AGENDA

SPECIAL MEETING OF THE AMES CITY COUNCIL

COUNCIL CHAMBERS - CITY HALL

JULY 21, 2026

NOTICE TO THE PUBLIC: The Mayor and City Council welcome comments from the public during discussion. The Standards of Decorum, posted at the door and available on the City website, define respectful conduct for public participation. If you wish to speak, please fill out the form on the tablet outside the door to the Council Chambers or scan the QR Code to the right to fill out the same form on a personal device. When your name is called, please step to the microphone, state your name for the record, and keep your comments brief so that others may have the opportunity to speak.

CALL TO ORDER:

WORKSHOP:

1. Update on the Duff Avenue Corridor Study

ELECTRIC:

2. Staff Report on Ames Municipal Energy Center RICE Engines and Step-Up Transformer Procurement

COUNCIL COMMENTS:

ADJOURNMENT:

Please note that this agenda may be changed up to 24 hours before the meeting time as provided by Section 21.4(2), Code of Iowa.

ITEM #:	**1**
DEPT:	**PW**

Staff Report

DUFF AVENUE CORRIDOR STUDY UPDATE

July 21, 2026

BACKGROUND:

Duff Avenue is one of Ames's most critical north-south arterial roadways, serving residents, businesses, medical facilities, and freight movement. In July 2025, the City Council approved a Professional Services Agreement with Foth Infrastructure & Environment, LLC to conduct a corridor study. **The extent of this study is along Duff Avenue from the Union Pacific Railroad (UPRR) crossing near Main Street to 16th Street.** The study evaluated current and future traffic operations, safety, walkability, connectivity, and railroad crossing impacts, and identified long-term improvement concepts for the corridor.

Staff is not seeking any decisions from the City Council at this time. This staff report is a summary of the more technical memo attached to this report that details the study's outreach, technical analysis, and conceptual design and is intended to provide Council with an update of the findings and public outreach prior to finalizing the study. The final report will be brought back to City Council later this fall for formal Council action.

It should be noted that the outcomes of the study and eventual consideration by City Council are intended to be used as a planning document for future improvements along the corridor. These improvements are considered to be in the medium term (10 to 15 year horizon of the Metropolitan Transportation Plan). This study will help guide decisions and look for future opportunities to prepare for the project programming in future Capital Improvements Plan (CIP) years.

INITIAL PUBLIC OUTREACH:

The first round of public outreach began in late March 2026 and gathered input on existing conditions, concerns, and priorities for the corridor, receiving 547 survey responses. The survey was mailed to all property owners within a 400-foot radius of the corridor. Direct email contact was also made with contacts from the Old Town and Sunrise neighborhood associations, Ames Regional Economic Alliance, Mary Greeley Medical Center, McFarland Clinic, and the Main Street Ames businesses. The survey was also promoted on the City of Ames social media outlets. **Respondents' top three priorities included:**

1. **Improving safety for all users**

2. **Reducing traffic congestion and delays**

3. **Improving walkability and bikeability**

The project team also met directly with staff from Mary Greeley Medical Center and McFarland Clinic.

TRAFFIC ENGINEERING ANALYSIS AND STUDY BACKGROUND:

While input was being gathered in the initial public outreach, an analysis of the technical components of the corridor was ongoing. The study does not begin from a blank slate, but rather advances priorities the City Council has already established in following adopted plans:

- The **Ames Connect 2050 Metropolitan Transportation Plan** sets regional goals for safety, accessibility and connectivity, environmental stewardship, and efficiency; including designing streets for all users and focusing safety investments on the region's High-Priority Safety Network.

- The **Comprehensive Safety Action Plan** commits the region to Vision Zero (zero fatalities) and identifies this stretch of Duff Avenue as part of the region's High-Priority Safety Network.

- **Walk Bike Roll Ames** plan identifies this corridor as a high-priority location for a shared-use path expansion and the East 12th Street crossing as a high-priority pedestrian crossing improvement.

- The **Complete Streets Plan** and the **Ames Climate Action Plan** further emphasize designing streets that safely serve all users and support walking, biking, and transit.

The corridor carries approximately 9,000 to 12,300 vehicles per day and is forecasted to carry 10,200 to 13,900 vehicles per day in 2050. **All primary intersections operate at an acceptable level of service (LOS D or better) today and are forecasted to continue doing so through 2050 under the existing four-lane configuration.**

The safety analysis found that the intersection of Duff Avenue and 16th Street experiences more crashes than would typically be expected for an intersection of its geometry and traffic volume. Most crashes are attributed to failure to stop at a stop sign. The corridor as a whole also experiences a high number of rear-end, broadside, sideswipe, and left-turn crashes.

The analysis also reviewed corridor speeds, transit data, and railroad crossing data, which are further described in the attached memo.

CONCEPTUAL DESIGN:

Following the initial public input and technical analysis, a conceptual design was developed to address the concerns identified by both the public and the technical analysis. **The corridor currently provides more vehicle capacity than its traffic volumes require, both today and in 2050.**

The study's initial conceptual design proposes converting Duff Avenue from a four-lane undivided roadway to a three-lane section with a center two-way left-turn lane. This

reallocates roadway width toward the safety, crossing, and multimodal outcomes prioritized in the City's adopted plans and by the public.

The concept also includes a continuous shared-use path (west side), enhanced pedestrian crossings (including a pedestrian hybrid beacon at East 12th Street that would also activate for ambulances), and two alternatives for the 16th Street intersection: a mini/compact roundabout, and a two-way stop-controlled intersection where Duff Avenue traffic no longer stops.

ADDITIONAL PUBLIC OUTREACH:

A second round of public outreach, conducted in June 2026, was delivered to the same groups as the initial outreach and sought input on the conceptual design described above.

The survey received 711 responses. **Feedback on the conceptual design reflected a range of perspectives including approximately 57% of respondents who were unsupportive of the proposed improvements and 43% who were neutral or supportive. The most common concern was the potential for increased congestion and delay from reducing the number of through lanes.**

Respondents also raised questions about transit operations, shared-use path maintenance, railroad crossing delays, emergency vehicle access, and the 16th Street intersection alternatives.

In response to the concerns raised in the second round of outreach, the project team re-examined the traffic modeling in detail to evaluate the concern most frequently raised by survey respondents: that a three-lane section would significantly increase congestion and delay. **The modeling does not support this concern. The corridor continues to operate acceptably in 2050 under a three-lane configuration, performing nearly the same as, and in some instances more efficiently than, the existing four-lane section as illustrated in the table below.**

Intersection	2050 Operations (4-Lane Section)	2050 Operations (3-Lane Section)	Average Vehicle Delay Change
Duff Ave and Main St	LOS A (3.3 seconds/vehicle)	LOS A (3.5 seconds/vehicle)	+0.2 seconds/vehicle
Duff Ave and 6th St	LOS A (7.7 seconds/vehicle)	LOS A (8 seconds/vehicle)	+0.3 seconds/vehicle
Duff Ave and 9th St	LOS A (5.2 seconds/vehicle)	LOS A (5.8 seconds/vehicle)	+0.6 seconds/vehicle
Duff Ave and 11th St	LOS B (11.7 seconds/vehicle)	LOS B (13.1 seconds/vehicle)	+1.4 seconds/vehicle
Duff Ave and 13th St	LOS C (30 seconds/vehicle)	LOS C (29.2 seconds/vehicle)	-0.8 seconds/vehicle
Duff Ave and 16th St	LOS C (22.6 seconds/vehicle)	Roundabout: LOS A (7.2 seconds/vehicle) Two-way Stop: *N/A	Roundabout: -15.4 seconds/vehicle Two-way Stop: *N/A

**Note: Overall intersection delay and level of service are not typically calculated for two-way*

stop-controlled intersections since one roadway has free-flowing traffic.

The project team developed an alternative version of the conceptual design that includes bus pull-outs at the CyRide transit stops near 11th Street. However, staff notes that, based on national guidelines, pull-outs may not be necessary given the observed and forecasted traffic volumes, transit ridership, dwell times, and bus frequencies at the stop.

The railroad crossing data was re-evaluated following public outreach and confirmed that the study's proposed conceptual design accommodates queueing from typical railroad train crossing events.

A conceptual plan was developed without the enhanced mid-block pedestrian crossing in front of Bandshell Park between 5th and 6th Street due to significant negative feedback regarding the proposed crossing.

Additionally, at the intersection of Duff and 16th Street with the alternative for the two-way stop control, the project team added a marked pedestrian crossing with a rectangular rapid flashing beacon (RRFB) to address concerns about losing the ability to cross Duff Avenue if the existing all-way stop control is removed.

DUFF AVENUE RAILROAD CROSSING:

One major item remains outside of the scope of the current study, which is exploring potential alternatives for the existing at-grade crossing of the Union Pacific Railroad and Duff Avenue. This crossing causes major interruptions to traffic flow and is the primary contributor to congestion along the corridor following long delays that average over 3 minutes per train crossing with an average of 38 trains per day. Recovery times for the corridor following train crossings can be up to 90 seconds during peak hour traffic, and the crossing is typically blocked for a total of approximately 2 hours each day.

During the second round of public outreach, 75% of respondents supported conducting a detailed study of the Duff Avenue railroad crossing. A similar study was conducted in the early 2000s with a formal report to the City Council in 2003. Major issues were identified, including business coordination, drainage, public sentiment regarding the grade separation and project costs. The City Council at that time chose not to move forward with any project.

Staff estimates that conducting such a study today would cost around $400,000, and that a grade separation construction project could now be on the order of $40 to $50 million (although the study would perform a more detailed analysis to confirm those construction estimates). The cost to perform the study could be supplemented with either AAMPO federal planning funds or a national competitive grant program such as the FRA's Railroad Crossing Elimination (RCE) Grant; however, a 20% local match would be required with either funding option for the study.

Staff notes that a modern railroad crossing study would emphasize alternatives with a much smaller footprint and impact to businesses compared to what was shown with the 2003 study and would place a high priority on improving connectivity between Downtown Ames and Bandshell Park.

OPTIONS:

OPTION 1: THREE-LANE SECTION WITH CENTER LEFT-TURN LANE

This option was identified through the traffic engineering analysis as the preferred alternative because it accommodates forecasted traffic volumes through the 2050 planning horizon and beyond. **Traffic modeling indicates that vehicle delays at intersections remain nearly unchanged when compared to the existing four-lane configuration. In addition, the introduction of dedicated left-turn lanes provides opportunities to further optimize traffic signal timing and improve traffic operations throughout the corridor.**

Significant benefits are realized with the three-lane configuration, including reduced vehicle crashes, improved multimodal accommodations through the addition of a shared use path, and safer pedestrian crossings. The conceptual design also preserves the majority of the existing tree canopy, helping maintain the character of the neighborhood while supporting the City's climate action goals.

This option was also supported by the ambulance service at Mary Greeley Medical Center because it provides more efficient movement of emergency response vehicles and promotes more predictable driver behavior, particularly with the addition of the pedestrian hybrid beacon at 12th Street.

Overall, this option best meets the goals identified during the public outreach process by improving safety, maintaining traffic operations, enhancing multimodal transportation, preserving neighborhood character, and providing the greatest long-term value for the community.

OPTION 2: FOUR-LANE SECTION (KEEP EXISTING SECTION)

This option would maintain the existing four-lane roadway configuration. Traffic operations, including intersection levels of service and travel times through the corridor, would remain similar to those of the proposed three-lane section. **However, opportunities to further optimize traffic signal timing would remain limited because left-turning vehicles would continue to control signal phasing at intersections.**

This option would not provide the safety improvements identified in the corridor study. Many of the crashes within the corridor are directly related to the existing four-lane configuration, where left-turning vehicles stop within the inside through lane. This condition contributes to rear-end and sideswipe crashes as following motorists brake suddenly or change lanes to avoid stopped vehicles.

Pedestrian crossings would remain unchanged, with no reduction in crossing distance or improvement in pedestrian comfort. **A shared use path could still be constructed; however, additional tree removal and likely right-of-way acquisition would be necessary to provide adequate space for the facility.**

This option would also require the City to construct and maintain roadway capacity beyond what is supported by the traffic engineering analysis. Maintaining infrastructure that is not necessary for forecasted traffic volumes represents an opportunity cost, as those resources could instead be invested in other transportation priorities throughout the community. In addition, the operational improvements identified by the ambulance service at Mary Greeley Medical Center would not be realized.

Overall, this option maintains existing operations but does not address the safety concerns, multimodal improvements, or long-term transportation goals identified through the engineering analysis and public outreach process.

OPTION 3: FIVE-LANE SECTION WITH CENTER TURN LANE

Although this option was not identified as an alternative during the traffic study because the existing corridor already provides excess vehicle capacity, it could be considered if maintaining two through lanes in each direction is identified as a Council priority.

Separating left-turning vehicles from through traffic would improve safety compared to the existing four-lane configuration by reducing conflicts associated with vehicles stopping in the inside through lanes. **As a result, this option would provide many of the same crash reduction benefits associated with the three-lane alternative.**

However, corridors with excess roadway capacity often experience higher operating speeds. Because forecasted traffic volumes are relatively low compared to the available capacity, drivers are less influenced by surrounding traffic, reducing the natural traffic-calming effect and increasing the likelihood of higher travel speeds. **The wider roadway would also increase pedestrian crossing distances and reduce pedestrian comfort.**

A shared use path and sidewalk could still be accommodated, however, additional right-of-way acquisition would likely be required. The facilities would generally need to be constructed immediately behind the curb. This configuration would eliminate the grass parking area and opportunities for street trees, significantly changing the character of the corridor while reducing separation between pedestrians and moving traffic.

This option would require the City to construct and maintain roadway capacity that is not supported by the traffic engineering analysis. **Maintaining infrastructure beyond what is needed for forecasted traffic volumes represents an ongoing financial commitment without a demonstrated transportation need.** In addition, the operational improvements identified by the ambulance service at Mary Greeley Medical Center would not be fully realized because emergency vehicles would continue to encounter two lanes of traffic in each direction.

Overall, while this option provides additional vehicle capacity, it does so without a demonstrated operational need and with increased costs, greater impacts to the corridor environment, and fewer benefits for pedestrians and the surrounding neighborhood.

STAFF COMMENTS:

This workshop is intended to be informational, and no formal decision or direction is requested from Council at this time.

However, if Council finds that the public's concerns regarding the conceptual design raised through the study's outreach do not align with the goals Council has for the corridor, staff would benefit from that direction to ensure the final study properly reflects Council's intent when it returns for consideration. For example, if Council does

not view the three-lane section as the appropriate treatment, it could direct staff to carry a four-lane option in the final study.

The study found that Duff Avenue operates well below the capacity of its existing four-lane configuration, both today and through 2050, while carrying documented safety and pedestrian crossing deficiencies. **Staff believes the conceptual design in Option 1 responds appropriately to those findings as well as to the priorities Council has already adopted through previous plans and that the public has identified in the initial study outreach.**

Staff recognizes that most second-round respondents were concerned about congestion, but the traffic modeling does not support that concern: the corridor is projected to operate at acceptable levels of service under the three-lane section.

It should also be noted that detailed-level design decisions will likely not be made until the project is programmed in a future CIP.

Staff will finalize the corridor study and report and bring the final version to Council this fall (likely September or October) for direction on accepting its findings. The accepted study would serve as the corridor's long-term planning document and guide future project programming.

ATTACHMENT(S):
Memo - Duff Ave Corridor Study Workshop.pdf
Duff Ave Corridor Study Council Workshop Presentation.pdf
3 Lane Section Duff Ave Corridor Study.pdf

MEMO

To: Mayor and City Council

From: Kyle Thompson, P.E., PTP, Transportation Planner

Date: July 17, 2026

Subject: Duff Avenue Corridor Study - 7/21/26 City Council Workshop

This memo provides a detailed summary of the Duff Avenue Corridor Study's progress to-date, and accompanies the staff report and presentation prepared for the July 21, 2026, City Council workshop. It documents the adopted plans and priorities guiding the study, the public and stakeholder outreach conducted, the traffic engineering analysis performed, the initial conceptual design developed, and the refinements made in response to public feedback.

1 – Study Background

Duff Avenue is one of Ames's most critical north-south arterials, providing regional connectivity while serving residents, businesses, medical facilities, and freight movement. The Duff Avenue Corridor Study from the railroad crossing near Main Street to 16th Street (**Figure 1**) was initiated to evaluate current and future conditions along the corridor and to develop a **long-term vision** that supports safety, mobility, and overall corridor function.

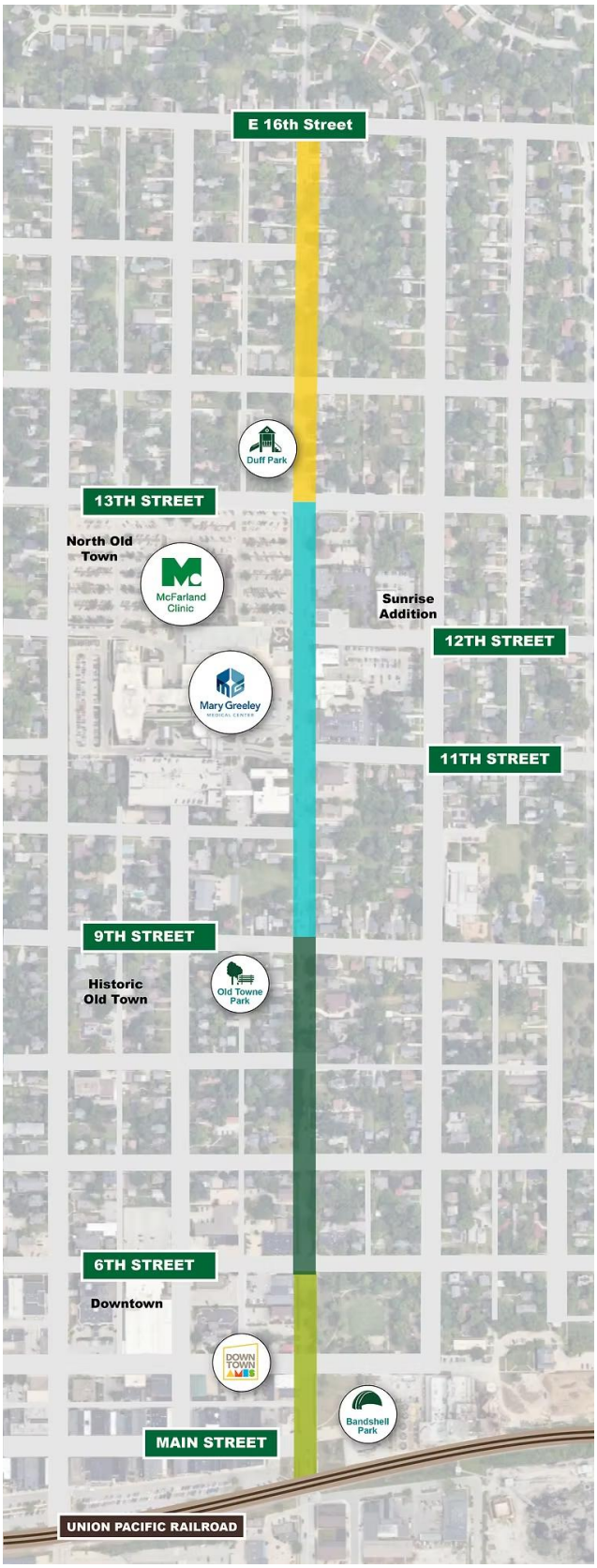


Figure 1: Study Area Map

Importantly, this study did not begin from a blank slate. **It set out to advance a set of priorities the City Council has already established through several approved plans.**

