

Natural Heritage Planning Framework:
A review of the setup process for Natural Heritage Systems

Report Prepared for: Haliburton Highlands Land Trust
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Introduction of structure:

This report has been done for the Haliburton Highlands Land Trust for the purpose of advising the organization on how to plan a natural heritage system within Haliburton County. The report shall be structure as if answering a series of questions which shall be:

1. What constitutes a natural heritage system?
2. How have other regions dealt with planning for natural heritage?
3. How are decision-making bodies within Haliburton County dealing with natural heritage?
4. Where can data on the elements of natural heritage within Haliburton County be found?
5. What recommendations are therefore derived from the information which has been reviewed?

Question # 1: What constitutes a natural heritage system?

How is Natural Heritage designed?

Natural heritage is a far-reaching term and as such many across the globe have an operational definition of what it means.

UNESCO World Heritage Center

“Outstanding physical, biological and geological formations, habitats of threatened species of animals and plants and areas with scientific, conservation or aesthetic value” (UNESCO World Heritage Centre 2008).

The Australian Natural Heritage Charter

“Natural features consisting of physical and biological formations or groups of such formations, which demonstrate natural significance, geological and physiographical formations and precisely delineated areas that constitute the habitat of indigenous species of animals and plants, which demonstrate natural significance, and/or natural sites or precisely delineated natural areas which demonstrate natural significance from the point of view of science, conservation or natural beauty.” (Australian Heritage Commission 2002).

Provincial Policy Statement of 2005

“means features and areas, including significant wetlands, significant coastal wetlands, fish habitat, significant woodlands south and east of the Canadian Shield, significant valleylands south and east of the Canadian Shield, significant habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscapes of an area.” (PPS 2005).

Much of the wording in all of these definitions is very similar and that in and of itself says something; there is a recognition that natural areas are and have been important to all humans for the value which

we take from them. However, something which is markedly concerning is the lack of any of these definitions to mention the economic value of these areas due to the fact that sustainable development requires a necessary balance of economic, social and environmental values. Nature is and always will be, at its root, the place which we derive all value from simply due to the nature of how energy is made available to humans on this planet; through photosynthesis (in that we will never be able to sustain ourselves without other organisms giving us energy or using that energy to create the things we need). Thereby economic value must be included in the operational definition of natural heritage.

Natural Heritage Systems

How then are natural heritage systems defined?

Natural Heritage Reference Manual (Ontario)

“A natural heritage system is an ecologically based delineation of nature and natural function – a system of connected or to be connected green and natural areas that provide ecological functions over a longer period of time and enable movement of species. Natural heritage systems encompass or incorporate natural features, functions and linkages (also referred to as “corridors”) as component parts within them and across the landscape. They also enable the linking of different landscapes.”

(MNR 2005)

However, as noted in the definitions review earlier, other human values taken from nature must be included into the definition of a natural heritage system because natural heritage systems are human constructed. Therefore what must also be taken into account is the other values which the people living in the area take from the natural environment. Consider this hypothetical example, a planner using a GIS system has a choice between including Forest A and Forest B in a natural heritage system. Both relatively accessible and they are both assessed to have the same natural heritage value from an ecological standpoint and whichever forest which is slated as being outside of the natural heritage system will be open for potential development. The planner picks Forest A out of random chance because they see no significant difference between the forests. However, Forest B is frequently used by hikers and there is a local resident who collects maple syrup from the sugar maples on site in small quantities. Thereby, would it not make more sense to conserve Forest B in the absence of human values attached to Forest A?

From this we can derive the answer to Question #1, A natural heritage system is a human constructed plan to preserve the human values attached to a landscape including ecological function and diversity, economic values and social/cultural values. As we will see in the following case studies, the natural heritage plans do indeed include other human values into their definition of a Natural Heritage System.

Question #2: how have other regions dealt with natural heritage planning?

This section will be broken down into a review of the general methods behind large scale natural heritage planning and a series of case studies.

A review of the general methods

General ecological guidelines

A natural heritage system must be guided by goals grounded in ecological truths in order to be effective (Chetkiewicz et al. 2006). However due to the scale at which natural heritage planning often occurs models must be developed to roughly assure that there is a balance in time and resources spent with effectiveness of conservation (Environment Canada 2005b). This is where general ecological guidelines for a natural heritage system become a necessity for planning; by amalgamating ecological truths into best practice goals an effective balance may be struck (Environment Canada 2005b).

To give an example of what this means, the TRCA (Toronto Region Conservation Authority) needed to accurately portray the influence of the surrounding landscape on the ecological value of different sites it was assessing in its GIS analysis. How it solved this problem was by looking at the nature of the ecological interactions which most commonly and significantly affected any given area. In the end the TRCA decided that they would account for land uses within a two kilometre radius of any given area to determine the influence on ecological value because:

- It was considered an accurate portrayal of the distance predators associated with edge effects would travel for food; (cats, cowbirds, foxes and racoons)
- This was the distance found to be considered the maximum reasonable to travel from home by people to regularly visit an area.
- It was the distance within which most species dispersal happens and genetic pools operate for most flora and fauna.

(Example from the guide book *How much Habitat is Enough*, see reference Environment Canada 2005a)

Non-ecological human values

As we will see within the case studies, a natural heritage system is only possible through large scale collaboration. Therefore, as much as there may be a want to create the maximum amount of ecological value possible, the conservation world does not live in a vacuum and in order to be effective a natural heritage system must also be planned based on the wants of the people living in its area of implementation.

Methods of preserving natural heritage

There are many ways by which natural heritage can be effectively preserved:

1. Municipal level Policy instruments: Municipal government has the right to create policy and responsibility of overseeing planning and development within its jurisdiction. The official plans of municipal governments state how and where development can occur and what should be considered in the planning process, the bureaucrats, politicians, concerned citizens and outside

parties then have an influence in differing degrees and forms on how these rules are interpreted. The current measures instituted by municipalities may not be as holistic as an approach which identifies a natural heritage system, but can certainly be effective in slowing down development in sensitive areas such that there can be time to create a natural heritage system.

2. Provincial/Federal Level Policy instruments: The Federal and Provincial government have effective authority over many areas of planning. For example, the 2005 Provincial Policy Statement in Ontario mandated that municipalities protect the areas of highest ecological importance which it defined; likewise, the federal Fisheries act lays out how fish habitat must be protected. This high level policy can save any land trust or conservancy a great deal of pain; The MNR for example, in defining areas of high natural heritage value, they have also mapped these areas. Thus it is reassuring for those interested in protecting these areas as many have been staked out while also ensuring that they are hard to be touched.
3. Alliance of stakeholders: By identifying land which is owned by groups which are or could use it for the protection of natural heritage an alliance or committee comprised of these groups or individuals can be formed for co-operation for a natural heritage system. Further through the identification of areas which have high ecological value which are not necessarily protected or part of the alliance, consultation with the owners of the land could further promote the advance of a natural heritage system.
4. Financial tools: private land stewardship incentives and assistance are a common financial tool used for conservation. By consulting with land owners in areas identified though mapping as being important to the natural heritage system the implementation of this sort of measure may help in creating a unified natural heritage system (MFTIP for example).
5. Criminal: an option probably not worth considering. Examples of eco-resistance actions have ranged from simple guerilla gardening to rocket attacks on development (i.e. Chaïm Nissim rocket attack). It should be noted that this was only included for the purpose of a theory discussion.

Case studies

Sustaining What We Value: Eastern Ontario

Who was involved?

This is a natural heritage system set up in an ecoregion in Eastern Ontario, it encompasses all of Leeds and Grenville, parts of Lanark, Frontenac and the Ottawa region as well as a small portion of Dundas. Sustaining what we value is a system created by the collaboration of a number conservation organizations including: Eastern Ontario Model Forest, St. Lawrence Islands

National Park, Frontenac Arch Biosphere Reserve, United Counties of Leeds and Grenville, Ontario Nature, Environment Canada and the Ontario Ministry of Natural Resources. This combination of institutions is something which should be noted; we have a land trust and a land conservancy group (Eastern Ontario Model Forest and Ontario Nature), Municipal government (United Counties of Leeds and Grenville), and federal and provincial government agencies (Environment Canada, Parks Canada and the Ontario Ministry of Natural Resources). Each of these different types of organizations have something important to bring to the table; firstly the land trust has the motivation and vision to push for this sort of thing as politicians have a lot on their mind and may not be able to focus on a particular issue as an NGO made up of the public may be able to do. What land trusts also bring to the table is often times land which can be included into the system and local ecological knowledge to help inform decisions. Secondly municipal government has the authority to plan how development can occur within a its jurisdiction and it may also have the GIS specialists and databases needed to effectively create a plan. The federal and provincial agencies have the knowledge and expertise necessary for planning large scale ecological conservation systems (NHIC for example), have areas which have already been conserved to some extent such as parks, crown lands and wilderness areas which can be included in the system and funding for sustaining and implementing natural heritage systems. Larger conservancy groups such as Ontario Nature also a high level of expertise to the project as well as lands to be included in the system sometimes.

Sustaining what we value has set up the area that it covers based on ecological boundaries “areas where there are unique combinations of climate and soils and strong relationships between plants and animal communities – This is the best way to protect the diversity and health of the landscape.” (Quoted from the Sustaining What We Value Brochure, for link to PDF see reference - Sustaining What We Value 2012- in reference section). This approach to a natural heritage system is one which is becoming much more common NHS such as the Niagara Peninsula Conservation Authority’s plan, the Re-Leaf Hamilton Project, the Bruce to Milton Plan and the Kawartha’s Naturally Connected. The environment Canada literature on this subject also supports this measure, the guidebook *Beyond Islands of Green* covers this in detail along with references for further reading.

How they defined their System

The way in which this organization has stated their goals is as follows:

“To identify, through engagement and agreement of local communities, a healthy natural heritage system (NHS) for the study area that will:

- Provide a focus for strategic land restoration to improve land sustainability, land securement, stewardship, and the conservation of biodiversity.*
- Inform and support sustainable land use planning and resource management decision-making.*
- Support sustainable economic opportunities.*
- Support social well-being.*

• *Maintain cultural heritage.* “
(SWWV 2009)

As mentioned earlier, you can see the combination of ecological and other human values in the goals of this project as well as the intent to work with the entire community within the implementation region. What should also be noted is the level of organization which the Sustaining What We Value project works on, it may have been working in partnership with the county but it is still a plan drawn up by an NGO and as such has no binding power unless it is chosen to be implemented by the municipal government. This makes working closely with municipalities a must if resources of a small organization are to be spent efficiently because it will be much harder to attempt to push a plan on government rather than formulate the plan with them.

