ms consultants, inc.
engineers, architects, planners

# U.S. 224 YELLOW CREEK BRIDGE

## CHALLENGE

THE BRIDGE THAT CARRIES U.S. 224 OVER YELLOW CREEK IN POLAND, OHIO, WAS IN NEED OF AN UPGRADED DESIGN AND NEW STRUCTURE SUPPORTS.

## SERVICES

- Asbestos Testing
- Civil Engineering
- Planning
- Structural Engineering
- Survey
- Traffic Engineering
- Environmental Documentation

## AWARDS

HONOR AWARD FOR
ENGINEERING EXCELLENCE
American Council of Engineering
Companies (ACEC) of Ohio

## U.S. 224 YELLOW CREEK BRIDGE

U.S. 224 is a major east-west arterial that runs the across the entire northern portion of Ohio. ms consultants provided comprehensive planning and design services for widening and superstructure replacement of the original continuous riveted steel plate girder bridge over Yellow Creek in Poland, Ohio, which is in the northeast part of the state.

The new bridge brings not only improved safety for motorists and pedestrians, but also enhanced the locality's plans to beautify the stream area. The new bridge also provides access to a walking path along Yellow Creek.

## DESIGN DETAILS

The design included a continuous steel beam structure with a composite reinforced concrete deck on widened piers and new semi-integral abutments. Portions of the original pedestal-type abutment foundations were salvaged and re-used in combination with new end-bearing pile foundations to lower overall construction cost. The 251-foot bridge has three spans and is supported on widened wall-type piers founded on rock and new straight-wing semi-integral abutments. It has a 52-foot roadway, toe-to-toe barrier railings and five-foot sidewalks on each side. Each sidewalk features cantilevered lookout points and decorative lighting poles and lamps. These features, along with decorative concrete posts and metal panel hand railings, add to the visual experience of pedestrians and bicyclists.

The bridge also carries a 12-inch ductile iron sanitary sewer across the creek. It was located within the structure for accessibility, but has minimal visual impact. Future painting of the bridge will also be minimized because of the use of ASTM A588 weathering steel beams. Hot-dipped galvanization was used before the metal railing elements were painted to match the beams for long-term protection.

ms also provided soils investigations, approach roadway improvements, survey, traffic control and maintenance plans as part of its work on the bridge. The project team completed required environmental documentation during preliminary stages of this project. A Level 2 Categorical Exclusion was documented and filed along with a 404 nationwide permit. Coordination and partnering with the Village of Poland and the Mahoning County Engineers office led to the successful on-time delivery of the project.