



**Town of Aurora
Environmental Advisory Committee
Meeting Agenda**

Date: November 24, 2021
Time: 7:00 p.m.
Location: Video Conference

Pages

1. Procedural Notes

This meeting will be held electronically as per Section 19. i) of the Town's Procedure By-law No. 6228-19, as amended, due to the COVID-19 situation, and will be live streamed on the [Town's YouTube Channel](#).

2. Approval of the Agenda

3. Declarations of Pecuniary Interest and General Nature Thereof

4. Receipt of the Minutes

4.1. Environmental Advisory Committee Meeting Minutes of September 22, 2021

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That the Environmental Advisory Committee meeting minutes of September 22, 2021, be received for information.

5. Delegations

Note: Anyone wishing to provide comment on an agenda item is encouraged to visit www.aurora.ca/participation for guidelines on electronic delegation.

6. Matters for Consideration

6.1. Memorandum from Senior Policy Planner; Re: Green Development Standards Consultation

5

1. That the memorandum regarding Green Development Standards Consultation be received; and
2. That the Environmental Advisory Committee comments regarding Green Development Standards be received and referred to staff for consideration and further action as appropriate.

6.2. Memorandum from Manager of Economic Development and Policy; Re: Streetscape Needs Assessment

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1. That the memorandum regarding Streetscape Needs Assessment be received; and
2. That the Environmental Advisory Committee comments regarding Streetscape Needs Assessment be received and referred to staff for consideration and further action as appropriate.

6.3. Memorandum from Manager, Parks and Fleet; Re: Lymantria Dispar Dispar (LDD) Control Options

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1. That the memorandum regarding Lymantria Dispar Dispar (LDD) Control Options be received; and
2. That the Environmental Advisory Committee comments regarding LDD control options be received and referred to staff for consideration and further action as appropriate.

7. Informational Items

8. Adjournment



Town of Aurora
Environmental Advisory Committee
Meeting Minutes

Date: Wednesday, September 22, 2021
Time: 7:00 p.m.
Location: Video Conference

Committee Members: Councillor Wendy Gaertner (Vice Chair)
Margaret Baker
Barry Bridgeford
Colin Brown
Ashley Gatto Cassagrande
Ryan Hamid

Members Absent: Sam Cunningham
Sandy Hudson
Crystal Robertson
Councillor Rachel Gilliland (Chair)

Other Attendees: Natalie Kehle, Analyst, Energy and Climate Change
Sara Tienkamp, Manager, Parks and Fleet
Ishita Soneji, Council/Committee Coordinator

1. Procedural Notes

This meeting was held electronically as per Section 19. i) of the Town's Procedure By-law No. 6228-19, as amended, due to the COVID-19 situation.

The Vice Chair called the meeting to order at 7:02 p.m.

2. Approval of the Agenda

Moved by Barry Bridgeford
Seconded by Ryan Hamid

The agenda as circulated by Legislative Services, be approved.

Carried

3. Declarations of Pecuniary Interest and General Nature Thereof

There were no declarations of pecuniary interest under the *Municipal Conflict of Interest Act, R.S.O. 1990, c. M.50*.

4. Receipt of the Minutes

4.1 Environmental Advisory Committee Meeting Minutes of June 23, 2021

Moved by Margaret Baker

Seconded by Ryan Hamid

That the Environmental Advisory Committee meeting minutes of June 23, 2021, be received for information.

Carried

5. Delegations

None.

6. Matters for Consideration

6.1 Memorandum from Energy and Climate Change Analyst, Re: Corporate Environmental Action Plan 2020 Progress Report

Natalie Kehle, Energy and Climate Change Analyst provided an overview of on the background and purpose of the Corporate Environmental Action Plan (CEAP) and highlighted the details of the 2020 progress report including the various action items and challenges. Sara Tienkamp, Manager, Parks and Fleet, provided further details on the action items regarding parks, biodiversity, and natural heritage. Staff sought the Committee's feedback and suggestions regarding the progress report and the associated tracking sheet.

The Committee sought clarification regarding incorporating ecological design in landscaping of parks, and staff advised that ecological park designs is the target for all new park designs and retrofits.

The Committee and staff discussed about means of mitigating invasive species and access to information for residents and business owners regarding environmental initiatives. Staff advised that informational booths to increase awareness regarding invasive species will be held at the Aurora Farmer's Market beginning in 2022 and other environmental public engagement initiatives are being explored. The Committee provided further suggestions such as: developing educational videos on means to manage invasive species to be posted on the Town website and other social media platforms, information pamphlets for business owners, and installing signage to encourage people to be more environmentally aware.

The Committee and staff further discussed about the anti-idling initiatives, the associated anti-idling policy, and its parameters and effectiveness. Staff advised that the public education campaign is ongoing which includes installation of mobile signs, providing resources and tips through social media, and the involvement of the By-law Department to educate residents and business owners where necessary.

The Committee referred to the various community campaigns and sought clarification on tracking the response metrics and effectiveness of the initiatives, and staff provided clarification. The Committee suggested that successes of the initiatives, campaigns, and various action items should be including in future progress reports and be made available for members of public.

Staff advised that the Committee will be discussing the Green Development Standard project at the next meeting.

Moved by Colin Brown

Seconded by Ryan Hamid

1. That the memorandum regarding Corporate Environmental Action Plan 2020 Progress Report be received; and
2. That the Environmental Advisory Committee comments regarding the Corporate Environmental Action Plan 2020 Progress Report be received and referred to staff for consideration and further action as appropriate.

Carried

7. Informational Items

None.

8. Adjournment

Moved by Barry Bridgeford

Seconded by Ashley Gatto Cassagrande

That the meeting be adjourned at 8:23 p.m.

Carried



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Town of Aurora

Memorandum

Planning and Development Services

Re: Green Development Standards Consultation

To: Environmental Advisory Committee

From: Matthew Volpintesta, Senior Policy Planner

Date: November 24, 2021

Recommendation

1. That the memorandum regarding Green Development Standards Consultation be received; and
2. That the Environmental Advisory Committee comments regarding Green Development Standards be received and referred to staff for consideration and further action as appropriate.

Executive Summary

The Town of Aurora is undertaking the development of a Green Development Standards (GDS) program to promote environmentally conscious development and commit to a greener and more sustainable future. GDS represent an important policy tool used by municipalities to support Official Plan goals, sustainability and climate change objectives, and several other co-beneficial directives. The following report presents an update of the work completed to date, highlights the initial feedback from stakeholders, sets out next steps and the expected final deliverables and outcomes of the GDS.

- The GDS supports the Town of Aurora Official Plan policy goals of sustainability and climate change objectives, informed by a comprehensive review and extensive stakeholder consultation.
- The GDS is based on five theme areas, with measurable targets and parameters required to be achieved for each theme.

- The GDS will be implemented in phases. Next steps include testing the green development standards against active development applications, final refinement, and staff training ahead of implementation.

Background

The GDS supports the Town of Aurora Official Plan goals of sustainability and climate change objectives, informed by a comprehensive review and extensive stakeholder consultation

The Town of Aurora (the Town) retained Prime Strategy & Planning to undertake a comprehensive review of green development standards (GDS) and to develop green development standards applicable to the Town of Aurora context.

The GDS will be a community-based approach that will apply across all forms of new development and will also apply to municipal projects and buildings as the Town has committed to lead by with sustainable design. The Town of Aurora GDS will support Section 5.2 of the Official Plan on sustainable development. The GDS sets expectations for high-performing buildings, community connectivity, and promotes access to low or zero carbon transportation options. Having a comprehensive GDS that approaches development at a community-wide scale encourages a compact built form that reduces demands on infrastructure while creating healthy, complete, and sustainable communities.

To provide technical expertise and guidance throughout the GDS development, the Town established a project steering committee inclusive of representation from the following departments: Planning and Development, Engineering, Operations, Parks, and Building. External stakeholders include local Conservation Authorities, York Region, applicable utility companies, and the development and building materials industry. Additionally, staff recognize the importance of Advisory Committees to provide input through the GDS development. The GDS project team are currently seeking input from the Environmental Advisory Committee, Accessibility Advisory Committee, and Business Improvement Association, and the Aurora Economic Development Corporation.

As part of the initial stage of the GDS development, a comprehensive review of GDS standards was undertaken which will be documented in a Discussion Paper.

Analysis

The GDS is based on five theme areas, with measurable targets and parameters required to be achieved for each theme.

The GDS is currently structured around 5 themes; Energy, Water, Ecology, Complete Communities, and, Building Materials. Themes are informed by priority focus areas for the Town to support a net-zero pathway. Typically, a GDS includes voluntary and/or mandatory measures developed and implemented by municipalities to mandate a baseline level of sustainable development.

To assess performance, each theme category or focus area has a list of Tiers, some of which are mandatory criteria and easiest to achieve, and higher-level tiers which are voluntary and may be tied to incentives (phase 2 of implementation). A proponent must achieve mandatory tier one requirements and then has an option of fulfilling a minimum number of additional requirements intended to be more intensified in overall objective.

The GDS uses a framework provided from Clean Air Partnership based on tiered checklists. Net zero programs including Passive House, Canada Green Building Council Net Zero and Ontario Home Builders Association Net Zero have been considered as certification options in Phase 2 which could come in exchange for a monetary incentive or expedited approval, still to be determined.

A descriptive breakdown of criteria and rationale for each theme, including potential assessment metrics, reviewing parties and timing, are currently being reviewed with stakeholders and tested by staff.

The GDS will be implemented in two phases. Next steps include testing the green development standards against active development applications, followed by final version refinement, and staff training ahead of implementation.

The initial stages of the project included presenting a comprehensive municipal best practice review and delivery of a thorough discussion paper looking at scope of the GDS and potential tools for analysis and achievement. Through continuous updating and following consultation with the Town's Executive Leadership Team, including presenting the version 1 draft GDS to both the steering committee and stakeholder groups, specific mandatory and non-mandatory criteria have been proposed in two phases. Included with this criterion, are suggested timing for review, and associated staff responsibilities.

