

Huron County Aggregate Resource Strategy



A Report from the Technical Committee to the Steering Committee

Report Authored by:

**Claire Dodds, Brian Treble and Andrea Vanderloo
Huron County Planning Department**

**on behalf of the
Aggregate Strategy Technical Committee**

April 27, 2005

(Updated Summer 2005)

Table of Contents

Section 1. Aggregate Resource Strategy.....	3
1.1 Disclaimer.....	3
1.2 Introduction.....	3
Section 2 Purpose.....	5
Section 3 Background	6
3.1 Location	6
3.2 Physiography of Huron County	8
3.3 Aggregate Resources in Huron County	10
3.4. Aggregate Production in Huron County and its Municipalities.....	11
3.5 Future Demand for Mineral Aggregates in Huron.....	13
3.6 Aggregate Production in Ontario	13
Section 4 Legislation & Policy Framework for Establishing a Mineral Aggregate Operation in Huron County.....	14
4.1 Planning Act.....	14
4.2 Provincial Policy Statement.....	14
4.3 Huron County Official Plan	15
4.4 Local Municipal Official Plans.....	15
4.5 Aggregate Resources Act.....	16
Section 5 Activities of the Technical Committee	17
5.1 Composition of the Technical Committee	17
5.2. Overview of Activities.....	17
5.3 Constraint Mapping Exercise.....	19
5.4 Policy Development.....	28
Section 6 Recommendations	30
Section 7 Next Steps	45
Section 8 References.....	46
Appendix 1 - Terms of Reference.....	48
Appendix 2 - Estimated Volume Calculations.....	50

Section 1.0	Aggregate Resource Strategy
--------------------	------------------------------------

1.1 Disclaimer

The aggregate deposits identified in this report are based on the mapping and text of the “Aggregate Resources Inventory of Huron County-Southern Ontario” paper (Paper 177) completed by the Ontario Geological Survey Branch of the Ministry of Northern Development and Mines. Paper 177 was completed based on the most current information available. This report should not be used as the basis for purchasing of land or applying for license to permit mineral aggregate extraction. The quality and quantity of aggregate available will need to be confirmed by onsite testing and research. This report and Paper 177 are provided as the basis for planning consideration to help ensure the best use of our natural resources.

1.2 Introduction

Mineral aggregates, including sand and gravel, are an important resource within Huron County. These resources are fixed in place and non-renewable. Mineral aggregates are used in the construction of our homes, roads, businesses and industry.

Due to the demand for this non-renewable resource, the Province of Ontario has directed Municipalities to protect mineral resources for future use.

Over the past few years, the County Planning Department has been working with Municipalities to develop new Official Plans. As part of this review, it was identified that Mineral Aggregates were a resource that required further study in order to ensure a balance between the protection of mineral aggregates and environmental, economic and social features.

In response to Provincial direction and local interest Huron County Council initiated a process to develop a strategy to manage mineral aggregates within the County.

In 2004, Huron County Council approved a Terms of Reference which outlined the purpose, goals and objectives of the Aggregate Strategy. A central goal in this project is to balance environmental, economic and social objectives, while enabling the extraction and long term protection of mineral aggregate resources within the County.

County Council approved the establishment of a Steering Committee to direct the project and established a Technical Committee to provide technical expertise to the Steering Committee.

The Steering Committee and Technical Committee had its joint inaugural meeting on October 22, 2004. The Steering Committee directed the Technical Committee to undertake a review and report back to the Steering Committee.

Since the inaugural meeting, the Technical Committee has met 4 times. The Technical Committee is now satisfied that it can recommend a strategy for the Steering Committee’s

consideration which satisfies the County's goal of developing an Aggregate Resource Strategy which balances environmental, economic and social features with permitting the continued extraction of mineral aggregates and the long term protection of the aggregate resource.

Section 2 Purpose

This is a report from the Aggregate Resource Strategy Technical Committee to the Aggregate Resource Strategy Steering Committee.

The purpose of this document is to provide the Steering Committee with information on the activities of the Technical Committee and to report the Technical Committee's recommendations. This report is also intended to provide the Steering Committee with background information which has assisted the technical committee in making their recommendations.

Section 3 of this report provides information on the aggregate resource and aggregate production in Huron County and Ontario.

Section 4 describes the legislative framework within which decisions on the establishment of mineral aggregate operations are made.

Section 5 outlines the activities of the Technical Committee. This section reports on the major activities undertaken by the Technical Committee including: the identification of constraints which sterilize or constrain the aggregate resource, the constraint mapping exercise, the outcomes of this exercise and proposed policy which can implement the findings.

The next section lists the recommendations of the Technical Committee. The Technical Committee has drafted a series of recommendations for the Steering Committee's consideration. Public and municipal consultation are included as recommendations.

Section 7 outlines the recommended next steps required to move this project forward.

The Terms of Reference, as approved by County Council in March of 2004, are included as Appendix 1 to this report.

Section 3 Background

3.1 Location

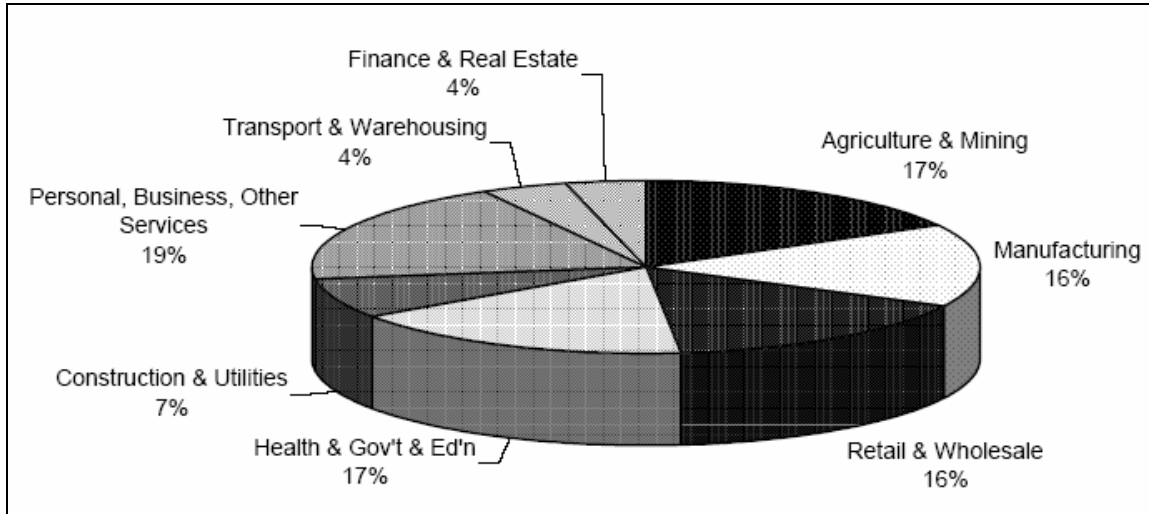
Huron County is located on Ontario’s west coast. It has a land area of approximately 3,400 km² consisting of sixteen former townships, five villages and five towns, which have recently amalgamated into nine restructured municipalities. The nine municipalities include: Ashfield-Colborne-Wawanosh, North Huron, Morris-Turnberry, Huron East, Central Huron, Bluewater, South Huron, Goderich and Howick.

Figure 3.1 Amalgamated Municipalities and Former Municipalities in Huron County



In 2001, 17% of Huron’s population was employed in agriculture, 16% in manufacturing and 65% in other employment sectors. The figure below provides the percentage of Huron County residents employed by sector.

Figure 3.2 Employment by Sector, Huron County Residents, 2001



Source: Huron Business Development Corporation. January 2005. *The State of the Huron County Economy*. http://www.smallbusinesshuron.ca/publications/sothce_2005_final.pdf

In 2001, the population of Huron was 59,701. It is anticipated that Huron County will experience a modest growth rate over the next few decades. Population centres include Clinton (pop. 3,000), Exeter (pop. 4,500), Goderich (pop. 7,500), Seaforth (pop. 2,500) and Wingham (pop. 3,000).

Provincial population projections predict that the population of Huron County may grow to 69,000 in 2031 (Ministry of Finance, 2005).

3.2 Physiography of Huron County

Physiography and surficial geology are important determinants of the quality and quantity of mineral aggregates available in a geographic area.

Two documents detail the physiography of Huron County: the Aggregate Resources Inventory of Huron County written by the Ministry of Northern Development and Mines in 2004; and the Physiography of Southern Ontario written by the Ontario Geological Survey in 1984.

The documents identify four major physiographic regions that divide Huron County:

1. Huron Slope;
2. Horseshoe Moraine;
3. Stratford Till Plain; and
4. Teeswater Drumlin Field.

Figure 3.2 illustrates the location of each of these physiographic regions.

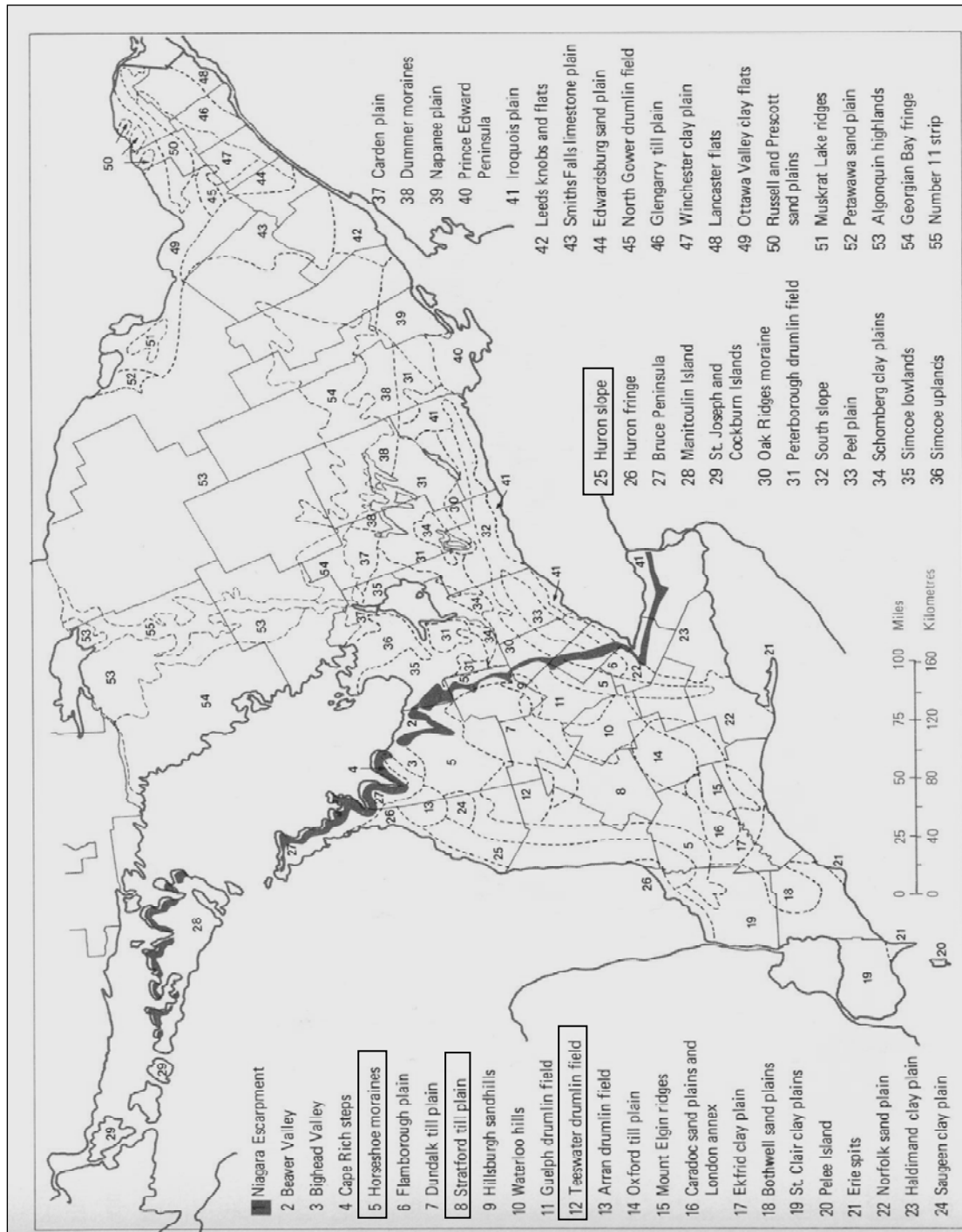
The Huron Slope contains shallow aggregate material with relatively thin deposits that are no more than six meters thick. Mostly sand is available for extraction along the Lake Huron Shore, and reasonable gravel further east. This feature runs parallel to Lake Huron the entire length of the County.

