



An Roinn Iompair,  
Turasóireachta agus Spóirt  
Department of Transport,  
Tourism and Sport

# Bridge Asset Management Project

Brian Cross

12<sup>th</sup> September 2019

Maintenance Inspection





An Roinn Iompair,  
Turasóireachta agus Spóirt  
Department of Transport,  
Tourism and Sport

# Maintenance Inspection (MI)



- Six element flag inspection
- Observation on the Day
- Common sense applies for Dangerous Bridge







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## Maintenance Inspection what is it ?

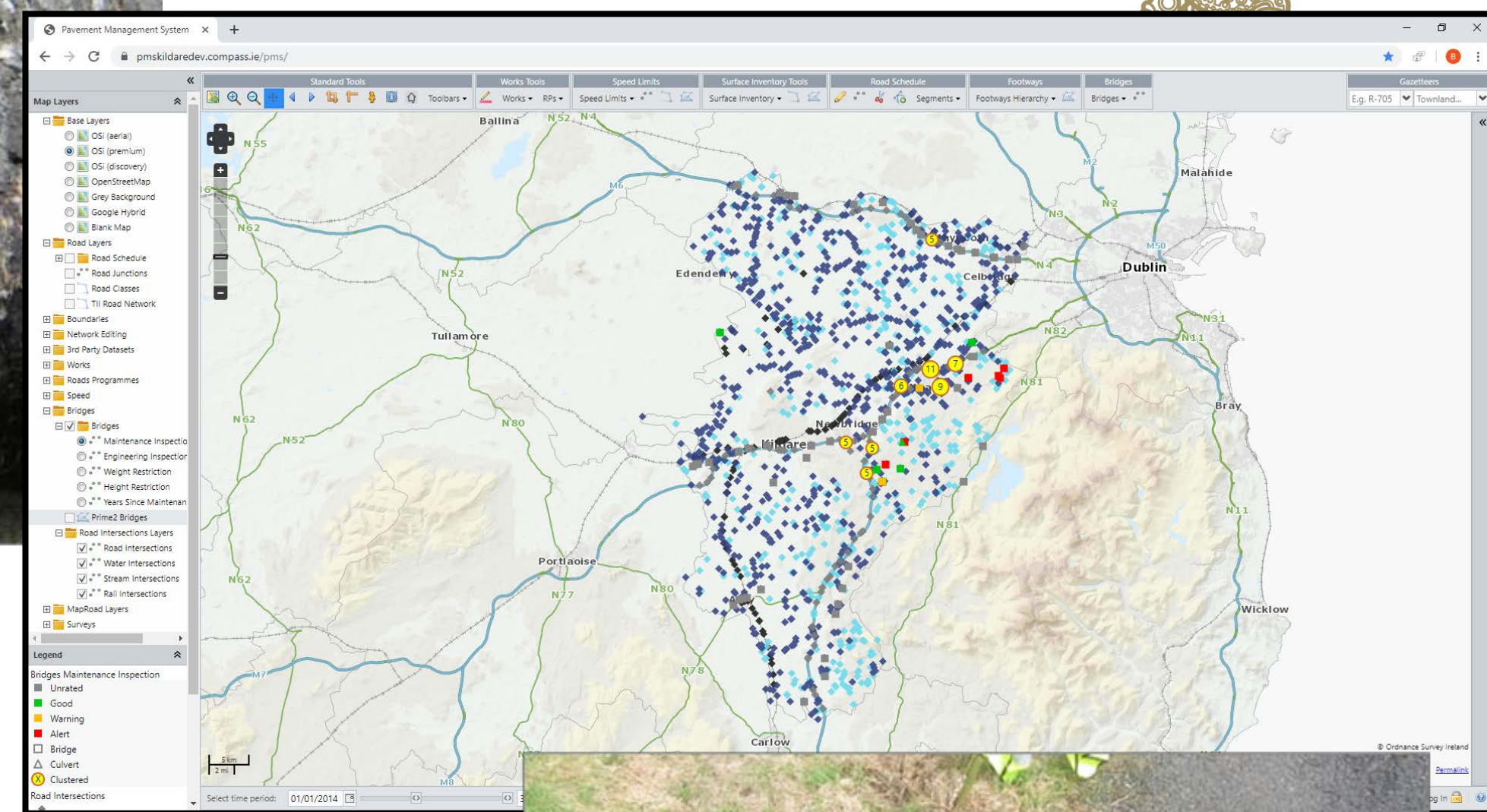
Maintenance Inspections (MI) is:

