

RISK AND THE DESIGN OF PUBLIC SPACE: IMPLICATIONS FOR LOCAL GOVERNMENTS¹

ROBERT DALZIEL

CHRIS SKELCHER

JUDITH PETTS

SARAH DAMERY

University of Birmingham, UK

ABSTRACT

Risk has become a prominent feature of our society. Changes in legislation, media coverage, and public attitudes have resulted in greater awareness of risk, and a propensity to litigation arising from personal injury claims. This article examines whether and how changing attitudes to risk in the UK impact on the design of public spaces, reducing the quality of streets, squares, and parks, and draws implications for local government. The research design involved elite stakeholder interviews and case studies, two of which are reported here. The analysis reveals that risk aversion and the compensation culture are powerful forces. However, there is evidence that strong leadership by key actors – especially local government politicians, urban design professionals, risk managers, and the insurance industry – can mitigate its impact. Knowledge of local government's legal responsibilities for public space and case law, together with creative public space maintenance regimes, provide important resources against risk averse design and liability claims.

INTRODUCTION

Risk has become a prominent feature of our society (Beck 1992) although human societies have always lived with risk (Rose 2000). Changes in legislation, media coverage, and public attitudes have produced an environment in which there is now much

¹ This article is based on research was commissioned by the UK's Commission for Architecture and the Built Environment (CABE). The views expressed are the authors own, and do not necessarily reflect those of CABE. The full research report, entitled Living with risk: Promoting better public space design, was published by CABE in 2007 and is available at www.cabe.org.uk

greater awareness of risk, and one in which litigation arising from personal injury claims has stimulated a compensation culture. As a result, both public and business organizations now give greater priority to risk management. The design of public space is one of many activities affected by perceptions of risk. In this article, we explore whether and how changing attitudes to risk impact on the quality of public space, including the design of streets, squares, and parks. We examine whether risk aversion is restricting innovation by creating dull and standardised places, and assess the extent to which risk can be managed so that stimulating and enjoyable urban environments can be produced.

This question has particular significance for local governments because of their responsibilities for regulating urban development and shaping the quality of public spaces. The urban planning, transportation, licensing, policing, and parks functions of local governments, as well as their own development projects, all help shape the cityscape. Squares, streets, and parks offer public spaces – areas that are open to a range of activities by citizens. These include informal activities such as walking, play with children, sports pursuits, and sightseeing. They also provide a framework for more formalised activities, including street vending and markets, and organised events such as festivals, open-air concerts, and parades. Public spaces, however, are also places whose use changes over a twenty-four hour period. At certain times, citizens may avoid them for fear of crime. Local government has a responsibility to understand the risks associated with public spaces in order to meet the needs of citizens for security, and to avoid undue expenditure arising from litigation where accidents or injuries have occurred.

In this article, we report research undertaken in the UK on the impact of risk aversion on public space design, and draw out the implications for local governments. The authors were contracted to undertake the study by the UK's Commission on Architecture and the Built Environment (CABE), an independent body

whose role is to advise local and national government, developers, architects, and urban designers. The next section of the article sets out the nature of risk as it relates to the design of public space. We then discuss the analytical framework for the study, which draws on institutional theory and present a general model of the design process to improve understanding of how risk factors impact on decision-making at different stages of the public space design process. The following section discusses the research methodology, which leads into the report of empirical research on elite stakeholders and two case studies of public space design. The article concludes by discussing the findings of the study. There is a focus on risk and safety, the media, prevention of accidents, the changing street scene, behaviour of organizations and individuals, budgets and design, and the views of different stakeholders. At the end of the paper there is a discussion of the implications for local government decision-makers.

THE NATURE OF RISK

The origins and features of risk are often uncertain and risk assessment and management processes disputed. Risk is an odd mix of seeming paradoxes and dilemmas, being at the same time “calculable and indeterminate, objective and subjective, visible and invisible, knowable and unknowable, predictable and unpredictable, individual and collective” (Althaus 2005, p.581). A technocentric view tends to emphasise an improved capacity to predict or prevent risk using various rules and calculations (Bernstein 1998). However, another view on risk suggests people construct opinions about risk in circumstances where there is much contradictory evidence concerning possible impacts on their lives (Irwin et al. 1999). In these circumstances, risk is a matter of judgement, rather than an absolute standard. Applied to public space design this stresses the need for a trade-off

between minimizing risk and aesthetic, financial, and other factors.

There are different definitions of risk (Wilkinson 2001) and various understandings of the 'reality' of risk (Irwin et al. 1999). Risk comes in different forms and some aspects of risk can bring benefits as well as adverse impacts. For example, the child exploring an uneven surface or climbing on to a low wall can be part of the positive value of imaginative and well-designed public space. At the same time, there is paradoxically, a widespread public feeling that accidents are preventable but not predictable (Girasek 1999). People may try to separate themselves from that which they perceive to be strange and fail to distinguish between danger and difference (Dovey 1998). They will view evidence on risk that matches with their beliefs as credible and reject evidence that does not (Nisbett and Ross 1980).

