Report to Planning and Environment Committee

To: **Chair and Members**
Planning and Environment Committee
From: **Gregg Barrett, AICP**
Director, Planning and Development
Subject: **Medway Valley Heritage Forest Environmentally Significant Area Conservation Master Plan (South) Phase II and related Official Plan Amendments (File OZ-9367)**
Public Participation Meeting
Date: **July 26, 2021**

Recommendation

That, on the recommendation of the Director, Planning and Development, the following actions be taken with respect to Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan:

(a) The proposed by-law, attached hereto as Appendix "A" **BE INTRODUCED** at the Municipal Council meeting on August 10, 2021 to adopt the Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan, attached therein**,** in accordance with London Plan policy 1421;

(b) That the portion of the pathway and trail system from Gloucester Road (Access A11) to its connection with the pathway in the Valley shown on "Appendix B" of the Medway Valley Heritage Environmentally Significant Area (South) Conservation Master Plan **BE DEFERRED** to be considered at a future meeting of the Planning and Environment Committee following further consultation and review with the adjacent neighbours, the Upper Thames River Conservation Authority, the Environmental and Ecological Planning Advisory Committee and the Accessibility Advisory Committee:

(c) The proposed by-law attached hereto as Appendix 'E' **BE INTRODUCED** at the Municipal Council meeting on August 10, 2021 to amend the London Plan:

i. Change Policy 1719_11 **FROM** Medway Valley Heritage Forest Site Planning Study **TO** Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan;

ii. Change the Green Space Place Type and Neighbourhoods Place Type on Map 1 – Place Types in conformity with the Medway Valley Heritage Forest ESA (South) Conservation Master Plan adopted above; and,

iii. Change the Medway Valley Heritage Forest Environmentally Significant Area on Map 5 – Natural Heritage, in conformity with the Medway Valley Heritage Forest ESA (South) Conservation Master Plan adopted above.

IT BEING NOTED THAT The London Plan Map 1 will come into full force and effect concurrent with Map 1 of the London Plan;

(d) The proposed by-law attached hereto as Appendix 'F' **BE INTRODUCED** at the Municipal Council meeting on August 10, 2021 to amend the 1989 Official Plan to:

i. Change the Low Density Residential, Multi-family Medium Density Residential, Regional Facility, and Open Space land use designations on Schedule "A", Land Use in conformity with the

Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan adopted above;

ii. Change the Medway Valley Heritage Forest Environmentally Significant Area on Schedule "B1", Natural Heritage Features, in conformity with the Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan adopted above; and,

iii. Change Policy 19.2.2. ii) to add the Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan to the list of guideline documents; and,

(e) The members of Accessibility Advisory Committee, Environmental Ecological Planning Advisory Committee, UTRCA and local First Nations Communities **BE THANKED** for their work in the review and comments on the Sustainable Trail Concept Plan.

Executive Summary

The purpose of the report is to provide Council with a revised Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan for approval. The revised Conservation Master Plan (CMP) resolves the 2018 Council directions and provides direction for ecological protection and inclusive trail use as part of the Environmental Management Strategy for the Medway Valley Heritage Forest Environmentally Significant Area (ESA), and follows and complies with the CMP planning process and meets the intent of the Guidelines for Sustainable Trail Management.

The purpose and effect of the planning amendment is to add the CMP to the list of guideline documents in The London Plan. Additionally, the amendment would update the London Plan and 1989 Official Plan Maps and Schedules in conformity with the delineation of the Medway Valley Heritage Forest ESA (South) CMP.

Linkage to the Corporate Strategic Plan

The preparation of the Medway Valley Heritage Forest ESA (South) CMP contributes to implementing the Strategic Plan through Building a Sustainable City and Strengthening Our Community. This plan outlines measures to foster a strong and healthy environment while also promoting well-being in neighbourhoods. Additionally, it contributes to implementing Council's goals as an Age-Friendly City and being more accessible. The preparation of the Medway Valley Heritage Forest ESA (South) CMP coordinates environmental protection and appropriate recreational opportunities in a well-planned and sustainable manner over the long term.

Analysis

1.0 Subject Site

1.1 Property description

The subject site is an area of the Medway Valley Heritage Forest ESA located south of Fanshawe Park Road West and east of Wonderland Road North. The majority of the subject site is owned by either the City of London or the Upper Thames River Conservation Authority and is in the Green Space Place Type in the London Plan. Also included are certain additional lands that form part of the ESA Natural Heritage Feature. These lands are generally portions of rear yards of adjacent properties.

1.2 Current Planning Information

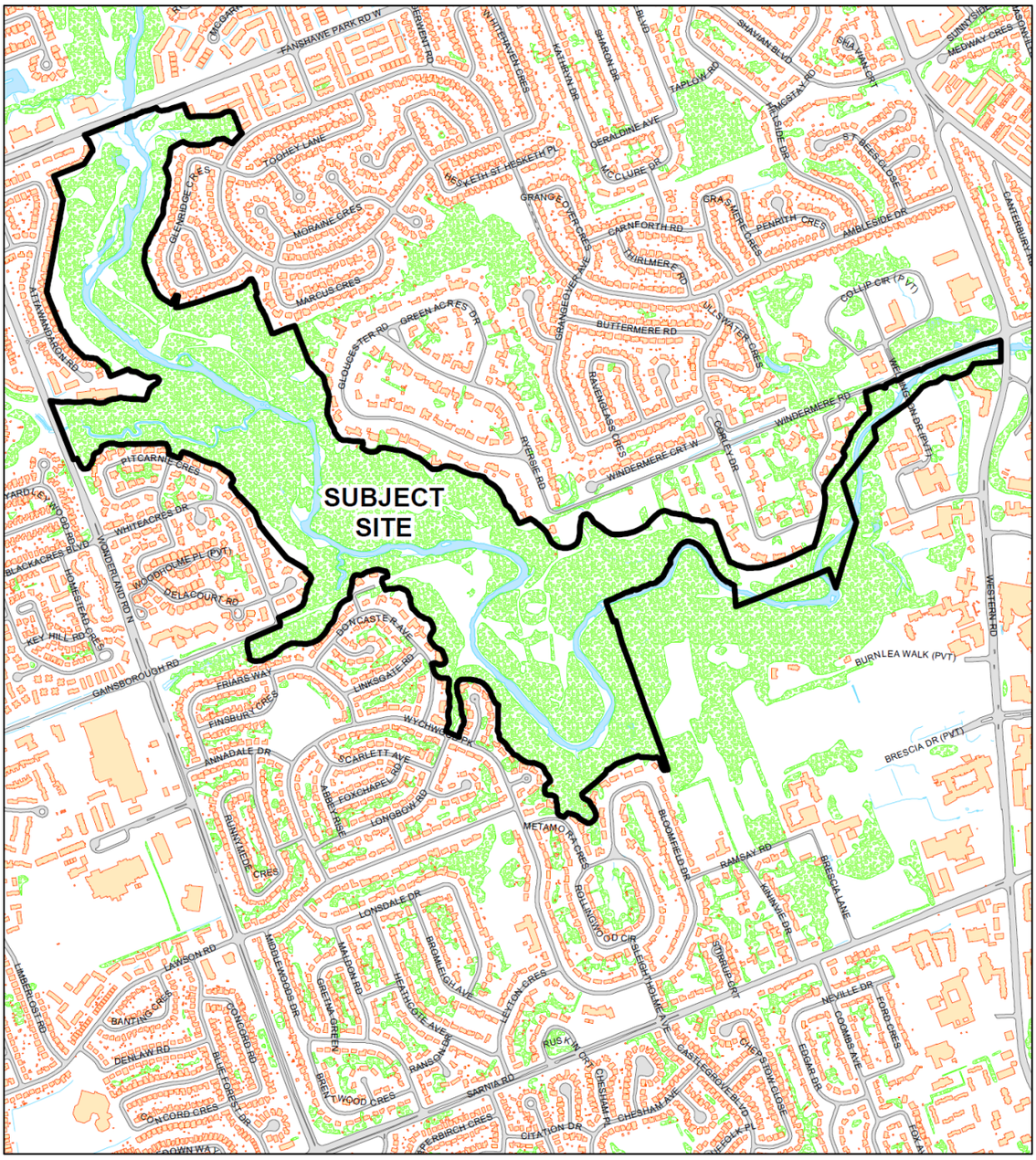
- The London Plan – Green Space Place Type and Neighbourhoods Place Type.

- Official Plan (1989) Designation – Open Space, Low Density Residential, Multi-Family, Medium Density Residential, and Regional Facility.
- Existing Zoning – Open Space Zone variations (OS4, OS5 and OS5(3)), Residential Zone variations (R1-6, R1-8, R1-9, R1-10, R5-6), and Regional Facility (RF) Zone.

1.3 Surrounding Land Uses

Lands surrounding the subject site are generally residential land uses, but also include a regional facility (the Museum of Ontario Archaeology) to the west, and institutional lands of the University of Western Ontario (to the east of the subject site).

1.4 Location Map



2.0 Relevant Background

2.1 Previous Reports Related to this Matter

April 16, 2018 – Planning and Environment Committee –Conservation Master Plan for the Medway Valley Heritage Forest Environmentally Significant Area (South)

February 6, 2017 – Planning and Environment Committee –Phase I Conservation Master Plan for the Medway Valley Heritage Forest Environmentally Significant Area (South)

June 20, 2016 – Planning and Environment Committee –Guidelines for Management Zones and Trails in Environmentally Significant Areas

2.2 Background

Environmentally Significant Areas (ESAs) such as Medway Valley Heritage Forest are considered as the largest, highest quality areas within the City's Natural Heritage System. ESAs are identified in the London Plan as 'areas that contain natural features and perform ecological functions that warrant their retention in a natural state'. A Conservation Master Plan (CMP) is a tool identified by the London Plan that Council can adopt for the purposes of providing direction on the management of these areas.

The CMP process is undertaken in two phases that provide substantial opportunities for stakeholder engagement and participation. Phase 1 of the CMP provides a detailed life science inventory sufficient to formalize and refine ESA boundary delineation, defines management zones, reviews existing trails and identifies management issues. Phase 1 of the Medway Valley CMP was approved by Council in February 2017.

Following Phase 1 approval, Phase 2 of the CMP was initiated to determine goals, objectives, and recommendations for the future management of the Medway Valley Heritage Forest ESA (South) including ecological enhancement and restoration, trail planning and design, and priorities for implementation. A final CMP was presented to Council in 2018. The accompanying staff report is attached as Appendix C.1.

At its April 24, 2018 meeting, Council referred the CMP back to Staff with the direction provided in the resolution attached as Appendix C.2.

3.0 Conservation Master Plan Discussion and Considerations

The Council directions accompanying the referral of the CMP to staff in 2018 can be summarized as follows:

- Bridge Removal and Discouraging Creek Crossing
- Committee, Conservation Authority and First Nations Consultation
- Eastern Access Public Consultation
- CMP Implementation Recommendations and Funding Opportunities
- Ways to Improve the Public Consultation Process for any ESA CMP and amending the Trail Systems Guidelines to incorporate First Nations.

The following sections identify how each of these directions have been addressed.

3.1 Bridge Removal and Discouraging Creek Crossing

Consistent with Council's direction, Bridges A and D have been removed from the revised mapping. No creek crossings have been included in the proposed Sustainable Trail Concept Plan (Appendix A, pg 79-82).

Opportunities to discourage the crossing of Medway Creek were reviewed while assessing trail access and conditions as part of committee, conservation authority and First Nations consultation meetings. This is further discussed below.

3.2 Committee, Conservation Authority and First Nations Consultation

To expand on the consultation efforts included in the 2018 CMP work and address the issues identified with the CMP in the 2018 Council resolution, Staff engaged with the Environmental Ecological Planning Advisory Committee (EEPAC), the Accessibility

Advisory Committee (ACCAC), the Upper Thames River Conservation Authority (UTRCA) and local First Nations Communities.

In consultation with these resource groups, planned trail levels and surfaces have been assessed and revised to direct users away from sensitive species in the absence of bridges. The greatest level of accessibility was provided where appropriate, with the understanding that any increase in informal trails throughout the valley identifies the need for a more formalized trail system. Seasonal trail closures to facilitate increased protection of rare plant species, interpretative signage, identifying potential creek-side seating areas, and overall trail system function were included as part of the revised draft. Meeting Minutes from this consultation are included in Appendix D.1.

UTRCA has indicated their support for the Sustainable Trail Concept Plan noting that alterations within the flood plain are governed by the Section 28 permit process.
The Draft Sustainable Trail Plan was presented at the Environmental and Ecological Planning Advisory Committee (EEPAC) on March 18th, 2021 and the Accessibility Advisory Committee (ACCAC) on March 25th. Both committees have indicated their support of the revised plan. This indication of support is included in Appendix D.2.

First Nations Communities
As First Nations Communities had not been engaged in previous CMP studies, this process presented an opportunity to reach out and introduce the Communities to ESAs and the CMP Process. Notes from the meetings were taken identifying potential points of inclusion and the groups were encouraged to contact City staff for continued discussion if they had any additional questions or comments on the CMP process or the Medway Valley CMP. The meetings were valuable in identifying areas where First Nation involvement would further the experience and understanding of those using the ESAs. Consultation with local First Nations Communities identified opportunities for land-based learning opportunities, potential medicinal plant walks and land acknowledgement opportunities.

Discussions also included suggestions for how best to include the cultural history of these communities and their voices earlier in the process for the next CMP, including:

- Inclusion and circulation of First Nations communities in future CMP Local Advisory Committee groups.
- Education opportunities for First Nations youth to go on hikes in the ESAs.
- Interpretive signage outlining historic territory and sharing key cultural/medicinal plants (black ash) with the public, developed in partnership with the communities.
- Opportunities to share medicinal plant locations and cultural significance (just species information would be included, not the use).

First Nations Consultation is summarized in Appendix D.3 and included in the 2021 CMP in Appendix A.

3.3 Ways to Improve the Public Consultation Process for any ESA CMP and Amending the Trail Systems Guidelines to Incorporate First Nations Consultation

Through the consultation process, several opportunities to improve the Trail Management Guidelines in support of a revised CMP process were identified, including:

- Including First Nations Communities as part of the Local Advisory Committee at the beginning of the process.
- Revising the roles and responsibilities of various groups and the stage at which their input into the process is appropriate.
- Language to note the use of the best available data in support of the trail plan.
- A defined number of consultation and engagement meetings to ensure meaningful and effective input from various groups.

Over the coming year, the Trail Management Guidelines will be revised to incorporate the recommended revisions identified above.

3.4 Eastern Access Public Consultation

The issue of accessing the eastern boundary of the ESA at access points 11 and 12, particularly the use of municipal roads and road allowances to connect the two access points outside of the ESA, was noted in 2018 as an issue requiring more consultation with residents in the immediate area. The purpose of this connection outside the ESA was to discourage trespass by trail users along the east side of Medway Creek and still provide north-south connectivity to the Valley pathway and trail system. This access concern has been addressed separately from the internal trail system consultation with ACCAC/EEAPC/UTRCA and local First Nations Communities, as the focus of this consultation relates to local access to the ESA and the use of public streets in the trail plan as opposed to internal trails planning.

Staff initiated the public consultation on the eastern boundary portion by sending a Notice of Community Meeting on March 23, 2021 for a virtual meeting on April 8, 2021. The Notice can be found in the Public Consultation Documents attached as Appendix D.4.

A Get Involved Site was developed to provide background information on the project and clarify the eastern boundary public consultation in advance of the meeting. Councillor Squire and Deputy Mayor Morgan attended to hear the public feedback and questions during the April 8 session. Deputy Mayor Morgan also spoke to frame the presentation and focus of the consultation. Common questions and concerns noted by attendees included; impact concerns and implementation specifics of accesses, crime concerns, environmental protection concerns, and questions regarding the removal of bridges from the 2018 plan. A summary document organizing the questions and comments received was complied by Staff and posted on the Get Involved page and is available in Appendix D.5. A recording of the Zoom meeting was also provided on the Get Involved page. Comments were accepted on the page's forum and included the opportunity to engage with the content.

<u>Safety and Crime Rates in the Neighbourhood</u>
The community has expressed concerns that establishing the connection between Accesses 11 and 12 via the currently inaccessible City road allowance on the north side of Green Acres Drive will greatly increase crime in the area. City of London experience, including coordination with London Police Services in the past, has shown that new parks and/or ESA trails/accesses have not been shown to correlate with any increase in crime. The existing Gloucester Road access and proposed Green Acres Drive connections would allow access to the ESA at any time from 6 am to 10 pm, consistent with the City's Parks and Recreation Area By-law. Staff have not been made aware of any specific crime incidents.

<u>Parking</u>
The community noted concern regarding a potential increase in on-street parking being a nuisance and potentially dangerous if emergency vehicles were unable to pass. As the neighbourhoods adjacent to the ESA would form the primary usersof the ESA, proposed modifications to trails in the immediate area are not anticipated to generate increased parking demand. Gloucester Road, Green Acres Drive, Glenridge Crescent and Marcus Crescent are public streets which permit on-street parking and allow sufficient space for on-street parking such that the passage of emergency vehicles is unimpeded. Currently, parking for the Windermere ESA access is located where Windermere Road turns into Ryersie Road.

<u>Access Concerns</u>
Concerns regarding the opening of the Green Acres Drive connection and certainty regarding the detailed design of both the Gloucester Road access and the Green Acres Drive connection was noted during the consultation. The City-owned parcels are approximately 20 m and 10 m wide at Green Acres Drive and Gloucester Road, respectively. Detailed design specifics were not included in this conceptual project stage. Upon adoption of the CMP, detailed design would commence, including

additional consultation with residents adjacent to public access points. Staff are committed to working with adjacent landowners to ensure that concerns regarding the design and location of the pathways are addressed, and that the design of the pathway system will be in accordance with City policies and the Trail Management Guidelines.

Changes to the CMP Resulting from the Public Consultation
Public concerns were noted as part of the record and considered as staff revised the 2021 CMP and developed the recommendations of this report. The record of public consultation from 2018 to 2021 is compiled in Appendix D.6.

The external connection outside of the ESA along Gloucester Road, previously noted as a yellow line, was removed from the Sustainable Trail Concept Plan.

The recommendation to open the Green Acres Drive connection as part of the CMP implementation remains, and Staff recommend that this be explored as part of future detailed design work. Staff will work with the adjacent property owners to develop an access plan that provides for both the public and private use of this road allowance, and minimizes disruption to the existing landscaping and encroachments in the road allowance.

3.4 Gloucester Loop Trail Deferral

Comments from residents during the eastern access public consultation included concerns that the change of the existing Level 1 trail beginning at the Gloucester Road Access (Access 12) to a Level 2 trail would require extensive realignment and the use of switchbacks to establish a grade suitable for increased accessibility. Due to the concerns raised by nearby residents regarding the Gloucester Level 2 Trail, Staff are recommending deferring the adoption of changes to this trail segment until further technical information can be obtained to inform the decision (See Appendix B). The intent of the trail alignment is that it stays in its current location, as noted on the mapping and will not require switchbacks or other works to reduce the grade of the walking surface. If it is determined through additional review that extensive works are required through this section in order for it to meet the requirements of a Level 2 trail, Staff will review this section of the trail and its level of accessibility with the advisory committees (ACCAC/EEPAC/UTRCA) and the community.

4.0 Official Plan Amendments Discussion and Considerations

4.1 Summary of Request

Amendments to the London Plan and 1989 Official Plan Amendments are requested to include adding the Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan as a guideline document to the London Plan and 1989 Official Plan, and aligning London Plan and 1989 Official Plan mapping with the delineation of the Medway ESA natural heritage feature.

4.3 Council's Previous Decision regarding ESA Delineation

On February 6, 2017, Planning and Environment Committee received a report regarding Phase I of the Conservation Master Plan for the Medway Valley Heritage Forest Environmentally Significant Area (south). Council direction included that:

"The Natural Heritage Inventory and Evaluation for the Medway Valley Heritage Forest Environmentally Significant Area forming Phase I of the Conservation Master Plan and attached as Appendix "A", BE APPROVED in accordance with Section 15.3.8 of the Official Plan and policies 1421 and 1422 of the London Plan."

This inventory and evaluation included an updated delineation of the Medway Valley Heritage Forest Environmentally Significant Area (South) natural heritage feature.

On April 15, 2021 the LPAT issued a decision that brought into force outstanding Environmental policies and approved Map 5 – Natural Heritage (except for certain

sites). That decision also included approval of the “Green Space” and “Environmental Review” Place Types of Map 1. The Medway Valley Heritage Forest ESA (South) was not one of the sites withheld from approval on Map 5. Now that the Environmental policies and Map 5 of the London Plan are in force, the delineation of the ESA natural heritage feature is being brought forward for Council consideration concurrently with the CMP for Medway Valley Heritage Forest ESA (South).

4.4 Planning Context and Mapping

Provincial Policy Statement
In accordance with Section 3 of the *Planning Act*, all planning decisions shall be consistent with the Provincial Policy Statement.

The Provincial Policy Statement (PPS), 2020, provides policy direction on matters of provincial interest related to land use and development that support the wise use and management of resources, the conservation of biodiversity, and protection of natural heritage resources for their economic, environmental, and social benefits. The PPS requires that “natural features and areas shall be protected for the long term” (s. 2.1.1), and that “the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features” (s. 2.1.2). Additionally, the PPS directs development away from the natural heritage system. The PPS states that development and site alteration shall not be permitted in natural heritage system features “unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions” (s. 2.1.5).

The London Plan
The Environmental policies of the London Plan provide direction for the identification, protection, conservation, enhancement, and management of the Natural Heritage System (policy 1293_1). These policies also establish requirements for identification, delineation, protection and impact mitigation for natural heritage features and areas of the Natural Heritage System (policy 1303_).

In accordance with London Plan policy 1367_, ESAs are delineated through application of the City Council approved *Guideline Documents for Environmentally Significant Areas Identification, Evaluation, and Boundary Delineation* and through application of provincial guidelines. Candidate ESAs must satisfy criteria in accordance with policy 1371_. As noted above, this ESA evaluation was undertaken during Phase I of the Conservation Master Plan for the Medway ESA (South).

ESAs are also required to be shown on maps of the London Plan. Environmentally Significant Areas that have been identified by City Council as being of significance are included in the Green Space Place Type on Map 1 – Place Types and the features are identified on Map 5 – Natural Heritage. New or expanded ESAs are also required to be added to London Plan Map 1 and Map 5, following completion of environmental studies (policy 1368_).

The London Plan also includes policies identifying the role and adoption process for guideline documents. Council may adopt guideline documents to provide direction for the implementation of policies of the Plan. Guideline documents may contain guidelines, standards, and performance criteria that are more detailed or more flexible than the general policies of the Plan. The Conservation Master Plan is such a guideline document. As such, the proposed amendments include the addition of the Conservation Master Plan in policy 1719_, which lists Natural Heritage System Guidelines.

As noted above, London Plan Environmental policies and the Green Space Place Type of Map 1 are in force. Accordingly, the determinative analysis for this amendment application is the London Plan, not the 1989 Official Plan. However, the 1989 Official Plan and its map schedules have not been repealed by Council. Therefore, the

amendments recommended as part of this report are to both the London Plan and 1989 Official Plan.

Official Plan (1989)
As noted above, on April 15, 2021 the LPAT approved London Plan Map 5 – Natural Heritage and partially approved Map 1 – Place Types. That decision also brought into force outstanding Environmental policies of the London Plan.

However, the 1989 Official Plan and its map schedules have not been repealed. The proposed amendments are consistent with the policies of the 1989 Official Plan. To ensure consistency of planning documents, amendments to the 1989 Official Plan are proposed to add the CMP to the list of guideline documents and to align maps with the delineation of the Medway ESA. Proposed amendments are to update the delineation of the ESA on map Schedule B1 – Natural Heritage Features, and designations on map Schedule A – Land Use.

Conclusion

The Medway Valley Heritage Forest ESA (South) CMP follows and complies with the Conservation Master Planning process and meets the intent of the Guidelines for Sustainable Trail Management. The CMP resolves the 2018 Council direction items and provides direction for ecological protection and inclusive trail use as part of the Environmental Management Strategy. This CMP utilizes a monitoring framework to achieve long-term ecological integrity of the ESA consistent with CMP goals.

The recommended planning amendments are consistent with the Provincial Policy Statement, 2020 and conform with in-force policies of the London Plan, including policies for environmental protection, delineation of ESA natural heritage features, mapping of such features, and adoption of guideline documents

The recommended planning amendments permit appropriate Place Types, land use designations and environmental feature mapping for the Medway Environmentally Significant Area (south) that is in conformity with the Conservation Master Plan. The recommended amendments represent good land use planning.

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Prepared by:	**Travis Macbeth, MCIP, RPP** **Senior Planner, Long Range Planning and Research**
Reviewed by:	**Mike Fabro, M.E.B., P.Eng.** **Manager, Climate Change Planning**
Recommended by:	**Gregg Barrett, AICP** **Director, Planning and Development**
Submitted by:	**George Kotsifas, P. Eng.** **Deputy City Manager, Planning and Economic Development**

Appendices

Appendix A: Adoption By-law and the Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan
Appendix B: Deferred Trail Segment Figure
Appendix C: Previous Reports
C.1 Planning and Environment Committee Report for the Conservation Master Plan for the Medway Valley Heritage Forest Environmentally Significant Area (South)

Appendix A – By-law to Adopt CMP

Bill No.(number to be inserted by Clerk's Office)
2021

By-law No. (to be inserted by Clerk's Office)

A by-law to adopt the Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan.

WHEREAS the London Plan for the City of London Planning Area – 2016 includes policies for conservation master plans for environmentally significant areas and other natural heritage areas;

AND WHEREAS the Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan is a conservation master plan pursuant to policy 1421_ of the London Plan for the City of London Planning Area – 2016;

AND WHEREAS the Official Plan for the City of London Planning Area – 1989 includes policies for conservation master plans for environmentally significant areas and other natural heritage areas;

AND WHEREAS the Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan is a conservation master plan pursuant to section 15.3.8.i) of the Official Plan for the City of London Planning Area – 1989;

THEREFORE the Municipal Council of the Corporation of the City of London enacts as follows:

1. The Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan, as attached hereto and forming part of this by-law, is adopted.

PASSED in Open Council on August 10, 2021.

