

IOWA'S FARM-TO-MARKET NETWORK OF PROJECTS

NETWORK OF PROJECTS

2023-2024 Multimodal Project Discretionary Grant (MPDG) Opportunity

OUTCOME CRITERIA NARRATIVE

Project Name: Iowa's Farm-to-Market Network of Projects
Project Type: Rural – Network of Projects
Total Project Cost: \$41,966,538
FY 23/24 MPDG Funds Requested: \$29,628,321

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Supporting Information can be found at:
<https://www.srfconsulting.com/icea/>



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PROJECT OUTCOME CRITERIA

Guthrie County is leading this application on behalf of Chickasaw, Fayette, Mitchell, Wapello, and Webster Counties (herein known as the Project Counties) to request MPDG Rural grant funds for **Iowa's Farm-to-Market Network of Projects** (herein known as the Project). This [geographically diverse Project](#) consists of six sub-projects across nine census tracts in eight Counties and several small rural communities across Iowa.

1. SAFETY

The safety of all users relying on the transportation system is critically important towards achieving the goals of United States Department of Transportation (USDOT), Iowa Department of Transportation (Iowa DOT), and Iowa County Engineers Association Service Bureau (ICEASB).

According to the [Iowa DOT Business Plan](#), Improving Transportation System Safety & Performance is the foremost Priority Goal for the next five years. In FY 2022, 97 Iowa Counties were collectively awarded the Safe Streets and Roads for All (SS4A) planning grant to develop a Safety Action Plan that prioritizes safety on existing local roads.

Each of the six sub-projects identified within the Project corridor experienced at least one fatal crash and several crashes of varying severity over the last 10 years, according to [Iowa Crash Analysis Tool \(ICAT\)](#) (Table 1). This is a significant safety concern for small, rural Iowan communities as they experience a far greater rate of fatalities in proportion to their populations and heavy commercial traffic through the Cities.



Goal 1.

Improve Transportation System Safety & Performance

Outcomes include: zero fatalities in work zones, total traffic fatalities significantly reduced, increased efficiency, reliability, resiliency, and condition of our transportation system

Table 1 Crashes within the Project Corridor between 2013 and 2022.

County	Fatal Injury	Serious Injury	Minor Injury	Unknown Injury	Property Damage Only
Chickasaw	1	1	3	3	13
Fayette	1	2	0	0	10
Guthrie	2	2	6	10	42
Mitchell	1	0	4	4	10
Wapello	2	3	4	8	40
Webster	2	3	10	22	113
Total	9	11	27	47	228



Figure 1 Mitchell County T40 & A23 Project

The Project corridors at present are single-lane roadways with narrow gravel shoulders and carry 700 to over 4,500 vehicles per day (vpd). Rural communities such as Stacyville (Mitchell County) are hubs on the Farm-to-Market roadway system, which serves as an intracounty and intercounty system to move and transport goods and people, including the agricultural and livestock that rely heavily on the system. Additionally, the Project corridors support several

manufacturing plants as well as grain storage facilities along the routes and experience heavy freight truck traffic through the main street/downtown business districts of these communities. The safety issues are further compounded as the existing Project infrastructure in these communities was built over 20 years ago and experiences heavy damage such as rutting, flooding, and cracking.

Table 2 Project Information

County	FM Route	Project Length	Functional Class	AADT	Connects to other FM	Truck Route	Main Street
Chickasaw	V18	4.6	Major Collector	700	Yes	Yes	Yes
Fayette	W51	1.76	Major Collector	1000	No	Yes	Yes
Guthrie	F65	11.6	Major Collector	1820	Yes	Yes	No
Mitchell	T40 and A23	6.3	Major Collector	1330	Yes	Yes	Yes
Wapello	T61	4.6	Major Collector	1380	Yes	Yes	Yes
Webster	D36/D20	11.8	Major Collector	4520	Yes	Yes	No

Within Fayette County, nearly 60 percent of the fatal and serious injury crashes are lane departure. Most of these crashes are single-occupancy vehicles that crossed the roadway centerline or ran off road. Such issues can be addressed using FHWA's low-cost, high-impact [Proven Safety Countermeasures](#) such as Centerline and Shoulder Rumble Strips, Safety Edge, Paved Shoulders, Wider Center and Edge Lines, etc. (Figure 2). Additionally, rural Cities, such as Wadena, experience vehicles slowing down as they transition from high-speed rural highways to low-

speed residential City streets. Project improvements such as Dynamic Feedback Speed signs, a proven traffic calming countermeasure, will enhance the safety of people and vehicles through such rural communities.

