

Our intention is to have in-person meetings going forward. For the time being, we will hold the City Committee Meetings, Plan Commission, Council and most others at the Community Room at 933 Michigan Avenue. This in-person location will meet the legal requirement for our open meetings.

We will have a virtual option available, but the technology for the hybrid style meeting may not be reliable all of the time.

CITY OF STEVENS POINT BOARD OF PUBLIC WORKS MEETING

February 12, 2024 - 6:20 PM

(or immediately following previously scheduled meeting)

**Community Room
933 Michigan Avenue, Stevens Point, WI**

OR

Zoom Teleconferencing

Meeting ID: 832 1775 8191 | Passcode: 552949

By Computer: <https://us02web.zoom.us/j/83217758191?pwd=MWJwRTlva2JhdTNCc3JMcUc3eExwUT09>

By Phone: +1-312-626-6799 (US Chicago)

(A quorum of the City Council may attend this meeting)

AGENDA

Roll Call

Informational

1. Director's Report
 - a. Country Club Drive
 - b. Division and Church Streets Reconstruction Project
 - c. 2024 Streets Improvement Project (Northside)
 - d. 2024 Streets Improvement Project (Southside)

Discussion and Possible Action

2. Consideration on the intersection options (signals or roundabout) at Division Street and Fourth Avenue as it relates to the Business 51 Reconstruction Project.

Adjourn

Meeting Rider

Any person who has special needs while attending this meeting or needing agenda materials for this meeting should contact the City Clerk as soon as possible to ensure a reasonable accommodation can be made. The City Clerk can be reached by telephone at (715) 346-1569, TDD # 346-1556 or by mail at 1515 Strongs Ave., Stevens Point, WI 54481.

Copies of ordinances, resolutions, reports and minutes of the committee meetings are on file at the office of the City Clerk for inspection during normal business hours from 7:30 a.m. to 4:00p.m.

City of Stevens Point
1515 Strongs Avenue
Stevens Point, WI 54481



Public Works
Engineering Department:
Phone: 715-346-1561
Fax: 715-346-1650

Streets Department:
Phone: 715-346-1537
Fax: 715-346-1687

January 30, 2024

DIRECTOR OF PUBLIC WORKS REPORT
Scott Beduhn

1. Engineering Division

• **Country Club Drive:**

- Staff continues to work through right of way constraints with the Town of Hull and Stevens Point Country Club and believes the current design is agreeable to the primary stakeholders.
- To ensure compliance with the MLS grant funding, WisDOT has instructed us to utilize a real estate professional to complete the necessary right of way dedication.
- Staff is still working towards a 2024 construction; however, this will be dependent upon the ability to complete the right of way dedication.

• **Division and Church Streets Reconstruction Project:**

- AECOM continues working towards the completion of a 30 percent design of the entire corridor.
 - The 30 percent design is anticipated to be completed in late March/early April.
 - AECOM has delivered a technical memorandum on the evaluation of the roundabout at Division Street and Fourth Avenue.
 - A copy of the memo was sent to Alders by Council President Christianson.
 - Several property owners with properties identified for acquisition during the planning study have reached out to the City with interest in selling.
 - Staff met with WisDOT real estate staff to discuss the potential for acquisition to ensure we do not jeopardize our eligibility for future grant funding.
 - In short, the City can do what it wants, but to ensure funding eligibility, WisDOT recommends waiting until the funding source is identified and then following the appropriate real estate acquisition rules.
 - AECOM and City held one-on-one office meetings with residents and business owners throughout the Central and North on January 31, 2024, and February 1, 2024.
 - As AECOM completes the 30 percent design, they will be drafting agreements for the final design of the North and South Segments.
 - North Segment is currently anticipated to be constructed in 2025.
 - Construction of the South Segment is currently anticipated to start in 2026 beginning with the reconstruction of Post Road and Church Street from the south city limits to approximately Michigan Avenue as part of the STP-Urban grant.

• **Fall Paving Project:**

- Nothing new to report

- **2022 Road Resurfacing Project:**
 - Nothing new to report.
- **Ridge Road Resurfacing Project:**
 - Nothing new to report.
- **2022 Street Improvement Project:**
 - Nothing new to report.
- **2023 Street Improvement Project:**
 - All work is completed. The contractor will return in the spring to reseed the turfed areas and take care of any warranty items.
- **2023 Road Resurfacing Project:**
 - All work is completed. The contractor will return in the spring to touch up the restoration and take care of any warranty items.
- **2024 Street Improvement Project (Northside):**
 - A second PIM was held on Wednesday, December 13, 2023, at Pacelli High School.
 - While a few individuals expressed some concerns regarding the proposed mini-roundabout at the intersection of Second and Maria, the overall feedback was positive, and the mini-roundabout remains the basis of the final design.
 - The City's consulting engineer (Strand) is working to finalize the design for bidding later this winter.
- **2024 Street Improvement Project (Southside):**
 - A second PIM was held on Tuesday, December 12, 2023, at the Utility Department Office (300 Bliss Avenue).
 - Letters were sent to the owners of the properties abutting Prairie Street regarding the potential to abandon the roadway.
 - So far staff has not received any comments in opposition to the abandonment and the therefore the current design reflects abandoning the roadway between Bliss and Mason.
 - Because the abandonment will impact the City's certified road mileage, a resolution will be required for the abandonment which will need to be submitted to WisDOT as part of our annual recertification at the end of the calendar year.
 - The City's consulting engineer (Clark Dietz) is working to finalize the design for bidding later this winter.
- **West Zinda Bridge:**
 - Nothing new to report
- **Michigan Avenue Underpass:**
 - This project is tentatively slated for construction in 2025 pending capital budget approval. Given the specialized work related to the storm sewer system serving the underpass and the coordination needed with Canadian National for work within the railroad right of way, staff will be reaching out to consulting engineers soon to begin planning and design efforts.
- **Division Street Concrete Joint Repairs:**
 - We are experiencing some early failure along the edges of some of the test repairs. We will continue to monitor but believe the failure is a result of the existing concrete quality and the shallowness of the repair in those areas.

