

GREY COUNTY, ONTARIO, CANADA

AGGREGATE RESOURCE INVENTORY



MASTER PLAN

PRODUCED FOR GREY COUNTY • OCTOBER 2004

**AGGREGATE RESOURCE INVENTORY MASTER PLAN
GREY COUNTY**

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Grey County

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EXECUTIVE SUMMARY

Project Assignment

In September of 2001, The County of Grey developed the terms of reference for their Aggregate Inventory Master Plan as required by their Official Plan. The mandate for this study is to identify, protect and prescribe management for the aggregate resources of Grey County.

Specifically, the purpose of the Master Plan is to:

- i) identify and examine the Mineral Aggregate Resource in the County of Grey;
- ii) assess the environmental, social and economic factors affecting the resource utilization;
- iii) develop a management strategy for the aggregate resource and rehabilitation of future and existing extracted areas;
- iv) develop Official Plan policies for the implementation of the management strategy into the Grey County Official Plan; and
- v) ensure that aggregate resources are protected and managed in the County of Grey in a manner that is in the public interest, and which has regard for the Provincial Policy statement.

The Official Plan recommends the Master Plan be implemented by way of an Official Plan Amendment.

The Aggregate Inventory Master Plan meets the purpose of the Master Plan by providing a variety of basic information relating to the sand and gravel resources in Grey County, and identifying and analyzing the economic benefits of the extraction industry, the environmental resources in the County, the social and community context, and a variety of other related aspects.

Data Collection

The data collection phase of the study required the gathering of all readily available data on the aggregate resource, environmental features, surface hydrology, agriculture, ground and surface water, traffic, cultural heritage resources, planning and social issues. An aggregate market analysis, fiscal and economic impact assessment and public participation program were also included as part of this study.

The majority of the data collection involved the gathering of information from existing data sources; however a field re-assessment and reinterpretation of the aggregate resources was included in this phase of the study.

Public participation was a pre-requisite for the Master Plan. There were two objectives for public participation: first to obtain input from the public and second, to distribute information to the public on aggregate resources in Grey County and the Industry in general. Open Houses, surveys and the County web site were used to achieve these goals.

Public representation was carried out from the creation of the Terms of Reference to the final review of the draft report by the Public Liaison Group. The Group consisted of the following representatives:

- aggregate producers;
- Grey County;
- agencies(MMA&H, MNR and Conservation Authority); and
- local municipalities.

This group played a key role in meeting regularly with the consulting team and approving various approaches and stages of the study.

Analysis

The Analysis portion of the Study involved assessing the impact that various constraint factors have on the availability of the resource. The first step was to use a constraint overlay to identify constrained and unconstrained resources.

Evaluation criteria were developed to map all known constraining factors and provide an evaluation of the potential impact on aggregate extraction. Each constraint was determined to have a high or low potential impact based on the ability to potentially mitigate the constraint.

A Resource Evaluation Model was developed to assist in understanding the significance of the constraint or combination of constraints. Aggregate resources were identified that were:

- i) eliminated due to the severity of the constraint(s);
- ii) partially constrained; and
- iii) have no apparent constraints to extraction.

A secondary component of the analysis phase was to develop rehabilitation scenarios. Key components to maximize resource utilization and rehabilitation efforts were identified, and flow charts created to provide guidance for the types of rehabilitation that can be achieved in certain areas.

Results

The fundamental conclusions of the study are as follows:

1. Approximately 15% of the Primary and Secondary deposits are either “eliminated” or “highly constrained”. “Moderately constrained” resource lands are approximately a third of the Primary/Secondary resources, and there is a substantial fragmentation of available lands. The cumulative impact of the moderate constraints plus land fragmentation is approximately half of the primary and secondary aggregate resource

lands in Grey County.

2. Local demand for aggregates in Grey County is expected to remain below 3 million tonnes per year to 2023. There is potential in the medium term (10 to 20 years) for Grey County producers (particularly those in the southern area of the County) to export aggregate to demand areas in the northwestern portions of the GTA. Long term (beyond 20 years) potential exists for Grey County to export to the GTA in greater volumes; however, given the uncertainties regarding supply in areas closer to the GTA, such as Simcoe County, the Waterloo/Wellington area and the Hamilton/Niagara/Brantford area, and possible changes in provincial regulations, it is difficult to predict exactly when significant export of aggregates would occur.
3. Aggregate operations provide a modest positive impact to the municipal finances of Grey County and the local municipalities. This benefit is estimated to be approximately \$60/1,000 tonnes of aggregate extracted. There are approximately 530 jobs in the County in the aggregate industry, and an additional 800 jobs provide a range of support services to the industry.
4. Much of the aggregate resource of Grey County has previously been identified with some, but not complete policy protection. The current study has identified many additional areas of primary and secondary aggregate resources which warrant protection.

Key recommendations of the Master Plan include:

1. The unconstrained, minimally constrained, and moderately constrained Primary and Secondary aggregate resources of Grey County should be designated for protection in the Grey County Official Plan.
2. The resource evaluation model should be periodically updated, particularly following the identification of significant woodlands, significant valley lands, and significant

wildlife habitat by the County, or upon the receipt of new information from other agencies.

1.0 INTRODUCTION AND MANDATE

Grey County contains numerous glacial landforms composed of sand and gravel. These resources were recognized almost a century ago in some of the early physiographic mapping in Ontario, and our knowledge about the sand and gravel in Grey County continues to improve. The existence of these substantial resources within potential truck or train transport distance from the Greater Toronto Area (GTA) has given rise to the belief that sooner or later it would be economic to transport Grey County sand and gravel to the GTA. Several government publications have made reference to the existence of the Grey County resources, and the possibility that they might provide a source of aggregate to supply the GTA when other closer resources become depleted and/or when commodity prices rise sufficiently to justify the greater transport cost. The question iswhen?

A second question relates to the social and environmental cost (or how can we minimize the effect) of removing the aggregate resources. Third question? How much resource is available once social and environmental constraints are assessed?

These key questions have been posed from time to time, but there has been no focused attempt to provide answers. The current Aggregate Inventory Master Plan Study was undertaken to address these key questions and a number of related aspects pertaining to aggregate extraction, both current and future, in Grey County. The Study was completed as a requirement of the Grey County Official Plan. It provides a variety of basic information relating to the sand and gravel resources in Grey County, the economic benefits of the extraction industry, the environmental resources in the County, the social and community context, and a variety of other related aspects. A constraint mapping exercise was completed, and a resource evaluation model developed to identify the areas where extraction might occur, the potential for aggregate resource development, and how extraction may be managed to provide future benefits for the County.

The aggregate industry is commonly misunderstood. Few people are aware of the types of aggregates, the procedures required to obtain a licence, the regulations governing the operation of a pit or quarry, and the extent to which the environment and the community are protected. Ontario has been proactive in its approach to managing both aggregate resources and the aggregate industry since the 1970's, and many look upon Ontario as a leader in this field. This study summarizes a number of aspects of the aggregate industry and explains many of the aspects of the poorly understood industry. The reader is encouraged to read the entire report to gain a greater understanding of the issues involved.

As stated within the Terms of Reference for this study: *"The County of Grey is one of the largest Counties in the Province of Ontario with many diverse natural resources. The County is blessed with many economic factors including agriculture, tourism and industry. The aggregate industry within Grey County has been, for many years, very strong, primarily due to the abundance of significant aggregate resources"*. Refer to Appendix A for the full Terms of Reference.

The Grey County Official Plan identified aggregate as an area that required further study. The Official Plan states:

"... the County will undertake an aggregate resource inventory master plan for aggregate extraction. A primary objective of the undertaking will be to determine, in consultation with local municipalities, representatives of the aggregate industry and the appropriate agencies, the location of areas of mineral aggregate potential that are appropriate for protection." (Grey County O.P., 1999, section 2.7.4.(1), page 36)

In August 1999, the Ontario Municipal Board approved the Grey County Official Plan which required the development of the Terms of Reference for the aggregate resource inventory and completion of the master plan. The Official Plan recommends the master plan be implemented by way of an Official Plan Amendment to incorporate the areas identified for protection into

the Official Plan.

The mandate for this Study is to identify, protect and prescribe management for the aggregate resources of Grey County. This is intended to ensure that the public interest of the people of Grey County and Ontario is being met regarding this Provincially significant natural resource.

The purpose of the Aggregate Inventory Master Plan is:

- “i) To identify and examine the Mineral Aggregate Resource in the County of Grey;*
- ii) To assess the environmental, social and economic factors affecting the resource utilization;*
- iii) To develop a management strategy for the aggregate resource and rehabilitation of future and existing extracted areas;*
- iv) To develop Official Plan policies for the implementation of the management strategy into the Grey County Official plan; and*
- v) To ensure that aggregate resources are protected and managed in the County of Grey in a manner that is in the public interest, and which has regard for the Provincial Policy Statement.” (Terms of Reference, page 2) See Appendix A.*

The Terms of Reference established three major steps in the study: Data Collection, Analysis and Study Findings.

The Data Collection phase of the study required the gathering of all readily available data on the aggregate resources, natural heritage resources, economics, cultural resources and transportation of Grey County. The majority of the data collection involved the gathering of information from existing data sources; however, a major reassessment and reinterpretation of the aggregate resources was included in this phase of the study.

The Analysis portion of the Study involved assessing the impact that various constraint factors have on the availability of the resource. A constraint evaluation model was developed which identified the various constraint factors as high or low, depending on the ability of an

aggregate producer to potentially mitigate the constraint. The analysis was designed to identify portions of the resource that were eliminated due to the severity of the constraint(s), those that are partially constrained, and resources that have no apparent constraints to extraction.

The results of the data gathering, resource evaluation and constraint mapping tasks are summarized in this report, and much of the primary data has been compiled in digital format for future use by the Grey County.

The reconnaissance level groundwater mapping task, which was originally included in the Study, was removed at the request of the County when a much more extensive study was initiated for the Grey and Bruce County area.

Portions of Grey County fall under the jurisdiction of the Niagara Escarpment Planning and Development Act (NEPDA), and are outside the jurisdiction of the Grey County Official Plan. However, this Study assesses the aggregate resource and aggregate industry for all of Grey County including the NEPDA lands, because of their impact on the County as a whole, and because of a cooperative study arrangement with the Ontario Ministry of Mines and Northern Development to update the Aggregate Resources Inventory Paper for the area (Appendix C).

2.0 PLANNING PROCESS AND AGGREGATE RESOURCES

This section outlines planning related to aggregates. Further planning and community references are found in Appendix G.

2.1 COUNTY AND MUNICIPAL PLANNING

Aggregate resources planning and development is managed at the County and municipal level by The Planning Act and the Official Plans, Zoning By-Laws and in some cases municipal Site Plans and Development Agreements which are in effect. No site can be licensed as a pit or

quarry unless it is first designated and zoned to permit aggregate extraction.

The Grey County Official Plan now identifies “Primary Aggregate” lands on the Constraint Mapping in Appendix A, of the Official Plan. This is based on the Aggregate Resources Inventory of the Townships produced by the Ontario Geological Survey in the 1980’s. These lands “will be protected from incompatible land uses” (2.7.1). This occurs by consideration of the constraint to development in zoning by-law amendments (2.7.5) and in land division having regard to the policies (6.12). This study will further determine location of aggregates appropriate for protection (2.7.4(1)).

The land use designation which permits extraction of aggregate and accessory and incidental uses is the Mineral Resources Extraction designation on Schedule A. Licensed pits and quarries under the Aggregate Resources Act are designated as “Mineral Resource Extraction”.

A County Official Plan Amendment is necessary as the first approval required to open or expand a pit or quarry. Further discussion of planning issues is presented in Appendix B.

The County Official Plan provides policy related to permitted uses, development criteria, the creation of new Mineral Resource Extraction designations and implementation.

2.2 PROVINCIAL POLICY STATEMENT

The Provincial Policy Statement (PPS) was issued in revised form in 1997 under The Planning Act to provide policy direction on the matters of provincial interest related to land use planning and development. Mineral resources are part of the Province’s resources providing economic benefits. Mineral Resources, including aggregates, will be protected for long term use. *“As much of the aggregate as is realistically possible will be made available to supply mineral resource needs, as close to the market as possible.”* (Ontario P.P.S., 1997, section 2.2.3.1 page 7). Equally, the Province has an interest in protecting the long term health and safety of the population and the financial and economic well-being of the Province and Municipalities.

2.3 SMART GROWTH

The Province of Ontario initiated in 2001 an overall planning review for the Province in five large zones and produced a vision for promoting and managing growth. It is called Smart Growth and works to “improve economic competitiveness, protect and enhance our environment, build livable communities and create transportation choice.”

The Western Ontario Zone, which includes the County of Grey produced an update in December of 2002 which discusses balancing growth, consensus building, protecting the environment and making sure that the urban, rural and agricultural communities have the infrastructure they need to support growth. Aggregate resources are not identified as an issue in Smart Growth in the Western Zone.

2.4 LAND FRAGMENTATION

In considering any kind of resource development, the size of the available land parcels is important. Larger blocks of land are more cost-effective to operate and provide for better resource use. Land fragmentation is a serious constraint for the aggregate industry in many areas of the province.

Fragmentation due to development pressures is an increasing problem for aggregate resource utilization. As the urban population settles closer to these rural resource activities and developments infringe upon, and breaks up, the larger land blocks, access to these resources is reduced, many may be effectively eliminated. It is necessary to recognize that large blocks of aggregate resources are an asset that needs protection.

At the County level it is difficult to assess the extent to which land fragmentation has constrained development of aggregate resources. Land fragmentation by consents to create smaller rural parcels or the development of estate residential subdivisions was seldom raised in

municipal staff interviews or by the public. This was not warranted as a constraint to be further assessed in the evaluation model.

At the local municipal level the assessment maps may be overlain on the Mineral Aggregate Resource areas in suitable scale. The constraint of land fragmentation may become evident in some areas but this is expected to be limited.

3.0 EXTRACTION AND AGGREGATE LICENSING

3.1 THE AGGREGATE RESOURCES ACT AND STANDARDS

The Aggregate Resources Act (ARA) is the provincial legislation that governs the approval, operation and rehabilitation of pits and quarries within designated areas of the province. Most of southern Ontario is currently designated, along with the more urban areas in northern Ontario.

Grey County was originally designated under the Pits and Quarries Control Act in 1972. The Pits and Quarries Control Act was replaced by the Aggregate Resources Act in 1990, and this Act was amended in 1997.

The purposes of the Aggregate Resources Act are:

- “a) to provide for the management of aggregate resources of Ontario;*
- b) to control and regulate aggregate operations on Crown and private lands;*
- c) to require the rehabilitation of land from which aggregate has been excavated; and*
- d) to minimize adverse impact on the environment in respect of aggregate operations.”*

In 1997, the Aggregate Resources of Ontario Provincial Standards were developed to accompany the ARA. The Standards expand on the original Regulations in the preceding legislation, and identify the criteria for meeting the requirements of the Act. The Provincial

Standards are divided into 15 categories relating to the type of aggregate licence. For instance, a Category 3 licence is a Class A (production in excess of 20,000 tonnes per year) pit above the water table. Within each category, detailed information is provided on site plan and report requirements for that particular type of pit or quarry, along with notification and consultation requirements for a new application. Prescribed conditions that apply to any new licence are also listed.

The Provincial Standards also outline operational requirements that apply to licenced properties and annual compliance assessment reporting requirements.

The Ministry of Natural Resource (MNR) has the responsibility for administering the ARA, and the MNR's Owen Sound Area Office is responsible for all the aggregate operations in Grey County.

3.2 INTERFACE BETWEEN THE PLANNING ACT AND THE AGGREGATE RESOURCES ACT

The licence application process for a pit or quarry is a lengthy process that requires significant technical, environmental and planning research and design to fully prepare an application for submission and agency and public consideration.

Whereas The Planning Act, and associated Official Plans and Zoning By-Laws address the appropriateness of the extractive land use at a particular location, the ARA focuses on the licence application process and operation and rehabilitation of a pit or quarry. The ARA requires that appropriate zoning be in place before a licence can be issued.

The two processes deal with different approvals, but often require similar investigations, references and justification. As a result, many applications under The Planning Act and the ARA are submitted concurrently, supported by the same studies, reports, site plans and other documentation.

This Study makes recommendations relative to Official Plan policies, which will address the planning and zoning process at a County level. However, the Study does not impact the ARA. The application process for a pit or quarry licence under the ARA remains unchanged. It continues to be a parallel requirement to any Planning Act application. The ARA will also continue to be the primary legislative power to ensure compliance for the operation and rehabilitation of licenced pits and quarries.

3.3 LICENSING PROCESS

The Aggregate Resources of Ontario Provincial Standards outline the requirements for licensing a pit or quarry in a designated area of Ontario. The components of an application consist of an application form, site plans, summary statement report and technical reports. Essentially there are two types of licences issued – Class A or Class B and either may include the following categories of licence: pit below the water table, quarry below the water table, pit above the water table and quarry above the water table. Site plan and report requirements vary depending on the type of application.

Once the application package has been submitted to the Ministry of Natural Resource, it is reviewed for completeness, and then circulated to applicable agencies for review and comment. During this circulation period, the applicant must hold a Community Information Session. Notice of the application and the Information Session must be provided to local residents by way of a mail out notice, a sign on the site and local newspaper publication.

The applicant must attempt to resolve any concerns at the termination of the circulation and review process. If there can be no resolution to objections, then the application is forwarded to the Ontario Municipal Board for a hearing to review the merits of the application. This may be amalgamated with any objections under the Planning Act so that one hearing covers all the necessary applications for a proposed pit or quarry.

4.0 AGGREGATE RESOURCES

4.1 METHODOLOGY

The methodology used to prepare the Aggregate Resources Inventory, which will form a new publication of the Ontario Geological Survey, is outlined in the introduction to that publication, or any other publication in that series of documents. The following is a summary of the methodology used as it pertains to the aggregate resource assessment of Grey County.

The first step in assessing the aggregate resources of Grey County was to gather the previous aggregate resource publications, published geological maps and reports. These were compiled, and a review of information pertaining to all licenced pits and quarries was conducted. These data were tabulated prior to field checking.

Field work was then undertaken to check available road cuts, pit faces, and any other exposures of geological materials in order to verify and, where possible, improve on existing geological interpretations. All licenced pits and quarries were field checked, and abandoned pits were checked wherever possible. Landforms containing potential aggregate resources were checked and viewed in the field to assess their geology and aggregate potential. Adjustments to previous interpretations were made as appropriate, and a series of samples were taken in selected deposits for detailed aggregate testing.

Additional data were obtained from an analysis of water well data. These data provided an indication of materials in the subsurface, and will be shown on the final versions of the maps to be published. The same data were used to plot drift (overburden) thicknesses overlying bedrock resources.

The field data, water well interpretations, field mapping, laboratory test data and previously published information were used to produce an updated sand and gravel resource map of the county. All available data were used to designate the deposit as primary, secondary and

tertiary according to the assessment procedures of the Ontario Geological Survey. A description of the deposits was prepared to document the findings of the analysis and summarize the aggregate resource in each deposit. The report and mapping to be published by the Ontario Geological Survey will contain the same data and conclusions, but will contain additional technical detail.

4.2 GEOLOGY OVERVIEW

Grey County contains some of the most scenic glacial terrain in southern Ontario. The glacial features document the gradual withdrawal of the Quaternary ice sheet from total coverage of the County to a time where the ice had nearly disappeared, and eventually to the time when the only remaining impact of the ice was an elevated water level in Georgian Bay.

The overall physiography of Grey County is noted on Figure 4.1. The oldest part of the glacial landscape is located in the southeast of the county in the Dundalk and Maxwell areas. The land in this area is a broad rolling till plain punctuated by a series of northwest-southeast oriented drumlins and several linear esker ridges oriented in the same general direction.

The till sheet found in the Dundalk area occurs across most of Grey County, but it thins in the vicinity the Niagara Escarpment where bedrock is exposed. Numerous drumlins in the Owen Sound-Meaford-Walters Falls area, plus the orientation of the Gibraltar and Banks Moraines, indicate that the ice was moving in a northerly direction during the later stage in the deglaciation. The Niagara Escarpment is a very prominent bedrock feature, which is present in the northern and northeastern part of the County. Several prominent bedrock valleys, notably the Beaver River Valley and Owen Sound, are cut into the Escarpment and extend southward significant distances.

Much of the Townships of West Grey, Southgate, and Chatsworth, plus the adjacent area near Flesherton, are dominated by a series of moraines and glacial spillways which contain large quantities of sand and gravel. From south to north, the moraines included in this area are the

Maple Moraine, the Singhampton Moraine, the Gibraltar Moraine and the Banks Moraine. The current geological work has confirmed that large portions of the Maple and Singhampton moraines are composed of sand and gravel. The Banks Moraine, the Gibraltar Moraine, and particularly the Singhampton Moraine have large aprons of outwash (spillway) sand and gravel associated with them. These deposits are generally located on the southeast side of the moraines, away from the previous ice-front, and tend to be in the lower and flatter topographic areas, which contain many of the present-day rivers and streams.

North of the Banks Moraine, the general size and variety of glacial features indicate that the ice was losing strength. There are a number of small morainic features in the Sullivan-Derby-Keppel area west of Owen Sound and also in the Collingwood area, which trace the positions of the ice as it receded to the Niagara Escarpment. As the ice pulled back to the Escarpment, and into Georgian Bay, ponding of water occurred. This resulted in the deposition of small patches of silt and fine sand in the Owen Sound area, and later the ponded water became a series of substantial proglacial lakes in the Georgian Bay area, which formed beach deposits, such as those that occur in the Thornbury and Meaford areas.

4.3 MAP UNITS

Excellent physical and chemical durability, a suitable grain size with a modest amount of fines (<8%) and sufficient crushable gravel is highly desirable for aggregate operations. Variable deposits and/or poorer quality materials may be used, but the range of products may be limited and costs may increase. Most provincial, municipal, and many commercial customers require that minimal physical and chemical aggregate specifications be met. The best overall aggregate deposit will be a coarse material with low fines, but deposits with lesser quality can be used but costs may increase due to the increased need to process the material, and it may not be possible to produce some types of aggregate.

The accompanying map describing the Sand and Gravel Resources of Grey County (Figure 4.2) has assigned a Primary, Secondary or Tertiary level of significance to the resources in

Grey County. This assignment of resource levels was developed by the Ontario Ministry of Northern Development and Mines in its Aggregate Resource Inventory Program for use throughout Ontario. The bedrock resources of the County have also been addressed using a similar approach, although the sand and gravel resources are the main focus in the present study. The wording has been adjusted slightly to tailor the description specifically to the Grey County conditions; however, the same map units are used in the Ministry of Northern Development and Mines publication “Aggregate Resources Inventory of Grey County” which forms Appendix C of this report.

The map units described below identify the main differences between Primary, Secondary and Tertiary deposits. The lack of good quality subsurface information on the thickness and textural consistency of the sand and gravel deposits in Grey County has impeded the ability to assess the deposits, and many deposits have received a lower designation because of a lack of data. The availability of new and/or better subsurface information will necessitate the periodic reassessment of these resource designations. It is recommended that the County include both Primary and Secondary resources as part of the resources to be protected within the Official Plan in recognition of the fact that many of the Secondary Deposit areas may be reassessed as Primary if appropriate subsurface information is available. It is also recommended that the planning process make allowance for the reassessment of any resource lands if new information substantiated by a qualified professional geoscientist or qualified professional engineer becomes available.

4.3.1 Primary Sand And Gravel Deposits

Primary sand and gravel deposits are those with a minimum of 35% gravel and the proven or inferred presence of crushable ($>26.5\text{mm}$) gravel in commercial quantities (approximately 20% or more). The materials are of mineable size and thickness, exhibit reasonable textural consistency, contain moderate to low quantities of fines ($< 8\%$), and have the proven or inferred ability to meet medium to high physical quality standards.

4.3.2 Secondary Sand And Gravel Deposits

Secondary Sand and gravel deposits are those that do not meet the requirements for a 'Primary' designation in one or two areas of general aggregate quality. Secondary deposits may exhibit one or more of the following characteristics:

- A lack of data from which to infer higher levels of quality,
- A paucity of either gravel or crushable gravel,
- An excess of fines,
- Textural variability,
- Significant overburden, or
- Known or inferred concerns relating to physical quality.

4.3.3 Tertiary Sand And Gravel Deposits

Tertiary sand and gravel deposits are commonly sand deposits with minor gravel lacking in several areas of general aggregate quality such as:

- A lack of data from which to infer higher levels of quality,
- A paucity of either gravel or crushable gravel,
- An excess of fines,
- Textural variability,
- Significant overburden,
- Known or inferred concerns relating to physical quality, or
- Small deposit areas or thin materials.

4.3.4 Primary Bedrock Resources

Identified bedrock resources are those with little to moderate overburden cover (< 8m), occurring in mineable thickness, and with proven or inferred ability to meet medium to high physical quality standards.

4.4 SAND AND GRAVEL RESOURCES

The largest aggregate resource in Grey County is the Singhampton Moraine and the associated outwash/spillway deposits. It is outlined approximately by the centres of Markdale, Flesherton, Mount Forest and Durham. The Singhampton Moraine is generally ice-contact/glaciofluvial in origin and it has been dissected into a series of large kame-like deposits by a network of spillways. The spillways contain outwash sand and gravel and represent what was essentially a proglacial network of drainage channels, which conducted drainage away from the ice as it sat to the north. In general, the remnant blocks of the Singhampton Moraine are thick (many in excess of 30 m), but the materials exhibit some variability in texture. The network of spillway outwash deposits tend to be somewhat thinner (commonly 10 to 15 m) but of more consistent grain size.

This same ice-contact/spillway deposit relationship is repeated to the north along the Gibraltar Moraine, the Banks Moraine, and on a smaller scale in the Tara Strands west of Owen Sound. Available field evidence suggests that the Gibraltar Moraine is dominantly composed of sand, thus it is designated as a "secondary" resource, although subsurface data are limited. The Banks Moraine contains a larger proportion of till, and most of the moraine is not considered an aggregate resource. There are kame-like features associated with the Banks Moraine, but those appear to be discrete kame features. Associated kame-like deposits were also noted in the Tara Strands to the south and west of Owen Sound. The till portions of the Banks Moraine and the Tara Strands are not designated as aggregate resources, while the associated kame deposits are noted as secondary resources, based on their high content of sand and the variable nature of the deposits.

The Maple Moraine is located to the south of the Singhampton Moraine/outwash complex, and it is somewhat different in character from the other moraines noted above. The Maple Moraine occurs in a till plain area, and there is relatively little outwash associated with this feature. The moraine appears to be dominated by sand and it is therefore designated as a "secondary" deposit. However, there are several occurrences of gravel in the moraine, and there may be

significant gravel resources contained within the feature.

The description above has addressed the major deposits associated with the moraine/spillway systems. However, there are a number of smaller aggregate resource deposits that contain resources. There are a series of sub-parallel eskers in the southeastern portion of the county, and in the area southwest of Owen Sound. While many of these features are of limited size and have been designated as tertiary resources, there are two eskers in the former Township of Proton now the Township of Southgate, which have been identified as primary resources.

There are a number of small scattered shoreline deposits in the areas adjacent to Georgian Bay which relate to proglacial lakes. These deposits are generally identified as tertiary deposits based on their relatively small size, limited thickness and sparse gravel content. However, there are three areas, one at Thornbury, one at Meaford, and one northwest of Owen Sound, where shoreline deposits are a significant size and have appreciable gravel content. These three areas have been identified as secondary aggregate resources.

4.5 BEDROCK RESOURCES

The main focus in the Grey County Aggregate Inventory Master Plan is the glacial sand and gravel, due to its prominence and position in the south and central portion of the County. It is of note that the County does not have jurisdiction over the bedrock resources on or near the Niagara Escarpment, as they fall under the planning jurisdiction of the Niagara Escarpment Plan. There are, however, areas just outside the Niagara Escarpment Plan area and occasionally in the deep river and stream valleys that do encounter bedrock, and that may be considered for resource development.

Most bedrock extraction operations are developed in areas of thin drift cover because the removal of overburden is an overhead cost that operators prefer to keep to a minimum. The aggregate industry has two practical approaches to overburden: 1) less is better (none is preferred), and 2) anything more than 25 feet (8 m) is considered prohibitive, unless there are

unusual circumstances. Most quarries are established in areas where the overburden is 3 m or less; however, the removal of larger amounts of overburden may be warranted in particular cases.

The following table summarizes the various rock units contained in Grey County. For most practical purposes, there is one rock unit of significant interest at this time - the Amabel Formation. It is currently used as a source of aggregates, a source of building stone, and a source of rock for industrial mineral use (glass manufacturing). The Manitoulin Formation (Clinton and Cataract Group) is currently being extracted at one location for aggregate use. The Georgian Bay and Queenston Formation shales have been used in the past for brickmaking, but there is little indication of new activity. The Guelph, Salina, and Bertie Formations have been used for aggregate and other industrial mineral uses elsewhere in Ontario, but the potential for activity in Grey County appears remote at this time.

The map of bedrock resources is included in Appendix C.

Table 4-1: Summary of Bedrock Units

Rock Unit	Rock Type	Potential Users	Occurrence
Georgian Bay Formation	Shale, with limestone (grey)	Brick making ¹	Georgian Bay shore area
Queenston Formation	Shale, some limestone (red)	Brick making ¹	Base of Niagara Escarpment
Clinton and Cataract Groups	Dolostones, shales, sandstone	Aggregates, building stone ²	On Niagara Escarpment
Amabel Formation	Dolostone	Aggregates, industrial minerals, building stone ²	On or close to Niagara Escarpment
Guelph Formation	Dolostone	Aggregates (quality limitations), industrial minerals ²	Central part of County, limited exposure
Salina Formation	Shale, dolostone, gypsum, salt	Gypsum, salt ²	Southwest corner of County, limited exposure
Bertie Formation	Dolostone	Aggregate ²	No exposure in County.

¹ not currently in Grey County

² outside Grey County

4.6 SUMMARY

There are large quantities of sand and gravel resources in the Townships of Southgate, West Grey and Chatsworth within the County. The bulk of the resource is contained in the Singhampton Moraine and the adjacent outwash spillway channels. Outwash aprons of significant size are also located adjacent to the Gibraltar and Banks Moraines. There are a variety of smaller scale aggregate deposits elsewhere in the County, and there are several quarry operations on or near the Niagara Escarpment.

5.0 NATURAL ENVIRONMENT

There are a number of natural heritage features located in Grey County, and some of these features are located on or adjacent to aggregate resource areas. It is important to consider the natural environment as part of Grey County's long-term strategy to ensure appropriate management of their aggregate resource base.

The natural heritage features in Grey County were identified largely through an interpretation of the Ministry of Natural Resource's digital National Registry, NRVIS (Natural Resource Values Information System). The information this database provides allowed for the identification of provincially significant wetlands, other wetlands areas, fish habitat (lakes, ponds, rivers, streams, etc.), significant woodlands, significant wildlife habitat, and Areas of Natural and Scientific Interest (Earth Science ANSI's and Life Science ANSI's). In addition, the County of Grey provided areas identified as "Hazard Lands" in the Official Plan. The natural heritage features and hazard lands are shown in Appendix D, Figures D-1 through D-4. Features do not include adjacent lands as they will be dealt with by site specific applications.

The NRVIS database was used to identify fish habitat by displaying the surface water features across the County. At this County level scale of mapping it is assumed that all surface waters are fish habitat.

Significant woodlands have not yet been defined or identified in the County. The Natural Heritage Reference Manual recommends that in areas with 15 to 30% woodland coverage, woodlots of 40 ha or greater should be considered for significance. In areas where woodland coverage is greater than 30% no minimum woodlot size is suggested. The MNR suggests that the woodland coverage for the County of Grey ranges from 23 to 58%. Therefore, using the NRVIS mapping, this study has identified all those contiguous woodlands greater than 40 ha as potentially significant woodlands. It is recommended that the County of Grey evaluate its forested areas to identify significant woodlands in a more formal process. The result would be part of a future update of the resource evaluation model.

The NRVIS database identifies deer wintering yards, which are considered to be significant wildlife habitat. No other significant wildlife habitat was identified through the NRVIS database, the County of Grey or from other information sources. It is recommended that as information is obtained in the future from OMNR, the Conservation Authorities and other agencies regarding wildlife habitats in the County of Grey, that it be evaluated as recommended in the Natural Heritage Reference Manual and, where appropriate, identified as significant wildlife habitat by the County. The resource evaluation model should be updated as significant wildlife habitat is identified.

The County of Grey has not recognized any habitats of endangered and threatened species. The OMNR and the Canadian Wildlife Service (CWS) were contacted and are not aware of any areas that have been recognized as habitat of endangered and threatened species. Information regarding the location (within a 1km square grid) of vulnerable, threatened and endangered (VTE) species was provided by the NHIC. The occurrence of VTE species is often useful in the identification of significant portions of the habitat of endangered and threatened species. However, these locations generally represent records of sightings of the species. Sightings of VTE species do not necessarily indicate that suitable habitat exists, therefore, no habitats of endangered and threatened species are shown on the mapping in Appendix D, Figures D-1 and

D-2. However, a map showing the approximate location of the sightings of VTE species is provided as Figure D-4.

The responsibility for the evaluation and identification of significant valleylands lies with the County of Grey. To date, the County has not identified any significant valleylands. The Natural Heritage Reference Manual helps guide municipalities in the evaluation and identification of significant valleylands through the adoption of a natural heritage systems approach. It is recommended that the County consider this approach when identifying its significant valleylands, and that the results be incorporated into the resource evaluation model.

6.0 WATER

6.1 GROUNDWATER

The existence of sensitive groundwater regimes was identified as a potential constraint to the establishment of a pit or quarry in the current study due to the need to protect both the quality and quantity of groundwater in the vicinity of a proposed extraction operation. Shortly after the initiation of the Aggregate Resource Inventory Master Plan Study the counties of Grey and Bruce commissioned the Grey and Bruce Counties Groundwater Study, and the study has recently been made available for review.

The groundwater study has synthesized a large quantity of water well data and general geological and hydrogeological information to produce regional scale interpretations of the groundwater in Grey County. The study also goes on to review data at a more detailed level in areas where there are municipal water wells, with the objective of providing for the protection of municipal groundwater sources.

The Aggregate Resources Act was amended in 1997, and part of the revisions included the release of Provincial Standards for the Act. The Standards are detailed Provincial Regulations

that must be met in order to obtain a licence for a pit or quarry. Requirements for addressing groundwater are a prominent part of the Provincial Standards, and each of the eight categories of licence has specific requirements for addressing groundwater protection at the site being proposed for licence.

The interpretations provided in the Grey and Bruce Counties Groundwater Study provide regional interpretations of the groundwater occurrence in the county. The study was mandated to focus on the protection of municipal water supplies, and does not address issues relating to pit and quarry operations. While the study does provide a regional interpretation of groundwater conditions, it does not provide the detail necessary to determine where one might site a pit or quarry, or what the impact of an operation may be. The Provincial Standards for the Aggregate Resources Act specify that groundwater conditions, and possible remedial measures for dealing with potential impacts, must be studied at a site specific level.

The existence of sensitive groundwater regimes, as identified in the Grey and Bruce Counties Groundwater Study as ‘moderate’ and ‘high’ ISI indices have been used as a Level 2 constraint in the constraint evaluation (Chapter 14), with the recognition that the groundwater must be studied at a site specific level for all pit and quarry applications to meet Provincial Standards.

6.2 SURFACE WATER

The County of Grey contains the headwaters for several significant rivers including the Grand, Nottawasaga, Bighead, Beaver and Saugeen Rivers. According to the Owen Sound District Fisheries Management Plan 1986-2000, the Niagara Escarpment divides the County into the Lake Huron and Georgian Bay drainage systems which are comprised of four watersheds: the Bruce Peninsula streams, fourteen Georgian Bay tributaries, the Saugeen River and twenty-three Lake Huron tributaries. These water courses as well as the ponds and lakes in the County provide important fish habitat for coldwater (e.g. Trout and salmon), coolwater (e.g. pike, walleye and yellow perch), and warmwater (e.g. bass), fish species.

The surface water features in the County were identified by the NRVIS mapping. They are identified as Fish Habitat and are shown in Appendix D, Figure D-3. The more significant surface water features are also contained within the Hazard Land mapping, Figure D-2.

The Federal Fisheries Act requires that fish habitat be protected. The Provincial Policy Statement is consistent with the Fisheries Act. It recognizes fish habitat as a natural heritage feature of Provincial importance and it provides protection for all fish habitat. Aggregate operations wishing to locate or expand on or adjacent to fish habitat must adhere to both Federal and Provincial requirements and consider the potential impacts on the fish habitat as a result of aggregate extraction. Negative impacts will need to be mitigated to acceptable levels. The implementation of monitoring programs are often required, and in some cases compensation agreements are negotiated.

7.0 AGRICULTURE

Agriculture is an important component of the economy in the County of Grey and its relationship to potential aggregate resource areas is one of the issues identified by the County to be addressed in this study. The County's agricultural resources, agricultural economic statistics and agricultural policies were characterized through a review of the physiographic features, soil resources and the Canada Land Inventory mapping; the agricultural statistics for the County to characterize the nature and importance of agriculture to the County; and the agricultural policies contained in the Provincial Policy Statement and the Official Plan for the County of Grey.

The locations where the prime agricultural areas in the County correspond to the aggregate resource areas were identified, mapped and a field reconnaissance survey to selected areas within the County was completed to characterize agricultural land uses with the aggregate resource areas.

7.1 SOIL RESOURCES

The physiography of the County of Grey is diverse (Chapman and Putnam, 1984) and the glacial parent materials in Grey County include a broad spectrum of both grain size and origins.

The soils are therefore variable in nature, are generally loamy to sandy in texture and commonly stony. The most common mineral soils (in terms of area) are the Osprey loam, Pike Lake loam, Harriston silt loam, and Listowel silt loam. Approximately 53% of the County (ARDA, 1970) is considered to be comprised of Canada Land Inventory (CLI) Classes 1, 2, & 3, which are highly to moderately productive lands for common field crops. The remaining area is comprised of marginal to low capability lands for agricultural production. The best use for the majority of these low capacity lands is as pasture, forestry or other non-agricultural use.

7.2 AGRICULTURAL LAND USE

In Grey County, there are close 3,000 farms cultivating approximately 600,000 acres of farmland. In 2000, approximately \$241 million in farm gate sales were generated through the sale of a wide range of agricultural products. Beef and, to a lesser extent, dairy operations are the most common livestock operations in the County, however other livestock operations such as poultry, hog and mixed operations also occur. After beef farms, field cropping is the most common form of agricultural production in the County. Specialty crops (fruit and vegetables) are also grown and are common in the Meaford and Thornbury areas.

Field reconnaissance was undertaken in areas containing both aggregate resources and agricultural production to assess the interaction between the two land uses. Agricultural production in aggregate resource areas consisted of primarily of livestock (dominantly beef) and mixed agricultural production, with extensive pasture and forage production lands. Some field crop production was found in these areas, often on outwash plain deposits. The field observations confirmed the results of the general trend identified in Census of agriculture statistics for the County.

7.3 AGRICULTURAL POLICIES AND EXTRACTION

Grey County recognizes the importance of agriculture and has taken steps to protect its important agricultural resources by limiting the uses of these lands to primarily agricultural uses. To identify prime agricultural areas, the County has developed an alternative land evaluation system to determine the highest priority agricultural lands. The prime agricultural areas include prime agricultural lands (i.e., specialty crop lands and CLI Classes 1-3) as well as lower capability soils that are under agricultural production and deemed to be integral to the types of agriculture common in Grey County. Two agricultural land use designations are recognized in the Official Plan, "Agriculture" and "Special Agriculture". The types located within the "agriculture" designation commonly include livestock and field crop operation, whereas "Special Agriculture" includes areas where specialty crops such as fruits and vegetables are grown.

These two agricultural designations were used to identify the County's prime agricultural areas and are shown in Appendix E, Figure E-1.

The Provincial Policy Statement allows for aggregate extraction on lands that have been identified as prime agricultural areas. The PPS recognizes that aggregate extraction is an interim use and that the site may be rehabilitated to the same area and same average soil quality. Complete agricultural rehabilitation is not required where site specific issues exist (e.g., extraction below water table). Grey County permits aggregate extraction in both agricultural designations providing appropriate rehabilitation plans have been developed and implemented as part of the site plan approval process. General rehabilitation guidelines for progressive agricultural rehabilitation are provided in Appendix E.

8.0 TRANSPORTATION

Grey County is served by about 241 kilometres of Provincial Highways and 812 kilometres of

County Roads which form the backbone of the transportation system. These roads carry the majority of the traffic generated by the aggregate operations within the County.

Between 1992 and 2001, aggregate production in Grey County averaged about 2.4 million tonnes per year. The average annual production would generate about 208,600 truck trips per year using an average truck capacity of 23 tonnes. This converts to about 1,100 trips per day assuming approximately 190 days per year of operation. In 2001, the Township of Georgian Bluffs accounted for 21.8% of the County's aggregate production, followed by Chatsworth and Grey Highlands at 15.4% and 15.3% respectively. The highest current traffic impact would therefore be in these municipalities.

In the short term, the majority of aggregate produced in Grey County is expected to be used in the County, with some export to neighbouring municipalities such as Huron and Bruce Counties. Truck volumes and trip distribution will likely be similar to what has occurred over the past five or six years, although specific construction projects would generate higher traffic volumes during those projects. County Road 4, Highway 89 and Highway 21 will act as the main routes to markets in Bruce and Huron Counties. Existing road networks are considered adequate to meet current traffic needs, and the needs for the immediate future.

In the longer term, the potential exists for Grey County aggregate producers to export materials to the northwestern part of the Greater Toronto Area (GTA), as well as the Guelph and Kitchener / Waterloo areas. If this occurs, Highways 6 and 10 will form the main routes south. Increased demands will result in additional truck traffic using Provincial Highways and County Roads, and also the local roads used to access the extraction operations.

If and when aggregate extraction and trucking substantially increases then there will be a need to identify municipal concession roads or side roads which are well located and suited to provide access for pits in a particular area to the County and Provincial road system. This may be best accomplished at the local municipal level to assess the combined traffic generation

from one or more license applications in an area, the potential for additional applications, the need to select one access route to the County Road or Provincial Highway and options for that road's locations and assessment of impacts.

It may become necessary for the County, the Municipalities and the Province to collectively ensure that the impacts of significant aggregate truck traffic are managed to ensure community and public safety, and practical truck traffic movement through existing communities. Should there be a substantial increase of aggregate and other traffic through communities on Provincial Highways, such as Markdale, Flesherton, Durham and Dundalk, then traffic management and alternate routes would be options to consider.

The Grey County Official Plan requires that any new or expanding extractive operation prepare a Traffic Impact Study to demonstrate that traffic movement on existing streets will not be unduly obstructed or interfered with by aggregate carrying vehicles. If negative impacts are identified, there are various measures that may be required to be implemented in order to mitigate the impacts. The proponent may be required to enter into a Development Agreement with the municipality with regards to any improvements that are proposed. Should the County choose to establish a consistent approach for road upgrades relating to aggregate operations, it will be necessary to develop standards within the Official Plan amendment process.

9.0 SOCIAL AND COMMUNITY ASPECTS

9.1 SOCIAL

Aggregate resource extraction, processing and shipping to market potentially involves both direct and indirect social matters and both positive and negative impacts. Direct impacts on people and their communities are felt when the extraction, and processing of the aggregate is in close proximity to residences. These impacts are mainly noise and dust and must be minimized by aggregate operators to achieve compliance with the standards and guidelines set

by the Province. The methods of reducing the impacts of operations to acceptable levels include use of set backs for excavation and equipment; berms; tree screens; positioning of extractive faces and equipment relative to homes; spraying of water, calcium chloride or other dust suppressants on roads and plant areas; spray bars on conveyors or stockpiles and specific limits on, and timing of, blasting.

Indirect impacts often create problems and conflicts between aggregate operations and communities. These impacts include:

- 1) the noise, potential safety threat, and physical presence of large trucks,
- 2) the view of extractive operations may affect the rural landscape, and
- 3) the fear or anxiety created by applications related to protection of ground water and local well water supply.

Other indirect social impacts of the development and operation of pits and quarries relate to employment, schools, safety, community activities and support for construction of housing and municipal infrastructure. Pits and quarries hire local people, as well as trucking or service firms to extract, process and haul aggregates. Employment with an aggregate producer is often on a long-term basis.

Buses moving to schools in rural and urban areas must share the roads with aggregate trucks during two key times each day. Traffic speed and the safety of children is a matter significant concern for all traffic, including commercial vehicles such as aggregate trucks.

School locations were reviewed and shown on Figure G-1. Schools are generally found not to be in potential conflict with aggregate resource areas. Exceptions include one elementary school located north of Holstein in Southgate on County Road 109 in an area containing aggregate. Also, several Mennonite Parochial schools are located in the area of aggregate resource in Chatsworth. Careful attention should be given to avoidance or minimization of

aggregate operation and trucking from pits in the area on these and other schools.

Some local producers commonly support local sports teams, sports fields and facilities, and community programs and activities. The aggregate industry provides necessary support and construction materials for residential, school and municipal road and services construction.

9.2 CULTURAL HERITAGE

The County of Grey Official Plan contains heritage policies which advise: “The County of Grey has a rich and diverse cultural heritage, which includes sites of archaeological value; buildings and structural remains of historical, architectural and contextual value; and rural, village and urban districts or landscapes of historic and scenic interests. The County recognizes the importance of its cultural heritage resources, and in managing them in a responsible manner which perpetuates their use and benefit to the community or records their heritage value.” (Grey County O.P., section 3(1), page 45).

Information on the registered archaeological sites of Grey County from the Ministry of Culture and Recreation was obtained through Grey County mapping. There are about 35 registered sites in the County, mostly in the northern municipalities. The location of these sites does not become a factor at a County scale when determining aggregate resources for protection and designation in the Official Plan. The County of Grey Official Plan requires that “development on lands containing significant archaeological resources shall avoid the destruction or alteration of these resources.” (Grey County O.P., section 3(5), page 45).

An application for a rezoning, Official Plan Amendment and/or a license to extract must provide information to determine the potential of a site to contain archaeological resources. This is referred to as Stage 1 in the Aggregate Resources of Ontario Provincial Standards. This would involve a reference to any known registered sites or archaeological resources in the vicinity and to the potential of the site for heritage resources. If medium or high potential is determined then Stage 2 involves an assessment of the property by a licensed archaeologist.

This could result in Stages 3 and 4 which are detailed site investigations by a licensed archaeologist involving test pits, plowing fields and other surveys. The Ministry of Culture is to receive, and be satisfied with, the archaeological reports which establish that any significant archaeological resources found are conserved by removal, preservation or avoidance and documented under the Ontario Heritage Act.

The mapping of registered archaeological sites by the Ministry of Culture is available for reference by property owners subject to the discretion of the County in protecting heritage resources.

10.0 AGGREGATE MARKET ANALYSIS

The aggregate market analysis considers both the potential for changes in the annual demand within the current market areas of the county and the potential for expansion of the market to other demand areas such as the GTA.

The current resource inventory has confirmed the presence of large quantities of aggregate in Grey County. This aggregate is potentially available to provide asphaltic, concrete and granular aggregates for local use, and for possible transportation to larger markets such as the GTA.

10.1 LOCAL DEMAND

Various forms of construction constitute the primary use of mineral aggregates including concrete and concrete products (e.g. poured concrete, blocks, bricks, tiles and pipes), road construction, building construction, and engineering construction (e.g. dams, sewer and water mains, airports). New population in an area will require housing, schools, roads and services. Anticipated population growth is considered a reasonable indicator of demand on a micro level.

Aggregate production levels (1992 to 2001) in Grey County averaged 2.4 million tonnes and

have ranged from 2.1 million to 2.7 million tonnes per annum. Most of the aggregate extracted in the County is consumed within Grey or shipped to Bruce and Huron Counties.

Projections prepared by the Province of Ontario forecast population increases in Grey and Bruce Counties of approximately 10% for the 2001 to 2026 period. Huron County population is forecast to increase by 2% over the same period. This suggests the local demand for aggregates will remain at current or slightly higher production levels and below 3 million tonnes per year.

10.2 EXPORT POTENTIAL

10.2.1 Demand Areas

Aggregate production in southern Ontario has averaged approximately 150 million tonnes per year for the past several years. It is estimated that the GTA consumed approximately one third of that amount (51 million tonnes 1995 to 1999). Demand in the GTA is forecast to increase to 60 million tonnes per year for the 2006 to 2010 period.

Producers in Caledon and Milton provide much of the supply to the western portion of the GTA at the present time. A modest amount is imported from areas such as Kitchener/Waterloo/Guelph.

It is difficult to make meaningful estimates of the size of the potential supply of aggregate within the GTA and the Regions and Counties that surround it. The 1992 report, A State of the Resource Study (Planning Initiatives Ltd. And Associates: 1992) prepared for the Ministry of Natural Resources concluded that at that time there existed sufficient resource to supply aggregate demand for many decades within the GTA though some of the demand for sand and gravel would have to be substituted with quarry stone. In addition, an abundant supply of quarry stone and sand and gravel was identified in the surrounding areas of Kitchener/Waterloo/Cambridge/Guelph and Brantford/Hamilton/Niagara. The study found that

the combined resources in GTA, Kitchener/Waterloo/Cambridge/Guelph and Brantford/Hamilton/Niagara areas would meet demand in these areas well beyond 2050, though sand and gravel resources would be exhausted by 2030. It is important to note that these resource assumptions were based on both licensed and potential supply with potential supply accounting for 95% of the total for the GTA.