The Project will resolve the existing safety challenges along the corridor by implementing a context-sensitive design that will improve equity and safety for all modes of travel. **The projected crash cost saving because of the Project, over 20 years, is approximately \$45 million discounted at a rate of seven percent.**



Figure 2 FHWA's Proven Safety Countermeasures

2. STATE OF GOOD REPAIR

Restores and Modernizes Existing Core Infrastructure

The Project meets the goal of USDOT, ICEASB, and Project Counties to improve the condition and safety of existing County and locally owned transportation infrastructure within the right-of-way, before proposing projects that add new general purpose travel lanes serving single-occupancy vehicles. The investment made by the USDOT, Project Counties, ICEASB, and various partnering Counties and Cities will ensure that the current state of failing infrastructure is restored, upgraded, and maintained to build a safe transportation network that reduces future maintenance needs and lower life-cycle costs.

Addressing Current and Projected Vulnerabilities

All six sub-projects display major signs of pavement deterioration such as severe cracking, rutting, or patchy pavement throughout the corridor (Figure 3). Despite maintenance overlays and patching activities over the life span of the roads, the pavements are in a poor state of existing infrastructure. Chickasaw County estimates about three years of remaining life until failure for its Farm-to-Market V18 route while Fayette County estimates around 10 years until failure for W51. Guthrie County has maintained route F65 annually by filling wheel ruts and repairing drainage structures, however, the roadway continues to experience poor state of existing infrastructure, barriers to connectivity, and other challenges.



Figure 3 Current Infrastructure Conditions

The Project improvements address current and projected vulnerabilities, through either full reconstruction or rehabilitation of the roadway and upgrading of the pedestrian infrastructure to American with Disabilities Act (ADA) compliant standards, which not only provides much needed safety enhancements but also ensures efficiency of the transportation network in the future, mobility of goods, improved accessibility and mobility of people, and accelerated economic growth. Therefore, the Project is a sound investment as it maximizes and preserves the long-term value of Iowa's Farm-to-Market Network of Projects and the surrounding transportation network, by sustaining its long-term performance under growing traffic volumes.

Long-Term Operations and Maintenance

The Project Counties and partners are committed to implementing timely investments in capital and preventative maintenance treatments to extend the service life of assets while reducing lifecycle costs. Ongoing operating and maintenance (O&M) costs on the Farm-to-Market County roadway system are funded by taxes and fees from the following revenue sources:

- Property Taxes (Rural Basic, General Basic, Rural Supplemental)
- Road Use Taxes (Secondary Road Fund and Farm-to-Market)
- Local Option Sales Tax
- Tax Increment Financing (TIF)
- Federal Surface Transportation Block Grant (STBG) funds

The Project's Benefit-Cost Analysis (BCA) estimates that the operation and maintenance of the Project, over 20 years, will result in a benefit/saving of more than \$1 million, when compared to a No-Build scenario. Detailed analysis of the operation and maintenance activity cost estimates is available in the [BCA Memo](#).

3. ECONOMIC IMPACTS, FREIGHT MOVEMENT, AND JOB CREATION

Improving System Operations to Improve Multimodal Freight Mobility

In 2021, Iowa generated around \$34.7 billion in agricultural cash receipts with the highest valued commodities being corn, hogs, and soybeans. All the different multimodal freight options (highway, rail, pipeline, and navigable waterways) are utilized in transporting freight across Iowa (Figure 4). However, most freight in Iowa moves by trucks utilizing Farm-to-Market County Roadways. The number of jobs, economic output of the agriculture industry, changes to the agricultural market, and international trade trends all affect the regional economy of Project Counties.



114,383 miles



3,825 miles



491 miles



41,410 miles

Figure 4 Iowa's Multimodal Freight Infrastructure (Source: [click here](#))



Figure 5 Wapello County T61 Project

Key freight-related industries in the region include agriculture, heavy construction, food and livestock processing, and machinery manufacturing such as Reicks View Farms, Cargill Inc, Target, Croell Inc., Mid-American Energy, Van Diest Supply Company, Koch Fertilizers, etc. The Project Farm-to-Market roadways are also a conduit and connector to railroad freight networks in Iowa supporting several agricultural and manufacturing plants along the Project corridor. Transportation costs directly affects food producers and as the distance from the produce source increases, the impact on wholesale prices of higher fuel prices also increases. Investing in a network of Farm-to-Market projects across Iowa will enhance a steady supply of healthy, affordable food choices for consumers across the United States while boosting local, regional, and state economies.

