UNIVERSITY OF
FORWARD
THINKING
WESTMINSTER

WestminsterResearch
http://www.westminster.ac.uk/westminsterresearch

Using Spatial Analysis in an Evidence Informed Approach to Community Engagement in Design

Nath, C.

This is an electronic version of a PhD thesis awarded by the University of Westminster.
© Miss Chandkiran Nath, 2018.

The WestminsterResearch online digital archive at the University of Westminster aims to make the research output of the University available to a wider audience. Copyright and Moral Rights remain with the authors and/or copyright owners.

Whilst further distribution of specific materials from within this archive is forbidden, you may freely distribute the URL of WestminsterResearch: ((http://westminsterresearch.wmin.ac.uk/).

In case of abuse or copyright appearing without permission e-mail repository@westminster.ac.uk

Using Spatial Analysis in an Evidence Informed Approach to Community Engagement in Design

Chandkiran Nath

A thesis submitted in partial fulfilment of the requirements of the University of Westminster
For the degree of Doctor of Philosophy

July 2018

(This page is intentionally blank)

Table of Contents

List of Figures

List of Tables

Declaration

I declare that all the material contained in this thesis is my own work. No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this university or any other institutions.

Acknowledgements

I would like to take this opportunity to extend my deepest gratitude to Tony Lloyd Jones and Dr Tony Manzi for their guidance and exemplary mentoring through these four years. Their constant encouragement and support has been a very strong anchor for this research to progress.

I would like to thank the following people for contributing to this thesis with their time and knowledge to help understand areas of this research that were otherwise not possible. Brinley Hill and Dave Robinson at the Dover District Council; Astrid Willeke at MACE; Carolyn Clark; Space Syntax Limited whose support with the project reports was fundamental to the empirical research in this thesis.

This PhD would not have been possible without the love of my family and friends who have supported me, encouraged me, and been there at every step of this journey. Special thanks to Cristian Opris, who has helped through the last and most trying stage in finishing this thesis.

Abstract

This thesis conceptually stems from the researcher's experience in participatory design practice in India and her subsequent experience in research and practice of the analytical and evidence informed design approaches of Space Syntax in the UK.

Urban design is a set of complex relationships between all the elements of built and unbuilt space in cities. It is imperative that the design processes address these complex socio-spatial relations that govern its form. Whilst, current design approaches attempt to respond to the socio-spatial structure of the city, they have certain limitations. This study focuses on two such limitations - a disconnect between the user and the architect; and a lack of credible rationalisation and evidence to address this complexity through design decision making. In order to address these limitations, an integrated design approach is suggested, that uses spatial analysis in an engagement led design process. The relation between spatial analysis, engagement and evidence in this design approach is made through the concepts of user *behaviour* and user *experience* in space.

Space Syntax theories have been selected as an example of spatial analysis methods. These are based on two fundamental principles - first, that spatial and environmental behaviour is a function of the configuration of spaces (spatial patterns) and not individual spaces; second, that the vitality of a space is not a result of its local qualities but that of the properties of the larger urban grid (global).

This thesis argues that in order for spatial analysis to be complete, it should be supported by both behavioural and experiential evidence. The effective application of this is suggested through an integrated 'mixed method' approach where the spatial analysis applied and experiential evidence gathered from community engagement be identified as a key agenda as part of the project (vision) and a structured program, not an afterthought.

Chapter 1 : Research Background and Introduction

Personal Motivation

As an undergraduate architecture student sitting through various design reviews, defending and watching others defend their designs, the one question that came up and has continued throughout my practice as an architect is 'what is good design?'. Is it that, which appeals or satisfies the people using it? Alternatively, is it that which stems from an understanding of spatial design through formal education and professional experience? How can we know if a designed space can both, attract and retain people? If the answer lies in the experience of how space works, then wouldn't those who use the space understand it better than those who don't? If there are variables beyond what users perceive, considering the uniqueness of each space and the conditions and variables that influence it, then where is the evidence to support the understanding of these variables and their impact on the space, its multiple users and its use? Why do so many designs fail, even though they are designed by experienced professionals or result in a use that is different to what was intended?

In order to answer these questions, I pursued my undergraduate dissertation (theoretical) and design thesis in the area of participatory design, and subsequently worked as an architect on projects involving user participation in design.

Theoretical study and practice showed that approaching design through participation is useful in ensuring people's interests have been addressed and a greater understanding of the local, physical, cultural and spatial use knowledge influencing design. In one of the school design projects studied as part of my undergraduate thesis, in a village in northern India, participatory sessions revealed key information about the everyday life and the relation between this and design, that would have been extremely challenging to obtain without participation. This contributed to important design decisions made later.

My experience through practice and research also indicated that the more involved the users were in the design of their environments, the greater was their sense of association and ownership towards the designed space, particularly when instilled by the notion of having contributed to building that space. A greater sense of satisfaction was seen as compared to when they were only informed of decisions already made. Whilst, at least at a theoretical level, architects acknowledge the benefits of active participation where users are engaged throughout the process, there seemed to be a preference towards a more reactive, feedback orientated, consultation.

Whilst, my undergraduate research and later participatory practice as an architect was useful in understanding the role and value of user involvement in design to some extent, participation did not explain how variables beyond user experience and perception can be accounted for. Particularly in the case of public spaces where the number of variables influencing space, and the multiple types of user groups involved, reflect an increased complexity of socio-spatial relations. This led me to the Space Syntax research methodology that based itself on objective evaluation and evidence, which addressed the question of validating design decisions that were based not only on experience and formal architectural

education but scientific theory. However, through studying and working with Space Syntax on commercial projects, it was noticeable that these methods were primarily objective, scientific and theory based but did not always account for the non-tangible factors of design such as people's associations and perceptions.

These practice and research experiences of participation, a social and user oriented approach, as well as Space Syntax, an evidence based approach, showed that both approaches were influential and useful in addressing aspects of design, which were otherwise based on professional experience, intuition, and sometimes even speculation. Participation addressed the subjective and non-tangible aspects of spatial use lacking in the spatial analysis methodology of Space Syntax theories, while Space Syntax tools based design analysis on observed and scientific evidence of spatial use, more grounded in objective evaluation. The aspect of design addressed by each of the two is less dominant in the other. This potential of the two approaches spurred interest in investigating how a design process could benefit from both, objective and subjective user evaluation, and if the combined use of both, can make the design a better fit in terms of user satisfaction and everyday experience, as well as addressing the complexities of urban space and design that are beyond the individual user's immediate perception.

The interest to find out how an urban design process and the end design outcome could be impacted when both these approaches were applied together in a single process, fuelled the motivation to study an integrated design approach in this thesis. Overall, the motivation and inspiration to pursue an integrated approach of participation and objective spatial analysis was based on a gradual search for a balance in design between the intuitive, experience based, user sensitive, and the scientific and objective.

Research Context

To understand the problem identified and to analyse and draw suitable responses, it is important to understand the context of the two approaches and their relevance to urban design and design practice, presented here briefly and discussed in more detail in the next chapter.

Urban design has been defined and described in different ways by practitioners, academics, planning policies and other professionals. One of the more comprehensive definitions is given in Planning Policy Guidance 1

> "... urban design should be taken to mean the relationship between different buildings; the relationship between buildings and the streets, squares, parks and waterways and other spaces which make up the public domain; the nature and quality of the public domain itself; the relationship of one part of a village, town or city with other parts; and the patterns of movement and activity which are thereby established: in short, the complex relationships between all the elements of built and unbuilt space". (Department for Infrastructure 2016)

By this definition, public space design essentially revolves around the complex dynamics and relationships between people and their physical environment. Krupat (1985) discusses five ways in which public spaces of cities relate to people - Physical; Functional; Cognitive; Affective; and, Social. Here, the 'physical' relationship is the end outcome of design, a physical structure of space (buildings, roads, parks or bridges). 'Function' relates to the intention to achieve a purpose through the physical structure (i.e. it has all the essential required physical elements and their layout allows the fulfilment of tasks they were

designed for). 'Cognitively' the physical spaces and spatial relations are understood or read by its users through symbolic meaning, where the designer becomes the "encoder" and the people using it become "decoders" of meaning (Rapoport 1977). The fourth relationship between people and their environment - 'affective' - relates to emotions and feelings based on how they perceive their surroundings. Based on these emotions people choose (if given a choice) to use a space or avoid it. That last relation is a 'social' one. This relates to the ability of the environment to be adequate or conducive to the interpersonal needs of users. Questions such as "Does the setting allow people to interact and meet others? Are people afforded enough privacy to feel comfortable? Do they have enough personal space, or do they feel crowded by others?" (Krupat 1985, p.158), serve to illustrate this relationship between people and space.

Keeping these aspects in account, urban spaces can be potentially successful, (in terms of spatial use and enabling social activities contributing towards a user-friendly place. Or, in terms of Krupat's five ways: a place that works in physical and functional terms, where its purpose is perceived, understood and appreciated, it 'feels' right and facilitates the generally appreciated amount of social interaction, including privacy when needed). However, these can also end up as neglected, empty, or anti-social spaces disconnected from the users and the kind of activities they were built for. A third possible result of the space could be a spatial use different from what it was intended for.

Key works such as Kevin Lynch's *Image of a City* (1960) that focuses on wayfinding, image of a place and legibility; William Whyte's (1980) work on understanding public spaces by observing behaviour, activity and spatial use patterns; Jan Gehl's (2010; 2011; 2013) work on sociability of public spaces; and Jane Jacobs' (1961) focus on the people and the

community to identify the needs of a space - echo the people-place relationship described by Krupat (1985).

Therefore, assuming that people-place relationships can be categorised as these five kinds (Physical; Functional; Cognitive; Affective; and, Social), the next step towards understanding the context of the issue of finding a balance (between the subjective and the objective, or, user experience, perception, professional experience and the scientific) identified at the beginning of this chapter, is to look at the factors that characterise these people-place relationships in successful public spaces. On the basis of studying "thousands" of public spaces around the world and stemming from the theories and seminal works of urbanists such as Jane Jacobs, William Whyte and Jan Gehl, the 'Project for Public Spaces' (2016) identified common key qualities of successful public spaces - *Sociability; Uses & Activities; Access & Linkages; and, Comfort & Image*.

Aspects such as accessibility and activities can be seen and measured since these are evident in their physical forms and can be observed, and a quantitative measure can give a clearer understanding of these type of parameters, that allows a clear, measurable comparison between spaces. However, in the case of qualities such as sociability, comfort and image, whilst quantitative data such as seating, user groups, types of activities and use patterns can suggest levels of comfort and sociability, these qualities are more personal – they're associated with perception and feelings. This suggests that there is an equally important need to consider these intangible qualitative aspects when assessing spaces.

Any good public space is therefore a result of a well-integrated system of this dynamic partnership between people and their surrounding physical environment, i.e. the users and the physical form and context of the space, which can be described both qualitatively and quantitatively. Therefore, it is imperative to focus on both the user aspect and the physical context; and the tangible and intangible qualities and aspects of spaces in a mutually inclusive design approach. This thesis therefore attempts to find how the application of spatial design approaches in the design process can maximise outcome and minimise risk, by addressing and improving these key qualities of public spaces.

Conventional methods of design have not been devoid of addressing social concerns and users, but these also do not necessarily incorporate users as an inherent part of the design process. Similarly, whilst they have attempted to address physical tangible aspects and complexities of the larger urban system that influence space, these have been driven by professional assumptions and normative design principles rather than evidence. Since spaces are continuously under the influence of both physical and social structures, where the physicality of space is fixed, the dynamics of social use and influence of aspects such as perceptions, management, politics and economics are not. There is a level of unpredictability, and there are no methods to accurately forecast and make a proposal that is water tight against all possible influences. Here the professional is expected to know what the user needs as part of their expertise, based on design school training and experience gained as part of practice. This study therefore investigates an approach that is based on credible evidence combined with user involvement to add value to the design of public spaces.

User participation is a social process using local input as part of a collaborative decision making process. Public engagement has been used to ensure equal representation and response to the multiple interests of impacted users and communities, including local knowledge of what users want instead of what they ought to want. Additionally, it has also been known for contributing towards a sense of ownership, association and responsibility towards 'their' communal spaces (Sanoff 2000, Hester 1987). Participation has been criticised for issues of time, cost and its risk of uninformed opinion (Campanella 2011). Spatial analysis tools such as Geographic Information Systems analysis, Space Syntax, urban modelling and simulation of human behaviour are quantitative tools with a scientific rationale and have aided in a thorough understanding of complex spatial urban systems.

The success of Space Syntax has been demonstrated in the numerous public realm projects that have improved connectivity and spatial use. The refurbished Trafalgar Square based on the proposal by Space Syntax Ltd showed thirteen times increase in pedestrian movement across the square than before. A study of the London Riots in August 2011 by Space Syntax Ltd established a strong link between the site of incidents and nearby large post-war housing estates (Curtis 2011) –In spite of its value based addition to design, Space Syntax has been criticized for its complexity and for being far removed from intangible attributes such as qualitative/emotional responses of users, and community involvement beyond mere reactive consultation (Raford 2009)**.** This study attempts to explore the possibility of a framework that can realise the full potential of both these approaches, enhancing and substantiating user input through a process of evidence-based design decision making.

This study explores an evidence based design process that can help develop a strong relationship between users, the design process and the resulting space.

Practitioners seem to have either pursued design practice as a very analytical and technical exercise, or as a practice of advocating community opinion and influence. More recently design and planning has seen attempts at making communities an intrinsic part of the design process by involving them through the spatial decision making process (Natarajan 2015). Additionally, tools such as participatory mapping and participatory Geographic Information System (Perkins 2007, Ghose 2003) have attempted to equip lay users with some technical skills, but the gap between a user centric process and a technical analytical approach continues to exist. There is still limited literature and empirical data to demonstrate where and how these can be successfully integrated as part of mainstream practice (Toker 2007).

Stemming from this background of engagement and the need for a method that can measure qualities of space the following research question and hypothesis have been proposed.

Aims and Objectives

Aim

To demonstrate the extent to which the integration of participatory design and 'evidence based' spatial analysis can contribute and improve process and outcomes of urban design

Objectives

1. To review theoretical and empirical trends in participatory design and spatial analysis.
2. To examine the architect – user relationship and role in the design process, with focus on the communication structure (inclusivity in the design process) and means of information exchange.
3. To examine the extent to which evidence of spatial use of a space and the level of user involvement in the design process can lead to improved design outcomes and user satisfaction.

Hypothesis

Effective integration of public engagement and spatial analysis tools in public space design, leads to a better design process and improved design outcome.

Research Questions

1. How can spatial analysis and user participation be deployed to best effect within the design process? What principles and related criteria can be used to evaluate this process?
2. What is the role of spatial analysis and engagement in capturing evidence, and how does the use of this evidence influence outcomes? How can the outcomes be evaluated?
3. What is the broader impact of the integrated use of spatial analysis and user engagement on the overall process? What additional benefits, limitations and challenges does this approach bring to the design process?

Thesis Layout

This thesis is organised into eight chapters. This first chapter outlined the personal motivation for pursuing this thesis' subject, as well as the main aspects it addresses: participation, Space Syntax, and the use and need of evidence in the design process to better understand the relationship between people and space in the urban environment. Based on these, it identified the proposed research questions and the objectives to be addressed to answer them.

The second chapter reviews key literature covering the concepts of 'participation' and 'spatial analysis' as part of the design process and how these relate to the larger context of cities as complex systems. The review further looks at the information and evidence that feeds into the design process and the relevance of such information, highlighting the importance of behaviour and user experience as critical types of evidence to inform design. It then argues that these types of evidence can be captured using the methods of user engagement and Space Syntax, and discusses the benefits and limitations of these methods as they appear in current design practice.

The third chapter, considers the conceptual framework and methodology for research, setting out the overall approach taken to analyse the case studies in the following chapters, four, five and six. The conceptual framework, which is based on a 'Behaviour-Experience' model, is designed to assess the case studies in terms of the extent to which spatial analysis is used to capture evidence of spatial behaviour through the application of Space Syntax methods, and the level and effectiveness of user engagement as a tool to capture user

experience. The research methodology describes the case study selection criteria, the approach and the structure of the empirical analysis of the case studies. The last section of the chapter outlines the limitations of using this methodology.

Chapters four, five, and six analyse a selection of three UK based case studies using methodology developed in chapter three, to evaluate the use of participation and evidence informed spatial analysis methods in their respective approach to the design process. These employ a participatory approach with varying levels of user involvement and a mix of spatial analysis methods. The behaviour and experience based framework developed in chapter three, as well as a process analysis table, are applied to understand how the methods used in each of the cases influenced the end outcome. Based on this, the key learnings from each case study are used to derive a set of principles that can together contribute towards shaping an effective and integrated application of these methods in the design process.