- **Additional Miscellaneous Projects:**

- Engineering Staff continues gathering survey data and researching right of way for proposed 2025 roadway projects.
- Engineering staff have been working with university staff on several fronts to improve the University environment. These include:
 - Discussions related to the future of North Division Street as part of the Business 51 planning study.
 - Discussions in conjunction with Community Development on the future of the old Maytag lot.
 - Discussions regarding the reconstruction of Fourth Avenue through campus which is tentatively scheduled for reconstruction in 2027.
 - An opportunity has recently presented itself that may allow for the installation of a raised crosswalk as a demonstration and trial for potential traffic calming measures that may be incorporated into the Fourth Avenue reconstruction project.
 - The University will be installing new chilled water lines across Fourth Avenue at the existing mid-block crosswalk and have agreed to have their consultant evaluate if a raised crosswalk could be installed with minimal other impacts (predominately stormwater drainage).
 - If the drainage can be worked out the City will work collectively with the University on the installation.
- Staff continue to work with the Fire Department on engineering related issues for the Fire Training Facility.
- Staff continue to work with both the Fire Department and Police Department on building-related issues, predominately roofing concerns.
- Staff continue to work with the Utility Department on various water, sanitary and stormwater projects.
- Submitted the request for Local Roads Improvement Program funds in the 2024-2025 program cycle.
 - Every biennial funding cycle the City of Stevens Point is given an entitlement through the LRIP Program. This entitlement in this cycle is approximately \$70,000 and can be used to cover up to 50 percent of the cost of approved construction activities for local roads improvement projects.

2. Streets Division – December Report

- **Continued Operations:**

- Garbage and Recycling
- Street Sign Compliance and replacement
- Street Light Maintenance
- Street Patching/Trumbull
- Drop off Site Operations

- **Staffing:**

- The department remains fully staffed! Our newest hire will be attending CDL School in the month of January.

- **2024 Garbage and Recycling Calendar:**

- We have identified an issue with the garbage and recycling calendar that were distributed with the water bills in late 2023. The colors on the calendar are much darker than anticipated, making it challenging for residents to read the dates and distinguish

colors. Part of the issue was caused by the mailing service printer being incompatible with the colors on our PDF. To rectify the situation the department will be redistributing route specific calendars in early January.

- **Winter Operations:**

- The city responded to a total of 3 winter events in the month of December. One new year's weekend we experienced back-to-back ice storms prompting salting on A & B Routes. In the month of December our crews also recalibrated our salt trucks.

- **Forestry Work:**

- During December we've had a crew working with the Forestry Department on clearing trees infected with oak wilt, this work will continue into January.

- **Nighttime Winter Patrol:**

- With the temperate December, our nighttime winter patrol has been working on repairing streetlights and preparing approximately 700 of our small garbage carts for auction.

- **2024 Fleet Order:**

- In December the department submitted orders for 2024 vehicle replacement, in total there were 25 vehicles ordered among Police, Fire, Parks and Streets departments. They will be replacing vehicles with an average age of 11 years old.

- **Equipment maintenance/garage:**

- We have not yet transitioned to the new fleet management software, but preparations for this change are underway. There was a total of 83 completed service orders in the month of December. This is up from 66 posted repairs in November. When broken down by department there were:

Water	3
Engineering	0
Inspection	0
Police	7
Parks	25
Fire	8
Streets	40

3. Streets Division – January Report

- **Continued Operations:**

- Garbage and Recycling
- Street Sign Compliance and replacement
- Street Light Maintenance
- Street Patching/Trumbull
- Drop off Site Operations

- **Staffing:**

- We have one opening for a Streets Maintenance Worker due to a resignation. The employee is taking a position closer to their house.

- **Winter Operations:**
 - The city responded to a total of 2 winter events in the month of January, both were small storms that mostly resulted in salting A&B routes.
- **Winter Work:**
 - With the unprecedented warm January, our crews are working on tasks that we would not normally perform in January/February.
- **Patching:**
 - We have gotten a very early start on patching; both the infrared and hot patcher have started making initial passes around the city.
- **Sweeping:**
 - While we typically would not have the sweepers out until early spring, the department is taking advantage of this weather by sweeping as much as we can prior to our spring pass of the city.
- **Forestry Work:**
 - During December and January, we've had a crew working with the Forestry Department on clearing trees infected with oak wilt, this work will continue into February.
- **Nighttime Winter Patrol:**
 - With the temperate January, our nighttime winter patrol continues repairing streetlights and prepped approximately 700 of our small garbage carts for auction.
- **Equipment maintenance/garage:**
 - We have not yet transitioned to the new fleet management software, but preparations for this change are underway. There was a total of 67 completed service orders in the month of January. This is down from 83 posted repairs in December. When broken down by department there are.