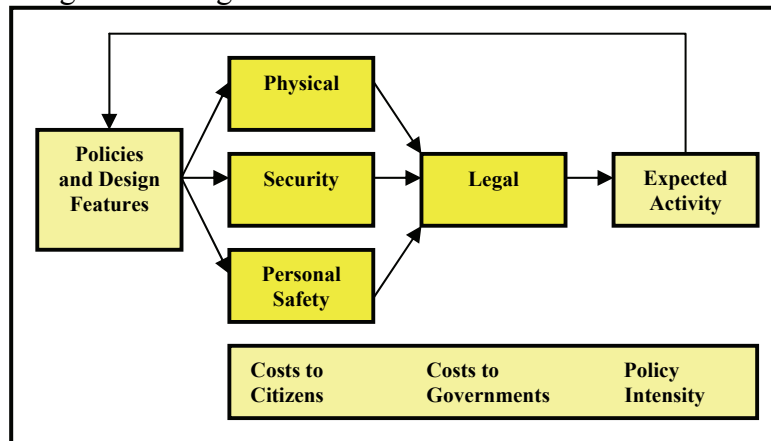
At any given time, it may be the case that "believable risk assessments produced by 'experts' are not necessarily valid risk assessments" (Rowe and Wright 2001, p.356). Risk tolerance may be about its management and reduction. However, a focus on risk avoidance can lessen the chances of agreeing upon the existence of 'acceptable risks' that are tolerable and even desirable (Ekberg 2007). Grant (2006) suggests suburban development practices follow the paradigmatic logic of their time, but gradually politics and professional critiques modify those principles and practices and cultural values test professional principles and eventually force reconsideration. Views on risk change according to circumstances and over time (Boholm 1996). Public reaction to the information they obtain on risk from the media varies (Wilkinson 2001) and there is much stakeholder conflict over risk and the severity of different hazards (Klinke and Renn 2002). Perhaps, people are willing to accept a higher level of 'risk' in return for activities that offer them benefits.

The impact of risk on public space design is related to cultural attitudes. Harris (2004, p.24) says public spaces in continental European cities are places

where people can “gather for an early evening drink, children can play safely, teenagers can hang out” whereas “if you visit the majority of British market town centres on Friday or Saturday evening you’d be hard pressed to find many people over 35 after 6pm.” Meanwhile, Allen (2006, p.448) has described the privatised public space at the centre of Berlin’s Potsdamer Platz and says, “the place works through an atmosphere of detachment, much like any urban street or square, yet at the same time the space provides a glimpse of what else may be absorbed or consumed. To move through the plaza is to find oneself subject to a power whose imprint is decidedly modest, where spontaneity and impulsiveness are the pulling force, redirecting attention to one or more of the attractions on offer.” In the UK Minton (2006) has described the privatisation of public space and the issue of ‘hot spots’ of inclusion and ‘cold spots’ of exclusion. There are instances where the privatisation of public space has created opportunities for urban renaissance including King’s Cross and Paddington Basin in London and the centres of Liverpool and Sheffield. However there are fears about the ‘sanitization’ of public space, private policing by security guards, and the loss of traditional rights of way.

It is not always possible to predict different physical, security, and personal safety risks associated with public space design or the costs to citizens (levels of fear, accidental injury, or assault) and national or local government (levels of litigation, compensation payments for personal injury, and impact on voter confidence). The different categories of physical, security and personal safety risks, the design costs for citizens, legal liability for accidents and the costs to national and local governments, and expected activities, which interrelate and which affect policy debates, policymaking, and the design of public spaces are depicted in Figure 1.

Figure 1: Categories of risk



Physical risks are apparent where there are flows of people and vehicles, microclimatic effects such as increased winds, and different activities taking place in areas of public space. Security and personal safety risks are associated with the design of public space not least the fear of crime and anti-social behaviour. Legal risks include liabilities arising from personal injury claims and the possibility of legal challenge to the interpretation of legislation. The key research questions were first to show how designer and local government attitudes to risk impact on the quality of public space design and second to assess the extent of any increase in risk awareness and aversion that might have a negative impact on the quality of public space design.

A FRAMEWORK FOR ANALYSING RISK IN DESIGN

We now turn to a framework for analysing risk in public space design. This framework has two elements. The first component draws from institutional theory, and offers a way of understanding the impact of pressures for, and resistance to, risk aversion. The second part of the framework provides a general model of the public space design process, in order that we can

analyse the impact of risk at different points in the production of public space.

Institutional Processes

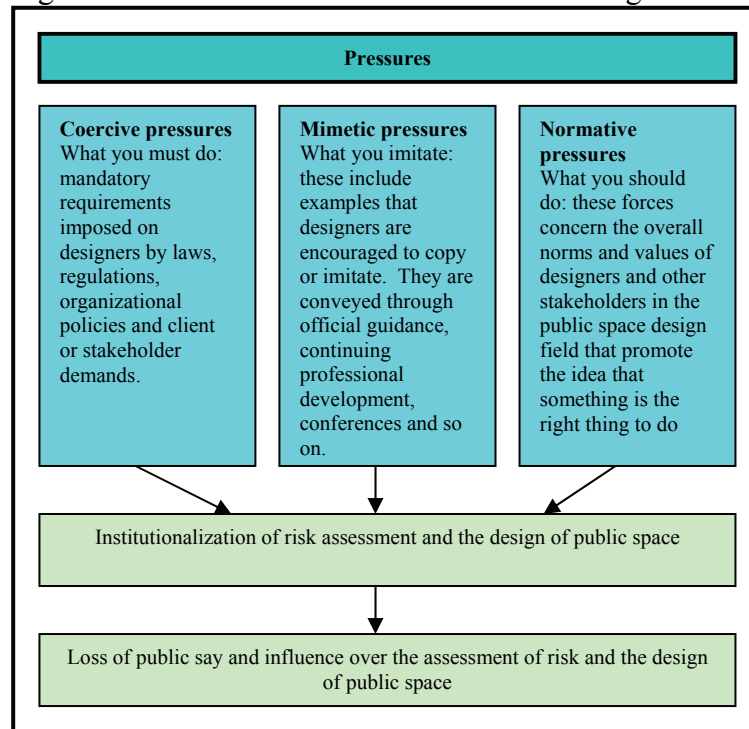
There are powerful pressures promoting greater attention to risk. These are likely to lead to risk aversion in the absence of countervailing resistance promoting a more moderate approach. Where resistance is not in evidence, or is weak, organizations and individuals may lose the ability to distinguish between major and minor risks and adopt uniform risk management approaches, regardless of the level of risk. There might also be an institutionalization of risk-averse practices and policies by organizations and individuals, which means standardized approaches to risk become the norm. The intention behind such processes may be one of effective risk management (to increase public safety, for example) as much as a fear of liability for personal-injury claims. However, the danger is that, taken together, they will lead to standardized and poor quality public space designs in which risk is viewed as an undesirable feature and the opportunity that risks present to create exciting and innovative spaces is ignored or goes unrecognized.