There are a number of factors that limit the amount of potential resource that can be ultimately licensed and extracted. Recent experience with licence applications indicate that it is becoming increasingly difficult and expensive to get approval for new or expanded pits and quarries. Urban development has sterilized, and will continue to sterilize, a significant portion of the potential supply. In addition, constraints exist in special planning areas such as the Oak Ridges Moraine and the Niagara Escarpment Planning Area. It is estimated that only 15% of available resources may ultimately be licensed for extraction (Hollingsworth, October, 2002). When this 15% factor is applied to the unlicensed resources in the GTA and surrounding supply areas, the potential supply is significantly reduced.

Within the past several years, the aggregate import areas for the GTA have expanded to the northern portions of Dufferin and Simcoe County. It is inevitable that the trend of increasing distance for the transportation of aggregates will continue as the supply in the GTA and immediate areas is diminished or sterilized.

10.2.2 Potential for Grey County Producers to Export

A survey of producers in the County found limited opportunity for exporting aggregate outside of Grey at the present time. Some export of specialty materials does occur on a limited basis; however, this does not represent a significant portion of the production.

Local producers have confirmed that the high cost of transportation makes it difficult to compete with producers closer to the GTA. Delivered prices in the GTA for Granular A are in the range of \$8.00 to \$15.00 per tonne. Based on a price of about \$5.00 per tonne F.O.B.

(freight on board at the pit), it is estimated that aggregates from central and southern Grey County could be delivered to the western and northern demand areas of the GTA for approximately \$15.00 to \$20.00 per tonne.

There are a number of other areas in addition to traditional and potential suppliers, closer to the GTA, that would have lower transportation costs (e.g. Brantford). Until resources in these areas are exhausted, it is unlikely that Grey County producers will be able to deliver aggregate to the GTA at a competitive price without reduced transportation costs. Truck transportation costs may be reduced through an improved road network or more efficient vehicles. Another possibility would be the development of alternative methods of transportation such as rail or water. The use of these means would involve significant investment in infrastructure to provide a shipping location in Grey County and receiving location in the GTA. The investment associated with this infrastructure would likely require large quantities of sand and gravel in order to make the undertaking economically viable.

10.2.3 Implications

Local demand for aggregates in Grey County is expected to remain below 3 million tonnes per year over the next two decades. Given the large quantities of aggregate resources in Grey County, there would then be substantial quantities of resource potentially available for export.

At the present time, transportation costs for shipping aggregate to the demand areas such as the GTA, prohibit Grey County producers from competing successfully with current GTA suppliers. The cost differential is in the order of \$5.00 to \$10.00 dollars per tonne.

Over time there are a number of factors that may close the gap including:

- a) increased extraction costs in traditional supply locations as a result of higher land costs, more complicated approval processes and requirement for extensive mitigation measures;
- b) depletion of resources and sterilization of future supply in the GTA and surrounding area that would increase the market price; and
- c) reduced transportation costs from Grey as a result of larger vehicles, improved road networks, or the development of alternative methods of transportation.

There may be medium term potential for Grey County producers (particularly those in the southern area of the County) to export their product to demand areas in the northwestern portions of the GTA. It is noted that southeast Grey borders on the outer limits of the current import areas for the GTA, although the major resources in Grey are farther north.

Long term potential exists for Grey County to export to the GTA in greater volumes, however, given the uncertainties regarding supply in closer areas such as Simcoe County, the Waterloo/Wellington area and the Hamilton/Niagara/Brantford area, it is uncertain when that would occur. One of the most difficult aspects of predicting the potential to export aggregate rests in the impact of government planning – Acts such as the Oak Ridges Moraine Conservation Act may significantly change the existing conditions.

Monitoring of aggregate demand, supply and pricing in the GTA and surrounding areas is recommended to ensure that Grey County will be prepared to meet emerging demands and the possible initiation of export of aggregates from Grey County. This monitoring may be accomplished, in part, through a survey of local producers to assess emerging demand.

11.0

FISCAL AND ECONOMIC ANALYSIS

The fiscal and economic analysis used case studies of three selected aggregate operations to assess the typical impact of aggregate extraction on municipal finances and its contribution to the local economy.

Three aggregate operations of varying magnitude, as determined by annual license limits, were examined. Interviews were conducted with the representatives from each business to obtain information regarding nature of the operation, employment, local spending, etc. The municipalities in which the operations were located were contacted to obtain information regarding taxes, assessment, land area and background municipal finance data.

11.1 MUNICIPAL FINANCE

The intent of this portion of the study is to identify the average costs/revenue resulting from aggregate operations. The findings are presented on an average per tonne basis.

The fiscal impact analysis assessed the net effect of the case study operations on the municipal finances of both the lower tier and upper tier municipality. Monies paid by the aggregate operations to the municipality in the form of property tax and license fees were considered relative to the expenditures made by the municipality to provide services to the aggregate operations.

The most significant payments made by the aggregate operations in Grey County to municipal governments are property taxes and the municipal share of aggregate license fees. Under the regulation to the Aggregate Resources Act, an annual licence fee of 6 cents per tonne of aggregate removed from a licensed property is paid by licence holders. Of this amount, 0.5 cents is distributed to the County or Region in which the operation is located and 4 cents per tonne is provided to the local municipality. In 2001, the lower tier municipalities in Grey County received almost \$100,000 from this source. The County received \$12,500 during the

same period.

Municipal expenditure areas for which the aggregate operations are expected to demand services include general government, planning and roads.

The effect on municipal expenditures was estimated using average costing (based on employment). The financial impact assessment is based on the 2001 financial data for both the County and local municipalities as this is the most recent year for which audited financial statements are available.

The results of the analysis indicate that aggregate operations provide a modest positive impact to both the County and local municipality in which they are situated. The magnitude of the positive impact varies with the size of the operation. On average, it is estimated that the net combined upper and lower tier benefit is in the range of approximately \$60/1,000 tonnes of aggregate extracted.

11.2 CONTRIBUTION TO THE LOCAL ECONOMY

11.2.1 Direct, Indirect and Induced Employment

This analysis considers the role of the aggregate industry in the local economy measured in terms of employment (direct, indirect and induced) as well as other contributions made to civic and community projects and activities.

The case study data indicate that for 1 full time equivalent job is required for every 20,000 tonnes of aggregate extracted annually. Based on Grey County's 2001 total production of 2.6 million tonnes, it is estimated that 130 persons are employed directly in aggregate production.

In addition, it is estimated that employment at aggregate processing operations such as concrete and asphalt plants account for a further 400 jobs.

Employment related to aggregate extraction is referred to as basic employment in that, unlike non-basic employment, such as that in the service industry, it exists largely independent of the local population. Non-basic employment is associated with businesses that provide services to the population and basic industries including retail and food establishments, business and personal service, institutions such as schools and hospitals and government offices.

Direct employment created through aggregate extraction gives rise to the multiplier effect of “spin off” benefits to the local economy. One component of the multiplier effect is the indirect employment that is generated through the money spent locally by basic industry on goods and service.

The results of the case study analysis indicate that a significant share (70-75%) of expenditures made by aggregate operations are purchased in the local area for things such as fuel, office supplies, accounting and other services.

The induced effect is the second component of the multiplier effect. It is defined as the economic activity resulting from the purchase of local goods and services by workers with the wages they earn from their employers.

A review of employment data for Grey County by industry division, indicates that for every direct job created by basic industries, a further 1.5 indirect or induced jobs are produced. Based on a employment of 530 persons involved in aggregate extraction and processing, it is estimated that a further 800 jobs in Grey County are dependant on the aggregate industry.

11.2.2 Other Contributions

Sampled aggregate operations make a measurable contribution to the local community by sponsoring sports teams, contributing materials to civic projects, and giving financial support to community groups and events. In addition, the aggregate industry provides a source of materials to support other industries - primarily construction. The availability of locally produced aggregates provides the construction industry with a comparatively low cost material. This is also a benefit to the County and local municipalities contracting out road construction work.

12.0 EXTRACTION AND REHABILITATION SCENARIOS

12.1 EXTRACTION

In developing any aggregate resource, the goal is to maximize resource utilization while minimizing the operational costs, including the costs associated with rehabilitation following extraction of the resource. Recent experience has proven that it is possible to maximize rehabilitation efforts and results through the development and implementation of a good rehabilitation plan and reduce operational costs at the same time. A good rehabilitation plan that considers extraction and rehabilitation in a progressive manner will help to minimize rehabilitation costs during the operational phase of the extraction process.

There are some key principles and concepts that can be applied to all areas of extraction that will help to maximize resources, rehabilitation efforts and results.

- a) Eliminate setbacks between licenced properties. This not only increases the volume of aggregate that can be extracted, but also provides for a more natural rehabilitated topography.

- b) Extract the deposit to the full extent of the resource. Recognizing there are developmental constraints that identify extraction limits, the remainder of the resource should be extracted to its maximum limits, including depth.
- c) Plan ahead for the rehabilitation to most efficiently and effectively use overburden, topsoil and other non-product material. Wherever possible topsoil and overburden should be stripped and directly replaced to an other area. This not only reduces the costs of moving the material, but also maintains the soil fertility and natural seed bed.
- d) Maximize the potential for compatible industrial uses on a licenced property. Land uses such as recycling concrete and bricks, and transfer stations are naturally compatible with activities associated with aggregate operations.
- e) Produce as wide a variety of products as possible that meets local needs and best utilizes the type and variety of aggregate on site. To the greatest extent possible, waste product should be reduced on site.

12.2 REHABILITATION SCENARIOS

There are two main types of glacial deposits in Grey County, which form the majority of good quality aggregate resources: outwash deposits and ice contact deposits. Outwash deposits are often located in lowlands and therefore may be extracted from below the water table. Ice-contact deposits, often located at higher elevations with a dry, hummock topography, are likely rehabilitated to a dry after use.

The two fundamental types of extraction (above water and below water) provide the focus for broad scale considerations for rehabilitation trends. Rehabilitated land uses (both wet and dry) that are most commonly developed are explained below:

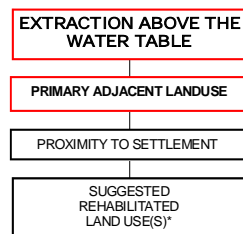
- | | | |
|--------------|---|--|
| Aquaculture | - | Fish farming. |
| Natural Area | - | Passive recreation such as bird watching. |
| Park | - | Active recreation such as ball fields and play grounds, trails, hiking, camping. |

Residential	-	Various forms of housing.
Agriculture	-	Crop production, pasture, tree nurseries, tender fruit.
Industrial	-	Warehousing, trucking, feed facilities, lumber.
Commercial	-	Sales centres, tourist facilities, campgrounds, golf courses.
Institutional	-	Schools, churches.
Woodlot	-	Areas planted to establish a self sustaining wooded property.

In order to provide guidance for the types of rehabilitation that can be expected in certain areas, flow charts were developed to identify reasonable and beneficial rehabilitation options given the primary adjacent land use and the proximity to settlement. Table 12.1 and Table 12.2 represent rehabilitation options for extraction and rehabilitation above the water table and below the water table, respectively.

Table 12-1: Rehabilitation Scenarios - Extraction Above the Water Table

CHART STRUCTURE



* This in no way implies a pre-approval for a new land use, but is a guide for the most appropriate progressive and final rehabilitation for a pit or quarry.

REHABILITATION SCENARIO

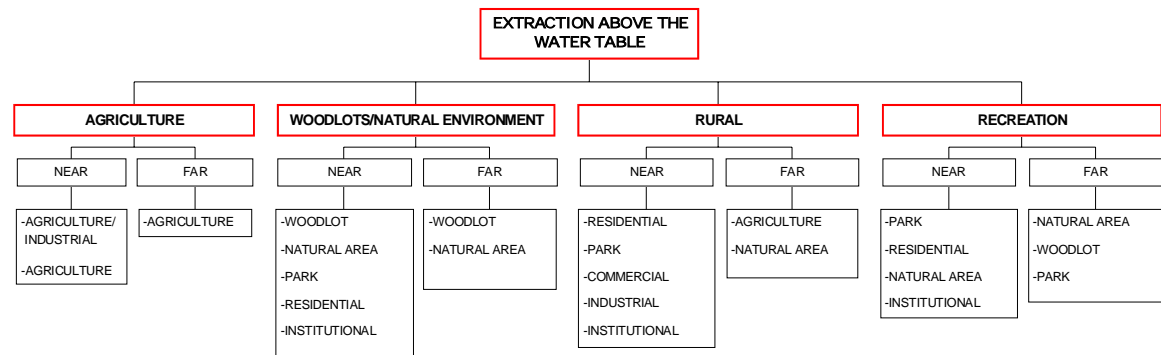
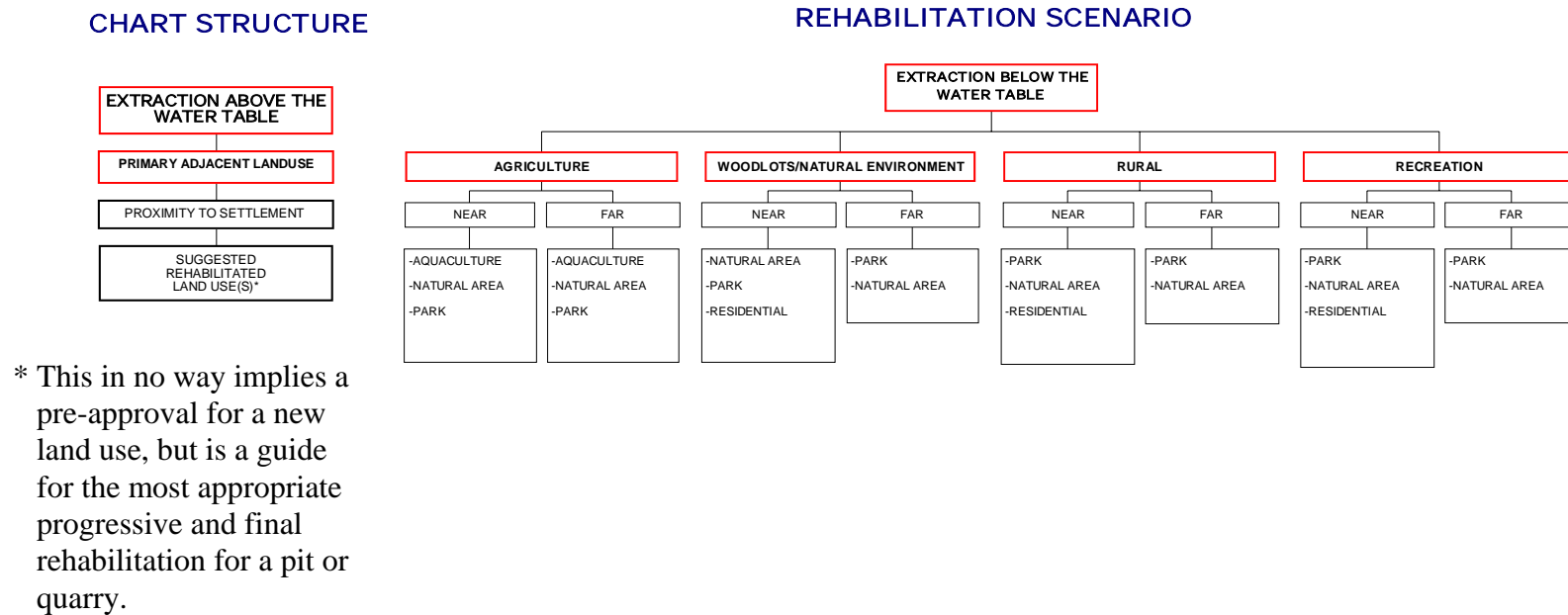


Table 12-2: Rehabilitation Scenarios - Extraction Below the Water Table



General Rehabilitation guidelines are in Appendix E, Sub-Appendix A.

13.0 OPPORTUNITIES FOR ENHANCEMENT OF THE NATURAL ENVIRONMENT

Traditionally, after-use design of most pits and quarries that do not extract below the water table has focused on some form of agricultural rehabilitation. Many pits and quarries are in rural areas that have agricultural land use designations and the focus has been on restoring sites to previous land uses.

The rehabilitation efforts of the aggregate industry have now evolved beyond relatively straightforward rehabilitation practices to include more sophisticated and holistic approaches to improve the human and ecological landscape. Pits and quarries are being effectively rehabilitated to after uses that promote the development of the natural environment. Proposed after uses should take into account the surrounding natural environment in order to ensure compatibility. The rehabilitation of a pit or quarry often offers unique opportunities to enhance or re-establish natural features that are currently significant or sensitive. Cumulative rehabilitation techniques that account for adjacent land uses, natural features and rehabilitation activities are capable of increasing the ecological integrity as well as capacity of a landscape to support a range of human activities. Innovative recreation concepts can be employed in the context of a regional ecosystem rehabilitation initiative. A number of opportunities exist in remnant natural areas for the rehabilitation and naturalization of currently degraded features and areas with limited habitat diversity (i.e. old field meadows and pasture lands). When larger scale natural processes are considered in the rehabilitation plans for new and existing aggregate extraction sites, net economic and environmental benefits are realized.

14.0 IDENTIFICATION OF CONSTRAINTS

Several disciplines were studied independently as components of the Study during the data gathering phase. The primary analysis that brings them all together and assesses the implications of the information is the constraint overlay. This part of the analysis determined

the portion of the County underlain by resource and then determined if those resources were constrained or unconstrained.

In addition to using the constraint overlay, the study team developed two new tools: the Evaluation Criteria and the Resource Evaluation Model. By using all three methods, it was possible to assess the impacts of the data collection and identify recommendations for resource identification and protection.

14.1 CONSTRAINT OVERLAY

The constraint overlay exercise is a process that assesses the aggregate resources in relation to a series of constraints which affect potential for extraction. All of the known aggregate resources are identified on Figure 4-2. The potential constraints which exist on those resources as listed on Table 14-1 were overlain. This establishes a map illustrating “constrained” and “unconstrained” aggregate resources. (See Figure 14-5)

14.2 EVALUATION CRITERIA

The evaluation criteria were developed to list constraining factors and to provide an evaluation of the potential impact relative to aggregate extraction. Each constraint was determined to have a high or low potential impact based on the regulatory requirements, with an associated rank of 1 or 2, respectively.

The potential impact and associated ranking were based on the ability of an aggregate producer to potentially mitigate the constraint. For example, if there is an undesignated wetland on the site, it does not automatically mean there can be no extraction on that property, it simply identifies that there is an issue that will require detailed investigation. The results of that detailed investigation may constrain extraction of the property to a “high” degree, or it may confirm a minor constraint.

All Natural Heritage features listed in the Provincial Policy Statement are given the same rank

(1).

Table 14-1 illustrates the Evaluation Criteria.

Table 14-1: Evaluation Criteria:

Constraint	Potential Impact	Rank
Settlement Areas (including schools)	High	Eliminated
Provincially Significant Wetlands	High	Eliminated
Significant Portions of Habitat of Threatened and Endangered Species ¹	High	Eliminated
Sensitive Rural Communities	Low	2
Agriculture	Low	2
Specialty Agriculture	Low	2
Fish Habitat	High	1
Significant Woodlands ²	High	1
Significant Valley Lands	High	1
Significant Wildlife Habitat ³	High	1
Provincial Life & Earth Science Areas of Natural and Scientific Interest (ANSI's)	High	1
Wetlands ⁴	High	1
Archaeological Sites	Low	2
Karst Areas	Low	2
Sensitive Groundwater Regimes	Low	2
Hazard Lands Mapping	Low	2

¹ Information on the habitat of T & E species is not available. Records of sightings of these species is available and has been identified for further evaluation on a site specific basis

² Needs to be defined and mapped by Grey County

³ Deer wintering yards is the only information available from MNR - other information needs to be defined.

⁴ Not provincially significant or unevaluated..

14.3 RESOURCE EVALUATION MODEL

A Resource Evaluation Model was developed to assist in understanding the significance of the constraint or combination of constraints.

The following definitions for each of these categories constitute the Resource Evaluation

Model.

Five possible categories were identified: eliminated lands, highly constrained lands; moderately constrained lands; minimally constrained lands and unconstrained lands. These constraint levels are overlaid on the resource as follows on Figures 14-1 through 14-5.

a) Eliminated Lands

Definition: - Existing built or approved development areas including all school sites;
 or
 - areas of Provincially significant wetlands, or significant portions of
 habitat of threatened and endangered species are such that Provincial
 Policy does not permit development (including aggregate extraction) at
 this time.

Implication: - There is no potential for aggregate extraction at this time.

b) Highly Constrained Land

Definition: - More than one Level 1 constraint was identified in the current study that
 may have significant impacts.

Implication: - Extraction may be possible, but it is expected to require significant
 efforts to ensure acceptable impacts (eg. mitigation, remediation or
 compensation related to no loss of feature or function).

c) Moderately Constrained Lands

Definition: - One Level 1 constraint was identified that may have significant impacts;
 or
 - One Level 1 constraint and any number of Level 2 constraints were
 identified that may have significant impacts.

Implication: - Extraction may be possible, but it is expected to require efforts, which may be significant, to ensure acceptable impacts (eg. mitigation, remediation or compensation related to no loss of feature or function).

d) Minimally Constrained Lands

Definition: - One or more Level 2 constraints were identified by this study that have minimal impacts.

Implication: - Extraction may occur and is expected to require commonly employed efforts to ensure acceptable impacts.

e) Un-Constrained Lands

Definition: - No constraints were identified in the current study.

Implication: - Extraction may occur, and standard efforts will be required to ensure acceptable impacts.

Table 14-2 summarizes the Model:

Table 14-2: Resource Evaluation Model

Category	Definition
Eliminated	Settlements, schools, habitat of threatened or endangered species, provincially significant wetlands.
High Constraints	Two or more Level 1 constraints
Moderate Constraints	One Level 1 and any number of Level 2 constraints.
Minimal Constraints	One or more Level 2 constraints.
Un-constrained	No constraints identified.

The Resource Evaluation Model identified five different descriptions for aggregate resource lands: lands not available for extraction, highly constrained lands, moderately constrained lands, minimally constrained lands and resource lands that are unconstrained. These lands/constraints are represented on Figures 14-1 through 14-5, and the County has a digital record, which can be viewed and printed out at a more detailed scale.

Figure 14-1, Eliminated Resource Lands, identifies those areas where the sand and gravel is not available due to Provincial Policy and existing land development. The eliminated lands contain provincially Significant Wetlands, existing built-up areas, or habitat for threatened or endangered species. Although there are a number of small land parcels that are “eliminated”, there is only one location where there is a significant impact on the available resource. Eliminated lands cover significant portions of the total resource in the immediate vicinity of Meaford.

Figure 14-2 identifies those areas containing two or more level 1 constraints as being “Highly Constrained”. Highly Constrained Lands contain a combination of features, which will pose challenges for any extraction development. Serious efforts will be required to limit impacts to acceptable levels, and mitigation, remediation and/or compensation will be required. Two sizeable blocks of highly constrained land are present in the County: one located several kilometres southwest of Markdale, and a second west of Highway 6 along the Chatsworth – West Grey line. It should be noted that the effect of a highly constrained area may extend beyond the actual constrained lands due to the need for buffers and the need for protection of adjacent lands.

Moderately constrained resource lands, Figure 14-3, are those containing one level 1 constraint and any number of level 2 constraints. A level 1 constraint is a significant concern and it will be necessary to avoid, mitigate, remediate or compensate in order to ensure acceptable levels of impact. The existence of level 2 constraints may complicate site management, but these are usually manageable concerns. Moderately constrained lands cover 30 to 40% of the primary

resources in the Singhampton Moraine and many of the adjacent outwash areas. The fact that the moderately constrained areas are scattered over the primary and secondary deposits and thus fragment the available resource, renders the impact of the moderate constraint greater than it might normally be. If one includes the effect of resource fragmentation, the moderately constrained lands may impact in the order of 50% of the primary and secondary deposits in Grey County.

Minimally constrained resources are those affected by one or more level 2 constraints (Figure 14-4). Level 2 constraints are features such as hazard lands, sensitive communities and specialty agricultural areas, for which there are recognized, proven and effective approaches available for dealing with the constraint to ensure acceptable impacts.

Figure 14-5 identifies those resource lands that are free of all known constraints. There are a number of land blocks scattered throughout the Singhampton Moraine area which are unconstrained primary resources; however, the amount of land is reduced to approximately 30% of the resources identified. There is a slightly larger proportion of unconstrained secondary resources, and these are concentrated in West Grey, Chatsworth and in the area southwest of Owen Sound. There is very little unconstrained resource in the Thornbury and Meaford areas.

15.0 RESULTS OF EVALUATION

The evaluation of the constraints on the aggregate resources of Grey County provides a basis for selecting an appropriate extent of all aggregate resources for identification for potential extraction in the Official Plan.

All lands are potentially available for extraction except eliminated lands but the approval process will be significantly different depending on the level of constraint.

We therefore are left with resource lands that are constrained to various degrees. The question then becomes what level of constraint renders the resource worthy of protection?

Based on the results of the analysis of this study, we recommend the following:

- i) Lands that contain aggregate resources, which are eliminated or highly constrained do not warrant protection for future potential extraction at this time because of the nature and effect of those constraints.
- ii) Lands that contain sand and gravel resources with no, minimal or moderate constraints should be protected for future potential extraction in a manner consistent with the Provincial Policy Statement (Figure 15-1). The nature and effect of these constraints allows for aggregate extraction to proceed with minimal impact if appropriate and accepted mitigative measures are employed.

Primary, Secondary and Tertiary resources were inventoried as part of this Study. Primary and Secondary resources should be identified for protection.

Tertiary resources and other sand fill materials are important to the local community. Therefore, they should be recognized within the Official Plan so that small pits utilizing these materials may be licenced outside of those Primary and Secondary resource lands. It is important to maintain access to these lower quality resources for local construction purposes. There needs to be a mechanism within the Official Plan to permit such applications to proceed with a streamlined approval process.

16.0

PUBLIC REPRESENTATION AND PARTICIPATION

A varied approach to public participation was taken, using open houses, handouts, news releases and the County website. There are two objectives for the public participation program. First was to obtain input from the public, and second, was to distribute information to the public on aggregate resources in Grey County and the industry in general.

An open house was held in the fall of 2002 at the end of the data collection stage, and a second one was held in the spring of 2003, at the end of the analysis stage. Public attendance for both open houses was about 25 people. A small number of written comments were received from the first open house, and two written submissions were received from the second. These are attached, along with open house notices and handouts in Appendix I.

Generally speaking, there was support for the study, and what was being attempted. Several members of the public expressed concern regarding below-water extraction, and it was apparent that these comments generally related to one specific site. The concerns related to licence administrative issues and to potential impacts of below-water extraction. Licence issues are the exclusive mandate of the Ministry of Natural Resources, and technical issues related to below-water extraction are normally addressed by the Ministry of the Environment during review of technical documents, site plans and applications.

The results from the current hydrogeological study covering the Counties of Grey and Bruce has been used to identify “sensitive groundwater areas” as a constraint in the Aggregate Resource Inventory Master Plan Study.

Public representation on this study has been a fundamental role since the beginning. The Public Liaison Group was established, consisting of Aggregate Producers (3), County Representative (1), Agency Representatives (1 each from the MNR and the Conservation Authority), and local municipal representatives from the Township of Chatsworth and

Municipalities of West Grey and Grey Highlands. Ron Glenn, Senior Planner with Grey County was the Project Coordinator. It is important to note that a representative from the Ministry of Municipal Affairs and Housing was to have been on the Liaison Group and did attend a couple of meetings, but was not successfully replaced when he moved to another job. Also, there was provision for representatives of the public at large, but there were none represented.

The Public Liaison Group played a key role including developing the terms of reference, reviewing proposals and determining the successful consultants, meeting regularly with the consulting team to review the work completed to date and approaches to future tasks and providing input into the study itself. At key steps within the study, the Liaison Group was requested to vote on new approaches that would provide the model for the analysis of the study. This was further supported by Grey County's Planning Committee's endorsement. The ongoing contributions and support of this study by the members of the Public Liaison Group were instrumental in the ultimate content, analysis and recommendations of this study.

17.0 CONCLUSIONS

The following conclusions are presented as a result of the Study:

1. There are large areas of lands within Grey County, which are underlain by sand and gravel resources. Available mapping has been updated and reinterpreted at County scale to identify Primary, Secondary and Tertiary level deposits. Primary deposits are those containing sand and gravel deposits of greatest interest for commercial development. Secondary deposits may exhibit lesser quality, greater variability or be downgraded on the basis of a lack of information. Tertiary deposits are commonly small and sandy, and they are important sources of local construction materials, but are unlikely to support major commercial operations.

2. Approximately 15% of the Primary and Secondary deposits are either “eliminated” or “highly constrained”. “Moderately constrained” resource lands are approximately a third of the Primary/Secondary resources, but there is a substantial fragmentation of available lands. The cumulative impact of the moderate constraints plus land fragmentation is close to half of the primary and secondary resource lands.
3. There is an abundance of natural heritage features in Grey County. Many natural heritage features are associated with aggregate resource areas. These features potentially constrain the extraction of the aggregate resources to varying degrees.
4. Aggregate extraction is not permitted in Provincially Significant Wetlands and significant portions of the habitat of threatened and endangered species.
5. Aggregate extraction is permitted on lands adjacent to Provincially Significant Wetlands and on other natural features of provincial significance provided that there is not negative impact on the feature or its ecological function.
6. The County has limited the uses permitted on lands designated “Agriculture” and “Special Agriculture”. Aggregate extraction is permitted as an interim use on these lands provided that the lands are rehabilitated to substantially the same area and average soil quality.
7. Local demand for aggregates in Grey County is expected to remain below 3 million tonnes per year to 2023.
8. There is potential in the medium term (10 to 20 years) for Grey County producers (particularly those in the southern area of the County) to export aggregate to demand areas in the northwestern portions of the GTA.

9. Long term (beyond 20 years) potential exists for Grey County to export to the GTA in greater volumes; however, given the uncertainties regarding supply in areas closer to the GTA, such as Simcoe County, the Waterloo/Wellington area and the Hamilton/Niagara/Brantford area, it is difficult to predict when that would occur.
10. Aggregate operations provide a modest positive impact to the municipal finances of Grey County and the local municipalities. This benefit is estimated to be approximately \$60/1,000 tonnes of aggregate extracted.
11. It is estimated that 530 persons are employed in aggregate extraction and processing in Grey County and a further 800 jobs are supported through local purchasing of goods and services by the aggregate operations and its employees.
12. The construction industry in Grey County benefits from the local availability of aggregate for its construction products.
13. Some local aggregate producers provide financial support for a variety of civic and other organizations in Grey County.
14. Much of the aggregate resource of Grey County has previously been identified with some, but not complete policy protection. The current study has identified many additional areas of primary and secondary aggregate resources which warrant protection.
15. Some of the Primary Aggregate currently identified within the Official Plan has been evaluated to have a level of constraint which would remove it from protection.
16. Truck volumes and trip distributions will likely continue to be similar to those experienced over the past several years, although specific construction projects will generate higher volumes on a temporary basis.

17. The potential exists for export to the northwestern part of the GTA in the longer term. This would result in higher truck volumes on Highways 6 and 10, which form the main routes to those markets.
18. The existing Official Plan Policies relating to the requirements for Traffic Impact Studies and Development Agreements are appropriate for review of new and expanding aggregate operations.
19. There may be a need to identify local municipal roads that are best suited to provide access between aggregate operations and the County and Provincial roads, as increased truck traffic occurs.
20. Significant increases in truck traffic will require the County, the lower tier municipalities and the Province to work together to manage the traffic impacts through existing communities.
21. Tertiary resources and other sand fill materials are important to the local community.

18.0 RECOMMENDATIONS

The recommendations of this Aggregate Resource Inventory Master Plan are:

1. The unconstrained, minimally constrained, and moderately constrained Primary and Secondary aggregate resources of Grey County should be designated for protection in the Grey County Official Plan. The extent of these aggregate resources is shown on Figure 15-1, Aggregate Resources Identified For Protection.
2. A new designation, in the Grey County Official Plan should identify the location of the licensed pits and quarries as Mineral Aggregate Extraction. The extent of this designation should be based on Ministry of Natural Resources licence information and be updated as

necessary as a housekeeping measure.

3. An Official Plan Amendment to rewrite Section 2.7 Mineral Resource Extraction Designation should be prepared based on the references and results of the Aggregate Resource Inventory Master Plan, for public and agency review, public meeting, revisions as appropriate and consideration for adoption by County Council.
4. The “Mineral Aggregate Resource” designation should permit aggregate extraction and related uses subject to Municipal and County satisfaction that the policies and tests of the appropriateness for extraction and related uses are met on a particular site.
5. The County of Grey should regularly request information from the appropriate agencies to update its database with information for those features that are beyond the responsibility of the County (e.g., wetlands, ANSI's, significant portions of the habitat of endangered and threatened species and fish habitat).
6. The County of Grey should identify and evaluate its forested lands, valleylands and wildlife habitats to determine their significance in the County.
7. The resource evaluation model should be updated following the identification of significant woodlands, significant valleylands and significant wildlife habitat by the County, and after receipt of other new and developing information from other agencies.

8. Any changes to the land use designations that affect the agricultural designations should be incorporated into the resource evaluation model.
9. Monitoring of aggregate demand, supply, and pricing, in the GTA and surrounding areas is recommended to ensure that Grey County is prepared to meet emerging demands.
10. Grey County should encourage aggregate operations located on low agricultural capability soils.
11. Grey County should promote rehabilitation alternatives that are designed to enhance existing natural features adjacent to the site or natural features that are not well represented in the County.
12. “Primary” and “Secondary” aggregate resources in Grey County should be treated in the same manner in the Official Plan. It is inappropriate to separate the two resource levels because the difference between the two is often made on the basis of a lack of information.
13. There needs to be a mechanism within the Official Plan to permit applications on Tertiary and sand fill resources to proceed with a streamlined approval process.

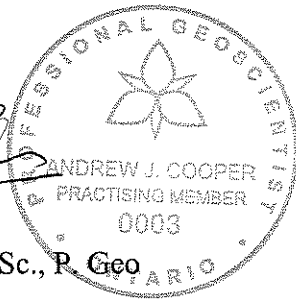
All of which is respectfully submitted,

JAGGER HIMS LIMITED

Per



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19.0 REFERENCES

Aggregate Resources Act (1996).

Statutes of Ontario Chapter 23 and Ontario Regulation 702/89.

ARDA Branch, Canada Land Inventory, Ontario Department of Agriculture and Food. 1970.
Acreages by Counties and Townships for Agricultural Land Use Capability in Southern Ontario.

Browning, M.H.R. and M.J. Tan 2001.

Rehabilitation of aggregate extraction sites: opportunities for establishing native ecosystems. Ontario Ministry of Natural Resources, Science and Information Branch, Southcentral Science and Information Section. Ontario's Living Legacy Science Report OLL RT.REC. 104.04, 47 p.

Chapman, L.J. and D.F. Putnam. 1984.

The physiography of southern Ontario, 3rd Edition. Ontario Geological Survey, Special Volume 2.

County of Grey. 1999.

County of Grey Official Plan.

Gillespie, J.E. and N.R Richards. 1954.

Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey ; Ministry of Agriculture and Food; Agriculture Canada, Research Branch, Guelph; 2 maps, scale 1:63,360, 79p.

Hollingsworth, Brian

October, 2002: Mineral Aggregates Issue Paper prepared for The Smart Growth Panel;

Central Ontario Zone.

Michalski, Michael F. P., Daniel R. Gregory, and Anthony Usher. 1987.

Rehabilitation of Pits and Quarries for Fish and Wildlife. Aggregate Resources Section,
Land Management Branch, Ontario Ministry of Natural Resources

Ontario Ministry of Municipal Affairs and Housing. 1997.

Provincial Policy Statement. MMAH: Toronto, Ontario.

Ontario Ministry of Natural Resources. 1986-2000.

Owen Sound District Fisheries Management Plan

Ontario Ministry of Natural Resources. 1997.

Aggregate Resources of Ontario. Provincial Standards. Queens Printer for Ontario.
Toronto, Ontario.

Ontario Ministry of Natural Resources. 1999.

Natural Heritage Reference Manual for Policy 2.3 of the Provincial Policy Statement.
OMNR: Peterborough, Ontario.

Ontario Ministry of Natural Resources. 1999.

Natural Heritage Information Centre. Provincial status of plants, wildlife, and
vegetation communities' electronic database. OMNR: Peterborough, Ontario.

Ontario Ministry of Natural Resources. Oct 2000.

Significant Wildlife Habitat Technical Guide. 151p.

Ontario Ministry of Natural Resources. 2002.

Natural Resources and Values Information System electronic database.

Planning Initiatives Ltd and Associates

1992: Aggregate Resources of Southern Ontario: A State of the Resource Study.

Statistics Canada. 2002.

2001 Census of Agriculture. Farm Data: Full Release. Stand-alone CD-ROM Catalogue
Number 95F0304XCB.

APPENDICES

APPENDIX A

TERMS OF REFERENCE

County of Grey

Aggregate Inventory Master Plan

Terms of Reference

Grey County Planning and Development

September 2001

1.0 INTRODUCTION

The County of Grey is one of the largest Counties in the Province of Ontario with many diverse natural resources. The County is blessed with many economic factors including agriculture, tourism and industry. The aggregate industry within Grey County has been, for many years, very strong, primarily due to the abundance of significant aggregate resources.

The County, in the development of the Official Plan, identified aggregate as an area that required further study. The Official Plan states: "The County shall develop Terms of Reference in consultation with the concerned municipalities and representatives of the aggregate industry within six months from the date of final approval of this Plan by the Ontario Municipal Board with a view to completing the master plan in three years from the date of final approval of this plan by the Ontario Municipal Board."

The Official Plan recommends the master plan be implemented by way of an Official Plan Amendment either by way of an amendment to the County Official Plan or a local Official Plan.

The Master Plan must work towards protecting and managing this Provincially Significant resource to ensure that the public interest of the people of Ontario is being met.

2.0 PURPOSE OF THE AGGREGATE RESOURCE INVENTORY MASTER PLAN

- i) To identify and examine the Mineral Aggregate Resource in the County of Grey;
- ii) To assess the environmental, social and economic factors affecting the resource utilization;
- iii) To develop a management strategy for the aggregate resource and rehabilitation of future and existing extracted areas;
- iv) To develop Official Plan policies for the implementation of the management strategy into the Grey County Official Plan.
- v) To ensure that aggregate resources are protected and managed in the County of Grey in a manner that is in the public interest, and which has regard for the Provincial Policy Statement.

3.0 GOALS AND OBJECTIVES

The goals and objectives have been developed on a sustainable community model, which would be based on management of the resource, maintenance and enhancement of the ecosystem and natural heritage community over the long term.

Goals

- 1) A Master Plan for mineral extraction which has regard for environmental, economic and social objectives while enabling the industry to supply market demands. The

Master Plan will have regard for Provincial Policy.

- 2) Rehabilitation Master Plan on a macro scale (resource areas) with issues of after use being included;
- 3) Official Plan policies that would implement the Aggregate Inventory Master Plan.

Objectives

- i) Assess the extent of aggregate resources in the County and assess the extent of aggregate resources currently licensed in Grey County;
- ii) Identify future market demand areas
- iii) Identify future market supply areas outside of Grey County
- iv) Evaluate planning policy for non-related aggregate extraction with respect to the implications for aggregate resource production;
- v) Master rehabilitation scenarios for each area and address the issue of after use;
- vi) Identification and evaluation of extraction and rehabilitation scenarios on the environmental, social and economic factors and the identified preferred option;
- vii) To develop planning policy and designations for the County Official Plan to implement the Master Plan for the Planning period ie. 20 years.
- viii) The appropriate protection of selected areas of aggregate resource from non-related land uses beyond the 20-year time horizon, designation of haul routes, road construction and maintenance standards and Municipal process for dealing with aggregate applications.

4.0 PRINCIPLES

The following principles should form the basis of all analysis, evaluations, recommendations and decisions

1. Must be technically supportable
2. Must be politically acceptable
3. Must respect environmentally sensitive/significant areas
4. Must be socially and environmentally responsible.
5. Must have regard for the "Provincial Policy Statement"

5.0 PRIMARY ISSUES TO ADDRESSED

- The Natural Environment Policies of the County Official Plan
- Ecological approach - no loss of function or form of Provincially significant features -Hydro geology, protection of the ground water and the surface water - quality and quantity
- Agriculture vs Rural - local of the resource with respect to prime agricultural land versus rural land
- Cultural Heritage
- Community/Social Impact
- Transportation, appropriate haul routes

- Rehabilitation
- Community Impact "Benefits and Costs"
- Planning (land use)
- Public Participation

6.0 DATA COLLECTION

6.1 Issues

- Mineral Resource Identification
- Inventory of Existing Licensed operations
- Proposed Aggregate Operations
- Inventory of Rehabilitated Pits, Rehabilitation in progress and Abandoned Pits
- Environmental Systems and Features ie: Wetlands, ANSI, Groundwater, Surface Water, Fisheries, Woodlands, Wildlife Corridors, Threatened and Endangered Species, Water Bodies and Streams. Including the Natural Environment Policies of the County Official Plan
- Hydrology and Constraints
- Surface Water and Terrestrial systems
- Identify Physical, Environmental and Social Constraints to extraction (eg: land fragmentation, existing and future land use patterns, existing planning commitments, impacts of existing pits on residents quality of life, heritage resources, severance policies, existing and potential road allowances)
- Community Impact and Cost/Benefit analysis
- Existing approved planning policy
- Describe macro supply and demand
- Existing haul routes as identified through site related agreements
- Identification of Primary and Secondary market areas and define parameters for determining haul routes, existing haul routes' adequacy and new haul routes
- Socio/Economic data collection and analysis
- Potential community impacts
- Cost benefit analysis (Province, County, Local)

6.2 Identification of Opportunities and Constraints

Following the data collection, inventory and mapping, test opportunity and constraint for a macro picture

- i) Economic Constraint
 - Overburden depths
 - Haul distances
 - the macro identification of Need and supply in Primary and Secondary markets areas
 - Resource availability
 - Quality and quantity limitations

- ii) Direct and Indirect economic costs to the community
- iii) Natural Environmental Constraints over the areas of primary aggregate.
- iv) Identify areas where social and heritage constraints exist.
- v) Assessment of Constraints - evaluation criteria - Identification of greatest opportunity and constraint for extraction - the amount of extraction possible.
- vi) Development of a resource evaluation model
 - Protection
 - Conservation
 - Management

6.3 Aggregate Analysis

- i) The identification of areas that are realistically possible for protection that are not constrained by social or environmental features.
- ii) Traffic impact assessment
- iii) Opportunities for enhancing the natural areas and Ecological systems
- iv) Cost/Benefit Analysis of Aggregate Extraction
- v) Develop Scenarios for Extraction areas
- vi) Rehabilitation scenarios - large scale - not a site by site basis
- vii) Develop Evaluation Criteria
 - Public health and safety
 - Natural Ecosystem Criteria
 - Socio/Economic Criteria

6.4 Study Finding and Recommendations

- a. Community opinion
- b. Aggregate opinion
- c. Consensus building

7.0 STUDY TIMING

Phase 1	Data Collection	12-16 months
Phase 2	Identification of Opportunities and Constraints	3 months
Phase 3	Aggregate Analysis	3 months
Phase 4	Study findings and Recommendations and Implementation	<u>8 months</u>
Total Time		30 months

8.0 PROJECT COSTS

Project costs are to be allocated by each phase with a total upset cost

9.0 PROJECT ORGANIZATION

Grey County Planning, Development and Heritage Committee

Public Liaison Group -	Public at large (once Terms of Reference are finalized.)	3	
	Aggregate Producers	3	
	Jennifer Sutherland-Prentice		
	Barry Bradley		
	Jackie Fraser		
	County Representative - Bob Waind		1
	Agency (MMA&H, MNR and Conservation Authority)	3	
	MMA& H- Wil Pol		
	MNR - Dave Munro		
	Conservation Authorities - Gary Senior		
	Local Municipal	3	
	Howard Greig - Township of Chatsworth		
	John S. Black - Township of West Grey		
	Anastasia Sparling - Municipality of Grey Highlands		

Project Coordinator - Ron Glenn - Senior Planner, Grey County Planning and Development

10.0 CONFLICT OF INTEREST STATEMENT

A signed statement that the Consulting team does not have a conflict with a current application or potential application within the County of Grey.

APPENDIX B

PLANNING DOCUMENTS

- PROVINCIAL POLICY STATEMENT
 - SECTION 2.2 MINERAL RESOURCES
 - SECTION 2.3 NATURAL HERITAGE
- GREY COUNTY OFFICIAL PLAN
 - SECTION 2.7 MINERAL RESOURCE EXTRACTION
DESIGNATION
 - SECTION 2.8 NATURAL ENVIRONMENT

I PREAMBLE

This Policy Statement is issued under the authority of Section 3 of the Planning Act. It provides policy direction on matters of provincial interest related to land use planning and development. The policies focus on the key provincial interests related to land use planning. These policies will be complemented by locally-generated policies regarding matters of local interest.

Section 3 of the Planning Act requires that, in exercising any authority that affects planning matters, planning authorities “shall have regard to” policy statements issued under the Act.

The Policy Statement is intended to promote a policy-led system which recognizes that there are complex inter-relationships among environmental, economic and social factors in land use planning.

A healthy economy is vital to Ontario’s ongoing prosperity. Wisely managed growth can result in communities which are economically and environmentally sound, and which meet the full range of needs of their current and future residents. Doing things right the first time can avoid the need for costly remedial measures to correct problems.

The Province’s resources - its agricultural land base, mineral resources, natural heritage resources, water supply and cultural heritage resources - provide economic, environmental and social benefits. The wise use and protection of these resources over the long term is a key provincial interest.

Equally, the Province has an interest in protecting the long term health and safety of the population, and the financial and economic well-being of the Province and municipalities.

II PRINCIPLES

Ontario’s long term economic prosperity, environmental health and social well-being depend on:

1. managing change and promoting efficient, cost-effective development and land use patterns which stimulate economic growth and protect the environment and public health;
2. protecting resources for their economic use and/or environmental benefits; and
3. reducing the potential for public cost or risk to Ontario’s residents by directing development away from areas where there is a risk to public health or safety or of property damage.

2.2 Mineral Resources: Mineral Aggregates, Minerals, Petroleum Resources

2.2.1 Mineral resources (*mineral aggregates, minerals and petroleum resources*) will be protected for long term use.

2.2.2 MINERALS AND PETROLEUM RESOURCES

2.2.2.1 *Mineral mining operations and petroleum resource operations* will be protected from activities that would preclude or hinder their expansion or continued use or which would be incompatible for reasons of public health, public safety or environmental impact.

2.2.2.2 In areas adjacent to or in known *mineral deposits* or known *petroleum resources*, and in *areas of mineral potential, development* which would preclude or hinder the establishment of new operations or access to the resources will only be permitted if:

- a) resource use would not be feasible; or
- b) the proposed land uses or development serves a greater long term public interest; and
- c) issues of public health, public safety and environmental impact are addressed.

2.2.2.3 Rehabilitation to accommodate subsequent land uses will be required after extraction and other related activities have ceased. Progressive rehabilitation will be undertaken where feasible.

2.2.2.4 Extraction of *minerals and petroleum resources* is permitted in *prime agricultural areas*, provided that the site is rehabilitated.

2.2.3 MINERAL AGGREGATES

2.2.3.1 As much of the mineral aggregate resources as is realistically possible will be made available to supply mineral resource needs, as close to markets as possible.

2.2.3.2 *Mineral aggregate operations* will be protected from activities that would preclude or hinder their expansion or continued use or which would be incompatible for reasons of public health, public safety or environmental impact. Existing mineral aggregate operations will be permitted to continue without the need for official plan amendment, rezoning or development permit under the Planning Act.

2.2.3.3 In areas adjacent to or in known *deposits of mineral aggregates, development* which would preclude or hinder the establishment of new operations or access to the resources will only be permitted if:

- a) resource use would not be feasible; or
- b) the proposed land uses or development serves a greater long term public interest; and
- c) issues of public health, public safety and environmental impact are addressed.

2.2.3.4 *Wayside pits and quarries and portable asphalt plants* used on public authority contracts will be permitted, without the need for official plan amendment, rezoning, or development permit under the Planning Act in all areas, except those areas of existing development or particular environmental sensitivity which have been determined to be incompatible with extraction and associated activities.

2.2.3.5 Progressive rehabilitation to accommodate subsequent land uses will be required.

2.2.3.6 In *prime agricultural areas*, on *prime agricultural land*, extraction of *mineral aggregates* is permitted as an interim use provided that rehabilitation of the site will be carried out whereby substantially the same areas and same average soil quality for agriculture are restored.

On these *prime agricultural lands*, complete agricultural rehabilitation is not required if:

- a) there is a substantial quantity of *mineral aggregates* below the water table warranting extraction; or
- b) the depth of planned extraction in a quarry makes restoration of pre-extraction agricultural capability unfeasible; and
- c) other alternatives have been considered by the applicant and found unsuitable; and
- d) agricultural rehabilitation in remaining areas will be maximized.

