An Roinn Iompair
Department of Transport

Cumann Lucht Bainistiochta Contae agus Cathrach
County and City Management Association

RSTG Conference 2024 15th 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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Department of Transport

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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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County and City Management Association

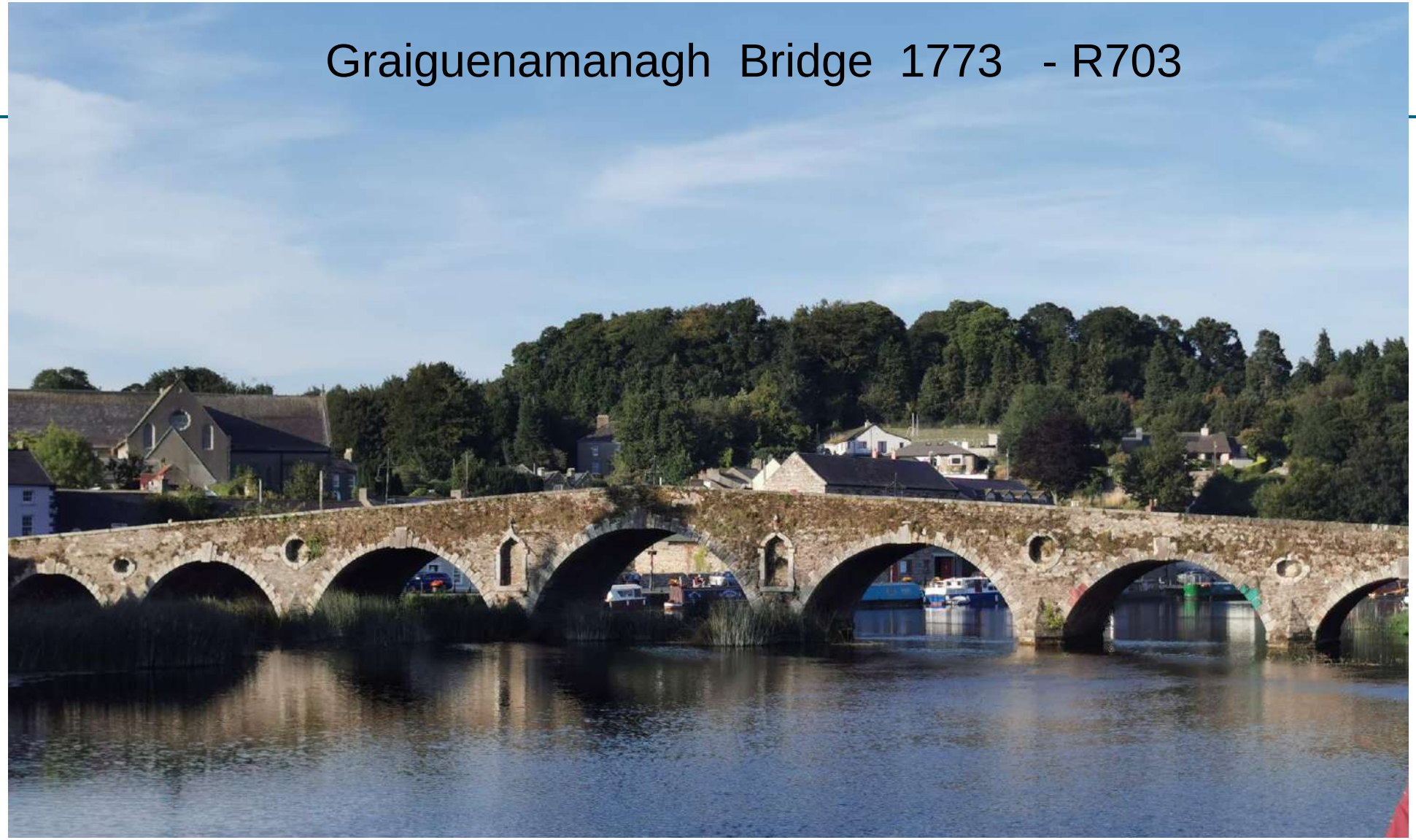
LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION

15th and 16th 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



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

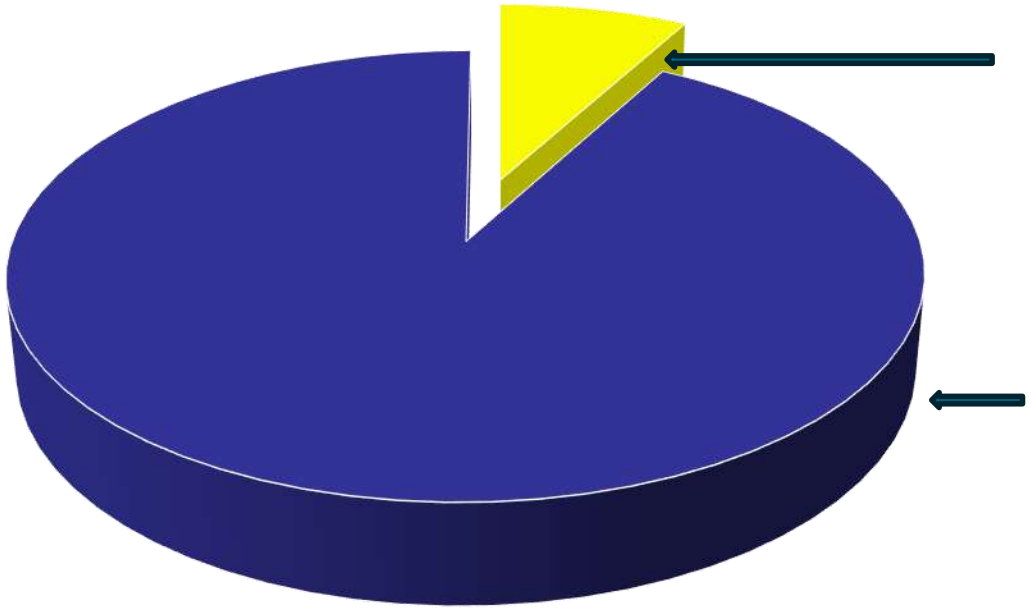
Renaissance C1600 ad

Baroque & Rococco C 1780

Metals c1850

Dot/LA and TII

Road lengths and bridge numbers



Motorway and National road length- circa 6000km [TII]

Regional and Local Road length - circa 95,000 km [LA]

101,000 KM of Public Roads

Bridge Rehabilitation.
LA Bridge Stock

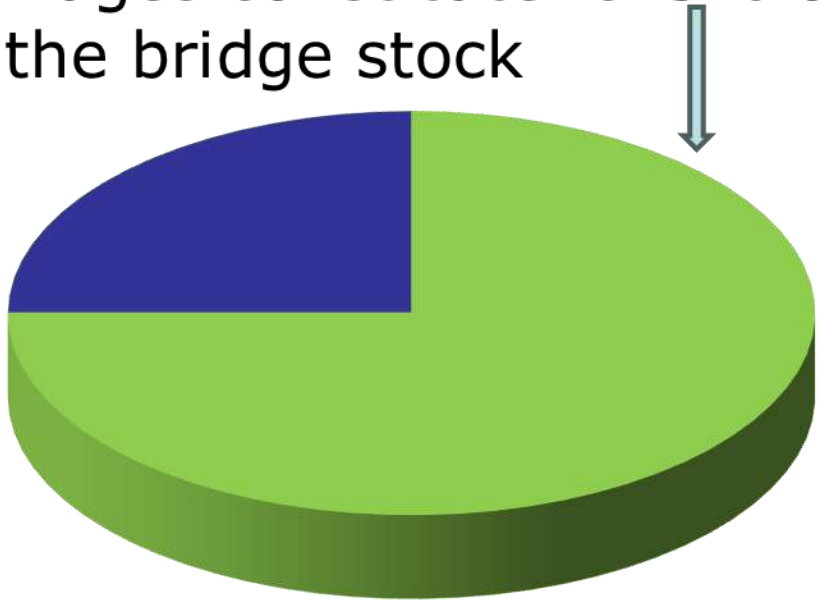
- At least **90%** of the nation's road **bridge** stock are on regional and local roads and are therefore the responsibility and in the care of LA's.

- 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

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

- 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

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

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

- 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

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.

- Repair is almost aways 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,

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 ?

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

- 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:

" ***Work on a road structure which retains its aesthetic merit but can incorporate changes <u>that are in keeping with the original structure</u>.***

Conservation can include preservation, restoration and maintenance."

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

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

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]

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.

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!

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

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

(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 requirement**!**

Bridge rehabilitation
Public highway bridges- function v conservation.

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.

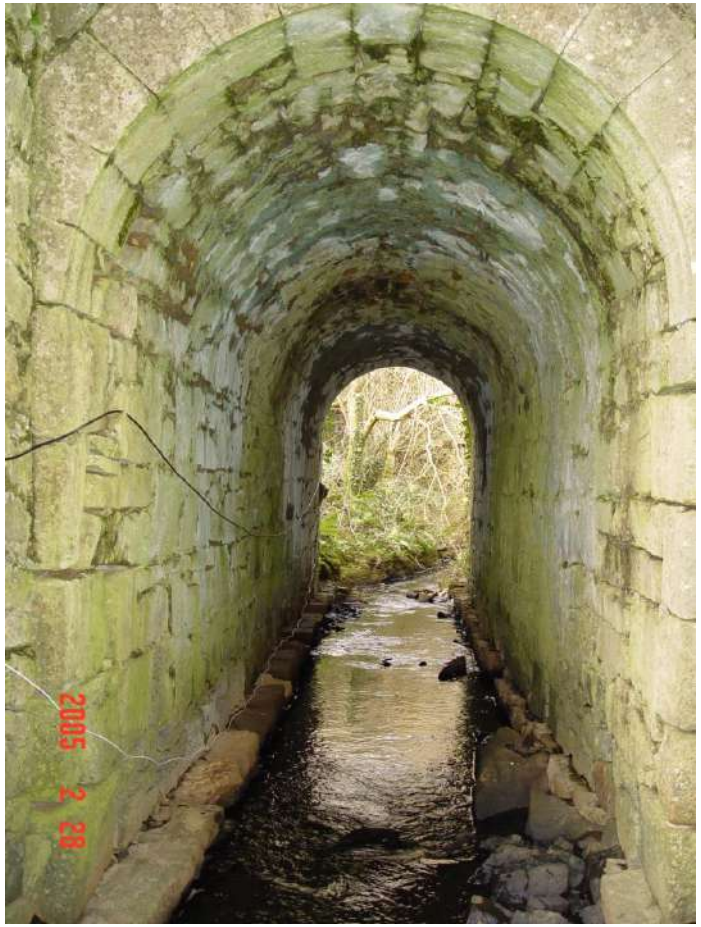
Bridge Rehabilitation

Bridge Repairs

Before and After

Bridge Rehabilitation

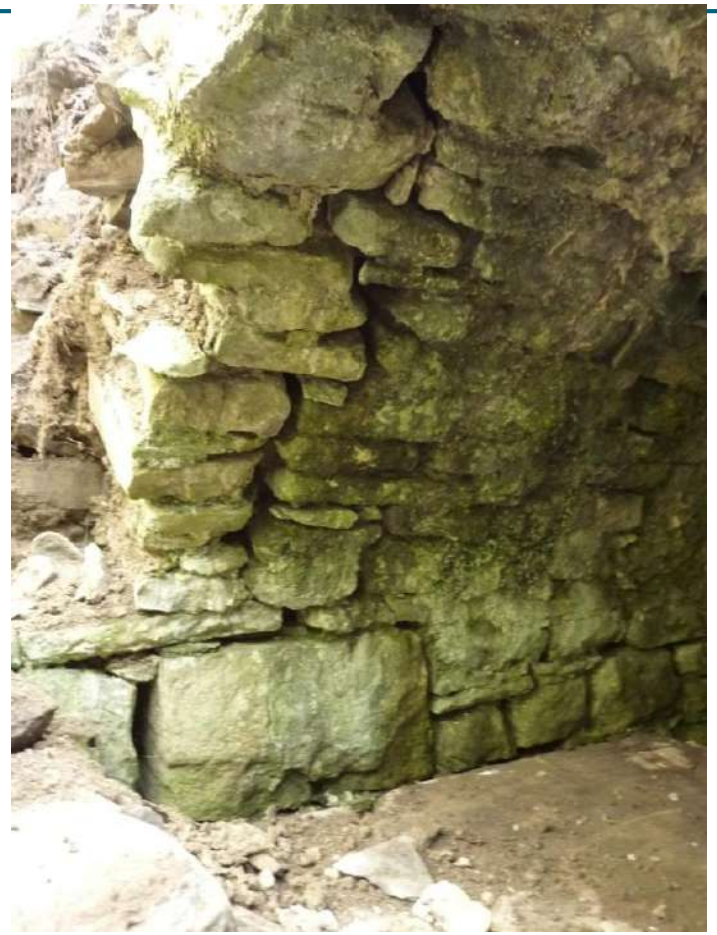
Narrow and tall bridge



Bridge Rehabilitation ----After restoration

Bridge Rehabilitation

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



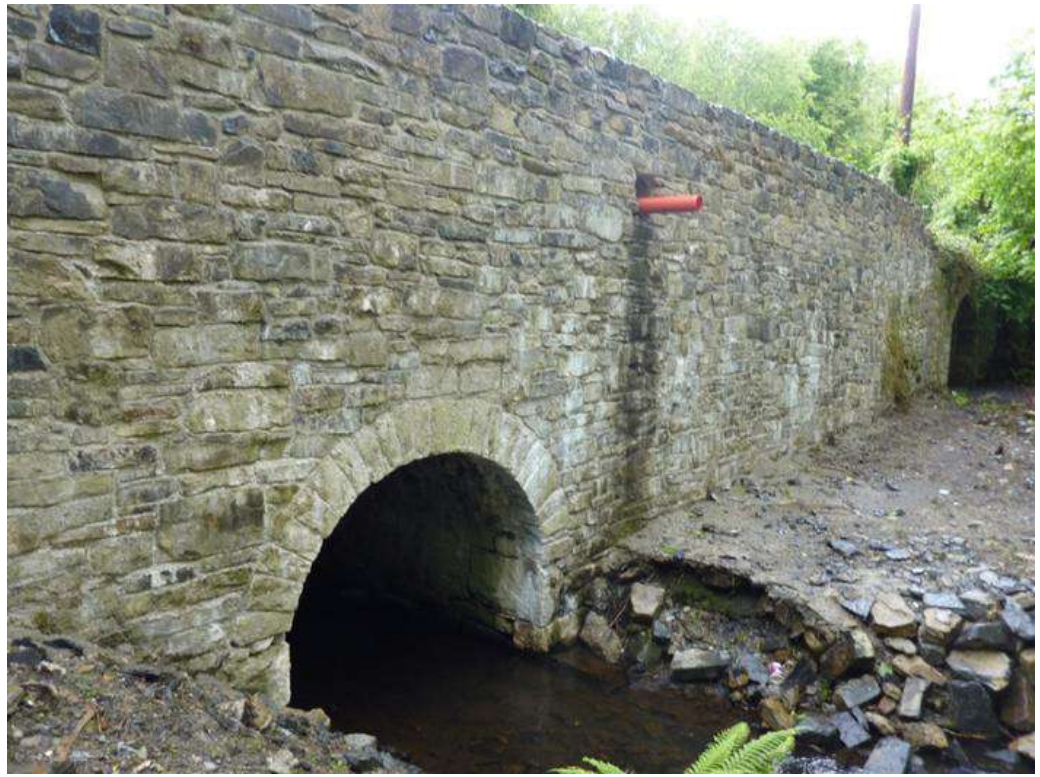
Courtesy of Sligo Co Co

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

Photo courtesy of Sligo Co Co

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

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.

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

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!

Courtesy of Sligo Co Co

Bridge rehabilitation.

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

Mitigation may be possible.

Bridge rehabilitation
There is a choice

Replace this

With this

Or this

Courtesy of Sligo coco

Bridge Rehabilitation
A win-win scenario.

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

Courtesy of Sligo Co Co

Bridge Rehabilitation

Stone Masonry

The good, the bad and the ugly!

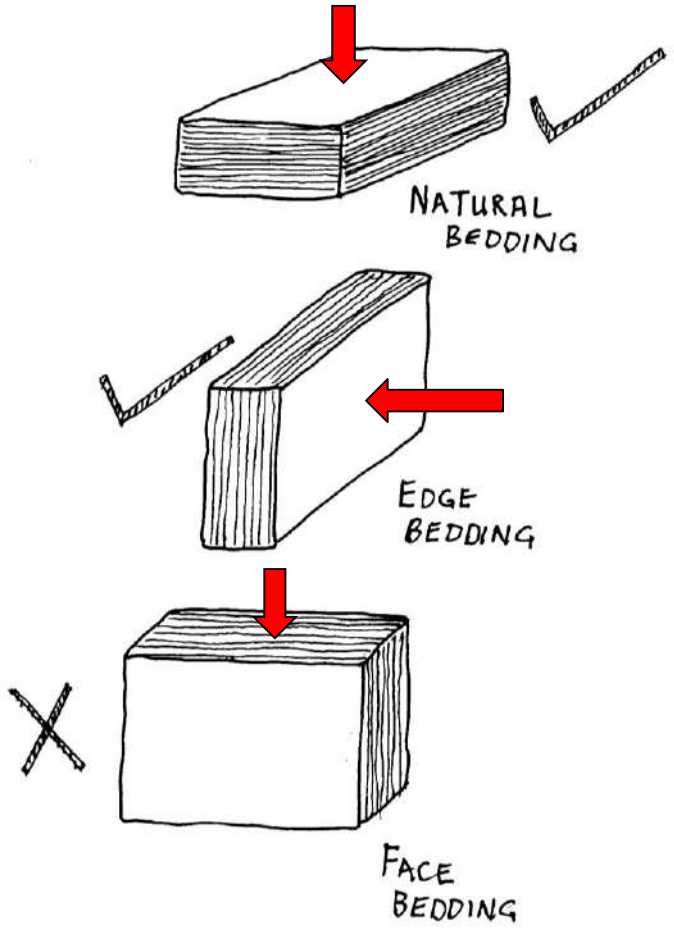
Do not use OPC when repairing or pointing old stone masonry bridges

Bridge Rehabilitation

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

FOR
Sedimentary
Rock

IE
Limestones
Sandstones
Shales



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

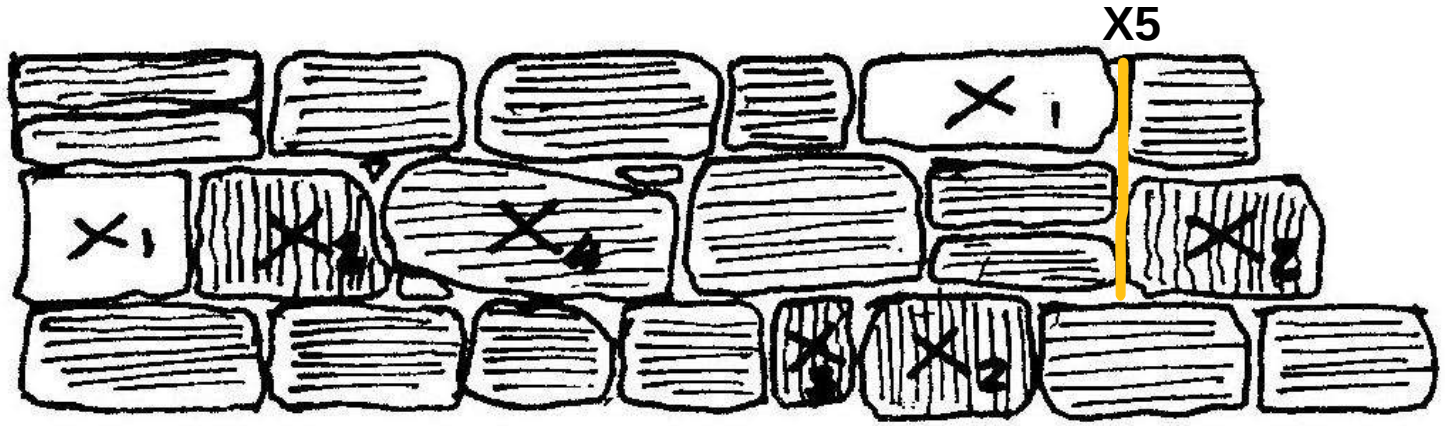
Arch barrel construction and external voussoirs, and some copings of walls, eg cow and calf and soldier, copings.

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

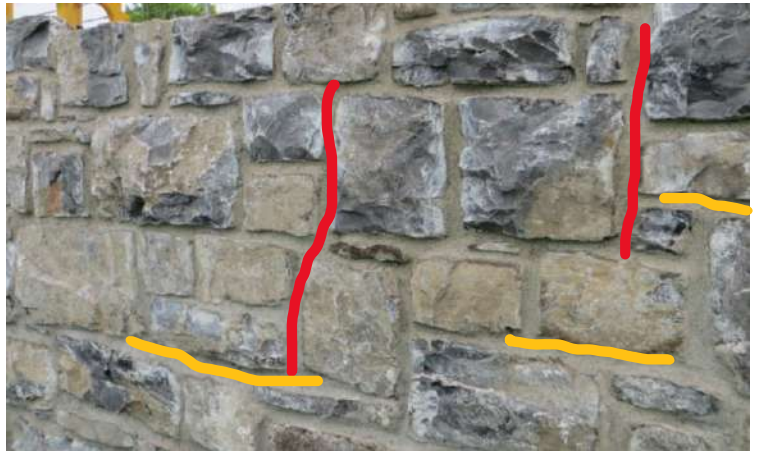
X2 – Edge bedding

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

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!

Bridge Rehabilitation. Recap

- 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:

- Bridge Asset Management System [BAMS] for Regional and Local Roads
  [download from 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:

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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

An Roinn Iompair
Department of Transport

Cumann Lucht Bainistiochta Contae agus Cathrach
County and City Management Association

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

MAPROAD

An Roinn Iompair
Department of Transport

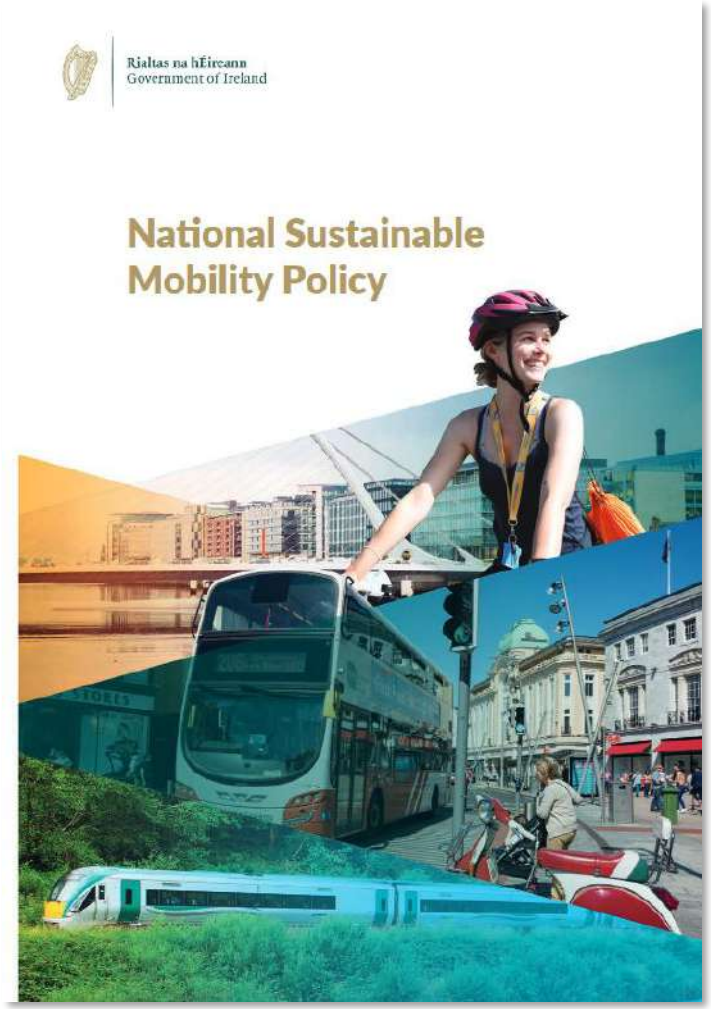
Cumann Lucht Bainistíochta Contae agus Cathrach
County and City Management Association

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?

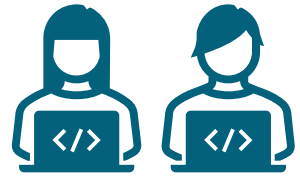
"Walking, wheeling, or cycling as a means of transport in order to get to a particular destination such as work, the shops or to visit family or friends".



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.