Perhaps the operation of coercive, mimetic, and normative pressures (DiMaggio and Powell 1983) that cause organizations and individuals to act in similar ways can be discerned in different stakeholder views on risk and the design of public space (see Figure 2). There might be coercive pressures impacting on the design of public space that derive from legislation, case law, insurance company policy, and the media and its reporting of accidents and injury. Organizations may adopt particular corporate procedures for risk management in order to comply with legislation or client requirements to minimize risk to individuals from motor vehicles, tripping accidents and other hazards.

On the other hand, mimetic pressures impacting on organizations and individuals might lead to standardized and predictable responses to risk and the design of public space. Architects and designers might make similar adjustments to their activities to deal with external pressure to reduce risk in the design of public space. One example is 'Secured by Design' a policy that promotes good practice in reducing anti-social and criminal behaviour.² The policy is a positive partnership approach that encourages a proportionate response to tackling crime that recognizes people do not want concrete spaces devoid of all trees and greenery and entirely covered by CCTV cameras. The problem of normative pressures concerns supposedly appropriate ways to do things based on professional, aesthetic, or similar grounds that develop and spread through formalized routes such as professional training and informal networks.

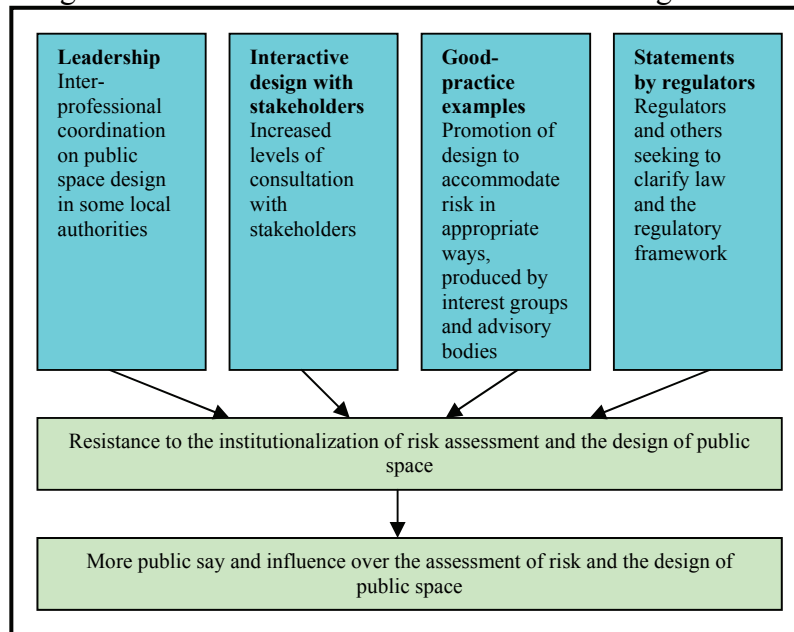
² The UK Association of Chief Police Officers 'ACPO Crime Prevention Initiatives Limited' is a not-for-profit company established in 1999 to manage 'Secured by Design' and similar crime prevention initiatives at a national level. The aim is to design out crime using effective crime prevention and security standards for a range of applications.

Figure 2: The institutionalization of risk: driving forces



Resistance to these different pressures and the institutionalization of risk assessment and the design of public space does not have to mean there is opposition to the identification and management of risk. It can be about promoting a more balanced approach with risk considered in context and alongside other design considerations – for example cost, quality, interest, and attractiveness to users. Risk needs to be managed effectively but taking a risk can also enhance design, making places more interesting and stimulating and therefore busier, more vibrant and more likely to be valuable focal points for communities. The essence of the resistance described is it does not lead to an institutionalized approach to the way in which risk is managed. The types of resistance that can encourage local government officials and designers to distinguish between different types of risk and make decisions in the light of a particular context are listed in Figure 3.

Figure 3: The institutionalization of risk: resisting forces



Leadership by key organizations and individuals in the design field is crucial and can be seen in the approach to risk adopted by designers, clients, and local politicians on a specific project. The involvement of stakeholders in interactive design processes with multi-disciplinary professional teams sharing views may help to promote negotiated solutions that deal sensibly with risk. People's concerns about risk may be mitigated by transparent design processes and as a result their opinions change across the design process. However, it should not be assumed that the public or other stakeholders will be less risk averse than professionals in all situations. There may be 'good-practice' examples that demonstrate an informed approach to risk. For example, guides by the 'Children's Play Council' in the UK and community groups promote improved play opportunities for children.³ Again, it should be noted

³ Children's Play Council (2002) Managing risk in play provision, London: National Children's Bureau; disability challengers: children challenging disability, www.disability-challengers.org.uk

‘good practice’ can sometimes be an ‘imitative’ pressure leading to the institutionalization of risk-averse behaviour, for example, in the standardized designs for safe play environments produced by some local authorities.

Design Processes

A model of the design process was developed to help improve understanding of how risk factors impact on decision-making at different stages in the design of public space. The design process incorporates a complex relationship between strategic choices (for example, agreeing upon the overall design concept) and detailed decisions (for example, evaluating and choosing the materials for footpaths) (Moughtin, Cuesta, and Signoreta 2003). Drawing on Moughtin et al.’s work on the design process three key phases were identified. First, preparation, where the idea for the project is crystallized, initial concepts are explored, the team is put together, and finance organized. Second, design, in which the detailed design work is undertaken, which includes exploring different options and evaluating these against relevant criteria in order to arrive at the preferred solution. Third, implementation, where the project is delivered, although this may also involve some modifications to the original design in the light of the practicalities faced on the ground.

