

ROAD INFRASTRUCTURE  
MANAGEMENT FORUM

## Our Carbon Equation

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# RIMS Pathway & Pavement Fault Assessment Guide

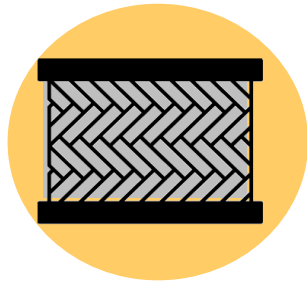
Shahaanan Arulgnanapragasam  
WSP

# Problem

- Currently no sector standard for pathway and road faults
- Inconsistency in:
  - Language
  - Rating systems
  - Data Structure
- Ongoing AMDS required industry input

# Solutions

## Pathways – Walking/Cycling



Pathways Inventory Standard  
Pathways Fault Assessment Framework

## Roading



Roading Fault Assessment Framework

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# Scope

- RIMS (IPWEA) project, delivered by WSP alongside Waka Kotahi and REG, feeding into the greater Asset Management Data Standard (AMDS) project.
- A Standard for Road and Pathways Faults: Common terminology and metrics for severity and extent.

# Scope

- Asset groups in scope:
  - Pavement (Sealed/Unsealed)
  - Surface
  - Shoulder
  - Pedestrian Footpaths
  - Cycleways
  - Shared paths
- Out of Scope
  - Treatment selection and Activity
  - Setting Level of Service, or strategy limits
  - Condition rating methodology (for roading)

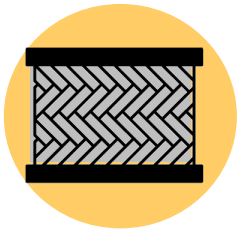
# Timeline

## Roding Faults



Literature Review

## Pathways Inventory



Literature Review

## Pathways Faults





# Literature Review

- PFM6 - RAMM Road Condition Rating and Roughness
- One Network Road Classification Road Maintenance Visual Guide
- RAMM Contractor Manual Version 4.2 (08/16)
- Waka Kotahi Network Outcomes Contract (NOC) Visual Audit Guidelines
- Australian Road Research Board (ARRB) Unsealed Roads Manual – Guidelines to Good Practice
- IPWEA Practice Note 9 – Road Pavements (Visual Assessment Code) Suite – Condition Assessment and Asset Performance Guidelines
- Austroads Guide to Pavement Technology Part 7 Pavement Maintenance
- HCC – RAMM Condition Rating and Roughness Survey 2021-23 Contract
- Wellington City Council Footpath Condition Rating Manual 2019
- Auckland Transport Database Operations Manual (2013)
- Specification for design construction and maintenance of cycling and shared path facilities visual audit guideline
- The Footway Network Survey, Sheffield City Council
- IPWEA Practice Note 1 – Footpath & Cycleway– Condition Assessment and Asset Performance Guidelines
- Western Bay of Plenty Westlink Footpath Rating Guide

# Timeline

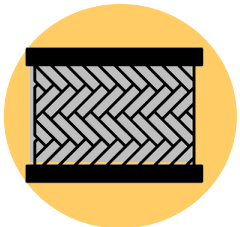
## Roading Faults



Literature Review

Industry Engagement

## Pathways Inventory



Literature Review

Industry Engagement

## Pathways Faults



### Industry Engagement From:

- REG & RIMS Working groups
- Fulton Hogan
- Higgins
- HEB
- Downer
- All NZ RCA's via REG Mailing List with direct input incorporated from
  - Auckland Transport
  - Dunedin City Council
  - Hamilton City Council
  - Hastings District Council
  - Porirua City Council
  - Upper Hutt City Council
  - Wairoa District Council
  - Wellington City Council