Water	7
Engineering	1
Inspection	2
Police	5
Parks	13
Fire	5
Streets	34



AECOM
1350 Deming Way
Middleton, WI 53562
aecom.com

Project name:
Business 51 Corridor Study

Project ref: 60619808

To:
Scott Beduhn, City of Stevens Point

From:
Karen Olson

CC:
Bill Schilling, AECOM
Jeff Sandberg, AECOM

Date:
February 2, 2024

Memorandum

Subject: Business 51 and 4 Avenue Roundabout Evaluation

Introduction

This memo compares the feasibility of building and operating a roundabout or a signalized intersection at the Business 51 and 4th Avenue intersection in the City of Stevens Point. The safety of pedestrians and operational capacity were evaluated. Roundabout advantages and disadvantages are also discussed in this memo.

The Business 51 and 4th Avenue intersection is adjacent to the University of Wisconsin – Stevens Point. The pedestrian volume is high between class times. A review of 2015-2019 crash data and crash reports obtained from the UW WisTransportal shows this intersection had 51 crashes. This crash data was compared with a crash listing provided by the City of Stevens Point. A cross-referencing of these two crash data resources indicated the total number of crashes was similar, though there were discrepancies regarding specific crashes included. A table summarizing these discrepancies is attached.

Twelve of those crashes involved an injury. A crash diagram can be found in Exhibit 1. Six crashes involved pedestrians or bikes, and all five were caused by driver/pedestrian error. See Table 1.

Bike and Pedestrian Crashes at Fourth Avenue and Division Street						
Date	Time	Pavement Conditions	Bike or Ped	Cause	Location of Car Driver	Location of Bike or Ped
13-Feb-15	11:53 AM	Dry	Bike	Car Right Turn on Red Light	SB Division St.	WB Fourth Ave.
30-Jul-15	5:05 PM		Bike	The car hit brakes to avoid a pedestrian and was rear-ended	SB Division St.	SB Division St.
23-Sep-15	3:26 PM	Dry	Ped	Car Ran Red Light	NB Division St.	WB Fourth Ave.
2-May-17	4:45 PM	Dry	Ped	Car Right Turn on Red	EB Fourth Ave.	NB Division St.
21-Sep-17	5:30 PM	Dry	Bike	Car Right Turn on Red	NB Division St.	WB Fourth Ave.
26-Jul-18	11:57 AM	Dry	Bike	Bike Ran Red Light	NB Division St.	EB Fourth Ave.

Table 1

Pedestrian volumes were collected in 15-minute intervals. Delays due to large volumes of pedestrians during the 10-minute peak of pedestrian traffic between classes will be slightly more than our models predict but will be of short duration and should not appreciably affect delays on the mainline (Business 51).

Microsimulation was used to evaluate the traffic operation of the roundabout. A video file of the operations of the roundabout alternative will be distributed separately. Synchro was used to evaluate the operation of the signalized intersection.

Lastly, research into communities with experience building and maintaining roundabouts was performed. Interviews with public works directors and literature reviews are summarized in this memo. The examples are all single-lane roundabouts from communities with pedestrian generators near or adjacent to the roundabout. The intersections used as examples of a roundabout have speed limits on the legs of the intersection of 35 MPH or less and are in urban or suburban areas.

Vissim Modeling

To better understand and verify how this roundabout would operate with the forecast volumes of pedestrian and vehicular traffic, AECOM performed a microsimulation of the roundabout at the Business 51 and 4th Avenue intersection.

Vissim Network – Spatial Limits

A Vissim microsimulation model was created for the proposed roundabout at Business 51 & 4th Avenue to analyze traffic operations specifically focused on the operational effects of high pedestrian volumes. The model's limits include Business 51, extending from Main Street on the south end to Maria Drive on the north end. The Main Street and Maria Drive intersections are signalized and included in the Vissim model to capture potential platooning effects from the signals. The Vissim model only contains three intersections (Main Street, 4th Avenue, and Maria Drive). Other unsignalized intersections along Business 51 are not included in the model.

The Vissim network was built using 2020 aerial photos and CAD files of the proposed roundabout alternative to trace links and connectors. A speed limit of 25 mph was assumed for the proposed Business 51 corridor, and signal timings and lane configurations were taken from Synchro models of the proposed alternatives at Main Street and Maria Drive.

Vissim Network – Temporal Limits

Starting with traffic counts collected at the project intersection on September 19, 2023, the peak hour was identified as 4:30 – 5:30 PM. This hour was selected based on the vehicle peak and high pedestrian count, which was about 1830 vehicles/hour and 80 peds/hour for intersection totals. Peak pedestrian counts occur during the mid-day (1:30-2:30 PM) with about 110 pedestrians/hour, though the total number of vehicles entering the intersection is less, with about 1120 vehicles/hour. An AM peak was not modeled due to the PM peak having higher pedestrian and vehicle volumes. Single-unit truck and tractor-trailer truck percentages for the simulation were derived from the September 2023 counts.

The model period was then extended from 4-6 PM to add 30-minute warm-up and cool-down periods. The 15-minute vehicle and pedestrian counts were then used to simulate 15-minute variations in traffic (flow profile). The pedestrian peak of 15 minutes was shifted to coincide with the 15-minute vehicle peak to maximize the potential for vehicle-pedestrian interactions (worst-case scenario).

