Rouge Park
Draft Final Trails Master Plan Review
Presentation to Rouge Park Alliance
October 21, 2011
REV November 14, 2011

Schollen & Company Inc
North-South Environmental Inc • Lura Consulting
Unterman McPhail Associates
Overview of Trails Master Plan

Rationale for Undertaking the Rouge Park Trails Master Plan

• Seven million people live within a one hour’s drive of Rouge Park, and it is essential to plan for the increasing pressure on park resources.

• Within the Toronto portion of the park alone there are over 68km of unofficial hiking trails that may be impacting sensitive habitats.

• In the northern portion of the park in Markham, aside from the new trails within Bob Hunter Memorial Park, no other formal trails have been planned.

• The Master Trail Plan will guide best practices for the design, implementation and management of trails within Rouge Park to ensure that natural features and functions are protected.
Overview of Trails Master Plan

Overview of the Process of Developing the Trails Master Plan

• Initiated in Autumn of 2009
• Public meetings held in October 2010, February 2011 and June 2011
• Master Plan process was extended to enable additional consultation
• Focus group sessions held January 2011 – May 2011
  - Agricultural Community/ Tenants
  - First Nations Representatives
  - Naturalist/ Environmental Groups
• Planning process has been focused on addressing issues of interest raised at the public and focus group meetings
• Rouge Park Alliance presentation was conducted May 13, 2011 for review & input
• This presentation is aimed at providing the Rouge Park Alliance with an overview of the Draft Final Trails Master Plan prepared as a product of this process
Overview of Trails Master Plan

Key Objectives of the Trails Master Plan

• Protect natural features and functions

• Enhance user experience of Rouge Park

• Ensure public safety

• Provide access for a range of users of varying abilities

• Provide facilities to support trail use (i.e. parking)

• Make the connections to regional trails, bikeways and transit
Overview of Trails Master Plan

These objectives will be achieved through:

• The development of a catalogue of different types of trails
• Utilizing the road network/internal neighbourhood street fabric
• Linking open spaces
• Enhancing the efficiency of the trail network
• Positioning trails to utilize existing utility corridors & roads rights-of-way
• Setting out a detailed process to guide the implementation of specific trail segments
Overview of Trails Master Plan

Balancing natural heritage protection and recreation:

Offering a rewarding visitor experience of the park, while protecting Rouge Park’s natural heritage features is a delicate, yet important balance. The trail master plan aims to strike this balance by:

• Minimizing disturbance to areas of ‘high ecological sensitivity.’

• Enabling enhancement of the natural heritage system.

• Utilizing existing trails where deemed appropriate from an ecological perspective.

• Minimizing fragmentation of existing woodlands and habitats.

• Offering a range of experiences and low impact nature appreciation opportunities; trails will be primarily used for hiking, snow-shoeing and cross-country skiing.
Overview of Trails Master Plan

Balancing natural heritage protection and recreation cont’d:

• Ensuring that the range and type of recreational uses permitted within the park remain consistent with the park goal and objectives and the carrying capacity of the ecosystem.

• Ensuring that trail-related activities do not adversely impact the health of ecosystems nor affect residents within or adjacent to the park.

• Eliminating unofficial trails in the park that are located within sensitive natural areas.
Proposed Draft Vision

The vision for the Rouge Park Trails System was determined through the consultation process. This vision is set out below:

The Rouge Park trail system will serve as a means to understand and appreciate the unique natural and cultural attributes of the park through heightened visitor experiences and immersion in the landscape.

The system will offer a range of experiences and recreational opportunities to assist in meeting the needs of users of all ages and physical abilities.

