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FACULTY OF ENVIRONMENTAL STUDIES

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October 20, 1986

Ms. Toby Vigod
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Law Association
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Dear Toby,

Attached, as promised, is a copy of the SIA study design I prepared to guide my work in assessing the social impacts of Peel's landfill siting options.

You may find this helpful in working out a strategy for responding to Halton's EA.

Sincerely,

Audrey Armour, MES, MCIP
Assistant Professor

Encl.

/hg



**Investigations for Landfill Sites
in Areas I, II, and VI
in the City of Brampton**

**Social Impact
Assessment**

THE REGIONAL MUNICIPALITY OF PEEL

March 1987

**Armour and Associates
Institute of Environmental Research (1985) Inc.**

BRAMPTON LANDFILL SEARCH

MARCH 1987 SUBMISSION

In 1986, Council gave direction to compare and evaluate Areas I, II and VI in the City of Brampton in accordance with identified criteria. The results and recommendations of the detailed analysis conducted between June 1986 and February 1987 are described in the following documents:

1. Brampton Landfill Search: Overview and Recommendations
2. Overall Evaluation Report
3. Overall Evaluation Report Appendix A - Detailed Sub-Area Comparison
4. Hydrogeological Report
5. Well Inventory in Area II
6. Well Inventory in Area VI
7. Health and Safety Report
8. Land Use Planning Impact Assessment
9. Traffic Impact Assessment
10. Social Impact Assessment
11. Economic Impact Assessment
12. Ecological Impact Assessment
13. Visual Impact Assessment
14. Archaeological and Historic Sites Report

In addition, two reports were released in 1985 and 1986 which form part of the overall package of background reports:

15. Well Inventory in North West Brampton (Area I) (1985)
16. Investigations for Landfill Sites in the City of Brampton (1986)

All of these reports, with the Stage 3 Master Plan, are intended to form the basis of an application for Environmental Assessment approval. However, the position may be amended as a result of input from the public or interested parties/agencies. Any final submission must be approved by Peel Regional Council.

EXECUTIVE SUMMARY

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Social impacts are changes that occur in people's way of life, cultural traditions and community as a result of the development and implementation of a new project and that are experienced by these people as significant events. Such impacts can be short-term or long-term, minor or major. Their specific nature and significance depends to a large degree on the characteristics of the people and communities involved.

OBJECTIVES

The specific objectives of this study were:

1. to identify the social impacts likely to occur in the communities surrounding the proposed landfill sites,
2. to determine the significance of the expected changes for each community,
3. to identify differences among the potentially affected communities and clarify decision trade-offs,
4. to identify measures necessary to prevent or manage potential impacts,
5. to identify potential compensation and local enhancement measures to offset adverse impacts, and
6. to describe the pros and cons of the siting options and to rank them.

EVALUATION FACTORS

Six factors, or impact concerns, were examined. These are listed below in the order of priority assigned to them by the study team in consultation with community representatives. They are listed in order from the least important to the most important.

landfill in a community could impact its cohesiveness as a result of the displacement of residents and local services and facilities, interference with the use of community services and facilities, interference with patterns of neighbouring, and loss of resident commitment to the community.

RELEVANT ISSUES

In addition to these impact factors, four issues identified through community consultation during the study design phase and considered to be relevant to the assessment of social impacts were also investigated:

the equity of one 40 year site versus sequential 20 year sites versus sequential 12 year sites;

loss of community control over the quality of their environment;

the social impact of the siting process itself; and

impact compensation.

Such issues are not amenable to site comparisons. The intent in exploring the nature of these issues was to facilitate the identification of measures to prevent and alleviate potential social impacts.

STUDY AREAS

The assessment of social impacts was conducted using four study area: 1. A Primary Impact Study Area encompassing the landfill sites themselves, a 500 meter boundary around each site, and a 1000 meter boundary; 2. A Secondary Impact Study Area lying outside of the Primary Area and encompassing residents in non-serviced areas relying on well or surface water and those residents whose property abutted proposed access routes identified as potential problem areas; 3. A Community Impact Study Area defined by residents in each of the three candidate areas; and 4. Sub-Community Impact Areas which included Huttonville, Snelgrove, Tullamore and Professor's Lake.

OVERALL IMPACT ON RESIDENTS is likely to be least at Siting Option IC. It doesn't have the least displacement impact (site IIE ranks lowest in this regard but the difference between IC and IIE is not significant). It is the nature of the potential disruptive effects at Site IC which make it the preferred option -- the numbers and characteristics of those potentially affected are less significant than at other siting options.

Loss of Community Character: in terms of character Candidate Area VI should be considered as two distinct areas -- sub-area VIB is very different from sub-area VIA (due to the proximity and special characteristics of the Hamlet of Tullamore); impact will likely be least in Area VIA; it will likely be low-moderate in Area I (IB, IC); moderate in Area II (IIB, IIC, IIE, and IIF); and moderate-high at sub-area VIB.

Loss of Community Cohesion: potential impact on community cohesion will be less in Candidate Area VI than in Area I or Area II.

OVERALL IMPACT ON COMMUNITY is likely to be least for Candidate Area VI. Ranked next in order of increasing significance of impact are Area I and Area II. The impact on Area VI is mainly on community character; the impact in Areas I and II is mainly on community cohesion. It is important to note that in Area VI, sub-area VIB can be regarded as a distinct community; and, of the two siting options in Area VI, community impact is likely to be more significant if the facility is sited in VIB than if it is sited in VIA.

Investigation of potential impacts on the sub-communities resulted in the determination that Snelgrove is not likely to be affected; Professor's Lake was not likely to be seriously affected though there is some concern among residents about potential for fouling of the lake by seagulls attracted to the landfill site, a matter which warrants further study should Area VI be selected as the preferred site; and Huttonville and Tullamore were likely to be most affected and would require the implementation of mitigation measures to minimize potential impacts.

All of the siting options in Area II are likely to be more impacted than siting options in Areas VI and I.

Of the siting options under consideration in Area II, Option IIC should be considered preferable to Options IIF (the next preferred), IIB and IIE (the one likely to be most significantly impacted of all eight siting options).

This results in the following ranking of sites from least to most impacted overall: VIA, IC, IB, VIB, IIC, IIF, IIB, IIE.

(b) Impact on Sub-Communities

Depending on the siting option chosen, there will be a need for mitigative measures in the sub-communities as well as in the selected Candidate community,

(c) Issues

A 40-year 400 acre siting option will require a generous compensation policy for it to be perceived as equitable. The time factor is the key aspect of the equity issue for residents -- 40 years is regarded as a "lifetime" imposition and 20 years seen as not much better.

Regardless of where the facility is located the Region will have to deal with an unfortunate residual of ill-feeling among residents due to current perceptions of residents regarding the siting process (many feel victimized by what is perceived as arbitrary decision-making during the previous round of site evaluation) and their loss of control over the quality of their environment (many feel that they have not had sufficient access to information or opportunity to learn about the proposed undertaking or that they will not have any influence at all in the decision-making process).

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PREFACE

In 1981, the Region of Peel initiated an update of their 1976 Solid Waste Management Policy Statement and Master Plan. At the same time, a search for a new regional landfill site was initiated and is being conducted in tandem with the Master Plan update. By agreement between the Region and area municipalities, it was decided that the location of the landfill would be in the City of Brampton, provided that a viable site could be found.

The landfill site search has proceeded through a series of stages. First, areas deemed unsuitable for landfilling were eliminated from further analysis. The remaining areas were then investigated to identify specific candidate areas and, within these, potential landfill siting options. In April 1986, Regional Council directed that three candidate areas and eight siting options, shown on Map 1, be investigated further. These included: Area I (sub-areas B and C), Area II (sub-areas B, C, E and F), and Area VI (sub-areas A and B). Detailed engineering, environmental, land use, economic and social assessments of these areas and options were begun in the Spring of 1986 to determine which of these areas and options should be recommended to Regional Council as the preferred site or sites.

This report documents the findings of the social impact assessment (SIA). Armour and Associates, in association with the Institute of Environmental Research Inc., was retained on 4 June 1986 by MacLaren Plansearch Inc., on behalf of the Regional Municipality of Peel, to prepare a study design for the social impact assessment of the landfill siting areas/options and, subsequently on 3 July 1986, was contracted to carry out the study itself. The social impact assessment was conducted concurrently with and integrates findings from two additional assessments, namely a land use impact study and an economic impact study.

TERMS OF REFERENCE

The overall objective of this study is to identify the social impacts of a new landfill located in the City of Brampton. Social impacts are defined as changes that occur in peoples' way of life (how they live, work, play and interact with one another on a day-to-day basis) and their community (its services, character, cohesion) as a result of the development and implementation of a new project (programme or policy) and are experienced by these people as significant events.

The landfill facility and site areas are described in "Investigations for Landfill Sites in the City of Brampton", MacLaren Plansearch, March 1986.

The impact of sites potentially located in Areas I, II and VI are to be investigated. The site is to be approximately 400 acres in size. The use of this facility over 20 and 40 year time frames are to be investigated (subsequently, a 12 year time frame was added to the Terms of Reference).

This study is to be done in co-ordination with the Planning and Economic Impact Studies.

This study is to be performed in two stages. Stage I is the design of the study while Stage 2 involves the completion of the Social Impact Assessment.

Task Details

The potential impacts of the proposed landfill facility are to be assessed at three levels of social analysis:

impacts on individual residents

impacts on local services and facilities

impacts on surrounding communities

5. To identify potential compensation and local enhancement measures to offset adverse impacts.
6. To describe the pros and cons of the sites and, if possible, to rank these sites.

THE UNDERTAKING

As part of updating its solid waste management policy and master plan, the Regional Municipality of Peel has identified the need to establish a new regional landfill facility. By agreement between the Region and area municipalities, it has been decided that the location of the landfill will be in the City of Brampton, provided that a viable site can be found.

For the purposes of this Environmental Assessment, the undertaking is seen to involve site acquisition, construction, landfilling operations, facility-related traffic, and site closure.

Sanitary landfilling is an engineered method of disposing of solid wastes on land in a manner that involves spreading the solid wastes in thin layers, compacting the wastes and providing a daily cover of clean soil. Currently landfill sites in Ontario are located, designed and operated in accordance with the standards of the Environmental Protection Act, Ontario Regulation 309, and "Guidelines for the Establishment, Operation, Management, Maintenance and Closure of Landfilling Sites in Ontario".

The Region has adopted a 40 year time frame for its study of waste management requirements. The quantities of wastes which are projected to be generated over the 40 year study period from January 1987 to December 2026 total 38 million tonnes (Waste Management Master Plan -- Stage 2, March 1986). It is further estimated that over the forty year study period approximately 23% of the total wastes could be reduced by an extensive 4 Rs program (reduction, re-use, recycling and recovery) and 31% by central processing or energy from waste. This leaves approximately 46% (17.8 million tonnes) of wastes which will have to be disposed of through landfilling. This would require a site of 162 hectares (400 acres), or equivalent smaller sites, for the 40 year study period. The exact area required for landfilling development will depend primarily upon the depths of excavation, height of fills and buffer area widths required. Current design assumptions include a 5m depth of excavation, a 15 m height of fill (not including final cover) and 100m buffer allowances within the site.

PART ONE:
STUDY APPROACH

Section One: Introduction

Social Impact Assessment is a relatively new field, one that generally is not well understood. For this reason, it might be useful, before getting into the specifics of this study, to discuss briefly the nature of "social impacts" and the process of social impact assessment.

1.1 SOCIAL IMPACTS

Stated simply, social impacts are the effects of projects (or programs or policies) on the well-being of people. More specifically, social impacts are changes that occur in people's way of life (how they live, work, play and interact with one another on a day-to-day basis), their cultural traditions (shared beliefs, customs and values) and their community (its population structure, cohesion, stability, character, aesthetics, services and facilities) as a result of the development and implementation of a new project and that are experienced by these people as significant events.

Some of these changes will be both necessary and desired. It goes without saying that projects are generally planned to meet an identified need and to contribute in a positive way to people's quality of life. It is the unintended and undesired effects, those changes that create hardships and diminish people's quality of life, that are the main focus of social impact assessment.

Social impacts can result indirectly from other impacts both environmental (e.g., contamination of groundwater, air pollution, loss of wildlife) and economic (e.g., property devaluation, increased tax burden). Or, they can be the direct result of the construction and operation of a proposed project. Nuisances such as noise, odour, dust, and increased truck traffic can restrict the use and enjoyment of property and make community services and facilities less viable. More serious are the potential effects of resident displacement and the "stigma effect" sometimes associated with an undertaking. The results can be loss of income, friendship and community ties, and a possible weakening of a community's social support system.

1.2 ASSESSING SOCIAL IMPACTS

The purpose of a social impact assessment is to determine what kinds of changes are likely to occur as a result of a proposed project, to assess the significance of those changes taking into account the views of those affected, to identify ways and means of possibly lessening potential impacts, and to identify trade-offs involved in selecting one alternative versus another.

Overall the aim of a social impact study is to bring information regarding the potential social implications of a proposed project to the attention of decision-makers so that a sound decision can be made regarding a preferred site. The phrase "potential implications" is an important one. It is not possible to predict exactly what will happen to residents and their community -- so much depends on the attitudes and responses of the people themselves and their willingness to accommodate change. At best, a social impact assessment can provide only an indication of what is likely to happen.

But social impact assessment also has another important purpose -- to assist the proponent to respond, as much as possible and to the extent considered fair, to the social costs that the project will create. Thus the identification of publicly acceptable mitigation, compensation and local benefit measures is an integral component of social impact assessment.

Social impact studies generally involve the following activities:

1. **Scoping:** Basically, "scoping" involves consulting with all relevant interests (including potentially affected residents, the project proponents, other technical experts, public officials and elected representatives) to identify key concerns and issues. The discussion of the proposed project and its anticipated impacts on the community also facilitates the setting of study area boundaries and the selection of relevant impact factors and indicators.
2. **Profiling:** To assess the potential social impacts of a proposed project, it is necessary to describe the existing social conditions in the area(s) likely to be affected. The purpose of profiling is to establish the baseline

undertaken to redress any imbalance in the distribution of costs and benefits that stem from one area/community being asked to bear a disproportionate share of a facility's impacts and risks.

The activities described above broadly outline what is involved in conducting a social impact assessment. For a specific undertaking, however, it is necessary to tailor this general methodology to suit the characteristics of the proposed project and the sociological characteristics of the sites under consideration. This is done through the process of study design.

Part One, Section Two of this report documents the study design process used in this case.

Section Two: Study Design

Impact assessments are intended to aid decision-making. The effectiveness of an impact assessment in this regard depends heavily on how the study is designed.

