



# AMERICAN SOCIETY OF HIGHWAY ENGINEERS

## National Project of the Year Award

### OFFICIAL ENTRY FORM

**AWARD CATEGORY** (Check One):  Under \$20 Million  Over \$20 Million

**SPONSORING REGION** (Check One):

- |   |  |   |
|---|--|---|
| <input checked="" type="checkbox"/> Northeast | <input type="checkbox"/> Great Lakes   | <input type="checkbox"/> Northwest      |
| <input type="checkbox"/> Mid-Atlantic         | <input type="checkbox"/> North Central | <input type="checkbox"/> Rocky Mountain |
| <input type="checkbox"/> Southeast            | <input type="checkbox"/> South Central | <input type="checkbox"/> Southwest      |

### **CONTACT INFORMATION FOR SUBMITTING REGION:**

Contact Name: Scott R. Eshenaur ASHE Region Position: NPY Chairperson  
Phone (Office): 717-790-9565 Phone (Mobile): 717-580-8426 E-Mail Address: sreshenaur@modjeski.com

### **PROJECT INFORMATION:**

ENTERING AGENCY/COMPANY'S NAME: PennDOT District 1-0 / ms consultants, inc.  
PROJECT NAME: Warren Roundabout TYPE: Highway  
PROJECT LOCATION: Market St. at Pennsylvania Ave. / Water St.  
CITY: Warren COUNTY: Warren STATE: PA  
FINAL CONSTRUCTION COST: \$4,024,732 BUDGETED CONSTRUCTION COST: \$3,982,690  
PROJECT COMPLETION DATE: October 2023  
PROJECT ASHE SECTION: Franklin ASHE SECTION CONTACT NAME: Max L. Heckman, P.E. (ret)  
PHONE (OFFICE): N/A PHONE (MOBILE): (724) 272-1224 EMAIL: mheckman@mbakerintl.com

### **PROJECT TEAM:**

PROJECT OWNER: PennDOT District 1-0  
STREET ADDRESS: 255 Elm St  
CITY: Oil City STATE: PA ZIP: 16301  
CONTACT PERSON: Tom McClelland, P.E. PHONE: (814) 678-5035  
E-MAIL ADDRESS: THMCLELLA@pa.gov

PROJECT DESIGN FIRM: ms consultants, inc.  
STREET ADDRESS: 300 Corporate Center Drive, Suite 200  
CITY: Moon Township STATE: PA ZIP: 15108  
CONTACT PERSON: James O'Mara, P.E. PHONE: (412) 264-8701  
E-MAIL ADDRESS: jomara@msconsultants.com

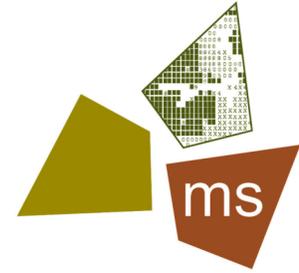
PRIME CONTRACTOR: Bob Cummins Construction Co.  
STREET ADDRESS: 50 E. Songbird Rd  
CITY: Bradford STATE: PA ZIP: 16701  
CONTACT PERSON: \_\_\_\_\_ PHONE: \_\_\_\_\_  
E-MAIL ADDRESS: \_\_\_\_\_

Entry Form Completed By: Max L. Heckman, P.E. (ret) . POY Chair, Franklin Date: 1/25/2024

# ms consultants, inc.

engineers, architects, planners

300 Corporate Center Drive, Suite 200  
Moon Township, Pennsylvania 15108  
p 412.264.8701  
f 412.264.2076  
www.msconsultants.com



December 14, 2023

Darlene Stringos-Walker  
c/o American Geotechnical & Environmental Services, Inc.  
4 Grandview Circle, Suite 100  
Canonsburg, PA 15317

**Re: ASHE Franklin  
2023 Project of the Year Award**

Dear Ms. Stringos-Walker:

Enclosed please find ms consultants' submission for the ASHE Franklin 2023 Project of the Year Award for the Warren Roundabout Project in PennDOT District 1-0. Also enclosed is a selected photo to be used on the plaque if awarded.

The Project Team thanks you for your consideration. At least one ms representative will attend the awards presentation. If you have questions or require any additional information, please call me at your earliest convenience.

Very truly yours,

A handwritten signature in black ink that reads "James P. O'Mara".