2.3 Natural Heritage

2.3.1 *Natural heritage features and areas* will be protected from incompatible development.

- a) *Development and site alteration* will not be permitted in:
 - *significant wetlands* south and east of the Canadian Shield²; and
 - *significant portions of the habitat of endangered and threatened species.*
- b) *Development and site alteration* may be permitted in:
 - *fish habitat;*
 - *significant wetlands* in the Canadian Shield²;
 - *significant woodlands* south and east of the Canadian Shield²;
 - *significant valleylands* south and east of the Canadian Shield²;
 - *significant wildlife habitat;* and
 - *significant areas of natural and scientific interest*

if it has been demonstrated that there will be no *negative impacts* on the natural features or the *ecological functions* for which the area is identified.

2.3.2 *Development and site alteration* may be permitted on *adjacent lands* to a) and b) if it has been demonstrated that there will be no *negative impacts* on the natural features or on the *ecological functions* for which the area is identified.

2.3.3 The diversity of natural features in an area, and the natural connections between them should be maintained, and improved where possible.

2.3.4 Nothing in policy 2.3 is intended to limit the ability of *agricultural uses* to continue.

¹ Other alternatives include resources in areas of classes 4 to 7 agricultural lands, resources on lands committed to future urban uses, and resources on prime agricultural lands where rehabilitation to agriculture is possible.

² Areas south and east of the Canadian Shield are shown on Figure 1

GREY COUNTY OFFICIAL PLAN

SECTION 2.7 MINERAL RESOURCE EXTRACTION DESIGNATION
SECTION 2.8 NATURAL ENVIRONMENT

9. Maintain the agricultural/rural way of life through the protection of the land base and agricultural operations, the creation of compatible economic opportunities, and the continued presence of social and recreational support facilities within the rural community.

OBJECTIVES

.1 PHYSICAL

- To minimize land use conflict as a result of aggregate extraction by ensuring adequate separation between existing land uses and new aggregate extractions or expansions to existing operations, by ensuring adequate haul routes and through appropriate screening, planting and setbacks. Similarly, new land uses will not be permitted in proximity to existing aggregate extraction operations if they will interfere with existing aggregate extraction operations.
- To encourage the continuation of compatible land uses such as agriculture or forestry on lands with identified primary aggregate resource capability.
- To provide for seasonal, tourist and estate type residential development in rural and recreation areas in a manner that is compatible with the rural landscape, and where it will not adversely affect any existing and/or potential agricultural, forestry or mineral aggregate operation.
- To locate and develop any new transportation and utility corridors and facilities, and/or expand the use of existing corridors in a manner which minimizes any negative effects.
- To set general standards, regulations, and guidelines for development adjacent to County Roads to ensure complementary and standardized policies throughout the County.
- To promote the preservation of any railway corridors for future servicing, recreation and/or transportation.
- To protect the function of the County Roads and Provincial Highways as the major traffic carriers through the regulation of development and access points along such roads.

2.7 MINERAL RESOURCE EXTRACTION DESIGNATION

2.7.1 BACKGROUND

Grey County contains substantial quantities of high quality, provincially significant mineral aggregates, including bedrock-derived crushed stone and naturally occurring sand and gravel. Due to the extent of current licenses and the magnitude of the resource, only licensed pits and quarries will be identified within the Mineral Resource Extraction designation.

Primary Aggregate Resource Areas as shown on Appendix A to this Official Plan were initially identified through the Ministry of Natural Resources 'Aggregate Resources Inventory' and will be protected from incompatible land uses. A County Official Plan amendment will be required however, prior to the establishment of any additional licensed areas within the County. The County notes that the location and quality of the identified deposits from the Ministry documentation may not be accurate and will require additional investigation and verification.

The County recognizes that mineral resources are a fixed location non-renewable resource found throughout the Planning Area and that their effective management is essential. It is also recognized that a balance must be struck between the competing priorities for the protection of the mineral resource and the need to address the other goals of the Official Plan in encouraging growth and prosperity in the County.

2.7.2 USES PERMITTED POLICIES

- (1) Lands designated Mineral Resource Extraction on Schedule A represent sites where the extraction of aggregate as defined from time to time in the Aggregate Resources Act and accessory and incidental uses thereto such as crushing, screening, blending, washing, stockpiling and recycling together with, agriculture, forestry, wildlife and fisheries management, portable asphalt plants and wayside pits and quarries will be permitted. No other use shall be permitted without amendment to the Plan. Lands designated Mineral Resource Extraction on Schedule A do not represent the total area of potential extraction or identified aggregate resources.

However, all mining operations shall be permitted only in those areas so designated. An amendment to this Plan will be required where new extraction operations are proposed in any area not designated for that use.

- (2) Notwithstanding the foregoing, it is not the intention of this Plan to prohibit the establishment of wayside pits and quarries and portable asphalt plants. The establishment of a wayside pit and quarry and portable asphalt plant in an area not designated Mineral Resource Extraction shall be governed by the policies contained in the Agricultural, Special Agriculture and Rural land use designations

of this Plan and may be permitted in the Settlement Areas outside of the Niagara Escarpment Plan area, subject to Local Official Plan and/or Secondary Plan policies.

2.7.3 DEVELOPMENT CRITERIA POLICIES

- (1) It shall be a policy of this Plan that an applicant who wishes to undertake an extractive operation other than a wayside pit and quarry must, if requested to do so by the local municipality, enter into a Development Agreement with the local municipality. The Agreement shall be entered into prior to local Council's enactment of the implementing Zoning By-law Amendment.

Such an Agreement may include:

- (a) Capital arrangements regarding improvements beyond the boundary of the applicant's land, as they may be required by reason of the operation of that extractive industry, e.g. widening and improving roads; and
 - (b) Routes to be used by trucks carrying aggregate.
- (2) All pit and quarry operations shall comply with The Aggregate Resources Act and its regulations as amended from time to time.
- (3) All pit and quarry uses shall satisfy the legal requirements of the Ministry of Environment or the authority having jurisdiction as to water supply and disposal of liquid wastes.
- (4) All pit and quarry uses shall satisfy the legal requirements of the Ministry of Environment, Air Management Branch, as to the control of air pollution.
- (5) When an extractive area has been depleted and is rehabilitated in accordance with the Licence, an Official Plan Amendment will be required for any use not permitted in Section 2.7.2.

2.7.4 POLICIES FOR THE CREATION OF NEW MINERAL RESOURCE DESIGNATIONS

- (1) It shall be a policy of this Plan that the County will undertake an aggregate resource inventory master plan for aggregate extraction. A primary objective of the undertaking will be to determine, in consultation with local municipalities, representatives of the aggregate industry and the appropriate agencies, the location of areas of mineral aggregate potential that are appropriate for protection.

On completion of the aggregate resource inventory master plan, the areas identified for protection will be incorporated into this Official Plan by way of an Official Plan Amendment.

- (2) In order to establish a new extractive operation or expand an extraction operation beyond the area currently designated Mineral Resource Extraction on Schedule A, an amendment to the County Official Plan will be required. Application to amend the County Official Plan or as specified within an approved Secondary Plan for a specific area or Municipality, should one exist, shall be required.

Application to amend the County Official Plan must be accompanied by the following information and follow the following procedures:

- (a) Submission of copies of all documentation provided to the Ministry of Natural Resources as required for licensing, pursuant to the Aggregate Resources Act.
 - (b) Submission of a hydrogeological study demonstrating that washing and screening operations will be carried out in accordance with established Provincial standards, regulations and guidelines.
 - (c) Submission of a traffic study demonstrating that the movement on existing streets or roads will not be unduly obstructed or interfered with by aggregate carrying vehicles during the operation of the pit or quarry.
 - (d) Submission of an environmental engineering study demonstrating that the effects from the proposed aggregate extraction operation or from any associated processing operations upon land uses in the surrounding area in terms of air quality through dust and particulate emissions and the potential for noise and vibration levels and quality and quantity of surface water and ground water resources will not exceed limits established by Provincial standards, regulations and guidelines.
- (3) Mineral extraction may be permitted on agricultural and special agricultural lands so long as rehabilitation of the site will be conducted in order to restore substantially the same areas and the same average soil quality for agriculture. In such cases complete rehabilitation will not be required if the following occurs:
- (a) a substantial quantity of the aggregate is below the water table; or
 - (b) the extraction is at a depth which would make restoration of pre-extraction agricultural capability unfeasible; and
 - (c) other alternatives have been considered and found unsuitable; and
 - (d) agricultural rehabilitation in remaining areas will be maximized.

2.7.5 IMPLEMENTATION

The goals and objectives and policies for the areas designated Mineral Resource Extraction will be implemented through the following methods:

- (1) The Zoning By-law and amendments adopted by the local municipal Councils.
- (2) The Aggregate Resources Act, and its Regulations as amended from time to time.
- (3) The requirements of the authority having jurisdiction as to water supply, disposal of liquid wastes and the control of air pollution.
- (4) The development by way of an Official Plan amendment by the County or by way of Local Official Plan and/or Secondary Plan, an aggregate resource inventory master plan on the location of the aggregate resource and the method in which the aggregate would be protected for future extraction.

The County shall develop Terms of Reference in consultation with the concerned municipalities and representatives of the aggregate industry within six months from the date of final approval of this Plan by the Ontario Municipal Board with a view to completing the master plan in three years from the date of final approval of this Plan by the Ontario Municipal Board.

2.8 NATURAL ENVIRONMENT

2.8.1 BACKGROUND

For the purpose of this Official Plan, the natural environment is comprised of a number of landscape features and processes which influence the entire land base. While each of the landscape units represents one component of the environment or regulatory framework, when taken together, these can be managed so as to conserve and maintain the County's prized natural qualities.

The natural environment land use designations include Hazard Land and Provincially Significant Wetlands. New development shall be protected from natural hazards and natural features found within these areas are recognized by generally directing new development outside of these areas.

Hazard Lands are taken from the mapping provided from each of the Conservation Authorities in Grey County and are shown on Schedule A. These include floodplains, steep or erosion prone slopes, organic or unstable soils, poorly drained areas, and lands along the Georgian Bay shoreline impacted by flooding, erosion, and/or dynamic beach hazards. While these lands are intended to be regulated so as to avoid natural hazards, they also contribute to the environmental amenities of the County.

Provincially Significant Wetlands (Class 1,2, and 3) are taken from mapping provided by the Ministry of Natural Resources. Development and site alteration may be permitted within some portions of, and the lands adjacent to Hazard Lands, and within adjacent lands of Provincially Significant Wetlands provided a Environmental Impact Study is completed in accordance with the applicable policies set out below.

Lakeshores are shown symbolically as the waters edge together with the abutting lands.

Special Policy Areas as shown on Appendix A are taken from mapping provided by the Ministry of the Environment and Energy. The Special Policy Area identifies land consisting of shallow overburden with karst topography. It has been indicated that the mapping may not be totally accurate, however it does show areas of potential environmental constraint to development that must be addressed prior to development occurring.

While each of these designations was produced with information provided by different Ministries and agencies, the County Plan uses data collectively to provide an integrated approach to the environment. Geographic as well as jurisdictional fragmentation increases the potential for native species to abandon specific areas and reduces the potential for recolonization. This Plan attempts to maintain natural linkages so as to enhance ecological features, functions and processes.

There is no County-wide mapping of significant fish habitat, woodlands, valleylands, endangered and threatened species, wildlife habitat and aquifer recharge areas on which to base land use designations. Until any such mapping becomes available, the Hazard Lands and Wetlands designations and the natural features shown on Appendix A shall be interpreted as generally representative of many, but not necessarily all, of these features. The County and appropriate Ministries and Conservation Authorities will have regard to these matters when Environmental Impact Studies reveal matters in each of these areas which require consideration. Where there are Provincial or Federal environmental approvals required, the County will comment on the appropriateness of these applications from a County perspective.

APPENDIX C

AGGREGATE RESOURCES INVENTORY

(In preparation – to be same as OGS Publication)

APPENDIX D

NATURAL ENVIRONMENTAL

**GREY COUNTY AGGREGATE RESOURCES
INVENTORY MASTER PLAN
APPENDIX D – NATURAL ENVIRONMENT**

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G2006

October, 2004

EXECUTIVE SUMMARY

This appendix has identified several significant natural heritage features and areas that pose some constraint to the aggregate resource extraction in Grey County. This was completed through a review of the Ministry of Natural Resource's NRVIS mapping for Grey County and other information sources. The Provincial Policy Statement and the Official Plan for Grey County were consulted to determine the significance of the natural features identified. Only those areas determined to be of Provincial interest were considered to be constraints for extraction because current provincial policies limit development to varying degrees. These areas include provincially significant wetlands, portions of the habitat of endangered and threatened species, fish habitat, significant woodlands, significant valleylands, significant areas wildlife habitat, ANSIs, other wetlands and hazard lands.

These significant natural features were included as components of the constraint overlay mapping exercise that was used to identify constrained and unconstrained aggregate resource lands. The constraints were evaluated based on the potential impact ("high" vs. "low") of aggregate extraction on the natural features and ranked accordingly (1 and 2, respectively). A Resource Evaluation Model was then developed for the overall study (Section 14 of the main report) and identified eliminated lands, highly constrained lands, moderately constrained lands, minimally constrained lands and unconstrained lands. Aggregate resource areas constrained by significant natural heritage features were eliminated from the aggregate resource area or were determined to be highly constrained or moderately constrained aggregate resource lands. Hazard lands, with no other factor involved, are considered to be a minimal constraint for aggregate extraction.

Aggregate extraction can provide unique opportunities for habitat creation through rehabilitation efforts. A discussion of natural environment rehabilitation and generalized guidelines are provided in this appendix.

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SUB-APPENDIX A

GUIDELINES FOR REHABILITATION TO NATURAL ENVIRONMENT

1. INTRODUCTION

The purpose of the Grey County Aggregate Inventory Master Plan is to identify and evaluate the County's aggregate resources to ensure that these resources are protected and managed in a manner that is in the public interest, and which has regard for the Provincial Policy Statement. As part of the process to identify the aggregate resource areas, a constraint overlay mapping exercise was completed. Significant natural heritage features are a constraint to aggregate extraction. The following report was prepared to identify the significant natural heritage features and areas, evaluate the level of constraint for each feature and assist with the constraint overlay mapping exercise to identify Grey County's aggregate resources areas.

In addition, the County recognizes that aggregate extraction can provide opportunities for restoration of the natural environment by providing desirable habitats through rehabilitation efforts. The concept of natural environment enhancement is discussed, and generalized guidelines for the development of a rehabilitation plan are provided.

1.1 Data Sources

The following data were reviewed:

- The Physiography of Southern Ontario, Chapman and Putnam, 1984;
- Natural Heritage Reference Manual, OMNR
- Natural Heritage Information Centre, OMNR
- Natural Resources and Values Information System (NRVIS) for Grey County, OMNR
- Owen Sound District Fisheries Management Plan 1986-2000
- Aggregate Resources mapping – generated by Jagger Hims for the Grey County Aggregate Resources Inventory Master Plan (2002); and
- Policy Documents
 - Provincial Policy Statement (1997)
 - Grey County Official Plan (2000)
 - Aggregate Resources Act (1996)
 - Aggregate Resources of Ontario Provincial Standards (1997)

In addition, information was provided by members of the Steering Committee, Canadian Wildlife Service, Bird Studies Canada, Conservation Authorities and the local Ministry of Natural Resources staff.

2. ENVIRONMENTAL POLICIES

2.1 Provincial Policy Statement (PPS)

The Provincial Policy Statement (PPS) identifies the natural heritage features considered to be important to the Province of Ontario and provides policy direction on matters of provincial interest related to land use planning and development. Development includes new or expanding aggregate operations Policy 2.3.1 states that:

Natural heritage features and areas will be protected from incompatible development.

- a) Development and site alteration will not be permitted in:
 - significant wetlands south and east of the Canadian Shield; and
 - significant portions of the habitat of endangered and threatened species.
- b) Development and site alteration may be permitted in:
 - fish habitat;
 - significant wetlands in the Canadian Shield;
 - significant woodlands south and east of the Canadian Shield;
 - significant valleylands south and east of the Canadian Shield;
 - significant wildlife habitat; and
 - significant areas of natural and scientific interest.

if it has been demonstrated that there will be no negative impacts on the natural features or the ecological functions for which the area is identified.

Policy 2.3.2 describes conditions under which development and site alteration may occur on lands adjacent to those listed in Policy 2.3.1 above. Policy 2.3.2 states:

"Development and site alteration may be permitted on adjacent lands to a) and b) if it has been demonstrated that there will be no negative impacts on the natural features or on the ecological *functions* for which the area is identified."

2.2 Grey County

The Natural Environment land use designations for Grey County include Hazard Lands, Provincially Significant Wetlands and Areas of Natural and Scientific Interest (ANSIs). These areas are shown in Schedule A of the Official Plan. The County has not compiled county-wide mapping of fish habitat, significant woodlands, valleylands, portions of the habitat of endangered and threatened species, and wildlife habitat. However, the Official Plan states, "In General, development and site alteration that is incompatible with significant natural features and areas will not be permitted."

Development or site alteration is not permitted in portions of the habitat of endangered and threatened species. Development and site alteration may be permitted within ANSIs, fish habitat, woodlands, valleylands, wildlife habitat, and their adjacent lands or on lands adjacent to portions of the habitat of endangered and threatened species provided that it can be demonstrated that there will be no negative impacts on the natural features or on the ecological function for which the area is identified.

2.3 Aggregate Resources Act

The purposes of the Aggregate Resources Act are,

- (a) to provide for the management of the aggregate resources of Ontario;
- (b) to control and regulate aggregate operations on Crown and private lands;
- (c) to require the rehabilitation of land from which aggregate has been excavated; and
- (d) to minimize adverse impact on the environment in respect of aggregate operations.

Additional protection of the natural environment is provided by the Section 12 (1) of the Aggregate Resources Act. The Minister or Board charged with determining whether or not a licence should be issued or refused, must consider 'the effect of the operation of the pit or quarry on the environment'. The Aggregate Resources of Ontario Provincial Standards were developed to support the Aggregate Resources Act. Each new licence application must include site specific technical reports addressing the natural heritage features identified above. A Natural Environment Level 1 Technical Report will determine whether any natural heritage features exist on and within 120 metres of the site. A Natural Environment Level 2 Technical Report assesses the impact on those features identified in the Level 1 report (on and within 120 metres of the site) in order to "determine any negative impacts on the natural features or ecological functions for which the area is identified, and any proposed preventative, mitigative or remedial measures".

3. NATURAL HERITAGE FEATURES

The natural heritage features identified in the County of Grey are based primarily on the information provided by the Ontario Ministry of Natural Resources in the form of digital NRVIS mapping. This data resource shows environmental and human made features that are of interest to the OMNR. It is based on the 1:10,000 scale OBM map sheets and the majority of the information deals with wildlife and natural area management.

The information collected was interpreted to identify natural heritage features such as provincially significant wetlands and other wetlands areas, fish habitat (lakes, ponds, rivers, streams, etc.), significant woodlands, significant areas of wildlife habitat, and Areas of Natural and Scientific Interest (Earth Science ANSI's and Life Science ANSI's).

In addition to the NRVIS data, the County of Grey provided those areas identified as Hazard Lands in the Official Plan. The natural heritage features listed below are shown in Figures D1, D2 and D3. The Natural Heritage Information Centre was also consulted to provide more specific information on certain natural heritage features identified by the NRVIS data.

3.1 Provincially Significant Wetlands

Wetlands are defined in the Provincial Policy Statement as "lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants". The PPS defines provincially significant wetlands as "an area identified as provincially significant by the Ministry of Natural Resources using evaluation procedures established by the province, as amended from time to time". The Natural Heritage Information Centre identified 65 wetlands within Grey County, 46 of which have been evaluated and determined to be provincially significant. These wetlands are shown in Figure D1 and were identified directly from the NRVIS mapping.

The Provincially Significant Wetlands include; Beaver Meadow Wetland, Beaver Valley Lowlands Wetland, Beaverdale Bog Wetland, Bell's Lake Wetland, Binns Lakes Wetland Complex, Bognor Marsh Wetland, Boothville Swamp, Camp Creek Wetland Complex, Eugenia Lake Wetland, Flesherton Swamp, Gildale Wetland, Hatherton Wetland, Headwaters to Pottawatomi River Wetland, Indian Creek Wetland, Keldon Swamp Wetland Complex, Kollapore Headwaters Wetland, Letterbreen Bog, Little Germany Wetland Complex, Long Swamp, Louise Boyd and McDonald Lakes Wetland, Maxwell Swamp Wetland Complex, McGill Lake Wetland, McKechnie Creek Wetland, McLean Lake Wetland, McNab Lake Wetland, Mountain Creek Wetland, Mountain Lake – Skinner Marsh Complex Wetland, Negro Lakes Wetland, Oxenden Creek Wetland, Portlaw Fen, Proton Station Wetland Complex, Rob Roy Swamp, Robson Lakes-Hamilton Creek-Lily Oak Wetland Complex, Rocklyn Swamp, Shallow Lake Wetland, Shouldice Wetland, South Saugeen River Wetland, Stewart and Minkes Lakes Wetland, The Glen Wetland, The Marsh, Topcliff Swamp Wetland Complex, Traverston Creek Wetland Complex, Turner-Gillies-Wilcox Lakes Complex Wetland, Welbeck Wetland Complex and Yoevil Swamp Wetland Complex.

Aggregate extraction is not permitted within provincially significant wetlands. Therefore, where aggregate resources occur within a PSW they have been eliminated as a potential resource area. Aggregate extraction can occur on adjacent lands, however, it must be demonstrated that there will be no negative impact on the wetland or on its ecological functions.

Wetlands evaluations and re-evaluations are completed from time to time and may result in a change in classification from provincially significant to "other" or vice versa. Updates of the resource evaluation model should include an update of the wetland mapping provided by the NRVIS data.

3.2 Other Wetlands Areas

Other wetland areas in the County have been mapped and are considered to be evaluated wetlands not of provincial significance. These wetland areas are still important valuable natural resource features that provide important hydrological and ecological functions. "Other" wetlands are shown in Figure D1 and were identified directly from the NRVIS mapping. They include, Congers Creek Wetland, Dornoch Swamp, Dromore Swamp Wetland Complex, Harrison Lake Fen, Hoath Head Wetland, Kinghurst Swamp, Louise Swamp, Marshall's Lake Wetland, Melancthon #4 Wetland, North Sprey Wetland Complex, Riverview Swamp, Slough of Despond Wetland, Sydenham River Lowlands Wetlands, The Sinkhole Wetland, Townline Lake Wetland, Unnamed (Sutherland Project) Wetland, Ventry Swamp Complex Wetland, Walters Creek Wetland, Wodehouse Marsh Wetland.

The Provincial Policy Statement permits development, including aggregate extraction, within these wetlands provided that any negative impacts can be adequately mitigated to acceptable levels. Local Conservation Area representatives have expressed

concerns with any development within wetlands regardless of their classification and are likely oppose a development proposal within the boundaries of the wetland.

3.3 Hazard Lands

Hazard lands include floodplains, steep or erosion prone slopes, organic or unstable soils, poorly drained areas and lands along the Georgian Bay shoreline impacted by flooding, erosion, and/or dynamic beach hazards. These lands are identified and mapped by the Conservation Authorities in Grey County and include many areas that may be considered to be of provincial significance (e.g., valleylands, wetlands, woodlands, etc.). The Hazard Lands are shown in Figure D-4. The Natural Environment policies as outlined in the County's Official Plan permit new development and site alteration within Hazard Lands, however, a number of tests need to be satisfied and consultation with the Conservation Authority whose approval may be required.

3.4 Surface Water Features – Fish Habitat

3.4.1 Surface Water Features

The County of Grey contains the headwaters for several significant rivers including the Grand, Nottawasaga, Bighead, Beaver and Saugeen Rivers. The height of land associated with the Niagara Escarpment divides the County into the Lake Huron and Georgian Bay drainage systems. These two drainage systems are comprised of four watersheds: the Bruce Peninsula streams, fourteen Georgian Bay tributaries, the Saugeen River and twenty-three Lake Huron tributaries (Owen Sound District Fisheries Management Plan 1986-2000). These watercourses as well as the ponds and lakes in the County provide important fish habitat for coldwater (e.g. Trout and salmon), coolwater (e.g. pike, walleye and yellow perch), and warmwater (e.g. bass), fish species.

The surface water features in the County were identified by the NRVIS mapping and include lakes, rivers, stream, ponds and any other open bodies of water. These areas are identified as Fish Habitat and are shown in Figure D3. Many of the more significant surface water features are also contained within the boundaries of the Hazard Land mapping.

3.4.2 Fish Habitat

The predominance of coldwater streams and rivers is a major feature of the Owen Sound District. There are 111 coldwater streams and rivers that currently support salmonid populations. In the Georgian Bay watershed, the escarpment also serves to partition fish species. Brook trout and brown trout populations are generally found in streams above the escarpment and migratory species, such as rainbow trout and chinook salmon, confined to waters below the escarpment.

There are relatively few (100) inland lakes and ponds within the Owen Sound District. The majority of these lakes and ponds are small and support either warmwater or coolwater fisheries. A notable exception is Gillies Lake on the Bruce Peninsula, which represents the only inland lake in southwestern Ontario supporting a resident population of lake trout.

Portions of both Lake Huron and Georgian Bay also fall within the boundaries of the Owen Sound District. These waters support commercial fisheries and also provide a high quality angling opportunities for coldwater (e.g. trout and salmon), coolwater (e.g. pike, walleye and yellow perch), and warmwater (e.g. bass), fish species.

The Federal Fisheries Act requires that fish habitat be protected. The Provincial Policy Statement is consistent with the Fisheries Act. It recognizes fish habitat as a natural heritage feature of Provincial importance and it provides protection for all fish habitat. Aggregate operations wishing to locate or expand on or adjacent to fish habitat must adhere to both Federal and Provincial requirements and consider the potential impacts on the fish habitat as a result of aggregate extraction. Negative impacts will need to be mitigated to acceptable levels and the implementation of compensation agreements and monitoring programs are often required.

The County Official Plan also does not permit development within 30 metres of the banks of a coldwater stream or 15 metres of a warm water stream.

3.5 Significant Woodlands

The NRVIS mapping shows woodlands of various size and form throughout the County. The identification and evaluation of significant woodlands is the responsibility of the County of Grey. Significant woodlands have not yet been defined or identified in the County. The OMNR's Natural Heritage Reference Manual assists planning authorities in identifying significant woodlands. One of the means of identification recommended is based on woodland size in context to percent forest cover in the planning area. In the County of Grey where woodland cover ranges between 15 and 30%, the Natural Heritage Reference Manual

recommends that woodlots 40 ha or greater be considered as significant woodlands. Therefore, this study has identified all those contiguous woodlands greater than 40 ha as significant woodlands. These are mapped in Figures D1.

Aggregate extraction is permitted within significant woodlands provided that there will be no negative impacts on the woodland or on its ecological function.

It is recommended that the County of Grey evaluate its forested areas to identify significant woodlands in a more formal process and update the resource evaluation model.

3.6 Significant Areas of Wildlife Habitat

Significant wildlife habitat includes areas of seasonal concentration of animals; rare vegetation communities or specialized habitats for wildlife; habitats of species of concern; and wildlife movement corridors. Deer wintering areas are shown in the NRVIS mapping and are considered to be significant wildlife habitat. Although other forms of significant wildlife habitat are known to exist in the County of Grey, the NRVIS mapping does not identify other areas of significant wildlife habitat. It is the responsibility of the County of Grey to evaluate and identify significant wildlife habitat.

Aggregate extraction is permitted within significant areas of wildlife habitat provided that there will be no negative impacts on the habitat or on its ecological function.

It is recommended that as information is obtained from OMNR, the Conservation Authorities and other agencies regarding wildlife habitats in the County of Grey, that it be evaluated as recommended in the Natural Heritage Reference Manual and, where appropriate, identified as significant wildlife habitat by the County. The resource evaluation model should be updated as significant wildlife habitat is identified.

3.7 Areas of Natural and Scientific Interest

The Ontario Ministry of Natural Resources has identified Earth Science Areas of Natural and Scientific Interest, as areas having provincially or regionally significant representative geological features. Life Science Areas of Natural and Scientific Interest are areas identified as having provincially or regionally significant representative ecological features. The NRVIS mapping shows both the Earth and Life Science ANSI's identified within Grey County (Figures D1).

Aggregate extraction is permitted within ANSI's provided that there will be no negative impacts on the ANSI or on the ecological function of the area.

3.7.1 Earth Science ANSI

The Ontario Ministry of Natural Resources has identified Earth Science Areas of Natural and Scientific Interest, as areas having provincially or regionally significant representative geological features.

Within Grey County there are 26 designated Earth Science ANSI. They include; Allan Park Crevasse Fillings, Allan Park Ice-Marginal Delta, Banks Moraine, Beaver Valley Lowlands, Crevice Caves of Blue Mountain Area, Delphi Point (Lower Whitby FM), East Meaford Creek Shales, Egerton Esker, Eugenia Lake Drumlins, Gibraltar Moraine, Hatherton Wetland (Esler Site) Hopeville Drumlins, Keldon Esker, Keldon Esker Extension, Kolapore Swamp, Kolapore Uplands, Moraines of Blue Mountain Area, Pretty River Valley, Pretty River Valley - Southeast, Saugeen Kame Terraces, Shrigley Esker, Slough of Despond, Sucker Creek Valley – Cape Rich, Top Cliff Crevasse Fillings, West of Pretty River Valley, and Wodehouse Creek Karst.

3.7.2 Life Science ANSI

The Ontario Ministry of Natural Resources has identified Life Science Areas of Natural and Scientific Interest, as areas having provincially or regionally significant representative ecological features. There are 58 Life Science ANSI's within Grey County.

Twenty five of the Life Science ANSI's have Provincial significance. They include; Bayview Escarpment, Beaver Valley Lowlands, Beaverdale Fen, Blue Mountain Slopes, Duncan Crevice Caves, Harrison Lake and Fen, Hatherton Wetlands, Kemble Wetland, Kimberly Creek, Kinghurst Forest, Kinghurst west, Kolapore Escarpment, Lily Oak Forest, McGill Lake, Mountain Lake Fen, Pretty River Valley, Rocky Saugeen River, Skinner Bluff, Slough of Despond, South Saugeen River, Sucker Creek – Cape Rich, The Glen, Traverston Creek Forest, Upper Beaver Valley, Walters Creek Headwater Area.

The remaining 33 Life Science ANSI's have Regional significance. They include; Allan Park, Forest, Banks Moraine Forests, Bass Lake Escarpment Forest, Beatty Saugeen Swamp, Beaver Valley East Slope, Beaver Valley West Slope, Black Lake Forest, Bognor Marsh and Escarpment, Desboro East Forest, Duncan Lake South, East Warton Woods, Farden Lake Forest,

Feversham Gorge, Gildale Esker and Swamp, Habermehl Lake, Ingils Falls Forests, Keldon Esker and Swamp, Kemble Forest, Kolapore Southwest, McDonald Lake, McClean Lake, Mitchell Creek Valleys, Moss Lake, Negro Lake, North Sprey River Headwaters, Orchard Valley Forest, Pretty River Valley, Pretty River Valley Moraine, Pretty River Valley South, Rocklyn Creek Valley, Spey River Headwaters, Tuner Lake Swamp, Westfall's Lake.

3.8 Portions of the Habitat of Endangered and Threatened Species

In the County of Grey, endangered and threatened species include the Bald Eagle, Loggerhead Shrike, Henslow sparrow, Peregrine Falcon, Hill's Pondweed and Redside Dace. However, the County of Grey has not recognized any habitats of endangered and threatened species. The OMNR and the Canadian Wildlife Service (CWS) were contacted and are not aware of any areas that have been recognized as habitat of endangered and threatened species. The NRVIS mapping does provide some limited information on sightings (within a 1km square grid) of vulnerable, threatened, and endangered (VTE) species. These sightings generally represent recordings of sightings of the species which may or may not also represent their habitat. A map showing the approximate location of the sightings of VTE species is provided in Figure D4. However, no significant portions of the habitat of endangered and threatened species was mapped.

As significant portions of the habitat of endangered and threatened species are identified within the County, the resource evaluation model should be updated to reflect these additions. This natural heritage feature is a significant constraint to the aggregate industry, as aggregate extraction is not permitted within significant portions of the habitat of endangered and threatened species.

3.9 Significant Valleylands

The responsibility for the evaluation and identification of Significant Valleylands lies with the County of Grey. To date, the County has not identified any significant valleylands within the County, nor have any other agencies. The Natural Heritage Reference Manual helps guide municipalities in the evaluation and identification of significant valleylands through the adoption of a natural heritage systems approach. The County should consider this approach when identifying its significant valleylands. Regardless of the methods used to identify significant valleylands, as they are identified the resource evaluation model should be updated to include this feature.

4. CONSTRAINT ANALYSIS AND RESOURCE EVALUATION

A constraint overlay mapping exercise that considered all factors that potentially have an impact on aggregate resources areas (including natural environment, agriculture, settlement areas, etc.) was used to identify areas of aggregate resource that were either "unconstrained" or "constrained". A constraint analysis was then completed and a Resource Evaluation Model was developed to assist in understanding the significance of the constraint or combination of constraints. Each of the constraints identified (e.g., provincially significant wetlands, significant woodlands, fish habitat, etc.) were categorized by the level of "potential impact" on or adjacent to these features resulting from aggregate extraction. Aggregate extraction was determined to have a high potential impact on all the natural heritage features identified and were therefore ranked as a Level 1 Constraint. Hazard lands were determined to have a low potential impact and were ranked as a Level 2 Constraint. However, it was recognized that these areas often contain significant natural heritage features. In this event, it is likely that this feature would be identified as a Level 1 Constraint and it would take precedence over the Hazard Lands.

The Resource Evaluation Model listed five possible categories into which the aggregate resource areas were classified: eliminated lands, highly constrained lands, moderately constrained lands, minimally constrained lands and unconstrained lands. Two natural heritage features were used to identify eliminated lands: provincially significant wetlands and significant portions of habitats of threatened and endangered species. Aggregate resource areas that contain these two significant natural features were eliminated because present provincial policies do not permit extraction or any other development within these areas. The remaining areas do not prohibit aggregate extraction, however they do provide moderate or high constraints to the aggregate resource (see Section 14 of the main report for a description of the Resource Evaluation Criteria).

5. OPPORTUNITIES FOR ENHANCEMENT OF THE NATURAL ENVIRONMENT

Traditionally, after-use design of most pits and quarries that do not extract below the water table has focused on agricultural rehabilitation. Many pits and quarries are in rural areas that have agricultural land use designations and the focus has been on restoring sites to previous land uses. The Provincial Policy Statement recognizes that aggregate extraction is an interim use and requires the site to be rehabilitated in such a manner that substantially the same areas and same average soil quality for agriculture are restored.

In Grey County, the agriculturally designated lands include significant amounts of low capability soils (Canada Land Inventory Classes 4, 5, 6, 7 and O). In general, under agricultural production, these lower capability lands are best suited for pasture and hay crops because they are not suitable for the sustained production of other field crops (corn, soybean, cereal grains, etc.). Large areas of these lower capability soils remain forested or have been reforested because of their low agricultural productivity. As a result most of the County's natural heritage features occur on lands that are relatively poor agricultural lands and rehabilitation to an agricultural after use may not be a practical solution.

Historically, on lands that contain significant amounts of low capability land, the demand and opportunities for naturalization have been relatively rare, even for the rehabilitation of old, abandoned sites using the industry's Management of Abandoned Aggregate Properties (MAAP) fund. When such opportunities have arisen, the focus of rehabilitation was most often on traditional plantation development on lands graded for farming (i.e. a relatively flat base with uniform slopes and side slopes with gradients of 3:1 or more). The ecological functions of lands rehabilitated in such a manner are limited.

Land use conflicts, social values (i.e. in the environment) and urbanization pressures have increasingly placed aggregate extraction within or near areas of environmental significance. Therefore, demand for more natural rehabilitation alternatives on extraction sites has increased. Aggregate extraction and rehabilitation by nature involves significant excavations and major landscaping efforts. For some areas, it also presents opportunities to enhance local habitats, regional ecosystem functions and natural spaces for recreation and education.

The rehabilitation efforts of the aggregate industry have now evolved beyond relatively straightforward rehabilitation practices to include more sophisticated and holistic technologies to improve the human and ecological landscape following aggregate extraction. Pits and quarries can be, and are being, rehabilitated to after-uses that promote the development of the natural environment. Proposed after uses should take into account the surrounding natural environment in order to ensure compatibility. The rehabilitation of a pit or quarry may offer unique opportunities to enhance natural features that are currently significant or sensitive. Cumulative rehabilitation techniques that account for adjacent land uses, natural features and rehabilitation activities are capable of increasing the ecological integrity as well as capacity of a landscape to support a range of human activities. Innovative recreation concepts can be employed in the context of a regional ecosystem rehabilitation initiative.

In addition to the protection of important remnant natural areas, a number of additional opportunities exist on these lands for the rehabilitation and naturalization of currently degraded features and areas with limited habitat diversity (i.e. old field cultural meadows and pasture lands). When larger scale natural processes are considered in the rehabilitation plans for new sites as well as existing licensed areas, net economic and environmental benefits are more rapidly realized.

Natural environment rehabilitation can be driven by specific goals or there may be multiple objectives at a regional scale. The rehabilitation of a pit or quarry may have a specific focus such as the development of a habitat to encourage the establishment of aquatic, wildlife, or plant species. More general goals could include the establishment of linkages, restoring the site to previous conditions, or aesthetic based rehabilitation.

Each pit or quarry is unique and the surrounding environments are usually different. It is important to note that the natural rehabilitation of a pit or quarry is site specific, however concepts can be shared. For instance, rehabilitation of pits and quarries where extraction has occurred below the water table can be designed to create fish habitat and/or developed as a wetland environment for aquatic and terrestrial wildlife species. Pits and quarries that remain above the water table may be rehabilitated to terrestrial systems. A number of aggregate extraction/rehabilitation examples exist along the Oak Ridges Moraine and Niagara Escarpment with comprehensive, landscape level ecological design and land use planning.

Figure D1, D2 and D3 show a wide variety of significant natural heritage features in Grey County and many of these occur on lands identified as aggregate resource areas. These include provincially significant wetlands and other wetland areas, fish habitat, significant woodlands, significant wildlife habitats and Areas of Natural and Scientific Interest (ANSI's). The lands on and adjacent to these natural heritage features have different levels of constraint for aggregate extraction and also provide opportunities for restoration, creation and enhancement of these features as part of the rehabilitation plan.

Site specific studies are required to identify the natural features on and adjacent to the site, to determine the potential impact of the proposed aggregate extraction activities, to determine the most appropriate mitigation methods to reduce the impact to acceptable levels and to identify the most appropriate rehabilitation scenarios for the site. Specific rehabilitation guidelines need to be developed following consideration of the proposed extraction activities (e.g., whether extraction occurs above or below water table), the overall objective for rehabilitation, and the natural features and their functions on and adjacent to the property.

Buffers and setbacks require consideration in the development of extraction areas and in rehabilitation design. Standard requirements, while perhaps more consistent for enforcement, do not consider site specific or bio-regional ecological functions. In recognition of this, the PPS now requires that “adjacent lands” be identified near significant wetlands and other natural heritage features, as a threshold distance within which site specific studies are required to determine the final buffer or setback. This process is ecologically sound and we recommend its adoption for appropriate aggregate extraction areas in Grey County.

In many cases, there will be significant species on adjacent lands. Rehabilitated pits and quarries often offer unique opportunities to enhance habitat for significant species. It is essential that the biology of significant species be understood so that key habitat features can be provided for them.

Some pits and quarries may have historically supported very different vegetation communities. Areas of sandy soils may have traditionally supported prairie habitat that was subsequently converted into agricultural uses. Historical vegetation mapping derived from notes of the original surveyors are available and can provide valuable insights into historical vegetation communities. It may be beneficial to review this mapping to see if rehabilitation to a habitat present prior to conversion to agriculture is warranted and feasible.

Quarries offer the opportunity to create more sensitive habitats, such as alvars and certain types of wetlands instead of restoration to more conventional habitats. Some species of plants have evolved to living on bare bedrock or areas where soils are very shallow. Many of these species have limited distribution in the province because of their exacting habitat requirements and there may be opportunities to create patches of alvar habitat while still meeting the broader goals of habitat restoration in quarries. Quarries also often have groundwater seeping into them, and this may be used to create fens and other wetland types that provide habitat for sensitive species of plants. One quarry in the new City of Hamilton has developed a fen supporting several orchid species and other wetland species. Exposed quarry faces eventually support a flora of cliff species.

Where pits and quarries intercept the water table, there is opportunity to rehabilitate to a variety of after uses. Traditionally, after uses have just been lakes. Many of these are relatively sterile, but with a little planning, they may be important to fish and wildlife. If it is desirable to support fish, it is important to know the predicted temperature regime of the water body to ascertain the appropriate fish species to introduce. Then habitat can be provided to ensure that there is suitable spawning, nursery, and foraging habitat for the target species.

In many cases, it is possible to support both cold and warm water fish species. This is accomplished by leaving shallow terraces around portions of the lake. These areas will be warmer than the rest of the lake and, with introduction of suitable substrate will develop into wetlands. These will be important sources of food and shelter for both warm and coldwater fish, and should also provide spawning and nursery habitat for warm water species. It may be necessary to introduce some logs and gravelly areas to ensure that all habitat requirements of key species are met. Shallow wetland areas may also be attractive to waterfowl and other wetland birds.

Depending on natural resources on adjacent lands, it may be beneficial to plan for amphibians instead of fish. Generally, amphibians do not do as well in water bodies that support fish, and salamanders are typically absent. Providing shallow shelves around larger water bodies as for fish may create amphibian habitat. Amphibians also do well in small, shallow ponds or temporary water bodies. These areas should support water until the end of July to ensure that tadpoles and larvae have sufficient time to transform into adults.

Sub-Appendix A provides General Rehabilitation Guidelines that can be employed to reduce potential impacts and rehabilitation costs to the operator.

6. CONCLUSIONS

Grey County has a rich natural heritage and many of its features are found on or adjacent to lands identified as aggregate resource areas. These natural heritage features and areas pose various levels of constraint on the extraction of the aggregate resource ranging from "high" to "low". Provincially significant wetlands, portions of the habitat of endangered and threatened species, fish habitat, significant woodlands, significant valleylands, significant areas wildlife habitat, ANSIs and other wetlands all have a "high" potential to impact on aggregate resources extraction on or adjacent to these areas would require a higher degree of mitigation or potentially portions of the resources may not be feasibly extracted. However, the presence of provincially significant wetlands and significant portions of the habitat of threatened and endangered species resulted in the exclusion of areas from the aggregate resource area. Hazard Lands were determined to have a "low" potential impact on aggregate extraction but these areas are often associated with other natural features that have a "high" potential impact. The Evaluation Resource Model (Section 14 of the main report) identified five categories: eliminated lands, highly constrained lands, moderately constrained lands, minimally constrained lands and unconstrained lands. Areas with significant natural heritage features identified lands eliminated from the aggregate resource, highly constrained aggregate resource lands, and moderately constrained aggregate resource lands. Hazard lands, with no other factor involved, minimally constrained lands were considered to be a minimal constraint for aggregate extraction.

Aggregate extraction is not permitted in provincially significant wetlands and portions of the habitat of endangered and threatened species. Aggregate extraction may be permitted on or adjacent to other significant natural features, providing additional site-specific assessments favourable to the development are provided with the development application. These studies should include an acceptable rehabilitation plan with recommendations and mitigation measures that will ensure negative impacts are minimized to acceptable levels. New or expanding aggregate developments are required to complete a Level 1 Natural Environment Technical Report and possibly a Level 2 Natural Environment Technical Report. These reports should be prepared to also satisfy the requirements of the County's Official Plan for development application in close proximity to natural heritage features.

Sub-Appendix A provides guidelines that will assist in the development of appropriate rehabilitation plans for natural rehabilitation. We recommend that Grey County require aggregate applications to consider opportunities to rehabilitate to natural environment in areas where the average soil capability is CLI Class 4 or lower and in areas adjacent to significant natural heritage features.

It is recommended that the resource evaluation model be regularly updated. The natural heritage features identified in the mapping were interpreted from MNR's NRVIS mapping and many of the features have not been recognized by the County as significant natural heritage features or areas. It is the responsibility of the County to identify and evaluate natural heritage features such as significant woodlands, significant valleylands and significant areas of wildlife habitat. It is recommended that the County undertake these appraisals and update the resource evaluation model as these areas are identified.

The Ministry of Natural Resources is responsible for identifying and evaluating significant wetlands, portions of the habitat of endangered and threatened species and areas of natural and scientific interest and in many areas they also provide broad scale fish habitat mapping. It is recommended that the Ministry be contacted regularly to obtain new information regarding these natural heritage features and areas prior to updating the resource evaluation model.

7. REFERENCES

- Aggregate Resources Act (1996). Statutes of Ontario Chapter 23 and Ontario Regulation 702/89.
- Browning, M.H.R. and M.J. Tan 2001. Rehabilitation of aggregate extraction sites: opportunities for establishing native ecosystems. Ontario Ministry of Natural Resources, Science and Information Branch, Southcentral Science and Information Section. Ontario's Living Legacy Science Report OLL RT.REC. 104.04, 47 p.
- County of Grey. 2000. County of Grey Official Plan.
- Michalski, Michael F. P., Daniel R. Gregory, and Anthony Usher. 1987. Rehabilitation of Pits and Quarries for Fish and Wildlife. Aggregate Resources Section, Land Management Branch, Ontario Ministry of Natural Resources.
- Ontario Ministry of Natural Resources. 1986-2000. Owen Sound District Fisheries Management Plan.
- Ontario Ministry of Natural Resources. 1997. Aggregate Resources of Ontario. Provincial Standards. Queens Printer for Ontario. Toronto, Ontario.
- Ontario Ministry of Municipal Affairs and Housing. 1997. Provincial Policy Statement. MMAH: Toronto, Ontario.
- Ontario Ministry of Natural Resources. 1999. Natural Heritage Reference Manual for Policy 2.3 of the Provincial Policy Statement. OMNR: Peterborough, Ontario.
- Ontario Ministry of Natural Resources. 1999. Natural Heritage Information Centre. Provincial status of plants, wildlife, and vegetation communities' electronic database. OMNR: Peterborough, Ontario.
- Ontario Ministry of Natural Resources. Oct 2000. Significant Wildlife Habitat Technical Guide. 151p.
- Ontario Ministry of Natural Resources. 2002. Natural Resources and Values Information System electronic database.

SUB-APPENDIX A
GUIDELINES FOR REHABILITATION TO
NATURAL ENVIRONMENT

GUIDELINES FOR THE DEVELOPMENT OF A TERRESTRIAL HABITAT REHABILITATION PLAN

The following guidelines to the development of a terrestrial habitat rehabilitation plan are necessarily generic and provide a framework for identifying which rehabilitation strategies are most appropriate, given surrounding land uses. Due to the varying nature of the natural resources associated with lands adjacent to pits and quarries, it is not possible, nor advisable, to be prescriptive. The main goal should be to assess the key features of adjacent lands and determine the best opportunities for complimenting or enhancing these features.

1. Identification of local habitat and habitat use patterns in the vicinity of the site;
2. Assess succession patterns in the area and immediately adjacent to the site;
3. Assess general site characteristics (soil resources, terrain & biological inventory);
4. Assess likely future land uses in the surrounding area;
5. Identify local seed sources that may colonize or invade site;
6. Prioritize probability, temporal scale of establishment;
7. Determine function and desirability of species likely to colonize site in predicted timeframe;
8. Establish general regional and site specific ecological targets and goals and blend with local social and recreational interests;
9. Identify key habitats, connections and species to achieve target functionally and spatially;
10. Identify impediments to the establishment of target species;
11. Evaluate actions to enhance succession;
12. Assess need for and establish active management (grading, plantings, etc.);
13. Establish baseline and study design for adaptive management monitoring programs.

APPENDIX E

AGRICULTURE

**GREY COUNTY AGGREGATE RESOURCES
INVENTORY MASTER PLAN
APPENDIX E - AGRICULTURE**

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EXECUTIVE SUMMARY

Agriculture is an important component of the economy of the County of Grey. There are close 3,000 farms cultivating approximately 600,000 acres of farmland, which in 2000 generated approximately \$240.6 million from farm gate sales of a wide range of agricultural products. Livestock and cash crop operations are the most common forms of agricultural production in the County, although specialty crop production (e.g., apples) is common in the Meaford and Thornbury areas.

The County of Grey recognizes the importance of agriculture and has taken steps to protect the agricultural resources by limiting the uses of these lands to primarily agricultural uses. To identify its prime agricultural areas, the County has developed an alternative land evaluation system to determine the highest priority agricultural lands. The prime agricultural areas include prime agricultural lands (i.e., specialty crop lands and CLI Classes 1-3) as well as lower capability soils that are under agricultural production and deemed to be integral to the types of agricultural common in Grey County. Two agricultural land use designations are recognized in the Official Plan, "Agriculture" and "Special Agriculture". The farm types primarily located within the Agricultural designation generally includes typical livestock and field crop operation, whereas the Special Agricultural designation includes those areas where specialty crops such as fruits and vegetables are grown.