The trail system will support the protection of the outstanding natural features, agricultural landscapes and diverse cultural heritage of the park by managing appropriate public access and patterns of use while providing a rewarding experience of nature.
Goals for the Rouge Park Trail network

1. Protect important natural heritage features
   • Protect natural heritage features and functions
   • Enhance habitat connectivity, diversity and function where possible
   • Avoid fragmentation of natural habitats
   • Avoid steep slopes and areas prone to flooding or erosion where ever possible

2. Provide a continuous north-south and east-west linkage
   • Provide for a multi-use trail connection from the Waterfront to the Oak Ridges Moraine
   • Provide key linkages to connect neighbourhoods adjacent Rouge Park
   • Provide a multi-modal trail network that maximizes accessibility and is integrated with public transit

3. Protect, respect and celebrate significant cultural heritage resources
   • Capitalize on interpretive opportunities
   • Avoid sensitive cultural heritage features and landscapes
Landscape Assessment
Background - Rouge Park Components

- Watershed
- Bob Hunter Park
- Little Rouge Corridor
- Markham East Lands
- Rouge Park South
- Rouge Park Boundary
Background - Floodplain

- Rouge Park
- Flood Plain
This map is for discussion purposes only. Information shown on this map is compiled from various sources, representing data collected at different times and, therefore, may not be most up to date.
Background - Woodlands and Restoration Sites

This map is for discussion purposes only. Information shown on this map is compiled from various sources, representing data collected at different times and, therefore, may not be most up to date.
Background - Regional Trail Context

This map is for discussion purposes only. Information shown on this map is compiled from various sources, representing data collected at different times and, therefore, may not be most up to date.
Natural Heritage Assessment Process
Ecological Assessment – Summary of Process

Initial tasks:

• Assemble and summarize background data;
• Provide input to inform potential trail locations
• Data were summarized to locate “sensitive areas”
Ecological Assessment – Summary of Process

Generally, the sensitivity analysis involved:
• Plotting the location of nationally, provincially, and regionally rare plant and animal species;
• Identifying sensitive habitats such as wetlands;
• Identifying important breeding and nesting areas for wildlife; and
• Evaluating the significance and sensitivity of each feature or habitat.

The sensitivity mapping involved:
• The use of geo-referenced ecological data from various sources including the MNR, TRCA, and Rouge Park.
• Using GIS software the data were mapped onto digital aerial photographs of Rouge Park in order to provide the specific locations of sensitive species and habitats.
• These data include vegetation communities, flora and fauna occurrences, Environmentally Significant Areas (ESAs), Provincially and Locally Significant Wetlands, and interior forest habitat.
Ecological Assessment – Summary of Process

- Criteria were developed to identify areas as high sensitivity, moderate sensitivity, or non-sensitivity.

- This criteria was based on the concentration of rare and sensitive flora and fauna as well as sensitive vegetative communities and habitats.

- Core habitat areas were also determined for rare species that were determined to be sensitive to trail activities. Core habitat areas were determined by:
  - Literature review describing habitat requirements of various species.
  - Habitats were mapped as Environmental Land Classification (ELC) communities and examined at the landscape level (i.e. considered their function as a whole) as opposed to at the community level.
  - Required buffers were considered.
Rouge Park Trails Master Plan

Sensitivity and Significant Species Map 1

Legend
Bird Species
- Regionally Significant
- Provincially Significant
- SAR - Special Concern
- SAR - Threatened
- SAR - Endangered

Bird Species - Ground Nesting
- Forest
- Open

Bird Species - Area Sensitive
- Forest
- Open

Fish Species
- SAR

Flora Species
- Regionally Significant
- Provincially Significant
- SAR

Herptile Species
- Regionally Significant
- Provincially Significant
- SAR - Special Concern
- SAR - Threatened
- SAR - Endangered

Mammal Species
- Regionally Significant

Sensitive Areas
- Highly Sensitive
- Moderately Sensitive

MNR Wetlands - Aurora District
- Local
- Provincial
- EAs
- Interior Forest
- Watercourses
- Study

Donald Cousens Parkway

Federal Lands

16th Avenue
Sensitivity and Significant Species Map 2
Sensitivity and Significant Species Map 3
Rouge Park Trails Master Plan

Sensitivity and Significant Species Map 4

Legend
Bird Species
- Regionally Significant
- Provincially Significant
- SAR - Special Concern
- SAR - Threatened
- SAR - Endangered

