Staff Report

TRAFFIC CALMING STUDY FINDINGS

October 9, 2012

BACKGROUND:

At the December 20, 2011 meeting, City Council was presented with the final draft of The Neighborhood Traffic Calming Handbook, which was planned through the Capital Improvement Plan (CIP). This handbook is meant to serve as a technical guide compiling nationally recognized best practices in the field of traffic calming, and then modifying those methods and their application to fit the context of the Ames community.

During that meeting, City Council referred to Staff the first locations to be analyzed under this new process; they were 1) Hayes Avenue between 24th Street and 20th street, 2) Ridgewood/Summit/Crescent streets between 16th Street and 13th Street, and 3) Jewel/Diamond streets from S. Duff Avenue to its end at Kate Mitchell Elementary School.

In order to collect traffic data during the time of year that has the highest potential for speeding – months without snow and ice – Staff conduct the studies during the months of April and May making sure to collect data while school was in session. The following sections will summarize these findings and provide recommend traffic calming methods to improve these areas.

Many data were evaluated during these studies such as speed, roadway and intersection geometry, sight distance, crash history, and inventory of traffic control devices, as well as input from local residents during public meetings. Though all of these data are important for this review, **it was found that the public input and speed data were most critical in evaluating these particular locations.** In addition to the experiences shared by local residents, evaluations are based upon the following criteria:

- **Prevailing Speed** = Average of the **85th Percentile Speed** and the **Pace.**
    - Threshold: Posted Speed Limit ±2.5 MPH is ideal, > 5 MPH is a concern, > 10 MPH could be considered severe.

  (*Pace = the 10 MPH range that includes the highest number of vehicles*)

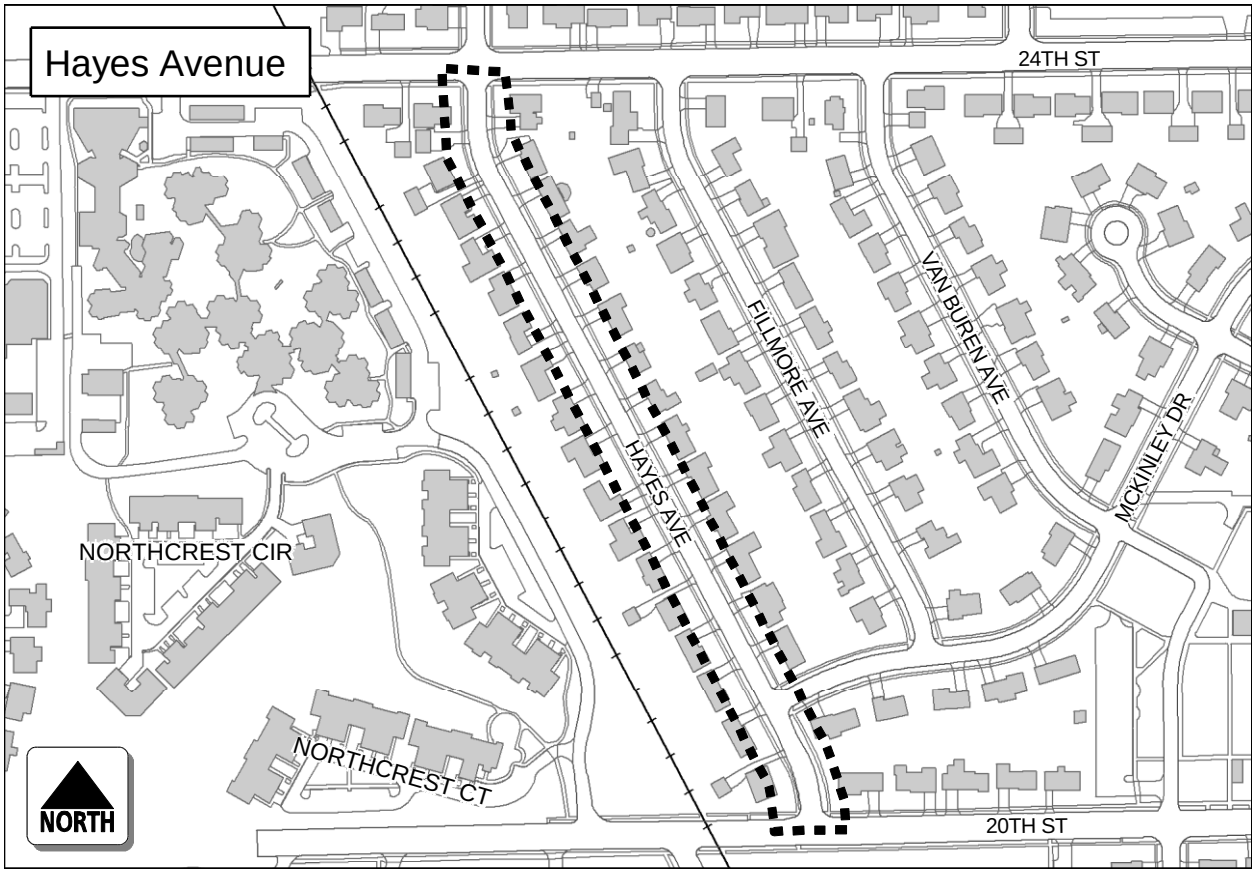
- **% > 10 MPH** = is the percent of vehicles traveling at least 10 MPH over the posted speed limit or higher.
    - Threshold: typical distributions have 3% to 5%; > 5% is a concern, > 10% could be considered severe.

