

CHEDOKE CREEK SUBWATERSHED

STEWARDSHIP ACTION PLAN



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

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CHEDOKE CREEK SUBWATERSHED CHARACTERIZATION

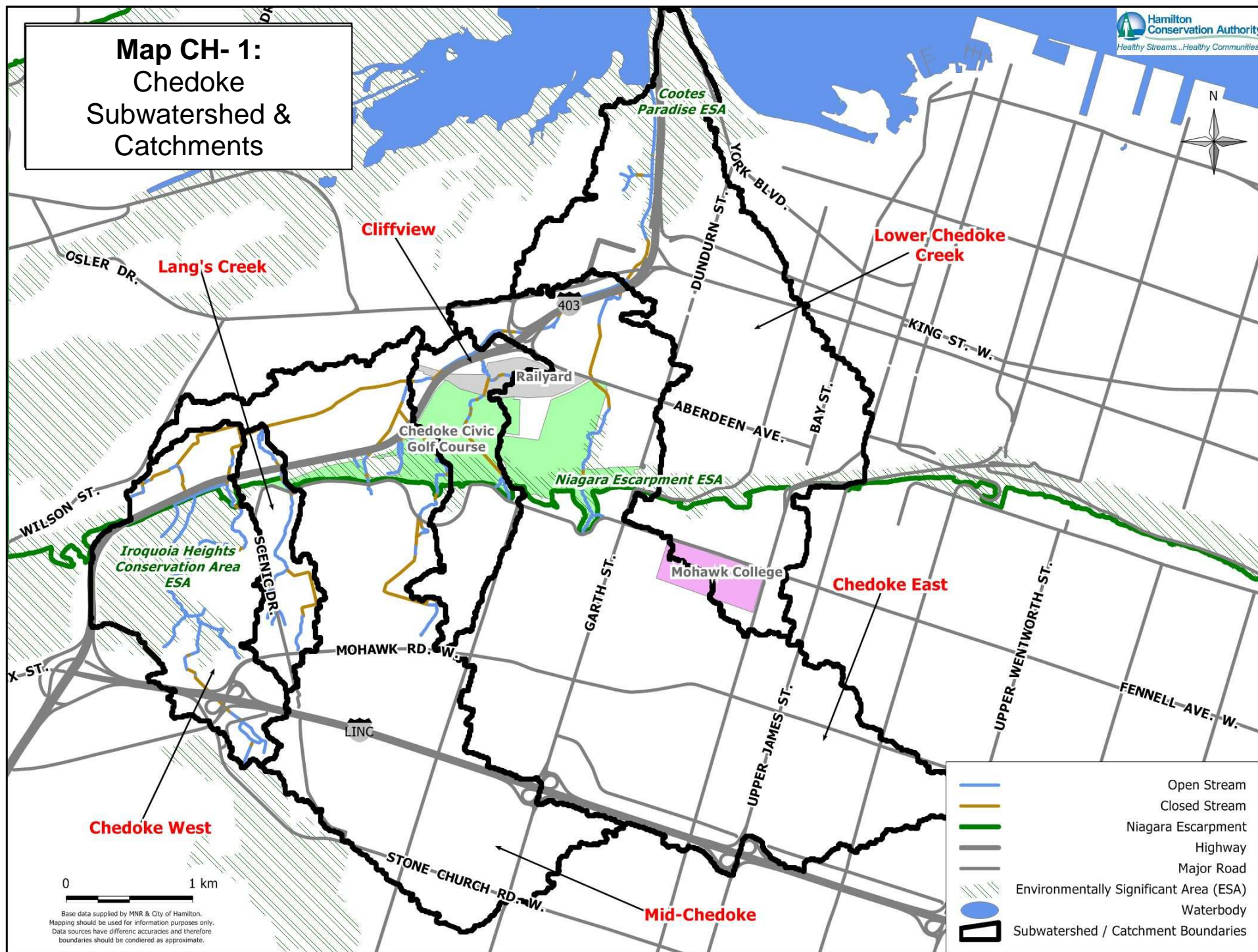
GEOGRAPHICAL LOCATION

Chedoke Creek subwatershed is 25.1 km² in area and is comprised of six catchment basins. In descending order from the headwaters to the outlet these are: Chedoke West, Lang’s Creek, Mid-Chedoke, Cliffview, Chedoke East, and Lower Chedoke Creek (**Map CH- 1**). This subwatershed spans the former municipal boundaries of Ancaster and Hamilton, and is also located within five City of Hamilton wards: 1, 2, 7, 8 and 12. The boundaries of this subwatershed are Stonechurch Road West in the south to Highway 403 in the west; the eastern extent ranges between Upper James Street and Upper Wentworth Street. The subwatershed originates above the Niagara Escarpment and outlets directly into the south shore of Cootes Paradise Marsh, parallel to Highway 403. Highway 403 passes through this subwatershed below the escarpment and three interchanges are present: Main Street East, Main Street West and Aberdeen Avenue. Additionally, the Lincoln M. Alexander Parkway (LINC) travels east to west above the escarpment and three interchanges are present in the subwatershed: Golf Links Road / Mohawk Road, Garth Street and Upper James Street. Major transportation routes found within this subwatershed are Bay Street, Queen Street, Dundurn Street, Upper James Street, West 5th Street, Garth Street, Upper Paradise, Scenic Drive, Main Street, King Street, Aberdeen Avenue, Fennell Avenue, Mohawk Road, and Stonechurch Road.

Chedoke Creek is the only warm water system of the three subwatersheds in this Stewardship Action Plan. The headwaters are located above the Niagara Escarpment with the only tributaries still present above the surface being located within Chedoke West,

Lang’s Creek and Mid-Chedoke catchments. The headwaters of the Chedoke West catchment are piped upstream but still supply the year round flowing Chedoke Falls. All of the tributaries flow over the escarpment and then travel eastward and align parallel with Highway 403 before outletting into Cootes Paradise. Much of the Chedoke Creek subwatershed has been altered over time as a result of intense urban development within the Hamilton area; subsequently the majority of the stream flow directly results from storm water input. Therefore, erosion, sedimentation and insufficient channel sizes occur at the outlet. The following locations are where natural stream channels can be found within the subwatershed: southwest of Golf Links Road and Scenic Drive, through Iroquoia Heights Conservation Area, through Olympic Park / Hydro lands east of Scenic Drive, through Lang’s Park east of Scenic Drive, Hydro lands north of Highway 403, northwest of Upper Paradise Road and Mohawk Road, through Chedoke Golf Course, west of Chedoke Avenue, and parallel to Highway 403.

The Niagara Escarpment is present within all catchments of this subwatershed. Additionally, three municipally designated Environmentally Significant Areas (ESAs) are located within this subwatershed: Iroquoia Heights Conservation Area, Hamilton Escarpment, 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

In the headwaters the soil type is predominantly silt loam with a few pockets of sandy loam and silty clay loam. Upstream of Chedoke Falls, located at the escarpment brow west of Garth Street, soil types indicate that a stream corridor was historically present. It is thought that this tributary began approximately one kilometre upstream of the falls originating at a spring. Soil type below the Niagara Escarpment abruptly changes to soils that are characteristic of an urbanized landscape. It is worth noting that the soil analysis shown in **Map CH- 2** indicates a quarry to have been present at the intersection of West 5th Street and Limeridge Road.

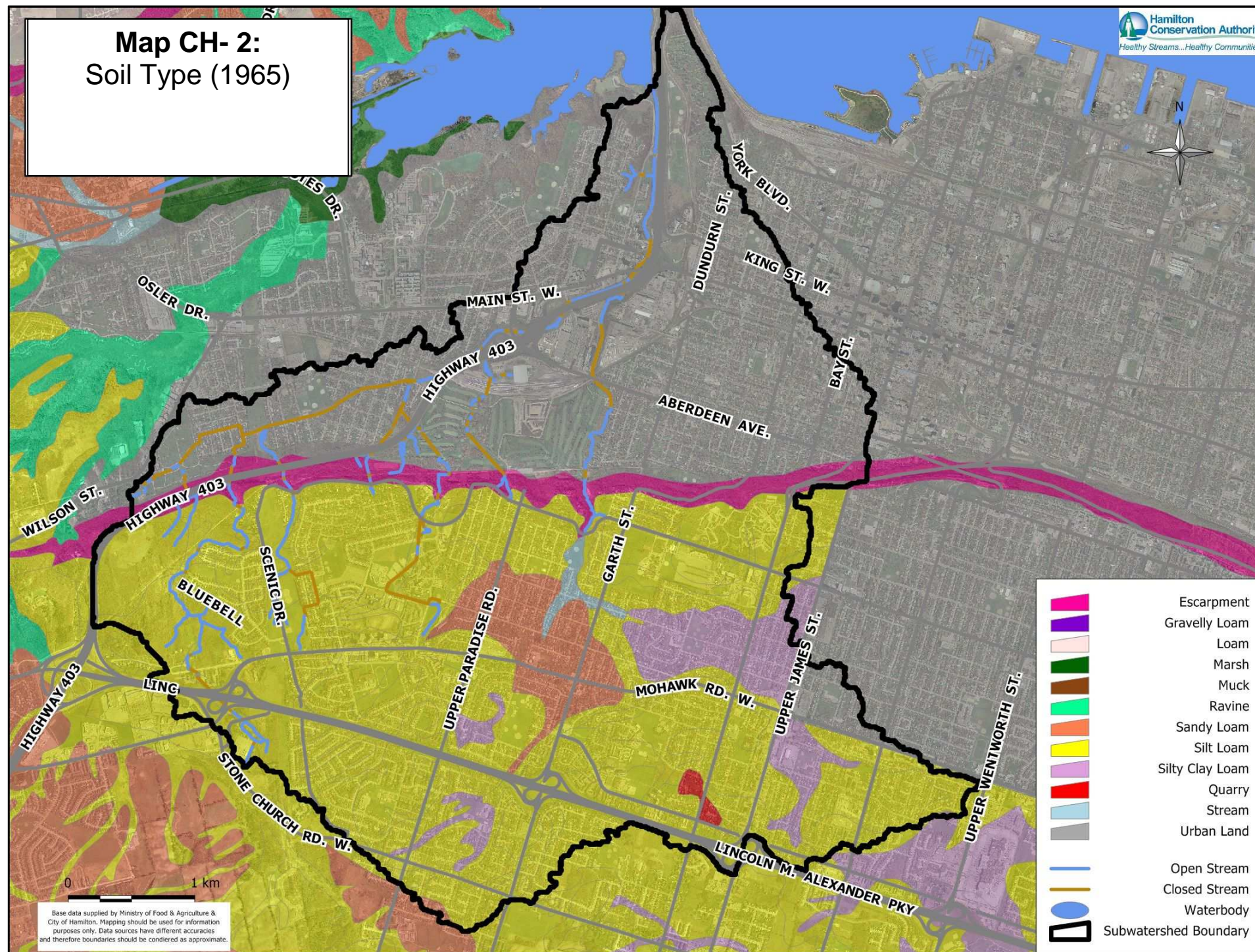
Wetlands that existed within the Chedoke Creek subwatershed prior to the mid-1980’s as well as those wetlands that are still present today are displayed within **Map CH- 3**. It is apparent that hydrological alterations have occurred within this subwatershed in order to accommodate urban development. Historically, wetlands were located above the escarpment adjacent to the stream corridor that still flows through Iroquoia Heights Conservation Area, Olympic Park / Hydro lands and Lang’s Park, parallel to Scenic Drive on both the east and west sides. Wetlands historically existed within the Mid-Chedoke catchment along the stream corridor and extended to the southern boundary of Chedoke

subwatershed. Also, a vast area of wetland existed east of the historical tributary that supplied Chedoke Falls. There is a very small area of wetland habitat remaining within this subwatershed; it is located below the Niagara Escarpment and along the Chedoke Ravine on the east side of the Chedoke Golf Course. This wetland area is not designated by the Ontario Ministry of Natural Resources (OMNR) as a Provincially Significant Wetland; further examination is needed to determine the type of wetland habitat that exists. Historically wetland cover made up 2.9 km², or 11.6%, of the subwatershed area. Now only 0.006 km² of wetland area can be found in this subwatershed, which is only 0.02% of the subwatershed area. Current wetland habitat is not located on or near a historical wetland site. Therefore it can be surmised that 100% of historical wetland cover has been lost from this subwatershed.

Historical information was not recorded for forest or meadow cover, however current natural land cover statistics are noted within **Table CH- 1**. Forest cover accounts for 9.6% of this subwatershed, while meadow cover accounts for 0.8%. Based on the digital data provided for this analysis, stream length of the Chedoke Creek and all of its tributaries is 26 km.