The Horseshoe Moraines are located parallel to the shore, in the centre of the County. This area includes the large gravel deposits running north and south of Holmesville. Within the moraines, large drainage spillway channels appear; which contain coarse aggregate in the north, and fine-grained material in the south.

East of the moraines is the Stratford Till Plain encompassing Rannoch Till. This is the dominant feature in eastern Huron County. Many of the aggregate features in this area are eskers sitting on top of the soil.

The Teeswater Drumlin Field located in the northern region of the County, is the prominent physical feature in the former Township of Turnberry and Howick. This area supplies Huron with sandy Elma Till.

Figure 3.3. Physiographic Regions of Ontario



Source: Chapman, L.J. and D.F. Putnam. 1984. The Physiography of South Ontario: Third Edition. Ontario Geologic Survey, Special Volume 2. p. 113.

3.3 Aggregate Resources in Huron County

In 2004 the Ministry of Northern Development and Mines completed an Aggregate Resource Inventory Paper (ARIP, Paper 177) for Huron County. The ARIP information consists of a report describing the aggregate resource in Huron County and a series of maps identifying the location and quality of each deposit. This report is based on the best information available and is meant to assist with planning considerations to help ensure the best use of the area's resources.

The ARIP report is a technical background document based on geological information and interpretation conducted by professional geologists. The Aggregate Resource Inventory Papers are designed to be used as a component in the total planning and resource management process, in conjunction with other planning considerations, to ensure the best use of an area's resources.

The ARIP report identified that sand and gravel make up the majority of mineral aggregates available in Huron County. ARIP mapping identifies the location, quantity and quality of aggregate in the County. Aggregate deposits within the County are classified as Primary, Secondary and Tertiary. These categories do not mean that the aggregate is appropriate for specific uses, it is a relative estimate of the importance of each deposit. The report noted that there is no bedrock-derived aggregate in the County.

Primary Significance

Sand and gravel resource areas of primary significance are areas in which a major resource is known to exist and should be considered as part of the aggregate supply of the area. These deposits are expected to be of the highest quality and quantity within the area.

Secondary Significance

Sand and gravel deposits of secondary importance are deposits which may contain a significant quantity and quality of sand and gravel. Although these deposits are not considered to be the best resources in the County, they contain large quantities of sand and gravel and should be considered an important part of the aggregate supply of the area. These deposits are likely to be viable for commercial extraction.

Tertiary Significance

Tertiary deposits typically have a lower quality and quantity of resource than secondary deposits and are less likely to be used for commercial extraction. The primary, secondary or tertiary classification is relative to the quality of aggregate within the County.

The ARIP report studied and classified primary deposits to estimate the quantity and quality of these deposits. Twenty-six primary deposits were identified within Huron County. Significant potential aggregate is identified in the core of Central Huron that supports many pits and quarries of primary quality. The pits are adjacent to agricultural land and provincially significant wetlands. The area near Lakelet in Howick Township also has significant primary sand and gravel deposits. Adjacent to these potential mineral

deposits are regionally significant Life Science ANSI's, local and provincially significant wetlands, and recreational land uses. The Municipality of Ashfield-Colborne-Wawanosh also possesses first-class deposits located in Colborne Township.

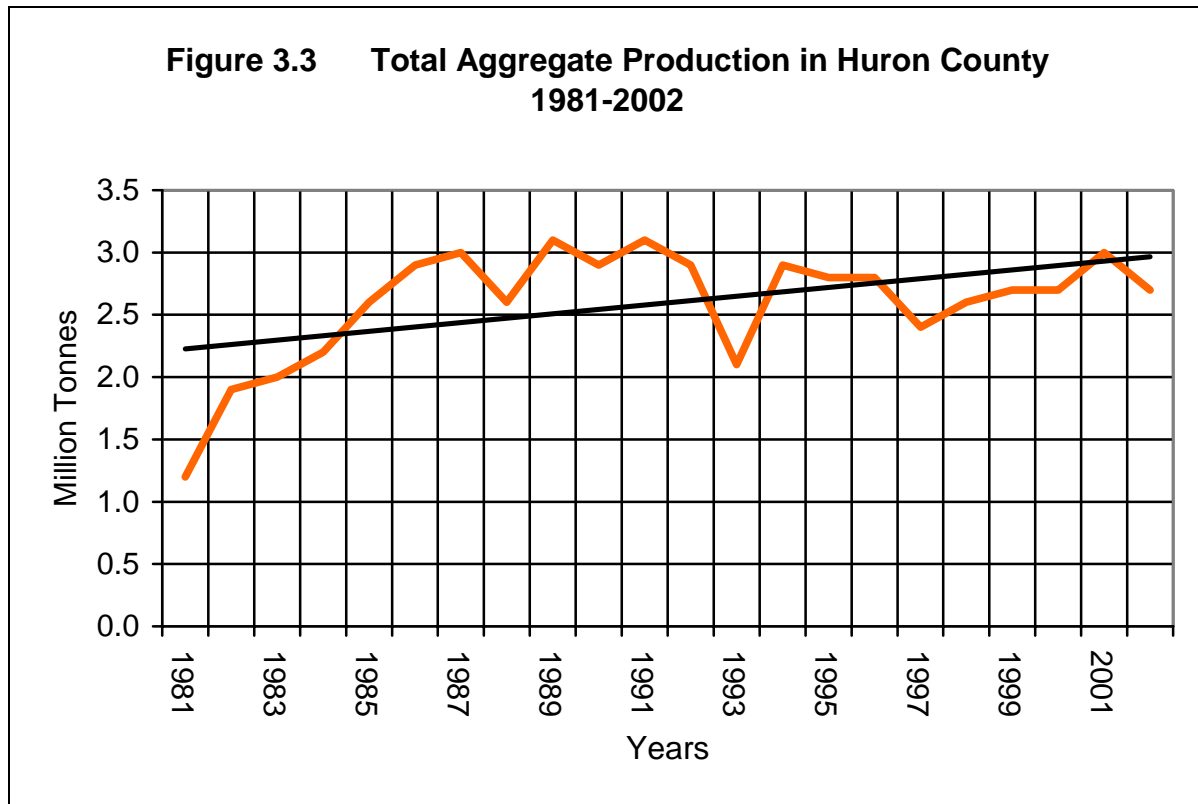
The ARIP report noted that many active operations are surrounded by a variety of constraints including a well head capture zones, provincially and locally significant wetlands, as well as ANSI's.

3.4. Aggregate Production in Huron County and its Municipalities

Aggregate production in Huron County has had minor fluctuations from year to year, but can generally be described as having a steady to gradual increase in production over the period 1981 to 2002.

In 1982, 1.9 million tonnes of aggregate was extracted in Huron County. Twenty years later in 2002, 2.7 million tonnes was extracted. Huron County's highest annual extraction reached just over 3 million tonnes of aggregate in 1991. The average annual production for the years 1981 to 2002 has been 2.7 million tones per year. Figure 3.3 illustrates the trend in total annual production per year from 1981 to 2002.

Figure 3.4 Total Aggregate Production in Huron County 1981-2002



Source: Data supplied by the Clinton MNR Office

The availability of mineral aggregates differs across the County. Table 3.1 lists the tonnage of aggregate extracted in each Township in Huron County for the years between 1998 and 2002.

The information reported in this table illustrates that most aggregate production occurs in central and northern Huron County. The amount of aggregate extracted in six former townships (Goderich, Grey, Colborne, McKillop and East and West Wawanosh Townships) accounts for over 70% of the total aggregate production in Huron County for the period 1998-2002.

Table 3.1. Aggregate Production (Tonnes) In Huron County By Municipality

Township	1998	1999	2000	2001	2002	Total Production (98-02) in Tonnes	Total Licensed Pits (2002)
Ashfield	155,883	105,241	101,417	126,494	105,342	594,377	6
Colborne	352,366	306,651	362,074	376,621	467,566	1,865,278	14
Goderich Twp	319,952	396,875	523,574	535,677	601,710	2,377,788	27
Grey	552,581	379,530	321,121	542,368	457,007	2,252,607	28
Hay	11,230	9,439	5,867	1,727	21,559	49,822	5
Howick	255,428	261,898	160,597	196,697	217,645	1,092,265	11
Hullett	127,817	112,149	126,047	73,966	71,688	511,667	7
McKillop	257,091	320,546	474,905	585,406	329,049	1,966,997	18
Morris	60,775	147,217	206,001	175,621	186,143	775,757	14
Stanley	0	1,725	439	5,528	3,334	11,026	3
Stephen	0	0	0	0	0	0	0
Tuckersmith	121,615	72,035	72,789	83,883	43,173	393,495	5
Turnberry	32,906	42,037	44,631	470	3,463	123,507	2
Usborne	86,276	110,366	76,300	53,887	26,938	353,767	10
Wawanosh (East and West)	277,783	523,366	260,307	282,802	225,695	1,569,953	19
County of Huron	2,11,703	2,789,075	2,736,069	3,041,147	2,760,312	13,938,306	169

Source: Data supplied by the Clinton MNR Office

During the period 1998-2002, there was very little aggregate extracted in southern Huron County. Stanley Township, Hay Township and Stephen Township accounted for less than 5% of the total aggregate production in Huron County for the period 1998-2002.

Grey Township (28 pits) and Goderich Township (27 pits) had largest number of licensed pits in the County in 2002, whereas Stephen Township (0 pits) has had no recorded aggregate production in the entire period.

3.5 Future Demand for Mineral Aggregates in Huron

It is not foreseen that there will be a dramatic increase in aggregate production in Huron County in the short term, partly due to slow population growth and most major road construction projects have been completed. At the same time, changing road construction standards has required aggregate to be important to the County (harder aggregate from Manitoulin Island for Provincial Road resurfacing contracts etc.). Finally, one of the most limiting factors affecting aggregate production is the cost of transportation.

Over the long term, as aggregate resources are depleted in other municipalities, Huron County may see a rise in aggregate production to meet this external demand.

3.6 Aggregate Production in Ontario

Ontario accounts for almost half of Canada's total production of aggregate and is also Canada's largest consumer of aggregate. In 2000, Ontario produced over 171 million tonnes of aggregate. In the same year, Ontario consumed 155 million tonnes of aggregate. (Mineral Aggregates Issue Paper, 2002). In 2004, Clayton Research reported that the average annual production in 2000s (168 million tonnes) is outpacing the production during the 1980s (150 million tonnes) and 1990s (140 million tonnes).

