



A Risk-Based Strategy for Improving Safety at Railway Level Crossings in Indonesia: Addressing Hazards Identified From Accident Data

Aidil Permana, Ir. Latif Budi Suparma, M.Sc., Ph.D.; Prof. Ir. Siti Malkhamah, M.Sc., Ph.D., IPU., ASEAN.Eng.

Universitas Gadjah Mada, 2026 | Diunduh dari <http://etd.repository.ugm.ac.id/>

UNIVERSITAS
GADJAH MADA

***A RISK-BASED STRATEGY FOR IMPROVING SAFETY AT RAILWAY
LEVEL CROSSINGS IN INDONESIA: ADDRESSING HAZARDS
IDENTIFIED FROM ACCIDENT DATA***

THESIS

Thesis is submitted in partial fulfilment of the requirements for the degree of the Master of Science at Master Programme in Transport System and Engineering



**AIDIL PERMANA
23/525970/PTK/15409**

**MASTER PROGRAMME
PROGRAMME IN TRANSPORT SYSTEM AND ENGINEERING
DEPARTEMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING
UNIVERSITAS GADJAH MADA
YOGYAKARTA
2025**



A Risk-Based Strategy for Improving Safety at Railway Level Crossings in Indonesia: Addressing Hazards Identified From Accident Data

Aidil Permana, Ir. Latif Budi Suparma, M.Sc., Ph.D.; Prof. Ir. Siti Malkhamah, M.Sc., Ph.D., IPU., ASEAN.Eng.

Universitas Gadjah Mada, 2026 | Diunduh dari <http://etd.repository.ugm.ac.id/>

UNIVERSITAS
GADJAH MADA

***A RISK-BASED STRATEGY FOR IMPROVING SAFETY AT RAILWAY
LEVEL CROSSINGS IN INDONESIA: ADDRESSING HAZARDS
IDENTIFIED FROM ACCIDENT DATA***

THESIS

Thesis is submitted in partial fulfilment of the requirements for the degree of the Master of Science at Master Programme in Transport System and Engineering



**AIDIL PERMANA
23/525970/PTK/15409**

**MASTER PROGRAMME
PROGRAMME IN TRANSPORT SYSTEM AND ENGINEERING
DEPARTEMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING
UNIVERSITAS GADJAH MADA
YOGYAKARTA
2025**



UNIVERSITAS
GADJAH MADA

A Risk-Based Strategy for Improving Safety at Railway Level Crossings in Indonesia: Addressing Hazards Identified From Accident Data

Aidil Permana, Ir. Latif Budi Suparma, M.Sc., Ph.D.; Prof. Ir. Siti Malkhamah, M.Sc., Ph.D., IPU., ASEAN.Eng.

Universitas Gadjah Mada, 2026 | Diunduh dari <http://etd.repository.ugm.ac.id/>

***A RISK-BASED STRATEGY FOR IMPROVING SAFETY AT RAILWAY
LEVEL CROSSINGS IN INDONESIA: ADDRESSING HAZARDS
IDENTIFIED FROM ACCIDENT DATA***

THESIS

Thesis is submitted in partial fulfilment of the requirements for the degree of the Master of Science at Master Programme in Transport System and Engineering



**AIDIL PERMANA
23/525970/PTK/15409**

**MASTER PROGRAMME
PROGRAMME IN TRANSPORT SYSTEM AND ENGINEERING
DEPARTEMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING
UNIVERSITAS GADJAH MADA
YOGYAKARTA
2025**



APPROVAL SHEET

The Supervisor Team approves the thesis

A RISK-BASED STRATEGY FOR IMPROVING SAFETY AT RAILWAY LEVEL CROSSINGS IN INDONESIA: ADDRESSING HAZARDS IDENTIFIED FROM ACCIDENT DATA

Created by:
Aidil Permana
23/525970/PTK/15409


Supervisor:

Ir. Latif Budi Suparma, M.Sc., Ph.D.
NIP. 19650509 199103 1001


Date: 26.01.2026

Co-Supervisor:

Prof. Ir. Siti Malkhamah, M.Sc., Ph.D.,
IPU., ASEAN.Eng.
NIP. 196305021988032001


Date: 23.01.2026.

VALIDATION SHEET

THESIS

A RISK-BASED STRATEGY FOR IMPROVING SAFETY AT RAILWAY LEVEL CROSSINGS IN INDONESIA: ADDRESSING HAZARDS IDENTIFIED FROM ACCIDENT DATA

Prepared and created by:

Aidil Permana

23/525970/PTK/15409

This thesis has been defended in front of the Examiners Committee
On January 13th, 2026

Supervisor:

Ir. Latif Budi Suparma, M.Sc., Ph.D.

NIP. 19650509 199103 1001

Date:

23-01-2026

Co-Supervisor:

Prof. Ir. Siti Malkhamah, M.Sc., Ph.D.,

IPU., ASEAN.Eng.

NIP. 196305021988032001

Date:

23.01-2026

Examiner I:

Arumdyah Widiati, S.T., M.Sc., Ph.D.

NIP. 111198207201111201

Date:

21-01-2026

This thesis has been accepted as one of the requirements
for the conferment of the Master's degree
January 26th, 2026

Acknowledged by,
Head of the Department of Civil and Environmental Engineering



Prof. Dr. Eng. Ir. M. Zudhy Irawan, S.T., M.T., IPM.
NIP. 198302042012121005