



## APWA MINNESOTA CHAPTER PUBLIC WORKS PROJECT OF THE YEAR NOMINATION FORM

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**Submission Deadline: October 1, 2019**

**All nomination and supporting data are to be submitted as a PDF to Sarah at [sarah.lloyd@bolton-menk.com](mailto:sarah.lloyd@bolton-menk.com) with a maximum page size of 5 pages, including photos.**

### Project Nominated:

Managing Agency: \_\_\_\_\_  
Contact Person: \_\_\_\_\_  
Agency Address: \_\_\_\_\_  
Agency Phone Number: \_\_\_\_\_

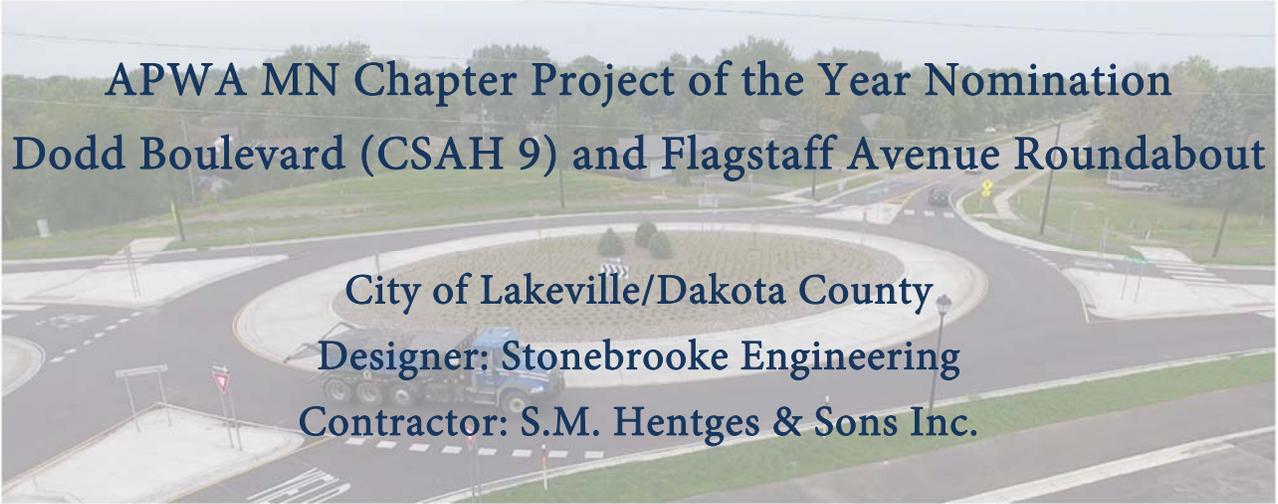
Project Design Firm: \_\_\_\_\_  
Project Construction Administration Firm: \_\_\_\_\_  
Project General Contractor: \_\_\_\_\_

Name of Person Making Nomination: \_\_\_\_\_  
Phone Number: \_\_\_\_\_

### Criteria for Nomination

- Project must be substantially completed by October 31, 2019.
- Includes use of innovative construction management techniques and completion of the project on schedule.
- Maintained excellent safety performance and safety program throughout construction.
- Evidence of strong community relations during all project phases.
- Consideration given to the environment. Sustainable design techniques involved.
- Unusual accomplishments given adverse conditions.
- Provides future value to the public works profession and perception by the public.
- Additional considerations such as value engineering, innovative project financing, multi-agency coordination and participation.

**Reasons for Nomination:** Describe the project with the aspects and features of the project that fulfilled any of the applicable criteria listed. (Include description on a separate page.)



**APWA MN Chapter Project of the Year Nomination  
Dodd Boulevard (CSAH 9) and Flagstaff Avenue Roundabout**

**City of Lakeville/Dakota County  
Designer: Stonebrooke Engineering  
Contractor: S.M. Hentges & Sons Inc.**

### Project Overview

In 2019, The City of Lakeville and Dakota County partnered to redesign and reconstruct the intersection of Dodd Boulevard (CSAH 9) and Flagstaff Avenue, replacing the existing all-way stop-controlled intersection with a single lane roundabout. In addition to the intersection improvements, the project also included pedestrian improvements, substantial watermain replacement, redesign and replacement of all storm sewer infrastructure within the project limits, and construction of two stormwater infiltration basins.

The project satisfies many of the criteria for nomination for Project of the Year in the following ways:

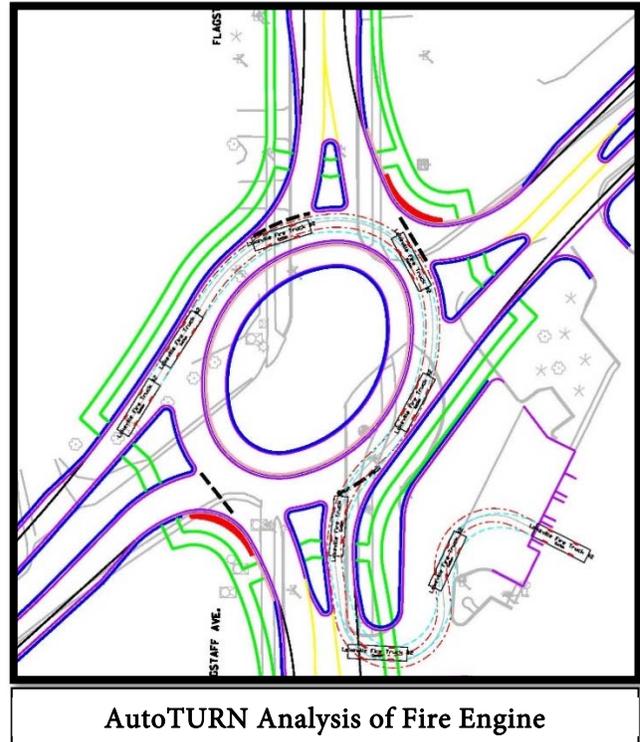
- Use of innovative construction management techniques through coordination with Lakeville Fire Station No. 2, which is located adjacent to the project intersection, and with Koch Industries and Magellan Pipeline, who own easements and pipelines within the project area;
- Completion of the project ahead of schedule and within a condensed timeframe to avoid impacts to nearby schools;
- Excellent safety performance and safety program that accommodated Fire Department access needs while protecting workers and the public;
- Strong community relations during all phases of the project through community outreach during design and right of way acquisition, multiple open houses, weekly email newsletters during construction and periodic video updates on the City website and social media;
- Focus on environmental sustainability by using onsite materials for roadway grading and construction, thereby greatly reducing hauling into and out of the site. Construction of stormwater treatment facilities for more than three acres of area that was previously untreated;
- Overcoming adverse conditions such as above average rainfall, a condensed construction timeframe, the presence of multiple private utilities within the project area, and the need for full fire station access throughout construction;
- The intersection improvement provides future value to the public works profession and positive public perception through traffic calming and pedestrian safety improvements, design integration with a future pedestrian corridor along Dodd Boulevard, unique design to accommodate a skewed intersection, design for future traffic volumes, and reduction of queue times demonstrating the benefits of a roundabout over a stop-controlled intersection;

- The project made use of innovative project funding through a Local Road Improvement Program (LRIP) grant for \$775,000; and
- The project was a successful example of multi-agency coordination between the City, the County, the Contractor, and nearly a dozen private utility companies.

### Innovative Construction Management and Project Safety

#### *Fire Station Access*

Lakeville Fire Station No. 2 is located at the southeast corner of the intersection. During peak periods, access to the station by volunteer firefighters and ability for engines to leave for emergency calls was sometimes impossible due to the congestion, meaning that the fire department would have to rely on other stations to respond to calls that were in their response area. The reduced congestion has eliminated that need, thus improving peak hour response time. The design team created unique AutoTURN templates for the vehicles housed at the station and analyzed specific ingress and egress routes for each vehicle, ensuring the roundabout could accommodate all required movements. The roundabout geometry also required the removal of an existing fire station access and reconfiguration of the fire station parking lot. The design team worked closely with the Fire Chief to ensure the project was designed to best serve fire department needs and operations.



Fire Station No. 2 is staffed by volunteer firefighters and first responders. Uninterrupted access to the station in all directions during construction was critical for the staff and equipment. The contract specified that the Contractor provide full access to the station from all directions at all times. This was accommodated using specially designed traffic control to allow access while creating the appearance that the intersection was completely closed. Dedicated temporary roads were built by the Contractor on City owned property and marked with reflective markers; this allowed the Contractor to close portions of the roadway and protect workers while maintaining full access to the fire station. Changes during the project were communicated between field staff and the fire department on a regular basis. The fire department and ambulance service based out of the station were able to maintain full functionality and safely traverse the site throughout construction, typically handling multiple ambulance calls each day and between two and five fire calls each week.

#### *Utility Coordination*

Numerous private utilities were present within the project limits. Most notably, two high-pressure gas mains and a liquid petroleum transmission main owned by Koch Industries and Magellan Pipeline run north-south along

the east side of Flagstaff Avenue through the project area. Great River Energy High voltage overhead transmission lines run east-west along Dodd Boulevard and numerous private electric, gas, and communications utilities ran north-south along the west side of Flagstaff Avenue.

Coordination with all utility companies started early in the project design process with multiple utility coordination meetings and individual calls and meetings with impacted utilities. The presence of the Koch and Magellan pipelines required specific and unique design decisions to comply with utility crossing separation requirements and minimum cover depths during construction and for the final roadway design. Due to the extent of construction activities, both Koch and Magellan needed to provide “watch dog” oversight personnel for nearly the entire project duration; the Contractor worked diligently to ensure that coordination was maintained with both companies and that the construction schedule was not impacted.

### Ahead of Schedule Completion

Due to the close proximity of two elementary schools and the importance of the intersection for busing operations, the intersection was scheduled to close immediately after the school year concluded and reopen just prior to the start of school.

