



An Roinn Iompair  
Department of Transport



Cumann Lucht Bainistíochta Contae agus Cathrach  
County and City Management Association

## RSTG Conference 2024 15<sup>th</sup> May - Day 1 Networking \ Exhibition & Coffee Break

We will resume at 11.45 am

### Session 2-Asset Management

#### Chair Pat Dowling

11.45-12.00	Bridge Rehabilitation	Gary Salter
12.00-12.25	Capturing & Managing Pedestrian and Cycling Infrastructure (ATI) on MapRoad AMS	Aidan McClafferty - RMO
12.25-12.45	LA 16 Collision Capture and Reporting Procedure on MapRoad AMS (incl Bridges Module)	Brian Burke - RMO



Join the Q&A session at Slido.com and enter 5812867  
Or via the QR Code





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County and City Management Association

# ROADS Services Training Group

## LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION - 2024

Day 1-Session 2-Presentation 1

Gary Salter

Sligo Radisson Hotel, Sligo, May 2024





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## LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION

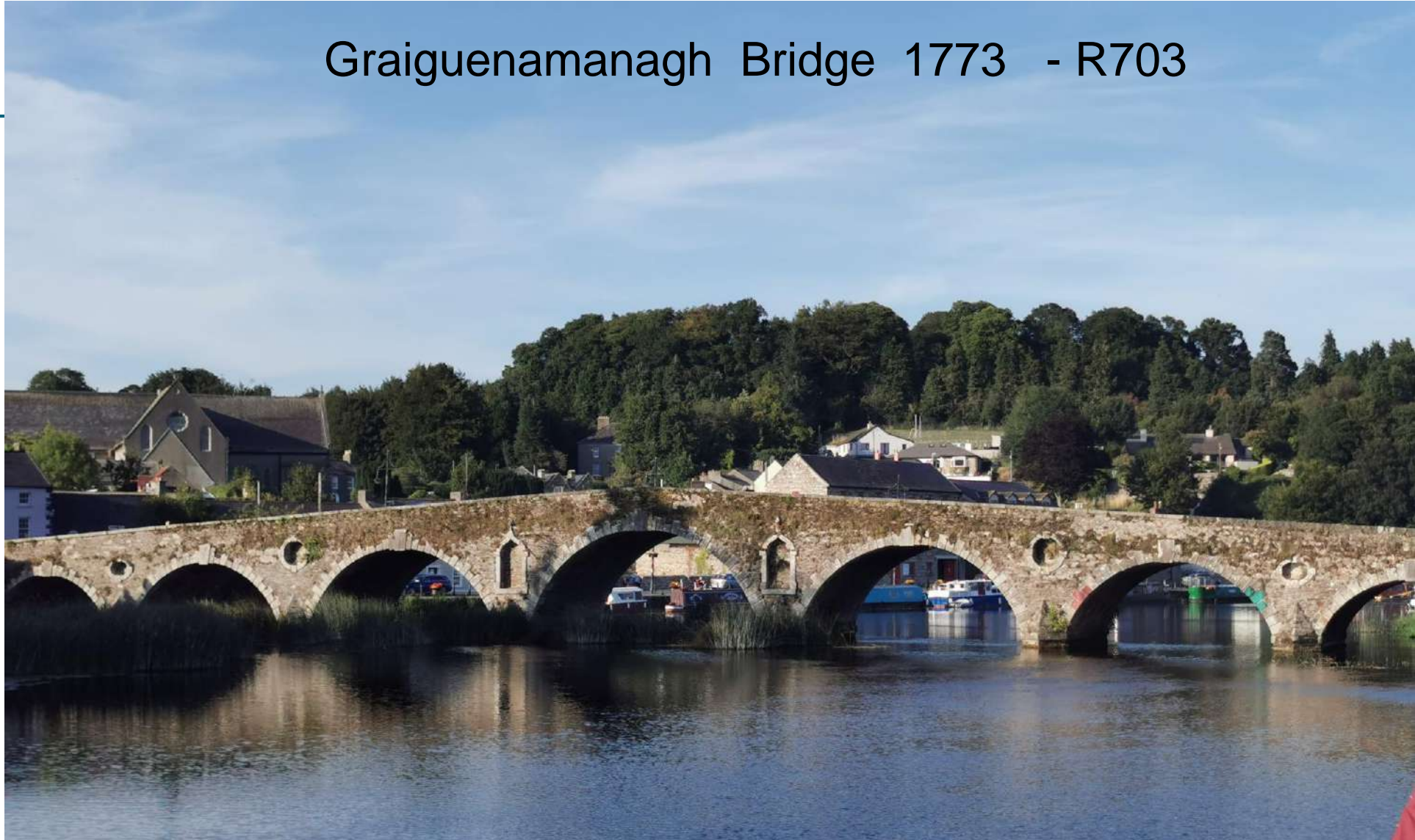
15<sup>th</sup> and 16<sup>th</sup> May 2024 in Radisson Hotel, Sligo.

### **Bridge Rehabilitation**

**Gary Salter Eur Ing, MSc, BE[Hons], MICE,  
Chartered Engineer,  
Conservation Accredited Registered Engineer [Care]  
Formerly Senior Executive Engineer for c 20years  
Structures and Marine Section  
Independent Engineer and Trainer**

# A bridge of National Significance and on a Regional Road

## Graiguenamanagh Bridge 1773 - R703



# R703 – Carlow/Kilkenny Border –Barrow River

Design attributed to George Smith finished in 1773. An early example of the start of Civil Engineering – application of science and theory



# Bridges have global symbolic significance.

Roman  
bridges and  
aqueducts  
c 40 AD



Romanesque  
C 1100AD



Gothic  
c1450 AD



Renaissance  
C1600 ad



Baroque &  
Rococco  
C 1780



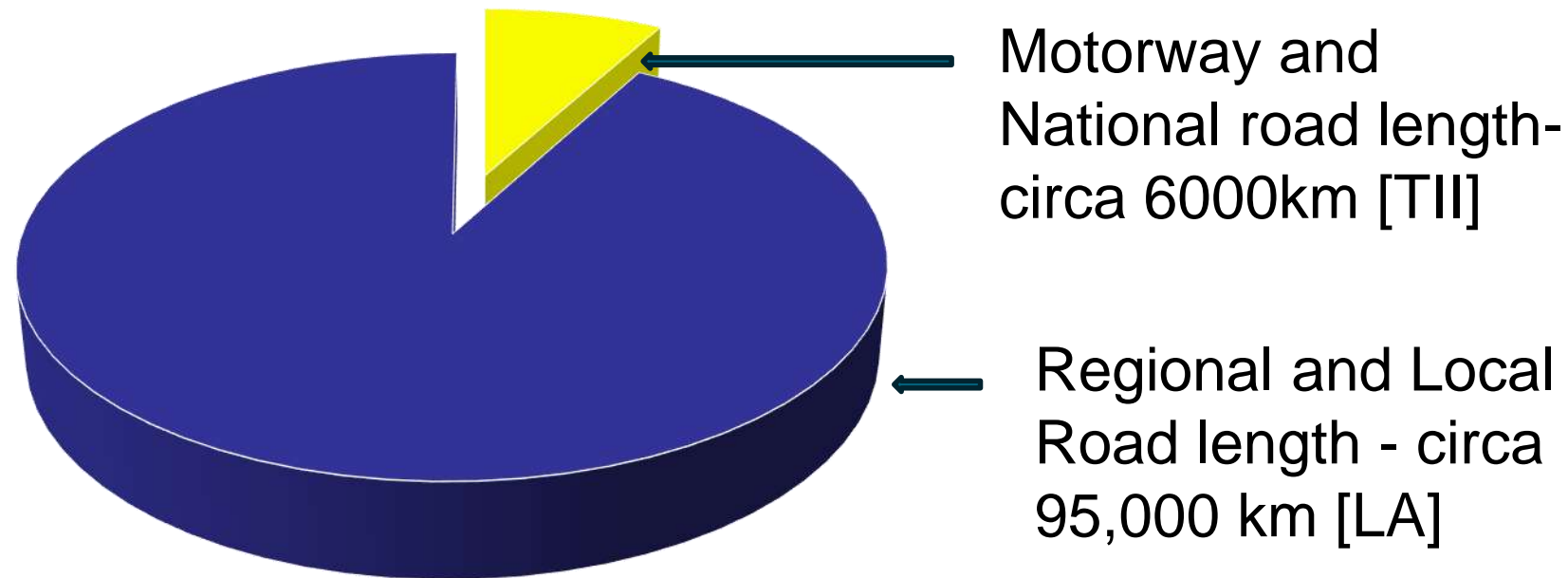
Metals  
c1850



# Dot/LA and TII

## Road lengths and bridge numbers

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101,000 KM of Public Roads

# Bridge Rehabilitation.

## LA Bridge Stock

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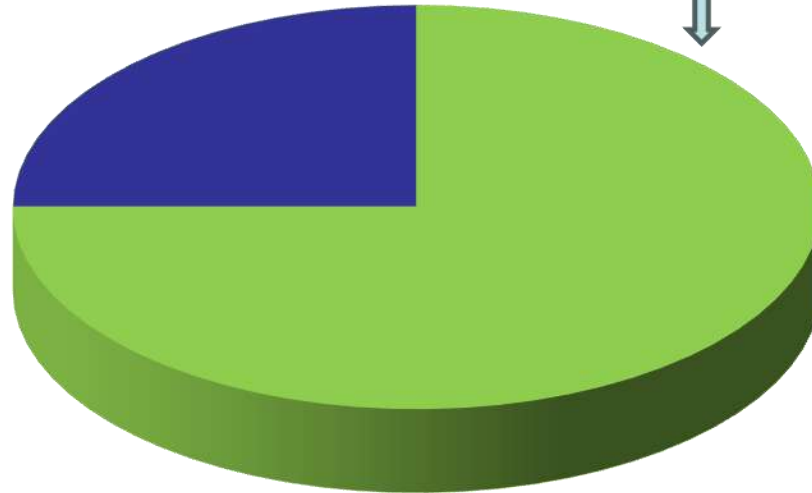
- ❑ At least **90%** of the nation's road **bridge** stock are on regional and local roads and are therefore the responsibility and in the care of LA's.
- ❑ A bridge is defined, in the Bridge Asset Management System for Regional and Local Roads published in 2019, as a structure with overall span of at least 1.2m
- ❑ This represents **at least 30,000 bridges**, probably considerably more.



# Bridge Rehabilitation. Our Masonry Bridge Stock

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Masonry bridges constitute c75% of  
the bridge stock



Very few stone bridges were built after 1900

**LA's should be custodians of these old bridges, and not demolishing them!**

# Bridge Rehabilitation ---

## Stone Arches - Built to Last

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- ❑ Stone bridge building in Ireland dates back around a thousand years.
- ❑ Surviving examples of masonry arch bridges dating between 1200BP and 1700BP are relatively unusual but do exist in most counties.
- ❑ Most were built in the eighteenth or nineteenth century
- ❑ All have should the test of time

# Bridge Rehabilitation.

Stone bridges can be gullets and clappers ie beam or slab decks

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But the vast bulk of these are **stone arch bridges**, of various shapes, quality, character etc.

[NB: Brick arches are relatively unusual, but a few do exist].



# DoT and LASNTG's Bridge Management Plan

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Requirement for a modern national bridge data base for Non-national road bridges comprised of data collected by each LA

## Phase 1

1. Produce 'Survey and Inspection Guidelines' for LA's
2. Create a Bridge App [tablet] to input bridge data direct from site to Asset Management System[AMS]
3. Train LA Engineers in the use of the above

# DOT and LASNTG Bridge Management Plan

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- ❑ Every LA has sent engineering staff to the Bridge Inventory Survey [BIS] and Maintenance Inspection [MI] training course, some has sent more than 8, average 5
- ❑ On average LA's have 2 Engineers who have passed the Engineering Inspection Course [EI].
- ❑ But how many LA's have actually built-up a comprehensive AMS Bridge Data Base?

# DoT and LASNTG's Bridge Management Plan

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## Phase 2

- ❑ LA's should continue to populate the AMS bridge data-base with country wide comparable condition ratings of all bridges
- ❑ Assess and specify the most appropriate rehabilitation /conservation works for selected/priority bridges
- ❑ Projects approved for funding in 2024 must have a valid Bridge Inventory Survey(BIS) and Maintenance Inspection(MI) in accordance with the Bridge Asset Management System for Regional and Local Roads.
- ❑ Use the MapRoad AMS for recording repair works

# Bridge Rehabilitation.

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- ❑ Repair is almost always better and cheaper than replacement
- ❑ The estimated cost of totally replacing a 1.5m stone arch and wingwalls, with a modern compliant structure could well be at least €150,000, plus fees, if consultants are involved
- ❑ Appropriately repairing it may be half the cost in the hands and a knowledgeable LA Engineer

# Bridge Rehabilitation.

**Conservation repairs have a lower carbon footprint v replacement,**

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Because:

- ❑ Less plant and machinery required
- ❑ Very few new materials; ie substantial reuse
- ❑ Less importation of materials from outside the county/country
- ❑ Sometimes all the work can be carried out by appropriately trained LA Engineers and outdoor staff, hence less contractors and consultants driving around the country



# Bridge Rehabilitation.

## Is repair conservation ?

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**If a repair is carried out with the same style, with the same or similar materials and in a like manner, it is likely conservation.**

- ❑ It will get a positive response from the public, heritage and conservation officers, planners, nature lovers, tidy towns, heritage groups. etc.
- ❑ Pride and a sense of satisfaction can be gained by all those involved in this valuable work

# Approach – conservation philosophy

The presumption to conserve is always the starting point

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- ❑ Requirement to fulfil function as a public road bridge
- ❑ Minimum intervention, if possible
- ❑ Minimal new/different materials, if possible
- ❑ Reversible repairs, if at all possible

2003- DMRB for the first time acknowledged the importance of old road structures with the publication of BD98/03- “The conservation of highway structures”.

## AM-STR-06051 Conservation of Road Structures (TII version-2015) defines conservation as:

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***" Work on a road structure which retains its aesthetic merit but can incorporate changes that are in keeping with the original structure. Conservation can include preservation, restoration and maintenance."***

**BD 89/15**, an acknowledgement of bridge conservation value.

# TII AM-STR-06051 [BD 89/15]

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This Standard covers procedures, conservation strategies and application of conservation principles in the management of road bridges and related structures which are;

- (i) Protected Structures; ( in County Dev. Plans & LAP's)
- (ii) Structures recorded by the National Inventory of Architectural Heritage (NIAH), Recorded Monuments or National Monuments; and
- (iii) Bridges and other structures which are not Protected but are considered as having historic and conservation merit as agreed by the relevant Local Authority OR the National Roads Authority.**

# Conservation Principles according to TII -AM-STR-06051 [BD 89/15]

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## 2.1 The principles of conservation are:

- (i) Bridges are best kept in use and maintained in their original form and performing the same function and structural action.
- (ii) There should be **minimal** changes to the structure and its appearance.
- (iii) Modifications should involve no loss in character, minimal loss of historic fabric, and minimal adverse effect on the setting.
- (iv) Modifications should preferably be **reversible**.
- (v) There should be **minimal** introduction of new material, whether newly produced, modern, or additional to the original fabric.
- vi) All work should be undertaken using appropriate materials and methods of application.

## TII -AM-STR-06051 [BD 89/15] 2.1 Principles of Conservation

**(i) Bridges are best kept in use and maintained in their original form and performing the same function and structural action.**

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**(ii) There should be minimal changes to the structure and its appearance. Not in my opinion in this case.**

**The interventions here are nothing to be proud of. An aesthetic disaster and of questionable benefit?  
The old arch is holding up the concrete arch? Also, a nightmare to remove!**



# Do such treatments really perform a structurally positive function? They certainly do nothing for the appearance!

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(ii) Minimal changes to the structure and its appearance? Here water is trapped inside these structures, degrading the arch stone itself. Reversibility difficult.



- ← (i) Definite 'change in structural action' – arch behaviour is altered in a combined arch? The old arch is supporting the concrete add-on!
- (iii) Modifications should involve no loss in character, minimal loss of historic fabric; gunite does not meet these requirements!

# Bridge rehabilitation

## Public highway bridges- function v conservation.

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An old (historic) bridge supporting a public road must be fit for purpose  
Conservation repairs often are adequate, occasionally discrete strengthening.

Widening an old bridge may be necessary for users, H&S, emergency services etc.



The balancing of objectives is required and can usually be realised in a tradition way.



# Bridge Rehabilitation

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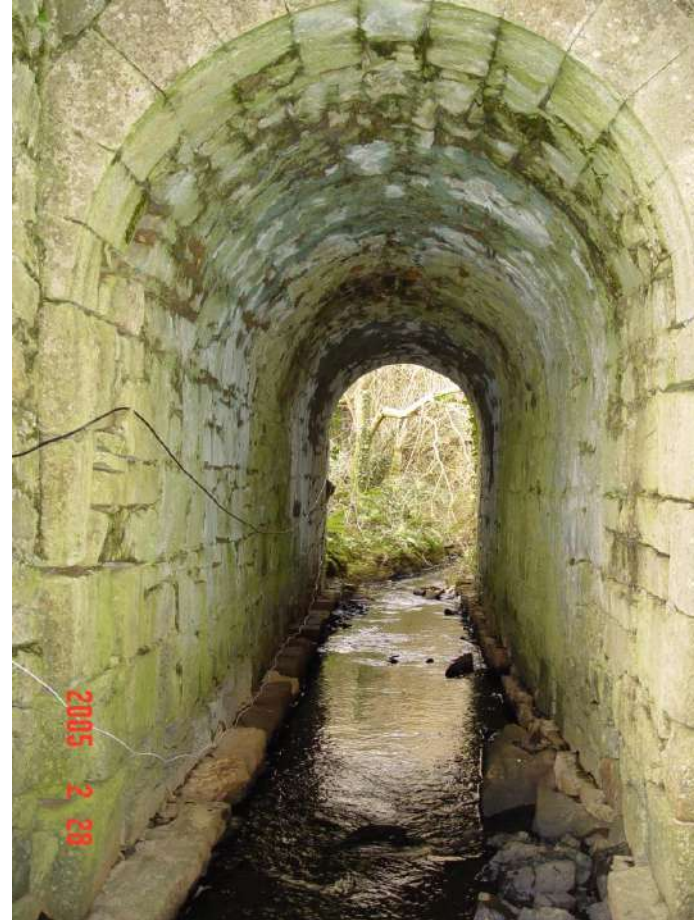
**Bridge Repairs**

**Before and After**

# Bridge Rehabilitation

## Narrow and tall bridge

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# Bridge Rehabilitation -----After restoration

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# Bridge Rehabilitation

Local primary road bridge with substantial retaining wall and unwanted trees!

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Courtesy of Sligo Co Co

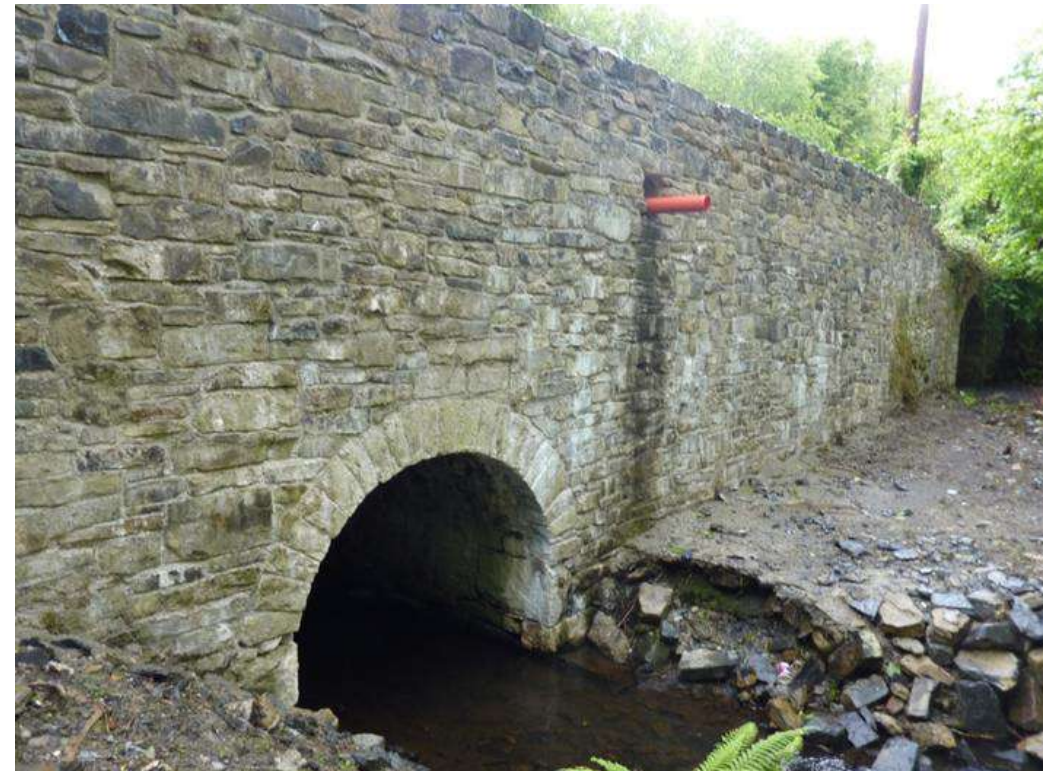
# Bridge Rehabilitation

After. Disassembled retaining wall and rebuilt outer 1.3m of arch



Courtesy of Sligo Co Co

Re-built arch and retaining wall with parapet over and rubbing strip on road side.



# Bridge Rehabilitation

Road closed – part of arch re-build plus other repairs cost €35,000 in 2012.



Total replacement with a modern Culvert type solution, fill etc., would cost typically **double** the amount of the repair

Courtesy of Sligo Co Co



# Bridge Rehabilitation

Vulnerable pier and stream bed and protection repairs on right



New concrete underpinning and bed protection and new masonry retaining wall & buttress, by SCC. Subsequent flood and bog slide, would probably have caused this bridge to fail without the repairs.

Courtesy of Sligo Co Co

# Bridge Rehabilitation

Bed protection breakdown & progressive failure, repairs on right.



**Replace stone bed pitching and repair defective parts of bridge, like with like, SCC.**





# Bridge Rehabilitation -

Arch cracks –a serious issue, but what is the cause?

Training and Knowledge is essential – ‘establish the cause not the symptom’!



**Diagonal and vertical cracks  
and external ring separation**



**Stabilise foundations, protect against  
scour, pressure point arch and install  
tie bars and pattress plates**

# Bridge Rehabilitation.--Mortar loss, water penetration, general neglect & punching, but repairable

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**Eliminate water ingress from above, pressure point entire intrados and abutments with lime mortar- the best solution in every sense.**



**Natural Hydraulic Lime pressure pointing by specialist Contractors, a good job.**

# Bridge Rehabilitation.

Ivy and shrub growth and vehicular impact.

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**2012 repairs- removal of vegetation, reconstruction of cutwater, spandrel and parapets, repairs to other parapets**

Courtesy of Sligo Co Co

# Bridge Rehabilitation

Services! Relocate in a rubbing strip if possible

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# Bridge rehabilitation

## Superstructure and substructure failure of a Clapper Bridge



**Major repairs and new structural deck at €52k by DL. A replacement bridge would have cost at least twice as much. Where there is a will there is a way!**

# Bridge rehabilitation.

Hump backs vehicle lift-off resulting in high impact loads!

Mitigation may be possible.

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# Bridge rehabilitation

## There is a choice

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**Replace this**



**With this**



**Or this**



Courtesy of Sligo coco

# Bridge Rehabilitation

A win-win scenario.

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**Or repair– surely no contest from financial, aesthetic, heritage and community standpoints.**



Courtesy of Sligo Co Co



# Bridge Rehabilitation

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## *Stone Masonry*

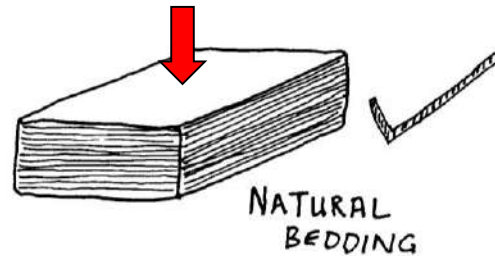
*The good, the bad and the ugly!*

*Do not use OPC when repairing or pointing old stone masonry bridges*

# Bridge Rehabilitation

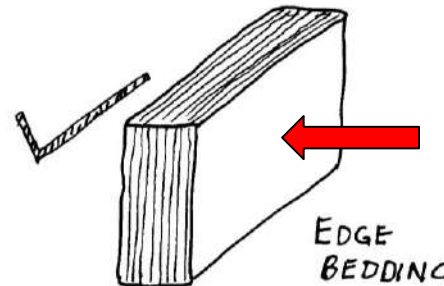
## Stone bedding planes – forces should act perpendicular to the bedding plane

FOR  
Sedimentary  
Rock

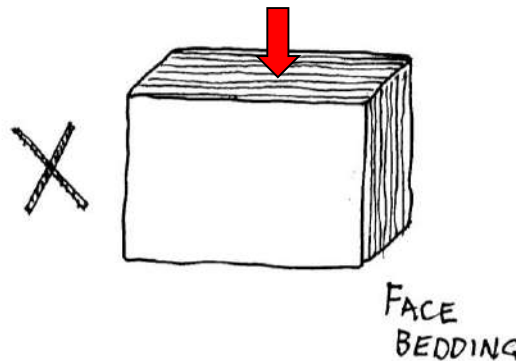


Most elements of masonry bridges eg foundations, abutments, spandrels, piers, wingwalls, parapets.

IE  
Limestones  
Sandstones  
Shales



Arch barrel construction and external voussoirs, and some copings of walls, eg cow and calf and soldier, copings.

