



Outcome Criteria of MPDG US 412 Project

August 2023



OKLAHOMA
Transportation

Project Outcome Criteria

Criterion 1 – Safety

US-412 contains multiple at-grade intersections with no acceleration lanes for vehicles turning onto the highway. Left turn bays do exist at the at-grade intersections, but aggressive breaking does occur at times when a vehicle has to yield to oncoming traffic. **These intersections are one of many modifications that must be made to convert US-412 to an interstate.** Crash data was pulled for all interchange and roadway segment locations with proposed improvements. **Table 1** provides details on the five-year crash totals (2017-2021). As the table indicates, at all but one of the crash locations, injuries occurred at least 50% of the time. Injury and fatal crash totals are expected to significantly improve on US-412 after interchanges are added and pavement on US-412 is replaced. The results of the BCA analysis support this assumption. Safety-related improvements along the corridor including eliminating the at-grade intersections and rehabilitating pavement will result in a **potential crash savings of \$21.7 million (NPV).**



Multiple at-grade intersections on US-412 create safety hazards for those accessing the corridor. The combination of vehicles on US-412 moving at posted speeds of 65 MPH and vehicles turning onto the corridor with no acceleration lane means that drivers must have increased awareness in these locations. Misjudging the speeds of oncoming vehicles causes serious and sometimes fatal crashes. Photo Credit: ODOT

Table 1: Existing Crashes at All Locations

	Collisions 2017-2021			
	Overall	PDO	Injury	Fatal
SH 66 Interchange	39	17	21	1
Pavement Rehabilitation (I-44 to Verdigris River)	37	17	19	1
265 th E. Avenue	37	17	19	1
SH 412P	26	13	13	0
4170 Road	10	3	7	0
4190 Road	8	2	6	0
SH 412B	14	8	6	0
Total	171	77	91	3

Source: ODOT Crash Data

Criterion 2 – State of Good Repair

The seven projects, especially the five new proposed interchanges at at-grade intersections, will modernize core infrastructure in the state of Oklahoma that must be upgraded before redesignation to an interstate.

The pavement condition on US-412 between I-44 and the Verdigris River can be categorized as being in [Good and Fair](#) condition. Sections have been rehabilitated within the last five years, but parts still require annual maintenance. Given that future traffic is estimated to increase to 40,600 vehicles per day on US-412, including [15% truck traffic](#), ODOT estimates that the pavement through this corridor will likely deteriorate quicker than other corridors. ODOT has decided that it is not financially practical to continue to rehabilitate this section of US-412 when the projected increases in traffic demand due to expansions occurring at the Tulsa Ports and the MidAmerica Industrial Park (see **Economic Outcome Criteria**) necessitate a complete pavement replacement. A pavement replacement ensures that maintenance dollars are put to good use elsewhere in the state.

According to estimates outlined in the BCA, **the savings coming from reduced maintenance costs is \$21.2 million (NPV)** compared to the no-build alternative.

The new infrastructure will be maintained in accordance with ODOT's maintenance schedule. ODOT maintains a detailed [Asset Preservation Plan](#) for existing infrastructure and future transportation improvements within each county. ODOT has also developed a long-term [Transportation Asset Management Plan](#) for ensuring that the states critical infrastructure is maintained.

How Pavement Conditions are Collected

Each year, ODOT collects pavement surface condition data. It is collected using a state-of-the-art 3D Laser Crack Measurement System (LCMS) which captures detailed road surface conditions via longitudinal and transverse profiling. After data collection and validation, ODOT aggregates raw pavement surface condition data from 0.01-mile collection sections into the ODOT inventory subsections. These inventory subsections form the basis of ODOT pavement management decision making and reporting. ODOT's Field District Engineer factors these results into their knowledge of the transportation needs and priorities in each district.

