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MEMO

Packets 3-19-21

To: Mayor and City Council
From: Damion Pregitzer, Traffic Engineer
Date: March 23, 2021
Subject: Stange Road Speed Study (North of Bloomington Road)

BACKGROUND:

In December 2015, a staff report was provided to City Council for a speed study conducted along the Stange Road corridor near Northridge Heights Park in response to public concerns of speeding. Since that study, there has been continued communication between staff and various citizens who have expressed concerns. On February 5, 2020, staff received a letter from Lois J Lehmkuhl, who expressed concerns about speeding near Northridge Heights Park along Stange Road. Within the letter, Lois is requesting a new Speed Limit be set at 25 MPH instead of the current 35 MPH Speed Limit to help slow traffic near Northridge Heights Park.

SPEED STUDY ANALYSIS PROCESS:

Engineering practice uses three summary statistics when analyzing roadway speed data. These statistics are:

- 1) The **85th 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.

Traffic calming evaluation 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, staff will work with the Police to conduct periodic enforcement or provide additional guidance signs as needed to slow traffic. It may also include non-physical traffic calming measures (paint, dynamic feedback signs, or warning devices, etc.) as warranted. Between 5% and 10%, staff may recommend

physical traffic calming measures that force drivers to slow down (speed humps, curb narrowing, horizontal alignment changes, etc.).

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.

To assess speeding behavior in this area, staff utilized traffic data from detectors placed along the corridor. Data were collected from September 5-11, 2020, near Milstead Road. Additionally, data were collected from February 12-19, 2020, near Milstead Road and the McFarland Clinic at 3815 Stange Road. Staff utilized additional data sources to assess the trend in speeding behavior near Northridge Heights Park throughout 2019 and 2020.



SPEED DATA COLLECTION:

Figure 1 (September 2019 dataset) and **Figure 2 (February 2020 dataset)** on pages 4 and 5 summarize the three significant speed statistics and distribution of the data collected along Stange Road near Milstead Road. Each direction of travel is shown separately. Note that a normalized fit is shown in addition to the distribution of the raw data to address the presence of low-speed vehicles that are likely performing turning maneuvers at the intersection. Staff used this normalized fit to estimate the free flow average speed and the 85th percentile speed statistics.

For both northbound and southbound traffic, the 85th percentile speed and upper limit of the pace are consistent (± 5 MPH) with the posted Speed Limit of 35 MPH. Excessive speeding (≥ 45 MPH) for both directions of travel falls well below 5%. While both travel directions have observed speeds consistent with the currently posted Speed Limit, the northbound direction has slightly higher observed speeds than southbound. Additionally, the data from September 2019 and the data from February 2020 are consistent with each other, showing very similar distributions and speed statistics.