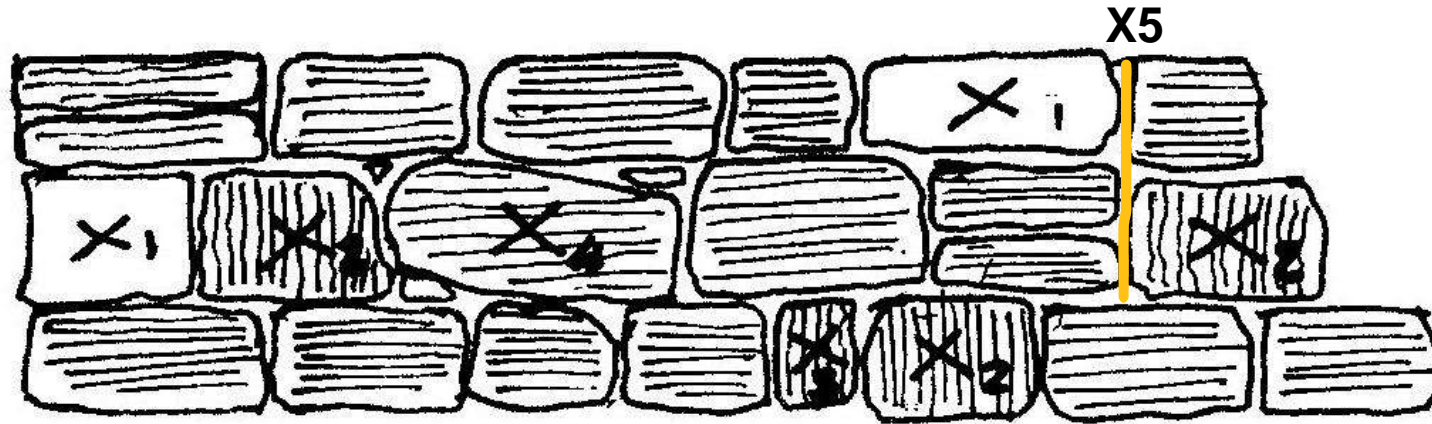


Face bedding should NOT be used [except in rare cases to match existing original bridge construction].

# Bridge Rehabilitation

Balance - the art of laying stone, in both a structural and visual sense

Examples  
of bad  
practise



## LAYING ERRORS

X1 – Face bedded

X2 – Edge bedding

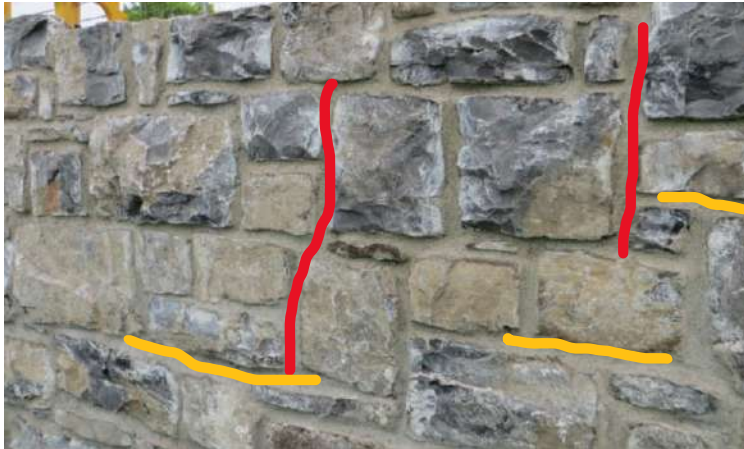
X3 – Wrong orientation- stone higher than its length

X4 – Stone should be laid with bottom edge horizontal

X5 – Vertical [running] joint three stones high [2 max]

# Bridge rehabilitation

## Bad practises



**Red** – running vertical joints at least three stones high

**Yellow**- horizontal joints too thick- reducing strength of the wall



Crazy paving masonry- totally inappropriate; it ignores most of the traditional masonry rules. The limestone here is also *face* bedded and the wall has been constructed in two leaves with cavity infill, again wrong!

Crazy paving.  
No qualified mason would build this as a repair to an old bridge.

# Bridge Rehabilitation.

## Recap

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- ❑ Engineers – get to know your bridges & study the Guidelines
- ❑ Use the AMS MapRoad bridge module to record BIS/MI surveys for projects that are in receipt of funding.
- ❑ Use conservation principles in rehabilitate old bridges
- ❑ Do the repair the right way – avoid bad practise
- ❑ Repair is cheaper and better than replacement in a multitude of ways – a win win scenario

## Useful references:

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- ❑ Bridge Asset Management System [BAMS] for Regional and Local Roads  
[download from [www.Roadguidelines.ie](http://www.Roadguidelines.ie)]
- ❑ TII Publication AM-STR-6002 The Assessment of Road Bridges and Structures, formerly BA 16/14]
- ❑ TII Publication AM-STR-6026- The Assessment of Road Bridges and Structures, formerly DB21/14
- ❑ TII Publication AM-STR-6051 – The Conservation of Road Structures [BD 89/15].
- ❑ Irish Stone Walls by Patrick McAfee. O'Brien Press, Dublin. ISBN 0-86278-478-6

# A major conservation project.

EI Engineering Excellence Award 2016 in Heritage & Conservation Category – Sligo Co Co

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## Thank You

Questions to be entered through SLIDO when entering your question please direct it to **Gary Salter** and they will be addressed at the end of the session:

Slido.com and enter 5812867  
Or via the QR Code







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# ROADS Services Training Group

## LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION - 2024

Day 1 Session 2 Presentation 2

Aidan Mc Clafferty

Sligo Radisson Hotel, Sligo, May 2024



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County and City Management Association

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# Capturing & Managing Pedestrian and Cycling Infrastructure (ATI) on MapRoad AMS

Presenter:        **Aidan Mc Clafferty**  
Job Title:        **Projects Manager**  
Organisation:    **Road Management Office**



**RMO**  
An Oifig um Bainistiú Bóithre  
Road Management Office





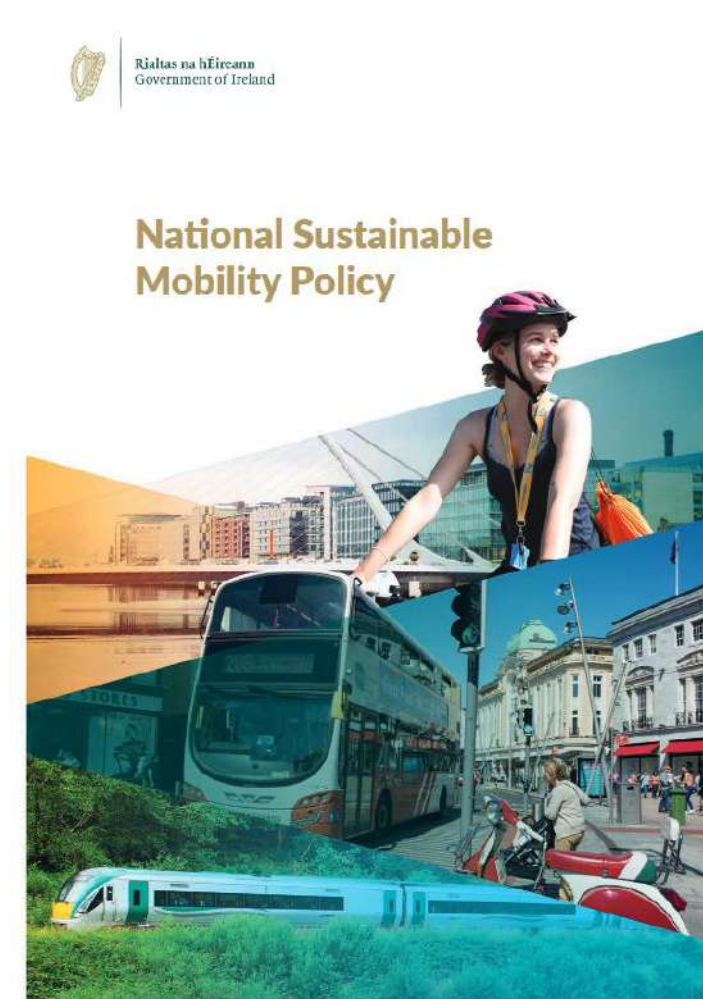
## Overview

- Approach developed for the capture and classification of **Active Travel Infrastructure (ATI)** via MapRoad AMS.
- Outline the assistance / training being provided to Local Authorities and Stakeholders.
- ATI Inventory and Projects Captured to date including a Case Study on this process.
- Design and Creation of the ATI Site Inspections App.
- Discuss the future development of the ATI capture and management process.



## What is Active Travel?

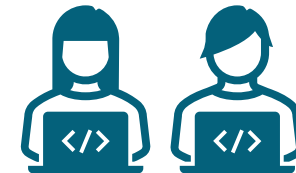
*“Walking, wheeling, or cycling as a means of transport in order to get to a particular destination such as work, the shops or to visit family or friends”.*





## The Approach Developed

- The RMO collaborated with stakeholders including DoT, NTA, and TII to determine scope and objectives for ATI capture.
- Software solutions meeting Stakeholder needs and adhering to legislation were developed.
- Sector wide guidance created, and training was delivered.





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## Collaboration

A Technical Working Group (TWG) was assembled in 2021 made up of numerous Stakeholders



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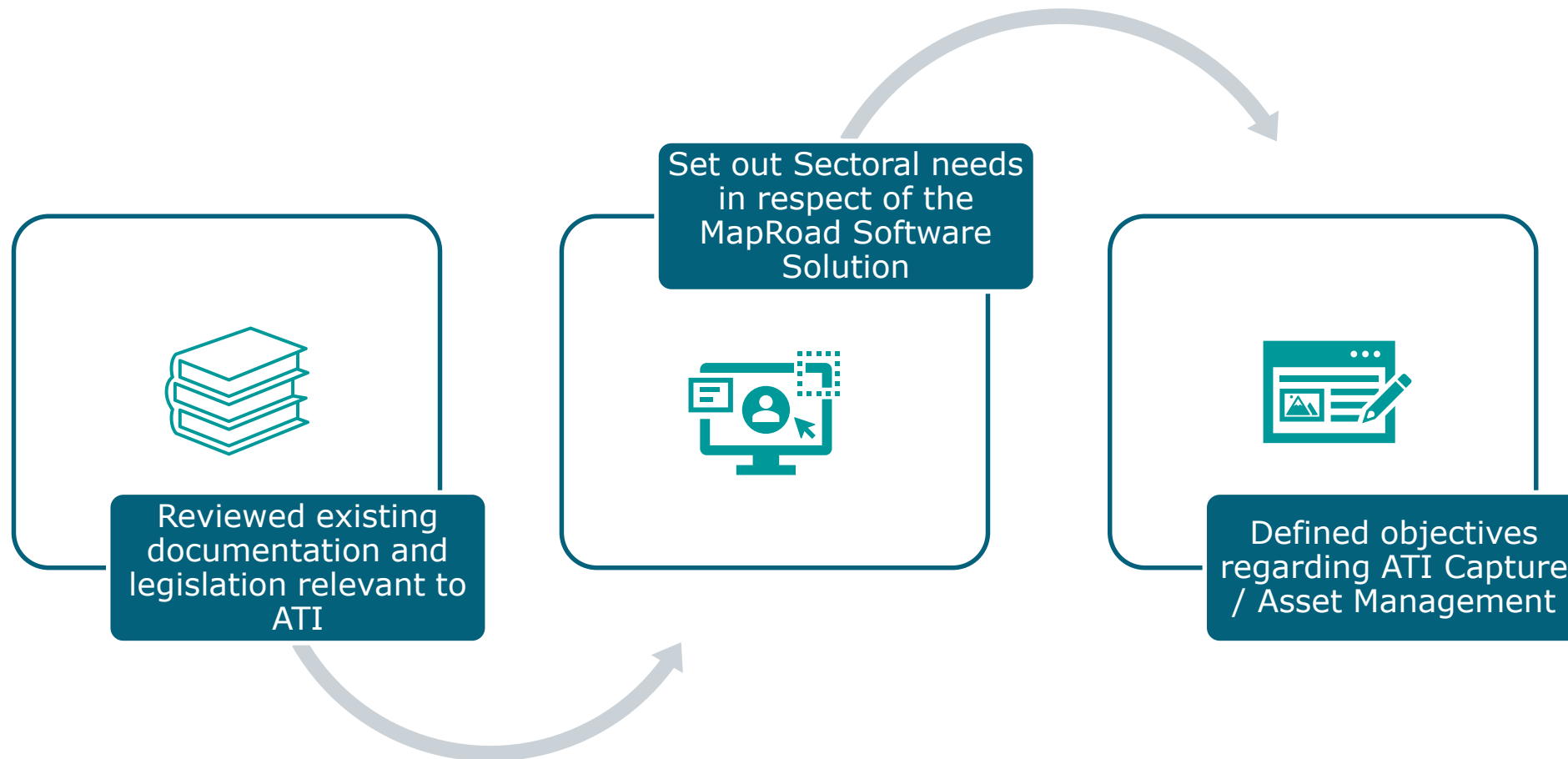


Comhairle Chontae na Gaillimhe  
Galway County Council



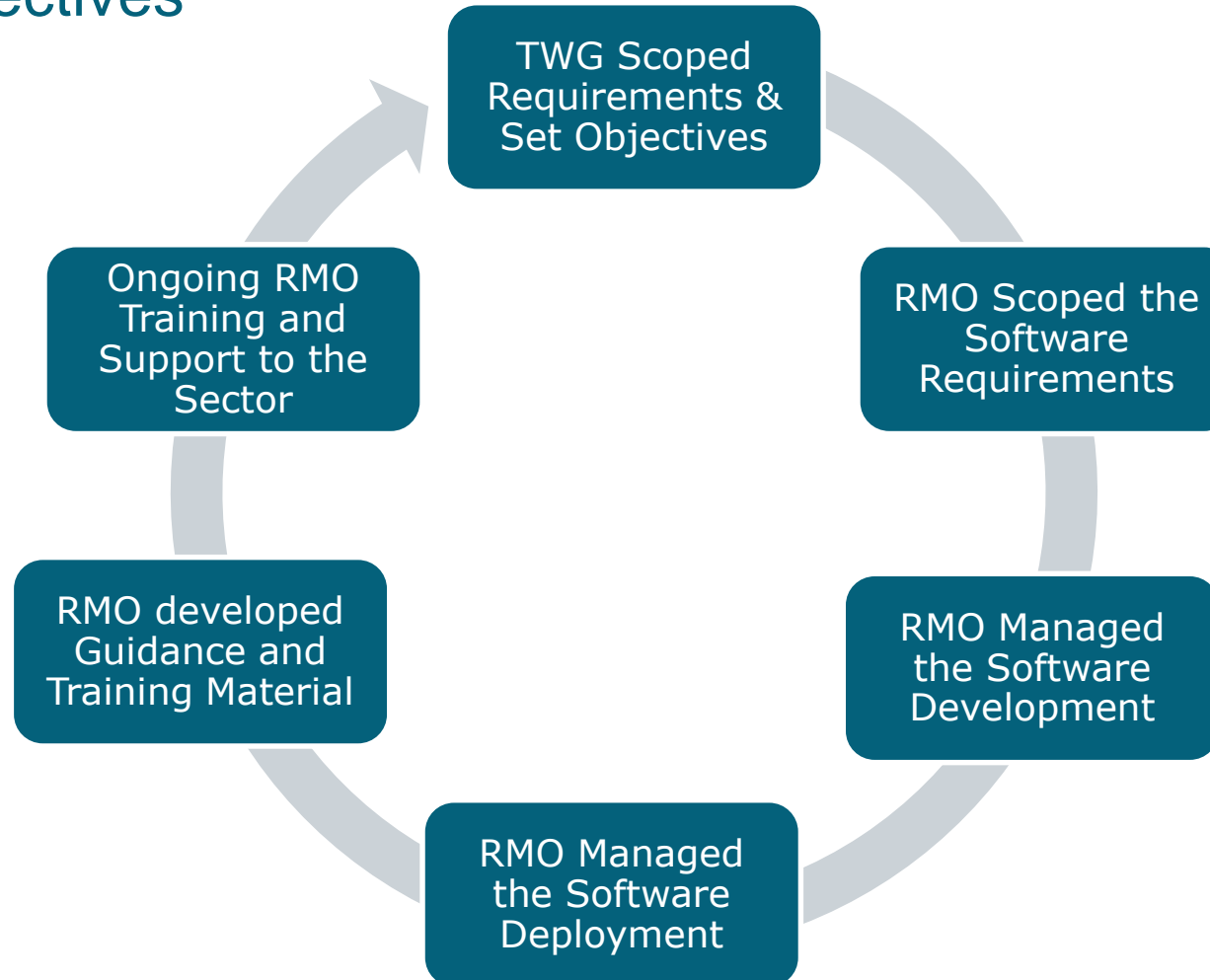


## TWG Process and Outputs





## Delivering the Objectives







## Why are we doing this?

- Government Sustainability Policy, e.g. The National Sustainable Mobility Policy (2030).
- To providing safety and access for all road users.
- To comply with requirements under legislation.
- To record details of ATI we have constructed aiding in future management of the asset.
- To oversee effective, efficient public investment.

**Ireland's new Sustainable Mobility Policy will make it easier for you to walk, cycle and use public transport daily.**

To cut Ireland's carbon emissions in half by 2030 we need to reduce our use of petrol and diesel cars. The policy will improve and expand walking, cycling and public transport options across the country to help you travel more sustainably.

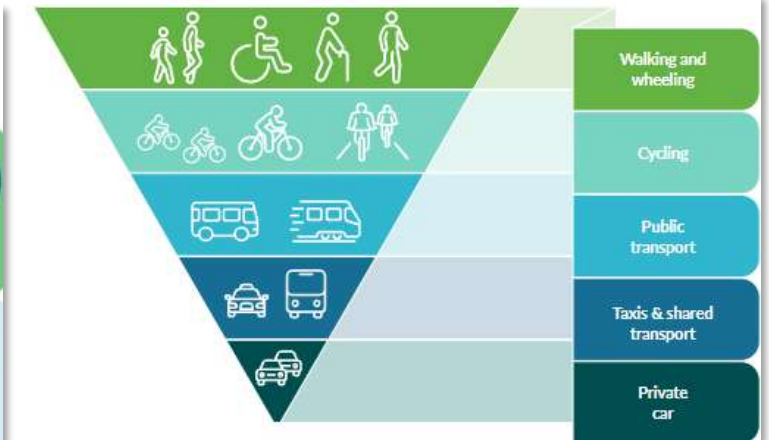
**Consider your journey**  
Can you move from place to place in a greener way? Over half of all trips under 2km are made by car. Can you walk or cycle short journeys instead? Or use public transport instead of driving a petrol or diesel car?

**What's in the policy?**

- Safe and green mobility**
  - Expanding walking, cycling and public transport infrastructure across the country
  - Moving the public transport fleet to low and zero emission vehicles
  - Improving the safety of walking, cycling and public transport networks
- People focused mobility**
  - Making walking, cycling and public transport more accessible for all users - including those with reduced mobility, disabilities and the elderly
  - Introducing a more attractive fare structure
  - Reallocating road space to prioritise walking, cycling and public transport
- Better integrated mobility**
  - Adopting a transport-orientated approach to housing development to place new housing close to public transport
  - Making it easier to switch between walking, bike, bus and rail on your journey

**Sustainable Mobility is cheaper, good for your health and better for the environment!**

For more information see [www.gov.ie/transport](http://www.gov.ie/transport)



Number 14 of 1993

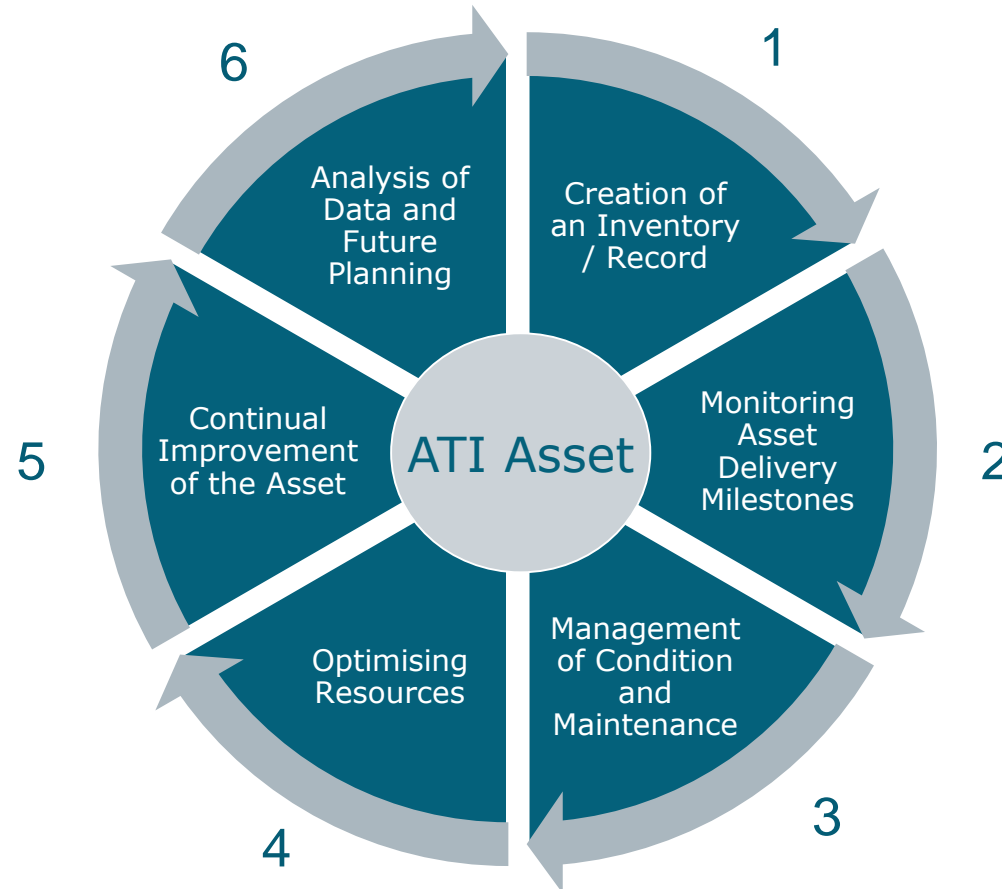
**ROADS ACT, 1993**





## Why are we doing this?

Capturing ATI via MapRoad facilitates:





## Capture and Classification of ATI – The Legislative Context

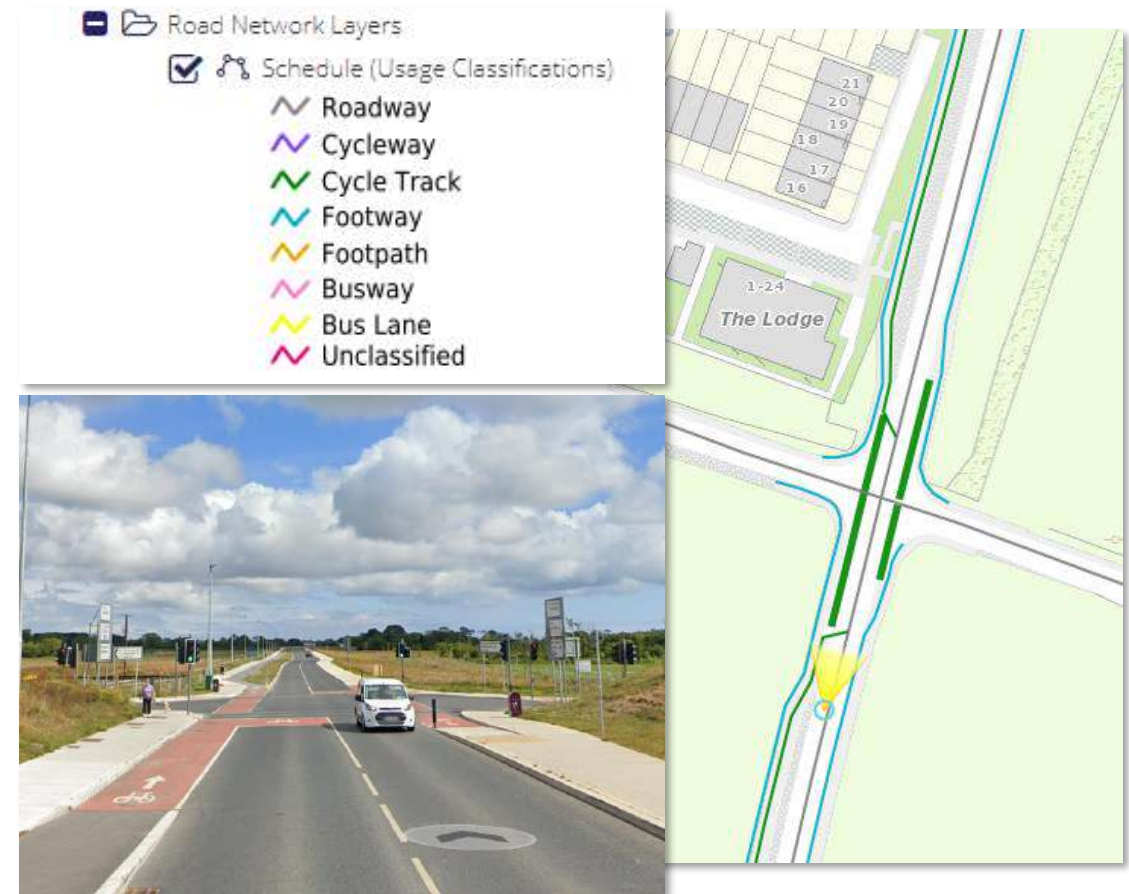
- A **“public road”** means a road over which a public right of way exists and the responsibility for the maintenance of which lies on a road authority. *The Roads Act, 1993, Part I, section 2.1.*
- A road authority shall keep a schedule and map of **‘all public roads’** in respect of which it has responsibility. *Roads Act, 1993, Part II, section 10.5 (a)*
- Active Travel Infrastructure (ATI) can include Roadways, Cycleways, Cycle Tracks, Footways and Footpaths, all of which are defined in the Roads Act, 1993.





