



MEMORANDUM

TO: Honorable Mayor and Members of the City Council

FROM: Trevor Walter, Public Works Director/City Engineer
Josh Doty, Community Development Director
Matt Maier, Police Chief

DATE: March 26, 2026

RE: MnDOT Response to City Comments on the Highway 371 Corridor Study Report and ICE Reports for Pine Beach Road, Woida Road, and Highland Scenic Road

Related Attachments

- City Comment Memorandum to MnDOT – Dated January 30, 2026
 - Review of Highway 371 Corridor Study Report and ICE Reports for Pine Beach Road, Woida Road, and Highland Scenic Road
- MnDOT Response Memorandum – Dated March 15, 2026
 - MnDOT Response to 1/30/26 City Review Memo of Hwy 371 Study & ICE Reports

Background

On January 30, 2026, the City of Baxter provided MnDOT with a comment memorandum based upon the review of the Highway 371 Corridor Study Report and Intersection Control Evaluation (ICE) Reports for Pine Beach Road, Woida Road, and Highland Scenic Road. The City's comment memorandum is attached.

On March 15, 2026, MnDOT provided the City of Baxter with a comment response memorandum as well as updated ICE Reports for Pine Beach Road, Woida Road, and Highland Scenic Road addressing the City's comments. MnDOT's comment response memorandum is attached. In addition to the response memorandum, Zachary Whitely, MnDOT District 3 Assistant Traffic Engineer, provided the City with clarification on the reasoning for City signatures on ICE reports and their purpose in the ICE process.

The following memorandum summarizes the updated ICE reports, MnDOT's responses to City comments, and any remaining City comments/concerns with the ICE reports.

City Signatures on MnDOT ICE Reports

According to Section 6.1 of the *2025 Minnesota Intersection Control Evaluation (ICE) Manual*, all MnDOT ICE documents must contain a signature sheet signed by report preparer and the District Traffic Engineer. Although not required, ICE report signature sheets can also have signatures for

other local agencies involved in the ICE study. The local agency or agencies signatures are intended to acknowledge that they have reviewed the analysis and recommendations of the report, providing a record of their involvement in the ICE process. Under the ICE process, the City's signature on ICE reports does not commit the City to municipal consent or cost participation for a recommended improvement. Municipal consent and cost participation are separate processes that are not dictated by an ICE report.

In summary, the City signing the three TH 371 ICE Reports does not commit the City to supporting or paying for potential future signalized J-turns at the three intersections. However, it should be noted that ICE reports are often used to guide applications for project funding based on the recommended alternatives.

Signalized J-turns

Summary of City Comments from 1/30/26 Memo and MnDOT Responses:

- The City expressed concern about an increase in total crashes with signalized J-turns based on review of crashes at the only signalized J-turn in Minnesota (TH 65/Viking Blvd)
 - *MnDOT also reviewed the TH 65/Viking Blvd crash data, acknowledging that there has been an increase in property damage only crashes but a decrease in injury crashes. MnDOT noted that while an increase in property damage crashes is possible with any J-turn alternative (signalized or unsignalized), J-turns align with the state's Towards Zero Deaths (TZD) efforts of reducing life-changing crashes and J-turns are one of FHWA's Proven Safety Countermeasures*
 - *MnDOT did not adjust the crash modification factors (CMFs) used to analyze safety at the J-turn alternatives in any of the three ICE reports because the CMFs are based on data from across the country, not just in Minnesota.*

Highland Scenic Road

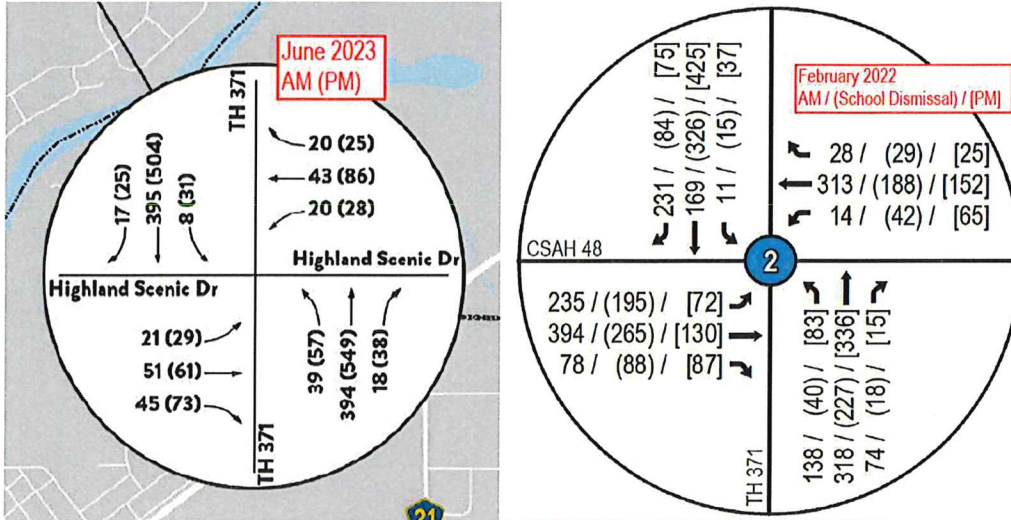
ICE Report Recommendations:

- Short-term – Signalized J-turn as safety issues arise in the future
- Long-term – Grade-separated interchange as a future grant opportunity
 - Sensitivity analysis indicates that 75 to 85% of the area around Highland Scenic Road would need to require a traffic control change or grade separation.

Summary of City Comments from 1/30/26 Memo and MnDOT Responses:

- The City stated a preference for grade separation to be the preferred future alternative at the intersection to address safety and operational issues, as was planned for the in the City's Comprehensive Plan, CSAH 48 (Highland Scenic Road) Corridor Study, and the Highway 371/Glory Road/College Road Concepts included as part of the Highway 371 Corridor Study.
 - MnDOT updated their recommendation section of the ICE report to include grade separation as a long-term recommendation if funding becomes available.
 - The signalized J-turn remains the short-term recommendation should safety issues arise.
- The City pointed out a significant difference in traffic volumes from MnDOT's June 2023 counts to the February 2022 counts used for the CSAH 48 (Highland Scenic Road) Corridor Study (see comparison below). The June counts were completed when school was not in

session so traffic from schools like Forestview Middle School, Baxter Elementary School, Brainerd High School, and Central Lakes College were not included.



- MnDOT completed an additional analysis of the existing school peak hour traffic with the existing traffic signal and the proposed signalized J-turn as a supplementary analysis to assess the functionality of the recommended signalized J-turn. The analysis was not intended to re-analyze all aspects of the ICE report.
- With the school peak traffic, there is an improvement to intersection queueing, especially during the AM peak hour. However, the intersection overall operates with higher delay during the school dismissal hour and has higher delay for Highland Scenic Road approaches during the school dismissal and PM peak hours.
- No future analysis was completed with the school peak hour traffic volumes, looking at how the intersection will change as traffic volumes continue to grow with development in the area.
- The City requested figures showing the alternatives analyzed to get a better understanding of what was analyzed.
 - Figures of each alternative have been added to the report.