Bird Species - Ground Nesting
- Forest
- Open

Bird Species - Area Sensitive
- Forest
- Open

Fish Species
- SAR

Flora Species
- Regionally Significant
- Provincially Significant
- SAR

Herptile Species
- Regionally Significant
- Provincially Significant
- SAR - Special Concern
- SAR - Threatened
- SAR - Endangered

Mammal Species
- Regionally Significant

Sensitive Areas
- Highly Sensitive
- Moderately Sensitive

MNR Wetlands - Aurora District
- Local
- Provincial
- E&As
- Interior Forest
- Watercourses
- Study
Sensitivity and Significant Species Map 5
Sensitivity and Significant Species Map 6
Rouge Park Trails Master Plan

Sensitivity and Significant Species Map 7

Legend

- Bird Species
  - Regionally Significant
  - Provincially Significant
  - SAR - Special Concern
  - SAR - Threatened
  - SAR - Endangered
- Bird Species - Ground Nesting
  - Forest
  - Open
- Bird Species - Area Sensitive
  - Forest
  - Open
- Fish Species
  - SAR
- Flora Species
  - Regionally Significant
  - Provincially Significant
  - SAR
- Herptile Species
  - Regionally Significant
  - Provincially Significant
  - SAR - Special Concern
  - SAR - Threatened
  - SAR - Endangered
- Mammal Species
  - Regionally Significant
- Sensitive Areas
  - Highly Sensitive
  - Moderately Sensitive
- MNR Wetlands - Aurora District
  - Local
  - Provincial
  - ESAs
  - Interior Forest
  - Watercourses
  - Study

Hydro Corridor

Sheppard Ave E

Hwy 401

Sensitivity and Significant Species Map 7
Rouge Park Trails Master Plan

Natural Heritage Sensitivity Zones

- Areas of High Sensitivity
  - High concentrations of rare, area sensitive, and ground nesting species
  - Provincially Significant Wetlands
  - Large native interior forest areas

- Areas of Moderately Sensitivity
  - Medium concentrations of rare, area sensitive, and ground nesting species
  - Less disturbed forested valley system
  - Restoration areas

- Areas of Low Sensitivity
  - All other areas within Rouge Park

*This map was used to inform trail types*
Recommendations for determining appropriate trail alignments

**General Rationale** – The sensitivity of natural areas will increase as a result of on-going restoration efforts within Rouge Park. Trail alignments should reflect sensitive ecological features and proposed restoration areas to protect features and functions. The final draft of the Trails Master Plan was generated based on the approach described on the following slides.
Recommendations for Future Trail Implementation

1. Natural areas should be inventoried in the process of determining trail alignments. The proposed locations for trails should be examined in order to determine if sensitive habitats exist, specifically for the highly sensitive species used in the buffer analysis.

2. As more species data becomes available, the location of core habitat areas should be reassessed to determine if sensitive species have been found in the area. If highly sensitive species are observed close to proposed trail alignments and it is determined trail activities will pose a threat to the species, the required buffer setback should be applied or an alternate route should be considered.

3. Areas supporting rare or sensitive fauna should contain appropriate signage reinforcing to dog owners the importance that dogs be on a leash in order to prevent disturbance to Rouge Park.
Recommendations for Future Trail Implementation

4. Future trails will be located and designed to accommodate the safe passage of all wildlife, particularly reptiles and amphibians which tend to be at higher risk of road mortality.

5. Seepage areas are: sensitive to erosion, support vegetation that is easily destroyed, important in providing ground water to watercourses, and contain rare plant species. Trails should not be constructed in seepage areas.

6. If granular surface materials are used, stone that is light in colour should be used to avoid attracting snakes. This is especially important in areas where high concentrations of amphibians and reptiles are known to occur and where higher rates of road mortality have been reported by the Ontario Road Ecology Group.
Recommendations for Future Trail Implementation

7. Viewing platforms should be constructed at strategic locations to allow users to view sensitive habitat where it is deemed necessary that trails avoid these habitat areas.