## Capture and Classification of ATI – The Asset Management Context

- Further to meeting legislative requirements, there is need to record accurate information about the Asset
- This approach aims to capture all ATI elements
- Doing so will create a valuable spatial dataset and facilitate data driven, evidence-based decision making
- Sector wide use of MapRoad is providing accurate, consistent and detailed ATI data





## Capture and Classification of ATI – Terminology

- There are many terms used to describe ATI
- Some commonplace terminology is not legally defined
- MapRoad terminology is legally defined
- A simple dropdown menu is used facilitating consistent information capture sector wide

### Commonplace ATI Terminology:

- *Greenway*
- *Blueway*
- *Grey-way*
- *Shared Active Travel Facility*
- *Cycle Lane*

New Road Segment: Invalid Segment ID

Road Details Location Details History Files Geometry

Way Details

Type of Way\*: Type of Way... ⓘ

Status\*: Status... ⓘ

Usage Classification\*: Usage Classification... ⓘ

Classification

Segment ID\*: ⓘ

Classification: ⓘ

Name\*: ⓘ

Invalid Segment ID ⓘ

Schemes



- Approach developed for the capture and classification of Active Travel Infrastructure (ATI) via MapRoad AMS.
- **Outline the assistance / training being provided to Local Authorities and Stakeholders.**
- ATI Inventory and Projects Captured to date including a Case Study on this process.
- Design and Creation of the ATI Site Inspections App.
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# Guidance and Training

- The RMO has developed ATI Guidance and Training
- Blended approach using online demonstrations and supporting documentation
- Adherence to obligations under legislation
- Also promotes a ‘best practice’ approach to capturing ATI information
- MapRoad is at the core facilitating data capture, data analysis and reporting

T3 Training Literature

MapRoad Asset Management System



Tutorial Module

## Infrastructure Type Glossary

Definitions

MapRoad Terminology

**Road:** A "public road" means a road over which a public right of way exists and the responsibility for the maintenance of which lies on a road authority. *Roads Act, 1993 2 —(1).*

**Footway:** A "footway" means that portion of a road which is provided primarily for the use of vehicles. *Roads Act, 1993 2 —(1).*

**Cycleway:** A "cycleway" means a public road or proposed public road reserved for the exclusive use of pedal cyclists or pedal cyclists and pedestrians. *Roads Act, 1993 58 —(1).*

*2(a) A road authority may construct (or otherwise provide) and maintain a cycleway:  
(b) where a road authority constructs an infrastructure, provides a cycleway it shall be under a duty to ensure—  
(i) that the cycleway is for the exclusive use of pedal cyclists, or  
(ii) that the cycleway is for the exclusive use of pedal cyclists and pedestrians.*

**Cycle Track:** Cycle Track means part of a road, including part of a footway or part of a roadway, which is reserved for the use of pedal cycles and from which all mechanically propelled vehicles, other than mechanically propelled wheelchairs, are prohibited from entering except for the purpose of access\*

*S.I. No. 152/1997 - Road Traffic (Traffic and Parking) Regulations, 1997 4. (1)  
Article 24. Where traffic sign numbers R5120 or R5120A and/or other R5122 or R5123 cycle track signs provided, the part of road to which they relate shall be a cycle track.  
(2) The periods of operation of a cycle track may be indicated on an information plate which is to be provided in association with traffic sign number R5120 or R5123.  
(3) All pedal cycles must be driven on a cycle track where one is provided.  
(4) Where a cycle track is one-way, pedal cycles shall be driven in that same direction as traffic on the side of the roadway adjacent to the cycle track is required to travel.  
(5) Where a cycle track is two-way, pedal cycles shall be driven as near as possible to the left hand side of each way.  
(6) A mechanically propelled vehicle, other than a mechanically propelled wheelchair, shall not be driven along or across a cycle track.  
(7) A reference in this article to a sign being an access cycle track shall include a reference to a driving vehicle or user of a vehicle or access cycle track.  
(8) This sub-article shall not apply to a vehicle being driven for the purpose of access to or egress from a place or*

**Footway:** A "footway" means that portion of any road associated with a roadway

**Footpath:** A "footpath" means a road over which there is a public right of way

## Glossary

**Cycle Track**  
Cycle track means part of a road, including part of a footway or part of a roadway, which is reserved for the use of pedal cycles and from which all mechanically propelled vehicles, other than mechanically propelled wheelchairs, are prohibited from entering except for the purpose of access.  
ref: 5.18 Traffic Signs Manual Chapter 5.  
ref: 7.8 Traffic Signs Manual Chapter 7





## Online Training - Key features

- High Level Workshops run for management level staff
- Technical Workshops run for technical staff
- Group and one to one training provided
- Customized training provided to meet specific needs
- Training provision is ongoing
- 230 system users trained to date across the sector



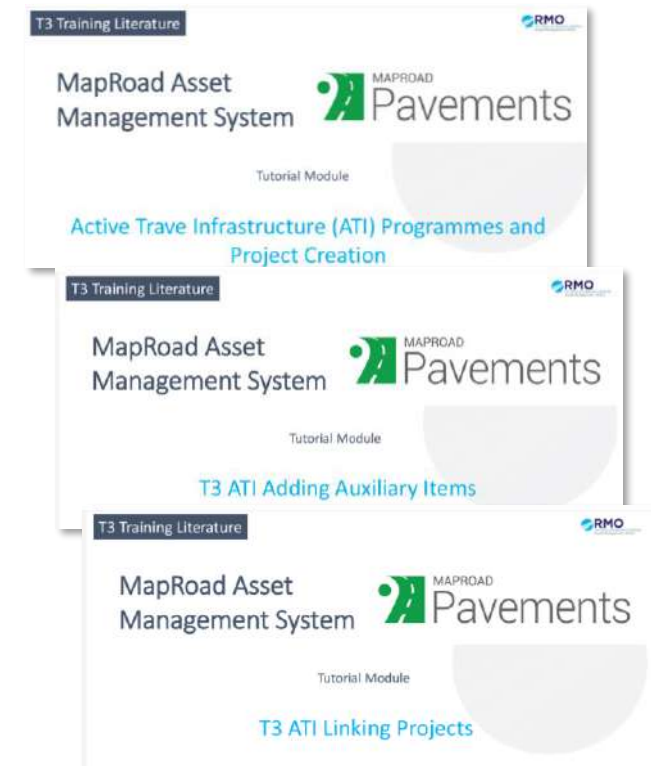
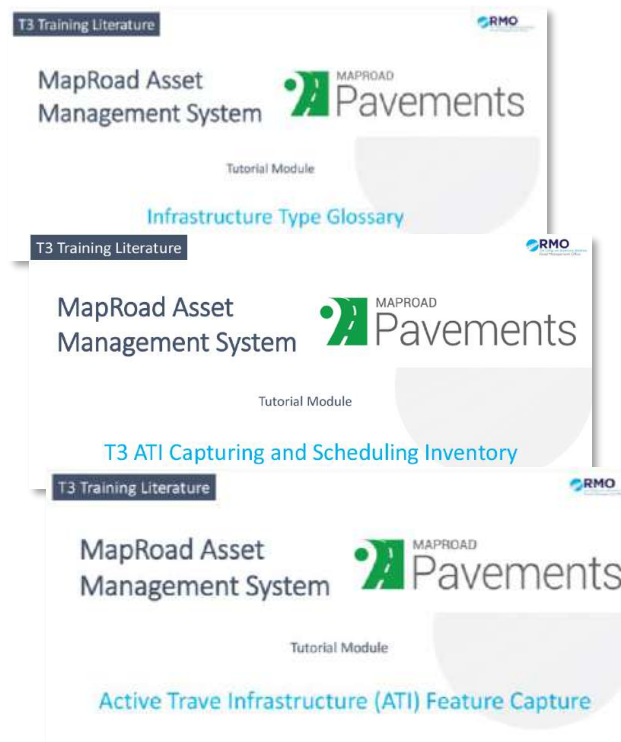
*Image Reference: Computer Mind, Online Training,*  
[https://www.computermindtech.co.in/online\\_training.html](https://www.computermindtech.co.in/online_training.html)





## Guidance Documentation- Key features

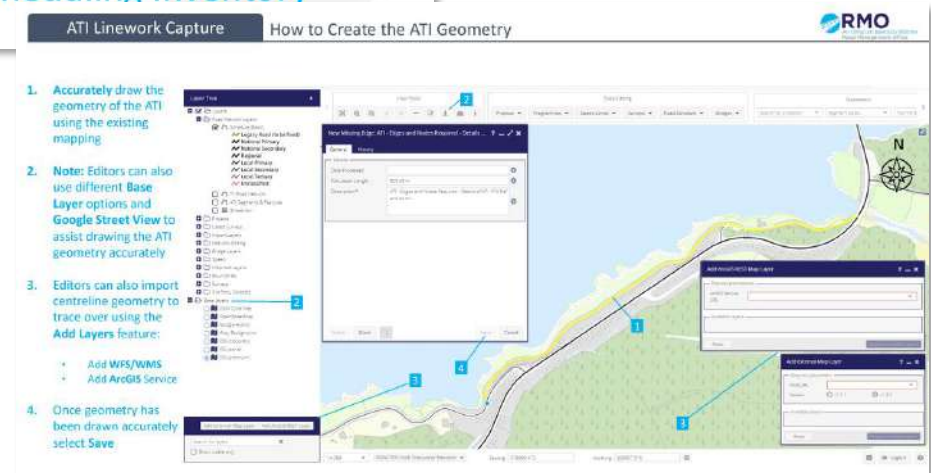
- Each ATI capture stage has a guidance document
- Users can quickly reference documents to capture ATI
- Concise step-by-step format
- Clear language used
- Common approach across all MapRoad guidance documentation





## Guidance Documentation- Key features

- Step-by-step approach
- Easy to follow instructions
- Locations of system functionality shown
- Builds up the user's skillset



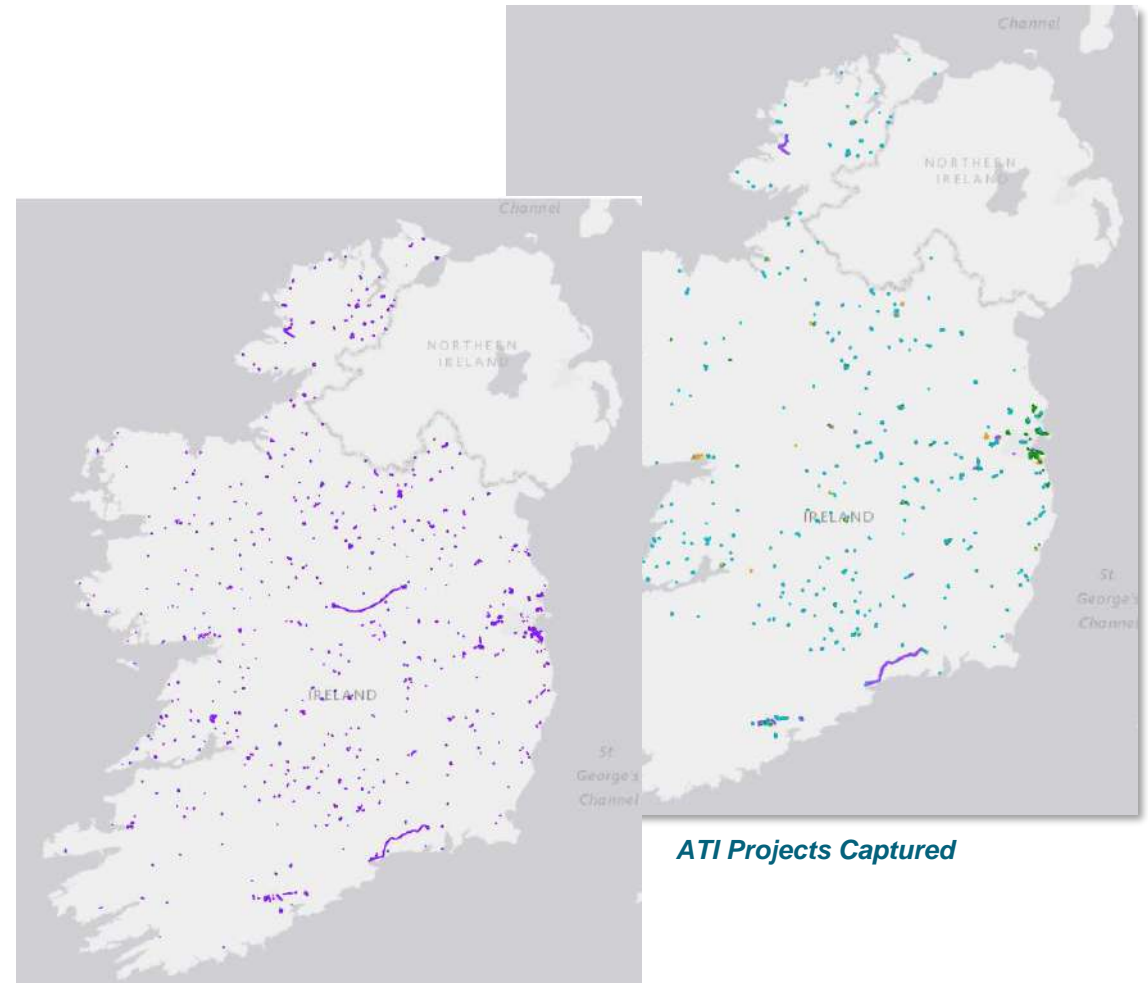


- Approach developed for the capture and classification of Active Travel Infrastructure (ATI) via MapRoad AMS.
- Outline the assistance / training being provided to Local Authorities and Stakeholders.
- **ATI Inventory and Projects Captured to date including a Case Study on this process.**
- Design and Creation of the ATI Site Inspections App.
- Discuss the future development of the ATI capture and management process.



## ATI Inventory and Project Capture

- ATI Inventory and projects are being captured across the country in MapRoad AMS
- Focus has been on capturing 2021 to 2023 NTA funded ATI schemes
- Initially the inventory is captured which is then followed by capturing the projects
- Process commenced in Q1 of 2023
- **3100 sections of Inventory captured to date**
- **1600 project locations captured to date**
- 2024 inventory and project capture has commenced which will include TII funded ATI (*Greenways*)



*ATI Inventory Captured*

*ATI Projects Captured*



# ATI Inventory and Project Capture

The screenshot displays the ArcGIS web application interface for ATI Inventory and Project Capture. The interface is divided into several sections:

- Layer Tree (Left):** A list of layers and their visibility status. Key layers include:
  - Road Network Layers:
    - Schedule (Basic)
    - TII Road Network
    - ATI (Usage Classifications):
      - Cycleway (purple)
      - Cycle Track (green)
      - Footway (blue)
      - Footpath (yellow)
  - Network Editing:
    - Nodes (Network) (Node)
    - Edges (Network) (Status)
    - Edges (Missing)
    - Edges (Proposed)
    - Nodes (Combined) (Node)
    - Edges (Combined)
    - Edges (Public/Non-Public Splits)
    - Ways (PRIME2)
  - Base Layers:
    - OSM Cycle Map
    - OpenStreetsMap
    - Google Hybrid
    - Google Road Map
    - Grey Background
- Main Map Area:** A large map showing a street network with colored lines representing different types of infrastructure. A scale bar indicates 1000m.
- Inset View (Right):** A detailed view of a specific road segment, showing the colored lines overlaid on a street map.
- Search and Tools:** A search bar at the top right for finding locations and segment codes. A toolbar at the top left includes map tools like zoom, pan, and print.
- Coordinate Display (Bottom):** Shows the current location in the IRENET95 / Irish Transverse Mercator projection, with Easting: 575794.077 and Northing: 666937.13.

ATI Inventory / Projects Captured in Cork City and its Environs



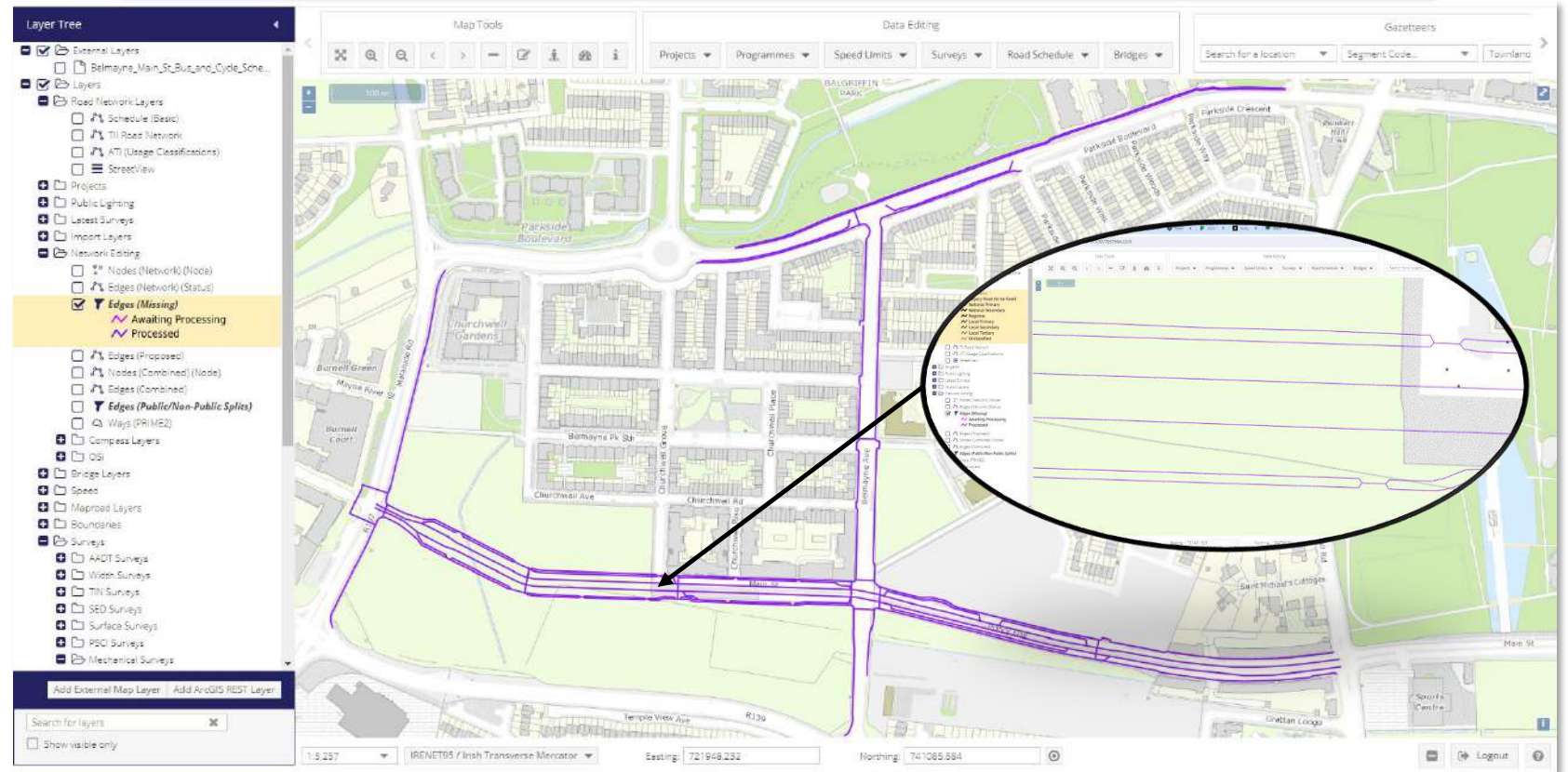
# ATI Inventory and Project Capture – Case Study

Project Name: DCC 19  
Belmayne Main Street Bus  
and Cycle Scheme

Location: Belmayne,  
Dublin13

## Project Details:

- New Footway ATI
- New Cycle Track ATI
- New Link Road incorporating Bus lanes
- Associated upgrade works to services and existing pedestrian infrastructure





## Challenges

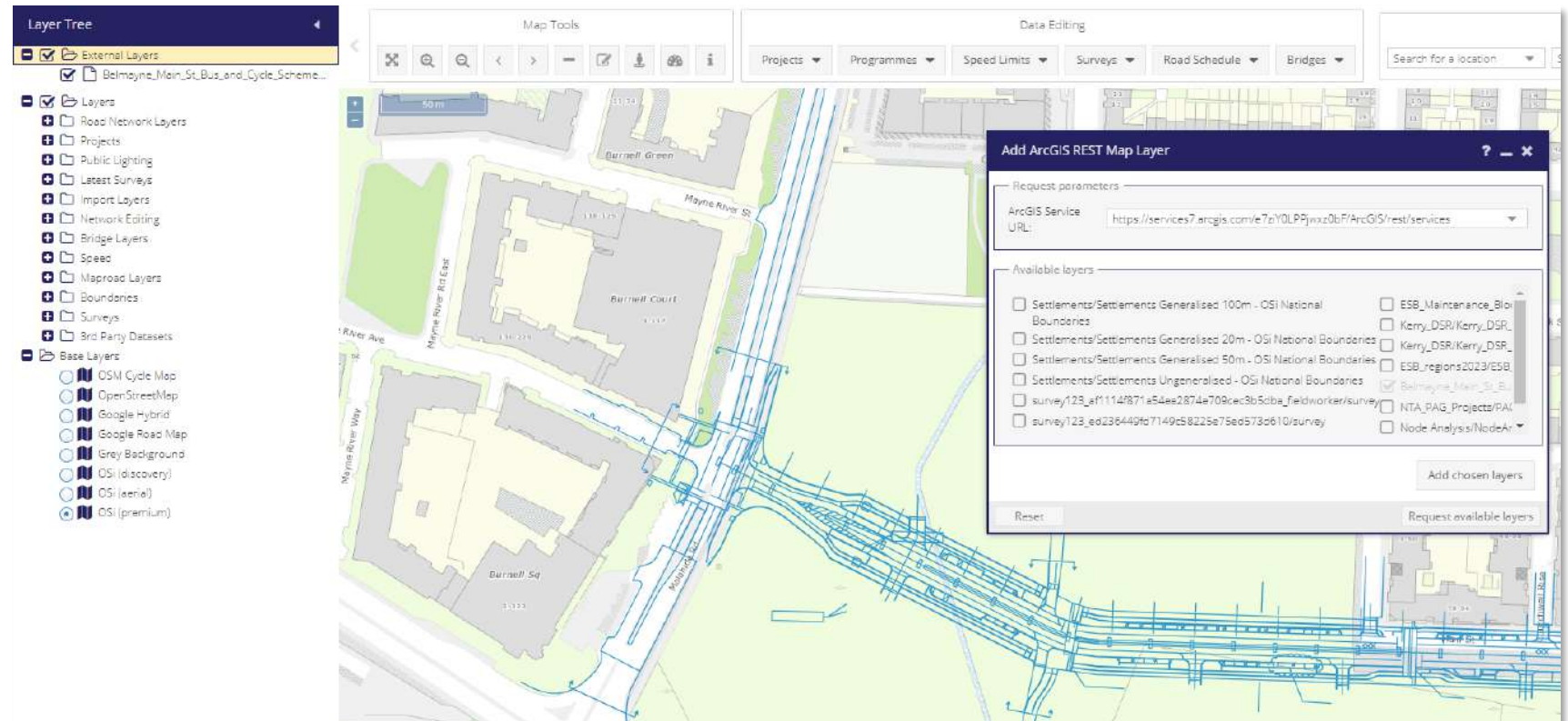
- Complex project layout covering a large area
- Mapping provider lag updating their mapping products (project complete in late 2023)
- Lack of suitable background mapping available
- How do we capture the ATI inventory and project?





## MapRoad Functionality

- MapRoad has functionality to import external layers
- Autodesk and GIS formats supported
- In this case the RMO was able to import a **.dwg** Cad file supplied by the Authority
- This facilitated the accurate capture of the ATI project linework



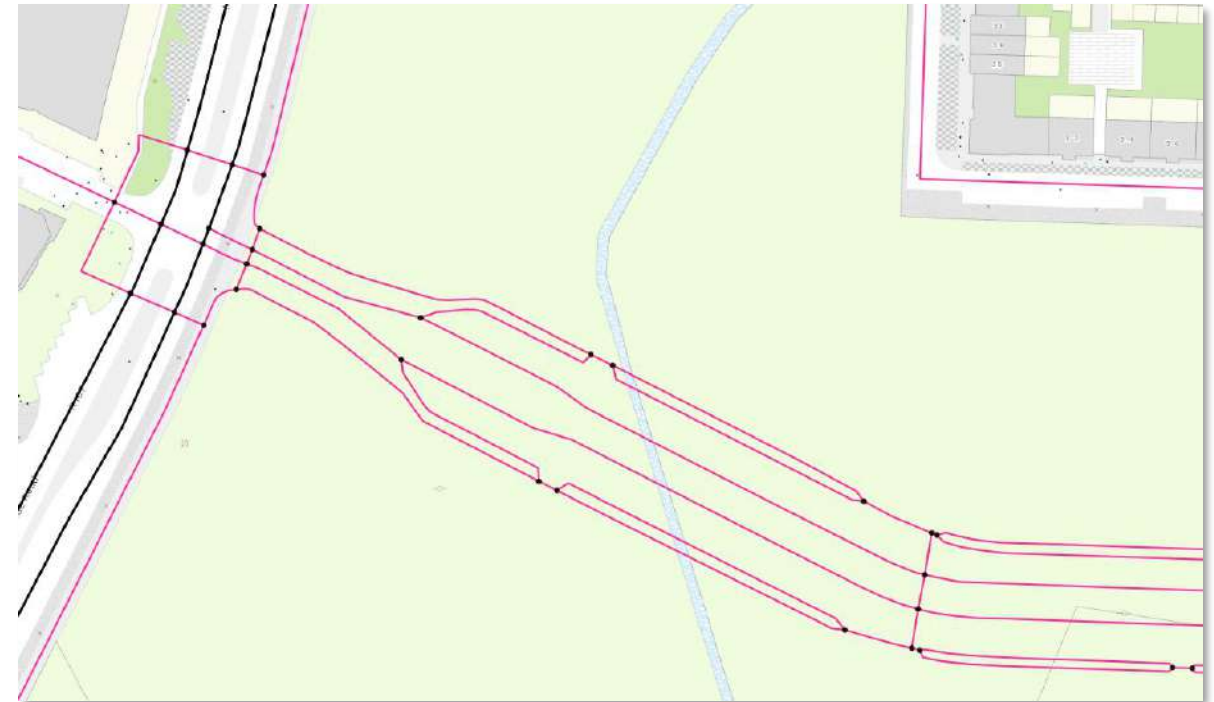




## Processed Linework Requests



*External layer Imported allowing user to accurately draw linework requests*



*Reviewed and processed linework requests ready for inventory capture*



# ATI Inventory Capture

- ATI Inventory capture by LA via Road Segment Form

Road Segment: R-107-900

Way Details

Type of Way\*: Public Right of Way  
Status\*: Public Road  
Usage Classification\*: Footway

Classification

Segment ID\*: R- 107 - 900 R-107-900  
Classification: Regional  
Name\*: DCC 19 Belmayne Main St Bus and Cycle Sch

Schemes

Is Protected Road?:   
Is Busway?:   
Is Motorway?:

Schedule Criteria

Linked Segment?:   
Include In Schedule:   
Is Proposed?:

Administration

Taken in charge: 31-10-2023 TERN: TERN...  
Reference No.: Reference Number... CE Order No.: N/A  
Date of Agreement: Date of Agree...  
Agreement Ceased?:   
Is Abandoned?:   
Is Extinguished?:

Delete Zoom Refresh Save Cancel





# ATI Inventory Capture

- User completed Road Segment Form tabs:
  - *Way Details*
  - *Classification*
  - *Schemes*
  - *Schedule Criteria*
  - *Administration*
- Certain fields Auto-populate depending on user entered information
- Free text entry options for
  - *Name*
  - *Segment ID*

The image shows a screenshot of a software interface for capturing road segment data. It includes a main form for 'Road Segment: R-107-900' with various tabs and input fields, a detailed 'Geometry' table, and a map showing the spatial location of the captured data.

