Adaptation and demolition in a masterplan context
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6.0 Introduction
Increasing populations and a trend towards urbanisation worldwide are both increasing the pressure on urban areas to provide sufficient housing whilst managing the built environment sustainably (Karantonis, 2008). In the United Kingdom (UK), the recently published White Paper and the Housing and Planning Act 2016 emphasise the need to release brownfield land for new development (DCLG, 2017; HM Government, 2016a). While brownfield sites can range from small plots with one building, to larger areas with multiple buildings (Dixon et al., 2008), this chapter explores adaptation and demolition on larger masterplan regeneration sites which have the potential to make transformative change within the city (Meerow et al., 2016). ‘Masterplan’ is a frequently used term but there is no general definition (CABE, 2011). Often a masterplan will show the concept of a development including the massing of buildings and connections of streets (CABE, 2011). For the purposes of this research, the UK Government’s definition of largescale major developments is used. For example, for residential areas these are developments which will have two-hundred or more dwellings or over four hectares if dwellings counts are unknown (DCLG, 2007; HM Government, 2016b; SODC, 2016).

Decision-making on these larger sites sits within the context of national and local policy and involves a far higher degree of complexity than individual buildings (Baker and Moncaster, 2017; Mok et al., 2015). Current decision-making frameworks, which tend to focus on individual buildings, are generally not appropriate for masterplan regeneration sites (Baker et al., (In press)). The different buildings within the curtilage of the site will often be considered for different adaptation options, including demolish; part demolish and adapt; modify; refurbish and adapt or part extend (Wilkinson, 2011). The inherent complexity of considering multiple buildings at the same time is increased by the additional relationship between the masterplan and urban infrastructure, as the consideration of factors such as utilities, ecological green space and transportation can affect the decisions being made about individual buildings (Meerow et al., 2016).

6.1 Literature Review
6.1.1 Factors affecting the decision to demolish or adapt individual buildings
Concerns about how best to decide on demolition or adaptation are increasingly common within the developed world, and there is considerable academic research in this area (Baker et al., (In Press); Bullen and Love, 2011; Power, 2008; Wilkinson et al., 2014; Yung and Chan, 2012). Figure 6.1 6.1 maps the location of primary authors reviewed in this field. The authors are also from a range of disciplinary backgrounds and university departments including: building surveying, civil engineering; construction management; architecture; real estate & urban economics and sociology, indicating the multi-disciplinary nature of the topic and suggesting a need to look at decision-making in an inter-disciplinary manner.
Several authors consider the different types and levels of adaptation and demolition (Baker et al., In Press; Douglas, 2006; Wilkinson, 2011). Duffy and Henney (1989) developed a model showing the different layers associated with the adaptation of an individual building, which was later updated by Brand (1994) and has been frequently cited since (Borst, 2014; Douglas, 2006; Gosling et al., 2013; Kelly et al., 2011; Lacovidou and Purnell, 2016; Schmidt III et al., 2010; Wilkinson, 2011). This model is adapted in Figure 6.2 which reinterprets the layers and plots them against the different time-scales of adaptation identified by Schmidt III et al. (2010). One example is building services, which often have a shorter timescale of intervention (7-15 years) and will change more regularly than the façade of the building (20 years) as they require more regular updates and a lower degree of intervention (Schmidt III et al., 2010).

These layers link to the technical and physical aspects of individual buildings. Wilkinson (2011) suggests that certain physical aspects can enable adaptation, with examples given including the optimal building height of office buildings, found to be eleven to twenty storeys, and the most adaptable structural system, which she suggests is concrete frame. Meanwhile poor building condition is commonly given as the reason for choosing demolition and new build rather than adaptation, due to the associated increases in cost and risk (Bullen and Love, 2011; Plimmer et al., 2008), with reasons for the poor condition including rising and penetrating damp; poor workmanship; vandalism; structural instability; age related deteriorations and outdated services (IStructE, 2008). In practice, technical feasibility and costs are both considered alongside other influencing factors including: aesthetics, historical importance, planning policies, development trends in the area, energy efficiency and life cycle impacts (Baker and Moncaster, 2017).

6.1.2 Stakeholder viewpoints

The multiple factors identified in the previous section will have varying levels of importance for the different stakeholders involved in the decision process. There are a range of stakeholders in the decision to demolish or adapt buildings, each with differing priorities and powers (Baker and Moncaster, 2017; Langston and Smith, 2012; Wilkinson, 2011). Although some of these may consider the same criteria as important, this may be for very different reasons. Through interviews with key stakeholders, Baker and Moncaster (2017) show that designations, planning policies, capital costs, building structure and building condition were all mentioned by five different stakeholder groups.
Figure 6.2: An individual building's layers and the associated timescale of adaptation. Source: Baker and Moncaster - adapted and developed from Brand (1994) and Schmidt III et al (2010).
However, while designations (such as listing a building to protect it from demolition) were regularly mentioned as important by town planners and heritage societies because of the safeguard they offer, some of the property consultants were concerned that designations might cause delays and extra costs.