The **Ames Connect 2050 Metropolitan Transportation Plan (MTP)**, adopted in September 2025, establishes the region's long-range, multimodal vision through goals for Accessibility and Connectivity, Safety, Environmental Stewardship, and Efficiency and Reliability. **Its objectives include designing streets to accommodate all users, improving walk, bike, and transit connections, reducing fatal and serious injury crashes, and focusing safety investments on the region's High-Priority Safety Network.**

The region's High-Priority Safety Network was identified within the **Comprehensive Safety Action Plan (CSAP)**, a plan adopted in tandem with the Ames Connect 2050. The CSAP, funded through the U.S. Department of Transportation (DOT) Safe Streets and Roads for All (SS4A) grant program, commits the region to Vision Zero (eliminating fatal and serious injury (KSI) crashes by 2050) through a Safe System Approach. **Notably, the CSAP's data-driven analysis identifies this stretch of Duff Avenue as a regional safety priority as the corridor is included in the region's High-Priority Safety Network (Figure 2).**

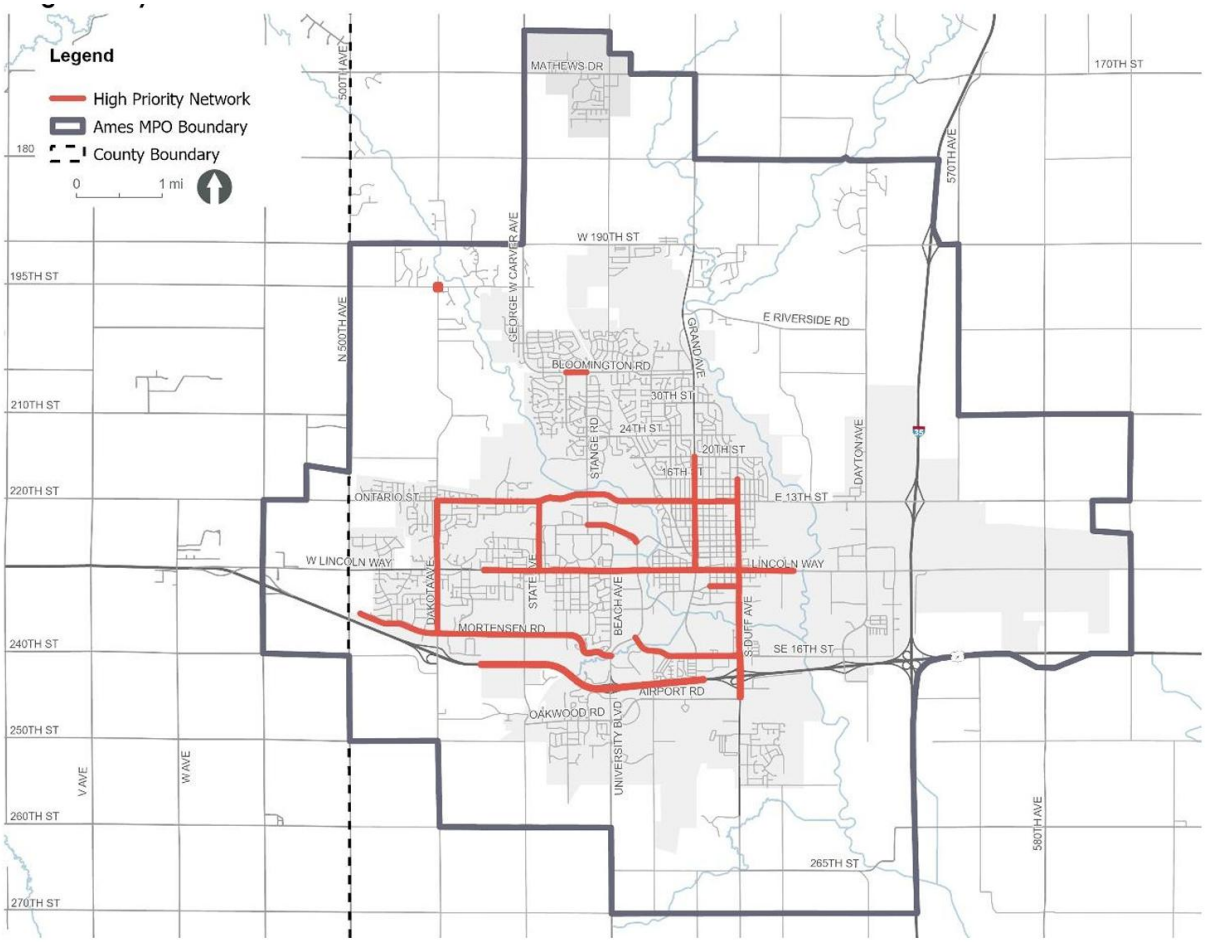


Figure 2: AAMPO High-Priority Safety Network

The **Walk Bike Roll Ames** bicycle and pedestrian master plan advances the City's goal of making walking, biking, and rolling safer and more comfortable for people of all ages and abilities, and it provides the active-transportation network context that informs the study's pedestrian and bicycle recommendations. **Also, the plan directly identifies this study corridor as the highest priority for implementing a shared-use path and the pedestrian crossing at East 12th Street as a highest priority crossing location.**

The City of Ames **Complete Streets Plan** formalizes the City's commitment to designing streets that safely serve all users (pedestrians, bicyclists, transit riders, motorists, and freight) and to balancing access and throughput based on context. **The Duff Avenue corridor within the study area fits the "Urban Mix" character described in the Complete Streets Plan, which is an area where people access destinations by multiple modes and where balancing vehicle movement with pedestrian, bicycle, and transit access is a central design consideration.**

The **Ames Climate Action Plan** sets a target of net-zero community emissions by 2050, with **increased active transportation and transit use identified as one of its "Big Moves" (Figure 3)**. Ultimately, the goals of the Climate Action Plan stress the importance of creating safer, more comfortable conditions for walking, biking, and transit use throughout the city's transportation network.

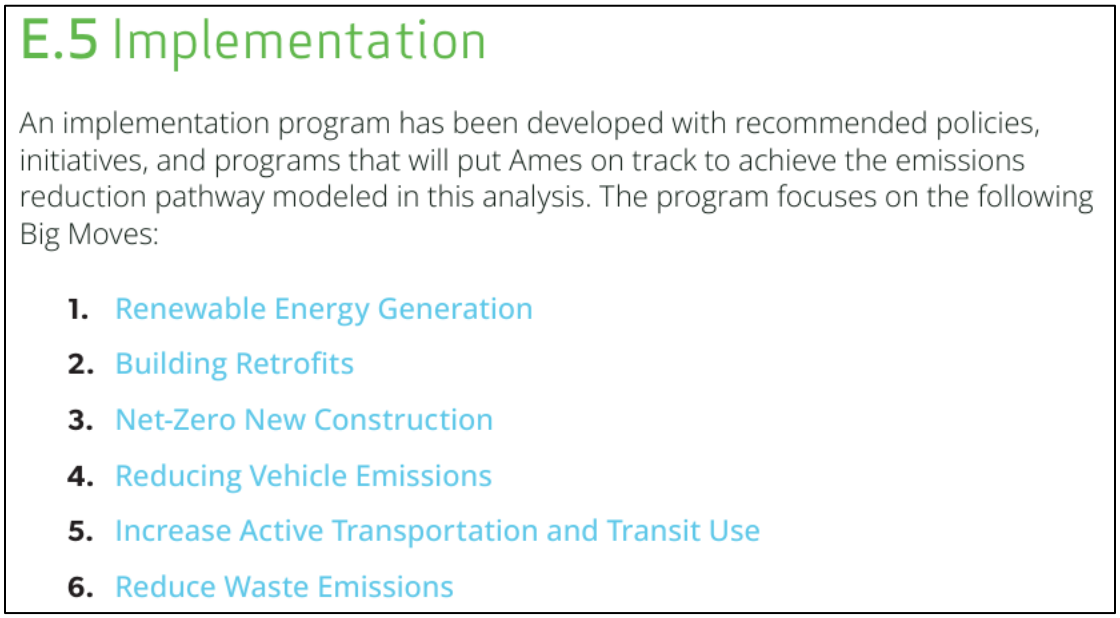


Figure 3: Ames Climate Action Plan "Big Moves"

2 – Study Scope

As previously noted, the study corridor extends along Duff Avenue from the Union Pacific Railroad (UPRR) crossing near Main Street on the south to 16th Street on the north, a distance of approximately one mile.

Building on the goals established in the plans described above, the study was scoped to:

- Evaluate existing and future traffic operations, safety, walkability, and connectivity along the corridor.
- Assess the impacts of the UPRR crossing near Main Street, including vehicle delay, queuing, and recovery time.
- Forecast future traffic volumes and corridor operations to understand long-term needs.
- Evaluate pedestrian and bicycle safety and connectivity, including key crossings such as those serving the Mary Greeley Medical Center and McFarland Clinic facilities.
- Identify long-term improvement concepts that enhance safety, mobility, and overall corridor function while supporting the needs of residents, businesses, and corridor users.

On July 8, 2025, the City of Ames approved a Professional Services Agreement with Foth Infrastructure & Environment, LLC to conduct this study and its scope described above. Click here to view the council action form from that approval, which includes a detailed breakdown of the study background, budget, and scope.

3 – Stakeholder & Public Outreach (Round 1)

The first round of stakeholder and public outreach began in late March 2026, with a **primary focus on gathering community input on existing conditions, concerns, and priorities along the corridor before any improvement concepts were developed.**

The primary outreach method for this round was an **online survey** hosted on the project website: https://www.duffavenuestudy.com (see screenshot in **Figure 4**).

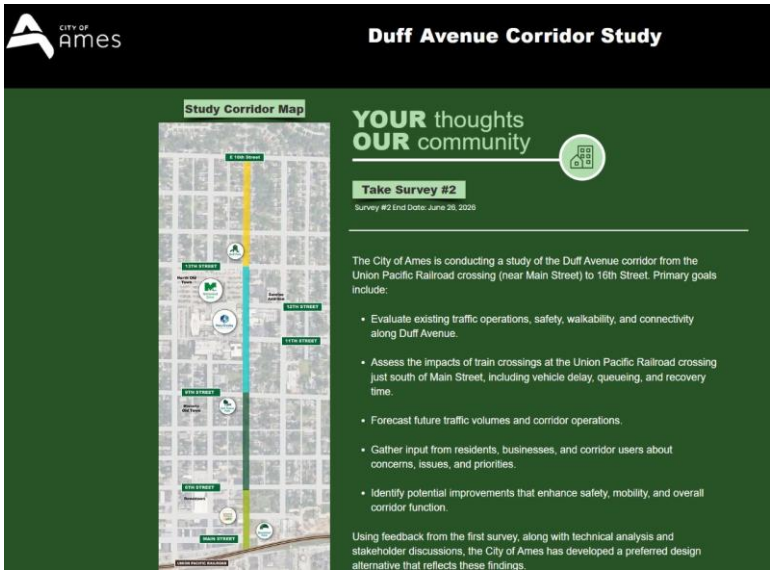


Figure 4: Screenshot of Project Website

To raise project awareness and promote the survey, the project team used the following methods:

- Mailed letter to all property owners within a 400-foot radius of the study area (see **Figure 5** for mailing area).
- Direct email to contacts from the Old Town and Sunrise neighborhood associations, the Ames Regional Economic Alliance, Mary Greeley Medical Center, McFarland Clinic, and Main Street/Downtown Ames businesses.
- A post in the AAMPO newsletter and on the AAMPO website.
- Several rounds of social media posts on the City of Ames and Public Works Facebook and Instagram pages (see **Figure 6** for example post).

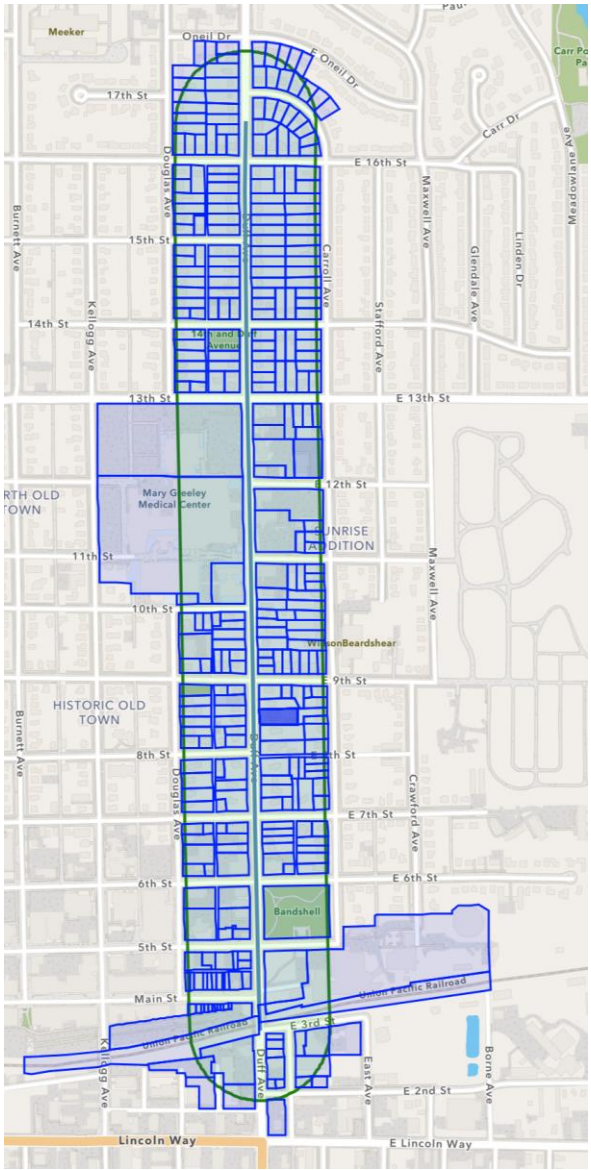


Figure 5: Public Survey Mailing Area

Figure 6: City of Ames Social Media Post (Facebook on 4/23/26)

In total, **547 survey responses** were received, 144 of which came from residents, property owners, or business owners located along or near the study corridor. **More detailed survey results are available in the study workshop presentation attached to the staff report, but several highlights are summarized below:**

- 95% of respondents drive the corridor, 45% walk or bike it, and 10% use public transit (CyRide).
- Over 59% of respondents reported visiting the hospital or medical facilities along the corridor.
- The top safety concerns identified were traffic congestion (62% of respondents), delays caused by trains (55%), and pedestrian safety (35%).

- 42% of respondents said safety concerns have caused them to avoid walking or biking on Duff Avenue, and 46% said that crossing Duff Avenue as a pedestrian is difficult or very difficult.
- The most common traffic frustrations were congestion during busy times (59%), delays caused by trains (54%), turning onto or off of Duff Avenue (34%), traffic signal timing (33%), and a lack of turn lanes (28%).
- 92% of respondents said that traffic backups caused by train crossings were at least a minor issue for them.

Respondents identified their top three priorities for the corridor as:

1. Improving safety for all users
2. Reducing traffic congestion and delays
3. Improving walkability and bikeability.

The three improvements respondents most wanted to see for the corridor were:

1. Traffic signal upgrades
2. Safer pedestrian crossings
3. Better sidewalks or shared-use paths

In summary, the survey results pointed to three key themes for the corridor:

- **Safety for all users should be the top priority.**
- **Improving traffic operations and reducing delays, including those caused by train crossings, should be a high priority.**
- **Improving walkability and bikeability should be a high priority.**

In addition to the broad outreach conducted through the survey, the project team held an **in-person meeting on March 9, 2026, with staff from Mary Greeley Medical Center and McFarland Clinic. Key topics discussed and feedback received included:**

- Any design should strongly consider emergency medical service (EMS) ambulance access and operations at Mary Greeley Medical Center.
- Numerous medical staff cross Duff Avenue to access the various facility buildings, including at the East 12th Street crossing.
- The potential three-lane section for the corridor was discussed, and both ambulance operations and facilities staff expressed overall support for the concept.
- Ambulance operations staff expressed a desire to explore the possibility of a grade separation of Duff Avenue and the Union Pacific Railroad, given the effect that train crossings can have on EMS ambulance routing and response times.

- Potential plans for future facilities and updates to the Mary Greeley Medical Center and McFarland Clinic campuses were discussed.

4 – Traffic Engineering Analysis

To understand how the corridor operates today and how it is expected to perform in the future, the project team conducted a traffic engineering analysis evaluating existing and forecasted conditions along Duff Avenue. The analysis examined traffic operations, safety, the railroad crossing, and multimodal conditions, and it provided the technical foundation for the improvement concepts described later in this memo.

4.1 – Traffic Volumes & Intersection Operations

To evaluate existing traffic volumes and intersection operations, continuous 24-hour turning movement count data was obtained from the city's traffic signals along the corridor for the entire 2024-2025 school year. Additionally, 24-hour counts were collected at the intersection of Duff Avenue and 16th Street in September 2025.

Using those intersection turning movement counts along with an assumed conservative annual growth rate in traffic of 0.5% (which slightly exceeded the growth rates shown in the AAMPO and Iowa DOT travel demand model forecasts), average daily traffic (ADT) was summarized for various segments along the corridor (**Table 1**).

Table 1: Duff Avenue Existing & Future Segment Volumes

Duff Ave Segment	2025 Existing ADT	2050 Forecasted ADT
Lincoln Way – Main St	12,600	14,300
Main St – 6th St	11,900	13,400
6th St – 9th St	10,900	12,300
9th St – 11th St	10,600	12,000
11th St – 13th St	10,600	12,000
13th St – 16th St	9,400	10,700
16th St – 20th St	9,000	10,200

Based on the 85th percentile of intersection turning movement counts along with the 0.5% annual growth rate noted above, the level of service and average vehicle delay at the study's six primary intersections during the PM peak hour were summarized (**Table 2**).

Table 2: Existing & Future No-Build Intersection Operations

Intersection	2025 Existing Operations	2050 No-Build Operations
Duff Ave & Main St	LOS A (3.2 sec/veh delay)	LOS A (3.3 sec/veh delay)
Duff Ave & 6th St	LOS A (7.8 sec/veh delay)	LOS A (7.7 sec/veh delay)
Duff Ave & 9th St	LOS A (5.1 sec/veh delay)	LOS A (5.2 sec/veh delay)
Duff Ave & 11th St	LOS B (11.5 sec/veh delay)	LOS B (11.7 sec/veh delay)
Duff Ave & 13th St	LOS C (27.0 sec/veh delay)	LOS C (30.0 sec/veh delay)
Duff Ave & 16th St	LOS C (16.9 sec/veh delay)	LOS C (22.6 sec/veh delay)

**LOS = Level of Service (Scale of A to F that rates average delay per vehicle).*
**Maintaining level of service of D or higher is typically considered "acceptable".*
**LOS and delay are calculated using the 7th edition of the Highway Capacity Manual (HCM).*

In summary, **even during the highest volume hour of the day (the PM peak hour), all primary intersections along the corridor operate at an overall level of service of C or higher both today and in 2050 with existing roadway geometry. Additionally, no individual movement at any intersection operates with an unacceptable level of service (LOS E or F).**

4.2 – Crash Data Analysis

Crash data along the corridor was obtained through the Iowa DOT's Iowa Crash Analysis Tool (ICAT). Additionally, the Iowa DOT's statewide potential for crash reduction (PCR) value was obtained for both study area intersections and segments. The PCR value is calculated as an expression of the variance between the expected number of crashes (based upon roadway and intersection characteristics and traffic volumes) and the actual number of crashes at a specific intersection or road segment.

