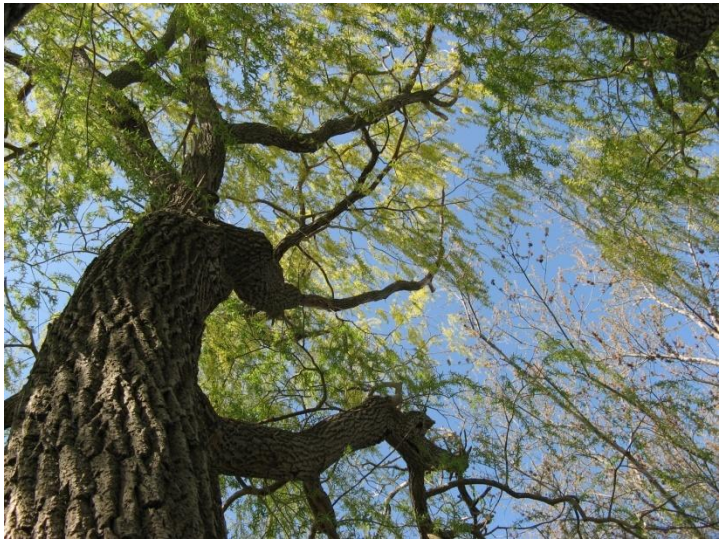
MIDDLESEX NATURAL HERITAGE STUDY

Middlesex County Council
July 22, 2014

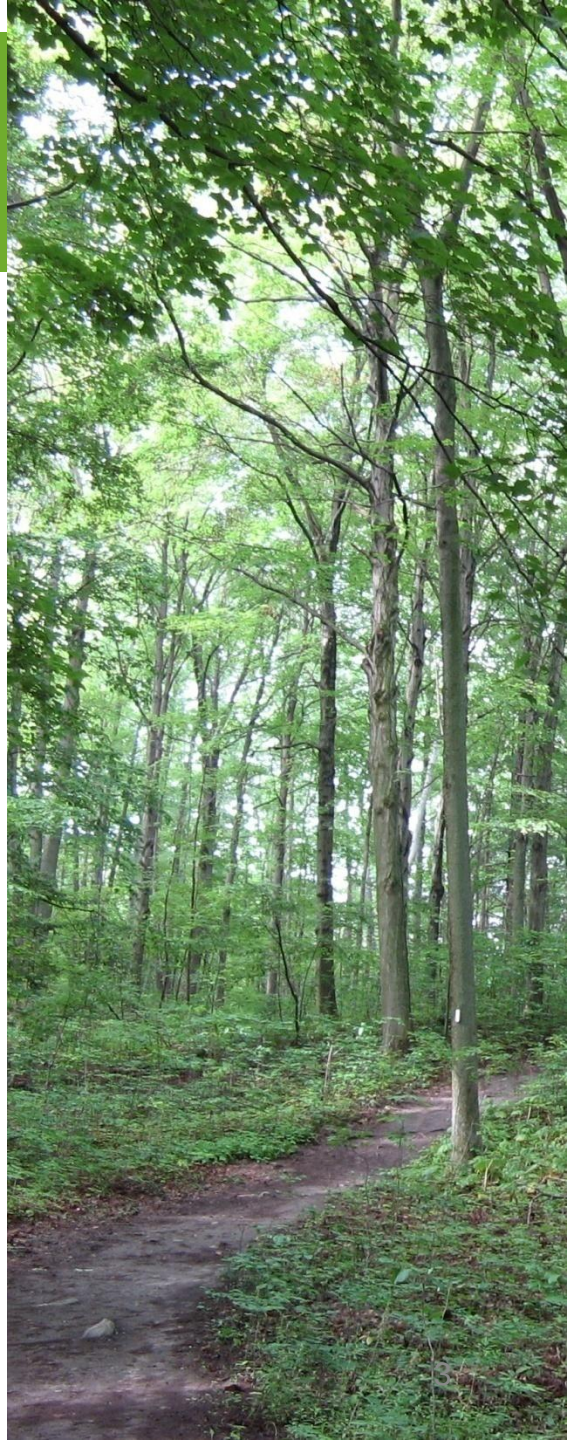


OUTLINE

- Original MNHS (2003)
- Need for an Update
- Project Methodology
- Findings
- Recommendations/Implementation
- Next Steps
- Questions and Discussion

