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## **ANCASTER CREEK SUBWATERSHED**

### STEWARDSHIP ACTION PLAN



*1958 • Celebrating 50 Years of Conservation • 2008*

Endorsed by the Hamilton Conservation Authority  
Board of Directors April 3, 2008



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## **ANCASTER CREEK SUBWATERSHED CHARACTERIZATION**

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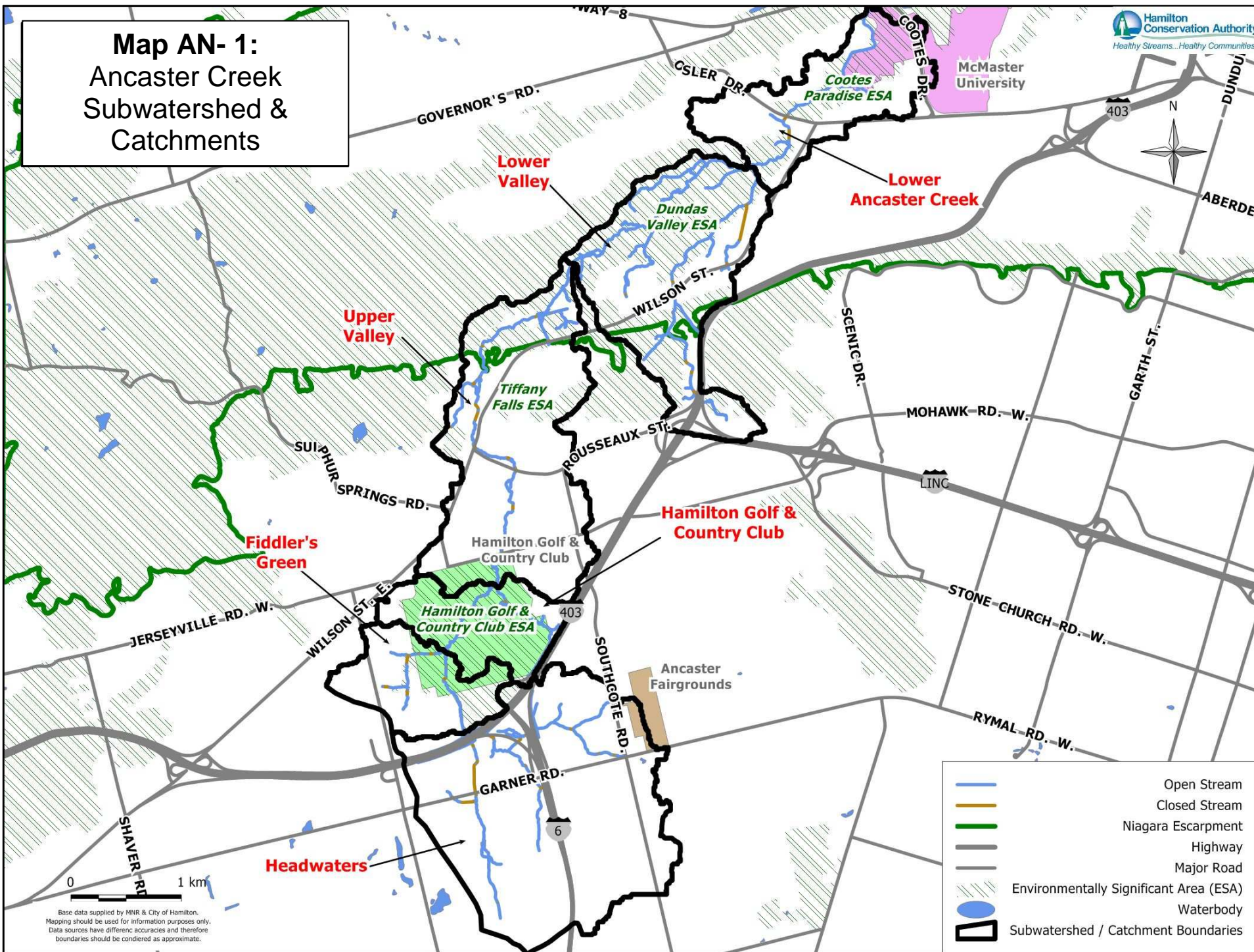
### **GEOGRAPHICAL LOCATION**

Ancaster Creek subwatershed is 13.7 km<sup>2</sup> in area and is comprised of six catchment basins. In descending order from the headwaters to the outlet these are: Headwaters, Fiddler's Green, Hamilton Golf & Country Club, Upper Valley, Lower Valley, and Lower Ancaster Creek (**Map AN- 1**). This subwatershed spans the former municipal boundaries of Ancaster, Dundas and Hamilton, and is also located within three City of Hamilton wards; 1, 12 and 13. The boundaries of this subwatershed range from Fiddler's Green Road in the west to Southcote Road in the east; the southern extent is located between Garner Road and Book Road East. The subwatershed bends to the east, just north of Wilson Street, as the creek makes its way over the Niagara Escarpment until it reaches its outlet into the main branch of Spencer Creek within the Lower Spencer Creek subwatershed upstream of Cootes Drive. Highway 403 passes through this subwatershed and two interchanges are present: Rousseaux Street and Highway 6 South. Major transportation routes found within this subwatershed are Fiddler's Green Road, Southcote Road, Garner Road, Golf Links Road, Rousseaux Street, Wilson Street, Osler Drive, and Cootes Drive.

Ancaster Creek is the only cold water system of the three subwatersheds in this Stewardship Action Plan. The headwaters are located on the tablelands south of Ancaster village and flow north descending the south wall of the Dundas Valley as waterfalls before

proceeding east down the valley (Source Water Protection Halton-Hamilton Region, January 2006). In some cases Ancaster Creek meanders through a valley approximately 20 m deep (R.V. Anderson, 1990 as cited in Source Water Protection Halton-Hamilton Region, January 2006). Although Ancaster Creek has remained in the most part natural, stream system alterations have occurred in order to accommodate for development, and recreational needs of the local communities. The following locations are where major alterations to the natural stream channel have occurred: north and south of Garner Road, at Highway 6 South, west of and within the Hamilton Golf & Country Club, north and south of Rousseaux Street, west of Wilson Street, north and south of Osler Drive, and where Highway 403 intersects with the creek channel.

The Niagara Escarpment is present within both the Upper and Lower Valley catchments of this subwatershed. Additionally, four municipally designated Environmentally Significant Areas (ESAs) are located within this subwatershed: Hamilton Golf & Country Club, Tiffany Falls, Dundas Valley, and Cootes Paradise. These natural areas act as major ecological corridors for terrestrial species as well as serve to maintain water quality and quantity within the stream reaches that pass through these areas, to the benefit of aquatic species.



## NATURAL HISTORY & SIGNIFICANT SPECIES

The maximum and minimum elevation in the Ancaster Creek subwatershed are approximately 250 masl and 80 masl, respectively (Source Water Protection Halton-Hamilton Region, January 2006). In the headwaters the soil type is predominantly sandy loam with silt loam following the stream corridor. At Golf Links Road the distribution of soil type changes to predominantly silt loam with a pocket of sandy loam near the Rousseaux and McNiven area, west of the stream corridor. After Ancaster Creek flows over the escarpment it flows through ravine soils typical of the Dundas Valley with silt loam soils present at the top of these ravines. With the exception of ravine soils following the stream corridor in the Lower Ancaster Creek catchment, all soils are characteristic of an urbanized landscape (**Map AN- 2**).

Wetlands that existed within the Ancaster Creek subwatershed prior to the mid-1980's as well as those wetlands that are still present today are displayed within **Map AN- 3**. It is apparent that hydrological alterations have occurred within this subwatershed in order to accommodate urban development, as well as recreational and agricultural practices. Historically, wetlands followed much of the stream corridor until it met with present day Rousseaux Street. There remain two wetland areas within this subwatershed. One is located where historical wetlands once existed. This area is classified as a swamp and is

situated south-west of the Highway 403 and Highway 6 South interchange following the stream corridor. The second area is an area where wetlands did not exist prior to the mid-1980's. This area is classified as a marsh and is an eastern extension of the swamp area noted. This area crosses Highway 6 South following the stream corridor. Neither of these areas are designated as Provincially Significant Wetlands by the Ontario Ministry of Natural Resources (OMNR). Ontario's wetlands are evaluated through the OMNR Wetland Evaluation System (1993) for their biological, social, and hydrological components and special features. A wetland that is scored high in all four categories will receive a higher class ranking, with Class 1 being the highest. Historically, wetland cover made up 1.1 km<sup>2</sup>, or 8%, of the subwatershed area. Only 0.04 km<sup>2</sup> of wetland area remain, which is only 0.3% of the subwatershed area. Therefore, this subwatershed has lost 96.4% of its historical wetland cover.

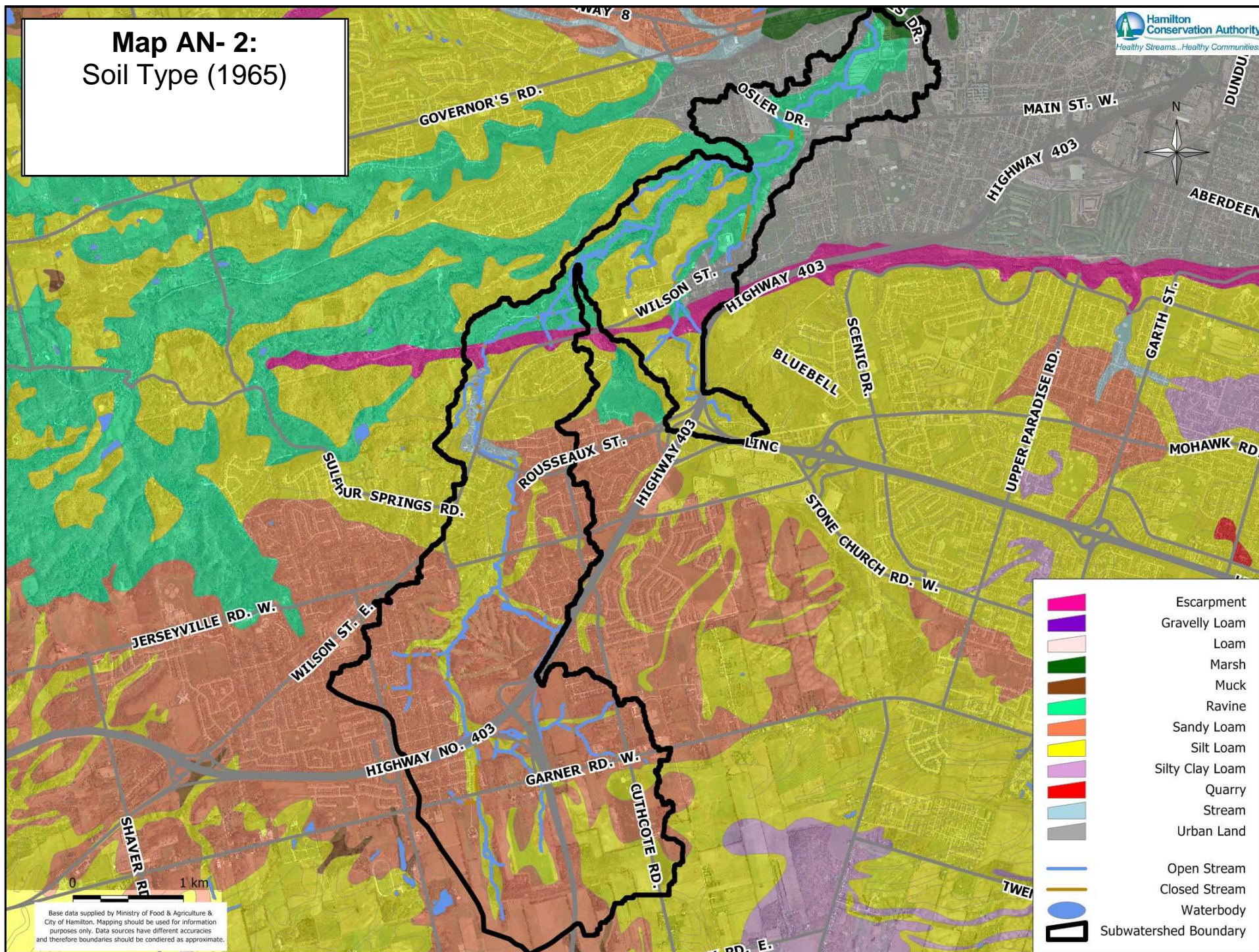
Historical information was not recorded for forest or meadow cover, however current natural land cover statistics are noted within **Table AN- 1**. Forest cover accounts for 28.5% of this subwatershed, while meadow cover is 1.6% of the land base. Based on the digital data provided for this analysis, stream length of the Ancaster Creek and all its tributaries is 34 km.

**Table AN- 1: Natural Land Cover Statistics**

Forest Cover (km <sup>2</sup> )	Wetland Cover (km <sup>2</sup> )	Meadow Cover (km <sup>2</sup> )	Stream Length (km)
3.9	0.04	0.2	34



# Map AN- 2: Soil Type (1965)





Significant species found within the natural areas of this subwatershed are noted within Appendix C. The majority of these species are rare or uncommon within the City of Hamilton and where a species has been designated as a specie at risk by the OMNR it is indicated in the appendix. species that have been classified by the Committee on the Status of Species at Risk in Ontario (COSSARO) and listed by the Ontario Ministry of Natural Resources (MNR) as being at risk. Each species on the list is given a status depending on the degree of risk: *Extinct*, *Extirpated*, *Endangered*, *Threatened* and *Special Concern*. The following are species that are designated by the OMNR under the Ontario Endangered Species Act and can be found within this subwatershed:

#### Endangered

- Bashful Bulrush
- Prothonotary Warbler
- Red Mulberry

#### Endangered (not regulated)

- Acadian Flycatcher
- American Chestnut
- Eastern Milksnake
- Butternut
- American Ginseng

#### Threatened

- Blanding's Turtle
- Common Musk Turtle
- Eastern Spiny Softshell
- Hooded Warbler
- Jefferson Salamander
- Least Bittern
- White Wood Aster

#### Special Concern

- Bigmouth Buffalo
- Black Tern
- Broad Beech Fern
- Cerulean Warbler
- Louisiana Waterthrush
- Monarch
- Northern Map Turtle
- Northern Ribbon Snake
- Woodland Vole

#### Not at Risk

- American Coot
- Common Mudpuppy
- Cooper's Hawk
- Longear Sunfish
- Northern Harrier
- Pickerel Frog
- Quillback
- Sharp-shinned Hawk

