

**APPENDIX C**  
**TRAFFIC STUDY**

***Sovereign Resources Inc Quarry Modification Project***  
***Description of Existing Conditions on Rocky Lake Drive (Trunk 2)***

***Background*** - The Sovereign Resources Inc. Quarry is on the east side of Rocky Lake Drive (Trunk 2) about two kilometres north of the entrance to the Municipal Enterprises Limited Quarry. All rock extracted from the Sovereign Quarry will be hauled on a private access road to the Municipal Quarry for processing. All truck traffic for removal of crushed aggregate from both the Sovereign and Municipal quarries will enter and exit using the existing Rocky Lake Drive access to the Municipal Quarry. While the rock from the Sovereign Quarry will increase the resources available to the Municipal Enterprise Quarry operation, the volume of aggregate shipped and the volume of truck traffic at the Rocky Lake Drive access to Municipal Quarry will not change as a result of the proposed Project.

***Road Description*** - The Municipal Enterprises Quarry entrance is on the east side of Rocky Lake Drive (Trunk 2) about 700 metres north of the Duke Street intersection in Halifax Regional Municipality (HRM). Accesses to adjacent properties from this section of Rocky Lake Drive are limited to only three driveways between Duke Street and the Municipal Enterprises Quarry entrance. While the posted speed limit on Rocky Lake Drive is 50 km/h in the vicinity of the quarry entrance, travel speeds in the area appear to be about 60 km/h. The road surface, which is in good condition throughout the entire section, is two lanes wide with typically about 7.3 metres paved travel way and about 1.4 metre wide gravel shoulders on each side. The *Weights and Dimensions of Vehicle Regulations* of the *Motor Vehicle Act* indicate that this section of Rocky Lake Drive is classified as a *Schedule C - Maximum Weight Road* so that full registered weights can be hauled 12 months of the years.

***Traffic Volumes*** - During November, 2003, Halifax Regional Municipality (HRM) obtained machine traffic counts on Rocky Lake Drive just north of the Municipal Enterprises Quarry entrance. The average weekday two-way traffic volume during the count was 2450 vehicles per day. The 24 hourly volumes for a weekday, shown graphically in Figure 1, indicate an AM peak hourly volume of about 170 vehicles per hour (vph) and a PM peak hourly volume of about 240 vph.

Manual turning movement counts, with vehicles classified as either passenger vehicles or heavy trucks (Table 1), were obtained at the Rocky Lake Drive intersections with the Municipal Quarry entrance and Duke Street during AM and PM peak traffic periods on Thursday, September 30, 2004. Counted peak hour volumes included 165 vph during the AM peak hour, and 250 vph during the PM peak hour, indicating a good comparison to the machine traffic volumes obtained by HRM during November, 2003.

The predominant heavy truck movements related to the Municipal Quarry are between the Quarry entrance and Duke Street as illustrated by the shaded areas in Table 1. Most of the loaded trucks leaving the Quarry travel south on Rocky Lake Drive and then turn right to Duke Street. There are only low volumes of heavy trucks, approximately 7% of total vehicular traffic, on Rocky Lake Drive north of the Quarry or south of Duke Street, and truck traffic related to the Municipal Quarry does not have any significant impact on those sections of Rocky Lake Drive.

Figure 1 - Average Two-Way Hourly Volumes - Rocky Lake Drive  
North of Municipal Enterprises Quarry Entrance