1. A reasoned opinion only
2. A fast low level inspection **(Red Amber Green)**
3. Identifies obvious defects / problem in bridges.
4. Prioritise bridges from initial observations
5. Not the definitive survey/inspection





# Why a MI ?



- Identify and Triage potential problem bridges.
- Prioritise Engineering Inspections.
- Prioritise bridge maintenance and inform improvement works.
- Road opening licences, abnormal loads and forestry activities.
- Quick Inspection Flooding Event



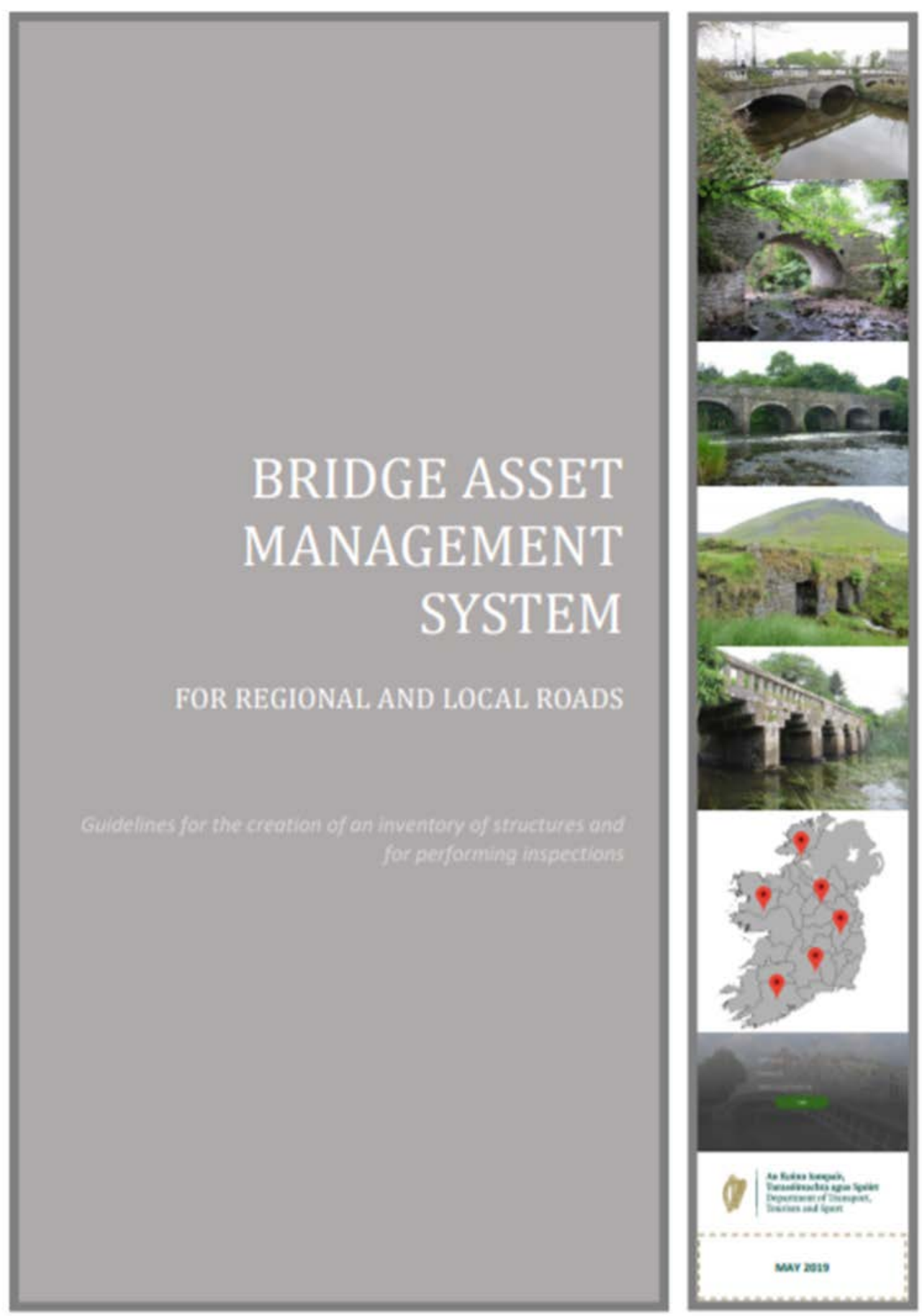


# Six Elements



- OpenStreetMap
- Grey Background
- Google Hybrid
- Blank Map
- Road Layers
  - Road Schedule
  - Road Junctions
  - Road Classes
  - TII Road Network
- Boundaries
- Network Editing
- 3rd Party Datasets
- Works
- Roads Programmes
- Speed
- Bridges
  - Bridges
    - Maintenance Inspection
    - Engineering Inspection
    - Weight Restriction
    - Height Restriction
    - Years Since Maintenance
  - Prime2 Bridges
- Road Intersections Layers
  - Road Intersections
  - Water Intersections
  - Stream Intersections
  - Rail Intersections
- MapRoad Layers
- Surveys





# Table 4.2 Rating Guide

Main Element	RED	AMBER	GREEN	NOT APPLICABLE	
Parapets	Part or all of parapet or safety rail missing, collapsed or significantly displaced.	Some damage - nuts missing, corrosion, deformation, cracking, vegetation causing disturbance, tilting, sliding, missing masonry.	Minor defects or vegetation growth only.	Select this if it is obvious the Structure never had a parapet. If unsure, please select <b>RED</b>	Non-structural
Access and Egress	Dangerous high risk <b>DO NOT ENTER</b>	Some hazards and risk. Risk assessment required.	Easy and safe.		
Vegetation	Heavy growth and/or Invasive species.	Appreciable growth clearance required, includes some Ivy, small saplings, brambles.	None or minor growth only.		