After an initial investigation, the analyses of the first two locations (Hayes & Ridgewood/Summit/Crescent) have been conducted together due to a common contributing factor of both sites – the Ames High School. As this report will discuss each

of the two areas have their own unique characteristics, however the main concern for calming traffic results from ingress/egress traffic to the High School.

HAYES AVENUE:

The first location is Hayes Avenue (24th Street to 20th Street), which serves as one of the main northern access points for the Ames High School. A public meeting was held on Thursday, March 1, 2012 in one of the meeting rooms of Bethesda Lutheran Church; general issues discussed during the meeting related to vehicle speeds, driving behaviors relevant to the age of the driver; also, the safety of various pedestrian crossings in the area.



Hayes was found to have a very uniform distribution of speeds; the data collected over the course of a week nearly forms a perfect "Bell Curve". The table below summarizes the findings of the speed data collected:

Location		Prevailing Speed (MPH)	% > 10 MPH
Hayes Ave.	*NB*	31.5	3.11%
	SB	31.5	3.36%

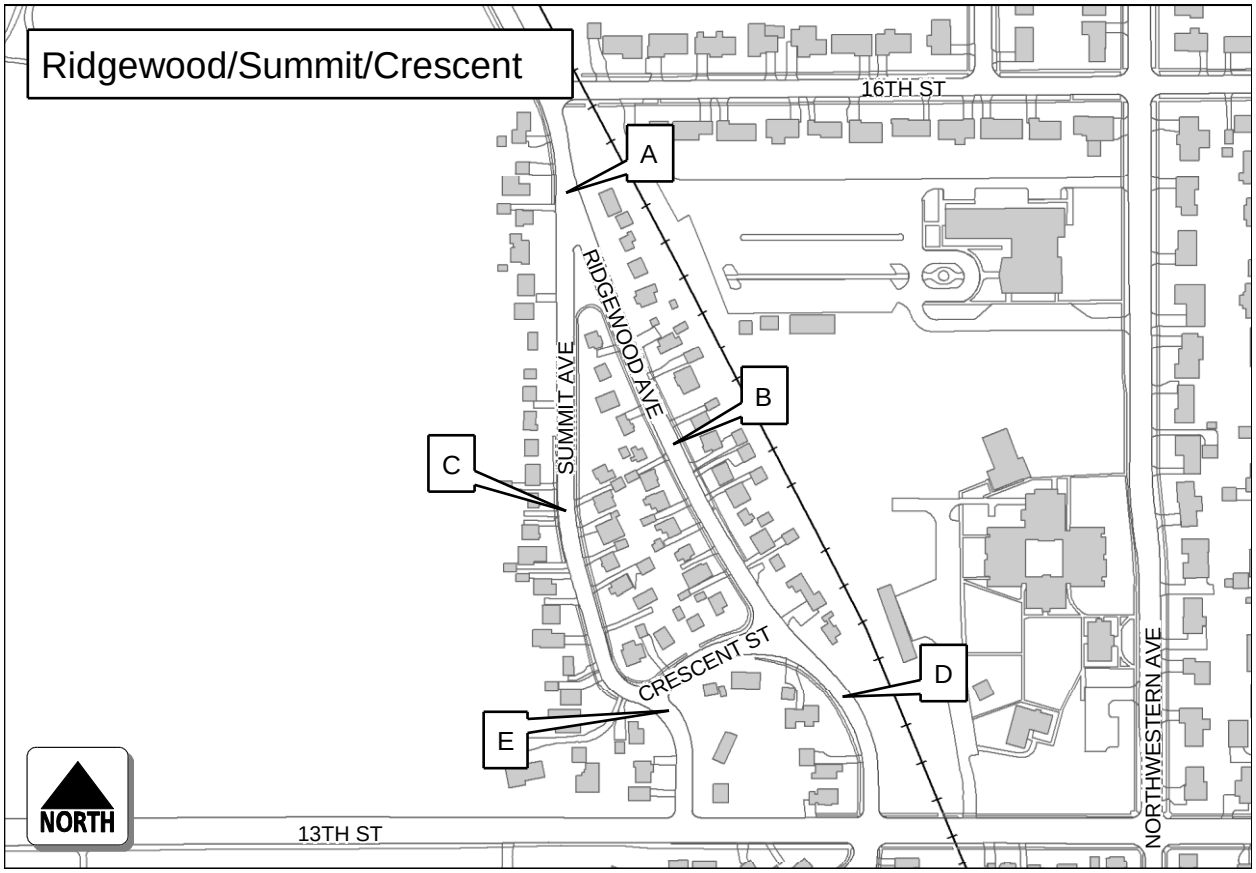
NB = Northbound, SB = Southbound

Considering there is a low level of “moderate” speeding along Hayes Avenue, the data would suggest that **Dynamic Feedback Speed Limit Signs** could be a solution to reduce those vehicles traveling in the 5-15 MPH over the speed limit. The purpose of these signs is to provide real-time information to motorists so they can be reminded of the legal speed limit. **The estimated cost is approximately $2,600 to $4,000 per sign – one each direction; this equates to $5,200 to $8,000 for the street**.

RIDGEWOOD/SUMMIT/CRESCENT:

The second location is a combined area of three streets; Ridgewood Avenue, Summit Avenue, and Crescent Street. These streets are directly south of the Ames High School and carry much, if not all, of the Ames High School traffic coming from the south, along with local traffic.

A public meeting for these streets was also held on March 1, 2012 and Staff heard similar concerns as in the case of Hayes Avenue; the biggest difference related to the operation of the 13th Street and Ridgewood traffic signal. Residents suggested some operational improvements for pedestrians and bikes aside from the traffic calming concerns – City Traffic Staff will be able to make those minor changes separate from a potential traffic calming project.



A table summarizing the Prevailing Speed and the percent of the distribution operating at 10 MPH or more over the posted speed limit has been proved below:

Location		Prevailing Speed (MPH)	% > 10 MPH
A	*NB*	25	0.34%
	SB	26	0.19%
B	*NB*	31.5	5.79%
	SB	31.5	3.68%
C	*NB*	31.5	5.83%
	SB	31	4.03%
D	*NB*	28	0.44%
	SB	30.3	1.71%
E	*EB*	24	0.00%
	WB	23.3	0.21%

NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound

As indicated above, moderate speeding is occurring mainly in the blocks of Summit Avenue and Ridgewood Avenue, between 16th Street and Crescent. Further analysis shows that these two street segments also have a noticeably higher percentage of motorists traveling above 10 MPH over the speed limit. Because of this, it is recommended that **Speed Humps** be placed along each street segment.

According to national recommended practices the optimal speed hump spacing to achieve an 85th percentile of 25 MPH is 275 feet. This equates to three speed humps (~14-ft wide, 3-in to 4-in rise) along Ridgewood Avenue and Crescent Avenue respectively. **Current pricing for these treatments are approximately $2,000 each (6 total); this brings the total estimated price to $12,000**.