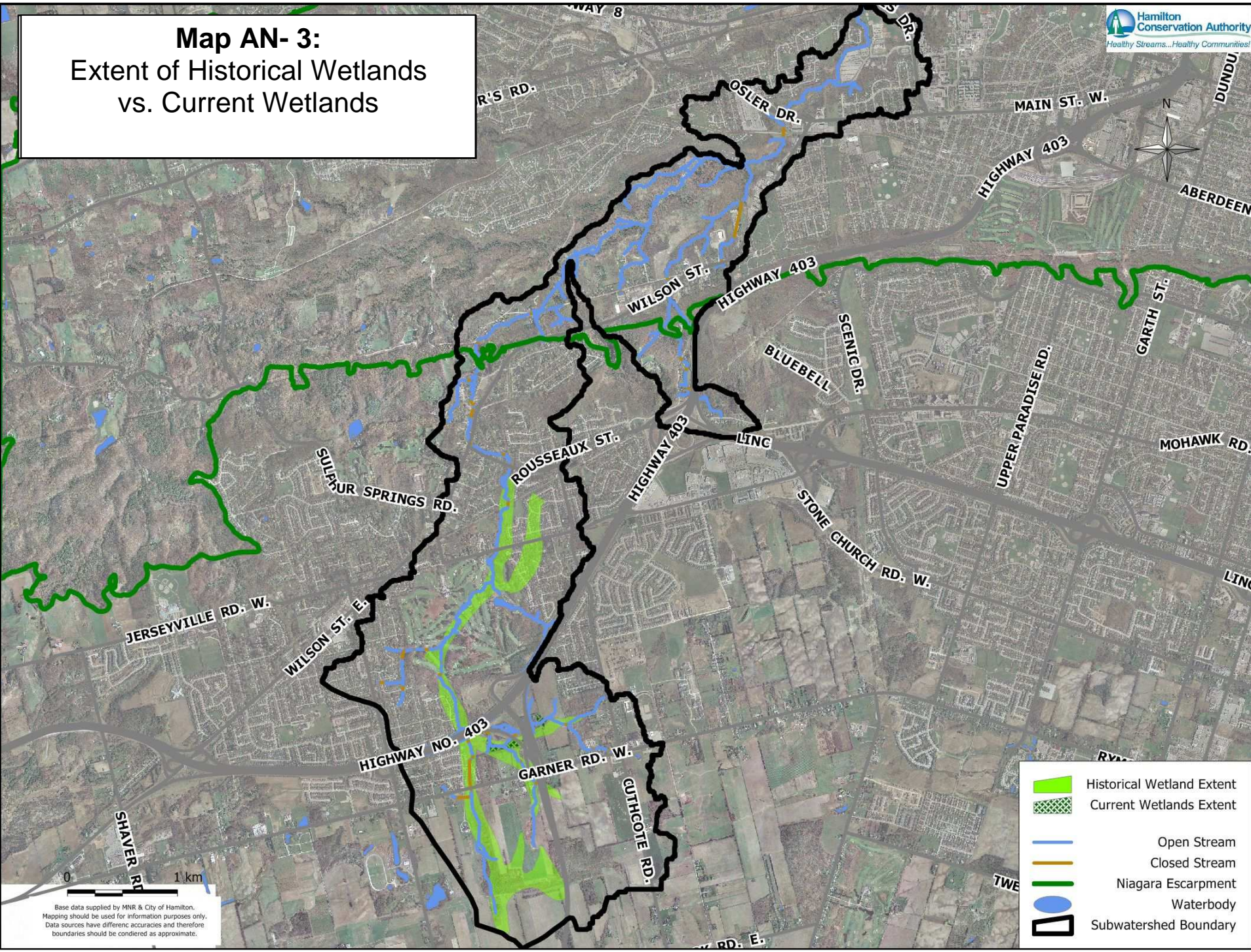
It will be important to create awareness and undertake habitat restoration activities related to these species designated by the OMNR, especially those species that are endangered (not regulated).

Due to the erosivity of the soils in this subwatershed, headwater wetlands must be restored to meet the How Much Habitat is Enough Guidelines as set by Environment Canada, to reduce sediment loading in Spencer Creek and ultimately Cootes Paradise. This may be achieved through the approval of development applications and resultant compensation projects for the proposed development within the Headwaters catchment, with an opportunity for an eco-industrial park.

For more information regarding the natural history of this subwatershed please refer to the Preliminary Watershed Description Report: Hamilton Conservation Watersheds (Source Water Protection Halton-Hamilton Region, January 2006) and the Nature Counts: Hamilton Natural Areas Inventory (Dwyer, J. et al., 2003)



# Map AN- 3: Extent of Historical Wetlands vs. Current Wetlands



Base data supplied by MNR & City of Hamilton.  
Mapping should be used for information purposes only.  
Data sources have different accuracies and therefore  
boundaries should be considered as approximate.



## CULTURAL & STEWARDSHIP HISTORY

Settlers came to the Ancaster area as early as 1790 due to the high well-drained land, good spring water and streams for water power, and because the site was on the early road from Niagara to the western part of the province (Spencer Creek Conservation Authority, 1965). Although the village was founded by Jean Baptiste Rousseaux from Lower Canada and James Wilson from Pennsylvania, Governor Simcoe gave it its name, after the hamlet in Lincolnshire in England (Spencer Creek Conservation Authority, 1965). Hence, Ancaster Creek is named after the village in which it flows.

The approximate population of the Ancaster Creek subwatershed is 5000 persons with a population density of about 365 persons per square kilometre. Current land use within the Ancaster Creek subwatershed is predominantly residential, with open space and agricultural lands being the secondary land use (**Table AN- 2**). Agricultural land use is prominent south of Garner Road with open space mainly consisting on the Hamilton Golf & Country Club property in the south and valleylands in the north of this subwatershed (**Map AN- 4**). Commercial land use is evident along major transportation routes with institutional lands strategically placed among residential areas. Industrial land use is also spread out among the many properties of this subwatershed; however all lie within close proximity, if not along, the stream corridor. Two major utility corridors exist, one in the Headwaters catchment and another in the Lower Ancaster Creek catchment. Impervious surfacing within this subwatershed exceeds standards recommended for healthy stream systems.

In this subwatershed there is potential to naturalize an additional 400 m<sup>2</sup> by enhancing utility corridors to serve as terrestrial habitat. Therefore, it is important to work with our large landowners to restore terrestrial and aquatic habitat in the subwatershed. Additionally, it is equally important to work with our ward councilors to generate support for local stewardship initiatives with the public and private sectors as well as our development industry.

Although there are many properties that do not have natural features present, there are 596 properties that do accommodate forest, wetland, meadow or riparian / aquatic habitat (**Table AN- 3**). Of these landowners, 76 (or 13%) have been contacted by the Hamilton-Halton Watershed Stewardship Program (HHWSP), and 23 (or 30%) have become Watershed Stewards (**Map AN- 5**). This analysis includes rural and urban, public and private landowners by individual property, not landowner name. Therefore there is much

potential within this subwatershed for landowner contact and in turn the establishment of Watershed Stewards. In addition to those landowners who have natural features on their properties, those landowners who do not have natural features on their properties can also act as Watershed Stewards since everyone is affected by what one person does on their property. There is also great opportunity to contact those landowners and create awareness regarding BMPs in an urban environment as they relate to local significant species and storm water management practices.

Currently, Watershed Stewards are predominantly located in both the Upper and Lower Valley catchments, therefore these would be good catchments in which to start community greening projects and Friends of Ancaster groups. There is great opportunity for landowner contact within the Headwaters catchment; properties surrounding the Hamilton Golf & Country Club, along the stream corridor and surrounding the Tiffany Falls ESA in the Upper Valley catchment, as well as along the stream corridor in the Lower Ancaster Creek catchment.

Environment Canada has provided guidelines for forest, wetland and riparian habitat for subwatershed areas and in turn a preliminary analysis has been completed using the guidelines set out by this agency. **Table AN- 4** displays the status of the Ancaster Creek subwatershed when compared to these Federal guidelines.

Due to the high percentage of impervious surfacing and because this subwatershed is a historically cold water system, proper BMPs regarding storm water management must be enforced and must encourage groundwater infiltration in order to maintain or enhance cold water fisheries. This is especially important in the Headwaters catchment since much development is planned for this area of the subwatershed.

Although it appears as though this subwatershed has a large amount of forest cover it still does not meet Environment Canada's How Much Habitat is Enough Guidelines. Forest cover would need to be increased by about 0.2km<sup>2</sup> to meet this guideline, with an emphasis being placed on forest patch shape. Additionally it should be determined whether or not the percentage of forest cover from the forest edge supports interior forest breeding birds.

**Table AN- 2: Land Use Statistics**

Area (km <sup>2</sup> )	Agricultural (km <sup>2</sup> )	Commercial (km <sup>2</sup> )	Industrial (km <sup>2</sup> )	Institutional (km <sup>2</sup> )	Open Space (km <sup>2</sup> )	Residential (km <sup>2</sup> )	Transportation (km <sup>2</sup> )	Utility (km <sup>2</sup> )	Impervious Surfacing (%)
13.7	2.2	0.3	0.04	1.0	2.3	5.6	1.86	0.4	36

**Table AN- 3: Stewardship Statistics**

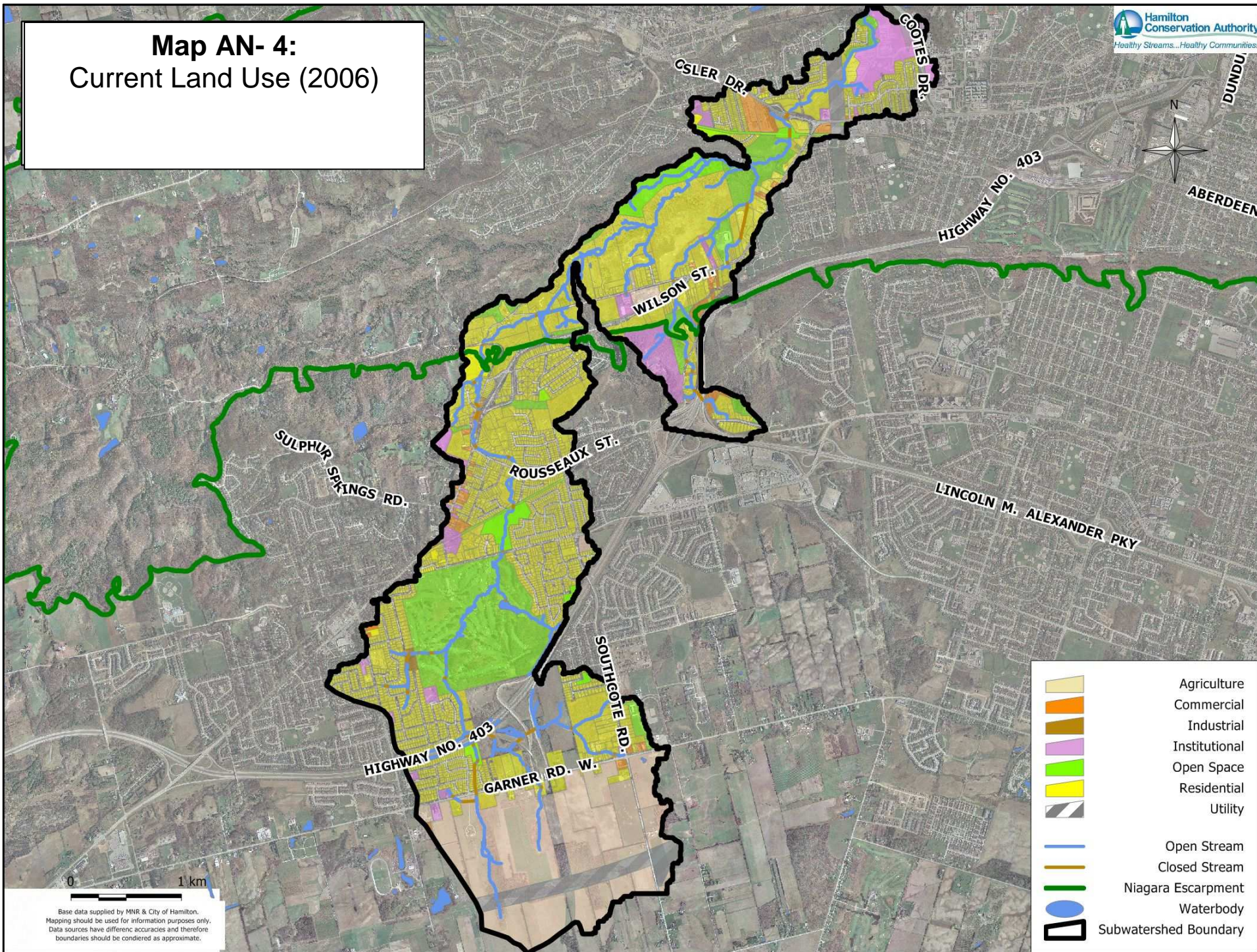
Approximate Population	Population Density (persons / km <sup>2</sup> )	Total # of Properties with Forest, Wetland, Meadow or Watercourse	# of Landowners with Forest, Wetland, Meadow or Watercourse & Contacted by HCA Stewardship	# of HCA Stewardship Watershed Stewards with Forest, Wetland, Meadow or Watercourse	Total # of Landowners in Subwatershed Contacted by HCA Stewardship	Total # HCA Stewardship Watershed Stewards in Subwatershed
5000	365	596	76	23	81	25

**Table AN- 4: Environment Canada's How Much Habitat is Enough Guidelines**

PARAMETER	% Wetlands	% Stream Naturally Vegetated	Total Suspended Sediments	% Impervious Surfacing	Fish communities	% Forest Cover	Size of largest Forest patch	% Forest Cover 100m & 200m from Forest edge
<b>GUIDELINE</b>	6	75% with 30m buffer on either side	Below 25 mg/L	< 10	Based on historical data / watershed characteristics	30	2km <sup>2</sup> & min 500m wide	10% < 100m from forest edge
<b>SUBWATERSHED STATUS</b>	0.3	n/a	2006-2007 period – 1 reading above 25 mg/L	36	Historically cold – now cool to warm	28.5	1.8km <sup>2</sup> & sections are 500m wide	n/a



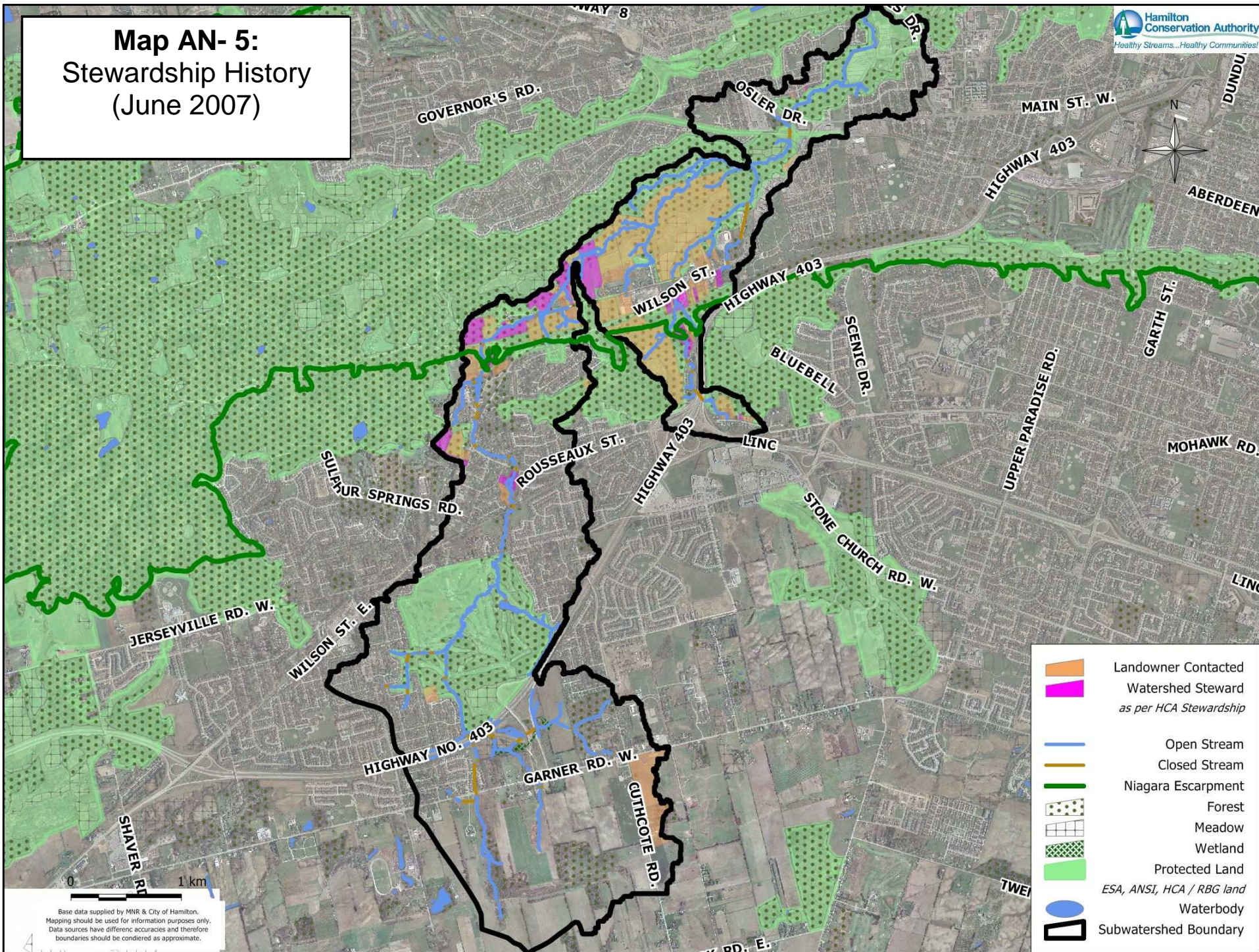
# Map AN- 4: Current Land Use (2006)



Base data supplied by MNR & City of Hamilton.  
Mapping should be used for information purposes only.  
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boundaries should be considered as approximate.