Rural Main Street Revitalization

The Project will directly promote economic development as well as increase opportunities for tourism by enhancing the visual appeal of the Main Street through the rural communities. The Project corridor through Chickasaw, Fayette, Mitchell, and Wapello Counties is also the Main Streets for the Cities of Alta Vista, Elma, Wadena, Stacyville, and Blakesburg. [Rural tourism](#), a growing industry in Iowa, enhances opportunities for increasing economic activity in the region as it provides alternative lifestyle experiences, connections to scenic routes, campgrounds, trails, and bicycle/motorcycle routes, among others.

Several of the sub-projects are in communities that are along Scenic Byways or Historic Downtowns. Farm-to-Market route T61 in Wapello County is a funnel for nearby lakes, state parks,

and a national forest. Similarly, F65 in Guthrie County is a [Historic Scenic Byways](#) route and is also known as White Pole Road. The Project improvements will support a safe and viable infrastructure for tourists and residents alike, by implementing principles of the Complete Streets Approach through use of wider sidewalks, ADA compliant upgrades, marked crosswalks, rapid rectangular flashing beacons (RRFBs), and improved lighting. The Project will improve the connectivity and reliability of the corridor for residents, businesses, and visitors. Wadena in Fayette County, is an anchor community of the River Bluffs Scenic Byway (RBSB). Many of the safety and revitalizing improvements are identified and supported in the Byway's Corridor Management Plan (CMP).



Figure 6 Historic White Pole Road (F65) in Guthrie County

Helping U.S. Compete in Global Economy

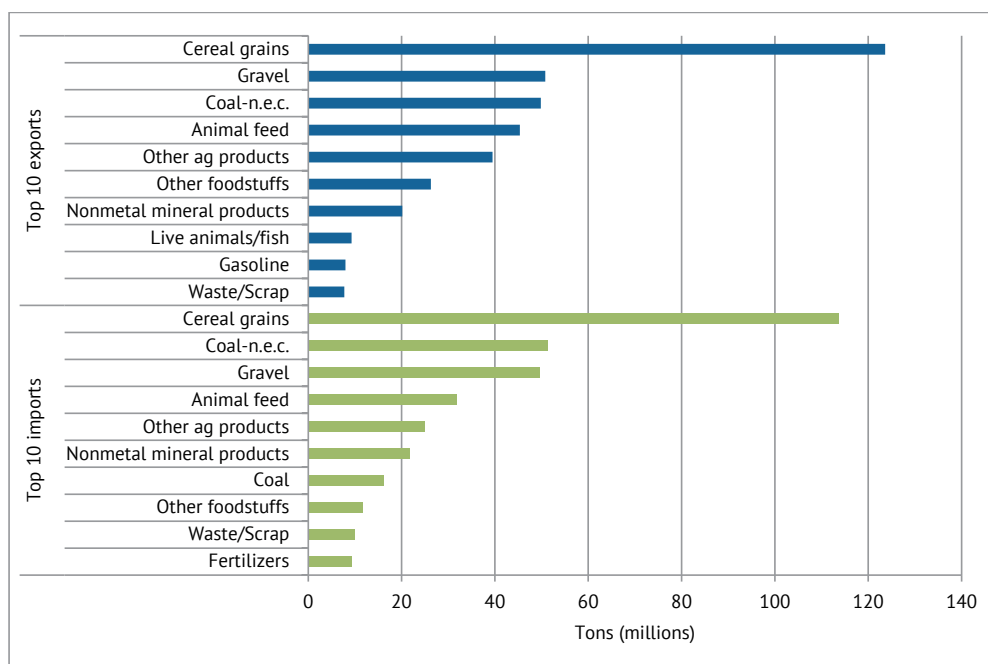
The Project improvements lead to the development of a complete and safe transportation infrastructure. Such improvements increase the economic productivity of land, capital, and labor, which in turn improves the economic strength of the region. There are extensive public and private investments being made in various industries along the Project corridor. Major employers in the region such as Croell Inc., Cargill Inc., Reicks View Farms, Iowa Select Farms, POET Ethanol bioprocessing facility, Mid-American Energy, Bruening Rock Products, Crane Creek Wind - EDF Renewables, Saratoga Wind Farm, Madison Gas & Electric, Iowa Contract Fabricators – McNeilus, Innovative Ag Services Co., Mehmert Tiling, Nestle Purina, Silgan, Gorgia Pacific, Decker Trucking, CJ Bio, AML Riverside, Elanco, CertainTeed, BHJ, Unity Point Health, and many others, would benefit from the robust transportation network resulting from the Project, and lead to the expansion of Iowa's rural economy.

