

To: Mayor and City Council

From: Damion Pregitzer, PE, PTOE; Traffic Engineer

Date: September 26, 2023

**SUBJECT: Mortensen Road Speed Study**

## **BACKGROUND:**

In May 2020, in response to citizen requests, City Council received a staff memo regarding potential study options to look at **pedestrian crossing safety and traffic speeds on Mortensen Road**. Staff was directed to collect data (after COVID-19 restrictions were eliminated, allowing travel behaviors to normalize) and conduct a study per the recommendations within that memo (see attached copy of original memo). Speed data was collected by four radar detectors placed along the Mortensen Road corridor in western Ames. These detector locations are shown in **Figure 1 (Attachment 1)**, below. Data collected was for both directions of travel.

## **STUDY RESULTS:**

Engineering practice uses three summary statistics when analyzing roadway speed data. These statistics are 1) the **85<sup>th</sup> Percentile Speed**, which is the speed at which 85% of the drivers are traveling at or slower, 2) the **Pace**, which is the 10 MPH range that contains the highest number of drivers, and 3) **Excessive Speed Percentage**, which is the percentage out of the total drivers which were traveling at 10 MPH, or more, above the posted speed limit. The posted speed limit within the study area on Mortensen Road is 40 MPH west of South Dakota Avenue and 30 MPH east of South Dakota Avenue near Ames Middle School.

Analysis of speed study data involves two steps; 1) compare the consistency (+/- 5 MPH) of the 85th Percentile Speed and the Pace (upper limit) with the posted speed limit, and 2) compare the number of drivers that are in the Excessive Speed range. **As a rule of thumb, below 5% excessive speeding generally indicates a well-behaved roadway, and no immediate action is necessary. When the excessive speeding is between 5% and 15%, a combination of low-cost traffic calming and targeted enforcement is recommended. Excessive speeding above 15% requires more significant investments to reduce the speeding to acceptable levels.** However, each location is

unique, and the study area's context must be considered before making permanent changes to the roadway. It is also a best practice to consider the cost-benefit of those traffic-calming improvements before installation and committing to their long-term maintenance.

**Table 1** summarizes the three significant speed statistics by detector location. **Figures 2-5 (Attachment 1)** show more detailed data summaries for each detector location, including the speed distribution plot.

*Table 1: Speed Statistics Summary*

Detector ID	General Location	Speed Limit	Eastbound (EB)				Westbound (WB)			
			Avg	85th	Pace UL	Excessive %	Avg	85th	Pace UL	Excessive %
1	Wilder Blvd to Miller Ave	40	38.4	43	43	1.4	35.9	40	41	3.9
2	Miller Ave to Poe Ave	40	<b>42.1</b>	<b>49</b>	<b>48</b>	<b>12.5</b>	38.4	44	43	1.4
3	Poe Ave to Dickinson Ave	40	36.2	42	42	0.7	<No Data Collected.>			
4	Ames Middle School	30	<b>37.5</b>	<b>42</b>	<b>42</b>	<b>30.7</b>	<b>33.1</b>	<b>37</b>	<b>38</b>	<b>5.5</b>

Two study locations (from Miller Ave to Poe Ave as well as near Ames Middle School), showed results indicating actionable excessive speeding as shown in red in the table above.

**RECOMMENDATIONS:**

**Miller to Dickinson:**

To address the pedestrian crossing issues in this roadway segment, **staff would recommend constructing an improved mid-block crossing equipped with a Rectangular Rapid Flashing Beacon (RRFB) between the intersections of Dickinson Ave and Poe Ave.** This crossing would be designed to integrate well with the CyRide stops in the area. Staff would recommend that speed be monitored after the installation of the crossing improvements. **Typically, staff would expect to see some amount of natural traffic calming associated with the improvement such that excessive speeding may be reduced.** Intersection and pedestrian crossing improvements have already been constructed at the Mortensen/Miller intersection.

**Middle School Location:**

To help mitigate the excessive speeding near Ames Middle School, **staff recommends the placement of dynamic feedback speed signs.** Staff would then monitor speeds after the placement of these signs to see if speeds were reduced to acceptable levels. **Regarding the current pedestrian crossing of Mortensen Road in this area (on the east side of the intersection with Seagrave Boulevard), the existing static flasher has reached the end of its useful life and a new Rectangular Rapid**

**Flashing Beacon (RRFB) has been ordered and will be installed this fall.** Staff also recommends increased police enforcement throughout this area.