# Map AN- 5: Stewardship History (June 2007)



Base data supplied by MNR & City of Hamilton.  
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boundaries should be considered as approximate.



## SUBWATERSHED STRESSES & STEWARDSHIP ACTIONS

There are fifteen Subwatershed-wide Stresses identified within the Ancaster Creek subwatershed. Three of these are considered Dominant Stresses while the others are considered Associated Stresses as they directly relate to the Dominant Stresses. These stresses and their relationships to one another are listed in **Table AN- 5**.

**Table AN- 6** outlines the Stewardship Actions and measurable targets for each of the Subwatershed-wide Stresses listed in **Table AN-5**; the Dominant Stresses are highlighted in yellow for quick reference. Additionally, each Dominant and Associated Stress has Site-level Stresses identified on the catchment maps, the details of which are within the corresponding catchment datasheets. Within the Ancaster Creek subwatershed, 75 Site-level Stresses have been identified. Inventories and the location of the Site-level stresses found in each of the catchments are listed under the Stress description in **Table AN-6**.

Erosion stresses have been noted within both the Development and Habitat Degradation Dominant Stress categories and all Storm water Mismanagement Stresses have been noted under both the Development and Detachment from Nature Dominant Stress categories as the Stewardship Actions directly relate to both of these Dominant Stresses.

In summary, future development in the headwaters of this subwatershed is of primary concern to the fisheries potential as it increases the potential for erosion downstream. Present natural systems (aquatic & terrestrial) must remain intact and preserved in order to keep the integrity of this historically coldwater system. In order to maintain or enhance the water quality of this subwatershed, contamination as a result of salt application on major arterial roadways must be reduced. Wetland and forest restoration in the headwaters may also be of benefit to mitigate existing erosion resulting from past development. Additionally, phosphorus loading and pesticide use are of great concern in this area as are often used in lawn care practices.



Areas to highlight in this subwatershed Stewardship Action Plan are; the extensive natural areas surrounding the Ancaster Creek valley in the lower portion, as well as the potential for establishing a Friends of Ancaster group surrounding Old Dundas Road. Also, there are many accessible waterfalls located within in this subwatershed that have the potential to


serve as excellent awareness opportunities through interpretive signage & trail opportunities. These eco-tourism sites can be incorporated into the enhancement of noted ecological linkages, ensuring connectivity for terrestrial species to reach Cootes Paradise Marsh through this urban environment.


DOMINANT STRESS	ASSOCIATED STRESS
Development (DV)	Erosion (ER)
	Storm Water Mismanagement (SW)
	Water Contamination through Transportation Corridors (TC)
Detachment from Nature (DT)	Eco-tourism Related Degradation (ET)
	Storm Sewer Outfalls (SO)
	Storm Water Mismanagement (SW)
Terrestrial Habitat Degradation & Lack of Riparian Buffer (HR)	Channelized / Buried Streams (CB)
	Debris Jams (DJ)
	Encroachment (EN)
	Erosion (ER)
	On-line Ponds / Culverts (PC)
	Phosphorus Loading (PL)
	Pesticide Use (PS)
	Plowed Watercourses (PW)


**Table AN- 5:** Dominant & Associated Subwatershed-wide Stresses


Table AN- 6: Stewardship Actions & Inventories of Site-level Stresses

SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
<p><b>Channelization / Buried Streams</b> Map Code: CB</p>  <p><b>Definition:</b> The structural alteration of a stream channel, usually involves straightening of meanders and increasing gradient which increases velocity and erosion potential.</p> <hr/> <p><b>Inventory of Sites Identified</b> = 2</p> <p><b>Catchment Locations:</b> Headwaters (1) Fiddler's Green (1)</p> <hr/> <p><b>Audience:</b> CITY / HHHBA / developers / private &amp; public landowners</p>	<p><b>2008-2012:</b> Utilize workshops, information sessions, literature, webpages, interpretive signage &amp; direct landowner contact to create awareness regarding the detrimental effects of channelized and buried streams;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> DFO / HCA / MNR / Ont. Stewardship Council / HHWSP</li> </ul>	<p><b>By 2010:</b> Identify sites for undertaking buried stream "daylighting" projects in the subwatershed;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> HCA / CITY / MNR / post-sec. schools / HHWSP</li> </ul> <p><b>By 2010:</b> Assess landowner motivation for contributing to natural channel design;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> HCA / MNR / post-sec. schools / HHWSP</li> </ul> <p><b>By 2012:</b> Inventory illegal sewer hookups by building on the Cross Connections of Sanitary Services into Storm Sewers study undertaken in 2003;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / MNR / post-sec. schools</li> </ul>	<p><b>2011-2012:</b> Focus riparian zone rehabilitation to areas downstream of channelized sites, to reduce flow velocities, erosion and sedimentation, with a goal of two projects per year;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / DFO / FSRT / HCA / Ont. Stewardship Council / landowners &amp; citizens / HHWSP</li> <li>▪</li> </ul> <p><b>By 2012:</b> Work with private landowners to undertake one "daylighting" / natural channel design project;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / DFO / FSRT / HCA / Ont. Stewardship Council / landowners &amp; citizens / HHWSP</li> </ul>
<p><b>Debris Jams</b> Map Code: DJ</p>  <p><b>Definition:</b> The accumulation of large woody debris across a stream channel which impedes flow and prevents fish migration.</p> <hr/> <p><b>Inventory of Sites Identified</b> = 0</p> <hr/> <p><b>Audience:</b> CITY / private &amp; public landowners</p>	<p><b>2008-2012:</b> Utilize workshops, information sessions, literature, webpages, interpretive signage &amp; direct landowner contact to create awareness regarding the environmental impacts of debris jams as fish barriers &amp; flooding hazards;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / MNR / Ont. Stewardship Council / HHWSP</li> </ul>	<p><b>By 2010:</b> Complete an assessment of creek/in-stream flow barriers that are prone to debris jams and cause barriers to fish migration, including the prioritization of barriers to be removed;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / MNR / post-sec. schools / HHWSP</li> </ul> <p><b>By 2010:</b> Assess landowner motivation for contributing to barrier removal projects;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / MNR / post-sec. schools / HHWSP</li> </ul>	<p><b>2011-2012:</b> Remove debris jams based on the barrier removal project recommendations;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / DFO / FSRT / HCA / Ont. Stewardship Council / landowners &amp; citizens / HHWSP</li> </ul>


SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
<p><b>Detachment from Nature</b>  <b>Map Code: DT</b></p> <p><b>Definition:</b> The condition of people disassociating their existence from nature.</p>  <p><b>Inventory of Sites Identified = 5</b></p> <p><b>Catchment Locations:</b>  Headwaters (2)  Fiddler's Green (1)  Upper Valley (2)</p> <p><b>Audience:</b> private &amp; public landowners</p>	<p><b>2008-2012:</b> Initiate a community greening project with watershed partners to deliver messaging to targeted audiences. Utilize workshops, information sessions, literature, webpages &amp; direct landowner contact to create awareness regarding urban BMPs and the ecological significance of natural features;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BARC / CITY / FSRT / Green Venture / HCA / Ont. Stewardship Council</li> </ul> <p><b>2008-2012:</b> Erect creek crossing &amp; ecological corridor signage along roadways;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BARC / CITY / FSRT / Green Venture / HCA / Ont. Stewardship Council / WPN</li> </ul> <p><b>2008-2012:</b> Implement Adopt-a-Creek projects in communities where Friends of groups are possible;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BARC / Environment Hamilton / HCA / school boards / landowners &amp; citizens / HHWSP</li> </ul> <p><b>2008-2012:</b> Continue to implement the Watershed Steward Award Program;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BARC / Environment Hamilton / HCA / school boards / landowners &amp; citizens / HHWSP</li> </ul>	<p><b>By 2011:</b> Utilize citizen groups to conduct local watershed monitoring &amp; reporting projects (including water quality, naturalization projects &amp; litter hotspots);</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BARC / Environment Hamilton / HCA / school boards / landowners &amp; citizens</li> </ul>	<p><b>By 2010:</b> Initiate a minimum of one volunteer-based program to complete restoration projects on private &amp; public lands with local landowners including schoolyard naturalization, litter clean up, removal of encroaching material, etc.;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> FSRT / HCA / Ont. Stewardship Council / school boards landowners &amp; citizens / HHWSP</li> </ul>


SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
<p><b>Development Map Code: DV</b></p>  <p><b>Definition:</b> The process of developing populated settlements; including housing and supporting infrastructure.</p> <hr/> <p><b>Inventory of Sites Identified = 9</b></p> <p><b>Catchment Locations:</b>  Headwaters (4)  Upper Valley (2)  Lower Ancaster Creek (3)</p> <hr/> <p><b>Audience:</b> CITY / HHHBA / developers / private landowners</p>	<p><b>2008-2012:</b> Host annual training sessions for City staff &amp; developers to create awareness regarding the incorporation of development related BMPs into planning applications (i.e. pervious pavement, green rooftops, storm water management, road-salt alternatives, snow-piling, erosion &amp; sediment control measures, compliance &amp; enforcement, etc.);</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BARC / CITY / DFO / FSRT / Green Venture / HCA / MTO</li> </ul> <p><b>2008-2012:</b> Apply Yellow Fish Road to all catchbasins on streets and in parking areas to educate private landowners post-development;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BARC / CITY / DFO / FSRT / Green Venture / HCA / MTO</li> </ul>	<p><b>2008-2012:</b> Continue to complete ecological surveys (using the Ecological Land Classification system) to ensure species at risk habitat or rare ecological areas are not disrupted;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> CITY / HCA / post-sec. schools</li> </ul> <p><b>2008-2012:</b> Continue to incorporate downstream assessments of creek conditions, with recommendations for improvement, as part of the subwatershed-wide subwatershed studies conducted as part of new Greenfield development planning;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> CITY / HCA / post-sec. schools</li> </ul> <p><b>2008-2012:</b> HCA staff to develop an internal mechanism to ensure that BMP's and Stewardship Actions to preserve and enhance habitat are addressed in development application prior to construction;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> BARC / CITY / DFO / FSRT / Green Venture / HCA / MTO</li> </ul>	<p><b>2008-2012:</b> Use the terrestrial habitat and ecological linkages identified in this plan to preserve &amp; rehabilitate these areas as part of new Greenfield developments in the subwatershed;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / CITY</li> </ul> <p><b>2008-2012:</b> Enhance groundwater recharge by ensuring that 70% of all land, post construction must remain pervious as a condition for development application approval;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / CITY</li> </ul> <p><b>2008-2012:</b> Implement the fish habitat buffer requirements for warm and coldwater streams as outlined in the HCA Planning and Regulations Policy and Guidelines document (30m setback for coldwater systems and 15m setback for warmwater systems);</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / CITY</li> </ul>


SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
<p><b>Encroachment</b> <b>Map Code: EN</b></p>  <p><b>Definition:</b> The act of undertaking practices on another person's property, i.e. erecting structures, planting gardens, disposal of waste.</p> <hr/> <p><b>Inventory of Sites Identified = 0</b></p> <hr/> <p><b>Audience:</b> private &amp; public landowners</p>	<p><b>2008-2012:</b> Utilize workshops, information sessions, literature, webpages, signage &amp; direct landowner contact to create awareness regarding encroachment impacts to terrestrial habitat as well as the ecological significance of riparian buffers &amp; natural areas (public lands);</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / HCA / Ont. Stewardship Council / RBG / local nurseries &amp; landscaping co.'s / HHWSP</li> </ul> <p><b>2008-2012:</b> Utilize workshops, information sessions, literature, webpages, interpretive signage &amp; direct landowner contact to create awareness regarding encroachment impacts to terrestrial habitat as well as the ecological significance of riparian buffers &amp; natural areas (private lands);</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / HCA / Ont. Stewardship Council / RBG / local nurseries &amp; landscaping co.'s / HHWSP</li> </ul> <p><b>By 2010:</b> Work with local nurseries &amp; landscaping co.'s to educate / encourage landowners to use native plants;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> CITY / HCA / Ont. Stewardship Council / RBG / Green Venture / local nurseries &amp; landscaping co.'s / HHWSP</li> </ul>	<p><b>2009-2012:</b> Utilize citizen groups to monitor restored sites on an annual basis to ensure mitigation of encroachment on public lands remains effective &amp; to encourage neighbour-to-neighbour mentoring;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / landowners &amp; citizens / HHWSP / CITY / RBG</li> </ul>	<p><b>2008-2012:</b> Continue to work with neighbours to encourage community events to remove existing encroachments on public lands;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> FSRT / HCA / Ont. Stewardship Council / landowners &amp; citizens / HHWSP / RBG / CITY</li> </ul>



SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
<p><b>Erosion</b> <b>Map Code: ER</b></p>  <p><b>Definition:</b> The process of eroding or the condition of being eroded; commonly occurs as scouring or slumping.</p> <hr/> <p><b>Inventory of Sites Identified = 10</b></p> <p><b>Catchment Locations:</b>  Headwaters (1)  Fiddler's Green (1)  Hamilton Golf &amp; C'ntry Club (1)  Upper Valley (4)  Lower Valley (1)  Lower Ancaster Creek (2)</p> <hr/> <p><b>Audience:</b> CITY / HHHBA / developers / private &amp; public landowners</p>	<p><b>2008-2012:</b> Host training sessions for City staff and developers to create awareness regarding BMPs &amp; importance of properly maintained erosion / sediment control measures &amp; enforcement;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> CITY / DFO / HCA / Ont. Stewardship</li> </ul> <p><b>2008-2012:</b> Utilize workshops, information sessions, literature, webpages, interpretive signage &amp; direct private &amp; public landowner contact to create awareness regarding the importance of riparian buffers &amp; proper land management practices;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / DFO / HCA / Ont. Stewardship Council / HHWSP</li> </ul>	<p><b>By 2010:</b> Complete field study of stream morphology, determining erosion hotspots &amp; associated causes;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / HCA / post-sec. schools</li> </ul>	<p><b>2008-2012:</b> Utilize enforcement scheme to enforce maintenance of erosion / sediment control measures on new development sites;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> DFO / CITY / HCA / Ont. Stewardship Council / landowners &amp; citizens</li> </ul> <p><b>2008-2012:</b> Reduce erosion and promote awareness through the completion of a streambank stabilization / natural channel design demonstration project;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> DFO / CITY / HCA / Ont. Stewardship Council / landowners &amp; citizens / HHWSP</li> </ul> <p><b>2008-2012:</b> Undertake a minimum of one riparian buffer project on private &amp; public lands to reduce erosion. Promote no mow zones a minimum of <b>3m from top of bank on public and private lands;</b></p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> DFO / CITY / HCA / Ont. Stewardship Council / landowners &amp; citizens / HHWSP</li> </ul>





SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
<p><b>Eco-Tourism Related Degradation</b> Map Code: ET</p>  <p><b>Definition:</b> Recreational activities occurring in natural areas that inadvertently degrade the natural features of the area.</p> <hr/> <p><b>Inventory of Sites Identified = 7</b></p> <p><b>Catchment Locations:</b> Upper Valley (6) Lower Valley (1)</p> <hr/> <p><b>Audience:</b> visitors to natural areas</p>	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
	<p><b>2008-2012:</b> Provide signage noting the environmental significance of natural areas &amp; BMPs for eco-tourists;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / HCA / Ont. Stewardship Council / RBG</li> </ul>	<p><b>2009-2012:</b> When undertaking master planning exercises, consider developing trails along ecological linkages noted in study area;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BTA / CITY / HCA / RBG</li> </ul>	<p><b>2010-2012:</b> Develop trails to meet guidelines set in HCA's Planning &amp; Regulation Policies &amp; Guidelines;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BTA / CITY / HCA / RBG</li> </ul>


SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
<p><b>Terrestrial Habitat Fragmentation &amp; Lack of Riparian Buffers</b>  <b>Map Code: HR</b></p>  <p><b>Definition:</b> Disruption of large continuous tracts of habitat; often occurring along watercourses.</p> <hr/> <p><b>Inventory of Sites Identified = 11</b></p> <p><b>Catchment Locations:</b>  Headwaters (3)  Fiddler's Green (1)  Hamilton Golf &amp; C'ntry Club (1)  Upper Valley (2)  Lower Valley (3)  Lower Ancaster Creek (1)</p> <hr/> <p><b>Audience:</b> private &amp; public landowners (CITY / golf courses / HCA / HYDRO ONE / MTO / RBG / school boards)</p>	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
	<p><b>2008-2012:</b> Meet with public landowners to create working relationship for land stewardship on public lands;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> HCA / Ont. Stewardship Council / HHWSP</li> </ul> <p><b>2008-2012:</b> Utilize workshops, information sessions, literature, webpages, interpretive signage &amp; direct private landowner contact to create awareness regarding the importance of riparian buffers &amp; natural areas;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> HCA / Ont. Stewardship Council / HHWSP</li> </ul> <p><b>2009-2012:</b> Create demonstration sites on public lands that focus on varying types of terrestrial and aquatic restoration projects;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / FSRT / HCA / Ont. Stewardship Council / school boards / landowners &amp; citizens / HHWSP</li> </ul>	<p><b>2008-2009:</b> Develop How Much Habitat is Enough targets &amp; potential restoration sites for each subwatershed, as well as specific areas to connect using eco-link recommendations in catchment summaries &amp; determine specific species habitat to target;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / HCA / post-sec. schools / HHWSP</li> </ul> <p><b>2008-2009:</b> Assess landowner motivation for increasing forest, wetland, riparian &amp; meadow / prairie habitat;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / HCA / post-sec. schools / HHWSP</li> </ul>	<p><b>2008-2012:</b> Contact all landowners of natural areas and watercourses. A minimum of one Watershed Steward Award Recipient and one rehabilitation project to be completed;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / FSRT / HCA / Ont. Stewardship Council / school boards / landowners &amp; citizens / HHWSP</li> </ul> <p><b>2009-2012:</b> Undertake a minimum of one restoration project per year on public lands, with an emphasis on utility corridors, for connectivity and demonstration sites;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / FSRT / HCA / Ont. Stewardship Council / school boards / landowners &amp; citizens / HHWSP</li> </ul>


SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
<p><b>On-line Ponds and Culverts</b> Map Code: PC</p>  <p><b>Definition:</b> In-stream structures that when improperly designed, inadvertently create barriers to water flow and fish migration.</p> <hr/> <p><b>Inventory of Sites Identified = 7</b></p> <p><b>Catchment Locations:</b> Headwaters (1) Fiddler's Green (1) Hamilton Golf &amp; C'ntry Club (1) Upper Valley (3) Lower Valley (1)</p> <hr/> <p><b>Audience:</b> CITY / private &amp; public landowners</p>	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
	<p><b>2008-2012:</b> Utilize workshops, information sessions, literature &amp; webpage, interpretive signage &amp; direct landowner contact to create awareness regarding environmental effects of on-line ponds;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> DFO / HCA / MNR / Ont. Stewardship Council / HHWSP</li> </ul>	<p><b>By 2010:</b> Assess landowner motivation for removing/retrofitting existing on-line ponds;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> HCA / MNR / post-sec. schools / local eng. co.'s / HHWSP</li> </ul>	<p><b>2008-2012:</b> Rehabilitate/retrofit a minimum of one on-line pond;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> DFO / CITY / HCA / post-sec. schools / local eng. co.'s / HHWSP</li> </ul>
	<p><b>2008-2011:</b> Utilize workshops, information sessions, literature &amp; webpages, interpretive signage &amp; direct landowner contact to create awareness regarding environmental effects of perched &amp; closed bottom culverts;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> DFO / HCA / MNR / Ont. Stewardship Council / HHWSP</li> </ul>	<p><b>2008-2012:</b> Use local colleges / universities or volunteer consultants to complete studies &amp; design for rehabilitation projects</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / MNR / post-sec. schools / local eng. co.'s / HHWSP</li> </ul> <p><b>2010:</b> Assess landowner motivation for removing/retrofitting existing perched and/or closed bottom culverts;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / MNR / post-sec. schools / local eng. co.'s / HHWSP</li> </ul> <p><b>2008-2012:</b> Use local colleges / universities or volunteer consultants to complete studies &amp; designs for rehabilitation projects;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / MNR / post-sec. schools / local eng. co.'s / HHWSP</li> </ul>	<p><b>2008-2012:</b> Rehabilitate/retrofit a minimum of one perched &amp; closed bottom culvert;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> DFO / CITY / HCA / post-sec. schools / local eng. co.'s / HHWSP</li> </ul>

SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
<p><b>Phosphorous Loading</b> Map Code: PL</p>  <p><b>Definition:</b> Excessive phosphorous being inputted into a watercourse; often resulting from the application of fertilizer.</p> <hr/> <p><b>Inventory of Sites Identified = 1</b></p> <p><b>Catchment Locations:</b> Hamilton Golf &amp; C'ntry Club (1)</p> <hr/> <p><b>Audience:</b> private &amp; public landowners</p>	<p><b>2008-2012:</b> Utilize workshops, information sessions, literature &amp; webpages, interpretive signage &amp; direct landowner contact to create awareness regarding environmental impacts of phosphorus loading &amp; alternatives to lawn fertilization;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / RBG / HHWSP / Green Venture</li> </ul>	<p><b>In 2009:</b> Develop reduction in phosphorus loading targets &amp; identify potential mitigation sites for each subwatershed;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / RBG / post-sec. schools / HHWSP</li> </ul> <p><b>2009:</b> Assess landowner motivation for reducing lawn fertilization;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / RBG / post-sec. schools / HHWSP / Green Venture</li> </ul> <p><b>In 2008:</b> Model phosphorus loading in the subwatersheds and compare against RAP objectives;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / RBG / post-sec. schools / RAP</li> </ul>	<p><b>2009-2012:</b> Work toward an 80% reduction in phosphorus loading by encouraging citizens to conduct a reduction in lawn fertilization (20% reduction/yr through the promotion of over-seeding, mulching &amp; BMPs);</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / HCA / Ont. Stewardship Council / HHWSP / Green Venture</li> </ul>
<p><b>Pesticide Use</b> Map Code: PS</p>  <p><b>Definition:</b> The application of pesticides to control perceived pests.</p> <hr/> <p><b>Inventory of Sites Identified = 2</b></p> <p><b>Catchment Locations:</b> Fiddler's Green (1) Hamilton Golf &amp; C'ntry Club (1)</p> <hr/> <p><b>Audience:</b> private &amp; public landowners</p>	<p><b>2008-2009:</b> Utilize workshops, information sessions, literature &amp; webpages, interpretive signage &amp; direct landowner contact to create awareness regarding environmental impacts of pesticide / herbicide use &amp; alternatives to pesticide / herbicide use;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> Green Venture / Hamilton Coalition on Pesticide Issues / OMAFRA</li> </ul> <p><b>2008-2012:</b> Support the City's Pesticide By-law;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> Green Venture / Hamilton Coalition on Pesticide Issues / OMAFRA</li> </ul>	<p><b>In 2008:</b> Determine percentage of pesticide / herbicide use in each subwatershed;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> Green Venture / HCPI / OMAFRA</li> </ul> <p><b>In 2009:</b> Develop reduction in pesticide / herbicide use targets &amp; potential mitigation sites for each subwatershed;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> Green Venture / HCPI / OMAFRA</li> </ul> <p><b>In 2009:</b> Assess landowner motivation for reducing pesticide use;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> Green Venture / HCPI / OMAFRA</li> </ul>	<p><b>By 2011:</b> Work toward decreasing pesticide use by 50% and by 75% <b>in 2012</b> using integrated pest management, lawn naturalization, over-seeding, mulching, BMPs, etc.;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> Green Venture / HCA / Hamilton Coalition on Pesticide Issues / Ont. Stewardship Council / OMAFRA</li> </ul>

SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
<p><b>Plowed Watercourse</b> <b>Map Code: PW</b></p>  <p><b>Definition:</b> Headwater swales or small watercourses that are worked for agricultural production.</p> <hr/> <p><b>Inventory of Sites Identified = 2</b></p> <p><b>Catchment Locations:</b> Headwaters (2)</p> <hr/> <p><b>Audience:</b> private agricultural landowners</p>	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
	<p><b>2008-2012:</b> Utilize workshops, information sessions, literature &amp; webpages &amp; direct private landowner contact to create awareness regarding environmental effects of plowed watercourses;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> DFO / HCA / OMAFRA / Ont. Stewardship Council / HHWSP / OSCIA</li> </ul> <p><b>2008-2012:</b> Promote the Environmental Farm Plan program and associated Cost Sharing Programs for the implementation of Beneficial Management Practices projects;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> Stewardship Council / HHWSP / OSCIA</li> </ul>	<p><b>2010:</b> Assess landowner motivation for installing grassed waterways and riparian buffers;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / OMAFRA / HHWSP / OSCIA /HWSCIA</li> </ul>	<p><b>2008-2012:</b> Reduce sedimentation through the creation of a minimum of one riparian buffer on private lands, target 15m from top of bank for warm water systems and 30m from top of bank for coldwater systems;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> HCA / landowner / HHWSP</li> </ul>

SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
<p><b>Stormsewer Outfalls / CSO's</b> <b>Map Code: SO</b></p>  <p><b>Definition:</b> The point where a combined sewer overflow system discharges into a watercourse during a storm event.</p> <hr/> <p><b>Inventory of Sites Identified = 13</b></p> <p><b>Catchment Locations:</b> Fiddler's Green (1) Hamilton Golf &amp; C'ntry Club (1) Upper Valley (6) Lower Valley (1) Lower Ancaster Creek (4)</p> <hr/> <p><b>Audience:</b> children &amp; private landowners (residential / commercial / industrial)</p>	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
	<p><b>2008-2012:</b> Implement the Stream of Dreams and Yellow Fish Road Programs with local schools, scout, girl guides and other children's groups, to create awareness regarding stormwater input &amp; the impacts of CSO outfalls on stream systems;</p> <ul style="list-style-type: none"> <li>• <b>Partners:</b> BARC / CITY / FSRT / HCA</li> </ul> <p><b>2008-2012:</b> Support Sewer-Use Bylaw enforcement (City of Hamilton By-law No. 04-150);</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> BARC / CITY / FSRT / HCA</li> </ul>	<p><b>2008-2012:</b> Conduct water quality testing at storm sewer outfalls to support a study on illegal sewer hookups, Sewer Use Bylaw enforcement, &amp; restoration efforts;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / HCA / post-sec. schools</li> </ul> <p><b>2008-2012:</b> Conduction water quality testing at CSO outfalls pre and post mitigation to support mitigation measures;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / HCA / post-sec. schools</li> </ul>	<p><b>2008-2010:</b> Reduce flows &amp; sedimentation through riparian buffer establishment downstream of CSO outfalls (public lands);</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / FSRT / Green Venture / HCA / Ont. Stewardship Council / landowners &amp; citizens</li> </ul> <p><b>By 2012:</b> 80% of connected downspouts to be disconnected &amp; rain barrels to be utilized as an alternative;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / FSRT / Green Venture / HCA / Ont. Stewardship Council / landowners &amp; citizens</li> </ul>

SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
<p><b>Stormwater Mismanagement</b> Map Code: <b>SWM</b></p>  <p><b>Definition:</b> Inadequately managing stormwater to control flooding and protect property; often associated with the drainage of developed lands.</p> <hr/> <p><b>Inventory of Sites Identified</b> = 5</p> <p><b>Catchment Locations:</b> Headwaters (1) Hamilton Golf &amp; C'ntry Club (1) Upper Valley (2) Lower Ancaster Creek (1)</p> <hr/> <p><b>Audience:</b> HHHBA / developers / private &amp; public landowners (residential / commercial / industrial)</p>	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
	<p><b>2008-2012:</b> Continue to promote Best Management Practices as per HCA Planning and Regulations Policy and Guidelines and new provincial directives for new developments;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / Green Venture / HCA</li> </ul> <p><b>2008-2012:</b> Utilize workshops, information sessions, literature, webpages &amp; direct landowner contact to create awareness regarding BMPs for storm water source control measures (i.e. disconnected downspouts, roof gardens, rain barrels, biofilters, trees, pervious pavement, rain gardens);</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / Green Venture / HCA</li> </ul>	<p><b>By 2010:</b> Determine percentage of landowners with connected downspouts;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / Green Venture / HCA</li> </ul> <p><b>By 2010:</b> Assess landowner motivation for disconnection &amp; implementing source control measures;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / Green Venture / HCA</li> </ul>	<p><b>By 2012:</b> 80% of connected downspouts to be disconnected &amp; rain barrels to be utilized as an alternative;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / Green Venture / HCA / landowners</li> </ul> <p><b>2008-2012:</b> Retro-fit a minimum of one existing storm water management pond to a wet pond based on water quality, aquatic habitat &amp; erosion control benefits;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / Green Venture / HCA / landowners</li> </ul>

SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
<p><b>Water Contamination through Transportation Corridors</b> Map Code: TC</p>  <p><b>Definition:</b> Contamination resulting from stormwater runoff from major arterial roadways; often associated with the application of salts for de-icing and the residual precipitate created by automobile exhaust.</p> <hr/> <p><b>Inventory of Sites Identified = 1</b></p> <p><b>Catchment Locations:</b> Headwaters (1)</p> <hr/> <p><b>Audience:</b> CITY / MTO</p>	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
	<p><b>2008-2012:</b> Host training sessions for City staff to create awareness &amp; encourage environmentally friendly road salt alternatives &amp; proper snow removal practices;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / DFO / HCA / MTO / Ont. Stewardship Council</li> </ul>	<p><b>By 2010:</b> Determine the best method to mitigate contamination from transportation corridors into watercourses by studying alternatives to road salt for de-icing &amp; incorporating into a road salt management plan;</p> <ul style="list-style-type: none"> <li>▪ <b>Partner:</b> CITY / HCA / MTO / post-sec. schools</li> </ul>	<p><b>2010-2012:</b> Implement road salt management plans &amp; reduce use of salt for de-icing by 15% over 5yrs; Increase use of vacuum street sweepers; Increase vegetated filter strips / grassed swales along medians &amp; roadsides, where ditches are present incorporate non-invasive native vegetation;</p> <ul style="list-style-type: none"> <li>▪ <b>Partners:</b> CITY / MTO</li> </ul>



Agencies identified as partners in order to carry out these Stewardship Actions are listed below in alphabetical order, with target audiences also noted. This information will be valuable in forming an Implementation Team, sub-committees and in knowing which audiences Stewardship Actions are to be directed.