2.1 PROCESS OF STUDY DESIGN

The design of the study approach occurred in two phases (see Appendix 1 for the timing of specific activities). Phase 1, completed during the month of June, involved the following tasks and resulted in a detailed study design:

Review of relevant reports and data collected to date by MacLaren Plansearch Inc., consultants to the Region

Review of public submissions and briefs relating to the landfill site search

Meetings with regional staff to discuss terms of reference and the integration of the SIA with the land use and economic impact studies

Meetings with each of the Community Liaison Groups in Areas I, II and VI to inform them of the terms of reference for the SIA and to get their input to the selection of study area boundaries and the identification of impact issues and concerns

A meeting with the Regional Chief Administrative Officer to get his assistance in identifying other key interests who should be consulted in the study design phase

A meeting with the Mayor of Brampton, Mr. Ken Whillans, to inform him of the terms of reference for the SIA and to get his input to the identification of impact issues and concerns

in Table 1, each embodies quite different research assumptions, approaches and methods. The technical/planning model casts SIA as strictly applied science and aims to provide decision-makers with objectively derived, value-neutral, quantified information on the social gains and losses associated with a proposed undertaking. The political/community development model takes a different tack. It takes as its starting point the view that social impacts are determined in large part by people's perceptions of whether a proposed undertaking and its accompanying changes will be in their best "interest" and, therefore, that the role of SIA is to ensure that decision makers have a sound understanding of the kinds of "interests" that are likely to be affected and the implications of the undertaking for those interests.

In determining how to approach a study, the problem for the assessor is not which model should be used (in practice elements of both models are used since even the most technical of approaches to SIA must involve some public consultation and vice versa) but how to mix them, that is which should be dominant and which should be subservient.

Designing a social impact assessment thus requires careful diagnosis of the assessment context to determine which model is most appropriate. There are a number of factors which could be taken into account in diagnosing the context. These include such factors as the nature of the undertaking (what degree of public concern and controversy are associated with it?), the sociological characteristics of the communities likely to be affected (are there likely to be cross-cultural impacts that will necessitate putting greater attention on cultural values and traditions?), and possible study constraints (are there knowledge gaps or problems with data availability that will constrain the study approach?).

In this case, it was determined that the nature of the undertaking was the key factor that should guide the development of an overall study approach. The undertaking involved is a controversial one, and one that the potentially affected communities regard as posing a threat to human health and the environment. It is generally agreed that the technical model is not well suited to such projects. This is because in such cases social impact concerns

process of study design and the process of impact assessment as a means of facilitating the identification and articulation of the community "interests" that could be affected by the undertaking, the drawing out of perceived implications (i.e., the "meaning") of the undertaking for those interests, the explication of public concerns and issues, and the development of impact prevention and management measures. Community consultation methods and activities are detailed in Section 2.2.6.

2.2.2 Study Area Boundaries

At least three kinds of boundaries are relevant to the assessment of social impacts of any undertaking:

boundaries defining the level of social analysis (i.e., whether the focus is on individuals, groups or organizations, communities, the public at large, or some combination of these);

boundaries delimiting the spatial extent of the analysis; and

boundaries delimiting the temporal extent of the analysis (i.e., the time horizons taken into account).

(a) Levels of Social Analysis

It was determined that the potential social impacts of the landfill siting options should be considered at three levels of social analysis:

impacts on individual residents: for analysis purposes these were grouped into on-site residents, those adjacent (i.e., within 1000 meters of a site boundary or abutting a key access route), and those within the vicinity of the siting options (i.e., within the community boundary)

impacts on local services and facilities such as schools, churches and recreation centres which support/contribute to the quality of life of

(b) Spatial Boundaries

Four, sometimes overlapping, spatial boundaries were delimited to define the area(s) within which data should be collected. These took into account the levels of social analysis required and, where appropriate, were adjusted to include remaining portions of lots and adjacent properties. It should be noted that "study area" boundaries defined areas for the purpose of data collection only -- they did not define the expected areal extent of impact (which can only be determined following data collection).

In setting study area boundaries the following considerations were taken into account:

In and around the landfill siting options:

the potential for displacement of on-site residents

the 500 meter estimate of potential impact from the working face: this is an estimate developed by the Ontario Ministry of the Environment, based on information regarding existing landfill facilities, of the distance over which methane gas, leachate, noise, litter, and dust generally tend to disperse and could thus affect residents and local services and facilities.

the need to add a margin of error to the 500 meter estimate: recognizing that the 500 meter boundary is an estimate of the average performance of landfill facilities and that it is possible for some impacts to extend beyond 500 meters, the 500 meter estimate of potential impact was extended to 500 meters from the site boundary and also to 1000 meters.

the need to take account of the concerns of residents relying on well water or surface water

the perceptions of local residents of the "community" likely to be affected: the delineation of community boundaries was based on the

naturally questioned why their neighbour was in the study area but they had been excluded. Discussions were held with the economic consultant and the regional officials responsible for the land use impact study to determine whether an extension of the 1000 meter boundary to the nearest roadway could be justified. The consensus was that this would be reasonable since it was conceivable that some impacts could extend beyond a 1000 meters from the siting option and, if impacts were to extend beyond a 1000 meters, this extension was not likely to go beyond the nearest roadway since the roadway would act as a barrier or buffer. Thus the 1000 meter boundary line was further adjusted to take in any properties effectively encompassed by the boundary line and that lay between the boundary line and a major roadway or other man-made or natural barrier.

2. Secondary Impact Study Areas: outside the Primary Impact Study Area and focused on two concerns, namely (a) residents in non-serviced areas within the Community Impact Study Area relying on well water or surface water and (b) residents whose property abutted access road segments determined in the traffic analysis undertaken by MacLaren Plansearch to be areas of potential problems (See: Investigations for Landfill Sites in the City of Brampton, Report to the Regional Municipality of Peel, Appendix B, Detailed Site Comparison, March 1986).

3. A Community Impact Study Area: delineated by the Community Liaison Groups and intended to take account of impacts on the community as a whole. For Areas I and II this included the area encompassed by Lot 19 to the north, Highway 10 to the east, Queen St. to the South, and Winston Churchill Blvd. to the west. For Area VI, this included the area encompassed by Lot 21 to the north, McVean Drive (8th Line) and a portion of Gore Road to the East, Bovaird Road to the south, and 4th Line to the west (this boundary line extends slightly west of the 4th Line in the northern section to take in the new housing starts in this area).

4. Sub-Community Impact Study Areas: suggested by the Community Liaison Groups and intended to take account of potential impacts on communities other than the one defined in 3 above. In the case of Areas

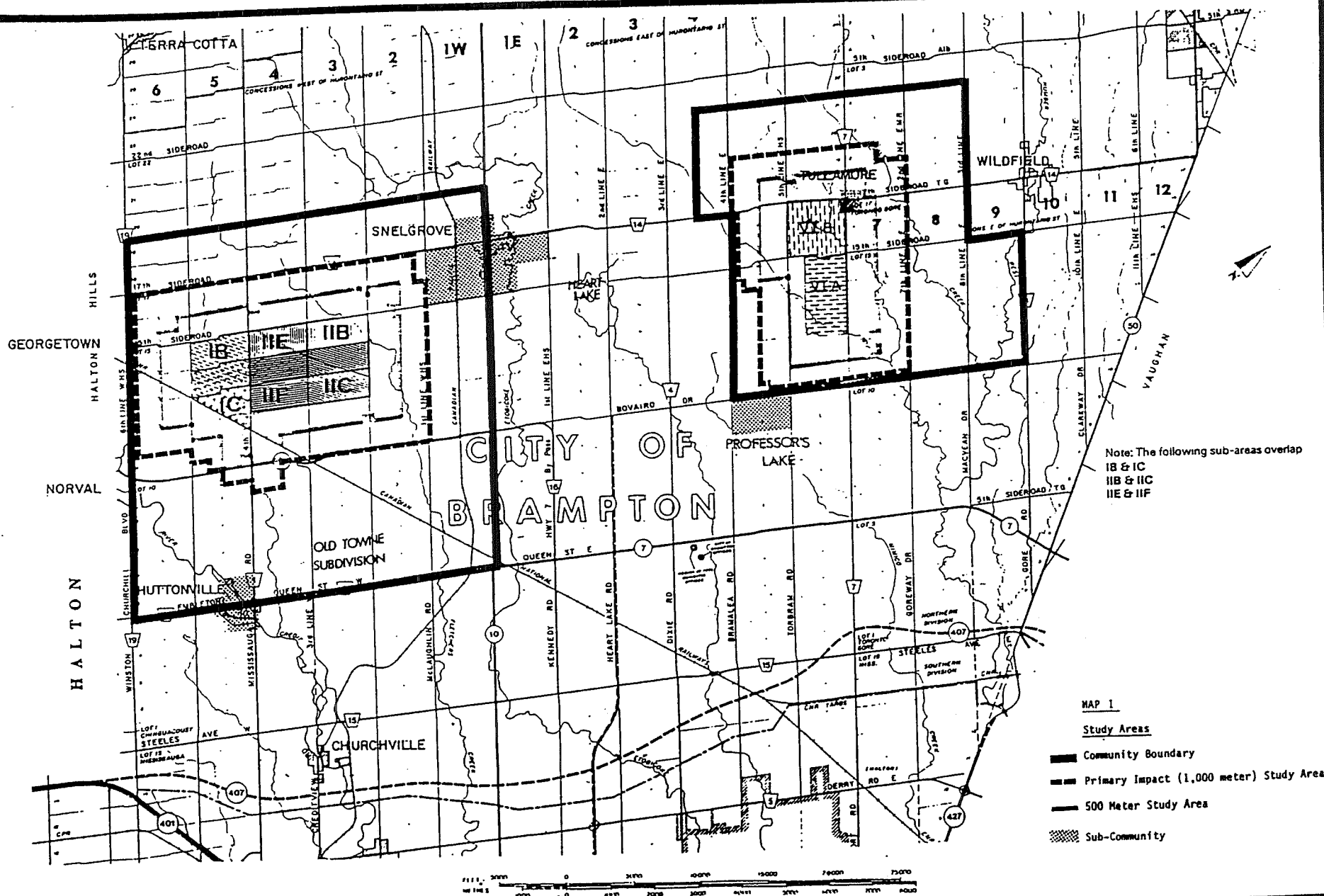
Finally, Wildfield was suggested as a potential sub-community. Some children and families in the vicinity of the siting options in Area VI go to school and church in Wildfield and it was felt that these facilities could be negatively affected if residents move out of Area VI as a result of a decision to locate the landfill facility there. It was determined, however, that except for the potential impact on the school and church, Wildfield as a community is not likely to be impacted by the proposed landfill facility. It will not be on an access route for trucks going to or from the landfill and it will not be negatively affected by visual intrusion or other nuisance impacts. As for the potential impact on the school and church, residents in the Primary Impact Study Area were going to be asked to provide information on school and church facilities they make use of and state any intentions they may have to move should the landfill be located in their area. This would allow a determination to be made as to the potential impact on the school and church in Wildfield. In addition, school board and church officials were to be interviewed as part of service/facility owner/operator contacts. Thus, Wildfield was not designated as a sub-community.

Data was collected and aggregated for each of these impact zones for each candidate area and where appropriate, for the siting options within each candidate area. Map 1 illustrates the study area spatial boundaries.

(c) Temporal Boundaries

Five time horizons were taken into account.

For each candidate area (and where appropriate for siting options) the assessment took account of potential impacts in the immediate future (spanning the construction and early years of site operation, the period during which the host community will be required to make the most adjustments to the effects of the landfill) and over a forty year time frame (the time required for the 400 acre landfill to reach capacity assuming that 40 percent of the waste stream is disposed of by landfilling).



Two additional time frames were also examined, a twelve year time frame and a twenty year time frame, to determine if there would be any significant differences in impact for each of these time frames so that these differences could be taken into account in decisions regarding the length of operation of the proposed facility and the development of impact prevention and management policies. The equity of a 40 year site was the main issue addressed in considering alternate time frames. Two key concerns were examined: whether one large site was more equitable (in terms of the concentration of impacts) than two or more smaller sites (which would disperse the impacts over a larger area); and what kinds of measures would be needed to make a forty year site as equitable as a twelve year or twenty year site.

Finally, impacts associated with the period between the announcement of siting options and the selection of the preferred option by Regional Council was also taken into account. This period of facility planning and assessment (as opposed to construction and operation) also tends to have its own set of social impacts associated with it such as stress, family disruption, and property devaluation. Such impacts represent an extra degree of hardship for those affected (and in the short-run at least could restrict their ability to adjust to facility construction and operation). It was felt that these impacts warranted consideration in the development of compensation policies by the Region and that the social impact study should provide information in this regard.

2.2.3 Impact Concerns and Issues

In identifying the impact concerns and issues to be taken into account in the assessment of social impacts, the study team took a two-pronged approach.

First, the team reviewed literature and research documenting the impacts of landfills. This resulted in a generic checklist of the kinds of potential negative impacts generally associated with landfills (Table 2). Second, the study team reviewed public submissions and held a series of meetings with local officials and the Community Liaison Groups to get a fix on those impacts considered to be most relevant and of key concern in this case (Table 3).

TABLE 2: POTENTIAL IMPACTS ASSOCIATED WITH LANDFILLS

Listed below are potential negative impacts generally associated with landfills. It should be noted that this is a generic checklist of the kinds of impacts known to have resulted from landfilling operations. The kinds of impacts that could occur in a specific case depend on the characteristics of the environment where the landfill is located and on how the landfill is designed and operated. Many of these impacts can be avoided or minimized through careful siting, sound engineering and state-of-the-art operational practices.

POTENTIAL ON-SITE IMPACTS

- displacement of residents
- displacement of community/recreation facilities
- displacement of businesses
- loss of agricultural land
- loss of natural habitat or habitat continuity
- loss of core species (flora and fauna)
- loss or displacement of archaeological/historical sites
- fires in the landfill cells
- explosions due to methane gas build-ups

POTENTIAL SITE VICINITY IMPACTS

- decreased property value
- disruption of way of life
- loss of satisfaction with place
- methane gas build-up and possible explosions
- disruption of the operations of community/recreation facilities
- loss of business
- interference with local traffic and potential roadway safety hazards
- visual intrusion
- nuisance impacts (noise, dust, odours, smoke, litter, rodents)
- contamination of groundwater from leachate
- contamination of surface water
- potential health hazard resulting from birds and rodents which are vectors of disease
- interference with airport traffic due to birds

POTENTIAL COMMUNITY IMPACTS

- loss of community character
- potential stigma effect with area seen as less appealing to potential newcomers
- loss of community cohesion and stability if residents move from the area or lose interest in civic affairs
- change in land use patterns

TABLE 3: LOCAL CONCERNS ABOUT LANDFILLING

The following list is based on a review of public submissions made to the Regional Municipality of Peel and a series of meetings with the Community Liaison Groups in each area. The list is not in any order of priority. Confirmation and prioritization of this list of concerns was one of the objectives of the resident survey that was undertaken as part of the study approach (discussed in Part One, Section 2.2.5).