### 6.1.3 Weighting multiple criteria

Throughout the academic literature a range of methods have been used to weight criteria. For example, Kutut et al. (2014) used an analytical hierarchy process consisting of pairwise comparison techniques to rank criteria; Dutta and Husain (2009) used Barron’s Rank-Order Centroid method, which involves selecting the mid-point from a range of weights identified; and Lin and Low (2012) used a seven point Likert Scale. All of these methods are vulnerable to subjectivity and uncertainty which is reflected in the work by Kim et al. (2010) and Bullen (2007). Kim et al. (2010) applied a beta distribution to an analytical hierarchy process to reflect the varying preferences (Jalao et al., 2014) whereas Bullen (2007) asked survey respondents to score different factors of decision-making as a barrier or a benefit. The results show that some respondents interpreted a factor as negative which others considered as a positive. For example, just under 60% of respondents felt that the ‘planning approval process’ was a barrier and approximately 40% interpreted it as a benefit. This links to the comment made above regarding designations and how some will perceive them as a safeguard, whereas others perceive them to be a hindrance in the decision-making process. For this factor in particular, it will be heavily influenced by the objectives of the local planning authorities which can vary due to location within the country. In all cases, the stakeholders’ perceptions of the factors proposed by Bullen (2007) were influenced by personal preferences and stakeholder roles (Plimmer et al., 2008).

### 6.1.4 Current decision-making tools and frameworks

To assist with the complexities of the decision-making process, various toolkits and/or frameworks have been developed to assess the adaptability potential of buildings (Conejos et al., 2013; Geraedts and Van der Voordt, 2007; Langston and Smith, 2012; Wilkinson et al., 2014). Baker et al. assessed two of these tools, the Transformation Meter (Geraedts and Van der Voordt, 2007) and IconCUR (Langston and Smith, 2012), against five UK case studies (Baker et al. (In press)), three of which were individual buildings and two which were multi-building masterplan sites.

The Transformation Meter uses criteria about both the building and the location to score the adaptation potential of individual buildings. One case of a former warehouse was scored by the Transformation Meter as of limited transformability. However, due to the heritage value attached to the building, in real life, the technical challenges were overcome and the building was retained. For the two masterplan case studies, all of the buildings were scored by this tool as having moderate or excellent transformability potential. In reality 9 out of the 19 buildings analysed across the two sites were demolished. The reasons for demolition were often beyond the tool’s framework, such as accessibility onto the site as part of the masterplan’s transportation network and planning policy, which often varies with the geographical context. The analysis of IconCUR showed the same discrepancies for similar reasons (Baker et al., (In Press)). Overall, the studies showed that these tools were appropriate for their intended use of assessing individual office buildings, but that significant adjustments were required when using them on masterplan sites or if different uses were involved.

The increased complexity of decision-making at the masterplan level is emphasised by the Building Research Establishment’s Environmental Assessment Method (BREEAM) for Communities 2012 toolkit (BRE, 2012). This framework uses multiple criteria to score a large scale development using issues
Figure 6.3: The complexity of decision-making at the masterplan level and issues that need to be considered. GO = Governance; SE = Social and economic wellbeing; RE = Resources and energy; LE = Land use and ecology; TM = Transport and movement. Image produced by Baker and Moncaster. Data Source: BRE (2012)
relating to sustainable development. Categories which are analysed include: governance; social and economic wellbeing; resources and energy; land use and ecology and transport and movement. One of the issues within the ‘resources and energy’ category is ‘Existing buildings and infrastructure’, which has just two credits out of the overall 118 available (Figure 6.3). Although it can be argued that ‘existing buildings and infrastructure’ is not mutually exclusive from the other categories, the number of issues analysed emphasises that the decision at the masterplan level is part of a complex system whereby many different aspects need to be considered and balanced alongside one another.

6.2 Methodology

The purpose of this chapter is to explore the range of decisions and the reasons behind them when considering demolition and adaptation on a masterplan site in which multiple buildings are affected. The chapter builds upon existing studies on adaptive reuse and demolition at an individual building level (see Baker and Moncaster, 2017). Recognised by Wilkinson (2011, p.56) that, “the numerous stakeholders and their perspectives do influence individual adaptation cases”, this research uses an interpretative research approach in order to “capture information about the beliefs, actions and experiences of stakeholders involved in the decision-making process” (Bullen and Love, 2011, p.35).

