

A Comparative Analysis of Land Values
Within and Adjacent to the
Niagara Escarpment Plan Area
Dufferin County, Ontario

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Background

The impact of provincial land use controls on real estate values along the Niagara Escarpment has long been a matter of interest and concern. With the first proposals to create special planning controls along the Niagara Escarpment, some landowners claimed that the imposition of such controls would devalue their properties, leading to what some called "expropriation without compensation". These concerns were based on the premise that the more restrictive controls on land use and lot creation along the Niagara Escarpment would depress the market for lands in the area, thereby reducing sale prices.

In 1980, the Province of Ontario commissioned three studies aimed at determining whether the land use controls instituted under the Niagara Escarpment Planning and Development Act and related regulations had had an adverse affect on property values for lands subject to these controls. These studies, which were undertaken by three professional real estate appraisers, each examined a different part of the escarpment. The study areas were: the Township of Mono in Dufferin County; the Township of Nottawasaga in Simcoe County (now part of the Township of Clearview); and, the Township of Keppel in Grey County (now part of the Township of Georgian Bluffs). These studies are listed in the addenda of this report.

The basic design of the studies was to look at property transactions located within the portion of the Niagara Escarpment Planning Area that was subject to development control. This data was compared with sales of similar properties outside the Niagara Escarpment Planning Area; located either in the same municipality or nearby municipalities with similar characteristics. Separate comparisons were undertaken for three different kinds of properties: agricultural properties, estate residential properties and recreational (cottage or chalet) properties. The time period examined was from February 24, 1974 (the date that the Planning area boundaries were defined) to February 29, 1980. The Mono Township study also looked at data from 1972 and 1973. All three studies acknowledged that real estate values tended to be somewhat higher within the Niagara Escarpment Planning Area, and took this factor into consideration in their analysis and conclusions.

While the methodologies employed in the three studies varied somewhat, the results and conclusions of the three studies were fairly consistent. The Keppel and Nottawasaga studies concluded that Niagara Escarpment land use controls had no negative impact on real estate values for agricultural, estate residential or recreational properties. The Mono Township study also found no evidence that property values had declined as a result of Niagara escarpment land use controls. A drop in the number of sales during 1974 & 1975 was noted for the area under development control, although not a drop in average

sale prices, and attributed part of this reduction in sales volume to a short-term impact of Niagara Escarpment land use controls. It also concluded that prices for vacant estate residential properties within the Niagara Escarpment Planning Area probably increased less than they would without development controls. On the other hand, this Mono Township study also found that prices for estate residential properties with residences and agricultural properties rose faster within the area under development control than outside the planning area during the study period.

There are two aspects of the methodologies of the three 1980 studies that might call into question the conclusions reached in the studies. First, the studies examined both improved and unimproved properties. While efforts were made to adjust for the quality of the improvements, such adjustments were subjective and it can be argued that these approximations introduced a variable into the analysis that may have reduced the reliability of the results. Second, the parts of the study area outside the Niagara Escarpment Planning Area, were all, to varying degrees, less aesthetically appealing than the portions of the study areas within the Niagara Escarpment Planning Area. This variable may also have reduced the reliability of the results of these studies.

Despite the fact that all three of the 1980 studies concluded that there had been little if any impact on land values as a result of Niagara Escarpment land use controls, not all agreed with these conclusions. Concerns about Niagara Escarpment land use controls negatively impacting real estate values continued to be voiced throughout the hearings on the Proposed Niagara Escarpment Plan and are still heard today, some 18 years after the approval of the Niagara Escarpment Plan (NEP).

Purpose

The purpose of this study is to determine if inclusion within the Niagara Escarpment Plan Area* (NEPA) influences real estate values. More specifically, this study will seek to ascertain whether lands within the NEPA have sold, on average, at higher, equal, or lower prices when compared to similar properties located nearby, but outside the NEPA. Finally, if differences in average sale prices are observed, are such differences statistically significant or could they be attributed to chance factors?

**It is important to distinguish between the Niagara Escarpment Planning Area and the Niagara Escarpment Plan Area (NEPA). The Planning Area was established in 1974, essentially as a study area, within which controls to protect the escarpment landscape could be developed. The Plan Area is a much smaller area in which the Niagara Escarpment Plan (approved in 1985) has effect. The Plan Area generally coincides with the area under Niagara Escarpment Development Control, where Niagara Escarpment Development Permits are required for changes in land use.*

Methodology

Like the 1980 studies, this study employed appraisal techniques to undertake a comparative analysis of property sales within, and outside but nearby, the NEPA. Ensuring that the sales examined within and outside the NEPA were truly comparable was integral to achieving the study's purpose. In addition, it was important to ensure that a large enough sample of sales was examined to ensure statistically valid results.

The methodology is largely based on the Direct Comparison Approach as defined under the Canadian Uniform Standards of Appraisal Practice. The Direct Comparison Approach is normally used to estimate the value of a single property. It involves the comparison of a subject property with similar properties that recently sold, or listed for sale. The comparable sales are adjusted for time and other relevant factors to provide an indication of the value of the subject lands. The approach examines the action of buyers and sellers in the market place.

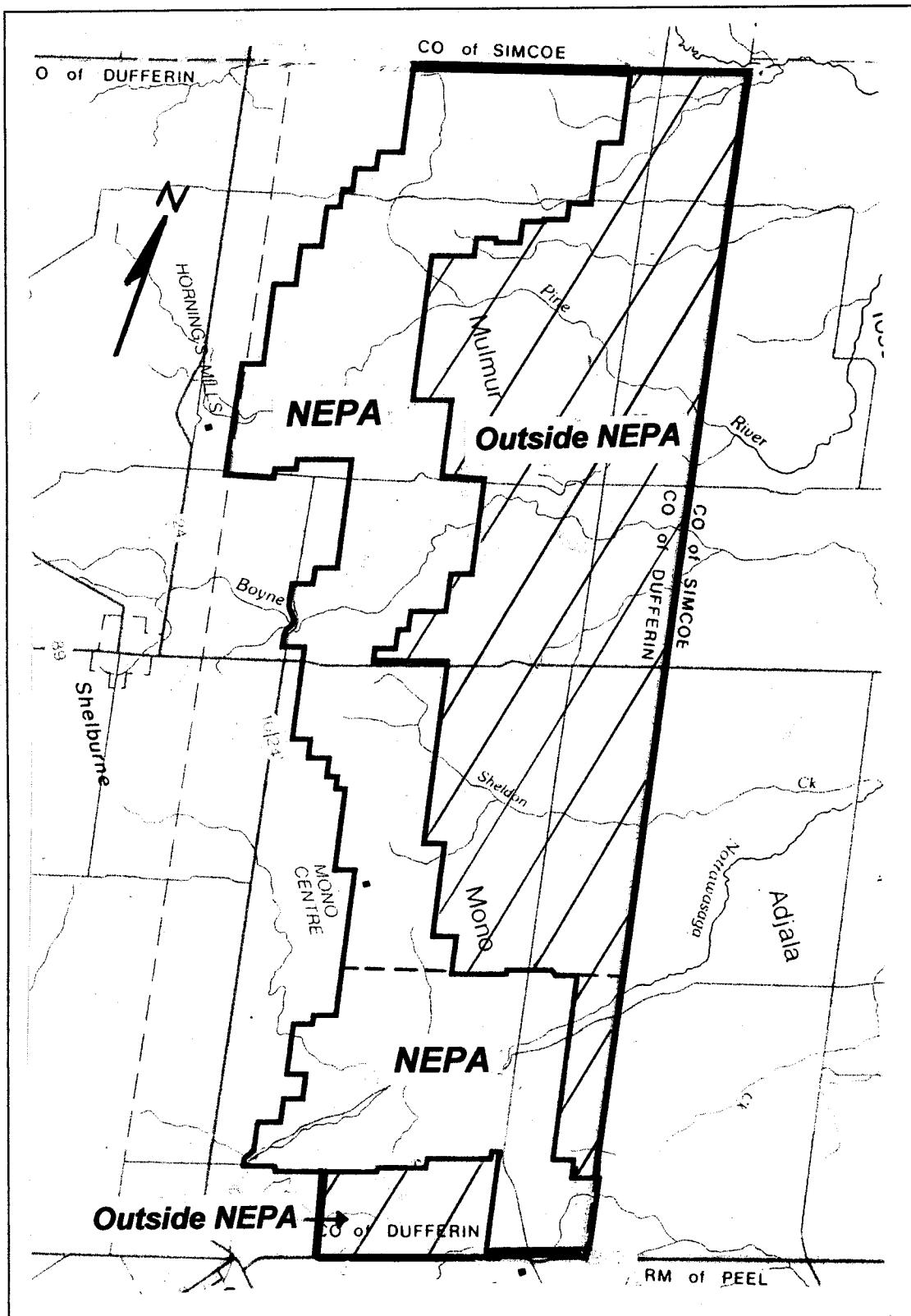
This study will apply the techniques used in the direct comparison approach to analyse what, if any, difference in land values exists between areas within the NEPA and adjacent lands outside the NEPA.

