METROLINX

Metrolinx Commissioning Procedure: Product Description

MX-SEA-STD-145

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Amendment Record

Revision	Date (DD/MM/YYYY)	Description of changes

Preface

This is the first edition of the Metrolinx Commissioning Procedure Product Description (MX-SEA-STD-145). It forms part of a suite of guidance documents that describe the procedures to be followed to comply with Metrolinx's Reliability, Availability, Maintainability and Safety (RAMS) requirements.

The purpose of this document is to describe the procedure required for the commissioning of the change to the railway system and details how the actions shall be implemented. Project proponents may need to apply the process when they are undertaking a technical change to the railway system or modifying a maintenance regime or undertaking an operational change to the railway system.

Suggestions for revision or improvements can be sent to the Metrolinx Systems Engineering Assurance office at Engineering.Assurance@metrolinx.com. The Director of the Systems Engineering Assurance office authorizes the changes. Include a description of the proposed change, background of the application and any other useful rationale or justification. Be sure to include your name, company affiliation (if applicable), e-mail address, and phone number.

May 2023

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Documents

Table 1: Supporting Documents

Document Number	Document Title	Relation
BS EN 50126-1:2017	Railway Applications – The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) (PHASE 1: Adoption of European Standard EN 50126-1:2017)	Parent Standard
MX-SEA-STD-100	RAMS Process Standard	Related Standard
MX-SEA-PD-130	Commissioning Plan Product Description	Product Description
MXSD-SSA-L1-STD-0001	Railway Risk Assessment Standard	Standard
ISO 9001:2015	Quality Management Systems — Requirements	Supporting Standard
MX-SEA-TOR-001	Metrolinx System Review Panel (SRP) Terms of Reference (ToR)	Review Panel ToR
April 5, 2023	Metrolinx Safety Certification Committee (SSC) Terms of Reference (ToR)	Certification Committee ToR

Acronyms and Abbreviations

Table 2: Acronyms and Abbreviations

Acronym	**Full Name**
CTO	Consent To Operate
RACI	Responsible, Accountable, Consulted and Informed
RAM	Reliability, Availability and Maintainability
RAMS	Reliability Availability Maintainability and Safety
SCC	Safety Certification Committee
SRP	System Review Panel

Definitions

Table 3: Definitions

Term	Definition	Source
Asset owner	Groups and individuals that are responsible for asset ownership, asset maintenance, inventory management, document control, asset handover and reliability engineering	MX-ALM-STD-001
Availability	Ability of an item to be in a state to perform a required function under given conditions at a given instant of time or over a given time interval, assuming that the required external resources are provided.	BS EN 50126:2017
Maintainability	Ability to be retained in, or restored to, a state to perform as required, under given conditions of use and maintenance.	BS EN 50126:2017
Project Company	The private sector entity which enters into the Project Agreement with Infrastructure Ontario and Lands Corporation and Metrolinx to design, build and where applicable, finance, operate or maintain a Project. The special-purpose entity which has entered into a Project Agreement with the Contracting Authority.	CKH-QMA-FRM-003
Project Manager	Appointed by Metrolinx as its representative and is responsible for the delivery of the Project within the prescribed Schedule and budget. Metrolinx employees fulfilling the role of the Project Manager may also be considered the Cost Centre Manager, if this person is also delegated signing authority in accordance with the Metrolinx Corporate Administrative Manual, Administrative Management, Approval Authorization Controls and Designations. It is noted that non-Metrolinx employees fulfilling the role of the Project Manager are not considered Cost Centre Managers. In such cases refer to approved Project Chart of Accounts for the Program for the designated Cost Centre Manager.	CKH-QMA-FRM-003

Reliability	Ability to perform as required, without failure, for a given time interval, under given conditions.	BS EN 50126:2017
Safety	Freedom from unacceptable risk that related to human health or to the environment.	BS EN 50126:2017
Subsystem	Part of a system, which is itself a system.	BS EN 50126:2017
System	Set of interrelated elements considered in a defined context as a whole and separated from their environment.	BS EN 50126:2017

1 Commissioning Procedure

1.1 Purpose

1.1.1 The Commissioning Procedure defines the actions required for the commissioning of the change to the railway system and details how the actions shall be implemented.