Ed Holder
Mayor

Catharine Saunders
City Clerk

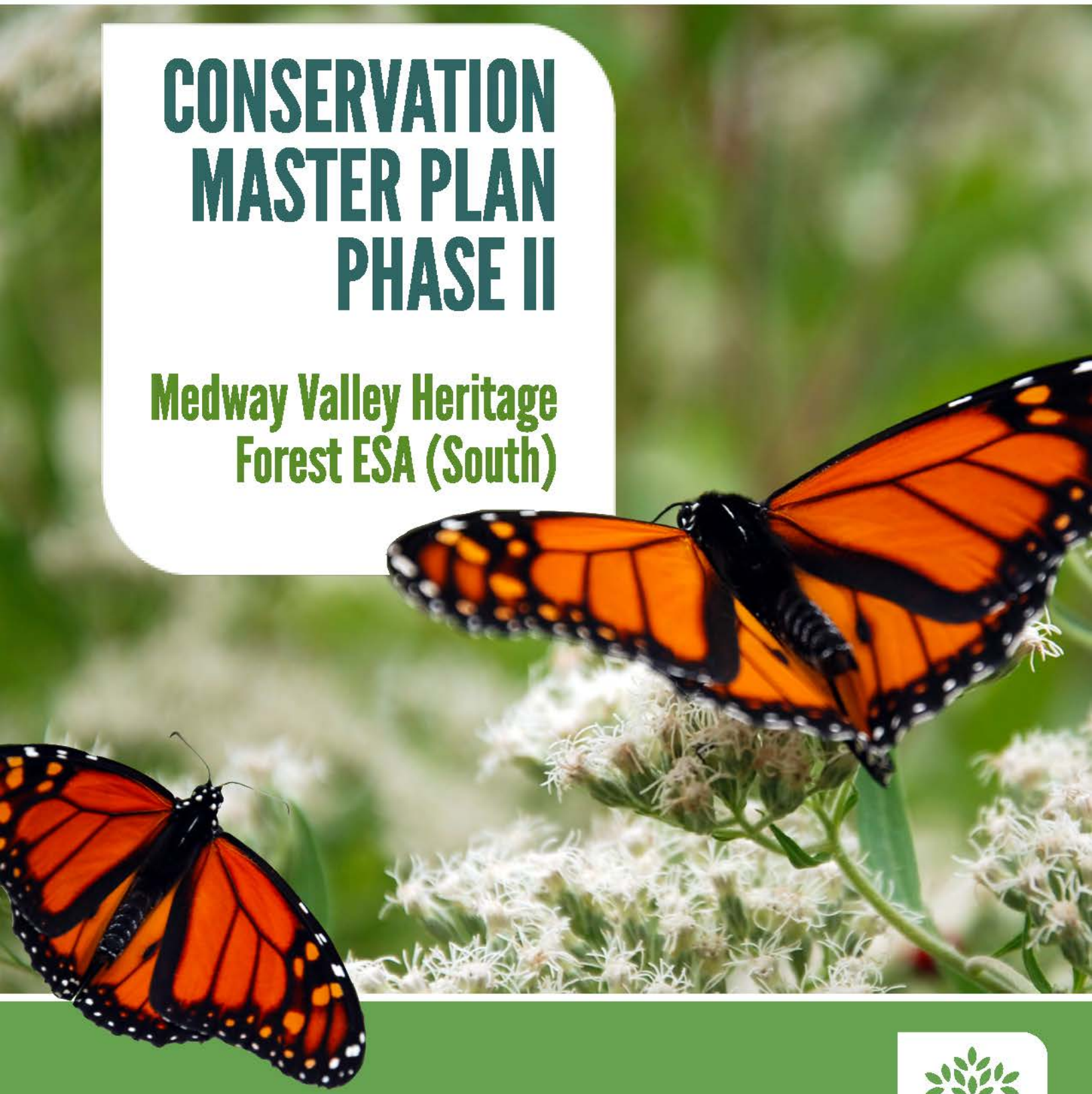
First Reading – August 10, 2021
Second Reading – August 10, 2021
Third Reading – August 10, 2021

Appendix 1: Medway Valley Heritage Forest Environmentally Significant Area (South) Conservation Master Plan

JUNE 2021

CONSERVATION MASTER PLAN PHASE II

Medway Valley Heritage Forest ESA (South)



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Conservation Master Plan History

Version	Date	Author	Reviewed By	Checked By	Description of Revision(s)
1.0	August 24, 2017	Jonathan Harris, Dillon Consulting Limited	Jennifer Petruniak, Dillon Consulting Limited	Linda McDougall, City of London	First draft of Phase II CMP (for discussion)
2.0	October 23, 2017	Jonathan Harris, Dillon Consulting Limited	Jennifer Petruniak, Dillon Consulting Limited	Linda McDougall, City of London	Second draft of Phase II CMP
3.0	March 12, 2018	Jonathan Harris, Dillon Consulting Limited	Jennifer Petruniak, Dillon Consulting Limited	Linda McDougall, City of London	Final Phase II CMP for Environmental & Parks Planning review
4.0	March 15, 2018	Jonathan Harris, Dillon Consulting Limited	Jennifer Petruniak, Dillon Consulting Limited	Linda McDougall, City of London	Final Phase II CMP for Council review
5.0	May 2021	Emily Williamson, City of London	Jennifer Petruniak, Dillon Consulting Limited	Mike Fabro, City of London	Revised Final: Phase II CMP for Council Review

Acknowledgements

This Conservation Master Plan begins by acknowledging that the lands designated the Medway Valley Heritage Forest Environmentally Significant Area (ESA) is on aboriginal land that has been inhabited by Indigenous peoples from the beginning. As settlers, we're grateful for the opportunity to protect the ESA and we thank all the generations of people who have taken care of this land - for thousands of years.

Long before today, there have been aboriginal peoples who have been the stewards of this place. In particular, the traditional territory of the Anishinaabeg, Haudenosaunee, Attawandaron (Neutral), and Wendat peoples is acknowledged.

We are grateful for the input from local communities Chippewas of the Thames First Nations, Oneida Nation of the Thames and Munsee Delaware Nation. The cultural lens through which they view the environment is invaluable and we thank them for their participation and input into this process. We look forward to their continued involvement in Conservation Master Plans in the future.

Dedicated individuals contributed many hours to the preparation of the Medway Valley Heritage Forest Environmentally Significant Area (south) Conservation Master Plan for the period of 2021-2031. These people build on the legacy of ecological consultant Dr. Jane Bowles, who carried out natural heritage studies in the Medway Valley in 1986, 1988 and 1989.

Local Advisory Committee

Jacqueline Madden	Accessibility Advisory Committee (AACAC)
Katarina Moser/ Susan Hall	Environmental & Ecological Planning Advisory Committee (EEPAC)
Dan Jones	Upper Thames River Conservation Authority (UTRCA) – Land Management
Brent Verscheure	Upper Thames River Conservation Authority (UTRCA) – Regulations
Keith Zerebecki	MVHF ESA Adopt an ESA: Sunningdale West Rate Payer Association
Elgin Austen	MVHF ESA Adopt an ESA: Friends of Medway Creek
Sandy Levin	MVHF ESA Adopt an ESA: Orchard Park/ Sherwood Forest Ratepayers
Greg Thorn/ Sarah Pierce	Orchard Park/ Sherwood Forest Ratepayers
Chris Sheculski	Sunningdale West RPA
John Levstik	Old Masonville Ratepayers
Renee Agathos	Sunningdale North Residents Association
Bruce West	Attawandaron Residents
Michael Lunau	Western University
Jack Blocker	Huron University College
Mady Hymowitz	Nature London
Alex Vanderkam/ Dave Potten	Thames Valley Trail Association (TVTA)
Dr. Rhonda Bathurst	Museum of Ontario Archaeology
Brenda McQuaid	Heritage London Foundation

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Jonathan Harris	Biologist and Report Author, Dillon Consulting Limited
Karla Kolli	Engagement Specialist, Dillon Consulting Limited
Morgan Boyco	Engagement Specialist, Dillon Consulting Limited
Ashley North	Engagement Specialist, Dillon Consulting Limited
Adam Boyce	Graphics Support, Dillon Consulting Limited

1.0 Introduction

In the City of London (the "City"), Environmentally Significant Areas, referred to as "ESAs", are considered the largest, highest quality areas within the City's Natural Heritage System. Preserving the ecological integrity and ecosystem health of these features is the first priority. ESAs exist within both agricultural and urban settings and include complexes of wetlands, forests, meadows, river corridors, valleylands and significant wildlife habitat.

As stated under Policy 1367 of the London Plan, "Environmentally Significant Areas (ESAs) are large areas that contain natural features and perform ecological functions that warrant their retention in a natural state." ESAs are identified and delineated through the application of the City Council approved Guideline Documents for Environmentally Significant Areas Identification, Evaluation, and Boundary Delineation and provincial guidelines.

The Medway Valley Heritage Forest ESA meets all seven of the ESA criteria in the London Plan (**Table 1**). The priority for this ESA is to protect its ecological integrity and maintain all seven of these criteria.

Table 1: Criteria that Designate Medway Valley Heritage Forest as an ESA

Criteria	Description (From 1371 of the London Plan)
i	***The area contains unusual landforms and/or rare to uncommon natural communities within the country, province or London sub-watershed region.*** The Medway Valley is a significant geological landform feature instrumental in the formation of the City's landscape. The Arva Moraine stretches across the northwest section of the City. The moraine was deposited by two glaciers, one moving north from Lake Erie, the other south from Lake Huron that pushed against each other 10,000 to 20,000 years ago. The Medway Creek and valley was formed when glacial melt-water cut through the Arva Moraine. The area of most significant erosion and valley formation from this breach is known locally as Dead Horse Canyon. Here, the Medway Creek flows through a relatively narrow, 0.3 to 0.5 km wide valley with steep, eroded river banks or slip faces up to 25 metres in height that reveal horizontal layers of sediments. Sands and gravels washed out of the till by moving water were deposited along the spillway. Several small tributary streams feed the river through these steep-sided ravines. The study area is situated on a post-glacial spillway adjacent to the Arva moraine, at the site of some of the most complex Pleistocene icesheet interactions in southern Ontario. A series of glacial tills are exposed by erosion activities of the Medway Creek. These exposures are the finest in the London area and the only known outcrops in southern Ontario displaying the interfingering strata left by the Erie and Huron ice lobes and the periodic local proglacial lakes (Winder, pers. corr.). The study area is located close to Western University and natural creek and river processes are well studied.
ii	***The area contains high-quality natural landform-vegetation communities that are representative of typical pre-settlement conditions of the dominant physiographic units within the London sub-watershed region, and/or that have been classified as distinctive in the Province of Ontario.*** The MVHF ESA lies near the limit of the Mixed Deciduous Forest Region and the Great Lakes – St. Lawrence Forest Region of Rowe (1972) in the Carolinian Zone in Canada. The vegetation here is characterized by deciduous floodplain forests, swamps, thickets, marshes, meadows and forested ravine and valley slopes.

Criteria	Description (From 1371 of the London Plan)
	The steep-sided wooded ravines have microclimates cooler than normal, while the open floodplain habitats in sheltered valleys and slopes of southern exposure tend to have warmer than normal microclimate. Bottomland communities including second growth forest, wet meadows, Black Walnut (*Juglans nigra*) savannahs, mown grassland and successional scrub cover most of the study area. Wooded river bluffs, ravines and slip face slopes fringe the valley. Upland communities are poorly represented. The Medway Valley Heritage Forest is moderately rich in habitat diversity at least in the bottomland and floodplain communities. Some community types within the study area are significant in themselves. Walnut savannahs, of which there are several examples, are a community type strictly limited to the natural range of Black Walnut in southern Ontario. An open wet meadow in the centre of the site is unique in the Medway Valley Heritage Forest and therefore locally significant. Communities in which trees of great size or age occur are also important and so are well developed examples of representative community types. While the MVHF ESA does contain a high number of non-native species and some disturbance (e.g. light litter, utility corridor, lack of organic layer), communities associated with the southern and northern sections of the ESA do contain high quality natural vegetation communities, representative of pre-settlement conditions. Upland communities in the north (mature Sugar Maple-Beech Forest and Sugar Maple Forest) contain high concentrations of Twinleaf (*Jeffersonia diphylla*) and Harbinger-of-Spring (*Erigenia bulbosa*), two species with very high Co-efficient of Conservatism values (CC). High CC values can be an indicator of high quality habitat since species with an 8 – 10 typically occur in undisturbed or pre-settlement remnants. Twinleaf has a CC value of 10 while Harbinger-of-Spring has a value of 9, indicating that these two species typically occur in almost undisturbed habitat, such as pre-settlement remnants. The bottomlands or floodplain habitat of the southern ESA contain high densities of Sycamore (*Platanus occidentalis*) trees a species with a high CC value (8). This indicates that the habitats in which Sycamore are found within the ESA are of a high quality. In total, 31 flora species with a CC value of 8 or higher are documented within the ESA.
iii	***The area, due to its large size, generally more than 40 hectares, provides habitat for species intolerant of disturbance or for species that require extensive blocks of suitable habitat.*** The size of the study area is approximately 119 ha. This is more than twice as large as the size criterion suggested by Hilts and Cook (1982) for a Significant Natural Area. In addition, the upstream and downstream boundaries of the study site are quite arbitrary and the site itself represents only a portion of the entire Medway Valley system. North of Fanshawe Park Road the size of the Medway Valley is an additional >100 ha. The entire area supports species that require large blocks of suitable habitat. While the area of the ESA (both north and south) is still a large contiguous block, the woodland in the north has been fragmented by the recent placement of a utility corridor resulting in a reduction of interior forest habitat and the separation of woodland communities due to a gap of 20 m or greater. This has resulted in less interior forest habitat within the ESA. It is expected that this fragmentation is temporary as restoration efforts are starting to fill in the gap(s) created by the corridor. Once the forest edge is restored, the utility corridor gap(s) should be < 20 m and the woodland would again be considered continuous. The ESA continues to support forest interior breeding birds such as Yellow-bellied Sapsucker (*Sphyrapicus varius*) and a number of interior migrant species during the spring and fall periods.

Criteria	Description (From 1371 of the London Plan)
iv	***The area, due to its hydrologic characteristics, contributes significantly to the healthy maintenance (quality or quantity) of a natural system beyond its boundaries.*** The Medway Creek is the largest tributary of the Thames River. The Medway Creek and associated floodplain contributes to water resources functions including conveyance of flows, water quality improvement, groundwater recharge and discharge or seepage zones
v	***The area has a high biodiversity of biological communities and/or associated plant and animal species within the context of the London sub-watershed region.*** The MVHF has a high diversity of plant species. Sixteen community types in six distinct landform vegetation units are recognised in the study area. These range from cultural habitats (e.g. meadow, plantation, thicket) to natural communities such as deciduous forest, wetlands and treed bluffs. The biodiversity of the MVHF is very high with 564 flora species documented during a 2013 botanical study.
vi	***The area serves an important wildlife habitat or linkage function.*** The preliminary lists of animal and plant species in the study area indicate good diversity of flora, birds, and fish. The number of different habitats available is high, especially considering how near the site is to an urban area. Diversity of habitat, including some wooded areas with unusually large trees, open floodplain meadows and hawthorn scrub presents a good mixture of feeding and breeding sites for a variety of species. An additional feature of the area is its function as a wildlife corridor; that is, it connects, and is connected to, other wildlife areas including those in the Thames River valley. A dense population of Red-backed Salamanders were found in the wooded areas of Fox Hollow and Dead Horse Canyon (Bowles, 1986). The subwatershed studies (MMM, 1995) includes a list of 34 fish species sampled from the management unit in the Medway Creek subwatershed downstream of the Arva dam. The valley provides important aquatic habitat as well as terrestrial wildlife habitat, beaver impoundments, waterfowl staging areas, travel corridors and linkages to other natural areas. The MVHF is also an important stop for migratory bird species. During bird surveys (Dillon, 2013), approximately 26 species were documented as migrating through the ESA during the spring and fall periods. This doesn't include those species that were already using the ESA as breeding habitat.
vii	***The area provides significant habitat for rare, threatened or endangered indigenous species of plants or animals that are rare within the country, province or county.*** The MVHF contains many historical occurrences for provincially and federally rare species including three freshwater mussels on Schedule 1 of SARA. (Wavy-rayed Lampmussel (*Lampsilis fasciola*), Kidneyshell (*Ptychobranchus fasciolaris*)). A number of provincially significant indigenous flora species such as Species at Risk like the *Endangered* Butternut (*Juglans cinerea*), *Threatened* False Rue-anemone (*Enemion biternatum*) and *Special Concern* Green Dragon (*Arisaema dracontium*) have been documented within the ESA. The MVHF also contains a number of flora Species of Conservation Concern (8). Most of the occurrences are only of one or a few individuals such as Shrubby St. John's Wort (*Hypericum prolificum*), American Gromwell (*Lithospermum latifolium*), and Slender Satin Grass (*Muhlenbergia tenuiflora* var. *tenuiflora*). Species with larger populations and can be considered ubiquitous throughout the MVHF includes Striped Cream Violet (*Viola striata*). Three provincially rare fish, the Black Redhorse (*Moxostoma duquesnei*), the Silver Shiner (*Notropis photogenis*) and the Greater Redhorse (*Moxostoma valenciennesi*) are found in the Medway Creek.

Criteria	Description (From 1371 of the London Plan)
	Records for provincially significant reptiles includes *Special Concern species* Common Snapping Turtle (*Chelydra serpentina*), and a recent (2013) confirmation of endangered Queensnake (*Regina septemvittata*) in the Medway Creek above its confluence with the Thames River, below Corley Drive near the Elsie Perrin Williams Estate. A number of Regionally Rare flora species (status according to *Distribution of and Status of the Vascular Plants of Southwestern Ontario; Oldham, 1993*) were also documented within the MVHF. Those not listed as Species at Risk or Species of Conservation Concern include Arrow-leaved Tearthumb (*Polygonum sagittatum*), One-flowered Cancer Root (*Orobanche uniflora*), Azure Aster (*Aster oolentangiensis*), Fanleaf Hawthorn (*Crataegus flabellata*), Rough Hedge-nettle (*Stachys hispida*), Stout Blue-eyed Grass (*Sisyrinchium angustifolium*), Sweet Ox-eye (*Heliopsis helianthoides*), Large-leaved Pondweed (*Potamogeton amplifolius*), Pasture Rose (*Rosa Carolina*), Barren Strawberry (*Waldsteinia fragarioides*), Wild Leek (*Allium tricoccum*), Water Shield (*Brasenia schreberi*), Long-leaved Pondweed (*Potamogeton nodosus*), Hair Rock Cress (*Arabis hirsuta* var. *pycnocarpa*), and Downy Willow-herb (*Epilobium strictum*).

While ESAs are protected by their inclusion in the Green Space Place Type under the London Plan, additional measures to provide for their protection, management and utilization are considered necessary.

Following the Natural Heritage Inventory and Evaluation Report for the MVHF ESA (Dillon 2015), Phase II of the Conservation Master Plan (CMP) was initiated by City Council in February 2017 (see **Section 1.1.2**). Once adopted by Council, the CMP is to function as the guideline document for the purposes of providing direction on the management of the ESA. The preparation of a CMP follows the process outlined in the City's *Guidelines for Management Zones and Trails in Environmentally Significant Areas,* hereafter referred to as "the Guidelines" (2016).

The CMP process is to be undertaken in two phases, with community engagement and participation being a substantial component of each phase. Phase one (I) of the CMP provides a life science inventory and evaluation along with boundary delineation/refinement, application of management zones, review of existing trails, and identification of management issues. Phase two (II) of the CMP determines goals, objectives, recommendations for the future management of the ESA. This is done by identifying opportunities for ecological protection, enhancement, and restoration in the ESA, as well as providing an overview of trail planning and design in response to consultation and according to the Guidelines. The recommendations are then organized into priorities for implementation.

The focus of Phase II for the CMP is on the MVHF ESA lands south of Fanshawe Park Road West, known as the MVHF ESA (south) (see **Figure 1**). It does not include areas of the MVHF ESA (south) that are identifies as part of Huron University College or Western University (identified as University and College Properties on **Figure 1**). All subsequent references to the MVHF ESA in this CMP document therefore apply only to this southern part of the ESA, unless otherwise stated.

Trail Master Planning Studies were undertaken separately for the lands north of Fanshawe Park Road West which is referred to as the MVHF ESA (north). City Council approved the Master Trail Plan (2013) derived from those studies for the MVHF ESA (north) and implementation of the plan was substantially completed in 2018 and monitoring continues.

During review of the MVHF ESA (south) Phase II CMP in 2018 by the Planning and Environment Committee (PEC), additional direction was provided to City staff to guide revisions. Based on the subsequent 2018 Council Resolution (***Appendix E***), City staff implemented the direction from PEC, resulting is this updated Phase II 2021 CMP.

1.1 Cultural Heritage of the Medway Valley Heritage Forest ESA

As noted under the Parks Canada administered Canadian Register of Historic Places (CRHP), the MVHF has evidence of human occupation dating back to the sixteenth century. A pre-contact Neutral Iroquoian village, known as the Lawson Site, is situated on a plateau overlooking the confluence of the Medway River and Snake Creek. The Lawson Site is located on the south portion of the property that is also the location for the Museum of Ontario Archeology. Excavations have recovered over 300,000 artifacts and the remains of at least 19 longhouses, 30 middens, and a palisade along the northern half of the site. Evidence suggests that, at the height of occupation, the village was home to over 2,000 people. It is believed that this area may have served as a major regional centre during this period (Parks Canada, 2017).

European settlement in the 19th and 20th centuries resulted in the widespread clearing of forest and establishment of agriculture in the valley with very few pockets of original forest left standing. Based on interpretation of available aerial photographs from the early 1940s to mid-1950s (see ***Appendix A***), small pockets of remaining forest appear to be generally situated in the area known as Snake Creek Valley and around the area where the Metamora staircase and bridge are currently located.

After 1945, the cultivated lands in the valley were generally retired from farming uses and allowed to re-naturalize. Portions of the valley remained cultural, with areas such as the Elsie Perrin Williams Estate consisting of manicured park-like settings that once included a golf course. The Elsie Perrin Williams Estate became the property of the City in 1979 and large sections have since undergone naturalization. The MVHF ESA also contains a main trunk sewer line that was installed in the late 1970s and 1980s in the south and completed in 2010 in the north part of the ESA, that crosses the Medway Creek in numerous locations as well as several other underground and aboveground utility lines (e.g. watermains, forcemains, sewers, electrical transmission) which are identified with a Utility Overlay on **Figure 1**. In addition to these utilities there are 66 stormwater outfalls that drain to Medway Creek south of Sunningdale Road West.

1.1.1 Purpose of the Conservation Master Plan for the MVHF ESA (south)

Being one of the first five ESAs to be identified as an ESA within the City, the MVHF ESA has been the subject and/or a major focus for a number of previous reports and studies. This includes, but is not limited to:

- Natural Heritage Inventory and Evaluation Medway Valley Heritage Forest ESA (January 2015) prepared by Dillon Consulting Limited.
- Addendum (November 2016) to the Medway Valley Heritage Forest ESA Natural Heritage Inventory and Evaluation, prepared by Dillon Consulting Limited.
- Medway Valley Heritage Forest North ESA Trail Master Planning Study (2013) prepared by Environmental and Parks Planning and Stantec Inc.

- Medway Valley North Pathway/Trail Master Plan and Open Space Management Strategy - North South Pathway/Trail Connections (2007) prepared by Stantec Inc.
- Medway Valley Heritage Forest Site Planning Study (1996) prepared by IMC Consulting Group.
- City of London Subwatershed Studies (1995) Group One Subwatersheds: Medway, Stanton, and Mud Creeks prepared by Marshall Macklin Monaghan Limited.
- Medway Valley Heritage Forest Conservation Master Plan (1989) developed by the London Public Utilities Commission and UTRCA.

Under direction from City Council in 2011, an update of the 1995 Medway Creek Subwatershed Study was undertaken. The primary focus of this update was on the MVHF ESA. The study, known as the Medway Creek Subwatershed Study Update (MCSSU), was in relation to water resources components including an evaluation of slope stability within the City's boundaries under the Climate Change conditions using the Upper Bound scenarios that would assess the impacts of these scenarios on the City's infrastructure in order to recommend mitigation strategies that will lead to the development of Climate Change Adaption Policies.

With the MCSUU underway, City Council requested in 2013 that the MVHF Conservation Master Plan (1989) and Site Planning Study (1996) be reviewed and updated to incorporate more current natural heritage life science inventory data. This review and update began with Phase I in 2013; the results are presented in the *Natural Heritage Inventory and Evaluation Medway Valley Heritage Forest ESA*, January 2015 by Dillon and the accompanying *Addendum (November 2016) to the Medway Valley Heritage Forest ESA Natural Heritage Inventory and Evaluation, January 2015* by Dillon. The Phase I findings are outlined in **Section 2.0**. Phase I was approved by City Council and Phase II initiated on February 14, 2017.

As outlined previously, Phase II of a CMP builds upon the findings from Phase I. This Phase II of the CMP for the MVHF ESA (south) is to outline the goal and key management strategies (objectives and recommendations) developed through consultation with the Local Advisory Committee (LAC) formed for this CMP, the City and the public. As part of the identifying key management strategies, the historical reports identified earlier were reviewed, including the MCSSU from 2013 (still under development by the City and Dillon). Where possible, the findings on slope stability in the valley and the anticipated changes in stream morphology over time can be incorporated into management recommendations presented in this CMP.

On January 1, 2016 new regulations under AODA require that all new or redeveloped recreational trails must be accessible unless it can be proven that the trail is exempt from the regulations as described in **Section 3.4**. The two main exceptions are for wilderness trails, or, if making the trail accessible would have a negative effect on water, fish, wildlife, plants, invertebrates, species at risk, ecological integrity or natural heritage values. The City updated its Guidelines in 2016 to accommodate these new regulations while protecting the significant features and functions of ESAs.

The MVHF ESA (south) CMP is intended to cover a ten-year management time frame (i.e. 2021-2031). However, as this is a dynamic natural heritage feature, there is potential for unforeseen events to occur (e.g. extreme weather events such as flooding) where updates to the CMP may be required following the process in the Guidelines. This document should be considered a "living" document, as adaptive

management may be required in order to address threats and opportunities identified either during on-going monitoring as outlined in this CMP, or through one-time events.

This CMP for the MVHF ESA (south) is organized into the following sections:

Section 1 – Introduction
Section 2 – Phase I – Summary of Findings
Section 3 – Environmental Management Strategy
Section 4 – Adaptive Management and Monitoring Framework
Section 5 – Continued Community Engagement

1.1.2 CMP Planning Process for the MVHF ESA (south)

As outlined in previous sections, a CMP is composed of two Phases which follow a process as outlined under Section 2.2 of the City's *Guideline for Management Zones and Trails in ESAs* (May 2016). A summary of the steps in the CMP planning process for the MVHF ESA (south) is provided in **Table 2**.

In addition to the natural heritage inventory undertaken as part of Phase I, the community consultation and participation process provided many opportunities for feedback and education about the ESA. The first of two Community Open Houses was held on June 1, 2017 for Phase II of the MVHF ESA (south) CMP. The open house was also the kick-off for a month long (i.e., June 1 to July 1) public engagement period where community members were encouraged to provide feedback on "Ideas, Issues, Opportunities and Observations".

To resolve the 2018 Council Resolution items (***Appendix E***), meetings were held with ACCAC, EEPAC, UTRCA and local First Nations communities from 2019 – 2021 to revise the 2018 Sustainable Trail Plan and to identify opportunities for First Nations inclusion in future CMP planning processes. A public consultation meeting via Zoom was also held for Phase II of the MVHF ESA (south) CMP in April 2021 regarding issues related to Eastern Boundary Access. Meeting minutes and associated materials are included in ***Appendix J.***

The feedback received helped to guide the following:

- Ecological Protection, Enhancement & Restoration
- Trail Planning & Design Process
- Priorities for Implementation
- Final Conservation Master Plan

This feedback was obtained through the use of hard copy surveys, comment cards, an online survey and mapping tool (https://maps.mysocialpinpoint.com/medway#/), as well as feedback from LAC members, representing community groups and other stakeholders. The survey made available to the public included multiple choice questions but also allowed for additional comments to be provided. The review and compilation of comments was not done quantitatively or statistically. Rather, the comments received during the engagement process from the public, and the LAC to date, were used to identify items for consideration in the Draft CMP for review with the Guidelines and other considerations such as those identified on **Table 10** and **Table 11**.

The feedback from the public and members of the 2017-2018 LAC were categorized into topics and grouped according to the comment. The comments received were compiled and a Frequently Asked Questions (FAQ) summary is included in response to those comments as ***Appendix C***. Detailed, written responses to the LAC's comments were circulated to the LAC as noted in **Table 2**. This includes responses to both ACCAC and EEPAC in ***Appendix D***.

The feedback from the April 8, 2021 meeting was organized by topic and posted to the Get Involved Site (https://getinvolved.london.ca/medway-valley-cmp) along with Staff responses (***Appendix J***). Forums collected feedback on Eastern Boundary Access and the revised 2021 CMP and Sustainable Trail Plan and allowed members to provide comments and interact with other users' input with 'thumbs up' and 'thumbs down' buttons. Comment feedback from the website engagement is available in the 2021 Staff Report to Planning and Environment Committee (July 26, 2021).