- interference with local traffic, possible safety hazard
- loss of agricultural land
- loss of ancestral ties for displaced residents
- disruption of way of life and life plans
- hardships for those having to start over as a result of displacement
- loss of satisfaction with place
- financial and emotional set back for those who have invested substantial time, effort and money in their property
- impact on the vitality of the community if residents displaced, become less inclined to get involved in civic affairs, or decide to move out
- possible contamination of groundwater and local wells
- possible reduction in well water supply
- possible contamination of surface water (and associated implications for Conservation Authority lands downstream)
- loss of or interference with business activities (due to water contamination or interference with accessibility to property)
- disruption of day-to-day activities due to nuisance impacts
- interference with the operation of services and facilities (in particular schools, churches, recreational facilities)
- property devaluation and loss of financial security
- air pollution and potential health problems (especially for those with respiratory problems or allergies)
- visual intrusion
- nuisance and health hazards posed by seagulls and rodents
- stigma effect of the landfill
- loss of century homes
- dumping of hazardous wastes into the landfill
- degradation of aesthetics due to litter, odour, etc
- loss of peace and tranquility of home/community
- interference of birds with airport traffic

studies currently underway (i.e., the land use impact study and the economic impact study), the study team was able to set the scope of the social impact assessment in terms of relevant impact factors and indicators and the key issues to be addressed.

2.2.4 Impact Factors and Indicators

Eight factors, or impact concerns, were addressed in the assessment of the social impacts of the proposed landfill facility on residents, services and facilities, and community. These included:

Displacement of residents

Disruption of residents' day-to-day activities and use/enjoyment of property

Resident loss of satisfaction with place

Public health and safety

Displacement of services/facilities

Disruption of services/facilities

Loss of community character

Loss of community cohesion

In selecting these factors, consideration was given to whether any of the concerns listed in Section 2.2.3 were being addressed in other studies also underway at the same time as the social impact study (e.g., land use impact study, economic impact study, visual intrusion, traffic impact analysis, natural environment analysis). To avoid duplication of effort and possible double counting of impact concerns, it was decided that the social impact factors would address only those concerns considered to be of direct relevance to a social impact assessment. There was one exception to this, namely public

the social impacts of the siting process itself

impact compensation

Such issues are not amenable to site comparisons. The intent in exploring the nature of these issues was to facilitate the identification of measures to prevent and alleviate social impacts.

2.2.5 Analytic Methods and Techniques

Social impact assessment is a multi-method study. In order to carry out such a study, assessors must draw selectively from the full range of social research methods and techniques to put together a package of analytic tools suited to the characteristics of the undertaking and the social context being assessed.

Several analytic methods and techniques were used in the assessment of social impacts. These included:

1. Formal surveys of potentially impacted residents.

It is essential, in assessing the social implications of a proposed undertaking, to have a good understanding of the people likely to be affected, their characteristics, day-to-day activities and way of life, their attitudes and perceptions, and their relative vulnerabilities. Surveying of residents, especially through face-to-face interviews, is one of the most reliable ways of obtaining such information. It should be noted, however, that in the context of a social impact assessment formal surveys are not "research" in the traditional social science sense. The aim is not to establish "true" values for the population being studied so that hypotheses can be verified (e.g., that property owners aged 25 - 60 and living within 1000m of a proposed landfill will experience a loss of satisfaction with place, with a 5% confidence limit) or so that variations in the distribution of certain characteristics can be clearly established (e.g., an average of 40% of households with children prefer well water to municipal water). Such rigorous research is neither feasible in the context of a social impact assessment nor necessary to facilitate sound

50% of the households in each Area participated in the interview process. The on-site household response was inconsistent across the sites with response rates varying from 0% for site IIF to 92% for site IIC. The on-site response rate was especially low for farm households with three of the siting options (IB, IC, IIF) providing no response. In cases where on-site households did not participate in the survey, it had to be assumed that the household characteristics were similar to those of other households in the Primary Impact Study Area. The response rate for households within 0 - 1000 m of siting options was consistently high across the sites, ranging from 48% for site IC to 64% for IIF.

2. Formal discussions with service/facility owners and operators.

A telephone survey of local service and facility owners/operators within the Primary Impact Study Area, community boundary, and sub-communities was undertaken and, where appropriate, face-to-face meetings were held. The survey was guided by a structured questionnaire format to ensure consistency in approach to data collection. The objective was to solicit the concerns of those consulted regarding the proposed landfill and its implications for their service or facility.

Owners and/or operators of twenty-one services and facilities were contacted. Appendix 7 documents the information obtained in this process.

3. Key informant interviews.

Face-to-face interviews with key informants/representatives of the sub-communities were held. The meetings were guided by a structured set of questions to ensure consistency in approach to information collection. The basic objective of the meetings was to solicit the concerns of those consulted regarding the proposed landfill facility and its implications for local services and facilities and the sub-communities.

Interviews were held with long-term residents in the communities of Snelgrove, Huttonville, Tullamore and Professor's Lake. Appendix 6 provides a detailed account of these key informant interviews.

4. Ethnographic analysis.

The focus of this form of analysis is with understanding resident patterns of activity and the social and cultural meanings attached to these activities and community features (e.g., the meaning attached to "home" and "land"). The main technique used to facilitate this analysis was resident-conducted site tours organized by the Community Liaison Group in each candidate area. Only the Groups in Areas II and VI provided such tours. This gave the residents an opportunity to convey to the assessors, in their own way, attitudes and values relating to their community and its quality of life. In addition, the resident surveys probed such concerns and several historical accounts of the local communities were researched.

5. Focus group workshop.

To facilitate the exploration of the issues listed in Section 2.2.4 above, a focus group workshop was conducted. A focus group generally consists of eight to ten individuals, selected on the basis of socio-economic characteristics and other criteria considered to be relevant such as knowledge of the topic to be discussed. A trained facilitator leads the group through an open, in-depth discussion that explores members' attitudes and values. There is some concern among social researchers about the subjectivity of this technique (the results may differ with other participants, another facilitator, or another setting). But it is generally agreed that focus groups do have the advantage of stimulating creative thinking, providing an indication of the degree of flexibility or rigidity of attitudes towards the matter in question, and fostering a degree of candor not possible in formal individual interviews or public meetings.

Participants in the focus group workshop were selected using the following criteria: people who were not directly affected by the proposed landfill siting options (participants lived outside of the community boundary defined for each area and had no business interest within the community boundary) but who were knowledgeable of waste management issues and environmental/social impact concerns, and who could thus provide relevant "third party" perspectives on the

communities (i.e., elected representatives, public administrators, members of the Community Liaison Groups).

During the conduct of the impact study itself further consultation was undertaken to ratify the study design, facilitate the determination of potential impacts and evaluation of impact significance, and facilitate the identification of socially acceptable mitigation, monitoring, compensation and enhancement measures. Four formal opportunities for consultation with the Community Liaison Groups and other concerned residents in each candidate area were incorporated into the Work Program.

First, meetings were arranged with each of the Community Liaison Groups at the start of the social impact assessment to get their feedback on the study approach and workplan (this constituted Phase 2 of the Study Design Process).

Second, residents and local service and facility owners/operators in each of the candidate areas were surveyed and interviewed as described in Section 2.2.5 above.

Third, a meeting was arranged with the Community Liaison Groups following the tabulation of the survey results to feedback the results and to solicit their input to the screening and ranking of factors and indicators. Only the Community Liaison Groups in Areas II and VI provided input.

Fourth, a meeting was arranged with the Community Liaison Groups following the impact evaluation phase of the study and just prior to the submission of the final report to feedback the study results and give them an opportunity to seek clarification where required on the assessment results.

In addition to these formal consultation opportunities, the study team interacted with community residents and local officials during the assessment itself (e.g., as part of the resident-conducted site tours, to coordinate the survey drop-off, to field check information, etc.). These points of interaction were approached as opportunities for informal consultation to the extent desired by the residents involved. The study team also attended a meeting involving Ronto Corporation and Regional staff in which Ronto presented its

development plans. The study team offered to meet with Ronto officials to discuss the social impact study but this meeting was declined. Finally, each Community Liaison Group was provided with the phone numbers of the consultants involved in the social impact assessment and were encouraged to call at any time to discuss the study.

Section Three: Data/Information Sources

The assessment of the eight social impact factors discussed in Section 2.2.4 required pulling together of data and information generated through the application of the various analytic methods and techniques employed in this study as well as any data and information provided by the other assessments that were undertaken by the Region (i.e., land use impact study, economic impact study, visual impact analysis, traffic impact analysis, natural environment analysis).

Table 8, reproduced here, shows the specific sources of data and information used in the assessment of each factor, and set of indicators and subindicators.

Appendix 3 (Resident Surveys: Approach), 6 (Key Informant Interviews), and 7 (Service/Facility Owner/Operator Contacts) document the specific analytic approaches taken and the data and information collected.

TABLE 8: DATA/INFORMATION SOURCES

FACTOR	INDICATORS AND SUB-INDICATORS	SOURCE OF DATA/INFORMATION
Displacement of Residents	Total Number of Residents on-Site	Land Use Impact Study
	Key Characteristics - age - tenure - full-time farm households	Interview Questionnaire: Residents (Q.5, 48, 49, 50) and Farm (Q.10, 13)
	Attachment to Place - length of residence - ancestral ties - family ties - friendship ties - life plans	Interview Questionnaire: Residents (Q. 1, 2, 3, 4, 6, 7, 12, 13, 20, 24, 25, 26, 27, 28) and Farm (Q. 5, 6, 30)
	Hardship - difficulties in moving	Interview Questionnaire: Residents (Q. 24), and Economic Impact Study
Disruption of Residents	Total Number of Residents in Primary Impact Zone	Land Use Impact Study
	Key Characteristics - age - length of time on property during operation hours	Interview Questionnaire: Residents (Q. 48, 49, 50)
	Number and kinds of Uses of Property; Water Use	Interview Questionnaire: Residents (Q. 7, 11) and Farm (Q. 1, 14, 27, 24, 29)
	Potential for Interference - noise - environmental impacts - visual intrusion - traffic	Environmental impact studies; traffic impact study; visual impact assessment; land use impact study; economic impact study; review of Regional and MOE files on landfill facilities; literature review

TABLE 8 (cont'd)

FACTOR	INDICATORS	SOURCE OF DATA/INFORMATION
Public Health and Safety	Reliance on Well Water and Surface Water	Water Use Survey: Interview Questionnaire: Residents (Q. 35, 36) and Farm (Q. 24, 25, 27, 28, 29)
	Number and Proximity of Potentially Vulnerable Residents	Interview Questionnaire: Resident (Q. 30, 31, 34)
	- health problems	Access Road Survey; Water Use Survey
	- less than or equal to 4 years	
	- school age children	
	- 65 years or more	
	Potential Interference with School Bus Routes	Discussions with School Board Officials; Traffic Impact Analysis
	Resident Use of Road and Shoulders	Interview Questionnaire: Farm (Q.27, 28, 29) Access Road Survey; meetings with Community Liaison Groups; meeting with Peel Federation of Agriculture
	Implications	Interviews/Discussions with Public Health Officials
		Literature Review
		Review of Regional and MOE files on landfill facilities

TABLE 8 (cont'd)

FACTOR	INDICATORS	SOURCE OF DATA/INFORMATION
Loss of Community Cohesion	Involvement of Residents in Community	Interview Questionnaire: Residents (Q. 29)
	Homogeneous Lifestyle	Key Informant Interviews; informal discussions with residents; meetings with Community Liaison Groups
	Number of Friends and Relatives in Area	Interview Questionnaire: Residents (Q. 25, 26)
	Length of Residence	Interview Questionnaire: Residents (Q. 1, 2, 3, 4)
	Extent of Use of Local Services/Facilities	Interview Questionnaire: Residents (Q. 31, 32, 33) and Farm (Q. 23)
	Number Displaced and Implications	Interview Questionnaire: Residents (Q. 21, 22, 23, 29); meeting with Peel Federation of Agriculture
	Loss of Satisfaction with Place and Implications	Interview Questionnaire: Residents (Q. 19); Results of Factor Assessment (Resident Loss of Satisfaction with Place)
	Displacement of Local Services/Facilities	Results of Factor Assessment (Displacement of Local Services/Facilities)

PART TWO: STUDY RESULTS

Section One: Potential Effects of the Undertaking

Social impacts can result both directly and indirectly from the proposed landfill. The nature of these impacts will depend on the potential effects of the undertaking, that is, the possible extent of leachate and gas migration, safety hazards, nuisance effects, visual intrusion and perceived "stigma" associated with it.

A basic starting point in any impact assessment is a thorough review of research literature and current experience to determine what is known about the potential impacts of the kind of undertaking being proposed. This results in a generic checklist of potential effects (Table 2) and, hopefully, an understanding of the factors contributing to such impacts so that proper preventive measures can be identified. With such a checklist in hand, the next step is to determine the extent to which such impacts are applicable to this case and to get a better understanding of the nature of the specific impacts that may occur. The impacts likely to occur in a particular case depend on the specific characteristics of the landfill site, its design and its environs. Section 1.1 reports on the results of the review of research literature and current experience with five landfill facilities in Ontario. This is followed by a brief discussion of the studies undertaken by MacLaren Plansearch regarding the potential environmental effects of the proposed undertaking.

Social impacts, however, are not just a function of the effects of an undertaking. They also depend on resident perceptions of and attitudes towards the undertaking. Discussions with the Community Liaison Groups in each area and other community representatives in the Peel Region enabled the development of a checklist of community concerns (Table 3). It was necessary to verify that this list encompassed the full range of community concerns and to prioritize them. This was done through an extensive process of household interviews and surveys as well as follow-up discussions with the Community Liaison Groups in the three candidate areas. The results are presented in Section 1.3.

1.1 LANDFILLING: LITERATURE AND CASE STUDY REVIEW

Landfill facilities are generally unwanted facilities -- they are regarded not just as noxious but as hazardous, despite advances in the state-of-the-art. Past experience with lack of effective control of materials allowed into landfills, improperly designed and operated landfills, resultant groundwater contamination, odours, litter and other environmental impacts, and the seemingly interminable difficulties involved in trying to "correct" such problems once they arose, have contributed towards the current high level of community opposition to landfilling proposals.

Table 2 lists the kinds of negative impacts that tend to be associated with landfills. The bibliography cites the references which were researched in drawing up this list. Basically, the negative impacts associated with landfills can be related to six environmental problems: leachate, gas migration, noise, air pollution, litter, and disease vectors.

