# Transportation

Highways & Bridges

## Client

Wisconsin Department of Transportation

## Location

Milwaukee, Wisconsin, USA

*"The project has set a new standard for the completion of large volumes of work in a very short timeframe while maintaining mainline traffic and minimizing main side road arterials and ramp closures… Milwaukee Transportation Partners provided innovation, knowledge, and commitment deserving of exceptional recognition for the Marquette Interchange."*

David Nguyen, PE
Mega Project Manager
WisDOT

# Marquette Interchange Reconstruction

## Project Highlights

- $810 million project encompassing 12 miles of urban freeways, design of 50 ramps, and construction of more than 180 structures
- Award-winning public involvement program supported Context Sensitive Solutions (CSS) approach to project development and implementation
- Innovative engineering solutions and construction techniques kept downtown Milwaukee "open for business" during construction
- Recipient of the 2007 American Road and Transportation Builders Association (ARTBA) Pride Award for excellence in community relations and outreach
- Two-time Wisconsin Department of Transportation (WisDOT) Golden Shovel Award winner for contracting with and mentoring of disadvantaged business enterprise partners

## Project Description

The Marquette interchange is the cornerstone of the southeastern Wisconsin freeway system. It carries almost 300,000 vehicles per day and links nearly one-third of the state's freeway traffic to the rest of the country. The 4-year reconstruction of the aged interchange was ranked by *Road and Bridges* magazine as the nation's No. 1 road project for 2004.

The Marquette interchange reconstruction project replaced and modernized an existing four-level system interchange in downtown Milwaukee with a five-level interchange at the junction of I-94, I-43, and I-794. There were five major contracts to replace the interchange, including Clybourn Street, north leg, west leg, south leg, and the core. As the joint venture partner managing Milwaukee Transportation Partners, CH2M HILL was responsible for bridge, roadway, and retaining wall design; maintenance of traffic during construction; plan preparation; and public involvement.

## Challenges

With five levels of roadway, 300,000 vehicles per day, a fully developed urban setting, and work proceeding within the existing right-of-way, the 4-year reconstruction of the Marquette interchange was the largest and most complex transportation project ever undertaken in Wisconsin since construction of the original Marquette interchange began in the late 1960s.

Maintenance of traffic during construction was a significant challenge. Also, because of the extensive network of existing and proposed utilities, design of temporary and permanent roadways and bridges was required to accommodate complex utility relocations. Significant disruptions to the downtown business community were not allowed or acceptable.

Public perception of impacts and alternative routes around the construction were identified as extremely important to the overall project's success. WisDOT informed the public that two lanes in each direction would be open

to traffic during the entire project. This commitment to the public was vital to keeping downtown Milwaukee open for business and maintaining the freeway connections to the downtown business district.

*"Just wanted to let everyone involved with this project know that you guys are doing a terrific job. I have lived in several major cities, where projects of this magnitude more or less paralyzed portions of the city. The fact that you have been able to pull off this feat of engineering and logistics with a minimum of inconvenience to the public is nothing short of amazing. This project should serve as a model to other states. I believe a compliment is in order. Great job! "*

Milwaukee resident, submitted to the project Web site

### Innovations

During the design phase, the governor of Wisconsin mandated that the Marquette interchange team significantly cut project costs. The design team saved millions of dollars on the west leg project by using a significant portion of the existing freeway alignment and by reconfiguring the 25th Street interchange.

The project set a new standard in Wisconsin for maintenance of traffic. CH2M HILL developed a detailed schedule to clarify lane closures. Ramp closures were coordinated to benefit the traveling public and disincentives were introduced to ensure contractors maintained the aggressive schedule.

The team introduced a "lane rental" program, which gave contractors an allotment of hours to close freeway and ramp lanes without disincentives. The contractors were then charged for any closures above and beyond the allotment. The lane rental program reduced lane closures and minimized disruptions to the motoring public. It has also become the standard for future freeway construction projects in the state.

Another solution to overcoming project challenges was an aggressive public outreach campaign to make the public aware of ramp closings and alternate routes during construction. Integral to the public outreach was the creation of a Web site (www.mchange.org) that included a project-specific Map-It tool to help route drivers through the interchange during construction.

One of the significant-accomplishments was finding a path for temporary roadways to drop under existing structures through the core of the interchange. For safety during construction, project staging was prepared with large work areas and positive separation from freeway traffic.

A community sensitive design process was followed. This involved meetings with local officials and the public during which input regarding the design of the interchange was obtained. This resulted in the incorporation of uniform aesthetic details to make the Marquette interchange an enhanced and prominent feature of downtown Milwaukee.

All project structures were designed to have a service life of at least 75 years. Durability and ease of maintenance were primary considerations throughout the design process. This resulted in the widespread use of high-performance concrete and deck overlays to protect the bridge deck from corrosive de-icing salts and other contaminants.

## Awards/Recognition

This program received the 2007 first place public sector Pride Award by ARTBA for excellence in community relations. This award honors companies whose outstanding programs and activities enhance the image of the transportation construction industry. The project also received the WisDOT's Golden Shovel Award twice for contracting with and mentoring disadvantaged business enterprises.