Criterion 3 – Economic Impacts, Freight Movement and Job Creation

Upgrading US-412 to interstate standards will directly support the economic industries that are confirmed to be relocating to the corridor and the industries that will be relocating to the corridor in the future after improvements are made. US-412 is developing into a vital economic corridor for the state and the country supplying good paying jobs with free/fair choice to join a union. One of the primary reasons for upgrading US-412 is to accommodate for the existing and planned development projects that are located nearby (see **Figure 1**). Factories such as the Great River

Dam Authority Facility at MidAmerica Industrial Park will add approximately 1,500 new jobs to the area. This will necessitate the intersection of US-412B to be upgraded to an interchange to safely handle the increases in economic activity.

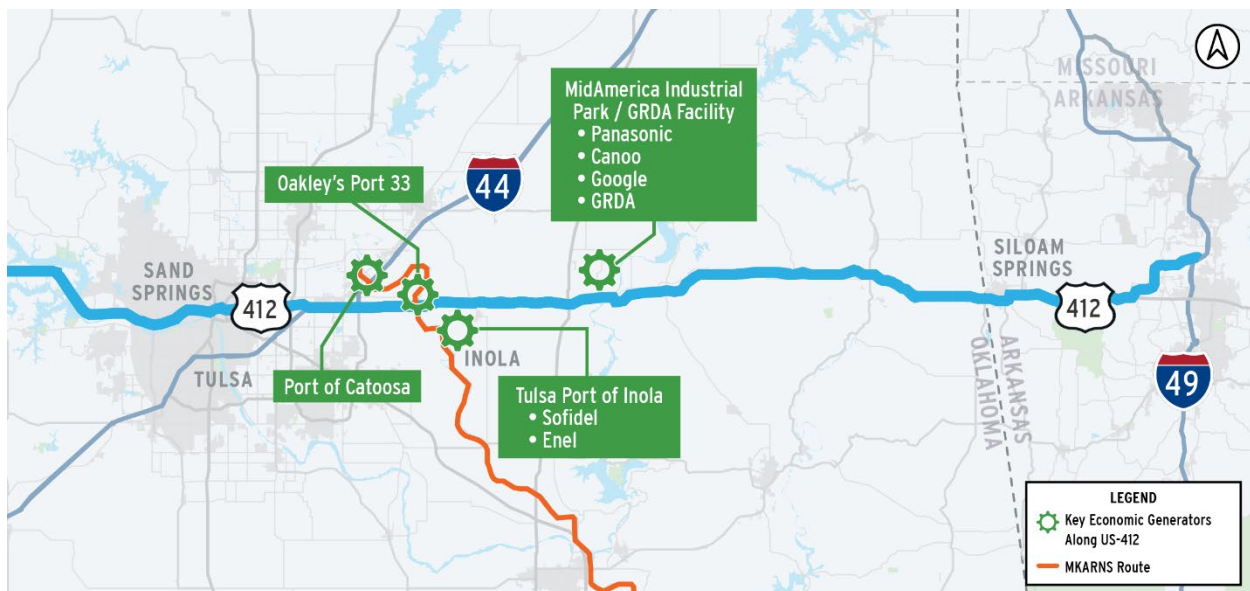
The MidAmerica Industrial Park is also home to Google, who in [2007 announced \\$700 million in investments in the state](#), mainly at this facility. In May of 2022, Google announced an additional [\\$75 million investment](#) at MidAmerica Industrial Park. In March of 2022, Northern Data also announced a [\\$270 million investment](#) at the MidAmerica Industrial Park for a new data center that will employ at least 150 people. Canoo is [set to open their second plant](#) in the state by summer 2023 in MidAmerica Industrial Park. The plant is expected to employ 110 people when it first opens and grow to at least 2,000.

In addition to the facilities listed in **Figure 1**, [at least 3,500 new jobs](#) will be located at MidAmerica Industrial Park as Panasonic has decided to locate their third American EV battery manufacturing facility in Oklahoma. This deal brings a \$5 billion investment to the state and will create nearly 20,000 indirect jobs.

