

# **Pilot Testing of 40 km/h Posted Speed Limits**

## Nova Scotia Road Safety Advisory Committee

### **Final Study Report**

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**ROAD SAFETY**  
ADVISORY COMMITTEE

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## GLOSSARY

**85<sup>th</sup> Percentile Operating Speed:** 85<sup>th</sup> percentile speed is typically the criteria that road agencies use to establish posted speed limits. The 85<sup>th</sup> percentile operating speed is considered a safe and reasonable traveling speed under most conditions. Measurement of the 85<sup>th</sup> percentile operating speed is taken by organizing the speed recordings in ascending order. The speed corresponding to the 85<sup>th</sup> percentile observation would be the 85<sup>th</sup> percentile operating speed for the sample set of data.

**15 km/h Pace and Percent in Pace:** A 15 km/h pace is a measurement that identifies the speed range for the largest number of vehicles in a speed survey. The percent of vehicles traveling at a speed within the 15 km/h pace is one measure of variance. Vehicles travelling at a speed greater than 15 km/h from one another greatly increases the risk of collision. Therefore, an increase in the percentage of speed recordings in the pace is considered both an operational and safety improvement.

**Mean Vehicle Speed:** A measurement of the average operating speed of vehicles in a sample set of speed recordings. To calculate, all speed recording values are summed and then divided by the sample size. In relation to this study, a reduction in the mean vehicle speed is considered a positive impact.

**Sample Size:** The sample size is the number of speed observations recorded in any given speed survey. Typically, a larger sample size will yield more accurate calculated statistical measures. The Manual of Uniform Traffic Control Devices (FHWA, 2001) recommends a speed survey sample size of at least 125 vehicles to attain accurate results.

**Skewness Index:** Skewness is a measure of how symmetrical a sample distribution is about the mean and is a descriptor of the speed survey distribution graph. A skewness value of zero would represent a normal distribution. The larger the absolute value the greater the distribution is skewed.

**Kurtosis Measure:** Kurtosis, in conjunction with the Skewness Index, is a descriptor of the size and shape of a speed survey distribution graph. This statistic is a measure of the peakedness of a distribution, or alternatively, a measure of the length of the distribution's tails. Similar to the Skewness Index, a Kurtosis Measure of zero describes a standard normal distribution.

## 1. INTRODUCTION

### 1.1 Overview

The GRIFFIN transportation group inc. has been engaged by the Speed Zone Subcommittee of the Nova Scotia Road Safety Advisory Committee (RSAC) to carry out the Pilot Testing of 40 km/h Posted Speed Limits study. The stakeholder road authorities participating in this study include the Nova Scotia Transportation and Infrastructure Renewal (NSTIR) and the Halifax Regional Municipality (HRM). As defined by the two stakeholder road agencies, the main goal of this work was to examine the effects of using a regulatory speed limit of 40 km/h, a speed that is less than the current prima facie speed limit of 50 km/h, as defined in the Nova Scotia Motor Vehicle Act.

The NSTIR has explored the merits of 40 km/h speed limits in the past and these studies are summarized below:

- In 2003, NSTIR engaged a consultant to review federal and provincial policies, review technical guidelines and Canadian municipal practices of setting lower speed limits. It was determined that the use of a lower posted speed limit with the goal of reducing vehicle operating speeds was “ineffectual” and that a reduced speed limit would have to be accompanied by physical changes to the roadway environment. Therefore, the study recommended that a minimum regulatory speed limit of 50 km/h be maintained in Nova Scotia.
- In 2013, the NSTIR – participating as a member of the RSAC – engaged the same consultant to provide an update to the 2003 study based on the fact that several road agencies in Canada had recently approved the use of speed limits below 50 km/h, in addition to the recent emphasis for vehicles and vulnerable road users to share roadway operating space. The main goal of this study was to examine the recent use of 40 km/h speed limits elsewhere in Canada, provide direction on the appropriate use of speed limits below 50 km/h in Nova Scotia, identify impacts to enforcement and education, and document the necessary legislative changes. The recommendation flowing from the 2013 study was to allow the use of 40 km/h speed limits based on the recent trends of other Canadian municipalities and the fact that lower operating speeds “increase safety”.

The more recent 2013 study recommended the use of regulatory speed limits below 50 km/h which appeared to contradict findings documented in the original 2003 study. As such, RSAC required further evidence surrounding the use of lower posted speed limits and developed the terms of reference for this pilot study.

### 1.2 Study Objectives

The primary objectives of the Pilot Testing of 40 km/h Posted Speed Limit study included the following:

1. Assess the suitability and effectiveness of the 40 km/h speed limit warrant system recommended through an earlier study administered by the RSAC in 2013; and

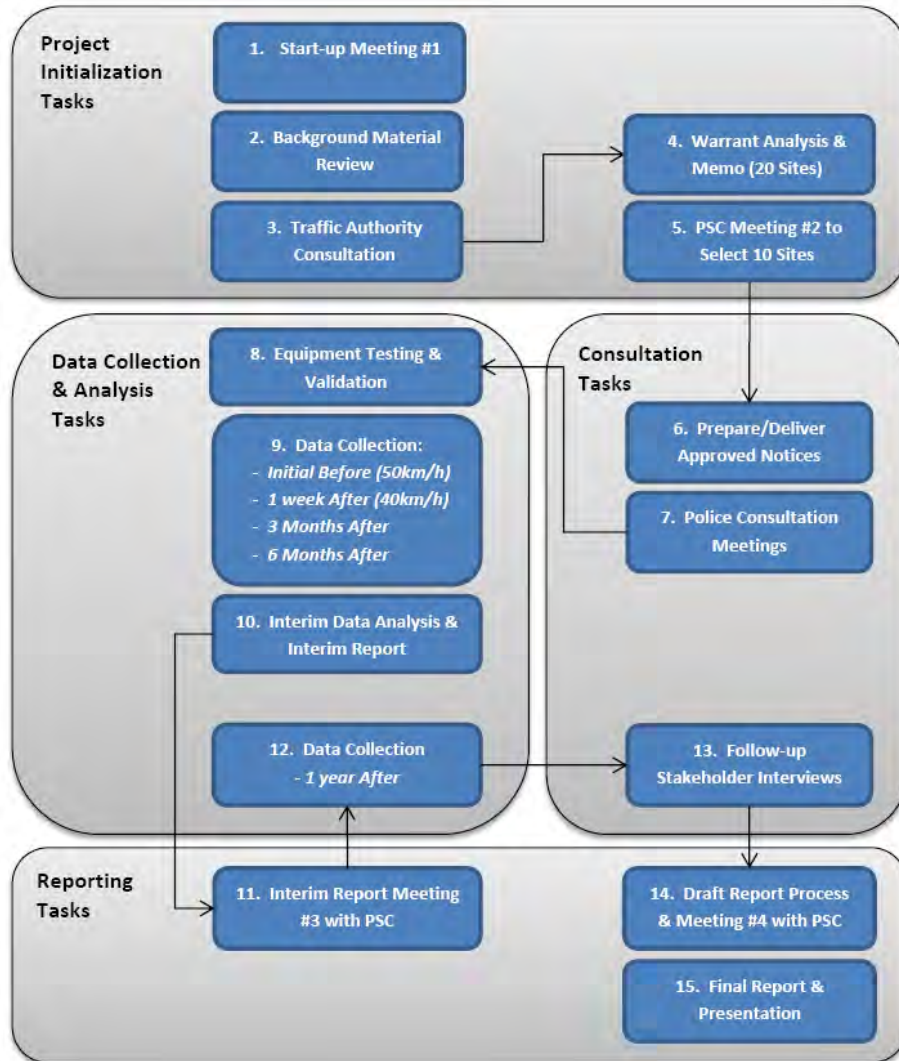
2. Evaluate several trial sections of roadways with a 40 km/h regulatory posted speed limit to determine the effectiveness of a lowered speed limit over the course of a one-year time frame.

In order to meet the study objectives a number of candidate trial sections of roadway were selected for detailed evaluation based on the outcomes of applying the 2013 Low Speed Limit Warrant process. The final list of sites was comprised of a mix of road sections that met and did not meet the warrant criteria, were located across two road authorities and several municipalities, and had varied road characteristics (i.e. urban/rural, sidewalk/no sidewalk, etc.).

### 1.3 Study Approach

The study terms of reference were clearly defined in the Request for Proposals (RFP) scope of work and this was used to develop the Consultant team’s task list. The task list was divided into four phases and these are illustrated in a flow chart in *Figure 1*.

Figure 1: Project Work Plan and Task Areas



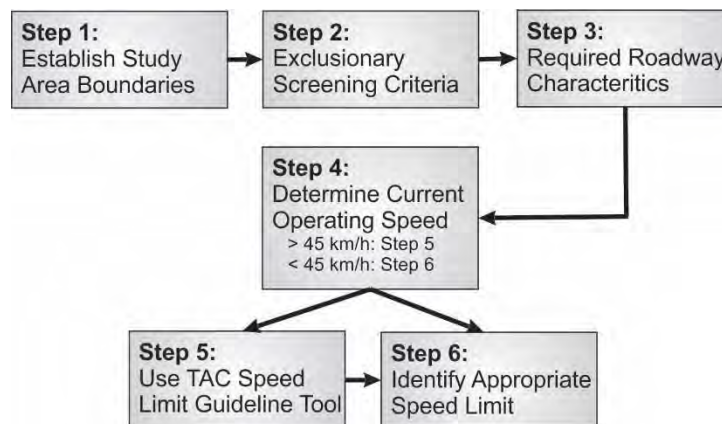
## 2. THE SITE SELECTION PROCESS

### 2.1 Overview

During the project initialization, the consultant team meet with representatives from several road agencies – termed the Traffic Authority consultation process – to discuss the project objectives. By engaging Traffic Authority personnel, the consultant team was able to utilize their expertise and knowledge of the local road system in their respective jurisdictions with the goal of identifying sections of roadway that had the potential to be considered in the study.

Through the Traffic Authority consultation process, there were more than 20 roadway sections discussed and identified. As required by the study terms of reference, these sites were initially evaluated using the 2013 Low Speed Limit Warrant process. The warrant process is comprised of six steps that are illustrated in *Figure 2*.

**Figure 2: 2013 Low Speed Limit Warrant Process**



Overall there were more than 20 street locations identified and screened for appropriateness in Steps 1 and 2, above. It was through an iterative process that the number of sites was reduced to 20 to ensure all sites being evaluated had appropriate conditions consistent with the warrant process. The 20 candidate sites were then subjected to the remaining steps 3 through 6 and an “appropriate speed limit” value was identified.

A brief summary of each site has been provided below to demonstrate the varied roadway characteristics, jurisdiction and surrounding land uses associated with each site. The site reference numbering follows no particular sequence; however, the sites have been grouped by road agency.



<p><b>Site 1: White Glove Terrace</b>  <i>Location:</i> Halifax</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	
<p><b>Site 2: Westmount Drive</b>  <i>Location:</i> Halifax</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	
<p><b>Site 3: Inverary Drive</b>  <i>Location:</i> Dartmouth</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	
<p><b>Site 4: Kincardine Drive</b>  <i>Location:</i> Dartmouth</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	

<p><b>Site 5: Helene Avenue</b>  <i>Location:</i> Dartmouth</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	
<p><b>Site 6: Redbank Road</b>  <i>Location:</i> Bedford</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	
<p><b>Site 7: Lancaster Drive</b>  <i>Location:</i> Clayton Park</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	
<p><b>Site 8: Grennan Drive</b>  <i>Location:</i> Lower Sackville</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	

<p><b>Site 9: George Dauphinee Avenue</b>  <i>Location:</i> Halifax</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential with park and school</p>	
<p><b>Site 10: Wilson Lake Drive</b>  <i>Location:</i> Middle Sackville</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Rural with shoulders and ditches</p> <p><i>Land use:</i> Suburban residential</p>	
<p><b>Site 11: Brook Street</b>  <i>Location:</i> Halifax</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	
<p><b>Site 12: Atholea Drive</b>  <i>Location:</i> Halifax</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Rural with shoulders and ditches</p> <p><i>Land use:</i> Suburban residential</p>	

<p><b>Site 13: Allan Street</b>  <i>Location:</i> Halifax</p> <p><i>Jurisdiction:</i> HRM</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	
<p><b>Site 14: Springwaters Place</b>  <i>Location:</i> Bible Hill</p> <p><i>Jurisdiction:</i> NSTIR (Northern District)</p> <p><i>Cross-section:</i> Rural with shoulders and ditches</p> <p><i>Land use:</i> Suburban residential</p>	
<p><b>Site 15: Maple Blvd-Scenic Drive Loop</b>  <i>Location:</i> Bible Hill</p> <p><i>Jurisdiction:</i> NSTIR (Northern District)</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	
<p><b>Site 16: Ryland Avenue</b>  <i>Location:</i> Bible Hill</p> <p><i>Jurisdiction:</i> NSTIR (Northern District)</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	

<p><b>Site 17: Viewmount Drive</b>  <i>Location:</i> Head of St. Margaret's Bay</p> <p><i>Jurisdiction:</i> NSTIR (Central District)</p> <p><i>Cross-section:</i> Rural with shoulders and ditches</p> <p><i>Land use:</i> Suburban residential</p>	
<p><b>Site 18: Conrads Road</b>  <i>Location:</i> Hubbards</p> <p><i>Jurisdiction:</i> NSTIR (Central District)</p> <p><i>Cross-section:</i> Rural with shoulders and ditches</p> <p><i>Land use:</i> Rural residential</p>	
<p><b>Site 19: Kaulback Street</b>  <i>Location:</i> Truro</p> <p><i>Jurisdiction:</i> Town of Truro</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential with cemetery</p>	
<p><b>Site 20: Victoria Street</b>  <i>Location:</i> Truro</p> <p><i>Jurisdiction:</i> Town of Truro</p> <p><i>Cross-section:</i> Urban curb and gutter</p> <p><i>Land use:</i> Urban residential</p>	

## 2.2 Testing the 2013 Warrant Process

As discussed earlier, the 2013 Low Speed Limit Warrant process was applied to each of the 20 site locations identified in the previous Section. This included the gathering of vehicle speeds at each location, the calculation of the 85<sup>th</sup> percentile vehicle operating speed, and as dictated by the 2013 warrant process the majority of locations (16 of 20) were also subjected to the Transportation Association of Canada's (TAC) national speed limit selection guideline tool. A summary of the analysis findings is provided in *Table 1* below and detailed worksheets for each site are contained in *Appendix A*.



**Table 1: 2013 Low Speed Limit Warrant Results**

Site No.	Street Name	Jurisdiction	85 <sup>th</sup> %'ile Speed (km/h) <sup>B</sup>	TAC Speed Limit Tool (km/h) <sup>A</sup>	2013 Warrant Result (km/h) <sup>A</sup>
1	White Glove Ter	HRM	48	40	50
2	Westmount St	HRM	41	-	50
3	Inverary Dr	HRM	47	50	50
4	Kincardine Dr	HRM	44	-	40
5	Helene Ave	HRM	52	50	50
6	Redbank Rd	HRM	45	-	40
7	Lancaster Dr	HRM	47	40	50
8	Grennan Dr	HRM	48	40	40
9	George Dauphinee Ave	HRM	37	-	40
10	Wilson Lake Dr	HRM	68	50	50
11	Brook St	HRM	48	40	40
12	Atholea Dr	HRM	62	50	50
13	Allan St	HRM	48	50	50
14	Springwaters Pl	NSTIR	53	40	40
15	Maple Blvd-Scenic Dr	NSTIR	47	40	40
16	Ryland Ave	NSTIR	60	40	50
17	Viewmount Dr	NSTIR	51	40	40
18	Conrads Rd	NSTIR	50	40	40
19	Kaulback St	Truro	55	40	50
20	Victoria St	Truro	47	40	40

*A – Recommended posted speed limit*

*B – 85<sup>th</sup> percentile operating speed based on data gathered by HRM and GRIFFIN transportation group inc.*

**Legend:**

-  - Measured 85<sup>th</sup> percentile speeds of 45 km/h or less, TAC Speed limit tool not applied.
-  - 2013 warrant result recommends 40 km/h posted speed limit

Generally, the results contained in *Table 1* were mixed and showed no clear trends. Some examples include:

- *Higher operating speed with a need for a 40 km/h speed limit:* Sites 8, 11, 14, 15, 17, 18, and 20 all had actual operating speeds of 47-53 km/h yet met the TAC and 2013 warrants for a 40 km/h speed limit.
- *Lower operating speed with a need for a 50 km/h speed limit:* Although actual operating speeds were 41 km/h, the 2013 warrant required a 50 km/h speed limit at Site 2 due to this location missing all of the conditional site characteristics listed in the 2013 warrant process.
- *Conflicting speed limit results between TAC (Step 5) and 2013 (Step 6) warrant processes:* Sites 1, 7, 16 and 19 had differing results flowing from the independent TAC and 2013 processes.

It was concluded that both the TAC (Step 5) and 2013 speed limit warrant (Step 6) processes do not provide consistent results when trying to determine the need for a speed limit at or below 50 km/h and that these two speed limit selection tools should not be relied upon as a technical basis for setting 40 km/h speed limits in Nova Scotia.

### 2.3 Short List of Site Locations

Despite the mixed findings flowing from the comparative review of the TAC and 2013 warrant processes, the results contained in *Table 1* were useful in providing guidance in selecting a short list of sites that would be carried forward for further detailed analysis. As defined in the study terms of reference a total of 10 sites were to be carried forward, including five sites that met the 2013 warrant and five sites that did not meet the warrant.

The findings of the 2013 Low Speed Limit Warrant process were presented to the PSC, and in working with the PSC a reduced list of 10 sites were selected for further evaluation and these are listed in *Table 2*.

**Table 2: Final List of 10 Sites Selected for Detailed Evaluation**

<b>Five Sites Meeting the 2013 Warrant</b>	<b>Five Sites Not Meeting the 2013 Warrant</b>
Grennan Dr (HRM, Lower Sackville)	Inverary Dr (HRM, Dartmouth)
Conrads Rd (NSTIR, Hubbards)	Lancaster Dr (HRM, Clayton Park)
Viewmount Dr (NSITR, Tantallon)	Westmount St (HRM, Halifax)
Maple Blvd / Scenic Dr (NSTIR, Bible Hill)	Ryland Ave (NSTIR, Bible Hill)
Springwaters Place (NSTIR, Bible Hill)	Wilson Lake Rd (HRM, Lower Sackville) <sup>A</sup>

A – Omitted from the study at the request of HRM.

It should be noted that after the initiation of the data collection phase and the installation of the 40 km/h speed limit signs, HRM residents on Wilson Lake Road raised concerns with changes being made to the posted speed limit on their street. At the request of HRM representatives on the PSC, the 40 km/h signs were removed from this site and only 9 locations were subjected to the detailed analysis process. It was determined that the removal of the Wilson Lake Road site from the detailed analysis would not have a noticeable impact on the overall study findings.

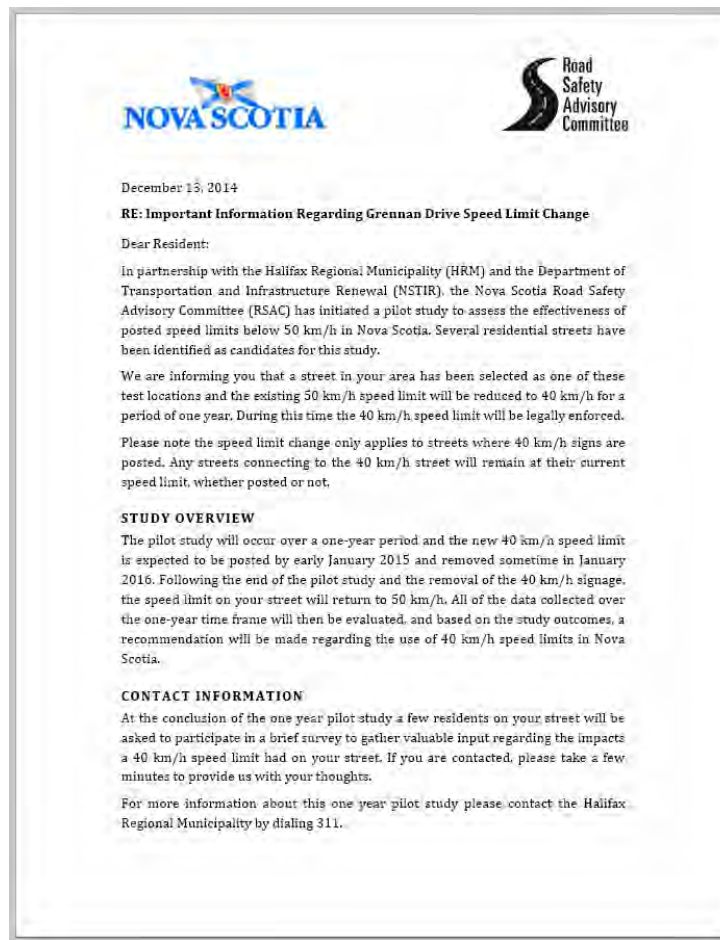
## 2.4 Enforcement

One of the key factors in collecting quality speed data in a before and after study is to ensure that speed enforcement practices are consistent throughout the study period. As such, the relevant police agencies were engaged to make them aware of the study, communicate the specific locations where the regulatory speed limit would be reduced to 40 km/h, and request that their enforcement practices and strategies remain unchanged in these locations for the duration of the study. A memorandum was submitted as well as follow-up phone discussions were held with the Halifax Regional Police and the RCMP's Lower Sackville, Tantallon and Bible Hill detachments.

## 2.5 Resident Notices

Following the selection of the 10 candidate street locations a letter was prepared in conjunction with RSAC's Speed Zone Subcommittee with the intent of informing residents of the speed limit changes. The letter attempted to provide a brief overview of the study, the speed limit changes occurring on their street, the duration of the study, that the new speed limit would be legally enforced, and following the study some residents would be asked to participate in a survey. A sample copy of the one-page letter is shown in *Figure 3* and contained in *Appendix D*.

**Figure 3: Sample Engagement Letter**





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Letters were delivered by the consultant team members. One letter was delivered to each house located on the 10 streets impacted by the study. Letters were placed in a weather-proof bag and attached to the front door of each house.

### 3. THE DETAILED EVALUATION PHASE

#### 3.1 Data Collection Process

The consultant team obtained two vehicle speed radar units that were capable of continuously recording the speed of approaching and departing vehicles, the total volume of traffic during the recording period, and a time stamp of each recording. These units are easily mounted on the roadside without requiring personnel to enter the roadway environment. The manufacturer of these units is *Houston Radar*, the radar unit model is *Armadillo* and the software tool used for post-processing the data is referred to as *Traffic Stats Analyzer*.

Prior to the data collection phase of the study both units were tested to verify they were providing accurate radar readings. A calibrated hand-held radar unit was used to measure vehicle speeds at the same time as the two *Armadillo* units and it was confirmed that all three radar units were providing the same results. To ensure an added level of consistency throughout the study process, the consultant team installed the same radar unit at the same site location throughout the entire data collection process in order to account for any potential discrepancies between the two *Armadillo* radar units<sup>1</sup>.

Data was collected at the nine preferred locations listed earlier in *Table 2*. The data collection intervals were defined in the study terms of reference and included a “before” condition to provide a baseline set of speeds at a 50 km/h speed limit, then 1-2 weeks after the speed limit was reduced to 40 km/h, 3 months after, 6 months after and finally 1 year after. A summary of the data collection intervals and when the data was collected is provided in *Table 3*.

**Table 3: Description of the Data Collection Intervals**

Survey	Description	Time Period
B1 - Before (50 km/h)	“Before” Conditions	Nov/Dec 2014
A1 – After (40 km/h)	1-2 weeks After	Jan/Feb 2015
A2 – After (40 km/h)	3 months After	Apr/May 2015
A3 – After (40 km/h)	6 months After	July 2015
A4 – After (40 km/h)	12 months After	Dec/Jan/Feb 2016

The collection of the raw speed and volume information recorded at each of the nine locations, for each of the data intervals identified above followed industry best practices. In total, 45 speed surveys were carried out and assessed as part of this study.

#### 3.2 Evaluating the Data

The raw data gathered during each of the 45 speed surveys were reviewed to ensure that a sufficient number of observations were recorded. Following industry best practices, only speed

<sup>1</sup> For example, radar unit #2 was consistently used to gather data in the same location at site #4.

recordings under free-flow conditions were used for analysis purposes to ensure it reflected a driver's unimpeded speed choice. As such, the time-stamp information was used to "scrub" the data and remove speed readings that were within 10 seconds of each other.

Weather and road conditions and their impact on drivers' speed choice were also an important part of the data evaluation process. The start and end of all winter weather events were noted. No snow events occurred during the "Before" data collection process, but did occur during the 1-2 week "After" and 12 months "After" periods. All data recorded during these events were removed and not included in the analysis process.

The scrubbed data for each survey was then subjected to the statistical analysis processes required by the study. Detailed calculations were carried out for each survey data set and included the following information:

- General Information:
  - Site location / Data interval
  - Sample Size
  - Mean and 85<sup>th</sup> percentile speed
- Speed Variability / Consistency
  - Standard Deviation and Coefficient of Variation
  - 15 km/h pace range and percentage of vehicles operating in the pace
  - Skewness Index and Kurtosis Measure

A detailed summary sheet for each of the 45 speed surveys, organized by location, is provided in *Appendix C*.

### 3.3 Summary of Results

Given the fact that a large amount of data was collected as part of this study and numerous statistical results were calculated for each survey, it was decided that only the key results would be summarized in the main body of this report. Given their relevance as performance measures for both traffic operations and road safety performance the following key parameters were chosen:

- *85<sup>th</sup> Percentile Operating speed* – an indicator of the maximum typical speed choice for the majority of drivers (i.e. 85%). This value is typically the criteria used by road agencies to establish posted speed limits. In addition, the road safety literature suggests that as this value decreases so do the severity of collisions - indicating a positive outcome.
- *Speed Variability* – speed differentials between vehicles can be measured in many ways and for this study the 15 km/h pace was selected as the main indicator. This parameter identifies the largest percentage of speed readings in the data set that are within 15 km/h of each other. Therefore, a higher percentage of speed readings in the pace range would suggest more uniform speeds. Research has shown that reductions in speed variability result in a reduced likelihood of collision occurrence – indicating a positive outcome.