# Timeline

## Roading Faults

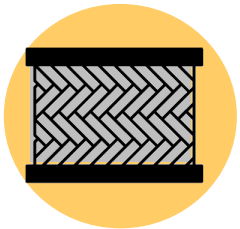


Literature Review

Industry Engagement

Fault Assessment List

## Pathways Inventory



Provisional Inventory  
Standard

Literature Review

Industry Engagement

Fault Assessment List

## Pathways Faults



Fault Summarisation  
Guidelines

**Our Carbon Equation**

# Timeline

## Roading Faults



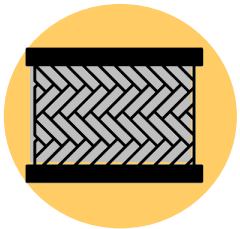
Literature Review

Industry Engagement

Fault Assessment List

AMDS lifecycle working group

## Pathways Inventory



Literature Review

Industry Engagement

Provisional Inventory Standard

Stablised Inventory Standard

## Pathways Faults



Literature Review

Industry Engagement

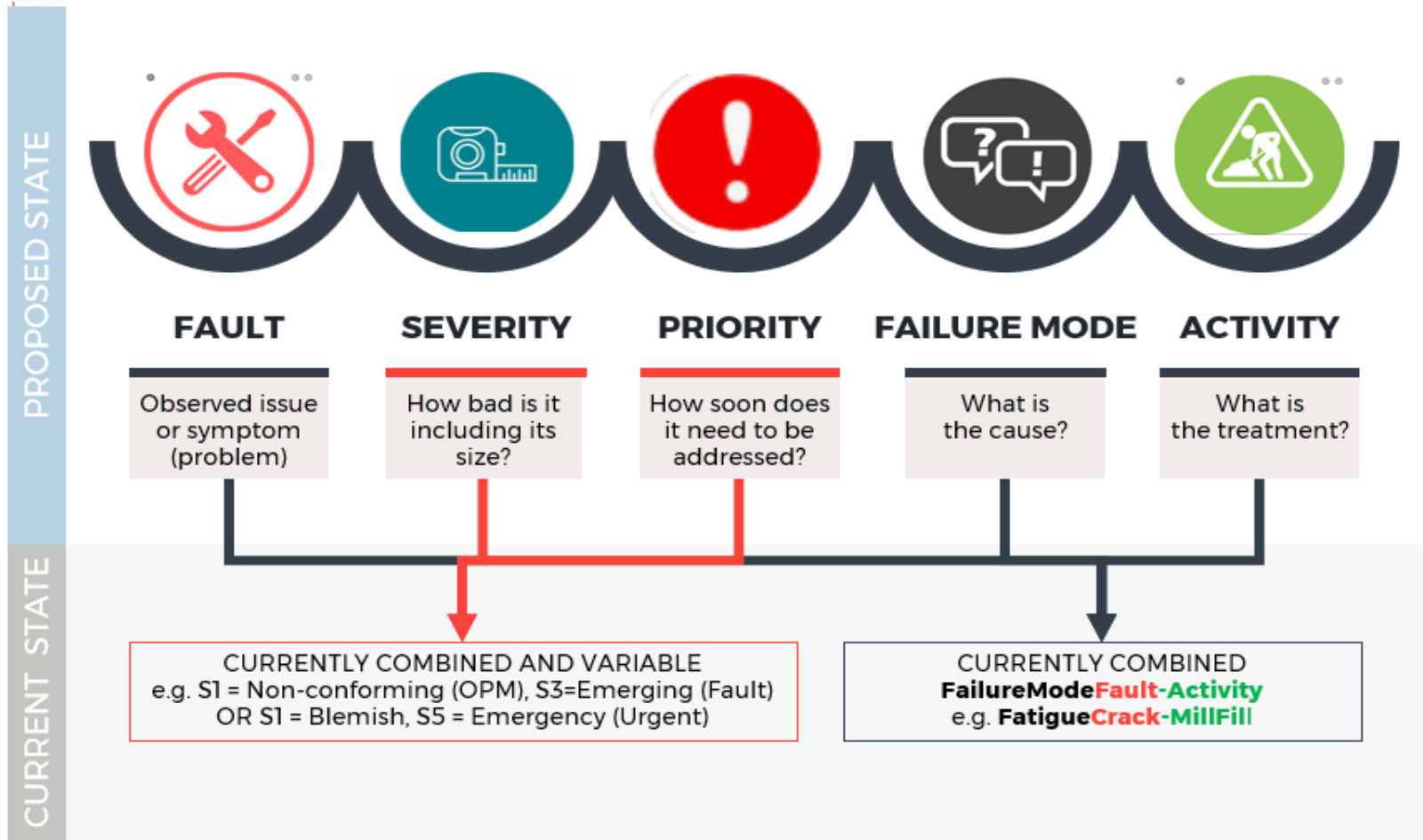
Fault Assessment List

AMDS lifecycle working group

Fault Summarisation Guidelines

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# Terminology