LEAD Act Passed to Incentivize Economic Development

In April 2022, the [Large-scale Economic Activity and Development \(LEAD\) Act](#), aimed at securing a massive Panasonic EV battery manufacturing facility along US-412 in the study area, was passed. Panasonic accepted the proposed \$700 million incentive package but is asking for additional community and infrastructure upgrades. The deal to bring this EV battery manufacturer to the state will likely be finalized in the summer of 2023. If Panasonic chooses to locate their facility at the approved site at MidAmerica Industrial Park, adjacent to US-412, [a minimum 2,500 direct jobs will be created](#). Once indirect jobs are factored in, that number could grow to nearly 20,000 jobs.

Figure 1: Planned US-412 Development Projects



Source: ArcGIS, ODOT

US-412 Supports Port Development

The impact of upgrading US-412 to an interstate goes beyond passenger vehicle and freight trucking movements. Multiple proposed interchanges and pavement reconstruction on US-412 directly support the McClellan-Kerr Arkansas River Navigation System ([MKARNS](#)). The US-412 network connects to the Tulsa Port of Catoosa through SH-66, the Port of Inola through 4170 Road and 4190 Road, and Oakley's Port 33 through US-412P. Over 22,000 full and part time jobs in Oklahoma and the surrounding region are supported by the MKARNS. In 2021, [MKARNS transported 10.7 million tons of goods valued at \\$3.7 billion](#). The Port of Catoosa Railroad feeds into BNSF rail tracks, extending the economic impact of the region. Working together, the ports, rail lines and US-412 create significant economic opportunity for the region.

The Army Corps of Engineers recently released their plans to utilize funding from the IJA to deepen the MKARNS channel from 9 feet to 12 feet. A deeper channel will allow for increased barge capacity up to 400 tons per barge.

Interchanges at 4170 Road and 4190 Road will be needed to support future economic activity at the Port of Inola. In May 2023, Enel North America announced their plans to [build a solar panel plant at the Port of Inola](#), just south of US-412. This is noted to be the **largest economic development project in the state's history with Enel investing upwards of \$1 billion for the factory**. The investment will be in two phases. Phase 1 will begin in the fall of 2023 with construction of the factory. Construction is expected to create 800-1,000 temporary jobs. Once the 2 million square foot factory is completed in 2025, 1,000 full-time employees will begin 24/7 operations. It is expected that 200-300 heavy trucks will be going to and from the facility daily.

Phase 2 of the Enel solar panel plant is scheduled to begin in 2027. It will include adding an additional two million square feet to the facility. Approximately 500 construction jobs will be created along with 700-900 additional permanent jobs to the factory. The total number of trucks entering and departing the factory will expand to 400 per day, increasing the demand on US-412.

Additionally, the [Port of Inola](#) just recently completed the Sofidel America Manufacturing facility, a \$360 million dollar investment employing over 400 people with direct access to barge transportation. There are also BNSF rail improvements nearing completion at Tulsa Port of Inola. When complete, the improvements will support inbound freight truck volume going to the Sofidel plant, as well as support the new Enel project. In total, the project will cost \$19 million and it is expected to be completed by November 30, 2023.

In addition to the vast expansion happening at the Port of Inola, the Tulsa Port of Catoosa has 70 companies located within the park that support about 3,000 full-time jobs.

US-412 Enhances Recreational Tourism

On July 19, 2023, it was announced that [American Heartland will be building a 125-acre theme park](#) with 1,000 acres of total development area near Vinita, OK. The rest of the development area

will include amenities such as RV parks, cabins, hotels, and a waterpark. Located north of US-412, the theme park is expected to draw 2 million visitors a year, which will increase traffic on US-412, especially at the Route 66 interchange. The park is intended to rival Disney Land in both size and quality. The project is projected to cost \$2 billion and is expected to be completed in 2026. The new theme park has tremendous possibilities to improve Oklahoma's economy. The regional economy will benefit from visitors staying at hotels surrounding the park, eating at local restaurants and visiting other attractions in the state.