Study Areas

In order to provide a valid basis for comparison it was necessary to identify study areas where lands within the NEPA and adjacent areas outside the NEPA have similar landscape characteristics, physical constraints, access, proximity to urban centers and aesthetic appeal. Along most of the escarpment, lands within the NEPA tend to have a higher average aesthetic appeal than nearby land outside the NEPA, so selection of study locations was critical. Two potential study areas were identified:

- 1) The first proposed Study Area is within the Townships Mono and Mulmur, in Dufferin County, where sales within the NEPA will be contrasted with sales in the portions of these townships east of the NEPA and a small part of Mono Township south of the NEPA. The portions of the study area located outside the NEPA are located where the western end of the Oak Ridges Moraine meets the Niagara Escarpment - for those lands east of the NEPA; or, within the Orangeville Moraine - for those lands south of the NEPA. The landscape in these areas is characterized by rolling hills with frequent vistas and broad river valleys and is very similar to the portions of these townships within the NEPA. There are no actual exposed escarpment outcroppings outside of public lands in Mono and Mulmur Townships. The following map shows the location of this study area.

Mono/Mulmur Study Area



- 2) The area south and east of Owen Sound in Grey County, including portions of the geographic townships of Holland, Sydenham, St. Vincent and Euphrasia. The lands outside the NEPA within this study area include drumlin fields, rolling landscapes with broad valleys and former beach ridges of glacial Lakes Algonquin and Nipissing from which there are views of Georgian Bay. There are relatively few cliff faces within this part of the NEPA and most are publicly owned.

Boundaries for the proposed study areas were established based on my personal knowledge of the landscape gained through almost 20 years involvement in land use planning and real estate appraisals along the Niagara Escarpment. The boundaries of the study areas were set prior to reviewing or analysing any data on property sales.

As a result of the need for a sufficiently large sample, it was not possible to proceed with the analysis of sales within the proposed study area located south and east of Owen Sound. Only 26 qualifying vacant land sales were identified within this area between January 1, 1999 and June 1, 2003. Of these, only 7 were located within the NEPA.

Property Types

Only vacant land sales were examined. Properties that were marketed or classed as vacant, but which actually contained modest improvements such as garages, workshops, cabins or any other site improvements of more than nominal value were also excluded from the analysis. The decision to analyse only vacant properties was made to avoid the need to make subjective adjustments to account for differences in the value of improvements. Given the large number of sales of improved properties and the impracticality of trying to conduct a detailed review of the improvements on each sale, such adjustments would be rough estimates at best. Having to adjust for the value of improvements would reduce the reliability of the data and potentially introduce biases.

Study Period

The study period was set as January 1, 1999 to June 1, 2003. Excellent data was available for this time period. Ultimately the study period was extended to include 1998 sales, in order to provide a larger sample.

Data Sources

Using Real Estate Board and registry office sources along with my own files, compiled through dozens of appraisal reports completed along the Niagara Escarpment in the past 5 years, information on almost all sales of vacant land within the two study areas was collected. This information included real estate listings for all of the property sales utilized in the study. As part of my data review, I examined the comments contained within each of the listings to see if these might provide indicators that could help explain potential differences in land values within and outside the NEPA..

Qualifying Characteristics

Fundamental to the concept of value is 'Highest and Best Use'. This may be defined as:

"That use of a property that would most likely produce the greatest net return over a given period."

The term "*net return*" is not limited to monetary advantage but may be in the form of amenities.

For any comparison between properties or sets of properties to be valid, it is essential that the properties have similar Highest and Best Uses. Accordingly, I eliminated properties that by virtue of their zoning or designations were part of minor urban centres or otherwise eligible for subdivision or intensive development. Properties zoned for intensive recreational use or aggregate extraction were also excluded from the analysis. Within the NEPA, only properties designated Escarpment Natural Area, Escarpment Protection Area or Escarpment Rural Area were included in the analysis. Similarly, only properties located within Agricultural, Rural or Conservation Management zones of the Municipal Zoning By-Laws were included in the data set of properties outside the NEPA.

I also decided to exclude properties that lacked year-round open road frontage or that were comprised almost entirely of wetland or steep slopes, since such properties might not be developable, or, if developed, would have higher development costs which would be reflected in their sale prices (in the end no sales of such properties were found). One sale, involving a property that was located in a depression that was part of a former gravel pit, was also excluded, due to clearly inferior site characteristics.

Location

I analysed sale prices throughout the study area to determine if adjustments for location within the study areas was required. This analysis showed that within the NEPA property values throughout the northern half of Mono Township and all of Mulmur Township were fairly consistent for similar sized properties. The same was true for property values outside the NEPA located in the northern half of Mono Township and all of Mulmur Township. However, within the southern half of Mono Township, an area known as the Hockley Valley, property values both within and outside the NEPA were significantly higher than in the rest of the study area. This fact came as no surprise, given the high aesthetic appeal of this part of the study area and its closer proximity to the Greater Toronto Area. The number of sales located in the southern half of Mulmur Township was not evenly distributed between areas within and outside the NEPA. For this reason, I chose to divide the study area into two sections and analyse sales within the southern half of Mono Township separately, rather than try and adjust for location. This avoided the possibility that errors in adjusting for location might influence study results.

