TR 96:2021
(ICS 03.100.70)

TECHNICAL REFERENCE

Asset condition assessment approach in the Singapore railway industry – Permanent Way

Singapore Standards Council

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Published by Enterprise Singapore

ISBN 978-981-5042-14-6

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Foreword

This Technical Reference (TR) was prepared by the Working Group on Asset Condition Assessment Approach in the Railway Industry – Permanent Way set up by the Technical Committee on Railway Systems under the purview of the Trade and Connectivity Standards Committee.

This TR is intended to describe a common approach towards condition assessment of Permanent Way assets of a mass rapid transit system. This will help different entities plan and conduct condition assessment in a consistent way so that the outputs from their assessments can be used to monitor and compare Permanent Way asset health, and support asset management analysis and decision-making.

This TR is a provisional standard made available for application over a period of three years. The aim is to use the experience gained to update the TR so that it can be adopted as a Singapore Standard. Users of the TR are invited to provide feedback on its technical content, clarity and ease of use. Feedback can be submitted using the form provided in the TR. At the end of the three years, the TR will be reviewed, taking into account any feedback or other considerations, to further its development into a Singapore Standard if found suitable.

In preparing this TR, reference was made to PWay asset condition assessment reports by KPMG Services Pte Ltd.

Acknowledgement is made to The Local Government and Municipal Knowledge Base for the reproduction of materials from http://www.lgam.info into this standard.

Attention is drawn to the possibility that some of the elements of this TR may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as "mature standards". Mature standards will not be subject to further review unless there are requests to review such standards.*

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0 Introduction

Information on asset condition and degradation rate is crucial to formulate an effective and proactive asset management programme. The information can be used for long-term asset utilisation planning and timely prioritisation of budget for asset refurbishment or replacement to meet the desired asset management objectives.

Conducting periodic condition assessment on the asset of interest is one way to collect such information. For the information to be useful, the asset condition assessment (ACA) must need to be conducted in a systematic, objective and consistent manner to collect relevant data, not only across different assessors, across rail lines but also from one cycle of assessment to the next.

It is important to recognise that ACA does not replace routine maintenance inspections, defect rectification and asset preservation activities. It is conducted to collect data to support decision making for a long-term cost-effective and strategic approach to asset life cycle management.

The Permanent Way (PWay) in a rail network is a class of asset that will benefit from the concept of ACA as PWay assets are subjected to mechanical loads and wear by daily train operations, the condition of which deteriorate over time, and will need to undergo replacement periodically in the life cycle of the rail network.

While the concept and principles of ACA may be similar for different classes of rail assets (e.g., trains, buildings, signalling systems etc), the asset hierarchy structuring, asset identification code assignment, asset conditions to be assessed and scoring methodology are unique to the PWay asset class. Hence, this standard seeks to specify the process and methodology to be adopted for ACAs so that all ACAs for PWay assets can be conducted in a consistent and rigorous manner.

1 Scope

This Technical Reference (TR) applies to the condition assessment of PWay assets in the Singapore mass rapid transit (MRT) railway context. It describes the way in which the ACA is performed for PWay assets, covering the following systems: rail system, third rail system, turnout system, track furniture and track foundation (i.e., the ballast or slab track supporting the rail system).

The overhead catenary system is typically not classified as a PWay asset and is not included in the list of systems above.

2 Normative references

There are no normative references in this TR.