Irish Road Networks

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- Background
- Enabling technology
- Applications
- Next Steps

Background – Irish road network

- Apx. 100,000km public road network
- national road network apx. 5500km
- regional road network apx. 13000km
- local roads apx. 80,000km
- Traffic volumes vary from apx. 110000AADT to <10AADT!

Road:
LENGTH OF ROAD NETWORK

km (end of 2010)

	Motorways	Main or national roads	Secondary or regional roads	Other roads (*)
BE	1763	13229	1349	138869
BG	437	2970	4030	12019
CZ	734	6225	48763	74919
DK	1130	2705		70336
DE	12819	39710	178253	
EE	115	4003	12440	42072
IE	900	4780	11631	78958
EL	*1191*	9299	30864	75600
ES	14262	15103	136422	*501053*
FR	11392	9754	377769	651202
IT	6668	20856	158895	68986
CY	257	2186	2753	4248
LV	-	1653	5316	58173
LT	309	6366	14591	50781
LU	152	837		1891
HU	1477	6821	23330	167939
MT	-	184	665	1379
NL	2651	2470	7863	124707
AT	1719	10469	23654	88666
PL	857	17751	154634	232880
PT	2737	5966	4420	
RO	332	16220	35221	30613
SI	771	817	5143	32342
SK	416	3507	14052	*25351*
FI	779	12550	13574	51258
SE	1927	13507	83031	117487
UK	3673	49024	122620	244311
HR	1126	6929	10936	10342
MK	251	660	3772	9300
TR	2080	31395	31390	302398
IS	11	4930	2950	5010
NO	381	10496	44281	38732
CH	1406	384	18040	51622

Notes: (*) The definition of road types varies from country to country, the data are therefore not comparable. 'Other roads' sometimes include roads without a hard surface. IE and EL: end of 2009. MT: end of 2005 (except for motorways).

Local Roads - we have lots and lots and lots! – 80500km +

- Locally determined vary greatly in quality, from wide urban streets to very narrow, rural lanes
- Three categories:
- Local Primary:
  - Significant traffic volume, linking to reg. / nat. network, tourism
- Local Secondary:
  - Seasonal importance
- Local Tertiary:
  - Cul de Sac's, remote mountain roads

Background – Changes in Public Sector

- Reduction in number of Local Authorities from 114 to 31.
- Reduction in staffing in Local Authority Sector – 35000 to 26700 (2008- 2014)
- Reduction in non-national road infrastructure investment €608M 2007 to €290M 2015
- Includes €146M for restoration works and €8M directly provided for bridges

Background – MapRoad

- Developed from 1990's onwards
- Desktop solution
  - 34 desktops-
  - no interconnectivity internally- externally
- Limited functionality
  - Mark Road network
  - Record roadworks, bridges, accidents
- Limited usage

What changed?

Background – Mobile apps and the Cloud

2002: Nokia 6310, Floppy Disc, Files

2007 onwards: Widespread use of mobile devices (smartphone, pads etc.) with GPS tracking

2008 onwards: Practical applications c cloud computing

About Us: Road Management Office

A Shared Service: A collaborative service

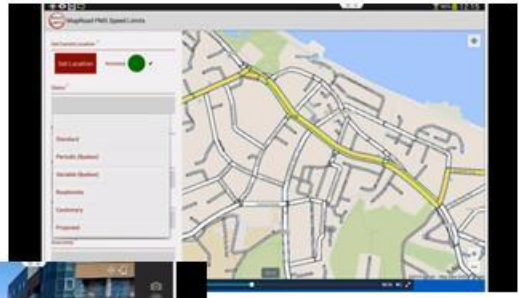
- Management of roadworks on behalf of Sector
- Management of data collected by sector
- Development of standards to support consistent approach
- Development of enabling technologies to support this.