Aggregate extraction is permitted in both agricultural designations providing appropriate rehabilitation plans have been developed and implemented as part of the site plan approval process. The Provincial Policy Statement (PPS) provides policies relating to the preservation of agricultural areas. Policy 2.2.3.6 states that "In *prime agricultural areas*, on *prime agricultural land*, extraction of *mineral aggregates* is permitted as a interim use provided that rehabilitation of the site will be carried out whereby substantially the same areas and same average soil quality for agriculture are restored. Therefore, aggregate extraction can be considered as an interim use of agricultural land and this study concludes that agriculture is a low constraint to aggregate extraction.

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1. INTRODUCTION

A review of agriculture in the County of Grey was completed as per the terms of reference for this study. The relative importance the agricultural resources and potential impact of aggregate extraction on these resources was considered as part of the evaluation of constraints analysis and provided input to the Resource Evaluation Model. This appendix discusses in detail the agricultural policies contained in the Provincial Policy Statement and the County of Grey Official Plan and the requirements of the Aggregate Resources Act when dealing with aggregate extraction in prime agricultural areas. The importance of agriculture to the County of Grey is discussed through a review of the agricultural statistics for the County and the physical resources of the County (i.e., the soil resources) are described. A discussion of the rehabilitation requirements and general rehabilitation guidelines are also provided.

The following data were reviewed:

- The Physiography of Southern Ontario, Chapman and Putnam, 1984;
- Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey, 1954;
- Land use designations and zoning mapping, Planning Department, County of Grey (2000);
- Statistics Canada's Census of Agriculture (2002);
- Aggregate Resources mapping – generated by Jagger Hims for the Grey County Aggregate Resources Inventory Master Plan (2002); and
- Policy Documents
 - Provincial Policy Statement (1997)
 - Grey County Official Plan (2000)
 - Aggregate Resources Act (1996)
 - Aggregate Resources of Ontario Provincial Standards (1997)

2. AGRICULTURAL POLICIES

2.1 Provincial Policy Statement (PPS)

The Provincial Policy Statement provides policies relating to the preservation of agricultural areas. Policy 2.2.3.6 states that. In *prime agricultural areas*, on *prime agricultural land*, extraction of *mineral aggregates* is permitted as a interim use provided that rehabilitation of the site will be carried out whereby substantially the same areas and same average soil quality for agriculture are restored.

On these *prime agricultural lands*, complete agricultural rehabilitation is not required if:

- a) There is a substantial quantity of *mineral aggregates* below the water table warranting extraction; or
- b) The depth of planned extraction in a quarry makes restoration of pre-extraction agricultural capability unfeasible; and
- c) Other alternatives have been considered by the applicant and found unsuitable; and
- d) Agricultural rehabilitation in remaining areas will be maximized.

The PPS defines prime agricultural areas as where prime agricultural land predominates. Prime agricultural areas may also be identified through an alternative agricultural land evaluation system approved by the Province, as is the case with Grey County. This classification system will be described as part of the County Official Plan Policies below.

Prime agricultural lands include speciality croplands and/or Canada Land Inventory (CLI) Classes 1, 2, and 3 soils, in this order of priority for protection.

Speciality crop land is defined in the PPS as areas where speciality crops such as tender fruits (peaches, cherries, plums), grapes, other fruit crops, vegetable crops, greenhouse crops, and crops from agriculturally developed organic soil lands are predominantly grown, usually resulting from:

- soils that have suitability to produce speciality crops, or lands that are subject to special climatic conditions, or a combination of both; and/or
- a combination of farmers skilled in the production of speciality crops, and of capital investment in related facilities and services to produce, store, or process speciality crops

According to the PPS speciality crops receive the highest priority, however aggregate development is still permitted, provided that rehabilitation of the site will be carried out whereby substantially the same areas and same average soil quality for agriculture are restored. Former quarries and pits have been successfully developed into existing vineyards and orchards.

2.2 Grey County Official Plan Policies

The protection of the "agricultural way of life" is a primary objective of Grey County.

The County of Grey recognizes the importance of agriculture and has taken steps to protect its important agricultural resources by limiting the uses of these lands to primarily agricultural uses. The County has worked with the Ministry of Agriculture and Food to develop an alternative land evaluation system for determining the highest priority agricultural lands. The prime agricultural areas include prime agricultural lands (i.e., specialty crop lands and CLI Classes 1-3) as well as lower capability soils that are under agricultural production and deemed to be integral to the types of agricultural common in Grey County. Two agricultural land use designations are recognized in the Official Plan, "Agriculture" and "Special Agriculture". The farm types primarily located within the Agricultural designation generally includes typical livestock and field crop operations, whereas the Special Agricultural designation also includes those areas where specialty crops such as fruits and vegetables are commonly grown.

These two agricultural designations were used to identify the County's prime agricultural areas and are shown in Figure E-1.

This evaluation system is based on County-level soil survey information and 1:50,000 CLI manuscript mapping capability information, as well as soils maps prepared by Ontario Hydro. Non-agricultural lands such as wetlands, forest cover, aggregate operations, and urban uses were removed from the areas of good agricultural soils. The remaining areas of good agricultural land were further refined by limiting representative areas to approximately 400 acres or more in size. The Agricultural designation is not restricted to areas with prime agricultural lands (CLI class 1 to 3 inclusive), it also includes larger blocks of good agricultural land under active production.

Permitted uses within the Agricultural Designation include:

- ◆ Agriculture, including all types of farming and related buildings and structures, farm residence, farm related uses such as home/rural occupations
- ◆ Industrial uses supportive of the agricultural operation and required in close proximity to the farm operations in the area
- ◆ Land uses connected with soil, water, wildlife and natural resource conservation
- ◆ A limited amount of non-farm land uses if there is a demonstrated need for additional land to be utilized to accommodate the proposed use and there are no reasonable alternative locations, which would avoid agricultural areas.

Within areas identified as Primary Aggregate Resource Areas in the Official Plan, non-farm development shall only be permitted where it has been demonstrated that extraction is not feasible due to resource quantity, quality, development patterns or the proposed development serves a greater long term interest of the general public than does aggregate extraction.

Schedule 'A' of the County Official Plan also identifies a Special Agriculture Designation. This designation applies to those areas of the County that lend themselves to the growing of fruit and vegetables. Within this designation, permitted uses include:

- ◆ Agricultural uses;
- ◆ Uses connected with the conservation of water, soil, wildlife, and other natural resources;

- ◆ All types of farming and related buildings and structures;
- ◆ Farm residence; and
- ◆ Small scale commercial or industrial uses directly supportive and related to the agricultural operation and required in close proximity to the farm operations in the area.

2.3 Aggregate Resources Act

The purposes of the Aggregate Resources Act are,

- (a) to provide for the management of the aggregate resources of Ontario;
- (b) to control and regulate aggregate operations on Crown and private lands;
- (c) to require the rehabilitation of land from which aggregate has been excavated; and
- (d) to minimize adverse impact on the environment in respect of aggregate operations.

According to Section 12(1), in considering whether a license should be issued or refused, planning and land use considerations, as well as the effects of the operation of the pit or quarry on agricultural resources must be considered. Additionally, the Act requires that every licensee perform progressive rehabilitation and final rehabilitation on the site in accordance with the act, the site plan, and the conditions of the license.

3.0 AGRICULTURAL STATISTICS FOR THE COUNTY

To illustrate the importance of agriculture to the County of Grey a review of the agricultural economic statistics was completed.

3.1 Agricultural Economic Characteristics

Data for this analysis have been drawn from Statistics Canada's Census of Agriculture. The census is conducted at five-year intervals, and organizes data at a number of levels: Canada; Province/Territory; Census Divisions (e.g. Counties, Regional Municipalities, and Districts); and, Census Subdivisions (e.g. Townships, Towns and Villages). The most recent census was conducted in May 2001; basic counts and totals for all farm variables described in this section were gathered from this census, and compared to data from the 1996 census where appropriate.

3.2 Area of Farmland

At the time of the most recent Census of Agriculture in 2001, there were 593,121 acres of farmland in Grey County (Table 1). This is a decrease of 7,295 acres (1.2%) from the 1996 census when there were 600,416 acres of farmland in the county. This rate of decline is much lower than the 12.7% decrease in farmland across Ontario over the same five-year period. West Grey census subdivision has the greatest area of farmland, followed by Grey Highlands census subdivision. Blue Mountains census subdivision has the least amount of farmland in the county.

Table 1. Area of Farmland in Grey County, 2001

Census Subdivision	Acres of farmland
West Grey	122,732
Southgate	99,682
Grey Highlands	116,393
Chatsworth	80,528
Blue Mountains	28,695
Georgian Highlands	71,827
Georgian Bluffs	73,264
Grey County	593,121

Source: Statistics Canada Census of Agriculture, 2002

In 2001 land under crops comprised 317,132 acres, or 53.4% of agricultural land in Grey County (Table 2). Almost one-quarter of the agricultural land in the county was used for pasture (75,847 acres of improved pasture, and 63,989 acres of unimproved pasture). Lands classified as other include all lands used for Christmas tree farms and those agricultural lands not elsewhere classified. In Grey County, 134,056 acres, or 22.6% of agricultural land was classified as other. Very little land is typically used for summer fallow. Only 2,097 acres, or 0.4% of Grey County's farmland, was summer fallow in 2001.

Table 2. Use of Agricultural Land in Grey County, 2001 (in acres)

	Under Crops	Summer Fallow	Improved Pasture	Unimproved Pasture	Other
West Grey	69,403	504	13,781	10,246	28,798
Southgate	58,930	496	8,491	9,291	22,474
Grey Highlands	61,390	356	15,339	12,214	27,094
Chatsworth	40,308	490	12,922	9,292	17,516
Blue Mountains	18,472	N/A	2,704	2,596	N/A
Georgian Highlands	36,220	108	8,832	11,989	14,678
Georgian Bluffs	32,409	N/A	13,778	8,361	N/A
Grey County	317,132	2,097	75,847	63,989	134,056

Source: Statistics Canada Census of Agriculture, 2002

3.3 Number and Types of Farms

In 2001, there were 2,834 census farms¹ in Grey County. This represents a decrease of 300 farms, or 9.5%, from the 3,134 farms recorded in the county in 1996. Over the same time period, the number of farms in Ontario decreased by 11.5%. Within Grey County, West Grey had the greatest number of farms (654), and Blue Mountains had the least (161).

Table 3. Number of Farms in Grey County, 2001

Census Subdivision	Number of farms
West Grey	654
Southgate	488
Grey Highlands	488
Chatsworth	403
Blue Mountains	161
Georgian Highlands	336
Georgian Bluffs	304
Grey County	2,834

Source: Statistics Canada Census of Agriculture, 2002

Table 4 shows the diversity of farm types² in Grey County with gate sales greater than \$2,499, in 2001. This sales figure is used to eliminate any bias that might occur in categorizing farms into types by the inclusion of small 'hobby' farms generating gate sales of less than \$2,500 annually.

¹ Statistics Canada defines a census farm as an agricultural operation that produces at least one of the following products intended for sale: crops (field crops, tree fruits or nuts, berries or grapes, vegetables or seed); livestock (cattle, pigs, sheep, horses, exotic animals, etc.); poultry (hens, chickens, turkeys, exotic birds, etc.); animal products (milk or cream, eggs, wool, fur, meat); or other agricultural products (greenhouse or nursery products, Christmas trees, mushrooms, sod, honey, maple syrup products). The definition of a census farm was expanded for the 1996 Census of Agriculture to include commercial poultry hatcheries and operations that produced only Christmas trees. This expanded definition resulted in the inclusion of 138 commercial poultry hatcheries and 1,593 operations across Canada that produced only Christmas trees.

² Each census farm is classified according to the predominant commodity produced. Statistics Canada does this by estimating the potential receipts from the inventories of crops and livestock reported on the questionnaire. The commodity or group of commodities that accounts for 51% or more of the total potential receipts determines the farm type. For example, a census farm with total potential receipts of 60% from dairy, 20% from hogs and 20% from field crops, would be classified as a dairy farm. Where there is no single major commodity associated with the farm operation (i.e. 45% dairy, 45% hogs and 10% field crops; 40% grains and oilseeds, 35%, hogs, 25% maple syrup), the farm is categorized as either a 'livestock combination' or 'other combination' operation. Field Crop farms include wheat, grain, oilseed and other field crops. Miscellaneous specialty includes greenhouse flower and plant production, bulbs, shrubs, trees, sod, ornamentals, mushroom houses, honey production, maple syrup production, etc.

Table 4. Types of Farms in Grey County, 2001 (with sales of more than \$2,499)

	Dairy	Beef	Hogs	Poultry	Field crops	Fruit	Veg.	Misc. spec.	Livestock combo	Other combo
West Grey	56	268	19	14	97	4	4	82	26	13
Southgate	43	197	24	13	80	0	3	43	25	12
Grey Highlands	37	252	7	2	72	3	1	49	11	12
Chatsworth	25	180	2	4	42	2	1	56	31	10
Blue Mountains	4	34	3	0	17	66	3	10	4	9
Georgian Highlands	16	145	4	1	45	24	2	45	11	10
Georgian Bluffs	25	164	2	2	22	2	0	43	6	4
Grey County	206	1,240	61	36	375	101	14	328	114	70

Source: Statistics Canada Census of Agriculture, 2002

In 2001, 2,545 farms in Grey County reported farm gate sales greater than \$2,499. Beef and Field Crop farms were the dominant farm types, comprising 48.7% and 14.7%, respectively, of farm types in the county. Most of these farms are located in West Grey and Grey Highlands census subdivisions. Dairy farms and Miscellaneous Specialty farms were also well represented. Southgate census subdivision is also an important area for these farm types. Fruit farms are concentrated in Blue Mountains and Georgian Highlands census subdivisions.

3.4 Crop Production

Crop farming is the dominant agricultural activity in Grey County in terms of the area of farmland used, and the second-most dominant type of farm. Table 5 compares the area of land used by each of the field crop types in Grey County, in 2001. It also shows the number of farms that grew each type of crop in that year.

It should be noted that the total number of farms that reported crops exceeds the total number of field crop farms in Grey County, as most field crop farms typically grow more than one type of crop, and farms that are not categorized as field crop farms may include field crops as part of their farming operation. The symbol N/A (not available) has been inserted where there were too few farms reporting data to ensure confidentiality. As such, n/a does not equal zero, rather it indicates that a positive figure exists, and has been included as part of the total area under crops.

Alfalfa and alfalfa mixtures, other tame hay, barley and mixed grains use the greatest area of cropland in Grey County. Between them they comprised 232,222 acres, or 73.2% of all cropland, and 39.2% of all farmland, in Grey County in 2001. Alfalfa and alfalfa mixtures were grown by the greatest number of farms (1,861), followed by mixed grains (830) and other tame hay (796).

Table 5. Field Crop Farms and Area of Field Crops in Grey County, 2001 (in acres)

	West Grey		Southgate		Grey Highlands		Chatsworth		Blue Mountains		Georgian Highlands		Georgian Bluffs		Grey County	
	#	area	#	area	#	area	#	area	#	area	#	area	#	area	#	area
Wheat	61	3003	52	2753	34	2058	24	1040	20	922	25	1175	16	759	232	11710
Oats	34	601	30	841	40	1045	45	645	5	92	17	362	25	578	196	4164
Barley	145	5805	116	6226	142	6958	71	3210	21	1084	43	2182	74	2581	612	28046
Mixed Grains	206	6407	172	7395	160	5417	108	3117	33	1167	79	2253	72	2254	830	28010
Corn for Grain	113	6571	68	5039	25	1256	50	2592	11	587	30	2171	16	1562	313	19778
Buckwheat	8	58	8	162	0	0	3	N/A	1	N/A	3	31	0	0	23	271
Rye	3	27	5	50	1	N/A	3	N/A	1	N/A	2	N/A	0	0	15	157
Corn for Silage	99	3148	98	3088	62	2188	71	2194	3	28	34	1329	36	1127	403	13102
Alfalfa	468	29320	317	19290	354	30012	269	18276	71	5822	188	14846	194	14318	1861	131884
Other Tame Hay	139	5951	152	8655	128	7888	134	5949	26	1401	117	7328	100	7110	796	44282
Canola	4	296	18	1237	14	1178	6	319	7	293	8	498	4	1126	61	4947
Flaxseed	3	N/A	4	105	1	N/A	1	N/A	0	0	0	0	0	0	9	554
Soybeans	103	7185	37	3616	32	2866	33	2367	29	2752	30	2282	11	873	275	21941
Sunflowers	1	N/A	0	0	0	0	0	0	0	0	0	0	1	N/A	2	N/A
Potatoes	3	N/A	5	15	3	N/A	7	11	0	0	3	15	0	0	21	72
Dry Field Peas	0	0	1	N/A	1	N/A	2	N/A	0	0	0	0	1	N/A	5	44
Dry Field Beans	5	150	2	N/A	1	N/A	4	242	1	N/A	1	N/A	2	N/A	16	493
Canary Seed	0	0	0	0	0	0	1	N/A	0	0	0	0	0	0	1	N/A
Ginseng	0	0	1	N/A	0	0	2	N/A	0	0	1	N/A	0	0	4	11
Triticale	0	0	1	N/A	1	N/A	0	0	0	0	0	0	0	0	2	N/A
Forage Seed for Seed	1	N/A	2	N/A	2	N/A	2	N/A	3	123	1	N/A	0	0	11	447
Other Field Crops	0	0	4	211	2	N/A	1	N/A	0	0	2	N/A	1	N/A	10	379

Source: Statistics Canada Census of Agriculture, 2002

3.5 Farm Gate Sales

Table 6 shows total farm gate sales at the township level in Grey County for the year 2000³. In 2000, farm gate sales in Grey County totalled over \$240.6 million; an increase of \$27.2 million, or 12.8%, from 1995. Farm gate sales in Grey County in 1995 totalled \$213,375,796. In comparison, farm gate sales across Ontario increased 17.2% over the same five-year period.

Table 6. Farm Gate Sales in Grey County, 2000

Census Subdivision	Total farm gate sales
West Grey	\$78,620,253
Southgate	\$47,139,685
Grey Highlands	\$29,430,954
Chatsworth	\$24,933,221
Blue Mountains	\$15,868,410
Georgian Highlands	\$20,875,952
Georgian Bluffs	\$23,738,398
Grey County	\$240,606,873

Source: Statistics Canada Census of Agriculture, 2002

3.6 Agricultural Employment

In 1996, employment in Agriculture and Related Service Industries represented approximately 9.4% of total employment in Grey County. In that year there were 4,325 farm operators in the county (3,175 males and 1,150 females). The greatest proportion of farm operators (1,875 operators, or 43.4%) spent more than 40 hours per week working for the agricultural operation. Over a quarter of farm operators (1,200 operators, or 27.7%) spent less than 20 hours per week working on-farm. The remaining 1,250 operators (28.9%) spent between 20 and 40 hours per week working on the farm.

4.0 PHYSICAL RESOURCES

4.1 Physiography and Soils

Grey County is composed of ten physiographic regions (Chapman and Putnam, 1984) of varying size and form. The most dramatic physiographic feature is the Niagara Escarpment. Other striking features include the Beaver Valley and Bighead Valley physiographic regions. The Horseshoe Moraines physiographic region makes up the largest portion of Grey County. Located centrally within the county, it consists of till ridges, kame moraines, outwash plains, and spillways. These are divided by till plains and drumlinized areas. The tills making up this area are of a loamy texture and commonly stony. The Dundalk till plain occupies the southern portions of the County. Low, drumlinoid formations and numerous areas of poor drainage characterize this undulating till plain. This physiographic region contains the headlands for several rivers including the Grand, Nottawasaga, Maitland and Saugeen.

The soil capability for agriculture is highly influenced by the mode of deposition and topographic characteristics. The soil has developed from a wide variety of glacial deposits including morainal tills, lacustrine deposits, both poorly sorted and well sorted sands and gravel deposits, shallow drift over limestone bedrock, and more recent deposits such as organic and alluvial deposits. The most common (in terms of area) mineral soils are Osprey Loam, Pike Lake loam, Harriston silt loam, and Listowel silt loam. The soils that have developed from the Burford, Donneybrook and Sargent catenas are some of the more important soils from an aggregate perspective having developed from well sorted sand and gravel deposits.

³ Farm gate sales and operating expenditures data are gathered for the year previous to census year (i.e. farm gate sales and operating expenditures reported in the 2001 Census of Agriculture are for the 2000 calendar year).

The southeastern portions of the County are dominated by the Listowel silt loam and Muck soils. This area corresponds with the Dundalk till plain physiographic region. The Listowell silt loam is an imperfectly drained soil however it is considered to be one of the best agricultural soils in the County. Muck soils are not commonly used for agricultural production in the County of Grey.

The well to rapidly drained Harriston silt loam soil, Donnybrook sandy loam, and Sullivan sand are the most common soil types in the highly variable south western portion of the County. The Harriston silt loam has developed from limestone till and is considered to be a good agricultural soil. The Donnybrook sandy loam has developed from poorly sorted sands and gravels and the Sullivan sand, developed from coarse sandy materials in most cases have limitations (e.g., droughtiness, stoniness, fertility, etc.) that reduce the capability for the production of common field crops.

The central portions of the County located south of the southern tip of Beaver Valley are dominated by the Pike Lake loam soils. The Pike Lake loam is developed from poorly sorted sands and gravels, and has good drainage. These soils have developed on the spillway features located in this area, which corresponds with the southern portion of the Horseshoe physiographic region. Due to their topographic, fertility, droughtiness and stoniness limitations, these soils are considered to be poor agricultural soils, however, they may provide important pasture lands for some livestock operations.

The central portions of the County located north of the southern tip of Beaver Valley are dominated by the Osprey loam soil. This soil is the most common in the County, and occupies the northern portions of the Horseshoe Moraines physiographic region. The Osprey loam is developed on the coarse open till materials that typically comprises this morainal feature. Osprey loams are considered to be marginal for agricultural production of common field crops and in many cases are best suited to providing permanent pasture.

The northern portions of the County, southeast of Owen Sound, are dominated by Vincent silty clay loam. Vincent silty clay loam is developed from fine textured till and has good drainage. This soil dominates the Bighead Valley physiographic region and is highly production on the more gentle slopes for the production of common field crops.

Brighton soils have developed on well sorted sands and are common in the Meaford-Thornbury area. They have moderately severe limitations for the production of common field crops, however, they are often used for the production of specialty crops and in particular apples. This area is recognized as a specialty crop growing area because of the unique combination of soil and climate which supplies the specific needs for these crops.

4.2 Climate

In comparison to other areas in Southern Ontario the climate in the County of Grey is relatively cool. In fact the Dundalk plain has the coolest and shortest growing season. The growing season ranges from generally has less than 120 frost free days on the Dundalk plain located in the central and south eastern portion of the County to up to 140 frost free days for other portions of the county. Corn heat units follow a similar patten geographically and range from below 2300 in the Dundalk region to over 2500 in the north western portion of the County. As a result, crop production is generally limited to common field crops such as cereal grains, corn and pasture/forage crops.

There are two notable exceptions where the climate is moderated due to a combination of their geographic location (i.e., close to Georgian Bay) and topography. These two areas are located near the mouths of Bighead Valley and Beaver Valley. The moderating influences of the Bay and the sheltering hills adjacent to the valley result in a longer frost free growing season than is experienced by the rest of the County and extreme cold winter temperatures that can damage cold sensitive crops are not as severe in this area. As a result of the combination of good soils and mild climate, apples are commonly grown in the Meaford and Thornbury areas. These areas have been recognized by the Province and the County as specialty crop growing areas.

5.0 AGRICULTURAL REHABILITATION

Both the PPS and the County of Grey permit aggregate extraction on lands that have been identified as prime agricultural areas. In prime agricultural areas and on prime agricultural lands, the PPS recognizes that aggregate extraction is an interim use and requires the site to be rehabilitated in such a manner that substantially the same areas and same average soil quality for agriculture are restored. However, it also recognizes that in some cases complete agricultural rehabilitation is not required due to site specific issues (e.g., extraction below water table or pre-extraction capability is unfeasible due to depth of extraction). The County of Grey also permits aggregate extraction in both agricultural designations providing appropriate rehabilitation plans have been developed and implemented as part of the site plan approval process.

The overall intention of rehabilitation is to ensure that the property after extraction is safe and stable; this is the fundamental objective of the Aggregate Resources Act. Issues that would be considered in a rehabilitation plan include the compatibility of the after use with the surrounding land uses, slope creation, floor preparation, overburden replacement, soil replacement, and re-vegetation/crop type. Whenever possible, rehabilitation should be progressive in nature. The disturbance, handling and exposure of the soil resources should be minimized. In addition to the economic benefits to the operator, the successful rehabilitation to an agricultural after use is more easily achieved by employing progressive rehabilitation techniques.

Sub-Appendix A provides General Rehabilitation Guidelines that can be employed to reduce potential impacts and rehabilitation costs to the operator.

6. ASSESSMENT OF CONSTRAINT TO AGGREGATE EXTRACTION

Agriculture is an important component of the economy in the County of Grey and as such its agricultural resources need to be protected. The County of Grey has identified its most important agricultural lands and protects these lands by limiting development to predominantly agricultural uses. However, aggregate resources are often located on agricultural lands and extraction of these resources can have a negative impact on agriculture. As such, agriculture is considered to be a constraint to aggregate extraction.

Aggregate resource extraction is permitted as an interim use of agricultural land as long as the impact is mitigated through the development and implementation of a rehabilitation plan to ensure that substantially the same area and soil quality are restored following extraction. In light of the policy requirements for agricultural rehabilitation and the current rehabilitation technologies employed, the level of impact on agriculture following rehabilitation has been determined to be low. Agriculture is considered to be a low constraint for aggregate extraction.

7. CONCLUSIONS

The purpose of the Grey County Aggregate Inventory Master Plan is to identify, protect and prescribe management for the aggregate resources in Grey County. Agriculture is one of the factors that affect the aggregate resources in the County. This study has shown that aggregate resources are often located on agricultural lands and extraction of these resources can have an impact on agriculture.

Agriculture is an important component to the economy of Grey County. The agricultural resources of the County supports predominantly generalized farming dominated by livestock and common field crop production. However, as a result of the climatic advantages experienced in the Meaford and Thornbury areas, specialty crop production is also successfully supported on good quality agricultural soils. The County has identified its most important agricultural lands through the development of an alternative land evaluation system and protects these lands by limiting uses in agriculturally designated areas to predominantly agricultural uses.

Following an assessment of the agricultural policies, the County's agricultural resources and agricultural statistics it was determined that agriculture poses a minimal constraint to aggregate extraction and that aggregate extraction may occur although it is expected that rehabilitation efforts will be employed to ensure that impacts are minimized to acceptable levels. The generalized rehabilitation guidelines provided will assist in mitigating the potential impacts.

8. REFERENCES

- Aggregate Resources Act (1996). Statutes of Ontario Chapter 23 and Ontario Regulation 702/89.
- ARDA Branch, Canada Land Inventory, Ontario Department of Agriculture and Food. 1970. Acreages by Counties and Townships for Agricultural Land Use Capability in Southern Ontario.
- Chapman, L.J. and D.F. Putnam. 1984. The physiography of southern Ontario, 3rd Edition. Ontario Geological Survey, Special Volume 2.
- County of Grey. 2000. County of Grey Official Plan.
- Gillespie, J.E. and N.R Richards. 1954. Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey ; Ministry of Agriculture and Food; Agriculture Canada, Research Branch, Guelph; 2 maps, scale 1:63,360, 79p.
- Ontario Ministry of Municipal Affairs and Housing. 1997. Provincial Policy Statement. MMAH: Toronto, Ontario.
- Ontario Ministry of Natural Resources. 1997. Aggregate Resources of Ontario. Provincial Standards. Queens Printer for Ontario. Toronto, Ontario.
- Statistics Canada. 2002. 2001 Census of Agriculture. Farm Data: Full Release. Stand-alone CD-ROM Catalogue Number 95F0304XCB.

SUB-APPENDIX A

GENERAL REHABILITATION GUIDELINES

A. General Rehabilitation Procedures and Recommendations

A.1 Progressive Rehabilitation Procedures

There are many advantages to rehabilitating an area progressively both from an agricultural perspective and from an operational standpoint. Progressive rehabilitation limits the time an agricultural area is removed from production. Soil resources (e.g., topsoil, subsoil, overburden) can be more carefully managed and preserved. Transportation and stockpiling of soil resources is reduced and soil exposure is minimized, thereby limiting erosion and loss of soil resources.

Operational expenses are reduced because the majority of soil material is moved only once. The operation of heavy equipment and traffic is reduced as is the manpower required. With the reduced level of traffic, the chances of soil compaction caused by the movement of heavy equipment are reduced, as is the potential for generating dust.

A.2 Soil Resources

The soil resources include the topsoil (A horizon), subsoil (B horizon), and the overburden or parent material (C horizon). The topsoil and subsoil generally contain the majority of soil nutrients required for plant growth and provides a good rooting medium where the vast majority of plant roots are located. The topsoil is the most important medium for agricultural rehabilitation. It is the primary rooting medium and the main source of nutrients required for plant growth. A minimum of 15 cm of topsoil overlying the subsoil is required for successful agricultural rehabilitation although it is recommended that at least 20-25 cm be placed on top of the subsoil.

The subsoil also contains nutrients available to plants and therefore is also a valuable rooting medium. The subsoil is the weathered zone lying below the topsoil and is generally free of carbonates. Carbonates can often reduce the availability of nutrients necessary for root growth and are most often found in high concentrations in the unweathered parent material or overburden. It is therefore important to carefully strip and separate the soil resources to ensure that contamination due to mixing does not occur and reduce the fertility of the soil. An average thickness of approximately 20-25 cm of topsoil and 30-40 cm of subsoil is generally recommended and should provide a 50-65 cm rooting medium above the overburden.

The overburden is used to ensure that at least one full metre of soil material overlies the bedrock surface and/or the high watertable. If sufficient quantities of overburden are available, one full metre of this material underlying the subsoil and topsoil is preferred. The overburden can be easily identified using a 10% solution of hydrochloric acid (HCl). A reaction indicates the presence of free carbonates commonly found in the unweathered soil parent material.

A soil resources inventory should be conducted to assist with the development of the rehabilitation plan. The soil resources inventory will identify the volumes of topsoil, subsoil and overburden on site and will provide an understanding of the materials available for rehabilitation. If there are insufficient volumes of soil material available on site, the soil resource inventory will identify this problem early on in the rehabilitation process and alternative measures can be employed (importation of soil material, use of fines, reduction in area to be rehabilitated to an agricultural after use, etc.) to ensure the rehabilitation requirements are met.

A.3 Soil Stripping and Handling Procedures

The stripping process begins by removing the topsoil, subsoil, and overburden separately. If this material cannot be used immediately for rehabilitation, the soil resources should be stored separately in berms and if necessary, stockpiles. These berms may remain in place for the duration of the mining operation and should be vegetated to prevent soil losses due to erosion. The berms can also be constructed and utilized for long term visual screening and sound attenuation purposes. This will often be the final material used in the progressive rehabilitation sequence, however, use of the materials stored in the berms may not be necessary until the final stages of extraction.

The area to be stripped of the topsoil and subsoil should equal the area that can be extracted in a reasonable amount of time. Stripping and transportation of soil materials should only occur under dry conditions. Any movement of soil materials or vehicular traffic over soil when saturated will cause damage to soil structure and should be avoided. The potential loss of soil structure increases with a rise in soil moisture content.

Extraction of the aggregate resource can begin once the overburden has been removed. Once an area large enough has been extracted, re-application of soil material can begin. In the case of a quarry, it is generally recommended that at least one metre of soil material (topsoil, subsoil and overburden) should be placed over the bedrock surface. This surface should be contoured and graded to a minimum 1% slope to ensure proper drainage of surface water. Grading may result in substantially more than one

metre of soil material is placed over the bedrock. For many pits the overburden is the resource. Extraction of the resource in this case should proceed in a manner that ensures that the following the reapplication of the stripped subsoil and topsoil, at least one metre of soil lies above the level of the high watertable.

To alleviate any soil compaction the overburden may require the use of a subsoiler or ripper to break up the compacted areas prior to application of the subsoil and topsoil. If any stones are brought to the surface during this procedure, they should be removed. No large stones should remain within approximately 50 cm of the surface of the overburden.

The subsoil can now be placed on the overburden. This material (minimum of 30 cm), should be spread evenly over the overburden. Depending on the subsoil's textures and the moisture content, the subsoil may need to be chisel plowed to alleviate any compaction as a result of spreading this material on top of the overburden. The depth of chisel plowing should not occur at a greater depth than the thickness of subsoil material to ensure the potential for mixing with the overburden is limited. Large stones should again be removed following application of the subsoil. The topsoil can then be applied over the subsoil and an appropriate method should be employed to ensure that compaction of the topsoil is minimized.

It is recommended that 15 cm is the minimum depth (more is better) of the topsoil over the subsoil and that there should generally be at least 30 cm of subsoil overlying the overburden. This should provide a good rooting medium for the crops to be planted.

In most cases, storing the topsoil and subsoil material should not be necessary after the initial stages of stripping and reapplication has begun. This material should be transported directly from the stripping area to an area designated for rehabilitation and replaced immediately in the reverse sequence to that carried out during the stripping process. Subsoil is to be placed directly on the contoured, ripped overburden, and the topsoil replaced on the prepared subsoil. Any soil material which is to be exposed for long periods, (i.e., over the winter), should be covered by straw mulch or planted with a cover crop to prevent erosion.

A.4 Post Rehabilitation Recommendations

Post rehabilitation management is crucial for the success of this program. Protection from erosion, improving soil fertility and soil structure are now the primary concerns and the choice of crops should reflect these concerns.

It is recommended that the rehabilitated lands be seeded to a legume-grass mixture for a four to five year period. This combination of both deep rooting and shallow rooting species stabilize soil conditions, enhances soil structure, and increases soil fertility. It will also provide high quality forage (pasture and hay) once the crop is established. The deep rooting legumes improve soil structure by helping to break up compaction and they also supply nitrogen to the soil. Grasses are more shallow rooting and help to bind soil particles together, also improving soil structure. Both legumes and grasses add organic matter to the soil.

A.5 Seeding Method

A seeding technique known as "band seeding" is recommended for seeding the pit or quarry floor. Band seeding enhances seed germination and the establishment of a thick vigorous crop by placing the seed and fertilizer in the optimum position in the soil.

Establishment of a thick vigorous stand of a legume-grass mixture will be beneficial for soil amelioration and can still be used as a high quality forage crop. These crops should remain in place for at least a 4-5 year period. The legume-grass crop may then be plowed under in preparation for another crop such as corn, cereal grains or soybeans if the forage crop is to be replaced.

Establishing a legume-grass crop on the 2:1 side slopes is also highly recommended to reduce the potential for erosion. The steepness of the slopes limits the use of a band seeder and therefore this area should be hydro-seeded. A straw mulch and tacier can also be included in the mix in order to reduce erosion while the seed mix becomes established.

The spring and fall are the best times to seed an area in order to establish a thick, vigorous crop. Seeding during the winter months and the hot summer months (July and August) are not as successful and should be avoided.

A.6 Fertilizer Applications

It is recommended that a soil test be conducted immediately following final topsoil preparation. An OMAFRA approved soil test should be used to determine the rates of fertilizer application. Phosphorous is the primary soil nutrient that is most often required for the establishment of a thick vigorous crop. Other nutrients such as nitrogen and potassium may also be required. Band seeding is the most effective method of application for chemical fertilizers.

Applications of manure are also recommended. Manure provides the soil and crops with important nutrients and organic matter. Organic matter improves soil fertility and soil structure. Proper management of fertilizers, including manure, is essential for

optimum economic benefit and will reduce potential impacts on the environment. Excess levels of certain nutrients can result in contamination of groundwater and surface waters through leaching or erosion.

It is recommended that a nutrient management plan be developed as part of the rehabilitation plan for each aggregate operation to ensure that the risks to the environment are minimized. A nutrient management plan determines the amount and type nutrients required to establish and maintain the crop planted without exceeding the levels required by the crop.

APPENDIX F

TRANSPORTATION

**AGGREGATE RESOURCE
INVENTORY MASTER PLAN
GREY COUNTY**

**APPENDIX F
TRANSPORTATION**

**AGGREGATE RESOURCE INVENTORY MASTER PLAN
GREY COUNTY**

**APPENDIX F
TRANSPORTATION
P/N 02-1722**

October, 2004

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AGGREGATE RESOURCE INVENTORY MASTER PLAN GREY COUNTY

APPENDIX F TRANSPORTATION

P/N 02-1722

October, 2004

1.0 TRANSPORTATION

1.1 Existing Road System

1.1.1 Provincial Highways

The Provincial Highway network, consisting of Highways 6, 10, 21, 26 and 89, forms the backbone of the transportation system within the County. The length of Provincial Highways within and along the boundary of the County totals about 241 kilometres.

Highway 6 forms the main north-south route through Grey County, extending between Mount Forest, Owen Sound and Wiarton. From Mount Forest, the Highway continues south-east towards Arthur, Fergus and Guelph. Past Wiarton, Highway 6 continues north up the Bruce Peninsula to Tobermory. Average Annual Daily Traffic (AADT) volumes in 2000 varied from a low of 4,100 vehicles per day (vpd) just north of Durham to a high of 20,200 vpd just west of Owen Sound.

Highway 10 crosses the County in generally a north-west direction, extending from Dundalk through to Owen Sound. The road combines with Highway 6 about 13 kilometres south of Owen Sound. From Dundalk, Highway 10 runs south-east toward Shelburne, Orangeville, Caledon, Brampton and then Mississauga. AADT's in 2000 varied from 4,800 vpd near Markdale to 9,100 vpd just south of Owen Sound.

Highway 21 runs westward from Owen Sound to Southampton, and then south to Goderich. Between Owen Sound and the Grey / Bruce boundary, it is combined with Highway 6. 2000 Traffic volumes were between 8,450 vpd at the Grey / Bruce boundary to 20,200 just west of Owen Sound.

Highway 26 starts at Owen Sound and connects east to Meaford, where it then follows the shore of Georgian Bay to Collingwood. From Collingwood, Highway 26 extends south-east to Stayner and Barrie. The 2000 traffic volumes varied from 5,200 vpd between Meaford and Owen Sound to 7,700 vpd near the Grey / Simcoe County boundary.

Highway 89 forms the southern boundary of Grey County. East of the County it extends through Shelburne and Alliston before terminating at Highway 400. To the west, the road runs generally south to Harriston and then Palmerston, where it connects to Highway 23 which runs to Listowel and beyond. Traffic volumes in 2000 were measured at 2,800 vpd across this entire length of road as it abuts Grey County.

1.1.2 County Roads

Prior to May of 2003, the County Road system totalled about 823 kilometres, of which 436 kilometres is surfaced with Hot Mix Asphalt, 359 kilometres with Low Cost Bituminous surface, and 28 kilometres with gravel.

The Grey County Road Rationalization Study was adopted by County Council in March, 2002. The Study was prepared to review the County and local municipal road systems in order to determine whether or not the jurisdiction for some roads should be changed. The study recommended that about 89 kilometres of County roads be deleted from the County road system, while 78 kilometres of local municipal roads would be added. The recommendations of the Study were implemented in May, 2003, and the County road system now consists of a total of 812 kilometres.

County Road 4 (formerly Highway 4) extends from Singhampton in the east to Hanover in the west and generally carries the most traffic of all of the County Roads. 2001 AADT's were between 6,100 and 6,700 vpd between Durham and Hanover.

1.2 Existing Truck Volumes

Between 1992 and 2001, aggregate production in Grey County averaged about 2.46 million tonnes per year according to the annual Mineral Aggregates in Ontario statistical update. This includes extraction from sites in the Niagara Escarpment Commission controlled lands. Assuming an average truck capacity of 23 tonnes, this volume would generate about 104,300 two-loads shipped or 208,600 total trips per year.

Assuming aggregates are hauled about 190 days per year, there would be about 1,100 truck trips occurring on each day. The majority of these trips are to and from destinations within Grey County, with some trips to Bruce and Huron Counties.

In 2001, total aggregate production in Grey County was 2,570,975 tonnes. To put this in perspective, this 2001 volume ranked 4th among the neighbouring municipalities, behind Simcoe County (10,672,308 tonnes), Wellington County (8,903,313 tonnes) and Huron County (3,074,828 tonnes), and ahead of Dufferin County (2,444,446 tonnes) and Bruce County (1,566,760 tonnes).

Table F -1 shows the breakdown of the Grey County production by lower tier municipality, along with the proportional number of daily truck trips based on an average of 1,100 total trips per day.

Table F-1: 2001 Aggregate Production by Municipality

Municipality	Tonnes	Percentage	Daily Trips
Georgian Bluffs	560,673	21.8%	240
Chatsworth	395,003	15.4%	169
Grey Highlands	392,211	15.3%	168
West Grey	356,583	13.9%	153
The Blue Mountains	311,116	12.1%	133
Meaford	303,460	11.8%	130
Southgate	251,929	9.8%	108
Total County	2,400,000	100.0%	1101

Source: Mineral Aggregates in Ontario, Statistical Update - 2001

The high production in the Township of Georgian Bluffs is likely a result of demand in Owen Sound, which is the largest urban area in Grey County. Gravel pits in Chatsworth Township would also supply the Owen Sound Area. It is expected that the aggregate operations in The Blue Mountains and Grey Highlands would supply to the west end of Collingwood and the Craighleith area, which has been experiencing substantial growth over the past few years.

1.3 Official Plan Policies On Roads

The Grey County Official Plan does not designate specific haul routes for aggregate transport. It is given that the County Road and Provincial Highway transportation corridors are the framework for aggregate haul routes and trucking as shown on the Official Plan Land Use Schedule A. The Official Plan requires applicants proposing to undertake extractive operations to enter into a Development Agreement with the

local municipality, if requested to do so by the local municipality. Such an agreement can specify truck routes and require the applicant to make capital contributions towards the widening and improvement of roads beyond the boundary of the subject property (Grey County O.P., 1999, 2.7.3, page 36).

As part of the application for a new or expanded extractive operation, a Traffic Impact Study is required to demonstrate that traffic movement on existing streets and roads will not be unduly obstructed or interfered with by aggregate carrying vehicles (Grey County O.P., 1999, section 2.7.4 (2)(c), page 37) . Access driveways onto County Roads “should not create a traffic hazard because of their concealment by a curve, grade or other visual obstruction” (Grey County O.P., 1999, section 5.2.2 (7)(6), pages 54-57).

The Provincial highways and County roads are part of the ‘transportation corridors’ of the Official Plan. Few of the licensed pits and quarries in Grey County front on and have driveway access to these transportation corridors. Where individual or combined aggregate development applications or operations cause new or changed transportation corridors then County and local municipal involvement and review of the Traffic Impact Study would include reference to the affect on the local economy or the safety and social future of communities. “The applicant should provide information on economic and social affects such as employment, education, health and housing.” (Grey County O.P., 1999, section 5.1.2 (5)(d), page 49)

1.4 Haul Routes

There are no County or municipally designated aggregate haul routes. A total of 20 licensed operators were interviewed, and it was found that none of their operations had specified haul routes. An exception to this can be found in an 1998 O.M.B. decision concerning a proposed extraction operation in Chatsworth Township. In this case, the Board decision prescribed the haul route to be utilized by the gravel pit to gain access to Highway 6, and also limited the operating hours to weekdays from 7:00 a.m. to 6:00 p.m.. Much of the consideration given to the haul route related to the existence of an old order Mennonite community in the area. The location of this haul route is being reviewed locally due to further concern for community safety.

Some of the operators indicated that they do use some informal haul routes to access the Provincial Highways or main County Roads, but there is nothing in writing to compel them to use those roads.

If a Traffic Impact Study demonstrates a potential negative impact on a proposed haul route, the following measures could be utilized, where appropriate, to help mitigate the impacts:

- Paving of gravel roads to improve the structural capacity and eliminate problems with dust.
- Upgrading of the base structure of existing roads to suit the increased volume of truck traffic.
- Increasing asphalt and shoulder widths
- Improving horizontal and vertical road alignments
- Construction of auxiliary lanes for trucks turning, accelerating and climbing hills
- Lowering posted speed limits
- Improving sight lines at affected intersections
- Installation of warning lights and traffic signals
- Placing limitations on hours and days of operation.

2.0 REFERENCES

County of Grey. 1999.

County of Grey Official Plan.

APPENDIX G

PLANNING AND COMMUNITY ANALYSIS

**AGGREGATE RESOURCE
INVENTORY MASTER PLAN
GREY COUNTY**

**APPENDIX G
PLANNING AND
COMMUNITY ANALYSIS**

**AGGREGATE RESOURCE INVENTORY MASTER PLAN
GREY COUNTY**

**APPENDIX G
PLANNING AND COMMUNITY ANALYSIS
P/N 02-1722**

October, 2004

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SUB-APPENDIX A

LOCAL MUNICIPAL CONSULTATION

AGGREGATE RESOURCE INVENTORY MASTER PLAN GREY COUNTY

APPENDIX G PLANNING AND COMMUNITY ANALYSIS

P/N 02-1722

October, 2004

The planning policy and social and community analysis for the Grey County Aggregate Resource Inventory Master Plan is provided in this document.

1.0 PLANNING CONTEXT

1.1 Provincial Policy Statement (PPS)

The Provincial Policy Statement (PPS) was issued in revised form in 1997 under The Planning Act to provide policy direction on the matters of provincial interest related to land use planning and development. Mineral resources are part of the Province's resources providing economic benefits.

The full text of the PPS is provided in Appendix B. The key policy is:

"Mineral resources (mineral aggregates, minerals and petroleum resources) will be protected for long term use. ... As much of the mineral aggregate resource as realistically possible will be made available to supply mineral resource needs, as close to market as possible." (Ontario P.P.S., 1997, section 2.2.3.1)

The PPS provides policy on protection of licensed pits and quarries, protection of mineral aggregate resources and adjacent lands, wayside pits and portable asphalt plants, and requires progressive rehabilitation, and rehabilitation of prime agricultural land.

The PPS also prescribes that "Development and land use patterns which may cause environmental or public health or safety concerns will be avoided." The term 'development' includes 'a change in land use' which describes a pit or quarry as they are deemed to be a land use for the purposes of the Zoning By-law section (34(2)) of The Planning Act. In this regard, locations of pits and quarries and the Site Plan and operational notes are to establish that environmental or public health and safety concerns are effectively avoided. This would be to Municipal Council satisfaction prior to zoning a site to permit a pit or quarry.

A Five Year Review of PPS is being conducted by the Ministries of Municipal Affairs and Housing. A summary of its consultations modified to April 2003 was reviewed. The relevant reference are:

- revisions to PPS may be required to refine and/or elaborate on policies to ensure continued effectiveness including managing growth and mineral resources.
- concern related to aggregate extraction and balancing conflicts to quality of life, natural heritage features and agricultural lands.
- issues raised include resource extraction on prime agricultural land, extraction below the water table and off site cumulative impacts.

The Provincial review is now assessing information, clarifying issues and working towards refining the Provincial Policy Statement.

1.2 Planning Process

Aggregate resources planning and development is managed at the County and municipal level by The Planning Act and the Official Plans, Zoning By-Laws and in some cases municipal Site Plans and Development Agreements which are in effect. No site can be licensed as a pit or quarry unless it is first zoned to permit aggregate extraction.

The current planning process to permit a pit or quarry on any property is:

1. Designation as Mineral Resource Extraction in the Grey County Official Plan;
2. Designation to permit aggregate extraction in the local municipal Official Plan;
3. Zoning to permit aggregate extraction in the municipal Zoning By- law; and
4. Establishment of a Development Agreement with the applicant, if requested by the municipality, for roads or other matters beyond the realm of the Licence prior to adoption of the Zoning By- law Amendment.

If an intended site is not designated and zoned Aggregate Extraction or similar category, an Official Plan Amendment (OPA) and a Zoning By- law Amendment are required. Currently an application would involve two public meetings - one at the local municipal Council and an other at County Council. There may be arrangements for a combined local Council / County Council public meeting. The process of application, circulation, public meetings, adoption, notice, appeal to the Ontario Municipal Board, hearing and decision is regulated by The Planning Act.

1.3 Grey County Official Plan and Development Pattern

The Grey County Official Plan and local municipal Official Plans designate many large and small settlement areas for various land uses in towns, villages and hamlets. Areas of expansion for these settlements over the ten year planning period are also designated. Within the settlement areas residential, commercial, industrial, institutional, open space land uses exist or are planned to accommodate future population growth and development. These areas are thus so constrained for future potential aggregate extraction that they are not reasonably available and are eliminated as resource lands. The existing and future land use pattern is shown on Figure G-1.

There are only a small number of licensed pits or quarries which lie in or border on settlement areas. The significant instance is Durham in West Grey where two licensed properties lie within the settlement (Urban Fringe) limits. One of these properties is a County Roads work yard. The Ledgework Quarry at the south west corner of Cruickshank in Georgian Bluffs involves no blasting. In Grey Highlands a gravel pit borders the eastern limits of Feversham. See Photo G-1. Two licensed properties lie at the eastern border of Gibraltar in The Blue Mountains.