The inflow of water as well as the decomposition of organic solid waste produces leachate which may contain various dissolved and suspended pollutants. If the landfill sits over impervious soil, this leachate will rise and eventually discharge through pervious landfill slopes, possibly migrating to the underlying groundwater or nearby surface water. Minimizing problems created by leachate involve reducing water inflow (through such measures as proper surface cover, grading to increase runoff, using non-permeable cover material, installing drainage facilities to divert off-site surface and subsurface waters) and intercepting and treating leachate prior to disposal.

The decomposition of waste materials results in the generation of several types of gases notably carbon dioxide, methane and hydrogen-sulfide. Factors affecting the generation of gases includes the type of wastes placed in the landfill, the refuse-placement techniques used, refuse moisture and refuse density. Carbon dioxide is water soluble and increases the corrosiveness and acidity of the leachate. Methane, also known as marsh gas, is an odourless, colorless, nonpoisonous but potentially explosive gas. It diffuses readily and is explosive at atmospheric pressure in concentrations from 5% to 15% by volume. Hydrogen-sulfide is a foul-smelling gas produced during anaerobic

Improperly managed landfills will attract birds (crows and seagulls are especially likely to feed on uncovered solid waste), rodents, flies and mosquitos which may become disease vectors. Foraging by disease vectors can be discouraged by compaction of wastes and covering the landfill daily with a six inch layer of soil. And continuous grading of the soil will prevent the accumulation of stagnant pools of water that may provide breeding grounds for mosquitoes. Vector control programs may also be implemented.

As noted above, each potential problem, theoretically, can be "controlled" through proper site design and management. Theory, however, is one thing and practice sometimes can be another. Concern was expressed by members of the Community Liaison Groups as well as other residents who participated in the social impact study about problems relating to existing landfill facilities in the Region and elsewhere and the potential for similar problems to occur at the proposed landfill facility. Underlying the concern was considerable skepticism -- it was felt that corners would be cut in the design of the facility and that long-term environmental protection would be traded-off in favour of short-term economic gain, that comprehensive monitoring would not be carried out, that action would be taken after-the-fact and that this would be ineffective, and that response to citizen complaints would be slow and defensive (e.g., information would be withheld, the onus would be on the citizen's to "prove" problems exist, follow-up on complaints would not be reported back to the citizen's involved again putting the onus on the citizens to track down what action was taken).

To follow-up on these concerns, a thorough review was conducted of government files (kept by the Region of Peel and the Ontario Ministry of the Environment) for four landfill facilities. These included the Chinguacousy Sanitary Landfill, Professor's Lake Landfill, Britannia Landfill (all in the Region of Peel), and the Brock West Landfill (in the Town of Pickering). The first three landfills were selected as case studies because concerns about them were raised by residents. The Brock West Landfill was examined because it had a long history of problems associated with it that resulted in considerable community concern and controversy. The Keele Valley Landfill was also investigated because of the strong opposition which accompanied its siting.

Landfill facility. Monitoring was initiated to document whether the contaminants in these soils migrated via surface drainage off-site. Some traces of toluene and styrene were found but were assessed by Ministry of Environment officials as not significant. Monitoring for contaminants was discontinued in October 1980.

In 1977 citizens in the vicinity of the landfill site began to complain about deterioration in the quality of their well water. The Town of Caledon requested that the Region test all wells on the Fourth Line and Second Line as far as 22nd Sideroad. The Region referred the request to the Ministry of the Environment. Well water studies were carried out and it was concluded that the water quality problems were related mainly to improper well construction (e.g., locating the well too close to barnyard areas) and not to the landfill. There is no indication in the Ministry's files of how the results of the study were communicated to the residents in the area. In any case, the issue is an unresolved one in the community and not just for residents near the landfill site -- members of the Community Liaison Group in Area VI also raised concerns about well water contamination from the Chinguacousy landfill.

2. Professor's Lake is located near Area VI at the intersection of Bovaird Drive and Airport Road. Now a suburban community and park, the area was used for landfilling between the late 1950s and the early 1960s. The site was never certified and so it is not known how large the site is or how much garbage is buried there. The developer of Professor's lake community was required to dig up any known organics and consolidate them in a central site about two to three acres in size located adjacent to the lake.

In order to prevent any possible migration of methane gas from the landfill site to nearby residences, a plastic membrane was installed by developers that completely surrounds the site and extends from just below the ground surface to the groundwater level (approximately the level of the lake). The installation of the membrane was completed in 1978. Continuous monitoring of the effectiveness of the membrane through probes located along the perimeter of the park has been carried out, first by consultants engaged by the community's developers and since 1983 by the Region. The results of seven years of monitoring (1978 - 1985) showed that the membrane was performing as

and off-site), and hydrogen sulfide odour in sewers along Carolyn Road as a result of leachate being discharged to the sewers.

There have been complaints from residents about blowing litter (the Region's policy is to clean up off-site areas first the day following high winds) and about indiscriminant dumping of garbage by individual residents at the collection bins (if the bins are full or if the gate is closed, the garbage is simply left on the ground). Resident complaints are noted on a complaint form and filed. But perusal of the Region's waste management files revealed that the recording of complaints was very uneven in terms of the information recorded and that memos on follow-up action were rare. As a result, it is not possible to assess the frequency or areal extent of resident complaints, or the efficiency and effectiveness of the Region's response. (It should be noted that the same can be said of the Ministry of Environment's files in this regard).

4. The Brock West Landfill is located in the Town of Pickering. It consists of 230 acres and was opened in 1973. Problems did not arise until the third year of operation.

A problem with odours was noted in July 1976 by the MOE Site Inspector who attributed it to inadequate soil cover. The recommended remedy was to cover exposed landfill with a 6 inch layer of earth. Blowing litter throughout the site, along access roads and on adjoining property was noted by Site Inspectors on two separate occasions in 1976. The problem in each instance was attributed to high winds (a litter fence was required to be constructed) and to drivers removing the protective cover from their trucks too far from the dumping areas. Problems with blowing litter were noted again in 1977 and a 16ft screen was required to be constructed.

In October 1982, citizens began complaining to the Ministry about odours. Complaints were received from residents located 1.5km to 5km away from the site (odours from the landfill affected a 3 mile radius around the site and some 5000 homes). The odours were most noticeable during overcast days and when there was a strong wind. Complaints increased steadily over the following two-month period. Site Inspectors attributed the problem to gas venting practices and lack of adequate cover material. Further investigation of the problem over the year led to several assumptions regarding its cause --

there are similarities, each landfill should be regarded as somewhat unique. Brock West has its own complex combination of design, operational and site characteristics. Britannia is different and has its own set of problems. And the proposed undertaking will be different again, as discussed below.

1.2 POTENTIAL EFFECTS OF THE PROPOSED UNDERTAKING

The concern that follows naturally from a review of research literature and current landfilling experience is the extent to which these "findings" apply to the specific proposal under consideration. This concern was the starting point for a thorough review of the environmental assessment studies prepared by MacLaren Plansearch.

In its assessment of the potential effects of the proposed landfill facility on each of the eight siting options, MacLaren Plansearch conducted detailed hydrogeological investigations, an extensive field survey of terrestrial habitat and stream valleys, a detailed traffic impact analysis, and a visual impact assessment. These studies built on work undertaken in the previous phases of the Region's landfill siting process, documented in "Investigations for Landfill Sites in the City of Brampton, Report to the Regional Municipality of Peel, March 1986". This earlier work focused on seven broad categories of landfill-related issues, encompassing a total of 28 specific concerns: public health and safety, natural environment, social environment, cultural environment, system component costs, community costs, and technical considerations.

MacLaren Plansearch's assessment of net impacts (that is, potential impacts after mitigation) for each of the above study areas is summarized in "Investigations for Landfill Sites in Areas I, II, and VI in the City of Brampton, March 1986.

Due to the extensive nature of the MacLaren studies, no attempt will be made here to summarize the results and the reader is referred to the reports noted above. The thrust of the review of the MacLaren studies was to ensure that the social impact assessment took full account of the projected potential impacts

1.3 RESIDENT CONCERNS

Not unexpectedly, concern about the proposed landfill is quite strong among residents in all three candidate areas, as indicated by Table 9. The strength of resident concern is attested to by the responses of those surveyed to questions regarding intentions to move:

In Area I, 48% of respondents have considered moving; of these, 51% have taken steps towards moving such as checking up on housing prices or contacting a real estate agent; and 40% of respondents said they would in fact move if the landfill was sited in their area.

In Area II, 51% of respondents have considered moving; of these, 40% have taken steps towards moving; and 49% of respondents said they would move if the landfill was sited in their area.

In Area VI, 60% of respondents have considered moving; of these 35% have taken steps towards moving; and 54% of respondents said they would move if the landfill was sited in their area.

It is unlikely that all respondents who said they would move will in fact act on their stated intentions. At the same time it would be unwise to assume that none will. Given the high level of concern evident among residents in all three areas, some movement out of whatever area is selected can be expected. What is difficult to predict is the level of voluntary displacement that will take place. Much will depend on how the issues involved in the siting process are resolved and the kinds of measures put in place to deal with resident concerns. Given the broad resentment felt towards the siting process itself and the way in which sites were eliminated from further consideration, the perceived "soundness" and "fairness" of the siting decision will likely play a key role in people's willingness to live with the decision.

The depth of resident concern is understandable when one takes into account the high level of satisfaction with place that exists in each of the candidate

kinds of problems the survey respondents expect the landfill to bring to their area. The question put to the residents was an open-ended one and respondents were not prompted with examples of potential landfill-related problems. What is important to note about Table 13 is that concern goes well beyond potential nuisance effects -- which can generally be mitigated -- to much more intractable problems such as community disruption, the perceived reduction in the quality of products from farms adjacent to the landfill, reduced quality of life, and loss of financial security as a result of expropriation and/or property devaluation.

With regard to nuisance impacts, respondents were asked to state whether they expected their household to be affected by seven impacts generally associated with landfilling operations. Table 14 provides the results of this probing. Again concern about odours was quite high as was concern about birds and rodents, litter, and truck traffic. Concern about visual intrusion was lowest in terms of the number of respondents indicating that they expected their household to be affected by this impact.

Overall, residents in all three Areas feel that the proposed undertaking will have a significant negative effect on their quality of life. As revealed by Table 15, at least 90% of respondents in all Areas expect that the landfill will affect their satisfaction with the community as a place to live, a finding that helps to explain why so many have considered moving. Respondents who felt that their satisfaction with place would be affected were asked, in an open-ended question, to state "in what way". Table 16 provides the results of this question. The feeling that the "community would be disrupted" topped the list of responses in all Areas with about 40% of respondents singling this out as a concern. Increased traffic, potential water pollution, odours, loss of aesthetics, devaluation of property, lower standard of living and noise were some of the main factors cited as contributing to the expectation that residents would lose their satisfaction with place. The responses in regard to these factors were not consistent across the three Areas. Concern was higher in Areas I and II than in Area VI for potential water pollution, loss of aesthetics and devaluation of property. Area VI, on the other hand, indicated more concern with odours, standard of living and noise.

As noted above in Section One, one purpose of the resident survey was to verify the extent to which the list of concerns put forward by the Community Liaison Groups encompassed the full range of community concerns. These survey results confirm the representativeness of views put forward by the Community Liaison Groups in their identification of a preliminary list of local concerns during the study design phase. It should be noted, however, that concern for the effect of the landfill on services and facilities was not as strong among the community residents as for members of the Community Liaison Groups. In meetings with the Community Liaison Groups, the discussion tended to focus on potential impacts on schools, churches and recreational facilities. When residents were interviewed, one of the first questions they were asked was an open-ended one which simply asked them to state their concerns. Potential impacts on services and facilities was not a dominant concern. This difference in the concerns of the Community Liaison Groups and those of individual residents is not unexpected. The Community Liaison Groups tended to put forward community-oriented concerns whereas residents interviewed tended to put forward household-related concerns.

These survey results also provide an indication of the relative importance of resident concerns. Public health and safety issues clearly rank first in importance on the community agenda. Residents in all three Areas value their relatively clean air and want to maintain the quality of their water. It was not uncommon for residents to speak of the proposed landfill as a "hazardous waste" facility; indeed, some residents saw no difference between the proposed landfill facility and a toxic waste disposal facility. Disruption of way of life at both the household and community level follows closely. The concern in this regard is with the potential disruptive effects of nuisance impacts on residents' day-to-day activities and life plans and with the overall potential blighting and stigma effect of landfill facilities on the surrounding community. Public health and safety concerns are being addressed by MacLaren Plansearch in their assessment of hydrogeology, traffic and facility design requirements. Disruption of residents and community is the focus of this social impact study.

Finally, the survey results also confirm the predominance of "special" impacts over "standard" impacts in this case. As described in Section 2.2.1, special

impacts result from the perceptions and attitudes of the residents potentially affected by a proposed undertaking. Whether or not a community is disrupted, for example, depends not just on the actual effects of an undertaking but also on the willingness of those affected to accommodate whatever effects are likely to occur. If people come to feel that the facility will significantly change their quality of life and if they subsequently act on that perception, the consequences can be serious for both the families involved and the community as a whole.

These considerations guided the assessment of social impacts of the proposed landfill facility. Section Three of this report discusses in detail the social impacts that are likely to result from the operation of the proposed landfill facility. Section Two, which follows, describes the evaluation protocol that was used, in particular, the screening of factors and indicators, the rating of impacts in terms of their relative importance and the ranking of sites.

Section Two: Evaluation Protocol

In conducting a comparative evaluation of areas or sites, the objective is to determine which area or site would have the least overall negative impact. Arriving at this determination is a complex process for it requires the careful integration of a broad and diverse range of factors within each category of assessment (i.e., within the social impact category, within the economic impact category, etc.) as well as the integration of the categories themselves. To ensure a consistent and valid approach to such an evaluation, it is necessary to develop an overall evaluation protocol or set of procedures and principles which each evaluator can then apply. The protocol that guided the overall Environmental Assessment process and that was adhered to in the social impact study is described briefly below followed by a discussion of the screening and ranking of social impact factors, the rating of impacts and ranking of areas and sites.

2.1 Environmental Assessment Evaluation Protocol

Basically, the process of evaluation involves four steps: the identification of evaluation factors, the ranking of factors in terms of their relative importance, the rating of impacts, and the ranking of Areas and Sites. The following overall evaluation protocol was developed by MacLaren Plansearch to guide each assessment study, including the social impact assessment:

1. Establish a set of Categories or Evaluation Criteria to be used as the basis for comparison (in the Social Impact Assessment, these were called Factors and Indicators);
2. Assemble and review information;
3. Determine the relative importance of categories and criteria to enable an overall evaluation of each sub-area;
4. Compare sub-areas with respect to each of the evaluation criteria;

the factor, indicator or sub-indicator was more relevant as input to another study being undertaken by the Region and inclusion in the SIA would have resulted in double-counting.