Table 3 summarizes the total number of crashes (2021 through 2025), number of fatal and injury crashes, and the Iowa DOT's PCR value for total crashes at various intersections within the study area.

Table 3: Intersection Crash Data Summary

Intersection	Total Crashes (2021 – 2025)	Fatal & Injury Crashes (2021 – 2025)	PCR Value (Total Crashes 2018-2022)
Duff Ave & Main St	3	0	0.39
Duff Ave & 5th St	13	6	-0.46
Duff Ave & 6th St	13	3	0.06
Duff Ave & 9th St	5	3	-0.88
Duff Ave & 11th St	1	0	-1.07
Duff Ave & 12th St	2	2	0.50
Duff Ave & 13th St	19	2	-1.21
Duff Ave & 16th St	7	2	**1.11**

**Lower is better for PCR value.*

One significant finding when reviewing the Iowa DOT's statewide intersection PCR value dataset, is the **intersection of 16th Street and Duff Avenue ranks 46th out of 5,255 statewide undivided, low speed, all-way stop control intersections in terms of highest (worst) total crash PCR value (Figure 7).** This means that, given the intersection's geometrics and observed traffic volumes, the intersection is experiencing more crashes than would typically be expected. **Additionally, 5 of the 7 crashes observed at this intersection had "running a stop sign" as an identified cause of the crash.**

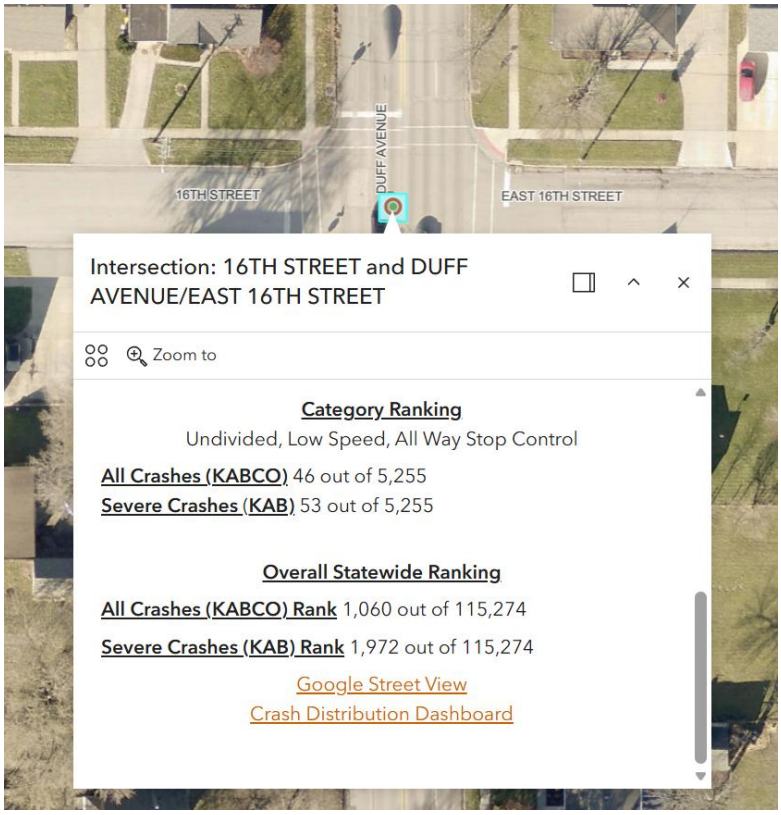


Figure 7: Iowa DOT PCR GIS Data Map Screenshot (16th St & Duff Ave)

Overall, within the study corridor, 96 crashes occurred from 2021 through 2025, with the following crash types being the most observed:

- 27% Rear End
- 21% Broadside
- 16% Sideswipe
- 16% Left-Turn

4.3 – Speed Study

Radar detectors were placed at various locations along the study corridor in September 2025. The 50th percentile speed observed for the corridor was 32 mph, with the 85th percentile speed observed at 36 mph.

Using nationally accepted methodology to evaluate speeds along the corridor (NCHRP 966, USLimits2), it was determined that the current posted speed limit of 30 mph throughout the majority of the study corridor is appropriate given roadway characteristics and traffic volumes. **Therefore, a key factor in improving safety along the corridor, particularly for vulnerable road users, would be to bring the 85th percentile speeds down closer to 30 mph.**

4.4 – Multimodal Review

A review of the study corridor was conducted by the project team, and the team concluded that the multimodal priorities for the corridor identified in Walk Bike Roll Ames are appropriate:

- This corridor is identified as a highest priority location to implement a shared-use path.
- The intersection of E 12th Street and Duff Avenue is a highest priority location for pedestrian crossing improvements.

4.5 – Railroad Crossing Analysis

Railroad crossing data was collected for the Union Pacific Railroad crossing with Duff Avenue just south of Main Street (an example of vehicles queued for this crossing is pictured in **Figure 8**). The data included video data as well as preemption data from the Main Street traffic signal. Key findings are summarized below:

- An average of 38 trains utilize the crossing on weekdays, **with the crossing being blocked for two hours a day on average**.
- The average gate down time for each train crossing is 3 minutes and 15 seconds.
- Recovery time for vehicles to clear out after a train crossing can be up to 90 seconds during peak periods, with northbound traffic taking longer to recover than southbound traffic.
- The maximum vehicle queueing experienced for typical train crossings is around 730 feet for northbound traffic and 380 feet for southbound traffic.

Figure 8: Southbound Vehicles Queued on Duff Avenue During a Train Crossing

5 – Initial Corridor Conceptual Design

Drawing on the findings of the traffic engineering analysis, the priorities established in the City's and region's adopted plans, and the feedback gathered during the first round of public outreach, the project team developed an initial conceptual design for the Duff Avenue corridor. The sections below describe the foundational element of that design **(a three-lane section)** along with the specific improvements proposed for each segment of the corridor.

5.1 – The Three-Lane Section

The foundation of the study's initial conceptual design is a proposed conversion of Duff Avenue from its existing four-lane undivided configuration to a three-lane section, consisting of one through lane in each direction and a center two-way left-turn lane (TWLTL). **This type of lane configuration is a well-established and widely applied treatment on urban and suburban arterials across the country.**

Figure 9 shows an example of a conversion from a 4-lane undivided roadway to a 3-lane roadway.

Figure 9: Example of a 4 to 3 Lane Conversion

5.2 – Why Duff Avenue Is a Candidate

The traffic engineering analysis described above found that Duff Avenue operates at an acceptable level of service today and is forecasted to continue doing so through 2050 with its existing four-lane geometry. In other words, the corridor carries more vehicle capacity than its traffic volumes require. National guidance reflects this: the Federal Highway Administration and the City's own Complete Streets Plan indicate that four-to-three lane conversions are generally feasible on roadways carrying up to approximately 15,000 to 20,000 vehicles per day. Duff Avenue's existing volumes (9,000 to 12,600 AADT) and its 2050 forecasted volumes (10,200 to 14,300 AADT) even fall below that range.

This surplus capacity is what makes the corridor a strong candidate for reconfiguration. Rather than continuing to dedicate roadway width to vehicle capacity that is not needed, a **three-lane section reallocates that space toward the safety, crossing, and multimodal outcomes that the City's adopted plans and the public have identified as priorities.**

As a local point of reference, South Dakota Avenue from just north of Mortensen Ave to just south of Todd Drive (see street view in **Figure 10**) carries a similar average daily traffic volume (11,900 vehicles per day) and currently operates well as a three-lane section without significant operational issues.

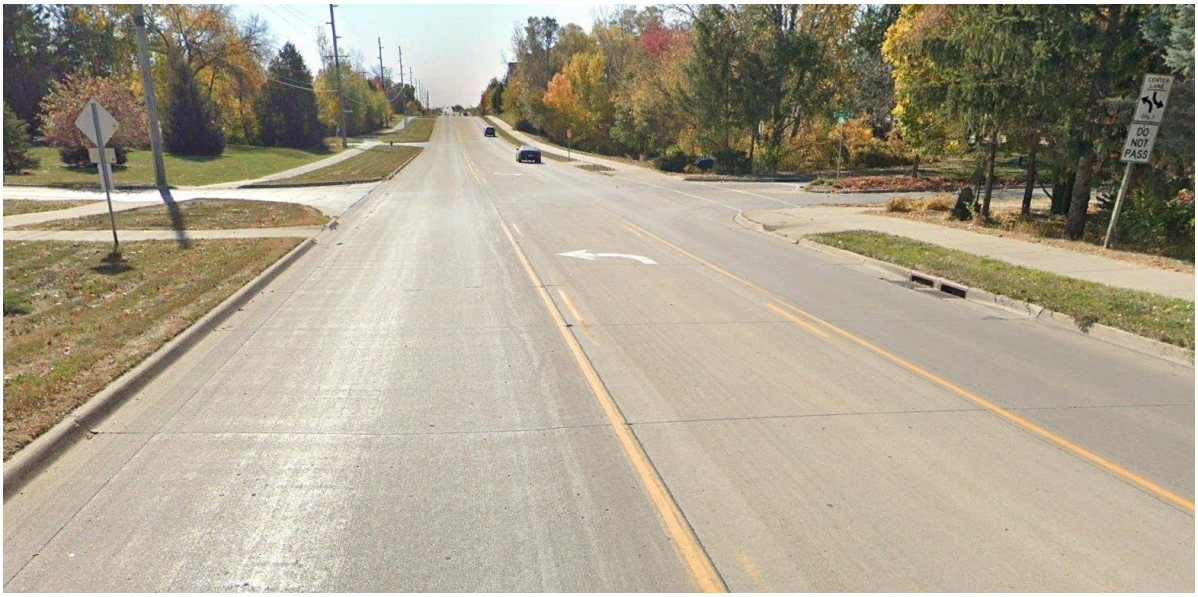


Figure 10: Street View of South Dakota Ave Near Clemens Blvd

5.3 – National Best Practices & Safety Performance

The Federal Highway Administration (FHWA) recognizes conversion to three-lane sections as a Proven Safety Countermeasure, based on national research demonstrating consistent safety benefits. **FHWA research indicates that converting a four-lane undivided roadway to a three-lane section with a center turn lane can reduce total crashes by approximately 19 to 47 percent**, depending on context.

These reductions are achieved primarily by removing left-turning vehicles from through-traffic lanes (reducing rear-end and turning-related crashes) and by lowering the number of conflict points between vehicles and between vehicles and pedestrians. The operational and safety role of the center two-way left-turn lane on urban arterials has been documented in national research for decades, including NCHRP Report 330, Effective Utilization of Street Width on Urban Arterials.

Three-lane conversions have also been successfully implemented on comparable corridors elsewhere in Iowa. For example, in Cedar Rapids, Iowa, the 10th Street SE corridor from 3rd Avenue to 8th Avenue was recently converted from a 4-lane undivided roadway to a 3-lane section. This roadway has many similarities to Duff Avenue, including being a main arterial that passes through a medical district. **Despite initial concerns from the public and stakeholders regarding switching to a 3-lane section, the corridor operates well without any significant operational issues today.**

5.4 – How the Three-Lane Section Advances Adopted Plans and Public Priorities

The three-lane section directly advances the priorities established in the City's and region's adopted plans and echoed by the public in the first round of outreach:

- **Safety for all users:** the top priority identified by survey respondents, and the central commitment of the CSAP's Vision Zero goal and the MTP's safety objectives. The conversion reduces conflict points, separates turning vehicles from through traffic, and lowers crash frequency and severity. **Because Duff Avenue is included in the region's High-Priority Safety Network and has a high percentage of crashes attributable to the existing 4-lane section, this treatment is particularly well suited to this corridor.**
- **Safer pedestrian crossings:** the second-most requested improvement in the first survey. The conversion reduces the number of travel lanes a pedestrian must cross from four to two and allows for median refuge islands, directly addressing the "multiple-threat" crash risk inherent to multilane undivided roadways. **This responds to the finding that 42% of respondents avoid walking or biking on Duff Avenue due to safety concerns and 46% of respondents noting that crossing Duff Avenue as a pedestrian is difficult or very difficult.** It also supports Walk Bike Roll Ames, which identifies the East 12th Street crossing as a highest-priority crossing location.
- **Walkability and bikeability:** the third-ranked public priority. **The reallocated width creates additional space for a continuous shared-use path**, implementing Walk Bike Roll Ames' identification of this corridor as the highest-priority location for a shared-use path, and advancing the Complete Streets Plan's "Urban Mix" design approach and the Climate Action Plan's active transportation "Big Move."
- **Traffic calming:** a single through lane in each direction discourages speeding and weaving between lanes, supporting the Safe System Approach's emphasis on managing speeds to reduce crash severity.
- **Preserved traffic operations:** while reducing congestion was the second-ranked public priority, the analysis found the corridor is not capacity-constrained today or in 2050. **The three-lane section maintains acceptable operations while addressing the specific operational frustrations respondents identified, notably difficulty turning onto and off of Duff Avenue (34%) and a lack of turn lanes (28%)**, by providing a continuous center turn lane that removes turning vehicles from the through lanes.

5.5 – Initial Conceptual Design by Segment

Building on the three-lane section, the project team developed an initial conceptual design for the full study corridor. The conceptual design illustrates how the recommended improvements could be applied from the Union Pacific Railroad crossing near Main Street to 16th Street. **It is intended to convey a long-term vision for the corridor rather than a final engineering design**; specific design details would be further evaluated and refined during a future project design phase.

While the presentation slides attached to the staff report contain the initial conceptual design layouts in detail, key design elements are summarized by segment below:

Railroad Crossing to 6th Street (Downtown Ames)

- An 8-foot-wide shared-use path along the west side of the roadway.
- An enhanced mid-block pedestrian crossing with a median refuge island between 5th Street and 6th Street, providing additional access between Downtown Ames and Bandshell Park. This crossing would potentially include a rectangular rapid flashing beacon (RRFB).
- A transition from a four-lane undivided section to a three-lane section between 5th Street and 6th Street. **The four-lane section is maintained south of this point in order to accommodate vehicle queuing during train crossings.**

6th Street to 10th Street (Old Town Neighborhood)

- An 8-foot-wide shared-use path along the west side of the roadway. Minor sidewalk easements may be required in this area to accommodate the path as shown, to avoid significant impacts to existing trees.
- Three-lane section throughout this portion of the corridor.

10th Street to 13th Street (Hospital/Medical Campus)

- An 8-foot-wide shared-use path along the west side of the roadway.
- Three-lane section throughout this portion of the corridor.
- An enhanced pedestrian crossing with a median refuge island and a pedestrian hybrid beacon (PHB) along the south leg of the East 12th Street intersection. In addition to activating for pedestrians via push button, the beacon would also activate for ambulances arriving at or departing from the Mary Greeley Medical Center ambulance bay.
- A dedicated northbound right-turn lane at the 13th Street intersection to accommodate the high volume of right-turning traffic.

13th Street to 16th Street (Residential)

- An 8-foot-wide shared-use path along the west side of the roadway.
- Three-lane section throughout this portion of the corridor, tying into the existing three-lane section north of 16th Street.
- Two alternatives were developed for the 16th Street intersection: a two-way stop control (with no stop for Duff Avenue traffic) intersection and a mini/compact roundabout. **Both alternatives were developed in response to the safety analysis finding that the existing all-way stop ranks highly statewide for the potential for crash reduction (PCR) and that most of its crashes are due to a failure to stop at a stop sign. They**

also element most of the delay the intersection experiences in the all-way stop control configuration.

6 – Stakeholder & Public Outreach (Round 2)

The second round of stakeholder and public outreach built directly on the first, **shifting the focus from identifying concerns and priorities to gathering feedback on the study's initial recommended improvement concepts**. Whereas the first survey asked the community about existing conditions and priorities, the second survey presented the study's recommended concepts (the three-lane section with the aforementioned improvements) and asked the public how well those concepts addressed the corridor's needs.

The second round of outreach was conducted in June 2026 as an additional online survey, and used outreach methods similar to the first round to reach the community and corridor stakeholders:

- A mailed letter to all property owners within a 400-foot radius of the study area.
- An email to stakeholders, including contacts from the Old Town and Sunrise neighborhood associations, the Ames Regional Economic Alliance, Mary Greeley Medical Center, McFarland Clinic, and Main Street/Downtown Ames businesses, as well as those who signed up for project updates during the first survey.
- A post in the AAMPO newsletter and on the AAMPO website.
- Several rounds of social media posts on the City of Ames and Public Works Facebook and Instagram pages (see **Figure 11** for an example post).
- A press release shortly after the opening of the survey.

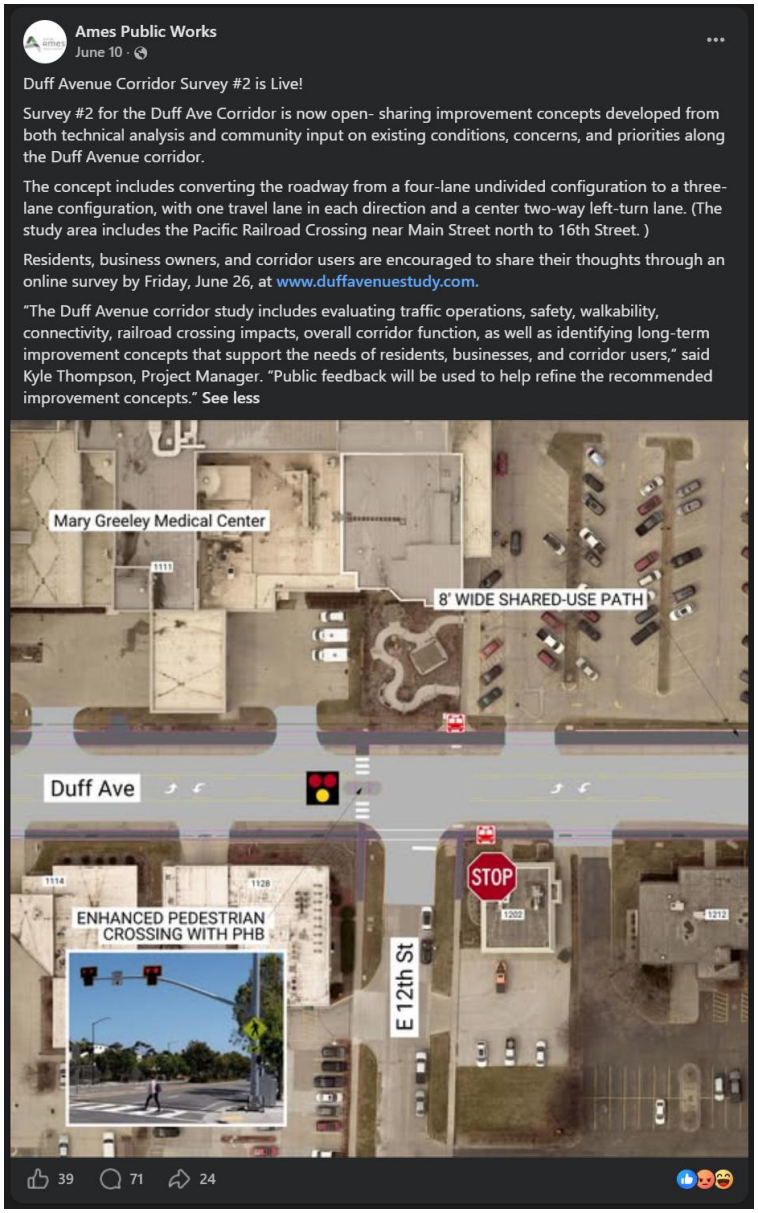


Figure 11: City of Ames Public Works Social Media Post (Facebook on 6/10/26)

In total, **711 survey responses** were received for the second survey. **More detailed survey results are available in the study workshop presentation attached to the staff report, but several highlights are summarized below:**

- In general, approximately **57% of respondents were very unsupportive or unsupportive** of the proposed corridor improvements, whereas 43% were neutral, supportive, or very supportive.
- **Most comments unsupportive of the proposed improvements expressed concern about significant traffic congestion and delay being caused by reducing the number of through lanes from four to three.**

- Concerns were expressed regarding CyRide buses blocking through traffic when stopped, particularly at the time point stop near 11th Street.
- Concerns were expressed regarding the maintenance requirements for the proposed 8-foot wide shared-use path along the western edge of the roadway.
- Concerns were expressed regarding train crossings and the resulting delays and vehicle queueing being worse with a three-lane section.
- Concerns were expressed regarding emergency vehicles navigating a three-lane section.
- **75% of respondents believe the City of Ames should conduct a detailed study of the Duff Avenue railroad crossing.** The study, as described in the survey, would evaluate potential alternatives and improvements for the crossing, including maintaining the existing crossing, operational improvements, or a grade separation (an underpass or overpass) that would allow Duff Avenue to cross above or below the railroad tracks.
- 64% of respondents feel the shown mid-block pedestrian crossing between 5th Street and 6th Street for accessing Bandshell Park **is not** needed.
- 65% of respondents feel the shown enhanced pedestrian crossing at 12th Street near Mary Greeley Medical Center **is** needed.
- **59% of respondents prefer the two-way stop control alternative for the intersection of Duff Avenue and 16th Street versus 41% in favor of the mini/compact roundabout alternative.** However, several comments were received that expressed the desire to maintain the existing all-way stop configuration even though it was not an available option for that question in the survey.