Chapter seven performs a comparative analysis of the design approach in the three studies, critically discussing the three case studies against all of the principles derived in chapters four, five and six, to achieve a better understanding of how these principles can reflect in practice. In addition, a further comparative analysis of the case studies looks at how the application of user engagement and spatial analysis can contribute towards each other, when used as part of an integrated design process, to add value to the process and its outcome.

The last chapter, ‘Conclusion’, describes the ‘Key findings’ of this thesis by explicitly answering the three main research questions, and presents its ‘Original Contributions’, outlining the principles for the application of an integrated use of spatial analysis and engagement led process in an evidence based approach, as derived from the analysis of the case studies and theory. The last section on ‘Areas for Future Study’ discusses issues that arose during research that are beyond the scope of this thesis, but could prove useful in further investigating and refining the approach to the design process as proposed by this research.

Chapter 2 : Literature Review

The literature reviewed for this thesis is organized into two main sections. The first part analyses design as a process, with a critical discussion on key theories and models evolving into what the design process is understood in current practice, and the role of information and evidence in their influence on the design decision making process. The second section analyses the complex socio spatial relations of the urban environment in terms of space and human interaction and the role of spatial analysis and engagement as approaches to address these complex relations.

Understanding Design as a Process: Theories and Models of the Design Process

Design process and design thinking has been reviewed, debated and discussed by theorists, architects, designers and academicians, and numerous models developed to represent how designers think and what the design process entails. However, there has been no single model that accurately describes the process of designing. The search to define 'Design' has been an undying effort ranging from a methodical one by Osborn (1953), who considers design to be *a creative problem-solving process that comprises of fact finding (problem definition), idea finding (thinking up ideas and leads) and solution finding (evaluation and adoption),* to a very simplistic one "*To initiate change in man-made things*" (Chris Jones 1992 p.4).

With the industrial revolution in the late 19th and early 20th century and mechanisation of the manufacturing of products, time and efficiency became a priority, leading to a shift in focus, from the product to the process and methods of manufacturing the product and gradually to the need for 'rationality' in the process. By the 1960s this search for rationality in the 'process' of designing, emerged as what was called the 'design methods movement', which was a response to the realisation that design is a complex creative and cognitive process that needed to be understood and included a group of theorists and experienced

designers such as Bruce Archer, Christopher Alexander and Nigel Cross. The design methods movement was an attempt to addressing complexity in design while trying to maintain creativity, involving mapping different models of design processes in trying to find or generate a best practice model.

One of the early models adopted by RIBA's *Architectural Practice and Management Handbook* (1965) was that of 'Assimilation' 'General Study' 'Development' and 'Communication'. Here, 'Assimilation' marked the first stage that involved accumulation of information both, general and specific to the context of the design problem, phase 2 was a 'General Study' involved examining the information collected in the earlier phase and analysing for possible solutions, progressing into phase 3 of 'Development', further developing these solutions. Phase 4 or the 'Communication' phase would then comprise of communicating these alternatives to the design team and outside using suitable medium. While the handbook suggested the possibility of the designer needing to go back to a previous stage this was still rigid in its defining a sequence of activities.

Other models such as Markus and Maver's (1969b) decision making sequences and Archer's stage-based model with multiple loops across stages were proposed improvements over previous linear models, but continued to follow a sequence.

Whilst no standard best practice model was developed, a historical review of the evolution of the design process models shows a transition from a linear to a cyclic process over the years. These models faced serious criticism for their rigidity and not accommodating the frequent to and from between decision-making. In reality, a designer may decide to go back to the very first stage at any time or realise they need to analyse something they missed after reaching the detailed design stage. These linear models did not illustrate the uncertainty in decision making or the retracing of steps that is common to design processes, leading to suggestions of an iterative and cyclic process such as Zeisel's (1981, 2006) core model of iteration, testing and evaluation that conceived design as a cyclical and iterative process. His model suggests solutions are refined through 'creative leaps' or 'conceptual shifts' as the designers continuously refine and modify their proposals influenced by new information. Zeisel identified five key design characteristics that

combine to form the design spiral - Imaging, Presenting and Testing, along with two kinds of information, that which *acts as a catalyst for imaging*, and information that is used as *a body of knowledge for testing*. This model, is important in that it identifies and defines the role of information explicitly as a tool to decision making. It however does this only at a conceptual level in terms of design thinking but does not show how this might relate to the role of information to individual stages with varying objectives.

In this context Clarkoson and Eckert's (2005) concept of all design processes having a 'generic core' with 'drivers', or Kathryn Best's (2015) 'standardised' and 'customised' processes not only identify information as critical to shaping the design process but also identify the role of information in the very first stage of the process to be critical in shaping the process.

Based on past models of the design process, Clarkson and Eckert (2005), propose that there is a central core that consists of generic stages that is common to all design processes. However, these commonalities are influenced and modified by what they call 'drivers' to respond to the specific design issues. Drivers here can be understood as information and tools that influence the direction of the design process giving the process its project or problem specific characteristics.

A similar proposition is made by Kathryn Best (2015) who suggests there is no single best practice, instead, design processes have two aspects to them, 'Standardised Processes' and 'Customised Processes'. A standardised process is a set of defined steps, timelines and a pre-established design outcome, which must be adapted (using what Clarkson and Eckert, 2005, called 'drivers') to make each project unique. This is a customised process tailored to suit each project context. Additionally, both *generic and standardised processes* propose that the first design phase of any design process is the critical and suitable to engage the designer's knowledge and skills referring it to as the 'Fuzzy Front End' (Design Council, 2007) as a phase important in identifying and defining the design problems, and first glimpse into the course of the project. In line with Clarkson and Eckert's (2005) (Design Council report 2007) concept of the generic design process, the 'drivers' in the case of the design process this study is advocating are the tools and methods (spatial analysis and

engagement) and the context specific social spatial information that influences the design decision making process and therefore the final outcome.

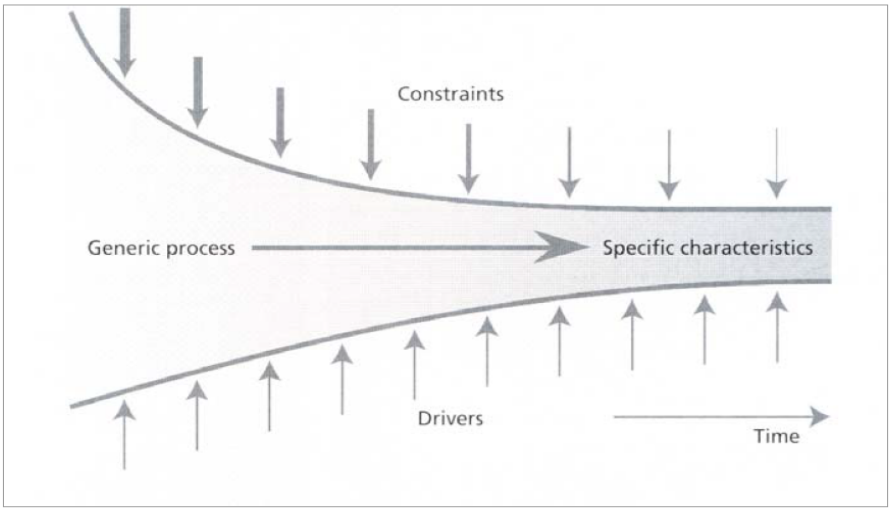


Figure 2.1 Clarkson Eckert's (2005) Generic process (Source: Design Council 2007)

The more recent models to guide the design process adopted in practice are by RIBA (Ostime 2013) and the implementation strategy as part of the Urban Design Compendium. RIBA's plan of work is a reference guide for those in the building design, construction and post-occupancy process. Since its first iteration in 1963, the RIBA Plan of Work has been the definitive UK model. It comprises eight work stages, each identifying the core objectives, tasks and outputs required at each stage.

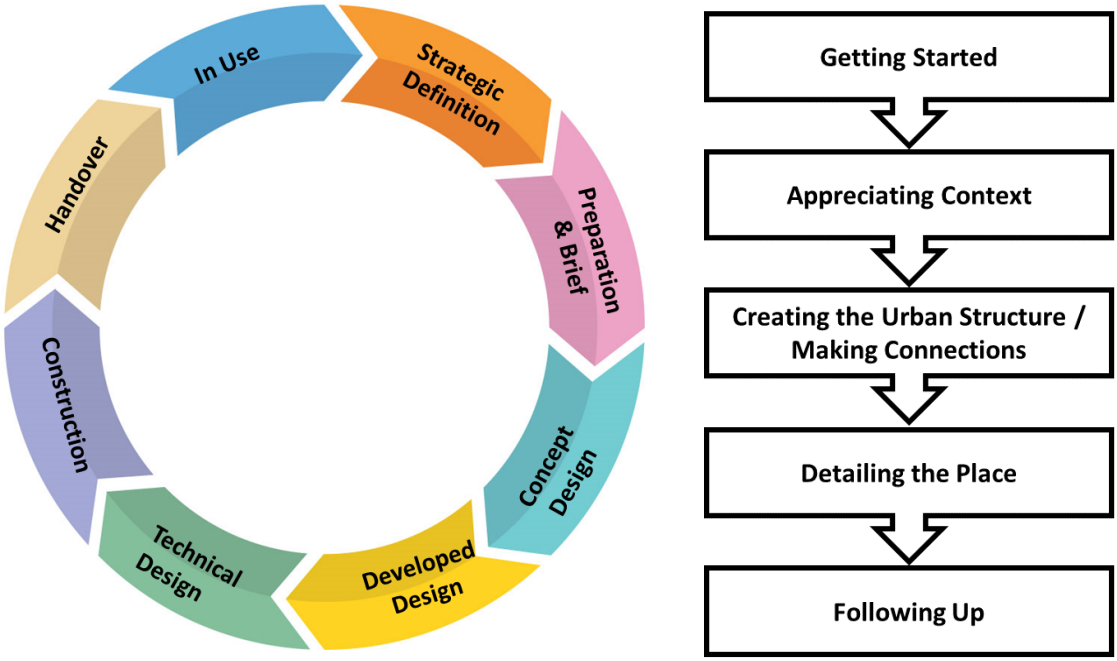


Figure 2.2 RIBA Plan of Work 2013 (left); Urban Design Compendium's Design Implementation strategy (right)

These models are important to be included in a review of design processes because of their significance as established references for current design practice across the UK. The RIBA design stages are architecture specific and very detailed, and the process suggested by the compendium while urban design related, does not discuss the stages beyond the drafting of a masterplan.

Information in the Design Process

Following Clarkson and Eckert's theory of all design processes having a common generic core, 'context specific information' feeding into the process acts as 'drivers' shaping the development and solutions that become unique to each process. These drivers play a

significant role in changing the design *from an existing to an improved state*. Such drivers or information should then involve an awareness and knowledge of past approaches, principles and philosophies of similar problems, as well as the contextual awareness of the existing problem on hand.

Information use in the process of cognitive decision making such as movement and activity in space can be a more complex phenomenon. If design is a creative iterative process, then creativity needs to be stimulated to generate ideas, where Information acts as a stimulant for ideas, creating a shift that allows for creative imaging, application of context conditions and a knowledge base for testing (Imaging Information and Testing Information). Such information or stimulation sources are also influenced by location and scale. Shedroff (1999) discusses information as *global, local* and *personal*, where global information is unstructured information or data that is without any context. Local information is information sourced from the problem domain and being present in the design context becoming directly relevant, and personal information is contained within people that needs to be explicitly shared to contribute to design decision making.

Much of the literature in the field of 'Information' is credited to Ackoff's (1989) work on the relationship between data, information, knowledge, intelligence and wisdom (DIKW Hierarchy). Wodehouse and Ion (2010) analysed the DIKW hierarchy to understand its role in conceptual design. Data in the design context can be inferred as facts and observations. This data becomes valuable by organising and structuring into a useful resource of information, drawing patterns and relations between different data sets. When this information is applied to a problem, it becomes knowledge. Since design is a process of continuous learning while searching, the learning that comes out of the collection and structuring of data and usefully applying it to generate solutions, this leaves the designer with the 'wisdom' to use in the future to resolve similar problems (Wodehouse and Ion, 2010; Fosmire and Radcliffe, 2014).

Wodehouse and Ion (2010) defined the four categories as follows:

"Data: observable properties of objects, events and their environment. Information: inferred from data, containing descriptions of how data can be used. Knowledge: the abstraction, generalization and application of information. Wisdom: judgment and the ability to review the other levels critically." (Web Access)

DIKW Stage	Activity	Design Context
Data	Locating	Assembling facts
Information	Structuring/Organizing	Facts are organised
Knowledge	Applying	Information used
Wisdom	Reflection	Review process; self assessment

Table 2.1 Table showing the Data, Information, Knowledge, Wisdom (DIKW) Hierarchy in the Design Context. (Source: Wodehouse & Ion, 2010)

In the light of the different layers of information that act as drivers of the design process, user or community engagement can be classified as Local and Personal information (Shedroff 1999), Ackoff's (1989) source of Information (local and directly related to the context of the problem), Wisdom (the personal experiential information contributes in better understanding potential use of the design outcome).

While information input takes place throughout the process, some stages are more critical than others. The earlier stages of information input in a design process are key in dictating the path the design will follow. This has also been identified as the *Fuzzy Front End* or FFE (Design Council 2007) referring to the first stage of a design process that involves

identifying key problems and defining a brief (Rhea 2003). This is often used to define the early phases of the creative process where ideas start forming (Design Council 2007).

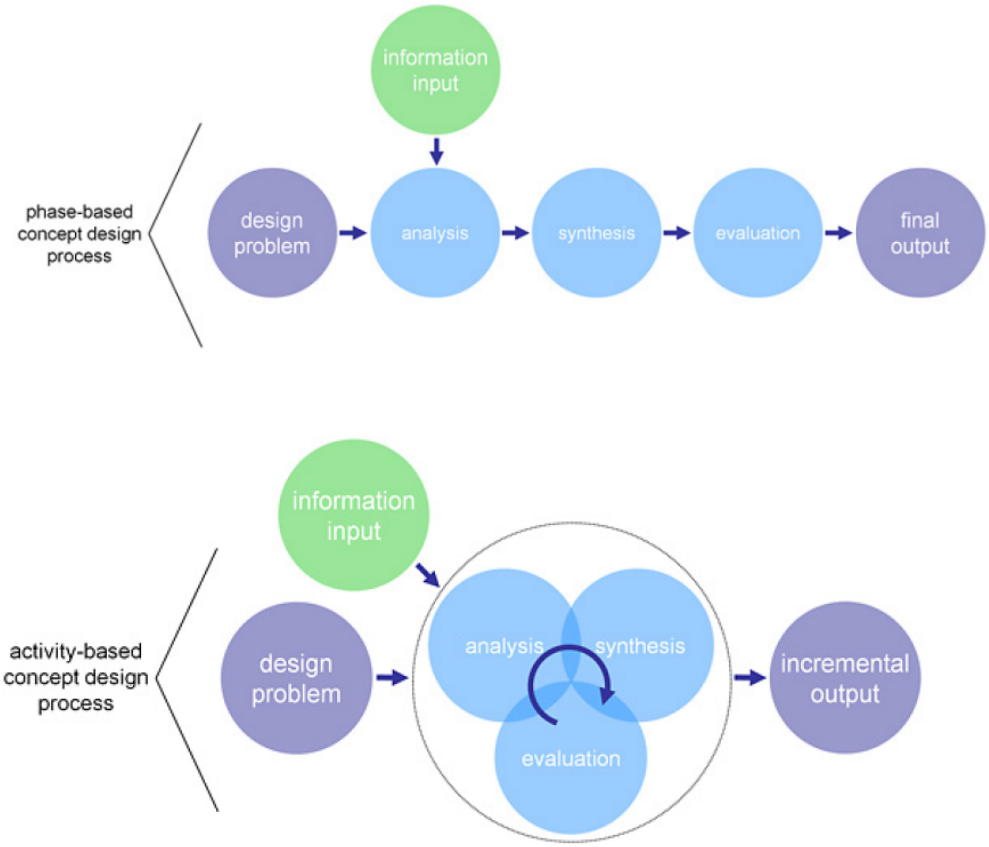


Figure 2.3Wodehouse & Ion's interpretation of a phase based 'linear' process Vs an activity based design process (Source: Wodehouse & Ion 2010).

Wodehouse & Ion (2010) show information input in two key parts of the design process. First in defining the design problem, which is similar to the *Fuzzy Front End* concept. The second phase of information input looks at analysis, synthesis and evaluation collectively. From the different kinds of information discussed earlier in the chapter, it appears that these can be applied at all stages, however these also are context dependent. Zeisel's "Image information" seems to apply to a phase between the design problem and synthesis stages, since it acts as a catalyst to generate an image of the final product, though not a resolved one. The design process until its completion stays a process of information input. Towards the completion of the project, the knowledge gained from searching for problems and solutions and learning about them, all contribute towards a wisdom that the designer is now equipped with to apply to a future problem. In this way, the process is not only about using information but also about producing information.