**Installation of Recommended Treatments:**

As noted above, there are two additional improvements to be installed:

1. The proposed mid-block crossing with an RRFB treatment between Dickinson and Poe is estimated to cost \$30,000.
2. The dynamic feedback speed signs are estimated to cost \$12,000 for in front of the Middle School.

**These improvements will be funded from the Accessibility Enhancement Program Staff will plan and install these improvements after existing priorities for this year's program have been completed which would occur either in late FY 2023/24 or early FY 2024/25. These improvements are within Staff's authority to approve and intends to do so unless directed otherwise by the City Council.**

It should be noted that this study and associated recommendations were completed in the summer of 2022. Unfortunately, because of miscommunication the information was never sent to the City Council.

Attachment 1

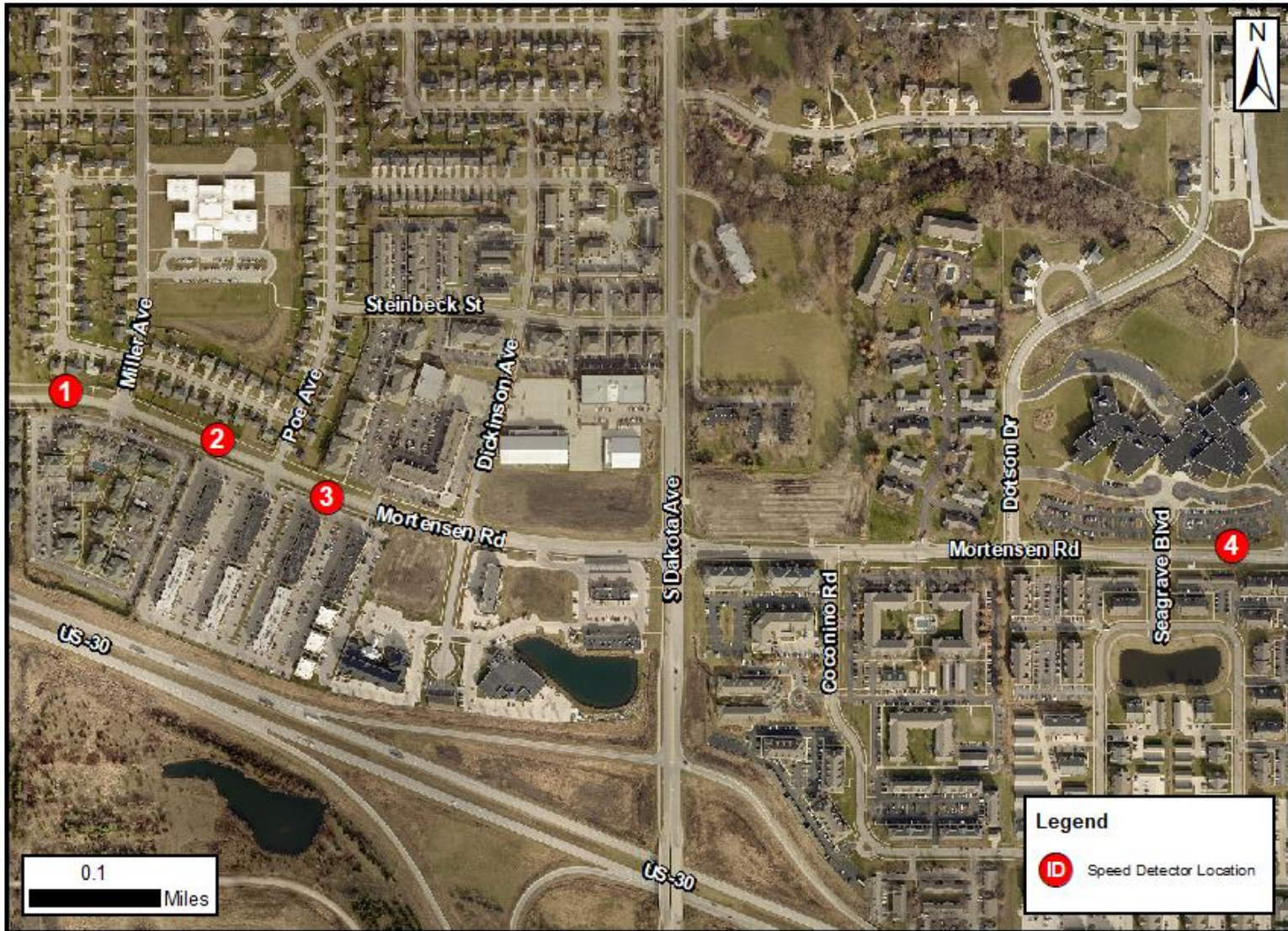


Figure 1: Speed Detector Locations