8. Care should be taken during construction of trails. Disturbances may result in the growth and spread of non-native invasive plants such as dog-strangling vine and garlic mustard. The zone of disturbance should be minimized to mitigate disruption of soils, impacts to tree roots and minimize potential for colonization of invasive species.
Framework for the Trail System

• The trail system will consist of a catalogue of trails comprised of a ‘base’ trail configuration with a subset of variants that are intended to address site-specific conditions or the implications of patterns of use.

• The catalogue of trail types proposed to comprise the overall trail system is founded on an approach that emphasizes the natural over the structural, with structural solutions proposed to overcome site-specific conditions with the objective of mitigating potential impacts on the natural and cultural heritage resources of the park.

• Bicycle routes are generally proposed to be located within the road rights-of-way that traverse the park.

• Multi-use and special use trails are confined to specific defined areas within the park.

• The approach is aimed at minimizing the footprint of trails while at the same time achieving a level of resiliency that is sufficient to mitigate the impact on the Park.
Draft Final Trails Master Plan
Lake Ontario to North Limit
Rouge Park Trails Master Plan

General Legend
- Contour Interval: 5m

- Restoration Sites
- Open Areal Fairland
- Woodlands
- Rouge Park Boundary
- Houses
- Regulation Limit (TRCA)
- Existing Railway
- Hydro Corridor
- Privately Owned Lands (within Rouge Park)
- Wetland
- Existing Pipelines
- Proposed Regional Trails
  (Durham)
- Ex/Prop Bus Routes
- Local Bus Routes (Ex & Prop)
- Existing Transit Bus Stops

Proposed Rouge Park Trail Facilities
- Primary Trail (H-1)
- Secondary Trail (H-2)
- Low Impact Trails (H-3)
- Multi-use External Adjacent Trail (MN-1)
- Multi-use Internal Trails (MN-2)
- On-Road Signal (OR-1)
- On-Road Market (OR-2)
- On-Road Dedicated Lane (OR-3)
- Accessible Trail
- Proposed Trails
  Aligned with Existing
- Official Trails
- Trail Signs

- Existing Pedestrian Bridge
- Proposed Pedestrian Bridge
- Existing Trail Head
- Proposed Trail Head
- Existing Parking Areas
- Proposed Parking Area
- Multi-Use Trail Aligned With Roads
- Interpretive Opportunity
- Potential Recreational Public Use Area

Marshland Trail Facilities
- Existing On-road Marshland Pathways
  and Trails
- Proposed On-road Marshland Pathways
  and Trails
- Existing Marshland Multi-use Pathway
- Proposed Marshland Multi-use Pathway

Proposed Cycle Trail Facilities
- Dedicated Bike Route
- Primary On-Road Bike Route
- Existing Season Hiking Trail

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Rouge Park Trails Master Plan

Key Plan

General Legend
- Contour Interval: 5m
- Reservation Sites
- Open Areas/Farmland
- Woodlands
- Rouge Park Boundary
- Watercourse
- Regulation Limit (TRCA)
- Existing Railway
- Hydro Corridor
- Privately Owned Lands (within Rouge Park)
- Wetland
- Existing Pipelines
- Proposed Regional Trails
- Local Bus Routes (Fix & Prop)
- Existing Transit Bus Stops

Proposed Rouge Park Trail Facilities
- Primary Trail (P-1)
- Low Impact Trail (L-1)
- Multi-use-Existing Aligned with Trails (M-1)
- Multi-use-Intact Trails (M-2)
- On-Road Signed (OR-1)
- On-Road Dedicated Lane (OR-2)
- Accessible Trail
- Proposed Trails
  - Aligned with Existing
  - Off-road to be Closed
  - Existing Pedestrian Bridge
  - Proposed Pedestrian Bridge
  - Existing Trail Head
  - Proposed Trail Head
  - Existing Parking Areas
  - Proposed Parking Area
  - Multi-use Trail Aligned with Roads
  - Interpretive Opportunity
- Potential Recreational/Public Use Area

Markham Trail Facilities
- Existing Off-road Markham Pathways and Trails
- On-road Markham Pathways and Trails
- Existing Markham Multi-use Pathway
- Proposed Markham Multi-use Pathway

Proposed Seaton Trail Facilities
- Dedicated Bike Route
- Primary On-road Bike Route
- Existing Seaton Hiking Trail

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Rouge Park Trails Master Plan
Summary of Comments – Public Consultation

Natural Heritage

Comment Theme:

• Preservation of ecological features of Rouge Park is imperative.