What may also be of use in this example is to note the principles upon which the plan formulated by Sustaining What We Value was drawn up based upon:

The process of developing the natural heritage system will:

1. Be value-based
2. Engage stakeholders in its design and development
3. Consider ecological, economic, social, and cultural values
4. Be based on the best-available science and information
5. Be open and transparent in reporting on process, methods, outcomes and results
6. Be dynamic and adaptive
7. Be consistent with the Provincial Policy Statement (Appendix D) and all applicable legislation
8. Consider existing municipal official plans and existing areas of development
9. Recognise the many values of natural and developed areas
10. Consider valuation of ecological goods and services
11. Consider valuation of cultural heritage landscapes

(SWWV 2009).

Many of the ideas upon which many of these principles have been based were discussed previously, but I would like to unpack a few which have not been duly discussed.

5 . Be open and transparent in reporting on process, methods, outcomes and results: The basis of a natural heritage system is human and it is about humans living in tight community by which they are able to preserve those things needed for humans to thrive. How this then comments on this point is that in order for community to be formed there must be trust and through open and transparent reporting methods trust can be formed and thereby an effective NHS (Park and Blenkinsopp. 2011).

6 Be dynamic and adaptive: an important and progressive idea within large scale environmental planning and resource management. There are a number of benefits to viewing management in this way; firstly ecosystems are dynamic, they change and move over time and as such having the

capability to be adaptive in how policy is set for different areas allows for change. Secondly, management plans are best understood and implemented as experiments in that by accepting that we don't know everything from the beginning makes the whole system much easier to change when we find out more about what we don't know (Kato and Ahern 2008). Adaptive management also forces us to continuously monitor the effect of our policies and it also accepts that if we don't know that answer we can experiment with two different approaches simultaneously (Kato and Ahern 2008).

What were the steps they followed in setting their system up?

The Sustaining what we value project was set up in a series of phases. Phase 1 concerned working with communities to understand what is valued within their own region and why it is valued. This was done through the online mapping tool, newspapers, and local workshops. A scenario planning team was created from a variety of stakeholders representing different interests, this team consulted with the community, provided expert knowledge and used the knowledge gained to create different scenario options and the terms of reference document (explained below). A map for the different scenarios was created and then an ecosystem services evaluation provided by the different scenarios was done.

Phase 2 of the project is to be done through increasing the amount of public engagement to create an indication of the genuine value derived from the totality of functions of the environment/human manifestation of those goods from the environment. The aims of this portion of the project are to increase community interaction and engagement through social media, bringing together experts to talk on the wealth of value in the region, and the creation of a social network of member of the project to share ideas, events and information on other initiatives.

Terms of reference

It should be noted that much of the information used in this case study was drawn from the terms of reference document created for the project. This then underlines the importance of developing such a document in the early stages of the project in order to guide actions. The key features which were included in this document were:

1. What is the purpose of this project? In response to what? Over what area?: the creation of a larger goal to work towards, a clear delineation of the area covered and a reason for why it is needed allows clear communication of what the project is and is not.
2. Defining design and working group norms and procedures: the definition of how meetings will be arranged, how those within the comity must go about doing business and what their responsibilities will be, who will be making decisions and by what process. This is very important due to the high magnitude of the decisions made and the dependence upon the support of all stakeholders for the success of the project.

3. Appendices of the considerations for determining how areas are valued (Economically, Socially and Ecologically): This is best explained in an example; The appendices in the Sustaining What We Value terms of reference document include:
 - an appendix on the reasoning behind the choice of study area and the management technique which they will be applying (which was Integrated landscape management)
 - an appendix documenting a meeting with stakeholders in which it was discussed what people thought of when they thought of a particular value type (aesthetic, education, economic, ecological, social, cultural, agricultural...) what was important about it, what threatened it and how it could be sustained.
 - An appendix documenting a meeting with stakeholders in where it was discussed who should be engaged in the project they were proposing, what should be valued and how the value of ecosystem services can be communicated and understood by the public
 - An appendix which include the provincial policy statement

The Kawartha's: Naturally connected

Who was involved?

The Kawartha's: Naturally connected is a natural heritage system set up in the Kawartha lakes region, it encompasses much of the City of Kawartha lakes and Peterborough County and is part of the watersheds managed by the Otonabee and Kawartha Conservation Authorities. The ecoregion which it is built around is extended by a 5 kilometre buffer area to account for the overlap between ecoregions. The central proponent is Kawartha Heritage Conservancy who have collaborated with a large number of stake holders to develop their plan for the ecoregion including:

- The agricultural development Advisory committee: City of Kawartha Lakes
- Alderville First Nations
- City of Kawartha Lakes
- City of Peterborough
- County of Peterborough
- Ducks Unlimited Canada
- Various Lake Associations

- Kawartha Conservation
- Kawartha Lake stewards association
- Ontario federation of hunters and anglers
- Ministry of natural resources;
- Ministry of Tourism, Culture and Sport
- Ontario Parks
- Ontario Stone, sand and gravel association
- Ottonabee region conservation Authority
- Trent Severn water way (parks Canada)
- Peterborough county Health unit
- Region of Durham
- Trans Canada trail
- Victoria stewardship Council

What we see again is a combination of stakeholders spanning many different interests. The Kawartha Heritage Conservancy has created a document summarizing all of the wants of the different stakeholders listed, this document is attached in Appendix 1.

How they defined their System

The Kawartha Heritage Conservancy has laid out its goals as follows:

“This region is vast, there are many different players, and resources are limited. The goals of this project are to:

1. Identify and map a connected system of natural areas that can inform and support:
 - a) sustainable land use planning and resource management decision-making
 - b) strategic priorities for stewardship and restoration projects
 - c) priorities for conservation land acquisitions, and
 - d) priorities for inventory programs and research projects.

To achieve number 1:

2. Bring together organizations that represent local communities to work collaboratively and provide a greater understanding of the value of a healthy natural heritage system that supports healthy communities.
3. Engage in an open, transparent and respectful process. “
(Kawartha Heritage Conservancy 2011)

Though the goals for this organization take a focus more strongly orientated towards the creation of a system for the preservation of natural features for their value in and of themselves (compared with the sustaining what we value stated goals). The means by which they will arrive at that state will be by consulting with the community at large to understand how they value the land through an open and transparent process. Both of these themes are ones which were also an integral part of the sustaining what we value project.

Principles:

The process of developing the natural heritage system will:

1. Be ecologically-based
2. Engage stakeholders in its design and development
3. Seek to represent the wide geography, stakeholders and governments involved on this landscape
4. Consider ecological, economic, social, and cultural values
5. Be based on the best-available science and community information
6. Be open and transparent in reporting on process, methods, outcomes and results
7. Be dynamic and adaptive
8. Incorporate or build on previously completed planning processes, natural heritage work, and community, First Nation and traditional knowledge and information
9. Recognise the many values of natural, rural and developed areas

Many of the principles that the Kawartha Heritage Conservancy states here are mirrored in those stated by the sustaining what we value project; Adaptive management, transparency, ecologically based understanding, community involvement, broad understanding of values and knowledge and broad distribution of value.

What were the steps they followed in setting their system up?

The Kawartha Heritage Conservancy roughly followed this method for developing their natural heritage system:

1. Pre-planning and Terms of Reference: Determine what data needs to be collected? Where it can be found? Who needs to be involved? What sort of funding needs to be acquired? What sort of expertise needs to be consulted? What the long term goals of the project are? What is the purpose of the system? How will this project be effective/what political tactics should we use?
2. Compile the data: Find or create a GIS system capable of creating a model which will accurately represent what you want it to. Find the data and expertise necessary to create this model.
3. Stakeholders set targets for initial scenarios: communicate with stakeholders and understand what they want to see in a natural heritage system/concerns they have about a natural heritage system.

4. Model scenarios for comparison: Use the input and the data to create examples for comparison.
5. Stakeholders review and discuss scenarios. A preferred scenario is developed: see step 3
6. Model preferred scenario: see step 4
7. Stakeholders review the map and finalize the result through consensus: see step 3
8. Final mapping and priority features, areas and linkages: see step 4
9. Integrated stakeholder team establish goals together, shares knowledge and understanding, builds trust and achieves consensus: a natural heritage system is also about trust and understanding among those within a broader landscape whose actions have an impact on one another, very important step. It is noted in their procedure that information which can be used to support this step is:
 - Priorities for stewardship projects
 - Land use planning and policy decisions
 - Conservation land acquisition
 - Development proposal assessments
 - Priorities for inventory programs and research projects

Policy Analysis

The nature of development policy within the municipalities and county is a key to preserving natural heritage (Berney 2003). It is inevitable that most the land in a county will not have been surveyed for its natural heritage value and as such policy capable of ensuring nothing of high natural heritage value gets lost is essential. It should be noted that a study done in 2003 by Ontario Nature revealed that of the development appeals made to members Ontario Municipal Board, 70% of those appeals were allowed to go ahead (Berney 2003). With this in mind it becomes important to consider the state of the land development policy within the area of implementation as a natural heritage system expands over time and by ensuring that areas of high natural heritage value are not developed within this period it benefits the entire planning framework.

Therefore this portion of this report will analyze the policies on environmental protection within the entirety of Haliburton County and look for any potential gaps which have the potential for high value lands to be lost.

What is the state of policy pertaining to natural heritage in Haliburton County?

Haliburton has policy in place which protects elements of what would be a natural heritage system, but as yet has no official plan for a natural heritage system (which is the rationale for this report). The elements of policy which protect key parts of what a natural heritage system would be made up of includes;

(see reference (County of Haliburton 2010))

Feature	Policy
Significant habitat of endangered species and threatened species	No development permitted on lands where there is habitat of provincially Significant endangered species and threatened species has been identified
Significant wetlands*	No development permitted on lands where with provincially significant wetlands
Areas of natural and scientific interest	No development on lands which have been identified as Areas of natural and scientific interest unless unless it has been demonstrated, through an Environmental Impact Study, that there will be no negative impacts on the natural features or their ecological functions.
Significant wildlife habitat	No development on lands which have been provincially identified as Significant wildlife habitat unless it has been demonstrated, through an Environmental Impact Study, that there will be no negative impacts on the natural features or their ecological functions.
Corridors	2.1.3.11 Strategies for maintaining the diversity of natural features will be included in local official plans or as County and local partnership actions. Further, both County and local governments shall ensure that the diversity of natural features in an area, and the connectivity between them will be maintained and restored or enhanced where possible.
Fish Habitat*	2.1.3.8 - Development and site alterations shall be set back a minimum of 30 metres (100 feet) from the high water mark of lakes, rivers and streams... The shoreline frontage of the lot should be maintained in natural shoreline vegetation, including trees, in the water and upland along the water's edge.

