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MEMORANDUM

TO: Trevor Walter, PE
City of Baxter – City Engineer

FROM: Justin Anibas, PE (MN), PTOE, RSP1

DATE: January 5, 2026

RE: Guidance and Best Practices for Citywide Speed Limits, Stop Signs, Dynamic Speed Feedback Signs, Speed Humps, and Centerline Striping
SEH No. BAXTE 183117

REQUEST

Complete a review of the City's options for adopting citywide speed limits and review guidance/application best practices for stop signs and centerline markings. Topics reviewed include Citywide speed limits, stop signs, dynamic speed feedback signs, speed humps, and roadway striping/no passing zones.

CITYWIDE SPEED LIMIT

During its 2019 special session, the Minnesota State Legislature adopted a bill that allows limited authority to cities to set speed limits on streets under their jurisdiction. State Statute 169.14, allows cities to maintain a statutory 30 miles per hour (mph) speed limit on roadways within an urban district, adopt a 25 mph statutory speed limit on residential streets, and/or adopt other speed limits on roadways under their jurisdiction after the appropriate level of engineering study, implementation planning, and public education are performed.

Under State Statute 169.14, the City of Baxter could reduce the statutory speed limit to 20 or 25 mph on all **local residential streets** citywide. In addition to the local residential streets, the City has the authority to change speed limits on other Citywide roadways, such as collectors and arterials as long as they are under the City's jurisdiction including Minnesota State Aid Streets (MSAS). City collectors and arterials typically have specifically signed speed limits and do not operate under the statutory speed limit, so speed limits for those roadways should be reviewed to each roadway to ensure the appropriate speed limit is used. Changing the speed limit alone is not effective in lowering vehicle speeds along a roadway without other traffic calming measures designed to lower speeds. The attached roadway functional classification map from the 2015 Baxter Comprehensive Plan shows functional classification for each roadway within Baxter. City owned collector and arterial roadways are listed below:

- Clearwater Road
- Inglewood Drive
- Memorywood Drive
- Knollwood Drive
- Excelsior Road
- College Road
- Cypress Drive
- Golf Course Drive
- Elder Drive
- Foley Road
- Timberwood Drive

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If a citywide speed limit of 20 or 25 mph is adopted by the City of Baxter, Citywide speed limit signs (see Figure 1 below) would be strategically placed along city streets near the city limits and near major roadways such as TH 210 and TH 371 to alert drivers of the change in statutory speed limit within the City.

Figure 1 – Citywide Speed Limit Sign Example



Most documented cities that have adopted citywide speed limit changes are larger metropolitan suburbs, with notably larger populations than Baxter. However, several smaller cities have adopted residential street speed limits, such as Falcon Heights (population about 5,000) and Arden Hills (population about 9,600). For context, here is a selection of cities that have implemented citywide or residential speed limit changes under State Statute 169.14:

- The City of Minneapolis (Citywide)
 - 20 mph on minor streets (predominantly local residential streets)
 - 25 mph on most major streets (generally arterial and collector streets)
 - 35 mph on four short segments of major streets (based on specific conditions)
 - 10 mph in alleys
- The City of St. Paul (Citywide)
 - 25 mph on major streets that are typically collector streets, minor arterials, and principal arterials
 - 20 mph on local streets
 - 10 mph limits will be retained in alleys
- The City of St. Louis Park (Citywide)
 - 20 mph on local neighborhood streets
 - 25 mph on busier roads that connect neighborhoods
 - 30 mph on busiest roads
 - 35 mph on one of the busiest roads
- The City of Minnetonka (Citywide)
 - 25 mph speed limit for local residential streets
 - 30 mph statutory limit would be retained on non-residential local streets
 - No change in speed limit on collectors and arterials

- The City of Edina (Citywide)
 - 25 mph on local streets
 - 15 or 20 mph in school zones
 - 30 mph on selected major collectors
- The City of Falcon Heights (Residential)
 - 20 mph on residential streets
- The City of Arden Hills (Residential)
 - 25 mph on residential streets

STOP SIGNS

The main purpose of a stop sign is to assist with traffic control and prevent crashes, specifically to assign right-of-way at intersections. Stop signs are not effective in slowing travel speeds and should not ever be used as a speed reduction or traffic calming measure. Unwarranted stop signs can result in poor stop compliance, which can reduce the overall safety of an intersection. Therefore, it is important to place stop signs in the correct locations based on an engineering study that includes review of signing guidance, such as what is documented in Chapter 2B of the Minnesota Manual on Uniform Traffic Control Devices (MnMUTCD) and engineering studies to adequately assign right of way at intersections and maintain intersection safety.

Two-way Stop Control

Based on the MnMUTCD (Section 2B.4), two-way stop control, where one roadway is required to stop and the other is not, can be considered at locations where one of the conditions below are met. An engineering study that considers factors, including signing guidance, should be performed to determine the “best” type of control at an intersection.

