VILLAGE OF SHOREWOOD

SAFE STREETS AND ROADS FOR ALL
DEMONSTRATION ACTIVITIES
FINAL REPORT

September 3, 2025

Bart Griepentrog, AICP, CNU-A
Planning & Development

Shorewood

MILWAUKEE COUNTY
Complete Communities

PROJECT BACKGROUND

On June 15, 2023, the Milwaukee County Department of Transportation (MCDOT) emailed county-wide partners about the opportunity to submit applications for grant funding from the United States Department of Transportation's Safe Streets and Roads for All (SS4A) Fiscal Year 2023 (FY23) program. The grant funding would be used to implement demonstration activities related to roadway safety improvements, including "quick-build strategies" that would inform future, permanent projects. MCDOT offered to submit another coalition grant on behalf of its municipal partners. The application deadline was July 10, 2023.

This opportunity was in addition to the funding that MCDOT was already awarded from the SS4A Fiscal Year 2022 (FY22) program. Grant funding from the FY22 allocation is being utilized to develop Action Plans for each individual municipality that will allow them to qualify for future funding related to implementation.

Both opportunities are associated with the County's Complete Communities Transportation Planning Project, which aims to take a new approach to transportation safety. The project seeks to increase multimodal safety and address reckless driving across all 19 municipalities in Milwaukee County.

On June 28, 2023, the Village's Planning and Development Director participated in a meeting organized by MCDOT to learn more about the grant and hear/discuss ideas with other municipalities. Based on that conversation, Director Griepentrog recommended that the Village submit an application to MCDOT with the understanding that matching funds would need to be allocated in the Village's 2024 budget and that any selected projects be recommended by the Parks and Public Spaces Committee and approved by the Village Board.

Based on already-defined recommendations for bicycle boulevards [neighborhood greenways] within the Village's previously approved Pedestrian and Bicycle Safety Master Plan, traffic calming discussions within the Transportation and Parking Analysis, and a history of resident requests for increased traffic controls or calming, Director Griepentrog applied for demonstration activities up to $50,000, including temporary traffic circles, curb extensions and speed tables. The required local match would be $10,000, which represented 20% of total project costs. This infrastructure would be designed by the Village Engineer (Strand Associates, Inc.) and placed at yet-to-be-determined locations most likely on N. Murray Ave. and E. Kensington Blvd., and N. Morris Blvd. and E. Menlo Ave.

The following narrative was submitted to describe the proposed projects:

> The Village of Shorewood seeks to pursue three types of demonstration activities to inform the development of a Safe Streets Action Plan and provide background data for future roadway safety improvements that have been previously identified in our Pedestrian and Bicycle Safety Master Plan (2015) and our Transportation and Parking Analysis (2020). These activities include temporary traffic circles, curb extensions and speed tables. Their installations are expected to reduce roadway speeds and volume and improve the pedestrian and bicycle components of our roadway network. Through these temporary installations we hope to learn how to best locate and design these types of traffic calming measures within our local context and operational needs, as well as learn of possible unanticipated outcomes.
>
> Bicycle boulevards have been identified to be installed on two neighborhood streets within the village: N. Murray Ave. and E. Kensington Blvd. The primary demonstration activities are

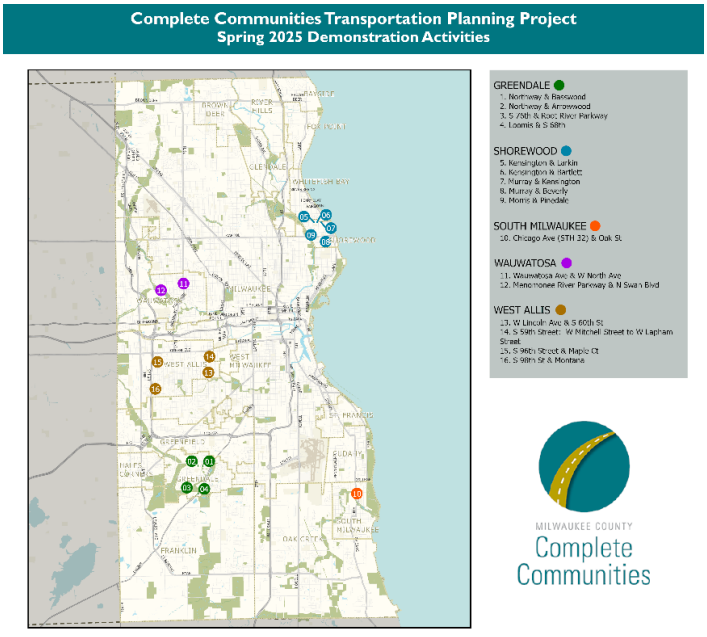
expected to be installed on N. Murray Ave., which runs north/south one block away from N. Oakland Ave., which essentially serves as Shorewood's "main street." This corridor includes Atwater Elementary School and the North Shore Fire Department, which impacts safety, volume, and access throughout the day. A bicycle boulevard has also been proposed for E. Kensington Boulevard, which runs east/west and connects the village to Milwaukee County's Oak Leaf Trail regional bicycle network on the west boundary of the village. Parking demand is known to create visibility issues at intersections near N. Oakland Ave.

In addition to our bicycle boulevard installations, a previous study identified "cut through" traffic issues along N. Morris Boulevard and E. Menlo Blvd. south of E. Capitol Dr. and west of N. Oakland Ave. These neighborhood streets see additional traffic volume from motorists who seek to avoid the southeast intersection of E. Capitol Dr. and N. Oakland Ave. The Shorewood Intermediate School, Department of Public Works and Hubbard Park are also located on this corridor.

Exact placement of these demonstration activities will be recommended through the Bicycle and Pedestrian Safety Subcommittee of the Village's Parks and Public Spaces Committee. Selection will be coordinated with the Department of Public Works, Shorewood School District, Shorewood Police Department and North Shore Fire Department and approved by the Village Board.

It should be noted that the proposed traffic calming projects included traffic circles, not roundabouts. Both share similar features but operate differently. Roundabouts are generally larger and are constructed at medium to high-volume intersections where entrances are aligned in the direction of travel. Drivers enter a roundabout by yielding to vehicles circulating within the intersection's lane(s) of traffic. Roundabouts are an effective tool to help reduce the number of angle and turning collisions. Traffic circles are typically installed at the traditional intersection of smaller, low-volume neighborhood streets. They are a traffic calming tool that helps to promote slower speeds for drivers navigating the intersection. These intersections can also have stop or yield signs to direct traffic, which means that the right of way rules of a traditional intersection still apply.

Ideally, this application would have been discussed with the Parks and Public Spaces Committee and Village Board prior to submission, but the timing was not available. Staff believed that this was an important opportunity to inform the Village of how to implement existing and future roadway safety recommendations and looked forward to confirming details with those bodies, as well as the North Shore Fire Department and Shorewood School District, prior to any installations.



On Friday, October 27, 2023, the Biden-Harris Administration announced the award of over 200 grants to 46 States and Puerto Rico, which included the coalition grant

submitted by Milwaukee County on behalf of Shorewood, Wauwatosa, Greendale, West Allis, and South Milwaukee.

In total, the coalition grant application received Federal funding of $219,918, with $54,980 being contributed by the five local municipalities as matching funds for total project costs amounting to $274,898. Shorewood's required local match of $10,000 was allocated within its 2024 budget, which would fund a total of $50,000 of projects in the village.

On September 8, 2024, MCDOT emailed partnering municipalities to inform us that the grant agreement had finally been signed and that municipalities could start work relating to their proposed projects, including the required baseline reporting.

PROJECT IMPLEMENTATION

Staff (Planning & Development, DPW, PD) suggested and confirmed that the Village Engineer had no issues with developing the following proposed projects and locations:

> Traffic Circles – N. Murray Ave. and E. Kensington Blvd., and N. Murray Ave. and E. Beverly Rd.
> Curb Extensions – E. Kensington Blvd. at N. Bartlett Ave. and N. Newhall Ave.
> Speed Tables – N. Morris Blvd. and E. Menlo Blvd. (Between E. Capitol Dr. and N. Oakland Ave.)

Staff (Planning & Development) next reached out to the Parks and Public Spaces Committee on October 15, 2024 for discussion and received consensus on the selections at their November 12, 2024 meeting. Upon positive recommendation, the North Shore Fire Department and Shorewood School District were notified of the possible projects. Both subsequently confirmed that they had no issues with proceeding.

As required by the grant's baseline performance measurements, fatalities and serious injuries were reviewed in all locations within the previous year, and none were noted.

Based on the timing of the finalized grant agreement, it was determined that the activities would take place in the spring of 2025 after the expected snowfall season, but while school is still in session. On December 2, 2024, the Village Board approved moving forward with the proposed activities, subject to relocating one of the temporary curb extensions from N. Newhall St. at E. Kensington Blvd. to N. Larkin St. at E. Kensington Blvd.

Upon confirmation of the activities and their locations, staff continued to work with the Village Engineer to design and prepare for the purchase of the required equipment, which was projected to take place in April/May 2025 and be in place for at least 4-6 weeks.

On January 6, 2025 the Village Board received a communication plan related to the proposed activities. This plan included the creation of a project website, project milestones and check-ins, and communication efforts via the Village Manager's Memo, social media and targeted mailing to households on the selected roadways within 250 of each installation.

On January 14, 2025, staff signed off on a Task Order with the Village Engineer for total services related to the grant in the amount of $20,500, which included design, baseline speed data and installation assessments.

Staff received final designs and cost estimates for the proposed activities on January 30, 2025. Based on the cost estimates received, it was determined that the second proposed speed table across from the Shorewood Intermediate School would need to be removed from consideration, unless substantial savings were realized with the purchase of other equipment. The designs were provided to the North Shore Fire Department and Shorewood School District for final review and comment, after which the equipment was procured.

In total, the cost of materials associated with all five installations was approximately $24,200. The materials for each traffic circle cost about $3,900. The cost of materials for each intersection treated with curb extensions cost $1,700, and the cost of the temporary speed table was $13,000.

The demonstration activities were ultimately installed in mid- to late-April by crews from the Department of Public Works. Four employees were required to complete the installations, working over 5 days for a total of 131 hours. The majority of the time was spent installing the speed table. Additional time will be necessary to remove the equipment and restore the roadway surface.

Temporary Speed Table: N. Morris Blvd. (north of E. Pinedale Ct.)

Temporary Traffic Circle: N. Murray Ave. and E. Kensington Blvd.

Temporary Traffic Circle: N. Murray Ave. and E. Beverly Rd.

Temporary Curb Extensions: E. Kensington Blvd. and N. Larkin St.

Temporary Curb Extensions: E. Kensington Blvd. and N. Bartlett Ave.