Mineral aggregates are critical to Ontario's economy. Finite resources are depleting and causing the cost of materials to rise. From 1999 to 2001, aggregate was the highest valued mineral, even higher than gold (Natural Resources Canada – Mineral Statistics, 2001).

In 2002, the top ten aggregate producing Municipalities in Ontario were Ottawa, Kawartha Lakes, Halton Hills, Hamilton, Puslinch Township, Uxbridge, Milton, Caledon, Clarrington and Zorra Township. All these Municipalities surround or are close to large urban centres which are experiencing rapid growth. Due to Ontario's steadily increasing population, many parts of Ontario are experiencing a decline in the availability of aggregates.

Huron County has historically been a small player when considering aggregate production at a provincial level. This is in part due to its distance from large urban areas and also a relatively small local market.

Over the long term, as aggregate resources located close to large urban centres, such as London and Kitchener-Waterloo become depleted, Huron County may experience a rise in production.

Section 4 Legislation & Policy Framework for Establishing a Mineral Aggregate Operation in Huron County

4.1 Planning Act

The *Planning Act* provides a land use planning system for Ontario; promotes sustainable economic development; identifies issues of provincial concern in provincial and municipal planning decisions; encourages collaborative processes; and recognizes municipal authority and responsibility.

Section 2 of the Act promotes good planning decisions through protection, conservation, efficient use, and orderly development to ensure proper decisions are made in regards to the safety and health of the environment, economy and society. Through the *Planning Act*, the protection and management of aggregate resources is deemed to be a matter of provincial interest.

The *Planning Act* provides Counties and Municipalities with a number of tools to manage the aggregate resource, including: Official Plans and Zoning by-laws. The Official Plan allows a Municipality to institute goals, objectives and guidelines to oversee physical change and the impacts on social and economic features and the natural environment. This protects mineral aggregate resources from incompatible land uses, and provides direction for rehabilitation. Zoning By-laws identify permitted uses and setbacks for aggregate operations to exist and remains compatible with neighbouring uses.

4.2 Provincial Policy Statement

Under Section 3 of the *Planning Act*, the Provincial government issues a statement establishing planning policy for Ontario. The Province just released a new Provincial Policy Statement on March 1, 2005. The Province requires all municipal planning documents to be in consistent with the Provincial Policy Statement (PPS).

The PPS provides policy guidance on issues of provincial interest which may be affected by land use planning and development decisions. Decisions must focus on the long term protection of the resource. Agricultural land, mineral resources, natural heritage, water supply and cultural resources are recognized to provide economic, social and environmental benefits. The intent of the PPS is to promote a system that acknowledges the importance of managed economic growth and conservation for future generations.

The Provincial Policy Statement defines mineral aggregate operations as:

- Lands under license or permit, other than for a wayside pit or quarry, issued in accordance with the *Aggregate Resources Act*;
- Lands not designated under the *Aggregate Resources Act*, established pits and quarries that are not in contravention of municipal zoning by-laws and including adjacent land

under agreement with or owned by the operator, to permit continuation of the operation; and

- Associated facilities used in extraction, transport, beneficiation, processing or recycling of mineral aggregate, or the production of secondary related products.

The PPS sets out the Provincial Policy framework for mineral aggregate extraction in section 2.5. It requires:

- As much of the mineral aggregate resources as is realistically possible shall be made available as close to markets as possible.
- Extraction shall be undertaken in a manner which minimizes social and environmental impacts.
- The conservation of mineral aggregate resources should be promoted by making provision for the recovery of these resources, wherever feasible.
- Mineral aggregate operations shall be protected from development and 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.
- Progressive and final rehabilitation shall be required to accommodate subsequent land uses.
- On prime agricultural lands, mineral aggregate extraction is permitted and rehabilitation is not required if there is substantial amount of aggregate below the water table, the depth of extraction causes rehabilitation to be unfeasible; rehabilitation to original agricultural capability is unfeasible; agricultural rehabilitation in remaining areas is maximized; or if other options have been considered and found unfeasible.

4.3 Huron County Official Plan

The Huron County Official Plan acknowledges the significance of aggregates to the local economy and the fact that they are a non-renewable resource. It suggests that primary deposits be developed that have minimal impact and constraints with respect to agricultural land and the natural environment. Existing licensed pits should be permitted to continue and expand. All pits should be encouraged to rehabilitate to their former use.

There is a desire to minimize compatibility concerns by directing incompatible uses away from identified significant aggregate deposits. The Huron County Official Plan recommends a collaborative effort to ensure proper use and protection of aggregate resources.

4.4 Local Municipal Official Plans

Municipalities in Huron County describe extractive resources as areas of aggregate that contain geological deposits or formations that yield sand or gravel in commercial quantities.

Local Official Plans state the Municipality's goals regarding mineral aggregates. While each Official Plan is unique, the following are some consistent goals:

- Identify and protect sand and gravel deposits for future use.
- Allow the development of pits in a manner that minimizes conflict with adjacent land uses.
- Avoid incompatible land uses.
- Encourage a strategy for aggregates that accounts for the social, economic and environmental sensitivity of the area.
- Provide direction for the rehabilitation of lands once the resource has been depleted.

Local Official Plans provide detailed policy about the establishment and expansion of mineral aggregate operations.

Both the County Official Plan and Local Official Plans direct the County to undertake an aggregate resource strategy which will balance the demand for aggregates with other land uses, with the aim of allowing for the continued extraction, while minimizing social conflict and environmental harm.

4.5 Aggregate Resources Act

Prior to establishing a mineral aggregate operation, the operator must obtain a license under the *Aggregate Resources Act (ARA)*.

The purpose of the *Aggregate Resources Act* is:

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

The ARA addresses matters regarding licensing, wayside permits, aggregate permits, rehabilitation, offenses and penalties. The ARA is administered by the Ministry of Natural Resources.

A number of different licenses can be issued under the *Aggregate Resources Act*, depending on the amount of material being extracted and whether it is above or below the water table.

Prior to issuing a license, the applicant must demonstrate to the Ministry of Natural Resources that they have obtained the appropriate land use designations and zonings under the *Planning Act* to permit extraction.

Section 5 Activities of the Technical Committee

5.1 Composition of the Technical Committee

The Technical Committee consists of a group of 9 individuals representing a variety of government departments and agencies.

Name	Government Department / Agency
Kelly Vader	Ausable Bayfield Conservation Authority
Darren Kenny	Maitland Valley Conservation Authority
Neil Vincent	Maitland Valley Terrestrial Team
Ray Hallahan	Huron County Highways and Local Municipal Roads Committee
Jody Wilson	Ministry of Natural Resources
Mike Stone	Ministry of Natural Resources
Matt Ferguson	Ministry of Municipal Affairs and Housing
Claire Dodds	Huron County Planning Department
Brian Treble	Huron County Planning Department

Additional Staff Involvement:

Andrea Vanderloo was a co-op student working with the Planning Department from January 2005 – April 2005. Andrea has assisted Claire Dodds and Brian Treble in preparing material for Technical Committee meetings, making maps and writing this report.

Steve Aldred was the County of Huron's GIS Technician at the time the Constraint Mapping Exercise was undertaken. Steve provided mapping support to the Technical Committee. Tracy Rego was the GIS Technician prior to Steve Aldred. Tracy helped collect the GIS data required to undertake the Constraint Mapping Exercise.

5.2. Overview of Activities

Between November 2004 and March 2005, the Technical Committee met 4 times.

First Meeting

At the first meeting, the group reviewed the terms of reference for the Aggregate Strategy, focusing specifically on the goals and objectives. It was decided at this meeting to follow the guidelines in the draft Mineral Aggregate Resources Manual, published by the Ministry of Natural Resources, which recommended that a constraint mapping exercise be used to complete the strategy. At this meeting, the group brainstormed about features that would sterilize and/or constrain the extraction of aggregate deposits.

Second Meeting

The second meeting was held in December, 2004. At this meeting the group reviewed and refined the list of features that would sterilize and constrain aggregate deposits. The availability of mapping and need to acquire missing mapping was discussed. Issues were raised about progressive rehabilitation and mitigation measures where extraction is permitted. The Technical Committee directed the Planning Department staff to use the GIS mapping to overlay the sterilized and constraining features over primary and secondary aggregate deposits. It was agreed that any feature classified as sterilizing an aggregate deposit would cause the underlying aggregate to not be considered available for extraction. The Committee suggested a method to reclassify the information to produce a map that would remove aggregate deposits that were sterilized and to show the number of constraining features on top of each aggregate deposit.

Third Meeting

The third meeting was held to review the outcome of the mapping exercise. Maps were presented to the Technical Committee showing the constrained and unconstrained aggregate resource. These maps were based on the identified sterilizing and constraining mapping layers. Data was also presented which summarized the availability of primary and secondary aggregate after completing the constraint mapping exercise. Based on the data, the possibility of protecting primary and secondary deposits with 0 or 1 constraint, by designating these deposits “Mineral Aggregate” in Local Official Plans was explored. The group also participated in a policy framework brainstorming exercise. It was decided that Planning Department staff should draft policy and circulate it to the group for review prior to a fourth meeting. The Committee also instructed that an interim report should be prepared for presentation to the steering committee from the technical committee. Following consultation with the steering committee a final report should be drafted for public input and comment.