Table CH- 1: Natural Land Cover Statistics

Forest Cover (km ²)	Wetland Cover (km ²)	Meadow Cover (km ²)	Stream Length (km)
2.4	0.006	0.2	26



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 by the OMNR it is indicated in the appendix. 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
- Red Mulberry
- Prothonotary Warbler

Endangered (not regulated)

- American Chestnut
- Butternut

Threatened

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

Special Concern

- Bigmouth Buffalo
- Black Tern
- Broad Beech Fern
- Cerulean Warbler
- Monarch
- Northern Map Turtle
- Yellow-breasted Chat
- Eastern Milksnake
- Northern Ribbon Snake
- Woodland Vole

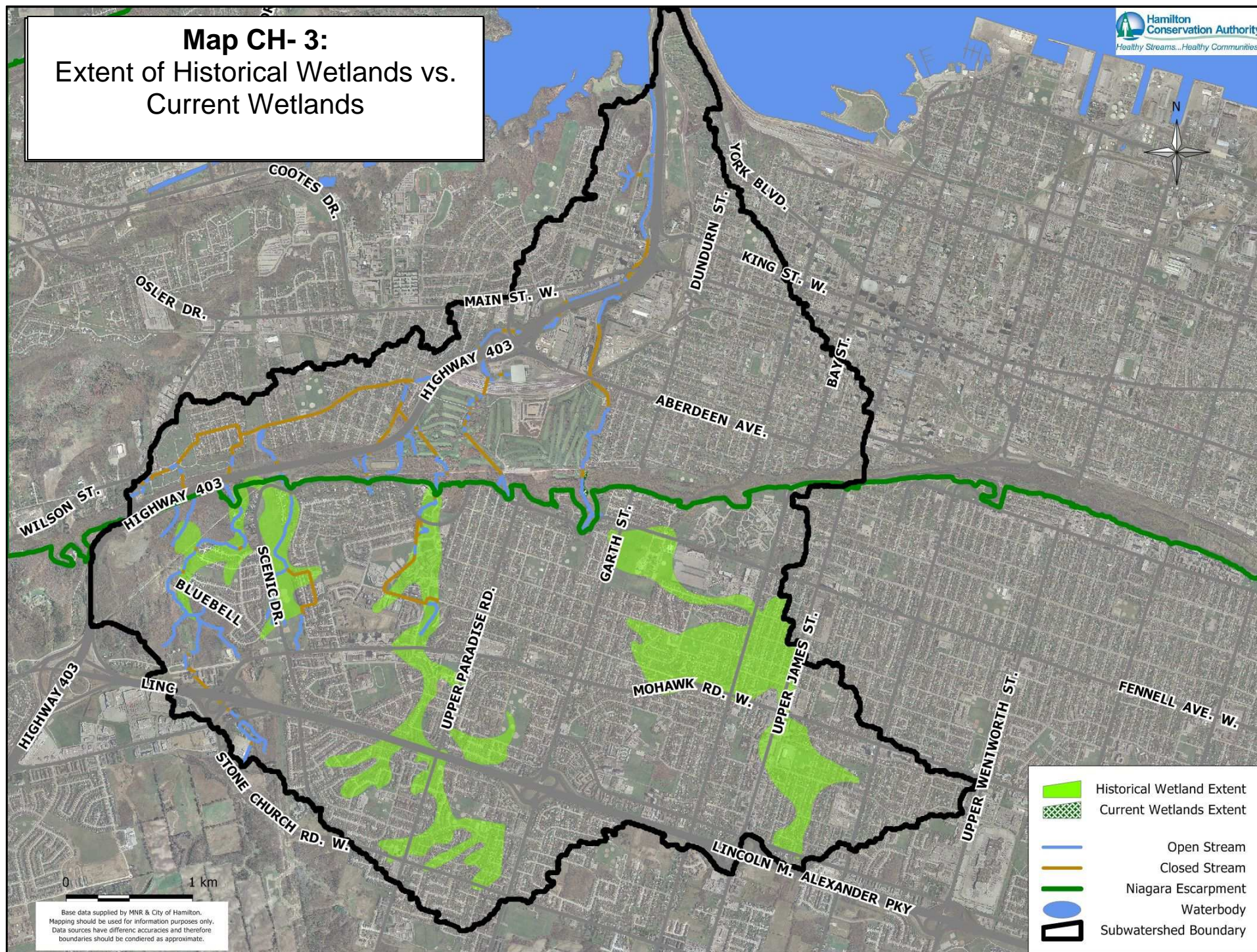
Not at Risk

- American Coot
- Common Mudpuppy
- Cooper's Hawk
- Longear Sunfish
- Rosyface Shiner

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 fine silt soils found in this subwatershed, headwater wetlands must be restored to meet the How Much Habitat is Enough Guidelines in order to reduce sedimentation occurring downstream. Historical piping and channelization of this stream system only exacerbate the sedimentation problem occurring in Cootes Paradise. Historical wetland restoration may be achieved through the approval of development applications and resultant compensation projects for the proposed development located along existing stream reaches and on public lands. Alternatively, wetland creation may be possible below the escarpment to mitigate upstream sedimentation and attenuate high flows.

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).



CULTURAL & STEWARDSHIP HISTORY

The first property in Hamilton to be referred to as Chedoke was the property perched at the edge of the Chedoke Ravine and Falls near Fennell Avenue West and Garth Street (HCA, 2007). Although it is not clearly understood why this area was named Chedoke, some theories have been put forth. One of the most common theories is that Chedoke was a First Nations word, perhaps Iroquoian or Algonkian, and meant a collection of oaks. Another theory is that ‘Chedoke’ is a corruption of two English words ‘seven’ and ‘oaks’. This theory draws its meaning from the property at the top of the Chedoke Ravine since seven oaks once stood at this location. Today three of those oaks remain and date back over 150 years. It is thought that the local aboriginal people misunderstood the settlers when they referred to this land as ‘Seven Oaks’ and in turn named it ‘Chedoke’. Yet another theory is that ‘Chedoke’ is derived from the Anishnabek language where this area was referred to as ‘Gchi wiidoke gamig’ or the ‘big healing place’.

The approximate population of the Chedoke Creek subwatershed is 66 000 persons with a population density of about 2629 persons per square kilometre. Current land use within the Chedoke Creek subwatershed is predominantly residential, with transportation corridors being the secondary land use (**Table CH- 2**). When traveling to the City of Hamilton, Chedoke Creek subwatershed is one in which all visitors will pass through when entering from the west as the Lincoln Alexander Parkway and Highway 403 are major corridors, above and below the escarpment, respectively. Institutional and open space is the third most common land use in this subwatershed, complementing the 44% of residential lands (**Map CH- 4**). Commercial land use is evident along major transportation routes with the main commercial areas above the escarpment being Mohawk Road and Upper James Street, and below the escarpment being Main Street and King Street. Major industrial land use is located south of Highway 403 adjacent to stream corridors. Two major utility corridors exist, one above and one below the Niagara Escarpment. Above the escarpment the corridor spans the boundaries of the Chedoke West, Lang’s Creek and Mid-Chedoke catchments, while the corridor below the escarpment is used as a rail corridor and travels through Cliffview, Chedoke East and Lower Chedoke Creek catchments. Impervious surfacing within this subwatershed exceeds standards recommended for healthy stream systems.

In this subwatershed there is potential to naturalize an additional 1100 m² 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 not many properties in this subwatershed that have natural features present, there are 483 properties that do accommodate forest, wetland, meadow and riparian/aquatic habitat (**Table CH- 3**). Of these landowners, 153 (or 32%) have been contacted by the Hamilton-Halton Watershed Stewardship Program, and 7 (or 5%) have become Watershed Stewards (**Map CH- 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 also act as Watershed Stewards as 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 the Chedoke East catchment surrounding the historical Chedoke Ravine. This area also boasts an active Friends of Chedoke group along Chedoke Avenue, below the escarpment. Isolated steward areas are located adjacent to Iroquoia Heights Conservation Area in Chedoke West catchment, within the Cliffview catchment and adjacent to the Hamilton Escarpment Environmentally Significant Area (ESA). The Royal Botanical Gardens is also named a Watershed Steward for its protection of the ecologically significant lands at Cootes Paradise Marsh in the Lower Chedoke Creek catchment. The majority of landowner contact initiatives have been completed adjacent to the Hamilton Escarpment ESA; therefore there is much opportunity to contact the remaining landowners within this subwatershed, especially public landowners along stream corridors.

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 CH- 4** displays the status of Ancaster Creek subwatershed when compared to these Federal guidelines.

Due to the high percentage of impervious surfacing and as a result of this subwatershed being altered to such a great extent through urban development, proper BMPs regarding storm water management must be enforced and must encourage groundwater infiltration in order to maintain or enhance warm water fisheries.

This subwatershed is severely degraded due to urban development and intensification. Much of the natural land cover has been replaced with impervious surfacing and many of

the Chedoke Creek tributaries have been buried over time. To de-list Hamilton Harbour as an Area of Concern it is important that restoration occurs within this subwatershed, by reducing sedimentation and phosphorous loading. This can be achieved through the implementation of urban stormwater best management practices (before and after development occurs), by increasing natural cover (upland forest and restoration of historical wetlands), through increased awareness of practices contributing to phosphorus loading, and through the completion of natural channel design projects where viable.

Table CH- 2: Land Use Statistics

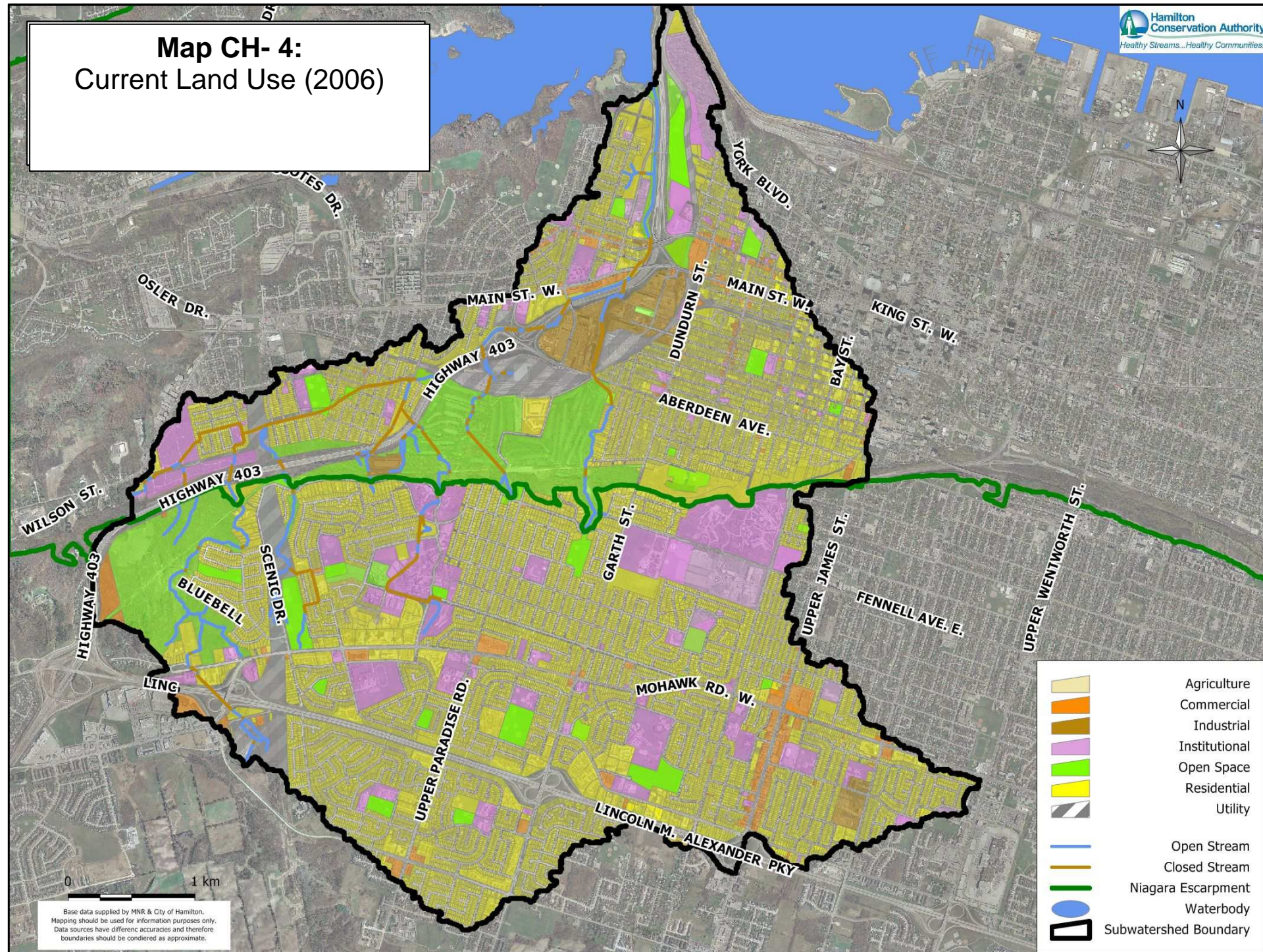
Area (km ²)	Agricultural (km ²)	Commercial (km ²)	Industrial (km ²)	Institutional (km ²)	Open Space (km ²)	Residential (km ²)	Transportation (km ²)	Utility (km ²)	Impervious Surfacing (%)
25.1	0.001	0.7	0.6	3.2	3.0	11.0	5.5	1.1	76