Sample Size

To ensure that the sample size was statistically valid, a goal of a total of 100 sales, split reasonably evenly between the areas within and outside the NEPA. A minimum of twelve sales (at least six within the NEPA and six outside) was set for each property size range analysed, so that no single sale would have an unduly large influence on the results within any size range.

Size Ranges

Once the data had been collected, it was necessary to divide it into subsets so that properties of similar size could be compared to one another. The size ranges established were as follows:

- 5 to 14.99 acres
- 15 to 49.99 acres
- Over 50 acres

In both North Mono/Mulmur and South Mono there were insufficient numbers of sales under 5 acres in size to conduct analyses of sales in that size range. In South Mono there were also insufficient sales of properties between 15 and 49.99 acres and over 50 acres.

Adjustments

Following standard appraisal practice, it was necessary to adjust for significant differences between the sales considered in the analysis. The study methodology eliminated the need to make adjustments for factors such as improvements, zoning or access. The division of the study area into two sections, as discussed above, eliminated the need to adjust sales for location.

The selection of a study area where the lands outside the NEPA have similar aesthetic appeal to those within the NEPA, was critical to the methodology. This choice eliminated the need to make subjective adjustments for the relative aesthetic appeal of each of the property sales analysed. I conducted roadside inspections and reviewed topographic mapping of each of the sales, to try and determine if there was any significant difference between the average aesthetic appeal and site utility of the sales inside the NEPA compared to those outside. My subjective conclusion was that there was no significant difference between the average level of aesthetic appeal or site utility of the sales located inside the NEPA and those located outside the NEPA. Hence, adjustments for aesthetic appeal and site utility were not required.

Adjustments were required for both the time of the each sale and the size of each property. These adjustments are detailed below.

Time

Because the sales analysed occurred over a 65 month study period, during which vacant land property values increased significantly, it was necessary to adjust historic sales upwards for time to reflect current (June 1, 2003) land values. Appropriate adjustments for time were established through analysis of the vacant land sales data, including properties that sold twice during the study period, and through consultations with real estate professional active in the local market. The following upward adjustments for time were indicated:

- January 1, 2000 to June 1, 2003: 12% per annum or 1% per month
- January 1, 1999 to Dec. 31, 1999: 9% per annum or .75% per month
- January 1, 1998 to Dec. 31, 1998: 6% per annum or .5% per month

These time adjustments are approximations and may lead to some distortion of the true current values indicated by historic sales. However, because the distribution of sales over time was fairly similar within and outside the NEPA, inaccuracies in the time

adjustments will have a similar affect on both data sets and should not significantly limit the validity of the comparison of sales within and outside the NEPA.

Time adjustments were made to each sale on a percentage basis as outlined above to arrive at a time adjusted sale price. These adjustments are shown on the sales charts contained within the Results section of this report.

Property Size

To adjust for property size variations within each of the size ranges, I analysed sale prices for all properties within the size range to determine the appropriate adjustments for size differences within the size range. A benchmark size was established for each size range and per acre adjustments were made to each sale based on the variation in size from the benchmark. The benchmarks and per acre adjustments for each size range were as follows:

North Mono/Mulmur

Size Range	Benchmark Size	Adjustment per acre above Benchmark	Adjustment per acre below Benchmark
5 to 14.99 acres	10 acres	-\$3,000	+\$5,000
15 to 49.99 acres	30 acres	-\$2,000	+\$2,500
50 acres and over	50 acres	-\$1,500	Not applicable

South Mono

Size Range	Benchmark Size	Adjustment per acre above Benchmark	Adjustment per acre below Benchmark
5 to 14.99 acres	10 acres	-\$4,000	+\$6,000

Adjustments for size were made to the time adjusted sale price of each sale to arrive at a final adjusted sale price.

Results

A total of 105 property sales met the criteria for inclusion within the study and fit within a size range that had sufficient sales to provide meaningful results. 44 of these sales were within the NEPA and 61 were outside it. While there were clusters of sales, both inside and outside the NEPA, on the whole, sales were reasonably well distributed across the study area.

As discussed in the Methodology section under Size Ranges, there were insufficient numbers of sales under 5 acres in size to conduct analyses of sales in that size range. In South Mono there were also insufficient sales of properties between 15 and 49.99 acres and over 50 acres to conduct analysis for those size ranges. Analysis was performed for one size range in South Mono and for three size ranges in North Mono/Mulmur. Charts with details on the sales analysed and adjustments for time and size are included on the following pages. Maps showing the spatial distribution of the sales follow the charts.

The real estate listings for each of the sales utilized in the study were examined for any comments that might indicate positive or negative attitudes towards properties located within or outside the NEPA. 10 listings (including one for a property just outside the NEPA) comment positively on a property's proximity to the Bruce Trail (which is entirely inside the NEPA within the study area). Similarly, 9 listings (including one for a property just outside the NEPA) note that the properties were close to public parkland within the Niagara Escarpment Parks and Open Space System. 17 listings mention that the property was within the NEPA, or that Niagara Escarpment Commission development permits were either in place or available. Most of these comments are simply factual information, but two are notable in that they had appeared to have a positive outlook on Niagara Escarpment land use controls. They read:

Located within NEC jurisdiction for added protection.”

and

“Protected by the Niagara Escarpment.”

Listings of lands outside the NEPA mentioned being near the Dufferin County Forest, or parks or conservation areas outside the Niagara Escarpment Parks and Open Space System five times. Twice listings for properties mentioned that the properties were outside the NEPA, presumably viewing the absence of the extra layer of land use controls as a positive.