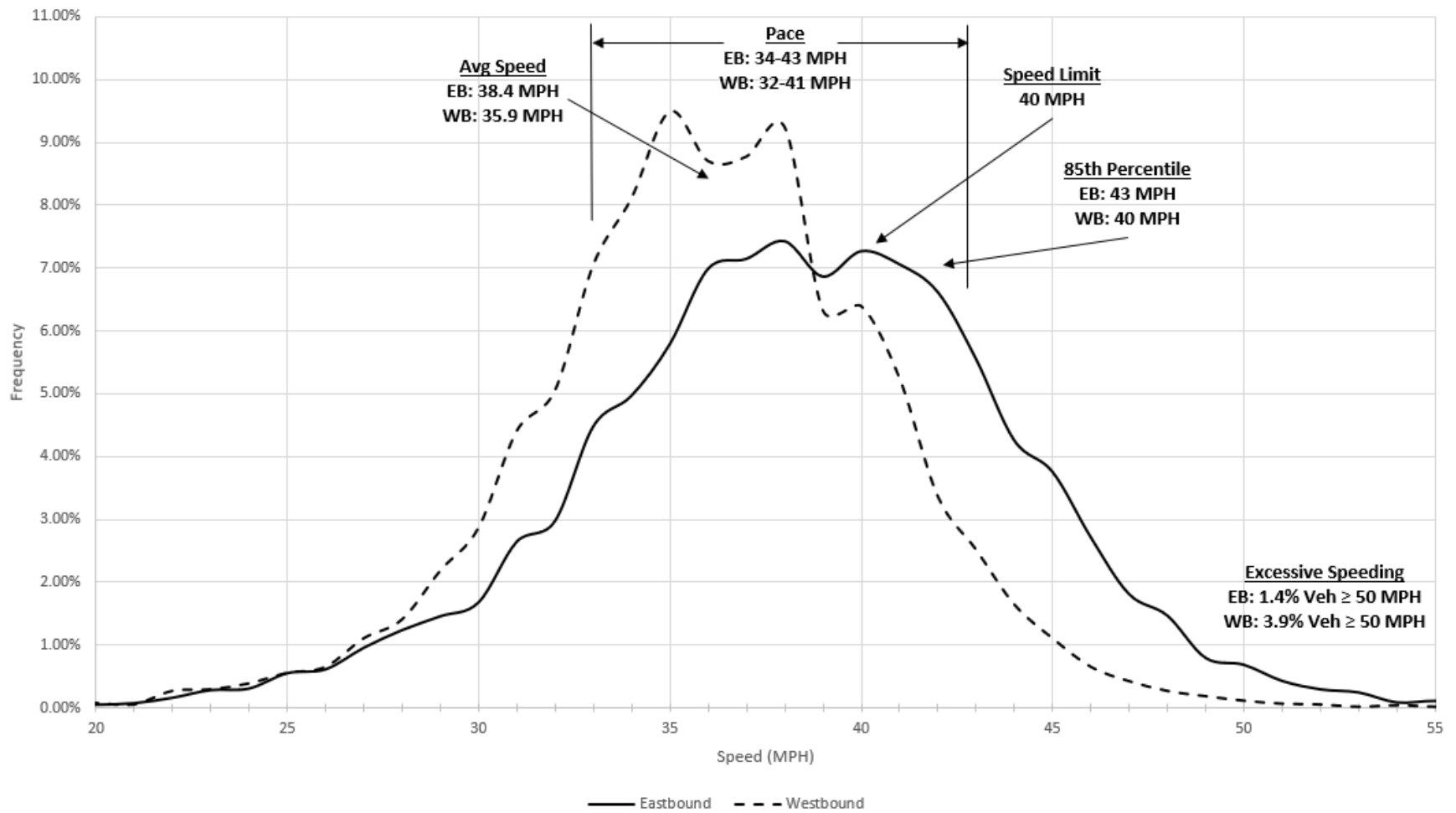


Figure 2: Detector #1 (Wilder Blvd – Miller Ave) Speed Statistics

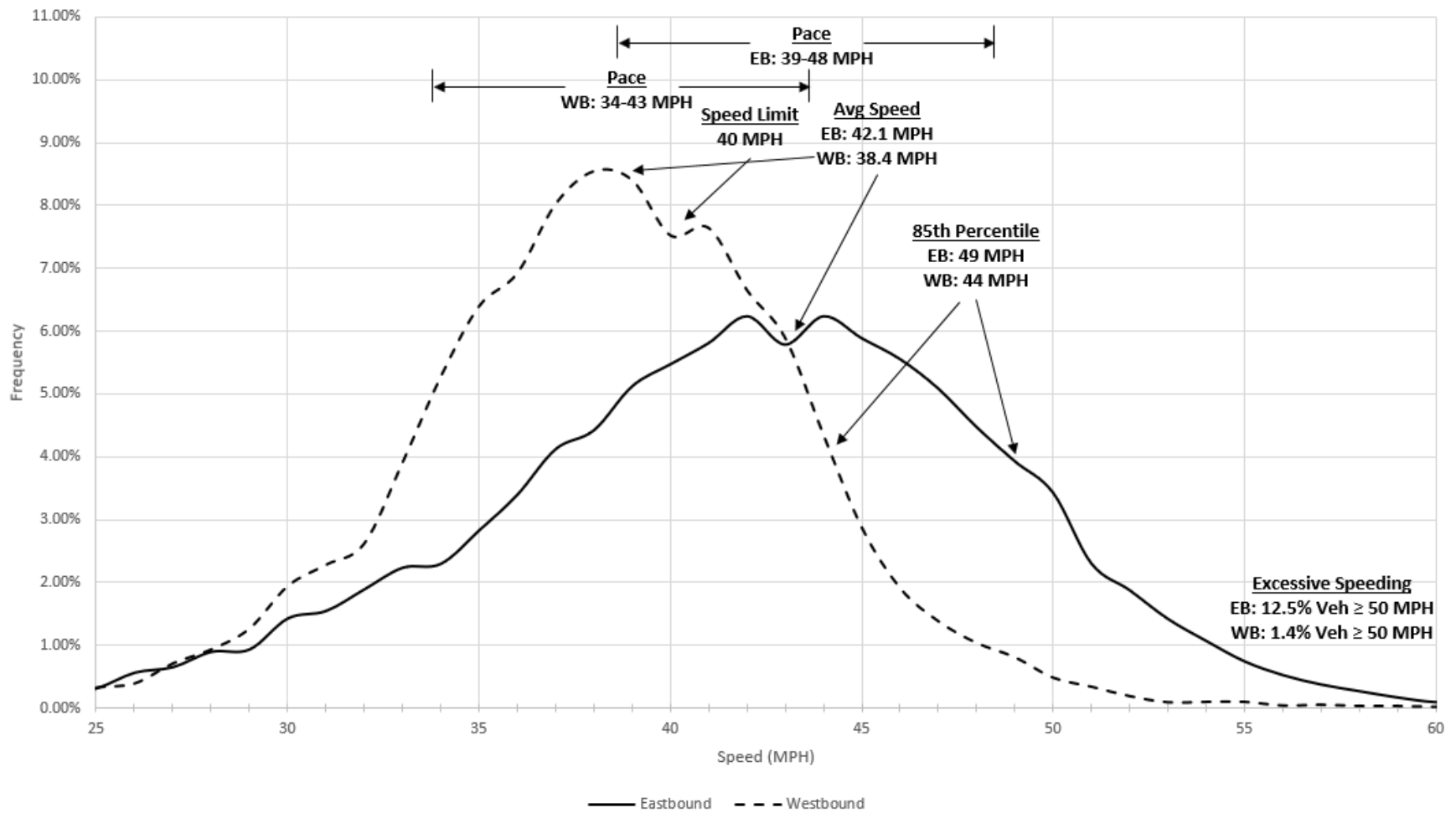


Figure 3: Detector #2 (Miller Ave – Poe Ave) Speed Statistics

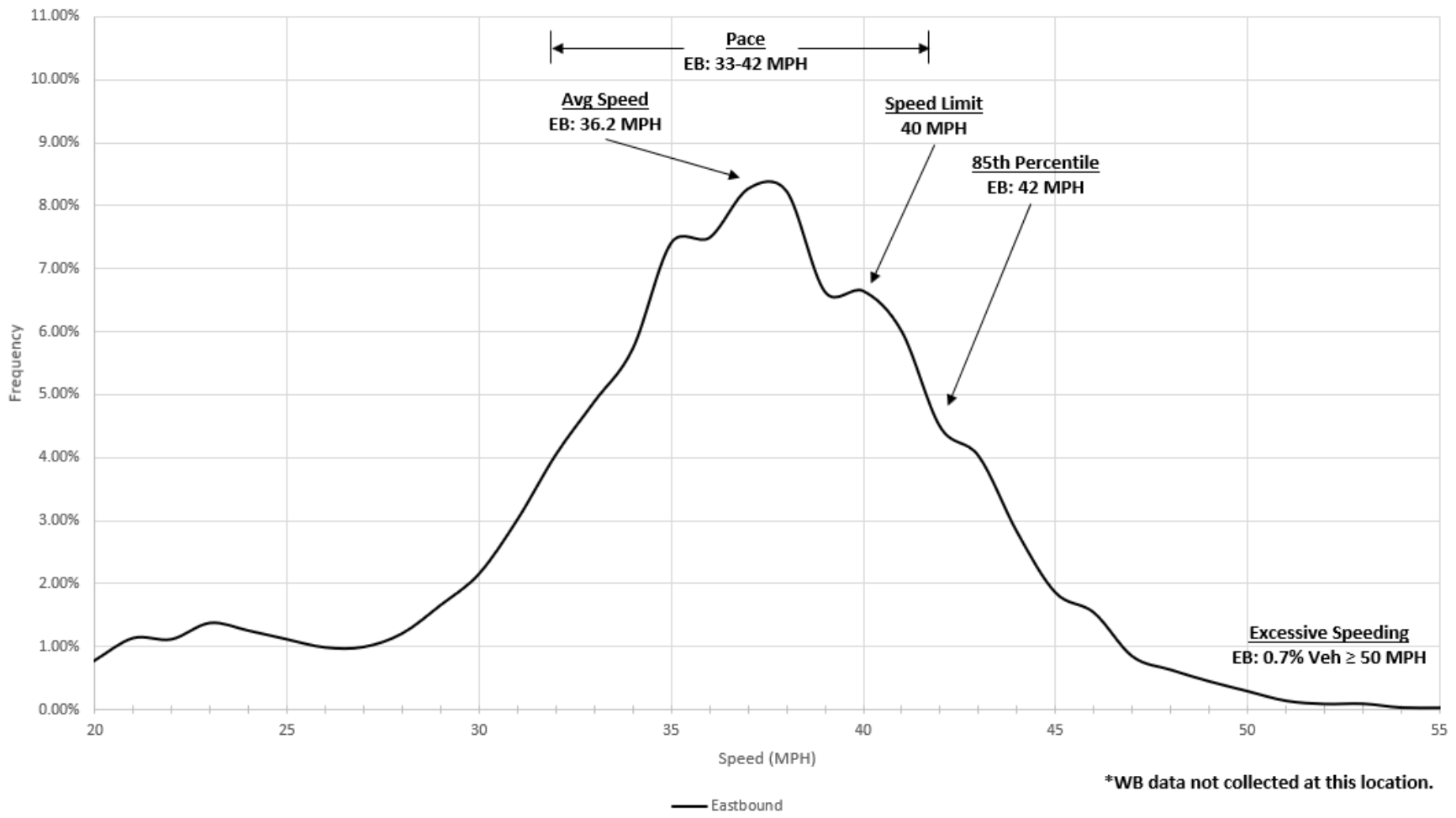


Figure 4: Detector #3 (Poe Ave – Dickinson Ave) Speed Statistics

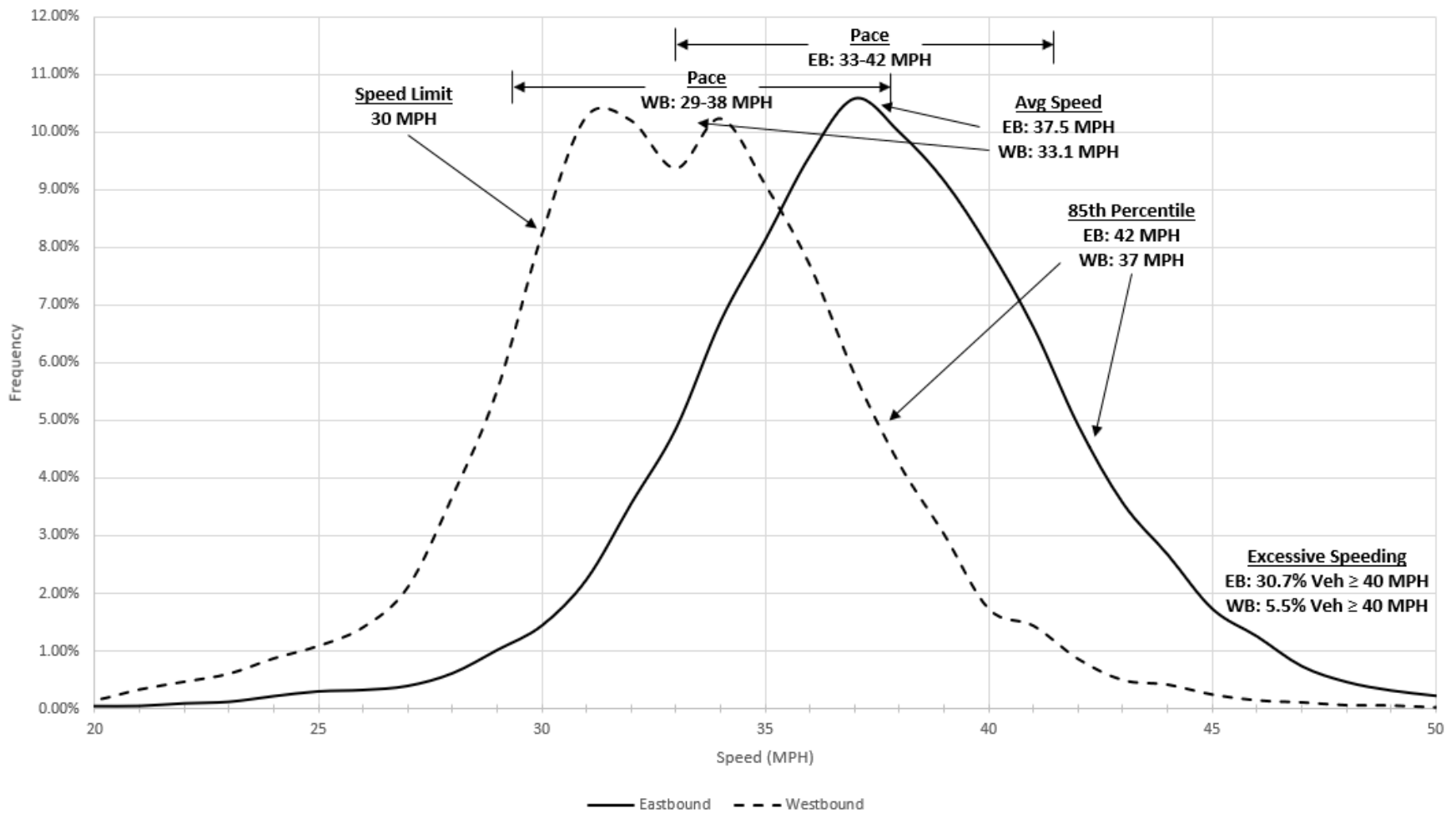


Figure 5: Detector #4 (Near Seagrave Rd/Ames Middle School) Speed Statistics



**COUNCIL ACTION SUMMARY**

***Meeting Date: May 26, 2020***

***Agenda Item #: Disposition***

**SUBJECT:** Citizen Inquiries about traffic studies in Southwest Ames

**ACTION TAKEN:** Directed staff to initiate the traffic studies as described in the Staff Report.

**MOTION BY:** Martin

**SECOND BY:** Beatty-Hansen

**VOTING AYE:** Beatty-Hansen, Betcher, Corrieri, Gartin, Junck, Martin

**VOTING NAY:** None

**ABSENT:** None

**By:** Amy L. Colwell, Deputy City Clerk

**Sent to:** John Joiner, Public Works Director  
Damion Pregitzer, Traffic Engineer

To: Mayor, and City Council

Cc: Steve Schainker, City Manager  
John Joiner, Public Works Director

From: Damion Pregitzer, Traffic Engineer

Date: May 22, 2020

Subject: Response for traffic study requests from Bonnie Alley and Kyle Poorman

On April 28, 2020, City Council referred two requests for studies, from Bonnie Alley and Kyle Poorman, both related to traffic studies in the Southwest Ames area. This memo will estimate the staff time and effort to conduct the studies, as well as any notable costs associated with those efforts.

