METROLINX

Metrolinx Requirements for Writing Technical Standards and Procurement Specifications

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Preface

This is the first revision to the *Metrolinx Requirements for Writing Technical Standards and Procurement Specifications* (referred to throughout as *Requirements for Writing*) to align better with the Style Guide.

The purpose of these *Requirements for Writing* is to ensure that the content of Metrolinx technical standards is written, organized, and presented so that the standards can be directly referenced in engineering and architectural design and construction specifications and in procurement and contract documents. The *Requirements for Writing* consist of rules and guidelines for writing and organizing technical content, with examples and tips intended to help technical writers comply with the requirements.

The *Requirements for Writing* provide a structured approach to organizing content. They also set out rules for the use of language that allow the intent and application of a standard's provisions to be clearly differentiated as mandatory requirements, recommendations, options, or statements provided as explanation or commentary. These *Requirements for Writing* are applicable to a wide range of technical standards and specifications, from performance-based output specifications to very specific, prescriptive parameters and test methods.

This structured approach to content and formal definition of the language to be used to express the provisions of Metrolinx standards are intended to reduce the risk of ambiguities and inconsistencies that can give rise to incorrect technical interpretations and disputes between Metrolinx and its stakeholders and partners, suppliers, technical consultants, and contractors. Consistent organization and language also makes it easier to use Metrolinx standards to prepare materials for compliance reviews of architectural and engineering design and construction specifications for specific projects.

The *Requirements for Writing* adapt many of the rules related to organization and language that are used by national and international standards development organizations. Requirements and guidelines established by the International Organization for Standardization (ISO), the Standards Council of Canada (SCC), and the American National Standards Institute (ANSI) were considered in the preparation of the *Requirements for Writing*. This ensures that the Metrolinx requirements are based on solid, well-established principles for the writing and organization of content in technical standards.

February 2021

Contents

1 Scope

1.1 General

1.1.1 This document specifies requirements applicable to the writing of Metrolinx technical standards. It covers the following aspects of drafting and presenting the contents of the standards:

a) organization;

b) language for the expression of provisions;

c) structure;

d) writing;

e) numbers; and

f) units of measurement.

1.1.2 Where appropriate, examples and tips have been given with the requirements themselves or in Appendix A to illustrate how the requirements are to be applied.

1.1.3 To the extent possible, this document has been written in accordance with the requirements it sets out, in particular with regard to the language used to express its provisions and the numbering system used to structure its contents; in these respects, it is intended to serve as a model for the drafting of Metrolinx standards.

Notes:

1) For brevity, these Metrolinx Requirements for Writing Technical Standards are referred to throughout as Requirements for Writing, and "Metrolinx technical standards" are referred to as "Metrolinx standards."

2) These Requirements for Writing do not apply to Metrolinx corporate communications, which are governed by the Metrolinx Style Guide.

2 Reference Publications

The following publications are referenced in this document:

a) Canadian Oxford Dictionary. Edited by Katherine Barber. Toronto: Oxford University Press, 1998 and 2004.

b) Language Portal of Canada. https://www.noslangues-ourlanguages.gc.ca/en/index

3 Organization

3.1 Preliminary elements

3.1.1 Each new Metrolinx standard shall include the following preliminary elements:

a) an outside front cover with the Metrolinx logo, standard title, and, where applicable, standard number;

b) authorizations, as applicable;

c) a title page with the Metrolinx logo, standard title, standard number (where applicable), Metrolinx copyright statement, and any other publication information. The title page shall also include a note directing readers to verify that they are using the most up-to-date version of a standard by checking at http://www.gosite.ca/engineering_public/;

d) a table of contents listing the titles and page numbers of the following, as applicable:

1) preface;

2) main sections (see Section 5.2);

3) first-level subsections (i.e., up to two digits; see Section 5.3);

4) appendices;

5) tables; and

6) figures.

For an example of a table of contents, see Section A.2 in Appendix A;

e) a preface giving the administrative history of the standard and any other information relevant to its development (e.g., permissions related to source material, identification of committees or other bodies responsible for the development of the standard). The administrative history shall include the standard number (if applicable), the full title of the standard, its edition or revision number, and the date of publication; where the edition/revision history of a standard is complex enough to warrant it, the information may be presented in a small chart or table. The preface shall not contain any mandatory language (i.e., no requirements; see Sections 4.1 and 4.3).

Note: *Exceptions to these requirements for the preliminary elements of a standard should be discussed and approved in advance by all stakeholders.*

3.2 Main body

3.2.1 Introductory sections

3.2.1.1 General

3.2.1.1.1 Each Metrolinx standard shall include

a) a scope summarizing the overall content of the standard from beginning to end; and

b) as applicable, sections listing

1) publications referenced in the standard (see Section 3.2.1.2);

2) definitions (see Section 3.2.1.3); and

3) abbreviations (see Section 3.2.1.4).

Note: *The abbreviations list may be modified to include symbols and their definitions. Symbols should be grouped according to category (e.g., letters and Greek characters used in equations and figures, symbols used to provide guidance to the user of the standard).*

3.2.1.1.2 The introductory sections of a standard shall not contain any mandatory language (i.e., no requirements; see Sections 4.1 and 4.3).

Note: *Where the complexity of a standard warrants it, each main section may contain its own lists of reference publications, definitions, or abbreviations.*

3.2.1.2 Reference publications

3.2.1.2.1 All publications referenced in a standard shall be listed in the reference publications section. Publications shall be listed in alphabetical order by issuing body, author, or editor. References shall not be numbered.

3.2.1.2.2 Each entry shall include sufficient information to enable users of a Metrolinx standard to determine the source of the publication and how to obtain it. Every effort shall be made to present consistent information for each entry, as follows:

a) Entries for standards and similar publications shall include the issuing body, document number (including the date of publication or number of the edition referenced), and title.

b) Entries for legislation and regulations shall include the issuing jurisdiction, title of the act or regulations, volume title, and chapter.

c) Entries for online references shall be current to the time of publication of the referencing standard and shall include detailed web site information and URLs, as applicable.

3.2.1.2.3 The following is a short example of a reference publications list, illustrating the requirements given in this Section:

CSA Group. CAN/CSA-B45 Series-02 (R2013), *Plumbing Fixtures*
———. C282-15, *Emergency electrical power supply for buildings*
Electrical Safety Authority. *Ontario Electrical Safety Code*, 26th edition, 2015
Illuminating Engineering Society of North America (IES). *The Lighting Handbook*, 10th edition, 2011
Ontario Ministry of Labour. Occupational Health and Safety Act. R.S.O. 1990, c. O.1. https://www.ontario.ca/laws/statute/90o01
Ontario Ministry of Municipal Affairs and Housing. Ontario Building Code. https://www.ontario.ca/laws/regulation/120332
Transport Canada. Grade Crossings Regulations (SOR/2014-275). http://laws-lois.justice.gc.ca/eng/regulations/SOR-2014-275/
———. Railway Safety Act. R.S.C., 1985, c. 32 (4th Supp.). http://laws-lois.justice.gc.ca/eng/acts/R-4.2/

Note: *When there is more than one publication from the same issuing body, a 3-em dash may be used for entries after the first, as shown here in the examples for CSA Group and Transport Canada. For a definition of an em dash, see Section 6.5.2, Note 1.*

3.2.1.2.4 References to books, articles in periodicals and journals, and similar publications are less common in standards. If they are referenced, they shall be included in the reference publications list in accordance with Section 3.2.1.2.1, with the following detail, as applicable:

a) author or editor;

b) title;

c) periodical name, volume number and date, and page numbers;

d) place of publication;

e) publisher; and

f) date of publication.

Notes:

1) If the reference publications list in a standard is long, publications may be grouped according to category (e.g., books, articles, standards, legislation).

2) Publications that are not referenced in the standard but that may be helpful as supplementary resources may be listed in a bibliography at the end of a standard. Entries in a bibliography should be presented in accordance with the requirements given in this Section for reference publications.

3) More detailed information about documentation of sources can be found at http://www.btb.termiumplus.gc.ca/tcdnstyl-chap?lang=eng&lettr=chapsect9&info0=9#zz9.

3.2.1.3 Definitions

3.2.1.3.1 Definitions shall be listed in alphabetical order in table format and shall not be numbered. Terms used as they are defined in a general dictionary shall not be included. Because the definitions section is, in effect, establishing the building blocks of the standard, it is not appropriate for definitions to include any mandatory language; see Sections 3.2.1.1, 4.1, and 4.3.