The results for both of these key indicators are presented in the following Sections.

### 3.3.1 85<sup>th</sup> Percentile Operating Speed

The summary of changes in the 85<sup>th</sup> percentile operating speeds at each site is contained in *Table 4* and shown graphically in *Appendix B*. The calculated 85<sup>th</sup> percentile operating speed and the change in km/h relative to the initial “Before” speed is shown for each site.

**Table 4: Summary of 85<sup>th</sup> Percentile Speed by Location**

Site	85 <sup>th</sup> Percentile Speed Survey Results									
	Before (50 km/h)		After (1 week)		After (3 month)		After (6 month)		After (12 month)	
	85th	Change	85th	Change	85th	Change	85th	Change	85th	Change
1. Inverary (Dartmouth)	58.0	-	55.1	-2.9	55.2	-2.8	53.5	-4.5	54.6	-3.4
2. Grennan (Lwr Sackville)	49.0	-	46.0	-3.0	48.0	-1.0	47.0	-2.0	49.0	0.0
3. Viewmount (Tantallon)	54.3	-	49.9	-4.4	53.5	-0.8	51.9	-2.4	50.6	-3.7
4. Conrads (Hubbards)	52.0	-	48.0	-4.0	51.0	-1.0	51.0	-1.0	51.0	-1.0
5. Lancaster (Clayton Park)	50.4	-	48.1	-2.3	49.8	-0.6	49.3	-1.1	50.8	0.4
6. Westmount (Halifax)	43.1	-	43.0	-0.1	43.0	-0.1	41.7	-1.4	46.0	2.9
7. Maple-Scenic (Bible Hill)	52.0	-	51.5	-0.5	49.0	-3.0	49.0	-3.0	48.0	-4.0
8. Springwaters (Bible Hill)	53.3	-	53.1	-0.2	51.4	-1.9	53.8	0.5	50.8	-2.5
9. Ryland (Bible Hill)	56.0	-	52.0	-4.0	53.0	-3.0	53.8	-2.2	54.0	-2.0
<b>Average Speed Change (km/h)</b>			<b>-2.4</b>		<b>-1.6</b>		<b>-1.9</b>		<b>-1.5</b>	

The results of the 85<sup>th</sup> percentile operating speeds show there was an initial average reduction in speed of 2.4 km/h. However, the results of the 12-month “After” data set indicate the speed reducing impact of the 40 km/h speed limit is diminished and the average speed reduction across all sites was only 1.5 km/h. This trend suggests there was an initial “novelty effect” immediately following the reduction in the posted speed limit, and over time, some portion of the driving population have returned to their previous driving behaviour and speed choice.

An additional statistical review was carried out to determine if the change in average 85<sup>th</sup> percentile operating speeds from the “Before” conditions to the 12-month “After” conditions was statistically significant. A two-sample t-test for comparing two sample means was chosen for this study. The results indicate the 1.5 km/h reduction in speed was not statistically significant at a 5% significance level. This means there is a 95% certainty the measured change in speed does not exceed the typical variation and randomness in operating speeds.

### 3.3.2 Speed Variability

As presented earlier, speed variance and differences in speed between vehicles is an important proxy measure for changes in road safety and safety performance along a roadway. The early theoretical findings of Solomon in 1964 determined that the more vehicle speeds varied about the mean the greater the likelihood of a collision. This is significant not only for two vehicles traveling at different speeds and the potential of them colliding, but also for pedestrians and other vulnerable road users trying to judge the time gap between vehicles when crossing the street. A summary of the speed variability results are contained in *Table 5*.

**Table 5: Summary of Speed Variability by Location**

Site	Speed Variability (15 km/h Pace) Results										
	Before (50 km/h)		After (1 week)		After (3 month)		After (6 month)		After (12 month)		12-Month Change
	Range	% in Pace	Range	% in Pace	Range	% in Pace	Range	% in Pace	Range	% in Pace	% in Pace
1. Inverary (Dartmouth)	42-57	59.3%	41-56	61.8%	41-56	56.5%	41-56	70.4%	41-56	67.0%	7.7%
2. Grennan (Lwr Sackville)	35-50	77.7%	33-48	77.6%	35-50	77.1%	34-49	72.9%	35-50	76.0%	-1.7%
3. Viewmount (Tantallon)	41-56	74.2%	36-51	70.9%	40-55	67.9%	39-54	71.6%	37-52	58.1%	-16.1%
4. Conrads (Hubbards)	38-53	73.2%	34-49	77.1%	38-53	70.5%	38-53	73.3%	37-52	73.1%	-0.1%
5. Lancaster (Clayton Park)	37-52	74.5%	35-50	76.0%	38-53	76.9%	36-51	73.6%	37-52	74.3%	-0.2%
6. Westmount (Halifax)	30-45	71.0%	29-44	74.5%	29-44	71.4%	26-41	67.8%	32-47	66.4%	-4.6%
7. Maple-Scenic (Bible Hill)	37-52	61.1%	38-53	58.3%	34-49	69.4%	33-48	60.8%	32-47	59.0%	-2.1%
8. Springwaters (Bible Hill)	38-53	61.2%	37-52	62.6%	37-52	65.9%	37-52	59.8%	37-52	65.6%	4.4%
9. Ryland (Bible Hill)	39-54	61.5%	36-51	61.9%	39-54	66.1%	41-56	63.0%	38-53	67.9%	6.4%
<b>Average Change in Percent of Vehicles in a 15 km/h Pace</b>											<b>-0.7%</b>

Following the 12-month time period there were only three sites – Inverary, Springwaters, and Ryland – that experienced an increase in the number of vehicles in the 15km/h pace as well as a slight drop in the pace range. The other 66.7% of locations experienced only a slight reduction (i.e. -0.1 to -0.2%) or a noticeable reduction (i.e. -1.7 to 16.1%). This suggests on average that the variability results were mixed when the regulatory speed limit was reduced. Past research findings carried out by others show that speed variability typically increases when drivers transition from a higher speed limit zone to a lower speed limit zone.

### 3.4 Discussion of Findings

A focused review was also carried out to try and link the 2013 Warrant findings with the changes in both speed and speed variability in an attempt to determine how effective the Warrant process was at identifying candidate locations for a 40 km/h posted speed limit. An example of a positive outcome would show a site that met the warrant for a 40 km/h posted speed limit, had a sustained speed reduction, as well as improved variability. The summary is provided in *Table 6*.

**Table 6: Comparative Review of Results by Site Location**

Road Agency	Street Location	Area	2013 Warrant Met?	Consistent Speed Drop Over Time? <sup>A</sup>	Improved Speed Variability? <sup>B</sup>
NSTIR	Maple-Scenic (Bible Hill)	Urban	Yes	Yes	No
	Springwaters (Bible Hill)	Suburban	Yes	No	Yes
	Viewmount (Tantallon)	Suburban	Yes	Yes	No
	Conrads (Hubbards)	Rural	Yes	Yes	No
	Ryland (Bible Hill)	Urban	No	Yes	Yes
HRM	Grennan (Lwr Sackville)	Urban	Yes	No	No
	Lancaster (Clayton Park)	Urban	No	No	No
	Westmount (Halifax)	Urban	No	No	No
	Inverary (Dartmouth)	Urban	No	Yes	Yes

*A – Was there a reduction in 85<sup>th</sup> percentile speed for all “After” data collection intervals?*

*B – Did the percentage of vehicles in the 15 km/h pace increase from the “Before” data relative to the 12-month “After” data.*

The key findings gleaned from the information presented in *Table 6* included:

- The majority of sites that met the 2013 warrant were located under NSTIR's jurisdiction. However, if we refer back to *Table 1* there were a total of five sites that met the 2013 warrant including four under NSTIR's jurisdiction and one in HRM. Therefore, there are no apparent links between the 2013 warrant results and road agency.
- Three of the five sites (60%) that met the 2013 warrant experienced consistently lower 85<sup>th</sup> percentile operating speeds over the course of the 12-month study. Two anomalies occurred at Springwaters Place (NSTIR) and Grennan (HRM) where the warrant for a 40 km/h speed limit was met but the measured operating speeds varied over time. This suggests that the 2013 Warrant is inconsistent in identifying appropriate applications of a 40 km/h speed limit.
- Comparing the two key indicators (i.e. 85<sup>th</sup> percentile speed and speed variability) it can be concluded that although five of nine sites (55.6%) achieved a consistent speed reduction, there was a conversely negative impact where four of nine sites (44.4%) showed some increase in speed variability. This suggests that the implementation of a 40 km/h posted speed limit will have very little impact on drivers' speed choice and may increase speed variability.
- It is interesting to note that not one of the sites met the 2013 warrant for a 40 km/h speed limit, and experienced a consistent reduction in speed for 12 months, and experienced an improvement in speed variability. It may be possible to achieve this goal if a larger sample size of site locations were included in the analysis. However, the fact that this did not occur at any of the nine sites in this study appears to suggest the following:
  - The 2013 Warrant process is not an appropriate tool for identifying candidate roadway locations that would experience an operational and safety benefit from the installation of a 40 km/h speed limit, and
  - The installation of a 40 km/h speed limit – regardless of the results flowing from the 2013 Warrant process – is not likely to noticeably change driver's speed choice and could increase speed variability.

## 4. RESIDENT SURVEYS

Following the 12-month time period during which the speed limits had been reduced, the consultant team conducted brief resident surveys. The use of a follow-up survey provided the consultant team and PSC with a better understanding of the perceived impacts associated with a 40 km/h speed limit. The following five multiple choice questions were asked of residents:

1. Were you aware of the 40 km/h pilot study on your street?
2. Describe the change in vehicle speed on your street?
3. Describe the change in traffic volume on your street?
4. Describe the change in level of safety/comfort on your street?
5. Has the 40 km/h speed limit been beneficial?

In total there were 49 responses from the nine roadways included in the study. There were at least 5 survey responses from each street to ensure a reasonable cross-section of responses from the various roadway types, municipalities, etc. A summary of the most common responses is provided in *Table 7*.

**Table 7: Summary of Survey Results**

	<b>Most common Answer</b>	<b>Number of Most Common Answers</b>	<b>Percent of Most Common Answers</b>
1. Aware of study?	“Yes”	36	73%
2. Change in speed?	“No Change”	35	71%
3. Change in volume?	“No Change”	35	71%
4. Change in safety?	“No Change”	28	57%
5. Pilot study beneficial?	“Yes, keep 40 km/h”	31	63%

The results of the survey showed a clear majority answer for each of the five questions. More than 70% of all residents surveyed were aware of the pilot study on their street and did not perceive there to be any change in vehicle speed or volume after the 40 km/h speed limit signs were installed. There was a 57% majority that perceived little to no change in the level of comfort and safety while 27% felt there was an improvement. The latter is interesting as a noticeable amount of survey respondents perceived their street to be “safer” yet they also indicated that they thought speeds did not decrease. When asked if the pilot study was beneficial, 63% of respondents preferred to keep the 40 km/h speed limit on their street, 4% felt it should remain at 50 km/h and the remaining 33% either had no preference or did not respond to the question.

In summary, although the majority of survey respondents (63%) wanted to keep the 40 km/h speed limit on their street, they also did not feel the 40 km/h speed limit had any change on driver behaviour or driver speed choice.

## 5. CONCLUDING THOUGHTS

### 5.1 Conclusions

The following key findings were gleaned from the study results:

- The 2013 Warrant process provided inconsistent results when applied to the various roadway types selected for this study. For example, at some locations the warrant process recommended a posted speed limit of 50 km/h when the 85<sup>th</sup> percentile operating speeds were less than 45km/h.
- At the nine locations, the measured 85<sup>th</sup> percentile operating speeds showed an average drop of 2.4 km/h immediately following the installation of the 40 km/h speed limits. After a 12-month period the operating speed reduction was diminished to 1.5 km/h – a result that was not statistically significant at a 5% significance level.
- The variability of speeds between vehicles showed an average increase of 0.7% over the 12-month period. This result echoes the road safety literature which has shown that speed limit reductions – in the absence of any other changes to the road environment – has the potential to increase speed variability.
- A sample of residents along the nine roadways impacted by the pilot study were engaged to obtain feedback. Although the majority of respondents (63%) wanted to keep the 40 km/h speed limit on their street, they also did not feel the 40 km/h speed limit had any change on driver behaviour or driver speed choice.

In conclusion, the findings of the Pilot Testing of 40 km/h Posted Speed Limits Study corroborated earlier findings of the 2003 NSTIR study as well as the research findings of other road agencies across North America. Confirmed is the fact that a reduction in the regulatory speed limit below 50 km/h, without any other speed reduction measures such as increased enforcement or physical changes to the roadway environment, is not effective at changing drivers' speed choice.

### 5.2 Recommendations

Based on the findings discussed in the previous Section, the RSAC should consider the following recommendations:

- That the 2013 Low Speed Limit Warrant process no longer be applied as a technically consistent and defensible tool for use by road agencies in Nova Scotia.
- That the use of a 40 km/h regulatory speed limit not be considered an effective tool in reducing drivers' speed choice – in the absence of any other changes to the roadway environment.
- That the RSAC further explore and examine systems of speed management treatments that have been proven to reduce both vehicle speeds and variability in low speed environments. Such treatments will vary from one location to another and could include physical changes combined with other speed management techniques.



# **APPENDIX A**

## 2013 Low Speed Limit Warrant Worksheets

**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 1  
Street Name: White Glove Terrace  
Location: Halifax  
Jurisdiction: HRM

Recommended Posted Speed Limit:

50 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	48
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	42
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	No
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

**Site No.: Site 2**  
**Street Name: Westmount Street**  
**Location: Halifax**  
**Jurisdiction: HRM**

**Recommended Posted Speed Limit:**

**50 km/h**

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

*If any of above are "No", then 40 km/h is not permitted.*

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

*If any of above criteria are "Yes", then proceed to step 4.*

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	41
4b.	Is the measured 85th percentile speed 45 km/h or less?	Yes

*If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.*

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	
5b.	TAC recommended posted speed limit?	

**Step 6 - Implementation:**

<b>Implement a 40 km/h speed limit?</b>	<b>No</b>
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

**Site No.: Site 3  
Street Name: Inverary Drive  
Location: Dartmouth  
Jurisdiction: HRM**

**Recommended Posted Speed Limit:**

**50 km/h**

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

*If any of above are "No", then 40 km/h is not permitted.*

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	Yes
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

*If any of above criteria are "Yes", then proceed to step 4.*

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	47
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

*If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.*

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	38
5b.	TAC recommended posted speed limit?	50

**Step 6 - Implementation:**

<b>Implement a 40 km/h speed limit?</b>	<b>No</b>
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 4  
Street Name: Kincardine Drive  
Location: Dartmouth  
Jurisdiction: HRM

Recommended Posted Speed Limit:

40 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	Yes
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	44
4b.	Is the measured 85th percentile speed 45 km/h or less?	Yes

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	
5b.	TAC recommended posted speed limit?	

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	Yes
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

**Site No.: Site 5  
Street Name: Helene Avenue  
Location: Dartmouth  
Jurisdiction: HRM**

**Recommended Posted Speed Limit:**

**50 km/h**

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

*If any of above are "No", then 40 km/h is not permitted.*

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	Yes
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	Yes
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

*If any of above criteria are "Yes", then proceed to step 4.*

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	52
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

*If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.*

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	38
5b.	TAC recommended posted speed limit?	50

**Step 6 - Implementation:**

<b>Implement a 40 km/h speed limit?</b>	<b>No</b>
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 6  
Street Name: Redbank Road  
Location: Bedford  
Jurisdiction: HRM

Recommended Posted Speed Limit:

40 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	Yes
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	Yes
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	45
4b.	Is the measured 85th percentile speed 45 km/h or less?	Yes

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	
5b.	TAC recommended posted speed limit?	

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	Yes
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 7  
Street Name: Lancaster Drive  
Location: Clayton Park  
Jurisdiction: HRM

Recommended Posted Speed Limit:

50 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	47
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	44
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	No
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 8  
Street Name: Grennan Drive  
Location: Lower Sackville  
Jurisdiction: HRM

Recommended Posted Speed Limit:

40 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	Yes
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	48
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	40
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	Yes
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 9  
Street Name: George Dauphinee Avenue  
Location: Halifax  
Jurisdiction: HRM

Recommended Posted Speed Limit:

40 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	Yes
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	Yes
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	Yes
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	37
4b.	Is the measured 85th percentile speed 45 km/h or less?	Yes

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	
5b.	TAC recommended posted speed limit?	

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	Yes
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 10  
Street Name: Wilson Lake Drive  
Location: Middle Sackville  
Jurisdiction: HRM

Recommended Posted Speed Limit:

50 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	68
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	39
5b.	TAC recommended posted speed limit?	50

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	No
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 11  
Street Name: Brook Street  
Location: Halifax  
Jurisdiction: HRM

Recommended Posted Speed Limit:

40 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	Yes
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	Yes
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	48
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	45
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	Yes
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 12  
Street Name: Atholea Drive  
Location: Cole Harbour  
Jurisdiction: HRM

Recommended Posted Speed Limit:

50 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

*If any of above are "No", then 40 km/h is not permitted.*

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

*If any of above criteria are "Yes", then proceed to step 4.*

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	62
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

*If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.*

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	38
5b.	TAC recommended posted speed limit?	50

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	No
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 13  
Street Name: Allan Street  
Location: Halifax  
Jurisdiction: HRM

Recommended Posted Speed Limit:

50 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	48
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	38
5b.	TAC recommended posted speed limit?	50

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	No
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 14  
 Street Name: Springwaters Place  
 Location: Bible Hill  
 Jurisdiction: NSTIR (Northern District)

Recommended Posted Speed Limit:

40 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	Yes
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	Yes
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	53
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	40
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	Yes
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 15  
 Street Name: Maple Blvd - Scenic Dr Loop  
 Location: Bible Hill  
 Jurisdiction: NSTIR (Northern District)

Recommended Posted Speed Limit:

40 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	Yes
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	47
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	41
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	Yes
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 16  
 Street Name: Ryland Street  
 Location: Bible Hill  
 Jurisdiction: NSTIR (Northern District)

Recommended Posted Speed Limit:

50 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	60
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	42
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	No
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

**Site No.: Site 17**  
**Street Name: Viewmount Drive**  
**Location: Tantallon**  
**Jurisdiction: NSTIR (Central District)**

**Recommended Posted Speed Limit:**

**40 km/h**

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

*If any of above are "No", then 40 km/h is not permitted.*

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	Yes
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

*If any of above criteria are "Yes", then proceed to step 4.*

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	51
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

*If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.*

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	41
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

<b>Implement a 40 km/h speed limit?</b>	<b>Yes</b>
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**Nova Scotia Low Speed Limit  
Warrant Procedure**

**Site No.: Site 18  
Street Name: Conrads Road  
Location: Hubbards  
Jurisdiction: NSTIR (Central District)**

**Recommended Posted Speed Limit:**

**40 km/h**

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

*\* - assumed to be yes for the purposes of testing the warrant process*

*If any of above are "No", then 40 km/h is not permitted.*

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	Yes
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	Yes
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	Yes
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	Yes

*If any of above criteria are "Yes", then proceed to step 4.*

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	50
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

*If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.*

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	48
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

<b>Implement a 40 km/h speed limit?</b>	<b>Yes</b>
---	------------

**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 19  
Street Name: Kaulback Street  
Location: Truro  
Jurisdiction: Town of Truro

Recommended Posted Speed Limit:

50 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	No
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	55
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	41
5b.	TAC recommended posted speed limit?	40

**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	No
----------------------------------	----

**Nova Scotia Low Speed Limit  
Warrant Procedure**

Site No.: Site 20  
Street Name: Victoria Street  
Location: Truro  
Jurisdiction: Town of Truro

Recommended Posted Speed Limit:

40 km/h

**Step 1 - Establish Study Area Boundaries:**

1a.	Does the section of street have a homogeneous cross-section?	Yes
1b.	Has a community stakeholder group been established, engage, and in agreement with considering a 40 km/h speed limit?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

**Step 2 - Screening:**

All three criteria must be met:

2a.	Street classified as "local"?	Yes
2b.	Current posted speed limit 50 km/h?	Yes
2c.	Is there support of 80% of local residents to lower the posted speed limit to 40 km/h, brought forward by a signed petition?	Yes

\* - assumed to be yes for the purposes of testing the warrant process

If any of above are "No", then 40 km/h is not permitted.

**Step 3 - Required Roadway Characteristics:**

One or more of the following conditions must be present:

3a.	Parkland fronting on street that is not part of a school (i.e. Elementary or Junior High), but provides access to a school?	No
3b.	Evidence of use by mobility-challenged persons?	Yes
3c.	No sidewalk on either side of street (>50%)?	No
3d.	No buffer between the sidewalk and travelled way (i.e. boulevard, parking, bike lane, etc.) and street width is <5.7m (or <4m for one-way operations)?	No
3e.	Two or more locations with grades more than 5%, and or advisory speed for horizontal curves <50 km/h?	No
3f.	Insufficient stopping sight distance at two or more locations (50 km/h)?	No
3g.	Three or more speeding-related collisions within a 3-year period?	No
3h.	Presence of long-term parking (>3 hr) and street width is <5.7m (or <4m for one-way operations)?	No

If any of above criteria are "Yes", then proceed to step 4.

**Step 4 - Determination of 85th Percentile Speed:**

4a.	What is the measured 85th percentile speed?	47
4b.	Is the measured 85th percentile speed 45 km/h or less?	No

If 85th percentile speed is >45 km/h, then proceed to Step 5. If 85th percentile speed is <45 km/h, then proceed to Step 6.

**Step 5 - Creating the 40 km/h Posted Speed Limit Physical Roadway Environment:**

Using TAC's Automated Speed Limit Guidelines Spreadsheet:

5a.	What is the sum of the weighted risk scores?	41
5b.	TAC recommended posted speed limit?	40