PERFORMANCE EVALUATION

Engineering studies were performed to evaluate the effectiveness of temporary traffic calming devices in reducing speeds. The speed evaluation was conducted before and after the installation of temporary traffic calming implementations at the three sites associated with traffic circles and the speed table. (A visual study was performed related to the temporary curb extensions to document pedestrian visibility before and after the installation.)

According to the Technical Memorandum prepared by the Village Engineer, speed data was collected at two locations within each site using Houston Radar Armadillo traffic counters during a 72-hour period. These radars were strategically placed along the intersection legs that allow for uninterrupted vehicle movement, permitting measurement of free flow speeds as drivers approach and depart the intersections. Because vehicle speeds are expected to decrease at the locations of the traffic calming measures, data was collected upstream and downstream of the intersections to evaluate how vehicle speeds were influenced before and after encountering the traffic calming features.

The following speed items were collected and summarized:

1. 50th percentile speed
2. 85th percentile speed
3. Maximum speed
4. Percent noncompliant to the posted speed limit
5. 10-mph pace

The 50th percentile speed, also known as the median speed, is the speed at or below which 50 percent of the vehicles are traveling. The 85th percentile speed is the speed at or below 85 percent of free-flowing vehicles are traveling, and the 10-mph pace is the range of speed at which the largest number of vehicles are traveling on a particular stretch of roadway.

The following was observed at N. Murray Ave. and E. Beverly Rd. in relation to the installation of a temporary traffic circle:

	Existing Condition		With Traffic Circle	
	North of Beverly Road	South of Beverly Road	North of Beverly Road	South of Beverly Road
Number of Observed Vehicles	3,164	3,226	3,778	3,457
50th Percentile Speed (mph)	23	24	23	23
85th Percentile Speed (mph)	28	29	27	28
Maximum Speed (mph)	47	50	47	49
Percent Noncompliant to Speed Limit	31	38	27	28
10-mph Pace	19 to 28	20 to 29	18 to 27	19 to 28

Table 1 Speed Data at North Murray Avenue and East Beverly Road

The data along N. Murray Ave., which does not have traffic control signage (i.e. stop signs), shows that the majority of vehicles travelling through the intersection were not travelling at excessive speeds and only minor improvements were shown upon installation of the traffic circle. The percentage of non-compliance saw greater reduction (from 31% to 27% north of the intersection, and from 38% to 28% south of the intersection) and the documented maximum speeds were high in both scenarios, although it cannot be determined if those maximum speeds are associated with emergency vehicles.

The following was observed at N. Murray Ave. and E. Kensington Blvd. in relation to the installation of a temporary traffic circle:

	Existing Condition		With Traffic Circle	
	East of Murray Avenue	West of Murray Avenue	East of Murray Avenue	West of Murray Avenue
Number of Observed Vehicles	2,169	2,767	2,767	4,313
50th Percentile Speed (mph)	25	23	22	22
85th Percentile Speed (mph)	30	27	26	26
Maximum Speed (mph)	48	38	41	54
Percent Noncompliant to Speed Limit	44	25	15	18
10-mph Pace	21 to 30	18 to 27	17 to 26	17 to 26

Table 2 Speed Data at North Murray Avenue and East Kensington Boulevard

The data along E. Kensington Blvd., which does not have traffic control signage (i.e. stop signs), shows that the majority of vehicles were not traveling through the intersection at excessive speeds and only slight reductions were witnessed upon installation of the traffic circle. The percentage of non-compliance saw significant reduction (from 44% to 15% east of the intersection, and from 25% to 18% west of the intersection), and the documented maximum speeds were high in both scenarios, although it cannot be determined if those maximum speeds are associated with emergency vehicles.

The following was observed on N. Morris Blvd. south of E. Capitol Dr. in relation to the installation of a temporary speed table.

	Existing Condition		With Speed Table	
	100 Feet North of Pinedale Court	At Pinedale Court	100 Feet North of Pinedale Court	At Pinedale Court
Number of Observed Vehicles	10,747	14,466	11,550	14,690
50th Percentile Speed (mph)	22	26	18	24
85th Percentile Speed (mph)	26	30	22	28
Maximum Speed (mph)	49	50	44	50
Percent Noncompliant to Speed Limit	19	55	3	33
10-mph Pace	17 to 26	21 to 30	13 to 22	19 to 28

Table 3 Speed Data at North Morris Boulevard and East Pinedale Court

The data along N. Morris Blvd. just south of the signalized intersection of E. Capitol Dr. shows that the majority of vehicles were not traveling in this section of roadway at excessive speeds and that only slight reductions were witnessed upon installation of the speed table. The percentage of noncompliance saw significant reduction (from 19% to 3% north of the speed table, and from 55% to 33% south of the speed table), and the documented maximum speeds were high in both scenarios, although it cannot be determined if those maximum speeds are associated with emergency vehicles.

Speed data was not collected at the intersections of E. Kensington Blvd. at N. Bartlett St. and N. Larkin St. where the temporary curb extensions were installed because pedestrian visibility, not speed reduction, was defined as the expected outcome. Photos were taken to document pedestrian visibility when drivers park too close to an intersection versus when drivers are forced to park away from the intersection, as regulated. The physical barriers produced effective results that can be relied upon without parking enforcement. See the Curb Extension Visibility Photos within the appendix.

In addition to the speed data that was collected, public input related to the perceived effectiveness of the installations and comments related to their implementation were solicited through an online survey from May 15 – June 2, 2025. A total of 541 responses were received, and a general summary of the results is included within the Appendix for reference. (A complete compilation of comments was provided to the Village Board at their June 16, 2025 meeting and has been uploaded to the project website and will be kept on file for future reference.)

Of the three types of installations, the public perceived the speed table as being the most effective at achieving their stated goal, followed by the traffic circles and then the curb extensions. The goals were included within the survey as follows:

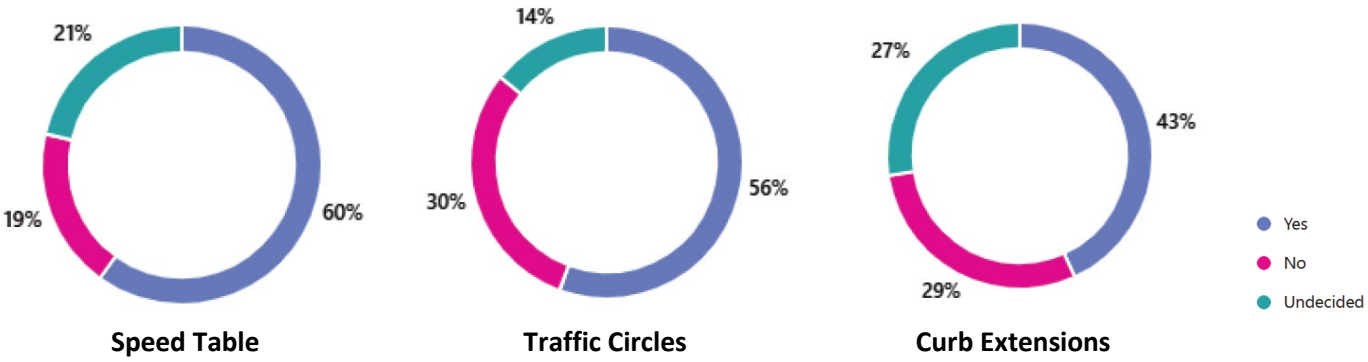
> Speed tables are a traffic calming device that vertically raise the roadway, which should require motorists to slow down to go over. Speed tables are generally installed within the roadway after an intersection to induce drivers to travel through a corridor at desired, slower speeds.
>
> Traffic circles are designed and installed with a goal to calm traffic through an intersection and make motorists more aware of other roadway users. Unlike a four-way stop, which can more

easily be ignored and requires enforcement, the physical materials that make up a traffic circle present a horizontal barrier that reduces the size of the roadway and requires users to be more aware of their actions within the space.

Curb extensions, also known as "bump-outs," reduce the width of the roadway and the crossing distance that pedestrians are required to travel. Temporary curb extension can be achieved by installing vertical posts in the parking lane to prohibit vehicles from being parked too close to the intersection, which should increase the visibility of pedestrians and allow them to more safely enter the crosswalk.

The following question was asked of each installation, and the results are provided:

Do you believe that the _____ that have been installed are effective at achieving their goal?



Speed Table **Traffic Circles** **Curb Extensions**

The temporary speed table was seen to be effective in achieving its goal by 60% of respondents. Most comments questioned the location or quantity of the installation with suggestions for additional installments. (Ideally the Village would have installed a second speed table along this stretch of roadway but did not have enough grant funds.) Other comments questioned the size and visibility of the speed table, as well as the impact on vehicle damage and bike friendliness.

Of those who responded, 56% believed the temporary traffic circles were effective at achieving their goal. Most comments related to the size of the installation, and confusion with the existing traffic controls, and drivers ignoring the stop signs or turning left to avoid going around the circle. Other comments questioned the need or selected locations, and the impact on pedestrian risk. More comments were received to keep or install more of this type of measure than to remove them.

Temporary curb extensions were seen as effective by 43% of respondents, as opposed to 29% who thought they were ineffective and 27% of respondents who were undecided. Other comments were received questioning their need and impact on bike friendliness. A similar number of comments were received in favor of keeping or installing more of them, and those who thought they were confusing or dangerous and made the roadway too narrow.

CONCLUSIONS

As identified in the Village's section of the grant application, the purpose of the demonstration activities was to inform the development of a Safe Streets Action Plan (forthcoming), provide background data for

future roadway safety improvements, and to learn how to best locate and design these types of traffic calming measures within our local context and operational needs, as well as learn of possible unanticipated outcomes. Those results have been documented within the Performance Evaluation section of this report.

On a broader scale, the Vision identified within the Village's recently adopted Pedestrian and Bicycle Master Plan notes that:

> Multi-modal transportation in Shorewood is a fundamental part of the Village's identity and key to its long-term success. Shorewood will be a safe and comfortable place to walk, bike or utilize other legal modes of transportation and mobility for persons of all ages and abilities. Its transportation network will be well connected both internally and to the region and will promote and encourage healthy transportation and active lifestyles for the benefit of people and the environment alike.

The Plan includes a goal that within Shorewood "High-quality, multi-modal transportation infrastructure that prioritizes safety within local context is designed and maintained utilizing a data-driven process that allows all interested stakeholders an opportunity to provide input during the design process."

And notably, the Plan also recommends numerous actions that would help develop better pedestrian and bicycle networks, and calm traffic, such as:

- Deploy and evaluate the effectiveness of temporary traffic calming devices prior to constructing permanent installations.
- Include traffic calming measures within the roadway design, particularly at busy intersections and within neighborhood greenways and bicycle routes.
- Consider the development of a Traffic Calming Program to consider requests for the installation of temporary and/or permanent infrastructure to enhance safety for all users.