It is likely that different types of risk will relate to each stage of the design process. These are: strategic risks – that relate to the ability to develop a viable project; detailed risks – concerned with the design of public space, which include the risks to persons, property, and quality of life that are the focus of the research; and delivery risks – associated with the delivery of the design on the ground. The use of case studies in this research facilitated the isolation of risks in each of these categories. However, categorization may not be exclusive if there is no clear distinction between risks at each stage. The aim of our study was

to understand how risk issues affect the specific choices facing designers and other stakeholders. It gave particular attention to analysing the impact of pressures promoting greater attention to risk, leading to possible risk aversion, and resisting forces resulting in risk management that did not undermine design quality.

RESEARCH DESIGN

The research design comprised two elements. Semi-structured interviews were undertaken with twenty-four elite national stakeholder organisations. These included bodies representing the urban design professions, local government, public space users, insurance companies, the risk management profession, government departments concerned with the issue, and developers. Interview questions were structured to obtain information on the main types of risks in public space design, the impact of legislation and external regulation on approaches to risk, the presence (or not) of risk aversion in public space design, and information about how designers might manage risk in an effective and proportionate way. These interviews enabled us to develop an assessment of the way in which the debate about risk in general – and public space risk in particular – had developed nationally, and to identify the attitudes of the different stakeholders.

The second stage of the research involved ten case studies of recent and contemporary public space design processes. We adopted a case study approach because this is best suited to a complex or ‘messy’ research situation, in which there is little extant information (Robson 1993). The case study is also useful when the focus of the research is an aggregate unit of analysis (Jensen and Rogers 2001) and an instrumental case study can help to improve understanding of process (Stake 1994). For each case study, we undertook interviews with designers, developers, public space user groups, and local

government officials, and analysed any available design documents and reviews and critiques undertaken by urban design journals and CABI's advisors. The purpose of this analysis was to isolate particular types of risk and their impact during the design process. The ten case studies were selected to cover different types of public space: public space (pedestrian streets and squares, streets and squares with vehicular access, and parks); land use (civic, commercial, leisure and residential); and scheme (new build, pedestrian friendly home zones, and land in private and public ownership).⁴ This article reports the two case studies that best exemplify the types of risks referred to earlier, and the range of issues faced by public space designers and local government stakeholders.

The research was conducted in 2006 and 2007. A grounded theory approach (Glaser and Strauss 1967) underpinned the collection and analysis of the rich research data. The constant comparison of data obtained from different case study situations facilitated the categorization of people's views and responses to risk. The focus was on using a grounded theory approach to understand relations and processes (Locke 2001) or what happens in situations where risk and the design of public space are considered to see if there has been any increase in risk awareness and risk averse behaviour that has adversely affected the quality of the design of public space.

EVIDENCE FROM NATIONAL STAKEHOLDERS

Table 1 summarises eight themes underlying stakeholder views on risk. The majority of stakeholders

⁴ The ten case studies: Brindley Place, Birmingham; Hofstraat, Apeldoorn, Netherlands; Park Hill, Sheffield; Exchange Square, Manchester; Kensington High Street, London; Deptford Green, London; Heathfield Avenue, Dover; Poundbury, Dorset; Handsworth Park, Birmingham; River Tame, Birmingham.

regarded risks associated with crime and fear of crime as a priority for everyone involved in the design and maintenance of public space.

Table 1: National stakeholders: risk and emerging themes

Key National Stakeholder Themes on Risk and Design	
Safety	There is a pragmatic approach to risk rather than a risk averse culture
Prevention of accidents	The law has provided some clear definitions of risk and action to reduce it. However, the law cannot offer protection against all risks. There is no feeling that there is 'compensation culture' that is out of control.
The media	There tends to be a simplistic understanding and fear of risk heightened by the media
Incremental change	Ad hoc change can be a problem for designers and public space users (i.e. the partially sighted and blind).
The behaviour of organizations and individuals	Health and safety legislation is not trying to eliminate risk rather it suggests taking a reasonable approach. A minority of organizations may not be managing risk well.
Budgets and practicalities	There are issues concerning resources, the design of public space, and its future management and maintenance.
Users of public space	The design of public space affects different users in different ways (i.e. shared space and access for the partially sighted and blind). Wide ranging consultation from the outset is important. Accessibility for all users is the goal.
Materials and Structures	Engineers and other professionals have different views about the materials and designs that are fit-for-purpose. The involvement of materials suppliers in design discussions is useful. Some public space users may be disadvantaged by the inconsistent use of building materials (i.e. the blind and partially sighted).

Respondents thought that there was wide recognition that users of public space should be able to feel secure and not threatened by anti-social or criminal activities. However, a majority of stakeholders also acknowledged the need to keep this issue in proportion and avoid design at the local level being driven by a security agenda. They voiced a concern that giving too much weight to security might lead to standardized responses and environments that were less stimulating and innovative.

Other stakeholders thought a combination of standard design practice and innovation was possible. There was also a recognition that design could go only so far in promoting safe places. Consequently, the

definition of ‘reasonable’ risk – and proportionate risk management – becomes a core issue for local authorities and public space design. Liability claims arising from accidents reflect a view of a society in which individuals increasingly resort to litigation when they have suffered an accident. In this situation, a greater proportion of risks become ‘significant’. Stakeholders recognized that organizations might respond by adopting practices that are more defensive. This includes reducing risk through ‘safer’ design or using signage to show how or when a particular space can be used. Changes to local authority design and regulation of play areas were highlighted as a particular instance of this trend, and indicative of normative pressures driving an institutionalized response.