Photo G-1: Grey County Pit, East of Feversham, Grey Highlands



There are few estate residential developments in Grey County. There was no reported problems of estate residential development in aggregate areas. Generally there has not been direct land use conflict between aggregate extraction operations and urban or rural settlements in Grey County.

In past decades the consent to sever land process was extensively used in Grey County to create many smaller parcels of land from original lot holdings. This has led to the fragmentation of agricultural and rural land in many areas. This was noted as a concern relative to aggregates in one municipal interview.

More recently Official Plan Policy and Committee of Adjustment practice has limited consents. The Background to the Mineral Resource Extraction section of the County Official Plan indicates that “Primary Aggregate Resource Areas as shown on Appendix A to this Official Plan will be protected from incompatible land uses” (Grey County O.P., 1999, section 2.7.1, page 35). That protection would include restricting consents to sever so that further parcel fragmentation and/or introduction of additional rural residential uses to locations which would not preclude or hinder aggregate operations expansions or continued use as per PPS. This should form part of a new County Official Plan Policy.

The extent of past land fragmentation and its affect as a constraint to aggregate resource development is not practically known or mapped at the County level. Thus small parcel size does not itself establish a constraint in the Evaluation Model and ultimate aggregate resources lands for protection and designation in the County Official Plan.

At the local level using assessment maps overlaid on the aggregate resources to be protected, the Municipal Official Plans and Zoning by-laws can establish if there are any strips or pockets of rural residential development which practically constrain those areas from aggregate development such that the Mineral Aggregate Resources or equivalent designation, is not useful for planning and decision making reference. If a strip or cluster of rural residence fronts on a local or County Road likely to be used for aggregate trucks then consideration should be given to minimizing further potential conflicts.

1.4 Municipal Planning

Interviews of Municipal Planners or other officials were conducted to identify any local municipal interests or perspectives on the Study. The information from the interviews of all the Municipalities is provided in Sub Appendix A.

1.5 Other Mineral Aggregate Resource Studies

The City of Kawartha Lakes, formerly the County of Victoria, is undertaking review of their Official Plan related to Aggregate resources. That study differs from The Grey County Aggregate Resource Inventory Master Plan in that it addresses only the aggregate resource protection and development policies and issues and does not consider the extent of mineral aggregate deposits or develop evaluation criteria or models. This review is currently in the final stages of preparation.

The Town of Caledon in Peel Region recently adopted an Official Plan Amendment (OPA) based on a municipal review of aggregate resource development and demand from the Greater Toronto Area. The adopted OPA was appealed to the Ontario Municipal Board by the Ministry of Natural Resources, the Aggregate Producers Association of Ontario and others. A recent settlement of the policy issues provides the following.

- Designations of “Aggregate Resource Lands” and “Aggregate Reserve Lands” in the Official Plan, encouraging new pit and quarry locations in the Aggregate Resource Lands.
- An applicant is not required to prove need for the application or any type of supply-demand analysis.
- Assessment of social impacts is to be based on predictable, measurable, significant, objective effects on people caused by such factors as noise, dust, traffic levels and vibrations.
- Interpreting negative impacts will require a consideration of change to ecological functions and attributes of core green land areas.

2.0 SOCIAL CONTEXT

2.1 Settlements

A Settlement is any area designated on Schedule A of the Grey County Official Plan as Urban, Urban Fringe, Hamlet, Inland Lakes and Shoreline and also the Niagara Escarpment Recreation designation. All Settlements have been shown on Figure G-1.

Settlement areas are for the most part zoned for existing or planned development or zoned to identify future development. These areas are constrained to the possibility of aggregate extraction by reason of physical development over the resource or intended development of residential, commercial, industrial or other built form uses. The aggregate resource is effectively not available to supply any part of the mineral resource needs.

Small settlements are clusters or pockets of residential development throughout the County which have not been designated in the Official Plan but which may warrant careful consideration in minimizing the effects of aggregate extraction and transport where they exist or might be developed in the area. This can be provided by suitable upgrades to the haul route and other buffering treatment established in agreements between the Municipality and the aggregate producer.

2.2 Communities

In addition to the urban and rural settlement areas there are three other identifiable communities in Grey County. These are the Mennonite and Amish communities which may have been established as the result of growth of Mennonite families in Waterloo moving north to new farm settlement areas in Perth, Wellington and beyond in the mid and late 1800's (*Murdie, 1997*).

The three identified Mennonite-Amish Communities are:

- A Mennonite community is located in former Township of Egremont around the village of Holstein in the Township of Southgate
- A Mennonite community in Grey Highlands is located around the village of Badjeros.
- An Old Order Amish Community has located in the former Sullivan Township now the Township of Chatsworth west of the Village of Williamsford and north of the hamlet of Mooresburg.

This study considers that some communities or groups of people in Grey County may be sensitive to impacts related to aggregate extraction and haulage. A sensitive community is a community of people which, by the nature of methods of transportation and customs, is vulnerable and exposed to the adverse effects of aggregate extraction and/or aggregate transport to an extent which significantly reduces the safety of normal or routine activities occurring at reasonable, expected times.

The first two Mennonite communities operate the farms and travel in the area much as other farm owners do with the exception of using horse drawn vehicles on the roads. Signs advising of this are posted. The existence of these Mennonite communities is considered as less than a minimal constraint and the areas have not been shown in the evaluation.

Photo G-2: Sign to share the Roads



There is little aggregate resource of significance in the portion of Grey Highlands farmed by the Osprey Mennonite Community. In Egremont there are significant aggregate resources and several small pits, one of which is operated by a Mennonite community member.

The Old Order Amish Community of Chatsworth (Sullivan Township) is such a community. Which may be a sensitive community to the aggregate industry. It is an Old Order community using horse and buggy, steel wheels and no hydro to operate a growing number of farms in the Williamsford area. The children are routinely walking to school on the side of the road and Community members travel only by horse drawn buggies and wagons. This presents a real impairment to the safety of the people relative to gravel trucks and other large vehicles traveling in the area.

Photo G-3: Farming the Land with Horses and Steel Wheels



Photo G-4: Sharing the Roads



In the Township of Chatsworth there are a small number of long standing licensed pits operating without issue. A 1998 new pit application by E.C. King originally met opposition from the old Township of Sullivan but upon amalgamation the new Township of Chatsworth Council adopted the required Zoning By-law amendment. An appeal to the OMB by a cottage association resulted in a decision in 2001 which continues to require resolution of the issues of haul route and extractive stages. A public meeting held by

Council in the Spring of 2002 sought to complete the municipal matters in a Road Development Agreement.

There was an intention by the Ontario Municipal Board and Chatsworth Council to specify a haul route for the E.C. King pit to avoid the Amish farm areas as much as possible. It remains to be decided upon whether phasing and haul route will be set as desired by Chatsworth Council.

2.3 Community Resources

The data with regard to Schools, Community Hall, Recreation Centres, Municipal parks and recreation trails was collected and assessed for relevance to aggregate resource management.

2.3.1 Schools

The digital map showing each school for all boards including Bluewater District and the Bruce-Grey Catholic District Boards was obtained. Further consultation with the Transportation Department of the combined Boards revealed that accommodation reviews were completed for all schools in 2002 which consider the age of the facilities, cost to upgrade and future student population located within the attendance area. These reports conclude that no new schools are scheduled to be built or open.

School locations in the rural areas are significant relative to potential constraints on aggregate resource extraction and haulage.

The location of all schools within the Grey County are shown on Figure G-1.

2.3.2 Community Centres

Most of the Grey County Municipalities have their recreation facilities in settlement areas and as such there is not a constraint relative to aggregate resources. The County is not responsible for any community or recreation facilities with the exception of the County Museum located in Owen Sound. There is also the Grey County Archive in Durham and South Grey Museum and Historical Library in Flesherton. The Township of Southgate has located its recreation facilities in rural surroundings due to the existence of limited urban areas to create such facilities. No conflicts with aggregate extraction were identified.

2.3.3 Parks and Trails

There are four Provincial Parks or nature Reserves in Grey County. These are located on the Niagara Escarpment Plan lands. Two licensed pits are located west of the Pretty River Valley Provincial Park in the Town of The Blue Mountains. No conflicts were apparent.

The Bruce Trail traverses the County but is located in the Niagara Escarpment Plan jurisdiction so no constraint to the aggregate resources of Grey County evaluated in this Study, is evident. Municipal parks, arenas and community centres are generally located in settlements and do not establish a distinct level of constraint relative to aggregate resources.

There are approximately 18 locations in Grey County where Primary and Secondary sand and gravel resources, which are subject to minimal or moderate constraints, are found on or directly adjacent to lands owned by one of three Conservation Authorities. The Conservation Authorities are the Grey Sauble, the Saugeen Valley and the Nottawasaga Valley Conservation Authority. Many of the Conservation Authority properties are less than 100 hectares (247 acres). Some locations include both sand and gravel resources and non aggregate lands.

Generally Conservation Authority lands are not in close proximity to licensed pits or quarries. There are a small number of exceptions to this. The locations of sand and gravel extraction near

Conservation Authority lands are:

- A pit east of Feversham borders the south end of a Grey Sauble Conservation Authority site
- A pit borders Grey Sauble Conservation Authority lands at Clarksburg
- A pit north of Robson Lakes in old Holland Township of Chatsworth has Grey Sauble Conservation Authority lands along the north
- Three licensed pits lie to the south and west of Grey Sauble Conservation Authority lands along the Sydenham River in Georgian Bluffs south of Owen Sound.
- The Durham Conservation Area is located on the Saugeen River in the community of Durham with two licensed properties, including the municipal pit and works yard, located close-by to the south.

There were no reported conflicts relative to pits and Conservation Authority interests. The Conservation Authority lands include Conservation Forests, Day Use Parks, Recreation Areas and Wetland properties. Although some of these areas have limited or no facilities, they do provide recreational activities such as hiking, cross-country skiing, wildlife viewing, etc.

Some of these lands contain natural heritage features including significant wildlife habitat, provincially significant wetlands, fish habitat, life and earth ANSI's, significant woodlands and the locations of vulnerable, threatened and endangered species. A large number of the Grey Sauble Conservation Authority land holdings are on Niagara Escarpment Commission controlled area.

The largest Conservation Authority property, related to sand and gravel resources, is the Bells Lake Management Unit of the Saugeen Valley Conservation Authority on 610 ha (1,500 acres) west of Markdale. This area includes Class 1 wetlands, open water fish habitat and excellent recreational canoeing. This is a source of the Rocky Saugeen River.

Ownership by a Conservation Authority of aggregate resource lands of minimal or moderate constraints reduces the likelihood that such lands would become the subject of municipal planning and aggregate licencing applications. There have been successful examples of partnerships between the Grand River Conservation Authority and aggregate producers to extract sand and gravel then to rehabilitate the land to enhance wildlife habitat and improve flood management capabilities. Thus elimination of sand and gravel resources owned by Conservation Authorities from protection is not useful or warranted. Further, Conservation Authority lands which are highly constrained or which are otherwise eliminated as aggregate resources, ie for Provincially Significant Wetlands, should not be subject to aggregate resource protection.

3.0 REFERENCES

County of Grey. 1999.

County of Grey Official Plan.
Web Site, 2004

Murdie, R.A. 1997.

“The Mennonite Communities of Waterloo County”, The Waterloo County Area Selected
Geographical Essays, University of Waterloo, 1997

Ontario Ministry of Municipal Affairs and Housing. 1997.

Provincial Policy Statement

Grey Sauble Conservation Authority

Web Site, October 2004

Saugeen Valley Conservation Authority

Web Site, October 2004

Nottawasaga Valley Conservation Authority

Web Site, October 2004

SUB-APPENDIX A
LOCAL MUNICIPAL CONSULTATION

GREY COUNTY AGGREGATE RESOURCES INVENTORY MASTER PLAN
LOCAL MUNICIPAL CONSULTATION

MUNICIPALITY Georgian Bluffs

CONTACT Bev Nicholson 519-376-2729
Deputy Clerk Mr. Bruce Hoffman
Date: Oct. 2002

OFFICIAL PLAN Using Grey Cty OP for now. There is a Sarawak OP.

Protection Policies consents
 development

ZONING BY- LAW New Draft zoning by-law being prepared by Cuesta

SETTLEMENTS On County OP

COMMUNITY AND SOCIAL REFERENCES Some Mennonite farmers near Derby and Kilzythe travel to Owen Sound.

SPECIAL INTERESTS No

APPLICATIONS

- Quarry in North Conc 2 Lot 37, zoning amendment to facilitate a land division only.
- New quarry buy Ted Young Conc Rd. 17 formerly Keppel to below water joint
- joint public meeting held, in review by Cty. SAAR Ens. for application.

ISSUES

- Environment
- Drainage
- Traffic/truck
- way side pits that do not get completed
- concerns
 - hydrogeological
 - haul routes
 - strip residential consents

GREY COUNTY AGGREGATE RESOURCES INVENTORY MASTER PLAN
LOCAL MUNICIPAL CONSULTATION

MUNICIPALITY The City of Owen Sound

CONTACT Planning and Economic Development enquiry October 2002
Bill White Director of Community Services August 2003
519-376-1440

OFFICIAL PLAN

Aggregates designation	- none
Protection policies	- n/a
-consents	
-development	

ZONING BY- LAW n/a

SETTLEMENTS Owen Sound is the major urban settlement of Grey County

SOCIAL, COMMUNITY NOTES

SPECIAL INTERESTS

- none

APPLICATIONS

- No licensed properties
- Some former pits have been rehabilitated to residential housing

ISSUES

- No land use or direct impact issues
- Some traffic moving through Town from cement silo in harbour
- Securing long term aggregate supply is important to economic development of Owen Sound

GREY COUNTY AGGREGATE RESOURCES INVENTORY MASTER PLAN
LOCAL MUNICIPAL CONSULTATION

MUNICIPALITY Municipality of Meaford

CONTACT Nick McDonald, Planning Consultant
Date: June 2003

OFFICIAL PLAN New Draft OP for formal public meeting July 2003

Aggregates designation - protection policies not specified

ZONING BY- LAW to follow OP approval

SETTLEMENTS Urban area of Meaford

SOCIAL, COMMUNITY NOTES

None mentioned

SPECIAL INTERESTS

None expressed relative to aggregates

APPLICATIONS

- Development Agreement with E.C. King on road upgrades

ISSUES

- Size of major pit
- Impact on water table

GREY COUNTY AGGREGATE RESOURCES INVENTORY MASTER PLAN
LOCAL MUNICIPAL CONSULTATION

MUNICIPALITY Town of The Blue Mountains

CONTACT Robert Armstrong, Senior Planner
 519-599-3131

OFFICIAL PLAN New OP June 8/02
 Public Meeting

Protection Policies consents - regard for constraint 9.14
 development

ZONING BY- LAW

SETTLEMENTS See Land Use Schedule

COMMUNITY AND SOCIAL REFERENCES

SPECIAL INTERESTS

- Slabtown area
- Beaver Valley Heritage

APPLICATIONS

- Several in past few years
- Georgian Aggregates is major supplier

ISSUES

- affect on water table regardless of depth of extraction above or into water table.
- Nippising Ridge near Craighigh Camperdown environment precludes pit/quarry development.

GREY COUNTY AGGREGATE RESOURCES INVENTORY MASTER PLAN

LOCAL MUNICIPAL CONSULTATION

MUNICIPALITY Grey Highlands

CONTACT Ray Duhamel, Planning Consultant
June 2002

OFFICIAL PLAN New Official Plan 2001, Approved 2002
Mineral Resource Extraction - licensed sites
Primary Aggregate Area - overly to protect
(County would not approve designation to permit)

Protection Policies consents - no reference
 development caution to 300m adjacent pits

ZONING BY- LAW - new by-law in draft to public meeting

SETTLEMENTS - shown on County and Municipal O.P. - Markdale
 - Flesherton

COMMUNITY AND SOCIAL REFERENCES

A Mennonite community in former Osprey. Horses and buggies and wagons on road

SPECIAL INTERESTS - none noted

APPLICATIONS 4-5 aggregate applications in past 3 years

ISSUES

- not active issues on pits
- local designation to permit pits subject to zoning tests vs. County designation

GREY COUNTY AGGREGATE RESOURCES INVENTORY MASTER PLAN

LOCAL MUNICIPAL CONSULTATION

MUNICIPALITY Township of Southgate

CONTACT Bonnie Riddel, Admin. Clerk
519-923-2110
Spoke to Carol Oct 11/02
Dave Slade

OFFICIAL PLAN - Dundalk old O.P. 1985
- New O.P./Southgate

Protection Policies consents
 development

ZONING BY- LAW New Comprehensive Zoning adopted May 2002
Appealed by Grey County

SETTLEMENTS

COMMUNITY AND SOCIAL REFERENCES

A Mennonite Community some of Old Order life style existing in the western part of Township south of Highway 9. One member operates a pit and has applied to expand.

SPECIAL INTERESTS

APPLICATIONS - no applications

ISSUES

- Affect on water table

GREY COUNTY AGGREGATE RESOURCES INVENTORY MASTER PLAN

LOCAL MUNICIPAL CONSULTATION

MUNICIPALITY Township of West Grey

CONTACT Malcolm McIntosh
 519-369-2200
 Oct 11/02
 John Black

OFFICIAL PLAN Use County Official Plan for rural areas.
 There are local Official Plans for each of Durham and Neustadt.

Protection Policies consents
 development

ZONING BY- LAW - 5 former - prepared by County - working to consolidation

SETTLEMENTS - in County O.P.

COMMUNITY AND SOCIAL REFERENCES

- one Mennonite farming area is not a large colony
- no conflict with aggregates

SPECIAL INTERESTS

Environmental

- Cedar Wells Aggregates Ltd.
- below water table
- Site Plan/licence
- W.G. said yes to 100,000-200,000 tons but not to extraction below water table as Application Water Geomatics Hydrogeology not satisfactory to Concil and rate payers
- Hydrogeologists (Saugeen C.A and MOE not notified)

APPLICATIONS 1) Bentick P 21 & 22 Conc. 11
 2) Tonnage Increase 100,000-200,000 Traffic Study MNR

ISSUES

- Traffic/Groundwater
- Cedarwells- Louise Lake application to go below water table inadequate mapping information available

GREY COUNTY AGGREGATE RESOURCES INVENTORY MASTER PLAN

LOCAL MUNICIPAL CONSULTATION

MUNICIPALITY Town of Chatsworth

CONTACT Arnold Rosenberg
519-794-3232
Christine Loft - Planner

OFFICIAL PLAN not independent OP

Protection Policies consents
development

ZONING BY- LAW - in preparation with D.C. Slade

SETTLEMENTS on County O.P.

COMMUNITY AND SOCIAL REFERENCES

- Amish in Sullivan
- old order, steel wheels, no hydro, children, roads

SPECIAL INTERESTS

- not really, some Ad Hoc groups opposing applications for various things.

APPLICATIONS

- no new sites

ISSUES

- several long established pits
- no new applications past several years but
- 50-60 1998
- Sullivan Township OMB Approved E.C. King Pit
 - conditions
 - Township adopted
 - area residents/cottage Associated appealed
- haul route to avoid Amish community
- issue 4 or 5 stages
Sullivan Township originally opposed then after Amalgamation Council adopted

APPENDIX H

FISCAL AND ECONOMIC IMPACT ANALYSIS AGGREGATE MARKET ANALYSIS

GREY COUNTY AGGREGATE MASTERPLAN

FISCAL AND ECONOMIC IMPACT ANALYSIS

October 12, 2004

P L A N N I N G F O R G R O W T H



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1. INTRODUCTION

1. INTRODUCTION

1.1 Study Components

The fiscal and economic analysis assesses the typical impact of aggregate extraction on municipal finances and its contribution to the local economy. Municipal finance considers the way in which net operating revenues and expenditures of the County and lower tier municipalities can be expected to respond to the service needs of representative types of aggregate operations that may be established in the future. The intent is to identify the average long term incremental costs/revenue resulting from the aggregate operations. The findings are presented on an average per tonne basis.

The economic analysis considers the role of the aggregate industry in the local economy measured in terms of employment (direct, indirect and induced) as well as other contributions made to civic and community projects and activities.

1.2 Case Study Analysis

The fiscal and economic analysis relied on case studies of three representative aggregate operations to assess the typical impact of aggregate extraction on municipal finances and its contribution to the local economy. Three operations of varying magnitude, as determined by annual licence limits for quantities extracted, were examined. In the case of operators with multiple sites, the annual limits were combined to identify larger operations. The full universe of aggregate operations in the County was allocated to one of three categories:

- large (in excess of 1 million tonnes annually);
- medium (150,000 to 1 million tonnes annually); and,
- small (less than 150,000 tonnes annually).

Approximately half of the license operations fall into the latter category. The list was presented to the Public Liaison Group for recommendations regarding candidate sites to be contacted for the case study analysis.

The operations selected included one in West Grey and two in Grey Highlands.

Interviews were conducted with representatives from each business to obtain information regarding nature of the operation, employment, local spending, etc. Each operator was contacted and an attempt was made to arrange an 'in person' interview with follow up information requested by phone. In one case, it was necessary to obtain all information by telephone. Given the nature of the information requested (i.e. financial and market related) participants in the study were guaranteed anonymity.

The municipalities in which the operations were located were contacted to obtain information regarding taxes, assessment and background municipal finance data.

2. FISCAL IMPACT ANALYSIS

2. FISCAL IMPACT ANALYSIS

2.1 Approach

The objective of this fiscal impact analysis is to estimate the way in which the Township and County's net operating revenues and expenditures can be expected to respond, on a generic basis, to the servicing needs of various representative types of new aggregate producing operations. The development description and assessment assumptions are based on examples of development already located in various Townships with Grey County, which are considered to be representative of development likely to occur in future. The intent is to identify the "average long term incremental costs of development":

- "Long term," because of the Township and County's costs increase at intervals and seldom annually on a perfectly one to one basis with development. This is because some costs have been front-ended in some periods/areas, while in other periods or areas, service levels may decline somewhat, awaiting subsequent operating cost increases.
- "Incremental," because the focus is on the way in which net expenditures are likely to be affected by new development. Most service costs can be expected to increase proportionately to existing costs, based on growth in population and employment, but some services or communities may be subject to economies or diseconomies of scale.
- "Average," because much of the analysis is necessarily Township or County-wide in coverage and does not reflect the individual requirements of particular locations.

A more detailed analysis addressing a specific development proposal in specific locations could be undertaken, but the work contained herein provides useful broad perspective on the question.

2.2 Description of the Case Study Operations

This study examines the impact of three actual examples of aggregate-producing development as discussed in Chapter 1. These include:

	<u>Municipality</u>
• Large Aggregate Producer	West Grey
• Medium Aggregate Producer	Grey Highlands
• Small Aggregate Producer	Grey Highlands

Assessment, tax rates and tax amounts have been compiled for the three aggregate properties (Table 2-1), which were sampled. The number of employees and land area have also been compiled.

2.3 The Fiscal Model

This analysis is based on the most recently available financial statements for the County and municipalities of Grey Highlands, and West Grey, i.e. year 2001.

Tables 2-2,3,4 summarize the “Revenue Fund” or “Operating Fund” actual transactions for 2001, as reported in the Financial Information Return’s (FIR). The shortfall between non-tax revenues and expenditures is made up via the tax levy, with tax rates established accordingly. This represents a simple “model” of the financial position for the operating fund and provides the structure of the fiscal impact analysis contained herein. Tables 2-5,6,7 set out the 2001 tax rates.

Tables 2-8,9,10 modify the operating expenditures shown in Tables 2-2,3,4 in two ways.

- Firstly, “Net Debt Payments” and “Own Fund Transfers” are netted from the total. The debt charges are for “sunk” investments, and are unaffected by growth. Net own fund transfers can vary significantly from year to year and relate largely to capital expenditures and general reserves, which are provided for separately in this analysis. It is, therefore, appropriate to remove these two classes of expenditures from the spending

base, before determining average operating fund spending levels per capita or per employee.

- Secondly, grants, fees and service charges were deducted on a service-by-service basis. These revenue items are generally expected to increase in direct proportion to future expenditure increases. These revenues can be most readily provided for on a net expenditure basis, as each expenditure category is expected to increase at different rates, which would otherwise complicate the forecasting of individual revenues.

Tables 2-8,9,10 apportion the net expenditures between residential and non-residential servicing requirements. The basic ratio used was calculated as the year 2001 population/employment ratio. This generally reflects the way in which costs incurred today can be attributed to residential and non-residential development. The resultant expenditure/capita factors are then applied against the subject type of development. The residential/non-residential split, based on the year 2001 population/employment ratio, is as follows:

Grey County

$$\text{Residential: } \frac{89,073 \text{ population}}{89,073 \text{ population} + 34,210 \text{ employment}} = 72.25\%$$

$$\text{Non-Residential: } \frac{34,210 \text{ employment}}{89,073 \text{ population} + 34,210 \text{ employment}} = 27.75\%$$

Grey Highlands

$$\text{Residential: } \frac{9,196 \text{ population}}{9,196 \text{ population} + 3,305 \text{ employment}} = 73.56\%$$

$$\text{Non-Residential: } \frac{3,305 \text{ employment}}{9,196 \text{ population} + 3,305 \text{ employment}} = 26.44\%$$

West Grey

$$\text{Residential: } \frac{11,741 \text{ population}}{\quad \quad \quad} = 69.92\%$$

11,741 population + 5,050 employment

$$\text{Non-Residential: } \frac{5,050 \text{ employment}}{11,741 \text{ population} + 5,050 \text{ employment}} = 30.08\%$$

A number of exceptions are involved, where this global split was replaced by a different service-specific allocation. These include Parks, Recreation Program, Recreation Facilities, Libraries and Cultural Services, where a 95%:5% Res:Non-Res. split was applied, in order to reflect the nominal benefit to non-residential development and the overwhelming focus of those services on residents. Similarly, General Government was split 80%:20%. Finally Cemeteries, Social Housing, Social and Family Services and Assistance to Aged Persons were allocated entirely to residential development, as they provide no direct benefit to industrial/ commercial development.

The result is net operating expenditures of \$55.4 million for Grey County, of which \$51.0 million is attributable to residential development and \$4.3 million is attributable to non-residential (industrial/commercial/institutional) development. In Grey Highlands the net operating expenditures are \$4.9 million (\$3.8 million residential / \$1.1 million non-residential). In West Grey the net operating expenditures are \$5.0 million (\$3.7 million residential / \$1.3 million non-residential). These represent the 2001 expenditure base to be used in establishing residential and non-residential expenditure benchmarks for estimating the fiscal impact of new development.

Tables 2-11,12,13 summarize the basis for forecasting the anticipated incremental non-tax revenues for each item over the long term. It excludes user fees/service charges, as they have already been removed in calculating net expenditures; hence, they are expected to increase in direct proportion to future spending increases. Table 2-14 illustrates the blank format of the overall fiscal impact summary table, which is completed in Section 2.6.

2.4 Expenditure Assumptions

2.4.1 *Operating Expenditures*

In some cases, the County has front-ended and oversized services in anticipation of development. In other cases, plans exist to establish new facilities or to expand the service capacity of existing facilities in future. An annual per capita or per employee operating cost has been attributed to reflect the nature of the County's servicing arrangements for the municipality as a whole, rather than at any particular location.

The following section summarizes the basis for the development-related operating expenditure allocation in each case. These per capita and per employee expenditure allocations are calculated in Tables 2-15,16,17.

General Government

By adding to the occupancy of the County and the number of transactions to be processed and issues to be dealt with, new development will gradually serve to increase spending in these areas over time. However, as a result of the core administrative and Council operation which is already in place, it is estimated that future growth will be subject to 50% economies of scale, in comparison with current per capita/employee costs. i.e. If it costs \$1/capita to provide this service to the existing population, it is estimated that future development can be serviced at an average cost of \$0.50/capita.

Fire

New development will increase the number of fire calls, thereby contributing to the need for firefighter activity, along with fire protection and administrative services. Fire stations generally serve a fixed area, consistent with a response time level of service. The primary response station is localized in this way, secondary response comes from a network of several other stations in each case, affecting a broad area, through a series of linkages. Much of this network is in place, although one new station and a replacement are required. A 25% economy of scale

provision has been attributed to new development, in order to reflect the existence of the basic station network (i.e. a 75% cost attribution).

Police and Protective Inspection

The cost of by-law and related inspections will gradually increase over time, as a result of new development. A 10% administrative economy of scale has been factored into the calculation for the balance.

Roads, Streetlighting and Parking

New development will directly increase the length of local and collector roads to be maintained by the County. It will also contribute, to some degree, to the need for additional road capacity and maintenance costs throughout the County-wide network. The vast majority of that network is already in place, although the County's inventory of local roads, parking and streetlighting will be gradually expanded; hence a 50% provision has been made for economies of scale applicable to future development.

Waste Management

A 100% cost provision has been made for this purpose, in order to provide for the added collection cost per stop or per tonne.

Planning and Other

Planning costs have been allocated on a 75% basis, as the Department is already geared to providing services to a sustained level of new development. "Other costs" have been included on a 100% basis.

2.4.2 Capital Expenditures

It is assumed that the County's net annual contribution to capital and other funds from the operating budget, is as follows:

- 25% of “other expenditures” to cover repairs, replacements, upgrades for development-related works and a share of network requirements.

This percentage reflects a rounded midpoint of the most recent experiences in Grey County, Grey Highlands and West Grey , i.e. in 2001 for Grey Highlands, \$8,267,300 in operating expenditures, less \$1,651,300 in debt charges and transfers to reserves, leaves \$6,616,000. \$1,651,300 is 25% of \$6,616,000. Similar calculations show debt charges and transfers to reserve are 17% and 35% of operating expenditures in Grey County and West Grey respectively.

25% amounts to approximately \$120 for an aggregate operation.

2.5 Revenue Assumptions

The property taxes generated by the various types of development are calculated as the Township and County-purpose tax rates for the applicable property types for the year 2001, applied against the assessment estimates in each case (1999 assessment base year).

The following tax rates for the year 2001 are applicable:

	<u>2001 Tax Rate %</u>			
	<u>Grey County</u>	<u>West Grey</u>	<u>Grey Highlands (Artemisia)</u>	<u>Grey Highlands (Osprey)</u>
Residential	0.575373	0.588928	-	0.491085
Industrial	0.882853	-	0.620238	-
Commercial	0.642002	0.657125	-	-
Farm	0.143843	-	0.101055	0.122771

The assessment estimates are based on the representative sample of existing properties throughout Grey County documented in Chapter 2.

The Township and County-purpose property taxes (2001 \$), which would be generated by the subject development types, are established in Table 6-1.

Tables 2-18,19,20 provide the basis for the potential impact of new development on the County's non-tax revenues per capita and per employee. Some of the items are expected to increase in direct proportion to growth, while others are largely unaffected by growth. Overall, in Grey County \$45.13/capita (employee), in Grey Highlands \$33.12/capita (employee), and in West Grey \$30.21/capita (employee), represent the anticipated increase in non-tax revenue attributed to new development.

License fees paid under the *Aggregate Resources Act* represent a revenue received by municipalities from aggregate producers. The license fee is calculated as \$0.04/extracted tonne for lower tier municipalities and \$0.005/extracted tonne for the County. These revenues are fully required to fund a portion of the development-related capital servicing requirements of new development.

2.6 Net Fiscal Impact

Table 2-21 summarizes the estimated net annual fiscal impact of various forms of residential development on the Townships and County. The annual long term operating surplus (deficit) has been calculated as the difference between:

- property taxation, based on the assumptions in Section 2.5;
- non-tax revenues, as estimated in Section 2.5;

and

- operating expenditures, as addressed in Section 2.4.1;
- capital spending from the current budget, as addressed in Section 2.4.2.

The results of this analysis are as follows:

Development type		Estimated annual tax surplus (deficit)	Estimated tax increase per tonne
1.	Large Aggregate Producer	\$8,552	\$0.07
2.	Medium Aggregate Producer	\$1,997	\$0.04
3.	Small Aggregate Producer	\$543	\$0.03
Weighted Average			\$0.06

Thus the combined net fiscal impact of the sampled aggregate operations is the order of \$60/1,000 tonnes extracted.

Table 2-1
Lower Tier Tax Assessment Sample of Grey County Aggregate Operations

	Area (ac)	Location	Tax Class	2003 Assessment Base Yr	2001 LT Tax Rate	2001 LT Tax Amount	2001 LT Tax/Acre
1	261.30	West Grey	RT	\$ 367,800	0.588928%	\$ 2,166.08	\$ 8.75
Large Operation	CT		\$ 18,200	0.657125%	\$ 119.60		
	Total		\$ 386,000		\$ 2,285.67		
2	59.00	Grey Highlands (Former Artemisia)	Farm	\$ 47,700	0.101055%	\$ 48.20	\$ 1.87
Medium Operation	IT		\$ 10,000	0.620238%	\$ 62.02		
	Exempt		\$ 4,300	-	\$ -		
	Total		\$ 62,000		\$ 110.23		
3	95.00	Grey Highlands (Former Osprey)	Farm	\$ 110,700	0.122771%	\$ 135.91	\$ 1.43
Small Operation	Total		\$ 110,700		\$ 135.91		

Upper Tier Tax Assessment Sample of Grey County Aggregate Operations

	Area (ac)	Location	Tax Class	2003 Assessment Base Yr	2001 UT Tax Rate	2001 UT Tax Amount	2001 UT Tax/Acre
1	261.30	West Grey	RT	\$ 367,800	0.575373%	\$ 2,116.22	\$ 8.55
Large Operation	CT		\$ 18,200	0.642002%	\$ 116.84		
	Total		\$ 386,000		\$ 2,233.07		
2	59.00	Grey Highlands (Former Artemisia)	Farm	\$ 47,700	0.143843%	\$ 68.61	
Medium Operation	IT		\$ 10,000	0.828530%	\$ 82.85		
	Exempt		\$ 4,300	-	\$ -		
	Total		\$ 62,000		\$ 151.47		
3	95.00	Grey Highlands (Former Osprey)	Farm	\$ 110,700	0.143843%	\$ 159.23	\$ 1.68
Small Operation	Total		\$ 110,700		\$ 159.23		

Source: Assessment information from the Municipalities of West Grey and Grey Highlands

TABLE 2-2
COUNTY OF GREY
SUMMARY OF EXPENDITURES AND REVENUES, 2001

	2001 FIR \$ (000's)
1 Expenditures	
1.01 General Government	1,256.9
1.02 Other Protection	1,600.8
1.03 Roadways & Winter control	12,345.4
1.04 Waste disposal	1.6
1.05 Other Health Services	7,789.2
1.06 Assistance to Aged Persons	13,701.9
1.07 Other Social and Family Services	27,572.7
1.08 Social Housing	9,858.1
1.09 Cultural Services	1,048.2
1.10 Planning and Zoning	690.1
1.11 Commercial and Industrial	206.7
Total	76,071.5
2 Revenue Fund Revenues	
2.01 Payments in lieu of taxes	629.5
2.02 Ontario unconditional grants (e.g. CRF)	748.0
2.03 Ontario conditional grants	23,940.5
2.04 Canada conditional grants	1,985.6
2.05 Revenue from other municipalities	470.3
2.06 User fees and service charges	9,289.7
2.07 Rents, concessions and franchises	3,986.1
2.08 POA and other fines	1,480.7
2.09 Penalties and interest on taxes	2.7
2.10 Investment income-From own funds	-
2.11 Investment income-From other	429.6
2.12 Donations	29.8
2.13 Sales of publications, equipment, etc.	12.7
2.14 Proceeds from Insurance	400.4
2.15 Contributions from non-consolidated entities	-
2.16 Contributions from capital fund	-
2.17 Contributions from reserves and reserve funds	112.4
2.18 Supplementary Taxes	524.8
2.19 Upper Tier Entitlement from Lower Tiers	(348.3)
2.20 Surplus	180.4
Total Non-Tax Revenues	43,874.9
3 Net Expenditures (General Levy)	32,196.6

Sources: 2001 Financial Information Return

TABLE 2-3
TOWN OF GREY HIGHLANDS
SUMMARY OF EXPENDITURES AND REVENUES, 2001

	2001 FIR \$ (000's)
1 Expenditures	
1.01 General Government	-
1.02 Fire	666.2
1.03 Protective Inspection and Control	229.8
1.04 Other Protection	975.5
1.05 Roadways & Winter control	2,595.2
1.06 Parking, streetlighting & other	65.7
1.08 Sanitary Sewer System	428.1
1.10 Waterworks System	429.2
1.11 Waste collection	193.7
1.12 Waste disposal	484.1
1.13 Other Environmental Services	127.3
1.14 Cemeteries	63.9
1.15 Other Health Services	0.6
1.18 Parks & Recreation	713.4
1.19 Libraries	248.7
1.20 Cultural Services	35.2
1.21 Planning and Zoning	227.8
1.22 Commercial and Industrial	6.1
1.23 Electricity	776.6
Total	8,267.3
2 Revenue Fund Revenues	
2.01 Payments in lieu of taxes	54.4
2.02 Ontario unconditional grants (e.g. CRF)	2,043.0
2.03 Ontario conditional grants	287.5
2.04 Canada conditional grants	30.4
2.05 Revenue from other municipalities	35.6
2.06 User fees and service charges	1,763.5
2.07 Licenses and Permits	207.4
2.08 Rents, concessions and franchises	8.6
2.09 POA and other fines	0.2
2.10 Penalties and interest on taxes	182.4
2.11 Investment income-From own funds	-
2.12 Investment income-From other	53.3
2.13 Donations	41.7
2.14 Sales of publications, equipment, etc.	4.8
2.16 Contributions from non-consolidated entities	1.3
2.17 Contributions from capital fund	194.9
2.18 Contributions from reserves and reserve funds	32.8
2.19 Supplementary Taxes	63.9
2.25 Tax Adjustments	(31.1)
2.26 Surplus	446.6
Total Non-Tax Revenues	5,421.4
3 Net Expenditures (General Levy)	2,846.0

Sources: 2001 Financial Information Return

TABLE 2-4
TOWNSHIP OF WEST GREY
SUMMARY OF EXPENDITURES AND REVENUES, 2001

	2001 FIR \$ (000's)
1 Expenditures	
1.01 General Government	452.3
1.02 Fire	572.7
1.03 Protective Inspection and Control	108.7
1.04 Other Protection	1,497.1
1.05 Roadways & Winter control	3,361.8
1.06 Parking, streetlighting & other	100.6
1.08 Sanitary Sewer System	277.3
1.10 Waterworks System	517.7
1.11 Waste collection	164.8
1.12 Waste disposal	201.4
1.13 Other Environmental Services	65.7
1.14 Cemeteries	42.4
1.17 Other Social and Family Services	55.7
1.18 Parks & Recreation	669.2
1.19 Libraries	275.1
1.21 Planning and Zoning	108.5
1.22 Commercial and Industrial	20.7
Total	8,491.7
2 Revenue Fund Revenues	
2.01 Payments in lieu of taxes	53.2
2.02 Ontario unconditional grants (e.g. CRF)	2,092.0
2.03 Ontario conditional grants	505.5
2.04 Canada conditional grants	3.7
2.05 Revenue from other municipalities	3.5
2.06 User fees and service charges	1,284.7
2.07 Licenses and Permits	10.8
2.08 Rents, concessions and franchises	241.9
2.09 POA and other fines	25.3
2.10 Penalties and interest on taxes	152.3
2.11 Investment income-From own funds	-
2.12 Investment income-From other	70.0
2.13 Donations	7.7
2.14 Sales of publications, equipment, etc.	69.0
2.15 Contributions from non-consolidated entities	-
2.16 Contributions from capital fund	224.5
2.17 Contributions from reserves and reserve funds	79.5
2.18 Supplementary Taxes	46.8
2.19 Sewer and Water Service Charges	9.5
2.20 Waste management collection charges	12.0
2.21 Business improvement areas	0.3
2.22 Special Area Levy	1,001.9
2.23 Surplus	(123.5)
Total Non-Tax Revenues	5,770.7
3 Net Expenditures (General Levy)	2,721.0

Sources: 2001 Financial Information Return

**TABLE 2-5
COUNTY OF GREY
TAX RATE SUMMARY**

General Purpose Levy Information	General Levy	Taxable Assessment	Tax Rate
Residential (Full Occupied)	27,004,784	4,693,439,618	0.575373%
Multi-Residential (Full Occupied)	685,485	101,290,065	0.676754%
Commercial (Full Occupied)	2,727,913	424,907,204	0.642002%
Commercial (Excess Land)	41,159	9,158,110	0.449424%
Commercial (Vacant Land)	7,961	1,771,425	0.449424%
Industrial (Full Occupied)	681,074	77,144,720	0.828530%
Industrial (Excess Land)	20,227	3,524,624	0.573877%
Industrial (Vacant Land)	970	169,020	0.573877%
Pipeline (Full Occupied)	121,571	30,184,500	0.402761%
Farmland (Full Occupied)	866,333	602,277,095	0.143843%
Managed Forest (Full Occupied)	38,912	27,051,809	0.143843%
Residential / Farm (Awaiting Develop. Ph. I)	188	130,900	0.143843%
Total	32,196,577	5,971,049,090	

Sources: 2001 Financial Information Return

TABLE 2-6
TOWN OF GREY HIGHLANDS
TAX RATE SUMMARY

General Purpose Levy Information (Former Osprey Twp)	General Levy	Taxable Assessment	Tax Rate
Residential (Full Occupied)	597,232	121,614,731	0.491085%
Commercial (Full Occupied)	10,868	1,983,306	0.547953%
Commercial (Vacant Land)	250	65,050	0.383567%
Industrial (Full Occupied)	8,033	1,066,043	0.753521%
Farmland (Full Occupied)	48,125	39,198,775	0.122771%
Managed Forest (Full Occupied)	1,553	1,265,150	0.127710%
Total	666,061	165,193,055	

General Purpose Levy Information (Former Artemesia Twp)	General Levy	Taxable Assessment	Tax Rate
Residential (Full Occupied)	1,094,441	270,752,515	0.404222%
Commercial (Full Occupied)	47,845	10,607,930	0.451031%
Commercial (Excess Land)	113	35,680	0.315722%
Industrial (Full Occupied)	2,344	377,963	0.620238%
Industrial (Excess Land)	40	9,937	0.403155%
Industrial (Vacant Land)	60	14,800	0.403155%
Pipeline (Full Occupied)	1,938	685,000	0.282955%
Farmland (Full Occupied)	31,375	31,047,110	0.101055%
Managed Forest (Full Occupied)	1,560	1,543,640	0.101055%
Total	1,179,716	315,074,575	

Sources: 2001 Financial Information Return

TABLE 2-7
TOWNSHIP OF WEST GREY
TAX RATE SUMMARY

General Purpose Levy Information	General Levy	Taxable Assessment	Tax Rate
Residential (Full Occupied)	2,311,822	497,282,728	0.464919%
Residential / Farm (Awaiting Develop. Ph. I)	152	130,900	0.116230%
Multi-Residential (Full Occupied)	21,837	3,993,340	0.546837%
Farmland (Full Occupied)	151,673	130,493,894	0.116230%
Managed Forest (Full Occupied)	7,580	6,521,649	0.116230%
Commercial (Full Occupied)	130,640	25,183,369	0.518756%
Commercial (Excess Land)	35	9,620	0.363129%
Commercial (Vacant Land)	1,825	502,650	0.363129%
Industrial (Full Occupied)	33,866	4,747,373	0.713371%
Industrial (Excess Land)	44	9,569	0.463691%
Industrial (Vacant Land)	1,885	406,500	0.463691%
Large Industrial (Full Occupied)	38,864	5,447,868	0.713371%
Pipeline (Full Occupied)	20,727	6,369,000	0.325443%
Total	2,720,950	681,098,460	

Special Area (OPP) Levy Information	General Levy	Taxable Assessment	Tax Rate
Residential (Full Occupied)	515,783	415,923,778	0.124009%
Multi-Residential (Full Occupied)	2,062	1,414,000	0.145859%
Farmland (Full Occupied)	40,453	130,484,594	0.031002%
Residential / Farm (Awaiting Develop. Ph. I)	41	130,900	0.031002%
Multi-Residential (Full Occupied)	2,022	6,521,649	0.031002%
Commercial (Full Occupied)	21,329	15,414,374	0.138369%
Commercial (Excess Land)	9	9,620	0.096858%
Commercial (Vacant Land)	334	345,150	0.968580%
Large Industrial (Full Occupied)	8,118	4,266,454	0.190279%
Industrial (Full Occupied)	7,370	3,873,226	0.190279%
Industrial (Vacant Land)	503	406,500	0.123681%
Total	598,024	578,790,245	

TABLE 2-8
COUNTY OF GREY
SUMMARY OF NET OPERATING EXPENDITURES FOR 2001
\$(000's)

EXPENDITURE CATEGORY	TOTAL EXPENDITURE	Net Long Term Debt Charges	Own Fund Transfers	User Fees & Service Charges	NET OPERATING EXPENDITURE	Residential Share		Non-residential Share	
						%	\$(000's)	%	\$(000's)
1.01 General Government	1,256.9	-	1,256.6	12.7	(12.5)	80.00%	(10.0)	20.00%	(2.5)
1.02 Other Protection	1,600.8	-	153.7	8.8	1,438.3	72.25%	1,039.2	27.75%	399.1
1.03 Roadways & Winter control	12,345.4	-	4,760.9	642.2	6,942.2	72.25%	5,015.8	27.75%	1,926.4
1.04 Waste disposal	1.6	-	-	-	1.6	95.00%	1.5	5.00%	0.1
1.05 Other Health Services	7,789.2	-	1,396.3	71.1	6,321.8	72.25%	4,567.5	27.75%	1,754.2
1.06 Assistance to Aged Persons	13,701.9	-	505.0	4,716.3	8,480.6	100.00%	8,480.6	0.00%	-
1.07 Other Social and Family Services	27,572.7	-	636.2	3,297.8	23,638.6	100.00%	23,638.6	0.00%	-
1.08 Social Housing	9,858.1	1,063.4	1,515.1	77.2	7,202.4	100.00%	7,202.4	0.00%	-
1.09 Cultural Services	1,048.2	-	48.6	33.6	966.0	100.00%	966.0	0.00%	-
1.10 Planning and Zoning	690.1	-	66.4	423.7	200.0	72.25%	144.5	27.75%	55.5
1.11 Commercial and Industrial	206.7	-	-	6.2	200.5	0.00%	-	100.00%	200.5
Total	76,071.5	1,063.4	10,339.0	9,289.7	55,379.4		\$1,046.1		4,333.3

Sources: 2001 Financial Information Return

TABLE 2-9
TOWN OF GREY HIGHLANDS
SUMMARY OF NET OPERATING EXPENDITURES FOR 2001
\$(000's)

EXPENDITURE CATEGORY	TOTAL EXPENDITURE	Net Long Term Debt Charges	Own Fund Transfers	User Fees & Service Charges	NET OPERATING EXPENDITURE	Residential Share		Non-residential Share	
						%	\$(000's)	%	\$(000's)
1.01 General Government	-	-	-	56.4	(56.4)	80.00%	(45.2)	20.00%	(11.3)
1.02 Fire	666.2	-	147.2	128.1	390.8	73.56%	287.5	26.44%	103.3
1.03 Protective Inspection and Control	229.8	-	-	42.0	187.8	73.56%	138.2	26.44%	49.7
1.04 Other Protection	975.5	-	115.2	2.9	857.4	73.56%	630.8	26.44%	226.7
1.05 Roadways & Winter control	2,595.2	-	405.3	3.1	2,186.9	73.56%	1,608.7	26.44%	578.2
1.06 Parking, streetlighting & other	65.7	-	-	-	65.7	73.56%	48.4	26.44%	17.4
1.08 Sanitary Sewer System	428.1	69.7	5.5	333.9	19.1	73.56%	14.0	26.44%	5.0
1.10 Waterworks System	429.2	97.8	-	466.9	(135.5)	73.56%	(99.7)	26.44%	(35.8)
1.11 Waste collection	193.7	-	-	3.3	190.4	95.00%	180.9	5.00%	9.5
1.12 Waste disposal	484.1	-	1.0	169.9	313.2	95.00%	297.5	5.00%	15.7
1.13 Other Environmental Services	127.3	-	-	1.1	126.2	73.56%	92.9	26.44%	33.4
1.14 Cemeteries	63.9	-	-	20.4	43.5	100.00%	43.5	0.00%	-
1.15 Other Health Services	0.6	-	-	-	0.6	73.56%	0.4	26.44%	0.2
1.18 Parks & Recreation	713.4	-	26.2	469.7	217.5	95.00%	206.6	5.00%	10.9
1.19 Libraries	248.7	-	0.6	6.0	242.0	95.00%	229.9	5.00%	12.1
1.20 Cultural Services	35.2	-	-	3.5	31.7	95.00%	30.1	5.00%	1.6
1.21 Planning and Zoning	227.8	6.2	-	56.0	165.6	73.56%	121.8	26.44%	43.8
1.22 Commercial and Industrial	6.1	-	-	0.3	5.9	0.00%	-	100.00%	5.9
1.23 Electricity	776.6	-	776.6	-	0.0		n/a		n/a
Total	8,267.3	173.7	1,477.6	1,763.5	4,852.5		3,786.4		1,066.1