Stakeholder interviews and three case studies provide a rich set of data. Two of the case studies are those initially analysed by Baker et al., (In Press). For each case study, media articles, planning documentation and other publically available evidence has been examined alongside interviews with the stakeholders who had an active involvement in the decisions made. The additional ‘general interviews’ were held with those who have had a similar decision-making role in other projects. All interviews are summarised in Table 6.1.

Table 6.1: Summary of interviews

<table>
<thead>
<tr>
<th></th>
<th>General interviews</th>
<th>Case study interviews</th>
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<tbody>
<tr>
<td>Architects &amp; urban designers</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Commercial agents &amp; property consultants</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Developers &amp; freehold owners</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Ecologists</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Engineers; building surveyors</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>&amp; regulations officers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heritage societies</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Local &amp; regional authority</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members of local campaign</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning &amp; heritage</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>consultants</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21</strong></td>
<td><strong>27</strong></td>
</tr>
</tbody>
</table>
The case studies have been selected to meet the pre-defined parameters in Table 6.2, and with the necessary collaboration of multiple stakeholders who were willing to share experiences (McLeod, 2014). A brief description of each case study site including a quantification of the number of buildings demolished and/or retained is shown in Table 6.3.

Participants for the general interviews were selected through similar purposive and opportunistic sampling methods. The intention of both case studies and ‘general interviews’ was exploratory (May, 2003, p.99). The general interviews were held with professionals with chartered status or equivalent professional experience, who had experience of decision-making on masterplan sites, ensuring ‘expert elicitation’ (Lund Research Ltd., 2012).

**Table 6.2: Case study parameters. Source: Baker and Moncaster**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Justification for parameter</th>
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<tbody>
<tr>
<td>Size of site: two-hundred or more residential dwellings or over four hectares if dwellings counts are unknown; or for other uses such as commercial, the floor area is over ten-thousand square meters or is more than two hectares in area</td>
<td>Definition of major large scale development (DCLG, 2007; HM Government, 2016b; SODC, 2016) - see section 6.1.</td>
</tr>
<tr>
<td>Needs to have some form of planning consent, such as Outline Planning permission.</td>
<td>If there is a planning application it will provide the documentation required to provide background information about the buildings and site. If planning permission has not been obtained, it is more likely there will be issues with confidentiality.</td>
</tr>
<tr>
<td>Located in England, UK.</td>
<td>In the UK there are different planning policies for the different countries.</td>
</tr>
<tr>
<td>Should not be completed and demolition and/or construction work should have already started within the site.</td>
<td>Allows for consistency between case studies in terms of the point in time they have been analysed. If a relatively recent project, decisions have been newly made and it is more likely decision-makers can be identified.</td>
</tr>
<tr>
<td>Must contain more than one existing building.</td>
<td>Examination must go beyond individual buildings.</td>
</tr>
<tr>
<td>Stakeholders can be identified and contacted.</td>
<td>Required to ensure data collection and enable an in-depth review to be undertaken.</td>
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</tbody>
</table>

**6.2.1 Limitations**

As with any research, the design has limitations. All of the case studies used are located in England, UK, therefore planning policy mentioned is specific to that area and its influence will vary from country to country. Rather than using the case studies as exemplars, they are being discussed to demonstrate how the decision may change in a masterplan context compared to at an individual building level. Case studies are context specific; those in this chapter are both descriptive and illustrative, providing examples of when decision-making factors could be interpreted differently in a masterplan context (Robson and McCartan, 2016).
Table 3: Case study descriptions. Data sources: Birmingham City Council, 2013a, 2013b; Brookgate, 2008; Cambridge City Council, 2010; GVA et al., 2012; Mouchel, 2011.