Phase 1 represents a set of mandatory requirements, which include optional expectations providing some flexibility. Some of these requirements are already being reviewed but fall under the umbrella or scope of the GDS and therefore will assist in the ease of implementation. The project team is currently assessing potential external incentives to support implementation which would not have a direct fiscal impact to the Town.

Phase 2 includes elevated performance which will include further improved building and site expectations and certification for net zero through third party programs. Incremental costing analysis will be required for Phase 2. It is expected that the Town will define incentives through a possible expedited development approvals program, CIP or other options as part of the planned cost-benefit analysis.

Project Timeline & Deliverables

- Comprehensive best practice review and draft discussion paper (*April – August 2021*) *Completed*
- Draft version 1 guidelines and stakeholder and committee consultation (*July – November 2021*) *In progress*
- Progress Update to Council (November 2, 2021) *Completed*
- GDS test assessment using active development applications (*November 2021*) *In Progress*
- Final refined guidelines and implementation materials (*1st quarter 2022*) *Expected*
- Final Presentation of GDS to Council (*1st quarter 2022*) *Expected*

Staff are currently consolidating feedback from stakeholder consultations held through September to November. Based on steering committee review and stakeholder consultation, the GDS performance requirements will be refined and updated. The present format of the GDS represents a performance-based path for net zero and includes integration of the Town's energy plan expectations as well as other operational objectives.

Town staff and the consultant team are planning a test implementation of the program on two active development sites, including one Town initiated project. Once consultation with the advisory committees and test assessment is completed, the final first iteration of the GDS will be prepared for presentation to Council.

Extensive staff training including a procedural handbook will be provided ahead of implementation. Implementation of the GDS is proposed for the 1st quarter of 2022 pending Council endorsement. Staff training and roll-out would be expected throughout the 1st quarter of 2022. Staff expect the GDS to be reviewed on an annual basis and updated where required or when legislation permits.

A version of this report will be presented to the Accessibility Advisory Committee, Environmental Advisory Committee, the BIA, and the Aurora Economic Development Committee for consultation in the coming weeks prior to finalizing the GDS and presenting it to Council for endorsement in 2022.

Attachments

Attachment 1 - Presentation Green Development Standards

General Committee Presentation

Town of Aurora Green Development & Design Standards

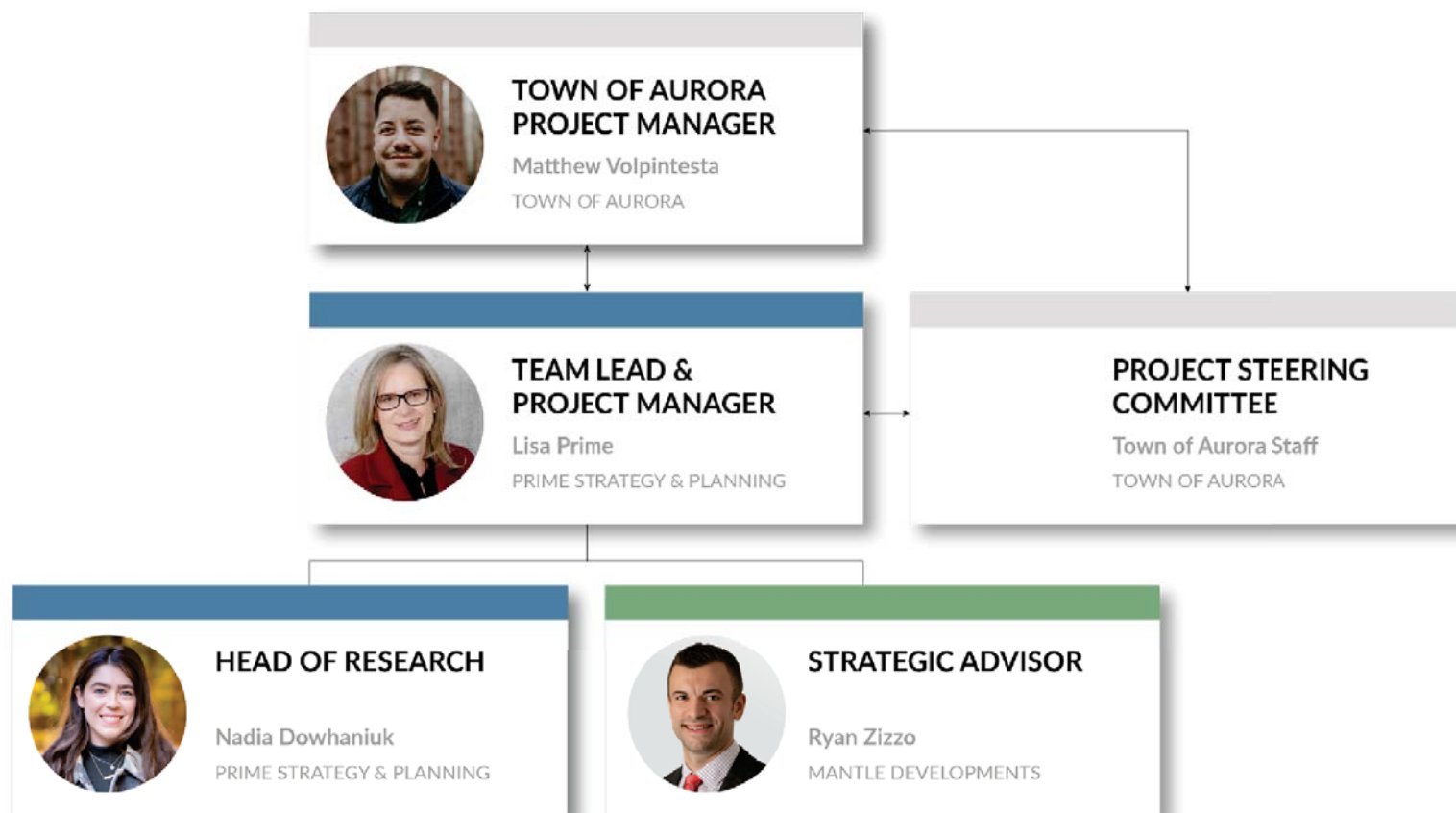
PRIME STRATEGY & PLANNING



Introduction

Project Team

PRIME STRATEGY & PLANNING



Agenda

PRIME STRATEGY & PLANNING



1. What are GDS?
2. Why is the Town implementing GDS?
3. Project Timeline
4. Summary of Consultation
5. Draft GDS
6. Draft Implementation Expectations
7. Staff Training Objectives
8. Next Steps



What are Green Development Standards?



What are GDS?

A simple definition from the Clean Air Partnership (CAP)

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- **Voluntary** and/or **mandatory** measures created by municipalities to mandate **sustainable development**.
- Comprehensive principles to guide development that **focuses on the community as a whole**.
- **Integrated into the planning approvals process**, where development applications are asked to meet certain criteria.
- **Policy tool** to support Official Plan policy goals, sustainability objectives, etc.



Why is the Town implementing GDS?



Why implement GDS?

Opportunity to meet growth and climate change objectives

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The Town must **manage population** and **employment growth** in a **sustainable way**.



The Town is committed to **reducing emissions** and **increasing climate resiliency**.



GDS can help to address several **municipal policies** and **climate objectives**.



Green Development Standards are **embedded in the Town's Official Plan** (Section 5.2).



Several **Ontario municipalities** have **implemented and/or are updating GDS**.

GDS Co-Benefits

Opportunity to achieve several co-benefits of community-wide development

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ECONOMIC



Increased property values



Reduced infrastructure costs



Longer lasting building stock



Job creation

ENVIRONMENT



Reduced energy consumption



Reduced vehicle dependency



Increased green space & biodiversity



Increased climate resiliency

SOCIAL



Improved air quality



Active lifestyles



Access to greenspace



Affordable & mixed-use housing

Project Timeline



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Project Timeline

Schedule for developing & implementing the GDS

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APR

MAY

JUN

JUL

AUG

SEPT

OCT

NOV

DEC

JAN

Phase 1

Background Review & Discussion Paper

- **Timeframe:** April 2021 – August 2021
- **Tasks:** Discussion Paper for review by Steering Committee; preliminary consultation with developers and municipal staff.

Phase 2

Draft Guidelines & Stakeholder Consultation

- **Timeframe:** July 2021 – November 2021
- **Tasks:** Draft GDS guidelines, consultation with development industry and municipal partners on GDS directions.

Phase 3

Final Guidelines & Implementation Materials

- **Timeframe:** September 2021 – December 2021
- **Tasks:** Develop implementation materials; facilitate staff training sessions; present GDS to EAC.

Begin Phase 1
Implementation

Discussion Paper

High level summary of content to support draft GDS

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1 Introduction

- Description of the project.

2 Background & Context

- What GDS are and why GDS are being implemented
- Policy context for GDS (federal, provincial, local).
- Preliminary consultation.

3 Best Practice Review

- Scan of municipal GDS programs and lessons for the Town.
- Best practice for areas of interest and supporting examples:
 - Heritage and regenerative design, bird-friendly design, LIDs, construction waste management, municipal leadership, embodied carbon, district energy.
- Third-party certification and supporting examples (e.g., LEED, Passive House, ZCBS, WELL).

4 Incentive Options

- Municipal tools (e.g., CIPs, green bonds, etc.), York Region's incentive programs, and external incentive programs (e.g., Enbridge's Savings by Design).

5 Implementation of the GDS

- Compliance and reporting mechanisms.
- Internal implementation process considerations.

6 Recommendations

- Compilation of directions for the GDS presented throughout the Discussion Paper.
- "Quick Wins" identified.

7 Next Steps

Summary of Consultation



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Summary of Consultation

Input received relative to draft GDS requirements

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- **Alignment with LSRCA** – Ensure alignment between the GDS and LSRCA expectations for development. Reiterate LSRCA requirements where possible to reinforce expectations (e.g., post development groundwater recharge rates, design features to reduce salt use, etc.)
- **Alignment with York Region** – Update mandatory requirements for 'WATER' to align with York Region's findings relative to water conservation.
- **Impact on infrastructure** – Consider the impact of expectations for electric vehicle infrastructure and charging stations on local infrastructure. Ensure infrastructure is prepared to accommodate.
- **Carbon sequestration** – Consider opportunities for carbon sequestration in all themes and ensure description of requirements reinforce opportunities for carbon sequestration. This extends to native plantings.
- **Permeable surfaces for mid to high-rise** – Consider allowing green roofs to function as an acceptable alternative to permeable surfaces for mid to high-rise buildings.