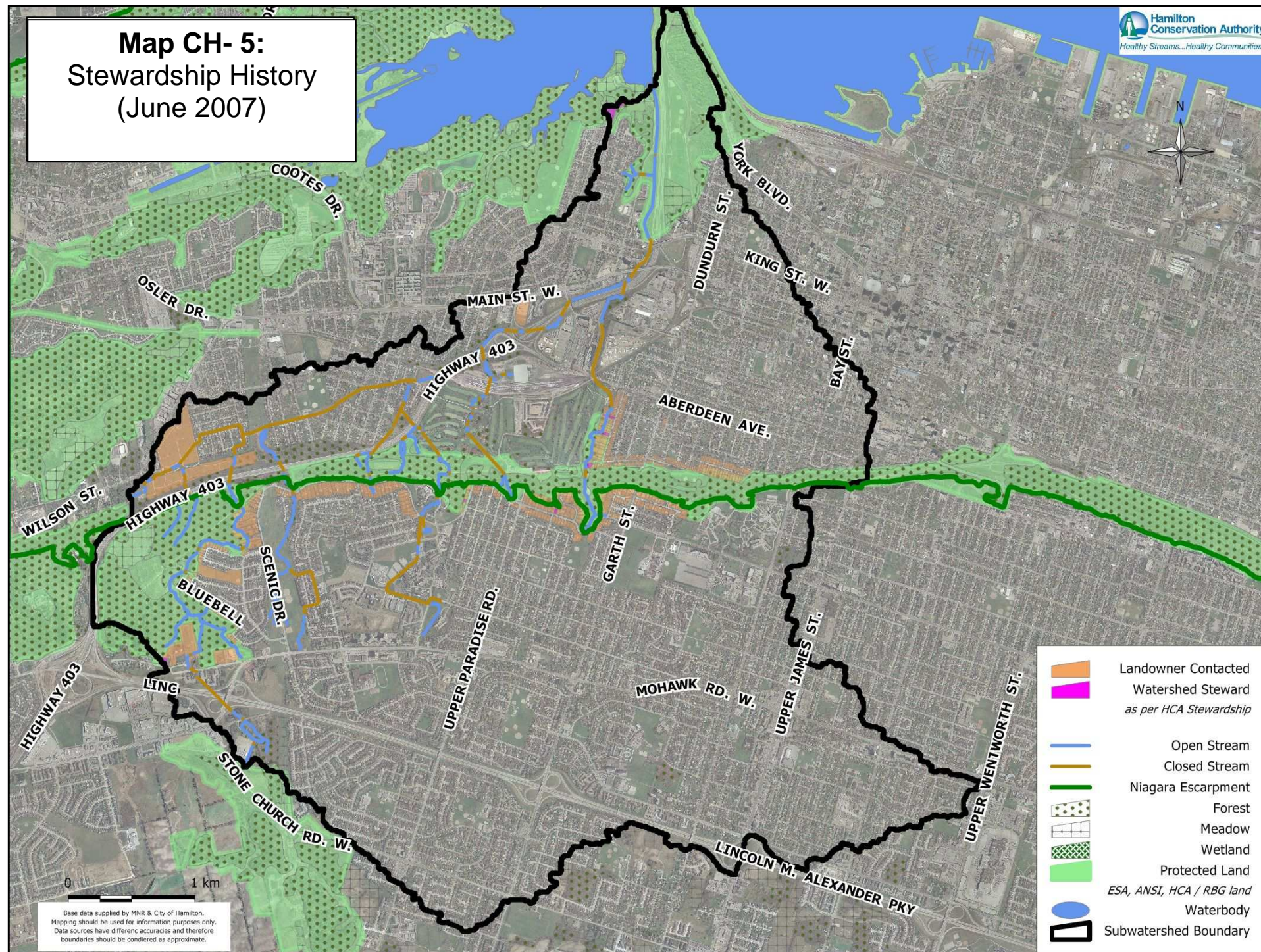
Table CH- 3: Stewardship Statistics

Approximate Population	Population Density (persons / km ²)	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
66 000	2629	483	153	7	449	8

Table CH- 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
GUIDELINE	6	75% with 30m buffer on either side	Below 25 mg/L	< 10	Based on historical data / watershed characteristics	30	2km ² & min 500m wide	10% < 100m from forest edge
SUBWATERSHED STATUS	0.02	n/a	n/a	76	Historically warm – now warm	9.6	0.7km ² & a section is > 500m wide	n/a





SUBWATERSHED STRESSES & STEWARDSHIP ACTIONS

There are fifteen Subwatershed-wide Stresses identified within the Chedoke 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 CH-5**.Error! Reference source not found.

Table CH-6 outlines the Stewardship Actions and measurable targets for each of the Subwatershed-wide Stresses listed in **Table CH-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 Chedoke Creek subwatershed, 82 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 CH-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 urban intensification in the Mid-Chedoke, Chedoke East and Lower Chedoke Creek catchments of this subwatershed is of main concern to the fisheries potential as it increases the potential for erosion downstream. Present natural systems (aquatic & terrestrial) must remain intact and preserved and be used as a foundation for restoration in this warm water 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 upland forest restoration above the escarpment 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 urban area of the City of Hamilton.



Findings of note in this subwatershed to highlight in this plan are the extensive natural areas bordering the Niagara Escarpment, the open stream tributaries and the Friends of Chedoke

group along the Chedoke Ravine. 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.

Table CH- 5: Dominant & Associated Subwatershed-wide Stresses

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 CH-6 Stewardship Actions & Inventories of Site Level Stresses

SUBWATERSHED-WIDE STRESS	STEWARDSHIP ACTIONS		
	Awareness Opportunity	Special Study Opportunity	Restoration Opportunity
<p>Channelization / Buried Streams Map Code: CB</p>  <p>Definition: The structural alteration of a stream channel, usually involves straightening of meanders and increasing gradient which increases velocity and erosion potential.</p> <hr/> <p>Inventory of Sites Identified = 6</p> <p>Catchment Locations: Mid-Chedoke (2) Cliffview (1) Chedoke East (3)</p> <hr/> <p>Audience: CITY / HHHBA / developers / private & public landowners</p>	<p>2008-2012: Utilize workshops, information sessions, literature, webpages, interpretive signage & direct landowner contact to create awareness regarding the detrimental effects of channelized and buried streams;</p> <ul style="list-style-type: none"> ▪ Partners: DFO / HCA / MNR / Ont. Stewardship Council / HHWSP 	<p>By 2010: Identify sites for undertaking buried stream “daylighting” projects in the subwatershed;</p> <ul style="list-style-type: none"> • Partners: HCA / CITY / MNR / post-sec. schools / HHWSP <p>By 2010: Assess landowner motivation for contributing to natural channel design;</p> <ul style="list-style-type: none"> • Partners: HCA / MNR / post-sec. schools / HHWSP <p>By 2012: 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"> ▪ Partners: HCA / MNR / post-sec. schools 	<p>2011-2012: 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"> ▪ Partners: CITY / DFO / FSRT / HCA / Ont. Stewardship Council / landowners & citizens / HHWSP ▪ <p>By 2012: Work with private landowners to undertake one “daylighting” / natural channel design project;</p> <ul style="list-style-type: none"> ▪ Partners: CITY / DFO / FSRT / HCA / Ont. Stewardship Council / landowners & citizens / HHWSP
<p>Debris Jams Map Code: DJ</p>  <p>Definition: The accumulation of large woody debris across a stream channel which impedes flow and prevents fish migration.</p> <hr/> <p>Inventory of Sites Identified = 0</p> <hr/> <p>Audience: CITY / private & public landowners</p>	<p>2008-2012: Utilize workshops, information sessions, literature, webpages, interpretive signage & direct landowner contact to create awareness regarding the environmental impacts of debris jams as fish barriers & flooding hazards;</p> <ul style="list-style-type: none"> ▪ Partners: HCA / MNR / Ont. Stewardship Council / HHWSP 	<p>By 2010: 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"> ▪ Partners: HCA / MNR / post-sec. schools / HHWSP <p>By 2010: Assess landowner motivation for contributing to barrier removal projects;</p> <ul style="list-style-type: none"> ▪ Partners: HCA / MNR / post-sec. schools / HHWSP 	<p>2011-2012: Remove debris jams based on the barrier removal project recommendations;</p> <ul style="list-style-type: none"> ▪ Partners: CITY / DFO / FSRT / HCA / Ont. Stewardship Council / landowners & citizens / HHWSP

Detachment from Nature
Map Code: DT

Definition: The condition of people disassociating their existence from nature.



Inventory of Sites Identified = 0

Audience: private & public landowners

2008-2012: Initiate a community greening project with watershed partners to deliver messaging to targeted audiences. Utilize workshops, information sessions, literature, webpages & direct landowner contact to create awareness regarding urban BMPs and the ecological significance of natural features;
▪ **Partners:** BARC / CITY / FSRT / Green Venture / HCA / Ont. Stewardship Council

2008-2012: Erect creek crossing & ecological corridor signage along roadways;
▪ **Partners:** BARC / CITY / FSRT / Green Venture / HCA / Ont. Stewardship Council / WPN

2008-2012: Implement Adopt-a-Creek projects in communities where Friends of groups are possible;
▪ **Partners:** BARC / Environment Hamilton / HCA / school boards / landowners & citizens / HHWSP

2008-2012: Continue to implement the Watershed Steward Award Program;
▪ **Partners:** BARC / Environment Hamilton / HCA / school boards / landowners & citizens / HHWSP

By 2011: Utilize citizen groups to conduct local watershed monitoring & reporting projects (including water quality, naturalization projects & litter hotspots);
▪ **Partners:** BARC / Environment Hamilton / HCA / school boards / landowners & citizens

By 2010: Initiate a minimum of one volunteer-based program to complete restoration projects on private & public lands with local landowners including schoolyard naturalization, litter clean up, removal of encroaching material, etc.;
▪ **Partners:** FSRT / HCA / Ont. Stewardship Council / school boards landowners & citizens / HHWSP

**Development
Map Code: DV**

Definition: The process of developing populated settlements; including housing and supporting infrastructure.



Inventory of Sites Identified = 12

Catchment Locations:

Chedoke West (2)
Lang's Creek (1)
Mid-Chedoke (2)
Cliffview (1)
Chedoke East (3)
Lower Chedoke Creek (3)

Audience: CITY / HHHBA / developers / private landowners

2008-2012: Host annual training sessions for City staff & 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 & sediment control measures, compliance & enforcement, etc.);

- **Partners:** BARC / CITY / DFO / FSRT / Green Venture / HCA / MTO

2008-2012: Apply Yellow Fish Road to all catchbasins on streets and in parking areas to educate private landowners post-development;

- **Partners:** BARC / CITY / DFO / FSRT / Green Venture / HCA / MTO

2008-2012: Continue to complete ecological surveys (using the Ecological Land Classification system) to ensure species at risk habitat or rare ecological areas are not disrupted;

- **Partners:** CITY / HCA / post-sec. schools

2008-2012: 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;

- **Partners:** CITY / HCA / post-sec. schools

2008-2012: 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;

- **Partners:** BARC / CITY / DFO / FSRT / Green Venture / HCA / MTO

2008-2012: Use the terrestrial habitat and ecological linkages identified in this plan to preserve & rehabilitate these areas as part of new Greenfield developments in the subwatershed;

- **Partners:** HCA / CITY

2008-2012: Enhance groundwater recharge by ensuring that 70% of all land, post construction must remain pervious as a condition for development application approval;

- **Partners:** HCA / CITY

2008-2012: 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);

- **Partners:** HCA / CITY

Encroachment
Map Code: EN

Definition: The act of undertaking practices on another person's property, i.e. erecting structures, planting gardens, disposal of waste.



Inventory of Sites Identified = 3

Catchment Locations:

Chedoke West (1)
Lang's Creek (2)

Audience: private & public landowners

2008-2012: Utilize workshops, information sessions, literature, webpages, signage & direct landowner contact to create awareness regarding encroachment impacts to terrestrial habitat as well as the ecological significance of riparian buffers & natural areas (public lands);

- **Partners:** CITY / HCA / Ont. Stewardship Council / RBG / local nurseries & landscaping co.'s / HHWSP

2008-2012: Utilize workshops, information sessions, literature, webpages, interpretive signage & direct landowner contact to create awareness regarding encroachment impacts to terrestrial habitat as well as the ecological significance of riparian buffers & natural areas (private lands);

- **Partners:** CITY / HCA / Ont. Stewardship Council / RBG / local nurseries & landscaping co.'s / HHWSP

By 2010: Work with local nurseries & landscaping co.'s to educate / encourage landowners to use native plants;



- **Partners:** CITY / HCA / Ont. Stewardship Council / RBG / Green Venture / local nurseries & landscaping co.'s / HHWSP

2009-2012: Utilize citizen groups to monitor restored sites on an annual basis to ensure mitigation of encroachment on public lands remains effective & to encourage neighbour-to-neighbour mentoring;

- **Partners:** HCA / landowners & citizens / HHWSP / CITY / RBG

2008-2012: Continue to work with neighbours to encourage community events to remove existing encroachments on public lands;

- **Partners:** FSRT / HCA / Ont. Stewardship Council / landowners & citizens / HHWSP/ RBG / CITY

