Mississauga's Northwestern Gateway

SCOPED SUBWATERSHED STUDY

Overview

Purpose/Scope

As a companion study to the overall Secondary Plan, the Scoped Subwatershed Study has:

- · Documented and defined natural features and their functions
- · Established the role of water in supporting these features as well as natural hazards like floodplains
- Defined environmental constraints and opportunities
- Provided a basis for assessing impacts due to proposed land use changes
- · Established fully integrated management strategies

Process

Three stage process:

Stage 1 - Subwatershed Characterization (Completed)

Stage 2 - Subwatershed Impact Analysis and

Management Strategy (Completed)

Stage 3 – Implementation and Monitoring Plan (Pending)

150

147

The Scoped Subwatershed Study will serve as a Master Plan to facilitate the planning of stormwater and environmental infrastructure for the Ninth Line Lands in accordance with the Municipal Engineers Association Class Environmental Assessment provisions.

Stage 1 and Stage 2 of the study have been completed, to characterize the study area and develop a management strategy for the area's watercourses, natural heritage system, and stormwater management.





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Floodlines

| Floodlines

The Province of Ontario regulates flood hazards on the basis of the Regulatory Flood Event (in this jurisdiction this is based on Hurricane Hazel).

The adjacent plans depict the approximate Regulatory floodplain under the existing and proposed land use conditions.



Disclaimer: Land uses shown in the Draft Emerging Land Use Concept are preliminary, for information purposes only and subject to change based on pending studies, agency, public and stakeholder input and other considerations.



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Natural Heritage

| Natural Heritage

SHAPING NINTH LINE







Field Review:

- The existing lands are characterized by grassland or meadow areas, isolated woodlots (Ash species), 2 larger woodlots (Sugar Maple and White Elm), highly tolerant wetlands associated with the watercourse corridor, and other isolated wetland patches.
- Field surveys were conducted to verify these conditions and to assess the quality and functionality of these areas.

Natural Heritage System (NHS):

- The NHS was developed to ephasize the connectivity of natural spaces, species diversity, and sustainability, while balancing other land use needs in the area, including the Transitway.
- The NHS is a connected system of woodlands, wetlands, and meadows that provide diverse habitat for the wildlife that inhabit the area.
- Within the NHS, lands will be restored to include additional lands for woodland and wetland beyond what currently exists, as well as over 30ha of meadow.



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Watercourse Management

Watercourse Management

Watercourses are to be realigned in certain locations to support the proposed development. Realigning the watercourse north of Derry Road toward Highway 407 allows for creating a continuous watercourse system and efficient land use plan. Watercourse realignments are to apply natural channel design principles and maintain or enhance natural channel functions. Constructed watercourse corridors are to provide established meander belt widths plus setbacks.

Under the proposed development plan an estimated net loss of 0.5km of stream length is anticipated marginally reducing the overall drainage density of the study area. The loss of stream length may be mitigated by incorporating open swales in future development plans, and strategically adding channel length to the area watercourses where possible



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Natural Heritage and Restoration Plan

Legend



Restoration Plan

The proposed Natural Heritage System (NHS) is based on a re-aligned East Branch of Sixteen Mile Creek situated between the Transitway and Highway 407. Substantial area is available within this corridor to create wetlands, woodlands, and meadow habitats, as well as to enhance natural features. The entire corridor located between Highway 407 and the proposed Transitway is proposed to be naturalized in a complex of wetlands, woodlands, meadow habitats, and watercourses.

The proposed area of wetland within the NHS is double the existing area. The area of woodland that is retained within the NHS includes the area's Significant Woodlands. The protection and creation of wetland and woodland will provide quality habitat for wildlife within the NHS.

The proposed NHS provides a linear and connected corridor for wildlife movement. Culverts under Highway 407 will provide some connectivity to key features in the Region of Halton's NHS. The re-aligned Osprey Marsh outlet will provide a highly desirable east-west connection.





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<u>Stormwater</u> <u>Management</u>

Stormwater Management Plan

All new development in Ontario must manage its impacts to stormwater for the following:

- Flooding
- Erosion
- Water Quality
- Water Budget

Wet ponds and source controls are recommended for the future urban development in the Ninth Line Lands to provide stormwater quality control, flood protection, and erosion control.

Low Impact Development Best Management Practices (LID BMP's) shall be applied throughout the future development lands, and shall be sized to capture the first 5 mm of runoff (minimum) as per City of Mississauga Stormwater Management Guidelines.

The stormwater management plan for the Transitway is being determined through a separate Class Environmental Assessment process for the Transitway.









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SCOPED SUBWATERSHED STUDY Low Impact Development Best Management Practices (LID BMPS)

Low Impact Development (LID)

SHAPING

NINTH

LINE

Low Impact Development (LID) is a stormwater management strategy that seeks to mitigate the impacts of increased runoff and stormwater pollution by managing runoff as close to its source as possible. There are a number of potential techniques which can be considered depending on land use and physical conditions including:

Bioretention:

- Bioretention areas are planted depressions that store and filter rainwater to enhance water quality.
- They may be used to pre-treat runoff prior to discharge into infiltration systems or can be used to store excess stormwater when the downstream infiltration system has been surcharged.





Greenroofs:

- Also known as "living roofs" or ecoroofs" consist of a thin layer of vegetative growing medium installed on conventional or sloped roofs.
- Benefit to cities by improving energy efficiency, reduced urban heat island effects, greenspace for passive recreation and aesthetics



Porous Pavement:

- Porous pavements can be used as alternatives to traditional hard surface paving systems that create expanses of impervious surface such as parking lots, driveways, access roads, plazas, and walkways
- Porous paving allows for filtration, storage, or infiltration of runoff, which can reduce stormwater flows compared to traditional impervious paving surfaces like concrete and asphalt.

Rainwater Harvesting:

future use.

reservoirs);

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• It is the process of intercepting,

storage tank or large cistern;

conveying and storing rainfall for

Rainfall on catchment surface (i.e.

roofs) is collected and conveyed to a

Captured rainwater can significantly

reduce stormwater runoff volume

demand on water resources (i.e.

and pollutant load and reduce

groundwater aguifers and

Exfiltration Systems:

- Exfiltration systems are long infiltration trenches or linear soakways that are designed for both conveyance and infiltration of stormwater runoff.
- They are underground stormwater conveyance systems designed to attenuate runoff volumes and reduce contamination loads to receiving waters.





Enhanced Grass Swales:

- Vegetated open channels designed to convey, treat, and attenuate stormwater runoff. Enhanced grass swales are a preferred alternative to curb and gutter storm drains as water conveyance.
- When incorporated into the site design, they can reduce impervious cover, accent the natural landscape, and provide aesthetic benefits.













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SCOPED SUBWATERSHED STUDY

| Next Steps

The Scoped Subwatershed Study is being managed by a Technical Advisory Committee (TAC), comprised of staff from the City of Mississauga, Conservation Halton, and Peel Region. The Impact Assessment and Preliminary Management Strategy has been submitted to the TAC and comments are pending.

The Scoped Subwatershed Study will then proceed to Stage 3 – Implementation and Monitoring Plan. The recommendations of the Scoped Subwatershed Study will be incorporated into the overall reporting.