Summary of Consultation

Input received relative to implementation process



- **Incentives** – Several questions about incentives to support implementation of Tiers 3 and 4 from the development industry and some municipal partners. Recommended incentives include DC rebates, fast track approvals, etc.
- **Access to embodied carbon building materials** – Development industry partners stated that the Town can support use of certain building materials by supporting access to these materials and permitting their use.
- **Pilot implementation of GDS** – Several stakeholders recommended applying the draft GDS to current development applications and/or projects to ‘test’ the applicability.
- **Options for Tier 2** – Ensure there are several options in Tier 2 applicable across all developments. Consider bringing some requirements from Tier 3 into Tier 2 to increase options.

Draft GDS



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Draft GDS Themes

PRIME STRATEGY & PLANNING



1

ENERGY

2

WATER

3

ECOLOGY

4

COMPLETE COMMUNITIES

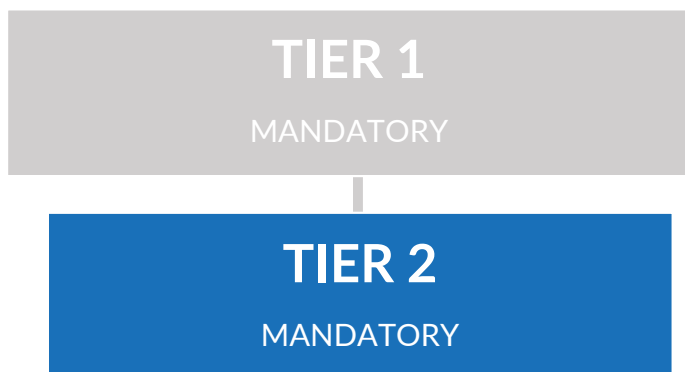
5

WASTE & MATERIALS

Draft GDS Phases & Tiers

Phase 1

Implementation ~Dec. 2021



Phase 2

Implementation TBD



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Phase 1

Implementation ~Dec. 2021

TIER 1

MANDATORY

TIER 2

MANDATORY

1 ENERGY

2 WATER

3 ECOLOGY

4 COMPLETE COMMUNITIES

5 WASTE & MATERIALS

THEME: ENERGY

INTENT

To achieve greater energy efficiency in all new buildings and to decrease GHG emissions in support of the Town's objective to achieve net-zero emissions by 2050.

RATIONALE

- Enhanced energy efficiency is becoming an industry standard.
- Increasing expectations from all levels of government to meet GHG reduction targets.
- Mandatory requirements for energy performance supports GHG emission reductions and long-term expectations for net-zero.

PHASE 1

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>
TIER 2	MANDATORY	Applicant must achieve <u>specified number of criteria</u>

PHASE 2

TIER 3	VOLUNTARY	Potential <u>incentives</u>
TIER 4	VOLUNTARY	Potential <u>incentives</u>

PRIME STRATEGY & PLANNING



THEME: ENERGY

TIER 1	MANDATORY <small>Applicant must <u>achieve all criteria</u></small>	APPLIES TO
Energy 1.1	<ul style="list-style-type: none"> • Appropriate connections for electric vehicle (EV) infrastructure is provided accordingly: <ul style="list-style-type: none"> • For each dwelling unit with a residential parking space, a minimum one (1) vehicle space per unit is provided with an energized outlet capable of providing Level 2 EV charging or higher to the parking space. • Each residential parking space, excluding visitor parking, shall include an adjacent energized outlet capable of providing Level 2 charging or higher to the parking space, either dedicated to the parking space or using an Energy Management System. • A minimum 20% parking spaces are provided with electric vehicle supply equipment (EVSE) and the remainder are of spaces are designed energized outlets capable of providing Level 2 EV charging or higher to the parking space. 	<ul style="list-style-type: none"> • Low-rise residential • Multi-unit apartments/ townhomes with shared, common onsite residential parking spaces • All development (including school board) excluding residential

PRIME STRATEGY & PLANNING

**THEME: ENERGY**

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>	APPLIES TO
Energy 1.2	<ul style="list-style-type: none"> Ensure buildings are designed to accommodate connections to solar PV or solar thermal technologies. 		<ul style="list-style-type: none"> All development
Energy 1.3	<ul style="list-style-type: none"> Develop an energy model for the building project using a third-party building energy simulation software. 		<ul style="list-style-type: none"> All development
Energy 1.4	<ul style="list-style-type: none"> Conduct a feasibility study to explore option to connect to existing and/or develop on-site energy generation systems 		<ul style="list-style-type: none"> Mid to high-rise residential, all non-residential, and municipal development in specific Town- areas (e.g., Major Transit Station Area)

THEME: ENERGY

TIER 2	MANDATORY <small>Applicant must achieve <u>2 out of 6 criteria</u></small>	APPLIES TO
Energy 2.1	<ul style="list-style-type: none"> • Appropriate EVSE is provided accordingly: <ul style="list-style-type: none"> • A minimum of one (1) vehicle space per unit is provided with the requirements identified in Tier 1 Energy 1.1 in addition to appropriate EVSE, such as an electric vehicle charging station. • Each residential parking space, excluding visitor parking, shall include an adjacent energized outlet capable of providing Level 2 charging or higher to the parking space, either dedicated to the parking space or using an Energy Management System. • A minimum 50% parking spaces are provided with electric vehicle supply equipment (EVSE) and the remainder are of spaces are designed with energized outlets capable of providing Level 2 EV charging or higher to the parking space 	<ul style="list-style-type: none"> • Low-rise residential • Multi-unit apartments/ townhomes with shared, common onsite residential parking spaces • All non-residential development (including school board)
Energy 2.2	<ul style="list-style-type: none"> • Buildings are designed and built to include solar technologies. 	<ul style="list-style-type: none"> • All development

THEME: ENERGY

TIER 2	MANDATORY <small>Applicant must achieve <u>2 out of 6 criteria</u></small>	APPLIES TO
Energy 2.3	<ul style="list-style-type: none"> • Provide the necessary infrastructure for connection to district energy, where available. • <i>Note: If applicant can pursue Energy 2.3, requirements for Tier 2 are considered satisfied.</i> 	<ul style="list-style-type: none"> • Mid to high-rise residential, all non-residential, and municipal development in specific Town- areas (e.g., Major Transit Station Area).
Energy 2.4	<p>Energy use reduction for Part 3 and Part 9 buildings are met according to the following requirements:</p> <ul style="list-style-type: none"> • Part 9 buildings – Buildings are designed to meet or exceed a minimum performance of at least 10% better than that of the Ontario Building Code’s 2017 Supplementary Standard SB-12. • Part 3 buildings – Demonstrate minimum energy performance of at least 15% better than that of the Ontario Building Code’s 2017 Supplementary Standard SB-10 Divisions 1 and 3. 	<ul style="list-style-type: none"> • All development
Energy 2.5	<ul style="list-style-type: none"> • Demonstrate a minimum reduction in carbon dioxide equivalency (e.g., 10%). 	<ul style="list-style-type: none"> • All development

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ENERGY

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WATER

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ECOLOGY

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COMPLETE COMMUNITIES

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WASTE & MATERIALS

THEME: WATER

INTENT

To use water efficiently, protecting local water sources including water quality and health, and reducing flooding and drought.

RATIONALE

- Reducing potable water use and improving water efficiency can reduce energy and infrastructure required for treatment, distribution, and collection of water resources.
- Water efficiency can offer savings to occupants.

PHASE 1

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>
TIER 2	MANDATORY	Applicant must achieve <u>specified number of criteria</u>

PHASE 2

TIER 3	VOLUNTARY	Potential <u>incentives</u>
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PRIME STRATEGY & PLANNING



THEME: WATER

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>	APPLIES TO
Water 1.1	<ul style="list-style-type: none">Demonstrate post-development peak flow rates are equal to or do not exceed pre-development peak flow rates for the two, one hundred year storm events and a minimum volume reduction of 5mm is achieved through LID features.	<ul style="list-style-type: none">All development	
Water 1.2	<ul style="list-style-type: none">Ensure post-development groundwater recharge rates meet pre-development rates, as defined through the LSRCA Source Protection Plan.	<ul style="list-style-type: none">All development	
Water 1.3	<ul style="list-style-type: none">Remove at least 85% total suspended solid on an annual loading basis from run-off leaving the site.	<ul style="list-style-type: none">All development	
Water 1.4	<ul style="list-style-type: none">25% of new hard surfaces (e.g., parking areas and walkways, not including buildings) are constructed using permeable materials. For some applicants (e.g., those developing from lot line to lot line), this requirement may be met through Ecology 1.7.	<ul style="list-style-type: none">All development	
Water 1.5	<ul style="list-style-type: none">All water consuming fixtures are WaterSense® labeled or meet maximum flow requirements.	<ul style="list-style-type: none">All development	

PRIME STRATEGY & PLANNING



THEME: WATER

TIER 2	MANDATORY Applicant must achieve <u>2 out of 5 criteria</u>	APPLIES TO
Water 2.1	<ul style="list-style-type: none"> BMPs replicating natural site hydrology processes, retain (e.g., infiltrate, evapotranspire, or collect and reuse) on-site the runoff from the developed site; reducing the local rainfall event runoff by an additional 10%, using low-impact development (LID) and green infrastructure (GI) practices. 	<ul style="list-style-type: none"> All development
Water 2.2	<ul style="list-style-type: none"> Remove at least 90% total suspended solid on an annual loading basis from run-off leaving the site. 	<ul style="list-style-type: none"> All development
Water 2.3	<ul style="list-style-type: none"> 50% of new hard surfaces (e.g., parking areas and walkways, not including buildings) are constructed using permeable materials. For some applicants (e.g., those developing from lot line to lot line), this requirement may be met through Ecology 1.7. 	<ul style="list-style-type: none"> All development
Water 2.4	<ul style="list-style-type: none"> Install rainwater harvesting and re-circulation/reuse systems for outdoor irrigation and outdoor water use, reducing potable water use for irrigation by 60%. 	<ul style="list-style-type: none"> All development
Water 2.5	<ul style="list-style-type: none"> Development incorporates design features to require less salt application without increasing liability. Design features are in accordance with the LSRCA's Parking Lot Design Guidelines to Promote Salt Reduction. 	<ul style="list-style-type: none"> All non-residential development

PRIME STRATEGY & PLANNING



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ENERGY

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COMPLETE COMMUNITIES

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WASTE & MATERIALS

THEME: ECOLOGY

INTENT

To improve natural heritage system function with respect to wildlife habitat and/or ecological functions, including ecosystem services and to incorporate carbon sequestration into community design.

