hfxspeeds / B3N2H2 /

bartek Numbers! c96f936 · 2 years ago

Name	Name	Last commit date
..		
README.md	Numbers!	2 years ago
boxplot.png	B3N2H2	2 years ago
scatter.png	B3N2H2	2 years ago
speed_results.csv	B3N2H2	2 years ago

README.md

B3N 2H2 Block

Background

This block is a portion of Central Ave., in the Fairview neighbourhood of Halifax. Established primarily in the early 20th century, it's streets are laid out in a grid pattern up the eastern slope of Geizers Hill.

A typical street in Fairview is long, sloped, and wide. Additionally, Fairview lacks a complete sidewalk network, with most streets having sidewalks on one side, or none at all.

In the Fall of 2023, speed tables & humps were installed throughout much of Fairview. This is HRM's current & primary strategy with respect to traffic calming. The experiment will reference this implementation throughout.

Parameters

These parameters will vary throughout experiments as the camera must be calibrated with respect to its positioning against the road. As well, traffic calming measures and road characteristics are captured here.

Parameter	Value	Notes
Camera Distance from middle of road	44ft	
Camera Height from road	13ft	
Calibration settings	CAL_OBJ_MM_L2R = 4700, CAL_OBJ_MM_R2L = 4700	
Road width	357" (29.75 feet)	Sidewalk on one side only
Road grade (slope)	7.5%	Primarily affects L2R travel (vehicles moving up hill). Slope begins a few metres after observed area
Posted speed limit	50km/h	

Traffic Calming Measures

Measure	Distance & Positioning
Speed Tables	1 speed table, at top of slope, roughly 100m from camera (L2R ->)
Speed Humps	n/a
Chicanes	n/a

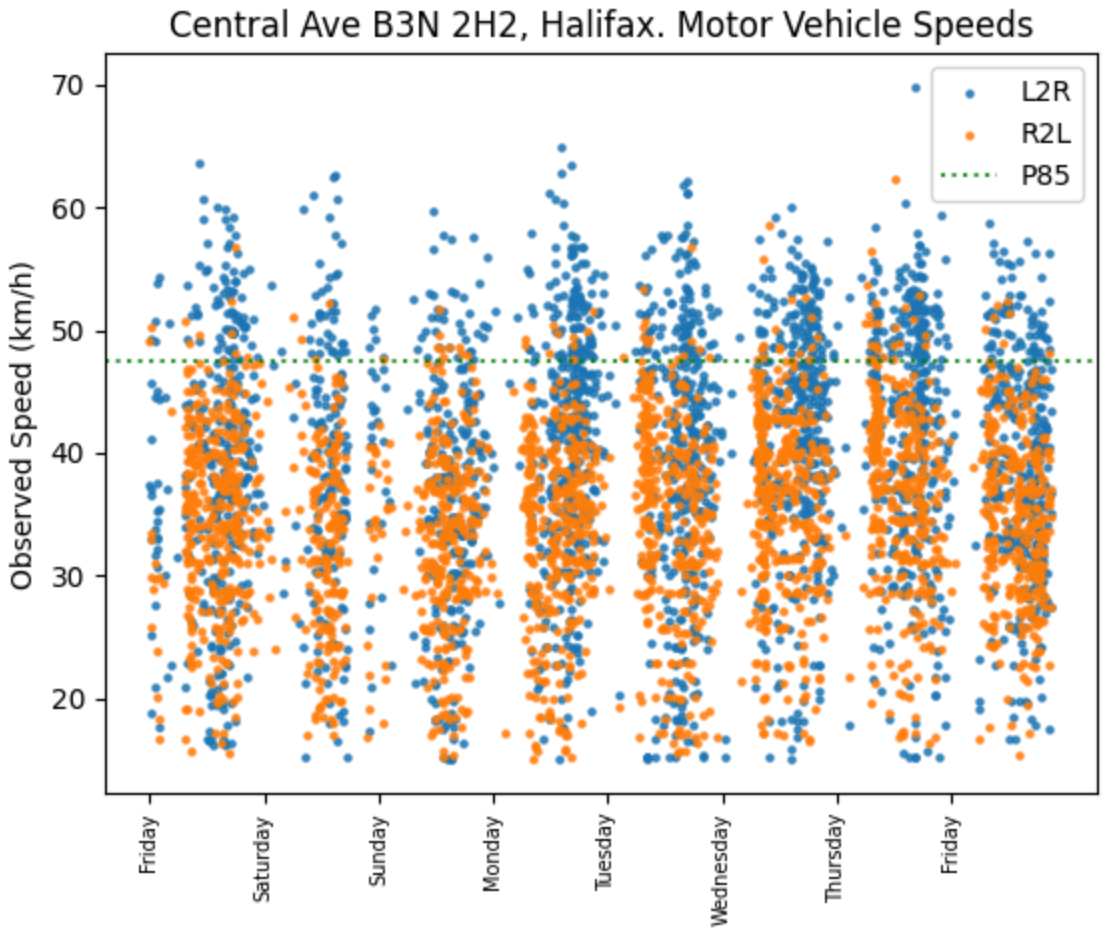
Results

Traffic was observed for 7 days, between Saturday November 04th 2023 to Friday November 10th (inclusive, midnight to midnight)

