



# Pavement Asset Repair and Renewal

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## Design Standards for Pavement Renewal Works



A number of existing DMRB documents together with elements of the Interim Guidelines for Pavement & Maintenance Works have been combined into a more user friendly format to provide concise guidance for pavement renewal works across the National road network in Ireland. Three new documents will be issued:

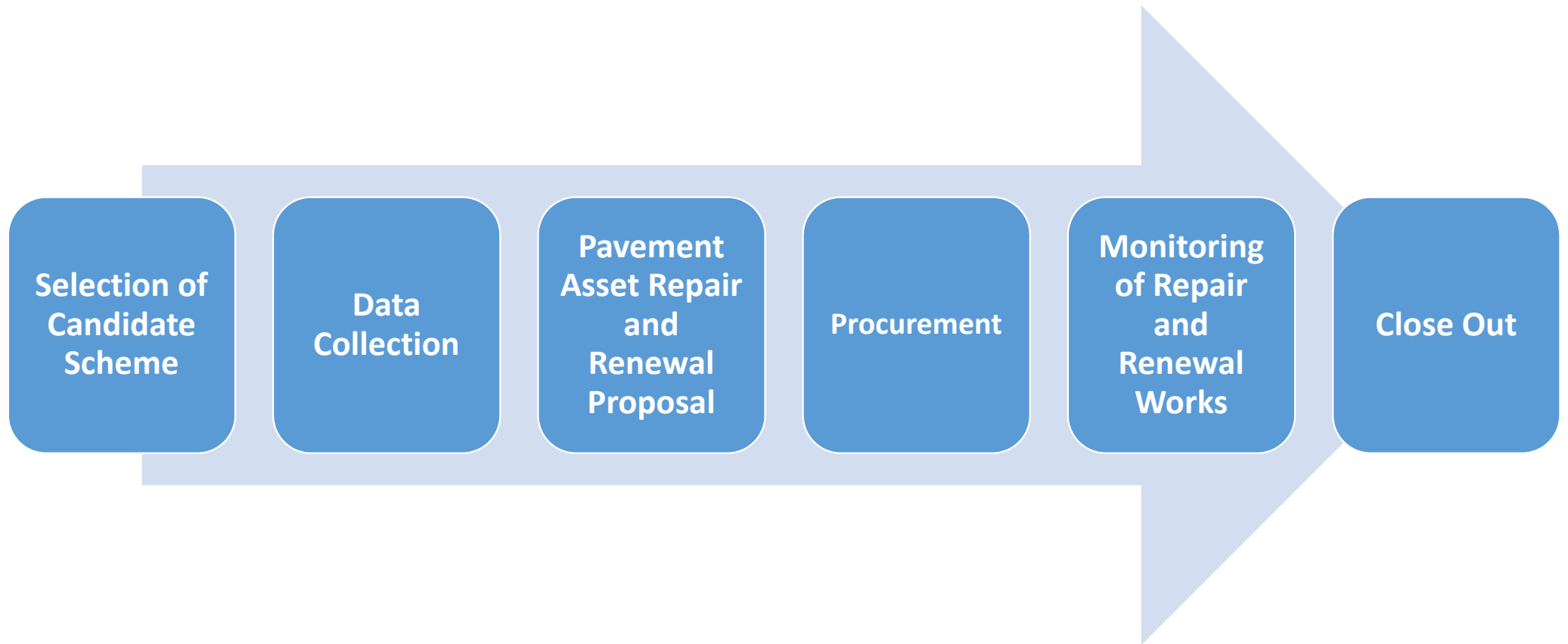
- NRA HD30/14 Pavement Asset Repair and Renewal – Scheme Approval: *Sets out the procedures, document requirements and approval gateways.*
- NRA HD31/14 Pavement Assessment, Repair and Renewal Principles - Incorporates information from UK HD 29, HD 30 and HD31 appropriate to Irish conditions. *Technical document setting out guidelines for the investigation of pavement deterioration and appropriate renewals.*
- HD37/99 Bituminous Surfacing Materials and Techniques – *Provides information on the selection and use of bituminous surfacing materials, including surface dressing – under preparation.*



