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## Purpose of the Series

The aim of this publication is to provide an opportunity for students to publish the findings of their undergraduate or postgraduate work. Guidance on publication will be given by staff who will act as second authors. It is hoped that by providing a guided transition into the production of papers that students will be encouraged throughout their future careers to publish further papers. Guest papers are welcomed in any field relating to the Built Environment. Please contact [E.A.Laycock@shu.ac.uk](mailto:E.A.Laycock@shu.ac.uk). A template will be provided on request.

## Acknowledgements

The editorial team would like to acknowledge and thank Will Hughes, Reader in Construction Management and Economics, University of Reading for permission to use the ARCOM template and the associated resources.

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# EDITORIAL

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This is the second year of publishing papers from our students, both from Postgraduate and Undergraduate qualifications. The work presented by them represents considerable work and effort, and their determination in completing the final steps and producing a published document should not go unrecognised.

As always the papers are selected on the basis of the quality of the student work and illustrate the range of topics which have been studied across a number of different modules.

The Editor would like to thank all contributing authors and staff co-authors for their efforts in writing and editing these papers, and to all of the members of the editorial team for their continued engagement and support and their constructive feedback to the authors. Without the help and support of colleagues none of this would be possible.

Dr Elizabeth Laycock  
Editor, Built Environment Research Transactions

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# **RATING (EMPTY PROPERTIES) ACT 2007 AND BUSINESS RATES AVOIDANCE TACTICS**

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## **ABSTRACT**

In 2007 the Government announced its intention to modernise the existing rating system in England and Wales. It put forward a number of proposals with the stated objective of encouraging ‘efficiency, competitiveness and fairness’ in the UK property market. This culminated in the Rating (Empty Properties) Act 2007. Its implementation led to an outcry from the UK property sector which was vehement in its opposition, considering the proposals to be nothing more than a tax raising exercise. In order to further explore the impact of Empty Property Rates, rating professionals from a cross-section of the property market were interviewed. It emerged from these research interviews that a major consequence of the increased charge for unoccupied property, was the widening of a range of existing avoidance tactics. The mode and frequency of use of these tactics has in fact evolved and increased since the introduction of the legislation. Furthermore it can be shown that there are a number of new avoidance tactics which have emerged as a result of Empty Property Rating (EPR), some of which are permissible within the legislation and some of which are not. The paper explores these tactics. At the same time the research revealed inconsistencies in the application of the legislation in practice, particularly in connection with the way Billing Authorities respond to avoidance tactics. The consensus of interviewees in this study was that in most respects, the legislation has failed and has been damaging to the UK property sector.

Keywords: Empty Property Rates, Avoidance, Rating (Empty Properties) Act 2007, Tactics, Economy.

## **INTRODUCTION**

On 21 March 2007, the Government announced its intention to modernise the existing rating system in England and Wales, in response to the recommendations made in the Barker Review of Land-Use Planning (Barker, 2007) and the Lyons Inquiry into Local Government (Lyons, 2007). The Barker Review recommended that the Government make better use of fiscal incentives to encourage efficient

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use of urban land and in particular the form of relief from business rates in respect of empty property. The Lyons Inquiry recommended the reform and reduction of existing reliefs. Subsequently, the Rating (Empty Properties) Bill was introduced to the House of Commons on 10 May 2007 and culminated in the Rating (Empty Properties) Act 2007.

The introduction of Empty Property Rates (EPR) resulted in a substantial decrease in empty rate relief for owners of commercial property with effect from 01 April 2008. The key changes included:

- an increase in the current empty property rate from 50% to 100% of the basic occupied business rate;
- a redefinition of the classes of property for which a zero rate would apply (essentially property used by charities of similar organisations);
- discretionary power for the Secretary of State and Welsh Ministers to reduce the empty property rate from the new level of 100% of the basic occupied rate back to a minimum of 50% of the occupied rate;
- powers to make regulations to deal with actions owners might take, or omit to take in an attempt to avoid unoccupied rates through causing or allowing the state of the property to alter; and,
- a relief period of six months for industrial properties and three months for other commercial properties.

The Treasury anticipated that £3.5 billion would be generated over a three year period for the UK Government, with £950 million in 2008, £900 million in 2009 and £900 million in 2010. It was estimated that industrial owners alone would be faced with a £675 million tax increase over a three year period (Property Week March 2008). The introduction of these changes attracted strong opposition from the UK property market and was likened to ‘imposing an income tax on an unemployed person’ (EmptyRates.com).

This is the latest in a long line of attempts by Governments to tax empty properties followed by attempts by owners to mitigate liability. This is nothing new. Witness the notorious examples from the 1960s such as Harry Hyams, referred to by Oliver Marriott as ‘a past master at the art of keeping a building empty’ (Marriott, 1967 p109). He was notorious for developing properties, most notably Centre Point in London, then leaving them vacant whilst property rents increased significantly. Hyams would then let them when he thought the highest possible rent could be obtained (Marriott, 1967 p109). In an attempt to discourage this practice, legislation was introduced in 1966 which required owners of unoccupied property to pay unoccupied non-domestic rates in the form of a 100% penal surcharge. Many considered this at the time to be a contradiction of the well established principle that rates were a tax on occupation but the 1966 legislation was consolidated with the General Rate Act 1967 (Bond and Brown, 2006).

The introduction of empty rate legislation resulted in the emergence of avoidance tactics including constructive vandalism, demolition, charitable relief, deliberate ‘go slow’ on developments and appealing against completion notices, requesting Section 44a Certificates (splitting the assessment), intermittent occupation and voluntary liquidation and administration. However, in addition to the above well established tactics, the new legislation seems to have spawned a whole set of new avoidance tactics.

The legislation has drawn criticism from a wide range of bodies representing the property industry such as the British Property Federation and the RICS as well as reports of the likely impact from a range of practitioners such as Lambert Smith Hampton. However, as the legislation is new, few, if any empirical studies have been carried out to explore the response of rating practitioners. This paper sets out the results of an exploratory study based on 12 semi structured interviews with rating practitioners including six interviews with rating agents in the private sector, three interviews with senior Local Government Officers from different Billing Authorities and three interviews with senior Staff from the Valuation Office Agency (VOA). The purpose of the interviews was to explore the different avoidance tactics being used by agents acting for ratepayers and to assess the response of those responsible for collecting the rate (Billing Authorities) and those with a duty to maintain the rating list (VOA). The limitations of this study are acknowledged, particularly in respect of the small number of

interviewees. However, even this small study generated a comprehensive list of avoidance tactics, many of which were repeatedly highlighted by a number of the interviewees. As such the study provides a valuable insight into responses to the introduction of the new legislation and its effectiveness.

## RESULTS AND DISCUSSION

Three key themes emerged from the 12 interviews; existing avoidance tactics, new tactics, and matters relating to uniformity of application of the legislation and anti-avoidance measures. Each of these main themes is now considered in turn.

The main avoidance tactics identified in the interviews are summarised in Table 1 below. Sixteen separate tactics were identified of which six were identified as existing tactics in that they were in widespread use before the introduction of the legislation. The other 10 are deemed to be new tactics introduced in response to the legislation. In addition a number of these tactics are seen as short or medium term measures, effectively no more than temporary stop-gaps rather than a permanent solution

Some concerns were expressed about the use of the term avoidance. Rating agents in particular preferred the word 'mitigation', the former term retaining connotations of illegal and fraudulent actions akin to tax evasion, when what they are actually doing is exploiting legal loopholes in the legislation. It is clear however that not all the avoidance/mitigation tactics identified are legitimate.

**Table 1: Summary of Existing and New Avoidance Tactics**

<b>Tactic</b>	<b>Existing/ New</b>	<b>Is it Legitimate?</b>	<b>Is it Effective?</b>	<b>Short/ medium/ long term</b>
<b>S44 Certificate</b>	E	Yes	Yes	MT
<b>Intermittent Occupation</b>	E	Debateable	Yes	ST
<b>Spurious Charitable Occupation</b>	N	No	Possibly	ST
<b>Demolition</b>	E	Yes	Yes	LT
<b>Constructive Vandalism</b>	E	Yes	Yes	LT
<b>Completion Notice "Go Slow"</b>	E	Yes	Yes	ST
<b>Voluntary Liquidation</b>	E	Yes	Yes	LT
<b>Bogus Occupation</b>	N	No	Risky	ST
<b>Bogus Tenancies</b>	N	No	Yes	ST
<b>Nominal Rents</b>	N	Yes	Yes	ST/MT
<b>Reduction to below RV threshold</b>	N	Yes	Yes	MT
<b>Splits and Mergers</b>	N	Yes	LT Pending	MT
<b>Health &amp; Safety</b>	N	Yes	Yes	MT
<b>Lack of Demand</b>	N	Yes	In a few cases	MT
<b>Change of Use</b>	N	Yes	Yes	MT
<b>Prevention of Access</b>	N	Yes	Probably not	LT

## EXISTING AVOIDANCE TACTICS

The interviewees were able to identify a number of existing mitigation tactics that seemed to be well established prior to the introduction of the 2007 legislation. The interviewees stated that they had all witnessed an increase in the use of each of these tactics since the introduction of the legislation. Each of these tactics is considered briefly below.

### Section 44a certificate

Section 44a provides a discretionary power for the Billing Authority to grant relief when part of a property is unoccupied. The point of discretion is when the Billing Authority chooses to request the VOA to certify the extent of the vacant parts. Once this certificate is provided the Billing Authority is obliged to action it and bill only on the occupied portion.

### *Intermittent occupation*

The owner claims the initial three or six months exemption from empty property rates then either re-occupies the property or lets to a third party for a minimum six week period. The property is then vacated again and relief is re-instated. This process can be repeated on a rolling basis provided that beneficial occupation can be proved. It is fair to conclude that there is an increase in avoidance where Intermittent Occupation is concerned and has emerged as a direct result of the changes to the legislation. Further, its mode of use has evolved, becoming more strategic. Examples include occupation by a security man on a building estate for six weeks at a time and temporary occupation of an empty sales suite where there are a number of buildings on an estate. Occupation is then moved every six weeks to a different building in order to re-start the relief period.

### *Charitable relief*

The Local Government Finance Act s.45A (2), as inserted in the Rating (Empty Properties) Act 2007, states that in relation to mandatory relief from empty rates for charities that the charge will be zero where;

- (a) The ratepayer is a charity or trustee for a charity and
- (b) It appears that when next in use the hereditament will be wholly or mainly used for charitable purposes (whether of that charity or of that and other charities)

Essentially this means the charity must demonstrate the property is required solely for its purpose as a charity. There is a united view that the method of claiming charitable relief has changed and its occurrence has increased since the introduction of the legislation. Clearly although charitable occupation can be perfectly legitimate interviewees viewed charitable occupation as a widely used 'scam'. The following examples illustrate this;

A Billing Authority contested an appeal for charitable relief on two adjoining warehouse units with a combined Rateable Value in excess of £1million, both of which were let to the same charity. The charity stated that the units were being used for storage of furniture and so were attempting to claim mandatory rate relief. Inspection revealed half a dozen desks and chairs.

A former retail unit in The Printworks, Manchester is currently claiming charitable relief. 'Occupation' involves putting up posters of missing persons on the internal walls of the unit.

Interviewees reported the existence of websites claiming to have charities on standby and ready to go into occupation in return for an upfront fee. It is apparent that some surveying companies also have a similar arrangement for 'genuine' charities who will occupy at a nominal rent or rent free.

### *Constructive vandalism*

If a Landlord allowed or caused the physical state of a property to deteriorate beyond economic repair, it would be removed from the rating list. However avoidance provisions within the Rating (Empty Properties) Act 2007 enable the Secretary of State and the Welsh Ministers to make



regulations setting out the circumstances in which the state of the property included in an unoccupied hereditament shall be deemed not to have changed. Essentially this means that the valuation officer could be required to value the property or any part of it, as if it were in the same state as it was at an earlier date or as if an act undertaken by a prescribed person that causes a change to its physical state had not occurred.

### *Go slow and completion notices*

Owners of new buildings delay completion where they are unable to find a tenant. As an incomplete building would be incapable of beneficial occupation, no rent would be paid for it therefore no rateable value could be applied. With effect from 1st January 1990 Billing Authorities have had discretionary power to serve a completion notice on an owner of a non domestic building where it believes that the building is complete or capable of being completed within three months. 'Completed' means ready for occupation for the purpose for which it was constructed or adapted' (See Ravenscroft Properties v Newham London Borough Council 1975, as reported in Plimmer, 1998).

It emerged from the interviews that the completion notice procedure is regarded as inadequate and over complex. Local Government Officers felt ill-equipped to implement completion notice procedures and acknowledged that this is being used against them by developers. Developers are attuned to this lack of communication and admit to be able to use this tactic to their advantage.

### *Voluntary liquidation and administration*

With effect from 2008, a company that puts itself into administration is permanently exempted from EPR. The same is true for liquidation. Previously a company in administration was still liable for EPR ([www.voa.gov.uk](http://www.voa.gov.uk)). Interviewees considered this to be a viable and effective avoidance tactic that is on the increase since the EPR legislation was introduced.

### *Demolition*

Demolition is another existing avoidance tactic. At present (unlike constructive vandalism) there is no anti-avoidance legislation in place to prevent an owner from demolishing a property. This is viewed as a drastic but extremely effective avoidance measure in the long term.

## **NEW AVOIDANCE TACTICS**

The respondents in the study revealed a number of 'new' tactics. It could be argued that these new tactics are not in fact 'new' per se because some of the measures were available to rating agents and ratepayers prior to the introduction of EPR. However, the rating professionals, who are experts in their field, regard them as 'new' and commented that although they were available prior to the changes in the legislation they were not in common use or never used previously.

A total of nine new avoidance tactics emerged from the interview process. These can be divided into two distinct categories. The first includes all the tactics that focus on 'occupation' and the second set of tactics focus on the building itself.

### *Occupation*

If the 'occupation' within a property can be changed or re-arranged then it is possible to mitigate EPR in the short-medium term. There are a number of new avoidance tactics that emerged which are almost certainly illegitimate; claiming that you are in occupation when you are not, not occupying a property when you are and bogus tenancies.

Other tactics that involve a change of occupation are deemed to be permissible within the legislation. There is nothing 'illegal' in a property owner letting a property investment at below Market Rent; that is their prerogative. The view was expressed that this tactic has emerged because of the downturn in the economy. Further, it is perfectly permissible to request an assessment to be split if an owner wishes to let a property separately. The 'avoidance' only arises when a split is sought for the purposes of avoiding EPR.

### *The Building*

Avoidance tactics focussing on the physical fabric of the building may be more difficult to substantiate because many arguments concerning the 'physical' structure of a building are matters of observable fact. For example, asbestos is either present or it is not or a hereditament is either landlocked or it isn't. These tactics are generally 'within the legislation' and if an argument is successful, there is the prospect of mitigating EPR for a considerable if not permanent length of time, therefore making them potentially very effective new avoidance tactics.

### *False Occupation/Vacancy Claims*

This concerns owners claiming to be in occupation when they are not or alternatively claiming they are not in occupation when they are. False claims are made on the basis that Billing Authority inspectors are not able to visit every property within the Authority's area. In some cases this includes providing 'evidence of occupation' such as furniture in the premises.

### *Bogus Tenancies*

A lease is signed to a spurious company for a short period of time. Examples of bogus tenants have included non-existent companies, foreign companies, employees and relatives (sometimes deceased!)

### *Lease signed at nominal rent or rent free*

Usually short tenancies are created where the tenant agrees to pay any rate liability along with other outgoing at a nominal rent. This in part is a consequence of the recession.

### *Exemption below the £15,000 RV threshold*

Owners can appeal against an assessment to get it reduced to a level below the current exemption threshold alternatively they can claim splits in an existing single property to reduce the parts to below the threshold.

### *Splits and mergers*

The standard 3 or 6 month relief is claimed and towards the end of that period the property is split into two or more separate hereditaments and following the change a further 3-6 months relief is granted. This can also operate in reverse with mergers of assessments. Splits and mergers which are solely for the purpose of attracting relief have been resisted at Valuation Tribunals. A test case in Leeds is under appeal to the Lands Tribunal (LT) and all similar cases are therefore on hold at the time of writing.

### *Preclusion from occupation on the grounds of Health and Safety*

This amounts to the prohibition of occupation by law. If a building is deemed unsafe then it cannot be occupied and cannot generate a rent. Examples of the application of this tactic include the lack of a fire escape and the presence of asbestos and other dangerous materials.

### *Absence of demand*

Owners arguing absence of demand have cited technological obsolescence, poor location, and insufficient access as reasons for a hereditament to be taken out of rating. This has been effective with some very large industrial hereditaments and obsolescence has been argued successfully in the case of an old sewage works (replaced by a new one) and an abattoir (no longer compliant with EU legislation).

### *Changing the physical characteristics*

In one case it was argued that an existing empty office building was on the point of being converted into flats (residential property not being liable to non-domestic rating).

### *Preventing Access and land locking*

If there is no access to a building then it cannot be occupied. In one specific case an advertising hoarding was placed in front of a retail unit in the Trafford Centre in Manchester preventing occupation of the separate retail unit. The Valuation Tribunal found in favour of the VOA but this may be appealed to the LT.