During the design process, it was determined that watermain replacement along Flagstaff Avenue would require the relocation of every small utility along the west side of Flagstaff Avenue; this included gas, electric, and communications utilities owned by more than a half dozen companies and public entities. Additionally, it was determined that the Contractor would not be able to efficiently stage construction or complete the project within the condensed timeframe without relocation of the utilities prior to closure of the intersection. Through diligent communication and cooperation between the City, County, Contractor, and Designer, all except one of the small utilities were successfully relocated prior to closure of the intersection and commencement of work by the Contractor. This allowed the Contractor to work concurrently on multiple stages of the project and reopen the intersection ahead of schedule.

### Community Relations

Involvement and input from the residential neighborhoods surrounding the project was given high importance throughout the project design and construction. Two public information meetings were held, one during the preliminary design phase of the project and one approximately six weeks prior to construction. The meetings were attended by more than sixty households.

Feedback that the project team received during the public meetings included comments from residents that lived directly north of the intersection on Flagstaff Avenue that they couldn't safely back out of their driveways during much of the day due to queuing at the intersection. The project team worked with the individual property owners to construct driveway turnarounds for those residents to ensure drivers would not need to back out into the roadway. During construction the City sent out weekly email updates to keep residents informed of construction progress, and City, County, and Contractor staff maintained regular face-to-face communication with residents directly adjacent to the project. City communications staff also produced periodic project update videos with current footage of construction activities for display on the City website and social media accounts.

A total acquisition of the residential property at the northwest corner of the intersection was necessary to accommodate the intersection design. This eliminated the need for any other permanent or temporary property acquisition and allowed the skewed roundabout design to fully accommodate large trucks in all turning directions. The City and consultant were able to assist the property owners in relocating their residence and home-business to a more suitable business location and remove what was considered a blighted property. Having completed the property acquisition a full year ahead of the start of construction, the City was able to demolish the structures in advance of the project to avoid impacts to the construction schedule. The remaining area of the property was also able to be utilized by the private utility companies for relocation of their facilities outside of the project construction limits.



**City Staff Meeting with Residents**

### Environmental Sustainability

The project design and construction phasing allowed the Contractor to use primarily onsite materials for construction of the new roadway section. Virgin sand from the infiltration basin area was excavated and used as backfill for all utility trenches and approximately 80% of the roadway select granular section. Additionally, the existing pavement section was reclaimed and used to build the Class 5 aggregate base in the new roadway. This allowed the Contractor to drastically reduce hauling to and from the site.

The existing urban section of roadway along Flagstaff Avenue had storm sewer infrastructure that drained directly into a trunk storm sewer and then into North Creek without substantial treatment or volume reduction. The design team identified an opportunity to use a City-owned parcel southwest of the intersection for a new stormwater infiltration basin. During design, it was determined that the high-pressure gas mains running through the project site could only be crossed in limited locations, therefore an existing green space behind the fire station was identified for a second infiltration basin to handle runoff from the east side of the roundabout. The infiltration basins provide treatment volume for 1.6 acre-feet of runoff from the roundabout, the fire station, and 300 feet of Flagstaff Avenue south of the roundabout.

### Overcoming Adverse Conditions

The project team faced a number of challenges throughout the course of the project. Most notable were several challenges related to the large number and types of private utilities in the project area. Approximately four weeks prior to the beginning of construction, the City was approached by Koch Industries regarding removal of a steel casing around their high-pressure gas main underneath Dodd Boulevard. The City and Contractor were able to coordinate work schedules and traffic control to allow Koch crews to complete removal of the casing during

roadway construction without impacting fire station access or delaying the project. Additionally, one small utility along the west side of Flagstaff Avenue was not relocated prior to the scheduled construction start date. Consequently, the road closure and project start date was delayed one week. The Contractor was able to make changes to the construction phasing and open the intersection one week ahead of schedule, effectively completing the project in just ten weeks and two weeks faster than the planned construction schedule.



Construction activities were also impacted by the higher than average rainfall throughout the summer. Despite the large and frequent storm events, the Contractor was able to coordinate work activities such that only five work days were lost to rain and the project was completed ahead of schedule, whereas other projects in the City were delayed by two to three weeks over the course of the summer.

### Additional Considerations

In 2016, the intersection was ranked as the second-worst intersection for delays on Dakota County's Intersection Control Assessment (ICA) list, with PM peak hour delays of more than two minutes. Additionally, the City of Lakeville is experiencing significant residential and commercial development near the intersection, resulting in projected traffic volumes on Dodd Boulevard of 12,000 vehicles per day in 2015 to 17,000 vehicles per day in 2030. Analysis of the level of service in 2015 assigned an overall E rating during the AM peak and F rating during the PM peak. The expected level of service for the roundabout is an A rating during the AM peak and a B rating during the PM peak.

As part of the design process, the City and Stonebrooke Engineering applied for a grant through MnDOT's Local Road Improvement Program (LRIP) for \$775,000. The grant application highlighted the benefits of the project, including improved level of service, fire station access concerns, cost-effectiveness compared to a traffic signal, and intersection safety improvements for both vehicles and pedestrians. The City was subsequently awarded a grant for the full amount of \$775,000, which substantially offset the overall project cost.

Please take a minute to view a short video about the project:

<https://www.youtube.com/watch?v=miVwwJiOhE&feature=youtu.be>