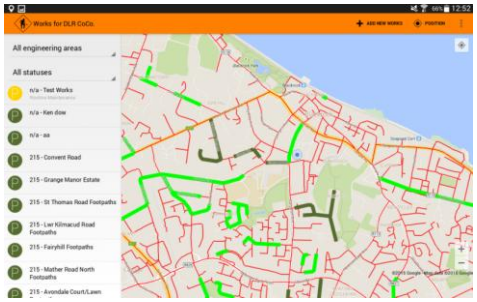
Enabling Technologies: Centralised network

- Single Data storage
- Tracking of work
- Single software update
- Centralised management with local information

Enabling Technologies: Mobile apps

- Record data on site
- Record data once
- Information uploaded to central repository for immediate viewing
- Software can be upgraded on line
- Open Source





"Without data you are just a another person with an opinion"

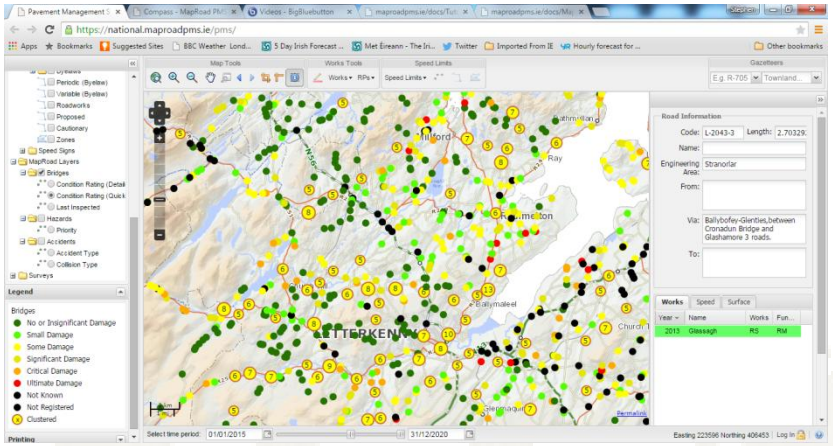
W. Edwards Deming

"Data by its self is useless. Data is only useful if you apply it"

Todd Park

Applications: Bridge database

- ✓ Data recorded on site and GPS positioned
- ✓ Photographic record
- ✓ Uploaded to central data base
- ✓ Weight restrictions
- ✓ Prioritisation of schemes
- ✓ Evidential basis for funding



Applications: Inventory

- ✓ Environment (urban/rural)
- ✓ Road Details
  - ✓ Current Condition
  - ✓ Hierarchy (un restricted, consultation, restricted, excluded routes)
- ✓ Photographic records

Unrestricted Routes
These generally include all the national primary, secondary and regional roads and some local roads.

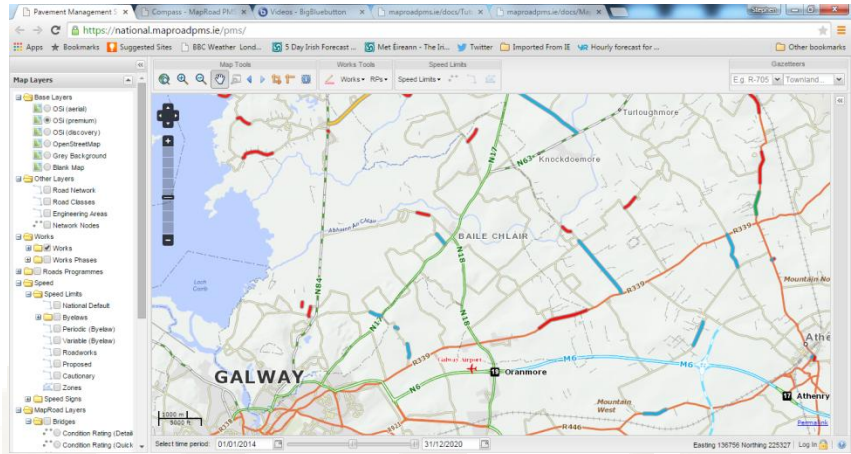
Consultation Routes
These are local roads where following consultation between the Local Authorities and forest owners, timber can be transported without restriction or with a minor restriction.

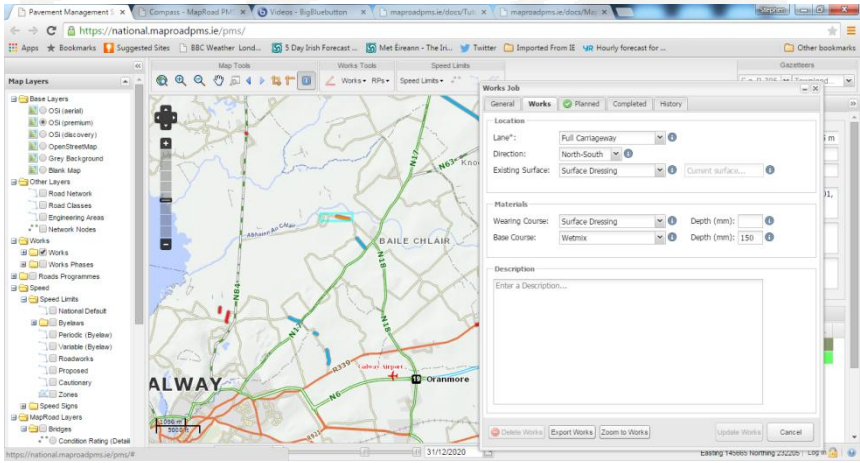
Restricted Routes
Where the suite of options will be used to agree the most appropriate haulage method.