Listed below are the factors, indicators and sub-indicators which were screened out in the evaluation stage of the SIA. For each the rationale for screening is given.

1. Factors Screened Out:

Loss of Satisfaction With Place -- it was decided that this factor would be better used as profiling data since there was no significant difference among sites; however, one sub-indicator of "loss of satisfaction with place", namely the number of residents who said they would move, was included as an evaluation criterion for the Factor "Loss of Community Cohesion" (the Community Liaison Groups felt that it was important that this indicator be taken into account in the assessment of potential impact on community cohesion, a judgment supported by the study team).

Public Health and Safety -- to avoid duplication of effort, it was decided that SIA data would be used as input to a Public Health and Safety analysis being undertaken by MacLaren Plansearch. Appendix 8 contains the SIA data collected with respect to this concern.

2. Indicators Screened Out:

For the Factor "Resident Disruption", two indicators were screened out as evaluation criteria, namely

Number and kinds of property uses -- there were no significant differences among sites.

Resident perception of the compatibility of the proposed facility with daily activities -- there were no significant differences among the sites.

Early in December meetings were held with each of the Community Liaison Groups to obtain their input to the ranking of factors and indicators. The Groups were given a package of material which (a) set out rationales for the screening of factors, indicators and sub-indicators, (b) provided survey results for factors and indicators serving as evaluation criteria, (c) asked a sequence of questions to guide the residents in their assessment of relative importance, and (d) indicated the preferred ranking of factors and indicators based on research findings and professional judgment. Input to the ranking of factors and indicators was received from only the Community Liaison Groups in Areas II and VI. Appendix 9 contains the package of material given to the Community Liaison Groups.

It should be noted that the survey results provided to the residents at this point were presented "blind", that is, the residents did not know which Area or Sites were under discussion. This was done to remove, to the fullest extent possible, the potential for subjective bias on the part of residents towards their own Area to enter into their judgments regarding the relative importance of factors and indicators. If residents in one area knew that they were more likely to be affected than those in another for a given factor, they might be motivated to give the factor more weight than they otherwise would assign to it.

Table 18 shows the results of this factor ranking process. Certain results warrant highlighting:

For the levels of social analysis incorporated into the study, the consensus was that "impacts on services and facilities" was least important, "impacts on individual residents" next in importance and "impacts on community" the most important.

The effects of disruption were judged to be more important than the effects of displacement.

The numbers of people affected were not as important as their characteristics and specific vulnerabilities (for example, displacement of farm households was judged to be more significant than displacement of

Section Three: Potential Social Impacts

Equipped with a ranking of the relative importance of the social impact factors and indicators, the study team focussed on identifying the Area and Site which would have the least overall negative impact. The rating of impacts took into account the results of resident surveys and other information collected during the study. Once the "least impact" option was identified, other options were compared to it in successive pairwise comparisons to arrive at a relative ranking of the options. This point is important. What it means is that the rating of impact is a relative one, that is, based on the comparison of areas and sub-areas, and not absolute, that is, based on external referents or standards. The "least impact" alternative is "least" in comparison to impacts at other areas or sites and should not be regarded as necessarily minimally affected. Given the lack of social impact standards by which to measure absolute impact, subjective albeit professional judgments have to be made regarding the significance of the impact at the "least impact" site and the need for off-setting mitigation and compensation measures.

This section of the report discusses in detail the rating and ranking of impact for each of the six factors used in the social impact assessment. Social impacts likely to occur as the result of the proposed landfill facility are presented in order of relative importance of the factors, beginning with the least important and proceeding through to the most important.

3.1 DISPLACEMENT OF SERVICES AND FACILITIES

There are services and facilities on-site which may be displaced as a result of the landfill siting. Displacement of services and facilities may result in hardship to clients and reduce the community's cohesion by causing changes in the commitment of residents to the community and in patterns of resident interaction. These were the concerns that guided the assessment of the social impact of displacement of community services and facilities.



MAP 2
COMMUNITY SERVICES
AND FACILITIES

Legend

1. Peel Regional Police Association
2. Church of Jesus Christ of Latterday Saints
3. Allou Cemetery - abandoned
4. Memorial Gardens (Ontario) Ltd. Cemetery
5. Canadian Reformed Church
6. Castlemore Golf and Country Club
7. St. Mary's Cemetery
8. Mayfield Secondary School
9. Caledon (Mayfield) Recreation Centre
10. Bramalea Christian Fellowship Church
11. Home United Church
12. Norval United Church
13. Huttonville United Church
14. Salem United Church
15. Norval Presbyterian Church
16. Jehovah's Witnesses Assembly Hall
17. Mormon Tabernacle Church (proposed)
18. Brampton City Cemetery
19. Chingquacousy Health Services Centre (proposed)
20. Allou Public School
21. Upper Canada College Boys Camp

Community Boundary
Primary Impact (1,000 metre) Boundary

Three of the remaining fifteen services and facilities are on-site. These include the Pioneer Cemetery in Alloa (site IIE), St. Mary's Anglican Cemetery in Tullamore (site VIB), and the Peel Regional Police Association Recreation Centre (sites IIE and IIF). Table 20 shows the number and location of the potentially displaced facilities. And Table 21 provides an indication of their characteristics and the availability of alternatives.

The characteristics of these services and facilities is described in detail in Appendix 7. Only key characteristics will be noted here:

The Alloa Pioneer Cemetery is a historic cemetery, no longer in use. It was established in 1829 and closed in 1934.

St. Mary's Anglican Cemetery was established at the turn of the century and is still in use.

The Peel Regional Police Association Recreation Centre has been in operation for a little more than one year. It has a membership of 1000+ and is open year-round. It consists of two buildings (one housing an office, a lounge, banquet hall, and a sauna and locker room; the other a concrete barn) located on 25 acres of land. The banquet hall has a capacity of 154 and can be rented; the lounge can accommodate 100 people. The facility also includes two baseball diamonds and soccer fields.

An additional six services and facilities located in the Primary Impact Study Areas were also investigated and subsequently screened out of the study. These were essentially commercial services relied upon by the farming community and residents on a day-to-day basis and included:

- J. Doane Farm Supplies
- J. Hernick Agricultural Hydraulic Services
- Eccles Feedmill
- Penny's Gas Bar and Variety Store
- Tullamore Market
- Uptown Farm Produce

3.1.3 Impact Rating and Site Ranking

The consensus among the study team and community representatives was that impacts on recreational facilities should be rated higher than impacts on cemeteries and that the impacts on a cemetery still in use should be rated higher than on an historic cemetery.

Thus the on-site facilities have been rated in the following order:

least important	Pioneer Cemetery (Site IIE)
	St. Mary's Anglican Cemetery (Site VIB)
most important	Peel Regional Police Association Recreation Centre (Sites IIE and IIF)

Based on this impact rating, the siting options were ranked as follows:

No Impact	IB
	IC
	IIB
	IIC
	VIA
Low Impact	VIB
Moderate Impact	IIF
	IIE

At siting option VIB, a cemetery could be impacted (St. Mary's Anglican Cemetery); IIF involves the potential displacement of a recreational facility (the Peel Regional Police Association Recreation Centre), and IIE involves the potential displacement of a recreation facility (the Peel Regional Police Association Recreation Centre) and possible impact on the Alloa Pioneer Cemetery.

of life. Thus, instead of rating the role of the facility in the community as "low" (based on the percentage of local to non-local users), it would warrant a higher rating.

It should also be noted that few standards exist specifying a required level of environmental quality for community services and facilities. The assessment of the potential effect of the proposed landfill on the attractiveness or image of the service/facility and hence its demand was based on expert opinion and the subjective evaluations of owners/operators.

3.2.1 Social Profile

Twenty-one services and facilities, shown on Map 2, were investigated in the social impact study. These included four recreational facilities, four cemeteries, nine churches, two schools, and two proposed facilities (a hospital and a church). Six of these were eliminated from further study after preliminary investigations and discussions with owners/operators revealed that the proposed landfill would have a negligible if any impact on the service or facility. Table 19 lists the services and facilities investigated in the social impact study and indicates the ones that were screened out.

The characteristics of the community services and facilities are detailed in Appendix 7. The key characteristics of each service/facility is highlighted below in the discussion of potential disruptive impacts.

3.2.2 Potential Impacts

Table 23 indicates the concerns put forward by service/facility owners and operators regarding the potential disruptive effect of the proposed landfill.

School officials for both the Alloa Public School and the Mayfield High School expressed concern about the potential hazards posed by the increased truck traffic going to and from the landfill on school children waiting for buses or walking or riding on the shoulder of local roads. They were also concerned about possible nuisance impacts in particular noise, litter, seagull droppings fouling school yards where children play, and dust. Finally, concern was

Enrichment courses, Personal Study) but this use occurs mainly during the evenings and on the weekends and thus will not likely be affected by the proposed undertaking. However, users of the facility may perceive that its proximity to a regional landfill facility has diminished the attractiveness of the facility and may be reluctant to continue to make use of it. This is unlikely but a possibility nonetheless which if borne out could adversely affect the Church.

The Pioneer Cemetery is a historic cemetery, no longer in use. The main effect of the proposed undertaking will be an aesthetic one.

The Peel Regional Police Association Recreation Facility was described above in Section 3.1.1 and that description will not be repeated here. The Centre's outdoor facilities (baseball and soccer fields, and proposed children's playground, tennis courts) may be impacted by nuisance effects of the landfill (odour, litter, gulls) and the perceived quality of the facilities diminished as a result.

The Castlemore Golf and Country Club is a privately owned facility with 500 tennis members and 300 golf members. The facility is operated on a semi-private basis at present -- it is open to both the public and to members. The facility includes a 27 hole golf course, indoor and outdoor tennis courts, squash courts, a swimming pool, and banquet/dining facilities. There are plans for expansion of the facility to include an indoor golf range, bubbled outdoor tennis courts, and more squash courts. The owners of the facility feel that their proximity to the landfill will force the closure of the Club. Though members of the local community did not refer to the Country Club as a community resource in the same way that the Peel Regional Police Association Recreation Centre was discussed by residents of Area II, community meetings were held at the Club. For this reason, its role in the community, as a focal point for resident interaction, was seen to be comparable to the Peel Regional Police Association Recreation Centre.

Table 25 indicates services/facilities located within 500 - 1000 m of the siting options. They include the Mayfield Secondary School, the Church of Jesus Christ of Latter Day Saints, the Pioneer Cemetery, the Peel Regional

widely held and the potential for voluntary displacement greater than is evident from the survey results.

The implications for the churches are similar to the schools. The Home United Church is used mainly on the weekends and during the evenings. But it is used during the day about 5 to 6 times a year for 4H Club leader training courses. Potential nuisance effects from the landfill (noise, truck traffic) could disrupt these activities. The Jehovah's Witnesses Assembly Hall is used mainly for religious seminars on the weekends and is not usually in use during the week. Thus it is not likely to be impacted by landfilling operations though there may be some traffic impact on weekends due to the use of the facility by individual residents. However, all three churches (the Home United Church, the Jehovah's Witnesses Assembly Hall and the Salem United Church) were concerned about the possible effect of displacement of residents on the viability of their operations. The number of residents likely to be displaced by the landfill varies from 10 to 47 (see Table 29). The number who indicated that they would move if the landfill were sited in their area varies from 16 to 39 (see Table 9). An analysis was conducted of the potentially displaced (both forced and voluntary) residents and their church affiliations to determine if any one church could be potentially significantly affected by such displacement. Respondents were asked during the interview survey to indicate where they would move and this factor was taken into account in assessing the potential impact of displacement on the churches. The analysis revealed that the effect of displacement on the churches would be negligible:

Seven respondents who may be displaced indicated that they attend services at the Home United Church; of these two indicated that they would relocate within the Peel Region or in Norval and thus could continue to attend services at Home United.

Only one respondent who may be displaced indicated that he/she attended services at the Jehovah's Witnesses Assembly Hall; if relocated he/she would move outside of the Region of Peel and thus would not likely continue to attend services at the Jehovah's Witnesses Assembly Hall.

least important

Pioneer Cemetery (Site IIB)

Church of Jesus Christ of Latter Day Saints
(Sites IIB and IIE)

most important

Castlemore Golf and Country Club (Sites VIA
and VIB)Peel Regional Police Association Recreation
Centre (Sites IB and IC)

The above analysis of the impact of disruption of services and facilities results in the following ranking of sites:

low impact

IIF

IIC

IIE

IIB

moderate impact

IC, VIA

moderate-high impact

IB

VIB

The difference between IIF and IIC is in the number facilities located in the 500m - 1000m zone (IIF has two facilities in this zone, both churches, whereas IIC has the same two facilities plus a cemetery and the Peel Regional Police Association Recreation Center). The difference is significant. Siting Option IIE has no facilities in the 500m - 1000m zone but it does have one facility (the Church of Jesus Christ of Latter Day Saints) in the 0 - 500m zone. Thus the difference between IIF and IIE can also be considered significant. Similarly, the difference between IIF and IIB is significant. Siting Option IIB has a cemetery and a church within 0 - 500m and a recreation centre within 500m - 1000m.

to find new housing and to move), and the timing of the compensation (i.e., when it is actually received).

The total number of residents who may be displaced, their characteristics (age, type of tenure) and attachment to place (length of residence, ancestral ties to property, family and friendship ties in the community, life plans associated with property) were used as measures of the social significance of resident displacement and were also taken into account in the identification of impact compensation measures.

People's attachment to their home and/or community is difficult to measure because there are so many different variables that could be taken into account and these will vary from individual to individual. For example, some people may be strongly attached to their home because they built it themselves, or because they were married there, or because it's their first home and the culmination of years of scrimping and saving, and so on. In attempting to assess "attachment to place", emphasis was put on indicators generally agreed by social science researchers to be reliable indicators of attachment -- length of residence, ancestral ties, family and friendship ties -- and that could be used as a basis for comparison across sites. This is not to diminish the importance of unique situations such as the case where the home is owner built. Indeed, this is the kind of site-specific information that should be taken into account once a site is selected and attention is focused on the concerns of the specific residents affected. At this stage of site assessment, however, the concern is with comparative evaluation and as a result the emphasis must be placed on indicators that are relevant to all sites. The need at this point is to get a reliable "indication" of attachment to place among residents as a group for the sites under study and not to measure specifically each person's attachment to place.