City Comments on Updated ICE Reports:

- **How does development in the area impact operations during school year conditions? Is the threshold for a traffic control change or grade separation different under school year traffic conditions because of the significant increase in Highland Scenic Road volumes?**
The school peak hour traffic conditions exist for approximately 9 months of the year, so it seems like the design and future analysis of the intersection should be based on traffic volumes when school is in session. Perhaps under school year conditions the threshold for a traffic control change or grade separation is much lower than the 75% to 85% development stated in the report.

Clearwater Road

No ICE report was completed for Clearwater Road as part of this study as the intersection is considered to be in the TH 210/TH 371 “Interchange Influence Area”.

Summary of City Comments from 1/30/26 Memo and MnDOT Responses:

- The City requested that the Clearwater Road intersection and potential improvements be included in either the TH 371 Corridor Study or the TH 210/TH 371 interchange study as neither study currently addresses the intersection despite historical safety issues.
 - At the time of the TH 371 Corridor Study, the Clearwater Road intersection was expected to be influenced by the TH 210/TH 371 Interchange Project so the intersection was excluded from alternatives analysis.
 - The preferred TH 210/TH 371 interchange design ended up not requiring changes at Clearwater Road, so no recommendations at the intersection were included as part of that study.
 - MnDOT has agreed to monitor the traffic operations and safety at the Clearwater Road and Woida Road intersections post-construction of the interchange, as stipulated by the City of Baxter conditions for municipal consent for the TH 210/TH 371 Interchange Project.

Remaining City Comments:

None; the City will likely be responsible for prompting/reminding MnDOT to complete the analysis of Woida Road and Clearwater Road post-construction.

Woida Road

ICE Report Recommendations:

- Short-term – Signalized J-turn
- Long-term – Grade-separated interchange as a future grant opportunity
 - As part of the conditions of the City of Baxter’s municipal consent on the TH 210/TH 371 Interchange Project, MnDOT has agreed to conduct post-construction monitoring of the Woida Road and Clearwater Road intersections.

Summary of City Comments from 1/30/26 Memo and MnDOT Responses:

- The City stated a preference for grade separation to be the preferred future alternative at the intersection to address safety and operational issues because it has the best benefit-cost ratio of the alternatives analyzed, providing the best safety and operational benefits.
 - MnDOT updated their recommendation section of the ICE report to include grade separation as a long-term recommendation if funding becomes available.
 - Language was also added to the recommendation about MnDOT’s plan to re-analyze the intersection post-construction of the TH 210/TH 371 interchange, as agreed to as a condition for Baxter municipal consent.
 - The signalized J-turn remains the short-term recommendation due to the lower cost.
- The City requested figures showing the alternatives analyzed to get a better understanding of what was analyzed.
 - Figures of each alternative have been added to the report.
- The City pointed out that based on the signalized J-turn traffic operations, the biggest benefit to traffic delays is for TH 371 through traffic, while increasing overall delay for the

local traffic, which could negatively impact commercial businesses and local access in the long-term.

- MnDOT noted that the delays reports for the Median U-turn, Median U-turn (Dual U-turn), and Signalized J-turn alternatives report a combination of the delays for each movement at each of the three intersections making up the Median U-turn or J-turn intersection in accordance with the Highway Capacity Manual. The delay being spread amongst the three intersections instead of at a single intersection is why there is an improvement to queueing.
 - For example, the WB left turn delay of 84 seconds at the signalized J-turn in the 2050 build PM peak (Table 4.11) is the sum of the WB right turn delay of 30 seconds, the extra distance travel time to the NB U-turn of 9 seconds, the NB U-turn delay of 27 seconds, the extra distance travel time back to the main intersection from the NB U-turn of 9 seconds, and the SB thru delay at the main intersection of 9 seconds.
- MnDOT suggested that drivers are more tolerable to slight increases in delay if they are constantly moving, which is one reasons they have found drivers prefer roundabouts over signals even in busy times when delays are relatively similar.
- MnDOT suggests that drivers tend to associate delays at these types of intersections with the longest delay incurred at single intersection, rather than a sum of all the individual movements. This perception is documented by the FHWA in particular by the North Carolina DOT, where signalized J-turns are more common.
 - For example, drivers will recognize waiting 75 seconds at the existing signal as less tolerable than waiting 30 seconds to take a right turn and then 24 seconds to make a U-turn.
- MnDOT references a University of North Carolina at Wilmington study of more than 400 reduced conflict intersections like J-turns and found that some locations showed a positive increase in economic activity but many other showed neither a positive or negative economic impact, suggesting the safety benefits of the J-turns did not harm businesses in the area. The study also found reduced conflict intersections also have a potential to support home values and homeowners tended to value the improved safety and traffic flow despite increased wait times.

City Comments on Updated ICE Reports:

None; the signalized J-turns do still increase the overall commute time for the minor movements, despite it being spread across three intersections making up the J-turn. The research provided by MnDOT would suggest that drivers may be okay with increased overall commute given improved traffic flow as vehicles continue to move.

Pine Beach Road/Wise Road

ICE Report Recommendations:

- Short-term – Signalized J-turn
- Long-term – Grade-separated interchange as a future grant opportunity
 - The interchange was not analyzed as part of this study, so the interchange would need to be further analyzed for overall corridor context and long-term interchange spacing.

Summary of City Comments from 1/30/26 Memo and MnDOT Responses:

- The City stated a preference for grade separation to be the preferred future alternative at the intersection because it would be less impactful to the City/County roadway network.
 - MnDOT updated their recommendation section of the ICE report to include grade separation as a long-term recommendation if funding becomes available but noted that it would need to be further studied because it was not included as an alternative in this study.
 - The signalized J-turn remains the short-term recommendation.
- The City requested figures showing the alternatives analyzed to get a better understanding of what was analyzed.
 - Figures of each alternative have been added to the report.
- The City noted that flashing yellow arrow (FYA) capabilities were added to the intersection in 2024 or 2025 and asked MnDOT whether those improvements in addition to other left turn/pedestrian improvements were considered as an alternative.
 - MnDOT has not completed a flashing yellow arrow analysis at the intersection. However, MnDOT did review crashes from 2024 to February 11, 2026, which shows safety performance has been worse compared to the 2018-2022 time period analyzed as part of the study.
 - There have been more severity B (minor injury) crashes in past 25+ months but less right angle crashes.
- The City pointed out that based on the signalized J-turn traffic operations, the biggest benefit to traffic delays is for TH 371 through traffic, while increasing overall delay for the local traffic, which could negatively impact commercial businesses and local access in the long-term.
 - See MnDOT response for Woida Road to the same comment.

City Comments on Updated ICE Reports:

- **None;** the signalized J-turns do still increase the overall commute time for the minor movements, despite it being spread across three intersections making up the J-turn. The research provided by MnDOT would suggest that drivers may be okay with increased overall commute given improved traffic flow as vehicles continue to move.



