



2015 APWA Project of the Year Award Submittal
\$5 - \$25 Million – Transportation

Johnsburg Road Widening & Reconstruction
McHenry County Division of Transportation





Project description

HR Green was responsible for the design and construction engineering of the Johnsburg Road Widening Project, requiring coordination with the Village of Johnsburg and McHenry County Division of Transportation to meet their needs for the Project.

During the design phase of the project, HR Green was responsible for:

- Preparation of Project Design Report
 - Preparation of alternate geometric studies for the Johnsburg Road/Chapel Hill Road intersection. Alternates included a major realignment; maintain existing geometry, and a roundabout. The alternates were evaluated based on capacity improvements, right-of-way impacts, costs and public support.
 - Public coordination which included two open house public meetings and a public hearing where a roundabout was the preferred alternative.
- Preparation of contract plans, specifications, and estimates.
 - Plan preparation efforts included the development of complex maintenance-of-traffic plans, removal plans, plan and profiles, drainage and utilities plan and profiles, intersection grading plans, cross sections, pavement marking and signing plans, lighting plans, and traffic signals plans.
 - Utility coordination

During construction of the Johnsburg Road Widening project, HR Green was responsible for:

- Stakeholder Coordination
 - Pre-Construction Open House presentation
 - Creation of project brochures
 - Weekly door to door coordination with residents and businesses – placement of door hangers with project website, project contact, and project information
 - Use of Changeable message signs to provide project website address prior to construction and for message related to detours and lane configuration changes
 - On-site meetings with residents and business to address access during construction



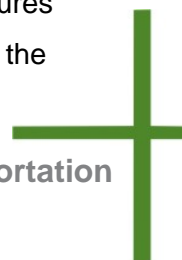


- Coordination with the Village of Johnsburg regarding sanitary sewer modifications, general construction issues and resident and business concerns brought to the attention of the Village.
- Creation of a project website
- Weekly updates to the project website and email contact list
- Weekly project eblasts
- Creation and weekly update to the project Facebook and Twitter pages
- Completion of the construction observation and documentation of project quantities in accordance with IDOT documentation requirements



Construction schedule, management, and control techniques used

Coordination and communication with businesses and residents was critical to the success of this project. HR Green, in conjunction with McHenry County Division of Transportation, created a project website: www.johnsburgroad.com, as a conduit for communication with residents, businesses and the community. This website allowed interested individuals to provide their email addresses so they could get weekly, and in some cases daily, project updates. The website included information such as: the project overview, a photo gallery, project maps, percentage of project completion, press releases, frequently asked questions and a Contact Us section, which provided interested citizens with project information at the tips of their fingers. Facebook and Twitter were also used to update the stakeholders when project e-blasts were sent out. During construction a webcam was also added to the project website that provided a new photo of the construction site every 15 minutes. At the project's completion, these pictures were put together into a time-lapse video of the project's construction. The incorporation of the



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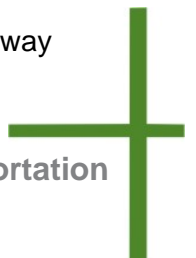


technology noted above provided stakeholders with an unprecedented amount of project information in a manner not typically utilized for a construction project and allowed stakeholders to view project information and current construction activities at any time. The technology also allowed stakeholders to educate themselves about the project before contacting HR Green with project related questions.

The design of the roundabout was an innovation that some in the Johnsburg area had expressed doubts about regarding the effectiveness and practicality for this location. A pre-construction public meeting was held to inform residents, businesses and the community of the project timeline, proposed lane closures, and the implementation of the project's three traffic detour phases. The pre-construction meeting allowed MCDOT and HR Green to provide additional information regarding why a roundabout was chosen for this location, why it was more efficient than a standard intersection with traffic signals, and how it would be navigated.



After construction of the roundabout was completed, and prior to opening it to traffic, MCDOT and HR Green held a "roundabout rodeo". Staff from the local school district, township highway



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department, Johnsburg Police Department, McHenry Township Fire District, and Johnsburg Public Works were invited to bring any and all equipment that they had to the project to experience travel through the roundabout with their large equipment and buses. The rodeo was a big success in changing the opinion of many of the individuals who drive large equipment. Most had never driven a roundabout with their department's larger equipment and they expressed amazement at how easy it was to navigate.