7 – Conceptual Design Review & Refinements

Following the second round of public and stakeholder outreach, the project team reviewed the feedback received and revisited the initial conceptual design to determine where refinements, further study, or additional coordination were warranted.

The feedback reflected a range of perspectives, with a majority of respondents expressing some level of concern about the proposed improvements, most commonly regarding the potential for increased traffic congestion and delay associated with reducing the number of through lanes. Respondents also raised recurring questions and concerns regarding transit operations, sidewalk/path maintenance, the railroad crossing, emergency vehicle access, and intersection and crossing treatments at 16th Street.

The following sections summarize how each of these key topics was considered and, where appropriate, how the conceptual design was refined in response:

7.1 – Traffic Operations Review

The overwhelming majority of comments unsupportive of the conceptual design expressed concern regarding a sharp increase in traffic congestion accompanying the reduction in the number of through lanes. **However, the traffic engineering analysis and modeling done with this study does not support this.**

Table 4 shows the anticipated PM peak hour intersection level of service (LOS) and delay in 2050 with a three-lane section versus a four-lane undivided section for each primary study intersection:

Table 4: Intersection PM Peak Hour Operations Comparison (4-Lane vs. 3-Lane Section)

Intersection	2050 Operations (4-Lane Section)	2050 Operations (3-Lane Section)	Avg. Veh. Delay Change
Duff Ave & Main St	LOS A (3.3 sec/veh)	LOS A (3.5 sec/veh)	+ 0.2 sec/veh
Duff Ave & 6th St	LOS A (7.7 sec/veh)	LOS A (8.0 sec/veh)	+ 0.3 sec/veh
Duff Ave & 9th St	LOS A (5.2 sec/veh)	LOS A (5.8 sec/veh)	+ 0.6 sec/veh
Duff Ave & 11th St	LOS B (11.7 sec/veh)	LOS B (13.1 sec/veh)	+ 1.4 sec/veh
Duff Ave & 13th St	LOS C (30.0 sec/veh)	LOS C (29.2 sec/veh)	- 0.8 sec/veh
Duff Ave & 16th St	LOS C (22.6 sec/veh)	Roundabout LOS A (7.2 sec/veh)	Roundabout -15.4 sec/veh
		Two-Way Stop N/A[1]	Two-Way Stop N/A[1]

1 – Overall intersection delay and level of service are not typically calculated for two-way stop-controlled intersections since one roadway has free-flowing traffic.

In summary, the **3-lane section operates roughly the same as the 4-lane section at most of the study intersections, with operations at the 16th Street intersection greatly improving with either the roundabout or two-way stop control option.**

7.2 – Transit Stops

Several comments expressed concern about CyRide buses blocking the only through lane when stopped at the 12 red route transit stops along the corridor. Among the stops along the corridor, only the ones in each direction near 11th Street (by Mary Greeley Medical Center) are "time point stops" where the bus typically waits at the stop until the designated leave time.

The project team met with CyRide staff to discuss transit operations throughout the corridor and also obtained dwell time data for the 11th Street time point stops. In summary, over 85% of stops in the past year were less than 30 seconds in duration.

Based on existing national guidance, the existing roadway characteristics, traffic volumes, and bus stop dwell times and bus arrival frequencies do not indicate that bus pull outs are necessary at this location.

However, if mitigating any potential impacts at these stop locations given their close proximity to the hospital and ambulance bay is a top priority, the project team did develop an alternative version of the conceptual design that includes bus pull-outs (**Figure 12**).

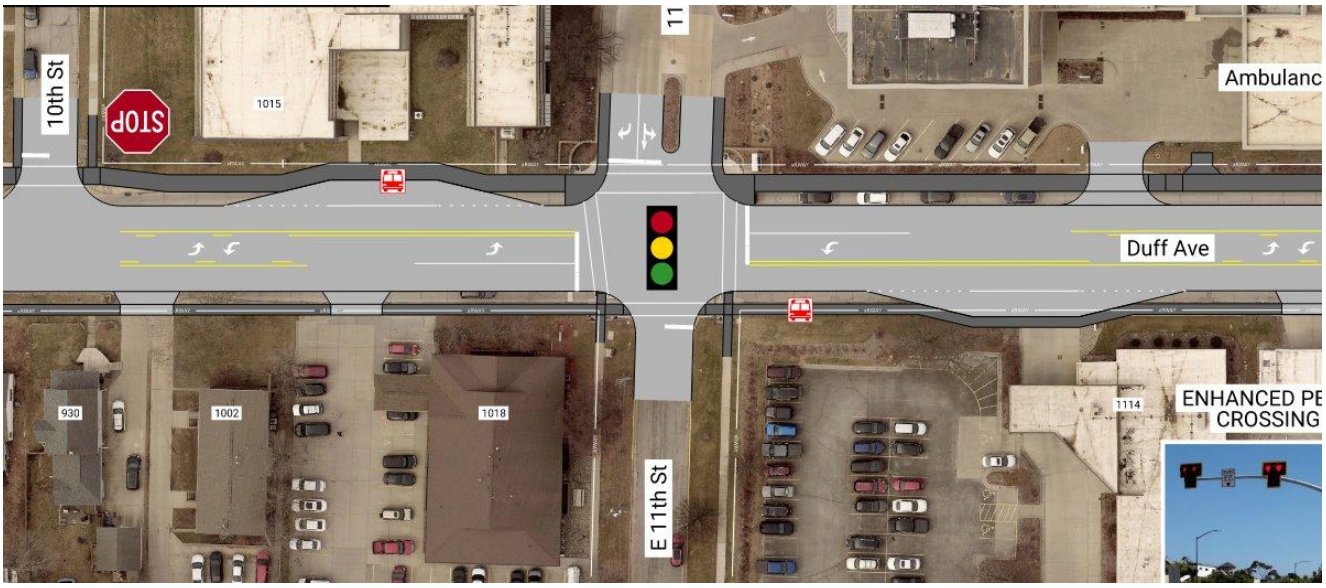


Figure 12: Conceptual Design Option with Pull-Outs for the 11th Street Transit Stops

7.3 – Shared-Use Path Maintenance Requirements

Some residents expressed concern regarding the maintenance and snow clearing requirements of the 8-foot shared-use path shown in the conceptual design along the west side of Duff Avenue. The project team notes that the City of Ames typically handles both maintenance and winter maintenance (snow clearing) for shared-use paths.

7.4 – Train Crossings

Numerous comments expressed concern that, during train crossings, traffic would back up further with a three-lane section versus the four-lane section that exists today.

The project team did consider railroad crossing data when developing the initial conceptual design, and **this is why the design maintains a 4-lane section from Lincoln Way to just south of 6th Street to accommodate vehicles queueing during typical train crossings**.

However, long-duration train crossings and more pronounced events like derailments or railroad track maintenance will continue to cause operational issues for the Duff Avenue corridor, regardless of roadway cross-section. A detailed study of the railroad

crossing would be needed to further explore potential alternatives (such as a grade separation of the crossing) to address these issues.

7.5 – Emergency Vehicles

Survey respondents frequently noted that emergency vehicles (police, fire, and ambulances/EMS) would struggle to operate as effectively within a three-lane section.

FHWA guidance and national research suggests that contrary to the concern that a three-lane section would impede emergency vehicles, **the center two-way left-turn lane actually provides a continuous clear path that police, fire, and EMS vehicles can use to bypass stopped or yielding traffic, often improving response compared to a four-lane undivided roadway.** Consistent with this, Mary Greeley Medical Center ambulance operations staff did not raise concerns about a three-lane section during the project team's coordination meeting with them in March 2026.

7.6 – Mid-Block Crossing at Bandshell Park

64% of survey respondents directly indicated that they felt the mid-block pedestrian crossing between 5th Street and 6th Street for accessing Bandshell Park is not needed and a number of survey comments further elaborated that it was unnecessary due to the presence of nearby signalized intersections at both Main Street and 6th Street.

Originally, the project team heard through previous planning efforts and projects that a desire exists for enhanced pedestrian connectivity between Main Street and Downtown Ames businesses and amenities and Bandshell Park. Given the traffic signals already located at 6th Street and Main Street, the project team identified only two potential locations for an additional crossing location, the 5th Street intersection or a mid-block crossing between 5th Street and 6th Street.

Ultimately, the 5th Street intersection crossing was ruled out because the study indicated that Duff Avenue needed to remain 4-lanes through the intersection because of vehicle queueing from train crossings to the south. However, slightly to the north, the design already had Duff Avenue transitioning from a 4-lane section to a 3-lane section, which provided a natural area to potentially install a pedestrian median refuge island and create a much safer crossing than what would be possible at the 5th Street intersection.

However, the project team acknowledges that the shown mid-block crossing is located very close to the existing 6th Street traffic signal, which itself provides an opportunity for pedestrians to cross Duff Avenue. Also, the need for an additional pedestrian crossing near this location was not identified in the Walk Bike Roll Ames plan. Therefore, an alternative version of the design was developed which does not include the enhanced mid-block pedestrian crossing near Bandshell Park (**Figure 13**).

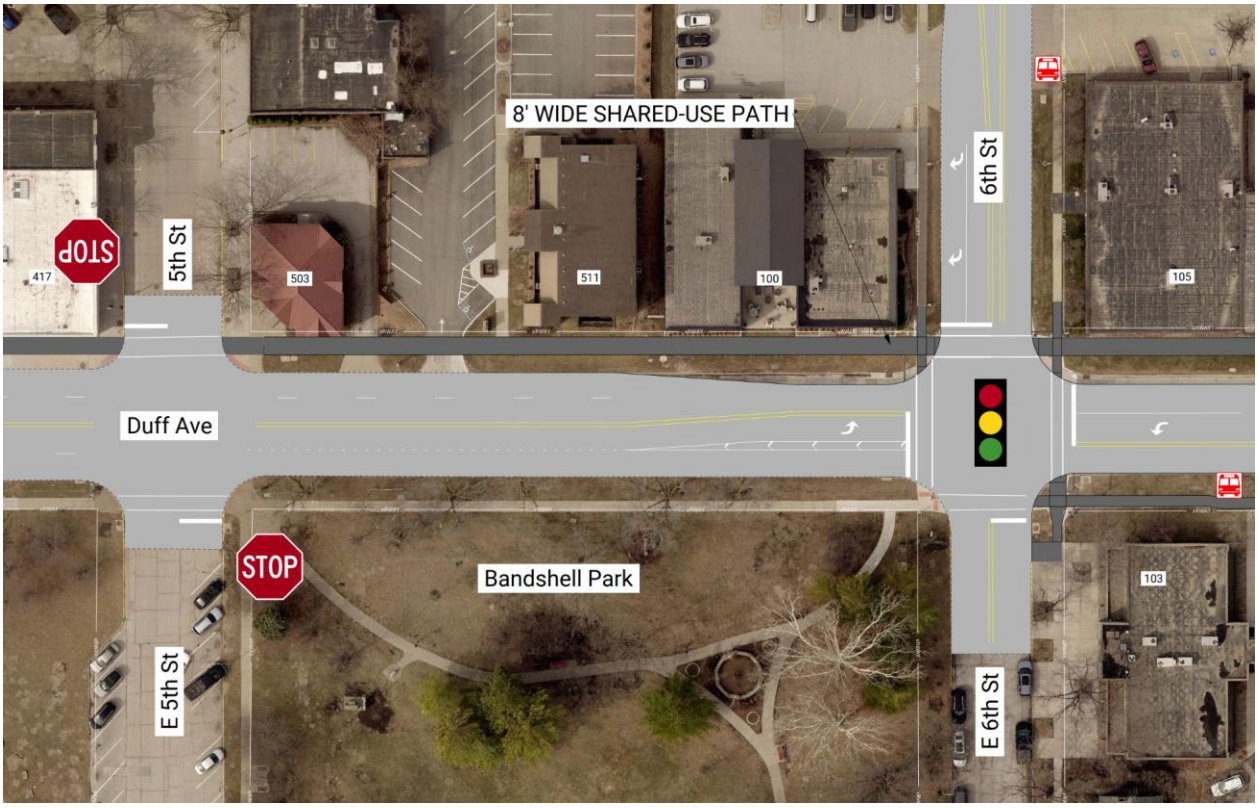


Figure 13: Conceptual Design Option with No Pedestrian Crossing Near Bandshell Park

7.7 – Duff Ave & 16th St Intersection

During the survey, 59% of respondents indicated that they prefer the two-way stop control alternative for the intersection of Duff Avenue and 16th Street versus 41% in favor of the mini/compact roundabout alternative. However, many survey respondents expressed frustration that they did not have the option to select an all-way stop control option for the intersection, particularly because they valued the ability it grants for pedestrians to cross Duff Avenue.

While the all-way stop control option was not identified as a viable alternative for the intersection due to its existing safety issues and the gradual degradation of traffic operations at the intersection, the project team did want to develop a version of the two-way stop alternative that still provides a form of enhanced treatment for pedestrians to cross Duff Avenue. This version of the two-way stop alternative is shown below in **Figure 14**.

Figure 14: Conceptual Design Option with RRFB Crossing at 16th Street

Regarding the comparison of the two-way stop control and mini/compact roundabout alternatives, the project team summarized some of the primary benefits and drawbacks with each option as shown in **Table 5**.

Table 5: Duff Ave & 16th St Intersection Alternatives Comparison

16th St & Duff Ave Intersection Alternative	Benefits	Drawbacks
Two-Way Stop Control	• Low impact and cost • Usually no delay for Duff Avenue traffic (free flow) • Two-way stop control can be implemented immediately (even prior to implementation of a 3-lane section) as either a interim or long-term option.	• Would require other traffic calming measures to be implemented for Duff Avenue traffic • 16th Street traffic will have increased difficulty turning onto Duff Avenue • While the RRFB marked pedestrian crossing provides additional protection, it isn't at the same level as the roundabout option
Mini/Compact Roundabout	• Provides inherent traffic calming for Duff Avenue traffic • High level of protection for pedestrians, including presence of refuge islands • Very minimal delay for both Duff Avenue traffic and 16th traffic	• Higher impact and cost compared to the two-way stop alternative • While designed to accommodate trucks and buses, it would be more difficult for them to traverse compared to the two-way stop control option

8 – Conclusion

The Duff Avenue Corridor Study was initiated to establish a **long-term vision** for a corridor that the City's and region's adopted plans have already identified as a priority for safety and multimodal investment. The study found that Duff Avenue operates well below its available vehicle capacity today and is forecasted to continue doing so through 2050, while carrying documented safety and pedestrian crossing deficiencies.

The study's developed conceptual design responds to that finding by reallocating unneeded roadway width toward the safety, crossing, and walkability outcomes prioritized in the City's adopted plans and identified by the public as their top corridor priorities. **The design is expected to provide multimodal benefits, be less expensive to maintain than the existing 4-lane section, and provide enhanced safety for all corridor users, all while providing traffic operational performance similar to the existing 4-lane section.**

Duff Avenue Corridor Study

Union Pacific Railroad to 16th Street

July 21, 2026 • Ames City Council Workshop

Project Team

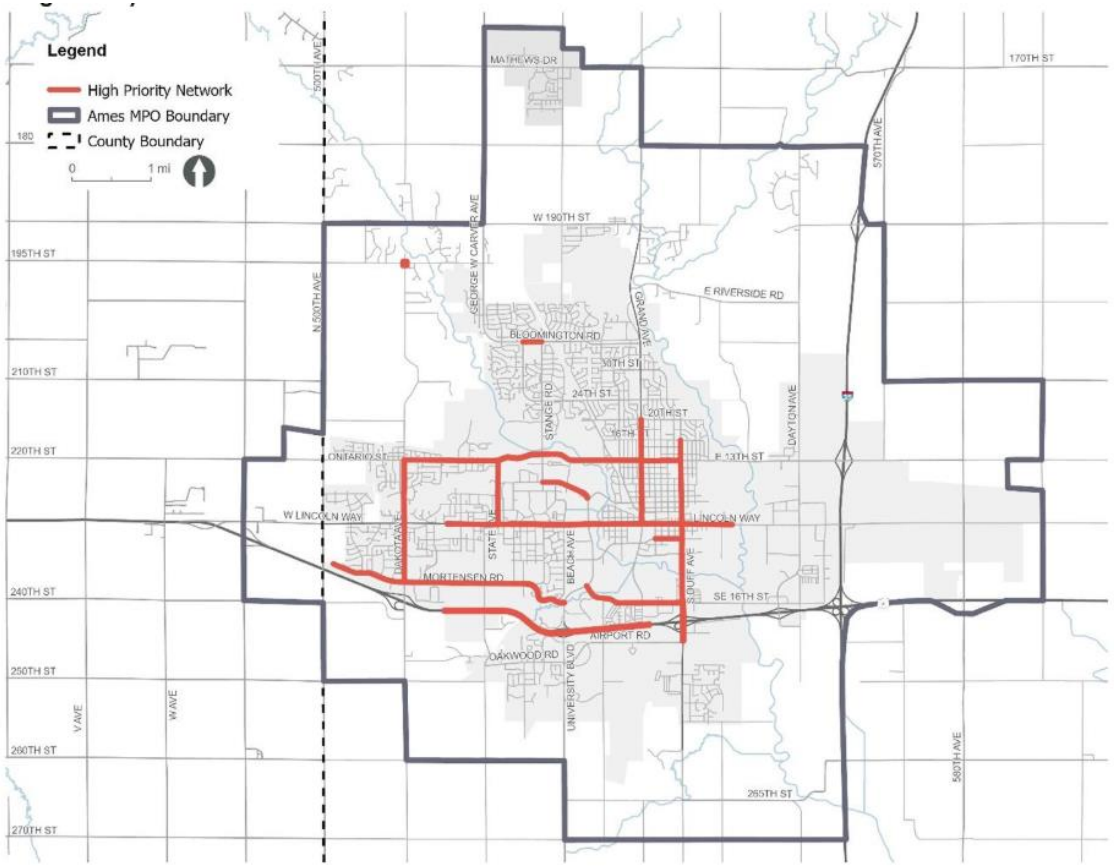
City of Ames
*Kyle Thompson, Transportation Planner
Justin Clausen, Public Works Director
Damion Pregitzer, Traffic Engineering Manager
Mark Gansen, Civil Engineer II

