# DGL-02
# DESIGN GUIDELINE
# VEGETATIVE SCREENING FOR NOISE BARRIERS

VERSION 1.1  NOVEMBER 2021




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# 1 VEGETATIVE SCREENING

## 1.1 GUIDELINE OBJECTIVES

This guideline is focused on the architecture, landscape and urban design strategies that can be used to address the community impacts arising out of the expansion of transit infrastructure and services. This document is intended to serve as a reference for Metrolinx teams and their consultants in support of the community engagement, design, and project implementation processes.

This document is a resource to help guide the interpretation and adaptation of Metrolinx policies and standards to suit the programmatic and site-specific requirements of the project.

### 1.1.1 Standardized Approach to Community Impacts

Metrolinx continues to strive to deliver a unified approach to addressing community concerns related to project impacts. The objective is to bring greater consistency to community consultation and decision making. A clearly defined framework allows Metrolinx to be proactive in addressing community impacts and formalizes the mitigation options to bring a consistent approach to community consultation and decision-making.

### 1.1.2 Metrolinx Vegetation Guideline (2020)

Landscape and planting strategies along rail corridors must adhere to the principles and requirements set out in the *Metrolinx Vegetation Guideline*.

*(Refer to Appendix A for information on the guideline)*

## 1.2 BENEFITS

### 1.2.1 The Benefits of Vegetative Screening

The purpose of vegetative screening is to mitigate negative visual impacts along rail corridors due construction of:

- contractor staging, access, and lay-down areas
- new transportation corridor infrastructure including additional tracks, grade separations, bridges, retaining walls, and noise barriers
- new or expanded layover facilities
- clearance requirements for electrification infrastructure

The primary benefits of vegetative screening include:

- restoration of naturalized habitats along Metrolinx rail corridors and the softening of the "hard edges" along rail corridors
- the application of the techniques of camouflage to minimize the visual impacts of rail corridors and linear infrastructure
- deterrence of tagging and graffiti

### 1.2.2 Accrual of Benefit Over Time

The benefits of landscape design, and plantings, accrue over time. This is why effort should be made to project mature trees and vegetation whenever feasible. Planting early in the project delivery process accelerates the benefits new trees and vegetation bring to a location impacted by the construction of new infrastructure.

### 1.2.3 Communication of Benefits to Communities

When engaging communities, it is important that any renderings or visualizations show the trees and plantings as they will grow and fill in over time. Select up to three intervals to illustrate how the visual benefits will accrue over time:

- always show external stakeholders what to expect on day one, post construction
- illustrate the growth by year three, post construction, and a suitable time frame between years five and ten years post construction

## 1.3 DESIGN PRINCIPLES

Zones adjacent to noise barriers and retaining walls:

1. Protect mature trees and vegetation where feasible
2. Layer trees and vegetation to enhance visual screening
    - Where space permits, layers of plantings can provide an ever-changing visual buffer adjacent to linear infrastructure including rail corridors, retaining walls, and noise barriers
    - Horizontal layering can be achieved through the planting multiple rows of shrubs and trees while vertical layering can be achieved through combination of ground cover, herbaceous plants, shrubs, and trees
3. Plan for year-round changes in colour and employ an all-season planting and vegetation strategy (specify a combination of coniferous and deciduous trees and shrubs)
4. Employ low maintenance, self-sustaining landscape and planting strategies
5. Landscaped and/or terraced embankments can be utilized to minimize the visual impacts of retaining walls

**Figure 1:** Vegetative screening adjacent to a noise barrier (timeline: three years after installation of the noise barrier)

# 2 MITIGATION STRATEGIES

## 2.1 TREE AND VEGETATION COMPENSATION

- Tree and vegetation removal can trigger compensation protocols and remedial work as outlined in the *Metrolinx Vegetation Guideline*
- Develop a project specific planting strategy to compensate for any loss of trees

### 2.1.1 Compensation Planting

- tree compensation on public and private property shall be implemented according to the policies outlined in the *Metrolinx Vegetation Guideline*
- on private properties, vegetative screening of noise barriers shall be the responsibility of the owner
- in public parks Metrolinx will work with municipalities, on a case by case basis, to determine if vegetative screening is required

## 2.2 RESTORATION LANDSCAPING

Post-construction planting of trees, shrubs, grasses, and other vegetation should be carried out according to:

- Metrolinx policies and standards including the *Metrolinx Vegetation Guideline*
- Remedial landscape design should focus on low maintenance, self-sustaining, native species

