Speed Management Strategies for Rural Temporary Work Zones

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Abstract

Rural New Brunswick highways continue to be plagued with motorists traveling through temporary work zones at excessive speeds. This problem has been exacerbated with the recent development of sections of the Trans-Canada Highway designed to 120 km/h standards and posted at 110 km/h. Accident statistics support the premise that collision rates are high on approaches and within temporary work zones. In addition to standard signing and marking techniques prescribed by the Manual of Uniform Traffic Control Devices for Canada[1], different jurisdictions have endeavored to find supplemental treatments to enhance safety within these zones by reducing average vehicle speeds without inadvertently increasing the variability of the individual speeds.

This study documents the impacts associated with safety enhancements established at several test sites including; portable changeable message signs, portable rubber rumble strips, transverse pavement markings, and fluorescent orange construction sign sheeting. Changes in operating speed profiles in advance of and through rural construction zones were documented for each supplementary traffic control device. Research conclusions address the potential application of each treatment by road agencies including operational, logistical, and economic considerations. Possible amendments to temporary work area policies for the Province of New Brunswick are also presented.

Résumé

Les routes rurales du Nouveau-Brunswick continuent à faire face à la situation où les automobilistes voyagent à des vitesses excessives dans les zones de construction temporaires. Ce problème a été aggravé avec le développement récent des sections de la Trans-Canadienne conçue pour des normes de 120 km/h et signalée à 110 km/h. Les statistiques d'accidents confirment que les taux de collision sont élevés aux approches et dans les zones de construction temporaires. En plus des techniques de signalisations et d’enseignes standards prescrits par le Manuel des Dispositifs Uniformes de Directives de Traffic pour le Canada[1], différentes juridictions ont essayé de trouver des solutions additionelles pour augmenter la sûreté dans ces zones en réduisant les vitesses moyennes de véhicule sans augmenter la variabilité des vitesses individuelles.

Cette étude documente les impacts liés aux perfectionnements de sûreté établis à plusieurs emplacements d'essai comprenant; signalisations variables portatives, bandes de grondement en caoutchouc portatives, inscriptions transversales de trottoir, et recouvrement orange fluorescent d’enseigne de construction. Des changements des profils de vitesse de fonctionnement avant et par des zones rurales de constructions ont été documentés pour chaque dispositif supplémentaire de directive de traffic. Les conclusions de recherches indiquent l'application potentielle de chaque traitement pour des agences de route comprenant des considérations opérationnelles, logistiques, et économiques. Des amendements possibles aux politiques de secteur de travail temporaire pour la province du Nouveau-Brunswick sont également présentés.

1. Introduction

In September 2002, the government of the Province of New Brunswick announced their mandate to complete the remainder of the Trans-Canada Highway network as a four-lane divided highway.

New Brunswick drivers have a reduced familiarity with operating their vehicles on a high-speed, four-lane, rural arterial highway. This is due to a predominantly rural population and the fact that the majority of the existing provincial highway system is comprised of rural two-lane, two-way arterial highways. Collision data, provided by the Department of Transportation, demonstrate a relatively low number of collisions and fatalities at rural highway temporary work areas in recent years. However, it is anticipated that with the construction of a large number of kilometers of rural divided highway (designed to 120 km/h specifications), the number/severity of collisions at temporary work zones will likely increase.

One technique to analyze the traffic safety conditions at temporary work areas in New Brunswick would be to evaluate past accident collision experiences and attempt to model future collisions in order to circumvent potential problems. However, this method is data intensive, procedures are labourious, and as identified by Wang, Hughes and Council[2], critical voids exist in current collision databases and procedural methods to collect these data. Therefore, in recognition of traffic safety concerns in the study area this research addressed speed management strategies for rural highway temporary work zones through field evaluation of select traffic safety enhancements.

2. Study Objectives

Installation information and documentation of supplementary traffic control devices and their effect on vehicle speed management is available from studies in the United States and Europe where inconsistent results were documented. Several provincial agencies in Canada have included documentation on the use of specific safety enhancement devices at construction work zones. However, it is not clear if these recommended practices are based on local evaluation and experience or based on results from other jurisdictions. As a result, further study was undertaken relative to conditions at rural highway temporary work zones within the study area. The objective of the project was to identify safety enhancements that effectively reduce mean and 85th percentile vehicle speeds without compromising safety by increasing speed variance.