External walls	Significant cracks, bulging, leaning, rotation, missing masonry, or a collapse. Significant exposed reinforcement and/or corrosion.	Some cracks, bulging, leaning, rotation, minor missing masonry, exposed reinforcement, corrosion.	No evidence of or minor defects present.	Structure doesn't have external walls Or Couldn't access.	Structural
Abutments and Piers	Severe scour holes below walls, Significant areas of missing masonry or failure. Significant rusting of steel members, buckling or steel missing.	Some scour in bed, pier or abutment. cracks, leaning, bulging, missing stones, exposed reinforcement, or rusting of steel members.	Minor or no evidence of scour in bed. Minor or no evidence of defects in pier abutment	Couldn't access.	
Deck or Arch	Large cracks, severe sagging, spalling, deformation, missing elements, arch separation. Severely exposed reinforcement, corroded or missing steel on struts, ties, beams or	Some: cracks, sagging, spalling, missing elements, exposed rebar or rusting of steel, struts, ties, beams or corrugated or other jack arch elements.	None or cracks, sagging, spalling, other minor		








# Guidelines- Parapet example

## RED AMBER GREEN & NA



RED	AMBER	GREEN	Not Applicable
<p>Parapet has significant damage that represents a safety hazard.</p> <p>In the <b>example</b>, the parapet is completely missing from this bridge and is now a safety hazard.</p> 	<p>parapet h requires r fun</p> <p><b>Example 1:</b> been dama place and op lesser standa re</p> <p><b>Example 2:</b> t was already row of cop requi</p>	<p>GREEN</p> <p>Parapet is in good cond and will function as desi</p> <p>In both <b>examples</b>, there damage and both parapet performing as designed Parapet in example 2 m slightly low for full pede protection, however, it built, so this will not affe condition rating.</p> 	<p>Not Applicable</p> <p>Parapet was never present.</p> <p>In this <b>example</b>, there is limited cover above the clapper bridge and parapets were never provided on this bridge.</p> 