Sources: 2001 Financial Information Return

TABLE 2-10
TOWNSHIP OF WEST GREY
SUMMARY OF NET OPERATING EXPENDITURES FOR 2001
\$(000's)

EXPENDITURE CATEGORY	TOTAL EXPENDITURE	Net Long Term Debt Charges	Own Fund Transfers	User Fees & Service Charges	NET OPERATING EXPENDITURE	Residential Share		Non-residential Share	
						%	\$(000's)	%	\$(000's)
1.01 General Government	452.3	-	452.3	49.1	(49.1)	80.00%	(39.2)	20.00%	(9.8)
1.02 Fire	572.7	-	164.6	2.6	405.4	69.92%	283.5	30.08%	121.9
1.03 Protective Inspection and Control	108.7	-	-	142.6	(33.9)	69.92%	(23.7)	30.08%	(10.2)
1.04 Other Protection	1,497.1	-	45.0	2.3	1,449.8	69.92%	1,013.8	30.08%	436.0
1.05 Roadways & Winter control	3,361.8	-	1,042.3	103.2	2,216.3	69.92%	1,549.8	30.08%	666.6
1.06 Parking, streetlighting & other	100.6	-	2.0	30.2	68.4	69.92%	47.9	30.08%	20.6
1.08 Sanitary Sewer System	277.3	-	79.4	257.5	(59.5)	69.92%	(41.6)	30.08%	(17.9)
1.10 Waterworks System	517.7	148.8	150.7	305.1	(86.9)	69.92%	(60.8)	30.08%	(26.1)
1.11 Waste collection	164.8	-	5.0	93.1	66.7	95.00%	63.3	5.00%	3.3
1.12 Waste disposal	201.4	-	-	-	201.4	95.00%	191.4	5.00%	10.1
1.13 Other Environmental Services	66.7	-	-	-	65.7	69.92%	45.9	30.08%	19.8
1.14 Cemeteries	42.4	-	1.4	30.7	10.3	100.00%	10.3	0.00%	-
1.17 Other Social and Family Services	55.7	-	25.4	-	30.3	100.00%	30.3	0.00%	-
1.18 Parks & Recreation	669.2	-	56.9	145.1	467.2	95.00%	443.8	5.00%	23.4
1.19 Libraries	275.1	-	5.7	81.3	188.1	95.00%	178.7	5.00%	9.4
1.21 Planning and Zoning	108.5	3.8	-	39.2	65.5	69.92%	45.8	30.08%	19.7
1.22 Commercial and Industrial	20.7	-	-	2.7	17.9	0.00%	-	100.00%	17.9
Total	8,491.7	152.5	2,030.6	1,284.7	5,023.7		3,739.1		1,284.7

Sources: 2001 Financial Information Return

TABLE 2-11
COUNTY OF GREY
OUTLINE OF BASIS FOR NON-TAX RATE REVENUE IMPACT ASSUMPTIONS

REVENUE CATEGORY	TOTAL REVENUES \$(000's)	Residential Share (%)	\$ (000's)	Non-Res. Share (%)	\$(000's)
1 Payments in lieu of taxes	629.5	72.25%	454.8	27.75%	174.7
2 Ontario unconditional grants (e.g. CRF)	748.0	72.25%	540.4	27.75%	207.6
3 Ontario conditional grants	23,940.5	72.25%	17,297.2	27.75%	6,643.3
4 Canada conditional grants	1,985.6	72.25%	1,434.6	27.75%	551.0
5 Revenue from other municipalities	470.3	72.25%	339.8	27.75%	130.5
6 User fees and service charges	9,289.7	72.25%	6,711.9	27.75%	2,577.8
7 Rents, concessions and franchises	3,986.1	72.25%	2,880.0	27.75%	1,106.1
8 POA and other fines	1,480.7	72.25%	1,069.8	27.75%	410.9
9 Penalties and interest on taxes	2.7	72.25%	1.9	27.75%	0.7
10 Investment income-From own funds	-	72.25%	-	27.75%	-
11 Investment income-From other	429.6	72.25%	310.4	27.75%	119.2
12 Donations	29.8	72.25%	21.6	27.75%	8.3
13 Sales of publications, equipment, etc.	12.7	72.25%	9.2	27.75%	3.5
14 Proceeds from Insurance	400.4	72.25%	289.3	27.75%	111.1
15 Contributions from non-consolidated entities	-	72.25%	-	27.75%	-
16 Contributions from capital fund	-	72.25%	-	27.75%	-
17 Contributions from reserves and reserve funds	112.4	72.25%	81.2	27.75%	31.2
18 Supplementary Taxes	524.8	72.25%	379.1	27.75%	145.6
19 Upper Tier Entitlement from Lower Tiers	(348.3)	72.25%	(251.6)	27.75%	(96.6)
20 Surplus	180.4	72.25%	130.4	27.75%	50.1
GRAND TOTAL REVENUES	43,874.9		31,700.0		12,174.9

Sources: 2001 Financial Information Return

TABLE 2-12
TOWN OF GREY HIGHLANDS
OUTLINE OF BASIS FOR NON-TAX RATE REVENUE IMPACT ASSUMPTIONS

REVENUE CATEGORY	TOTAL REVENUES \$(000's)	Residential Share (%)	\$ (000's)	Non-Res. Share (%)	\$(000's)
1 Payments in lieu of taxes	54.4	73.56%	40.0	26.44%	14.4
2 Ontario unconditional grants (e.g. CRF)	2,043.0	73.56%	1,502.9	26.44%	540.1
3 Ontario conditional grants	287.5	73.56%	211.5	26.44%	76.0
4 Canada conditional grants	30.4	73.56%	22.4	26.44%	8.0
5 Revenue from other municipalities	35.6	73.56%	26.2	26.44%	9.4
6 User fees and service charges	1,763.5	73.56%	1,297.3	26.44%	466.2
7 Licenses and Permits	207.4	73.56%	152.6	26.44%	54.8
8 Rents, concessions and franchises	8.6	73.56%	6.3	26.44%	2.3
9 POA and other fines	0.2	73.56%	0.2	26.44%	0.1
10 Penalties and interest on taxes	182.4	73.56%	134.2	26.44%	48.2
11 Investment income-From own funds	-	73.56%	-	26.44%	-
12 Investment income-From other	53.3	73.56%	39.2	26.44%	14.1
13 Donations	41.7	73.56%	30.7	26.44%	11.0
14 Sales of publications, equipment, etc.	4.8	73.56%	3.5	26.44%	1.3
16 Contributions from non-consolidated entities	1.3	73.56%	1.0	26.44%	0.3
17 Contributions from capital fund	194.9	73.56%	143.4	26.44%	51.5
18 Contributions from reserves and reserve funds	32.8	73.56%	24.1	26.44%	8.7
19 Supplementary Taxes	63.9	73.56%	47.0	26.44%	16.9
20 Tax Adjustments	(31.1)	73.56%	(22.9)	26.44%	-
21 Surplus	446.6	73.56%	328.5	26.44%	118.1
GRAND TOTAL REVENUES	5,421.4		3,988.1		1,433.3

Sources: 2001 Financial Information Return

TABLE 2-13
TOWNSHIP OF WEST GREY
OUTLINE OF BASIS FOR NON-TAX RATE REVENUE IMPACT ASSUMPTIONS

REVENUE CATEGORY	TOTAL REVENUES \$(000's)	Residential Share (%)	\$ (000's)	Non-Res. Share (%)	\$(000's)
1 Payments in lieu of taxes	53.2	69.92%	37.2	30.08%	16.0
2 Ontario unconditional grants (e.g. CRF)	2,092.0	69.92%	1,462.8	30.08%	629.2
3 Ontario conditional grants	505.5	69.92%	353.5	30.08%	152.0
4 Canada conditional grants	3.7	69.92%	2.6	30.08%	1.1
5 Revenue from other municipalities	3.5	69.92%	2.4	30.08%	1.1
6 User fees and service charges	1,284.7	69.92%	898.4	30.08%	386.4
7 Licenses and Permits	10.8	69.92%	7.5	30.08%	3.2
8 Rents, concessions and franchises	241.9	69.92%	169.2	30.08%	72.8
9 POA and other fines	25.3	69.92%	17.7	30.08%	7.6
10 Penalties and interest on taxes	152.3	69.92%	106.5	30.08%	45.8
11 Investment income-From own funds	-	69.92%	-	30.08%	-
12 Investment income-From other	70.0	69.92%	49.0	30.08%	21.1
13 Donations	7.7	69.92%	5.4	30.08%	2.3
14 Sales of publications, equipment, etc.	69.0	69.92%	48.2	30.08%	20.8
15 Contributions from non-consolidated entities	-	69.92%	-	30.08%	-
16 Contributions from capital fund	224.5	69.92%	157.0	30.08%	67.5
17 Contributions from reserves and reserve funds	79.5	69.92%	55.6	30.08%	23.9
18 Supplementary Taxes	46.8	69.92%	32.7	30.08%	14.1
19 Sewer and Water Service Charges	9.5	69.92%	6.6	30.08%	2.9
20 Waste management collection charges	12.0	69.92%	8.4	30.08%	3.6
21 Business improvement areas	0.3	69.92%	0.2	30.08%	0.1
22 Special Area Levy	1,001.9	69.92%	700.6	30.08%	301.3
23 Surplus	(123.5)	69.92%	(86.4)	30.08%	(37.2)
GRAND TOTAL REVENUES	5,770.7		4,035.1		1,735.6

Sources: 2001 Financial Information Return

Table 2-14
Grey County
EXAMPLE FORMAT-Fiscal Impact Summary for Grey County Aggregate Operations

Financial Component		1 Large Aggregate Operation	2 Medium Aggregate Operation	3 Small Aggregate Operation	Total
<u>Operating Expenditures</u>					
	Occupancy	1	1	1	
	X LT \$ /employee				
	X UT\$ /employee				
Sub-Total					
Capital Spending from Current Budget					
25% of other operating expenditures		\$ -	\$ -	\$ -	
ANNUAL EXPENDITURES per employee		\$ -	\$ -	\$ -	
EMPLOYEES					
TOTAL ANNUAL EXPENDITURE INCREASE		\$ -	\$ -	\$ -	
Operating Revenues					
2003 Property Taxes/Acre	LT				
	UT				
Acres					
2003 Property Tax Revenue Increase	LT	\$ -	\$ -	\$ -	
	UT	\$ -	\$ -	\$ -	
License Fee ¹	LT				
	UT				
Non-Tax Revenue		1	1	1	
	Occupancy				
	X LT \$ /employee				
	X UT\$ /employee				
EMPLOYEES					
ANNUAL NON-TAX REVENUES INCREASE		\$ -	\$ -	\$ -	
TOTAL ANNUAL REVENUE INCREASE		\$ -	\$ -	\$ -	
TOTAL ANNUAL OPERATING SURPLUS		\$ -	\$ -	\$ -	\$ -

¹ Licence fee is calculated as \$0.04/extracted tonne for LT and \$0.005/extracted tonne for UT

Large	extracted tonnes	X	\$	0.04	=	\$	X	\$	0.005	=	\$	UT
Medium	extracted tonnes	X	\$	0.04	=	\$	X	\$	0.005	=	\$	
Small	extracted tonnes	X	\$	0.04	=	\$	X	\$	0.005	=	\$	

TABLE 2-15
COUNTY OF GREY
OUTLINE OF BASIS FOR NET OPERATING EXPENDITURE IMPACT ASSUMPTIONS

	Expenditure Item	Net 2001 Expenditure 000's \$		Basis for Potential Impact	Expenditure Per	
		Residential	Non-Resid.		Capita	Employee
1.01	General Government	(10.0)	(2.5)	50% cost attribution to provide for gradual increases over time in response to increases in volume and complexity. The County's long term administrative apparatus is largely in place.	(0.06)	(0.04)
1.02	Other Protection	1,039.2	399.1	90% attribution to maintain the existing per capita relationship, subject to limited potential for economies of scale.	10.50	10.50
1.03	Roadways & Winter control	5,015.8	1,926.4	The cost of maintaining the County of Grey's road network is largely unaffected by new development, beyond the addition of local and collector streets. 50% attribution.	28.16	28.16
1.04	Waste disposal	1.5	0.1	100% cost attribution. Limited potential for economies of scale.	0.02	0.00
1.05	Other Health Services	4,567.5	1,754.2	50% cost attribution	25.64	25.64
1.06	Assistance to Aged Persons	8,480.6	-	50% cost attribution	47.60	-
1.07	Other Social and Family Services	23,638.6	-	50% cost attribution	132.69	-
1.08	Social Housing	7,202.4	-	50% cost attribution	40.43	-
1.09	Cultural Services	966.0	-	100% cost attribution to maintain per capita service.	10.85	-
1.10	Planning and Zoning	144.5	55.5	75% cost attribution to reflect the fact that the County's planning organization is largely in place and is geared to accommodate a significant rate of development.	1.22	1.22
1.11	Commercial and Industrial	-	200.5	100% cost attribution. Residential growth begets the need to attract Commercial and Industrial development, but the expenditure is attributed to ICI.	-	5.86
Total Expenditures		51,046.1	4,333.3		297.04	71.34

Source: 2001 Financial Information Return

2001 Population
2001 Estimated Employment

89,073
34,210

TABLE 2-16
TOWN OF GREY HIGHLANDS
OUTLINE OF BASIS FOR NET OPERATING EXPENDITURE IMPACT ASSUMPTIONS

	Expenditure Item	Net 2001 Expenditure 000's \$		Basis for Potential Impact	Expenditure Per	
		Residential	Non-Resid.		Capita	Employee
1.01	General Government	(45.2)	(11.3)	50% cost attribution to provide for gradual increases over time in response to increases in volume and complexity. The Town's long term administrative apparatus is largely in place.	(2.46)	(1.71)
1.02	Fire	287.5	103.3	75% cost attribution to provide for additional fire safety, administration and truck costs & proportionately reduced incidence of new station requirement.	23.45	23.45
1.03	Protective Inspection and Control	138.2	49.7	90% attribution to maintain the existing per capita relationship, subject to limited potential for economies of scale.	13.52	13.52
1.04	Other Protection	630.8	226.7	90% attribution to maintain the existing per capita relationship, subject to limited potential for economies of scale.	61.73	61.73
1.05	Roadways & Winter control	1,608.7	578.2	The cost of maintaining Grey Highlands road network is largely unaffected by new development, beyond the addition of local and collector streets. 50% attribution.	87.47	87.47
1.06	Parking, streetlighting & other	48.4	17.4	50% cost attribution, consistent with roadways	2.63	2.63
1.08	Sanitary Sewer System	14.0	5.0	n/a	-	-
1.10	Waterworks System	(99.7)	(35.8)	n/a	-	-
1.11	Waste collection	180.9	9.5	100% cost attribution. Limited potential for economies of scale.	19.67	2.88
1.12	Waste disposal	297.5	15.7	100% cost attribution. Limited potential for economies of scale.	32.36	4.74

TABLE 2-16
TOWN OF GREY HIGHLANDS
OUTLINE OF BASIS FOR NET OPERATING EXPENDITURE IMPACT ASSUMPTIONS

	Expenditure Item	Net 2001 Expenditure 000's \$		Basis for Potential Impact	Expenditure Per	
		Residential	Non-Resid.		Capita	Employee
1.13	Other Environmental Services	92.9	33.4	100% cost attribution. Limited potential for economies of scale.	10.10	10.10
1.14	Cemeteries	43.5	-	Service is self-financing. No net expenditure impact of development. (Perpetual care?)	-	-
1.15	Other Health Services	0.4	0.2	75% cost attribution to reflect housing market orientation to young/middle aged home-owners.	0.04	0.04
1.18	Parks & Recreation	206.6	10.9	90% cost attribution to reflect minor administrative and existing facility economies.	20.22	2.96
1.19	Libraries	229.9	12.1	90% cost attribution to reflect minor administrative and existing facility economies.	22.50	3.30
1.20	Cultural Services	30.1	1.6	100% cost attribution to maintain per capita service.	3.28	0.48
1.21	Planning and Zoning	121.8	43.8	75% cost attribution to reflect the fact that the Town's planning organization is largely in place and is geared to accommodate a significant rate of development.	9.94	9.94
1.22	Commercial and Industrial	-	5.9	100% cost attribution. Residential growth begets the need to attract Commercial and Industrial development, but the expenditure is attributed to ICI.	-	1.78
1.23	Electricity	n/a	n/a	N/a	-	-
	Total Expenditures	3,786.4	1,066.1		304.44	223.30

2001 Population 9,196
2001 Estimated Employment 3,306

Source: 2001 Financial Information Return

TABLE 2-17
TOWNSHIP OF WEST GREY
OUTLINE OF BASIS FOR NET OPERATING EXPENDITURE IMPACT ASSUMPTIONS

	Expenditure Item	Net 2001 Expenditure 000's \$		Basis for Potential Impact	Expenditure Per	
		Residential	Non-Resid.		Capita	Employee
1.01	General Government	(39.2)	(9.8)	50% cost attribution to provide for gradual increases over time in response to increases in volume and complexity. The Township's long term administrative apparatus is largely in place.	(1.67)	(0.97)
1.02	Fire	283.5	121.9	75% cost attribution to provide for additional fire safety, administration and truck costs & proportionately reduced incidence of new station requirement.	18.11	18.11
1.03	Protective Inspection and Control	(23.7)	(10.2)	90% attribution to maintain the existing per capita relationship, subject to limited potential for economies of scale.	(1.82)	(1.82)
1.04	Other Protection	1,013.8	436.0	90% attribution to maintain the existing per capita relationship, subject to limited potential for economies of scale.	77.71	77.71
1.05	Roadways & Winter control	1,549.8	666.6	The cost of maintaining West Grey's road network is largely unaffected by new development, beyond the addition of local and collector streets. 50% attribution.	66.00	66.00
1.06	Parking, streetlighting & other	47.9	20.6	50% cost attribution, consistent with roadways	2.04	2.04
1.08	Sanitary Sewer System	(41.6)	(17.9)	100% cost attribution. Limited potential for economies of scale.	(3.54)	(3.54)
1.10	Waterworks System	(60.8)	(26.1)	100% cost attribution. Limited potential for economies of scale.	(5.18)	(5.18)
1.11	Waste collection	63.3	3.3	100% cost attribution. Limited potential for economies of scale.	5.40	0.66

TABLE 2-17
TOWNSHIP OF WEST GREY
OUTLINE OF BASIS FOR NET OPERATING EXPENDITURE IMPACT ASSUMPTIONS

	Expenditure Item	Net 2001 Expenditure 000's \$		Basis for Potential Impact	Expenditure Per	
		Residential	Non-Resid.		Capita	Employee
1.12	Waste disposal	191.4	10.1	100% cost attribution. Limited potential for economies of scale.	16.30	1.99
1.13	Other Environmental Services	45.9	19.8	100% cost attribution. Limited potential for economies of scale.	3.91	3.91
1.14	Cemeteries	10.3	-	Service is self-financing. No net expenditure impact of development. (Perpetual care?)	-	-
1.17	Other Social and Family Services	30.3	-	75% cost attribution to reflect housing market orientation to young/middle aged home-owners.	1.93	-
1.18	Parks & Recreation	443.8	23.4	90% cost attribution to reflect minor administrative and existing facility economies.	34.02	4.16
1.19	Libraries	178.7	9.4	90% cost attribution to reflect minor administrative and existing facility economies.	13.70	1.68
1.21	Planning and Zoning	45.8	19.7	75% cost attribution to reflect the fact that the Township's planning organization is largely in place and is geared to accommodate a significant rate of development.	2.93	2.93
1.22	Commercial and Industrial	-	17.9	100% cost attribution. Residential growth begets the need to attract Commercial and Industrial development, but the expenditure is attributed to ICI.	-	3.55
Total Expenditures		3,739.1	1,284.7		229.83	171.23

2001 Population
2001 Estimated Employment

11,741
5,050

Source: 2001 Financial Information Return

TABLE 2-18
COUNTY OF GREY
OUTLINE OF BASIS FOR NET REVENUE IMPACT ASSUMPTIONS

	Revenue Item	Net 2001 Revenue 000's \$		Basis for Potential Impact	Revenue Per	
		Residential	Non-Resid.		Capita	Employee
1	Payments in lieu of taxes	454.8	174.7	No impact anticipated.	-	-
2	Ontario unconditional grants (e.g. CRF)	540.4	207.6	No impact anticipated.	-	-
3	Ontario conditional grants	17,297.2	6,643.3	No impact anticipated.	-	-
4	Canada conditional grants	1,434.6	551.0	No impact anticipated.	-	-
5	Revenue from other municipalities	339.8	130.5	No impact anticipated.	-	-
6	User fees and service charges	6,711.9	2,577.8	Netted in Table 3-2.	-	-
7	Rents, concessions and franchises	2,880.0	1,106.1	Expected to increase in direct proportion to growth.	32.33	32.33
8	POA and other fines	1,069.8	410.9	Expected to increase in direct proportion to growth.	12.01	12.01
9	Penalties and interest on taxes	1.9	0.7	Expected to increase in direct proportion to growth.	0.02	0.02
10	Investment income-From own funds	-	-	n/a	-	-
11	Investment income-From other	310.4	119.2	No impact anticipated.	-	-
12	Donations	21.6	8.3	Expected to increase in direct proportion to growth.	0.24	0.24
13	Sales of publications, equipment, etc.	9.2	3.5	Expected to increase in direct proportion to growth.	0.10	0.10
14	Proceeds from Insurance	289.3	111.1	Expected to increase in direct proportion to growth.	3.25	3.25
15	Contributions from non-consolidated entities	-	-	n/a	-	-

TABLE 2-18
COUNTY OF GREY
OUTLINE OF BASIS FOR NET REVENUE IMPACT ASSUMPTIONS

	Revenue Item	Net 2001 Revenue 000's \$		Basis for Potential Impact	Revenue Per	
		Residential	Non-Resid.		Capita	Employee
16	Contributions from capital fund	-	-	n/a	-	-
17	Contributions from reserves and reserve funds	81.2	31.2	No impact anticipated.	-	-
18	Supplementary Taxes	379.1	145.6	N/a. Full tax increase included elsewhere.	-	-
19	Upper Tier Entitlement from Lower Tiers	(251.6)	(96.6)	Expected to increase in direct proportion to growth.	(2.82)	(2.82)
20	Surplus	130.4	50.1	No impact anticipated.	-	-
TOTAL		31,700.0	12,174.9		45.13	45.13

2001 Population 89,073
2001 Estimated Employment 34,210

Source: 2001 Financial Information Return

TABLE 2-19
TOWN OF GREY HIGHLANDS
OUTLINE OF BASIS FOR NET REVENUE IMPACT ASSUMPTIONS

	Revenue Item	Net 2001 Revenue 000's \$		Basis for Potential Impact	Revenue Per	
		Residential	Non-Resid.		Capita	Employee
1	Payments in lieu of taxes	40.0	14.4	No impact anticipated.	-	-
2	Ontario unconditional grants (e.g. CRF)	1,502.9	540.1	No impact anticipated.	-	-
3	Ontario conditional grants	211.5	76.0	No impact anticipated.	-	-
4	Canada conditional grants	22.4	8.0	No impact anticipated.	-	-
5	Revenue from other municipalities	26.2	9.4	No impact anticipated.	-	-
6	User fees and service charges	1,297.3	466.2	Netted in Table 3-2.	-	-
7	Licenses and Permits	152.6	54.8	Expected to increase in direct proportion to growth.	16.59	16.59
8	Rents, concessions and franchises	6.3	2.3	Expected to increase in direct proportion to growth.	0.69	0.69
9	POA and other fines	0.2	0.1	Expected to increase in direct proportion to growth.	0.02	0.02
10	Penalties and interest on taxes	134.2	48.2	Expected to increase in direct proportion to growth.	14.59	14.59
11	Investment income-From own funds	-	-	n/a	-	-
12	Investment income-From other	39.2	14.1	Primarily interest earnings. Limited impact anticipated.	-	-
13	Donations	30.7	11.0	Expected to increase in direct proportion to growth.	3.34	3.34
14	Sales of publications, equipment, etc.	3.5	1.3	Expected to increase in direct proportion to growth.	0.38	0.38
16	Contributions from non-consolidated entities	1.0	0.3	No impact anticipated.	-	-
17	Contributions from capital fund	143.4	51.5	No impact anticipated.	-	-

TABLE 2-19
TOWN OF GREY HIGHLANDS
OUTLINE OF BASIS FOR NET REVENUE IMPACT ASSUMPTIONS

	Revenue Item	Net 2001 Revenue 000's \$		Basis for Potential Impact	Revenue Per	
		Residential	Non-Resid.		Capita	Employee
18	Contributions from reserves and reserve funds	24.1	8.7	No impact anticipated.	-	-
19	Supplementary Taxes	47.0	16.9	N/a. Full tax increase included elsewhere.	-	-
20	Tax Adjustments	(22.9)	(8.2)	Expected to increase in direct proportion to growth.	(2.49)	(2.49)
21	Surplus	328.5	118.1	No impact anticipated.	-	-
TOTAL		3,988.1	1,433.3		33.12	33.12

2001 Population
2001 Estimated Employment

9,196
3,305

Source: 2001 Financial Information Return

TABLE 2-20
TOWNSHIP OF WEST GREY
OUTLINE OF BASIS FOR NET REVENUE IMPACT ASSUMPTIONS

	Revenue Item	Net 2001 Revenue 000's \$		Basis for Potential Impact	Revenue Per	
		Residential	Non-Resid.		Capita	Employee
1	Payments in lieu of taxes	37.2	16.0	No impact anticipated.	-	-
2	Ontario unconditional grants (e.g. CRF)	1,462.8	629.2	No impact anticipated.	-	-
3	Ontario conditional grants	353.5	152.0	No impact anticipated.	-	-
4	Canada conditional grants	2.6	1.1	No impact anticipated.	-	-
5	Revenue from other municipalities	2.4	1.1	No impact anticipated.	-	-
6	User fees and service charges	898.4	386.4	Netted in Table 3-2.	-	-
7	Licenses and Permits	7.5	3.2	Expected to increase in direct proportion to growth.	0.64	0.64
8	Rents, concessions and franchises	169.2	72.8	Expected to increase in direct proportion to growth.	14.41	14.41
9	POA and other fines	17.7	7.6	Expected to increase in direct proportion to growth.	1.51	1.51
10	Penalties and interest on taxes	106.5	45.8	Expected to increase in direct proportion to growth.	9.07	9.07
11	Investment income-From own funds	-	-	n/a	-	-
12	Investment income-From other	49.0	21.1	No impact anticipated.	-	-
13	Donations	5.4	2.3	Expected to increase in direct proportion to growth.	0.46	0.46
14	Sales of publications, equipment, etc.	48.2	20.8	Expected to increase in direct proportion to growth.	4.11	4.11

TABLE 2-20
TOWNSHIP OF WEST GREY
OUTLINE OF BASIS FOR NET REVENUE IMPACT ASSUMPTIONS

	Revenue Item	Net 2001 Revenue 000's \$		Basis for Potential Impact	Revenue Per	
		Residential	Non-Resid.		Capita	Employee
15	Contributions from non-consolidated entities	-	-	n/a	-	-
16	Contributions from capital fund	157.0	67.5	No impact anticipated.	-	-
17	Contributions from reserves and reserve funds	55.6	23.9	No impact anticipated.	-	-
18	Supplementary Taxes	32.7	14.1	N/a. Full tax increase included elsewhere.	-	-
19	Sewer and Water Service Charges	6.6	2.9	No impact anticipated.	-	-
20	Waste management collection charges	8.4	3.6	Included in the Tax Rate	-	-
21	Business improvement areas	0.2	0.1	Expected to increase in direct proportion to growth.	0.01	0.01
22	Special Area Levy	700.6	301.3	No impact anticipated.	-	-
23	Surplus	(86.4)	(37.2)	No impact anticipated.	-	-
TOTAL		4,035.1	1,735.6		30.21	30.21

2001 Population
2001 Estimated Employment

11,741
5,050

Source: 2001 Financial Information Return

Table 2-21
Grey County
Fiscal Impact Summary for Grey County Aggregate Operations

Financial Component		1 Large Aggregate Operation West Grey	2 Medium Aggregate Operation Grey Highlands	3 Small Aggregate Operation Grey Highlands	Total
Operating Expenditures					
	Occupancy	1	1	1	
	X LT \$ /employee	\$ 171.23	\$ 223.30	\$ 223.30	
	X UT\$ /employee	\$ 71.34	\$ 71.34	\$ 71.34	
Sub-Total		\$ 242.57	\$ 294.64	\$ 294.64	
Capital Spending from Current Budget					
25% of other operating expenditures		\$ 60.64	\$ 73.66	\$ 73.66	
ANNUAL EXPENDITURES per employee		\$ 303.21	\$ 368.30	\$ 368.30	
EMPLOYEES		6.00	1.00	2.25	
TOTAL ANNUAL EXPENDITURE INCREASE		\$ 1,819.25	\$ 368.30	\$ 828.67	
Operating Revenues					
2003 Property Taxes/Acre	LT \$	8.75	\$ 1.87	\$ 1.43	
	UT \$	8.55	\$ 2.57	\$ 1.68	
Sub-Total	\$	17.29	\$ 4.44	\$ 3.11	
Acres		261.30	59.00	95.00	
2003 Property Tax Revenue Increase	\$	4,518.74	\$ 261.69	\$ 295.14	
License Fee ¹	LT \$	4,800.00	\$ 1,800.00	\$ 800.00	
	UT \$	600.00	\$ 225.00	\$ 100.00	
Non-Tax Revenue	Occupancy	1	1	1	
	X LT \$ /employee	\$ 30.21	\$ 33.12	\$ 33.12	
	X UT\$ /employee	\$ 45.13	\$ 45.13	\$ 45.13	
EMPLOYEES		6.00	1.00	2.25	
ANNUAL NON-TAX REVENUES INCREASE	\$	452.08	\$ 78.26	\$ 176.08	
TOTAL ANNUAL REVENUE INCREASE	\$	10,370.82	\$ 2,364.95	\$ 1,371.22	
TOTAL ANNUAL OPERATING SURPLUS	\$	8,551.57	\$ 1,996.65	\$ 542.55	\$ 11,090.78

¹ Licence fee is calculated as \$0.04/extracted tonne for LT and \$0.005/extracted tonne for UT

Large	120,000	extracted tonnes	X	\$	0.04	=	LT	\$	4,800.00
Medium	45,000	extracted tonnes	X	\$	0.04	=		\$	1,800.00
Small	20,000	extracted tonnes	X	\$	0.04	=		\$	800.00
Large	120,000	extracted tonnes	X	\$	0.005	=	UT	\$	600.00
Medium	45,000	extracted tonnes	X	\$	0.005	=		\$	225.00
Small	20,000	extracted tonnes	X	\$	0.005	=		\$	100.00

3. ROLE OF THE AGGREGATE INDUSTRY IN THE LOCAL ECONOMY

3. ROLE OF THE AGGREGATE INDUSTRY IN THE LOCAL ECONOMY

3.1 Overview of the Local Economy of Grey County

The County of Grey is located in Southern Ontario and extends north to The Georgian Bay shore. It has a land area of 4,426 square kilometres and a 2001 population of 89,000 persons. Agricultural and tourism are two important components of the local economy. Data from the County's website indicates that there are over 3,100 farms in the County encompassing an area of 4,426 acres.

Table 3-1 provides a disaggregation of employment in Grey County by industry division for 1995, the most recent year available. In 1995, there were 34,860 persons working at establishments in the County. As is evident, the largest employment sector was in the Accommodation, Food and Other Services sector (19%). Manufacturing businesses accounted for the next largest share of employment with 16% of the total jobs provided. Primary industries, which include agriculture, forestry, mining (including quarries), and fishing, provided 4,080 jobs or 12% of total employment in the County.

3.2 Employment in the Aggregate Industry

The aggregate industry provides basic employment in the County of Grey. Basic employment is defined as employment that exists independent of the population. Non-basic employment is associated with businesses and service operations that rely on basic industry and or the population. This includes retail and food establishments, business service operations (accounting, office supplies, transportation and utilities, etc.) institutions such as schools and hospitals; and government operations. Basic employment provides the backbone to the economy of an area.

Table 3-1
Employment in Grey County
By Industry Division
1995

	Employment	
	#	%
Primary Industries	4,080	12
Manufacturing	5,415	16
Construction	1,175	3
Trans., Storage, Communication/ Other Utilities	1,720	5
Wholesale	1,035	3
Retail	5,285	15
Finance, Insurance, Real Estate	1,605	5
Business Services	1,110	3
Government Services	1,475	4
Education, Health, Social Services	6,600	19
Accommodation, Food and Other Service Industries	5,360	15
Total	34,860	100

Source: Employment data - 1996 Census

Notes:

1. Primary industries include agriculture, forestry, fishing, trapping and mining (quarries).
2. Basic employment is employment at businesses that are largely independent of the local population.

Employment in the aggregate industry is created as a result of both the extraction and processing of aggregates. As indicated in Chapter 2, there are approximately 120 licensed aggregate operations in Grey County. Specific Information is not available regarding the employment associated with this activity; however, it can be derived from the findings of the case study analysis. Each of the case study operations were asked about the level of employment associated with the aggregate extraction component of their operation. As the level of employment fluctuated throughout the year, the number of jobs was converted to full time equivalent (FTE) positions. The total FTE employment at the case study operations was 9.25 persons excluding persons employed in aggregate processing (discussed separately). These operations extracted a total of 185,000 tonnes of aggregate in 2002 or an average of 20,000 tonnes per employee (FTE)

Aggregate extraction in 2001 in Grey County was 2,571,000 tonnes. The factor of 1 FTE job per 20,000 tonnes can be applied to this tonnage to estimate employment. On this basis, it is estimated that 130 FTE jobs were associated with aggregate extraction in Grey County in 2001. Caution should be exercised in using this factor as it results in higher employment numbers than that derived from other sources such as provincial averages. This may be in part a function of the size of the operations included in the case study analysis. Larger producers extracting annual tonnages in excess of 1 million operate with much higher tonnages per employee. Therefore, a different factor should be applied to any large scale operation that may be established in the County.

The 130 jobs referenced above include only persons involved in extraction including support and administration staff. Aggregate processing is another important component of the aggregate industry. Processing activities include concrete and asphalt plants as well as manufactures involved in the production of brick and stone products. In order to estimate the employment involved, aggregate processing establishments in Grey County were identified using Scott's Industrial Directory. This source also provides data regarding employment. Industries were identified by Standard Industrial Classification (SIC) codes. These codes are used to classify businesses according to the products produced. The SIC codes searched include:

- concrete block and brick;
- ready-mix concrete,
- other concrete products,

- cut stone and stone,
- limestone products,
- gypsum products,
- stone and stone products;
- brick and structural clay tile;
- ceramic wall and floor tile;
- hydraulic cement; and,
- asphalt paving mixtures and blocks;

The list of establishments was reviewed with the local Ministry of Natural Resource's office to ensure that all major employers were included. The total estimated employment identified from these sources was approximately 400 persons. Thus, the total basic employment associated with aggregate extraction and processing in Grey County is estimated to be approximately 530 jobs.

3.3 Indirect and Induced Employment

Direct employment created through aggregate extraction and processing gives rise to the multiplier effect or "spin-off" benefits to the local economy. One component of the multiplier effect is the indirect employment that is generated through the money spent locally by basic industries on goods and services. The aggregate operations surveyed as part of the case study analysis indicated that a significant share of their annual expenditures for goods and services were purchased locally. The share of these local purchased expenditures ranged from 70 to 90% of total non-employment and non-tax expenditures. Items purchased locally included fuel, insurance, equipment parts, computer and office supplies and calcium. These expenditures, made in the local economy, create indirect employment at the businesses that provide the goods and services.

The second component of the multiplier effect is the induced benefit. Induced benefit is defined as the benefit that results from the spending of employment income for goods and services such as accommodation, food, personal services and household and family expenditures.

As indicated in Section 3.1, employment in Grey County in 1995 (the most recent year available) was 34,860 persons. Using that allocation of employment by industry division shown in Table 3-1, it is possible to separate basic (direct) employment from non-basic (indirect and induced) employment. Employment in the following industry divisions is considered to be basic to the economy:

- Primary Industries (agriculture, fishing, forestry and mining);
- Manufacturing; and
- Transportation, Communications and Utilities

The latter category also includes non-basic employment that services the local population as well as businesses. For the purposes of this analysis, it is assumed that 50% of the employment in this category is basic. In addition, tourism is a basic industry. Tourism related jobs may be classified in a number of industry divisions including Retail and Accommodation, Food and Other Services Industries. A recent report prepared for the County of Grey, Tourism Economic Impact in the County of Grey, January, 2002, estimated that the tourism industry accounted for 2,265 jobs in the County.

The total employment in all of these basic industry divisions is 12,490. Thus the remaining employment in the County (22,370 jobs) is non-basic. Non-basic includes both indirect and induced employment. The ratio of basic to non-basic employment is 1:1.8. It is recognized that a portion of the non-basic employment is related to the expenditures of retired persons and persons working outside of the County. Local purchasing by these households is not attributable to employment income. In order to exclude the employment generated by expenditures from these households, the ratio of basic to non-basic employment has been reduced to 1:1.5. Therefore, for every basic job in Grey County, a further 1.5 non-basic jobs are created. Based on an employment of 530 person involved in aggregate extraction and processing, it is estimated that a further 800 jobs in Grey County are dependant on the aggregate industry.

3.4. Other Contributions

The Aggregate Producers Association of Ontario (APAO) has established a guideline to encourage its members to provide local support community activities in the areas in which they

are located. The APAO recommends a contribution of 4.5 cents per tonne of aggregate extracted. It should be noted that only a small percentage of the aggregate licenses in Grey County are issued to members of this Association.

The aggregate operations surveyed as part of case study analysis were asked about contributions made to community groups. It was found that each of the operators makes a significant contribution in proportion to their size. Beneficiaries of these funds, and in some cases materials, include sports teams, cultural groups, schools, civic events and charitable organizations.

Another economic benefit resulting from locally produced aggregates is effect on construction costs. As discussed in the aggregate market analysis, aggregate is a component in all construction projects such as buildings and, in particular, road construction. Transportation costs are significant factor in the price of aggregate and therefore, a local source of aggregate materials for use in construction will ensure lower construction costs. This benefit accrues to both private construction projects as well as municipalities that tender road improvement and maintenance projects.

3.5 Summary of Local Economic Contribution

The Aggregate industry provides basic employment within the County. It is estimated that 530 persons are involved in aggregate extraction and processing and a further 800 jobs in the County of Grey are supported through local purchasing of goods and services by the aggregate operations and its employees. The local construction industry benefits from the local availability of aggregate for its projects. This benefit can be passed on to consumers including the municipality. Aggregate operations provide financial support to a variety of civic and other organizations in the County.

GREY COUNTY AGGREGATE MASTERPLAN

AGGREGATE MARKET ANALYSIS

October 12, 2004

P L A N N I N G F O R G R O W T H



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1. INTRODUCTION

1. INTRODUCTION

1.1 Overview of the Aggregate Market

The aggregate market analysis considers the existing level of aggregate production in Grey County and forecasts future demand within the current market area and the potential for expansion to other markets such as the Greater Toronto Area (GTA). The GTA includes the City of Toronto and the Regions of Durham, York, Peel and Halton. This area is being examined as a potential market because of the magnitude of its aggregate requirements, its current and continuing requirement to import aggregates and its general proximity to Grey County.

Aggregate is a key material in construction projects including road construction, building construction, engineering construction (eg. sewer and water services, airports, etc.) and concrete and concrete products (e.g. poured concrete, blocks, bricks, tiles and pipes). As a result, the level of activity in the construction industry will have a direct influence on the demand for aggregates.

1.2 Aggregate Production in Ontario

1.2.1 *Historic Data*

The Ontario Aggregate Resources Corporation (TOARC) provides statistical data on production of mineral aggregates in Ontario in the report Mineral Aggregates in Ontario, Statistical Update 2001. The year 2001 is the most recent year for which data are available. In 2001, an estimated 167 million tonnes of aggregate was produced in Ontario. Of that amount, 87% was extracted from licensed sites and 7% was extracted from pits and quarries in non-designated areas of Ontario. Aggregate permits on Crown land accounted for a further 4%. The remaining two percent of estimated production was derived from forestry-related extraction. The analysis contained herein will focus on licensed and wayside production, as these sources are most relevant to the County.

Figure 1-1 provides an illustration of the quantity of aggregate extracted in Ontario from all sources over the past sixteen years. There are three main aggregate products: sand and gravel; crushed stone; and, clay/shale. Production of sand and gravel in Ontario has increased by 24% (1991-2000) while production of crushed stone has increased by 53% over the same period (Table 1-1). The significant increase overall reflects the low demand in the early 1990's which was a period of economic recession. The imbalance in the increase in demand for quarry stone versus sand and gravel may be in part due to the increasing reliance on quarry stone in the Greater Toronto Area as the supply of sand and gravel is diminished.

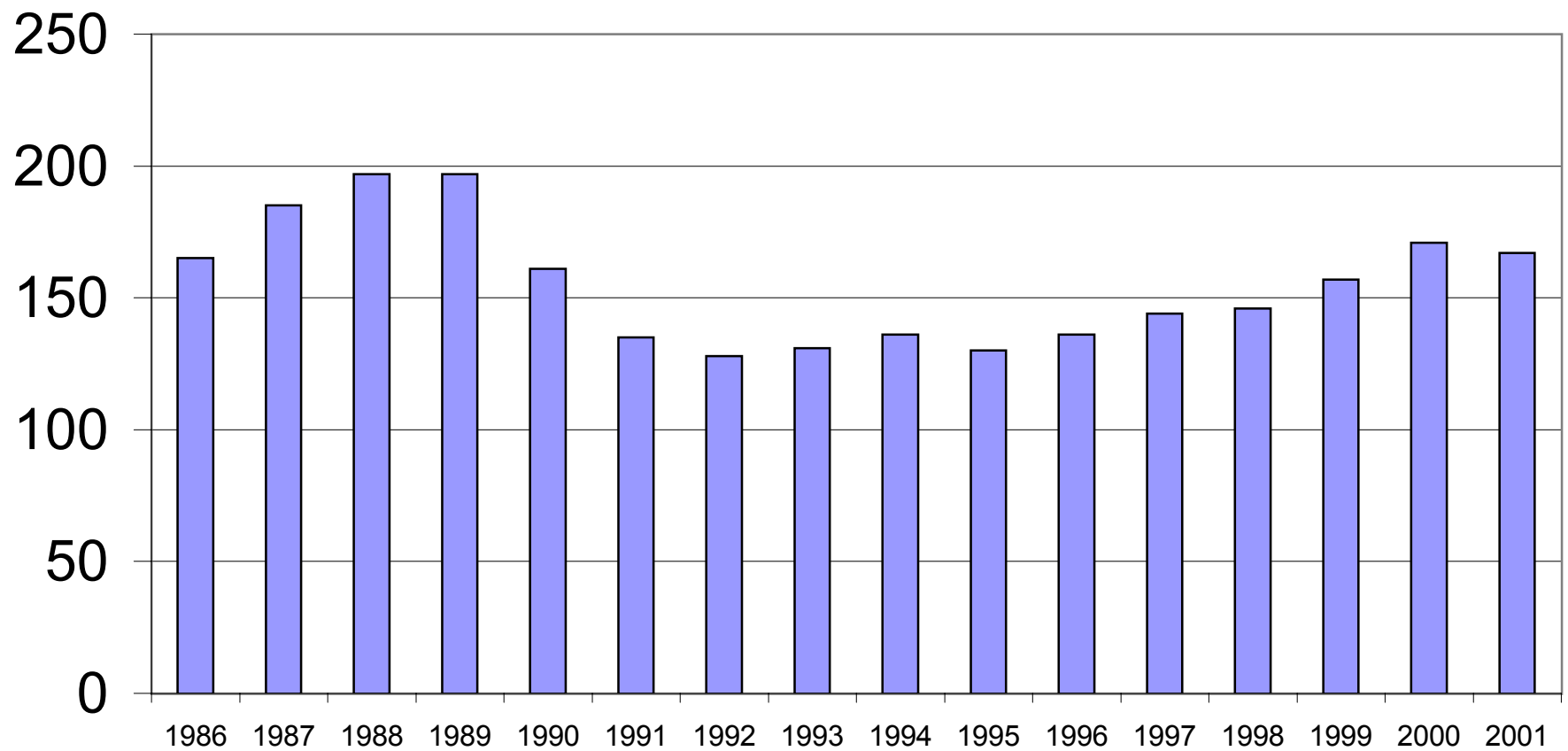
Information regarding production by Ministry of Natural Resources Districts indicates that of the 145 m tonnes produced in licensed sites in 2001, 25% occurred in the Guelph-Cambridge District (encompassing Huron County, Wellington County, Waterloo Region, the City of Hamilton, Brant County and Niagara Region). During the same period, 24% occurred in the Aurora District which encompasses the GTA.

1.2.2 Forecasts of Demand

As indicated earlier, construction activities account for much of the demand for aggregates with landscaping and other miscellaneous products representing a very small portion of the demand. Levels of construction activity will vary according to a number of factors. Two key factors are population growth, which drives residential construction, and a portion of non-residential construction, and the state of the economy, which will influence non-residential construction and to some extent, government investment in infrastructure such as roads and other utilities.

The health of the provincial economy is cyclical and its effect on aggregate production can be seen in the fluctuations illustrated in Figure 1-1. Population forecasts are a useful factor in forecasting changes in demand for aggregates, particularly at a micro (County) level, as population growth will influence residential, non-residential and infrastructure construction. However, even in the absence of growth, aggregates will be required for maintenance of infrastructure such as roads and sewer and water mains.

Figure 1-1
AGGREGATE IN ONTARIO
(millions of tonnes)



Source: The Ontario Aggregate Resources Corporation

Table 1-1
 Licensed Annual Production In Ontario By Commodity
 1991-2001
 (millions of tonnes)

Year	Sand and Gravel	Crushed Stone	Other	Total
1991	64.24	40.26	2.78	107.28
1992	57.99	39.52	3.15	100.66
1993	59.62	43.04	2.19	104.85
1994	59.07	45.28	2.76	107.11
1995	55.7	45.01	3.09	103.8
1996	62.52	47.48	4.27	114.27
1997	69.05	51.23	4.01	124.29
1998	68.84	51.64	3.2	123.68
1999	72.87	53.4	4.26	130.53
2000	80.07	62.57	2.85	145.49
2001	79.93	61.84	3.54	145.31

Source: TOARC: Mineral Aggregates In Ontario, Statistical Update, 2000 and 2001

The 1992 study, A State of the Resources, (SOR) commissioned by the Ministry of Natural Resources (Planning Initiatives Ltd. And Associates: 1992) developed a model for projecting demand for aggregates at the Provincial level, with capability of disaggregating demand to a number of demand areas, including the GTA. The model considered a number of factors including forecasts of population, employment growth and Gross Domestic Product. At the time the study was prepared, the average annual demand for aggregates for the GTA was forecast to be approximately 75 million tonnes for the 1991-2010 period. Recent estimates of GTA demand were prepared for the Town of Caledon (IBI Group: June, 1999) using the Aggregate Monitoring System (AMS) model developed as part of the SOR study. The updated estimated from this study was an average annual demand for 86.3 million tonnes of aggregate from 1996 to 2021. Estimates of future demand for aggregate are discussed further in Chapter 3.

2. LOCAL MARKET ANALYSIS

2. LOCAL MARKET ANALYSIS

2.1 Historic Production in Grey County

Data regarding annual production of aggregates from licensed sites and wayside permits, in Ontario and selected counties, for 1992 to 2001 are provided in Table 2-1. The quantities are somewhat lower than those in Figure 1-1 as they do not include extraction in undesignated areas of the province and forestry permits. The table shows production for all of Ontario, as well as Grey County and the Counties that surround it (i.e. Bruce, Simcoe, Dufferin and Wellington). Over the ten year period, annual production in Ontario from licensed sites and wayside permits has increased by 42% while production in Grey County has experienced no net increase. During the same period, production in Bruce County declined by 20%. Production levels increased in Simcoe, Dufferin and Wellington County, with the greatest increase in Dufferin County at 118%. A review of the year-over-year changes shows that production levels in Ontario over the ten year period were lowest in 1992. Grey County saw its lowest level of production in the 1996 to 1998 period, with very little change between 1992 and 1994 and 1999 to 2001. While production levels in Grey County in 2001 are equal to 1992, the County is producing a reduced share of the total licensed and wayside production in the Province.

Table 2-2 allocates 2001 production of aggregates from licensed sites by commodity for Ontario, the Midhurst District, (which includes Grey, Bruce, Dufferin and Simcoe Counties) and Grey County. As is evident, sand and gravel and crushed stone made up 99% of aggregate production from licensed sites in Ontario in 2001. Midhurst District accounted for 14.0% of the provincial sand and gravel production and 8.7% of crushed stone.