MNHS (2003) Highlights

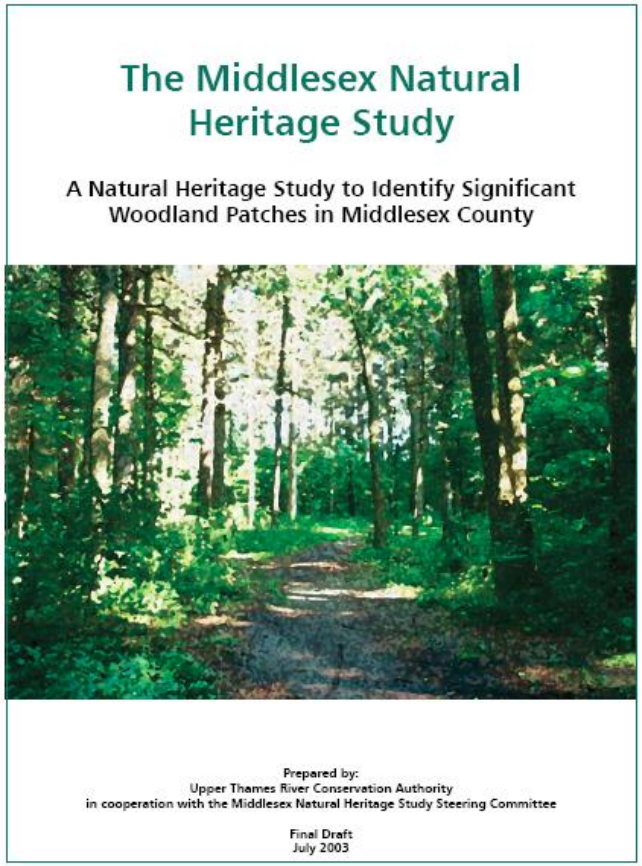
- Limited Natural Heritage information and what was available was outdated, inaccurate and inconsistent
- County Project lead by the Conservation Authorities with multiple other partners
- Focused on identifying “significant” woodlands
- Final Report included science methodology and mapping



MNHS (2003) Highlights

- Landscape study – not an inventory (approximately 8,200 woodland patches in the County)
- County and Municipal Official Plans reference MNHS (2003) to identify “significant woodlands”

MNHS (2003)



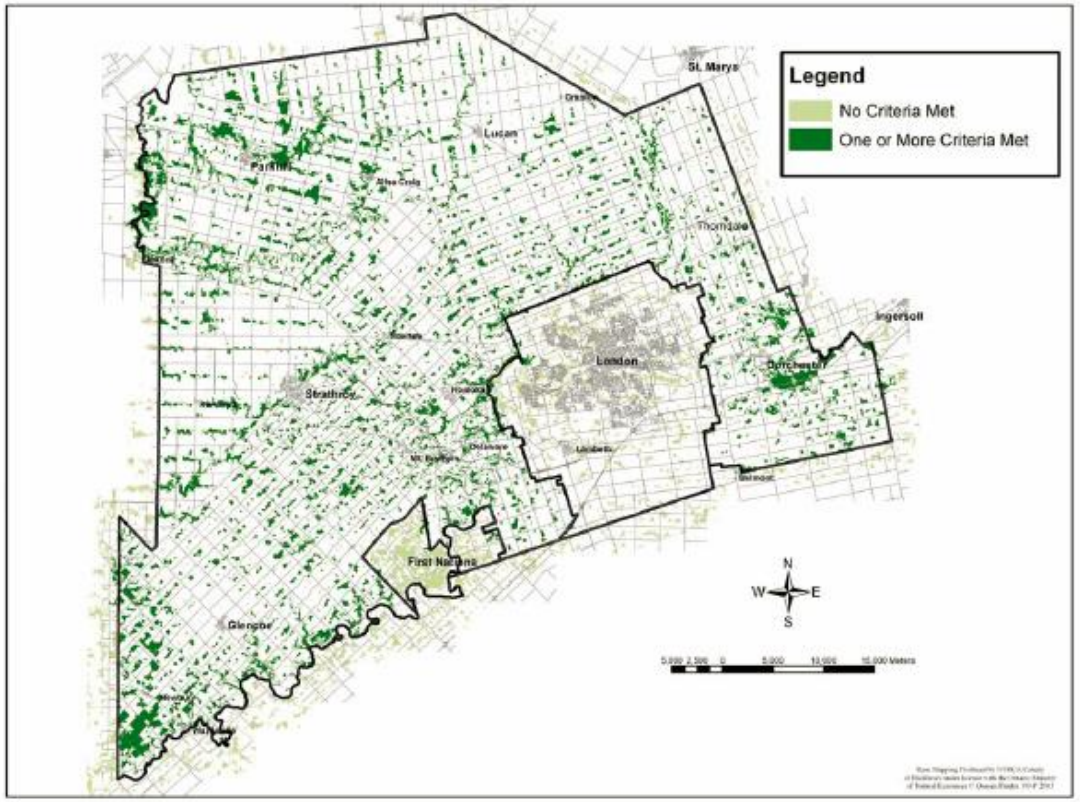


Figure 27. Woodland patches in Middlesex County that meet one or more landscape criteria.