The Village also knows through routine interactions and requests that residents have concerns with traffic safety on the Village's roadways. In order to be able to respond to those issues and take advantage of opportunities for improvements as they become available, the Village must continue to understand and evaluate its transportation networks.

The five demonstration activities that were performed as part of the Village's participation in the Safe Streets and Roads for All grant reveal various results.

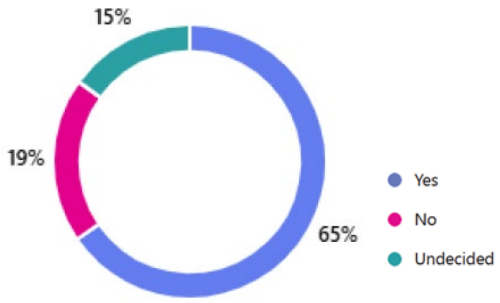
- The vehicular speeds of the majority of traffic (85^{th} percentile) at the selected intersections or installations was not found to be excessive, and the demonstration activities yielded only slightly better results.
- The demonstration activities produced significantly lower levels of non-compliance to the speed limit than pre-installation conditions.
- The documented maximum speeds at all locations were significantly higher than the speed limits.
- All installations produced positive and negative comments generally related to purpose, size, location, traffic controls, street maintenance/operations and enforcement.

- The perceived effectiveness from survey respondents of all installations was higher than those who believed they were ineffective.

These findings underscore that it is important to collect and understand data, including public comment, to best define problems and solutions and gain public trust before making improvements to the Village's transportation networks. They also indicate that while a majority of vehicles in these particular locations may not pose a safety risk to other drivers and more vulnerable users of the right-of-way, maximum speeds show that dangers are evident and that roadway design can impact the amount of non-compliance to adopted regulations.

Working with limited resources, including budget for capital improvements and staff capacity, future investments in traffic calming should be deliberate, understood comprehensively and prioritized. Benefits beyond speed reduction, including induced positive behaviors and reduced calls for enforcement, should be taken into consideration when efforts are planned. The impacts on all roadway users and how such installations change travel behaviors throughout transportation networks should be recognized. If future demonstration activities cannot be deployed, the Village should understand that its roadways and traffic problems are not unique and studies and experience from others should be considered.

Qualitatively, the survey noted that many people found these installations to be effective at achieving their goals and when asked if the Village should pursue additional temporary or permanent traffic calming or pedestrian visibility measures, 65% said yes, compared to 19% no or 15% undecided. As a result, the Village should prepare itself for further discussions.



NEXT STEPS

On June 16, 2025, the Village Board provided direction to keep four of the demonstration activities in place throughout the summer. The traffic circle at E. Kensington Blvd. and N. Murray Ave. had to be removed prior to the Shorewood Criterium in mid-June. The remaining installations will need to be removed by the end of September so that DPW crews can begin to focus on fall and winter operations. The Village owns all of the equipment that was purchased and can choose to re-install or deploy it in other locations, if continued impact or additional information is desired.

The Village is expecting to receive its Complete Communities Local Safe Streets Action Plan in the Fall, which is expected to include additional data and details related to Corridors of Concern. That plan, alongside this Final Report and the Village's other adopted plans and policies should continue to be referenced as issues and opportunities present themselves.

As recommended in the Village's Pedestrian and Bicycle Master Plan, a critical next step will be to develop a Traffic Calming Program and identify funding source to handle future requests. In addition, a Village Initiative was submitted as recommended in the Plan to develop future plans for Neighborhood Greenways through the 2026 budget. If approved, a more comprehensive approach to roadway modifications, including traffic calming, would be developed alongside additional public involvement.

APPENDIX

1. Communication Plan
2. Final Project Designs
3. Technical Memorandum
4. Curb Extension Visibility Demonstration
5. General Summary of Survey Results

Safe Streets For All 2023 (SS4A23) – Demonstration Activities
Communication Plan*

1. Create project website – January 2025 (maintain/update throughout the project)

2. Finalize project designs with Village Engineer – January 2025

3. Provide final designs and project update to Village Board as a report under the Report of the Village Manager – February 2025

4. Procure equipment to accomplish installations – February 2025

5. Communicate upcoming demonstration activities through the Village Manager's Memo, social media and targeted mailing to households on the selected roadways within 250 of each installation – March 2025

6. Perform baseline assessments of current conditions (speed studies and visual conditions) – March 2025

7. Install demonstration activities – April/May 2025

8. Perform assessments of modified conditions (speed studies and visual conditions) – April/May 2025

9. Provide project updates, including photos/videos, through social media and Village Manager's Memo, and solicit qualitative feedback – April/May 2025

10. Remove equipment and return roadway to previous conditions – June 2025

11. Create final project report and provide to the Village Board as a report under the Report of the Village Manager – June/July 2025

*all dates are projected and subject to change based on progress)

TEMPORARY TRAFFIC CALMING DEVICES

FOR

VILLAGE OF SHOREWOOD
MILWAUKEE COUNTY, WISCONSIN
JANUARY 2025

PROJECT LOCATION MAP

NO SCALE

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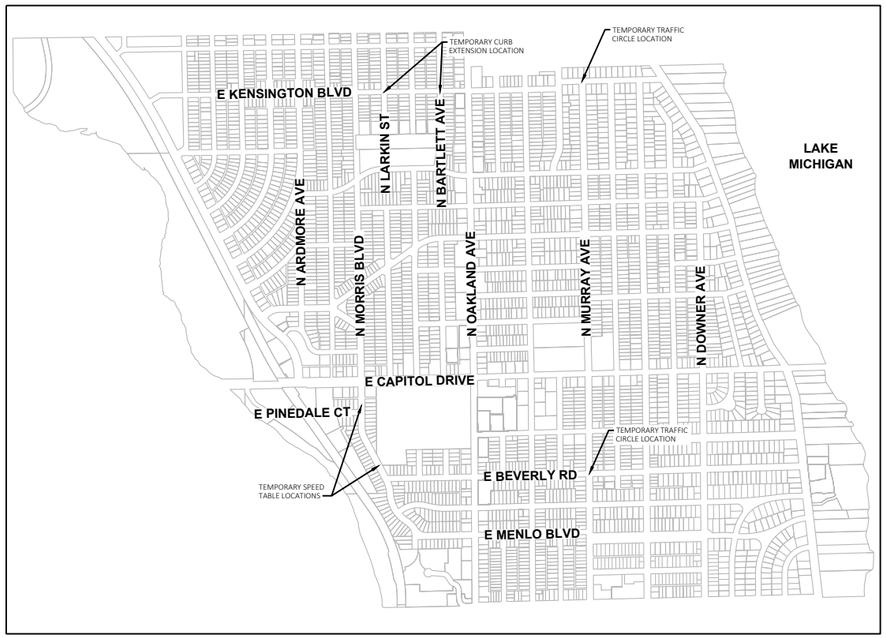

PROJECT LOCATION MAP

NO SCALE

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LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.
TITLE SHEET	1
CONSTRUCTION DETAILS	2
TEMPORARY TRAFFIC CIRCLE DETAILS	3-4
TEMPORARY SPEED TABLE DETAILS	5
TEMPORARY CURB EXTENSION DETAILS	6-7

126 NORTH JEFFERSON STREET, SUITE 350
MILWAUKEE, WI 53202
414 271-0771
414 271-8312 FAX
WWW.STRAND.COM

JOB NO.: 25-01

STRAND ASSOCIATES®

SHEET
1

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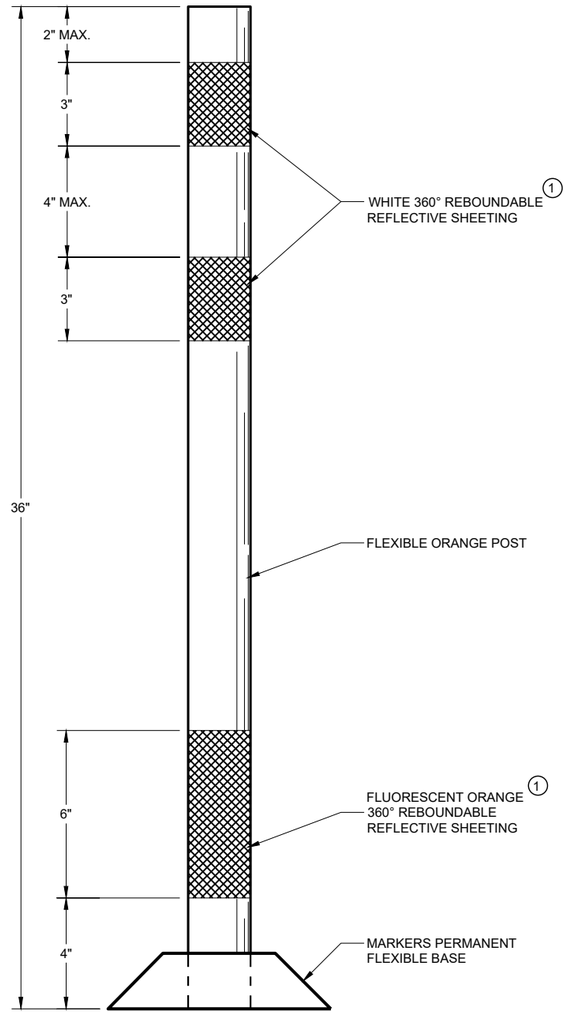


GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE WISDOT STANDARD SPECIFICATIONS.

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH MARKERS PERMANENT FLEXIBLE POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

(1) REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE WISDOT APPROVED PRODUCTS LISTING FOR SIGN SHEETING. (https://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/ap-current/sign-sheeting.pdf)

MARKERS PERMANENT FLEXIBLE POSTS AND BASES

NO.	REVISIONS	DATE:

CONSTRUCTION DETAILS

TEMPORARY TRAFFIC CALMING DEVICES
VILLAGE OF SHOREWOOD
MILWAUKEE COUNTY, WISCONSIN

JOB NO.
25-01

PROJECT MGR.
EJN

STRAND ASSOCIATES®

SHEET
2

GENERAL NOTES:

TRAFFIC LOGIX RUBBER CURBING

REFER TO MANUFACTURER PRODUCT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION.

USE ONLY MANUFACTURER-SUPPLIED LAG BOLTS, WASHERS, AND NYLON ANCHORS TO SECURE RUBBER CURBING.

CLEAN THE SURROUNDING INSTALLATION AREA, FREE FROM ROADWAY GRAVEL AND DEBRIS, PRIOR TO INSTALLATION.