Only the 2045 PM peak build scenario was simulated in Vissim. Vehicle and pedestrian volumes at the Business 51 & 4th Avenue intersection were projected to 2045 PM volumes using a 0.5% annual growth rate. This annual growth rate matches the growth rate used in the Business 51 Corridor Study. Volumes at the Main Street and Maria Drive intersections were proportionally adjusted to match the 4th Avenue intersection volume.

Vissim Calibration

The roundabout simulation was calibrated based on speed and capacity. Vissim reduced speed areas and desired speed decisions at the roundabout, following guidance from Wisconsin roundabout research¹ for deceleration, approach speed, and reduced speed area placement. These parameters are shown in Table 1.

The model was calibrated to WisDOT roundabout capacity using equations 20.1 – 20.3 from TEOpS 16-15-20.2.1. The model was calibrated by creating an infinite queue of entering vehicles and varying circulating vehicles to test roundabout calibration at different values of circulating traffic. Conflict areas for entering vehicles had a modified front gap and safety distance, and the Wiedemann 74 driver behavior variables of bxAdd and bxMult were modified, as shown in Table 1.

Table 1. Vissim Calibration Parameters

	Vissim	
	Default	Calibrated
Approach Reduced Speed Area (RSA)		
Deceleration (ft/s ²)	6.56	4.19
Approach RSA Speeds (Approx Avg, mph)	NA	13
Circulating Speeds (mph)	NA	18 - 22
Conflict Area Front Gap (sec)	0.5	0.0
Conflict Area Safety Distance Factor (unitless)	1.5	0.5
W74 bxAdd (unitless)	2.0	1.5
W74 bxMult (unitless)	3.0	2.5

¹ Li, et al. "Calibration of VISSIM Roundabout Model: A Critical Gap and Follow-up Headway Approach." TRB 92nd Annual Meeting in Washington, D.C., January 13-17, 2013.

The resulting capacity from Vissim was slightly less than WisDOT's roundabout capacity equations, as shown in Figure 1. A closer match between the WisDOT capacity equation and Vissim capacity could only be achieved with aggressive changes to parameters shown in Table 1 or unrealistic increases in driving speed. The green diamonds in Figure 1 indicate the northbound and southbound 2045 PM volumes are 38% and 28% below average simulated capacity, respectively. Lower capacity in Vissim may result in conservatively larger estimates of delay and queue. Vehicles in Vissim also consistently yield to pedestrians, which may result in conservative queues. All operational results from the Vissim model are based on ten simulation runs.

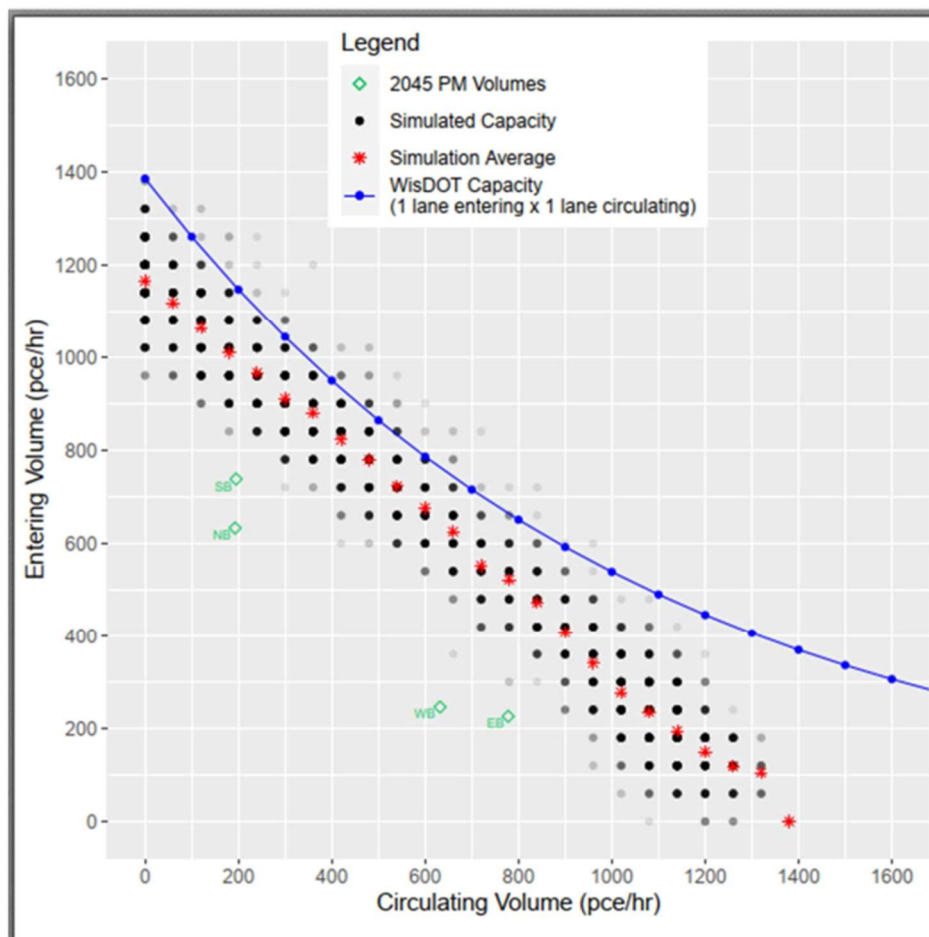


Figure 1: Capacity Comparison Graph

Synchro Analysis

A Synchro analysis of the signalized alternative was performed using the same volumes as the microsimulation analysis. The Peak Hour Factor (PHF) used was 0.91.