Table 2: Outline of Steps Taken in the MVHF ESA (south) CMP Process

Date	Conservation Master Plan Process
Phase I	
February 21, 2013	Phase 1 CMP Draft Terms of Reference circulated to EEPAC.
March 8, 2013	Conservation Master Plan (CMP) – Phase 1 launched.
March – September 2013	Ecological Data Collection.
July 25, 2013	Community Open House #1 for Phase I CMP: • Explanation of CMP process • Overview of studies being completed and initial findings to date • Collection of community input
October 2013 - January 2015	Report Writting – final Phase 1 report released January 2015.
January 15, 2014	First Draft Phase 1 CMP Presented and Circulated to EEPAC.
January 27, 2014	Community Open House #2 for Phase I: • Overview of Phase I CMP results • Opportunity for feedback on Phase I CMP
December 11, 2014	Second Draft of Phase 1 report presented and circulated to EEPAC with responses to EEPAC and Nature London comments.
April 16, 2015	Responses to EEPAC's Second Round of Comments and Presentation of Final Phase I CMP to EEPAC.
October 2015	Council directed staff to update the Planning and Design Standards for Trails in ESAs (2012).
May 2016	Council approved the *Guidelines for Management Zones and Trails in ESAs* (2016).
November 2016	Addendum to Final Phase I CMP (January 2015) report based on the new *Guidelines for Management Zones and Trails in ESAs* (May 2016) circulated to EEPAC and Trails Focus Group.
February 14, 2017	Council approval of Phase I Report and Addendum.
Phase II	
February 14, 2017	Phase II of the Conservation Master Plan initiated by City Council.

Date	Conservation Master Plan Process
March 8, 2017	Invitations sent to Local Advisory Committee (LAC) stakeholders.
March 2017	Formation of the LAC / Roles for the Medway VHF ESA CMP Process circulated to LAC/EEPAC/ACCAC.
April to November 2017	Development of a ToR for the LAC (see ***Appendix B***) which also outlines the five LAC meetings held throughout Phase II. • April 27 - Meeting 1 – Introduction of CMP • May 4 - Meeting 2 – Consultation and Engagement • July 27 - Meeting 3 – Public Engagement Results • September 7 - Meeting 4 – Review of Draft CMP • November 2 - Meeting 5 – Endorsement of Final CMP Minutes of the five meetings of the LAC are included in ***Appendix B***.
May 12, 2017	Notice of CMP Community Open House was circulated to the public. Circulation included an advertisement in the Londoner, mail-out to all homes within 200 m of the entire MVHF ESA, letters and / or emails to those who participated in Phase I and the LAC, signs at every ESA access inviting residents to attend the open house and complete the survey, and a notice on the City website.
May 25, 2017	CMP Update presented to the Orchard Park/ Sherwood Forest Ratepayers at their Annual General Meeting. Information on the CMP has been posted on the community website by the Orchard Park/Sherwood Forest Ratepayers continuously through the consultation process.
June 1, 2017	Community Open House #1: • Overview of Phase I results with presentation boards • Explanation of the Phase II process with presentation boards • Opportunity for feedback via hard-copy surveys and an online survey • City staff and consultants on-hand to answer questions
June 1 to June 30, 2017	Web survey and interactive mapping tool open for public input and feedback.
August 24, 2017	First draft CMP distributed to ACCAC, EEPAC, LAC, for review and comment.
August 24, 2017	Draft CMP presented to ACCAC and EEPAC for discussion and comment.
October 19, 2017	Dillon/Staff presentation to EEPAC in response to EEPAC's comments on the August 2017 Draft CMP (memo with responses to EEPAC provided in ***Appendix D***).
October 23, 2017	Revised CMP and responses to comments distributed to ACCAC, EEPAC, LAC
November 15, 2017	Community Open House #2: • Notice for the Open House was circulated to the public. Circulation included an advertisement in the Londoner, mail-out to all homes within 200 m of the entire MVHF ESA, letters and / or emails to those who participated in Phase I and/or II and the LAC, and, a notice on the City website. • Overview of the Phase II outcomes with presentation boards • City staff and consultants on-hand to answer questions
November 16, 2017	Meeting with staff and ACCAC Chair and two committee members regarding trail plan and accessibility.
November 23, 2017	Staff ACCAC presentation and responses to ACCAC's comments on the August 2017 Draft CMP (memo with responses to ACCAC provided in ***Appendix D***).
December 21, 2017	EEPAC endorsed their statement and recommendations on the October 2017 Draft CMP (EEPAC statement provided in ***Appendix D***)

Date	Conservation Master Plan Process
January 8, 2018	Letter from the Chair of AACAC outlining their stance on the October 2017 Draft CMP (ACCAC letter provided in ***Appendix D***).
January 8, 2018	EEPAC presented their statement and recommendations on the CMP to PEC, to refer them back to PEC when the CMP and Staff report are presented at PEC. (EEPAC statement provided in ***Appendix D***).
February 21, 2018	Information Meeting held with LAC to review updated February 2018 version of CMP. Minutes from the meeting (see ***Appendix B***) and information presented was distributed to the LAC on March 1, 2018.
March 16, 2018	Final 2018 CMP distributed and posted on City website
April 16, 2018	Presentation of final 2018 CMP to Planning and Environment Committee
April 25, 2018	2018 CMP report referred back to City Staff for further work (2018 Council Resolution provided in ***Appendix E***).
Phase II Continued	
August 2019 to March 2021	Development of the revised Sustainable Trail Management Plan with ACCAC, EEPAC, UTRCA. • April 27 - Meeting 1 – Project restart and Guiding Principles • May 4 - Meeting 2 – Site Meeting at Elsie Perrin Williams Estate • July 27 - Meeting 3 – Virtual Meeting: Attawandaron Snake Creek • Meeting 4 – Virtual Meeting: Orchard Park/Sherwood Forest/ Metamora, Glenridge/Marcus/Gloucester, review of Elsie Perrin Williams • Meeting 5 – Virtual Meeting: Draft Sustainable Trail Concept Review Minutes of the five meetings are included in ***Appendix F***.
February 18, 2021	Oneida Environmental Council Presentation Conservation Master Plan process and opportunities for inclusion (meeting materials provided in ***Appendix G***).
March 2, 2021	COTTFN Presentation: Conservation Master Plan process and opportunies for inclusion (meeting materials provided in ***Appendix G***).
March 5, 2021	Munsee Delaware Nation Presentation: Conservation Master Plan process and opportunities for inclusion (meeting materials provided in ***Appendix G***).
March 18, 2021	EEPAC endorses Sustainable Trail Concept Plan (meeting minutes provided in ***Appendix H***).
March 25, 2021	ACCAC endorses Sustainable Trail Concept Plan (meeting minutes provided in ***Appendix I***).
March 30, 2021	Endorsed Sustainable Trail Concept Mapping posted to City website and eastern boundary public consultation initiated on Get Involved.
April 8, 2021	Virtual Information Meeting held with the public to review updated 2021 version of CMP mapping. Meeting materials from the meeting (see ***Appendix J***) including the question transcripts, response spreadsheet and presentation slides were posted on the City website on April 16. Comments and public engagement were received on the City's website and are included in the 2021 Staff Report to Planning and Environment Committee (July 26, 2021).
June 30, 2021	Final 2021 CMP distributed and posted on City website.
July 26, 2021	Presentation of final 2021 CMP to Planning and Environment Committee

1.2 Vision for the MVHF ESA (south) CMP

1.2.1 Goal

Developed in consultation with the LAC, the goal of this CMP for the MVHF ESA (south) is as follows:

> *"To develop a comprehensive multi-year Conservation Master Plan that presents recommendations for achieving long-term ecological integrity and protection of the ESA through the implementation of an environmental management strategy".*

1.2.2 Guiding Principles

The decisions made regarding the future of the MVHF ESA (south) will centre on the following policies from Section 2.1 in the Guidelines (May 2016):

- Natural features and ecological functions for which the ESA has been identified shall be protected.
- The ecological integrity and ecosystem health of the ESA shall have priority in any use or design-related decision.
- A properly designed and implemented trail system appropriate to specific management zones and reflecting sensitivity of the natural features will be implemented to achieve the primary objective of protection and the secondary objective of providing suitable recreational and educational opportunities.
- The community will be engaged in natural areas protection and the trail planning process to build awareness, foster education, and encourage participation in order to increase the capacity for creating a conservation culture that promotes natural areas as a common good and conservation as a collective responsibility.
- Enjoyable, safe, accessible trails for recreation appropriate in an ESA and learning environment will be permitted in accordance with any/all recognized accessibility legislation (such as the Accessibility for Ontarians with Disabilities Act, 2005 (AODA), best practices and the above principles.

Additionally, the 2018 Council Resolution provided the following direction with regard to the 2018 Draft CMP:

- Remove Bridges A and D from the Sustainable Trail Concept Plan and actions be taken to discourage the crossing of the creek at sites A, B, C, D and E as identified in the 2018 CMP.
- Complete additional consultation with ACCAC, EEPAC, UTRCA and local First Nations Communities with respect to improved trail access and conditions.
- Complete additional public consultation with respect to the eastern boundary, including the use of public streets.

1.2.3 Objectives

The objectives for this CMP are summarized below:

1. To review the environmental management strategy recommendations in the Phase I study entitled: *Natural Heritage Inventory and Evaluation Medway Valley Heritage Forest ESA*, January 2015 by Dillon Consulting Limited. This includes:

a) **Restoration**: Prepare a restoration/enhancement strategy and priorities for implementing restoration activities. This is to include an emphasis on invasive species management as invasive species are the biggest threat to the ecological integrity of the ESA.

b) **Naturalization:** Prepare a strategy and priorities for implementing naturalization projects within or adjacent to the ESA to protect ecological integrity.

c) **Wildlife Habitat**: Identify a sustainable monitoring and adaptive management program for the benefit of key wildlife habitat areas within the ESA, including Species at Risk habitat.

d) **Education and Stewardship:** Create a strategy that encourages stewardship and awareness of the ESA through education and continued community engagement.

2. Delineate a sustainable trail system in consultation with the public and the LAC. The trail system is to provide for appropriate public use that complies with and follows the process in the City's *Guideline for Management Zones and Trails in ESAs* (May 2016) and complies with required accessibility legislation.
3. Establish a sustainable adaptive management and monitoring program based on "reference conditions" (state of health) from Phase 1 to which system form and function can be compared over time and where regular reporting on monitoring results can be used to identify significant a departure from baseline conditions. The program should include conditions that would trigger follow-up management actions.
4. Develop a continued community engagement plan to increase awareness and education of the ESA and to foster a sense of stewardship among ESA users.

1.2.4 Implementation Plan

For the four objectives listed in **Section 1.2.3**, timelines for implementation of specific actions or management recommendations over a 10 year period (2018-2028) has been provided, where applicable. The details in this section and in **Tables 7, 9, 11 and 12**, provide direction for continued implementation of Restoration, Naturalization, Sustainable Trail Concept Actions, and Monitoring work. The implementation plan for recommended management actions identifies the priority for action, sources for funding the management action as well as direction in regard to measures of success for each management action, and an approximate cost.

The UTRCA will be consulted in the development of detailed management plans and prior to implementation as some activities may require approvals pursuant to the *Conservation Authorities Act*.

In addition, it should be recognized that additional site-specific studies and design work may be required to implement some of the activities that are beyond the scope of the CMP. Examples of this would be, but are not limited to archaeological studies, geotechnical studies, and preliminary/detailed engineering designs.

A Local Implementation Committee (LIC) will be formed to assist with the implementation the CMP. Members may include local Adopt an ESA members, ACCAC members, community members and members of the LAC.

1.2.4.1 Priority Setting

The priorities for management actions have been set according to perceived urgency, logical progression, and current knowledge on the availability of resources. Based on these criteria, the recommendations are grouped into the five priority time periods, as presented in **Table 3.0**.

Table 3: Criteria Used to Assign Priorities for Management Activities

Priority for Implementation	Time Period for Implementation
Top	Start within one year, including items already underway
High	Start within two years
Moderate	Start within three years
Low	Start within four years up to ten years
Long Range	Projects without specified time frames – may occur beyond ten years

Specific strategies for activities related to restoration, naturalization and trails may have additional criteria for determining the priority for implementation. These criteria will be outlined in the relevant sections, as applicable.

1.2.4.2 Lead Agency

Along with priorities for implementation, the agency identified to lead the implementation of a management action is also noted. These include the following:

- *City of London*. This refers to Long Range Planning, Research and Ecology (formerly Parks Planning) staff (the lead agency funding and managing the Phase II CMP process).
- *ESA Management Committee*. The ESA Management Committee includes City of London Environmental and Parks Planning staff and the City funded ESA Management Team.
- *ESA Management Team*. The City funded ESA Management Team is based out of the UTRCA and is responsible for day-to-day operations including ecological restoration, monitoring, education and enforcement in publicly owned ESAs.

1.2.4.3 Funding Sources

Potential sources of funding for implementation for specific actions or management recommendations may include the following:

- *City ESA Operating Budget* – The City funds the ESA Management Team annually under a contract.
- *City ESA Capital Budget* – The City funds capital projects in ESAs, over-and-above the annual City ESA Operating Budget.
- *Other sources of funding* – Examples include fundraising through grants and other means by local Adopt-An-ESA groups and Community Associations.

1.2.4.4 Estimated Cost

While the exact cost for each management action is dependent on a number of factors, including additional studies and/or permits/approvals that may be required, a broad estimate for cost has been

applied to the specific actions or management recommendations. The estimated costs for each action or recommendation are assumed to encompass the 10 year management period and are based on the following criteria listed in **Table 4**.

Table 4: Estimated Costs for Environmental Management Strategy Actions

Approximate Dollar Value	Estimated Cost
>$100,000	High
$20,000 to $100,000	Medium
<$20,000	Low

2.0 Phase I – Summary of Findings

Dillon was retained by the City in 2013 to complete the *Natural Heritage Inventory and Evaluation* for the MVHF ESA. The Study Area focused primarily on public lands within the MVHF ESA (south). Some supplementary work was completed for the section of the MVHF ESA between Fanshawe Park Road West and Sunningdale Road West (MVHF ESA north) to update previous studies.

To achieve the objectives in support of the *Natural Heritage Inventory and Evaluation* for the MVHF ESA, an Ecological Resources Inventory was undertaken as a critical first step. Beginning with a thorough background review for past information related to the MVHF ESA, this historical information was updated with a large number of surveys between April and September of 2013. These surveys followed both the City's *Data Collection Standards for Ecological Inventory* and other provincially and federally accepted protocols. The results of the inventory were presented by survey type under Section 2.0 of the Phase I report - *Natural Heritage Inventory and Evaluation Medway Valley Heritage Forest ESA* (Dillon 2015). The results of the Ecological Resources Inventory are summarized in this report under **Section 2.1**.

Using the updated inventory data, the boundary of the MVHF ESA was refined. Details of the refined boundary, including supporting rationale, are presented under Section 3.0 of the Phase I report. The results of the boundary refinements are summarized under **Section 2.2** of this report.

Data collected during Phase I was then used to develop an initial Environmental Management Strategy which included delineation of Management Zones and identification of areas for restoration and naturalization. This initial Environmental Management Strategy was outlined under Section 5.0 of the Phase I report and was updated to identify the top and high priority restoration work implemented to date and the remaining priorities under **Section 3.2** of this report.

To review the full Phase I report, including the methodologies used and results recorded for field studies, please refer to the *Natural Heritage Inventory and Evaluation Medway Valley Heritage Forest ESA* (Dillon 2015) posted on the City's website, together with the Addendum (Dillon 2016). As part of the Addendum, a review of trail compatibility with significant features was undertaken and the results are summarized in **Section 2.3** of this report.

2.1 Ecological Resources Inventory

As part of the *Natural Heritage Inventory and Evaluation* (Dillon 2015) of the MVHF ESA, extensive flora and fauna surveys were conducted using accepted field inventory protocols. **Table 5** provides a summary of the results of the surveys and what significant ecological features were documented.

Table 5: Summary of Phase I Results

Survey Completed in Phase I	Summary of Results
Ecological Land Classification (Validation)	• A total of 16 vegetation communities were documented.
Wildlife Habitat Survey	• Ten different types of wildlife habitat (not including Species at Risk) were identified, of which eight were evaluated as being significant (listed below): o Colonially-Nesting Bird Breeding Habitat (Bank and Cliff) o Seeps and Springs o Amphibian Breeding Habitat o Species of Conservation Concern: Striped Cream Violet o Species of Conservation Concern: American Gromwell o Species of Conservation Concern: Slender Satin Grass o Species of Conservation Concern: Green Dragon o Species of Conservation Concern: Shrubby St. John's Wort
Amphibian Breeding Survey	• Four frog/toad species were observed; all of which are common to London.
Salamander Search	• Red-backed Salamander confirmed.
Breeding Birds	• During the breeding season, 55 species were observed and an additional 25 during the migration periods. Ten species (9 migrants, 1 breeding) had not been previously identifed in the MVHF ESA.
Flora	• A total of 564 flora species were identified during the inventory with 151 (27%) of those not previously recorded in the MVHF ESA.
Butterflies	• 48 species of butterfly. 52% (25) were not previously documented.
Dragonflies & Damselflies	• 41 species of dragonflies/damselflies. 32% (13) were not previously documented.
Mammals	• 20 species were observed during the inventory and by the general public.
Species at Risk	• Threatened, Endangered under the Ontario *Endangered Species Act*, 2007 that were observed/documented in the MVHF ESA include: o False Rue-anemone (THR) o Queensnake (END) o Kentucky Coffee-tree (THR) o Cucumber Magnolia (END) o Butternut (END) o Spiny Softshell (END) • Three SAR bats were observed along the edge of the MVHF ESA (south) by a member of the public using audio equipment to record bat echolocation calls included: o Little Brown Myotis (END) o Northern Long-eared Myotis (END) o Tri-colored Bat (END) (listed as END since Phase I)

Note: END indicates a species is protected as an *Endangered* species under the Ontario *Endangered Species Act, 2007.* THR indicates a species is protected as a *Threatened* species. Note: due to the sensitive nature of these species, specific locations may not be presented on mapping. Status of species reflects Ontario Regulation 230/08 as of date of the report and is subject to change following revisions to this regulation that occur from time-to-time.

2.2 Refinement of the Boundaries

The entire MVHF ESA, as presented on Map 5 – Natural Heritage of the London Plan encompasses 175.4 hectares of public and private lands. Based on the results of the natural heritage surveys undertaken as part of Phase I, the entire ESA boundary was refined based on interpretation of the City's *Guidelines for Assessing Ecological Boundaries of Vegetation Patches* (2007) and comments from EEPAC to be more representative of the ecological boundary. The refined boundary for the entire MVHF ESA encompasses 181.2 hectares, and generally excludes residential building sites, cultural landscapes and storm-water management facilities from the ESA that were previously included. It further includes those areas of naturalized vegetation that had been previously excluded. This refined ESA boundary has been carried forward into Phase II for the MVHF ESA (south) which alone, encompasses 119.51 ha (see **Figure 1**).

2.3 Existing Trail Compatibility Review

As part of the November 2016 addendum to the *Natural Heritage Inventory and Evaluation (*January 2015), the Management Zones were updated with the current Guidelines and existing managed trails were reviewed for compatibility with significant ecological features in the MVHF ESA (south) based on Table 1 of the City's *Guideline for Management Zones and Trails in ESAs* (May 2016). Through the review in 2018, it was determined that the existing managed trails are compatible with the significant ecological features in the MVHF ESA (south).

3.0 Environmental Management Strategy

As evident in the aerial photographs dating back to the early 1940's, very few areas of the MVHF ESA (south) have remained relatively untouched from disturbance and the majority of the ESA's current natural state is the result of former cultural lands undergoing secondary succession back to forest, meadow and wetland communities. With the transfer of large swathes of rural property to the City occurring in the late 1940s and early 1950s, the lands within the current MVHF ESA (south) were generally left vacant. Cultural open land uses such as cropland, hayland, pasture and manicured lawn would transform into meadow habitats as pioneer grasses, annual and perennial herbaceous species established. Over the decades, intermediate shrub and tree species from adjacent remnant woodland patches would have established in the meadows to form thickets and eventually the mid-age upland and lowland forests observed today.

Ecological succession is a natural process and can result in mature, diverse vegetation communities that serve to provide a function in the greater landscape. While succession of the MVHF ESA (south) was generally a natural and unmanaged process, it also occurred during a period when the surrounding tablelands underwent rapid urban development. This has resulted in the MVHF ESA (south) being surrounded by a heavily populated urban landscape which puts increasing demand on the ESA for access to nature and trail use as well as contributing to other stressors. As the urban landscape developed around the MVHF ESA (south), thevalleylands became a destination. Eventually an informal network of trails was established, centred around the Medway Trail which was created in the 1960s and ran from Fanshawe Park Road West to Western University. Prior to the late 1980s, the MVHF and the trail system did not benefit from the level of management seen today and, as a result, impacts to the MVHF ESA (south) were identified in the 1989 CMP.

Since 2002 the City funded contract with the UTRCA has enhanced the protection of the ESA and includes:

1. Monitoring and enhancing the natural resource (including invasive species control and restoration)
2. Enforcing applicable provincial statutes, regulations, and municipal bylaws
3. Implementing risk management and encroachment reduction programs
4. Maintaining the trail network
5. Coordinating educational programs, special events and community projects

The City is an identified leader among Ontario municipalities and other levels of government in demonstrating a proactive approach to the management and control of invasive species in protected natural areas including the MVHF ESA since 2007. The majority of restoration work identified in Phase I is already underway or completed. The three high priority restoration areas identified to protect Species at Risk were implemented in 2013 and have been ongoing through 2021. The City, Dillon and UTRCA were all recognized for their innovative work, SAR habitat protection and contributions to the Federal Recovery Strategy for the False Rue-anemone (*Enemion biternatum*) in Canada, 2017.

Despite these efforts, some impacts to the MVHF ESA (south) continued to be observed in 2017 and persist in 2021. These impacts are to be addressed through the development of an updated Environmental

Management Strategy to protect the MVHF ESA (south) by providing recommendations to continue to correct those impacts through restoration and naturalization, as invasive species pose the biggest threat to the ecosystem health of the ESA. The Environmental Management Strategy also provides recommendations for managing visitor related impacts following the Guidelines, for sustainable trails, AODA compliant signs, barricades, enforcement and other measures to protect the natural features and functions that characterize the MVHF ESA (south).

Information related to the delineation of a sustainable trail system following the Guidelines forms part of the overall Environmental Management Strategy. The trail strategy is included as **Section 3.4** of this report.

By implementing the strategies outlined in the following sections that make up the Environmental Management Strategy, the ecological integrity of the MVHF ESA (south) is expected to continue to improve over the next 10 years. This will be reviewed and will continue to be tracked over the ten year period of this CMP as per the extensive monitoring recommendations provided in **Section 4.0.**

3.1 Managing Areas with a Utility Overlay

Due to ongoing access requirements associated with the approximately 5.5 km of underground and aboveground utility infrastructure (e.g. hydro corridor, sewers & forcemain) located within the MVHF ESA (south), a Utility Overlay consisting of a 4 m wide corridor was established following the Guidelines over the various utility rights-of-way. Where restoration to the original ecological condition is possible, a Utility Overlay is not used; instead, the management zone is applied based on the targeted vegetation community (i.e. ELC) and overlaid with a Restoration Overlay. Utility Overlays are not generally considered to be part of the surrounding Management Zone due to their unique requirements. While "overlay" zones can be applied to the underlying management zones, if applicable, the ongoing access requirements for maintenance of the infrastructure in the MVHF ESA (south) means the Utility Overlay designation is different from and not part of the surrounding Management Zones. As outlined in the Guidelines;

> *"The primary goal for a Utility Overlay is to protect the overall integrity of the ESA, and minimize impact of the utility site, corridor, infrastructure or facility while maintaining the ability for the City to access the utility for operational maintenance, as required by other approvals. The secondary goal depends on the circumstances of the specific ESA.* ***Where maintenance access is required, trails should be located along the same route to minimize impacts to the surrounding ESA while achieving a social benefit by designing the trails to accommodate persons with disabilities in a manner consistent with AODA requirements, wherever possible."***

3.2 Restoration

As outlined in the City's Guidelines, Restoration Overlays (RO) "*are applied to identify areas where active management intervention is required to restore ecological integrity. Restoration may take the form of habitat creation, enhancement or restoration, control of nuisance wildlife, control of invasive species, prescribed burns and/or the creation or enhancement of habitat structures (nest boxes or platforms, amphibian breeding habitat, snake hibernacula, etc.). This objective is supported by the City's Official Plan.*"

London's Humane Urban Wildlife Conflict Policy provides direction for wildlife and identifies that:

> "*The City is committed to upholding high standards of animal welfare, including the humane treatment of wildlife. The City will strive to not interfere with wildlife and their natural processes where possible; and will strive to implement proactive and preventative measures in order to promote coexistence, and to prevent potential conflicts where possible*."

The fifteen RO presented during Phase I are areas identified within the MVHF ESA (south) that require active ecological restoration and/or special management. The majority of these RO areas require management of invasive species and three had the potential to threaten populations of Species at Risk and/or provincially rare species and have now been addressed.

The City has taken a pro-active approach to dealing with invasive species and the protection of Species at Risk and provincially rare species and implemented on-going control efforts of invasive vegetation within the majority of the RO areas since identification of the priority issues in 2013. All the top and high priority RO identified to date have been addressed and/or are now under a monitoring program.

Each RO area from Phase I has been reviewed and a restoration/enhancement strategy was developed as part of Phase II to include management actions and priorities for implementation. An additional RO (RO16) was added as part of Phase II to address the informal trails/closed trails that are to receive additional efforts to enforce closure and restoration consistent with the steps listed in the Guidelines and are prioritized in this CMP.

Determination of the priority for implementation of the management actions for each RO was based on the criteria presented in **Table 6.**

Table 6: Criteria Used to Assign Priorities for Restoration Overlay Areas

Priority for Implementation	Criteria
Top	If restoration of this area isn't undertaken there is potential for a Species at Risk and/or Species of Conservation Concern[1] (including habitat) to be immediately impacted and may result in the reduction in the species' population or extirpation from the MVHF ESA. This also includes active and on-going restoration efforts that are underway to protect Species at Risk and/or rare species. ***Note: All Top and High Priority Restoration Overlays identified in the Phase 1 CMP have been addressed and are now under a monitoring program. Based on this, these areas have been assigned a rating of Moderate[1].***
High	If restoration of this area isn't undertaken there is potential for a Species at Risk and/or Species of Conservation Concern[1] (including habitat) to be impacted and may result in the reduction in the species' population or extirpation from the MVHF ESA over time. ***Note: All Top and High Priority Restoration Overlays identified in the Phase 1 CMP have been addressed and are now under a monitoring program. Based on this, these areas have been assigned a rating of Moderate[1].***
Moderate	These may be areas at the beginning stages of degradation where restoration efforts would help to reverse those effects and return the area to a higher quality. These areas also include formerly top or high priority restoration areas which have already received initial or on-going control and/or monitoring is taking place and are identified as Moderate[1].
Low	Area is already highly impacted and no Species at Risk (including habitat) or Significant Wildlife Habitat is under threat. Restoration can reasonably occur when other moderate and high priority areas are under control. Generally these areas contain dense patches of invasive vegetation but also may include open areas that could be filled-in with trees and shrubs to help form more a contiguous forest canopy.

1 Species of Conservation Concern is as defined by the MNRF in the Significant Wildlife Habitat Technical Guide (2000) and includes species provincially ranked as S1, S2 or S3, those species identified as *Special Concern* under the Ontario *Endangered Species Act, 2007,* or those species listed as *Threatened or Endangered* under the federal *Species at Risk Act.*

Strategies for the sixteen Restoration Overlays are summarized below in **Table 7** and shown on **Figure 2**. Restoration Overlays that are highlighted green in **Table 7** are already in progress or complete and under a monitoring program. Specific wildlife habitats and habitats for Species at Risk/Species of Conservation Concern are presented in finer detail with relation to the Restoration Overlays on **Figures 2a**, **2b** and **2c**.