Headwaters	<p>2.1.3.10 Strategies for the protection of ground and surface water resources and public access to them will be included in local official plans or as County and local partnership actions... It is recognized that there are Federal, Provincial, municipal and First Nation agencies that have responsibility for managing storage, flows and allocation of the water in the Trent-Severn Waterway.</p> <p>2.1.3.12 The quality and quantity of all ground and surface water will be protected and improved in areas of degradation, where identified.</p> <p>2.1.3.4 A site-specific evaluation (Site Evaluation Report) should be undertaken prior to planning approvals to determine the location of natural heritage areas and features and their ecological functions under any of the following circumstances: Adjacent to watercourses, rivers, and lakes unless recent information exists at the County or local level of government;</p> <p>**2.1.3.13.1 Council will not consider any application that involves the creation of a new lot, residential units, or any non-residential development on the shorelines of lakes which have been identified in the Plans of the lower tiers as being “at capacity or highly sensitive” except in consultation with the Ministry of Environment and the Ministry of Natural Resources and under one of the following special circumstances.</p>
Policies affecting all areas	<p>2.2.3.3 Development of mineral aggregate resources will incorporate buffer zones and rehabilitation plans.</p>

*

** also applicable to fish habitat

Discussion

The county of Haliburton has strong policy in place to protect the natural heritage features it has jurisdiction over because:

1. It almost completely protects Provincially significant wetlands and Significant habitat of endangered and threatened species as it does not permit development on those sites identified as such. It also restricts development adjacent to these sites by only

approving those developments which can prove through an environmental impact study that they would not impact these systems at all. They are also protected by requiring an site evaluation for any development taking place near watercourses, lakes, rivers or in wetlands.

2. ANSI's and Provincially significant wildlife habitat are similarly protected, with the exception that if "it has been demonstrated, through an Environmental Impact Study (EIS), that there will be no negative impacts on the natural features or their ecological functions." (Haliburton County Official Plan. 2010)
3. Fish habitat is protected by some regulations under the county official plan but its protection is mostly under the jurisdiction of the federal government under the fisheries act (which was recently and ironically, gutted like a fish). Those policies in place under the county official plan which pertain to fish habitat are by and large those which prevent the disruption of hydrological systems as well as a policy on the proper placement of residential development near a lake's edge in order to prevent damage to the environment.
4. The protection of corridors is the weakest point in the policies of Haliburton county. But due to the fact that the definition is so broad it is hard to find a way to quantify corridors without doing a major ecological inventory of the entire county, which would not be feasible in the short term. There is a general policy, 2.1.3.11, states that the county is responsible for ensuring that the diversity of natural features in an area, and the connectivity between them will be maintained and restored or enhanced where possible.
5. Headwaters are significantly protected, though development may occur beside hydrological systems it must first go through a site evaluation report process as specified by the local official plan. Development which would occur beside lakes which are sensitive to or at capacity of phosphorus pollution are not permitted except under special circumstance and with consultation with both the MOE and MNR. There are also various regulations concerning restrictions in modification to lakeside property to preserve natural heritage but this is much weaker policy as the decision of whether to follow this regulation is up to the private landowner who may or may not be informed of the particular law. What must also be noted in this review is that the federal government has jurisdiction over all natural water courses.

A significant portion of the policy regarding natural heritage protection is handed off to the municipalities and therefore the next place to go in this study is to answer the question: specifically what jurisdiction did the County of Haliburton defer to the municipalities?

The municipalities

The municipalities have a number of policy areas pertaining to or affecting natural heritage which are not handled by the county. These include but are not limited to:

- Identifying locally significant natural heritage lands including wetlands, wildlife habitat, fish habitat, the habitat of endangered and threatened species and areas of natural and scientific interest.
- The criteria and policies for site evaluation reports
- Policies which protect natural hazard areas (areas which are susceptible to flood, erosion, etc, land which is considered too risky to build on)
- Provide a list of lakes which are “at capacity or highly sensitive” (lakes which would be too detrimentally affected by phosphorus to allow any new development on its shores) Designate settlement areas (though in the county official plan it is noted in policy 2.3.2 that, “Local official plans will contain policies that ensure development, redevelopment or conversion of properties occur in an environmentally responsible manner, with regard for public health and safety.”)

The policy of the municipalities on the conservation of different ecological functions is as follows:

Highlands East

(see reference (Municipality of Highlands East 2012))

Area	Policy
General Protection	<p>1.2.2.1 The natural environment and the lakes have and will continue to define the social and economic character of Highlands East. It is a priority for this Plan to protect the natural resources of the Municipality in order to allow their continued use and enjoyment by future generations. Council will respect the environment and will follow the principle of sustainability, and will consider the cumulative impacts of planning decisions, while recognizing that development proposals cannot be addressed on an individual basis in isolation from past and future decisions. Council will place a high priority on the protection of lands with significant environmental features and their associated functions.</p> <p>1.2.2.2 The quality of the Municipality’s water bodies and its natural environment are two of its greatest assets. These factors are essential to the quality of life as well as the Municipality’s continued viability as a tourist area. Policies in this Official Plan will assist set forth an environment-first approach in the evaluation and impact assessment of proposed land use development and site alteration. In Highlands East to ensure the maintenance and protection of water quality, natural resources, wetlands, wildlife, fisheries and fish habitat in the Municipality</p> <p>1.2.6.1 This Plan identifies a number of defining environmental and topographical features that contribute to the Municipality’s extensive natural heritage system. The protection of these features is a key underlying principle in this Plan. This Plan contains policies that recognize the character of the Municipality’s green forested spaces, water resources,</p>

and terrestrial landscape as resources that contribute to the natural near-north character of the Highlands. The policies of this Plan also recognize the challenges created by Provincial interests in resource extraction in natural areas and attempts to manage these issues.

1.3.1 Environmental Protection

The Environmental Protection designation is intended to include the following significant features as identified by the Ministry of Natural Resources through their Natural Resource Verification Information System (NRVIS):

- Provincially significant wetlands;
- Locally significant wetlands;
- Areas of Natural and Scientific Interest;
- Significant portions of habitat of endangered or threatened species;
- Significant wildlife habitat areas; and,
- Other areas that have been determined to be environmentally sensitive as a result of a development review process

Schedule 'B' to the Plan identifies the above-mentioned features as well as a number of other features of environmental significance which should be protected from incompatible development. These features include:

- Moose concentration areas
- Deer concentration areas
- Deer wintering areas
- Fish spawning areas and sanctuaries
- Fish habitat

3.7.3.1 Permitted uses in the Environmental Protection designation are limited to those uses which do not diminish the natural environment or the habitats of the fish or wildlife therein such as resource management uses and wildlife conservation areas.

3.7.3.2 No permanent buildings or structures shall be permitted, except those required for flood and erosion control and which have obtained applicable approval from the Ministry of Natural Resources or Department of Fisheries.

3.7.4.1 Within the areas designated *Environmental Protection*, the preservation and enhancement of the natural environment will take precedence over all other uses and therefore development within the *Environmental Protection* designation shall not be permitted. However, where it has been demonstrated through the completion of an EIS in accordance with Section 2.3.3 that specific lands should not be placed in the Environmental Protection designation and can accommodate development, such lands may be redesignated by an Official Plan Amendment.

3.7.6.2 Where a parcel of land is deemed not to be environmentally significant or environmentally sensitive by the Municipal Council, in consultation with the Crowe Valley Conservation Authority and the Ministry of Natural Resources, such lands may be redesignated at the time of an Official Plan Review or by an Official Plan Amendment.

3.7.8.1 The expansion of any non-conforming uses in the *Environmental Protection* designation shall be subject to a Minor Variance. The expansion of such uses may only be considered provided the expansion does not adversely affect the ecological integrity of the natural lands, fisheries and wildlife habitat, and areas of biological or ecological significance exhibited by the feature. The expansion of non-conforming uses in floodplains is prohibited.

3.7.8.2 The replacement of non-conforming buildings and uses in the *Environmental Protection* designation may be permitted provided the

replacement does not adversely affect the ecological integrity of the natural lands, fisheries and wildlife habitat, and areas of biological or ecological significance in the area.

3.4.9 Undeveloped Land: The *Shoreline* designation includes lands that are still in a natural state and are primarily undeveloped. The inclusion of these lands in the *Shoreline* designation does not imply that all of these lands will ultimately be developed for those uses permitted by the *Shoreline* designation. It is a policy of this Plan to ensure that the future use of these lands is consistent with the objectives and policies of the *Shoreline* designation, specifically Sections 3.4.10 through to 3.4.14. Proposals for significant or major new developments that are not anticipated by this Plan in terms of use, form, scale or height, shall require an amendment to this Plan.

3.7.5 Parkland Dedication

3.7.5.1 The Municipality is under no obligation to accept *Environmental Protection* lands as part or all of a parkland dedication in accordance with the Planning Act.

2.1.1.1 Public utilities, public road and railway right-of-ways, public parks and other essential public or institutional uses shall be permitted within all land use designations with the exception of *Environmental Protection* provided that the use is necessary in the area and measures are taken to ensure compatibility with the surrounding land use and the natural environment. Electric power facilities may be permitted in all designations provided that all the planning of such facilities is carried out having regard for the other policies of this Plan.

3.5.9 Wayside Pits and Quarries, Portable Asphalt Plants and Portable Concrete Plants

Wayside pits and quarries, portable asphalt plants and portable concrete plants used on public authority contracts shall be permitted, without the need for an amendment to this Plan, rezoning, or development permit under the Planning Act in all areas of the Township, except residential areas and environmentally sensitive areas including those areas designated as *Environmental Protection*, and provided that they are consistent with the Provincial Policy Statement.

3.7.2.2 Lands designated *Environmental Protection*, as shown on Schedule A, are intended for protection and conservation of the natural land and/or environment. These lands should be managed to complement adjacent land uses and should be protected in their natural state. The *Environmental Protection* designation is based upon resource mapping provided by the Ministry of Natural Resources and additional hazard lands may be added to Schedules A or B by an amendment to this Plan.