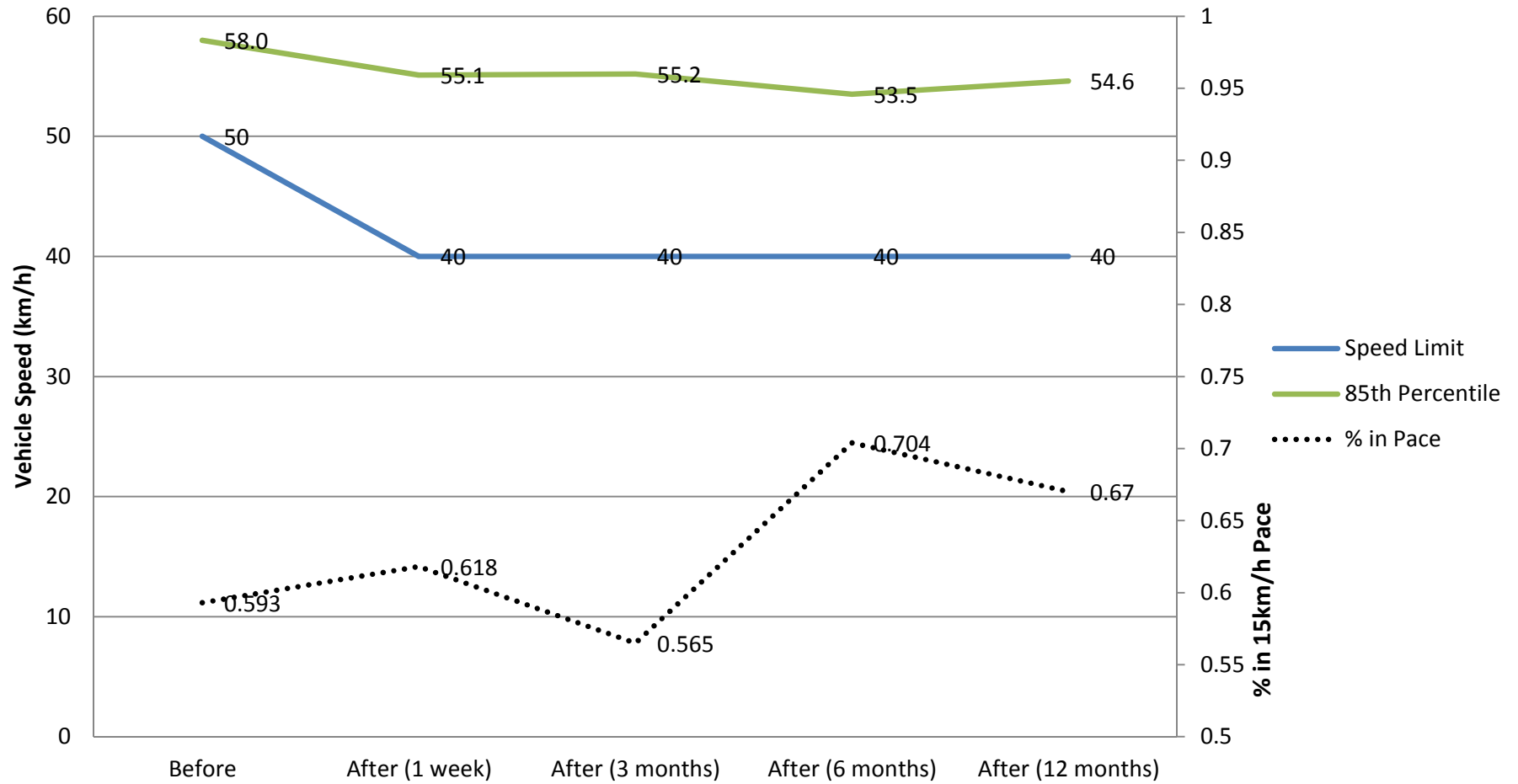
**Step 6 - Implementation:**

Implement a 40 km/h speed limit?	Yes
----------------------------------	-----

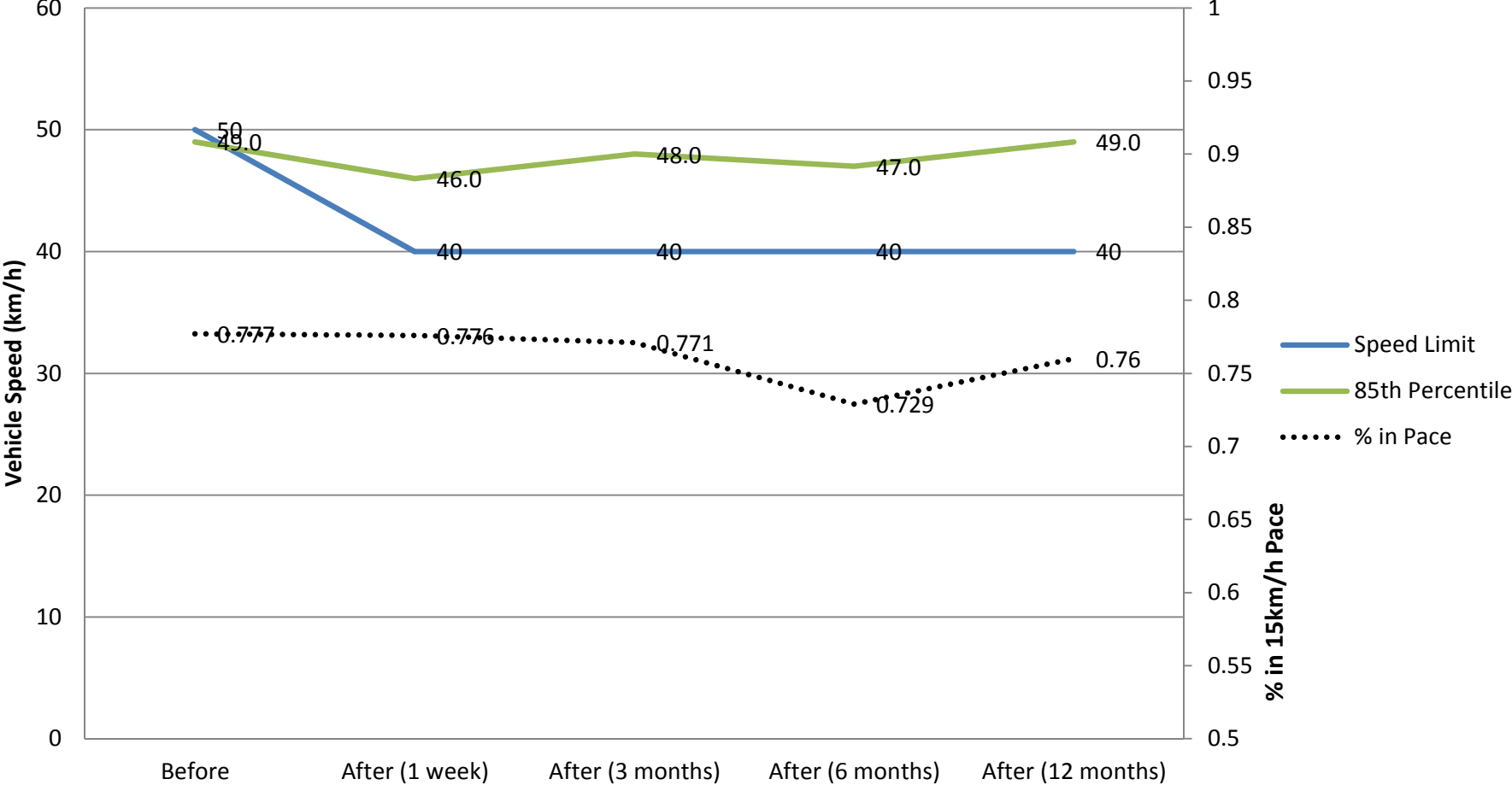
## **APPENDIX B**

# Measured 85<sup>th</sup> Percentile Speed and Speed Differential Trends by Location

# Low Speed Study 1 - Inverary Dr (Dartmouth)

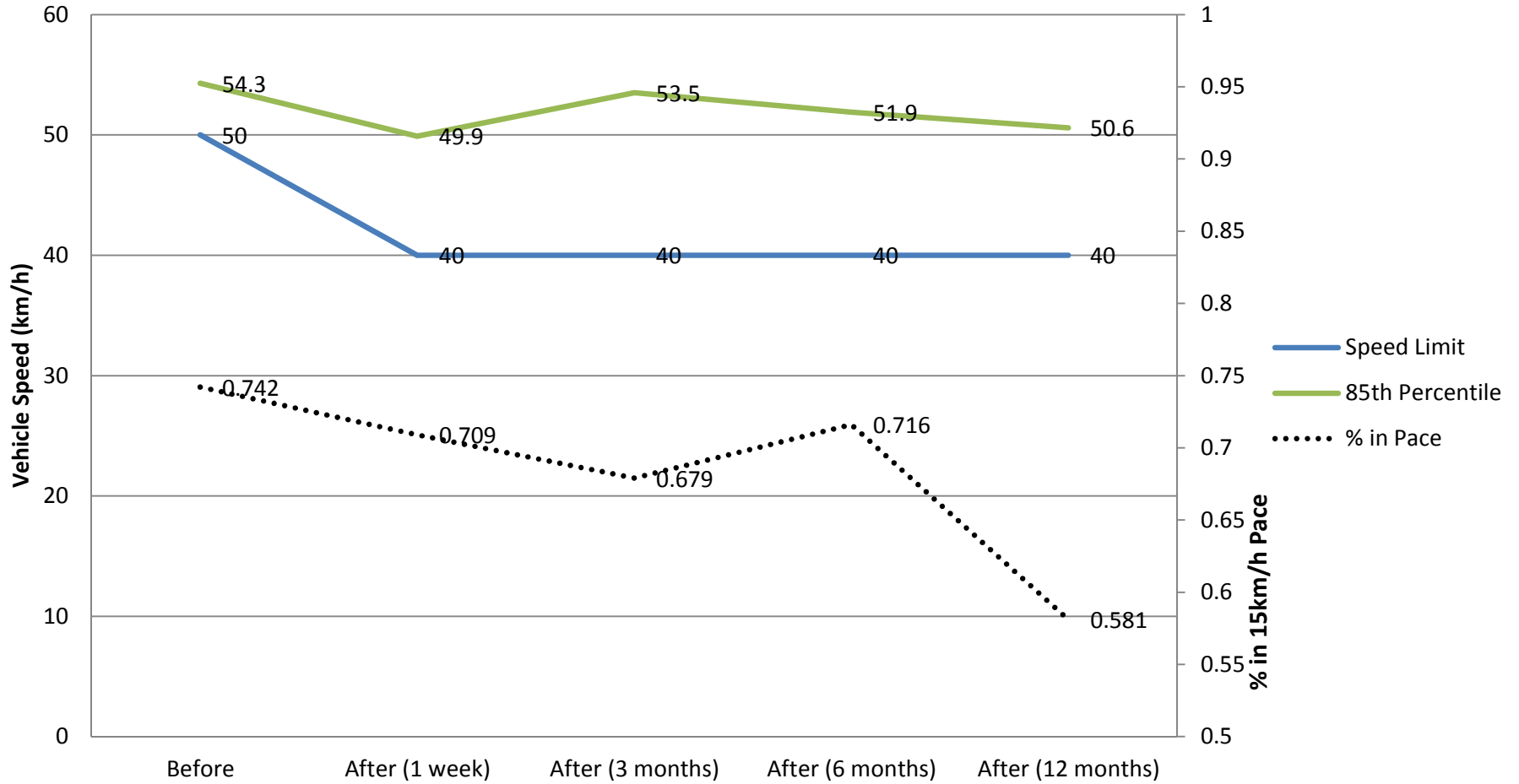


# Low Speed Study 2 - Grennan Dr (Lwr Sackville)

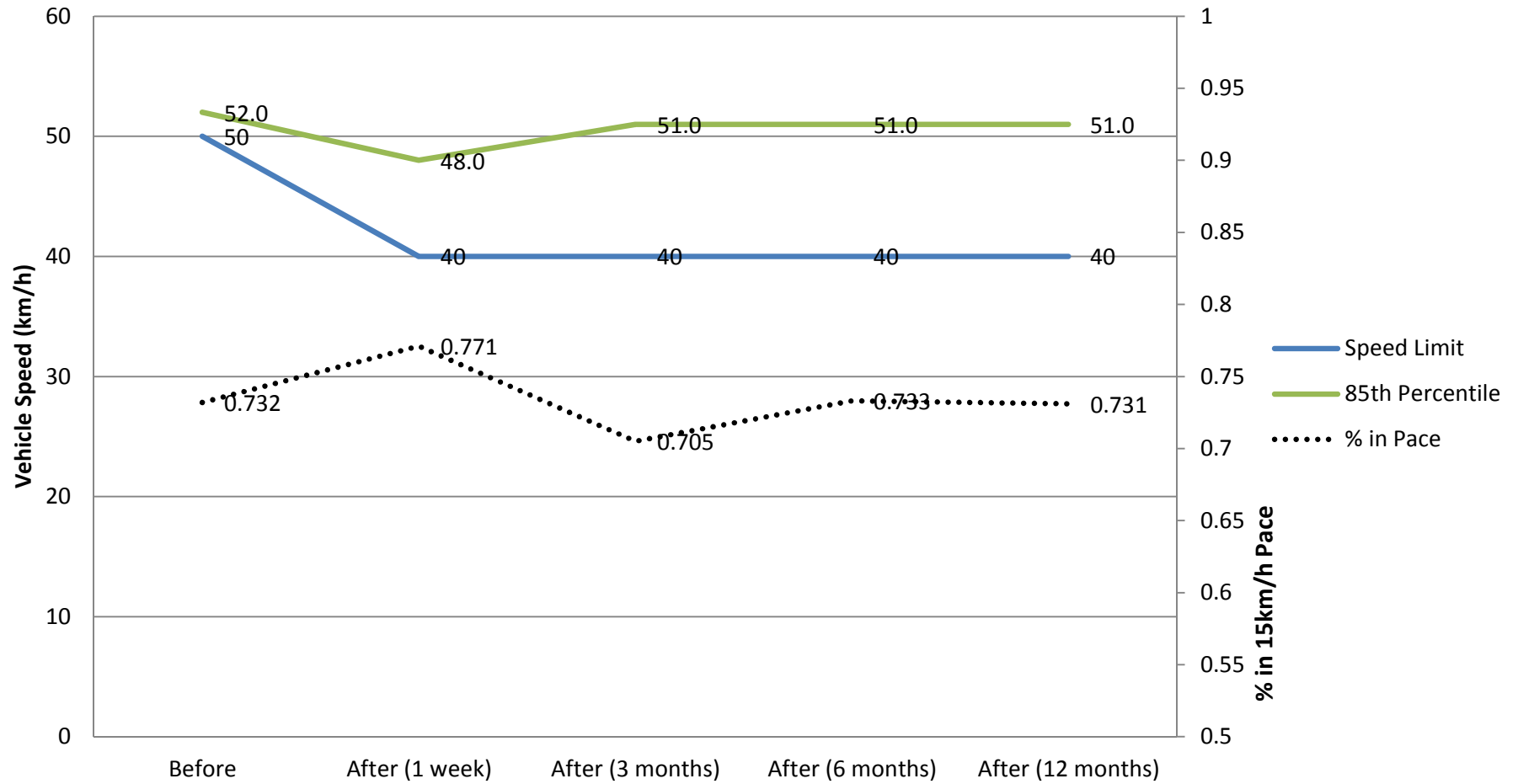




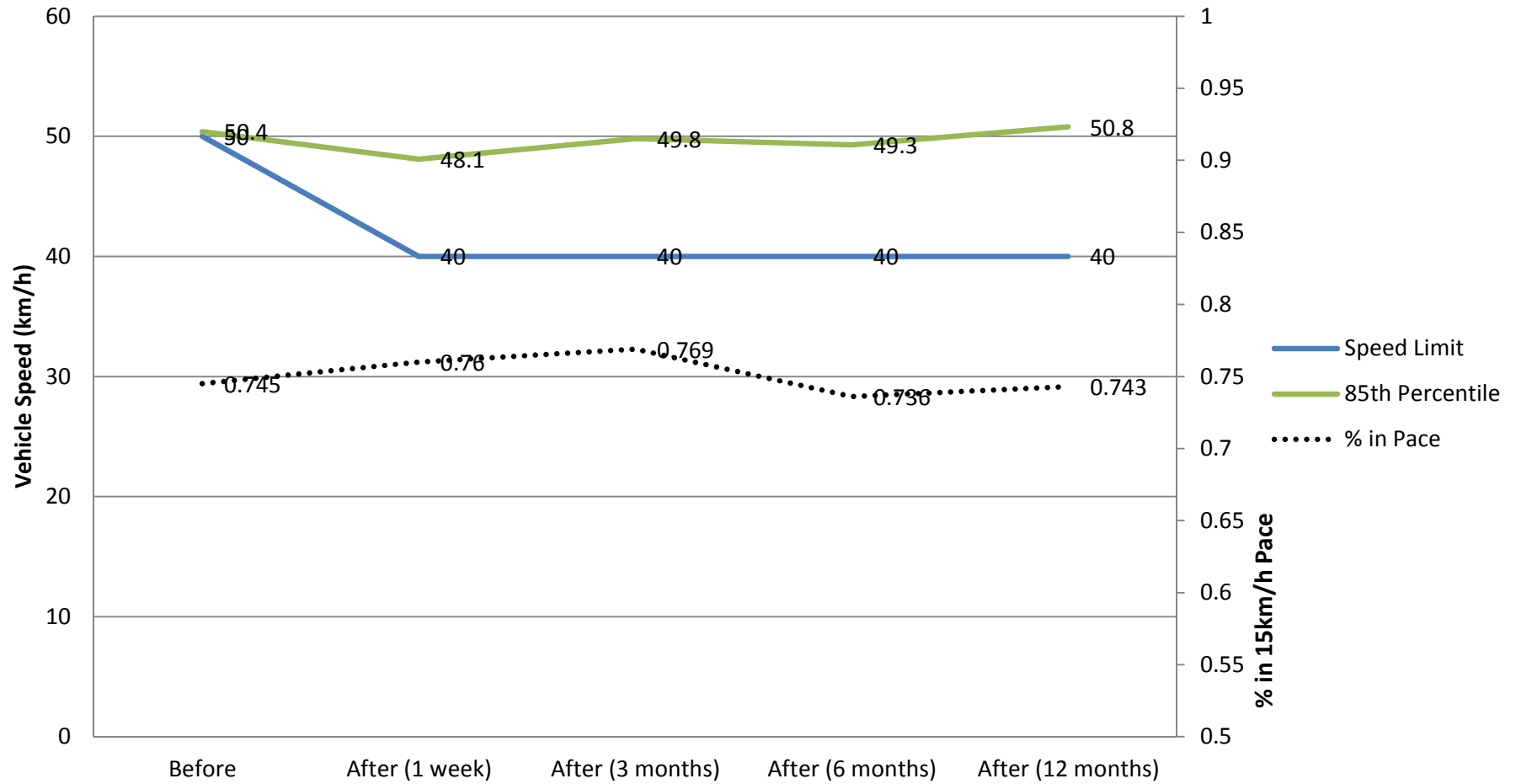
# Low Speed Study 3 - Viewmount Dr (Tantallon)



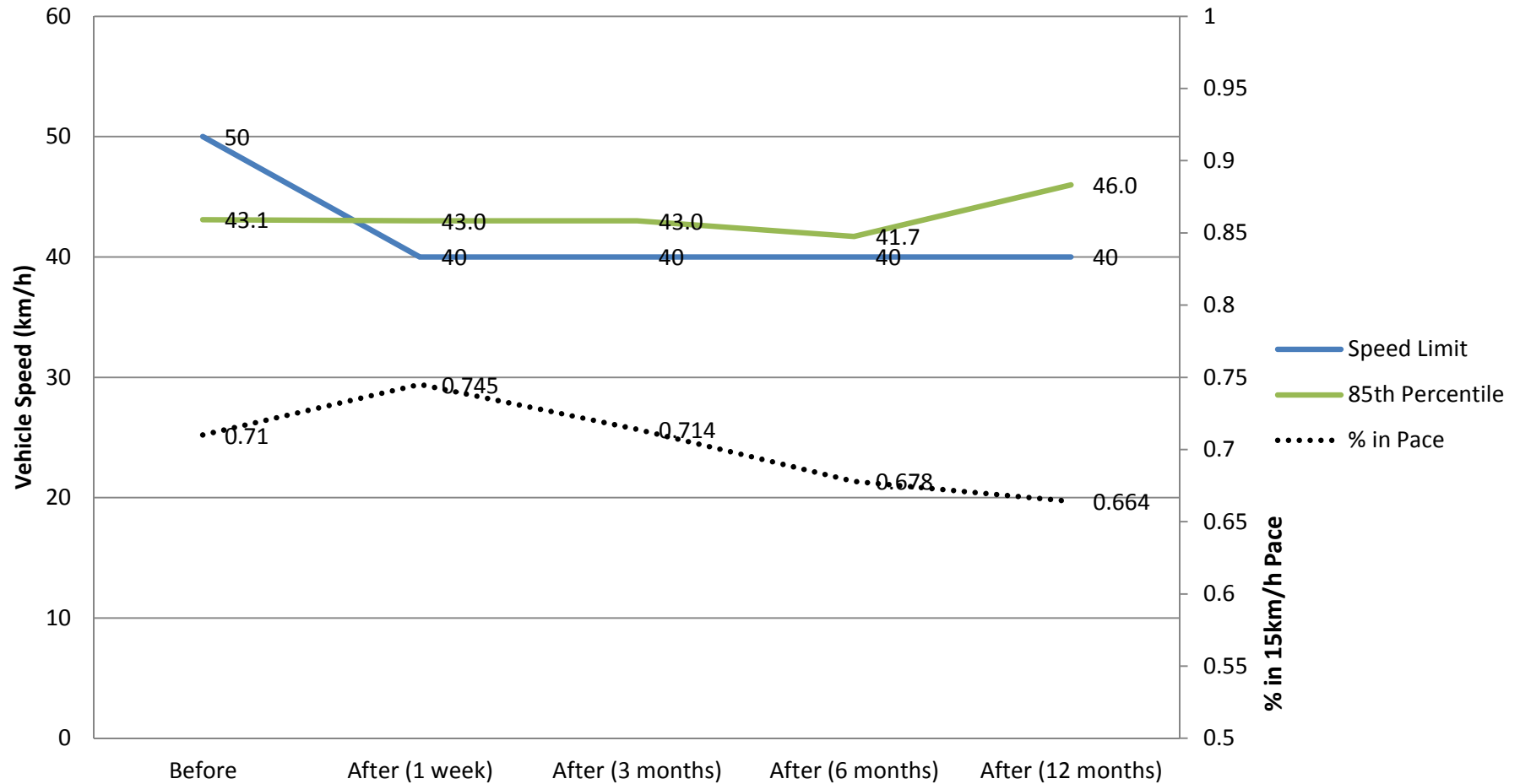
# Low Speed Study 4 - Conrads Rd (Hubbards)



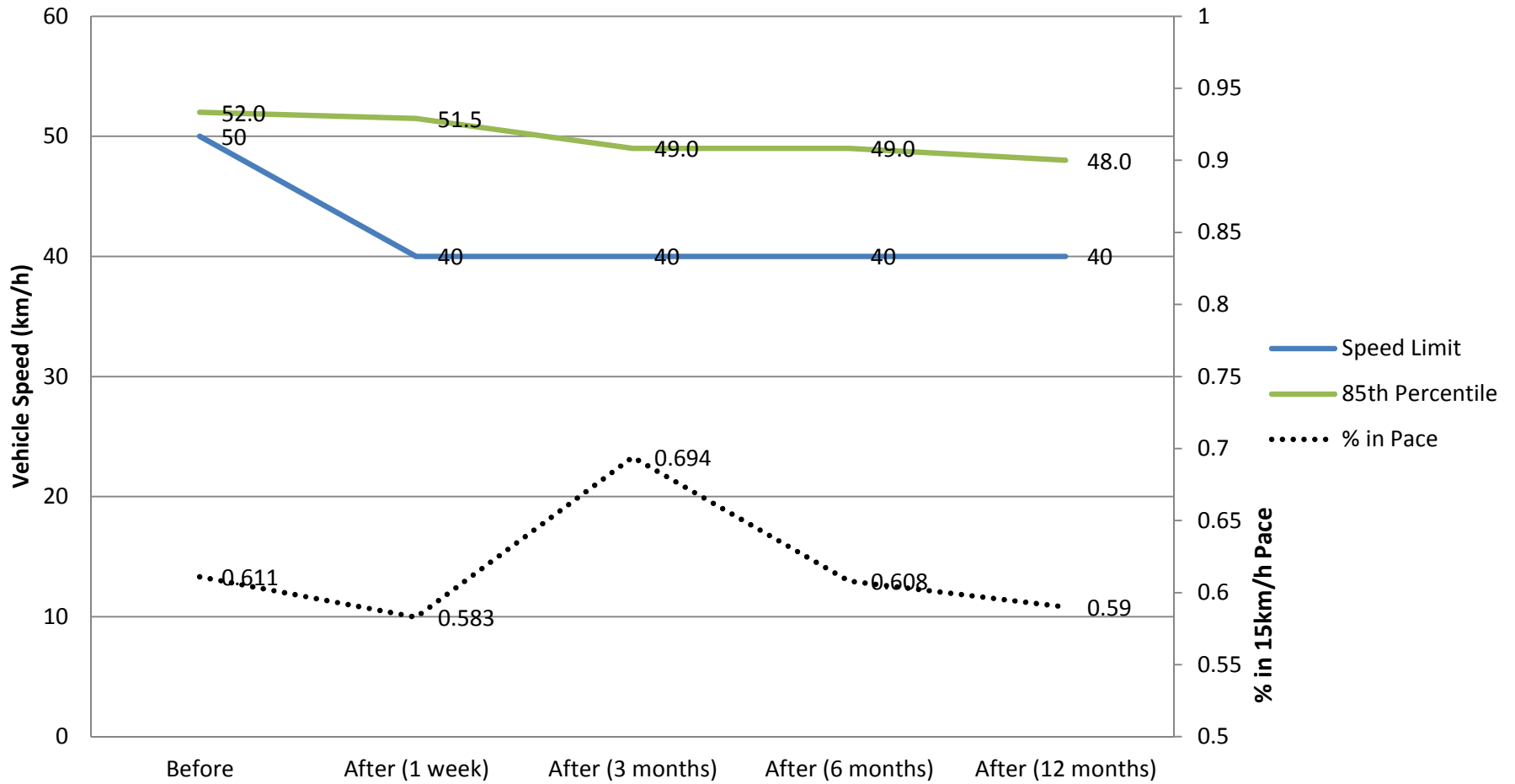
# Low Speed Study 5 - Lancaster Dr (Clayton Park)



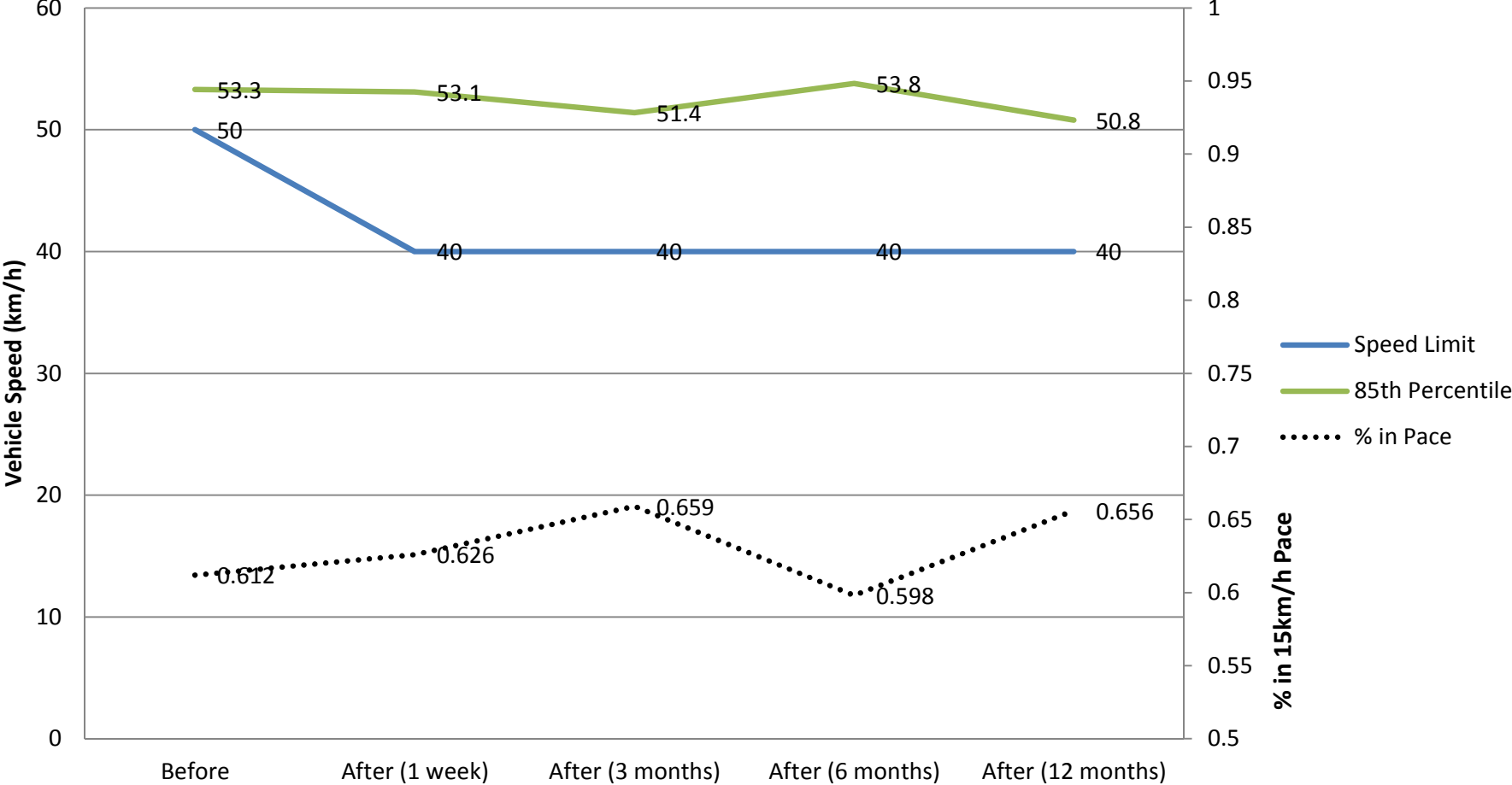
# Low Speed Study 6 - Westmount St (Halifax)