Table 7: Restoration Strategy for the MVHF ESA (south)

Restoration Overlay Identifier	Status	Approximate Area (ha)	Rationale and Goal(s) for Restoration	Management Actions for Restoration	Priority for Implementation	Measure(s) of Success	Lead Agency	Potential Funding	Estimated Cost
RO1	In progress	1.62	Large patches of European Common Reed (*Phragmites australis* spp. *australis*) and Common Buckthorn (*Rhamnus cathartica*), two highly invasive species that tend to out-compete native flora and develop monoculture communities. The intent for restoration in this area is to control and/or eradicate the invasive vegetation and restore the area to deciduous forest.	• **Continue implementation** of current invasive species management plan following Provincial BMPs. • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**). (**ONGOING**) • Planting of native deciduous tree and shrub species similar to the adjacent deciduous forest and treed bluff vegetation communities.	Moderate	European Common Reed and Common Buckthorn are either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. Increased abundance of native flora, in particular trees/shrubs from baseline levels.	*ESA Mg Cte* *ESA Mg Team*	Capital and Operating Budget	Low
RO2	In progress	2.49	Large patches of European Common Reed and Common Buckthorn, two highly invasive species that tend to out-compete native flora and develop monoculture communities. The intent for restoration in this area is to control and/or eradicate the invasive vegetation and restore the area to deciduous forest.	• **Continue implementation** of current invasive species management plan following Provincial BMP. Control of European Common Reed and Buckthorn has been a priority in ESAs and control of the species has been occurring since 2013. • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**).(**ONGOING**) • Planting of native deciduous tree and shrub species similar to the adjacent deciduous forest and treed bluff vegetation communities.	Moderate	European Common Reed and Common Buckthorn are either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. Amphibian Breeding Habitat maintains criteria required for significance. Increased abundance of native flora, in particular trees/shrubs from baseline levels.	*ESA Mg Cte* *ESA Mg Team*	Capital and Operating Budget	Low
RO3	Proposed	3.52	Large patches of Common Buckthorn, a highly invasive species that tends to out-compete native flora and develops monoculture communities. The intent for restoration in this area is to control and/or eradicate the invasive vegetation and restore the area to deciduous forest.	• Implementation of invasive species management plan following Provincial BMP. • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**). • Planting of native deciduous tree and shrub species similar to the adjacent deciduous forest and treed bluff vegetation communities. Where restoration areas overlap utility overlay, plantings should be limited to grass/forb.	Low	Common Buckthorn is either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. Increased abundance of native flora, in particular trees/shrubs from baseline levels.	*ESA Mg Cte* *ESA Mg Team*	Capital and Operating Budget	Low
RO4	Proposed	0.99	The sewer right-of-way is wider in some areas than the 4 m size requirement. This presents an opportunity to fill in these spots with deciduous trees and shrubs to help the surrounding area succeed into lowland deciduous forest. The corridor has received some ecological restoration in the form of tree planting along the edges and this would be additional efforts to fill-in the gaps.	• Planting of native deciduous tree and shrub species similar to the adjacent lowland deciduous forest. • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**).	Low	The Utility Overlay consists of a 4 m wide open area with lowland forest right up to the edges, similar to Utility Overlay areas with older infrastructure.	*ESA Mg Cte* *ESA Mg Team*	Operating Budget	Low

Restoration Overlay Identifier	Status	Approximate Area (ha)	Rationale and Goal(s) for Restoration	Management Actions for Restoration	Priority for Implementation	Measure(s) of Success	Lead Agency	Potential Funding	Estimated Cost
RO5	In progress	0.62	The ground layer in this area was dominated by Goutweed (*Aegopodium podagraria*), a highly invasive species that tends to out-compete native flora and develops monoculture communities. The Goutweed was located around sub-populations of False Rue-anemone, a Species at Risk, and habitat for American Gromwell, a rare species, and threatened to overtake the species habitat (see **Figure 2b** for location of those habitats). This restoration was flagged as High Priority in Phase I as control of this invasive species was critical in maintaining the adjacent population of False Rue-anemone. The City initiated an invasive species management plan in May 2014 for this area and implemented control efforts for the Goutweed. **Control and monitoring is on-going and the goal has been met in managing the Goutweed and protecting the False Rue-anemone.**	• Development of an invasive species management plan (**COMPLETE – Dillon, 2014**) • Restoration with the Ministry of Natural Resources and Forestry under Section 23.17 (Species Protection or Recovery Activities) of *Ontario Regulation 242/08* of the *Endangered Species Act,* 2007 prior to control efforts **(COMPLETE – Dillon, 2014)**. • Once invasive species are under control, the area can then undergo active ecological restoration **(ONGOING)** • Shade tolerant wildflower seed mixes and wildflower plugs were planted/seeded in mid- to late fall of 2015. (**COMPLETE**) • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2 and References for monitoring reports**). (**ONGOING)** • Development of seasonal closure management plan to restrict access to the area during the flowering season until the plants go into dormancy. • Design and implementation of the Green Acres Drive Access along the City owned Right of Way to provide a viable north south connection away from the False Rue-anemone community.	Moderate[1] [1](Formerly Top Priority; see **Table 6**)	Goutweed is either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. False Rue-anemone is observed to be maintaining the sub-populations and/or expanding. *2016/2017 monitoring of control efforts indicate the Goutweed is under control and some sub-populations of False Rue-anemone are expanding. The results of monitoring have been documented in an annual monitoring record as required through the registration with the MNRF (Dillon - 2014, 2015, 2016 and 2017[In Process at time of CMP]) Naturalization of the informal north/south trail along the eastern bank that crosses private property.	*ESA Mg Cte* *ESA Mg Team*	Capital and Operating Budget	Low / Medium
RO6	Proposed	5.06	The ground layer for this area (Snake Creek Valley) is dominated by Woodland Sedge (*Carex sylvatica*), a highly invasive species that tends to out-compete native flora and develops monoculture communities. A dense ground layer can also reduce the success of natural tree regeneration by out-competing seedlings. This could further degrade the area as once larger mature trees die-back, there may be an absence of native trees and shrubs to replace those species giving opportunity for additional invasive species to establish (i.e. Common Buckthorn). The Snake Creek Valley is one of the few remaining older pockets of forest relatively untouched by clear-cutting in the past 70 years (based on aerial interpretation). The intent of this restoration would be to restore the ground layer to a state where seedlings of the larger deciduous trees can establish without competition from non-native ground flora.	• Development of an invasive species management plan noting that care would be needed as to control the non-native sedge and avoid native sedges also present in the valley. The plan should include recommendations for control efforts (e.g. hand pulling, spot-application herbicide) to be carried out by individuals skilled in identification of sedge species. • Once invasive species are under control, the area can then undergo active ecological restoration. Review of soil conditions may be required following eradication of invasive species and prior to ground layer restoration efforts. • Planting of native deciduous tree and shrub species similar to the adjacent Snake Creek Valley. • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**).	Low	Woodland Sedge is either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. Continued persistence of Red-backed Salamander population. Increased abundance of native flora, in particular trees/shrubs from baseline levels.	*ESA Mg Cte* *ESA Mg Team*	Capital and Operating Budget	Low
RO7	Proposed	0.72	The ground layer of this area is dominated by a large patch of non-native ephemeral Snowdrop (*Galanthus nivalis*) that has overtaken a large area. While this species isn't generally considered an invasive species the	• Development of an invasive species management plan. • Planting of native deciduous tree and shrub species observed in the Snake Creek Valley may help to reduce non-native ground layer species.	Low	Snowdrop is either eradicated from this area or reduced to a state where on-going monitoring and control can keep the non-native flora in-check.	*ESA Mg Cte* *ESA Mg Team*	Capital and Operating Budget	Low

Restoration Overlay Identifier	Status	Approximate Area (ha)	Rationale and Goal(s) for Restoration	Management Actions for Restoration	Priority for Implementation	Measure(s) of Success	Lead Agency	Potential Funding	Estimated Cost
			patch observed was quite dense and may be resulting in competition for native spring ephemeral species. The intent for restoration efforts is to remove or control the Snowdrop to a state where it is not the dominant ground species.	• On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**).		Increased abundance of native flora, in particular trees/shrubs from baseline levels.			
RO8	Proposed	3.47	Overlay has large patches of Common Buckthorn, a highly invasive species that tends to out-compete native flora and develops monoculture communities. The intent for restoration in this area is to control and/or eradicate the invasive vegetation and restore the area to deciduous forest.	• Implementation of invasive species management plan following Provincial BMP. • Planting of native deciduous tree and shrub species similar to the adjacent lowland deciduous forest. • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**).	Low	Common Buckthorn is either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. Increased abundance of native flora, in particular trees/shrubs from baseline levels.	*ESA Mg Cte* *ESA Mg Team*	Capital and Operating Budget	Low
RO9	Proposed	0.77	Overlay consists of a linear stand of native Eastern White Cedar (*Thuja occidentalis*) which has formed a monoculture. It is likely either a former plantation or hedgerow and due to the high density of cedar, hasn't reverted to a naturalized community. The intent of restoration for this area would be to reduce the monoculture of cedar and restore to a more mixed, hardwood forest for better integration with the surrounding vegetation communities.	• Thinning of the stand through select removal of cedars focusing on smaller, weaker specimens. Removals can also occur around areas were there may be existing gaps in the tree canopy that would facilitate establishment of hardwood seedlings. • Creation of clearing and canopy gaps through removal of select pockets of cedars to mimic natural disturbances that would create gaps in the canopy. Gaps should be approximately 6-10 metres in diameter. • Depending on whether there are hardwood seedlings already present, restoration efforts may also include supplementing natural regeneration with planting and/or seeding of hardwood tree species.	Low	Biodiversity of the area is increased with 5 or more appropriate native tree species.	*ESA Mg Cte* *ESA Mg Team*	Capital and Operating Budget	Low
RO10	In progress	1.40	Overlay has large patches of Common Buckthorn, a highly invasive species that tends to out-compete native flora and develops monoculture communities. A population of Striped Cream Violet, a Provincially rare species, is located in the west end of this Restoration Overlay. The buckthorn isn't expected to greatly impact the population of violet but removal of this invasive species may improve the habitat (see **Figure 2b** and **2c** for the location of the habitat). The intent for restoration in this area is to control and/or eradicate the invasive vegetation and restore the area to deciduous forest. **Note**: this restoration overlay is partially located on private property; permission would be required from the landowner prior to any activities on their property.	• **Continue implementation** of current invasive species management plan following Provincial BMP on City property. • Planting of native deciduous tree and shrub species similar to the adjacent lowland deciduous forest. (**ONGOING**) • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**).	Moderate[1] [1](Formerly High Priority; see **Table 6**)	Common Buckthorn is either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. Increased abundance of native flora, in particular trees/shrubs from baseline levels.	*ESA Mg Cte* *ESA Mg Team*	Capital / Operating Budget	Low
RO11	In progress	2.07	This Overlay area contains a cultural meadow that is currently succeeding back into a forest community. Previous restoration efforts (i.e. plantings) have helped to accelerate the succession process.	• **Continued planting** of native deciduous tree and shrub species similar to the adjacent lowland deciduous forest.	Low	The cultural meadow is filled in and succeeds into forest to form a contiguous woodland community.	*ESA Mg Cte* *ESA Mg Team*	Capital / Operating Budget	Low

Restoration Overlay Identifier	Status	Approximate Area (ha)	Rationale and Goal(s) for Restoration	Management Actions for Restoration	Priority for Implementation	Measure(s) of Success	Lead Agency	Potential Funding	Estimated Cost
			The intent of restoration efforts for this area would be to fill in the gaps of 20 m or greater between forest communities north, south and east of the cultural meadow would increase the amount of interior woodland within the MVHF ESA (south).	• On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**). (**ONGOING**) This • Overlay includes several portions of Utility Overlay that should be taken into consideration when determining locations for restoration planting.		The population of Slender Satin Grass is observed to be maintaining and/or expanding.			
RO12	Proposed	4.18	This Overlay area which is located on a cultural meadow that is currently succeeding back into a forest community. Previous restoration efforts (i.e. plantings) have helped to accelerate the succession process. The intent of restoration efforts for this area would be to fill in the gaps of 20 m or greater between forest communities north, south and east of the cultural meadow to increase the amount of interior woodland within the MVHF ESA (south).	• Planting of native deciduous tree and shrub species similar to the adjacent lowland deciduous forest. • Care to not impact the planted Cucumber Magnolia identified is required. A tree barricade is proposed along the east side of the Level 2 managed trail that exists within the habitat for this species (i.e., area within 25 m of the dripline). • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**). • This Overlay includes several portions of Utility Overlay that should be taken into consideration when determining locations for restoration planting. The 4 m wide right-of-way would not impact woodland continuity.	Low	The cultural meadow is filled in and succeeds into forest to form a contiguous woodland community. Persistence of the planted Cucumber Magnolia species.	*ESA Mg Cte* *ESA Mg Team*	Capital / Operating Budget	Low
RO13	In progress	0.85	Overlay has large patches of Norway Maple (*Acer platanoides*) and English Ivy (*Hedera helix*), two non-native invasive species that tend to out-compete native flora and can develop monoculture communities. The intent for restoration in this area is to control and/or eradicate the invasive vegetation and restore the area to deciduous forest.	• **Continued implementation** of current invasive species management plan. o As this includes control of tree species, there may need to be a multi-year stepped approach to the removal of Norway Maple as to not impact the forest canopy. This could include initial thinning of younger saplings and a few larger maples supplemented with planting of native species and girdling of larger trees to create wildlife habitat trees. Removal of remaining maples would occur over several years and could while native species establish and fill-in the gaps created from the initial removals. (**ONGOING**) • Continued planting of native deciduous tree and shrub species similar to the adjacent lowland deciduous forest. (**ONGOING**). • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2**). (**ONGOING**)	Low	Norway Maple and English Ivy are either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. Increased abundance of native flora, in particular trees/shrubs from baseline levels.	*ESA Mg Cte* *ESA Mg Team*	Capital / Operating Budget	Low

Restoration Overlay Identifier	Status	Approximate Area (ha)	Rationale and Goal(s) for Restoration	Management Actions for Restoration	Priority for Implementation	Measure(s) of Success	Lead Agency	Potential Funding	Estimated Cost
RO14	In progress	1.99	The ground layer in this area was dominated by Goutweed (*Aegopodium podagraria*), a highly invasive species that tends to out-compete native flora and develops monoculture communities. The Goutweed was located around a population of Striped Cream Violet and Green Dragon, two rare species, and threatened to overtake the species (see **Figure 2c** for the location of the habitats). This restoration was flagged as High Priority in Phase I as control of this invasive species was critical in maintaining the adjacent population of Striped Cream Violet. The City initiated an invasive species management plan in May 2014 for this area and implemented control efforts for the Goutweed. **Control and monitoring is on-going but generally the goal has been met in reducing the Goutweed and protecting the Striped Cream Violet and Green Dragon.**	• Development of an invasive species management plan (**COMPLETE**) • Once invasive species are under control, the area can then undergo active ecological restoration (**ONGOING**) • This could involve planting of native flora and restoring the ground layer of the lowland deciduous forest (**ONGOING**) • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2 and References section for monitoring reports**).	Moderate[1] [1](Formerly Top Priority; see **Table 6**)	Goutweed is either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. The populations of Striped Cream Violet, Green Dragon and other native flora are observed to be maintaining and/or expanding.	*ESA Mg Cte* *ESA Mg Team*	Capital / Operating Budget	Low
RO15	In progress	0.20	The ground layer in this area was dominated by Japanese Knotweed (*Fallopia japonica*), a highly invasive species that tends to out-compete native flora and develops monoculture communities. The Knotweed was located to the north of a population of Green Dragon, a rare species, and threatened to overtake the species (see **Figure 2c** for the location of the habitat). This restoration was flagged as High Priority in Phase I as control of this invasive species was critical in maintaining the adjacent population of Green Dragon. The City initiated an invasive species management plan in May 2014 for this area and implemented control efforts for the Knotweed which included RO15 and the parent colony of Knotweed observed at the top of the valley. **Goal has been met in managing the Knotweed (monitored and no treatment required in 2017) and protecting the Green Dragon.**	• Development of an invasive species management plan (**COMPLETE – Dillon, 2014)** • Once invasive species are under control, the area can then undergo active ecological restoration (**ONGOING)** • This could involve planting of native flora and restoring the ground layer of the lowland deciduous forest found in the underlying management zone (**ONGOING)** • On-going monitoring/control of the restoration area for invasive vegetation using an Early Detection and Rapid Response system (see **Section 4.2.2.2 and References section for monitoring reports**).	Moderate[1] [1](Formerly Top Priority; see **Table 6**)	Knotweed is either eradicated from this area or reduced to a state where on-going monitoring and control can keep the invasive flora in-check. The populations of Green Dragon and other native flora are observed to be maintaining and/or expanding.	*ESA Mg Cte* *ESA Mg Team*	Capital / Operating Budget	Low
RO16	In progress	0.11 on public lands	Throughout the MVHF ESA (south), 5.4 km of unmanaged (informal) trails and closed formerly managed trails were documented in Phase I, 3.8 km of which are located on public lands. In an effort to deter continued use of these trails and enforce closure of former managed trails, restoration efforts are to continue to occur in combination with trail closure methods as provided in Section 7.2.6 of the Guidelines and in **Section 3.4.3.7** of this report.	• The management action provided in Section 7.2.6 of the Guidelines will be implemented to restore and discourage use of informal/closed trails. **(ONGOING)** •	Moderate for trails in Nature Reserve Zones Low for trails in Natural Environment Zones	Discontinued use of unmanaged and closed trails as observed by monitoring data. Trail eventually becomes undistinguishable from surrounding area.	*ESA Mg Cte* *ESA Mg Team*	Capital / Operating Budget	Medium

3.3 Naturalization

As part of Phase I, areas within or adjacent to the MVHF ESA (south) were reviewed to determine optimal locations for naturalization projects.

Of the four areas identified for naturalization projects during Phase I, three are also identified as Restoration Overlay areas. To avoid duplication of recommendation for the three areas, the Restoration Overlay identifier is provided moving forward in this report in place of the Naturalization identifier presented in Phase I.

One area (NA4) identified during Phase I continues to be recommended for naturalization, in addition to another area not previously identified during Phase I (NA5). These two areas are shown on **Figure 2.**

Determination of the priority for implementation of the management actions for the two Naturalization Areas was based on the criteria in **Table 8**. The areas of Naturalization are summarized in **Table 9**.

Table 8: Criteria Used to Assign Implementation Priorities for Naturalization Areas

Priority for Implementation	Criteria
Top	The area is cultural and located within or adjacent to the ESA. The area is resulting in impacts to the ESA and without naturalization, impacts are expected to continue and potentially degrade the ESA.
High	The area is generally cultural and is subject to actions that are impacting succession of the area. This may include areas subject to mowing or other encroachment effects. Naturalization of these areas would greatly benefit the ESA. The naturalization project can be combined with other recommendations in this CMP.
Moderate	The area is beginning to naturalize but still exhibits indication of a cultural influence. Managed succession is required for the area to provide benefit to the greater ESA.
Low	Area is generally already beginning to naturally regenerate. Monitoring should occur first for a minimum of three years to determine if management is necessary to achieve measures of success identified.

Table 9: Naturalization Areas within MVHF ESA (south)

Naturalization Area Identifier	Approximate Area (ha)	Goal(s) for Naturalization	Management Actions for Naturalization	Priority for Implementation	Measure(s) of Success	Lead Agency	Potential Funding	Estimated Cost
NA 1	See RO9 in **Table 7/ Figure 2**							
NA 2	See RO11 in **Table 7 / Figure 2**							
NA 3	See RO12 in **Table 7**							
NA 4	0.43	This area includes areas of mown lawn located on City lands within the ESA boundary that border an open bluff and are an encroachment into the ESA by private land owners.	• By-law staff have initiated an enforcement process to reverse the encroachments • Relocation of a portion of the Gainsborough Ravine to Snake Creek Valley trail (previously closed) to this tableland area to avoid the edge of the top of slope and seepage area combined with naturalization of lawn. • Implement managed succession activities: Planting of native deciduous tree and shrub species similar to the adjacent lowland deciduous forest.	High	Managed succession of lawn areas succeeding into cultural meadows and eventually forest to become part of the contiguous woodland.	*ESA Mg Cte* *ESA Mg Team*	Capital / Operating Budget	Low
NA 5	1.32	Not identified during Phase I but through review of the naturalization areas, this area was added for Phase II. Attawandaron Park, located within the ESA boundary, is comprised of mown lawn that borders the valley. Naturalization of the eastern edge of this mown area would help to enhance the ESA and Medway Creek.	• A staged approach to naturalization could involve naturalizing the eastern edge by establishing areas of no-mowing adjacent to the valley slope. • Education and stewardship to inform the neighbourhood about the naturalization efforts and reason for it. • Opportunity to establish a managed trail connecting a managed trail to the north and the managed trail running through Snake Creek Valley to the south creating a defined limit for naturalization on the east side of trail. • Planting of native deciduous tree and shrub species similar to the adjacent lowland deciduous forest.	High	Eastern edge of Park succeeds into cultural meadows and eventually forest becoming part of the contiguous woodland.	*ESA Mg Cte* *ESA Mg Team*	Capital / Operating Budget	Medium

3.4 Trail Management

In Ontario, all recreational trails are required to be accessible unless they meet one of the following exceptions:

- wilderness trails, backcountry trails and portage routes
- trails only meant for cross-country skiing, mountain biking or the use of motorized recreational vehicles, such as snowmobiles and all-terrain vehicles
- areas of trails where modifications for accessibility would negatively impact the ecology or heritage
- cases where making the trail or beach access route accessible would be impossible or inappropriate – for example, where rocks bordering the route make it impossible to meet minimum width requirements
- cases where making the trail or beach access route accessible would have a negative effect on properties protected under:
    - the Ontario Heritage Act,
    - Canada National Parks Act
    - the Historic Sites and Monuments Act (Canada)
    - the United Nations Educational, Scientific and Cultural Organization's (UNESCO's) World Heritage List
- cases where making the trail or beach access route accessible would have a negative effect on water, fish, wildlife, plants, invertebrates, species at risk, ecological integrity or natural heritage values

The Council approved Guidelines for Management Zones and Trails in ESAs (2016) are followed to ensure a properly designed trail system protects the ESA while providing for appropriate trail use, and accessibility required under AODA. The Guidelines objectively delineate management zones based on Ecological Land Classification for "the protection of the more sensitive ecological features by directing access and use to the areas that have been identified as having lower sensitivity to trails and are able to support more accessible trails." The Guidelines document is aligned with the City of London Official Plan and guidelines developed by the Ontario Ministry of Natural Resources and Forestry (MNR 1992; MNR 2009; MNR 2014) and Parks Canada (Parks Canada 2008; Parks Canada 2012) to manage protected natural areas. It is consistent with and generally exceeds the requirements for protected natural areas managed by the Government of Ontario and the Government of Canada (Dillon 2016).

With the assistance of EEPAC and ACCAC, the City's Guidelines were updated to clearly define where in ESAs those exceptions would generally apply (i.e., in Nature Reserve management zones), and where accessibility of trails can be upgraded to meet AODA regulations (i.e., in Natural Environment management zones).

As outlined under **Section 2.3**, as part of the November 2016 addendum to the *Natural Heritage Inventory and Evaluation* (January 2015), the existing managed trails were reviewed for compatibility with significant ecological features in the MVHF ESA (south) using Chart 2 from the City's *Guideline for Management Zones and Trails in ESAs* (May 2016). Through this review it was determined that the existing managed trails (see **Figure 3**) are compatible with the significant ecological features in the MVHF ESA (south).

To delineate a sustainable trail system, this CMP aims to review current issues within the MVHF ESA (south) based on the findings from Phase I, consultation with the LAC, and feedback from members of the general public from 2013 to 2021. Following the guiding principles established for this CMP, the trail system that is proposed for the MVHF ESA (south) has to maintain the priority of conserving the ESA's ecological integrity. Trail planning and design must address physical sustainability (trails that will retain their form over years of use and natural forces acting on them); ecological sustainability (managing the impacts of trail location and use to ensure no loss of ecological features and functions) and stewardship (fostering of individual and collective responsibility for protection of natural areas). The trail system proposed is to comply with and follow the processes outlined in the City's *Guidelines for Management Zones and Trails in ESAs* (May 2016) and AODA legislation described in **Section 1.1.1**. In rare cases, the sustainable trail plan has deviated from the Guidelines where doing so posed a greater benefit to Species at Risk and long-term ecological sustainability. Deviation from the Guidelines were established in consultation with ACCAC, EEPAC and UTRCA and represent the preferred alternative from both an ecological and accessibility standpoint.

An important component of the CMP is how public access and use of the MVHF ESA (south) will be managed through sustainable trail design. As identified in the Guidelines, trail planning and design addresses:

- Ecological sustainability to avoid impacts to ecological features and functions
- Physical sustainability of the trails and/or structures so they retain their form and function over time and can withstand the natural forces acting on them
- Stewardship by the greater community to foster a sense of individual and collective responsibility for the protection of the ESA
- How the proposed Sustainable Trail Concept Plan complies with the Guidelines

3.4.1 Management Zones

The trail system must follow the policies and process outlined within Management Zones as outlined in Section 4 of the *Guidelines for Management Zones & Trails in Environmentally Significant Areas* (2016).

As part of Phase I of the CMP, Management Zones were delineated for the MVHF ESA (south) according to the process outlined in the *Guidelines for Management Zones & Trails in Environmentally Significant Areas* (2016) and included areas of both Nature Reserve and Natural Environment (see **Figure 3**). **Section 3.4.1.1** and **Section 3.4.1.2** below are taken from Table 2 and **Section 4.1** in the Guidelines for context.

3.4.1.1 Nature Reserve

These areas require a higher level of protection to preserve the ecological integrity of the ESA and represent natural vegetation communities. This zone is delineated using Ecological Land Classification (Lee *et al.*, 1998) to identify vegetation communities that are the result of natural processes.

Where it is determined that ecological integrity can be preserved, and specific natural features and their ecological functions can be protected, public access using Level 1 trails (e.g. natural earth surface, wood chips, boardwalk, corduroy logs, stepping stones) are permitted in the Nature Reserve zone to support appropriate low-intensity, nature-based recreation. Structures (e.g. boardwalks, bridges, stairways) may be permitted to reduce impacts to significant ecological features and increase the sustainability of the trail system in the ESA.

Level 1 trail in a Natural Environment Zone over a Utility Overlay south of Glenridge Crescent

3.4.1.2 Natural Environment

These are areas of cultural vegetation communities that result from, or are maintained by existing or previous cultural or anthropocentric-based disturbances. These areas often contain a large proportion of non-native species. These communities include plantations, cultural meadows, cultural thickets, cultural woodlands, and cultural savannahs, as well as manicured areas such as mowed lawn or hedgerows.

Level 1 and Level 2 trails may be located in Natural Environment Zones where it can be demonstrated that the trail will not result in negative impact to the adjacent ecological features and functions of the ESA.

In exceptional situations, a Level 3 trail may be permitted within a Natural Environment Zone to upgrade an existing connection between neighbourhoods subject to the 'Process' outlined in Section 2.2 of the Guidelines. These trails provide visitor access and are to be designed and implemented to protect environmental features and to accommodate areas of increased visitor use.

Level 2 trail in a Natural Environment Zone between Gainsborough Road and Doncaster Gate

Currently, there is one Level 3 trail in the northwest corner of the MVHF ESA (south) that connects Attawandaron Road to Fanshawe Park Road West and the trail system within the MVHF ESA (north). The intent of Level 2 and 3 trails is they meet the design Specifications required under the AODA and outlined in the Guidelines.

3.4.2 Issues and Considerations

Feedback provided from members of the LAC and community included hundreds of comments, of which nearly a quarter were related to the trail system. Many of the comments from the public and LAC

regarding the trail system were similar to the issues brought forward during the 1989 CMP and 1996 Site Planning Study. Other considerations are derived from the Phase I findings and the results of the MCSSU (2013) that is still in process. An overview of the items identified by the public for consideration is provided below.

3.4.2.1 Access Points

Of the sixteen access points (identified on **Figure 3**) that provide entry to the MVHF ESA (south), a few were identified as not being easily accessible or visible from adjacent roadways. Access Points are numbered according to mapping in the MVHF ESA brochure currently available from the City and the UTRCA, which includes six access points (A6-A9, A22/A23) that are located in MVHF ESA (north) and not shown on **Figure 3.** Through the consultation efforts, it has been identified there may be a need for additional amenities at access points. Suggestions include, but are not limited to waste receptacles, benches, and improved signage to help with way-finding and provide education on the MVHF ESA (south). Recommendations for improvements to access points are provided in **Section 3.4.3.8**.