Iowa is a major [domestic and international trading partner](#) and helps the U.S. economy compete globally (Figure 7). Investing in a network of Farm-to-Market projects across Iowa will enhance a steady supply of healthy, affordable food choices for consumers across the United States while boosting local, regional, and state economies. Iowa is [well-situated geographically](#) to be at the center of more production of niche, but growing, segments of consumer-led products such as Organic, Cage-Free, and Non-GMO products. However, it will likely need the development of marketing and distribution channels to supply those developing markets.

The improvements due to reconstruction or rehabilitation will enhance safer operating conditions in the corridor, thereby, improving system operations to increase travel time reliability and manage travel demand for goods movement. This further reduces the cost of doing business and improves local and regional freight connectivity to the national and global economy.

The Project will have a direct positive impact on the major/minor employers' abilities to provide services and safely/efficiently transport freight.

Top 10 domestic commodities exported from and imported to Iowa by weight, 2015



Source: FHWA, FAF

Total international imports and exports, 2010-2014



Source: U.S. Census Bureau, Foreign Trade Division

Figure 7 Iowa's Global Economic Trade

4. CLIMATE CHANGE, RESILIENCY, AND THE ENVIRONMENT

The Project is a network of six sub-projects all of which are low-impact reconstruction or rehabilitation of an existing road on an existing alignment. All the six sub-projects are expected to be Programmatic Categorical Exclusion (CATEX) as none to minimal ground disturbances are anticipated. The Project Counties have initiated the environmental documentation process and have drafted [Concept Statements](#) as required by Iowa DOT as part of the project development process.

Incorporate Lower-Embodied Carbon Pavement and Construction Materials

The Project Counties plan to utilize lower-embodied carbon pavement and construction materials using recycled materials. The existing Hot-Mix Asphalt (HMA) will be broken down into aggregate sized chunks and incorporated into the new pavement using Cold-in-Place (CIP) Recycling techniques. In the case of concrete pavements, recycled Coal Ash will be reused as Fly Ash in concrete. Fayette County estimates using 11,500 square yard of existing asphalt pavement resulting in savings of over 5,620,000 lbs. of construction materials.

Improving Resiliency and Disaster Preparedness

The Project Counties identified the Project as an opportunity to restore and upgrade aging infrastructure, thereby ensuring resiliency in infrastructure. All six sub-projects experience severe cracking, rutting, or patchy pavement throughout the

corridor. These failures are exacerbated due to the heavy freight volume carried on these Farm-to-Market routes. Guthrie County F65 Project experiences frequent water impoundment due to extreme pavement rutting (Figure 8), which creates the potential for hydroplaning. As F65 is a designated detour route for Interstate 80 (I-80), the heavy freight and vehicular traffic worsens the roadway leading to major safety concerns along F65. Similarly, the Mitchell County T40 and A23 Project experiences a heavy volume of farm traffic and freight due to its proximity to US Highway 218, which connects the Target Distribution Center in Cedar Falls, IA to I-90 in southern Minnesota and beyond.

Fayette County W51 Project has documented similar issues due to dangerous road edge rutting. The County has experienced seven federally declared Federal Emergency Management Agency (FEMA) disasters within the last 11 years. Due to its location in the *Driftless Area of Iowa*, defined by steep hillsides, narrow valleys, limestone cliffs, trout streams and forested hillsides, the consequent larger rain events are occurring much more frequently. With the steep grades on the Project, even an inch of rain causes unsafe driving conditions. Project improvements such as paved shoulders would provide safety and resiliency benefits by improving resiliency and disaster preparedness in the Project corridor.

The Project is environmentally sustainable, advances transportation equity, and repairs dilapidated infrastructure while improving resiliency across rural communities in geographically diverse locations in Iowa.



Figure 8 Drainage issues along F65 in Guthrie County

5. EQUITY, MULTIMODAL OPTIONS, AND QUALITY OF LIFE

Transportation Disadvantaged Communities

The existing infrastructure along the Project corridor is in poor condition causing many problems for the roadway users, freight haulers, and businesses, including safety, damage to vehicles and cargo because of the rough pavement, drainage issues, and accessibility issues for pedestrians due to badly deteriorating sidewalks and lack of accessible walkways (Figure 9 and Figure 10).