5.10 PUBLIC PARKLAND

5.10.1 Dedication of Land through the Development Process

Council will require the dedication of five percent (5%) of the land within a residential Plan of Subdivision or consent to be dedicated to the Township as parkland. Two percent (2%) of the land within a non-residential development shall be dedicated as parkland. In lieu of the above requirements, Council may require cash-in-lieu of parkland instead, as deemed appropriate. In the establishment of a Parkland Dedication By-law, Council may determine value on the basis of either the value of raw land on the day prior to draft approval (Provisional Consent) or on the basis of the value of the new lot(s) prior to

	<p>issuance of a Building Permit. Lands within the <i>Environmental Protection</i> designation and/or which have been identified as hazard lands shall not be considered as part of the required minimum dedication of parkland pursuant to this section of the Plan.</p>
<p>Criteria for Site Evaluation reports</p>	<p>Site Evaluation Report Applications for new lot creation within the <i>Shoreline</i> designation will be required to prepare and submit a Site Evaluation Report which shall provide the following information:</p> <ul style="list-style-type: none"> a) A description of the nature of the lands, the development proposal, and the natural and physical context of the site; b) Site specific information such as slope and soil characteristics, vegetation, drainage, erosion and flooding characteristics; c) A plan identifying suitable locations for a driveway, building envelope, septic location, shoreline amenity and docking area and existing vegetation to be retained; d) Environmentally sensitive areas shall be identified, including wetlands, fish habitat, and wildlife habitat; e) Potential impacts of the development should be identified including lake water quality impacts, storm water quality and quantity impacts, erosion, vegetation, habitat, shoreline and visual/aesthetic impacts; f) The Site Evaluation Report shall assess the constraints to development and address how the constraints can be managed or mitigated effectively through the utilization of appropriate development control techniques including site plan control; and, g) The report shall also address the appropriateness of the proposed development and its ability to satisfy the goals of this Plan and shall be prepared in accordance with the policies of this Plan and specifically Section 3.4.10 to 3.4.14 of this Plan.
<p>Policies which protect natural hazard areas</p>	<p>3.7.2.1 The Environmental Protection designation primarily is comprised of lands having environmental significance such as Provincially and locally significant wetlands and Areas of Natural and Scientific Interest as shown on Schedule "B" to this Plan. However the Environmental Protection designation may also include natural hazard lands such as floodplains, steep slopes or lands characterized by any other physical condition which makes them physically unsuitable for development. General policies relating to these features can be found in Section 2.3.</p> <p>Hazardous Land Means property or lands that could be unsafe for development due to naturally occurring processes. Along the shorelines of the Great Lakes - St. Lawrence River System, this means the land, including that covered by water, between the international boundary, where applicable, and the furthest landward limit of the flooding hazard, erosion hazard or dynamic beach hazard limits. Along the shorelines of large inland lakes, this means the land, including that covered by water, between a defined offshore distance or depth and the furthest landward limit of the flooding hazard, erosion hazard or dynamic beach hazard limits. Along river, stream and small inland lake systems, this means the land, including that covered by water, to the furthest landward limit of the flooding hazard or erosion hazard limits.</p>
<p>Designate settlement areas</p>	<p>3.2.4.1 Residential development within the <i>Settlement Area</i> designation shall reflect the character of the community and shall occur by consent or by registered Plan of Subdivision as a natural and orderly extension to existing development</p>

	<p>3.2.4.3 New development within the <i>Settlement Area</i> designation is encouraged to accommodate active transportation needs, make an efficient use of land and infrastructure and provide for a range/mix of land uses.</p>
Lake capacity	<p>1.2.2.3 Changes to water quality and hydrological and hydrogeological characteristics of watercourses, which include the headwaters, as well as lakes, aquifers and a wetlands are to be minimized and no development is permitted that will result in a negative impact to the functions and processes of these features.</p> <p>1.2.2.4 Land uses in proximity to the shoreline area of inland lakes and rivers will be regulated in an effort to minimize impacts upon lake water quality and to protect shoreline and riparian areas from degradation</p> <p>3.3 Shoreline Designation</p> <p>3.3.1.1 To identify shoreline communities which are comprised of resource-based recreational uses seasonal and permanent residents, commercial uses and existing shoreline lands still in their natural state.</p> <p>3.3.1.2 To ensure that the quality of the lake and river environment is maintained or improved.</p> <p>3.3.1.3 To provide for environmentally sound development in shoreline areas.</p> <p>3.3.1.4 To ensure the natural state of the shoreline is maintained to the greatest extent possible.</p> <p>3.4.12 Shoreline Natural Area Design and Tree Preservation a) A minimum of 90 percent of the front 20 metres of a lot should be maintained in a natural vegetative state.</p> <p>3.4.16.1 In shoreline areas, Council will encourage a minimum setback of 30 metres for new development on vacant lots of record and redevelopment or expansions to existing buildings and structures which are subject to a planning approval. In cases where this is not achievable, the greatest setback possible will be required. New shoreline lots created after this Plan came into effect on December 7, 2004 shall be subject to a 30 metre shoreline setback for development as specified in Section 2.3.5</p>
wetlands	<p>Environmental Protection Designation and Undeveloped Land policies (see general policy section)</p> <p>1.2.2.3 Changes to water quality and hydrological and hydrogeological characteristics of watercourses, which include the headwaters, as well as lakes, aquifers and a wetlands are to be minimized and no development is permitted that will result in a negative impact to the functions and processes of these features.</p> <p>3.7.4.2 In addition development proposals on lands within 120 metres of a Wetland identified on Schedule “B” to this Plan, and on lands which connect individual wetland areas, shall be subject to the preparation of an EIS in accordance with Section 2.3.3 and shall specifically ensure that the development will not result in:</p> <ul style="list-style-type: none"> i) The loss of wetland functions; ii) Conflict with existing wetland management practices; or;

	iii) The loss of contiguous wetland area or wetland complex
wildlife habitat	Environmental Protection Designation and Undeveloped Land policies (see general policy section)
fish habitat	Environmental Protection Designation and Undeveloped Land policies (see general policy section)
habitat of endangered and threatened species	Environmental Protection Designation and Undeveloped Land policies (see general policy section)
areas of natural and scientific interest	Environmental Protection Designation and Undeveloped Land policies (see general policy section)
Headwaters	1.2.2.3 Changes to water quality and hydrological and hydrogeological characteristics of watercourses, which include the headwaters, as well as lakes, aquifers and a wetlands are to be minimized and no development is permitted that will result in a negative impact to the functions and processes of these features.
Corridors	<p>Natural Heritage System Means a system made up of natural heritage features and areas, linked by natural corridors which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include lands that have been restored and areas with the potential to be restored to a natural state.</p> <p>5.10.4 Parkland Siting and Design All public parkland shall:</p> <ul style="list-style-type: none"> - incorporate natural heritage features wherever possible into the design of the parkland; - be connected, wherever possible, to trail systems, cycling routes and natural heritage corridors.

The policy which they have in place for the protection of areas significant to natural heritage is as follows:

Conclusions for implementation purposes in Highlands East:

Highlands East has taken natural heritage into account within their official plan quite significantly, which may well indicate that this municipality would readily participate within a meaningful countywide natural heritage plan.

Minden hills

(see reference (Minden Hills 2007))

Area	policy
General Protection	4.13.1 The Township will establish a restrictive environmental zone category in its zoning by-law that will limit the uses permitted to 'conservation uses'. All provincially significant wetlands, and other environmental areas deemed significant by the Township may be placed in the environmental zone.
Criteria for Site Evaluation reports	10.14.2 Where this Plan requires submission of a site evaluation report, the document will include an analysis that will show existing features, including: <ul style="list-style-type: none"> • slopes; • soil depth to bedrock or 1.3 metres, type, and internal drainage; • shoreline and upland vegetation; • overland drainage; • fish and wildlife habitat; • natural and cultural heritage protection; and, • access.
Policies which protect natural hazard areas	4.6.1 Floodway areas are those lands susceptible to flooding, as indicated on Schedules "A" and "C". These lands, if developed, could result in the deterioration or degradation of the environment, damage to property, and/or loss of life. 4.12.1 Development will be set back from areas exhibiting steep slopes (greater than 20%) or active erosion. The setback distance will be determined on site in consultation with a qualified specialist. A reduction of the setback distance will be considered only when supported by a geotechnical investigation prepared by a soils expert. The geotechnical investigation shall be prepared to the satisfaction of the appropriate approval authority.
Designate settlement areas	5.4.7 Residential intensification in the form of accessory apartments, garden suites and attached additions, are encouraged throughout the residential areas provided such intensification does not adversely affect the character of the area. 5.4.8 Residential development will be phased in a logical sequence, from the centre of the Village towards the limits of the boundary of the Village

	of Minden, as dictated by servicing constraints.
Lake capacity	<p>4.5.1 Before approving any development proposal adjacent to a lake, Council must be assured that the proposed development will not exceed the capacity of the lake to accommodate development. The Plan recognizes three factors as limiting lake capacity:</p> <ul style="list-style-type: none"> • water quality; • surface capacity for recreation; and, • shoreline development capacity. <p>4.5.2.3 Existing development rights are recognized on the above noted lakes. New development shall not be permitted unless unique or special circumstances allow the development to occur. Prior to the approval of the development proposal within 300 m of the highly sensitive lake trout lake, detailed studies will be required to demonstrate that the physical features, design and siting of the development will not have an adverse impact upon the quality of the lake and related lake trout habitat. The Ministry of the Environment and Ministry of Natural Resources shall be consulted in these circumstances.</p> <p>4.5.4.1 Council may consider an application for development that involves the creation of a new lot, new medium density, lifestyle or cluster residential units, or any non-residential development, on the shorelines of lakes listed in Section 4.5.2.3, only if the applicant submits a site evaluation report as described in Section 10.14.</p> <p>4.5.5.2 The Township will encourage and support the continued and enhanced monitoring of lake trophic state by the Ministry of Environment and lake associations. The Township will use the results in reviewing the policies of this Plan and, where appropriate, individual development applications. If Council determines that a proposed development has the potential to impair lake trophic status, it may require the applicant to undertake a lake impact assessment prior to approval to ensure that water quality of the lake is protected.</p>
wetlands	<p>4.2.3 Other Potentially Significant Wetlands are considered to be contiguous blocks that are 10 hectares (25 acres) or more in area and/or border on a lake where there is existing shoreline development or where shoreline development may occur, and which are not part of a Provincially Significant Wetland.</p> <p>4.2.4 For Other Provincially Significant Wetlands, no natural heritage evaluation is required if the Ministry of Natural Resources provides written confirmation to the Township that the lands are not considered to be within a significant natural heritage feature or its adjacent lands.</p> <p>4.2.6 Council will consider an application for development within Other Potentially Significant Wetlands, or within their adjacent lands, provided that, as requested by Council, the applicant submits an evaluation of the wetland using the Northern Ontario Wetland Evaluation System and/or a natural heritage evaluation. An evaluation may be required to demonstrate, to Council's satisfaction, that the proposed development</p>