Table 2-1
Licence and Wayside Aggregate Production in
Ontario, Grey County and Surrounding Counties
1992 - 2001
(000's tonnes)

	Ontario	Grey County		Bruce County		Simcoe County		Dufferin County		Wellington County	
		% of Ontario		% of Ontario		% of Ontario		% of Ontario		% of Ontario	
1992	103,000	2,600	2.5	2,000	1.9	8,000	7.8	1,100	1.1	4,900	4.8
1993	106,800	2,400	2.2	2,000	1.9	6,900	6.5	1,300	1.2	5,500	5.1
1994	114,300	2,700	2.4	1,800	1.6	6,200	5.4	1,600	1.4	5,600	4.9
1995	112,200	2,400	2.1	1,500	1.3	6,800	6.1	1,400	1.2	4,900	4.4
1996	114,300	2,000	1.7	1,200	1.0	7,400	6.5	1,500	1.3	6,000	5.2
1997	125,000	2,100	1.7	1,300	1.0	7,600	6.1	1,500	1.2	6,400	5.1
1998	125,200	2,100	1.7	1,600	1.3	9,000	7.2	1,800	1.4	6,900	5.5
1999	131,500	2,800	2.1	1,500	1.1	9,000	6.8	2,100	1.6	7,500	5.7
2000	146,000	2,500	1.7	1,700	1.2	9,300	6.4	2,600	1.8	8,400	5.8
2001	145,300	2,600	1.8	1,600	1.1	10,700	7.4	2,400	1.7	9,000	6.2
Change in Production 1992/93 to 2000/01	38.8	2.0		-17.5		34.2		108.3		67.3	
2001 Tonnes/Capita		29.2		25.0		28.4		47.0		48.0	

Source: TOARC: Mineral Aggregates In Ontario, Statistical Update, 2000 and 2001

Table 2-2
Licenced Production In Ontario By Commodity
2001

	Ontario 000's tonnes	Midhurst District 000's tonnes % of Ontario	Grey County 000's tonnes % of Ontario
Sand and Gravel	79,730	11,224 14.1	1,652 2.1
Crushed Stone	61,843	5,388 8.7	694 1.1
Clay/Shale	1,739	73 4.2	n/a
Other Stone	1,804	147 8.1	n/a
Total	145,117	16,831 11.6	2,361

n/a - Information regarding clay/shale and other stone is not available for Grey County due to the small number of operators involved and requirements for confidentiality

Source: TOARC: Mineral Aggregates in Ontario, Statistical Update 2001

2.2 Summary of Aggregate Operations

The Ministry of Natural Resources licenses pits and quarries in Grey County. As of mid-2002, there were just over 120 licensed operations. Of these, ten were licensed to either the County of Grey or one of the lower tier municipalities in the County. There are no licensed pits or quarries in the urban municipalities of Owen Sound and Hanover.

Table 2-3 provides a summary of all licensed operations by lower tier municipal location, as well as the annual licensed tonnage. This tonnage represents the maximum permitted amount that can be extracted annually under the existing license for that operation. The total annual licensed tonnage for the County as of mid-2002 is 14.7 million. Of that amount, just over 42% is located in the Township of West Grey which has a total of 20 operations accounting for only 16.4% of the total number of licenses. That is, it contains a number of larger licensed capacities.

Table 2-4 summarizes the aggregate production in Grey County in 2001 by lower tier municipality and compares this with the annual extraction limits according to licenses. A total of 2.6 million tonnes were extracted in the County, of which 2.4 million was taken from licensed pits and quarries (wayside permits, which are normally issued for temporary road projects account for the remainder). This is just over 16% of the total annual amount permitted by the licenses. Thus, the actual production is a fraction of the maximum permitted amount.

Within Grey County, the highest level of production in 2001 was in Georgian Bluffs, which accounted for 21.7% of the aggregate produced. The next highest producing municipalities were Grey Highlands and Chatsworth at 15.9% and 15.0% respectively.

Table 2-3
Summary of Licensed Pits and Quarries in Grey County

Municipality	Pits and Quarries		Annual Licensed Tonnage	
	#	%	(tonnes)	%
The Blue Mountains	8	6.6	805,000	5.5
Chatsworth	23	18.9	1,710,000	11.7
Georgian Bluffs	24	19.7	1,730,000	11.8
Grey Highlands	21	17.2	2,060,000	14.0
Hanover	0	0.0	0	0.0
Meaford	6	4.9	735,000	5.0
Owen Sound	0	0.0	0	0.0
Southgate	20	16.4	1,330,000	9.1
West Grey	20	16.4	6,300,000	42.9
County Total	122	100.0	14,670,000	100.0

Source: Ministry of Natural Resources (Owen Sound Area Office) - Operators List

Table 2-4
Licenced and Wayside Permit Production in Grey County
2001

Municipality	Wayside Permits (tonnes)	Licensed Pits and Quarries (tonnes)	Total	%	Tonnage Permitted By Licence
The Blue Mountains	32,000	279,116	311,116	12.1	38.6%
Chatsworth	68,000	327,003	395,003	15.4	23.1%
Georgian Bluffs	20,000	540,673	560,673	21.8	32.4%
Grey Highlands	56,240	335,971	392,211	15.3	19.0%
Hanover					
Meaford		303,460	303,460	11.8	41.3%
Owen Sound					
Southgate	33,247	218,682	251,929	9.8	18.9%
West Grey		356,583	356,583	13.9	5.7%
County Total	209,487	2,361,488	2,570,975	100.0	

Source: TOARC: Mineral Aggregates in Ontario, Statistical Update, 2001
Ministry of Natural Resources (Owen Sound Area Office) - Operators List as of August, 2002

2.3 Local Aggregate Market

Two sources were used to compile information regarding the demand for aggregates in Grey County. The first was information derived from a detailed examination of three aggregate producers as part of the case study research for the fiscal and economic analysis discussed in more detail in the Financial Impact report. As part of the research, questions were asked regarding market for aggregates. In addition, a number of major producers were contacted regarding the location of their market. From this information, it was found that the majority of the aggregate extracted in the County is shipped within Grey and to Bruce and Huron Counties and to a lesser extent Simcoe and Dufferin. Some export of specialty materials to the GTA does occur on a limited basis; however this represents a negligible share of the total produced.

A portion of the licensed sites are operated by aggregate suppliers who extract and process aggregate for sale to the construction industry. There are also numerous sites that serve as a source of construction material for the licensee.

The three main uses for aggregate produced in Grey County are:

- input for production of construction material (asphalt, concrete, dimension stone, etc.);
- source material for construction activities undertaken (roads, septic beds, etc.);
- sale to a third party (primarily supporting construction activities undertaken by others).

As aggregate use is tied to construction activity, population growth is a reasonable indicator of demand for aggregate in the future, on a County level. During the 1991 to 2001 period, the population of Grey County increased by 8%. Population increases in Bruce and Huron County over the same period were 2% and 3%, respectively. Population projections prepared by the Province of Ontario (Ministry of Finance) for Counties and Regions in the Province were reviewed. The most recent forecasts project population increases in Grey and Bruce Counties of approximately 10% for the 2001 to 2026 period. Huron County population is forecast to increase by only 2% over the same period. On this basis, suggests the local demand for aggregates will be in the range of 2.5 million to 3 million tonnes per year.

3. SECONDARY MARKET ANALYSIS

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3.1 Discussion of Issues

As indicated in the analysis of the local market, information obtained from producers in Grey County indicated that, at the present time, there is limited export of aggregate from Grey beyond the Counties that surround it. Distance and transportation costs are cited as the reasons. The increased cost to transport aggregate over long distances make it impossible to compete with other suppliers closer to the demand areas.

Grey County has been considered as a potential source of aggregates for demand areas in several major studies undertaken over the past two decades. These studies examined the potential for non-traditional sources to supply aggregates to the main market areas of southern Ontario (i.e. the Greater Toronto Area). The purpose for undertaking these studies was concern that traditional sources were being exhausted at the same time that other potential sources within the same areas were being constrained through development restrictions, urban sprawl, public opposition and increased approval costs. It was recognized that at a certain point, the price of aggregates could rise to a level that would make remote sources more competitive. However, it was also noted that increased aggregate prices would result in increased construction costs and may thereby reduce the demand for aggregate. For example, alternative materials may be relied upon or the recycling of aggregate may become more cost effective.

The 1980 report Mineral Aggregate Transportation Study (MATS) was prepared by Peat Marwick & Partners et al. on behalf of the Ministry of Natural Resources. The focus of the study was on the feasibility of shipping aggregates to major urban centres in southern Ontario from remote areas such as the Saugeen region (Bruce and Grey Counties). At that time, the average delivered price of aggregates in the Toronto area was \$4.55 per tonne. This compared with a direct truck delivery cost of \$9.95 per tonne from the Saugeen area (slightly more than double the average Toronto price). Based on the conditions in effect at the time the study was undertaken, it was concluded that it was not economically feasible to transport materials from remote areas such as Grey County to Toronto.

This issue was reviewed again in 1992 with the completion of Aggregate Resources in Southern Ontario: A State of the Resource Study (SOR) prepared by Planning Initiatives Ltd. and Associates. The objective of the study was to produce a comprehensive report on aggregate resources in southern Ontario, with an emphasis on the economic and environmental aspects of the industry. The Saugeen area (Grey, Bruce County and part of Wellington County) was one of the potential supply areas considered in detail in the study. It was noted that this area contained significant resources, that were not being utilized at the time. The State of the Resource Study noted that due to the lack of rail infrastructure between the Saugeen area and the GTA, truck transportation was the only feasible method of delivery. However, it was noted that the access roads may not meet the necessary capacity standards that would be required. Therefore, approximately 100 kms of road would need to be upgraded by the Province and intervening municipalities at a cost of approximately \$100 million. Further as transportation costs would add \$7.31 (1992 \$) to the delivered price of materials, the market price of aggregate in the GTA would have to double in order to allow for aggregates shipped from the Saugeen area to compete.

The MATS study (1980) and the State of the Resource Study (1992) both found that, at the time that the analysis was undertaken, the cost to transport aggregates from Grey County to the Toronto would increase the delivered price to a level where it would be unable to compete with existing suppliers. An updated review of transportation costs is provided subsequently in this chapter.

An increase in delivered market prices in the Greater Toronto Area is one factor that could improve the competitiveness of aggregates shipped from Grey. Such increases could occur due to higher land, approval and mitigation costs. The other factor is reduced transportation costs from Grey County. This would require an improved transportation system in the form of either a more efficient road network, increases in truck operating efficiencies, or the development of an alternative means of transportation such as rail or water. These options are also reviewed herein.

3.2 Key Demand Areas

Aggregate production in southern Ontario has averaged approximately 150 million tonnes per year for the past several years. It is estimated that the Greater Toronto Area (GTA) consumed

one third of that amount (51 million tonnes annually 1995 to 1999). This compares to an annual average extraction rate within the GTA itself, in the range of 30 million tonnes. Thus, the GTA is a net importer of aggregates and is expected to rely increasingly on aggregates produced outside of its boundaries, as resources are exhausted and potential supply is restricted through urbanization and other factors.

As discussed in Chapter 1, recent forecasts of demand prepared by IBI Group for the Town of Caledon projected that the average annual demand for aggregates in the GTA will be in the range of 83 million tonnes. Depending on the availability of aggregates within GTA regions (Peel, Durham, York and Halton), as well as traditional supply areas, other sources may be required to meet long term demand for aggregates in the GTA. The following section discusses the potential for key supply areas in Central Ontario to meet GTA demand for aggregates, particularly in the western half of the GTA.

3.3 Traditional Sources of Supply For The GTA

It is estimated that at the present time, local producers in Caledon and Milton provide much of the supply to the western portion of the GTA. The IBI study prepared for Caledon examined the potential supply of aggregates within the Town relative to demand in the GTA, particularly the western half, and concluded that there existed an adequate supply to meet demand to 2021 and potentially beyond. This conclusion was based on assumptions made regarding the share of GTA demand that would be met by producers in Caledon. A recently approved expansion of the Dufferin Quarry in Halton will permit extraction of approximately 60 million tonnes; thereby, making a significant contribution to the GTA supply.

In addition to local sources, a portion of GTA demand for aggregates is imported from areas such as Kitchener/Waterloo/Guelph. The 1992 report, A State of the Resource Study compiled information regarding the existing licensed supply of aggregate and prepared assumptions regarding the magnitude of potential supply from undeveloped land that had not yet been licensed. It was concluded that there existed sufficient resources to supply aggregate demand for many decades within the GTA, though some of the demand for sand and gravel would have to be substituted with quarry stone. In addition, an abundant supply of quarry stone and sand and gravel was identified in the surrounding areas of Kitchener/Waterloo/Cambridge/Guelph and Brantford/Hamilton/Niagara. The study found that the combined resources in GTA,

Kitchener/Waterloo/Cambridge/Guelph and Brantford/Hamilton/Niagara areas would meet demand in these areas well beyond 2050, though sand and gravel resources would be exhausted by 2030. It is important to note that the future resource assumptions were based on both licensed and potential supply, with potential supply accounting for 95% of the total for the GTA. However, there are a number of reasons why sources of potential supply may never be licensed. Recent experience with applications indicates that it is becoming increasingly difficult and expensive to get approval for new or expanded pits and quarries. Urban development has, and will continue, to sterilize a portion of the potential supply. Constraints exist in special planning areas such as the Oak Ridges Moraine and the Niagara Escarpment Planning Area. It is estimated that only 15% of available resources may ultimately be licensed for extraction. When this 15% factor is applied to the unlicensed resources in the GTA and surrounding supply area, the potential supply is significantly reduced (Table 3-1). There still remains significant quantities of quarry stone; however, sand and gravel supply could be exhausted by 2010 or earlier. It is possible that some demand for sand and gravel could be met using quarry stone with an associated increase in production costs.

Diminishing resources in the GTA will necessitate importing of aggregates from more distant locations. Within the past several years, the import areas for the GTA have expanded to the northern portions of Dufferin and Simcoe County. It is inevitable that the trend of increasing distance for the transportation of aggregates will continue, as the supply in the GTA and immediate areas is diminished or sterilized.

Appendix A includes a discussion of the major aggregate resource areas in southern Ontario that have traditionally been considered as source areas, or potential sources areas, for supplying aggregate to the GTA. The information, which was prepared by Jagger Hims Limited, provides a status of the resource and operational factors that may affect the overall supply. In summary, it is noted that the supply in the Greater Toronto Area is expected to be constrained and will, as a result, not see extraction reach its full potential. Alternative sources such as Kitchener-Cambridge-Guelph, Brantford-Hamilton-Niagara and the Niagara Escarpment will fill the void to some extent, but these areas will also experience constraints due to development and environmental concerns. The North Barrie area is not expected to be able to provide aggregate of sufficient quality or quantity. The Lake Simcoe Lowlands have the potential to meet future demand and are already exporting to the GTA. This can provide a source for the

eastern portion of the GTA. The Saugeen area is assumed to have aggregate resources of the required quality and quantity.

Table 3-1
Comparison of Supply and Demand Within GTA and Potential Supply Areas
(millions of tonnes)

	Supply		15% of Unlicensed Resources	Total Potential Supply (1990)	Demand (1991-2010)	Resources Remaining Beyond 2010	
	Licensed Reserves (as of Dec, 1990)	Selected Unlicensed Resources				(tonnes)	(decades)
Greater Toronto Area	467	10,704	1,606	2,073	1,497	576	1
sand/gravel	176	744	112	288	864	-576	-1
quarry stone	291	9,960	1,494	1,785	633	1,152	4
Kitchener, Waterloo, Cambridge, Guelph	153	3,083	462	615	185	430	5
sand/gravel	153	1,573	236	389	180	209	2
quarry stone	0	1,510	227	227	5	222	89
Brantford, Hamilton Niagara	190	20,706	3,106	3,296	320	2,976	19
sand/gravel	12	1,204	181	193	99	94	2
quarry stone	178	19,502	2,925	3,103	221	2,882	26
Totals	810	34,493	5,174	5,984	2,002	3,982	4
sand/gravel	188	1,948	292	480	963	-483	-1
quarry stone	622	31,035	4,655	5,277	1,034	4,243	8

Source: A State of the Resource Study, 1992; Figure 10-3 re: Licensed Reserves, Resource Potential and Demand

3.4 Review of Prices and Transportation Costs

The aggregate industry is extremely competitive and aggregate prices have not changed significantly over the past decade. Table 3-2 provides the average sale price per tonne for sand and gravel in Ontario from 1970 to 2000. These are the prices as the material leaves the production gate (FOB) and do not include transportation costs. A review of unit costs presented in 2000 \$, indicates that costs have fluctuated over the thirty year period. The higher prices in the second half of the 1980's corresponds with a period of peak demand for aggregates.

The actual cost of producing aggregate will vary depending on a number of factors. In areas closer to urban areas, cost components such as land, the approval process and the mitigation measures are likely to be higher than what would be incurred in less developed areas further removed from the GTA such as Grey County. This cost advantage would be offset by the expense of transporting materials.

Transportation costs generally represent the highest component of the cost of delivered aggregate. The distance over which aggregates need to be transported will influence the cost, as will the efficiency of road network, as this affects travel time. Thus, aggregate producers have endeavoured to establish operations close to markets and major transportation routes.

For the most part, the current market area for Grey County aggregates does not extend beyond the surrounding Counties. There are examples of sales to the GTA; however, these are isolated situations applying to certain low volume, high quality products such as landscape stone.

In order to update the information presented in the Mineral Aggregate Transportation Study and the State of the Resources Study, an analysis of transportation costs from existing and potential sources to the GTA was undertaken. Travel distances to three points in the GTA from existing and potential sources including Grey County were determined. The three GTA points used were:

- The intersection of Highway 403 and Highway 407 at the Mississauga/Oakville border;
- The intersection of Highway 407 and Highway 400; and
- The intersection of Highway 401 and Kingston Rd. at the Toronto and Pickering border.

Table 3-2
Historic Price of Sand and Gravel in Ontario (FOB)

	Tonnes Produced (000's)	Value of Production		Unit Price (per tonne)	
		000's current \$	000's 2000 \$	Current \$	2000 \$
1970	75,185	54,419	238,639	0.72	3.17
1971	70,426	57,104	241,941	0.81	3.44
1972	69,291	64,320	257,052	0.93	3.71
1973	73,090	74,408	272,266	1.02	3.73
1974	72,561	85,518	272,256	1.18	3.75
1975	69,705	95,579	276,199	1.37	3.96
1976	68,802	106,093	280,673	1.54	4.08
1977	75,400	121,776	301,630	1.62	4.00
1978	87,846	142,743	331,694	1.62	3.78
1979	90,516	151,847	322,282	1.68	3.56
1980	77,596	133,980	256,359	1.73	3.30
1981	70,206	134,435	231,664	1.91	3.30
1982	53,568	116,552	185,006	2.18	3.45
1983	53,602	120,232	181,152	2.24	3.38
1984	57,446	136,125	198,464	2.37	3.45
1985	64,502	158,347	225,325	2.45	3.49
1986	85,512	248,185	343,617	2.90	4.02
1987	96,122	294,689	389,349	3.07	4.05
1988	98,627	327,135	413,320	3.32	4.19
1989	91,878	315,387	380,966	3.43	4.15
1990	79,703	279,071	327,277	3.50	4.11
1991	65,317	233,239	266,323	3.57	4.08
1992	87,647	266,368	300,197	3.04	3.43
1993	94,033	325,526	361,446	3.46	3.84
1994	101,926	363,198	398,951	3.56	3.91
1995	90,747	322,254	346,216	3.55	3.82
1996	86,571	321,079	339,134	3.71	3.92
1997	90,515	337,137	352,789	3.72	3.90
1998	88,186	325,109	342,108	3.69	3.88
1999	105,714	408,321	422,958	3.86	4.00
2000	115,478	413,459	413,459	3.58	3.58

Source: Ontario Mineral and Exploration Statistics, 2000

Note: Figures for 2000 are preliminary

These points were selected as being proximate to the major demand areas for the west, north and east part of the GTA. The selected source points in Grey County were Dundalk, Markdale and Owen Sound.

Travel distances, measured in kilometres, were determined using MapQuest. These distances were applied to average aggregate transportation costs per tonne used by the Ministry of Transportation (MTO) based on the use of a tractor trailer. There are several limitations associated with using this approach. First, the costs per tonne used by MTO are for the purpose of estimating construction costs and, do not reflect the savings that result in a competitive bidding process. This shortcoming may be in part overcome by the fact that the costs per tonne are in 2000 \$. Secondly, estimating transportation costs using distance rather than time does not reflect the relative efficiencies that may be achieved by travelling along 400 series highways as opposed to two lane roads. Despite these limitations, the results provide a useful comparison of the relative cost differences from the various sources to the GTA.

The findings are presented in Table 3-3. The lowest transportation costs for delivery to the mid-western part of the GTA are from Milton and Flamborough. For transportation to the mid-north part of the GTA, the lowest transportation costs are from Milton followed by Caledon, Mono and Flamborough. As is evident, transportation costs from Grey County areas are among the highest for any of the other supply areas located west and north of the GTA which were examined. The transportation costs from Dundalk to the mid-west part of the GTA are only slightly higher than from Niagara Falls and are lower than from Barrie. Actual transportation costs will vary depending on the exact location of the supply and the point of delivery. Therefore, it is possible that aggregates in the south-east areas of the Grey County will be price competitive with aggregates in Niagara Region under certain circumstances (i.e. delivery to north-west areas of the GTA). At the present time the transportation routes from Niagara are superior in terms of the type of highways; however, this advantage may be offset with the issues of congestion during certain periods of the day.

The difference in transportation costs must be compared with differences in quality. As indicated in Appendix A, there may be quality issues with bedrock units located east of Hamilton (i.e. Niagara Region). Similarly, deposits in the North Barrie area may not be suitable given the limited stone content.

Table 3-3
Comparison of Aggregate Transportation Costs to the Greater Toronto Area
Per Tonne based on Tractor Trailer Rates (2000 \$)

Origin	Delivery Location		
	Hwy 403 and 407 (at Mississauga/ Oakville Border)	Hwy 407 and 400	Hwy 401/Kingston Rd. (at Toronto/ Pickering Border)
Milton	\$3.94	\$7.24	\$10.14
Flamborough	\$4.64	\$9.31	\$12.21
Stoney Creek	\$6.23	\$10.77	\$13.67
Puslinch (N1H 6H9)	\$6.24	\$9.78	\$12.68
Caledon	\$7.73	\$9.01	\$11.91
North Dumfries (N1R 5S5)	\$9.71	\$13.26	\$16.16
Mono	\$10.16	\$9.09	\$12.80
Brantford	\$10.28	\$14.85	\$17.75
Niagara Falls	\$12.91	\$17.45	\$20.35
Dundalk	\$13.87	\$15.50	\$18.29
Barrie	\$14.12	\$10.24	\$14.48
Markdale	\$16.98	\$18.62	\$21.41
Brock	\$18.47	\$14.57	\$11.28
Owen Sound	\$22.04	\$23.77	\$28.02
Fenelon Falls	\$23.91	\$18.59	\$16.41

It is expected that as supply becomes constrained in the GTA and importing from increased distances is required, the southern portion of the Grey County will be able to compete with suppliers from Niagara Falls and the Barrie area for deliveries located in the north-western portion of the GTA. In addition, improvements to the road network between Grey County and the GTA, such as the 410 extension and the planned extension of Highway 427 will reduce transportation costs.

3.5 Alternative Forms of Transportation

The foregoing analysis focuses on the transportation of aggregates from Grey County via truck. Other potential means for transporting aggregate are rail and water. The potential for rail transportation from Saugeen to the GTA was examined in State of the Resources Study and dismissed because of a lack of suitable rail infrastructure including lines.

There are examples of water transportation of aggregates at the present time (i.e. Manitoulin Island and the north channel of Lake Huron. A study commissioned by the Ministry of Natural Resources assessed the viability of extracting high quality aggregate from an area along the north shore of Lake Superior for sale to markets in southern Ontario and central US (Jagger Hims et.al. 2001).

The water transportation analysis considered the use of both ships and tugs/barges, with ships being preferred. It was noted that the shipping season on Lake Superior runs from April to December each year. It was estimated that aggregate could be shipped to the Toronto Harbour at a cost of \$11 to \$15 per tonne. This delivery cost compares with truck transportation cost from the Dundalk and Markdale areas to the western GTA (Hwys. 403 and 407 at the Mississauga/Oakville border) of \$14-\$17/tonne. However, the water transportation costs did not include additional ground shipping from the port to the final destination may be necessary. Depending on the final destination, this amount will vary significantly and could potentially increase the delivered price significantly.

Consideration was given to the implications of the shipping season, which allows for transportation for 37 weeks or 70% of the year. Other issues, such as the importance of having full shiploads departing the dock on a regular basis were also noted. As a result, it was

concluded that it was necessary to have sufficient demand for high quality aggregate concentrated in one or two large market areas in order to maximize efficiency.

On the basis of those findings, it was found that at the present time, it was not feasible to ship aggregates from Lake Superior. However two factors were identified which would make marine transport feasible in the future: future constraints on supply, coupled with a sufficiently large market to support the cost of investing in a facility on the north shore of Lake Superior.

Issues related to lack of available port facilities in the GTA, as well as potential for lengthy overland transport were raised as factors that could affect the competitiveness, as compared to imports from counties to the North. However, overall it was concluded that Lake Superior aggregates might sustain a market within five to ten years.

Shipment of aggregates via water from Grey County is a possibility, given the County's location on the shore of Lake Huron. The actual water shipping distance from Grey County would be less than from Lake Superior. However it would still be necessary to pass through locks at the Welland Canal and be subject to similar seasonal limitations, as well as the additional costs of transporting aggregate from the shore of the GTA to its final destination. Such an arrangement would require the establishment of distribution infrastructure in Toronto and therefore only be suitable for large quantities. In addition, shipping from the source in Grey County to the shore of Lake Huron would add additional costs, depending on the location. These additional costs may not result in savings in comparison to truck transportation but may address concerns related to high truck volumes such as emissions and road congestion.

In summary, in order to make shipping by water a viable option, certain circumstances would be required, including sufficient supply of high demand, high cost materials located close to the shore of Lake Huron and a committed market located close to the shore of Lake Ontario. This method may be appropriate over the longer term as resources from alternative sources become significantly constrained and a consolidated approach to water transportation is established.

3.6 Summary

The relationship of supply and demand for aggregates is complex and forecasts of either can be altered by a variety of factors. For example, the supply of potential aggregates that will ultimately be available to meet demand will be affected by:

- The extent to which urban development continues to limit new areas from being opened;
- The effect that supply constraints will have on Provincial and municipal policies (i.e. restrictions on extraction within the Niagara Escarpment Commission lands and the Oak Ridges Moraine); and
- The way in which the aggregate industry will react to supply constraints.

For example, an apparent shortage of supply in areas close to the GTA will not necessarily translate into a requirement to import from greater distances at increased costs. Faced with increased costs related to transportation, the aggregate industry may implement operating practices, that would previously been considered inefficient or uneconomical, in order to maximize production from existing pits.

Demand for products will also vary, as a result of a number of factors related to price increases including:

- Use of alternative materials;
- Acceptance of lesser quality materials that can be used for the same purpose; and,
- Substitution of quarry stone for sand and gravel.

The MATS study noted that higher costs for materials may result in less demand. The relationship between demand and price is elastic, such that as prices increase to a certain level, demand may decrease. This finding was based on experience in Windsor and Sarnia where aggregate costs are high and road designs use less aggregate. Other options, such as recycling of aggregate, have not been developed in Ontario, in part because the cost would not have been competitive at the time. If prices were to increase, recycling may become feasible. It can be expected that other innovations would be pursued and evaluated relative to costs. Transportation costs will be weighed against other costs that may be incurred.

The foregoing discussion suggests that it is difficult to predict when it will become economically feasible to transport aggregate from Grey County to the GTA. It is expected that the scenario under which this would occur will be made up of a combination of circumstances that may include:

- Reduced transportation costs from Grey County through an improved road network (e.g. Highway 427 extension to Highway 89);
- Increased production costs within traditional supply areas as a land costs, result of complex approval processes and expensive mitigation measures;
- Expansion of the demand area closer to Grey County (i.e. movement of urban development to further north –west in the GTA);
- Exhaustion of supply in traditional supply areas as a result of urbanization and government restrictions; or
- Development of a consolidated transportation network involving large quantities of aggregate. The shipment of large quantities may provide sufficient economies of scale to justify the establishment of network for transporting aggregates via water.

It is expected that the demand for sand and gravel in Grey County will occur in advance of the demand for quarry stone given the abundance of the latter within the GTA and other closer sources. In order to provide a more precise estimate of the timing of demand for Grey County aggregate, it is recommended that the market be monitored in order to identify emerging demand. Indicators that could be monitored, include delivered prices for aggregate in the GTA, expansion of the GTA import area, establishment of major aggregate producers in the municipalities located between Grey County and the traditional demand areas (i.e. Dufferin County) and experience of Grey County producers with respect to the expansion of their markets, particularly those located in the south-east part of the County.

4. CONCLUSIONS

4. CONCLUSIONS

An examination of aggregate resources in Grey County found large quantities of sand and gravel resources in parts of the County, particularly Southgate, West Grey and Chatsworth. At the present time, most of the aggregate produced in the County is used locally or shipped to the surrounding municipalities.

Given the limited population growth in Grey, local demand for aggregates in Grey County is expected to remain below 3 million tonnes per year over the next two decades. The potential for exporting aggregates is less certain. At the present time, transportation costs for shipping aggregate to the demand areas such as the GTA, generally prevent Grey County producers from competing successfully with current GTA suppliers. The cost differential is close to \$5 - 10 per tonne.

Over time, there are a number of factors that may close the gap including:

- increased extraction costs in traditional supply locations as a result of higher land costs, more complicated approval processes and the requirement for extensive mitigation measures;
- depletion of resources and sterilization of future supply in the GTA and surrounding area that would increase the market price;
- reduced transportation costs from Grey, as a result of larger vehicles and improved road networks.

There may be medium term potential for Grey County producers (particularly those in the southern area of the County) to export their product to demand areas in the north-western portions of the GTA. It is noted that south-east Grey borders on the outer limits of the current import area for the GTA. Long term potential exists for Grey County to export to the GTA in greater volumes; however, given the uncertainties regarding supply in closer areas such as Simcoe County, the Waterloo/Wellington area and the Hamilton/Niagara/Brantford area, it is not clear when that would occur.

Monitoring of aggregate demand, supply and pricing in the GTA and surrounding areas is recommended to ensure that Grey County will have resources available to meet emerging demands.

APPENDIX A

APPENDIX A – SUMMARY OF ALTERNATIVE RESOURCES

The following are major aggregate resource areas in southern Ontario that have traditionally been considered as sources areas or potential sources areas for supplying aggregate to the Greater Toronto Area (GTA). This is a broad summary of the resource status and operational factors that may affect overall supply.

Sand and Gravel:

1. Kitchener-Cambridge-Guelph: This area has historically produced significant resources that have been transported to the GTA via Highway 401. Many of the resources that are readily available to the 401 are dwindling and the next decade or so will see the depletion of many of the currently operating pits. New resources in this area will have to move farther from the 401, and land and environmental pressures are steadily increasing as rural residential development occurs in the area. The deposits are capable of producing a wide range of aggregate products, but a significant proportion of the resource is below the water table. The area will produce aggregates for some time to come, but a gradual decline in production is anticipated as existing stocks are depleted and land competition increases.
2. Brantford-Hamilton-Niagara: This area has not been a significant contributor to the GTA market to this point. Transportation routes are indirect, and this area has modest quantities of resource in the Brantford area. Potential bedrock resources along the Niagara Escarpment east of Hamilton are constrained by urban growth, by limited access to major transportation routes northward from the Escarpment, and by the existence of rock quality concerns associated with the bedrock units east of Hamilton. It is expected that some production will come from the Brantford-Hamilton-Niagara area, but major production is unlikely.
3. GTA West: The GTA West includes the current sand and gravel resources in Caledon, plus several scattered deposits in the vicinity. These sources are currently an important supply for the west GTA, and there are sufficient resources remaining for the immediate future. However, the operators in these areas are coming under strong pressure from

competing land uses. The licensing of new resources to replace those currently being extracted, is not keeping pace with depletion, and new licence applications face significant opposition. Resources from Caledon enjoy a favoured position close to the GTA, and the resources will play a role in the GTA supply for the foreseeable future, but land pressures are expected to increase with time, and these pressures may preclude the full extraction of the potentially available materials.

4. GTA East: The main aggregate supply for the eastern GTA has been the Oak Ridges Moraine. Many of the pits in the Moraine contain limited remaining resources of crushable aggregate, and this source is slowly being replaced by other sources, notably the Simcoe Lowlands, that are capable of producing the coarse aggregate. The recently implemented Oak Ridges Moraine Conservation Plan is now restricting access to some of these deposits, and the general lack of coarse aggregate suggest a declining role for this source in the future. The Oak Ridges Moraine is a close source for the GTA, and it is likely that the manufacture of mainly sand products will continue within this area.
5. North Barrie Area: Several pits north of Barrie have been shipping aggregates south into the GTA in recent years. The main deposit in this area is the Oro Moraine. The Moraine deposits are similar to many ice-contact fluvial resources in that they are variable and they tend to contain less than optimum quantities of crushable gravel. This deposit is capable of producing a variety of aggregate products, but it is not expected to play a major role in the GTA market, due to the limited stone content and the modest size of the resource.
6. The Saugeen Area: The Saugeen area, which includes the southern part of Grey County, together with several adjacent townships, has been noted as a possible source of aggregates to supply the needs of the GTA. Supplies of aggregate have been assumed to be abundant and of suitable quality, based on available mapping, and these resources are considered to be viable once the cost of aggregate can absorb the cost of transportation by truck. The Province has recently announced plans to extend Highway 427 to Highway 89, and this may be seen as a step toward the eventual transportation of the Saugeen aggregates into the GTA.

Bedrock:

7. Niagara Escarpment: The Niagara Escarpment has supplied large quantities of high quality aggregates to the GTA for more than three decades, and the Escarpment is currently a major supplier to the western GTA. Transport distances are relatively short, and trucks are able to access the QEW and the 401 readily. The Amabel Formation dolostone is one of the highest quality aggregate materials in southern Ontario, and it has a long and well-documented quality record. Several of the largest producing quarries in Canada are situated in this resource. Land competition and environmental/planning regulations are making it increasingly difficult to establish new quarries in the area, in order to replace existing resources.
8. Lake Simcoe Lowlands: Several quarries have been established in the limestone/dolostone rocks of the Lake Simcoe Lowlands, and the lands eastward of Bobcaygeon. The quarries are mining the rocks of the Verulum, Bobcaygeon and Gull River formations, and these rocks have several units that are collectively capable of producing a broad range of aggregate products. Mining of the rocks is complicated by the need to produce specific products from the various units in accordance with the quality limitations of the rock. There are large quantities of this resource currently under licence, and a steadily increasing amount of the GTA's supply is being produced from this area. This area is expected to supply a greater proportion of the GTA needs as traditional sources such as the Oak Ridges Moraine decline in production.
9. Manitoulin Island: A large dolostone quarry has been established at the west end of Manitoulin Island, and the operation transports significant quantities of aggregate via ship to Great Lakes ports. The rock is the Amabel Formation, and it is capable of producing a variety of high quality aggregate products. The operation has supplied materials to southwestern Ontario for over a decade, and it is possible that materials could be shipped to any suitable port facility such as those in the GTA. Initiating a supply of water-borne aggregate would require a dock and distribution facility, with attendant investment and transportation challenges, and this approach has not been pursued to date to supply the GTA market.

References

Hollingsworth, Brian

October, 2002: Mineral Aggregates Issue Paper prepared for The Smart Growth Panel; Central Ontario Zone.

IBI Group

June, 1999: Assessment of the Market Demand for Aggregates in the Town of Caledon.

Jagger Hims Limited, Clayton Research Limited and Agritrans

2001. Physical Evaluation and Assessment of Bedrock Aggregate Resource Potential, North Shore of Lake Superior; Ontario Geological Survey, Open File Report 6072, 92p

Mizen, Kim

January, 2002: Tourism Impact in Grey County.

The Ontario Aggregate Resource Corporation

1998 and 2001: Statistical Update.

Peat Marwick & Partners and M.M. Dillon Limited

1980: Mineral Aggregate Transportation Study.

Planning Initiatives Ltd and Associates

1992: Aggregate Resources of Southern Ontario: A State of the Resource Study.

APPENDIX I

PUBLIC PARTICIPATION

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AGGREGATE RESOURCE INVENTORY MASTER PLAN GREY COUNTY

APPENDIX I FREQUENTLY ASKED QUESTIONS

P/N 02-1722

October, 2004

1.0 FREQUENTLY ASKED QUESTIONS

In order to provide information on the study to the public, the attached Frequently Asked Questions was put on the web site and reviewed at the first Open House.

1.1 What is the purpose of this Study?

There are five purposes for this Study:

- i) to accurately identify and examine the Mineral Aggregate Resource in the County of Grey;
- ii) to assess the environmental, social and economic factors affecting the resource utilization;
- iii) to develop a management strategy for the aggregate resource and rehabilitation of future and existing extracted areas;
- iv) to develop Official Plan policies for the implementation of the management strategy into the Grey County Official Plan; and
- v) to ensure that aggregate resources are protected and managed in the County of Grey in a manner that is in the public interest, and which has regard for the Provincial Policy Statement.

1.2 What does the Study involve?

The Study has been divided into three stages: (1)Data Collection; (2) Analysis and (3) Study Findings.

Public participation is involved throughout the Study. The Data Collection stage will focus on identifying aggregate resources, environmental features, agricultural land base, ground and surface water features, haul routes and cultural heritage resources. Additionally, planning documents will be reviewed and community information collected.. An aggregate market analysis will be undertaken and fiscal and economic impacts will be studied. This work was completed late last fall.

The Analysis stage assesses the data and information regarding implications for aggregate resource management.

The Study Findings will be a summary, integrating large amounts of data into a series of maps, and accompanying text, with recommendations for aggregate resources management in Grey County.

1.3 What is the licencing process for pits and quarries?

Licences are issued by the Ministry of Natural Resources under the Aggregate Resources Act. Provincial Standards under this act dictate studies that must be completed and site plan information that must be provided as part of an application submission. There is also a requirement for a public and agency consultation process.

In order for the pit or quarry to be licenced, it must also be zoned to permit extraction. In many cases an Official Plan amendment is also required.

Applications for the licence, Official Plan Amendment and zoning by-law amendment can all occur at the same time.

1.4 Will this Study change the licencing process in any way?

No.

1.5 What are the objectives of the Study?

- i) Assess the extent of aggregate resources in the County and the extent of aggregate resources currently licenced in Grey County;
- ii) Identify future market demand areas;
- iii) Identify future market supply areas outside of Grey County;
- iv) Evaluate planning policy for non-related aggregate extraction with respect to the implications for aggregate resource production;
- v) Master rehabilitation scenarios for each area and address the issue of after use;
- vi) Identification and evaluation of extraction and rehabilitation scenarios on the environmental, social and economic factors and the identified preferred option;

- vii) Develop planning policy and designations for the County Official Plan to implement the Master Plan for the Planning period (20 years); and
- viii) Appropriate protection of selected areas of aggregate resource from non-related land uses beyond the 20-year time horizon, designation of haul routes, road construction and maintenance standards and Municipal process for dealing with aggregate applications.

1.6 How is the Public able to be involved in this Study?

It is important for the public to provide input as well as to understand the results of the Study. Information will be available on the County's Web Page that can keep you up to date with the progress of the Study. Comment sheets are available at the Open House for the public to provide input.

Comments or inquiries are welcome at any time.

1.7 Will there be more pits as a result of this Study?

No. This Study has nothing to do with the licencing of pits or quarries or encouraging applications. This Study will identify where pits and quarries could be located should landowners or operators choose to pursue an application for a licence.

There will be more pits in the future as a result of increased market demand and as existing pits are depleted and rehabilitated. This Study should help the County and Municipalities prepare for aggregate resource development.

1.8 When will the Study be completed for public review?

We are aiming for July 2003.

1.9 How much input has the Public Liaison Committee had to the development and findings of the Study?

The Public Liaison Group meets every 2-3 months and is updated on the progress of the Study by the consultants. At every critical point, the Public Liaison Group has been involved in voting on the approach for the consultants to take to ensure the direction of the study is in keeping with the goals and objectives of the Public Liaison Group and Grey County. Questions and issues are continually raised by the Public Liaison Group that are addressed by the consultants to ensure the data collection, analysis and study

findings are accurate, representative and complete. The Public Liaison Group has played a key role in the development and execution of this Study.

1.10 Who is on the Public Liaison Group and who do they represent?

The Public Liaison Group consists of the following people:

John S. Black	Township of West Grey
Jackie Fraser	Aggregate Producers Association of Ontario
Howard Greig	Township of Chatsworth
Tom Jones	Aggregate Producer
Dave Munro	Ministry of Natural Resources
Gary Senior	Conservation Authorities
Anastasia Sparling	Municipality of Grey Highlands
Jennifer Sutherland-Prentice	Aggregate Producer
Bob Waind	County Representative

Project Coordinator: Ron Glenn, Grey County

2.0 OPEN HOUSE – OCTOBER 19, 2002

2.1 Notice

The attached notice for the Open House was advised in the local paper. It was also posted on the Web page.

2.2 Handout

Attached is the handout available to attendees at the Open House. It was also posted on the web site after the Open House.

Status of the Aggregate Inventory Master Plan

Grey County has undertaken a study to ensure that aggregate resources are protected and managed in a manner that is in the public interest, and which has regard for the Provincial Policy Statement. Aggregates are gravel, sand, limestone and other earth and rock materials suitable for construction.

A consulting team was hired in December of 2001 and has been working on the data collection stage of the project since that time. The purpose of this Open House is to present information gathered to date to the public and obtain input to ensure it is complete and accurate.

Information about this study and data collected is available on the County web site (www.greycounty.on.ca). Maps are available for public review on the County web site, or at the County office and local municipal offices. Comments from interested parties are always welcome.

The following outlines a summary of work completed to date by the various disciplines within the study team.

A. Aggregate Resource Inventory

During the summer of 2002 the aggregate resources of Grey County have been re-mapped and reassessed.

The new mapping is a summary of the best available geological mapping and resource information, and it reflects recent changes in Ontario’s Provincial Specifications.

All of the deposits and existing gravel pits were re-examined in the field, and an up-to-date database was compiled which summarizes the physical and licence information on each pit and quarry.

Three categories of aggregate resources are identified on the map:

1. Primary Deposits are those that are relatively thick, consistent and have not significant quality limitations. These deposits contain more than 35% gravel, and they are of interest for commercial operations.
2. Secondary Deposits are those that display some variability, some quality limitations, or are not fully assessed due to a lack of available data. These deposits may also contain more than 35% gravel, but there may be inconsistency in the materials. These deposits are also for interest for commercial operations.
3. Tertiary Deposits are those that are thin, contain limited volumes, have significant quality limitations, or contain limited amounts of gravel. These deposits are important sources for local needs, but they are unlikely to support large scale commercial operations.

B. Natural Heritage

MNR’S NRVIS database has been obtained, which includes among other information:

- ▶ Provincially Significant Wetlands (PSWs)
- ▶ ANSI Life Science Areas
- ▶ ANSI Earth Science Areas
- ▶ Conservation Areas
- ▶ Forest coverage, lakes, rivers, ponds (fish habitat), deer wintering areas and many other features.

Overview mapping has been prepared based on the NRVIS data. The natural heritage mapping also shows both provincially significant wetlands and other wetland areas (unevaluated and/or not provincially significant) and woodlots greater than 40 ha.

C. Agriculture

Preliminary background data has been collected and mapped. This includes coverage of the Canadian Land Inventory (CLI) data for the County and the soil survey report and mapping (Soils of Grey county). The Ontario Ministry of Agriculture and Food has supplied Artificial Drainage Mapping and Agricultural Land Use Mapping.

D. Planning

This component of the study includes research into the Social, Cultural and Planning aspects of Grey County, including identification of schools, community and recreation facilities, cultural heritage resources (archaeology), and special groups. All information has been produced on maps.

Municipal Planners and other staff have been interviewed and they provided information and insight on local issues regarding aggregate extraction.

E. Economics

Historic data was compiled on the aggregate industry in Ontario and Grey County, municipal finance, and the local economy. In contrast to the other areas of study, this data cannot be summarized on maps, so a background report has been prepared illustrating pertinent charts and graphs.

F. Transportation

Background information obtained from the Province and the County has been obtained. Mapping has been prepared to summarize the extent of the Provincial and County Road network, including the nature of the road surfaces and traffic volumes.

The Provincial Highway network, consisting of Highways 6, 10, 21 and 26 forms the backbone of the transportation system within the County. County Road 4 (formerly Highway 4) generally carries the most traffic of all of the County Roads.

G. Project Timing

The Data Collection Stage of the project will be completed within the next month or so, after assessment and integration of public comments. The Analysis Stage will follow immediately thereafter, focusing on:

- ▶ Constraint Overlay Mapping;
- ▶ Development of an Evaluation Criteria and a Resource Evaluation Model;
- ▶ Aggregate Market Analysis;
- ▶ Cost Benefit Analysis;
- ▶ Community Impact Analysis; and
- ▶ Traffic Impact Assessment.

Towards the end of the Analysis Stage (anticipated to be March-April 2003) a second Open House will be held to relay information to the public and obtain comments. After that the Master Plan will be finalized.

H. Public Input

The consulting team, along with the Public Liaison Committee, want to ensure that the data collected to date is accurate and complete. We welcome comments or questions concerning the work done to date.

Please take the time to fill out a comment sheet at the Open House or refer to the County's web page for the same opportunity.

For further information please contact:

Ron Glenn, Project Co-Ordinator
Grey County
595 9th Avenue East
Owen Sound, Ontario N4K 3E3

Phone: (519) 376-2205
Fax: (519) 376-7970

Email: rglenn@greycounty.on.ca

Grey County Aggregate Inventory Master Plan



Handout for Public Open House

Date: Saturday, October 19th, 2002

Location: Markdale Arena

Time: 10:00am - 12:00pm



2.3 Comment Sheet Responses

Comment Sheets were handed out to all Open House attendees. Two responses were received and are attached.

**Aggregate Inventory Master Plan
Grey County**

Public Open House - October 19th, 2002

Comment Sheet

Name: Aroostova Sparling Phone No. _____
Address: _____

Comments: (Please write clearly)

The public is interested in how
extraction of primary aggregate sites will
impact on the water table.

There better be practical incorporation
of the groundwater study into the aggregate
master plan.

Perhaps certain aggregate sites may
be excluded from extraction to prevent
negative impact on the water table.

This aspect of the plan must be dealt with.

Please return the completed comment sheet prior to November 8, 2002 to:

Ron Glenn, Project Co-Ordinator
Grey County
595 9th Avenue East
Owen Sound, Ontario N4K 3E3

Phone: (519)376-2205

Fax: (519)376-7970

Email: rglenn@greycounty.on.ca

see other side

**Aggregate Inventory Master Plan
Grey County**

Public Open House - October 19th, 2002

Comment Sheet

Name: Grant Pattullo Phone No. 369-5183
Address: R.R.2 Priceville, Ont. N0C 1K0

Comments: (Please write clearly)

An excellent, clear, easily understood presentation
by Ron Glenn. I wish some of the economic
charts had been available as handouts.
Are they on the county web site?

I would be happy to serve on the
Public Liaison Committee.

Please return the completed comment sheet prior to November 8, 2002 to:

Ron Glenn, Project Co-Ordinator
Grey County
595 9th Avenue East
Owen Sound, Ontario N4K 3E3

Phone: (519)376-2205
Fax: (519)376-7970

Email: rglenn@greycounty.on.ca

3.0 OPEN HOUSE - MAY 10,2003

3.1 Notice

The attached notice for the Open House was advertised in the local paper. It was also posted on the web site.



**Notice - Public Open House
Grey County
Aggregate Resource Inventory Master Plan**

Grey County has retained Jagger Hims Ltd. to prepare an Aggregate Resource Inventory Master Plan. This study is being undertaken because the County, in the development of its Official Plan, identified aggregate as an area requiring further study. The Master Plan must work towards protecting and managing this Provincially Significant resource to ensure that the public interest of the people of Ontario is being met.

A Public Liaison Group, representing Provincial Agencies, Local Municipalities, Grey County and Aggregate Producers, has guided the development of the Aggregate Resource Inventory Master Plan to date.

As part of the Study, data collection was completed in the Fall of 2002, following the public meeting held October 19, 2002. The study team has completed the analysis and is seeking public input.

Anyone with an interest in the future aggregate planning for the County is encouraged to attend this Open House and to provide comments. Information is also available on the County web site, under the link "Aggregate Inventory Master Plan".

The Open House is scheduled for:

Date: Saturday, May 10, 2003
Time: 10:00 A.M. to 12:00 Noon
Location: Centre Grey Recreational Complex, Markdale, Ontario

A short introductory presentation will take place at 10:15 A.M., followed by one on one discussions. All are welcome to attend.

For further information on this project, please contact:

Ron Glenn, Senior Planner
County of Grey
Project Coordinator
(519) 376-2205 ext 238
rglenn@greycounty.on.ca

3.2 Handout

Attached is the handout available to attendees at the Open House. It was also posted on the web site after the Open House.

Grey County Aggregate Inventory Master Plan

Status of the Aggregate Inventory Master Plan

Grey County has undertaken a study to ensure that aggregate resources are protected and managed in a manner that is in the public interest, and which has regard for the Provincial Policy Statement. Aggregates are gravel, sand and crushed rock materials suitable for construction use.