Using a more evidence based approach of sourcing and analysing information and data at an early stage of the project can influence the subsequent design stages and proposals substantially by providing more credible rationale. Objective evidence can be collected by tangible means of observation and analysis of the spatial characteristics and at a more complex level by conducting a variety of spatial analyses and by documenting intangible evidence such as people's perceptions and emotional responses that trigger activities and behavioural patterns.

Wodehouse & Ion's model of the conceptual design process is useful to summarise the relation between the design process and the role of information in it. Conceptually, while the external influence on each design process is unique such as its context and specific design requirements, the internal process of decision making remains generic – a process of 'analysis, synthesis evaluation'. The role of information in the design process is therefore, to as accurately as possible capture this external influence to be addressed through the design decision making process. The role of evidence in qualifying such information therefore becomes important to ensure a rational and well informed design output.

Evidence in Planning and Design

Evidence based practice has its conceptual roots in the practice of evidence based medicine, owing to an observed lack of evidence use in doctors' medical practices, and continues to focus largely on healthcare. David Sackett, a pioneer in Evidence Based Medicine defined Evidence based practice as "the conscientious, explicit, and judicious use of current best evidence in making decisions." (Sackett et.al. 1996), where expertise and proficiency is combined with best available evidence and systematic research. While the term 'evidence based design' is fairly recent, design research practice has involved the use of data and factual information to support practice since as early as the 70s as in the case

of William Whyte's study of public plazas, where spatial mapping was one of the key methods to document spatial use (Whyte 1980). His research on the social life of public plazas involved mapping layouts of public spatial use, including categorising types of interactions as one of the key observation data type, to analyse the social character of these spaces. Statistical data gathered by means of surveys and questionnaires have often been used as 'credible' data to support design decision making in large scale developments.

Evidence is more than mere facts and data, and, comes in multiple forms and a variety of sources. Data and information when used in combination with other facts to prove or disprove an argument qualifies as evidence (Krizek et al 2009) by generating knowledge, which is "a larger theory of the ways in which certain types of information mesh with other kinds of information in a social learning context in which knowledge is jointly created" (Pahl -Wostl & Hare 2004) (Ibid. p.466)

Bohme (2002) argues that the multi natured quality of evidence varies from strictly academic to "more or less quantifiable" and can be placed under three broad categories - *Personal, Formal,* and *Systematic knowledge,* which are a mix of qualitative, quantitative, objective and subjective evidence. Personal evidence is informal knowledge, based on experiences of the expert or lay observer including anecdotal information. Collectively, anecdotes of people's experiences repeated over time describe an existing phenomenon. Formal evidence is more theoretical or empirical using rigorous study focussing on a specific context and problem and can be both quantitative and qualitative in nature. The last category is that of systematic study, of a much larger scale. National research council reports are an example of systematic studies.

In the context of design and this thesis, it is important to analyse evidence under two key points – nature and role of evidence in the design context, and role of the designer and user in contributing and applying evidence to decision making.

Evidence based practice in the context of design, as compared to its originating discipline of medicine, is less grounded, scientific or systematic (Sailer et al 2008) due to the unique socio-spatial relationships in each case. Therefore, such evidence cannot be studied/collected in a controlled environment due to its constantly changing nature, but only as these socio-spatial interactions naturally occur. Additionally, as in the case of medicine, where decision making requires knowledge of the human body and its pathogens, design decision making requires evidence of the 'nature' of space in terms of its physicality (objective spatial properties) and the various interactions within, which are both objective (can be observed and quantified), and subjective (driven by individual perceptions and experience) in nature.

Hamilton (2004) in *Four levels of Evidence Based-Practice* describes the role of an evidence-based designer as someone who makes decisions, with an 'informed client', based on the best available information from credible research and evaluations of projects to draw rational inferences about design. However, in public spaces the client is not the end user, but a representative, and the user is no longer a private client, but multiple users. In such a setup, the architect positions themselves and using intuition and experience, addresses the needs or what they (architects and paying client) believe these needs to be. Still, however, as discussed above personal knowledge of users of public spaces, in the form of experiences and perceptions, while subjective, qualifies as evidence and local knowledge. Participatory approaches in architecture (Sanoff 1990; 2000), design (Sanders 2005) and regeneration (Hester 1987; Wates 2014; Savic 2015) have been used to capturing user-based information, often subjective, qualitative but potentially quantifiable, to substantiate environmentally and socially just decision making. Natarajan's (2015) study on community knowledge in participatory planning presents community (user) knowledge as 'community evidence' that differs from that brought by professionals, and that such local knowledge has a distinctive spatiality that has a unique role in spatial planning and design.

Therefore, evidence in design practice needs to address space, its use and the user as an intrinsic part of the design process and its outcome. While user needs, culture and experience, which also qualify as *personal knowledge*, address one aspect of the urban

environment, the complexity of both the social and spatial nature of urban environments cannot be addressed through user based personal knowledge alone and requires a more concrete research evidence base that addresses the objective and subjective nature of the environment, through a mix of formal and systematically sourced knowledge, relevant to the design issue at hand.

Professional expertise combined with research and the systematic integration of different data and information as well as the community voice, can on one hand, contribute towards producing needed evidence to drive a better, more informed, design process and outcome. On the other hand, such an approach tries to bridge the gap between practice and the user.

In addition to its role in contributing to the design process decision making, evidence also has a role in evaluating design outcomes. In a traditional design process, typically, the professional's role ends when the project ends and they have no liability or accountability for its use or performance (structural failures are exceptions) after construction. Evidence has an important role in offering accountability to users and the community who live through the outcomes of the decision making, through a post implementation study. This also addresses a larger ethical professional issue. Whilst design projects are assessed and evaluated based on professional or peer reviews, there is no system to express accountability to the users. Evidence showing the difference in use patterns as observed and user satisfaction can ensure that professionals and developers are held accountable for the decisions made.

Despite the acceptance of the idea of people being intrinsic to places and therefore participation in design being established and assumed as fundamental, current use of 'research' and 'evidence' in design practice shows that a 'people-design process' gap still exists. Challenges raised by applying these methods, such as time and cost, contribute to this gap persisting in practice.

A study conducted in 2013 (http://ebdjournal.com/blog/general-design/the-knowledge-problem#fnref2:3 EBD Journal accessed 2014) surveyed 420 professionals from

architecture, urban design, urban planning and interior architecture. The study found that while 80% of respondents perceived a need for explicit data gathering, on average 68% of respondents never, or only occasionally, review socio-spatial research literature. On average, 71% of participants indicated that they never engage in post-occupancy analysis (POA) of completed projects. 37% of all respondents stated the reason as lack of client interest or funding to cover the cost. Those that did undertake these POA were self-funded.

Like many other approaches to design, evidence based practice is only a supplement to existing practice not a substitute (Marris 1997; Sager & Ravlum 2005), with roadblocks and limitations that need to be taken into account. Evidence driven practice requires more time and cost to source data and information and analyse it. Post occupancy or implementation evaluation is almost never accounted for in project budgets (Wates interview 2012; EBD Journal 2014) neither is evaluation of design taught as part of formal design education.

Other common issues with using evidence are its accessibility, willingness of the professionals or client to use, interpretation of different types of evidence, application, sometimes conflicting outcomes and reliability.

While planning and design traditions have in the last three decades seen an increasing demand for a user inclusive culture of practice, existing design and planning practice is still struggling to give the user a meaningful and significant role in its processes, as is discussed in the last section of this chapter on 'trends and challenges in participation' and the role of the user and the professional in the design process. By using community as a source of local knowledge and subjective evidence, the design process offers the user a concrete role in contributing to decision making.

Since evidence is a combination of data, information and application in a specific context to validate decisions, the abundance of information but lack of reliable research can raise difficulties in selecting the right evidence to use (Pfeffer & Sutton 2006).

Whilst there are no set or definite methods to address evidence in design, a mixed method approach is suggested (Tashakkori & Teddlie 2003) to construct strong evidence that addresses all related issues, by studying space in relation with culture, behaviour and use patterns. This can be a combination of quantitative and qualitative data and information and scientific theory. As for example, in the case of urban space study a combination of methods such as cognitive theories, social network analysis, ethnographic spatial observations, questionnaires along with engagement can help make a sound case for interpretation and better informed design solutions, rather than being merely driven by individual experience, preference, intuition or bureaucracy.

Approaches to the Design Process – Spatial Analysis and User Engagement

This section critically discusses theories and approaches to urban design at a macro or systemic level with an overview of the city as a complex system; how this complexity can be understood as manifested in the relationship between space and human interaction, particularly as spatial human behaviour in space (spatial use) and human experience and perceptions of space.

As discussed earlier, while there is no universally agreed process or sequence of activities that defines it, the design process can be regarded at its most abstract as essentially an iterative process of information exchange that is based on a continuous cycle of input and output, where each activity consists of certain kinds of information processing, through a continuous process of "analysis, synthesis and evaluation", each stage resulting in an incremental informational output that is then further refined (Wodehouse and Ion 2010). Human *behaviour in space* and human *experience of space*, as key properties of the urban environment, if captured as *behavioural and experiential evidence* through appropriate methods, can serve as critical sources of information, helping to both inform design and to assess design outcomes.

In particular, Spatial Analysis and User Engagement are identified as specific tools which urban design practice can use to capture, analyse and understand the 'human behaviour' and respectively, 'human experience' aspects of the urban environment.

The diagram below illustrates the key concepts and influences on the design process to address the socio-spatial relations in urban design analysed in this literature review.

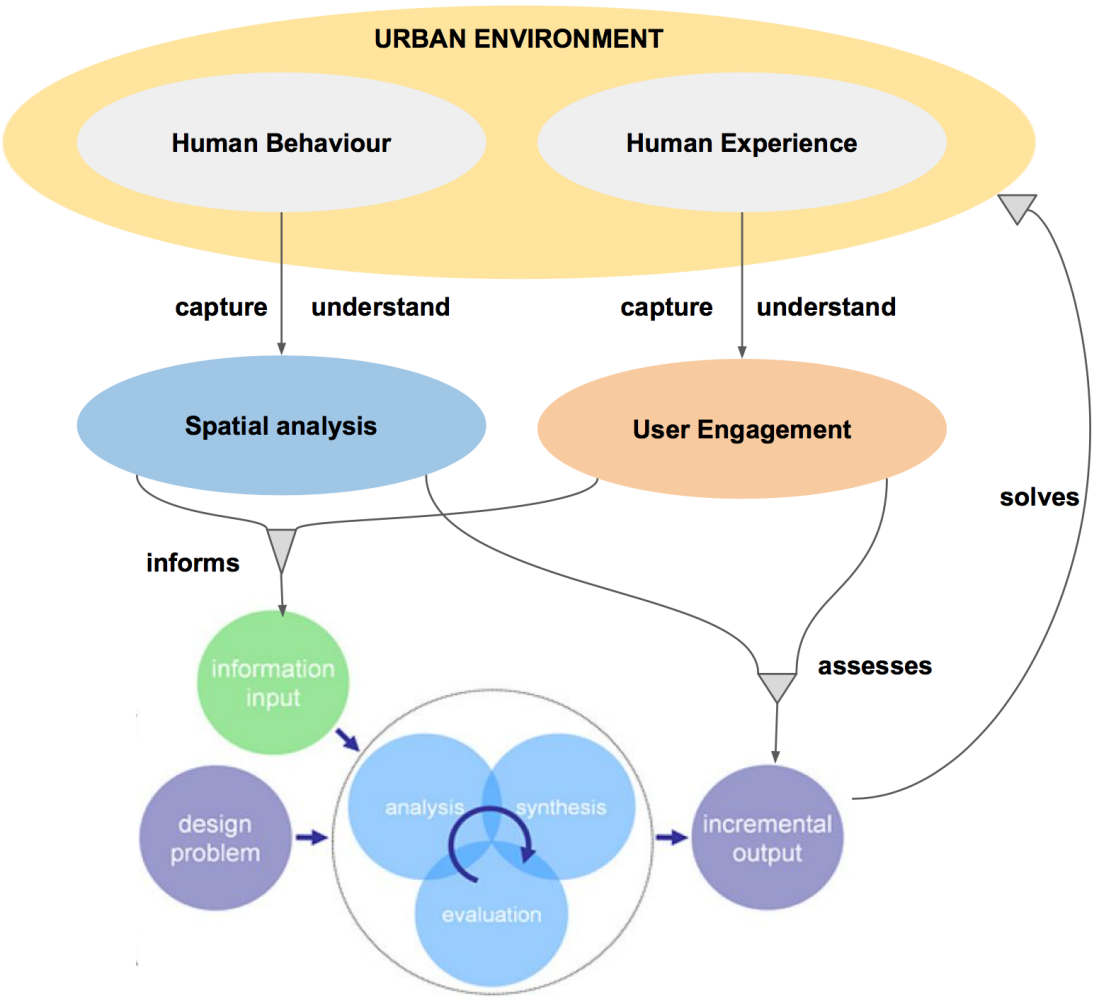


Figure 2.4 Concept map of 'behaviour' and 'experience' aspects of urban environment as relating to the view of the design process adapted from Wodehouse & Ion (2010) [Source: Author]

The Bigger Picture: Cities as Complex Systems

Cities are built on the dynamics of a complex set of interrelations between society, people and space (Lefebvre 1974) where society contributes to the production of space as well as is influenced by it. Warren Weaver's study on complexity (1948) describes scientific problems under three categories - 'Simplistic' (problems that were based on only two variables), 'Problems of Disorganised Complexity' (those that had a large number of variables but can be studied statistically); in between the two is what he called 'Problems of Organised Complexity' ('problems which deal simultaneously with *a "sizable number of factors which are interrelated into an organic whole."')* (Weaver 1948, p.5). Citing Weaver's study, Jane Jacobs described the city as an organised complex system that is self-organising by nature, relating the evolution of cities as a bottom up process in response the top-down urban movements of the 19th and 20th century, to planners' interpretation of the city as a *simplistic* problem or as *problems of disorganised complexity*. In order to better understand what makes a city, a problem of organised or disorganised complexity, it's worth considering what a complex system is. A system is made up of number of elements, each of which is linked to many other elements forming connections, networks and interactions. It is the number and nature of these interactions and the effect that it causes that builds complexity. These elements and interactions are further discussed by Portugali (2011) in his book *Complexity, Cognition and the City*, where he describes the city as a system with dual complexities. Firstly, cities are comprised of two kinds of components, material components (such as buildings, roads, bridges) and human components (people). Secondly, the city is shaped by the numerous interactions between people, and once it emerges, it influences the behaviour and interaction of these people. Third, it is the outcome and the media of human interaction. Last, while the city is a complex system, each and every human being is a complex system in itself owing to their individual cognitive capabilities. Since the production of space is an endogenous process, a by-product of the behaviour and interaction of individual urban agents or humans, these micro changes multiply over time leading to change and emerging patterns, causing a city to grow and evolve - a 'bottom up' action.

Additionally, Portugali based on Shannon's Information theory (1948), which discusses the role of information in communication and has also been used in understanding communication in cognitive sciences (Gleick 2011), derives two types of information to analyse the human-environment interaction. This interaction can be described in terms of deriving information from the environment and interpreting it into meaning. Shannon describes this information as *objective* or *syntactic* and subjective or *semantic* where the meaning of the information interpreted depends on the receiver influenced by their personal and collective contexts.

As such, to address the complexity of urban environments through design, it is both the material and human components that need to be addressed in terms of their interaction. The human-built environment interaction should be addressed in terms of inter spatial relations through the objective or syntactic environmental information, as well as how people use these environments (spatial use behaviour) by analysing their interpretation of the objective environmental information present and their subjective meanings drawn, in short, the human experience of space.

Space and Human Interaction

Harold Proshansky, one of the pioneers in environmental psychology, argued that "the physical environment that we construct is as much a social phenomenon as it is a physical one" (Proshansky et al 1970, p.5). Willy Hellpach (1911), whose work shows the first mentions of a relation between psychology and the environment, discusses three key influences of the human mind - influences of the natural, social and historical-cultural environment. Since Hellpach's work, while the link between architecture and human behaviour and psychology was made, it is the works of theorists and urbanists such as Kevin Lynch (1960), Jane Jacobs (1961) and Lefebvre (1974) that became seminal in their influence, in their emphasis on the symbiotic relationship between how people perceive and use space such as Lynch's (1960) concepts of cognitive mapping and imageability or, Jane Jacobs' influence in understanding space through social use and structure.

The relationship between environment and humans is an interactive one where the mind perceives the environment, draws meanings and interprets these into intentions for actions that are a response to the environment contributing to change in the environment. This form of communication between people and the environment has been described by Lawson (2001) as a global language that is more significant due to the proportion of how much and what we communicate through space. Examples of this global language are evident in the ability of people to distinguish between public, private and communal spaces, or spaces for rituals (churches, temples and cemeteries), whose meanings are understood by all despite social and cultural differences. Whilst this description is correct, it is incomplete. Interpretations of perceived information are not always the same for everyone. Krupat's (1985) model of interaction highlights this difference by distinguishing between a 'public image' of space and 'personal image', where personal images are derived from the characteristics of the individual himself or 'identity', which is a result of their own life experiences and feelings, situated in a complex network of social and cultural relations.