	<p>will have no negative impacts on the wetland or its ecological functions.</p> <p>*4.2.8: Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features: Provincially Significant Wetlands and Other Potentially Significant Wetlands – 120 metres (394 feet)</p>
wildlife habitat	<p>*4.2.8: Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features: Significant Wildlife Habitat – Species of Conservation Concern – 150 metres (492 feet) from the centres of the nests</p> <p>4.2.5 Within the Moose/Deer Wintering Areas designation, or its adjacent lands, where the proposed development is the creation of lots by consent, or further development on no more than four abutting lots in a Waterfront area, Council may exempt the applicant from having to submit a natural heritage evaluation, only if the development approval includes a consent agreement and/or zoning by-law that requires:</p> <ul style="list-style-type: none"> • minimum lot frontage of 90 metres (295 feet); and, • that at least 80% of the shoreline frontage to a depth of 30 metres (98 feet) will be maintained in its natural state. <p>4.10.1 The importance of protecting wildlife corridors and preventing the fragmentation of these lands cannot be overemphasized.</p> <p>4.10.2 Development and site alteration will only be permitted in fish and wildlife habitat if it is demonstrated that there will be no negative impacts on the natural features or ecological function(s) for which the area is identified. The Township may consult federal, provincial, municipal, or other appropriate agencies for the successful implementation of this policy.</p>
fish habitat	<p>*4.2.8: Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features: Fish Habitat – 30 metres (98 feet)</p> <p>4.5.2.2 Council recognizes the importance of cold water lakes and streams within the Township. Therefore, development shall only take place in a manner that does not adversely affect the habitat essential to the maintenance of a healthy cold water fishery.</p>
habitat of endangered and threatened species	<p>4.11.1 Development and site alterations will not be permitted in the habitat of endangered species or in significant portions of the habitat of threatened species. The Township will consult mapping produced by the Ministry of Natural Resources with regard to these habitat areas prior to considering development approvals.</p> <p>4.2.7 A natural heritage evaluation will be conducted using the Natural Heritage Reference Manual and supporting technical manuals produced by the Ministry of Natural Resources as a guide. The study area for the natural heritage evaluation will be the entire significant natural heritage feature and its adjacent lands. The evaluation will consider how to maintain, and where possible improve, the diversity of natural features in the study area and the connections between them. If in the course of a</p>

	<p>natural heritage evaluation, the applicant becomes aware that the study area includes actual habitat of endangered or threatened species, the applicant will advise the Township at the earliest opportunity.</p> <p>4.3.2: The municipality maintains a register of: Significant parts of the habitat of endangered and threatened species. Access to this information will be restricted to the extent required by the Ministry of Natural Resources.</p>
areas of natural and scientific interest	*4.2.8: Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features: All other features – 50 metres (164 feet).
Headwaters	<p>4.4.1 The Township recognizes the importance of maintaining and improving the quality and quantity of groundwater and surface water. As such, the function of watercourses and sensitive ground water recharge/discharge areas, aquifers and head water areas will be protected or enhanced. All major development applications, including plans of subdivision and water taking industries, shall be supported by hydrological and terrain analysis reports and nitrate impact assessments where there may be an impact on ground or surface water resources. An impact assessment of development on a surface waterbody will also be required for major development adjacent to a waterbody.</p> <p>4.4.2 Development and site alteration will be set back from all watercourses within the Township in order to protect their natural features and functions, provide riparian habitat, and minimize the risk to public safety and property. The setback distance shall be determined on-site in consultation with the appropriate approval authorities. In general, development and site alteration should be set back a minimum of 30 metres (100 feet) from the high water mark of lakes, rivers and streams, with the following exception:</p> <ul style="list-style-type: none"> • The minimum setback is 23 metres (75 feet) for buildings and structures and 30 metres (100 feet) for tile fields for a lot in existence on the date of approval of this Official Plan. <p>In cases where these setbacks are not achievable, the greatest setback possible will be required, subject to the provisions of Section 6.2.6.13.</p>
Corridors	4.7.3 Restoration and tree planting efforts should be directed to areas that would create or re-establish natural corridors such as river and stream riparian areas.

*For the purposes of a specific development application, the adjacent lands contiguous to a specific feature may be varied from these standards, where documented and justified to Council's satisfaction.

Dysart et al.

(see reference (Dysart et al. 2010))

Area	Policy
General Protection	2.1.2 The natural environment is the most important natural resource in the

Municipality, both ecologically and economically. The area's many lakes and forests make the Municipality extremely attractive for numerous recreational activities. Recreation and tourism are and will continue to be the Municipality's most significant industry.

2.2.1 The primary objective of this Plan is to enhance and preserve those environmental qualities which contribute to the attraction of the Municipality. All development proposals will be assessed for compliance with this objective.

In particular, it is the objective of this Plan that development:

- promote a healthy and sustainable natural environment;
- protect the natural characteristics and visual aesthetics of shorelines and, wherever possible, improve and restore the natural state of shorelines and shorelands;
- preserve the natural state of the shoreline as much as possible, and where the shoreline has been impaired by past activities, restore the shoreline's natural features including but not limited to native vegetation;
- protect significant natural heritage features;
- conserve significant cultural heritage resources and landscapes; and
- proceed only where any affected lakes have capacity for additional development.

All new development and the redevelopment of existing properties will be considered within the context of sound environmental planning.

5.3.1 In order to direct and encourage proper forest management, and provide for a continued forestry industry, Council will encourage the retention of forest cover and natural vegetation.

Owners of forests of sufficient size who actively manage their forests are strongly encouraged to operate on the basis of approved managed forest plans in accordance with the *Assessment Act*, and within those plans to provide recreational opportunities to trail clubs and/or the general public.

5.3.4.2 If in the course of the development application and approval process, the applicant becomes aware that the subject lands include actual or potential habitat of endangered or threatened species, the applicant will advise the Municipality and the Ministry of Natural Resources at the earliest opportunity.

5.3.4.3 Council will only consider an application for development or site alteration on adjacent lands to significant natural heritage features (as defined in Section 5.3.4.4), where it has been demonstrated through an Environmental Impact Study (EIS) that there will be no negative impacts on the natural features or their ecological functions.

- significant habitat of endangered and threatened species, identified by the Ministry of Natural Resources (NHIC). These areas are listed in the municipal resource register described in Section 5.5.

	<ul style="list-style-type: none"> - critical fish habitat, which is walleye, muskellunge, and lake trout spawning areas identified by the Ministry of Natural Resources (NRVIS) or type 1 fish habitat identified in site evaluation reports on file with the Municipality. These areas are designated on Schedule "B". - provincially significant wetlands, identified by the Ministry of Natural Resources (NRVIS). These areas are designated on Schedule "B". - wetlands as identified on the County of Haliburton wetland mapping. - significant wildlife habitat - deer yards, which is deer wintering areas and core deer yards identified by the Ministry of Natural Resources (NRVIS). These areas are designated on Schedule "B". - significant wildlife habitat - species of conservation concern, which is red-shouldered hawk, great blue heron, and osprey nests identified by the Ministry of Natural Resources (NRVIS). These areas are designated on Schedule "B". - significant Areas of Natural and Scientific Interest (ANSI's), identified by the Ministry of Natural Resources (NRVIS). When this Plan was adopted, there were no such areas in the Municipality. Any such areas identified in future will be designated on Schedule "B". <p>Except with respect to the wetlands shown on the County of Haliburton Wetland mapping, no Environmental Impact Study (EIS) is required if the applicant provides confirmation that the Ministry of Natural Resources does not consider the subject lands to be within a significant natural heritage feature or its adjacent lands.</p>
<p>Criteria for Site Evaluation reports</p>	<p>22.4.3 SITE EVALUATION REPORT</p> <p>A site evaluation report will demonstrate to Council's satisfaction that the subject lands are suitable for the proposed development and that development will not be unduly constrained by site limitations. The report will provide information on and evaluate the following:</p> <ul style="list-style-type: none"> - slopes; - soil depth, type, and moisture; - 80 - <p><i>Dysart et al Official Plan Office Consolidation December 2010</i></p> <ul style="list-style-type: none"> - shoreline and upland vegetation; - overland or stormwater drainage; - fish and wildlife habitat; - natural and cultural heritage protection - access; - water supply and sewage disposal; - the location of existing and proposed buildings, structures, and tile fields, of existing and proposed golf holes and ski hills if applicable, and of proposed site alteration, relative to the shoreline and to existing and proposed lot lines; - whether lot frontages and areas, and building, structure, tile field, golf hole, and ski hill setbacks from water, should be greater than the minimums that would otherwise apply, if the development is a residential development in an area of use limitation as described in Section 9.2 or if the information provided suggests other significant site limitations;

	<p>- in general, whether the policies of Sections 4 and 5 can be met, and what mitigation measures may be required to do so.</p> <p>Council will prescribe more detailed requirements for site evaluation reports, tailored to the scale of development. These may range from a short form for development creating or further developing a single residential lot, to a detailed professional study for large-scale development. Council may also require that for certain categories of development, such as all large-scale development, and small-scale development where lot frontages, lot areas, and setbacks are near the minimum requirements of this Plan or the implementing zoning by-law, site evaluation reports include a sketch plan of the development prepared by an Ontario land surveyor.</p>
<p>Policies which protect natural hazard areas</p>	<p>9.2 Areas of use limitation consist of shorelands in Waterfront Areas that are subject to at least one of the following constraints:</p> <ul style="list-style-type: none"> - Slopes of 25% or more, measured over a horizontal distance inland of 45 metres (148 feet) from the high water mark, along a continuous shoreline frontage of 25 metres (82 feet). - Soil cover of less than 1 metre (3.3 feet), extending over 50% or more of the area of a continuous shoreline frontage of 25 metres (82 feet) to a depth of 30 metres (98 feet). - Eroding or unstable slopes. - Water tables within 1.5 metres (4.9 feet) of the surface, including areas of organic soils and all wetlands. <p>Despite anything else in this Plan, Council will consider an application for development where the development involves site alteration or the construction of buildings or structures and the lands affected by construction or site alteration are areas of use limitation, provided the application meets one of the following requirements.</p> <ul style="list-style-type: none"> - The application is for creation or further development of a lot for a single-unit dwelling with a lot frontage of at least 150 metres (492 feet) and a lot area of at least 2 hectares (4.9 acres), and if required by Section 5.2.4, the applicant has submitted a site evaluation report as described by Section 22.4.2. - The application is not for creation or further development of a lot for a single-unit dwelling, and the applicant submits a site evaluation report as described in Section 22.4.2. <p>**18.2 In the Municipality, lands adjacent to lakes and rivers that have been or may be subject to flooding hazards consist of:</p> <ul style="list-style-type: none"> - those lands predicted to be flooded once every 100 years on average, or - those lands predicted to be flooded if a storm equivalent to the Timmins Storm of 1961 were to occur in the Municipality, whichever are greater in extent. <p>Where changes in present flood control or other water management activities are proposed that would result in any expansion of lands subject to flooding hazards, the lands will be redesignated to Environmental Protection Areas by an amendment to this Plan before the changes take place.</p> <p>Where lands subject to flooding hazards are more accurately determined through a flood hazard assessment, they will be precisely</p>