A consulting team was hired in December of 2001 and has been working on data collection and analysis stages of the project since that time. An Open House was held in October of 2002 to present the results of the data collection stage and to obtain public input to ensure the information obtained was accurate and complete. The purpose of this May 2003 Open House is to present the results of the analysis stage and to obtain public comments.

Information about this study is available on the County web site (www.greycounty.on.ca). Maps are available for public review on the County web site, or at the County office and local municipal offices. Comments from interested parties are always welcome.

The following outlines a summary of work completed during the analysis stage by the various disciplines within the study team.

A. Aggregate Resource Inventory

During the summer of 2002 the aggregate resources of Grey County have been re-mapped and reassessed.

All of the deposits and existing gravel pits were re-examined in the field, and an up-to-date database was compiled which summarizes the physical and licence information on each pit and quarry.

B. Constraint Overlay, Development of Evaluation Criteria and Resource Evaluation Model

Once it was known where the aggregate resource was, other factors (such as settlement areas, woodlots, etc.) referred to as constraints were “laid over” the aggregate resource to see where they conflicted.

The results of the Constraint Overlay mapping exercise identified areas within Grey County containing no aggregate resource, constrained aggregate resource, or un-constrained aggregate resource.

Given that there were large portions of the aggregate resource that had varying degrees of constraints, a Resource Evaluation Model was developed to assist in understanding the significance of the constraint or the combination of constraints.

Within the model five possible categories were identified: eliminated lands, highly constrained lands, moderately constrained lands, minimally constrained lands and unconstrained lands.

The evaluation criteria provides an evaluation of the potential impact from aggregate extraction on every potential constraint (e.g. provincially significant wetlands, specialty agriculture, settlement areas, etc.)

C. Community Impacts

Aggregate extraction, processing and transport have the potential to cause unacceptable or undesirable impacts on communities and people if not managed to avoid or minimize impact. Operational impacts of pits or quarries are

managed on each site by the operator and regulated by the Site Plan and License requirements based largely on Provincial criteria of noise, dust, groundwater, etc.

The location of settlements and communities were identified in the Study. Community sensitivity to impairment of safety of people relative to aggregate transport was assessed. One such community was determined as deserving careful consideration in further aggregate resource planning.

D. Aggregate Market Analysis

Local demand for aggregates in Grey County is expected to remain below 3 million tonnes per year over the next two decades.

There may be a medium term potential for Grey County producers (particularly those in the southern area of the County) to export their product to demand areas in the north-western portions of the greater Toronto area (GTA). Long term potential exists for Grey County to export to the GTA in greater volumes. Monitoring of the aggregate market in the GTA is recommended in order to ensure that Grey County producers are able to respond to emerging demands.

E. Fiscal and Economic Analysis

The fiscal and economic analysis relied on case studies of three aggregate operations to assess the typical impact of aggregate extraction on municipal finances and its contribution to the local economy.

Aggregate operations provide a modest positive impact to both the County and local municipality in which they are situated. The magnitude of the positive impact varies with the size of the operation.

The aggregate industry provides basic employment within the County. It is estimated that 530 persons are involved in aggregate extraction and processing, and another 800 jobs are supported through local purchasing of goods and services by the aggregate operations and its employees. The local construction industry benefits from the local availability of aggregate for its projects. Aggregate operations provide financial support to a variety of civic and other organizations in the County.

F. Traffic

The Provincial highway network, consisting of Highways 6, 10, 21 and 89, forms the backbone of the transportation system within the County. The majority of aggregate moves within Grey County, with some trips to Bruce and Huron Counties.

The Grey County Official Plan does not designate haul routes for aggregate extraction and shipping. As demand for aggregate materials increases, the need to designate haul routes and undertake road improvements relative to specific new applications for aggregate extraction will become more important.

G. Natural Environment Enhancement

As part of the terms of reference for the study, opportunities for restoration of the natural environment following aggregate extraction were developed.

Proposed after uses should take into account the surrounding natural environment, in order to ensure consistency. The rehabilitation of a pit or quarry may offer unique opportunities to enhance natural features that are currently significant or sensitive. Rehabilitation techniques that account for adjacent land uses, natural features and

rehabilitation activities are capable of increasing the ecological integrity as well as the capacity of a landscape to support a range of human activities. Innovative recreation concepts can be employed in the context of a regional ecosystem rehabilitation initiative.

When larger scale natural processes are considered in the rehabilitation plans for new sites as well as existing licensed areas, net economic and environmental benefits are more rapidly realized.

H. Scenarios for Extraction and Rehabilitation

There are two main types of glacial deposits in Grey County which form the majority of good quality aggregate resources: Out wash deposits, often located in lowlands and therefore commonly extracted below the water table, and ice-contact deposits, often located at higher elevations with dry, hummocky topography, and likely rehabilitation to a dry after use.

A flow chart has been developed to identify the most beneficial rehabilitation options given the primary adjacent land use and the proximity to settlement.

I. Project Timing

The analysis stage of the study is near completion. Once public comments are received the reports will be finalized in a draft format and presented to the Public Liaison Committee. We anticipate this will be in late May of 2003. Based on their input, the report will then be finalized and submitted to the Project Coordinator by July 2003.

J. Public Input

The consulting team, along with the Public Liaison Committee, want to ensure that the data collected to date are accurate and complete and the results of the analysis are clear and comprehensive. We welcome comments or questions concerning the work done to date.

Please take the time to fill out a comment sheet at the Open House or refer to the County's web page for the same opportunity.

Grey County Aggregate Inventory Master Plan



Handout for Public Open House

Date: Saturday, May 10th, 2003

Location: Markdale Arena

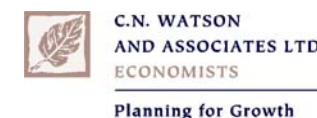
Time: 10:00am - 12:00pm

For further information please contact:

Ron Glenn, Project Coordinator
Grey County
595 9th Avenue East
Owen Sound, Ontario N4K 3E3

Phone: (519) 376-2205
Fax: (519) 376-7970

Email: rglenn@greycounty.on.ca



APPENDIX J

PUBLIC LIAISON GROUP MINUTES

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
WEDNESDAY MARCH 3, 2004 – 10:30 A.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: John S. Black, Chair, Gary Senior, Saugeen Valley Conservation Authority, Dave Munro, Ministry of Natural Resources, Tom Jones, Miller Paving Limited and Paul McQueen, Municipality of Grey Highlands.

Others: Anne Guiot, Skelton Brumwell and Associates, Andrew Cooper, Senior Geologist and David Hanratty, Resource Manager, Lafarge Canada Inc.

Also

Present: Ron Glenn, Senior Planner and Barb Heerschap, Administrative Assistant.

Chair Black called the meeting to order.

ADOPTION OF MINUTES

AG01-04 MOVED BY: Tom Jones SECONDED BY: Gary Senior

THAT the Minutes dated May 21,2003 be adopted as received.

CARRIED

NEW MEMBERS

Ron Glenn welcomed new members to the Committee.

OVERVIEW OF REPORT TO DATE

Mr. Cooper and Ms. Guiot provided a detailed overview of the report highlighting each section.

Discussion on the recommendations and conclusions by the Committee took place.

Mr. Copper noted that Groundwater was noted in the Terms of Reference but was removed as there is a larger study that has been carried out by Grey and Bruce Counties. Mr. Cooper noted that a statement should be included in the Plan with respect to groundwater.

Mr. Glenn advised that the local municipalities in Grey County are undertaking a Septage Waste Study.

Suggested change to Schedule - Figure 15-1 – "Aggregate resource areas recommended to protection and potential extraction" – Moving from recommended area to an actual license, this analysis does not take into account some of the local features. It was recommended that the wording be changed from "to" to "for" and delete the last two words. This will now read: "Aggregate resource areas recommended for protection.

A general discussion took place as to why bedrock resource was not included.

Mr. Glenn advised the Study should be finalized and brought back to this Committee for final review and discussion. The timeframe on this would be approximately two months.

Mr. Glenn noted that no comments on the Study have been received from the Local Producers and the Aggregate Producers Association of Ontario (APAO). Comments have been received from the Ministry of Natural Resources and the Conservation Authorities.

The Committee agreed that it is necessary for comments to be received from the Producers.

Ms. Guiot noted that every attempt would be made to finalize this document.

There have been good balanced comments and good discussions have taken place.

Action to be followed up on:

- Methodology for evaluation and identification;
- Expand on field work;
- Follow up with Ministry of Development and Mines with regard to the level of acceptance for the maps;
- Methodology of ARIP (Aggregate Resource Inventory Papers) will be discussed in the 50 page report.

In conclusion, Mr. Cooper noted that this a regional study and this is the first step for obtaining a license in any area.

A brief discussion then followed.

It was agreed that comments are to be forwarded to the County and staff will coordinate these and forward them to the Consultant.

The Consultant will review comments and determine the timeframe.

The next meeting will be at the call of the County.

On motion, the meeting adjourned at 12:10 p.m.

JOHN BLACK, CHAIR

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
WEDNESDAY MAY 21, 2003 – 10:00 A.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: John S. Black, Chair, Robert Waind, County Representative, Gary Senior, Saugeen Valley Conservation Authority, Dave Munro, Ministry of Natural Resources, Jennifer Prentice-Sutherland, Anastasia Sparling, Municipal Representative, Robert Waind, County Representative, Tom Jones, Miller Paving Limited.

Others: Anne Guiot, Skelton Brumwell and Associates, Andrew Cooper, Senior Geologist and Paul Manning, Jagger Hims Ltd. Sean Colville, ESG International.

Also

Present: Ron Glenn, Senior Planner and Barb Heerschap, Administrative Assistant.

Chair Black called the meeting to order.

ADOPTION OF MINUTES

AG02-03 MOVED BY: Robert Waind SECONDED BY: Tom Jones

THAT the Minutes dated March 7, 2003 be adopted as received.

CARRIED

UPDATE ON OPEN HOUSE

Anne Guiot gave a brief overview on the recent public open house that was held in early May. She advised that attendance was similar to the late Fall Open House. This was followed by a brief group discussion.

Mr. Glenn advised that as a result of the Open House, no comments have been received from the public.

Maps that were on display at the Open House were to be forwarded to the local municipalities. Andrew Cooper advised that the maps have not yet been forwarded due to computer problems. Once these maps are complete, they will become part of the final report.

It was suggested that the one page hand out that was available at the Open House should be placed on the County Web Page. County Staff will look after this.

Ms. Guiot advised that after the meeting today, the Consulting Team will meet to finalize the recommendations of the report. Timeframe was briefly discussed. She advised that a draft report would be forwarded to the County by the end of June. Maps will be forwarded to the County for distribution to the local municipalities.

It was noted that the Conservation Authorities have not received any constraint mapping at all. Maps that were released last Fall will be forwarded to the Saugeen Valley Conservation Authority and the Ministry of Natural Resources. Gary Senior will distribute maps to the neighbouring Conservation Authorities. Comments will be forwarded to the County. The Consulting team will submit a draft report in June and the County will distribute the report to the Liaison Group. Twelve hard copies plus a disc will be forwarded to the County.

HYDROGEOLOGY – DISCUSSION AND DIRECTION

Mr. Cooper noted that hydrogeology has been restricted to the County Official Plan. Mr. Glenn advised that he will investigate to see when the draft final report of the join Grey Bruce groundwater study can be shared.

Discussion took place with regards to sensitive hydrogeology and the wording that should be used in the evaluation and the sensitivity criteria of the report. Mr. Cooper noted that site specifics are a big factor. The AMEOT study, which only affect five former municipalities, four in Grey County and one in Dufferin County, was briefly discussed. Groundwater is a resource but could also be used very effectively. It was noted that model and identification criteria have been built around a number of constraints. The Group suggested that a separate section in the report be included that would touch briefly on groundwater protection. Mr. Glenn stressed the importance of including groundwater protection information as outlined in the terms of reference. A brief discussion then followed.

NATURAL ENVIRONMENTAL ENHANCEMENT OPPORTUNITIES

Sean Colville addressed the group and highlighted issues such as the general guidelines to natural rehabilitation concept development. These guidelines were provided to the Group. Buffers and setbacks were also discussed.

REVIEW OF REPORT FORMAT

Ms. Guiot advised that the team is trying to create a report that is user friendly. She advised that the report will contain approximately 50 pages along with a series of appendices in the back of the report. She reviewed with the group the various sections that will be contained within the report. The Group recommended that an executive summary be included with the report.

FINALIZE DETAILS OF REPORT SUBMISSION

Ms. Guiot reviewed the details of the final report, i.e. report cover, summary report, etc. The size of the report will determine if a binder will be used.

RECOMMENDATIONS FROM THE LIAISON GROUP

Dave Munro questioned the scale of the map that will be circulated with the report. Andy Cooper suggested that the maps be produced on 11 x 17 paper. A disc will be attached with each report that will be distributed to the group.

Discussion took place regarding extraction below the groundwater table vs. extraction above the groundwater table.

Tom Jones advised that Jackie Fraser has now moved on to a new position as Executive Director with AGCare. He noted that the Study has been a very good process.

Chair Black commended the County for moving ahead with this project. He also commended the Consulting Team.

The Team advised that they are pleased this information has come together so well.

The next meeting is scheduled at the call of the County.

On motion, the meeting adjourned at 12:25 p.m.

CHAIR, JOHN BLACK

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
FRIDAY MARCH 7, 2003 – 10:30 A.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: John S. Black, Chair, Robert Waind, County Representative, Gary Senior, Saugeen Valley Conservation Authority, Dave Munro, Ministry of Natural Resources, Jennifer Prentice-Sutherland, Harold Sutherland Construction, Howard Greig, Municipal Representative, Anastasia Sparling, Municipal Representative, Robert Waind, County Representative, Tom Jones, Miller Paving Limited and David Hanratty, Resource Manager, LaFarge Construction Materials.

Others: Anne Guiot and Gary Bell, Skelton Brumwell and Associates.

Also

Present: Ron Glenn, Senior Planner and Barb Heerschap, Administrative Assistant.

Chair Black called the meeting to order.

ADOPTION OF MINUTES

AG01/03 MOVED BY: Robert Waind SECONDED BY: Dave Munro

THAT the Minutes dated November 28,2002 be adopted as received.

CARRIED

CONSULTANT PRESENTATION

Ms. Guiot updated the Group on the status of the project. She advised that the archaeological locations and sitings of viable threatened and endangered species must be appropriately incorporated in the report. A proposal she offered was that these locations will not be identified in the public report but a disc would be sent to the County for the archaeological locations and the siting of threaten and endangered species which would be available.

Mr. Glenn advised that archeological and threatened and endangered species are two different distinct processes. Mr. Glenn advised that these should be identified in the final report.

Mr. Glenn noted that this is the first stage of the Master Plan. The second stage is to implement an Official Plan policy at the County Level.

GROUNDWATER

Anne Guiot stated that Andy Cooper has reviewed the mapping which illustrates yields from wells. This is not a capability exercise. We are trying to find a way to include more information for some protection but we did not find a way to fit this together. We will wait for further information with respect to the wellhead water protection study.

DEFINITIONS

Mr. Bell presented several definitions to the Committee. Following discussion by the Committee, the following revised definitions have been provided:

a) SENSITIVE COMMUNITY

A community of people which, by the nature of methods of transportation and customs, is vulnerable and exposed to the adverse effects of aggregate extraction and/or aggregate transport to an extent which significantly reduces the safety of normal or routine activities occurring at reasonably expected times.

The Old Order Amish Community of the Township of Chatsworth (Former Sullivan Township) is such a community. It is an Old Order community using horse and buggy, steel wheels and no hydro to operate a growing number of farms in the Williamsford area. The children are routinely walking to school on the side of the road and Community members travel only by horse drawn buggies and wagons. This presents a real impairment of the safety of the people relative to gravel trucks and other large vehicles travelling in the area.

b) A SETTLEMENT

A Settlement is any area designated on Schedule A of the Grey County Official Plan as Urban, Urban Fringe, Hamlet, Inland Lakes and Shoreline and also the Niagara Escarpment Recreation designation.

These lands are for the most part zoned for existing or planned development or zoned to identify future development.

These areas are constrained to the possibility of aggregate extraction by reason of physical development over the resource or intended development of residential, commercial, industrial or other built form uses. The aggregate resource is effectively not available to supply any part of the mineral resource needs.

c) **SMALL SETTLEMENTS**

Small Settlements are clusters or pockets of residential development which have not been designated in the Official Plan but which may warrant careful consideration in minimizing the effects of aggregate extraction and transport in the area. This can be provided by suitable upgrades to the haul route and other buffering treatment established in agreements between the Municipality and the aggregate producer.

MAPS BASED ON RESOURCE EVALUATION MODEL

Ms. Guiot briefly discussed the constraints on the maps i.e. out, high, medium low, unconstrained. These maps will be presented at the Open House. Maps will be distributed to the Committee prior to the Open House. After the Open House a decision will be made. This will be forwarded to the County and the County will distribute these maps to the Committee. It was suggested these maps be forwarded to the other Conservation Authorities. Once the County provides the map, Gary Senior will provide neighbouring Conservation Authorities with a copy.

UPDATE ON ANALYSIS

A summary was distributed as to where the process is now. Ms. Guiot would like input and suggestions on who to use for a potential case study analysis. The objective is to select one category and to study it in detail.

SOCIAL & PLANNING MATTERS

There are good policies contained in the County Official Plan.

SCENARIOS FOR EXTRACTION AND REHABILITATION

The second stage of the analysis is working independently. Sean Colville is working on the third phase of analysis being, Natural Environmental Enhancement.

This component of the study will be carried forward and added information to this component will be addressed.

OPEN HOUSE

The date for the Public Open House is scheduled for **Saturday May 10, 2003, 10:00 a.m. - NOON at the Markdale Complex.** The Administrative Assistant will look after booking the facility. Ron Glenn will make a presentation at the Open House with questions provided by the Consultant. Handouts will be available at the Open House. County Staff will look after advertising in local papers. The Open House will also be posted on the County Web Site.

NEXT MEETING

The next meeting is scheduled for Wednesday May 21, 2003 @ 10:00 a.m.

Moved by Tom Jones that the meeting adjourn at 12:55 p.m.

CHAIR, JOHN BLACK

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
THURSDAY NOVEMBER 28, 2002 – 10:00 A.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: John S. Black, Chair, Robert Waind, County Representative, Gary Senior, Saugeen Valley Conservation Authority, Dave Munro, Ministry of Natural Resources and Tom Jones, Miller Paving Limited.

Others: Andy Cooper, Senior Geologist, Jagger Hims Ltd. Anne Guiot, Skelton Brumwell and Associates and Sean Colville, ESG International.

Also
Present: Ron Glenn, Senior Planner.

Chair Black called the meeting to order.

OVERVIEW

Andy Cooper presented an overview of the project. The Committee will be taking a more active role. This is a critical meeting which includes evaluation criteria. We are moving to value judgements. The Committee should meet more often. Input from the Public showed that protection of groundwater was an issue.

ANALYSIS STAGE

This will be ongoing until the end of January. This consists of constraint and model building. The model provides the framework.

SCENARIO AND THIRD STEP

How can we do this in policy to make things better and not just regulate?

TIMING

Timing is on track .

UPDATE ON DATA

Sean Colville spoke to the Committee and presented an update on the utilization of the NIRVIS data.

He stated that coldwater streams have not been broken out, only as aquatic habitat. We are treating all streams as cold water for purpose of this Study. He stated he has created a Natural Heritage layer over primary aggregate.

AGRICULTURE DATA

The Canada Land Inventory data is not digital. The soil survey is digital but not very useful. The County Official Plan mapping utilized an alternative land evaluation model. The agriculture and special agriculture layers were used as a constraint layer for analysis.

Questions were asked with respect to the issue of rehabilitation and agriculture. It was noted that alternatives to be considered compose material for utilization in a rehabilitation project.

AGGREGATE INVENTORY MASTER PLAN AND THE GROUNDWATER STUDY

Contact has been made and discussions have taken place between Consultant's. The information sharing does not really work as the groundwater study is identifying the sensitivity of lands to groundwater contamination.

The Ministry of Environment groundwater probability mapping may be useful as groundwater supply is a concern.

There should be communication between the Aggregate Liaison Committee and the Groundwater Study Team Committee. The Aggregate Act states there should be site specific issues related to the license. This will be reported back once some of the links have been finalized and communication complete.

CONSTRAINT OVERLAY

There are some lands that have no constraints but there is significant constraint elsewhere in the County.

Anne Guiot addressed the Committee and advised that they have identified unconstrained lands. The second and third stages of constraint analysis is ongoing. Page 23 of the proposal, outlines what happens or is happening now with respect to the Evaluation Criteria and the Resource Model looking for Committee input.

Sean Colville addressed issues on wildlife, valley lands and wetlands. There was significant discussion around the use of hazard land catchment areas for wetlands. Gary Senior stated that all hazard land should be used to cover off all wetlands. The Wetlands, Provincial Significant Wetlands and others should all be treated the same.

Hazard lands are a low level constraint. Gary Senior stated hazard land very rarely changes.

Andy Cooper stated that Wetlands are a concern issue that will need to be addressed further, ideally at a Site Specific level.

Anne Guiot stated that we have Provincially Significant Wetlands, Non-Provincially Significant Wetlands and Hazard Lands. The majority of the issues have been mapped and can be dealt with.

Andy Cooper noted that the Conservation Authority created a benefit as the creation of more wetlands. This is seen as an opportunity versus a prohibition to development.

RESOURCE EVALUATION MODEL

Anne Guiot spoke on the issuance of settlement which will be discussed further at the next meeting.

Significant woodlands and significant valley lands will need to be further defined and worked on. Hazard land will be added as a low constraint.

Changes have been identified in handout.

AG04/02 MOVED BY: Tom Jones SECONDED BY: Robert Waind

THAT the Model and Criteria be circulated to the Committee for review and comments by December 6, 2002.

CARRIED

NEXT MEETING DATE

The next meeting is scheduled for January 23, 2003 at 10:00 a.m. in the Garafraxa Room of the County Administration Building.

Moved by Gary Senior that the meeting adjourn.

CHAIR, JOHN BLACK

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
FRIDAY OCTOBER 11,2002 – 10:00 A.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: John S. Black, Chair, Municipal Representative, Dave Munro, Ministry of Natural Resources, Jackie Fraser, APAO, Anastasia Sparling, Municipal Representative, Jennifer Sutherland-Prentice, Local Aggregate Producers, Howard Greig, Municipal Representative and Tom Jones, Miller Paving Limited.

Others: Andy Cooper, Senior Geologist, Jagger Hims Ltd. Anne Guiot, Skelton Brumwell and Associates and Cam Watson, C.N. Watson and Associates Ltd. Economist.

Also

Present: Ron Glenn, Senior Planner and Barb Heerschap, Administrative Assistant.

Chair Black called the meeting to order.

MINUTES

AG03/02 MOVED BY: Dave Munro SECONDED BY: Howard Greig

**THAT the Minutes of the Aggregate Inventory Master Plan
Liaison Group dated June 25,2002 be adopted as received.**

CARRIED

CONSULTANT PRESENTATION

Mr. Andy Cooper, Senior Geologist, Jagger Hims Limited provided a project update. He advised that due to cartographic issues and staff changes, this portion of the project has been delayed. He noted that a sub-contractor for the cartographic work has now been retained. Discussion continued noting that things are now in order for the upcoming Open House scheduled for Saturday, October 19,2002. The second Open House will be scheduled for the end of March, 2003 with a completion date for the project is now scheduled for June,2003.

The Resource mapping has been completed during the summer months. Some tidying up is required for the bedrock mapping. One area of concern is the lack of sub surface information in some of the deposits, in particular the secondary. The reason for this is because there is not enough known about them.

Northern Development and Mines is a partner in the project and will be responsible for publishing the County wide Aggregate Resource Inventory Paper.

UPDATE ON COST/BENEFIT,SUPPLY/DEMAND AND MARKET FORECAST

Mr. Cam Watson, Economist, addressed the Committee and distributed excerpts contained within a report. He highlighted and discussed certain areas contained within the report.

Dave Munro clarified some figures with respect to royalties for wayside permits. Mr. Watson noted the fees contained in the report will be revised.

Mr. Watson noted the census figures were taken from 1996 data. He briefly reviewed the total aggregate employment in Ontario By tonnes extracted.

He summarized and advised that they will now proceed into the next phase which is data gathering.

NATURAL ENVIRONMENT AND AGRICULTURE UPDATE

Ann Guiot updated the Committee on the above noted issues. She highlighted on the primary data that has been collected with respect to agriculture. A physiographic review of the County has been completed. Natural environment and agricultural features have been mapped. The environmental maps will be forwarded to the County prior to the Open House.

TRANSPORTATION AND PLANNING

Ms. Guiot continued her discussion with respect to the above. She advised that maps are available for viewing. Mapping has been prepared to summarize the extent of the Provincial and County Road network including the nature of the road surfaces and traffic volumes.

Social culture and Planning aspects of the Study were discussed.

Archeological sites require more information. Mapping has been obtained of known archeological sites. She stated that for Open House purposes, the site identified, would be removed.

A brief question and answer period then took place.

UPCOMING OPEN HOUSE -STAGE ONE

The Public Open House is scheduled for Saturday October 19,2002 beginning at 10:00 a.m. in the Markdale Complex, Markdale,Ontario. The Notice of the Open House was published in all local papers.

Ms. Guiot distributed information that will be available at the Public Open House.

Jackie Fraser left the meeting at 11:10 a.m.

The Niagara Escarpment Plan boundary should be placed on the maps. The names of the new Municipalities and the former Municipalities should also be shown on the maps. Lots and Concessions will be shown which will try to be worked into one map.

Ms. Guiot continued discussion stating that the reason we are going to the Public is to make certain all data collection is complete and everything is accurate. This is a three stage project and this is Stage One. No discussion will take place on analysis. She stated that the Public Open House is being held and we are open to comments.

For those Committee members that are unable to attend, a brief summary of the Open House will be prepared and forwarded to the members.

A very brief summary of the Project will be available to the Public and a Comment sheet will be distributed.

Ron Glenn will make a brief presentation and explain the purpose of the Study.

It was decided that the dress code for the Open House is "Business Casual".

Ms. Guiot requested the Committee to contact her by Tuesday October 15,2002 with any additional comments/suggestions

NEXT MEETING DATE

The next meeting is at the Call of the Chair.

The meeting adjourned at 11:45 a.m.

CHAIR, JOHN BLACK

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
TUESDAY JUNE 25, 2002 – 1:30 P.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: John S. Black, Municipal Representative, Robert Waind, County Representative, Jennifer Sutherland-Prentice, Harold Sutherland Construction, Gary Senior, Saugeen Valley Conservation Authority, Tom Jones, Miller Paving Limited and Anastasia Sparling, Municipal Representative,

Others: Andy Cooper, Senior Geologist, Jagger Hims Ltd. Gary Bell, Skelton Brumwell and Associates.

Also

Present: Ron Glenn, Senior Planner and Barb Heerschap, Administrative Assistant.

Chair Black called the meeting to order and welcomed everyone.

MINUTES

AG02/02 MOVED BY: Robert Waind SECONDED BY: Gary Senior

**THAT the Minutes of the Aggregate Inventory Master Plan
Liaison Group dated February 28,2002 be adopted as received.**

CARRIED

UPDATE ON GEOLOGICAL WORK

Mr. Andy Cooper, Senior Geologist, Jagger Hims Limited updated the Committee on the geological work. He advised that field work was delayed due to a wet Spring but has now proceeded. Several municipalities have now been completed and the field work is expected to be complete by the first week of July.

Discussion continued with respect to the in office work. Mr. Cooper advised that more records are required from the Ministry of Transportation. Water well data will be assessed. This information will come from the Groundwater Study Program being undertaken by Grey and Bruce Counties.

He noted that the amount of subsurface information they are able to obtain is minimal. In late summer, review will take place with respect to the bedrock portion of the Study and they will be conducting the sampling and pulling it all together. The mapping will be compiled and forwarded to other members of the Study Team.

The Aggregate Inventory Papers that were published previously, were put together in digital format. There was a delay in receiving these. There are a number of cartographic errors contained in the mapping, therefore the schedule is impacted which will delay the environmental and economics part of the Study. There could be a minor adjustment in the scheduling because of this delay.

Mr. Cooper highlighted on several issues as a result of the mapping. These are as follows:

- Approximate water table;
- Low flat areas contain terraces which will have environmental concerns;
- High terraces – above water table;
- Outwash deposits which are prime targets for aggregate deposits;
- Morines are more mixed, more variable which are harder to mine;
- Groundwater table is well down in deposits being thick and dry which would make them fairly attractive;
- Environmental constraints;
- Primary vs. Secondary;

Questions followed with respect to the field work that is presently be carried out. It was noted that they are presently looking at all the licensed pits and reviewing the mapping to see if there are new exposures to make use of any geological mapping and seeing how it fits in a County wide basis. It was mentioned that the Provincial Policy Statement will have to have regard for. Options should be kept wide open as some will be lost along the way.

Hydrogeological data will be a big factor which will set some criteria for screening.

Discussion followed with respect to the scheduling of the Public Meeting on the first part of the Study which will take place in early Fall.

UPDATE ON ENVIRONMENTAL AND AGRICULTURAL WORK

Mr. Gary Bell provided a summary from Sean Colville, from ESG International Inc. He noted that staff have reviewed the Canada Land Inventory mapping, soils mapping, drainage mapping, agricultural land use mapping, Provincial and Aggregate resources policies as well as rehabilitation mapping to date. Things will be on hold until the new mapping is obtained. They are working on agricultural consensus data and have reviewed the Provincial Wetlands Data, i.e. forest coverages, drainage features, etc. This will be a valuable tool for the overlays.

Ron Glenn advised that the agricultural mapping has been completed through the County Official Plan. He questioned why this is being reviewed again and feels this is not a wise expenditure. Wetlands have been clearly identified. He stated he feels other areas are needed to be reviewed, i.e. deeryards, etc.

Gary Senior noted that the Ministry of Natural Resources reviews wetlands. He recommended that the local office be contacted for confirmation.

Mr. Bell suggested that the next meeting would be an appropriate time to discuss environmental issues. Data collection analysis should be complete by this time.

Mr. Bell requested the names of people he could contact in the south end of the County with respect to Special Communities. This information will be expressed in the data collection. Mr. Bell noted that he is paying attention to the issues people have been discussing with him.

UPDATE ON SOCIAL, PLANNING, TRANSPORTATION AND PUBLIC PARTICIPATION WORK

Mr. Bell addressed the Committee and highlighted on aggregate resources and known digitized licensed pits and settlement areas and settlement growth in the County.

Discussion continued on traffic and data collection and this information has been sent to all Road Superintendents in the County. The Ministry of Transportation has been contacted with respect to traffic counts and projections. In his opinion Mr. Bell stated that designated haul routes or issues of haul routes have not been a matter of concern.

Tom Jones noted that with respect to haul routes, producers work with the local Municipality. Local Municipalities work together with the producer through a gentleman's handshake.

Mr. Glenn advised that haul routes are not just gravel roads but also include paved roads.

Mr. Bell will meet with Gary Shaw regarding the County Road System.

Mr. Cooper left the meeting.

The Committee discussed and agreed to hold the Public Meeting on Saturday October 5, 2002. A formal presentation will take place at the Open House. The time of the Open House will be 10:00 a.m to noon.

The Consultant will provide the Notice for the Open House. The County will be responsible for circulating the Notice to the radio, T.V. and media. County Staff will investigate a facility to hold the Open House. The Group suggested either Markdale or Flesherton Community Centre would be an appropriate location.

The next regular meeting will take place on Thursday September 26, 2002 at 1:30 p.m. to discuss the data that will be presented at the Open House.

An Aggregate Inventory Master Plan Web page is contained in the Grey County Site. Information with respect to the Open House will be placed on the site after the September meeting.

Discussion took place with respect to the Final Open House. The Committee suggested this Open House take place in early April.

Discussion continued with respect to the testing that is taking place to determine the quality of the gravel.

Environmental issues were discussed. Extraction may occur in several areas with the exceptions to wetlands and ANSI's.

Tom Jones noted that operating quarries that are located in the water table are very rare in Grey County.

OTHER BUSINESS

Ron Glenn updated the Committee with respect to additional costs on the project. He noted that the Ministry of Northern Mines and Development have requested the County prepare a new set of Aggregate Resources Inventory Plans (ARIP). The Ministry of Northern Mines and Development have already contributed \$75,000. to the Study. The Planning and Development Committee did not support this additional cost and directed staff to contact Northern Mines and Development with respect to additional funding. Mr. Glenn has followed up and no additional funds are available. The cost of this additional work to Jagger Hims Limited would be \$58,000.

NEXT MEETING DATE

The next meeting is scheduled for Thursday September 26, 2002 at 1:30 p.m. in the Garafraxa Room of the County Administration Building.

Moved by Gary Senior that the meeting adjourn at 3:25 p.m.

CHAIR, JOHN BLACK

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
THURSDAY FEBRUARY 28, 2002 – 1:30 P.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: John S. Black, Municipal Representative, Dave Munro, Ministry of Natural Resources, Jackie Fraser, APAO, Robert Waind, County Representative, Gary Senior, Conservation Authority, Tom Jones, Miller Paving Ltd and Melanie Horton, Lafarge Canada Inc.

Others: Andy Cooper, Senior Geologist, Jagger Hims Ltd. Anne Guiot, Skelton Brumwell and Associates.

Also

Present: Ron Glenn, Senior Planner.

Chair Black called the meeting to order.

MINUTES

AG01/02 MOVED BY: Robert Waind SECONDED BY: Gary Senior

THAT the Minutes of the Aggregate Inventory Master Plan Liaison Group dated November 27,2001 be adopted as received.

CARRIED

CONSULTANT PRESENTATION

Mr. Andy Cooper, provided a project update as outlined in correspondence dated February 26,2002. He explained that billing would be separate in Phase I and II and a percentage complete for tracking purposes. This will be indicated by each Firm involved in the Project. It was noted that all billing will be sent to the County from Jagger Hims Ltd.

The time frame is being reduced to 19 months. Suggestions were made to reduce the number of meetings attended by the Liaison Group. Some money may be saved but not a large amount.

OPPORTUNITY AND CONSTRAINT

Environmental field data will be collected. This will be done as data collection in the summer months.

Discussion followed with respect to a mailing list for the Upcoming Public Meetings and/or Public Open Houses on the Master Plan. Suggestions were made with respect to a formal presentation component during the open house.

It was suggested that TV and radio be utilized for advertising purposes. The Public Meetings could be held in the Flesherton or Markdale area.

Aggregate mapping was discussed as to what will be needed, the component, the actual resources and the land forms. Two key frameworks are air photos and topographic maps. Air photos will include surface features and textures. Ground truthing will be carried out through field traverse. The Ontario Geological Survey work road cuts, excavation and river cuts. Where data is not available, soil probe or test pits including backhoe test pits, drilling, water well records including Water Resource Inventory Project (WRIP).

The aggregate resource assessment and specifications must meet Ministry of Transportation standards. Some municipalities have adopted these standards.

There are physical aspects relating to bedrock features. Key aggregate sources in the County are beaches, outwash or spill ways associated with rivers. It is very difficult to figure out how thick this is. The best source is on a Province wide basis. There are many challenges to deal with regarding identification.

It was noted that we cannot be certain if all surrounding deposits are not as good as Primary, but in actual fact based on additional information, the deposit may be Primary.

The change in specifics and change in use create a demand for limited uses. The commercial demand will require the products.

Material is marketed and transportation driven. It was noted the expansion of Highway 427 to Highway 89 will have an impact on Grey County.

Dave Munro will check with the Ministry of Natural Resources and Water Resource Inventory Project to see if it is complete and accessible in Grey County for use in the project.

The Saugeen Valley Conservation Authority erosion of the banks is complete according to information in the 1980's for use in the Study.

An approval letter from the Conservation Authorities may be required for site testing on Conservation lands

We must have a level and degree of confidence in the resource identification. The report will set out only as good as the information carried.

Testing should be part of the upgrade of the project.

NEXT MEETING DATE

The next meeting is scheduled for Thursday April 25, 2002 at 1:30 p.m.

Moved by Tom Jones that the meeting adjourn.

CHAIR, JOHN BLACK

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
TUESDAY NOVEMBER 27TH, 2001 – 12:00 P.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: John S. Black, Municipal Representative, Howard Greig, Municipal Representative, Dave Munro, Ministry of Natural Resources, Jackie Fraser, APAO, Robert Waind, County Representative, Gary Senior, Conservation Authority, Tom Jones, Miller Paving Ltd. Jennifer Prentice, Local Aggregate Producers, Anastasia Sparling, Municipal Representative and Delton Becker, Chair, Planning, Development and Heritage Committee.

Also

Present: Ron Glenn, Senior Planner.

1. The Group met over lunch to review questions for the Consultants pertaining to interviews that will be conducted with respect to the Aggregate Inventory Master Plan.

2. CONSULTANT INTERVIEWS

The team from Planning and Engineering Initiatives entering the meeting for an interview. Paul Puopolo, President, David Sisco, Senior Planner David Hardy, Hardy Stevenson and Associates, Jonathan Hack, IBI Group, Ken Cameron, Senior Project Engineer, Gamsby and Mannerow Ltd., John D. Morton, Aquatic and Waterlife Services, Zoltan Katona, Consulting Geological Engineer and Stan Denhoed, Harden Environmental Services Ltd.

The Consultants provided an overview of their proposal.

A question and answer period then followed.

Chair Black thanked the delegation for their presentation.

The delegation then left the meeting.

The team from Jagger Hims entered the meeting for an interview. Ann Guiot, Skelton Brumwell and Associates Inc. Andy Cooper, Senior Geologist, Jagger Hims Ltd. Kevin Trimble, ESG and Cam Watson, CN Watson.

The Consultants provided an overview of their proposal.

A question and answer period then followed.

Chair Black thanked the delegation for their presentation.

The delegation then left the meeting.

At the conclusion of the interviews, the Committee discussed the proposals at length and the following motion was passed.

MOVED BY: Jackie Fraser

SECONDED BY: Anastasia Sparling

THAT the firm of Jagger Hims Limited and the proposal dated October 4,2001 be recommended to the Grey County Planning, Development and Heritage Committee as the chosen Consultant to complete the Aggregate Inventory Master Plan.

CARRIED

CHAIR JOHN BLACK

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
MONDAY OCTOBER 29TH, 2001 – 10:00 A.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: John S. Black, Municipal Representative, Howard Greig, Municipal Representative, Dave Munro, Ministry of Natural Resources, Jackie Fraser, APAO, Robert Waind, County Representative, Gary Senior, Conservation Authority, Tom Jones, Miller Paving Ltd. Jennifer Prentice, Local Aggregate Producers.

Also
Present: Ron Glenn, Senior Planner and Barb Heerschap, Administrative Assistant.

1. Introductions

Chairman Black welcomed the Group. This was followed by Introductions.

2. MOVED BY: Robert Waind SECONDED BY: Dave Munro

THAT the Minutes of the Aggregate Inventory Master Plan Liaison Group dated July 17th, 2001 be adopted as received.

CARRIED

3. Review of Proposals

Mr. Glenn provided a brief overview to the Group with respect to the three proposals that have been received for the Terms of Reference.

Mr. Glenn advised that the proposal submitted from Cuesta Planning Consultants did not meet the Terms of Reference as required.

Discussion followed at length.

Councillor Greig advised that after reviewing the Cuesta Planning Consultant proposal, that there is a Conflict of Interest as this Firm is working on behalf of a Client in the Municipality of Chatsworth.

It was noted that field research must be carried out with respect to locating aggregates in the County. Mapping contained in the County Official Plan is incorrect with respect to aggregates and this must be corrected and be as accurate as possible.

Discussion continued with respect to costing of the Study.

The consensus of the Group was that the proposal submitted by Cuesta Planning Consultants does not meet the Terms of Reference, therefore the Group would not review this proposal.

As William Pol, from the Ministry of Municipal Affairs and Housing was unable to attend, the Group reviewed comments that were faxed.

Comments with respect to the above proposal were as follows

Jagger Hims Limited

- Good Proposal submitted
- This is what the County is looking for
- Very aware of the Provincial Policy Statement
- Excellent Team, technically
- Well known and respect with respect to Environmental & Hydrogeological Studies
- Knows the area well
- Strong agricultural component
- Very logical, very good proposal
- Step by step approach
- Range of price, getting what you are paid
- Technically sound
- Costing is very straight forward
- More complete package
- Far better proposal

Planning and Engineering Initiatives & Associates

- Good team, very qualified
- Seems to focus more on Open House & Public, not sure if this is what we want
- Overkill on Open House
- Leaning towards export of Materials
- Felt did a better job with respect to Policies
- Additional costing
- Unnecessary Open Houses

Comments were raised with respect to the Open House and numbers that would attend. It was noted that no public interest was shown with respect to sitting on this Committee.

Mr. Glenn advised that this process was driven by the Aggregate Producers not from the Public At Large. He felt that there would probably be limited Public Participation. He noted there has been very little Public Interest with respect to this process. The County is trying to establish Policies in order for the local Municipalities to have some direction.

Discussion took place with respect to the findings of aggregates. It was noted that there are a lot of resources in the County.

Mr. Glenn noted that both proposals submitted would complete a constraint analysis. This would be a good question to bring forward during the interview process.

The Group discussed the bottom line costing. Mr. Glenn stated that each Phase will be paid as it is completed. No additional monies will be paid until the completion of each Phase.

Mr. Glenn explained the role of this Group is to decide and agree which Consultant would be hired and make a recommendation to the Planning, Development and Heritage Committee.

Mr. Glenn advised that the Liaison Group and Planning, Development and Heritage Committee would conduct the interviews.

It was suggested that it may not be necessary to include all the Planning, Development and Heritage Committee with respect to the interviews. Councillor Greig advised that Vice Chair Waind sits on this Group and suggested that Staff

MOVED By: Howard Greig

SECONDED BY: Jackie Fraser

THAT the Chair and Vice Chair of the Planning, Development and Heritage Committee and the Aggregate Inventory Master Plan Liaison Group conduct the appropriate interviews and recommend the appropriate Consultant selection.

CARRIED

Discussion followed on the process of the interviews and the appropriate questions to be asked and the proper process to follow.

Councillor Greig suggested that Ron Glenn be the lead person and co-ordinate questions for the Group to ask the Consultant.

Dave Munro would like clarification with respect to the findings of the aggregates. Will test holes be dug?

Gary Senior had concerns with respect to groundwater impacts. He stated that both proposals indicated to some extent.

With respect to the work that will be done with the groundwater studies in Grey and Bruce Counties, the Group felt that this should be brought forward during the interview process.

Jennifer Prentice was concerned with respect to the cost. Mr. Glenn stated that the County will absorb costs for this Study. Some monies have been set aside in reserve. She stated that it should be clarified to the Public why this money is being spent and the reason for the Study.

Mr. Glenn stated that substantial time has been spent by Staff with respect to Ontario Municipal Board Hearings and legal fees on aggregate issues. This study will be paid within 3-5 years.

Councillor Greig feels this is a Study that is needed.

The Group agreed that both Consultants should be contacted for an Interview.

MOVED BY: Howard Greig

SECONDED BY: Jackie Fraser

THAT Planning & Engineering Initiatives Ltd. and Jagger Hims Limited be contacted and invited for an Interview with respect to the Aggregate Inventory Master Plan proposals submitted;

AND THAT the Chair and Vice Chair of the Planning, Development and Heritage Committee and the Aggregate Inventory Master Plan Liaison Group conduct the appropriate interviews and recommend the appropriate Consultant selection.

CARRIED

The Group will meet on Tuesday November 27th, 2001 or alternatively Thursday November 29th, 2001 to conduct Interviews beginning at 1:00 p.m. in the Garafraxa Room. This date is tentative until the Consultants have been contacted.

Mr. Glenn suggested that the Group review the evaluation criteria and forward any revisions additions to the list.

The Group will meet prior to the interviews to discuss questions that will be asked. Lunch will be brought in at noon.

Moved by Gary Senior that the meeting adjourned at 11:55 p.m.

**MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
TUESDAY JULY 17TH, 2001 - 10:00 A.M.**

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: Howard Greig, Municipal Representative, John S. Black, Municipal Representative, Anastasia Sparling, Municipal Representative, Dave Munro, Ministry of Natural Resources, Wil Pol, Municipal/Planner Advisor, Ministry of Municipal Affairs & Housing, Bob Waind, County Representative, Gary Senior, Conservation Authorities, Barry Bradley, Local Aggregate Producers, Jackie Fraser, APAO, Jennifer Prentice, Local Aggregate Producers.

Also
Present: Ron Glenn, Senior Planner and Barb Heerschap, Administrative Assistant.

1. Introductions

Mr. Glenn welcomed the Group. This was followed by Introductions.

2. Election of Chair

MOVED BY: Howard Greig

SECONDED BY: Gary Senior

THAT John S. Black be nominated as Chair.

Nominations were then closed.

CARRIED

Mr. Black was elected and assumed the Chair.

3. Adoption of Minutes

MOVED BY: Gary Senior

SECONDED BY: Dave Munro

THAT the Minutes of the Aggregate Inventory Master Plan Liaison Group dated June 13th, 2001 be adopted as received.

CARRIED

4. Terms of Reference

A letter was received from the Aggregate Producers Association of Ontario with respect to the Terms of Reference. This was brought forward for review.

Discussion followed at length.

The Terms of Reference, as modified and discussed, are attached.

The Group departed for a Tour of various gravel pits at 11:30 a.m.

The Group reconvened at 2:45 pm.

MOVED BY: Robert Waind

SECONDED BY: Gary Senior

THAT the Aggregate Inventory Master Plan Liaison Group recommend the Terms of Reference, as modified, to the Planning, Development and Heritage Committee for adoption;

AND recommend the request for proposals be circulated.

CARRIED

5. Other Business

Mr. Munro stated that he feels smaller operators should be involved with this group. Mr. Glenn advised that an ad was placed in local papers for Public at Large and minimal response was received. The Planning, Development and Heritage Committee directed Staff to proceed without Public at Large and after the Terms of Reference is finalized the Public at Large will be re-visited.

Wil Pol thanked the Group for allowing him to participate. His role will be providing assistance to the Group and he noted that he will act as a liaison through Dave Munro.

There was no other business.

6. Next Meeting Date

The next meeting will be at the Call of the Chair.

Moved by Bob Waind that the Meeting adjourned at 3:00 p.m

CHAIR JOHN S. BLACK

...MINUTES OF THE
AGGREGATE INVENTORY MASTER PLAN
LIAISON GROUP
WEDNESDAY, JUNE 13TH 2001 - 10:00 A.M.

The Committee met on the above date at the County Administration Building with the following in attendance:

Present: Howard Greig, Municipal Representative, John S. Black, Municipal Representative, Dave Munro, Ministry of Natural Resources, Gary Senior, Conservation Authorities, Barry Bradley, Local Aggregate Producers, Jackie Fraser, APAO, Jennifer Prentice, Local Aggregate Producers.

Also

Present: Ron Glenn, Senior Planner and Barb Heerschap, Administrative Assistant.

1. INTRODUCTIONS

Mr. Glenn welcomed everyone.

Introductions then followed.

2. PURPOSE OF THE GROUP

Mr. Glenn explained how each group is represented and the reason for the representation.

He advised that he would like this group to be very open and informal. He also noted that this is a working group to act as a lead to the Terms of Reference. This Group will work towards finalizing the Terms of Reference. Once the Terms of Reference is finalized it will be recommended to the Planning, Development and Heritage Committee that a request for proposals be released. It was noted that this Study is planned for approximately 30 months or earlier. Mr. Glenn suggested this Group may meet on a monthly basis.

Mr. Glenn briefly touched on how the Public would be involved stating that the Planning, Development and Heritage Committee agreed that the Public would become involved when the Terms of Reference are finalized.

Concerns were expressed with questions from the Public on aggregate issues. It was suggested that any questions or concerns be brought back to this Group for discussion.

A media release is planned stating the group has been formed, who the members of the group are and the role this group will take.

The Group agreed that all correspondence be forwarded by e-mail with the exception of John S. Black. Mr. Black's correspondence will be mailed.

3. TERMS OF REFERENCE

The Group reviewed in detail the Terms of Reference.

The Terms of Reference as revised are attached.

Mr. Glenn briefly discussed study timeframe and touched on project costs.

He stated that revisions suggested today would be revised and forwarded to this group.

4. GENERAL DISCUSSION

The Group stated that this is a very encouraging group and feels everyone will work together.

Discussion took place with respect to Gravel Pits and Quarries in the area. It was noted that there are not as many quarries in the area as there are gravel pits.

It was also noted that there are a growing number of pits in the area that are being rehabilitated.

The Group discussed the possibility of touring some of the rehabilitated pits in Grey County.

Wayside Permits were briefly discussed and Dave Munro stated that the Ministry of Natural Resources issues very few permits. He explained that they must apply under the Provincial Standards approach.

Mr. Glenn stated that this exercise is to manage aggregate resource and rehabilitation of future aggregate resource.

Mr. Glenn thanked the Group for participating and feels this will be a good working group.

5. NEXT MEETING DATE

The next meeting date will be held Tuesday July 17th, 2001 @ 10:00 a.m. in the Garafraxa Room in the County Administration Building. This will be a half day meeting followed by a tour of various rehabilitated and active pits.

The meeting adjourned at 12:05 p.m.