**NRA HD30**

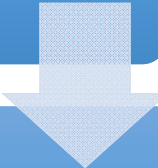
**Pavement Asset Repair and  
Renewal – Scheme Approval**

# Pavement Repair and Renewal Process



## Selection of Candidate Schemes

**NRA NM analysis of Pavement Asset Management System to set priorities for Network maintenance and to select the priority PARR Schemes for implementation.**



**NRA NM identifies potential interventions and treatments.**



**NRA NM requests the development of a PARR Scheme by the Implementation Authority confirming the cause of the deterioration and the objectives of the proposed intervention.**

## Data Collection

Implementation Authority carries out a desk study and reviews PAMS Data.

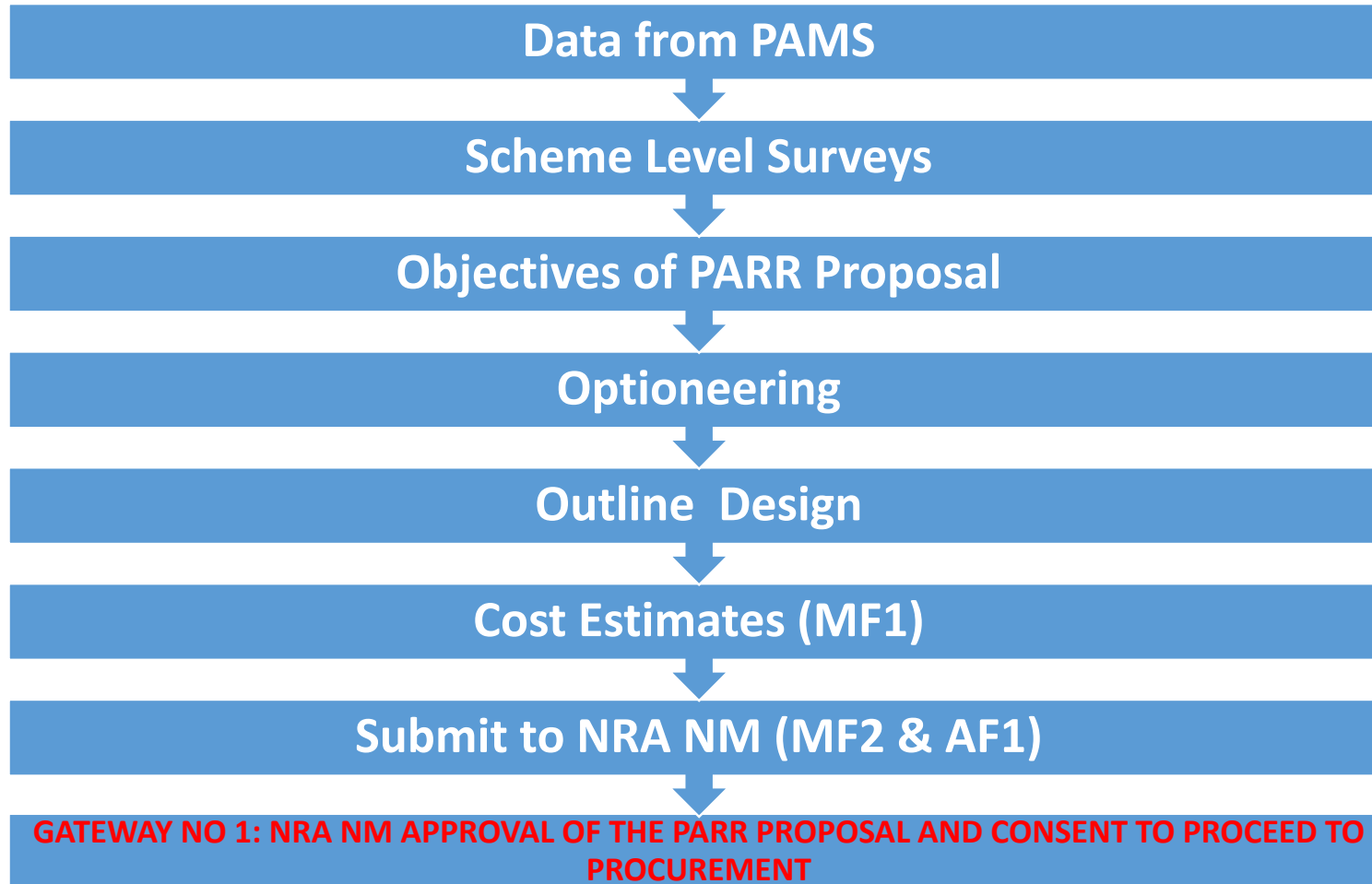


Designer walks over site and prepares a Visual Inspection Report.