RATIONALE

- Protecting and restoring ecological functions can benefit human and natural environment.
- Natural environment can help to mitigate against and build resilience and adaptation to impacts of climate change.

PHASE 1

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>
TIER 2	MANDATORY	Applicant must achieve <u>specified number of criteria</u>

PHASE 2

TIER 3	VOLUNTARY	Potential <u>incentives</u>
TIER 4	VOLUNTARY	Potential <u>incentives</u>

PRIME STRATEGY & PLANNING



THEME: ECOLOGY

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>	APPLIES TO
Ecology 1.1	<ul style="list-style-type: none"> Bird-friendly design guidelines for low-rise residential, and mid to high-rise residential, all non-residential, and municipal buildings. 		<ul style="list-style-type: none"> All development
Ecology 1.2	<ul style="list-style-type: none"> Use native, drought-tolerant plants for a minimum 50% of the landscaped area, including trees, shrubs, and herbaceous plants. 		<ul style="list-style-type: none"> All development
Ecology 1.3	<ul style="list-style-type: none"> Introduce no invasive species within the site or along street frontages. 		<ul style="list-style-type: none"> All development
Ecology 1.4	<ul style="list-style-type: none"> Protect or relocate healthy, mature trees that exist within the project boundary. Where trees are removed, new trees are provided to mitigate the lost canopy. 		<ul style="list-style-type: none"> All development
Ecology 1.5	<ul style="list-style-type: none"> All exterior light fixtures are Dark Sky compliant. 		<ul style="list-style-type: none"> All development
Ecology 1.6	<ul style="list-style-type: none"> Create tree planting areas within the site and in the adjacent public boulevard that meet the soil volume and the other requirements necessary to provide tree canopy. 		<ul style="list-style-type: none"> All development
Ecology 1.7	<ul style="list-style-type: none"> Roof areas are provided with one or a combination of the following covering 30% of available roof space: Green Roof, Solar PV, or Cool Roof. 		<ul style="list-style-type: none"> All development

PRIME STRATEGY & PLANNING



THEME: ECOLOGY

TIER 2	MANDATORY <small>Applicant must achieve <u>2 out of 5 criteria</u></small>	APPLIES TO
Ecology 2.1	<ul style="list-style-type: none"> Use native, drought-tolerant plants a minimum 75% of the landscaped area, including trees, shrubs, and herbaceous plants. 	<ul style="list-style-type: none"> All development
Ecology 2.2	<ul style="list-style-type: none"> Where surface parking is provided, plant large growing shade trees that are spaced appropriately having regard to site conditions and have access to a of 30 m³ soil per tree. 	<ul style="list-style-type: none"> All development
Ecology 2.3	<ul style="list-style-type: none"> All street trees are accompanied by the installation of enhanced street tree planting technology, such as permanent irrigation or watering systems that utilize non-potable water sources only, soil cells, etc. 	<ul style="list-style-type: none"> All development
Ecology 2.4	<ul style="list-style-type: none"> Develop an Operational Plan & Maintenance Manual that includes: description of maintenance procedures including techniques for reducing salt use in landscaped and naturalized areas, and tree monitoring plan designed to maximize the survival rates of planted trees. 	<ul style="list-style-type: none"> All development
Ecology 2.5	<ul style="list-style-type: none"> Calculate the embodied carbon and the carbon sequestration within landscape designs. 	<ul style="list-style-type: none"> All development

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ENERGY

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COMPLETE COMMUNITIES

5

WASTE & MATERIALS

THEME: COMPLETE COMMUNITIES

INTENT

To encourage site connectivity with existing, planned, and future public spaces and active transportation networks and to harmonize the GDS with other elements of planning complete communities.

RATIONALE

- Opportunity to reduce GHG emissions from transportation by supporting community design that prioritizes low-carbon and/or active transportation.
- Improving health and wellness for residents by developing sites and neighbourhoods with compact, walkable form and integrated greenspace.

PHASE 1

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>
TIER 2	MANDATORY	Applicant must achieve <u>specified number of criteria</u>

PHASE 2

TIER 3	VOLUNTARY	Potential <u>incentives</u>
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PRIME STRATEGY & PLANNING



THEME: COMPLETE COMMUNITIES

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>	APPLIES TO
CC 1.1	<ul style="list-style-type: none"> Develop a Transportation Demand Management (TDM) plan. 		<ul style="list-style-type: none"> All development
CC 1.2	<ul style="list-style-type: none"> Provide access to a variety of park and open space options that align with Aurora's Official Plan, which comply with Public Works Operations and maintenance requirements. 		<ul style="list-style-type: none"> All development
CC 1.3	<ul style="list-style-type: none"> Accessibility measures and design features are provided in accordance with the Accessibility for Ontarians with Disabilities Act (AODA). 		<ul style="list-style-type: none"> All development
CC 1.4	<ul style="list-style-type: none"> Complete a cultural heritage impact assessment that describes cultural heritage resources and potential impacts of development. Recommend strategies to mitigate negative impacts, where the alteration, development, or redevelopment of property is proposed on, or adjacent to the cultural heritage resources. 		<ul style="list-style-type: none"> All development

PRIME STRATEGY & PLANNING



THEME: COMPLETE COMMUNITIES

TIER 2	MANDATORY <small>Applicant must achieve <u>3 out of 9</u> criteria</small>	APPLIES TO
CC 2.1	<ul style="list-style-type: none"> Provide missing walkway connections between the site and existing public walkways. All new and existing streets are designed with continuous sidewalks or equivalent provisions in accordance with Aurora's Engineering Standards and Design Criteria. 	<ul style="list-style-type: none"> All development
CC 2.2	<ul style="list-style-type: none"> Provide carpool or shared-use vehicle parking spaces. 	<ul style="list-style-type: none"> All development
CC 2.3	<ul style="list-style-type: none"> Provide bicycle parking spaces in accordance with provisions in the Zoning By-law. 	<ul style="list-style-type: none"> All development
CC 2.4	<ul style="list-style-type: none"> Provide adequate space for residents to perform repairs and maintenance of bicycles. 	<ul style="list-style-type: none"> All development
CC 2.5	<ul style="list-style-type: none"> Provide public and/or private amenity spaces, where appropriate for multi-residential development and non-residential development, particularly development within Intensification Areas. Ensure amenity spaces include covered outdoor waiting areas for pedestrian comfort and protection from inclement weather. 	<ul style="list-style-type: none"> All mid to high-rise residential, all non-residential, and municipal development in specific Town- areas (e.g., Major Transit Station Area).

THEME: COMPLETE COMMUNITIES

TIER 2	MANDATORY <small>Applicant must achieve <u>3 out of 9</u> criteria</small>	APPLIES TO
CC 2.6	<ul style="list-style-type: none"> At least 70% of dwelling units and non-residential entrances are within 350 metres walking distance to the nearest transit stop, where feasible. 	<ul style="list-style-type: none"> All development
CC 2.7	<ul style="list-style-type: none"> Monthly public transit passes are provided to residents and businesses at no cost for a minimum of one (1) year including: <ul style="list-style-type: none"> One (1) pass per household or residential unit; and Passes for 10% of employees per business or non-residential units. 	<ul style="list-style-type: none"> All development
CC 2.8	<ul style="list-style-type: none"> Permanent and accessible urban agriculture space of at least 1m² per dwelling unit is allocated within an 800 m walking distance of all dwelling units through one or more of the following: Community garden, Edible landscaping, with labeled plants and signage containing harvesting guidelines, Small farm or orchard, Private garden, rooftop garden 	<ul style="list-style-type: none"> All development
CC 2.9	<ul style="list-style-type: none"> A secondary dwelling unit is provided in accordance with Aurora's Zoning By-law no. 6000-17. 	<ul style="list-style-type: none"> Low-rise residential

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COMPLETE COMMUNITIES

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WASTE & MATERIALS

THEME: WASTE & MATERIALS

INTENT

To encourage waste diversion from landfill through reuse strategies, local purchasing, source reduction, and the tracking and documentation of these activities.

RATIONALE

- Responsible management of waste is an essential aspect of sustainable building.
- Embodied carbon is a significant contributor of carbon emissions (emissions from pre-operation activity).