Excluded Routes
These routes are currently unsuitable for timber haulage vehicles, unless substantial engineering works is carried out. Consultation with the Local Authority is required to explore alternatives. Where a cul de sac is the only access road to a forest, it cannot be classified as an excluded route, unless there is a structure such as a bridge or other item on the road unable to safely carry the vehicle. These are also intended to prevent the use of "short cuts" where alternative suitable roads are available.

Applications: Roadworks Programmes

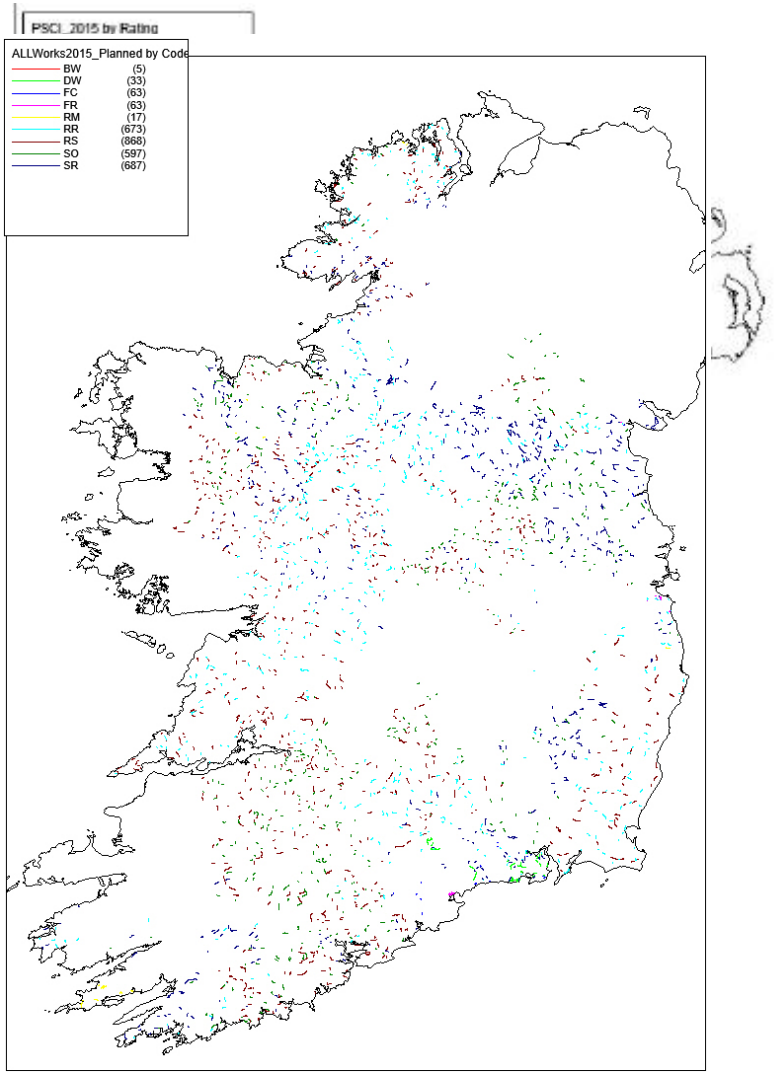
- ✓ Record road works planned and implemented on system onsite or at desktop
- ✓ Single record for use by local authorities giving information across network
- ✓ Ability to give notice to stakeholders utilities of oncoming roadworks
- ✓ Asset management tool recording works completed





Work to date: (Pavement condition and Roadworks)

- PSCI data 2015 and previous years.
- €180M of planned works loaded across 3600km for 2015 to date
- Previous years programmes being added



Applications Pavement Surface Condition Index

Objectives:

- Simple to understand and implement by a wide range of survey personnel.
- No prior experience in pavement rating should be necessary
- Based only on visual pavement distresses.
- The impact of all distresses and other defects should be identified in the rating.
- Relatable to maintenance treatment categories

Table 1: The PSCI Rating System

Overall PSCI Rating	Primary Rating Indicators*	Secondary Rating Indicators*
10	No Visible Defects.	Road surface in perfect condition.
9	Minor Surface Defects[1]. Ravelling or Bleeding <10%.	Road surface in very good condition.
8	Moderate Surface Defects[1]. Ravelling or Bleeding 10% to 30%.	Little or No Other defects.
7	Extensive Surface Defects[1]. Ravelling or Bleeding > 30%.	Little or No Other defects. Old surface with aged appearance.
6	Moderate Other Pavement Defects[2]. Other Cracking < 20%. Patching generally in Good condition. Surface Distortion requiring some reduction in speed.	Surface defects[1] may be present. No structural distress[3].
5	Significant Other Pavement Defects[2]. Other Cracking > 20%. Patching in Fair condition. Surface Distortion requiring reduction in speed.	Surface defects[1] may be present. Very localised structural distress[3] (< 5 m² or a few isolated potholes).
4	Structural Distress[3] Present. Rutting, Alligator Cracking or Poor Patching for 5% to 25%. Short lengths of Edge Breakup/Cracking. Frequent Potholes.	Other defects may be present.
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2	Large Areas of Structural Distress[3]. Rutting, Alligator Cracking or Very Poor Patching for > 50%. Severe Rutting (> 75mm). Extensive Very Poor Patching. Many Potholes.	Very difficult to drive on.
1	Extensive Structural Distress[3]. Road Disintegration of surface. Pavement Failure. Many large and deep Potholes. Extensive Failed Patching.	Severe Deterioration. Virtually undriveable.

* *Individual pavements will not have all the types of distress listed for any particular rating. They may have only one or two types.*

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Note 3: Structural Distress = Load-related defects comprising Rutting, Alligator Cracking, Edge Breakup/Cracking, Poor/Failed Patching, Potholes or Road Disintegration.