<p>Erosion Map Code: ER</p>  <p>Definition: The process of eroding or the condition of being eroded; commonly occurs as scouring or slumping.</p> <hr/> <p>Inventory of Sites Identified = 3</p> <p>Catchment Locations: Lang's Creek (1) Cliffview (1) Lower Chedoke Creek (1)</p> <hr/> <p>Audience: CITY / HHHBA / developers / private & public landowners</p>	<p>2008-2012: Host training sessions for City staff and developers to create awareness regarding BMPs & importance of properly maintained erosion / sediment control measures & enforcement;</p> <ul style="list-style-type: none"> ▪ Partners: CITY / DFO / HCA / Ont. Stewardship <p>2008-2012: Utilize workshops, information sessions, literature, webpages, interpretive signage & direct private & public landowner contact to create awareness regarding the importance of riparian buffers & proper land management practices;</p> <ul style="list-style-type: none"> ▪ Partners: CITY / DFO / HCA / Ont. Stewardship Council / HHWSP 	<p>By 2010: Complete field study of stream morphology, determining erosion hotspots & associated causes;</p> <ul style="list-style-type: none"> ▪ Partners: CITY / HCA / post-sec. schools 	<p>2008-2012: Utilize enforcement scheme to enforce maintenance of erosion / sediment control measures on new development sites;</p> <ul style="list-style-type: none"> ▪ Partners: DFO / CITY / HCA / Ont. Stewardship Council / landowners & citizens <p>2008-2012: Reduce erosion and promote awareness through the completion of a streambank stabilization / natural channel design demonstration project;</p> <ul style="list-style-type: none"> ▪ Partners: DFO / CITY / HCA / Ont. Stewardship Council / landowners & citizens / HHWSP <p>2008-2012: Undertake a minimum of one riparian buffer project on private & public lands to reduce erosion. Promote no mow zones a minimum of 3m from top of bank on public and private lands;</p> <ul style="list-style-type: none"> ▪ Partners: DFO / CITY / HCA / Ont. Stewardship Council / landowners & citizens / HHWSP
<p>Eco-Tourism Related Degradation Map Code: ET</p>  <p>Definition: Recreational activities occurring in natural areas that inadvertently degrade the natural features of the area.</p> <hr/> <p>Inventory of Sites Identified = 14</p> <p>Catchment Locations: Chedoke West (2) Lang's Creek (2) Mid-Chedoke (3) Cliffview (4) Chedoke East (3)</p> <hr/> <p>Audience: visitors to natural areas</p>	<p>2008-2012: Provide signage noting the environmental significance of natural areas & BMPs for eco-tourists;</p> <ul style="list-style-type: none"> ▪ Partners: CITY / HCA / Ont. Stewardship Council / RBG 	<p>2009-2012: When undertaking master planning exercises, consider developing trails along ecological linkages noted in study area;</p> <ul style="list-style-type: none"> ▪ Partners: BTA / CITY / HCA / RBG 	<p>2010-2012: Develop trails to meet guidelines set in HCA's Planning & Regulation Policies & Guidelines;</p> <ul style="list-style-type: none"> ▪ Partners: BTA / CITY / HCA / RBG

**Terrestrial
Habitat
Fragmentation &
Lack of Riparian
Buffers
Map Code: HR**



Definition: Disruption of large continuous tracts of habitat; often occurring along watercourses.

Inventory of Sites Identified = 16

Catchment Locations:

Chedoke West (5)
Lang's Creek (4)
Mid-Chedoke (3)
Cliffview (1)
Chedoke East (1)
Lower Chedoke Creek (2)

Audience: private & public landowners (CITY / golf courses / HCA / HYDRO ONE / MTO / RBG / school boards)

2008-2012: Meet with public landowners to create working relationship for land stewardship on public lands;

- **Partners:** HCA / Ont. Stewardship Council / HHWSP

2008-2012: Utilize workshops, information sessions, literature, webpages, interpretive signage & direct private landowner contact to create awareness regarding the importance of riparian buffers & natural areas;

- **Partners:** HCA / Ont. Stewardship Council / HHWSP

2009-2012: Create demonstration sites on public lands that focus on varying types of terrestrial and aquatic restoration projects;

- **Partners:** CITY / FSRT / HCA / Ont. Stewardship Council / school boards / landowners & citizens / HHWSP

2008-2009: Develop How Much Habitat is Enough targets & potential restoration sites for each subwatershed, as well as specific areas to connect using eco-link recommendations in catchment summaries & determine specific species habitat to target;

- **Partners:** CITY / HCA / post-sec. schools / HHWSP

2008-2009: Assess landowner motivation for increasing forest, wetland, riparian & meadow / prairie habitat;

- **Partners:** CITY / HCA / post-sec. schools / HHWSP

2008-2012: Contact all landowners of natural areas and watercourses. A minimum of one Watershed Steward Award Recipient and one rehabilitation project to be completed;

- **Partners:** CITY / FSRT / HCA / Ont. Stewardship Council / school boards / landowners & citizens / HHWSP

2009-2012: Undertake a minimum of one restoration project per year on public lands, with an emphasis on utility corridors, for connectivity and demonstration sites;

- **Partners:** CITY / FSRT / HCA / Ont. Stewardship Council / school boards / landowners & citizens / HHWSP

**On-line Ponds
and Culverts**
Map Code: PC



Definition:

In-stream structures that when improperly designed, inadvertently create barriers to water flow and fish migration.

Inventory of Sites Identified = 1

Catchment Locations:

Chedoke West (1)

Audience: CITY / private & public landowners

2008-2012: Utilize workshops, information sessions, literature & webpage, interpretive signage & direct landowner contact to create awareness regarding environmental effects of on-line ponds;

- **Partners:** DFO / HCA / MNR / Ont. Stewardship Council / HHWSP

2008-2011: Utilize workshops, information sessions, literature & webpages, interpretive signage & direct landowner contact to create awareness regarding environmental effects of perched & closed bottom culverts;

- **Partners:** DFO / HCA / MNR / Ont. Stewardship Council / HHWSP

By 2010: Assess landowner motivation for removing/retrofitting existing on-line ponds;

- **Partners:** HCA / MNR / post-sec. schools / local eng. co.'s / HHWSP

2008-2012: Use local colleges / universities or volunteer consultants to complete studies & design for rehabilitation projects

- **Partners:** HCA / MNR / post-sec. schools / local eng. co.'s / HHWSP

2010: Assess landowner motivation for removing/retrofitting existing perched and/or closed bottom culverts;

- **Partners:** HCA / MNR / post-sec. schools / local eng. co.'s / HHWSP

2008-2012: Use local colleges / universities or volunteer consultants to complete studies & designs for rehabilitation projects;



- **Partners:** HCA / MNR / post-sec. schools / local eng. co.'s / HHWSP


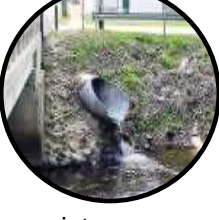
2008-2012: Rehabilitate/retrofit a minimum of one on-line pond;


- **Partners:** DFO / CITY / HCA / post-sec. schools / local eng. co.'s / HHWSP

2008-2012: Rehabilitate/retrofit a minimum of one perched & closed bottom culvert;

- **Partners:** DFO / CITY / HCA / post-sec. schools / local eng. co.'s / HHWSP

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

<p>Plowed Watercourse Map Code: PW</p>  <p>Definition: Headwater swales or small watercourses that are worked for agricultural production.</p> <hr/> <p>Inventory of Sites Identified = 0</p> <hr/> <p>Audience: private agricultural landowners</p>	<p>2008-2012: Utilize workshops, information sessions, literature & webpages & direct private landowner contact to create awareness regarding environmental effects of plowed watercourses;</p> <ul style="list-style-type: none"> ▪ Partners: DFO / HCA / OMAFRA / Ont. Stewardship Council / HHWSP <p>2008-2012: 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"> ▪ Partners: Stewardship Council / HHWSP / OSCIA 	<p>2010: Assess landowner motivation for installing grassed waterways and riparian buffers;</p> <ul style="list-style-type: none"> ▪ Partners: HCA / OMAFRA / HHWSP / HWSCIA 	<p>2008-2012: 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"> ▪ Partners: HCA / landowner / HHWSP
<p>Stormsewer Outfalls / CSO's Map Code: SO</p>  <p>Definition: The point where a combined sewer overflow system discharges into a watercourse during a storm event.</p> <hr/> <p>Inventory of Sites Identified = 19</p> <hr/> <p>Catchment Locations: Chedoke West (2) Lang's Creek (2) Mid-Chedoke (5) Cliffview (2) Chedoke East (4) Lower Chedoke Creek (4)</p> <hr/> <p>Audience: children & private landowners (residential / commercial / industrial)</p>	<p>2008-2012: 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 & the impacts of CSO outfalls on stream systems;</p> <ul style="list-style-type: none"> • Partners: BARC / CITY / FSRT / HCA <p>2008-2012: Support Sewer-Use Bylaw enforcement (City of Hamilton By-law No. 04-150);</p> <ul style="list-style-type: none"> ▪ Partners: BARC / CITY / FSRT / HCA 	<p>2008-2012: Conduct water quality testing at storm sewer outfalls to support a study on illegal sewer hookups, Sewer Use Bylaw enforcement, & restoration efforts;</p> <ul style="list-style-type: none"> ▪ Partners: CITY / HCA / post-sec. schools <p>2008-2012: Conduction water quality testing at CSO outfalls pre and post mitigation to support mitigation measures;</p> <ul style="list-style-type: none"> ▪ Partners: CITY / HCA / post-sec. schools 	<p>2008-2010: Reduce flows & sedimentation through riparian buffer establishment downstream of CSO outfalls (public lands);</p> <ul style="list-style-type: none"> ▪ Partners: CITY / FSRT / Green Venture / HCA / Ont. Stewardship Council / landowners & citizens <p>By 2012: 80% of connected downspouts to be disconnected & rain barrels to be utilized as an alternative;</p> <ul style="list-style-type: none"> ▪ Partners: CITY / FSRT / Green Venture / HCA / Ont. Stewardship Council / landowners & citizens

<p>Stormwater Mismanagement Map Code: SWM</p>  <p>Definition: Inadequately managing stormwater to control flooding and protect property; often associated with the drainage of developed lands.</p> <hr/> <p>Inventory of Sites Identified = 3</p> <p>Catchment Locations: Chedoke West (2) Mid-Chedoke (1)</p> <hr/> <p>Audience: HHHBA / developers / private & public landowners (residential / commercial / industrial)</p>	<p>2008-2012: Continue to promote Best Management Practices as per HCA Planning and Regulations Policy and Guidelines and new provincial directives for new developments; <ul style="list-style-type: none"> ▪ Partners: CITY / Green Venture / HCA </p> <p>2008-2012: Utilize workshops, information sessions, literature, webpages & 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); <ul style="list-style-type: none"> ▪ Partners: CITY / Green Venture / HCA </p>	<p>By 2010: Determine percentage of landowners with connected downspouts; <ul style="list-style-type: none"> ▪ Partners: CITY / Green Venture / HCA </p> <p>By 2010: Assess landowner motivation for disconnection & implementing source control measures; <ul style="list-style-type: none"> ▪ Partners: CITY / Green Venture / HCA </p>	<p>By 2012: 80% of connected downspouts to be disconnected & rain barrels to be utilized as an alternative; <ul style="list-style-type: none"> ▪ Partners: CITY / Green Venture / HCA / landowners </p> <p>2008-2012: Retro-fit a minimum of one existing storm water management pond to a wet pond based on water quality, aquatic habitat & erosion control benefits; <ul style="list-style-type: none"> ▪ Partners: CITY / Green Venture / HCA / landowners </p>
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**Water
Contamination
through
Transportation
Corridors
Map Code: TC**



Definition: 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.

Inventory of Sites Identified = 3

Catchment Locations:

Mid-Chedoke (2)
Chedoke East (1)

Audience: CITY / MTO

2008-2012: Host training sessions for City staff to create awareness & encourage environmentally friendly road salt alternatives & proper snow removal practices;

- **Partners:** CITY / DFO / HCA / MTO / Ont. Stewardship Council

By 2010: Determine the best method to mitigate contamination from transportation corridors into watercourses by studying alternatives to road salt for de-icing & incorporating into a road salt management plan;

- **Partner:** CITY / HCA / MTO / post-sec. schools

2010-2012: Implement road salt management plans & 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 & roadsides, where ditches are present incorporate non-invasive native vegetation;

- **Partners:** CITY / MTO

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 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 Conserver 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)

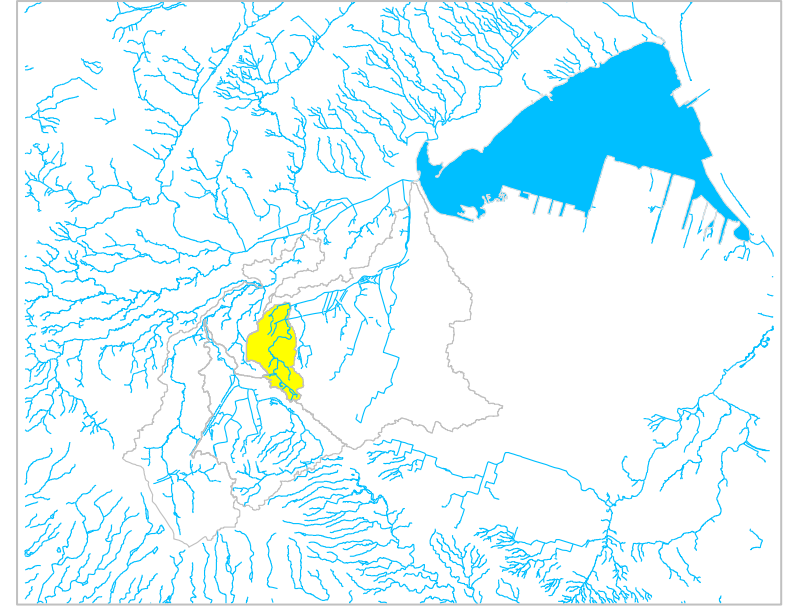
TARGET AUDIENCES:

- 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

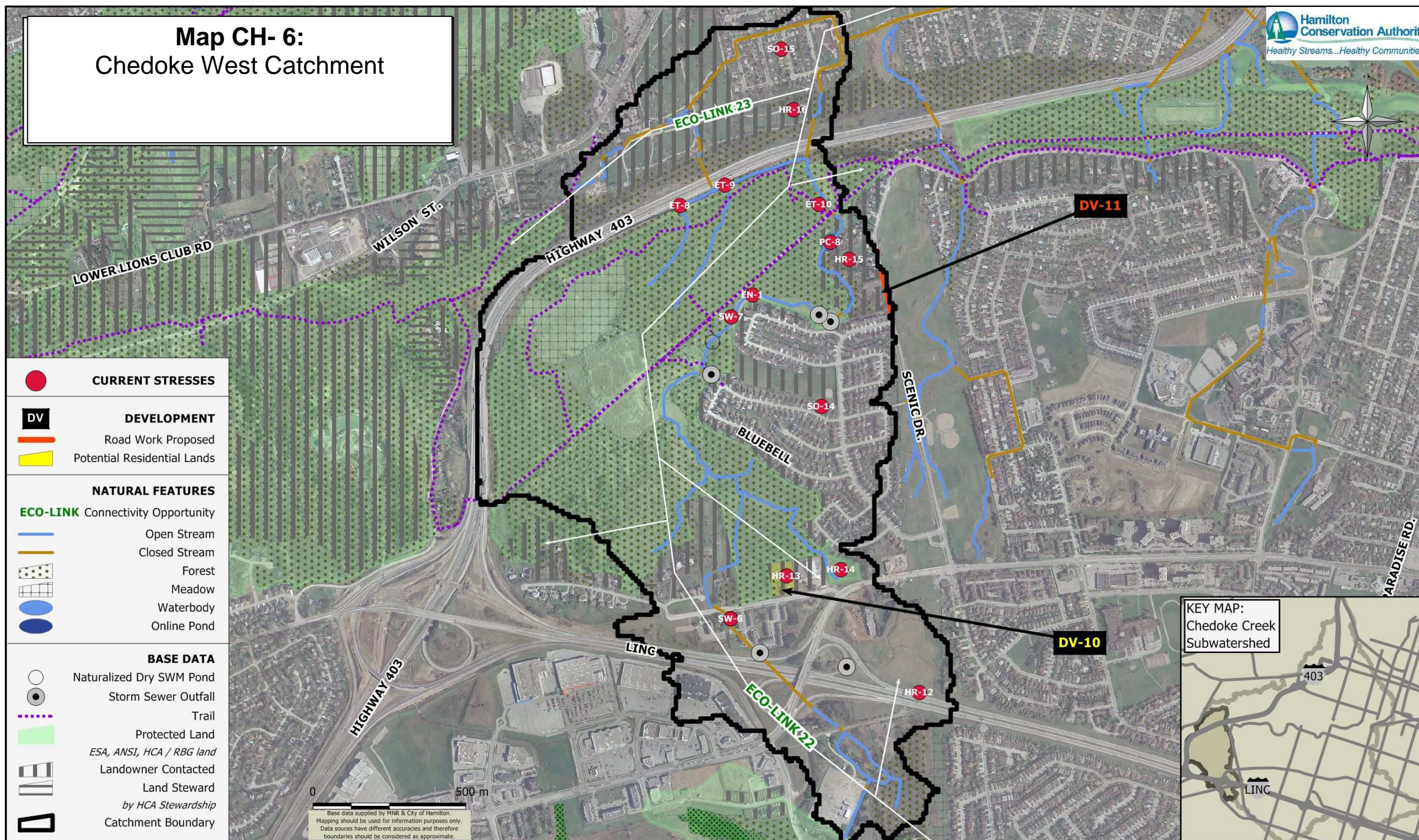
This section of the plan identifies the Site-level Stresses within each catchment of Tiffany Creek subwatershed. A summary of these stresses, proposed ecological linkage / trail opportunities, and associated watershed monitoring results are indicated in the data sheets following the catchment map. Ecological 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, 82 Site-level Stresses were identified for the Ancaster Creek subwatershed and inventory counts are presented in Table CH- 6.



CHEDOKE WEST CATCHMENT
DATA SHEETS

Map CH- 6: Chedoke West Catchment



CHEDOKE WEST DATA SHEET

SITE-LEVELSTRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
DV-10	Potential Residential Lands	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DV-11	Road Work Proposed – improvements	<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		
EN-1	Encroachment	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ET-8	Eco-tourism at West Iroquoia Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
ET-9	Eco-tourism at East Iroquoia Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
ET-10	Eco-tourism at Scenic Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-12	Habitat restoration – naturalization & potential wildlife overpass / underpass	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-13	Habitat restoration – increase forest habitat		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
HR-14	Habitat restoration – increase forest habitat	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-15	Habitat restoration – increase forest habitat		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
HR-16	Habitat restoration – increase forest habitat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
PC-8	Online pond		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SO-14	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-15	Combined sewer system		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
SW-6	Dry storm water management pond naturalization		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
SW-7	Poor storm water management resulting in scouring & stagnant areas	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

- By 2010 determine potential for wildlife underpass connecting hydro lands north & south of Lincoln Alexander Parkway (Partners: CITY / HCA / post-sec. schools)

CHEDOKE WEST DATA SHEET

ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
22	<p>South to North Link:</p> <ul style="list-style-type: none">▪ Stream corridor with riparian & forest habitat connecting Tiffany Creek subwatershed in south to Chedoke Creek Mid-Chedoke catchment to north & Chedoke Creek Lang's Creek catchment to east; potential wildlife underpass at Linc▪ Incorporate existing riparian & forest habitat adjacent to stream corridor & through Iroquoia Heights ESA▪ Incorporate & preserve forest habitat at southern extent of corridor within Hydro-one property▪ Reduce / eliminate mowed area near Hwy within Hydro corridor & City property (HR-12) & create wildlife underpass to improve connectivity & road safety on Linc▪ Extend forest habitat (HR-13 & HR-14) & riparian habitat to connect to main branch in west▪ Connection with forest habitat through Iroquoia Heights ESA / CA to Ancaster Creek subwatershed▪ Incorporate in-stream plantings downstream of storm sewer outfalls along Chedoke Creek (SO-14)▪ Potential for reduction of sedimentation & increase in flow through mitigation of poor storm water discharge on HCA property (SW-6)▪ Incorporate naturalized storm water management pond in corridor▪ Increase forest habitat by reducing encroachment (EN-1) around Iroquoia Heights ESA / CA▪ Potential to increase forest habitat on private property (HR-15)▪ Remove online pond (PC-8) & rehabilitate stream corridor (DFO compensation project potential)▪ Trail opportunities through waterfall site (ET-10)▪ Incorporate riparian habitat along tributary to west with trail opportunities through waterfall sites (ET-8, ET-9)▪ Incorporate and connect to Chedoke Creek Lang's Creek catchment to east▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 18, 23, 24▪ Audience: Hydro-One, HCA Land Management, MTO, City Transportation, Memorial Gardens, private landowners
23	<p>West to East Link:</p> <ul style="list-style-type: none">▪ Hydro corridor connecting with Ancaster Creek subwatershed to west with main branch of creek to east▪ Naturalize with non-invasive native low-lying plants▪ Incorporate existing riparian habitat within Memorial Gardens property▪ Potential to increase terrestrial habitat along hydro corridor & within Memorial Gardens property (HR-16) – demonstration site potential▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 22▪ Audience: Hydro-One, Memorial Gardens

CHEDOKE WEST DATA SHEET

FISHERIES ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

BENTHICS ASSESSMENT

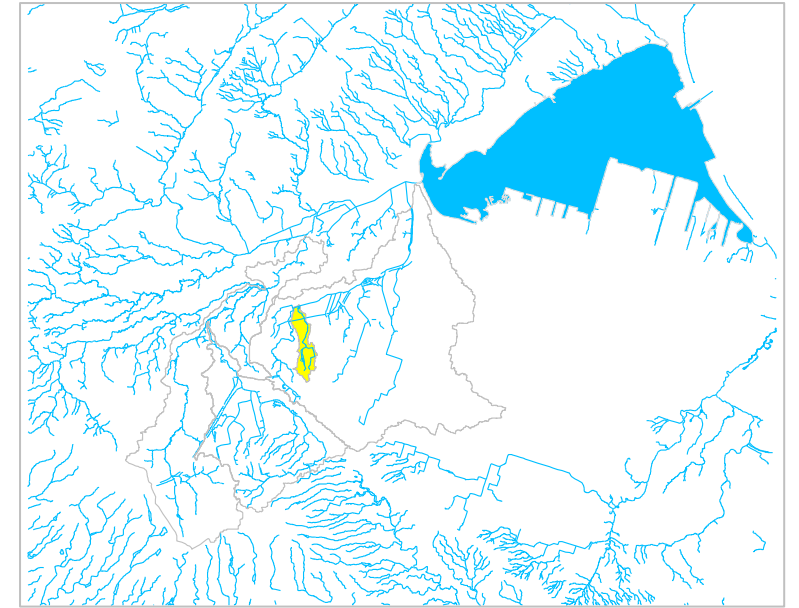
LOCATION	DATE	DESCRIPTION
n/a		

WATER QUALITY ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

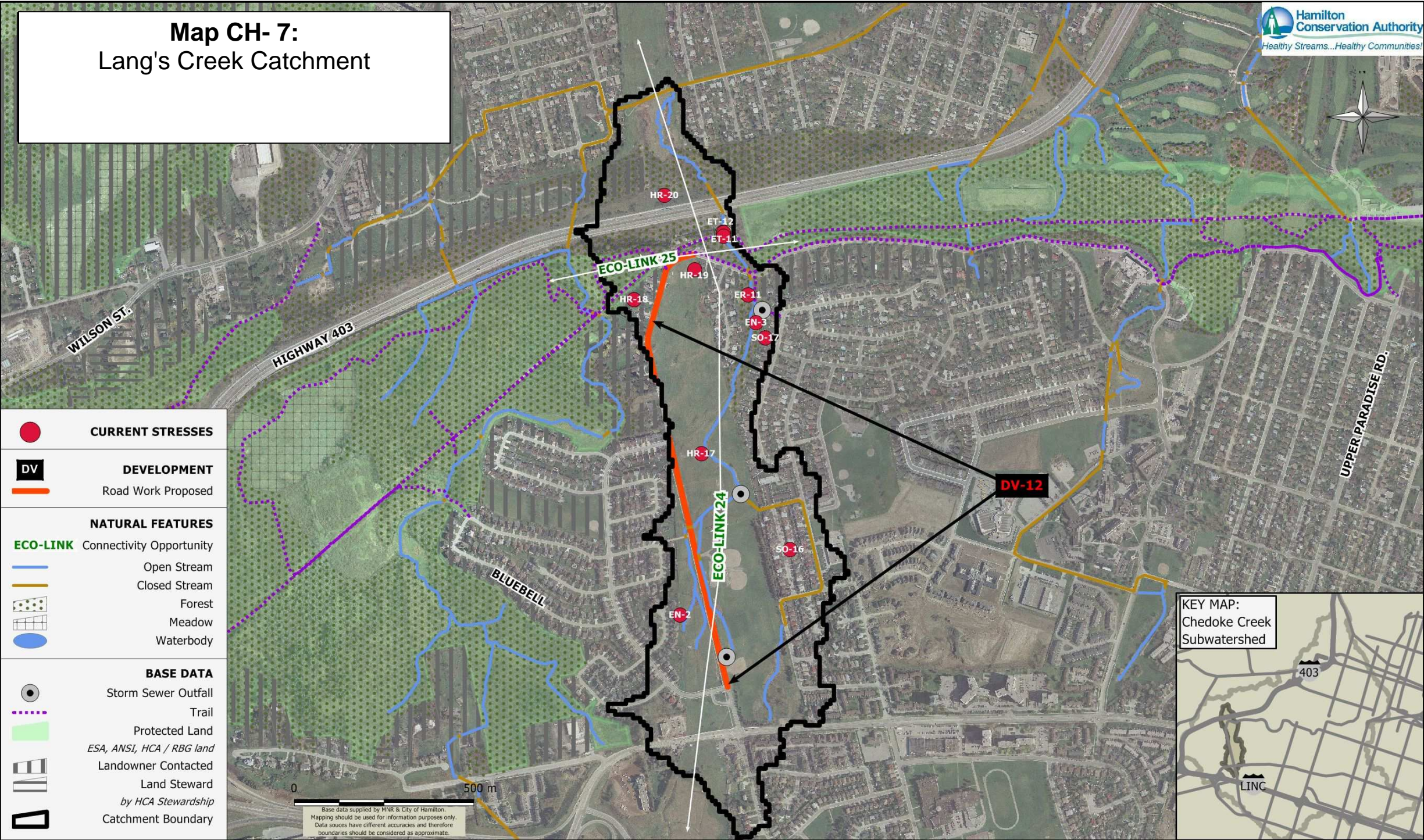
WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		