MEMORANDUM

TO: MnDOT and Members of the Highway 371: Baxter to Nisswa Corridor Study Project

FROM: Trevor Walter, Public Works Director/City Engineer
Josh Doty, Community Development Director
Matt Maier, Police Chief

DATE: January 30, 2026

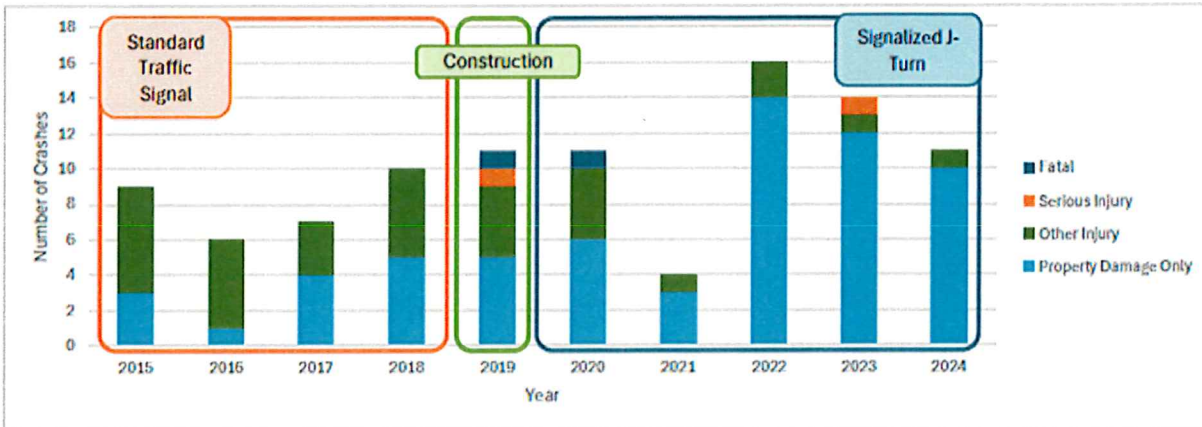
RE: Review of Highway 371 Corridor Study Report and ICE Reports for Pine Beach Road, Wolda Road, and Highland Scenic Road

Background

The City of Baxter has carefully reviewed the final corridor study report (dated November 2025) and the ICE reports for Pine Beach Road, Wolda Road, and Highland Scenic Road (dated October 2025). The City is being asked to sign all three ICE reports in support of MnDOT's preferred alternative at each intersection. Based on the City's review, we have concerns about local street and business access related to the recommended signalized J-turn intersections, which will harm local traffic crossing Highway 371. All three of these locations are heavily used by vehicles crossing Highway 371 and the signalized J-turns will increase both travel distance and travel time for those movements. Additionally, the City's own traffic review of the ICE reports and of signalized J-turns (below) indicate that there is not enough data to support the safety benefits represented in the ICE reports for the signalized J-turn alternative. In fact, the City's traffic engineer reviewed the crash history at the only signalized J-turn in Minnesota, which has seen an increase in crashes with the implementation of the signalized J-turn. City staff is not prepared to support the widespread application of signalized J-turns at this time, as these improvements could be detrimental to safety and to the City's transportation system. City staff recommends that MnDOT consider other solutions for these intersections.

The ICE reports show an expected safety improvement with the signalized J-turns, with a 22% reduction in injury and fatal crashes and a 15% reduction in all crashes; however, the safety benefits of signalized J-turns in Minnesota are largely unknown and the lone signalized J-turn (Highway 65/Viking Blvd) has actually seen an increase in crash frequency after it's conversion from a traditional traffic signal to a signalized J-turn (see Figure 1 below). In the past 5 years since construction, the signalized J-turn has averaged just over 11 crashes per year, up from 8 crashes per year in the 4 years prior to construction; a 40% increase in total crashes.

Figure 1 – Hwy 65 and Viking Blvd Crashes (2015 to 2024)



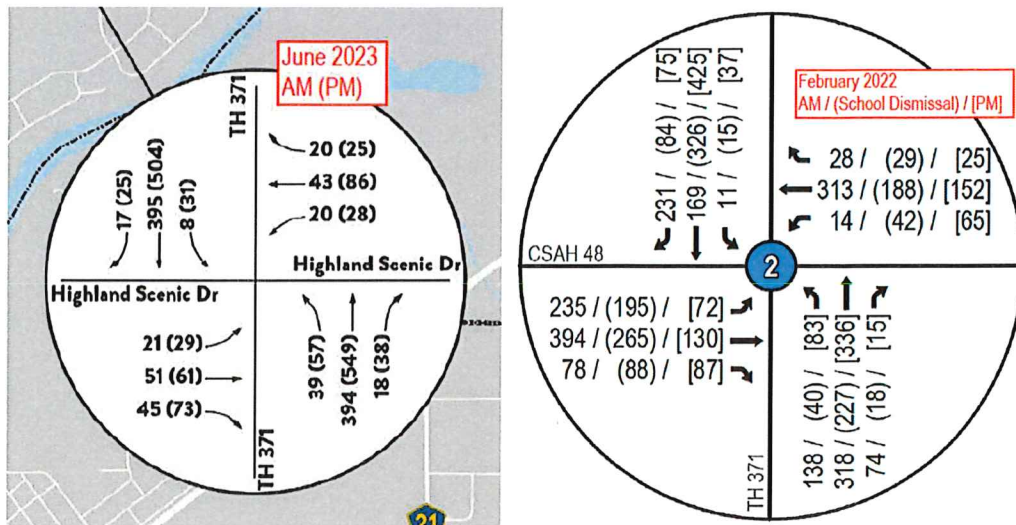
Below are City comments related to specific intersections within the Baxter city limits.

Highland Scenic Road (ICE Report)

Highland Scenic Road (CSAH 48) is a county owned roadway but is inside the Baxter city limits and serves as a vital connection within the City’s transportation system. The ICE report recommends doing nothing in the short term, but constructing a signalized J-turn in the long-term if safety issues arise. **The City of Baxter is not in favor of the signalized J-turn and would prefer the recommendation to be grade separation in the future to address safety and operational issues, as was planned for in the City’s Comprehensive Plan, CSAH 48 (Highland Scenic Road) Corridor Study, and the Highway 371/Glory Road/College Road Concepts included as part of the Highway 371 Corridor Study. In addition, there is a discrepancy between MnDOT’s June 2023 counts and the February 2022 counts used for the CSAH 48 Corridor Study.**

ICE Report Comments:

- There is a significant difference in the traffic volumes from MnDOT’s June 2023 traffic counts to the February 2022 counts that were used for the CSAH 48 (Highland Scenic Road) Corridor Study. **This large difference in traffic volumes warrants additional analysis for the intersection to determine whether the recommendation would change.**
 - The June 2023 traffic counts were taken when schools like Forestview Middle School and Baxter Elementary School were not in session. While not as close to the intersection, Central Lakes College and Brainerd High School likely have impacts on demands at this intersection. Comparing the February 2022 counts from the CSAH 48 study and the June 2023 MnDOT counts (see below), there is significantly more eastbound and westbound traffic when school is in session.