**PARTNER AGENCIES:**

- Bay Area Restoration Council (BARC)
- Bruce Trail Association (BTA)
- City of Hamilton (CITY)
- Environment Hamilton (EH)
- Field and Stream Rescue Team (FSRT)
- Fisheries & Oceans Canada (DFO)
- Green Venture (GV)
- Hamilton Coalition on Pesticide Issues (HCPI)
- Hamilton Conservation Authority (HCA)
- Hamilton Conservator Society (HCS)
- Hamilton Naturalists Club (HNC)
- Landowners & citizens (LO)
- Local nurseries & landscaping companies (Nursery)
- Local engineering companies (local eng. co.'s)
- Ministry of Agriculture, Food & Rural Affairs (OMAFRA)
- Ministry of Natural Resources (MNR)
- Ministry of Transportation (MTO)
- Ontario Stewardship Council (Ont. Stewardship Council)
- Post-secondary schools (post-sec. schools)
- Royal Botanical Gardens (RBG)
- School boards (Sch. Brds)
- Watershed Planning Network (WPN)

**TARGET AUDIENCES:**

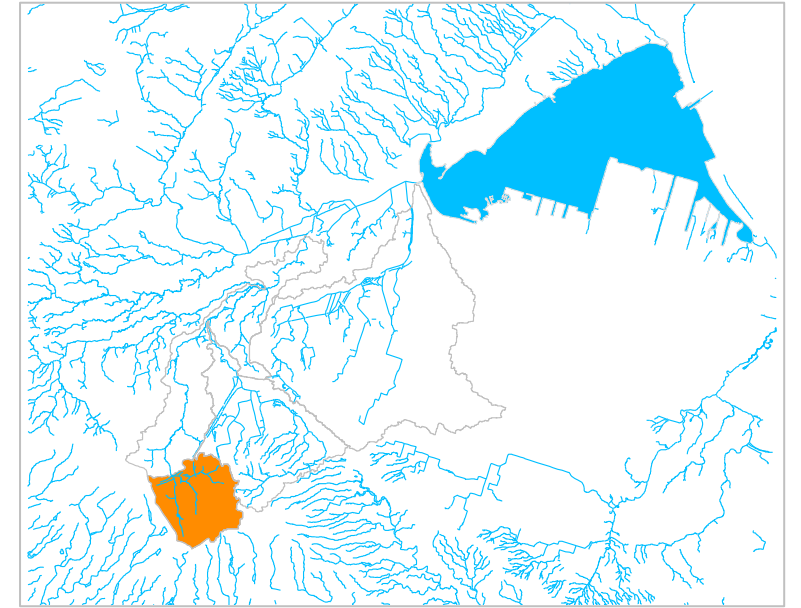
- Children
- City of Hamilton (CITY)
- Developers
- Golf courses
- Hamilton Halton Home Builders Association (HHHBA)
- Hydro One (HYDRO ONE)
- Landowners & citizens (residential, commercial, industrial)
- Ministry of Transportation (MTO)
- Out of town visitors
- School boards

## ***CATCHMENT SUMMARIES***

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This section of the plan identifies the Site-level Stresses within each catchment of Tiffany Creek subwatershed. A summary of these stresses, proposed ecological linkage / trail opportunities, and associated watershed monitoring results are indicated in the data sheets following the catchment map. Ecological Linkage Opportunities have been identified

between fragments of large tracts of land where the potential for re-establishing connectivity between the natural areas exists. Opportunities for the construction of trail systems are also present in these corridors. In total, 75 Site-level Stresses were identified for the Ancaster Creek subwatershed and inventory counts are presented in Table AN- 6.

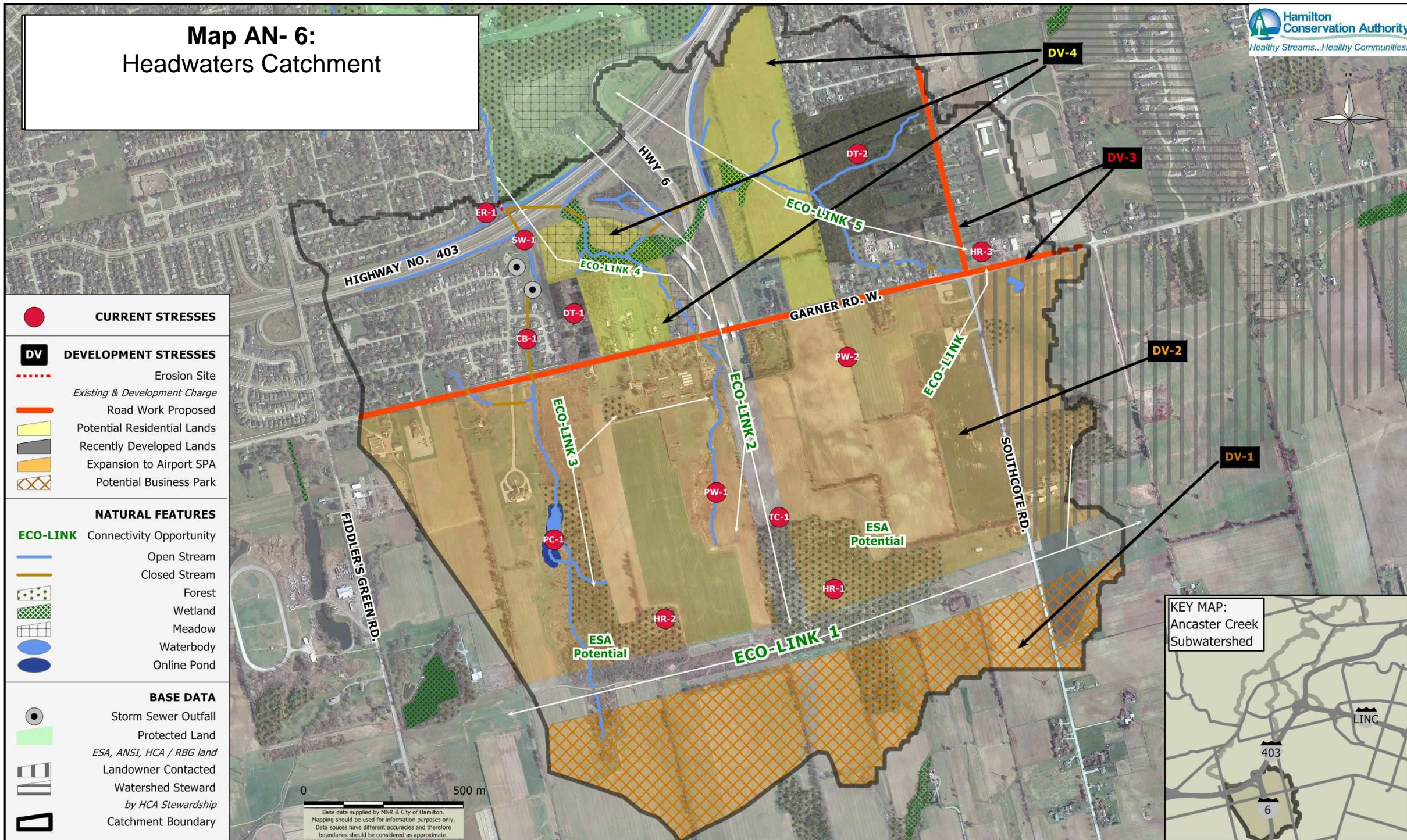


HEADWATERS CATCHMENT  
*DATA SHEETS*

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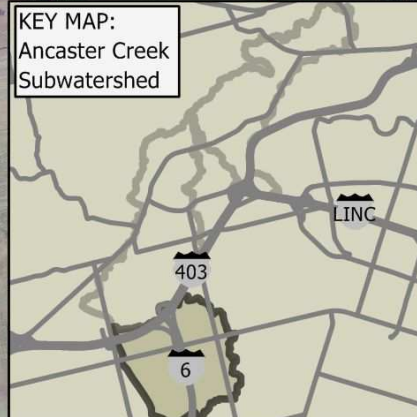


# Map AN- 6: Headwaters Catchment



<span style="color: red;">●</span>	<b>CURRENT STRESSES</b>
<span style="background-color: black; color: white; padding: 2px;">DV</span>	<b>DEVELOPMENT STRESSES</b>
<span style="border-bottom: 1px dashed red; width: 20px; display: inline-block;"></span>	Erosion Site
<span style="border-bottom: 2px solid orange; width: 20px; display: inline-block;"></span>	Existing & Development Charge
<span style="background-color: yellow; width: 20px; height: 10px; display: inline-block;"></span>	Road Work Proposed
<span style="background-color: grey; width: 20px; height: 10px; display: inline-block;"></span>	Potential Residential Lands
<span style="background-color: orange; width: 20px; height: 10px; display: inline-block;"></span>	Recently Developed Lands
<span style="background-color: orange; border: 1px solid black; width: 20px; height: 10px; display: inline-block;"></span>	Expansion to Airport SPA
<span style="background-color: orange; border: 1px solid black; width: 20px; height: 10px; display: inline-block;"></span>	Potential Business Park
<b>NATURAL FEATURES</b>	
<span style="color: green;">—</span>	ECO-LINK Connectivity Opportunity
<span style="color: blue;">—</span>	Open Stream
<span style="color: brown;">—</span>	Closed Stream
<span style="background-color: green; border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	Forest
<span style="background-color: green; border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	Wetland
<span style="background-color: white; border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	Meadow
<span style="background-color: blue; border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	Waterbody
<span style="background-color: blue; border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	Online Pond
<b>BASE DATA</b>	
<span style="border: 1px solid grey; border-radius: 50%; width: 10px; height: 10px; display: inline-block;"></span>	Storm Sewer Outfall
<span style="background-color: lightgreen; width: 10px; height: 10px; display: inline-block;"></span>	Protected Land
<span style="background-color: lightgreen; border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	ESA, ANSI, HCA / RBG land
<span style="border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	Landowner Contacted
<span style="border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	Watershed Steward
<span style="border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	by HCA Stewardship
<span style="border: 2px solid black; width: 10px; height: 10px; display: inline-block;"></span>	Catchment Boundary

Base data supplied by MNR & City of Hamilton.  
Mapping should be used for information purposes only.  
Data sources have different accuracies and therefore boundaries should be considered as approximate.





## HEADWATERS DATA SHEET

### SITE-LEVEL STRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
DV-1	Expansion to Airport SPA / Airport Employment Area Business Park	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DV-2	Expansion to Airport SPA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DV-3	Road Work Proposed – widening & improvements	<input checked="" type="checkbox"/>		
DV-4	Potential Residential Lands	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ER-1	See below			

CURRENT STRESSES	DESCRIPTION	PUBLIC LAND	PRIVATE LAND	STEWARDSHIP ACTIONS			DFO COMP PROJECT POTENTIAL	DEMO SITE POTENTIAL
				AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY		
CB-1	Buried stream		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
DT-1	New residential development		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
DT-2	New residential development		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
ER-1	Existing & development related erosion	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HR-1	Habitat Degradation – loss of forest habitat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-2	Habitat Degradation – loss of forest habitat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-3	Habitat Degradation – loss of prairie habitat	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
PC-1	Online pond		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PW-1	Plowed watercourse		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *	<input checked="" type="checkbox"/>		
PW-2	Potentially unmapped watercourse being plowed		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
SW-1	Storm water management retrofit of dry pond to wet pond	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
TC-1	Water contamination from Hwy 6 (to increase as development occurs)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

- Benthic & water quality monitoring at Garner Road to develop baseline data & trend analysis between 2008 and 2012 (Partners: HCA / post-sec. schools)

## HEADWATERS DATA SHEET

### ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
1	<p>East to West Link:</p> <ul style="list-style-type: none"> <li>▪ Hydro corridor with low-lying native vegetation connecting to Niagara Peninsula Conservation Authority watershed in west &amp; Tiffany Creek subwatershed to east               <ul style="list-style-type: none"> <li>▪ Incorporate existing forest habitat adjacent to hydro corridor (ESA potential)</li> <li>▪ Connect to forest habitat to east on private property</li> <li>▪ Potential for historical wetland restoration between HR-1 to HR-2 to reduce erosion downstream &amp; maintain base flows</li> <li>▪ ECO-LINK Connections: 2, 3</li> <li>▪ Audience: Hydro One, private landowners</li> </ul> </li> </ul>
2	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Hwy 6 road allowance with low-lying native vegetation connecting hydro corridor in south with Ancaster Creek Fiddler's Green catchment to north               <ul style="list-style-type: none"> <li>▪ Incorporate existing forest habitat within &amp; adjacent to road allowance (ESA potential)</li> <li>▪ Incorporate existing meadow &amp; wetland habitat within potential residential lands &amp; MTO lands</li> <li>▪ Connect to stream corridor west of road allowance &amp; incorporate riparian buffers</li> <li>▪ Potential for wildlife overpass crossing Hwy 403 to connect to habitat / protected land upstream</li> <li>▪ ECO-LINK Connections: 1, 3, 4, 7</li> <li>▪ Audience: City Transportation / Planning, MTO, Hamilton Golf &amp; Country Club, private landowners</li> </ul> </li> </ul>
3	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with forest &amp; riparian buffers connecting to hydro corridor in south &amp; Hwy 6 road allowance to east               <ul style="list-style-type: none"> <li>▪ Extend forest habitat to Garner Rd. (ESA potential)</li> <li>▪ Incorporate forest habitat east of stream corridor &amp; connect to Hwy 6 road allowance</li> <li>▪ Remove online pond (DFO compensation project potential)</li> <li>▪ ECO-LINK Connections: 1, 2</li> <li>▪ Audience: private landowners</li> </ul> </li> </ul>
4	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with meadow &amp; wetland habitat connecting to Hwy 6 road allowance in south-east to Ancaster Creek Fiddler's Green catchment to north               <ul style="list-style-type: none"> <li>▪ Incorporate existing meadow &amp; wetland habitat adjacent to stream corridor</li> <li>▪ Potential for wildlife overpass crossing Hwy 403 to connect to habitat / protected lands &amp; stream corridor upstream</li> <li>▪ Connect to &amp; incorporate riparian and in-stream plantings along stream corridor to west in City park</li> <li>▪ ECO-LINK Connections: 2, 6</li> <li>▪ Audience: City Planning, MTO, developers, private landowners</li> </ul> </li> </ul>
5	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with meadow &amp; wetland habitat connecting remnant habitat areas within catchment to Ancaster Creek Fiddler's Green catchment to north               <ul style="list-style-type: none"> <li>▪ Incorporate existing remnant prairie habitat at Garner Rd. &amp; Southcote Rd &amp; extend south-west into agricultural land (development plan approval recommendation)</li> <li>▪ Incorporate existing meadow &amp; wetland habitat adjacent to stream corridor</li> <li>▪ Potential for wildlife overpass crossing Hwy 403 to connect to protected lands upstream</li> <li>▪ ECO-LINK Connections: 7</li> <li>▪ Audience: City Planning / Transportation / MTO / developers / private landowners</li> </ul> </li> </ul>

