

Martyn's Law Compliance: Non-Negotiables for Spatial Mapping in Higher Education and Healthcare

Operational Spatial Intelligence and Defensible Preparedness for Enhanced Tier Estates.

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1. Executive Summary

The upcoming enactment of the Terrorism (Protection of Premises) Act—widely known as Martyn's Law—marks a fundamental shift in the statutory duties imposed on those responsible for public spaces. For large-scale premises qualifying under the **Enhanced Tier** (public capacity of 800 or more individuals), the legislation mandates rigorous, demonstrable, and audit-ready counter-terrorism preparedness measures.

Higher education campuses and healthcare hospital trusts are among the most complex, porous, and heavily populated environments governed by this standard. Sprawling across multiple square kilometres, these estates feature open public realms, highly restricted research facilities, high-throughput clinical corridors, and constantly fluctuating populations.

Currently, most of these estates rely on conventional architectural CAD floor plans, static PDF layouts, or standard fire safety diagrams to support security operations. These legacy artefacts are fundamentally inadequate for dynamic security interventions during an active threat event. Fire egress plans assume a singular internal hazard (fire or smoke) requiring immediate outward evacuation. A counter-terrorism response, by contrast, demands nuanced containment, selective internal sheltering, tactical corridor control, and rapid coordination with blue-light responders.

This white paper establishes the spatial mapping non-negotiables required for Enhanced Tier estates to transition from passive compliance diagrams to dynamic, operational spatial intelligence—ensuring statutory alignment and defensible operational readiness.

2. The Regulatory Reality: Why Standard Building Maps Fail

Martyn's Law introduces a legal mandate requiring duty-holders to implement reasonable, practicable, and actionable security measures to mitigate the impact of potential terrorist acts. Within Enhanced Tier premises, statutory compliance centres around four non-negotiable operational capabilities:

1. **Evacuation:** Safe, rapid egress away from active threat zones.
2. **Invacuation:** Controlled movement of individuals into secure, protected internal zones.
3. **Lockdown:** Physical and electronic isolation of spaces to restrict perpetrator movement.
4. **Communication:** Rapid dissemination of unambiguous tactical intelligence to occupants and emergency services.

The Failure of Traditional Architectural and Fire Drawings

Traditional architectural drawings and fire evacuation diagrams were designed for building regulation approval and fire safety compliance, not tactical crisis response. Relying on them during an active security incident creates critical vulnerabilities:

- **Assumed Egress Vector:** Fire maps direct all occupants to the nearest final exit. In a hostile active incident, blindly following fire egress routes may lead occupants directly into an active shooter or hostile vehicle hazard.
- **Lack of Threat Context:** Static egress plans do not display boundary perimeters, hostile vehicle mitigation (HVM) gaps, surveillance line-of-sight, or live access-control status.
- **Colloquial Disconnect:** Architectural plans frequently label spaces by structural numbering (e.g., "Block B, Room L2-104"), whereas emergency services and transient occupants rely on functional or colloquial naming (e.g., "The Main Atrium" or "Outpatient Cardiology"). This mismatch slows down response times.

Senior Responsible Officer Accountability

Under Martyn's Law, designated Senior Responsible Officers (SROs), Estate Directors, and Heads of Security are directly accountable. In the event of a critical incident, regulatory bodies will audit not just whether a policy existed, but whether the organisation possessed **demonstrable, audit-ready operational competence**.

STATIC FIRE DRAFTING VS TACTICAL SPATIAL INTELLIGENCE

Variable Hazard (External/Internal) ---> Dynamic Decisioning Engine

(Evacuate / Invacuate / Contain) ---> Dynamic Tactical Handover Points

3. The Core Non-Negotiables: Six Foundational Spatial Mapping Layers

To establish defensible preparedness, Enhanced Tier institutions must transition to a layered, georeferenced spatial mapping model. The following six functional layers form the baseline requirement for modern operational spatial intelligence.

Section 3.1: Boundary Delineation & Access Control Topology

An estate must clearly map its legal and operational physical footprint to evaluate vulnerability points across public and private spaces.

- **Legal Red Line vs. Public Right of Way:** Explicitly defining property boundaries, public rights of way traversing campuses, and shared operational spaces.
- **Access Point Classification:** Mapping all entry vectors categorised by operational modality—pedestrian entrances, primary vehicular routes, service delivery docks, and restricted emergency egress points.
- **Hierarchical Access Topology:** Mapping spatial access levels, including fully open public realms, card/fob credentialed zones, mechanical key-only areas, and panic-locked egress corridors.
- **Hostile Vehicle Mitigation (HVM):** Georeferencing structural perimeters, automated/static bollards, rated perimeter walls, and vulnerable, unmitigated kerbside loading zones.