### **BONNIE ALLEY REQUEST (APRIL 22, 2020):**

This request was to evaluate Mortensen Road Speed Limits from South Dakota west to the western end of the roadway. In this request, there were several concerns related to the appropriateness of the current speed limit juxtaposed with younger individuals trying to cross Mortensen Road and the potential of excessive speeding along the roadway segment.

### **STAFF RECOMMENDATION REGARDING BONNIE ALLEY'S REQUEST:**

It would take approximately two weeks to collect and analyze the speed data. Staff could then recommend any regulatory changes to City Council. It should be noted that with any study performed while COVID-19 protocols are affecting travel that there is the potential to have data that is unrepresentative of "normal" conditions. However, the free-flow speed of a roadway should be impacted very little by reduced traffic volumes as it is more affected by the geometry of the road

than the amount of use. Congestion typically lowers speeds and may even disallow excessive speeding to occur. **Therefore, staff sees no reason to delay this study and would recommend that the City Council direct staff to conduct a speed study on Mortensen Road from South Dakota to its western end.**

**KYLE POORMAN REQUEST (APRIL 15, 2020):**

This request also is asking for staff to conduct speed studies along Mortensen Road (South Dakota Ave to its Western End), but also includes Mortensen Road in front of the Middle School (Hayward to South Dakota). The request also cites various concerns related to the flasher in front of the Middle School and expressing the desire for it to be converted to a Rectangular Rapid-Flashing Beacon (RRFB). Mr. Poorman also talks about the issue of missing pedestrian infrastructure in the area.

Staff would give the same response to conducting a speed study to what was provided for Bonnie Alley's request. Staff would just add two weeks for the segment of Mortensen Road from South Dakota east to Hayward Avenue. **It is important to note that ISU has jurisdiction over a substantial portion of this road segment and, therefore, the Board of Regents has the authority to set the speed limits along the segment of the road from the Ames Middle School to Hayward Avenue. Therefore, any recommendation regarding speed limits along the total segment requested by Mr. Poorman will need to be coordinated with ISU staff, and will likely take much longer to implement.**

His second issue is related to the lack of pedestrian crossing treatments, which is more complicated from a data collection and analysis perspective. **Unlike speed data, crossing treatment studies are heavily dependent on good user data and are likely to be negatively affected by Statewide COVID-19 protocols resulting in significantly less pedestrian and vehicular traffic.** Many of the moderate to high-cost treatments used to control vehicular traffic,

such as a Rectangular Rapid-Flashing Beacon or a Pedestrian Hybrid Beacon (Signalized Ped Crossing) require relatively high pedestrian counts to justify their installation.

Staff has already begun working on the design for intersection crossing improvements at Mortensen Road and Miller Avenue (near Edwards Elementary in the western Mortensen corridor) to enhance pedestrian crossings to and from school. The study would also evaluate Mortensen Road between Miller Avenue and Dickinson Avenue for a potential mid-block crossing that likely to have a refuge island, high-visibility crosswalk markings, and warning signs. This may include active warning devices such as an RRFB depending on traffic counts. At the same time, staff could evaluate the crossing flasher at Seagrave Blouelvard (near the Middle School CyRide turn-around) for conversion to an RRFB or more substantial crossing improvement (if warranted).

#### **STAFF RECOMMENDATIONS REGARDING KYLE POORMAN'S REQUESTS:**

**In response to Mr. Poorman's request for improved pedestrian crossings, Staff would recommend that the City Council direct staff to conduct traffic counts and evaluate Mortensen Road for additional enhanced pedestrian crossing treatments from the Ames Middle School to the westerly end of the roadway.** The earliest possible starting time this analysis would be in the Fall 2020 when, hopefully the Ames School District and ISU will be in session. Staff expects this study to take approximately 45 days due to the need to collect multimodal turning movement counts at several intersections throughout the corridor. This study will include the evaluation of any missing infrastructure.

**In response to Mr. Poorman's request to reduce the speed limit along Mortensen Road from Hayward Avenue to the westerly end of the roadway, Staff recommends that the City Council direct staff to expand the scope of the study related to Bonnie Alley's study request.**