates.

The final plans will be prepared, checked 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.

B. Financial Feasibility

The Crawford County Road Commission is a financially strong and stable public road agency. 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 are guaranteed by the local agencies offering the matching funds. Local match from the Road Commission toward the construction of the North Down River Road Bridge over the East Branch Au Sable River will be available in 2015, prior to when construction of that bridge is scheduled. The local matching funds from the City of Grayling will be available for the North Down River Road utilities work, at the planned time of construction in 2016. It is expected that the operating agency for this TIGER grant will be the MDOT through their Local Agency Program, as is common with most federally funded projects in Michigan. Through that program, payments of matching funds will be made by the road commission pursuant to terms of a standard MDOT/Local Agency agreement. The road commission will receive payment from the City for their portion and forward it to MDOT.

C. Project Schedule

The Crawford County Road Commission understands the FY 2014 TIGER statutory funding obligation deadline of 09.30.16 and the USDOT's requirement for all necessary preconstruction activities to be complete by 06.30.16 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



FY 2014 TIGER

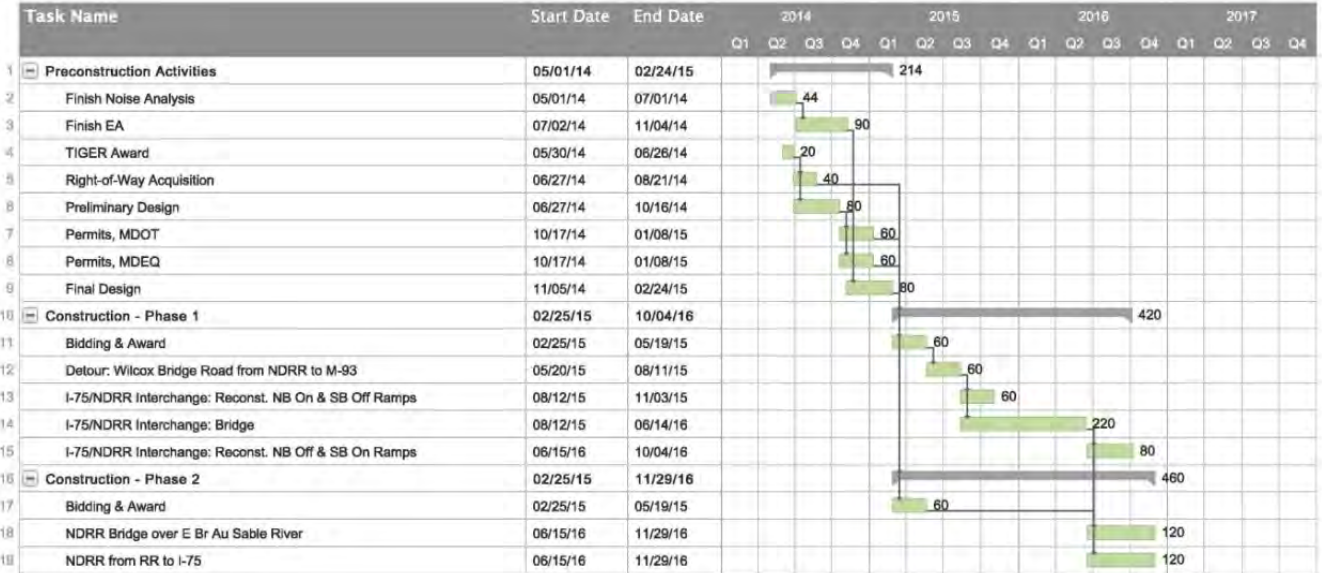


Figure 16 - Project Schedule

D. Assessment of Project Risks and Mitigation Strategies

The probability of project success, meaning on-time, on-budget completion of the project, is extremely high, owing mainly to the extent of preconstruction work already complete. The material risks to project success and strategies to eliminate or mitigate those risks are summarized in Table 3.

