

## **MEMORANDUM**

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**RE:** Chatham-Kent Shoreline Area Sustainable Community Plan / Secondary Plan, **Shoreline Areas Natural Heritage System Planning**

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### **1. Introduction**

From a natural heritage perspective, Chatham-Kent offers an interesting juxtaposition between having very low natural cover in total land area and one of the highest diversities of Species at Risk (SAR) in Ontario. The Shoreline Areas offer some of the largest concentrations of natural areas in Chatham-Kent and serve as important habitat areas and linkages between terrestrial and aquatic systems, including headwater systems that drain to Lake Erie.

This memo bridges the existing Chatham-Kent Natural Heritage Policy (per the Official Plan - Consolidated 2010) with additional (or refined) policy considerations for the Shoreline Areas. The intent is to guide future Land Use planning in the Secondary Plan area to ensure that objectives of the Provincial Policy Statement (PPS 2005) and companion Natural Heritage Reference Manual (2010) are carried forward in the Secondary Plan and subsequent planning phases.

A companion table to this memo has been created as a 'quick reference' to the components of the Natural Heritage System for the Shoreline Areas of Chatham-Kent. It provides specific, concise direction for Natural Heritage System recommendations for the Chatham-Kent Shoreline Areas Sustainable Community Plan / Secondary Plan process. The table includes references to relevant existing policy (Municipal, Provincial), policy recommendations for the Shoreline Areas of Chatham Kent, existing and recommended significance indicators for each feature type, scientific and policy rationale and examples of each feature type (as available) within the Shoreline Areas of Chatham-Kent. The companion table is appended to this memorandum.

## 2. Study Approach

Phase 1 of the Chatham-Kent Shoreline Area Sustainable Community Plan / Secondary Plan consisted of a secondary-source Environmental Scan and Land Use Survey Report. Information gathered through this process, and supplementary information collected to support Phase 2 of the Secondary Plan process was assessed and integrated into the development of this memo, and the accompanying Areas of Policy Interest memorandum. Information collected and reviewed included relevant information from the following agencies:

- Lower Thames Conservation Authority;
- St. Clair Region Conservation Authority;
- Ministry of Natural Resources (e.g. Land Information Ontario, Natural Heritage Information Centre [NHIC]);
- Environment Canada (e.g. Canadian Wildlife Service);
- Bird Studies Canada;
- Carolinian Canada;
- Ducks Unlimited Canada.

A review of secondary source information collected through the Phase 1 Environmental Scan and the Supplementary Background Review provided context for a review and assessment of existing policy (Provincial Policy Statement [2005], Chatham-Kent Official Plan [2010]), and the current and historic presence of features on the landscape of Chatham-Kent. This broad, landscape-level review provided the basis for refining criteria used to identify and screen natural heritage features for their inclusion within the Natural Heritage System as significant features, including the identification of additional Natural Heritage System feature categories that pertain specifically to the Shoreline Areas of Chatham-Kent.

Through this review, high-level opportunities and constraints in the Shoreline Areas of Chatham-Kent were identified (e.g. enhancement of riparian areas and habitat linkages/corridors, ‘infilling’ and enhancement of existing features). Areas demonstrating good opportunities to enhance the ecological function or cover of the Natural Heritage System in the Shoreline Areas were identified as Areas of Policy Interest. Areas of Policy Interest are intended to provide high-level guidance and focus for Natural Heritage System enhancement efforts in an ecologically meaningful way within the Shoreline Areas of Chatham-Kent. These policy areas are dealt with under separate cover, appended to this memo.

The Environmental Impact Statement (EIS), watershed and subwatershed study processes defined in the Chatham-Kent Official Plan were assessed in context of the recommendations for the Shoreline Areas Natural Heritage System. Recommendations for implementation of the EIS and other planning studies (subwatershed and watershed) within the Shoreline Areas were developed.

### 3. Natural Heritage System

#### 3.1. Planning Context

##### 3.1.1. Provincial Policy Statement (PPS)

The Provincial Policy Statement (PPS 2005) sets the policy foundation for the development and use of land in Ontario and provides policy direction on matters of provincial interest related to land use planning and development. The intent of the PPS is to provide for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural environment (Part 1: Preamble, PPS). Importantly, the Province views the PPS to be more than a set of individual policies and the PPS is intended to be read in its entirety (Part III: How to Read the Provincial Policy Statement).

The provisions of Section 2.1 (Natural Heritage) and Section 2.2 (Water) of the PPS provide policy direction for natural areas planning in a municipal setting. Sections 2.1.2 and 2.2.1 of the PPS, and associated definitions, are the relevant text for this report since they provide direction to municipalities when establishing a natural heritage system within their planning jurisdictions.

Section 2.1.2 of the PPS provides the following policy direction for natural areas protection in the municipal planning process:

*“The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features”.*

A natural heritage system (NHS) for the purpose of municipal planning is defined in the PPS (Section 6.0 Definitions) as:

*“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”.*

“Natural Heritage Features and Areas” for the purpose of municipal planning are defined in the PPS (Section 6 Definitions) as:

*“...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”.*

“Significant” for the purpose of municipal planning is defined in the PPS (Section 6 Definitions) in relation to the type of natural heritage feature or area:

- a) *“...in regard to wetlands, coastal wetlands and areas of natural and scientific interest, [significant means] an area identified as provincially significant by the Ontario Ministry of Natural Resources...”;*
- b) *“in regard to the habitat of endangered species and threatened species, [significant means] the habitat, as approved by the Ontario Ministry of Natural Resources, that is necessary for the maintenance, survival and/or the recovery of naturally occurring or reintroduced populations of endangered species or threatened species, and, where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle...”;*
- c) *“...in regard to woodlands, [significant means] an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history”;*
- d) *“...in regard to other features and areas in policy 2.1 [i.e., significant valleylands south and east of the Canadian Shield, and significant wildlife habitat], [significant means] ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system”.*

“Wildlife Habitat” for municipal planning purposes is defined in the PPS (Section 6.0 Definitions) as:

*“...areas where plants and animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and, areas which are important to migratory and non-migratory species.”*

Further guidance as to the meaning of “significant wildlife habitat” within the context of the PPS is provided by the “Significant Wildlife Habitat Technical Guide” published by the Ministry of Natural Resources (October 2000). In addition, the recently released (2010) Natural Heritage Reference Manual for the PPS provides additional detailed information on natural heritage features, functions, and assessment for implementation.