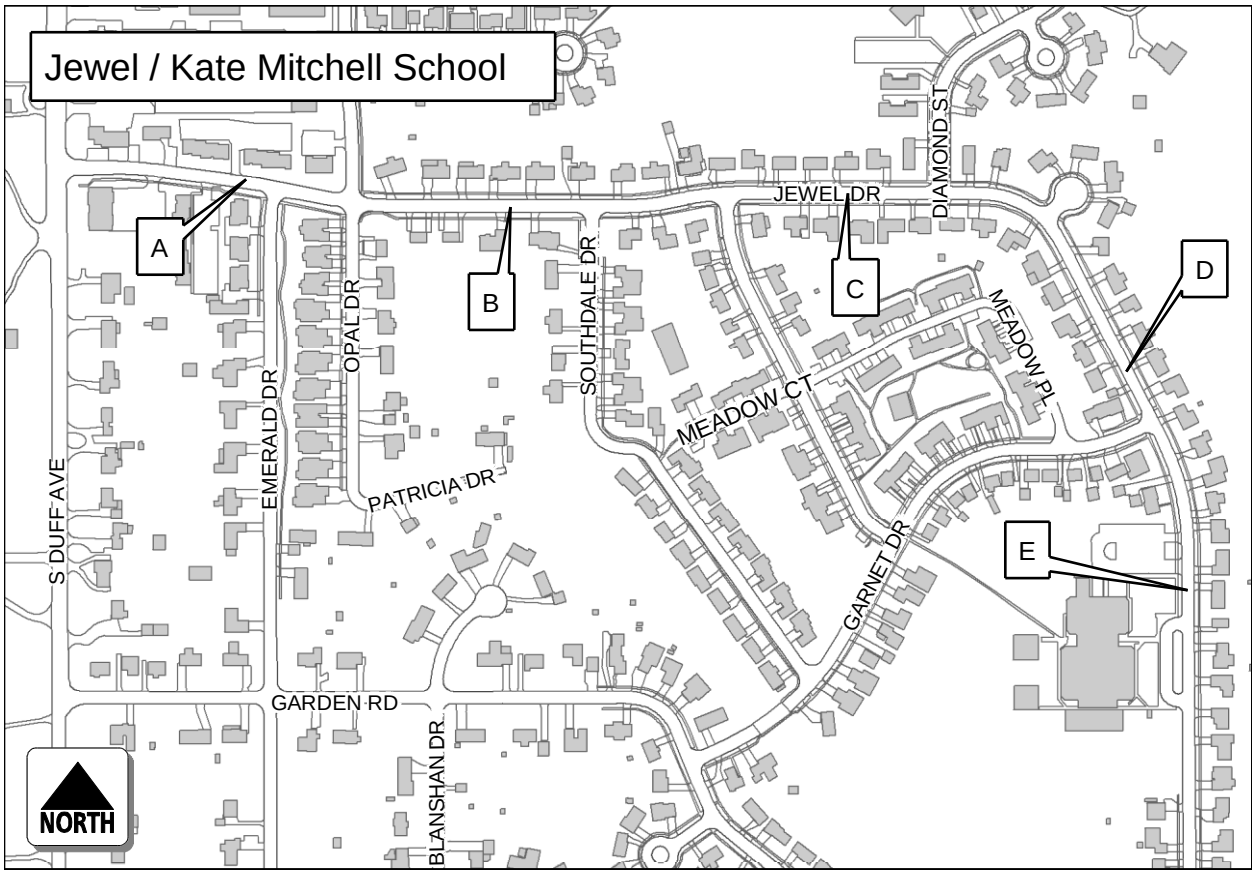
The recommended type of speed hump should be of solid rubber construction that can be retrofitted to the surface of the pavement. This also allows for the speed hump to be removed; considering this area would be the first location in Ames that could potentially use speed humps it is recommended that they be semi-permanent in case there are unforeseen issues or if the City would receive a request by the neighborhood to remove the treatment.

Removable sped humps can also be reused at other locations if needed, compared to speed humps constructed from asphalt or concrete that have to be destroyed when they are removed.

JEWEL / KATE MITCHELL SCHOOL AREA:

This study area is located in the far southeast corner of Ames; the main entrance to the neighborhood is accessed off of South Duff Avenue (US HW69). Similar to the other study areas, the data is heavily influenced by the school day traffic of those traveling to and from Kate Mitchell Elementary.