# Simple Rating on APP

## RED AMBER GREEN & NA



### Six Main Elements

1. Parapets
2. Access & Egress
3. Vegetation
4. External Walls
5. Abutments & Piers
6. Deck or Arch

← Maintenance Rating

Please select a maintenance rating for Deck or Arch

Large cracks, severe sagging, spalling, deformation, missing elements, arch separation. Severely exposed reinforcement, corroded or missing steel on struts, ties, beams or failure.

Some cracks, sagging, spalling, missing elements, exposed rebar or rusting of steel, struts, ties, beams or corrugated or other jack arch elements.

None or minor cracks, sagging, spalling, or any other minor defect.

Couldn't access.

Red

Amber

Green

NA





# Red Amber Green & NA



← Maintenance Inspection SAVE AS DRAFT SAVE AND UPLOAD DISCARD

**Structure Number (calculated)**  
KE-R445-B-000

**Structure Number (plate)**  
172KK123

**Structure Name (alias)**  
NRO BRIDGE

**Location Description**  
KNRO

**Inspector Name**  
Brian.Cross

**\* Element Maintenance Rating**

Parapets	<input type="radio"/>	Change Rating
Access and Egress	<input type="radio"/>	Change Rating
Vegetation	<input type="radio"/>	Change Rating
External walls	<input type="radio"/>	Change Rating
Abutments and Piers	<input type="radio"/>	Change Rating
Deck or Arch	<input type="radio"/>	Change Rating

**Overall Maintenance Rating**

**Additional Comments**  
\_\_\_\_\_

**\* Photos (0/5)**







Maintenance Inspection

← SAVE AS DRAFT SAVE AND UPLOAD DISCARD

Structure Number (calculated)  
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Structure Number (plate)  
172KK123

Structure Name (alias)  
NRO BRIDGE

Location Description  
KNRO

Inspector Name  
Brian.Cross

**\* Element Maintenance Rating**

Parapets	<input checked="" type="radio"/>	Change Rating
Access and Egress	<input type="radio"/>	Change Rating
Vegetation	<input type="radio"/>	Change Rating
External walls	<input type="radio"/>	Change Rating
Abutments and Piers	<input type="radio"/>	Change Rating
Deck or Arch	<input type="radio"/>	Change Rating

Overall Maintenance Rating

Additional Comments

**\* Photos (0/5)**

Structure never had a parapet.

Parapets

Red

Amber

Green

Not Applicable





# Maproad PMS

The screenshot displays the Maproad PMS interface. On the left, a map shows a bridge location with a red dot. A callout bubble points to this dot with the text "Click on bridge". In the center, a "Maintenance Inspection - September 11, 2018, 12:00 am" window is open. The "Files" tab is highlighted with a red box and a callout bubble that says "Click on Files & double click to download photos". Below this, a photo gallery shows a photo of a bridge structure with a callout bubble that says "Export Bridge Report".

**Click on bridge**

**Click on Files & double click to download photos**

**Export Bridge Report**

Date	Surveyor	Parapets	Access And Egn	Vegetation	External Walls	Abutments And	Deck Or Arch
11/09/2018	uat5	Alert	Warning	Alert	Alert	Warning	Warning

Name	Description	File	Size	Last Updated
		2018_09_11_11_...	1,374...	11-09-2018
		2018_09_11_11_...	1,592...	11-09-2018