**Road Segment: R-107-900**

Way Details:

- Type of Way\*: Public Right of Way
- Status\*: Public Road
- Usage Classification\*: Footway

Classification:

- Segment ID\*: R-107 - 900 R-107-900
- Classification: Regional
- Name\*: DCC 19 Belmayne Main St Bus and Cycle Sch

Schemes:

- Is Protected Road?:
- Is Busway?:
- Is Motorway?:

Schedule Criteria:

- Linked Segment?:
- Include In Schedule:
- Is Proposed?:

Administration:

- Taken in charge: 31-10-2023 TERN: TERN...
- Reference No.: Reference Number... CE Order No.: N/A
- Date of Agreement: Date of Agreem...
- Agreement Ceased?:
- Is Abandoned?:
- Is Extinguished?:

**Road Segment: R-107-900 - Geometry**

Edge Id	Length	Municipal District	Edge Type
2756891	123.90 m	Local Electoral Area o...	User entered edge
2756759	12.07 m	Local Electoral Area o...	User entered edge
2756881	6.32 m	Local Electoral Area o...	User entered edge
2756883	3.52 m	Local Electoral Area o...	User entered edge
2756767	5.08 m	Local Electoral Area o...	User entered edge
2756766	13.15 m	Local Electoral Area o...	User entered edge
2756884	251.62 m	Local Electoral Area o...	User entered edge
	0.42 km		

*Spatial location of the ATI captured*

The map shows the location of the road segment R-107-900, which is highlighted in pink. The map includes labels for 'Mayne River', 'Churchwell Gardens', and 'Mayne River St'. A 'Route Information' window is overlaid on the map, showing details for the selected segment.

**Route Information**

Ch. From	Ch. To	Segments Code	Engineering Area	Licensing Area
0	41E	R-107-900	North-Central	North-East



# ATI Project Capture

## ATI project capture by LA via Footway Project Form

Footway Project: DCC 19 Belmayne Bus and Cycle Scheme Part 1

General Works Aux. Items Expenditure Benchmarks Files Validation Geometry Links

Project Information

Year\*: 2023 Project Phase: Planned

Project Category: ATI Name\*: DCC 19 Belmayne Bus and Cycle Scheme Part 1

Intervention Type: NC Treatment Category: NC

Project ID: 117979

Dates

Start Date: 01-09-2022 End Date: 31-10-2023

Traffic

Is Location Urban?: Yes

Delete Strip Map Zoom Refresh Save Cancel

Projects (Project Types)

- Pavement (R, L)
- Pavement (N)
- Pavement (Non-Public)
- Safety
- Bridge/Culvert
- Drainage
- Footway
- Cycleway
- Cycle Track
- Footpath



# ATI Project Capture

- General Tab
  - General Project Information: *year, name, dates etc.*
- Works Tab
  - Project Works Information: *length, area, lanes, materials etc.*

Footway Project: DCC 19 Belmayne Bus and Cycle Scheme Part 1

General Works Aux. Items Expenditure Benchmarks Files Validation Geometry Links

Project Information

Year\*: 2023 Project Phase: Planned

Project Category: ATI Name\*: DCC 19 Belmayne Bus and Cycle Scheme Part 1

Intervention Type: NC Treatment Category: NC

Project ID: 117979

Dates

Start Date: 01-09-2022 End Date: 31-10-2023

Traffic

Is Location Urban?: Yes

Delete Strip Map Zoom Refresh

Footway Project: DCC 19 Belmayne Bus and Cycle Scheme Part 1

General Works Aux. Items Expenditure Benchmarks Files Validation Geometry Links

Mapped/Site Summary

Project Length: 309 m Measured Pavement Width: Unrecorded Road Schedule Width: 2.00 m

Works Summary

Project Works Length: 309 m Project Average Works Width: 3.00 m Project Works Area: 927 m<sup>2</sup>

Project Notes

Works Grid

Add Section Expand All Collapse All View Options

Section	Length (m)	Section Width (m)	No. of Lane(s)
0 m - 309 m	309	3.00	2

Layer	Material	Designation	Thickne...	Chip Size	Works By	Contrac...	Width (m)
Lane 1/2 Width: 2.00 m Construction Method: New Construction Intervention: NC							
Surface Course	Concrete	C32/40	150			Contrac...	2
Binder Course			0				
Base			0				
Geosynthetics			0				
Sub base	Unbound	Granular Material...	150			Contrac...	2
Capping			0				
			300 mm				
Lane 2/2 Width: 1.00 m Construction Method: New Construction Intervention: NC							
			190 mm				

Delete Strip Map Zoom Refresh Save Cancel



# ATI Project Capture

- Expenditure Tab
  - Project Cost Information: *estimated cost, actual cost assigned to relevant programme and year*
- Files Tab
  - File Upload Functionality: *As build drawings, Project Reports etc.*

The screenshot displays two overlapping windows of a software application. The top window is titled 'Footway Project: DCC 19 Belmayne Bus and Cycle Scheme Part 1' and shows the 'Expenditure' tab. It contains several input fields: 'FMS Code', 'Linked Project(s) Cost (€)' (€ 0), 'Material Costs (€)' (€ 0), 'Total Auxiliary Item(s) Cost (€)' (€ 0.00), 'Estimated Project Cost (€)' (€ 12,000,000.00), and 'Actual Project Cost (€)' (€ 12,000,000.00). Below these fields is an 'Add Funding Source' button and a table with the following data:

Funding Source	Expenditure	% Estimated	% Actual	Prog	Name	Description	Thumbnail	Last Updated
NTA Active Travel Infrastructure	12,000,000 €	100%	100%	NTA ATI 2023	DCC 19 Belmayne Main St Bus and C...	Drawings and Project report Documents		01-05-2024

The bottom window is titled 'Footway Project: DCC 19 Belmayne Bus and Cycle Scheme Part 1' and shows the 'Files' tab. It features an 'Add File' button and a table with the same data as the Expenditure tab. At the bottom of the interface, there are buttons for 'Delete', 'Strip Map', 'Zoom', 'Refresh', 'Save', and 'Cancel'.

**Note: Arbitrary figures used for demonstration of Expenditure Tab**



## Case Study Summary

- Complex project layout covering a large area
- Lack of background mapping making linework capture challenging
- With RMO support the LA imported scheme drawings to digitize linework requests
- Once the linework was processed, capture of the ATI inventory (road schedule) and the project details progressed in the usual manner





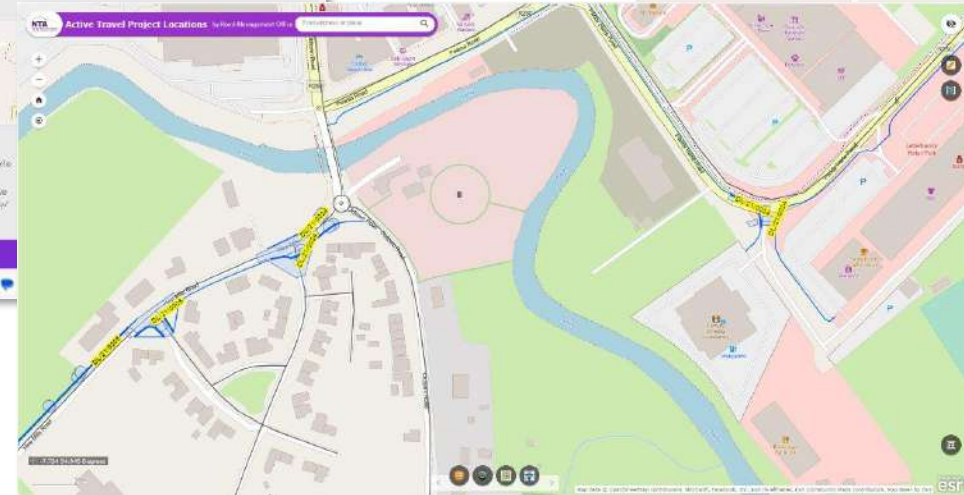
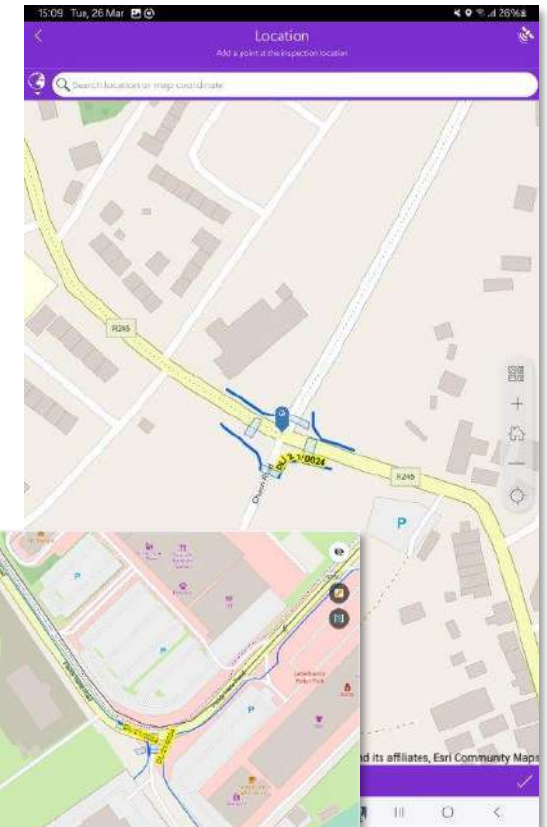
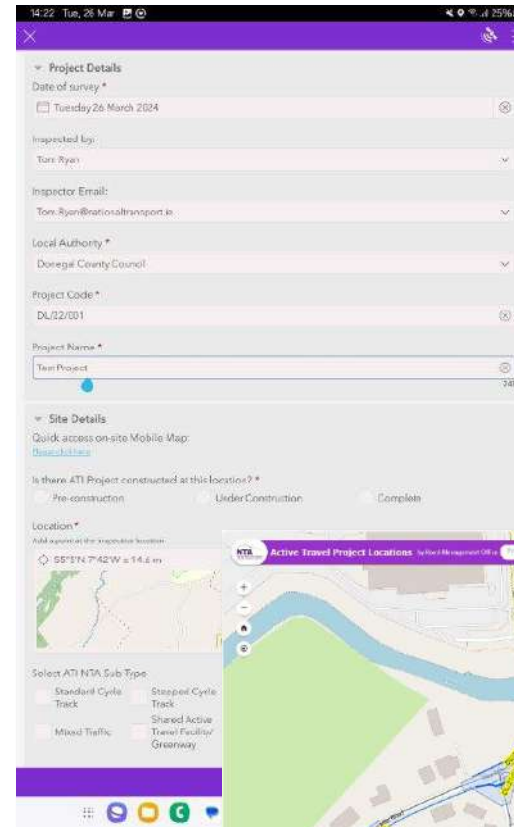
- Approach developed for the capture and classification of Active Travel Infrastructure (ATI) via MapRoad AMS.
- Outline the assistance / training being provided to Local Authorities and Stakeholders.
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- **Design and Creation of the ATI Site Inspections App.**
- Discuss the future development of the ATI capture and management process.





## ATI Site Inspection App

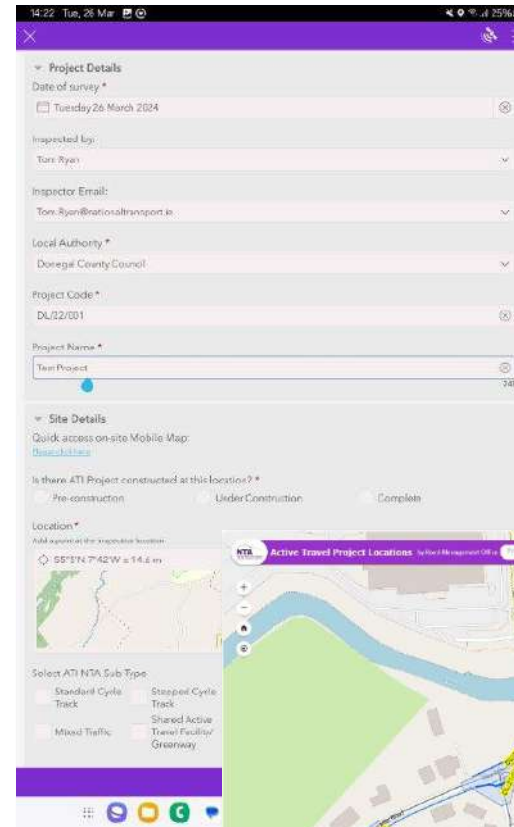
- Ongoing capture of ATI on the Network
- Site Inspections App was requested by Funding providers
- App developed using Esri functionality
- Minimum 30% of ATI projects inspection target





## ATI Site Inspection App

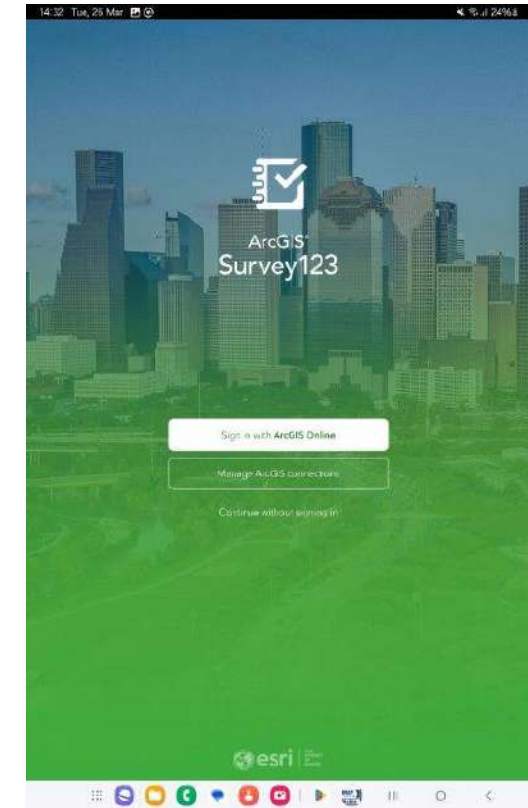
- Full MapRoad AMS integration
- Inspectors have MapRoad ATI information in the field
- On-Site inspection data capture
- Upload to Desktop Browser dashboard
- Data used for analysis and reporting on ATI project delivery





## Development of the App Specification

- RMO collaboration with NTA to scope App requirements
- App Specification prepared by RMO
- Functionality and App content Agreed with the NTA
- Following this, software options scoped by RMO
- Suitable software platform selected:
  - *ArcGIS Online (AGOL) Web Mapping Application*
  - *ArcGIS Survey 123*





## Site Inspection Functionality

1. Capture of Site Details
2. Capture of ATI Types
3. Comments associated with ATI Type(s)
4. Capture issues with Project Quality
5. Comments associated with Project Quality issues
6. Capture Project Images
7. General Comments / Project Inspection Summary

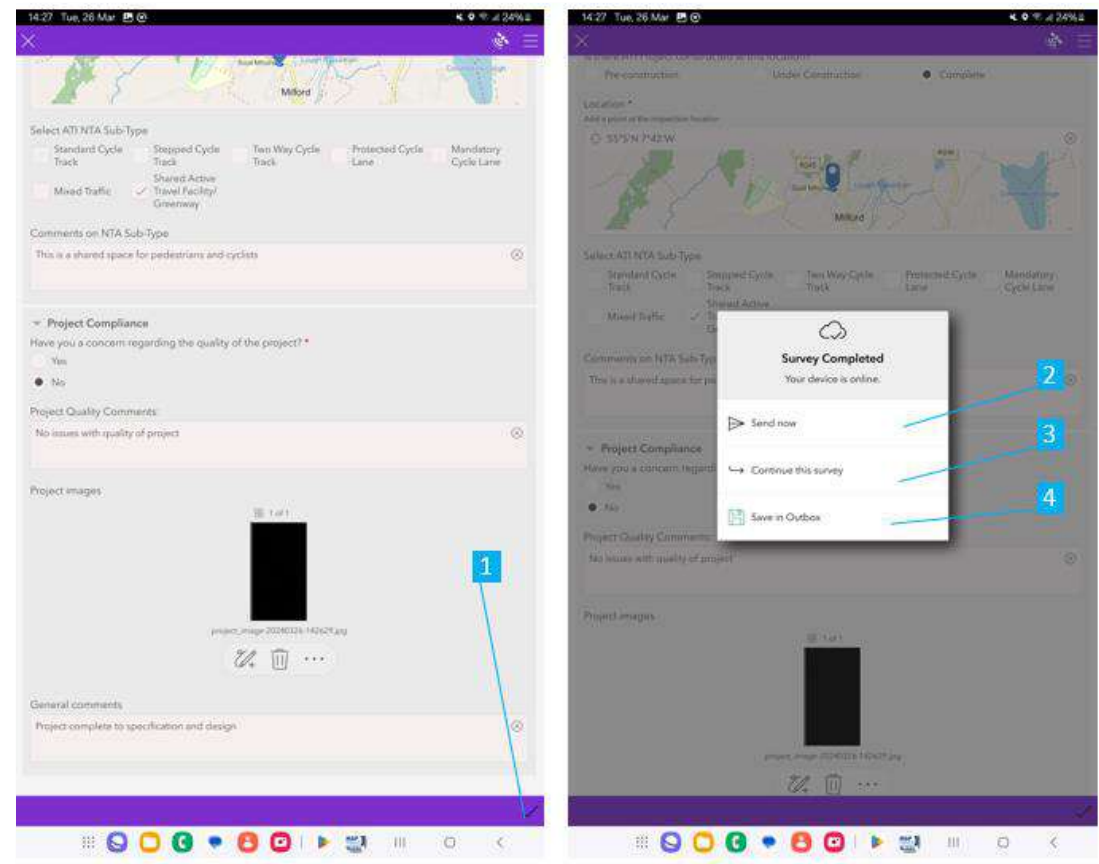
14:22 Tue, 26 Mar 25%  
Project Details  
Date of survey \*  
Tuesday 26 March 2024  
Inspected by:  
Tom Ryan  
Inspector Email:  
Tom.Ryan@nationaltransport.ie  
Local Authority \*  
Donegal County Council  
Project Code \*  
DL/22/001  
Project Name \*  
Test Project  
Site Details  
Quick access on-site Mobile Map:  
[View on Map](#)  
Is there ATI Project constructed at this location? \*  
Pre-construction Under Construction Complete  
Location \*  
Add a point at the inspection location  
55°5'N 7°42'W ± 14.6 m  
Select ATI NTA Sub-Type  
Standard Cycle Track Stepped Cycle Track Two Way Cycle Track Protected Cycle Lane Mandatory Cycle Lane  
Mixed Traffic Shared Active Travel Facility/ Greenway

14:27 Tue, 26 Mar 24%  
Select ATI NTA Sub-Type  
Standard Cycle Track Stepped Cycle Track Two Way Cycle Track Protected Cycle Lane Mandatory Cycle Lane  
Mixed Traffic Shared Active Travel Facility/ Greenway  
Comments on NTA Sub-Type  
This is a shared space for pedestrians and cyclists  
Project Compliance  
Have you a concern regarding the quality of the project? \*  
Yes No  
Project Quality Comments  
No issues with quality of project  
Project images  
1 of 1  
project\_image-20240326-142629.jpg  
General comments  
Project complete to specification and design



## Site Inspection Functionality

1. Select to complete information capture
2. Upload Survey
3. Option to amend information prior to upload
4. 'Save in Outbox' option to upload multiple inspections at a later time





## Desktop Browser Functionality

- Locate Inspections and generate reporting via the Inspections Dashboard
- Data uploaded at a national level
- Country wide analysis and reporting possible

The screenshot displays the NTA Active Travel Project Locations desktop browser interface. The main map area shows a residential area with various project locations marked. Key features are labeled with blue boxes: Zoom In, Zoom Out, Default Extent, My Location, Location Search Bar, Overhead Map, Measurement Tool, Info Summary, Attribute Table, Layer List, Basemap Gallery, Legend, and Filters. On the right side, there are two panels: a Legend panel showing symbols for NTA Active Travel Completed Surveys and NTA Projects (Footway, Footpath, Cycle Track, Regional and Local Road, Cycleway, Safety), and a project details panel for project DU/21/0024, showing Project ID, Name, Type, Local Authority, Year of Work, Phase, Majority road class, and Majority funding source.



# Inspection Reporting Dashboard

1. Number of Inspections
2. Number of Projects
3. Inspection Details
4. Inspection Images and Attachments
5. Filter by LA
6. Filter by Inspector name
7. Sign Out
8. ATI Projects and Inspection Locations Map
9. Legend
10. Layers
11. Base-maps
12. Reset Map Orientation
13. Zoom In
14. Zoom Out

The dashboard is titled "NTA Active Travel Infrastructure Surveys". It features a top navigation bar with a search icon, a dropdown menu for "Select a Local Authority" (currently set to "None"), and another dropdown menu for "Select an NTA Inspector" (currently set to "No data"). A hamburger menu icon is on the far right.

The main content area is divided into three columns:

- Left Column:** Contains a large black number "8" with the text "Surveys complete" below it. Below this is a large black number "945" with the text "Projects" below it.
- Middle Column:** Contains two sections, each with a heading and a text prompt: "Survey Details" (with callout 3) and "Images and Attachments" (with callout 4). Both sections have the text "Please zoom to an area of the map where a survey has been submitted." below the heading.
- Right Column:** Contains a map titled "Active Travel Projects and Survey Locations" showing the map of Ireland and parts of the United Kingdom. The map is populated with numerous colored dots representing projects and survey locations. Callouts 9, 10, 11, 12, 13, and 14 point to various map controls and features.

Callout 1 points to the "8" survey count, callout 2 to the "945" project count, callout 3 to the "Survey Details" heading, callout 4 to the "Images and Attachments" heading, callout 5 to the "Select a Local Authority" dropdown, callout 6 to the "Select an NTA Inspector" dropdown, callout 7 to the hamburger menu, callout 8 to the map area, callout 9 to the legend, callout 10 to the layers control, callout 11 to the base-maps control, callout 12 to the reset map orientation control, callout 13 to the zoom in control, and callout 14 to the zoom out control.



# Survey Reporting

- Upon Inspection upload a pdf copy of the Inspection Report is emailed to the Inspector and saved on the cloud for later access:

## NTA Survey Report



**1 Project Details:**

Project Name:	Test dcc 123
Project Code:	Dcc 123 test
Local Authority:	Dublin City Council

Inspector Name:	Noel Fennelly
Inspector Email:	Noel.Fennelly@nationaltransport.ie
Date of Survey:	March 21, 2024



Project Status:	Complete
-----------------	----------

**Project Inventory:**

NTA Sub Type:	Stepped Cycle Track
Comments:	Dcc test



**2 Site Details:**

**Project Location:**

**3 Project Quality:**

Have you a concern regarding the quality of the project?	Yes
Comments on Project Quality	Test quality comments dcc

**General Comments:**

Test general comments:	
------------------------	--









- Approach developed for the capture and classification of Active Travel Infrastructure (ATI) via MapRoad AMS.
- Outline the assistance / training being provided to Local Authorities and Stakeholders.
- ATI Inventory and Projects Captured to date including a Case Study on this process.
- Design and Creation of the ATI Site Inspections App.
- **Discuss the future development of the ATI capture and management process.**



## Future Developments –Ongoing Capture of NTA Funded ATI

- The Capture of NTA funded ATI in MapRoad is well underway
- Close out of 2021 to 2023 backlog is ongoing
- Capture of 2024 works underway
- The RMO will continue to assist the sector deliver this objective
- We are introducing improved software solutions and system functionality
- We will continue to collaborate with stakeholders to build a valuable ATI Inventory Asset and Dataset for the sector

Usage Classification	Class Code	Route Number	Calculated Length	Average Width
Bus Lane	R	R-125	33.26 m	1.00 m
Bus Lane	R	R-125	33.21 m	5.00 m
Busway	LS	L-5936	50.99 m	4.00 m
Busway	LP	L-2998	0.00 m	5.00 m
Cycle Track	R	R-194	252.11 m	2.00 m
Cycle Track	R	R-403	451.40 m	2.50 m
Cycle Track	R	R-403	38.38 m	2.00 m
Cycle Track	LP	L-1501	62.92 m	1.50 m
Cycle Track	LS	L-5936	455.07 m	2.00 m
Cycle Track	LS	L-5936	378.66 m	2.00 m
Cycle Track	R	R-410	119.80 m	2.00 m
Cycle Track	R	R-410	200.77 m	2.00 m
Cycle Track	R	R-410	202.42 m	2.00 m
Cycle Track	R	R-410	19.29 m	2.00 m
Cycle Track	R	R-410	425.00 m	2.00 m
Cycle Track	R	R-449	50.34 m	2.00 m
Cycle Track	R	R-449	80.25 m	2.00 m
Cycle Track	R	R-449	70.94 m	2.00 m
Cycle Track	R	R-449	36.69 m	2.00 m
Cycle Track	LS	L-6082	30.48 m	2.00 m





# Future Developments - Capture of National Network ATI

- TII circular 02-2024 issued in March 2024
- TII require Authorities capture ATI they are funding in MapRoad
- Identical process to that used for capture of NTA schemes
- Capture of ATI projects from 2021 to 2023 (backlog) and 2024 ATI projects
- Timeframe for completion is year end 2024
- The RMO will provide support, assistance and training to all Authorities



**MapRoad AMS - Active Travel/Greenway Rehabilitation Projects**

To support the development of asset management requirements, all Local Authorities are required to upload and maintain full records of all Active Travel projects implemented on the National Road Network and the Regional/National Greenway Network during 2024. The asset management requirement is in addition to the requirements of TII Circular No. 06/2023. Local Authorities are requested to also capture as built records of outstanding projects for 2021, 2022 and 2023 to support the development of an active travel/greenway network road, by 04 of 2024. The process for assisting Local Authorities in using MapRoad AMS is as follows:

- 1) Following issue of this Circular, RMO will draft notifications to support the Circular setting out the following details:
  - a) Seeking contact details for any Local Authority (LA) staff who co-ordinate or manage the LA's active travel and Greenway programmes (Name, email address, phone number);
  - b) Set up users on MapRoad AMS and provide them with guidance documents and training on how to capture AT Inventory, projects & programmes on the system.
- 2) Users must commence capturing 2024 projects in Dvfx format in Q1 2024 as set out below. The RMO will provide monthly reports to each Local Authority and to TII, providing a status of projects and programmes throughout 2024.
- 3) For 2024, the flow-chart overview must be followed.