Fourth Meeting

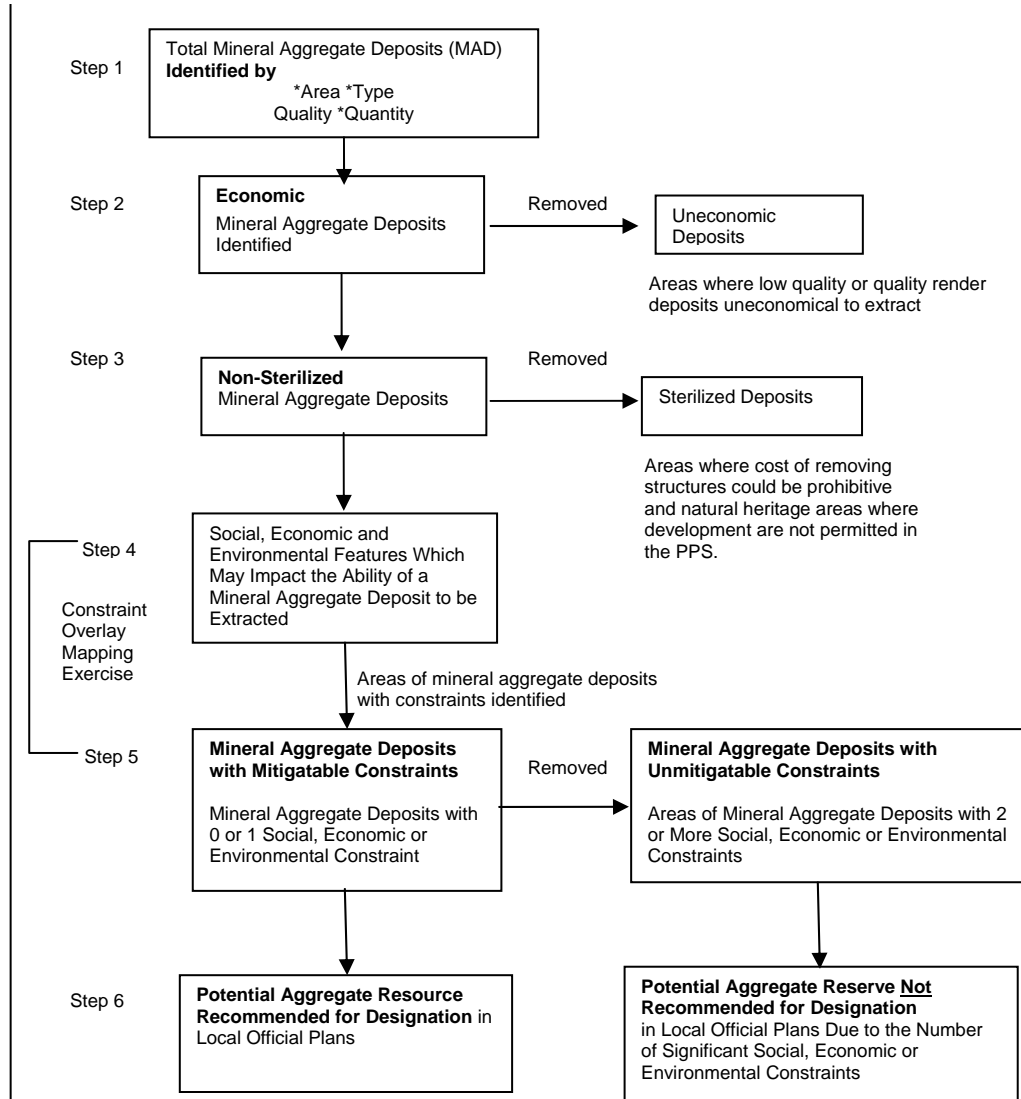
The fourth meeting of the Technical Committee was held in late February. The purpose of this meeting was to review draft Local Official Plan policy as circulated by the Planning Department. The Technical Committee reviewed the draft official plan policy and openly discussed changes and improvements to the policy. Planning Department staff had circulated the revised draft official plan policy based on the original guidance received from the Committee. The group also discussed a possible public consultation process for the aggregate strategy. It was decided that there should be information sessions with the public. Invitations should be sent by direct mail and the hosting of at least 2 public open houses. It was also recommended that there should be a municipal consultation process. The meeting concluded with the group agreeing that they were satisfied that there was no need to meet again prior to taking the recommendations, a draft report and proposed policy to the Steering Committee.

5.3 Constraint Mapping Exercise

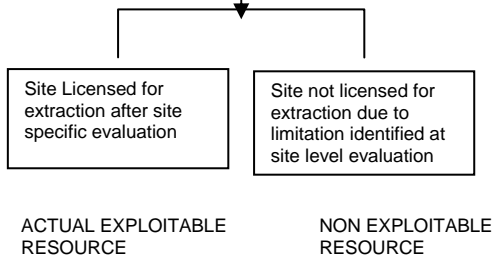
Figure 5.1 illustrates the steps taken by the Technical Committee during the constraint mapping exercise. Each step is described in detail below.

Figure 5.1 Constraint Mapping Exercise Process

POLICY LEVEL EVALUATION



SITE LEVEL EVALUATION



Step 1: Identify Total Mineral Aggregate Deposits

In October 2004, the County of Huron received a report called the Aggregate Resources Inventory of Huron County from the Ontario Geological Survey and the Ministry of Northern Development and Mines (MNDM). This report is part of a series of Aggregate Resource Inventory Papers (ARIP).

The MNDM report included an inventory and evaluation of sand and gravel deposits in Huron County. The report delineates and determines the quality and quantity of aggregate within Huron County to help ensure that sufficient aggregate resource is available for future use.

Mineral aggregate deposits were classified as primary, secondary or tertiary resources by MNDM. These terms can generally be defined as follows:

- Primary: Deposits that are relatively thick, consistent and have no significant quality or quantity limitations. These deposits are comprised of high quality sand and gravel.
- Secondary: Deposits that display some variability or some quality limitations. These deposits contain high quality sand and gravel, but there may be inconsistency in the material.
- Tertiary: Deposits that are not considered to be important resource areas because of the limited availability of the resource or because of possible difficulties with extraction.

In addition to the report, the Huron County Planning Department received digital mapping which identified the location and classification of all the aggregate deposits within the County.

This mapping was incorporated into the County's Geographic Information System and formed the base information used in the constraint mapping exercise.

Step 2: Remove Un-Economic Mineral Aggregate Deposits

This step required the Technical Committee to determine which mineral aggregate deposits are considered uneconomic deposits.

The aggregate resource inventory (ARIP) mapping from the Ministry of North Development and Mines identifies mineral deposits as primary, secondary and tertiary based on quality and quantity of the resource. The ARIP report considers tertiary deposits the least important resource because of the limited availability of the resource or because of possible difficulties in extraction. Such areas are unlikely to support large-scale sand and gravel operations.

The Technical Committee made the decision to only include aggregate deposits of primary and secondary significance in the constraint mapping exercise. Based on current demand and the availability of aggregate, it was determined that sufficient supply of primary and secondary resource exists to supply local need well into the next century.

Members of the Technical Committee noted that in many cases, tertiary aggregate will be located in areas which will be designated as agriculture or natural environment, which already provides some protection against sterilizing this resource.

Based on this decision, a map was produced which removed tertiary aggregate deposits from the total aggregate deposits in the County.

Step 3: Remove Sterilized Mineral Aggregate Deposits

Sterilized deposits are areas of mineral aggregate where the cost of removing buildings and structures could be prohibitive to extraction of the deposit (urban areas, schools, etc.). Sterilized deposits also include areas of natural environment where the provincial policy statement does not permit development and site alteration (provincially significant wetlands), ANSI's (Areas of Natural and Scientific Interest), and adjacent lands.

The Technical Committee developed a list of constraints including land uses and natural environment features that the committee felt sterilized mineral aggregate deposits.

The Technical Committee defined Sterilized Deposits as follows:

Sterilized deposits are areas of primary and secondary mineral aggregate that should not be available for extraction and include: aggregate under areas designated urban, cemeteries, landfills, provincially significant wetlands, provincially significant areas of natural and scientific interest (life science), municipal well-head capture zones, and associated buffer zones for each feature.

Sterilizing Features	Buffer Zones*
Urban areas and non-agricultural land uses	0 meters
Cemeteries	0 meters
Landfills	0 meters
Provincially significant wetlands	120 meters
Provincially significant Life Science A.N.S.I.'s	50 meters
Elementary, secondary and private schools	30 meters
Municipal wellhead capture zones	0 meters

* Note: For licensing purposes, buffer zones and setbacks may be required based on two requirements of the Aggregate Resources Act.

In addition to the above, the Technical Committee identified that the significant habitat of threatened or endangered species is an important sterilizing feature. The Provincial Policy Statement identifies significant habitat of threatened or endangered species and significant wetlands as areas where development and site alteration are not permitted.

The County Planning Department and the Conservation Authorities have general mapping which shows habitat of threatened or endangered species. The mapping is at a very board scale due to the sensitivity of the data. The Technical Committee felt that while habitat of threatened or endangered species could sterilize mineral aggregate deposits, the available mapping was not at a usable scale for this evaluation exercise. Therefore each individual application to establish a mineral aggregate operation must be reviewed by the Ministry of Natural Resources to determine whether there is habitat of threatened or endangered species on site.

A map was then produced which showed the sterile constraints on top of the mineral aggregate deposits. The resulting map showed primary and secondary mineral aggregate deposits that were not sterilized by the features identified in step 3

Step 4: Identification of Environmental, Economic and Social Constraints

The features that may affect aggregate extraction but do not necessarily sterilize the deposit are classified as constraints. Constraints can be economic, social or environmental in nature.

The Committee developed a list of possible economic, social and environmental features that could potentially restrict the ability to extract mineral aggregate deposits through a brainstorming exercise. The outcome of the brainstorming exercise identified the economic and social constraints as including schools, recreational areas, and urban areas. The Committee classified most of these economic and social constraints as features which sterilized aggregate deposits.

The Provincial Policy Statement identifies certain natural environment areas as areas where development and site alteration should not be permitted unless it can be established that there will be no negative impacts on the natural features or their ecological function. These areas include: locally significant wetlands, areas of natural and scientific interest, significant woodlands, sinkholes, significant valley lands, floodplains, and their associated buffer zones. The Committee felt that sinkholes, floodplains and the features listed in the Provincial Policy Statement are environmental constraints.

The Technical Committee considers the features described below as the types of features which constrain the ability to extract mineral aggregate deposits.

Constraints	Buffer Zones
Locally significant wetlands	120 meters
Locally significant life science A.N.S.I's	50 meters
Locally significant woodlands	50 meters
Sinkholes	30 meters
Significant valley lands	50 meters
Floodplains	50 meters

Step 4(a): Constraint Overlay Mapping Exercise

The Technical Committee has recommended that each constraint feature should have an equal value. A decision was then made to undertake an overlay mapping exercise to determine the number of constraints that are located over top of mineral aggregate deposits of primary and secondary significance. No ranking or weighting of the features occurred and the total number of features was the evaluation tool.

The outcome of the overlay mapping exercise assisted in determining the aggregate available for extraction; and which aggregate deposits had too many constraints that were worthy of protection as part of the process.

During this step in the process, analysis was undertaken using the Geographic Information System (mapping system) to determine the number of constraints that are located over top of mineral aggregate deposits of primary and secondary significance.

The following outlines the steps taken in performing the mapping overlay exercise:

1. Areas identified as primary and secondary mineral deposits within the County were shown on a map.
2. Features were identified which sterilize primary and secondary mineral aggregate deposits. These features were added to the map. Sterilized mineral aggregate deposits were removed from the map – leaving a map showing all non-sterilized mineral aggregate deposits in the County.
3. Features were identified which constrain primary and secondary mineral aggregate deposits were added to the map of non-sterilized mineral aggregate deposits. This resulted in a map that showed all constraints that were on top of each non-sterilized mineral aggregate deposits.
4. An analysis was run in the GIS system, based on the map described in #3, to determine the number of constraints on top of each non-sterilized mineral aggregate deposit in the County. The resulting map identified areas of primary and secondary mineral aggregates with zero (0) constraints, 1 constraint, 2 constraint and 3 constraints. No deposit in the County had more than 3 constraints over top over it, unless it was already sterilized.

Step 4(b) Results of Constraint Overlay Mapping Exercise

Following the constraint overlay mapping exercise, a number of area calculations were completed using the mapping from 4(a), above, which classified the number of constraints over each non-sterilized mineral aggregate deposit in the County. It was felt that the Committee should have some idea of the amount of aggregate likely to be available as a result of this exercise. Given the numerous assumptions made, and the general nature of the data available, these calculations may not be accurate, but should provide some values which are helpful for comparative purposes. Calculations on the volume of aggregate remaining were considered even less accurate.

Table 5.1 summarizes the total area of primary and secondary aggregate in the County (based on the information provide by MNDM) and provides some detail on the area of that resource which is sterilized, unconstrained or constrained. It also identifies the area of the resource that is overlaid by 1 or more constraints.