A number of national stakeholders thought that such defensive approaches were in part the result of organizations having inadequate information on the legal position regarding their responsibility, or holding views that were more risk averse than the legislation and regulatory framework intended. This would mean that ‘coercive’ pressures were particularly significant. Recent UK case law – for example *Tomlinson v Congleton Council* and *Cheshire County Council* – was seen as providing a clear defence for local authorities by defining what is reasonable in terms of risk management.⁵ Such clarifying statements by regulators were identified as a potentially significant resisting force. However, the interviews did not find evidence of an increasing liability culture in the public space field. Respondents, especially those from the insurance

⁵ The case concerned a youth who dived into a lake in a countryside park and sustained serious injuries. There were signs saying it was an unsafe area and rangers were on patrol. The Law Lords heard the case in 2003 and found unanimously that the local authority bore no liability for the accident. There are some hazards against which it is impossible to guard by protective measures; members of the public should be aware of obvious hazards; there should not be an automatic assumption by an individual that because they have had an accident someone else must be responsible.

industry and risk management profession, thought that anecdotal and popular perceptions of a 'compensation culture' overstated the reality.

Evidence from the local authority interviews suggests that risks are being managed more effectively, leading to a reduction in liability claims. For example, in 2003/04 the London Borough of Camden devoted extra resources to the implementation of two linked initiatives to manage the problem of claims for accidents from trips and falls on its streets and pavements. The first element is increased resources targeted at reducing accidents. This involves a more effective process of repairing faults and reducing hazards (so that when they are noticed by an inspector or reported by a member of the public they are quickly rectified). The second aspect is to introduce a new process for making claims against the council in order to determine whether the claim is legitimate; the council is the responsible body; and is liable through negligence. The impact of these measures has been to reduce the number of claims overall, and to reduce significantly the number of claims for which the council was responsible (see Table 2).

Table 2: Council footway claims (source: London Borough of Camden Walking Plan 2006, 2nd edition).

Year	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
All claims	123	154	113	141	111	91
Claims for which the council is responsible	15	18	14	17	10	4

Stakeholders thought that the large body of existing or planned legislation, guidance, and advice relating to risk and the design of public space brought the issue closer to the attention of designers and the public. This sometimes leads to risk averse behaviour and ‘over-designing’ for fear of not following legislation or guidance and potential claims if something went wrong. However, a consistent view was expressed that designers needed a more accurate understanding of what was required of them in balancing high quality design with risk minimisation.

Stakeholders were concerned about the impact of media reporting on the public’s attitude to risk and the liability of public organizations and others controlling public space. For example, one respondent thought “...the media has had a role in heightening the sense of risk.” Stakeholders thought that media reports of personal injury attributed to accidents in public spaces were often biased and unfair. It was observed media coverage led “...people [to] see risk negatively, as something to be avoided.”

Stakeholders sometimes disagreed about the extent to which it is possible to recognize and control risk and they differ in terms of the resources available to them to undertake risk assessments for the design or maintenance of public space. There was evidence that regulations and guidance could enhance design. In this sense, ‘coercive’ pressures can actively help prevent risk aversion. For example, the UK Disability Discrimination Act (2005) was intended to increase

access, and required local authorities, designers, and others to think creatively about accommodating different users within their designs. Stakeholders thought that risk concerns did not dominate design considerations. For example, one commented:

“Design is less driven by accident statistics and standard engineering solutions. Designers are trying to create space for people to live in now, as opposed to what happened previously. There is a desire, for example, to increase pedestrian space at the expense of vehicular access.”

Risk issues appear to become ‘real’ in the design and delivery stages rather than the preparation stage. Stakeholders raised the issues of incremental or ad hoc changes being made to schemes because of decisions taken by particular organizations or local authority departments, and the retro-fitting of specific features that undermine the original design. In some cases, these changes were a response to concerns about risk. Stakeholders highlighted the need for local authorities to develop effective procedures for ensuring that any such incremental changes were reviewed prior to implementation, for example:

“Plans are implemented and sometimes things are added following complaints. We need to be constantly vigilant [and] not slavishly go in and adjust things because it seems to be the right or appropriate thing to do.”

Stakeholders agreed that the management of risk was important and suggested considerable professional effort was devoted to the avoidance or control of risk in

public spaces. At the same time, a change in the culture of local government meant there was more partnership working on local priorities to improve public space. This meant that designers, engineers, politicians and the public might see risk in different ways. The result could be positive, encouraging different judgements about risk to be debated. Equally, it might lead to greater risk aversion in instances where there is, for example, a heightened public concern about 'mugging' or child safety.

CASE STUDY 1: EXCHANGE SQUARE, MANCHESTER

Manchester's Exchange Square is a significant public space in the heart of the city's Millennium Quarter district, developed in the aftermath of the 1996 Irish Republican Army (IRA) bomb explosion. This case study shows how views about risk varied between the many stakeholders involved in an innovative design project for a public square completed in 1999 that cost £4 million pounds. Manchester City Council, who were the clients, and private sector partners decided to retain many original design elements, including a distinctive water feature, whilst modifying or excluding some others. The clients, various public backers, and major chain stores with an interest in this prestigious site were involved in the redevelopment process.

US based landscape architects Martha Schwartz Partners produced a challenging and innovative design that included a number of level changes and a major water feature running through the square. The design as implemented has provided a popular space widely viewed as exciting. The Millennium Quarter Manchester (which includes Exchange Square) won a Civic Trust Award in 2004 and was commended for its vision and animation. However, given the variety of stakeholders engaged in the redevelopment process, there were different perceptions of risk and views about

its management in the context of public space design. There were risk issues concerning the different users of the square, its day and night-time use, the water feature, access for emergency and utility vehicles to pedestrianized areas, and level changes.

The legislation and guidance on matters of public safety considered when drawing up the redevelopment plans for the square covered issues that included lighting, moving from one level to another, railings and their permeability to children, and slipping on wet or icy pavements. Some stakeholders (especially those with business and commercial interests) were anxious about the square and how it might be used. For example, there were concerns about the possibility of skateboarders using the square and upsetting shoppers. This problem was accentuated by changes of level in the square linked by the construction of two plazas with curved ramps and low sidewalls between them – ideal skateboarding territory. The issue was resolved by retrofitting stainless-steel armrests to the ramps and sidewalls to prevent skateboarding. However, the subsequent installation of a large TV screen has resulted in people tending to sit on the ramp walls facing it, thus reducing the potential for the random intermingling in the space hoped for by the designers.