Information on resident/household characteristics and attachment to place was collected through the resident interview process and thus is constrained by the limitations inherent to survey methodology. The most significant limitation is that the accuracy of information collected in a survey process is dependent on response rates and these will vary across sites sampled. Table

TABLE 6: SURVEY RESPONSE RATE BY SUB-AREA ON-SITE HOUSEHOLDS

	<u>IB</u>	<u>IC</u>	<u>IIB</u>	<u>IIC</u>	<u>IIE</u>	<u>IIF</u>	<u>VIA</u>	<u>VIB</u>
Number of Households ¹	4	3	14	12	3	4	7	13
Number Interviewed	1	1	12	11	2	0	6	8
Response Rate	25%	33%	86%	92%	67%	0%	86%	62%
Number of Non-Farm Households ¹	3	1	11	9	3	2	6	9
Number Interviewed	1	1	9	8	2	0	5	6
Response Rate	33%	100%	82%	89%	67%	0%	83%	67%
Number of Farm Households ¹	1	2	3	3	0	2	1	4
Number Interviewed	0	0	3	3	N/A	0	1	2
Response Rate	0%	0%	100%	100%	N/A	0%	100%	50%

1. Regional Municipality of Peel, Land Use Data, 1986..

Sites IB, IC and IIF, the survey results are tenuous and provide only a very rough indication of resident Attachment to Place. These result could not be adjusted for two reasons. First, because Attachment to Place was not a relevant evaluation criterion for impacts in the 0 - 1000m study area, sub-indicator data was not collected and thus an extrapolation from the Primary Impact Study Area to on-site households was not possible. And second, the numbers involved were too small to justify transposing to percents that would more easily facilitate comparative evaluation. Because of these difficulties, Attachment to Place was given the least weight of the three indicators used to evaluate the potential impact of resident displacement.

As Table 32 indicates, length of residence varies across the sites. Long-term residency appears to be a dominant characteristic of Area II. More respondents in Area II than in the other Areas reported having lived at their current address and in the community for more than 20 years. At site IIB, 8 of the 12 respondents interviewed have lived in the community for more than 10 years; this was the case for 8 of the 11 interviewed at site IIC. Long-time residency is also a noticeable characteristic of sites VIA and VIB where 3 and 2 respondents respectively have lived in the community for more than ten years.

Table 33 indicates that ancestral ties to property is a dominant characteristic of Area II on-site residents. Sites IIB, IIC and IIE each have a household that has been "in the family for over 100 years". This was also the case for the household interviewed at site IC.

As revealed by Table 34, friendship ties in the community are strong for on-site households at sites IIB, IIC, VIA and VIB. This is consistent with the the long-time residency and ancestral ties characteristic of these areas.

3.3.2 Potential Impacts

The siting of the proposed landfill, in terms of the displacement of residents, can potentially result in significant social impacts. It can create serious difficulties for households with children and elderly. It can create hardships for households involved in farming operations, especially full-time

implications for the farming community of the displacement of on-site farm households. Table 37 documents the results of this probing. For Area II, respondents felt they were either too old or had made too much of a financial and emotional investment to face starting over again. During the interviews they talked about the difficulty of making a go of it in farming nowadays especially over the past several years as market prices have declined, and of how forced relocation would simply be the "last straw" in a long series of difficult pressures.

Discussions with representatives of the Peel Federation of Agriculture reinforced this last point. They felt that other farmers in Areas I and II would see the displacement of farm households by a landfill as a clear signal that urban pressures were beginning to get a hold on the area and that commitment to farming in the area would gradually decline. In other words, the displacement of on-site farm households would impact not only those households but could have serious repercussions throughout the farming community.

The concerns expressed by Area II residents about being too old or not being able to justify starting over were shared by respondents in Area VI. However, more respondents in this Area were willing to contemplate the prospect of moving and reported that whether they started over again depended on more practical issues such as whether they could find quality farm land and whether the market was favourable.

3.3.3 Impact Rating and Site Ranking

The potential impacts of displacement are many. But they are not all equally important. In determining the relative importance of the impacts, the consensus among the study team and community representatives was that:

the number displaced was important but that the characteristics of those displaced should be the key consideration in assessing the significance of displacement

The results of this impact rating by site are reported below along with the ranking of the sites. Due to the number of indicators used to evaluate the impact of displacement, the ranking of sites occur in two phases. First, each site was ranked by indicator. Then, an overall impact ranking was determined.

Ranking of sites by Attachment to Place (Table 38):

None of the four households on-site in Sub-Area IIF was interviewed. As a result, assumptions had to be made regarding the "Attachment to Place" of the residents at this Site. The number of households involved as well as certain of their characteristics (e.g., households without children, number of persons over 65 years, number of properties owned) made this Site most comparable to IIE than to any of the other sites. For this reason, the survey results for IIE were applied to IIF.

Analysis of the data resulted in the following impact rating and ranking:

low impact	IB
low-moderate impact	VIA
	IC
	VIB
moderate	IIE, IIF
high	IIC
	IIB

Table 38 summarizes the results of the impact rating and ranking for this indicator.

Ranking of sites by Number Displaced (Table 39):

low impact	IIE
low-moderate impact	IC
	IB
	IIF

3.4 DISRUPTION OF RESIDENTS

The construction and operation of the proposed landfill facility may disrupt the way of life of residents in the vicinity of the site. Landfill-related nuisance effects (i.e., truck traffic, noise, dust, odour, litter, gulls) as well as its visual intrusion may interfere with the daily activities of nearby residents and/or diminish their use and enjoyment of their property.

"Way of life" refers to the manner in which people organize their lives on a day-to-day basis, and more importantly, to the meaning attached to these daily life patterns. Thus understanding someone's way of life is not just a matter of determining how they go about their business but also involved giving consideration to the preferences, values and expectations tied in with their daily life activities. It should be noted that social scientists generally agree that when people use the term "way of life" they tend to integrate within it notions of their "standard of living", "quality of life" and "lifestyle". Questions asked of residents during the interview survey process attempted to solicit this kind of information.

The potential for disruption of residents depends on their proximity to the site, their characteristics (e.g., property tenure, length of time at home during the hours of site operation, age), their use of property on a day-to-day basis, and the extent to which the facility will or will be perceived to interfere with daily activities and enjoyment of property. The proposed facility's potential public health and safety effects and their implications for disruption of the way of life of residents is addressed by MacLaren Plansearch. This study focused on potential disruption due to nuisance effects and visual intrusion.

Number of residents and their proximity to the site provides a direct measure of potential disruption that can be used for comparative purposes. This indicator was the starting point of the assessment of impact. Other indicators that were then taken into account included property tenure and length of time at home. The indicators used to determine "length of time at home" included

Certain characteristics of the households within the 0 - 1000m zone clearly vary across the sites, as Tables 45a and b indicate. Sites IIB and IC appear to have noticeably more households with children (66% each) than the other sites where the percentage of households with children ranges from 48% to 61%. Similarly, Site IIB appears to have more households with school age children (who are bused to school and are likely to spend more time outdoors than younger children and thus are likely to be exposed to potential effects of the landfill) than the other sites. The number of persons 5 - 14 years of age ranges from 17 at Site VIA to 34 at Site IIB. And finally, property ownership appears to be highest for Sites VIA and VIB (with 85% of the households interviewed in each area reported as owned) and lowest for Site IIC (74 % of the households interviewed owned the property).

These results hold for the 500 - 1000m zone (Tables 47a and b). It is within the 0 - 500m zone (Tables 46a and b) that these differences among the sites shift somewhat. Site VIA becomes the one with the most households with children, eight of the thirteen households interviewed, or 62%, had children. Sites IC, IIF and VIB appear to have the least with only 44% of the households falling into this category. From the survey results, Site IIC has the highest number of households with school age children and Site IIF has the highest percentage of households with elderly citizens. Finally, property ownership is highest at Site IIE (where 83% households reported that they owned the property) and lowest at Sites IIC (where only 58% of those interviewed owned their property).

Tables 48 and 49 provide an indication of the kinds of outdoor uses residents in the 0 - 500m and 500 - 1000m make of their property. Gardening, entertaining friends and relatives, family barbeques and children's activities are dominant uses across the sites. Swimming, cross-country skiing and snowmobiling also appear to be popular recreational activities.

3.4.2 Potential Impacts

The nuisance effects of the landfill (noise, litter, gulls, rodents) can be expected to be the same across the sites except for noise. Both short-term and

3.4.3 Impact Rating and Site Ranking

In determining the relative importance of potential disruptive effects of the proposed landfill, the consensus among the study team and community representatives was that:

proximity to the site was an important factor but careful consideration should be given to the nature of the potential effect and the characteristics of those potentially affected; the relative importance given to different geographic zones should be adjusted as required

the number disrupted within each geographic zone is important but again the characteristics of those disrupted should be the key consideration in assessing the significance of numbers disrupted

more weight should be given to the number of households potentially affected (as representing impacts on the family unit) than to the number of individual residents affected

more weight ought to be given to the disruption of homeowners than tenants

the number of young school-aged children ought to be given special consideration (all children are bused, use the road shoulders daily, and are likely to spend more of their time outdoors than other children and thus are more likely to be exposed to any effects of the proposed landfill).

more weight ought to be given to "length of time on property" during the operating hours of the facility than to other indicators; of the indicators used to assess "length of time on property" more weight ought to be given to farm households than to the other indicators due to the fact that farmers are apt to spend more time outdoors than pre-school children and elderly residents

This consensus resulted in the following impact rating:

Ranking of Sites by Number of Residents and Households Potentially Affected in the 0.- 500m zone (Table 52):

low impact	IIB, IIC
low-moderate impact	IC
moderate	IB
	IIF
	IIE
high	VIA, VIB

Table 52 summarizes the results of the impact rating and ranking for this indicator.

Ranking of Sites by Characteristics of Residents Potentially Affected in the 500 - 1000m zone (Table 53):

low impact	VIB
low-moderate impact	VIA
	IB
	IC
moderate	IIE
	IIC
high	IIF
	IIB

Table 53 summarizes the results of the impact rating and ranking for this indicator.

Ranking of Sites by Characteristics of Residents Potentially Affected in the 0 - 500m zone (Table 54):

low impact	VIB
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3.5 LOSS OF COMMUNITY CHARACTER

The assessment of "community" level impacts was done for Candidate Areas only and not for Siting Options since the Siting Options do not constitute "communities" in the sociological sense.

The introduction of a landfill into a community can have a negative effect on its character as a result of impacts on the community's environment and its aesthetics or the landfill's incompatibility with surrounding land uses. "Community character" refers to the distinctive qualities of a community which can be physical (land uses, environmental features), socio-cultural (way of life, shared values and perspectives), and economic (type of business activities). The character of a community is a function of the mix of these qualities and, more importantly, the meaning or symbolism which the community's residents attach to these qualities. As such there can be no single, universally applicable definition of community character.

The concern in the social impact assessment was with the potential incompatibility of the proposed landfill facility with distinctive qualities of each candidate Area. Assessment of impact on community character requires identifying these unique/distinctive characteristics, determining whether they are likely to be affected by the proposed landfill facility, and comparing the potential impacts on the three candidate areas in order to determine their relative importance. Factors and indicators taken into account in identifying community character included socio-cultural, environmental and historic characteristics. Impact on community character was based on assessment of extent of visual intrusion and professional judgment of the compatibility of the facility with community character.

3.5.1 Social Profile

In terms of socio-cultural characteristics, Areas I and II can be distinguished from Area VI. The former are well-established, stable farming communities while the latter is in transition from rural to urban

environmental features. In addition, the whole Hamlet of Tullamore in Area VIB, in both its physical and social characteristics, can be considered a distinct historical feature of the candidate Area. Tullamore was first settled in during the 1820's and served as a transfer point for grain shipments from areas as far north as Owen Sound to Weston and Toronto. A store established by one of the founding residents still remains as a remnant of the hamlet's historic past. And links to the past are also present in the small group of residents who live there -- several are descendents of early Tullamore settlers. There is no comparable feature in Areas I and II. The historic features are limited to individual heritage homes. Area I has one heritage home adjacent to siting option IC and Area II has six heritage homes on-site and four adjacent (MacLaren Plansearch, Investigations for Landfill Sites in the City of Brampton, March 1986, Appendix B).

3.5.2 Potential Impacts

Residents in all three candidate areas expressed strong concern about the potential intrusion of the landfill facility, both visually and sociologically, and of the basic incompatibility of the facility with community character. This concern was strongest for residents in Area II and siting option VIB.

In terms of the facility's potential visual intrusion, the Community Liaison Group members in Areas II and VI pointed out vantage points from which they were concerned the landfill would be visible. This information was given to MacLaren Plansearch for investigation and incorporation, if required, in their visual assessment study. Field checks revealed that, with proper screening, the working face of the landfill would not be visible from any of these vantage points. However, there were a few vantage points in both Area II and Area VI where berming and upper parts of the landfill would be seen. In addition to views from certain vantage points, overall visual intrusion was also assessed by MacLaren Plansearch (see: Visual Assessment in Areas I, II and VI: Report to the Regional Municipality of Peel). This assessment took account of the visual quality of the existing landscape, the visibility of

3.5.3 Impact Rating and Site Ranking

In determining the relative importance of potential impacts, the following impact rating was applied:

least important	environmental characteristics
	historical characteristics
	visual quality
most important	sociological character

This impact rating resulted in the following ranking of Areas (please note that Area VI was separated out into its sub-areas due to significant differences in community character between VIA and VIB):

low impact	VIA
low-moderate impact	AREA I (IB, IC)
moderate impact	AREA II (IIB, IIC, IIE, IIF)
moderate-high impact	VIB

Table 59 summarizes the results of the impact rating and site ranking.

3.6 LOSS OF COMMUNITY COHESION

The assessment of "community" level impacts was done for Candidate Areas only and not for the Siting Options since the Siting Options do not constitute "communities" in the sociological sense.

I and II are well-established, stable farming communities with strong ancestral ties to property and extended family relationships (e.g., homes built for grand-parents on property, portions of property given to sons and daughters to "get them started"). These characteristics are less dominant in Area VI which, for some time, has been in transition from a rural to an urban character.

Tables 62 and 63, which provide information on interactions with neighbours, further reinforces the differences between the areas. Twenty five percent of respondents in Areas I and II reported that they visit daily with their neighbours and help or receive help from their neighbours. The percent of respondents in Area VI who reported visiting daily with neighbours was 13% and only 6% help or receive help from neighbours on a daily basis. Not only is the level of interaction between neighbours generally higher in Areas I and II than in Area VI but so is the level of inter-dependence. Again this is consistent with the fact that Areas I and II are farming communities -- reliance on neighbours for assistance is a way-of-life in such communities.

Table 64 indicates the level of resident involvement in community groups and associations. Nearly two-thirds of the respondents in Areas I and II reported that they belonged to a community group or association. In Area VI, 38% of the respondents are members of community groups.