Requirements for scheme level surveys are established and procured, which may include FWD, GPR, Coring, DCP, Laboratory Testing, CBR, Trial Pits.

## Pavement Asset Repair and Renewal (PARR) Proposal – Key Elements



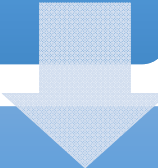
## Pavement Asset Repair and Renewal (PARR) Proposal – Exceptions

Schemes Classified as Minor Improvement Schemes under NRA TA 85/13	Emergency Pavement Repairs	Isolated Pavement Repairs
<ul style="list-style-type: none"><li>• Schemes which include any significant geometric changes</li><li>• Road widening works</li><li>• Overlays greater than 200mm thick</li><li>• Removal of adverse camber</li><li>• Junction widening works</li></ul>	<ul style="list-style-type: none"><li>• PARR schemes which need to be carried out quickly in response to emergencies</li><li>• May follow unexpected rapid deterioration of the pavement</li></ul>	<ul style="list-style-type: none"><li>• Small or isolated pavement repairs</li><li>• Not exceeding €50,000 in cost or</li><li>• Not exceeding 375m<sup>2</sup></li></ul>



## Procurement – NRA RM Consent to Tender - Gateway No 2

Implementation Authority will propose an appropriate method of procurement and shall agree with the NRA RM.



Implementation Authority prepares detailed design and Tender Documents.



**GATEWAY NO 2: NRA RM CONSENT TO TENDER.**

## Procurement – NRA RM Consent to Contract - Gateway No 3

Implementation Authority invites pricing /  
resource management plan.



Implementation Authority reviews submission and  
prepares Tender Report.



**GATEWAY NO 3: NRA RM CONSENT TO CONTRACT.**

## Monitoring of Pavement Repair and Renewal Works

Issue notice to successful tenderers and complete pre-construction check of documentation.



Monitoring of construction.



Notification to NRA RM concerning delays and cost increases. Notification to NRA NM of any proposed scope changes.

