DESIGNING OUT RISK

Richard Ellis *examines how early integration of physical security into urban design can create safer, more welcoming public spaces without compromising aesthetics.*

Philip Zimbardo's now-famous 'Broken Windows Theory' continues to shape the way we understand crime, space, and human behaviour. Though formulated nearly five decades ago, its implications are still felt in modern urban security strategies. The presence, or absence, of care in the built environment acts as a subtle indicator of vulnerability. Where signs of neglect go unchallenged, threats are more likely to materialise.

While the threats of today are vastly different in scale and complexity from those Zimbardo was observing, the core insight remains: people respond to the signals sent by their surroundings. Public spaces that look ungoverned or unprotected are more likely to attract disorder, whether opportunistic or orchestrated.

The challenge for security professionals, however, is no longer just about maintaining a sense of territorial ownership. The reality is far more technical, and the stakes, particularly in the face of vehicle-borne threats, terrorism and high-consequence attacks are much higher. And yet, despite these increasing complexities, physical security is still too often treated as a bolt-on rather than as a foundational element of urban design.

In many major construction or regeneration projects, physical security is positioned at the end of the design pipeline. It is still common to see security treated as part of the landscape furniture package, placed alongside benches and cycle racks. This reflects a deeper misunderstanding of the role that physical security plays in not only protecting public spaces but shaping them.

This late engagement creates a cascade of technical complications. Design intent becomes harder to honour, utility conflicts are more likely and risk mitigation becomes reactive rather than strategic. From a delivery perspective, late-stage implementation often leads to costly rework, accelerated lead times and undermines value engineering opportunities. More fundamentally, it restricts the ability to apply threat-based design logic, a practice that should begin at RIBA Stage 1, not after groundworks have commenced.

Security professionals within the supply chain know this all too well. But there remains a persistent education gap within broader design teams and procurement structures. Unless physical security is understood as part of the spatial design intent from the outset, even well-specified Hostile Vehicle Mitigation (HVM) systems risk becoming compromised. Technically compliant, perhaps, but operationally awkward, visually intrusive, and potentially unfit for long-term use.

Too often, physical security is judged solely on its physical footprint, be that bollards, blockers, barriers, rather than as a coordinated infrastructure system. But as urban security challenges evolve, this narrow framing no longer serves.

Security systems, particularly in high-footfall or symbolically significant locations, should be designed as integrated infrastructure. This includes access control hardware and software, power, communication systems, sensor inputs, surveillance integration and operational protocols. Yet what is often overlooked are the constraints imposed by subterranean infrastructure such as shallow slab depths, movement joints, service corridors, and the spatial geometry of below-ground assets.

This is particularly important in retrofit projects, where existing conditions are rarely predictable, and every inch of ground-level space must be accounted for. Surface-fixed and shallow-mount solutions are often the most practical option. Early coordination between manufacturers, structural engineers and design leads ensures that the most appropriate solution is selected from the outset, one that aligns with performance requirements, allows for value engineering and gives designers the opportunity to consider aesthetics or explore bespoke alternatives where needed.

At Manchester Piccadilly Station, for example, the decision to embed security into the urban design was made early in the process. Rather than treating protection as an afterthought, ATG Access worked closely with the security consultant, station management and design team to develop a bespoke HVM solution that responded not only to the technical constraints of the site, but also to its cultural and architectural context.

One standout result of this collaboration was the creation of the now-iconic 'MCR' sign – a security-rated installation that serves as both a protective measure and a proud visual landmark. Following proactive discussions with project stakeholders, ATG researched Manchester's industrial heritage and design themes, developing a concept that paid homage to the city's industrial heritage. The final installation, incorporating shallow-mount bollards, a marble base, double-riveted accents and integrated lighting, demonstrates how HVM can go beyond blending in and actively enhance the identity and experience of a place.

The technical performance of physical security systems is only part of the equation. Equally important is how those systems are perceived by the people using the space. Infrastructure that feels defensive or out of place can create unease, reduce public confidence and disrupt the openness that civic spaces are meant to provide.

> ### IN MANY PROJECTS, PHYSICAL SECURITY IS POSITIONED AT THE END OF THE DESIGN

A protective element that dominates a square may deter a hostile vehicle, but it might also alienate users or erode the social fabric of the place. What's important is that when security is integrated into the environment seamlessly, it provides reassurance.

The best public realm schemes adopt a 'security by stealth' approach. Protective measures are absorbed into the material language of the site, providing clear functionality without visual intrusion. Crucially, this can't be achieved as an afterthought. Materials, form and finish must be considered from the outset, with collaboration between security specialists, architects and planners.

Inclusive design must also be a priority. Security features should never impede mobility or access for disabled users, the elderly or those with prams. Poorly positioned bollards or excessively hard landscaping can unintentionally create barriers for those who rely on smooth, navigable routes.

By integrating accessible design features such as contrast-coloured tops and tactile banding on bollards to assist visually impaired users, along with audio cues and flashing lights to support those with hearing or visual impairments, as part of the security strategy, public spaces can be made safer, more usable and genuinely welcoming for everyone.

Designing for perception is central to creating public spaces that are both safe and socially successful. When security feels embedded in place, not imposed upon it, it reinforces the sense that the area is cared for, maintained and valued by those who use it. The suggestion that there is a trade-off between beauty and safety is outdated. The last decade has seen a new wave of design-led security measures that actively contribute to placemaking.

Hostile Vehicle Mitigation does not have to look like a security system. It can take the form of sculptural installations, integrated seating, planters, lighting elements or commemorative architecture. With the right design intent and early-stage engagement, these features can perform to the highest certification standards while contributing to the character and identity of the space.

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More importantly, these elements communicate care. Returning again to Zimbardo's Broken Windows theory, what matters is not just whether an area is technically protected, but whether it looks and feels looked after. A well-maintained, beautifully designed protective system sends a message: "This space matters". It is precisely this message that deters hostile intent before it takes shape.

HOSTILE VEHICLE MITIGATION DOES NOT HAVE TO LOOK LIKE A SECURITY SYSTEM

While the frequency of major urban attacks may fluctuate, recent incidents across the UK and Europe serve as a clear reminder that the threat landscape remains active and unpredictable. Tactics continue to evolve and, as cities become denser, more connected and digitally integrated, so too does the potential for hybrid threats that combine physical, cyber and psychological components.

This means physical security cannot afford to stand still. Its value is not only in resisting today's known threats but in offering resilience against tomorrow's unknowns. Flexibility and adaptability, therefore, must be built in from the outset. This applies as much to physical infrastructure as to the governance models surrounding it.

Security teams must now consider not only hostile actors, but also system obsolescence, digital exploitation of access controls, social engineering at public access points and reputational risks associated with visible overreach or neglect.

A well-designed physical security system must therefore be capable of adjustment, augmentation and adaptation. It calls for a new generation of urban infrastructure that is secure, intelligent and sensitive to the environments it protects.

As the function of public space continues to evolve, the responsibility to secure it must in turn evolve too. It is no longer enough to think of security as a technical problem with technical solutions. Physical security is a statement of civic intent. It tells the public how much we value the spaces in which we live, work and gather.

When done well, security infrastructure is invisible in the best possible sense. It protects without intruding. It blends into the language of the city. It is as functional as it is respectful. For this to happen, however, physical security must be brought into the conversation early, at the same table as architects, engineers, urban planners and community stakeholders. Only then can we achieve the balance we need ●

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Security-rated installations should serve as both a protective measure and a proud visual landmark

Picture credit: ATG Access