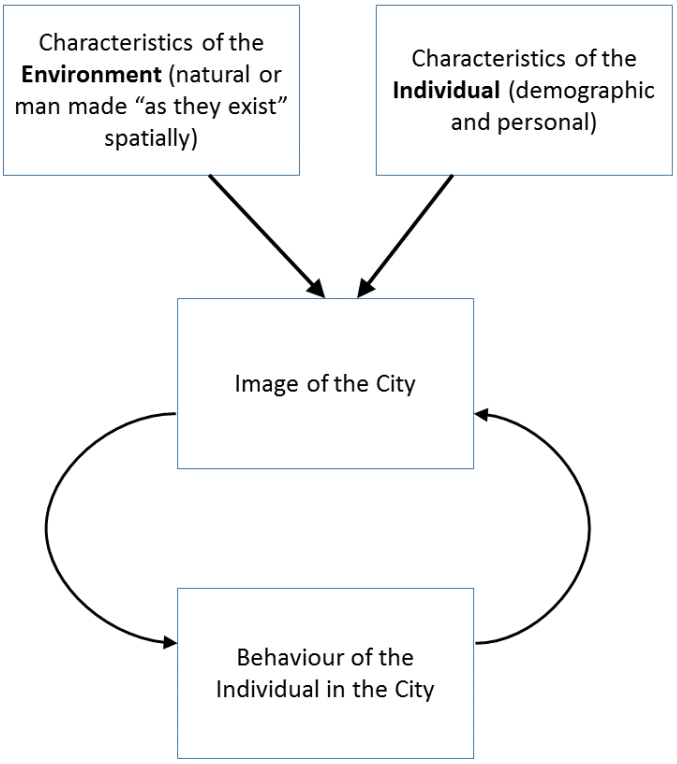


Figure 2.5 Krupat's (1985) model of interaction

Imageability, has been largely used by urban designers in designing urban spaces, but often focus on the public image of a place. In order to understand how an individual's imageability and the city affects pattern of behaviour, it is this personal image derived from individual experiences that needs to be considered. From this point of view, highly imageable cities are therefore high in satisfaction and less distorted in *mental maps* (Lynch 1960) because people relate to them. This idea of personal image, and identity is congruent with the concept of semantic information (Shannon 1948; Portugali 2016), where semantic information is processed as meaning unique to people's individual experiences, such as emotions, association, memory and feelings. Krupat's model of interaction is therefore useful in capturing and emphasising the need to understand urban interactions and the city itself as a balance of the objective, factual, as observed nature and structure of the city (urban environment) with a subjective meaning attached.

Human-spatial interaction, such as movement across the city, while made up of individual experiences and decisions situated locally, taken collectively creates a coherent pattern across the larger urban structure. This phenomenon has also been discussed as *emergence* by complexity theories. Phenomenology explains this as individual interactions of the human mind in space and time, interpreting meanings as perceptions and individual identity - "lived experiences and subjective feelings associated with everyday consciousness" which are also "embedded in wider sets of social relations" (Massey and Jess 1995, p.88), and in that respect, reflecting group or collective identity, which in turn gives a place its own identity. Massey and Jess (Ibid) have related 'sense of place' to personal feelings, which are a result of individual experiences, and that "senses of place pervade everyday life and experience" (p.88). Spaces become places when "infused with meaning and feeling".

In summary, space, behaviour, perception and experience are all interrelated and any one of these cannot be discussed in exclusion from the rest (Fig 2.6). These share an interdependent relationship in the existence of places. Trying to understand the city without considering people's experience and perceptions would deprive the interpretation

of the place, of its unique identity and sense of place (Massey and Jess 1995). Studying experiences alone to understand spaces and places would imply ignoring the various patterns that exist at a global scale as a collective, which individual experiences and locally perceived information cannot account for. Behaviour can form spatial patterns at a larger urban scale, however these are a cumulative result of the individual experiences situated locally. The qualitative non-observable descriptions of space, thus define the quantitative observable patterns of the city.

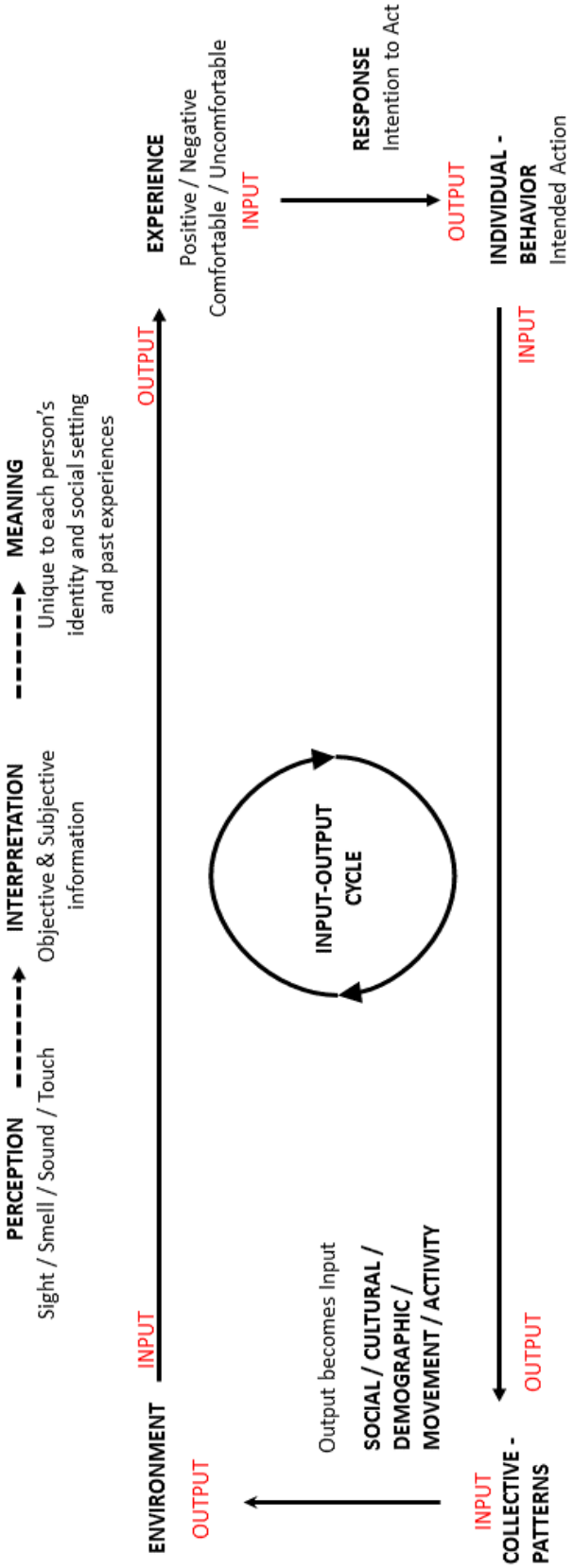


Figure 2.6 Author's Interpretation of People – Environment Interaction (Source: Author).

In order to understand cities and the spaces within, it is essential to study the complexity of the interrelatedness of space and human interaction. Therefore, such a socio-spatial investigation needs to address the relations between the physical spatial form, meaning, experience and resulting behaviour.

The following two sections: 'Understanding Behaviour through Spatial Analysis', and 'Understanding Experience through Engagement', introduce and discuss 'spatial analysis' as a design approach to understand spatial behaviour, with a focus on Space Syntax theories and methods of spatial analysis; and 'engagement' in design as an approach to better understand people's experience and perceptions that result in such behaviour.

Understanding 'Behaviour' using Spatial Analysis

Behaviour, defined as "the actions by which an organism adjusts to its environment" (Gerrig & Zimbardo 2002), relates to human physical responses to the built and unbuilt space, the physical and non-physical environment, and in relation with other human beings. Behavioural patterns exist at both local and systemic scales. Local patterns are formed as responses to the immediate context such as sitting, standing, conglomeration in certain parts of a public space, favouring specific locations within the space over others. The effect of larger systemic processes on behaviour can be seen through movement across a spatial network from any space to any other space in the system, driven by the configuration of the larger urban structure resulting from natural movement[1].

The influence of space on how people behave, over the last forty years, has been a subject of study for social scientists, psychologists, urbanists, planners and designers, developing into a discipline in itself - Environmental Psychology. However, a large part of behavioural studies has remained limited to research and has seen little translation into design practice. Spatial Analysis, as a more practical approach to document local and large scale data on spatial use, has increasingly become used in forecasting urban transformations by analysing the way people use urban spatial networks. The following subsection analyses the role of spatial analysis tools as an approach to explicitly address behavioural aspects of the urban environment at the larger scale as well as analysis of spaces at a local and more intimate scale. Additionally, Space syntax theories and tools are used as an example of spatial analysis tools and are critically discussed to show how these contribute in documenting and analysing spatial use behaviour.

[1] Natural movement is the proportion of urban pedestrian movement determined by the grid configuration itself (Hillier 2007)

Spatial Analysis

Spatial analysis in wider terms is an approach involving the examination of data with attribute information and locational information associated with it in order to determine spatial patterns. Spatial data has properties of space, time or both space and time. Undertaking spatial analysis involves using this space-time reference to better understand the process(es) that generated their attribute values, and usually includes numerical or quantitative data or quantifiable qualitative data. Spatial analysis usually discussed in the context of Geographic Information Systems seeks to identify and explain patterns and processes of spatial human behaviour by breaking down large quantities of data to smaller sets of meaningful information. It allows the analyst to explore and visualise data, create subsets and stratify data based on a set of meaningful criteria, comparing attributes and parameters, and apply the analytical findings to test a hypothesis. Spatial data and analysis representation can be 2D (maps), 3D (graphs) and 4D (simulations). While spatial analysis has usually been applied digitally, data scientists have been increasingly looking at creative ways of integrating contextual and qualitative information in the analysis (Oyana & Margai 2016). It also provides a framework in which predictions can be made about the spatial impacts of various actions (Oyana & Margai 2016).

Some of the earliest references of using spatial data analysis is that of John Snow's seminal work on deriving spatial patterns by analysing the data on the outbreak of cholera in London in 1854 (Snow 1855). Spatial analysis started to gain prominence in the 50s and through 60s and 70s, a time described as the quantitative revolution, getting greater recognition amongst geographers and spatial scientists towards the 90s.

Collection of spatial data is a critical a part of conducting spatial analysis. Due to the nature and complexity of naturally occurring phenomena and interactions that take place between people and their environments, a controlled and experimental approach to data collection

is not feasible. Logical positivists[2] believe these interactions should instead must be directly observed or strategies be devised to make such observations to validate research hypotheses. Whilst primary data is considered ideal, increasing availability of secondary data sources has widened the variety of spatial analyses that can be done using software.

The Spatial analysis approach applies the DIKW hierarchy of information (Ackoff 1989), discussed earlier in the section on 'Information in the Design Process', collecting and collating datasets to break it down to meaningful sets of information, which through the process of stratification and testing for hypotheses and theories derives new knowledge and collective wisdom to contribute towards developing theories and socio-spatial mechanisms of the environment.

As a tool, spatial analysis requires a level of specialisation in terms of skill sets, tools, methods and analytical abilities to determine distribution patterns that are captured as part of spatial and temporal data contributing to an evidence informed reasoning. Spatial analysis procedures can be *inductive, deductive or normative.* Inductive analysis examines evidence to derive patterns supporting new theories or principles. Deductive analysis tests known theories against data; and normative analysis allows to develop and prescribe new theory.

Spatial analysis and especially GIS due to its graphic and visual representation of complex data has increasingly become part of engaging with end users in collecting and manipulating local data (Goodchild 2007). There are several spatial analysis tools that have

[2] Logical Positivism: A way of thinking that evaluates the truth or falsity of empirical knowledge/cause and effect statements; must be verifiable. (Oyana & Margai 2016)

been developed under the larger umbrella of Geographic Information Systems to analyse and explore large datasets within the urban spatial network. Some of these include ArcGIS tools, Urban Network Analysis tools developed by the City Form Lab at MIT and the Space Syntax theory and methodology developed at UCL. To better understand the application of spatial analysis in addressing spatial behaviour, the following paragraphs discuss the use of the latter, as a representative spatial analysis tool. Space Syntax has particularly gained prominence in the recent years as an evidence based spatial analysis tool in the field of urban design and network analysis, that brings both social and spatial theory together. It has adopted an empirical approach that relies on complex data analysis, simulations and modelling, as well as more traditional methods such as ethnographic observations.

Using Space Syntax methodology as a spatial analysis tool

Space Syntax theories are a set of evidence based theories and methods that focus on spatial design analysis. Started in the 1970s as a research group at University College London, the research developed by the Space Syntax Laboratory has been extensively applied to real world practice. The research group eventually formed its commercial company, Space Syntax Limited. Space Syntax Limited have collaborated with renowned architectural and urban design practices in the world and their work is evident in urban design, architectural scales and interior spatial layouts such as working environments and hospitals. This section analyses the theories and measures of space syntax to understand the principles these theories are based on, how these use 'evidence', and what are its benefits and limitations.

Space Syntax theories aim at explicitly describing the relationship between the built-environment and the behaviour of those affected by it. Hillier & Hanson (2007) point that the problem with architectural research, lies in its 'either – or' approach of discussing architecture *either* in terms of its *form*, where architectural variables are defined in terms of the relationship between architecture and their mathematics, but little regard of

behaviour, *or* in terms of *human behaviour*, where architecture is seen in combination with social science as the dominant perspective and the accuracy of architectural variables in a weaker role. In order to understand how the built environment affects human behaviour, it is imperative to understand this relationship between the built environment and human behaviour.

This behaviour embedded in the spatial structure of cities is absorbed in the form of social and cultural information of the different elements of the city, a view initially emphasised by Jane Jacobs (1961) through her work on the *Death and Life of Great American Cities*, where she discusses the society as a structure for space. This embedded information forms a 'morphic language' that borrows properties from both mathematical language and natural language and constitutes the social in its language or syntax (Hillier et al 1976). The spatial manifestation here is not in terms of individual buildings or spaces but their relations. "Architecture does not 'create space' but patterns of related spaces" (Hillier & Hanson 1987, p. 198) Therefore, to understand the effect of spaces on behaviour, one must first describe and analyse these relational patterns.

Space Syntax theories have therefore developed measures to be able to decipher these existing patterns which can then be used to understand how the spatial layout impacts behaviour and spatial use, and in this way allow existing spaces to be improved and future spaces be designed grounded on evidence. Spaces are described not in isolation but analysed as part of a larger urban structure and the relation of each space with every other space in the urban system or the urban spatial configuration (Hillier 2007). The concept of configuration is centred around the understanding that while a city as a system is made up of a number of elements (buildings, bridges, walls and such), these elements are all held together by a network of free space. This network like veins allows free flow of movement, the lifeblood of a city. Movement is analysed as governed by the theories of the natural movement. This free space is deconstructed further into segments where each segment can be seen from a single point of observation. This lays the basis for the cognitive mapping and modelling for space syntax methods of analysis. Space Syntax uses mathematical correlations to assign values to the various types of relations.

It should be noted that in a Space Syntax analysis, spatial configuration is described by the arrangement of free space not built blocks. Building blocks here are treated as obstacles. To analyse the configuration of the spatial structure and measure these various relationships, the built environment needs to be modelled. This is done by modelling the free space that holds together buildings and physical elements of the urban landscape. The longest and straight, unobstructed lines of sight are then modelled through this free space network. These are known as axial lines. These form an interconnected network of single straight lines. This graph can now be interpreted in terms of nodes and edges, where each axial line is represented by a node, and each edge implies a change in direction. This can now be used to determine hierarchy in spatial organisation and be used to determine the integration values for each line. Integration values suggest corresponding pedestrian movement flow along those lines.

Socio-spatial relationships (in space syntax) can be described by analysing the urban structure under two broad dimensions of the urban system. The first dimension is based on the two components of any settlement - *fixed* and the *dynamic* or *moving*. Fixed elements are the spaces and built form, and the moving components are humans that move around and within them. Therefore, an urban system has both *static* and *dynamic* properties. The second dimension is that of the topological distance[3] of a space from other spaces. This gives it *local* and *global* properties (Hillier et al 1987). To measure these properties, Space Syntax has developed a variety of measures. These are a set of primary

[3] Space Syntax uses topological measures instead of metric, where distance is defined by the number of turns taken to get from one point to another.

or most important measures, and a set of secondary measures that are drawn from the correlations between the primary measures. The primary or first order measures are, 'connectivity' or the 'local state' measure; 'Integration' or 'global state'; control' or 'local dynamic'; and 'choice' or 'global dynamic'. Connectivity is the local connectivity of a space to the spaces immediately next to it, that is, only one step depth[4] away. Integration or global state indicates the connectivity of a space to all other spaces in the urban fabric. Control, or the measure for local dynamic, is the degree of choice people have to move into the space from its immediately connected space. Choice, or the measure for global dynamic, is the choice people have to move into or through the space from any other space in the system. The second order measures are the relations between these first order measures. These are *intelligibility* or the relationship between integration and connectivity. Intelligibility defines the property of a spatial layout that allows people to decipher and move through it. The higher the intelligibility of a space, the easier it is to navigate and the better the wayfinding. Intelligibility is a critical factor in moving about city spaces. A correlation between the global measures of choice and integration describe the degree of accessibility to a space and more specifically its potential for *to* and *through movement*.