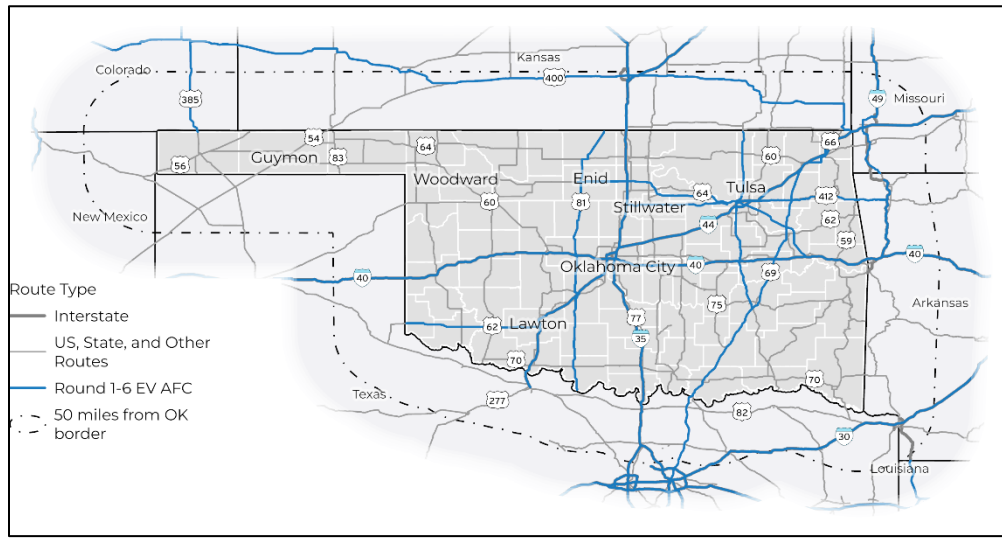
Criterion 4 – Climate Change, Resiliency and the Environment

Although ODOT cannot claim significant direct environmental benefits from the proposed projects as prescribed in the BCA, US-412 is positioning itself to be a significant supporting network for alternative energy sources in the region. Many businesses locating near this corridor are involved in alternative, clean energy development. Panasonic has plans to [build an Electric Vehicle battery production center at MidAmerica Industrial Park](#) in Pryor, Oklahoma. Another notable clean energy business locating along US-412 at the [MidAmerica Industrial Park](#) is [Canoo](#), which is also [developing an EV battery manufacturing facility](#). Both businesses will grow the renewable energy supply chain in the country and assist the United States with moving away from our reliance on fossil fuels.

The Tulsa Ports located along US-412 are also important to producing positive environmental change in the region. The Ports of Inola and Catoosa are strategically located along US-412 and are growing their capacity to meet the [increased demand for rail](#). This will lessen the burden for freight to be moved by trucks, which reduces emissions and the cost of shipping. In addition, the Port of Inola will be the new site for [Enel to build a \\$1 billion solar panel plant](#). This is both the largest clean energy and economic development project in Oklahoma state history. This facility will contribute to the United States' goal of diversifying its clean energy portfolio.

Lastly, given the alternative energy developments that are described above, US-412 is primed to expand EV charging stations along the corridor. Following federal requirements, ODOT has developed their [Electric Vehicle Infrastructure Program \(EVOK\)](#). **Figure 2** shows that US-412 is identified as an Alternative Fuel Corridors (AFC's). The EV charging station deployment plan, which launched in 2022, will include public-private partnerships within the project area, with private entities being the ultimate owners and operators of charging infrastructure. To encourage business owners to participate in providing EV charging stations on their property, ODOT has created a grant that businesses can apply for to lessen the financial burden of installing the infrastructure.

Figure 2: Oklahoma Alternative Fuel Corridors



Source: ODOT

Criterion 5 – Equity, Multimodal Options and Quality of Life

An analysis from the [Equitable Transportation Community Explorer](#) (ETC) shows that the census tracts with proposed projects located in them, when combined, score in the 73rd percentile for transportation insecurity, which is considered to be disadvantaged. Mentioned in the Project Location section, the projects are directly within APP, HDC's, and tribal Indian nations. ODOT is currently conducting a Planning and Environmental Linkages (PEL) study which includes a mobility equity analysis for the entire corridor including the suggested interchange locations. The equity analysis to be conducted as part of the PEL will analyze and consider policies, goals, and methodologies that align with the [Justice40 Initiative](#).