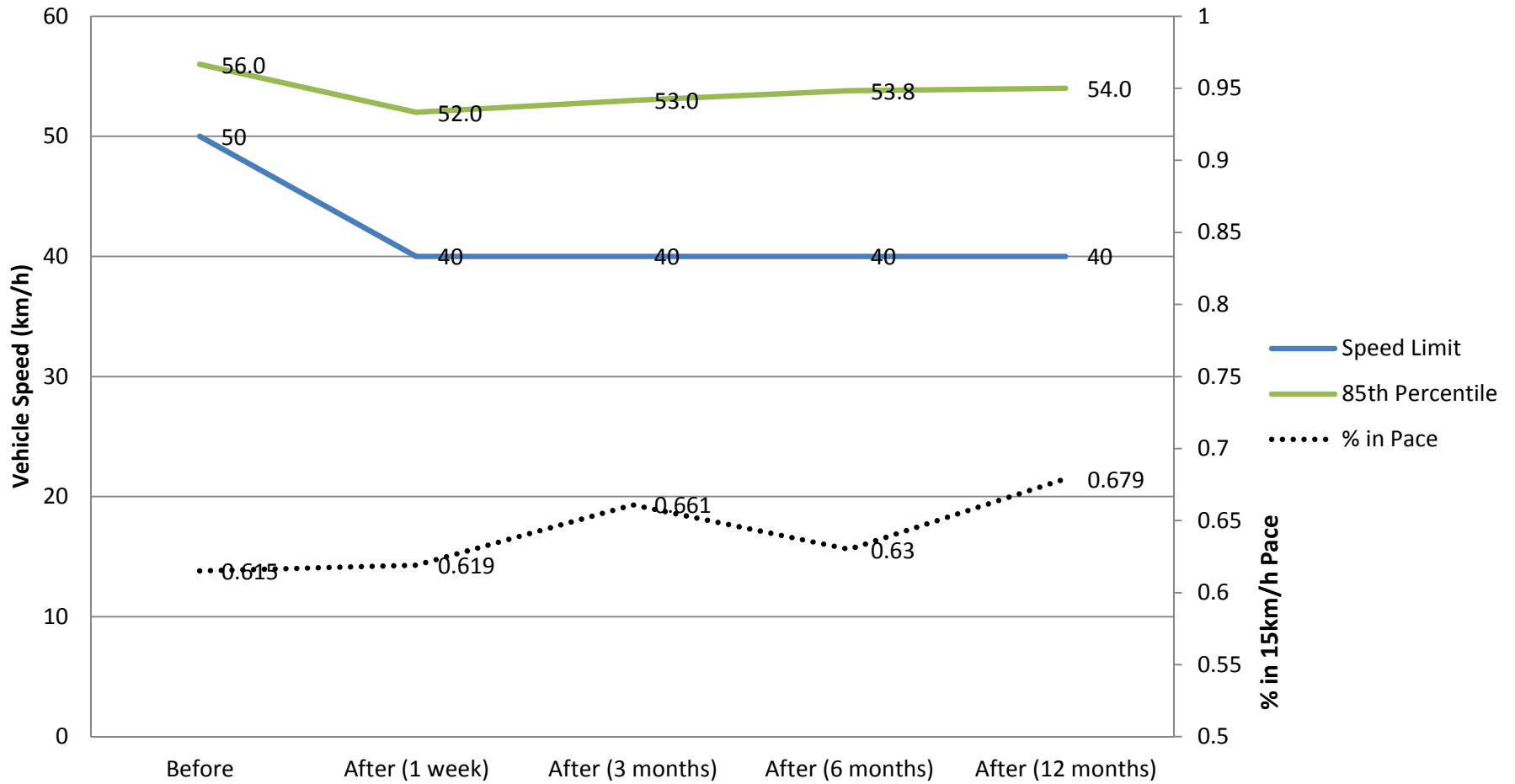
## Low Speed Study 7 - Maple Blvd-Scenic Dr (Bible Hill)



# Low Speed Study 8 - Springwaters PI (Bible Hill)



# Low Speed Study 9 - Ryland Ave (Bible Hill)



# **APPENDIX C**

## Individual Speed Survey Results by Location

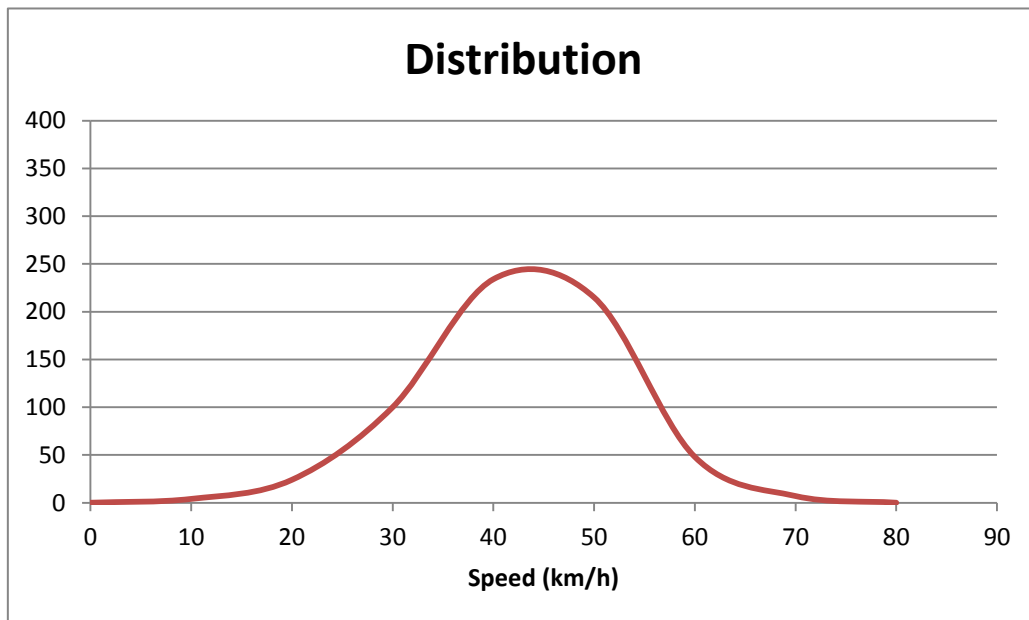


Site 1 – Inverary Dr  
Dartmouth, HRM

**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Inverary  
**Jurisdiction:** HRM (Dartmouth)  
**Radar Unit:** Unit #1  
**Direction:** Two-way  
**Speed Limit:** 50 km/h  
**Survey:** Before  
**Date:** Nov. 21-23, 2014  
**Sample Size:** 632

**RESULTS:**

Minimum	17.0	<b>85th Percentile</b>	<b>58.0 km/h</b>	
Maximum	77.0	<b>15 km/h Pace</b>	<b>42</b>	<b>to 57</b>
Min-Max Range	60.0	<b>% in Pace</b>	<b>59.3 %</b>	
Median	49.0			
Mean	48.1			
Mode	51.0			
Std Dev.	9.573			
Variance	91.652			
Skewness Index	-0.314			
Kurtosis	0.503			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Inverary

**Jurisdiction:** HRM (Dartmouth)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

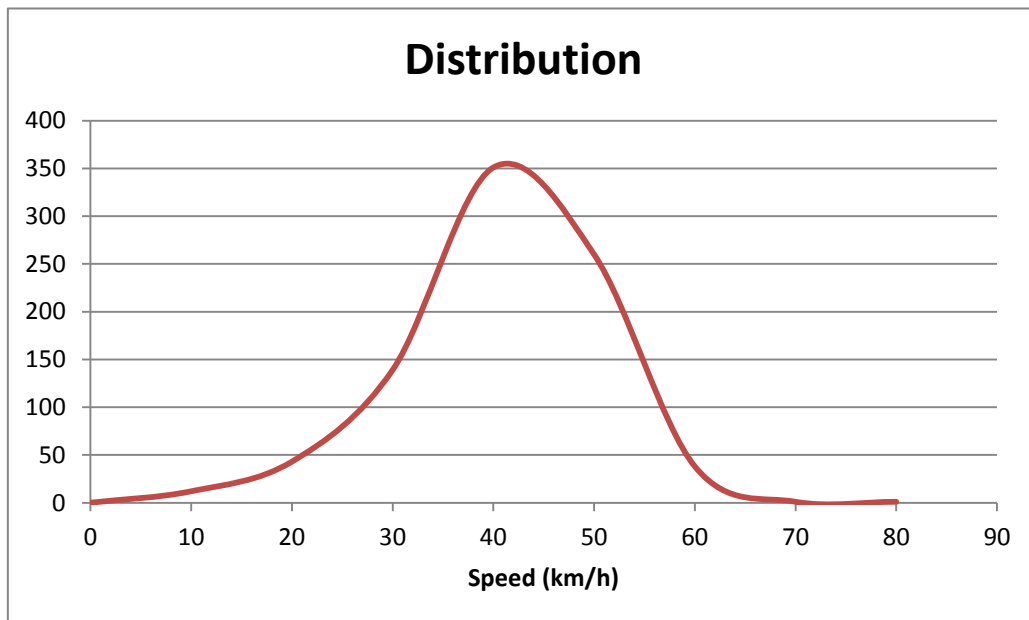
**Survey:** After - 1 Week

**Date:** Jan. 13-15, 2015

**Sample Size:** 845

**RESULTS:**

Minimum	15.8	<b>85th Percentile</b>	<b>55.1 km/h</b>	
Maximum	93.6	<b>15 km/h Pace</b>	<b>41</b>	<b>to 56</b>
Min-Max Range	77.9	<b>% in Pace</b>	<b>61.8 %</b>	
Median	47.3			
Mean	46.1			
Mode	49.6			
Std Dev.	9.542			
Variance	91.040			
Skewness Index	-0.451			
Kurtosis	1.003			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Inverary

**Jurisdiction:** HRM (Dartmouth)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

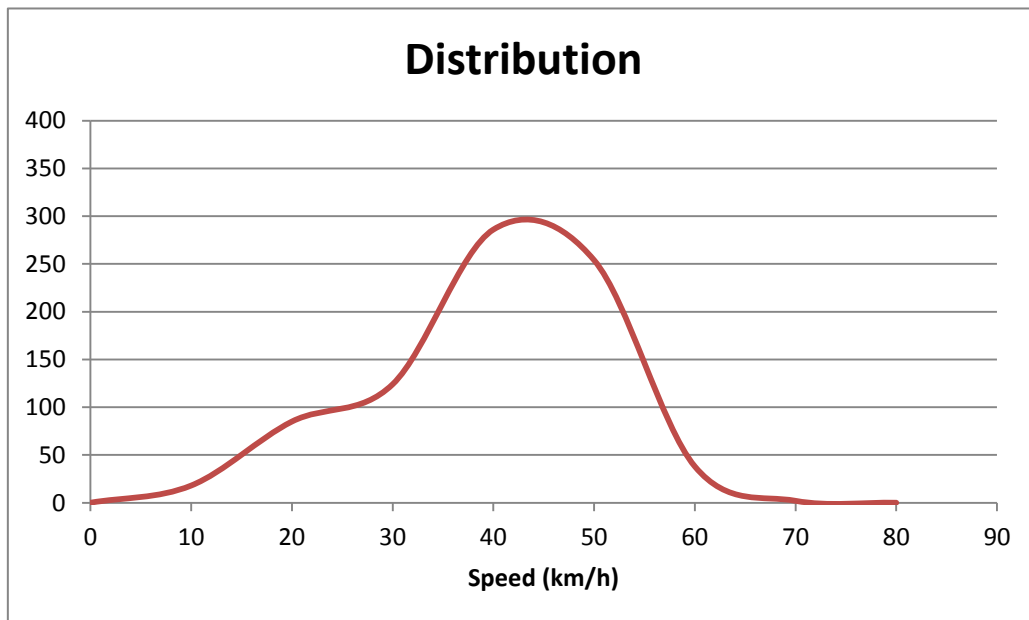
**Survey:** After - 3 Months

**Date:** Apr. 21-24, 2015

**Sample Size:** 807

**RESULTS:**

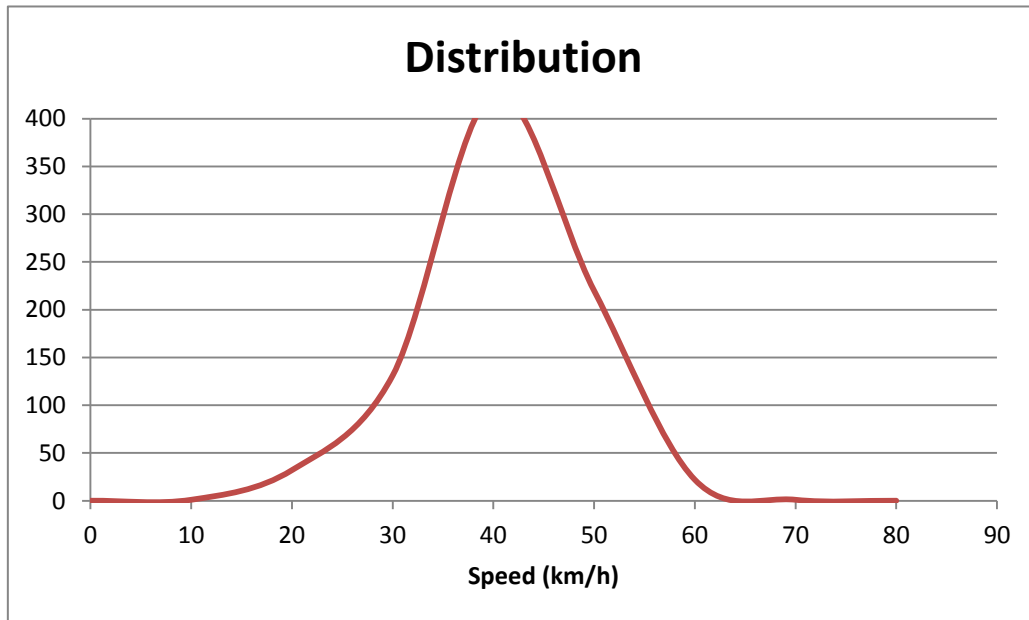
Minimum	16.0	<b>85th Percentile</b>	<b>55.2 km/h</b>	
Maximum	76.6	<b>15 km/h Pace</b>	<b>41</b>	<b>to 56</b>
Min-Max Range	60.6	<b>% in Pace</b>	<b>56.5 %</b>	
Median	46.6			
Mean	44.8			
Mode	50.4			
Std Dev.	10.922			
Variance	119.293			
Skewness Index	-0.519			
Kurtosis	-0.183			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Inverary  
**Jurisdiction:** HRM (Dartmouth)  
**Radar Unit:** Unit #1  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 6 Months  
**Date:** Jul. 9-11, 2015  
**Sample Size:** 833

**RESULTS:**

Minimum	18.6	<b>85th Percentile</b>	<b>53.5 km/h</b>	
Maximum	73.2	<b>15 km/h Pace</b>	<b>41</b>	<b>to 56</b>
Min-Max Range	54.6	<b>% in Pace</b>	<b>70.4 %</b>	
Median	46.1			
Mean	45.7			
Mode	40.1			
Std Dev.	7.836			
Variance	61.400			
Skewness Index	-0.340			
Kurtosis	0.558			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Inverary

**Jurisdiction:** HRM (Dartmouth)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

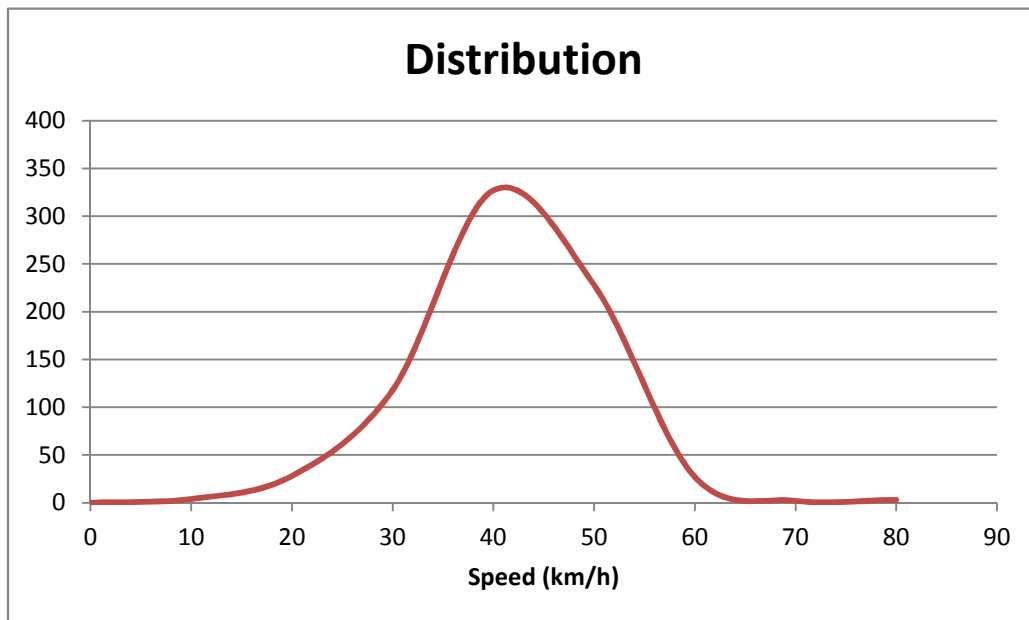
**Survey:** After - 12 Months

**Date:** Jan. 17-19, 2016

**Sample Size:** 737

**RESULTS:**

Minimum	16.1	<b>85th Percentile</b>	<b>54.6 km/h</b>	
Maximum	99.3	<b>15 km/h Pace</b>	<b>41</b>	<b>to</b>
Min-Max Range	83.2	<b>% in Pace</b>	<b>67.0 %</b>	<b>56</b>
Median	47.2			
Mean	46.6			
Mode	43.1			
Std Dev.	9.014			
Variance	81.253			
Skewness Index	-0.009			
Kurtosis	2.361			

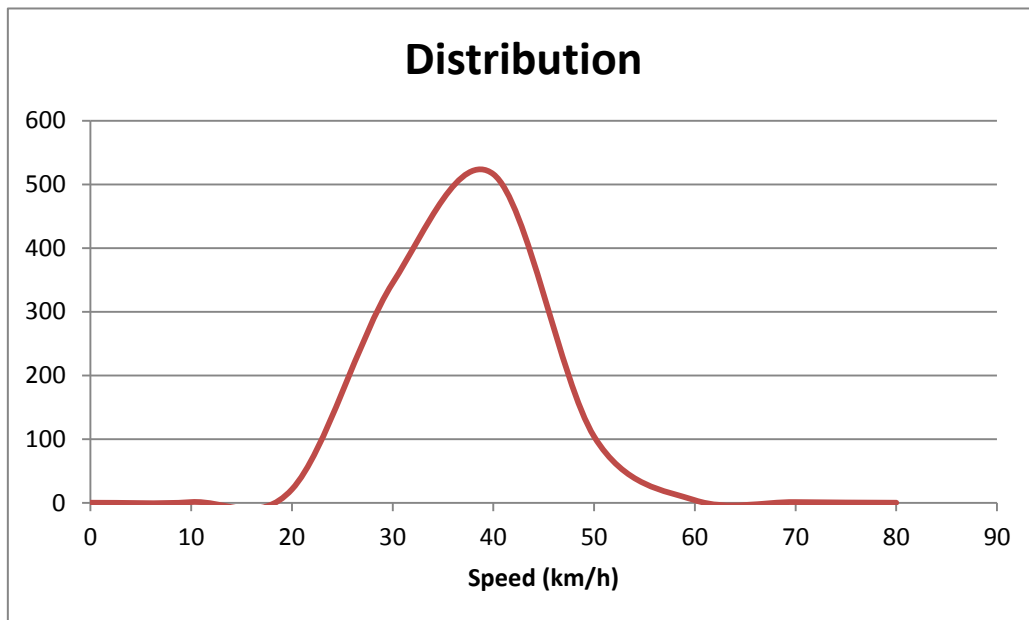


Site 2 – Grennan Dr  
Lwr Sackville, HRM

**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Grennan  
**Jurisdiction:** HRM (Lower Sackville)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 50 km/h  
**Survey:** Before  
**Date:** Nov. 14-16, 2014  
**Sample Size:** 992

**RESULTS:**

Minimum	19.0	<b>85th Percentile</b>	<b>49.0 km/h</b>	
Maximum	79.0	<b>15 km/h Pace</b>	<b>35</b>	<b>to 50</b>
Min-Max Range	60.0	<b>% in Pace</b>	<b>77.7 %</b>	
Median	43.0			
Mean	42.7			
Mode	43.0			
Std Dev.	6.431			
Variance	41.362			
Skewness Index	0.187			
Kurtosis	1.280			

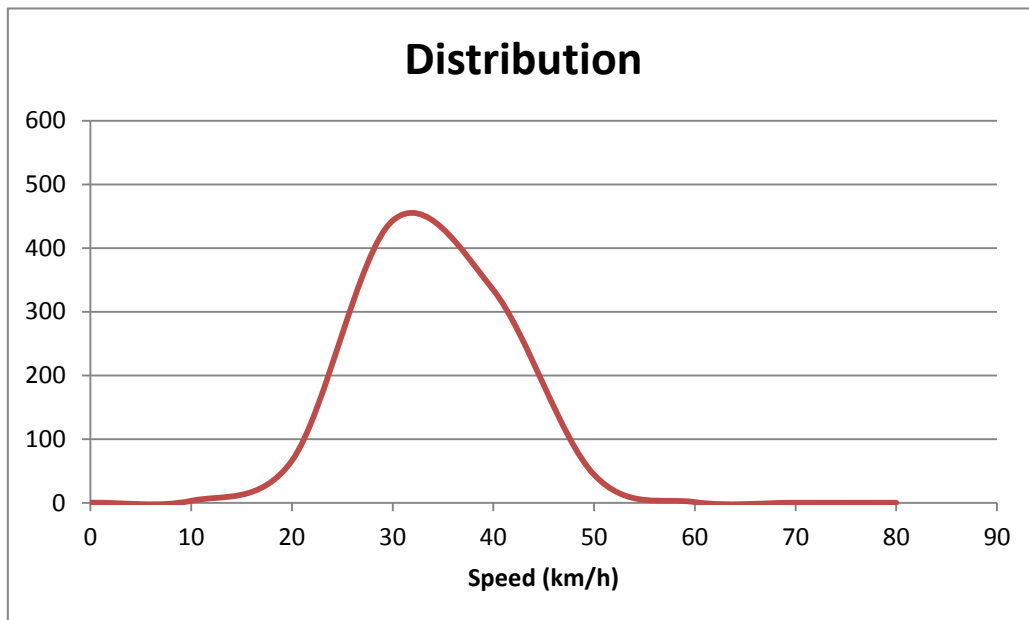




**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Grennan  
**Jurisdiction:** HRM (Lower Sackville)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 1 Week  
**Date:** Jan. 12-15, 2015  
**Sample Size:** 891

**RESULTS:**

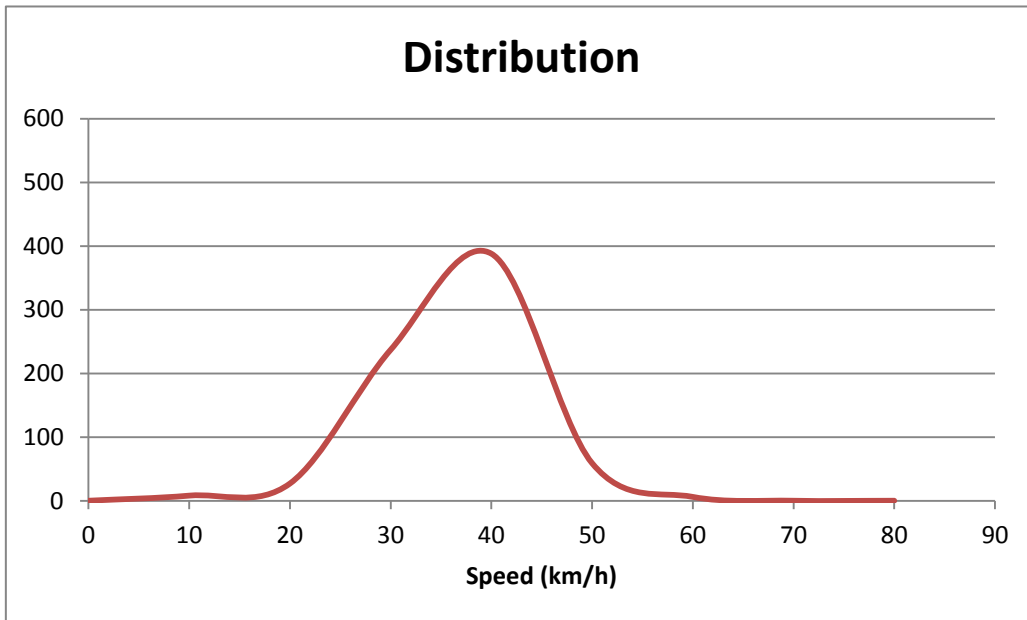
Minimum	15.0	<b>85th Percentile</b>	<b>46.0 km/h</b>	
Maximum	62.0	<b>15 km/h Pace</b>	<b>33</b>	<b>to 48</b>
Min-Max Range	47.0	<b>% in Pace</b>	<b>77.6 %</b>	
Median	39.0			
Mean	39.5			
Mode	38.0			
Std Dev.	6.621			
Variance	43.833			
Skewness Index	-0.172			
Kurtosis	0.620			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Grennan  
**Jurisdiction:** HRM (Lower Sackville)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 3 Months  
**Date:** Apr. 21-24, 2015  
**Sample Size:** 725