	<p>delineated in the implementing zoning by-law. With that exception, a certain amount of flexibility is to be used in determining the exact boundaries of Environmental Protection Areas. Should an on-site review of the lands by the Municipality determine that a boundary is inaccurate, the zoning by-law may be amended to reflect the more precise boundary without requiring an amendment to this Plan.</p>
<p>Designate settlement areas</p>	<p>2.2.7 It is an objective of this Plan to promote healthy, liveable and safe communities by:</p> <ul style="list-style-type: none"> - avoiding land use patterns, which may cause environmental or public health and safety concerns - focusing growth within the settlement areas and promoting the vitality of settlement areas; - ensuring land use patterns within settlement areas are based upon a mix of uses and densities that efficiently use land, are appropriately and efficiently serviced, minimize impacts to the environment, promote energy efficiency, and are based upon the principles of intensification and redevelopment; - ensuring that development in waterfront areas and rural areas occurs in an environmentally responsible manner, is compatible with the rural landscape, and can be sustained by rural servicing levels; <p>4.1 Opportunities for intensification and redevelopment will be encouraged and promoted through:</p> <ul style="list-style-type: none"> - the creation of new units, uses or lots on previously developed land; - the development of vacant and/or underutilized lots within previously developed areas; - infill development; - the expansion or conversion of existing buildings; and - the improvement or enhancement of facilities for active transportation. <p>4.2 New development will be sustainable and will be considered within the context of sound environmental planning. The redevelopment of existing properties should adhere to current environmental, stewardship and planning standards. Use of "best management practices" will be encouraged.</p> <p>4.3 Development should only be permitted on lands where soil and drainage conditions are, or can be made, suitable to permit the proper siting and development of the proposed uses. This will be demonstrated through a site evaluation report as described in Section 22.4.2 where a report is required by this Plan.</p> <p>12.2 Growing demand, changing retail formats, and a lack of suitable lands in the central business district require that an increasing share of Haliburton Village's commercial development be accommodated in the Commercial Areas outside the central business district, along County Roads 1 and 21.</p>

	<p>Where possible, such development should be located within the Haliburton Village Urban Policy Area. However, commercial development that is particularly automobile-oriented and large or expansive in format may be permitted along County Road 21 west of the Haliburton Village Urban Policy Area.</p> <p>12.4 In exercising site plan control in the Commercial Areas in Concession VIII, Lots 15 through 17, in the geographic Township of Dysart (downtown Haliburton Village), Council will seek to achieve the following wherever possible, recognizing that not every objective is achievable on every site:</p> <ul style="list-style-type: none"> - location of new buildings near the street, with parking in the rear of the buildings, - setback of buildings from the street generally consistent with adjacent setbacks, to the extent permitted by the implementing zoning by-law, - massing and conceptual design of buildings so as to be sensitive to scale and character of adjacent buildings, - building entrances facing the street, - in multistorey buildings, placement of most-frequented commercial uses at street level, - restoration and reuse of existing buildings of historical or architectural value, - protection of existing healthy trees, - furtherance of a pedestrian-friendly street and sidewalk environment, - implementation of the Streetscape Project, 2009 and the urban design improvements advocated by the Haliburton Village Business Improvement Association in its Built Form Guidelines, 2005.
Lake capacity	<p>5.2.5 If Council determines that an application for development of shorelands that involves the creation of a new lot, new residential units, or new non-residential development has the potential to increase phosphorus inputs to a lake such that water quality for aesthetic and recreational purposes could be unduly impaired, it may require that the applicant submit a trophic state capacity study as described in Section 22.4.5</p>
wetlands	<p>5.3.4.2 Development and site alteration is not permitted in significant habitat of endangered and threatened species, and provincially significant wetlands.</p> <p>5.3.4.3 The Municipality will use the County of Haliburton Wetland Mapping as a screening tool when reviewing development applications. Screening will be undertaken as follows:</p> <ul style="list-style-type: none"> - Where a development proposal will extend into an area identified on the County of Haliburton wetland mapping, the applicant will undertake a site assessment to accurately delineate the wetland boundaries. If the proposed development is determined to occur within the wetland then the applicant will undertake an Environmental Impact Study (EIS) demonstrating that there will be no negative impacts to the feature or its ecological function. - Where a development proposal is located within the adjacent lands to a wetland identified on the County of Haliburton wetland mapping, the applicant will undertake a scoped Environmental Impact Study (EIS), satisfactory to the approval authority, demonstrating that there will be

	<p>no negative impacts to the wetland feature or its ecological function. - These assessments will be completed prior to the approval of the development proposal and will be completed by a qualified professional.</p> <p>*5.3.4.4 Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features: - Provincially Significant Wetlands and Wetlands shown on the County of Haliburton mapping - 120 metres (394 feet)</p> <p>**18.1 Environmental Protection Areas consist of the following outside Algonquin Provincial Park: - all wetlands,</p>
wildlife habitat	<p>5.3.4.3 Council will only consider an application for development or site alteration within the following areas where it has been demonstrated through an Environmental Impact Study (EIS) that there will be no negative impacts on the natural features or their ecological functions</p> <ul style="list-style-type: none"> - significant wildlife habitat - deer yards; - significant wildlife habitat - species of conservation concern <p>Within the Significant Wildlife Habitat - Deer Yard designation or its adjacent lands, where the proposed development is the creation of lots by consent, or is further development on no more than four abutting lots, in a Waterfront or Rural Area, Council may exempt the applicant from having to submit an Environmental Impact Study only if the development approval includes a zoning by-law and consent agreement that requires:</p> <ul style="list-style-type: none"> - in a Waterfront Area, minimum lot frontage of 90 metres (295 feet), and that at least 80% of the shoreline frontage to a depth of 30 metres (98 feet) will be maintained in a natural state; - in a Rural Area, minimum lot area of 1 hectare (2.5 acres), and that at least 80% of the lot area will be maintained in a natural state. <p>*5.3.4.4 Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features: Significant Wildlife Habitat - Species of Conservation Concern - 150 metres (492 feet) from any nests</p>
fish habitat	<p>5.2.2 On shorelands of lake trout lakes that are highly sensitive to additional development, Council will not consider any application that involves the creation of a new lot, new residential units, or new non-residential development unless at least one of the following applies (see official plan for specific details but let me assure you they are quite tough restrictions)</p> <p>However, the preceding policy is not to be interpreted as taking away any development right that existed on any lot that existed on the date this Plan was approved.</p>

	<p>5.3.4.3 Council will only consider an application for development or site alteration within critical fish habitat in accordance with Provincial and Federal legislation.</p> <p>*5.3.4.4 Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features: - Critical Fish Habitat - 30 metres (98 feet)</p>
<p>habitat of endangered and threatened species</p>	<p>5.3.4.2 Development and site alteration is not permitted in significant habitat of endangered and threatened species, and provincially significant wetlands.</p> <p>If in the course of the development application and approval process, the applicant becomes aware that the subject lands include actual or potential habitat of endangered or threatened species, the applicant will advise the Municipality and the Ministry of Natural Resources at the earliest opportunity.</p>
<p>areas of natural and scientific interest</p>	<p>5.3.4.3 Council will only consider an application for development or site alteration within the following areas where it has been demonstrated through an Environmental Impact Study (EIS) that there will be no negative impacts on the natural features or their ecological functions: - significant Areas of Natural and Scientific Interest (ANSI's)</p> <p>*5.3.4.4 Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features:</p>
<p>Headwaters</p>	<p>5.1.1 The Municipality's critical water resource features include the following: - Its lakes and rivers. - Its Strategic Groundwater Resource Areas, consisting of sensitive groundwater recharge/discharge areas, and aquifers vulnerable to contamination. The Municipality will protect and where possible enhance the quality and integrity of these critical water resource features.</p> <p>5.1.2 Development in shorelands will be set back from the shoreline to: - maintain the shoreline's natural characteristics, quality, and integrity, - preserve its natural visual characteristics, and - protect and conserve its natural heritage features.</p> <p>Within shorelands, all buildings, structures, and tile fields will be set back at least 30 metres (98 feet) from the high water marks of lakes and rivers</p> <p>All owners of shoreline lots will be encouraged to leave the lands within the shoreline setbacks substantially undisturbed, up to the full depth of the setbacks where possible. Additionally, where the shoreline setback has been disturbed by past activities, the owner will be encouraged to restore the setback to a natural state. Soil and vegetation within the setback should be disturbed as little as possible, to preserve the impression from the lake that the shoreline is undeveloped. Clearing should be restricted to the minimum required for access, the safety of residents, and a limited view to the water.</p> <p>18.1 Environmental Protection Areas consist of the following outside Algonquin Provincial Park:</p>

	- lands adjacent to lakes and rivers that have been or may be subject to flooding hazards, as described in Section 18.2; these have been mapped through air photo interpretation.
Corridors	
Areas for ecological restoration	19.10.3 It will be a condition of development approval that all extractive operations be rehabilitated. Pits and quarries will be rehabilitated according to the requirements of the license issued by the Ministry of Natural Resources under the <i>Aggregate Resources Act</i> . Mines will be rehabilitated according to the requirements of the Ministry of Northern Development, Mines and Forestry. The Municipality will encourage these agencies to require the progressive rehabilitation of extractive operations wherever possible.

*However, for the purposes of a specific development application, the adjacent lands contiguous to a specific feature may be varied from these standards, where documented and justified to Council's satisfaction by an Environmental Impact Study (EIS).

** 18.3 Subject to Section 18.4, the following uses may be permitted: agriculture, conservation, horticulture, forestry, fish and wildlife management, private parks, outdoor recreational activities, and other uses that comply with the policies of Section 18.

**18.4 Despite anything else in this Plan, no lot will be created that is entirely within an Environmental Protection Area, or that does not have enough usable area in another designation to allow adequate building and tile field space, and safe access during a flood, consistent with the policies of that designation. No construction of new buildings or structures, or site alteration, will be permitted in Environmental Protection Areas, except for:

- flood control, other water management, or erosion control structures or works,
- docks and marine facilities,

that have been approved by the Municipality. These will only be approved where they will not result in significant off-site impacts and where they can be safely protected from flooding. The Municipality may require an applicant to provide a technical study to the satisfaction of Council to justify any such approval.

Algonquin highlands

(see reference (Township of Algonquin Highlands 2011))

General Protection	<p>2.1 The Plan is intended to:</p> <ul style="list-style-type: none"> - provide for the conservation of the natural environment, including wetlands, woodlands, areas of Provincial significance, fish and wildlife habitat, lakes rivers and streams, on an ecosystem management basis; - ensure that land use planning within the Township contributes to the protection, maintenance and enhancement of water related resources and aquatic ecosystems, on an integrated watershed management basis; <p>2.2.4 The Township values the health and well-being of its residents,</p>
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and holds a broad vision of health that recognizes balanced economic, environmental and social development to enhance human health. It is further recognized that health is an important element in building an economically viable, socially vibrant and environmentally sustainable community.

2.2.1 This Plan has been prepared to deal with the current conditions under which growth and development are set to occur within the Township. The Plan recognizes the importance of recreational land uses. Residential and non-resort commercial growth is encouraged to be concentrated in settlement areas away from sensitive or significant environmental areas and natural features. Waterfront areas are expected to continue to be developed for recreational purposes.

2.2.2 Scenic vistas, natural features, wildlife, accessibility to public lands and the abundance of water attracts tourists to the area. Tourism is a significant contributor to the local economy and this is reflected in the fact that the service sector is the largest component of the labour force within the municipality. Expanded tourism is promoted to foster the economic growth of the municipality.