3.2.1.3.2 The following is a short example of a definitions list, illustrating the requirements given in this Section (a section number and title have been roughed in to illustrate the organizational and numbering requirements given in Sections 3.2.1.1 and 5.2):

3 Definitions

Term	**Definition**
Integrated Rail Inspection System (IRIS)	A GO Transit heavy truck outfitted with equipment having the capability to test track geometry under loaded conditions, rail wear, and rail flaw testing.
Jordan rail	See Guard rail.
Localized surface collapse	A flattening down and widening of the rail head other than at the end of a rail, not associated with any internal defect in the rail.
Loss of vertical height	The reduction in total height of the rail compared to the nominal rail section. Loss of vertical height is measured at the centre of the head of rail.
Match marks	Marks placed on the web, base, and tie plate when distressing rail to ensure that it has moved the required amount.
Million gross tons (MGT)	The total weight that travels over a section of track.

3.2.1.4 Abbreviations

3.2.1.4.1 Abbreviations shall be listed in alphabetical order in table format and shall not be numbered. See Section 6.3 for more detailed requirements for the writing of abbreviations.

3.2.1.4.2 The following is a short example of an abbreviations list, illustrating the requirements given in this Section (a section number and title have been roughed in to illustrate the organizational and numbering requirements given in Sections 3.2.1.1 and 5.2):

4 Abbreviations

Abbreviation	**Definition**
ac	Alternating current
AFF	Above finished floor
ANSI	American National Standards Institute

AODA	Accessibility for Ontarians with Disabilities Act
APTA	American Public Transportation Association
ATR	Above top of rail
ATS	Automatic transfer switch

3.2.2 Principal sections

3.2.2.1 The principal sections of the main body of a Metrolinx standard shall be organized in a logical sequence. Each main section of a standard should begin with a scope that provides a summary or overview of the contents of that section, moving from the highest, most general level to the most detailed, specific level. Provisions that apply to all items in a category should precede provisions that apply only to some of the items in the category.

Note: *The purpose of these requirements is to avoid repetition and inconsistency. The summary or overview at the beginning of each section can be used as a roadmap or checklist for developing the rest of the provisions of that section. Long, complex subsections should also be approached with these principles in mind.*

4 Language for the expression of provisions

4.1 General

4.1.1 The content of Metrolinx standards consists of provisions that can be categorized according to their intent as follows:

a) requirements, i.e., provisions with which compliance is mandatory;

b) recommendations, i.e., provisions that are advised but not mandatory;

c) options, i.e., provisions that the user of the standard may choose to implement; and

d) statements, i.e., provisions that are factual or descriptive.

4.1.2 To ensure that users of Metrolinx standards can easily distinguish between what is required, what is recommended, and what is permitted by a standard, each of these types of provisions shall be expressed in accordance with the requirements given in Sections 4.3 to 4.6.

4.2 Active and passive voice

4.2.1 The provisions of a standard may be expressed using the active or passive voice, as applicable. In active constructions, the subject of the sentence performs the action signified by the verb (e.g., "The contractor shall provide the labels above

the receptacles"). In passive constructions, the subject of the sentence is acted upon by the verb (e.g., "The labels above the receptacles shall be provided by the contractor").

4.3 Requirements

4.3.1 Except as permitted in Section 4.3.2, the requirements of a standard (mandatory provisions) shall be expressed using the verbal auxiliary "shall."

4.3.2 Where appropriate (e.g., to list the steps in a procedure), requirements may be expressed using the imperative, i.e., as instructions. The following example shows the two forms (i.e., constructions using "shall" as specified in Section 4.3.1 and the imperative as permitted in this Section); each form carries the same weight and intent:

Using the verbal auxiliary "shall"	Track bolts shall be tightened using track or power wrenches set to the torque settings specified in Table 3.
Using the imperative	Tighten track bolts with track or power wrenches set to the torque settings specified in Table 3.

4.3.3 Wherever possible, a consistent style (i.e., either constructions using the verbal auxiliary "shall" as specified in Section 4.3.1 or the imperative as permitted in Section 4.3.2) should be used within a given section or subsection of a standard.

4.3.4 Preference should be given to constructions using "shall" rather than the imperative. Some provisions cannot be expressed using the imperative (e.g., the examples given in Section 4.2, where it is essential to the requirement to assign responsibility to the contractor). Because of limitations such as this, it is easier to maintain overall consistency using "shall" constructions in the expression of provisions.

4.3.5 An exception to a mandatory provision may be expressed using the phrase "need not" (e.g., "Supports with a thickness greater than 150 mm need not comply with the requirement for reinforcement").

4.3.6 Requirements shall not be expressed using formulations such as:

a) "must";

b) "is" / "are";

c) "is (are) to be";

d) "is (are) required"; and

e) "will."

Note: *The intent of this Section is to ensure that requirements are not expressed in either the present or future tense, but only using the verbal auxiliary "shall" or the imperative, as required in Sections 4.3.1 to 4.3.3. The following example illustrates the incorrect and correct forms:*

Incorrect	*Correct*
Present tense: • *All exposed structural steel structures are hot dip galvanized.* • *All exposed structural steel structures are to be hot dip galvanized.* • *All exposed structural steel structures are required to be hot dip galvanized.* *Future tense:* • *All exposed structural steel structures will be hot dip galvanized.*	*Using "shall":* • *All exposed structural steel structures shall be hot dip galvanized.* *Using the imperative:* • *Ensure that all exposed structural steel structures are hot dip galvanized.*

4.4 Recommendations

4.4.1 Recommendations made by a standard (provisions that are advised but not mandatory) shall be expressed using the verbal auxiliary "should."

4.4.2 In the interests of clarity, the conditional should be expressed using "if" rather than "should" (e.g., use "If this is required, follow these recommendations," not "Should this be required, follow these recommendations").

4.5 Options

4.5.1 Options permitted by a standard (provisions that the user of the standard may choose to implement) shall be expressed using the verbal auxiliary "may."

4.5.2 Care should be taken to ensure that the standard clearly distinguishes between "may" in the sense of an option (i.e., a choice that the standard allows the user to make) and "may" in its everyday sense of possibility (as in "It may rain today"). For the purposes of standards writing, possibility can often be expressed by workarounds such as "can," "could," or "might" ("It might rain today").

4.5.3 Where the structure of a sentence requires it, the phrase "is permitted" may be used instead of "may."

4.6 Statements

Statements (provisions that are factual or descriptive) shall be expressed in the indicative mood. The indicative is a verb form used to state a fact, e.g., "GO Transit is an inter-regional public transit system in Southern Ontario."

5 Structure

5.1 General

5.1.1 The following structural elements shall be used to organize the contents of Metrolinx standards:

a) sections, subsections, and lists;

b) tables;

c) figures;

d) notes to sections, subsections, tables, and figures; and

e) appendices.

5.1.2 Each of these structural elements shall be assigned a unique number or letter identifier as specified in Sections 5.2 to 5.8.

Note: *Using a system of number and letter identifiers facilitates efficient and accurate referencing for purposes such as cross-references within the standard itself and references to parts of the standard in other material, such as procurement documents and other standards.*

5.2 Sections

Each main section of a Metrolinx standard shall be assigned a single-digit, Arabic number beginning at 1 and shall have a title representative of its subject matter.

5.3 Subsections

5.3.1 Numbering

5.3.1.1 A subsection is a subdivision of a section and shall be numbered by adding an Arabic number separated by a period to the section number. Primary subsections (e.g., 4.3) may be further subdivided into secondary subsections (e.g., 4.3.1, 4.3.2) and beyond.

Note: *The longer the subsection number, the greater is the risk of error in cross-referencing or referencing. In the interests of avoiding unduly long subsection numbers, subdivision should not go beyond four digits (i.e., the main section number plus four subdivisions, for a total of five digits).*

5.3.1.2 To ensure clarity in referencing and cross-referencing, each subdivision of the text in a section or subsection shall be assigned an appropriate subsection number. This means that in a subdivided section or subsection, no text shall appear directly under the higher-level section or subsection number. For example, if Section 4.3 is subdivided into Sections 4.3.1 and 4.3.2, no text shall appear directly under 4.3 because such text cannot be assigned a unique identifier: references or cross-

references to 4.3 would refer to both the text immediately under 4.3 and to all the text under 4.3 (i.e., including the text in 4.3.1 and 4.3.2).

5.3.2 Titles

5.3.2.1 Titles shall be assigned to all subsections that are further subdivided (e.g., if Section 4.3.1 is further subdivided into Sections 4.3.1.1 to 4.3.1.5, Section 4.3.1 shall be assigned a title).

5.3.2.2 Subsections at the lowest level of subdivision (i.e., subsections that are not further subdivided) should be assigned titles as needed.

5.3.2.3 When a title is warranted for one or more subsections at any given level, all of the subsections at that level shall also be given a title (e.g., if Section 4.3 is assigned a title, all of the two-digit subsections in Section 4 shall be assigned a title, even if they are not subdivided).