**RESULTS:**

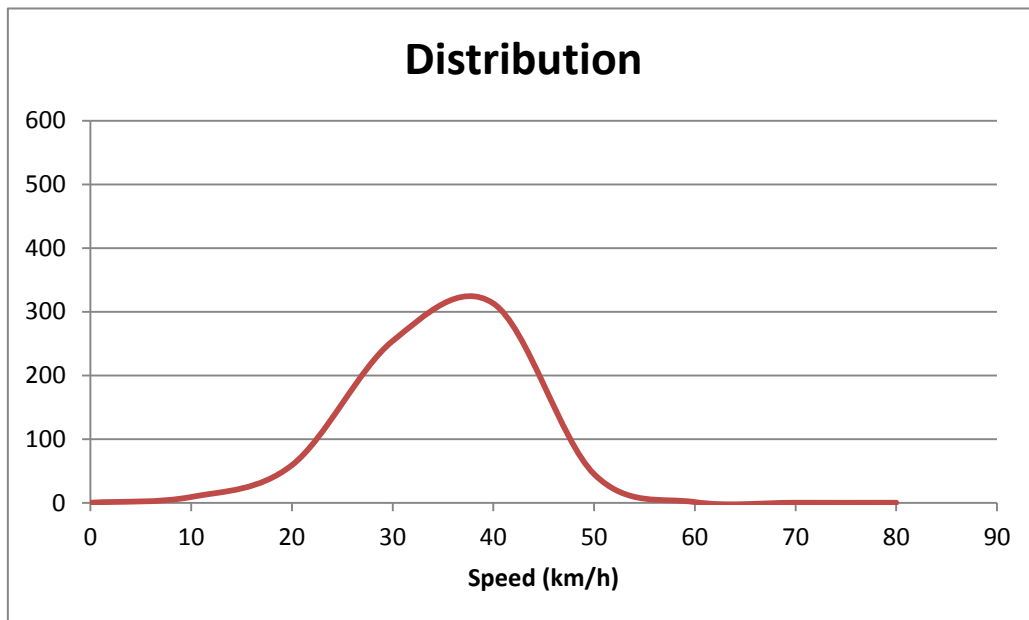
Minimum	15.0	<b>85th Percentile</b>	<b>48.0 km/h</b>	
Maximum	66.0	<b>15 km/h Pace</b>	<b>35</b>	<b>to 50</b>
Min-Max Range	51.0	<b>% in Pace</b>	<b>77.1 %</b>	
Median	43.0			
Mean	42.2			
Mode	43.0			
Std Dev.	7.094			
Variance	50.331			
Skewness Index	-0.462			
Kurtosis	1.617			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Grennan  
**Jurisdiction:** HRM (Lower Sackville)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 6 Months  
**Date:** Jul. 9-11, 2015  
**Sample Size:** 681

**RESULTS:**

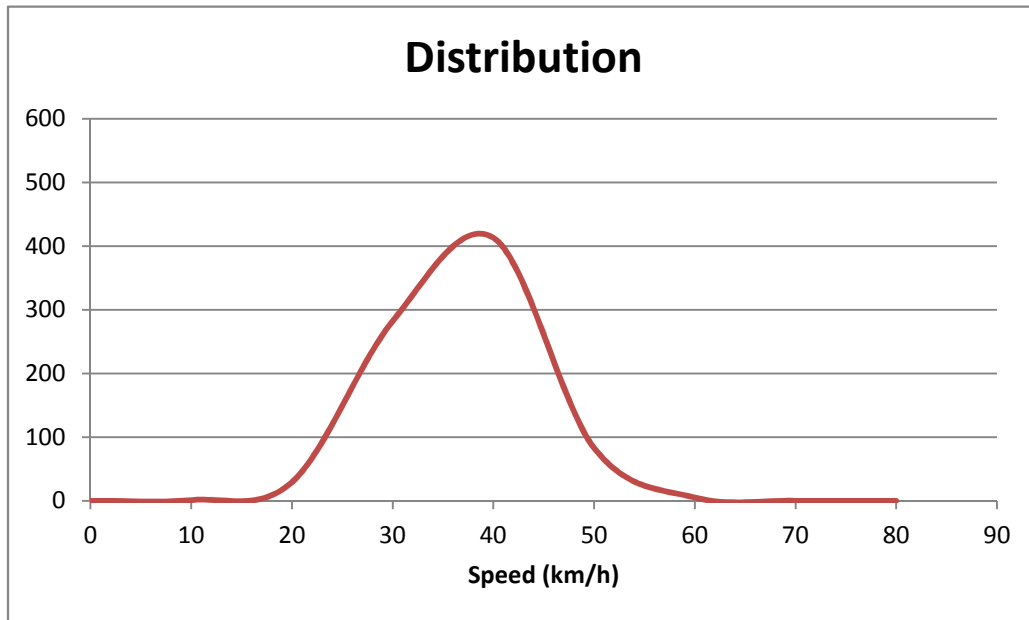
Minimum	16.0	<b>85th Percentile</b>	<b>47.0 km/h</b>	
Maximum	63.0	<b>15 km/h Pace</b>	<b>34</b>	<b>to 49</b>
Min-Max Range	47.0	<b>% in Pace</b>	<b>72.9 %</b>	
Median	41.0			
Mean	40.4			
Mode	44.0			
Std Dev.	7.389			
Variance	54.591			
Skewness Index	-0.417			
Kurtosis	0.543			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Grennan  
**Jurisdiction:** HRM (Lower Sackville)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 12 Months  
**Date:** Dec. 17-18, 2015  
**Sample Size:** 813

**RESULTS:**

Minimum	17.0	<b>85th Percentile</b>	<b>49.0 km/h</b>	
Maximum	65.0	<b>15 km/h Pace</b>	<b>35</b>	<b>to 50</b>
Min-Max Range	48.0	<b>% in Pace</b>	<b>76.0 %</b>	
Median	42.0			
Mean	42.4			
Mode	43.0			
Std Dev.	6.614			
Variance	43.748			
Skewness Index	0.066			
Kurtosis	0.488			

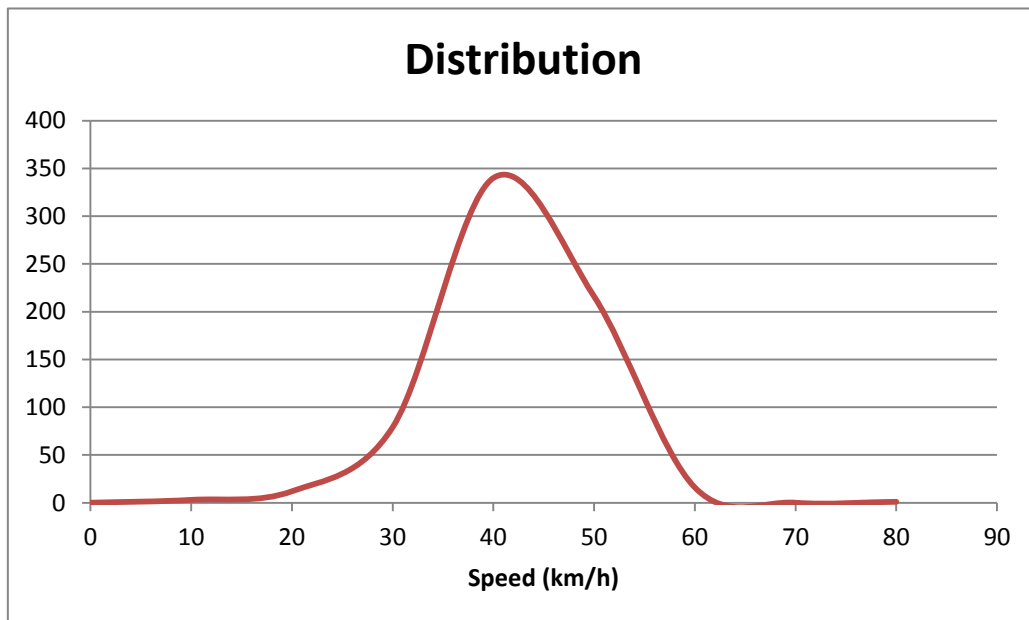


Site 3 – Viewmount Dr  
Tantallon, NSTIR

**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Viewmount  
**Jurisdiction:** NSTIR (Tantallon/Hubbards)  
**Radar Unit:** Unit #1  
**Direction:** Two-way  
**Speed Limit:** 50 km/h  
**Survey:** Before  
**Date:** Nov. 24-26, 2014  
**Sample Size:** 667

**RESULTS:**

Minimum	17.3	<b>85th Percentile</b>	<b>54.3 km/h</b>	
Maximum	88.0	<b>15 km/h Pace</b>	<b>41</b>	<b>to 56</b>
Min-Max Range	70.7	<b>% in Pace</b>	<b>74.2 %</b>	
Median	47.8			
Mean	47.2			
Mode	42.9			
Std Dev.	7.472			
Variance	55.837			
Skewness Index	-0.347			
Kurtosis	2.220			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Viewmount

**Jurisdiction:** NSTIR (Tantallon/Hubbards)

**Radar Unit:** Unit #1

**Survey:** After - 1 Week

**Direction:** Two-way

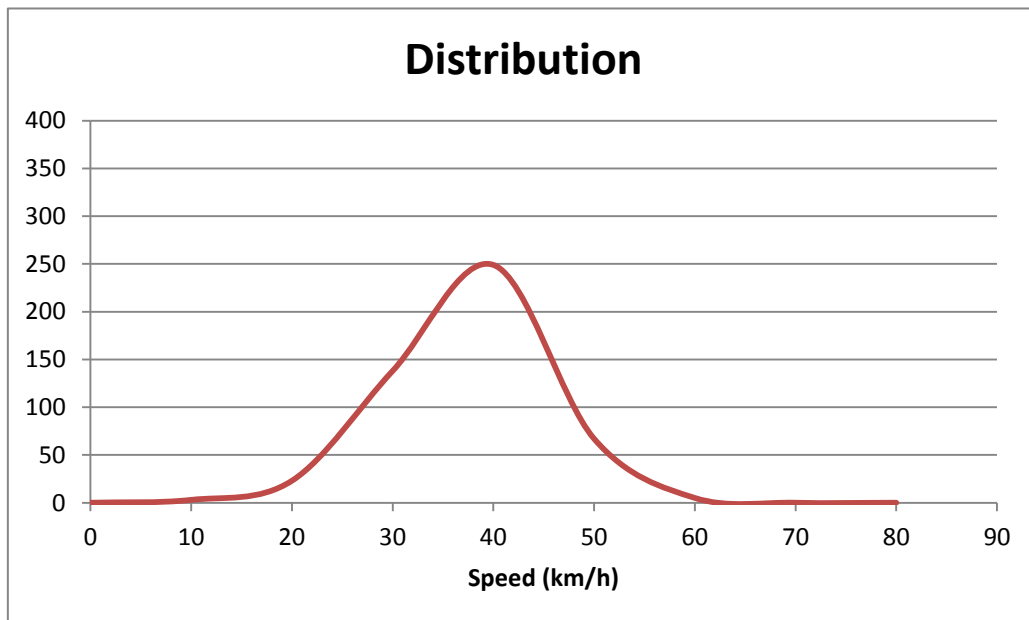
**Date:** Jan. 15-18, 2015

**Speed Limit:** 40 km/h

**Sample Size:** 485

**RESULTS:**

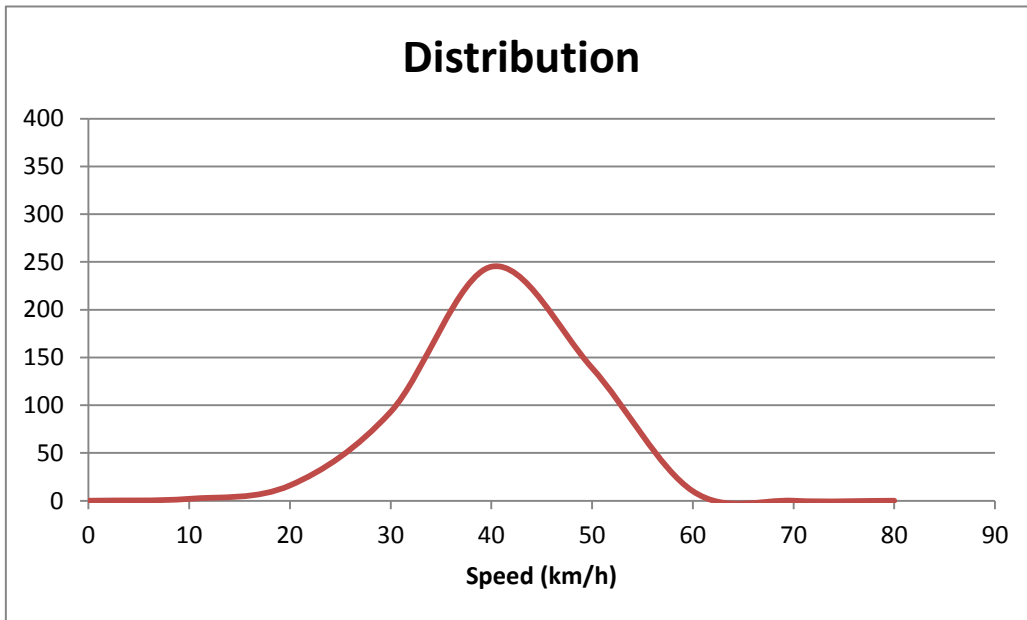
Minimum	15.5	<b>85th Percentile</b>	<b>49.9 km/h</b>	
Maximum	66.9	<b>15 km/h Pace</b>	<b>36</b>	<b>to 51</b>
Min-Max Range	51.3	<b>% in Pace</b>	<b>70.9 %</b>	
Median	43.2			
Mean	42.7			
Mode	43.0			
Std Dev.	7.790			
Variance	60.685			
Skewness Index	-0.309			
Kurtosis	0.612			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Viewmount  
**Jurisdiction:** NSTIR (Tantallon/Hubbards)  
**Radar Unit:** Unit #1  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 3 Months  
**Date:** Apr. 24-26, 2015  
**Sample Size:** 505

**RESULTS:**

Minimum	15.8	<b>85th Percentile</b>	<b>53.5 km/h</b>	
Maximum	64.9	<b>15 km/h Pace</b>	<b>40</b>	<b>to 55</b>
Min-Max Range	49.1	<b>% in Pace</b>	<b>67.9 %</b>	
Median	46.4			
Mean	45.7			
Mode	48.0			
Std Dev.	7.841			
Variance	61.482			
Skewness Index	-0.511			
Kurtosis	0.467			

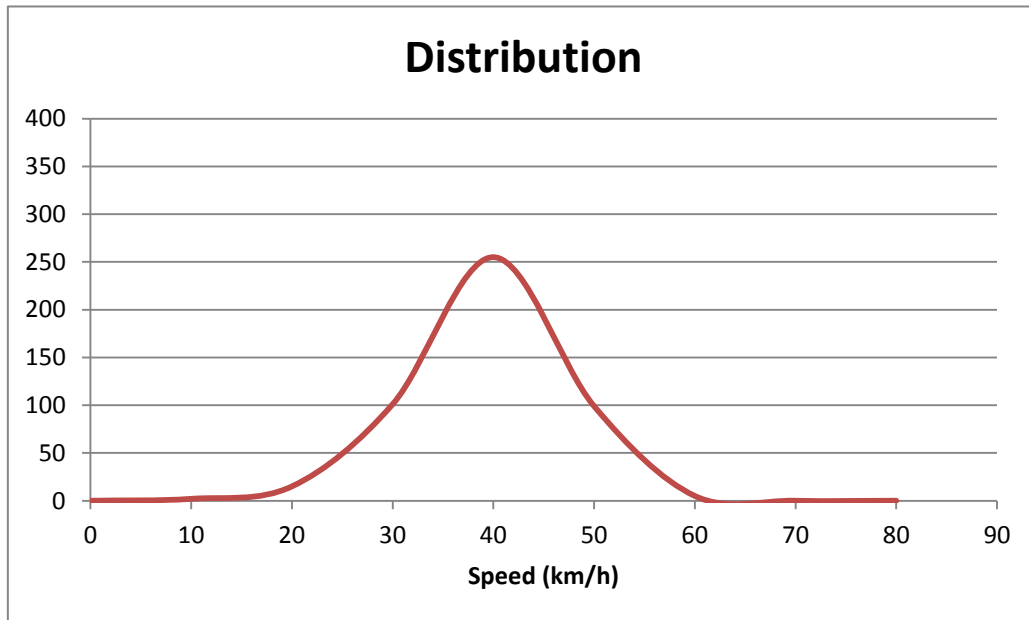




**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Viewmount  
**Jurisdiction:** NSTIR (Tantallon/Hubbards)  
**Radar Unit:** Unit #1  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 6 Months  
**Date:** Jul. 11-13, 2015  
**Sample Size:** 477

**RESULTS:**

Minimum	19.9	<b>85th Percentile</b>	<b>51.9 km/h</b>	
Maximum	64.1	<b>15 km/h Pace</b>	<b>39</b>	<b>to 54</b>
Min-Max Range	44.2	<b>% in Pace</b>	<b>71.6 %</b>	
Median	44.7			
Mean	44.5			
Mode	44.9			
Std Dev.	7.349			
Variance	54.012			
Skewness Index	-0.373			
Kurtosis	0.509			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Viewmount

**Jurisdiction:** NSTIR (Tantallon/Hubbards)

**Radar Unit:** Unit #1

**Survey:** After - 12 Months

**Direction:** Two-way

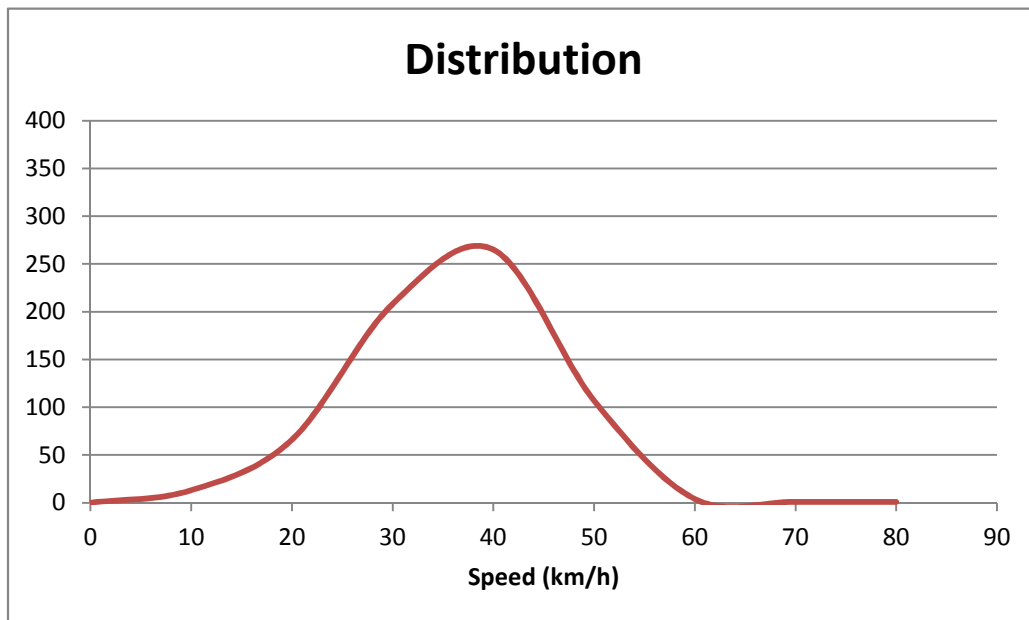
**Date:** Jan. 9-13, 2016

**Speed Limit:** 40 km/h

**Sample Size:** 665

**RESULTS:**

Minimum	18.1	<b>85th Percentile</b>	<b>50.6 km/h</b>	
Maximum	81.1	<b>15 km/h Pace</b>	<b>37</b>	<b>to 52</b>
Min-Max Range	63.1	<b>% in Pace</b>	<b>58.1 %</b>	
Median	41.8			
Mean	41.2			
Mode	31.2			
Std Dev.	9.281			
Variance	86.134			
Skewness Index	-0.152			
Kurtosis	0.242			

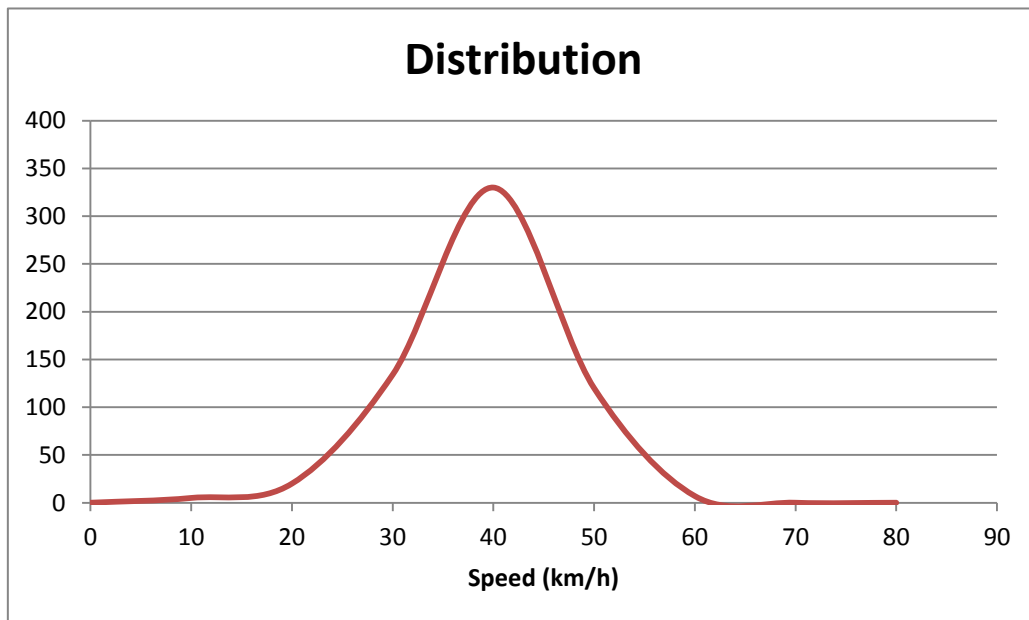


Site 4 – Conrads Rd  
Hubbards, NSTIR

**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Conrads  
**Jurisdiction:** NSTIR (Tantallon/Hubbards)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 50 km/h  
**Survey:** Before  
**Date:** Nov. 26-28, 2014  
**Sample Size:** 616

**RESULTS:**

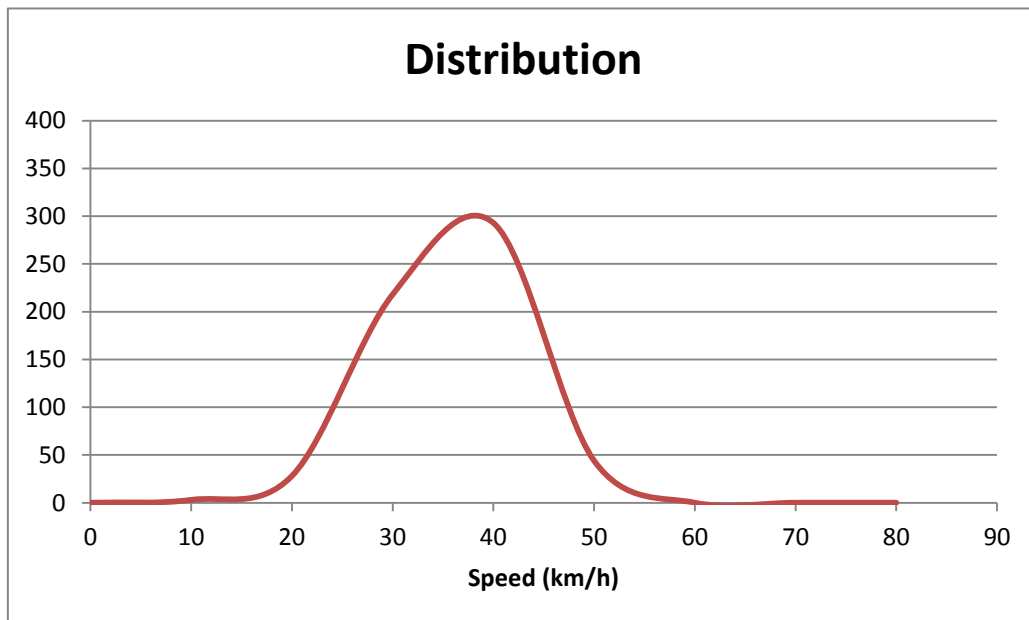
Minimum	15.0	<b>85th Percentile</b>	<b>52.0 km/h</b>	
Maximum	65.0	<b>15 km/h Pace</b>	<b>38</b>	<b>to 53</b>
Min-Max Range	50.0	<b>% in Pace</b>	<b>73.2 %</b>	
Median	45.0			
Mean	44.6			
Mode	44.0			
Std Dev.	7.402			
Variance	54.795			
Skewness Index	-0.471			
Kurtosis	1.022			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Conrads  
**Jurisdiction:** NSTIR (Tantallon/Hubbards)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 1 Week  
**Date:** Jan. 15-18, 2015  
**Sample Size:** 586

**RESULTS:**

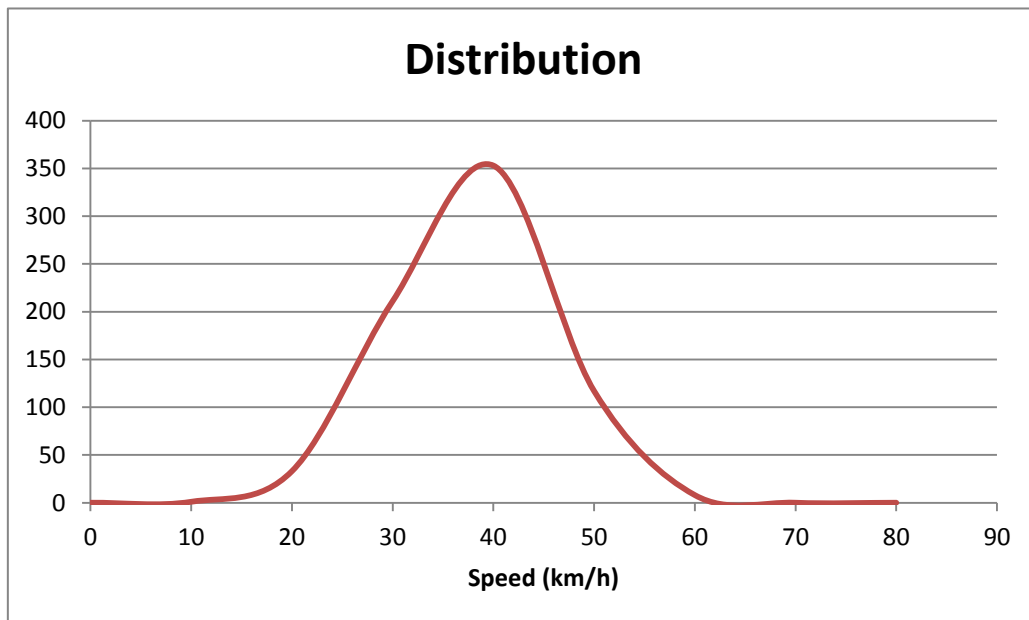
Minimum	15.0	<b>85th Percentile</b>	<b>48.0 km/h</b>	
Maximum	60.0	<b>15 km/h Pace</b>	<b>34</b>	<b>to 49</b>
Min-Max Range	45.0	<b>% in Pace</b>	<b>77.1 %</b>	
Median	42.0			
Mean	41.5			
Mode	43.0			
Std Dev.	6.555			
Variance	42.973			
Skewness Index	-0.458			
Kurtosis	0.878			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Conrads  
**Jurisdiction:** NSTIR (Tantallon/Hubbards)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 3 Months  
**Date:** Apr. 24-26, 2015  
**Sample Size:** 723