Pavement Surface Condition Index
Relatable to treatments

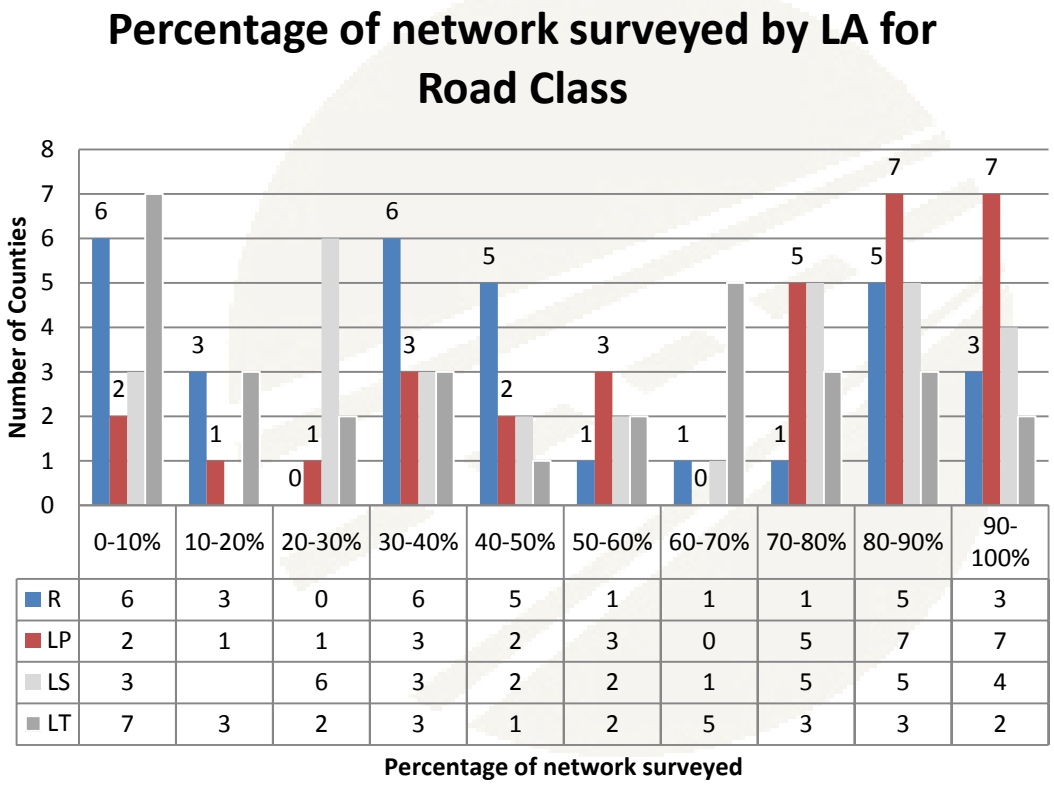
Table 2: Treatment Measures

Overall PSCI Rating	Treatment Measures	Surface	Structure
10	**Routine Maintenance**	Excellent	
9		Very Good	
8	**Resealing & Restoration of Skid Resistance**	Fair	Good
7		Poor	
6	**Surface Restoration** – Carry out localised repairs and treat with surface treatment or thin overlay.	Fair	Fair
5		Poor	
4	**Structural Overlay** – Required to strengthen road. Localised patching and repairs required prior to overlay.	Poor Overall	
3			
2	**Road Reconstruction** – Needs full depth reconstruction with extensive base repair.	Very Poor Overall	
1		Failed Overall	

Work to date: (surveying)

Over 56000km surveyed over 60% of network:

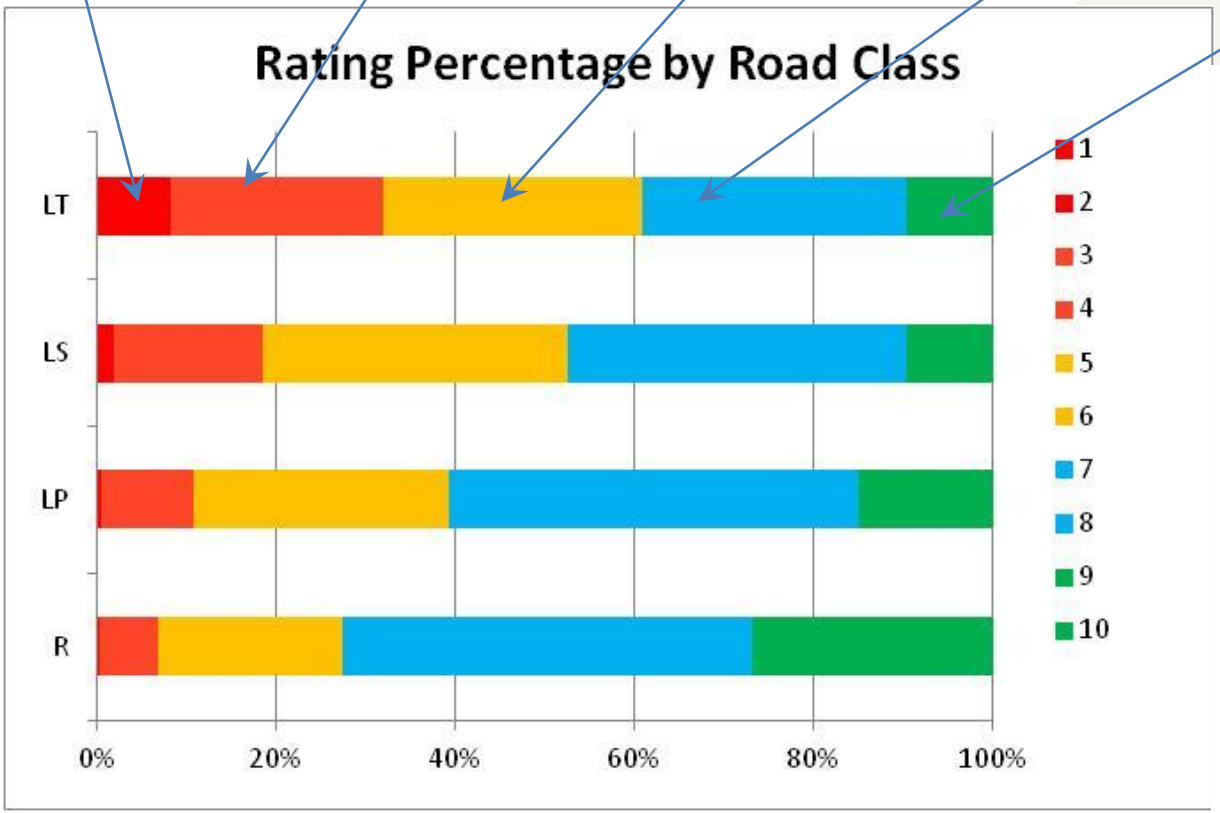
- R 47%,
- LP 73%,
- LS 63%,
- LT 50%



	0-10%	10-20%	20-30%	30-40%	40-50%	50-60%	60-70%	70-80%	80-90%	90-100%
R	6	3	0	6	5	1	1	1	5	3
LP	2	1	1	3	2	3	0	5	7	7
LS	3		6	3	2	2	1	5	5	4
LT	7	3	2	3	1	2	5	3	3	2