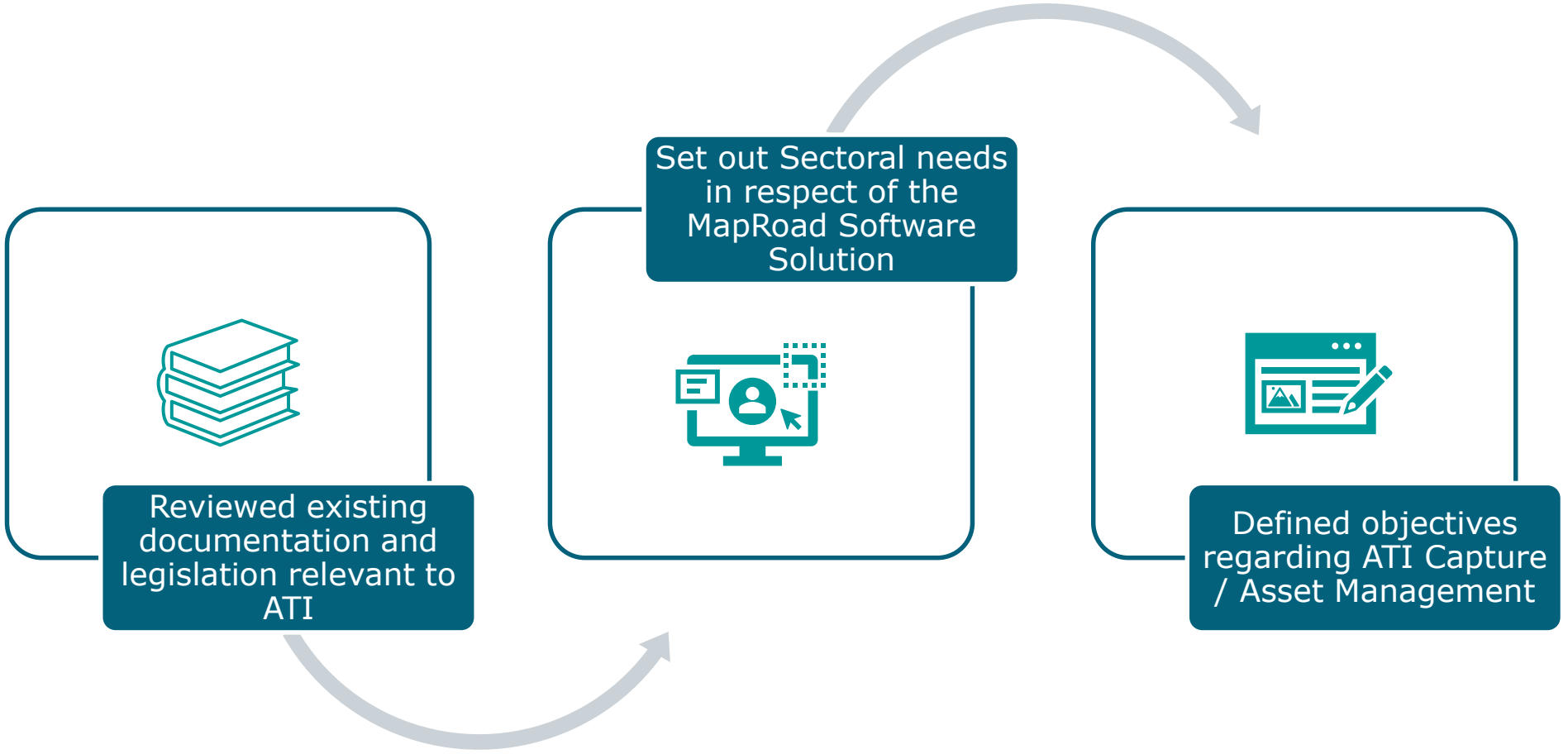


- Sector wide guidance created, and training was delivered.

Collaboration

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

TWG Process and Outputs



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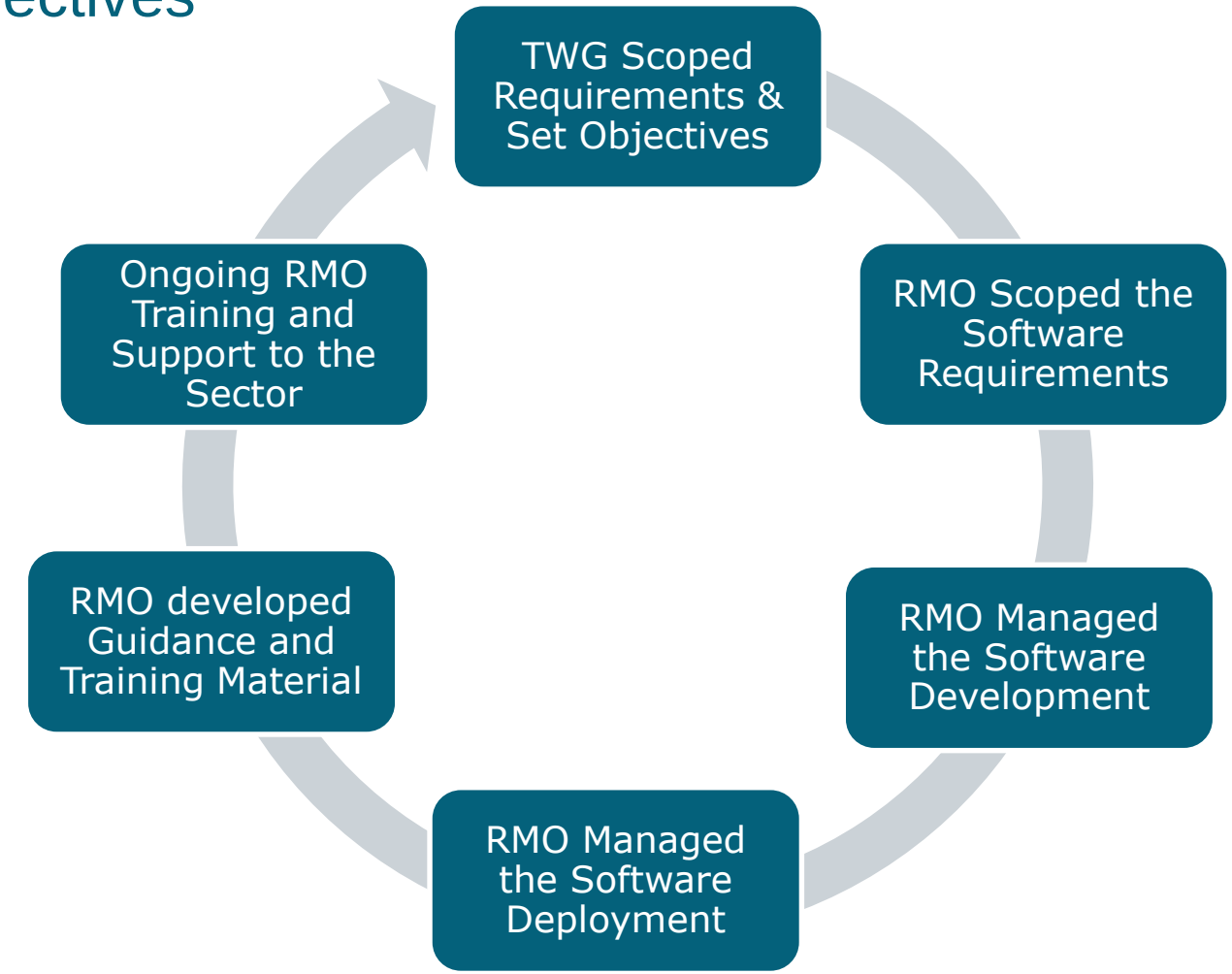
Delivering the Objectives



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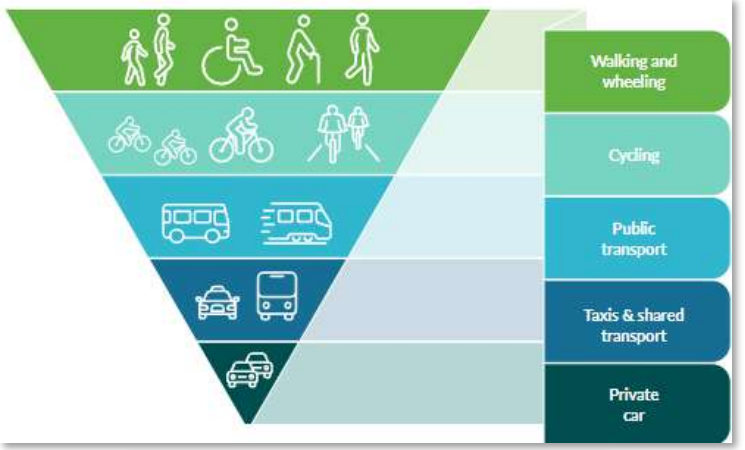
Why are we doing this?

- 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.



An Roinn Caiteachais Phoiblí agus Athchóirithe
Department of Public Expenditure and Reform

MAPROAD

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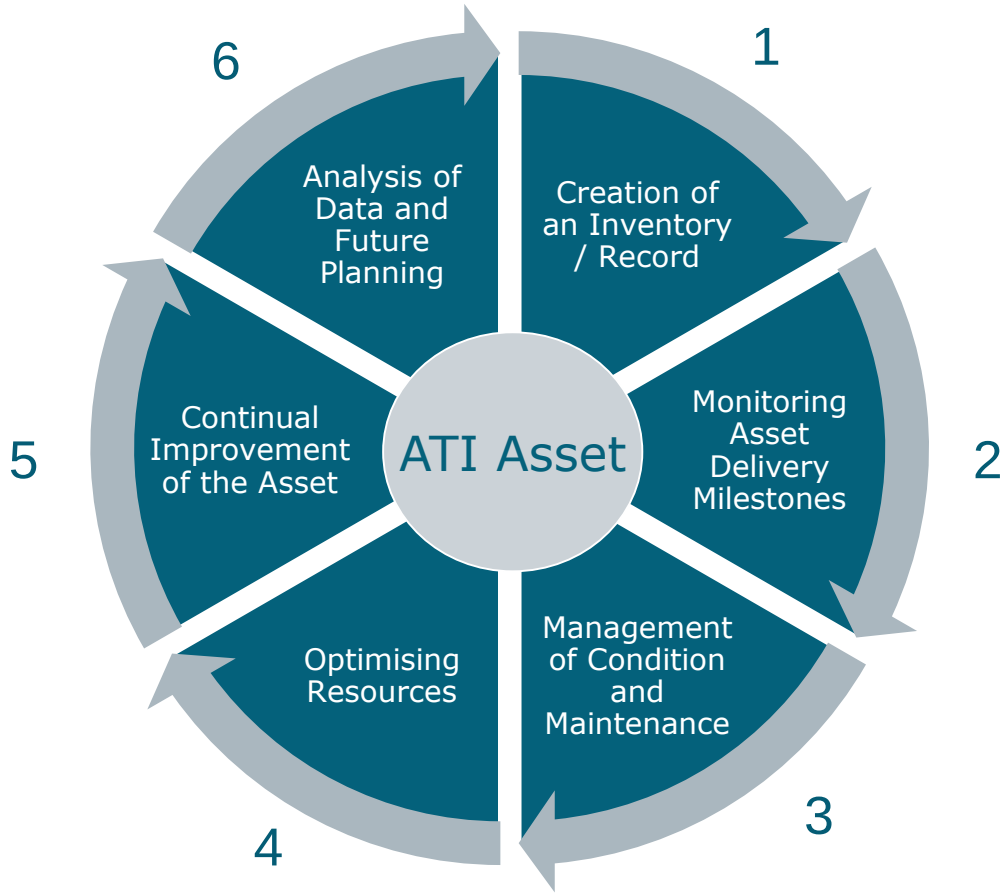
Department of Transport

Cumann Lucht Bainistíochta Contae agus Cathrach
County and City Management Association

Why are we doing this?

Capturing ATI via MapRoad facilitates:



Capture and Classification of ATI – The Legislative Context

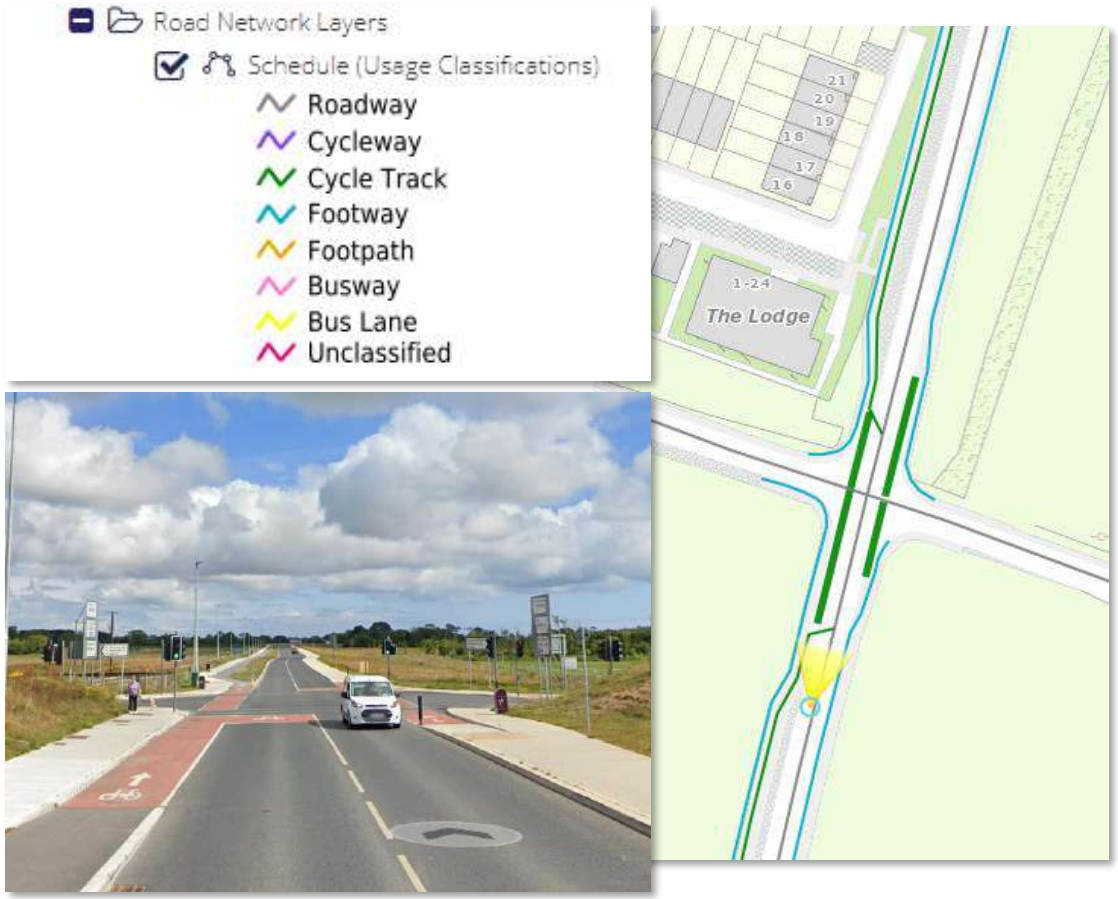
- *A **"public road"** means a road over which a public right of way exists and the responsibility for the maintenance of which lies on a road authority. The* Roads Act,1993, Part I, section 2.1.

- *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

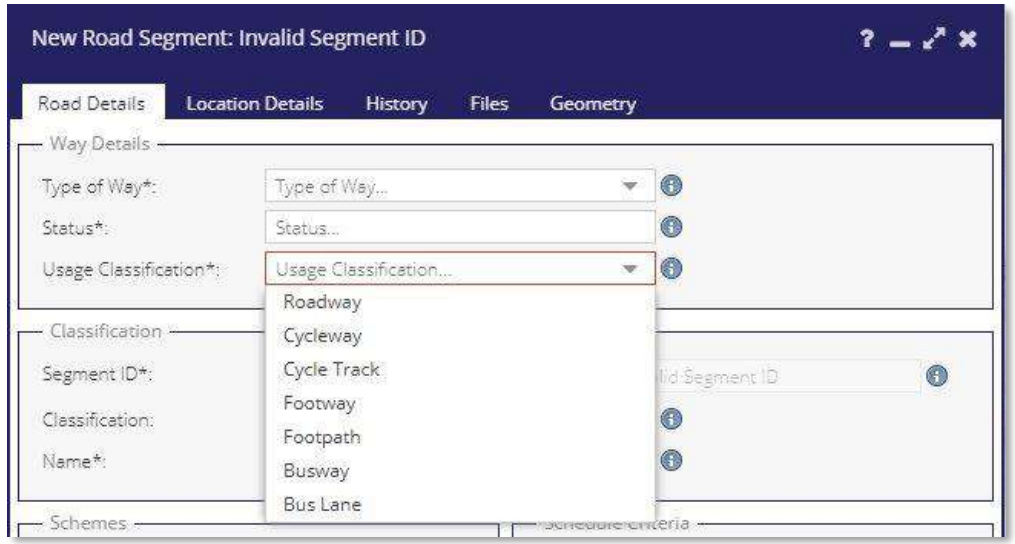


Capture and Classification of ATI – Terminology

- 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*



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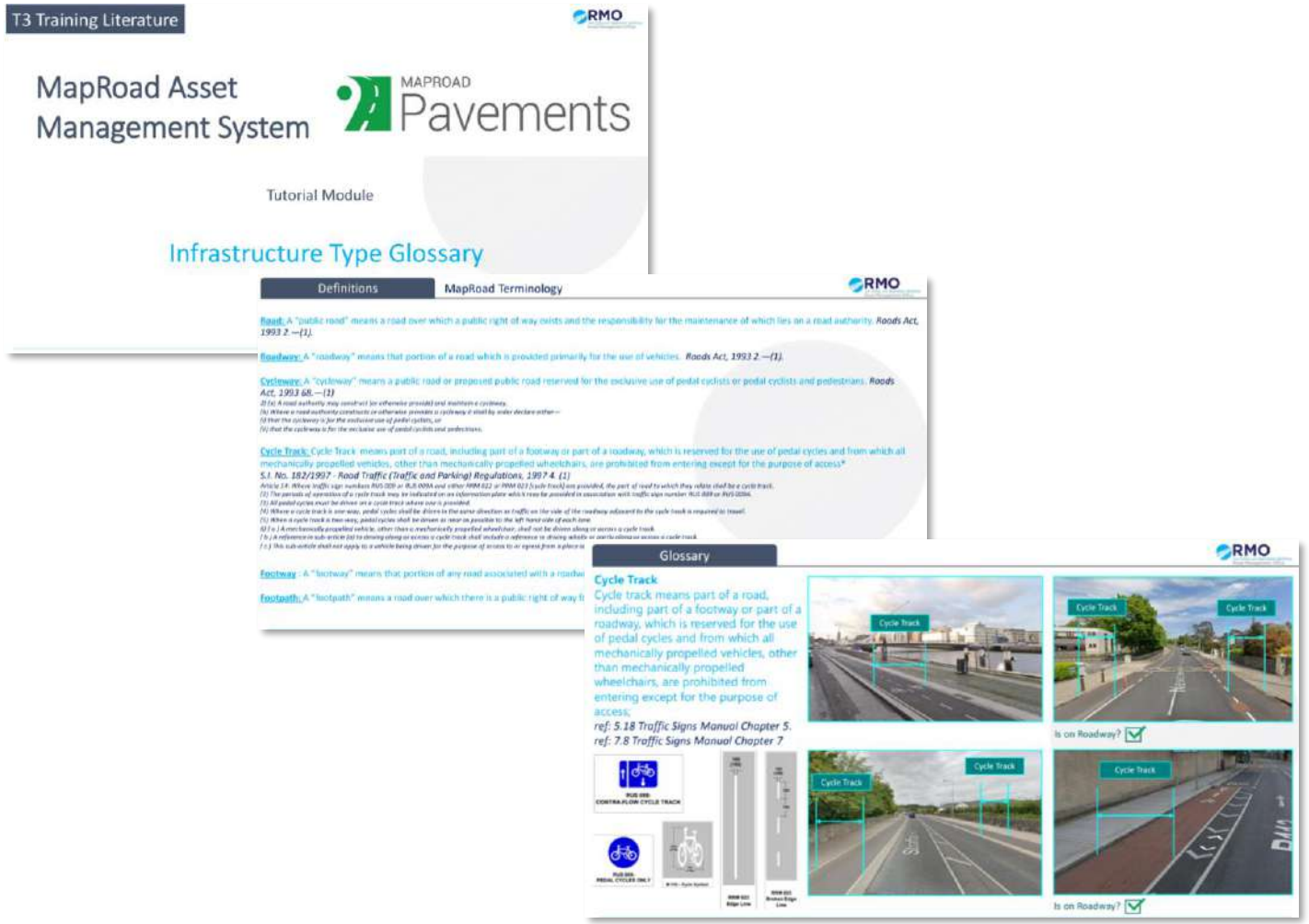
Guidance and Training

- 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



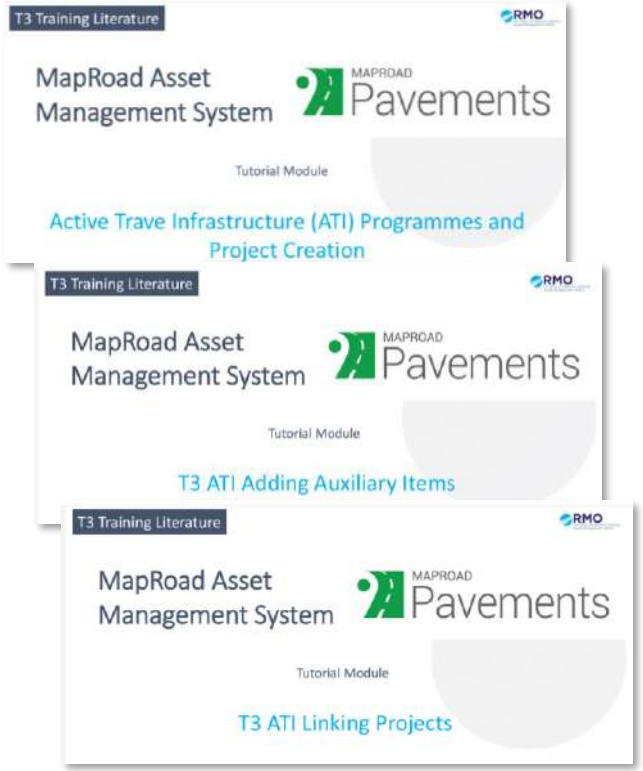
Online Training - Key features

- 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

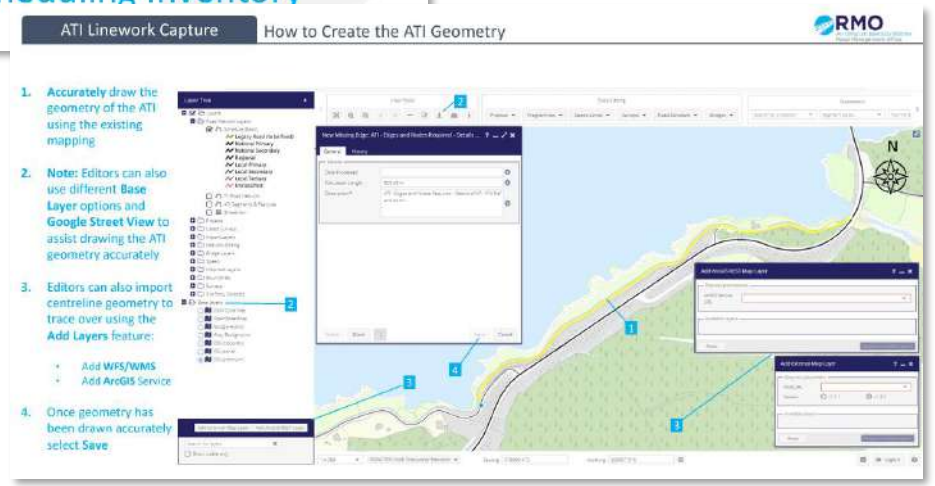
Guidance Documentation- Key features

- 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



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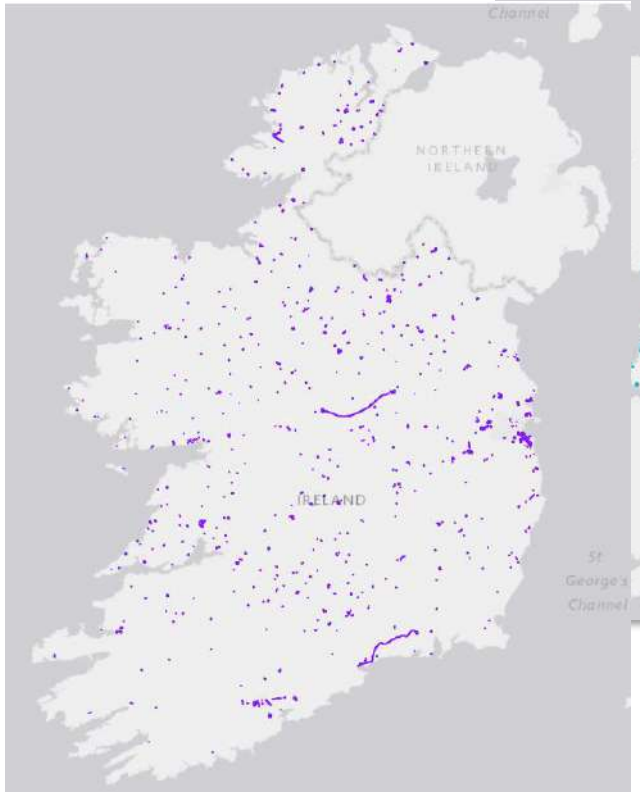
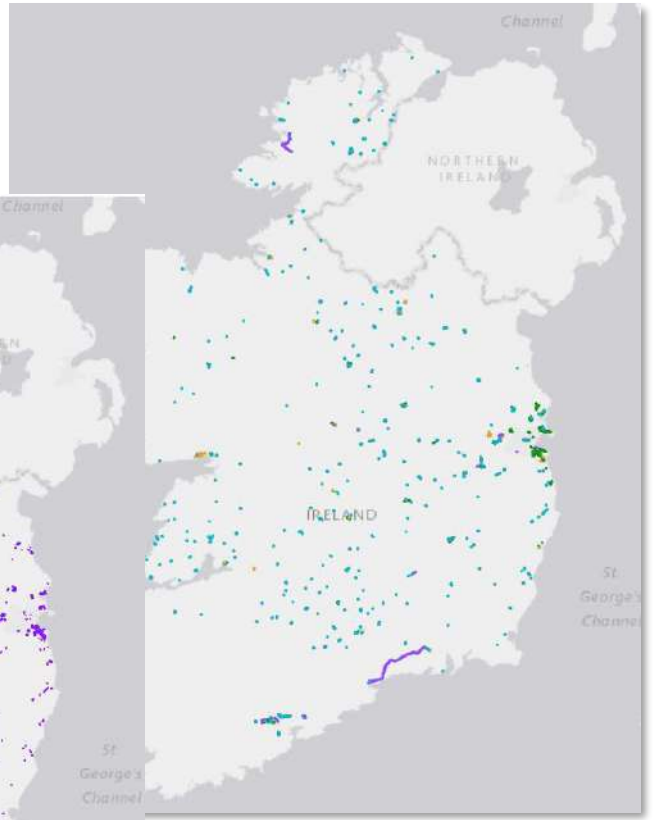
ATI Inventory and Project Capture