Note: *The consistent use of titles at any given subsection level provides helpful navigational information for the reader and facilitates the automatic generation of a table of contents for the standard.*

5.4 Lists

5.4.1 Multiple items shall be presented in a list consisting of appropriate introductory text followed by the listed items. A list shall consist of at least two items.

5.4.1 A list may be used in any part of a standard (i.e., in sections, subsections, and notes in the main body and appendices and in tables and figures).

5.4.2 The introductory text may be:

a) a complete sentence followed by a colon; or

b) the first part of a sentence (not followed by a colon) that is completed by each item in the list.

5.4.3 Each item in a list shall be assigned a lower-case letter followed by a parenthesis: a), b), c), etc. Further subdivisions of a list item shall use the numbering sequences 1), 2), 3), etc., and then i), ii), iii), etc.

5.4.4 To ensure clarity in referencing and cross-referencing, each section or subsection shall contain only one first-level list; the purpose of numbered lists is defeated if two items tagged a), b), c), etc., appear under a single section or subsection number.

5.4.5 Bullets, dashes, and other typographical elements shall not be used to tag the items in a list.

Note: *Such typographical elements are not suitable as list identifiers because it is not possible to reference or cross-reference them concisely or clearly (as an example, compare "See the fourth sub-bullet under the fifth bullet in Section 3" to "See Section 3 e) 4)").*

Bullets and dashes may be used as item identifiers in tables because it is more likely that cross-references will be made to the whole table (or to a row or column in it) than to a specific item in a list within the table.

5.4.6 When the introductory text and the list items all consist of complete sentences, each item may:

a) begin with a capital letter and be punctuated at the end by a period; or

b) begin with a lower case letter and be punctuated at the end by a semicolon.

5.4.7 When the introductory text to a list is a sentence fragment that is completed by each item in the list, Item b) shall apply.

5.4.8 When a list is punctuated with semicolons in accordance with Item b), the penultimate item shall be followed by "and" or "or," as appropriate to the content of the list. The construction "and/or" shall not be used; if the intent of the list is that any or all of the list items can apply, that intent shall be made clear in the wording of the introductory text, not by the use of "and/or."

5.4.9 Lists shall be expressed in parallel constructions, i.e., each item shall stand in the same grammatical relation to the introductory text (as an example, if one item in a list is a complete sentence, all the items in the list shall be complete sentences; the list items shall not be a mix of complete sentences and sentence fragments).

Note: *For more information on parallel construction in lists, see the section on lists and series at http://www.btb.termiumplus.gc.ca/tpv2guides/guides/pep/index-eng.html?lang=eng&page=clarity_3_parallelism.*

5.5 Tables

Note: *For examples of table structure, see Section A.3 in Appendix A.*

5.5.1 General

5.5.1.1 Tables shall be introduced by a reference in the text that explains their purpose and application. Each table shall be assigned a title that clearly defines its subject matter and scope.

Note: *Tables are an effective means of presenting information in a clear and concise way and should be used wherever the content of the standard is suitable for table format.*

5.5.2 Table numbering

5.5.2.1 Tables may be numbered

a) consecutively throughout the standard, starting with Table 1; or

b) consecutively within each major section, with a hyphenated number consisting of the section number and the table number (e.g., the third table in Section 5 would be numbered Table 5-3).

5.5.3 Units of measurement in tables

5.5.3.1 In order to avoid unnecessary clutter in tables, units of measurement should be placed at the highest level possible within a table (e.g., if all the values in a table column are given in millimetres, the unit should be identified at the column heading, not in each row).

5.5.4 Empty cells in tables

5.5.4.1 In the interests of clarity, an em dash* shall be inserted in empty table cells to indicate that there are no applicable data.

*For a definition of an em dash, see Section 6.5.2, Note 1.

5.6 Figures

5.6.1 General

5.6.1.1 Figures shall be introduced by a reference in the text that explains their purpose and application. Each figure shall be assigned a title that clearly defines its subject matter and scope.

5.6.2 Figure numbering

5.6.2.1 Figures may be numbered

a) consecutively throughout the standard, starting with Figure 1; or

b) consecutively within each major section, with a hyphenated number consisting of the section number and the figure number (e.g., the third figure in Section 5 would be numbered Figure 5-3).

5.7 Notes

5.7.1 General

5.7.1.1 Notes shall appear in or immediately following the section, subsection, table, or figure to which they apply. There shall be no footnotes or endnotes in Metrolinx standards.

5.7.1.2 A single note shall appear following the tag *"Note:"*, and multiple notes shall appear under the tag *"Notes:"*.

5.7.1.3 Notes that apply generally to part of a standard shall be numbered 1), 2), 3), etc.

5.7.1.4 Where it is necessary to link a note to a specific reference in the text or in a table or figure, a symbol shall be placed at the relevant point in the text, table, or figure and at the beginning of the corresponding note. The following symbols shall be used in this order: * (asterisk), † (dagger), and ‡ (double dagger). If there are more than three notes, the symbols shall be doubled, etc., as necessary. Specific notes should be placed as close as practicable to the part of the standard to which they refer; for an example of a specific note in this document, see Section 5.5.4.

5.7.2 Notes to sections and subsections

5.7.2.1 Notes to sections and subsections of the text shall be used to incorporate supplementary information only and shall not be used to express requirements.

Note: *Restricting notes to sections and subsections to the expression of non-mandatory material reduces the risk of the user of the standard overlooking key requirements of it.*

5.7.3 Notes to tables and figures

5.7.3.1 Notes to tables and figures may be used to express related requirements or supplementary information. When notes to tables and figures are used to express requirements, they shall be written in mandatory language in accordance with Sections 4.1 and 4.3.

5.7.3.2 ***Note:*** *Unlike notes to text, notes to tables and figures may be mandatory. Integrating key requirements into the tables and figures to which they apply, rather than cross-referencing back to the text, is a more efficient way to make the applicable provisions readily accessible to the user of the standard.*

5.8 Appendices

5.8.1 Metrolinx standards may include appendices to address subjects that cannot be suitably integrated into the main body of a standard.

5.8.2 Each appendix shall be assigned a capital letter identifier, starting with A for the first appendix. Sections, subsections, tables, and figures within appendices shall be numbered in accordance with Sections 5.2, 5.3, 5.5, and 5.6, with the section, subsection, table, or figure number prefaced by the appendix letter identifier and a period (e.g., Section A.2.3, Figure A.2-1).

5.8.3 Each appendix shall be referenced in the main body of the standard in such a way that its application to the overall scope of the standard is established (i.e., mandatory or non-mandatory). Mandatory appendices may include requirements expressed in accordance with Sections 4.1 and 4.3. Non-mandatory appendices shall not contain requirements.

5.9 Pagination

Metrolinx standards shall be consecutively paginated, starting at 1. Running heads giving the section number and title shall be provided as navigational aids for the user of the standard.

6 Writing

6.1 Reference materials and guides

6.1.1 This Section of the Requirements for Writing highlights a few key requirements related to writing and punctuation in Metrolinx standards. Comprehensive guidance on such matters can be found at the Language Portal of Canada (https://www.noslangues-ourlanguages.gc.ca/index-eng.php), particularly on its "Writing Tools" page.

6.1.2 Except where otherwise required in these Requirements for Writing, Metrolinx standards shall be written in accordance with the relevant resources available on the Language Portal of Canada, with particular reference to the "The Canadian Style"; see http://www.btb.termiumplus.gc.ca/tpv2guides/guides/tcdnstyl/index-eng.html?lang=eng.

6.2 General

6.2.1 Metrolinx standards shall be written in complete sentences. Sentences shall be as concise as possible, allowing for the complexity of the material, and consistent terminology shall be used throughout a standard. Content shall be limited to essential technical provisions expressed in terms that are clear, measureable, and precise; repetition shall be avoided.

Note: *In the simplest terms, a sentence expresses a complete thought, using a subject and a verb.*

6.2.2 Metrolinx standards shall be written in plain language, with a view to avoiding jargon and ensuring that the standards are as accessible as possible to a wide range of users.

6.2.3 The language used in Metrolinx standards shall be bias free (i.e., gender neutral and free of stereotypes). For guidance on avoiding stereotypes in writing, see http://www.btb.termiumplus.gc.ca/tcdnstyl-chap?lang=eng&lettr=chapsect14&info0=14#zz14.

6.2.4 In the interests of readability, the articles "a," "an," and "the" shall not be omitted where they would ordinarily be used in written or spoken English (e.g., "Utility water meter to municipal standards shall be provided with 3-valve bypass arrangement" should be revised to read "A utility water meter to municipal standards shall be provided with a 3-valve bypass arrangement"; similarly, "GO logo and station name shall be mounted on a solid background" should be revised to read "The GO logo and station name shall be mounted on a solid background").