3. Background

An extensive literature search was conducted in order to synthesize previous studies conducted in both North America and elsewhere. Issues relating to operating speed and posted speed limits, collision data analysis experience, and the application of specific supplementary traffic control devices were quantified.

A related study undertaken by Sargeant[3], reviewed vehicle speed behaviour and variability at temporary work zones in New Brunswick. Sargeant[3] collected speed data from 37 daytime locations at 15 Department of Transportation sites involving temporary work area conditions. Sargeant[3] concluded that 85th percentile speed did not significantly change when the normally posted speed limit was reduced at a temporary construction work zone. Warning signs (construction orange in colour), the only device used in the Sargeant study, alone did not significantly reduce vehicle speeds.

Knowles, Persuad and Parker[4] attempted to assimilate results of several Canadian studies that reviewed the relationship between vehicle speeds and traffic safety. Their conclusions were that much of the research was anecdotal and lacked significant evidence. Research studies in Sweden by Nilsson[5], and in Denmark by Christensen[6] evaluated the reduction of maximum speed limit and its affect on traffic safety. Results of both studies were similar where Nilsson[5] found that there was a decrease in mean speeds of vehicles and injury severity. Christensen[6] found a decrease of mean speeds by 4-9 km/h and a 20% decrease of injury collisions. These studies did not account for the effect of increased enforcement and public awareness campaigns on the decrease of maximum speed limits.

In 1964, Solomon[7] published research work on conclusions of the relationship between speed variance and traffic safety. Essentially, Solomon[7] concluded that as motorists' speed deviates from the mean speed the greater their risk of collision. This theory of speed variance compromising safety was later confirmed by Hauer[8] in 1971. This study reviewed the number of passive and active maneuvers and how these relate to Solomon's U-shaped curve. Speed variance and risk of collision were again confirmed by more recent research performed by Harkey, Robertson and Davis[9] and Fildes, Rumbold and Leening[10].

After reviewing the literature on speed studies relating to traffic safety and evaluation studies of supplementary traffic control devices two significant conclusions result. The first finding suggests that collision rates drop with reduced posted speed limits. The second conclusion (more concrete) is that reducing speed limits, for example in a transition into a temporary work zone, often increases speed differentials and variability. This results in a higher collision rate, worsening traffic safety conditions for motorists.

A study to determine Portable Changeable Message sign effectiveness was performed by Wang, Dixon and Jared[11]. This Georgia study reviewed the effectiveness of a sign, supplemented with radar, at temporary work zones. It was concluded that the changeable message sign with radar reduced speeds by 11-13 km/h. Variance of the observed data decreased after the implementation of the sign. The study was conducted over a three-week period and values of speed reduction and variance were sustained over this period. It was therefore concluded that a novelty effect did not exist for changeable message signs.

Conditions presented by a temporary work zone appear ideal for a safety-enhancing device such as a portable rumble strip pattern. However, a review of the effectiveness of rumble strips applied at temporary work zones by the Federal Highway Administration (FHWA) and Noel, Sabra and Dudek[12], indicates that there are a limited number of studies and their findings are inconsistent. Harwood[13] reinforces these conclusions by stating "The evidence as to whether rumble strips are effective as a speed control device in work zones is inconclusive". Although, Meyer[14] also found them to be ineffective, Fontaine and Carlson[15] found them to be somewhat effective in rural applications. They found mean passenger car speeds were reduced by 1.6 and 3.2 km/h while heavy vehicles were observed to reduce speed by 4.8 and 6.4 km/h. The greatest speed reduction for all vehicles was observed immediately downstream of the rumble strips.

Optical treatments installed at highway temporary work zones are intended to capture a driver's attention to make them aware of potentially hazardous roadway conditions. A form of positive guidance, optical treatments has existed for many years but has not been widely used in North America. In 1982, the City of Calgary[16] conducted a research experiment where transverse optical speed bars were employed on a highway exit ramp to reduce the potential for collision. The Before-and-After study observed speeds at a point 150m from the terminus of the ramp. Results showed that there was a reduction of 2.1 km/h in the mean speed and a reduction of vehicles exceeding 80 km/h by 1.4 percent. Based on these findings the researchers concluded that these pavement markings may reduce crash severity. Another Before-and-After study conducted by Agent[17] recorded collision data and vehicle speeds at a hazardous horizontal curve on a two-lane, two-way road. Transverse bars were implemented as a warning device to enhance safety. Average vehicle speeds were reduced by 15.1 km/h one week after installation, and by 10.8 km/h after a six-month period. These speed reductions were found to be statistically significant. More research and field evaluation is required to determine optimal conditions of application for transverse optical speed bar enhancements. In addition, research is needed to determine an effective pattern of markings that are applicable to temporary work areas.