James O'Mara, P.E.  
Project Manager

## OFFICIAL ENTRY FORM

Please furnish all information requested below for each entry.

**PROJECT NAME:** Warren Roundabout

(limited to 40 characters)

Location: City of Warren, Warren County, PA

CATEGORY:

A. 3,000,000 or less       B. Greater than \$3,000,000

**Entering Firm's Name(s):** ms consultants, inc.

Address: 300 Corporate Center Drive, Suite 200

City: Moon Township State: PA Zip: 15108

Name/Title of Principal: Sean Sawford, PE, Sr. Vice President - Transportation

Signature of Principal: 

**Name of individual contact within Firm if different from principal:** James O'Mara, PE

Title: Project Manager

Phone: 412-264-8701 Fax: 412-264-2076

E-Mail: jomara@msconsultants.com

**Owner Name:** PennDOT District 1-0

Address: 255 Elm Street

City: Oil City State: PA Zip: 16301

**Contractor Name:** Bob Cummins Construction Co.

Address: 50 E. Songbird Road

City: Bradford State: PA Zip: 16701

Budgeted Construction Cost: \$ \$3,982,690

\*Actual Construction Cost: \$ \$4,024,732

Scheduled Project Completion Date: October 2023

\*\*Actual Project Completion Date: October 2023

\*Provide explanation if difference between budgeted and actual is greater than 10%

\*\*Note: This is the date the project was substantially completed (or is scheduled to be at the time of submission) and must be **between January 1, 2021 and December 31, 2023.**

**Introduction**

The Warren Roundabout project, located in the City of Warren, Warren County, included the construction of a single-lane roundabout to replace the existing signalized intersection of Market Street (SR 1017), Pennsylvania Avenue (SR 6006), and Water Street to improve safety and intersection operations.

Owner: PennDOT District 1-0

Designer: ms consultants, inc. (Prime)  
Monaloh Basin Engineers, Inc. (Survey & R/W Assistance)  
Johnson, Mirmiran & Thompson, Inc. (SUE Services)

Contractor: Bob Cummins Construction Co.

CM/CI: Larson Design Group, Inc. (Prime)  
KJ Consulting & Environmental Services, LLC (Construction Inspection)

Substantial completion occurred in October 2023 for this project that involved construction of a single-lane roundabout utilizing staged construction methods, maintaining both vehicular and pedestrian traffic through the intersection. The project also included replacement of the drainage system, sidewalk reconstruction, new intersection lighting, numerous driveway adjustments, and relocation of existing water, gas, and aerial utilities.

**New Applications of Existing Techniques/Originality/Innovation**

The goal of the project was to improve safety, drainage, and intersection efficiency and operations. The urban intersection had a history of vehicles hitting fixed objects and pedestrians. The existing drainage network was substandard and in need of improvement. Lastly, the existing intersection geometry did not accommodate large trucks that frequently traveled through the intersection.

To achieve the project goals, the design team developed and analyzed two intersection improvement alternatives, one involving traffic signal improvements and the other a single-lane roundabout. After a detailed analysis of the alternatives was performed, it was determined both alternatives would meet the purpose and needs of the project, and PennDOT consulted with the City of Warren to make the final decision as the City would be responsible for maintenance of either intersection alternative. Ultimately, Warren City Council selected the single-lane roundabout as the preferred alternative.

The single-lane roundabout was designed to accommodate all five existing roadways, one of which was one-way leaving the intersection and heavily skewed. The roundabout was centered slightly to the northeast to aid in both proposed geometry and construction. Fastest path

analyses were performed consistent with NCHRP Report 672 methodology to ensure desired operating speeds are achieved.

Unique to this urban intersection is the relatively high truck percentage (14%), many of which are oversize and overweight (OSOW). In addition, a number of superloads have recently traversed through the intersection, which required additional consideration in design of the proposed improvements. In light of this, a superload apron was constructed in addition to the conventional truck apron, as well as numerous truck aprons located on the outside perimeter of the roundabout. In addition, two of the splitter islands were constructed with mountable curbs to accommodate superloads.