- 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)*

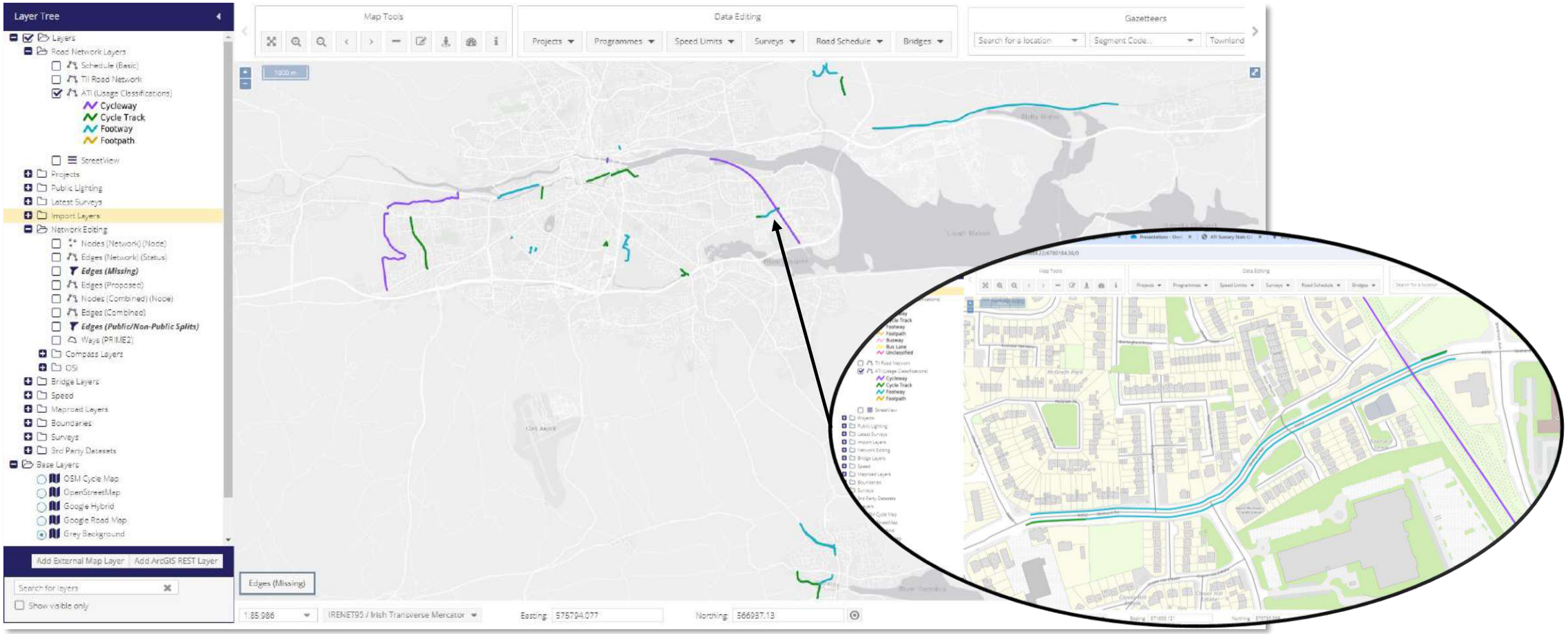


ATI Inventory Captured



ATI Projects Captured

ATI Inventory and Project Capture



ATI Inventory / Projects Captured in Cork City and its Environs

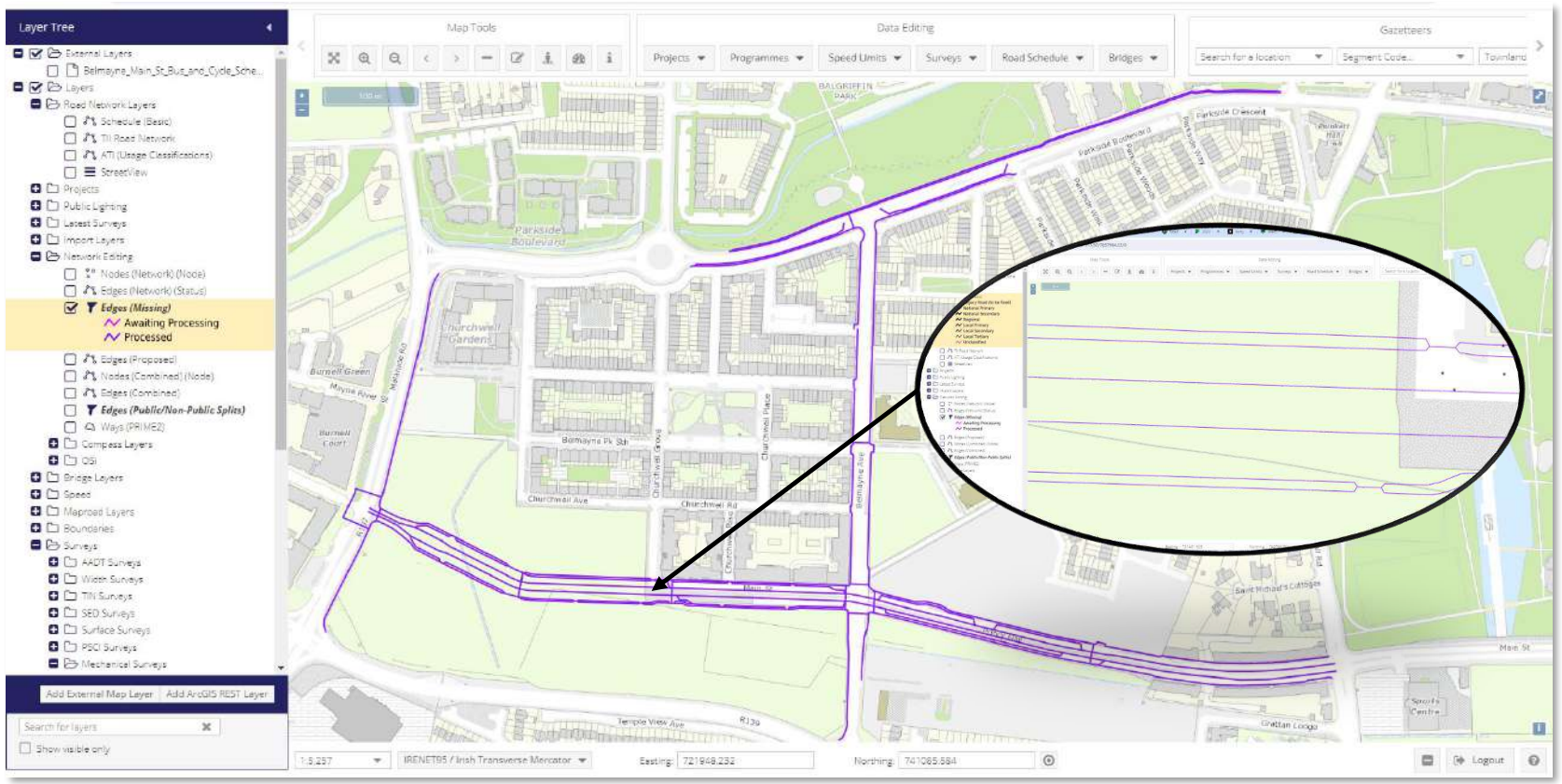
ATI Inventory and Project Capture – Case Study

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

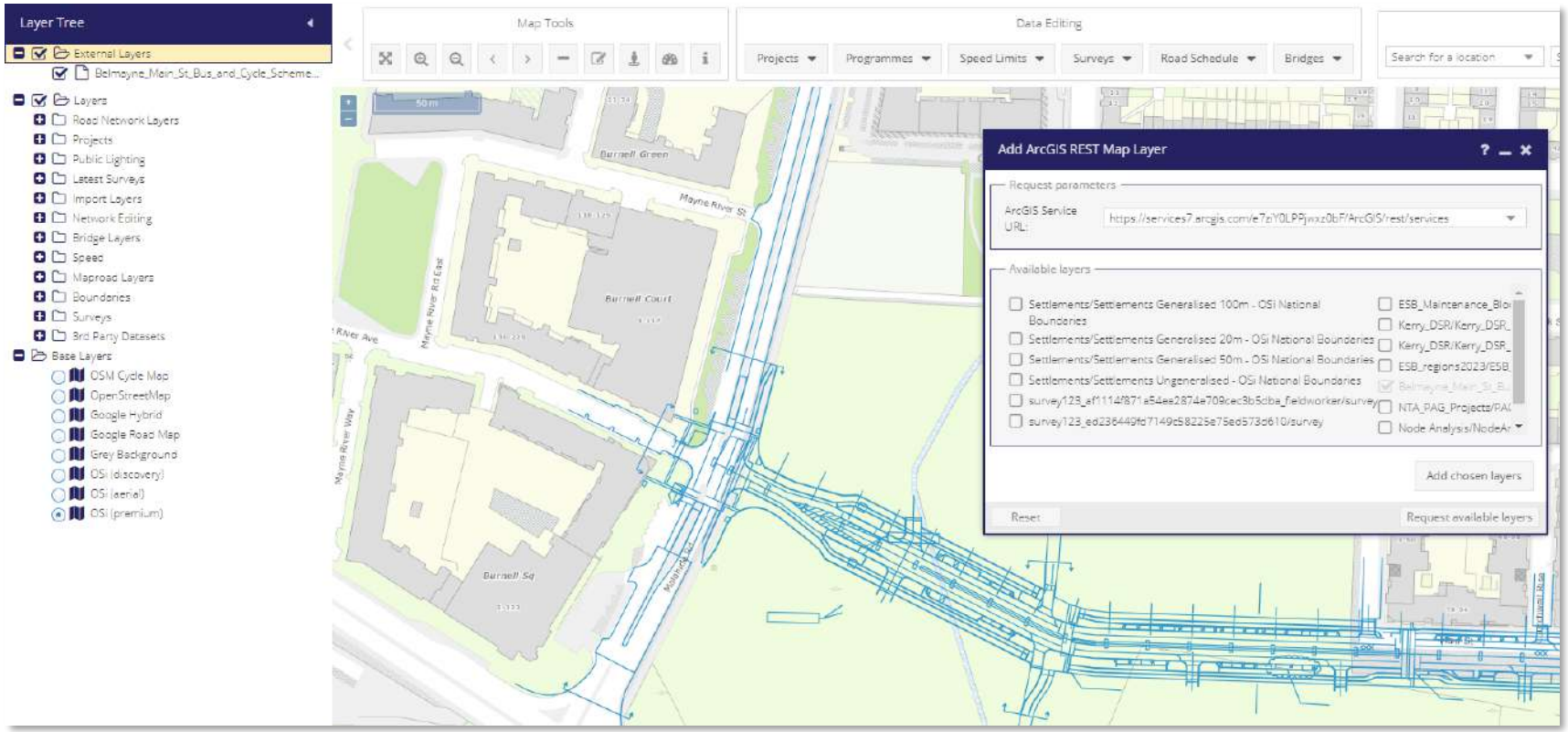


Challenges

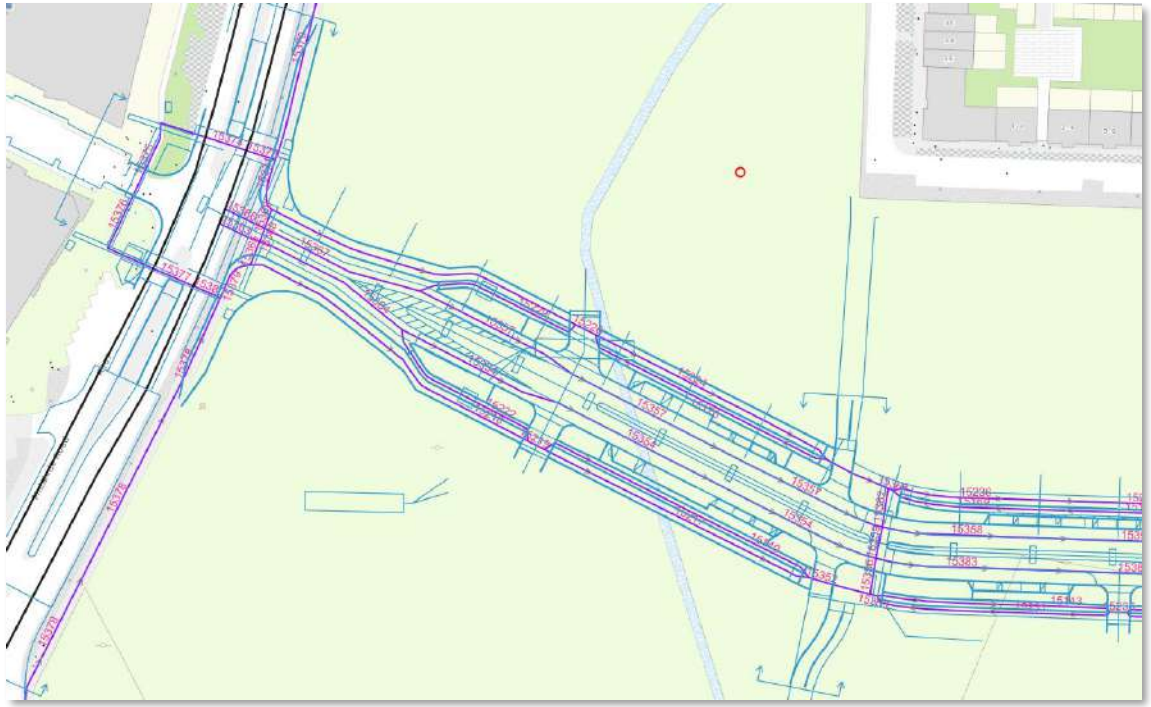
- Complex project layout covering a large area
- Mapping provider lag updating their mapping products (project complete in late 2023)
- Lack of suitable background mapping available
- How do we capture the ATI inventory and project?

MapRoad Functionality

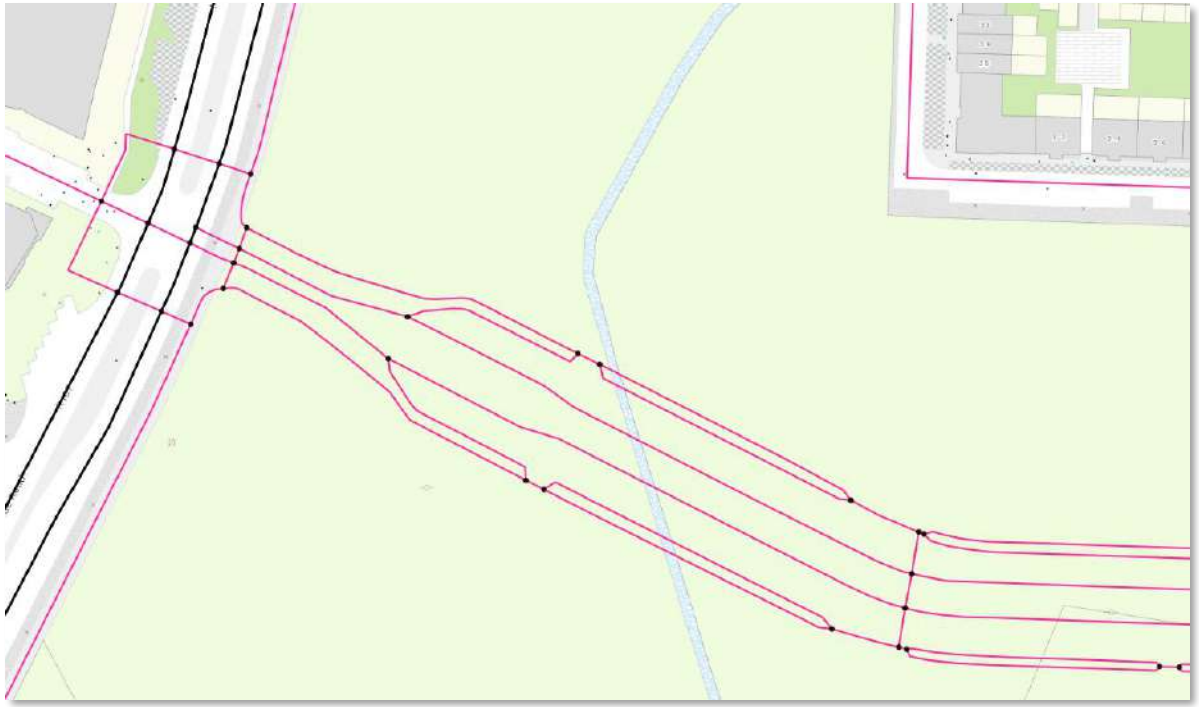
- MapRoad has functionality to import external layers
- Autodesk and GIS formats supported
- In this case the RMO was able to import a .***dwg*** Cad file supplied by the Authority
- This facilitated the accurate capture of the ATI project linework



Processed Linework Requests



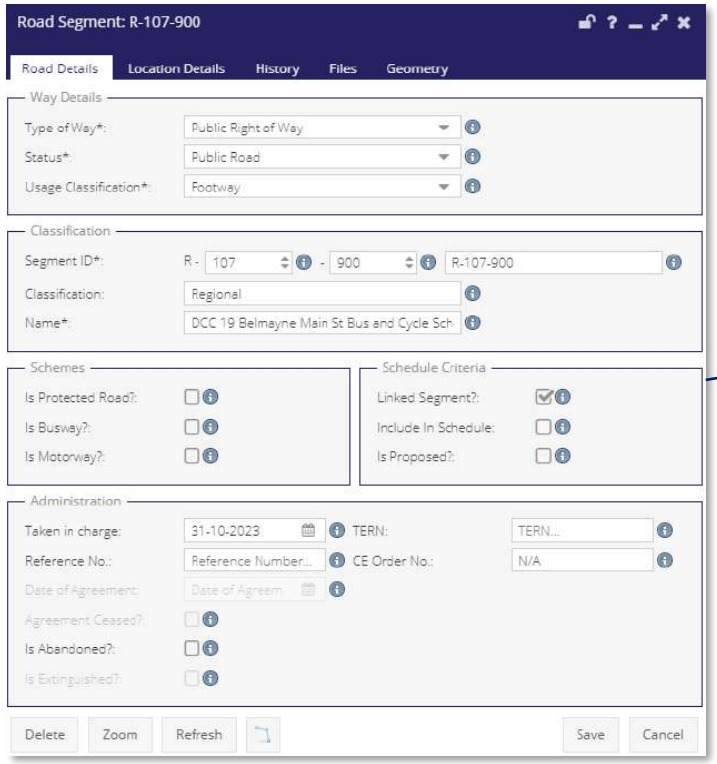
External layer Imported allowing user to accurately draw linework requests



Reviewed and processed linework requests ready for inventory capture

ATI Inventory Capture

- ATI Inventory capture by LA via Road Segment Form



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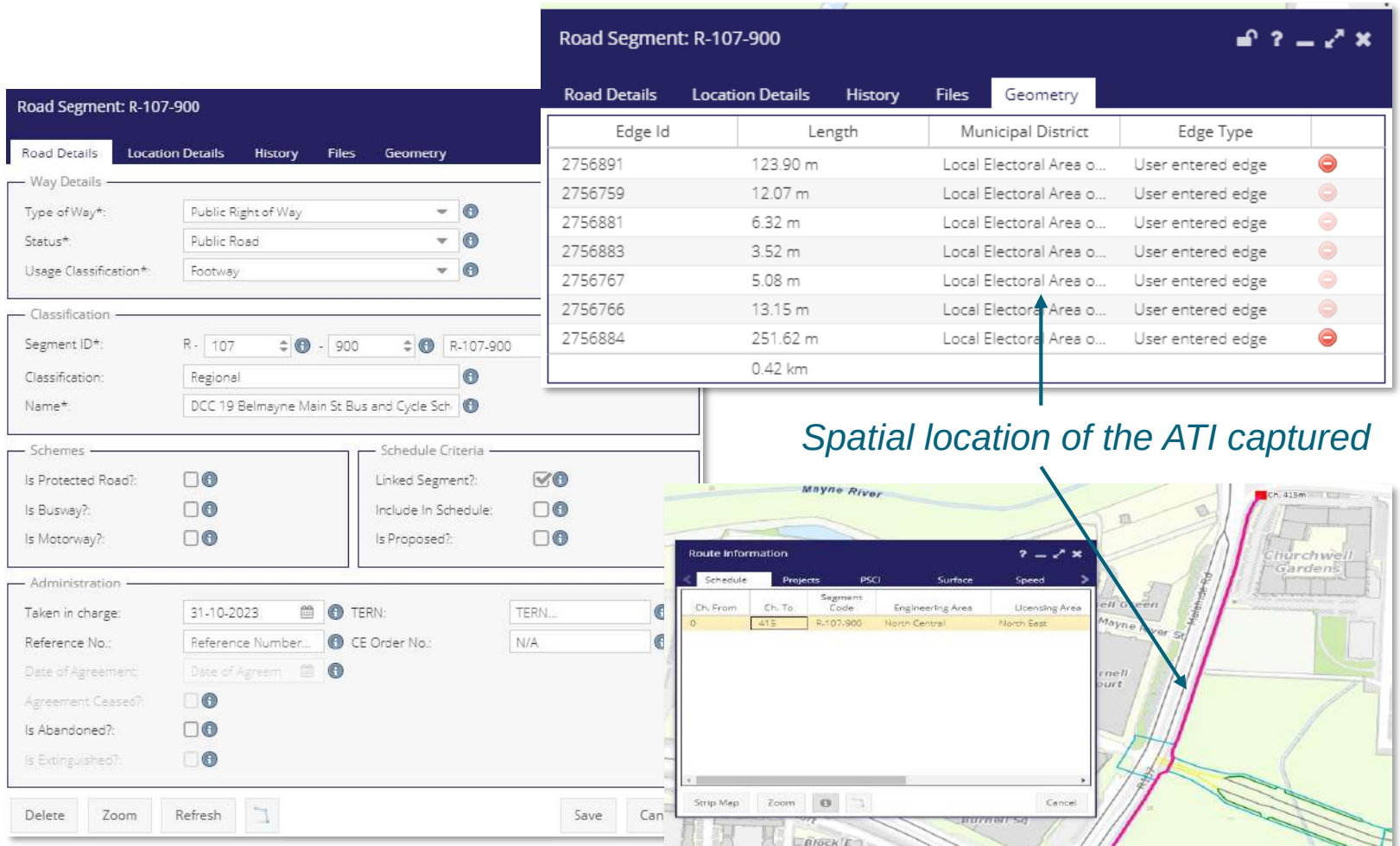
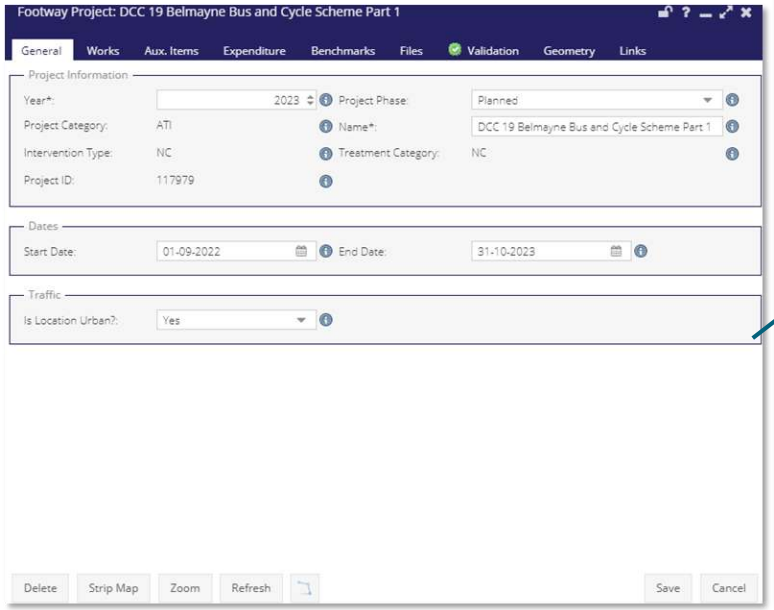
ATI Inventory Capture

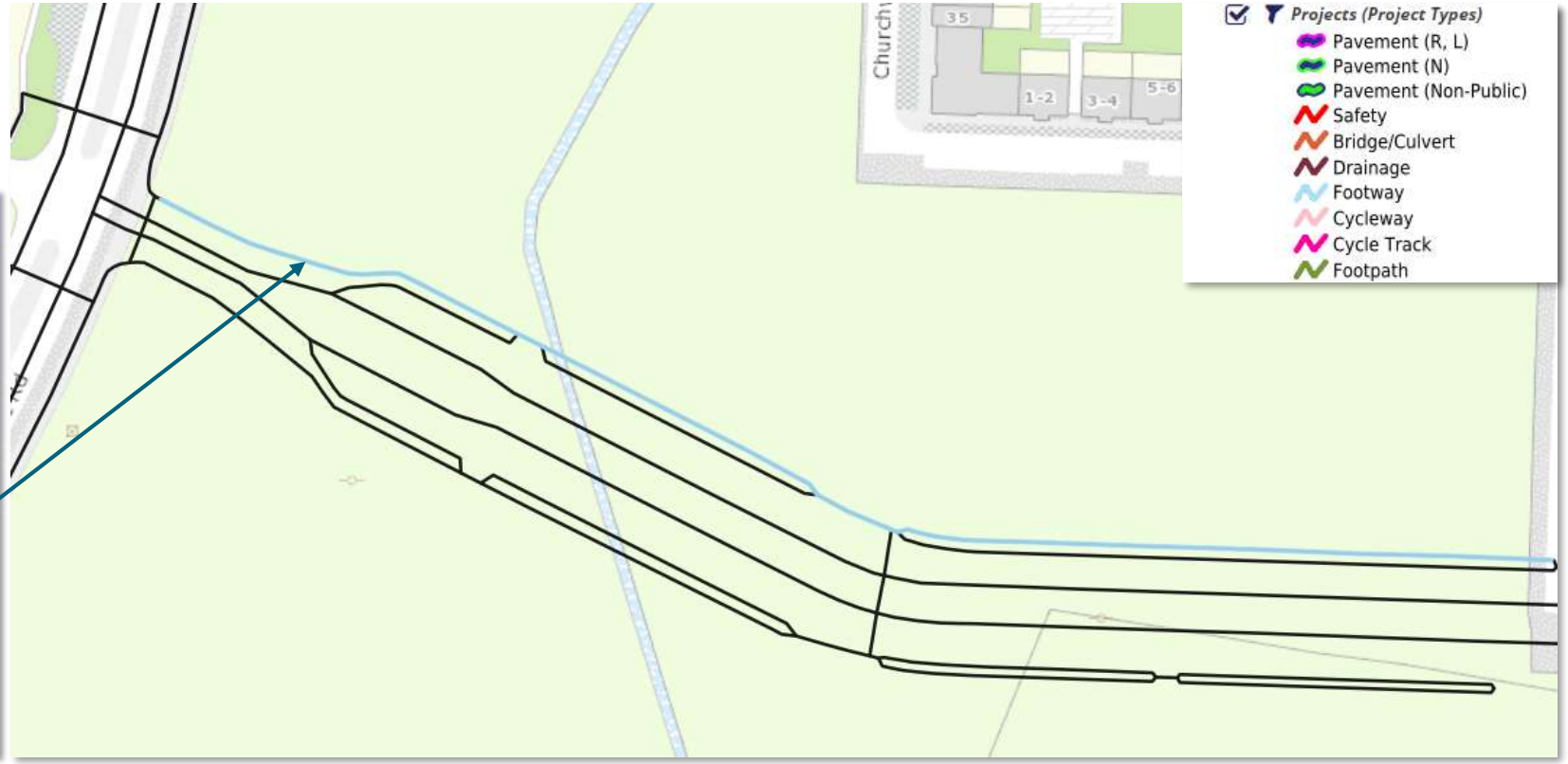
- User completed Road Segment Form tabs:
  - *Way Details*
  - *Classification*
  - *Schemes*
  - *Schedule Criteria*
  - *Administration*
- Certain fields Auto-populate depending on user entered information
- Free text entry options for
  - *Name*
  - *Segment ID*