The public meeting for this neighborhood was held on Tuesday, May 15, 2012, in Room 235 of City Hall. Residents that attended the meeting generally indicated the highest concern for speeding in the areas of Jewel Drive starting from “Area C” down to the school around “Area E”; it should be noted that were not major issues discussed regarding the safety of a particular pedestrian route or crossing. An area map and table summarizing the speeds has been provided below:



Location		Prevailing Speed (MPH)	% > 10 MPH
A	*IN*	32	3.78%
	OUT	32.5	6.56%
B	*IN*	31.3	2.73%
	OUT	31.5	3.83%
C	*IN*	29.5	1.23%
	OUT	29.5	0.88%
D	*IN*	29.5	1.14%
	OUT	28.5	0.97%
E	*IN*	24.8	0.00%
	OUT	25.5	1.12%

IN = Inbound, towards Kate Mitchell, OUT = Outbound, towards S. Duff Ave.

The data would suggest that for areas B, C, and D that they are again in a range that may be best suited for dynamic feedback signs; areas B & C could be served with two signs and Area D would need another two – **total estimated cost for 4 signs would be $10,400 to $16,000**. Then in Area A, due to its moderately high "% > 10 MPH" percentage, a consistent approach would suggest that the City install two or three Speed Humps that are again spaced at 275 feet apart – **the cost for this treatment would approximately range from $4,000 to $6,000**.

STAFF COMMENTS:

The newly adopted Neighborhood Traffic Calming Handbook (NTCH) for the City of Ames contains a wide range of roadway and roadside treatments to help improve traffic safety and the quality of life for residential neighborhoods. Treatments in the handbook range from **Non-Physical Measures** such as Enforcement, Signs, and various types of Pavement Marking to **Physical Measures** both Vertical and Horizontal.

This range exits so that the appropriate level of treatment can be applied to each respective traffic calming project in order to best match the severity of the problems experienced in the study area. In the case of the three study areas shown in the report; 1) Hayes, 2) Ridgewood/Summit/Crescent, and 3) Jewel/Kate Mitchell School, they all experience low to moderate traffic speeds and therefore the recommended treatments come from the list of Non-Physical Measures and the more minor Physical Measures of the NTCH.

RECOMMENDATIONS:

Hayes: Install two (2) Dynamic Speed Feedback signs; Cost ~ **$5,200 to $8,000.**

Ridgewood/Summit/Crescent: Install six (6) removable rubber Speed Humps, three (3) along Ridgewood Avenue and three (3) along Summit Avenue; Cost ~ **$12,000**.

Jewel/Kate Mitchell School**: Install three (3) Speed Humps near S. Duff Avenue along Jewel Drive; Cost ~ **$6,000**, and Install four (4) Dynamic Speed Feedback signs, two along Jewel Drive between Opal Drive and Diamond Street, and two (2) along Jewel Drive between Diamond Street and Kate Mitchell School; Cost ~ **$10,400 to $16,000**.

Alternate 1 - Jewel/Kate Mitchell School: Install the Dynamic Speed Feedback signs as indicated above, and monitor both the speeds and the reactions of the neighborhood. If the residents find this treatment to be ineffective, the City could choose to increase the level of treatment by adding Speed Humps in areas C, D, and E for an additional six (6) Speed Humps; Cost ~ **$12,000**.

**Note: This recommendation is written to be consistent with the findings of the data collected, however it should be noted that the residents of the Jewel Neighborhood expressed their strongest concerns for speeding along Jewel

Drive in the areas where the street turns and heads south to the school, not in the areas near S. Duff Avenue.

Staff's main concern with installing the Speed Humps in "Area A" is that unlike the case of Ridgewood and Summit, this area is not well isolated and there is a higher potential that the Speed Humps would simply cause a shift in traffic patterns to other streets such as Garden Road or possibly Crystal Street. This would simply be transferring this safety issue to other parts of the Southdale area. Therefore, "Alternative 1" has been created above that better suit the context of the Jewel Neighborhood area.

City Council members can decide based upon the information in this report which option, if any, they would like to support. The final authorization to fund these improvements would take place in conjunction with the 2013/14 budget decisions.