MAINTAIN A MINIMUM 16-FOOT PAVEMENT WIDTH BETWEEN THE EDGE OF PAVEMENT AND THE EDGE OF RUBBER CURBING AT ALL INTERSECTION QUADRANTS.

RUBBER CURBING INSTALLATION:

AFFIX EACH RUBBER CURBING UNIT TO THE PAVEMENT WITH THREE MANUFACTURER-PROVIDED 3/8-INCH X 4-INCH RUST RESISTANT LAG BOLTS, NYLON ANCHORS, AND 3/8-INCH WASHERS.

DRILL A 9/16-INCH DIAMETER HOLE INTO THE PAVEMENT THROUGH EACH HOLE OF THE RUBBER CURBING UNIT. USE A HIGH PERFORMANCE AIR COMPRESSOR TO CLEAN THE MOUNTING HOLES OF DUST AND DEBRIS.

INSTALL THE NYLON ANCHORS INTO THE MOUNTING HOLES WITH THE MANUFACTURER-PROVIDED INSTALLATION TOOL. INSERT LAG BOLTS INTO THE NYLON ANCHORS AND TIGHTEN. DO NOT OVER-TIGHTEN THE BOLTS.

RUBBER CURBING REMOVAL:

REMOVE RUBBER CURBING PRIOR TO WINTER MONTHS. REMOVE AND SALVAGE INDIVIDUAL BOLTS, WASHERS, AND RUBBER CURBING. THE NYLON ANCHORS SHALL NOT BE REUSED IF REMOVED.

IF RUBBER CURBING WILL NOT BE REINSTALLED IN THE SAME ANCHOR LOCATIONS, LEAVE THE NYLON ANCHORS IN THE PAVEMENT AND SEAL OVER ANCHOR HOLES WITH TAR.

IF RUBBER CURBING WILL BE REINSTALLED IN THE SAME ANCHOR LOCATIONS, FILL ANCHOR HOLES WITH SILICON TO KEEP DIRT AND/OR DEBRIS FROM ENTERING THE HOLES. DRILL OUT THE SILICONE AND REMOVE DEBRIS THAT MAY HAVE ENTERED THE ANCHOR HOLES PRIOR TO REINSTALLING RUBBER CURBING.

SIGNS

INSTALL SIGN POSTS AND SIGNS IN ACCORDANCE WITH SECTIONS 634 AND 637 OF THE WISDOT STANDARD SPECIFICATIONS.

REFER TO THE WISDOT APPROVED PRODUCT LIST OF PORTABLE SIGN STANDS FOR STATE-APPROVED TEMPORARY SIGN SUPPORTS.

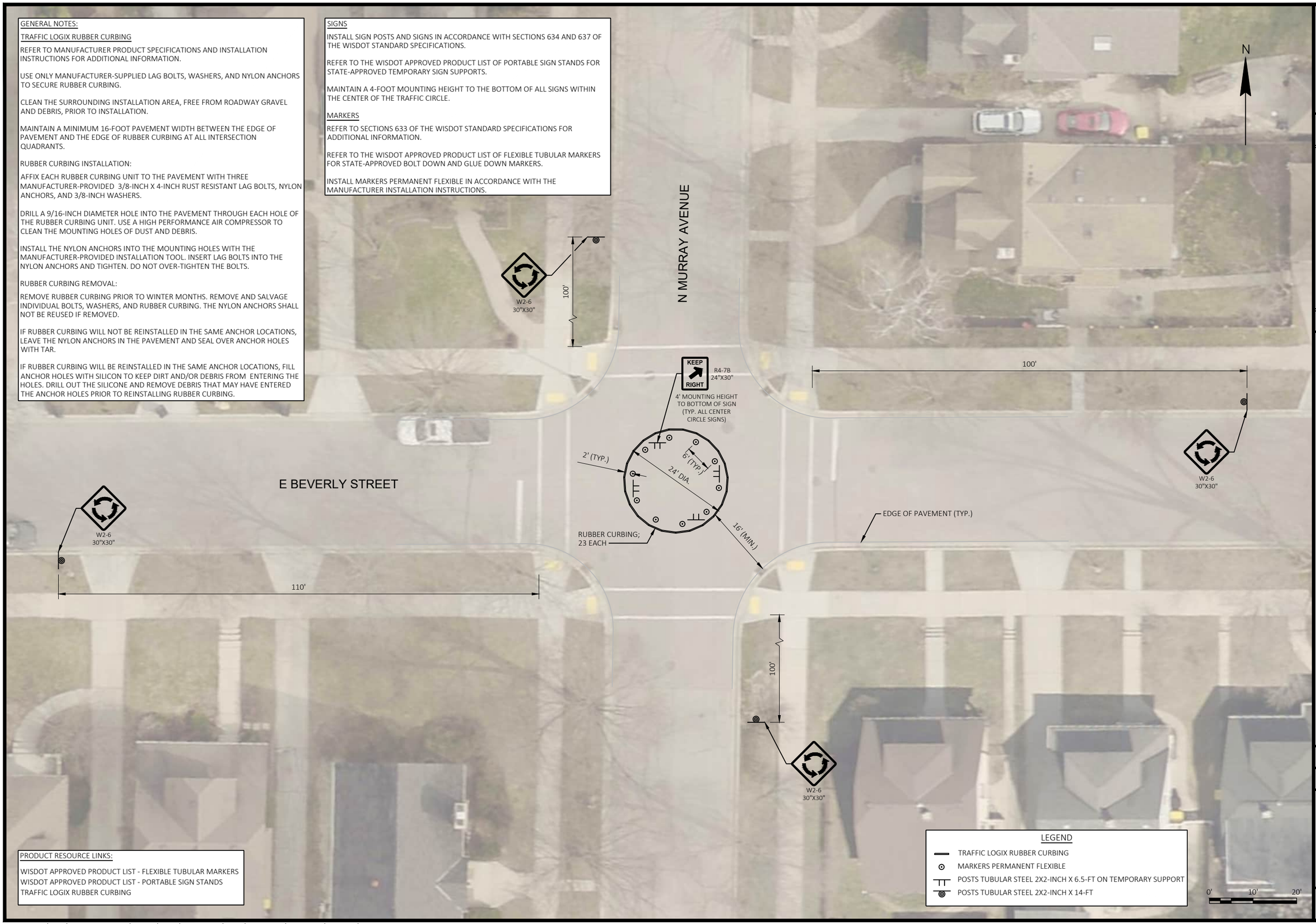
MAINTAIN A 4-FOOT MOUNTING HEIGHT TO THE BOTTOM OF ALL SIGNS WITHIN THE CENTER OF THE TRAFFIC CIRCLE.

MARKERS

REFER TO SECTIONS 633 OF THE WISDOT STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REFER TO THE WISDOT APPROVED PRODUCT LIST OF FLEXIBLE TUBULAR MARKERS FOR STATE-APPROVED BOLT DOWN AND GLUE DOWN MARKERS.

INSTALL MARKERS PERMANENT FLEXIBLE IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS.



LEGEND

- TRAFFIC LOGIX RUBBER CURBING
- MARKERS PERMANENT FLEXIBLE
- POSTS TUBULAR STEEL 2X2-INCH X 6.5-FT ON TEMPORARY SUPPORT
- POSTS TUBULAR STEEL 2X2-INCH X 14-FT

PRODUCT RESOURCE LINKS:

WISDOT APPROVED PRODUCT LIST - FLEXIBLE TUBULAR MARKERS
WISDOT APPROVED PRODUCT LIST - PORTABLE SIGN STANDS
TRAFFIC LOGIX RUBBER CURBING

NO.	REVISIONS	DATE:

TEMPORARY TRAFFIC CIRCLE DETAILS
NORTH MURRAY AVENUE AND EAST BEVERLY ROAD

TEMPORARY TRAFFIC CALMING DEVICES
VILLAGE OF SHOREWOOD
MILWAUKEE COUNTY, WISCONSIN

JOB NO.
25-01

PROJECT MGR.
EJN

STRAND ASSOCIATES®

SHEET
3

GENERAL NOTES:

TRAFFIC LOGIX RUBBER CURBING

REFER TO MANUFACTURER PRODUCT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION.

USE ONLY MANUFACTURER-SUPPLIED LAG BOLTS, WASHERS, AND NYLON ANCHORS TO SECURE RUBBER CURBING.

CLEAN THE SURROUNDING INSTALLATION AREA, FREE FROM ROADWAY GRAVEL AND DEBRIS, PRIOR TO INSTALLATION.

MAINTAIN A MINIMUM 16-FOOT PAVEMENT WIDTH BETWEEN THE EDGE OF PAVEMENT AND THE EDGE OF RUBBER CURBING AT ALL INTERSECTION QUADRANTS.

RUBBER CURBING INSTALLATION:

AFFIX EACH RUBBER CURBING UNIT TO THE PAVEMENT WITH THREE MANUFACTURER-PROVIDED 3/8-INCH X 4-INCH RUST RESISTANT LAG BOLTS, NYLON ANCHORS, AND 3/8-INCH WASHERS.

DRILL A 9/16-INCH DIAMETER HOLE INTO THE PAVEMENT THROUGH EACH HOLE OF THE RUBBER CURBING UNIT. USE A HIGH PERFORMANCE AIR COMPRESSOR TO CLEAN THE MOUNTING HOLES OF DUST AND DEBRIS.

INSTALL THE NYLON ANCHORS INTO THE MOUNTING HOLES WITH THE MANUFACTURER-PROVIDED INSTALLATION TOOL. INSERT LAG BOLTS INTO THE NYLON ANCHORS AND TIGHTEN. DO NOT OVER-TIGHTEN THE BOLTS.

RUBBER CURBING REMOVAL:

REMOVE RUBBER CURBING PRIOR TO WINTER MONTHS. REMOVE AND SALVAGE INDIVIDUAL BOLTS, WASHERS, AND RUBBER CURBING. THE NYLON ANCHORS SHALL NOT BE REUSED IF REMOVED.

IF RUBBER CURBING WILL NOT BE REINSTALLED IN THE SAME ANCHOR LOCATIONS, LEAVE THE NYLON ANCHORS IN THE PAVEMENT AND SEAL OVER ANCHOR HOLES WITH TAR.

IF RUBBER CURBING WILL BE REINSTALLED IN THE SAME ANCHOR LOCATIONS, FILL ANCHOR HOLES WITH SILICON TO KEEP DIRT AND/OR DEBRIS FROM ENTERING THE HOLES. DRILL OUT THE SILICONE AND REMOVE DEBRIS THAT MAY HAVE ENTERED THE ANCHOR HOLES PRIOR TO REINSTALLING RUBBER CURBING.