ATI Project Capture

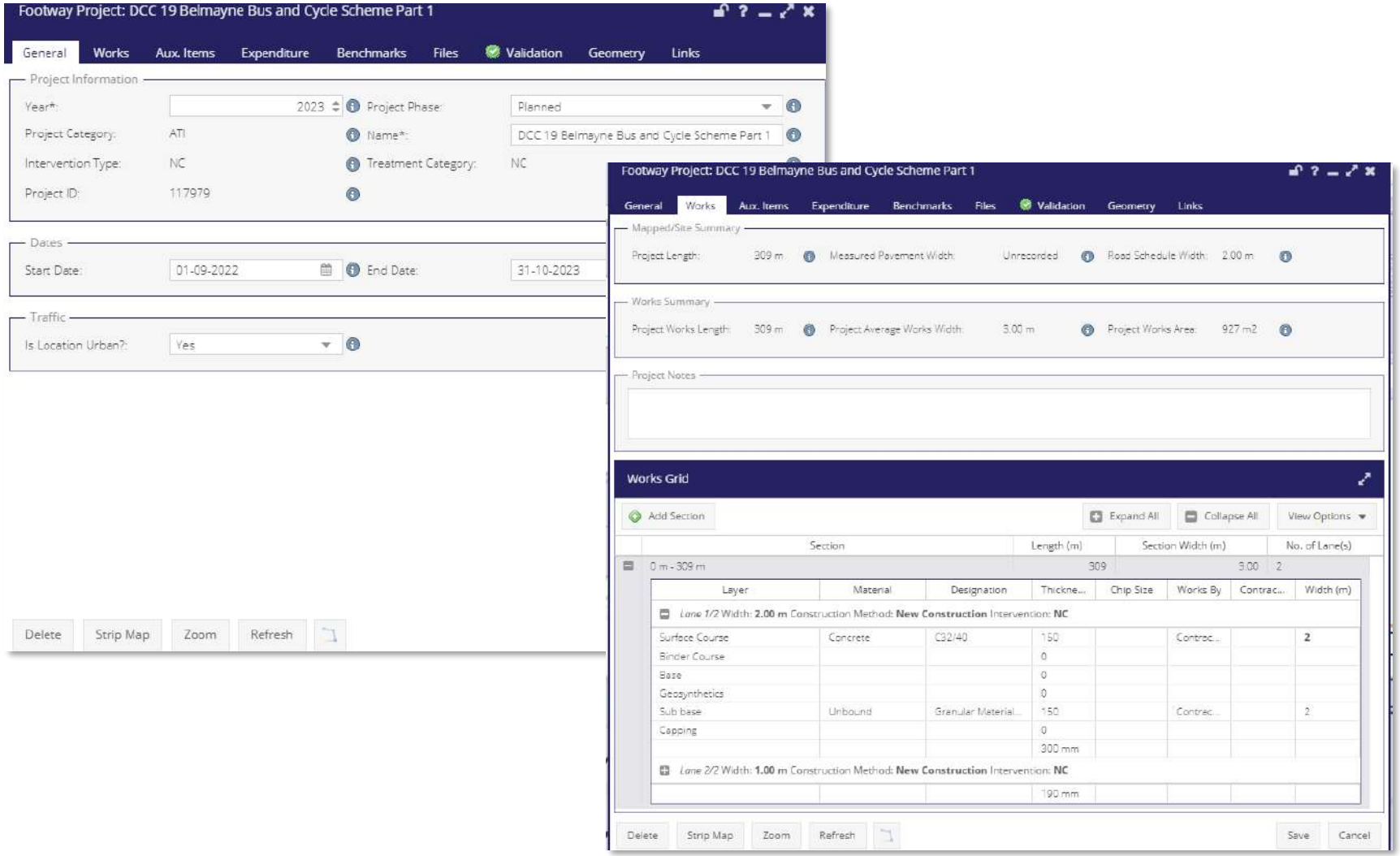
ATI project capture by LA via Footway Project Form





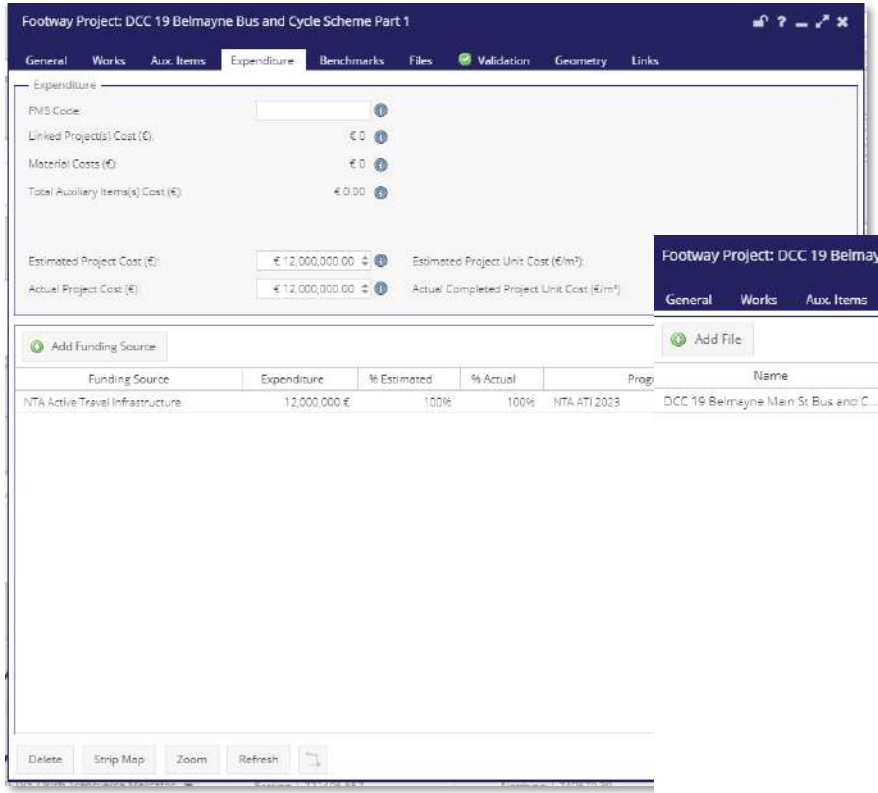
ATI Project Capture

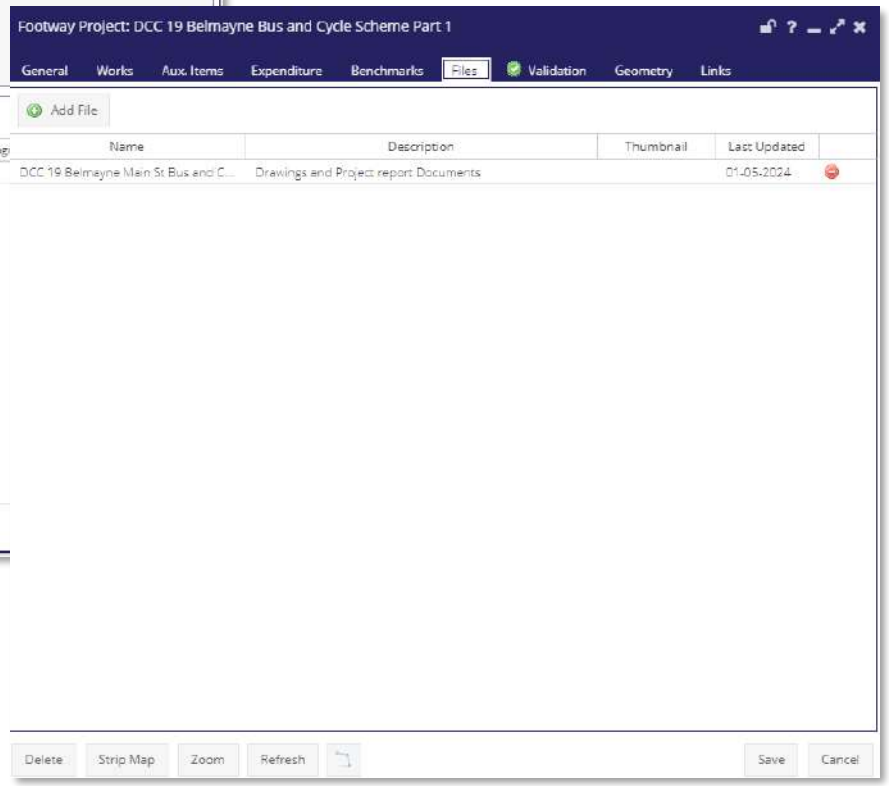
- General Tab
  - General Project Information: *year, name, dates etc.*
- Works Tab
  - Project Works Information: *length, area, lanes, materials etc.*



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.*





Note: Arbitrary figures used for demonstration of Expenditure Tab

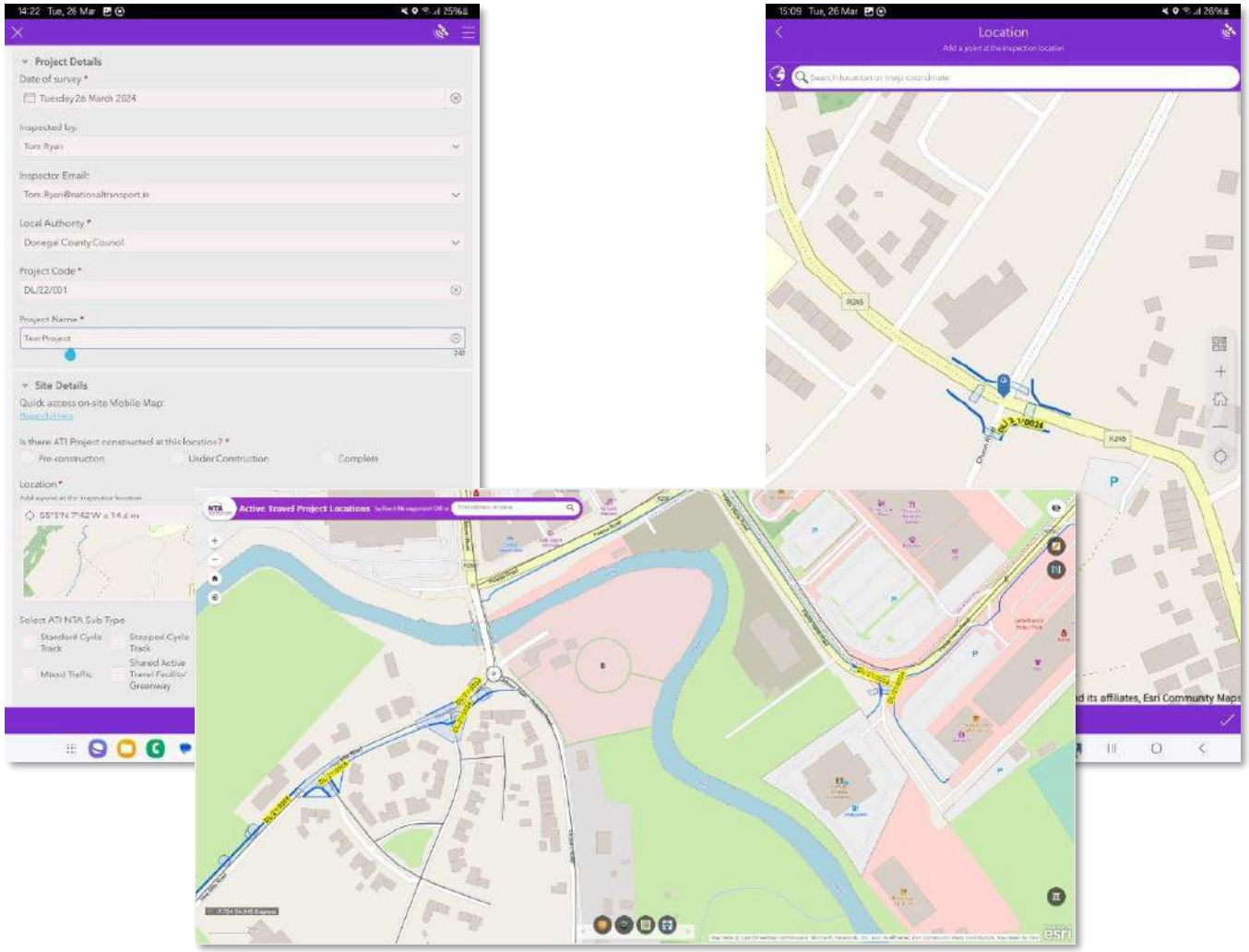
Case Study Summary

- 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.
- 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 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



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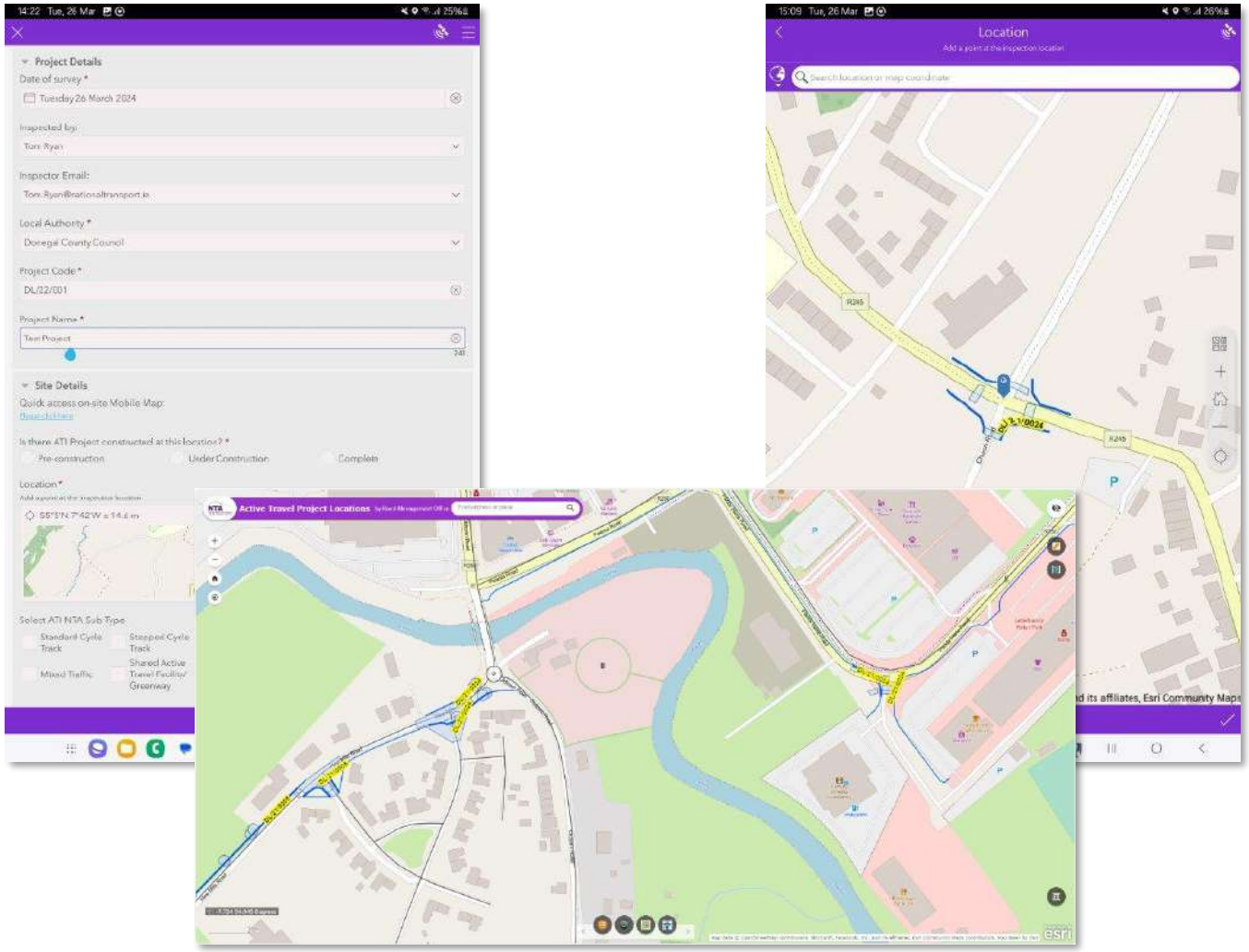
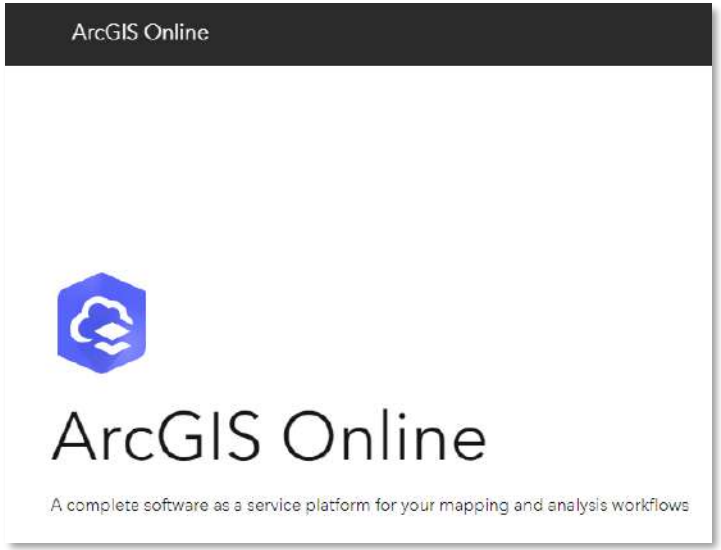
ATI Site Inspection App

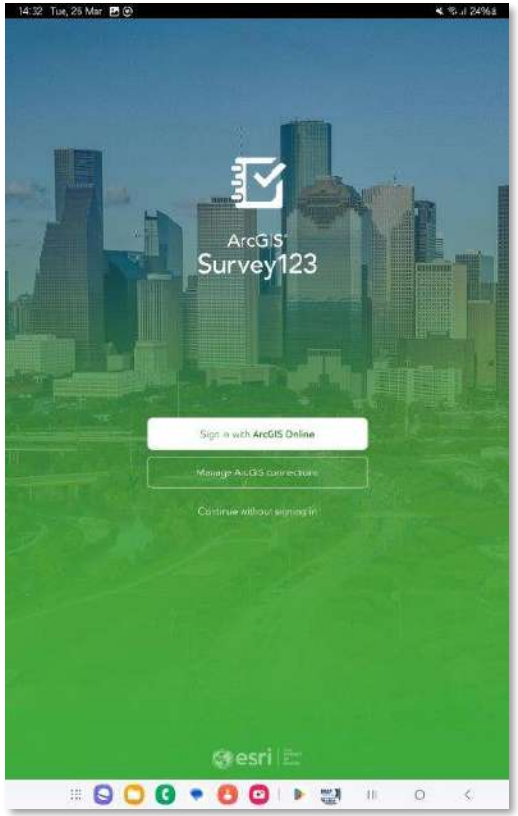
- Full MapRoad AMS integration
- Inspectors have MapRoad ATI information in the field
- On-Site inspection data capture
- Upload to Desktop Browser dashboard
- Data used for analysis and reporting on ATI project delivery



Development of the App Specification

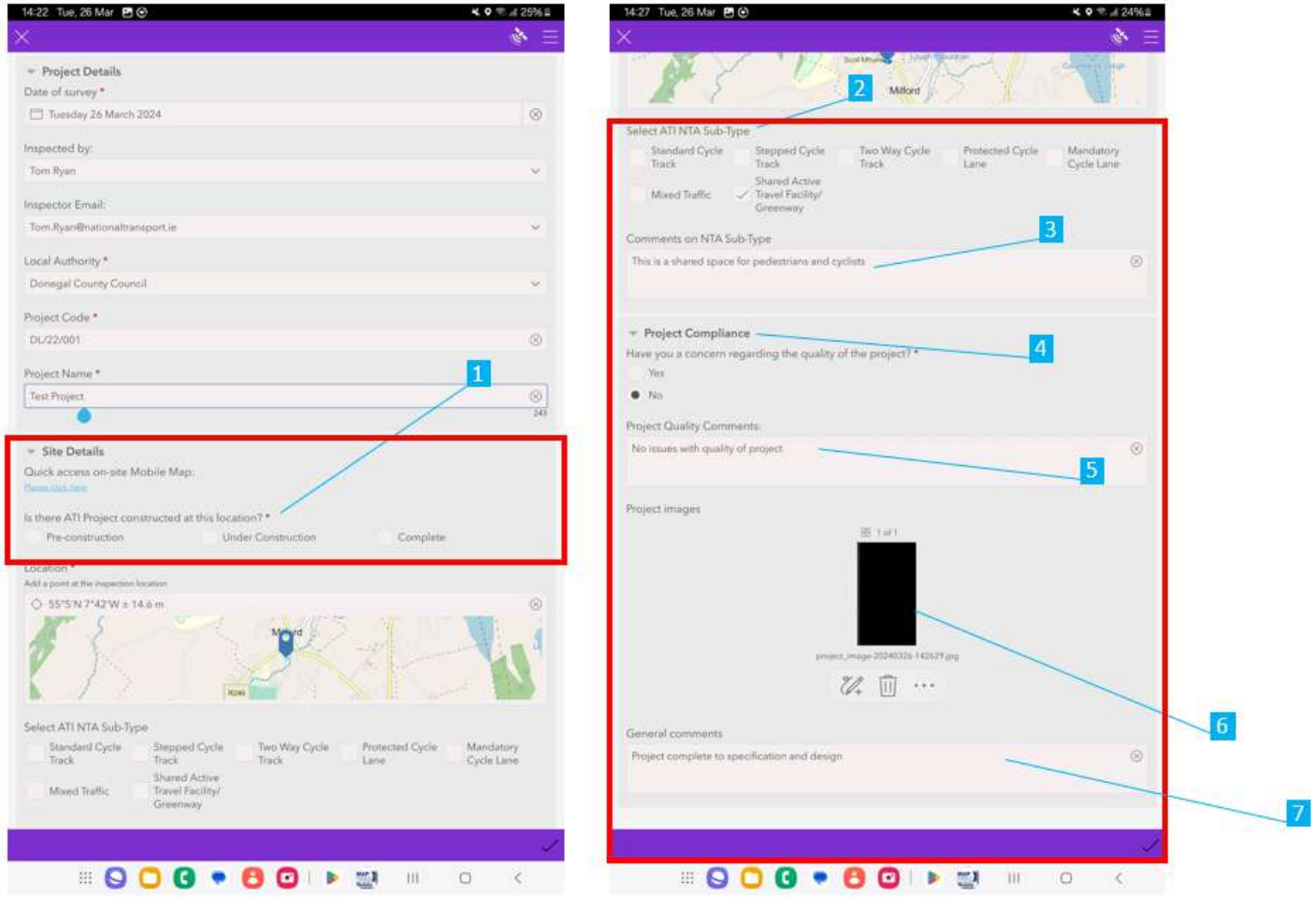
- RMO collaboration with NTA to scope App requirements
- App Specification prepared by RMO
- Functionality and App content Agreed with the NTA
- Following this, software options scoped by RMO
- Suitable software platform selected:
  - *ArcGIS Online (AGOL) Web Mapping Application*
  - *ArcGIS Survey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





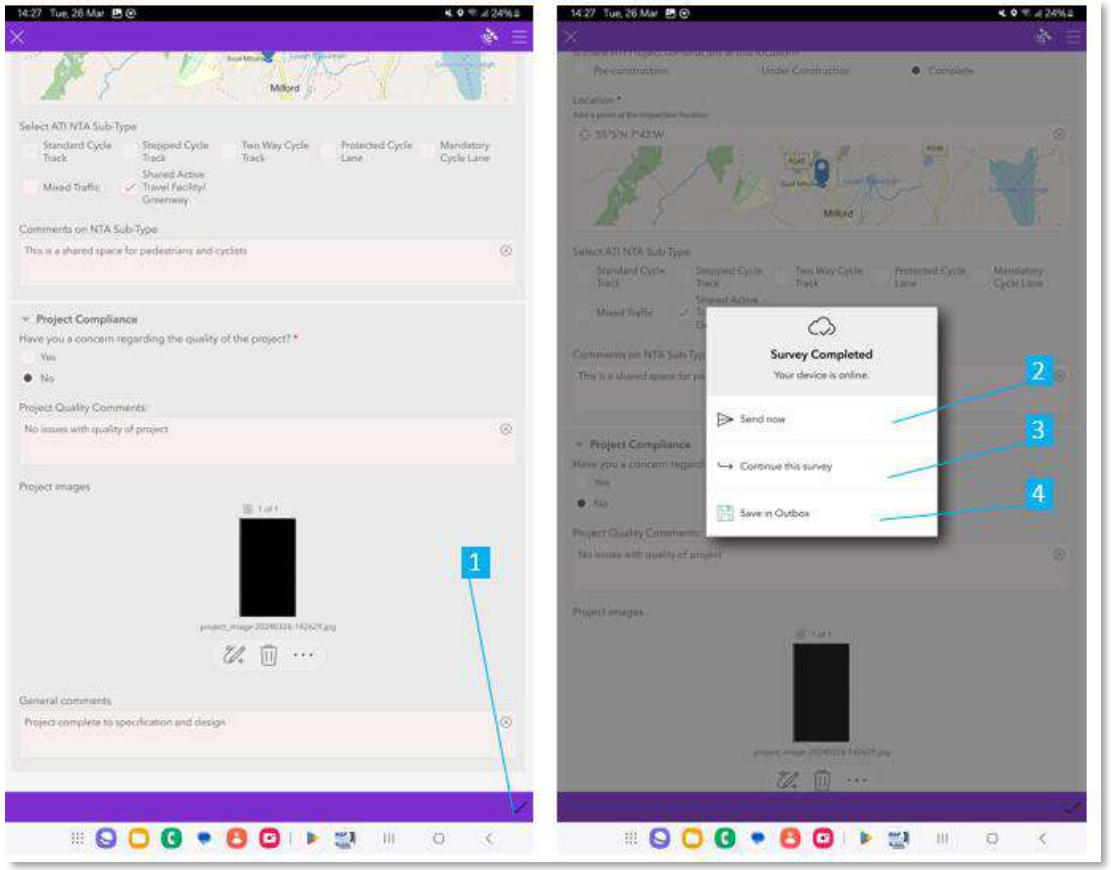
Site Inspection Functionality

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



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

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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