Table 5.1 Huron County Aggregate Resource Area Calculations (Hectares)

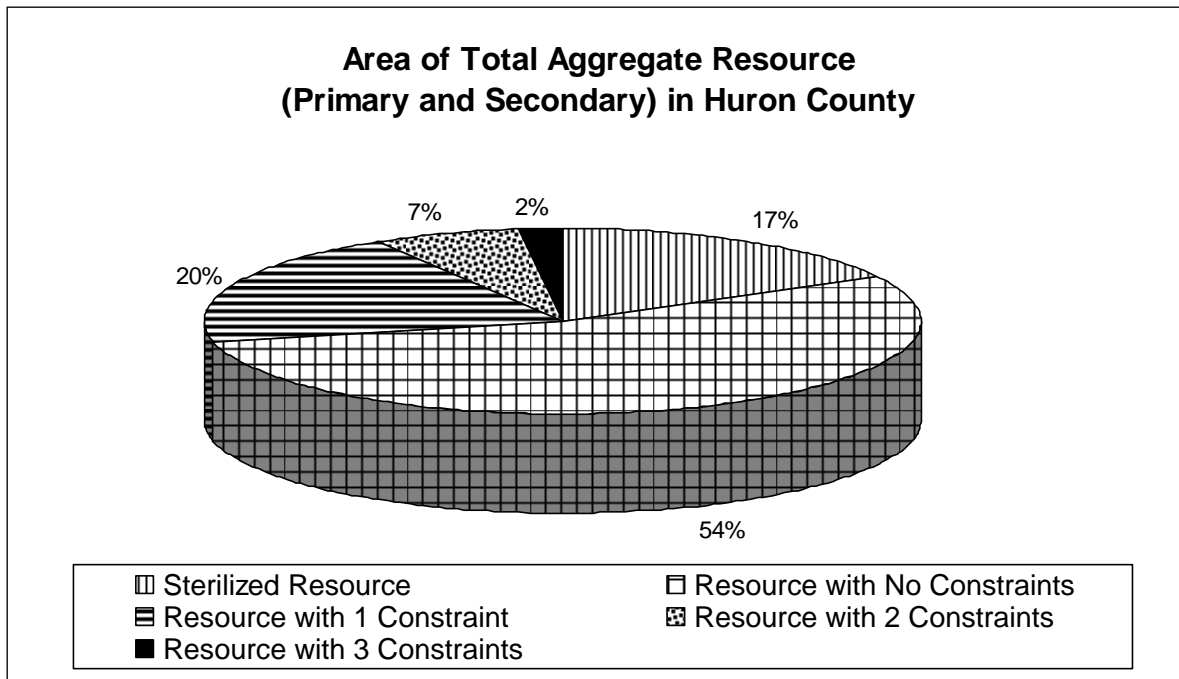
	Total Aggregate Resource ¹ (ha)	Sterilized Resource (ha)	Resource with No Constraints (ha)	Resource with 1 Constraint (ha)	Resource with 2 Constraints (ha)	Resource with 3 Constraints (ha)
Primary	6351	1083	3324	1245	527	172
Secondary	15396	2578	8542	3100	896	280
Total Aggregate Resource (Primary + Secondary)	21747	3661	11866	4345	1423	452

¹Note: The original area information is based on the mapping proved by Ministry of Northern Development and Mines (MNDM) and may not provide an exact prediction of the aggregate in the ground.

The total aggregate resource is considered to be the sum of the primary and secondary mineral aggregate deposits within Huron County based on the mapping information provided by MNDM.

Both Table 5.1 and Figure 5.2 illustrate that over 50% of the area of the total aggregate resource is considered unconstrained. 17% of the total aggregate resource is sterilized. 9% of the total aggregate resource has 2 or more constraints. Approximately 74% of the resource is available for extraction with no more than 1 constraint.

Figure 5.2 Percentage of Aggregate Resource (Hectares) (Primary and Secondary) in Huron County by Constraint or Sterilized Features.



It is acknowledged that this information is very crude and should not be used for any other purpose than a comparison of the aggregate resource which was available before and after the analysis.

Based on the information provided by the Ministry of Northern Development and Mines in the Aggregate Resource Inventory Paper for Huron County, the Technical Committee made an attempt to estimate the volume of the primary aggregate resource in the County based on the number and type of constraining features as is used above. Information was not available to calculate volume for secondary aggregate deposits.

The volume of aggregate in existing deposits in Huron County is not known, but can be estimated for planning purposes based on information provided in the recently released Ontario Geological Survey Report. This report included an estimate of the depth of the aggregate resource in each of the 24 different primary aggregate deposits in Huron County. Volume calculations are shown in Appendix 2. These calculations should not be considered a true depiction of the natural resource, but are helpful in comparing the impact of the constraint mapping exercise.

Table A, Appendix 2, summarizes the estimated volume of primary aggregate resources and the volume of primary aggregate that is sterilized and unconstrained. It also identifies The Committee discussed how to account for the volume of aggregate that has been extracted from existing licensed mineral aggregate operations (pits).

A decision was made to subtract the area of the existing licensed pits from the primary and secondary aggregate deposits – making the assumption that because they are already licensed, the available aggregate on the site will be extracted. Using this method, a high and low scenario was calculated. The actual volume of aggregate is somewhere in between.

In addition Figures 5.3 and 5.4 show the change in available aggregate volumes (as a percent of the total aggregate) that have resulted from the constraint exercise. These percentages also offer assistance in comparing the various scenarios and the implementation of planning decisions.

Figure 5.3 Estimate Volume of Total Primary Aggregate by Municipality as a Percentage of the County Resource

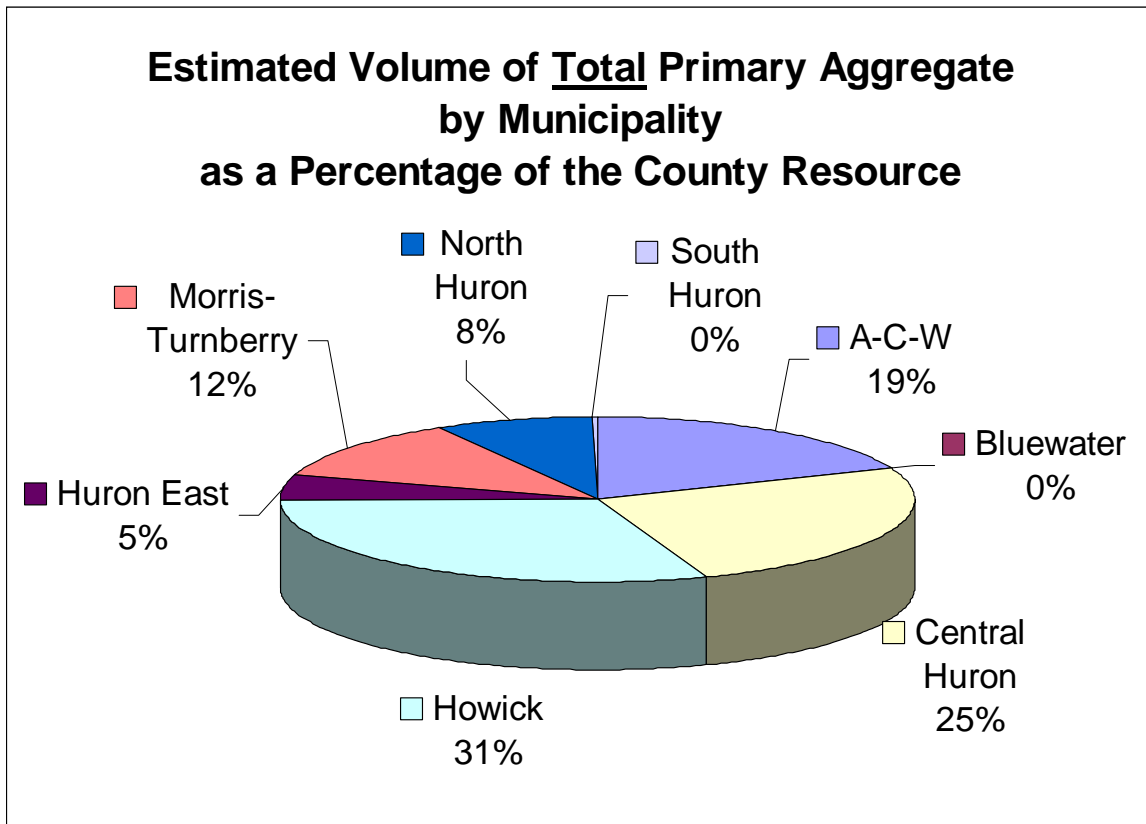
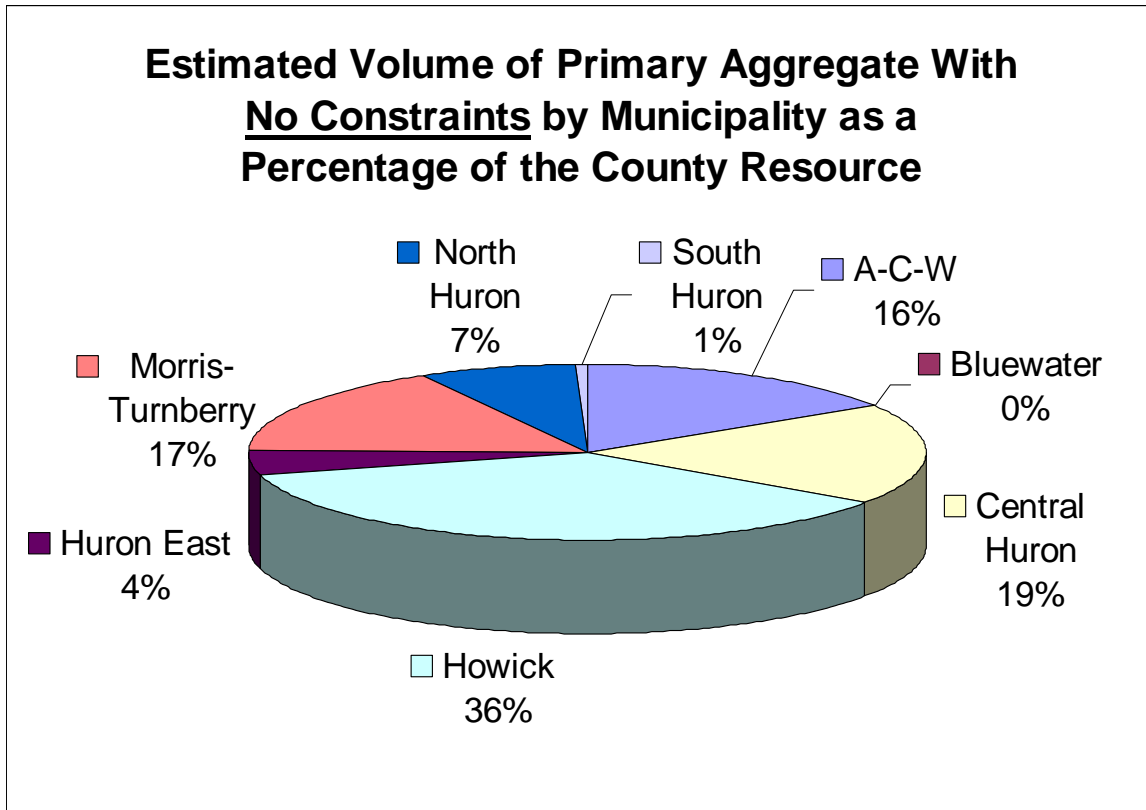


Figure 5.4 Estimate Volume of Primary Aggregate with No Constraints by Municipality as a Percentage of the County Resource



Despite the concerns over the accuracy of the volume calculations, there is consistency between the area of aggregate available versus the volume of aggregate available.

As a result, the Committee concluded that the amount of aggregate remaining should be adequate to meet the demand for the long term. Huron County has substantial areas of aggregate and natural environment and concluded that this approach protects an appropriate balance of both resources.