North Mono/Mulmur Sales - 5 to 14.99 Acres, Outside NEPA

Sale #	Lot	Concession	Township	Sale Date	Acres	Sale Price	Time Adjustment	Time Adjusted Sale Price	Size Adjustment	Final Adjusted Sale Price
1	1	4 EHS	Mulmur	15/06/1998	10.0	\$71,000	51.5%	\$107,565	\$0	\$107,565
2	22	5 EHS	Mulmur	29/03/1999	10.0	\$59,000	47.8%	\$87,202	\$0	\$87,202
3	15	2 EHS	Mulmur	31/05/1999	10.0	\$70,000	46.3%	\$102,410	\$0	\$102,410
4	15	4 EHS	Mulmur	24/03/1999	10.0	\$74,500	48.0%	\$110,260	\$0	\$110,260
5	23	4 EHS	Mulmur	16/06/1999	7.3	\$56,000	0.5%	\$81,704	\$13,500	\$95,204
6	16	3 EHS	Mulmur	20/03/2000	7.7	\$68,000	38.3%	\$94,044	\$11,500	\$105,544
7	28	8 EHS	Mono	16/06/2000	6.2	\$64,500	35.5%	\$87,398	\$19,000	\$106,398
8	26	7 EHS	Mulmur	01/12/2000	5.3	\$53,000	30.0%	\$68,900	\$23,500	\$92,400
9	28	7 EHS	Mulmur	23/04/2001	5.1	\$55,000	25.3%	\$68,915	\$24,500	\$93,415
10	28	7 EHS	Mulmur	11/05/2001	5.1	\$49,500	24.7%	\$61,727	\$24,500	\$86,227
11	20	5 EHS	Mulmur	24/08/2001	5.2	\$68,000	21.2%	\$82,416	\$24,000	\$106,416
12	4 & 5	8 EHS	Mulmur	31/05/2001	7.0	\$99,000	24.0%	\$122,760	\$15,000	\$137,760
13	28	7 EHS	Mulmur	30/11/2001	5.1	\$55,000	18.0%	\$64,900	\$24,500	\$89,400
14	27	7 EHS	Mulmur	17/10/2001	5.0	\$53,000	19.4%	\$63,282	\$25,000	\$88,282
15	20	8 EHS	Mulmur	28/12/2001	5.0	\$55,000	17.1%	\$64,405	\$25,000	\$89,405
16	20	5 EHS	Mulmur	07/12/2001	5.0	\$69,900	17.7%	\$82,272	\$25,000	\$107,272
17	11	6 EHS	Mulmur	04/07/2001	7.0	\$70,000	22.9%	\$86,030	\$15,000	\$101,030
18	25	6 EHS	Mulmur	31/10/2001	14.0	\$73,000	19.0%	\$86,870	-\$12,000	\$74,870
19	1	5 EHS	Mulmur	22/05/2002	8.5	\$64,000	12.2%	\$71,808	\$7,500	\$79,308
20	20	7 EHS	Mulmur	15/03/2002	5.4	\$69,000	13.5%	\$78,315	\$23,000	\$101,315
21	25	7 EHS	Mulmur	07/03/2002	14.7	\$84,000	13.3%	\$95,172	-\$14,100	\$81,072
22	25	7 EHS	Mono	31/05/2002	8.7	\$89,000	12.0%	\$99,680	\$6,500	\$106,180
23	17	3 EHS	Mulmur	02/12/2002	9.5	\$110,000	6.0%	\$116,600	\$2,500	\$119,100
Averages					7.68	\$68,670		\$86,288		\$98,610

North Mono/Mulmur Sales - 5 to 14.99 Acres, Inside NEPA

Sale #	Lot	Concession	Township	Sale Date	Acres	Sale Price	Time Adjustment	Time Adjusted Sale Price	Size Adjustment	Final Adjusted Sale Price
24	27	4 EHS	Mulmur	29/05/1998	10.7	\$100,500	54.0%	\$154,770	-\$2,100	\$152,670
25	19	1 EHS	Mulmur	26/02/1999	10.0	\$120,000	48.6%	\$175,560	\$0	\$175,560
26	23	1 EHS	Mulmur	30/11/1999	14.0	\$90,000	41.8%	\$127,620	-\$12,000	\$115,620
27	26	2 EHS	Mono	14/03/2000	14.4	\$114,000	39.5%	\$159,030	-\$13,200	\$145,830
28	32	3 EHS	Mono	20/10/2000	10.0	\$47,000	31.3%	\$61,711	\$0	\$61,711
29	14	2 EHS	Mulmur	30/08/2000	5.0	\$68,000	33.0%	\$90,440	\$25,000	\$115,440
30	32	3 EHS	Mono	27/08/2001	10.0	\$55,000	21.1%	\$66,605	\$0	\$66,605
31	25	2 WHS	Mulmur	15/07/2002	11.9	\$88,000	10.5%	\$97,240	-\$5,700	\$91,540
32	23	1 WHS	Mulmur	30/04/2003	14.0	\$97,000	1.0%	\$97,970	-\$12,000	\$85,970
Averages					11.11	\$86,611		\$114,550		\$112,327

South Mono Sales - 5 to 14.99 Acres, Outside NEPA

Sale #	Lot	Concession	Township	Sale Date	Acres	Sale Price	Time Adjustment	Time Adjusted Sale Price	Size Adjustment	Final Adjusted Sale Price
33	1	6 EHS	Mono	31/05/1999	10.0	\$84,000	46.3%	\$122,892	\$0	\$122,892
34	5	5 EHS	Mono	15/04/1999	10.0	\$140,000	48.1%	\$207,340	\$0	\$207,340
35	11	8 EHS	Mono	29/06/2000	10.0	\$95,000	35.1%	\$128,345	\$0	\$128,345
36	7	8 EHS	Mono	26/01/2001	11.6	\$164,000	28.2%	\$210,248	-\$6,400	\$203,848
37	1	6 EHS	Mono	29/08/2002	10.0	\$104,500	9.1%	\$114,010	\$0	\$114,010
38	5	6 EHS	Mono	08/10/2002	13.5	\$160,000	7.7%	\$172,320	-\$14,000	\$158,320
39	15	8 EHS	Mono	17/12/1999	10.0	\$100,000	41.3%	\$141,300	\$0	\$141,300
Averages					10.73	\$121,071		\$156,636		\$153,722

South Mono Sales - 5 to 14.99 Acres, Inside NEPA

Sale #	Lot	Concession	Township	Sale Date	Acres	Sale Price	Time Adjustment	Time Adjusted Sale Price	Size Adjustment	Final Adjusted Sale Price
40	3	4 EHS	Mono	18/12/1998	10.0	\$115,000	50.2%	\$172,730	\$0	\$172,730
41	1 & 2	7 EHS	Mono	22/10/1999	10.0	\$120,750	42.7%	\$172,310	\$0	\$172,310
42	2	7 EHS	Mono	20/04/2000	10.0	\$127,000	37.7%	\$174,879	\$0	\$174,879
43	2	7 EHS	Mono	08/01/2001	10.3	\$100,500	28.8%	\$129,444	-\$1,200	\$128,244
44	5	3 EHS	Mono	01/05/2002	8.0	\$158,000	13.0%	\$178,540	\$12,000	\$190,540
45	5	7 EHS	Mono	02/08/2002	13.3	\$156,000	10.0%	\$171,600	-\$13,200	\$158,400
Averages					10.27	\$129,542		\$166,584		\$166,184