Another set of risks concerned access routes into and out of the pedestrianized areas of the square for emergency and utility vehicles. The key questions were whether the public needed to be aware of the routes and how they should be marked. The design team resisted proposals for painted lines on the ground, preferring bollards to mark vehicular access. However, some stakeholders thought these had an adverse affect on the appearance and quality of the public space. Furthermore, bollards can act as a barrier, for example, for people using pushchairs or wheelchairs. The texture of some of the paving material used in the square was the subject of debate on the grounds of risk to public safety. Black granite paving on the upper plaza had an uneven finish that engineers said was unacceptable

because pedestrians could trip on it. Grinding down the pavement reduced the problem.

In line with the requirement to be innovative, the designers proposed some specific features. These were artefact boxes (illuminated containers with local industrial artefacts inside inset into sidewalls), a watercourse, and artificial palm trees. The artefact boxes appear on the original designs for the square. However, the local authority felt these boxes would be prone to attack by vandals and difficult to maintain because of problems with electrical fittings and condensation. Consequently, none were installed. Meanwhile, sceptical stakeholders (including the local authority and some retailers) felt a ninety-metre water feature, containing sawn boulders that formed stepping-stones, was not a good idea. There was debate about maintenance costs and possible water leakage leading to slippery or icy pavements. The risk of people – especially children – slipping, trapping their legs between rocks, and even drowning was a major concern to local politicians and health and safety professionals. Nevertheless, the installation of the water feature went ahead. Tilting steel windmills replaced artificial palm trees considered a significant risk by the local authority and some retailers, because parts might fall off or members of the public might climb them.

Exchange Square demonstrates the tensions that can arise between the client who wants to support the creation of innovative and challenging public space and those responsible for managing risk on site. At the same time, innovative design may push the boundaries of local authority, professional, and commercial views about acceptable and unacceptable risks. The complexity of risk issues is accentuated where multiple stakeholders play an active part in the design process, because different professionals and stakeholders understand risk in different ways. However, in this case differences of view might have been more significant if the design process had not encouraged a collaborative

approach and the creation of a shared perspective on risk across the stakeholder groups.

CASE STUDY 2: KENSINGTON HIGH STREET, LONDON

Reducing clutter and signage in urban streets might seem to increase the risk to pedestrians and drivers. However, this case study shows that it can heighten road-user awareness and as a result reduce risk and improve the quality of public space. Kensington High Street is a busy high-profile London shopping street modified at a cost of £5 million in 2003. In the mid-1990's, the street was in a poor state of repair, with much signage and outdated street furniture, resulting from ad hoc changes to the street scene over the years. The local authority began a series of improvements and 1.2 kilometres of the street was stripped of barriers to movement as far as was possible and generally de-cluttered to create a more mixed space for motorists, cyclists, and pedestrians. Kensington High Street is a key example of a commercial street used by the public and motor vehicles where improvements have been characterised as highly innovative and risk-taking rather than risk averse.

The thinking behind the design concept was that environmental contexts determine the behaviour of individuals much more powerfully than either legislation or formal rules. In contrast to a cluttered and confusing street, the vision for change drew heavily on the innovative traffic-engineering measures of Hans Monderman. He has argued that designs that increase the perception of risk of personal injury reduce actual risk by forcing all users of the space to slow down, take more care, and be more vigilant. The general principle was to reduce the need for guardrails and similar 'safety' features as far as possible. Meanwhile, just two materials were used for improvement works – high-quality granite and York stone - their contrasting colours helping to delineate the roadway and the pavement

without the need for unsightly (and confusing) street markings. Tactile paving helped to convey information about the environment to blind and partially sighted people and wheelchair users. The street improvements made better use of space and reduced the amount of street furniture.

The number of waste paper bins was reduced from over forty to just five and streetlights were installed which produce white light to increasing personal security and reduce criminal activity. A drastic reduction in road signage forced drivers to proceed more slowly and take more notice of their surroundings. However, because of their non-standard design, the use of lower kerbs (that are a potential trip hazard) to separate the pavement and road required the formal approval of the local authority. It was initially reluctant to approve their use because of a fear of liability. However, the phasing of improvements and monitoring of safety implications eventually allayed concerns about liability and this non-standard element of design became a part of the whole redevelopment scheme.

This case study shows how innovative public space design can be risk embracing. The improvements to the street do not stop it from being a thoroughfare for motor vehicles, rather they encourage a 'self-help' attitude to street safety. Although there was debate about the overall approach to managed risk, and the details of some elements of the design, two features of the design process were important for its success. First, there was high-level and visible political leadership since both the cabinet member for transport and the deputy leader of the council championed a risk-embracing approach. Second, there was a sound evidence base of research on the impact of any change on risk and safety in Kensington High Street. Accident statistics released by the local authority (based on hospital road traffic casualties) show a significant reduction in both serious and minor road accidents along the street since the completion of the improvement works (see Table 3).

Table 3: Comparison of accident rates before and after Kensington High Street improvements

Accident type	Kensington High Street annual accident rate			Royal Borough of Kensington and Chelsea average annual accident rate		
	Before	After	Percentage Difference	Before	After	Percentage Difference
Pedestrian	26.3	8.9	-66.2	293	162.6	-44.5
Bicycle	11.7	8.4	-28.3	152.7	117.6	-23
Motorcycle	15.3	8.9	-42	287	203.9	-29
All	65.7	34.5	-47.4	1043.3	675	-35.3

Source: Royal Borough of Kensington and Chelsea⁶

The annual accident rate, in Kensington High Street, involving pedestrians was reduced by 66.2% compared with a borough wide reduction of 44.5%. For accidents involving bicycles the annual accident rate was reduced by 28.3% compared with a borough wide reduction of 23%. Finally, for accidents involving motorcycles the annual accident rate was reduced by 42% compared with a borough wide reduction of 35.3%.