Foth
*John Witt, Traffic Engineering Practice Lead
Jon Resler, Transportation Engineer

**Project Manager*

Project Background

- Council priorities established through existing plans:
  - Ames Connect 2050 Metropolitan Transportation Plan
  - AAMPO Comprehensive Safety Action Plan
  - City of Ames Complete Streets Plan
  - Walk Bike Roll Ames Bicycle and Pedestrian Master Plan
  - City of Ames Climate Action Plan

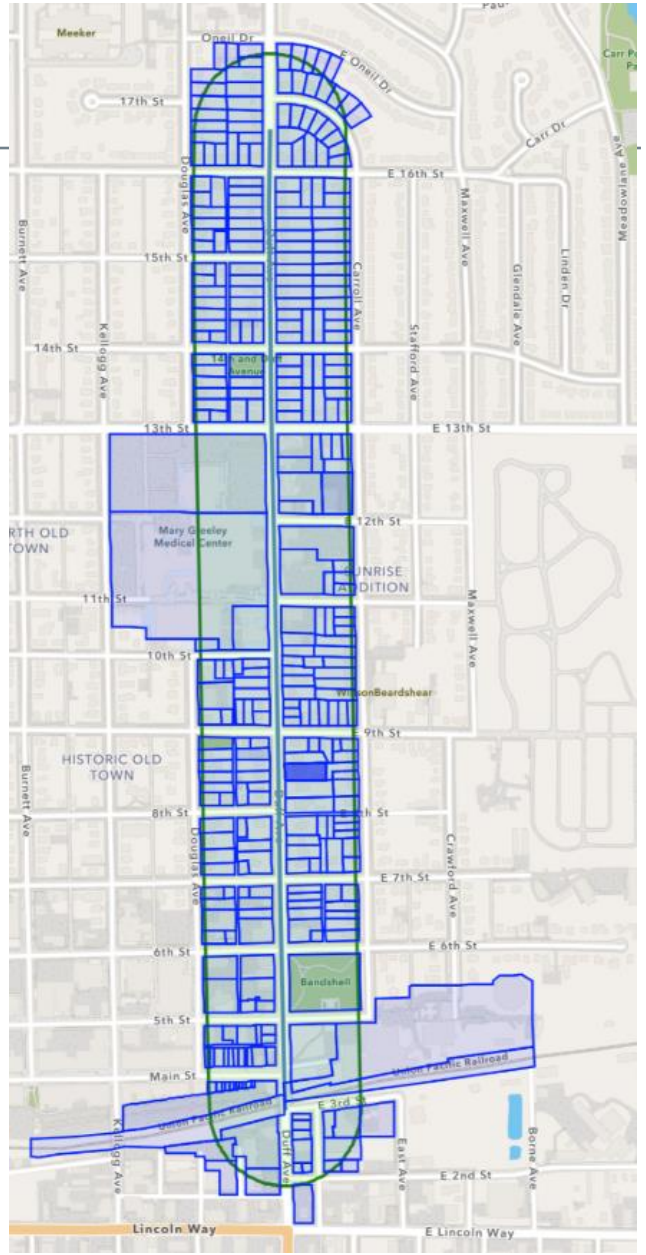


Study Goals

- Evaluate existing and future traffic operations, safety, walkability, and connectivity along the corridor.
- Assess the impacts of the UPRR crossing near Main Street, including vehicle delay, queuing, and recovery time.
- Forecast future traffic volumes and corridor operations to understand long-term needs.
- Evaluate pedestrian and bicycle safety and connectivity, including key crossings such as those serving the Mary Greeley Medical Center and McFarland Clinic facilities.
- Identify long-term improvement concepts that enhance safety, mobility, and overall corridor function while supporting the needs of residents, businesses, and corridor users.

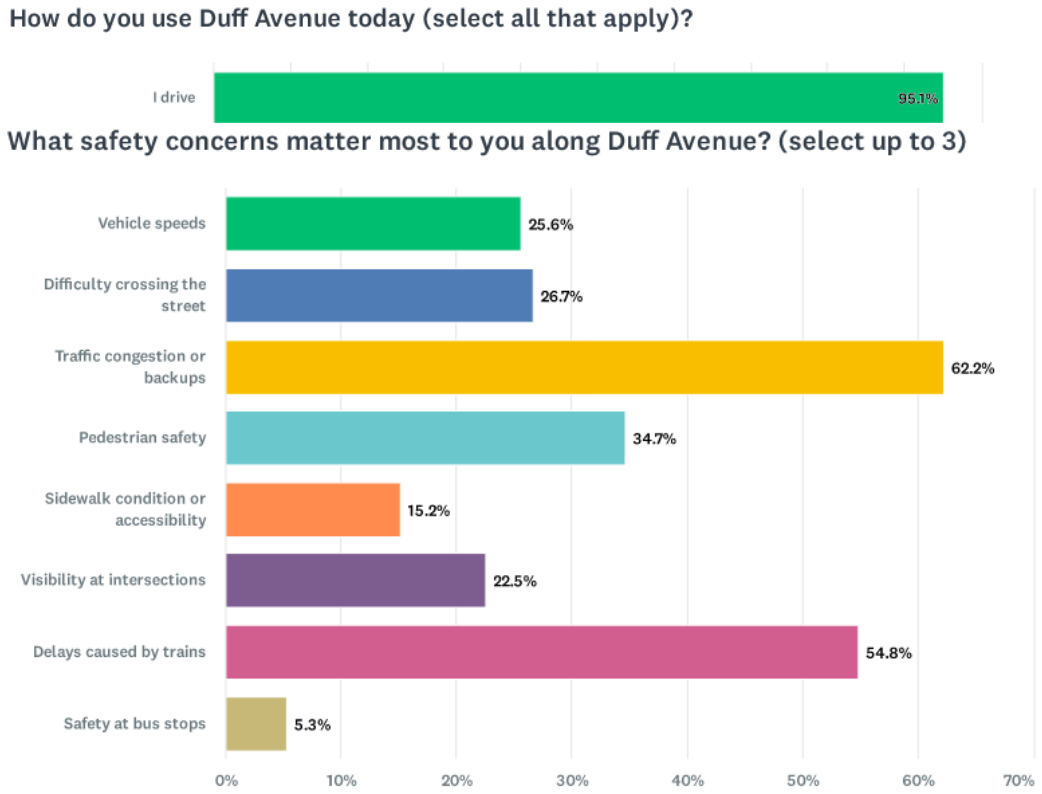
Stakeholder/Public Outreach – Round 1

- Outreach began in late March 2026
- Primary method was an online survey and project website
  - Mailing to all property owners within 400-foot radius of the study area
  - Direct email to key stakeholders including the Main Street business and neighborhood association contacts
  - Post on AAMPO Website
  - City of Ames social media posts



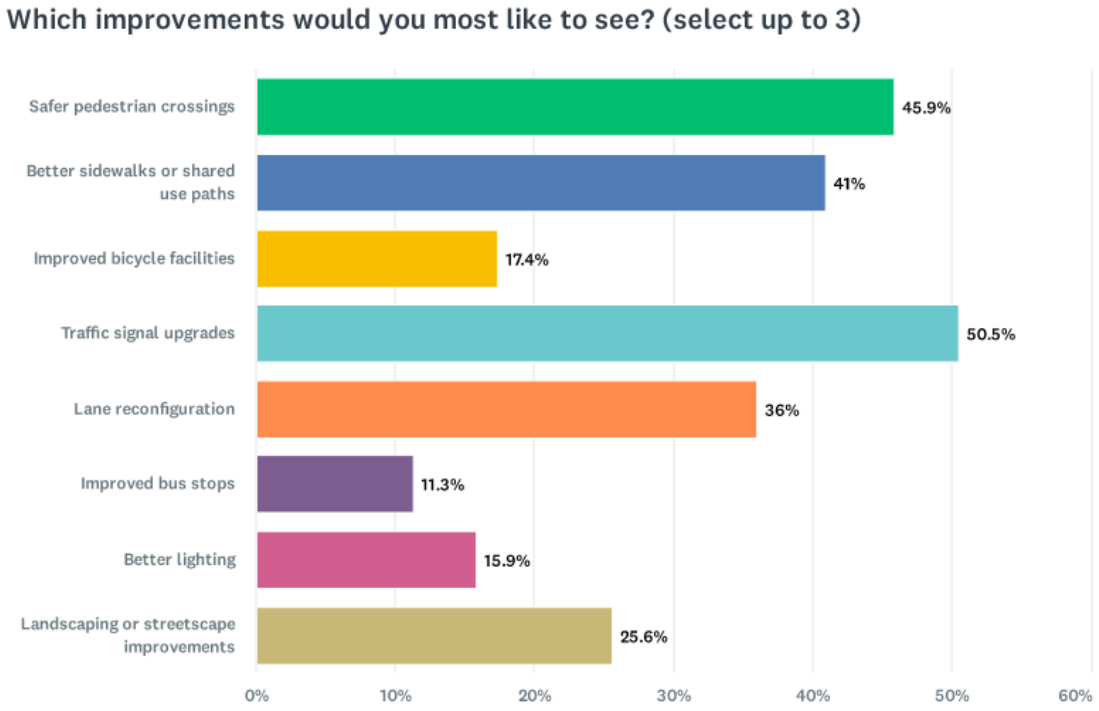
Stakeholder/Public Outreach – Round 1

- Survey #1 had 547 responses
  - 144 were from residents, property owners, or business owners along or near the study corridor
  - Respondents:
    - 95% drive, 45% walk or bike, 10% use CyRide
    - 59% visit medical campus
  - Top concerns:
    - Traffic Congestion – 62%
    - Delays from trains – 55%
    - Pedestrian safety – 35%



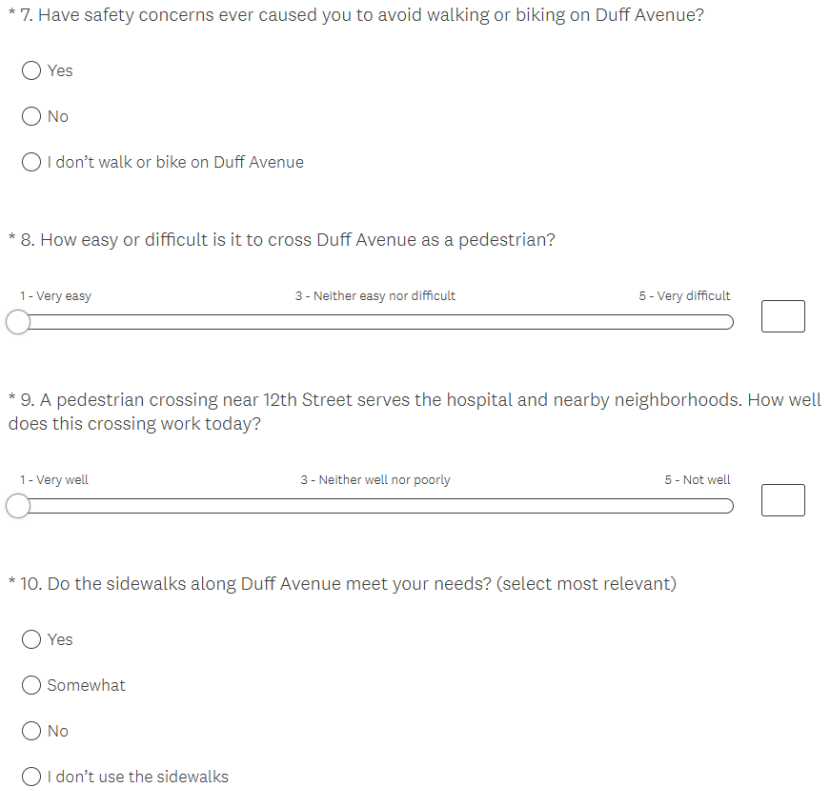
Stakeholder/Public Outreach – Round 1

- Top three respondent priorities:
  - Improve safety for all users
  - Reducing traffic congestion and delays
  - Improve walkability and bikeability
- Top three desired improvements:
  - Traffic signal upgrades
  - Safer pedestrian crossings
  - Better sidewalks or shared-use paths



Stakeholder/Public Outreach – Round 1

- Top Three Themes from the Survey:
  - Safety for all users should be top priority
  - Improving traffic operations and reducing delays, including those caused by train crossings should be a top priority
  - Improving multimodal facilities should be a high priority



* 7. Have safety concerns ever caused you to avoid walking or biking on Duff Avenue?

- Yes
- No
- I don't walk or bike on Duff Avenue

* 8. How easy or difficult is it to cross Duff Avenue as a pedestrian?

1 - Very easy | 3 - Neither easy nor difficult | 5 - Very difficult

* 9. A pedestrian crossing near 12th Street serves the hospital and nearby neighborhoods. How well does this crossing work today?

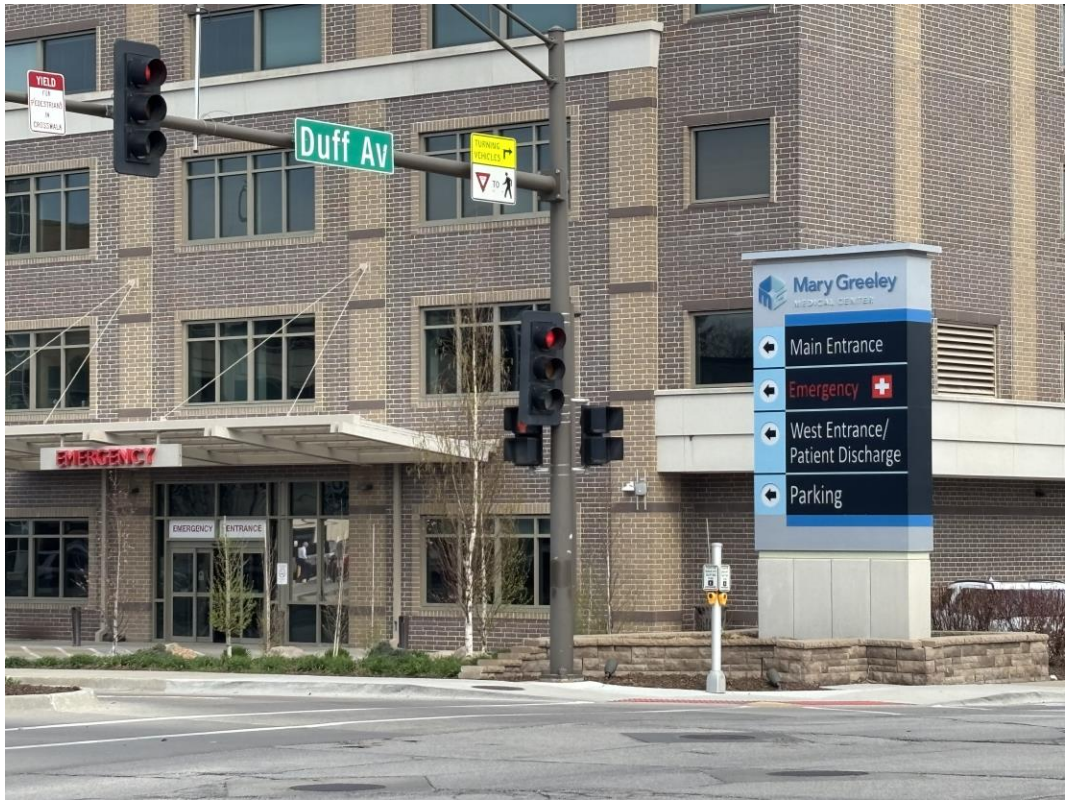
1 - Very well | 3 - Neither well nor poorly | 5 - Not well

* 10. Do the sidewalks along Duff Avenue meet your needs? (select most relevant)

- Yes
- Somewhat
- No
- I don't use the sidewalks

Stakeholder/Public Outreach – Round 1

- Mary Greeley Medical Center and McFarland Clinic Meeting
  - EMS Ambulance access and operations a top priority
  - Staff crossings at E 12th Street happen regularly
  - Potential conversion to three-lane section supported by facilities staff and ambulance operations
  - Ambulance operations staff expressed desire to explore potential grade separation of Duff Avenue and the Union Pacific Railroad Crossing
  - Discussed potential future facility changes



Traffic Engineering Analysis

- Data Collection
  - 24-hour turning movement count data – 85th percentile of counts over the 2024-2025 school year
  - Crash data from Iowa DOT datasets
  - Speed data collected with radar at multiple corridor locations
  - Railroad Crossing Data
    - One month of preemption data
    - Video of multiple days at the crossing
  - CyRide Transit Data
  - Signal timing data

Traffic Engineering Analysis

- Existing/Forecasted Traffic Volumes
  - Based on turning movement count data from traffic signal systems
  - Data from AAMPO and Iowa DOT used to develop 2035 and 2050 forecasts
  - 0.5% annual growth rate used

Existing/Forecasted ADTs

Roadway	Location	Existing	2050*
Duff Avenue	Lincoln Way - Main St	12,600	14,300
	Main St - 6th St	11,900	13,400
	6th St - 9th St	10,900	12,300
	9th St - 11th St	10,600	12,000
	11th St - 13th St	10,600	12,000
	13th St - 16th St	9,400	10,700
	North of 16th Street	9,000	10,200

*ADT Volume forecasts based on a 0.5% annual growth rate

Traffic Engineering Analysis

- Existing & Future 2050 Traffic Operations Analysis
  - Traffic analysis and model developed following national standards from the HCM 7th Edition

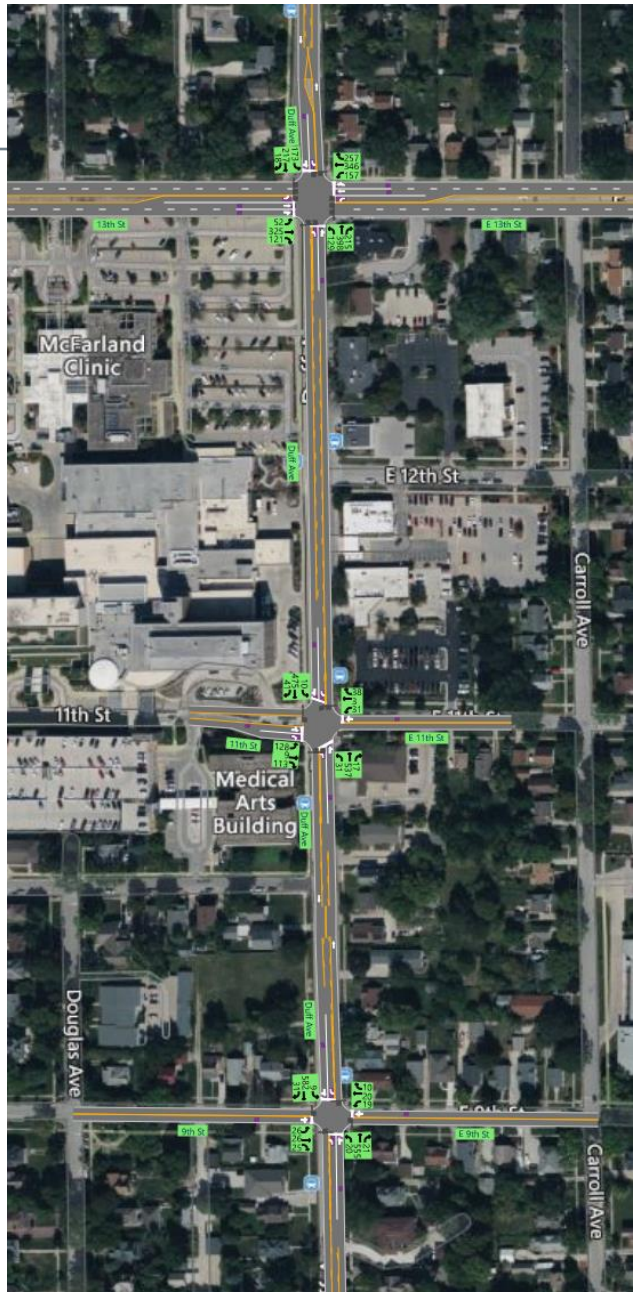
2025 Existing/Future No-Build Intersection Operations - PM Peak Hour

Intersection and Traffic Control	2025 Existing Operations	2050 No-Build Operations
Duff Avenue at Main Street	LOS A (3.2 sec/veh delay)	LOS A (3.3 sec/veh delay)
Duff Avenue at 6th Street	LOS A (7.8 sec/veh delay)	LOS A (7.7 sec/veh delay)
Duff Avenue at 9th Street	LOS A (5.1 sec/veh delay)	LOS A (5.2 sec/veh delay)
Duff Avenue at 11th Street	LOS B (11.5 sec/veh delay)	LOS B (11.7 sec/veh delay)
Duff Avenue at 13th Street	LOS C (27.0 sec/veh delay)	LOS C (30.0 sec/veh delay)
Duff Avenue at 16th Street	LOS C (16.9 sec/veh delay)	LOS C (22.6 sec/veh delay)

LOS = Level of Service (Scale of A to F that rates average delay per vehicle).