- An intersection of a less important road with a main road where application of the Northam right-of-way rule would not be expected to provide reasonable compliance with the law. Under Minnesota Law, drivers must yield to the vehicle on the right when two vehicles are approaching an uncontrolled intersection at approximately the same time.
- A street entering a designated through highway or street, typically exceeding 6,000 vehicles per day
- At unsignalized intersections in a signalized area
- A restricted view exists that requires road users to stop to adequately observe conflicting traffic on the through street or highway
- Crash data indicates three or more crashes that could be corrected by installation of a stop sign have been reported in a 12-month period, or five or more such crashes have been reported within a 2-year period. Correctable crashes with installation of a stop sign include right angle crashes involving road users on the minor street approach failing to yield the right of way to traffic on the through street or highway.

In many low volume situations with no unusual crash history, no control at the intersection is a cost-effective strategy, with research suggesting that providing traffic control will not improve safety. At uncontrolled intersections, the driver to the left shall yield to right-of-way to the vehicle on the right if both vehicles enter the intersection at approximately the same time (Statute 169.20).

At locations where a full stop may not always be necessary, the City could consider providing yield signs on the minor approaches instead of stop signs to improve right-of-way compliance.

All-way Stop Control

The MnMUTCD (Section 2B.7) provides guidance for when it may be appropriate to provide all-way stop control at an intersection. All-way stop control should not be installed as a means to slow vehicle speeds and should not be installed at locations where all-way stop control is not warranted. Unwarranted all-way stop controlled intersections can often lead to compliance issues, which can result in increased crashes and vehicles speeds in the area.

Based on the MnMUTCD, all-way stop control can be considered at locations where one of the following conditions are met. An engineering study that considers factors, including signing guidance, should be performed to determine the “best” type of control at an intersection.

- Where a traffic signal is justified and all-way stop is used as an interim measure until a traffic signal can be installed.
- Five or more reported crashes in a 12-month period that a considered correctable with all-way stop control, including right angle, right turn, or left turn crashes.
- Where intersection volumes meet the minimum requirements:
 - 300 combined vehicles per hour on the major approaches and 200 combined vehicles per hour on the minor approaches for any 8 hours of the day.
 - If the 85th percentile speed or speed limit exceeds 40 mph, 70% of the volume thresholds can used (210 on the major streets, 140 on the minor streets).
- All-way stop control can also considered if:
 - There is a need to control left-turn conflicts
 - There is a need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes
 - Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.
 - At an intersection of two residential collector streets of similar design and operating characteristics where all-way stop would improve traffic operations at the intersection.

DYNAMIC SPEED FEEDBACK SIGNS

Dynamic speed feedback signs provide immediate feedback to drivers who are traveling over the posted speed limit by displaying a message such as “Your Speed XX” or “SLOW DOWN” (Figure 2). They are posted in conjunction with a posted speed limit sign and most applicable on streets with excessive speeding activity.

Typically, dynamic feedback signs are most effective in reducing high-end speeds and the long-term effectiveness has not been studied widely. The available research shows that dynamic speed feedback signs can be an effective tool to reduce speeds, including a reduction in up to 3 mph for the 85th percentile speed in some locations. It is recommended that the City collect existing speed data at various points on the roadway to understand if dynamic feedback signs would be viable and cost-effective to install. If high-end speeds and high 85th percentile speeds are observed, it is recommended that the City consider installing at least one pair of dynamic feedback signs near the roadway entrance and enforce the posted speed limit to further encourage compliance.

Figure 2 – Dynamic Speed Feedback Sign Example



SPEED HUMPS

Speed humps slow speeds by creating a gentle rocking motion as a vehicle passes over, with vehicles typically operating at 15-25 mph in the area of the speed hump. They are designed to raise the pavement up to 3-4 inches high over a 12-14 length of roadway and are typically installed on private roadways or low speed, low volume residential roadways (Figure 3).

Speed humps are only recommended on residential local streets or roadways that provide access to parking or schools, where the speed limit is 30 mph or less, traffic volumes are low, and on roadways that are not primary emergency vehicle or transit routes. Speed humps are most effective in series, with recommended spacing of 200 to 500 feet in the identified area of concern. In addition to the speed hump, signage and white speed hump markings are recommended to warn drivers. Below are the benefits and challenges of speed humps:

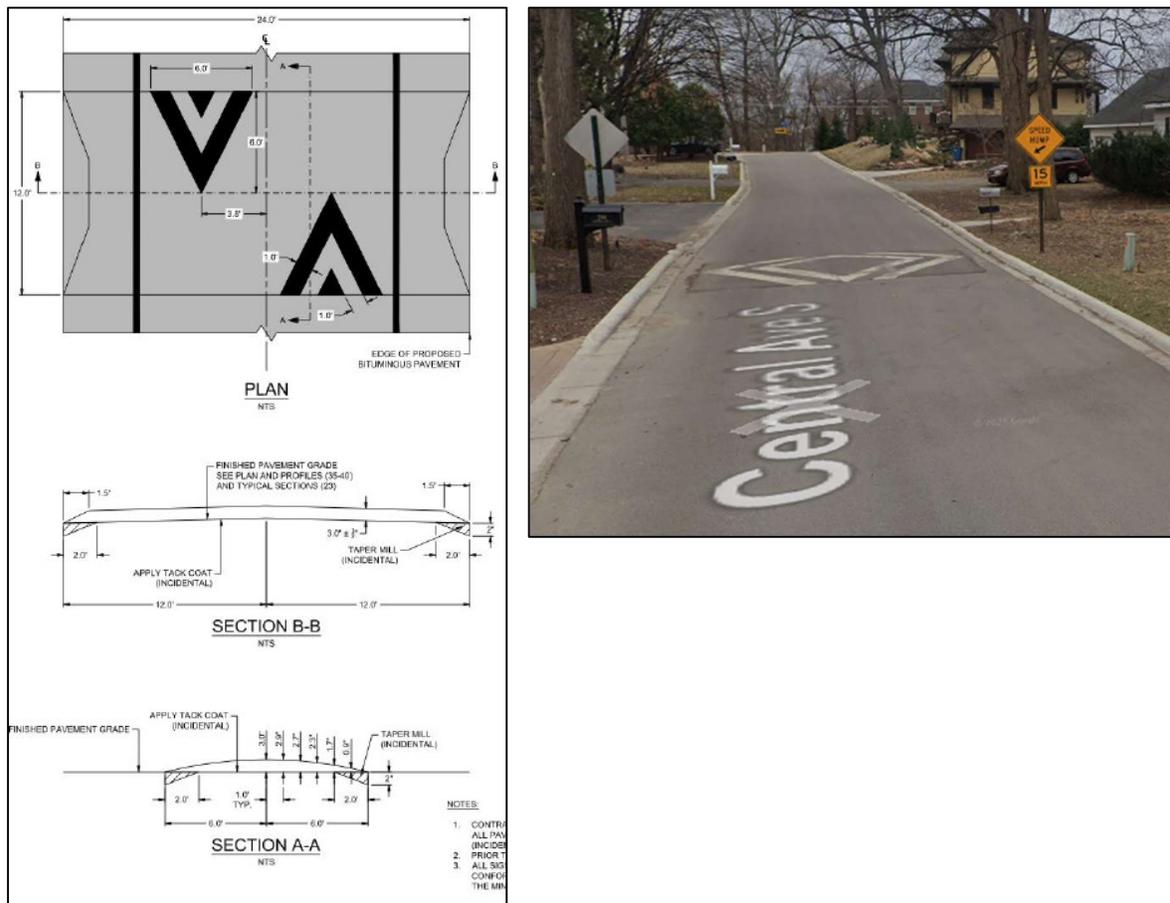
Benefits of Speed Humps

- Cost effective speed management countermeasure
- Can divert cut-through traffic on residential streets
- Improves safety along residential streets
- Crash reduction of 33-48% on residential streets
- More effective than signing and striping at managing speeds
- Effectiveness improves when placed in series (200-500 ft spacing)

Challenges with Speed Humps

- Limited applications – only low speed, low volume residential streets or private roadways
- Winter maintenance concerns with the raised roadway with speed humps

Figure 3 – Speed Hump Design and Signage Example



CENTER LINE MARKINGS AND NO PASSING ZONES

Two-lane collector and arterial roadways within the City of Baxter have a center line marking, including streets like Clearwater Road, Memorywood Drive, Excelsior Road, Inglewood Drive, etc. The roadways with the center line marking include areas where passing is and is not permitted, depending on the roadway speed and geometry. In addition to engineering judgment, the MnMUTCD (Section 3B.01) provides guidance for applying center line markings and when they are warranted. Based on the MnMUTCD guidance, urban arterials or collectors that have a traveled way of 20 feet or more and a daily traffic volume of 4,000 or more should have center line markings. Rural arterials and collectors of 18 feet or more and a daily traffic volume of 3,000 or more should have center line markings.

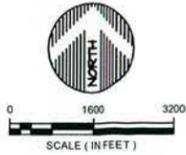
When center line markings are provided, no passing zones should be signed and striped based on locations with inadequate sight distance or a specific safety concern as determined by an engineering study. Areas with adequate sight distance should be striped to allow for vehicles to pass, unless an engineering study determines a need to prohibit passing.

Attachments:

Roadway Functional Classification Map

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CITY OF BAXTER LONG RANGE TRANSPORTATION AND FUNCTIONAL CLASSIFICATION STREET MAP



— MUNICIPAL BOUNDARY

FUTURE	EXISTING	
		PRINCIPAL ARTERIAL
		MINOR ARTERIAL
		MAJOR COLLECTOR
		MINOR COLLECTOR
		LOCAL
		SIGNALIZED INTERSECTION
		SEPARATED GRADE CROSSING WITH NON-MOTORIZED TRAIL