SIGNS

INSTALL SIGN POSTS AND SIGNS IN ACCORDANCE WITH SECTIONS 634 AND 637 OF THE WISDOT STANDARD SPECIFICATIONS.

REFER TO THE WISDOT APPROVED PRODUCT LIST OF PORTABLE SIGN STANDS FOR STATE-APPROVED TEMPORARY SIGN SUPPORTS.

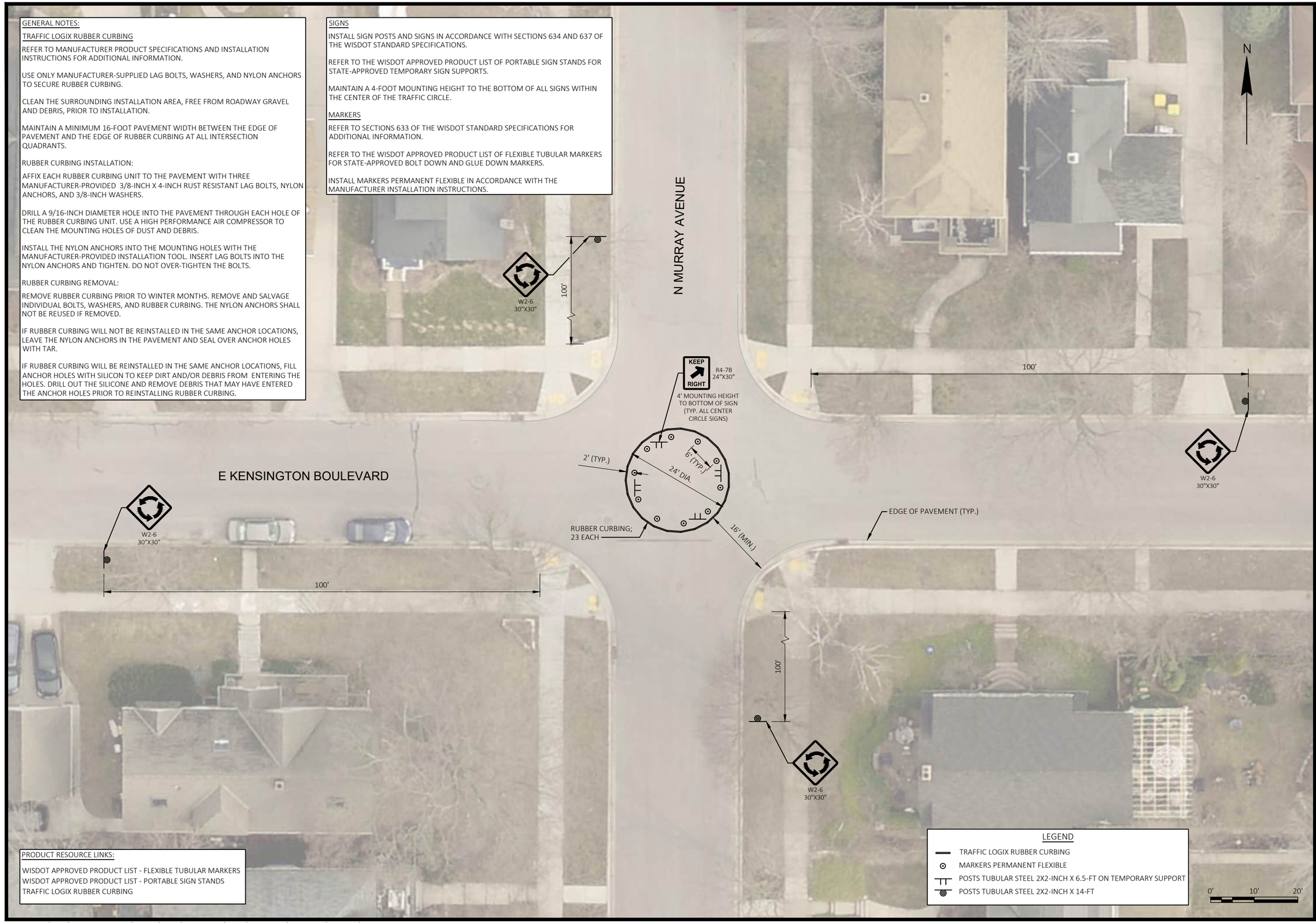
MAINTAIN A 4-FOOT MOUNTING HEIGHT TO THE BOTTOM OF ALL SIGNS WITHIN THE CENTER OF THE TRAFFIC CIRCLE.

MARKERS

REFER TO SECTIONS 633 OF THE WISDOT STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REFER TO THE WISDOT APPROVED PRODUCT LIST OF FLEXIBLE TUBULAR MARKERS FOR STATE-APPROVED BOLT DOWN AND GLUE DOWN MARKERS.

INSTALL MARKERS PERMANENT FLEXIBLE IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS.



PRODUCT RESOURCE LINKS:

WISDOT APPROVED PRODUCT LIST - FLEXIBLE TUBULAR MARKERS
WISDOT APPROVED PRODUCT LIST - PORTABLE SIGN STANDS
TRAFFIC LOGIX RUBBER CURBING

LEGEND

- TRAFFIC LOGIX RUBBER CURBING
- MARKERS PERMANENT FLEXIBLE
- POSTS TUBULAR STEEL 2X2-INCH X 6.5-FT ON TEMPORARY SUPPORT
- POSTS TUBULAR STEEL 2X2-INCH X 14-FT

0' 10' 20'

NO.	REVISIONS	DATE:

TEMPORARY TRAFFIC CIRCLE DETAILS
NORTH MURRAY AVENUE AND EAST KENSINGTON BOULEVARD
TEMPORARY TRAFFIC CALMING DEVICES
VILLAGE OF SHOREWOOD
MILWAUKEE COUNTY, WISCONSIN

JOB NO. 25-01
PROJECT MGR. EJN

STRAND ASSOCIATES®

SHEET 4

File: S:\MIL\3600--3699\3646\051\Drawings\CAD\AutoCAD\Civil 3D\sheets\021201_pd.dwg Time: Jan 30, 2025 - 2:13pm

GENERAL NOTES:

TRAFFIC LOGIX RUBBER SPEED TABLE

REFER TO MANUFACTURER PRODUCT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION.

USE ONLY MANUFACTURER-SUPPLIED LAG BOLTS, WASHERS, NYLON ANCHORS, AND ANCHOR ADHESIVE TO SECURE INDIVIDUAL RUBBER SPEED TABLE UNITS.

CLEAN THE SURROUNDING INSTALLATION AREA, FREE FROM ROADWAY GRAVEL AND DEBRIS, PRIOR TO INSTALLATION.

INSTALL THE RUBBER SPEED TABLE PARALLEL TO THE CURB AND GUTTER AND PERPENDICULAR TO THE ROADWAY CENTERLINE USING A CHALK LINE AS A GUIDE.

RUBBER SPEED TABLE INSTALLATION:

AFFIX EACH RUBBER SPEED TABLE UNIT TO THE PAVEMENT WITH THE MANUFACTURER-PROVIDED 3/8-INCH X 4-INCH OR 7-INCH RUST RESISTANT LAG BOLTS, NYLON ANCHORS, AND 3/8-INCH WASHERS.

DRILL A 9/16-INCH DIAMETER HOLE INTO THE PAVEMENT THROUGH EACH HOLE OF THE RUBBER SPEED TABLE UNIT. USE A HIGH PERFORMANCE AIR COMPRESSOR TO CLEAN EACH ANCHOR HOLE OF DUST AND DEBRIS.

APPLY MANUFACTURER-PROVIDED ADHESIVE INTO EACH HOLE DRILLED FOR THE PERIMETER MODULES PRIOR TO INSTALLING NYLON ANCHORS. INTERIOR MODULES DO NOT REQUIRE ADHESIVE. INSERT NYLON ANCHORS INTO EACH MOUNTING HOLE UNTIL FLUSH WITH THE ROADWAY PAVEMENT. INSTALL EACH RUBBER SPEED TABLE UNIT USING A BOLT AND WASHER ASSEMBLY. ENSURE THAT THE BOLTS ARE SNUG, BUT NOT OVER TIGHTENED. THE BOLT HEAD SHALL BE BELOW THE RUBBER SURFACE.

RUBBER SPEED TABLE REMOVAL:

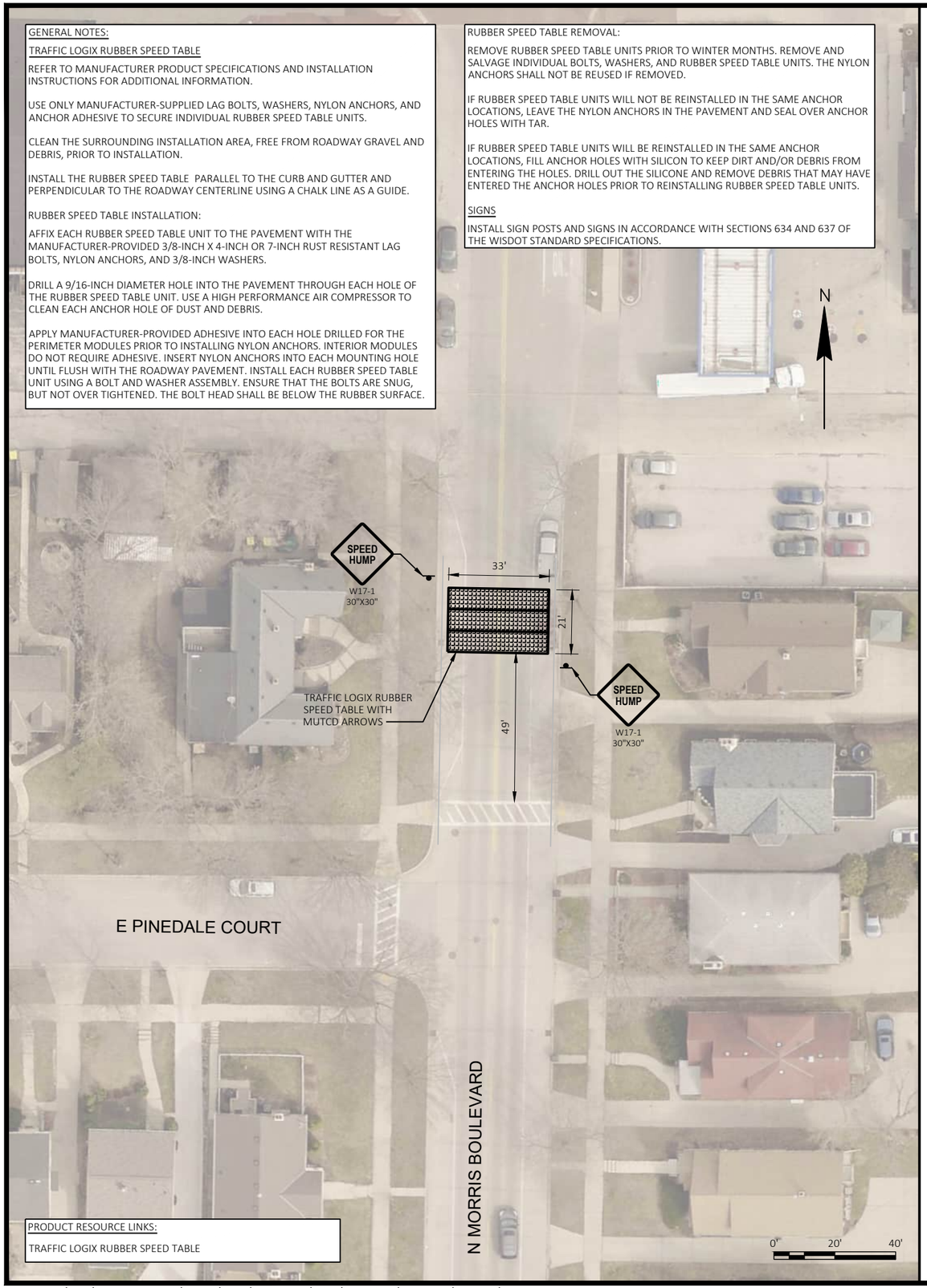
REMOVE RUBBER SPEED TABLE UNITS PRIOR TO WINTER MONTHS. REMOVE AND SALVAGE INDIVIDUAL BOLTS, WASHERS, AND RUBBER SPEED TABLE UNITS. THE NYLON ANCHORS SHALL NOT BE REUSED IF REMOVED.