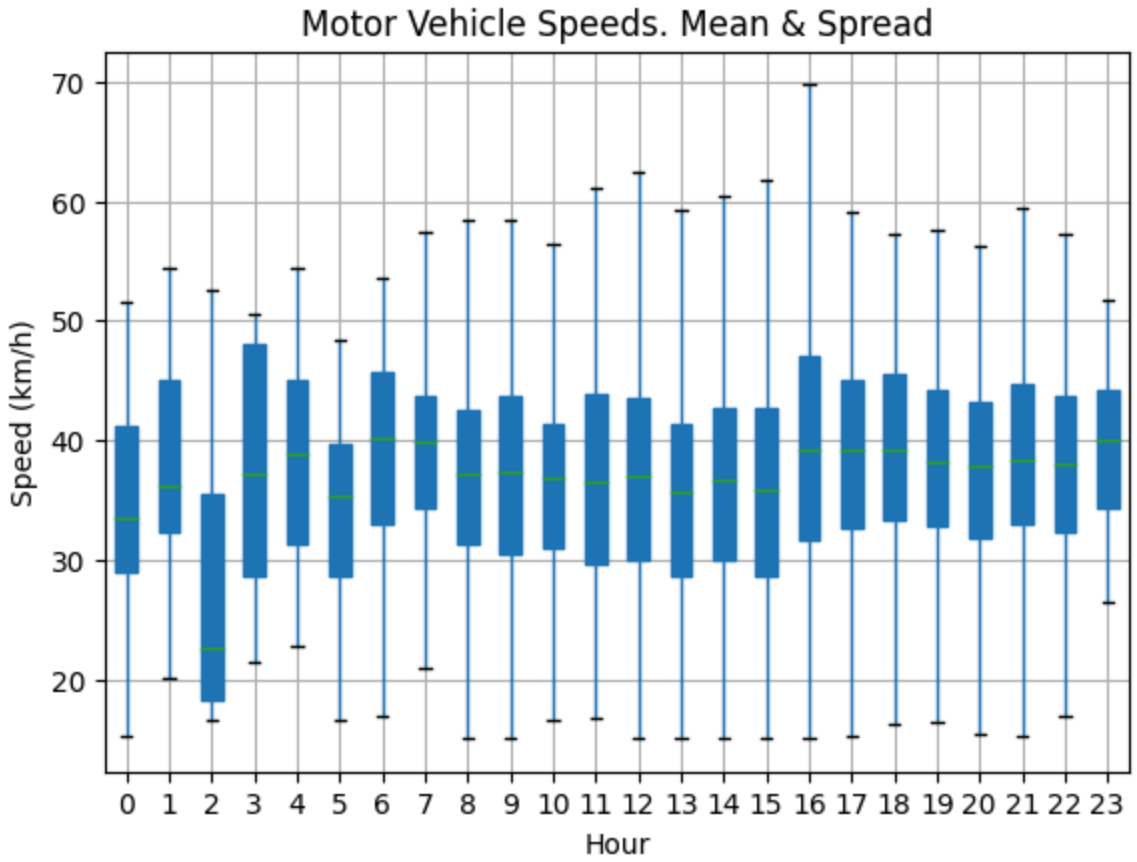
Metric	Vaue
85th Percentile	47.41km/h
85th L2R (up slope)	50.55km/h
85th R2L (down slope)	42.59km/h
Mean	37.36km/h
Total Traffic Observed	4670
Total Records Removed	291

Records were removed if they were captured traveling at a speed of 15km/h or less. This was observed to be vehicles parking on nearby drive ways, the odd cyclist, and delivery trucks pulling up to the curb.

A scatter plot shows us the data in a raw form. Each dot represents a single observed vehicle. L2R and RL2 are acronyms for "Left To Right" and vice versa. On this street, there is a grade/slope (documented above). In simple terms, left to right (L2R) is going up hill. The 85th percentile is marked as the dotted P85 line.



As well, a box plot shows us motor vehicle mean & spread over each hour in the day. The data shown here is the same data (collected over a week), grouped by the hour.



All data collected is available in the CSV located within this directory: speed_results.csv

Reflections

The results of this test hold little surprises. This street is too wide and the single speed table installed up the slope has little effect. At a speed of 47km/h per hour at the 85th percentile, we see that most (85%) of vehicles go at or lower than the posted speed limit. However, it is silly that a residential road has a speed limit of 50km/h (the same posted limit as the urban highway nearby, Joseph Howe)

Additionally, we can see what is more problematic: There is plenty of opportunity to go faster than the posted speed limit. We see that 15% of vehicles are traveling over 47km/h, with some reaching variances as high as 60km/h. It is further concerning that we see typical speeds increase for L2R (Left to Right), as vehicles speed up the slope.

Prior to the installation of speed humps & tables, the primary concerns were around the spread in speeds. That spread continues to be significant, and it is clear that an optimal solution would be to reduce the width of the road.

This could be achieved by adding a side walk on the other side of the road without encroaching on existing boulevards and property lines. The existing sidewalk is 58 inches wide. If a similar sidewalk was implemented on the other side, the resulting road width would be near 300" (25 feet), which is comparable to traffic calmed streets like Liverpool (between 26 and 27 feet in width dependent on location)

Depending on where the sidewalks are implemented and the resulting road width, this could remove the ability for vehicles to park on both sides of the road. Currently, vehicles may park on both sides with ample room for vehicles to pass through (single file). There is no shortage of parking space on either side of the road and the majority of homes have drive ways.