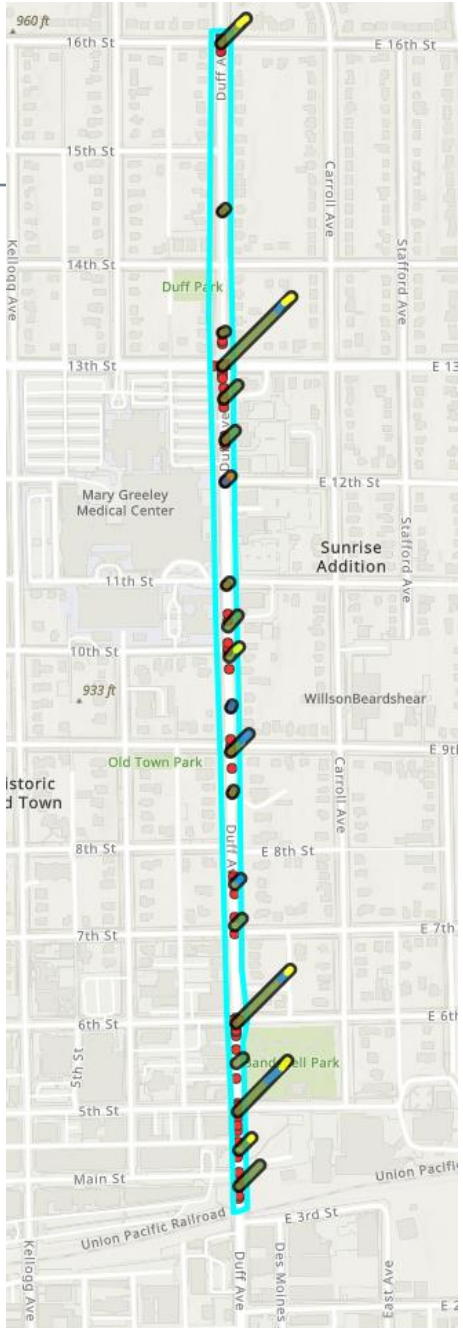
Maintaining level of service of D or higher is typically considered “acceptable”.

LOS and delay are calculated using the 7th edition of the Highway Capacity Manual (HCM)



Traffic Engineering Analysis

- Crash Data (2021 to 2025)
  - 96 crashes along the study corridor
    - 76% Property Damage Only
    - 24% Injury
  - Crash Types
    - 27% Rear End
    - 21% Broadside
    - 16% Sideswipe
    - 16% Left-Turn
  - Major Causes
    - 19% following too close
    - 14% failure to yield making left-turn
    - 13% improper/erratic lane changing
  - Intersection of Duff Ave at 16th St performing worse than similar intersections



Traffic Engineering Analysis

- Speed Study
  - 50th Percentile at 32 MPH
  - 85th Percentile Speeds at 36 MPH
  - Used national accepted methodology to evaluate speeds along the corridor.
    - NCHRP 966
    - USLimits2
    - 30 MPH recommend speed limit

Traffic Engineering Analysis

- Union Pacific Railroad Crossing Data
  - Average of 38 trains per day on weekdays
    - Crossing blocked for two hours a day on average
  - Average gate down time of 3 minutes 15 seconds per train
  - Video data collected confirms preemption data
  - Recovery times during peak periods are up to 90 seconds
    - Northbound traffic takes longer to recover

Traffic Engineering Analysis

- Multimodal Review
  - As identified in the Walk Bike Roll Ames Comprehensive Bicycle and Pedestrian Plan:
    - The corridor is identified as a high priority location to implement a shared-use path
    - The intersection of Duff Avenue at 12th Street is a high priority location for pedestrian crossing improvements

Preliminary Conceptual Design

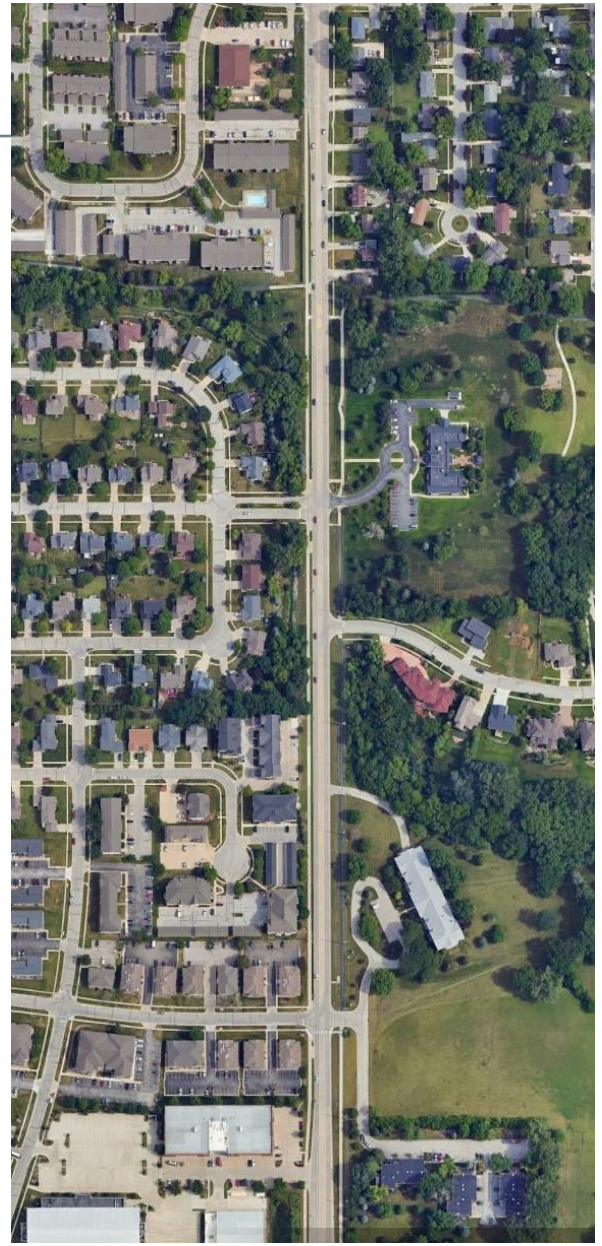
- Roadway Reconfigurations
  - Nationally accepted practice to convert 4-lane undivided roadways to 3-lane cross-sections (1 lane in each direction with a center TWLTL)
  - Feasible for roadways with volumes up to 15,000 to 20,000 vehicles per day
  - Converting roadways from 4-lane undivided to 3-lane sections have shown to reduce total crashes by 19 to 47 percent

Preliminary Conceptual Design

- Duff Avenue 3-Lane Section
  - Analysis of existing operations indicates there is excess capacity along the corridor
    - Existing volumes are 9,000 to 12,600
    - 2050 forecasted volumes are 10,200 to 14,300
  - Crash history along the corridor shows a high percentage of crashes attributable to the existing 4-lane section
  - 3-lane section advances the priorities established in the City's and region's adopted plans:
    - Safety for all users
    - Safer pedestrian crossings
    - Walkability and bikablilty
    - Traffic calming
    - Preserved traffic operations

Preliminary Conceptual Design

- Local 3-Lane Cross Section Example
  - South Dakota Avenue from just north of Mortenson Avenue to just south of Todd Avenue
  - Current ADT of 11,900 vehicles per day
  - Operates well without any significant operational issues



Preliminary Conceptual Design

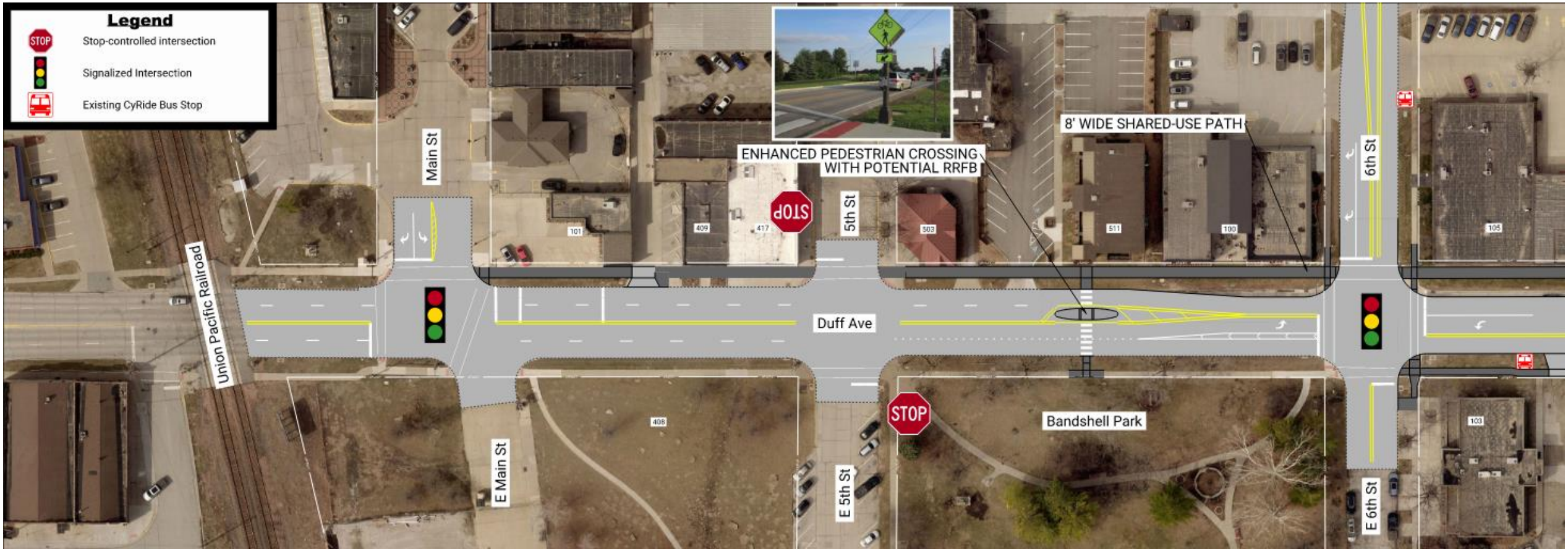
- Eastern Iowa Roadway Reconfiguration Example
  - 10th Street SE from 3rd Avenue to 8th Avenue in Cedar Rapids
  - ADT of 12,700 vehicles per day when converted from 4-lane undivided to 3-lane section
  - Main arterial through a medical district (Mercy Medical Center and Physicians Clinic of Iowa)
  - Operates well without any significant operational issues

Preliminary Conceptual Design

- Eastern Iowa Roadway Reconfiguration Example

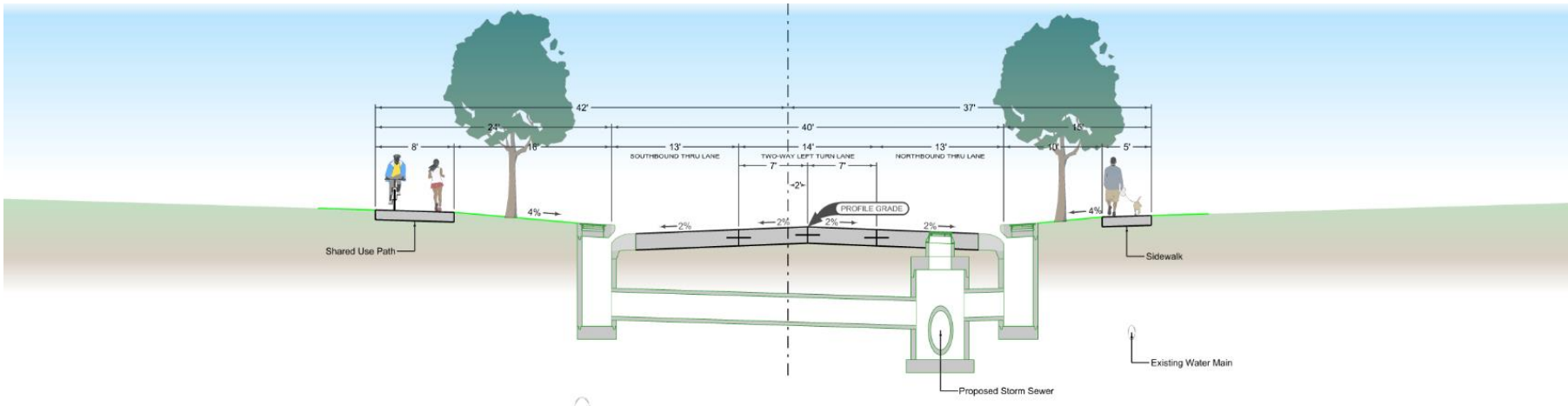
Preliminary Conceptual Design

- Union Pacific Railroad Crossing to 6th Street



Preliminary Conceptual Design

- 6th Street to 10th Street



Preliminary Conceptual Design

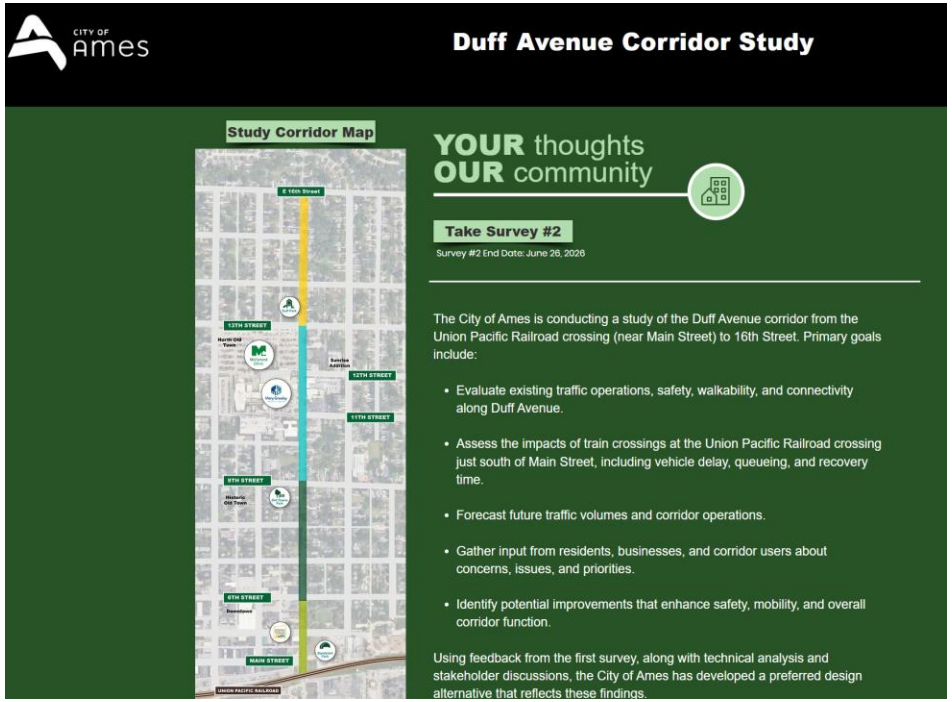
- 10th Street to 13th Street

Preliminary Conceptual Design

- 13th Street to 16th Street

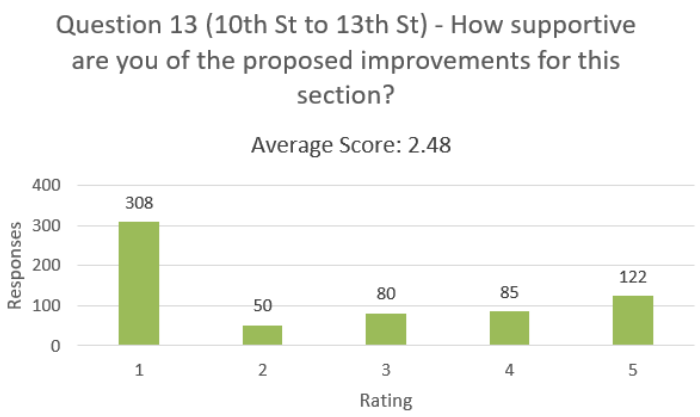
Stakeholder/Public Outreach – Round 2

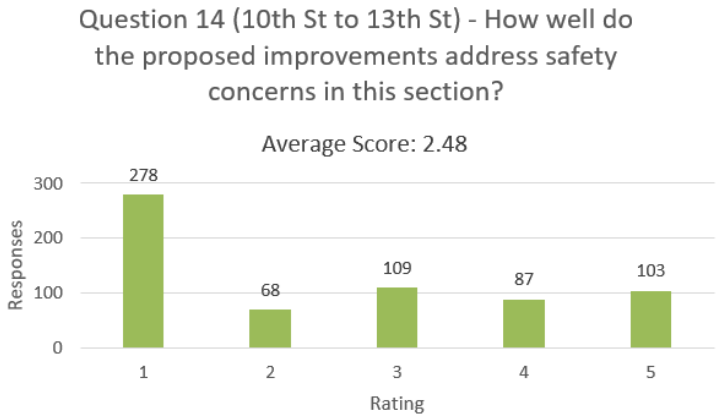
- Second round of outreach took place in June 2026
- Primary method was an online survey and project website
  - Mailing to all property owners within 400-foot radius of the study area
  - Direct email to key stakeholders
  - Post on AAMPO Website
  - City of Ames social media posts
  - Press release