- AM Traffic Demand Comparison
 - Northbound - 18% increase with school in session
 - Southbound - 2% decrease with school in session
 - Eastbound - 504% increase with school in session
 - Westbound - 328% increase with school in session
- PM Traffic Demand Comparison
 - Northbound - 33% decrease with school in session
 - Southbound - 4% decrease with school in session
 - Eastbound - 77% increase with school in session
 - Westbound - 74% increase with school in session
- Eastbound/Westbound Through Traffic with school in session, which would not conflict with TH 371 traffic with an interchange
 - AM peak hour – 707 vehicles (35% of intersection traffic)
 - School Dismissal Peak Hour – 453 vehicles (30% of intersection traffic)
 - PM peak hour – 282 vehicles (19% of intersection traffic)
- Under existing conditions, the City has observed that the eastbound queues from TH 371 can extend back past the Isle Drive roundabout during the school arrival peak hour due to heavy traffic volumes and the fact that 72 school buses go eastbound/westbound through this intersection. The signalized J-turns will move this queuing issue onto TH 371 with queues of traffic making a southbound U-turn to continue on CSAH 48 or go north.
- The report needs to have figures showing the alternatives analyzed so the City can obtain a better understanding of what was analyzed.

Clearwater Road (Alternatives Analysis Report)

The Corridor Study Report states that the Clearwater Road intersection has a crash rate over 3 times the critical rate but that intersection alternatives were not considered as part of the corridor study because the intersection is in the TH 210/TH 371 “Interchange Influence Area”. The final design plan for the TH 210/TH 371 interchange shows construction stopping south of Clearwater Road and no recommended improvements to the Clearwater Road intersection. **This intersection should be analyzed for improvements in one of the two MnDOT studies to attempt to mitigate the significant safety concern at the intersection.**

Woida Road (ICE Report)

Based on the ICE report, the tight diamond interchange will provide the best benefit-cost ratio of the alternatives analyzed, providing both the best safety and operational benefits. However, the signalized J-turn was recommended due to the lower project cost. **The City of Baxter is not in favor of the signalized J-turn and would prefer the recommendation to be a tight diamond interchange to address safety and operational issues.**

ICE Report Comments:

- The report needs to have figures showing the alternatives analyzed so the City can obtain a better understanding of what was analyzed, especially showing the potential closures/changes to the City roadway network.
- The biggest benefit to traffic delays with the signalized J-turn is to TH 371 through traffic, while delays get worse for the local traffic, which negatively impacts the commercial businesses and local access in the long-term.
 - Overall, the signalized J-turn will improve overall intersection delay by 3 to 12 seconds per vehicle, with improvements to queuing for all approaches.
 - The Woida Road approaches have a total change of -19 to +23 seconds per vehicle, with a significant increase in Woida Road approach delays during most peak hours due to the additional travel time to make a right turn, travel to the U-turn, make the U-turn, and then either continue on TH 371 or turn right onto Woida Road (through movements).

Pine Beach Road/Wise Road (ICE Report)

Pine Beach Road (CSAH 77) and Wise Road (CSAH 49) are county owned roadways but are inside the Baxter city limits and serve as vital connections within the City's transportation system. **The City of Baxter is not in favor of the signalized J-turn because we believe it will be detrimental to the City street network and commercial business access in the area long-term. MnDOT should analyze other long-term solutions that would be less impactful to the City/County roadway network such as a tight diamond interchange.**

ICE Report Comments:

- The report needs to have figures showing the alternatives analyzed so the City can obtain a better understanding of what was analyzed.
- Flashing Yellow Arrow capabilities were added for eastbound/westbound in either 2024 or 2025 at this intersection. Was an alternative analyzed that looked at the safety and operational benefits of the added permissive/protected left turn phasing in addition to the other left turn/pedestrian improvements considered?
- The biggest benefit to traffic delays with the signalized J-turn is to TH 371 through traffic, while delays get worse for the local traffic, which negatively impacts the commercial businesses and local access in the long-term.
 - Overall, the signalized J-turn will improve overall intersection delay by 2 to 23 seconds per vehicle, with improvements to queuing for all approaches.
 - The Pine Beach Road/Wise Rd approaches have a total change of -9 to +24 seconds per vehicle, with an increase in minor approach delays during most peak hours due to the additional travel time to make a right turn, travel to the U-turn, make the U-turn, and then either continue on TH 371 or turn right onto Pine Beach Road/Wise Road (through movements).

Memorandum

Date: 03/15/2026

To: City of Baxter

From: MnDOT

RE: MnDOT Response to 1/30/26 City Review Memo of Hwy 371 Study & ICE Reports

MnDOT appreciates the City of Baxter's review of the Highway 371 Corridor Study documents and ICE Reports. MnDOT has comment responses in the remainder of this memorandum for each of the City comments from the review memorandum dated January 30th, 2026. The City comments are italicized.

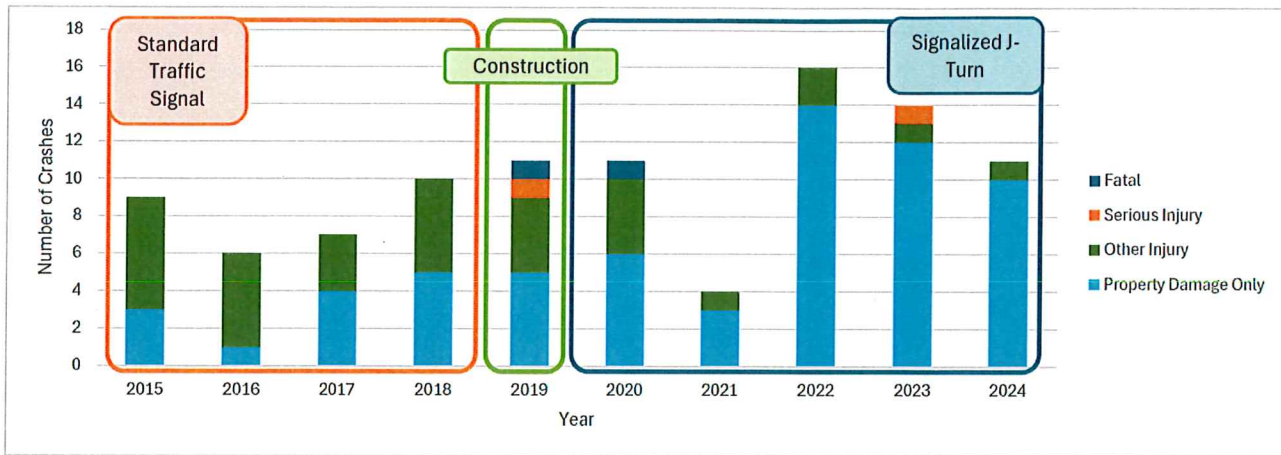
Background

City comments:

The City of Baxter has carefully reviewed the final corridor study report (dated November 2025) and the ICE reports for Pine Beach Road, Woida Road, and Highland Scenic Road (dated October 2025). The City is being asked to sign all three ICE reports in support of MnDOT's preferred alternative at each intersection. Based on the City's review, we have concerns about local street and business access related to the recommended signalized J-turn intersections, which will harm local traffic crossing Highway 371. All three of these locations are heavily used by vehicles crossing Highway 371 and the signalized J-turns will increase both travel distance and travel time for those movements. Additionally, the City's own traffic review of the ICE reports and of signalized J-turns (below) indicate that there is not enough data to support the safety benefits represented in the ICE reports for the signalized J-turn alternative. In fact, the City's traffic engineer reviewed the crash history at the only signalized J-turn in Minnesota, which has seen an increase in crashes with the implementation of the signalized J-turn. City staff is not prepared to support the widespread application of signalized J-turns at this time, as these improvements could be detrimental to safety and to the City's transportation system. City staff recommends that MnDOT consider other solutions for these intersections.

The ICE reports show an expected safety improvement with the signalized J-turns, with a 22% reduction in injury and fatal crashes and a 15% reduction in all crashes; however, the safety benefits of signalized J-turns in Minnesota are largely unknown and the lone signalized J-turn (Highway 65/Viking Blvd) has actually seen an increase in crash frequency after it's conversion from a traditional traffic signal to a signalized J-turn (see Figure 1 below). In the past 5 years since construction, the signalized J-turn has averaged just over 11 crashes per year, up from 8 crashes per year in the 4 years prior to construction; a 40% increase in total crashes.

Figure 1 – Hwy 65 and Viking Blvd Crashes (2015 to 2024)

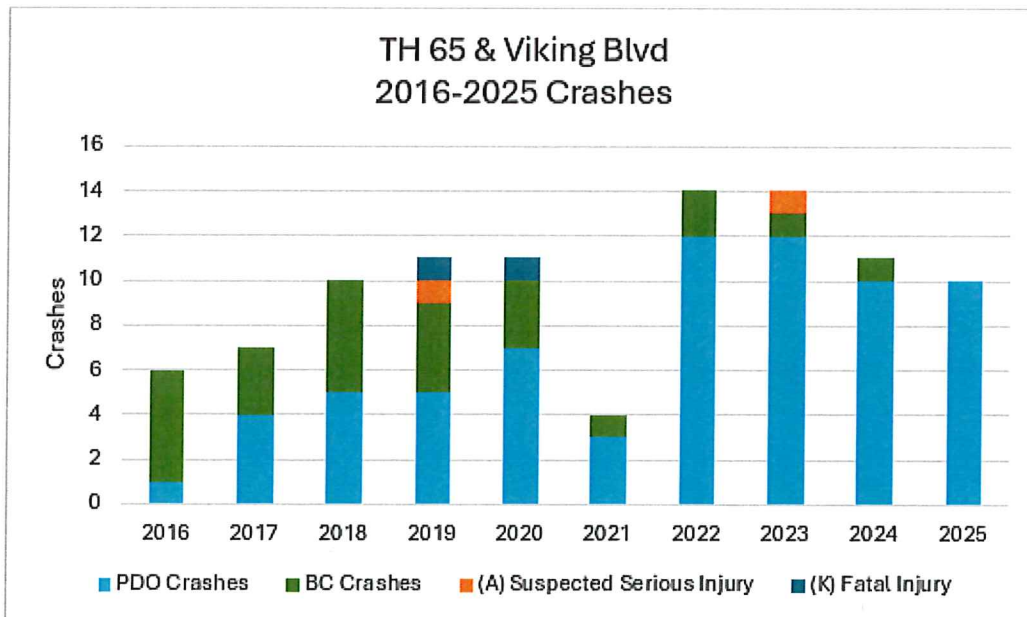


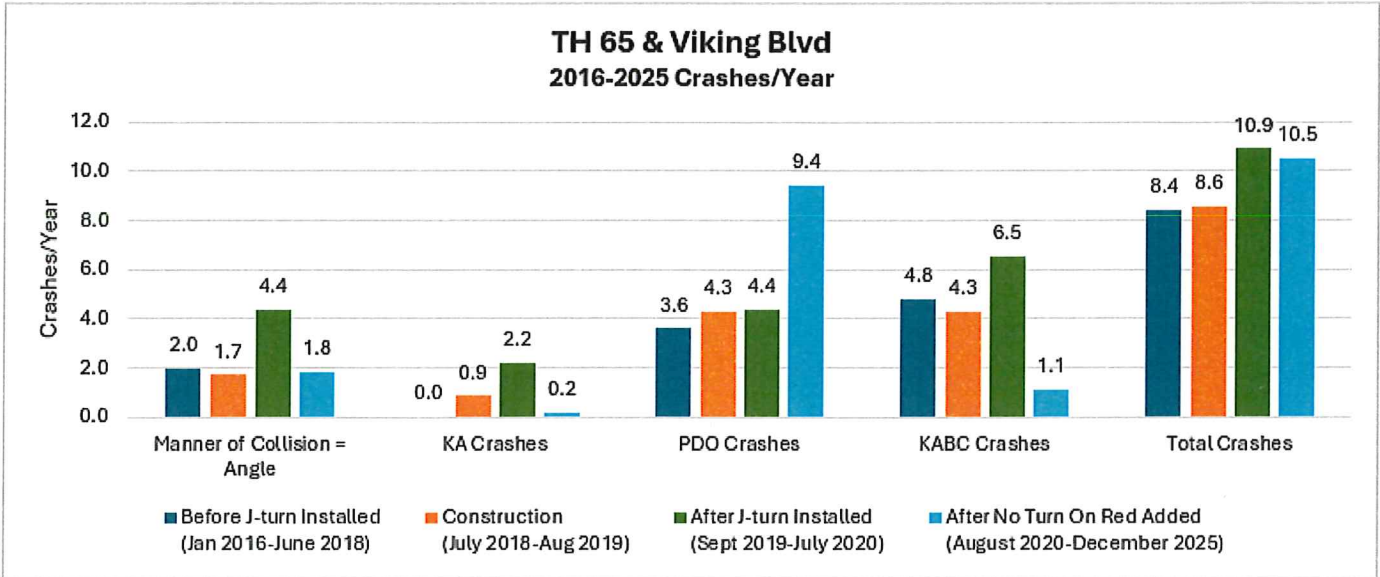
MnDOT Comment Response:

Regarding the MN 65/Viking Blvd signalized J-turn, MnDOT Central Office traffic safety assembled the below on the crash statistics of the intersection to help compare to the information the City assembled, including the 2025 crash data. Some telling comparisons are the significant reduction in all injury crashes, which align with the findings in the [FHWA Proven Safety Countermeasure one-pager](#). I would note that an increase in PDO crashes is possible with any J-turn alternative (unsignalized or signalized), but it aligns with the state’s TZD efforts of reducing life-changing crashes.