The signal timing was developed with protected-permitted left turn phasing for the northbound and southbound legs. Two separate models were created for two different types of side road left turn phasing. The first model (Synchro Signalized Intersection with pedestrians) includes permissive-only side road left turn phasing. The second model (Synchro signalized intersection with pedestrians & left turn phasing on 4th Ave) includes protected/permitted left turn phasing for the side road. A 90-second cycle length was used. This allows the intersection to be coordinated with the adjacent intersections. The adjacent intersections were not analyzed.

Roundabout and Signalized Intersection Results

The microsimulation of the roundabout was performed with and without pedestrians. The simulation indicates a 25% higher queue on the southbound approach and a 3-second/vehicle higher delay with pedestrians. Overall, the roundabout will operate at a Level of Service C with an average delay of 19 seconds per vehicle entering.

The Synchro analysis of the signalized intersection results in Level of Service C with an average delay of 19.6-25 seconds per vehicle entering, depending on left turn phasing. 95th percentile queues for the signalized alternative are 10%-13% longer than the roundabout alternative.

Operational Analysis Results - 2045 PM

Intersection Performance (Vissim Roundabout with pedestrians)		Total	NB			SB			EB			WB		
			L	T	R	L	T	R	L	T	R	L	T	R
Volume			35	545	50	45	655	30	50	95	80	70	90	85
LOS		C	C			C			C			B		
Delay (s/veh)		19.0	19.0			21.9			17.9			12.0		
95th Q (ft)			410			510			140			130		

Intersection Performance (Vissim Roundabout excluding pedestrians)		Total	NB			SB			EB			WB		
			L	T	R	L	T	R	L	T	R	L	T	R
Volume			35	545	50	45	655	30	50	95	80	70	90	85
LOS		C	C			C			B			B		
Delay (s/veh)		16.0	18.0			16.9			14.0			10.0		
95th Q (ft)			400			410			120			130		

Intersection Performance (Synchro Signalized Intersection with pedestrians)		Total	NB			SB			EB			WB		
			L	T	R	L	T	R	L	T	R	L	T	R
Volume			35	545	50	45	655	30	50	95	80	70	90	85
Lane configuration			L	T+R		L	T	R	L	T	R	L	T	R
LOS	C		B	B		A	B	A	C	C	C	D	C	C
Delay (s/veh)	19.6		10.1	15.2		9.4	16.0	7.3	34.8	31.3	31.5	35.9	31.2	31.6
95th Q (ft)			25	450		25	575	0	50	100	25	75	75	25

Intersection Performance (Synchro Signalized Intersection with pedestrians & left turn phasing on 4th avenue)		Total	NB			SB			EB			WB		
			L	T	R	L	T	R	L	T	R	L	T	R
Volume			35	545	50	45	655	30	50	95	80	70	90	85
Lane configuration			L	T+R		L	T	R	L	T	R	L	T	R
LOS	C		B	C		B	C	B	C	D	D	C	C	C
Delay (s/veh)	25.0		14.4	21.7		13.4	23.3	10.3	30.5	35.2	35.5	31.1	34.4	34.9
95th Q (ft)			25	600		25	675	0	50	100	25	50	100	25

Advantages of Roundabouts

Safety performance benefits are a product of a roundabout geometric design. Vehicles travel in the same direction, eliminating left-turn and head-on conflicts associated with non-roundabout intersections. The roundabout design prioritizes speed control, typically requiring entry and circulating

speeds of 15 mph to 25 mph. Speed control is provided by geometric features and complemented by signing and pavement marking. Because of this, roundabouts can achieve speed control at all times of the day. Other intersection forms rely on traffic control devices or the impedance of other traffic to reduce speeds. Lower vehicle speeds contribute to the following safety benefits:

- More time for entering drivers to judge, adjust speed, and enter a gap in circulating traffic.
- Smaller sight triangles are needed for users to see one another.
- Increased likelihood of drivers yielding to pedestrians.
- More time for all users to detect and correct their mistakes or adjust to the mistakes of others.
- Less frequent and less severe crashes involving pedestrians and bicyclists.
- Easier intersection navigation for novice users.

As documented in WisDOT's Phase 3 Roundabout Safety Evaluation, single lane roundabouts reduce severe crashes by up to 41% compared to signalized or stop-condition intersections. Roundabouts achieve this reduction for the following reasons:

- Drivers have no lane-use decisions to make.
- Pedestrians cross one lane of traffic at a time.
- Lower speeds allow for comfortably mixed bicycle and motor vehicle flow.

The preferred roundabout geometric design locates the pedestrian crossing 1-2 vehicle lengths from the circulatory entrance to improve the likelihood that drivers and bicyclists will pay attention to the pedestrian crossing before entering the roundabout. The presence of a splitter island with a pedestrian crossing refuge separates the crossing into two stages. This generally simplified crossing environment allows the person crossing to focus their attention on one direction of oncoming traffic at a time.