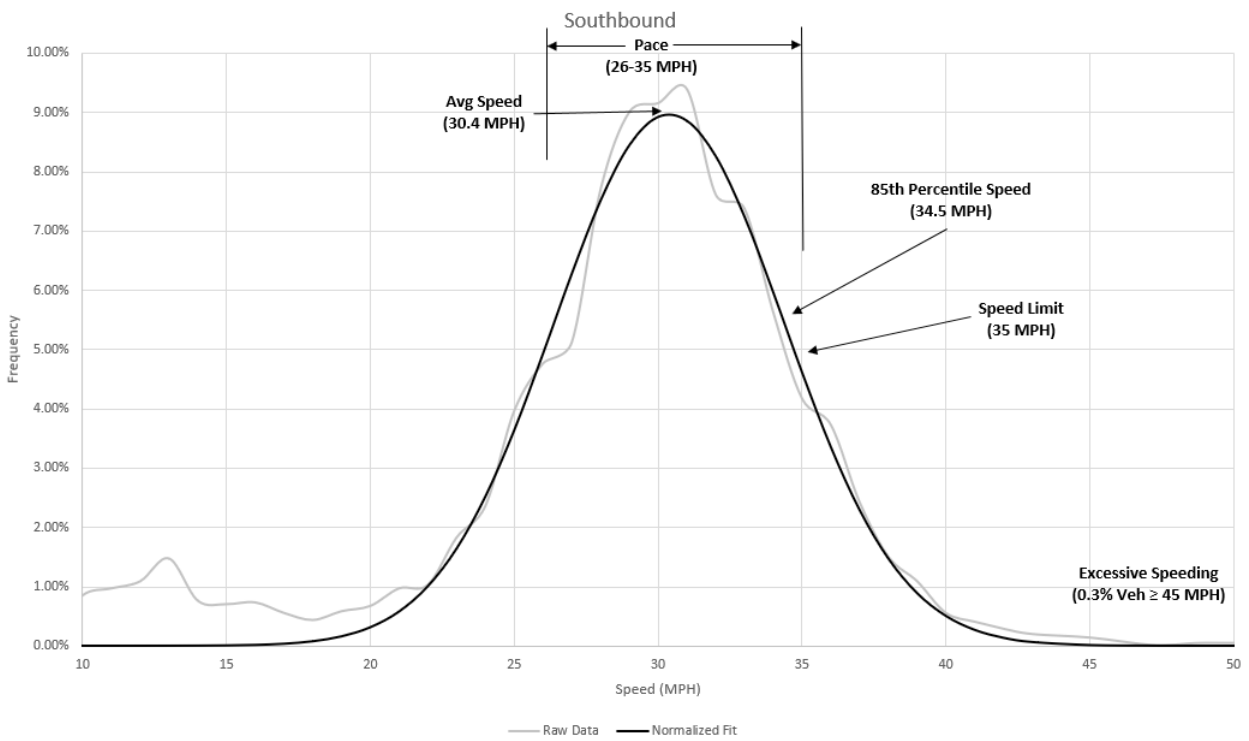
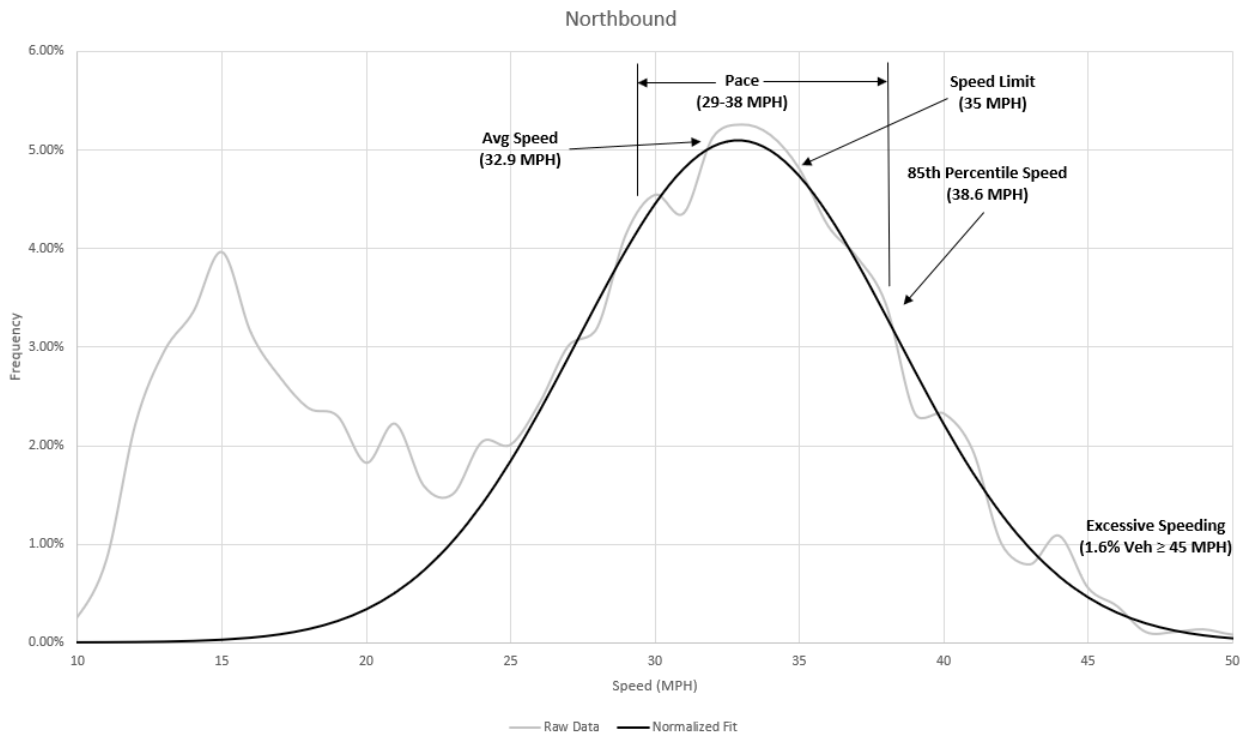