Step 5: Identification of Mineral Aggregate Deposits with Mitigatable Constraints

After reviewing the volume and area calculations, the Technical Committee decided that where zero (0) constraints and one (1) constraint overlay a primary and secondary aggregate deposit, the impacts from extraction can be mitigated with minimal impact.

The Technical Committee has recommended that where more than 1 constraint overlies a primary or secondary aggregate deposit, the impact of extraction is more significant and may be mitigated in some instances.

Step 6: Potential Aggregate Resource

The potential aggregate resource includes the mineral aggregate deposits which were identified as having mitigatable constraints.

Based on the results of the constraint overlay mapping exercise, the Technical Committee recommends those areas of primary and secondary aggregate deposits with no constraints and 1 constraint be considered the preferred aggregate resource for Huron County.

Section 5.4 Policy Development

One of the key goals and objectives listed in the Aggregate Strategy terms of reference was to develop detailed policies which will protect aggregate deposits for long term use and balance the need for aggregate with environmental, economic and social features.

The Technical Committee took on the task of drafting proposed policy for local Official Plans. The proposed policy sets out a process to establish a mineral aggregate operation on lands that will be designated mineral aggregate on the land use schedule.

If a mineral aggregate operation is proposed to be located on land that has been designated mineral aggregate, the applicant is required to apply for a zoning by-law amendment, license under the Aggregate Resources Act, and provide the required studies.

If a mineral aggregate operation is proposed to be located on land that is not pre-designated as mineral aggregate, the applicant is required to apply for an official plan amendment, a zoning by-law amendment, license under the Aggregate Resource Act, and provide the required studies. Under this scenario the applicant is required to supply an aggregate environmental impact study.

The policy states that an application for an aggregate operation in areas which are considered sterilized (e.g. urban areas, provincially significant wetlands, etc.) will not be supported.

The policy has recognized that where development is proposed within 300 metres of a mineral aggregate operation, lands designated mineral aggregate, or known mineral aggregate deposits, Council shall be satisfied that the proposed use is compatible with the current mineral aggregate resource operation, or with future operations that could locate on lands within the Mineral Aggregate designation.

The policy requires all mineral aggregate operations to be progressively rehabilitated and provides direction for the appropriate rehabilitated use.

A second objective was to establish official plan policies that are clear and reasonable for processing aggregate applications in an efficient and effective manner.

The Technical Committee took much effort to ensure the policies are reasonable and clear. Effort was also made to ensure that the requirements of the planning process and the licensing process are consistent. For the most part, the studies required in order to obtain planning approvals are the same as required under the *Aggregate Resources Act*. The intent is that the applicant should only have to complete one set of studies to meet the requirements of both approval processes. The policies encourage the applicant to pursue approvals under the *Planning Act* and *Aggregate Resources Act* concurrently.

The recommended policy is included in Section 6, Recommendations of the Technical Committee to the Steering Committee.

Section 6 Recommendations

Recommendations of the Technical Committee to the Steering Committee for Presentation at Steering Committee Meeting of April 28, 2005.

1. The Technical Committee recommends that the Aggregate Resource Strategy focus on aggregate deposits of primary and secondary significance. Sufficient supply of primary and secondary resource exists to supply need well into the next century. By leaving most tertiary resource designated Agriculture and/or Natural Environment, it has a form of protection also.

2. The Technical Committee recommends that the following features and buffer areas be considered as features that sterilize aggregate deposits for extraction.

Sterilizing Feature	Buffer
Urban Areas & Uses	0 Metres
Cemeteries	0 Metres
Land Fills	0 Metres
Provincially Significant Wetlands	120 Metres
Provincially Significant Life Science ANSIs	50 Metres
Elementary & Secondary Schools	30 Metres
Municipal Wellhead Capture Zones	0 Metres

3. The Technical Committee recommends that the following features and buffer areas be considered constraints to aggregate extraction. Future permitted extraction will need to mitigate impact on these features.

Constraint Feature	Buffer
Locally Significant Wetlands	120 Metres
Locally Significant Life Science ANSIs	50 Metres
Locally Significant Woodlands	50 Metres
Sinkholes	30 Metres
Significant Valley Lands	50 Metres
Significant Flood Plains	50 Metres

4. The aggregate deposits identified as having zero (0) or one (1) constraint on or adjacent to the deposit be recommended to be designated Mineral Aggregate in Municipal (Local) Official Plans. In these areas, a rezoning will be required in conjunction with an application for Aggregate License. These deposits will be protected from incompatible development.

5. The aggregate deposits identified as having two (2) or three (3) constraints on or adjacent to the deposit not be designated in Municipal (Local) Official Plans. These lands may be designated through an Official Plan Amendment and rezoning subject to supporting reports and documentation.

6. That aggregate deposits located under or adjacent to a sterilizing feature be discouraged from aggregate extraction at this time. As the aggregate supply is depleted, these lands can be re-evaluated.
7. The results and findings of the Aggregate Resource Strategy be presented to the public through a minimum of two open house/information sessions. The Aggregate industry and all affected property owners be provided with personal notices of the information sessions as presented in the attached Public Discussion Report dated February 24/05.
8. Municipalities be consulted in accordance with the attached Local Municipality Consultation Report dated February 24, 2005.
9. The Aggregate Committee (Steering & Technical Committee) host the open house/information sessions mentioned above, and the results and recommendations of the open house/information meetings be considered by both Committees before the Aggregate Resource Strategy Report is presented to the Health & Planning Committee.
10. The attached Mineral Aggregate Policy is recommended as the new policy to be placed in local Official Plans. The attached schedule shows the proposed mapping changes.

Aggregate Resource Strategy - Public Discussion Report

February 24/05

The Technical Committee proposes that discussion with the public is necessary before this aggregate strategy and its implementing report are presented to County Council.

It is recommended that the following discussion occur:

Open House/Information Meetings

- open house/information meetings be held jointly by the Aggregate Strategy Technical and Steering Committees;
- a minimum of two locations for such sessions be chosen;
- all affected property owners of a proposed designation change be notified of an open house/information meeting by first class mail;
- notice of the open house/information meeting be placed in local papers;
- following the public sessions, the comments and concerns of the public be evaluated at a joint Technical/Steering Committee meeting.

Direct Mailing to Huron County Aggregate Producers

- all existing aggregate producers in the County be mailed a notice by first class mail.

Media Coverage

- approach local newspapers about publishing an article on the aggregate resource strategy after the report has been approved by the County Health and Planning Committee

Aggregate Resource Strategy - Municipal Consultation Report

February 24/05

The Technical Committee proposes that consultation with Municipalities is necessary before this aggregate strategy and its implementing report are presented to County Council.

It is recommended that the following consultation occur:

Municipal Consultation Meetings

- meet with the municipal representative from the Aggregate Strategy Steering Committee to discuss the impact of designating the proposed lands Mineral Aggregate in the local official plan and reviewing the proposed policy;
- meet with the planners for each of the affected Municipalities to discuss the impact of designating lands
- present the findings of the Aggregate Strategy to the Municipal Clerks at Joint Clerks and Treasurers meetings.

Open House/Public Consultation Meetings

- mail local councilors a personal invitation to attend the open house/information meetings by first class mail.

County Health and Planning Committee Update

- following the April 28th Joint Steering and Technical Committee meeting, provide the County Health and Planning Committee an update on the Aggregate Strategy.

Local Media Coverage

- approach local newspapers about publishing an article on the aggregate resource strategy after the report has been approved by the County Health and Planning Committee.

**DRAFT MINERAL AGGREGATE RESOURCES OFFICIAL PLAN AMENDMENT
FOR LOCAL OFFICIAL PLANS
(Example Based on Municipality of South Huron)**

Section 2, BASIC PRINCIPLES, is hereby amended by deleting the Mineral Aggregate Section and replacing it with the following:

Mineral Aggregates

Mineral aggregates are a limited resource in South Huron with the majority of mineral aggregate operations located within Usborne Ward. This resource is non-renewable; therefore it is a priority to ensure its protection.

The extraction of sand and gravel can have social and environmental impacts on the environment. Hence, such operations should be developed in such a way so as to minimize these impacts and be rehabilitated after use.

A basic principle of this plan is to ensure that sand and gravel deposits are protected for future use, developed in an appropriate manner which limits their impact on surrounding areas, and that the land is rehabilitated for other productive uses when the resource has been used.

Section 3.6. is hereby deleted and replaced with the following:

3.6.1. INTRODUCTION

Mineral aggregates are a resource in South Huron with the majority of mineral aggregate operations located within Usborne Ward. This resource is non-renewable. Therefore, proper conservation and management is essential.

Aggregate Resource Inventory Papers (ARIP) completed by the Ministry of Northern Development and Mines have identified aggregate deposits in the County and Municipality. This mapping identifies aggregate deposits as having primary, secondary or tertiary importance for aggregate production. Huron County has a total of 21,750 hectares of primary and secondary aggregate. Over the last 20 years, demand for aggregates in Huron County has averaged 2.7 million tonnes per year. It is anticipated that demand for this resource will continue at, or near, present volumes for the foreseeable future.

In 2005, Huron County completed an Aggregate Resource Strategy to balance the future demand for aggregate with environmental, social and economic features. The Aggregate Resource Strategy identified resource areas that are suitable for extraction. In order to identify these areas the land use and environmental features that sterilize or constrain the extraction of aggregate were mapped. These features were used to determine land that would be suitable for extraction and the least environmental, social and economic impact.

Identifying these areas helps ensure that Council, residents, prospective landowners and developers know these areas are planned for future extraction.

The Aggregate Resource Strategy Report identified that South Huron has approximately 868 hectares of primary and secondary aggregate. Once sterilizing and constraining features were overlaid on the primary aggregate deposits there is approximately (15) hectares of primary mineral aggregates identified for extraction within South Huron, with minimal impact on social and environmental features.

One of the recommendations of the Aggregate Resource Strategy is to designate primary and secondary areas of the resource with no (0) constraints or one (1) constraint as “Mineral Aggregate” in order to protect the aggregate for future extraction.

These areas are designated “Mineral Aggregates” on Schedule ‘B’.

3.6.2. DEFINITIONS

Mineral Aggregate Deposits: are areas of identified minerals that have sufficient quantity and quality based on specific geological evidence to warrant present or future extraction.

Mineral Aggregate Resources: are non-renewable materials, consisting predominately of gravel, sand, clay, earth, shale, stone, limestone, dolostone, sandstone, marble, granite, rock or other prescribed material.

Mineral Aggregate Operation: are lands under license or permit, other than for a wayside pit, issued in accordance with the *Aggregate Resources Act*. A mineral aggregate operation includes: associated facilities used in extraction, transport, beneficiation, processing or recycling of mineral aggregates and derived products such as asphalt and concrete, or the production of secondary related products.

Constrained Deposits: are those areas of primary and secondary mineral aggregate deposits where social or environmental features restrict the ability to extract mineral aggregate deposits. Constraints include: locally significant wetlands, locally significant areas of natural and scientific interest, significant woodlands, sinkholes, significant valley lands, floodplains, and their associated buffers.

Constraints	Buffer Zones
Locally significant wetlands	120 meters
Locally significant life science A.N.S.I's	50 meters
Significant woodlands	50 meters
Sinkholes	30 meters
Significant valley lands	50 meters
Floodplains	50 meters

Sterilized Deposits: are areas of primary and secondary mineral aggregate deposits that are not available for extraction and include: aggregate under areas designated urban,

cemeteries, landfills, provincially significant wetlands, provincially significant areas of natural and scientific interest (life science), and municipal well-head capture zones and their associated buffers.