## Close Out Report

Final Account

Record Drawings/Safety  
File

Close Out Report

**GATEWAY NO 4: APPROVAL  
BY NRA RM AND REPORT  
SUBMITTED TO NRA NM**

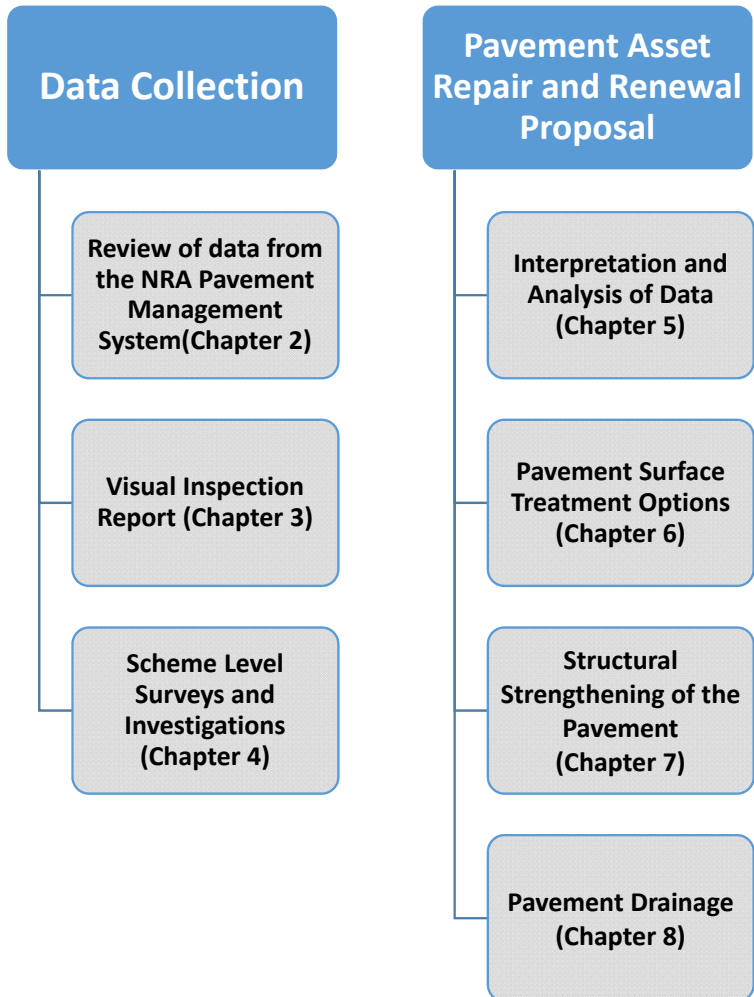




**NRA HD31**

## **Pavement Asset Repair and Renewal Principles**

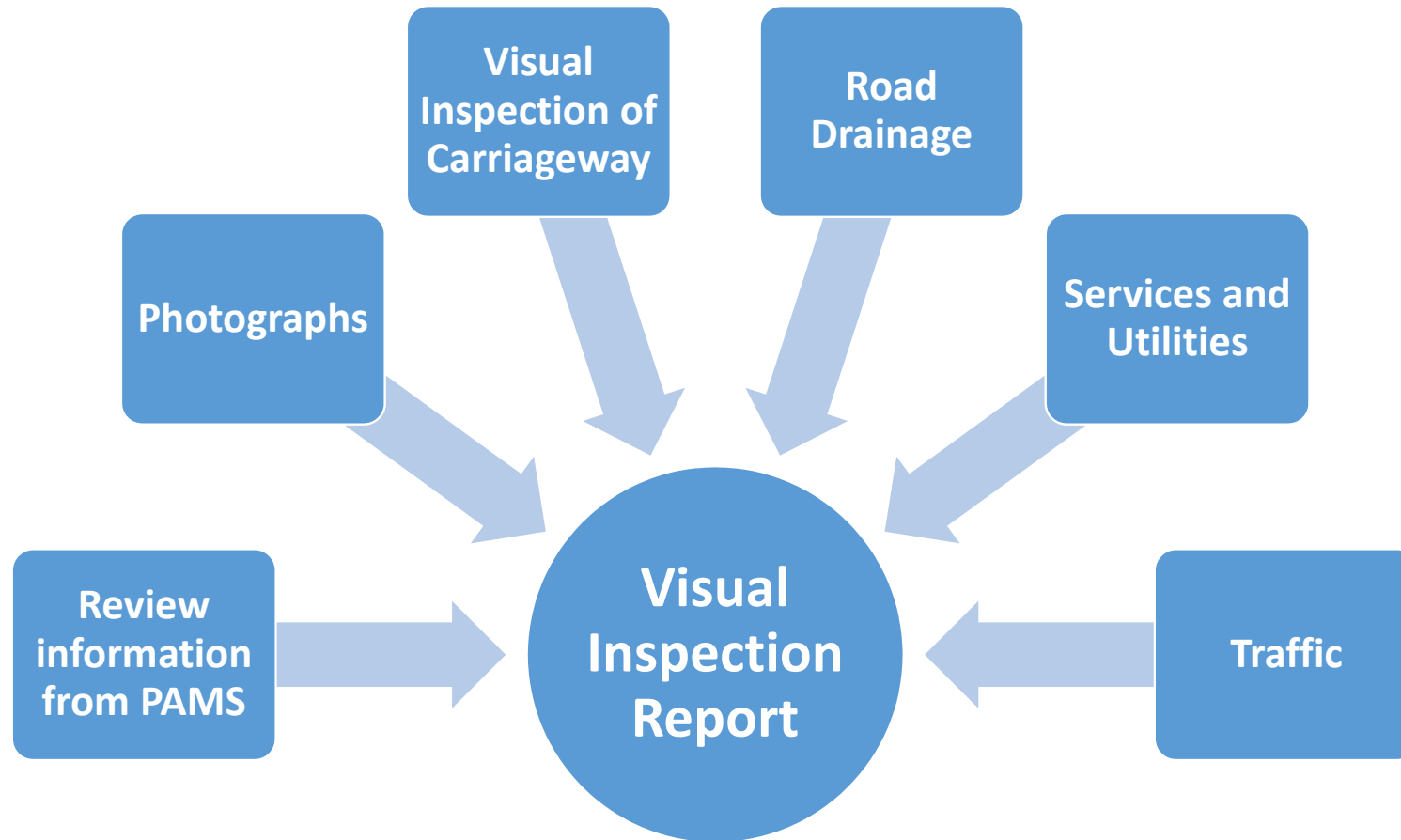
# HD31 Pavement Asset Repair and Renewal - Principles