Further guidance with respect to the scope of natural areas planning in a municipal context is provided by Section 2.2.1 (Water) of the PPS. This section recognizes that terrestrial features and

areas may contribute to the ecological and hydrological integrity of watersheds and provides the following policy direction with respect to the treatment of such areas during the planning process:

*“Planning authorities shall protect, improve or restore the quality and quantity of water by:*

- c) “...identifying surface water features, ground water features, hydrologic functions and natural heritage features and areas, which are necessary for the ecological and hydrological integrity of the watershed;”*
- e) “...maintaining linkages and related functions among surface water features, ground water features, hydrologic functions and natural heritage features and areas”.*

Taken together, the foregoing policy statements and definitions provide a comprehensive policy setting for the identification of features and functions that warrant inclusion in a natural heritage system within a municipal planning context.

### 3.1.2. Chatham-Kent Official Plan (Consolidated, 2010)

The consolidated Official Plan (OP) for the Municipality of Chatham-Kent, hereafter referred to as the Plan, provides the municipal policy context for the identification and protection of natural features and functions within the Shoreline Areas. Chatham-Kent identifies several objectives in the Plan that support the identification of natural heritage features and the development of a Natural Heritage System to protect existing features and to restore, enhance and expand natural features and habitat. These objectives are intended to protect biodiversity in Chatham-Kent and provide high-level planning direction in support of provincial and national directives and guidelines (e.g. ‘How Much Habitat Is Enough?’ [Environment Canada 2004], ‘Significant Wildlife Habitat Technical Guide’ [MNR 2000], ‘Natural Heritage Reference Manual’ [MNR 2010]).

As stated in the Chatham-Kent OP (Section 4.4):

*“It shall be the objective of Chatham-Kent to:*

- Protect and preserve provincially significant natural features in Chatham-Kent [4.4.1.1].*
- Ensure that development results in no negative impacts on significant natural features in Chatham-Kent [4.4.2.1].*
- Protect potential natural corridors through the development review process in Chatham-Kent [4.4.3.1].”*

The Plan identifies Natural Heritage System (NHS) components as including provincially significant features (Provincially Significant Wetlands [PSW], significant habitat of endangered and threatened species), and other significant features (Section 4.4.2.2.2) such as: significant woodlands, significant valleylands, significant wildlife habitat, significant Areas of Natural and Scientific Interest,

and fish habitat. Additionally, the Plan identifies lands adjacent to these significant features as components of the Natural Heritage System.

Provincially significant features (PSWs and Significant Habitat of Endangered and Threatened species - as defined by MNR), are protected from site development and site alteration (as per the PPS). Other features identified in the OP for inclusion in the NHS are to be protected from development and site alteration unless an Environmental Impact Statement (EIS - [Section 4.8 in the Plan]) has been completed and demonstrates no negative impacts to the natural feature(s) or their ecological functions (as per the PPS).

Table 4.1 (Section 4.3.2) of the Plan provides definitions for Natural Heritage System Components:

Fish Habitat is defined as *“the spawning and nursery areas, food supply [including inputs via terrestrial systems – allochthonous inputs] and migration areas on which fish depend directly or indirectly for their life processes”*, and is identified through consultation with the appropriate Conservation Authority, Ministry of Natural Resources or Department of Fisheries and Oceans. Fish Habitat is not shown on the schedules of the Plan.

Significant Woodlands are defined as all woodlands 2 hectares in size or larger, based on mapping from the MNR. These features are to be shown on the schedules of the Plan. As per the Plan: *“The 2-hectare value was selected based on the Provincial Policy Statement Natural Heritage Reference Manual, which states that ‘where woodland is less than 5% of the land cover, woodlands 2 hectares in size or larger should be considered of significance’”*. The updated Draft Natural Heritage Reference Manual for the Natural Heritage Policies of the Provincial Policy Statement, 2005 (MNR 2010) maintains this same threshold recommendation. This definition, from the Plan, uses size as the only criteria and does not include the identification of woodland significance based on feature function (i.e. habitat quality / diversity).

Significant Areas of Natural and Scientific Interest are defined as Provincially Significant ANSI's (as per the Natural Heritage Reference Manual [NHRM] 2010). ANSIs include areas of value for representing Ontario's Earth Science and Life Science resources and features. Although not included in the Plan, Regional and Local ANSIs also represent examples of Ontario's Earth and Life Science resources that may be considered significant at smaller scales (e.g. within the first or second-tier municipal structure, or at the watershed or subwatershed scale).

'Adjacent Lands' are incorporated as elements of the Natural Heritage System of Chatham-Kent as per table 4.1 of the Plan. Each element identified above has defined 'Adjacent Lands' as per the Natural Heritage Reference Manual (2010) and identified in the Plan. Adjacent lands for each feature category are identified in the table below.

**Table 3.1** Adjacent Lands for significant features defined in the Plan

<b>Feature</b>	<b>Adjacent Lands</b>
<i>Provincially Significant Wetland</i>	120 m from the wetland edge
<i>Significant Portions of Habitat for Endangered and Threatened Species</i>	50 m from the identified habitat boundary
<i>Fish Habitat</i>	30 m from seasonal high water mark
<i>Significant Woodlands</i>	50 m adjacent to a woodland > 2ha in size
<i>Significant ANSI (Earth Science and Life Science)</i>	50 m

Flood Prone Lands (per the Plan) are identified through consultation with the appropriate Conservation Authority or the Ministry of Natural Resources, as appropriate. Shoreline Hazard Lands are similarly defined by a flood level (100 yr), but additionally include an allowance for wave uprush and other water hazards, shoreline erosion, and a setback from either top of bank or from slope stability line. Definitions of the Shoreline Hazard area are to be determined in consultation with the appropriate Conservation Authority. Flood Prone Lands and Hazards Lands are typically captured within the ‘Regulated Area’ within the jurisdiction of a Conservation Authority.