### 2.2.1 Protection of Trees

- Protect trees wherever feasible
- Commission detailed arborist reports and undertake a detailed review of trees that can be saved
- The arborist would also be responsible for developing a planting plan
- Minimize temporary construction impacts resulting in tree removal and vegetation clearance
- Vegetation removal shall meet the requirements outlined in the *Metrolinx Vegetation Guideline*
- Develop a project specific planting strategy to compensate for any loss of trees
- Undertake a detailed review of trees that can be saved

### 2.2.2 Vines

- Metrolinx policy prohibits the planting of vines on walls and structures unless explicitly approved in advance
  - there are a limited number of native vine species that could be recommended to be planted on noise barriers or retaining walls
  - please refer to plant list **Native Planting List by Electrification Zone** in the *Metrolinx Vegetation Guideline* for guidance on vine species

# **Illustrations:** Approaches to Vegetative Screening (adjacent to noise barriers)

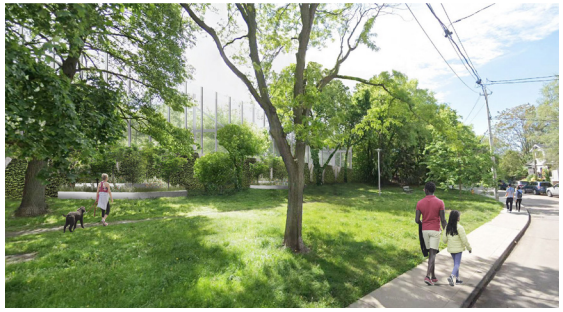

**Figure 2:** Vegetative screening can help to conceal, or camouflage, ànoise barriers and retaining walls

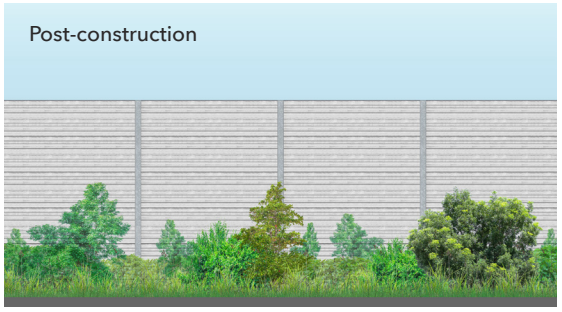


**Figure 3:** Plantings can be used to visually soften the edges along the rail corridors


**Figure 4:** Plantings should follow the management strategies outlined *Metrolinx Vegetation Guideline*

**Figure 5:** Vegetative screening can restore, or improve, a site impacted by construction

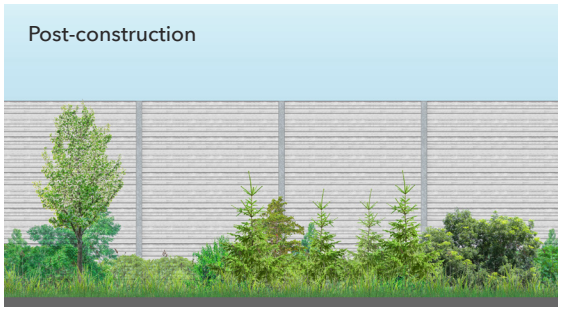


**Figure 6:** Trees can be used to augment vertically augment vegetative screens


**Figure 7:** Tree plantings must conform to the *Vegetation Metrolinx Vegetation Guideline*

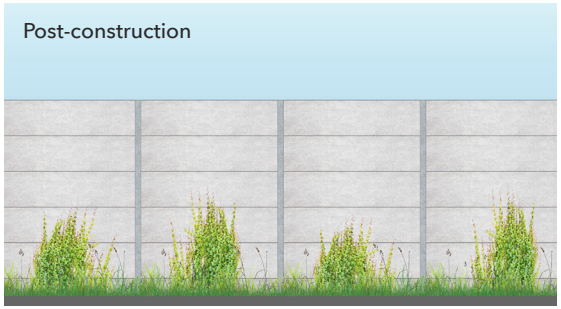


**Figure 8:** Vines can serve a dual function of providing vegetative screening and deterring graffiti

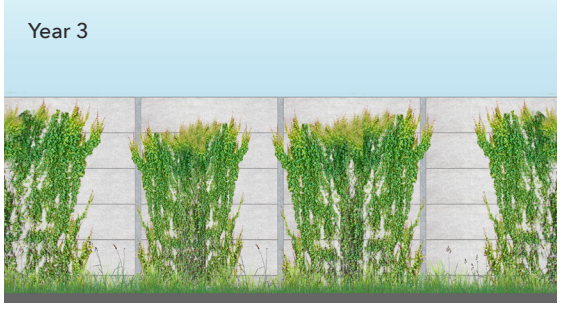


**Figure 9:** The planting of vines are a proven method of deterring tagging or graffiti on walls and structures


**Figure 10:** Metrolinx policy prohibits the planting of vines on walls and structures unless approved in advance

## **Figures 11 & 12:** The Benefits of Protecting Trees

**Figure 11:** Davenport Diamond Grade Separation (pre-construction). Looking east across Cambell Park to the rail corridor prior to the construction of the elevated guideway. The view of the rail corridor  from the park is partially concealed by a row of mature trees.

