WHKS & CO.

ENGINEERS ■ PLANNERS ■ LAND SURVEYORS

Shaping the Horizon

April 2009

WHKS is "All Aboard" for the Corporal Roger Snedden Drive Grade Separation Project

The City of Boone, Iowa recently selected WHKS to provide professional services for the design of the Corporal Roger Snedden Drive Grade Separation over the Union Pacific Railroad (UPRR). Corporal Roger Snedden Drive functions as a north-south arterial through Boone, from US Highway 30 to Mamie Eisenhower Avenue. The arterial is one of the few major truck routes leading to the existing industrial park in the northeast part of Boone.

Development of several hundred acres of the Boone industrial park has been restricted, due to lack of convenient access across the UPRR switchyard with dual mainline tracks. Currently, trucks going to the industrial park must travel east to Quartz Avenue and cross at an at-grade crossing, which is the primary entrance to the industrial park to the north. The volume of train traffic at the Quartz Avenue at-grade crossing averages 70 trains per day, ranging in length from 5,300 to 8,000 feet.

The vision of the WHKS team and the City of Boone is to make the railroad overpass bridge and the project corridor functional and attractive to new businesses to the area, increasing the potential for economic development and growth. The proposed bridge will be highly visible and a gateway to the north.

The proposed northerly extension is a two-lane roadway with PCC pavement, sidewalk, storm sewer and intakes, roadway lighting, underground utility and retaining walls at the bridge approaches. The proposed structure over the switchyard is a continuous welded girder bridge, with a 6' sidewalk. The retaining walls at the abutments will reduce the overall bridge length.

Public involvement and coordination with residents and existing businesses are critical factors for the success of this project. WHKS began coordinating with the UPRR early in the preliminary design phase to keep them informed of the project's schedule and the impacts of the proposed construction. The WHKS Team will be working with the City, the general public and existing businesses to understand their issues and provide responsive design solutions. Some right of way acquisition and impacts to existing businesses are expected for the project in the new corridor.

Survey is underway and design is expected to begin in early Spring 2009.

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

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Algona--A Town on the Move…. and the Right "Track"

The Iowa Department of Transportation (Iowa DOT) retained the services of WHKS to design a replacement for the existing US 169 continuous welded plate girder bridge near the City of Algona, Iowa. The old steel girder bridge was constructed in 1954 and was in poor condition due to fatigue cracks, rusting and other flaws in the steel girders. This led to the bridge being designated "Structurally Deficient" which means the bridge needed to be monitored, repaired or replaced due to its condition. Additionally, the concrete bridge deck was showing signs of deterioration and the bridge was only marginally capable of carrying legal loads.

The replacement bridge is a 364'-0" x 54'-0" span carrying US 169 over the East Fork Des Moines River. The bridge consists of three (3) equal spans (121'-0", 122'-0", 121'-0"), two hammerhead T–piers and two integral abutments, all supported on driven piles. In addition to improving the safety and longevity of the structure, the width of the bridge was increased to meet current Iowa DOT standards to ensure better traffic flow. ADA-compliant sidewalks were provided on both sides of the new bridge to offer safety to pedestrians and bicyclists and scenic river views to residents and visitors alike.

WHKS employed the use of new prestressed concrete beams with high strength concrete to eliminate roadway grade raise issues while still meeting Iowa Department of Natural Resources (Iowa DNR) hydraulic requirements. Without the use of BTC beams on the project, it would have been necessary to significantly raise the roadway profile in order to achieve satisfactory clearance above design flood elevations.

Aesthetics were extensively incorporated into the design to enhance the visual impact and appeal of the bridge to the surrounding community. The aesthetic "Streamliner locomotive theme" of the bridge was provided by the Iowa DOT Office of Bridges and Structures. Of the three aesthetic bridge design theme options presented to a group of Algona city officials by the Iowa DOT, the Streamliner Bridge concept was the hands-down favorite. The city already had a strong association with its railroad heritage, and its slogan, "Algona - On the Right Track", capitalizes on rail imagery. The aesthetic components of the project will provide the bridge with lasting value and a timeless theme that enhances the visual impact and appeal of the bridge to visitors and the community.

The project was completed in late 2008. The Associated General Contractors of Iowa selected this bridge for an Iowa Quality Initiative Structures Award in March 2009.

WHKS Re-Selected for Iowa Department of Transportation "On Call" Survey Contract

WHKS was recently re-selected by the Iowa DOT to provide "On Call" engineering survey services for improvement projects at various locations throughout Iowa. WHKS was selected as the first "On Call" survey consultant in 2005.

The selection is effective for 3 years and was based on staff qualifications, experience, past performance, availability, software and technology compatibility with the Iowa DOT.

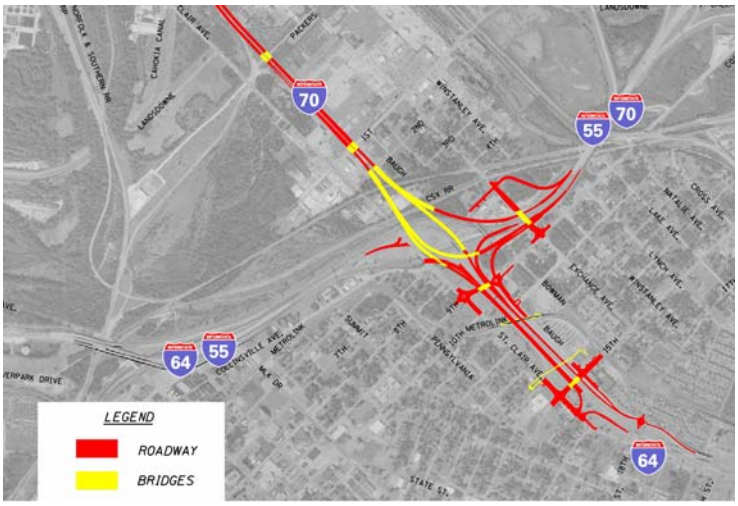
The Iowa DOT Office of Design and WHKS work to determine a specific scope of services for each project assigned under the Agreement. WHKS developed a survey process to cover all aspects and complexities that could be expected with a survey project and then tailors it to meet the requirements of each specific project. With three offices geographically distributed throughout the state, our experienced survey staff can quickly respond to Iowa DOT requests.