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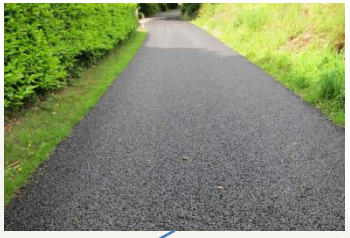
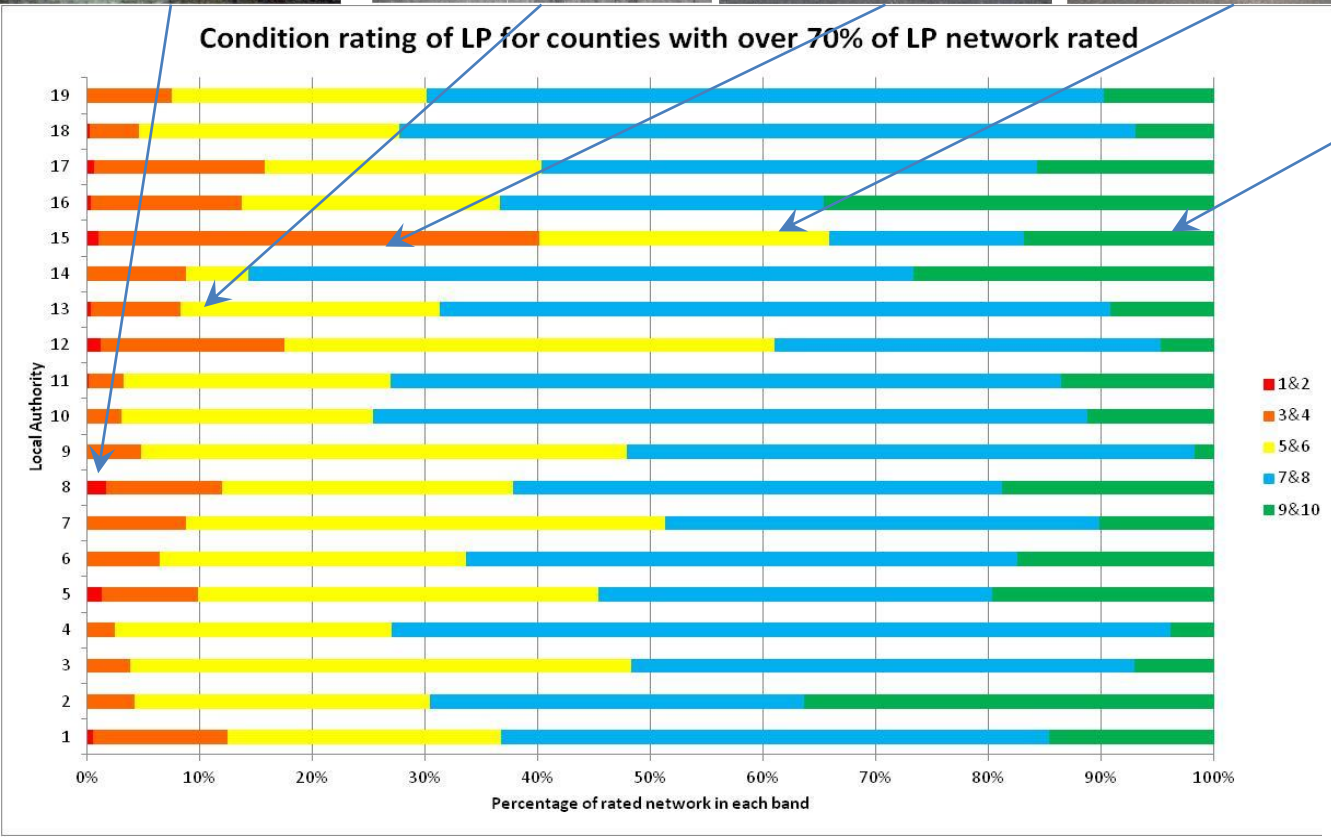
Selected Local Primary Roads









