ITEM # 29
DATE: 6-10-14

COUNCIL ACTION FORM

SUBJECT: **SPEED STUDY FOR DUFF AVENUE (6TH STREET TO 10TH STREET)**

BACKGROUND:

City Council referred a letter from the Historic Old Town Association (HOTA) requesting that staff conduct a traffic speed study in the residential stretch of Duff Avenue starting north of the 6th Street intersection and ending approximately at 10th Street. In response, staff from Public Works and Police met with members of the HOTA prior to the data collection to hear the specific concerns of the neighborhood. After the meeting staff placed traffic counters for approximately one week along Duff Avenue in the 600 through 900 blocks. The summary of that data is shown below.

Traffic engineering practice generally uses three main criteria for evaluating the operational speed ("natural speed") of a roadway versus the posted speed limit. These include (1) the 85th Percentile Speed, (2) Pace, and (3) the Prevailing Speed. The 85th Percentile Speed is defined as the speed at which 85% of the vehicles are traveling at or below. The Pace is the 10 MPH range of speeds that contain the highest volume of vehicles. The Prevailing Speed is the average of the 85th Percentile Speed and the upper limit of Pace. **Currently, this section of Duff Avenue is posted at 30 MPH.**

Table 1: Speed Data by Block

	85th %-tile Speed		Pace		Prevailing Speed	
Block	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
6th - 7th	35 MPH	33 MPH	28-37 MPH	25-34 MPH	36 MPH	33.5 MPH
7th - 8th	36 MPH	35 MPH	29-38 MPH	27-36 MPH	37 MPH	35.5 MPH
8th - 9th	35 MPH	34 MPH	27-36 MPH	26-35 MPH	35.5 MPH	34.5 MPH
9th - 10th	35 MPH	33 MPH	27-36 MPH	25-34 MPH	35.5 MPH	33.5 MPH
Overall	**35 MPH**	**34 MPH**	**27-36 MPH**	**26-35 MPH**	**35.5 MPH**	**34.5 MPH**

Typical speed studies having "well-behaved" traffic data will result in all three of the criteria falling within a 5 MPH range of the posted speed limit. Other important considerations related to the data are the shape of the distribution of the speeds. The more normally distributed the speed data, the less likely traffic is being influenced by something external or next to the roadway. Figure 1 below has been provided only to illustrate that all of the data collected is highly normal in its distribution, and so this study does not need to include additional roadway data for evaluation.

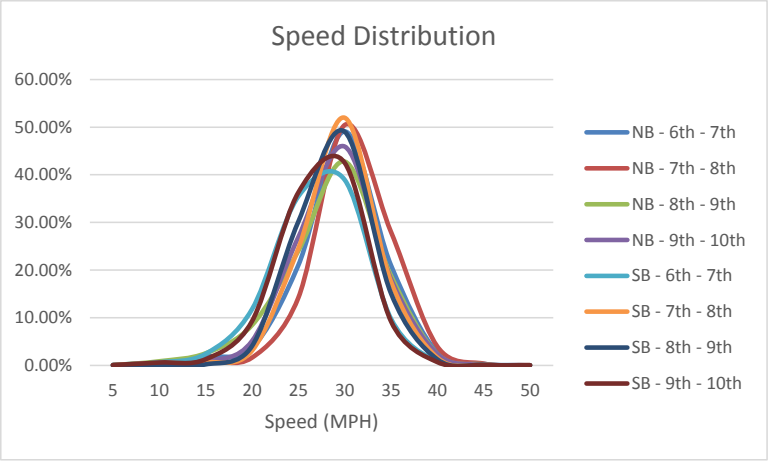

Figure 1: Shape of Speed Distribution by Block & Direction

In recent years, the City Council adopted a policy outlining when traffic calming measures are to be considered on a local residential street. The data collected during a traffic calming study would suggest that if 3% to 5% of the traffic is found to be exceeding the posted speed limit by 10 MPH, a minor or lower-cost traffic calming measure should be considered. Alternately, if more than 5% of the traffic is exceeding the posted speed limit by 10 MPH, more costly physical improvements may be needed to slow traffic.