North Mono/Mulmur Sales -15 to 49.99 Acres, Outside NEPA

Sale #	Lot	Concession	Township	Sale Date	Acres	Sale Price	Time Adjustment	Time Adjusted Sale Price	Size Adjustment	Final Adjusted Sale Price
46	5	3 EHS	Mulmur	01/12/1998	25.0	\$71,000	50.5%	\$106,855	\$12,500	\$119,355
47	11	5 EHS	Mulmur	27/10/1998	33.0	\$72,000	51.1%	\$108,792	-\$6,000	\$102,792
48	11	5 EHS	Mulmur	22/10/1998	33.0	\$75,000	51.2%	\$113,400	-\$6,000	\$107,400
49	24	7 EHS	Mono	02/09/1998	23.2	\$79,000	52.0%	\$120,080	\$17,000	\$137,080
50	25	5 EHS	Mulmur	30/09/1998	37.1	\$115,000	51.5%	\$174,225	-\$14,200	\$160,025
51	26	5 EHS	Mulmur	24/06/1999	29.4	\$136,000	45.7%	\$198,152	\$1,500	\$199,652
52	31	6 EHS	Mulmur	28/05/1999	48.0	\$99,000	46.3%	\$144,837	-\$36,000	\$108,837
53	21	4 EHS	Mulmur	16/05/2000	15.8	\$125,000	36.5%	\$170,625	\$35,500	\$206,125
54	30	7 EHS	Mulmur	21/09/2000	24.5	\$77,500	32.3%	\$102,533	\$13,750	\$116,283
55	3	3 EHS	Mulmur	15/12/2000	20.4	\$110,000	29.5%	\$142,450	\$24,000	\$166,450
56	1	3 EHS	Mulmur	28/07/2000	42.0	\$76,000	34.1%	\$101,916	-\$24,000	\$77,916
57	25	7 EHS	Mulmur	07/04/2000	44.0	\$117,500	37.8%	\$161,915	-\$28,000	\$133,915
58	27	6 EHS	Mono	07/12/2001	40.0	\$127,000	17.8%	\$149,606	-\$20,000	\$129,606
59	20	6 EHS	Mulmur	09/03/2001	20.0	\$90,000	26.7%	\$114,030	\$25,000	\$139,030
60	11	6 EHS	Mulmur	25/07/2001	23.0	\$115,500	22.2%	\$141,141	\$17,500	\$158,641
61	21	4 EHS	Mulmur	31/08/2001	27.0	\$125,000	21.0%	\$151,250	\$7,500	\$158,750
62	24	4 EHS	Mulmur	09/05/2002	16.0	\$89,000	8.7%	\$96,743	\$35,000	\$131,743
63	23	4 EHS	Mulmur	09/04/2003	23.0	\$164,000	1.7%	\$166,788	\$17,500	\$184,288
64	2	4 EHS	Mulmur	20/11/2002	24.2	\$170,000	6.3%	\$180,710	\$14,500	\$195,210
65	12	8 EHS	Mulmur	15/05/2001	46.4	\$175,000	24.5%	\$217,475	-\$32,800	\$184,675
Averages					29.75	\$110,425		\$143,176		\$145,889

North Mono/Mulmur Sales -15 to 49.99 Acres, Inside NEPA

Sale #	Lot	Concession	Township	Sale Date	Acres	Sale Price	Time Adjustment	Time Adjusted Sale Price	Size Adjustment	Final Adjusted Sale Price
66	31	3 EHS	Mono	31/07/1998	31.0	\$106,000	52.5%	\$161,650	-\$2,000	\$159,650
67	30	5 EHS	Mono	26/02/1998	48.0	\$124,000	55.1%	\$192,324	-\$36,000	\$156,324
68	26	2 EHS	Mono	22/03/1999	41.5	\$129,900	48.0%	\$192,252	-\$23,000	\$169,252
69	20	6 EHS	Mulmur	05/11/1999	25.0	\$85,000	42.4%	\$121,040	\$12,500	\$133,540
70	9	2 EHS	Mulmur	30/09/1999	48.4	\$98,000	43.3%	\$140,434	-\$36,800	\$103,634
71	20	2 WHS	Mulmur	04/07/2000	18.3	\$82,500	34.9%	\$111,293	\$29,250	\$140,543
72	13	2 EHS	Mulmur	12/07/2000	37.0	\$145,000	34.6%	\$195,170	-\$14,000	\$181,170
73	20	2 WHS	Mulmur	30/10/2000	18.3	\$100,000	31.0%	\$131,000	\$29,250	\$160,250
74	15	3 WHS	Mulmur	30/11/2000	38.5	\$135,000	30.0%	\$175,500	-\$17,000	\$158,500
75	31	2 EHS	Mulmur	15/03/2001	38.0	\$155,000	26.5%	\$196,075	-\$16,000	\$180,075
76	21	2 EHS	Mono	24/05/2002	25.0	\$130,000	12.2%	\$145,860	\$12,500	\$158,360
77	28	3 EHS	Mono	16/09/2002	18.2	\$159,000	8.5%	\$172,515	\$29,500	\$202,015
78	29	2 EHS	Mono	01/04/2002	39.4	\$185,000	14.0%	\$210,900	-\$18,800	\$192,100
79	30	1 EHS	Mono	01/09/2002	30.2	\$180,000	9.0%	\$196,200	-\$400	\$195,800
Averages					32.63	\$129,600		\$167,301		\$163,658

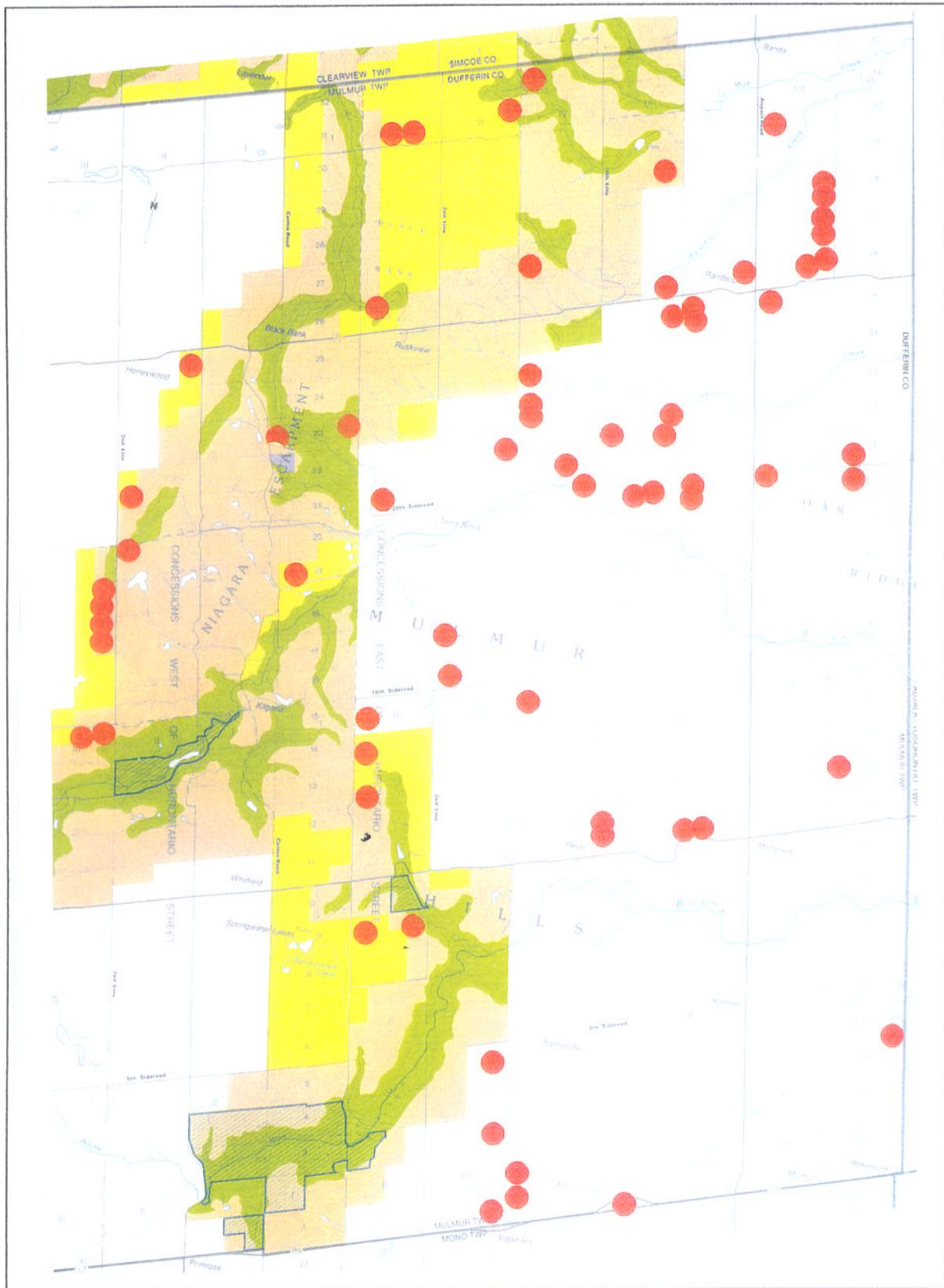
North Mono/Mulmur Sales - 50+ Acres, Outside NEPA

