



ENGINEERS ■ PLANNERS ■ LAND SURVEYORS

Shaping the Horizon

November 2005

Mason City, Iowa 12th Street Overpass Completed

The City of Mason City, Iowa retained WHKS to assist in providing a solution to the traffic delays on 12th Street NW at the Union Pacific Railroad (UPRR) tracks. The City Engineering Department recorded Average Annual Daily Traffic counts of 8,700 vehicles on 12th Street. The Railroad operates two mainline tracks at this crossing, which has regional and national significance because it is located halfway between Des Moines and Minneapolis and on the shortest rail route from Canada to Mexico. Each day, an average of 25 trains operate on these mainline tracks. In addition to the mainline rail traffic, a main switching yard is located immediately north of the project location.

The City determined that an overpass of 12th Street NW at the UPRR crossing was needed and would reduce arterial street traffic congestion, improve traffic safety, and improve air quality. 12th Street NW is a major east-west route on the north side of Mason City and is one of only three east-west streets which has a continuous alignment across the City. Continuing commercial development on the West side of the City has increased the importance of uninterrupted traffic movement on 12th Street.

The total project construction extended a distance of approximately 6½ blocks. The major focus was construction of a 661 foot long overpass bridge structure. The bridge and associated roadway width provides for four traffic lanes. The structure and roadway section will operate as a three-lane roadway until traffic flow requires four travel lanes.

Aesthetic features such as long bridge spans to provide a more "open" structure; rustication on the concrete bridge columns and retaining wall panels; and installation of decorative railings and lighting were included.

Services provided by WHKS involved preparation of a feasibility study; preparation of funding applications; conceptual, preliminary and final design; preparation of construction plans and specifications; and construction staking, administration and resident observation.

The Project was on an aggressive schedule in order to accommodate the needs of the City, its citizens, and business owners within the vicinity. The expertise of the design staff and extensive coordination with the Iowa Department of Transportation, the Union Pacific Railroad and local utility companies were critical to the successful completion of the project.

Bids were received for the project construction in February of 2004 and construction work was completed in August 2005 at a cost of \$3.8 million dollars. Financing of the project included funding from the Iowa Clean Air Attainment Program (ICAAP), participation from the UPRR and local funding.



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City of Dubuque Lift Station Improvements

WHKS was selected in July 2005 for design and construction services for the rehabilitation of two wastewater pump stations in the City of Dubuque, Iowa.

The Cedar Street pump station was originally constructed in 1956 and was rehabilitated in 1968 and 1974. The pump station primarily serves an industrial area of the City, near the Mississippi River and the site of the former Farmland Foods meat packing plant. Since the meat packing plant closed permanently, the flows from the Cedar Street lift station have reduced substantially. The rehabilitation project for this location will include the reduction of pump size and the replacement of the 2300-volt motors with 480-volt motors for energy-efficiency. Emergency power generation considerations and architectural/aesthetic treatments to the building's exterior are also included in the project.

The Dog Track pump station is located near the Dubuque Greyhound Park and Casino and the new Hilton Garden Inn hotel development. This pump station consists of an open top wet well and a separate can-type dry pit with three pumps. The existing dry pit is accessible through a tube-enclosed, single-person lift and is considered an extreme safety hazard. The City wants to rehabilitate this pump station to allow safe access to the pumps and the installation of smaller pumps suitable for current flow conditions.

Design is underway on both projects. Construction is expected to begin in 2006.



Existing entrance to dog track lift station.

Glasgow Road over Relocated US 34

WHKS completed the design of a bridge carrying Glasgow Road over Relocated US 34 in Jefferson County for the Iowa Department of Transportation. This bridge is part of the construction of the US 34 bypass around Fairfield, Iowa.

The bridge is a two-span, Pretensioned Prestressed Concrete Beam (PPCB) bridge that implements several aesthetic features to be applied to the bridges along the new corridor. The aesthetic features include abutments that protrude approximately one-foot outside of the bridge roadway, as well as new barrier rail and end-section shapes. Other aesthetic details employed in this project include rustication on the pier columns and cap, overhangs at the top of the pier cap and intermittent limestone "shelves" in the macadam stone slope protection.