Protection of municipal water supplies is built into the Chatham-Kent Natural Heritage System through the inclusion of wellhead protection areas. These areas are defined as areas encompassing the groundwater travel zone within a 10-year timeframe as per the schedules of the Plan.

Significant Wildlife Habitat, Significant Valleylands and Natural Corridors and Linkages are not defined in the Plan, but provision for their identification is included in the policies of the Plan, such that they can be captured and incorporated into the schedules of the Plan.

In addition to the Natural Heritage System definitions, policies and objectives, the Plan provides fairly robust direction for the implementation of watershed and subwatershed scale studies (Section 4.5.2). Watershed and sub-watershed studies are identified within Water Resources Protection Policies (Section 4.5), however the policies and objectives provide clear, high-level planning direction for the identification, analysis and protection of natural heritage features that support all natural systems and elements (aquatic, terrestrial, flora and fauna).

A key component to the development of a robust, defensible Natural Heritage System is a well-defined Environmental Impact Statement (EIS) process. The Plan for Chatham-Kent provides clear direction for determining when an EIS is required, the process proponents must follow (e.g. peer review) and the elements that must be included in the EIS (e.g. delineation of natural features, assessment of feature sensitivity). The policies in the Plan provide an excellent basis for scientifically based assessment of the biotic and abiotic natural resources of Chatham-Kent, and a balanced approach to protecting and developing a natural heritage system (e.g. through identification of restoration opportunities) and economic and social development.

### **3.2. Opportunities and Constraints**

#### **3.2.1. Opportunities**

The terrestrial (e.g. woodland, meadow, thicket, agricultural) and aquatic (waterbodies, watercourses and wetlands) features within the shoreline areas of Chatham-Kent include large portions of the shoreline areas of Lake Erie, and the Sydenham and Thames Rivers. Together, these areas provide habitat for a variety of plants and animals including Carolinian vegetation communities, Species at Risk and encompass globally significant Important Bird Areas. Opportunities exist to maintain and enhance the natural heritage within the shoreline areas of Chatham-Kent and help meet stated objectives of the 2010 Official Plan.

Unlike many municipalities that must work within the confines of a highly-developed landscape, Chatham-Kent has the opportunity to implement policies that protect and enhance their natural heritage in concert with their continued economic and social development. The watershed and subwatershed processes, and EIS process can be important means for implementing Official Plan Natural Heritage objectives by ensuring that the protection and enhancement of natural heritage features and functions is carefully considered as future development applications proceed.

#### **3.2.2. Constraints**

The long agricultural history in Chatham-Kent reflects climate and landscape conditions that are very suitable to agricultural production. Such conditions are also suitable for natural area biodiversity. Land clearing for agricultural production throughout the province has fragmented natural areas to varying degrees, resulting in habitat changes (and reductions) and effects on associated flora and fauna. These changes and effects have been pronounced in Chatham-Kent, which currently has only about 4 % of natural forest cover remaining. Consequently, the opportunities provided by agricultural production throughout the area have also led to reductions in habitat areas as well as associated species diversity in the natural heritage system.

Given the extent of habitat fragmentation present within the Chatham-Kent area, the remaining natural features accordingly assume higher relative importance in the landscape, both as existing habitat nodes (connected or otherwise), and as building blocks for future habitat protection,

expansion and restoration. These features therefore should be considered as constraints to varying degrees because they reflect the only remaining natural capital in the bank from which to draw and build in future years and for future generations.

Chatham-Kent's largest constraint in the development of a functional Natural Heritage System is habitat fragmentation. The natural features that remain on the current landscape tend to be small remnant features separated on the landscape with large intervening areas of agricultural production.

Official Plan policy 4.4.3.2.4 identifies the increase of woodland cover as a municipal objective. The increase of habitat cover of all types (woodland, meadow and wetland) is vital in the restoration of the landscape from a natural heritage perspective. Many species require several habitat types to successfully complete their life cycle. As such, fragmented units of a singular habitat type may not provide sufficient opportunity for these species. Linkages and corridors should be identified, maintained, and where feasible, expanded or enhanced to ensure that fragmentation effects are minimized and species dispersal is maintained for a healthy ecological landscape.

### **3.3. Shoreline Areas Natural Heritage Features and Definitions**

As discussed in section 3.1.2 of this memo, Chatham-Kent's Official Plan provides direction for the identification of natural heritage features that should be incorporated into the larger Natural Heritage System. Additionally, the Plan provides clear policies and objectives that guide the assessment and refining of boundaries of these features.

Maintaining representative habitats typical of the landscape is an important role of the Natural Heritage System. Representative features help to conserve diversity (biotic and abiotic) by providing a variety of habitats, such as meadow, thicket, forest, prairie and wetlands (including marsh and swamp).

In addition to the features and functions defined in the Plan, the Shoreline Areas of Chatham-Kent contain some features and specific functions that should be highlighted in the existing definitions, or added as a discreet feature type within the Natural Heritage System for the Shoreline Areas. A summary of features, as per the existing policy definitions (Provincial Policy Statement [2005] and the Plan) and recommendations for new feature categories are discussed in the following sections.

#### **3.3.1. Wetlands**

For the purpose of municipal and natural heritage planning, wetlands of all types, including unevaluated wetlands, warrant consideration during the planning approvals and development approvals process and representation within a Natural Heritage System. Within the Shoreline Areas of Chatham-Kent, special consideration may be warranted when considering the function of

shoreline and near-shore wetlands as these wetlands may offer benefits specific to the Shoreline Areas.

Additional considerations for wetlands within the Shoreline Areas of Chatham-Kent can be addressed in an EIS (or a subwatershed / watershed study) to ensure that smaller wetland features are not overlooked in planning and management decisions. Factors that should be considered may include:

- Relative abundance / representation of the feature within the area of interest (subwatershed, watershed, planning area);
- Location of a wetland relative to other features (e.g. Important Bird Area [IBA], Wellhead / Source Water Protection Area, headwaters area, significant natural heritage feature[s], Great Lakes Conservation Blueprint Aquatic Resources Area);
- Function of the wetland at various scales (e.g. local, sub-watershed, watershed).