Section 3.2: Dynamic Lockdown Sectors & Separation Boundaries

Uncontrolled, wide-area evacuations in large facilities can inadvertently concentrate potential victims. Dynamic lockdown architecture allows for precise, targeted spatial control.

- **Zonal Isolation Architecture:** Sectorising buildings into independent containment zones. This capability is paramount in healthcare settings where full building evacuations can result in severe clinical harm or loss of life.

- **Actuation Mechanisms:** Spatial maps must clearly distinguish between automated electronic access control (EACS) lockdowns, manual mechanical deadbolts, local panic buttons, and non-lockable egress paths.
- **Tactical Corridor Control:** Mapping key thoroughfares that can be isolated to block transit across large complexes, preserving sterile ingress corridors for arriving law enforcement.

DYNAMIC ZONAL ISOLATION ARCHITECTURE

[ZONE A: Public Atrium EACS Barrier ZONE B: Clinical
 Status: Open Entry Hard Lockdown Active | Status: Secured
 Egress: Outward Vectors Bypass: First-Response | Egress: Safe Haven

Section 3.3: Egress Geometry: Evacuation vs. Invacuation Paradigms

Spatial datasets must differentiate between traditional outward egress and internal protective containment routes.

- **Internal Safe Havens:** Georeferencing dedicated invacuation zones designed to shield occupants from external threats. Safe havens must meet minimum structural standards:
 - Heavy masonry or reinforced structural walls.
 - Absence of direct external glazing or sightlines from public walkways.
 - Internal locking mechanisms operable without specialised keys.
 - Access to secondary egress vectors.
- **Counter-Terrorism Dispersal Zones:** Replacing traditional, static fire assembly points with dispersed, flexible counter-terrorism rendezvous zones. Fire assembly points are often predictable and exposed, making them vulnerable to secondary attacks.

Section 3.4: Critical Infrastructure Nodes & Vulnerability Hotspots

Incident commanders require immediate spatial visibility into high-risk locations and vulnerable infrastructure assets.

- **Mass Congregation Points:** Real-time capacity and spatial mapping of lecture halls, auditoriums, central dining halls, patient waiting concourses, and main atrium steps.
- **Hazardous and Clinical Assets:** Georeferencing hazardous material stores, including bulk cryogenic/oxygen storage farms, radiological facilities, high-voltage switchgear rooms, BSL-3 laboratory facilities, and chemical stores.

Section 3.5: Trauma Response & Life-Safety Asset Georeferencing

In the critical minutes after an attack, rapid access to emergency medical supplies is essential to save lives.

- **Emergency Trauma Equipment:** Georeferencing Public Access Trauma (PACT) kits, major bleed control stations, and Automated External Defibrillator (AED) networks.
- **Specialised Egress Assets:** Georeferencing mobility refuge points, evacuation chairs, specialised bariatric egress routes, and chemical/biological decontamination shower units.

Section 3.6: Command, Communication & Surveillance Interoperability

Operational maps must serve as a bridge between internal security control rooms and external blue-light responders.

- **Surveillance Coverage:** Mapping fixed CCTV camera field-of-view cones, dead zones, and real-time pan-tilt-zoom (PTZ) locations.
- **Acoustic and Public Address Topography:** Mapping Public Address (PA) and Voice Alarm (VA) coverage sectors, noting known acoustic dead zones or areas lacking coverage.
- **Control Centre Redundancy:** Mapping primary Security Control Centres (SCC) alongside designated secondary/fallback command locations.
- **Blue-Light Interoperability:** Clearly marking primary tactical Rendezvous Points (RVP), Tactical Hold Areas (THA), and casualty clearance routes for emergency services.

4. Spatial Governance, Data Integrity, and Living Documentation

A spatial map is only as reliable as its underlying data integrity. During a major incident, ambiguous spatial references can cause critical delays in emergency response.

Standardised Nomenclature and Georeferencing

Institutions must eradicate colloquial naming discrepancies across their estate data:

- **Unified Spatial Nomenclature:** Standardise room naming conventions across security monitoring software, estate management databases, physical door signage, and emergency service maps.
- **Georeferenced Coordinates:** All spatial layers should be anchored using standard spatial reference systems (e.g., Ordnance Survey National Grid or WGS 84 GPS coordinates) to enable immediate digital sharing with emergency service CAD systems.