A four-leg stop-controlled or signalized intersection with four legs and a single lane on each approach has been traditionally described as having 32 conflict points for motor vehicles: 16 crossing, 8 merging, and 8 diverging. Pedestrians have 16 conflicting movements. Figure 2 shows this configuration.

Figure 2: Conflict Point Diagram for Signalized or Stop-Controlled Intersections: 32 Conflict Points

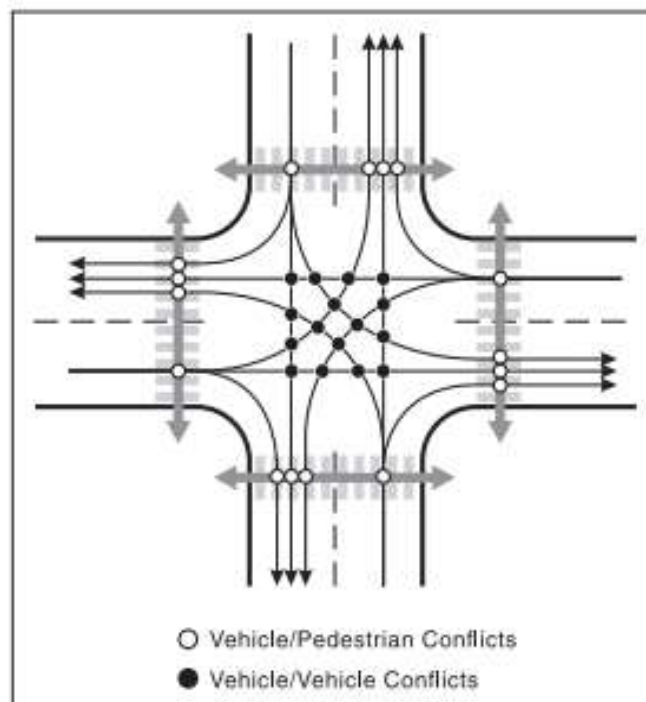
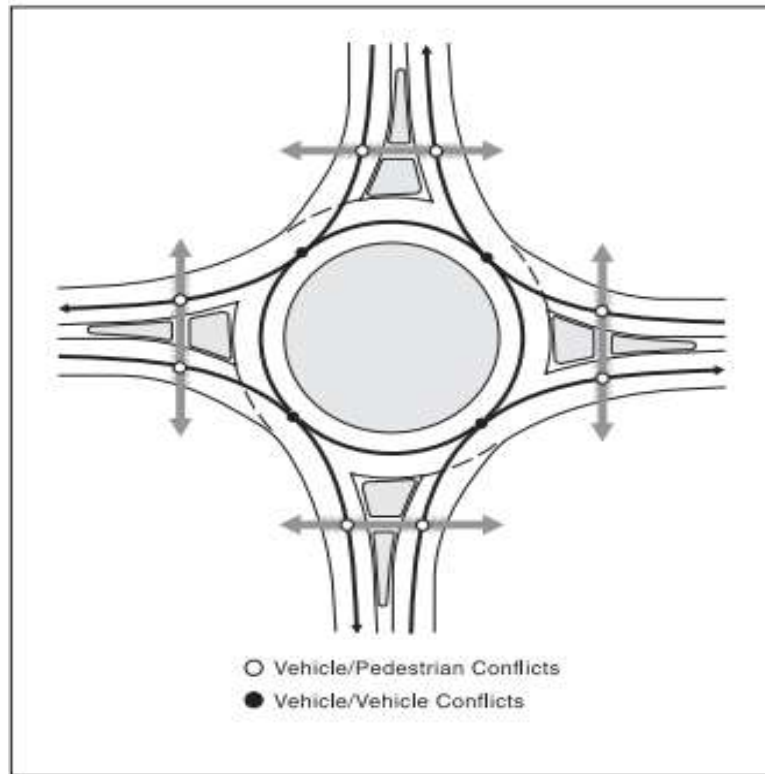


Figure 3: Conflict Point Diagram for Single-Lane Roundabouts: 8 Conflict Points



In a single-lane roundabout, the conflict points are reduced to 8, as seen in Figure 3. Pedestrian conflicts are reduced to 8. The geometry of the roundabout primarily manages these conflicts by:

- Eliminating the more severe crossing conflicts for left-turning vehicles.
- The remaining crossing conflicts have lower speeds because of the geometric design.

Disadvantages of Roundabouts

1. Roundabouts can have significant property impacts
2. Roundabouts are quite ubiquitous in Wisconsin, but they may still be unfamiliar to a significant segment of the driving population. An outreach plan and education resources can mitigate this.
3. Roundabouts can be challenging to navigate for visually impaired pedestrians. A gap in traffic must occur, and pedestrians must be able to recognize when a gap is present. Studies show that single-lane roundabouts are much easier for the visually impaired to navigate than multi-lane roundabouts.
4. The travel path for pedestrians can be longer.
5. There is a lack of control for first responders, meaning pre-empting the operation of the intersection is not possible.

Examples of Roundabouts Near Pedestrian Generators

City of De Pere, Wisconsin:

The first roundabout in Brown County was constructed in 1999. There are currently 86 roundabouts built by the county, state, and local communities in Brown County. Brown County has embraced the safety components of roundabouts and has published information on pedestrian safety and public outreach that can be found here: <https://www.browncountywi.gov/departments/planning-and-land-services/planning/roundabouts-and-traffic-calming/>. Brown County highly recommends investing in outreach if a roundabout is chosen as the best alternative. AECOM attempted to contact the City of De Pere but did not get a response.