## HEADWATERS DATA SHEET

### FISHERIES ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

### BENTHICS ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

### WATER QUALITY ASSESSMENT

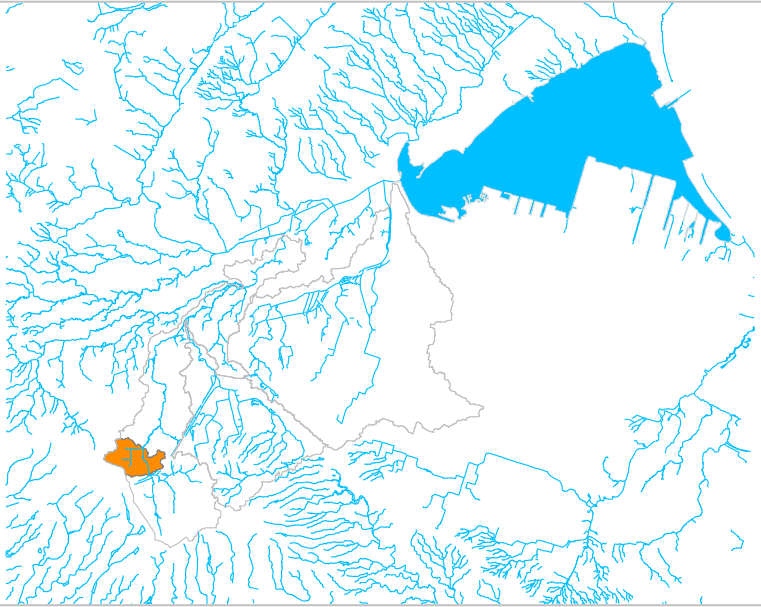
LOCATION	DATE	DESCRIPTION
n/a		

### WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		





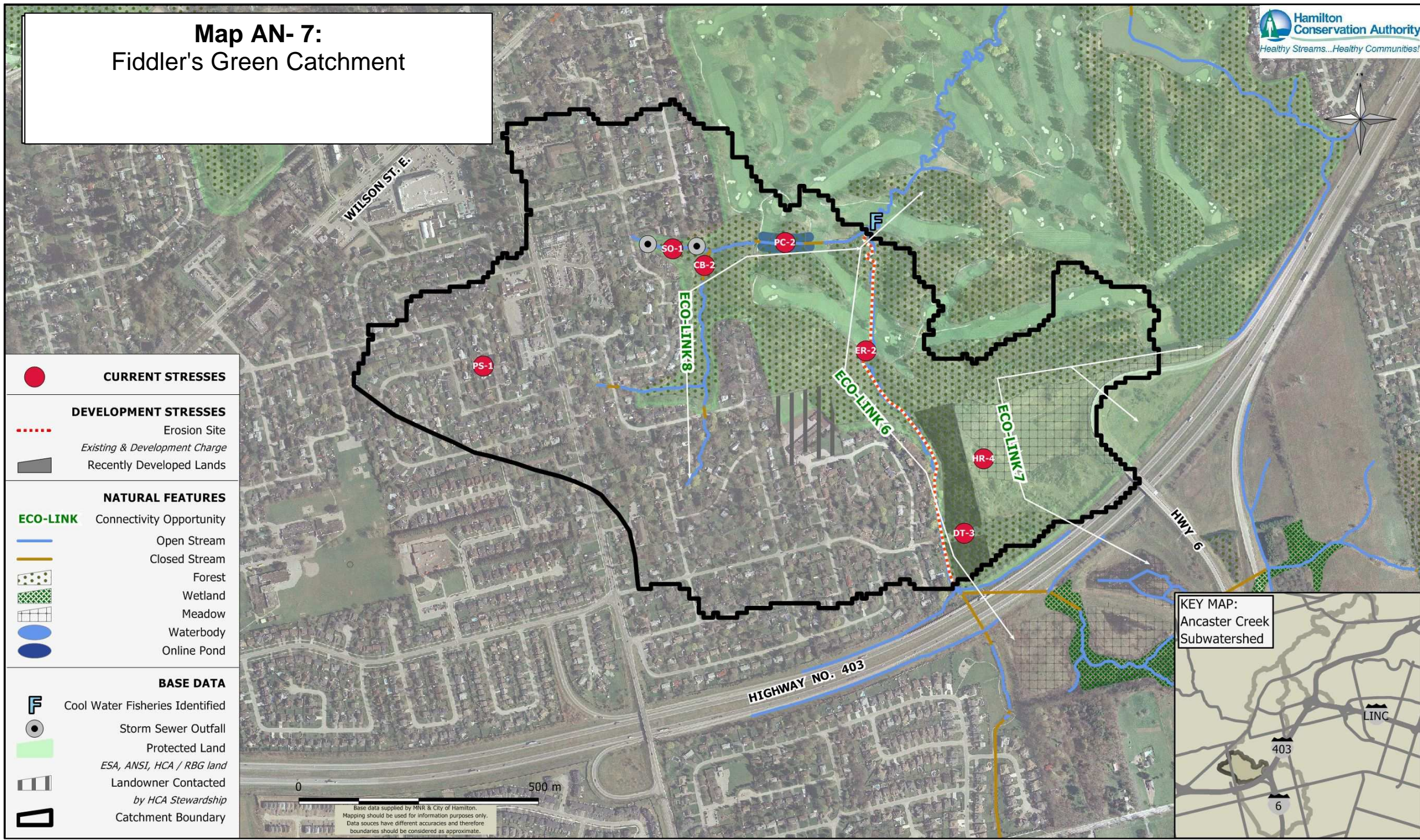


FIDDLER'S GREEN CATCHMENT  
*DATA SHEETS*

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# Map AN-7: Fiddler's Green Catchment



Base data supplied by MNR & City of Hamilton.  
Mapping should be used for information purposes only.  
Data sources have different accuracies and therefore  
boundaries should be considered as approximate.



## FIDDLER'S GREEN DATA SHEET

### SITE-LEVEL STRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
ER-2	See below			

CURRENT STRESSES	DESCRIPTION	PUBLIC LAND	PRIVATE LAND	STEWARDSHIP ACTIONS			DFO COMP PROJECT POTENTIAL	DEMO SITE POTENTIAL
				AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY		
CB-2	Buried streams		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
DT-3	New residential development		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
ER-2	Existing & development related erosion		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
HR-4	Habitat Degradation – increase forest habitat	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
PC-2	Online pond		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PS-1	Pesticide use		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
SO-1	Storm sewer outfalls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

## FIDDLER'S GREEN DATA SHEET

### ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
6	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian &amp; forest habitat connecting Ancaster Creek Headwaters in south (via potential wildlife overpass) through Hamilton Golf &amp; Country Club Golf Course / ESA to Ancaster Creek Hamilton Golf &amp; Country Club catchment to north-east</li> <li>▪ Incorporate existing riparian &amp; forest habitat adjacent to stream corridor</li> <li>▪ Increase riparian buffer through fairway &amp; adjacent to new development (DT-3)</li> <li>▪ Potential for reduction of erosion stress (ER-2) through increased riparian buffers (DFO compensation project potential)</li> <li>▪ ECO-LINK Connections: 4, 8, 9</li> <li>▪ Audience: Hamilton Golf &amp; Country Club, private landowners</li> </ul>
7	<p>South to East Link:</p> <ul style="list-style-type: none"> <li>▪ Connection with Ancaster Creek Headwaters in south (via potential wildlife overpass) along southern edge of Hamilton Golf &amp; Country Club / ESA to Ancaster Creek Hamilton Golf &amp; Country Club catchment to north-east</li> <li>▪ Incorporate existing forest &amp; meadow habitat within ESA</li> <li>▪ Incorporate &amp; connect to future forest patch (HR-4) along east side of new subdivision (DT-3)</li> <li>▪ ECO-LINK Connections: 2, 5, 10</li> <li>▪ Audience: MTO, Hamilton Golf &amp; Country Club</li> </ul>
8	<p>East to West Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian &amp; forest habitat connecting habitat within catchment in west through Hamilton Golf &amp; Country Club Golf Course / ESA to stream corridor to east</li> <li>▪ Incorporate existing riparian &amp; forest habitat adjacent to stream corridor</li> <li>▪ Connect to &amp; incorporate riparian and in-stream plantings along stream corridor to west (SO-1)</li> <li>▪ Increase riparian buffer through City property, private landowner properties &amp; fairway</li> <li>▪ Remove online pond (DFO compensation project potential)</li> <li>▪ ECO-LINK Connections: 6</li> <li>▪ Audience: City of Hamilton, Hamilton Golf &amp; Country Club, private landowners</li> </ul>



## FIDDLER'S GREEN DATA SHEET

### FISHERIES ASSESSMENT

LOCATION	DATE	DESCRIPTION
North of catchment boundary	Unknown	Cool water fish identified

### BENTHICS ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

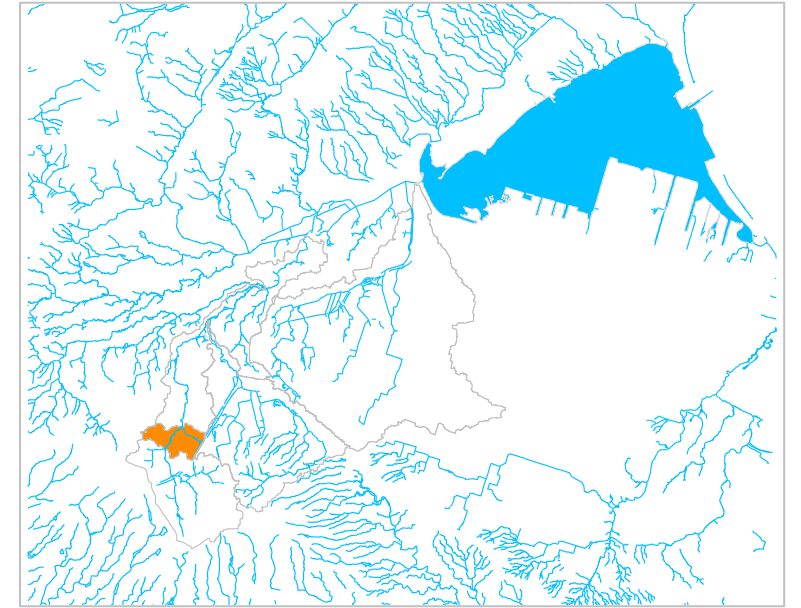
### WATER QUALITY ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

### WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		





HAMILTON GOLF & COUNTRY CLUB CATCHMENT  
*DATA SHEETS*

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# Map AN- 8: Hamilton Golf & Country Club Catchment



Base data supplied by MNR & City of Hamilton.  
Mapping should be used for information purposes only.  
Data sources have different accuracies and therefore  
boundaries should be considered as approximate.



## HAMILTON GOLF & COUNTRY CLUB DATA SHEET

### SITE-LEVEL STRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
ER-3	See below			

CURRENT STRESSES	DESCRIPTION	PUBLIC LAND	PRIVATE LAND	STEWARDSHIP ACTIONS			DFO COMP PROJECT POTENTIAL	DEMO SITE POTENTIAL
				AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY		
ER-3	Existing & development related erosion		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
HR-5	Habitat Degradation – increase riparian buffers		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
PC-3	Online pond ( <i>UNDERWAY</i> )		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> *	<input checked="" type="checkbox"/>		
PL-1	Phosphorus loading		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *	<input checked="" type="checkbox"/>		
PS-2	Pesticide / herbicide use		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
SO-2	Storm sewer outfall		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
SW-2	Dry storm water management pond naturalization		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		

- ER-3 & PL-1: Study on the effectiveness of Audubon program regarding water quality by 2009 (Partners: HCA / DFO)
- PC-3: Study benthics & fisheries pre- & post-restoration to determine the benefit of pond removal between 2008 and 2012 (Partners: HCA / landowner)

## HAMILTON GOLF & COUNTRY CLUB DATA SHEET

### ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
9	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian &amp; forest habitat connecting Ancaster Creek Fiddler's Green in south through Hamilton Golf &amp; Country Club Golf Course / ESA to Ancaster Creek Upper Valley catchment to north</li> <li>▪ Incorporate existing riparian &amp; forest habitat adjacent to stream corridor</li> <li>▪ Increase riparian buffer through fairways</li> <li>▪ Potential for reduction of erosion stress (ER-3) through increased riparian buffers (DFO compensation project potential)</li> <li>▪ ECO-LINK Connections: 6, 11</li> <li>▪ Audience: Hamilton Golf &amp; Country Club</li> </ul>
10	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Connection with Ancaster Creak Fiddler's Green in south along eastern edge of Hamilton Golf &amp; Country Club / ESA to stream corridor in north</li> <li>▪ Incorporate existing forest &amp; meadow habitat within ESA</li> <li>▪ Connect to &amp; incorporate riparian along stream corridor to east</li> <li>▪ ECO-LINK Connections: 7, 11</li> <li>▪ Audience: Hamilton Golf &amp; Country Club</li> </ul>
11	<p>East to West Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian &amp; forest habitat connecting habitat within catchment in east through Hamilton Golf &amp; Country Club Golf Course / ESA to stream corridor to west</li> <li>▪ Incorporate existing riparian &amp; forest habitat adjacent to stream corridor</li> <li>▪ Incorporate in-stream plantings downstream of storm sewer outfall (SO-2) &amp; within dry stormwater management pond downstream of outfall</li> <li>▪ Connect to forest habitat to west</li> <li>▪ Remove online pond &amp; rehabilitate stream corridor (DFO compensation project potential)</li> <li>▪ ECO-LINK Connections: 9, 10</li> <li>▪ Audience: Hamilton Golf &amp; Country Club, private landowners</li> </ul>

## HAMILTON GOLF & COUNTRY CLUB DATA SHEET

### FISHERIES ASSESSMENT

LOCATION	DATE	DESCRIPTION
At southern boundary of catchment	Unknown	Cool water fish identified
Upstream of ER-3	August 2000	Cool water fish (20.2°C)

### BENTHICS ASSESSMENT

LOCATION	DATE	DESCRIPTION
Upstream of online pond (PC-3)	2000	Impaired
North of catchment boundary	2000	Impaired