## **Uniformity of application and other matters**

Billing Authorities are concerned with occupation of hereditaments and collection of the rate whereas the role of the VOA is the identification of the extent and nature of the hereditament and its value. Despite the obvious link between these two functions it was clear from the interviews that there was a general lack of communication between the VOA and the Billing Authorities. This was considered to be most evident where avoidance tactics were concerned. Both Local Government Officers and VOA staff expressed the view that neither party was to blame for this. Part of the problem seemed to be the fact that the VOA preferred to operate within a tradition of impartiality and that this consequently limited interaction.

Restricted communication may in part be connected with a duty of confidentiality whereby the VOA cannot disclose any information to the Billing Authority unless there is a statutory gateway. This duty of confidentiality can be found under HMRC-Commissioners for Revenue and Customs Act 2005 s.18(1) and it is indeed a criminal offence under s.19(1) to breach this duty.

It is evident that the level of monitoring of reliefs is variable due to a shortage of inspectors and lack of resources to support adequate monitoring of applications for relief. As a result it is quite possible that relief and exemptions are being granted when they are not necessarily warranted. This may extend to the checking of claims surrounding bogus occupations and the monitoring of completion notices.

Some tactics are monitored more closely than others. The existing and new tactics which concern changes to the 'physical' characteristics of a hereditament tend to be more closely monitored than those where a change of occupation is concerned. There are two reasons for this; the first is that the VOA has tighter inspection procedures compared to the Billing Authority and the second is that certain types of applications are more common than others. Indeed, from the interview data, it is evident that the largest increases in avoidance tactics have been where there is a change in occupation. It could therefore be deduced that there is less monitoring of applications concerning changes to occupation because they occur much more frequently and there are not enough inspectors to monitor all properties. One interviewee commented that it was impractical to inspect every property and so inspection only occurred where a 'pattern' was emerging.

Interviewees were asked whether anti avoidance provisions ought to be implemented in light of the legislative changes and the prevalence of avoidance tactics being employed. The response was mixed. The public sector is actively pursued by the Department of Communities Local Government (DCLG) to provide details of incidences where avoidance has occurred. It is clear therefore, that the Government is aware of avoidance occurring. Despite this, interviewees commented that they would be surprised if anti-avoidance legislation was introduced as non domestic rates are considered to be a low priority tax compared other forms of taxation. It was felt that the Government is more likely to devote time to re-evaluate taxes such as income tax and council tax that matter more to the majority of the population. Interviewees considered that anti-avoidance legislation would be implemented if a large drop in collection rates became apparent. However, as one respondent put it maybe it is time "to give people a break" from what is seen as a highly punitive tax.

## **CONCLUSIONS**

Tested against the Government's own objectives the introduction of the Empty Property Rating legislation in 2007 is seen as a failure. There is no evidence that it has encouraged re-generation, development or investment, nor has it brought buildings back into economic use thereby increasing supply. At the same time it has proved to be an unpopular piece of legislation and calls for the reinstatement of empty rate relief are widespread. The state of the economy has been a contributory factor to its lack of success but it is difficult to ascertain the extent to which the recession has impacted on avoidance tactics. It would therefore be interesting to revisit the question of avoidance tactics in a post recession economy.

Reference to the introduction of the legislation during a time of global recession was a recurring theme in the interviews. The timing of the introduction of the legislation was considered to be unfortunate. But whilst it is difficult to isolate the impact of EPR on non-domestic property it is evident that the increases in avoidance tactics and their mode of use was already beginning to be witnessed prior to the downturn in the economy, suggesting that the increase in avoidance tactics was directly related to the introduction of the legislation.

Rating agents and Local Government Officers interviewed saw the new legislation as an unfair and punitive tax raising exercise. It was suggested that it was unfair to impose a tax on ownership and even then that the charge should have been phased in over a number of years so that the effect would have been less damaging in the short-term and would have given ratepayers the opportunity to plan ahead in the longer-term. The three and six month void periods were seen as insufficient.

On the basis of this small study there is clear evidence that the introduction of the legislation has increased the range and variety of avoidance tactics with new tactics emerging and existing tactics evolving and becoming more frequent in response to the new legislation.

New tactics can be seen to apply either to a change of occupation or changes in the property and many of these tactics appear to be viable and effective. Some are clearly of questionable legitimacy and may therefore be risky and others are being resisted by the Valuation Office Agency and are currently under appeal. Others have not yet been tested but may become subject to appeal as they become more widespread.

It does appear that the scope for avoidance is greater for industrial properties, arguably because they are easier to alter structurally and unlike retail premises, for example, their specification is relatively basic, making it easier to change their physical layout.

On the basis of the evidence from this study it does appear that there is a lack of uniformity across different Billing Authorities in the monitoring of applications and decision-making where avoidance tactics are concerned. The process of serving Completion Notices for example, was identified as the avoidance tactic where there was the most variability. This does appear to be the result of limited resources in the public sector. It also emerged that communication between the VOA and the Billing Authorities was not as effective as it might be and these failings were leading to exploitation by ratepayers and their agents.

It should be noted that some interviewees were reluctant to discuss new avoidance tactics and it may be that there are other covert tactics being used actively by agents who were unwilling to divulge them for fear of attracting anti avoidance legislation if the Government felt they were being practiced on a large scale. Thus, it could be that the tactics described in this paper merely 'scratch the surface'. It is also clear that these tactics are constantly evolving and given that the legislation was only implemented in 2007, this is likely to continue.

At present there are no effective anti-avoidance provisions available to Central and Local Government. Criteria for assessing applications for relief have not changed, although Rating Agents are meeting increased resistance from the public sector in granting these applications. As the legislation is still in its infancy it may be that anti-avoidance measures will be implemented in the future.

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# RESIDENTIAL VALUATION IN THE DOWNTURN: THE COMPARATIVE METHOD WITH NO COMPARABLES

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## ABSTRACT

This study investigates residential valuation in the economic downturn. The comparative method is commonly regarded as the only approach to valuing residential property. As its name suggests, the comparative method relies heavily on market evidence in the form of comparable transactions. The current unstable market condition has led to a lack of confidence in the market and a decrease in mortgage lending which, in turn, has resulted in a substantial reduction in market transactions. The research, conducted in a sub-region within Sheffield, aims to establish how valuers are valuing residential property in the current market. Furthermore, the study endeavours to discover if there are any differences in the techniques used by chartered surveyor and estate agent valuers. The data, collected from a series of interviews, is analysed under four themes: the property market, comparable evidence, guidance, and methods of valuation. The findings of the study show that valuers are still able to use the comparative method when valuing in the present market downturn. Evidence suggests that surveyor valuers, when compared to estate agent valuers, are more cautious and specific in the way they carry out their valuations. Finally the study highlights a number of additional methods which may be suitable to adopt for residential valuation in situations when there is no available comparable evidence.

Keywords: Comparables, Comparative Method, Economic Downturn, Residential Valuation.

## INTRODUCTION

The comparative method of valuation is the primary, and arguably the only, approach to valuing residential property. The process involves obtaining a number of comparable transactions and adjusting them, in an appropriate fashion, in order to place a value on the subject property. The method therefore relies heavily on the availability of comparable data. However, in an economic downturn, the number of property transactions is significantly reduced and valuers are faced with a lack of comparable evidence. This study was conducted in the summer of 2009, a time of market

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turbulence. It aims to identify how valuers go about valuing residential property in a difficult market such as that currently being experienced.

The study was initially inspired by a report published by the Nationwide Building Society in January 2009. It stated that house prices in the United Kingdom fell, on average, by 14.7% in 2008 and evidence suggests that prices will decline further in 2009 (Nationwide 2009a). As indicated by the Nationwide House Price Index, this predicted decline continued until May 2009 (Nationwide 2009b) and, thus far, gradual increases in house prices have been reported in the months following this (Nationwide 2009c; 2009d; 2009e). Valuers are advised, however, to treat this apparent recovery of the housing market with caution and are warned that the recent upturn in property values is unsustainable (Cross 2009).

The lead up to the current recession; the sub-prime mortgages in the United States and the resultant crash of the global financial market, led to a lack of confidence in the market and a decrease in mortgage lending. In fact, by 2008 mortgage lending had approximately halved and the housing market slowed considerably with falling property prices (Armatys et al. 2009). This suggests that simple spot values at a given point in time are not sufficient and valuers should also predict the position of the market in the property cycle. This, combined with the other stages in valuing using the comparative method, make it a very subjective process all of which adds to the difficulties of valuing residential property in a downturn when there is little market evidence available.

## **LITERATURE REVIEW**

It is commonly regarded that the comparative method is the best way of valuing residential property due to the large amount of transactions that take place in the market and the resultant wealth of information. It is the preferred method of valuation amongst valuers as it is directly linked to evidence of current market transactions (Armatys et al. 2009). However, valuers are reluctant to explain the process they follow when valuing residential property (Mackmin 1985). This may reflect the opinion that the technique is “rather simple to describe” (Jenkins 2002). It has also been suggested that specialist practitioners are embarrassed by the comparative method’s lack of a scientific approach (Mackmin 1985).

It is considered that an experienced valuer can value a property intuitively, carrying out the comparison process almost subconsciously (Parnham & Rispin 2001). However, Mackmin (2007), warns that although the method appears to be simple and straightforward, “there may be many pitfalls for the unwary”.

It is acknowledged that with any valuation there has to be a comparison because value is relative (Parnham & Rispin 2001). Therefore, availability of comparable evidence is essential for the comparative method of valuation to be carried out successfully. Parnham and Rispin (2001) provide as good a view as any on the methodology behind the comparative method. A selection of data is collected to use in the comparison process which is then analysed and ranked against the subject property. Following this, any of the subject property’s defects or its enhancement potential can be accounted for. The method works best when comparable evidence consists of similar properties in the same location, when there has been plenty of recent transactions and the market is stable (Armatys et al. 2009).

Armatys et al. (2009) remind the reader that valuation is a hybrid discipline with its roots both in art and science. The artistic nature is apparent in the analysis and adjustment of the comparable evidence and the science comes into play with the subjects close relationship with economics. Price is regarded as an outcome of the interplay of the economic forces of supply and demand (Adair et al. 1996). However, the fact that there is a need for housing does not always translate into demand. As a result of this the market goes through a period of ‘wait and see’ following peak and trough phases (Jenkins 2002). Furthermore, it is important to remember that the housing market consists of a number of submarkets which all move and react differently (Armatys et al. 2009).

There is normally a two stage process when selling a residential property; firstly an asking price is established and then, once negotiations have taken place and a figure has been agreed between two parties, a mortgage survey is often carried out (Jenkins 2002). As a result of this there are usually two different valuers who will value the property; an agent from an estate agency and a surveyor. Mackmin (1985), notes how there is often tension between these two types of valuer as a result of the way in which they carry out valuations. Although both valuers use the same method; the comparative method, the way they go about valuing can differ greatly. An estate agents valuation is an appraisal of the property which intends to give informal guidance on the property's value and sets an asking price for the property (Armatys et al. 2009). Mackmin (1985) acknowledges that valuation using the comparative method cannot be effectively carried out in this short period of time and instead careful examination of the evidence is required after the inspection of the property.

The tension between agents and surveyors is possibly intensified because valuations carried out by surveyors are governed by the RICS Code of Conduct (RICS 2007a). If they breach these rules and they are found not to have exercised due skill, care and diligence then they may be subject to disciplinary proceedings. The RICS Valuation Standards, also known as the Red Book, provides surveyors with the regulatory framework to valuation (RICS 2007b) and states that surveyors must value to Market Value. Cherry (2006) explains that advice given in connection with estate agency is one of the principle exemptions in the Red Book. Therefore valuations by Estate Agents need not be so precise. However, in 2009 the RICS launched the Blue Book, a guide for estate agents which intends to "raise agency standards and improve the customers' experience of the home buying and selling process" (Hipwell 2009).

There are ongoing critiques of the comparative method. For example it is argued that the method relies too heavily on historic, comparable evidence when it should be forward looking (Appraisal Institute 1991; RICS 1994; Armatys et al. 2009). Furthermore, the decline in the property market has resulted in valuers being "starved of transactions" on which they base their decisions (Shepherd 2009). The result of this is that valuers cannot use the comparative method with full confidence when there is a lack of comparable evidence (Property Week 2009; Armatys et al. 2009). It is also argued that the price information provided from comparable transactions that do occur is questionable as it may embody forced sales which are not representative of market sales (Crosby et al. 2009). Cherry (2006) however argues that forced sales should not tarnish the status of the price information of market sales because the Red Book has a separate section which details valuation for repossession proceedings.

In light of the current downturn in the property market, RICS have published a variety of reports. These include 'Valuation Uncertainty and Market Instability' (RICS 2008) and the more recent 'Valuation Information Alert' (RICS 2009a). The former recognises the demands and pressures of carrying out valuations in the testing market and states that any value reported will be provided in "conditions of uncertainty". It recommends valuers refer to GN5 for guidance on how to report the value and degree of uncertainty. Notably, it does not provide advice on how to carry out valuations in an unstable market. The RICS 'Valuation Information Alert' aims to "clarify existing standards set out in the Red Book" (RICS 2009a) but again, does not assist valuers in understanding how to use the comparative method in a property market downturn. The report explains a "valuer's role is to observe the market and to look at trends and evidence" (RICS 2009a). If valuers abide by this and remain aware of purchasers and sellers perceptions of the market then they are in the best possible position to establish a property's current market value.

If a valuer is required to carry out a valuation of a property, they have to provide a value whether or not there is any evidence (Shepherd 2009). In circumstances where there are no available comparable transactions the primary opinion of the literature is that a valuer must rely on 'material evidence' (RICS 1994; Armatys et al. 2009; Property Week 2009). The theory behind this is that there has to be a purchaser for a sale to be achieved and therefore, whatever the state of the market, there is always a price at which someone will deal (Cherry 2006). In these circumstances reference to a recognised time series data, such as a House Price Index, is recommended (Jenkins 2002). Alternatively, Jenkins (2002) suggests that one of the further methods of valuation could be used. These include the income approach which is viable if the property has a rental income, or the residual method is feasible if the



property has development potential. Finally there is the cost approach, however this is normally only used for unique properties which are rarely let or sold and which have little comparable evidence.

## **METHODOLOGY**

Due to the nature of the research and as a result of the regional variation in house prices and the differing level at which certain areas have been hit by the economic downturn, it was considered that focusing the study on one area, Sheffield, would provide more consistent data. Sheffield has a diverse property market and therefore it was necessary to narrow the study area down to a particular sub-region within the city. This imposed a further limitation as it meant that the number of valuers available to contribute to the study was considerably smaller than it would have been if a larger study area was used.

Data was collected through the carrying out of a number of semi-structured, in-depth interviews. This allows for a structure of general topics to be included in the interview and enables freedom for different routes to be explored. Furthermore, the interviewee's perspective on the subject can be revealed as they view it and not as the researcher views it (Marshall and Rossman 2006). All the participants will have an equal opportunity to provide information relevant to the study. The open questions intend to allow the interviewee to respond in a genuine manner without implying the beliefs of the researcher and hence introducing the effect of bias to the research. Interviews took place between 14 July and 12 August 2009 and lasted for, on average, 30 minutes. In total 12 valuers were interviewed including 6 chartered surveyors and 6 valuers working in estate agencies.

Once all the interviews were completed, the transcripts were read over and analysed using manual coding picking out the following recurring themes; the property market, comparable evidence, guidance and, methods of valuation. Once the data had been grouped, similarities and differences became apparent under these central themes. Importantly, the opinions of the agents and surveyors can be also compared and contrasted under the headings as well as considering the importance of the amount of experience that a valuer has in the profession.

## **DISCUSSION**

This section explores the data under each of the four main themes and within each theme the discussion seeks to identify any differences that exist between the views of the agents interviewed and those of the surveyors.

### **The Property Market**

All the valuers were of the opinion that some areas of the property market in Sheffield have held up better than others demonstrating the level of diversity in the property market. Furthermore they agreed that the peak of the housing market, was approximately mid 2007. There was some disagreement amongst the valuers as to how much the market had fallen. The valuer's opinion appeared to be influenced by the scale of the area in which they carried out valuations. Those that were confined to the study area believed that house prices had dropped approximately 12% from its peak. This view was far more optimistic than that of the valuers who carried out valuations over a larger area and who tended to agree that there had been, on average, an 18% drop. Throughout the course of the research it became apparent that the study area was one of the more sought after locations in the city. As a result of this it is considered that house prices have not fallen as much here as they have in other areas because purchasers are still prepared to pay more for the benefits this location offers.

Valuers were asked if they believe house prices today equate to those of a certain year in the past. The majority of the valuers believed that levels were similar to those seen in late 2006 or early 2007 however there were some anomalies ranging from 2005 to the beginning of 2008. Strangely there appears to be no overall correlation between the percentage a valuer believes the market has fallen by and the year in the past they believe that house prices today equate to.