Figure 1: Stange Road Speed Statistics at Milstead Road (9/5/19-9/11/19)

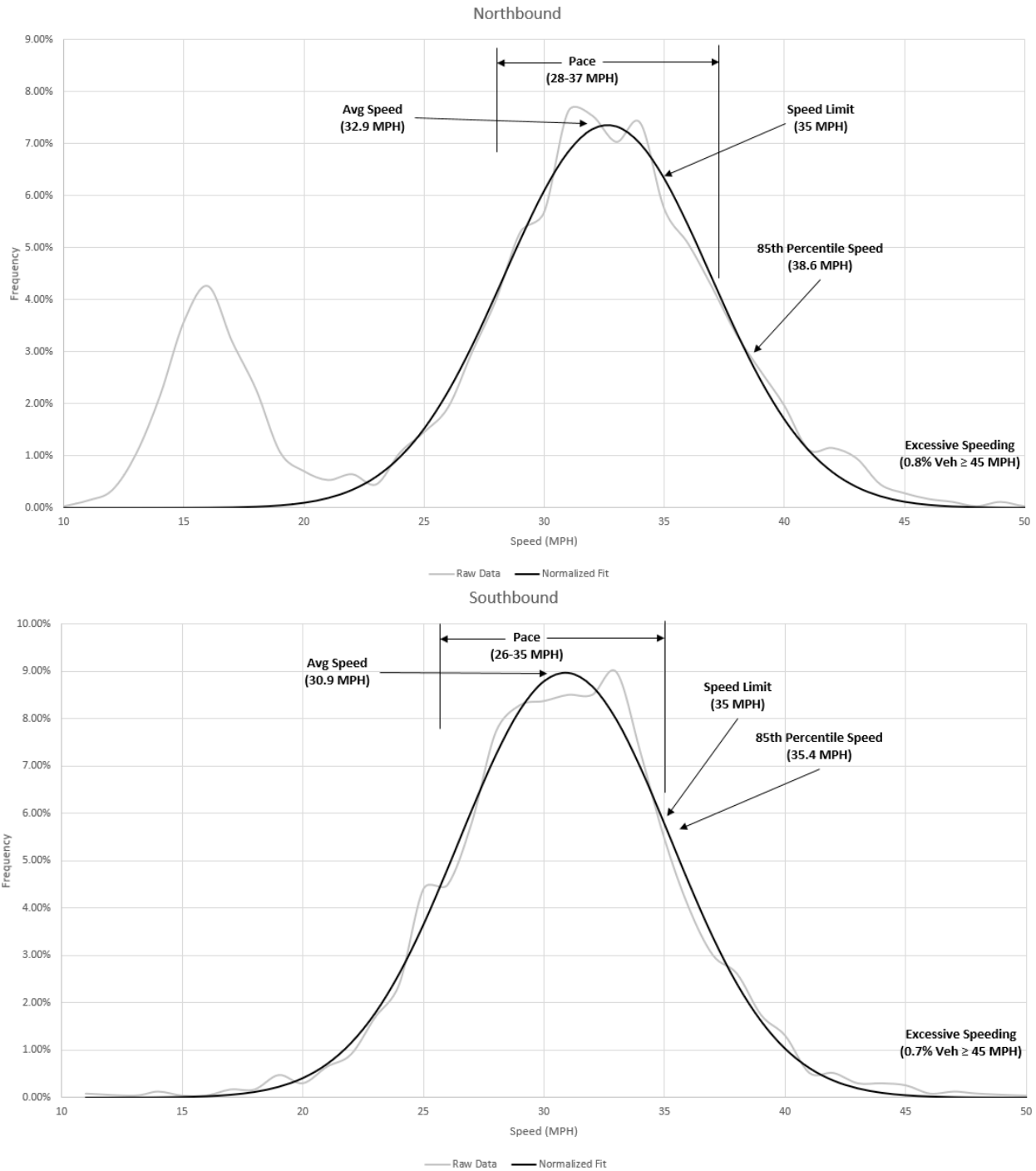


Figure 2: Stange Road Speed Statistics at Milstead Road (2/12/20-2/19/20)

Figure 3 on page 6 summarizes the three significant speed statistics and distribution of the data collected along Stange Road near 3815 Stange Road (McFarland Clinic). Both travel directions are shown.

The 85th percentile speed and the pace's upper limit were consistent (± 5 MPH) with the currently posted 35 MPH speed limit. Excessive speeding (vehicles

traveling ≥ 45 MPH) was also well below 5%. Speed behavior at 3815 Stange Road near the McFarland Clinic appears similar to what was observed at Milstead Road near Northridge Heights Park.