http://www.thamesriver.on.ca/MNHS/MNHS.htm

MNHS Update - Need

- The County Official Plan includes policy direction for ongoing monitoring of the state of the natural environment
- Better photo-imagery available to support a study (2006 and 2010 photography)
- Refined methodology based on work in other areas (particularly Oxford County and Huron County)

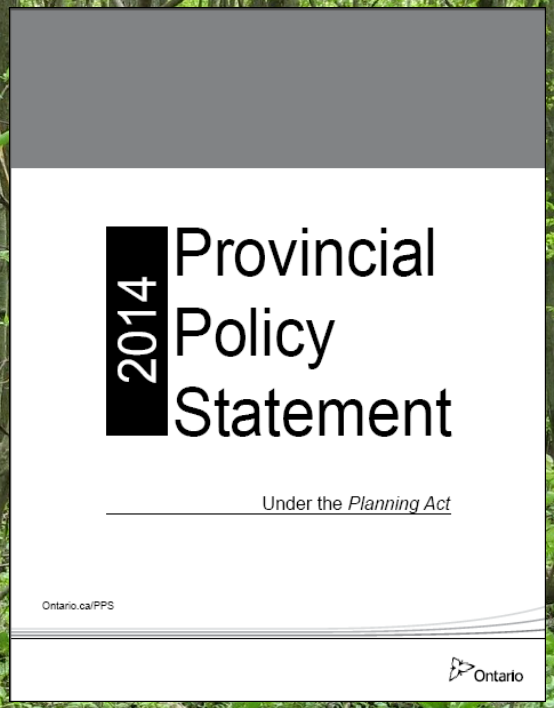
MNHS Update - Need

- Provincial Policy Statement (2005) shift in focus from woodlands to broader natural heritage systems
- New PPS (2014) requirement that Natural Heritage Systems be identified

MNHS and New PPS (2014)

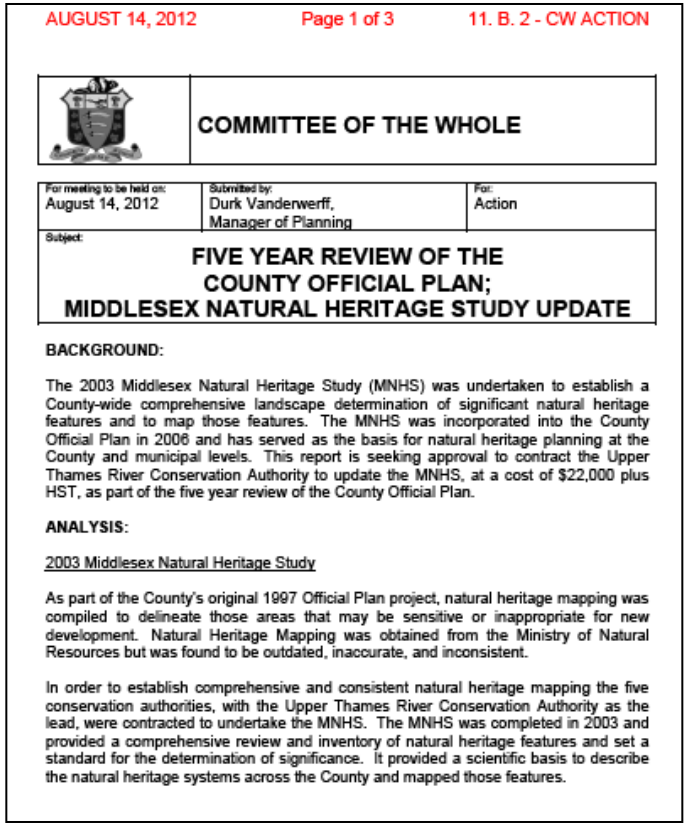
2.1.3 *Natural heritage systems* shall be identified in Ecoregions 6E & 7E[1], recognizing that *natural heritage systems* will vary in size and form in *settlement areas*, *rural areas*, and *prime agricultural areas*.