PHASE 1

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>
TIER 2	MANDATORY	Applicant must achieve <u>specified number of criteria</u>

PHASE 2

TIER 3	VOLUNTARY	Potential <u>incentives</u>
TIER 4	VOLUNTARY	Potential <u>incentives</u>

THEME: WASTE & MATERIALS

TIER 1	MANDATORY	Applicant must <u>achieve all criteria</u>	APPLIES TO
Waste & Materials 1.1	<ul style="list-style-type: none"> Develop and apply a waste stream management narrative and plan focusing on waste diversion. Provide documentation that affirms that management of Construction and Demolition Waste is in compliance with Provincial Regulation O. Reg. 103/94: Industrial, Commercial and Institutional Source Separation Programs. 		<ul style="list-style-type: none"> All development
Waste & Materials 1.2	<ul style="list-style-type: none"> Provide separated space in all kitchen suites for segregated collection of garbage, recycling and organic waste. 		<ul style="list-style-type: none"> All development

THEME: WASTE & MATERIALS

TIER 2	MANDATORY <small>Applicant must achieve <u>2 out of 7</u> criteria</small>	APPLIES TO
Waste & Materials 2.1	<ul style="list-style-type: none"> A minimum 25% of recycled/reclaimed materials are used for buildings and/or infrastructure including roadways, parking lots, sidewalks, unit paving, etc. 	<ul style="list-style-type: none"> All development
Waste & Materials 2.2	<ul style="list-style-type: none"> Divert at least 75% of total construction and demolition material. Diverted material must include at least four material streams. 	<ul style="list-style-type: none"> All development
Waste & Materials 2.3	<ul style="list-style-type: none"> Building is designed and built incorporating Portland-limestone cement and/or tall wood. 	<ul style="list-style-type: none"> All development
Waste & Materials 2.4	<ul style="list-style-type: none"> Provide a dedicated collection area or room for household hazardous waste and/or electronic waste. 	<ul style="list-style-type: none"> Mid to high-rise residential and all non-residential development.
Waste & Materials 2.5	<ul style="list-style-type: none"> Conduct a materials emissions assessment of the upfront embodied carbon of structural and envelope components. 	<ul style="list-style-type: none"> All development

THEME: WASTE & MATERIALS

TIER 2	MANDATORY <small>Applicant must achieve <u>2 out of 7</u> criteria</small>	APPLIES TO
Waste & Materials 2.6	<ul style="list-style-type: none"> Provide dedicated areas accessible to waste haulers and building occupants for the collection and storage of recyclable and compostable materials for the entire building. Collection and storage areas may be separate locations. 	<ul style="list-style-type: none"> Mid to high-rise residential and all non-residential development.
Waste & Materials 2.7	<ul style="list-style-type: none"> Include at least 5 of the 7 requirements listed below in the project product specifications: <ul style="list-style-type: none"> Concrete Mix: minimum 25% supplementary Cementous material Rebar/ Structural Steel/ Metal Decks: Minimum 50% recycled content Flooring: meet FloorScore or USGBC equivalent program Paints/ Coatings/ Adhesives/ Sealents: Meet SCAQMD rule 1113 and 1168 Low VOC content thresholds Plywood: no added formaldehd (NAF) or ultra-low-emiting formaldehyde (ULEF) Red List Materials: Do not use any materials from the International Living Future Institute's Red List 	<ul style="list-style-type: none"> All development

Phase 2

Implementation TBD

TIER 3

VOLUNTARY

TIER 4

VOLUNTARY

PRIME STRATEGY & PLANNING

**THEME: ENERGY**

TIER 3	VOLUNTARY	APPLIES TO
Energy 3.1	<ul style="list-style-type: none"> Design and construct the building to include high performance components addressing air tightness, glazing, HRV and heat pumps. 	<ul style="list-style-type: none"> All development
TIER 4	VOLUNTARY	APPLIES TO
Energy 4.1	<ul style="list-style-type: none"> Design, construct, and certify the building in accordance with net zero standard (third-party compliance). 	<ul style="list-style-type: none"> All development
Energy 4.2	<ul style="list-style-type: none"> District energy or other communal energy system or combined heat and power system is constructed for heating and/or cooling. 	<ul style="list-style-type: none"> All development

PRIME STRATEGY & PLANNING



THEME: WATER

TIER 3	VOLUNTARY	APPLIES TO
Water 3.1	<ul style="list-style-type: none"> BMPs replicating natural site hydrology processes, retain (e.g., infiltrate, evapotranspire, or collect and reuse) on-site the runoff from the developed site; reducing the local rainfall event runoff by an additional 15%, using low-impact development (LID) and green infrastructure (GI) practices. 	<ul style="list-style-type: none"> All development
Water 3.2	<ul style="list-style-type: none"> Install rainwater harvesting and re-circulation/reuse systems for outdoor irrigation and outdoor water use, reducing potable water use for irrigation by at least 80%. 	<ul style="list-style-type: none"> All development
Water 3.3	<ul style="list-style-type: none"> At least 75% of new hard surfaces (e.g., parking areas and walkways, not including buildings) are constructed using permeable materials. 	<ul style="list-style-type: none"> All development

PRIME STRATEGY & PLANNING



THEME: ECOLOGY

TIER 3 VOLUNTARY		APPLIES TO
Ecology 3.1	<ul style="list-style-type: none"> Provide a minimum 50% available roof space as biodiverse green/vegetated roof. 	<ul style="list-style-type: none"> All development
Ecology 3.2	<ul style="list-style-type: none"> Plant the landscaped area using a minimum 100% native or biodiverse plantings. 	<ul style="list-style-type: none"> All development
Ecology 3.3	<ul style="list-style-type: none"> Larger growing shade trees, relative to the requirements for large growing shade trees in Tier 2, are planted along street frontages. 	<ul style="list-style-type: none"> All development
TIER 4 VOLUNTARY		APPLIES TO
Ecology 4.1	<ul style="list-style-type: none"> Enroll the project in the Climate Positive Design Challenge and use the Pathfinder tool to calculate the years to carbon positive design. Incorporate low-carbon sustainable material alternatives to the proposed landscape design. 	<ul style="list-style-type: none"> All development

THEME: COMPLETE COMMUNITIES

TIER 3	VOLUNTARY	APPLIES TO
CC 3.1	<ul style="list-style-type: none"> Implementation and installation of all TDM requirements. 	<ul style="list-style-type: none"> All development
CC 3.2	<ul style="list-style-type: none"> Include as part of the private development a community hub where people come together to receive services or meet one another, for a range of health and social services, cultural, recreational, and/or community needs. 	<ul style="list-style-type: none"> Mid to high-rise residential, all non-residential development
CC 3.3	<ul style="list-style-type: none"> Provide a refuge area with heating, cooling, lighting, potable water, and power available and 72 hours of back-up power to the refuge area and essential building systems. 	<ul style="list-style-type: none"> Mid to high-rise residential, all non-residential development

THEME: WASTE & MATERIALS

TIER 3	VOLUNTARY	APPLIES TO
Waste & Materials 3.1	<ul style="list-style-type: none"> A minimum 50% of recycled/reclaimed materials are used for buildings and/or infrastructure including roadways, parking lots, sidewalks, unit paving, etc. 	<ul style="list-style-type: none"> All development
Waste & Materials 3.2	<ul style="list-style-type: none"> Divert at least 95% of the total construction and demolition material. Diverted material must include at least four material streams. 	<ul style="list-style-type: none"> All development
Waste & Materials 3.3	<ul style="list-style-type: none"> Use Portland-limestone cement and/or tall wood and maximize the amount of recycled content in concrete and steel. Calculate and report the embodied carbon in the building structure and envelope. 	<ul style="list-style-type: none"> All development

THEME: WASTE & MATERIALS

TIER 4

VOLUNTARY

APPLIES TO

Waste & Materials 4.1

- In addition to Tier 3 requirements for Portland-limestone cement and tall wood, include some level of bio-based materials in building structure.
- All development

Waste & Materials 4.2

- Include all 7 requirements listed below in the project product specifications:
 - Concrete Mix: minimum 25% supplementary Cementous material
 - Rebar/ Structural Steel/ Metal Decks: Minimum 50% recycled content
 - Flooring: meet FloorScore or USGBC equivalent program
 - Paints/ Coatings/ Adhesives/ Sealents: Meet SCAQMD rule 1113 and 1168 Low VOC content thresholds
 - Plywood: no added formaldehd (NAF) or ultra-low-emiting formaldehyde (ULEF)
 - Red List Materials: Do not use any materials from the International Living Future Institute's Red List
- All development

Draft Implementation Expectations



PRIME STRATEGY & PLANNING

Draft Implementation

Continuous monitoring, review, and updating of the GDS

PRIME STRATEGY & PLANNING



- **Phase 1** will be **implemented ~ January 2022 onward** (Council approved).
- The Town will further study **incentives to support implementation of Phase 2.**
- The Town will **track, monitor, and review the GDS.** We will provide recommended action items for continuous monitoring in our final report, including:
 - GDS metrics achieved in reports to Council for individual applicable development proposal.
 - Refining the GDS as needed to address legislative and provincial policy changes, local building expectations, etc.
 - Developing additional educational and/or training resources.
 - Providing additional guidance, support, and training to City staff and external stakeholders.

Draft Implementation

Supporting resources for applicants and staff

PRIME STRATEGY & PLANNING



- We have begun preparation of a summary GDS handbook to **support staff and applicants with implementation.**
- This handbook includes:
 - Background information to support the GDS.
 - **GDS implementation tables** identifying GDS requirement and application, how to demonstrate compliance, and review by the Town.
 - **Review matrix** identifying when each GDS requirement will be reviewed by Town staff.
 - Monitoring, review, and update recommendations for the GDS.

Staff Training Objectives



PRIME STRATEGY & PLANNING

Staff Training Objectives

Staff training to facilitate implementation



- The purpose of staff training is to:
 - Explain to staff how to use, interpret and implement the GDS.
 - Advise of resources and technical staff training required to implement GDS.
- Staff training sessions will be facilitated in November/ December 2021. Sessions may be organized based on department.

Next Steps



PRIME STRATEGY & PLANNING

In Progress & Next Steps

Where we're headed

PRIME STRATEGY & PLANNING



- **October 2021**

- Practice Training Exercise with staff to test application of the GDS against development applications submitted to the Town.
- Advance GDS handbook.
- Prepare materials for Staff Training session(s).
- Submit materials for Council report(s).

- **November – December 2021**

- Present to General Committee, Accessibility Advisory Committee, and Environmental Advisory Committee.
- Facilitate two (2) Staff Training sessions to support implementation of GDS Phase 1.
- Present to Council.

- **January 2022 onwards**

- Implement GDS Phase 1 and continued investigation by the Town to support implementation of Phase 2.

Contact

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Town of Aurora

Memorandum

Planning & Development Services

Re: Streetscape Needs Assessment

To: Environmental Advisory Committee

From: Lisa Hausz, Manager of Economic Development & Policy

Date: November 24, 2021

Recommendation

1. That the memorandum regarding Streetscape Needs Assessment be received; and
2. That the Environmental Advisory Committee comments regarding Streetscape Needs Assessment be received and referred to staff for consideration and further action as appropriate.

Purpose

As outlined in the Aurora Promenade Streetscape Plan, several action items were identified to improve the public realm of the Promenade. The majority of the proposed streetscape improvements will be implemented on Yonge Street and Wellington Street. These activities also align with the initiatives planned by the Aurora Downtown BIA. The purpose of the Streetscape Needs Assessment is to validate the original proposed improvements while taking into consideration new policies, technologies and needs. It is intended that staff will solicit ideas and input from the various advisory committees as well as the public.

