

New Cable-Stayed Pedestrian Bridge Constructed in Charles City, Iowa



Flash flooding destroyed the historic Charles City, Iowa Suspension Bridge in June 2008, when unprecedented floods ravaged many areas of Iowa. The structure had served the City as a pedestrian crossing over the Cedar River for 102 years and was valued by the community as the City's most visible icon.

The City retained the services of WHKS for the structural design of the bridge replacement. After investigating four replacement options, the City decided to construct a prefabricated 420-foot x 10-foot three-span cable-stayed bridge, which was partially financed by FEMA. The width of the bridge was increased to meet current ADA standards and provides scenic river views for pedestrians and bicyclists.

A challenging aspect of the project was erecting the truss portion of the bridge's superstructure due to the immense weight of the bridge and the unique site layout. The truss was delivered in six segments that were spliced together on site. The assembled segments were slowly moved into place over a 12-hour period and a mid-air splice was performed over the river before the bridge was settled into place.

Aesthetics were extensively coordinated into the design to enhance the visual appeal of the bridge. WHKS assisted the City during this phase of the project by providing aesthetic feature and design information to a committee of citizens, elected officials, and City staff who selected aesthetic features for key elements of the new structure. Portions of the bridge that received aesthetic treatment included the piers and abutments, which utilized a stained ledgerstone formliner to look similar to the nearby Frank Lloyd Wright House in Charles City. The towers and truss were painted with a unique paint color scheme.



The prefabricated cable-stayed bridge option was the most economical solution for the City's desire to have a cable structure that could incorporate aesthetic treatments that are unique to the community.

In addition to conducting the feasibility study and providing preliminary and final design, WHKS also provided construction observation and administration services to the City.

"The community of Charles City is glad to have this unique, beautiful, connection piece available for many to experience," commented Tracy Meise, Charles City Planning & Project Supervisor.

WHKS & Co. publishes this newsletter for our clients and friends. For more information about our company, please contact us:

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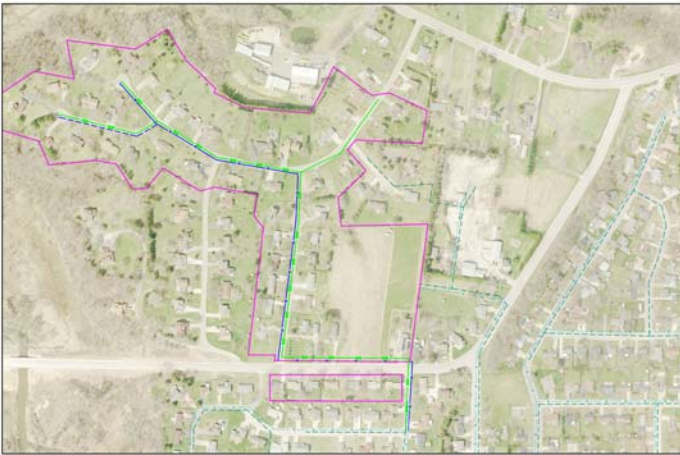
Keeping Up with LaCrescent

LaCrescent, Minnesota is a vibrant and growing Mississippi River community on the Minnesota-Wisconsin border. As consultant City Engineer to the City, WHKS is providing full service municipal engineering to the “Apple Capital of Minnesota” on various projects, including the following improvements:

Crescent Valley Sewer Extension

4,000 feet of sanitary sewer and water extension to serve 40 residences that are currently located in the township. WHKS services include:

- Chapter 429 assessment assistance
- Sanitary sewer design
- Water main design



The expansion of municipal services will serve homes that have private septic systems which have either failed or are beginning to fail.

Pavement Ratings

Street maintenance rating program that evaluates each City street and compares them in a uniform manner to record maintenance and repair needs for the overall street system. WHKS services include:

- Pavement evaluation
- GIS integration
- Street design

Wagon Wheel Trail

Design of a 1-mile shared-used path along the Mississippi River that will extend from LaCrescent to LaCrosse, Wisconsin. WHKS services include:

- State Aid funding
- Design and construction services
- Coordination with US Fish & Wildlife, MnDNR, MnDOT, and US Army Corps of Engineers

Water Distribution System Modeling

Input the City's water distribution infrastructure into modeling software to evaluate existing conditions and future demands, allowing the City to plan for cost-effective modifications to the system. WHKS services include:

- GIS base mapping
- Identification of fire protection needs

Wastewater Treatment Plant Decommissioning

The City is now in the process of decommissioning their Wastewater Treatment Plant, while retaining the main control building for office space and keeping the biosolids tank. WHKS services include:

- Wastewater engineering
- Construction services
- MPCA coordination



The decommissioning project presented a few challenges, since LaCrescent is the only city in Minnesota to pump its wastewater to a different state.