Alternatives that are being evaluated in the PEL study include a range of multimodal options that may be able to serve as components of an overall preferred alternative. The equity analysis is intended to inform the decision-making process and produce alternatives that adequately address transportation needs, satisfies the needs of neighboring communities, and provides the greatest level of access to key areas of importance including economic centers or places of cultural significance. The equity analysis shapes public involvement activities along US-412, including outreach and engagement with organizations, agencies and representatives who can assist the Project Team in making decisions that can increase equity and improve the quality of life for communities and residents adjacent to the corridor.

Upgrading interchanges, especially at-grade intersections, increases the quality of life for travelers and community members by improving safety and establishing a more reliable pedestrian network for people to cross US-412 by means other than a vehicle. Improvements will also make it easier for people to access jobs and promote additional development along US-412 that will indirectly support the new jobs coming to the corridor (See **Economic Outcome Criteria**).

As part of the nationwide National Electric Vehicle Infrastructure Formula (NEVI) Program, ODOT is launching an EV charging station deployment plan which will include Public-Private partnerships within the project area, with private entities being the ultimate owners and operators of charging infrastructure. Improving EV charging station accessibility increases equity in the following ways:

- Accelerates equitable adoption of EVs
- Increases viability of electric vehicle use for those with range-anxiety
- Contributes to the reduction of carbon-emissions
- Expands transportation equity in rural areas providing them reliable linkage to urban areas

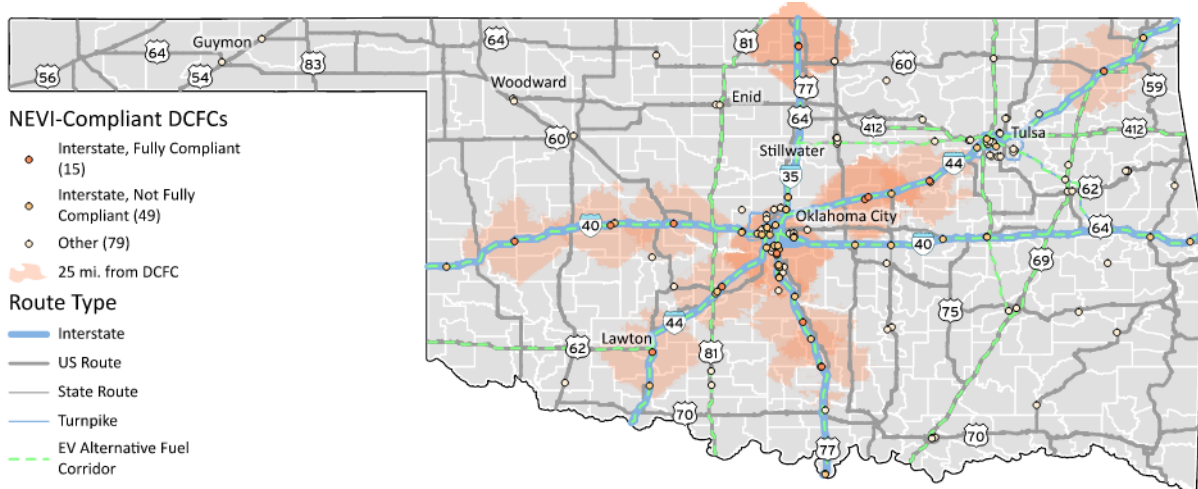
Criterion 6 – Innovation

Innovative Technology

ODOT is developing a plan on EV charging station rollout which will include Public-Private partnerships along that corridor with the private entities being the ultimate owners and operators. The buildout is part of ODOT’s statewide EV infrastructure deployment plan, which will receive \$66.3 million over the next five years from the [National Electric Vehicle Infrastructure \(NEVI\) Formula Program](#). NEVI is a \$5 billion effort to establish a national network of 500,000 EV charging stations by 2030 along federally designated [Alternative Fuel Corridors](#).