**Figure 11:** Davenport Diamond Grade Separation (post-construction). Looking east across Cambell Park after the construction of the elevated guideway. The view of the elevated guideway from the park is partially concealed by a row of mature trees while the views at-grade provide clear sight lines to the public landscaping and multi-ue trail beyond.

# **Appendix A:** Metrolinx vegetation Guidline (2020)

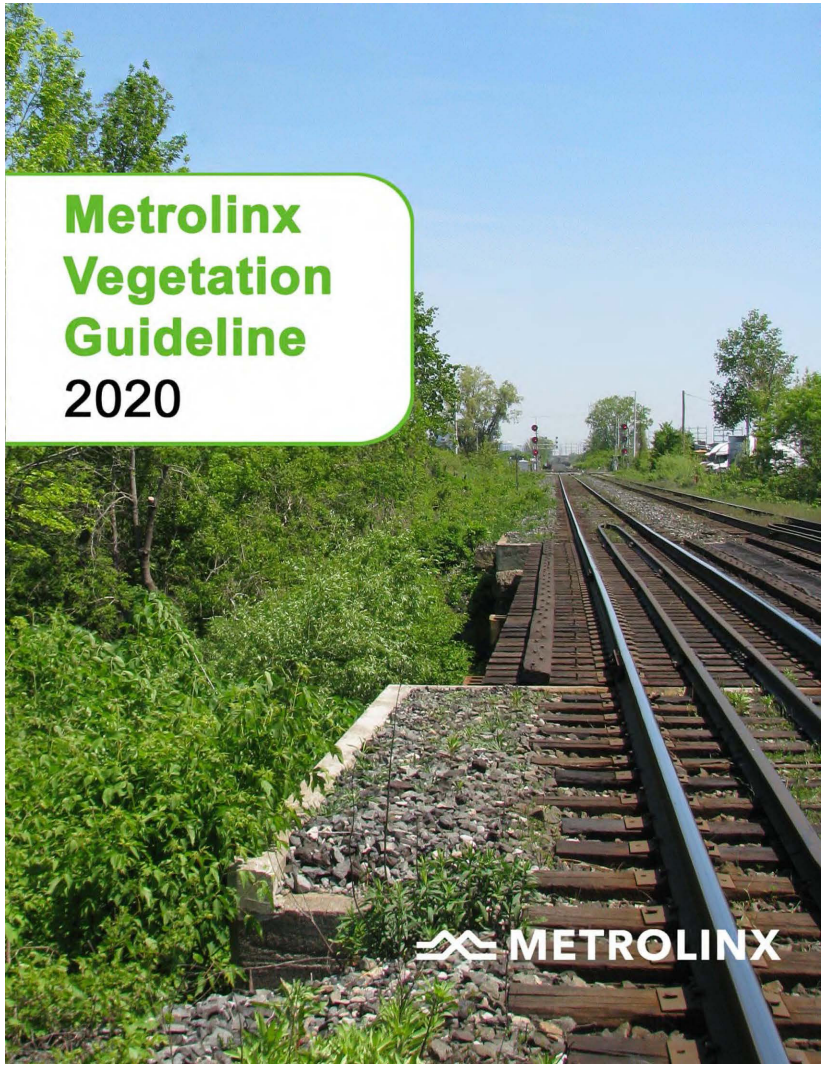


**Figure A1:** *Metrolinx Vegetation Guidelines (2020)*

The *Metrolinx Vegetation Guideline (2020)* outlines the approach to managing vegetation that will allow Metrolinx to address the need to provide safe and reliable transport in addition to providing social, economic, and ecological benefits.

As part of the planned infrastructure work, vegetation removals will be required by planned upgrades such as grade separations, new track, layover facilities, construction staging, as well as implementation of electrification infrastructure.

This Vegetation Guideline has been developed to provide frameworks for:

1. vegetation compensation;
2. tree end use; and
3. Integrated Vegetation Management (IVM), which can be applied across various Metrolinx projects in the future.