### **Complexity**

Construction of a roundabout within the footprint of an existing intersection is complex in and of itself. However, this project required both vehicular and pedestrian traffic to be maintained as much as feasible through the intersection due to the urban context and the close proximity of numerous businesses. To minimize the disturbance to the traveling public, three primary construction stages were implemented. Each of the construction stages permitted a portion of the traffic movements to be maintained through the intersection, minimizing the amount of detours needed at any given time. A fourth, final stage of construction was necessary to perform final paving and installation of signing and pavement markings.

In addition to the complexity associated with maintaining traffic through the work zone, the project site also involved the likely potential to encounter hazardous material contaminated with petroleum from a gas station formerly located on the northeast quadrant. Special provisions and pay items were included in the contract to direct the contractor to properly and safely excavate, stockpile, test, transport, and dispose of contaminated material. The project also involved the abandonment and capping of several monitoring wells, which were coordinated with the property owner.

### **Social/Economic Considerations**

As part of the alternatives analysis process, a public meeting with project stakeholders and public officials was conducted to collect feedback on the design alternatives and any additional concerns. Additional coordination with the City of Warren was conducted to assist with their selection of the preferred alternative to be advanced, as the City will be responsible for maintenance of either alternative.

Subsequent to the selection of the preferred alternative, additional coordination with two key stakeholders, CVS and United Refinery, was conducted to address their specific concerns. Located at the northeast quadrant of the intersection, CVS was concerned about access during and after construction, as well as final configuration of their parking lot, as a portion of their existing parking lot was acquired by PennDOT to accommodate the roundabout and sidewalk.

United Refinery, which utilizes large trucks for its deliveries routed through the intersection on a frequent basis, was concerned about roundabout operations as well as accommodations for large trucks.

### **Safety**

In review of historic crash data, it was determined that crashes involving vehicles hitting fixed objects and pedestrians was prevalent at this intersection. As such, the proposed roundabout was selected to lessen the likelihood of crashes, injuries and fatalities. In addition to addressing the safety issues at the intersection, the roundabout is also anticipated to improve traffic flow while lowering vehicle speeds and is considered a traffic calming strategy. Pedestrian refuge areas are provided at each of the splitter islands, allowing pedestrians to cross more safely, focusing on one direction of traffic at a time.