1.1.2 Commissioning is the testing to demonstrate that the change functions as intended and is contractually required when introduced into the environment for operation. This also includes the demonstration that the existing systems which interface with the change continue to function as intended after implementation of the change.

1.2 Applicability

1.2.1 This product is mandatory for any project that undertakes a technical change to the railway system (i.e., introduction of a new subsystem, renewal of an existing subsystem, a modification to an existing subsystem, or introduction of a new or modified maintenance regime) or undertakes an operational change to the railway system.

1.2.2 This product is not applicable for established routine maintenance activities including like-for-like replacement of components.

1.2.3 This product is considered good practice when developing or modifying any complex system.

1.3 Supporting Material

1.3.1 The Commissioning Plan PD [MX-SEA-PD-130] supports this document.

1.4 Products

1.4.1 The Commissioning Procedure is a product of the System Assurance process. Guidance on this process is available via MX-SEA-STD-100.

1.5 Key Responsibilities

1.5.1 The Project Company is the organization responsible for the contracted scope of work at the time of development.

1.5.2 The Project Company is responsible for the production of the Commissioning Procedure. Preparation of the Commissioning Procedure may be delegated; however, the Project Company is responsible for its content and quality.

1.5.3 The Project Management may be performed by Metrolinx or may be contracted, for example in a Design/Build, whereby Metrolinx Project Management would ensure contract provisions for the Commissioning Procedure are met and would not develop the Commissioning Procedure.

1.5.4 Some of the Asset Owner obligations and responsibilities may be transferred through contracting, whereby the contract contains Reliability Availability Maintainability and Safety (RAMS) and operating requirements. The Metrolinx Asset Owner would participate in endorsing the Commissioning Procedure whereas a contracted party responsible for RAMS would develop the Commissioning Procedure as directed by the Project Management.

1.5.5 The System Review Panel (SRP) has delegated authority from the Safety Certification Committee (SCC) and is responsible for endorsing the Commissioning Procedure. The System Review Panel ensures that the Commissioning Procedure is compliant with the project requirements, applicable legislation, and national, industry, and Metrolinx standards. The SRP may also identify uncertainties, issues, and assumptions that may arise as the project progresses that should be addressed.

1.5.6 The full Responsible, Accountable, Consulted, and Informed (RACI) information that sets out the interaction between all stakeholders involved in the production and endorsement of the Commissioning Procedure is available in MX-SEA-STD-100.

1.6 Competence

1.6.1 The Commissioning Procedure shall be completed by personnel with knowledge of safety management and railway commissioning. This may need to be supported with expertise of commissioning in the area of the project.

1.7 Structure

1.7.1 The Structure of the Commissioning Procedure should have the following section titles:

a) Introduction;

b) Project Scope;

c) Roles and Responsibilities;

d) Resources and Competence Required;

e) Program of Commissioning Activities;

f) Testing and Commissioning Procedure;

g) Contingency and Fallback Plan; and

h) Safety Precautions (if any).

1.8 Contents

1.8.1 The contents of the Commissioning Procedure shall contain the following:

a) details of the commissioning impact of the project;

b) the actions to be taken to implement those changes;

c) the resources such as tools, possessions, staff and competence required to implement those changes;

d) the programme to implement the commissioning activities;

e) the procedures to complete those actions; and

f) plans and checklists for any contingencies or to rollback to the original state if necessary.

1.8.2 Any update to the Commissioning Procedure shall include the status of the implementation at the different Phase(s).

1.9 Quality Criteria

1.9.1 The quality management system used shall conform to ISO 9001:2015 rules or equivalent rules accepted by the Metrolinx Project Delivery Team and be appropriate for the system under consideration.

1.9.2 The Commissioning Procedure shall have sufficient detail for the audience to understand the actions required by the project for commissioning of the change, and detail of who is responsible for completing those actions at the correct stage. It shall set a clear procedure for all actors responsible for commissioning activities.

1.10 Document Management

1.10.1 The Commissioning Procedure is produced at Phase 6 (Design and Implementation) and updated as need through Phase 10 (Acceptance)

1.10.2 The Commissioning Procedure is a requirement for the Consent to Construct (CTC) gate.

1.10.3 Table 4 provides an overview of the Commissioning Procedure document phases.

Document	Phase
Commissioning Procedure	6 – Design and Implementation - 10 - Acceptance

TABLE 4: DOCUMENT PHASES