**RESULTS:**

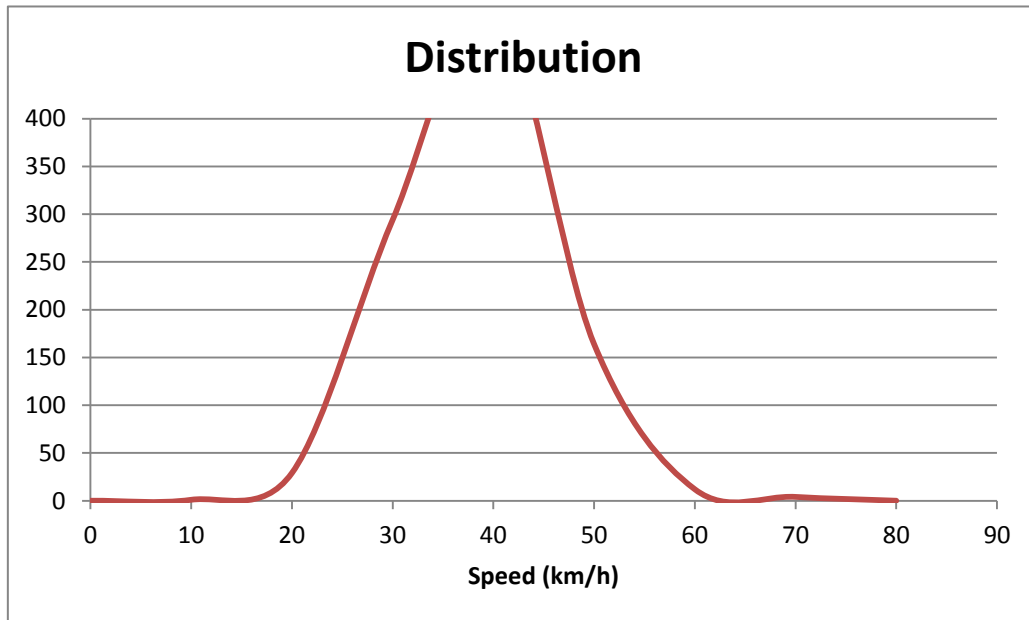
Minimum	20.0	<b>85th Percentile</b>	<b>51.0 km/h</b>	
Maximum	66.0	<b>15 km/h Pace</b>	<b>38</b>	<b>to 53</b>
Min-Max Range	46.0	<b>% in Pace</b>	<b>70.5 %</b>	
Median	43.0			
Mean	43.4			
Mode	43.0			
Std Dev.	7.407			
Variance	54.862			
Skewness Index	-0.092			
Kurtosis	0.144			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Conrads  
**Jurisdiction:** NSTIR (Tantallon/Hubbards)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 6 Months  
**Date:** Jul. 11-13, 2015  
**Sample Size:** 1023

**RESULTS:**

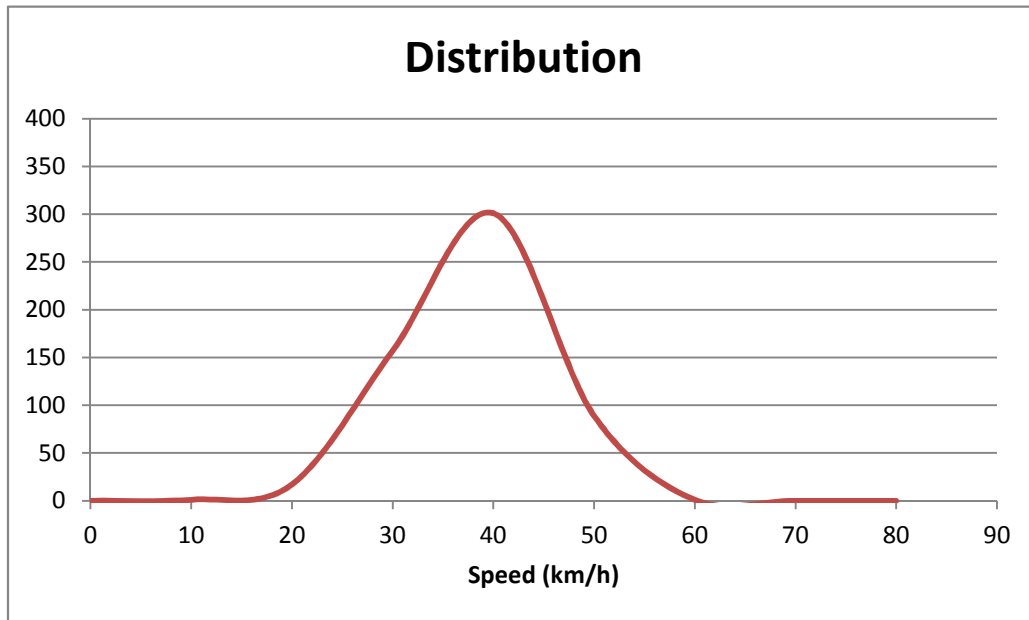
Minimum	19.0	<b>85th Percentile</b>	<b>51.0 km/h</b>	
Maximum	80.0	<b>15 km/h Pace</b>	<b>38</b>	<b>to 53</b>
Min-Max Range	61.0	<b>% in Pace</b>	<b>73.3 %</b>	
Median	44.0			
Mean	44.1			
Mode	43.0			
Std Dev.	7.320			
Variance	53.580			
Skewness Index	0.362			
Kurtosis	1.402			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Conrads  
**Jurisdiction:** NSTIR (Tantallon/Hubbards)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 12 Months  
**Date:** Jan. 9-11, 2016  
**Sample Size:** 566

**RESULTS:**

Minimum	19.0	<b>85th Percentile</b>	<b>51.0 km/h</b>	
Maximum	61.0	<b>15 km/h Pace</b>	<b>37</b>	<b>to 52</b>
Min-Max Range	42.0	<b>% in Pace</b>	<b>73.1 %</b>	
Median	44.0			
Mean	43.7			
Mode	44.0			
Std Dev.	7.044			
Variance	49.620			
Skewness Index	-0.218			
Kurtosis	0.121			





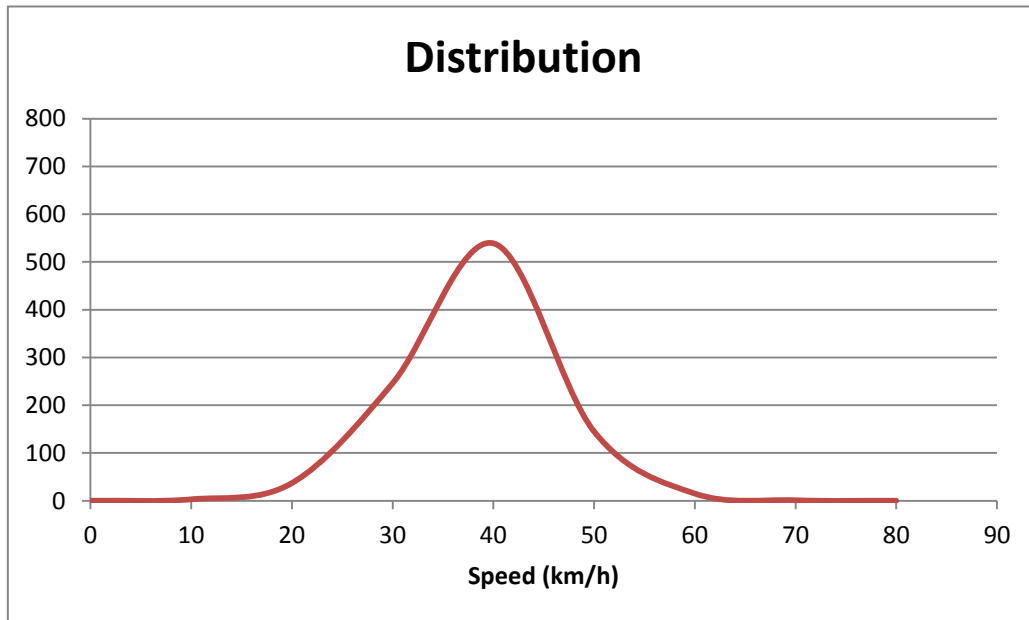
Site 5 – Lancaster Dr  
Clayton Park, HRM

**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Lancaster  
**Jurisdiction:** HRM (Clayton Pak)  
**Radar Unit:** Unit #1  
**Direction:** Two-way  
**Speed Limit:** 50 km/h

**Survey:** Before  
**Date:** Nov. 26-28, 2014  
**Sample Size:** 986

**RESULTS:**

Minimum	16.3	<b>85th Percentile</b>	<b>50.4 km/h</b>	
Maximum	73.4	<b>15 km/h Pace</b>	<b>37</b>	<b>to 52</b>
Min-Max Range	57.1	<b>% in Pace</b>	<b>74.5 %</b>	
Median	43.6			
Mean	43.4			
Mode	44.0			
Std Dev.	7.234			
Variance	52.334			
Skewness Index	-0.056			
Kurtosis	1.024			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Lancaster

**Jurisdiction:** HRM (Clayton Pak)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

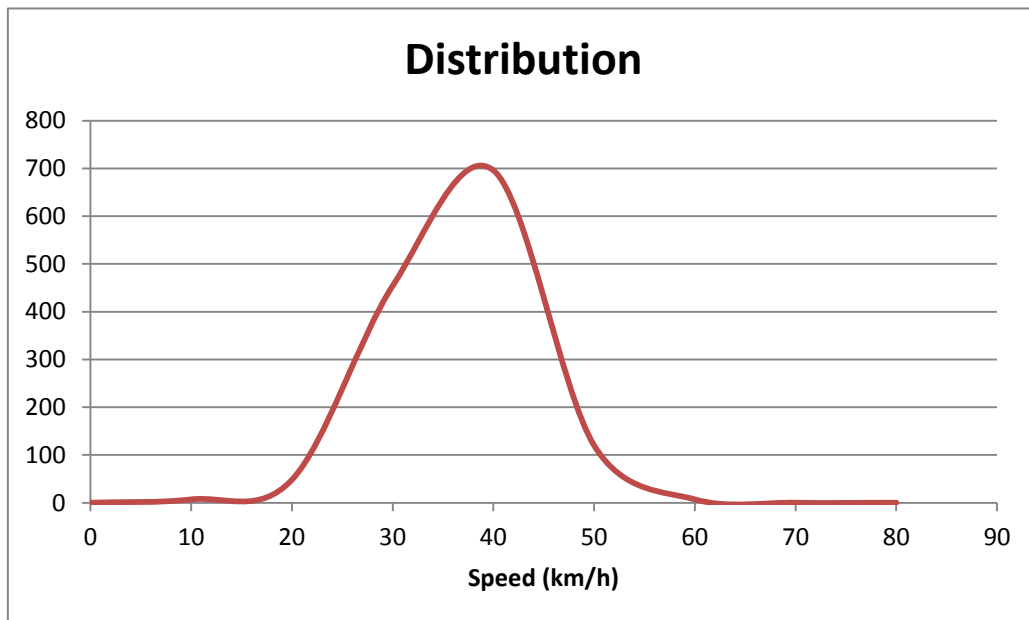
**Survey:** After - 1 Week

**Date:** Jan. 19-20, 2015

**Sample Size:** 1332

**RESULTS:**

Minimum	16.0	<b>85th Percentile</b>	<b>48.1 km/h</b>	
Maximum	65.6	<b>15 km/h Pace</b>	<b>35</b>	<b>to 50</b>
Min-Max Range	49.6	<b>% in Pace</b>	<b>76.0 %</b>	
Median	42.0			
Mean	41.7			
Mode	45.6			
Std Dev.	6.853			
Variance	46.960			
Skewness Index	-0.268			
Kurtosis	0.797			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Lancaster

**Jurisdiction:** HRM (Clayton Pak)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

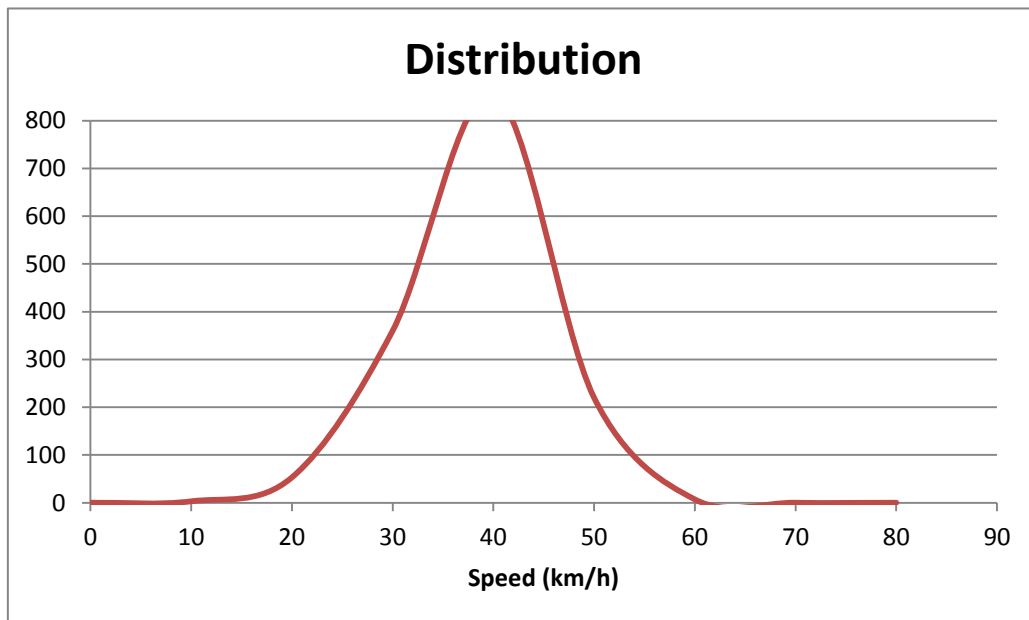
**Survey:** After - 3 Months

**Date:** Apr. 27-30, 2015

**Sample Size:** 1649

**RESULTS:**

Minimum	17.1	<b>85th Percentile</b>	<b>49.8 km/h</b>	
Maximum	68.3	<b>15 km/h Pace</b>	<b>38</b>	<b>to 53</b>
Min-Max Range	51.2	<b>% in Pace</b>	<b>76.9 %</b>	
Median	43.2			
Mean	43.2			
Mode	43.0			
Std Dev.	6.760			
Variance	45.700			
Skewness Index	-0.351			
Kurtosis	0.821			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Lancaster

**Jurisdiction:** HRM (Clayton Pak)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

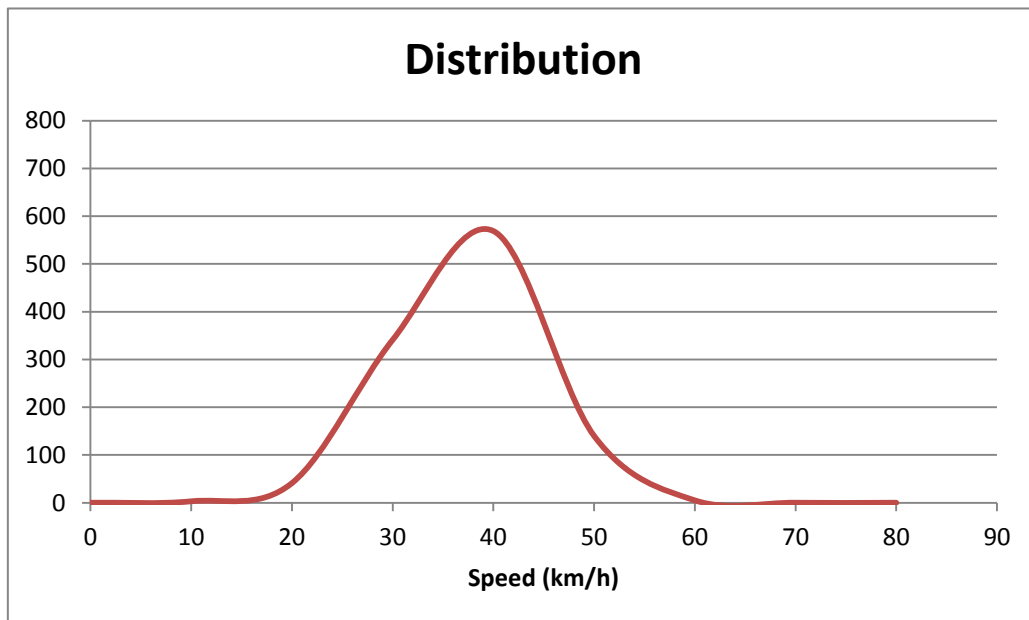
**Survey:** After - 6 Months

**Date:** Jul. 13-15, 2015

**Sample Size:** 1099

**RESULTS:**

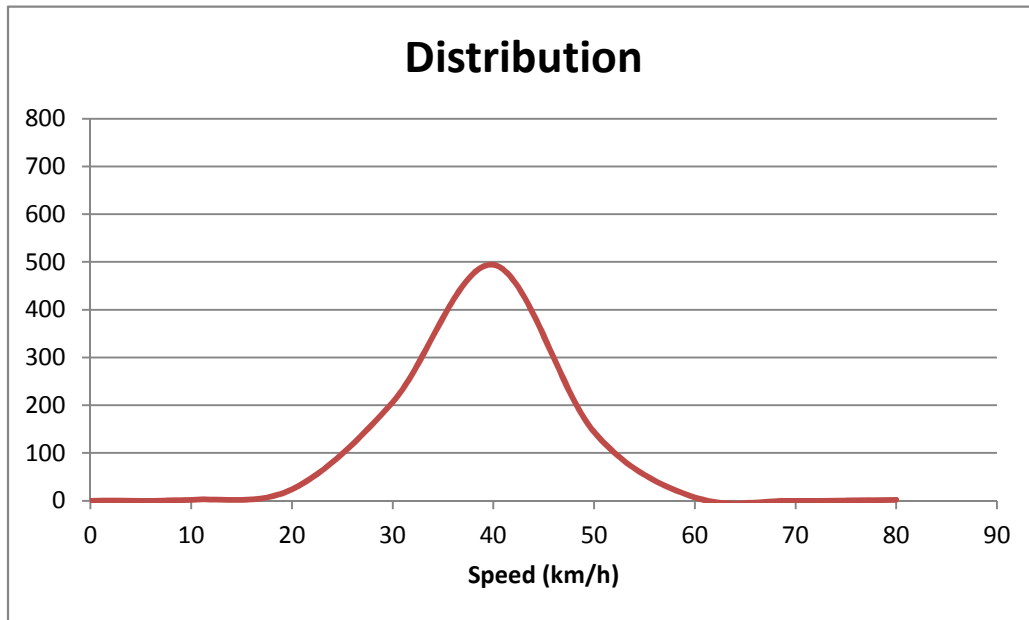
Minimum	15.7	<b>85th Percentile</b>	<b>49.3 km/h</b>	
Maximum	67.6	<b>15 km/h Pace</b>	<b>36</b>	<b>to 51</b>
Min-Max Range	51.8	<b>% in Pace</b>	<b>73.6 %</b>	
Median	42.8			
Mean	42.4			
Mode	45.5			
Std Dev.	6.922			
Variance	47.915			
Skewness Index	-0.191			
Kurtosis	0.402			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Lancaster  
**Jurisdiction:** HRM (Clayton Pak)  
**Radar Unit:** Unit #1  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 12 Months  
**Date:** Dec. 21-22, 2015  
**Sample Size:** 879

**RESULTS:**

Minimum	17.6	<b>85th Percentile</b>	<b>50.8 km/h</b>	
Maximum	91.6	<b>15 km/h Pace</b>	<b>37</b>	<b>to 52</b>
Min-Max Range	74.0	<b>% in Pace</b>	<b>74.3 %</b>	
Median	44.0			
Mean	43.9			
Mode	47.9			
Std Dev.	7.299			
Variance	53.271			
Skewness Index	0.284			
Kurtosis	3.389			

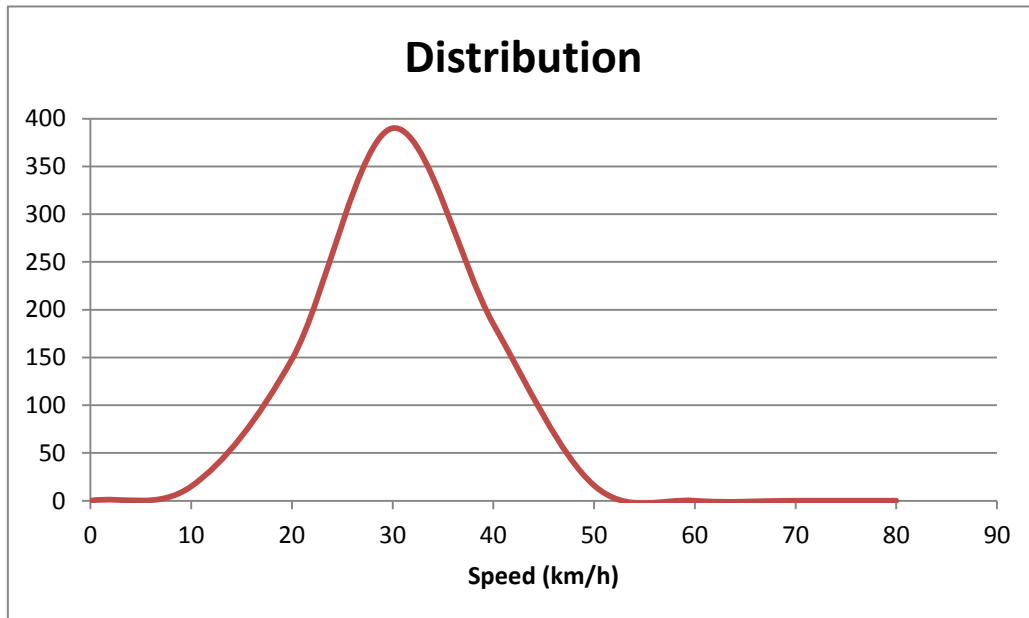


Site 6 – Westmount St  
Halifax, HRM

**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Westmount  
**Jurisdiction:** HRM (Halifax)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 50 km/h  
**Survey:** Before  
**Date:** Nov. 26-28, 2014  
**Sample Size:** 754

**RESULTS:**

Minimum	16.0	<b>85th Percentile</b>	<b>43.1 km/h</b>	
Maximum	55.0	<b>15 km/h Pace</b>	<b>30</b>	<b>to 45</b>
Min-Max Range	39.0	<b>% in Pace</b>	<b>71.0 %</b>	
Median	36.0			
Mean	36.1			
Mode	39.0			
Std Dev.	7.272			
Variance	52.888			
Skewness Index	-0.215			
Kurtosis	-0.176			

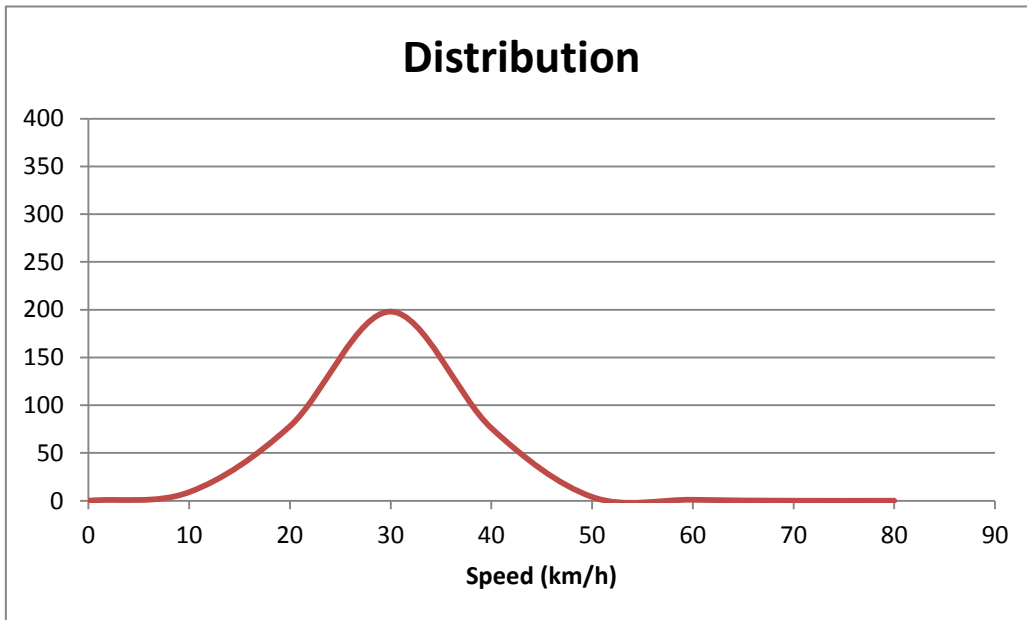




**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Westmount  
**Jurisdiction:** HRM (Halifax)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 1 Week  
**Date:** Jan. 19-21, 2015  
**Sample Size:** 366