### WATER QUALITY ASSESSMENT

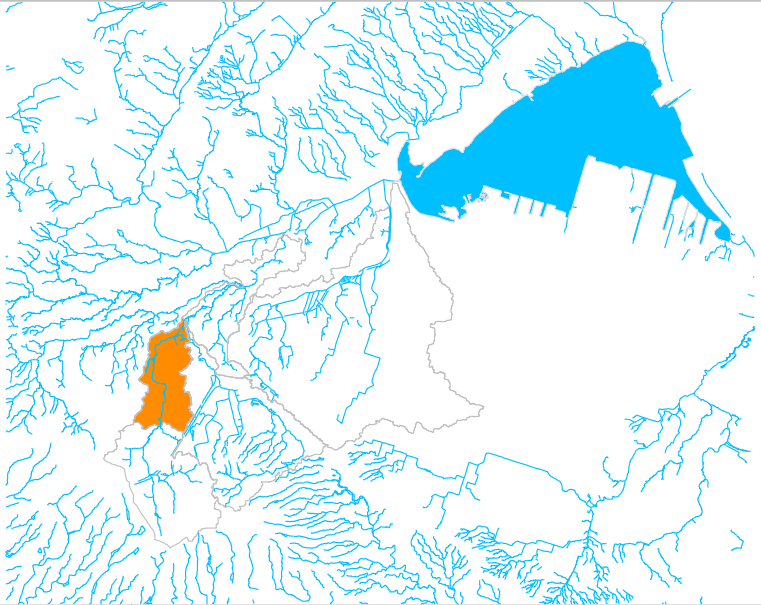
LOCATION	DATE	DESCRIPTION
n/a		

### WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		







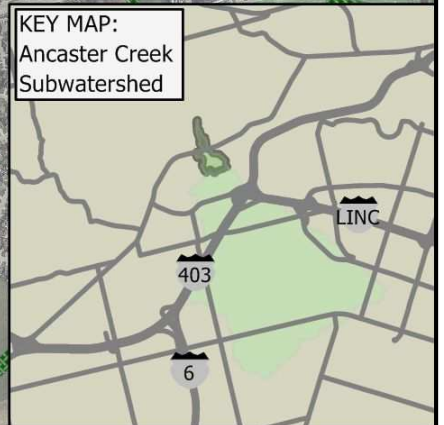
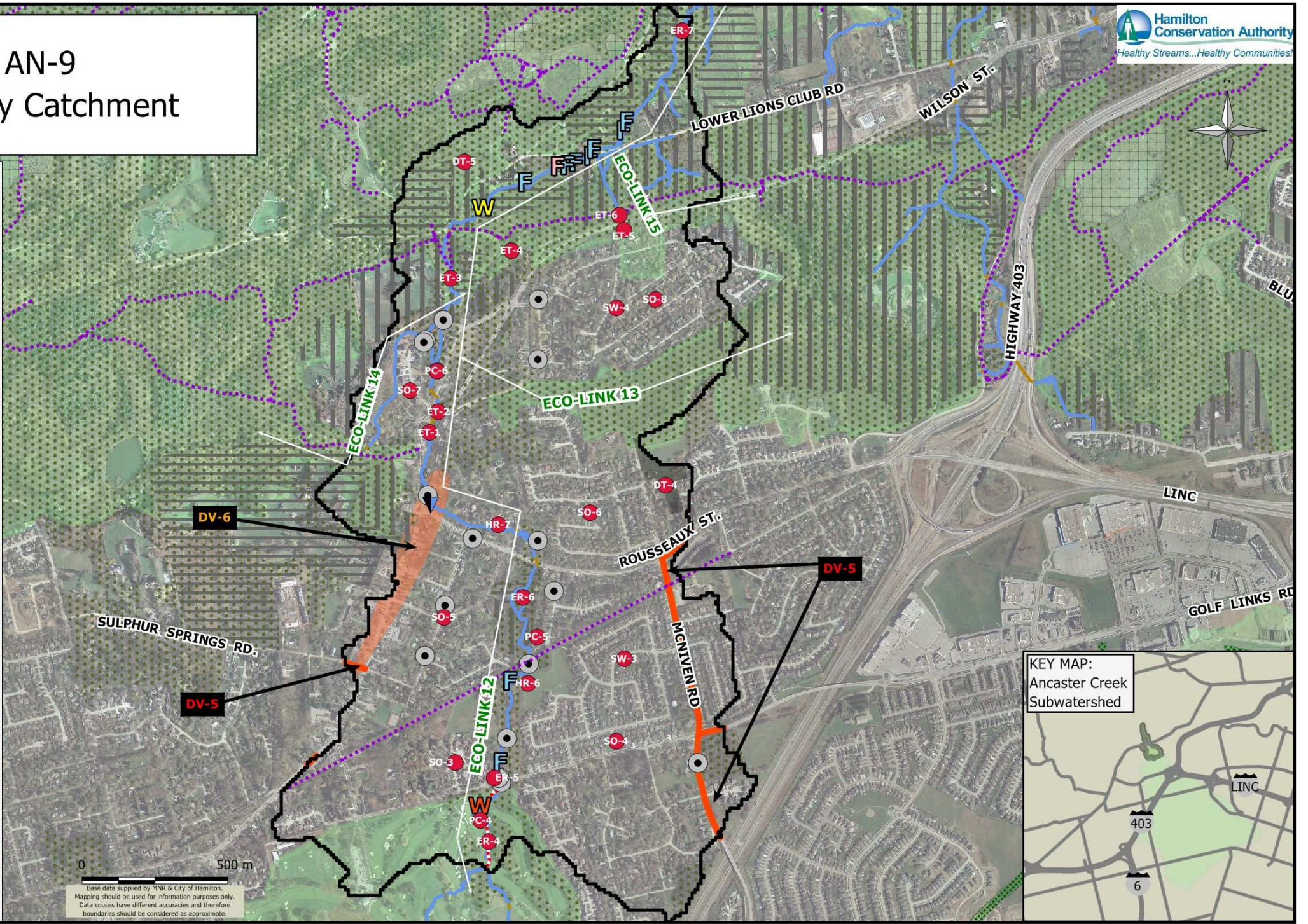
UPPER VALLEY CATCHMENT  
*DATA SHEETS*

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# Map AN-9 Upper Valley Catchment

	<b>CURRENT STRESSES</b>
	<b>DEVELOPMENT STRESSES</b>
	Erosion Site
	Existing & Development Change
	Road Work Proposed
	Recently Developed Lands
	Intensification Area
<b>ECO-LINK</b>	<b>NATURAL FEATURES</b>
	Connectivity Opportunity
	Open Stream
	Closed Stream
	Forest
	Wetland
	Meadow
	Waterbody
	Online Pond
<b>F</b>	<b>BASE DATA</b>
	Warm Water Fisheries Identified
	Cool Water Fisheries Identified
	Unimpaired Water Quality
	Impaired Water Quality
	Based on benthics assessment
	Water Quality / Flow Station
	MOE Permit-to-Take Water
	Storm Sewer Outfall
	Existing Trail
	Protected Land
	ESA, ANSI, HCA / RBG land
	Landowner Contacted
	Watershed Steward
	by HCA Stewardship
	Catchment Boundary



0 500 m  
Base data supplied by MNR & City of Hamilton.  
Mapping should be used for information purposes only.  
Data sources have different accuracies and therefore  
boundaries should be considered as approximate.



## UPPER VALLEY DATA SHEET

### SITE-LEVEL STRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
DV-5	Road Work Proposed – widening & improvements	<input checked="" type="checkbox"/>		
DV-6	Intensification area	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ER-4	See below			

CURRENT STRESSES	DESCRIPTION	PUBLIC LAND	PRIVATE LAND	STEWARDSHIP ACTIONS			DFO COMP PROJECT POTENTIAL	DEMO SITE POTENTIAL
				AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY		
DT-4	New residential development		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
DT-5	Initiate Friends of Ancaster group		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
ER-4	Existing & development related erosion		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
ER-5	Erosion / sediment control measures remaining after development complete	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
ER-6	Erosion noted in HCA 1996 study		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
ER-7	Erosion noted in HCA 1996 study		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
ET-1	Ecotourism at Mill Falls		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ET-2	Ecotourism at Lower Mill Falls		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ET-3	Ecotourism at Sherman Falls		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
ET-4	Ecotourism at Old Dundas Rd. Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
ET-5	Ecotourism at Little Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ET-6	Ecotourism at Lower Little Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
HR-6	Habitat Degradation – increase in riparian buffers	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-7	Habitat Degradation – increase in riparian buffers		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
PC-4	Connected pond		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PC-5	Connected pond		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PC-6	Online pond		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SO-3	Multiple storm sewer outfall locations along creek	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-4	Multiple storm sewer outfall locations along creek & roadways	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-5	Multiple storm sewer outfall locations along roadways	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-6	Multiple storm sewer outfall locations along creek & roadways	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-7	Multiple storm sewer outfall locations along creek	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-8	Multiple storm sewer outfall locations along roadways	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SW-3	Connected downspouts		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
SW-4	Connected downspouts		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		

## UPPER VALLEY DATA SHEET

### ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
12	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian &amp; forest habitat connecting Ancaster Creek Hamilton Golf &amp; Country Club catchment in south to Ancaster Creek Lower Valley catchment to north</li> <li>▪ Incorporate existing riparian &amp; forest habitat adjacent to stream corridor</li> <li>▪ Incorporate in-stream plantings downstream of storm sewer outfalls (SO-3 to SO-8)</li> <li>▪ Increase riparian buffer through fairway of Hamilton Golf &amp; Country Club, within City Parks &amp; along Rousseaux St. (HR-6, HR-7)</li> <li>▪ Potential for reduction of erosion stress (ER-4, ER-6 &amp; ER-7) through increased riparian buffers (DFO compensation project potential)</li> <li>▪ Remove old erosion / sediment control measures (ER-5)</li> <li>▪ Remove online ponds (PC-4 to PC-6) &amp; rehabilitate stream corridor (DFO compensation project potential)</li> <li>▪ Trail opportunities through waterfall sites (ET-1 to ET-4)</li> <li>▪ ECO-LINK Connections: 9, 13, 14, 15</li> <li>▪ Audience: Hamilton Golf &amp; Country Club, City Parks, private landowners</li> </ul>
13	<p>East to West Link:</p> <ul style="list-style-type: none"> <li>▪ Connection with Tiffany Creek subwatershed in east to stream corridor in west</li> <li>▪ Incorporate existing forest habitat within Tiffany Falls ESA</li> <li>▪ ECO-LINK Connections: 12</li> <li>▪ Audience: private landowners, HCA Land Management</li> </ul>
14	<p>West to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian &amp; forest habitat connecting habitat within Sulphur Creek subwatershed in east to stream corridor to east</li> <li>▪ Incorporate existing riparian &amp; forest habitat adjacent to stream corridor</li> <li>▪ Incorporate in-stream plantings downstream of storm sewer outfall (SO-7)</li> <li>▪ Increase riparian buffer through private properties</li> <li>▪ Connect to Dundas Valley ESA / forest habitat to west</li> <li>▪ ECO-LINK Connections: 12</li> <li>▪ Audience: private landowners, HCA Land Management</li> </ul>
15	<p>East to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridors with riparian &amp; forest habitat connecting habitat within Tiffany Falls subwatershed in east to stream corridor to north</li> <li>▪ Incorporate existing riparian &amp; forest habitat adjacent to stream corridor</li> <li>▪ Connect to Tiffany Falls ESA / forest habitat to east</li> <li>▪ Trail opportunities through waterfall sites (ET-5, ET-6)</li> <li>▪ ECO-LINK Connections: 12</li> </ul> <p>Audience: private landowners, HCA Land Management</p>



## UPPER VALLEY DATA SHEET

### FISHERIES ASSESSMENT

LOCATION	DATE	DESCRIPTION
Downstream of ER-5	July 2000	Cool water fish identified (19.1°C)
At Golf Links Park – HR-6	August 2000	Cool water fish identified (20°C)
<i>BETWEEN ET-3 &amp; ER-7</i>		
Downstream of ET-3	September 1993	Cool water fish identified
Downstream of above	August 1993	Warm water fish identified
Downstream of above	August 1993	Cool water fish identified
Downstream of above	August 1993	Cool water fish identified
Downstream of above	August 1993	Cool water fish identified
Downstream of above	August 1999	Cool water fish identified (18.5°C)
Downstream of above	August 1999	Cool water fish identified (18.5°C)
Downstream of above	June 1992	Cool water fish identified

### BENTHICS ASSESSMENT

LOCATION	DATE	DESCRIPTION
At online pond (PC-4)	2000	Impaired
Downstream of ET-3	1999	Unimpaired

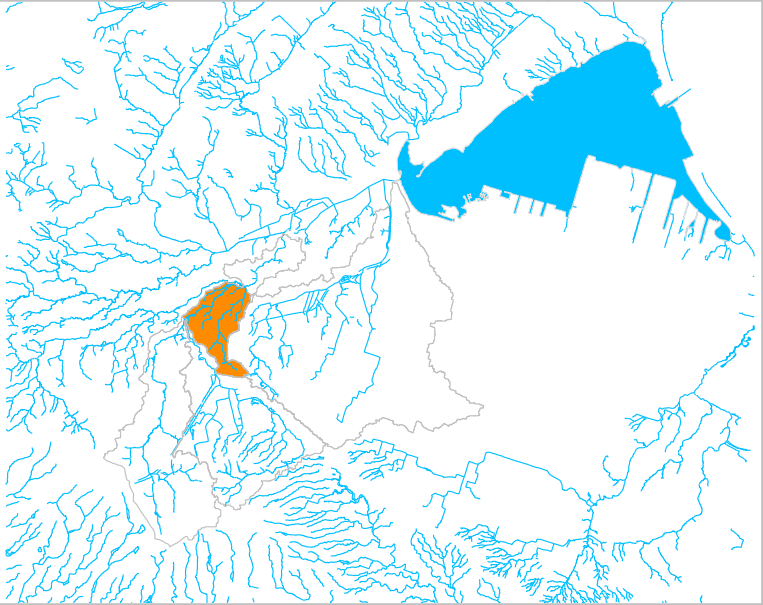
### WATER QUALITY ASSESSMENT

LOCATION	DATE	DESCRIPTION
At Rousseaux St. & Wilson St	2002-2006 monitoring seasons	alkalinity, aluminum, ammonia, barium, calcium, chloride, conductivity, copper, E. coli, hardness, iron, magnesium, manganese, nitrate, pH, potassium, sodium, strontium, titanium, total dissolved solids, total Kjeldahl nitrogen, total solids, total suspended solids, turbidity, zinc – results included in Appendix D

### WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRIPTION
At Rousseaux St. & Wilson St.	1986-2007 monitoring years	Results included in Appendix E



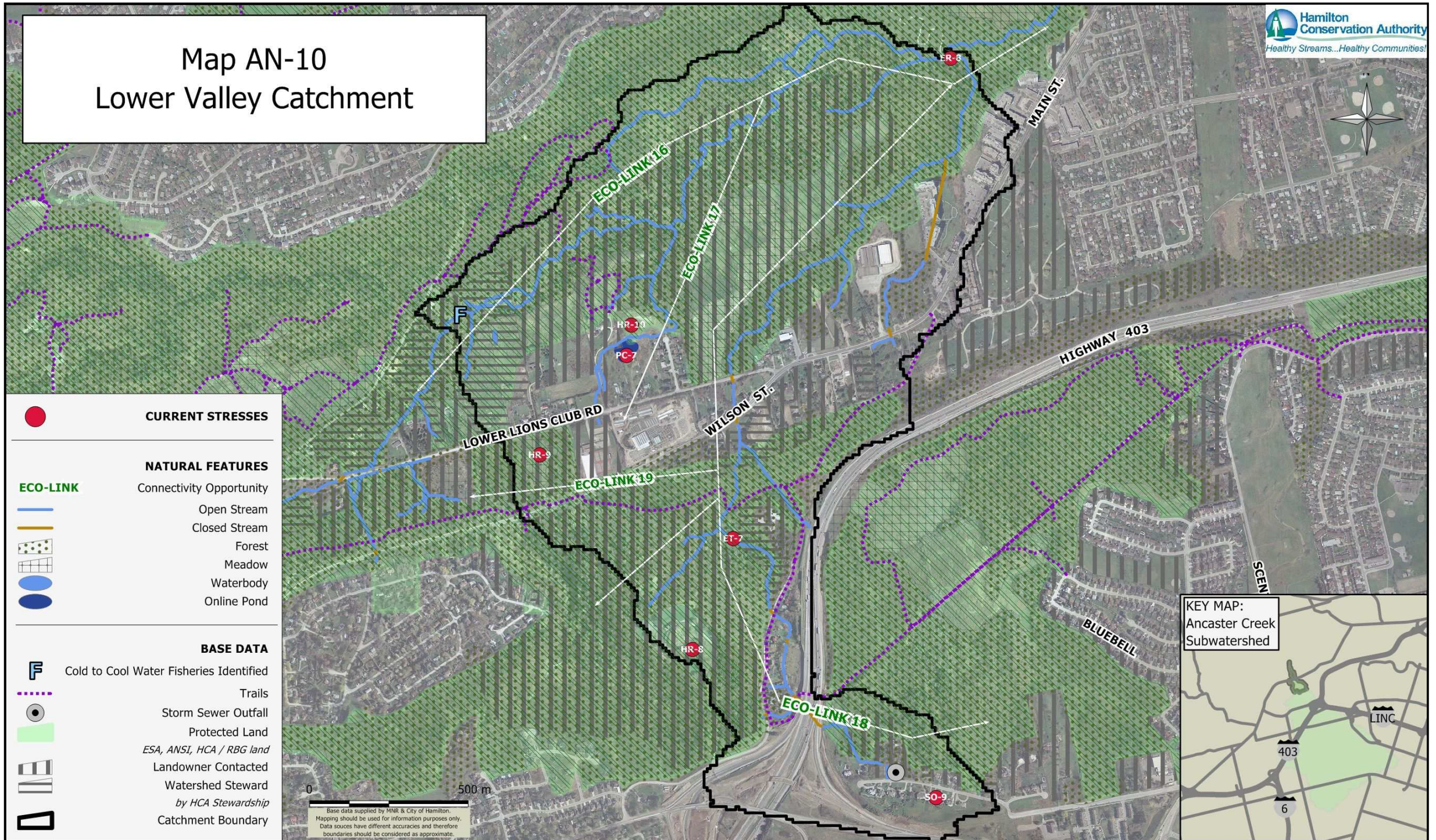


LOWER VALLEY CATCHMENT  
*DATA SHEETS*

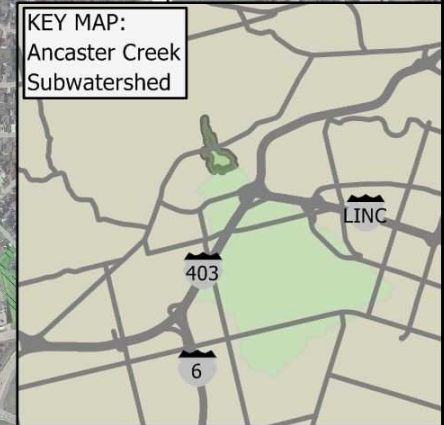
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# Map AN-10 Lower Valley Catchment



	<b>CURRENT STRESSES</b>
	<b>NATURAL FEATURES</b>
	Connectivity Opportunity
	Open Stream
	Closed Stream
	Forest
	Meadow
	Waterbody
	Online Pond
	<b>BASE DATA</b>
	Cold to Cool Water Fisheries Identified
	Trails
	Storm Sewer Outfall
	Protected Land
	ESA, ANSI, HCA / RBG land
	Landowner Contacted
	Watershed Steward
	by HCA Stewardship
	Catchment Boundary



Base data supplied by MNR & City of Hamilton.  
Mapping should be used for information purposes only.  
Data sources have different accuracies and therefore  
boundaries should be considered as approximate.