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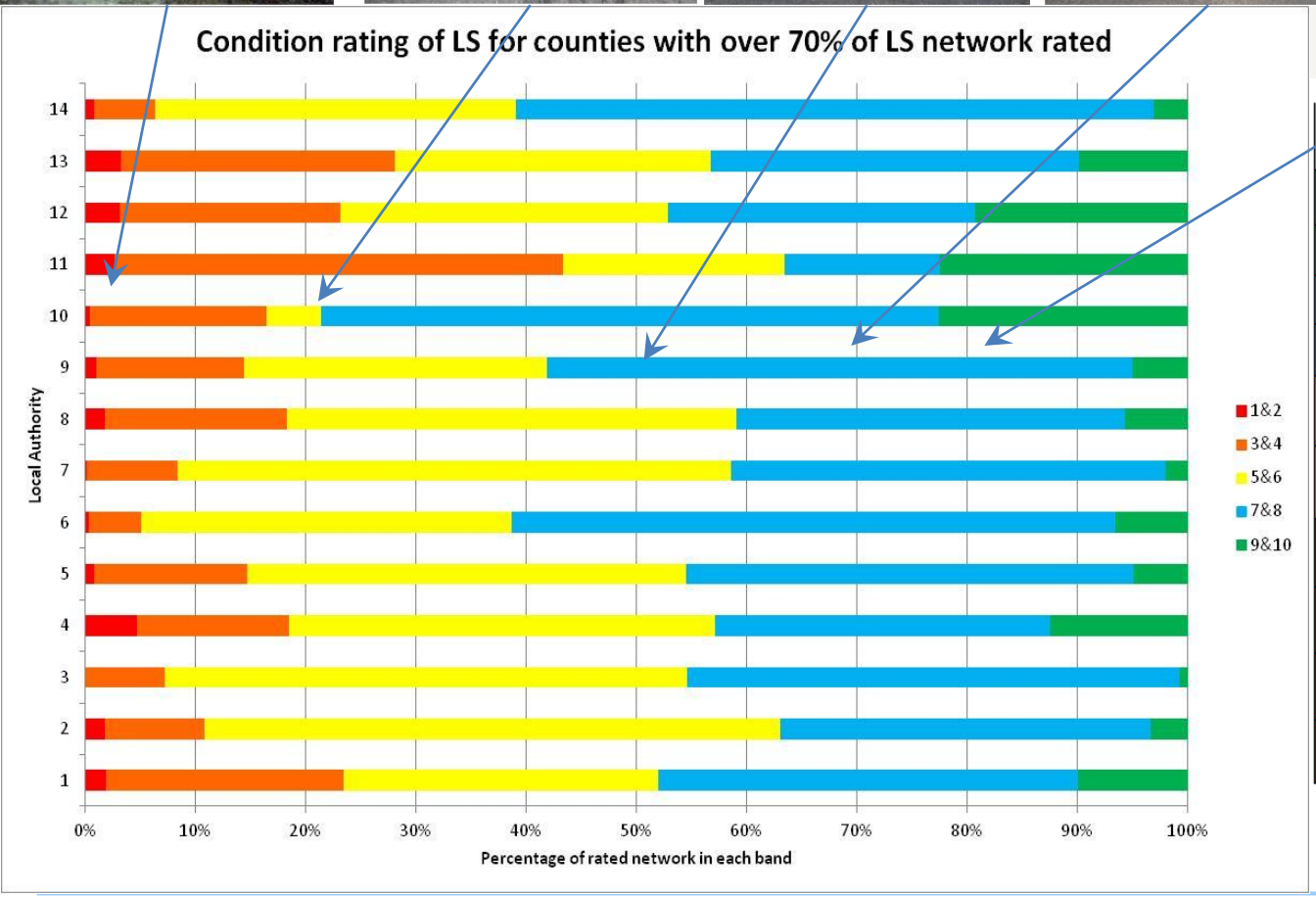
Selected Local Secondary Roads







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Next Steps:

- Continue recording condition of network
- Develop bridge survey condition rating recording on system
- Work with stakeholders to map forests and harvesting programme
- Coordinate works programmes with stakeholders and the public
- Increase awareness and use of agreed routes process set out in Managing Timber Transport Good Practice Guide

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