6.2.5 The ampersand (&) shall not be used in place of the word "and."

Note: *This restriction does not apply to specialized terms such as "Kiss & Ride."*

6.2.6 Provisions shall be expressed positively, not negatively.

6.2.7 The first and second persons shall not be used.

6.2.8 Typographical features such as bold, italics, underlining, or unnecessary capitalization shall not be used to add emphasis to a word or phrase (e.g., "Do NOT use heat ropes for heating rail on open deck bridges").

Note: *The use of typographical features to emphasize text is distracting to the reader and suggests that some requirements are more important than others. In the example given, capitalizing "NOT" seems to give this requirement greater weight than one expressed using "Do not…" when, in fact, the standard requires compliance in equal measure with all its mandatory provisions.*

6.3 Abbreviations

Note: *For additional guidance on abbreviations, see http://www.btb.termiumplus.gc.ca/tcdnstyl-chap?lang=eng&lettr=chap_catlog&info0=1#zz1.*

6.3.1 The principal abbreviations used in a standard may be given in an abbreviations section, as noted in Sections 3.2.1.1 b) 3) and 3.2.1.3.

6.3.2 Abbreviations shall be spelled out at the first mention in the text, with the abbreviation following in parentheses. If a term is used only rarely in a standard, the spelled-out form shall be used throughout, with the abbreviation given for information at the first use.

6.3.3 As a general rule, abbreviations are capitalized and set without periods (e.g., "AFF," not "A.F.F." or "aff" for "above finished floor"; "ASHRAE" for "American Society of Heating, Refrigerating, and Air-Conditioning Engineers"). Lower case abbreviations, such as "e.g." and "i.e.," are exceptions to this rule.

6.3.4 When an abbreviated term is given in full, it shall not be capitalized unless it refers to a proper noun (i.e., the name of a person, place, or thing; e.g., "above finished floor" for "AFF," but "Greater Toronto Hamilton Area" for "GTHA").

6.3.5 Plurals of abbreviations are formed by adding a lower case "s" to the abbreviated term (e.g., "CPUs," "EVs").

6.3.6 When an abbreviated term is preceded by an indefinite article ("a" or "an"), the choice of article is governed by pronunciation, not by spelling (e.g., "an MCC," not "a MCC").

6.4 Terms to use with care

6.4.1 "i.e." and "e.g."

6.4.1.1 The terms "i.e." and "e.g." shall be used accurately. Remember that "e.g." means "for example" and is used to introduce an example; "i.e." means "namely" or "that is" and is used to introduce a clarification or supplementary definition.

6.4.1.2 Examples in Metrolinx standards shall be introduced by "e.g." (not "for example," "Example," "ex.," etc.), except at the beginning of sentences, where "For example" shall be spelled out.

6.4.2 "that" and "which"

6.4.2.1 The relative pronouns "that" and "which" are used to indicate whether the content of a clause in a sentence is restrictive (i.e., essential) or non-restrictive (i.e., supplementary) in relation to the overall meaning of the sentence. A restrictive clause is introduced by the word "that" and is not set off by commas from the rest of the sentence. A non-restrictive clause is introduced by the word "which" and is set off by commas from the rest of the sentence (or a comma preceding and a period following if the clause appears at the end of a sentence). In the interests of clarity, care shall be taken in Metrolinx standards to ensure that these constructions are used correctly.

6.4.2.2 For a more detailed explanation of this distinction, see https://www.btb.termiumplus.gc.ca/tpv2guides/guides/pep/index-eng.html?lang=eng&page=usage_1_that_which.html.

Note: *The following is an example of a sentence expressed using a non-restrictive clause where the meaning actually requires a restrictive clause: "Piping materials, which are compatible with environmental conditions, shall be used."*

As it stands, the sentence means that piping materials are to be used, and that piping materials in general are compatible with environmental conditions, whereas the intent of the requirement is clearly to impose conditions on the piping materials to be used (i.e., that they have to be compatible with environmental conditions).

The sentence can be recast correctly using a restrictive clause, as follows: "Piping materials that are compatible with environmental conditions shall be used."

6.4.3 "comprise"

6.4.3.1 The correct meaning of "to comprise" is "to contain" or "to include," not "to compose." The construction "comprised of" is not an acceptable substitute for "composed of."

6.4.4 It is important to distinguish between

a) it's, a contraction meaning "it is" or "it has"; and

b) its, a possessive adjective meaning "belonging to it" (e.g., "Realign the track to its former position").

6.4.4.1 Given that it is not appropriate to use contractions in formal writing, the contraction "it's" is unlikely to have any application in Metrolinx standards.

6.4.5 "but not limited to"

6.4.5.1 The phrases "including, but not limited to" and "such as, but not limited to" are redundant and shall not be used; "including" and "such as" incorporate in themselves the idea of "not limited to."

6.5 Spelling and punctuation

6.5.1 Spelling

Spelling shall be in accordance with the Canadian Oxford Dictionary, Second Edition.

6.5.2 Hyphenation

Notes:

1) It is important to distinguish between the various lengths of dashes—hyphens, en dashes, and em dashes—that can be used as punctuation, as follows:

a) Hyphens (-) are used to join two elements that are closely related, such as the two parts of a compound term (e.g., barrier-free, self-serve). Hyphens are shorter than en dashes.

b) En dashes (–) are short dashes (short relative to em dashes, but longer than hyphens) used to express ranges (e.g., 2014–2016, 3–6 ft).

c) Em dashes (—) are long dashes (twice the length of an en dash) that can be used in place of various other forms of punctuation, such as commas, parentheses, or colons (for an example, see the introductory sentence in this Note). As shown in the example given in Section 3.2.1.2.1, three em dashes in a row can be used in reference lists and bibliographies to avoid repeating text.

Minus signs (−) closely resemble en dashes, although the two are in fact typographically distinct. All four of these characters are readily accessible in Word, either on the keyboard (hyphen) or in the symbols section of the insert tab (en dashes, em dashes, and minus signs).

2) For hyphen usage related to measurements, see Sections 8.1.2 and 8.3.8.

6.5.2.1 Hyphenation of commonly used, well-established compound words (e.g., "cross-section," not "cross section") shall be in accordance with the Canadian Oxford Dictionary, Second Edition.

6.5.2.2 Guidelines for hyphenating terms that are not found in the dictionary and for terms that are hyphenated based on their grammatical function or position in a sentence can be found in

a) "The Canadian Style" at http://www.btb.termiumplus.gc.ca/tcdnstyl chap?lang=eng&lettr=chap_catlog&info0=2#zz2; and

b) "Peck's English Pointers" at http://www.btb.termiumplus.gc.ca/tpv2guides/guides/pep/index-eng.html?lang=eng&page=punct_4_hyphens_dashes.

Note: *There are many different approaches to hyphenation in relation to the spelling of compound words. Selecting a reference dictionary and sticking to it is an efficient way of bypassing the widely divergent rules set out for hyphenation in various style guides and dictionaries.*

From the reader's point of view, the most important aspect of hyphenation is consistency; variation in the hyphenation of compound terms is an irritating distraction and can sometimes even be misleading.

It can be helpful during the drafting process to compile a list of hyphenated terms, based on the reference dictionary and any other relevant sources (e.g., related standards); the list can be used as a handy reference to help to ensure that consistency is maintained throughout.

6.5.2.3 The references cited in Section 6.5.2.1 provide detailed guidance on the use of hyphens, but it is worth noting a few key principles and rules:

a) In some contexts, a hyphen is used to avoid ambiguity. Using too many hyphens can be a distraction for the reader, but failing to use a hyphen where it is really needed can be just as problematic (e.g., compare "the best paid jobs" and "the best-paid jobs"; by contrast, the term "income tax refund" is perfectly clear without a hyphen).

b) Compounds in which the first word is an adverb that ends in "ly" are never hyphenated because adverbs can modify only adjectives, verbs, or other adverbs, not nouns. This means that such compounds do not require hyphenation to avoid ambiguity (e.g., in the phrase "a fully open door," the word "fully" can only be understood to refer to the adjective "open," not to the noun "door").

c) Hyphens are essential to distinguish the difference between two words that are otherwise spelled the same way (e.g., "re-creation" vs. "recreation").

6.5.3 Serial comma

The serial comma shall be used in Metrolinx standards. The serial comma is a comma placed after the second-last item in a series and before the coordinating conjunction "and" or "or" (e.g., "sidewalks, bus bays, and bus platforms").

6.6 Capitalization

Notes:

1) For additional guidance on capitalization, see http://www.btb.termiumplus.gc.ca/tcdnstyl-chap?lang=eng&lettr=chap_catlog&info0=4#zz4.

2) See also Section 6.7.2.2.

6.6.1 Titles of Metrolinx standards shall be capitalized in headline style, i.e., all words capitalized except articles ("a," "an," "the"), conjunctions of fewer than four letters (e.g., "and," "or"), and prepositions of fewer than four letters (e.g., "of," "by").