<table>
<thead>
<tr>
<th>Case Study</th>
<th>Local planning authority</th>
<th>Application number</th>
<th>Date of Outline Planning consent approval</th>
<th>Description</th>
<th>Buildings proposed in Outline Planning for:</th>
<th>Retention</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB1 Development</td>
<td>Cambridge City Council, UK</td>
<td>08/0266/OUT</td>
<td>2010</td>
<td>Cambridge is a historic city in the UK with an international reputation. The CB1 development is a major real estate regeneration project around the train station aiming to provide a gateway to the city. Once complete it will provide over 50,000 square metres of offices; 5,000 square metres of retail; 1,250 student units and 330 residential dwellings.</td>
<td>Majority of existing buildings including: • partial demolition of a national listed building; • 3 buildings of local interest; • 3 buildings judged to add townscape character</td>
<td>• 1 nationally listed building • 3 buildings of local interest (due to accidental fire, only 2 retained in final scheme)</td>
</tr>
<tr>
<td>Selly Oak Hospital</td>
<td>Birmingham City Council, UK</td>
<td>2012/02303/PA</td>
<td>2013</td>
<td>Former hospital site with buildings dating back to the 1870s. Permission has been obtained to redevelop area to 650 residential dwellings; 1000 metres squared of retail space, 500 metres squared of restaurants, cafes and drinking establishments and 1500 metres squared of offices and financial &amp; professional services.</td>
<td>All non-listed buildings and 6 locally listed buildings</td>
<td>8 locally listed buildings</td>
</tr>
<tr>
<td>Icknield Port Loop</td>
<td>Birmingham City Council, UK</td>
<td>2011/07399/PA</td>
<td>2013</td>
<td>A former 66.7 acre industrial site dating back to the early 19th Century. Permission obtained to redevelop area for a mix of uses including 1150 residential dwellings; up to 6,960 metres squared of retail, services, employment, leisure and non-residential institution uses; as well as a hotel, community facilities and other associated works.</td>
<td>4 non-designated buildings (before this planning application there had been additional demolition within the curtilage of the site)</td>
<td>2 non-designated buildings</td>
</tr>
</tbody>
</table>
6.3 Analysis

This section discusses the results obtained through the analysis of the ‘general interviews’ and case study investigations. The factors identified as drivers for decisions to demolish or adapt within masterplans include: national and local policy; place-making and its link to economic viability; technical aspects; and phasing & market changes.

6.3.1 National and local policy

Chapters 3 and 5 demonstrated that policy is a fundamental aspect of decision-making both at the individual building level and within the context of a larger scheme. In England as elsewhere in Europe, masterplan sites are subject to regulations under the Environmental Impact Assessment (EIA) Directive (Commission of the European Communities, 1985). As masterplan sites tend to have an increased number of impacts associated with them, demonstrated by the issues covered in the BREEAM Communities assessment (Figure 6.3) an EIA is often required. For all of the case studies, an Environmental Statement which included chapters dedicated to heritage and the decision to demolish or adapt the different buildings was provided.

Decisions at the masterplan level need to consider the relevance of the proposed scheme to national and local authority policy. Although decisions about individual buildings will need to be in accordance with policy, at the larger masterplan level, the local planning authority may have development frameworks which set out the aspirations for the area, including an identification of buildings which have a positive contribution and where effort should be made to retain them. For example, in Cambridge, the local city council developed a Station Area Development Framework (Cambridge City Council, 2004). As part of this, a Conservation Area (safeguarded area due to special architectural or historical interest) appraisal was undertaken and the local authority’s conservation officer identified buildings with significance (Historic England, 2017). The intention was for this to be used as a guide for future proposed schemes. However, during the interviews a member of the design team mentioned that the Development Framework had not considered economic viability; thus the proposal (and later outcome) varied from this appraisal, including the demolition of buildings identified as having a positive contribution to the area. The first application for planning was rejected by the city council over a number of issues, in particular over-development of the site. For the second application, the design team felt they had discussed the decisions being made earlier on with planning officers and this assisted with the process as the officers recommended the scheme for approval, which was then accepted by elected city councillors. The concept of pre-application advice and ‘front-loading’ the council was also discussed on the Selly Oak site and during three of the general interviews. Communication with the council, particularly on larger developments was considered to be vital. A statutory consultee for a heritage organisation stated:

“We also try to comment on pre-application as much as possible, so we try to get in touch with developers or they get in touch with us to discuss the proposal before they go for planning permission because that is obviously when you can negotiate the most”. Heritage association statutory consultee, personal communication, 2016.

Linked to policy, is whether or not a building is designated at a national or local level, which can provide protection in the decision-making process. In the UK, Historic England (formerly English Heritage) is responsible for national designations, while the local planning authorities are responsible for local listings. The National Planning Policy Framework (NPPF) states that the demolition of listed buildings will only be allowed if the applicants can demonstrate that their harm or loss is necessary for public benefit. At the masterplan level a key aspect relating to this is whether a particular building
prevents reasonable use of the site (DCLG, 2012). During the general interviews, a representative from Historic England discussed a project they had been involved in where a listed building was allowed to be demolished because it disrupted traffic flow in and around the site, thus its demolition led to public benefit. A similar example was offered by a planning consultant and former planning officer in the context of the King’s Cross development in London, UK. King’s Cross is a large development project which is cited as a successful example of heritage regeneration (English Heritage, 2010):

“King’s Cross … very clearly set out the case for demolishing a listed building because it provides access to the wider site and that I think sets out the scale of arguments that you need. It was a huge site and perhaps therefore was in some ways easier to justify the need to be an overwhelming public benefit.” Planning consultant and former planning officer, personal communication, 2016.