The Chicago St. and Libal St. roundabout is an example of a well-functioning roundabout with vehicular and pedestrian traffic mixing at peak hours. It is surrounded by homes, businesses, and two schools in the City of De Pere. The roundabout is a single-lane facility that serves as the main entrance to the high school. Mainline AADT is approximately 10,000 (~77% of the Business 51 mainline AADT), while the side road AADT of 4,000 is similar to Business 51. This roundabout is one in a series of four roundabouts along Chicago St. (CTH G).

Chicago St – Libal St



Figure 4

The Chicago St. and Swan Rd. is another roundabout in the City of De Pere that is located near pedestrian generators. This intersection is primarily surrounded by businesses and a middle school. It also serves as the entrance to a medical clinic. Mainline AADT is approximately 10,000 (~77% of the Business 51 mainline AADT). Sideroad AADT is not available.

Chicago St – Swan Rd



Figure 5

City of Carmel, Indiana:

Carmel is internationally known for the abundance of roundabouts in their community. Since the early 1990s, more than 150 have been built to date. The city reports that the number of injury crashes in the community has dropped by 80%, and the total number of crashes has been reduced by 40%. Mayor James Brainard: “We made the decision to build roundabouts because they are safer, less expensive, and aesthetically more pleasing.” The city’s web pages highly recommend outreach and education when implementing a roundabout project. AECOM attempted to contact the City of Carmel but did not get a response.

An example of a roundabout in Carmel near pedestrian generators is at the E Main -N Richland – 4 Ave SE intersection. Mainline AADT is approximately 10,000 (~77% of the Business 51 mainline AADT), while the sideroad AADT is approximately 3,000(~75% of Business 51). This roundabout is near the Carmel Arts & Design District entrance and the entrance to a local high school, with pedestrian generators in all quadrants of the intersection. More information on Carmel's roundabout initiative can be found here: <https://www.carmel.in.gov/government/departments-services/engineering/roundabouts>

E Main St - N Richland Ave - 4 Ave SE Roundabout



Figure 6

City of River Falls, Wisconsin:

The City of River Falls has a series of 2 roundabouts on E. Cascade Avenue through the UW-River Falls campus. This area is quite similar to the Business 51 and 4th Avenue intersection. Mainline AADT is approximately 10,000 (~77% of the Business 51 mainline AADT, while the sideroad AADT is approximately 3,000(~75% of Business 51). Todd Nickleski, City Engineer for the City of River Falls, says that Cascade Ave. currently works well, and they do not experience significant vehicular delays, the roundabout and roadway design keeps traffic speed low, which, coupled with lighted pedestrian crossings, has provided safe pedestrian crossings since the projects were complete. He recommends investing in education and outreach if a roundabout is the best alternative. There is a learning curve for drivers.

E. Cascade Ave Roundabouts



Figure 7

Conclusions

The evaluation of the proposed roundabout at the Business 51 & 4th Ave intersection indicates the presence of high pedestrian activity causes a slight increase in delay and queuing compared to the scenario with no pedestrians. Despite this, a roundabout is expected to operate acceptably with lower levels of delay and shorter queue lengths than the signalized alternative.