6.6.2 When a hyphenated term is used in the title of a standard, both elements in the term shall be capitalized if each of them is a word. When the first element is a prefix, only the first element shall be capitalized (e.g., Requirements for Pre-stressed Concrete, not Requirements for Pre-Stressed Concrete).

6.6.3 Section, subsection, table, figure, and appendix headings shall be set sentence case, i.e., with only the first word of the heading and any proper nouns (i.e., the name of a person, place, or thing) capitalized (e.g., "Figure 4-15: Typical Kiss & Ride configuration").

6.6.4 Terms such as "grade" and "type" shall be capitalized when they are used in a specific context (e.g., "Bus operational facilities shall be classified as Type A, B, or C" but "There are three types of bus operational facilities").

6.7 References and cross-references

6.7.1 References to other publications

6.7.1.1 References in the body of a Metrolinx standard to publications listed in the introductory reference publications section (see Sections 3.2.1.1 b) 1) and 3.2.1.2) shall be as concise as possible, giving sufficient information to enable the user of the standard to refer back to the reference publications section for further details. Such references shall be expressed using the following forms:

a) for books and periodicals: the author or editor and title of the work (or a shortened version of the title; if a shortened form is used, it shall be used consistently throughout the referencing standard);

b) for standards and similar publications: the issuing body and standard number;

c) for legislation: the issuing jurisdiction and title of the act or regulations; and

d) for electronic resources: the online source (e.g., issuing body), title, and URL.

6.7.1.2 When titles of books are referenced in a standard, they shall be set in italics; titles of articles shall be set in quotation marks without italics.

6.7.1.3 In the interests of brevity, material from other publications should be referenced rather than reproduced. If it is essential to quote such material, care shall be taken to ensure that:

a) any permissions necessary for its use are obtained and, if applicable, acknowledged in the standard;

b) the source is clearly identified in the referencing standard both in the reference publications section (see Sections 3.2.1.1 b) 1) and 3.2.1.2) and where the material is quoted; and

c) the material is reproduced accurately.

6.7.2 Cross-references

6.7.2.1 Cross-references within a standard shall be expressed using the word "See" and the applicable section, subsection, list item, table, figure, note, or appendix identifier (e.g., "See Section 4," "See Section 5.3, Note 1").

6.7.2.2 In cross-references, the word "section," "item," "table," "figure," and "note" shall be capitalized (e.g., "See Item f) of Section 5.3.1," not "See item f) of section 5.3.1"; "in this Section," not "in this section").

6.7.2.3 The word "subsection" need not be used in cross-references because the subdivision of the number itself acts as a sufficient indicator of it.

6.7.2.4 Cross-references shall not be expressed using vague formulations such as "See the preceding [or following] section," "See above [or below]," and "contained herein."

6.7.2.5 Cross-references consisting of a range shall be expressed

a) in text using the word "to" (e.g., "Sections 3.3 to 3.7"); and

b) in tables and figures, where space is a consideration, using a closed en dash* (e.g., "Sections 3.3–3.7").

* For a definition of an en dash, see Section 6.5.2, Note 1; a closed en dash is an en dash with no space before or after it.

Note: *Cross-references in a range are generally understood to be inclusive (i.e., in the example given, to include Section 3.3 and Section 3.7). It is, therefore, redundant to add the word "inclusive." Similarly, cross-references in a range are understood to include all the references in that range (i.e., every section from 3.3 to 3.7); it is, therefore, unnecessary to use the formulation "Sections 3.3 through 3.7."*

7 Numbers

Notes:

1) For additional guidance on numbers, see http://www.btb.termiumplus.gc.ca/tcdnstyl-chap?lang=eng&lettr=chap_catlog&info0=5#zz5.

2) See also Section 8 for requirements applicable to numbers used in measurements.

7.1 Numbers below and above nine

Numbers from one to nine shall be expressed in words, and numbers above nine shall be expressed in numerals, with the following exceptions:

a) in the context of measurements (a number is always used with a unit symbol or abbreviation, e.g.,

"4 km," not "four km"; "5 ft" not "five ft");

b) to avoid confusion (e.g., "thirty-six 2 x 4s," not "36 2 x 4s"); and

c) to avoid inconsistency (e.g., “5 tables and 35 chairs,” not “five tables and 35 chairs”).

7.2 Avoiding redundancy

Numbers shall not be given in both written out and numeral forms; using “five (5)” or “5 (five)” is simply redundant.

7.3 Numbers at the beginning of sentences

Numbers at the beginning of sentences shall always be written out (e.g., “Two benches shall be placed within 5 m of the kiosk lineup area,” not “2 benches shall be placed within 5 m of the kiosk lineup area”).

7.4 Decimal values

Decimal values less than 1 shall be written using a zero before the decimal (e.g., “0.362,” not “.362”).

7.5 Long numbers

In numbers with five digits or more before or after the decimal point, a space, not a comma, shall be used as the separator (e.g., “53 423,” not “53,423”; “0.534 23,” not “0.534,23”). Four-digit numbers may be written with no space (e.g., “5324”) except in contexts such as a table column, where a space is necessary to maintain alignment with numbers of five digits or more.

7.6 Fractions

Fractions used in a general sense, not related to units of measurement, shall be written out (e.g., “The aging requirements shall apply to three-quarters of the samples”).

8 Units of measurement

8.1 General

8.1.1 Metrolinx standards should be written using the International System of Units (SI), i.e., the metric system (see Section 8.2).

8.1.2 Hyphens shall not be used to join a value to a unit of measurement (e.g., “a 6 ft board,” not “a 6-ft board”; “a 4 kg weight,” not “a 4-kg weight”).

8.1.3 Ranges of values shall be expressed

a) in text using the word “to” (e.g., “5 to 7 ft”); and

b) in tables and figures, where space is a consideration, using a closed en dash* (e.g., "5–7 mm"), except where "to" is required for clarity (e.g., "−24 to −36 °C," not "−24–−36 °C"). Hyphens shall not be used to express a range.

* For a definition of an en dash, see Section 6.5.2, Note 1; a closed en dash is an en dash with no space before or after it.

Note: *The same logic regarding space considerations applies to other symbols and abbreviations (e.g., "greater than" and "less than" should be spelled out in text but may be written as ">" and "<" in tables and figures).*

8.1.4 The forward slash (/) shall be used to express "per" in values (e.g., "5 km/h," "2000 r/min," "10 ft/min"). When these formulations are used without a value, they shall be written out in words (e.g., "The results shall be reported in kilometres per hour").

8.1.5 When a number at the beginning of a sentence is part of a measurement, both the number and the unit of measurement shall be spelled out (e.g., "Fifteen millilitres of solution shall be added," not "Fifteen ml of solution shall be added").

8.1.6 Percentages shall be expressed in Arabic numbers followed by the % symbol, with no space between the number and the symbol.

8.2 Metric usage

Note: *For additional guidance related to the use of the metric system, see:*

a) https://www.btb.termiumplus.gc.ca/tpv2guides/guides/wrtps/index-eng.html?lang=eng&lettr=indx_catlog_a&page=9AA90hzjyxg4.

b) http://www.btb.termiumplus.gc.ca/tcdnstyl-chap?lang=eng&lettr=chapsect1&info0=1.23#zz1.

8.2.1 Values expressed in metric units shall consist of an Arabic numeral followed by the metric symbol for the unit. A space shall be left between the numeral and the symbol (e.g., "5 m," not "5m"; "14 °C," not "14°C").

8.2.2 Unit symbols shall not take an "s" at the end in the plural nor shall they be followed by a period, except at the end of a sentence (e.g., "5 kg of potatoes," not "5 kgs of potatoes" or "5 kg. of potatoes").

8.2.3 When a numerical value is not given, the metric unit symbol shall be spelled out (e.g., "the length shall be 5 m," but "the length shall be given in metres"). Numbers shall not be combined with spelled-out symbols, and unit symbols shall not be combined with spelled-out numbers (e.g., "5 m," not "5 metres" or "five m").

8.2.4 Units of area and units of volume shall be expressed using the appropriate superscript (e.g., "m3," not "cu m").

8.2.5 Metric measurements shall be given in terms of a single unit (e.g., "4.3 m," not "4 m 30 cm").

8.2.6 In the metric system, a different meaning is attached to symbols and prefixes depending on whether they are set in roman (upright) type, in italic (slanted) type, or in upper or lower case (e.g., a lower case, roman "m" is the symbol for metre; an italic "m" is used for mass; an upper case "M" signifies the prefix "mega"). Therefore, metric measurements retain these attributes regardless of the text in which they appear (e.g., "Eye level is defined as approximately 1675 mm above finished floor level"; "ALLOW 5 m BETWEEN INSTALLATIONS").