Parking and Transit

Most of the access points are situated on neighbourhood roads that permit on-street parking. There is also parking available at the Windermere Road (west) access and at the Elsie Perrin Williams Estate. Public transit is another option for those visting the ESA as there are several London Transit Commission bus routes and bus stops surrounding the ESA.

3.4.2.2 Bank Migration

Migration of the banks of Medway Creek and Snake Creek is considered during the review of the trail system as some trails are located immediately adjacent to Medway Creek and Snake Creek.

The MCSSU provided an historical analysis of the rate of bank migration for the Medway Creek and Snake Creek within the MVHF ESA (south) for some representative bends using historical (1955) aerial photographs and available erosion monitoring data. The bends assessed represent some of the most actively eroding sites. Meanders for Medway Creek were noted as having migrated a distance of 22 to 34 m since 1955, or at an average annual rate of 0.4 m/year to 0.6 m/year. The creek banks associated with Snake Creek were noted as having an erosion rate of near 0 to approximately 0.06 m/year.

It is important to note that bank migration is a natural phenomenon that is influenced by a variety of conditions such as adjacent vegetation, upstream influences and precipitation events. Work on the MCSSU was ongoing at the time of this CMP. Any specific sites of excessive and or unnatural bank erosion should be addressed with “natural” channel design solutions that enhance the ecology and accommodate the trail plan.

3.4.2.3 Existing Unmanaged Trails

Throughout the MVHF ESA (south), unmanaged (informal) trails are currently in use. Some of these existing unmanaged trails may be situated in undesired locations from a management perspective, such as areas with steeper inclines or through private lands. Recommendations for addressing closure of existing unmanaged trails are provided in Section 7.2.6 of the Guidelines and in **Section 3.4.3.7** of this report. Further, restoration of these unmanaged trails is to occur concurrently with efforts to close these segments (see RO16 under **Table 7**). Please note that the unmanaged trails included in this CMP were documented in 2013 during the Phase I data collection and continue to be presented as shown in the Phase I report (Dillon 2015).

Closed Managed Trails

Three former managed trails have been closed in the MVHF ESA (south) in recent years. One of these trails was temporarily closed and rerouting the trail away from an eroding slope, close to the top of the slope over an area of mown lawn proposed for naturalization (i.e., NA4), is recommended as part of this CMP.

Despite initial efforts to close-off these managed trails, anecdotal evidence provided during public feedback indicates some of the closed trails are still being used by people and sometimes by wildlife, and require additional efforts to mask their presence and reinforce the closure following the Guidelines (see **Section 3.4.3.7**).

3.4.2.4 Connectivity of Managed Trail System

Feedback indicates a desire from some groups and the public for connectivity of the managed trails and enhanced accessibility on the east and west sides of the Medway Creek. However, opposition to this has also been received. Through the public consultation process there were requests for crossings of the Creek in five different locations to improve continuity and connections. Due to a lack of connectivity of managed trails, in order to traverse some areas of the MVHF ESA (south) trail users depend on the network of informal trails, informal creek crossings and/or require passing through private lands.

For accessing one side of the valley from the other, official linkage options are limited to the bridges associated with arterial roads such as Fanshawe Park Road West and Western Road. This would result in trail users of the MVHF ESA (south) being restricted to smaller areas of the ESA or informal linkages being created through the creek during periods of low water or ice, which can present hazards to the trail user and potentially impact the creek.

There were also groups and members of the public who did not support or see the need for any new crossings. Concerns were raised regarding ecological protection and potential impacts from having more trail users in parts of the valley. As part of the process, the five suggested crossing locations were reviewed against the Guidelines and three were eliminated (B, C, and E) as they would not comply.

Three options (each one building upon the previous) for the trail system in the MVHF ESA (south) were presented and reviewed with the LAC, EEPAC and ACCAC as part of the consultation for this CMP. All options were confirmed to be in compliance with the Guidelines. The elements included in the options were proposed to further protect significant ecological features and to improve connectivity and enhance accessibility where possible, consistent with the Guidelines and requirements under AODA. Based on the consultation completed, the options presented were refined into one preferred sustainable trail concept

plan, including two Creek crossings at locations A and D (Refer to **Section 3.4.3.** for the discussion of how final comments have been addressed.)

In 2018, the inclusion of two linkages across Medway Creek differed from what was presented at the final public open house. The request for an accessible connection at Linkage D was received by the City from ACCAC on January 8, 2018 (see letter in ***Appendix D***). The inclusion of location D as a creek crossing was part of a request for a connected accessible trail spanning from Access Point 12 across the creek to Access Points 18 and 19. This request from ACCAC was reviewed and was found to comply with the Guidelines and meet the requirements under AODA.

Despite complying with the Guidelines, based on the 2018 Council Resolution, all bridges have been removed from the Sustainable Trail Concept Plan and methods to discourage crossing of Medway Creek will continue to be implemented.

3.4.2.5 Trail Condition

As trails are used over time, the condition of trails may deteriorate (e.g. deepening of tread, exposure of tree roots) or the footprint of the trail widens. It was noted by the public that some trails have widened over time in response to areas that may be subject to ponding water and/or prone to being muddy. This often results in trail users bypassing these sections, causing the trail to widen and/or informal trails to develop. Recommendations for improvements to address trail condition are provided in **Section 3.4.3** as part of the sustainable trail concept plan**.**

To address the issues of trail condition and improve accessibility, considerations to improve the accessibility of trails (i.e. conversion of some level 1 to level 2 trails) will be made where these improvements will protect features and are in compliance with the Guidelines. Recommentations for improving trail surface type, if applicable, and accessibility are provided in **Section 3.4.3.**

3.4.2.6 Non-permitted Uses

Public feedback identified a number of non-permitted uses with the MVHF ESA (south), generally associated with a by-law infractions such as building fires, dumping of yard waste, dogs off-leash, etc. While non-permitted uses do occur in the ESA, enforcement of the City's by-law is on-going by the City funded UTRCA enforcement team who routinely traverse the ESA and issue warnings and tickets for infractions and educate residents about reasons for the by-law.

A reduction in by-law infractions is addressed in the CMP through sustainable trail design, improved signage, enforcement and continued stewardship and education for residents on threats to the ESA. The experience in London, consistent with Crime Prevention and Environmental Design (CPTED) principles, is that as trail use increases on well-designed trails that comply with the Guidelines, compliance with the rules also increases through natural surveillance. A reduction in private property encroachments into the ESA has been achieved and will continue due to a number of measures being implemented by the City, including the ongoing enforcement work by City by-law staff and City funded UTRCA enforcement team.

Recommendations are provided in **Section 4.0** with regard to additional signage, as well as **Section 5.0** including on-going education of the adjacent landowners and community, improved signage and continued enforcement of the rules within City ESAs.

Users of ESAs can also refer to the brochure prepared by EEPAC titled: *Living with Natural Areas, A Guide to Living Next to ESAs* which was mailed to all homes adjacent to London's publically owned ESAs, including the MVHF ESA, in 2016 and is publically available as a PDF download from the City of London's website.

3.4.2.7 ESA Protection, Use and Accessibility

ESAs provide an opportunity to connect Londoner's to our natural heritage and foster experiences for a variety of trail users through a safe and ecologically well-managed trail network. As noted in the Guidelines (2016):

> *"Urban natural areas are often relatively small islands surrounded by diverse and heavily populated urban and suburban development. These areas are subject to the increasing demands and preferences for recreation use, and the impacts of heavy and often incompatible uses, including encroachment, trail widening and erosion, ad hoc trail creation, dogs off leash, biking, vandalism and campfire party activities after dark. The very nature of urban natural areas assures often vigorous public involvement with an often crowded and conflicting roster of neighbours, recreationists, and environmentalists.*
>
> *The key responsibility of urban conservation land managers is to find the best way to protect and restore, as much as possible, a healthy functioning ecological community in the face of fundamentally altered ecology of the urban environment and public pressure for access (Davis 2010). The development of CMPs must outline realistic strategies, achievable objectives, and actionable items to manage the multitude of disturbances that threaten a natural area, and to identify key indicators that can be monitored to detect change over time, in order to maintain and protect irreplaceable natural habitat values, including earth and life science interests, and sensitive cultural and archaeological resources."*

Continued urban growth around the MVHF ESA (south) reinforces the need to implement the process outlined in the Guidelines and provide a managed trail system that can sustain the potential for increased use of the ESA as the surrounding population including Londoners of all ages and abilities seek simple and inexpensive ways to meet their daily needs for physical fitness, social interaction and realization of health benefits associated with spending time in nature. Following the Guidelines in order to meet AODA requirements provides direction for sustainable trail design that protects the ESA and makes ESAs more accessible for all Londoners.

In addition to the Guidelines, there are a number of Council policies that recommend provision of accessible trails and inclusive access to nature. These include:

- **Age Friendly London Action Plan** – Recommends increasing the age friendliness of trails.
- **London Strengthening Neighbourhoods Strategy** – Recommends empowered, sustainable, safe, active communities, while encouraging diversity and inclusiveness.

Across the country and in Ontario a number of initiatives are promoting inclusive access to nature:

- **Mood Walks** is a province-wide initiatives that promotes physical activity in nature, or "green exercise," as a way to improve both physical and mental health. Led by the **Canadian Mental Health Association, Ontario,** in partnership with **Hike Ontario** and **Conservation Ontario**, Mood Walks provides training and support for community mental health agencies, social service organizations and other community partners to launch educational hiking programs, connect with local resources, find volunteers, and explore nearby trails and green spaces.
- **Naturally Accessible** – **Discovering Ontario's Land Trusts** is an initiative of the **Ontario Land Trust Alliance** (OLTA) in partnership with the **Accessibility Directorate of Ontario**. It aims to educate and train Ontario's land trusts and other conservation partners on their obligations under the AODA and to work with them to promote and grow accessible recreational, outdoors and eductional opportunities offered to the public through their conservation properties and programs.
- **Canadian Parks Council** - **Healthy by Nature**, Encouraging Canadians to spend more time in parks will support improved physical and mental/emotional health, and provide opportunities to inform and educate people about the important connection between healthy ecosystems and healthy human populations.

3.4.3 Proposed Sustainable Trail Concept Plan

Based on a review of the considerations outlined under **Sections 3.4.2.1** to **3.4.2.7**, and taking into considerations comments and feedback from both the public consultation and consultation with the LAC, EEPAC and ACCAC from 2017 to 2018, and additional consultation from 2019 to 2021 (public, First Nations, ACCAC, EEPAC and UTRCA) the Draft Sustainable Concept Trail Plan was updated into one proposed sustainable trail concept plan that meets the intent of the Guidelines, meets AODA requirements and is presented in this CMP in **Figure 4**. The comments received from the public through the process were compiled and a Frequently Asked Questions (FAQ) summary is included in response to those comments as ***Appendix C***.

EEPAC and ACCAC both indicated their support of the plan in 2021, as reflected in their respective meeting minutes on March 18 and March 25, respectively (***Appendix H*** and ***Appendix I***). UTRCA has indicated their support of the plan, noting that additional studies may be required to support work associated with trails located within the floodplain or hazard lands; this work would occur during detailed design.

Through engagement of the local First Nations Communities, a meaningful dialogue was started from our shared interest to protect our natural areas. After sharing the process the City has to guide this protection, the First Nations Communities identified opportunities for land-based learning opportunities moving forward, including youth engagement, medicine walks, inclusion of medicinal plants as part of the natural heritage inventory, and suggested opportunities for interpretive signage for land acknowledgments and to expand the ESA user experience. Additional opportunities for early First Nation Communities inclusion in subsequent CMP processes were identified.

The proposed sustainable trail concept plan for the MVHF ESA (south) is presented in the section below and on **Figure 4**. Detailed design is not completed as part of the CMP and will require subsequent consultation with UTRCA and be subject to Section 28 permitting requirements. The detailed design

process generally occurs in consultation with a Local Implementation Committee (LIC) and other identified stakeholders (as necessary) following Council approval of this Phase II CMP.

3.4.3.1 Improved Trail Surface

Improvements to trail surfaces along stretches known to flood or become muddy including those identified for an "Improved Trail Surface" on **Figure 4** are planned as part of the CMP.

- Redesigning the section of trail that currently crosses Snake Creek. By installing stepping stones where the trail currently is routed across the creek, this will preserve the ecological integrity of Snake Creek by directing trail users to a pre-defined route. Use of stepping stones as a trail surface is permitted in both Nature Reserve and Natural Environment zones as per Table 2 of the Guidelines.

3.4.3.2 Improvement of Trail Accessibility

As part of the CMP process, all trails within the MVHF ESA (south) are reviewed and a sustainable trail concept plan proposed. The area included for review is the area within the ESA boundary, as defined during Phase I of the CMP process. In Ontario, when new public recreational trails are proposed or existing trails reviewed and/or changed, this requires a review of the accessibility of the trail system. Under AODA legislation, all recreational trails are required to be accessible unless they meet an exception as described in **Section 3.4**.

Conversion of some existing Level 1 trails to Level 2 trails to improve accessibility, where the Guidelines permit and as required to meet AODA legistlation, and, inclusion of a Level 3 trail over an area of mowed lawn in the area of the ESA known as Attawandaron Park was recommended based on feedback from ACCAC and the public.

As per the process for determining trail locations over-viewed in the Guidelines (see Section 2.2), trails should be carefully sited to allow opportunities for enhanced trail user experience, education and accessibility, where appropriate. To improve accessibility of trails in the ESA, some trails located in Natural Environment zones and/or over Utility Overlays are proposed to be redesigned and maintained as Level 2 trails.

Compliance with the Guidelines was determined as these are existing managed trails previously determined to be compatible with the surrounding significant ecological features (as per the Addendum, Dillon 2016). This process would comply with the option of "*Trail to remain, requires a redesign*" presented in Chart 2 of the Guidelines. In the ESA, the following is proposed:

- Conversion of existing, managed Level 1 trails to Level 2 trails over the existing sewer alignment, south of Fanshawe Park Road West (south of Access #5) to the west bank of Medway Creek and from the Glenridge Crescent Access (Access #10) to the east bank of Medway Creek. Given the presence of a Utility Overlay for the sewer alignment, which is generally not considered part of the surrounding Management Zone, and as per Section 7.1.2 of the Guidelines, a Level 2 trail is permitted and is required under AODA as there are no applicable exception.
- As the Utility Overlay is 4 m wide, conversion of the existing Level 1 trail to Level 2 between Access #5 and Access #10, along with installation of AODA compliant signage (see **Section 3.4.3.8**), can occur within this area. These improvements provide accessibility as required under

AODA. Consistent with Section 7.2.4 of the Guidelines, a wood rail entrance corral would be installed at the transition points to the Level 1 trail south of Access #10 to clearly demarcate the change in trail type and level of accessibility. Interpretive signage posted at the corral would also inform trail users about the significant features in the ESA and how to protect them. To further protect significant features located further southeast, a small segment of Level 2 trail is also proposed to be constructed entirely within the Natural Environment zone to clearly direct trail users away from the more sensitive area and Level 1 trails.

- Conversion of the existing, managed Level 1 trail at Access #12 into a loop. The existing Level 1 trail is located within Natural Environment zone and outside of significant features. Therefore, conversion to Level 2 is consistent with the Guidelines. As outlined in Section 7.2.4 of the Guidelines, wood rail entrance corrals would be installed at the transition points to Level 1 trails leading off the Level 2 trail to the west and to the east (towards Access #13) to clearly demarcate the change in trail type and level of accessibility. Interpretive signage posted at corrals would also inform trail users about the significant features in the ESA and how to protect them.
- Installation of a Level 3 trail to connect the existing Level 3 trail in the MVHF ESA (north) from Access #4 over area of mown lawn (Natural Environment zone) in area known as Attawandaron Park with the existing public access around the Museum of Ontario Archaeology connecting to Access #1. This will improve accessible trail options on the west side of the valley and maintains an existing connection between neighborhoods consistent with the Guidelines.

3.4.3.3 Alignment of Trails to Match Utility Overlay

Better alignment of trails with the Utility Overlay is to occur to avoid future impacts related to maintenance of the utilities. Where trail redesign is recommended for either improvements to trail surface or accessibility, considerations should be given to align trails with the existing Utility Overlay as per Section 5.5.2 of the Guidelines. This would serve to preserve the long-term ecological integrity of the ESA by minimizing future impacts and could aid in providing accessibility in the ESA as required under AODA.

3.4.3.4 Re-opening of Temporarily Closed Trail

Re-opening of the managed trail that connects Gainsborough Ravine (Access #24) and Snake Creek Valley (Access #1 and #20) that has been temporarily closed was reviewed as part of this CMP. The existing route for the trail passes through a seepage area on the side of a slope (see **Figure 4b**).

Reopening the trail would require rerouting a portion of the existing trail away from the edge of the slope to the more stable area of mowed lawn, close to the top of the slope in response to public comment. This area has been proposed for naturalization (see NA4 in **Table 7**). In addition to the rerouting of the trail, closure and restoration of the section of the currently closed trail route (including informal trails near the old trail route) is proposed (see **Figure 2** and **Table 6** for the restoration overlay [RO16]).

This process follows Chart 2 of the Guidelines by realigning the trail to avoid a seepage area (i.e. a significant ecological feature). As shown on **Figure 4**, the rerouted/relocated trail (white-dash line) would

be east of the top of the slope into an area that is currently an area of mown lawn (see NA4 on **Figure 2**). It is recommended the rerouted trail is implemented at the same time as naturalization activities as the trail could define the limit of naturalization proposed east of the trail to prevent future encroachments.

3.4.3.5 Improved Neighbourhood Connectivity

Extending the existing Level 3 trail from Access #4 and Access #5, and providing connectivity to the trails in the MVHF ESA (north), a new Level 3 trail is proposed in the Natural Environment Zone running parallel to Attawandaron Road, generally from Access Point #4 to the northeast of Access Point #1. Following Chart 3 in the Guidelines, no significant ecological features have been mapped in the area of the proposed Level 3 trail (see **Figure 4**) and improves an existing connection between neighbourhoods. In addition, the existing mown lawn in this area is recommended for restoration and naturalization activities (see **Figure 2,** RO2 in **Table 7** and NA5 in **Table 9**). Placement of a Level 3 trail would serve as the defining limit for the proposed naturalization east of the trail and would have the added benefit of improving accessibility in the ESA consistent with AODA requirements.

3.4.3.6 connectivity Over Medway Creek

To address public comments related to connecting managed trails separated by Medway Creek in the ESA, an analysis of potential locations for trail linkages over Medway Creek was undertaken in the 2018 CMP based in locations suggested through the consultation process. Five linkage options across Medway Creek were suggested by the public and were the focus of this review to see which, if any, would be in compliance with the Guidelines.

Although proposed pedestrian bridges over Medway Creek were compliant with AODA standards and the Guidelines, these items were removed based on the 2018 Council Resolution.

3.4.3.7 Closure and Restoration of All Un-managed / Informal Trails

As indicated earlier, unmanaged and former managed trails currently documented in the MVHF ESA (south) that have been closed are to undergo further efforts to enforce closure while undertaking restoration activities. Trails have been identified as Restoration Overlay 16 (RO16) and are outlined in **Table 7** which includes 3.8 km of trails located on public lands.

Over the span of the 10-year management period, monitoring of trail condition may result in recommendations for closure and/or relocation of managed trails or for newly formed informal trails. Where trails or segments of a trail are recommended to be closed or relocated, the following steps are to be undertaken, following section 7.2.6 in the Guidelines:

1. Construct new trail, reserving any plant material, topsoil, leaf litter, etc. that may be useful for restoration of closed trail.
2. Post "trail closed" sign at entrance to closed section of trail, in a location where it is easily seen by users.
3. Install temporary barrier fence, to protect work area on closed trail.
4. Break up or scarify soil on the closed section of trail to facilitate restoration planting, encourage natural regeneration, and make closed trail uninviting to users.
5. Restore closed trail with plant material, including plants moved from new trail as well as those from reliable native-plant nurseries. Choose plant species that are appropriate for the area in the ESA. In selecting plants, try to include some faster-growing species. Select tallest and fastest-growing shrubs for planting on the closed trail near the junction(s) with the new trail. This will help to hide the location of the former trail, and discourage ongoing use. In addition to plants and/or cuttings, sow native seeds as appropriate.
6. Rake leaves onto former trail.
7. When new plants are well established, remove temporary barrier fence.
8. As required, construct a barrier to reinforce the message that this trail is closed.
9. Install signage that redirects trail users.

In addition, trail closure signage should indicate the reason for the closure to improve compliance of trail users.

Example of Trail Closure Signage

Establishment of a connection outside of the ESA boundaries utilizing City right-of-way's, existing City trails outside the ESA, and Green Acres Drive/Gloucester Road to connect Access #11 and Access #12 (see **Figure 4**) improves connectivity between neighbourhoods. This additional connection between the two access points will also help to direct trail users away from informal trails currently running along the east bank of Medway Creek through private property. This connection outside the ESA requires further design and notification to the neighbours.

3.4.3.8 Access and Way-finding

In addition to the recommendations provided to improve the sustainability of the trail system, further awareness of options for trail connectivity and compliance with ESA rules can be achieved with enhanced signage strategically placed at access points and at transitions between Level 1 and Level 2 trails, as an example.

Currently, signage within the MVHF ESA (south) is generally limited to those outlined in the Section 7.3 of the Guidelines. These include:

- Informational/Regulatory/Warning – standard ESA green post signs generally at access points with name of the ESA, outlining the rules for the ESA with simple pictographs, QR codes for brochures and Observation Reports and detailed by-law sign on the back
- Interpretive – occasional signage with educational information (i.e. wildlife trees)
- Designation/directional– blazes of yellow coloured paint to indicate trail type and direction

It is recognized that signage and other measures in the Guidelines will be required to inform trail users of changes in trail types, way-finding and accessibility of trails in order to manage use of the trail system.

This will be enhanced through installation of AODA compliant signage at all access points with a map and information that identifies:

1. **The length of trail**
2. **The type of surface of which the trail is constructed**
3. **The average and minimum trail width**
4. **The average and maximum running and cross slope**

The location of amenities, where provided.

The current signage located along the trails is limited as it primarily functions only to notify trail users they are still on managed trails. To improve way-finding for trail users and help trail users move through the ESA using managed trails in compliance with the ESA rules, additional way-finding signage is recommended.

Additional signage to aid in way-finding could include information such as:

- Directional arrows to access point names, and/or,
- Directional arrows to other trail segments with length of segment, approximate time it takes to walk and/or difficulty

In addition to following signage, way-finding and navigating using smart phones and websites such as All Trails and Google Maps is an in-expensive and un-intrusive way to navigate the MVHF ESA (south) and stay on the managed trails in the ESAs. The City and UTRCA could assist in providing the most recent managed trail layers and ESA rules to popular navigational websites and then monitor the feedback.

3.4.3.9 Guideline Exceptions

In two locations the proposed trail actions deviated from the direction provided through the Guidelines. It was determined through consultation with ACACC, EEPAC and UTRCA that the proposed trail actions in these two areas were the preferred alternative to conserve and protect the Medway Valley ESA.

The first instance is the proposed trail creation located at the Elsie Perrin Williams Estate (Access # 14). The proposed trail through a Natural Environment Management Zone is aligned up a more gradual slope, taking users away from the SAR tree species along the path and resulting in both an environmental and accessibility benefit. This approximate 25m trail section will complete the Level 2 loop in this area. The existing segment will be closed. Given the site conditions and the Natural Environment management overlay, it was determined that including this Level 2 segment posed a greater benefit to the SAR plant habitat and justified a revised approach.

The second proposed action that is not aligned with the Guidelines is the approximate 50m creation of a level 2 trail from a level 1 associated with the Marcus Crescent (Access #11). Although this small section is located within an area zoned as Nature Reserve, the trail section contains no SAR plant species. By providing a formalized trail loop connection, this management strategy will encourage users to stay on a trail and utilize the Level 2 pathways and Creekside naturalized seating while the seasonal gating is closed. Given the constraints in this area and the concerns regarding non-permitted activities, it was determined that including this Level 2 segment within a Nature Reserve posed a greater benefit to the SAR plant habitat that will be seasonally restricted and justfied a revised approach.

