FACILITIES CIVIL ENGINEERING STANDARD – PAVEMENT MARKINGS

MX-FAE-STD-C007

Facilities Architecture & Engineering
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METROLINX

Facilities Civil Engineering Standard – Pavement Markings

MX-FAE-STD-C007

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Preface

This is the first edition of the Facilities Civil Engineering Standard—Pavement Markings (MX-FAE-STD-C007). The purpose of this standard is to provide minimum civil engineering requirements and design guidance to designers for Metrolinx-owned assets.

This standard is to be followed by Engineering and Design Consultants working on Metrolinx projects and internal Metrolinx staff.

The technical content within the Facilities Civil Engineering Standard—Pavement Markings (MX-FAE-STD-C007) was developed by the Metrolinx Facilities, Architecture, and Engineering's Civil Engineering Team within the Asset Management and Maintenance Division, which includes specialized subject matter experts.

This Standard is available for external users to download via the Metrolinx public download site at https://www.metrolinx.com/en/metrolinx-technical-standards

Suggestions for revision or improvements can be sent to Metrolinx Facilities, Architecture, and Engineering (FAE) Civil Engineering Team, Attention: Senior Manager, FAE Civil Engineering, who will introduce the proposed changes to Metrolinx FAE Civil Engineering. The Senior Manager, FAE Civil Engineering, ultimately authorizes the changes. A description of the proposed change shall be included along with information on the background of the application and any other useful rationale or justification. Proposals for revisions or improvements shall include your name, company affiliation (if applicable), email address, and phone number.

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1. General

1.1 Purpose

1.1.1 This standard outlines the requirements for the material selection and application of pavement markings on exterior surfaces at Metrolinx stations and facilities. This includes roadways, parking lots, parking structures, platforms, sidewalks, and other applicable areas. Pavement markings, which include lines, symbols, and words painted or applied on pavement surfaces, serve to regulate traffic, enhance safety, and communicate rules and directions to both vehicles and pedestrians, such as lane boundaries, traffic flow, and pedestrian crossings.

1.2 Scope

1.2.1 The placement and layout of pavement markings are detailed in other relevant standards and manuals, including but not limited to:

a) GO Design Requirements Manual (DRM);

b) Universal Design Standard (DS-02);

c) Wayfinding Design Standard (DS-03);

d) and GO Sign Implementation Manual (DS-03-P1);

e) Subway Station Architecture Design Standard (DS-09); and

f) and the LRT Architecture Design Standard (DS-13).

These documents shall be read in conjunction with this standard.

1.2.2 This standard applies to pavement markings for net new construction, retrofits, and State-of-Good-Repair (SOGR) capital infrastructure programs. This standard does not apply to routine maintenance activities to refurbish deteriorated and faded paving markings.

1.2.3 This standard excludes applications for BRT, rail corridors, and temporary pavement markings as part of a construction project. The design of pavement marking materials shall be carried out on a project-by-project basis.

1.2.4 The use of alternative pavement marking products for routine maintenance projects is not covered in this standard and may be addressed through separate maintenance guidelines where applicable.

1.2.5 This document shall be read in conjunction with the Metrolinx Facilities Civil Engineering and Building Envelope Standard – General (MX-FAE-STD-C001).

2. Definitions & Abbreviations

2.1 Definitions

2.1.1 The capitalized terms used in this standard shall have the meaning prescribed in Table 1.

Table 1: List of Definitions

Term	Definition
Anti-Slip Grip Properties	Pavement marking materials designed to provide sufficient friction to match adjacent walking surfaces and prevent slips.
Durable Pavement Markings	Durable Pavement Markings means pavement markings produced by either thermoplastics, field-reacted polymer, or a preformed plastic tape of durable type as defined in OPSS.PROV 710.
Latex Traffic Paint	A water-based pavement marking paint that meets OPSS.PROV 1716 standards and is used for parking stall lines and on-grade hatching.
Pavement Markings	Painted or applied lines, symbols, and words on road surfaces to regulate traffic and guide pedestrians and vehicles.
Reflectorizing Glass Beads	Small beads embedded in traffic marking materials to enhance nighttime visibility, meeting OPSS. PROV 1750.
Traffic Paint	A broad term for various marking materials applied to pavement, including latex, solvent-based, and thermoplastic paints.

2.2 Abbreviations

2.2.1 The abbreviations used in this standard shall have the meaning prescribed in Table 2.

Table 2: List of Abbreviations

Abbreviation	Definition
MTO	Ministry of Transportation of Ontario
OPSS	Ontario Provincial Standard Specification
OTM	Ontario Traffic Manual

3. Pavement Markings

3.1 Design Requirements

3.1.1 Design references for pavement marking shall include, but are not limited to:

a) Ontario Provincial Standard Specification (OPSS):

1) OPSS.PROV 710 - Pavement Marking;

2) OPSS.PROV 1712 - Organic Solvent-Based Traffic Paint;

3) OPSS.PROV 1713 - Thermoplastic Pavement Marking Materials;

4) OPSS.PROV 1714 - Field Reacted Polymeric Pavement Marking Materials;

5) OPSS.PROV 1715 - Preformed Plastic Pavement Marking Tape;

6) OPSS.PROV 1716 - Water-Borne Traffic Paint; and

7) OPSS.PROV 1750 - Traffic Paint Reflectorizing Glass Beads.

b) Ontario Traffic Manual (OTM): all relevant sections.

3.1.2 All selected materials shall be durable and compatible with the designed surface to avoid premature failure, such as material debonding or material delamination. Durable pavement markings is a defined term under OPSS.PROV 710.

3.1.3 Parking stall lines and on-grade hatching lines shall be designed with latex traffic paint that meets OPSS.PROV 1716 as a minimum. For all other on-grade traffic pavement markings, the material shall be designed to be “durable” as outlined in OPSS.PROV 710.

3.1.4 All permanent traffic paint, permanent, durable markings, and reflectorizing glass beads shall be from sources indicated in MTO Designated Sources for Materials.

At areas designed for pedestrian traffic, pavement markings shall provide slip resistance equal to or greater than the surrounding pavement and shall not reduce overall surface friction. All surfaces shall achieve a minimum Pendulum Test Value (PTV) of 36 in both dry and wet conditions, tested per ASTM E303.