# Maintenance Inspection on PMS



KE-L6037-B-000

BRIDGE

Generated: 30/04/2019

KE-L6037-B-000

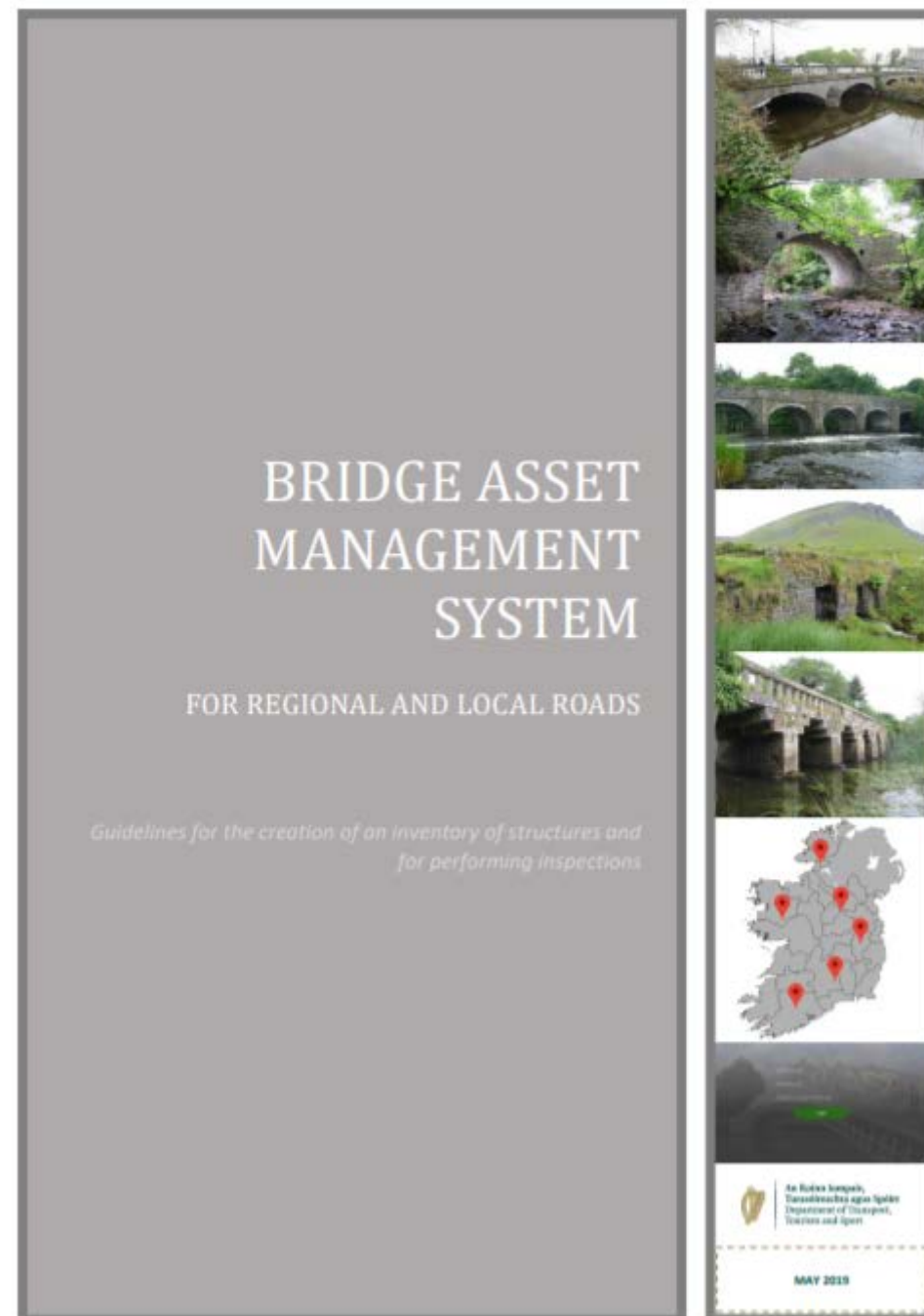
## Table Of Contents

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# Roadguidelines.ie



es.ie

## ROADGUIDELINES.IE

An Roinn Iompair, Turasóireachta agus Spóirt  
Department of Transport, Tourism and Sport

### Asset Management Project

#### Welcome - Bridge Asset Management Project

The Bridge Asset Management Project (BAMP) was a project initiated by the Department of Transport, Tourism and Sport to put in place solutions for Local Authorities to manage regional and local road network bridge and structure assets.