Natural heritage system: means a system made up of *natural heritage features and areas*, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems. These systems can include *natural heritage features and areas*, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic functions, and working landscapes that enable ecological functions to continue. The Province has a recommended approach for identifying *natural heritage systems*, but municipal approaches that achieve or exceed the same objective may also be used.



MNHS Update

- Proposal developed by Conservation Authorities
- Expand scope from woodlands to broader natural heritage system



AUGUST 14, 2012 Page 1 of 3 11. B. 2 - CW ACTION

COMMITTEE OF THE WHOLE

For meeting to be held on:	Submitted by:	For:
August 14, 2012	Durk Vanderwerff, Manager of Planning	Action

Subject:

FIVE YEAR REVIEW OF THE COUNTY OFFICIAL PLAN; MIDDLESEX NATURAL HERITAGE STUDY UPDATE

BACKGROUND:

The 2003 Middlesex Natural Heritage Study (MNHS) was undertaken to establish a County-wide comprehensive landscape determination of significant natural heritage features and to map those features. The MNHS was incorporated into the County Official Plan in 2006 and has served as the basis for natural heritage planning at the County and municipal levels. This report is seeking approval to contract the Upper Thames River Conservation Authority to update the MNHS, at a cost of $22,000 plus HST, as part of the five year review of the County Official Plan.

ANALYSIS:

2003 Middlesex Natural Heritage Study

As part of the County's original 1997 Official Plan project, natural heritage mapping was compiled to delineate those areas that may be sensitive or inappropriate for new development. Natural Heritage Mapping was obtained from the Ministry of Natural Resources but was found to be outdated, inaccurate, and inconsistent.

In order to establish comprehensive and consistent natural heritage mapping the five conservation authorities, with the Upper Thames River Conservation Authority as the lead, were contracted to undertake the MNHS. The MNHS was completed in 2003 and provided a comprehensive review and inventory of natural heritage features and set a standard for the determination of significance. It provided a scientific basis to describe the natural heritage systems across the County and mapped those features.

MNHS 2014: Study Area

- Corporate County of Middlesex and City of London
- MNHS report and recommendations targeted to the County of Middlesex
- City of London participated as a project partner as the MNHS (2014) provides a regional context for City natural heritage planning

Study Methodology

- Accurate mapping of vegetation polygons using the 2010 ortho-imagery
- Landscape ecology analysis of existing vegetation inventories and the corrected vegetation information to develop landscape criteria
- Strong reliance on the landscape literature and past studies
- Use GIS to model patches that meet criteria

MNHS 2014 - Methodology

- Project guided by a Steering Committee including County, Local Municipal Staff, CA's, MNR and the City of London
- Input obtained from a Technical Committee through a workshop format
  - Participants included Carolinian Canada, Ducks Unlimited, Nature Conservancy, UWO, MNR and CA's
- Peer Review of the science built into the project

Vegetation Communities

- Smallest units (> 0.5ha) of homogeneous vegetation
- 17 types of vegetation communities:

Woodlands (conifer, deciduous, mixed)

Wetland Woodlands (conifer, deciduous, mixed)

Plantations (young, mature, wetland)

Thickets (upland, wetland)

Meadows (upland, marsh)

Connected Water bodies

Major (>20m wide) **Watercourse**

Connected hedgerow

Unvegetated

Vegetation Groups

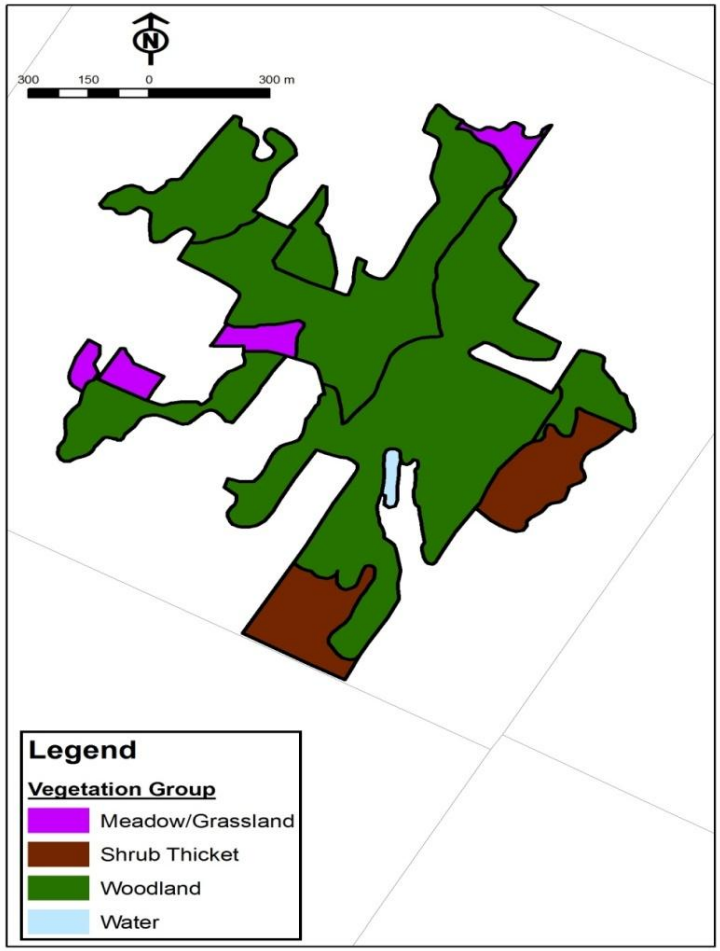
- Broader grouping based on similar ecological patterns and processes:

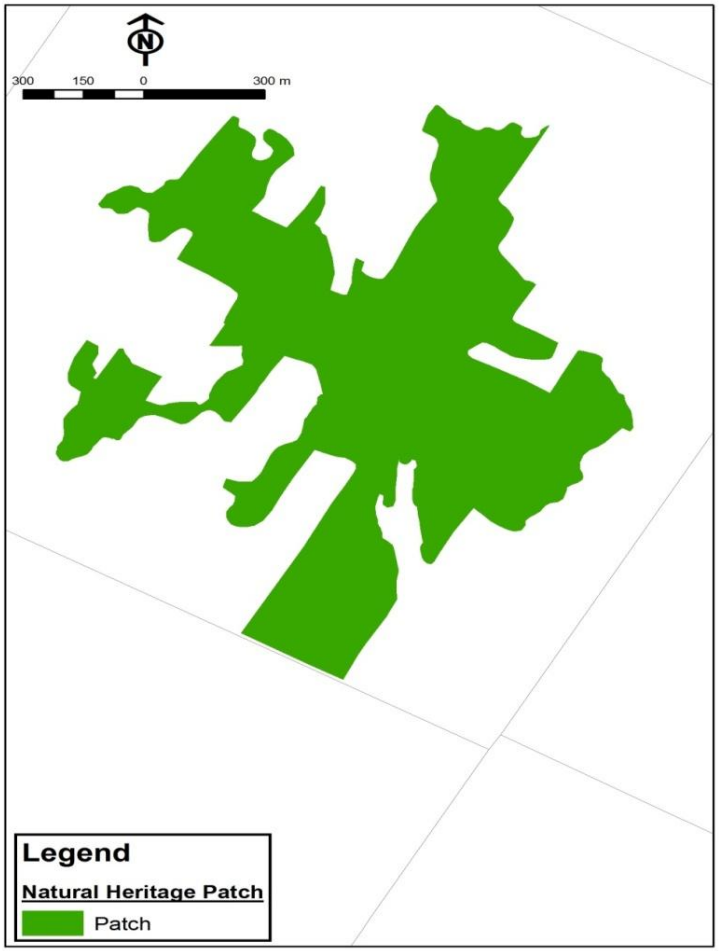
1. **Woodlands = 8** vegetation community types:
    - (conifer, deciduous, mixed) woodland communities
    - (conifer, deciduous, mixed) wetland woodland communities
    - (mature, wetland) plantation communities
2. **Wetlands = 6** vegetation community types:
    - (conifer, deciduous, mixed) wetland woodland communities
    - (plantation, thicket, marsh) wetland communities
3. **Thickets = 3** vegetation community types:
    - (upland, wetland) thicket communities
    - Young plantation communities

Vegetation Groups

4. **Meadows = 2** vegetation community types
   - (upland) meadow community
   - (marsh) meadow community
5. **Water features = 2** vegetation community types
   - Connected water bodies
   - Major watercourse
6. **Hedgerows = 1** vegetation community type
   - Connected hedgerow
7. **Open = 1** vegetation community type
   - Unvegetated vegetation community

VEGETATION PATCH





4 Types of Criteria

1. **Unique Features / Functions**:
   - Valley lands
   - Life Science ANSIs
   - Watercourses
   - Significant Wildlife Habitat
   - Groundwater Dependent Ecosystems
   - Bluffs / Depositional Areas

4 Types of Criteria

2. Size:

- Wetland groups of any size
- Woodland groups > 4 ha
- Thicket groups > 2 ha
- Meadow groups > 10 ha
- Patches > 100ha