Sterile Constraints	Buffer Zones
Urban areas and uses	0 meters
Cemeteries	0 meters
Landfills	0 meters
Provincially significant wetlands	120 meters
Provincially significant life science A.N.S.I's	50 meters
Elementary, secondary and private schools	30 meters
Municipal wellhead capture zones	0 meters

Primary Mineral Aggregate Deposits: are areas in which a major resource is known to exist and should be considered as part of the aggregate supply of the area. These deposits are of the highest quality and quantity within the area.

Secondary Mineral Aggregate Deposits: are deposits of secondary importance which may contain significant amounts of sand and gravel. Although these deposits are not considered to be the best resources in the County, they contain large quantities of sand and gravel and are an important part of the aggregate supply of the area. These areas are considered to be viable for commercial extraction.

Tertiary Mineral Aggregate Deposits are deposits of tertiary importance which contain limited amounts of sand and gravel. These deposits are considered the lowest quality and quantity resource in the County and is only viable for commercial extraction in very limited circumstances.

Progressive Rehabilitation: is sequential rehabilitation, completed during the period that aggregate is being extracted, in accordance with the *Aggregate Resources Act*, the regulations, the site plan and the conditions of the license approved by the Ministry of Natural Resources.

Sensitive Receptor: includes buildings and land uses such as day care centers, schools and buildings/facilities where people sleep, (e.g. a residence, nursing home, hospital, trailer park, campground).

3.6.3. GOALS

The goals of the Mineral Aggregate designation are to:

- a) utilize the mineral aggregate resource in an efficient and environmentally sustainable manner;

- b) make as much of the mineral aggregate resource available as close as possible to the market;
- c) recognize existing mineral aggregate operations and protect them from activities that would preclude or hinder their continued use or expansion;
- d) protect primary and secondary mineral aggregate deposits with limited constraints, from incompatible development, since these areas have high potential for future mineral aggregate extraction;
- e) protect primary and secondary mineral aggregate deposits, where not designated mineral aggregates, from incompatible development, since these areas are potential mineral aggregate operations in the future.
- f) ensure that new or expanding mineral aggregate operations are sited in locations that will have minimal impact on significant social and environmental features;
- g) ensure that the activities of mineral aggregate operations are carried out with minimal environmental and social impacts;
- h) minimize conflicts between incompatible land uses;
- i) require that all mineral aggregate operations meet the licensing requirements and standards of the *Aggregate Resources Act*;
- j) encourage consultation between relevant agencies and the proponent to ensure that new or expanding mineral aggregate operations meet the requirements of this Plan;
- k) ensure that areas of mineral aggregate extraction are progressively rehabilitated in conjunction with the policies of this Plan;
- l) implement the recommendations of the Aggregate Resource Strategy Report, as endorsed by Huron County Council.

3.6.4. POLICIES AND ACTIONS

The following policies and actions apply to areas designated *Mineral Aggregate*:

3.6.4.1. Mineral Aggregate License

In addition to obtaining approvals under the *Planning Act*, new mineral aggregate operations, and expansions of existing operations, will require a license under the *Aggregate Resources Act*. An application for license shall be submitted to the Ministry of Natural Resources. Prior to issuing a license, the Ministry of Natural Resources will require a site plan confirmation of proper designation and zoning, a rehabilitation plan and

supporting studies as outlined in the *Aggregate Resources Act* and the *Aggregate Resources of Ontario Provincial Standards Report*.

3.6.4.2 Existing Licensed Operations

Existing licensed mineral aggregate operations and associated uses designated Mineral Aggregate will be allowed to continue to operate. Expansions of existing licensed operations within designated Mineral Aggregate deposits may be permitted to expand according to the policies of Section 3.6.4.3.

Expansions of existing licensed operations onto adjacent lands not designated Mineral Aggregate may only be permitted where the policies of Section 3.6.4.4., are satisfied.

All aggregate operations must be licensed under the *Aggregate Resources Act* and must comply with the *Aggregate Resources of Ontario Provincial Standards Report*.

3.6.4.3. Agriculture and Natural Environment Uses

Agriculture and natural environment uses and accessory uses shall be permitted on lands designated Mineral Aggregate in accordance with the appropriate policies of this Plan. Agriculture and natural environment uses will be permitted uses before and after mineral aggregate extraction.

3.6.4.4. Proposed Operations in Designated Mineral Aggregate Deposits

1. Proposed new or expanding mineral aggregate operations and the expansion of existing mineral aggregate operations in areas designated Mineral Aggregate will be permitted. These areas are designated Mineral Aggregates in accordance with the recommendations of the Aggregate Resources Strategy Report.
2. Applicants are encouraged to obtain approvals through the *Aggregate Resources Act* and the *Planning Act* concurrently.
3. The opening of a new mineral aggregate operation or expansion of an existing mineral aggregate operation in an area designated Mineral Aggregate will require an amendment to the Zoning By-law.

Required studies shall be submitted with applications for approval under both the *Planning Act* and the *Aggregate Resources Act*. The following studies or documents may be required:

Summary Statement:

Provide the following information:

- Any planning and land use considerations;

- The agricultural classification of the proposed site, using the Canada Land Inventory classes. For the lands being returned to agriculture, the proposed rehabilitation techniques must be identified;
- The quality and quantity of aggregate on site;
- The main haulage routes and proposed truck traffic to and from the site, and necessary entrance permits;
- The progressive and final rehabilitation and the suitability of the proposed rehabilitation having regard to the adjacent lands;
- Any existing surface water on and surrounding the site and proposed water diversion, storage and drainage facilities on the site and points of discharge to surface waters; and
- Determine the elevation of the established groundwater table within the site.

Natural Environment Report:

The Aggregate Resource Strategy report has already considered many of these features. However, current assessment shall be required. Determine whether any of the following features exist on or within 120 metres of the site: significant wetland, significant portions of habitat for endangered or threatened species, fish habitat, significant woodlands, significant valley lands, significant wildlife habitat and significant areas of natural and scientific interest (life science).

Where the report identified any features on or within 120 metres of the site, the negative impacts on the natural features or ecological functions need to be assessed and any proposed preventative, mitigative or remedial measures identified.

Hydrogeological Report:

Where extraction is above or below the watertable:

Conduct a preliminary hydrogeologic evaluation to determine the final extraction elevation relative to the established groundwater table, and the potential for adverse effects to groundwater and surface water resources and their uses;

Where a potential for adverse effect exists on groundwater and surface water resources, an impact assessment is required to determine the significance of the effect and the feasibility of mitigation.

Where extraction is to occur below the watertable:

A technical report must be prepared by a qualified professional to include the following items:

- water wells
- springs
- surface water courses and bodies
- discharge to surface water
- proposed water diversion, storage and drainage facilities on site
- methodology
- description of the physical setting including local geology, hydrogeology, and surface water systems
- water budget
- impact assessment
- mitigation measures including trigger mechanisms
- contingency plan
- monitoring plan
- technical support data

Cultural Heritage Resource Study:

Determine if there are any known and significant archaeological resources on the property and the potential of the site to have heritage resources.

If a survey, completed by a qualified professional identifies a resource or a medium to high potential for heritage resources on site, information must be submitted on the location of the resource and mitigation measures.

Traffic Impact Study:

A traffic impact study completed by a qualified professional shall address:

- The proposed haul route(s);
- The anticipated increase in traffic generated by the proposed extractive operation;
- Traffic impacts resulting from the truck traffic generated by the proposed operation, including impacts on road structure, traffic flow and safety and the mitigation measures required to address these impacts;
- Whether the upgrading of the roads proposed to be used as haul route(s) is necessary, and the allocation of costs for such upgrading

Noise Study:

If extraction and/or processing facilities are proposed within 150 metres of a sensitive receptor, a noise assessment report may be required to determine compliance with provincial guidelines.

3.6.4.5. Proposed Operations Outside Designated Mineral Aggregate Deposits

The Aggregate Resource Strategy Report, 2005 as endorsed by the County of Huron is the basis for the following policy:

1. Proposed mineral aggregate operations or the expansion of existing mineral aggregate operations in areas not designated Mineral Aggregate on Schedule B will generally be discouraged until existing designated mineral aggregate deposits are no longer adequate.

The Aggregate Resource Strategy Report, 2005 did recognize that additional mineral aggregate deposits exist. Areas identified as having 2 or 3 constraints that may be impacted by mineral aggregate extraction were not designated because extraction in these areas may have an increased impact on the social or environmental features in the area.

However, in certain circumstances it may be necessary and appropriate to permit a new operation or expansion in these areas. Where a license for a new or expanding mineral aggregate operation is proposed in one of these areas, an amendment to this Plan and the Zoning By-law will be required.

Prior to approval of these amendments, the following studies or documents may be required.

All Studies outlined in Section 3.6.4.3, above, plus the following:

Social Impact Assessment

The social impact assessment shall address the following:

- Potential impacts of the aggregate operation on nearby communities and adjacent land uses;
- Impact on the character of the area, including built and cultural heritage resources
- Impacts of noise, odour, dust, particulate emissions and vibration from the proposed use on adjacent land uses.
- If any adverse impacts are identified, describe how these impacts will be mitigated.

2. Proposed new mineral aggregate operations or the expansion of existing mineral aggregate operations in “sterilized” mineral aggregate deposits, as identified in the Aggregate Resource Strategy Report, 2005, will not be supported. Amendments to this plan and the implementing zoning by-law will be discouraged.

3.6.4.6. Review of Site Plan Circulated under the Aggregate Resources Act

A site plan, meeting the requirements of the *Aggregate Resources Act* licensing process, will be circulated to the County, Municipality and the local conservation authority for review.

All extraction and processing and associated activities shall be located, designed and operated so as to minimize environmental and social impacts and ensure no negative impacts on surrounding properties. The Municipality may request that specific conditions be attached to the license.

3.6.4.7. Development Adjacent to Lands in Mineral Aggregate Designation

When new development (through a *Planning Act* application) is proposed within 300 metres of lands that are protected for future mineral aggregate operations as outlined in the Aggregate Resources Strategy as zero (0) or one (1) constraint deposits (and implemented by Sections 3.6.4.3. and 3.6.4.4.). Council shall be satisfied that the proposed use is compatible with the current or future use as a mineral aggregate operation.

In some cases, setbacks and other mitigation measures may be required to minimize conflicts between uses.

Land uses permitted within the agricultural and natural environment designation are compatible uses on and within 300 metres of lands designated Mineral Aggregate.

3.6.4.8. Rehabilitation

The policies of the plan require that all mineral aggregate operations shall be progressively rehabilitated. The Municipality will work with operators and the Ministry of Natural Resources to ensure that all licenses have appropriate progressive rehabilitation plans.

Where, prior to extraction, a site was considered prime (Class 1-3) agricultural land, the aggregate operation will be required to rehabilitate to its former use. Rehabilitation to an agricultural use shall be in accordance with section 3.6.4.7.1.

Where, prior to extraction, a site was considered as non-prime (Class 4-6) agricultural land, or where a site is within 100 metres of an existing natural feature, the aggregate operation may be rehabilitated to either agriculture (in accordance with 3.6.4.7.1.) or to natural

environment. Rehabilitation to a natural environment use shall be in accordance with section 3.6.4.7.2. and the Natural Environment policies of this plan.