Sale #	Lot	Concession	Township	Sale Date	Acres	Sale Price	Time Adjustment	Time Adjusted Sale Price	Size Adjustment	Final Adjusted Sale Price
80	26	7 EHS	Mulmur	28/02/1998	99.0	\$155,750	55.0%	\$241,413	-\$73,500	\$167,913
81	22	5 EHS	Mulmur	28/02/1999	50.0	\$116,000	48.5%	\$172,260	\$0	\$172,260
82	21	8 EHS	Mulmur	29/10/1999	50.0	\$105,000	42.5%	\$149,625	\$0	\$149,625
83	21	2 EHS	Mulmur	30/11/1999	60.4	\$139,000	41.8%	\$197,102	-\$15,600	\$181,502
84	27	7 EHS	Mulmur	31/03/1999	90.0	\$125,000	44.0%	\$200,160	-\$60,000	\$140,160
85	26	6 EHS	Mulmur	01/03/1999	99.0	\$155,750	48.5%	\$231,289	-\$73,500	\$157,789
86	22	3 EHS	Mulmur	15/03/2001	62.1	\$130,000	25.5%	\$163,150	-\$18,150	\$145,000
87	32	4 EHS	Mono	24/09/2001	66.9	\$145,000	20.2%	\$174,290	-\$25,350	\$148,940
88	27	7 EHS	Mono	14/05/2001	100.0	\$250,000	24.5%	\$311,250	-\$75,000	\$236,250
89	29	4 EHS	Mono	02/01/2003	71.6	\$184,000	5.0%	\$193,200	-\$32,400	\$160,800
90	29	8 EHS	Mono	20/12/2002	92.0	\$170,000	5.3%	\$179,010	-\$63,000	\$116,010
Averages					76.45	\$152,318		\$210,159		\$161,477

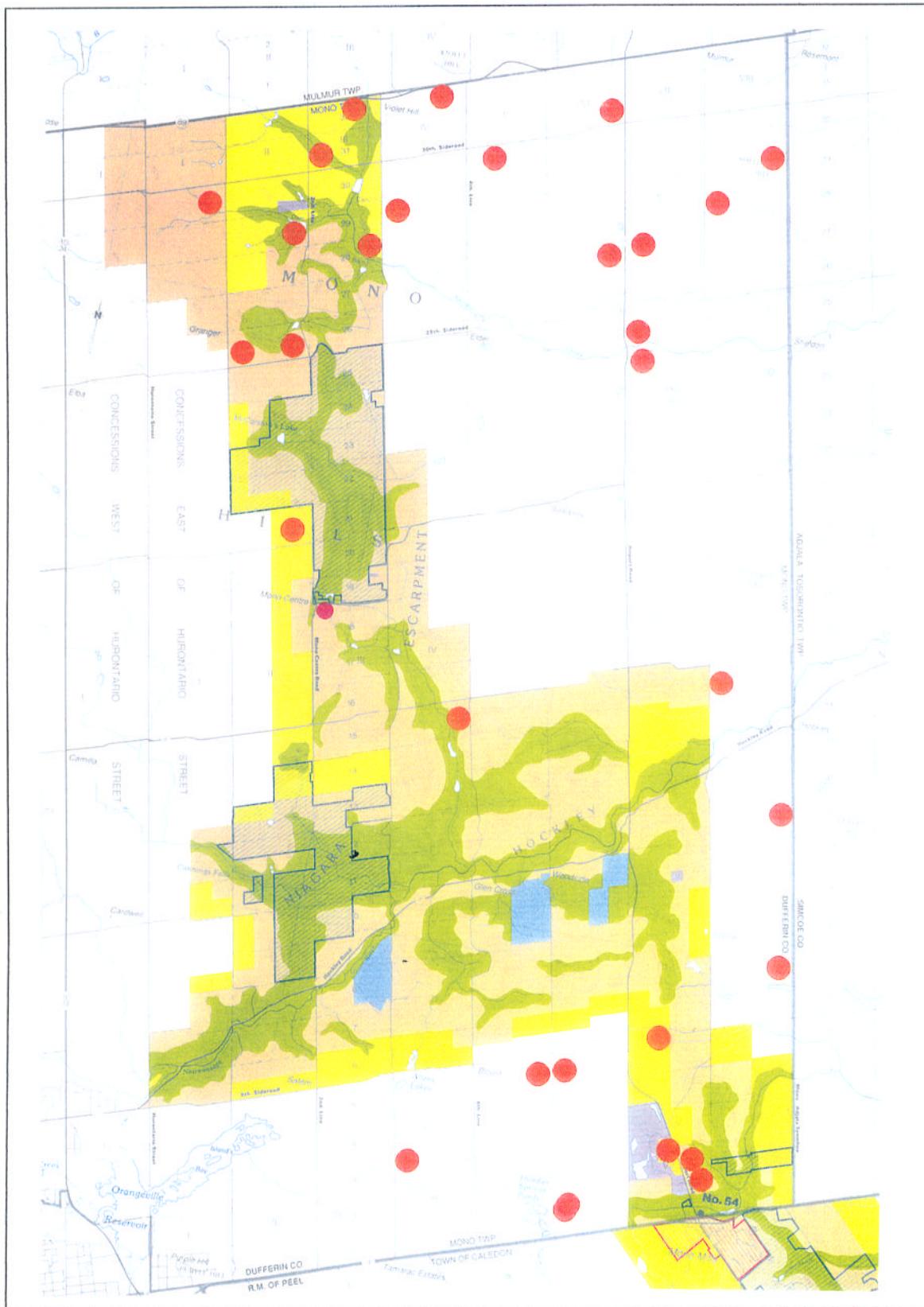
North Mono/Mulmur Sales - 50+ Acres, Inside NEPA