The project originally consisted of brick paver crosswalks at each leg of the roundabout. Brick paver crosswalks, though aesthetically pleasing, were a maintenance concern for MCDOT. In an attempt to provide an alternative material to the brick paver crosswalks, the use of an inlayed thermoplastic stamped crosswalk was proposed and selected by MCDOT. The construction of the inlayed thermoplastic stamped crosswalk, consisted of first milling 5/8" pavement to provide a bed for the - thermoplastic material. Colored thermoplastic material was then pumped into the milled area and steel templates were used to stamp a brick pattern on the thermoplastic material. The material was allowed to cool and the roadway was opened to traffic within hours. The advantages of inlayed thermoplastic material are that there is no need for a concrete "bathtub" to place the brick pavers in, no need to wait for concrete to cure, reduced lane closure time, and no damage to individual bricks by snow plows during plowing operations. The installation of the thermoplastic crosswalk was quick and easy.





Safety performance

Both Glenbrook Excavation and Pirtano Construction had excellent safety performance, with no lost-time injuries reported during the project.

Community relations

At the project's beginning, local residents questioned the placement of a roundabout in the Village of Johnsburg at the intersections of Johnsburg, Chapel Hill and St. Johns Roads. Many believed that the roundabout would not fit at the intersection and that it would cause more traffic backups at the intersection than would the installation of a traffic signal. After the roundabout was completed, MCDOT and HR Green received only positive feedback regarding the



roundabout including praises from individuals that originally stated the project would never work. By following through with the engineering judgment to place a roundabout in an area where there was opposition, does not mean that the project will not be a success. Appropriate design, construction and stakeholder coordination and communication are critical to the success of the project.

HR Green, in particular the Resident Engineer, had a great working relationship with the business owners and homeowners within the project limits. One of the business owners stated that they were sad to see the Resident Engineer move to a different project. Another business owner stated that he appreciated everything that HR Green did to assist him and his

business during construction. Businesses and residents within the construction corridor had the



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Resident Engineer and Construction Project Manager's cell phone numbers and were able to contact them at any time, day or night, and typically did. The Resident Engineer would go door to door to meet with the residents and businesses prior to work occurring in front of their property. This communication with the residents and business owners created a working relationship rather than an adversarial relationship. Business owners and residents were not afraid to ask the Resident Engineer questions about the project and how it impacted their property. The residents and businesses also provided their input with regard to driveway locations and other issues, that from a construction standpoint we may think are insignificant, however, from the business and homeowners' standpoint were a big issue.



The residents and businesses were happy to see the improvement to the roadway and many saw the opportunity that the improvements provided, such as sidewalk access to all businesses and pedestrian lighting throughout Downtown Johnsburg, a pedestrian crossing signal, and creation of a destination Downtown (the first roundabout in McHenry County). This project turned an older downtown with no sidewalk, inadequate drainage, minimal lighting and



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significant traffic delays into a revitalized area with a modern roundabout and park-like pedestrian access.

The Village of Johnsburg held informational project meetings with impacted businesses. These meetings provided input from businesses which led to the Village providing additional business signage (local business access route) in and around the work zone to direct traffic to businesses within the construction zone. The Village also created a brochure highlighting how to access businesses within the work zone and included project contact information for HR Green construction staff and project schedule information.

Environmental considerations

The Johnsburg Road project is traversed by the floodway and floodplain of the North Branch of Dutch Creek and also consists of High Habitat, High Functional Value wetlands. All of the sub-watersheds from the project eventually drain into the adjacent Fox River which provides an environmental and recreational benefit to the region. Besides these environmental resources along the project corridor, several locations within the upstream watershed were plagued by nuisance flooding that has persisted and impacted residents and businesses historically.

The project was designed to protect the environmental resources to the extent practical by minimizing fill in the floodway and floodplain of Dutch Creek, with no impacts to the wetlands. Inlet, catch basin and manhole configuration were used along with vegetated ditches prior to the outfall to minimize and filter out the sediments and sediment laden pollutants from discharging downstream.

In the area of High Habitat, High Functional Value wetlands along the North Branch of Dutch Creek, the roadway embankment area was designed to flow across a low prairie vegetated embankment slope to provide filtration of roadway drainage prior to discharging into the wetlands. The release rates from the increased impervious area were controlled by use of inline detention in oversized pipes controlled by an orifice to minimize downstream impacts. The flooding within the watershed area upstream of the Johnsburg Road project was addressed to the extent practical by providing new ditches and/or a storm sewer system. The box culvert at Chapel Hill Road, which overtopped the road in less than the 10 year storm, was replaced and is no longer a source of flood damage in the 100 year storm.