This displays the air of uncertainty experienced by valuers in the Sheffield property market and it is demonstrated further by the different views of the valuers when they were asked where they believe the market currently lies within the property cycle. Most of the estate agent valuers believe the market is levelling out with only one saying it is still changing and one saying it is picking up. This is one of the topics where there was a sharp contrast between the views of the two types of valuer. The chartered surveyors displayed much more caution when responding to this question. Two surveyors, who were coincidentally the two valuers interviewed with the most experience, both said that the market appears to have stabilised for the time being but warned that prices may fall again before there is any sign of improvement. This view is consistent with the Nationwide House Price Index report from May 2009 which warned that it is too early to say definitively that the market is turning (Nationwide 2009b).

Further influences on the housing market were considered. First was the impact of Home Information Packs (HIPs) whose introduction coincided with the downturn in the property market. Two valuers believe that the cost of obtaining a HIP put people off selling their property and therefore, contributed to the downturn. This impacted on the factors of supply and demand in the market which is important because an effective market is required for comparable evidence to be obtained and for the comparative method of valuation to be successful. Secondly the extent to which the media influences the property market was questioned. Although this is not directly related to the valuation of residential property it is considered that the media is one of the key variables that valuers factor into their valuations.

## **Comparable Evidence**

The valuers who were interviewed had varying opinions on the importance of comparable evidence in the economic downturn. Valuers were unable to agree on whether there has been a lack of comparable evidence during this time. It seems strange that some valuers have found obtaining evidence of comparable transactions difficult whereas others who carry out valuations in the same area have not had a problem.

The estate agent and surveyor valuers consult two main sources when collecting their comparable evidence. The first of these was found to be their own records. These comparables were preferred as they are more familiar to them. The second source of comparable evidence was internet websites. Rightmoveplus, which is part of Rightmove and exclusive to its members, was used by all of the interviewees. Nethouseprices was popular with estate agent valuers whereas the surveyor valuers believe the land registry offers a superior source of evidence.

The general consensus among the valuers was that three good comparables is sufficient to carry out an accurate valuation using the comparative method. This was justified by the surveyor valuers who said that, when valuing for loan purposes, banks and building societies ask for the details of three comparable transactions. The majority of the valuers agreed that the amount of comparable evidence needed varies with each valuation and with the amount of experience a valuer has valuing in a particular location.

The surveyor valuers all stated that they would not use comparable evidence that is more than 12 months old and many of them stated they would ideally use evidence that is less than 6 months old. This is consistent with RICS guidelines on valuation and comparable evidence in volatile markets (isurv 2009). Many of the estate agent valuers agreed that they would be reluctant to use evidence that was more than 12 months old however there were some exceptions. For example one estate agent said they would go back up to 5 years to find comparables and they do not see a problem with this as long as the value is adjusted accordingly. A further estate agent valuer said interestingly that they often use comparable evidence from 2006 as they believe house prices then were similar to those in today's market. The surveyor valuers did not agree with this line of thought. However, they said they may research, out of interest, what the property previously sold for and when it completed.

Ten out of the twelve valuers who were interviewed agreed that they had experienced a situation whereby they went to value a property and did not have any comparable evidence. When confronted

with this situation all the surveyor valuers said that they would return to the office following the appointment, equipped with further information about the subject property, and search for appropriate comparables. Two of the estate agent valuers said they followed the same path as the surveyor valuers. All of these valuers agreed that when looking for more comparables they were reluctant to look any further than a quarter of a mile from the subject property's postcode as the amenities servicing the properties will be different.

The remaining estate agent valuers were of the opinion that not giving their view of the property's value at the appointment is negative and gives the impression that they do not know the market. This demonstrates the differences in the detail of the valuation provided by the two types of valuer.

## **Guidance**

When asked if they have received any guidance from the profession regulators on how to value in this climate, three of the estate agent valuers said they had received nothing. The remaining estate agent valuers acknowledged that they had received information through emails but it was not specifically targeted at how to value in the property downturn and was mainly irrelevant as it was not based on the local market. Only one estate agent valuer mentioned the Blue Book during the interview process. This is intriguing as the interviews took place at a time when there was a lot of publicity surrounding the launch of the new Blue Book.

The response of the chartered surveyors showed that they appear to receive far more guidance than the estate agent valuers. All of the surveyors said they have received information from the RICS although the guidance they provide is questionable. The opinion given by the surveyor valuers is that the guidance they receive is mainly common sense, has come too late and reading it is low down on their priority list.

Three sources of guidance were cited by the surveyors in particular. The Red Book was mentioned by two of the surveyors with GN5: Valuation Uncertainty proving particularly helpful. The recent RICS information bulletin, Valuation Uncertainty and Market Instability was also referred to as a helpful source of information by the valuers. Furthermore, as a number of the surveyors who were interviewed valued for loan purposes on behalf of banks and building societies, the frequent reports from the Council of Mortgage Lenders (CML) were quoted as providing some useful guidance.

There was a unanimous expression from the estate agent valuers that they could not receive any further guidance from the profession regulators which would assist them in valuing in the economic downturn. This is because it generally covers the nation as a whole and not the specific area covered by an agent. The estate agent valuers were of the opinion that having a thorough knowledge of the market in the area you cover is of greater importance than guidance. However, if guidance was required one valuer suggested that Rightmove reports provide useful, local information if it was needed whereas others said they would turn to colleagues or surveyors in their firm if they need additional guidance. Two estate agent valuers pointed out that they are not heavily regulated on valuation accuracy and suggested that surveyors may therefore, find guidance more beneficial.

On the other hand a number of the surveyor valuers believed more guidance would greatly assist them. This includes information on how to make adjustments to comparables, what is expected in the valuation report and how much detail to provide. Two of the surveyors had experience valuing in markets similar to the current one and they were of the opinion that they have got sufficient knowledge of the industry and the market. One surveyor pointed out that it is the way that a valuer interprets the guidance that is important as each valuer has their own opinion of value and the market. Therefore it is suggested that guidance should be taken with a 'pinch of salt'.

## **Methods of Valuation**

The findings of this study reflect those of Mackmin (1985) who states that valuers are not very forthcoming when asked how they value using the comparative method and explains how much emphasis is placed on "knowing your market". Only three of the valuers who were interviewed said

outright that they had not noticed a difference in the way they value as a result of the downturn. However, others did acknowledge that they were finding it a lot more difficult and that they are using comparable evidence more than they did previously.

All of the valuers said they have continued to use the comparative method of valuation throughout the downturn in the property market. Comparable data is obviously historic evidence and therefore some adjustment needs to be made for the comparable values to be representative of the value of a property in the current market. The surveyor valuers were very confident in the way they make the relevant adjustments describing a three stage process. Firstly, a relevant comparable is found. After this a House Price Index is consulted to discover the change in the market since the time when the comparable sale completed. Finally the comparable is adjusted to reflect the percentage change in the market between the date of comparable sale and the date of the valuation of the subject property. Only one of the estate agent valuers suggested to the researcher that they follow this process and use indexes. The remaining estate agent valuers gave the impression that they used their own knowledge of the market and drew on their experience when carrying out adjustments to comparables.

An interesting characteristic of valuing property using the comparative method was brought up by an estate agent valuer in one of the interviews when they suggested that a lot of the time they know what figure they're going to tell the client before they've even entered the property. This demonstrates the importance of having comparable evidence when carrying out a valuation. However, it also shows that valuers can sometimes rely too heavily on comparables and not include enough attributes of the subject property in the valuation.

The valuers were asked if they believe there are any alternative ways of valuing residential property other than by using the comparative method. The surveyor valuers' general beliefs were that the comparison method was the only possible method that could be used. Alternatives were suggested by one surveyor including the residual method for development and fund managers could use the investment method but these depend on the individual property. These options were also discussed in the literature by Jenkins (2002).

The estate agent valuers mentioned a range of alternative methods including the price per square foot. However, although this eliminates the need for comparable evidence in the form of similar properties, recent sale transactions are still required in order to obtain an appropriate price per square foot. Three of the estate agent valuers said they are often led by the owner when carrying out a valuation. The owner, more often than not, has a fair understanding of what their house is worth and knows their house better than any valuer does whereas valuers have a superior understanding of what the market is doing and what other houses have sold for. These perceptions can be combined to arrive at a value for the property.

One estate agent valuer was of the opinion that valuing in a difficult market is more about knowing their buyers. Estate agent valuers know what their buyers are looking for and what price range they are looking in. It is their job to price the property to get interest in it. This should hopefully lead to offers coming in and a sale being agreed. After this it is down to the surveyor, representing the bank or building society, to prove the value.

However most importantly one valuer stated that valuation is not an exact science and nobody can pinpoint what a property is worth. Instead it is worth what somebody is willing to pay. With this in mind the valuers said they cannot stop an owner wanting to put their property on the market for a higher price than was suggested by the valuer.

## **CONCLUSIONS**

The original aim of this research was to determine how valuers of residential property carry out valuations in the current economic downturn; a period where there have been few transactions and consequently there is limited comparable evidence. Through focusing the study on a defined sub-

region within Sheffield, the research was able to provide a thorough insight of valuers' opinions of the market, comparable evidence, guidance and valuation methods.

During analysis of the data a number of interesting observations materialised. One of the key opinions conveyed by the participants of the study is the general belief that estate agent valuers value a property in order to attract interest in it and achieve a sale, but it is the role of the surveyor valuer to prove the value of the property. This demonstrates the more strict regulation and therefore, greater responsibility, placed on the surveyor valuer when carrying out residential valuations and it is reflected in the valuers' opinions of the comparative method. Although both types of valuer acknowledge the subjective nature of the method, surveyor valuers follow it in a much more structured, scientific manner whereas estate agent valuers embrace its art foundations and rely heavily on their own judgments.

Both the estate agent and surveyor valuers stated that they had received little guidance on valuation from the profession regulators during the current downturn. Unexpectedly the valuers appeared to be confident with the way in which they carry out valuations and did not feel they required any further guidance on how to use the comparative method or on alternative methods of valuation.

The majority of the participants in the research appeared to consider that the current decline in the property market is not as severe as the researcher had led to believe. The researcher had anticipated that there had been a significant lack of market transactions and there was a shortage of comparable evidence available to valuers. This did not appear to be the case. It is considered that this may be due to the study location remaining popular with buyers throughout the downturn.

All of the valuers who participated in the study have continued to use the comparative method as their primary approach when carrying out residential valuations through the current slump in the property market. This proves it is still viable to use the comparative method in an economic downturn. It was found that three good comparables are required to carry out a sound valuation and that this evidence should be no more than twelve months old. In situations when there is a shortage of comparable evidence the general consensus is that widening the search area, by no more than a quarter of a mile, will yield a greater wealth of suitable comparables. Valuers must then make an adjustment to reflect any changes in the market between the date of the comparable transaction and that of the subject valuation. The thought process behind this adjustment is one of the principal differences between the estate agent and surveyor valuers. Estate agent valuers were found to be more likely to base any adjustment on a gut instinct, whereas surveyor valuers tend to make a formulated adjustment based on evidence from recognised market indicators such as house price indexes.

In the event that the use of the comparative method is seriously compromised by a lack of evidence, a number of alternative methods of valuation have been revealed by the study. The valuation method employed will depend on the individual property. A valuer may rely on material evidence; their opinion of buyers and sellers views of the market. The use of 'price per square foot' as a method of valuation for residential property in these circumstances is also viable, however a valuer must realise that this too, is subjective and relies on a certain level of activity in the market.

The study has identified several potential areas for future research in residential valuation. The role the media plays in valuation and how it influences people's opinions of value would make an interesting piece of research. Future studies could also examine if, how and the extent to which HIPs contributed to the recent decline in house values as well as how forced sales have influenced the market and the reliability of comparable transactions.

It is hoped that this study will benefit residential property valuers by offering guidance on how to use the comparative method in difficult markets and offer them alternative approaches to valuation. The conclusions of the study are not only considered relevant for the current property slump but also for future market downturns.

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# AN INVESTIGATION INTO THE FLOODING AND REMEDIAL WORK AT MEADOWHALL, SHEFFIELD, 2007

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The main meteorological event of the summer of 2007 in the United Kingdom that will be remembered by many is the widespread flooding that occurred, particularly in some parts of south and east Yorkshire. Flood defences were easily breached resulting in several deaths and damage which cost hundreds of millions of pounds to rectify and in some cases leaving many families living in caravans for over two years waiting for their homes to dry out and be repaired. The alleged threat of the consequences of Global Warming is looked at with respect to an increase in the incidence of flooding in the United Kingdom where it may have an impact on large shopping developments. Meadowhall shopping centre in Sheffield is the focus of this work and staff who were directly involved during the flooding and its aftermath have been interviewed to gain valuable first-hand experience. The role of the insurance company following a major incident should not be underestimated and its role is closely looked at as is its participation following the flooding to ascertain its involvement in any flood protection measures that may have taken place. The concept of "betterment", where infrastructure, fittings etc. are replaced by those of a superior quality is examined, especially with respect to the flood defences at Meadowhall, where the total bill for damage caused as well as the improvements carried out following the flooding was many millions of pounds. A detailed investigation has taken place into the flood defences that were in place prior to the 2007 flooding and those that have been implemented since the event, with regard to their robustness should an event of the same or greater magnitude happen again.

Keywords: Flooding, defences, Meadowhall, betterment, protection.

## INTRODUCTION

The flooding that occurred in the United Kingdom in the summer of 2007 caused loss of life and widespread damage over large areas and many people were still living in rented accommodation up to two years after the event, having had to leave their homes, often in a hurry, leaving their belongings and valuables behind. This dissertation largely concentrates on the flooding that occurred at the Meadowhall shopping centre in Sheffield, South Yorkshire in the summer of 2007 and the remedial work carried out following the devastation. The economic loss in the area is estimated at up to £60 million (MacShane, 2007).

Whilst "acts of God", from an insurance standpoint cannot generally be predicted, the end results of such events can be significant both in monetary terms as well as in loss of life. Indeed, the flooding in Cockermouth, Cumbria on 20th November 2009 where a Police Officer tragically lost his life in the course of his duty was said to be "A one in a thousand year event" (BBC 9 o'clock news 2009a). Meadowhall shopping centre lost millions of pounds in lost trade following the flooding (BBC News 2007) and it is reasonable to assume that most, if not all of the companies that were caught up in the

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flooding had taken out adequate insurance policies to cover eventualities that would affect their ability to continue trading. As insurance companies are not generally known for their altruism, it can also be assumed that following the tremendous claims that they will have had to honour as a result of the devastation, they may have insisted that, as a condition of their policies being continued and/or renewed, dramatically improved flood defences be put in place to (help) prevent the likelihood of a recurrence. This is not an unreasonable demand - indeed it would appear that it is the industry norm and the maxim "prevention is better than cure" is certainly apposite here.

Four main areas are examined:

- The science of flooding
- Remedial techniques following the flooding
- Out-of-town shopping areas
- The attitude of Meadowhall's insurance company towards the flooding and its associated claims

Key questions

- (i) Is the incidence of flooding in the United Kingdom resulting in an increased risk to operations such as the Meadowhall shopping development?
- (ii) Are commercial insurance companies actively driving flood protection measures at Meadowhall?
- (iii) Are the flood protection and remediation measures currently in place in Meadowhall sufficiently robust?

## LITERATURE REVIEW

The sources used have not been used without consideration of their possible bias, robustness and ability to survive close scrutiny. Where possible and applicable, contrasting opinions have been highlighted – the concept of global warming being the most obvious here. It would take someone who is extremely sure of themselves to criticise the claims of someone such as Al Gore, ex Vice President of the United States of America as well as the only person to win an Academy Award as well as a Nobel Peace Prize (for his film *An Inconvenient Truth* and his work on global climate change with the United Nations Intergovernmental Panel on Climate Change) (Msnbc 2007).

Another source that helps answer key question (i) is Younger 2007 who says:

"When an area is urbanised, many impermeable surfaces are constructed: roofs, pavements, road surfaces: all are intentionally constructed to be far less permeable than natural soils."

Rotherham 2008a states that:

"Examples of standard of protection may be that the river training structure shall meet the 1 in 100 year standard of protection which is equivalent to a 1% chance of flooding in any year."

The average layman will quite understandably become confused when, following a major event and being told that a recurrence is a "1 in 100 years" probability, a similar event occurs soon after. The use of "1 in 100 years" seems to be almost universally accepted and appears to work on statistical analysis of past flooding events, extrapolated to give the probability of an event occurring in the future. Perhaps this phrase could be replaced by one which gives the likelihood of an event occurring as a percentage, in order for it to be more easily understood and accepted.

It could be said that the current system of "allowing" for a major flooding event every 100 years is not adequate and perhaps a larger figure should be allowed for.

Rotherham 2008a states:

"It is all entirely predictable - back in the 1920s Abercrombie warned specifically against building on flood plains in the West Riding of Yorkshire but this was largely ignored."

Sheffield Planning Officers disagreed with proposals in the early 2000's from Professor Chris Barnes, an environmentalist and Government advisor. He suggested assessing the Rivers Don and Sheaf to mitigate for flooding and include major off-channel flood control areas in zones such as the lower Don valley. The Planning Officers claimed that flooding was under control and Sheffield would never flood again (Rotherham 2008b).