⁶ Before statistics relate to the period between March 1998 and February 2001, and after statistics relate to the period between September 2003 and July 2005

The street improvements are an innovative attempt to embrace and encourage a certain degree of risk amongst users of the space to increase their vigilance and thereby, awareness of safety issues. Progressive local authorities can challenge existing conventions and push the boundaries of accepted practice on risk and personal safety to create a more egalitarian street scene. The Kensington High Street redevelopment won a Civic Trust Award for environmental design in 2004.

DISCUSSION

The case studies revealed that there are different types of risk that became operant at the preparation, formulation, and implementation stages of the design process. At the preparation stage, there are a number of important risks relating to overall strategic considerations that designers and others need to manage. In different ways, the support of stakeholders is essential in realizing the project, and in responding to risks relating to detailing in a way that does not undermine design quality. Ineffective professional communication is an additional consideration. Different design professions have different approaches to risk, and the inability to resolve these can hinder the realization of design quality. There are risks that the legitimacy of the project will be undermined. This particularly relates to the need to ensure that the design facilitates effective post-completion maintenance and adequate revenue funding is identified to secure the ongoing sustainability of maintenance.

Public safety issues come to the fore at the formulation stage of the design process. Here, there are a number of important risks relating to consideration of architectural detailing. First, there are risks to the person. These include injuries and crime against individuals. In some cases, these personal risks were identified by designers and developers and in other

cases by members of the public or pressure groups. Sometimes, the policies of the developer or client, deriving from accidents that had happened in the past foreclosed the choices available to the design team. The cases also illustrate that designers seek to create an awareness of personal risk as a positive feature of the design, for example, to change behaviour in a socially desirable way, or create interest and excitement as part of an innovative design. This shows that personal risks in public space design can have both desirable and undesirable consequences.

The second set of formulation risks is to property. These were less significant than risks to the person in the case studies. They included theft, vandalism, and flooding. Increased active or passive surveillance was often employed, including various initiatives associated with the 'Secured by Design' policy where an area is made less attractive for criminals to operate in. There was an active debate about the relative merits of the level of surveillance and its potential impact on design quality. Residential and retail schemes are more able to develop design solutions to exclude members of the public (through security gates or guards) than parks and civic squares. Designing for regular public usage of spaces and thus passive surveillance is an alternative solution.

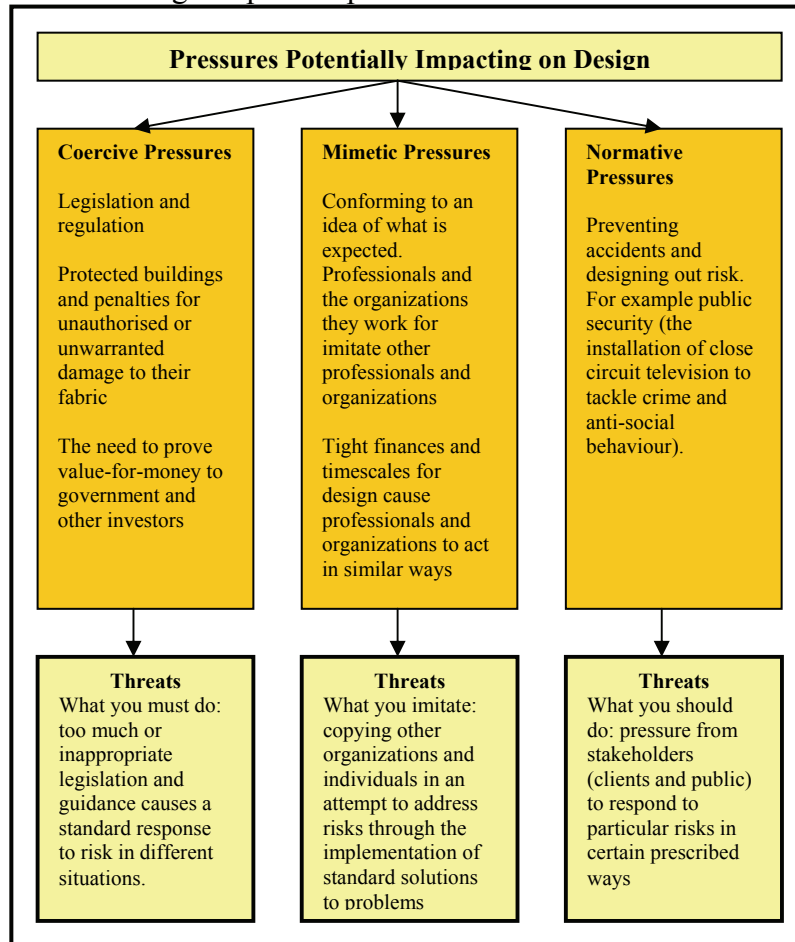
The third set of formulation risks is concerned with quality of life, for example, anti-social behaviour, loss of community activity, and over-intrusive signage. These are more important in some cases than others are, and there were different responses to such risks influenced by the context and purpose of the scheme. Designers and local politicians need to have a clear view about the types of space users and be committed to the principles of inclusive design.

Finally, there are three main risks relating to the implementation stage of the design process. The first risk is retrofitting an already implemented design. This occurs where public use of the space is not as predicted and previously unidentified risks emerge in construction

or the perception of known risks changes. Lack of maintenance was a common issue for all schemes that involved using public space design to improve areas where there was a lower than desirable quality of life. The risk was that post-construction maintenance would be insufficient to sustain the beneficial impact of the investment in the scheme (a concern that emerges even at the formulation stage as noted earlier in the paper). The absence of adequate maintenance was perceived as undermining the value of public space designs and, in areas subject to anti-social behaviour and criminality, as potentially helping problems reappear. For professionals, there were also concerns about whether the design itself had paid sufficient attention to the ease of ongoing maintenance. The third risk is the vulnerability of the community and businesses during construction. It includes the health and safety risks associated with construction, which do not directly relate to the design of public space.