In the case studies reviewed, the demolition of buildings based on this concept of public benefit was reiterated for the demolition of buildings which were locally listed. On the CB1 site, two buildings demolished, a former hotel and coal yard office on the industrial yard were demolished to make way for a new transportation network, including a bus route and taxi rank. At Icknield Port Loop, although the heritage consultant felt the façade to a former factory could be retained as part of the masterplan scheme, the Environmental Statement justified its demolition on the grounds of access to the site (Mouchel, 2011). In addition, the Selly Oak masterplan proposes the demolition of 6 of the 14 locally listed buildings; supporting arguments included that they affected legible transportation routes and that they were located in areas of the site which could be used more effectively:

“…their removal is considered to have clear benefits in terms of achieving the best urban design outcome for the Site, either by better revealing retained buildings of greater architectural and historical significance and/or by improving the ability to integrate those buildings into the Masterplan in a well-designed and viable way” (GVA et al., 2012, p.8.11).

Most of the interviewees felt that currently local listings (assigned by local councils) are more negotiable than national listings (assigned by a National government body), particularly for larger schemes on which applicants often argue that the demolition of one building can lead to investment in another. At an individual building level the justification based on public benefit, in terms of larger infrastructure systems and in particular the choice between investing in one building or another, appear to be less common. These aspects of decision-making relating to policy were broadly identified in the literature review. However, it is fundamental that they are recognised from all stakeholder viewpoints, as applicants will try to show how their scheme, including the demolition and retention of buildings is in accordance with planning policy, whereas opponents to the development will try to show how it is not in accordance. In general, unless the decision is taken up to appeal at a national level, it is the local authority and the councillors who need to decide whether or not the proposed future of the existing buildings is sufficiently justified, thus being important decision-makers in the process. Overall, this section has shown that policy is fundamental to consider during decision-making but that the demolition of listed (safeguarded) buildings may be more negotiable when they are considered as part of a masterplan and applicants can demonstrate their loss results in public benefit.

6.3.2 Place-making and its link with economic viability

A simple definition of place-making is given by Wyckoff (2014) stating it is “the process of creating quality places that people want to live, work, play and learn in”. It is a concept which is regularly
mentioned alongside community viewpoints and the community’s social and cultural identifies (Project for Public Spaces, 2009). For existing buildings it can be seen as the contribution through the different values attached to the buildings that can help provide a focus or identity for different areas and a connection to the past. It therefore may be, but is not always, related to the heritage value of the building, and it also implies an enhancement of economic value; the Royal Institution of Chartered Surveyors (RICS) for instance found that place-making added commercial value of between 5-50% (RICS, 2015). The concept of place-making was mentioned by almost 50% of the general interviewees. For example, a property consultant referred to the ‘sense of place’ provided by historic buildings, even those which are undesignated (not listed and safeguarded by policy). In a separate interview a representative from a heritage society discussed how the demolition of existing buildings, even if they were not designated, could disrupt the integrity of the masterplan site. By retaining some buildings: “it gives the site some form of identity, the people who would come to live there would have some kind of pride in their neighbourhood” (Heritage society representative, personal communication, 2016).

An individual building may not be seen as economically viable to retain. However in the context of a larger scheme, this may be offset by the intangible values added by place-making. This concept has previously been acknowledged by Robert Evans from Argent, the developer of King’s Cross, London, UK (English Heritage, 2010). Evans states that the individual buildings “would not be viable in their own right” but that they “work because they are part of a greater whole” (Evans, 2016, p.44). This was reiterated by a property consultant interviewee, who discussed how the cost of knocking one building down within such a large scheme is miniscule. If that building adds value to the site through place-making, the space which could have been utilised by knocking it down could be made up for elsewhere.

Discussions with the Urban Designer of the Icknield Port Loop development indicated that their principal is to try and save as many historical buildings as possible because they form part of the ‘urban grain’. On this project, the two retained buildings were identified early on and seen as beneficial in providing some character and avoiding monotonous development. During the design process, the existing buildings provided an anchor to work from and provided urban design merit. On the Selly Oak site, the reasons provided for the retention of buildings was because they were judged to be more significant historically and by the community and were located at landmark positions within the site, an aspect relevant to masterplanning. During the interviews, the design team discussed how they wanted the buildings to reflect the former use of the area as a hospital and leave a legacy. In the case of the water tower building (seen in Figure 6.4) these intangible values, including its prominence on site, were considered to outweigh the technical complexity created by its unique scale (GVA et al., 2012). On the Cambridge site three buildings have been retained. The nationally designated main station building and the industrial mill (see Figure 6.5) were considered to be landmark features near the centre of the development and could also be used as a reference point for the new building heights. Although the former coal yard office, converted to a restaurant, is a modest size (a two storey building). The heritage consultant and planning officers were keen for the building’s retention, as replacement buildings would have affected the setting of the nationally listed building opposite and retention allowed for the continuation of the streetscape. A glazed extension was added at the back to make the building commercially viable. As recognised in particular in the general interviews, new build can also contribute to place-making and it is important for the new and old to work together.