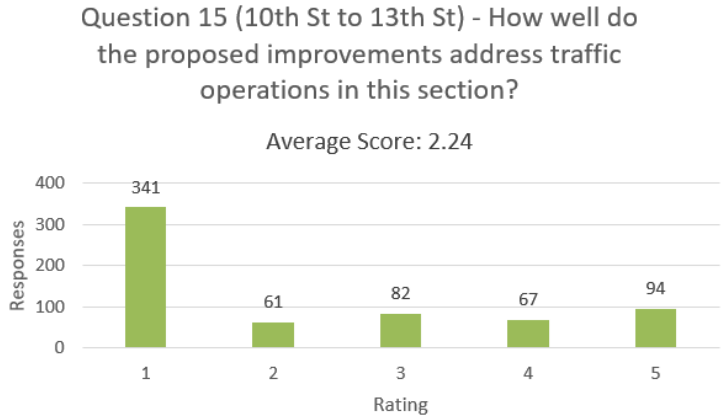


Stakeholder/Public Outreach – Round 2

- Survey #2 had 711 responses
  - Focused on getting feedback on initial recommended concepts
  - 57% of respondents very unsupportive or unsupportive of proposed improvements (43% were neutral, supportive, or very supportive)

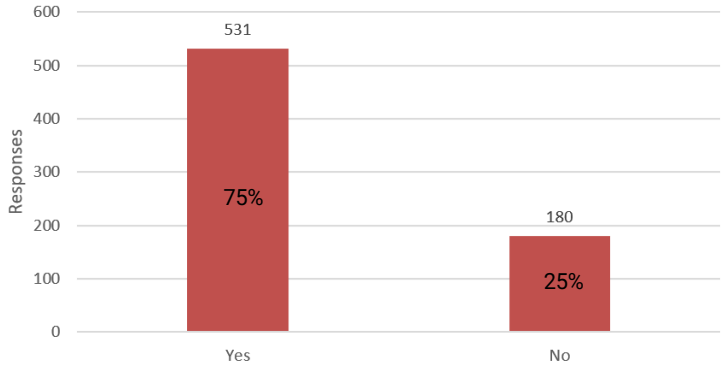




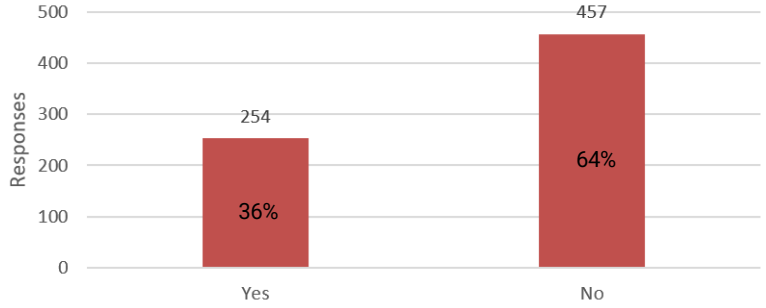


Stakeholder/Public Outreach – Round 2

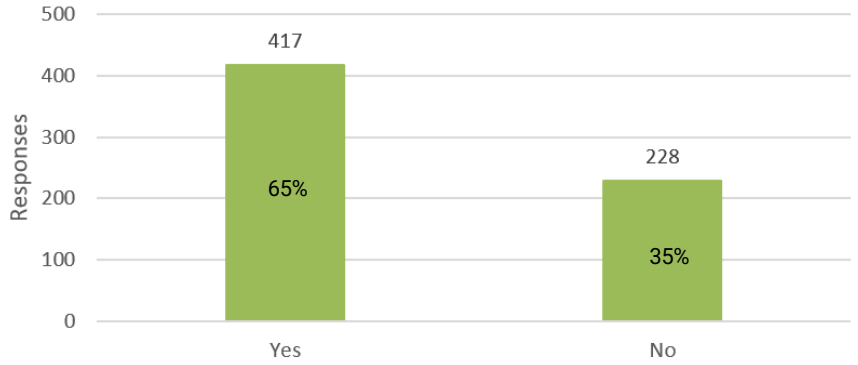
Question 5 (RR to 6th St) - Should the City of Ames conduct a detailed study of the Duff Avenue railroad crossing? The study would evaluate potential alternatives and improvements for the crossing, including maintaining the existing crossing, operational



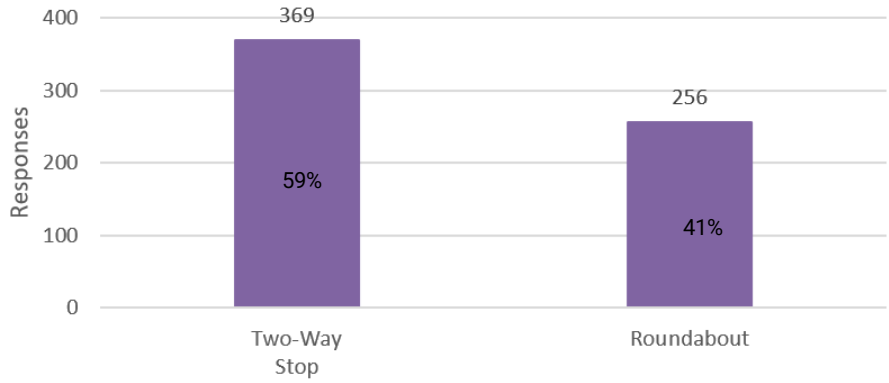
Question 6 (RR to 6th St) - Do you feel the shown midblock pedestrian crossing between 5th Street and 6th Street for accessing Bandshell Park is needed?



Question 17 (10th St to 13th St) - Do you feel the shown pedestrian crossing at 12th Street near the Mary Greeley Medical Center is needed?



Question 23 (13th St to 16th St) - Which traffic control option at Duff Avenue and 16th Street do you prefer?



Stakeholder/Public Outreach – Round 2

- Top Respondent Concerns
  - Traffic delays caused by reducing lanes
  - CyRide buses blocking travel lanes
  - Added maintenance with shared-use paths
  - Traffic backing up further with a three-lane section during train crossings
  - Emergency vehicles being able to operate as effectively within a 3-lane section
  - The midblock crossing between 5th Street and 6th Street not being needed
  - For the intersection of Duff Avenue and 16th Street 59% prefer the two-way stop control alternative, while 41% are in favor of the mini-roundabout alternative

Conceptual Design Review & Refinements

- 2050 Traffic Operations Analysis Comparison

2050 PM Peak Hour Operations Comparison (4-Lane vs. 3-Lane Section)

Intersection and Traffic Control	2050 Operations (4-Lane Section)	2050 Operations (3-Lane Section)	Avgerage Vehicle Delay Change
Duff Avenue at Main Street	LOS A (3.3 sec/veh delay)	LOS A (3.5 sec/veh delay)	+0.2 sec/veh
Duff Avenue at 6th Street	LOS A (7.7 sec/veh delay)	LOS A (8.0 sec/veh delay)	+0.3 sec/veh
Duff Avenue at 9th Street	LOS A (5.2 sec/veh delay)	LOS A (5.8 sec/veh delay)	+0.6 sec/veh
Duff Avenue at 11th Street	LOS B (11.7 sec/veh delay)	LOS B (13.1 sec/veh delay)	+1.4 sec/veh
Duff Avenue at 13th Street	LOS C (30.0 sec/veh delay)	LOS C (29.2 sec/veh delay)	-0.8 sec/veh
Duff Avenue at 16th Street	LOS C (22.6 sec/veh delay)	Roundabout LOS A (7.2 sec/veh delay)	Roundabout -15.4 sec/veh
		Two-Way Stop N/A[1]	Two-Way Stop N/A[1]

1 – Overall intersection delay and level of service are not typically calculated for two-way stop-controlled intersections since one roadway has free-flowing traffic.

Conceptual Design Review & Refinements

- Transit Stops
  - Concerns about CyRide buses blocking travel lanes
  - Based on national standards, traffic volumes, bus dwell times/arrival frequencies, and existing roadway characteristics bus pullouts are not recommended along the corridor
  - 11th Street timed stop - Over 85% of all stops in the last year were less than 30 seconds
  - Alternative conceptual design developed for the 11th Street stops:

Conceptual Design Review & Refinements

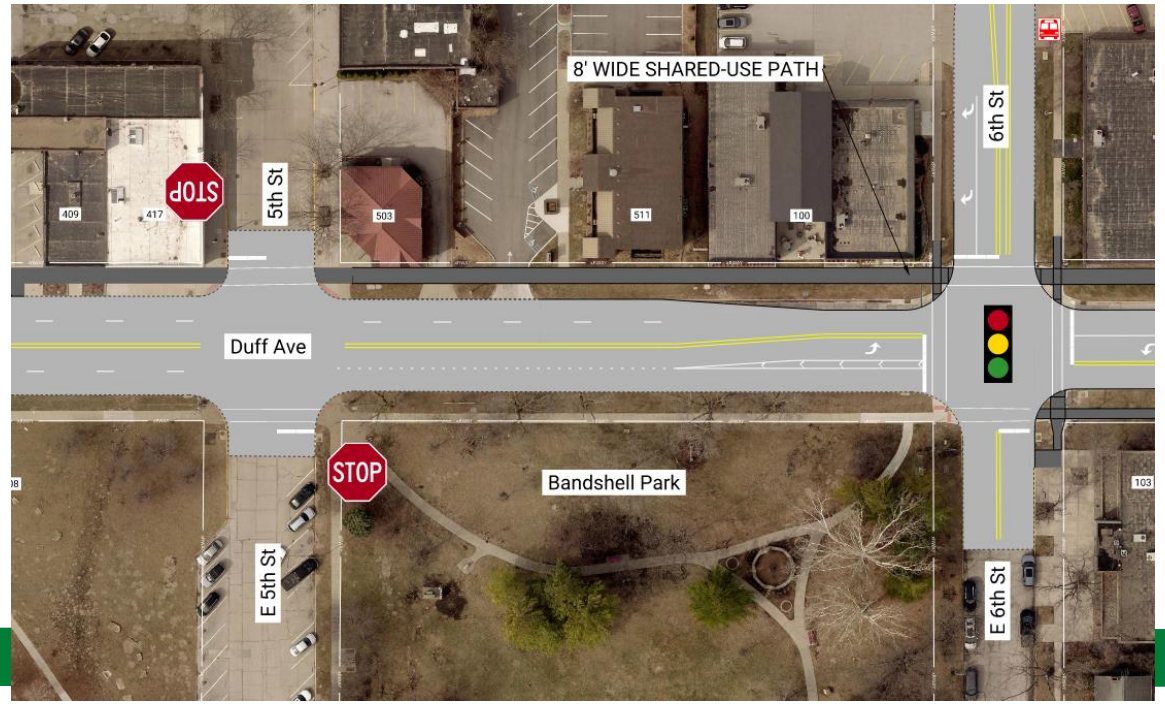
- Shared-Use Path Maintenance
  - Concern regarding maintenance and snow clearing of the wider shared-use path
  - City of Ames typically handles both maintenance and snow clearing for shared-use paths
- Train Crossings
  - Concerns that during train crossings traffic would back up further with a three-lane section.
  - Detailed train crossing analysis showed the need for 4-lane section to just south of 6th Street to accommodate vehicle queuing.
  - Long-duration train crossings will continue to cause operational issues for the Duff Avenue corridor, regardless of roadway cross-section. A detailed study of the railroad crossing would be needed to further explore potential alternatives (such as a grade separation of the crossing) to address these issues.

Conceptual Design Review & Refinements

- Emergency Vehicles
  - Concerns about emergency vehicles being able to operate as effectively within a 3-lane section
  - FHWA guidance and national research shows that the center two-way left-turn lane can provide a continuous clear path that police, fire, and EMS vehicles can use to bypass stopped or yielding traffic, often improving response compared to a four-lane undivided roadway
  - Mary Greeley Medical Center ambulance operations staff expressed support for a three-lane section.

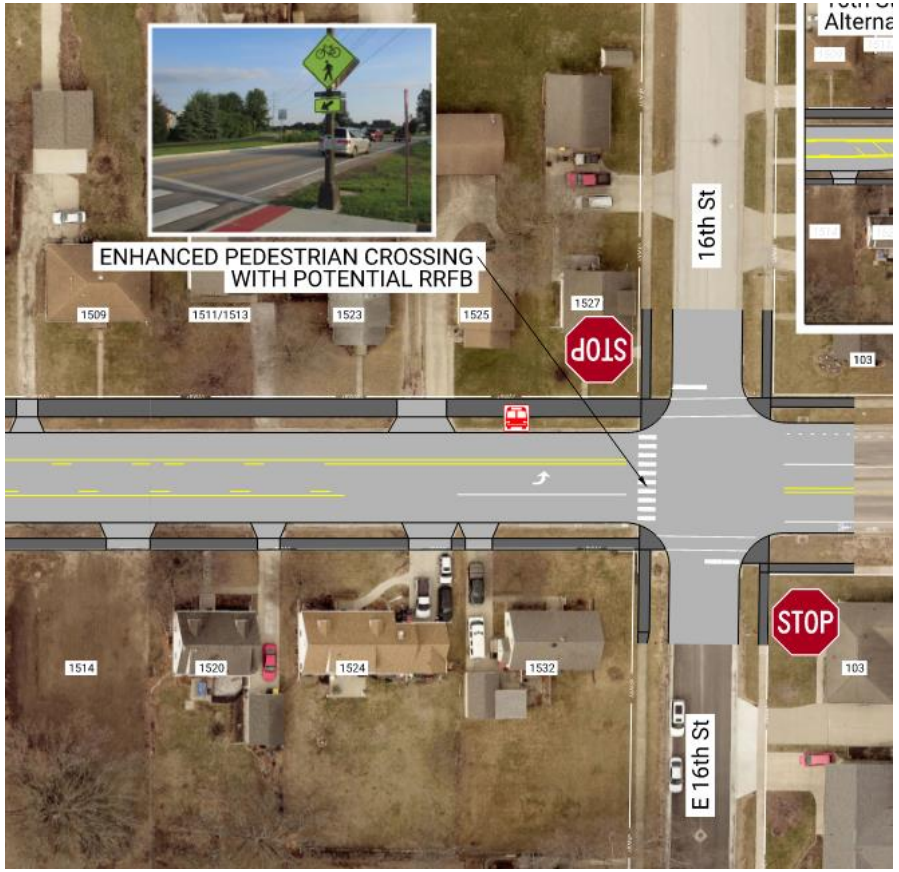
Conceptual Design Review & Refinements

- Midblock Crossing at Bandshell Park
  - 64% of survey respondents indicated they feel the midblock crossing between 5th Street and 6th Street is not needed
  - Enhanced crossing currently available at Main Street and 6th Street intersections
  - Alternative version developed with no midblock pedestrian crossing near Bandshell Park



Conceptual Design Review & Refinements

- Duff Avenue at 16th Street Intersection
  - 59% of survey respondents indicated they prefer the two-way stop control alternative, while 41% are in favor of the mini-roundabout alternative
  - All-way stop not considered a viable traffic control option due to crash history and anticipated traffic operations degradation
  - Concern with the two-way stop alternative and no enhanced pedestrian crossing
  - Alternative version developed with enhanced pedestrian crossing



Conceptual Design Review & Refinements

- Duff Avenue at 16th Street Intersection

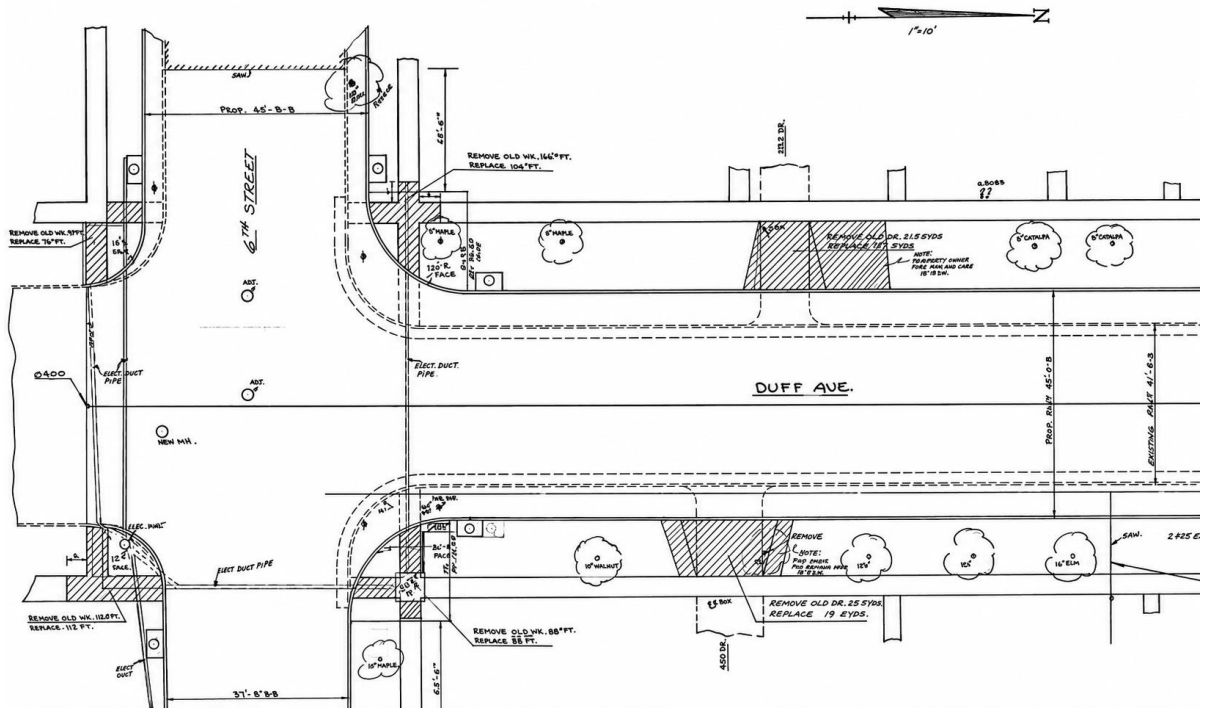
Duff Avenue at 16th Street Intersection Alternatives Comparison

16th St & Duff Ave Intersection Alternative	Benefits	Drawbacks
Two-Way Stop Control	•Low impact and cost •Usually no delay for Duff Avenue traffic (free flow) •Two-way stop control can be implemented immediately (even prior to implementation of a 3-lane section) as either a interim or long-term option.	•Would require other traffic calming measures to be implemented for Duff Avenue traffic •16th Street traffic will have increased difficulty turning onto Duff Avenue •While the RRFB marked pedestrian crossing provides additional protection, it isn't at the same level as the roundabout option
Mini-Roundabout	• Provides inherent traffic calming for Duff Avenue traffic • High level of protection for pedestrians, including presence of refuge islands • Very minimal delay for both Duff Avenue traffic and 16th traffic	•Higher impact and cost compared to the two-way stop alternative •While designed to accommodate trucks and buses, it would be more difficult for them to traverse compared to the two-way stop control option

Summary

- **Three-lane section** meets the goals identified by the public and the other planning documents approved by City Council.
- **Four-lane section** is an option but will not advance the safety and multimodal priorities.
  - 4-lane undivided roads were popular to build in the 1950s-1980s as a cost-effective way to double a two-lane road's capacity.
- **Five-lane section** has not been fully studied due to the excess capacity in the existing four-lane section. Will likely lead to an increase in speed and not improve multimodal priorities.
- Urban roadways today are typically designed as a three-lane section, four-lane divided section with dedicated left-turn lanes where needed, or a five-lane section.