Yours sincerely,  
  
Stephen Smyth  
Senior Manager  
Passive Asset Management & Water Services

**RMO** Road Management Office Údairle Árdleas Eilimair  
Local Authorities Ireland 10/04/2024

RIOTIF 120224 RE: TII Circular 02-2024 - Capture of 2021 to 2024 Active Travel/Greenway Rehabilitation Projects in MapRoad AMS

**FAQ: Active Travel Team Leads**  
**Senior Engineers (Roads)**

A Chéir,

Further to TII Circular 02-2024, TII have communicated the need for "the development of asset management requirements" and have requested "all Local Authorities upload and maintain full records of All Active Travel Projects implemented on the National Road Network and the Regional/National Greenway Network during 2024. LA's are requested to also capture as built records of projects for 2021, 2022 and 2023 to support the development of an active travel/greenway network model".

The RMO will support stakeholders to capture their Active Travel Inventory and Projects on MapRoad AMS. To initiate this process the RMO are requesting the contact details for all relevant staff who co-ordinate, manage and input into the TII Active Travel / Greenway Projects and Expenditure processes. Can you please provide the name, grade, email address and phone numbers of relevant staff by returning the below Contact Details Form to [contact@rmo.ie](mailto:contact@rmo.ie) on or before 19/04/2024.

Name	Grade	Email	Phone (Landline)	Phone (Mobile)
Joe Blythe	AT Manager	<a href="mailto:joe.blythe@dunduborough.ie">joe.blythe@dunduborough.ie</a>	01 234 5678	081 234 5678

If there is a dedicated section or lead individual in your Authority responsible for TII Active Travel operations, can we please request that this notification is brought to their attention for action. The RMO will arrange Workshops and Training for all TII AT teams in due course.

Please direct all communication in respect of this notification to [cap@rmo.ie](mailto:cap@rmo.ie) marked for the attention of Aileen Mc Cafferty with the subject heading Capture of 2021 to 2024 Active Travel/Greenway Rehabilitation Schemes in MapRoad AMS.

**Kind Regards,**

An Oifig um Bainistíocht Bóithre Road Management Office  
Tel: 074 91 53560 Tel: 074 91 53560  
[contact@rmo.ie](mailto:contact@rmo.ie) | [www.rmo.ie](http://www.rmo.ie) [contact@rmo.ie](mailto:contact@rmo.ie) | [www.rmo.ie](http://www.rmo.ie)



## MapRoad ATI Software Development

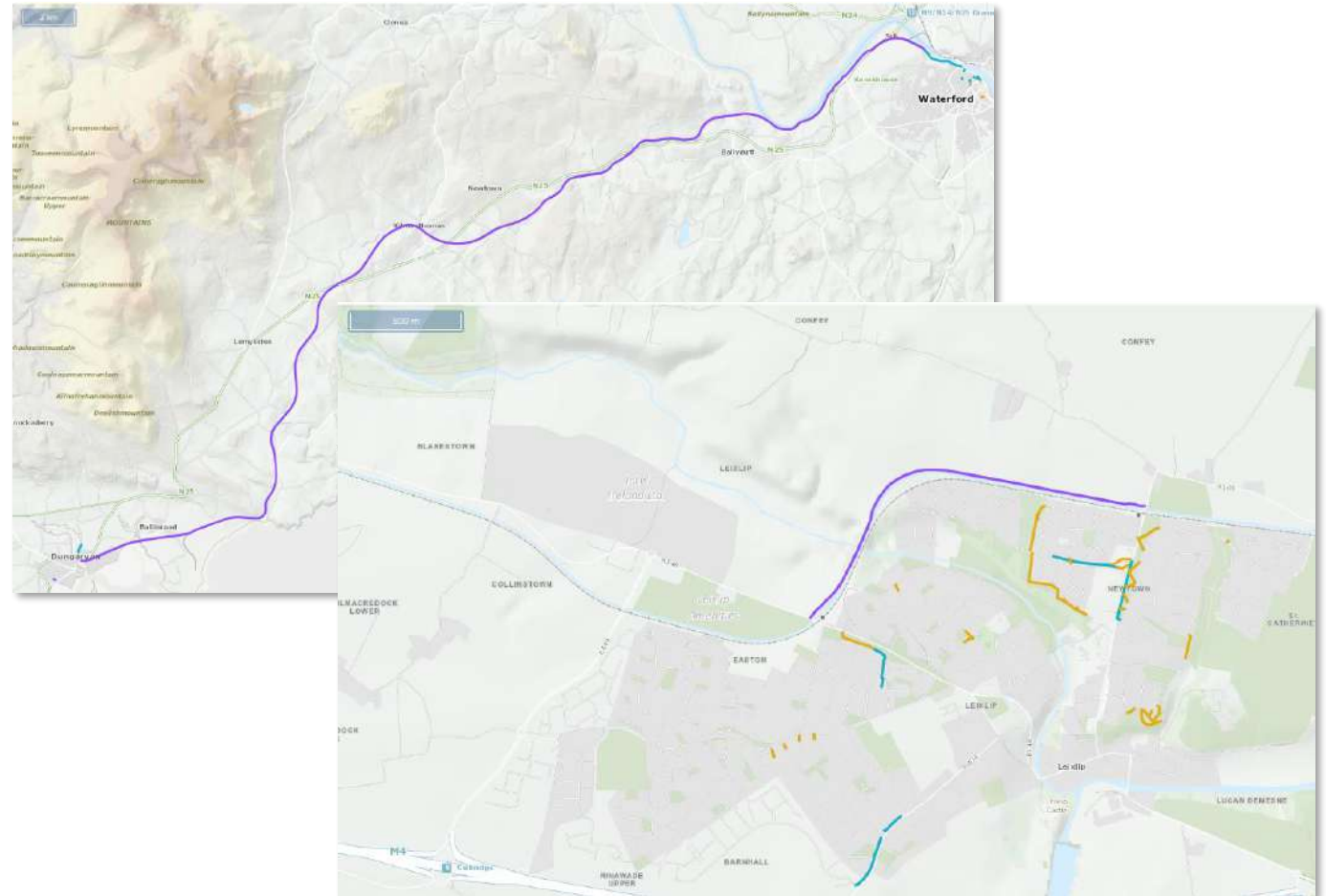
- Network Edges Editing System
  - *Improved ATI linework editing and importing (Note: improvement for all system linework)*
- Project Multipart Geometry Capture
  - *Ability to capture multiple locations under one ATI project form*
- Additional ATI Attributes
  - *Capture of Cycling ATI attributes in line with the Cycle Design Manual*
- Materials Database Updates
  - *Ability to capture unbound surface material, Colored SMA etc.*
- Display updates & technical refresh
  - *Facelift to layer displays and general system functionality*





## Building on Progress to Date

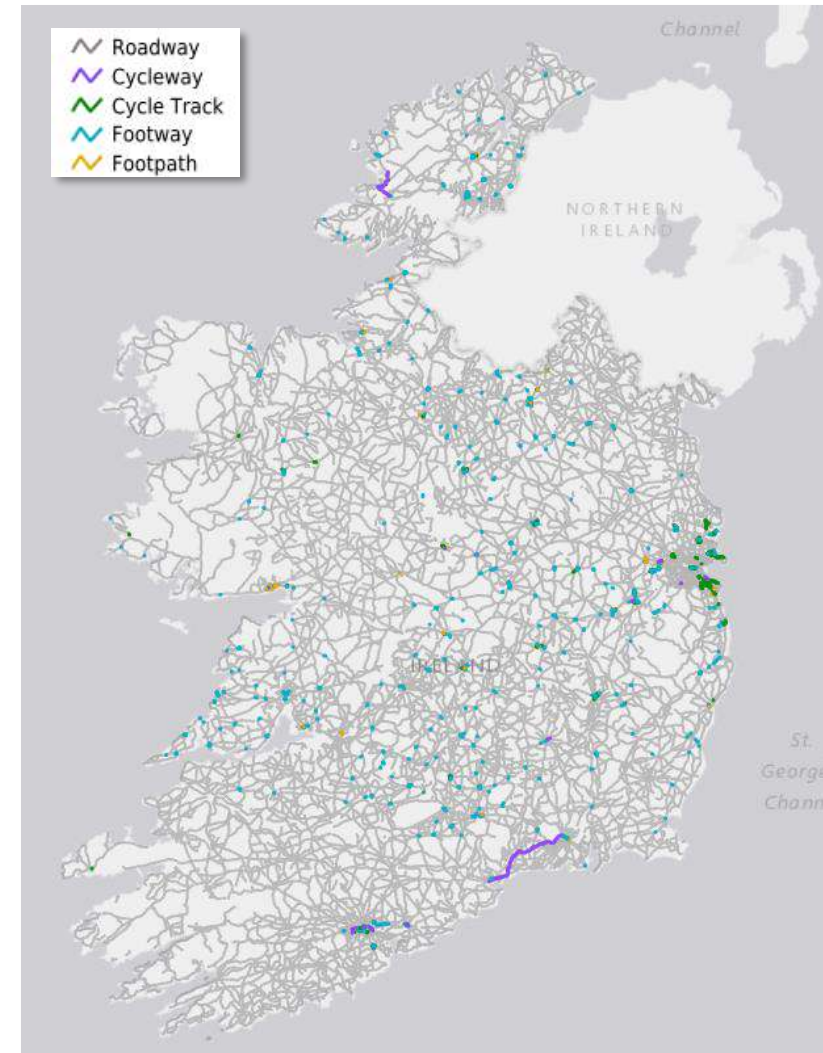
- MapRoad is a core tool Authorities use daily to manage the 'Roadway' asset
- This provides valuable information across a wide range of operations
- Accurately capturing ATI Inventory and Projects will add to this capacity
- Quality data input is fundamental to planning future ATI investment and managing the ATI Asset





## ATI Data Capture Quality

- For any data driven system, the quality of information taken out is only as good as the quality of information put in.
- The RMO will continue to:
  - *Improve MapRoad ATI capture processes for all stakeholders.*
  - *Collaborate with, guide and assist Authorities.*
  - *Maximize ATI data input quality to realize its asset management potential*





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## Closing Comments

- TWG developed process being used to capture ATI Inventory and Projects in line with Legislation and National Policy.
- The Importance of High-Quality Data input is critical to facilitating ‘best practice’ asset management of ATI. The MapRoad platform provides a sector wide consistent approach to data capture.
- ATI Inventory and project Capture is well underway for NTA funded schemes. This process will commence in 2024 for TII funded ‘Greenway’ ATI schemes and maintenance projects.
- Funding providers have capability to carry out ATI inspections via the Site Inspections App developed by the RMO.
- ATI Inventory and project capture can provide a highly valuable dataset for Stakeholders. This however is a big undertaking for Authorities. The RMO will continue to provide MapRoad Training, Guidance and Support to Authorities and Stakeholders to aid with same. Collectively we will deliver a high-quality ATI dataset.



---

## Thank You

Questions to be entered through SLIDO when entering your question please direct it to **Aidan Mc Clafferty** and they will be addressed at the end of the session:

Slido.com and enter 5812867  
Or via the QR Code







An Roinn Iompair  
Department of Transport



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County and City Management Association

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# ROADS Services Training Group

## LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION - 2024

Day 1-Session 2-Presentation 3

Sligo Radisson Hotel, Sligo, May 2024



An Roinn Iompair  
Department of Transport



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County and City Management Association

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# LA16 COLLISION CAPTURE AND REPORTING PROCEDURE ON MAPROAD AMS (INCL BRIDGE MODULE)

Presenter's Name: **Brian Burke**

Presenter's Job Title: **Programme Manager, RMO**

Presenter's Organisation: **Road Management Office**



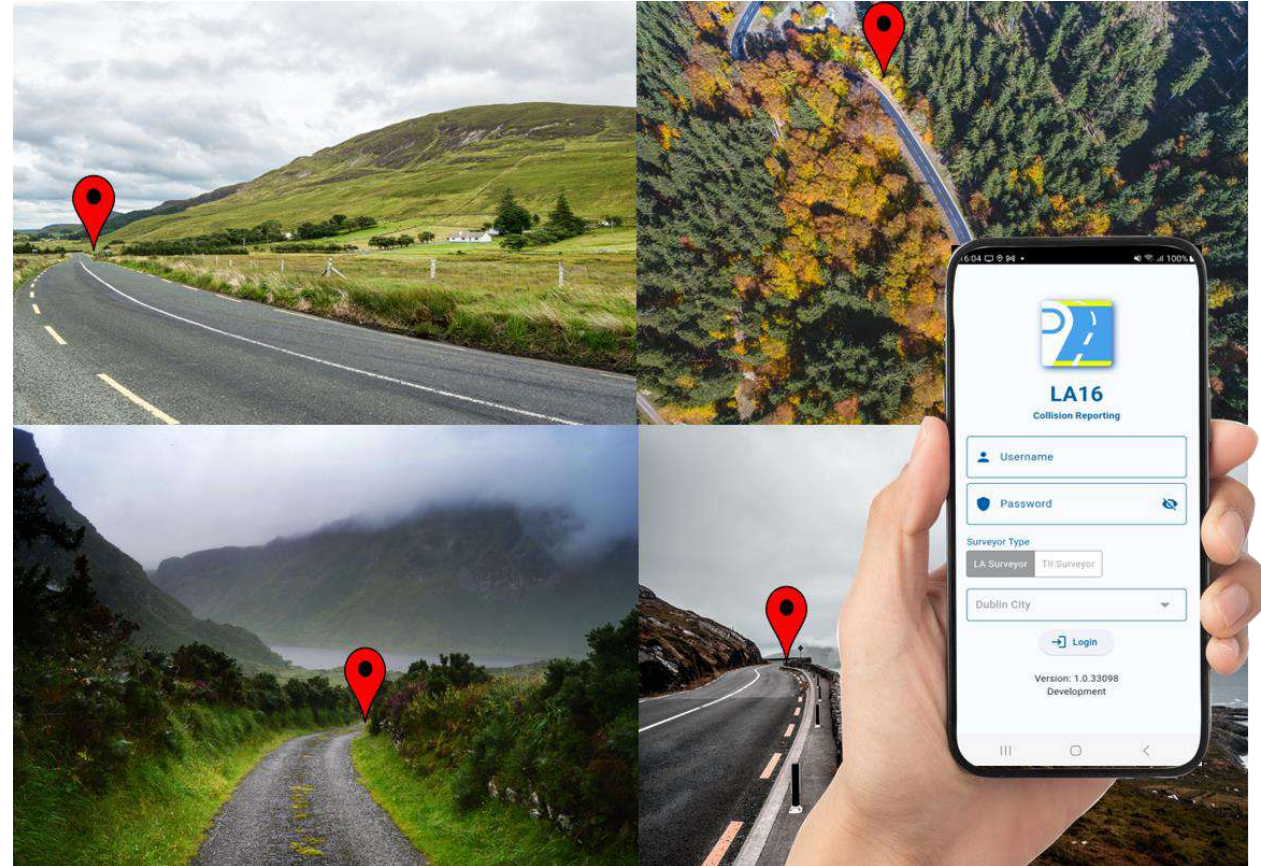
**RMO**  
An Oifig um Bainistiú Bóithre  
Road Management Office





## Content

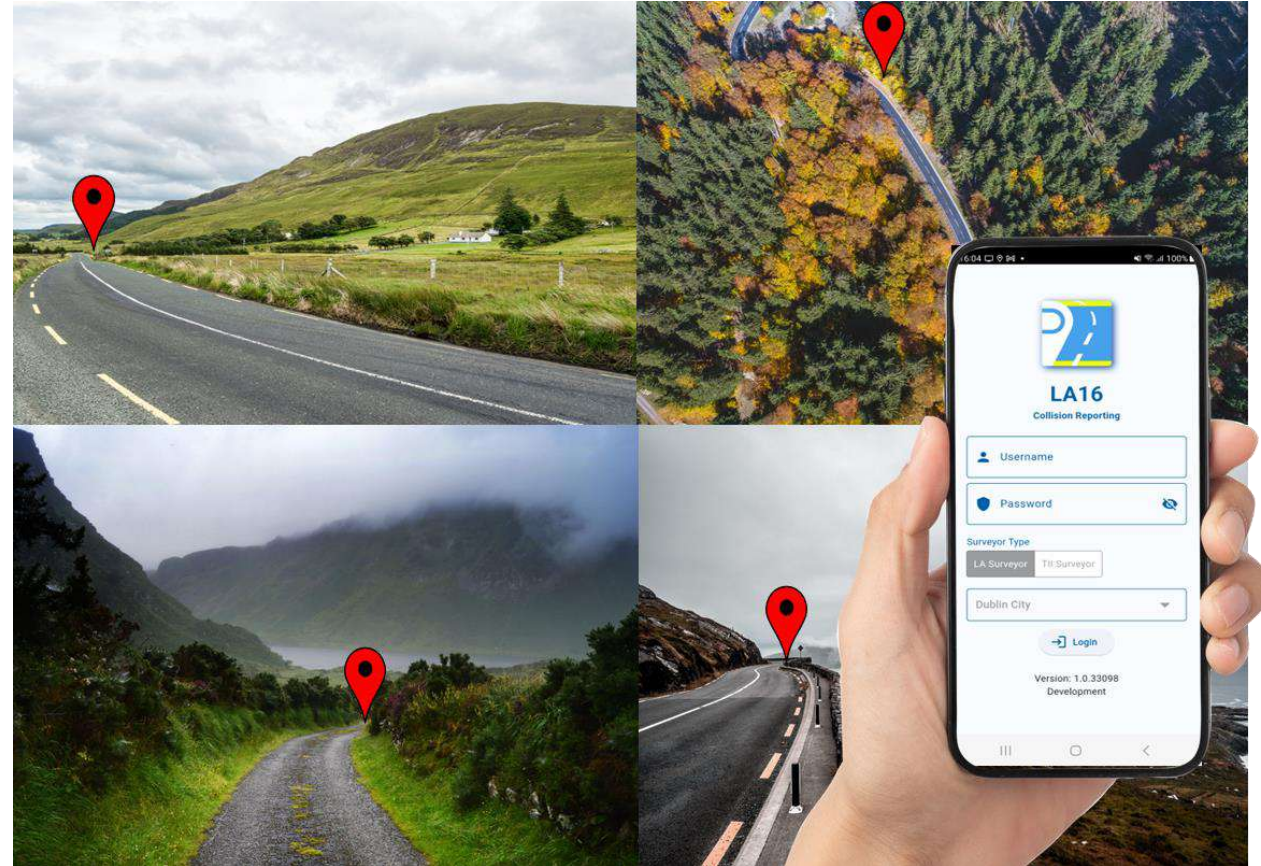
- LA16 Administration Process
- LA16 Data capture 2022 / 2023
- New MapRoad LA16 Field App and Module
- Overview of Bridge Management





# Content

- LA16 Administration Process
- LA16 Data capture 2022 / 2023
- New MapRoad LA16 Field App and Module
- Overview of Bridge Management





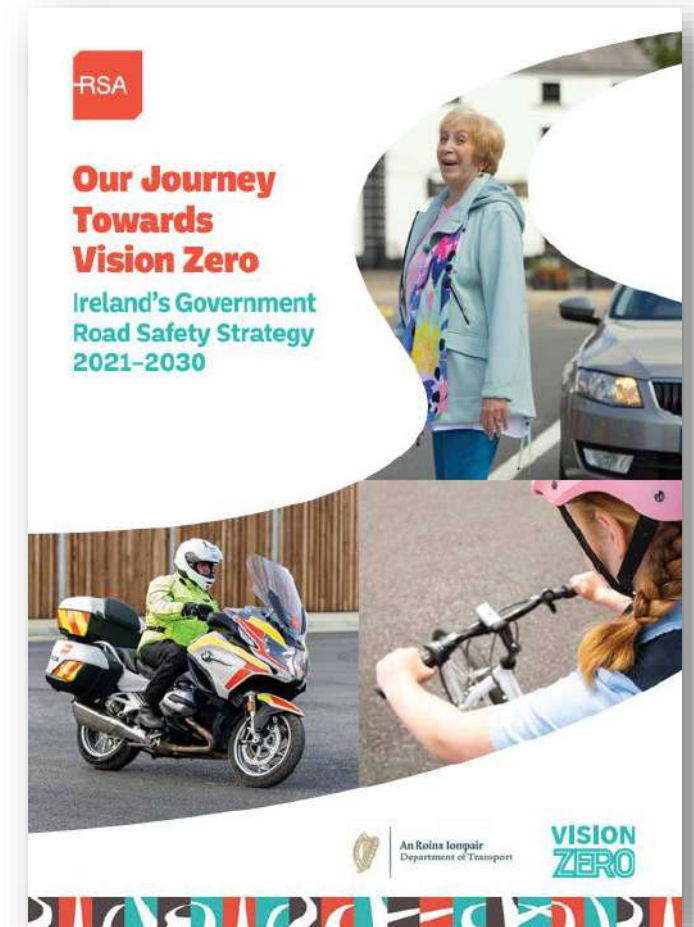
## LA16 Collision Reporting and Evaluation Procedure

What is an LA16? Form used by Local Authorities to collect data at fatal collision sites. Initially introduced in 2007

Road Safety Strategy 2021-2030

Action 61 in Phase 1 Action Plan: 2021-2024 states

*‘Complete a minimum of 70% of LA 16 Collision Reporting and Evaluation Procedure forms where a fatality, or collision that is likely to become fatal, has occurred’*





## LA16 Collision Reporting and Evaluation Procedure

- The RMO were tasked by DoT to take over the administration of the LA16 process in Q1 2023
- The RMO developed an LA16 Process Implementation – Proposal Document and a revised field App.
- Phase 1 - Develop & Implement Interim LA16 Solution and Manage & Coordinate LA16 Process
- Phase 2 - Review Existing LA16 Guidance & Software
- Phase 3 - Develop a MapRoad Asset Management System (MAMS) LA16 Module

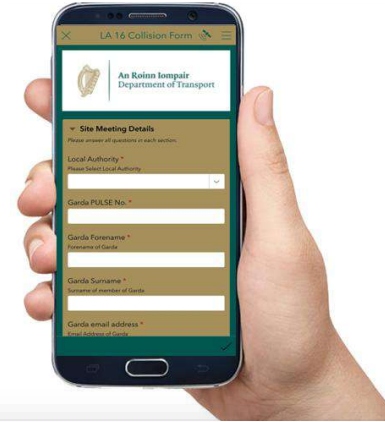




# Phase 1

## Phase 1 - Develop & Implement Interim LA16 Solution and Manage & Coordinate LA16 Process

- Created an interim LA16 app solution using ArcGIS Survey 123 software for data collection and report generation.
- Implement agreed LA16 process using LA16 phase notifications to LAs as a process management tool.



### LA16 Collision Report

Local Authority: Donegal County Council  
LA16 Ref: 2



**RMO**  
An Oifig um Bainistiú Bóithre  
Road Management Office



**An Garda Síochána**  
Garda Síochána  
Ireland's National Police & Security Service



**An Roinn Iompair**  
Department of Transport

LA16 Ref: Pending RE: Notification of Fatal Collision

Pulse Ref:

---

Dear District Officer,

The GNRB has provided your contact details in relation to the Pulse No. referenced herein. It has been identified that an LA16 is now required in respect of this Pulse No.

In accordance with the LA16 process a site meeting between the Local Authority and An Garda Síochána must happen within 15 working days of this notification.

The RMO has provided your details to the Local Authority Senior Engineer and hence the initiation of the LA16 process.

If you have any queries, please contact the Road Management Office.

Kind Regards,

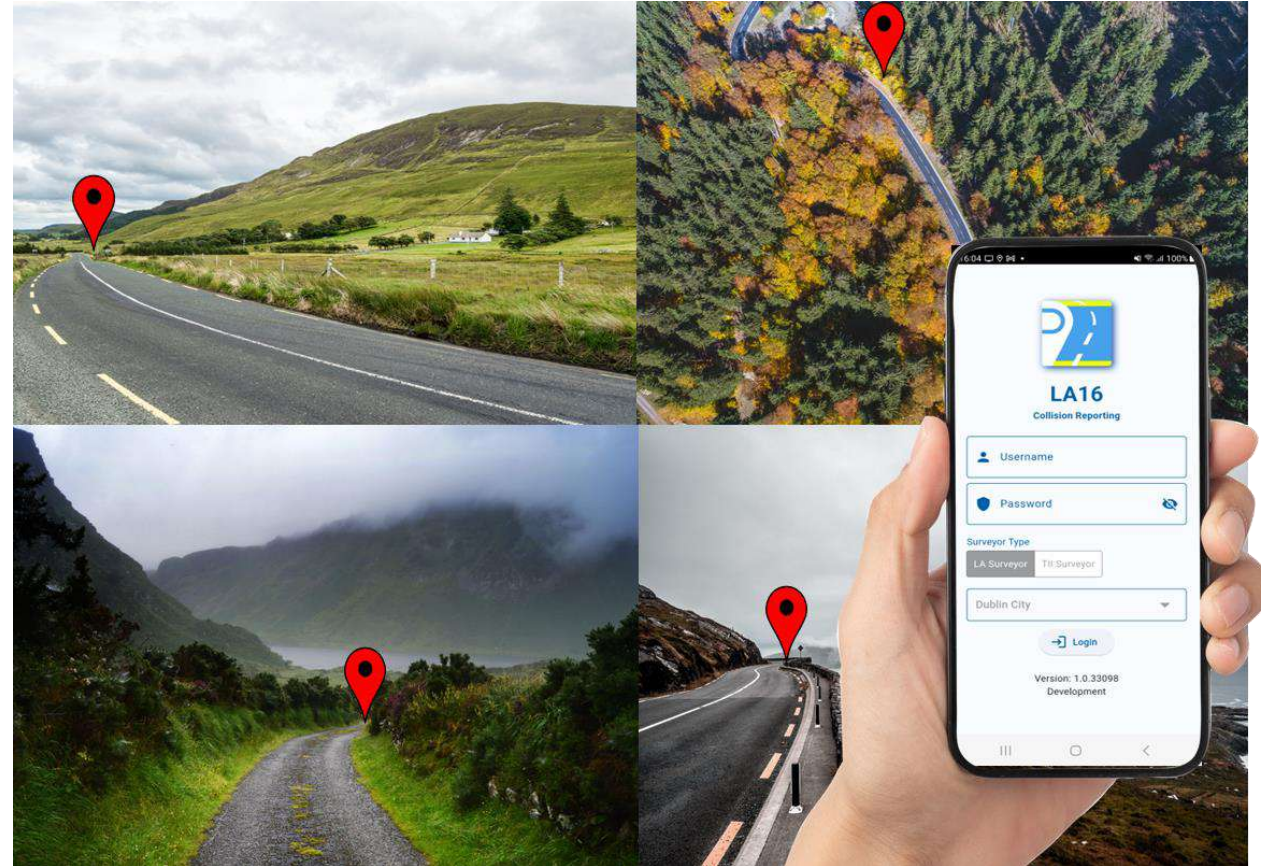
**An Oifig um Bainistiú Bóithre**  
Tel: 074 91 53950  
[contact@rmo.ie](mailto:contact@rmo.ie) | [www.rmo.ie](http://www.rmo.ie)

**Road Management Office**  
Tel: 074 91 53950  
[contact@rmo.ie](mailto:contact@rmo.ie) | [www.rmo.ie](http://www.rmo.ie)



# Content

- LA16 Administration Process
- **LA16 Data capture 2022 / 2023**
- New MapRoad LA16 Field App and Module
- Overview of Bridge Management







## LA16 Administration Process

### Phase 1 – Task in Hand Q2 2023

- Initial task was to capture all new and Q1 2023 outstanding LA16s in new format (30 *outstanding*)
- Capture all outstanding LA16s from Q4 2022 in new format (44 *in Total*)





# LA16 Administration Process

# 2022



This report details the number of LA16 collision forms completed by Local Authorities compared to the number of fatal collisions that occurred. This does not relate to the number of fatalities in the collisions.