Key question (iii) is partially answered by sources such as Kenna (2008) who looked closely at the subject of flooding with special attention being paid to effective flood risk management. He found

that statements from the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Secretary Hillary Benn contradicted each other with regard to the question of flood defences and whether work on them was being cut. Whatever the truth is there, it would appear that considerable improvements need to be made and that budgets need to be increased, rather than decreased, or flooding events will continue to occur.  
Is it getting hotter?

Experts do not agree on the extent of global warming, indeed some claim that the apparent rise in average temperatures around the world is cyclical and there is nothing we can do about it.

Archer 2007, however, is certain that it is happening:

"There is no doubt that the Earth is warming. The Arctic coast is melting. Global temperature records are broken year after year."

Gore 2006 certainly believes global warming exists when he tells us:

"I have learned that, beyond death and taxes, there is at least one absolutely indisputable fact; Not only does human-caused global warming exist, but it is also growing more and more dangerous, and at a pace that has now made it a planetary emergency."

When academics and other experts in their field disagree over a subject as important as the existence of global warming, it merely serves to confuse the layman who may not have access to the statistics and information to help provide a definitive answer.

Take warning

Some notice of the impending flooding was given to Sheffield and these are the two Flood Watches and Flood Warnings issued by the Environment Agency:

Flood Warning issued for River Don at Meadowhall on 15 June at 05:24.

Flood Warning issued for River Don at Meadowhall on 25 June at 11:32.

The literature review has answered key question (i), courtesy of Wohl 2000 and Younger 2007 and key question (ii) courtesy of Kenna 2008 as well as opening up debate as to what the meaning of 1 in X years alludes to exactly. The author has conducted a "straw poll" amongst friends asking what they understand this to mean and most of those questioned were unable to give a satisfactory answer.

Further research and agreement is needed here to prevent misunderstanding.

The existence of global warming has been addressed and it was found that experts in this field still do not agree on this point which again can lead to confusion and misunderstanding. This is a serious discrepancy and further work is ongoing as is evidenced by the plethora of press and television articles, almost on a daily basis.

## The Science of flooding



Figure 1. Flooding at Hillsborough Stadium (Image from Peter Smith, 2010)

Rotherham 2008a asks if the events of 2007 are likely to occur again and answers his own question by saying:

"...yes and they are likely to get even more extreme."

The Meteorological Office gave warnings of possible imminent flooding in the Sheffield area, saying that:

On Monday 25th a slow-moving area of low pressure brought a prolonged period of heavy rain to northern and central England. Hitting the already saturated north-east, the water had nowhere else to go and, as a result, led to major flooding" (Meteorological Office 2007).

The words "the water had nowhere else to go" are key here and as well as being applied to Sheffield in general, can also be applied to Meadowhall in particular where the defences that were in place at the time were quickly seen to be woefully inadequate in dealing with the inundation.

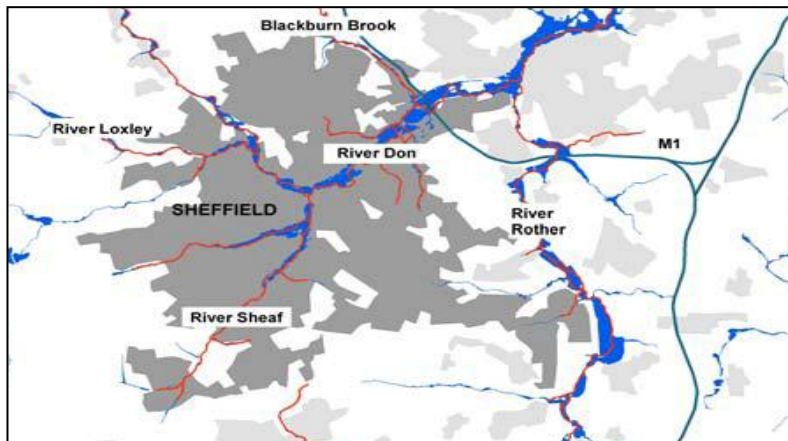


Figure 2. Sheffield's river network. (Image from Environment Agency)

It can be seen from Figure 10 that Sheffield is at the confluence of the rivers Don, Loxley and Sheaf and as such is likely to flood to a greater or lesser extent should those rivers be incapable of removing excess rainfall.



Figure 3. Meadowhall under siege from floodwaters (Image from Peter Smith, 2010)

## The Hydrological Cycle

The Hydrological cycle in more temperate lands is explained by Shaw 1996 as:

"... Rainfall reaching the ground may collect to form surface runoff or it may infiltrate into the ground. The liquid water in the soil then percolates through the unsaturated layers to reach the water table where the ground becomes saturated, or it is taken up by vegetation from which it may be transpired back into the atmosphere."

This easy-to-understand definition shows what happens during "normal" circumstances, with the proviso that there is nothing to prevent the cycle from occurring.

Out of town shopping areas

The larger, more remote centre, claims Finch 2008, is losing out to local, city centres, where admittedly, customers may have to pay for parking but that is often outweighed by not having to pay extra for petrol to drive to the larger outlets. Thomas 2008 says that shoppers are increasingly going online to shop, with John Lewis reporting a drop in sales in its Bluewater and Trafford Centre and Marks & Spencer issuing a shock profits warning which caused their share price to plunge 20%.



Figure 4. Bluewater shopping centre (Image from The Guardian online, 2009)

### **Remedial work following the flooding**

It took two years for the remedial work to be fully completed although considerable work had gone into lessening the effects of possible flooding at Meadowhall prior to the event in 2007 and a section of railway embankment had been removed in 2005 to help alleviate any possible future problem and the three flood barriers that were available for emergency use before the event were augmented by a further ten following the floods. The flood defences when Meadowhall was originally opened on 4th. September, 1990 allowed for a 1 in 60 year flood and was then raised to 1 in 100. Following the 2007 flooding, this level was raised to 1 in 200 years. The insurance company that was responsible for insuring Meadowhall looked at the possibility of raising this level to that of a 1 in 400 year event, but they were eventually convinced that with the remediation works that had been undertaken since the flooding, the 1 in 200 year event criterion was sufficient.

Work undertaken following the flooding included the purchase of a submersible pump and a comprehensive booklet which informs staff what actions need to be taken should a similar event happen again has been printed to replace the two pages of information that was previously available. Future work involves extending the Meadowhall Drive barrier and an embankment has been strengthened with reinforced concrete following the advice of structural engineers. Galvanised reinforced bars have also been utilised to augment what is now a robust system of defence against further flooding. Time will tell if these remedial measures are sufficiently robust.

## DATA COLLECTION AND METHODOLOGY



Figure 5. Flooded escalators at Meadowhall (Image from BBC South Yorkshire, 2010)

Interview with Mr. Paul Whitworth, F.R.I.C.S.

Mr. Paul Whitworth was employed by British Land (part owners of Meadowhall) following the flooding to liaise between the insurers and Meadowhall itself in what turned out to be a very long drawn out commission.

All of the fire doors were compromised and consequently replaced and the fact that the water had risen to the height it did meant that new ceilings were often needed due to the wall/ceiling junctions being damaged. This was a result of the way they were constructed and caused some consternation to the loss adjusters who could not understand why they were being asked to pay for new ceilings and associated work on heating, lighting and ventilation when the flood reached "only" to a height of 600mm. As all of the walls were affected, what ensued was effectively a total refurbishment of the lower mall. Mr. Whitworth decided that Meadowhall should be put back to the same position prior to the flooding with no direct attempt at betterment. The attitude of the insurers in this matter is a key point in this work and it would appear crucial that a virtually constant stream of communication between Meadowhall and the insurers contributed greatly towards as smooth an outcome as could be expected.

The matter of betterment is often raised when discussing insurance claims and strictly speaking it did occur with the subject of this work. Where an improved specification was applied, Meadowhall paid the difference and the centre is the better for this. An example here is where Meadowhall paid for the difference in specification between the old and the new toilet seats and also an improved specification for the replacement taps.

One alarming event was the substations "blowing up completely" due to their being overwhelmed with water. The panels are designed to blow out in emergencies but this did not happen here. Further improvement in their design would appear applicable in this instance because when they blew up the power was immediately interrupted.

One thing Meadowhall did pay for was a barrier going all the way round with automatic gates should there be a re-occurrence of the flooding. "The new defences will go a long way towards protecting Meadowhall against further flooding and will slow the water down" according to Mr. Whitworth, although he does have concerns over the gates as a chain is only as good as its weakest link. An interesting "twist" according to him is that there are no British Standards for flood defence work. The author has alluded to this earlier in discussing the 1 in X hundred year level.

It was interesting to note that Mr. Whitworth said that the insurers have since decided to spread their risk at Meadowhall with another insurance company.

The lack of British Standards regarding flood defence work may surprise and legislation would be needed to introduce this.



Further improvement in the design of substations is also called for to prevent a re-occurrence of the explosions that followed the vast amounts of water they were faced with. The design, construction and safety parameters of substations are outside the remit of this work but an overhaul to prevent a re-occurrence would appear to be overdue.

Key question (i) is answered by the very fact that the centre flooded in the first place and to a certain extent that the flood defence systems have been increased twice from their original 1 in 60 year event level to their current 1 in 200 year event level.

Key question (ii) is partially answered when it is appreciated that Meadowhall's insurers initially asked for a higher level of protection (i.e. 1 in 400 years) but settled for that of 1 in 200 years after being satisfied with assurances that the measures currently in place are sufficiently robust.

## Case Study



Figure 6. Marks & Spencer, Meadowhall (Image from Geograph, 2008)

The Marks & Spencer store in Meadowhall was used as a case study mainly due to the tremendous speed at which it managed to re-open following the floods.

The water that entered the centre was exacerbated by the fact that lots of debris was caught under an external pedestrian walkway. When the flood water engulfed the generators, they exploded, blowing the doors off and subsequently the store lost its source of power. The substation has however been built 8 feet higher than previously and this partially answers key question (iii).

The efforts of fellow staff members in helping prevent damage and clearing up in the aftermath were highly praised by Mr. Cater and he ended up having to spend the night in the store with some of his colleagues as they were effectively trapped, using the beds they fortunately had on display to sleep on, as well as candles they had for sale for illumination.

Provision of a two hour power supply in case of emergency at Marks & Spencer is a vast improvement, as prior to the flooding there was none and the power went off immediately the substation exploded.

Mr. Cater said that he had full confidence in the robustness of the remediation works following discussion with the centre's Management about the measures undertaken and this goes towards answering key question (iii).

Key question (iii) was also answered when Mr. Cater stated that the replacement generators had been built on ground 8 feet higher than previously, thus greatly contributing to preventing a similar recurrence.

## QUESTIONNAIRES AND DATA ANALYSIS

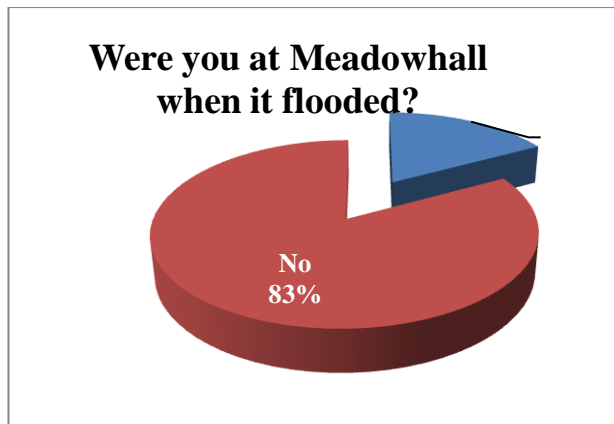


Figure 7. Were you at Meadowhall when it flooded?

Question 1 is worded like this because it is easy to answer and links to question 2 which is an open question eliciting a non yes/no reply. It helps "set the scene" even though participants had been told the subject of the questions beforehand. It shows a significant number of respondents (7) were present when the Centre flooded. The number of positive replies to this question could be seen to be disproportionate to the total number of those asked (41) and the figure is slightly skewed as two people questioned were actually working there during the flooding.



Figure 8. Did you change your habits as a result of the flooding?

This question was asked to gauge respondent's willingness to change and as such is a reflection of human behaviour. Only 3 people admitted to changing their shopping habits. The total of negative replies, 38, equating to almost 93% of those asked, should come as a relief to the owners and management of Meadowhall who will naturally want as many customers as possible to continue to purchase products.

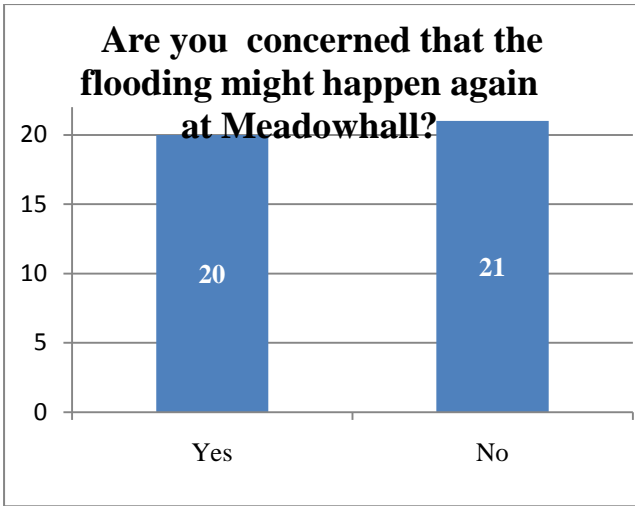


Figure 9. Are you concerned that the flooding might happen again at Meadowhall?

The replies to this question are the most interesting and illuminating as it regards shopper's perception about a possible recurrence of the flooding. These replies go towards answering key question (iii) and if this survey is representative of the local population as a whole, the Management and owners of the outlets at Meadowhall have every reason to be fearful each time there is continued heavy rain as shoppers could well postpone their trip there or even take their business elsewhere.

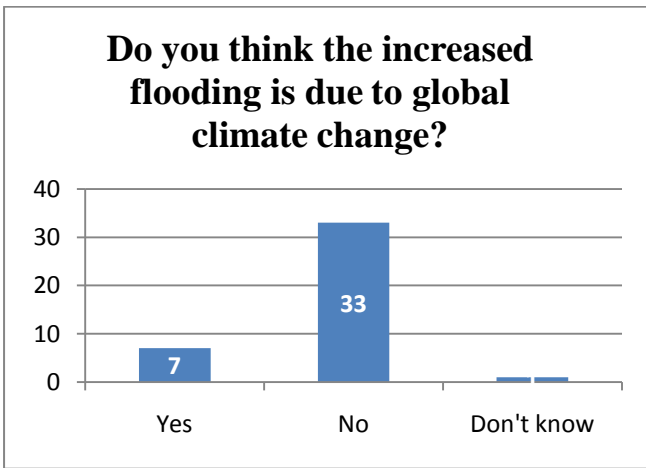


Figure 10. Do you think the increased flooding is due to global climate change?

The figure of 7 here equates to 17% of those questioned and if this percentage is extrapolated, the protagonists of global climate change will have a hard job persuading the vast majority that it even exists as most respondents in this sample (80%) do not think that the increased flooding is due to global climate change. The single "don't know" reply contributes over 2% of the total but the "no" total of 80% is still statistically significant.



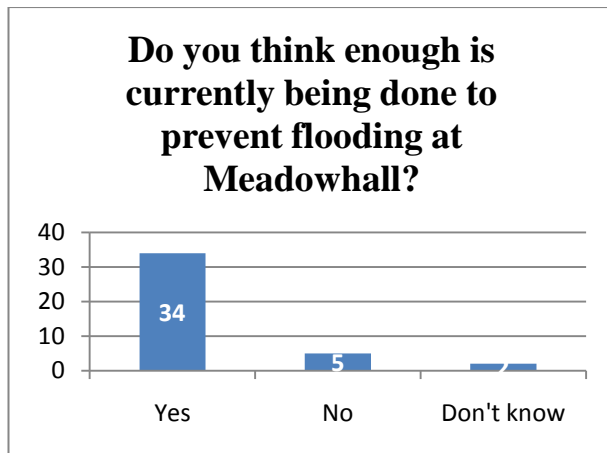


Figure 11. Do you think enough is being done to prevent flooding at Meadowhall?

With 34 respondents (83%) replying that enough is currently being done as opposed to 5 (12%) who disagree and 2 (5%) who don't know, it seems that the public perception is that the flood defences are sufficiently robust. This partially answers key question (iii). The Management there should take solace that only 12% of respondents thought that not enough was being done to prevent flooding although that figure rises to 17% if the "don't know" responses are added to this.

The collection of data via questionnaires in the shopping centre partially answered key question (iii), allowing for triangulation with other non-numerical data collected via the interviews, case study and literature review. It is primary data as defined by Naoum 2009 and is entirely subjective, comprising of personal answers to given questions. As such, there is a lot of bias present which is accepted and understood by the author.

## CONCLUSION AND SUGGESTIONS

The key questions were answered by triangulation of the four data streams and it is hoped that a contribution can be made to others' understanding of flooding in general.

The text allows the author to conclude that the hypothesis of Meadowhall's insurance company driving flood defences on site is correct.

