



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

ROADS Services Training Group

LOCAL AUTHORITY ROADS CONFERENCE

and EXHIBITION - 2019

Local Authority Bridge Management

Lyrath Estate Hotel, Kilkenny, 8th May 2019.



**Bennetsbridge Bridge, River Nore, c 1767
Supporting the busy R700**

NB : Intrados/soffit treatment- inappropriate.



Local Authority Bridge Asset Management

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Chartered Engineer

Conservation Accredited Engineer

For DTTAS



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Back ground and need

- ❑ It has long being recognised that there are a lot of bridges supporting the public road network.
- ❑ Twenty years ago we thought the figure was 20,000 to 25,000 road bridges.
- ❑ We now estimate there are closer to **double** this number!
- ❑ Unfortunately very few local Authorities have a comprehensive digital bridge stock data base.

The need:

LA's currently have mixed and non interactive data

- ❑ Some LA's have excel spread sheets
- ❑ Some have paper records
- ❑ Some have paper records of regional road bridges and non transferable Eirspan CD data
- ❑ Some use the Road bridge- Mapinfo system
- ❑ Some have inventories of civil engineering heritage of bridges, perhaps commissioned by the LA Heritage or Conservation Office.

Absence of a unified, interrogable, geographic bridge data base systems.

National significance of the Local Authority bridge stock

- ❑ **Local Authorities own and manage over 90% of the bridges** (all except the Motorway and National Road bridge stock c 8% - where TII are responsible)
- ❑ Estimated replacement value > €12Bn



■ **LA 92%**

■ **TII 8%**

The need addressed

The success of the **Pavement Management System**

(PMS) prompted DTTaS to form a bridge group to produce bridge guidelines and devise a bridge module to add to the PMS suite of applications to:

1. Collect basic data of this enormously valuable and ageing asset, in a simple and efficient way.
2. To recognise the durability and sustainability potential of repairing most masonry arch bridges.
3. Use modern software and tablets, suitable of functioning on-site, that could upload the data direct to the PMS database.

DTTaS and the Bridge group wish to acknowledge the software development work of Compass Informatics

The LA Bridge Management Guidelines

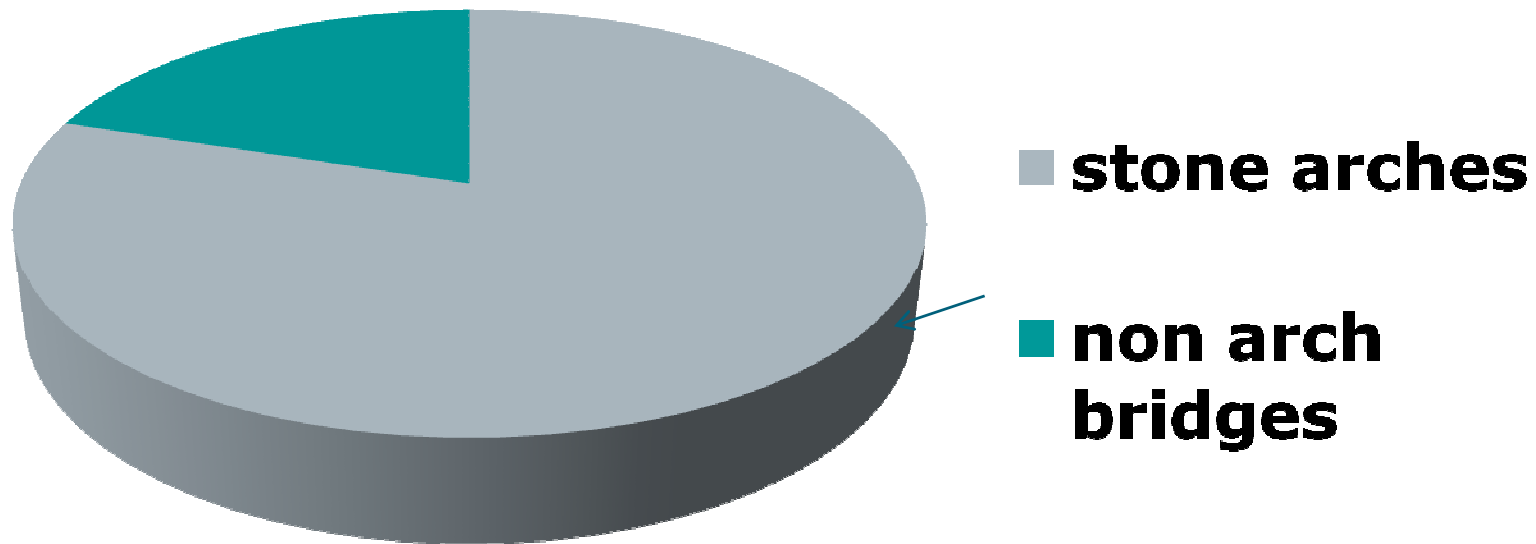
4 main aspects.

1. General

- ❑ Directed at LA staff
- ❑ Explanation of bridge forms, materials and definitions with examples
- ❑ Emphasis on pre 1900AD structures, which constitute about 80% of the road bridge stock
- ❑ Therefore conservation principles need to be an integral part of the engineering repair strategy
- ❑ Structure location function
- ❑ Explanation of other significant related matters including statutory bodies and specialists, safety & environmental management

Masonry arches at least 140 years old are holding up our roads!

Arch bridges constitute c 80% of the bridge stock



Very few stone bridges were built after 1890

LA Engineers to take ownership and a positive attitude towards their historic bridge stock asset

- ❑ LA engineers: think of yourselves as custodians!
- ❑ Repair rather than replace
- ❑ Follow the principles of conservation engineering [NRA BD89/15]
- ❑ Understand and use traditional practices, methods and materials when dealing with stone bridges and culverts, etc.

The LA Bridge Management Guideline

2. Bridge Inventory Survey (BIS)

Efficient and comprehensive bridge and culvert, survey/data collection tool (BIS):

- ❑ What and how to record basic data
- ❑ Who can carry out **the Bridge Inventory Survey**[BIS]
- ❑ Use of an on-site tablet to input the data directly to the PMS (a single time)

LA and DTTaS need to know what is out there!

The LA Bridge Management Guideline

3. Maintenance Inspection (MI)

- ❑ A broad brush, colour coding system similar to the Pavement Management System approach: Red, Amber Green [RAG] coding
- ❑ Examples of defects
- ❑ Who can carry out this inspection

The LA Bridge Management Guideline

4. Engineering Inspection (EI)

- For LA Engineers
- A Condition Rating System (1 – 5)
- Useful rating tables for components
- Examples of element and overall condition rating

- A glossary of useful terms and references

Additionally to achieve the goals

TRAINING for LA Engineers and staff

- ❑ **Introductory Course [L1]** to be completed by LA Engineers and all other staff tasked with carrying out Bridge Inventory Surveys[BIS] and Maintenance Inspections[MI]
- ❑ **Engineers course [L2]** for qualified LA Engineers to provide additional knowledge and skills of bridges in order to undertake Engineering Inspections[EI].



One of our oldest bridges and still carrying traffic,
c1205AD, Boyle, Co. Roscommon.

**LA's are the *custodians* of these amazing old
structures.**

Local Authority/ DTTAS Bridge Asset Management

- Brian will now explain the new tablet data collection applications which we have piloted and are ready for LA's to use.