Figure 3 shows Oklahoma’s 15 existing EV charging stations on interstates that are compliant with NEVI standards, 49 EV stations on interstates that are not compliant, as well as 79 stations not located within one mile of an interstate. US-412 currently offers some charging stations, but the number of stations is sparse, and the stations are separated by long distances.

Figure 3: Existing Electric Vehicle Charging Stations in Oklahoma



Source: ODOT NEVI Plan

ODOT will look to use the latest in drone technology, including [PIX4Dmatic](#), a drone software tool used for next-generation photogrammetry for large scale corridor mapping, which is relevant to the needs of US-412. PIX4Dmatic will yield high quality orthomosaic mapping of the corridor and create a base file for proposed improvements that stakeholders and the public can easily understand when it comes time to engage the community.

ODOT also will consider technology ideas including adding ITS solutions focused on improved personal mobility and freight supply chain optimization. Collaboration with the Oklahoma Turnpike Authority (OTA) will be needed to ensure that the OTA's conversion to all-electric tolling is connected with ITS systems on the ODOT-controlled US-412 network. OTA's conversion is underway at the Cherokee Turnpike, which is located at the east end terminus of the Project corridor.



Technology solutions proposed herein are consistent with the statewide initiatives initiated by Tim Gatz, Oklahoma's Secretary of Transportation and Executive Director for ODOT.

Innovative Project Delivery

US-412 PEL Study

Although the seven projects described in the following application are advancing toward construction, they are all vital components of upgrading US-412 to an interstate. As part of the interstate conversion process, ODOT is currently partnering with the Arkansas Department of Transportation on a PEL study of US-412 from I-35 north of Oklahoma City to I-49 in Springdale, Arkansas. The PEL, expected to be completed by Spring 2024, will identify a master plan for additional interchanges along US-412 as well as other deficiencies that will need to be addressed prior to being redesignated an interstate. The delivery benefits of using the PEL process are described below:

- 1) **Accepted by NEPA** - The activities, outcomes and documentation that result from the PEL are accepted and easily transferrable to satisfy requirements of the National Environmental Policy Act (NEPA) as part of [FHWA's Every Day Counts Program](#). PELs can help to expedite federal environmental reviews to support project development and delivery. Effective public involvement and agency coordination are required elements for a successful PEL. The PEL will include development of a purpose and need as well as determination of goals/objectives.

- 2) **Public Involvement** - The PEL includes in-person and virtual public involvement activities. By the time the NEPA process begins, ODOT will have already become familiar with stakeholders in the corridor and have a good sense of key issues and concerns. ODOT will also have heard from those living in HDC and APP to understand their needs. ODOT will use the Public Involvement Management Application (PIMA) to interact with all stakeholders. This innovative public involvement tool enables ODOT to receive, document, and respond to all comments and track conversations with stakeholders so that proof of the dialogue can be kept for historical tracking throughout the project lifecycle. The project team will also be able to provide additional resources, promote public meetings or informational sessions, and provide timely responses to individuals, communities, and organizations.
- 3) **Preliminary Screening** - Preliminary screening of alternatives and elimination of unreasonable alternatives completed in the PEL will be carried forward into NEPA. By narrowing down viable design alternatives, project delivery can be facilitated on an advanced timeline. Work under the PEL will include recommendations for innovative technologies.

Project Bundling

All of the proposed improvements outlined in the following grant are included in Oklahoma's [State Transportation Improvement Program \(STIP\)](#). Many of these projects are being bundled together under one construction contract. By awarding a single contract for several similar projects, ODOT can streamline design and construction, reduce costs, and effectively decrease transportation project backlogs.

Innovative Financing

ODOT will be using state funds and federal formula dollars in addition to the requested MPDG funds. No other sources of financing have been identified for the project.