It can therefore be seen that to analyse spaces using Space Syntax theories, the most important function is *movement* - local or global, dense or scarce. Integration is considered as the most important measure for understanding pedestrian movement patterns in and around space and can almost accurately predict these patterns. The level of movement is indicated by the degree of integration, primarily by global integration (i.e. the connectivity of a space to all other spaces, with a step depth of *n*) and then by local integration (i.e. the connectivity of a space to its immediate spaces, with a step depth of *1 or 2*) and other attractors. This is a computer generated two-dimensional model that indicates the 'local

[4] Step depth - Depth in the analysis means the number of changes in direction from one movement line to another along the shortest routes.

spatial integration' levels in the pedestrian movement network. In the Space Syntax methods and measures, spatial integration values are the most important influence on pedestrian movement levels in any town or city. The local integration map describes the 'walkability' of the area by reflecting the way in which pedestrians move to and through the area.

The underlying theory to implement these measures of movement analysis, is the *theory of natural movement*. This suggests that movement is a result of the spatial configuration of the urban fabric, and that the presence of land use and other attractors is a result of this movement and not vice versa. However, when high movement attracts land use, this in turn attracts more people. Thus, creating a *multiplier effect*. (Hillier 2007)

While the measures above have discussed accessibility and probability of route choice, there are other factors that contribute to spatial use and interaction. These are *visibility* and *encounter.* Visibility of the space and from the space shows the level of visual exposure from different entry points, which can be measured using *Isovists* or a *Visibility Graph Analysis (VGA)* (Turner 2001). An Isovist, is "the area in a spatial environment directly visible from a location within the space." (Turner et al., 2001, p.103), and helps understand characteristics such as enclosure, visual accessibility, and visibility from outside the space. A VGA is a visual accessibility graph representing the different levels of visual accessibility, where the highest accessibility areas are represented by red ranging to lowest (segregated) represented by blue.

The spatial modelling and visibility studies described above are analytical methods used as part of the Space Syntax methodology. Ethnographic spatial observations are also a large part of the Space Syntax approach. Ethnographic spatial observations, used first by William Whyte in his study of public plazas in the 70s and widely popularised by his work on *The Social Life of Small Urban Spaces* in the 80s, are used extensively in gathering spatial data and analysing it later in parallel with the movement network analysis discussed above. This data adds another layer of social and behavioural study and gives a deeper insight and evidence of local spatial use and behavioural patterns. These include pedestrian counts at different observation points on the study site, route traces that involves discretely

following people from a given point for a fixed period of time or until the pedestrian has left the site, whichever is sooner. These are done at different key times of the day and on weekdays and weekends to understand pedestrian movement flow and its variations across time. Other kinds of observations are snapshots, depending on the size of the space being observed. In snapshot observations, the observer captures the various activities going on in the space, such as, standing, sitting, talking, walking, and documents this as a snapshot on a plan. This is also documented across different times of the day to understand local behaviour. This method is more suitable for building spaces and small urban spaces.

There have been ample studies on successful urban spaces and public squares that have been qualitatively researched and presented in terms of the behavioural signs exhibited (Whyte 1980), their social qualities (Project for Public Spaces 2016; CABE) and experiential descriptions (Jan Gehl 2010; 2011; 2013) of these successful public spaces. These studies mostly describe but do not define or provide a way to measure these qualities. The application of the Space Syntax methodology is aimed at understanding how such a methodology, which consists of advanced measures modelling as well as simplistic spatial observations can be used to add credibility in terms of 'evidence' to an engagement led approach. These data, analysis and correlations define various aspects of space in relation with its immediate or larger urban grid, mapped out and represented by a spectrum of colours (from red to blue, where red represents a higher value and blue a lower value) that each indicate these properties, which can be read as patterns. While the calculations and correlations of these techniques require some level of technical expertise, once transferred onto a map as patterns, these can be read, interpreted and understood by non-experts.

Criticism of Space Syntax

The quantitative perspective of Space Syntax theories has often been a subject of debate for being too technical and simplification of the city's structure in terms of the "hidden role of its geometry" (Hillier 1999). Space Syntax has been criticised for its reductive or "one-

dimensional" approach that reduces the *social* to patterns of encounters, ignoring other influential factors such as politics, power, culture and potentially many more (Lehtovuori 2010). Lehtovuori (2010) also argues that the use of single measures such as 'integration' cannot forecast properties such as movement which is dependent on other variables, and thus one measure or a single explanation (natural movement) cannot account for multiple and variety of influences. This has also been echoed by Ratti (2004a) in his paper outlining *Inconsistencies in Space Syntax.* Other concerns raised include Space Syntax's use of topological distance, while ignoring metric information, building heights and three-dimensional information, which are some of the many variables determining movement.

David Seamon (n.d) in his book review of *Space is the machine*, speaks from a phenomenological perspective, highlighting the achievements of Hillier's conception of society as a function of configuration and not individual spaces, and his theory of social existence affected by global structures. He also echoes Lehtovuori and Ratti's arguments on Space Syntax's reductive approach as 'structuralist' and 'positivist' in reducing the explanation of all qualities and experiences of the city to a mere understanding of the physical environment and configuration. From a phenomenological perspective, Seamon views space syntax theories as minimally aimed at understanding what its spatial measures mean for every-day life.

From the different critical literature reviewed about Space Syntax theories, the perspective of the practicing architect by Dine (2003), and Seamon's phenomenological perspective of the methodology's weak response to people's everyday life, are of keen interest to this thesis. Dine (2003) compares space syntax concepts and approach with the way architects practice design and argues that the difference between the two is in the presentation of these techniques. He describes architects' thought process as vague and relating to quality of experience. He draws on some of the concepts from space syntax theories and relates these to how they might be presented in a way that better fits the architect's way of thinking design, highlighting the need for a better interface between practitioners and the methodology.

By integrating space syntax methods with engagement, this thesis attempts to address two of the limitations of space syntax - first, relating to its limited approach to the multiple non-physical variables influencing behaviour (Lehtovuori 2010); and second in exploring how methods such as space syntax could not only be interpreted by architects exclusively (Dine 2003), but also become part of community engagement approaches to design to achieve a more holistic response to urban design.

Being a physical response to the external environment, behaviour can be observed, mapped and even simulated using software. If space facilitates social interactions, which in turn lead to modification and production of space (Lefebvre 1974), then measuring spatial relations and social interactions can help further understand the correlations between space and behaviour as the discussion on spatial analysis and space syntax theories have shown. Following the theory of natural movement, it should be sufficient to analyse the spatial configuration and local properties of the space to understand its performance. But, the question arises, what makes people choose to interact with and within these spaces, when not driven by the spatial structure as pointed by Lehtovouri (2010). The study of spatial configurations does not tap into the personal or emotional responses to spaces. This brings the discussion to the next concept - *Experience*.

Understanding 'Experience' using Engagement

Experience is defined by the Oxford English Dictionary as "The fact of being consciously the subject of a state or condition, or of being consciously affected by an event. Also, an instance of this; a state or condition viewed subjectively; an event by which one is affected" or "knowledge resulting from actual observation or from what one has undergone"; in its verb form, experienced is defined as "to have experience of; to meet with; to feel, suffer, undergo." (Oed.com, 1959).

Experiences reflect the quality of life in a space, either associated with feelings of inclusion, where people feel positive, welcome, secure and comfortable, or that of exclusion, which are associated with feelings of discomfort, reluctance and avoidance. Experience, unlike behaviour patterns, cannot be observed as a non-participant. These are meanings drawn and associations developed, or the semantic information (Shannon 1948; Portugali 2011) drawn from the environment. This is personal information (Shedroff 1999) that every individual interprets into how they feel and associate with a space, which in its collective form such as at community levels, becomes key local information (Ibid). Such information, implicit in the built environment and uniquely received by each user, requires to be made explicit to the designer, for it to be acknowledged in its design interpretation, and this is where the role of user engagement becomes vital. This information interpreted by the local user forms local knowledge and gives space a sense of place. It is argued that to achieve a deep understanding of local knowledge and a sense of place, to address the aspirations, expectations, past, present and future of the users of the place, these users need to be directly engaged with in the design process.

Participation in design: models and theories

Since participation is a fundamental premise of the approach to an urban design process proposed by this thesis, it is valuable to consider the evolution, as well as the current state of its practice. This is investigated by reviewing three seminal models of participation that have influenced the practice of engagement in planning and design. These models can be used to understand and assess the level of influence and involvement of the user, as well as the elements needed to ensure that the process is meaningful. These are: Arnstein's *Ladder of participation* (1969), which was the first model of citizen participation, an eight rung ladder, where the bottom rung represented no participation and increased upwards with the top most rung representing complete citizen control; Frederik Wulz's *seven forms of participation* (Wulz 1986) which was based on the Arnstein's model but adapted to discuss the role of architect and users in architecture and design, and is therefore more relevant to the subject of urban design and this thesis; and the *Four dimensions of community participation (*Wilson & Wilde 2003), which was published by the Joseph Rowntree Foundation as a model of effective participation and relates to the elements of engagement in a more recent context.

Ladder of citizen participation (Arnstein 1969)

The late 1960s was a time of intense backlash against social and political inequality in America against the black minority, which erupted in the form of the American Civil Rights Movement, demanding equal rights for African Americans (Morris 1984). This triggered the Advocacy Planning movement (Davidoff 1965) that demanded advocates to represent the interests of the 'have-nots'. Towards the end of the 60s whilst participation was being agreed upon as an important part of public and civic reform decision making, its use as a process wasn't well defined. Sherry Arnstein's *Ladder of Citizen Participation* in 1969, was developed in response to this undefined process.

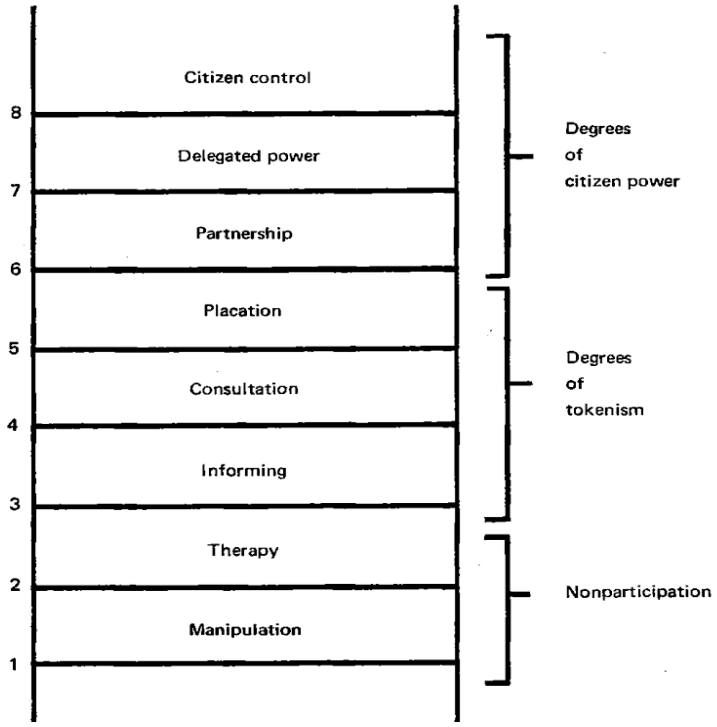


Figure 2.7 Ladder of citizen participation (Source: Arnstein 1969).

Denouncing the 'empty ritual' of participation where citizens are made to believe they have participated, but realistically still under the control of the institution or government, Arnstein (1969) developed eight rungs of participation that range from kinds of 'non-participation' signifying no influence, to controlled influence or 'tokenism', to a more liberal form of power or 'citizen control'.

'Manipulation' and 'Therapy', the lowest two rungs of the ladder, represent an illusionary form of participation. The 'Informing' rung begins to show indicators of seeking public interest but through a one-way flow of information. Communication becomes two-way with 'Consultation', which is an opinion seeking model with controlled feedback mostly based on attitude surveys and public hearings. 'Placation' starts to reflect citizen influence, but, through selective representation of the minority groups and a majority of the traditional and affluent who would inevitably outvote the minority. The 'Partnership' rung starts to see real redistribution of power between the citizen and the decision makers and sharing of decision making between the two. 'Delegated Power' and 'Citizen Control' are

the highest forms of citizen influence, the former giving people a significant but negotiated influence, whilst the latter represents the freedom to express, complain and demand, where the authorities are accountable to the citizens.

The Ladder of Participation is useful in understanding the basic premise on which the concept of participation is based and to compare levels and types of control and influence of actors in decision making. However, this model was designed within the context of social rights and activism when participation was not yet recognised as valuable to the process of government and policy decision making. The context of participation has since seen a major shift. While public participation is now recognised as valuable to public policy making, its role in the planning and architecture industry has only recently been identified as essential. Therefore, Wulz's model, discussed below, based on Arnstein's *Ladder of Citizen Participation*, but developed in the context of architecture and design, is more relevant to the subject and context of this thesis.

Seven forms of Participation (Wulz 1986)

Frederik Wulz's seven forms of participation published in 1986 (Wulz 1986, in Sanoff 1990) describes participation as a spectrum of influence that lies between the most passive and the most active involvement of the user in design, or between an 'expert autonomous' and 'user autonomous' architecture, with the user and architect having to negotiate a compromise with one another in terms of who gets to make the most important and crucial decisions. Therefore, the seven forms of participations developed, reflect a range of influence levels in a reciprocal scale, i.e an increase in influence of a party indicates a decreasing influence for the other.

The order of the seven forms ranges from :

1. Representation
2. Questionary
3. Regionalism
4. Dialogue
5. Alternative
6. Co-decision
7. Self-decision

Unlike Arnstein's *Ladder of Citizen Participation*' that indicated varying levels of power and a suggested need for greater power meaning more influence and rights, here the different forms of participation pivot around the nature of exchange between the architect and the user.

'Representation', is one of the passive but fundamental forms of user participation in design, based on the architect's consideration of the user needs and desires. While on one hand the role of the architect here is that of an 'interpreter' of the user's requirement, on the other hand it is left to the architect's whim to consider it or not. Wulz describes this form of participation to be prevalent in nearly all architect - user relationships, in varying levels.

'Questionary', as the next passive form of engagement of the 'anonymous' user, differs from 'representation' in its systematized form. This kind of a set up both disconnects the user from the client, and the architect from the user. This means that the client is more heavily dependent on an objectively reasoned interpretation of user needs and requirements, using a select sample of statistical data to generalise the opinion of a few to apply to all users.

'Regionalism' is an amalgamation of the last two forms, following the systematic documentation of local geographic and cultural interests focussing on a specific area and translating this into its specific regional qualities.

'Dialogue' is a relatively more direct form of participation, where the user is no longer an anonymous statistic. This form of architect-user relationship is based on the premise of two-way communication, through informal conversations between the two. Here the users are seen as source of local knowledge and direct comments on the architect's proposal. The decision of considering these, however, lies in the hands of the architect, and this is the end of the participatory of the process.

This form of participation seems to be common in design projects, where, through direct interaction, the users are informed about the project and the architects obtain early feedback and local information from the users.

The ‘Alternative’ form of participation is an even more active form of participation where the user is involved more closely through the design process, giving personal feedback and selecting what best fits their needs in their view. It is based on giving locals optional proposals that are presented in a form understandable by a layman, free from technical jargon or media. Hence, visualisation becomes a key factor in the successful application of this model for meaningful participation to happen. In the case of large scale projects with a large number of users, Wulz suggests, voting is an option, however to generalise the decision in favour of the majority is only acceptable if every single user has participated.

‘Co-Decision’ is the closest form of active, direct and highly influential participation of the user. Decisions are made in collaboration between the architect and the user. This involves the local user from the earliest stages, through the development of the design process till the final stages. However, the success of this model is dependent on the ability of the citizens/users to cope with the many accompanying roadblocks. The architect user relationship here must be personal, such that the participating individual is known to the architect to be able to understand and interpret each other’s contribution as closely as possible. Participating individuals must be highly motivated in the participatory process. With the many difficulties of such a social and political process, which can be both expensive and time consuming, commitment becomes imperative for the model to work. A very fundamental premise is that those intending to participate are able to participate consistently through the project timeline.