One final indicator of community cohesion is the extent to which residents rely on services within the community, a rough measure of the degree to which a community can be considered to be "self-contained". The presence of certain services such as convenience stores and recreation centres offers focal points for resident interaction on a regular basis. It should be noted, however, that this indicator is only a measure of the opportunity for resident interaction and not a measure of the degree of interaction itself. For this reason, it is not as strong an indicator of cohesion as the others discussed above. As Table 65 indicates, Area VI has noticeably more reliance than Areas I and II on three services, namely convenience goods, gasoline and recreational facilities. Area VI residents obviously benefit from the presence of the Hamlet of Tullamore in the community and the easy accessibility of the Caledon recreation centre.

Thus, community cohesion in Areas I and II is a function of kinship ties, interaction with neighbours and resident involvement in community groups whereas in Area VI it is mainly a function of friendship ties and availability of local services. The measures of cohesion evident in Area VI are not as strong as those in Areas I and II; Area VI can be considered to be less cohesive than Areas I and II.

3.6.2 Potential Impact

Loss of community cohesion is not a direct impact; it results from the cumulative effect of various impacts such as the displacement and disruption of services and facilities, the displacement of residents, and loss of resident loss of satisfaction with place. Thus the assessment of potential impact on community cohesion involved taking the results of the social impact study for these factors into account and assessing the implications of these for community cohesion in each area.

Only recreational facilities were considered to be relevant to the assessment of potential impact on community cohesion in the three candidate areas. Schools and churches do provide a focal points for community interaction but impacts on these facilities are not likely to be significant. Cemeteries were not considered a focal point for community interaction and thus were excluded from the assessment of impact on cohesion. The only area where displacement of a recreational facility is a possibility is Area II. All Areas, however, have recreational facilities that may be disrupted by landfilling operations. In Areas I and II, the potential impact is on one facility (the Peel Regional Police Association Recreation Centre); in Area VI it is on two facilities (the Castlemore Golf and Country Club and the Caledon Recreation Centre). It should be noted that the potential impact on the Caledon Recreation Centre is expected to be minimal due to its distance from the siting option and the fact that its peak hours of operation do not tend to coincide with the hours of landfilling operations. In terms of this measure (displacement and disruption of recreation facilities), Area II is likely to be most affected; Areas I and VI can be considered to be affected to the same potential degree.

TABLE 9: SOCIAL PROFILE - DEGREE OF RESIDENT CONCERN REGARDING
LANDFILL
PRIMARY IMPACT STUDY AREA

	<u>Area I</u>	<u>Area II</u>	<u>Area VI</u>
Concerned?			
Yes	98% (39)	94% (65)	94% (68)
No	0%	4% (3)	4% (3)
Don't Know	3% (1)	1% (1)	1% (1)
Considered moving?			
Yes	48% (19)	51% (35)	60% (43)
No	45% (18)	41% (28)	39% (28)
No Response	8% (3)	9% (6)	1% (1)
If yes, taken steps towards moving?			
Yes	51% (10)	40% (14)	35% (15)
No	49% (9)	60% (21)	65% (28)
If landfill site here, would move?			
Yes	40% (16)	49% (34)	54% (39)
No	18% (7)	17% (12)	17% (12)
Don't Know	25% (10)	25% (17)	28% (20)
No Response	18% (7)	9% (6)	1% (1)

Note: Rounding of numbers sometimes results in the total exceeding 100%; numbers in brackets refer to number of respondents (see Table 5 for total number of households interviewed in each area).

Area I. No conclusion can be reached on the basis of this criterion alone. The implication of potential voluntary displacement for community cohesion depends on both the potential magnitude of the effect (and there is not a significant difference between the three areas in this regard) and the degree of cohesiveness evident in the community at present. As discussed in Section 3.6.1, Areas I and II appear to exhibit more cohesiveness than Area VI. As a result, the withdrawal of residents from community affairs or the community altogether due to loss or resident satisfaction with place will likely be more keenly felt in Areas I and II than in Area VI.

3.6.3 Impact Rating and Site Ranking

In considering the relative importance of potential impacts, the consensus among the study team and community representatives was that:

disruption of services was least important due to the relatively small magnitude and nature of the potential effect

displacement of services was more important than disruption because it represented a potential loss to the community

displacement of residents was next in importance and characteristics of those displaced as well as numbers should be taken into account

the implications of loss of satisfaction with place were most important to the assessment of impact on cohesion.

This consensus resulted in the following impact rating:

least important	disruption of services
	displacement of services
	displacement of residents
most important	potential loss of satisfaction with place

This impact rating resulted in the following ranking of Areas (Table 66):

being built along the west side of Highway 10 near Mayfield Road. The plans would allow seven residential units per acre.

Both key informants were concerned about the disruptive effects of landfill related truck traffic. Over the past ten years traffic on Mayfield Road has increased steadily. Now the community, it was felt, has a traffic problem with cars backed up on Mayfield Road during early morning rush hour. The view was that additional truck traffic would aggravate current problems. Concern was expressed that two community facilities could be negatively affected by increased traffic problems. These included the Community Hall on Highway 10 just south of Mayfield (which is operated by the Lions Club and used by the Dutch Reformed Church for services, a senior citizens group, and other groups for receptions) and the Fire Hall which is next door to the Community Hall. In both cases the concern focused on reduced access. Both felt, however, that this problem could be avoided if Highway 10 near Mayfield Road was not used as an access route for the landfill facility. Proposed access routes in the Area do not include Highway 10 and Mayfield and so traffic impact is not likely to be a problem.

Other concerns expressed by the key informants include: litter, odours, and leachate interfering with septic systems. Given the distance of Snelgrove from the proposed undertaking (it is well beyond 1000m of siting options in Areas I and II) it is unlikely that the community will experience any nuisance effects of the landfill. And given the proposed design features of the proposed undertaking and the generally southward direction of groundwater flow, it is not likely that leachate will interfere with septic systems.

A more serious concern raised by one of the key informants was the potential stigma effect of the landfill and its potential to interfere with current plans for development in the community as well as its potential to cause residents to move away. Residents in the community are concerned about the prospect of living near a landfill facility. They don't know what to expect and fear that the Region may expand the size of the landfill at some point. This kind of concern is not easily mitigated and will depend heavily on the kinds of facility design and management policies that are adopted and how these are communicated to concerned publics.

site for the landfill facility and the potential for truck traffic problems is thus a real possibility. To minimize this impact, detailed site specific studies would have to be undertaken to identify appropriate mitigative measures.

Potential water contamination was reported as a concern for those living on farms and in residences along Mississauga Road which are not serviced. Huttonville is downstream of both Areas I and II. Much of the concern focused on who would pay for alternative water supplies should it ever be needed and whether those impacted would be fairly compensated. Given the design features of the proposed facility, it is unlikely that water contamination will be a problem. However, there is clearly a need to provide residents with some measure of certainty regarding what actions will be taken should a problem arise and how their interests will be safeguards.

Neither key informant felt that community services and facilities would be negatively affected.

Overall, the siting of a landfill in Area I or Sites IIE and IIF (more so than at Sites IIB and IIC) is likely to have a negative impact on Huttonville as a result of increased truck traffic.

3.7.3 Tullamore (Area VI)

Tullamore was settled during the 1820's and served as a transfer point for grain shipments from areas north of Toronto. After the turn of the century, business at the local granaries fell off and eventually they closed. The settlement was to have been the county town, a development which would likely have sustained the hamlet. But a decision by the railway company to route their line through Malton instead of Tullamore hastened the decline of the hamlet.

At present there are nine residences within Tullamore. Brampton's Official Plan has designated Tullamore as an area of hamlet expansion. The key informants, both direct descendents of early Tullamore settlers, regard this

3.7.4 Professor's Lake

Compared to the other sub-communities, Professor's Lake is a relatively new suburban community. Resident concerns regarding the proposed undertaking are quite strong and wide-ranging. They generally focus on perceived threats to human health and safety.

Potential fouling of Professor's Lake is a key concern of the community, according to the key informants. The lake is a resource highly valued by community residents. It now has a water quality problem of uncertain origin. A study is currently underway by the City of Brampton but results are not yet available. The residents fear that the old landfill located beside the lake is a source of contamination (the landfill is not lined with a leachate barrier) and they fear that the proposed landfill will add to the lake's water quality problem as a result of groundwater contamination and by attracting gulls who will use and foul the lake. The key informants felt that it was inappropriate to put a potential forage site near a body of water that is used for recreational purposes. Contamination of Professor's Lake by leachate from the landfill is not likely given the design features being incorporated into the facility. Fouling of the lake by seagulls is a possibility. The potential significance of this problem and ways of minimizing it is something which warrants further investigation should Area VI be selected for the landfill.

The potential negative impact of landfill operations (excavation and grading of earth) and truck traffic on air quality is another strong concern of residents in Professor's Lake. The key informants noted that the area is known as the "inhalator capital of Canada", a reference to a recent health study which showed a higher than average level of hospital admissions in Brampton of children under four years of age with respiratory problems. The Region's Health Unit is now undertaking a study to clarify the nature of the problem (e.g., does it simply reflect from a change in the way hospitals are used, or does it reflect actual environmentally-related health problems?). The residents were concerned that the landfill truck traffic (which will average about 600 trucks per day) coupled with traffic generated by the American Motors plant (which is expected to generate 1000 cars per shift or 3000 per

The anxiety of the residents of Professor's Lake is understandable. They are confronted with a water quality problem of uncertain origin, an inconclusive report of respiratory problems among young children, and a proposal for an undertaking that most communities would regard as a threat to human health and safety. In other words they are confronted with a lot of uncertainty and are being asked to put their trust in government officials and politicians. However, the view expressed by the key informants was that as far as landfilling is concerned, the Region's and the Ministry of the Environment's ability to manage such facilities effectively is questionable -- "the record doesn't show that citizens have been taken care of". In addition, their experience of the siting process has left them disillusioned, resentful and distrusting of Regional officials and politicians. The process is regarded as essentially a "political one" in which expert advice and citizen input are routinely ignored. There is a strong feeling among residents of a loss of control over the quality of their environment. As one of the key informants put it, "We live in the area but what happens to it is apparently none of our business as far as the politicians are concerned".

What this suggests is that the measures needed to deal with concerns on the part of Professor's Lake residents will have to go beyond standard mitigation to include special impact management measures. One suggestion put forward by the key informants (and also by residents in the other study areas) was that a citizen's monitoring committee should be set up. Other kinds of measures suggested by the key informants as means of making the proposed facility more acceptable to the public included:

Making it smaller and of shorter duration.

If it is located in Area VI, locating it in the northern part of the area.

Making the facility a high technology one by including a sub-station for the reprocessing of materials and thereby turning "a dump" into a positive and practical economic venture that contributes to the overall social well-being of the community.

3.8 OVERALL IMPACT RATING AND SITE/AREA RANKING

The above analysis provides a basis for determining the overall ranking of siting options and identifying a preferred option.

The ranking of siting options and areas involved determining the relative importance of the six factors assessed in the social impact study. The consensus of the study team and community representatives was that the impact factors should be placed in the following order of importance:

least important	displacement of services/facilities
	disruption of services/facilities
	displacement of residents
	disruption of residents
	loss of community character
most important	loss of community cohesion

(a) Overall Impact on Services/Facilities

Tables 67 pulls together the impact ratings and site ranking that were established through the analysis of the potential effects of the proposed undertaking on services and facilities.

Siting options were ranked as follows in terms of overall impact on services and facilities:

least impacted	IIC
	IIB
	IC
	VIA
	IB
	VIB
	IIF
most impacted	IIE

	IIF
	IIE
	VIA
most impacted	IIB

Overall, impacts on residents are likely to be least at siting option IC. It doesn't have the least displacement impact (site IIE ranks lowest in this regard) but the difference between IC and IIE is not significant). It is the nature of the potential disruptive effects at site IC which make it the preferred option -- the numbers and characteristics of those potentially affected are less significant than at other siting options.

Candidate Areas were ranked as follows:

lowest overall impact	Area I
	Area VI
highest overall impact	Area II

There are significant differences in impacts on residents in Area I versus those in Area VI and they are more pronounced for VIB than for VIA. These differences have to do not just with the numbers affected but also with the characteristics of the residents, specifically their age (there is a greater proportion of school age children and elderly in Area VI) and tenure (there is a greater proportion of property owners in Area VI, especially in VIB).

(c) Overall Impact on Community

Table 69 pulls together the impact ratings and site rankings established through the analysis of the potential effects of the proposed undertaking on community. It takes into account potential impacts on sub-communities as well as the larger community in each area.

The Areas were ranked as follows in terms of overall impact on community:

numbers would be affected) and more difficult to mitigate (since many of the qualities of community are intangible) than impacts on individual residents. For this reason, the overall impact in Area VI was judged to be less than for Area I.

It is more difficult to rank the eight siting options because impacts on "community" could only be considered on an Area rather than a Site basis. Nonetheless, an overall ranking is possible taking into account the full range of potential impacts that have been identified for the Areas and Siting options:

Of the two siting options under consideration in Area VI, option VIA should be considered preferable to option VIB. Potential impacts on services/facilities, displacement of residents, and loss of community character are likely to be greater for VIB than for VIA.

Of the siting options under consideration in Area I, option IC should be considered preferable to IB. Potential disruption of services/facilities and impacts on residents are likely to be greater for IB than for IC.

Both options IC and IB are preferable to option VIB. Potential disruption of services/facilities, displacement of residents and loss of community character are greater for VIB than for IC. Potential displacement of residents and loss of community character are greater for VIB than for IB.

All of the siting options in Area II are likely to be more impacted than siting options in Areas VI and I.

Of the siting options under consideration in Area II, option IIC should be considered preferable to options IIF (the next preferred), IIB and IIE (the one likely to be most significantly impacted of all eight siting options).

PART THREE: IMPACT MANAGEMENT

Section One: Issues

Preventing or minimizing social impacts is seldom simply a matter of identifying problems to be solved. Social impacts, especially for undertakings regarded as noxious and a threat to community well-being, generally involve issues to be resolved. And the manner in which such issues are resolved can be a key determinant of people's perceptions of the significance of potential social impacts and their judgments of the acceptability of proposed impact management measures. If those affected feel that they have been treated unfairly or that key points of contention have not been fully addressed and carefully considered, they are likely to regard the undertaking as an imposition on them and their community and all of its impacts as significant, regardless of measures taken to prevent or lessen potential problems. Issue resolution is thus an important element of effective social impact management. It requires, however, a sound understanding of the attitudes and concerns underlying the issues. An effort was made in the social impact assessment to address this objective.

Four issues were identified as key in this case. These included:

the equity of one 40 year site versus sequential 20 year sites versus sequential twelve year sites

loss of community control over the quality of their environment

the social impacts of the siting process itself

impact compensation

Analysis of the results of the household interviews and discussion of the issues with the Community Liaison Groups led to the determination that the latter two issues were very inter-related -- impact compensation, from the point of view of potentially affected residents, should take into account the impact that the siting process had on them -- and should be combined. Resident perspectives on equity, control and compensation are discussed below.

represents an inequitable distribution in the social costs associated with landfilling and they argue that no community should be asked to live "a lifetime" with such a facility.