#### 3.3.1.1. Provincially Significant Wetlands

In the PPS, wetlands are defined as (Section 6 Definitions):

*“...lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens.*

*Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands...”*

Further to this, coastal wetlands are defined as (Section 6 Definitions):

*“a) any wetland that is located on one of the Great lakes or their connecting channels (Lake St. Clair, St. Mary’s, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or*

*b) any other wetland that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located 2 kilometers upstream of the 1:100 year floodline (plus wave run-up) of the large water body to which the tributary is connected.”*

For the purposes of the PPS, wetlands are identified as being significant where they have been *“identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time”* (PPS, Section 6, Definitions).

A determination of being '*significant*' is made through application of the Ontario Wetlands Evaluation System for Southern Ontario (OWES - MNR 2002) for a wetland. The evaluation process can be undertaken by appropriately trained individuals (having completed the OWES course offered by the MNR) - however the MNR remains the authority on final determination of Provincial Significance for a wetland.

It is our recommendation that all currently unevaluated wetlands are assessed through appropriate planning studies (i.e. watershed, subwatershed or EIS) as per the Plan. Where an assessment indicates high potential for identification of the wetland as 'provincially significant', an OWES assessment should be recommended. At a minimum, the wetland information collected during the study should be provided to MNR for their evaluation. This approach is intended to support the ongoing effort to protect and conserve wetland resources within the Chatham-Kent Shoreline Areas and the greater Chatham-Kent municipality.

#### 3.3.1.2. *Locally Significant Wetlands*

In planning municipalities, such as Chatham-Kent, where historic clearing for agriculture has resulted in considerable wetland removal, the remnant wetland features should be assessed in consideration of their value as representatives of the features that once occupied a large proportion of the landscape. These small, often isolated, wetland features can offer important hydrologic and habitat benefits, and, as stated in the Natural Heritage Reference Manual (2010), warrant further consideration in addition to the attention typically focused on larger provincially significant wetland systems.

It is not reasonable to assume that all wetlands will be maintained on the landscape. A process to evaluate the local significance (form and function) of a wetland should be integrated into the EIS process to identify non-provincially significant wetlands that should be protected and retained. Features identified as warranting protection will both maintain representation of these features in the landscape, and protect and enhance Chatham-Kent's Natural Heritage System.

#### 3.3.2. Significant Habitat for Endangered and Threatened Species

*Significant* habitat for endangered and threatened species is identified for protection within the PPS, and is defined as:

*"habitat, as approved by the Ontario Ministry of Natural Resources, that is necessary for the maintenance, survival, and/or recovery of naturally occurring or reintroduced populations of endangered species or threatened species, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle"*

Habitat requirements vary by species. As such, definitions of *significant* habitat for Species at Risk (SAR) are not available for the majority of species whose habitat is protected under the Endangered Species Act (ESA) (2007) and/or the PPS (endangered or threatened species).

Rather, *significant* habitat for endangered and threatened species is identified on a site-scale, species by species basis, in consultation with the MNR.

Species-specific Habitat Regulations under the ESA have been developed to guide the identification and protection of habitat for endangered and threatened species. While the regulations provide relatively specific direction on the identification and delineation of habitat for some species, final determination of Regulated Habitat is determined in consultation with the MNR.

Accordingly, assessment of potential habitat for SAR, MNR consultation, and, if required, focused field surveys for SAR should be undertaken as part of any future land use planning change/application to ensure compliance with requirements of the ESA (2007).

As not all species are covered by species-specific Habitat Regulations, the ESA includes provisions for the protection of significant habitat for all Schedule 1 species. This General Habitat Regulation will come into effect for 2013 (based on current planning). It is unclear at this time how the General Habitat Regulation will impact planning and development processes, however further consideration and consultation with MNR leading up to 2013 and after it has come into effect will be required to gain an understanding of the implications for these processes.

### 3.3.3. Fish Habitat

Lands and waters that provide direct and indirect habitat for resident and migratory fish (as defined in the *Fisheries Act*) are considered significant natural features in the Official Plan. They provide the physical and ecological setting for fish to complete their life cycles, including the provision of habitat for spawning, survival and maturation of larval, juvenile and adult fish, and migration corridors for the movement of fish to habitats required to complete their life cycle.

For the purpose of natural heritage planning, direct fish habitat is a watercourse, waterbody or seasonally flooded area that contains resident or migratory fish at some point during the year. For the purpose of the *Fisheries Act*, a watercourse may be a natural creek or river, municipal drain, agricultural drain or drainage ditch, which flows year round or for at least some portion of the year. For the purpose of the *Fisheries Act*, a waterbody may be a pond, lake, impoundment, or reservoir.

Indirect fish habitat includes riparian lands or waters that contribute nutrients, energy and flow to fish habitat on a seasonal or permanent basis.

To ensure compliance with the federal *Fisheries Act*, and the Provincial Policy Statement [PPS] (2005), any future land use change / development application must include surveys sufficient to determine the presence / absence of aquatic resources, and assessment of aquatic features for consideration as 'fish habitat' as per the PPS and the *Fisheries Act*. Consultation with the appropriate Conservation Authority is required and the CA will be involved in fisheries review in accordance with their respective agreements with DFO.

#### 3.3.4. Significant Woodland

The fragmented and dispersed nature of features across the landscape of Chatham-Kent needs to be addressed. By maintaining existing woodlots, and assessing opportunities for forest cover expansion, this may be possible. Accordingly, it is recommended that the identification of a significant woodlot be expanded to include woodlands >0.5 ha that meet at least one of the following additional criteria listed in the NHRM, 2010:

- A portion of the woodland is located within a specified distance of a significant natural feature or fish habitat likely receiving ecological benefit from the woodland;
- Are located within a defined natural heritage system or provide a connecting link between two other significant features, each of which is within a specified distance;
- Are located within a sensitive or threatened watershed or a specified distance from a sensitive groundwater discharge, sensitive recharge, sensitive headwater area, watercourse or fish habitat;
- The woodland displays uncommon characteristics as defined in the NHRM (2010).