Background

The Aurora Promenade Streetscape Design & Implementation Plan was presented to Council at the Public Planning Meeting held in January 2013, where Council resolved the following:

THAT report PL13-003 regarding the Aurora Promenade Streetscape Design and Implementation Plan be received; and,

THAT staff report back with a multi-year capital project for some of the priority projects that staff will further refine and bring forward to Council for further discussion.

Following the January 2013 Public Planning meeting, staff evaluated implementation options and phasing with an emphasis on maximizing the potential impact of improvements and minimizing costs and disruptions. Based on this evaluation, the several recommendations (as articulated in the Plan) were identified for implementation. Some of the recommendations were implemented, or altered to accommodate current conditions, while other recommendations were never implemented and require further investigation as to their feasibility. Examples of the 2013 public realm improvements included:

- Updating all concrete sidewalks with decorative concrete paving that extend from the curb zone to building face.
- Implementing hanging baskets on light poles.
- Installing street furniture throughout the pedestrian street zone that is both respectful of the heritage character and the new town square.
- Developing historic downtown promotional banners for area, events and seasons.
- Plant street trees with 6 metre spacing (maximum) where there is adequate setback for the pedestrian zone to borrow sidewalk width from the frontage zone. Trees should be planted in appropriate tree pits, with optimum soil conditions, protective grates, and tree guards.
- Relocating traffic signs from rebar poles onto street poles where possible.
- Landscaping mid-block connections similar to the existing mid-block connection at the town square-

In February 2014, staff presented a report recommending that the Town focus the planned improvements within the “Main Streets” area. This approach ensured that a critical mass of improvements could be completed within a relatively short timeframe in a focused geographic area. In October 2019, Council partially lifted a conditional hold on a previously approved capital project to fund some of the removable public realm streetscape elements of the 2013 plan including container landscaping, new street furniture and promotional banners that can be relocated in the event that construction occurs.

The completion of a Streetscape Needs Assessment study will detail the design requirements for street lighting and other improvements.

Several factors informed the need to evaluate and recommend the increasing the scope of the Streetscape Design and Implementation Plan including:

- condition of infrastructure to accommodate future signage and lighting needs;
- current developments underway in the area; connectivity and broadband availability;
- parking requirements;
- accessibility needs;
- and the involvement of the local businesses and residents in the area.

Therefore, a Streetscape Needs Assessment is being completed that will inform an updated robust design and construction plan that will include the following considerations:

- Street light pole replacements along Yonge Street
- Entry feature/signage/lighting/public art infrastructure requirements
- Sidewalk improvements
- Crosswalk improvements/enhancements
- Accessibility elements along Yonge Street
- Parking improvements in the Downtown BIA catchment area
- Broadband/high speed internet and cell service in the area

The Town has engaged The Planning Partnership (TPP) to facilitate the Streetscape Needs Assessment project and to engage stakeholders.

Due to tight timelines to inform engineering requirements in 2022, staff retained The Planning Partnership (TPP) team to facilitate the project and engage various stakeholder groups. TPP was the originator of the Aurora Promenade Plan, have worked on several projects within the Promenade and are engaged as part of the Aurora Town Square project.

The Project Team consists of:

- Lisa Hausz, Manager, Economic Development & Policy, Town of Aurora
- Anca Mihail, Manager, Engineering, Town of Aurora
- Sara Tienkamp, Manager, Parks, Town of Aurora
- Janine Cik, Policy Student, Town of Aurora

- Wai Ying Di Giorgio, The Planning Partnership, was involved in the preparation of the Stable Neighbourhoods Urban Design Guidelines and will manage the development of the Streetscape Needs Assessment report;
- Donna Hinde, The Planning Partnership, was responsible for managing and leading the public consultation for both The Promenade Plan and the Library Square and will be in charge of developing and leading the consultation for this exercise;
- David Leinster, was responsible for the development of the Promenade Design Guidelines and is currently leading the public realm design for Library Square.

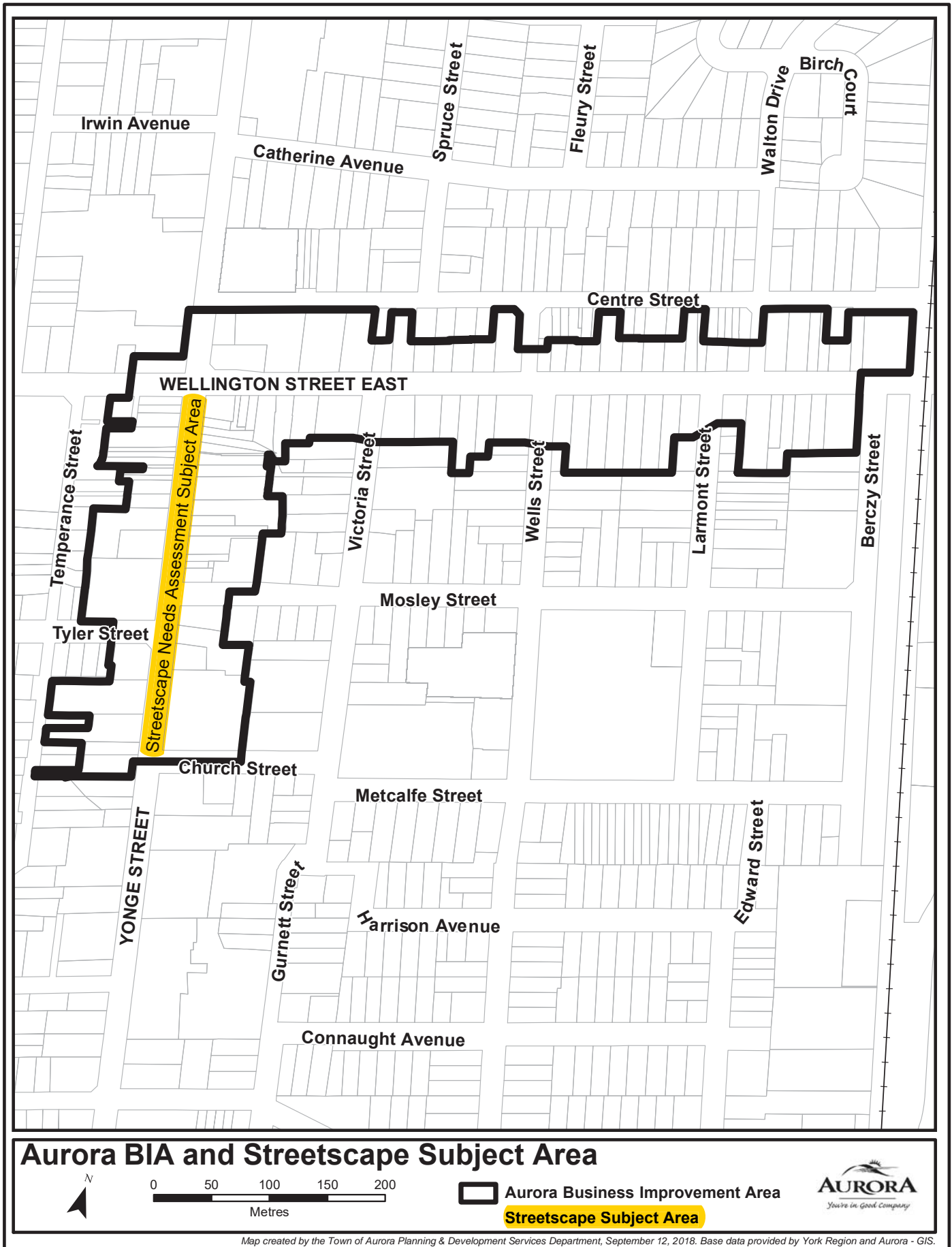
Attachments

Attachment 1 – Subject Area Map

Reference Documents

- [Promenade Concept Plan, Urban Design Strategy: 3.1 Public Realm](#) (2010)
- [Promenade Pamphlet](#) (concept highlights) (2013)
- [Promenade Streetscape Design and Implementation Plan](#) (2013)

Attachment 1





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Town of Aurora

Memorandum

Operational Services Department

Re: Lymantria Dispar Dispar (LDD) Control Options

To: Environmental Advisory Committee

From: Sara Tienkamp, Manager, Parks & Fleet

Date: November 24, 2021

Recommendation

1. That the memorandum regarding Lymantria Dispar Dispar (LDD) control options be received; and
2. That the Environmental Advisory Committee comments regarding LDD control options be received and referred to staff for consideration and further action as appropriate.

Background

LDD is a non-native insect from Europe introduced to North America in the 1860's.

Since its introduction, this leaf defoliating insect has spread across the Great Lakes Basin and evolved to a state of naturalization that Canadian Food Inspection Agency (CFIA) does not attempt to control or eradicate the species. They were first detected in Ontario in 1969 and can now be found as far north as Sudbury/Algoma Districts and east to the Quebec border. The insect prefers Oaks as their primary host and can be found both in rural and urban forests; however, LDD, also feeds on Aspen, Birch, Maple Poplar, Willow and even conifers, like Spruce and Pine.

LDD population can be best described as boom or bust, often occurring every 8-12 years. During these cycles, certain areas can reach epidemic proportions for a few years only to collapse and remain at endemic levels for another eight (8) years or more. Healthy trees can typically withstand repeated years of defoliation (generally up to four (4) years). Each LDD caterpillar can eat up to one (1) square metre of leaf area resulting in mass defoliation during outbreaks. Severe infestations have occurred in Ontario in 1991, 2002 and 2008, Aurora first saw epidemic populations in the early 1990's.

When an outbreak occurs, extremely large numbers of caterpillars can be found feeding on tree leaves and hanging from silk threads. The population is influenced by several factors, e.g., precipitation, temperature, parasites, and pathogens, making it difficult to predict future populations. One significant impact to LDD population is the naturally occurring nuclear polyhedrosis virus (NPV), which is found in populations of LDD moths, spreads extremely quickly and causes mass mortality with population collapse.

Lifecycle of LDD Moth.