In North Carolina a field evaluation of fluorescent orange sign sheeting at temporary work zones, on high-speed highways (90–105 km/h), was performed by Hummer and Scheffler[18]. The research objectives of that study were to determine if the use of fluorescent orange sign sheeting would affect driver behaviour, measured in the form of aggressive vehicle maneuvers, percent of vehicles in the left lane (lane where closure occurred), mean vehicle speed and speed variance. Mean vehicle speed reductions were not statistically significant and were observed to increase by 1.6 km/h, while variability of speeds decreased. Hummer and Scheffler[18] concluded that the use of fluorescent orange sign sheeting at temporary work zones on high-speed facilities is recommended and the higher cost of material outweighs the safety benefits of reduced collision frequencies. A more recent study of the field performance of fluorescent orange colours on static temporary condition signs was conducted by Wang *et al.*[11]. The effects of speed reduction, speed variability and novelty effect were recorded during the fall of 2002 in Georgia at three construction work zones. It was determined that speeds were reduced by 2-5 km/h and speed variance increased during daylight conditions.

4. Research Methodology

At the start of the project, an inventory of safety-enhancing products were assembled that had the potential to achieve the following criteria: speed reduction, decreased operating speed variability, economical feasibility (both purchase costs and maintenance costs) and easy to install and remove. An iterative process began that narrowed the number of safety-enhancing devices to four. This process involved research of past experiences with a particular product, its approval by the research team, its approval by the New Brunswick Department of Transportation (in terms of monetary and labour implications) and finally its availability. The four selected supplementary traffic control devices are listed in Table 1. A summary of site characteristics and sampling scheme is also provided. In all 20 sets of observations were undertaken.

In this research the measurement of the effectiveness of supplementary traffic control devices was performed using a typical Before-and-After study procedure. The 'Before' condition consisted of radar measurements of operating speeds at established rural highway temporary work zones. These temporary work areas were designed based on the recommendations contained in the Work Area Traffic Control Manual[19]. The 'After' condition was represented by recording operating speeds of vehicles after a selected supplementary traffic control device was installed at the same temporary work zone. The differences in the results from the 'Before' and 'After' phase demonstrate the relative effectiveness or ineffectiveness of a particular safety-enhancing device.

Table 1 – Site Observation Summary

Supplementary Traffic Control Device Type	Number of Observations		Highway Classification	Reduced Posted Speed Limit
	Day	Night		
Portable Changeable Message Sign	8	2	RAD 120	70 km/h
Portable Rubber Rumble Strips	4	0	RAD120/RAU100	70 km/h
Transverse Pavement Markings	2	2	RAD 120	70 km/h
Fluorescent Orange Sign Sheeting	1	1	RAD120	Not Reduced

Typical data sets comprised of approximately 100 speed observations during daytime testing. Under night conditions sample sizes were reduced to 50 observations due to lower volumes of traffic. Generally, the location of recorded observations were taken upstream or prior to advance construction signing, immediately upstream of the supplementary traffic control device, and downstream of the traffic safety-enhancing location.

5. Data Analysis

Data were collected consistent with a traditional Before-and-After study format. Several statistics were chosen as indicators of the effectiveness for each of four supplementary traffic control devices. These include mean vehicle operating speed, 85th percentile operating speed, 15 km/h pace, percent of vehicles in pace, standard deviation of mean operating speeds, coefficient of variation, measure of Kurtosis, test to compare sample means and test to compare sample variances.

Part of the analysis process was to test the statistical significance of the Before-and-After results at each test site. The test for comparison of two sample means and the test for two sample variances were selected. Both were tested at a 5% significance level.

5.1 Portable Changeable Message Signs

The portable changeable message sign (PCMS) was tested for effectiveness as a supplementary traffic control device at ten rural highway temporary work zones. Specific characteristics were measured between 'Before' and 'After' phases to demonstrate whether the PCMS was an effective safety-enhancing device.

A summary of changes in operating speed characteristics after the application of the PCMS at temporary work zones are contained in Table 2. This Table summarizes results of analyses using observational operating speeds of all vehicles travelling through rural highway temporary work zones.