Additional considerations in identifying significant woodlands for the Chatham-Kent Shoreline Areas Natural Heritage System should include opportunities to increase size and improve shape of a woodland / woodlot (e.g. smoothing, removing 'bays', etc.). While the overall increase in size of the woodland may not be substantial, such enhancements may create or enhance interior habitat, and increase habitat diversity within or in areas immediately adjacent to existing features.

#### 3.3.5. Significant Valleyland

Three broad categories of attributes are used for the identification of Significant Valleylands in the Natural Heritage Reference Manual (MNR 2010): Landform-Related Functions and Attributes, Ecological Features, and Restored Ecological Functions. Large and well defined valleylands currently exist on the landscape with many natural and physical attributes still present despite the history of land clearing.

Where geology, topography and surficial deposits have created wide, shallow or small valleylands, modification to these features have been more dramatic, often removing much of their natural attributes through agriculture (e.g. crops or livestock), dredging, channelization and irrigation. In cases where an agricultural history has dramatically changed the landscape, the physical delineation of valleylands may be obscured.

Ecological features criteria in the NHRM (2010) for the identification of Significant Valleylands include:

- Degree of naturalness
- Community and species diversity

- Unique communities and species
- Habitat value
- Linkage function

Features exhibiting valleyland characteristics should be assessed, as part of either a pre-development sub-watershed study (for example) or as part of a planning application (i.e. EIS), to determine if they meet criteria for Significant Valleylands. Even if they do not meet criteria, local function should be considered to ensure that features with attributes important to the overall NHS are retained and integrated. Opportunities to identify and protect Significant Valleylands may be tied to Community Improvement Plans or other municipal initiatives.

### 3.3.6. Significant Wildlife Habitat

The provision of habitat for wildlife species is an important function of natural features within the Shoreline Areas of Chatham-Kent. The Significant Wildlife Habitat Technical Guide (MNR 2000) provides detailed guidelines for the identification of Significant Wildlife Habitat, but also provides direction for the evaluation and ranking of significant habitat and discusses factors that influence the question of how much habitat should be protected on the landscape. For the purposes of the Shoreline Areas Secondary Plan, Significant Wildlife Habitat may include:

- Areas of seasonal animal concentration;
- Rare vegetation communities;
- Specialized wildlife habitat;
- Habitat for Species of Conservation Concern;
- Animal Movement Corridors;

#### 3.3.6.3. *Areas of Seasonal Animal Concentration*

Some species may concentrate, at certain times of year, within areas that offer suitable habitat for specific activities, such as hibernation, migration staging, nesting, etc. Often, the concentration of animals is due to the relatively lower availability of the required habitat on the landscape (e.g. snake hibernacula, turtle hibernation areas). In other cases, species congregate into colonies (e.g. herons) for the benefit of protection during vulnerable periods of the life cycle (e.g. nesting). In many cases, and regardless of the purpose of the habitat use, these areas of seasonal animal concentration are used annually or semi-annually and species may have varying degrees of fidelity to these sites.

Protection of these areas of seasonal use may be critical for the local, regional, or in some cases, broader population of a species. Based on the relative importance of these sites, seasonal animal concentration areas should be considered when evaluating an area for significant wildlife habitat (e.g. through the EIS, or subwatershed study process). Seasonal concentration areas information may be available through agency consultation (e.g. MNR, Conservation Authorities), but can also

be determined through habitat evaluation and field assessment. The Significant Wildlife Habitat Technical Guide (MNR 2000) provides guidelines for the identification and evaluation of areas of seasonal animal concentration. Seasonal animal concentration areas may include:

- Winter deer yards
- Colonial bird nesting sites
- Waterfowl stopover and staging areas
- Waterfowl nesting habitat
- Shorebird migratory stopover sites
- Landbird migratory stopover sites
- Raptor wintering areas
- Wild turkey wintering areas
- Turkey vulture summer roosting areas
- Reptile hibernacula
- Bat hibernacula
- Bullfrog concentration areas
- Migratory butterfly stopover areas

While the potential presence of all applicable concentration areas should be considered, Chatham-Kent is known to provide significant bird habitat, as is reflected in the presence of portions of five (5) Important Bird Areas (IBAs) within the Municipality. IBAs are identified based on their value as stopover (resident and migratory), staging areas, and/or nesting habitat. Assessment of potential use by landbirds, shorebirds and waterfowl within the Shoreline areas, with special attention to areas within IBAs, should be undertaken as part of the EIS process.

#### 3.3.6.4. *Rare Vegetation Communities*

The Significant Wildlife Habitat Technical Guide (MNR 2000) defines rare vegetation communities as including:

- Areas that contain a provincially rare vegetation community (S1-S3, per NHIC);
- Areas that contain a vegetation community that is rare within the planning area.

This definition of a rare vegetation community allows for the consideration of habitat quality and relative abundance on the landscape as criteria in the identification of Significant Wildlife Habitat. Small habitat features may still meet criteria for Specialized Wildlife Habitat based on the vegetation communities present. Consequently, site-specific assessment should be undertaken as part of an EIS to ensure that such features are properly assessed prior to finalizing management recommendations.

This definition of a rare vegetation community also allows for the inclusion of locally and regionally rare species (flora and fauna) as a component of the identification of Significant Wildlife Habitat. Species (flora and fauna) that become rare – locally, regionally or provincially – have, in many cases, become so due to changes in the landscape. Loss of habitat and alterations to systems (e.g. hydrologic changes) can have a substantial impact to species that are sensitive to even small changes in their environment. These species are often unable to adapt to these changes, and unable to find other areas with suitable habitat conditions. By protecting sensitive features that support locally and regionally rare communities and/or species, Chatham-Kent can help to preserve the biodiversity of their landscape and potentially help slow the decline of some species present in the landscape.