Guidelines	Inspections	Local Authorities
45,000 To be Inspected	95,000km To be Inspected	Unknown value
Created by Local Authorities	Contact Us	





# Maintenance Inspection

SAVE AS DRAFT SAVE AND UPLOAD DISCARD

**Structure Number (calculated)**  
KE-R445-B-010

**Structure Number (plate)**  
\_\_\_\_\_

**Structure Name (alias)**  
waterfall bridge

**Location Description**  
Next to waterfall, Rusty Bridge, Need Waders to access, slow flowing, RedWater = Deep ?, Service attached to bridge

**Inspector Name**  
Brian.Cross

## \* Element Maintenance Rating

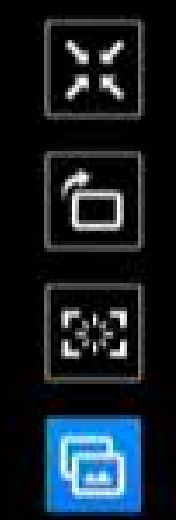
- Parapets ● R [Change Rating](#)
- Access and Egress ● A [Change Rating](#)
- Vegetation ● G [Change Rating](#)
- External walls ● [Change Rating](#)
- Abutments and Piers ● [Change Rating](#)
- Deck or Arch ● [Change Rating](#)

**Overall Maintenance Rating** [ ]

**Additional Comments**  
\_\_\_\_\_

## \* Photos (0/5)

[Add Photo](#)





# One Day Training BIS & MI to access App & PMS



**Bridges List**

Name	Code	Plate	Is Culvert	Type	Total Span	Height Re	Engineering Area	MI Date	MI Rating	EI Date	EI Rating
Stephenstown South Bridge	KE-R412-B-010	KE-R412-001.00	No	Arch	1.8	0	Naas Municipal District	09-01-2019	Alert		Unrated
Castlemartin Lodge Bridge	KE-R413-B-000	KE-R413-005.00	No	Box Culvert	2	0	Naas Municipal District	09-01-2019	Good		Unrated
Kilcullen Stream Bridge	KE-R413-B-010	KE-R413-004.00	No	Arch	3.5	0	Naas Municipal District	09-01-2019	Warning		Unrated
			No	Composite	5.1	0	Naas Municipal District	16-01-2019	Alert		Unrated
			No	Composite	5.1	0	Naas Municipal District	24-01-2019	Alert		Unrated
			No	Composite	5.1	0	Naas Municipal District		Unrated		Unrated
			Yes	Round	0.6	0					
			Yes	Clapper	0.7	0					
448-002-00			No	Composite	55	0					
448-001-00			Yes	Round	1	0					
2996-001.00			No	Arch	6	0					

**Maintenance Inspection - January 15, 2019**

Date: January 15, 2019 Surveyor: rtoft

Rating: **Alert**

Parapets: **Alert** External Walls: **Alert**

Access and Egrees: **Good** Abutments and Piers: **Good**

Vegetation: **Warning** Deck or Arch: **Alert**

**Bridge - KE-L6037-B-000**

General Non-Site Data Maintenance Inspections Engineering Inspections History Files

Bridge Type: Arch Principle Function: Public Road

Number (calc.): KE-L6037-B-000 Number (plate): KE-L6037-001.00

Name (alias): Morell Bridge

Road Number: L6037

Is in Skew?  Skew Angle: 40 Is Flood Relief?  Number of Openings:

Height Restriction:  Is Signage Present?  Height Restriction (on signage):

Weight Restriction?  Weight Restriction (on signage):

Bridge Over: Watercourse Bridge Under:  Services Evident?

