

# US HIGHWAY 20 & POPLAR AVENUE RCUT INTERSECTION

FORT DODGE, IOWA



## PROJECT DESCRIPTION

Although first conceptualized in the early 1980's, this project represents the first RCUT intersection on the primary system in the State of Iowa and believed to be the first in the on any system in the state. Adjacent states have effectively used the intersection solution for many years and have demonstrated the intersection reduces conflict points and increases safety as compared to traditional at-grade intersections. After consideration of other alternatives, including a standard intersection with extended turn lanes and no build scenario, it was determined an unsignalized RCUT intersection with geometrics for the left-turn crossover and U-turn crossovers per the Iowa DOT Design Bureau's guidance and the design manual draft chapter for RCUT intersections was the preferred alternative. The RUCT showed better level of service as compared to the standard intersection (B vs. E/F) and less queuing during both opening day and 20-year full build scenarios.

Ultimately, the purpose of U.S. Highway 20 and Poplar Avenue Intersection Improvement project was to open up potential commercial and industrial development area east of Fort Dodge. This area also provides recreation opportunities within the Holliday Creek Area Park. In anticipation of the increased traffic demand, the RCUT solution provides safer means to transport consumers and goods to the area. The Marker 126 Travel Center provides one of the only refueling options along U.S. Highway 20 from Fort Dodge to Holstein (approximately 80 miles). Not only does this provide a benefit to commuters and freight companies, but it also provides additional employment opportunities for those living in and near Fort Dodge.

## SCOPE OF SERVICES

- Survey and Mapping
- Preliminary Design Development
- Opinion of Probable Costs
- Community Outreach
- Floodplain Permitting
- Final Design and Specifications
- Construction Administration
- Construction Observation
- Funding Administration

## REFERENCE

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The challenge initially faced by the developer and McClure was identifying a reasonably cost-effective solution to provide safer means of access to allow for development of the Marker 126 Travel Center and potential subsequent commerce. Understanding a traditional grade-separated or traditional intersection would not meet expectations of the developer and regulatory agencies, McClure brought forth unique solutions. During conceptualization, it was clear the site characteristics would be a key aspect of the design process. The profile grade of U.S. Highway 20 west of the project site slopes down into Holliday Creek valley at approximately 2.5%. Analysis was required to ensure traffic turning at the westmost U-turn would be afforded enough time to gain speed in the eastbound direction. Additionally, lighting was installed throughout the intersection to provide better visual awareness for U.S. Highway 20 traffic.