Duff Avenue 4-Lane Widening Project Plans (1962)

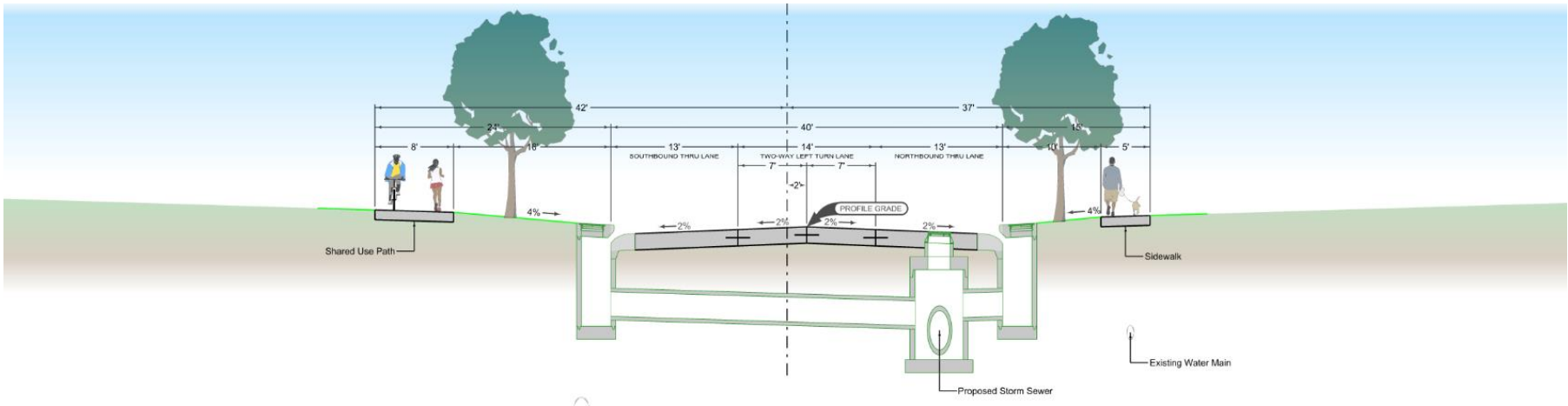


Workshop & Next Steps

- 7/21/26 City Council Workshop
  - Staff is not seeking direction from council tonight. Workshop is intended to be an open discussion to answer questions and discuss the study's public feedback, engineering analyses, design, and overall findings to date.
  - If Council does not view the 3-lane section as the appropriate treatment or would like to see other alternatives (4-lane or 5-lane option) in the final report, direction would be helpful for staff as it finalizes the study and report.
  - Council could also signal preference amongst options within the study's 3-lane conceptual design (e.g. 16th St Intersection Option or Mid-Block Crossing by Bandshell Park).
- Next Steps
  - Staff plans to finalize the corridor study and report and bring it back to Council this fall (likely September or October) for direction on accepting its findings.
  - Staff also plans to seek Council direction on a potential railroad crossing study at that same time.
  - Study would serve as the corridor's long-term vision document and would guide future project programming.

Preliminary Conceptual Design

- 6th Street to 10th Street



Preliminary Conceptual Design

- 10th Street to 13th Street

Preliminary Conceptual Design

- 13th Street to 16th Street

ITEM #: 2

DEPT: ELEC

Staff Report

RECIPROCATING INTERNAL COMBUSTION ENGINES AND TRANSFORMER PROCUREMENT FOR AMES MUNICIPAL ENERGY CENTER

July 21, 2026

BACKGROUND:

The Ames Municipal Energy Center (AMEC) project involves the design and construction of a new facility at the former coal yard site south of the existing Power Plant, where the next generation of electric generating assets will be installed and operated.

This City Council update relates to the purchase of three reciprocating internal combustion (RICE) engines, their associated generators and accessories, and the generator step-up transformer (GSU). No action is requested at the July 21 workshop. However, the City Council will be asked to award contracts for these aspects of the project on July 28.

The City has retained Sargent & Lundy, Chicago, IL, to assist with the design of the facility and specifications for its major components. Over the past several months, Sargent & Lundy has assisted City staff in preparing a bid document for the transformer and a Request for Proposal (RFP) for the procurement of the reciprocating internal combustion engines (RICE), both which will be installed at the new facility.

AMEC PROJECT BUDGET:

At the April 21, 2026, City Council workshop, staff relayed the revised project budget estimate, which was $190 million +/-5%. At that time, staff provided an overview of the financial impacts based on an analysis from the City's financial consultant, PFM.

PFM conservatively projected that electric rates will need to increase by approximately 2.5% annually beginning in FY 2026/27 through FY 2043/44 (18 years), followed by 1.5% annual increases through the life of the bonds (FY 2056/57). As the staff report explained at that time, the Electric rate projections had previously included a 1.5% rate increase over the next five years to cover the cost for new generation, but were increased to 2.5% to account for the increased project costs. These rate increases are also predicated on the utility saving substantial operating costs from discontinuing the burning of refuse-derived fuel.

The AMEC project budget contains several major project components, including the GSU, the RICE engines, and the general work to construct the building and install much of the equipment. Two of these items (the GSU and RICE engines) are addressed in this document

and the anticipated July 28 City Council action.

The April project budget table contained 14 key items, plus three additional expense lines for taxes ($5.3M), overall project escalation ($14M) and contingency ($24M). The tax, escalation, and contingency estimates are the sum of the taxes, escalation, and contingency for each individual budget line.

Staff has asked Sargent & Lundy to prepare a revised budget table that assigns the tax, escalation, and contingency to each individual expense line. Incorporating the escalation and contingency in particular is important because some items in the budget are more susceptible to substantial cost increases and affected by timing. The result is the revised table shown below:

DESCRIPTION	TOTAL ESTIMATED BUDGET - EACH LINE ADJUSTED TO INCLUDE TAX, CONTINGENCY, ESCALATION
Reciprocating Internal Combustion Engines (RICE) and Auxiliary Equipment	$ 73,315,096.14
Generator Step-Up Transformer (GSU)	4,805,580.00
GSU Relay Protection Control Cabinet & Metering	393,900.00
MV Non-Segregated Bus Duct	196,950.00
Balance of Plant Station Batteries and Charging System & UPS	1,293,815.76
Geotechnical Investigation	182,287.06
Topographical Survey, Benchmarks, and Property Limits Survey	37,710.00
Acoustical Consultant	50,280.00
Independent Testing Service	62,850.00
General Work Contractor	97,366,422.65
Engineering Services	8,800,427.01
Construction Management At-Risk Support (Home office engineering construction support and CM on site)	497,438.60
Builders Risk Insurance (for 3 years)	1,773,692.31
Building Furnishings	377,166.20
Land Acquisition	502,888.26
Transmission Connection (Including MISO Application)	3,017,329.57
TOTAL	**$ 192,673,833.56**

By incorporating the taxes, escalation, and contingency into each of these line items, as contract prices are considered for the GSU and RICE engines, it becomes clearer how close the major contract items align with the overall budget and what the remaining outstanding cost risks are.

GENERATOR STEP-UP TRANSFORMER:

Each set of three RICE units will be connected to a single Generator Step-Up Transformer (GSU) to transmit the electricity to the utility's electric grid. The transformer has a long lead time to manufacture and deliver. On May 12, 2026, the City Council received the report of bids for the generator step-up transformer for the AMEC project and approved the recommendation to delay the award of bid. **Staff is now prepared to request the City Council's approval of the transformer contract at the July 28 meeting.**

The Engineer's estimate for this equipment is $3,600,000, exclusive of tax. On February 20, 2026, an Invitation to Bid was posted to AmesBids by Purchasing, for the purchase of a GSU. On April 24, 2026, 10 bids were received as shown in the table below:

BIDDER	BID AMOUNT
Cavalry Energy LLC Warrendale, PA	$1,641,075.00
EL Power Tech Co., LTD. Hwaseong-Si, Gyeonggi-Do, Korea	$1,940,000.00
Meta Power Solutions Lake Park, FL	$2,152,856.16
Cahoon Sales, Inc. Iowa City, IA	**$2,248,100.00**
Cleaves-Bessmer-Marietti, Inc. Lee's Summit, MO	$2,285,368.00
RESCO (Rural Electric Supply Cooperative) Ankeny, IA	$2,511,487.00
WEG Transformers Washington, MO	$2,532,176.00
Hyundai Corporation USA Torrance, CA	$2,645,075.00
Energy Solutions Inc. Elkhorn, NE	$3,564,998.00
Fletcher Reinhardt Co Cedar Rapids, IA	No Bid

Staff and Sargent & Lundy thoroughly evaluated the bids, considering criteria including the size and performance capabilities of the equipment being bid, the efficiency of each unit, the place of origin and delivery methods, delivery times, the offered payment schedule, etc. It is important to note that for a bid of utility equipment such as this the City Council may make the award that is in the best interests of the utility rather than awarding the contract only to the lowest responsive, responsible bidder.

Following this evaluation, staff and Sargent & Lundy are recommending that the contract for the GSU be awarded to Cahoon Sales, Inc., Iowa City, Iowa for a General Electric 69/13.8kV generator step-up transformer. The City Council should note that, although the initial bid price from this supplier was $2,248,100, the original bid validity date expired in June. More time was necessary than anticipated to review and negotiate contract terms, and therefore an extension to this date had to be negotiated.

In order to proceed, the supplier requires a cost increase of $60,700, resulting in a revised contract price of $2,308,800, plus applicable sales taxes. In addition, the delivery date has been delayed by three months. The delivery is now anticipated in early 2029. This delay is not anticipated to impact the overall AMEC project schedule, and will in fact eliminate some challenges with storing the transformer until it is ready to be installed.

RICE ENGINES AND ASSOCIATED EQUIPMENT:

The RFP for the RICE engines was issued on March 13, 2026. The RFP called for a supplier to design, engineer, procure, fabricate, assemble, and factory test the engines, then pack, ship, assemble, and set them on prepared foundations. It was specified that each engine be capable of operating both on natural gas and fuel oil, producing between 18 and 20 MW (54-60 MW total). The design life of the engines is 30 years.

A variety of optional components were also specified, including equipment and services such as lubricating oil and reagent storage tanks, exhaust gas ducting, steel structures, distributed control systems, switchgear, auxiliary ventilation units, five- and two-year service agreements, spare parts, heat recovery systems, and lower noise exhaust systems. Each supplier was asked to provide performance information for over 60 separate categories related to items such as fuel consumption, operating temperatures, noise, and emissions.

The RFP specifies that proposals are to be evaluated on the basis of the following criteria:

1. Proposal Completeness and Compliance
2. Performance Characteristics
3. Emissions and Noise
4. Project Schedule
5. Included Scope
6. Testing & Commissioning
7. Maintenance Requirements and Training
8. Technical Field Assistance
9. Customer Base and Status of Technology Offered
10. Total Cost

PROPOSALS RECEIVED:

On May 29, 2026, proposals were received from:

- **Wärtsilä North America, Inc., for three Wärtsilä 18V50DF engines.** These are 18-cylinder dual-fuel (fuel oil and natural gas) engines, with each cylinder having a 50 cm bore. Each engine has a nominal output of 18.540 MW. Wärtsilä recently installed engines of this model for the Omaha Public Power District. The proposal expires July 31, 2026.

- **Everllence SE, for three Everllence 18V51/60DF engines.** These are 18-cylinder dual-fuel (fuel oil and natural gas) engines, with each cylinder having a 51 cm bore. Each engine has a nominal output of 18.522 MW. Everllence is installing similar engines for Cedar Falls Utilities The proposal expires July 31, 2026.

The proposals differ greatly in the components and options included, in addition to the differences in the technical specifications between the two manufacturers. Staff and Sargent & Lundy conducted a thorough analysis of the desired options and the costs in the context of the performance and other characteristics of each engine. In addition, both companies reduced their pricing during the course of negotiations through the morning of July 20. The bottom-line cost for each proposal is:

Firm	Price
Wärtsilä North America, Inc.	$ 69,230,520*
Everllence SE	$ 75,283,223**

*Approximately 75% of this amount is calculated based on the conversion of Euros to USD on July 15, 2026. This amount is subject to revision at the time the down payment is made. After that date, Wärtsilä assumes any future exchange rate risk.

**All of Everllence's pricing is calculated in Euros and converted to USD to result in this indicative price. This amount is subject to change based on conversion rates in effect shortly before the agreement is signed. After that date, Everllence would hold the exchange rate risk for the first 36 months of the anticipated 5-year contract term.

Both proposals involve the production of the major components in Europe, then importing the equipment to the U.S. Sales taxes and import duties are excluded from both proposals. These costs would be pass-throughs to the City. Both firms offer performance guarantees for various parameters of the engine's performance once installed. These guarantees provide for a reduction in cost if the specified performance is not able to be met after installation, start-up, and tuning.

Additionally, both proposals contained options for long-term service agreements. These service agreements do not need to be included in the contract at this time, and will instead be agreed to at a later date and incorporated into the Electric Services operating budget rather than the AMEC capital project. **For reference, the 5-year maintenance proposal from Wärtsilä is priced at $5,513,000, while the Everllence 5-year maintenance proposal is $13,231,980.**

Wärtsilä has identified a production slot that was relinquished by another buyer, which would allow the engines to be delivered to foundations in Ames in October 2029, with assembly and installation to follow for an estimated Spring 2030 commissioning. Everllence offers a delivery date to a European port of August 2029, followed by transport to Ames with an estimated substantial completion by June 2030.

The Everllence units have approximately 8% better heat rate (the efficiency of fuel used per kW produced) as compared to the Wärtsilä units. The Everllence units consume slightly more lubricating oil and 50% more emissions reagent during operation.

Emissions overall are generally similar for both manufacturers, but the notable differences are that Wärtsilä has a 40% lower NOx rate and a 50% higher CO rate. The table below shows the emissions in pounds per kWh produced, based on the conversion of three major emissions categories (Methane, Carbon Dioxide, and Nitric Oxide and Nitrogen Dioxides) to CO2 equivalent (CO2(e)). The existing power boilers (Unit 7 and Unit 8) are included for comparison:

Carbon Dioxide Equivalent CO2(e)	
Source	**lb/kWh**
Unit 7	1.76
Unit 8	1.68
Wärtsilä	1.05
Everllence	1.04

Both firms were invited to make presentations to the City staff and Sargent & Lundy team. **Following the presentations, staff scored the proposals using the 10 different RFP evaluation criteria as noted above. Below are the final scores:**

Firm	Total Points	Rank
Wärtsilä	260.7	1
Everllence	203.3	2

Given the final scores, staff is recommending that on July 28, the City Council award a contract to Wärtsilä North America, Inc. Sargent & Lundy has indicated to City staff that it also recommends awarding a contract to Wärtsilä, and will issue a letter of recommendation on July 22.

Wärtsilä has installed its RICE units in a number of locations over the past 25 years. Recent installations have included Central Iowa Power Cooperative (CIPCO), Alliant Energy, Omaha Public Power District, Nebraska Public Power District, Rochester Public Utilities (Minnesota), WEC Energy Group (Michigan and Wisconsin), Black Hills Energy (South Dakota), Coffeyville Municipal Light & Power (Kansas), and Marquette Energy Station (Michigan).

In addition to the overall capital cost for the Wärtsilä proposal being approximately $6M less than Everllence, the Everllence long-term service agreement is approximately $1.5M more costly on an annual basis. This cost would exceed any offset resulting from the slightly more efficient fuel use offered by Everllence.

The Wärtsilä contract requires payments as follows:

Item No.	Est. Months from Contract Signing	% of Contract Value	Milestone
1	0 - Down Pmt.	25%	Signed Contract and Notice to Proceed
2	4	10%	120-day document submittals complete
3	8	15%	Purchase of major auxiliaries
4	32	25%	First engine production conformity test
5	33	10%	Engines ready to ship
6	34	5%	Delivery of engines to U.S. port
7	40	5%	Generator sets on foundations
8	43	2.5%	Installation completion
9	51	2.5%	Performance test completion

The City Council should note that the proposed milestone schedule outlined above requires the City to make payments totaling 50% of the contract value within the first eight months of the four-year agreement. Staff is confident that, based on its long record of producing and installing RICE engines worldwide and in the Midwest, Wärtsilä will be able to meet its obligations under this agreement to deliver and install the engines for the AMEC project.

Sargent & Lundy is preparing a cash-flow plan for the overall AMEC project. This plan can be considered alongside the Electric Capital Improvements Plan to ensure bond proceeds and the Electric Utility Fund balance are sufficient to make the required payments for this contract.

Although no financial surety is required for this type of contract, staff has inquired with Wärtsilä about the prospect of obtaining a surety bond to protect the City after payment is made in the event Wärtsilä is unable to complete the delivery as promised due to bankruptcy. The cost for the premium payment of the bond is $1,560,923.

Based on the long track-record of Wärtsilä installations, the advice of Sargent & Lundy, and a review of Wärtsilä's publicly available corporate financial records by the City's Finance Director, staff does not believe the risk of a Wärtsilä bankruptcy is significant enough to warrant obtaining a $1.5 million bond.

The overall contract being presented to the City Council for approval on July 28 does not include the cost of the $1.5 million bond. If the City Council desires to include the bond, specific instruction from City Council will be necessary on that date to include the expense in the approval and to incorporate the bond into the final contract.

The City retained an outside attorney from Dorsey & Whitney to provide guidance regarding the contract terms. Staff believes the contract that has been prepared with Wärtsilä is acceptable.

Considering the base price and applicable taxes and tariffs, the current revised project budget, including the purchase of the GSU and RICE engines as described in this report, is shown below:

DESCRIPTION	TOTAL ESTIMATED BUDGET - EACH LINE ADJUSTED TO INCLUDE TAX, CONTINGENCY, ESCALATION	CONTRACT (INCL. TAX/TARIFFS)	DIFFERENCE
Reciprocating Internal Combustion Engines (RICE) and Auxiliary Equipment	$ 73,315,096.14	$ 75,807,419.40	$ 2,492,323.26
GSU	4,805,580.00	2,470,416.00	(2,335,164.00)
GSU Relay Protection Control Cabinet & Metering	393,900.00		

MV Non-Segregated Bus Duct	196,950.00		
BOP Station Batteries and Charging System & UPS	1,293,815.76		
Geotechnical Investigation	182,287.06	189,569.00	7,281.94
Topographical Survey, Benchmarks, and Property Limits Survey	37,710.00	35,520.00	(2,190.00)
Acoustical Consultant	50,280.00		
Independent Testing Service	62,850.00		
General Work Contractor (CMaR)	97,366,422.65		
Engineering Services	8,800,427.01		
Construction Management Support (Home office engineering construction support and CM on site)	497,438.60		
Builders Risk Insurance (for 3 years)	1,773,692.31		
Building Furnishings	377,166.20		
Land Acquisition	502,888.26		
Transmission Connection (Including MISO Application)	3,017,329.57		
TOTAL	**$ 192,673,833.56**		**$ 162,251.20**

Assuming approval of these contracts, the expenditures to date represent approximately 40.7% of the budget's estimated costs. The overage of $162,251.20 represents a 0.08% exceedance of the anticipated project budget at this stage.

STAFF COMMENTS:

Given the significant size of these contracts, the City Council is not being asked to make an award on July 21. Instead, staff will deliver this report and answer questions the Council may have about the contracts and the AMEC project status. The City Council will be asked at the July 28, 2026 meeting to award contracts for the Generator Step-Up Transformer and RICE engine purchase.

It is important to note that the pricing for both RICE engine vendors will not be held past the end of July. Therefore, if the City Council is not prepared to approve a RICE contract award on July 28, the proposed pricing, engine production slot, and delivery date will no longer be available, subjecting the City to the risk of increased costs and substantial delays in obtaining these critical generating units.

ATTACHMENT(S):