Linked to creating a ‘place’ is the ‘masterplan vision’. A concept developed by the design team, which sets out the aspirations for the area and may include particular design concepts. However, other stakeholders may not always agree with these concepts and this is where there is often divided
Figure 6.4: Selly Oak hospital retained water tower forming a landmark feature on site. Source: Baker and Moncaster

Figure 6.5: Retained industrial mill converted to residential apartments. New build student and residential in background, CB1 development, Cambridge. Source: Baker and Moncaster

Figure 6.6: Victorian terrace (left) demolished in favour of a larger office block (model shown of right), CB1 development, Cambridge. Source: Baker and Moncaster
opinions regarding a regeneration project. For example, within Cambridge City Council’s (2004) Station Area Development Framework, they identified three buildings perceived to add ‘townscape value’ because they are located at regular intervals along the street and create a sense of ‘rhythm’. During the design of the masterplan, the design team’s aspiration was to develop this concept further and create a ‘rhythm’ along the whole street by having building volumes at regular intervals. This was considered to be a key concept by the design team which required the demolition of a Victorian Terrace (Figure 6.6). The terrace is to be replaced by a large modern office building which uses the land more efficiently from an economic perspective. Although permission for this concept was granted at the Outline Planning stage, additional Conservation Area Consent still had to be granted alongside a full application as the design of the replacement building had been adjusted since the Outline permission was granted. This resulted in a petition obtaining over 1000 signatures to save the Victorian Terrace. The campaigners disagreed with the justifications given for the demolition of a building which had been recognised as a building of local interest in the original Development Framework (Cambridge City Council, 2004). However, after a planning appeal at the national level, permission for demolition was granted, thus providing an example of divided opinions regarding the future of buildings within a masterplan scheme. In contrast, although demolition of a small Coal Yard office building on the outskirts was initially considered, its demolition was not seen to be as fundamental to the ‘core’ of the scheme, and it was retained.

Heritage value, particularly on masterplan sites, can reach beyond the physical buildings. At an individual building level, the heritage of a demolished building could simply be reflected in the name of the replacement new build. When it comes to the masterplan this reflection of the area’s past can be taken a step further. One heritage organisation discussed how value should be acknowledged in the streetscape and the layout of the site; and another interviewee referred to the ‘Liverpool One’ scheme in the north of England. Although this development was next to a World Heritage Site and on a historic waterfront, numerous buildings were demolished and replaced by new-builds of a similar massing to the existing. The heritage was reflected by maintaining the historic street pattern, and the scheme has been referenced positively by English Heritage (now Historic England) for this reason (English Heritage, 2013). Within the case studies, this concept was reiterated. On the Cambridge site, members of the design team highlighted some of the public art contributed through Section 106 agreements (planning obligations to make a development acceptable). These included an old crane base and a statue of the goddess Ceres, which had been commissioned by Spillers (flour milling company) who previously occupied the industrial area (Brookgate, 2008). At Icknield Port Loop the designers and land-owners explained that their vision had been to create a waterside regeneration project and they wanted to take advantage of the historical canal network. The canal in itself was seen as a heritage asset which should be enhanced.

These examples show that place-making (creating an area with character) can occur through the retention of historical buildings in the centre of a development but also alongside new build, and through other interventions such as retaining the street pattern, indicators of industrial heritage and place-names. It is the central/core area within the site where the ‘design aspirations’ for the area will often, but not always, be stronger. Conversely it is the outskirts of the area where more negations can take place regarding demolition and adaptation as the buildings may have less effect on the overall scheme.
6.3.3 Technical aspects

The technical details of individual buildings, as discussed in section 6.1.1, are still relevant in a masterplan context. Buildings will often be rapidly assessed to get an overview of their condition and adaptability. While in some cases developers may choose to invest in adaptation, clearly this route is associated with greater risk, especially if the building is in poor condition and has limited technical feasibility of adaptation. The risks are often reflected in cost models and increases for each building which is retained:

“there is inherently risk attached to refurbishment projects; if you have multiple buildings with this and unknown consequences of what might be uncovered, the developers are unlikely to take it.” Property consultant, personal communication, 2016.