‘Self Decision’ is the most complete form of participation where the users take full control of the design, development, construction and management of the project, with minimal interventions by an architect. Such projects are most commonly seen in the form of existing project extensions where the main construction and structure are there, and the architect works in a consultant capacity. Since all planning and design decisions are made by the citizens themselves, this usually implies a smaller scale of planning, for users to be able to work in small groups and allow effective engagement to take place.

Dimensions of community participation (Wilson & Wilde 1998)

In 1998, a study carried out by the Churches Regional Commission UK, to address concerns relating to social exclusion identified non-involvement of local people in their community regeneration schemes as a key issue, and resulted in the formation of the Benchmarking Commission (Wilson & Wilde 2003). The aim of the commission was "to deliver a clear benchmarking system for measuring the effectiveness of community involvement in social and economic regenerative activity in urban and rural areas." (Yorkshire Forward 2000, p.54). Wilson and Wilde (1998, 2003) developed a community participation framework based on identifying four dimensions of community participations, with twelve associated benchmarks. Developed as a response to the 'lip service' paid to authentic participation, these were designed to deal with effective community participation in regeneration and to be applicable to different kinds of regeneration contexts at all stages.

The Benchmarking report (Yorkshire Forward 2000) highlighted community concerns with participatory regeneration initiatives, which usually left the community finding it a futile process. The key concerns related to a lack of trust of the authorities in the community, lengthy bureaucratic processes that discouraged people from being involved, and a lack of transparency in terms of how their contributions affected the process and its outcome. All these, reflect a general sense of how many communities feel about participation in planning and regeneration programmes, and work adversely on community interest in participating. Therefore, these are also gaps in the urban design process and need to be addressed to effectively utilise community resources.

The four dimensions of community participation identified by Wilson and Wilde (Yorkshire Forward 2000) describe the agenda of participation at a strategic level. The model argues that achieving the four criteria are essential for successful community participation, by means of the benchmarks outlined under each dimension.

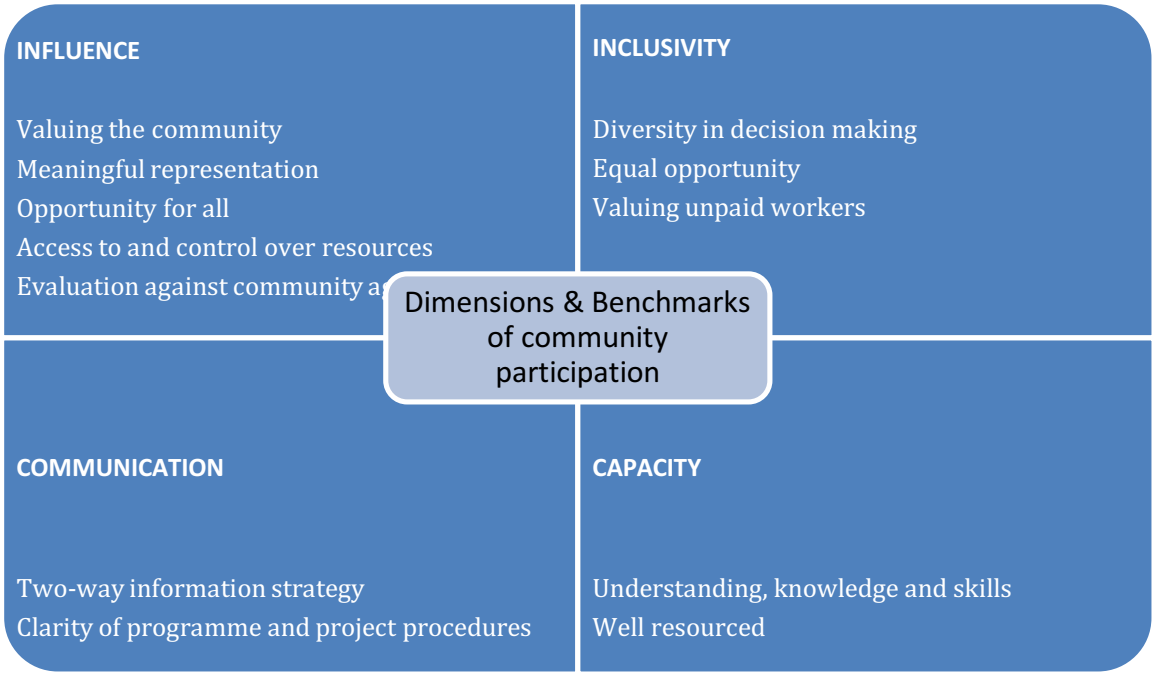


Figure 2.8 Four Dimensions and twelve Benchmarks of community participation (Source: Wilson & Wilde 2003)

1. Influence: This dimension of participation is aimed at ensuring that participation leads to real influence over decision making at both strategic and operational levels. This has five benchmarks under it. The first aims at recognising and valuing the community as an equal partner through the regeneration process across all stages. The model suggests, the community should be the first to consult with as opposed to common practice where community consultation over the process is secondary. Involving the community should start from the very start and not midway the process, with an equal voice through all crucial decision making. The second benchmark relates to 'meaningful' representation in the process. Representation alone is not enough. All diverse groups of the community need to be included, at all levels of decision making, and the process should be accountable to the community. Such representation may require a variety of ways to reach out to groups which might otherwise be closed or apprehensive in participating. Community members should be made to feel welcome and valuable to encourage participation. The third benchmark is an opportunity for all to participate. This means the approach taken to involve people should be suitable to different people, such as younger people or people with limited mobility. The variety of abilities, interests and comfort levels with engagement of users should be kept in consideration, and

creative ways of approaching and involving, should be employed to maximise participant engagement. The fourth benchmark aims at ensuring the community has access to and control over resources, to develop the community's ability and confidence in handling and managing projects and allow it to become more self-reliant. Lastly, the evaluation of the regeneration process should have a community agenda to it. Evaluation is critical to assess and manage project progress. The programme should be able to assess how much of the community's agenda was actually fulfilled and should have achieved at least some of what the community hoped for and tried to influence. It is also important for the community to be informed and be part of such project progress reviews.

2. Inclusivity: This is the second dimension of participation. Since one of the key characteristics of communities lies in their diversity and complexity, this dimension indicates the need for all interest groups to be well represented, with ample opportunities for all to participate. Overall, this dimension aims to address three key issues – *need for diversity in decision making; equal opportunities for all; and valuing unpaid workers.* The heterogeneity and diversity prevalent in communities, ranging from age, sex, social, economic, cultural, physical and mental abilities, ethnicity, minorities and many other kinds of backgrounds bring about different perspectives. This diversity needs to be understood, valued, considered and reflected in decision making in the regeneration process, without generalisation or stereotyping. A statement of intent, project agenda, commitments towards employment, voluntary and any other kind of recruitment, as well as details on accessibility to resources and training, should be shared across project partners and the wider community. The Yorkshire Forward research showed that unpaid workers and volunteers felt undervalued. If the community is a source of local information, experience and conduit to more knowledge then it is important to recognise their contribution in a way that makes them feel valuable and motivated to invest their time, energy and resource into the process.

3. Communication: Effective dialogue between authorities and communities is fundamental to reach out, initiate and maximise participation. This dimension aims to address a system of mutual learning, need for accessibility to information and clarity about the programme, unlike a tokenistic process where jargon and restricted media can create gaps and a lack of confidence. Additionally, little or incomplete information, or information disseminated irregularly on an ad hoc basis builds confusion and doubt, and therefore continuity across all stages of the programme and decision making should be ensured. Clarity is essential in terms of key procedural information, such as who makes decisions, as well as opportunities, resources, funding, training that may be available. Effective communication tools and media encourage people to take interest and increases approachability. Transparency and feedback loops are important. Keeping the community informed of the progress of the project and how their contributions have influenced the decisions being made are critical to maintain trust and keep them motivated and feel valued.

4. Capacity: This involves equipping participating members with necessary resources, skills and training to be able to participate and contribute meaningfully. If the community participation aims at an equal voice, the community needs to be equipped with the support they need to be able to converse and contribute with the other stakeholders and partners on an equal footing. Building capacity and supporting the community with resources empowers them to take initiative and engage more confidently.

Current trends and challenges in participatory practice

In the more recent context a significant initiative at the national level has been the Localism Act 2011 that introduced major community rights aiming to empower communities to influence the development and future of the places they live and work in. It also introduced requirements for consultation at pre-application stations for developers for large schemes, requiring them to demonstrate how they accounted for the results of the consultation.

The 'right to plan' or neighbourhood planning and 'Right to Build', allows Parish Councils or neighbourhood forums (in non-parish areas) to be able to produce their own statutory planning policies and guidelines, approved via a local referendum based on a simple majority. These must however lie within the framework drawn by the national planning policy, and the strategic vision drawn by the local authority and other legal requirements. The Act also offers government support to communities and local bodies with funding sources of advice through the development process.

It is widely accepted that community engagement is beneficial to planning. Recent literature and research have shifted from focusing on the need for engagement to its implementation, with current challenges and issues being concerned with how can it be used effectively. The various channels of communication and choosing the appropriate ones; when in the process and where should it be implemented; who should participate; use of technology in participation - all of these vary with varying planning and design contexts.

Until recently engagement processes were limited to traditional forms of communication and media, such as face to face meetings, focus groups, interviews, questionnaires and surveys, newspapers, exhibitions. When plans were opened for public consultation this required in-person interaction to voice objections. However, with the onset of the digital era, communication has become easier. New digital tools are contributing towards wider outreach, and technology is enabling greater and easier interaction between non-experts and designers/planners. The communication methods available for participation are of particular interest and are further elaborated later in the chapter.

Whilst community led design has increasingly gained interest in the last two decades, it continues to face challenges in its adoption and implementation in planning and design processes in the UK. Most of the development in the UK has fallen in the hands of private developers, and while engagement sessions do occur as part of the process, the relationship between developers and communities is often tense. There is a general lack of trust and confidence in the developers and general system. The word clouds below show how communities (Left) and private developers (Right) see each other, based on a survey as part of the community-private sector partnership broker's pilot by Locality and the Prince's Regeneration Trustv (Savic 2015)

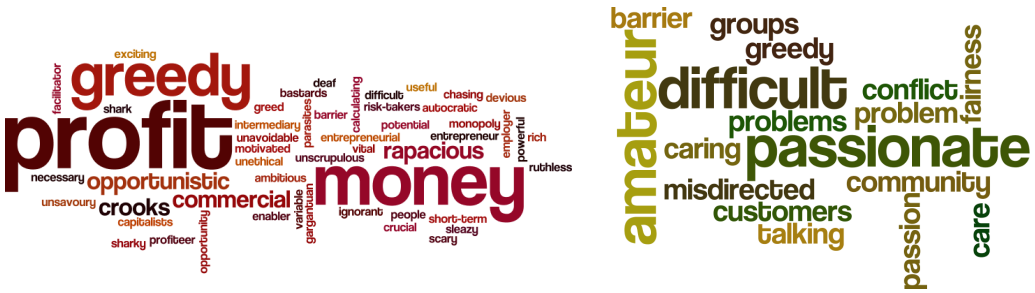


Figure 2.9 Word clouds generated from Locality and Prince's Regeneration Trust survey showing how communities (Left) and private developers (Right) views the other(Source: Savic 2015).

Current engagement opportunities have also been increasingly associated with the process of managing expectations and gaining consent, rather than to collaboratively better plan places (Scottish Govt Report 2017). In other words, whilst real community influence is recognised, meaningful participation, continues to be a struggle. Additionally, issues of trust, lack of transparency and lack of confidence in the system, and in their own contribution being valuable enough to influence the process (Wilson & Wilde 1998; 2003; Savic 2015; Scottish Govt Report 2017) are contributing factors to the reluctance of the communities in participating.

The difficulties highlighted above are influenced by an umbrella of social and political factors. The issues such as trust, transparency, and community self-confidence relate largely to the nature of interaction between the professionals, authorities and the community, and can be addressed using suitable communication strategies.

The section on four dimensions of participation identifies the key aspects that must be addressed for effective engagement to take place. To achieve this, defining the roles of the professional and the user in a way that enables both to meaningfully contribute to the design process is deemed particularly important. The next section briefly analyses the aspect of 'competence' of both professional and user in the participatory process, followed by a section discussing communication strategies and methods available for effective user engagement.

Examining the role of the user and the professional in participation

One of the fundamental issues in designing 'with' a group of people is defining the role of the participants - professional and laymen. For successful participation to happen the competencies of both the user and the expert need to be developed to contribute at an equal footing towards a mutually beneficial process. Each of their competencies contributes to different aspects of the process. The competency of designers lies in their trained understanding of technical and spatial knowledge. The impacted community brings local knowledge, experiences, concerns about the existing conditions, and expectations that the new proposals will fulfil their needs and desires. However, one of the generic reasons invoked by experts, in wanting to consult with users but not being keen on 'active' participation is that they do not find user knowledge and input valuable enough to contribute to the process (Goodman 1972).

Lay user/community participants join the design process with little confidence, and a general expectation and trust in the expert's design and technical skills. The professional's primary role here becomes that of a facilitator, uncovering the core and internal patterns that underpin the design, and helping the community articulate their preferences through suitable tools and media, in order to make better informed opinions. The professional is also responsible for ensuring that the user understands the value of their contribution, why and how it will influence the outcome. By making users realize the importance of their

contribution to the design process and by giving users the assurance that their opinions and suggestions shall be implemented appropriately, the architect helps in making the participants feel responsible for their decisions creating a sense of empowerment through the process, ownership towards the design and overall increased competency towards more active engagement. This role as a facilitator requires the use of effective communication strategies, and a variety of tools and techniques.

Seminal literature in community led design and good participatory practice (Hester 1987; Sanoff 1990; Wilson & Wilde 2003; Chawla & Heft 2002; Sanders 2005) promote training and supporting communities to be able to participate more meaningfully and confidently. This includes support for the professionals to select the most suitable tools and methods to enhance the participatory capacities of users to contribute to the design process. By providing information and support regarding constraints, potentials, regulations and technical aspects of the design context, the professional helps the user make informed opinions.

Therefore, in order to be able to foster competency in users and reconsider their role in being involved more meaningfully, the role of the professional also needs to be evaluated and reconsidered. As such, the professional's role in a participatory process can be seen to be critical in three ways – first, in improving the competence of users for better informed engagement; second, to make the community feel valued in terms of the knowledge and experience they have; third, in using effective communication tools and methods in capturing the users' contributions.

Communication and methods of participation

Effective communication techniques can not only enhance participation and maximise involvement, but also allow real partnership to develop. It is imperative to select and design a communication strategy that applies techniques suitable to the community context. For example, a more intimate interaction involving small groups as compared to large groups where the possibility of face to face discussions might be lower. Similarly, communities with ethnic minorities and reluctant members will require more persistent and wider outreach to ensure well represented participation. Economic status, cultural differences and community inclination towards participating should all be considered to ensure all those who participate find comfortable settings for engagement.

Selecting methods of communication and engagement that are effective requires strategic planning based on the different factors highlighted above, as well as the purpose of engagement, which can range from informing (one-way communication), consulting (controlled two-way communication), to active collaboration with the community.

The list of possible methods, tools and techniques to conduct participation is ever expanding (Yorkshire Forward 2000; Sanoff 2000; Wates 2000; Wilson & Wilde 2003; Wates 2014). The community planning handbook (Wates 2012) has more than 150 methods of community participation, with 60 featured methods on its website. Given the increasing variety in means of communication emerging every day, especially with the advent of new technology, there is little doubt that these lists of techniques will also get longer. However, more important than individual tools are the 'type' of tools used. These can be broadly understood as 'one way' communication (such as media, adverts in the press and mailings) or indirect tools that do not allow instant feedback, such as, surveys and questionnaires, applicable to large groups; and 'two way' communication tools that involve direct or indirect engagement, each of which can be physical and virtual (Munster et al 2017). Direct physical interaction tools allow a face to face, in person interaction, such as informal

dialogue, charrettes and workshops. These are applicable to both small and large groups. Virtual tools include more visual image based interaction, usually web based, such as such as remote attendance, social media platforms, community mapping tools, 3D visualisation, and participatory games.

The likelihood of a process failing is higher when techniques are selected before the objectives of participation have been identified (Glass 1979). A key issue in the selection and application of suitable methods and techniques is the architect's ability to do so. While there has been literature highlighting a variety of participation tools and techniques, there is relatively less work done in supporting the professional in developing the skills needed to select and apply the appropriate tools. With participation still trying to find a place in mainstream practice, the skills required to organise, strategize and direct participatory exercises is not an emphasised part of mainstream design education.

Whilst direct two-way tools encourage more active participation, with a greater opportunity for mutual learning, these are not feasible in the context of large scale engagement. Indirect tools are more cost effective and can achieve a much wider reach allowing anonymous participation. With the increasing use of technology in our everyday lives, the use of digital tools and state of the art technology is raising the bar for communication. It can be used to reduce the gap between the user, the process and professional by using technology to assimilate and analyse data, enabling sourcing of a wider and more diverse body of knowledge from users than with face to face methods. At the same time they can be employed to make information and knowledge more accessible and easily understood by lay users.