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

NTA
Údarás Náisiúnta Iompair
National Transport Authority

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

2 Site Details:

Project Location:

Project Status?	Complete

Project Inventory:

NTA Sub Type	Stepped Cycle Track
Comments	Dcc test

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

Images:

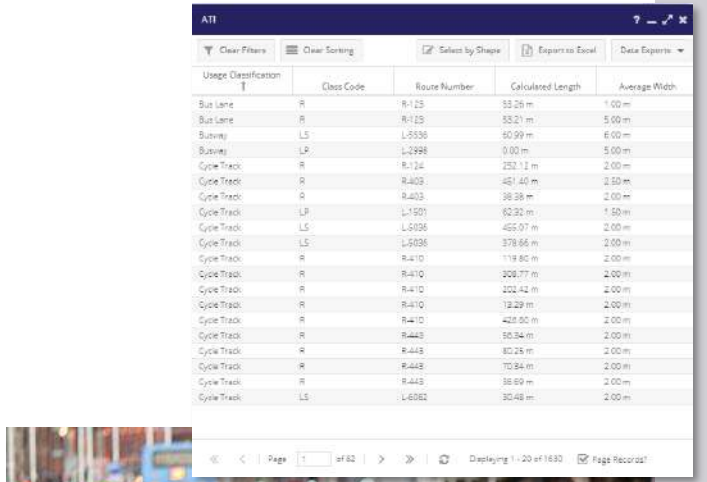
RMO

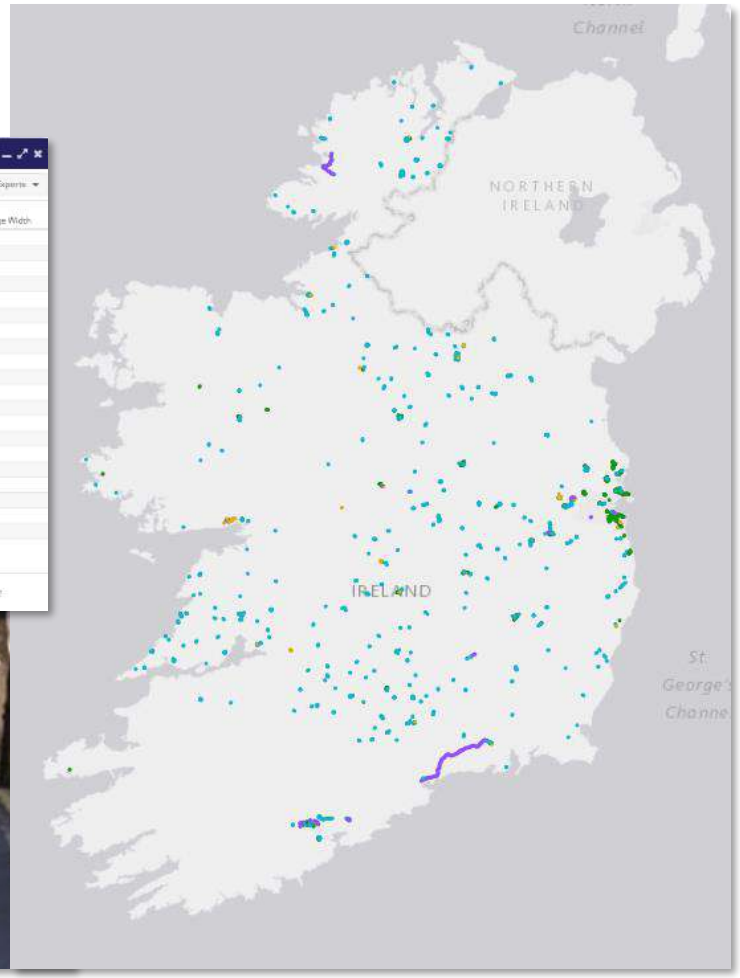
Sample Report

- 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

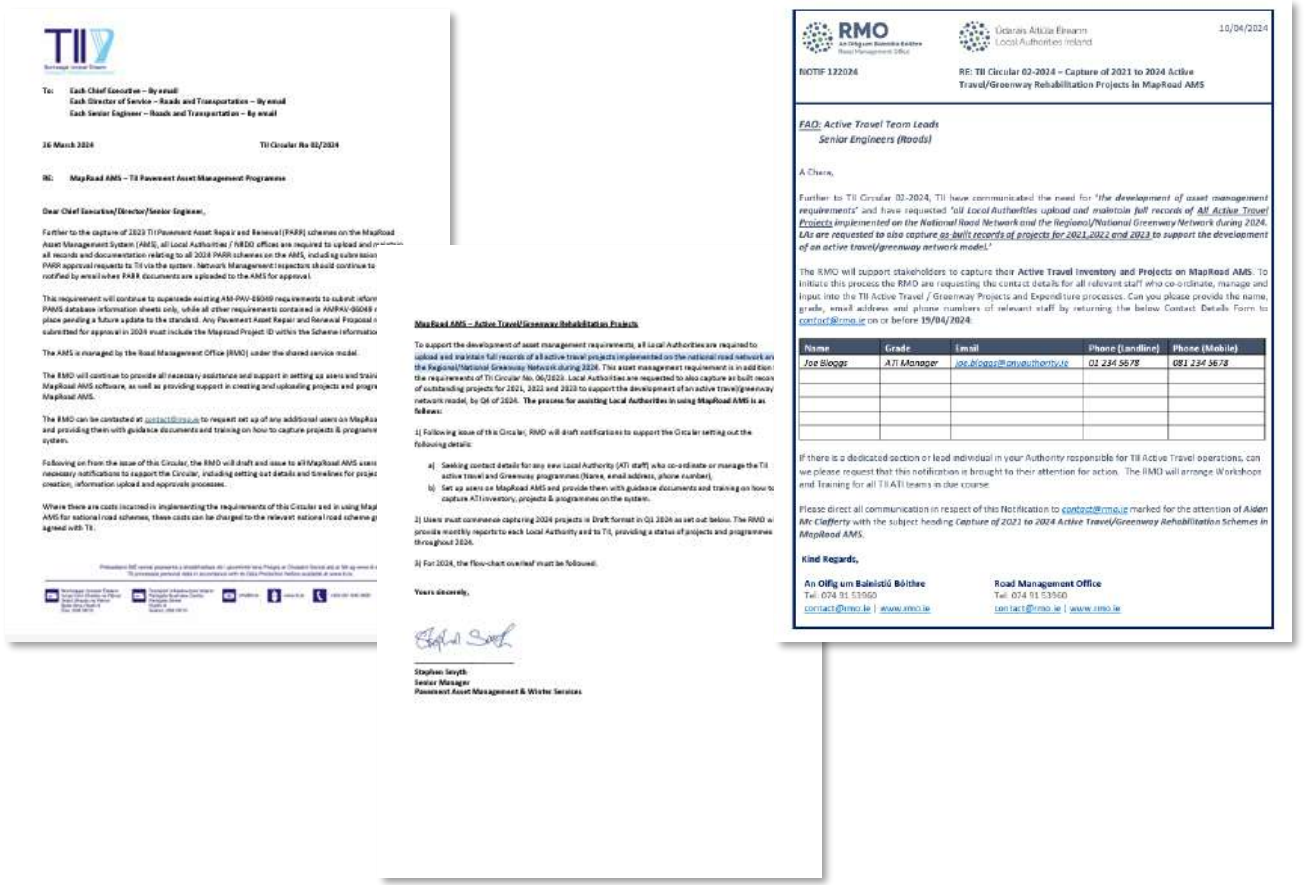
- The Capture of NTA funded ATI in MapRoad is well underway
- Close out of 2021 to 2023 backlog is ongoing
- Capture of 2024 works underway
- The RMO will continue to assist the sector deliver this objective
- We are introducing improved software solutions and system functionality
- We will continue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





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 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*

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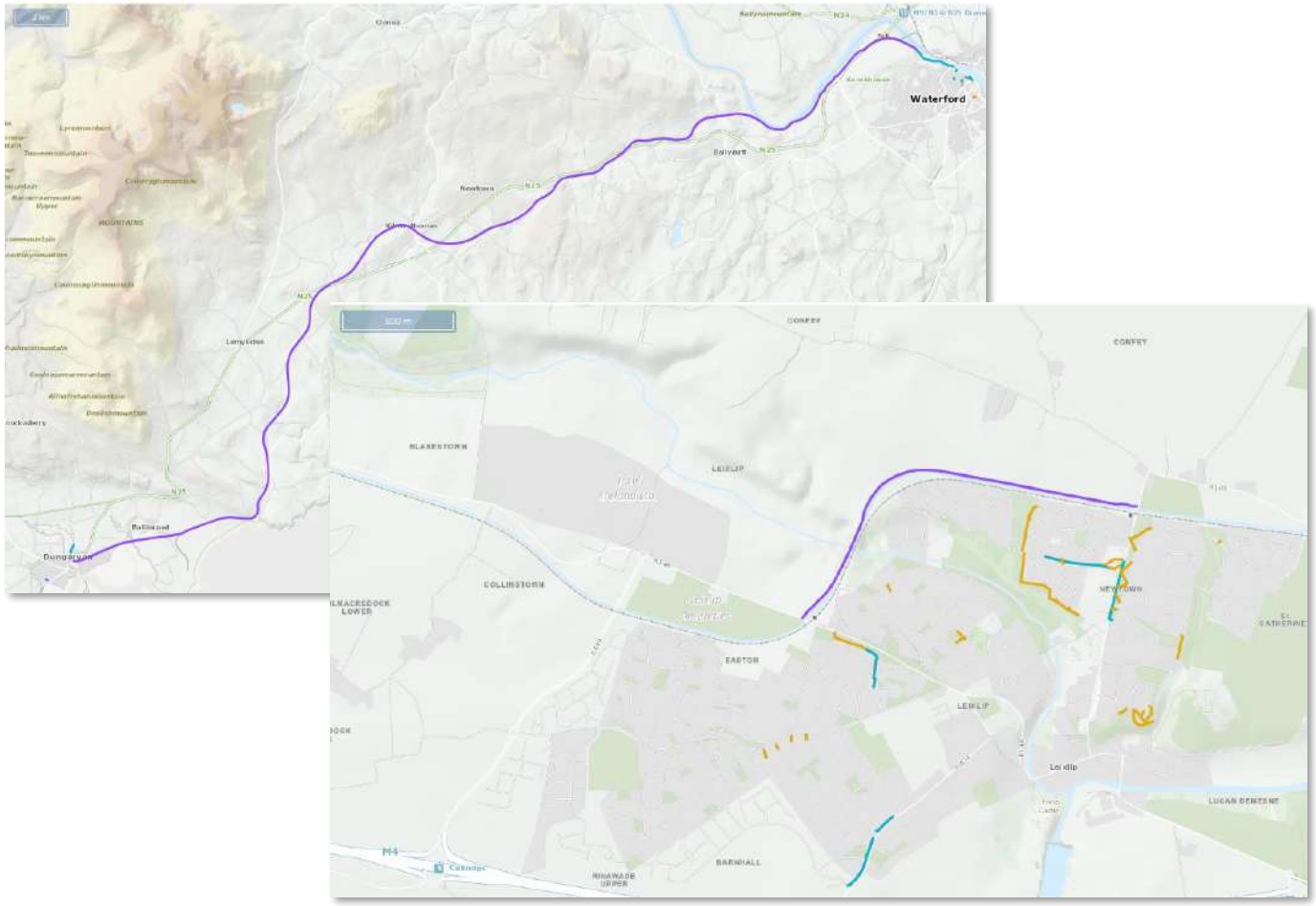
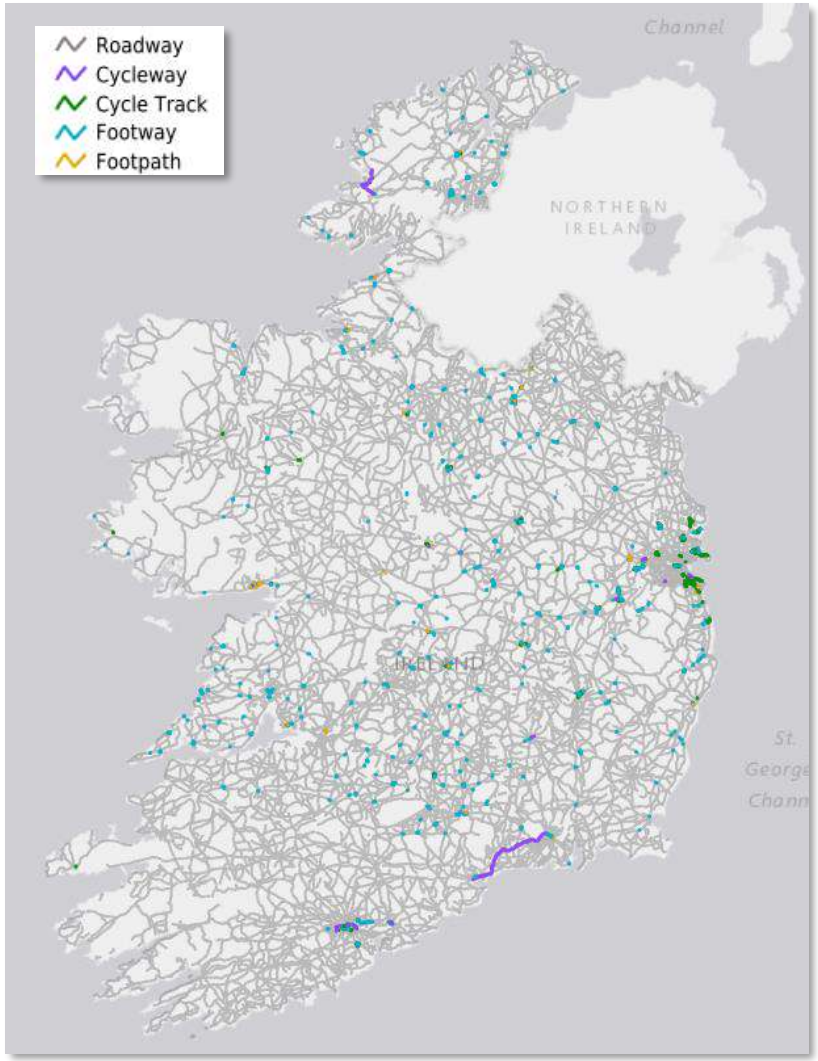
Building on Progress to Date

- 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*



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.

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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

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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

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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**

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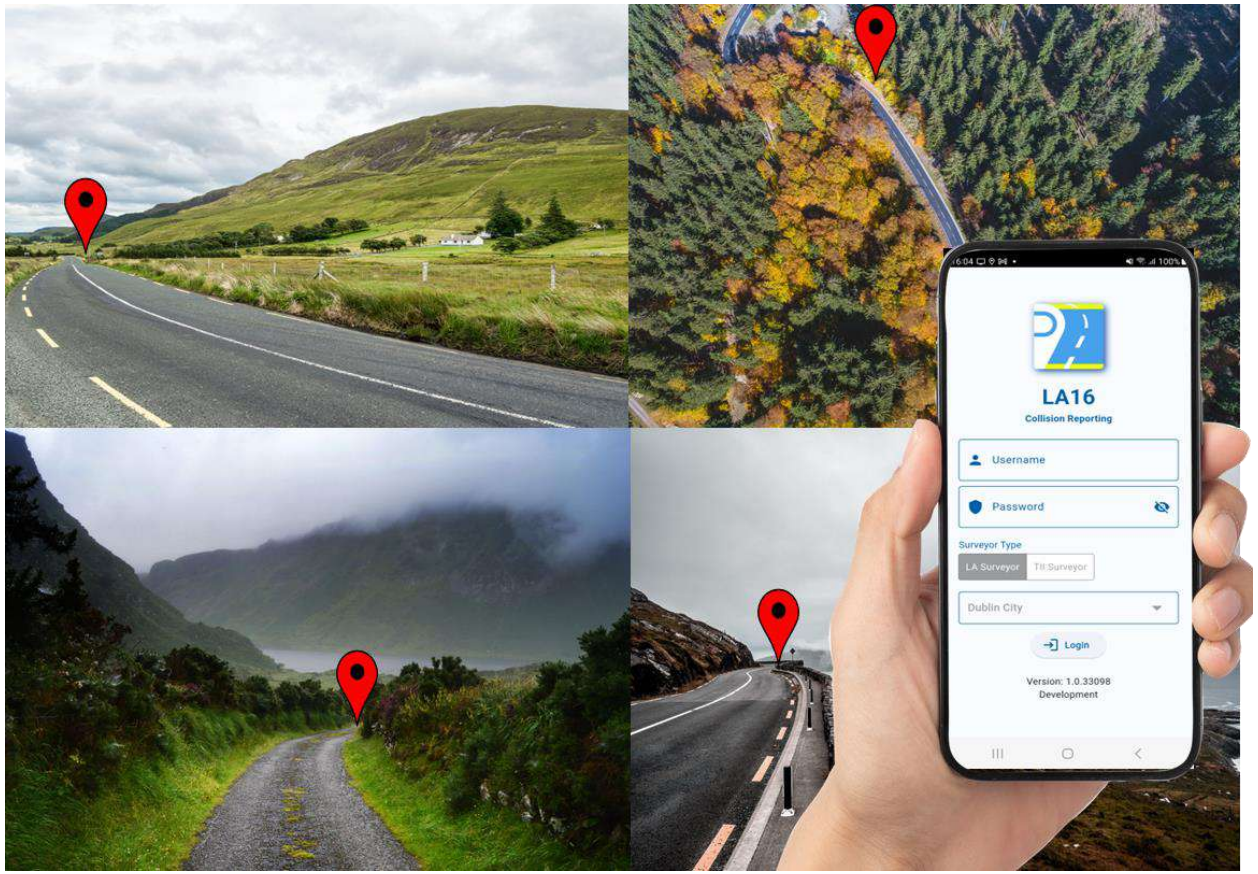
Content

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



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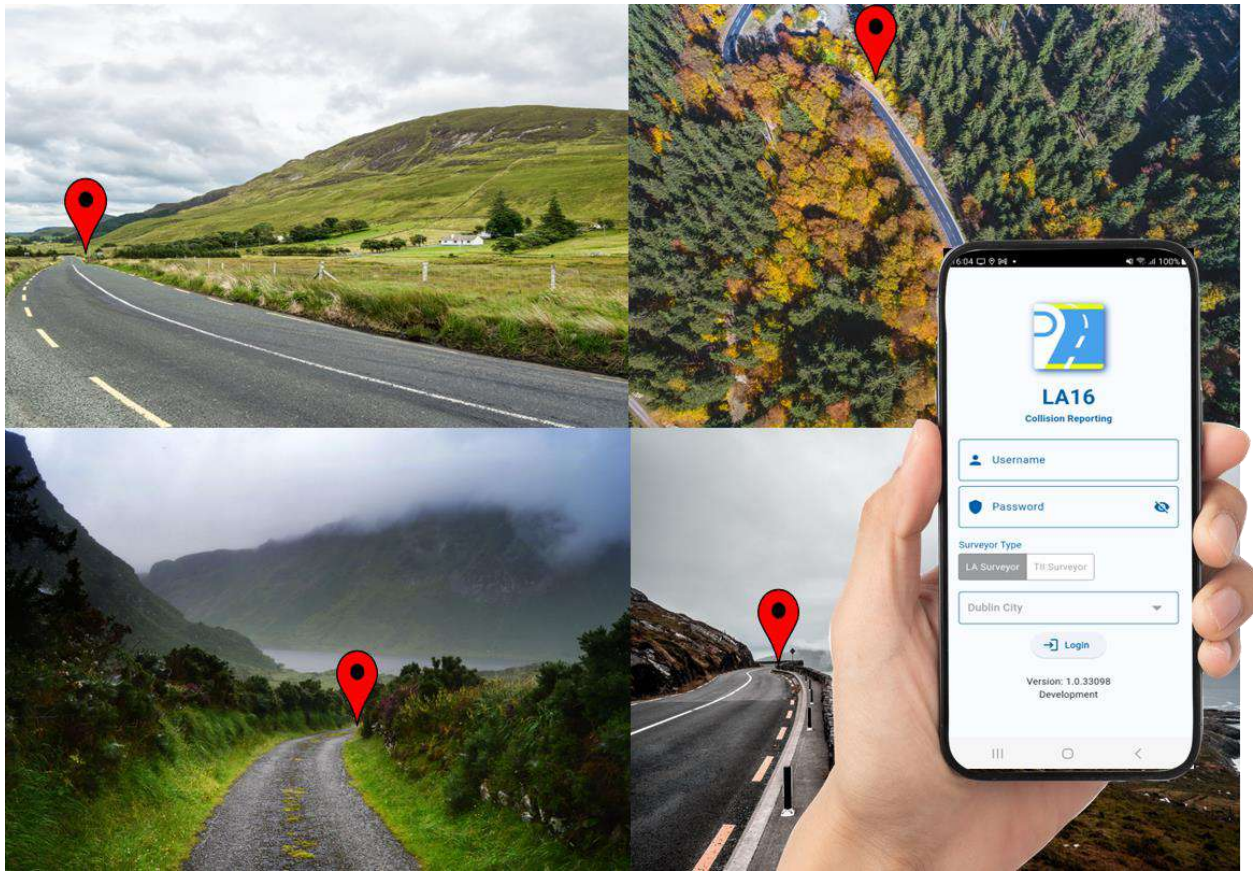

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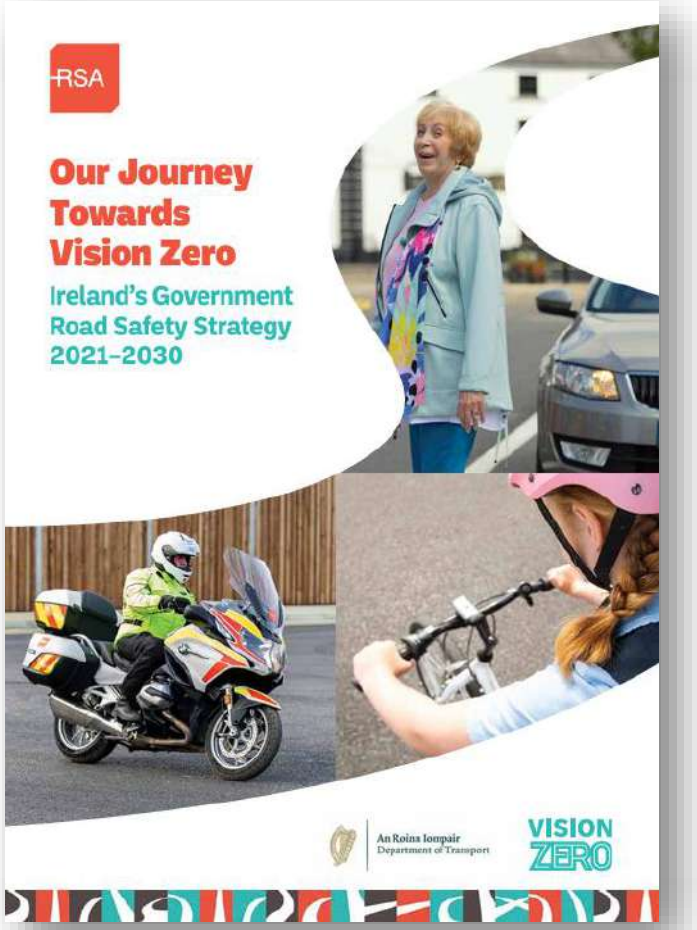
LA16 Collision Reporting and Evaluation Procedure

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'



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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

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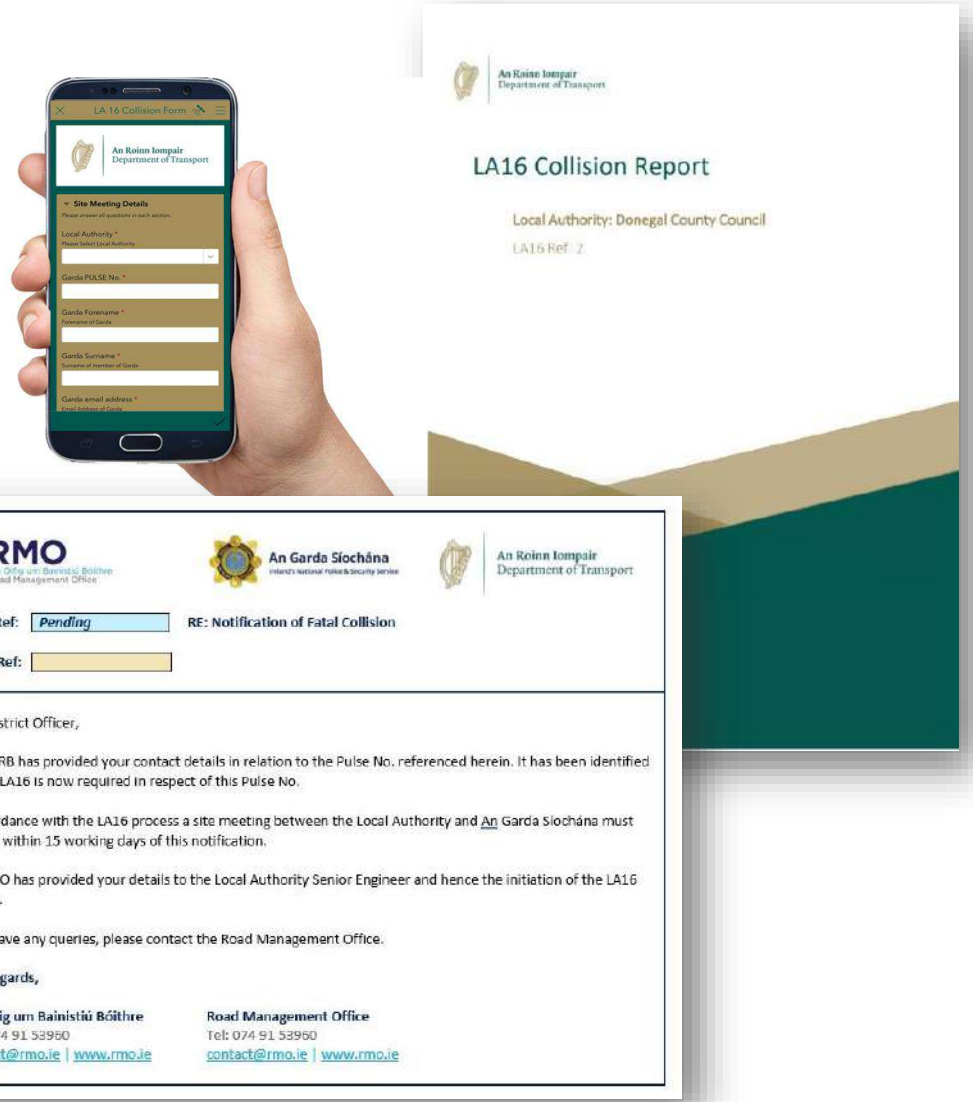
Phase 1

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.