## LOWER VALLEY DATA SHEET

### SITE-LEVEL STRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
n/a				

CURRENT STRESSES	DESCRIPTION	PUBLIC LAND	PRIVATE LAND	STEWARDSHIP ACTIONS			DFO COMP PROJECT POTENTIAL	DEMO SITE POTENTIAL
				AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY		
ER-8	Existing erosion	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ET-7	Ecotourism at Shaver Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-8	Habitat Degradation – increase forest habitat		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
HR-9	Habitat Degradation – increase forest habitat		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
HR-10	Habitat Degradation – increase forest habitat		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
PC-7	Potential online pond		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SO-9	Storm sewer outfall		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

## LOWER VALLEY DATA SHEET

### ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
16	<p>West to East Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian &amp; forest habitat connecting Ancaster Creek Upper Valley catchment in south-west to Ancaster Creek Lower Ancaster Creek catchment to east</li> <li>▪ Incorporate existing riparian &amp; forest habitat adjacent to stream corridor &amp; along stream corridor to north</li> <li>▪ Increase riparian buffer through Dundas Valley Conservation Area, within McMaster University and private properties</li> <li>▪ Potential for reduction of erosion stress (ER-8) through increased riparian buffers, stream clean-up &amp; storm water management upgrades on HCA &amp; McMaster University property (DFO compensation project potential)</li> <li>▪ ECO-LINK Connections: 12, 17, 18</li> <li>▪ Audience: HCA Land Management, McMaster University, private landowners</li> </ul>
17	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian, forest &amp; meadow habitat connecting habitat within catchment</li> <li>▪ Incorporate existing forest habitat within Dundas Valley ESA</li> <li>▪ Increase riparian buffer through private properties south of protected lands</li> <li>▪ Incorporate &amp; connect to future forest patch (HR-10) on private property</li> <li>▪ Remove potential online pond (PC-7) &amp; rehabilitate stream corridor (DFO compensation project potential)</li> <li>▪ ECO-LINK Connections: 16</li> <li>▪ Audience: McMaster University, private landowners</li> </ul>
18	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian, forest &amp; meadow habitat connecting habitat within Chedoke Creek subwatershed to east, Tiffany Creek subwatershed in west to Ancaster Creek Lower Ancaster Creek catchment in north</li> <li>▪ Incorporate existing riparian, forest &amp; meadow habitat adjacent to stream corridor</li> <li>▪ Incorporate tributary to west to connecting to Tiffany Creek subwatershed through Tiffany Falls ESA / forest habitat to Tiffany Falls Conservation Area to west</li> <li>▪ Potential for wildlife overpass / underpass crossing Hwy 403 to connect to habitat / protected land in Chedoke Creek subwatershed</li> <li>▪ Increase riparian buffer through Iroquoia Heights Conservation Area, McMaster University, Tamahaac Club, and private (including commercial) properties</li> <li>▪ Incorporate in-stream plantings downstream of storm sewer outfall (SO-9)</li> <li>▪ Incorporate &amp; connect to future forest patch (HR-8) on Tamahaac Club property</li> <li>▪ Trail opportunities through waterfall site (ET-7)</li> <li>▪ ECO-LINK Connections: 16, 19</li> <li>▪ Audience: HCA Land Management, McMaster University, private landowners</li> </ul>
19	<p>West to East Link:</p> <ul style="list-style-type: none"> <li>▪ Connection with Ancaster Creek Upper Valley through protected lands in Tiffany Creek subwatershed in west to stream corridor to east</li> <li>▪ Incorporate existing forest habitat adjacent to stream corridor</li> <li>▪ Connect through Tiffany Falls ESA north of Wilson St. to Ancaster Creek Upper Valley catchment to east</li> <li>▪ ECO-LINK Connections: 18</li> </ul> <p>Audience: private landowners</p>

## LOWER VALLEY DATA SHEET

### FISHERIES ASSESSMENT

LOCATION	DATE	DESCRIPTION
Western most point of the subwatershed	June 2000	Cool water fish identified

### BENTHICS ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

### WATER QUALITY ASSESSMENT

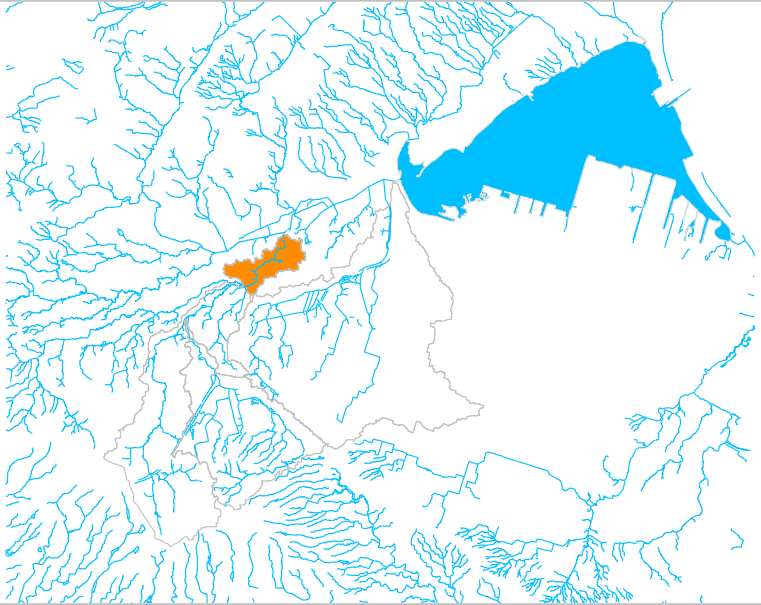
LOCATION	DATE	DESCRIPTION
n/a		

### WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		







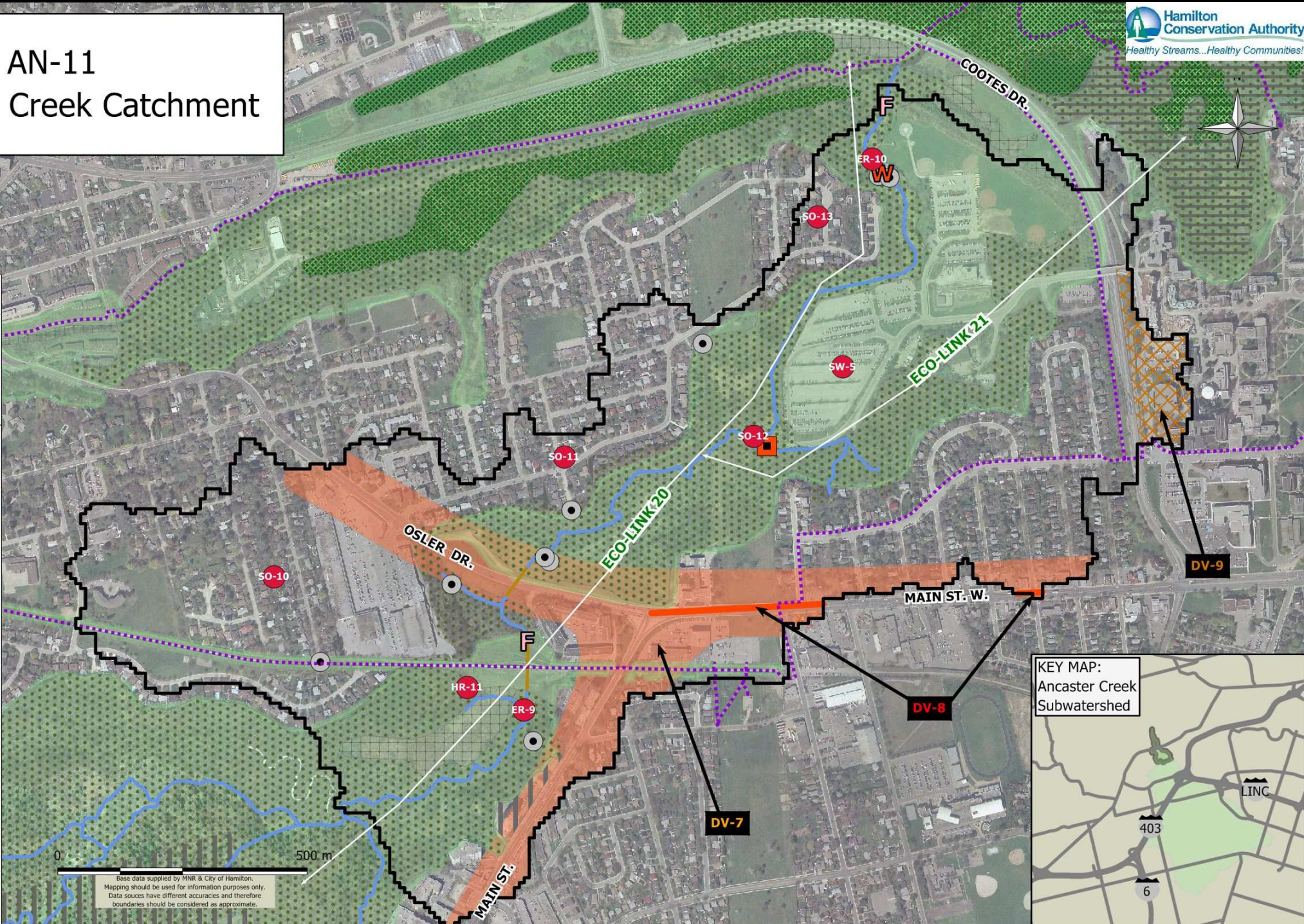
LOWER ANCASTER CREEK CATCHMENT  
*DATA SHEETS*

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# Map AN-11 Lower Ancaster Creek Catchment

	<b>CURRENT STRESSES</b>
	<b>DEVELOPMENT</b>
	Road Work Proposed
	Intensification Area
	Potential Business Park
	<b>NATURAL FEATURES</b>
	ECO-LINK Connectivity Opportunity
	Open Stream
	Closed Stream
	Forest
	Wetland
	Meadow
	Waterbody
	Online Pond
	<b>BASE DATA</b>
	Warm Water Fisheries Identified
	Impaired Water Quality
<i>Based on benthics assessment</i>	
	Storm Sewer Outfall
	CSO Mitigation Underway
	Trail
	Protected Land
<i>ESA, ANSI, HCA / RBG land</i>	
	Landowner Contacted
	Watershed Steward
<i>by HCA Stewardship</i>	
	Catchment Boundary



Base data supplied by MNR & City of Hamilton.  
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Data sources have different accuracies and therefore  
boundaries should be considered as approximate.



## LOWER ANCASTER CREEK DATA SHEET

### SITE-LEVEL STRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
DV-7	Intensification Area	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DV-8	Road Work Proposed – widening & improvements	<input checked="" type="checkbox"/>		
DV-9	Proposed Business Park	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

CURRENT STRESSES	DESCRIPTION	PUBLIC LAND	PRIVATE LAND	STEWARDSHIP ACTIONS			DFO COMP PROJECT POTENTIAL	DEMO SITE POTENTIAL
				AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY		
ER-9	Erosion identified through 1996 HCA Study		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
ER-10	Existing erosion	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HR-11	Habitat Degradation – re-connect flood plain wetlands to creek			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *	<input checked="" type="checkbox"/>		
SO-10	Multiple storm sewer outfall locations along creek & trail	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-11	Multiple storm sewer outfall locations along creek, roadways & utility corridor	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-12	CSO outfall (UNDERWAY)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-13	Multiple storm sewer outfall locations along creek	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SW-5	Poor stormwater management resulting in ditch creek		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

\* By 2009 determine exact location of wetland area & landowners affected (Partners: HCA)

## LOWER ANCASTER CREEK DATA SHEET

### ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
20	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Stream corridor with riparian, forest, meadow &amp; wetland habitat connecting Ancaster Creek Lower Valley catchment in south-west to Lower Spencer Creek subwatershed to north               <ul style="list-style-type: none"> <li>▪ Incorporate existing riparian, forest, meadow &amp; wetland habitat adjacent to stream corridor &amp; through Dundas Valley &amp; Cootes Paradise ESAs</li> <li>▪ Re-connect isolated flood plain wetland to Ancaster Creek (HR-11)</li> <li>▪ Wildlife crossing signage / creek crossing signage potential</li> <li>▪ Interpretive signage at outlet of Ancaster Creek into Spencer Creek</li> <li>▪ Natural channel design west of McMaster University lots &amp; storm water BMPs to reduce erosion / sedimentation and to increase fisheries potential (SW-5)</li> <li>▪ Potential for reduction of erosion stress (ER-9, ER-10) through stream clean-up &amp; storm water management upgrades on private &amp; HCA property (DFO compensation project potential)</li> <li>▪ ECO-LINK Connections: 16</li> <li>▪ Audience: HCA Land Management, McMaster University, private landowners</li> </ul> </li> </ul>
21	<p>South to North Link:</p> <ul style="list-style-type: none"> <li>▪ Connection with stream corridor to west with Lower Spencer Creek subwatershed to east               <ul style="list-style-type: none"> <li>▪ Incorporate existing forest habitat within Cootes Paradise ESA</li> <li>▪ CSO outfall mitigation to increase water quality &amp; fisheries potential (SO-12)</li> <li>▪ Wildlife crossing signage / creek crossing signage potential</li> <li>▪ ECO-LINK Connections: 16</li> <li>▪ Audience: McMaster University, HCA Land Management, City Storm Water Management</li> </ul> </li> </ul>



## LOWER ANCASTER CREEK DATA SHEET

### FISHERIES ASSESSMENT

LOCATION	DATE	DESCRIPTION
Upstream of Osler Dr	Unknown	Warm water fish identified
At outlet to Spencer Creek	1999	Warm water fish identified (26.7°C)

### BENTHICS ASSESSMENT

LOCATION	DATE	DESCRIPTION
At erosion site (ER-10)	1999	Impaired

### WATER QUALITY ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

### WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