The fact that there appears to be no British Standards by which structural engineers can base their work with regard to flood defences may come as a surprise as the flooding at Meadowhall, although dramatic and rapid in its occurrence, was by no means an isolated incident. The existence of global warming is still open to debate and there are parties who claim that flooding is part of a natural cycle and should be dealt with on an ad hoc basis but regardless of this, defences still need to be sufficiently robust to withstand the events that will continue to occur. With this in mind, it would be of immense benefit if parameters were laid down defining the robustness of flood defences. This would allow them to be built to a defined standard and anyone requesting them would be able to specify according to their needs, safe in the knowledge that the defences built are able to withstand a particular level of flooding. There needs to be a general agreement between all concerned parties to work together and currently that accord does not appear to be present.

It is not clear what is meant by the phrase 1 in 100 years with regard to flood defences, especially to the uninitiated and this can lead to confusion if two events happen within a short period of time. The author has asked friends what they understand by the phrase 1 in 100 years and whilst admittedly this approach is neither scientific nor statistically significant it does highlight a level of ignorance as most of them were unable to explain what it meant. The problem here is that the figure is based on probability, collated from historical data and with statistical probability being what it is, an event may not happen at all in, say 100 years, or conversely could happen several times within the same timeframe. The author proposes that giving the figure as a percentage, e.g. "there is a 2% chance of major flooding in a certain area in the following year" is an easier to understand nomenclature. This in itself leads to the question: "What is major flooding?". This is another can of worms altogether and is open to debate and conjecture as one person's definition of major flooding is different from another's. Currently the definition would appear to be entirely subjective with all its inherent problems. It is the author's recommendation that an objective definition is formulated using criteria

which may include levels the floodwater reached, such as 300mm above ground level for example. As in the definition for 1 in 100 years, agreement with all interested parties would be needed and if this was reached, those not fully conversant with hydrology etc. would have a much better understanding of the subject matter.

The substation providing power for the Marks & Spencer store exploded and there was only a window of three hours in the shopping centre before the emergency power went off there too. Whilst flooding that occurred there in 2007 could not generally be foreseen, it is obvious with hindsight that these provisions were not sufficient. The location of any substation is often the subject of much controversy as no-one wants one "in their backyard" as they are visually intrusive and can easily spoil what is often an attractive panorama. The normal route of applying for and gaining planning permission has to be followed and wherever they are sited they are generally considered a blot on the landscape and a necessary evil. The locations of the substations are quite close and if a repeat of the 2007 event was to happen, the same problem may well arise. It is acknowledged that rebuilding substations is not a small task, but if a repeat event did indeed occur, the outcome would probably be the same. Marks & Spencer have gone a long way towards preventing a recurrence of their losing power by rebuilding their generator eight feet higher than it was previously, thus to a great extent preventing a repeat of the generator flooding that they experienced.

When 100 shoppers have to be rescued by R.A.F. helicopters it is patently obvious that a major breakdown in infrastructure/evacuation procedure has occurred or the measures that were in place were patently insufficient. The booklet subsequently issued detailing instructions regarding what to do in the event of a similar event there is a vast improvement and it is a sign of the times that higher standards are often only introduced as a direct result of a major incident. Winching members of the public into a helicopter is a highly specialised and dangerous procedure and not one to be undertaken lightly and only then when there is an immediate danger to life and limb. The shoppers who were involved were very fortunate indeed to escape without major injury and what could have turned out to be a national disaster was fortunately averted.

## **RECOMMENDATIONS FOR FURTHER STUDY AND LIMITATIONS**

Carrying out the research for this work has been an eye-opener for the author whose knowledge and awareness of the subject has increased vastly. However, certain areas have been identified as being suitable for further study, over and above the recommendations made in the conclusion.

One major area is to ascertain whether global warming actually exists or if it is occurring on a cyclical basis, because if it is cyclical, any subsequent action taken to prevent it will be ultimately fruitless. A single massive event can have a disproportionate impact on thinking by virtue of its extensive media exposure, and observers may conclude (possibly incorrectly) that such events are becoming more common, when the opposite may well be true. Doubtless many dissertations, doctorates and other work are currently being undertaken to prove or disprove this theory and it will be interesting to read and/or take part in such work.

There were limitations regarding analysis of the primary data collected by questionnaire which was not fully appreciated until it had been collected and scrutinised. Most of the questions asked were answered with a "yes" or a "no" response which meant that identifying a mean, standard variation etc. was not possible and should a questionnaire be repeated, completely different questions would be asked which would allow greater depth of analysis due to the nature of the replies expected being in numerical form.

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# THE GROWING RISK OF FLOODING AND ACTIONS REQUIRED TO MITIGATE ITS EFFECTS

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This paper looks to investigate and provide an overview of the current best practices in respect of flood mitigation within the UK. Recent flooding events have highlighted this issue, whilst Climate Change predictions also indicate the frequency and intensity of these occurrences are likely to increase. Various methods are available to mitigate the damage further floods will have in both new build and existing properties. The techniques used to protect existing properties will be identified and how these can be transferred to new build design. Innovative construction techniques and planning legislation to protect new build properties will also be assessed.

Keywords: flooding; flood damage; flood remediation; climate change; PPS25.

## INTRODUCTION

Over the past few years, flooding and the damage its causes to property has received a great amount of attention. The images of floods in 2000 and 2007 lead many to question whether more could have been done to protect households, businesses and services. This paper will look into the causes of flooding, the damage associated with it, and what can be done to minimise the future risks flooding presents.

## FLOODING: WHAT ARE THE RISKS?

The hazards that floods present have always been a constant, however, the risks have greatly increased since the increased occupation of our urban areas. There are many causes of flooding the principle of which arise from the Sea, Rivers, Land (rainwater), Groundwater, Drainage and other man-made structures such as Canals etc.

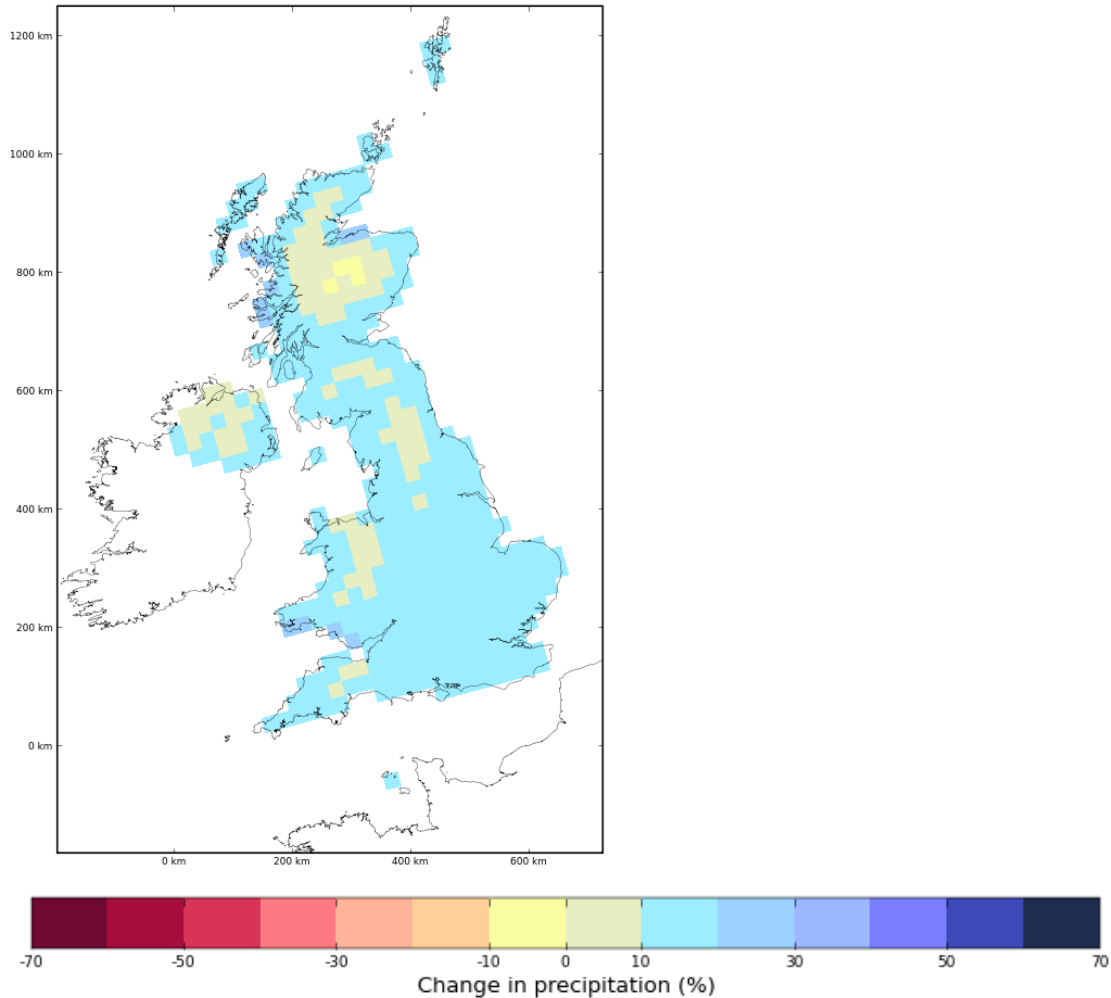
Coastal flooding from the sea can present a great risk to low lying property. As with all forms of flooding, prediction is difficult as a combination of factors can all interact to form particularly high sea levels or excessively large waves. With rising global sea levels, and an average increase of 1mm per year in UK sea levels (DEFRA, 2008 p. 14) brought about by climate change (the anthropogenic form) the risk is growing. When the flow capacity of rivers, streams and other water courses exceed their natural limit fluvial flooding occurs. In the UK this is usually due to rainwater, and leads to the low-lying areas surrounding the water course to flood. Again, various factors can affect the severity of the flooding, such as topography, saturation of the surrounding land etc.

Rainwater unable to find its way into water courses also presents a risk of localised surface flooding, particularly in built up urban areas where the area for natural soakaway is reduced. The level of flooding arising from excessive rainwater is likely to increase over the coming century as

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precipitation levels are predicted to increase, as shown in Figure 1, again as a result of Climate Change. Over prolonged rainfall periods flooding can also occur as a result of higher groundwater levels. Although this may not be the most abundant form, it still presents a significant risk particularly in areas built on aquifers (permeable rocks and soils) such as chalk and limestone (Lancaster, 2004 p. 36). Flooding may result from any one of these sources, or a combination of many, for instance, excessive surface water run-off causing drains to be overwhelmed.



*Figure 1: The UK Climate Projections central estimate of change in precipitation levels in the UK by 2050 for 'medium' carbon emissions. In this prediction the majority of the country will be subject to an increase of between 10 - 20%. Some estimates predict a much greater increase than this. Source: (UK Climate Impacts Programme, 2009)*

## THE SCALE OF THE PROBLEM

The Association of British Insurers (ABI) states that the number of houses at risk through a combination of coastal, river and surface flooding to be 5.4 million properties (Association of British Insurers, 2009). Recent flooding in 2000 and 2007 gave a clear indication of the scale in terms of costs and damage which widespread flooding in built up areas can cause.

In the Autumn floods of 2000 around 10,000 properties were flooded at a cost of £1 billion (climateprediction.net, 2002). In 2007 these figures were both higher with 55,000 properties flooded and the insurance industry alone predicted to pay out around £3 billion (Pitt, 2008). The stress and upset which this flooding caused each household was considerable with some families unable to

return home over a year after the incident. Perhaps of even more concern was the near misses and damage caused to infrastructure. The damage to infrastructure was identified by the Pitt Review as "the most significant loss of essential services since the Second World War" (Pitt, 2008 p. 3) with 350,000 people in Gloucestershire left without mains water supply. The damage could have been much more significant in some instances with sub-stations being threatened by the rising water. South Yorkshire suffered substantial disruption to its public transport and at one stage the flood water threatened to burst a dam on the Ulley reservoir in Rotherham (BBC, 2007).

## **PROACTIVE MEASURES: THE LONG TERM STRATEGY**

After the floods of 2007 the government commissioned the Pitt Review; 'Learning lessons from the 2007 floods'. This report made a number of recommendations, 92 in total, ranging from restricting homeowners covering front gardens with 'impermeable surfaces' (recommendation 9) to establishing a dedicated Cabinet Committee (recommendation 87) to manage the issue of flooding. Placing flooding on par with terrorism and a flu-pandemic in terms of priority. Other measures which the report recommended was for greater communication between the two main bodies responsible for flooding, the Met Office and the Environment Agency. The report found "There was no single authoritative voice, no proper forecasting and warning system for surface water flooding, and a general need for more accurate, targeted and earlier warnings" (Pitt, 2008 p. xxiii). This led to the Flood Forecasting Centre being created. Early warning is essential for property owners to stem the flow of water into their property and fit specialised flood defence products.

Although early warning and management has a role to play in the battle against flooding, prevention is always better than the cure. With the Planning Policy Statement 25 (PPS25) the government introduced in December 2006 this is exactly what it aims to achieve. The need for additional housing in the UK is growing through a number of factors, population growth and an increase in single person households are just two. At the same time the land mass remains fixed, and as such requires construction to take place in areas which may not be ideal. The Government has accepted this fact and through the PPS25 looks to provide Local Authority Planning Departments with guidance on building on land which is susceptible to flooding. PPS25 does not give planners the freedom to allow construction on high risk areas with no consideration, its key objectives state "where new development is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall" (Department for Communities and Local Government, 2006 p. 2).

This is done through Regional Planning Bodies (RPB) and Local Planning Authorities (LPA) preparing planning strategies which develop sustainable development in a three staged approach, Assessing, Managing and Reducing risk (Department for Communities and Local Government, 2006 p. 2). The thrust of PPS25 is not to make land which is prone to flooding off limits to development but ensure that steps have been taken to fully investigate the extent at which the area is affected, the potential damage which a flood would cause, and how this can be reduced. It sets out a 'Sequential' risk assessment which looks to steer developments to land most suited to its particular risk vulnerability, denoted by its 'Zone' classification. The Zones (summarised in Figure 2) denote varying degrees of land at risk, Zone 1 being low risk, up to Zone 3b which is the Functional Flood Plain, clearly very high risk for nearly all developments. In situations where this sequential test is not appropriate the 'Exception' test may be applied.

For a development to be approved in this situation it must be able to provide evidence that the development "provides wider sustainability benefits to the community that outweigh the flood risk" (Department for Communities and Local Government, 2006 p. 27). To further complement the policies set out PPS25 the government published the Practice Guide in 2008 which it has subsequently amended in 2009. This looks to give practical guidance on how the policies set out can be put into practice through a 5 step flood risk management hierarchy (Department for Communities and Local Government, 2009).

Flood Risk Vulnerability classification (see Table D2)		Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone (see Table D.1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	x	Exception Test required	✓
	Zone 3b 'Functional Floodplain'	Exception Test required	✓	x	x	x

Key:

✓ Development is appropriate

x Development should not be permitted

*Figure 2: The various zones defined by the PPS25 and the developments by classification which are suitable in each case. Further definitions of the classifications can be found in Table D.2 of PPS25. Source: (Department for Communities and Local Government, 2006 p. 27)*

The benefits of PPS25 are unlikely to be felt immediately but will certainly make long term improvements in preventing inappropriate development on land unfit for construction. This is done whilst recognising the need utilise as much of the UK's land mass as possible by mitigating the potential risks it presents.

## MITIGATING RECURRING FLOOD DAMAGE

Each flood is different and depending on the water source the damage caused and cost of repair will fluctuate. Sea water presents a risk of corrosion to steel components and frames, whereas sewer water from drains presents a health hazard which should be dealt with appropriately. In all situations by carrying out flood resilient repairs will reduce costs, damage and the time of repair work in future flooding events. The ABI, Building Research Establishment (BRE), and Construction Industry Research and Information Association (CIRIA) have all produced reports recognising the growing risk flooding presents and highlight the need to undertake repair work which will reduce the damage of recurring flood events. This builds on the need to take proactive measures, not only in the planning stage for new builds (with PPS25) but also with existing housing stock.