**RESULTS:**

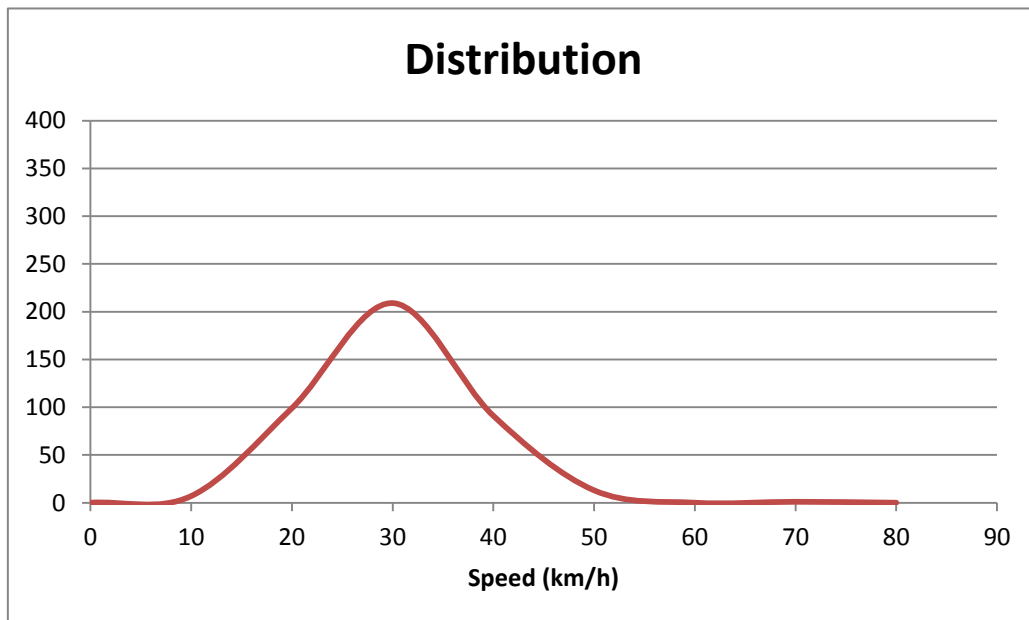
Minimum	15.0	<b>85th Percentile</b>	<b>43.0 km/h</b>	
Maximum	61.0	<b>15 km/h Pace</b>	<b>29</b>	<b>to 44</b>
Min-Max Range	46.0	<b>% in Pace</b>	<b>74.5 %</b>	
Median	36.0			
Mean	35.5			
Mode	36.0			
Std Dev.	7.115			
Variance	50.616			
Skewness Index	-0.075			
Kurtosis	0.338			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Westmount  
**Jurisdiction:** HRM (Halifax)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 3 Months  
**Date:** Apr. 27-29, 2015  
**Sample Size:** 420

**RESULTS:**

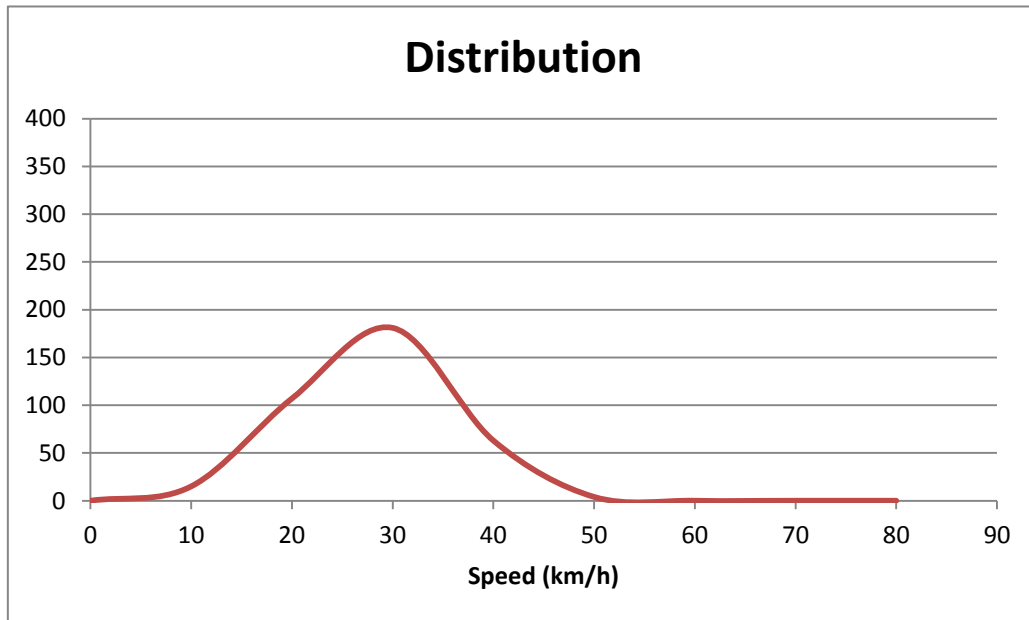
Minimum	16.0	<b>85th Percentile</b>	<b>43.0 km/h</b>	
Maximum	75.0	<b>15 km/h Pace</b>	<b>29</b>	<b>to 44</b>
Min-Max Range	59.0	<b>% in Pace</b>	<b>71.4 %</b>	
Median	35.0			
Mean	35.6			
Mode	36.0			
Std Dev.	7.480			
Variance	55.953			
Skewness Index	0.426			
Kurtosis	1.369			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Westmount  
**Jurisdiction:** HRM (Halifax)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 6 Months  
**Date:** Jul. 13-15, 2015  
**Sample Size:** 370

**RESULTS:**

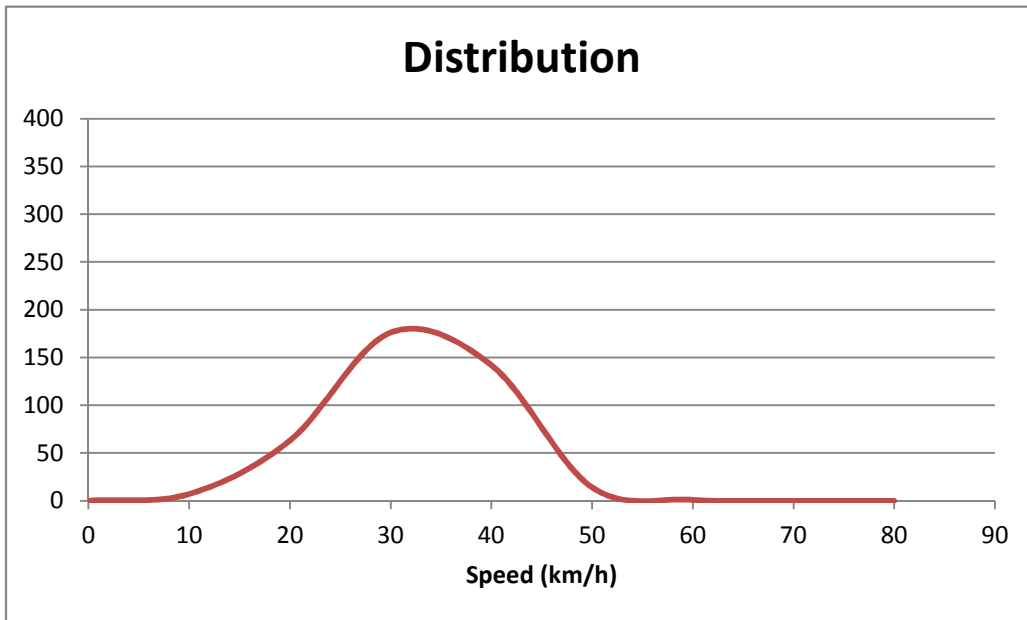
Minimum	16.0	<b>85th Percentile</b>	<b>41.7 km/h</b>	
Maximum	55.0	<b>15 km/h Pace</b>	<b>26</b>	<b>to 41</b>
Min-Max Range	39.0	<b>% in Pace</b>	<b>67.8 %</b>	
Median	34.0			
Mean	33.6			
Mode	31.0			
Std Dev.	7.367			
Variance	54.275			
Skewness Index	0.038			
Kurtosis	-0.346			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Westmount  
**Jurisdiction:** HRM (Halifax)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 12 Months  
**Date:** Dec. 21-22, 2015  
**Sample Size:** 403

**RESULTS:**

Minimum	15.0	<b>85th Percentile</b>	<b>46.0 km/h</b>	
Maximum	61.0	<b>15 km/h Pace</b>	<b>32</b>	<b>to 47</b>
Min-Max Range	46.0	<b>% in Pace</b>	<b>66.4 %</b>	
Median	38.0			
Mean	37.9			
Mode	44.0			
Std Dev.	7.870			
Variance	61.931			
Skewness Index	-0.199			
Kurtosis	-0.236			

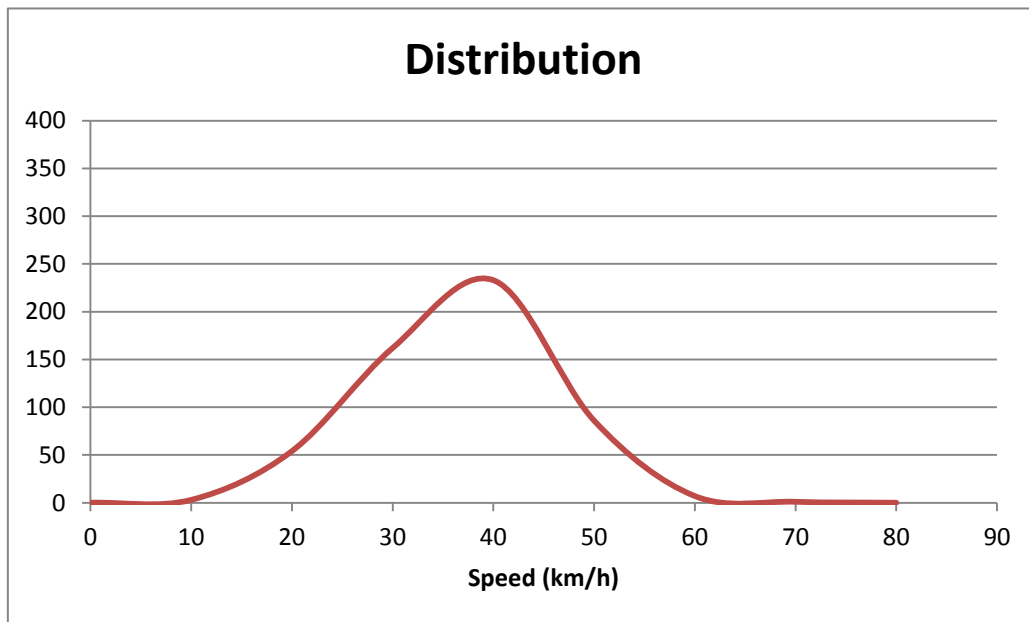


Site 7 – Maple Blvd/Scenic Dr  
Bible Hill, NSTIR

**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Maple & Scenic Dr  
**Jurisdiction:** NSTIR (Bible Hill)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 50 km/h  
**Survey:** Before  
**Date:** Nov. 28-Dec. 1, 2014  
**Sample Size:** 546

**RESULTS:**

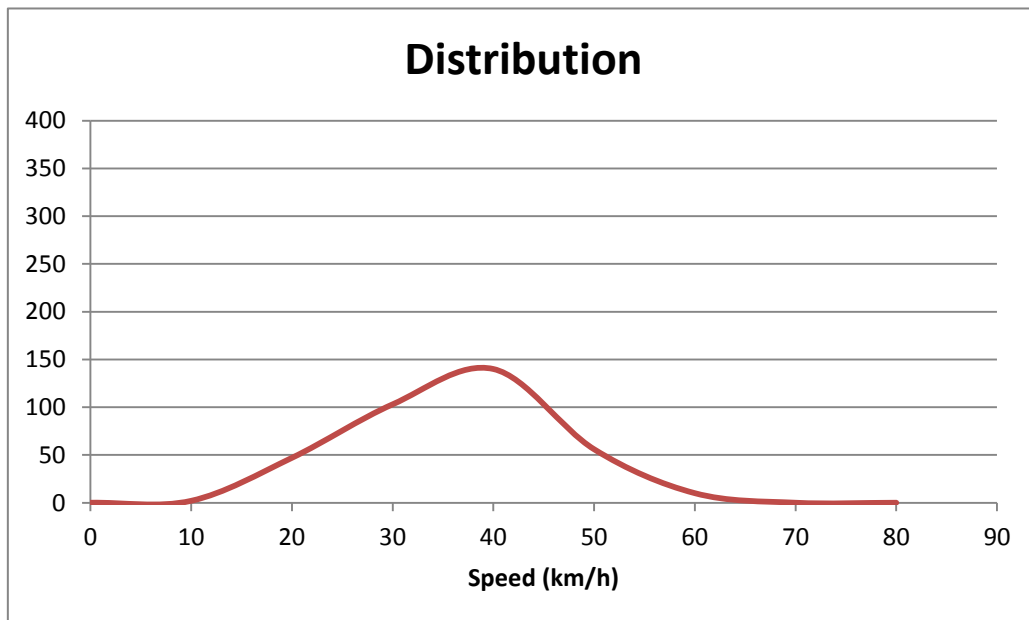
Minimum	17.0	<b>85th Percentile</b>	<b>52.0 km/h</b>
Maximum	72.0	<b>15 km/h Pace</b>	<b>37 to 52</b>
Min-Max Range	55.0	<b>% in Pace</b>	<b>61.1 %</b>
Median	42.5		
Mean	42.3		
Mode	43.0		
Std Dev.	8.848		
Variance	78.282		
Skewness Index	-0.017		
Kurtosis	0.008		



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Maple & Scenic Dr  
**Jurisdiction:** NSTIR (Bible Hill)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 1 Week  
**Date:** Jan. 22-26, 2015  
**Sample Size:** 358

**RESULTS:**

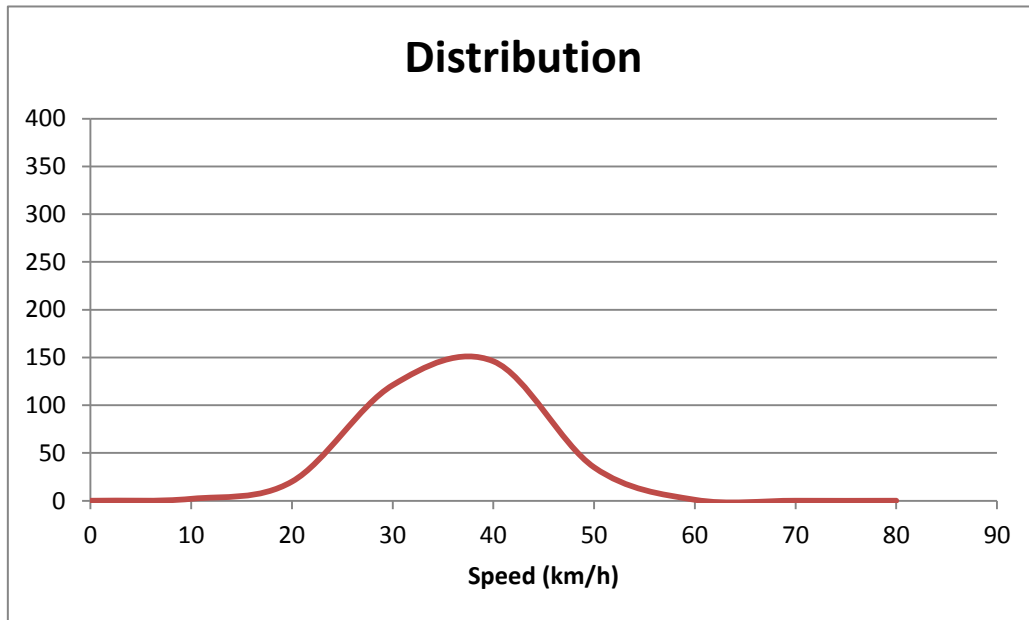
Minimum	16.0	<b>85th Percentile</b>	<b>51.5 km/h</b>	
Maximum	66.0	<b>15 km/h Pace</b>	<b>38</b>	<b>to 53</b>
Min-Max Range	50.0	<b>% in Pace</b>	<b>58.3 %</b>	
Median	43.0			
Mean	42.2			
Mode	47.0			
Std Dev.	9.432			
Variance	88.958			
Skewness Index	-0.093			
Kurtosis	-0.301			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Maple & Scenic Dr  
**Jurisdiction:** NSTIR (Bible Hill)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 3 Months  
**Date:** May. 2-4, 2015  
**Sample Size:** 325

**RESULTS:**

Minimum	17.0	<b>85th Percentile</b>	<b>49.0 km/h</b>	
Maximum	63.0	<b>15 km/h Pace</b>	<b>34</b>	<b>to 49</b>
Min-Max Range	46.0	<b>% in Pace</b>	<b>69.4 %</b>	
Median	42.0			
Mean	41.6			
Mode	40.0			
Std Dev.	7.640			
Variance	58.364			
Skewness Index	-0.144			
Kurtosis	0.082			





**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Maple & Scenic Dr

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #2

**Direction:** Two-way

**Speed Limit:** 40 km/h

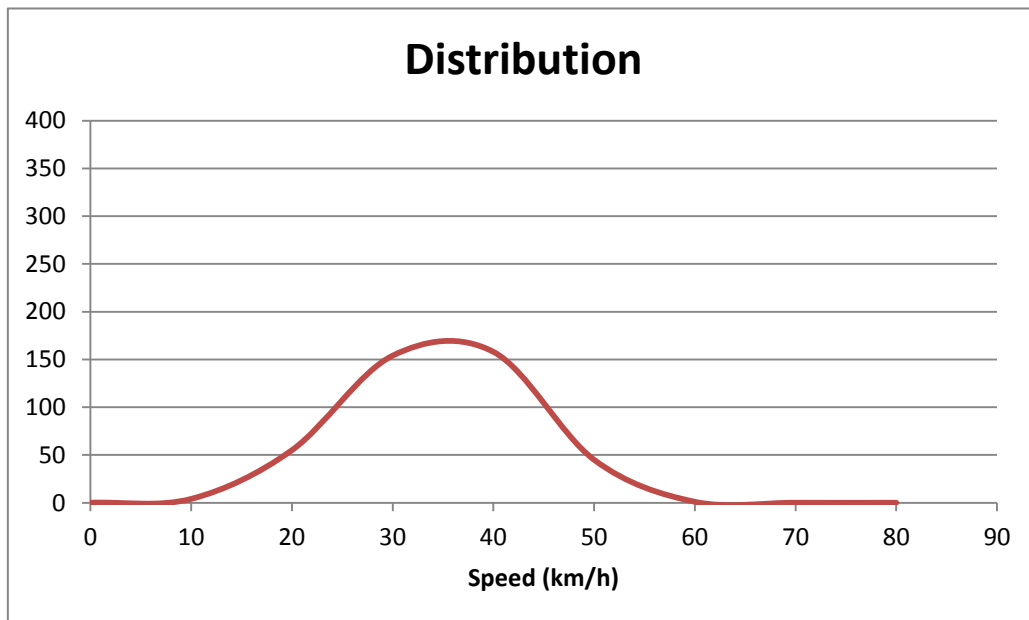
**Survey:** After - 6 Months

**Date:** Jul. 15-17, 2015

**Sample Size:** 417

**RESULTS:**

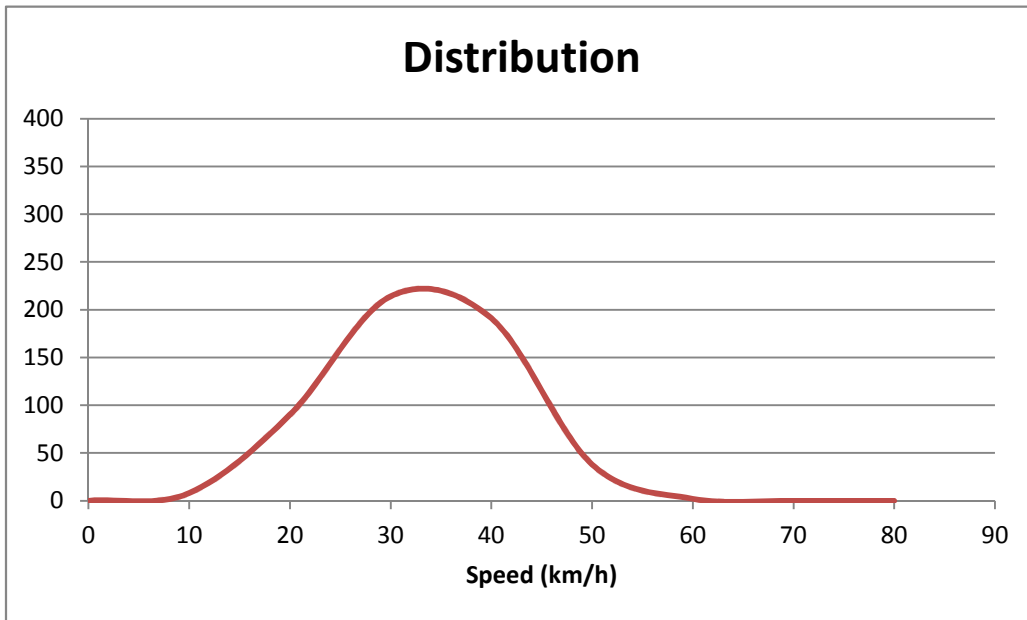
Minimum	17.0	<b>85th Percentile</b>	<b>49.0 km/h</b>	
Maximum	65.0	<b>15 km/h Pace</b>	<b>33</b>	<b>to 48</b>
Min-Max Range	48.0	<b>% in Pace</b>	<b>60.8 %</b>	
Median	40.0			
Mean	39.9			
Mode	44.0			
Std Dev.	8.501			
Variance	72.264			
Skewness Index	-0.147			
Kurtosis	-0.471			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Maple & Scenic Dr  
**Jurisdiction:** NSTIR (Bible Hill)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 12 Months  
**Date:** Jan. 17-20, 2016  
**Sample Size:** 543

**RESULTS:**

Minimum	16.0	<b>85th Percentile</b>	<b>48.0 km/h</b>
Maximum	61.0	<b>15 km/h Pace</b>	<b>32 to 47</b>
Min-Max Range	45.0	<b>% in Pace</b>	<b>59.0 %</b>
Median	38.0		
Mean	38.6		
Mode	36.0		
Std Dev.	8.612		
Variance	74.168		
Skewness Index	-0.091		
Kurtosis	-0.423		



Site 8 – Springwaters Pl  
Bible Hill, NSTIR

**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Springwaters

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 50 km/h

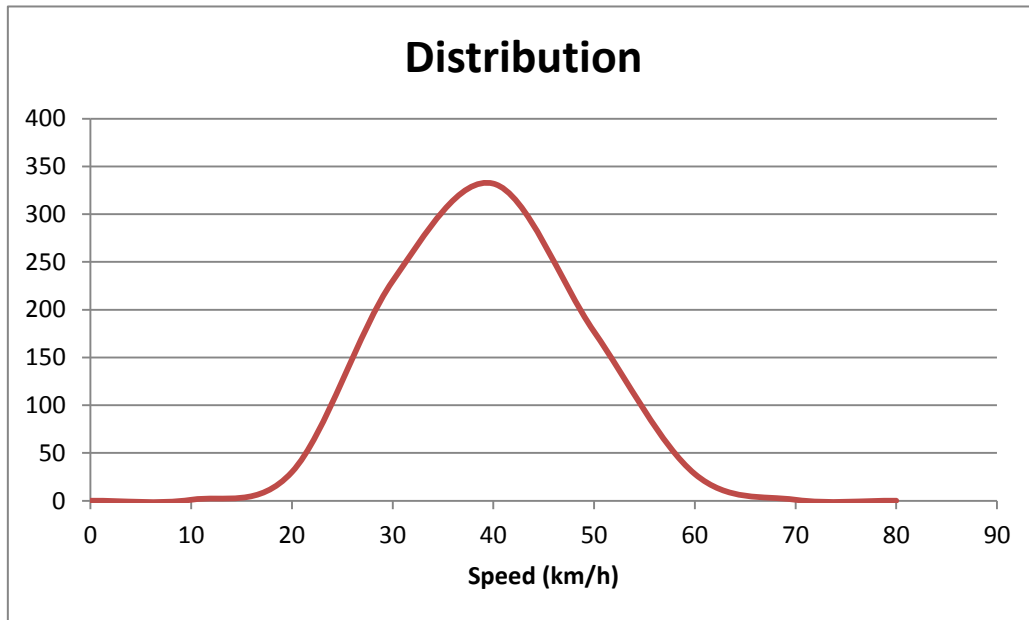
**Survey:** Before

**Date:** Nov. 28-Dec 1, 2014

**Sample Size:** 799

**RESULTS:**

Minimum	18.4	<b>85th Percentile</b>	<b>53.3 km/h</b>	
Maximum	70.5	<b>15 km/h Pace</b>	<b>38</b>	<b>to 53</b>
Min-Max Range	52.2	<b>% in Pace</b>	<b>61.2 %</b>	
Median	44.5			
Mean	44.5			
Mode	37.6			
Std Dev.	8.625			
Variance	74.387			
Skewness Index	0.078			
Kurtosis	-0.113			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Springwaters

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

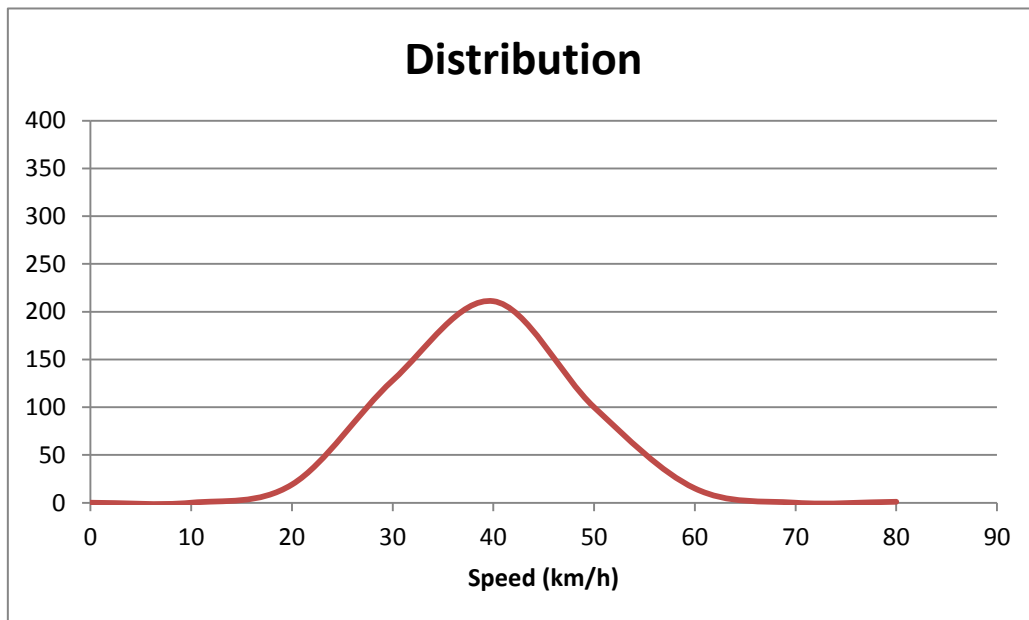
**Survey:** After - 1 Week

**Date:** Jan. 22-26, 2015

**Sample Size:** 474

**RESULTS:**

Minimum	24.7	<b>85th Percentile</b>	<b>53.1 km/h</b>	
Maximum	81.7	<b>15 km/h Pace</b>	<b>37</b>	<b>to 52</b>
Min-Max Range	57.0	<b>% in Pace</b>	<b>62.6 %</b>	
Median	44.3			
Mean	44.3			
Mode	40.4			
Std Dev.	8.358			
Variance	69.858			
Skewness Index	0.255			
Kurtosis	0.374			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Springwaters

