

TRANSPORTATION DEPARTMENT



**Northwoods:  
Gregory Drive**

Town of Cary – Traffic Calming Program

**April 2025**

# Traffic Data Summary

## Introduction

Cary has responded to a citizen-initiated application for traffic calming in the Northwoods community by collecting data on the speed and volume of vehicles traveling along Gregory Drive. The following presents a summary of the data and a discussion of how it informs the recommendation for or against traffic calming devices to be made by Cary staff.

Northwoods is located in central Cary, as shown on Figure 1. The area evaluated included Gregory Drive south of NE Maynard Road to approximately Braniff Drive. **Gregory Drive is classified as a Collector Street in the Cary Community Plan.**

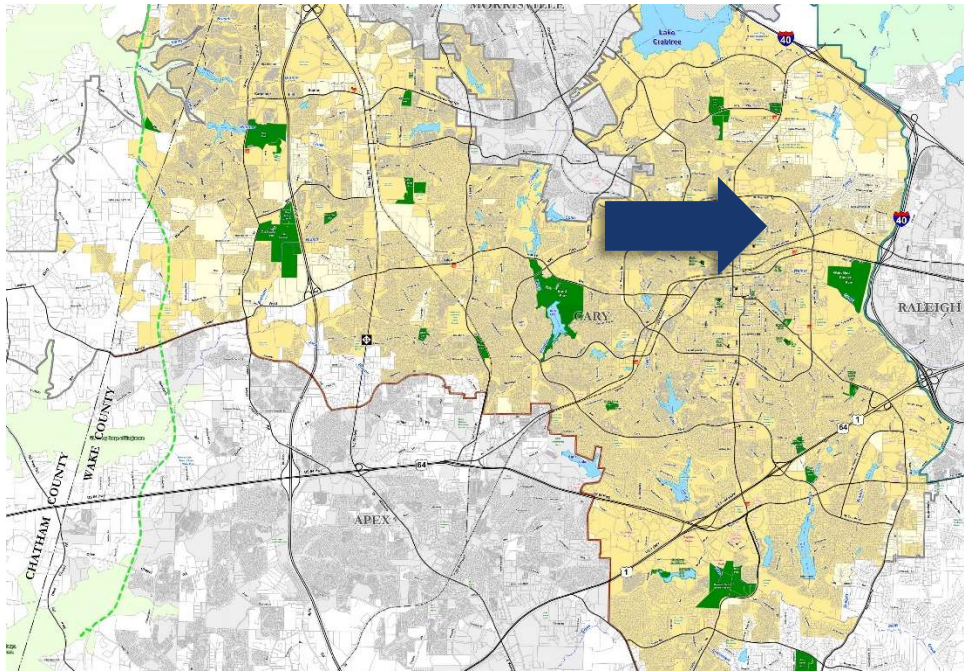


Figure 1 - Site Vicinity Map

## Data Collection

Staff initiated traffic counts using one of Cary's on-call vendors for traffic data collection. Pneumatic tube counters were placed at the locations recommended by staff. Three (3) count locations were chosen for the approximately 0.5-mile segment of **Gregory Drive**, as shown on Figure 2. The counters recorded each vehicle passing over the tubes for a 72-hr period in the December of 2024, the direction and speed thereof, and classified them according to size and axle configuration. The data was then aggregated into actionable metrics of volume (Average Daily Traffic) and speed (Average Speed and Percentile Speed).

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### Traffic Volume

The total volume of vehicles traveling over the count location is represented using the conventional traffic engineering metric of **Average Daily Traffic (ADT)**. ADT is the total volume during a given time period (in whole days), greater than one day and less than one year, divided by the number of days in that time period. It is common to see a fluctuation in the average daily traffic along a road. Therefore, the values presented herein are averages of the 24-hour counts in the collected data sets.



Figure 2 - Traffic Count Location

What are considered typical traffic volumes for various Cary street classifications are listed below, as defined in Section 3000 of the Cary Standard Specifications. The ADT limits listed are guidelines used for planning purposes and may vary.

- Minor Local Street..... ADT less than 400 vehicles per day
- Major Local Street..... ADT less than 1,500 vehicles per day
- Collector Street..... ADT less than 3,000 vehicles per day
- Major Collector Street/Avenue..... ADT expected to exceed 3,000 vehicles per day

The ADT data is presented in **Error! Reference source not found.** for the traffic counts along Gregory Drive.

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Table 1 - Traffic Volume

Location	Date	Average Daily Traffic (ADT)
North of Key West Mews	Dec 3-5, 2025	2125 vehicles per day
307 Gregory Drive	Dec 3-5, 2025	897 vehicles per day
210 Gregory Drive	Dec 3-5, 2025	1045 vehicles per day

## Traffic Speed

Directional speed was collected for each vehicle that traveled over the count location for the 72-hour collection period. Speed can be aggregated and presented using multiple metrics, each of which provides traffic engineers with a different perspective on the prevailing pattern of behavior. For the purpose of informing Cary staff's recommendations on traffic calming, the metrics of Average Speed and Percentile Speed are valuable.