Some aspects of repair which mitigate flood damage can be achieved through a change in design or material choice which better resist water damage and the actions of flooding known as wet-proofing (Garvin, 2005 p. 60). Untreated timber is at a high risk from flood waters as it may warp and decay. Structural timber can be replaced with a pre-treated timber substitute, as can non structural components where Glass Reinforced Plastic (GRP) could be considered for skirting, architraves etc (Association of British Insurers, 2003 p. 5). Re-siting services, electrical sockets, consumer units, boilers etc at a level above the predicted flood level, ensuring they are still accessible reduces the need for replacement. The nature of Insulation, located in cavity walls or as part of a solid wall construction should be ascertained and replaced if necessary. Some forms such as mineral wool will retain moisture and slump within the cavity, reducing the thermal efficiency, hinder the drying process and pose a potential health risk dependant on the flood water contaminants. Replacement with



a closed cell insulation would remove this risk in future floods (BRE, 2006 p. 65). In some cases the repair work can be simple whilst still achieving the desired aim. By installing plasterboard horizontally will reduce the amount requiring replacement in future floods. Other measures can be taken to stop water entering the property, known as dry-proofing. This works by stopping or restricting water entering the property and thereby reducing the water damage. Dry-proofing is only effective to a height of 1m as structural problems may occur above this as the water pressure outside the property increases (Garvin, 2005 p. 60). At low level flooding air bricks can be raised with the use of telescopic air vents to stop water entering. A further option may be to fit air brick covers as shown in Figure 3. These will seal the cavity wall from water penetration but rely solely on early warning and cannot be left in place indefinitely due to ventilation issues. Many other proprietary products are available which work on a similar principle but for larger openings such as doorways, driveways etc. Although these will prevent water entering they can only do so if they are in place. As previously discussed, early warning is essential particularly if a properties flood defences rely on these products. They also require the property owner to be sufficiently mobile to fit them, which may not be the case particularly with the elderly or disabled. A more permanent method of protection may come with the use of water repellent paints/sprays applied to the external wall. Although these will reduce water absorption of the external brickwork/masonry wall they will also reduce water evaporation. Any remaining water in the wall before the repellent is applied or finding its way into the wall after application brings with it the risk of frost damage.



*Figure 3: Images of an air brick with a surrounding fitting in place under normal operating circumstances (a). When a flood warning is in place this can then be sealed with the cover (b). Source: (Garvin, 2005 p. 61)*

The repairs covered in this section are not a comprehensive list, many more can be found in the reports mentioned. In practice a combination of wet and dry-proofing will offer the best protection in existing households.

However, the costs incurred with the installation of flood resilient repairs, although providing long term savings do not fall with insurers who only have to cover the costs of standard repairs (BRE, 2006 p. 77). This is subject to individual policies but the insurance company should be consulted if flood resilient repairs are preferred.

## **FUTURE DEVELOPMENTS**

The benefits of flood resilient repairs can also be incorporated in new build housing. The government report 'Improving the Flood Performance of New Buildings' highlights this and picks up where PPS25 ends in the planning stage. The report looks to "improve the resilience of new properties in low or residual flood risk areas by the use of suitable materials and construction details" (Bowker, 2007 p. 8). The guidance is aimed at low risk areas, such as Zone 1 defined in the PPS25.

Although these measures are a step in the right direction some argue that this is not enough and fundamental changes are needed in the way we approach construction on and around flood prone land. Adopting new design principles, building houses on stilts, draining flooded land with pumping stations or even raising land above current water levels are just some of the proposed alternatives (Glancey, 2008). Many of these suggestions may seem impractical but large scale land reclamation and flood protection has been put successfully into practice in the Netherlands through its Delta Works programme, brought about after the disastrous flooding events of 1953 (Hirst, 2009).

Significant changes in the design and construction of buildings in flood prone areas is also being discussed and investigated. The Royal Institute of British Architects (RIBA) held a competition in 2008 to find innovative designs to cope with construction on flood prone land. Bristol Universities Civil Engineering Department also carried out an investigation into flood-proof house design which was sponsored by the Institution of Civil Engineers (ICE). This report evaluated a number of solutions to the flood-proof housing problem including an analysis of floating home designs and the mechanisms allowing them to float. These floating homes were decided upon as the most appropriate method of providing a flood-proof house. Primarily after discussing disadvantages with other methods, such as building houses on stilts, natural and man-made hills, and moving living areas to first and second storey. Coming from a civil engineering background the report was also aimed at more technically challenging solutions, although this in no way diminished the report's findings. The final design chosen constituted a water-tight concrete base 1.3m below ground level with retaining walls (Han, 2002). This integrated a column and ring system allowing a timber framed house, chosen for its lightweight properties, to rise up and down the columns during flooding. The column and ring system is located at each corner of the house providing rotational and lateral restraint from the flow of flood water and wind loads (Han, 2002). The estimated additional costs of the floating mechanism for the house was £20,500 which at the time made the increased cost per house 18% more than standard construction. Overall the design certainly offers an alternate design approach to house construction and may well find planning approval in flood prone areas under the policies set out in PPS25.

## **CONCLUSION**

Flooding can arise from a number of sources, coastal flooding from the sea, fluvial flooding from rivers, excessive rainwater causing localised surface flooding and to a lesser extent increased groundwater levels. Climate Change predictions indicate these flooding events will become more frequent and damaging as precipitation and sea levels increase. The Association of British Insurers estimates the total amount of homes at risk of flooding at 5.4million. Recent events have highlighted the damage which large scale flooding in built up areas can have, with 55,000 properties affected in the 2007 floods at a cost to the insurance industry alone of £3billion. Infrastructure was also seriously affected, being described as the worst loss of essential services since World War II. In order to mitigate the damage caused by floods in the future a range of measures are necessary, taking into account planning and construction of new properties, and also the best methods of repairing existing properties. The Planning Policy Statement 25 looks to ensure developments taking place on flood prone land do so in a safe manner without increasing the flood risk. Developments are targeted into zones which suite their particular risk classification. The benefits of this approach are likely to be seen in the long term. Existing property at risk of flooding, particularly recurring flooding can mitigate further damage through flood resilient repairs. These can be broken into two broad categories, wet and dry-proofing. Wet-proofing accepts water will infiltrate the property and uses construction techniques and materials which will limit damage or remain largely unaffected. Dry-proofing aims to stop or restrict water entry into the property, many of the measures required for this rely on early warning. In practice a combination of both techniques are likely to give the best protection. As the land mass of the UK is limited and demand for housing is growing, instead of limiting developments taking place on flood prone land, a better approach may be to adopt new and developing construction techniques. Allowing construction to take place in all areas, even those at the largest risk of flooding. This may be through a design like that discussed in this paper or one of the many other innovative designs to cope with flooding. The only true test of how successful any of the measures discussed in the paper will come with the next flooding event, where inevitably, further lessons will be learnt.

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# AN INVESTIGATION TO ESTABLISH WHETHER PROPERTY MAINTENANCE CAN DIMINISH THE NUMBER OF EMPTY COMMERCIAL BUILDINGS IN SHEFFIELD & LEEDS

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Property maintenance has long been considered an undesirable and overlooked area amongst the construction and property industries; however, a large proportion of construction output comes from such maintenance works. Empty commercial property is an emotive and challenging area, which has been made more topical due to the implementation of the Rating (Empty Property) Act 2007 placing further financial liability on owners with the aim of 'incentivising' them either to develop, re-let or sell their vacant buildings. As such, the level of property maintenance is important to allow the building to be at a lettable or saleable standard, which in turn should allow the number of unused commercial buildings in the United Kingdom (UK) to reduce. A mixture of primary and secondary sources were utilised to fulfil this research to determine whether incentives exist or can exist to increase the level of property maintenance to diminish the number of vacant commercial buildings in Leeds and Sheffield. The primary data was based on six case studies, four example cases in point and two interviews. Ratings were assigned according to factors and incentives to analyse the data to assist in the findings of this research. This change in Government policy is causing outrage amongst UK businesses and professional bodies of the property industry, in extreme cases leading to the demolition of the building to avoid liability and other detrimental consequences, such as staff reductions to make up for the liability. It has come also alongside the worst recession of recent times.

Keywords: commercial property, empty buildings, factors, incentives, maintenance, Rating (Empty Property) Act 2007.

## INTRODUCTION

Maintenance is considered as the "Cinderella" industry in its nature, in that it is not seen as glamorous work. Mclean, 2009, Vol. 5, p.1 says that "...maintenance can be described as work necessary to keep or restore every component of a building to an acceptable standard for an acceptable cost." Arguably the main premise behind the reasoning for adequate and effective property maintenance is that "all buildings start to deteriorate from the moment they are completed and from that time begin to need maintenance in order to keep them in good condition" (Mills, 1994, p.3). However, the rationale of property maintenance will vary and range in complexity from building to building due to its

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encompassing circumstances. If commercial buildings are kept in good condition would they be in use or would they still be vacant through other factors. This is explored further throughout this paper.

In a similar way to that of the maintenance industry, the commercial property sector contributes significantly to the economy on different levels, it has developed and changed over time, is varied, complex as well as topical. The empty rates liability appears to be causing negative effects due to the outcry from building owners and the like. "A variety of influences condition whether a particular industrial building is occupied or not" (Guy & Henneberry, 2002, p.176).

## **RESEARCH METHODOLOGY AND RATIONALE**

### **Hypothesis**

There is a relationship between property maintenance and vacant buildings through incentives that exist, or can exist (directly or indirectly) to promote effective property maintenance; Other factors are involved and acknowledged, effective property maintenance alone cannot diminish the number of empty buildings in the Leeds & Sheffield areas.

### **Research Methods & Rationale**

This study focuses specifically on empty commercial buildings, those well and poorly maintained, reused, re-developed and re-built. It has provided an in-depth analysis using both primary and secondary sources to determine whether incentives exist or can exist to increase the level of property maintenance to diminish the number of vacant commercial buildings in Leeds and Sheffield. The primary data was based on six case studies, four example cases in point and two interviews. This was then cross-referenced, triangulated and critically analysed against the available secondary data to reduce bias and draw reliable conclusions. Due to the regional nature of the case studies and interviews, the study may not be representative of what happens nationally. The case study selection method has been based on variables identified through a review of the current literature which included reasons for not maintaining the building, and factors relating to incentives for building owners to maintain. The study also looks at the case studies to determine if these incentives are taken up by building owners and if they help maintain the buildings. Ratings between 1 and 5 (with 1 being least likely or important and 5 being the most likely or important) were assigned to factors and incentives in order to quantify the findings of this research with regard to increasing property maintenance and factors why commercial buildings become vacant. These figures are shown in the case studies and interview findings section of this paper.

### **Sample Population & Geographical Size**

The sample population of the primary data collection has been focused upon those involved or linked to property maintenance and those involved in empty commercial buildings either directly or through rating work. The geographical size of the sample has been limited to Leeds and Sheffield due to economic and time restrictions. While the literature review, discussion and analysis of this study addresses the subject context UK wide briefly as well. As with all case study material the data collected by the authors only reflects a snapshot in time.

The organisations that participated in the study by taking part in the interviews include a small medium-sized enterprise (SME), general practice Chartered Surveyors in Leeds and a Local Authority (LA) operative in an appropriate department in West Yorkshire. These have been triangulated with secondary research and primary case study findings which establish patterns and differences. Whilst the ideal sample size and mixture of participants could not be achieved, The study was designed to represent the different types of organisation involved in maintenance and refurbishment projects including a respondent in the private sector and one in the public sector, this demonstrates the differences and similarities from the different sectors, which in further study should be expanded to validate and strengthen the findings of this study.

The case studies involve a mixture of new build schemes and older style vacant buildings. Additionally, cases in point have been compiled later in this paper to strengthen key findings.

## LITERATURE REVIEW

### The Importance of Property Maintenance

Property maintenance is a complex and bespoke area depending on many variables and circumstances. ‘Maintenance’ is described in MacLean & Scott, 1993, p.278 as, "The work of keeping things in good condition. Materials used in the fabric, finishing, and services of buildings, and even their external works, are increasingly either ‘maintenance-free’ or made to reduce maintenance cost. Large buildings should have a maintenance schedule for ‘planned preventative maintenance’ of major equipment, such as air conditioning, lifts, lighting, and fire-protection equipment. In general, good workmanship helps to reduce the maintenance cost. Contractor’s plant, like all machinery, also needs regular servicing."

Wood (2003, p.17) comments in the context of large tenants such as Tesco and BHS, their property needs to be managed and "...effectively maintained so that huge repair obligations would not build up." The maintenance of commercial buildings very much requires on the circumstances and the image a business needs to retain. It is noted that future service lines in the profession of a Building Surveyor consider maintenance and repair as one of these core values, especially in tough economic conditions, according to the RICS Building Surveying Journal in January to February 2009, p.9 where it states, "Landlords are concentrating on retaining tenants and ensuring property assets are performing. Less ‘glamorous’ work (such as maintenance, external redecoration, etc) will increase."

Figure 1 demonstrates the choices of maintenance programmes and types, but the choice largely depends on each building and the requirements of each user or owner as mentioned in this paper throughout. The ultimate goal however in any case is to keep the performance of the building at a level in which fulfils its function.

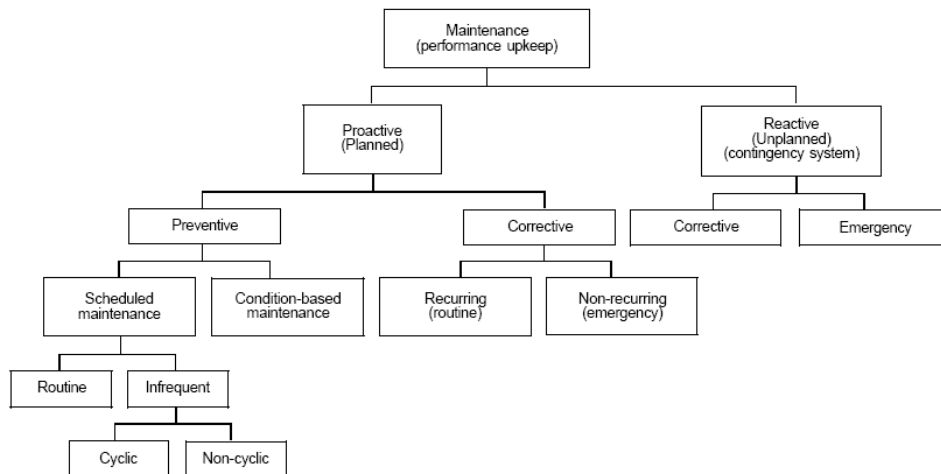


Figure 1: Maintenance Types Diagram, taken from Douglas, 2002, p.10.

There are multiple sources that highlight the importance of what building maintenance brings to both the built environment and wider economy. "Generally, the older the building and the longer it has been empty, the greater the costs of repairing and restoring the existing structure and fabric" (Gorse & Highfield, 2009 p.11). Thus, the need for effective maintenance to keep the building in use or / and to reduce the costs of the future re-use of the building should be made paramount.

"Since buildings are durable, nearly one-half of the value of the output of the construction industry is on repairs and maintenance" (Harvey & Jowsey, 2004, p.205). In 2001, repairs of housing stocks and others (such as commercial, etc.) amounted to a value of output in the construction industry of £34.718 billion. The overall total including new work is £74.692 billion. 46.5% of the overall total value of output of the construction industry is from repairs on housing and other work from both the private and public sector but interestingly no output for repairs on infrastructure. This data reinforces other sources that maintenance is vitally important within the construction industry.

Another source confirms the importance and complex nature of this subject, "The building maintenance and management industry is a huge, varied and complex area of activity. It accounts for around 50% of the construction sector output" (Anon. 2010b). Hence, the significance and importance of property maintenance not just from a building viewpoint, but the wider economy in terms of employment and output; it ideally should not be overlooked or seen as a "costly hindrance" or "unattractive" work, but approached in a holistic way due to its diverse and multifaceted temperament.

### **Commercial Buildings & Why they become vacant?**

Commercial properties according to Myers, 2006, p.8 refer to office buildings, business parks, warehouses, industrial estates, leisure outlets (such as cinemas and pubs) and retail properties such as shops and shopping complexes. It is stated in Scott (1996, p. 21) that the start of commercial type buildings started in the eighteenth and more so in the early part of the nineteenth centuries, where "...specially designed office and banking buildings has appeared in the City...and the Bank of England (1732)."

Vacant commercial buildings become empty for many different reasons, some are then re-occupied and others are not. "Why do some buildings remain out of use whilst others are refurbished and re-occupied? ... These are important questions confronting the analyst and challenging the policy-maker" (Guy & Henneberry, 2002, p.176). "Developers have been found to have a positive attitude towards refurbishment and re-use when conditions allow it – in other words, when they perceive that the market potential for refurbished premises will make them cost effective" (Guy & Henneberry, 2002, p.177).

The rates liability may have a negative impact rather than a positive one as there are more reasons why a building is vacant such as a lack of need, too costly to keep and maintain, the recession, high rents and decline in industry. Empty rates on commercial property does not solve the problem, it just acts as a 'deterrent' for either the building becoming vacant or the building to be laying empty, which may inevitably lead to demolition. It is too early to establish whether this will be detrimental or positive to the commercial property stock lying vacant, but is clear from the outcry that it has been another tax at the wrong time.

Myers, 2006 comments that over 50% of commercial properties are built on a speculative basis with no tenant or occupier in mind, however, this sector is significant from an investment point of view. This arguably raises questions to what proportion of new commercial properties built on this basis remain vacant and for what reasons are these investors and developers not redeveloping the current empty stock of commercial property. Whether this is a result of simple economic supply and demand is not clear. "Large swathes of empty and deteriorating buildings are a turn-off for investment, and a depressing factor for local communities. From these, and environmental perspectives, they are a sustainability negative – a wasted and deteriorating resource, and a blot on the environmental and economic landscape" (Guy & Henneberry, 2002, p.176).

### **The relationship between maintenance and commercial buildings**

Both markets, however, contribute significantly to the economy on an output basis and an employment viewpoint. This demonstrates the importance, relevance and magnitude of both topics,

although it could be said that either are overlooked or, at the least, seen as 'unattractive' at many levels.