Sale #	Lot	Concession	Township	Sale Date	Acres	Sale Price	Time Adjustment	Time Adjusted Sale Price	Size Adjustment	Final Adjusted Sale Price
91	28	5 EHS	Mulmur	29/05/1998	50.4	\$145,000	53.5%	\$222,575	-\$600	\$221,975
92	6	6 EHS	Mono	05/09/1998	147.0	\$330,000	51.4%	\$499,620	-\$145,500	\$354,120
93	22	2 EHS	Mulmur	14/07/1999	50.0	\$120,000	45.9%	\$175,080	\$0	\$175,080
94	27	7 EHS	Mulmur	31/03/1999	90.0	\$125,000	47.8%	\$184,750	-\$60,000	\$124,750
95	29	5 EHS	Mulmur	28/05/1999	50.0	\$174,000	46.2%	\$254,388	\$0	\$254,388
96	32	4 EHS	Mulmur	28/04/2000	51.1	\$187,500	37.1%	\$257,063	-\$1,650	\$255,413
97	18	3 WHS	Mulmur	02/01/2001	50.0	\$115,000	29.0%	\$148,350	\$0	\$148,350
98	15	3 WHS	Mulmur	30/11/2000	50.0	\$150,000	30.0%	\$195,000	\$0	\$195,000
99	18	3 WHS	Mulmur	02/01/2001	50.0	\$135,000	29.0%	\$174,150	\$0	\$174,150
100	9	2 EHS	Mulmur	06/03/2000	97.7	\$235,000	38.8%	\$326,180	-\$71,550	\$254,630
101	19	3 EHS	Mulmur	14/06/2001	55.9	\$265,000	23.5%	\$327,275	-\$8,850	\$318,425
102	19	3 WHS	Mulmur	15/08/2001	50.0	\$150,000	21.5%	\$182,250	\$0	\$182,250
103	19	3 WHS	Mulmur	15/08/2001	50.0	\$150,000	21.5%	\$182,250	\$0	\$182,250
104	31	2 EHS	Mulmur	15/03/2001	50.0	\$185,000	26.5%	\$234,025	\$0	\$234,025
105	26	2 EHS	Mulmur	01/11/2002	51.0	\$115,000	7.0%	\$123,050	-\$1,500	\$121,550
Averages					62.87	\$172,100		\$232,400		\$213,090

Sales Location Map – Township of Mulmur



Sales Location Map – Township of Mono



Analysis

North Mono/Mulmur - 5 to 14.99 acres

Sales 1 to 23 are 5 to 14.99 acre parcels located outside the NEPA in the north half of Mono Township or in Mulmur Township. This is the largest group of sales within any category. The average (mean) adjusted sale price of these sales is \$98,610, while the median of the adjusted sale prices is \$101,030. The range in adjusted sale prices is \$74,870 to \$137,760. The distribution of adjusted sale prices around the mean values is normal; with 13 sales having adjusted prices within 10% of the mean value, 7 sales between 10% and 20% different from the mean, and 3 sales more than 20% different from the mean. This data set displayed no unusual characteristics that might call its reliability into question.

Sales 24 to 32 are 5 to 14.99 acre parcels located inside the NEPA in the north half of Mono Township or in Mulmur Township. The average (mean) adjusted sale price is \$112,327, while the averaged median of the adjusted sale prices is \$103,490. The range in adjusted sale prices is from a low of \$61,711 to a high of \$175,560. The distribution of adjusted sale prices around the mean values is fairly balanced, but with a wider range and fewer sales at values close to the mean than would normally be expected. Only 2 sales are within 10% of the mean and another 2 fall between 10 and 20% from the mean. This is likely due largely to the relatively small number of sales within this group. Since the distribution of values around the mean is balanced, the wide range of sale values has not skewed the mean value, which is considered reliable.

The sales within the NEPA had a mean adjusted sale price that was 13.9% higher than those outside the NEPA. This difference is considered significant.

South Mono - 5 to 14.99 acres

Sales 33 to 39 are 5 to 14.99 acre parcels located outside the NEPA in the south half of Mono Township. There are seven sales in this category. The average (mean) adjusted sale price of these sales is \$153,722, while the median of the adjusted sale prices is \$141,300. The range in adjusted sale prices is \$114,010 to \$207,340. The range is relatively wide; with 2 sales having adjusted prices within 10% of the mean value, 1 sale between 10% and 20% different from the mean, and 4 sales more than 20% different from the mean. Notwithstanding this wide range, the distribution of adjusted sale prices around the mean values is balanced and the mean is not distorted by sales at either extreme end of the range.

Sales 40 to 45 are 5 to 14.99 acre parcels located inside the NEPA in the south half of Mono Township. There are six sales within this category. The average (mean) adjusted sale price is \$166,184, while the averaged median of the adjusted sale prices is \$172,520. The range in adjusted sale prices is from \$128,244 to a high of \$190,540. The adjusted sale prices of all but one of the sales are within 15% of the mean and median values. Sale 43 had the lowest adjusted sale price by more than \$30,000. This sale significantly lowered the mean adjusted sale price. The location of Sale 43, immediately south of a licensed gravel pit, is the primary reason for this lower price. None of the other sales inside or outside the NEPA had this particular locational disadvantage. I considered excluding this sale from the analysis, but in the end chose to retain it and explain the impact its inclusion has on the results. Had Sale 43 been excluded, the mean adjusted sale price would have been \$173,772 and the median \$172,730. Since the distribution of values around the mean is balanced, the wide range of sale values has not skewed the mean value, which is considered reliable.

Even with the inclusion of Sale 43 the mean adjusted sale price within the NEPA is still 8.1% higher than that of the sales outside the NEPA. With Sale 43 excluded, the mean adjusted sale price for properties within the NEPA is 13.0% higher than for properties outside the NEPA. Both these results appear to be significant, although this cannot be stated with certainty due to the relatively low number of sales in this category.

North Mono/Mulmur - 15 to 49.99 acres

Sales 46 to 65 are 15 to 49.99 acre parcels located outside the NEPA in the north half of Mono Township or in Mulmur Township. This is the second largest group of sales (20) within any category. The average (mean) adjusted sale price of these sales is \$145,889, while the averaged median of the adjusted sale prices is \$138,065. The range of the adjusted sale prices is \$77,916 to \$206,125. The distribution of adjusted sale prices around the mean values is wide but balanced. 7 sales have adjusted prices within 10% of the mean value; 3 are between 10% and 20% different from the mean; and, 10 sales are more than 20% different from the mean.

Sales 66 to 79 are 15 to 49.99 acre parcels located inside the NEPA in the north half of Mono Township or in Mulmur Township. There are 14 sales within this group. The average (mean) adjusted sale price for this group is \$163,658, while the averaged median of the adjusted sale prices is \$159,950. The range in adjusted sale prices is from \$103,634 to \$202,015. The distribution of adjusted sale prices around the mean values is normal; with 6 sales within 10% of the mean, 7 between 10 and 20% from the mean, and only one more than 20% different from the mean.

Fairly large samples are available for properties both within and outside the NEPA in this category. For this reason, the mean adjusted sale values are considered quite reliable. The sales within the NEPA had a mean adjusted sale price that was 12.2% higher than those outside the NEPA. This difference is considered significant.