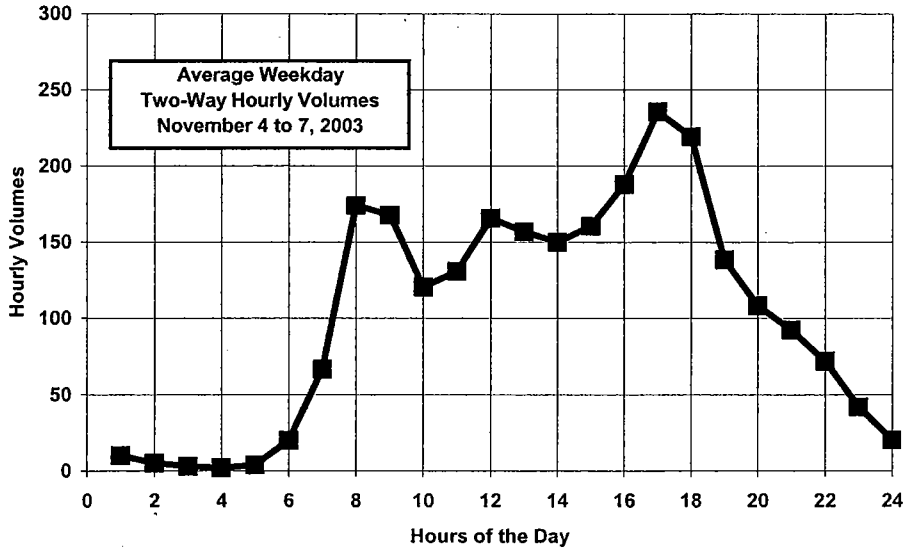


Table 1 - Peak Hour Turning Movement Counts at Rocky Lake Drive Intersections

**Rocky Lake Drive @ Municipal Quarry Entrance - [All Vehicles (Heavy Trucks)]**

Time	Northbound Rocky Lake Drive Approach		Southbound Rocky Lake Drive Approach		Westbound Municipal Quarry Approach	
	Straight towards Waverley	Right to Quarry	Left to Quarry	Straight towards Bedford	Left towards Bedford	Right towards Waverley
AM Peak Hour	60 (6)	74 (45)	2 (1)	100 (2)	77 (47)	2 (2)
PM Peak Hour	163 (7)	47 (26)	0 (0)	85 (4)	49 (29)	3 (2)

**Rocky Lake Drive @ Duke Street - [All Vehicles (Heavy Trucks)]**

Time	Northbound Rocky Lake Drive Approach		Southbound Rocky Lake Drive Approach		Eastbound Duke Street Approach	
	Straight towards Waverley	Left to Duke Street	Right to Duke Street	Straight towards Bedford	Left towards Waverley	Right towards Bedford
AM Peak Hour	52 (4)	120 (9)	113 (54)	69 (3)	111 (57)	213 (16)
PM Peak Hour	104 (2)	197 (1)	97 (32)	89 (2)	128 (35)	137 (2)

- NOTES: 1. Volumes for each intersection movement are shown as **All Vehicles (Heavy Trucks)**  
 2. The predominant heavy truck movements are between the Quarry and Duke Street (shaded areas)  
 3. There are only low volumes of heavy trucks on Rocky Lake Drive north of the Quarry or south of Duke Street.



**Seasonal Variation of Volumes** - While daily volumes fluctuate from one time of year to another with volumes usually being higher in the summer and lower in the winter, the volumes on the section of Rocky Lake Drive adjacent to the Municipal Quarry entrance are typical of suburban traffic patterns and only exhibit minor seasonal fluctuations. As illustrated in Table 2, volumes during the spring and fall seasons are about 'average', while winter volumes will be about 12% less than 'average' and summer volumes will be about 10% higher than the Annual Average Daily Traffic (AADT) volumes.

Season	Average Daily Volume as a Percent of Annual Average Daily Traffic (AADT)
Winter (December, January, February, March)	88 %
Spring / Fall (April, May, October, November)	102 %
Summer (June, July, August, September)	110 %

Source: NSTPW permanent counter factors for Counter Group A

**Collision Data** - Department of Transportation and Public Works collision records for the section of Rocky Lake Drive adjacent to the Municipal Quarry entrance intersection were reviewed for the five year period 1999 to 2003. Since there were no reported collisions at the intersection during the five year period, there is no indication of any traffic safety concerns related to the intersection or its approaches.

**Intersection Level of Performance** - Level of service analysis has been completed for AM and PM peak hourly volumes for the Municipal Quarry entrance intersection using *Synchro 6.0 / SimTraffic 6.0* software. Vehicles entering Rocky Lake Drive from the Quarry entrance roadway have only short delays at the STOP sign and experience very good level of service, while traffic performance for Rocky Lake Drive traffic is not noticeably affected by Quarry generated traffic.

**Summary -**

1. The section of Rocky Lake Drive adjacent to the Municipal Quarry entrance has moderate daily and peak hour volumes.
2. A review of collision records did not indicate any reported collisions at the Municipal Quarry entrance intersection on Rocky Lake Drive during the five year period 1999 to 2003.
3. There are only low volumes of trucks, approximately 7% of total vehicular traffic, on Rocky Lake Drive north of the Quarry or south of Duke Street, and truck traffic related to the Municipal Quarry does not have any significant impact on those sections street.
4. Traffic performance for Rocky Lake Drive is not affected by the Quarry generated traffic.
5. Vehicles entering Rocky Lake Drive from the Quarry entrance roadway have only short delays at the STOP sign and experience very good level of service.
6. Since truck volumes generated by the Municipal Enterprises Quarry will not increase as a result of the operation of the Sovereign Resources Quarry, there should not be any effect on the level of performance or safety of Rocky Lake Drive.

