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HALIFAX REGIONAL COUNCIL  
November 26, 2002

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:   
David McCusker, P.Eng., HRM Traffic Authority

DATE: November 15, 2002

SUBJECT: **PEDESTRIAN AND TRAFFIC CONTROL MEASURES ON  
CALDWELL ROAD - FOLLOW UP REPORT**

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### INFORMATION REPORT

#### ORIGIN

Halifax Regional Council meetings of September 10, and September 17, items 12.3, 9.2.1 and 9.2.2 respectively.

#### BACKGROUND

At the September 10th, 2002 Regional Council meeting, a motion was approved requesting a full and in depth report on all traffic and safety measures on Caldwell Road including lighting, vehicle speed, stop signs and crosswalks. At the September 17th, 2002 Regional Council meeting, Councillor McInroy served a petition containing approximately 266 signatures of students of Astral Drive School in support of a crosswalk on Caldwell Road and another petition containing approximately 1400 signatures of residents in support of the installation of stop signs and crosswalks on Caldwell Road to slow traffic.

**DISCUSSION**

Caldwell Road presently functions as a collector roadway providing a connection from local residential streets to the arterial roadway in the north (Portland Street/Cole Harbour Road) and to Eastern Passage/Cow Bay in the south. It is a very straight, relatively level two-lane street with a posted speed limit of 50 km/h.

**Traffic Volume**

Traffic volume data collected in 2002 using road tube counters indicate that traffic along Caldwell Road ranges from approximately 18,000 vehicles per day south of Portland Street/Cole Harbour Road to approximately 10,000 vehicles per day south of Astral Drive. This decrease from north to south is attributable to vehicles turning at one of several intersections spaced at irregular intervals along the street.

A comparison of traffic volumes over the past ten years 1992-2002 indicates a significant although not unexpected increase given the amount of new residential development both in new subdivisions along Caldwell Road and in Eastern Passage/Cow Bay areas to the south.

TRAFFIC VOLUMES - CALDWELL ROAD		
1992 (A.A.D.T.)	Location	2002 (A.A.W.T.)
4,410	south of Astral Drive	9,750
8,870	north of Astral Drive	13,390
9,530	south of Delta Drive	14,610
10,400	north of Delta Drive	15,620
14,100	south of Cole Harbour Road	17,740 (2001)

The municipality, along with the province and the development community, is working on a five-year plan to reduce traffic loading on Caldwell Road. This plan would involve construction of the Shearwater Connector, an arterial roadway running between Caldwell Road and a new interchange on Highway 111. It is expected that the new corridor would attract away a significant portion of traffic currently using Caldwell Road.

Speed

Radar speed surveys were conducted during the month of October 2002 along several sections of Caldwell Road. The following chart of 85th percentile speeds (which is the speed at or below which 85% of motorists normally drive) compares radar speed samples collected at various locations along Caldwell Road in 2002 with similar locations sampled ten years earlier by the Provincial Department of Transportation.

RADAR SPEED SAMPLES - CALDWELL ROAD		
<u>Date</u>	<u>Location</u>	<u>85th Percentile</u>
June '92	Hampton Green	58.4 km/h
June '92	Delta Drive	61.1 km/h
June '92	Deerbrooke/Cherrywood	57.2 km/h
June '92	Astral Drive	64.6 km/h
Oct. '02	north of Delta Drive	59.9 km/h
Oct. '02	south of Delta Drive	57.0 km/h
Oct. '02	south of Deerbrooke Drive	63.0 km/h
Oct. '02	north of Astral Drive	57.1 km/h
Oct. '02	south of Astral Drive	63.3 km/h

The chart indicates that prevailing travel speeds along Caldwell Road have not varied much in the past decade and continue to range between 57 and 64 km/h. A review of existing speed limit signs indicates the signage is sufficient for enforcement purposes. RCMP enforcement efforts are directed at the minority of motorists who significantly exceed the posted speed limit, and who are not travelling within the “comfort range” of the majority of drivers.

Traffic Signals

Requests for the installation of traffic signals at some of the busier intersections along Caldwell Road resulted in data collection and Traffic Signal Warrant calculations being completed for Caldwell Road at Delta Drive and Caldwell Road at Astral Drive. The warrant for signalization is tested by calculating the number of priority points based on traffic volumes, accident history, and other factors. A total of 100 or more priority points is an indication of the need for signalization. The number of points achieved at Delta Drive was 23 while the number of points

at Astral Drive was 57, demonstrating that there is no need for signalization at either location.

### All Way Stop Signs

Stop signs are neither intended nor effective as speed control devices. Their function is to assign right-of-way and they are typically installed on the minor volume approaches to an intersection thereby providing uninterrupted flow along the higher volume street. It has been documented that placing a stop sign to force traffic to stop in an unwarranted condition may cause drivers to run the stop or decelerate and accelerate at a much faster rate thus creating hazards for pedestrians and other motorists. If unexpected and unnecessary stop signs are installed on the major volume roadway, there will inevitably be an increase in rear end collisions at the intersection, as well as increases in noise and air pollution, and fuel consumption.