These three components outlined in this guideline have been developed to satisfy regulatory requirements, environmental assessment commitments, as well as Metrolinx sustainability goals and corporate policy priorities.

The Vegetation Management Strategy provides detailed guidance to external stakeholders, including residential property owners, on what to plant near rail corridors. To support this guidance, the document includes a list of tree and plant species recommended for planting within the different Zones identified in **Table A1**.

## **Table A1:** Vegetation Management Strategy (excerpted from the *Metrolinx Vegetation Guideline*)

| Zone | Location/Description | Objective |
|---|---|---|
| **Zone 1** | • Ballast area (which include the main track, siding, back track, and storage track.<br>• 2.9 m clearance from track centerline to the OCS. | • No growth zone |
| **Zone 2** | • 2.5 m clearance from the OCS and electrified infrastructure | • No growth zone |
| **Zone 3** | • 1.6 m maintenance zone starting immediately adjacent to the Exclusion Zone infrastructure. | • Low growth zone comprised on non-woody vegetation up to 1.4 m high when mature. |
| **Zone 4** | • 5.5 m area (between 7 and 12.5 m from the track centerline) outside of the vegetation clearance zone where treatment is not required unless deemed hazardous) but future plantings should be limited. | • Medium growth zone comprised of shrubs and non-woody species that grow up to high when mature. |
| **Zone 5** | • 3.5m area (between 12.5 and 16 m from the track centerline) outside of the vegetation clearance zone where treatment is not required (unless deemed hazardous) but future plantings should be limited. | • Tall growth zone comprised of trees, shrubs, and non-woody species that grow up to 8 m high when mature. |

Illustrations from the *Metrolinx Vegetation Guideline (2020)*, Appendix E: Illustrated Examples of IVM Zones.

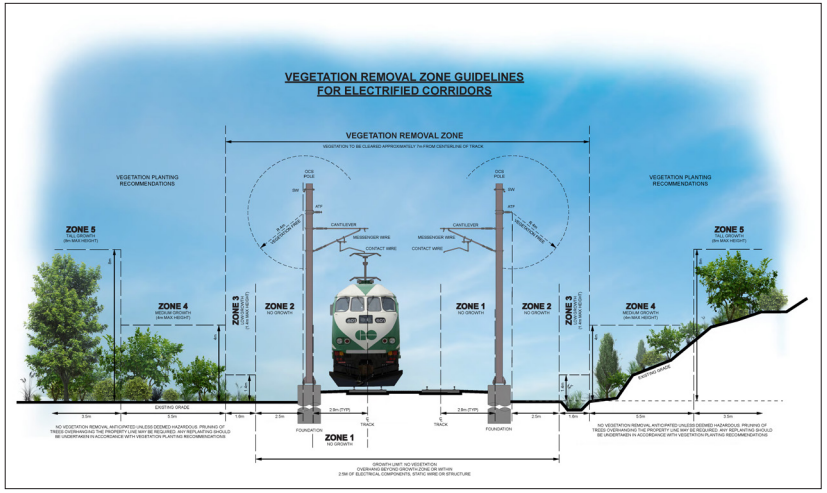


**Figure A2:** Vegetation Removal Zone Guidelines for Electrified Corridors

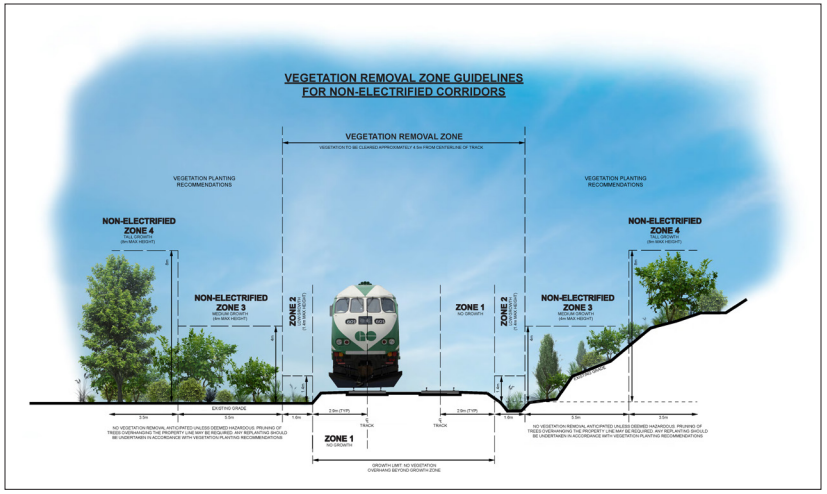


**Figure A3:** Vegetation Removal Zone Guidelines for Non-electrified Corridors