WHKS utilizes advanced survey instruments and systems to collect and process field information. WHKS survey crews are equipped with total station data collectors. The firm owns Global Positioning Systems (GPS) equipment, capable of providing real time survey information and post-processing of large GPS networks. CADD file preparation follows Department conventions using SMD / Feature Codes to produce proper leveling, line styles, cells and other required information. CADD files are organized and structured in formats compatible with Department standards.

Since 2005, WHKS has provided survey for 40 separate work orders. The projects have included work in high-traffic urban areas and in difficult terrain in rural parts of the State. WHKS has been providing services to the Iowa DOT since 1959.

WHKS crews have surveyed in many areas of Iowa.

Tri-Level Connection for New I-70 Mississippi River Bridge



Approximate project limits for Tri-Level Connection.

WHKS is part of the CTE/AECOM Team, providing phase II engineering design services to the Illinois Department of Transportation on the Tri-Level Connection for the new I-70 Mississippi River Bridge to be located in East St. Louis. The CTE/AECOM Team is responsible for the design and plan preparation for the Tri-Level interchange portion of the project that extends from just south of the proposed relocated IL Route 3 Interchange at Packers Avenue southerly beyond 15th Street (see map).

WHKS was selected by CTE/AECOM to perform the seismic analysis for the new bridges within the project limits. The main ramp structures connecting I-70, I-55, and I-64 have long span lengths and complex curved geometry. These structures must be designed for a seismic hazard with a 1,000 year return period in accordance with the AASHTO LRFD Bridge Design Specifications. As part of the seismic analyses for these structures, WHKS will develop spring models to represent the soil-structure interaction for the pile supported abutment and pier foundations and conduct a dynamic analysis of the structures using the non-linear finite element software package LARSA 4D. Simpler structures within the project limits will be analyzed using conventional uniform load methods of analysis.

Additionally, WHKS will provide seismic design and detailing assistance to CTE/AECOM during final design and plan development.

Check out our website at www.whks.com

2008 Pilot Inflow/Infiltration Investigation in Rochester, Minnesota

WHKS and CH2M Hill teamed to provide services to the City of Rochester, Minnesota for a pilot Inflow/Infiltration (I&I) reduction program for the Slatterly Park and Kutzky Park neighborhoods.

Inflow and infiltration is rain water and ground water that enter the sanitary sewer through structural defects, storm water pipeline cross connections, and direct connections of sump pump and drain systems to the sanitary sewer. This clear water does not need to be treated at the wastewater treatment plant, but once it is mixed with household and business wastewater, the City has no other choice than to treat the combination as sewage. Removing this clear water reduces sewage handling and treatment costs, reduces the potential for sanitary sewer backups into basements, and allows the City to extend the service life of its current investments in the collection and treatment systems.

The project was initiated by the City of Rochester to identify and quantify the sources of I&I from public and private sectors that contributed to basement backups during the August 2007 flooding. The pilot I&I study includes the development of a master plan to address solutions for basement backups, collection system rehabilitation and to plan for existing and future capacity needs. The program also included assistance with neighborhood meetings and City Council sessions, certificate of compliance and ordinance consultation, and the development of procedures for Citywide implementation.

WHKS was responsible for the field work portion of the program, including sump pump and service lateral inspections, flow monitoring, smoke testing, manhole inspections, meeting with industrial contributors, and televising the sanitary sewer within the pilot area.

An integrated mapping and database system was created to schedule inspections, organize the data and display the results. At the conclusion of the project, a copy of this database will be provided to the City for their permanent records.

The project is expected to be completed in 2009.

Field inspections are still underway.

What's Happening at WHKS

Representative projects currently underway:

Mason City, Iowa

Seventh Street Drainage Improvement Project
Client: City of St. Ansgar, Iowa

Cedar River Rail Trail Bridge Repairs and Construction Engineering
Client: City of Waverly, Iowa

Ames, Iowa

Generation Repair and Service Facility
Client: Story Construction

Design and Construction Services for Senior Living Community in Swea City, Iowa
Client: Stott and Associates

Dubuque, Iowa/East Dubuque, Illinois

Boundary Survey and Site Plan in East Dubuque, Illinois
Client: Leibold Auto and Diagnostics

2009 Street Improvements
Client: City of Edgewood, Iowa

Rochester, Minnesota

Wastewater Treatment Facility Plan
Client: City of Wykoff, Minnesota

2009 Street Maintenance Project
Client: City of Byron, Minnesota

Springfield, Illinois

IL 170 over the Illinois River at Seneca Steel Girder Erection Plan
Client: Edward Kraemer & Sons, Inc.

IL 95 over BNSF Railroad Bridge Replacement
Client: Illinois Department of Transportation, Region 3, District 4

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

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