3.6.4.8.1. Rehabilitation to Agriculture

A site being rehabilitated to an agricultural use must restore approximately the same land area and soil capability that existed prior to extraction.

The operator shall prepare operational plans and progressive rehabilitation plans that ensure the most efficient and effective use of overburden, topsoil and other non-product material. It is recommended that topsoil and overburden be stripped and directly replaced to another area.

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

1. there is a substantial quantity of mineral aggregate resource below the water table warranting extraction; or
2. agricultural rehabilitation in remaining areas is maximized.

3.6.4.8.2. Rehabilitation to Natural Environment

A site being rehabilitated to a natural environment use must restore no less than the same land area that existed prior to extraction, native self-sustaining vegetation should be established.

Rehabilitation to Natural Environment will be encouraged in order to assist with the implementation of the goals of the Natural Environment policies of this plan. The operator is encouraged to consult with the local Conservation Authority when designing the operational plans and progressive rehabilitation plans.

3.6.4.9. OTHER EXTRACTIVE ACTIVITIES

3.6.4.9.1. Wayside Pits, Portable Asphalt Plants and Portable Concrete Plants

Wayside pits and portable asphalt plants for public authority contracts will be permitted in all areas except those areas of existing urban development or particular environmental sensitivity which have been determined to be incompatible with extraction and associated activities. Wayside pits, portable asphalt plants and portable concrete plants for public authority contracts will be permitted in appropriate areas without an amendment to this plan or Zoning By-law.

3.6.4.9.2. Mineral & Petroleum Resources

The extraction of mineral and petroleum resources may be permitted subject to compliance with applicable regulations.

The extraction of minerals and petroleum resources are permitted in agricultural areas subject to the site being rehabilitated to its former use.

3.6.5. LOCATION

Primary and secondary Mineral Aggregate deposits with zero (0) constraints or one (1) constraint, as identified in the Aggregate Resource Strategy, are designated *Mineral Aggregate* on Schedule B. Existing mineral aggregate operations licensed, in accordance with the *Aggregate Resources Act*, are also designated *Mineral Aggregate* on Schedule B.

Section 7 Next Steps

The Technical Committee has proceeded with the research requirements as directed by the Steering Committee at our first meeting.

The Technical Committee will present the process, findings and recommendations to the Steering Committee on April 28, 2005.

Each of the recommendations of the Technical Committee will be reviewed and discussed by the Steering Committee, and in each case the Steering Committee will determine if the recommendation is appropriate, or not. We will operate by consensus or majority opinion. Where the Committee disagrees with a recommendation, or a series of recommendations, the Technical Committee may reconvene to reevaluate the process.

A number of the recommendations (7, 8 and 9) also lead to further action which it is recommended should be lead by the Steering Committee.

Prior to the public information sessions, an interim update report should be presented to the County of Huron Health and Planning Committee. The Health and Planning Committee should also be invited to the consultation sessions.

In addition, the Clerks and Treasurers Association has requested that a presentation be made to their Association. Claire Dodds and Brian Treble propose to make an initial introductory presentation on April 29, 2005 with a following, in depth presentation made at their next meeting (June 2005).

Once the process is complete and the recommendations, as revised if necessary, are finalized, a final report should be completed and presented to the County of Huron Health and Planning Committee. Following approval of the report by the County of Huron, local municipalities will be encouraged to amend their Official Plans to incorporate the findings and recommendations of this report.

Steering Committee meetings have been set for April 28, 2005 and May 5, 2005 to determine the next steps for this project.

Section 8 References

- Bruce County Official Plan. 1997.
- Brumwell, Skelton; and Associates. 2004. Aggregate Resource Inventory Master Plan: Grey County, Ontario, Canada.
- Chapman, L.J., and Putnam, D.F. 1984. The Physiography of Southern Ontario; Ontario Geological Survey (Ministry of Natural Resources), Special Volume 2. The Ministry of Natural Resources.
- County of Wellington Official Plan. 1998.
- Government of Ontario. 1990. Aggregate Resources Act, R.S.O.
- Government of Ontario. 1997. Aggregate Resources of Ontario: Provincial Standards. Version 1.0.
- Hollingsworth, Brian. 2002. Mineral Aggregates Issue Paper. Ontario Ministry of Natural Resources.
- Huron Business Development Corporation. January 2005. The State of the Huron County Economy. http://www.smallbusinesshuron.ca/publications/sothce_2005_final.pdf
- Huron County Official Plan. 1999.
- Meridian Planning Consultants. 2003: Official Plan Amendment No.16 (Oro Moraine and Aggregate Resource Policies) Township of Oro-Medonte.
- Meridian Planning Consultants. 2002. Discussion Paper Aggregate Resources Management in the Township of Oro-Medonte.
- Ministry of Finance. 2005. Ontario Population Projections – 2004 to 2031 – Ontario and Its 49 Census Divisions. <http://www.gov.on.ca/FIN/english/demographics/demog05e.htm>
- Ministry of Municipal Affairs and Housing. 2005. Provincial Policy Statement.
- Ministry of Natural Resources. 2001. Mineral Aggregate Resource Reference Manual: For Policy 2.2 of the Provincial Policy Statement.
- Natural Resources Canada – Mineral Statistics. 2001. in Hollingsworth, Brian. 2002. Mineral Aggregates Issue Paper. Ontario Ministry of Natural Resources.

Ontario Aggregate Resources Corporation. 1998-2002. Mineral Aggregates in Ontario; Statistical Update.

Ontario Geological Survey (Ministry of Northern Development and Mines). 2004. Aggregate Resources Inventory of Huron County; Southern Ontario.

Oxford County Official Plan. 1993.

Planning & Engineering Initiatives Ltd. & Associates. 1998. Caledon Community Resources Study; A New Direction in Aggregate Resource Management: Phase 3: Study Findings and Recommendations. Town of Caledon, Region of Peel.

Appendix 1

Terms of Reference

The Huron County Council initiated a process to develop a strategy for mineral extraction, which meets environmental, economic and social objectives, while enabling the protection of aggregate resources in the county and protection of other features. Identifying sufficient areas of aggregates encourages protection for long term use. The project was directed by a Steering Committee, led by the County. At the beginning of this project a terms of reference were developed and approved by County Council outlining the purpose, goals and objectives of the Aggregate Strategy. The purpose, goals and objectives of this project are stated below.

Purpose of the Aggregate Resource Strategy:

- Identify and examine the mineral aggregate resource in Huron County;
- Assess the environmental, social and economic factors as criteria to determine those areas with aggregate resource that should be protected;
- Recommend detailed policies and management directions to be incorporated into Local Official Plans;
- Develop a priority sequence for extraction for consideration in Local Official Plans.

Goals:

- Develop an Aggregate Resource Strategy for mineral resource extraction, which meets environmental, economic and social objectives, while enabling the protection of aggregate resources in the County;
- Identify and protect sufficient areas of mineral aggregates for long term use
- Recommend policies for Local Official Plans which will protect aggregate resources.

Objectives:

- Assess the extent of the aggregate resources in Huron County and their total resource potential and to analyze demand for aggregates and therefore the amount of aggregate needed for long term use;
- Establish clear and reasonable policies for processing aggregate applications in an efficient and effective manner;
- Identify and evaluate the impacts of extraction and rehabilitation scenarios on environmental, social and economic factors, and identify the preferred option;
- Prepare detailed aggregate resource policies and mapping to be incorporated into local Official Plans.

Steering Committee

The Steering Committee provided public and industry input and advice on an ongoing basis to the technical committee and County Staff. The Steering Committee met on a regular

basis throughout the project. County Staff has attended all Steering Committee meetings and acted as a resource to this group. This group will make recommendations to the County Health and Planning Committee and County Council.

Composition of Steering Committee

Committee Members	Number of Members
Representative from Huron County Health and Planning Committee	1
Aggregate Industry Producers	2
Representative from Municipal Clerks and Treasurers	1
Agricultural Industry Representative	1
Public at Large	1
Total Members of Steering Committee	6

Technical Committee

The Technical Committee consists of representatives from public agencies with an interest and expertise in aggregate resources and the environment. This group has met at key points in the study to discuss technical issues that have provided input through the circulation of materials generated by the study. This group has provided recommendations and advice to the Steering Committee.

Composition of Technical Committee

Committee Members	Number of Members
Conservation Authority	
▪ ABCA	2
▪ MVCA/Terrestrial Team	2
Local Municipal Road Department Staff	1
Huron County Highways	1
Provincial Staff	
▪ MNR	1
▪ MMAH	1
Huron County Planning Department	2
Total Members of Technical Committee	10

The Technical Committee has recommended features that sterilize aggregate deposits. They have also identified features that are considered limiting factors or constraints. The sterilizing features are recommended areas where extraction cannot or should not occur. The constraint features would be used to assist in determining mitigation measures that may be appropriate. Using this information, it was possible to identify aggregate deposits with no constraints, those with one, two, three or more constraints. The identified aggregate was mapped and will be implemented by the policy. The Committee recommended aggregate deposits to protect, policy to implement and a public information process to the Steering Committee. The approval of the Steering Committee was required before the strategy proceeded forward.

Appendix 2

Estimated Volume Calculations

The following information is to assist in interpreting the impact that the constraint mapping exercise may have on the supply of aggregate in the County. The volume calculations should not be considered an accurate or true depiction, but have been calculated based on information provided by the Ministry of Northern Development and Mines. This material is of assistance for planning purposes when discussing the protection of the aggregate supply.

Table A Estimated Volume Calculations for Primary Aggregate Resources in Huron County¹

Volume of Primary Aggregate Resource	Tonnage including Licensed Pits (High Scenario)	Tonnage after Licensed Pits Eliminated (Low Scenario)
Total Primary Aggregate Resource	680,429,798.7	530,861,497.8
Sterilized	112,635,640.4	125,758,633.0
No Constraints	361,923,546.6	253,984,096.8
1 Constraint	134,933,587.1	87,507,614.1
2 Constraints	53,797,663.2	47,578,334.6
3 Constraints	17,139,361.4	16,032,819.3

¹ Note: This information should only be used for land use purposes and is not meant to be an accurate depiction of the available resource.

Including existing licensed pits, 53% of the estimated volume of the primary aggregate resource is unconstrained. After licensed pits were eliminated, 47% of the primary aggregate resource is unconstrained.

Taking the volume calculations summarized in Table 5.2, the Technical Committee estimated the supply of primary aggregate.

The estimated supply of primary aggregate was calculated by dividing the tonnage of by the current annual demand.

Over the last 20 years in Huron County, an average of 2.7 million tones of aggregate was extracted each year. Discussions with the members of the Steering Committee indicated that the demand for aggregate was not expected to increase significantly in the near future. The current demand was calculated using 2.7 million tonnes as the current annual demand.

Table B Estimated Years of Supply of Primary Aggregate in Huron County under Different Scenarios¹

	Primary Aggregate Resource that is not Licensed under the ARA with <u>No Constraints</u>	Primary Aggregate Resource that is not Licensed under the ARA with <u>No Constraints and 1 Constraint</u>
Tonnage	253,984,097	341,491,711
Current Annual Demand (Tonnes/Year)	2,700,000	2,700,000
Estimated Supply (Years)	94	126

¹ Note: Numerous assumptions will mean that the actual numbers are not accurate, but does allow for a comparison based on various impacts.

Based on the assumption that aggregate production will remain steady in the County, using the low scenario with only designating the primary aggregate resource with no constraints (primary aggregate with zero (0) constraints with licensed aggregate operations removed) there is 94 years supply available.