IF RUBBER SPEED TABLE UNITS WILL NOT BE REINSTALLED IN THE SAME ANCHOR LOCATIONS, LEAVE THE NYLON ANCHORS IN THE PAVEMENT AND SEAL OVER ANCHOR HOLES WITH TAR.

IF RUBBER SPEED TABLE UNITS WILL BE REINSTALLED IN THE SAME ANCHOR LOCATIONS, FILL ANCHOR HOLES WITH SILICON TO KEEP DIRT AND/OR DEBRIS FROM ENTERING THE HOLES. DRILL OUT THE SILICONE AND REMOVE DEBRIS THAT MAY HAVE ENTERED THE ANCHOR HOLES PRIOR TO REINSTALLING RUBBER SPEED TABLE UNITS.

SIGNS

INSTALL SIGN POSTS AND SIGNS IN ACCORDANCE WITH SECTIONS 634 AND 637 OF THE WISDOT STANDARD SPECIFICATIONS.



PRODUCT RESOURCE LINKS:

TRAFFIC LOGIX RUBBER SPEED TABLE

NO.	REVISIONS	DATE:

TEMPORARY SPEED TABLE DETAILS
NORTH MORRIS BOULEVARD

TEMPORARY TRAFFIC CALMING DEVICES
VILLAGE OF SHOREWOOD
MILWAUKEE COUNTY, WISCONSIN

JOB NO.
25-01

PROJECT MGR.
EJN

STRAND ASSOCIATES®

SHEET
5

File: S:\MIL\3600--3699\3646\051\Drawings\CAD\AutoCAD\Civil 3D\sheets\021201_pd.dwg Time: Jan 30, 2025 - 2:13pm

GENERAL NOTES:

REFER TO SECTIONS 633 OF THE WISDOT STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REFER TO THE WISDOT APPROVED PRODUCT LIST OF FLEXIBLE TUBULAR MARKERS FOR STATE-APPROVED BOLT DOWN AND GLUE DOWN MARKERS. FLEXIBLE TUBULAR MARKERS MAY BE USED FOR WORK ZONE OR PERMANENT APPLICATION.

INSTALL MARKERS PERMANENT FLEXIBLE IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS.

MAINTAIN A MINIMUM OF 18-FEET OF ROADWAY WIDTH BETWEEN THE EDGE OF THE EASTBOUND AND WESTBOUND MARKERS.

INSTALL MARKERS PERMANENT FLEXIBLE WITHIN THE ROADWAY PAVEMENT ONLY. DO NOT PLACE MARKERS PERMANENT FLEXIBLE WITHIN THE CURB AND GUTTER.

N

N BARTLETT AVENUE

E KENSINGTON BOULEVARD

20' (TYP.)

16' (TYP.)

4' (TYP.)

4' (TYP.)

2' (TYP.)

4' (TYP.)

EDGE OF PAVEMENT (TYP.)

18' (MIN.)

27'

LEGEND

- TRAFFIC LOGIX RUBBER CURBING
- MARKERS PERMANENT FLEXIBLE
- POSTS TUBULAR STEEL 2X2-INCH X 6.5-FT ON TEMPORARY SUPPORT
- POSTS TUBULAR STEEL 2X2-INCH X 14-FT

0' 10' 20'

PRODUCT RESOURCE LINKS:

WISDOT APPROVED PRODUCT LIST - FLEXIBLE TUBULAR MARKERS

NO.	REVISIONS	DATE:

TEMPORARY CURB EXTENSION DETAILS
NORTH BARTLETT AVENUE AND EAST KENSINGTON BOULEVARD
TEMPORARY TRAFFIC CALMING DEVICES
VILLAGE OF SHOREWOOD
MILWAUKEE COUNTY, WISCONSIN

JOB NO. 25-01

PROJECT MGR. EJN

STRAND ASSOCIATES®

SHEET 6

File: S:\MIL\3600--3699\3646\051\Drawings\CAD\AutoCAD\Civil 3D\sheets\021201_pd.dwg Time: Jan 30, 2025 - 2:13pm

GENERAL NOTES:

REFER TO SECTIONS 633 OF THE WISDOT STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REFER TO THE WISDOT APPROVED PRODUCT LIST OF FLEXIBLE TUBULAR MARKERS FOR STATE-APPROVED BOLT DOWN AND GLUE DOWN MARKERS. FLEXIBLE TUBULAR MARKERS MAY BE USED FOR WORK ZONE OR PERMANENT APPLICATION.

INSTALL MARKERS PERMANENT FLEXIBLE IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS.

MAINTAIN A MINIMUM OF 18-FEET OF ROADWAY WIDTH BETWEEN THE EDGE OF THE EASTBOUND AND WESTBOUND MARKERS.

INSTALL MARKERS PERMANENT FLEXIBLE WITHIN THE ROADWAY PAVEMENT ONLY. DO NOT PLACE MARKERS PERMANENT FLEXIBLE WITHIN THE CURB AND GUTTER.

N

N LARKIN STREET

20' (TYP.)

16' (TYP.)

E KENSINGTON BOULEVARD

4' (TYP.)

4' (TYP.)

2' (TYP.)

4' (TYP.)

EDGE OF PAVEMENT (TYP.)

18' (MIN.)

27'

LEGEND

- TRAFFIC LOGIX RUBBER CURBING
- MARKERS PERMANENT FLEXIBLE
- POSTS TUBULAR STEEL 2X2-INCH X 6.5-FT ON TEMPORARY SUPPORT
- POSTS TUBULAR STEEL 2X2-INCH X 14-FT

0' 10' 20'

PRODUCT RESOURCE LINKS:

WISDOT APPROVED PRODUCT LIST - FLEXIBLE TUBULAR MARKERS

NO.	REVISIONS	DATE:

TEMPORARY CURB EXTENSION DETAILS
NORTH LARKIN STREET AND EAST KENSINGTON BOULEVARD
TEMPORARY TRAFFIC CALMING DEVICES
VILLAGE OF SHOREWOOD
MILWAUKEE COUNTY, WISCONSIN

JOB NO.
25-01

PROJECT MGR.
EJN

STRAND ASSOCIATES®

SHEET
7

File: S:\MIL\3600--3699\3646\051\Drawings\CAD\AutoCAD\Civil 3D\sheets\021201_pd.dwg Time: Jan 30, 2025 - 2:13pm

Strand Associates, Inc.®
126 North Jefferson Street, Suite 350
Milwaukee, WI 53202
(P) 414.271.0771
www.strand.com

TECHNICAL MEMORANDUM

To: Bart Griepentrog, Planning and Development Director
Village of Shorewood

From: Eric Notson, P.E., Strand Associates, Inc.®
Ben Quintero, Strand Associates, Inc.®

Date: July 23, 2025

Re: Task Order No. 25-01
Shorewood Temporary Traffic Calming Speed Evaluation
Milwaukee County
Village of Shorewood, Wisconsin (Village)