The objective in exploring this issue in the context of the social impact assessment was not to evaluate the options. Rather the intent was to address the issue of equity, specifically what should be done to make a 40 year siting option more equitable.

The high degree of controversy which surrounded the issue precluded relying solely on the input of local residents (at this stage of the siting process, there was, understandably, resistance to any discussion of how the inequity of a 40 year site could be addressed). For this reason, a focus group workshop was used to facilitate an exploration of the issue. Focus groups is a technique developed in the field of market research to test consumer attitudes and opinions. Success in that arena has led to its application in other fields, most notably land use planning and resource management, especially when controversial projects are involved and there is a need to obtain neutral, "third party" perspectives on value-laden public interest issues. Putting such issues before a group of individuals, none of whom have a direct stake in the outcome, can provide policy makers with an indication of broader public sentiment and the social acceptability of various options for dealing with the issues. The strengths and weaknesses of the focus group approach and the criteria used to select participants in this case were set out above in Part One, Section 2.2.5. The results of the focus group workshop are discussed below.

Three main questions were put to the focus group participants: 1. What kinds of considerations or criteria should guide the selection of one option versus another (the 40 year-400 acre option versus concurrent or sequential smaller sites)? 2. How should the community that receives the landfill be compensated to redress the fact that it will have to bear the lion's share of the facility's potential impacts and risks? 3. Should there be different compensation measures associated with the different options?

policies and programs in the community. The following were listed as elements of a good compensation program:

property value protection which would be based on having baseline appraisals and a guarantee of property value;

compensation if impacts occur; this should include a monitoring program and a committee to review claims; involving citizens in the monitoring program and on compensation committees was seen as a necessary means of increasing community trust

compensation to individuals for the stress of living near the site; this could be financial or it could involve providing the community with benefits which would enhance the quality of life of its residents

monitoring which is done independent of the municipality; citizens should be involved in the monitoring program

servicing the nearby area with sewers and water

direct financial compensation to individuals for nuisance impacts (noise, litter, dust, gulls) throughout the duration of the facility's operation; for example, this could be in the form of reduced property taxes

a clear policy as to the fate of the landfill; it is important for the people living near the facility to know what will happen to the site in the future

payments such as tipping fees should be used to promote the 4R's (a measure seen as particularly important to avoid the "complacency risk" associated with one large site)

there should be some acceptance of absolute liability on the part of the Region and a committee should be established to assist in resolving small claims and thus help to avoid unnecessary court cases

incidence of respiratory ailments in children). The sentiment was often expressed that residents confront a "closed door" policy where information is withheld (by government agencies at all levels) and the community is "kept in the dark" for long periods of time. In addition, it was felt that the onus appears to be on the residents to keep pushing for responses and to take the initiative to make contact with Regional officials.

The representativeness of these views was substantiated by the results of the household interviews conducted in the Primary Impact Study Area of each Candidate Area. Table 71 reports the responses given by residents to questions regarding whether they felt that they had sufficient opportunities to learn about the proposed undertaking and to discuss the issue with municipal officials and politicians. In Area I, 44% of the respondents felt that they did not have sufficient opportunity to learn about the proposed landfill. In Area II, 35% of the respondents held this opinion whereas in Area VI 61% of the residents did not feel that they were given sufficient opportunity to learn about the proposal (an understandable result given the fact that siting option VIB was only added to the list of siting options in June 1986). In each Area, the percentages of negative responses rose considerably when residents were asked whether they had had sufficient opportunity to discuss the proposal with officials and politicians. In each case a majority of respondents reported that they had not had sufficient opportunities to discuss the proposal. And again, the negative responses were particularly high for Area VI respondents.

It should be noted that the responses discussed above do not appear to be the result of a lack of resident involvement in the siting process. As shown by Table 72, residents have generally been quite active. A majority of respondents in all three Areas have attended meetings organized by local citizen groups on the issue; a significant percentage have read regional reports (68% in Area I, 65% in Area II, and 48% in Area VI) and attended regional open houses (53% in Area I, 46% in Area II and 38% in Area VI; and many have contacted their local politician (30% in Area I, 34% in Area II and 21% in Area VI).

is not likely to be a willing participant in other regional programs, programs which rely heavily on resident cooperation.

1.3 COMPENSATION

Public acceptance of an unwanted facility, such as a 400 acre landfill, cannot be achieved by simply minimizing risks and mitigating impacts. Regardless of how carefully sited and designed a facility is, some impacts will be unavoidable, people's lives will be disrupted, and the aesthetic character of the community will be changed. When the issue of equity is added to this -- that the residents in the area where the facility is located are being asked to assume, on behalf of the residents of the City of Brampton and the Region of Peel, the largest share of the facility's potential risks and impacts -- it becomes obvious that to leave the community at least as well off after the siting as before, some form of compensation is necessary.

Resident attitudes and opinions with respect to compensation were explored in discussions with the Community Liaison Groups and through the resident survey process. It should be noted that "compensation" was regarded as any extra measures that would have to be applied, above and beyond what is normally done, to protect the interests of potentially affected residents. Impact assessment practitioners tend to distinguish between compensation (payments, financial or in kind, for impacts) and other kinds of impact management measures such as monitoring or pre-servicing. This distinction, however, is not important from the perspective of potentially affected residents who are concerned only that extra care and consideration be applied.

The perspectives of residents in all three Candidate Areas regarding what constituted "fair" compensation was influenced not only by their perceptions of the proposed facility's potential risks and impacts but also by the degree to which they felt themselves to have been already impacted by the siting process itself. It was generally held by residents in all Areas that compensation should take into account the impact of the process as well as the impact of the project.

Between 87% and 90% of respondents also were of the opinion that some form of compensation for direct costs and damages was very important, and though Table 76 doesn't convey this, the opinion was often expressed that the compensation process should be made "fairer" in that less burden should be placed on residents to prove cause and effect linkages (e.g., one suggestion put forward by residents was that the Region set up a fund to hire an independent fact-finder if and when problems arise and there is a need to establish whether compensation is warranted). Between 82% and 94% of respondents considered monitoring of contaminants in livestock and monitoring of public health to be very important. Pre-servicing of the site was also strongly favoured, in particular in Area II where 91% of respondents considered it to be very important. Finally, significant percentages of the respondents, between 57% and 90%, ranked the following three measures as "very important": putting local residents on a monitoring committee (support for this measure was especially high in Area II), monitoring of land values and other economic factors, and regularly publishing reports on the operations of the landfill facility.

Residents were asked in an open-ended question to identify what they felt to be the "three most important" measures. Table 77 gives an indication of the priority or relative importance assigned to the measures in this regard. Again, monitoring of air and water quality tops the list with over 50% of respondents in all Areas citing this measure as among their three most important. This is followed by monitoring of public health and compensation for loss of land value, both of which were particularly favoured by respondents in Area VI. Next in importance are monitoring of contaminants in soil and crops, pre-servicing to provide an alternate source of water, and compensation for direct costs and damages. Area II respondents were not as apt to select monitoring of contaminants in soils and crops as one of the three most important measures; on the other hand, a greater proportion of respondents in Area II than in Areas I and VI selected compensation for direct costs and damages as one of their three measures. Monitoring for land values, monitoring of contaminants in livestock, and regular reports on facility operations were listed less often than the measures discussed above and support for these measures appears to be uneven across the sites. In addition to these measures, the residents put forward the following: locating the

Section Two: Impact Management Recommendations

Impact studies are intended to facilitate decision-making in two ways: in the identification of a preferred alternative for an undertaking and in the selection of appropriate measures to prevent and/or minimize any potential adverse effects. A careful assessment of siting options, ensuring that an environmentally sound and socially suitable site is selected, is obviously an important means of preventing and minimizing potential impacts. But this is only the first step in impact management. Regardless of how carefully selected a site is, impacts are likely to occur. The development of a strategy to manage impacts, once a site is chosen, is the essential next step.

In addition to sound site selection, impacts can be prevented and/or minimized through careful facility design (which involves not only the selection of appropriate engineering features but also sensitive site design to minimize any incompatibility of the facility with its surrounding environs) and effective operational practices. In terms of social impacts, one additional requirement is responsive community relations. Resident perceptions of a facility and, more importantly, its ongoing management play an important role in determining their responses to it. Responsive community relations (e.g., quick action on resident concerns, regular reporting on facility operations to the community, involvement of residents in monitoring programs, etc.) is not a substitute for careful facility design and effective operational practices; but it can prevent and/or minimize unnecessary community concern and anxiety which itself can result in negative social impacts.

Various kinds of impact management measures can be adopted. These generally fall into three categories:

Mitigation measures aimed at minimizing potential risks and impacts (installing traffic controls to minimize risks at points of site access, landscaping to minimize visual intrusion, and use of dust suppressants on-site are examples)

emotional ties to home and community are more difficult to sever, especially when the choice to move is not a voluntary one.

Disruption is likely to be as significant as displacement in terms of the extent of the impact (numbers affected both directly and indirectly) and the kinds of adjustments that will be required on the part of those affected. Given current perceptions of the proposed facility coupled with strong negative feelings about the way in which the siting process itself was conducted, adjustment to the facility is likely to be a difficult process for residents living near it.

Disruption of the "community" (i.e., the collectivity of individuals who live in the area) is likely to be more significant overall than disruption of individuals in that all residents within the community boundary could be potentially affected not just those within 1000m of the site boundary.

Potential disruptive effects extend beyond the community boundaries in each Candidate Area to include the sub-communities.

Community disruption will be the result of loss of character and loss of cohesion. Both, in turn, will be the result of the "stigma effect" of the landfill -- perceptions, by residents and others who may have considered moving into or investing in the community, that the character and quality of the community has been seriously diminished.

Both resident disruption and community disruption will likely be exacerbated by the "unsettling effect" of unresolved issues relating to the siting process and landfilling operations. At the root of much public concern in this case are perceived inequities, feelings of loss of control over the quality of one's environment, fears and uncertainties regarding potential impacts, and lack of trust in the Region (in particular its decision-makers) to mitigate impacts and manage risks effectively.

In deciding "how far to go" in addressing impacts on individuals and the community, the length of time that the facility will be operated is a

2.1 MITIGATION MEASURES

It is assumed that all required mitigative measures related to the engineering and operation of the facility will be applied to ensure that the facility poses no hazard to public health and safety. The following focuses on mitigative measures necessary to minimize potential nuisance and disruptive effects identified as problematic in the social impact assessment.

1. Regardless of location, berming and extensive landscaping of the site should be undertaken to minimize visual intrusion to the fullest extent possible. More mitigation, in this regard, is likely to be required in Area VI than in the other Areas due to the higher density of development with views of the site (e.g., the estate development to the east).
2. Regardless of where the facility is located, consideration should be given to the use of dust suppressants on-site and along access roads within 1000m of the site to minimize potential nuisance and health effects of airborne particulate matter.
3. Regardless of where the facility is located, consideration should be given to the location and hours of operation of collection bins to minimize potential impacts of (a) weekend facility-related small vehicle traffic on the operation of services and facilities and (b) indiscriminant dumping in the area around the bins, on resident satisfaction with place.
4. If the facility is located in Area VI, it should be located as far away as possible from the Hamlet of Tullamore and investments made to improve the urban design features of the Hamlet in order to reinforce and enhance its "hamlet" character.
5. If the facility is located in Area VI, access to the facility off Airport Road should be minimized to reduce the disruptive effect of truck traffic on households fronting Airport Road and on the Hamlet of Tullamore.

4. Consideration should be given to compensating residents within 500m of the site boundary for the disruptive effects of the facility (regardless of whether they are a property owner). This could take the form of the provision of landscaping to screen the property or an agreement to provide "spring clean-up" assistance (e.g., payment for window washing to remove grim resulting from on-going facility construction and operation).

5. Consideration should be given to providing "community compensation" to redress perceived inequities. This could take the form of a fund allocated to the community to cover the costs of any new services and/or facilities identified by the community as priorities. One way in which the funds could be generated is by establishing a "community impact management tipping fee". Regardless of how the fund is generated, community compensation should not be seen to include mitigative measures (such as road widening or landscaping) required to prevent and/or minimize potential impacts.

2.3 CONTINGENCY MEASURES

It goes without saying that not all impacts can be predicted with certainty. There is always the potential that the unforeseen will happen or that predicted effects will be more significant than anticipated. Much of the anxiety underlying resident concern in each of the Candidate Areas was related to this uncertainty. Effective impact management, one that is responsive to social impacts, acknowledges this uncertainty and the need for flexibility and adaptability in both facility design and operation. The following contingency measures are recommended.

1. A detailed plan for the provision of alternate water supply should be developed and should be based on household specific information relating to water use requirements.

2. A program to monitor environmental and socio-economic effects of the facility should be developed and should address, to the fullest extent possible, the specific concerns and priorities of the community where the facility is located (responses of residents with regard to monitoring varied

the impact management of landfill facilities generally and not in any one area and second, to give those who have been involved in the landfill siting process the opportunity to use their knowledge and experience of landfill issues to influence longer-term management policies.

2. To the fullest extent possible, the specifics of the impact management measures should be developed in consultation with residents in the area where the facility will be located so that mutually-agreed upon measures and procedures can be identified and adopted. Direct involvement of residents in the development of impact management measures can be an effective means of building trust and confidence in the measures and the Region's ability to apply them effectively.

2.5 FUTURE SITING PROCESSES

Setting aside the issue of how sites were eliminated from the selection process, resident concerns in this case were clearly aggravated by two key factors: misperceptions of landfilling operations and the lack of clear policies regarding compensation and mitigation.

It was not uncommon for residents to equate the proposed landfill with a toxic waste management facility and to anticipate a degree of impact which was often unwarranted. Often the residents' concerns were rooted in past unresolved landfill or environmentally-related issues (e.g., the lingering perception that the Chinguacousy landfill contaminated well water, or the escalating concern that Brampton children are victims of environmentally-induced respiratory ailments) and to the way in which their concerns were/are being dealt with (e.g., delayed responses, lack of access to information).

What this seems to indicate is the need for more effective issue management if future landfill facility siting processes are to be less socially disruptive. The problem could be due to various factors including: the kind of information provided (doesn't address the specific concerns of residents), the form of information provided (not understandable to lay persons), the distribution of

List of Contacts

Listed below are the names of all public officials and impact assessment professionals contacted during the conduct of the social impact assessment. It also lists the Focus Group Workshop participants.

Excluded from the list are Key Informants (listed in Appendix 6) and Service/Facility Owner/Operators contacted (listed in Appendix 7).

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