# Review of Data from the NRA Pavement Asset Management System

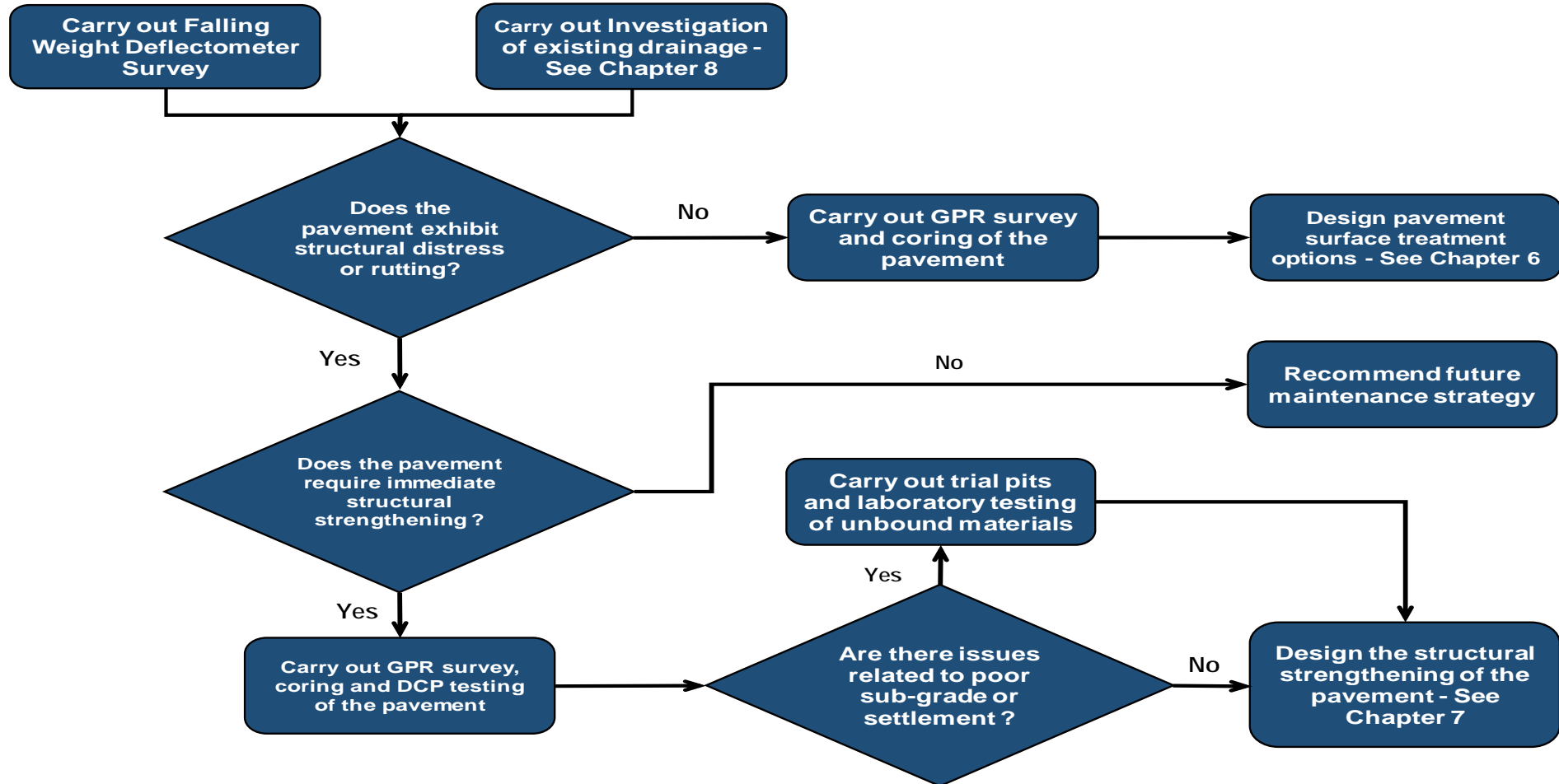


# Visual Inspection Report

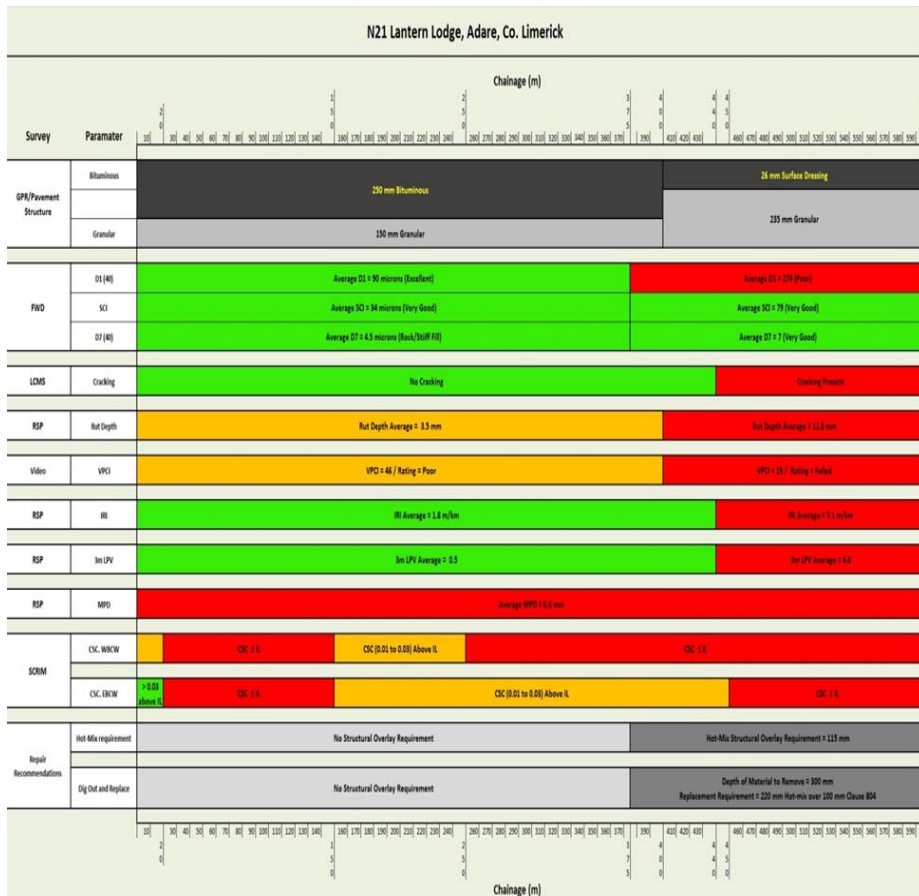




# Scheme Level Surveys and Investigations



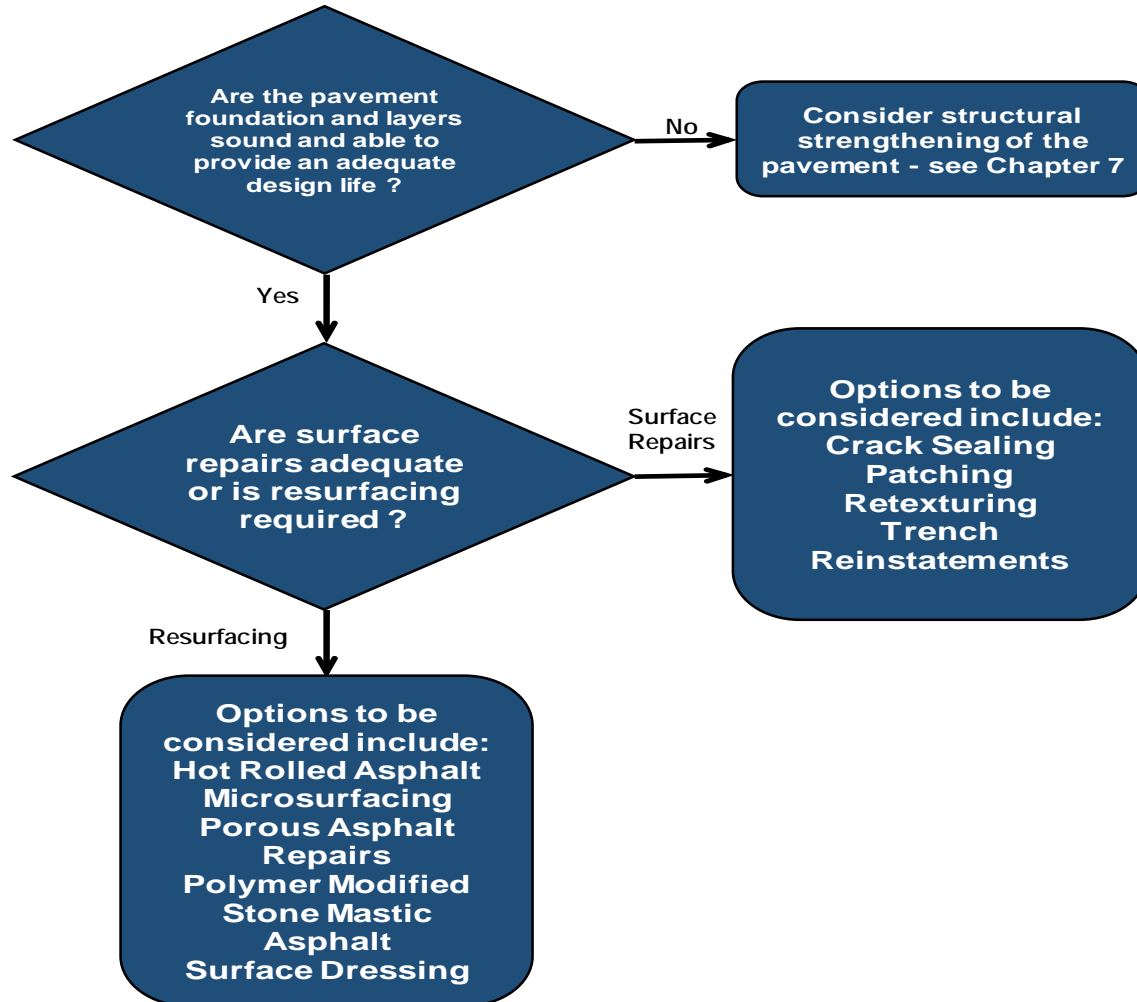
# Interpretation and Analysis of Data



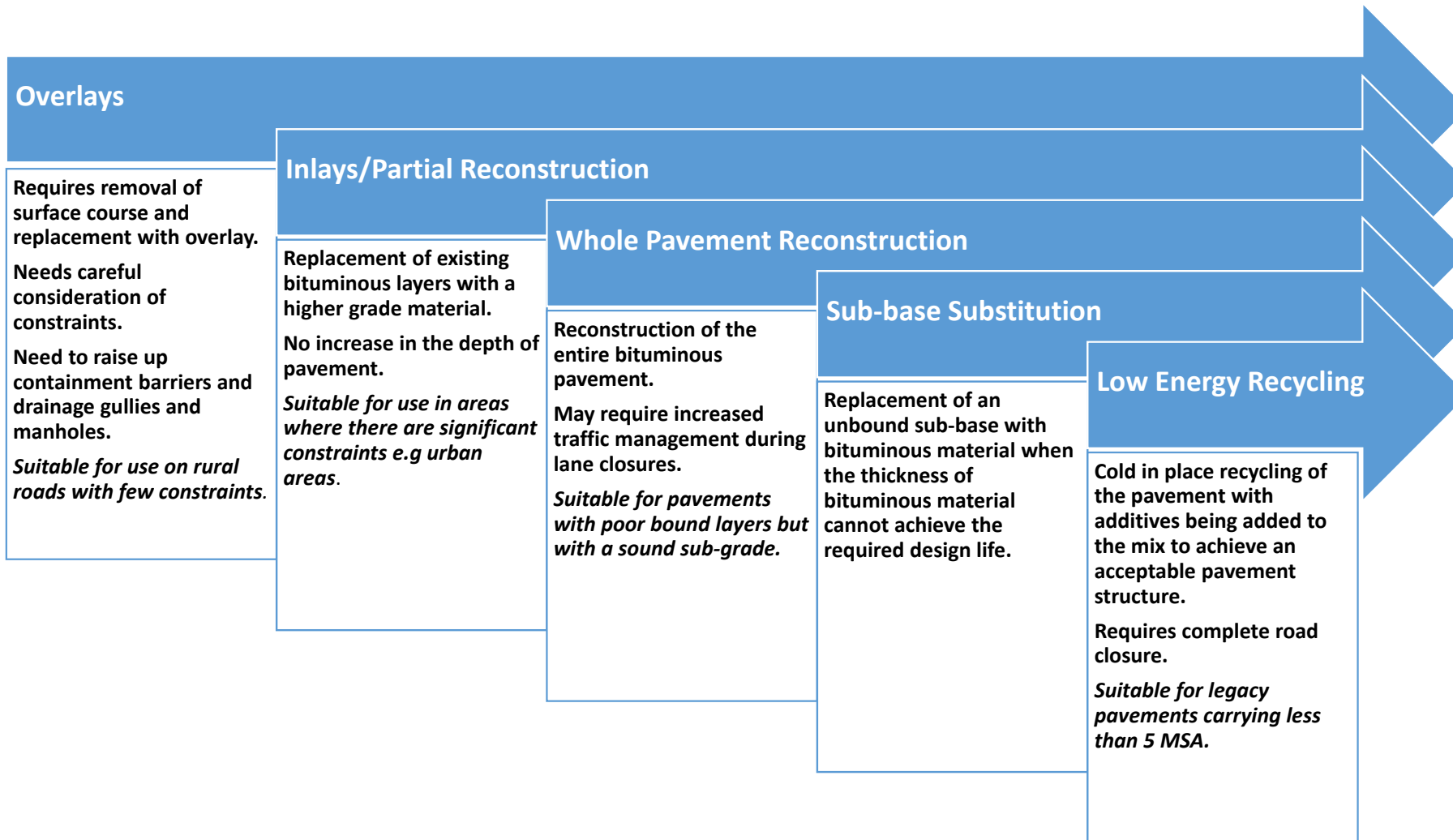
Assess and correlate the information to identify the source of the pavement defect.

- Set out data in chainage order.