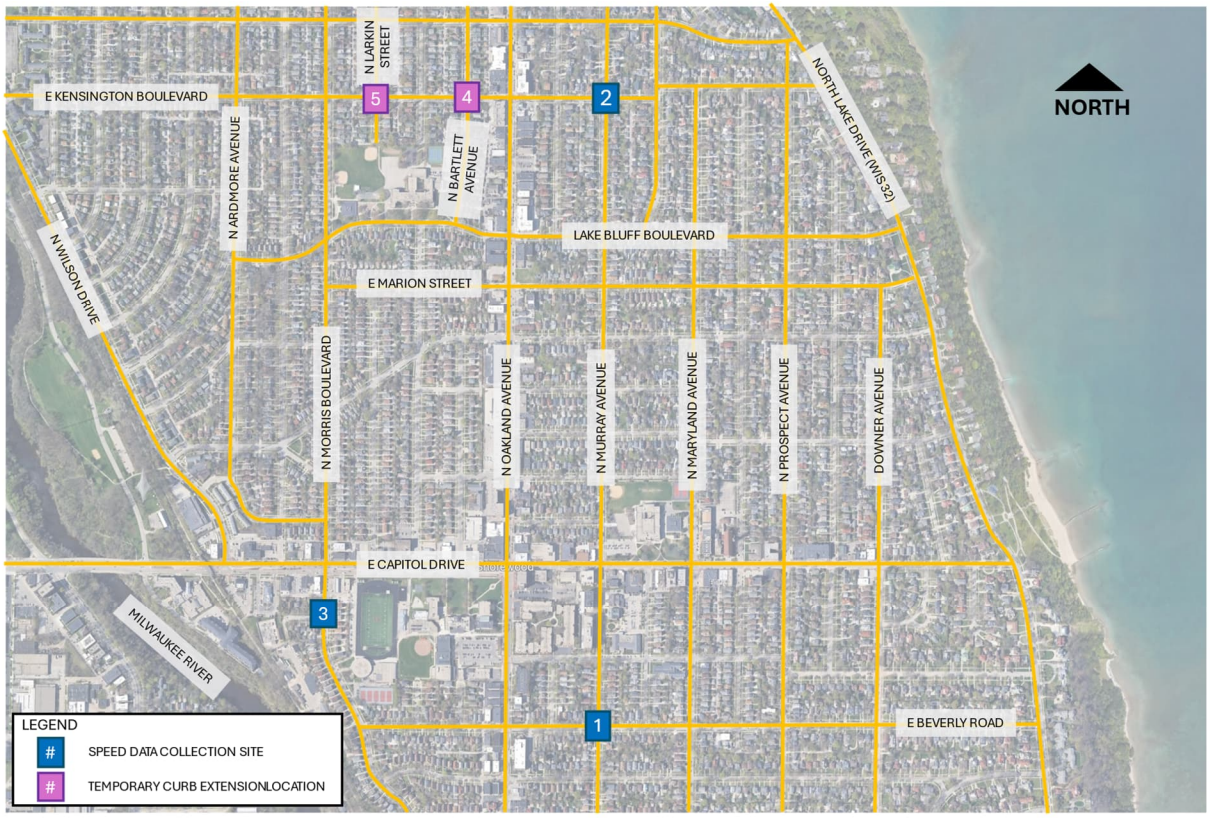
Introduction

Strand Associates, Inc.® was hired by the Village to perform a traffic calming speed evaluation. The study was performed to evaluate the effectiveness of temporary traffic calming devices in reducing speeds. The speed evaluation was conducted before and after the installation of temporary traffic calming implementations at three sites within the Village. Speed data was collected at the intersections of North Murray Avenue and East Beverly Road, North Murray Avenue and East Kensington Boulevard, and north of North Morris Boulevard and East Pinedale Court. The functional classification of the intersections North Murray Avenue and East Beverly Road and North Murray Avenue and East Kensington Boulevard are local roadways with posted speed limit of 25 miles per hour (mph). North Morris Boulevard is classified as a collector street with a posted speed limit of 25 mph.

The primary goal of the speed evaluation was to evaluate the effectiveness of temporary traffic calming measures in reducing vehicle speeds. Temporary curb extensions were also added at two intersections to increase the available sight distance for approaching vehicles; however, the effectiveness of the temporary curb extensions was not evaluated as part of the study. Temporary measures included:

1. A traffic circle at the intersection of North Murray Avenue and East Beverly Road.
2. A traffic circle at the intersection of North Murray Avenue and East Kensington Boulevard.
3. A speed table along North Morris Boulevard, north of East Pinedale Court.
4. Temporary curb extensions along East Kensington Boulevard at North Bartlett Avenue.
5. Temporary curb extensions along East Kensington Boulevard at North Larkin Street.

Figure 1 illustrates the sites where the temporary traffic control devices were installed.



Aerial Source: Milwaukee County Geographic Information System (GIS)

Figure 1 Temporary Traffic Control and Speed Data Collection Sites

Data Collection

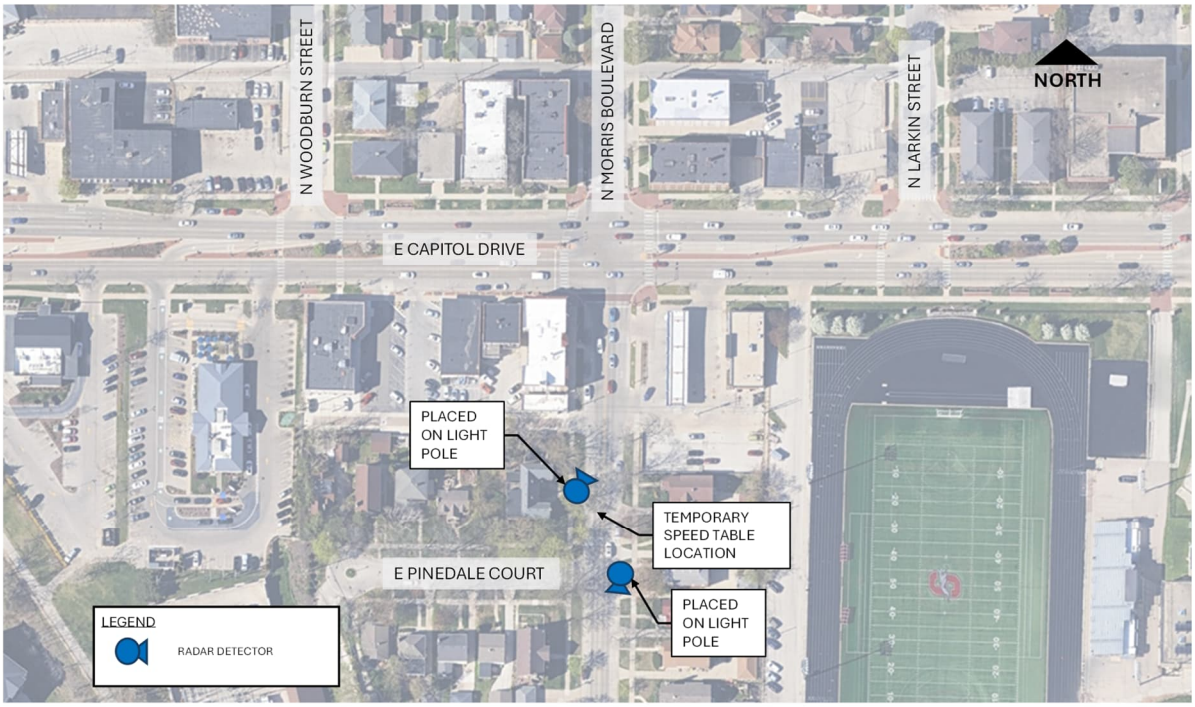
Speed data was collected at two locations within each site using Houston Radar Armadillo traffic counters during a 72-hour period. These radars were strategically placed along the intersection legs that allow for uninterrupted vehicle movement, permitting measurement of free flow speeds as drivers approach and depart the intersections. Because vehicle speeds are expected to decrease at the locations of the traffic calming measures, data was collected upstream and downstream of the intersections to evaluate how vehicle speeds were influenced before and after encountering the traffic calming features. Figures 2, 3, and 4 provide an overview of the radar locations at each site.

Aerial Source: Milwaukee County GIS

Figure 2 Radar Detector Location at North Murray Avenue and East Beverly Road

Aerial Source: Milwaukee County GIS

Figure 3 Radar Detection at North Murray Avenue and East Kensington Boulevard



Aerial Source: Milwaukee County GIS

Figure 4 Radar Detector Location at North Morris Boulevard and East Pinedale Court

The speed data was collected before and after traffic calming measures were implemented. The speed data before the traffic calming measures were implemented were collected between March 18 and April 4, 2025. The speed data after the traffic calming devices were implemented were collected between May 13 and 30, 2025. The 39 days between the speed data collection periods allowed sufficient time for the Village to install the traffic calming measures and to allow drivers to acclimate to the new roadway conditions.

Speed Evaluation

The following speed items were collected and summarized:

1. 50th percentile speed
2. 85th percentile speed
3. Maximum speed
4. Percent noncompliant to the posted speed limit
5. 10-mph pace

The 50th percentile speed, also known as the median speed, is the speed at or below which 50 percent of the vehicles are traveling. The 85th percentile speed is the speed at or below 85 percent of free-flowing vehicles are traveling, and the 10-mph pace is the range of speed at which the largest number of vehicles are traveling on a particular stretch of roadway.

The number of vehicles observed at the intersection of North Murray Avenue and East Beverly Road ranged from 3,100 to 3,800, with a median speed ranging from 23 to 24 mph. The 85th percentile speed ranged from 27 to 29 mph, and the 10-mph pace ranged from 18 to 27 mph up to 20 to 29 mph. Table 1 summarizes and compares the speed data collected under existing conditions and with the temporary traffic control measures in place at North Murray Avenue and East Beverly Road.

	Existing Condition		With Traffic Circle	
	North of Beverly Road	South of Beverly Road	North of Beverly Road	South of Beverly Road
Number of Observed Vehicles	3,164	3,226	3,778	3,457
50th Percentile Speed (mph)	23	24	23	23
85th Percentile Speed (mph)	28	29	27	28
Maximum Speed (mph)	47	50	47	49
Percent Noncompliant to Speed Limit	31	38	27	28
10-mph Pace	19 to 28	20 to 29	18 to 27	19 to 28

Table 1 Speed Data at North Murray Avenue and East Beverly Road

The number of vehicles observed at the intersection of North Murray Avenue and East Kensington Boulevard ranged from 2,100 to 4,400, with a median speed ranging from 22 to 25 mph. The 85th percentile speed ranged from 26 to 30 mph, and the 10-mph pace ranged from 17 to 26 mph up to 21 to 30 mph. Table 2 summarizes and compares the speed data collected under existing conditions and with the temporary traffic control measures in place at North Murray Avenue and East Kensington Boulevard. An increase of approximately 1,500 vehicles were observed by the radar west of North Murray Avenue with the traffic circle in place. This difference may be due to the spring recess at Lake Bluff Elementary, Shorewood High School, and the University of Wisconsin-Milwaukee during the 72-hour data collection period under existing condition, and construction detours for the nearby Lake Drive reconstruction project during the 72-hour data collection period under the proposed condition.

	Existing Condition		With Traffic Circle	
	East of Murray Avenue	West of Murray Avenue	East of Murray Avenue	West of Murray Avenue
Number of Observed Vehicles	2,169	2,767	2,767	4,313
50th Percentile Speed (mph)	25	23	22	22
85th Percentile Speed (mph)	30	27	26	26
Maximum Speed (mph)	48	38	41	54
Percent Noncompliant to Speed Limit	44	25	15	18
10-mph Pace	21 to 30	18 to 27	17 to 26	17 to 26

Table 2 Speed Data at North Murray Avenue and East Kensington Boulevard

The number of vehicles observed at the intersection of North Morris Boulevard and East Pinedale Court ranged from 10,700 to 14,700, with a median speed ranging from 18 to 26 mph. The 85th percentile speed ranged from 22 to 30 mph, and the 10-mph pace ranged from 13 to 22 mph up to 21 to 30 mph. Table 3 summarizes and compares the speed data collected under existing conditions and with the temporary traffic control measures in place at North Morris Boulevard and East Pinedale Court.

	Existing Condition		With Speed Table	
	100 Feet North of Pinedale Court	At Pinedale Court	100 Feet North of Pinedale Court	At Pinedale Court
Number of Observed Vehicles	10,747	14,466	11,550	14,690
50th Percentile Speed (mph)	22	26	18	24
85th Percentile Speed (mph)	26	30	22	28
Maximum Speed (mph)	49	50	44	50
Percent Noncompliant to Speed Limit	19	55	3	33
10-mph Pace	17 to 26	21 to 30	13 to 22	19 to 28

Table 3 Speed Data at North Morris Boulevard and East Pinedale Court

The speed data shows that the 50th percentile speed, 85th percentile speed, percent noncompliant to speed limit, and 10-mph pace all were reduced when traffic calming measures were implemented.