There are 'coercive' pressures in the design process that arise from the mandatory requirements in relation to risk assessment and management. These lead to a number of legislative and regulatory requirements, for example, in relation to health and safety, and duty of care at various stages of the design process. In addition, some of the organizations involved in these case studies had internal policies relating to matters of risk. Designers and national stakeholders, including local authority representatives, broadly support these requirements as desirable obligations to protect and promote public welfare. However, there is a debate about their interpretation and impact. Some policies and regulations are more specific than others are and judgement about how they should be applied in different cases varies. The different pressures that might impact on the design of public space are shown in Figure 4.

Figure 4: Environmental pressures and possible impact on the design of public space



The cases show that mandatory requirements are interpreted through the norms and values of a profession or organization. These norms and values embody the accepted way to act in relation to a particular situation or regulation, that is, in terms of the design solution. This means that different professions and organizations including local authorities will vary in the way they understand risk and decide to approach its management. Often there is no 'right' or 'wrong' answer to how regulations should be interpreted. Circumstances vary, as do professionals and politicians, client and public

views. What is important, however, is that such debates are undertaken with a full awareness of the consequences of different judgements, and in a way that is informed by relevant stakeholders.

There were similar issues in relation to 'normative' pressures promoting greater awareness and response to risks. In some situations, the public has a strong view about what risks are important and how the design ought to respond as a result; elsewhere, there were less significant driving forces. The context of the scheme provides an important explanation of these differences. The case studies reinforce the point that risk is socially constructed. The norms and values of different groups lead them to 'read' legislative and other requirements differently in relation to the context for the scheme. Although there are driving forces to increase 'risk aversion', the effect of these varies from organization to organization and from one design context to another. There is limited evidence of 'mimetic' or imitative pressures through which particular risk averse solutions are widely adopted by designers or local authorities. The professional design teams in the case studies generally sought creative solutions related to the nature of the site and usage.

The two most significant resisting forces evident in the case studies were leadership by organizations and individuals and interactive design with the public. The impact of leadership is demonstrated by organizations committing to innovative design that is not constrained by risk aversion. However, there is a downside. There were instances when good intentions were unduly affected by perceptions of risk from the various stakeholders engaged in the design process, which led to compromises, which were not entirely consistent with the underlying intentions regarding public space quality. A second resisting force is the role of the public in various interactive design processes. Members of the public may take a more pragmatic view than professionals about the need to reduce personal safety risks- by relying more on individuals' common sense,

for example. They can also modify their views in the light of experience and reflection. Phased design processes may enable a better appreciation of risk and the appropriateness of different strategies for its management. This is because it creates the opportunity for learning and thus opens a dialogue about the nature of risk and the appropriate way to respond.

IMPLICATIONS FOR LOCAL GOVERNMENT

Our research shows that there is some evidence of risk aversion in public space design. This is inevitable given the heightened awareness of risk in society and the popular belief that litigation has led to a compensation culture. This belief exerts a powerful effect on institutionalising risk aversion, despite evidence that there are effective defences in law against litigation for injuries arising from public space usage. However, both case studies show that there is also evidence of creative and innovative public space design based on a proportionate response to risk. Unfortunately, as the Manchester example reveals, it is far easier to justify a risk-averse design than use risk creatively. Risk-averse decision-making tends to rely on a weaker, less thorough evidence base, using statements about what people may do, often in an extreme case – for example, ‘people may fall into the river’. Risk assessment and management by local government representatives and designers requires some supposition about how people may behave. However, it is important that this is as robust as possible and that public space is designed for the norm, not the exception.

Strong leadership by local government helps resist decisions that are based simply on worst-case scenarios. This leadership can come from elected city councillors – as the Kensington case exemplifies – or from urban design professionals or consultants retained by the local government. The London Borough of Camden example, cited above, illustrates how public

managers can make a real difference to both improving the quality of the urban environment and reducing the number of claims arising from injuries. In the UK, leadership has also been demonstrated by the insurance industry working alongside local government risk managers. The insurers have resisted adopting a tighter, risk averse attitude to public space developments, and instead have worked with the risk management profession to make information available about the legal responsibilities of local government for public space safety and the defences available in law in case of claims.

Local authorities can also assist the production of high quality public space design, incorporating a proportionate approach to risk, by delivering or facilitating a strong overall design concept informing the strategic direction of the project from the outset. The two case studies show that local government and stakeholder vision and a strong ambition for interesting and innovative design can help to minimise problems of risk aversion. Local government can play this role most effectively where it is the client for the project. It may also be able to use planning and development approvals to affect the quality of a developer's vision, depending on the ordinances available to individual city councils.

Views about what constitutes a risk vary between different stakeholders in the design process. Professionally defined risks are those hazards that designers, contractors, and local government or other clients identify as ones that may lead to them being liable in the event of injury to public space users. These risks arise from the design of particular elements, or their installation and maintenance. The minimization of these risks may create trade-offs with other design considerations. Risks defined by the public are predominantly to do with personal security issues arising from the use of the space (such as mugging), rather than trip and fall hazards in the design. The public is also very concerned about risks relating to children. Designers can help to alleviate these risks, but

generally, they are not able to eliminate them. This is because they are based on people's perceptions of what might happen as well as the way in which individuals actually behave in the space.

Finally, local governments have an important role in assuring high quality public spaces by involving the public in design processes. Transparency about the criteria and judgements being made offers the opportunity to take decisions that are more informed and evidence-based. It also allows design decisions to be mediated through stakeholder debate. Such debate helps local government and other parties establish what risks are significant and how they should be managed. It is more likely to result in an inclusive design that understands risk from the perspectives of the many different groups who will use the space.

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