3.4.9 The function of areas of natural heritage resources shall be preserved.

4.1.3 Environmental protection and effective resource management are important to the future of the Township. Generally, new development shall be sympathetic to natural resources and environmentally significant areas. The municipality must exercise strong management in this regard, while recognizing there are a number of other public and private agencies that also have a mandate to concentrate on certain elements of this duty.

4.2.10 A natural heritage evaluation will be conducted using the Natural Heritage Reference Manual and supporting technical manuals produced by the Ministry of Natural Resources as a guide. The study area for the natural heritage evaluation will be the entire significant natural heritage feature and its adjacent lands. The evaluation will consider how to maintain, and where possible improve, the diversity of natural features in the study area and the connections between them. If in the course of a natural heritage evaluation, the applicant becomes aware that the study area includes actual habitat of endangered or threatened species, the applicant will advise the Township at the earliest opportunity.

4.10.1 The conservation of the overall natural landscape, tree cover and vegetation will preserve the natural appearance, character and aesthetics of the area and protect the natural heritage of the Township. Natural features provide economic, environmental and social benefits. They contribute to the conservation of biological diversity, to the maintenance of the quality of the air, land and water, and are critical elements of the quality of life in the Township.

	<p>4.10.2 Significant natural landscape features such as watercourses, heights of land, rock faces or cliffs, waterfalls, rapids, beaches, vistas and panoramas, and landmarks should be conserved. Development should be located and designed to protect these features. Where feasible, dedication or acquisition of such land for the purpose of conservation is encouraged. Conservation easements will be promoted to protect these features.</p> <p>4.10.4 The lake horizon, being both the shoreline and the tree line along a lake, are recognized as important contributors to a lake's character and landscape. When viewed from the water, the visual impact of development is an important consideration in maintaining the character of a waterbody. The natural environment is intended to be the dominant landscape feature around a waterbody. Disturbance on lots should be limited and minimized and the maximum amount of vegetation should be retained on a lot. Vegetation should be maintained along the shoreline and on skylines, ridge lines or adjacent to the top of rock cliffs. The extent of shoreline structures should be limited and structural development that would create a new skyline or ridgeline above the tree canopy will not be permitted.</p> <p>4.12.1 The Township may establish a restrictive environmental zone or zones in its zoning by-law that will limit the uses permitted to 'conservation uses'. All provincially significant wetlands, and other environmental areas deemed significant by the Township may be placed in the environmental zones.</p>
<p>Criteria for Site Evaluation reports</p>	<p>4.5.4.2 Where this Plan requires submission of a site evaluation report, the document will include an assessment of existing features including:</p> <ul style="list-style-type: none"> - slopes; - soil depth to bedrock or 1.3 metres, type, and internal drainage; - shoreline and upland vegetation; - overland drainage; - fish and wildlife habitat; - natural and cultural heritage protection - access. <p>In addition, the report will indicate the location of existing and proposed buildings, structures, tile fields, golf holes and ski hills (if applicable), and proposed site alterations relative to the shoreline and to existing and proposed lot lines. As well, it will need to demonstrate whether lot frontages and areas, building structure, tile field, golf hole and ski hill setbacks, and natural buffers from surface water tributaries, lakes and wetlands, are adequate for protecting such features, their functions and landscape aesthetics. The site evaluation report will need to substantiate that the policies in Section 4.4 can be met.</p>

Policies which protect natural hazard areas	<p>4.11.1 Development will be set back from areas exhibiting steep slopes (greater than 20%) or active erosion. The setback distance will be determined on site in consultation with a qualified specialist. A reduction of the setback distance will be considered only when supported by a geotechnical investigation prepared by a soils expert. The geotechnical investigation shall be prepared to the satisfaction of the appropriate approval authority.</p>
Designate settlement areas	<p>3.4.6 Intensification and redevelopment within the Settlement Areas is encouraged, subject to the provision of satisfactory private, individual water and sewage disposal services.</p> <p>3.4.8 Development in the rural areas of the Township shall be oriented primarily for resource related uses and limited residential development. Development shall be located on publicly owned, year round maintained roads, and will be permitted in a low density, dispersed pattern.</p> <p>5.1.7 A business core in Dorset shall contain of a variety of land uses such as commercial, recreational, residential, industrial, community facilities and open space. The business core should be the primary focus for further development where practicable. Where this is not possible because of limitations of servicing, land area, etc, development shall be encouraged to locate in other designated areas within the Settlement Area. Landscaping and design elements that maintain and emphasize the unique setting and special character of this area shall be a priority when reviewing development applications in the business core of Dorset.</p> <p>5.1.10 New development is encouraged to make efficient use of land and infrastructure, accommodate active transportation needs, and encourage mixed use and a range of housing options that can be serviced by private sewage disposal and water supply systems.</p>
Lake capacity	<p>4.5.1.2 Before approving any development proposal adjacent to a lake, Council must be assured that the proposed development will not exceed the capacity of the lake to accommodate development. The Plan recognizes three factors as limiting lake capacity:</p> <ul style="list-style-type: none"> - water quality; - surface capacity for recreation - shoreline development capacity. <p>4.5.2.5 Existing development rights are recognized on the lakes listed in Section 4.5.2.4. New development within 300 metres of the high water mark of an at capacity lake trout lake shall not be permitted unless unique or special circumstances allow the development to occur. Prior to the approval of the development proposal, detailed studies will be required to demonstrate that the physical features, design and siting of the development will not have an adverse impact upon the quality of the lake and related lake</p>

	<p>trout habitat. These studies shall be prepared by a qualified professional, to the satisfaction of Council (which may include peer review) and at the expense of the proponent. The Ministry of the Environment and Ministry of Natural Resources shall be consulted in these circumstances.</p> <p>4.5.2.7 Lakes that are moderately sensitive to additional shoreline development and are nearing development capacity in terms of water quality may require further detailed studies prior to approval of a development application. Council shall consult with as part of the development approval process to determine the appropriateness of the development proposed, and the need for the proponent to undertake an environmental impact study.</p> <p>4.5.2.8 A minimum setback of 30 metres from the high water mark is recommended for any development or site alterations on lake trout lakes listed in Section 4.5.2.7. There shall be no disturbance to the soil or vegetation within this setback, with the exception of a minimal amount of shoreline activity area.</p> <p>4.5.2.10 Major development proposals (i.e. multi-lot plan of subdivision) within 300 metres of a waterbody, other than an at capacity lake trout lake, will require a lake impact assessment to determine if the lake can accommodate development without adversely affecting water quality.</p> <p>4.5.5.2 The Township will encourage and support the continued and enhanced monitoring of lake trophic state by the Ministry of Environment and lake associations. The Township will use the results in reviewing the policies of this Plan and, where appropriate, individual development applications. If Council determines that a proposed development has the potential to impair lake trophic status, it may require the applicant to undertake a lake impact assessment prior to approval to ensure that water quality of the lake is protected. Development on cold water lakes shall follow the policies outlined in Section 4.5</p>
wetlands	<p>4.2.5 Development and site alteration is not permitted in Provincially Significant Wetlands.</p> <p>4.2.4 Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features: - - Provincially Significant Wetlands and Other Potentially Significant Wetlands – 120 metres (394 feet)</p> <p>4.2.6 Where development is proposed within a wetland identified on the County of Haliburton Wetland Mapping or within adjacent lands, screening of the development will be undertaken as follows: -Where a development proposal will extend into the identified wetland area, the applicant will undertake a site assessment to accurately delineate the wetland boundaries. If the development is</p>

	<p>determined to occur within the wetland, then the applicant will undertake a Natural Heritage Evaluation demonstrating that there will be no negative impacts to the wetland feature or its ecological function.</p> <p>- Where a development proposal is located within the adjacent lands to a wetland, as set out in Section 4.2.4, the applicant will undertake a scoped Natural Heritage Evaluation demonstrating that there will be no negative impacts to the wetland feature or its ecological function.”</p> <p>4.2.7 Council will consider an application for development or site alteration within the following areas where it has been demonstrated through a Natural Heritage Evaluation that there will be no negative impacts on the natural features or their ecological functions:</p> <ul style="list-style-type: none"> - Lands adjacent to Provincially Significant Wetlands
wildlife habitat	<p>4.2.7 Council will consider an application for development or site alteration within the following areas where it has been demonstrated through a Natural Heritage Evaluation that there will be no negative impacts on the natural features or their ecological functions:</p> <ul style="list-style-type: none"> - Significant Wildlife Habitat <p>4.2.4 Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features:</p> <ul style="list-style-type: none"> - All other features – 50 metres (164 feet). - Significant Wildlife Habitat – Species of Conservation Concern – 150 metres (492 feet) from the centres of the nests <p>4.2.8 Within the Moose/Deer Wintering Areas designation, or its adjacent lands, where the proposed development is the creation of lots by consent, or further development on no more than four abutting lots in a Waterfront area, Council may exempt the applicant from having to submit a natural heritage evaluation, only if the development approval includes a consent agreement and/or zoning by-law that requires:</p> <ul style="list-style-type: none"> - minimum lot frontage of 90 metres (295 feet); and, - that at least 80% of the shoreline frontage to a depth of 30 metres (98 feet) will be maintained in its natural state.
fish habitat	<p>4.2.7 Council will consider an application for development or site alteration within the following areas where it has been demonstrated through a Natural Heritage Evaluation that there will be no negative impacts on the natural features or their ecological functions:</p> <ul style="list-style-type: none"> - Fish Habitat identified on Schedule “B” and adjacent lands; <p>4.2.4 Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features:</p> <ul style="list-style-type: none"> - Fish Habitat – 30 metres (98 feet)

	<p>4.2.9 Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.</p>
<p>habitat of endangered and threatened species</p>	<p>4.2.5 Development and site alteration is not permitted in Significant habitat of endangered and threatened species</p> <p>4.2.4 Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features:</p> <ul style="list-style-type: none"> - All other features – 50 metres (164 feet). - Significant Wildlife Habitat – Species of Conservation Concern – 150 metres (492 feet) from the centres of the nests <p>4.2.7 Council will consider an application for development or site alteration within the following areas where it has been demonstrated through a Natural Heritage Evaluation that there will be no negative impacts on the natural features or their ecological functions:</p> <ul style="list-style-type: none"> - Lands adjacent to significant habitat of endangered and threatened species
<p>areas of natural and scientific interest</p>	<p>4.2.4 Adjacent lands contiguous to significant natural heritage features are lands within the following distances from the features:</p> <ul style="list-style-type: none"> - All other features – 50 metres (164 feet). <p>4.2.7 Council will consider an application for development or site alteration within the following areas where it has been demonstrated through a Natural Heritage Evaluation that there will be no negative impacts on the natural features or their ecological functions:</p> <ul style="list-style-type: none"> - Areas of Natural and Scientific Interest and adjacent lands
<p>Headwaters</p>	<p>4.4.1 The Township recognizes the importance of maintaining and improving the quality and quantity of groundwater and surface water. As such, the function of watercourses and sensitive ground water recharge/discharge areas, aquifers and head water areas will be protected or enhanced. All major development applications, including plans of subdivision and water taking industries, shall be supported by hydrological and terrain analysis reports and nitrate impact assessments where there may be an impact on ground or surface water resources. An impact assessment of development on a surface waterbody will also be required for major development adjacent to a waterbody. These studies, among other matters, will address the impacts of the proposed development on ground and surface water resources.</p> <p>4.4.2 Development and site alteration will be set back from all watercourses within the Township in order to protect the natural features and functions of the watercourse, provide riparian habitat,</p>

	<p>and minimize the risk to public safety and property. In general, development and site alterations should be set back a minimum of 30 metres (100 feet) from the high water mark of lakes, rivers and streams. In cases where these setbacks are not achievable, the greatest setback possible will be required, subject to the provisions of Section 5.2.6.13.</p> <p>5.2.5.2 The remaining shoreline frontage should be retained or restored as a natural vegetative buffer, which is at least 30 metres (100 feet) in depth from the normal or controlled high water mark,</p>
Corridors	

Conclusion

The municipalities are quite consistent, some even with identically worded policy. It is emphasized strongly in all the Official plans that the tourism and cottage industry is a main component of the economy and the protection of the natural environment is an important part of the quality of those sectors. As such the environmental protection regulations in all municipalities are tight on those areas which have been identified as significant, they are also duly precautionous with lands which have not been surveyed for natural heritage value. The municipalities also promote the intensification of their urban areas for future human settlement, though much of the policy is advisory, much of the supporting policy ensures that if development is creating sprawl it is respecting natural heritage and ecological function.