LANG'S CREEK CATCHMENT
DATA SHEETS

Map CH- 7:
Lang's Creek Catchment



LANG’S CREEK DATA SHEET

SITE-LEVELSTRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
DV-12	Road Work Proposed – improvements	<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		
EN-2	Encroachment	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
EN-3	Encroachment	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ER-11	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"/>
ET-11	Ecotourism at Princess Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
ET-12	Ecotourism at Lower Princess Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
HR-17	Habitat restoration – increase meadow habitat & potential for wildlife overpass / underpass	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-18	Habitat restoration – increase forest habitat		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
HR-19	Habitat restoration – increase forest habitat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-20	Habitat restoration – increase forest habitat	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-16	Storm sewer outfall	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-17	Storm sewer outfall	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

* By 2010 determine potential for wildlife overpass / underpass connecting hydro lands north & south of Hwy 403 (Partners: CITY / HCA / post-sec. schools)

LANG’S CREEK DATA SHEET

ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
24	South to North Link: <ul style="list-style-type: none"> Stream corridor with riparian & forest habitat connecting Chedoke Creek Chedoke West catchment in south to Chedoke Creek Mid-Chedoke catchment to north through utility corridor <ul style="list-style-type: none"> Reduce / eliminate mowed area in Hydro lands and utilize as major wildlife corridor from Tiffany headwaters to Cootes Paradise with potential for wildlife overpass / underpass to improve connectivity Naturalize with non-invasive native low-lying plants Incorporate existing riparian & forest habitat adjacent to stream corridor & through Olympic Park & Lang’s Park (HR-17, HR-19) – demonstration site potential Potential to increase forest habitat on private & City property (HR-19) Enhance buffer area and reduce encroachment within Hydro lands (EN-2) Incorporate & preserve unprotected forest habitat along Escarpment brow within MTO property as well as enhancement of forest habitat on MTO property on south-side of 403 (HR-20) Incorporate in-stream plantings downstream of storm sewer outfalls along Chedoke Creek (SO-16, SO-17) Potential for reduction of sedimentation & increase in flow through mitigation of poor storm water discharge & bank stabilization within Lang’s Park (ER-11) – DFO compensation project potential Enhance natural area by reducing encroachment (EN-3) within Lang’s Park Incorporate forest habitat to east & west along Escarpment brow Wildlife crossing signage / creek crossing signage potential ECO-LINK Connections: 22, 25 Audience: Hydro-One, City Parks, MTO, City Transportation, private landowners
25	West to East Link: <ul style="list-style-type: none"> Connection with Iroquoia Heights ESA / CA to west within Chedoke Creek Chedoke West catchment with Hamilton Escarpment ESA within Chedoke Creek Mid-Chedoke catchment to west <ul style="list-style-type: none"> Incorporate existing forest & riparian habitat adjacent to stream corridor & within ESA properties Preserve & enhance forest habitat on private properties (HR-18) Connection with proposed forest habitat (HR-19) on Hydro property Wildlife crossing signage / creek crossing signage potential ECO-LINK Connections: 22, 24 Audience: City Parks, private landowner

LANG’S CREEK DATA SHEET

FISHERIES ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		

BENTHICS ASSESSMENT

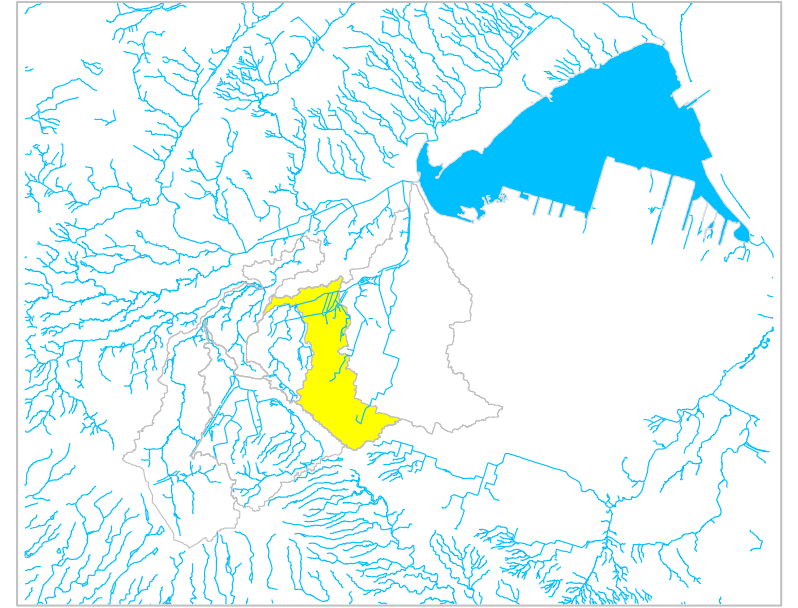
LOCATION	DATE	DESCRPTION
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WATER QUALITY ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		

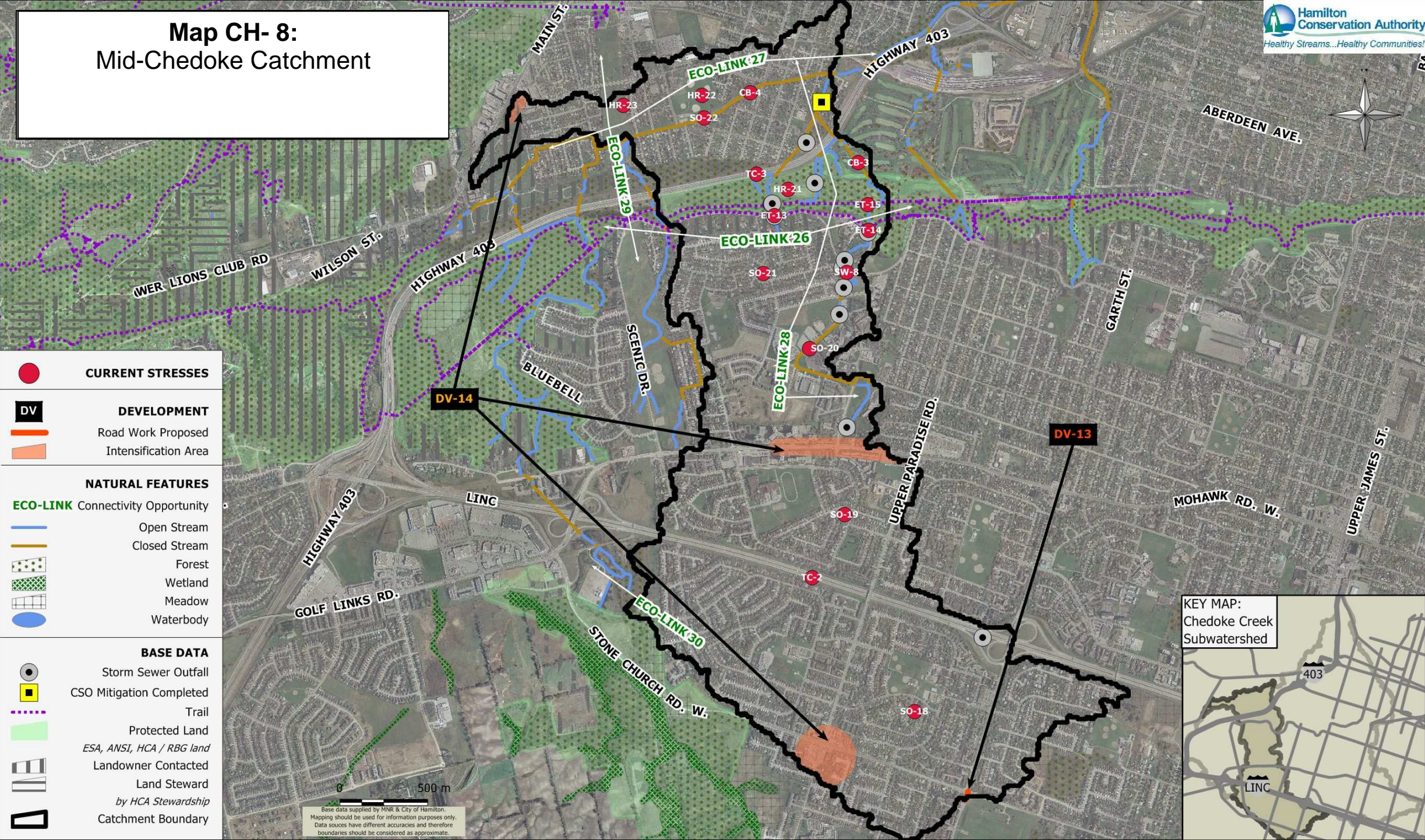
WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		



MID-CHEDOKE CATCHMENT
DATA SHEETS

Map CH- 8:
Mid-Chedoke Catchment



MID-CHEDOKE DATA SHEET

SITE-LEVELSTRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
DV-13	Road Work Proposed – widening	<input checked="" type="checkbox"/>		
DV-14	Intensification Area	<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		
CB-3	Buried stream	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CB-4	Buried stream	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ET-13	Ecotourism at Mountview Falls – potential natural channel design	<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-14	Ecotourism at Upper Sanatorium Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ET-15	Ecotourism at Lower Sanatorium Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-21	Habitat restoration – increase forest habitat / potential green roof project	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-22	Habitat restoration – increase forest habitat	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-23	Habitat restoration – increase meadow habitat	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-18	Storm sewer outfalls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-19	Storm sewer outfalls		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
SO-20	Multiple storm sewer outfall locations along creek		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
SO-21	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-22	Combined sewer system / CSO outfall (MITIGATED)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
SW-8	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-2	Water contamination from Lincoln Alexander Parkway	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
TC-3	Water contamination from Hwy 403	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		

MID-CHEDOKE DATA SHEET

ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
26	<p>West to East Link:</p> <ul style="list-style-type: none">▪ Connection with Niagara Escarpment lands & Iroquoia Heights ESA / CA in Chedoke Creek Lang’s Creek catchment through Hamilton Escarpment ESA to Chedoke Creek Cliffview catchment▪ Incorporate existing forest habitat adjacent to & along Escarpment lands & through Hamilton Escarpment ESA as well as riparian buffers along stream corridors present▪ Incorporate stream corridor to east & opportunities that exist▪ Potential to increase forest habitat or incorporate green-roof on City lands (HR-21) – demonstration site potential▪ Incorporate vegetated filter strips / grassed swales along Hwy 403 medians & roadsides, where ditches are present incorporate non-invasive native vegetation (TC-3)▪ Trail opportunities through waterfall site (ET-13) & potential for natural channel design due to increased erosion at this location (DFO compensation project potential)▪ Private landowners adjacent to Hamilton Escarpment ESA contacted by HCA Stewardship▪ Wildlife crossing signage potential▪ ECO-LINK Connections: 24, 25, 28, 29 <p>Audience: City Parks, MTO, City Transportation, private landowners</p>
27	<p>West to East Link:</p> <ul style="list-style-type: none">▪ Connection with Chedoke Creek Chedoke West catchment through Hydro lands, City parks to Chedoke Creek Cliffview catchment along buried creek corridor▪ Preserve & enhance forest habitat on public properties (HR-22, HR-23)▪ Potential for daylighting creek through public lands currently adjacent to trail (CB-4)▪ Reduced storm water flow through downspout disconnection (SO-22)▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 22, 28, 29 <p>Audience: City Parks, private landowner</p>
28	<p>South to North Link:</p> <ul style="list-style-type: none">▪ Stream corridor with riparian & forest habitat connecting to Niagara Escarpment lands and public lands in northern extent of catchment▪ Incorporate & enhance existing forest & riparian habitat along stream corridor▪ Potential for daylighting creek through Chedoke Golf Course (CB-3)▪ Trail opportunities through waterfall sites (ET-14, ET-15)▪ Incorporate non-invasive native vegetation in retrofitted stormwater management pond (SW-8)▪ Incorporate in-stream plantings downstream of outfalls to reduce water quality degradation & potential to rehabilitate perched culverts / closed bottom culverts (SO-18, SO-19, SO-20, SO-21)▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 26, 27▪ Audience: Chedoke Health Corporation, City Parks
29	<p>South to North Link:</p> <ul style="list-style-type: none">▪ Stream corridor with riparian & forest habitat connecting Chedoke Creek Lang’s Creek catchment in south to Lower Spencer subwatershed to north through utility corridor▪ Incorporate & enhance existing wildlife habitat▪ Reduce / eliminate mowed area in Hydro lands and utilize as major wildlife corridor from Tiffany headwaters to Cootes Paradise▪ Naturalize with non-invasive native low-lying plants (HR-23)▪ Connect to City park to east to be used as bird linkage (plant berry trees / shrubs)▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 22, 25▪ Audience: Hydro-One

ECO-LINK	DESCRIPTION
30	<p>West to East Link:</p> <ul style="list-style-type: none"> ▪ Connection with Chedoke Creek Chedoke West catchment through existing meadow & forest habitat on Hydro lands linking to stream corridor ▪ Preserve & enhance forest habitat on public property ▪ Wildlife crossing signage / creek crossing signage potential ▪ ECO-LINK Connections: 22 <p>Audience: Hydro-One</p>