The LDD moth has four (4) distinct developmental stages in its lifecycle like other butterflies and moth species. Several management options for LDD described in this report are only effective and timed during specific life cycle stages.

Egg (Late August to early May):

- Dormant stage (easiest to manage).
- Egg masses range in size from 2-8 cm long and can contain between 100-1,000 eggs.
- Egg masses are usually oval shaped and beige/light brown in colour.
- Often found on tree trunks and the underside of larger branches.

Caterpillar (Early May to mid-July):

- Tree damaging stage.
- Newly hatched caterpillars are about half a centimetre long and dark in colour. As they grow, they change colour becoming dark coloured and hairy with a double row of five (5) pairs of blue spots followed by a double row of six (6) pairs of red spots, down the back.
- Caterpillars can be found feeding on the leaves of trees since this is their main food source.

Cocoon (Mid July to early August):

- Stage lasts for ten (10) to fourteen (14) days.
- Once the adult moth emerges, it leaves the empty cocoon behind which can be seen on infested trees.

Moth (Late July to late August):

- Stage lasts ten (10) days.
- An adult LDD moth's only function is to reproduce and not eat anything, unlike other moth and butterfly species.

- Female is larger, white and cannot fly.
- Male is smaller, brown and is attracted to pheromones produced by female moths.

Council approves motion to explore control options including a targeted spray program.

Aurora experienced a high incidence of LDD in 2020 in a few areas in Town and in 2021 the population exploded causing extensive defoliation of trees on residential and public lands.

At the September 28, 2021, Council meeting the following motion was passed, directing staff to report back on control options for the insect:

Whereas areas of the Town of Aurora are experiencing an infestation of the caterpillar stage of the of Lymantria dispar dispar, commonly known as LDD moths; and

Whereas, according to the LSRCA, the LDD moth is “an invasive insect (that) goes through cycles in which the population increases for several years and then declines”. This year is predicted to be an outbreak year, based on observations, and monitoring in 2020 and through the winter of 2021; and

Whereas the LDD moth population tends to peak every ten (10) years, and each outbreak can last a few years; and

Whereas we are currently in year two of a boom; and Whereas the LDD moth can have serious, negative impacts on the forest canopy, defoliating a significant volume of trees during an infestation; and

Whereas healthy trees can generally survive, back-to-back years of LDD moth feeding can weaken a tree, making it susceptible to disease and damage from other insects and even death for some trees; and

Whereas the Town has provided information for residents on how to protect the trees on their property and was the first municipality in York Region to provide burlap wraps to homeowners;

1. Now Therefore Be It Hereby Resolved That staff review and report back on all options to control the LDD moth infestation and manage future years of this cycle, including burlap banding, removal of eggs, pheromone traps in

areas with moderate to severe infestation, and consider targeted spraying of BTK (Bacterium Spray Treatment) within the appropriate timeframe in all severely infested areas of public lands and Town trees within the Town's right of way on severely infested streets; and

2. Be It Further Resolved That the Town of Aurora adopt the same practice as neighbouring municipalities, taking a "good neighbour" approach and spraying buffer strips on the borders of publicly owned Town of Aurora lands and private lands where there is known to be a severe infestation of LDD moths.

Analysis

Aurora's LDD strategy for 2021 included providing burlap banding kits to residents.

In 2020, staff and residents observed heavy infestations in localized areas of Town, primarily west of Yonge. Other municipalities were witnessing activity as well and as a result York Region undertook egg mass counts in late fall of 2020 in all nine (9) municipalities. Data provided by York Region's consultant indicated the potential for larger widespread outbreaks of LDD throughout Region, including Aurora.

As a result, the York Region Forestry Working Group met to discuss an action plan for 2021 which included a unified communication plan to ensure consistent information was being provided throughout the Region to the public. For the most part all municipal strategies focused on strong communication plans with a few select groups choosing to treat prominent specimen Oaks within their landscapes and others with larger staff resources planned for egg mass removal on Oak prominent streets.

In May, caterpillars began to emerge and grow, tree defoliation became overwhelmingly evident and public concerns mounted. Municipalities then started to pivot and adapt to the situation with their strategies by including additional resources and controls. The measures undertaken by staff for LDD included:

- Participation on Regional Urban Forestry Group – inter-municipal working group that includes all nine (9) regional municipalities, representatives from Toronto and Lake Simcoe Regional Conservation Authorities and City of Toronto. Group shares Information, previous experiences, best practices, and measures.

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- Communications Strategy – aiming to educate the public and provide ongoing updates, utilizing various media means including social media, mobile signage, website.
 - TreeAzin® injections – Treatment of large mature specimen Oaks e.g., Cultural Centre, Arboretum.
 - Burlap Giveaway – staff provided residents with approximately 2,500+ burlap bands and utilized the opportunity to answer questions and provide tree advice in person (first municipality to do so in the Region). This initiative was extremely well received, and staff received excellent feedback.
 - Sweeping of sidewalks/roads – during height of caterpillar stage staff completed sweeping of streets and sidewalks where there was a high incidence of caterpillar frass (Attachment #1).
 - Watering program – staff watered the most vulnerable trees to ensure they remained healthy and recovered quickly, especially during hot dry weather. Residents encouraged to do same on their properties through our communication efforts.
 - Monitoring of population and locations.
 - Monitoring for NPV and manual spread of NPV infected caterpillars collected from Newmarket into Case/Sheppard's Bush Woodlots.

Impact of LDD on urban forest and parkland compounded by additional stressors but can be mitigated as seen in 2021.

Trees in urban settings are exposed to many environmental stressors that trees growing in rural settings/woodlots are not subject to. These impacts include drought, compacted soils, limited soil volume, fewer natural predators, and air pollutants. All these factors can compound the affects how trees recover from an LDD infestation as they may have limited resources to recover following defoliation.

While tree canopies can be severely or completely defoliated, trees are relatively resilient and adapted to defoliating insects and diseases. Trees in good health will replace leaves later in season to perpetuate annual growth and development with little adverse impact, however, trees can see branch or crown dieback if energy stores are depleted for successive years and in some cases, mortality can occur, usually when other stressors are present such as drought.

Spring of 2021 was extremely dry in York Region, with late May and June experiencing drought conditions. This was during the peak of the LDD outbreak and there was concern about how the trees may recover if conditions perpetuated into July and

August. As a result, staff educated the public about the importance of providing adequate hydration to their trees to assist in the recovery and regrowth of leaves. A watering campaign was also undertaken by Operations staff to water vulnerable street trees that had been impacted. Deep watering (Attachment #2) four to five (4-5) times per week over two (2) weeks by a resident illustrates how effective water can be on leaf regeneration.

July brought the typical rains we see in June and helped regenerate leaf canopy cover on parkland and within Woodlots across the Region. (Attachment#3).

Outbreaks in Ontario hit historical record high in 2020.

Over the last two (2) years, LDD populations have spiked in Ontario and outbreaks have been found across the province in many cities and communities within the insect's range.

The Ministry of Natural Resources and Forestry (MNRF) observed 586,385 ha of defoliation by LDD across Ontario in 2020, approximately twelve (12) times the area defoliated the previous year. The LDD population in 2020 produced the largest modest-severe defoliation recorded (Attachment # 4).

In 2020, York Region undertook an LDD egg mass survey to assess and forecast populations of LDD caterpillars in 2021. Hot spots were primarily west of Yonge Street, with severe pockets just north of Wellington Street and around Henderson Drive and south.

The egg mass survey by York Region for 2021 was not completed at the time of this report; however, information shared between the municipalities suggests staff are seeing a general decline in egg masses through their monitoring, though hot spots remain present.

Naturally occurring killing NPV virus detected in York Region.

NPV is a virus that is one of the most important factors in population collapse of LDD and occurs when caterpillars are in abundance regardless of climatic conditions.

In 2021, NPV was detected in many York Region municipalities, though staff did not observe it in Aurora; however, it was more than likely present based on neighbouring municipalities detection and influx.

Newmarket did have widespread NPV occurring in a few woodlots and collected caterpillars for distribution to neighbouring municipalities for dispersal in hot spot locations. Town staff introduced NPV infected caterpillars to Case Woodlot and Sheppard's Bush in late June.

Control methods part of Integrated Pest Management (IPM) strategy.

Aurora manages its urban forest utilizing IMP methodology to care for its trees, shrubs, and herbaceous plants. The focus is improving and maintaining overall health by monitoring insect and disease levels applying strategies for control when tolerance/threshold levels directly impact vegetation health. These methods include cultural, biological and pest/disease treatments.

In addition to the methods deployed as part of the 2022, LDD Management Plan by staff additional control options are available and can be adopted into the strategy for treatment.

Option 1 – Spraying.

Bacillus thuringiensis (Btk) bacterium is a spray treatment registered in Canada for the control LDD on trees after egg hatch, as it is only poisonous to the larvae (caterpillars). Health Canada identifies Btk as a natural biological-based insecticide derived from bacteria naturally found in soil.

Btk crystals and water are combined to create a solution that can be sprayed on infected trees. These crystals accumulate on leaves which are then consumed by the caterpillar. Btk affects the organism's stomach by activating with the alkaline conditions and breaks down the walls of the insect's stomach causing sepsis and death. Humans and mammals are unaffected by the Btk due to the acidic conditions within their stomachs which prevents the activation of toxins, but it is very important to note that Btk, will kill other insect species that have a similar cyclical life cycle such as other moth and butterfly species.

For Btk to be most effective, it is usually applied to infested areas more than once. It breaks down in the environment very quickly, in three (3) to seven (7) days and faster with sunlight. The caterpillars must be in an early larval stage for the Btk to work, and not all caterpillars hatch at the same time. For maximum efficacy, two (2) rounds of spraying are recommended, approximately ten (10) days apart. It is estimated to kill 60-80% of the treated population, which means 20-40% of caterpillars are not affected by

the treatment. Also, re-population of treated areas is possible as caterpillars from untreated areas can travel up to 200m especially when food sources are depleted.