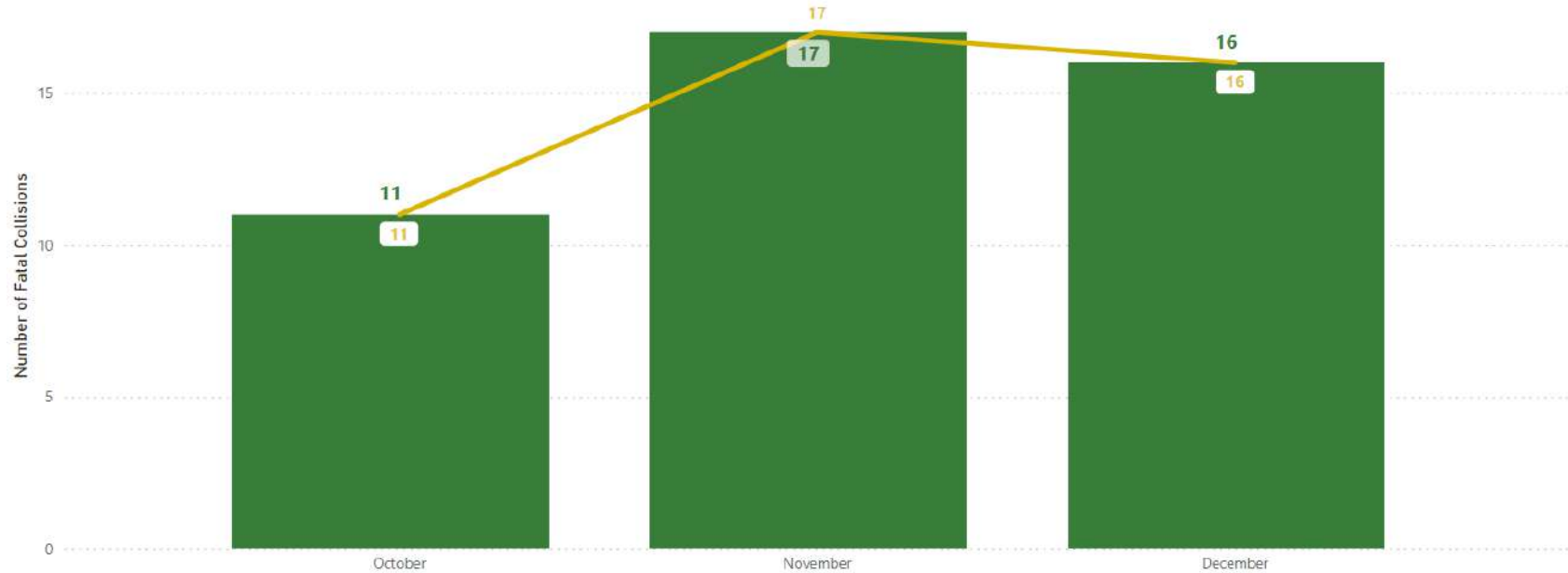
Local Authority

All

Q4 2022

## Compliance with LA16 process

● Number of Fatal Collisions — Number of completed LA16's



## Outputs 2022

### 44 out of 44 outstanding LA16 Collision Reporting submitted





# LA16 Administration Process

## 2023

### Compliance with LA16 process

isions ● No of LA16s completed



Action 61: Complete a minimum of **70%** of LA 16 Collision Reporting

174 out of 174

**100%** of LA16 Collision Reporting Submitted

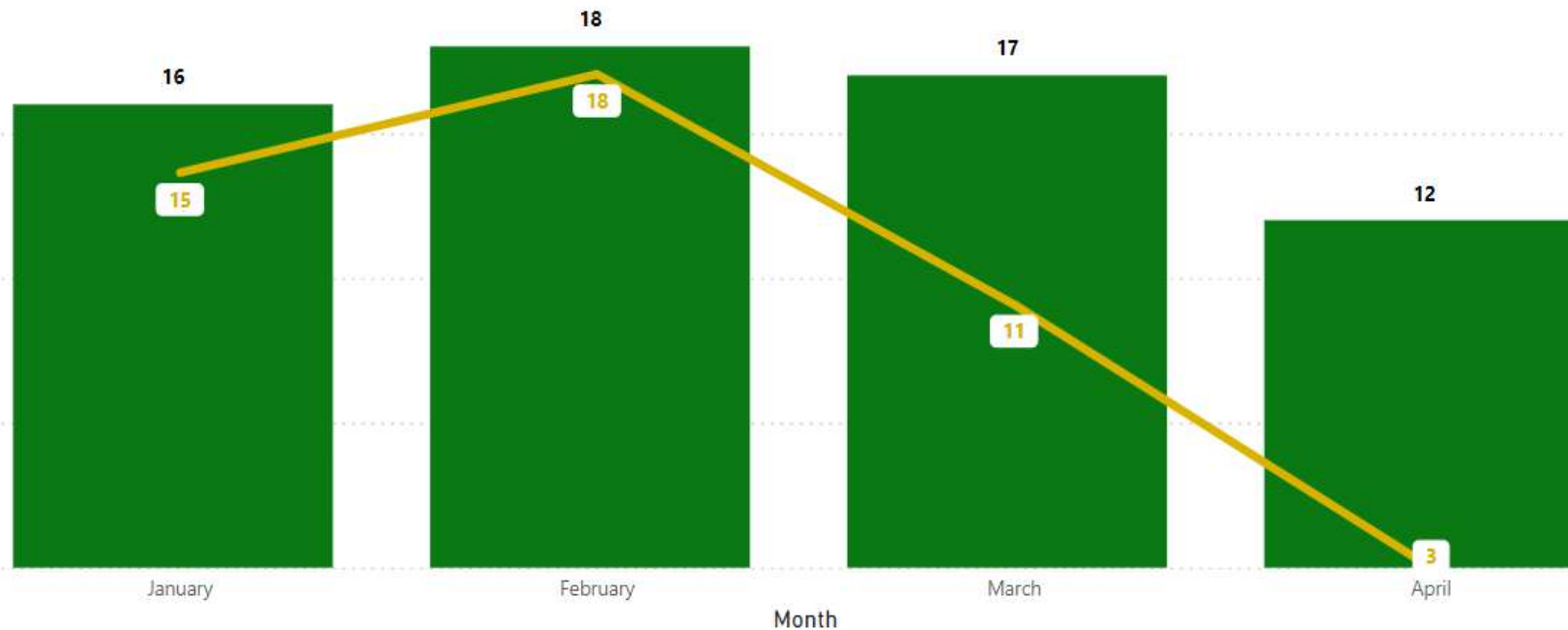


# LA16 Administration Process

## Q1 2024

### Compliance with LA16 process

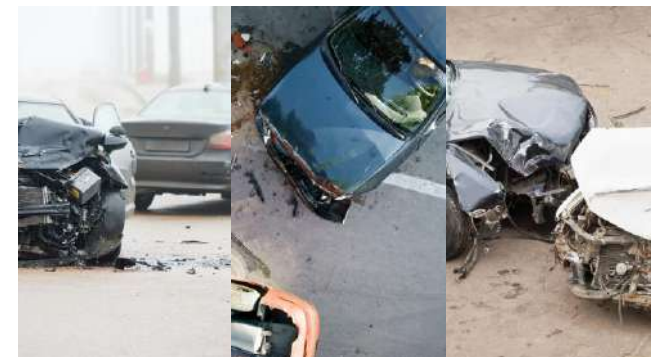
No of LA16s completed



Outputs Q1 2024

63 LA16 Total

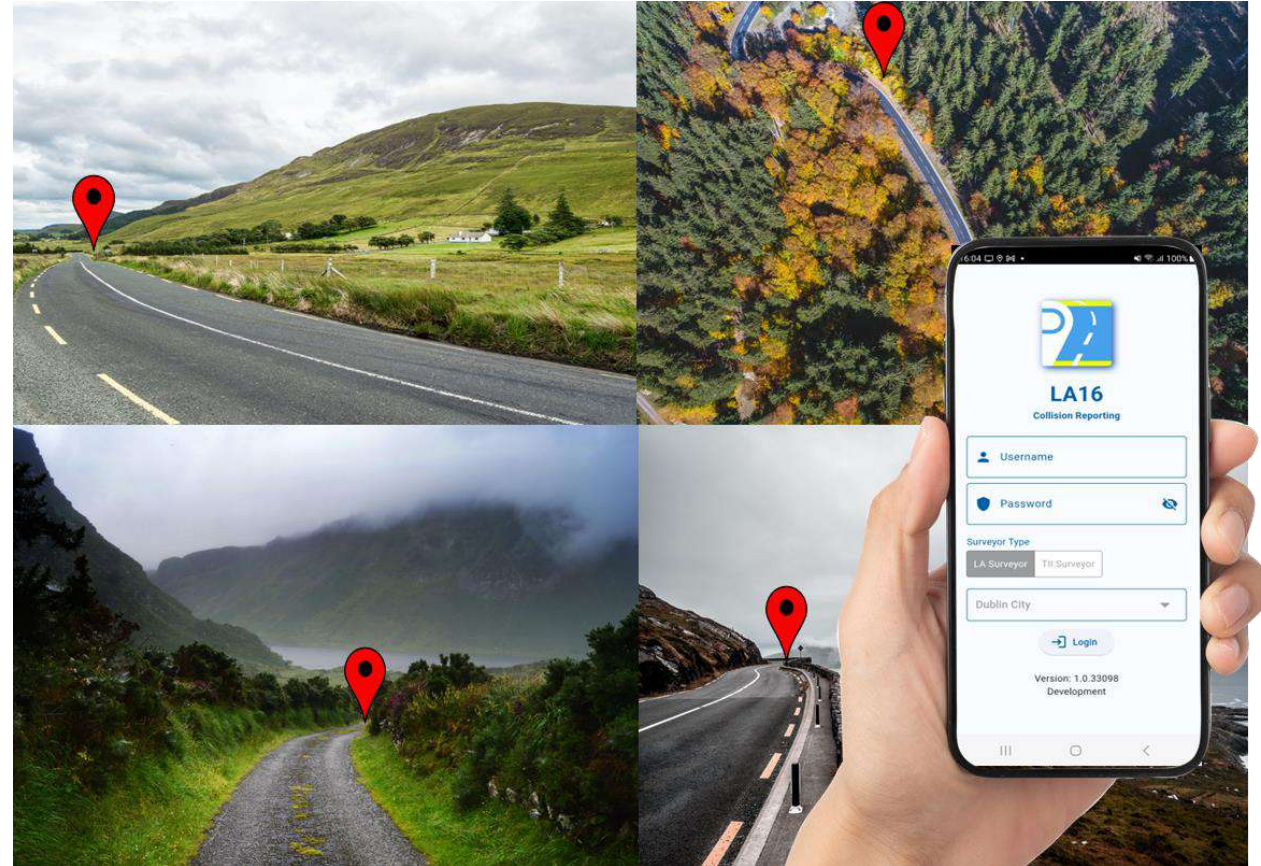
53 – Submitted  
10 – In Progress





# Content

- LA16 Administration Process
- LA16 Data capture 2022 / 2023
- **New MapRoad LA16 Field App and Module**
- Overview of Bridge Management





## Phase 2 & Phase 3



- Phase 2

Review Existing LA16 Guidance & Software

- Phase 3 –


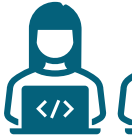

Develop LA16 Module for MapRoad  
Asset Management System (MAMS)

MAPROAD  
Asset Management





## Phase 2 & Phase 3

- Collaborating with stakeholders Technical Working Group (TWG) 
- Developing software solutions 
- Providing guidance on capturing and managing LA 16 Collision data in MapRoad AMS. 

MAPROAD  
Asset Management





An Roinn Iompair  
Department of Transport



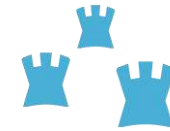
Cumann Lucht Bainistíochta Contae agus Cathrach  
County and City Management Association

# Technical Working Group (TWG) was assembled in Q2 2022

TWG was made up of the following representatives



An Roinn Iompair  
Department of Transport



Dublin City Council  
Comhairle Cathrach Bhaile Átha Cliath



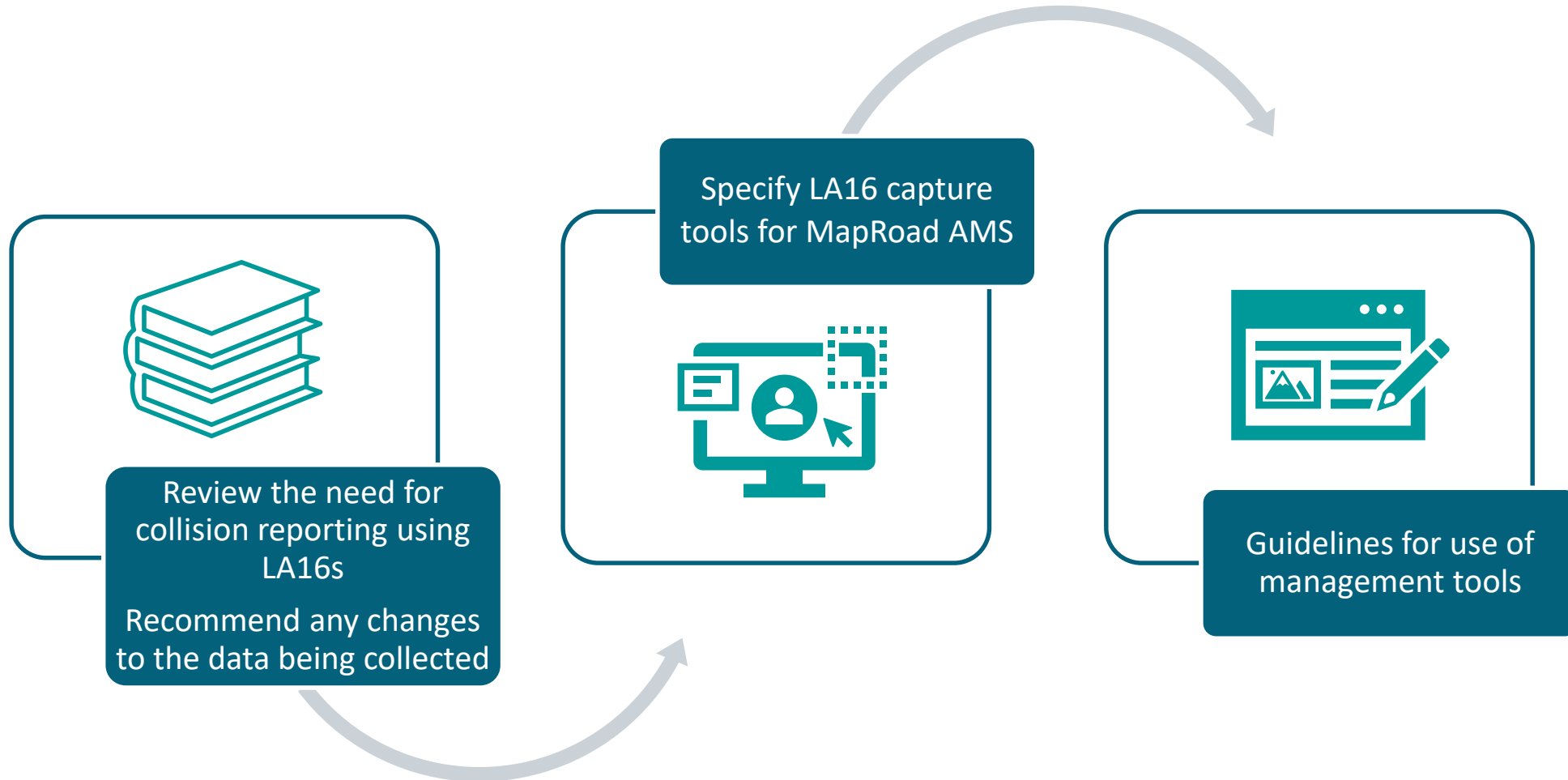
An Garda Síochána  
Ireland's National Police & Security Service







# TWG Objectives/Tasks and how they were achieved





## TWG Objectives/Tasks and how they were achieved



To make recommendation as to the availability of data to various stakeholders.

- One Key Objective for the TWG was to draft recommendations and develop a Guidance Document in relation to the sharing of LA16 data.
- The RMO in collaboration with the TWG including the LGMA and AGS are currently drafting a Guidance Document which will form part of the training and support provided to the users as part of the new module release.



LA16 Collision Report,  
Report Identification Number 001

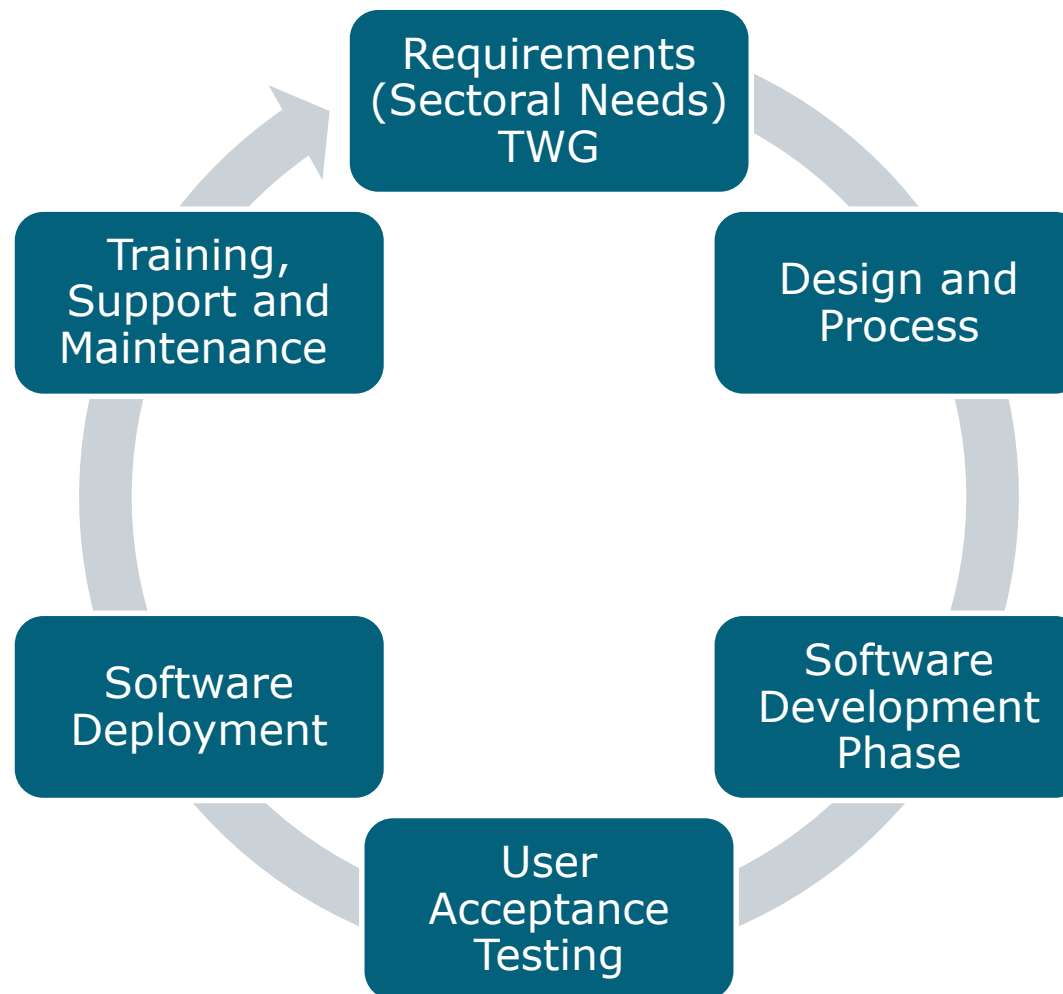
Local Authority: Donegal County Council

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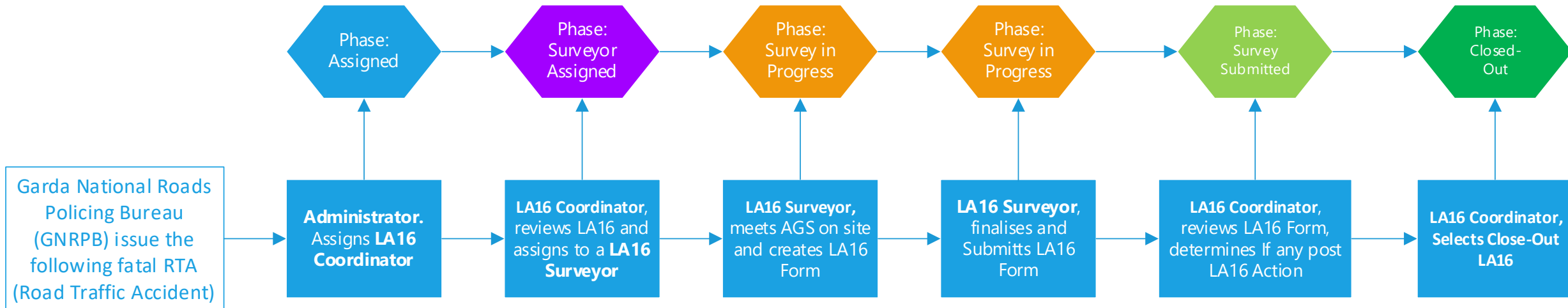
## Phase 1 & 2





## MapRoad LA16 Process

- A key objective was to define the LA16 process
- Phases can then be tracked by MapRoad
- Also define Roles within the process to assign ownership to key phases





## MapRoad LA16 Process

### Phase: Assigned

Administrator is issued fatal collision details by National roads Policing Bureau. Administrator assigns the LA16 to specific LA16 Coordinator.



### Roles

- GNRPB: Garda National Roads Policing Bureau
- Administrator: RMO
- LA16 Coordinator: Managing role within each LA for LA16 process, limited one individual at any one time.



### Platforms

- MapRoad Web Browser



## MapRoad LA16 Process

### Phase: Survey Assigned

LA16 Coordinator reviews LA16 to confirm that it is in their county and on a public road. Assigns LA16 to LA16 Surveyor



### Roles

- LA16 Coordinator
- LA16 Surveyor: Responsible for compiling LA16 and submitting LA16 survey. This role is not limited.



### Platforms

- MapRoad Web Browser



## MapRoad LA16 Process

Phase:  
Survey in  
Progress

LA16 Surveyor meets AGS on site. LA16 Surveyor completes survey using LA16 Mobile App. Collated survey can be reviewed, and final submitted as a finalised report.



Roles

- LA16 Surveyor:
- AGS: Investigating An Garda Síochána meets LA16 Surveyor on site to assist with the survey.



Platforms

- MapRoad Web Browser
- MapRoad Mobile Application



## MapRoad LA16 Process

Phase:  
Survey  
Submitted

LA16 Coordinator reviews LA16 report, liaises with LA16 Surveyor as required. Determines if any action is required.



Roles

- LA16 Coordinator:
- LA16 Surveyor:



Platforms

- MapRoad Mobile Application





## MapRoad LA16 Process

Phase:  
Survey  
Closed -Out

LA16 Coordinator closes out the LA16 process, confirming that LA16 report has been reviewed.



Roles

- LA16 Coordinator:



Platforms

- MapRoad Mobile Application



## New MapRoad LA16 Mobile App

### New LA16 survey key methodology

- Survey field questions have drop down answers for consistency of data collection and post survey data analytics. *free text answers left to absolute minimum.*
- Data collection methodology is designed to paint a narrative of the environment and the road users involved.
- In the following slides we will outline this methodology using the collision scenario opposite.

Motorbike traveling north on a regional road, collides side on with a van that pulls out from a local road. The rider of the motor bike passes away at the scene, van driver sustains minor injuries.