Data openly available through web applications, sharing of images, blogs and vlogs, constitute a large repository of information gathered through a large 'participatory internet experience' (Foth et al 2012), which urban informatics or netnography tools can utilise to inform design.

Tools such as community digital mapping, social network analysis and new tech tools such as *sentiment analysis* allow using subjective data as evidence to address planning design (Munster et al 2017). Virtual and augmented reality tools (Broschart,et al 2015), though for now used only sparingly, can allow more immersive experiences, to explore more design and planning options and what they could look like, giving a better and closer understanding.

Some of the current forms of collaborative and engagement tools in the urban design context include range of scoping and design workshops such as the 'Enquiry by Design', charrettes, training sessions, surveys, online forums. Whilst these create a variety of opportunities for interaction, the issue of making complex data and information accessible and understood still remains a challenge yet to be fully addressed.

Spatial analysis presents an opportunity to address this by providing users with an explicit understanding of the spatial relations of their site and how these relate to the issues raised by their community. The ability to visualise and present complex data through 2d (maps), 3d (graphs) and 4d (simulations) graphic representation, if adapted to be clear and self-explanatory, allows participants a better understanding of such complexity as meaningful information about their site, and enables them to use this knowledge to inform their opinions on refining the next step of decision making.

The prognostic and diagnostic properties of spatial analysis tools can allow users to see the impact of the decisions they make by making use of computation and modelling tools, potentially more quickly and more accurately than traditional tools.

Beyond contributing towards better understanding, spatial analysis can bring additional benefits to the participatory process. When spatial analysis demonstrates the use of evidence gathered through engagement, with the community and users being able to identify their own experience and contributions as part of the analysis, it results in improved trust in the process (Rose 2017). This also helps address some of the major challenges in current participation processes, of trust in the system and confidence in the value the users bring as lay persons to the design process.

Conclusions from the literature

The literature established four key points under the umbrella of cities as self-organising complex systems. First, cities consist of two components: material (built form) and humans. Second, the growth of cities is a function of emergence. Multiple actions and interactions at the smallest scale between people and the built environment, and people and other people, bring about changes in the environment that emerge as patterns at a collective level leading to change and evolution. Third, the city and urban space influences and is influenced by these interactions. Last, the experiences, perceptions and personal identity, made up of a person's social, cultural, economic background, contribute towards complexity at an individual level.

It is the purpose of urban design to address these complexities. To achieve this, it is clear that any urban design process needs a set of tools to understand, untangle and solve this complexity in ways that ultimately provide satisfactory outcomes for the end users.

As shown above, these multi-layered, human-material complexities can be captured by analysing their social effects embedded in the physical urban space in the form of *Behaviour*, as observed and modelled patterns in space, and directly engaging with users to understand their *Experience*, as perceived and reported, of space. As such, behavioural and experience information is valuable in the design process as necessary evidence to inform, justify and validate design decision making. Also, considering the intrinsic relationship between space, human behaviour and human perception and experience, it becomes apparent that these are all interdependent variables and *need to be addressed in an integrated approach*.

Whilst community involvement is established as fundamental to the design process in current practice, identifying and applying the most effective methods of engagement, to enable capturing local knowledge and experience from users, as well as to build the necessary user competency to contribute to design development, still remains a challenge. Given the user's limited perception of the city as a system, the various complexities of the urban environment cannot be addressed by user involvement alone. The expertise of the professional lies in their ability to grasp the various complexities of the urban system beyond the individual needs of the user. In turn, the professional may also have a limited perspective in terms of the everyday liveability and the use of the space being designed. As such, neither the user nor the professional can substitute the other's role, and therefore any method of engagement should regard their roles as complementary, with a view to integrate both perspectives as effectively as possible.

This literature review has helped identify three key gaps in current and traditional design processes, where an effective integrated application of spatial analysis as part of a user engagement process presents the opportunity of adding value to the design process and improving outcomes:

1. Complex systems such as cities and their urban spaces, need more sophisticated, accurate and credible analysis and rationalisation for design decision making, that address both spatial as well as social complexity as part of the same design process. The use of objective evidence and formal analysis methods, such as spatial analysis, can rationalise the process of design, and when *integrated* as part of a user engagement design process can contribute to grounding the participatory process in objective reality.
2. Spatial analysis by itself is limited in how it addresses the experience and perceptual aspects of people's relationship with spaces. Users engaging directly with the design process can bring *experiential insight* to augment and nuance behavioural information captured through formal analysis methods.
3. There is an overall disconnect between the design process and users. There is also an apparent gap in terms of how the roles of the professional and the user are

expressed in current design process. In addition, where users are involved there is a need for authenticity in the participation process. Enabling the users to engage in design with accessible analytical methods allows for more meaningful participation, an understanding of the rationalisation of decisions made, and a better understanding of the outcome of those decisions. Together, these ultimately result in an enhanced sense of ownership for the community, over the process as well as its outcome.

The next chapter of this thesis presents a *framework* for expanding the use of spatial, behavioural and experiential evidence in the design process, through a deeper, more integrated and more thorough application of user engagement and spatial analysis methods. Further, three case studies are presented to empirically illustrate how these methods appear in practice and how their use can be evaluated and enhanced.

Chapter 3 : Addressing 'Behaviour' in Space through Spatial Analysis and 'Experience' of Space through User Engagement: A Conceptual Framework and Methodology

This research is based on the hypothesis that the integration of spatial analysis and community engagement can contribute to an effective design process and provide a more positive outcome, than an approach which only uses one of these methods.

As discussed in the literature review, 'behaviour in space' and 'experience of space' are two important factors contributing to the complex socio-spatial relations of the urban environment. A rational public space design process should respond to people and society, as much as it does to the physical space and the regulations that govern it. People, society and the urban space are mutually inclusive. People living and using a space on an everyday basis are important sources of local knowledge and that can inform a better understanding of the culture, social patterns and intangible *experiential properties* of the space that cannot be otherwise observed directly. In order to address our increasingly complex environments, design processes need to capture and address both these properties, in an integrated way.

Furthermore, where participation is used, it presents certain limitations in terms of the balance of control and influence over design decision making between the professional and the user. Making the use of analytical methods available to the community can help make participation more meaningful and impactful, and in the process, enhance the community's sense of ownership over the design outcome.

Chapter 3 – Conceptual Framework and Methodology

This chapter aims to develop a conceptual framework to guide this research and analyse the case studies in the next three chapters in order to test this hypothesis.

This chapter is organised into three main sections:

1. The first section discusses the interdependent nature of User Behaviour and User Experience and the relationship between 'experience and user engagement', and 'behaviour and spatial analysis', within the larger context of the complex urban environment or urban design
2. The second part of this chapter develops this into a *Behaviour - Experience model,* conceived as a conceptual framework for investigating how these concepts appear in practice as part of the design process in the case studies. Further, a *Process Analysis Table* is also developed to facilitate a structured, process orientated analysis of the design process.
3. The third part discusses the case study selection criteria and investigation approach, and the range of quantitative and qualitative methods that have been used for data collection and analysis, and the limitations of the methodology used for researching the case studies.

The chapter concludes with a summary of the arguments made in these three sections, leading into the next chapters of this thesis, where this framework is used to investigate three real world case studies.

Understanding Human Experience and Behaviour in the urban environment as key aspects of urban design: A Conceptual Framework

The subject of this study is the shared space of different areas in the city and how people navigate and use these spaces, in other words the very subject area of *urban design*. If urban design can be understood "... to mean the relationship between different buildings; the relationship between buildings and streets, squares, parks and waterways and other spaces which make up the public domain; the nature and quality of the public domain itself; the relationship of one part of a village, town or city with other parts; and the patterns of movement and activity which are thereby established: in short, *the complex relationships between all the elements of built and unbuilt space*" (Department for Infrastructure 2016) then for the purpose of this study these complex relations have been synthesized into two key properties of urban space - *Behaviour* (as observed and modelled) in space and *Experience* (as perceived and reported) of space.

As discussed in the previous chapter, these properties share a mutually inclusive relationship, where behaviour, perception and experience are interrelated functions of space. Behaviour patterns are the physical interactions, including movement and activity, between humans, and of humans within their physical environment while user experience is how people feel about their interaction with a given space. Behavioural patterns and user experience, considered as evidence that informs design, form the basis of the conceptual framework that has been used to analyse the case studies in the next chapters. Each case is ultimately examined to assess how these two properties have been addressed in the design process, and how the specific methods used to address them influenced outcomes.

The sections below discuss the relation between behaviour and analytical design methods, and between experience and engagement led design approaches, within the larger context of the complex urban environment or urban design. It also argues how these add value to the design process and outcome.

The literature review discussed the relation between space and human behaviour through cognitive (Lynch 1961) and social theories (Lefebvre 1974; Hillier 2007), as well as how behaviour is influenced by people's personal experiences and emotional responses to the environment (Shannon 1948). This thesis proposes the use of an *integrated design process* that addresses this socio-spatial complexity by directly addressing the behavioural aspects (patterns of spatial use that can be observed or modelled) *using evidence based spatial analysis methods,* specifically taking the example of space syntax methods, which rely on objective observation and modelling as tools to understand spatial use. The *human experiential aspect* - local and subjective information pertaining to familiarity with the space, emotional responses and use based responses - is addressed through direct *engagement with users* in order to *effectively* capture such experiential information.

The diagram below (Fig 3.1) illustrates the inter-dependent and complementary relationship between spatial analysis and user engagement as tools or approaches that contribute towards each other as part of a single design process within the larger context of urban design.

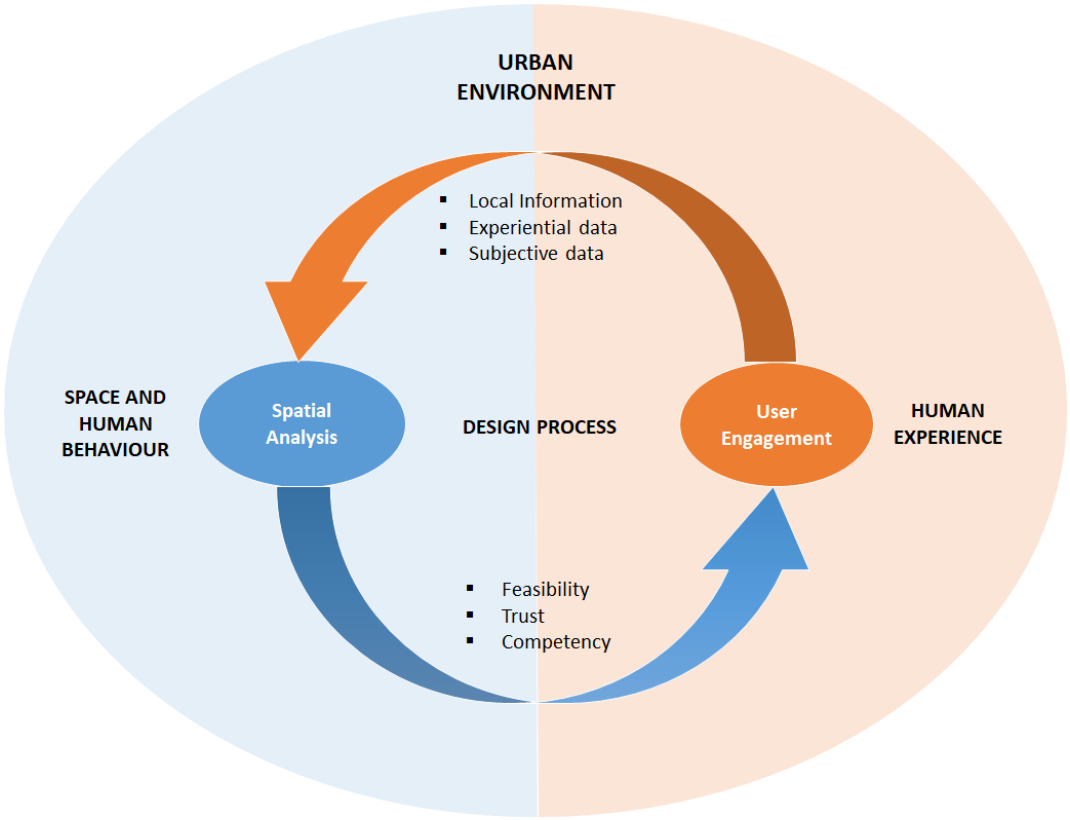


Figure 3.1 Interdependent relationship between spatial analysis and user engagement in addressing the Human behaviour and experience (socio-spatial) complexities of the urban environment (Source: Author)

Engagement contributes to spatial analysis methods by providing local information, experiential and subjective data. Capturing specific local information can help in better understanding existing spatial use. Spatial use can often be dictated by perceptive (subjective) and experiential reasons, which can assist with explaining why certain spaces are being used as they are. Evidence based on such locally sourced, experiential and subjective data can potentially help direct the spatial analysis methodology so as to address the most important issues perceived by the end users.

On the other hand, spatial analysis methods and their findings, when made accessible to the lay community, can contribute to the engagement process by providing an objective evidence base to establish feasibility of ideas raised in engagement sessions; create trust between the client/designers and community; and foster competency in the community.

Spatial analysis methods help identify objective strengths, weaknesses, opportunities and constraints of the site - spatial structure, properties and resulting spatial use behaviour. Such objective information helps rationalise the community's vision and objectives. In certain scenarios suggestions made by the community as part of participatory sessions may not prove feasible due to spatial constraints of the site. When such analysis and evidence is presented in a manner relatable to the lay community, it helps anchor the discussion in rational, objective facts, and reassures the community that its views and opinions were considered and valued even when they might not result in implementation. Lastly, when communicated in a user friendly language, analytical methods can help the community better understand the spatial and technical aspects of the context, and result in better informed contributions to the process.

The end goal of architecture and urban design and their design processes is to achieve a desirable and convenient experience of using the designed environment, as well as to foster social connections through its use. Reflecting on the phenomenon of space influencing social existence and vice versa as discussed earlier (Lefebvre 1974; Jacobs 1961; Hillier 1984; Whyte 1980), and Hillier's social logic of space (1984), that socio-spatial patterns are a function of the configurational patterns of the larger urban system, it becomes essential that the process of designing the environment involves understanding and addressing both spatial and social patterns. Formal education and training equips the designer with the skills to draw qualitative relations between concepts learned in design school, professional experience, intuition and the design programme (Input) provided by the client, and interpret these into satisfactory design solutions (Output) using normative design principles. Such normative practice does not however provide the direct means to explicitly measure the socio-spatial relationships of a

particular environment. Behaviour (how people move about and use space for different activities), and experience (how people perceive, associate and emotionally respond to a space) are expressions of human response to a particular environment, and therefore need to be empirically sourced, and explicitly understood, for each project. This study suggests that design decision making is better supported and rationalised by seeking to gather and incorporate behavioural and experiential evidence as part of an integrated design process.

The next section discusses behaviour and experience as part of an integrated design process and how, through the practice of user engagement and spatial analysis, they collectively contribute to improve urban design outcomes.

Enhancing the Design Process through the integrated application of User Engagement and Spatial Analysis methods

As reviewed in the literature, evidence can be quantitative and qualitative; specific and descriptive; factual and anecdotal; and objective and subjective (Bohme 2002). Behavioural evidence or evidence of spatial use can be collected by a variety of methods such as: Space Syntax analysis, GIS mapping, spatial analysis of social networks[1], urban informatics or netnography[2] and ethnographic research. This research focuses on the use of Space Syntax and ethnographic spatial observations that address dynamic behaviour (movement) and static behaviour (stationary activity) since they are most relevant to the

[1] Social Networks can be analysed spatially map, measure and analyse relationships between people or organisations in a spatial context. (Batty et al 2012)

[2] Netnography is an ethnographic research method of studying and analysing interactions and experiences of internet users (Kozinets 2010)

urban design subject of this thesis analysing sites of varying scales. Ethnographic observations allow documenting and analysis of behaviour in immediate spaces, while space syntax measures have the ability to analyse complex spatial structures and the relationship of spaces to all other spaces in the larger urban grid, giving it the tools for prognostic and diagnostic use. Similarly, evidence relating to users' perceptions, experiences, desires and concerns can be documented by numerous methods such as surveys, questionnaires, on site interviews, participatory GIS mapping, and travel diaries. This study analyses the use of engagement methods in general without being confined to a specific approach, since engagement can imply the use of a variety of tools to address different aspects of the project and process and achieve different levels of community involvement.

Further, it is argued that integrating these methods in a participatory, evidence-informed approach, can help the designer to, firstly, achieve an understanding of the socio-spatial relations as they exist through objective and subjective (perception and experience based) evidence, and secondly, understand how these relations would be impacted and ultimately improved by proposed design solutions. This approach can provide designers with a close to accurate understanding of the strengths, weaknesses and opportunities of the existing site, and through the ability to simulate forecasting models based on the objective-subjective evidence sourced, to obtain early feedback on their proposed solutions to inform their design choices.