According to the USDOT’s [Equitable Transportation Community \(ETC\) Explorer](#) National Disadvantage Indicator tool, five of the six Project Counties (Chickasaw, Fayette, Guthrie, Mitchell, and Wapello) are identified as Disadvantaged under the [Transportation Insecurity](#) category (Table 3). **Transportation Insecurity** occurs when people are unable to get to where they need to go to meet the needs of their daily life regularly, reliably, and safely. Nationally, there are well-established policies and programs that aim to address food and housing insecurities, but not transportation insecurity.

Further analysis shows that the transportation cost burden ranges from 13 to 21 percent across the six sub-project locations (spread over nine census tracts), at an average of 17.8 percent. Communities with a higher percentage of [household income spent on transportation](#), including transit costs, fuel costs, vehicle maintenance and insurance costs, are left with less money for housing, medical care, and food, which potentially leads to households living in substandard

housing and having higher rates of chronic illness and obesity. This is especially significant as the poverty levels in these tracts range from 22 to 45 percent of 200 percent or less of federal poverty levels.



Figure 9 Mitchell County T40 & A23 Project



Figure 10 Fayette County W51 Project

Table 3 USDOT’s Equitable Transportation Community (ETC) Disadvantaged Indicators

County	Census Tract	APP/HDC	Health Vulnerability	Transportation Insecurity	Poverty Level ¹	Transportation Cost Burden ²	Lack of Broadband Access ³
			(%)	(%)	(%)	(%)	(%)
Chickasaw County	19037070100	No	79	81	29.2	13.7	18.0
Howard County	19089960300	No	84	75	32.3	16.3	23.3
Fayette County	19065080200	Yes	77	79	35.4	21.2	21.9
Guthrie County	19077950300	No	39	81	25.8	15.5	19.5
Mitchell County	19131560100	Yes	84	70	31.5	18.0	20.6
Wapello County	19179960700	No	74	77	30.6	18.0	22.6
Monroe County	19135070200	Yes	88	52	45.4	19.0	25.3
Webster County	19187000900	Yes	70	26	22.8	20.5	24.5
Webster County	19187010300	No	79	64	30.1	17.7	17.3

*Red cells indicate disadvantage component score higher than 65th percentile.

¹Percentage of population at 200% or less of the federal poverty level.

²Percentage of average household income spent on transportation costs.

³Percentage of households lacking broadband internet access.

All six sub-projects have been viewed as a barrier to local circulation for both motorized and non-motorized travelers. In order to remedy this challenge, Project Counties have actively engaged the communities, within their jurisdictions, to gather input and feedback regarding improvements needed for pedestrian/bicycle/vehicular movements and safety through a deliberative, integrative, and comprehensive design/planning approach, discussed below.

Improving Quality of Life in Rural Areas

The Project will construct active transportation facilities where there is currently a severe need, thereby providing numerous mobility and connectivity benefits to the local and regional community. The multimodal infrastructure improvements within various city limits include FHWA's low-cost, high-impact [Proven Safety Countermeasures](#) (Figure 11) and other measures such as:

- Construction of multiuse sidewalks,
- Paved shoulders,
- Replacement and installation of curb and gutter,
- ADA compliant ramps,
- Installation of warning devices and RRFBs,
- Installation of new striping, and
- Construction of 4.4 miles of 10-foot-wide asphalt trail in Webster County D36/D20 Project.

This will improve the safety and comfort of multimodal users (including those walking, rolling, and bicycling) and improve access to transportation, jobs, services, and public amenities. These connectivity improvements will benefit the immediate Project locations and surrounding communities. As an example, in Chickasaw and Howard Counties, the City of Elma is home to the City of Alta Vista's primary healthcare provider and the V18 route is the main connector between the two cities (Figure 12). It is a critical roadway that provides emergency and medical services to the residents of Alta Vista and Elma. The Project improvements would benefit the communities by decreasing the emergency response time as well as enhancing businesses opportunities for customers and future investors. The Project will prioritize the safety of human life and improve the resiliency of infrastructure, resulting in a cohesive network of multimodal alternatives that support diverse community needs.