WHKS provides a full-range of municipal engineering services, including planning, design, and construction engineering services for street and utility improvements, water and wastewater services, stormwater management, parks and recreation trails, and site design. To find out how WHKS can assist your community, please contact any of our office locations.

Bridging the Gap on the Heritage Trail



The current "gap" in the Heritage Trail between Sageville and Dubuque, Iowa (shown on monument above) will soon be closed.

The Heritage Trail is a 26-mile (42 km) long multi-use rail trail, starting north of Dubuque and ending at Dyersville, Iowa. It is maintained by the Dubuque County Conservation Board, and was converted from a segment of the former Chicago Great Western railroad line between Chicago and Oelwein, Iowa. The scenic trail winds through rugged woodlands, with high bluffs and many river overlooks. Unfortunately, there has always been a gap between the trail system in Dubuque and the start of the Heritage Trail. The gap is about to be closed, thanks to efforts of the Dubuque County Conservation Board and funding from the Iowa Department of Transportation (Iowa DOT).

WHKS has been selected to provide structural and trail engineering services for the preliminary and final design engineering of a pedestrian structure over US Highway 52/3. The project also includes the extension of 1.05 miles of pedestrian trail from John Deere Road, the north end of Dubuque's trail system, to Rupp Hollow Road, the current trailhead of the Heritage Trail. The proposed trail extension and bridge will become a part of the Mississippi River Trail.

WHKS identified feasible options for the structure alignment and the approach ramps that would best suit bicycle and pedestrian traffic and work within the existing right-of-way constraints. The structure is a single span bridge over US 52 and includes the adjoining Mechanically Stabilized Earth (MSE) wall approaches. During the geotechnical investigation, unstable soil conditions were discovered beneath the bridge abutments, MSE walls, and ramp embankments. After investigating alternatives, Geopiers® or Vibro-Piers® soil improvement methods were determined to be the most cost effective solution to stabilize the existing soils.

WHKS has prepared contract documents using Iowa DOT Standard Specifications for an April 2011 Iowa DOT letting. WHKS will provide services during construction, including staking, on-site observation, and construction administration services. Bicyclists and pedestrians will at last have unrestricted trail access from Dubuque to the Heritage Trail sometime in Fall 2011.

The pedestrian overpass and trail extension are important links to the greater Dubuque recreational trail system and a link in the Mississippi River Trail. Because of the level of public interest in the project, WHKS has communicated extensively with the Conservation Board, landowners, and trail users throughout the design phases of the project.

Reconstruction of County Highway 30 (Elwin Road)

WHKS was retained by the Macon County, Illinois Highway Department to prepare plans and specifications for reconstruction of 2.1 miles of County Highway 30 (Elwin Road) from US Route 51 to approximately 1 mile east of US Route 48 near Elwin, Illinois.

The improvements revise the existing alignment and profile to meet current standards, provide full-depth Hot-Mix Asphalt pavement with lime modified subbase, widen the travel lanes, and widen and improve the shoulders. The project corridor includes a rural section with open ditches and an urban section with concrete curb and gutter with storm sewer adjacent to residential lots.

WHKS conducted a hydraulic analysis and performed the location drainage work which resulted in the design of modified drainage ditches and seven cross-road culverts. The precast concrete box culverts utilize special precast end sections with steel grating to eliminate the need for guardrail. WHKS also prepared an Intersection Design Study for a new alignment that will provide a future connection between IL Route 48 and CH 30. Design of the project is complete and construction is expected to take place in 2011.



The existing horizontal and vertical alignments were improved to meet a 55 MPH design speed.

What's Happening at WHKS

Representative projects currently underway:

Mason City, Iowa

IA 58/Viking Road Intersection Improvements
Client: Iowa Department of Transportation

Stone Pillar 17th Subdivision, Mason City, Iowa
Client: H&H Development, Inc.

Ames, Iowa

Site Plan for 615 S. Bell, Ames, Iowa
Client: Dayton Park, L.L.C

Squaw Creek Shared Use Path Bridge
Client: City of Ames, Iowa

Dubuque, Iowa /

East Dubuque, Illinois

Survey and Site Design Services for New
University of Dubuque Performing Arts Center
Client: Straka Johnson Architects

Survey for US 6 over West Branch Wapsinonoc Creek
Bridge Replacement
Client: Iowa Department of Transportation

Rochester, Minnesota

First Avenue SE Reconstruction
Client: City of Stewartville, Minnesota

Springfield, Illinois

Rewriting and Updating of the Illinois DOT Geotechnical Manual
Client: Illinois DOT Bureau of Bridges and Structures

TR 216 over Buckhart Creek Bridge Replacement
Client: Christian County, Illinois Highway Department

For additional information on any WHKS projects, please contact our offices.