Intelligent Transport Network Leadership: ITS Architecture, Traffic Control and Mobility Data Course

11 – 22 April 2027
Kuala Lumpur

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Programme Summary

Intelligent transport network leadership, covering ITS architecture, traffic control and mobility data, is the subject of this two-week training course for transport authority directors, road operators and smart city programme leaders at a strategic level, ending in a leadership plan for one network. Separate systems bought project by project leave control rooms, data and standards that do not connect. The programme moves from service domains and reference architecture, through diagnosis of network performance and data, to control, communication and platform design, then to delivery, governance and a worked plan. Mars Training Centre UK delivers this programme in intelligent transport network leadership.

The Business Case

When intelligent transport systems are procured in isolation, operators cannot see the whole network, data cannot be shared across agencies and incidents take longer to clear. Leaders who agree one architecture, one data basis and one control strategy can direct investment to the corridors that need it and show what each system delivers.

- Network Reliability: Improves as congestion hotspots and incident handling are managed from a shared control strategy.
- Investment Waste: Falls as procurements follow one reference architecture and interface specification.
- Decision Quality: Rises as mobility data is checked for quality and ownership before use.

Principles and Evidence Base

- ISO 14813-1:2024: Its ITS service domains, service groups and services structure the scoping work in Sessions 1 and 2.
- ISO/TC 204 standards family: The committee's wider series on intelligent transport systems guides the standards checks in Sessions 2, 6 and 9.
- Systems engineering: Its lifecycle view of requirements, design and integration shapes Sessions 2 and 8.

Intended Participants

- Transport authority leaders who set network policy and fund ITS programmes.
- Road operators who run control centres and respond to incidents.
- Smart city programme leaders who connect mobility with other urban systems.
- Directors who own mobility data and agree sharing between agencies.

The programme serves highway authorities, public transport agencies, city administrations and toll and tunnel operators.

Learning Outcomes

1. Participants will be able to evaluate an ITS estate against the service domains of a recognised reference model.
2. Participants will be able to diagnose weaknesses in network performance, detection coverage and control centre capability.
3. Participants will be able to appraise mobility data for quality, ownership and privacy risk.
4. Participants will be able to construct a traffic control and incident management strategy.
5. Participants will be able to design a connected vehicle, communication and data platform approach.
6. Participants will be able to justify a procurement, governance and phasing plan to a transport authority board.

Programme Structure

Day 1: Intelligent Transport Network Leadership and ITS Service Domains

What must a network leader own across the intelligent transport systems that serve a road network?

- ISO 14813-1 Service Domain Map
- ITS Service Group Catalogue
- Network Operator Mandate Statement
- Stakeholder and Authority Interface Chart
- ISO/TC 204 Standards Landscape Review

Day 2: Reference Architecture and Systems Engineering

How does a reference architecture keep separate ITS projects consistent over time?

- Functional and Physical Architecture Views
- Systems Engineering Lifecycle Review
- Interface and Data Exchange Specification
- Architecture Governance Board Charter
- Architecture Gap Register

Day 3: Diagnosing Network Performance and Congestion

Where does the network lose reliability, and what evidence shows it?

- Corridor Performance Baseline
- Incident and Congestion Hotspot Analysis
- Detector and Sensor Coverage Audit
- Control Centre Capability Assessment
- Public Transport and Freight Conflict Map

Day 4: Diagnosing Mobility Data Quality and Ownership

Can the mobility data held today support operational and planning decisions?

- Mobility Data Source Inventory
- Data Quality Scorecard
- Data Sharing Agreement Review
- Vehicle-to-Infrastructure Data Flow Map
- Privacy and Security Risk Register

Day 5: Designing Traffic Control and Incident Management

How are signals, incidents and traveller information run as one control strategy?

- Signal Coordination Strategy Sheet
- Incident Management Response Plan
- Variable Message and Traveller Information Rules
- Emergency Management Coordination Protocol
- Control Centre Operating Procedure

Day 6: Designing Connected Vehicle and Communication Infrastructure

Which vehicle and roadside communication options suit the network, and how are they tested?

- Vehicle-to-Vehicle and Vehicle-to-Infrastructure Use Case Catalogue
- Communication Network Option Appraisal
- Roadside Equipment Deployment Plan
- Interoperability Test Plan
- Simulation and Modelling Design Brief

Day 7: Designing the Mobility Data Platform and Analytics

What must a data platform deliver so that operators and planners act on it?

- Data Platform Reference Design
- Real-Time Dashboard Specification
- Predictive Congestion Analytics Brief
- Multimodal Journey Data Integration Map
- Performance Indicator Definition Sheet

Day 8: Specification, Procurement and Delivery Control

How are ITS requirements written, bought and delivered without losing interoperability?

- Requirements Specification Structure
- Procurement Lot and Contract Strategy
- Delivery Risk and Dependency Register
- Operations and Maintenance Service Model
- Benefits Realisation Plan

Day 9: Programme Assessment, Governance and Roadmap

How is an ITS programme judged, governed and phased across agencies?

- ITS Programme Performance Assessment
- Standards Conformance Checklist
- Multi-Agency Governance Model
- Funding and Phasing Options Table
- Network Roadmap Draft

Day 10: Applying Intelligent Transport Network Leadership to One Network

Is the leadership plan ready for a transport authority board to adopt?

- Applying the Session 3 Baseline to the Chosen Network
- Testing Session 5 Control Strategy Against Hotspots
- Matching Session 7 Platform to Session 4 Data Findings
- Checking Session 8 Delivery Plan Against the Session 9 Roadmap
- Completing the Intelligent Transport Network Leadership Plan

Methodology

The programme is built around data workshops and structured exercises on anonymised network records from highway, urban transit and tunnel settings. Participants work in small authority teams, take the roles of network director, control centre manager and data owner, and test each design against the same corridor.

- Suggested activity: Mapping a corridor's detectors and signals to find where control is blind.
- Suggested activity: Scoring three mobility data sources for quality and sharing risk.
- Suggested activity: Walking a major incident through the control centre procedure.

Capstone Output

Each participant completes an intelligent transport network leadership plan for one network. It holds an architecture view, a performance and data baseline, a control strategy, a platform and communication approach, a delivery and governance model and a phased roadmap. The plan is used to brief an authority board and to guide procurement.

Frequently Asked Questions

Is intelligent transport network leadership suitable for directors who are not traffic engineers?

Yes. Intelligent transport network leadership is set at strategic level and assumes familiarity with a road or transit network, not engineering design skills.

Which standard does intelligent transport network leadership rest on in this training?

Intelligent transport network leadership rests on ISO 14813-1:2024 and the wider ISO/TC 204 series, with systems engineering guiding delivery.

How is the plan from intelligent transport network leadership used at work?

You use the intelligent transport network leadership plan to brief an authority board, align agencies on one architecture and shape procurement.

How does intelligent transport network leadership differ from a programme on road safety management?

Intelligent transport network leadership centres on systems, data and control of the whole network, while a road safety programme centres on reducing crashes and harm.