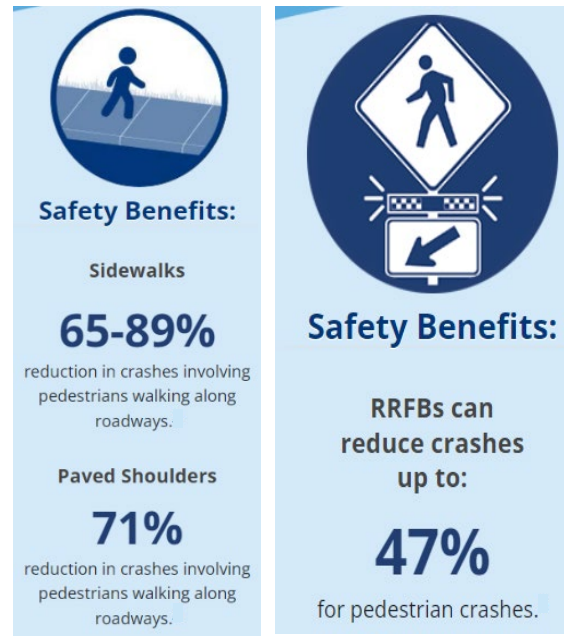


Figure 11 FHWA's Proven Safety Countermeasures



Figure 12 Chickasaw County V18 Project

Various cities and towns across the Project corridor experience similar transportation challenges. **The Project is therefore proposing solutions under the Network of Projects category since the overall benefits in the region would be greater if all six sub-projects were completed together under a single award.**

6. INNOVATION AREAS: TECHNOLOGY, PROJECT DELIVERY, AND FINANCING

Innovative Technology

Conflict Detection and Mitigation Technologies

The Project improvements include several conflict detection and mitigation technologies throughout the corridor. These include installing proven traffic calming countermeasures such as Rectangular Rapid Flashing Beacons (RRFBs), [dynamic lighted chevrons](#), upgraded striping compatible with Autonomous Vehicles, intersection alerts, and signal prioritization, etc. as a strategy to enhance safety by increasing driver awareness. In addition, the installation of solar powered flashing LED stop sign in Chickasaw County will lead to a safer corridor. Conflict detection and mitigation technologies such as the Dynamic Feedback Speed Sign will enhance safety as vehicles transition from high-speed rural highways to low-speed urban and residential County roads.



Figure 13 Conflict Detection and Mitigation Technologies

Traveler Information Systems

The Iowa County Engineer's Association Service Bureau (ICEASB) provides construction updates online for emergency services and the public via real-time updates by the Counties through the [County 511](#). The data is also provided for statewide travel information, including updates associated with construction activities and road closures. This system is also leveraged during flooding events and other natural disasters to communicate hazards and road closures. The County 511 system is also accessible from the Iowa DOT's 511 website and is used to communicate restrictions to haulers for oversize and overweight permits.

Broadband Deployment

Rural internet access is a growing concern with rural communities far less likely to have access to reliable internet service. Fiber-optic rings can vastly improve internet service in rural areas and support economic development opportunities. Federal internet service standards have increased, but many rural areas have not been able to maintain quality internet access. The Project leverages the existing effort by Guthrie and Wapello Counties to deploy fiber along the Project corridor.

Broadband can vastly improve the speed and reliability of internet service, which could benefit future businesses, employees, and residents who work and live near the Project, especially in rural communities. Fiber optic networks will guarantee quality internet speeds along the corridor and also serve as a reliable communication method for transportation applications such as traditional ITS and connected and automated vehicles (CAV). Intelligent signs may provide congestion, detour, and crash information to motorists to make an informed travel decision. Providing information to users in advance of a situation, helps to improve safety and reduce congestion when an incident occurs or in the event of poor road or weather conditions.

Innovative Project Delivery

Accelerated Project Delivery

The Project Counties are committed to begin letting the Project for construction soon after the signing of the grant agreement. The Project will be let through the Iowa DOT following FHWA reviewed and approved processes. Lettings are expected to occur by or soon after September 2025. The Counties have also discussed an accelerated project delivery schedule in case the timeline moves up. The mill and fill rehabilitation work on all sub-projects greatly reduces clearances and permitting needs, which aids in avoiding delays in project schedule. Additionally, routes in the Project corridor will remain open to traffic during construction, leading to minimum disruption and timely completion of the Project.

Long Term Operation and Maintenance

The Project is a network of six sub-projects all of which are low impact overlay/reconstruction of an existing road on an existing alignment. Due to the use of extremely durable

hot-mix asphalt (HMA) pavement design that includes high crushed content as well as specific oil binder for higher traffic counts the Project improvements will lead to efficient long-term operations and maintenance schedules. The

increased resiliency to deicing chemicals will enhance the service life of the Farm-to-Market roadways.

SUPPORTING DOCUMENTS

Links to supporting documents are included throughout this narrative. All supporting documents and MPDG application materials are available to view at the following webpage:

<https://www.srfconsulting.com/icea/>