Table 2 – Summary of PCMS Effect on Speed, Pace and Standard Deviation

Work Zone	Mean (km/h)	85th Percentile (km/h)	Percent in Pace (%)	Standard Deviation (km/h)
Rte 1 - Musquash EB#1	-2.8*	-5.2	-6.0%	+0.74*
Rte 1 - Musquash EB#2	-3.3*	-4.7	+6.0%	+0.26
Rte 1 - Musquash EB#3	-3.6*	-6.3	-3.5%	-0.61*
Rte 1 - Musquash WB	-4.5*	-1.8	-7.0%	+1.41*
Rte 1 - Sussex EB#1	-7.4*	-10.0	+2.0%	-0.25*
Rte 1 - Sussex EB#2	-6.8*	-7.7	+12.0%	+0.54*
Rte 1 - Sussex WB	-1.2	-2.2	-12.0%	+0.64*
Rte 2 - Moncton	-9.2*	-5.8	-11.0%	+1.97*
Rte 2 - Kingsclear	+0.7	-3.8	+11.0%	-2.10*
Rte 2 - Oromocto	-8.0*	-9.0	-4.0%	+0.31*
Average	**-4.6 km/h***	**-5.7 km/h***	**-1.3%**	**+0.29 km/h**

* Statistically significant at 5% significance level

Mean and 85th percentile speeds were reduced on average by 4.6 km/h and 5.7 km/h, respectively. However, measures of variability, standard deviation and percent of vehicles in pace, increased by 0.29 km/h and decreased by 1.3%, respectively. These values are an average for all ten temporary work zones where the PCMS was installed. Uniformity between the ten work zone configurations was not achieved and must be considered when interpreting these results. Eight of ten sites demonstrated a significant reduction of mean speed and three of ten sites demonstrated a significant reduction in variance. Six sites demonstrated a significant increase in variance. The coefficient of variation calculations demonstrated a decrease in the coefficient of variation ratio at only two temporary work zone sites from the 'Before' phase to the 'After' phase.

The PCMS was tested at eight temporary work zones under day conditions and two under night conditions. There was not a significant difference between the day or night conditions.

Overall the application of the portable changeable message sign at rural highway temporary work zones appeared to improve safety conditions for motorists based on the analysis of specific speed characteristics. This conclusion is consistent with past research findings that demonstrate an increase in traffic safety through the reduction of mean speed[5,6]. The average mean speed reduction was statistically significant, however, the average operating speed variability increased at the ten sites but was not statistically significant. Based on the work of Solomon[7], the PCMS installation can therefore be considered likely to decrease a motorist's risk of collision. A study by Wang *et al.*[11] was confirmed in terms of the PCMS installation effect on operating speed reduction, however, the reduction in speed variance was not confirmed.

5.2 Portable Rubber Rumble Strip Evaluation

A summary of changes to operating speed characteristics after the application of portable rubber rumble strips at temporary work zones are contained in Table 3. Based on average data from the four test sites rumble strips reduced the mean and 85th percentile speeds by 6.9 km/h and 9.5 km/h, respectively. The standard deviation of operating speeds was reduced by an average of 0.86 km/h. The average mean speed, 85th percentile speed and percent of vehicles in pace were found to improve statistically. The average standard deviation of the four test sites was not found to be statistically significant

The increase in the number of vehicles in the 15 km/h pace is greater at the two Sussex study sites (15% and 9.2%). This greater improvement could be explained by the highway characteristics (two-lane two-way highway) or by the smaller sample sizes.

Table 3 – Summary of Rumble Strip Effect on Speed, Pace and Standard Deviation

Site	Mean (km/h)	85th Percentile (km/h)	Percent in Pace (%)	Standard Deviation (km/h)
Rte 1 - Musquash #1	-9.0*	-10.1	+3%	-1.13*
Rte 1 - Musquash #2	-5.6*	-5.0	-2%	+0.81*
Rte 10 - Sussex #1	-7.4*	-12.5	+15.2%	-1.57*
Rte 10 - Sussex #2	-5.7*	-10.5	+9.2%	-1.56*
Average	**-6.9 km/h***	**-9.5 km/h***	**+6.4%***	**-0.86 km/h**

* Statistically significant at 5% significance level

Overall the application of portable rubber rumble strips at rural highway temporary work zones appeared to improve safety conditions for motorists travelling through the work zones. This suggestion is based on the speed-safety relationships established by Solomon[7], Christensen[6] and Nilsson[5]. Research study findings relating to the evaluation of portable rumble strips confirmed previous work by Fontaine and Carlson[15] yet contradicted the findings of Meyer[14].