The link between maintenance and empty commercial buildings has proved problematic to acquire appropriate literature; however, as there are different types and levels of property maintenance it could be referred to on a certain level as developing a property. "Property development can be described in its widest sense as any activity which changes the state of land. Such a change is often evidenced in one of three ways, namely...through the improvement of existing buildings by improving their state of repair, by improving the fixtures and fittings they contain (e.g. perhaps by the installation of newer, faster and more reliable lifts), by improving their design to make them more useful for modern needs, or by enlarging them to make them more useful in terms of size" (Millington, 2000, p. 1.) "One might argue that the key to success in conservation and regeneration is to combine the economic pragmatism of re-use in the past with the inspirational qualities and community benefits of successful modern projects" (Stratton, 2000, p.9). The project needs to make economic sense but effective and adequate maintenance may be the difference between a viable scheme and non-viable one. These sources are from a development viewpoint specifically and as such other users such as owner occupiers would want to reduce the maintenance bill when purchasing a building which has been vacant, for example.

### **Incentives and other factors**

Whilst factors and incentives exist both indirectly and directly, it has not been possible to cover all reasons due to the complexity and nature of the subject matter. It is very much dependent and bespoke. It would therefore be difficult to implement one set of incentives and factors that fit all, but flexible ones that reflect the situation. The primary research through the case studies and interviews highlight possible future incentives and factors.

"Maintenance needs to be prioritised so that those failures that may cause the most damage can be identified and prioritised over others" (Harris & Hastings, 2004, p.2). "The existence of disused industrial buildings represents an underutilisation of city resources, a missed opportunity for forms of urban development that might, with simple yet untried technical solutions, make effective use of physical resources, and a negative feature for the idea of the sustainable community" (Guy & Henneberry, 2002, p.178).

The Building Act 1984 Section 1 imposes that owners and occupiers maintain their buildings and provisions to ensure people's safety and welfare. This only applies to England & Wales. It could be argued that people are not in empty buildings so is unnecessary to meet the legislation, however, consideration should be made of people in the vicinity of the poorly maintained buildings and the potential risks to them.

"Buildings owners and developers have, in recent years, come to realise the potential value of our vast old stock of old, redundant and obsolete buildings..." (Gorse & Highfield, 2009 p.1.). They go on to say that through refurbishment time savings can be made and that it is cheaper over the cost of demolition and new build by 50% to 80%, giving financial benefits to the potential developer. This source highlights the importance of well-maintained buildings, for if the cost and time of repair and subsequent refurbishment works outweighed that of the new build option, it would not create the factor of influence to refurbish over demolition and new build.

The recent introduction of the Rating (Empty Properties) Act 2007 which came into force in April 2008 puts more liability on commercial building owners of empty or vacant property. This was the result of the Barker review and the Lyons enquiry that stated that the "...Government should make better use of fiscal incentives to encourage efficient use of urban land and, in particular, the reform of relief from business rates in respect of empty property." (Anon. 2007a, Office of Public Sector Information [online]). It has sparked great debate and lobbying exists to overturn its introduction.

Planning Policy Guidance 3: Housing (PPG3) was introduced in 2000 by the Government which, "...set out a target for the increased use of brownfield sites." Specifically, to provide part of the



solution to the housing shortage. (Watson, et al., 2008, p.150). It continues, "There were, and are, many hectares of derelict land left empty as a result of the loss of major heavy and manufacturing industries, along with many inner city areas that are in desperate need of regeneration." Refurbishment works was included in the changed definition of a brownfield site under Planning Policy Statement 3: Housing (PPS3), which replaced PPG3 and uses the term 'previously used' sites rather than 'brownfield'. PPS3 defines this term as "...land or buildings that are vacant or derelict as well as land that is currently in use but which has potential for re-development" (Watson, et al., 2008, p.150.)

This is a legal policy from the Government that encourages the re-use of empty buildings through refurbishment works. However, refurbishment works involve works that change an elements or components performance, where as maintenance generally undertake replacement, repair and restoration to keep the building or parts of the building in satisfactory condition to meet current requirements. It can be argued that the two can overlap. For example, the choice of material in a repair may change an elements performance, so you are improving what was there but necessarily to meet current legislation. Wordsworth (2001, p.77) supports the premise that statutory provisions "...are of most concern to the maintenance manager..." especially when it applies to design and physical requirements of the building as well as those that continually change due to the nature and occupation of the building. For example, Planning Acts in changes to design or physical matters dictated by the Local Masterplan and frameworks and then licensing, fire regulations and health and safety management legislation with regards to the occupation and use of the building. As any planned maintenance work may and will have to confirm to relevant statutory requirements.

## **KEY FINDINGS**

Both topic areas are of importance to the economy from an output and employment perspectives; however, they are often overlooked or at the very least seen as 'unattractive'. Occupied investment commercial property in the right location however is seen as attractive by individuals, companies and banking or financial institutions.

There are different types of property maintenance which all have their benefits, drawbacks and reasoning; it largely depends on the circumstances, occupier / owner needs and future plans for the building or site.

Property maintenance is bespoke and requires a bespoke approach that can achieve the requirements set in each case. Maintenance is considered as the 'Cinderella' industry in its nature, in that it is not seen as glamorous work. Mclean, (2009, Vol. 5, p. 1) says that "...maintenance can be described as work necessary to keep or restore every component of a building to an acceptable standard for an acceptable cost."

Commercial buildings become vacant for a variety of reasons. Most of all lack of need, the recession, planning legislation, feasibility to adapt and lack of adequate maintenance over its life as well as throughout its occupation as highlighted by the primary research. The empty rates liability appears to be causing a negative effect due to the outcry from building owners and the like. "A variety of influences condition whether a particular industrial building is occupied or not" (Guy & Henneberry, 2002, p.176) (Figure 2). The incentives present are wide ranging and not directly influencing property maintenance, however this is due to the circumstances of each building along with its complex and varied nature. (Figure 3)

LIKELY REASONS FOR COMMERCIAL PROPERTY BECOMING / BEING VACANT		INTERVIEWEE 01	INTERVIEWEE 02
Lack of need	a	4	2
Too expensive to maintain	b	4	1
Too costly to keep	c	4	1
Too costly to redevelop / refurbish	d	2	1
Too many legal requirements to fulfil realistically given the state of the building	e	3	1
Lack of adequate maintenance throughout its life	f	4	2
Lack of adequate maintenance throughout its occupation	g	4	1
Change in Government policy	h	2	1
Feasibility to adapt for alternative use	i	3	3
Over 50% of commercial buildings / developments are built on a speculative basis	j	2	3

Figure 2: Showing the likelihood ratings of observed / likely reasons from the interviewees' opinions of why commercial property becoming / being vacant.

DIRECT & INDIRECT INCENTIVES FOR PROPERTY MAINTENANCE		INTERVIEWEE 01	INTERVIEWEE 02
The current Empty Rates Liability Act 2007	a	4	1
Could maintain the value of the building	b	4	3
Help the marketability / saleability of the building	c	4	4
Planning Policy Guidance 3 (PPG3) (More use of previously developed sites)	d	3	2
Government Grant Schemes	e	2	5
Health & Safety Viewpoint (Potential legal claim from trespassers / public)	f	4	5
Planning Legislation / Enforcement Legislation	g	2	5
Pending Development	h	2	5
Pending Development to reduce development costs (mothball and urgent repairs)	i	4	5
Possible grants to upgrade	j(i)	2	5
Future changes in legislation enforcing upgrading / maintenance works to take place potentially	j(ii)	2	5
Potential fines and imprisonment for breaches	j(iii)	2	5
Building Act 1984 Section 1: imposes that owners and occupiers maintain buildings and provisions to ensure people's safety and welfare	k	4	5
Other statutory requirements like the Regulatory Reform (Fire Safety) Order 2005 and the Health & Safety at Work Act 1974, etc.		4	5

Figure 3: Showing the likelihood ratings of observed / likely reasons from the interviewees' opinions of incentives to carry out property maintenance.

DIRECT & INDIRECT INCENTIVES FOR PROPERTY MAINTENANCE		CASE STUDY 01	CASE STUDY 02	CASE STUDY 03	CASE STUDY 04	CASE STUDY 05	CASE STUDY 06
The current Empty Rates Liability Act 2007	a	4	4	3	4	3	5
Could maintain the value of the building	b	4	5	5	2	3	5
Help the marketability / saleability of the building	c	5	4	4	2	3	4
Planning Policy Guidance 3 (PPG3) (More use of previously developed sites)	d	1	2	1	4	3	2
Government Grant Schemes	e	5	4	1	1	1	2
Health & Safety Viewpoint (Potential legal claim from trespassers / public)	f	5	4	4	3	4	4
Planning Legislation / Enforcement Legislation	g	4	4	2	2	2	4
Pending Development	h	2	1	3	4	4	1
Pending Development to reduce development costs (mothball and urgent repairs)	i	5	1	3	5	4	1
Possible grants to upgrade	i(i)	4	3	3	3	4	3
Future changes in legislation enforcing upgrading / maintenance works to take place potentially	i(ii)	3	3	3	3	4	3
Potential fines and imprisonment for breaches	i(iii)	2	2	3	3	4	2
Building Act 1984 Section 1: imposes that owners and occupiers maintain buildings and provisions to ensure people's safety and welfare	k	3	3	4	4	4	3
Other statutory requirements like the Regulatory Reform (Fire Safety) Order 2005 and the Health & Safety at Work Act 1974, etc.	l	2	4	4	2	3	4

Figure 4: Showing the importance ratings of observed / likely incentives for property maintenance regarding the case studies.

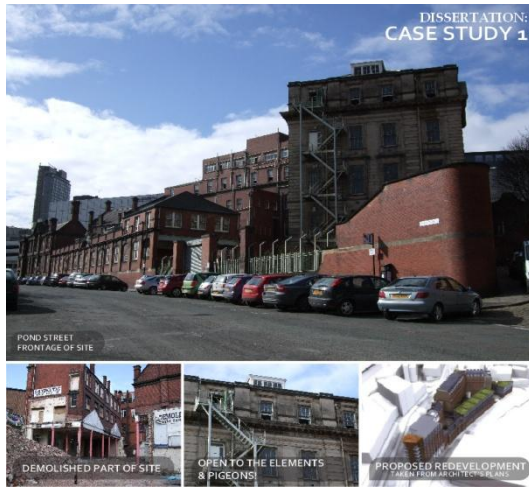
LIKELY REASONS FOR COMMERCIAL PROPERTY BECOMING / BEING VACANT		CASE STUDY 01	CASE STUDY 02	CASE STUDY 03	CASE STUDY 04	CASE STUDY 05	CASE STUDY 06
Lack of need	a	5	5	5	5	5	5
Too expensive to maintain	b	3	1	5	3	5	2
Too costly to keep	c	4	3	5	2	5	4
Too costly to redevelop / refurbish	d	2	1	5	3	5	3
Too many legal requirements to fulfil realistically given the state of the building	e	3	1	4	2	3	1
Lack of adequate maintenance throughout its life	f	4	1	4	4	4	1
Lack of adequate maintenance throughout its occupation	g	4	1	4	4	4	1
Change in Government policy	h	1	1	1	1	1	1
Feasibility to adapt for alternative use	i	3	3	4	3	4	3
Over 50% of commercial buildings / developments are built on a speculative basis	j	1	4	1	1	1	4
Recession	k (added)	3	4	0	2	1	5
Decline in industry leading to closure / buy out / business moved to more convenient location / low cost or newer unit / business expanded / no use.	l (added)	2	0	3	5	4	0

Figure 5: Showing the likelihood ratings of observed / likely reasons for the case studies becoming / being vacant.

The way forward is to work towards a holistic team approach with stakeholders such as the Local Authority and English Heritage that tackle all issues to bring empty buildings back into use which should improve the local area and enhance the local economy. It also helps the sustainability agenda as mentioned occasionally in this study.

A brief overview table of the case studies follow with a summary of the key findings from the primary research to provide basic and an important context to this paper and study.

## CASE STUDY 1



Case Study 1: Former Post Office / Royal Mail Building, Fitzalan Square, Sheffield, South Yorkshire, S1 1AB.

- Currently vacant awaiting redevelopment.
- Grade II listed in part and other part of the site demolished.
- Remains in a relatively poor and dilapidated condition prior to redevelopment scheme.
- It has been vacant for approximately for 11 years due to lack of need, cost of maintenance, age of building for use and listed / planning restrictions.
- The case study demonstrates the importance of property maintenance as there are no signs from an external visual inspection of any type of strategy. Windows are left open, frames rotten and rubbish blocking light wells. There are also a number of defects due to age such as perishing brickwork and corroded steel work.
- The owners will be liable for empty rates for the remaining parts.
- Planning appears to have expired at the time of research.
- It continues to degrade and subsequently will cost more to put right at a later date.
- The proposed scheme (which has expired at the time of research) comprised 2 new buildings with the refurbishment of the listed and remaining parts to form a 117 bedroom hotel, 42 apartments, 38,500 sq. ft. of office space and 10,000 sq. ft. of retail space.
- The site needs to be financially viable for such a scheme to go ahead, it would therefore be prudent to mothball the site which should help reduce cost when redeveloped. However, this should encompass future plans and the scheme.

## CASE STUDY 2

- Officially opened by Channel 4's Gok Wan in October 2008.
- Reportedly the development cost £250 million which is approximately a 20 minute walk from the city centre of Leeds.
- It has recently come under criticism by a number of business units at the site, including representatives of the Mumtaz restaurant who appeared on BBC programme Look North in the recent past.
- Site is part of former Leeds docks and comprises a mixed-use development scheme. It was home to Victorian industrial buildings and by the 1990's most laid derelict.
- Initially the docks were constructed to transport



Case Study 2: Clarence Dock Development, Leeds, West Yorkshire.

coal, goods and other commodities by the Leeds-Liverpool canal and the Aire and Calder navigation. This has become obsolete due to improved transportation methods such as road, rail and aviation.

- Royal Armouries museum was the start of the regeneration of the site which opened in 1996. No old buildings remain at the development. The development is in a flood zone.

- It is close to other shopping centres such as the Crown Point Shopping centre.

- The suggested 1.25 million square feet of mixed use development comprises of approximately 35 retail and restaurant units, 10,000 sq. ft. of offices, 1,124 apartments across 6 buildings, Alea casino, a conference hall, an adjacent museum (Royal Armouries) attracting over 250,000 visitors per year, home to Express by Holiday Inn hotel and multi-storey car park for 1,650 vehicles.

- Large parts of the scheme remain vacant mainly due to lack of need in the area and the recession. It may also link to high rents and low footfall. It is likely to be a combination of these factors.

- They have recently changed their strategy, (according to a Leeds based firm of Solicitors) to a leisure venue given some of the uses already there and in anticipation of a possible future public park nearby. Myers (2006) suggests that over 50% of developments are built on a speculative basis with no occupier or end user in mind.

- By a brief visual inspection some of the development is already looking neglected and under maintained in parts.

### CASE STUDY 3



- Currently occupied by a telecoms company.

- A Grade II listed chapel with adjoining buildings dating back to 1790 which were vacant for a number of years before recently undergoing occupation and re-use after being on the open market for sale for a period of time.

- Provides meeting rooms, offices, training workshops, kitchens and basement rooms beneath two buildings.

- The car park to the side is owned by the Carlsberg Tetley Brewery and enjoys shared parking provisions for up to 20 cars.

- Large parts of the basement had dry rot and had to be extensively removed and replaced however, due its nature, adequate ventilation cannot reach

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Case Study 3: Former Salem United Reformed Church, Hunslet Road, Leeds, LS10 1JW.

the timber suspended floor in the basement.

- Future use could not divide the space up or compromise its listed qualities.
- The 1980's was apparently the most recent time that investment took place, through alterations in the Salem Chapel to form training workshops and a kitchen area in the buildings.
- There is an enclosed courtyard where drainage is blocked and standing water is present creating rising and penetrating damp.
- The lack of investment due its use as a church building is the reason why it has not been well-maintained. It was too costly for the previous occupiers. The congregation has declined over the years and has moved to purpose built premises further out of Leeds.
- The current occupiers seem to have upgraded the parts of the buildings that they need for their purposes before allowing the work to be carried out in stages when necessary which allows it to be more manageable as well as practical from a building and business viewpoint.
- It shows that when a building is occupied and where maintenance works are practicable and for the occupier's purposes it is more likely to be carried out than when a building is vacant and the owner has less money to invest due to reduced business / income and higher maintenance costs as the problems build up.

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#### CASE STUDY 4



Case Study 4: 192 Shoreham Street and 106-110 Mary Street, Sheffield.