At Icknield Port Loop three of the buildings were demolished on principles relating to technical aspects. Although the site contained an art-deco building constructed in 1932 which was described as “architecturally the most significant structure on the Birmingham Corporation site” (Grover Lewis Associates, 2011, p.19), the building was in very poor condition. Issues included: cracks in concrete beams; spalling concrete; corroding reinforcement bars; insufficient concrete cover of reinforcement bars and water ingress in the roof structure. This building, as well as a two-storey masonry factory on site, were assessed in a condition report (DTZ, 2011). The factory had suffered from water ingress affecting the roof, internal walls and windows. The report concluded that the buildings had reached the end of their lifespan and were now functionally obsolete. The cost of the conversion for them to meet the requirements set out for modern day uses made them economically obsolete.

From a technical and heritage point of view, the non-listed buildings on the Selly Oak site were never realistically considered for adaptation as the design team considered them to be intrusive and offered no intrinsic value. During the assessment of the locally listed buildings, regulations referring to the technical aspects of the building were considered. Problems highlighted included: shallow building depths; current layouts inhibiting vertical circulation; irregularity in the plan and small floor areas. During an interview with a member of the Cambridge design team they felt many of the existing office buildings did not meet modern office demands because they had limited floor to ceiling heights, resulting in complications when incorporating raised floors and suspended ceilings. The majority of the other demolished buildings formed part of an old industrial site and were in poor condition. Within the industrial area, an original silo building next to the retained mill had originally been identified for retention in the Outline Planning permission. During refurbishment a fire broke out in this building and the majority of the masonry structure collapsed. Although some residents felt that the building should have been rebuilt because of its local listing, the design team felt that this would not be authentic to the heritage and no longer commercially viable. Overall, this section has demonstrated that at a masterplan level, despite opportunities for some buildings to be retained because of place-making attributes, in many cases buildings will still be demolished on technical grounds, linking to capital costs and risk.

6.3.4 Phasing and market changes

The appropriate time to either demolish or adapt a building is considered at the individual building level as part of the project, but at the masterplan level the decision becomes more complex. This is partly because, with the development taking place over a longer period of time, there is more likelihood of changes in both the local market and the wider economy. One common way of addressing
market changes for larger and more vulnerable schemes is to phase development appropriately. Several interviewees discussed phasing as a solution, with three suggesting that heritage buildings could act as a catalyst for further regeneration. However, in the case studies, the new build was built first to provide necessary cash flows. For example, on the Cambridge masterplan site, new build student accommodation was completed first. This was because construction began just after the UK’s 2008 economic recession. During these times, student accommodation in Cambridge was still in demand. On the Selly Oak site, the provision of housing is being phased and construction continues whilst the first residents have moved into their new build properties. Although an interviewee in the general interviews emphasised the importance of investing in the existing buildings first to create a community hub, as happened at Kings Cross, this is not always desirable to the developers as new build is often less risky and can be used to invest in the existing buildings.

Due to the uncertainty related to large-scale developments and market changes, all of the case studies investigated submitted an Outline Planning application to be followed up with a ‘reserved matters’ application, rather than a full planning application. In England, Outline Planning can be used at an earlier stage to determine whether planning permission will be granted. These applications include information about the massing, quantity and uses of buildings and are later followed by ‘reserved matters’ applications which consider the appearance of the buildings. Outline planning is favourable to developers because it allows for a greater degree of flexibility than full planning and developers can react to any market changes. However, in the case of the Cambridge development, the use of Outline Planning was criticised by some stakeholders. The Commission for Architecture and the Built Environment (CABE) felt that Outline Planning was inappropriate because the site was a Conservation Area containing lots of listed buildings and an Outline Planning application cannot guarantee the quality of the final development (Cambridge City Council, 2008). Although Outline Planning can provide flexibility for the developers, it can be perceived as producing uncertainty for the local residents, as they do not know exactly what they are going to get within such a complex scheme where multiple factors come into play, showing that within larger schemes there is a balance between stakeholder priorities. This section has shown that the decision of demolition and adaptation goes beyond what should happen to the buildings but also when this should happen.