Response
• Additional natural heritage assessment work was undertaken to characterize the ecological sensitivity of the park as the basis for the master plan.

Comment Theme:

• Natural heritage inventory data is incomplete and/or insufficient.

Response
• Additional detailed data has been provided to the consultant team. Supplemental analysis was completed to define sensitive areas and characterize potential impact of trails on species habitats and trail alignments were adjusted accordingly.
Summary of Comments – Public Consultation

Trail Design

Comment Theme:
• Minimize number and extent of trails.

Response
• This comment theme will be addressed in the process of refining the master plan.
• Following is a breakdown of proposed trails in the draft master plan (after refinement):

  o 113.5 kms of proposed trails; broken down by trail type as follows:
    - 36.1 kms Primary Trails (H-1)
    - 22.9 kms Secondary Trails (H-2)
    - 5.14 kms Low Impact Trails (H-3)
    - 28.6 kms Multi-use External/ Aligned with Roads (MU-1)
    - 19.9 kms On-road Routes - Marked (OR-2, OR-3)
  
  o 6.3 kms where trails align with sewers/ hydro corridors
  o 3.5 kms unopened road allowances
  o 85.1 kms of existing trails within the park (18.3 kms official trails and 66.8 kms unofficial)
  o 48.24 kms of existing unofficial minor trails that are proposed to be closed

64.1 kms total soft surface trails
Summary of Comments – Public Consultation

Trail Design Cont’d

Comment Theme:

• Trails should be rustic and natural – minimize width and utilize natural materials.

Response
• Trail catalogue was refined to minimize widths and specify soft surface trails as the base condition. Granular surfaces are recommended for steep slopes, erodable soils etc.

Comment Theme:

• Trails should not be illuminated or paved.

Response
• Trails will not be illuminated. Paved trails will be confined to areas adjacent / within road rights-of-way.
Summary of Comments – Public Consultation

Trail Amenities

Comment Theme:

• There are too many parking spaces proposed.

Response:
• Some existing parking areas (roadside mostly) are proposed to be formalized (43 spaces).
• Some new parking areas are proposed, notably in Markham (110 spaces) where few existing parking areas exist.
Summary of Comments – Public Consultation

Trail Use

Comment Theme:
• Bicycles will not be permitted on interior trails.

Response:
• Multi-use trails are proposed coincident with road right-of-way/ existing infrastructure.
• Bicycle use will be restricted within the park in accordance with Rouge Park Plans (1994-1999).

Comment Theme:
• Mountain bikers would appreciate more trails allotted for their use.

Response:
• Beare Road landfill site is proposed to accommodate mountain bike use. The City of Toronto is embarking on the preparation of a Master Plan for this area.

Comment Theme:
• Off leash dogs will impact natural heritage resources.

Response:
• No off-leash dog areas/ trails are proposed within the master plan.
Summary of First Nations Consultation

• 13 bands invited to participate

• 2 meetings held with representatives of the Hiawatha First Nation:
  
  ➢ Meeting 1 – Trail plan overview to request initial comments
  
  ➢ Meeting 2 – Detailed review of proposed trail alignment in the context of known First Nations heritage sites
Summary of First Nations Consultation

Concerns expressed as a product of First Nations consultation

• Trail alignments should respect known First Nations heritage sites

• There is an opportunity to celebrate First Nations heritage as a component of the Trails Master Plan

• There is a need to define a specific process for completing additional archaeological investigations and involving First Nations Monitors in the detailed trail design process.
Summary of First Nations Consultation

Trail Master Plan recommendations in response to First Nations concerns:

• Trail alignments have been modified to avoid known heritage sites

• The plan recommends that First Nations heritage be celebrated as a key component of the interpretive strategy

• Supplementary detailed archaeological investigations be completed in advance of the detailed design and construction of trials