**Average Speed** is a straightforward account of all speed measurements taken divided by the total number of vehicles counted. Average Speed would ideally fall below the posted speed limit and within a several miles-per-hour range of the Design Speed for a roadway. Cary staff use this to determine if other metrics are within a reasonable range of the total average.

**Percentile Speed** is the speed below which a given percentage of measured vehicles were traveling. For example, if 50 out of 100 vehicles are measured below 24 mph and all but 5 are measured below 30 mph, the 50<sup>th</sup> Percentile Speed for that group is 24 mph and the 95<sup>th</sup> Percentile Speed is 30 mph.

One of the most commonly used metrics by traffic engineers is the **85<sup>th</sup> Percentile Speed**. Again, this value shows the speed below which 85% of the vehicles counted were traveling. This value has historically been used by most U.S. jurisdictions to establish posted speed limits and should correlate to the safe travel speed (**Design Speed**) for a given roadway. It is also often used to describe the behavior of "most" drivers.

The speed data is presented in Table 2 and Figure 4 for the traffic counts that were performed for Gregory Drive, which is posted at 25 mph. In the context of traffic calming, Cary staff look for the 85<sup>th</sup> Percentile Speed to fall within several miles-per-hour of the posted speed limit (**orange** line) and below the "ticketable" threshold for a roadway, which is considered more than 9 mph above posted (**red** line).

Table 2 - Traffic Speed

Location	Direction	Average Speed	85 <sup>th</sup> Percentile Speed
North of Key West Mews	Northbound	31 mph	37 mph
	Southbound	32 mph	37 mph
307 Gregory Drive	Northbound	28 mph	34 mph
	Southbound	30 mph	36 mph
210 Gregory Drive	Northbound	28 mph	34 mph
	Southbound	31 mph	40 mph

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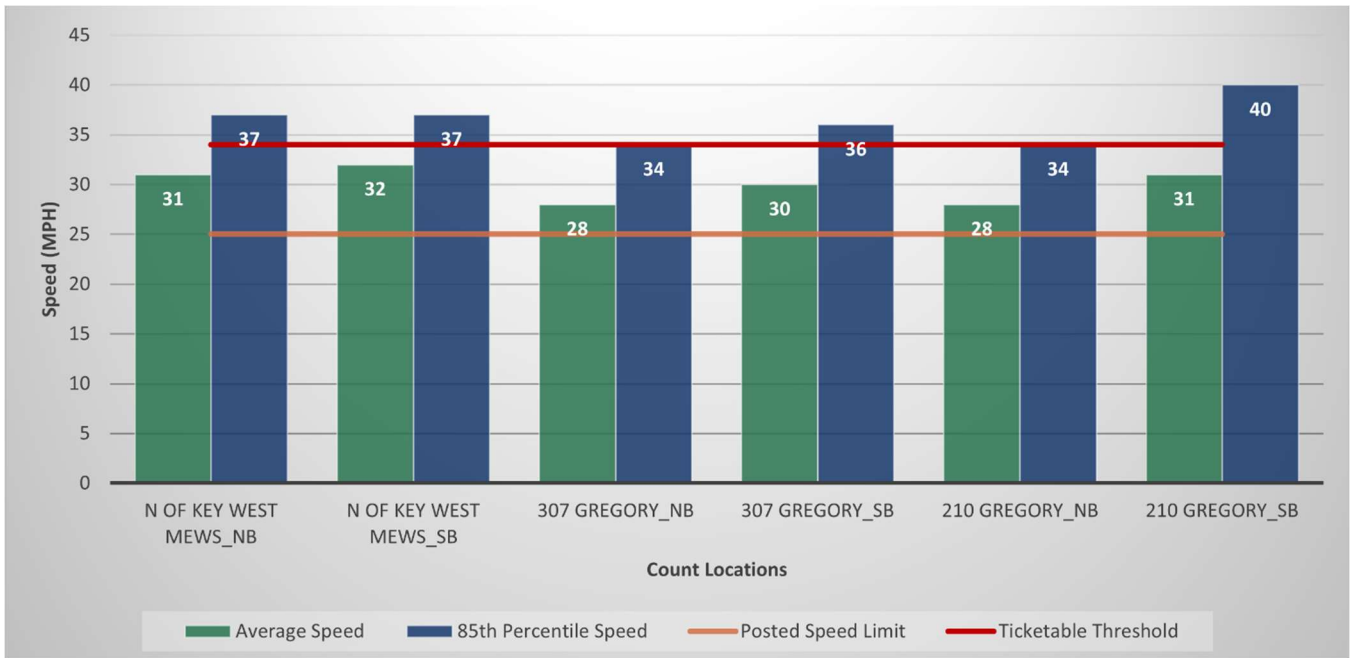


Figure 4 - Speed Metrics Chart

Beyond the measured numbers, how speeds are distributed across the range is reviewed by Cary staff. It is expected that speeds are normally distributed, meaning that most values for speed typically occur in a central range, with fewer values occurring outside of this range on either the high or the low side. Few drivers will drive extremely fast or extremely slow in comparison to others. In order to exhibit this, vehicle speeds are broken down into speed "bins" and charted as shown on Figure 3. A gradual rise and fall of the speed curve (bell curve) represent a normal distribution.