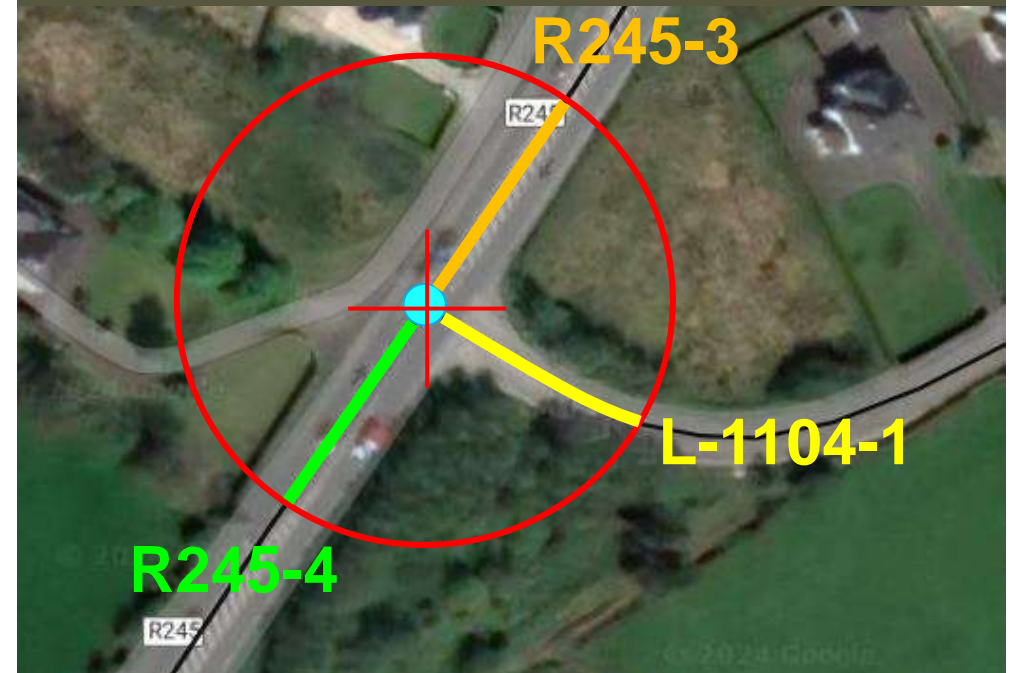




## New MapRoad LA16 Mobile App

- Surveyor sets road traffic collision (RTC) location.
- Surveyor sets the site radius of survey locus, and captures road segments
  - R245-4
  - R245-3
  - L-1104-1

Motorbike traveling north on a regional road, collides side on with a van that pulls out from a local road. The rider of the motor bike passes away at the scene, van driver sustains minor injuries.





## New MapRoad LA16 Mobile App

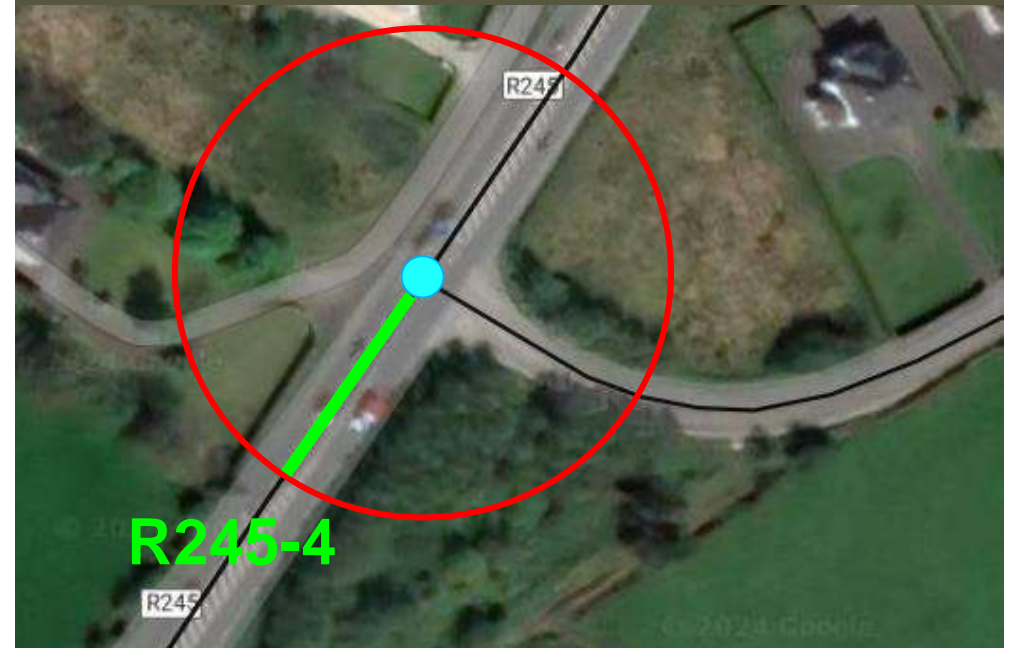
Surveyor captures Site Engineering Details(SED) for each desired segment.

This allows the surveyor the ability to record SEDs against the specific road segment instead of the site in general.

Advantage of this approach is we build a narrative with respect to data capture

R245-4

Motorbike traveling north on a regional road, collides side on with a van that pulls out from a local road. The rider of the motor bike passes away at the scene, van driver sustains minor injuries.





## New MapRoad LA16 Mobile App

Surveyors select answers from drop down menus on the following fields.  
Surveyors also capture images



- **SED for R245-4**
- Estimated Average Road Width (m)
- Visual Assessment of Pavement Surface Condition
- Estimated AADT Band?
- Active Travel Infrastructure Present?
- Type of Active Travel Infrastructure Present?
- Clear Zone present?
- VRS Present ?
- Is Roadworks at time of RTC?
- **Public Lighting.**
- **Longitudinal Road Markings Present?**
- Transverse Road Markings Present?
- Other Road Markings Present?
- Warning Signage Present?
- Regulatory Signage Present?
- Directional Signage Present?



## New MapRoad LA16 Mobile App

Capture Site Engineering Details (SED) for each desired segment. **L-1104-1**

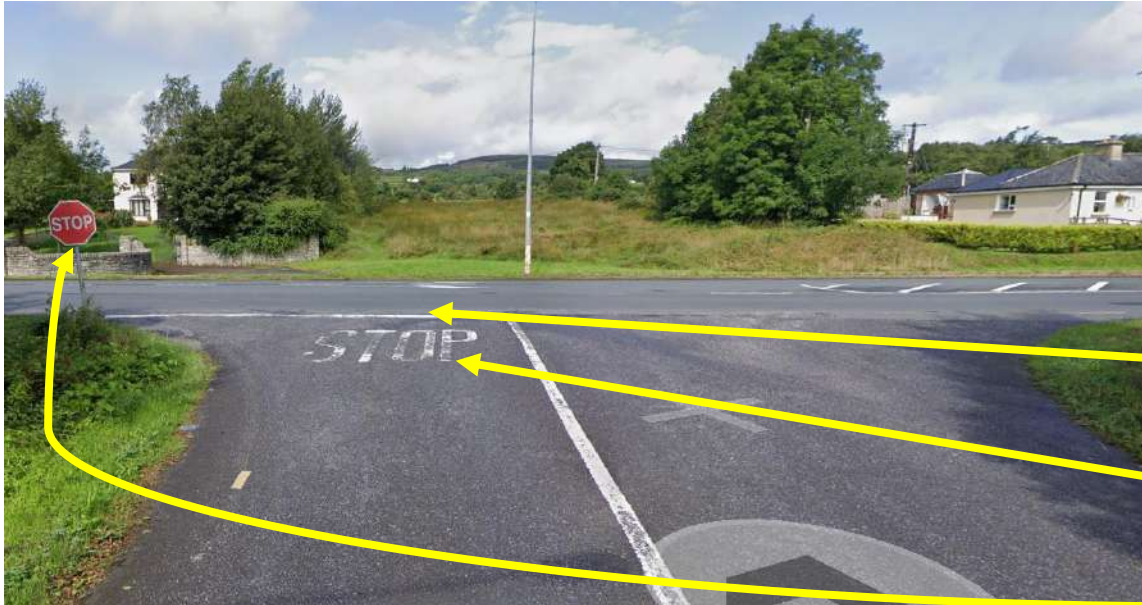
Motorbike traveling north on a regional road, collides side on with a van that pulls out from **a local road**. The rider of the motor bike passes away at the scene, van driver sustains minor injuries.





## New MapRoad LA16 Mobile App

### SED for L1104-1.



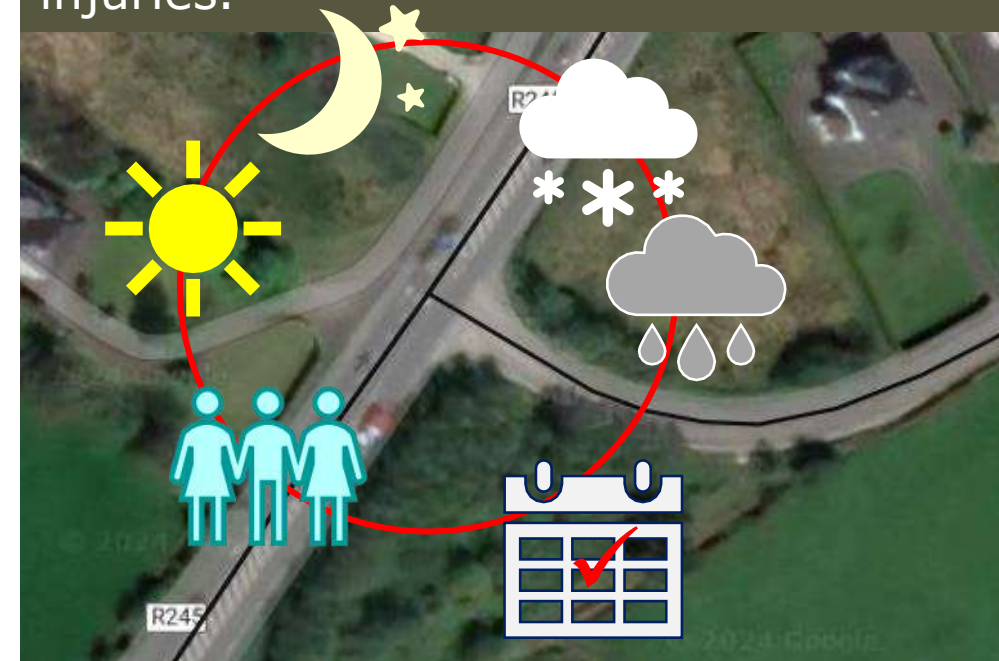
- Estimated Average Road Width (m)
- Visual Assessment of Pavement Surface Condition
- Estimated AADT Band.
- Active Travel Infrastructure Present?
- Type of Active Travel Infrastructure Present
- Clear Zone present?
- VRS Present ?
- Is Roadworks at time of RTC?
- Public Lighting.
- Longitudinal Road Markings Present?
- Transverse Road Markings Present?
- Other Road Markings Present?
- Warning Signage Present?
- Regulatory Signage Present?
- Directional Signage Present?



## New MapRoad LA16 Mobile App

- Surveyor now records Traffic Collision Details (RTC) details.
- RTC Date & Time
- No. of Fatalities at date of survey
- No. of Serious Injuries at date of survey
- Effect of weather conditions on the road surface at time of RTC
- Visibility at time of RTC
- No. Road Users in RTC
- AGS collision type.

Motorbike traveling north on a regional road, collides side on with a van that pulls out from a local road. The rider of the motor bike passes away at the scene, van driver sustains minor injuries.



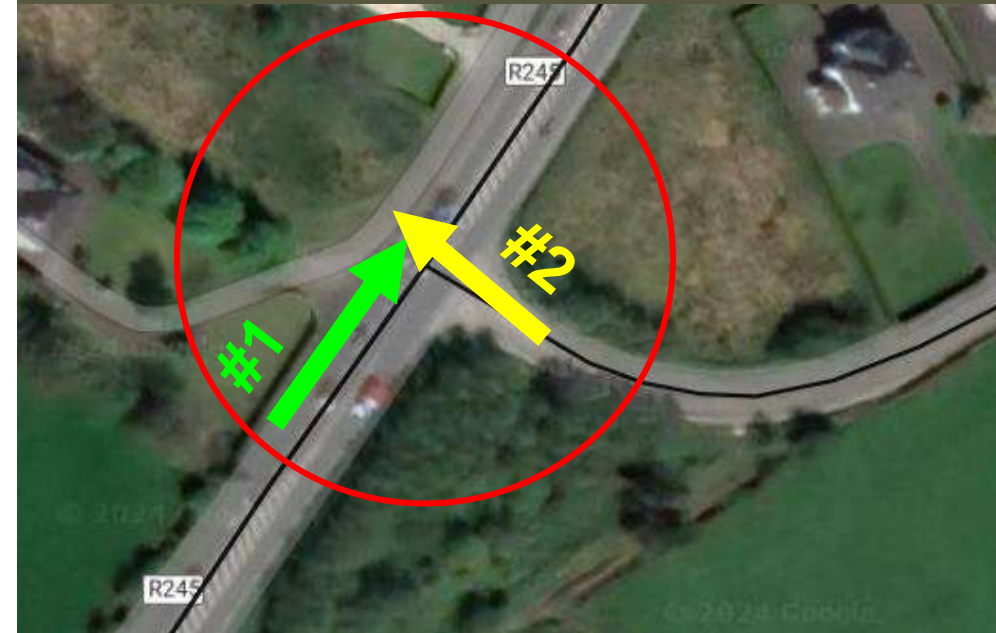




## New MapRoad LA16 Mobile App

- Surveyor now defines Traffic Collision Details (RTC) details for each individual Road User, #1, #2 etc.
- Capturing data in this way, defines a narrative for each Road User with respect to their involvement RTC.
- The built narrative is backed up by a RTC sketch provide created using simple arrows to donate the front and direction of travel of Road User

Motorbike traveling north on a regional road, collides side on with a van that pulls out from a local road. The rider of the motor bike passes away at the scene, van driver sustains minor injuries.

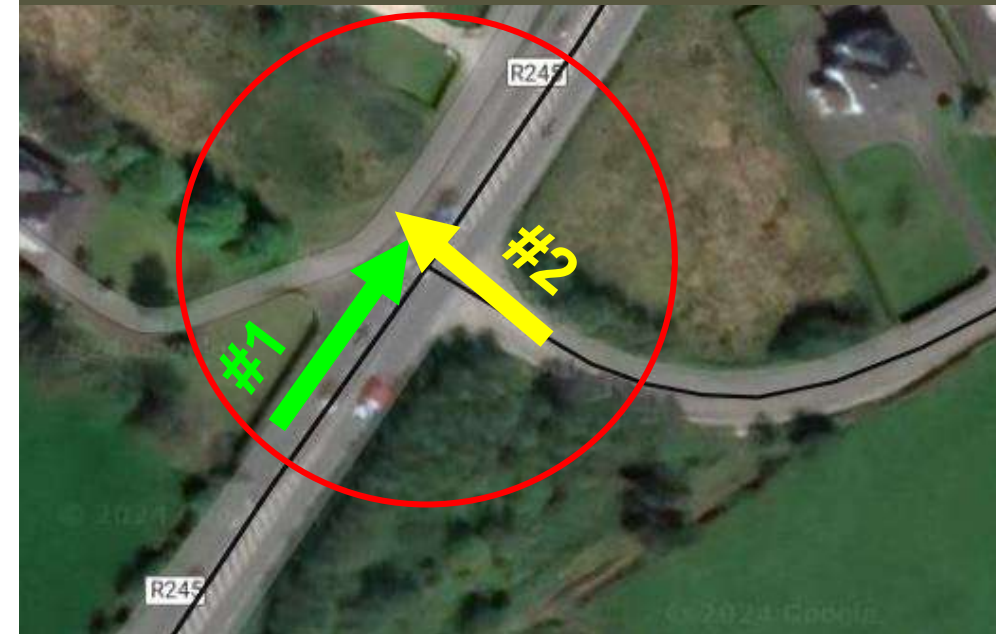




## New MapRoad LA16 Mobile App

- Road User Type = **Motorbike**
- Fatalities for this Road User inclusive of any passengers = **1**
- Road Segment Road User was on prior to Collision = **R245-4**
- Primary Action of Road User = **Moving straight ahead with traffic flow**
- Secondary Action of Road User = **N/A**
- Road User collision with (Primary) = **Road User #2**
- Road User collision with (Secondary) = **N/A**
- Location of primary impact on Road User = **Front**
- Location of secondary impact on Road User = **N/A**

**Motorbike** traveling north on a regional road, collides side on with a van that pulls out from a local road. The rider of the motor bike passes away at the scene, van driver sustains minor injuries.

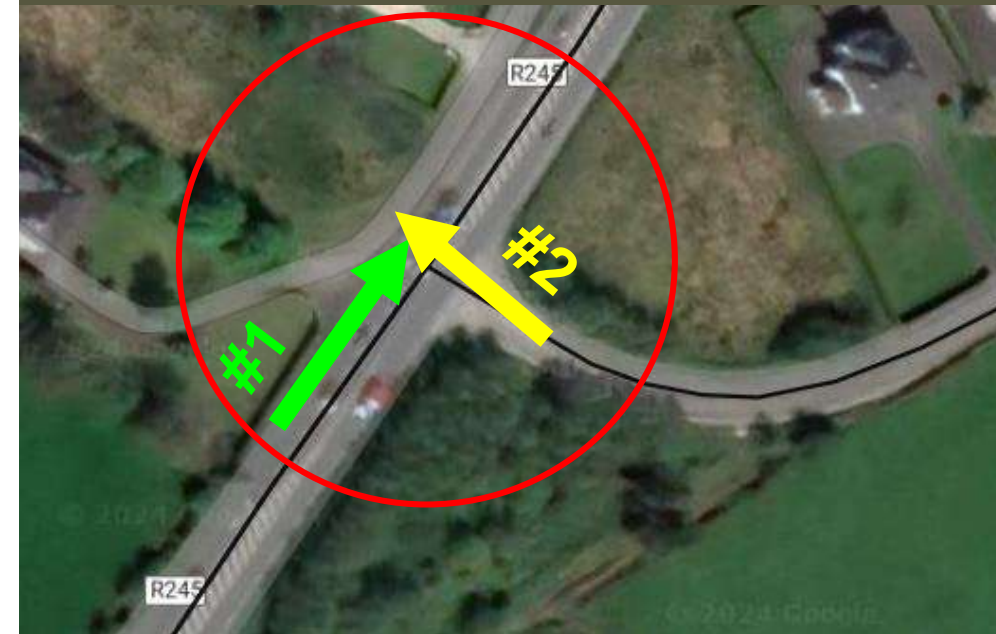




## New MapRoad LA16 Mobile App

- Road User Type = **Commercial Vehicles <3.5T**
- Fatalities for this Road User inclusive of any passengers = **0**
- Road Segment Road User was on prior to Collision = **L-1104-1**
- Primary Action of Road User = **Moving turning right**
- Secondary Action of Road User = **N/A**
- Road User collision with (Primary) = **Road User #1**
- Road User collision with (Secondary) = **N/A**
- Location of primary impact on Road User = **Left Hand Side (Nearside)**
- Location of secondary impact on Road User = **N/A**

Motorbike traveling north on a regional road, collides side on with a **van** that pulls out from a local road. The rider of the motor bike passes away at the scene, van driver sustains minor injuries.



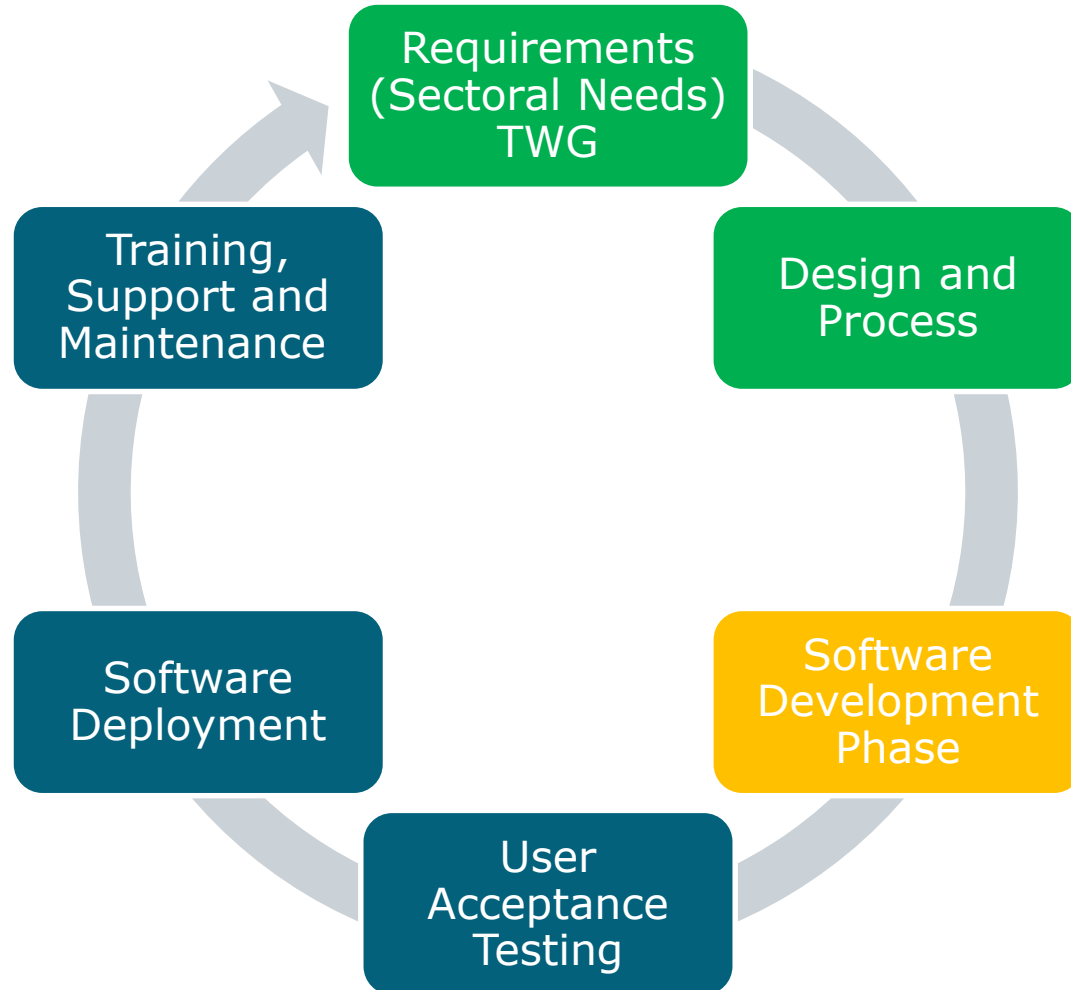


# New MapRoad LA16 Browser Functionality





## Release of New MapRoad AMS – LA16 Module

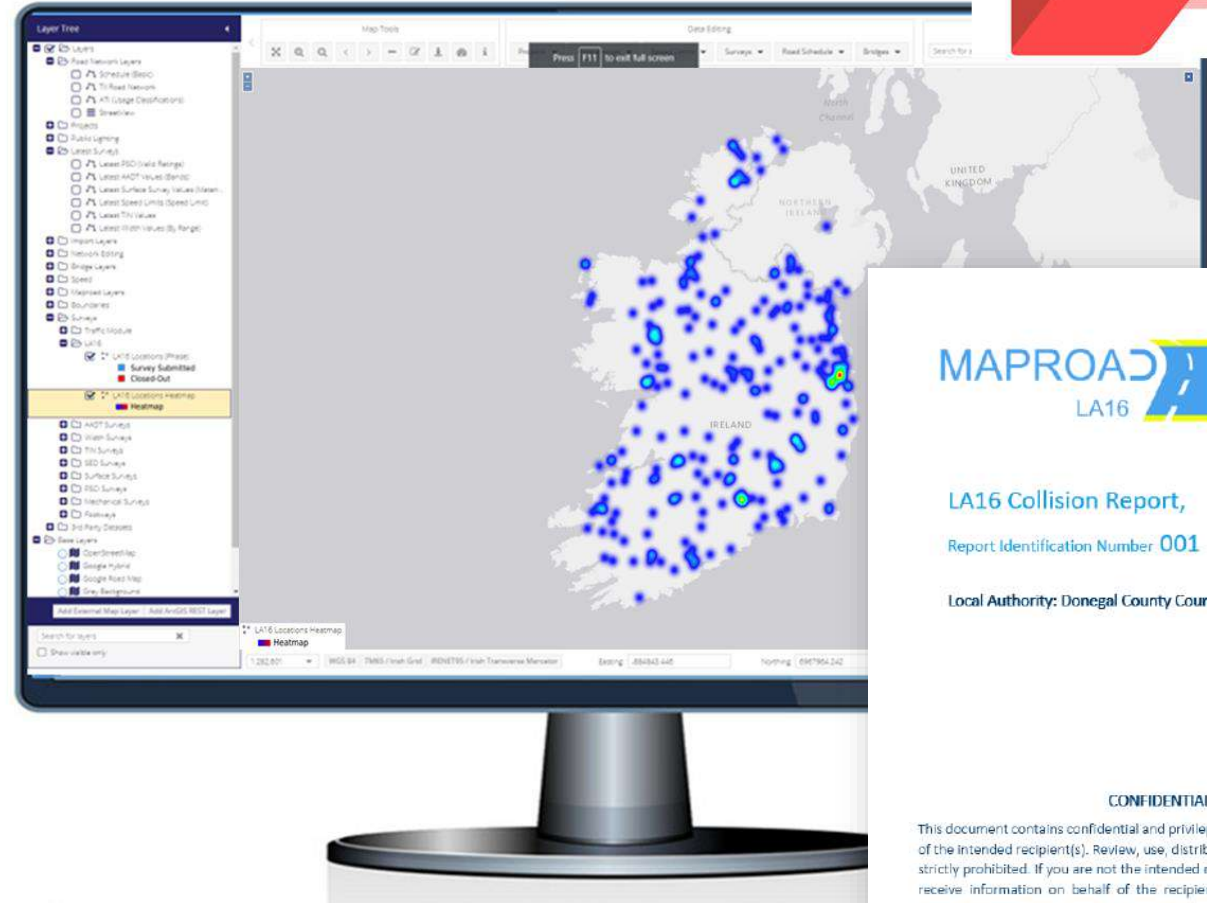


- Currently completing the Software Development Phase
- User Acceptance Testing – End of Q2 2024
- Software Deployment, Guidance and Training – Q3 2024



## New MapRoad LA16 Browser Functionality

- LA's will have access to LA16 spatial data. Like LA16 heatmaps showing potential fatality clusters at different zoom levels.
- LA16 Coordinators can extract LA16 reports in PDF format for the information of engineers and safety coordinators.