Additional notes on the below charts:

- The crash counts are slightly different than those from the Cities chart likely due to different boundaries drawn.
- More details are able to be compared when looking at crashes in the last 10 years. The J-turn opened in 2019 and there were some severe crashes. A No Turn on Red was implemented in 2020 and that addressed the severe crashes that occurred.
- Comparing the pre-J-turn scenario to the current J-turn setup with the No Turn on Red:
 - Similar angle crashes/year
 - Increase in PDO crashes/year
 - Decrease in injury crashes/year





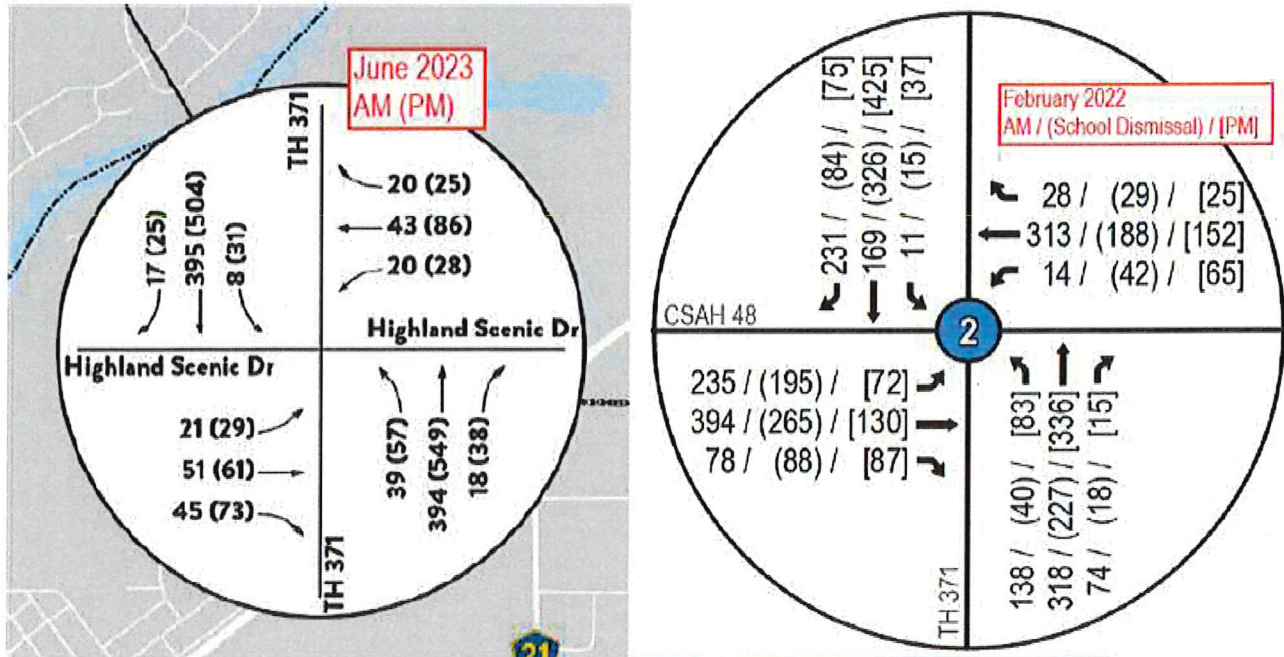
Highland Scenic Road (ICE Report)

City comments:

Highland Scenic Road (CSAH 48) is a county owned roadway but is inside the Baxter city limits and serves as a vital connection within the City's transportation system. The ICE report recommends doing nothing in the short term, but constructing a signalized J-turn in the long-term if safety issues arise. The City of Baxter is not in favor of the signalized J-turn and would prefer the recommendation to be grade separation in the future to address safety and operational issues, as was planned for in the City's Comprehensive Plan, CSAH 48 (Highland Scenic Road) Corridor Study, and the Highway 371/Glory Road/College Road Concepts included as part of the Highway 371 Corridor Study. In addition, there is a discrepancy between MnDOT's June 2023 counts and the February 2022 counts used for the CSAH 48 Corridor Study.

ICE Report Comments:

- There is a significant difference in the traffic volumes from MnDOT's June 2023 traffic counts to the February 2022 counts that were used for the CSAH 48 (Highland Scenic Road) Corridor Study. This large difference in traffic volumes warrants additional analysis for the intersection to determine whether the recommendation would change.
 - The June 2023 traffic counts were taken when schools like Forestview Middle School and Baxter Elementary School were not in session. While not as close to the intersection, Central Lakes College and Brainerd High School likely have impacts on demands at this intersection. Comparing the February 2022 counts from the CSAH 48 study and the June 2023 MnDOT counts (see below), there is significantly more eastbound and westbound traffic when school is in session.



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- Eastbound/Westbound Through Traffic with school in session, which would not conflict with TH 371 traffic with an interchange
 - AM peak hour – 707 vehicles (35% of intersection traffic)
 - School Dismissal Peak Hour – 453 vehicles (30% of intersection traffic)
 - PM peak hour – 282 vehicles (19% of intersection traffic)
- Under existing conditions, the City has observed that the eastbound queues from TH 371 can extend back past the Isle Drive roundabout during the school arrival peak hour due to heavy traffic volumes and the fact that 72 school buses go eastbound/westbound through this intersection. The signalized J-turns will move this queuing issue onto TH 371 with queues of traffic making a southbound U-turn to continue on CSAH 48 or go north.
- The report needs to have figures showing the alternatives analyzed so the City can obtain a better understanding of what was analyzed.

MnDOT Comment Response:

An additional analysis using the February 2022 turning movement counts from the City study was analyzed and added to the ICE report. The intention of this analysis was not to re-analyze all aspects of the ICE report for this intersection, but to perform a supplementary analysis to assess the functionality of the recommended solution of a signalized J-turn

under non-summer weekday peak/school peak volumes and how it compares to the existing condition of the intersection. This analysis indicates that the signalized J-turn alternative has no queue concerns and provides acceptable traffic operations with the school traffic. The eastbound queuing issue noted by the City above was not seen in the existing traffic modeling or in the previous study operational results. However, a significant westbound queue was shown with the existing traffic signal during the AM peak hour. With the signalized J-turn the westbound queue is significantly reduced. This improvement is because the signal cycle length is lower with the signalized J-turn (45-65 seconds compared to 115-150 seconds during the existing traffic signal) and because there are dual right and dual U-turn lanes with the signalized J-turn option to efficiently move traffic through the intersection.

MnDOT also discussed modifying the language of the ICE report recommendation to list grade separation as the long-term future grant opportunity recommendation while listing the signalized J-turn as the short-term recommendation as safety issues arise, given that funding would be the barrier to construct a grade separation in the long-term while also acknowledging the various planning and R/W preservation work that has been accomplished for moving forward with future grade separation. This discussion has been added to the ICE report and we note the preference of the city for an interchange at this location.

A figure for each alternative has been added to the ICE report.