5.3 Transverse Speed Bar Evaluation

The transverse speed bars were tested for effectiveness as a supplementary traffic control device at one rural highway temporary work zone. Testing of this device was conducted over a five-week period to determine immediate, and long term impacts. Results of the analysis of the research data illustrated the novelty effect of the transverse speed bars and compared effectiveness during day and night conditions.

A summary of the findings from the analyses after the application of the transverse speed bars at temporary work zones are contained in Table 4. This Table summarizes results of analyses using observational operating speeds of vehicles travelling through the rural highway temporary work zone on Route 1.

Results of the Before-and-After analysis for application of the transverse speed bars demonstrate a slight decrease in the average mean operating speed and a statistically significant reduction in standard deviation. The results show an improved effectiveness during night conditions when compared to results from data collected during daylight hours. Mean and 85th percentile speeds were reduced (statistically significant) on average by 3.4 km/h and 3.8 km/h, respectively. Measures of variability, percent of vehicles in the 15 km/h pace and standard deviation increased by 2.6% and decreased significantly by 0.94 km/h, respectively. These values are an average of the four samples (two during day conditions, two during night conditions) made on the Route 1 temporary work zone. One of four samples demonstrated a significant reduction of mean speed. This occurred during night conditions. Conversely, all four sites demonstrated a significant reduction in variance.

Overall, the application of the transverse speed bars at rural highway temporary work zones appeared to improve safety conditions for motorists in terms of mean speed reduction[5,6] and speed variability[7]. The greatest improvement to both mean speed reduction and decreased operating speed variance was observed under night conditions.

Further conclusions can be made on the illusionary effect that is associated with transverse speed bars. The design and layout used at the Route 1 Musquash temporary work zone did not appear to provide this effect based on mean speed reduction alone. However, it is evident from the results that there is likely an increased level of safety for motorists during night conditions. This may be attributed to increased contrast of the retro-reflective marking tape at night.

Table 4 – Summary of Speed Bar Effect on Speed, Pace and Standard Deviation

Site	Mean (km/h)	85th Percentile (km/h)	Percent in Pace (%)	Standard Deviation (km/h)
Rte 1 - Musquash Day#1	-2.4	-3.2	-5.0%	-0.24*
Rte 1 - Musquash Day#2	+0.6	-0.5	+3.0%	-1.55*
Rte 1 - Musquash Night#1	-7.7*	-7.4	+9.0%	-1.44*
Rte 1 - Musquash Night#2	-4.0	-3.9	+3.5%	-0.53*
Average	**-3.4 km/h***	**-3.8 km/h***	**+2.6%**	**-0.94 km/h***

* Statistically significant at 5% significance level

5.4 Fluorescent Orange Sign Sheeting Evaluation

The fluorescent orange sign sheeting was tested for effectiveness as a supplementary traffic control device at one rural highway temporary work zone, with four test observations being conducted. Specific characteristics were measured between 'Before' and 'After' phases to demonstrate whether the fluorescent signing was an effective safety-enhancing device.

A summary of results of the analysis after the application of the fluorescent orange sign sheeting at temporary work zones is contained in Table 5. This Table summarizes results of the analysis of observational operating speeds of vehicles travelling through the rural highway temporary work zone on Route 1.

Study results of the Before-and-After analysis for application of the fluorescent orange signs demonstrate mixed results of safety condition indicators at rural highway temporary work zones. Average mean and 85^{th} percentile speeds were reduced by 3.8 km/h and 0.9 km/h, respectively, and were not found to be statistically significant. Standard deviation increased by 3.22 km/h and the percent of vehicles in the 15 km/h pace decreased by 8.5%, both were found to be statistically significant. These values are an average of both test sites recorded (one during day conditions, one during night conditions) at the Route 1 temporary work zone. Only the mean speed under night conditions demonstrated a statistically significant improvement.

Overall, the application of the fluorescent orange sign sheeting at the rural highway temporary work zones did not appear to improve traffic safety conditions for motorists based on the analysis of specific speed characteristics. A large increase in operating speed variance was observed resulting in a potential increased risk of collision based on conclusions of Solomon[7]. Conversely, the findings of Nilsson[5] and Christensen[6] relate to a potential increase in traffic safety due to a reduction of average mean speed. Specific studies evaluating the performance of fluorescent orange sign sheeting were confirmed on one account and contradicted on another. The Wang *et al.*[11] research conclusions were confirmed as speeds were reduced and variability increased, however, the findings of Hummer and Scheffler[18] were quite different than observed for this research.