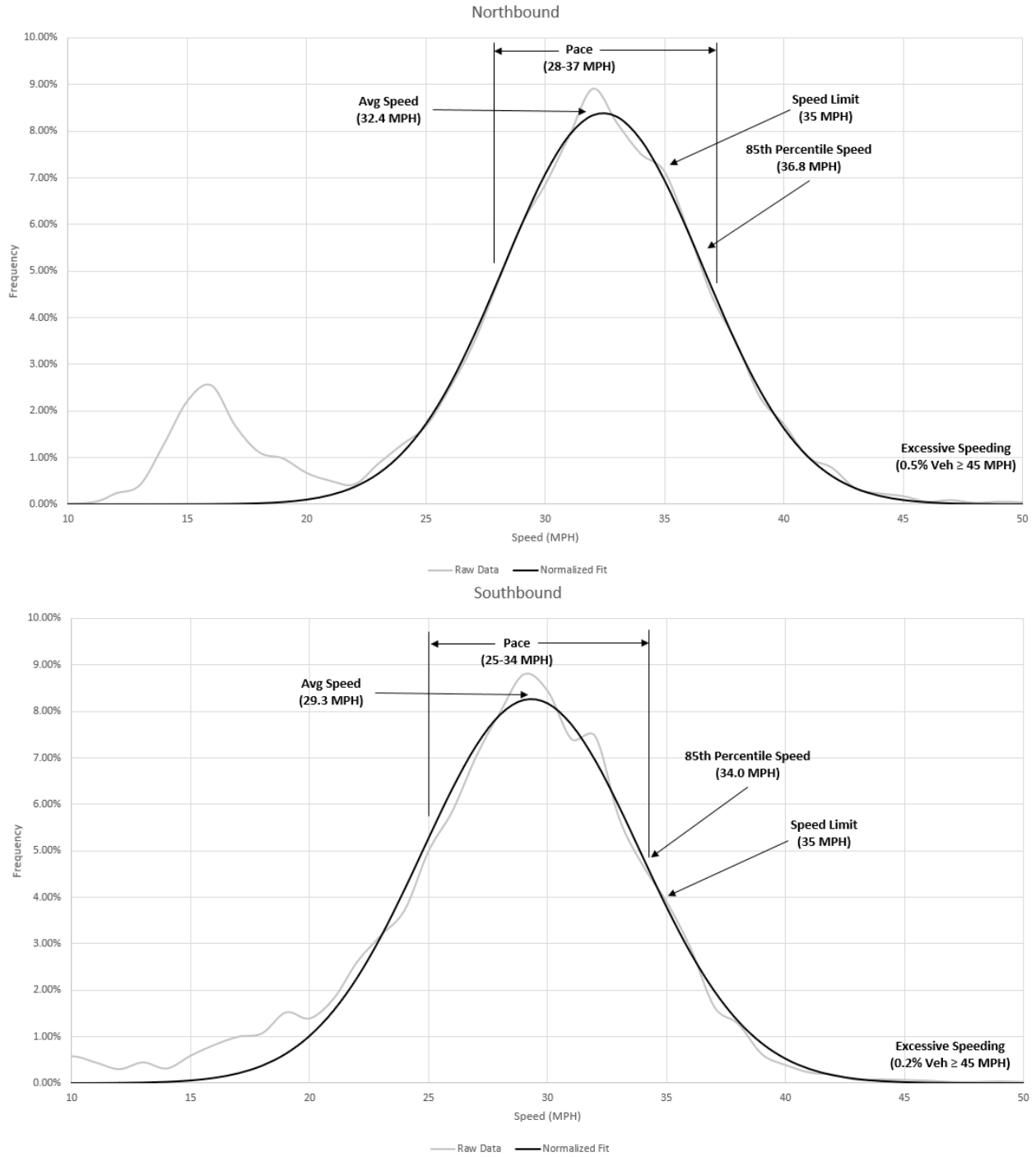


Figure 3: Stange Road Speed Statistics at 3815 Stange Road (2/12/20-2/19/20)

SPEED LIMIT CHANGE EVALUATION:

The posted Speed Limit on Stange Road throughout the study corridor is 35 MPH. However, part of the letter referred to staff requested that the Speed Limit on Stange Road in the Northridge Heights Park area be lowered to 25 MPH.

Therefore, this study also assessed the potential impacts of a proposed change to a 25 MPH Speed Limit.

Below, **Table 1** uses the existing speed datasets to compare the current excessive speeding percentages with what the excessive speeding percentages would look like if a 25 MPH speed limit was implemented. As a reminder, the excessive speeding percentage is the percentage of vehicles traveling at or above 10 MPH over the posted Speed Limit.

Table 1: Excessive Speeding Comparison (35 MPH vs 25 MPH Speed Limit)

Dataset	Excessive Speeding % (Current 35 MPH Limit)	Excessive Speeding % (Requested 25 MPH Limit)
Stange Rd @ Milstead Rd (Sep 2019)	1.6% (NB) 0.3% (SB)	35.0% (NB) 14.7% (SB)
Stange Rd @ Milstead Rd (Feb 2020)	0.8% (NB) 0.7% (SB)	29.1% (NB) 20.5% (SB)
Stange Rd @ McFarland Clinic (3815 Stange Rd)	0.5% (NB) 0.2% (SB)	27.8% (NB) 11.4% (SB)

This analysis indicates that if the Speed Limit alone were to be reduced to 25 MPH, the amount of excessive speeding would significantly increase, with projected values exceeding 25%.

The MUTCD (Manual of Uniform Traffic Control Devices) states that the speed limit should typically be within 5 MPH of the 85th percentile speed. Currently, the observed 85th percentile speeds are between 34-39 MPH. Thus, if the Speed Limit was set to 25 MPH, a safety issue could arise due to the creation of an artificial speed differential: some drivers would adhere to the newly posted Speed Limit (25 MPH) and others may continue to travel at the natural speed of the roadway (34-39 MPH).

If City Council lowered the Speed Limit to 25 MPH in the neighborhood park area, additional warning devices or other physical roadway modifications would need to be made to the street and surrounding area to force drivers to slow down.

SPEED TRENDS:

City staff subscribes to a traffic analytical platform called StreetLight Data. Staff used this platform to assess speed behavior trends along Stange Road near Northridge Heights Park. **Figure 4** shows a comparison between 2019 and 2020 speed data using normalized fits. **Figure 5** shows a monthly progression in 2020 for the following

statistics: ADT (average daily traffic), average speed, 85th percentile speed, and excessive speeding percentage.