• First Nations Monitors participate in the archaeological assessment process
Rouge Park Trails Master Plan

Trail-related Amenities

The Trails Master Plan recommends a suite of trail-related amenities including:

- Parking area improvements / additions
- Trailheads including orientation signage
- Wayfinding
- Opportunities for interpretation

No specific design recommendations are provided for trail-related amenities in consideration of the potential future involvement of Parks Canada in the governance of Rouge Park.
Implementation Strategy

• The Trails Master Plan sets out a strategy to guide the long-term implementation of the trail system

• The timeline for the ultimate implementation of the Trails Master Plan is anticipated to be in the order of decades

• No specific allocation of “roles and responsibilities” is made in consideration of the potential Parks Canada role in the implementation process.
Implementation Strategy

• Based upon order of priority
  ➢ Immediate priority
  ➢ Moderate priority
  ➢ Long-term priority
  ➢ Priority influenced by others

• Based upon criteria related to:
  ➢ Mitigation of environmental impact
  ➢ Mitigation of risk to public safety
  ➢ Enhancement of primary connectivity
  ➢ Priority for connectivity within the overall trail network
Implementation Strategy

Primary cases the timing of implementation of trails will be directly related to activities being undertaken by others; including:

• Future road improvements
  ➢ Steeles Avenue
  ➢ 16th Avenue
  ➢ 14th Avenue

• Sewer and infrastructure improvements

• Determination of trail connections to and through the Transport Canada Lands
Implementation Strategy

Implementation timeframe for each trail type:

A. Primary Hiking Trails (H-1) – Implementation timeframe: 0-8 years

B. Secondary Trails (H-2) – Implementation timeframe: 5-10 years

C. Low Impact Trails (H-3 and Accessible Trails) – Implementation timeframe: 10-15 years

D. Multi-use Trails (MU-1,2) – Implementation timeframe:
   • MU-1: 2-10 years where no planned road improvements otherwise undetermined
   • MU-2: 5-15 years

E. On-Road Cycling Routes (OR1,2,3) – Implementation timeframe: 2-10 years
Implementation Strategy

All trails to be implemented within the park will be subject to approval by:

• TRCA Conservation Authorities Act – Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 179/06)

• Regional Municipality of York Forest Conservation By-law

• City of Toronto Ravine Protection By-Law

• Town of Markham Tree Protection By-Law
Implementation Strategy

Construction sequencing and specific management considerations:

- The implementation plan considers construction sequencing in order to minimize impacts to the Park landscape by limiting the movement of equipment.

- Handwork should be favoured over mechanized construction whenever possible. Where the use of machinery is the only option, the type and size should be determined based on the sensitivity of the environment.

- Where necessary, boardwalk and stairway structures that are to be built should be built to last.

- Fencing and signage should be installed prior to the construction of new structures and trails to address public safety concerns.

- Brush bundles (collected material from tree management tasks) should be placed at regular intervals on existing trails that are to be closed to access.
# Implementation Strategy

Cost estimates for each type of trail (include Arboriculture/Geotechnical/Drainage Investigations, Planning and design contingency allowance, Construction contingency allowance):

<table>
<thead>
<tr>
<th>Trail Type</th>
<th>Implementation Timeframe</th>
<th>Total Capital Cost (excl. HST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Hiking Trails (H-1)</td>
<td>0-8 years</td>
<td>$5,402,537</td>
</tr>
<tr>
<td>Secondary Trails (H-2)</td>
<td>5-10 years</td>
<td>$3,494,682</td>
</tr>
<tr>
<td>Low Impact Trails (H-3)</td>
<td>10-15 years</td>
<td>$728,929</td>
</tr>
<tr>
<td>Multi-use Trails – External / Aligned with Roads (MU-1)</td>
<td>2-10 years</td>
<td>$11,719,795</td>
</tr>
<tr>
<td>Multi-use Trails – Internal (MU-2)</td>
<td>5-15 years</td>
<td>$3,868,079</td>
</tr>
<tr>
<td>On-Road Routes – On-Road Signed (OR-1)</td>
<td>2-10 years</td>
<td>$1,073,694</td>
</tr>
<tr>
<td>On-Road Routes – On-Road Marked (OR-2)</td>
<td>2-10 years</td>
<td>$1,660,726</td>
</tr>
<tr>
<td>On-Road Routes – On-Road Dedicated Lane (OR-3)</td>
<td>2-10 years</td>
<td>$1,870,528</td>
</tr>
<tr>
<td>Accessible Trails</td>
<td>10-15 years</td>
<td>$972,346</td>
</tr>
<tr>
<td><strong>Total Cost (exclusive HST)</strong></td>
<td></td>
<td><strong>$30,791,316</strong></td>
</tr>
</tbody>
</table>
Management and Monitoring