- Along North Murray Avenue, 31 to 38 percent of drivers exceeded the posted speed limit under existing conditions, compared to 27 to 28 percent with the temporary traffic circle in place.

- Along East Kensington Boulevard, 25 to 44 percent of drivers exceeded the posted speed limit under existing conditions, compared to 15 to 18 percent with the temporary traffic circle in place.

- Along North Morris Boulevard, 19 to 55 percent of drivers exceeded the posted speed limit under existing conditions, compared to 3 to 33 percent with the temporary speed table in place. The large difference in the percent noncompliant to the speed limit along North Morris Boulevard can be attributed to the commercial business entrances and the traffic signal within 200 feet on the north approach of the speed table. In contrast, the south approach remained a free-flow condition for 250 feet.

Conclusion

Overall, the results indicate that the installation of temporary traffic control devices led to a general reduction in vehicle speeds at all sites. The 50th and 85th percentile speeds decreased by a range of 0 to 4 mph, and the percentage of vehicles that exceeded the posted speed limit dropped between 4 and 29 percent. The 25-mph posted speed limit was within the 10-mph pace range for all locations, both under existing conditions and with temporary traffic control devices installed, except for the data recorded by the radar located north of the speed table along North Morris Boulevard, which had a lower 10-mph pace in the post-installation condition. The lower 10-mph pace along North Morris Boulevard may reflect the influence of the nearby signalized intersection and the commercial business entrances on the north side of the speed table. These findings suggest that the temporary traffic control measures are effective in reducing vehicle speeds and increasing compliance with the posted speed limit.

Date: April 16, 2025

Time: 1:45 P.M.

Description:

Existing condition;
North Murray Avenue and East Beverly Road looking southwest.

Date: April 16, 2025

Time: 1:45 P.M.

Description:

Existing condition;
North Murray Avenue and East Beverly Road looking north.

APPENDIX

Task Order No. 25-01
Shorewood Traffic Calming and Speed Evaluation
Village of Shorewood
Village of Shorewood, Wisconsin
Site Photographs

STRAND ASSOCIATES®
*Excellence in Engineering*SM

Date: May 22, 2025

Time: 1:15 P.M.

Description:

Completed traffic circle; North Murray Avenue and East Beverly Road looking south.

Date: May 22, 2025

Time: 1:15 P.M.

Description:

Completed traffic circle; North Murray Avenue and East Beverly Road looking northeast.

APPENDIX

Task Order No. 25-01
Shorewood Traffic Calming and Speed Evaluation
Village of Shorewood
Village of Shorewood, Wisconsin
Site Photographs

STRAND ASSOCIATES®
*Excellence in Engineering*SM

Date: April 16, 2025

Time: 1:45 P.M.

Description:

Existing condition;
North Murray Avenue and
East Kensington Boulevard
looking southwest.

Date: April 16, 2025

Time: 1:45 P.M.

Description:

Existing condition;
North Murray Avenue and
East Kensington Boulevard
looking southeast.

APPENDIX

Task Order No. 25-01
Shorewood Traffic Calming and Speed Evaluation
Village of Shorewood
Village of Shorewood, Wisconsin
Site Photographs

STRAND ASSOCIATES®
Excellence in Engineering℠

Date: May 22, 2025

Time: 1:30 P.M.

Description:

Completed traffic circle; North Murray Avenue and East Kensington Boulevard looking northeast.

Date: May 22, 2025

Time: 1:30 P.M.

Description:

Completed traffic circle; North Murray Avenue and East Kensington Boulevard looking southeast.

APPENDIX

Task Order No. 25-01
Shorewood Traffic Calming and Speed Evaluation
Village of Shorewood
Village of Shorewood, Wisconsin
Site Photographs

STRAND ASSOCIATES®
Excellence in Engineering℠

Date: April 16, 2025

Time: 2 P.M.

Description:

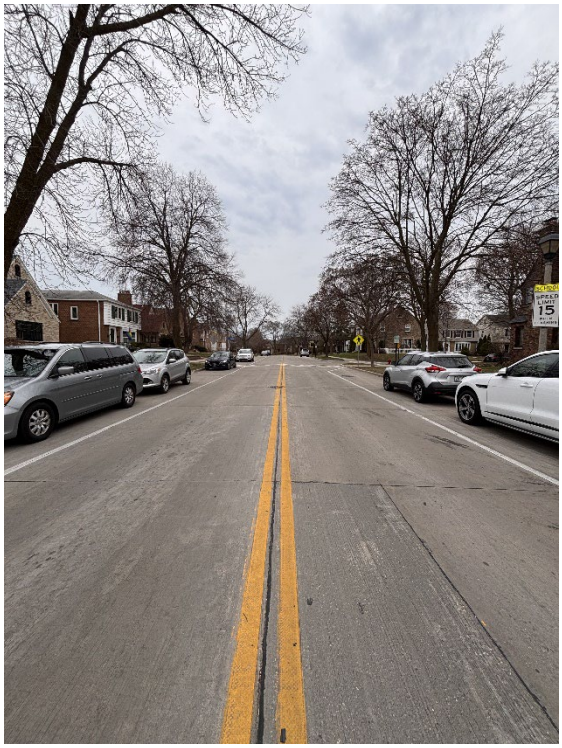
Existing condition;
North Morris Boulevard,
north of East Pinedale Court
looking north.

Date: April 16, 2025

Time: 2 P.M.

Description:

Existing condition;
North Morris Boulevard,
north of East Pinedale Court
looking south.



APPENDIX

Task Order No. 25-01
Shorewood Traffic Calming and Speed Evaluation
Village of Shorewood
Village of Shorewood, Wisconsin
Site Photographs

STRAND ASSOCIATES®
Excellence in Engineering℠

Date: May 22, 2025

Time: 1:30 P.M.

Description:

Completed speed table; North Morris Boulevard, north of East Pinedale Court looking south.

Date: May 22, 2025

Time: 1:30 P.M.

Description:

Completed speed table; North Morris Boulevard, north of East Pinedale Court looking south.

APPENDIX

Task Order No. 25-01
Shorewood Traffic Calming and Speed Evaluation
Village of Shorewood
Village of Shorewood, Wisconsin
Site Photographs

STRAND ASSOCIATES®
Excellence in Engineering℠

Date: November 2024

Time: N/A

Description:

Existing condition;
East Kensington Boulevard and North Bartlett Avenue looking east.

Image source: Google Earth

Date: November 2024

Time: N/A

Description:

Completed curb extensions;
East Kensington Boulevard and North Bartlett Avenue looking west.

Image source: Google Earth

APPENDIX

Task Order No. 25-01
Shorewood Traffic Calming and Speed Evaluation
Village of Shorewood
Village of Shorewood, Wisconsin
Site Photographs

STRAND ASSOCIATES®
Excellence in Engineering℠

Date: May 22, 2025

Time: 1:30 P.M.

Description:

Completed curb extensions; East Kensington Boulevard and North Bartlett Avenue looking east.

Date: May 22, 2025

Time: 1:30 P.M.

Description:

Completed curb extensions; East Kensington Boulevard and North Bartlett Avenue looking west.

APPENDIX

Task Order No. 25-01
Shorewood Traffic Calming and Speed Evaluation
Village of Shorewood
Village of Shorewood, Wisconsin
Site Photographs

STRAND ASSOCIATES®
Excellence in Engineering℠

Date: November 2024

Time: N/A

Description:

Existing condition;
East Kensington Boulevard and North Larkin Street looking west.

Image source: Google Earth

Date: May 22, 2025

Time: 1:30 P.M.

Description:

Completed curb extensions;
East Kensington Boulevard and North Larkin Street looking west.

APPENDIX

Task Order No. 25-01
Shorewood Traffic Calming and Speed Evaluation
Village of Shorewood
Village of Shorewood, Wisconsin
Site Photographs

STRAND ASSOCIATES®
Excellence in Engineering℠

This photo showing parked compact sedans, taken at E. Kensington Blvd. and N. Newhall St., illustrates the visibility of pedestrians when cars illegally park too close to the intersection/crosswalk. When this occurs limited Police resources are required to enforce parking regulations, which does not immediately resolve the issue.

When temporary barricades are installed to preclude the ability of drivers to illegally park too close to the intersection, pedestrian visibility is increased and the need for enforcement is reduced.

Responses Overview

Closed

Responses	Average Time	Duration
541	30:27	27 Days

1. Name (optional)

284
Responses

2. Address (optional)

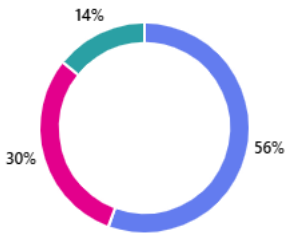
275
Responses

3. Email (optional)

219
Responses

4. Do you believe that the temporary traffic circles that have been installed are effective at achieving their goal?

Yes	297
No	161
Undecided	76

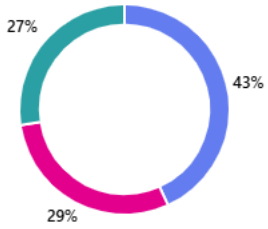


5. Do you have any comments on the design or location of the temporary traffic circles that have been installed?

376
Responses

6. Do you believe that temporary curb extensions that have been installed are effective at achieving their goal?

Yes	229
No	156
Undecided	145

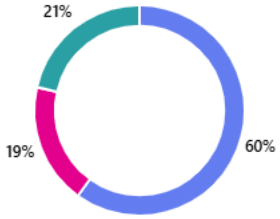


7. Do you have any comments on the design or location of the temporary curb extensions that have been installed?

292
Responses

8. Do you believe that the temporary speed table that has been installed is effective at achieving its goal?

Yes	319
No	99
Undecided	114

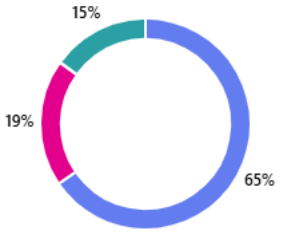


9. Do you have any comments on the design or location of the temporary speed table that has been installed?

305
Responses

10. Do you believe the Village should pursue additional temporary or permanent traffic calming or pedestrian visibility measures?

Yes	343
No	102
Undecided	79



11. Do you have a preference for what types of measures you would like to see?

362
Responses

12. Do you have any locations or types of devices in mind that you think the Village should consider for future temporary or permanent proj ects? If so, please provide your suggestions.

298
Responses