As with any type of pesticide usage, it can be very controversial, especially when spraying large areas including publicly accessible areas like woodlands with trails and public parks. Homes or private lands adjacent to where spraying is taking place may be exposed to spray drift, which may or may not be acceptable to the public. It should be noted that there has been controversy related to any aerial spraying of insecticides. Although studies have noted that Btk causes few adverse effects, people can be exposed to Btk by breathing in the bacteria while it is being sprayed, and/or by ingesting it after touching sprayed objects that may have been exposed to overspray. The Town will need to be prepared to deal with real and perceived risks associated with spraying and prepared for the rise of resident complaints ranging from allegations of damage to plants and gardens and possible health related issues.

There are two (2) forms of spray treatments which can be utilized in different situations:

1. Aerial Spray:

For larger wooded areas, aerial spray is the most effective way to manage LDD outbreaks due to inhibited access to very tall and concentrated tree stands by ground. In Southern Ontario, there is only one contractor that provides aerial spray services conducted using a helicopter. Securing the services of this contractor must be completed prior to March of the treatment year and pesticide applications are dependent on weather conditions as high wind and rain must be avoided.

When planning aerial spraying in urban areas, an extensive Transport Canada risk assessment and approval process must be prepared and approved. These plans must include application and timing restrictions, aircraft type restrictions, pesticide product restrictions, personnel requirements, public consultation, and notification to residents among other requirements. Municipalities in the GTA who have conducted aerial sprays of public land in 2021 include Burlington, London and Oakville. Toronto and Mississauga did not conduct spraying this year but have in the past. All spraying within the municipalities have taken place on public lands and were confined to a few discrete areas such as woodlands and parks. Toronto and Region Conservation Authority also conducted sprays in conservation Parks in 2021 where camping and recreational activities such as Treetop Trekking take place.

Cost:

An aerial spray program would be considered a new level of service for the Town requiring dedicated funding and staff. Based on 2021 pricing (subject to change and availability) spraying is estimated at \$900/ha and \$4,800 in mobilization/ground support for helicopter. This would include spraying approximately 140 hectares of woodland (two applications as per product recommendations) in multiple locations throughout the Town where outbreaks of LDD have been observed including Case Woodlot, Sheppard's Bush, Willow Farm Lane Woodlot at an estimated cost \$291,600. It is important to note that Sheppard's Bush Woodlot is owned by Ontario Heritage Trust (OHT) and would require their approval to treat. This cost also includes funds for signage and other communication requirements, contracted staff and truck rental to coordinate and oversee the program are estimated at approximately \$30,000.

2. Ground Spray:

Ground spraying would be the appropriate option for Town street and park trees as the trees are spread apart and can be targeted to avoid unintended spray drift onto other properties and surfaces. This type of spraying would be delivered using a contracted service where BTK would be applied using a handheld or boom truck applicator by a licensed exterminator to spray each tree.

Several municipalities have conducted ground spraying of trees in 2021 with most having been on a small scale to target specific trees and areas. These include Mississauga, Brampton, Hamilton, London, Oakville and Toronto.

Costs:

A ground spraying program would be considered a new level of service for the Town which would require dedicated funding and staffing. The estimated cost would be \$1,430,000 and includes treatment of approximately 7,000 trees (\$200/tree) plus \$30,000 for communications materials, a staffing resource and rental truck to coordinate and oversee the program.

Option 2 - Tree injection.

An alternative to ground spraying treatment can be applied through tree injection using TreeAzin®, which is similar to the approach that has been taken to manage Emerald Ash Borer within Aurora (this would not be feasible for forested areas). This method is already accepted by our community for managing invasive pests and the risk of exposure is far less, as the pesticide is injected into the base of the tree by a licensed operator and degrades naturally within tree tissues. Treatment is required once per

growing season and occurs just after tree's leaf out. When caterpillars eat leaves that contain the insecticide, it kills the caterpillars. As such, caterpillars will not grow to their largest and most damaging size.

York Region, Mississauga and Toronto treated trees with TreeAzin® in 2021. Treatments were conducted on streets and in parks including more susceptible trees such as conifers which cannot regrow their needles at the same rate as deciduous trees can with their leaves. Typically, a limited number of significant, high value and/or more vulnerable trees are generally selected for this treatment.

Cost:

The Town's contractor treated high value trees as a pilot in 2021, the extent of treating all impacted street and park trees would be considered a new level of service for the Town requiring dedicated funding and staffing. The estimated cost would be \$1,430,000. The cost includes injection of approximately 7,000 trees (\$200/tree based on 2021 contract pricing and subject to change as contract expires end of 2021) plus \$30,000 for communications materials and a staffing resource and rental truck required to coordinate and oversee the program.

As part of the Town's EAB treatment program, the contractor offered treatments of TreeAzin® to private property owners for their trees utilizing the Town's preferred pricing. The uptake was not significant but very positively accepted. Staff can include this option in a new contract for 2022 season.

Option 3 – Egg mass removals.

Manual removal of egg masses from impacted trees is a common method for addressing LDD, particularly because each egg mass can contain anywhere between 100 to 1,000 caterpillar eggs. This activity can begin as early as September once the moths have finished laying eggs. Currently, some of our neighbouring municipalities (Richmond Hill/Vaughan and Markham) with staff resources, have been able to complete some vacuuming and scraping on streets and in parks. This tactic could be employed by a contractor (Town does not have staff available for this level of service) over the winter months until caterpillars emerge in April 2022.

Cost:

The estimated contracted cost for this activity is approximately \$30/tree. It is estimated 7,000 street trees in hot spot areas could be treated for a total cost of \$210,000

Option 4 – Expansion of burlap kit program.

A common method used to minimize the impacts of LDD is the installation of burlap traps around the trunk of the trees at chest height. These traps are secured with a string or rope in the centre with the top half folded over the bottom half which provides a cool place for caterpillars to hide from the midday heat and makes them easier to collect and dispose of. Burlap traps also have been found to promote spread of the NPV virus when the caterpillars accumulate in large numbers within the trap.

In 2021, Aurora and Newmarket distributed burlap banding kits to homeowners to help manage LDD on residential properties and/or on Town street trees.

In Aurora, the burlap kit initiative was a very effective way of engaging and educating residents about LDD and will aid in minimizing damage and controlling spread. Town staff gave away approximately 835 burlap kits (three (3) to a kit). Based on the number of residential properties impacted and number of calls received during April and May when caterpillars were most active, staff are proposing the creation and distribution of an additional 2,200 burlap kits in 2022. Each kit would include three pieces of burlap, twine and a fact sheet. Kits would be distributed at the Joint Operations Centre (JOC) or through an organized distribution event with COVID-19 health and safety measures in place if required.

Cost:

The estimated cost for this activity would be approximately \$22,000, which includes a staffing resource to create the kits and distribution to the public.

Option 5 – Expanded Street and Sidewalk Sweeping.

In the spring of 2021, Town staff conducted limited street sweeping in areas where concerns were received by residents. To help mitigate the impacts of LDD on neighbourhoods, street and sidewalk sweeping on a regular basis would help alleviate the accumulation of caterpillar droppings that create unsightly and potentially hazardous conditions.

Cost:

If the program were expanded, it would require a contractor to supplement the current service level. The estimated cost for this activity would be approximately \$150/hour using external contracted services for six (6) week period 2-3 days a week depending on

severity. Sweeping activities would take place when the caterpillars are most active (Late May to early July).

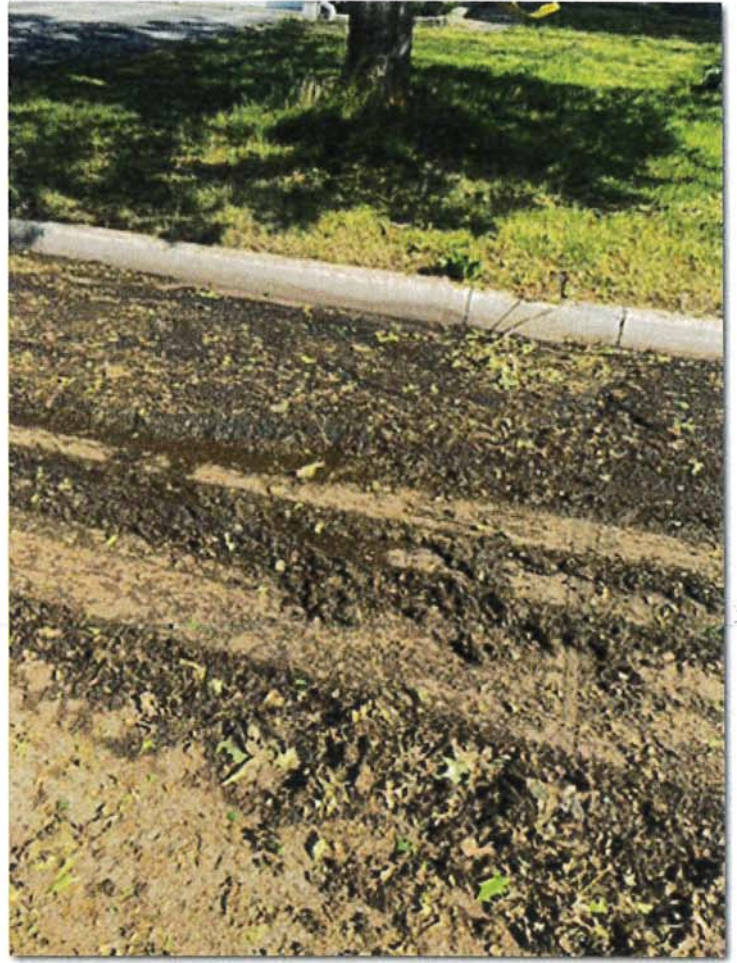
Attachments

Attachment #1 – Street Sweeping

Attachment #2 – Impact of Water on Street Trees

Attachment #3 – Defoliation York Regional Forest

Attachment #4 – LDD Defoliation in Ontario 1980-2020



LDD Street Sweeping

Attachment 2



June 18, 2021



June 30, 2021

Impact of Water on Street Trees

Aurora, ON.

Attachment 3

York Regional Woodlot Defoliation/ Recovery



Attachment 4

LDD Moth Defoliation in Ontario 1980-2020

Gypsy Moth (*Lymantria dispar* (L.))

Gypsy moth
Moderate-to-severe defoliation in Ontario 1980 - 2020