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

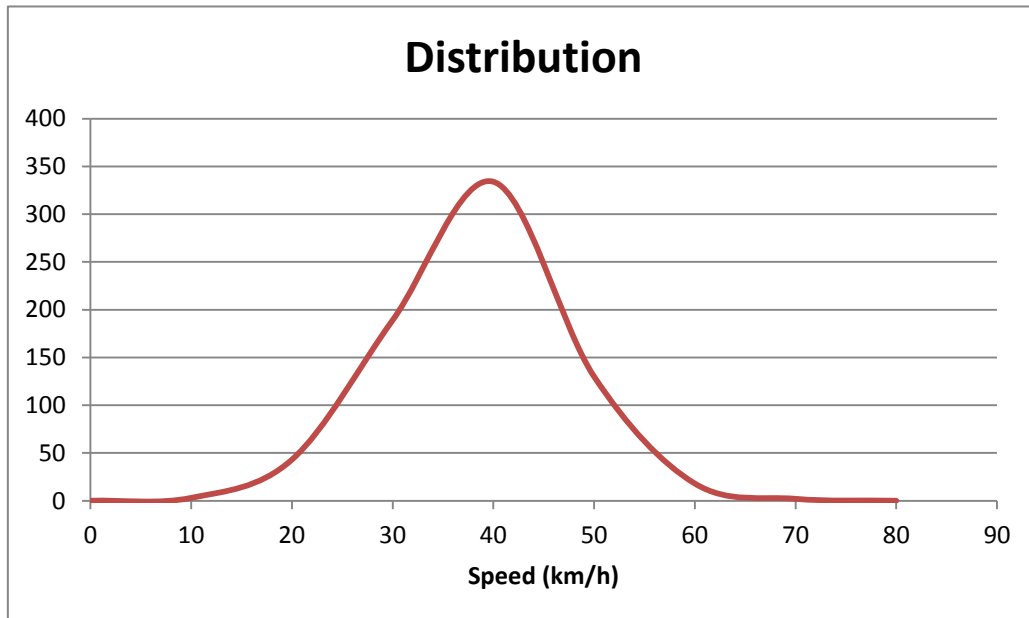
**Survey:** After - 3 Months

**Date:** May 2-4, 2015

**Sample Size:** 719

**RESULTS:**

Minimum	16.7	<b>85th Percentile</b>	<b>51.4 km/h</b>	
Maximum	72.8	<b>15 km/h Pace</b>	<b>37</b>	<b>to 52</b>
Min-Max Range	56.0	<b>% in Pace</b>	<b>65.9 %</b>	
Median	43.9			
Mean	43.4			
Mode	33.7			
Std Dev.	8.482			
Variance	71.945			
Skewness Index	-0.044			
Kurtosis	0.306			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Springwaters

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

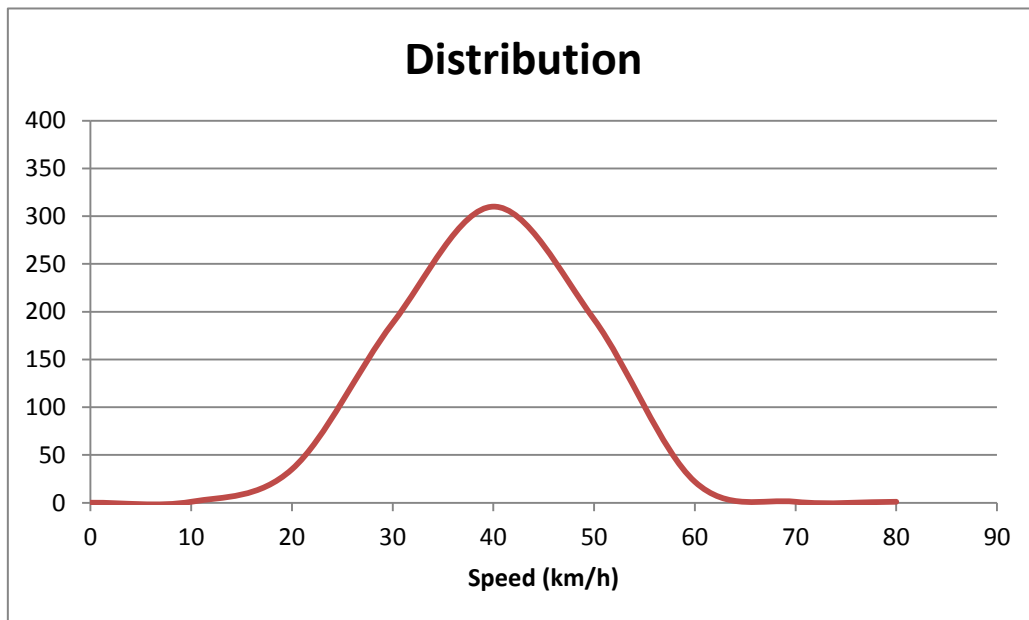
**Survey:** After - 6 Months

**Date:** Jul. 15-18, 2015

**Sample Size:** 750

**RESULTS:**

Minimum	16.7	<b>85th Percentile</b>	<b>53.8 km/h</b>	
Maximum	84.7	<b>15 km/h Pace</b>	<b>37</b>	<b>to 52</b>
Min-Max Range	68.0	<b>% in Pace</b>	<b>59.8 %</b>	
Median	45.1			
Mean	44.8			
Mode	36.4			
Std Dev.	8.857			
Variance	78.447			
Skewness Index	0.036			
Kurtosis	0.283			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Springwaters

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #1

**Direction:** Two-way

**Speed Limit:** 40 km/h

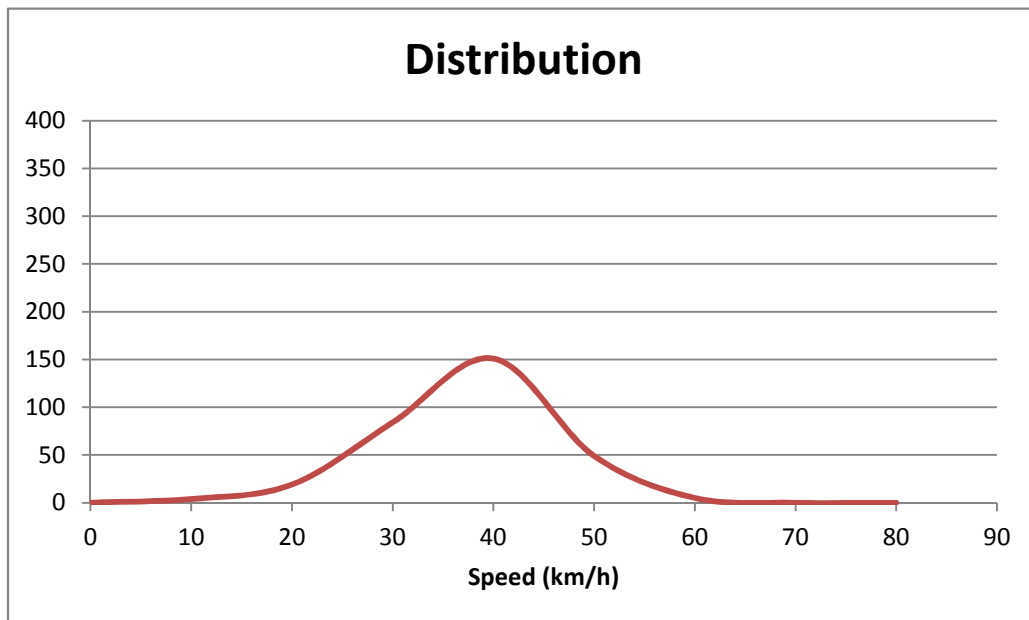
**Survey:** After - 12 Months

**Date:** Feb. 3-4, 2016

**Sample Size:** 312

**RESULTS:**

Minimum	15.2	<b>85th Percentile</b>	<b>50.8 km/h</b>	
Maximum	69.2	<b>15 km/h Pace</b>	<b>37</b>	<b>to 52</b>
Min-Max Range	53.9	<b>% in Pace</b>	<b>65.6 %</b>	
Median	43.0			
Mean	42.4			
Mode	44.6			
Std Dev.	8.613			
Variance	74.177			
Skewness Index	-0.202			
Kurtosis	0.497			





Site 9 – Ryland Ave  
Bible Hill, NSTIR

**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Ryland

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #2

**Direction:** Two-way

**Speed Limit:** 50 km/h

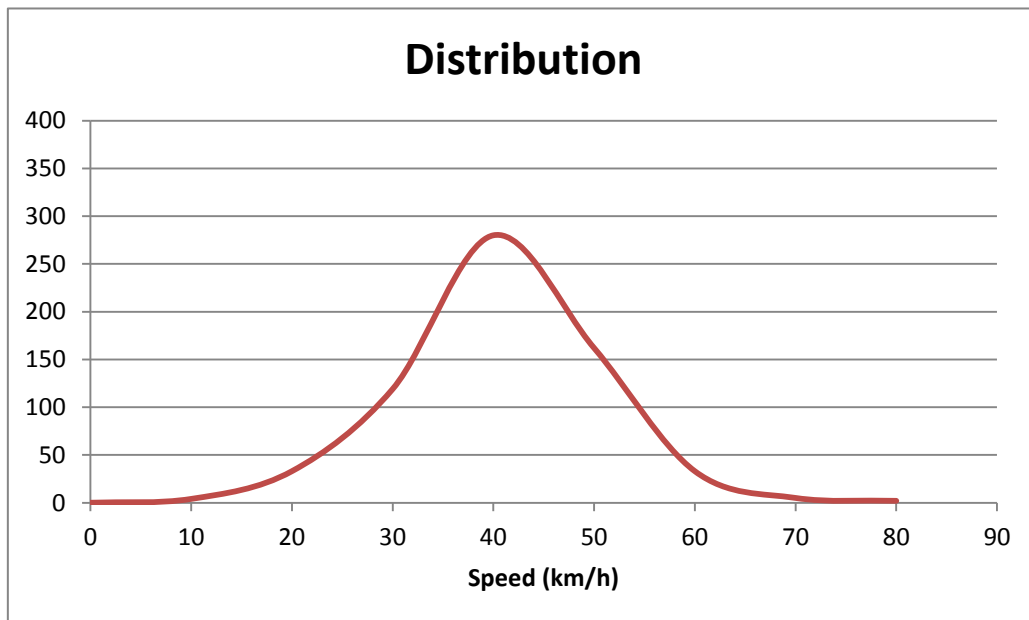
**Survey:** Before

**Date:** Dec. 1-3, 2014

**Sample Size:** 638

**RESULTS:**

Minimum	16.0	<b>85th Percentile</b>	<b>56.0 km/h</b>	
Maximum	120.0	<b>15 km/h Pace</b>	<b>39</b>	<b>to 54</b>
Min-Max Range	104.0	<b>% in Pace</b>	<b>61.5 %</b>	
Median	46.0			
Mean	46.4			
Mode	47.0			
Std Dev.	10.070			
Variance	101.409			
Skewness Index	0.634			
Kurtosis	4.857			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Ryland

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #2

**Direction:** Two-way

**Speed Limit:** 40 km/h

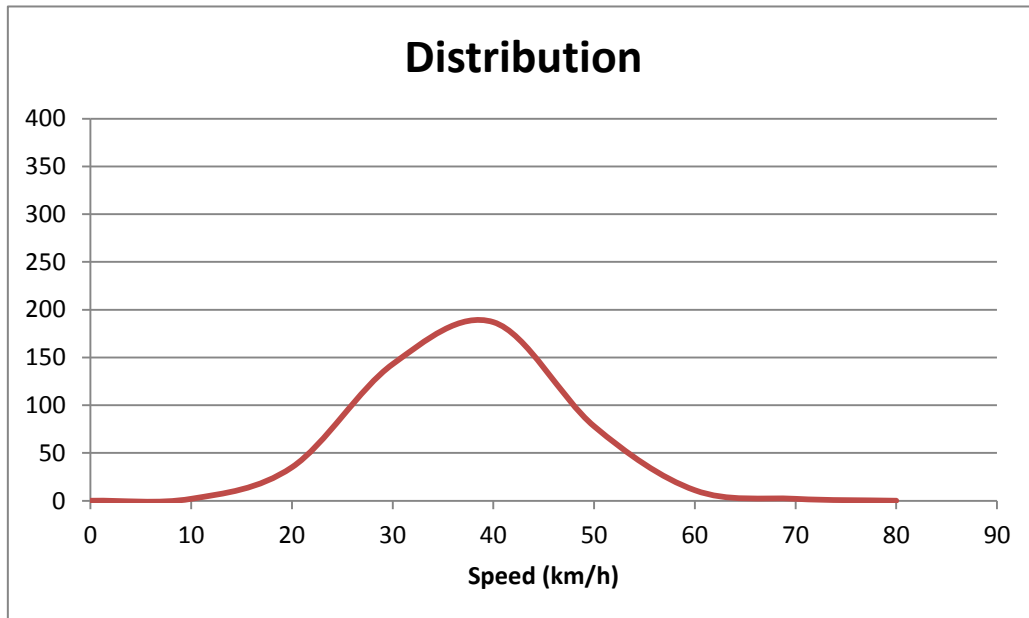
**Survey:** After - 1 Week

**Date:** Jan. 26-Feb2, 2015

**Sample Size:** 458

**RESULTS:**

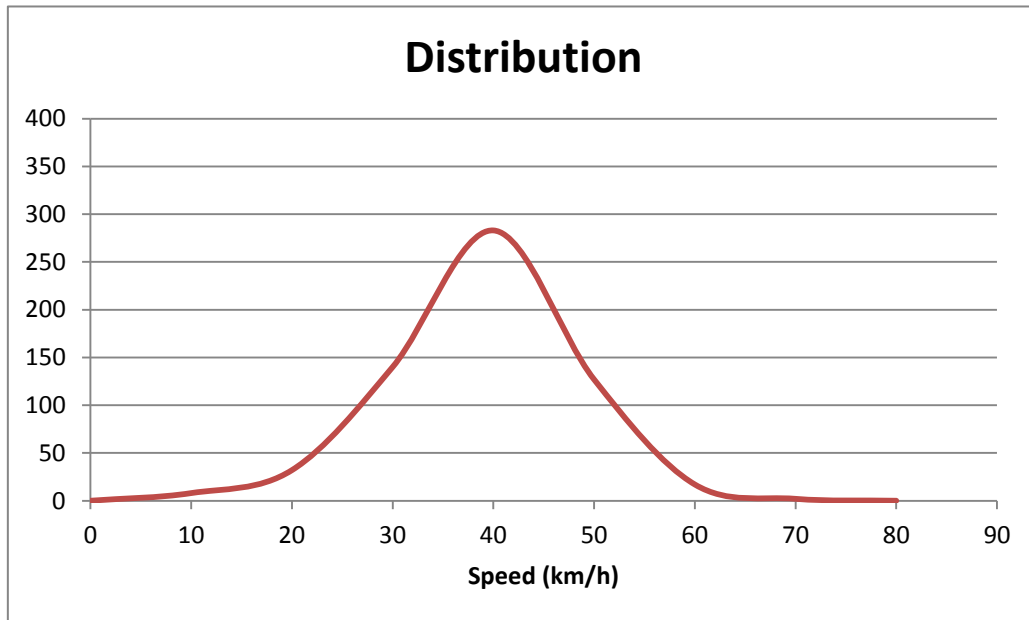
Minimum	15.0	<b>85th Percentile</b>	<b>52.0 km/h</b>	
Maximum	73.0	<b>15 km/h Pace</b>	<b>36</b>	<b>to 51</b>
Min-Max Range	58.0	<b>% in Pace</b>	<b>61.9 %</b>	
Median	43.0			
Mean	43.2			
Mode	40.0			
Std Dev.	9.038			
Variance	81.679			
Skewness Index	0.175			
Kurtosis	0.264			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits  
**Site:** Ryland  
**Jurisdiction:** NSTIR (Bible Hill)  
**Radar Unit:** Unit #2  
**Direction:** Two-way  
**Speed Limit:** 40 km/h  
**Survey:** After - 3 Months  
**Date:** May. 4-6, 2015  
**Sample Size:** 609

**RESULTS:**

Minimum	16.0	<b>85th Percentile</b>	<b>53.0 km/h</b>	
Maximum	79.0	<b>15 km/h Pace</b>	<b>39</b>	<b>to 54</b>
Min-Max Range	63.0	<b>% in Pace</b>	<b>66.1 %</b>	
Median	45.0			
Mean	44.6			
Mode	43.0			
Std Dev.	8.983			
Variance	80.689			
Skewness Index	-0.196			
Kurtosis	0.875			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Ryland

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #2

**Direction:** Two-way

**Speed Limit:** 40 km/h

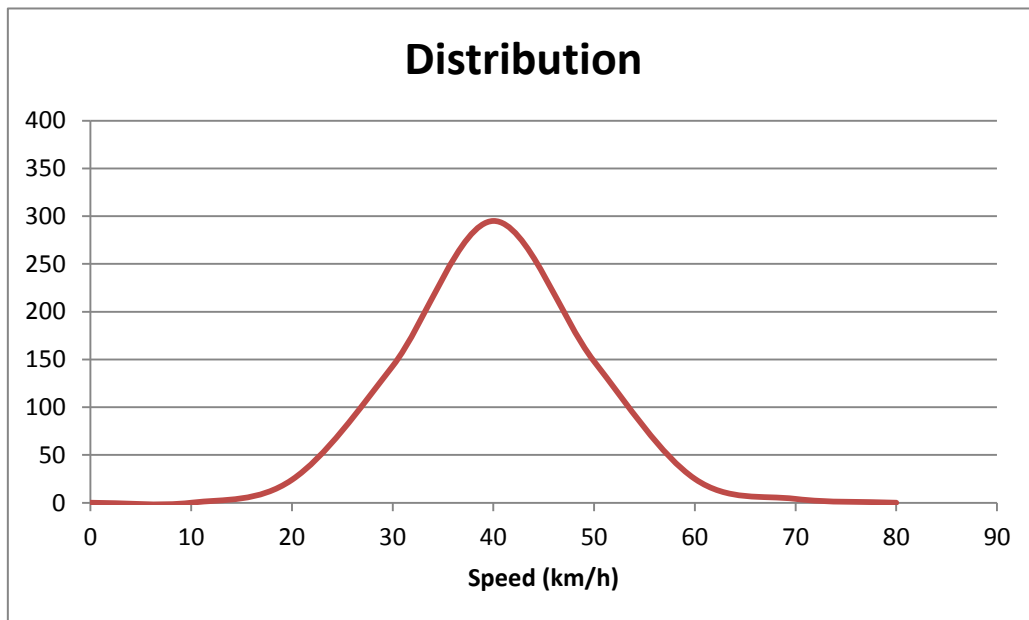
**Survey:** After - 6 Months

**Date:** Jul. 18-22, 2015

**Sample Size:** 639

**RESULTS:**

Minimum	20.8	<b>85th Percentile</b>	<b>53.8 km/h</b>	
Maximum	76.3	<b>15 km/h Pace</b>	<b>41</b>	<b>to 56</b>
Min-Max Range	55.5	<b>% in Pace</b>	<b>63.0 %</b>	
Median	45.2			
Mean	45.1			
Mode	38.9			
Std Dev.	8.636			
Variance	74.574			
Skewness Index	0.112			
Kurtosis	0.365			



**Project:** Pilot Testing of 40 km/h Posted Speed Limits

**Site:** Ryland

**Jurisdiction:** NSTIR (Bible Hill)

**Radar Unit:** Unit #2

**Direction:** Two-way

**Speed Limit:** 40 km/h

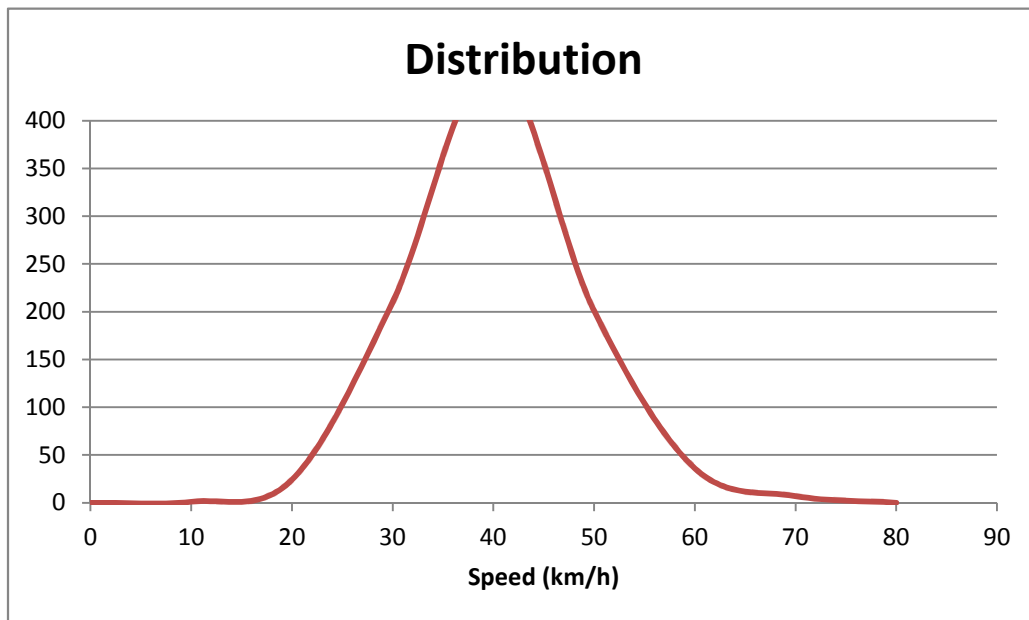
**Survey:** After - 12 Months

**Date:** Jan. 26-27, 2016

**Sample Size:** 939

**RESULTS:**

Minimum	18.0	<b>85th Percentile</b>	<b>54.0 km/h</b>	
Maximum	80.0	<b>15 km/h Pace</b>	<b>38</b>	<b>to 53</b>
Min-Max Range	62.0	<b>% in Pace</b>	<b>67.9 %</b>	
Median	46.0			
Mean	46.1			
Mode	44.0			
Std Dev.	8.245			
Variance	67.973			
Skewness Index	0.351			
Kurtosis	0.923			



## **APPENDIX D**

### Resident Engagement (Notice Letter and Survey)



December 13, 2014

**RE: Important Information Regarding Grennan Drive Speed Limit Change**

Dear Resident:

In partnership with the Halifax Regional Municipality (HRM) and the Department of Transportation and Infrastructure Renewal (NSTIR), the Nova Scotia Road Safety Advisory Committee (RSAC) has initiated a pilot study to assess the effectiveness of posted speed limits below 50 km/h in Nova Scotia. Several residential streets have been identified as candidates for this study.

We are informing you that a street in your area has been selected as one of these test locations and the existing 50 km/h speed limit will be reduced to 40 km/h for a period of one year. During this time the 40 km/h speed limit will be legally enforced.

Please note the speed limit change only applies to streets where 40 km/h signs are posted. Any streets connecting to the 40 km/h street will remain at their current speed limit, whether posted or not.

**STUDY OVERVIEW**

The pilot study will occur over a one-year period and the new 40 km/h speed limit is expected to be posted by early January 2015 and removed sometime in January 2016. Following the end of the pilot study and the removal of the 40 km/h signage, the speed limit on your street will return to 50 km/h. All of the data collected over the one-year time frame will then be evaluated, and based on the study outcomes, a recommendation will be made regarding the use of 40 km/h speed limits in Nova Scotia.

**CONTACT INFORMATION**

At the conclusion of the one year pilot study a few residents on your street will be asked to participate in a brief survey to gather valuable input regarding the impacts a 40 km/h speed limit had on your street. If you are contacted, please take a few minutes to provide us with your thoughts.

For more information about this one year pilot study please contact the Halifax Regional Municipality by dialing 311.



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# Pilot Testing of 40 km/h Posted Speed Limits

## Post-Study Resident Questionnaire

Street Address: \_\_\_\_\_

Resident's Name: \_\_\_\_\_

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1. As a resident of a street that has been included in the pilot study and had the speed limit reduced from 50 km/h to 40 km/h, were you aware of the pilot study and the reduced speed limit of 40 km/h for the last year?

- A. **Yes**
- B. **No**

2. How would you describe the change in vehicle speeds on your street with the 40 km/h speed limit in place?

- A. **Traffic moved slower**
- B. **No change**
- C. **Traffic moved faster**
- D. **I don't know**

3. How would you describe the change in traffic volume on your street with the 40 km/h speed limit in place?

- A. **Less traffic using the street**
- B. **No change**
- C. **More traffic using the street**
- D. **I don't know**

4. How would you describe the level of safety/comfort on your street with the 40 km/h speed limit in place?

- A. **I felt more comfortable**
- B. **No change**
- C. **I felt less comfortable**

5. Do you feel that having a 40 km/h speed limit on your street has been beneficial?

- A. **Yes, I want to keep the 40 km/h posted speed limit**
- B. **I have no preference**
- C. **No, I want the posted speed to be 50 km/h**
- 

### ADDITIONAL INPUT CAN BE SUBMITTED USING THE FOLLOWING:

1. *Streets under HRM's jurisdiction:*  
Please call HRM's 311 phone service

2. *Streets under NSTIR's jurisdiction:*  
Please send email to  
michael.croft@novascotia.ca

### ANY OTHER THOUGHTS:

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