FISHERIES ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

BENTHICS ASSESSMENT

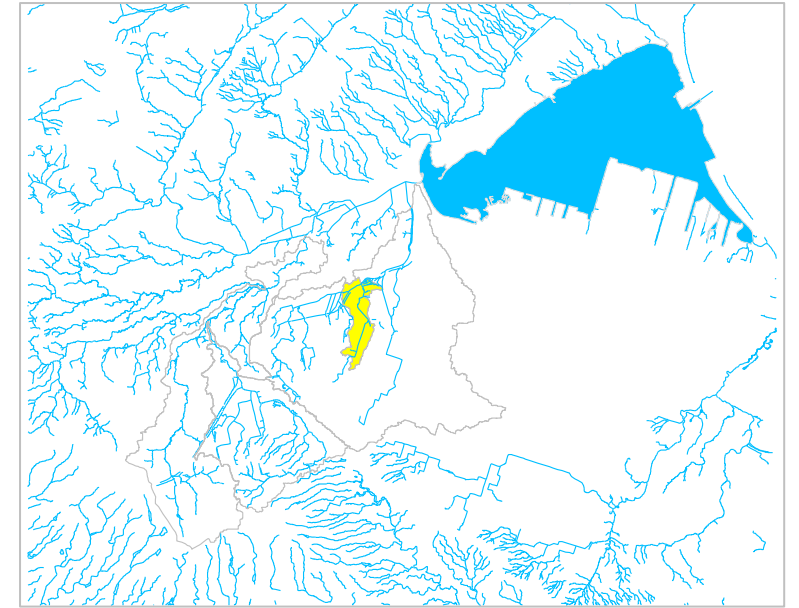
LOCATION	DATE	DESCRIPTION
n/a		

WATER QUALITY ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		

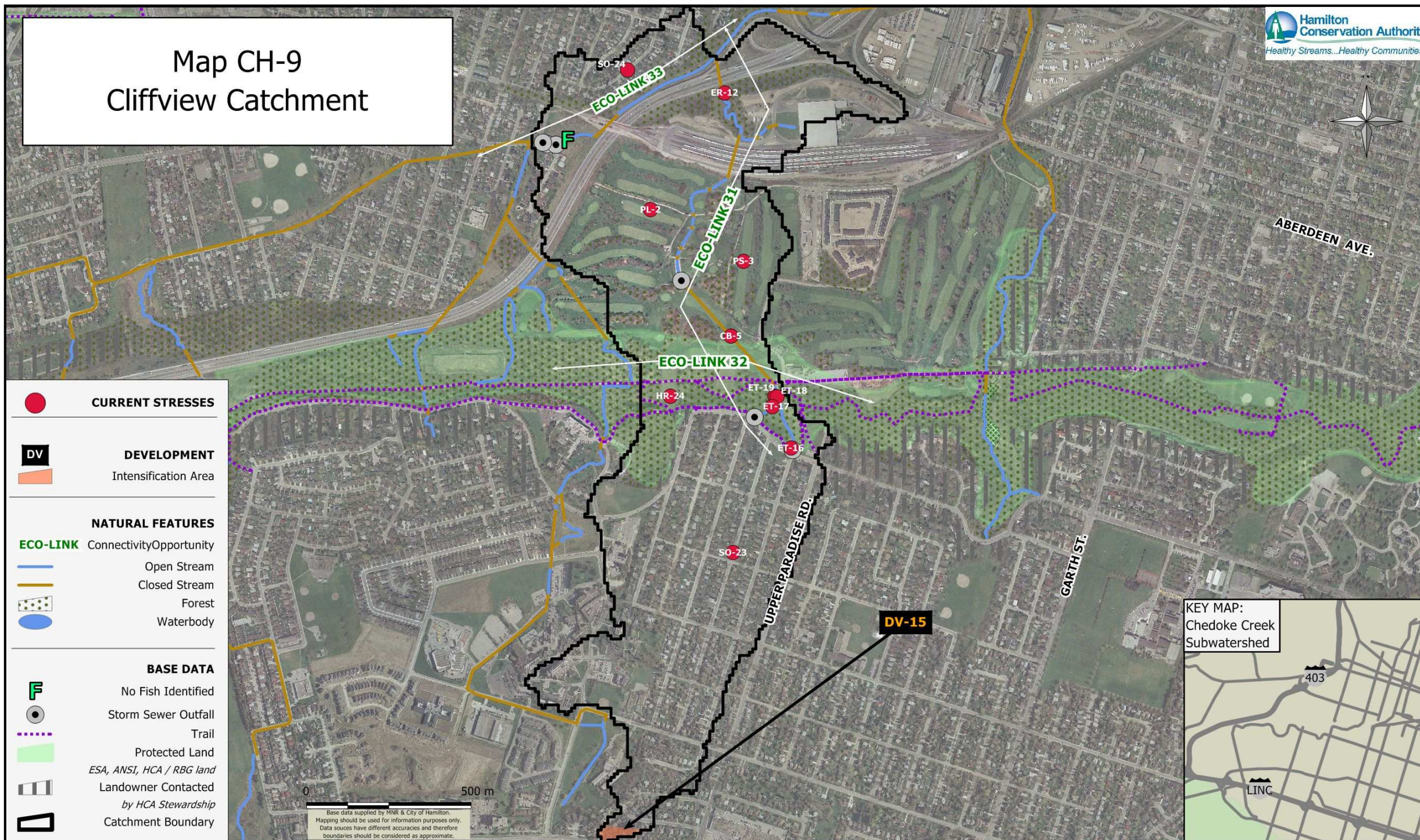
WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRIPTION
n/a		



CLIFFVIEW CATCHMENT
DATA SHEETS

Map CH-9 Cliffview Catchment



CLIFFVIEW DATA SHEET

SITE-LEVELSTRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
DV-15	Intensification Area	<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		
CB-5	Buried stream	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ER-12	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"/>	<input checked="" type="checkbox"/>
ET-16	Ecotourism at Cliffview Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ET-17	Ecotourism at Westcliffe Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ET-18	Ecotourism at Lower Cliffview Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ET-19	Ecotourism at Lower Westcliffe Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-24	Habitat restoration – increase forest habitat	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
PL-2	Phosphorus loading	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
PS-3	Pesticide / herbicide use	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-23	Storm sewer outfalls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-24	Combined sewer system		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		

CLIFFVIEW DATA SHEET

ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
31	<p>South to North Link:</p> <ul style="list-style-type: none">▪ Stream corridor with riparian & forest habitat connecting to Niagara Escarpment lands & stream corridor in northern extent of catchment▪ Incorporate & enhance existing forest & riparian habitat along stream corridor▪ Potential for daylighting creek through Chedoke Golf Course (CB-5)▪ Trail opportunities through waterfall sites (ET-16, ET-17, ET-18, ET-19)▪ In-stream plantings downstream of buried creek to reduce flows / erosion potential (ER-12)▪ Potential to increase forest habitat in golf course to reduce run-off potential (PL-2)▪ Reduction in pesticide / herbicide use to enhance terrestrial & aquatic habitat (PS-3)▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 32, 33 <p>Audience: City Parks, CP Rail, MTO, private landowners</p>
32	<p>West to East Link:</p> <ul style="list-style-type: none">▪ Connection with Niagara Escarpment lands & Hamilton Escarpment ESA in Chedoke Creek Mid-Chedoke catchment through Hamilton Escarpment ESA to Chedoke Creek Chedoke East catchment▪ Incorporate existing forest habitat adjacent to & along Escarpment lands & through Hamilton Escarpment ESA as well as riparian buffers along stream corridors present▪ Incorporate stream corridor to east & opportunities that exist▪ Potential to increase forest habitat on City lands (HR-24) – demonstration site potential▪ Potential to increase forest habitat in golf course to reduce run-off potential (PL-2)▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 26 <p>Audience: City Parks</p>
33	<p>West to East Link:</p> <ul style="list-style-type: none">▪ Connection with Chedoke Creek Mid-Chedoke catchment through Hydro lands, City parks to Chedoke Creek Chedoke East catchment along buried creek corridor▪ Reduction of run-off and increase in infiltration reducing flows and erosion / sedimentation downstream (SO-24)▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 27, 31▪ Audience: City Parks, CP Rail, MTO

CLIFFVIEW DATA SHEET

FISHERIES ASSESSMENT

LOCATION	DATE	DESCRPTION
95m downstream of Debrook Court	2003	No fish identified

BENTHICS ASSESSMENT

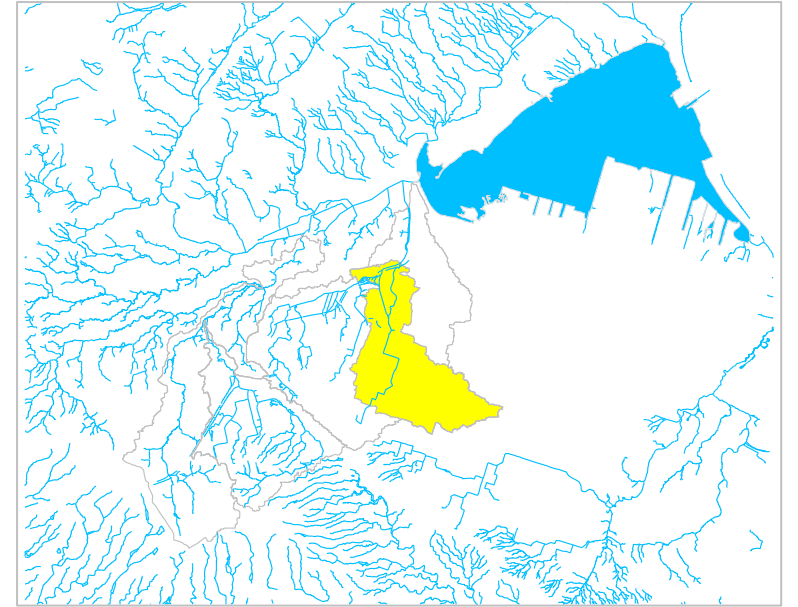
LOCATION	DATE	DESCRPTION
n/a		

WATER QUALITY ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		

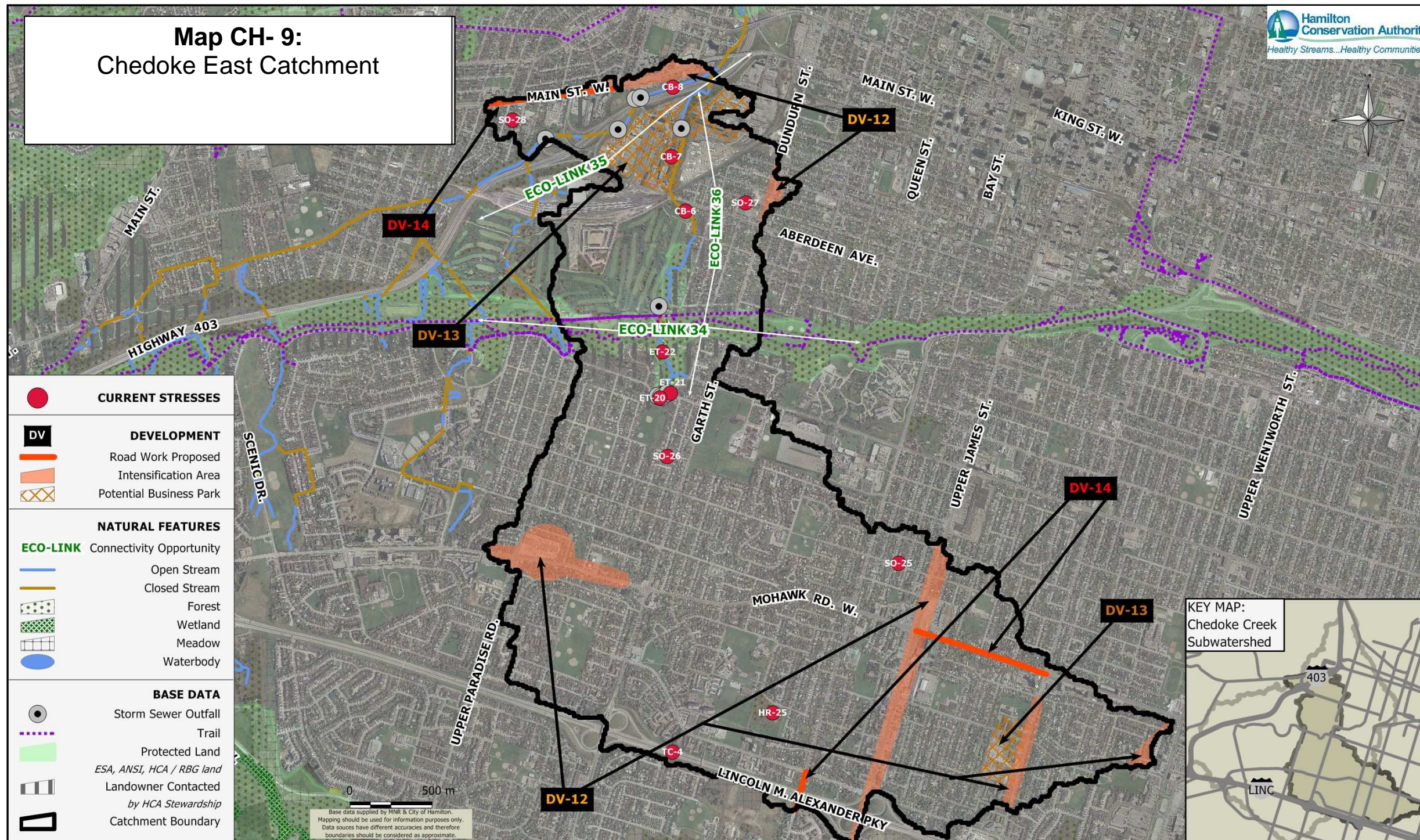
WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		