- Consider correlation between project level surveys and PAMS data.
- Consider skidding resistance.
- Consider the factors affecting the layer stiffness of the material.
- Decide whether pavement surface treatments or structural strengthening of the pavement is required.

# Pavement Surface Treatment Options



# Options for Structural Strengthening of the Pavement



## Pavement Drainage

### Lack of Effective Drainage

Saturated foundation conditions can weaken pavement.

Pumping action as vehicles pass over pavement.

Freeze thaw cycle weakens pavement during the winter months.

### Investigation

Consider surrounding terrain.

Carry out inspection of drainage and check for blockages.

If required carry out CCTV Survey.

Check filter drainage for clogging.

### Outfalls

Ensure outfalls are properly positioned.

Ensure outfalls are clear.

Ensure drainage gripes are clear.

### Maintenance of Drainage

Ensure that proposed drainage can be properly maintained.

Refer to the NRA Drainage Manual (Under preparation)

## Summary



- A Holistic approach to network pavement renewal works.
- Detailed guidance is provided for each stage of the process.
- Requires the preparation of a PARR Report setting out the reasons for the choice of the pavement solution.
- Requires a close out report to be prepared to ensure that all the required documentation is submitted by the Contractor.
- **NRA HD30 sets out the process to be followed.**
- **NRA HD31 provides technical guidance.**