### **Aesthetics and Sustainable Features**

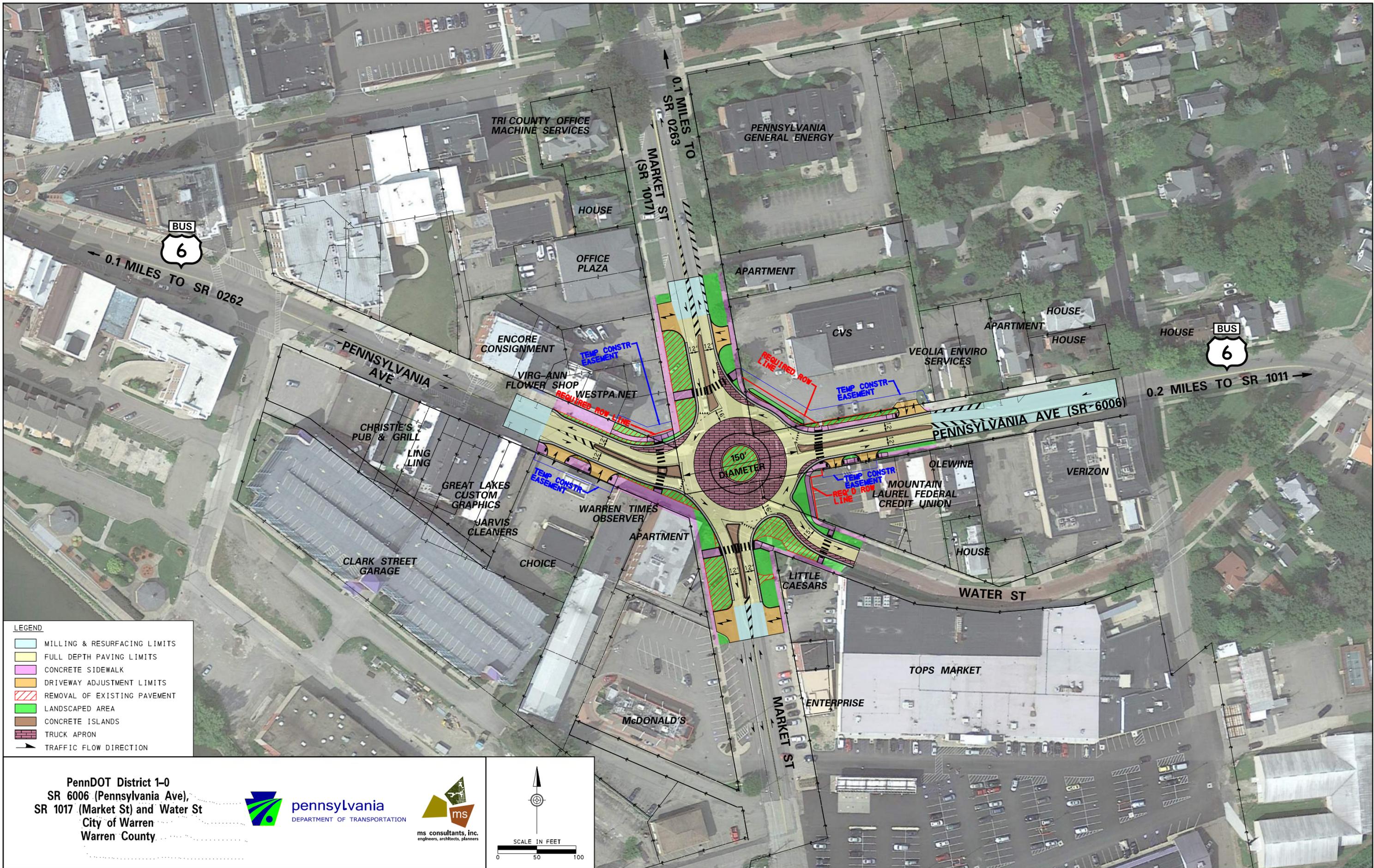
It was desirable to soften the aesthetics of the roundabout to allow it to better blend with the surrounding urban context in which it is located. The truck and superload aprons were stamped and dyed to emulate a red brick pattern, which is prevalent in building construction within the city. In addition, a red modular block wall was chosen for the central island, in which the City of Warren recently decided to plant three trees, one hemlock and two clump river birches, surrounded by river rock to enrich the sustainable appeal of the intersection. Lastly, the light poles installed with the project match the color and style of existing poles within the city limits, providing a sense of continuity along the corridor.

### **Meeting and Exceeding Owner's/Client's Needs**

The alternatives analysis concluded the traffic signal and roundabout alternatives were relatively similar in initial construction cost, however the safety benefits associated with the roundabout as well as its slightly reduced annual maintenance costs appealed to the City of Warren, who will be responsible for future maintenance.

The original awarded bid cost was \$3,982,690 and the actual construction cost is estimated at \$4,024,732, which is only about 1% higher than the awarded bid cost.

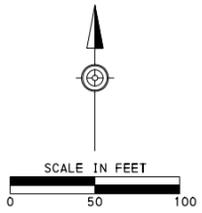
The Consultant Evaluation for alternatives analysis (preliminary engineering) indicated *“ms provided submittals that were accurate and complete resulting in very minimal comments by Department and Peer review. They also did a great job providing the Department with supporting information as community and municipal discussions of the alternatives progressed longer than anticipated. ms provided a well thought out matrix of alternatives that greatly assisted with these discussions and the public and stakeholder meetings.”*



**LEGEND**

	MILLING & RESURFACING LIMITS
	FULL DEPTH PAVING LIMITS
	CONCRETE SIDEWALK
	DRIVEWAY ADJUSTMENT LIMITS
	REMOVAL OF EXISTING PAVEMENT
	LANDSCAPED AREA
	CONCRETE ISLANDS
	TRUCK APRON
	TRAFFIC FLOW DIRECTION

PennDOT District 1-0  
 SR 6006 (Pennsylvania Ave),  
 SR 1017 (Market St) and Water St  
 City of Warren  
 Warren County



**SINGLE LANE ROUNDABOUT**



PHOTO 1 – Existing Conditions, Looking South (Photo by PennDOT)



PHOTO 2 – Staged Construction, Looking South (Photo by PennDOT)



PHOTO 3 – Staged Construction, Looking East (Photo by PennDOT)



PHOTO 4 – Stamped and Dyed Truck Apron, Looking West (Photo by PennDOT)