8.2.7 Informal or short forms of metric units shall not be used (e.g., "amp" for ampere; "kilo" for kilogram; "cc," "c.c.," "ccm," or "cu cm" for cm3).

8.2.8 Decimals, not fractions, shall be used with metric units (e.g., "0.5 m," not "½ m").

8.3 Imperial units

8.3.1 Values expressed in imperial units shall consist of an Arabic numeral followed by the abbreviation for the unit. A space shall be left between the numeral and the symbol (e.g., "5 ft," not "5ft").

Note: *Values in degrees Fahrenheit are an exception to this rule and are generally written without a space.*

8.3.2 Unit abbreviations shall not take an "s" at the end in the plural nor shall they be followed by a period, except at the end of a sentence (e.g., "5 lb of potatoes," not "5 lbs of potatoes" or "5 lb. of potatoes").

8.3.3 When a numerical value is not given, the name of the unit shall be spelled out (e.g., "the length shall be 5 ft," but "the length shall be given in feet"). Numbers shall not be combined with spelled-out names of units, and abbreviations for units shall not be combined with spelled-out numbers (e.g., "5 ft," not "5 feet" or "five ft").

8.3.4 Units of area and units of volume shall be expressed using the appropriate superscript (e.g., "3 ft2," not "3 sq ft").

8.3.5 Mixed units may be used in imperial measurements (e.g., "4 ft 6 in").

8.3.6 The prime symbols (′ for feet and ″ for inches) shall not be used.

8.3.7 Fractions expressing measurements shall be expressed in numbers and unit abbreviations (e.g. "3/4 lb," not "three-quarters of a pound" or "3/4 of a lb").

8.3.8 Values consisting of a whole number and a fraction shall be written using a hyphen (e.g., "2-3/16 in," not "2 3/16 in").

A Appendix A - Writing requirements examples

A.1 Scope

This Appendix to the Requirements for Writing provides examples of the following:

a) the table of contents (see Section A.2);

b) table structure (see Section A.3); and

c) writing effective requirements and organizing standards for clarity (see Section A.4).

Note: *The examples in this Appendix are taken from*

a) the GO Design Requirements Manual, April 2016;

b) the GO Transit Track Standards, RC-0506-02TRK, June 2016; and

c) RER-DGN-PLN-041, Revision A, Metrolinx BIM Implementation Plan.

A.2 Table of contents

A.2.1 The following example illustrates how to present the table of contents for a Metrolinx standard. The subject headings (see Section 3), numbering structure and pagination (see Section 5), and heading style (see Section 6.6.2) required by these Requirements for Writing are illustrated in the revised contents on the right.

A.2.2 Entries such as "contents," "table of tables," and "table of figures" are never listed as items in a table of contents. The heading "Contents" is understood to include the entire contents of the standard, with headings such as "Tables" and "Figures" used as applicable.

Example A.2-1

Original		**Revised**	
CONTENTS		**CONTENTS**	
Contents	ii	**Preface**	5
Table of Figures	iii		
Table of Tables	v	**1 Scope**	7
A Introduction	A-0	**2 Reference publications**	8
Continued…		*Continued…*	

A.3 Table structure

A.3.1 The examples given in this Section are intended to illustrate some aspects of table structure as specified in the Requirements for Writing. The examples show the original text alongside the suggested revision. In Examples A.3-1 and A.3-2, a rationale for the proposed changes has been provided; in Example A.3-3, the rationale has been omitted so that the example can be used for study and review. In all three examples, the following revisions have been made:

a) A table number has been roughed in to illustrate the numbering requirements given in Section 5.5.2 (these numbers do not necessarily represent the actual numbers that would be used if the entire source document were to be restructured in accordance with the Requirements for Writing).

b) The section heading preceding the table has been deleted because it is duplicated in the table title.

c) The table titles and column headings have been set sentence case, in accordance with Section 6.6.2.

Example A.3-1

Original

Lighting Levels for Inside a Covered Parking Facility

Table F-10: Lighting Levels for Inside a Covered Parking Facility

Area	Specification	Colour Temperature
General Parking and Pedestrian Areas	5 Fc (50 LUX)	4000 K
Ramps and Corners	10 Fc (110 LUX)	4000 K
Entrance Areas	50 Fc (540 LUX)	4000 K
Service Rooms	50 Fc (540 LUX)	4000 K
Stairways and Elevator Lobbies	20 Fc (200 LUX)	4000 K

Suggested revision

Table 6-10: Lighting levels inside a covered parking facility

Area	Specification, fc (lux)	Colour temperature, K
General parking and pedestrian areas	5 (50)	4000
Ramps and corners	10 (110)	4000
Entrance areas	50 (540)	4000
Service rooms	50 (540)	4000
Stairways and elevator lobbies	20 (200)	4000

Rationale for the proposed edit

a) The column 1 entries have been set sentence case to minimize the visual distraction of excessive capitalization.

b) In columns 2 and 3, the units of measurement have been moved to the column headings to reduce unnecessary repetition and visual clutter in the table.

Example A.3-2

<table>
<tr><th>Original</th><th>Suggested revision</th></tr>
<tr><td>

Shared Bike Path Design Requirements

Table D-6: Shared Bike Path Design Requirements

Criteria	Specifications
Yellow Line	100 mm solid, standard yellow, painted centreline
Width	minimum 3100 mm wide
Surface	hard and sustainable level materials that are stable, and slip-resistant
Grades	maximum slope of 4% Level landings or rest areas shall be provided at appropriate intervals
Cross slopes	maximum slope of 2%

</td><td>

Table 4-6: Shared bike path design requirements

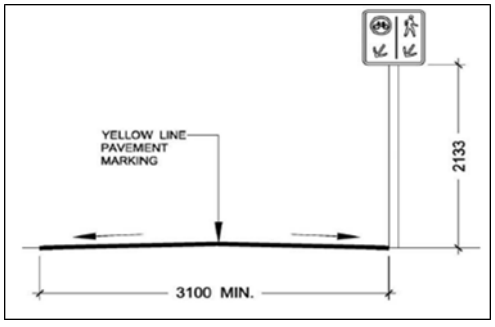
Feature	Specifications
Pavement marking	Solid centreline 100 mm wide painted standard yellow
Width	Minimum 3100 mm
Surface	Hard and sustainable level materials that are stable and slip-resistant
Grades	• Maximum slope of 4% • Level landings or rest areas provided at appropriate intervals
Cross slopes	Maximum 2%

</td></tr>
</table>

Rationale for the proposed edit

a) "Criteria" is not an appropriate heading for the first column. The table as a whole sets design criteria, whereas the first column lists the feature (or "element" or "item") for which specifications are being given.

b) The first word in each entry in column 2 has been capitalized for consistency with the first column.



c) In row 1, column 1, the feature in question has been identified generically ("Pavement marking"), not by one of the specifications given in column 2 ("yellow line"). This is consistent with the accompanying figure.

d) In row 2, column 2, “wide” has been deleted, given that column 1 specifies “width.”

e) In row 4, column 2, bullets have been used to flag that there are two requirements to be met; “shall be” has been omitted from the second bullet for consistency with the other entries in the table (using mandatory language in any of the specifications is redundant because the whole table is mandatory, as indicated in this instance by the phrase “design requirements” in the table title).

f) In row 5, column 2, the text has been edited to eliminate repetition.

Example A.3-3 – Study and review

Original

Nameplates
Table F-13: Nameplates

Name Plate	Size	Line	Height
Size 1	10 x 50 mm	1 Line	3 mm high letters
Size 2	12 x 70 mm	1 Line	5 mm high letters
Size 3	12 x 70 mm	2 Line	3 mm high letters
Size 4	20 x 90 mm	1 Line	8 mm high letters
Size 5	20 x 90 mm	2 Line	5 mm high letters
Size 6	25 x 100 mm	1 Line	12 mm high letters
Size 7	25 x 100 mm	2 Line	6 mm high letters
Size 8	53 X 100 mm	1 Line	25 mm high letters

Suggested revision

Table 6-13: Nameplates

Nameplate size	Dimensions, mm	Number of lines	Letter height, mm
1	10 x 50	1	3
2	12 x 70	1	5
3	12 x 70	2	3
4	20 x 90	1	8
5	20 x 90	2	5
6	25 x 100	1	12
7	25 x 100	2	6
8	53 X 100	1	25

A.4 Writing effective requirements and organizing standards for clarity

A.4.1 The examples given in this Section are intended to illustrate some provisions of the Requirements for Writing, demonstrating the advantages in terms of clarity and accessibility that can be achieved from the implementation of the requirements. In some instances, the meaning can be grasped well enough without the revisions, but in others, the revisions address more serious issues related to organization, clarity, and consistency. In all cases, the revisions point to the importance of making the standard as accessible as possible to a wide range of users.