MAPROAD  
LA16

LA16 Collision Report,  
Report Identification Number 001

Local Authority: Donegal County Council

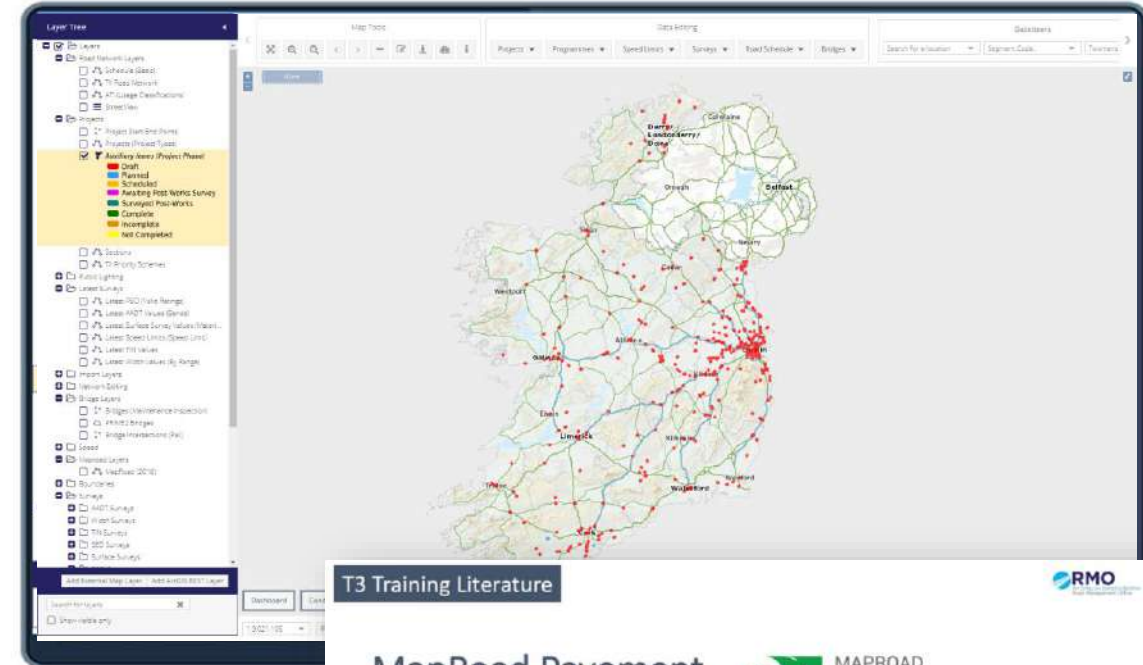
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## Safety MapRoad

- The first Regional Road Network Safety Analysis (RR NSA) was undertaken by the Department of Transport support office (DoTSO), commencing in 2020.
- All 485 Locations of Interests (LOIs) identified in the RR NSA are spatial mapped in MapRoad with each individual RR NSA report available for download from the each spatially mapped LOI.
- T3 Guidance documents issued to LAs *NOTIF 28/2023 (17/10/2023)*
- RW18/2023 – Safety Improvement Works on Regional & Local Roads 2024
- Lower Cost Safety Scheme DoT Grant Allocation 2024 – Approx €10.5m



### T3 Training Literature



MapRoad Pavement  
Management System



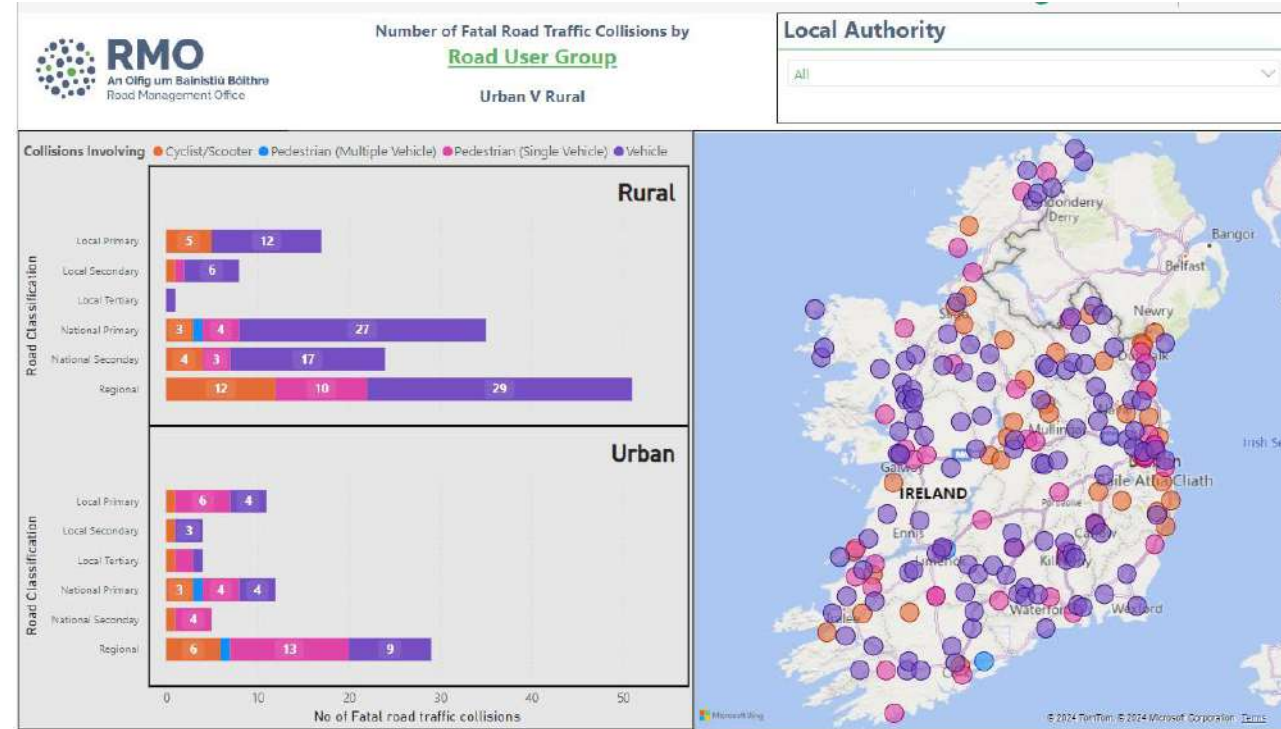
Tutorial Module

Locating LOI Safety Projects on MapRoad



# New MapRoad LA16 Browser Functionality

Due to the improved data capture methodology and integration with MapRoad, LA16 survey data can be easily queried and reported using analytical software like Power BI







# Content

- LA16 Administration Process
- LA16 Data capture 2022 / 2023
- New MapRoad LA16 Field App and Module
- **Overview of Bridge Management**

The image displays two key components of the bridge management system. On the left is the cover of the 'BRIDGE ASSET MANAGEMENT SYSTEM FOR REGIONAL AND LOCAL ROADS' manual, published in September 2019. The cover features a vertical strip of bridge photographs and a map of Ireland with red location markers. On the right is a screenshot of the 'Bridge Asset Management System' mobile application. The app interface includes a top status bar, a title bar, and a main menu with options for 'Bridge Inventory Survey', 'Maintenance Inspection', and 'Engineering Inspection'. A map on the right side of the app shows a specific bridge location marked with a green pin and labeled 'DL-L1352-B-000'. A dropdown menu is open, showing options like 'Add Bridge', 'Switch to OSI', 'Settings', and 'Logout'.

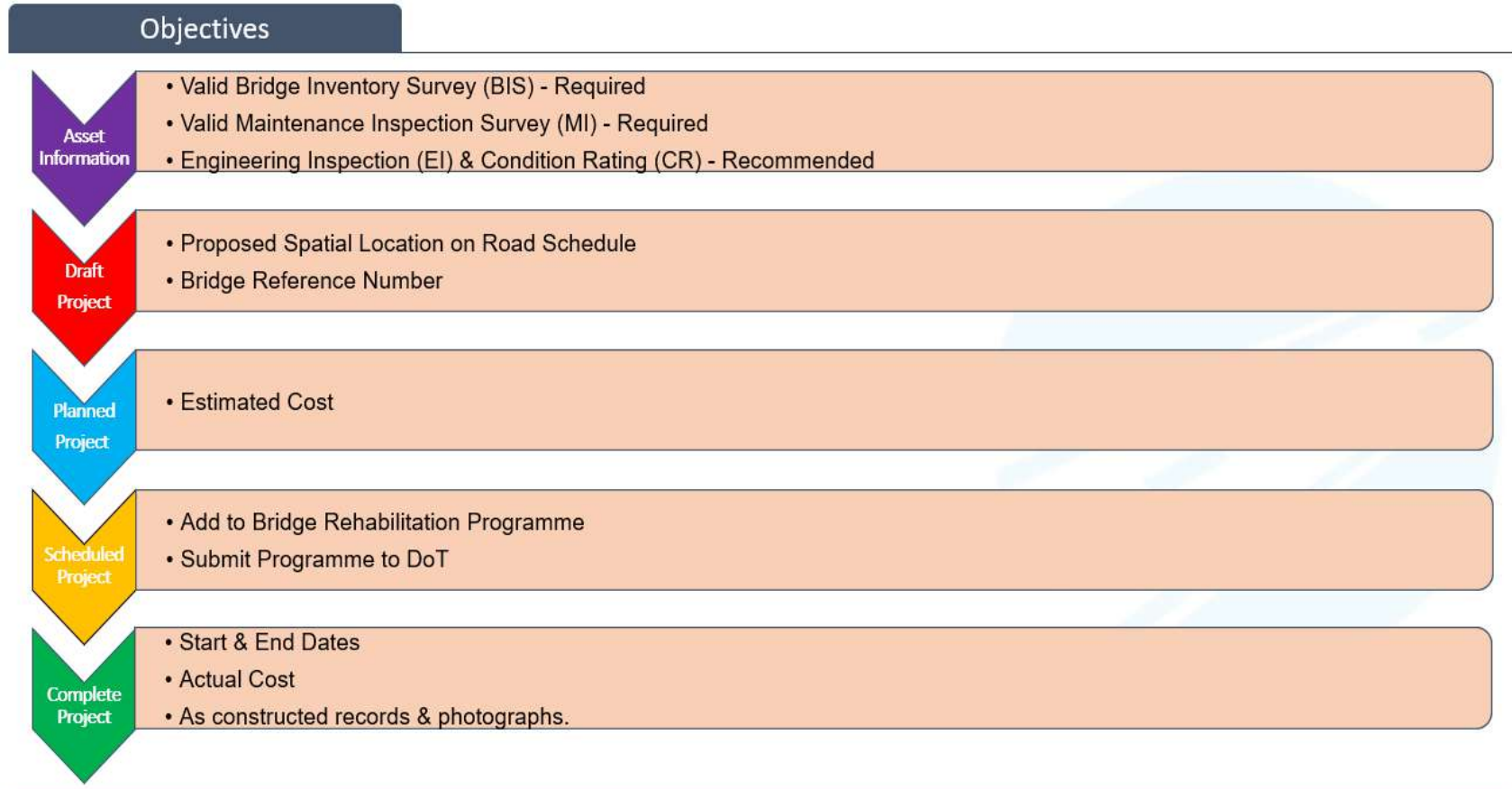




## Bridge Module – MapRoad AMS

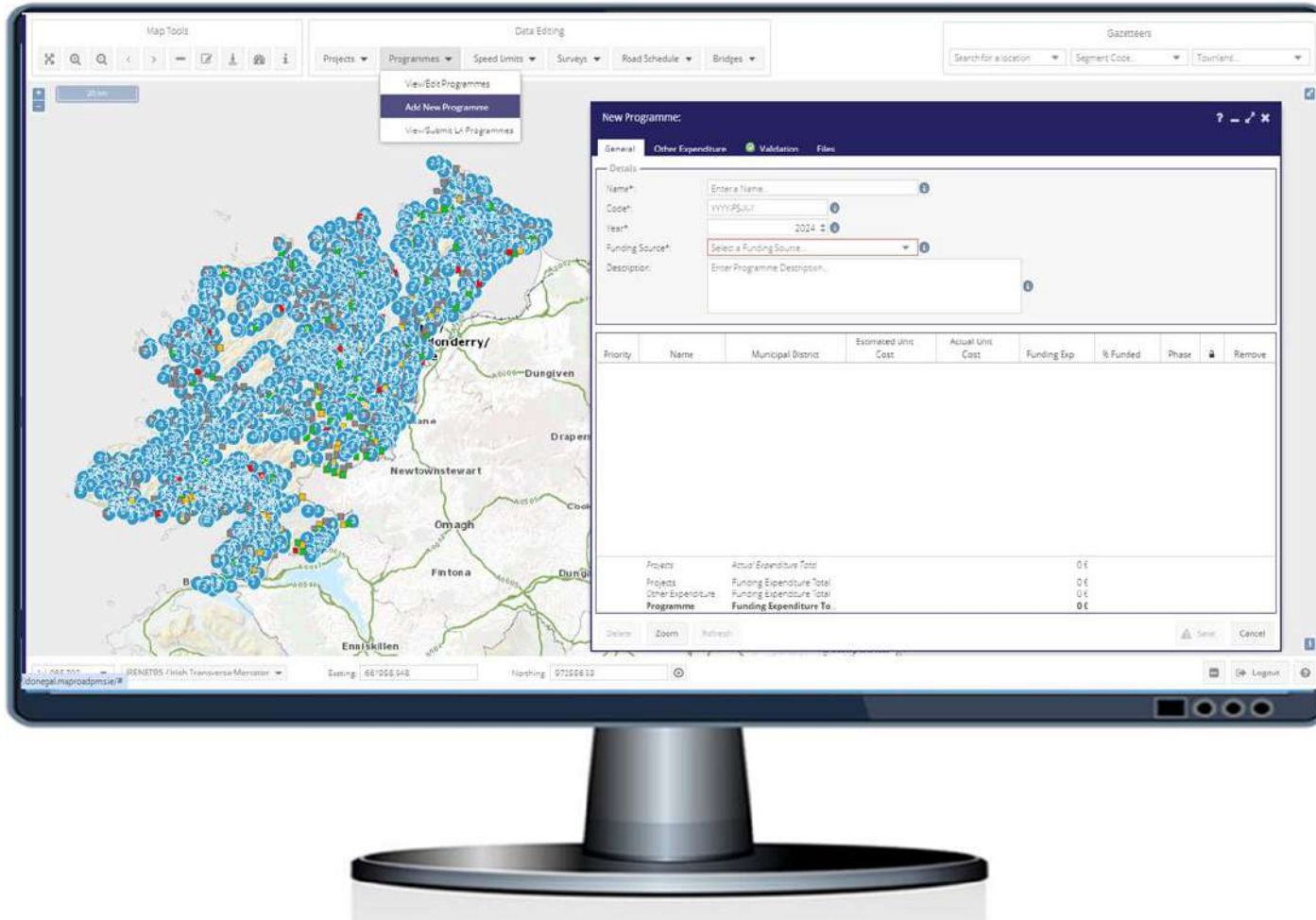
DOT Circular RW 17/2023 requires Local Authorities to record approved Bridge Rehabilitation Projects on MapRoad AMS in 2024.

Requirement to capture Bridge Works Under the Bridge Rehabilitation Programme (DoT Grant Allocation 2024 - approx. €16m





## Bridge Inventory, Condition and Project Capture



Requirement to capture Bridge Works Under the Bridge Rehabilitation Programme (DoT Grant Allocation 2024 - approx. €16m)

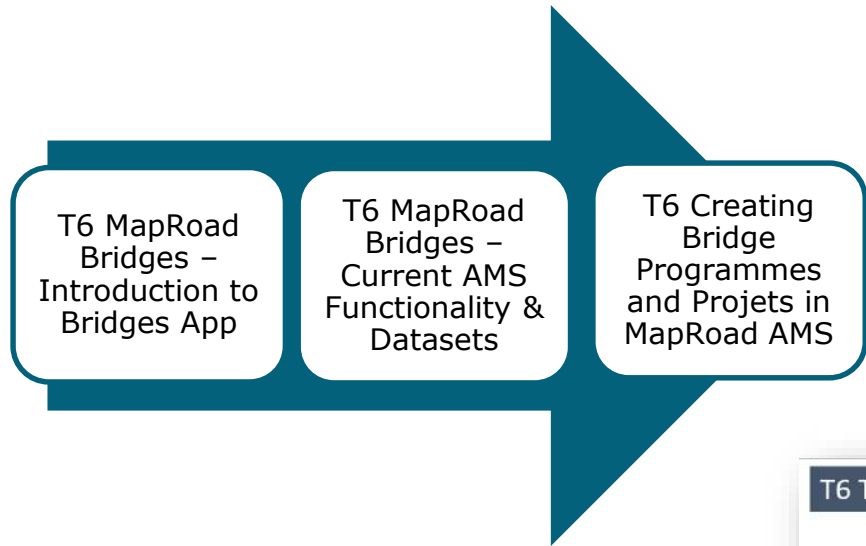
Circular RW 17/2023

Bridge BIS/MI surveys must be completed and uploaded to MapRoad AMS.

Project capture and programmes must be submitted and closed-out on MapRoad AMS



# Bridge Module – Guidance Documents



T6 Training Literature

MapRoad Asset Management System

**MAPROAD BRIDGES**

Creating Bridges Programmes and Projects in MapRoad

RMO  
An Oifig um Bainistíocht Bóithre  
Road Management Office

Tutorial Module

MapRoad Bridges – Current AMS Functionality & Datasets

RMO  
An Oifig um Bainistíocht Bóithre  
Road Management Office

Tutorial Module

MapRoad Bridges – Introduction to Bridges App

RMO  
An Oifig um Bainistíocht Bóithre  
Road Management Office



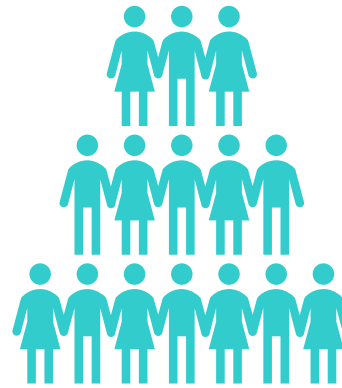
## Bridge Module – MapRoad AMS Training Workshops

### MapRoad Bridge Rehabilitation Project Capture Workshops 2024

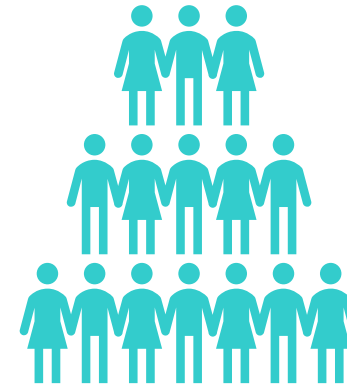
66 participants training delivered

Currently over 100 active  
MapRoad Users with Bridge  
Inspection and Maintenance user  
privileges

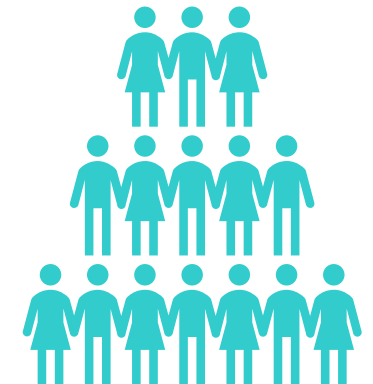
26 13/03



20 15/03



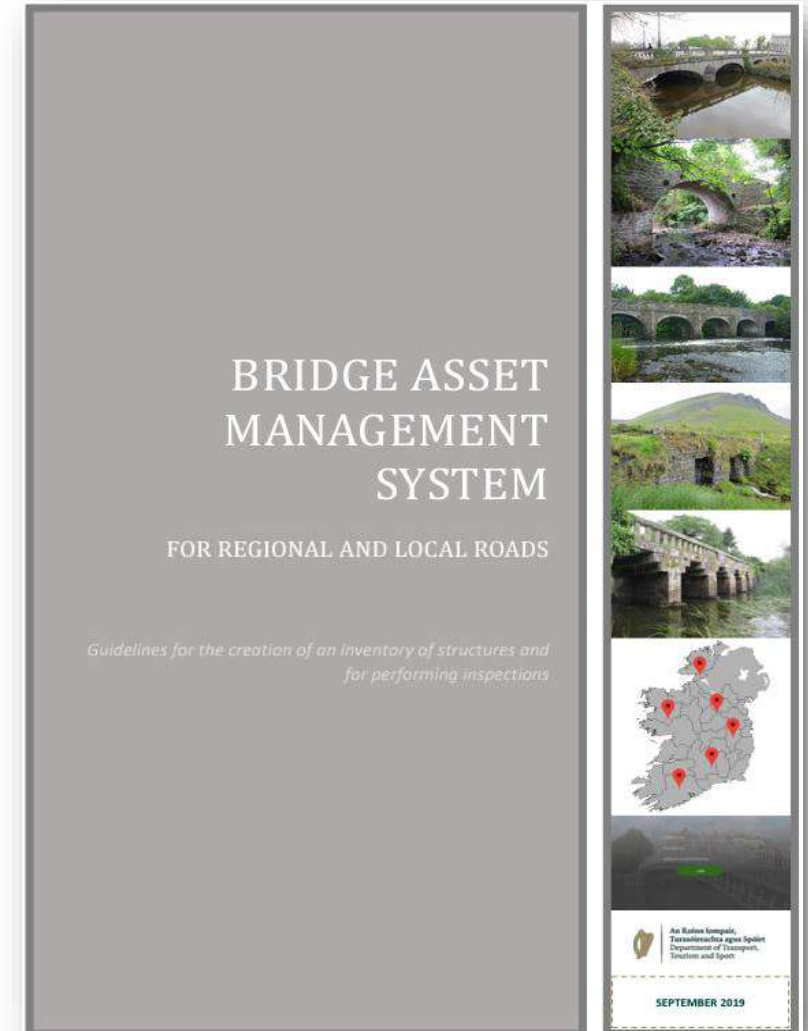
20 20/03





## MapRoad Bridge Asset Management Training

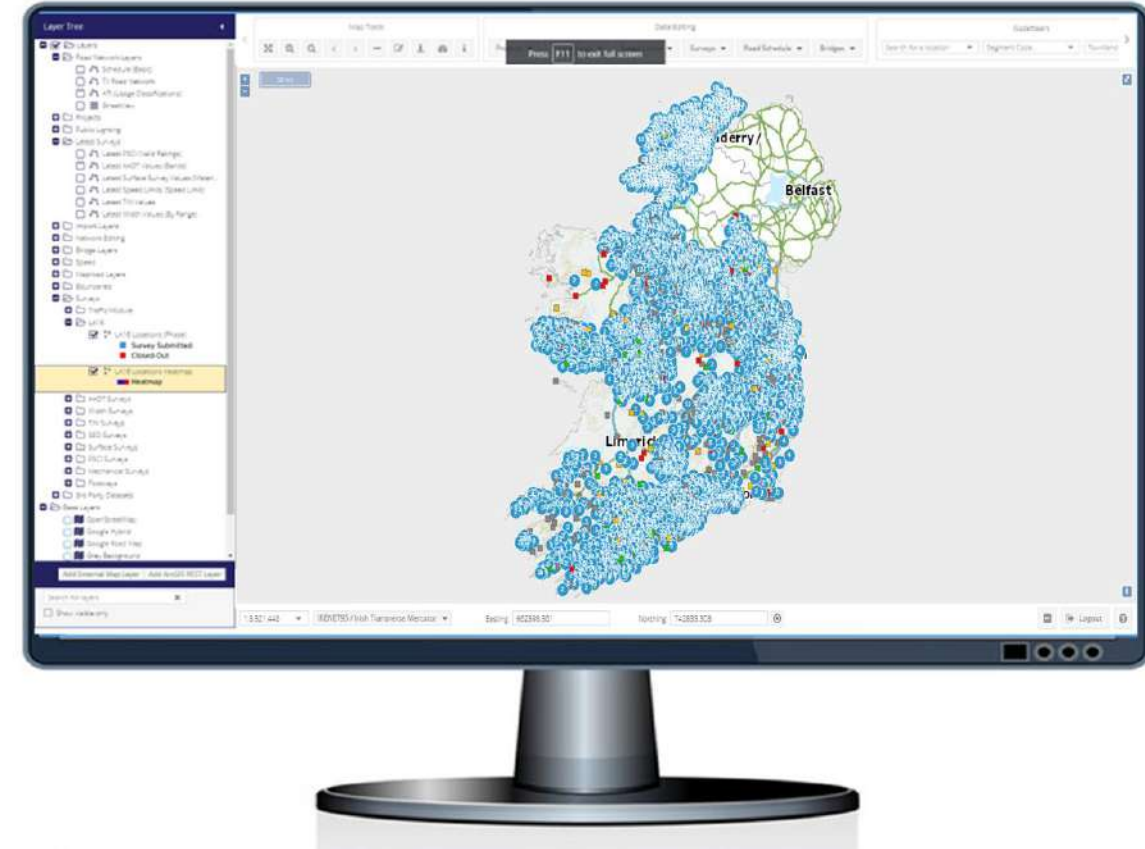
- Bridge Inventory & Maintenance Inspection Course (BIS MI)
- Bridge Engineering Inspection Course (B EI)
- The RMO are assisting with the coordination of BIS MI and B EI training courses in 2024 alongside the LASNTG.
- LAs who require Bridge Training can forward a list of trainees (name & email) to [contact@rmo.ie](mailto:contact@rmo.ie) who will then liaise with the LASNTG to arrange the requested training.





## MapRoad Bridge Asset Module Enhancements

- Reconfigure bridge inventory records to a format which facilitates capture of condition ratings (MI or EI) against individual bridge elements.
- Bridge project capture functionality to be linked to these bridge elements based on bridge element condition.
- Update of inventory information following improvements to elements, or replacement of elements, to be automated.
- Update of Mobile App to facilitate inventory and condition capture to revised structure, and to add functionality to capture works.
- Incorporation of offline functionality to support data capture in areas with limited connectivity.





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## Thank You

Questions to be entered through SLIDO when entering your question please direct it to <<enter your name here>> and they will be addressed at the end of the session:

Slido.com and enter 5812867  
Or via the QR Code



**RMO**  
An Oifig um Bainistiú Bóithre  
Road Management Office





Slides go here





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## RSTG Conference 2024 15<sup>th</sup> May - Day 1

### Networking \ Exhibition & Coffee Break

We will resume at 14.25 pm

Session 3- Climate Adaptation, Rehabilitation of Roads Over Peat Guidelines, Regional and Local Roads Safety Statistics

### Chair Dominic Mullaney

14.30-14.50	Critical Infrastructure Routes & Climate Adaptation	Brian Cross & XXXXX CARO
14.50-15.10	Revision of the Roads Over Peat Guidelines	James Mc Crum - DoT, Oliver Brennan-Wicklow County Council
15.10-15.30	Road Safety Authority - Stats on RLR Network	Velma Burns – RSA



Join the Q&A session at [Slido.com](https://www.slido.com) and enter 5812867  
Or via the QR Code