The Trails Master Plan sets out recommendations to guide trail management and monitoring in relation to:

- Potential impact on natural heritage features / habitats
- Trail condition and user safety
- Trail closure
- Requirements for trail improvements / upgrades
## Management and Monitoring

### Monitoring matrix sample – Construction Impact Mitigation

<table>
<thead>
<tr>
<th>Habitat / Species</th>
<th>Construction Activity</th>
<th>Potential Impact (Direct)</th>
<th>Potential Impact (Indirect)</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upland and wetland</td>
<td>General trail construction.</td>
<td>Erosion and overland movement of soils during construction</td>
<td>Potential loss of vegetation affected by silt deposition</td>
<td>Sediment and erosion control measures will be established along the trail alignment in strategic locations to be confirmed in the field.</td>
</tr>
<tr>
<td>Upland and wetland</td>
<td>General trail construction.</td>
<td>Loss of or physical disturbance to vegetation outside of trail footprint</td>
<td>Erosion and overland movement of soils</td>
<td>Areas of vegetation to be cleared and vegetation to be preserved will be clearly delineated in the field by a qualified ecologist prior to any clearing or construction activity. A clear understanding of the type of vegetation clearing and the method to be used must be provided to equipment operators and other construction personnel before construction begins. Construction personnel will be given instruction on the environmental construction management practices that are to be implemented. Tree protection fencing will be installed where specific trees are located in close proximity to areas of excavation.</td>
</tr>
</tbody>
</table>

**Monitoring Protocol**

- All sediment and erosion control measures must be inspected throughout the construction period and maintained until disturbed soils are stable. Rectification identified must be reported and corrected immediately.
- On-site construction supervisor to conduct ongoing inspections and report to organization responsible for the trail/structure.
### Management and Monitoring

**Monitoring matrix sample – Construction Impact Mitigation**

<table>
<thead>
<tr>
<th>Habitat / Species</th>
<th>Construction Activity</th>
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<th>Potential Impact (Indirect)</th>
<th>Mitigation</th>
<th>Monitoring Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upland and wetland</td>
<td>General trail construction.</td>
<td>Introduction of invasive species.</td>
<td>Loss of native vegetation</td>
<td>Confirmation of the origin of fill material, and to clean any equipment of offsite soils prior to entering the trail system.</td>
<td>Ongoing inspections and reporting to organization responsible for the trail/structure.</td>
</tr>
<tr>
<td>Wetland</td>
<td>Boardwalk installation. Granular base installation.</td>
<td>Surface water flow.</td>
<td>Loss of wetland species downgradient of crossing.</td>
<td>Boardwalk installation over areas of defined flow. Use of granular base to allow maintenance of hydrology through trail. Crossing of wetland at the most narrow point.</td>
<td>On site construction supervisor to conduct ongoing inspections regarding appropriate materials and placement of trail.</td>
</tr>
<tr>
<td>Wetland</td>
<td>General trail construction.</td>
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<td>Loss of native vegetation.</td>
<td>Confirmation of the origin of fill material, and clean any equipment of offsite soils prior to entering the trail system</td>
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# Management and Monitoring