For the purposes of evaluating for any major issues within the policy for supporting a natural heritage strategy, none exist, significant areas of natural heritage a duly protected and these municipal plans have the necessary structure to begin support a natural heritage system.

Question # 4:Where can data on the elements of natural heritage within Haliburton County be found?

A natural heritage system is a human constructed plan to preserve ecological function- which is best achieved through a connected landscape of natural ecosystems and which also includes restored land or land which has the potential to be restored (natural heritage reference manual). But it includes other human values as well such as social, spiritual, cultural and economic, as such this section is broken down into two sections: Ecological data and Other human value data.

Ecological Data

The natural heritage reference manual breaks down areas with distinct natural heritage into 7 categories. However, two of those categories; significant woodlands and significant valleylands are not assessed on the Canadian shield. Other categories of sites fit into a broader framework which supports a natural heritage system. I have broken down areas of natural heritage into 9 distinct categories:

1. Significant habitat of endangered species and threatened species
2. Significant wetlands and significant coastal Wetlands
3. Significant wildlife habitat
4. Areas of natural and scientific interest
5. Corridors
6. Areas for ecological restoration
7. Head waters
8. Areas of significant ecological function
9. Fish Habitat

Why is each of these important?

1. **Significant habitat of endangered species and threatened species:** habitat of those species most at risk of being lost is crucial due to the fact that those species may or are known to play critical roles in ecological, economic and cultural systems. Therefore it is important to protect these species to ensure that our systems have a greater resiliency (MNR 2010)
2. **Significant wetlands and significant coastal Wetlands:** Wetlands are an important component of the landscape as they provide significant ecological, economic, and cultural functions. These include: water purification services, water level moderation, habitat for ecologically important species, food and recreation and many others. (MNR 2010)
3. **Significant wildlife habitat:** protecting areas used by wildlife is essential in supporting the biodiversity of an area and thereby protecting the structure of the regional ecosystem. Wildlife also provides direct value to people within the region as it a source of income, food, and aesthetic value. (MNR 2010)
4. **Areas of natural and scientific interest:** this category is split into earth and life science areas. Life science areas have a significant representation of Ontario's biodiversity while earth science areas have a significant representation of the landforms, fossils or bedrock found within Ontario and include active examples of geological processes (MNR 2010)
5. **Corridors:** patches of land conserved for their natural heritage value can rarely sustain themselves in the long term. Corridors are important for the long term sustainability of a natural heritage system as they facilitate the movement of animals which improves the strength of gene pools, allows species to move back into areas where they may have been extirpated, maintains the species if they require a diversity of habitats to sustain their lifecycle, allows young to disperse (ROP 2008)
6. **Areas for ecological restoration:** This category is one which is by nature initially supportive of a larger framework but should be planned as being an integral part of a natural heritage system. Those areas dedicated to ecological restoration will have been dedicated to eventually becoming areas for natural heritage and thereby should be taken into account when planning a larger system.
7. **Head waters:** zero, first and second order streams which feed larger hydrological systems. They are important for sediment regulation, flood control, allow for groundwater recharge, regulate temperature, regulate nutrients, sustain local ecosystems, and maintain biodiversity.
8. **Fish Habitat:** Area which contributes significantly to the diversity and abundance of fish in Ontario. The protection of these areas is crucial in protecting the economic and social benefits reaped from a healthy fish population as well as in preserving the aquatic diversity these animals support.

Where is the data on these elements?

NHIC

Much of the data which exists for endangered and threatened species, significant wetlands, significant wildlife habitat, ANSI's and fish habitat will exist within the natural heritage information centre's database. The County of Haliburton uses this database when doing planning which may affect any areas of significant natural heritage and they have 3 members of staff trained in the use of this database.

Due to the fact that the MNR is very interested in natural heritage systems implemented it is willing to help with the GIS work associated with implementing a plan. In developing their own plan the Kawartha Heritage Conservancy had the MNR do most of this work for them.

What also may be of particular note is that it is mentioned in the Haliburton Official Plan in policy 2.1.3.5 The County of Haliburton, Ministry of Natural Resources and Ducks Unlimited have undertaken an extensive mapping project to clarify the boundary of wetlands.

OBM

Ontario base maps have significant detail on land use and the nature of the hydrological system, which would be useful to integrate into a GIS database

Haliburton Forest and wildlife reserve

With the amount of outdoor education and management programs which go on in this area it will be inevitable that they will have some data to contribute to a larger GIS system.

Ontario field ornithologists atlases

The ranges and siting are recorded by the Ontario field ornithologists in their bird count programs, contacting this organization for data on species at risk sited in the area may be useful.

MARXAN

A GIS software freely available through the university of Queensland in Australia (see link below). This software was used by the Kawartha Heritage Conservancy in their development of their natural heritage system master plan.

More information at: <http://www.uq.edu.au/marxan/>

Haliburton Highlands Stewardship Council

The website for this organization has information on fish stocking, which may be of interest as it may also have information regarding creel surveys, indicating important areas for fish within the area.

Ontario Woodlot association

Linking with this organization may give information on which forests in the area are managed under the parameters of MFTIP and could potentially be brought under a larger natural heritage plan.

The Land Between

Linking with this organization could provide useful data on species at risk within the area, and thereby better inform planning strategies.

Nature conservancy of Canada

The Blueprint created for the Great Lakes ecoregion may be an important project from which to gain information and resources for the development of a natural heritage system in the Haliburton ecoregion.

County and municipality registrar

As it is noted within municipality and county official plans information on all significant natural heritage features is recorded including those areas which have endangered and threatened species habitat.

Other Human Value Data

An important part of the success of a natural heritage system is the way it helps the community in the implementation area. By accounting for how people derive value from the natural environment as well as the areas shaped mainly by humans it creates a system which the people themselves will want to protect and perpetuate. So how is data gathered on these values?

Interactive mapping

Both the Sustaining What We Value project and The Kawartha's: Naturally Connected Project used an interactive mapping program which allows local residents to go onto the project's website and mark points of different value types on a map of the area and then describe why that point was important. For example, the types of points included in the Sustaining What We Value project's mapping program included: education, economic, history, local food, education, recreation, social health and spiritual.

Stakeholder meetings

The gathering of information at meetings arranged within communities can be a source of information on the other human values derived from different features of the natural and human landscape.

Town plans

Land use is noted on Town and county plans and this can also be used for information on this subject.

Due to the fact that these type of values are hard to quantify (and perhaps should not be quantified for the erosion of their value if they were) and as such there are no guidelines or databases which can say how much of this needs to be preserved. Therefore the only way to know how these values need to be accounted for is by being in a relationship with these people.

Question #5: What recommendations are therefore derived from the information which has been reviewed?

Based on my conclusions I have 5 recommendations and important comments to the Haliburton Highlands Land Trust:

1. Funding: In looking at the organizations which have set up NHS similar to the one you are proposing, one of the biggest keys to their success was funding for the hiring of fulltime staff. That is not to say that it could be done without a full time staff member, but due to the sheer number of meetings with organizations who work 9-5 and the amount of work required in this process the success of a project such as this would be sped up significantly if there was a full time staff member. Grants which have been used by other land trusts for hiring include:
 - a. The healthy communities fund (through the Ontario government)
 - b. Ontario Trillium Foundation
 - c. Foundations which are members of Philanthropic Foundations Canada
 - d. GEOIDE (for help with GIS related expertise)
2. Policies: Ultimately the municipal laws protecting areas of natural heritage are what will prevent any development of land which is not owned by an organization who have a direct interest in natural heritage. Therefore the presence and the wording of policy relating to natural heritage is paramount. Haliburton and its constituent municipalities have strongly worded policy which prevents development on lands of high natural heritage value; thereby this area of the protection of natural heritage is in place.
3. Ecological Guidelines: There are a number of particular ecological guidelines for a NHS which can be found in reference documents such as Beyond Islands of Green and How Much Habitat is Enough. But what is important to note for initial planning procedures is that a NHS is best planned around an ecoregion rather than municipal boundary lines due to the nature of what is being protected.
4. Internal planning: The organization must start the creation of a terms of reference document which will guide their plans for a natural heritage system.
5. Active Partnership: communicating the intents of this project with all members with a direct hand in conservation is an important first step. By actively working with these groups the process will become much easier and effective. Then, by communicating the idea of the project to the wider community, (especially those stakeholders who would be most affected by a natural heritage system i.e. resource industry, farmers, tourism industry), trust can be built as well as more connected community and a value for natural systems created in recognizing the other value humans attach to the environment. Another important contact is the MNR, they have helped NHS's along directly by both supplying expertise and GIS modelling.

Closing Comments:

I have learnt a lot from this process and to share the biggest lesson I have learned, it is that natural heritage systems are human. Not only does their success hinge upon how well they account for every human value but the process itself would seem to help us maintain our own humanity. In that by planning in a way which understands the human need for nature and the sustenance it provides ensures

that those things which keep us happy and healthy are in the same state. This combined with the system being ready and open to accepting the social, economic and aesthetic values creates connection among the people of a community, which is important as social beings as it can only heighten our sense of altruism; as by working together we can only gain more understanding of how others value the world. So thank you for helping me understand the world just a little bit better and I applaud your efforts make this world better for the generations to come.

“Only after the last tree has been cut down, Only after the last river has been poisoned, Only after the last fish has been caught, Only then will you find that money cannot be eaten.”

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