All-way stop control may be warranted for installation at intersections which have a significant and relatively equal volume of traffic on each of the intersecting roadways, or where an unusual collision history exists. The volume warrant requires that an average of 500 vehicles per hour enter the intersection over any eight hours of the day and that the ratio of the approach volumes on the intersecting streets not exceed 2:1. The collision warrant may be met when, regardless of volume, an average of 5 or more collisions per year of a type preventable by all-way stop control (right angle and turning collisions) are reported.

The recent traffic counts collected for the Caldwell Road/Astral Drive signal warrant study were used to evaluate the intersection for possible all-way stop signs. The 8-hour approach volume ratio was in excess of 5 to 1. The reported collision history at the intersection over the last five years averaged less than 1 per year.

An evaluation of Caldwell Road/Delta Drive traffic volume counts indicated that the 8-hour approach volume ratio was in excess of 11 to 1. The number of reported collisions at this intersection also averaged less than 1 per year.

Since both the traffic volume warrant and collision warrant were not satisfied, all-way stop control is not appropriate for installation at either location.

### Crosswalks

The problem of meeting demands for the control and protection of pedestrians (particularly children and senior citizens) is complex. Understandably, considerable public pressure is exerted from various organizations and individuals for the installation of signs, signals and pavement markings for these purposes.

Although the safety of the pedestrian must have the highest priority, the extent to which it is feasible to protect pedestrians with traffic control measures has a definite limit. There is no indication that marked crosswalks are necessarily safer than unmarked crosswalks. Several surveys have determined that marked crosswalks are statistically less safe than unmarked ones, possibly because of the false sense of security the markings convey to pedestrians which leads them to be less cautious.

Crosswalks exist, by legal definition, at all intersections, even without markings, signs or signals. The determination of whether a legal crosswalk needs to be marked is based primarily on the necessity to create gaps in traffic flow. At low traffic volumes, pedestrians can generally cross a street without difficulty by waiting a short time for an adequate gap. On a higher volume street, pedestrians may experience excessive delays while waiting for gaps unless motorists stop to permit them to cross. There seems to be an increasing trend for motorists not to stop for pedestrians at unmarked crosswalks. This inevitably prompts requests from pedestrians for signs and markings which, if installed, contribute to the driver's perception that he needs only yield to pedestrians at marked crosswalks. Eventually the legal requirement to yield to pedestrians at all intersections whether the crosswalks are marked or not will be lost.

Pedestrian counts at various intersections along Caldwell Road were conducted in 2002 and the results are summarized below.

PEDESTRIAN COUNTS CROSSING CALDWELL ROAD			
<u>Location</u>	<u>Date</u>	<u>Time</u>	<u># of Crossings</u>
at Delta Drive	Oct. 17/02	7:45 - 8:45 a.m.	2
at Delta Drive	Oct. 16/02	4:30 - 5:30 p.m.	2
at Deerbroke/Cherrywood	Oct. 24/02	7:45 - 8:45 a.m.	5
at Nova Terrace	Oct. 9/02	8:05 - 8:35 a.m.	0
at Nova Terrace	Oct. 7/02	12 - 1 p.m.	2
at Nova Terrace	Oct. 9/02	2:37 - 3:12 p.m.	1
at Nova Terrace	Oct. 21/02	4:30 - 5:30 p.m.	3
at Astral Drive	Oct. 18/02	8 - 9 a.m.	0
at Astral Drive	Oct. 9/02	8:05 - 8:35 a.m.	4
at Astral Drive	Oct. 7/02	12 - 1 p.m.	1

<b>PEDESTRIAN COUNTS CROSSING CALDWELL ROAD</b>			
<u>Location</u>	<u>Date</u>	<u>Time</u>	<u># of Crossings</u>
at Astral Drive	Oct. 9/02	2:37 - 3:12 p.m.	2
at Astral Drive	Oct. 17/02	4:30 - 5:30 p.m.	2
at Morris Lake Drive	Oct. 23/02	7:45 - 8:45 a.m.	3
at Morris Lake Drive	Oct. 8/02	12 - 1 p.m.	5
at Atholea Drive	Aug. 8/02	12 - 1 p.m.	7

It should be noted that all pedestrians who crossed within visibility of an intersection were counted as if crossing at that intersection.

The results indicate that the number of pedestrians crossing Caldwell Road is low. No excessive delays in crossing the street were noted during the various counts, with most pedestrians waiting for available gaps in traffic rather than indicating their intention to cross and waiting for drivers to stop.

When the RCMP was consulted regarding complaints received about drivers failing to yield to pedestrians crossing at intersections, they advised, after checking their files as far back as January, that they had no record of any requests for enforcement.

#### Street Lighting

The HRM Electrical Supervisor advises that the existing street lighting levels on Caldwell Road from Cole Harbour Road to Atholea Drive meet HRM standards for street lighting levels on collector roadways.

#### **BUDGET IMPLICATIONS**

There are no budget implications at this time.

#### **FINANCIAL MANAGEMENT POLICIES/BUSINESS PLAN**

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

**ALTERNATIVES**

There are no recommended alternatives.

Additional copies of this report and information on its status can be obtained by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.  
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VP/bmh