Dimensions

Length\*:  Width\*:  Height:

Number of Spans\*:  Total Span\*:  Max. Span\*:  Min. Span\*:

Materials\*

Masonry  Concrete  Metal  Timber  Plastic

Access Hazards

Steep Banks  Deep Water  Fast Water  Very Tall Structure

Unstable Bed  Vegetation  IAPS  Restricted by Fencing

Illegal Dumping  Livestock  Traffic

Location Description

Delete Bridge Export Bridge Zoom to Bridge





# MapRoad PMS Ticket Tracker



The screenshot shows the MapRoad PMS Ticket Tracker interface. At the top, the browser address bar shows 'Not secure | support.maproadpms.ie'. The application header includes the MapRoad logo, the title 'MapRoad - PMS Ticket Tracker', and user information 'Recently viewed tickets | brian.cross | LOG OUT'. Below the header, there are navigation tabs for 'Tickets', 'Knowledge base', and 'Reports'. A '+ New ticket' button and a search bar are also present. The main content area displays a list of tickets with columns for Subject, Priority, Status, Date, Due, Tech, Updated, Browser Type, Direct Dial Phone Number, Operating System, Mapinfo Version, and Local A. The tickets listed are:

Subject	Priority	Status	Date	Due	Tech	Updated	Browser Type (if PMS related)	Direct Dial Phone Number	Operating System	Mapinfo Version	Local A
<b>Editing a Bridge Maintenance Inspection</b> Aidan McClafferty RMO   Bridges - Bridges App	Normal	Closed	11 days ago		Brian Cross	2 hours ago					
<b>Bridge (Possible) Locations</b> Paul Fox LGMA   Bridges - Bridges PMS Module	Normal	Added to Next PMS Deployment	18/07/2019 12:25		Seth Girvin	20 days ago					
<b>Bridges APP &amp; Browser</b> Paul Fox LGMA   Bridges - Bridges App	Normal	In progress	02/05/2019 16:23		Ken Dowling	14/05/2019 11:09					
<b>Bridges Data - Donegal CoCo PMS - Rename Bridge Numbers</b> Paul Fox LGMA   Bridges - Bridges PMS Module	Normal	Discuss with Paul	07/12/2018 15:01		Seth Girvin	17/04/2019 12:14					
<b>Bridge Surveys</b> Rory O'Callaghan Tipperary CoCo   Bridges - Bridges PMS Module	Normal	Closed	18/01/2019 09:38		Ken Dowling	12/04/2019 10:18					







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# Maintenance Inspection is NOT

- ~~Engineering Inspection~~
- ~~Principal Inspection~~

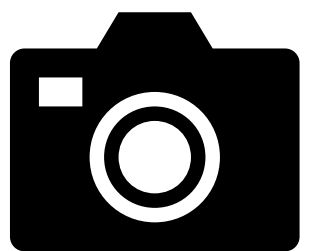
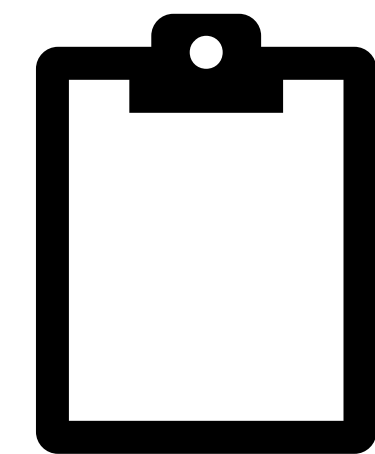
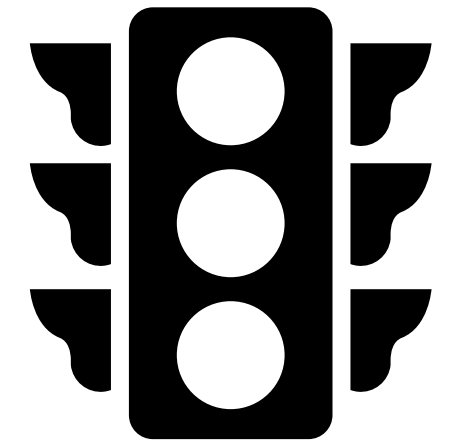




# Maproad PMS Bridge Module & App



- Basic Survey (BIS) & (MI) **RAG** Condition Rating, Engineering Inspection (1to5) to Follow on.
- No magic it's a Clipboard App, Data goes straight into Maproad PMS
- Easy to Use app & Easy to use information mapped in MapRoad PMS







**Thank You**

