



State Route 54 and Duck Creek Bridge

Brown County, Wisconsin

Wisconsin Department of Transportation and Oneida Nation of Wisconsin

Counterclockwise from top: the new Duck Creek Bridge and adjacent trails along SR 54 in Oneida; the new bridge, center of photo, is alongside the refurbished historical bridge, at bottom; Cattail designs by local artists are built into the bridge pier columns. (Photos courtesy of Mead & Hunt)

Inspired thinking transformed a typical bridge replacement project into new multimodal facilities that reflect residents' history, creativity, and identity.

CONTEXT

- Constructed 2012.
- Midwestern.
- \$5.4 million.



HIGHWAY TRANSFORMATION

- Upcycled failing historic bridge into a bicycle and pedestrian route.
- Assembled gateway design using new bridge, new highway alignment, roundabouts, and retaining wall.
- Built Oneida art into the project's foundations, both figuratively and literally.

WHAT WAS THE PROJECT DRIVER?

The State Route 54 (SR54) bridge over Duck Creek is located at the heart of the 102 square-mile Oneida Nation reservation, west of Green Bay. The Wisconsin Department of Transportation (DOT) determined the bridge was failing and decided that a new bridge was necessary. Additionally, children attending the elementary school in upper Oneida, needed a safer way to travel to the library in lower Oneida, just across the creek. However, the Oneida community regarded the old bridge as part of its cultural heritage.

HOW DID THIS CONNECT THE COMMUNITY?

The Wisconsin DOT worked closely with Oneida Nation officials, engaging representatives from various departments and ensuring that they addressed concerns like land management, environmental issues, planning, cultural issues, and engineering. Early on, the Oneida Nation planning staff realized that an alignment for a temporary bridge that would route traffic around the replacement could serve as the alignment

for the main highway. This insight into realignment was the start of the project's transformation—the proposal provided a separation allowing for green space, stormwater management features, and trails. The separation of the main highway also improved safety by moving traffic away from the community and making space for trails and highway underpasses. Constructing the new bridge downstream also made it possible to preserve the old Duck Creek Bridge, an important cultural resource for the community.



An aerial view of the Seminary Road roundabout reveals a landscaped turtle. The Turtle Clan is one of the three Oneida clans. (Photo courtesy of Mead & Hunt).

Context-sensitive solutions were integral to the project's development. Because of the limited space and the intent to minimize disturbance outside the roadway corridor, sidewalks were placed adjacent to the roadway on the western end in upper Oneida. In lower Oneida, a complete trail system was designed, most of it fitting within the original roadway alignment.

The project created a green space in front of the library as a buffer from the highway and for use as a learning area in a natural setting. It also accesses the trail network, so that children can safely cross SR54 under the new bridge.

Roundabouts at either end provided safe intersections that marked the change from a rural context to a residential area. The roundabouts also incorporate community-identifying elements.

The project team integrated technology and culture. Unique computer aided drafting (CAD) replicated the artists' original drawings, and then artists reviewed them for detail and accuracy. The CAD artwork was incorporated into the plans and produced on the bridge through laser production techniques.

Clarity of communication was critical to success. The project team worked directly with Oneida Nation staff to assure a shared understanding of the project goals. The guiding principles revolved around a commitment to pedestrian safety, slower traffic speeds, and landscaping and design that was supported by the Oneida community.

Large groups of stakeholders and community members were convened. Some were from the Oneida government, such as the Business Committee, the General Tribal Council, and the Land Commission. Others were representatives from community organizations, such as the school board, the library, a veterans group, the housing agency, and the police department. All were affected by the bridge day-to-day and involved in the project.

WHAT WERE THE BENEFITS?



RENEW

The planning and design team leveraged the bridge project to connect the community, to provide a gathering space, and to strengthen tribal identity by incorporating landscaping and artwork by local artists. The bridge project completed a Safe Routes to School grant work and won several awards:

- FHWA Excellence in Right-of-Way Tribal Partnership Award (2012).
- American Council of Engineering Companies of Wisconsin Engineering Excellence Award.
- Oneida Nation Tribal Excellence Award.

For more information:

<http://wisconsin.gov/Pages/doing-bus/civil-rights/tribalaffairs/ne-region.aspx>

<http://onlinepubs.trb.org/onlinepubs/trnews/trnews294.pdf>