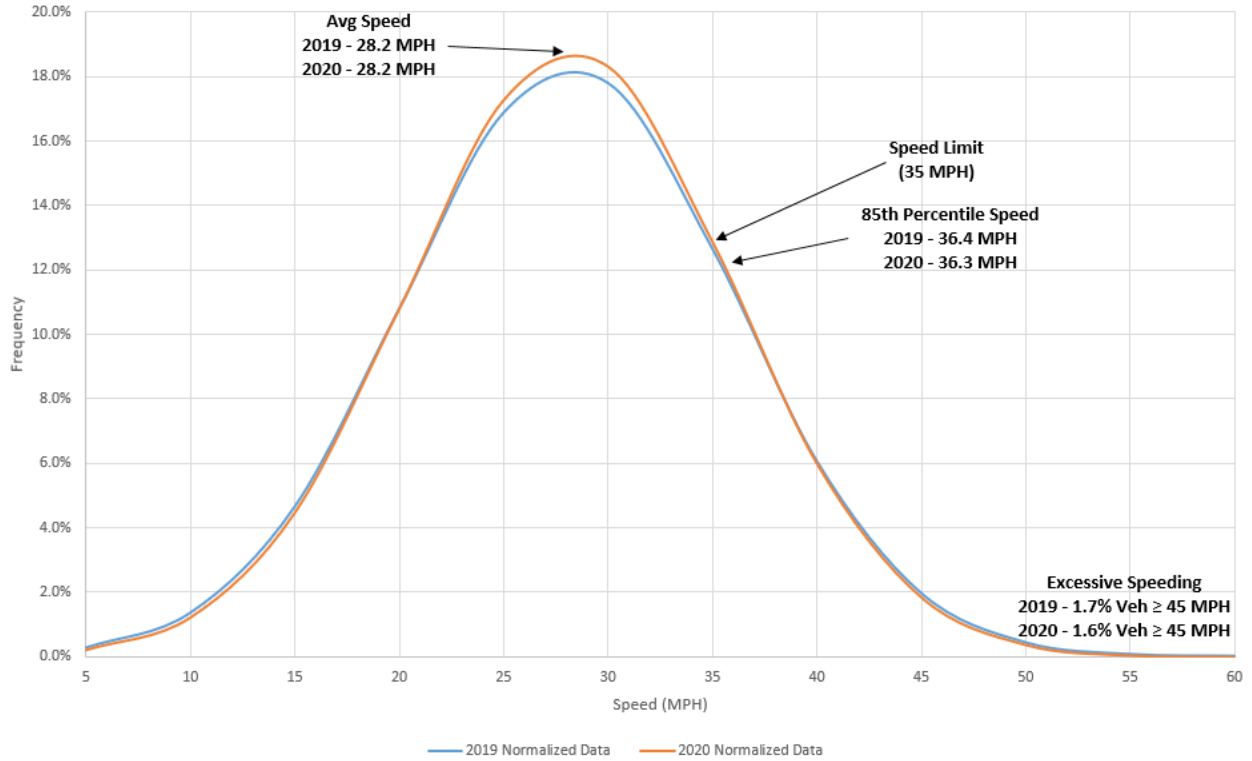
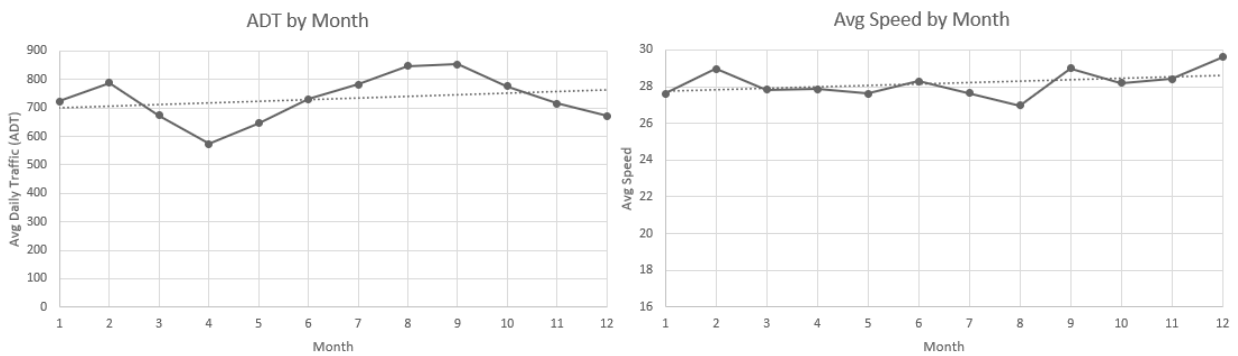