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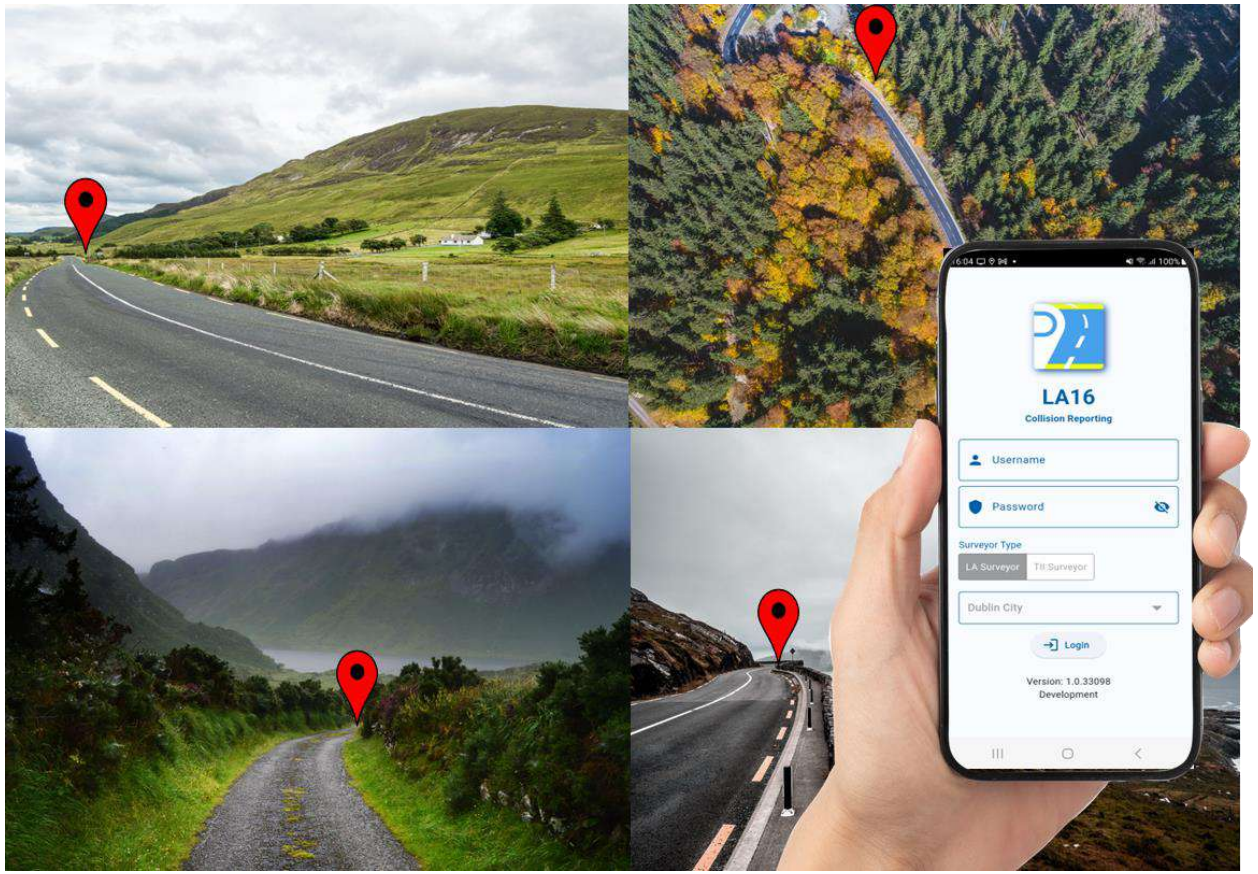

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LA16 Administration Process

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*)

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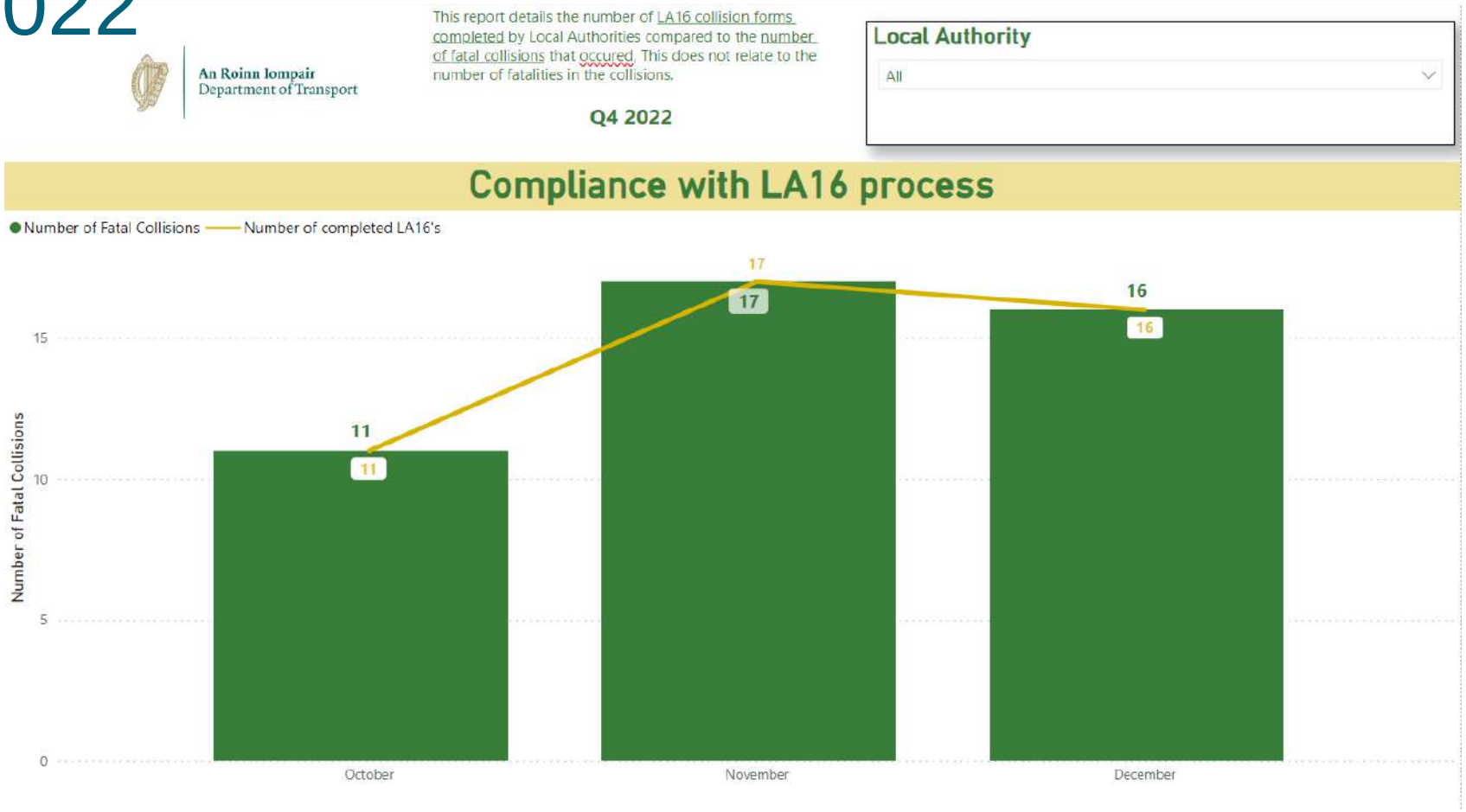
LA16 Administration Process

2022



Outputs 2022

44 out of 44 outstanding LA16 Collision Reporting submitted

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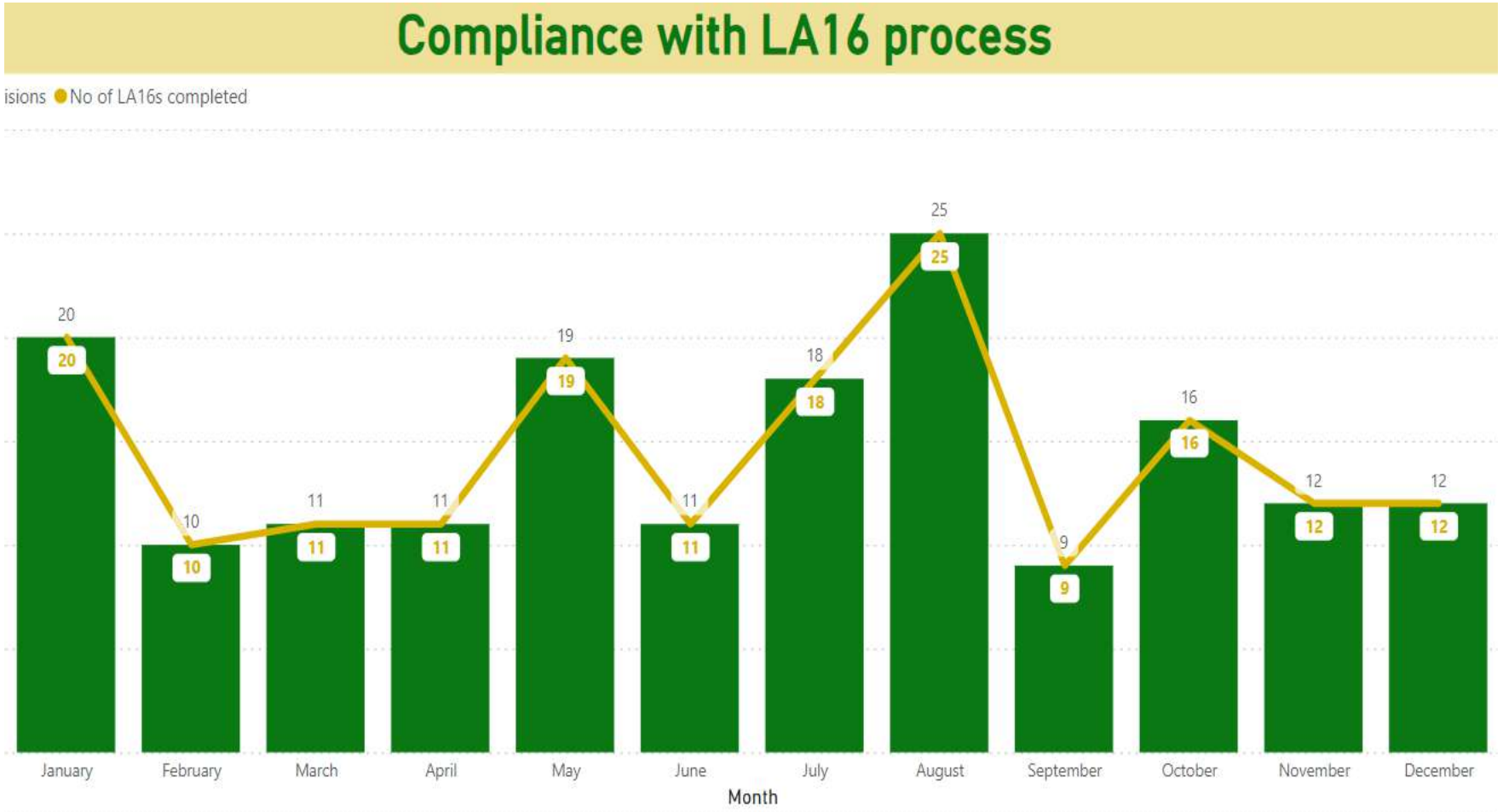
LA16 Administration Process

2023



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

174 out of 174

100% of LA16 Collision Reporting Submitted

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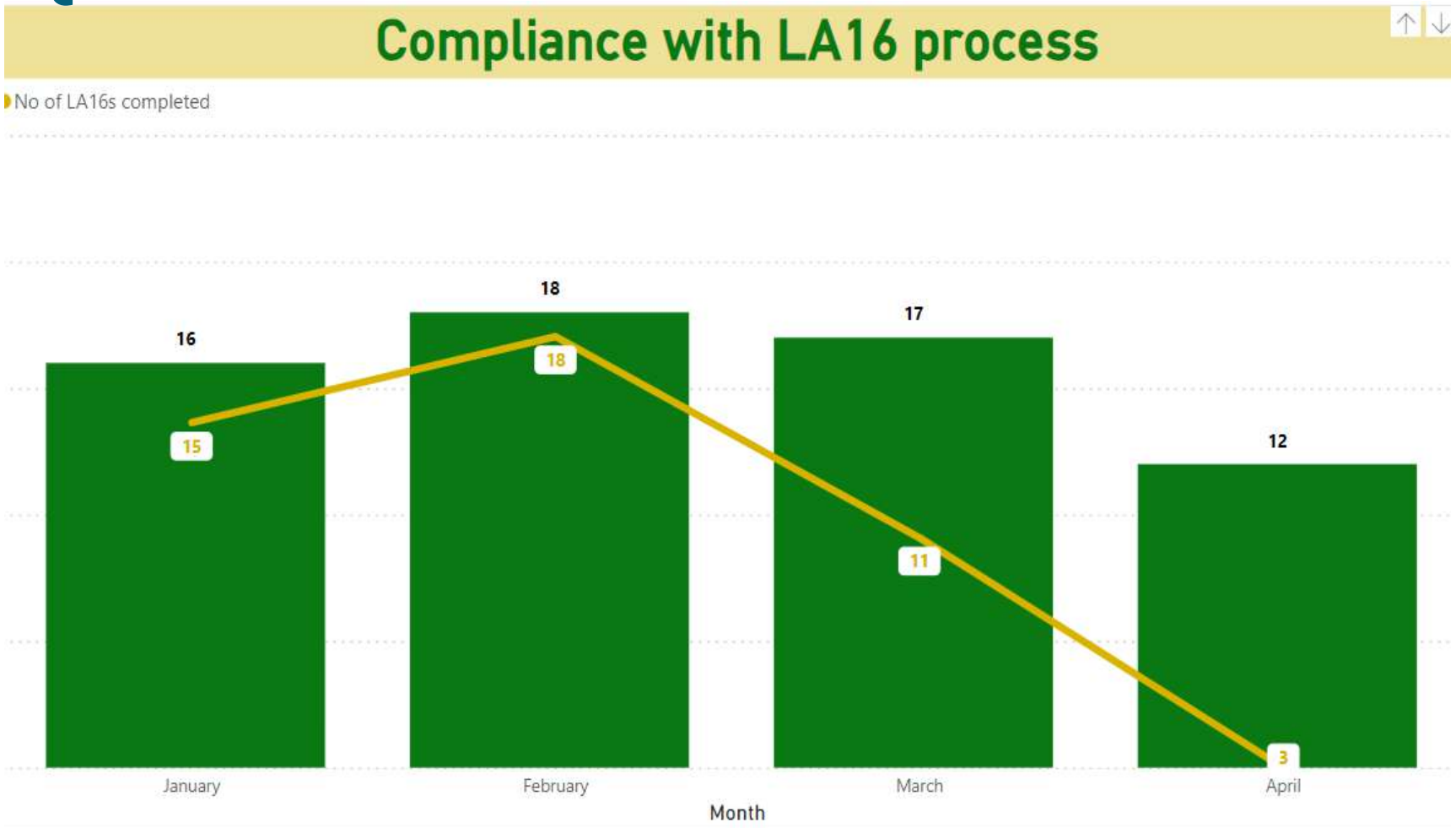
LA16 Administration Process

Q1 2024



Outputs Q1 2024

63 LA16 Total

53 – Submitted
10 – In Progress

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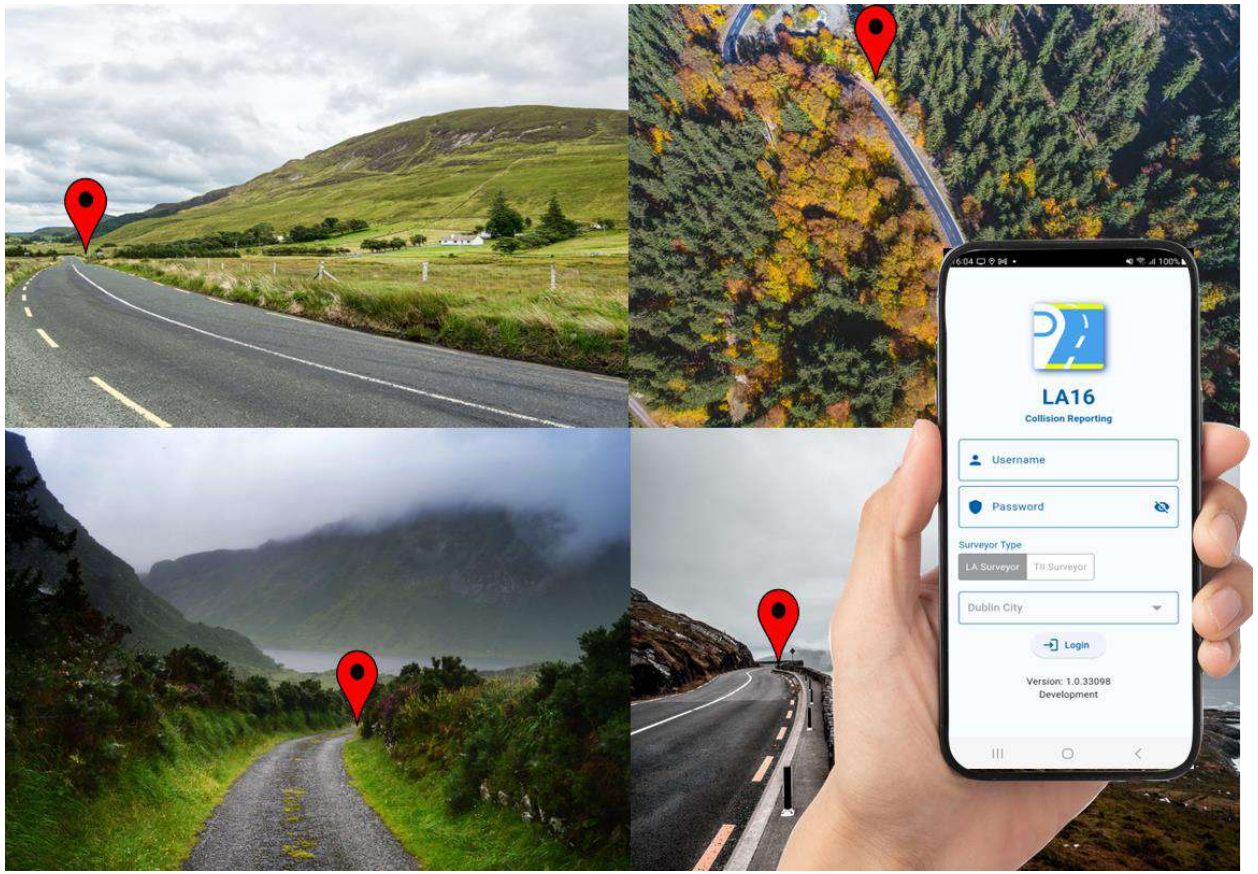
- **New MapRoad LA16 Field App and Module**
- Overview of Bridge Management



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Phase 2 & Phase 3

- Phase 2

Review Existing LA16 Guidance & Software

- Phase 3 –

Develop LA16 Module for MapRoad Asset Management System (MAMS)

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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.

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Technical Working Group (TWG) was assembled in Q2 2022

TWG was made up of the following representatives

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

RMO
An Oifig um Bainistiú Bóithre
Road Management Office

Comhairle Contae Chill Dara
Kildare County Council

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Department of Transport

Dublin City Council
Comhairle Cathrach Bhaile Átha Cliath

LGMA
An Ghníomhaireacht Bainistíochta Rialtais Áitiúil
Local Government Management Agency

Comhairle Contae Chiarraí
Kerry County Council

An Garda Síochána
Ireland's National Police & Security Service

RSA

Limerick
CITY & COUNTY
COUNCIL

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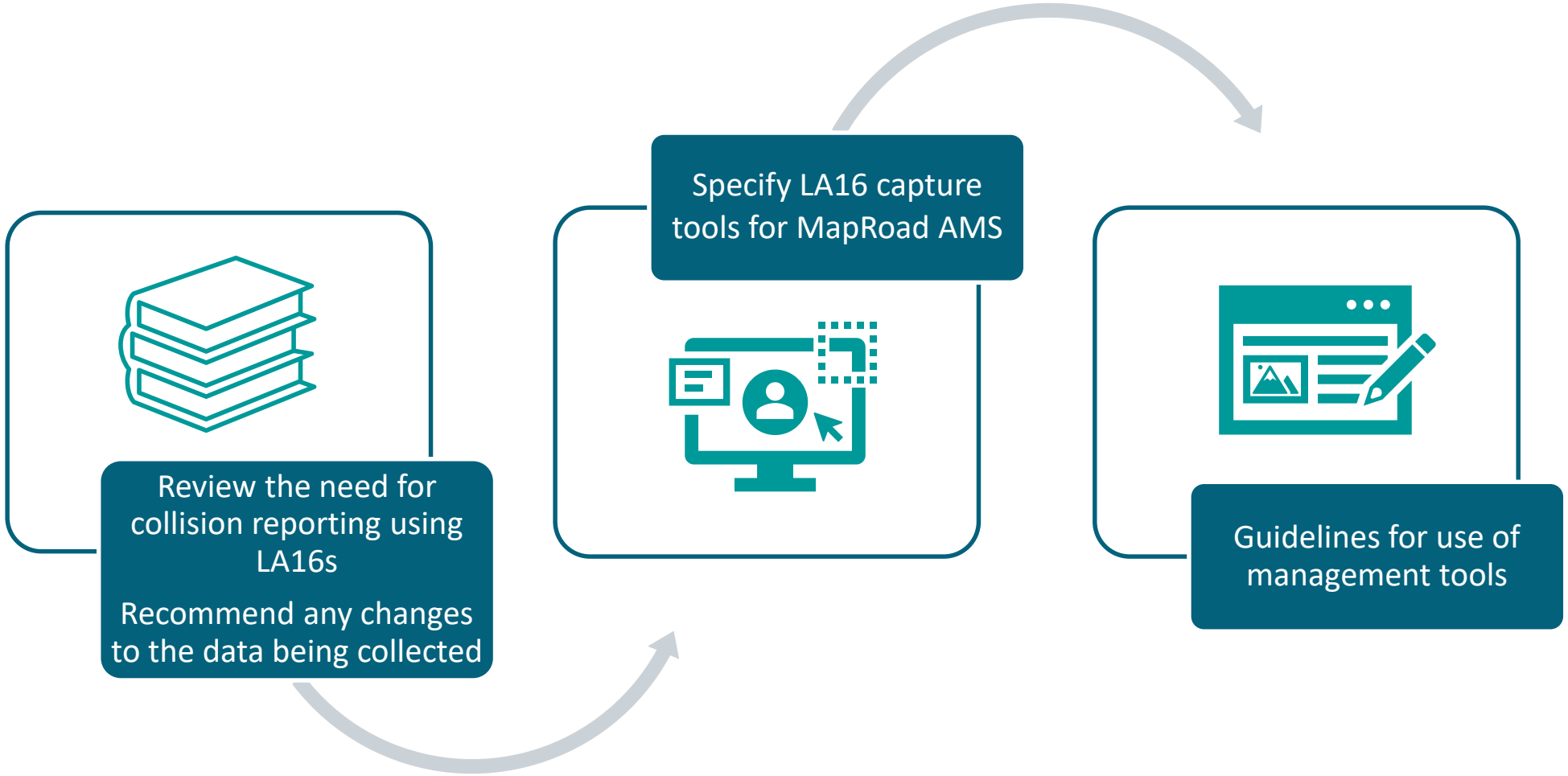
TWG Objectives/Tasks and how they were achieved



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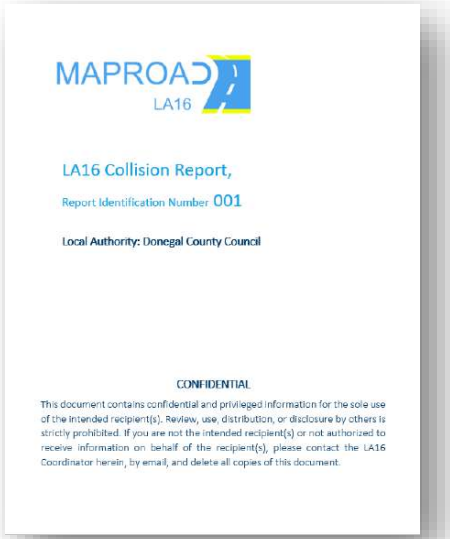
TWG Objectives/Tasks and how they were achieved

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.