Clearwater Road (Alternatives Analysis Report)

City comments:

The Corridor Study Report states that the Clearwater Road intersection has a crash rate over 3 times the critical rate but that intersection alternatives were not considered as part of the corridor study because the intersection is in the TH 210/TH 371 "Interchange Influence Area". The final design plan for the TH 210/TH 371 interchange shows construction stopping south of Clearwater Road and no recommended improvements to the Clearwater Road intersection. This intersection should be analyzed for improvements in one of the two MnDOT studies to attempt to mitigate the significant safety concern at the intersection.

MnDOT Comment Response:

At the time of the corridor study, it was determined that the Clearwater Rd analysis would be influenced by the SP 1809-98 MN 210/MN 371 interchange project dependent on alternative. With the preferred interchange alternative identified for this project not requiring changes at Clearwater Rd as part of the build alternative, it does make sense to continue to study the Clearwater Rd intersection for safety. This is supported by MnDOT agreeing to monitor the traffic operations and safety at the Clearwater Rd and Wolda Rd intersection post-construction of the interchange, as stipulated by the City of Baxter conditions for municipal consent of the interchange project. Because the corridor study is ending, there is no ability to further study the Clearwater Rd intersection under this study process; therefore, further study is going to have to occur on an ad-hoc basis into the future.

Wolda Road (ICE Report)

City comments:

Based on the ICE report, the tight diamond interchange will provide the best benefit-cost ratio of the alternatives analyzed, providing both the best safety and operational benefits. However, the signalized J-turn was recommended due to the lower project cost. The City of Baxter is not in favor of the signalized J-turn and would prefer the recommendation to be a tight diamond interchange to address safety and operational issues.

ICE Report Comments:

- The report needs to have figures showing the alternatives analyzed so the City can obtain a better understanding of what was analyzed, especially showing the potential closures/changes to the City roadway network.
- The biggest benefit to traffic delays with the signalized J-turn is to TH 371 through traffic, while delays get worse for the local traffic, which negatively impacts the commercial businesses and local access in the long-term.
 - Overall, the signalized J-turn will improve overall intersection delay by 3 to 12 seconds per vehicle, with improvements to queuing for all approaches.
 - The Woida Road approaches have a total change of -19 to +23 seconds per vehicle, with a significant increase in Woida Road approach delays during most peak hours due to the additional travel time to make a right turn, travel to the U-turn, make the U-turn, and then either continue on TH 371 or turn right onto Woida Road (through movements).

MnDOT Comment Response:

MnDOT discussed modifying the language of the ICE report recommendation to list grade separation as the long-term future grant opportunity recommendation while listing the signalized J-turn as the short-term recommendation. This discussion has been added to the ICE report and we note the preference of the city for an interchange at this location.

A figure for each alternative has been added to the ICE report.

In the signal operations of the Median U-turn Alternative (Tables 4.4, 4.5, 4.6), the Median U-turn (Dual U-Turn) Alternative (Tables 4.7, 4.8, 4.9), and the Signalization J-Turn Alternative (Tables 4.10, 4.11, 4.11), it is important to note that these tables a combination of delays summed up for each movement in accordance with the Highway Capacity Manual Process, which includes delays incurred by this traffic while maneuvering on mainline. For example, the WB left turn delay of 84 seconds at the signalized J-turn in the 2050 build PM peak (Table 4.11) is the sum of the WB right turn delay of 30 seconds, the extra distance travel time to the NB U-turn of 9 seconds, the NB U-turn delay of 27 seconds, the extra distance travel time back to the main intersection from the NB U-turn of 9 seconds, and the SB thru delay at the main intersection of 9 seconds (because of the Synchro model having multiple nodes, these delays were summed over a few independent points). These broken down delays are shown in Appendix E of the report.

2050 Build PM Peak												
Intersection	Approach	Traffic Delay (sec/veh)				Intersection (Delay - LOS)	Traffic Queuing (feet)					
		Movement (Delay - LOS)			Approach (Delay - LOS)		Left Turn		Through		Right Turn	
		L	T	R			Avg	Max	Avg	Max	Avg	Max
TH 371 & U Turn (North) - SB Traffic Signalized	WB	24 - C	-	-	24 - C	11 - B	100	150	-	-	-	-
	SB	-	9 - A	-	9 - A		-	-	75	175	-	-
TH 371 & U Turn (North) - NB Traffic	NB	3 - A	5 - A	-	5 - A	5 - A	25	75	-	-	-	-
	EB	-	-	20 - C	20 - C		-	-	-	-	125	225
TH 371 & Woida Rd - SB Traffic Signalized	WB	-	18 - B	-	18 - B	10 - B	-	-	50	150	-	-
	SB	-	7 - A	3 - A	7 - A		-	-	100	175	50	100
	EB	-	20 - C	-	20 - C		-	-	75	125	-	-
TH 371 & Woida Rd - NB Traffic Signalized	WB	-	-	30 - C	30 - C	16 - B	-	-	-	-	175	375
	NB	-	12 - B	6 - A	11 - B		-	-	150	300	75	200
	EB	4 - A	4 - A	-	4 - A		4 - A	25	100	-	-	-
TH 371 & U Turn (South) - SB Traffic Signalized	EB	24 - C	-	-	24 - C	14 - B	100	125	-	-	-	-
NB	-	13 - B	-	13 - B	-		-	125	400	-	-	
TH 371 & Turn Lane Split - SB Traffic	SB	2 - A	2 - A	-	2 - A	2 - A	-	-	-	-	-	-
TH 371 & Turn Lane Split - NB Traffic	NB	2 - A	3 - A	-	3 - A	3 - A	-	-	0	25	-	-

+18 sec for extra distance travel time (total)

As shown in the above example, understanding the individual delay tables is key to understanding where queuing is anticipated to occur to understand the tradeoffs between the existing condition and the potential alternative. In continuing the above example of the 2050 PM peak of a signalized J-turn, there is a 175 ft average queue (375 ft max) on RE: MnDOT Response to 1/30/26 City Review Memo of Hwy 371 Study & ICE Reports

the WB approach making the right turn, all of which has a 30 second delay; however, in the existing future no build analysis (Table 3.1), the WB approach has a 150 ft average (250 ft max) queue in the left turn lane, a 150 ft average (375 ft max) queue in the thru lane, and a 75 ft average (250 ft max) queue in the right turn lane, with the left and thru delays being 75 seconds. This example shows the significance of the queuing difference and delay differences that will impact the WB approach, which similarly can be replicated for the EB approach.