3.4.4 Analysis of Proposed Trail Action Items

Table 11 overviews the sustainable trail concept action presented above**.**

Table 10: Analysis of Sustainable Trail Concept Actions

Figure 4 Reference and Approximate Location	Current Trail Status / Management Zone(s)	Proposed Action	Applicable Guideline Reference	From Table 1 of Guidelines: Significant Ecological Features that Require Review for Compatibility with Trails	Compatibility Review	Potential for Accessible Trail?[1]	Recommendations[4]	Priority for Implementation[2]	Cost
The managed trail between Fanshawe Park Road West and Medway Creek See **Figures 4a**	Managed and Proposed / Utility Overlay and Natural Environment (Natural Environment & Nature Reserve adjacent)	Trail maintenance of approximately 615 m of trail to Level 1 from Fanshawe Park Road West to Medway Creek	Section 5.2, Chart 3 Section 7.1.1	None identified overlapping existing trails	Compatible with Guidelines as per Chart 2	Y	• Restoration/closure of the unmanaged (informal) trail currently located on the east side of Medway Creek off of Fanshawe Park Road West. At the time of the CMP, the UTRCA reported little to no use of this unmanaged trail.	Moderate	Low
The managed trail between Glenridge Crescent and Marcus Crescent See **Figures 4a**	Managed and Proposed / Utility Overlay and Natural Environment (Natural Environment & Nature Reserve adjacent)	Redesign of approximately 590 m of trail to Level 2 from Access #10 to Access #11 and to Medway Creek. Naturalized Seating. Seasonal Barricades	Section 5.2, Chart 2 Section 7.2.1	None identified overlapping existing trails	Compatible with Guidelines as per Chart 2 30m section of Level 2 trail through Nature Reserve is not compatible with the Guidelines but was identified as the preferred solution by ACCAC/EEPAC/UTRCA	Y	• Conversion of Level 1 trails to permitted Level 2 trail to meet AODA. • Naturalized seating adjacent to Medway Creek in two locations will be considered during detailed design to provide a destination for users and encourage trail use adherence, particularly during the seasonal closure of the Level 1 trail. • Installation of seasonal closure barricade structures where Level 2 trail intersects with Level 1 trail. • Installation of trail closure barricade structures where informal trail intersects with Level 1 trail. • As this Level 1 trail also loops through one of the rarest species communities in the ESA, this is a good opportunity for an interpretive signage to highlight SAR ecology or invasive species (i.e. Goutweed). Signage that highlights the Archaeological significance and cultural plant significance should be explored in consultation with local First Nations Communities. • Potential for fish habitat enhancements along Medway Creek should be explored as part of the trail works in this area to restore any degraded aquatic habitat resulting from informal trail use.	Moderate	Medium

Figure 4 Reference and Approximate Location	Current Trail Status / Management Zone(s)	Proposed Action	Applicable Guideline Reference	From Table 1 of Guidelines: Significant Ecological Features that Require Review for Compatibility with Trails	Compatibility Review	Potential for Accessible Trail?[1]	Recommendations[4]	Priority for Implementation[2]	Cost
Parallel to Attawandaron Road, trail connects Access Points 2,3 4 with Access #1 See **Figure 4a**	Proposed/ Natural Environment (area of mowed lawn in Attawandaron Park)	Proposed approximately 700 m Level 3 trail	Section 5.2 and 7.1.3, Chart 3	None identified overlapping proposed trail	Compatible with Guidelines as per Chart 3	Y	• Installation of a Level 3 trail to connect the Level 3 trail in the MVHF ESA (north) to the south via the existing public access around the Museum of Ontario Archaeology connecting to Access #1. This will also help with accessible trail options on the west side of the valley. • The new trail should be implemented during naturalization activities for the area of mown lawn (see NA5 in **Table 9**) as the trail could define the limit of naturalization east of the trail. Will maintain an existing connection between neighborhoods through Attawandaron Park and enhance success of proposed naturalization. The exact routing of the new trail is subject to consultation with the Local Implementation Committee and UTRCA regulatory requirements. • The implementation of the Level 3 trail is to occur in tandem with restoration/closure of the unmanaged (informal) trails on the Museum of Ontario Archaeology lands. At the time of the CMP, the City has initiated efforts to direct trail users to the managed trail system through improved signage. • AODA trail signage to be installed at Accesses 1, 2, 3, and 4 as per **Section 3.4.3.8**	High	Medium
Section of managed trail that passes over Snake Creek See **Figure 4b**	Managed/ Nature Reserve	Proposed linkage/trail surface redesign consiting of stepping stones	Section 5.2, Chart 2	None identified overlapping proposed linkage	Compatible with Guidelines as per Chart 2	N	• Stepping stones crossing within Snake Creek to enhance protection of creek. • As this Level 1 trail also loops through one of the oldest woodland patches in the ESA, this is a good opportunity for an interpretive trail or signage to highlight Carolinian forest ecology or invasive species (i.e. Woodland Sedge). Signage that highlights the Archaeological significance and cultural plant significance should be explored in consultation with local First Nations Communities. • Potential for fish habitat enhancements along Snake Creek should be explored as part of the trail works in this area to restore any degraded aquatic habitat resulting from informal trail use. • Monitoring of the bank migration to track rate of erosion (see **Table 13**). As the bank draws closer to the trail through natural processes, there may be need to reassess whether the trail has to be closed or if that section can be rerouted. Trail diversion away from the eroding bank, and opportunities to protect the bank in an ecological sensitive way (e.g. naturalized cribwalls) should be explored along this section during detailed design. • Improved way finding signage to direct trail users over the stepping stones	Moderate	Low

Figure 4 Reference and Approximate Location	Current Trail Status / Management Zone(s)	Proposed Action	Applicable Guideline Reference	From Table 1 of Guidelines: Significant Ecological Features that Require Review for Compatibility with Trails	Compatibility Review	Potential for Accessible Trail?[1]	Recommendations[4]	Priority for Implementation[2]	Cost
Trail located between Snake Creek Valley and Gainsborough Ravine See **Figure 4c**	Closed/ Proposed to Reopen/ Nature Reserve	Relocation of a portion of a temporarily closed Level 1 trail	Section 5.2, Chart 2	Seeps and Springs habitat overlaps the existing closed trail	Rerouted/relocated trail is to be located over mowed lawn and former encroachment area at the top of the slope instead of through the seepage area. The rerouted portion of the trail avoids significant ecological features and is therefore compliant with the Guidelines.	N	• The existing Level 1 managed trail was temporarily closed pending a review of its routing in the ESA. • It is recommended a portion of the Level 1 trail be rerouted/ relocated to avoid a seepage area. • The rerouted Level 1 trail would be located over the lawn area at the top of slope and implemented in conjunction with other management actions which include: o Naturalization of NA4 (see NA4 in **Table 9**) as the trail could define the limit of naturalization east of the trail and prevent future encroachment. The exact routing of the relocated trail is subject to consultation with the Local Implementation Committee. o Restoration/closure efforts of the old trail route and informal trails that intersect with it (see RO16 in **Table 7**). This would include signage indicating closures and the reason for the closure. • It is noted that the trail design will incorporate features to aid trail users in safely traversing the steep terrain at the southern end. • AODA trail signage to be installed at Access 20 as per **Section 3.4.3.8** • 'No biking' signage to be included along the Gainsborough access. • Rerouting and closing of informal trails at the Gainsborough access into Deadhorse canyon.	Moderate	Low
Conversion of Level 1 trail to Level 2 loop from Access #11 and closure of existing Level 1 trail See **Figure 4b**	Proposed/ Managed / Utility Overlay and Natural Environment	Redesign of approximately 700 m of Level 1 trail to Level 2 from Access #11 connected to Access 13. Creation of approximately 50 m of trail. Closure of approximately 400 m of Level 1 trail.	Section 5.2, Chart 2	None identified overlapping trails proposed to convert	Compatible with Guidelines as per Chart 3 Creation of approximately 50 m of trail through Natural Environment is not compatible with the Guidelines but identified as the preferred solution by ACCAC/EEPAC/UTRCA	Y	• Conversion of Level 1 trails to permitted Level 2 trail to meet AODA. • Installation of trail closure barricade structures where converted Level 2 trail intersects with closed trail. • Closure of Level 1 trail with closure barricades to restrict trail access north along private property and associated with SAR Plant communities. Level 1 trail is located within Nature Reserve and restricting use will allow the area to naturalize as per **Section 3.2.** • Creation of approximately 50 m of Level 2 trail through Natural Environment plantation. The exact alignment will be determined with LIC • AODA trail signage to be installed at Accesses 11 as per **Section 3.4.3.8**	Moderate	Low

Figure 4 Reference and Approximate Location	Current Trail Status / Management Zone(s)	Proposed Action	Applicable Guideline Reference	From Table 1 of Guidelines: Significant Ecological Features that Require Review for Compatibility with Trails	Compatibility Review	Potential for Accessible Trail?[1]	Recommendations[4]	Priority for Implementation[2]	Cost
Conversion of Level 1/Level 2 trail to Level 2 loop from Elsie Perrin Williams (Access #14). See **Figure 4c**	Proposed/ Managed/ Utility Overlay and Natural Environment	Redesign of approximately 640 m of Level 1 trail to Level 2 to create a Level 2 loop. Creation of approximately 50 m of trail in Natural Environment to avoid SAR tree.	Section 5.2, Chart 2	None identified overlapping trails proposed to convert	Compatible with Guidelines as per Chart 3 Creation of approximately 50 m of trail through Natural Environment is not compatible with the Guidelines but identified as the preferred solution by ACCAC/EEPAC/UTRCA	Y	• Conversion of Level 1 trails to permitted Level 2 trail to meet AODA. • Installation of trail barricades to protect the SAR Tree adjacent to the trail. • Closure of Level 1 trail to restrict trail access north along private property and associated with SAR Plant communities. Level 1 trail is located within Nature Reserve and restricting use will allow the area to naturalize as per **Section 3.3.** • Creation of approximately 50 m of Level 2 trail through Natural Environment plantation. The exact alignment will be determined with LIC • AODA trail signage to be installed at Accesses 11 as per **Section 3.4.3.8**	Moderate	Low

1 – Accessible is referring to whether the area of the ESA can accommodate a firm and stable surface where the environmental, historical or cultural value would not be adversely affected as outlined in the Integrated Accessibility Standards Regulation of the Accessibility for Ontarians with Disabilities Act
2 – Priorities for Implementation are as follows: High = without implementation of recommendations, issues are expected to degrade the ESA; Moderate = issues identified relating to the trail condition or restoration/naturalization efforts and recommendations are to be implemented to improve condition; Low = no issues identified and recommendations are limited to additional signage to improve way-finding
3 – In exceptional situations, a Level 3 trail may be permitted within a Natural Environment Zone to upgrade an existing connection between neighbourhoods subject to the 'Process' outlined in Section 2.2 of the Guidelines.
4. - AODA compliant trail signage to be installed at all Access Points as per Section 3.4.3.8

4.0 Adaptive Management and Monitoring Framework

As mentioned under **Section 1.1.1**, this CMP can be considered a "living document" as adaptive management is to be utilized for the duration of management period (2021-2031). This approach to management allows for the modification of the components that make up the Environmental Management Strategy for the MVHF ESA (south), as outlined under **Section 3.0**, in response to on-going monitoring and analysis of the data collected for the implemented management recommendations. If a recommended management action is implemented and, through monitoring, the observations indicate the current action is not having the desired results, the management is adjusted and monitoring continues. The image to the right was adapted from MacDonald *et al.* (1999) and shows adaptive management as a systematic, practical approach to improving resource management.

The most thorough monitoring program of any ESA in the City is already in place in the ESA, including permits and requirements from the Province and recognition from the Federal Government for best practices for protection of False Rue-anemone. Active monitoring and management currently being carried out in the MVHF ESA (south) follows an adaptive management approach and has successfully addressed all the Top and High priority areas needing restoration. Annual monitoring reports outlining the results of active management are routinely circulated to EEPAC (see References section for list of reports).

4.1 Approach to Adaptive Management

Implementation of an adaptive management approach can only be effective if there are baseline conditions to refer to during monitoring. The data collected during Phase I for this CMP provides the benchmark against which the management objectives for the MVHF ESA (south) can be measured against. Further baseline data is collected by the UTRCA through regular monitoring as well as by the City through contemplation of public observations.

For adaptive management to be effective, a sustainable monitoring program and evaluation of the results is required to be implemented in order to maintain objective of preserving the ecological integrity of the MVHF ESA (south) consistent with the objectives in **Section 1.2.3**.

4.2 Monitoring Framework

Managing changes over time in natural ecosystems can involve evaluating the use of trails through a decision framework. The framework for monitoring developed for the MVHF ESA (south) is to be used to guide decisions about the success of management actions.

The strategies for restoration and trails system improvements, as outlined in previous sections, are to be monitored to track management success or determine whether adjustments to the management actions are required. The objective of monitoring is to provide a quantifiable assessment of the monitoring variable to compare with the baseline conditions.

A well-designed monitoring program provides the necessary feedback for gauging the effectiveness of management interventions in keeping conditions within acceptable limits and within the targeted outcome. A documented failure of an intervention can be used to justify the use of a more obtrusive [intrusive] or expensive intervention (Marion 2008, 2016), trail closure, or more innovative management. This CMP establishes the details and protocols for the monitoring framework and implementation approach to be undertaken as part of required management activities within the MVHF ESA (south).

Monitoring within the MVHF ESA (south) is based on objective and quantifiable measurements of abiotic, biotic and cultural elements as described below with details on focus, methods, frequency, and management responses provided in **Table 12**.

4.2.1 Abiotic

Monitoring of abiotic elements is to include documenting the non-living parts of the MVHF ESA (south) and surrounding landscape. The variables for monitoring include bank migration and trail condition.

4.2.1.1 Bank Migration

The Medway Creek Subwatershed Update noted that erosion monitoring programs recommended in the 1995 subwatershed study had not been implemented. As part of the MCSSU, monitoring stations were re-established, new stations added and baseline conditions geo-referenced. Annual erosion monitoring was recommended to be implemented using the erosion stations established as part of the study. A prioritized slope stability monitoring program was also recommended with one site requiring priority monitoring and four requiring baseline monitoring. In the absence of results from the previously recommended erosion monitoring program, the MCSSU assessed the rate of bank migration using historical aerial imagery from 1955. The results indicated an average annual rate of 0.4 m/year to 0.6 m/year for Medway Creek and 0.06 m/year for Snake Creek. As there are managed trails situated within a few metres of Medway Creek and Snake Creek, it is recommended that the annual erosion monitoring program be included as part of the monitoring for the MVHF ESA (south). Ten bank migration monitoring stations were established within the MVHF ESA (south) as part of the MCSSU and are recommended for monitoring.

It is important to note that bank migration is a natural phenomenon that is influenced by a variety of conditions such as adjacent vegetation, upstream influences and precipitation events. Work on the MCSSU was ongoing at the time of this CMP.

Any specific sites of excessive and or unnatural bank erosion should be addressed with “natural” channel design solutions that enhance the ecology and accommodate the trail plan.

4.2.1.2 Trail Condition

The managed trails in the MVHF ESA (south) are well established and some are upwards of 30+ years old. The UTRCA is monitoring trails in the MVHF ESA (south), and the City also receives observation reports submitted by trail users.

Continued monitoring of indicators for trail condition that may be documented includes:

- Condition of trail surface (e.g. cracking of wood, exposed tree roots)
- Trail width
- Creation of side trails and/or off-trail areas (i.e. for viewing or passing)
- Areas of water saturation/ponding along the trail

4.2.1.3 Trail Usage

During consultation for this Phase II CMP, concerns were raised by some regarding the potential for impacts due to increased use in the ESA following implementation of the proposed sustainable trail concept plan (see **Section 3.4.2.4**). As such, it is recommended that monitoring of the trail use occur prior and after the implementation of revised trail levels, and specifically the trail segment at Elsie Perrin Williams Estate (Access #14) and at Marcus Crescent (Access #11). Potential impacts are anticipated to be very limited as the proposed, inclusive, accessible-trails are located in areas of less sensitivity (Natural Environment zone) and typically associated with a Utility Overlay over a sewer. This data can be used to inform other trail monitoring data collected in the ESA through the ten year time frame of this CMP as well as will be helpful in informing future CMPs. From monitoring that has occurred in the MVHF ESA (north) where the trail strategy has been (or is in the process of being) implemented, it has been noted that the trails have been used as intended and formation of new unmanaged trails extending from the managed trails has not occurred.

Increased use of managed trails provides a wide variety of social benefits to all Londoners as noted in **Section 3.4.2.7.** Trail use will continue to be monitored for management and habitat protection. The experience in London, consistent with Crime Prevention and Environmental Design (CPTED) principles, is that as trail use increases on well-designed trails that comply with the Guidelines, compliance with the rules also increases through natural surveillance.

From 2015-2017 the City reviewed and monitored trails through site visits within MVHF ESA (north) and Kilally Meadows ESA and found through comparison and review of historical aerial photos that all informal trails present along the Level 3 Trails existed before the Level 3 Trails were installed (in 2006-2014, generally over existing sewers), and, no new informal-trails had formed. These findings were presented to the LAC as part of the CMP process. A well-designed trail system, following the Guidelines can help to minimize or eliminate formation of new, informal trails.

As referenced in a number of trail management documents, including Marion (2016), and as well summarized from the B.C. Ministry of Forests Recreational Manual (1991) "*The search for a single, magic, carrying capacity number can also misdirect the manager's attention to numbers instead of trying to correct specific problems".* As per the Guidelines, a properly managed trail system limits impacts by concentrating trail use on resistant trail surfaces and the monitoring framework established is based on the Limits of Acceptable Change approach which redifines the traditional carry capacity question "How much use is too much?" to "How much change is acceptable?". In keeping with Section 4.1 the ESA management committee continually monitors and addresses trail use impacts in all ESAs.

4.2.2 Biotic

Monitoring of biotic elements within the MVHF ESA (south) is to include documentation of the vegetation and wildlife (including wildlife habitats) within the surrounding landscape but also documenting trends in species populations and continuing with the Early Detection and Rapid Response (EDRR) monitoring and management program that has successfully addressed all the Top and High priority areas needing restoration for example.

4.2.2.1 Sensitive Species

The MVHF ESA (south) is known in the City of London for its high biodiversity of flora and fauna. This biodiversity includes several provincially listed Species at Risk and Species of Conservation Concern (SCC) as noted in **Table 5** under **Section 2.0**.

Monitoring of sensitive species is to continue to include documenting the condition and vigour of individual species, and monitoring for invasive species nearby that may be threatening them. This may include documenting new sensitive species that may have not been previously observed or recorded.

4.2.2.2 Invasive Species (Early Detection and Rapid Response)

Assessing vegetation changes, including changes in vegetation cover and composition is a growing concern, particularly as they relate to the introduction and spread of invasive plants (Marion, *et al.* 2006). As noted in **Section 3.0,** the majority of restoration work for the control of invasive species identified in Phase I is already underway or completed. The three high priority restoration areas identified to protect Species at Risk were implemented in 2013 and have been ongoing through 2017. The monitoring reports by Dillon for this restoration work are listed in the References section. Monitoring of invasive flora and other pests/pathogens within the MVHF ESA (south), in particular adjacent to known populations of sensitive species and areas undergoing restoration or naturalization, will continue as noted in **Table 7** and expand as the remaining Restoration Overlays are addressed.

Efforts will continue to be made by the ESA Management Committee to determine if occurrences of invasive species observed are new to the MVHF ESA (south) based a list of known established invasive species from the Phase I results. Invasive species/pests/pathogens known to occur elsewhere in London, the province or outside of the province, but have potential to establish, are also a focus in order to enact rapid response efforts to control new invasive species. Potential species are those included in the province's Early Detection and Distribution Mapping System (EDDMapS) which is routinely updated and available via the internet (EDDMapS Species List) and also as a smartphone application with a catalogue of images to assist users with identification.

Adopt-an-ESA groups and members of the community can continue to help trigger management responses by the ESA Management Committee through reporting of new or priority invasive species through emailed observation reports or online Service London reports.

Early Detection and Rapid Response (EDRR) is a proactive approach to managing invasive species that can help to prevent establishment. Early detection of *newly arrived* invasive species, followed by a well-coordinated rapid response, will increase the likelihood of eradication or containment of new invasions.

As outlined in Table 7 and Figure 4, all the Top and High priority Restoration Overlays to control invasive species and enhance ecological integrity have been addressed or are in progress as part of restoration efforts in the MVHF ESA (south) and as such on-going monitoring will continue to determine if controlled species re-establish.

4.2.2.3 Wildlife & Wildlife Habitat

Monitoring of wildlife and wildlife habitats could be based on the survey methods for species groups assessed during Phase I. Generally, the results from these surveys will be considered in comparison to the species data collected as part of Phase I as a means of documenting species presence/non-detect.

4.2.3 Cultural

Monitoring of cultural elements is to include documenting anthropogenic influences to the MVHF ESA (south) that may be associated with trail users, adjacent landowners and management activities such as restoration and naturalization.

4.2.3.1 Encroachment

The boundary for the MVHF ESA (south) is considered the baseline for comparison when reviewing whether there has been encroachment into the MVHF ESA (south) over the management period (2018-2028). This review is to include comparisons of the most recent aerial imagery with the mapped boundary and on-site reviews of the boundary on public lands to determine other types of encroachment such as yard waste dumping, gates in rear yard fences, encroachment of gardens, vegetation clearing and mowing of meadow areas. ESA encroachments are subject to enforcement for compliance with City by-laws and ecological resoration.

4.2.3.2 Trails

The policies and process outlined in the Guidelines provide guidance for the design, implementation, management, monitoring and potential closure of trails and trail structures in ESAs. The City funded UTRCA ESA team monitors, maps and keeps an inventory of the managed trails, closed trails and trail structures within the ESA. Trail structures are monitored for lifecycle renewal to ensure public safety and assist in planning for capital projects. Members of the public submit Observation Reports or online Service London reports when issues arise with trails to further assist in the monitoring of trails.

4.2.3.3 Non-permitted Uses

In addition to encroachment within the MVHF ESA (south), other non-permitted uses are documented by the ESA Management Team through ongoing enforcement activities and through incidental observations during other monitoring as well a review of ESA Observations Forms and online Service London reports submitted to the City. Other non-permitted uses subject to enforcement for compliance with City by-laws include bicycles, off-leash dogs, littering, and campfires.

4.2.3.4 Restoration

As restoration areas generally involve control of invasive species and planting of trees/shrubs, monitoring would be a combination of the EDRR program and monitoring of the health and vigour of plantings.

4.2.3.5 Naturalization

Monitoring of these areas is to include a combination of other monitoring such as noting non-permitted uses (i.e. mowing), EDRR and noting the health/vigour of plantings. Monitoring can include stem counts to document the density of native shrubs and trees and how quickly succession is occurring. This will help to determine whether additional planting is needed to quicken succession of an area.

4.2.3.6 Seasonal Trail Closures

Seasonal closure gates are proposed between Access #10 and Access #11 to restrict use of the Level 1 trail during the sensitive growing season of SAR plants. Closures and associated enforcement of the closures can be adjusted to longer or shorter durations based on the monitored success of the population. An initial seasonal closure of March 15 to approximately June 15 will be implemented.

4.3 Monitoring

The variables outlined in the above sections, along with the methods for monitoring, recommended frequency for monitoring, triggers for a management response and management responses for the MVHF ESA (south), are outlined in **Table 12**.

Table 11: Monitoring Framework for the MVHF ESA (south)

Element	Monitoring Variable	Focus of Monitoring	Methods and Location(s) for Monitoring	Frequency	Lead Agency & Funding Source	Requirements for Management Response	Management Response
Abiotic	Bank Migration	Bank erosion and distance to trail segments	Tracking rate of bank migration from the eight erosion monitoring stations found along Medway Creek, one station for Snake Creek and one station for Gainsborough Ravine.	Annual	Storm Water Management Unit ESA Mg Team – Operating Budget	When natural bank erosion of watercourses presents a hazard to trail segments that are adjacent to Snake Creek and Medway Creek. Hazard distance to be set by recommendations in the MCSSU. Other areas of bank erosion may require rehabilitation but priority for a response would be for areas adjacent to managed trails.	Following process in Guidelines review of the trail segment and whether the segment can be moved back from the bank or whether the trail needs to be closed.
	Trail Condition	General trail condition including: • Condition of trail surface (e.g. cracking of wood) • Trail width • Creation of side trails and/ or off-trail (i.e. for viewing or passing) • Areas of water saturation/ponding along the trail • Mobilization of soils • Exposure of tripping hazards (e.g. tree roots, rocks)	On trails, mapping and documenting locations of trail widening, saturation (i.e. wet areas).	Every two years, beginning in the spring of 2022	ESA Mg Team – Operating Budget	Review every two years. If data indicates on-going trail issues the management response is triggered.	Following process in Guidelines review of the trail segment and whether the issue can be addressed through re-design of the trail or whether the trail should be closed.
Biotic	Sensitive Species	Presence and abundances of Species at Risk and rare species within or adjacent to management activities (restoration/ naturalization) or trail work.	Use the methods as outlined under Section 2.1 of the Phase I report for identifying Sensitive Species. May be combined with other monitoring such as vegetation , birds etc.	Survey for one to three years following activity or project.	ESA Mg Cte – Capital Budget ESA Mg Team – Operating Budget	Review before and after data to determine if there are impacts to species. If declines in species are identified implement management response. If declines not documented, survey frequency can be decreased.	More detailed review of data for specific species in decline. ESA Management Committee to determine next steps if decline not attributed to external factors (i.e. province-wide species decline).
	Invasive Species	Undesirable species in restoration/ naturalization areas.	On-going monitoring of ESA and restoration areas and use of EDRR (see **Section 4.2.2.2** and **Table 7**) by trained professionals as well as continued encouragement of public observations.	On-going observations from ESA Management Committee (and public) through EDRR. Annual targeted surveys of rstoration areas with known Species at Risk/ rare species. Targeted surveys every two years of restoration areas without Species at Risk/rare species	ESA Mg Cte – Capital Budget	If species reported through Early Detection or other monitoring events is determined to be a risk to the ESA, implement management response.	Implement rapid response management depending on the species. Follow best management practices for control or if species lack practices, development of species specific management plan.

Element	Monitoring Variable	Focus of Monitoring	Methods and Location(s) for Monitoring	Frequency	Lead Agency & Funding Source	Requirements for Management Response	Management Response
	Wildlife & Wildlife Habitats	Survey of wildlife/wildlife habitat within or adjacent to management activities (restoration/naturalization) or trail work Key areas for monitoring include species abundance/ presence that define the habitat significance for the following key habitats: Colonial-Nesting Bird Breeding Habitat (Bank & Cliff) (CNB1) Amphibian Breeding Habitat (ABH1-ABH4) Seeps and Springs	Surveying species populations and wildlife habitats	Targeted survey, for one to three years following activity or project.	ESA Mg Cte – Capital Budget	Review data to document trends in populations. If habitats decline implement management response.	ESA Management Committee to determine next steps if decline not attributed to external factors (i.e. province-wide species decline).
Cultural	Encroachment	Mowing, yard waste, fences, gates, or other incursions on City owned ESA lands.	In addition to on-going monitoring by ESA Management Committee, continue to encourage ESA Observation Reports and Service London online community reporting of encroachment into City owned ESA lands for follow up.	On-going observations from ESA Management Committee (and public) will continue enforcement process to reduce encroachments and increase compliance as By-law staff time permits	City By-law staff and ESA Mg Cte – Operating Budget	Encroachment into the City owned ESA boundary is confirmed.	By-law staff/ ESA Team initiate encroachment enforcement process to achieve compliance for encroachments into City ESA lands. Continue to educate residents who back onto ESAs about encroachment issues through education and measures including mail outs of EEPAC's Living with Natural Areas brochure etc.
	Informal trails	Continued use of terrestrial informal trails or creation of new informal trails.	On trails, mapping and documenting persistence of informal trails by review of wear on the trail tread and success of restoration/closure efforts.	Annual	ESA Mg Team – Operating Budget	Review every two years. If data collected indicates on-going use of informal trail(s), a management response is triggered.	Review of informal trail. Follow Trail Closure steps in Guidelines in section 7.2.6 if still present. Apply current best management practice for trail closures, as applicable.
	Informal creek crossing	Continued use of informal creek crossings or creation of new crossings	Review of creek banks for evidence of disturbance to bank vegetation and/or creek bed, as well as informal placement of stones/logs that trail users may place to aid in crossings.	Annual	ESA Mg Team – Operating Budget	Review every two years. If data collected indicates on-going use of informal creek crossings where continued wear of banks, disturbance of creek bed/substrates or placement of stones/ logs is observed, a management response is triggered.	Review of crossing locations. Follow Trail Closure steps in Guidelines in section 7.2.6 if still present. If crossing is still in use after implementation of closure steps, review whether a formal linkage (e.g. stepping stones) would help to protect the creek.
	Non-permitted Uses	By-law infractions: • dogs off-leash • bicycles • littering	Review of ESA Observation Forms and Service London online reports submitted to the City. Input from ESA Management Committee and City by-law enforcement officers.	Every two years, beginning in 2018	City By-law staff and ESA Mg Team – Operating Budget	Review every two years for trends. If data indicates on-going or increasing infractions, implement management response.	Further review of the infraction type and ESA management committee to discuss innovative approaches to address corrective action. May include additional signage, education, and enforcement.

Element	Monitoring Variable	Focus of Monitoring	Methods and Location(s) for Monitoring	Frequency	Lead Agency & Funding Source	Requirements for Management Response	Management Response
	Restoration	Restoration Overlay areas	On site review of the restoration areas listed in Table 9 (including RO16 for restoration of un-managed and closed trails) to document health and condition of plantings. Review of succession progress (where applicable). May be combined with other monitoring such as Invasive Species, Vegetation etc.	Every two years, beginning the year after restoration has taken place	ESA Mg Team – Operating Budget	Review the data collected every two years from monitoring to determine whether restoration efforts have been effective or if additional effort required. If additional effort is determined, implement management response.	Development of a detailed restoration plan if additional effort is required. ESA Management Committee to review plan prior to implementation.
	Naturalization	Naturalization Areas	On site review of the naturalization areas listed in Table 12 to document health and condition of plantings. Review of succession progress (where applicable). May be combined with other monitoring such as Invasive Species, Vegetation etc.	Every two years, beginning the year after initial naturalization efforts have taken place	ESA Mg Team – Operating Budget	Review the data collected every two years from monitoring to determine whether naturalization efforts have been effective or if additional effort required. If additional effort is determined, implement management response.	Development of a detailed naturalization plan if additional effort is required. ESA Management Committee to review plan prior to implementation.

5.0 Continued Community Engagement and Education

The primary role of community engagement in the protection of natural areas is to build awareness, foster education and encourage participation in order to create or increase a culture of conservation. This culture of conservation promotes natural areas as a common good and that conservation is a collective responsibility for all that visit and enjoy the natural area. Within the MVHF ESA (south), community engagement has also included existing stewardship programs with opportunities to implement and promote new programs for stewardship as well as education, research and outreach.

The extensive CMP engagement process for the MVHF ESA (south) occurred from 2013 through to 2021 (see Table 2 in Section 1.1.2) and included four Community Open Houses, the formation of a 17 member Local Advisory Committee, consultation with ACCAC/EEPAC/UTRCA/First Nations and public consultation on the eastern boundary access. The process provided 8 years of ongoing community input, involvement, and opportunities for residents to learn more about the ESA and how to protect it.

5.1 Stewardship and Education

A stewardship ethic refers to the thoughtful care of ecological systems to preserve or enhance their natural qualities and recognizes that the values and goals of all users of natural areas are more similar than they are different.

5.1.1 Existing Programs

A number of programs promote stewardship of the MVHF ESA (south) through education and community engagement. Currently, these include the City's Adopt-an-ESA program, the Trails Advisory Group program, the CMP process, and activities and hikes coordinated by volunteer based community groups such as TVTA and Nature London. Hike leaders and others routinely contact the City for copies of the MVHF ESA brochure (available on the City website), which is updated bi-annually with interesting information about the ESA, trail maps and rules. Annual updates highlighting the City's leadership in Habitat Protection, Restoration and Stewardship of the ESA are posted on the City website and distributed at local environmental events throughout the year.

