

Gilmanton, New Hampshire



Traffic Count and Speed Analysis Report

June 27th – July 11th, 2023



LAKES REGION PLANNING COMMISSION

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Approximate locations of traffic counters.



Gilmanton, New Hampshire Traffic Count and Speed Analysis Report

On June 12th, 2023, The Town of Gilmanton requested Lakes Region Planning Commission (LRPC) to conduct a traffic count at six separate locations around their community. These counts were conducted from June 27th to July 11th, 2023. These traffic counters were deployed for 14 days which resulted in 12 full days, including 4 weekend days and a holiday. All counts were completed with no malfunctions.

This report (and its attached documents) provides a map, data, graphs, and summaries illustrating the data that was collected. It also provides a narrative to assist in interpretation of the results. The Lakes Region Planning Commission uses Apollyon and Pinnacle traffic counters with standard round tubing, along with STARnext software, from JAMAR Technologies. The methodology follows guidance provided by both JAMAR and the New Hampshire Department of Transportation (NHDOT) and is based upon the same process LRPC uses to collect data at more than 400 sites throughout the Lakes Region under contract to NHDOT. This work expands upon that process using software analysis tools. For analysis purposes, only data from full 24-hour days are reported. Accompanying this report is a set of PDF documents of the raw data gathered and compiled for each site.

Location of Traffic Counters

Six traffic counters were requested by the Town of Gilmanton to conduct traffic count and speed data collection along some of their communities' roads. Their locations being on: Hemlock Drive, Middle Route, Crystal Lake Road, Stage Road, Allens Mill Road, and Lakeshore Drive. All roads were paved and in good condition.

Accompanied by this request was a list of descriptors indicating the desired placement of each counter. An effort was made to place the counters as close to the marked areas as possible, but some considerations come into play when assessing a site for counter deployment, such as general straightness of the road, objects to lock the counter to, driveways, and road condition.

Using the descriptors, map, and road condition/suitability, these were the locations determined to be the best areas to deploy counters (**reference map on page 1**):

Count Identifier	Location Descriptor
G1	HEMLOCK DRIVE EAST OF FIR
G2	MIDDLE RT AT/NEAR GRANT HILL
G3	CYRSTAL LAKE RD NEAR PARK
G4	STAGE RD AT HARVEST BIBLE CHURCH
G5	ALLENS MILL RD - NEAR #148
G6	LAKESHORE DR BETWEEN BUCK AND WARBONNET



Traffic Data

Attached are PDF documents that contain graphs and tables of the data collected for each site. This data shows the total directional traffic volume, the classification determined for each vehicle, and speed ranges per day. When referring to directions: “west” refers to westbound traffic, “east” to eastbound, “north” to northbound, and “south” to southbound.

Speed

85th Percentile

One of several factors used in setting appropriate speed limits is the 85th percentile speed. As noted by the Federal Highway Administration (FHWA) in its publication FHWA-HRT-2013 Setting Speed Limits for Safety, “The MUTCD is the national standard for all traffic control devices on roads open to public travel. It *requires* that speed limits be posted in increments of 5 mi/h (8 km/h) and that speed limits in speed zones be based on an engineering study and analysis of free flow speeds (speeds that are unimpeded by other vehicles, stop signs, signals, or inclement weather).”




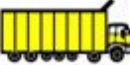

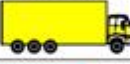




























FHWA-HRT-2013 also states, “The MUTCD also lists other risk factors that may be considered, including road geometry, the pace speed (the 10 mi/h, or 16 km/h, speed range at which the most vehicles are driving), roadside development, parking practices, pedestrian activity, and crash experience. How-ever, it does not provide specific guidance on how to account for these variables.”

FHWA-HRT-2013 – <https://highways.dot.gov/public-roads/septemberoctober-2013/setting-speed-limits-safety>

FHWA’s *Manual on Uniform Traffic Control Devices* (MUTCD) - https://mutcd.fhwa.dot.gov/kno_2009r1r2r3.htm

Classification

In addition to counting the number of vehicles in each direction, and the speed they are travelling at, this counter configuration can also detect the type of vehicles passing over the tubes. There are 13 different vehicle classifications used by FHWA, as illustrated below.

Class 1 Motorcycles		Class 7 Four or more axle, single unit	
Class 2 Passenger cars		Class 8 Four or less axle, single trailer	
			
			
			
Class 3 Four tire, single unit		Class 9 5-Axle tractor semitrailer	
			
			
Class 4 Buses		Class 10 Six or more axle, single trailer	
			
		Class 11 Five or less axle, multi trailer	
Class 5 Two axle, six tire, single unit		Class 12 Six axle, multi-trailer	
			
		Class 13 Seven or more axle, multi-trailer	
			
			
			



Interpreting the Data

Attached to this report are multiple PDF documents that contain the counts and statistics collected at each site. The title of each PDF contains the name of the site and what type of information it contains (ex: G1 (site code) – Statistics (report type)). LRPC staff are available to provide guidance if needed.

The “statistics” reports contain information such as peak traffic times and the vehicle volume of those peaks, speed percentiles and other speed data, and the volume of each classification of vehicle (see classification section above for information). This information is broken down by combined traffic on the road and then by each direction of travel, all of which have accompanying graphs. The very last section (starting on page 85) contains the combined statistics and summary for each day, which is then broken down for each lane.

The “volume” reports contain daily traffic volumes broken down in one-hour increments. This report also contains peak times and is separated by lane, both lanes being on the same page.

Overall Summary

The town’s main objective was to explore the speed at which vehicles currently travel at these six sites. The weeks surrounding the July 4th holiday tend to see the most traffic volume on Gilmanton’s local roads.

Below are the posted speeds and the 85th percentile speed for each site, as collected over the full data collection period:

Site Code	Posted Speed (MPH)	85 th Percentile (MPH)
G1	25	28
G2	35	40.7
G3	25	34.4
G4	35	48.7
G5	35	47.8
G6	25	20.5

All but one site (G6) saw the 85th percentile of vehicles traveling over the posted speed limit. This data is useful in determining which roads may require attention and further investigation into the rate of speed at which they are traveled and/or their current posted speed limit.



After the counts were complete, the Town of Gilmanton requested Saturday July 1st, 2023 not to be included in the analysis. This is due to the possibility that a significant amount of slow-moving traffic from a firework display that evening could affect accuracy of the speed data. Due to software limitations, that day was included in the analysis and in the data reports attached. This data can also be useful for the town to learn from, and plan for, future events.

To address the concern of data being impacted by the firework event, the 85th percentile of three consecutive non-holiday weekdays for each site was averaged, it was then compared to the total 85th percentile that the software calculated for each site. The two averages were all within a fraction of a mile per hour of each other for each site. The FHWA standard is to set speed limits in five mile per hour increments, so less than one mile per hour should not affect the decision too much; but this should be the determination of the municipality and/or traffic engineers, as there are more considerations in play to determine a roads speed limit, as referenced in FHWA material above.