
Highway Pavement Specification, Testing and Site Quality Assurance Course for Project Leaders

21 – 25 December 2026
Barcelona





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Programme Summary

Highway pavement quality assurance is the subject of this five-day training course for project leaders, contract managers and site delivery heads at managerial level, ending in a pavement quality assurance plan for one road package. Pavement defects often appear only after opening, when repair is costly. The approach moves from material selection and specification, through testing and trial sections, to construction control and acceptance, and then to a worked plan. Mars Training Centre UK delivers this programme in highway pavement quality assurance.

The Business Case

Pavements that fail early shorten the service life of the road, raise maintenance cost and expose owners and contractors to disputes. Project leaders who specify materials clearly, test on a planned basis and record decisions can detect problems while they are cheap to correct, and can show the owner that the work meets the contract and the road performs as intended.

- Rework and Defect Correction: Falls as inspection and test points are planned before materials arrive on site.
- Dispute Exposure: Reduces as acceptance criteria and test records are agreed in the specification.
- Whole-Life Maintenance Cost: Improves as material and method choices are compared on service life, not price alone.

Principles and Evidence Base

- ISO 9001: Its quality management system requirements shape the inspection and test planning and non-conformance control in Sessions 2 and 4.
- ISO 55001: Its asset management requirements guide the whole-life comparison of material and method options in Session 3.
- ISO 14001: Its environmental management requirements frame the sourcing, recycling and waste decisions in Session 3.

Intended Participants

- Project leaders who are accountable for the quality of pavement works on a road package.
- Contract and commercial managers who write and administer pavement specifications.
- Site delivery heads who coordinate plant, crews and testing on paving operations.
- Owner representatives who review test results and accept completed layers.

The programme serves road authorities, infrastructure contractors, consultancies and development agencies.



Learning Outcomes

1. Participants will be able to evaluate pavement material options against performance, availability and cost.
2. Participants will be able to construct a pavement specification with clear acceptance criteria.
3. Participants will be able to design an inspection and testing plan for each pavement layer.
4. Participants will be able to diagnose causes of early pavement distress from site and test records.
5. Participants will be able to prioritise corrective actions for non-conforming work.
6. Participants will be able to justify a pavement quality assurance plan to an owner and a project board.

Programme Structure

Day 1: Highway Pavement Quality Assurance Foundations

What does a pavement need to do, and what controls its quality?

- Pavement Layer Functions and Failure Modes
- Quality Roles Across Owner, Designer and Contractor
- Specification Structure and Acceptance Clauses
- Aggregate, Binder and Cement-Treated Material Families
- Case Review of Two Early Pavement Failures

Day 2: Materials Testing and Trial Sections

How are materials proven before and during paving?

- Sampling Plan and Test Frequency Schedule
- Laboratory and Field Test Results Interpretation
- Mix Approval and Source Qualification
- Trial Section Design and Evaluation
- Non-Conformance Report and Hold Point Register

Day 3: Construction Methods and Whole-Life Choices

Which materials and methods give the best service life for the cost?

- Paving, Compaction and Joint Method Statements
- Plant Selection and Capacity Matching
- Recycled and Local Material Options
- Whole-Life Cost Comparison of Pavement Options
- Weather and Temperature Control Rules



Day 4: Site Control and Acceptance

How is quality checked layer by layer, and when is work accepted?

- Inspection and Test Plan by Pavement Layer
- Surface Regularity and Thickness Checks
- Statistical Acceptance and Pay Adjustment Rules
- Corrective Action and Rework Decision Tree
- Handover Record and Defects Liability Review

Day 5: Applying Highway Pavement Quality Assurance to a Road Package

Is the quality assurance plan ready for the owner and project board to approve?

- Applying the Session 1 Failure Modes to the Chosen Package
- Testing the Session 2 Sampling Plan on Sample Results
- Checking Session 3 Method Choices Against Whole-Life Cost
- Applying the Session 4 Acceptance Rules to Open Issues
- Completing the Pavement Quality Assurance Plan

Methodology

The programme is built around case analysis and structured exercises. Participants work with an anonymised road package, sample test results and site records, review specifications, plan inspections and rule on non-conforming work in small teams, then defend their plan before a simulated project board. No laboratory work is carried out.

- Suggested activity: Reviewing a sample set of compaction and thickness results against acceptance limits.
- Suggested activity: Drafting hold points for an asphalt paving operation.
- Suggested activity: Comparing two base layer options on whole-life cost.

Capstone Output

Each participant completes a pavement quality assurance plan for one road package. It contains a specification summary, a sampling and testing schedule, an inspection and test plan, a non-conformance procedure and an acceptance and handover checklist. It is used to brief the owner and project board and to set up quality control on site.



Frequently Asked Questions

Is highway pavement quality assurance training suitable for project leaders without a materials laboratory background?

Yes. Highway pavement quality assurance training is set at managerial level and assumes responsibility for road works or contracts, not laboratory testing experience.

Which standards does highway pavement quality assurance rest on in this programme?

Highway pavement quality assurance rests on ISO 9001 for quality management, ISO 55001 for asset management and ISO 14001 for environmental management.

How is the highway pavement quality assurance plan used at work?

You use the highway pavement quality assurance plan to brief the owner and project board, set inspection points and guide acceptance of completed layers.

How does highway pavement quality assurance differ from pavement design training?

Highway pavement quality assurance covers specification, testing, site control and acceptance, while pavement design training concentrates on structural thickness and mix design.