#### 3.3.6.5. *Specialized Wildlife Habitat*

The Significant Wildlife Habitat Technical Guide (MNR 2000) defines rare vegetation communities as including:

- Areas that support wildlife species that have highly specific habitat requirements;
- Areas with exceptionally high species diversity or community diversity;
- Areas that provide habitat that greatly enhances a species' survival.

Specialized wildlife habitat often encompasses features or functions that are uncommon within the landscape (such as a mineral lick for ungulates) or help fulfill a specific life-cycle function for a species (such as fish spawning area, turtle hibernation area). These habitat elements are specialized, as the requirements for their function are more restrictive than the habitat required for other portions of the species life cycle and are therefore typically less available within a landscape.

It is important that these features be identified on the landscape and protected. Identification of these features/functions should be conducted in consultation with relevant agencies (e.g. MNR and Conservation Authorities). Some areas of specialized wildlife habitat may be mapped, but many have not been identified on the landscape and would need to be surveyed either through a subwatershed study or an EIS, particularly where the potential for such habitat is high. The Significant Wildlife Habitat Guide (MNR 2000) describes types of specialized wildlife habitat and provides direction for the identification and assessment of specialized wildlife habitat.

#### 3.3.6.6. *Habitat for Species of Conservation Concern*

Loss of habitat for Species of Conservation Concern may accelerate the decline of the species, and threaten the health and success of the species population regionally, provincially or globally. The Significant Wildlife Habitat Technical Guide considers 'species of conservation concern' as:

- Endangered, threatened, special concern species (Committee on the Status of Endangered Wildlife in Canada [COSEWIC], MNR);

- Provincially Rare species (S1 – S3 – per NHIC);
- Species experiencing substantial population declines, but are not yet listed;
- Species with high % of global population present in Ontario (as such, impacts to Ontario populations has a much larger impact on the species).

Habitat for these species is exclusive of habitat identified as ‘*Significant Habitat of endangered and threatened species*’ (as per the PPS, and the NHS for Chatham-Kent).

Identification of habitat for species of conservation concern includes habitat profiling to identify what species may occur within the planning area. An assessment of habitat potential in the context of species of conservation concern known to exist in the area and need for detailed surveys to further investigate species potential should be considered in consultation with MNR. If a positive determination is made (through identification of suitable habitat or species observation), delineation of habitat is to be done in consultation with MNR staff, and other relevant agencies, as required.

#### 3.3.6.7. *Animal Movement Corridors*

Animal Movement Corridors are discussed as a separate Natural Heritage feature element in Section 3.3.10 of this memo. Within the Shoreline Areas of Chatham-Kent, animal movement corridors with natural cover are limited in the landscape and typically occur along remnant watercourses/valleylands. These features provide movement opportunities for species that are sensitive to disturbance (e.g. noise, light, habitat specialists). It is important to note, that in an agriculturally-dominated landscape, fields under agricultural production do not preclude wildlife movement. Rural-urban adapted animals (e.g. deer, raccoons, skunks) and a number of other species (e.g. salamanders, turtles) can and do move across agricultural fields or varying distances to access habitats beyond (e.g. woodlands, vernal pools, hibernation sites).

Protection of linear features with natural cover, as well as consideration of maintaining movement opportunities that may exist on the agricultural landscape, is vitally important to ensure connectivity between natural habitat features in the Shoreline Areas. Additionally, corridors and linkages with natural cover also offer refuge and may function as habitat for a variety of species on the landscape.

#### 3.3.7. *Areas of Natural and Scientific Interest*

Areas of Natural and Scientific Interest (ANSI) are defined as “*areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education*” (PPS 2005, 6.0 Definitions).

ANSIs can be identified based on their representation of significant Earth Science or Life Science features. Earth Science ANSIs protect examples of significant physical features, including bedrock, fossil and landform features, representative of Ontario’s landscape and landforms. Life

Science ANSIs are selected to protect significant representative elements of Ontario's biodiversity and biotic features and habitats, such as forests, valleys, prairies and wetlands, as well as the native flora and fauna they support. Life Science ANSIs are selected in part as relatively undisturbed representative samples of the Ontario's biotic diversity.

Areas of Natural and Scientific Interest can be identified with different levels of significance: Provincial, Regional and Local. Provincial ANSIs (considered Provincially Significant ANSIs in the Plan) are afforded province-wide protection through the Planning Act and the Natural Heritage Policies of the Provincial Policy Statement (2005). Regional ANSIs do not receive province-wide protection, but are protected in some areas under the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan and through Municipal Official Plans. Like Regional and Provincial ANSIs, Local ANSIs are representative samples of the Earth and Life Science features and processes; however their primary value in representing these features has been determined to be of local significance. Local ANSIs do not typically receive direct protection through policy, however may be protected through other designations (e.g. significant woodland, significant valleyland).

Regional ANSIs may not be considered as 'no encroachment' areas from a development standpoint. However their value as exemplars of the biotic and abiotic environment of Chatham-Kent should be considered in conjunction with an assessment of their significance, sensitivity and function on the landscape as part of the EIS process.

#### 3.3.8. Shoreline Landforms

Consideration should be given to the protection of shoreline landforms as a category of Natural Heritage features. This includes the protection of forms such as beaches, dunes, bluffs and bars. Some of these features will be captured under the designation of Hazard Lands, as they include areas that are typically characterized by varying rates of erosion and deposition. While these features may be protected under the Hazard Lands designation, identification of high quality examples of these landforms as Natural Heritage features may better represent their value and interaction with other Natural Heritage features such as:

- Shoreline wetlands;
- Fish spawning habitat;
- Rare dune vegetation communities.

The Shoreline Areas of Chatham-Kent are lands vital to the economy of the Municipality (e.g. tourism, fisheries) and are under substantial pressure from expanding residential (seasonal and permanent) development. In order to balance protection of shoreline features with other forms of land-use, mechanisms for the identification of feature significance, sensitivity and function must be in place. Similar to the mechanisms that are in place to assess Significant Valleylands or Significant Woodlands, we recommend a set of criteria that serve to identify shoreline features and

areas that should be protected both for their function within the landscape (shoreline protection, habitat) and as representatives of that landform type at the regional and local level.