It should be emphasized that those traffic calming thresholds apply only to residential roadways federally classified as local roads. All other road classifications do not qualify for traffic calming. This is because roads classified as collector or arterial streets are intended to move progressively higher volumes of traffic safely and efficiently. Traffic calming measures on these types of roadways could also have a significantly negative effect on emergency services response times. **Within this study area, Duff Avenue is a four-lane roadway classified as an arterial.**

Table 2 shows the data collected broken down into the percent of vehicles that were found traveling within various speed ranges. Vehicles that were exceeding the posted speed limit by 10 MPH are shown in the last row of the table:

Table 2: Percent of Vehicles by Speed Range by Block.

	Northbound				Southbound				Overall
Range	6th - 7th	7th - 8th	8th - 9th	9th - 10th	6th - 7th	7th - 8th	8th - 9th	9th - 10th	
0 to 10 MPH	0.33%	0.40%	0.56%	0.17%	0.27%	0.27%	0.28%	0.28%	0.32%
11 to 20 MPH	2.16%	1.39%	3.37%	1.40%	3.05%	1.10%	0.27%	1.86%	1.82%
21 to 30 MPH	24.61%	15.71%	32.26%	31.93%	47.13%	27.52%	34.09%	45.42%	32.28%
31 to 40 MPH	69.86%	78.14%	61.25%	63.94%	48.67%	69.35%	63.98%	51.68%	63.40%
> 41 MPH	**3.04%**	**4.35%**	**2.56%**	**2.56%**	**0.88%**	**1.76%**	**1.38%**	**0.76%**	**2.17%**

Even though the City's traffic calming policy does not apply to this section of Duff Avenue as an arterial street, it is still a useful tool for evaluation purposes. As seen above, there are two blocks of Duff Avenue where over 3% of the

vehicles are traveling in excess of 10 MPH over the posted speed limit. The data indicates this is occurring in the northbound direction between 6th Street and 8th Street. Since the overall amount of traffic traveling in excess of 10 MPH over the posted limit in both directions is below 3%, no physical or regulatory changes are being recommended at this time.

In light of the inappropriateness of utilizing traffic calming along a 4-land arterial, City Council may want to consider two other approaches to addressing neighborhood concerns with traffic speeds. The first option would be to increase speed enforcement in the area through an increased Police presence. Such efforts, however, are not sustainable on a permanent basis, since officer time would be taken from elsewhere in the community. Experience has also shown that, after intense enforcement efforts end, speeds often revert back to levels seen before the enforcement efforts. In this specific area, this would be due to the fact that, as is strongly indicated by the data, the natural speed of this roadway would warrant posting the speed limit at 35 MPH.

A second option available to Council would be for staff to use a speed trailer to see if providing dynamic feedback to motorists helps their awareness and lowers speeds. It should be noted, however, that in some cases the effectiveness of dynamic speed signs diminishes over time as the public becomes accustomed to their presence. If dynamic feedback signs are found to have a significant impact on lowering the higher speeds (40+ MPH), staff could program a permanent installation along the warranted sections of Duff Avenue in a future budget request. The cost for permanent dynamic feedback signs is estimated at $6,500 per sign, and would thus require $13,000 of Road Use Tax funds to cover this area of Duff Avenue. Should Council desire to pursue this second option, the City currently has a dynamic speed trailer that could be used temporarily to conduct this evaluation.

ALTERNATIVES:

1. Direct staff to evaluate the effect of dynamic feedback signs on speeds along Duff Avenue within the Historic Old Town Neighborhood.

2. Direct staff to temporarily increase traffic enforcement in this area.

3. Direct staff to maintain the current conditions.

MANAGER'S RECOMMENDED ACTION:

This area of Duff Avenue has several challenges that complicate balancing the priorities of moving traffic along an arterial street with functioning as a residential street. Therefore, options are limited when trying to manage traffic operations to align with the desires of the neighborhood with the overall needs of the City's transportation network. By using tools such as dynamic feedback signs, it may be possible to achieve better compliance with the current speed limit without causing negative impacts on through traffic.

Therefore, it is the recommendation of the City Manager that the City Council accept Alternative No. 1, thereby directing staff to evaluate the effect of dynamic feedback signs on speeds along this section of Duff Avenue within the Historic Old Town Neighborhood.

This option will result in staff placing an existing speed trailer between 6th and 8th Streets as a test for a 1-2 week time period. After the test period is concluded, staff will present Council with a report documenting the effectiveness of the signs. If the signs appear to have a significant effect in reducing speeds, Council can then give direction on budgeting funds to install permanent dynamic feedback signs.