CHEDOKE EAST CATCHMENT
DATA SHEETS

Map CH- 9: Chedoke East Catchment



CHEDOKE EAST DATA SHEET

SITE-LEVELSTRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
DV-12	Intensification Areas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DV-13	Proposed Business Parks	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DV-14	Road Work Proposed – improvements	<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		
CB-6	Buried stream	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CB-7	Buried stream		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CB-8	Channelized stream	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ET-20	Ecotourism at Chedoke Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
ET-21	Ecotourism at Denlow Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
ET-22	Ecotourism at Lower Chedoke Falls	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-25	Habitat fragmentation – loss of forest cover	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-25	Combined sewer system		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
SO-26	Storm sewers	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-27	Combined sewer system		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
SO-28	Combined sewer system		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
TC-4	Water contamination from Lincoln Alexander Parkway	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

CHEDOKE EAST DATA SHEET

ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
34	<p>West to East Link:</p> <ul style="list-style-type: none">▪ Connection with Niagara Escarpment lands & Hamilton Escarpment ESA in Chedoke Creek Cliffview catchment through Hamilton Escarpment ESA to Chedoke Creek Chedoke East catchment▪ Incorporate existing forest habitat adjacent to & along Escarpment lands & through Hamilton Escarpment ESA as well as riparian buffers along stream corridors present▪ Wildlife crossing signage / creek crossing signage potential along existing trails▪ ECO-LINK Connections: 32, 36 <p>Audience: City Parks</p>
35	<p>West to East Link:</p> <ul style="list-style-type: none">▪ Partially buried stream corridor connecting Chedoke Creek Mid-Chedoke catchment through Hydro lands, City parks to Chedoke Creek Chedoke East catchment along buried creek corridor▪ Potential for natural channel design of concrete channelization to reduce sedimentation & water quantity downstream into Cootes Paradise (CB-8)▪ Reduction of run-off and increase in infiltration reducing flows and erosion / sedimentation downstream (SO-28)▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 33, 36 <p>Audience: City Parks, MTO</p>
36	<p>South to North Link:</p> <ul style="list-style-type: none">▪ Stream corridor with riparian, wetland & forest habitat connecting to Niagara Escarpment lands & stream corridor in northern extent of catchment▪ Incorporate & enhance existing forest, wetland & riparian habitat along stream corridor▪ Potential for daylighting creek through Chedoke Golf Course & on private lands behind McMaster Innovation Park (CB-6, CB-7)▪ Trail opportunities through waterfall sites (ET-20, ET-22)▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 34, 35▪ Audience: City Parks, CP Rail, MTO, private landowners

CHEDOKE EAST DATA SHEET

FISHERIES ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		

BENTHICS ASSESSMENT

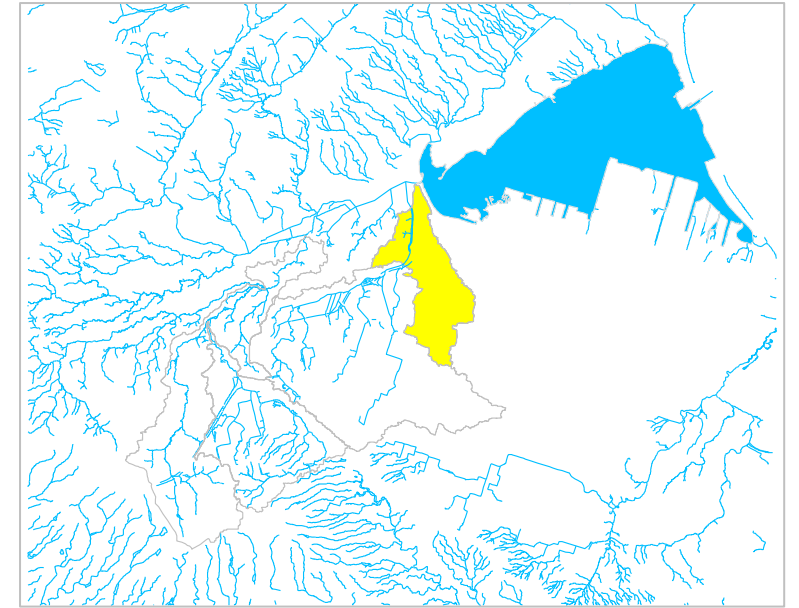
LOCATION	DATE	DESCRPTION
n/a		

WATER QUALITY ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		

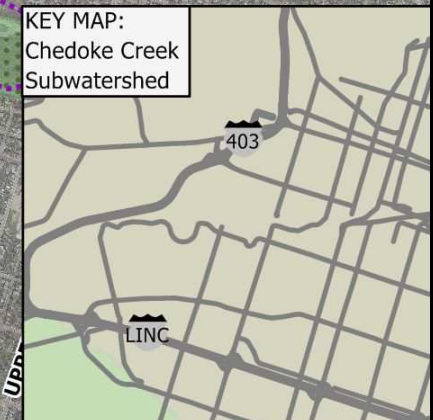
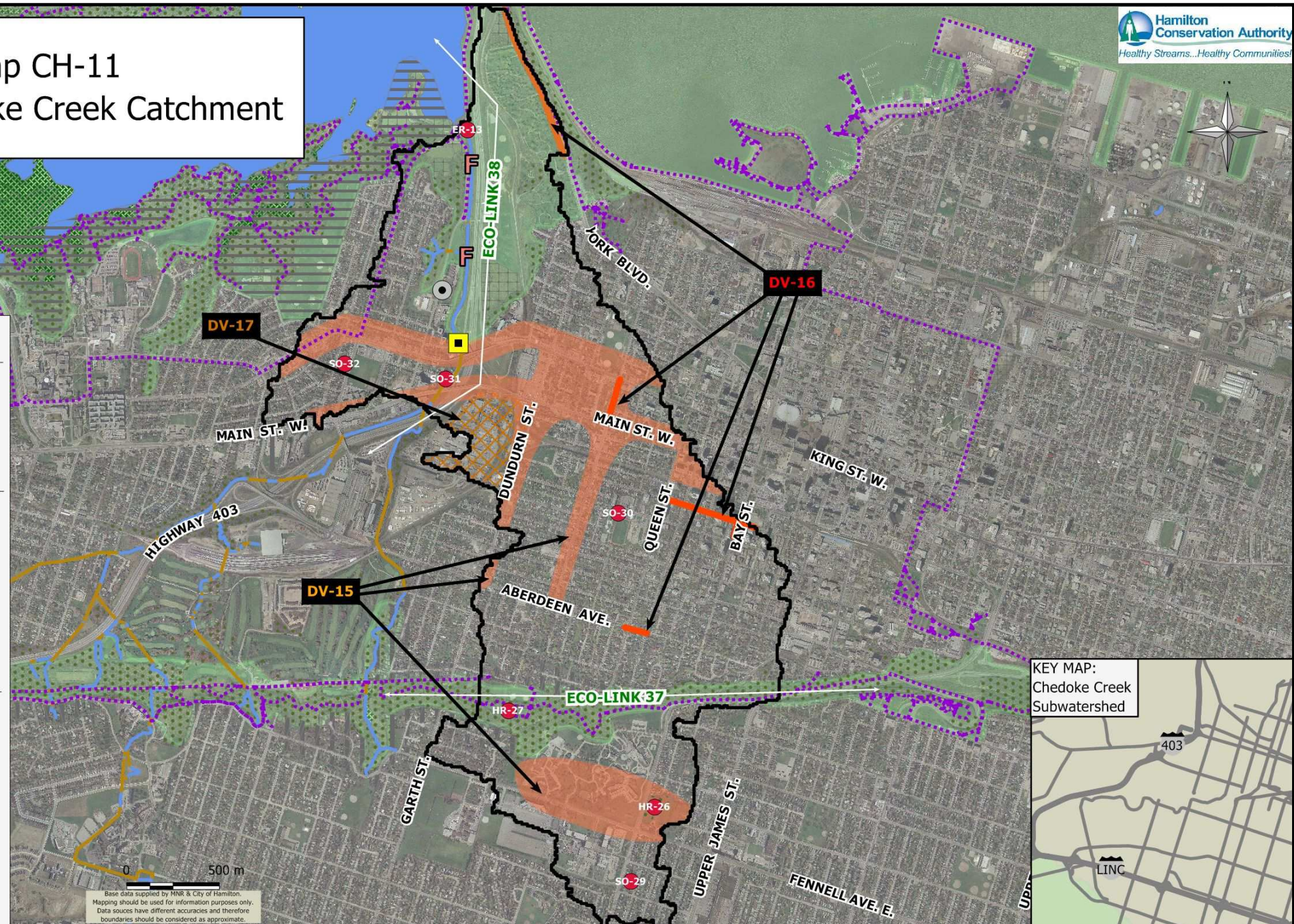
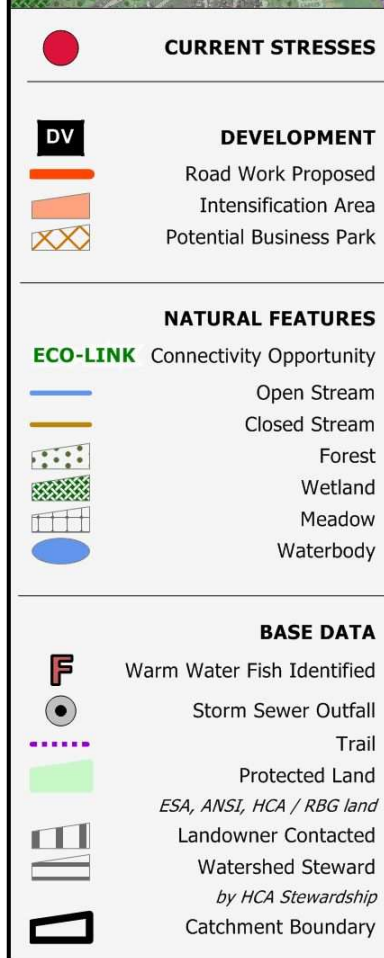
WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		



LOWER CHEDOKE CREEK CATCHMENT
DATA SHEETS

Map CH-11 Lower Chedoke Creek 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.

LOWER CHEDOKE CREEK DATA SHEET

SITE-LEVELSTRESSES

FUTURE STRESSES	DESCRIPTION	STEWARDSHIP ACTIONS		
		AWARENESS OPPORTUNITY	SPECIAL STUDY OPPORTUNITY	RESTORATION OPPORTUNITY
DV-15	Intensification Areas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DV-16	Road Work Proposed – narrowing	<input checked="" type="checkbox"/>		
DV-17	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-13	Existing erosion noted in 1996 HCA study	<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-26	Habitat fragmentation – preserve & enhance forest habitat	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
HR-27	Habitat restoration – increase forest habitat	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
SO-29	Combined sewer system		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
SO-30	Combined sewer system		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
SO-31	CSO outfall (MITIGATED)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *		<input checked="" type="checkbox"/>
SO-32	Combined sewer system & storm sewer outfall	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

* By 2012 separate CSO tank from stream corridor to eliminate water contamination during peak storm events (Partners: CITY / HCA / RBG)

LOWER CHEDOKE CREEK DATA SHEET

ECOLOGICAL LINKAGE / TRAIL OPPORTUNITIES

ECO-LINK	DESCRIPTION
37	<p>West to East Link:</p> <ul style="list-style-type: none">▪ Connection with Niagara Escarpment lands & Hamilton Escarpment ESA in Chedoke Creek Chedoke East catchment through Hamilton Escarpment ESA to Urban Hamilton / Red Hill Valley watershed▪ Incorporate existing forest habitat adjacent to & along Escarpment lands & through Hamilton Escarpment ESA▪ Potential to increase forest habitat on City lands (HR-27)▪ Wildlife crossing signage / creek crossing signage potential along existing trails▪ ECO-LINK Connections: 34 <p>Audience: City Parks, private landowners</p>
38	<p>South to North Link:</p> <ul style="list-style-type: none">▪ Stream corridor with riparian, meadow & forest habitat connecting to stream corridor in Chedoke Creek Chedoke East catchment▪ Incorporate & enhance existing forest, meadow & riparian habitat along stream corridor▪ Potential riparian planting on west bank of stream to reduce sedimentation & erosion into Cootes Paradise & completion of EA project (ER-13)▪ In-stream plantings downstream of outfall to reduce water degradation, sedimentation / erosion & downspout disconnection to increase infiltration (SO-31, 32)▪ Wildlife crossing signage / creek crossing signage potential▪ ECO-LINK Connections: 35 <p>Audience: City Parks, CP Rail, MTO, RBG, private landowners</p>

LOWER CHEDOKE CREEK DATA SHEET

FISHERIES ASSESSMENT

LOCATION	DATE	DESCRPTION
100m upstream from walking bridge at the mouth of Chedoke Creek	1996-2003	Warm water fish identified
Downstream from SO-31	1996-2003	Warm water fish identified

BENTHICS ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		

WATER QUALITY ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		

WATER FLOW ASSESSMENT

LOCATION	DATE	DESCRPTION
n/a		