It must be noted that this evaluation was limited to one test site, under varied light conditions. Consideration, when interpreting the results, should be given to the positive guidance and human factors elements that are provided by the installation of fluorescent sign sheeting. A Study by Schnell, Bentley and Hayes[20] demonstrated an increased recognition distance improving the reaction times for motorists. Human factors and positive guidance were not included in the scope of this research.

Table 5 – Summary of Fluorescent Orange Sign Effect on Speed Characteristics

Site	Mean (km/h)	85^{th} Percentile (km/h)	Percent in Pace (%)	Standard Deviation (km/h)
Rte 1 - Musquash EB Day	-1.1	0.0	-9.0%	+2.68
Rte 1 - Musquash EB Night	-6.5*	-1.8	-8.0%	+3.76
Average	**-3.8 km/h**	**-0.9 km/h**	**-8.5%***	**+3.22 km/h***

* Statistically significant at 5% significance level

6. Conclusions

6.1 Portable Changeable Message Sign

- Mean operating speeds were reduced by an average of 4.6 km/h (statistically significant). Seventy percent of the evaluation sites demonstrated a statistically significant reduction of the mean operating speed.

- The 85^{th} percentile operating speed was reduced significantly by an average 5.7 km/h.

- The average variance increased though was not found to be statistically significant

- Both day and night conditions were tested. Research findings showed few differences in the PCMS performance under varying light levels.

6.2 Portable Rubber Rumble Strips

- The mean operating speed was reduced by 6.9 km/h. All four test sites were determined to be statistically significantly using a 5% significance level.

- The 85^{th} percentile operating speeds were reduced significantly by an average 9.5 km/h.

- Overall, the average variability reduction was statistically significant and a significant reduction in variance occurred at three of four evaluation locations.

6.3 Transverse Speed Bars

- Mean operating speeds were reduced by an average of 3.4 km/h (statistically significant). The only test site that demonstrated a statistically significant reduction was at night.

- The 85^{th} percentile operating speed was reduced significantly by 3.8 km/h, an average of four sites.

- All four test sites demonstrated a statistically significant reduction of standard deviation (variance).

- Interpreting results of the analyses, the transverse speed bars proved more effective under night conditions likely due to the retro-reflective capabilities of the temporary marking tape.

6.4 Fluorescent Orange Sign Sheeting

- The average mean operating speed was 3.8 km/h. One of two test locations was determined to be statistically significant using a 5% level of significance.

- The 85^{th} percentile operating speeds were reduced by an average of 0.9 km/h, not statistically significant.

- The standard deviation increased by an average of 3.22 km/h, which was statistically significant.

- Under night conditions the mean speed was reduced significantly by 6.5 km/h. Both day and night conditions demonstrated little difference in the results of speed variability.

7. Recommendations

Based on the findings of this research the PCMS, portable rubber rumble strips and the transverse speed bars are recommended for use at rural highway temporary work zones. The fluorescent orange sign sheeting is not recommended for use as a means of reducing operating speeds and speed variability. Further research could be conducted on each of these supplementary traffic control devices. That research could focus on long-term effects of application, effectiveness of installation at various locations within a work zone, or methods for shorter installation / removal times.

Since the completion of the analyses for this research, several issues pertaining to temporary work zone policy in the province have been identified. Consideration by the New Brunswick Department of Transportation should be given to these issues in the Work Area Traffic Control Manual[19] (WATCM) and are recommended to be revisited.

7.1 Transitional Zone Speed Limits and Speed Limit Compliance

- Currently, on rural four-lane divided highways the transitional posted speed limit is typically reduced to 70 km/h for a standard temporary work zone.

- It is recommended that this issue be revisited and consideration be given to alternative measures. These may include two-stage transitional speed zones (110-90-70 km/h) or ITS applications of variable speed limits that accommodate changing roadway conditions.

7.2 Supplementary Traffic Control Devices

- Currently, the WATCM[19] does not discuss the use of supplementary traffic control devices to enhance safety at temporary work zones.

- It is recommended that policy be updated to reflect and accommodate the possible use of these devices in the province.

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