Beyond the identification of Significant Shoreline Features within the Natural Heritage System, it is important that focus also be drawn to maintaining the natural function of shoreline features throughout Chatham-Kent's Shoreline Areas. Maintaining natural shoreline function is equally important to the overall health and quality of the shoreline and near-shore aquatic systems within Chatham-Kent. As such, consideration should be given to instituting mechanisms to encourage or require the maintenance and enhancement of shoreline landforms, including natural cover along shorelines (e.g. setback requirements, naturalization plans). Assessment of Shoreline features should be captured within the EIS process.

#### 3.3.9. Habitat for Regionally and Locally Significant Species

As part of the due diligence in a subwatershed or EIS study, presence of regionally and/or locally significant species should be assessed and the findings integrated in the future management recommendations for natural features. While retention of small isolated sites containing such species may not always be feasible or warranted, this recommendation at least ensures that due diligence is undertaken before final management decisions are made.

Regional and local rarity information may be available through local conservation authorities, naturalist groups, or through literature and ongoing studies such as the Ontario Breeding Bird Atlas and the Marsh Monitoring Program. If no consolidated list is available, consultation with appropriate agencies (i.e. Conservation Authority) will provide an indication of species rarity and potential mitigation measures (e.g., salvage and transplant of regionally or locally significant plant species), as appropriate, on a case-by-case basis.

#### 3.3.10. Corridors and Linkages

The landscape of Southern Ontario has been shaped by a cultural history of land development through agriculture, urbanization, industrial growth and expanding infrastructure (roads, rail, energy). Over the last century, these activities have increasingly fragmented natural features, which today are now either isolated or loosely connected to varying degrees with frequent gaps or road crossings along the connections (Hilty et al 2006). Connecting features that have been maintained with natural vegetation cover typically consist of drainage features and watercourses, larger valleylands, and/or narrow linear hedgerow networks between natural areas. These remnant linear features have become more valuable as potential ecological conduits for plants and animals because they represent the only such linkages on the landscape. These features fill an important role for species sensitive to anthropogenic disturbance (e.g. noise, light).

While corridors and linkages with natural vegetation are vital to the function and sustainability of a Natural Heritage System, it is equally important to recognize that agricultural fields do not preclude

wildlife movement. Rural-urban adapted animals (e.g. deer, raccoons, skunks) as well as other, non-adapted species (e.g. salamanders, turtles) can and do move across agricultural fields of varying distances to access habitats beyond (e.g. woodlands, vernal pools, hibernation sites). The permeability and function of agricultural areas for species movement must be considered as landscapes face increasing development pressure and see an intensification of infrastructure and use (e.g. increased traffic levels).

A landscape with few naturally vegetated corridors, such as Chatham-Kent, may still be relatively permeable to wildlife movement through use of agricultural lands for dispersal. As development transforms a landscape from an area with few naturally vegetated corridors but a high proportion of agricultural land, to an area with few naturally vegetated corridors and intervening developed areas (e.g. commercial, residential development) overall landscape permeability may be significantly reduced. Consideration must be given to the permeability function of agricultural lands for wildlife dispersal when assessing land use change and development proposals.

The capacity of these naturally vegetated and agricultural corridors and linkages to contribute to the movement of plant materials and animals is in part determined by the distance between larger habitat units, and the surrounding landscape (i.e. urban vs. rural). Connections between habitat units in close proximity, offer greater opportunities for movement of flora and fauna compared to connections between highly dispersed units. This basic principle of landscape ecology has been recognized for several decades (e.g. Forman 1981, Forman 1983, Forman and Godron 1984, 1986) although still remains poorly understood (Forman 1995). However, a recent publication from the United States Department of Agriculture (2004), coupled with a recent review of corridor ecology (Hilty et al 2006) continue to advance our understanding in this field.

Chatham-Kent's Official Plan states an objective to increase woodlands to 10 % of land area (Section 4.4.3.2.4 of the Plan) and also includes a policy to seek and protect movement corridors and linkages (Section 4.4.3 of The Plan). These two policies should be considered in tandem during subwatershed studies and the EIS process to seek opportunities to enhance corridors and linkages along existing features (such as watercourses, valleylands, and broad hedgerows connecting natural areas), but also to identify opportunities to enhance features that can be connected by existing linkages or through potential linkages with strong restoration opportunities.

Chatham-Kent is engaged in a program with the Lower Thames Conservation Authority (LTVCA) to increase forest cover within their jurisdiction in which the CA provides support in the development of forest management plans and funding support. Opportunities to expand the existing program or initiate similar programs should be considered in support of Chatham-Kent's policy for increasing forest cover (Section 4.4.3.2.4 of The Plan).

It is our recommendation that Chatham-Kent identify the enhancement of natural cover along watercourses and valleylands as a priority within the Shoreline Areas through either the subwatershed process, or at a minimum the EIS process. Some high-level priority areas for

corridor enhancement have been identified as *Areas of Policy Interest* and *Potential Enhancement Opportunities* in the 'Chatham-Kent Shoreline Area Sustainable Community Plan', Natural Heritage '*Areas of Policy Interest*' and '*Potential Enhancement Opportunities*' Memo (appended to this memo). Guidelines for cover targets (e.g. amount of woody and herbaceous cover, and total riparian cover) can be obtained from existing guidance documents, such as *How Much Habitat is Enough* (Environment Canada 2004).

#### 3.3.11. Areas of Policy Interest

Areas of Policy Interest were identified to provide some high-level direction in the application of Natural Heritage Policies within the Shoreline Areas, with a focus on enhancement opportunities to create additional habitat, and in developing connectivity between existing features through the development or enhancement of natural corridors and linkages.

Further to the identification of Areas of Policy Interest, some smaller areas were identified as having potential to provide good opportunities for enhancement in the landscape. These areas are identified as Potential Enhancement Opportunities. These areas were highlighted because of their potential to create substantial benefit to the broader Natural Heritage System in the Shoreline Areas of Chatham-Kent. Both policy target areas are discussed in the Areas of Policy Interest memorandum, appended to this memo.