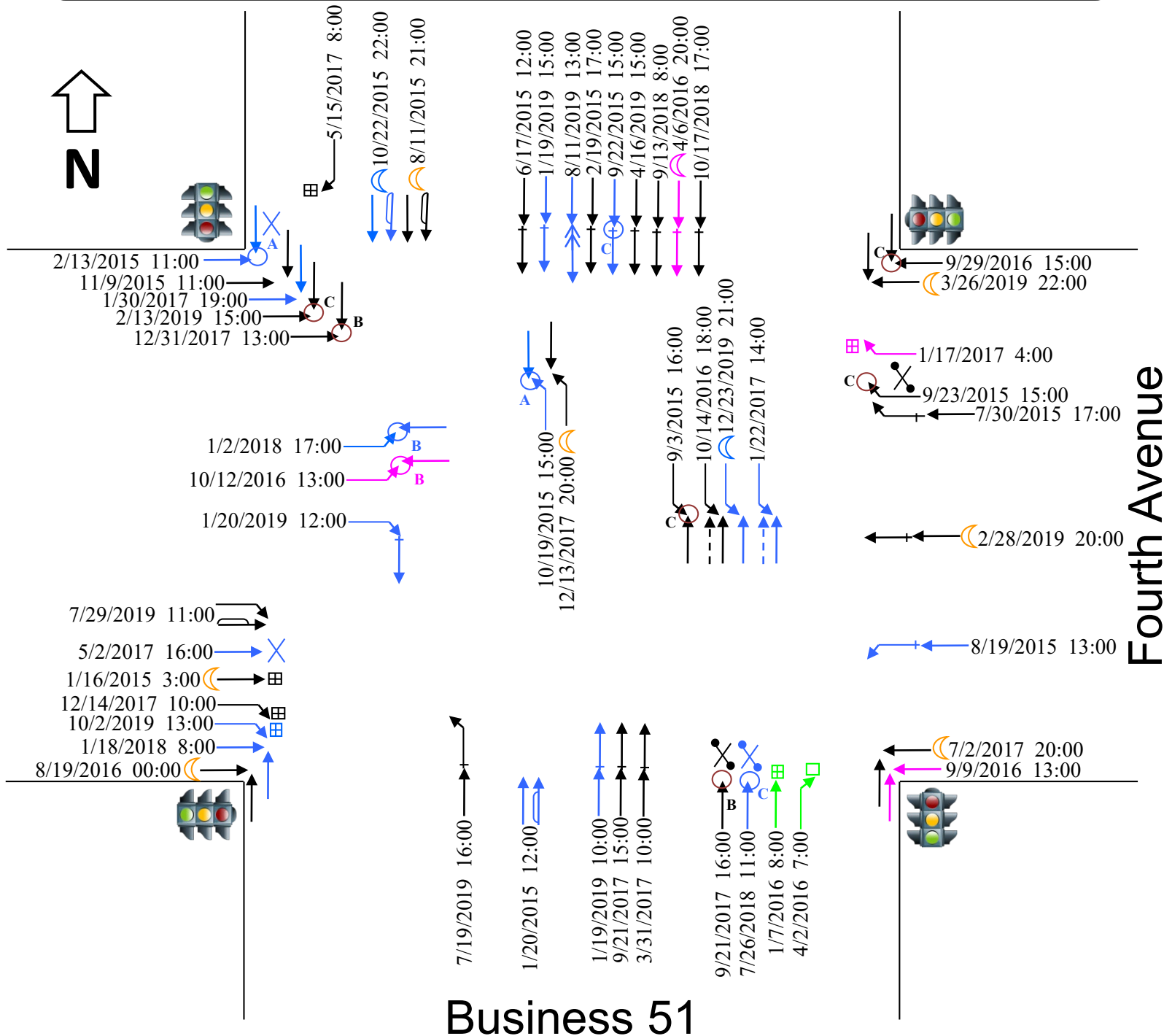
The community examples included in this memo provide anecdotal evidence that roundabouts near pedestrian generators can operate at a reasonable level of service and provide safe crossings for pedestrians. What was reinforced by all the communities contacted was the need for education and public outreach. Roundabouts are very different than traditional intersections, and when a new roundabout is installed, the intersection may see an increase in sideswipe and rear-end crashes. Brown County and Carmel have many resources on their websites to help with this outreach and education effort.

2015 - 2019

Fourth Avenue

51 Crashes

City of Stevens Point



Legend

- | | | | | | | | |
|-----|-------------|---|----------------|----------------|-----------------|---|----------|
| ← + | Stopped | ☾ | Night | ○ | Injury | ☁ | Cloudy |
| ← ↗ | Sideswipe | □ | Fixed Object | ◇ | Fatality | ❄ | Snow/Ice |
| ← → | Backing | ⊞ | Traffic Signal | ○ ^B | Injury Severity | ☔ | Rain |
| ← ↖ | Overtaking | × | Pedestrian | (A, B, C) | | ☁ | Fog/mist |
| ← - | Non-Contact | ⚡ | Bicyclist | 🚧 | Construction | | |

Crash Data Cross-Referenced

Accident Date	Database that Identified the Crash
1/16/2015	UW WisTransportal
1/20/2015	Both
2/13/2015	Both
2/19/2015	Both
4/1/2015	Both
4/27/2015	Both
6/17/2015	Both
7/30/2015	UW WisTransportal
8/11/2015	Both
8/19/2015	Both
9/3/2015	Both
9/22/2015	Both
9/23/2015	UW WisTransportal
10/4/2015	Stevens Point *
10/19/2015	Both
10/22/2015	Both
11/9/2015	Both
1/7/2016	Both
4/2/2016	Both
4/5/2016	UW WisTransportal
4/6/2016	Both
4/7/2016	Stevens Point *
5/2/2016	Both
8/11/2016	Both
8/19/2016	Both
9/9/2016	Both
9/29/2016	Both
10/12/2016	UW WisTransportal
10/14/2016	Both
1/17/2017	UW WisTransportal
1/22/2017	Both
1/30/2017	UW WisTransportal
3/31/2017	Both
5/2/2017	UW WisTransportal
5/15/2017	UW WisTransportal
7/2/2017	UW WisTransportal
7/3/2017	Stevens Point *
9/21/2017	UW WisTransportal
9/21/2017	Both

Accident Date	Database that Identified the Crash
9/29/2017	Both
11/4/2017	Both
12/13/2017	Both
12/14/2017	Both
12/31/2017	UW WisTransportal
1/2/2018	Both
1/18/2018	Both
2/3/2018	Both
4/9/2018	Both
7/13/2018	Both
7/26/2018	Both
9/13/2018	Both
10/17/2018	Both
10/31/2018	UW WisTransportal
11/13/2018	Both
12/14/2018	Both
1/19/2019	Both
1/19/2019	Both
1/20/2019	Both
2/13/2019	UW WisTransportal
2/18/2019	Stevens Point *
2/28/2019	UW WisTransportal
3/26/2019	Both
4/16/2019	Both
5/9/2019	Both
7/19/2019	UW WisTransportal
7/29/2019	UW WisTransportal
10/2/2019	Both
11/1/2019	Both
12/21/2019	Both
12/23/2019	Both

*Crash Report not available and not included in the crash diagram

Highlighted crashes determined not to have occurred at the intersection and not included in the crash diagram