5.1.1.1 Adopt-An-ESA Program

The City encourages civic clubs, local businesses, neighbourhood associations, faith groups and school groups to get involved in the preservation and enhancement of publicly owned ESAs. By participating in the Adopt-An-ESA Program, volunteers donate time and resources to give special care to an ESA by helping to maintain, enhance and protect the ESA's natural features and functions. A group signed up to the program commits to helping maintain the adopted area of the ESA for a minimum of two years. Within those two years, the group will lead a minimum of two clean-ups per adopted year.

Three groups participate in the Adopt-An-ESA Program for the MVHF ESA and include the following:

- Friends of Medway Creek
- Orchard Park/Sherwood Forest Ratepayers Association
- Sunningdale West Ratepayers Association

5.1.1.2 Friends of Medway Creek

In 2008, the Friends of Medway Creek was established to help implement restoration activities and environmental initiatives that improve the health of the Medway Creek watershed. The mission statement is "*Community members promoting the protection and improvement of the Medway Creek Watershed*".

5.1.2 Proposed New Programs

While existing programs may provide much needed support in carrying out stewardship projects for the MVHF ESA (south), there is opportunity to implement additional programs to continue stewardship but also coordinate the collection of data and potentially combine with the monitoring recommended in **Section 4.0**.

5.1.2.1 Citizen Science Projects

Local stewardship and knowledge of the ESA could be enhanced by providing community members with a chance to participate in ecological monitoring, environmental training and Education. This could include encouraging community members to participate in the regular monitoring, as recommended under **Section 4.0.**

The Toronto and Region Conservation Authority's (TRCA) Terrestrial Volunteer Monitoring Program trains local citizens to monitor habitat in the TRCA watershed. By engaging volunteers in this type of monitoring, the TRCA provides an opportunity for citizens to contribute to environmental protection in a meaningful way, and to learn more about local native species and their habitat needs.

Other types of Citizen Science projects that could be implemented for the MVHF ESA (south) to not only engage the public but also contribute to the collection of provincial species data could include the following:

- **Christmas Bird Count** – annual event held between December 14 and January 5 each year and is organized by Bird Studies Canada. The count coordinator for London could be contacted to see if data specific to the MVHF ESA (south) can be kept separate.
- **Great Lakes Worm Watch** – Establish study plots in the older patches of forest within the MVHF ESA (south) to collect baseline data on the density and spread of invasive earthworms using the Great Lakes Worm Watch study protocol. Data collected by volunteers could help to guide future restoration and plantings as forests with high densities of earthworms may have trouble regenerating and may require supplemental plantings.
- **Bumble Bee Watch** – a collaboratibe effort to track and conserve North America's bumble bees.

5.1.2.2 MVHF ESA BioBlitz

A BioBlitz brings together taxonomic experts, citizen scientists and the general public to inventory all species (plants, animals, fungi and more) in a particular area over a 24 hour period. Participants record all the organisms they find, and then experts verify their identity. As the Blitz proceeds and after it is done, the species records are compiled into a single data set: the species list, which provides a snapshot of the biodiversity in that location on that date. With potential changes in species biodiversity occurring due to changes in climate, establishing a BioBlitz for the MVHF ESA (south) could help with tracking changes in species diversities from the findings documented during Phase I.

For the provincial based Ontario BioBlitz program, there are three main components: the intensive scientific survey, the Guided BioBlitz, and public programs. Each activity differs in the amount of prior knowledge and experience required, and in time commitment. Generally, the province based program has focused on larger watersheds (e.g. Credit River, Rouge River, Don River, Humber River) as opposed to specific natural areas. Smaller community-led BioBlitzs are becoming more frequent and several Provincial Parks have held park specific Blitzes.

The diagram to the right from OntarioBioBlitz.ca below offers more detail, and could be used to help develop a Blitz for the MVHF ESA (south). Should this be considered, consideration should be provided for providing participants direction regarding trail use and sensitive areas.

5.1.3 Educational Programming and Partnerships

In addition to the education opportunities provided to the community by Adopt-an-ESA and other stewardship programs, a number of schools, post-secondary institutions and the Museum of Ontario Archaeology are located in the vicinity of the MVHF ESA (south) and represent another opportunity to extend ecological knowledge and stewardship. Options for engaging staff/students in education about the MVHF ESA (south) and active monitoring/management could continue to include:

- In-Class Presentations
- Guided Hikes, Mood Walks
- Childreach's Wild Child Day Camp Program

- Citizen Science projects
- Restoration Activities (e.g. tree planting)
- Co-op Opportunities with the UTRCA/City

Options for engaging students should be designed to strengthen stewardship of the MVHF ESA (south) amongst young people. Creative presentations and hands on activities in the ESA that allow an opportunity to provide input to ongoing management can provide students with a better understanding the need for the management of sensitive habitats, and potentially spark interest in becoming more involved in community efforts to enhance and protect the MVHF ESA.

5.2 Community Events

Community based events raise the profile of environmental stewardship and unite neighbourhoods in a common initiative. The City of London's Clean & Green Community Clean Up Day and Adopt an ESA "clean-up days" encourage community members to pick up litter. Events centered on tree planting or removal of non-native plants (e.g. Garlic Mustard pulling) will continue to be facilitated by the Adopt and ESA groups and others, with cooperation of the City and UTRCA, through guidance, provision of services such as removal of debris once it is collected to a central location, providing garbage bags and basic tools (shovels, etc.), and periodically recognizing participants' contributions. Such events also result in the public investing time and energy in stewardship, thus increasing their value, raising support for allocating funds for CMP implementation and increasing the likelihood of compliance with ESA rules by leading by example.

5.3 Opportunities for Scientific Research

Scientific research by qualified individuals which contributes to the knowledge of the natural history, cultural history and environmental management within the publicly owned portions of MVHF ESA (south) is to be supported.

Research must meet all requirements under applicable provincial and federal legislation. Permission is generally granted after review of a work plan that demonstrates no negative impacts and sign off from the Managing Director of Parks and Recreation as required under City By-law.

The following general fields of research are particularly appropriate for the MVHF ESA (south) and will be supported following review by the City:

- Landforms, vegetation, fish, wildlife, and archaeology of the ESA
- The status and life history requirements of species at risk and other rare species and communities
- Density and spread of invasive species such as European earthworms, vegetation, forest pests/pathogens
- The density of deer populations
- Environmental restoration and management

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Figures

MEDWAY PARK DRIVE
FANSHAWE PARK ROAD WEST
ACORN PLACE
ACORN CRESCENT
FOX HOLLOW CRESCENT
EDGEHILL CRESCENT
WINDING COOMBS CRESCENT
BLACKACRES BOULEVARD
ALTAWANDARON ROAD
WONDERLAND ROAD NORTH
YARDLEY WOOD ROAD
CRABTREE AVENUE
PITCARNIE CRESCENT
WHITEACRES DRIVE
GLENRIDGE CRESCENT
TOOHEY LANE
MORAINE CRESCENT
MARCUS CRESCENT
HESKETH STREET
KATHRYN DRIVE
MCCLURE DRIVE
SHAVIAN BOULEVARD
ST BEES COURT
ST BEES CLOSE
HILLSIDE DRIVE
CARRIAGE HILL DRIVE
TALLWOOD
CARNFORTH ROAD
GRASMERE CRESCENT
THIRLMERE ROAD
AMBLESIDE DRIVE
COLLIP CIRCLE
WESTERN ROAD
CANTERBURY ROAD
RICHMOND STREET
GREEN ACRES DRIVE
RYERSIE ROAD
GLOUCESTER ROAD
BUTTERMERE ROAD
RAVENGLASS CRESCENT
GRANGEOVER AVENUE
WINDERMERE COURT WEST
WINDERMERE ROAD
CORLEY DRIVE
PERTH DRIVE
HAWTHORNE ROAD
CHAPPLE HILL ROAD
HOMESTEAD CRESCENT
DELACOURT ROAD
GAINSBOROUGH ROAD
DONCASTER AVENUE
LINKSGATE ROAD
FRIARS WAY
WYCHWOOD PARK
SCARLETT AVENUE
ANNADALE DRIVE
ABBEY RISE
LAWSON ROAD
BLOOMFIELD DRIVE
RAMSAY ROAD
COTTONWOOD CRESCENT
LIMBERLOST ROAD
MONMORE ROAD
GAINSBOROUGH ROAD
ARDSLEY CRESCENT
KENT DRIVE
UNIVERSITY DRIVE
LAMBTON DRIVE
THE PARKWAY

CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 1
MVHF ESA (SOUTH) OVERVIEW

- Utlity Overlay (4 m)
- MVHF ESA (south) Boundary (Refined as per Phase I)
- MVHF ESA (south) Boundary (not refined in Phase I)
- Watercourse
- Western/Huron Properties
- Property Boundaries

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF (2017) &
CITY OF LONDON (2016)

MAP CREATED BY: JWH
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

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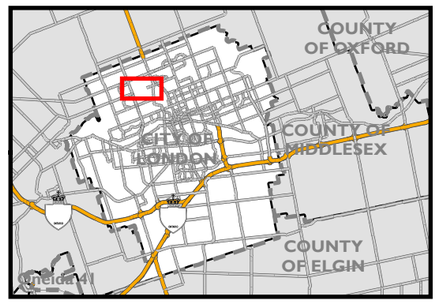
N W E S

PROJECT: 17-5428 STATUS: DRAFT DATE: 10/6/2017



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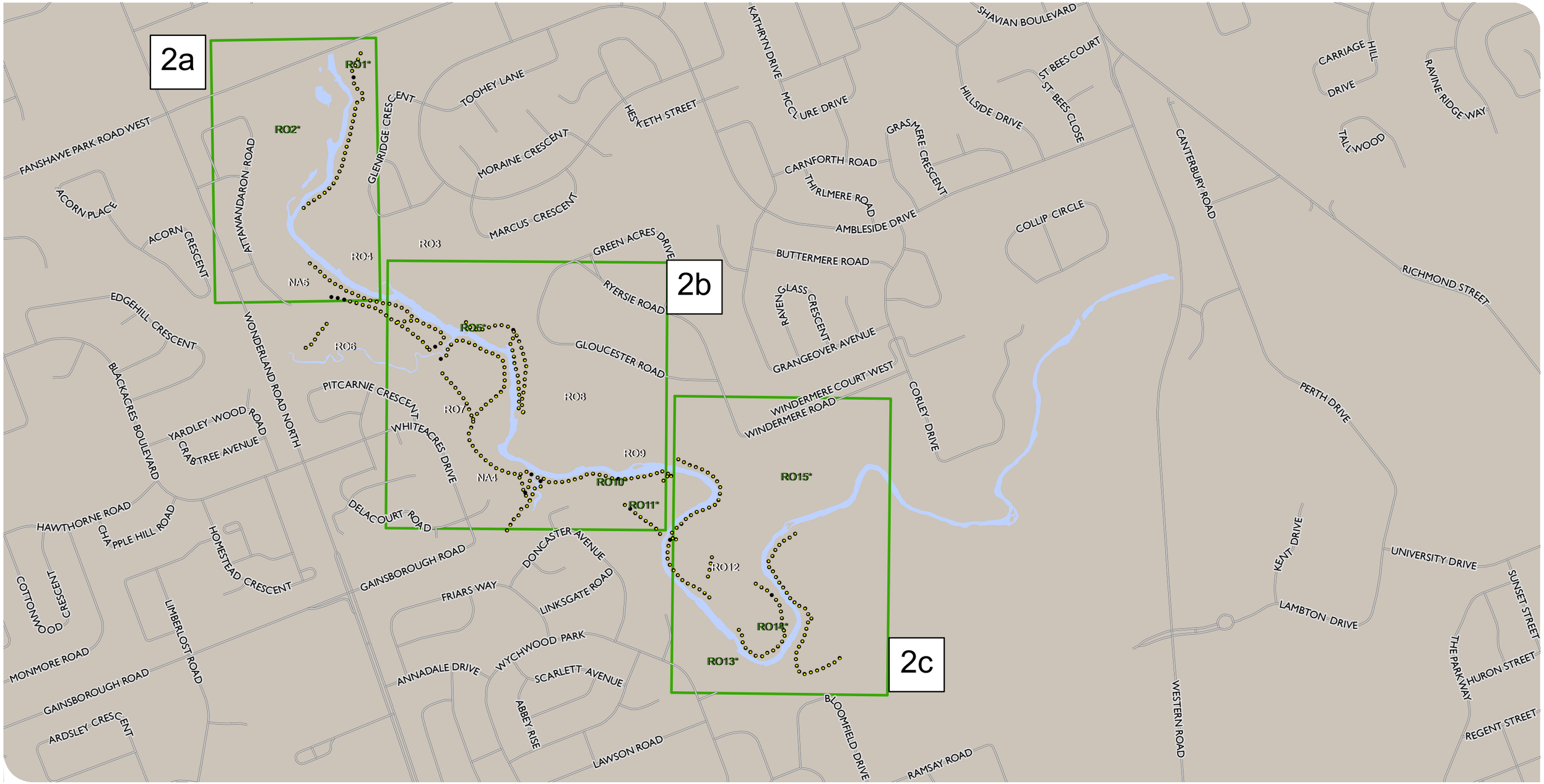


CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 2
ENVIRONMENTAL MANAGEMENT STRATEGY
(RESTORATION & NATURALIZATION)

- Watercourse
- Utlity Overlay (4 m)
- SAR Habitat
- Habitat for Species of Conservation Concern
- Wildlife Habitat
- Western/Huron Properties
- Property Boundaries
- Naturalization Area
- Restoration Overlay[1]
- Restoration Overlay (RO16)[2]

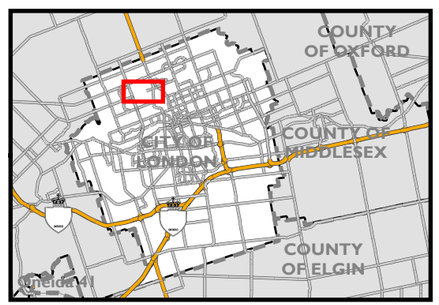
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF (2017) &
CITY OF LONDON (2016)

MAP CREATED BY: JWH
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

[1]Restoration Overlay labels for RO 1, 2, 5, 10, 11, 13, 14, 15 are highlighted in green and have a * to indicate restoration works are either already complete and/or currently in progress and under a monitoring program.
[2]RO16 identifies informal and closed existing trails documented during Phase I that are to be closed (or closure enforced) and restored

1:10,000
0 125 250 500 m
N W E S

PROJECT: 17-5428 STATUS: DRAFT DATE: 10/23/2017



FILE LOCATION: \\dillon.ca\DILLON_DFS\Toronto\Toronto GIS\137560 - Medway MVHF ESA\Mapping\Phase II\F2_Environmental Management Strategy.mxd

CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 2a
ENVIRONMENTAL MANAGEMENT STRATEGY
(RESTORATION & NATURALIZATION)

- Butternut
- False Rue Anemone
- Amphibian Breeding Habitat
- Habitat for Rare Species (American Gromwell)
- Habitat for Rare Species (Cream Violet)
- Habitat for Rare Species (Shrubby St. John's Wort)
- Habitat for Special Concern Species (Green Dragon)
- Seeps and Springs Area
- Western/Huron Properties
- Property Boundaries
- Watercourse
- Utlity Overlay (4 m)
- Naturalization Area
- Restoration Overlay[1]
- Restoration Overlay (RO16)[2]

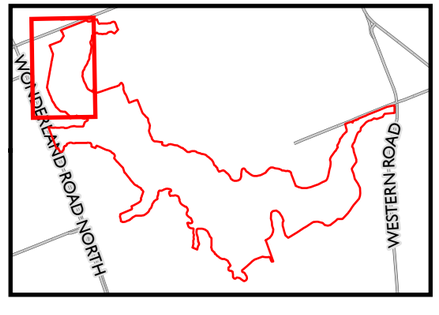
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF (2017) & CITY OF LONDON (2016)

MAP CREATED BY: JWH
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

[1]Restoration Overlay labels for RO 1, 2, 5, 10, 11, 13, 14, 15 are highlighted in green and have a * to indicate restoration works are either already complete and/or currently in progress and under a monitoring program.
[2]RO16 identifies informal and closed existing trails documented during Phase I that are to be closed (or closure enforced) and restored

1:3,000
0 37.5 75 150 m
N W E S

PROJECT: 17-5428 STATUS: DRAFT DATE: 10/23/2017



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NA5

RO4

RO5*

RO6

RO7

RO8

RO9

NA4

RO10*

RO11*

RO12

GREEN ACRES DR VE

GRANGEOVER AVENUE

RYERSIE ROAD

GLOUCESTER ROAD

P TCARN E CRESCENT

WHITEACRES DRIVE

PITCARN E ROAD

DELACOURT ROAD

WOODHOLME PLACE

WONDERLAND ROAD NORTH

WESTERN ROAD

CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 2b
ENVIRONMENTAL MANAGEMENT STRATEGY
(RESTORATION & NATURALIZATION)

- Cucumber Magnolia
- False Rue Anemone
- Kentucky Coffee-tree
- Amphibian Breeding Habitat
- Habitat for Rare Species (American Gromwell)
- Habitat for Rare Species (Cream Violet)
- Habitat for Rare Species (Slender Satin Grass)
- Habitat for Special Concern Species (Green Dragon)
- Seeps and Springs Area
- Western/Huron Properties
- Property Boundaries
- Watercourse
- Utlity Overlay (4 m)
- Naturalization Area
- Restoration Overlay[1]
- Restoration Overlay (RO16)[2]

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF (2017) &
CITY OF LONDON (2016)

MAP CREATED BY: JWH
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

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1:3,000

0 37.5 75 150 m

N W E S

PROJECT: 17-5428 STATUS: DRAFT DATE: 10/23/2017

FILE LOCATION: \\dillon.ca\DILLON_DFS\Toronto\Toronto GIS\137560 - Medway MVHF ESA\Mapping\Phase II\F2_Environmental Management Strategy_series.mxd

RO8

RO9

NA4

RO10*

RO11*

RO15*

RO12

RO14*

RO13*

RIVERSIDE ROAD

WINDERMERE ROAD

CORLEY DRIVE

DONCASTER GATE

DONCASTER AVENUE

DONCASTER PLACE

FAIRWAY

LINKSGATE ROAD

WYCHWOOD PARK

WYCHWOOD PLACE

SCARLETT AVENUE

LONGBOW ROAD

ABBEY RISE

CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 2c
ENVIRONMENTAL MANAGEMENT STRATEGY
(RESTORATION & NATURALIZATION)

- Butternut
- Cucumber Magnolia
- False Rue Anemone
- Kentucky Coffee-tree
- Queensnake
- Amphibian Breeding Habitat
- Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)
- Habitat for Rare Species (American Gromwell)
- Habitat for Rare Species (Cream Violet)
- Habitat for Rare Species (Slender Satin Grass)
- Habitat for Special Concern Species (Green Dragon)
- Seeps and Springs Area
- Western/Huron Properties
- Property Boundaries
- Watercourse
- Utlity Overlay (4 m)
- Naturalization Area
- Restoration Overlay[1]
- Restoration Overlay (RO16)[2]

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF (2017) &
CITY OF LONDON (2016)

MAP CREATED BY: JWH
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

[1]Restoration Overlay labels for RO 1, 2, 5, 10, 11, 13, 14, 15 are highlighted in green and have a * to indicate restoration works are either already complete and/or currently in progress and under a monitoring program.
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1:4,000

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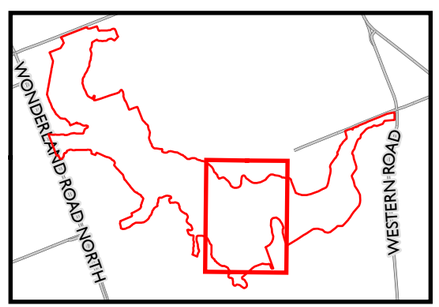
N W E S

PROJECT: 17-5428 STATUS: DRAFT DATE: 10/23/2017



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CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 3
ENVIRONMENTAL MANAGEMENT STRATEGY:
EXISTING TRAIL SYSTEM

Existing Trail Linkage (Metamora Bridge)
City Trail Outside of ESA
Closed Trail[1]
Temporarily Closed Trail[2]
Informal Trail [1]
A Potential Future Access (PFA)
A # Access Point

Managed Trails Documented During Phase I
Level One Trail
Level Two Trail
Level Three Trail

Contour (5 metre Elevation)
Property Boundaries
Utlity Overlay (4 m)
Western/Huron Properties
Watercourse (also Nature Reserve)

Management Zone
Nature Reserve
Natural Environment

MAP CREATED BY: JWH
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF (2017) & CITY OF LONDON (2016)

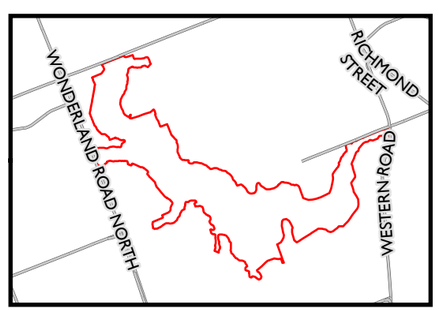
1:10,000

0 125 250 500 m

N W E S

[1]INFORMAL AND CLOSED EXISTING TRAILS DOCUMENTED DURING PHASE I ARE TO BE CLOSED AND RESTORED (SEE RO16 ON FIGURE 2).
[2]TEMPORARILY CLOSED TRAIL TO BE REOPENED/REALIGNED. SECTIONS NOT REALIGNED WILL BE CLOSED AND RESTORED

PROJECT: 17-5428 STATUS: DRAFT DATE: 3/5/2018



FILE LOCATION: I:\137560 - Medway MVHF ESA\Mapping\Phase II\F3_ExistingTrailNetwork_Jan.2018.mxd

4a

4b

4c

A1 A2 A3 A4 A5 A10 A11 A12 A13 A14 A17 A18 A19 A20 A23 A24

Museum of Ontario Archaeology

Elsie Perrin Williams Estate

FANSHAWE PARK ROAD WEST
HICKORYRIDGE COMMON
EAGLETRACE CRT
ALDERSBROOK RD
ACORN PL
ACORN CRES
FOX HOLLOW CRES
EDGEHILL CRES
EDGEHILL PL
EDGEHILL RD
YEW TREE GDNS
BLACKACRES BLVD
YARDLEY WOOD RD
CRABTREE AVE
HAWTHORNE RD
CHAPPLE HILL RD
SCOTCHPINE CRES
KEY HILL RD
HOMESTEAD CRT
COTTONWOOD CRES
MONMORE RD
GAINSBOROUGH ROAD
FAIRFAX CRT
ARDSLEY CRES
SHERWOOD FOREST SQ
LIMBERLOST RD
WONDERLAND ROAD NORTH
PITCAIRNE RD
ARNIE CRES
DELACOURT RD
GAINSBOROUGH RD
FRIARSWAY
FINSBURY CRES
ANNADALE DR
RUNNYMEDE CRES
WHITEACRES DR
PINNACLE PKY
AMBLESIDE DR
BASSENTHWAITE CRES
WHITEHAVEN CRES
TOOHEY LANE
TOOHEY CRT
GLENRIDGE CRES
STONERIDGE LANE
MORAINE CRES
DIAMOND CRT
HESKETH ST
HESKETH PL
MARCUS CRES
GREEN ACRES DR
RYERSIE RD
GLOUCESTER RD
WINDERMERE CRT N
WINDERMERE RD
CORLEY DR
GRANGEOVER CRES
GRANGEOVER AVE
RAVENGLASS CRES
GRANGEOVER PL
BUTTERMERE RD
ULLSWATER CRES
THIRLMERE RD
CARNFORTH RD
GRASMERE CRES
PENRITH CRES
KATHRYN DR
GERALDINE AVE
LOUISE BLVD
MCCLURE DR
SMALLMAN DR
HILLSIDE DR
MCSTAY RD
SHAVIAN BLVD
ST BEES CLOSE
ST BEES PL
MASONVILLE CRES
CARRIAGE HILL DR
TALLWOOD
RAVINE RIDGE WAY
DOON DR
ORKNEY CRES
RICHMOND STREET
CANTERBURY RD
WESTCHESTER DR
COLLIP GATE
COLLIP CIR
UNIVERSITY HOSPITAL ENTRY
WESTERN ROAD
PERTH DR
KENT DR
UNIVERSITY DR
OXFORD DR
LAMBTON DR
WESTVIEW DR
SUNSET ST
THE PKY
HURON ST
REGENT ST
SHERWOOD AVE
DONCASTER PL
DONCASTER AVE
LINKSGATE RD
WYCHWOOD PK
SCARLETT AVE
ABBEY RISE
FOXCHAPEL RD
LONGBOW PL
LONGBOW RD
LAWSON RD
ROLLINGWOOD CIR
BLOOMFIELD DR
RAMSAY RD
BRESCIA LANE

CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 4
ENVIRONMENTAL MANAGEMENT STRATEGY:
PROPOSED SUSTAINABLE TRAIL
CONCEPT PLAN

- Metamora Bridge
- Proposed Trail Linkage (Snake Creek)
- Trail Closed Barricade
- Seasonal Barrier / Access Gate
- A # Access Point

Existing Trails
- City Pathway/Trail Outside of the ESA
- Closed Trail[1]
- Informal Trail[1]
- Managed Trail
- Temporarily Closed Trail[2]

Managed Trails
- Level One Trail
- Level Two Trail
- Level Three Trail

- Contour (5 metre Elevation)
- Property Boundaries
- Utlity Overlay (4 m)
- Western/Huron Properties
- Watercourse (also Nature Reserve)

Management Zone
- Nature Reserve
- Natural Environment

[redacted]

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF (2017) & CITY OF LONDON (2016)

MAP CREATED BY: GM /LK
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

1:10,000
0 125 250 500 m

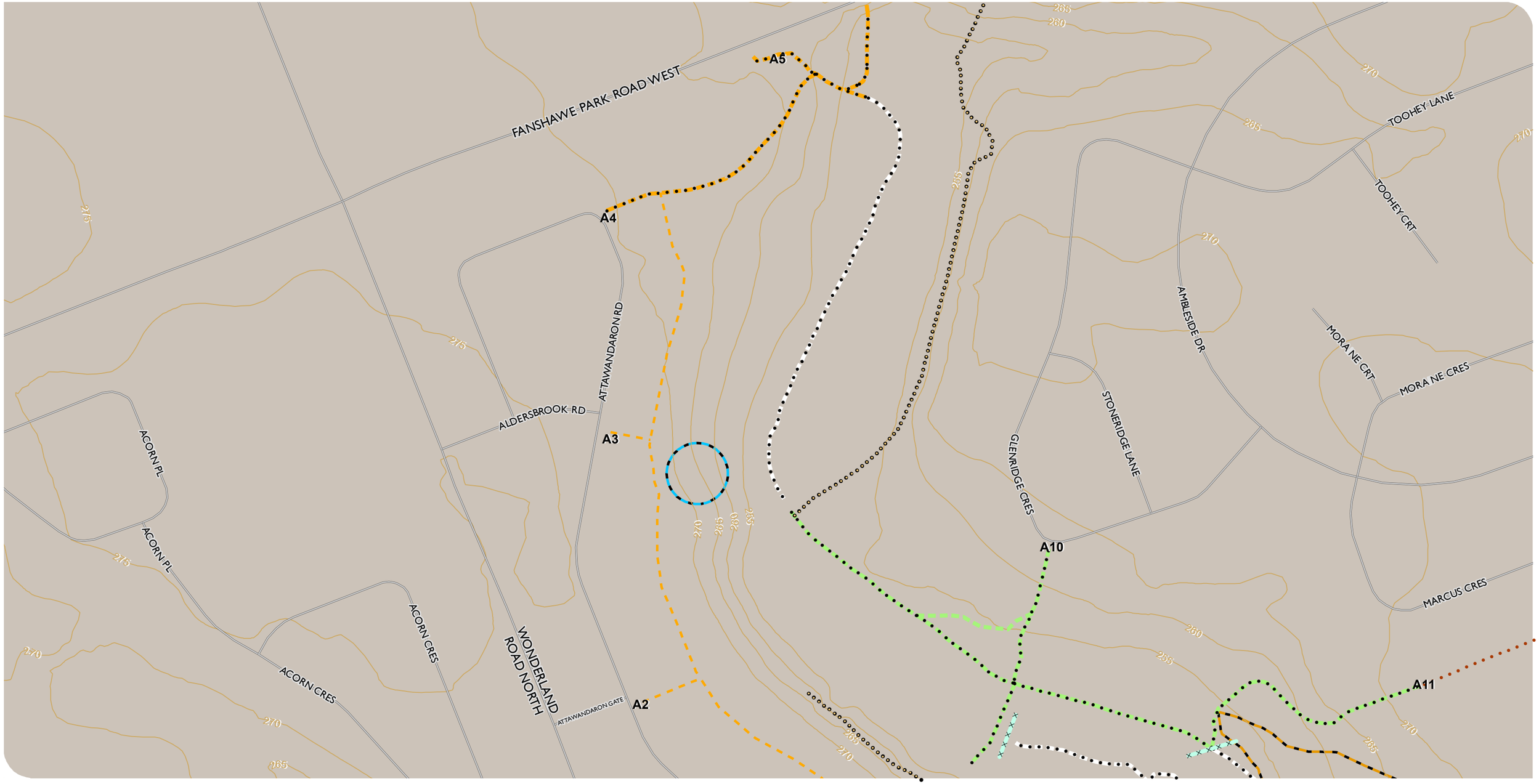
N W E S

[1]INFORMAL AND CLOSED EXISTING TRAILS DOCUMENTED DURING PHASE I ARE TO BE CLOSED AND RESTORED (SEE RO16 ON FIGURE 2).
[2]TEMPORARILY CLOSED TRAIL TO BE REOPENED/ REALIGNED. SECTIONS NOT REALIGNED WILL BE CLOSED AND RESTORED