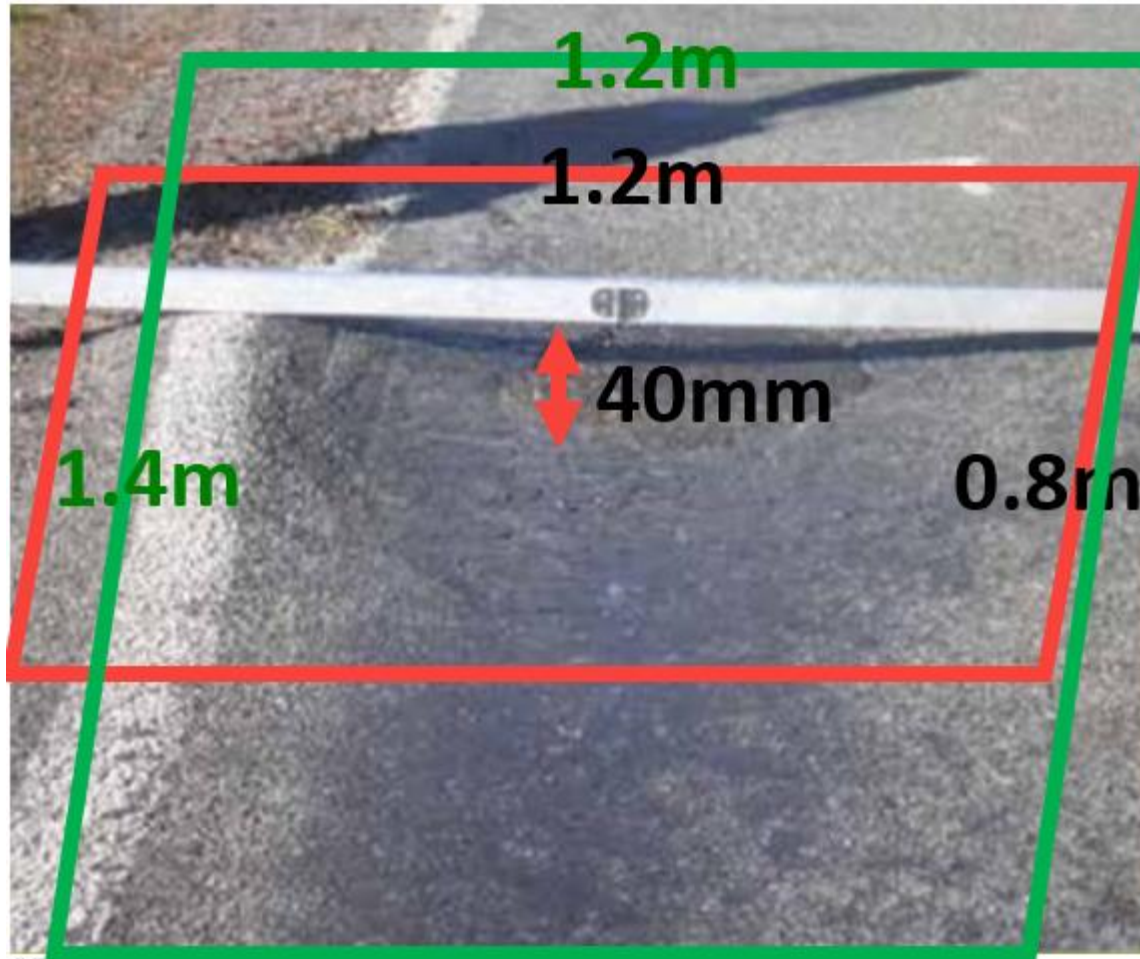




# Terminology – Severity

- Fault: Observed issue
- Fault Extent: How big is the fault
- Fault Unit: Measure of fault extent
- Severity: Measure of how bad a fault is
- Severity Unit: Measure of Severity
- Severity Grading: 1-5 grading based on bands of severity



# Terminology – Roading Example



-  **Fault:** Shove  
1.2m x 0.8m = 0.96m<sup>2</sup>
-  **Severity:** S4,  
40mm, (scale of 1 to 5)



# Terminology – Pathways Example



Fault: Cracking Mesh, 5m  
Severity: 85%, S5

Fault	Description	Severity Unit	Severity Rating			
			S2	S3	S4	S5
Cracking Mesh	An unplanned break or discontinuity in the integrity of the pathway surface. This fault is a interconnected network or polygonal in shape including; block and alligator.	Proportion of pathway area (%)	1 - 10%	10 - 25%	25 - 50%	>= 50%