MAPROAD
LA16

LA16 Collision Report,

Report Identification Number 001

Local Authority: Donegal County Council

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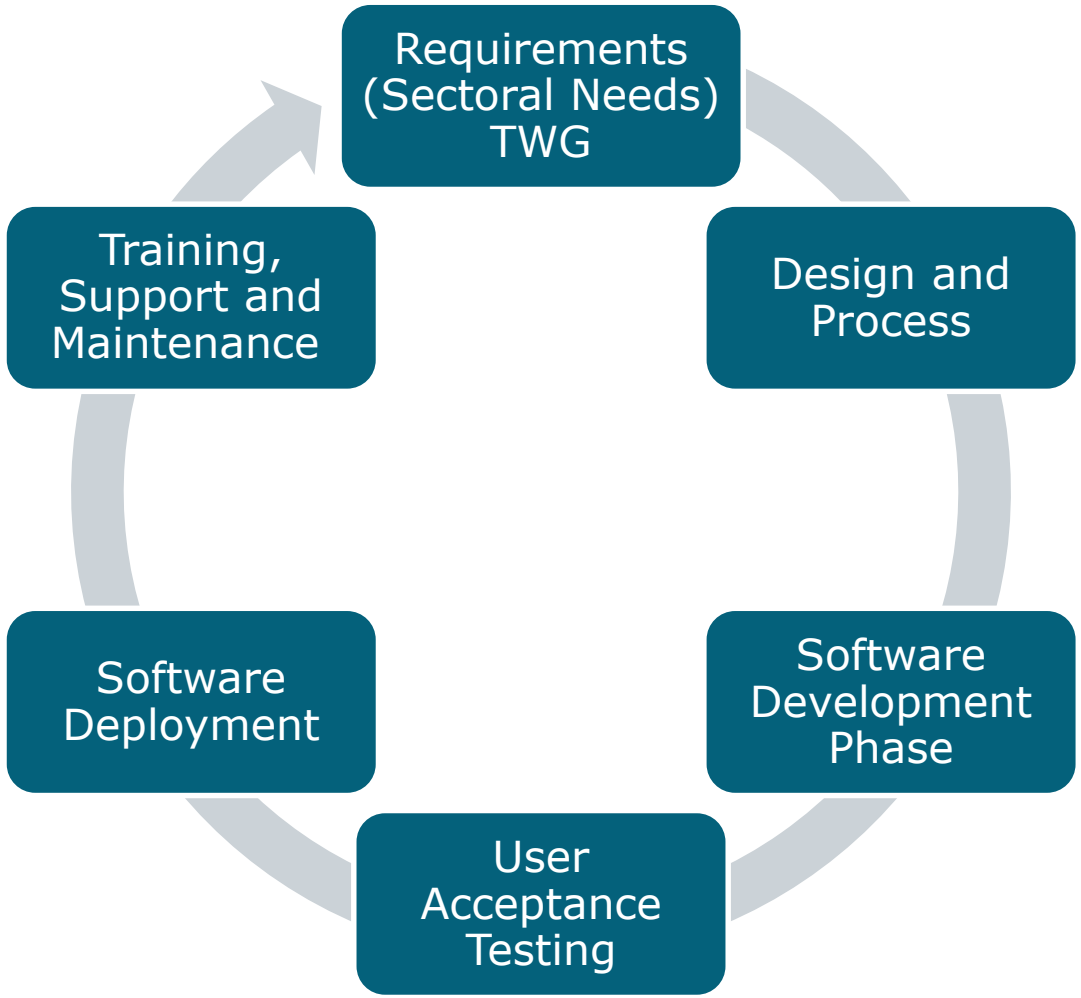
Phase 1 & 2



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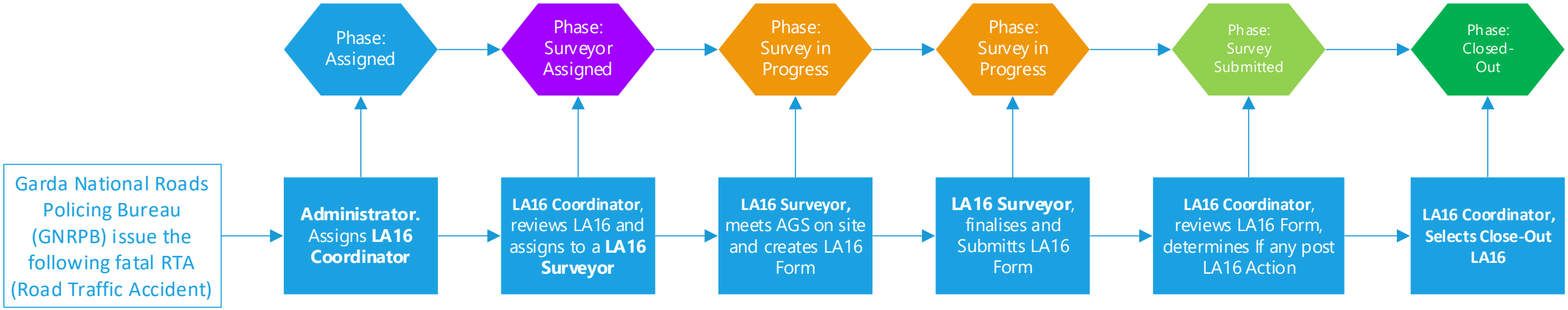
MapRoad LA16 Process

- 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



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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

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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

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MapRoad LA16 Process

Phase: Survey in Progress

LA16 Surveyor meets AGS on site. LA16 Surveyor complies 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

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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

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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

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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.

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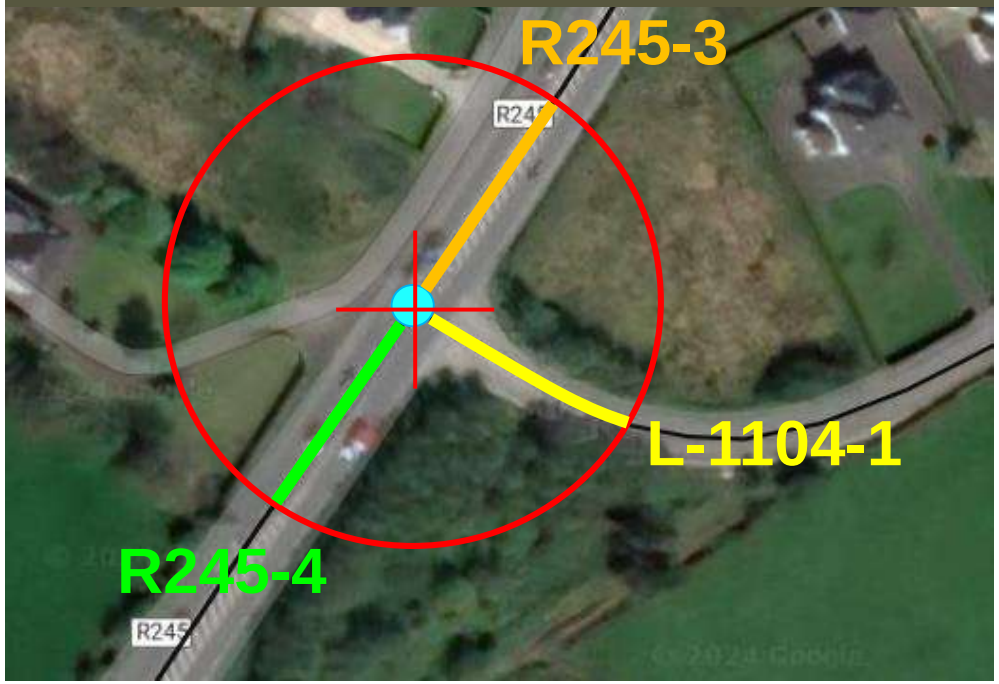
New MapRoad LA16 Mobile App

- 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.



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New MapRoad LA16 Mobile App

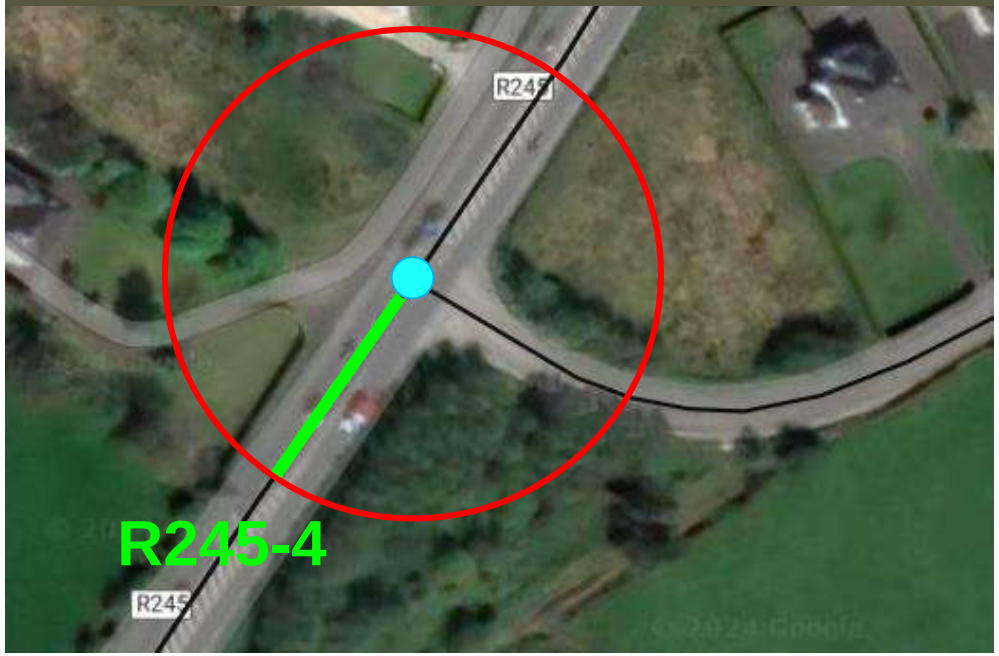
Surveyor captures Site Engineering Details(SED) for each desired segment.

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.



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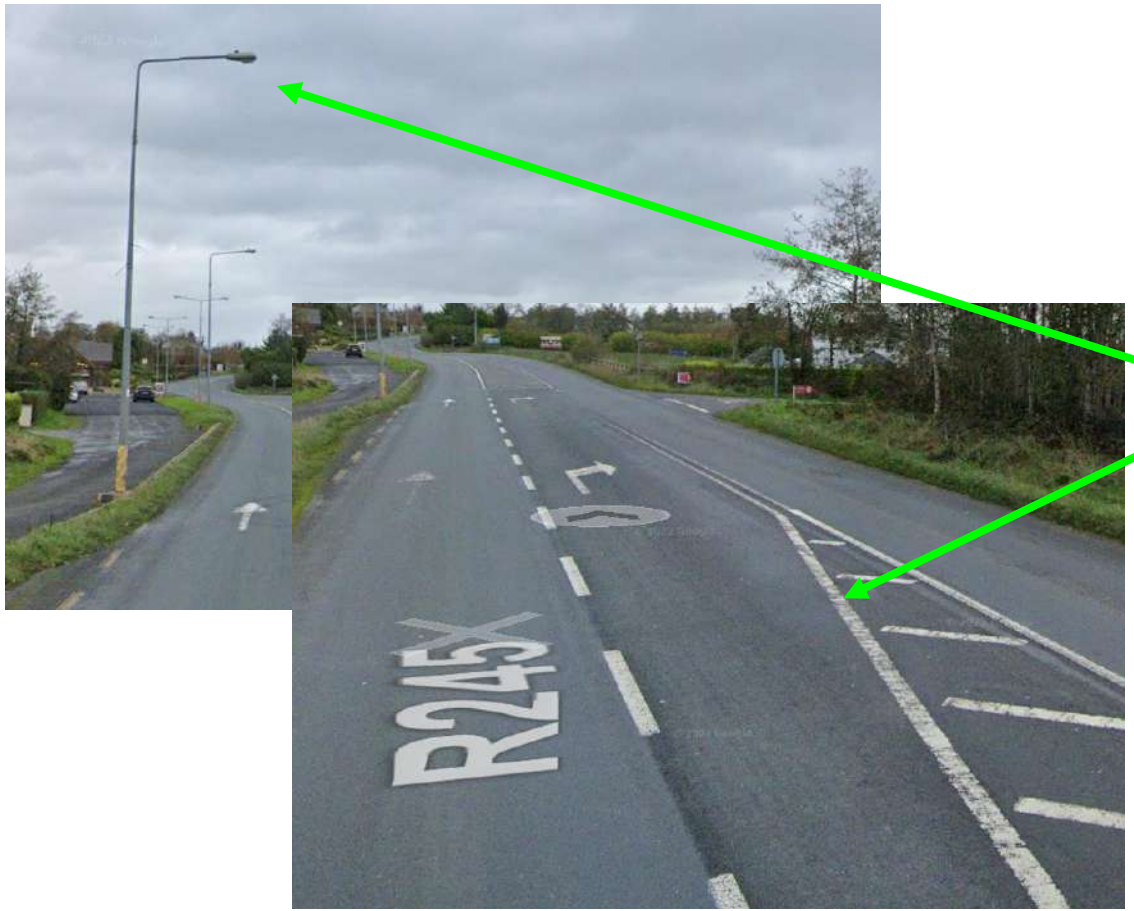
New MapRoad LA16 Mobile App

Surveyors selects 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?

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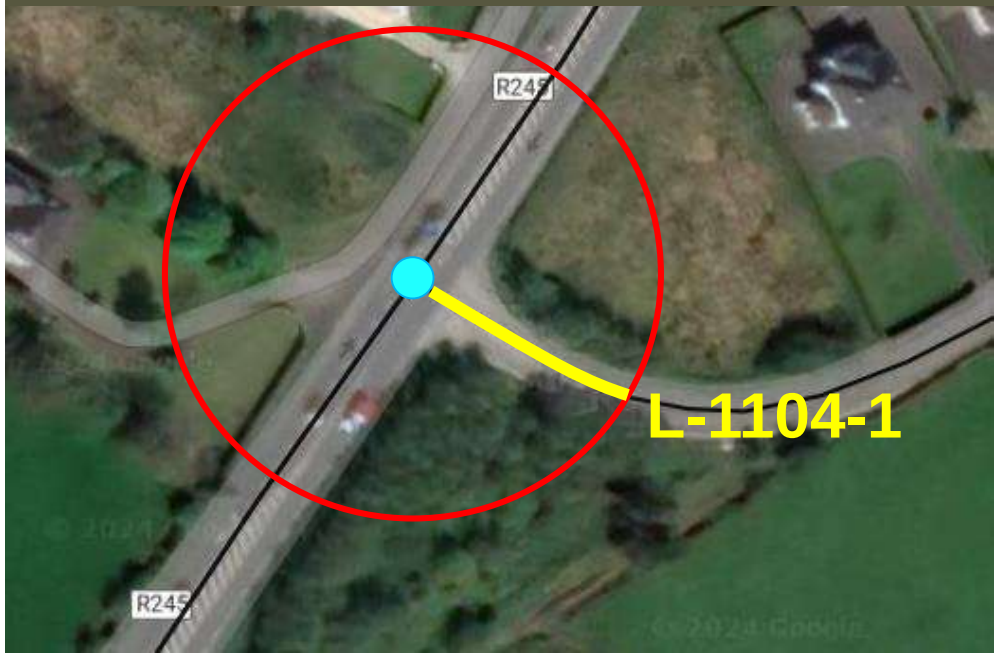
New MapRoad LA16 Mobile App

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.



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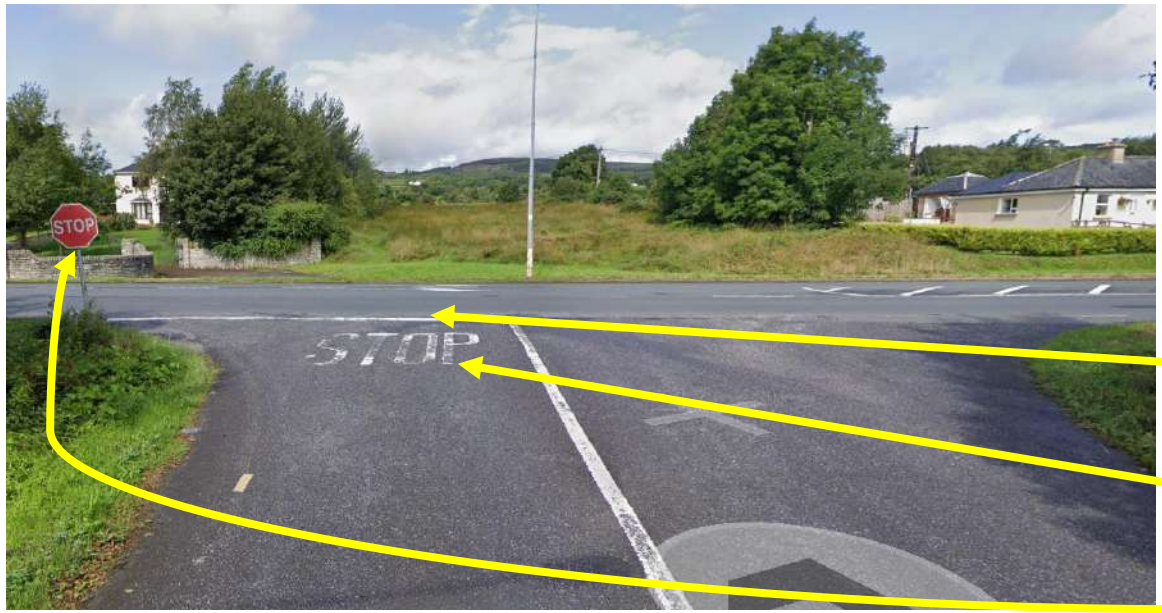
New MapRoad LA16 Mobile App

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?
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- Regulatory Signage Present?
- Directional Signage Present?

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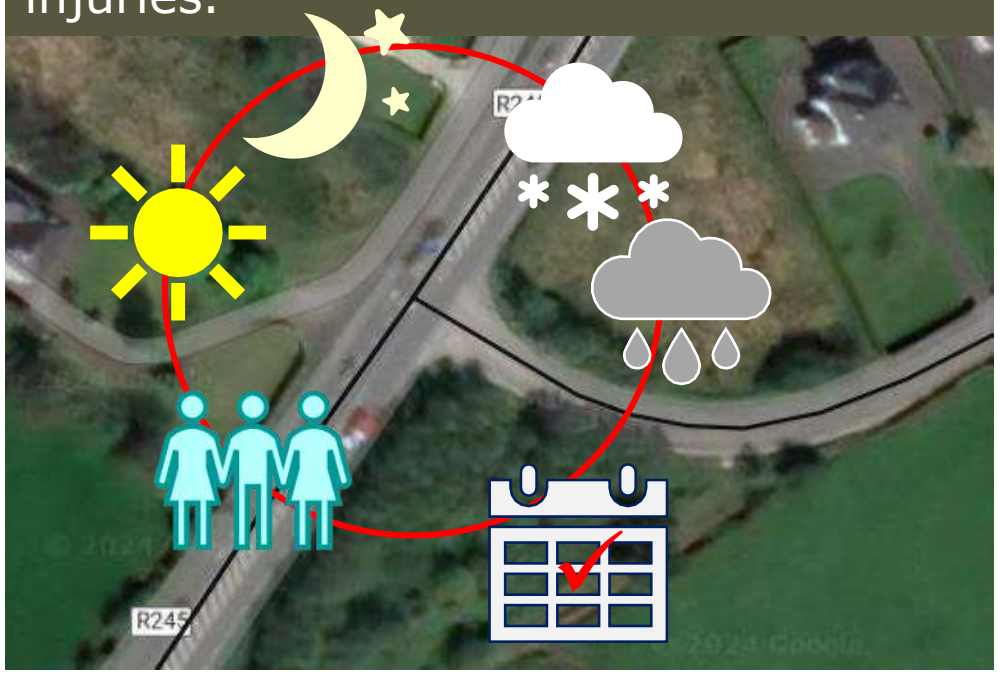
New MapRoad LA16 Mobile App

- 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.



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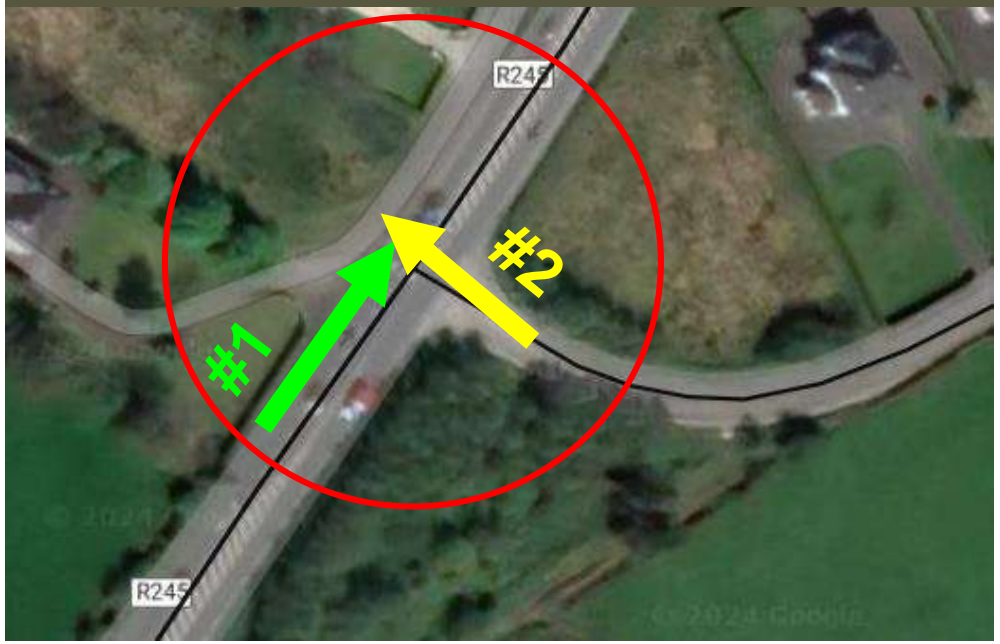
New MapRoad LA16 Mobile App

- 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.



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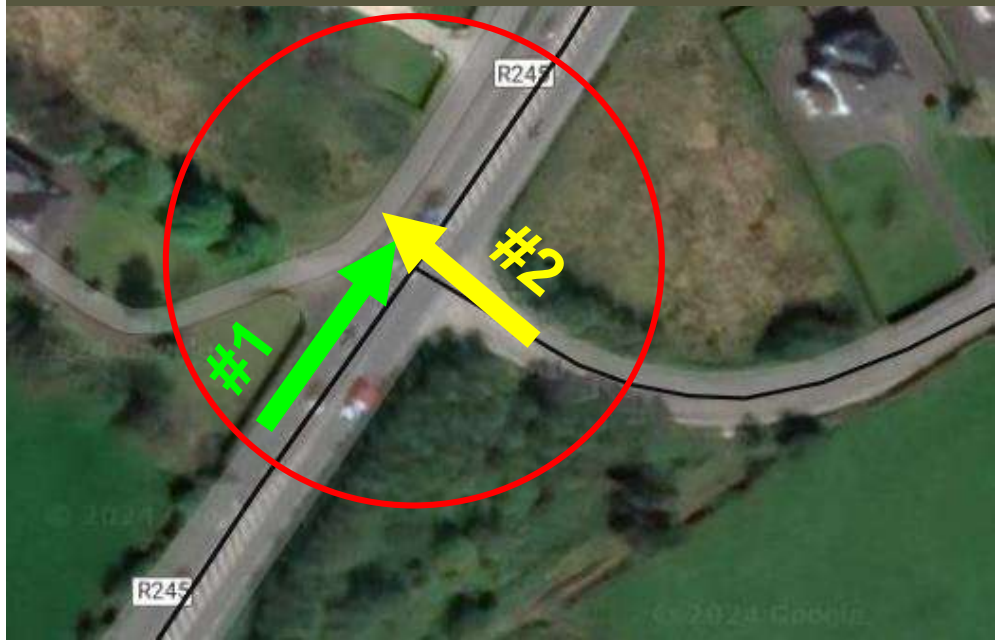
New MapRoad LA16 Mobile App

- 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.



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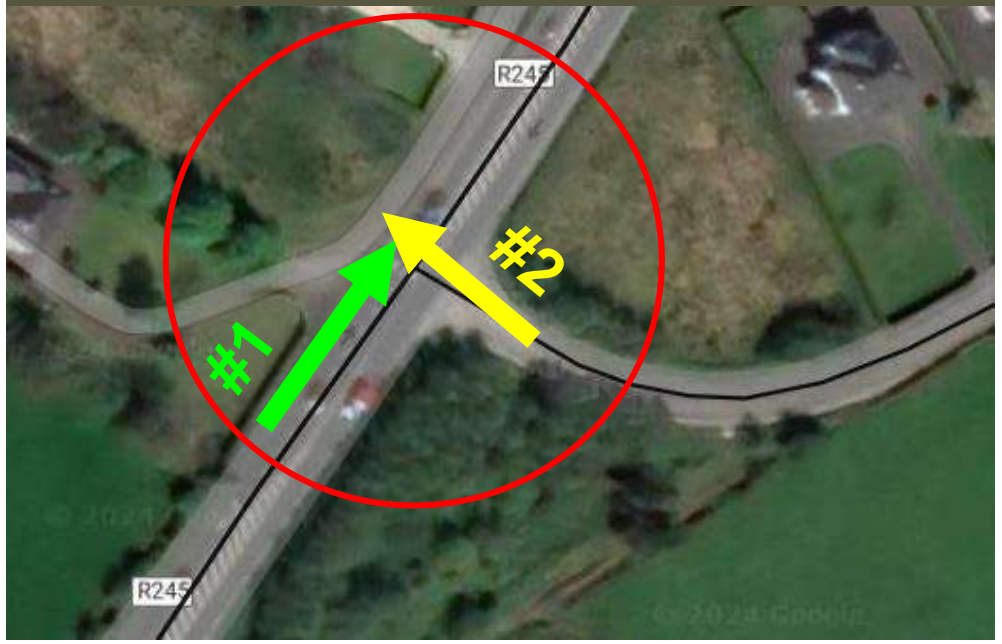
New MapRoad LA16 Mobile App

- 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.