A.4.2 The examples show the original text alongside the suggested revision. In Examples A.4-1 to A.4-9, a rationale for the proposed changes has been provided; in Examples A.4-10 a) and b), the rationale has been omitted so that the examples can be used for study and review. In all the examples, the following revisions have been made:

a) Section and subsection numbers have been roughed in to illustrate the numbering requirements given in Section 5 (these numbers do not necessarily represent the actual numbers that would be used if the entire source document were to be restructured in accordance with the Requirements for Writing).

b) Section and subsection headings have been set sentence case, in accordance with Section 6.6.2.

Example A.4-1

Original	Suggested revision
No new or modified materials or equipment will be considered for use as a standard without first being subjected to a service test, unless otherwise directed by the Rail Corridors, Senior Manager of Track and Structures.	4.3 All new or modified materials or equipment shall be subjected to a service test prior to use as a standard, unless otherwise directed by the Rail Corridors, Senior Manager of Track and Structures.

Rationale for the suggested revision

Reworking this requirement from the negative ("No new or modified materials") to the positive ("All new or modified materials") eliminates unnecessary wordiness, making it clearer and more concise. Note the revision to correct mandatory language ("shall be," not "will be"). Always look for the simplest, most direct way to express the provisions of a standard.

Example A.4-2

Original	Suggested revision
The flangeway width may not be less than 65 mm and shall not exceed 75 mm	The flangeway width shall not be less than 65 mm and shall not exceed 75 mm.

Rationale for the suggested revision

This requirement is a simple example showing the error of using "may not" in place of "shall not." Inconsistencies in mandatory language can give rise to confusion about the intent of a requirement; in this case, the user of the standard might well wonder why the requirement for the minimum is expressed differently than the requirement for the maximum.

Example A.4-3

Original	Suggested revision
Snow Storage Snow storage areas shall be: • Identified on the Landscape Plan • Provide snow storage areas away from public streets and other areas where • Motorist/pedestrian sight distance and continuous landscape screening is essential • Sodded areas or portions of landscaped areas may be identified for snow storage with plant material selected accordingly • Where overflow parking or bio-retention areas are provided, those areas may be used for snow storage • Hard surfaces areas used for snow storage are encouraged to have sustainable materials to retain snowmelt on-site	**4.11.5.8.2 Snow storage** Snow storage areas a) shall be identified on the Landscape Plan; b) shall be located away from public streets and other areas where motorist/pedestrian sight distance and continuous landscape screening is essential; c) may be located in sodded areas or portions of landscaped areas, with plant material selected accordingly; and d) may be located in overflow parking or bio-retention areas, if such areas are provided. Hard surface areas used for snow storage should consist of sustainable materials to retain snowmelt on-site.

Rationale for the suggested revision

a) The list in this Section has been revised using parallel construction to express each item as the completion of a sentence beginning with the introductory text.

b) The second and third bullets have been combined into a single Item b), correcting the erroneous subdivision in the original.

c) The correct forms of language have been used for the expression of the provisions ("shall be," "may be," "should"). The advantages of using these terms are particularly clear in the final item, where the poor usage "are encouraged to have" is corrected to the simple "should consist of."

Example A.4-4

Original	Suggested revision
3.3 Collaboration Platform **3.3.1** Metrolinx requires the usage of a BIM file management system on all contracts using BIM. **3.3.2** The Lead Consultant is to create the BIM workspace and will be installed and distributed within the file management environment so that all required parties have access to it.	**3.3 Collaboration platform** **3.3.1** A BIM file management system shall be used on all contracts using BIM. **3.3.2** The Lead Consultant shall create the BIM workspace. The workspace shall be installed and distributed in the file management environment so that it is accessible to all required parties.

Rationale for the suggested revision

a) Using the correct form of mandatory language ("shall be used") in Section 3.3.1, instead of the cumbersome "requires the usage of," makes for improved clarity and brevity.

b) There is no need to say "Metrolinx requires" in a Metrolinx standard. In a Metrolinx standard, it is a given that it is Metrolinx that is doing the requiring, unless another authority (e.g., a code or standard) is cited. Again, eliminating this improves the clarity and brevity of the requirement.

c) Section 3.3.2 is a good example of why it is important to keep track of the subject and verb in each sentence. As written, the subject of the second sentence goes badly awry: "The Lead Consultant … will be installed and distributed within the file management environment …".

Example A.4-5

Original	Suggested revision
Back-up power generators are a mandatory requirement, for providing the majority of our operational elements/ systems for 8 hours system operational duration (and additional 16 hours of testing capacity), in the event of a power failure at the following GO facilities: ….	Backup power generators shall be provided for the majority of operational elements/systems for 8 h of operation and an additional 16 h of testing capacity in the event of a power failure at the following GO facilities: ….

Rationale for the suggested revision

a) It is not necessary to say that a provision of a standard is "a mandatory requirement" if the correct mandatory language is used to express it (in this instance, "shall be provided").

b) The first and second person (in this instance, the first-person "our") are not used to express the provisions of a standard. Here, the intended object is "the majority of operational elements/systems … at the following GO facilities"; the use of "our" is unnecessary and potentially ambiguous.

Example A.4-6

Original	Suggested revision
Platform Access Area **….** **Lighting Strategy** • Shall be illuminated by a downlight linear suspended LED fixtures • Fixtures must to be suspended at a consistent height, just above the wayfinding • Provide a mix of 1220mm long and 2440mm long fixtures suspended in a random pattern, suspended from the ceiling with stems. • Fixtures are not to be located over stairs except at landings	**5.3.1 Platform access area** **….** **5.3.1.3 Lighting requirements in the platform access area** Lighting in the platform access area shall comply with the following requirements: a) The area shall be illuminated by downlight linear suspended LED fixtures. b) A mix of fixtures 1220 mm long and 2440 mm long shall be suspended in a random pattern from the ceiling by stems. c) The fixtures shall be suspended at a consistent height, just above the wayfinding.

	d) Fixtures shall not be located over stairs except at landings.

Rationale for the suggested revision

a) The subsection title has been revised to refer to the platform access area, and a sentence has been added to introduce the list, also referring to the platform access area. It is essential to provide the context for each provision of a standard, even at the risk of being a little repetitious; the user of a standard should never have to look back through the standard to identify the principal subject of a requirement.

b) The title has been revised from "strategy" to "requirements" because the subsection is stating detailed specifications, not an overarching strategy.

c) The correct form of mandatory language ("shall") has been used in the sentence introducing the list and in each item.

d) In the original, there is a discontinuity between the subsection title and the sentence fragment in the first bullet—as written, it is the lighting strategy, not the platform access area, that shall be illuminated. The proposed revision highlights the value of writing in complete sentences and using an ordered list structure with appropriate introductory text to avoid this kind of discontinuity.

e) The following three bullets further complicate matters by mixing the imperative ("Provide") with the passive ("Fixtures must … be," "Fixtures are not to be"). Revising the items in the list so that they are expressed using parallel constructions (in this case, passive) produces a text that is much clearer and more consistent—and therefore more readily accessible to the user of the standard. Both the imperative and passive forms are acceptable in standards writing, but not a mix of the two in a single section or list.

f) The items in the list have been reordered to produce a more logical sequence—first the general type of fixture, then more detail about the size of the fixtures and their positioning, then more detail about their height, and, last, an exception that applies to a subset of the fixtures.

g) The expression of metric measurements has been corrected by adding a space between the number and the unit—1220 mm, not 1220mm.

h) The number of copy editing errors ("a … fixtures", "must to be", "a random pattern, suspended from the ceiling with stems") points to the need for careful proofreading. While the meaning is clear enough, such errors are a distraction to the user of the standard.

Example A.4-7

Original	Suggested revision
Waiting Area …. **Lighting Strategy** • Provide linear light fixtures between the suspended modular wood grill ceiling system, outside of the delineated seating zone • Provide a custom drum-shaped suspended light fixture over the delineated seating zone o The drum fixture is to be equipped with multiple light sources • The number of drum fixtures depends on the size of the seating zone	**5.3.2 Waiting area** …. **5.3.2.4 Lighting requirements in the waiting area** Lighting in the waiting area shall comply with the following requirements: a) Linear light fixtures shall be provided between the suspended modular wood grille ceiling system, outside the delineated seating zone. b) A custom drum-shaped suspended light fixture shall be provided over the delineated seating zone. The drum fixture shall be equipped with multiple light sources. c) The number of drum fixtures shall depend on the size of the seating zone.

Rationale for the suggested revision

a) Note that the sub-item in the second bullet in the original has been incorporated directly into Item b). A single item (in this case, a single sub-item) does not constitute a list.

b) The list has been revised to eliminate the mix of imperative and passive in the first two bullets and to make correct use of mandatory language ("shall," not "is to be").

See also Items a) and b) in the rationale to Example A.4-6.