The bridge is scheduled for a November 2005 letting.

Northridge Heights Subdivision

WHKS has provided planning, engineering, and surveying services for the design and construction of the public infrastructure for the Northridge Heights Subdivision in Ames, Iowa. Public Improvement Plans are being prepared in phases according to the master plan developed by WHKS.

Project elements include highway and street design, detention pond design, dam design, storm sewer design, water and sewer main design and individual lot grading design. Each addition of the project requires preparation of public improvement plans for City of Ames approval. WHKS worked with the Iowa Department of Natural Resources and Army Corps of Engineers for permitting required for the design and construction of the dam and detention pond.

Construction is currently underway on the 9th Addition. Public improvements in the 9th Addition include 4,041 feet of water main; 2,841 feet of sanitary sewer; 3,381 feet of storm sewer; and street paving.

Carl Lucas Retires from WHKS

Carl Lucas recently retired from employment with WHKS. Carl started his career with WHKS back in 1959.

Over the years, Carl provided a variety of services including survey crew chief, drafter, design technician, and construction observer. He has worked on many different types of projects throughout Iowa and southern Minnesota. His attention to detail and excellent record keeping procedures resulted in numerous recognitions from clients and peers. Carl's last project was providing overall construction observation for the 12th Street NW Overpass project in Mason City.

All of us at WHKS wish Carl, and his wife Darlene, the best on his well-deserved retirement.

Quick, Cost Effective Repair Utilizing Heat-Straightening

In September 2005, Cerro Gordo County contacted WHKS to evaluate the structural integrity of a truss bridge south of Rockwell, Iowa that had recently suffered collision damage.

During the initial site visit, it was observed that two compression members on the south side of the bridge were bent Out-of-Plane and their flanges were also bent. The bridge was evaluated, deemed unsafe, and the County closed the bridge based on WHKS' recommendation. Following the closing, WHKS investigated several options to repair the bridge. The final repair recommendation was a heat-straightening repair method, which proved to be the quickest and most cost effective.

Heat-straightening is a quick and economical method used to straighten structural steel members and has primarily been used to repair damage caused by vehicle collisions with bridges. It is done by utilizing jacks and other methods to restrain the member from certain movements while applying heat to specific locations on the bent member to straighten it. Flame On, Inc. of Snohomish, Washington performed and completed the work in one day. The bridge was reopened to traffic on September 19, 2005, only thirteen days after closing it.



Heat-straightening is a quick and economical method used to straighten structural steel members.

New Street/Trail Project in Rockwell, Iowa

The City of Rockwell, Iowa recently completed a joint roadway/bike trail project. The project was completed in conjunction with Cerro Gordo County.

The purpose for the project was to provide a paved street linkage to a park/recreation area east of the City. WHKS was retained to recommend street improvements and to evaluate options for a bike trail to the park/recreation area. The alternative selected by the City was to construct a 24' wide hot mix asphalt (HMA) pavement on the existing rock surfaced roadway. The alternative also included 5' wide HMA shoulders to be utilized for bike traffic.

In conjunction with the City work, Cerro Gordo County also desired to improve an existing rock surfaced roadway adjacent to the park/recreation area. The City and County joined forces to develop a single project to include both roadway segments.

WHKS provided survey, design, plan development, construction staking, and construction administration services for the \$260,000 project. Heartland Asphalt, Inc. of Mason City was the general contractor for the project.

Master's Thesis Honor for WHKS Employee

Angela Kolz of WHKS was awarded first place in a national competition for her master's thesis. The competition is held annually by the Association of Environmental Engineering and Science Professors. The award is given for outstanding contributions to environmental engineering and science.

Her thesis was on antibiotics in animal waste and soil. The research was conducted at Iowa State University with advisors Dr. Say Kee Ong in the Civil Engineering Department and Dr. Tom Moorman of the National Soil Tilth Laboratory and ISU Agronomy Department.

Angela works on water and wastewater treatment projects in the WHKS environmental engineering department.

East Dubuque Office Relocates

The WHKS East Dubuque office recently relocated. The new contact information is:

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