TABLE 3 – RISKS AND MITIGATION STRATEGIES

Potential Risk	Risk Level	Mitigation Strategy	
		Status	Strategy
EA Delays	Low	<ol style="list-style-type: none"> 1. Final Draft EA approved by MDOT, except noise analysis, the only variable. (Appendix VI) 2. FHWA now reviewing. Will act on EA once noise analysis complete (underway). 3. FONSI 99% probable. 	<ol style="list-style-type: none"> 1. Finish noise analysis upon TIGER award. Consultant on standby. Grant will cover fees. 2. Address FHWA comments. Submit final results. 3. Schedule has <i>an extra 7 months float time for EA.</i> 4. Budget sufficient for addition of noise barriers in unlikely event they are needed.
MDEQ Permit Delays	Very Low	<ol style="list-style-type: none"> 1. NDRR Bridge & Wilcox Bridge Rd. have received MDEQ Preliminary Environmental Approval (Appendix VI) 2. MDNR Natural Rivers Program review complete. 3. No wetland mitigation required. 	<ol style="list-style-type: none"> 1. Finish NDRR Bridge & Wilcox Bridge Rd. prelim design & permit package immediately after TIGER award; submit application. 2. Engineer has completed 5 other bridges over this river and knows design parameters well. 3. Schedule has extra 3.5 months float time for permits.
ROW Procurement Delays	Very Low	<ol style="list-style-type: none"> 1. Commitments for donations are complete. 2. Innovative agreement signed between private owners to benefit project and each of them. 	<ol style="list-style-type: none"> 1. CCRC will finalize legal documents upon award. 2. Schedule has <i>extra 8 months float time for ROW.</i>
ROW Cost Escalation	Extremely Low	<ol style="list-style-type: none"> 1. ROW will be donated 	<ol style="list-style-type: none"> 1. Execute legal agreements upon TIGER award.
MDOT/FHWA Tech. Approval & Permit Delays	Low	<ol style="list-style-type: none"> 1. Early prelim design meets AASHTO, FHWS & MDOT standards. 2. MDOT has reviewed geometrics 	<ol style="list-style-type: none"> 1. Finish prelim design upon TIGER award. 2. Continue to involve MDOT staff in design. 3. Submit prelim plans for construct permit in I-75 ROW 4. Schedule has extra 3.5 months float time for permit.
Cost Overruns	Low	<ol style="list-style-type: none"> 1. Construction cost estimates based on EPE plans in line-by-line detail. Unit prices based on averages bid on other projects. 2. Engineer has good site knowledge. Consistent sandy soils. 3. Estimates include 10% contingency. 	<ol style="list-style-type: none"> 1. Control scope creep during final design. 2. Package & bid through MDOT LAP as 2 projects; better for local contractor capacity.
Community Buy-In Problems	Extremely Low	<ol style="list-style-type: none"> 1. Community driven project for 20 yrs (Appendix IV) 2. Public hearings complete. 	<ol style="list-style-type: none"> 1. Continue public input during design & construction phase.

E. Planning/Permit Approvals and NEPA

The Crawford County Road Commission, Crawford County, the City of Grayling and Grayling Township have all approved \$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, excepting only the noise analysis, which is currently underway and expected to be complete by July 1, 2014 (see MDOT letter Appendix VI). Noise is the only variable. FHWA is now reviewing and will act on the EA once the noise analysis is complete. We anticipate a FONSI determination as a result of this assessment.

The project will require MDEQ permits under applicable parts of Michigan P.A. 451 for the North Down River Road Bridge over the East Branch of the Au Sable River and for wetland impacts along portions of Wilcox Bridge Road, for which preliminary approval has already been issued (Appendix VI). MDNR permits pursuant to Part 305, Michigan's Natural Rivers Program will also be required, for which the review has already been completed. Wetland impact area is estimated at less than 0.1 acre. According to the MDEQ, mitigation is not expected to be required for the bridge replacement.

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 2008.⁸ 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.

VI. FEDERAL WAGE RATE CERTIFICATION

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

⁸ http://www.nemcog.org/downloads/grayling_area_transportation_study_1.pdf