4 Types of Criteria

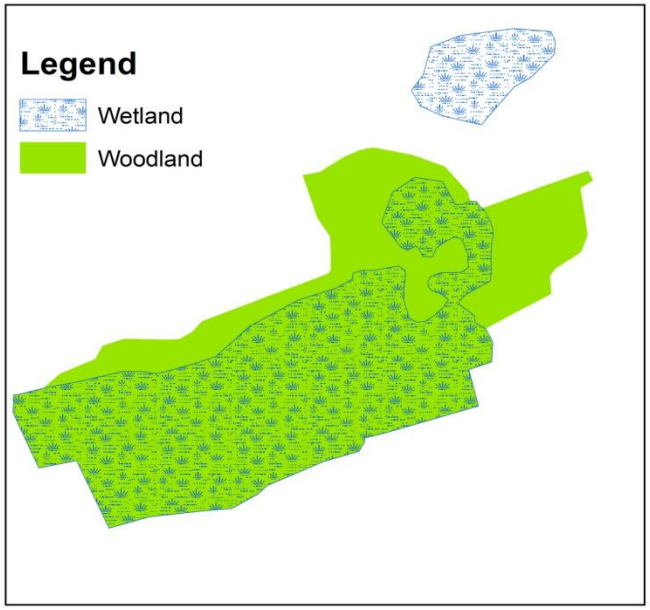
3. **Proximity:**
   - Woodland group within 100m of a large (> 4ha) woodland
   - Meadow group within 100m of a large (> 4ha) woodland OR large (> 2ha) thicket
   - Patch within large (> 100ha) patch

4. **Diversity:**
   - Combinations of vegetation groups and communities

Mapping Results

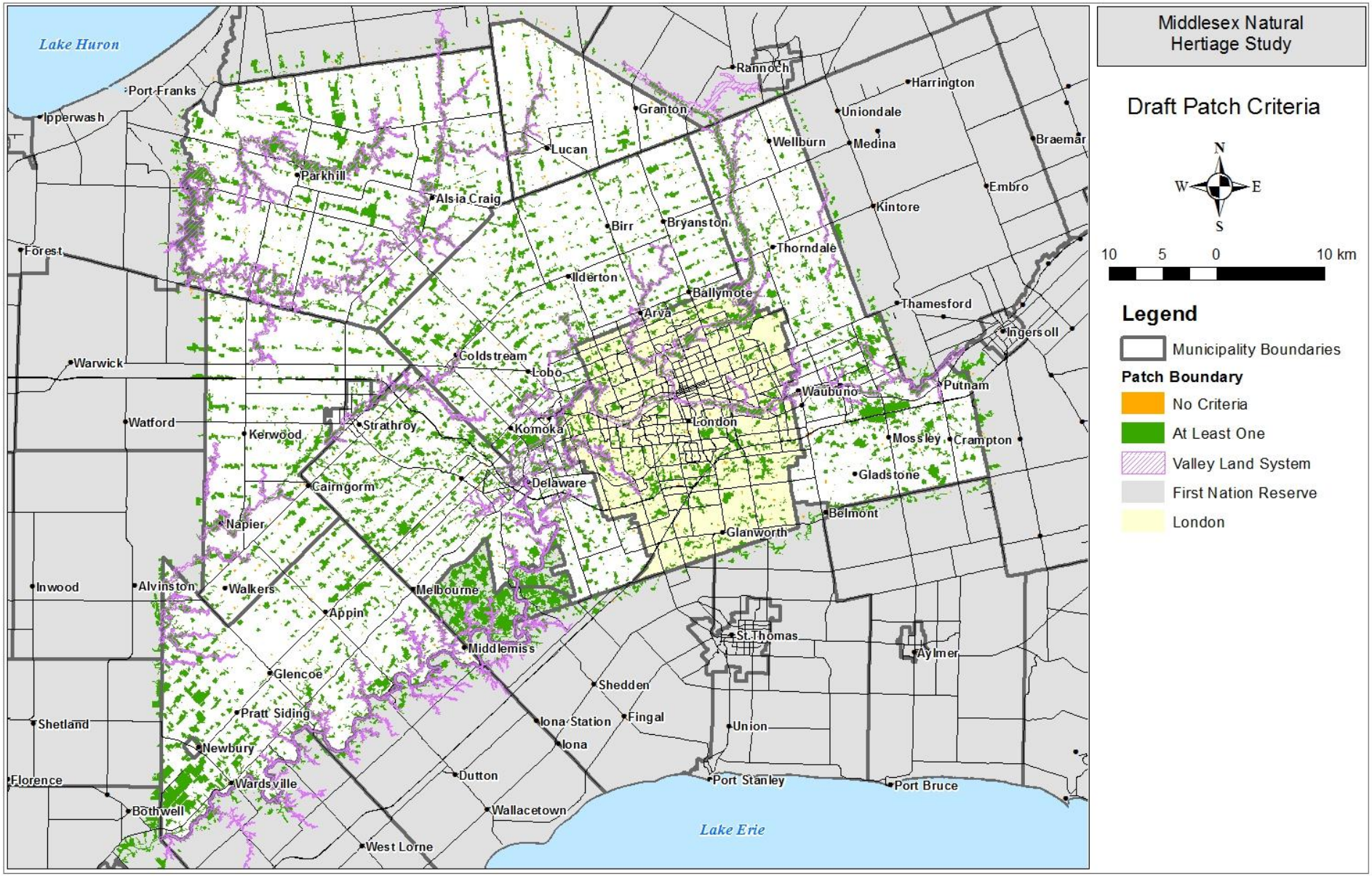
Approximately 20.1% of the County is vegetated:

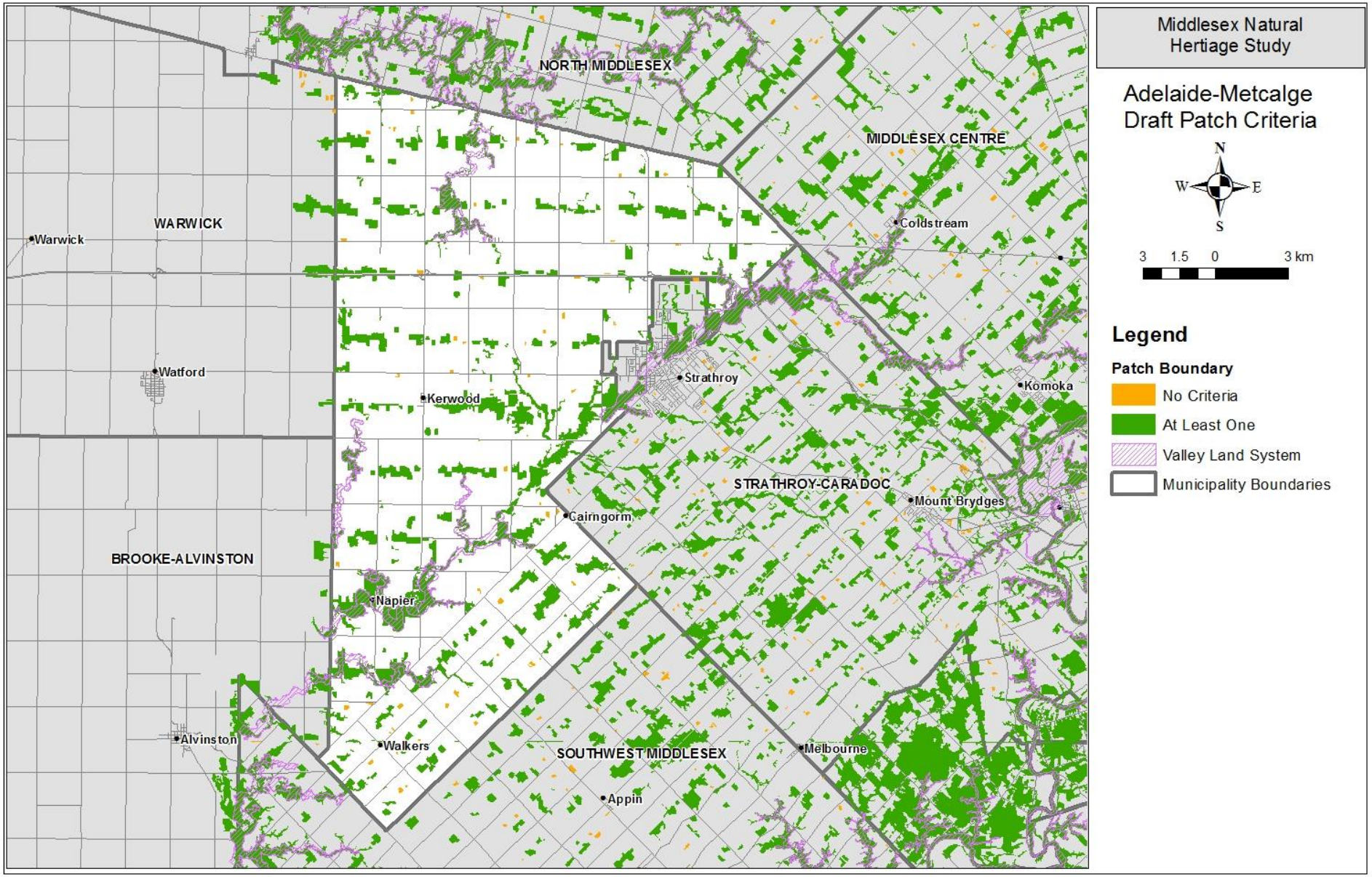
VEGETATION GROUP	PERCENT OF VEGETATED LANDSCAPE	PERCENT OF VEGETATED LANDSCAPE IN WETLAND
WOODLAND	11.56%	5.29%
WETLAND	0.02%	
THICKETS	2.33%	
MEADOW	5.51%	
CONNECTED WATER FEATURE	0.44%	
CONNECTED HEDGEROW	0.24%	
OPEN	UNKNOWN	