Figure 4: Comparison of 2019 and 2020 StreetLight Segment Speed Data Statistics



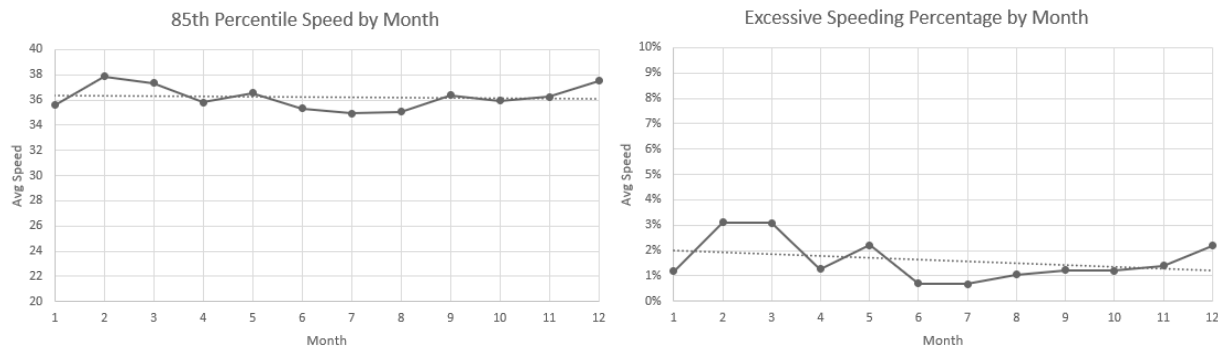


Figure 5: Summary of 2020 StreetLight Segment Volume and Speed Statistics by Month

Speeding behavior in 2019 and 2020 appeared very similar when looking at the annualized distributions and statistical metrics. When looking at the monthly 2020 data, volumes declined in March and April due to the COVID-19 pandemic, with a gradual recovery in traffic volumes through much of the year's remainder. The 85th percentile speeds and the average speeds remain consistent over the years. Excessive speeding also appears to be constant throughout the year, except for slightly higher values in February and March (3%).

Although speeds are consistent through the past couple of years, staff plans to continue to monitor these trends closely as the COVID-19 pandemic concludes and planned future development in this area begins to occur. Northridge Heights is a relatively newer subdivision, which means the roadway has small-caliper trees and feels more open than established neighborhoods with large overstory trees. These factors can contribute to increased speeds.

Stange Road is expected to connect one day to Cameron School Road north of the study area through the Borgmeyer property and serve as a major Collector street for the surrounding transportation network. This may require speed mitigation features to be revisited in the future.

RECOMMENDATIONS:

The study results indicate very minor excess speeding on Stange Road near the intersection with Milstead Road and near 3815 Stange Road (McFarland Clinic). **Staff recommends increased police speed enforcement in this area due to the nearby park and pedestrian activity. Staff will also continue monitoring the speeding in this area** by utilizing historical speed trends taking from the City's data sources, which are updated monthly through our software licensing.

In response to the request to lower the Speed Limit to 25 MPH, staff notes that the MUTCD (Manual of Uniform Traffic Control Devices) states that the speed limit should

typically be within 5 MPH of the observed 85th percentile speed. A speed limit set at 25 MPH would not adhere to this as observed 85th percentile speeds in this area are between 34-39 MPH. **Therefore, adjusting the speed limit alone could cause a safety issue.**

If the City Council is satisfied with the study presented in this memo, staff will proceed with increased speed enforcement along the study corridor as described above. No Council action is required to initiate this enforcement.