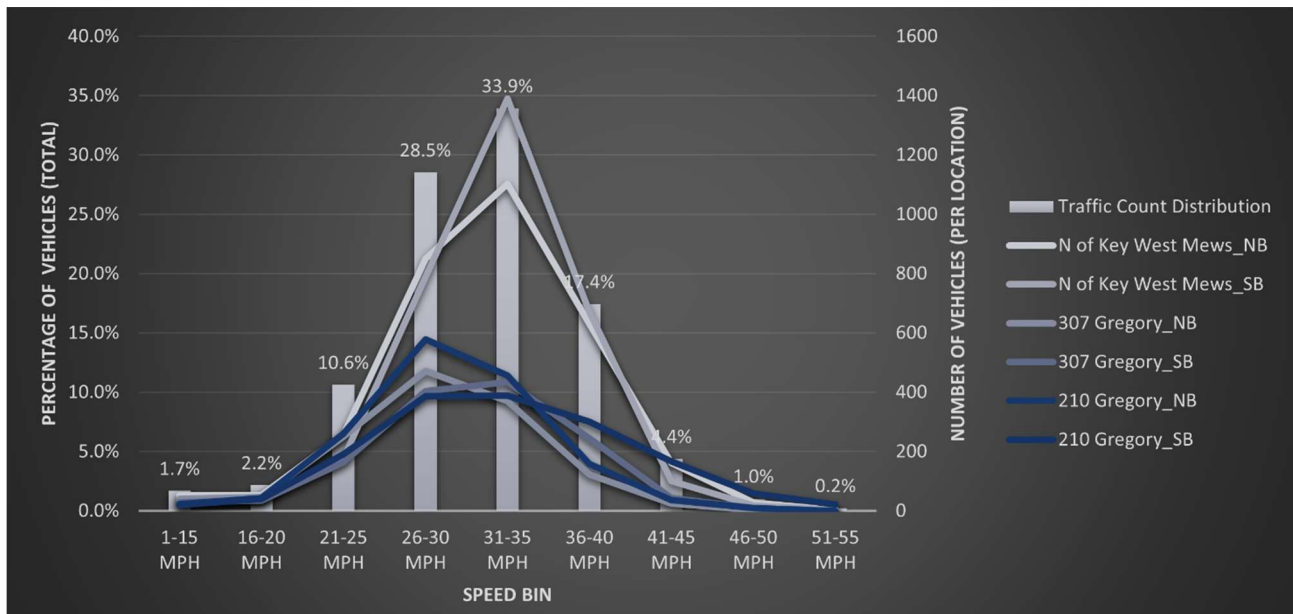


Figure 3 - Speed Distribution Chart

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The data trends for Gregory Drive show that the majority of traffic is traveling above the 25-mph posted speed limit. The distribution curves appear relatively consistent across all count locations, all depicting peaks above the speed limit. The curves also depict a significant portion of vehicles in the "ticketable" range. These results appear to indicate that a pattern of excessive speeding exists along Gregory Drive.

## Conclusion & Recommendation

Traffic calming devices, and specifically speed humps, raised crosswalks and the like, are designed to keep traffic near Cary's statutory speed limit of 25 mph and are therefore relatively traversable at that speed. In cases where the 85<sup>th</sup> Percentile Speed is 35 mph or higher, a reduction in average speed of several miles per hour or more can be anticipated with certain traffic calming solutions. Consequently, *Cary's Traffic Calming Program* references a threshold of 9 mph as the benchmark for staff to recommend traffic calming in order to focus such devices where their impact can be maximized.

For instances where most vehicles are traveling near the 25-mph statutory limit, staff do not expect that speed humps or similar devices will result in a meaningful change to driver behavior. Neighborhoods where this is the case can sometimes benefit more from active efforts by the community, such as education of other residents and increasing the frequency of on-street parking.

The data for Gregory Drive measured a highest 85<sup>th</sup> Percentile Speed of 40 mph and all count locations were at or above 9 mph above the posted speed limit. In addition, the percentage of vehicles measured in the "ticketable" range was significant at over 20%. The aggregate data indicates that traffic calming may be warranted so **staff are recommending that Gregory Drive be considered for traffic calming** to help reinforce the residential nature of this community.

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