Managing Estate Churn

Higher education and healthcare estates undergo frequent spatial modifications, structural refurbishments, and temporary closures.

Churn Type	Operational Risk	Mandatory Governance Action
Construction Hoardings	Blocks established fire/tactical egress corridors.	Update spatial maps 48 hours prior to hoarding erection; re-route tactical ingress layers.
Room Partitioning	Alters room capacities and obstructs CCTV coverage lines.	Mandatory spatial survey before sign-off by Estate Compliance Leads.
Temporary Closures	Entraps occupants in disabled evacuation safe havens.	Real-time digital flagging within security management systems.

Digital Twins and Layered Spatial Environments

Enhanced Tier institutions must transition away from static, single-layer PDF plans toward interactive, vector-based, layered spatial models. Digital mapping platforms allow security controllers to toggle layers on demand—isolating access control barriers, medical asset locations, or surveillance coverage based on the unfolding scenario.

DYNAMIC LAYERED SPATIAL ENVIRONMENT

[Layer 6] Command & Interoperability (RVPs, CCTV Lines, PA)

[Layer 5] Life-Safety Assets (PACT Kits, Bleed Control, AEDs)

[Layer 4] Infrastructure Vulnerabilities & Hazardous Material

[Layer 3] Egress Vectors & Safe Haven Geometries

[Layer 2] Lockdown Sectors & Actuation Boundaries

[Layer 1] Base Architectural Topology & Boundary Red Line

5. Implementation Roadmap: From Compliance Deficit to Defensible Readiness

Transitioning to an operational spatial intelligence framework requires a structured, phased methodology:

PHASE 1 PHASE 2 PHASE 3 PHASE 4

Audit & Gap --> Georeferencing --> Tactical Layer --> Stress-Testing

Analysis & Asset Capture Integration & Blue-Light Sync

Phase 1: Audit & Gap Analysis

- Conduct an inventory of all existing CAD, BIM, GIS, and paper floor plans across the estate.
- Physically audit building perimeters, access points, and door hardware to verify current conditions against architectural drawings.

Phase 2: Georeferencing & Asset Capture

- Establish a unified spatial reference system (e.g., OS National Grid) across all building plans.
- Georeference critical life-safety assets, including PACT kits, AEDs, evacuation chairs, and emergency controls.

Phase 3: Tactical Layer Integration

- Overlay access control topology, dynamic lockdown boundaries, and designated evacuation safe havens.
- Integrate surveillance field-of-view cones, public address zones, and primary/fallback security control centres.

Phase 4: Stress-Testing & Blue-Light Synchronisation

- Conduct desktop exercises using the layered spatial data to simulate complex threat scenarios.
- Share georeferenced spatial intelligence packages with local police, ambulance, and fire services to confirm interoperability.

6. Conclusion & Checklist

Compliance with Martyn's Law requires Enhanced Tier higher education and healthcare estates to rethink their approach to operational spatial data. Passive, static architectural drawings are insufficient for managing complex security incidents. By adopting an operational spatial intelligence model, institutions can establish a clear, defensible safety posture, safeguard public and campus communities, and fulfil their legal duties under statutory regulations.

Executive Compliance Checklist

Use this checklist to evaluate your estate's spatial preparedness against Martyn's Law Enhanced Tier requirements:

- ☐ **Boundary Clarity:** Legal property boundaries, public rights of way, and Hostile Vehicle Mitigation (HVM) perimeters are accurately mapped.
- ☐ **Lockdown Sectorization:** Buildings are divided into functional containment zones, with clear documentation of electronic versus mechanical actuation methods.
- ☐ **Egress Differentiation:** Egress systems clearly distinguish between outward fire evacuation routes and internal invacuation safe havens.
- ☐ **Asset Georeferencing:** Map all PAcT kits, bleed control supplies, AEDs, and evacuation chairs with precise coordinates.
- ☐ **Hazard & Vulnerability Mapping:** Mass congregation spaces, high-voltage rooms, radiological equipment, and chemical stores are mapped.
- ☐ **Standardised Nomenclature:** Room numbers and space names are unified across physical door signage, security software, and emergency service documentation
- ☐ **First Responder Alignment:** Rendezvous Points (RVPs), tactical access corridors, and surveillance coverage zones are formatted for rapid sharing with blue-light services.
- ☐ **Spatial Governance:** Clear processes are in place to update spatial maps whenever building layouts, temporary hoardings, or access points change.