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New MapRoad LA16 Browser Functionality

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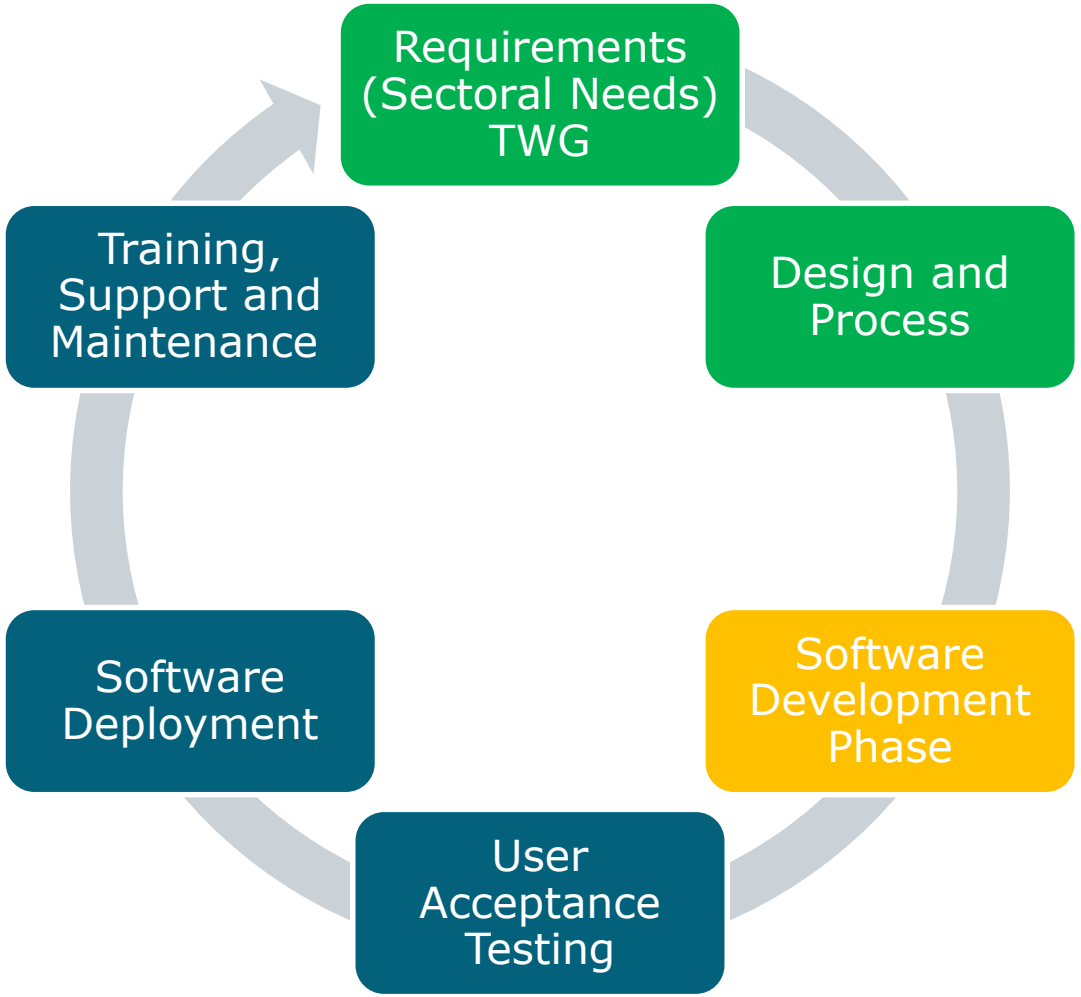
Release of New MapRoad AMS – LA16 Module



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

MAPROAD LA16

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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.

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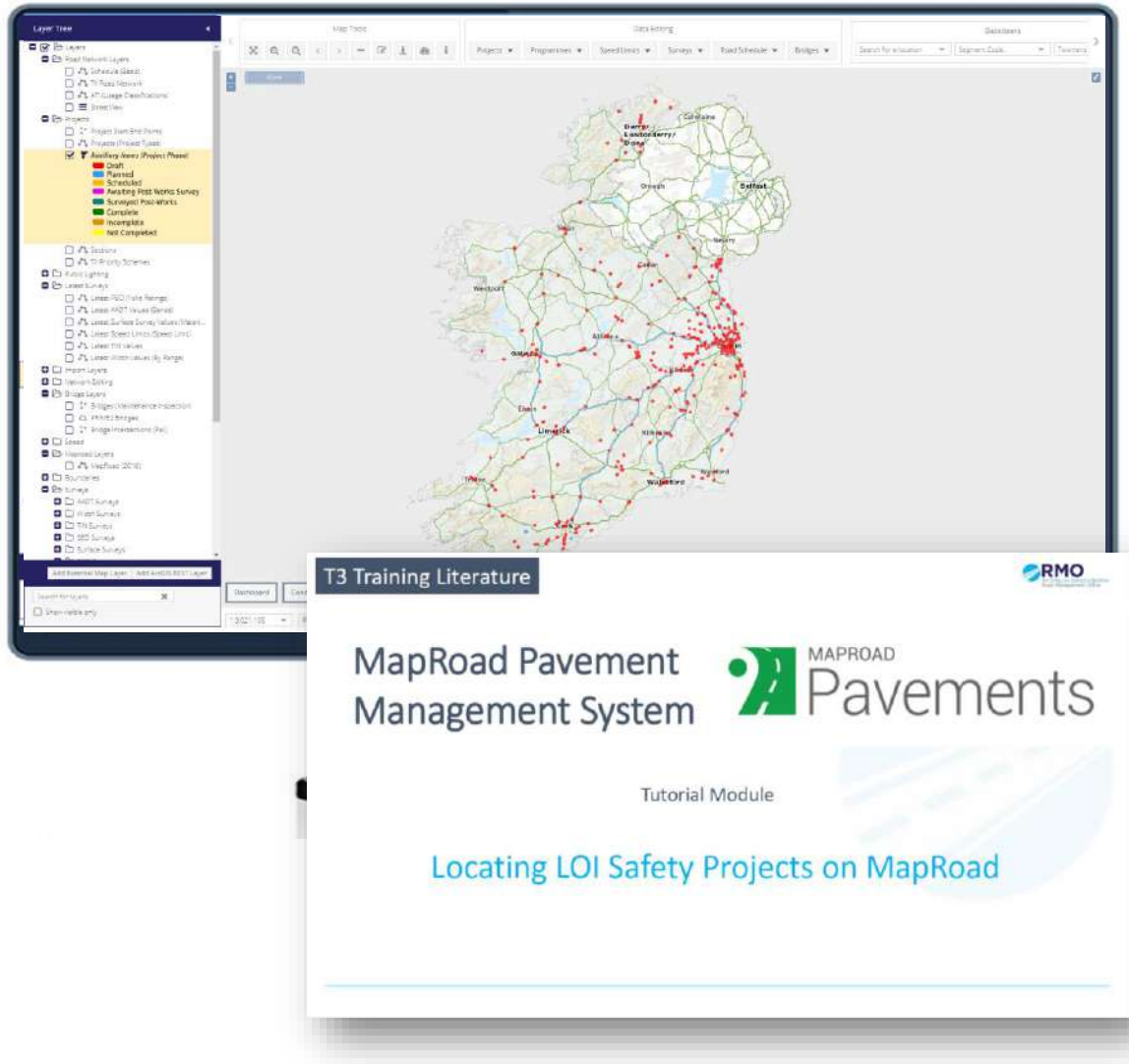
Safety MapRoad

- 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



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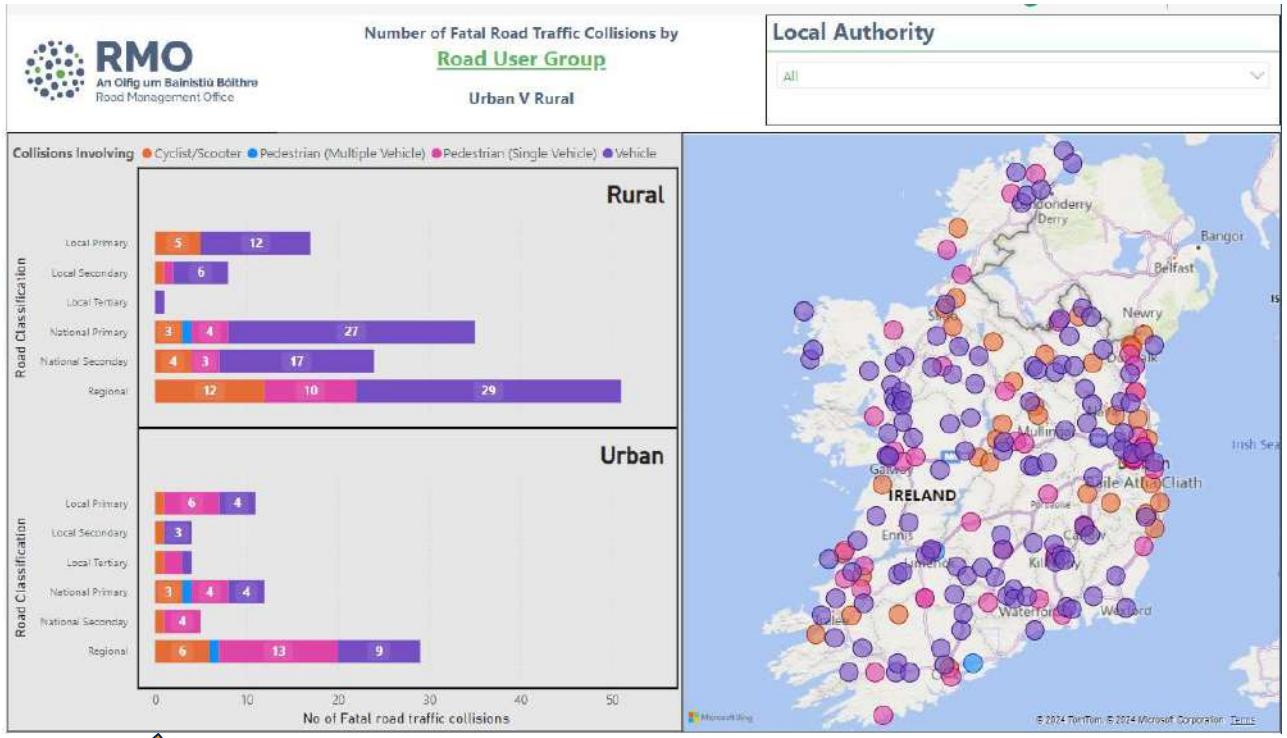
New MapRoad LA16 Browser Functionality

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

Power BI



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LA16

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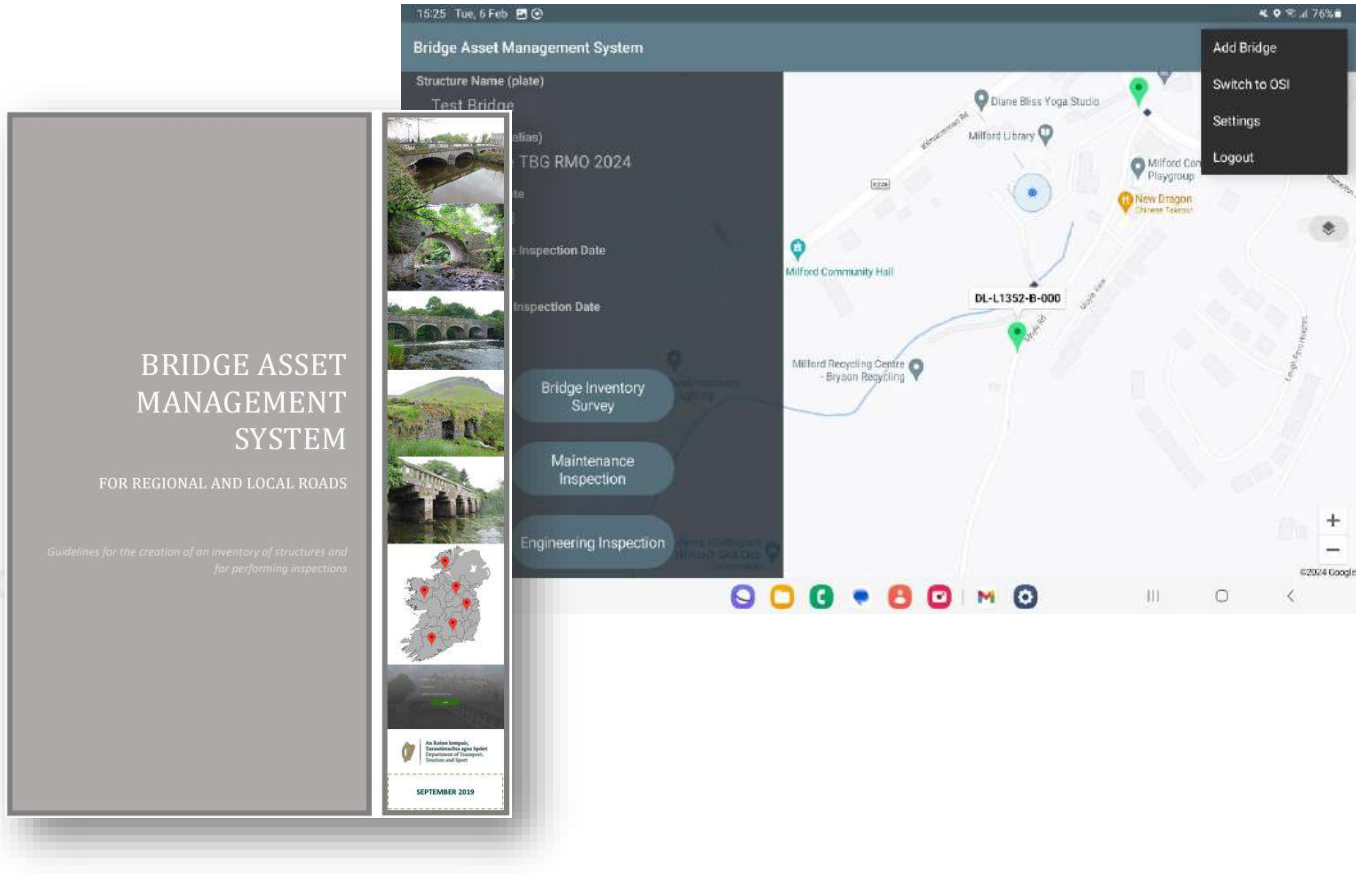
Content

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



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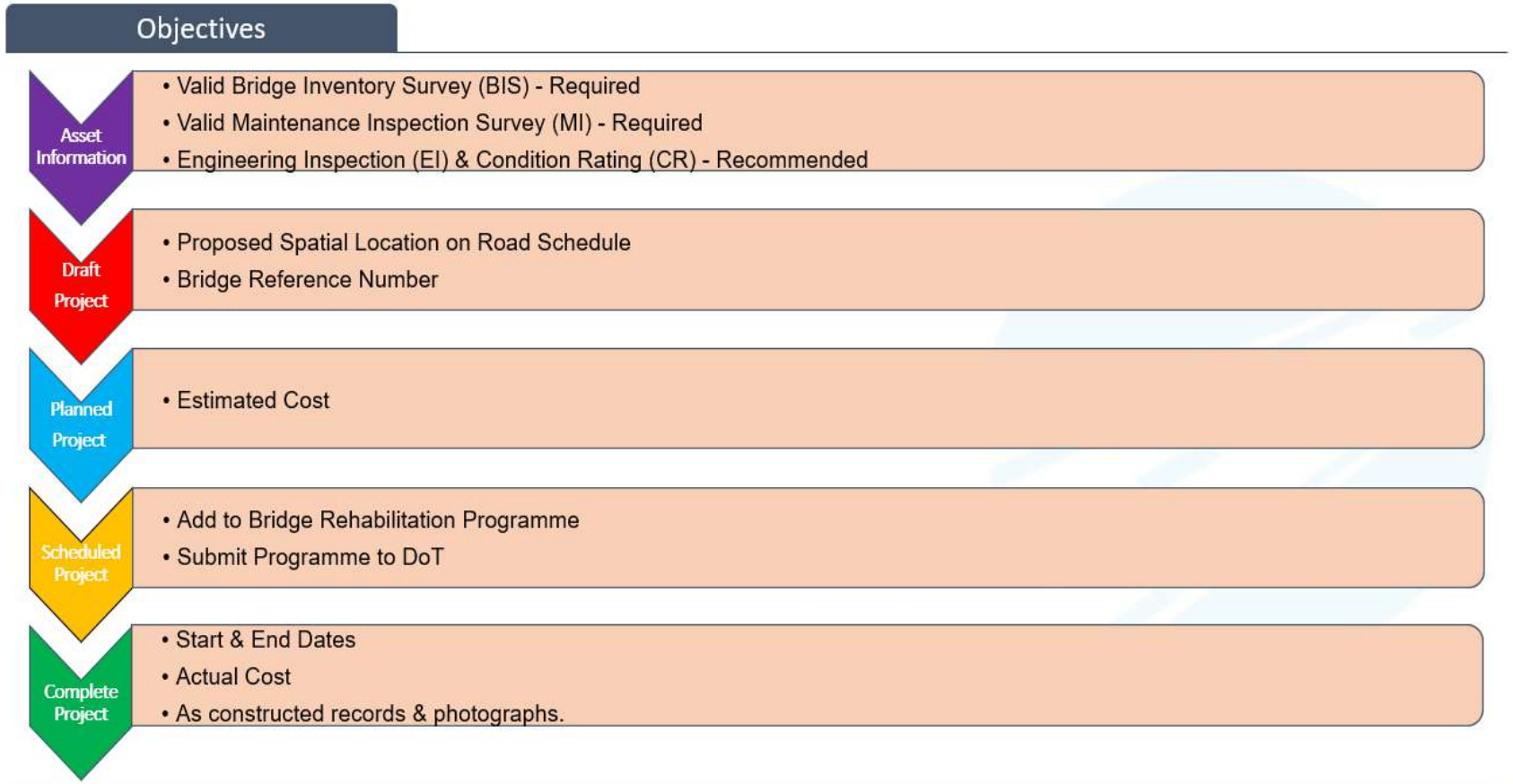
Bridge Module – MapRoad AMS

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



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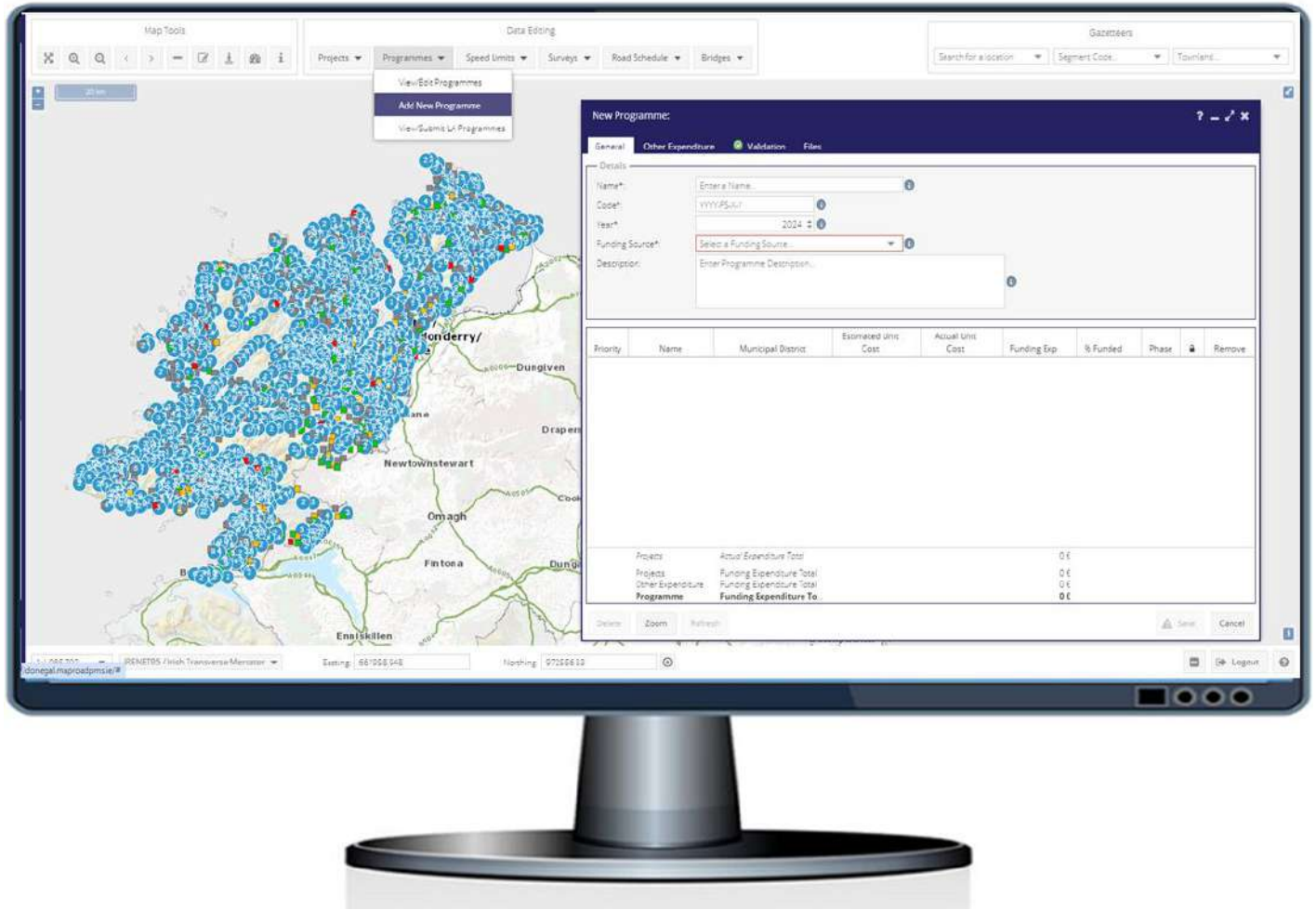
Bridge Inventory, Condition and Project Capture



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

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Bridge Module – Guidance Documents

- T6 MapRoad Bridges – Introduction to Bridges App
- T6 MapRoad Bridges – Current AMS Functionality & Datasets
- T6 Creating Bridge Programmes and Projets in MapRoad AMS

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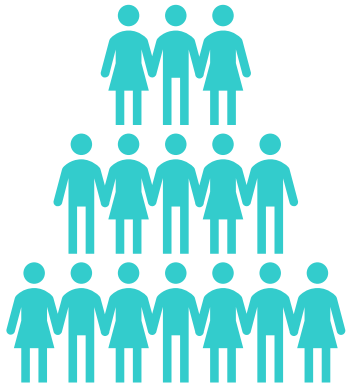
Bridge Module – MapRoad AMS Training Workshops

MapRoad Bridge Rehabilitation Project Capture Workshops 2024

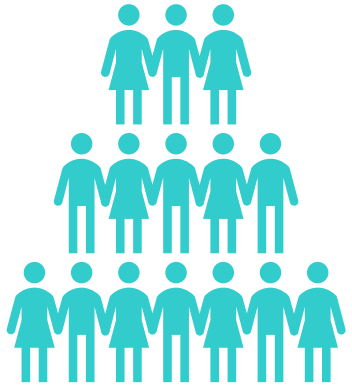
66 participants training delivered

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

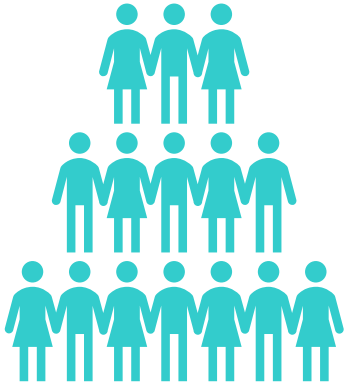
26 13/03



20 15/03



20 20/03



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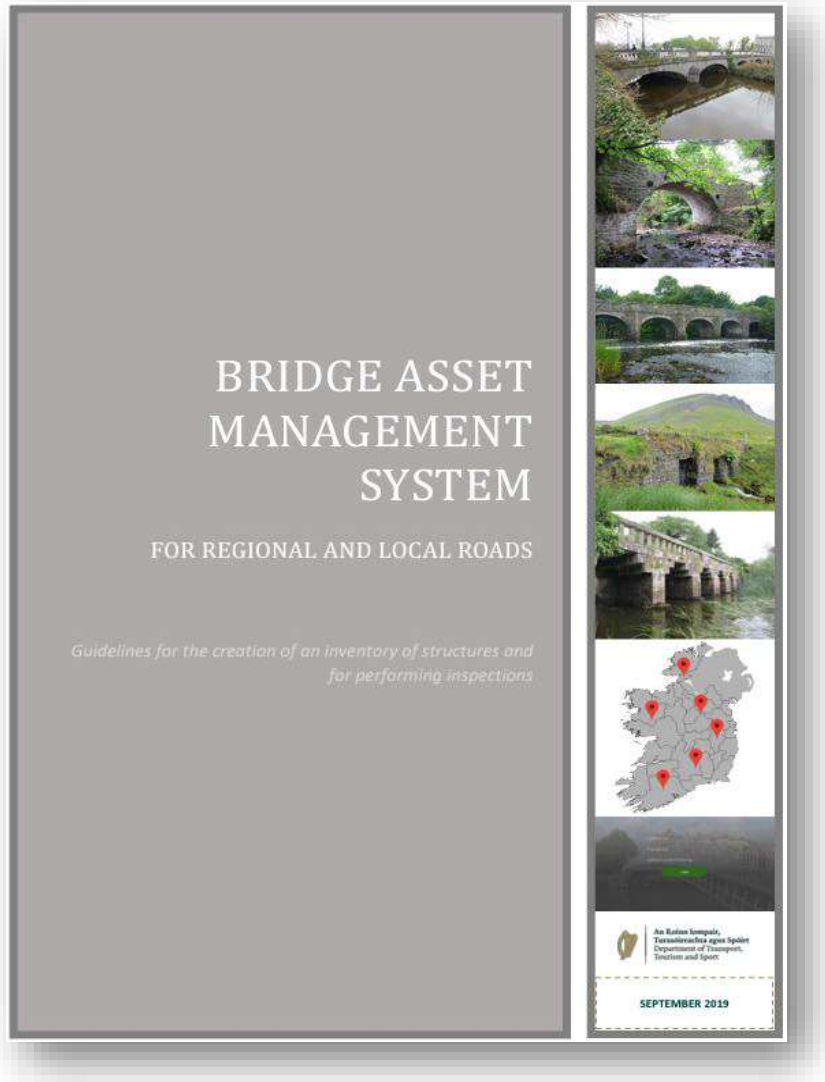
MapRoad Bridge Asset Management Training

- 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 who will then liaise with the LASNTG to arrange the requested training.



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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.

MAPROAD BRIDGES

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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

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Road Management Office

MAPROAD

Slides go here

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RSTG Conference 2024 15th 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

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