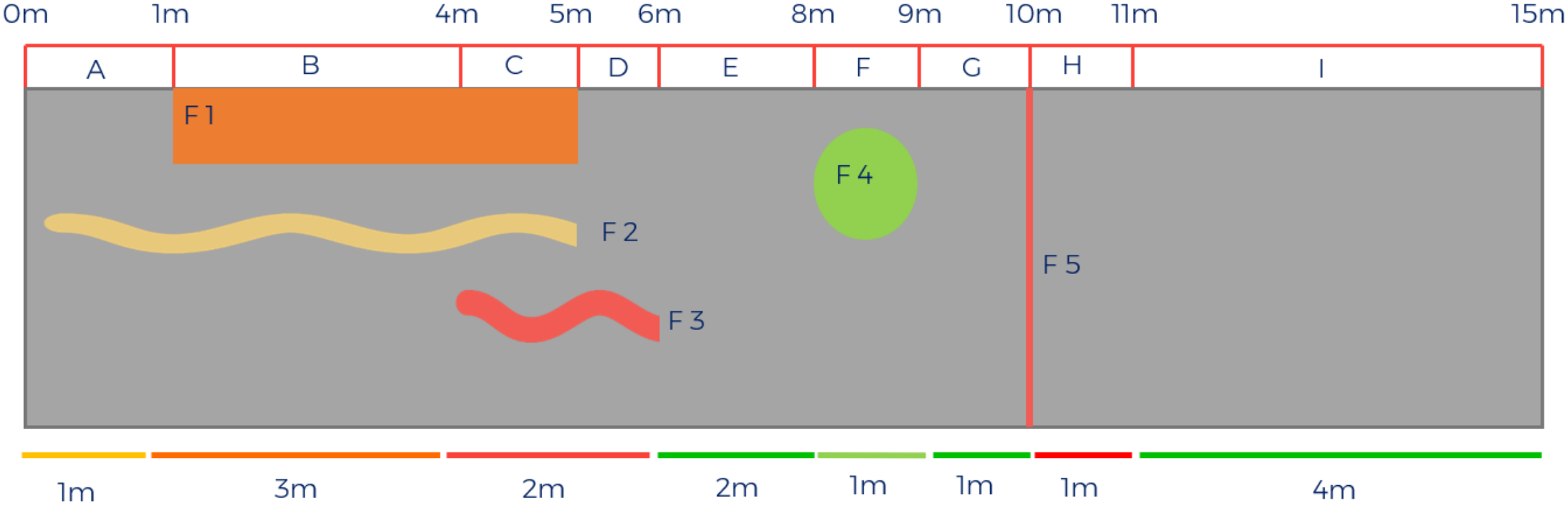
# Pathways Fault Summary

Severity Rating Legend



PLAN VIEW

INCREASING DIRECTION →



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# Pathways Fault Summary

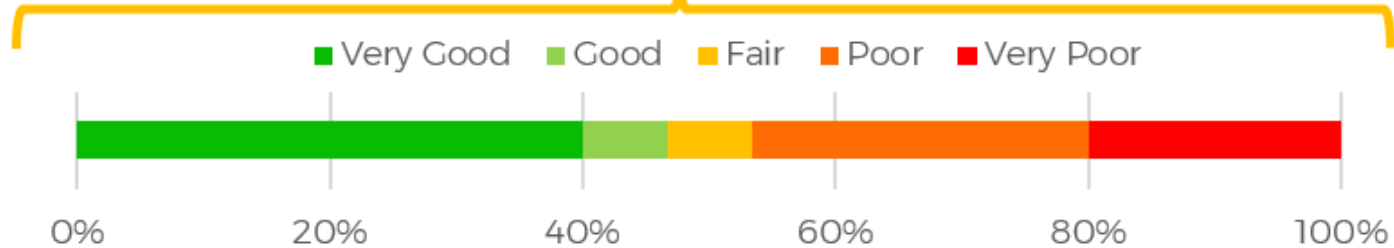
## PATHWAYS RATING

## SEVERITY RATING

## FAULTS EXTENT



Pathways Rating UUID	Pathways UUID	Inspection Length	S1	S2	S3	S4	S5	Bump	Cracking	Depression	Displacement	Vegetation	Uneven	Pothole
3	1	15m	7m	1m	1m	3m	3m	1m	6m	0m	0m	4m	0m	1m



## Next Steps:

- Joint fault assessment guide
- Merge similar faults
- Roading to develop visual guide and severity bands
- Pathway fault based condition rating guide to be split out

# RIMS

Roading Infrastructure Management Support



**Shahaanan Arulgnanapragasam**  
**Asset Management Engineer**  
**WSP**

# Thank you

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