6.4 Conclusion

Building adaptation and demolition has previously been researched throughout the developed world and from multi-disciplinary viewpoints. This chapter has highlighted decision-making criteria previously identified at an individual building level to demolish or adapt, including technical aspects such as building condition; floor to ceiling heights; floor area, and other factors such as heritage value and the associated designations; planning polices and economics. Stakeholders involved in these decisions will inevitably weight criteria differently and have different priorities. The aim of this chapter was to explore how these decisions can differ in the context of a large-scale masterplan regeneration site, through three UK case study investigations and additional interviews with multiple stakeholders. The decision-making factors are summarised in Table 6.4 and include: national and local policy; placemaking and its link to economic viability; technical aspects; and phasing and market changes. Although these are displayed in separate rows, they are not mutually exclusive and the case studies showed that during decision-making, multiple factors will combine and the decision is context dependent and can be influenced by land values, the current market conditions, attitudes within local councils and corporate objectives.
<table>
<thead>
<tr>
<th>Decision-making factor</th>
<th>How factor is interpreted differently in a masterplan context</th>
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| National and local policy                   | • Increased importance of pre-application advice with local authority.  
• Building designations (aimed to safeguard buildings from demolition) more likely to be subject to compromises, such as investing in one building to enable investment in another.  
• Increased likelihood of arguments justifying demolition for ‘public benefit’, in particular to facilitate transportation networks.  
• Heritage can go beyond the physical buildings and be reflected in street patterns or art work around the site. |
| Place-making and its link with economic viability | • On some occasions the intangible values associated with heritage, such as a sense of identity and character will offset the economic viability of an individual building within the ‘greater whole’ of the masterplan.  
• Retention is balanced against to opportunity to build new and increase floor areas. New build can also contribute to place-making. |
| Technical aspects                           | • Technical aspects such as limited floor to ceiling heights and poor condition, which are associated with individual buildings are still considered at this level.  
• Adaptation at an individual level and masterplan level is associated with risk and uncertainty, this will increase with each building retained. |
| Phasing and market changes                  | • Increased complexity associated with when to demolish or adapt existing buildings. Largescale regeneration projects often take place over longer time periods, will be more vulnerable to changing local economies and global market conditions.  
• General interviews indicated early retention in existing buildings can act as a catalyst for further growth.  
• Case studies showed investment in new buildings first to create necessary cash flows to invest in existing buildings, associated with more risk. |

Within England’s planning policy, the National Planning Policy Framework indicates that there must be an overriding public benefit to justify the demolition of a listed (safeguarded) building. On masterplan sites, arguments regarding transportation networks and compromises by demolishing one building to enable investment in another came into play. This was evident in both the Cambridge and Selly Oak case studies. During the general interviews and case studies, it was recognised that the retention of historical assets can add character to an area and contribute to ‘place-making’. While the retention of an individual building may not be economical because of constraining technical aspects, within a larger scheme other values such as heritage may be weighted higher as the building could contribute to the character and identity of the area while its cost could be offset by the rest of the development. On all the case study sites, historic buildings were being used as notable or landmark features within the masterplan and combined with new build. The case studies and interviews also provided examples of intangible values beyond the physical buildings, such as the retention of the historical canal network at Icknield Port Loop seen as a fundamentally reflecting the area’s industrial past.
Previous research has investigated what features can enable adaptability in existing structures. At a masterplan level, physical criteria are still important to consider and the case studies showed examples of buildings being demolished because they were in poor condition; had limited floor to ceiling heights and/or shallow floor plans and their services were outdated. Existing buildings are associated with higher levels of risk and uncertainty than new build, so it is unlikely that all existing buildings will be kept as risk will increase with each building retained. There were examples of technically complex buildings being adapted rather than demolished because of their contribution to place-making, emphasising that the different factors of decision-making are often combined and not independent from one another.

A final consideration for masterplan sites is the phasing of demolition or adaptation of different buildings. On larger developments construction generally takes place over a longer period of time, resulting in the project becoming more vulnerable to changing local and global economies; for this reason, phasing is important. During the general interviews, interviewees discussed the benefits of redeveloping the existing buildings first to create a community hub and identity early on. However, in the Selly Oak and Cambridge case studies, new build was constructed first to create the necessary cash flows to allow for investment in the following phases of development.

For all of the factors discussed, it is clear when looking at the decision of adaptation and demolition within a larger site, the complexity of decision-making increases as there are often more influencing factors. When making these decisions which will have large impacts within an urban area, it is vital the different stakeholder attitudes are recognised and the balance between influencing factors is appropriately considered.

6.5 Planned continuation of research

Over the next two years as part of an ongoing PhD project, the three masterplan case studies investigated within this chapter will be expanded and increased to include additional sites. Currently, this research shows what is being done, rather than necessarily what should be done. One key aspect missing from the discussion in this chapter is embodied energy, a commonly cited benefit of building retention (Baker and Moncaster, 2017). The embodied carbon of a new building can equal or even exceed the operational carbon over a design life of sixty years. The majority of the embodied carbon is due to the building materials and their initial construction, with an additional impact caused by demolition and processing of demolition waste (Moncaster and Symons, 2013); therefore the sustainability argument for retaining a building rather than demolishing it and building new is strong. The omission of embodied carbon from decision makers’ concerns is possibly linked to the current lack of ownership, awareness of the issue, or the lack of a simple method of calculation. No regulations yet require the reduction of embodied carbon, unlike that of operational, and there is therefore no implied risk in ignoring it. The omission of an issue which has been demonstrated to be such an important part of sustainable design suggests that current decision-making may also ignore other important issues. These aspects will be explored further.

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