As seen with roundabouts and other alternative forms of traffic control, drivers are more tolerable to slight increases in delay if they are constantly moving, one of the reasons drivers favor roundabouts over traffic signals even in busy times of day when delays could be relatively similar between the two. Also, drivers tend to associate delays with movements with the longest delay incurred, not as a sum of the individual movements (analyzed per HCM methodology). In essence, drivers will recognize waiting for the 75 seconds at the existing signal to make a WB left as less tolerable than waiting 30 seconds to make a WB right turn and then 24 seconds to make a NB U-turn (with the other added delays being considerably less). This perception has been documented by the FHWA and in particular by North Carolina DOT who has considerable experience with the construction and implementation of signalized J-turns across their state. The below website by NCDOT highlights two points associated with this including traveling more quickly and economic impacts. <https://www.ncdot.gov/initiatives-policies/Transportation/safety-mobility/reduced-conflict-intersections/Pages/default.aspx>

- Traveling More Quickly
 - An intersection with a traffic signal requires several phases to move drivers through the intersection, increasing travel time.
 - A 2010 study by North Carolina State University conducted for NCDOT found there was an average 20 percent time saving – for all drivers and at any time of the day – using a signalized reduced-conflict intersection compared to a conventional corridor.
 - Drivers on the minor street who need to turn right and then make a U-turn to travel in their intended direction will require on average 20 more seconds of travel, so side-street drivers receive the benefits of a safer corridor with only a minimal increase in their commute.
- Economic Impact of Reduced Conflict Intersections
 - Economic researchers for the University of North Carolina at Wilmington spent over two years studying more than 400 reduced conflict intersections around the state for a report sponsored by NCDOT and published in 2022. Below are some key findings of the 2022 economic impact study:
 - While some locations showed a positive and significant increase in economic activity, many others had neither a negative nor positive effect, suggesting the traffic safety benefits gained by the design do not generally harm a business.
 - Businesses with a large number of customers and that are busiest later in the day are more likely to believe the design makes it easier for customers to reach them.
 - Reduced conflict intersections have the potential to support home values.
 - Residents and homeowners tended to value the improved traffic flow and traffic safety that result from a reduced conflict intersection, even if they experienced longer wait times to enter the main corridor from a side street without a traffic signal.

Pine Beach Road/Wise Road (ICE Report)

City comments:

Pine Beach Road (CSAH 77) and Wise Road (CSAH 49) are county owned roadways but are inside the Baxter city limits and serve as vital connections within the City's transportation system. The City of Baxter is not in favor of the signalized J-

turn because we believe it will be detrimental to the City street network and commercial business access in the area long-term. MnDOT should analyze other long-term solutions that would be less impactful to the City/County roadway network such as a tight diamond interchange.

ICE Report Comments:

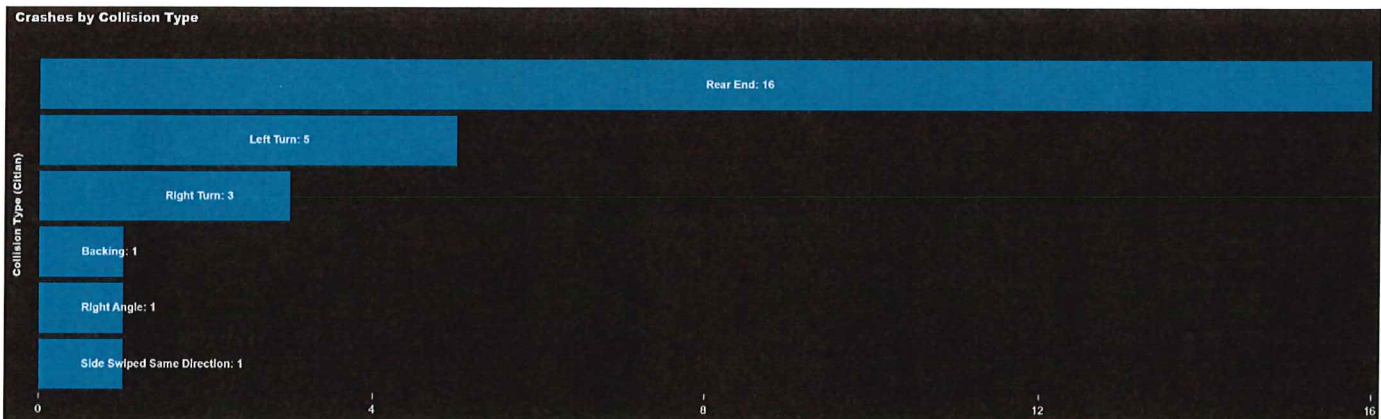
- The report needs to have figures showing the alternatives analyzed so the City can obtain a better understanding of what was analyzed.
- Flashing Yellow Arrow capabilities were added for eastbound/westbound in either 2024 or 2025 at this intersection. Was an alternative analyzed that looked at the safety and operational benefits of the added permissive/protected left turn phasing in addition to the other left turn/pedestrian improvements considered?
- The biggest benefit to traffic delays with the signalized J-turn is to TH 371 through traffic, while delays get worse for the local traffic, which negatively impacts the commercial businesses and local access in the long-term.
 - Overall, the signalized J-turn will improve overall intersection delay by 2 to 23 seconds per vehicle, with improvements to queuing for all approaches.
 - The Pine Beach Road/Wise Rd approaches have a total change of -9 to +24 seconds per vehicle, with an increase in minor approach delays during most peak hours due to the additional travel time to make a right turn, travel to the U-turn, make the U-turn, and then either continue on TH 371 or turn right onto Pine Beach Road/Wise Road (through movements).

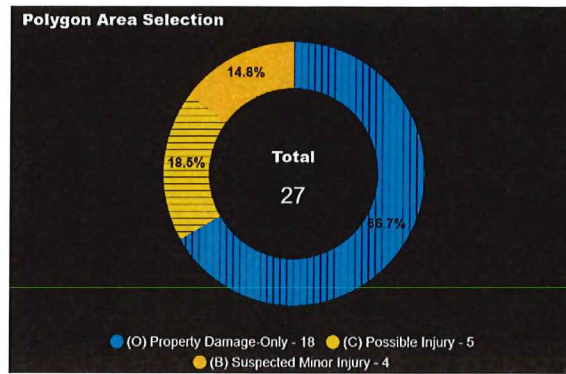
MnDOT Comment Response:

MnDOT discussed modifying the language of the ICE report recommendation. The section now notes the preference of the city for an interchange and adds that while an interchange was not analyzed as a part of the Hwy 371 Corridor Study, grade separation is a potential long-term future grant opportunity improvement for this intersection that would need to be further analyzed regarding the overall corridor context and long-term interchange spacing requirements.

A figure for each alternative has been added to the ICE report.

Since the corridor study began in 2023 using a 5-yr crash analysis period of 2018-2022 and a 10-yr fatal and serious injury crash analysis period of 2014-2023, a Flashing Yellow Arrow analysis was not reviewed. There would likely need to be analysis done at future date to get an appropriately sized after period for the comparison. I did pull some high level statistics since the beginning of 2024 to date (as of 2/11/2026) which shows that safety performance is seemingly worse than when analyzed in the 2018-2022 (more B crashes in the 25+ recent months than the 5-years of previous analysis, but not many recent right angle crashes although they can often be coded as left turn crashes which we have had more of recently than in the 5-yr analysis period).





Since the City comments on traffic delays are similar to those made for Woida Rd, please see the MnDOT comment response for Woida Rd.