#### 3.3.12. Adjacent Land(s)

Adjacent lands are identified in the Provincial Policy Statement (2005) as those lands bordering natural heritage features, within which development of site alteration has the potential to affect such features. The distance Adjacent Lands extend from a natural heritage features varies with feature type. These lands are identified in the Natural Heritage System as per the Plan (Section 3.1.2 of this memo) and are defined in the Natural Heritage Reference Manual (2010).

Land use change and / or development applications within these lands are subject to the completion of an EIS to determine the potential impact of the proposed development on the natural heritage feature bordered by the Adjacent Lands.

## **4. Recommendations for Implementing Natural Heritage System Policies**

Implementation of Natural Heritage System policies would primarily be conducted through two levels of planning studies:

- 1) Watershed / Subwatershed studies;
- 2) EIS.

These studies represent two distinctly different levels of study in the assessment of existing natural heritage features, and offer different opportunities and constraints in implementing NHS policies and objectives as reviewed below.

### **4.1. Watershed and Subwatershed Studies**

Watershed and subwatershed studies are detailed, comprehensive, multi-disciplinary inventories of natural heritage features and functions (biotic and abiotic) within an ecologically-defined functional unit - the watershed or subwatershed. Studies at these scales provide a landscape-based approach to implementation of NHS principles and objectives (e.g. identification of NHS features). Existing features are inventoried and assessed at an ecologically-meaningful scale and opportunities for restoration and enhancement can be identified and prioritized to have the greatest benefit to the functional unit (watershed / subwatershed). Watershed / subwatershed studies have become, and are expected to be increasingly more detailed in terms of field studies and analysis than in the past – consisting of highly detailed multi-season, multi-year studies requiring 3-5 years to complete and often requiring substantial budgets.

Watershed / subwatershed studies are typically undertaken through one of the following three approaches:

- Municipally lead;
- Municipal – Agency partnerships (Conservation Authorities typically);
- Development partnership (developer-lead).

#### **4.1.1. Municipally Lead and Municipal-Agency Partnerships**

Municipally lead and Municipal-Agency partnerships typically prepare a Terms of Reference for bidding by consultants. The successful consultant group would work with a Technical Steering Committee including representatives from the lead agency or agencies (depending if it is a sole or partnership-lead study). Funding for these studies may be shared between the municipality and agency / agencies leading the study. There is potential to involve other interest groups as warranted, such as particular stakeholder or citizen groups, but such involvement must be carefully managed through the Terms of Reference to ensure a relatively streamlined and efficient study process.

#### 4.1.2. Development Partnership

In cases where watershed or subwatershed studies are required prior to development (through municipal policy), a developer or multi-landowner group may wish to advance the study to facilitate their development interests. In such cases, some or all of the study is financed by the developer or multi-landowner group. The developer/landowner group hires a multi-disciplinary technical team, typically consisting of one or more consulting firms qualified to complete the subwatershed study requirements. However, similar to municipally lead and municipal-agency partnerships, the process is guided by a technical steering committee consisting of representatives from relevant agencies (typically both tiers of municipal government, CA, MNR [invited, may comment, but may not sit on the committee]). There is potential to involve other interest groups as warranted, such as particular stakeholder or citizen groups, but such involvement must be carefully managed through the Terms of Reference to ensure a relatively streamlined and efficient study process.

#### **4.2. Environmental Impact Statement (EIS)**

While the limits of a watershed or subwatershed study are defined by an ecologically defined functional unit, the study area for an EIS is typically guided by the limits of the proposed land use change and including relevant adjacent natural features. Consequently the EIS typically covers a smaller land area although should typically address feature/function aspects similar to what would be addressed at a subwatershed scale. The EIS may be scoped in some cases, depending on the nature of natural heritage features present and anticipated impacts. Information contained in an EIS can be integrated in a subwatershed/watershed study as appropriate.

The EIS process provides the opportunity to further develop an inventory of natural features and systems, their functions and the species they support. It is also another mechanism for Chatham-Kent to implement policies and objectives of the Plan tied to development approvals that protect natural heritage features, identify opportunities to enhance and restore habitat, and protect and create corridors and linkages.

It is recommended that additionally identified Natural Heritage features (Shoreline Landforms, Locally Significant Wetlands) be included as requirements of the EIS and watershed / subwatershed study processes within the Shoreline Areas. Explicitly identifying these features will ensure that they are assessed within the planning process.

Additionally, it is recommended that a requirement be added to the EIS process for the creation of a Terms of Reference to be prepared and reviewed with appropriate agencies in advance of commencement of the EIS. This will ensure that all required elements relating to the natural features are examined as dictated by local site conditions and agency input.

## 5. Conclusions

Chatham-Kent is home to a diverse range of vegetation communities, habitats and species, including Carolinian species and SAR, yet has a very low representation of natural areas of the total land cover within the municipality. Maintaining existing flora and fauna populations on the landscape and enhancing opportunities for the survival and success of these species are important environmental management components of the Natural Heritage System.

Where possible, implementation of the NHS through watershed / subwatershed scale study is the ideal approach. It enables a landscape approach to the assessment of Natural Heritage features and functions, and forms the blueprint for subsequent planning stages and studies (e.g. EIS). The extensive nature of these studies (detail, length and cost) may require priority to be placed on completing watershed / subwatershed studies where future development expansions are most likely, or in Areas of Policy Interest, so that findings can be expediently transferred into subsequent planning for implementation.

Of vital importance to the implementation of NHS policy is a grounded understanding by the public of the intent and purpose of the NHS. It is not the intent of the NHS to preclude economic activities, development or growth (e.g. agriculture). Rather, the NHS is intended to ensure that new development or expansion is balanced with the Chatham-Kent's interesting in preserving a diverse and, wherever possible connected, NHS system for future generations.

Chatham-Kent has incorporated the creation of a NHS in their Official Plan and has made provisions for the identification and protection of features through watershed and subwatershed scale studies and planning, and the EIS process. Implementing the additional recommendations contained in this memo will enhance the quality and sustainability of the NHS over the longer term in the face of future anticipated land use change and development.

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