North Mono/Mulmur – Over 50 Acres

Sales 80 to 90 are properties larger than 50 acres located outside the NEPA in the north half of Mono Township or in Mulmur Township. The average (mean) adjusted sale price of these sales is \$161,477, while the median of the adjusted sale prices is \$157,789. The range of the adjusted sale prices is \$116,010 to \$236,250. The distribution of adjusted sale prices around the mean values is normal; with 6 sales within 10% of the mean, 3 sales between 10 and 20% from the mean, and 2 sales at adjusted values more than 20% different from the mean.

Sales 91 to 105 are 15 to 49.99 properties larger than 50 acres located inside the NEPA in the north half of Mono Township or in Mulmur Township. There are 15 sales within this group, making it the largest group inside the NEPA of any size range. The average (mean) adjusted sale price for this group is \$213,090, while the median of the adjusted sale prices is \$195,000. The range in adjusted sale prices is from \$121,550 to \$354,120. The distribution of adjusted sale prices around the mean values is wide but fairly balanced. 5 sales have adjusted prices within 10% of the mean value; 6 are between 10% and 20% different from the mean; and, 4 sales are more than 20% different from the mean.

Sale 92 has an exceptionally high adjusted sale price that is over 66% above the mean. This was the only sale larger than 100 acres, either within or outside the NEPA. It required large adjustments for both size and time that reduce the reliability of its adjusted sale price. If Sale 92 is excluded the mean adjusted sale price for this group is \$203,016.

Fairly large samples are available for properties within and outside the NEPA in this size category. For this reason, the mean adjusted sale values are considered quite reliable, although the mean value for the sales within NEPA may have been inflated somewhat by Sale 92. The sales within the NEPA had a mean adjusted sale price that was 32.0% higher than those outside the NEPA. With sale 92 excluded, the mean value of the sales within NEPA is 25.7% higher than that of those outside the NEPA. This difference is clearly significant.

Statistical Significance

In each of the four size/location categories the average adjusted sale price for lands inside the NEPA was higher than that for lands outside the NEPA. These results are summarized below. The bracketed values exclude Sale 43 (South Mono, 5 to 14.99 acres) and Sale 92 (North Mono/Mulmur, 50+ acres).

North Mono/Mulmur

Size Range (acres)	Mean Adjusted Sale Price Outside NEPA	Mean Adjusted Sale Price In NEPA	% Difference	\$ Difference
5 - 14.99	\$98,610	\$112,327	13.9%	\$13,717
15 - 49.99	\$145,889	\$163,658	12.2%	\$17,769
50 +	\$161,477	\$213,090 (\$203,016)	32% (25.7%)	\$51,613 (\$41,539)

South Mono

Size Range (acres)	Mean Adjusted Sale Price Outside NEPA	Mean Adjusted Sale Price In NEPA	% Difference	\$ Difference
5 - 14.99	\$153,722	\$166,184 (\$173,772)	8.1% (13.0%)	\$12,462 (\$20,050)

These results show consistently higher average sale prices for properties within the NEPA compared to similar properties outside the NEPA. The next step was to try and determine whether these differences were statistically significant, or whether they could have occurred by chance. I performed a Chi Square analysis to test the null hypothesis that there is no significant difference between the mean values outside the NEPA (treated as the expected values) and the mean values within the NEPA (treated as the actual values). The result of this analysis showed that, with over 99% certainty, the higher values for lands within the NEPA could not be attributed to chance. This result did not change when Sales 43 and 92 were excluded.

Why are average sale prices within the NEPA portions of the study area higher? Could this result from too small a sample or from errors in adjustments made for time or size? The sample size is large enough that it can confidently be assumed to represent land values as a whole. The consistency of the results also supports the view that sample size is adequate. Neither the time nor the size adjustments made skew the results. The average original sale prices and the average time adjusted sale prices both show the same consistent pattern of higher average values within the NEPA.

Are there other factors within the study design that could account for the difference in average land values? Key variables such as zoning and access were controlled for through the qualify criteria established for inclusion in the analysis. The selection of the

study area sought to ensure that parts of the study area within the NEPA and those outside it had similar landscape characteristics and aesthetic appeal. A subjective review of the individual sales included in the study did not reveal any overall bias towards higher aesthetic appeal for sales within or outside the NEPA area and I am confident that differences in aesthetic appeal could not have been sufficient to account for the higher land values within the NEPA.

Conclusions

As described in the Results and Analysis sections of this report, this study has found that the portion of the study area located within the NEPA have significantly higher average land values than sales in the portion of the study area outside the NEPA. The only significant characteristic that I can identify which differentiates the two portions of the study area is the inclusion of one portion within the NEPA. Therefore, I conclude that the Niagara Escarpment Plan itself has had a positive impact on land values within the NEPA.

Clues as to why the Niagara Escarpment Plan would enhance land values within the NEPA are contained within the comments contained in the real estate listings for the property sales analysed. Over one third of the listings within the NEPA commented positively on the proximity of the property to the Bruce Trail or public land within the Niagara Escarpment Parks and Open Space System. By comparison, less than 8% of the listings for lands outside the NEPA had positive comments regarding nearby public land outside the Niagara Escarpment Parks and Open Space System. It is not surprising that the tens of thousands of acres acquired to create and enlarge 117 parks and open space areas along the escarpment and to secure a route for the Bruce Trail would tend to increase land values within the NEPA. The Parks and Open Space System is a significant public amenity that protects and maintains some of the most significant natural areas and most impressive landscape features along the escarpment. There is a far smaller proportion of public parks and open space areas in the portion of the study area outside the NEPA.

A second factor to consider from the real estate listings comments is the perception of Niagara Escarpment Plan land use controls. Two of the listings for properties within the NEPA put these controls forward as a positive factor that protects the landscape. Conversely, two comments from listings of properties outside the NEPA made a point of mentioning that the properties were outside the NEPA, implying that the extra layer of land use controls within the NEPA is a negative factor. The reality is probably reflected in both kinds of comments. Some will see the land use controls of the Niagara

Escarpment Plan as an effective and positive way of maintaining the attractive open landscape character around a property they are considering purchasing. Others will resent or seek to avoid the additional and potentially more stringent controls on land use within the NEPA (it is worth noting that most municipalities have introduced stronger policies to limit land severances and protect natural areas and rural landscapes in recent years). On balance, it is likely that Niagara Escarpment land use controls are not a significant factor influencing land values for most properties.

I speculate that one other factor that may have a positive influence on land values within the NEPA is the fact that the Niagara Escarpment is internationally recognized as a unique and highly significant natural environment and an area of exceptional beauty. This recognition may well have given lands within the NEPA a certain cache that may have been amplified as quality homes, and other developments that fit with the natural environment, are built within the NEPA.

It is not possible to extend the findings from this study area to the entire NEPA. My personal experience, having reviewed or prepared over 170 appraisals of properties along the Niagara Escarpment over the past 18 years, suggests that there is strong anecdotal evidence that properties within the NEPA sell at equivalent or higher prices when compared to similar nearby properties located outside the NEPA. Quantifying this and verifying this anecdotal evidence for the entire Escarpment, or for a full sample of study areas along the length of the escarpment, would be a major undertaking, but one that is worthy of future research.

This study has clearly shown that for the section of the Niagara Escarpment within Dufferin County is that the Niagara Escarpment Plan has had a significant positive effect on average property values within the NEPA.