
Flexible and Rigid Pavement Design Review Training Course for Road Programme Leaders

1 – 5 August 2027
Cairo





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Ref: 277_19880 Date: 1 – 5 August 2027 Location: Cairo Fees: 3100 GBP

Programme Summary

Flexible and rigid pavement design review is the subject of this one-week training course for road programme leaders at applied level, ending in a pavement design review pack for one road section. Pavement choices fix construction cost and maintenance burden for decades, yet owners often accept designer inputs and options without challenge. The approach moves from decision rights and design inputs, through traffic, ground and structure checks, to life-cycle cost and maintenance strategy. Mars Training Centre UK delivers this programme in flexible and rigid pavement design review.

The Business Case

Road owners carry the cost of early pavement distress long after the designer has left the project. Weak traffic forecasts, optimistic ground assumptions or unexamined options lead to premature repair. Leaders who challenge inputs and compare options on whole-life cost protect the network and the programme.

- Premature Pavement Distress: Falls as traffic and ground inputs are tested before approval.
- Whole-Life Cost: Improves as options are compared across design life, not construction price alone.
- Design Rework: Reduces as submissions are reviewed against a clear checklist.

Principles and Evidence Base

- ISO 55001: Its asset management system requirements frame the whole-life view of pavements applied in Sessions 1 and 4.
- PIARC Guidelines for the Implementation of ISO 55001 in Road Organisations: These guidelines shape how design decisions are linked to maintenance and asset data in Session 4.

Intended Participants

- Leaders who approve pavement designs for road programmes.
- Client-side engineers who review designer and consultant submissions.
- Asset managers who inherit and maintain the pavements that are built.
- Project managers who weigh pavement options against budget.

The programme serves highway authorities, municipalities, port and airport operators and development agencies.



Learning Outcomes

1. Participants will be able to evaluate the traffic and subgrade inputs behind a pavement design.
2. Participants will be able to compare flexible and rigid structures for a given road section.
3. Participants will be able to diagnose weaknesses in a designer submission using a review checklist.
4. Participants will be able to construct a life-cycle cost comparison with stated assumptions.
5. Participants will be able to prioritise maintenance commitments that follow from each option.
6. Participants will be able to justify an approval or rejection of a design to a governing body.

Programme Structure

Day 1: Flexible and Rigid Pavement Design Review Foundations

What does a pavement design commit the owner to, and who approves its inputs?

- Pavement Design Decision Rights Matrix
- Flexible and Rigid Pavement Structure Types
- Design Life and Reliability Definitions
- Pavement Design Input Register
- ISO 55001 Whole-Life View of Road Pavements

Day 2: Traffic Loading and Subgrade Inputs

How sound are the traffic and ground inputs behind the design?

- Traffic Loading and Axle Load Forecast Review
- Growth Rate and Design Period Assumptions
- Subgrade Strength and Variability Assessment
- Drainage and Moisture Condition Review
- Input Sensitivity Check Template

Day 3: Thickness Design and Material Choices

Does the proposed structure carry the loading for the stated design life?

- Mechanistic-Empirical Design Concepts for Reviewers
- Asphalt Layer and Binder Selection Review
- Concrete Slab Joint and Reinforcement Review
- Unbound Base and Sub-Base Specification Check
- Designer Submission Review Checklist

Day 4: Life-Cycle Cost and Maintenance Strategy

Which option costs least over its life, and what maintenance does it commit the owner to?



- Life-Cycle Cost Comparison of Flexible and Rigid Options
- Maintenance and Rehabilitation Treatment Timeline
- Discount Rate and Cost Assumption Sensitivity
- Pavement Management Data Link to Design Decisions
- PIARC Guidelines for ISO 55001 in Road Organisations

Day 5: Applying Pavement Design Review to a Road Section

Is the design ready for approval, and what must the designer still answer?

- Applying the Day 1 Decision Matrix to a Road Section
- Testing the Day 2 Inputs Against Survey Data
- Reviewing the Day 3 Structure With the Checklist
- Applying the Day 4 Cost Comparison to the Options
- Completing the Pavement Design Review Pack

Methodology

The programme rests on case analysis and structured exercises. Participants review redacted design submissions, traffic forecasts and cost models from highway and port projects, and defend a recommendation before a simulated approval board.

- Suggested activity: Testing a traffic forecast and listing the assumptions behind it.
- Suggested activity: Comparing flexible and rigid options over a stated design period.
- Suggested activity: Presenting an approve or return recommendation to a simulated board.

Capstone Output

Each participant completes a pavement design review pack for one live or sample road section. It holds an input register, a list of challenges to the designer, a life-cycle cost comparison, a maintenance commitment outline and a recommendation record. It is used to brief the approval body and to explain later why a structure was chosen.

Frequently Asked Questions

Is flexible and rigid pavement design review suitable for leaders who are not pavement engineers?

Yes. It is set at applied level for managers who approve, review or fund road pavement designs. You need project or asset experience, not pavement design skills; technical terms are explained as they arise.



Which standards does flexible and rigid pavement design review rest on?

It rests on ISO 55001 for asset management and the PIARC guidelines for implementing it in road organisations. Both frame the whole-life questions asked of each pavement design.

How is the pack from flexible and rigid pavement design review used at work?

You use it to brief the approval body, send clear questions to the designer and set maintenance expectations. It also gives asset managers a record of why a structure was chosen.

How does flexible and rigid pavement design review differ from a road maintenance management course?

It concentrates on challenging design inputs and options before construction. Road maintenance courses concentrate on planning and delivering repairs once pavements are in service.