Results Of Significance Analysis

- Research concluded that anything that meets one criteria is significant (same as 2003 conclusion).
- 19.7% of the landscape in the County of Middlesex is considered significant, which is approximately 98% of the vegetated features on the landscape.


Middlesex Natural Hertiage Study
Draft Patch Criteria
N
W
E
S
10 5 0 10 km
Legend
Municipality Boundaries
Patch Boundary
No Criteria
At Least One
Valley Land System
First Nation Reserve
London
Lake Huron
Lake Erie
Port Franks
Ipperwash
Forest
Warwick
Watford
Inwood
Alvinston
Florence
Shetland
Bothwell
Wardsville
Newbury
Pratt Siding
Glencoe
Walkers
Napier
Cairngorm
Kerwood
Strathroy
Appin
Melbourne
Middlemiss
Dutton
Wallacetown
West Lorne
Port Stanley
Iona
Iona Station
Fingal
Shedden
Union
St.Thomas
Aylmer
Port Bruce
Delaware
Komoka
Lobo
Goldstream
Parkhill
Alsia Craig
Lucan
Granton
Birr
Bryanston
Ilderton
Arva
Ballymote
Thorndale
Rannoch
Wellburn
Uniondale
Harrington
Medina
Braemar
Embro
Kintore
Thamesford
Ingersoll
Putnam
Waubuno
London
Mossley
Crampton
Gladstone
Belmont
Glanworth


Middlesex Natural Hertiage Study
Adelaide-Metcalge Draft Patch Criteria
N
W
E
S
3 1.5 0 3 km
Legend
Patch Boundary
No Criteria
At Least One
Valley Land System
Municipality Boundaries
NORTH MIDDLESEX
MIDDLESEX CENTRE
WARWICK
Warwick
Coldstream
Watford
Kerwood
Strathroy
Komoka
STRATHROY-CARADOC
Mount Brydges
Cairngorm
BROOKE-ALVINSTON
Napier
Alvinston
Walkers
SOUTHWEST MIDDLESEX
Melbourne
Appin

Recommendations and Implementation

- The MNHS 2014 provides a scientifically based analysis of the Middlesex County landscape
- The study can be implemented through various means including land use planning, Forest Conservation By-Law, stewardship programming, education and monitoring

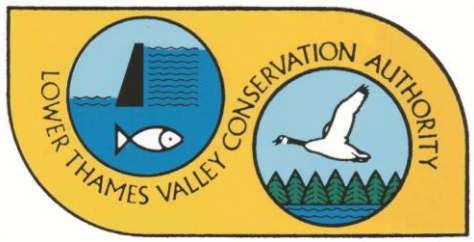
Implementation Example

- The findings from the study can be incorporated into the County Official Plan as part of the 2015 exercise
  - Will need to consider how the system components are dealt with in the official plan
  - Agricultural activity does not eliminate system connectivity
  - Changes in land use (ie. Agricultural to Urban) would need to consider the system impacts

Recommendations - Examples

- Update the County's DAR Guideline document
- Plan for consistent natural heritage policy input and peer reviews
- Future updates of the vegetation information as new photography comes available for use as an official plan monitoring tool
- Meadow management planning to allow for early successional habitat to be provided while managing the risk of losing future development opportunities

Next Steps

- Complete documentation of methodology and findings in a Final Draft Report
- Finalize recommendations
- Presentation of the Final Draft Report to County Council in September
- Deliver the data to the County
- Present to local municipalities
- Natural heritage policy workshops

Questions and Discussion