PROJECT: 17-5428 STATUS: DRAFT DATE: 2021-06-23

FILE LOCATION: I:\GIS\137560 - Medway MVHF ESA\Mapping\Phase II\2021\F4_ProposedConceptPlan_Jun2021.mxd

THE PROPOSED CONCEPT PLAN COMPLIES WITH THE COUNCIL APPROVED GUIDELINES FOR MANAGEMENT ZONES AND TRAILS IN ESAS (2016) AND AODA LEGISLATION



CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 4a
ENVIRONMENTAL MANAGEMENT STRATEGY:
PROPOSED SUSTAINABLE
TRAIL CONCEPT PLAN

Seasonal Barrier / Access Gate
Contour (5 metre Elevation)

Existing Trails
- City Pathway/Trail Outside of the ESA
- Informal Trail[1]
- Managed Trail

Managed Trails
- Level One Trail
- Level Two Trail
- Level Three Trail

- Butternut
- False Rue Anemone

- Amphibian Breeding Habitat
- Habitat for Rare Species (American Gromwell)
- Habitat for Rare Species (Cream Violet)
- Habitat for Rare Species (Shrubby St. John's Wort)
- Habitat for Special Concern Species (Green Dragon)
- Seeps and Springs Area

Management Zone
- Nature Reserve
- Natural Environment
- Utlity Overlay (4 m)
- Watercourse *(also Nature Reserve)*

A# Access Point

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF (2017) & CITY OF LONDON (2016)

MAP CREATED BY: GM/LK
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

1:3,000
0 37.5 75 150 m

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PROJECT: 17-5428 STATUS: DRAFT DATE: 2021-06-23

N W E S

FILE LOCATION: I:\GIS\137560 - Medway MVHF ESA\Mapping\Phase II\2021\F4_ProposedConceptPlan_series_Jun2021.mxd

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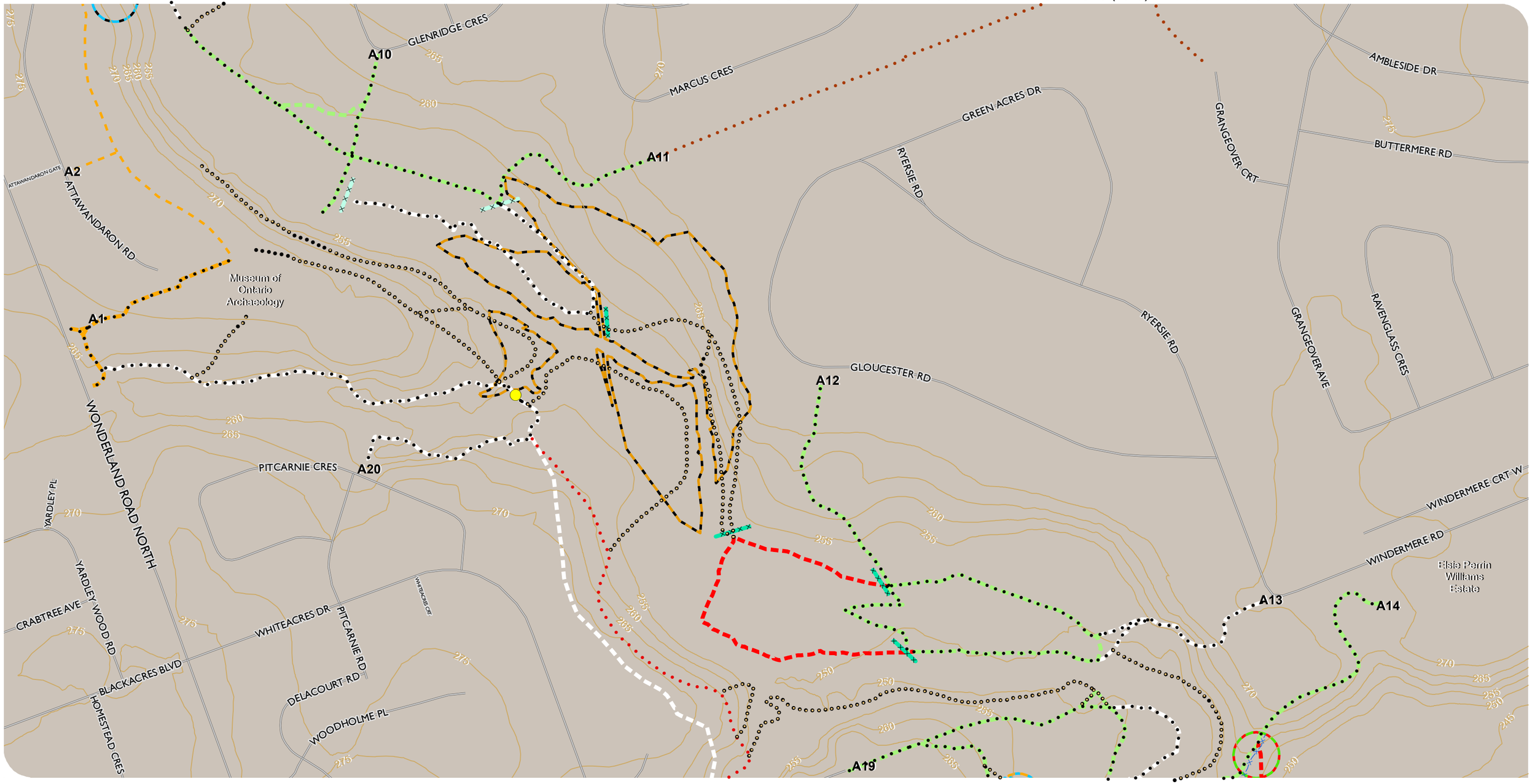

CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 4b
ENVIRONMENTAL MANAGEMENT STRATEGY:
PROPOSED SUSTAINABLE
TRAIL CONCEPT PLAN

Proposed Trail Linkage (Snake Creek)
Western/Huron Properties
Trail Closed Barricade
Seasonal Barrier / Access Gate
Tree Barricade
Contour (5 metre Elevation)
A# Access Point

Existing Trails
City Pathway/Trail Outside of the ESA
Closed Trail[1]
Informal Trail[1]
Managed Trail
Temporarily Closed Trail[2]

Managed Trails
Level One Trail
Level Two Trail
Level Three Trail

Butternut
Cucumber Magnolia
False Rue Anemone
Kentucky Coffee-tree

Amphibian Breeding Habitat
Habitat for Rare Species (American Gromwell)
Habitat for Rare Species (Cream Violet)
Habitat for Rare Species (Slender Satin Grass)
Habitat for Special Concern Species (Green Dragon)
Seeps and Springs Area

Management Zone
Nature Reserve
Natural Environment
Utlity Overlay (4 m)
Watercourse *(also Nature Reserve)*

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF (2017) & CITY OF LONDON (2016)

MAP CREATED BY: GM/LK
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

1:4,000
0 50 100 200 m

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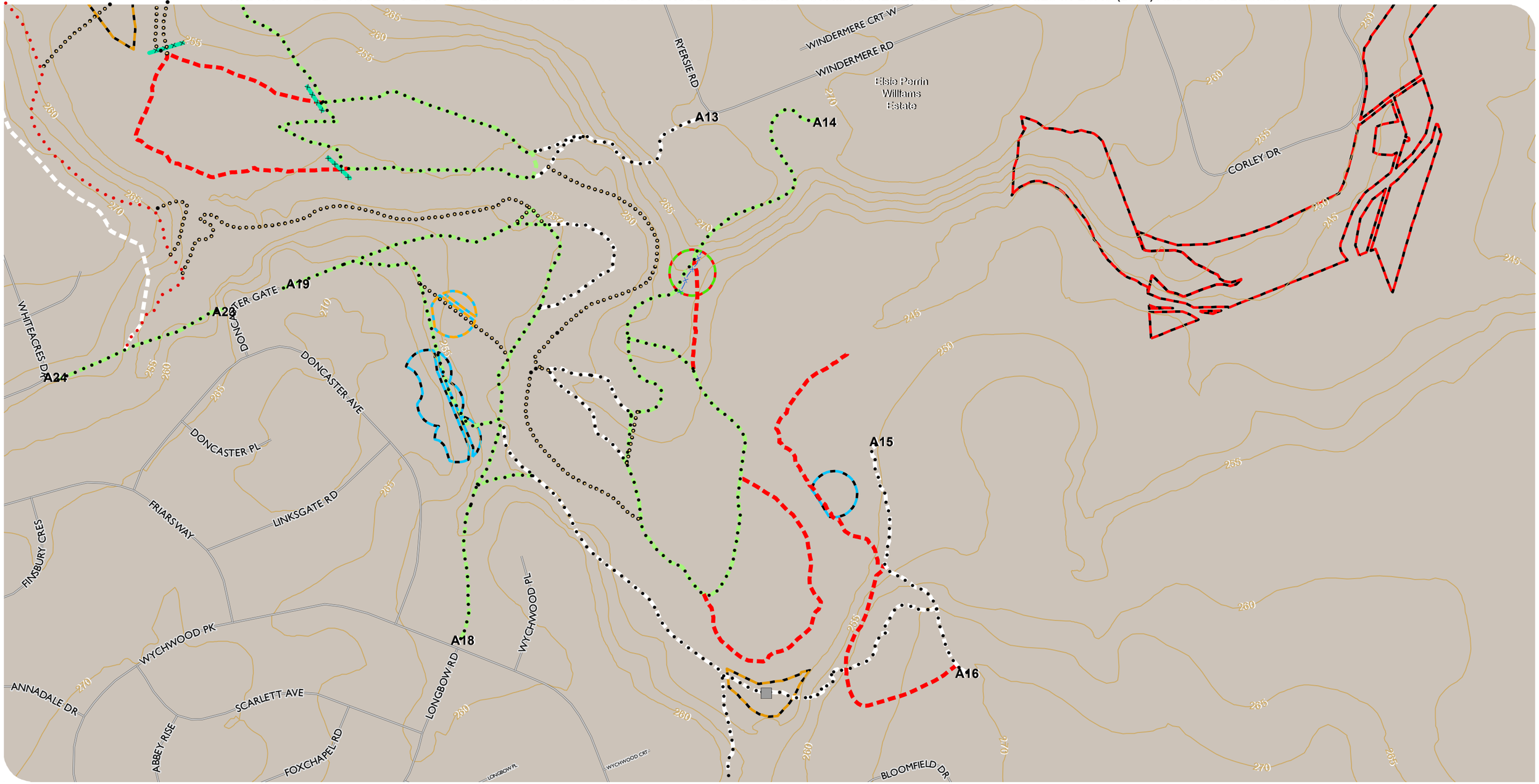
PROJECT: 17-5428 STATUS: DRAFT DATE: 2021-06-23

N W E S

FILE LOCATION: I:\GIS\137560 - Medway MVHF ESA\Mapping\Phase II\2021\F4_ProposedConceptPlan_series_Jun2021.mxd

THE PROPOSED CONCEPT PLAN COMPLIES WITH THE COUNCIL APPROVED GUIDELINES FOR MANAGEMENT ZONES AND TRAILS IN ESAS (2016) AND AODA LEGISLATION



CITY OF LONDON
CONSERVATION MASTER PLAN
MEDWAY VALLEY HERITAGE FOREST ESA (SOUTH)

FIGURE 4c
ENVIRONMENTAL MANAGEMENT STRATEGY:
PROPOSED SUSTAINABLE
TRAIL CONCEPT PLAN

- Western/Huron Properties
- Trail Closed Barricade
- Tree Barricade
- Contour (5 metre Elevation)
- Metamora Bridge
- A # Access Point

Existing Trails
- Closed Trail[1]
- Informal Trail[1]
- Managed Trail
- Temporarily Closed Trail[2]

Managed Trails
- Level One Trail
- Level Two Trail

- Butternut
- Cucumber Magnolia
- False Rue Anemone
- Kentucky Coffee-tree
- Queensnake

- Amphibian Breeding Habitat
- Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)
- Habitat for Rare Species (American Gromwell)
- Habitat for Rare Species (Cream Violet)
- Habitat for Rare Species (Slender Satin Grass)
- Habitat for Special Concern Species (Green Dragon)
- Seeps and Springs Area

Management Zone
- Nature Reserve
- Natural Environment
- Utlity Overlay (4 m)
- Watercourse *(also Nature Reserve)*

1:4,000
0 50 100 200 m

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DATA PROVIDED BY MNRF (2017) & CITY OF LONDON (2016)

MAP CREATED BY: GM/LK
MAP CHECKED BY: JLP
MAP PROJECTION: NAD 1983 UTM Zone 17N

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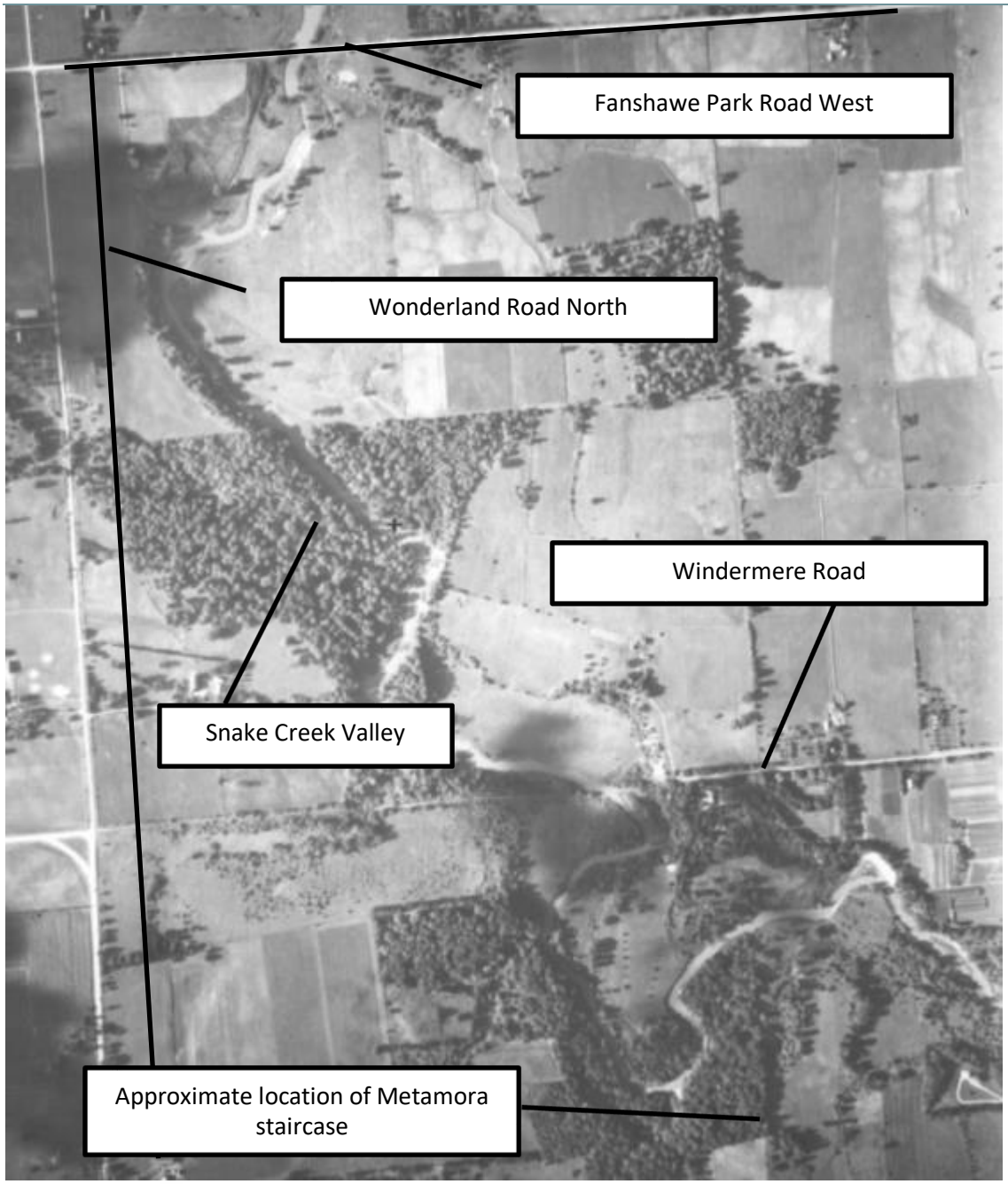
N W E S

FILE LOCATION: I:\GIS\137560 - Medway MVHF ESA\Mapping\Phase II\2021\F4_ProposedConceptPlan_series_Jun2021.mxd

Appendix A

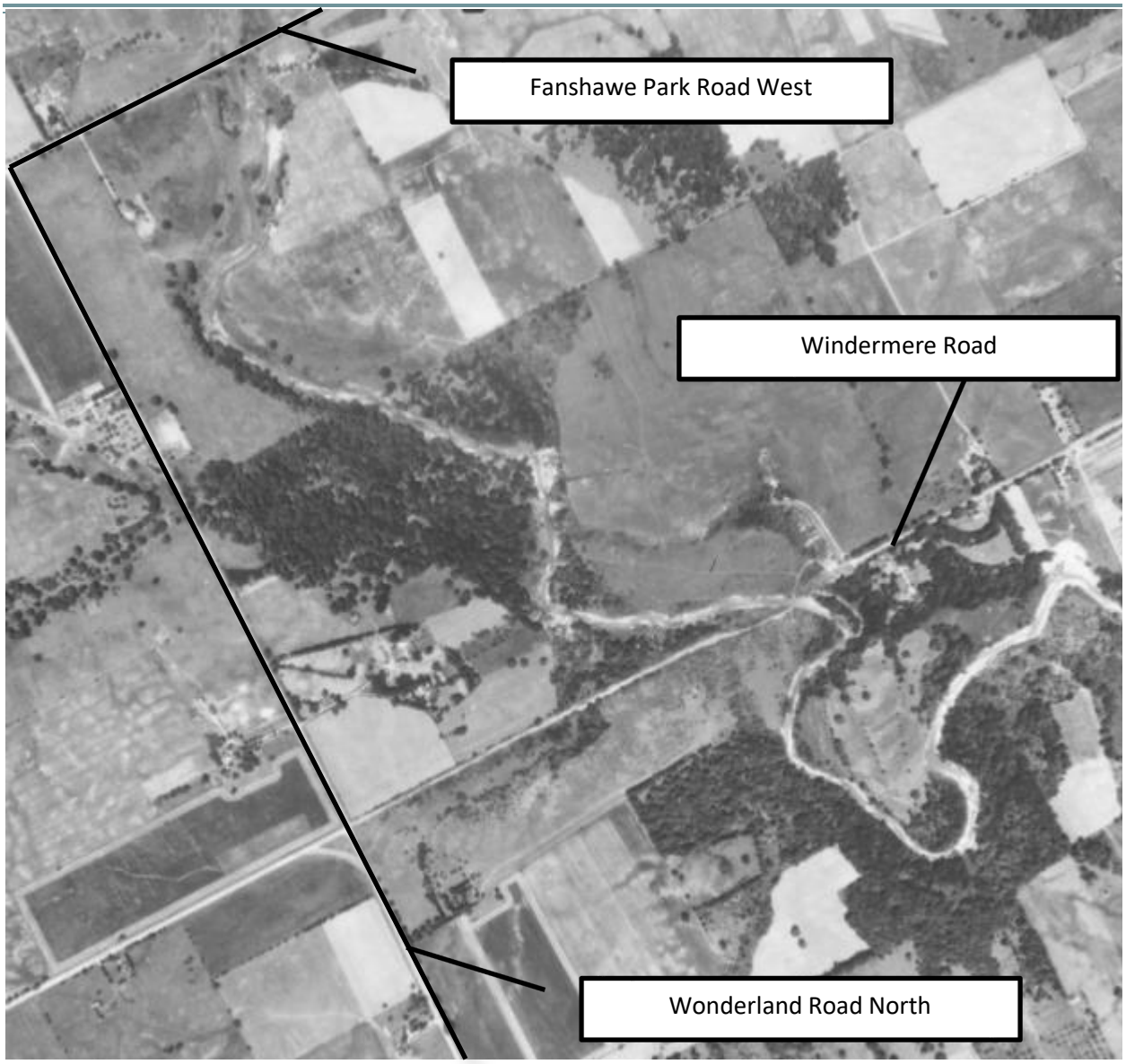
Historic Aerial Photographs

Aerial Photographs of the MVHF ESA (south)[1]



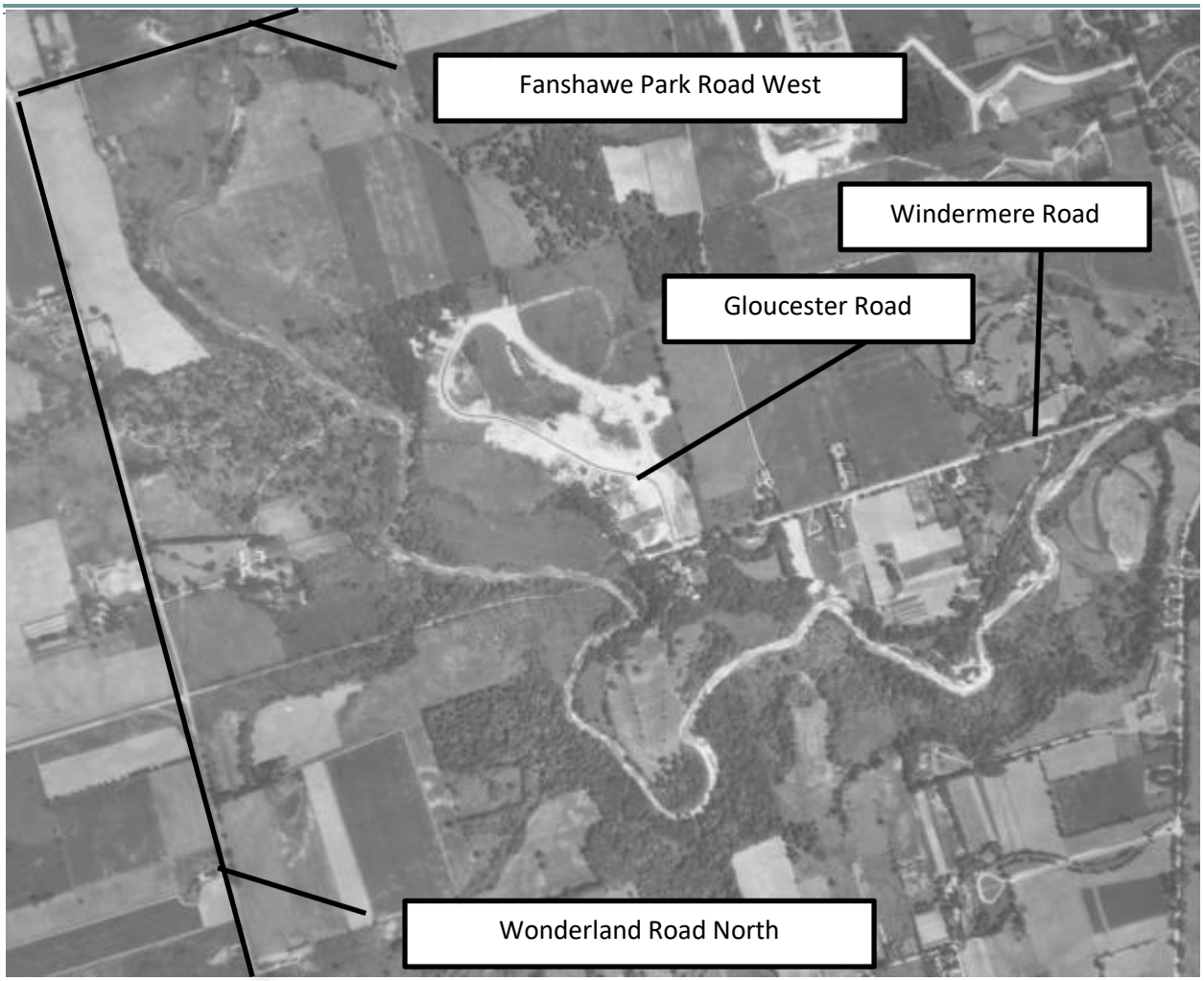
1942

Aerial Photographs of the MVHF ESA (south)[1]



1950

Aerial Photographs of the MVHF ESA (south)[1]



1955

1 Under Copyright Law of Canada - where the negative is owned by a corporation, and the photograph was created after 1948 and before November 7, 2012, the photograph becomes public domain after a period of 50 years from which the photograph was made.

Appendix B

2017 - 2018 Local Advisory Committee Terms of Reference and Meeting Minutes

Local Advisory Committee

Terms of Reference (2017)

Phase 2 Conservation Master Plan
The Medway Valley Heritage Forest (south) Environmentally Significant Area

1.0 Introduction and Background

The City of London is embarking on Phase 2 of the Conservation Master Plan (CMP) for the Medway Valley Heritage Forest (south) Environmentally Significant Area (ESA). Phase 1 of the CMP was approved by Council in 2017 and the reports and findings are available on the City's website. The Guidelines for Management Zones and Trails in ESAs document and process will be followed.

2.0 Purpose and Objectives of the LAC

The purpose of the LAC is to provide an opportunity for small group discussion with those who are identified stakeholders related to the Medway Valley Heritage Forest (south) ESA. The LAC is an advisory committee and is not an approval authority. The group will discuss and provide feedback on the Phase 2 work to achieve the following specific objectives:

- Review information provided and provide input and insight related to Phase 2 of the CMP;
- Provide input and insight related to the consultation with the broader community;
- Represent diverse perspectives and interests; and,
- Work collaboratively to try to resolve issues.

3.0 Membership

There are 17 members of the LAC, plus City staff. Membership is comprised of one representative from each of the following:

- Accessibility Advisory Committee (AACAC)
- Environmental & Ecological Planning Advisory Committee (EEPAC)
- Upper Thames River Conservation Authority (UTRCA)
- MVHF ESA Adopt an ESA
    - Sunningdale West RA Adopt an ESA
    - Friends of Medway Creek Adopt an ESA
    - Sherwood Forest / Orch Park RPA Adopt an ESA
- Ratepayer Associations / Community Associations
    - Sherwood Forest / Orch Park RPA
    - Sunningdale West RA
    - Old Masonville Ratepayers
    - Sunningdale North Residents Association