## Monitoring matrix sample – Construction Impact Mitigation

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<th>Mitigation</th>
<th>Monitoring Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species At Risk (SAR)</td>
<td>General trail construction.</td>
<td>Killing or harming of any SAR</td>
<td></td>
<td>The footprint of the trail avoids all of the native SAR, and is routed outside of the areas of the planted SAR. Existing SAR and areas of planted SAR will be clearly delineated in the field prior to any clearing or construction activity. A clear understanding of the consequences must be provided to equipment operators and other construction personnel before construction begins.</td>
<td>Ongoing inspections by the on-site construction supervisor</td>
</tr>
<tr>
<td>Breeding Birds</td>
<td>General trail construction.</td>
<td>Breeding bird nesting disturbance</td>
<td></td>
<td>All tree cutting and removal must occur outside of April 30th to July 31st.</td>
<td>Monitoring of breeding bird species composition and diversity must follow in year 1 following tree removal.</td>
</tr>
</tbody>
</table>
### Management and Monitoring

#### Monitoring matrix sample – Trail Use and Operation

<table>
<thead>
<tr>
<th>Habitat / Species</th>
<th>Construction Activity</th>
<th>Potential Impact (Direct)</th>
<th>Potential Impact (Indirect)</th>
<th>Mitigation</th>
<th>Monitoring Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upland and wetland</td>
<td>Dog walking</td>
<td>Disturbance to ground flora and ground nesting birds, and soil compaction.</td>
<td>Loss of vegetation and erosion of surface soils.</td>
<td>Dogs will be required to be on a leash. Signage to reinforce on-leash dog walking will be installed.</td>
<td>Ongoing, monitoring of trail users to identify off-leash dog walking. Enforcement of off-leash by-law.</td>
</tr>
<tr>
<td>Upland and wetland</td>
<td>Hiking and typical trail use</td>
<td>Littering, physical disturbance to wildlife.</td>
<td>Species/habitat disturbance due to noise.</td>
<td>Public education signage, trail markers and trail maps to promote responsible use of trails.</td>
<td>Ongoing monitoring to identify irresponsible behaviour. Promote public education.</td>
</tr>
<tr>
<td>Upland and wetland</td>
<td>Hiking and typical trail use</td>
<td>Off-trail excursions /ad hoc trail development impact on soils and vegetation</td>
<td></td>
<td>Trails will be clearly marked. Existing ad-hoc trails will be closed and barriers erected.</td>
<td>Monitoring to identify newly formed ad-hoc trails and ensure adequate signage is in place and prompt trail closure is implemented.</td>
</tr>
<tr>
<td>Upland and wetland</td>
<td>Trail maintenance</td>
<td>Physical disturbance to trail surface and vegetation on edges of the trail.</td>
<td></td>
<td>Techniques required during construction will be implemented as required to mitigate potential impacts</td>
<td>Monitoring of maintenance activities to determine potential impacts and required mitigation.</td>
</tr>
</tbody>
</table>
Rouge Park Trails Master Plan

Structure of Draft Document

• Main document
  ➢ Visitor goals / objectives
  ➢ Background
  ➢ Stating of resources
  ➢ Trail catalogue
  ➢ Trail system amenities and components
  ➢ Natural heritage protection
  ➢ Cultural heritage integration
  ➢ General planning and implementation recommendations

• Appendices
  ➢ Implementation strategy
  ➢ Management and monitoring strategy
  ➢ Public and stakeholder comment response document
Summary

• The Trails Master Plan is designed to guide the implementation of a comprehensive trail system within Rouge Park over the decades to come.

• The trails system is designed to accommodate a variety of users, however not all users will be accommodated in all areas.

• The interior trails are designed to accommodate passive, natural-based activities and promote an experience of immersion in nature.
Summary

• More active recreational pursuits such as cycling will be accommodated on trails located in the vicinity of road rights-of-way and utility corridors

• Interpretative opportunities will be capitalized upon including celebration of First Nations heritage and the symbolic recreation of the “Carrying Place Trail”

• The implementation process will include detailed natural and cultural heritage inventories to ensure the appropriateness of proposed trail alignments
Summary

The Trails Master Plan promotes the development of a trail system that will compliment the vision of the park as a “sanctuary for nature and the human spirit”.