Example A.4-8

Original	Suggested revision
Retail/Concession …. **Design Requirements** Provide Retail/Concession area to be located in close proximity to the Public Washrooms Provide direct access from building exterior for after-hour access, when possible Provide mechanical, electrical, plumbing, and communication rough-ins to accommodate retail functions Detailed retail typology allocations, service offerings, footprint selection, building access and mechanical/electrical service requirements can be found in the GO Standard Retail base building requirements.	**5.3.5 Retail/concession area** …. **5.3.5.1 Design requirements in the retail/concession area** The retail/concession area shall comply with the following requirements: Locate the retail/concession area in close proximity to the public washrooms. Whenever possible, provide direct access to the retail/concession area from the building exterior for after-hours access. Provide mechanical, electrical, plumbing, and communication rough-ins to accommodate retail functions. Detailed retail typology allocations, service offerings, footprint selection, building access, and mechanical/electrical service requirements can be found in the GO standard retail base

	building requirements.

Rationale for the suggested revision

a) This list has been revised using parallel constructions in the imperative in each item.

b) Note that the final bullet in the original has been revised to be set as text following the list because, unlike the list items, it does not express a design requirement and therefore does not belong in the list. Making sure that lists are accurately set off from the rest of the text provides the user of the standard with clear visual cues to the flow of meaning in the material.

See also Item a) in the rationale to Example A.4-6.

Example A.4-9

Original	Suggested revision
Fencing **….** All fencing shall include the following characteristics and features, regardless of the intended performance of the fence at a given location (varying only in height). Each fence shall be: • Secure • Anti-climb • Anti-cut • Vandal-proof • Highly transparent • Attractive	**4.11.4 Fencing** **….** All fencing shall be a) secure; b) anti-climb; c) anti-cut; d) vandal-proof; e) highly transparent; and f) attractive.

Rationale for the suggested revision

a) If the requirement applies to all fencing, it should just say "All fencing." All the rest of the original introductory text is unnecessary elaboration and clutter.

b) The list has been recast and punctuated as an itemized, ordered list, with the initial word in each item set lower case because each item completes the introductory text.

Example A.4-10 – Study and review

The two parts of Example 10 are more extended excerpts of text revised to comply with these Requirements for Writing. They are presented without rationales for the suggested revisions and can be used as study and review examples.

Example A.4-10 a)

Original	Suggested revision
Mechanical Systems (!) All pipes and mechanical fixtures shall be designed to be corrosion free (no Copper type M is permitted) • Mechanical systems to be designed without confined spaces • Connect sanitary sewer to level 1 drainage • If not possible, provide duplex epoxy coated sanitary sump pump with: o 2 independent seal assemblies o Guide bars o Four float level control system o Lifting equipment including lifting davit o Chain hoist and hook o Lifting de- vice o Gas tight access frame o Self-opening cover complete with piston kit and safety grid cover shall be traffic bearing where needed and completely assembled stainless steel • There shall be no need for personnel to enter the wet well to service the pumps. Utility water meter to municipal standards shall be provided with 3 valve by-pass arrangement • Accommodate water service on every level • Provide exterior non-freeze water hydrants evenly spaced along the perimeter • Incorporate heat tracing • Provide heavy duty parking area drains, duty grate and sediment buckets	**4.9.7 Mechanical systems** Mechanical systems shall comply with the following requirements: a) All pipes and mechanical fixtures shall be designed to be corrosion free (copper Type M shall not be used). b) Mechanical systems shall be designed without confined spaces. c) The sanitary sewer shall be connected to Level 1 drainage. If it is not possible to connect it to Level 1 drainage, a duplex epoxy-coated sanitary sump pump shall be provided. The sump pump shall be equipped with the following: 1) two independent seal assemblies; 2) guide bars; 3) four-float level control system; 4) lifting equipment, including the following: i) a lifting davit; ii) a chain hoist and hook; and iii) a lifting device; 5) a gas-tight access frame; 6) a self-opening cover that is i) complete with a piston kit and safety grid cover; ii) traffic bearing where needed; and iii) completely assembled stainless steel. d) It shall not be necessary for personnel to enter the wet well to service the pumps. e) A utility water meter that has a three-valve bypass arrangement and that complies with municipal standards shall be provided. f) The system shall accommodate water service on every level. g) Exterior non-freeze water hydrants shall be provided and shall be evenly spaced along the perimeter. h) Heat tracing shall be incorporated. i) Heavy-duty parking area drains, duty grates, and sediment buckets shall be provided.

Example A.4-10 b)

Original	Suggested revision
Site Furnishings **Garbage and Recycling Storage Areas** The Consultant shall verify garbage and recycling bin sizing with station, local municipality and/or service provider to validate garbage enclosure dimensions prior to design. At a minimum, garbage enclosures must be large enough to conceal two 6-yard bins. The following criteria shall be considered when deciding on a location for a garbage enclosure: • Garbage truck access • Staff access / proximity to station • Place on surplus land (land which cannot be used for anything else) • Keep away from pedestrian paths and waiting areas • Keep out of direct view when entering the site • Where required, gates shall be equipped with "No Parking" signage to ensure accessibility is always maintained (for "No Parking" signage please refer to the Static Signage Standards) • Consultant to verify signage sizing with GO prior to proceeding **Exterior Bollards** • Shall be 200 mm diameter galvanized steel pipe, concrete filled, and protected with 3 mm minimum thick high density polyethylene 'safety yellow' (or other colour as specified by GO) coloured cover, projecting 1.2 m above grade and set minimum 1.2 m into concrete pier • At bus fuel storage areas, provide 250 mm diameter concrete filled bollards • Provide bollards to protect electrical equipment locations **Interior Bollards** • 150 mm diameter galvanized steel pipe • Concrete filled • Protected with 3 mm minimum thick high density polyethylene 'safety yellow' (or other colour as specified by GO) coloured cover • Projecting 1.2 m. above floor • Cast with welded plate and 4 anchors into concrete slab **Removable Bollards** Permanently installed receiver below grade, with a top that is flush with the pavement and a cap to prevent dirt accumulation while the	**4.11.4 Site furnishings** **4.11.4.1 Garbage and recycling storage areas** The Consultant shall verify garbage and recycling bin sizing with the station, local municipality, and/or service provider to validate garbage enclosure dimensions prior to design. At a minimum, garbage enclosures shall be large enough to conceal two 6 yd bins. The following criteria shall be considered in the selection of a location for a garbage enclosure: a) garbage truck access; b) staff access and proximity to the station; c) the feasibility of placing the enclosure on surplus land (i.e., land that cannot be used for anything else); d) locating the enclosure away from pedestrian paths and waiting areas; e) locating the enclosure out of direct view of the entrance to the site. Where necessary, gates shall be equipped with "No Parking" signage to ensure that accessibility to the enclosure is always maintained (for requirements applicable to "No Parking" signage, see the Static Signage Standards). The Consultant shall verify signage sizing with GO prior to design. **4.11.4.2 Exterior bollards** Exterior bollards shall a) be made of concrete-filled galvanized steel pipe, 200 mm in diameter, except at bus fuel storage areas, where bollards 250 mm in diameter shall be used; b) be protected by a high-density polyethylene cover with a minimum thickness of 3 mm and coloured "safety yellow" (or other colour as specified by GO); c) project 1.2 m above grade and be set a minimum of 1.2 m into the concrete pier; and d) be provided to protect electrical equipment locations. **4.11.4.3 Interior bollards** Interior bollards shall a) be made of concrete-filled galvanized steel pipe 150 mm in diameter; b) be protected by a high-density polyethylene cover with a minimum thickness of 3 mm and coloured "safety yellow" (or other colour as specified by GO); and project 1.2 m. above

post is removed • Removable post that can be manually lifted out of the receiver to allow access • Exposed locking mechanism, with a padlock keyed to the station master • Dimensions, covers and color schemes shall meet Exterior and Interior Bollard's requirement	floor level and be cast with welded plates and four anchors into the concrete slab. **4.11.4.4 Removable bollards** Removable bollards are removable posts that can be manually lifted out of a receiver to allow access to the area that the bollards protect. Removable bollards shall comply with the following requirements: a) The dimensions, covers, and colour schemes of removable bollards shall meet the requirements for exterior and interior bollards, as applicable (see Sections 4.11.4.2 and 4.11.4.3). b) Receivers for removable bollards shall be permanently installed below grade, with a top that is flush with the pavement and a cap to prevent dirt accumulation when the post is removed. c) Removable bollards shall have an exposed locking mechanism, with a padlock keyed to the station master.

Bibliography

In addition to the references listed in Section 2, the following publications were consulted in the course of preparing these *Requirements for Writing*:

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The Chicago Manual of Style. 15th ed. Chicago: University of Chicago Press, 2003.

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