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In addition, by replacing this intersection with a roundabout the project also provided congestion mitigation and air quality benefit by reducing congestion within the project area, more specifically at the intersection of Johnsburg Road and Chapel Hill Road.

The installation of cross walks and a pedestrian crossing signal in an area where no sidewalk or cross walks previously existed provides an opportunity for additional pedestrian traffic to access the existing businesses, further reducing motorized traffic from local area residents adding to the environmental benefit besides improving safety.



The streetscape elements of the project make roadway improvements look rich and distinctive. The installation of black decorative pedestrian lights throughout the corridor in conjunction new sidewalk allows pedestrian traffic throughout the project corridor day or night. The pedestrian light poles contain banner arms for placement of Village banners and planter arms for placement of flower planters. Previously, pedestrians would have to walk within the roadway to go from business to business without the benefit of pedestrian lighting. The accent bricks



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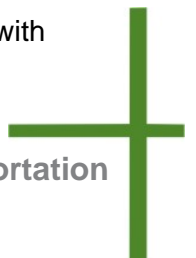
adjacent to the sidewalk, black rails, benches and traffic containers all add to the distinguished look of the project.



Unusual accomplishments under adverse conditions

Adding to the complexity of this project is that a majority of the work occurred in a very small area. Not only did the roundabout have to be built, but a 12' x 4' box culvert had to be installed under the roundabout. Construction of much of the box had to be completed during the 45 calendar day road closure along with construction of the roundabout. This required up to three contractors (prime, electrical, concrete) working within a 300' x 300' area all at the same time.

The road closure also required that access to all businesses be maintained at all times during construction. Construction of the roundabout, and curb and gutter associated with the roundabout, could not be completed with the use of a curb machine and had to be completed using hand forms due to the complexity of the splitter islands that are part of the roundabout. Elevations of the islands were critical to the success of the roundabout. HR Green worked with



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the concrete contractor and provided elevations for the islands as the contractor was setting the curb forms each day in an effort to ensure appropriate pavement slopes were maintained.

Due to the roadway changing from a two lane road with a rural cross section and aggregate shoulders, businesses access had be reduced in many cases as the roadway was transformed into a three lane roadway with and urban cross sections. HR Green worked with the business owners to provide access in accordance with the width specified in the plans in the locations that best accommodated the businesses. MCDOT and HR Green worked with businesses and homeowners to provide modified driveway entrances that were appropriate to the use of the property.

Historic Preservation

This project was designed - to minimize impacts to the historic Downtown buildings in the Village of Johnsburg. Right of way was obtained from adjacent properties, however, there was no negative impact the exterior of the historic buildings. This project actually provided a new handicap accessible entrance for a historic structure when installation of a new sidewalk within a narrow right of way conflicted with the historic structures' existing entrance necessitating the need for a new entrance.

Additional conditions deemed of importance to the public works agency

This project was McHenry County Division of Transportation's first design and construction of a roundabout. It was imperative to MCDOT and HR Green that this project be a success because of the high profile status of the project. When construction ended and the roadway was officially opened to traffic, the Village of Johnsburg, the businesses and residents, were happy that the roadway was open to allow traffic to flow.

MCDOT, HR Green, Glenbrook Excavating and Pirtano Construction worked as a team in a cooperative effort to complete this project on time and on budget. As with all projects, the plans and specifications were not perfect and the site conditions may differ from the information identified on the plans. HR Green construction staff worked with Glenbrook Excavating, Pirtano Construction and HR Green design staff to address and resolve any construction related questions immediately. With the 45 day road closure, it was important to address contractor questions and concerns immediately to ensure that the road and its associated lighting and landscaping features would be reopened in 45 days. It was this cooperative effort by all



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involved that made this project a success. The project was completed below budget and on time.

Use of sustainable infrastructure rating system or equivalent

A sustainable infrastructure rating system such as Envision was not utilized during the design on this project, however, this project was designed with many of the categories and subcategories of the Envision rating system being address such as; minimizing light pollution, preserving historic and cultural resources, preserving views and local character, providing stakeholder involvement, managing stormwater and restoring disturbed soils.

The success of this project was a cooperative effort among the stakeholders, Glenbrook Excavating, Pirtanto Construction, subcontractors, the Village of Johnsburg, MCDOT and HR Green.