Note: Princess Works Impression Photograph (bottom right image) taken from agents details of Lambert Smith Hampton and Mark Jenkinson & Sons. )

- Vacant buildings left as a result of a decline in industry use and the relocation of industry to other areas further out of Sheffield city centre.
- Will be on the market as offices following refurbishment of the buildings.
- Not maintained as no funds available due to property being vacant. Refurbishment does not necessarily provide that the building will then be in use. Refurbishment however increases marketability from a sale and letting point of view.
- It has been left in a vacant and dilapidated state probably until they have interest or tenants / buyers lined up.
- Empty rates liability will need to be paid on the space which may act as a deterrent or take funds away from a refurbishment or maintenance programme.
- Parking and site situation may be an issue for some businesses with possible traffic noise and vibration given its proximity to the road.



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- The roof is made of asbestos, windows are broken and brick work is perishing. The downfall pipes are missing / cut short and discharging on the solid masonry wall allowing penetrating damp. The building could be better maintained to reduce future refurbishment costs. Also, the building may degrade due to lack of maintenance to the extent that it may cause the building fabric or structure to collapse onto the road and/or passer by. The building lacks the aesthetic appeal of neighbouring properties where extensive regeneration has happened locally around.

- Future incentives may include grants for energy performance improvements or business zones set up with the LA to help kick-start new businesses and help improve the local economy as well as the built environment through re-using empty buildings. As properties such as this become occupied there is a often a "domino effect" in the local area with an increase in maintenance of the buildings due to their being used.

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#### CASE STUDY 5



Case Study 5: Former Salvation Army Citadel Building, Cross Burgess Street, Sheffield, South Yorkshire.

- Currently vacant at time of research and marketed to let following refurbishment. It has approximately remained vacant since 1999.

- It is believed to be a listed building which sits within the "Sevenstone Sheffield" redevelopment project, therefore its intended change of use to retail should be ideal given the possible future change to the locality.

- The site has had new use interest shown in it during the vacant period however due to the listed building restrictions, those proposals were unsuccessful.

- The building appearance is of a neglected state and it is currently been marketed to let as a two storey retail unit following refurbishment. The building is a restricted site in terms of development potential.

- The lack of maintenance is likely to be caused by the lack of funds and lack of need to keep the building in use. However, dealing with urgent repairs, which may be costly in any case, will reduce the state of disrepair and help towards saleability or future adaptation. The listed status of this building may result in long vacancies before reuse (10 years or more have elapsed since vacated). The reuse has to be acceptable as well as appropriate.

- With listed buildings it is practical for English Heritage (EH) to publish or issue more appropriate guidance to be sympathetic and more balanced in accordance with the listed

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importance of buildings and the re-use of these buildings. This allows decisions to be determined quicker and encourages re-use of buildings so that listing is not a hurdle.

- However if there is no demand for retail units then re-occupation will only occur when the rents are lower than the current market prices (to create demand), or where the running / maintenance costs are lower for the prospective tenant and / or future owner.

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#### CASE STUDY 6



Case Study 6: St. Paul's development scheme, Sheffield City Centre.

- Partly occupied and largely vacant - Sainsbury's supermarket is occupying the ground floor of St Paul's tower opposite the Stoddart Building of Sheffield Hallam University.

- The St Paul's scheme comprises of a mixed use development scheme with commercial units which are complete and vacant. Former use was for the Council Building referred to as the "Egg Box" the Registrars office "The Wedding Cake" and a car park.

- There are already signs of poor detailing and material choice, and there is visible staining even a short time after completion.

- The large amounts of vacancy can be ascribed to the recession and the current lack of need. However, maintenance programmes are still required to keep the stock at an adequate standard in preparation to let and re-let.

- More re-developments need to be built with end users in mind but more ideally with end users lined up to occupy.

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#### *Table 1: Overview Table of Case Studies*

The following is an overview of key data found from the case studies:

- A building starts to fall into disrepair once constructed, thus needs maintaining throughout its occupation and life to an acceptable and suitable level.
- New build developments as discussed above seem to lack well-considered thought at the design stage regarding possible maintenance savings and reductions.
- New build schemes observed seem to be built on a speculative basis in the hope of occupiers, this has resulted in a high proportion being vacant.
- It is acknowledged that retaining our built environment heritage is important, nevertheless it cannot all be "retained" or "kept in acceptable condition" if it is left vacant or treated as a museum exhibition.
- Buildings are built for a purpose (or multipurpose) and the use of a building can change over time, but the building still needs to perform its function until it reaches the end of its natural and useful life. It is therefore vital that maintenance is not just looked at independently, but in its entirety. A holistic view approach based on the circumstances should be adopted working alongside stakeholders like English Heritage or the LA to provide schemes and incentives that encourage empty commercial buildings into use.
- From the case studies, property maintenance on its own will not allow the re-use and occupation of a vacant building as there are other factors that influence this such as building



size, the need (demand), the state of dilapidation or repair and the need for changes of use through refurbishment.

The following is an overview of key data found from the interviews:

- Both interviewees are aware of the different types of maintenance which indicates that they understand and appreciate the bespoke as well as complex nature of property maintenance.
- Both respondents agreed that to incentivise owners to further carry out maintenance there should be some sort of tax relief, breaks or grants. One respondent mentioned here that he envisages commercial Energy Performance Certificates (EPCs) ratings to be taxed and subsequent improvements on a building to reduce the rating leading to a lower tax rate as tenants or owner-occupiers would benefit from this and that would be an incentive. The other also mentioned grants.
- The difference between private and public sector became apparent between the two interviewees highlighting different priorities and views on questions like the Likert scales which are discussed and analysed later in this chapter.
- It was agreed that from the owner's, LA's and client's viewpoints; property maintenance is of importance or most importance to ensure protection of their investment, fulfil any legal requirements and assistive with marketability.
- The public and private sector differences materialised again in the incentives to carry out property maintenance that the LA interviewee suggested that legal obligations and wanting to keep tenants were the only incentives, where as the private sector Chartered Surveyor suggested when the tenant pays or when it's vacant and they are trying to let it.

On reflection of the primary structured interviews observed above, though not significantly reliable due to the sample size of two, it is apparent that similarly to the case studies that every building and occupier has different needs, a different reason why they may be vacant and a different reason why their property maintenance level will vary.

## **DISCUSSION & ANALYSIS**

This section discusses all findings to determine patterns, differences and similarities by triangulating data to reduce the bias and increase the reliability together with validity of the research conclusions later in this study.

Figure 6 illustrates how there is a lack of consistency between buildings as their situation, age, configuration and circumstances vary hence needing different or more than one incentive to instigate effective property maintenance and that this alone will not reduce the number of unused buildings on those in the sample due to reasons for their vacancy again sporadic for the same reason as shown below. Commonly, change in Government policy was the least likely reason for commercial property being or becoming empty.

**A Graph showing the Direct & Indirect Incentives for Property Maintenance Rating of Importance for each primary Case Study**

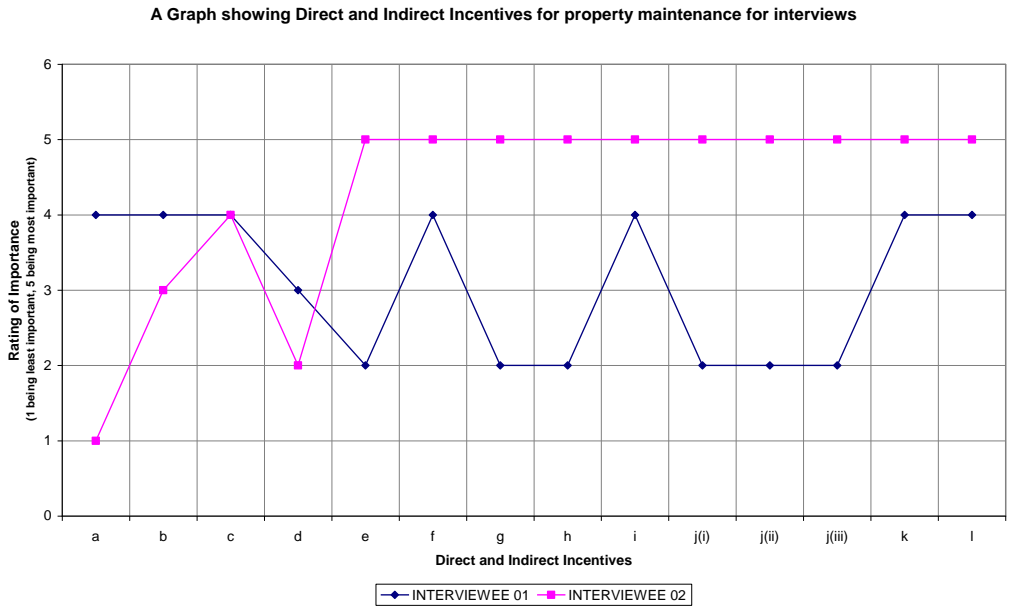


*Figure 6: A Graph showing the Direct & Indirect Incentives for Property Maintenance Rating of Importance for each primary Case Study*

**A Graph showing the Likely Reasons for Commercial Property Becoming or Being Vacant for each primary Case Study**

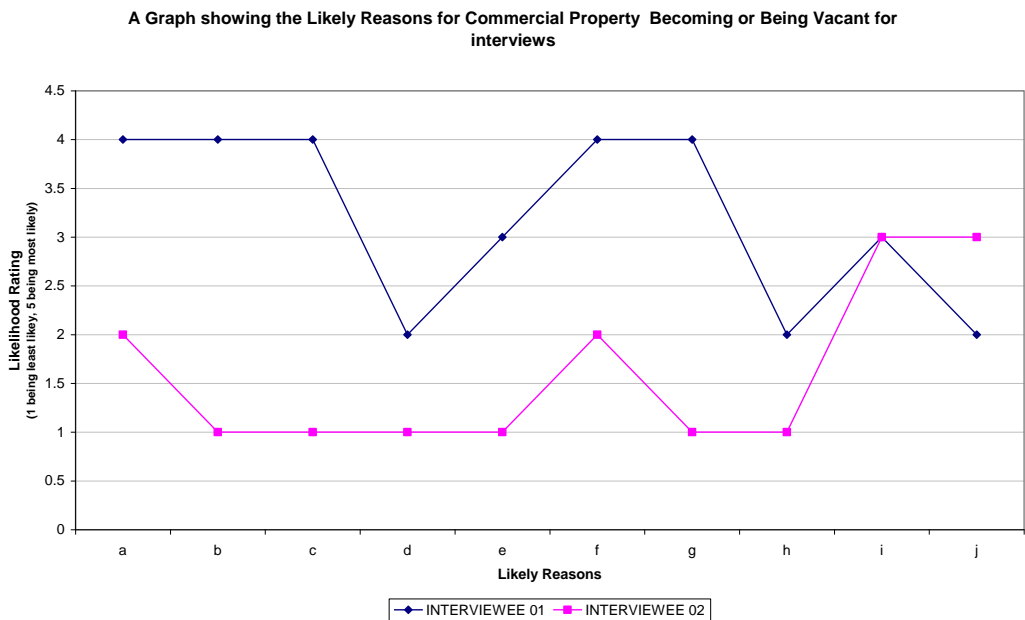


*Figure 7: A Graph showing the Likely Reasons for Commercial Property Becoming or Being Vacant for each primary Case Study.*



*Figure 8: A Graph showing the Direct & Indirect Incentives for Property Maintenance Rating of Importance for the interviews*

Figure 7 & Figure 8 illustrate the difference between both private and public sector maintenance viewpoints and what they place importance on. Although this simple is not sufficiently large to draw accurate or reliable results from it gives an indication that this area needs to be validated in future study. The only agreement above was on (c) that maintenance is most important to help the saleability or marketability of the building. Figure 8 demonstrates findings regarding the feasibility to adapt for an alternative use for a reason for vacant buildings, which suggests is common ground between the two. To strengthen the arguments, these findings of the interviews and case studies are compared with example cases in point.



*Figure 9: A Graph showing the Likely Reasons for Commercial Property Becoming or Being Vacant for each primary Case Study.*



Example 1: Former Alf Cooke Print Works, Hunslet Road, Leeds, LS10 1AR

- Grade II listed building part of office development scheme proposal
- Vacant – attempts being made to re-use as part of office development and “public realm”
- If this has been refurbished on a speculative basis, once completed some units may still be vacant, but it could be argued that this is better than the whole site been empty and wasted.
- The listing restrictions may add to the timeframe of its re-use or redevelopment – whilst waiting the defects and disrepair may worsen over that time period increasing cost and possibly making the proposed scheme unviable unless they increase the rent or make cost savings else.



Example 2: Crown Point House, 110 Hunslet Lane, Leeds, LS10.

- Long, thin commercial unit with offices near Clarence Dock
- Uses are limited due to configuration and lack of parking or HGV turning space
- Signs of vandalism and temporary site security repairs and alterations
- Has been vacant a number of years whilst on the market
- The building is to let at £95,000 per annum or £1.5m for the freehold
- Poor roof condition and limited feasibility to adapt
- Lack of need due to other factors other than poor maintainence



Example 3: Indigo Blue, Hunslet Lane, Leeds, LS10.

- New mixed use scheme near Clarence Dock
- Offices opposite site are still to let, as are the ones at Clarence Dock. Currently there appears to be low demand.
- Built on a speculative basis during the recession in the hope that occupation will occur when the economy recovers.



Example 4: Park Community Centre, Duke Street, Sheffield, S2.

- Was partly occupied – only urgent repairs carried out due to use
- Licensed from the Council
- Now vacant, but may be redeveloped as part of a community centre
- Not maintained due to limited funds

*Table 2: Discussed Example Cases in Point.*

However, it has been found through secondary research, and the interviews and case studies that the factors that can assist in re-use include adaptation, working with stakeholders and reducing business

rates in some cases to re-use the building through enterprise zones. Adaptation requires an appropriate maintenance strategy to avoid the building from becoming obsolete or unused again.

In terms of the Clarence Dock case study it is clear that the recession combined with what appears to be a lack of need (demand and footfall in the area) a number of business have opened and subsequently closed in quick succession. The rental levels for the shop / retail units are unknown, however the offices are been charged £19.50 per sq. ft. and as such are relatively expensive for the area compared to £21 per sq. ft. for offices in the city centre of Leeds. The development needs to either attract more customers and achieve a higher footfall for business to prosper or reduce rents in order for businesses to stay and create a community feel with history and character, as many large modern schemes are sought for profit rather than building and creating communities and the resultant environments are said to feel faceless and lifeless. Additionally, many of the residential units have been bought on a buy-to-let basis so residents have not “bought into the community”. In terms of the business units it could be said that as a destination shoppers will go to the already established nearby city centre of Leeds or the nearby Crown Point Shopping Complex with a range of shops and at the latter, free parking. It will be interesting to see whether the development is just another “victim” of the recession or the scheme has some underlying problems, some of which may have been mentioned above from a visual inspection.

The new focus for the scheme is to be a leisure venue instead of a retail based development as a casino, museum and restaurants are based on there currently. This is following recent suggestions from a firm of solicitors in Leeds that a nearby brewery due for closure in the near future may be earmarked as a new public park.

Following this analysis and discussion of the data findings it is clear that there are differences in whether the findings are significantly relevant or not. It could not be statistically proven that property maintenance influences whether a commercial building would remain. It would therefore be prudent to expand the sample I future studies to strengthen and validate these findings.

## CONCLUSIONS

It is clear from the research undertaken that property maintenance and empty commercial buildings are overlooked, complex and emotive topics. It is apparent that property maintenance alone will not diminish the number of empty buildings, but will contribute to marketability at the very least. Myer (2006) emphasises that over 50% of developments are built on a speculative basis with no tenant or purchaser in mind. Conversely, Scott (1996) comments that during downturns and troubled economic times speculative builds cease to take place or at least dramatically reduce in number.

It has been observed recently that in industry some developers are buying and developing sites with a tenant or end user / owner in mind. This course of action allows risk to be reduced and the likelihood of empty buildings is inevitably lower. This factor could be promoted throughout the industry to help reduce the number of empty commercial properties, albeit from the new build perspective. Stratton (2000) states that some old / original stock is re-used, while some remains vacant. This is a possible area for further future study to establish and analyse why some buildings continue to remain vacant despite apparently favourable market conditions.

Maintenance will always be a requirement as occupation of buildings requires them to be fit for purpose, to meet the relevant legislation and in some cases to portray a good image for the company. Tenants, current or potential, have different needs and circumstances which will change the strategy of buildings owners, tenants, professionals and developers in relation to both property maintenance and the empty commercial building dilemma.

There are multiple sources that highlight the importance of what building maintenance brings to both the built environment and wider economy. Vacant commercial buildings have recently been tackled by the Government through new acts of legislation to encourage re-use. The relationship has been identified through the literature review. ‘Generally, the older the building and the longer it has been

empty, the greater the costs of repairing and restoring the existing structure and fabric.’ (Gorse & Highfield, 2009, p.11.) This source highlights the need for effective maintenance to keep the building in use or / and to reduce the costs of the future re-use of the building.

The current and possible incentives for owners to carry out effective property maintenance vary but largely depends on the circumstances and owner / tenant / client requirements. It can help lead towards the reduction of vacant commercial buildings in the Leeds and Sheffield areas (and potentially UK wide as well) before they become vacant and to minimise the transition period to new use, though this depends widely on planning decisions and taking a holistic view of the whole building life cycle, as it could be at the end of its natural life and need re-building.

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