To investigate this argument a *process analysis framework* is developed here to be applied to the case studies and their comparative analysis over the next four chapters. This is done by *evaluating how evidence and participation have been used in the case studies at different stages of the process to address 'behaviour' and 'user experience', and how addressing these properties in an explicit, structured and integrated approach, adds value to the design process and its outcome.*

BEHAVIOUR	**Spatial Analysis**	**User Involvement**	**EXPERIENCE**
	Use of evidence to analyse spatial use patterns and spatial characteristics	- Level of influence - Effectiveness	
	Whyte (1980) Space Syntax	Wilson & Wilde 2003 Wulz (1986)	

Table 3.1 Behaviour - Experience Model as the theoretical framework, (Source: Author)

The framework is based on a *Behaviour-Experience Model* (Table 3.1), which aims to understand how the aspects of human experience and spatial behaviour were addressed through the application of engagement, spatial analysis and ethnographic methods in the case studies. Each method is analysed through a set of normative or key theories derived from the literature reviw.

The application of spatial analysis methods is evaluated through the quantitative and objective, or subjective but quantified evidence used as part of the design process. Evidence here relates to data on local spatial behaviour in terms of movement and activity, ethnographic observations, as well as evidence or use of research in analysing the larger spatial relations.

The effectiveness of the engagement process is evaluated through a qualitative analysis of the various ways in which user community and representatives were involved. This is done by analysing the design process using the four dimensions of community

engagement (Wilson & Wilde 2003) derived from the literature study as best practice guidelines for community engagement. These are:

1. Influence;
2. Inclusivity of all interest groups;
3. Communication;
4. Capacity

Additionally, Wulz's (1986) forms of participation which were adapted from the seminal *Ladder of Participation* (Arnstein 1969) but developed specifically for assessing the role of architects and users in design, is used to assess the level of user influence in each project, as one of the most important dimensions of engagement.

The role of engagement in this integrated model is threefold: first, as an approach to contribute towards a better evidence base by capturing user experience; second, ensuring that users have a role in the design process and as part of any post occupancy evaluation conducted; and third, that through participation users have a sense of ownership of the outcome, which in itself adds value to the end outcome of the process, through users assuming responsibility for the outcome, whether as good as expected or not. This allows for a better understanding of why the outcome of the decision was as it was and can play a useful role in any post occupation evaluation and remedial action that then takes place. This implies that ownership turns into experience that can feed into the evidence base.

Therefore, while engagement is proposed to be used as part of an integrated process to contribute towards the experiential evidence, engagement has an equally significant role through the sense of influence and ownership of the decisions made provided to the users.

To enable a structured analysis, and to facilitate an understanding of how these methods appear and can be used in practice, it is useful to place the design developments, and the application of these methods as they took place in the case studies, within the framework of a well-defined design process. The last chapter reviewed the genesis and evolution of various design process models, including the most recent iterations by RIBA (Ostime 2013) and the Urban Design Compendium (UDC) (Llewyn Davies and REAL 2013). The RIBA design stages are architecture specific and very detailed, and the process suggested by the compendium while urban design related, does not discuss the stages beyond the drafting of a masterplan. This study uses a more generic and more widely applicable definition of the design process which consists of a broader set of "*design phases*", each mapping to and encompassing several of the design stages as defined by RIBA and UDC (Table 3.2).

The first two phases, "Getting Started" and "Context", map directly to the Riba stages "0 - Definition" and "1 - Preparation and Brief" respectively, as well as UDC stages "Getting Started" and "Appreciating Context".

The RIBA stages 2, 3 and 4, which represent the process of design refinement from conceptual through technical, and the similar UDC stages "Creating Urban Structures & Making Connections" and "Detailing the Place" are combined into one broad phase - "Design". Since activities in these stages of the design process consist of an iterative process of design refinement, the application of user engagement and spatial analysis methods tends to be uniform throughout this phase. Similarly, based on the same rationale, the stages beyond design completion such as the RIBA stages 5, 6 and 7 and the "Follow up'" stage of the UDC are categorised under the "Follow Up" phase of the suggested model.

Design Phase	Getting Started	Context	Design			Follow Up		
RIBA	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
	Strategic Definition	Preparation & Brief	Concept Design	Developed Design	Technical Design	Construction	Handover	In Use
UDC	Getting Started	Appreciating Context	Creating urban structure & making connections	Detailing the place		Follow Up		

Table 3.2 Mapping broad 'Design Phases' to the RIBA and Urban Design Compendium design process models, to be used for case study evaluation, (Source: Author)

The use of *Design Phases* to analyse the process allows the model to be used with greater flexibility than using the specific design stages from a specific established process. It does so in two ways - first, the design phases are broad enough to capture sets of continuous activities that take place iteratively and concurrently across several related stages in the reference design process models; and second, having a broad, encompassing process allows for greater adaptability in its application to architectural as well as urban design processes. Further to this high-level structure, in order to capture the finer commonalities between the activities and practices having taken place across the case studies, the design process is conceived as a sequence of 'Actions' performed by 'Actors', which use particular 'Methods' to achieve their desired 'Outcomes'.

For this purpose, a *Process Analysis Table* (Table 3.3) is developed that is used to analyse the case studies and subsequently for their comparative analysis. The process analysis table is based on the idea of comparing different attributes of the process across different design phases identified earlier in this section. These attributes include *actions* taken in each design phase, each describing the *actors* involved such as client, stakeholders, community members, the *engagement and spatial analysis methods used* and the *outcome* of each phase.

Design Phase	**Actions**	**Methods**		**Outcome**
		Engagement	**Spatial Analysis**	
Getting started				
Context				
Design				
Follow Up				

Table 3.3 Process Analysis Table (Source: Author)

In conclusion, in the following chapters the case studies are analysed under the lens of the Behaviour-Experience model, and a structured break down of the relevant activities that have taken place across the design phases is presented in the Process Analysis Table, with the goal to rationalise the role of engagement and spatial analysis in the project timeline and as part of each design process phase.

As such, this methodology aims to:

1. Examine the architect – user relationship and role in the design process, with focus on the communication structure and means of information exchange.
2. Show where in the design process are spatial analysis and user engagement used as tools to address behaviour and experience?
3. Show to what extent can an integration of participation and spatial analysis provide insights into the experience and behaviour of user groups?
4. Demonstrate how far does this integration can produce an effective design outcomes.
5. Establish criteria based on the strengths of these methods that can be used to frame a best practice guideline.

The process analysis framework approach to understanding the design process is influenced by the approach to case study analysis adopted by Nick Wates (2014) in his review of community led architecture and urban design projects [Wates 2014; www.communityplanning.net, *last accessed 19 Feb 2018*].

This approach helps capture the essence of the activities in each case study, and distil them into examples of best practice, and ultimately *derive a set of principles* which can both assess and guide the application of such practices as part of a design process.

These principles are first derived as part of the 'Key Learnings' of each project, by analysing the successes and strengths of the design process in each case, and are then used as an evaluation method to collectively re-assess the case studies in a following chapter through a comparative analysis.

The end goal is that this derived set of principles will serve to shape a more concrete participatory evidence-based design approach, by providing more specific guidelines on how such methods can be applied together in practice, and which criteria should be used to assess the effectiveness of their application.

Research Methodology: Case Study Selection, Investigation and Analysis

This study is based on the assumption that good design should stem from rational design decision making, and in order to achieve this, the design strategy should take into account supporting objective evidence as well as satisfy the subjective interests of people affected by those design decisions. Global and local behavioural patterns were theoretically established as an important factor in understanding existing spatial use patterns in terms of movement and activity and user involvement is important to understanding user perception and experience. It was argued that by using scientific theory and observations, these patterns can be explicitly identified, making findings more credible than their assumed descriptions. These methods collectively help understand the socio-spatial patterns of urban spaces. It is therefore imperative to look at real world scenarios where these may have been applied and where their potentials and limitations can be realistically evaluated.

Case Study Selection

A multiple case study approach is adopted, and the primary objective in the selection of the case studies is to investigate how participatory and evidence-informed methods are applied in practice as part of the same design process and the strengths and weaknesses of their varied levels of application. Whilst the case study research is helpful in analysing real world cases, only a small sample of case studies can be empirically examined due to time constraints. A set of three case studies are selected based on a broad set of criteria listed below. The selection is made to reflect a range of studies to understand the design process at a general level rather than relating to typical cases. The criteria are:

1. A public or semi-public open space(s).
2. Based in England, for reasons of geographic, political and regulation consistency.
3. Ideally should have used space syntax methods of spatial analysis.
4. Should have used an engagement based approach to design.
5. The three studies should reflect a range in the levels of engagement and evidence informed methods used, to be able to compare and contrast their applications.
6. Availability of sufficient data to build an enquiry on.

Each of the case studies are discussed under the structure of the framework developed earlier in this chapter, assessing how the design process addressed behaviour and user experience by analysing the use of spatial analysis methods and the engagement process in each case, and how this influenced the end outcome. The specific reasons for selecting each of the case in addition to the broad set of basic criteria listed above are described below.

The three selected studies are Aylesham village extension in Kent (pilot study), Old market square in Nottingham, and Wenlock Barn Estate Improvements in Hackney, London. All the three case studies selected for this research are very distinct in terms of their geographic and physical settings, social character, land use, primary user group or community type, levels of engagement and type of spatial study conducted through the design process. The Wenlock Barn Estate and Aylesham village studies are primarily residential neighbourhood based projects, and the Nottingham Old Market Square is a public space in the city centre surrounded by business and commercial land use and a small proportion of residential use.

Wenlock Barn Estate, London Study area: 24.49 ha	
Old Market Square, Nottingham Study area: 1.15 ha	
Aylesham Village, Kent Study area: 38 ha	

Table 3.4 Three UK based urban space projects (Source: Google Earth)

The Aylesham Case Study was selected as a pilot study for this research. The rationale for selecting this was based on the criteria that it be complex enough to be studied as an urban case study at the same time, be an ongoing project and have sufficient documentation and data available. Since engagement in Aylsham was an essential part of the design process, the project seemed fit for this research as a best practice example in

engagement, as well as a potential study of an ongoing project. The Aylesham village expansion project was initiated in 2002 as part of a joint program undertaken by South East England Development Agency and the Prince's Foundation, and it was conceived, as one of two under the '*Creating Quality Places'* program, as a benchmark of community engagement in regeneration for other communities to follow. The project followed an '*Enquiry by Design'* process (explained in detail in the case study chapter) that involved the community in all aspects of the design process including spatial analysis and proposal development. From this perspective, this case study is critical in understanding the extent to which communities can get involved in design, especially during the stages of spatial analysis. In this project, the spatial analysis methods did not involve objective evidence based methods such as Space Syntax.

The second case study selected for this research, whilst only partly meeting the broad criteria listed earlier requiring the use of engagement as part of the design process, was selected due to its high level of evidence based spatial analysis approach as part of the decision making process. The Old Market Square also being a highly acclaimed project for best practice in public space design appeared to be suitable for a comparative study.

The Old Market Square in Nottingham, is not a residential site, but a public square in the city centre of Nottingham. It is historically an iconic site that has served as an important and strategic space since the 11th century. Conceived for redesign in 2003 the square was a competition winning entry and was completed in 2007. This case study is an example of evidence based spatial analysis and behavioural evidence informing design, where Space Syntax methods and analysis played an important role in design decision making. Whilst the scheme also involved engagement this did not involve the public but was limited to stakeholder institutions such as the English Heritage, Disabilities group representatives and Britain in Bloom. The project was selected as a case study for its application of both engagement (albeit limited) and Space Syntax methodology, and its success as a public square evident in the many awards (Best British Buildings of the 21st Century / Blueprint Magazine; Best Public Realm & Open Space Award and Overall Winner, Lord Mayor's

Awards; Highly Commended, Urban Design Category, Landscape Institute Awards; Design Excellence Award, East Midlands Property Awards; Outstanding Contribution to the Public Realm, Centre Vision Award, and Charcon Hard Landscaping Award, Civic Trust Awards; Highly Commended, Civil Building of the Year – SCALA) and publications that credit it for its design.

The third case study, the Wenlock Barn Estate improvements project - was of particular interest due to its strong inclination towards applying both evidence based spatial analysis, as well as having community engagement as central to its overall vision. This project was selected with the aim of analysing a more balanced approach where both methods are applied in almost equal strength, allowing to test the hypothesis of this thesis by comparing it against the other projects which made prevalent use of only one of the methods.

The Wenlock Barn Estate is a housing estate located in the Shoreditch area of Hackney, London. Whilst the project was conceived as part of the New Deal for Communities government funded 10-year program under the Labour government in 2000, the improvements project covered under this study took place in the last year of the program. The project involved physical improvements to the estate to address concerns of crime and anti-social activity. The Wenlock Barn Estate improvements study as compared to the other two case studies follows a more balanced approach in its engagement and objective evidence based methods. This scheme involved community engagement as its main agenda towards regeneration and the Space Syntax methodology was applied to address the issues identified through engagement. The community involvement in this project is of specific interest to this thesis, since the community actively contributed towards the space syntax analysis and design development.

The Nottingham old market square and Wenlock Barn Estate projects are completed projects, where the new interventions are in use. These two projects are studied in their

'before and after' design intervention stages through primary and secondary data on user experience. The third study, Aylesham village extension, is currently in its implementation stage, and while it cannot be assessed for post implementation, user responses to the completed masterplan (secondary data) have been used to evaluate levels of support, satisfaction and concerns. The Aylesham project did not use an objective evidence based spatial analysis method. Since this thesis focuses on spatial analysis methods using space syntax, this research has analysed the existing and proposed masterplans using space syntax measures to understand how such an application could have influenced the design process and decision making.

Case Study Investigation Approach

Whilst the three case studies are different from each other in terms of their physical and contextual background and the methods used to address design, the methods used to investigate the case studies is common to all three.

Data collection across the three included a mix of open ended, semi-structured interviews recorded with key professional participants, such as architects and project partners. These were aimed at understanding the sequence of events since often the documentation publicly available in the case studies (with the exception of Aylesham) was lacking. The interviews were also aimed at getting as much project details as possible in terms of engagement sessions, and details that were not formally recorded and over time have gotten lost.

Data sources include documents relating to the case study project development, such as project reports, email communication, "Freedom of Information" requests and other data obtained via mass media, which are used to support specific and general details about

different aspects of each project. Archival records from council authorities are used to access site related data across specific time periods, to check trends where available. Crime data has been gathered using the UK Police statistics ranging from before intervention till date across the three studies. Other data collected is a mix of primary and secondary data in terms of direct observations conducted at the time of project development and those by the researcher in the form of ethnographic observations, field notes are used to study activity patterns and spatial characteristics. Ordinance maps are used to run analytical models where required.

The design processes in each case study are analysed to study the kind of evidence data (quantitative and qualitative) used, and the spatial study approach undertaken that contributed to the design process. This is done using project reports and documentation available, supplemented with semi structured and open-ended interviews conducted with key professional participants such as the architects and clients of each project.

The case studies are examined using a combination of quantitative and qualitative methods. Since this research is an investigation into a 'process' and not a 'product', this is a qualitative research relying on analytical generalizations instead of quantitative generalizations (Yin 2013). The spatial study methods are largely quantitative, and the engagement study methods are mostly qualitative. Since the Nottingham case study is the only one that has no post implementation study, this research conducted a study using ethnographic methods, to investigate movement (Appendix 9a) within the square to observe the difference in movement since redesign, and to survey user perceptions to assess user satisfaction (Appendix 9b). The square was observed to collect data on pedestrian route traces of 130 people entering the site from the different entrances into the site boundary. People were selected at random and followed for 2 minutes or until they left the site boundary to capture the percentage of diagonal routes that crossed the centre of the square, to compare with data from 2004 gathered as part of the original

study. Footfall data was also collected by counting the number of people crossing the centre of the square for 5 minutes at key times of the day to calculate a per hour rate and compare with the 2004 data. Additionally, the author also carried out a user perception survey of 102 users at the square. The questionnaire identified user groups in terms of age group, gender and local or visitors and asked the following questions:

1. How would you rate the Old Market Square: Good / Average / Disappointing
2. What do you not like about the square and how can your experience of using the square be improved?
3. What do you like most about the square?
4. Have you seen the square before its redesign in 2007? If yes, which of the two do you prefer and why?

Since Aylesham study is the only one that did not apply space syntax or any analytical models or simulations to analyse the spatial structure or use (behaviour), this thesis analysed the existing and proposed schemes of the Aylesham masterplan using accessibility and intelligibility models, which are space syntax measures. These models are used to study how such an objective analysis based approach could have contributed to the findings and therefore to the design decision making.

Aylesham's movement networks and visual connectivity within and across the spatial structure are analysed using Space Syntax measures. In order to analyse the spatial structure, the built environment needs to be modelled. This is done by modelling the free space that holds together buildings and physical elements of the urban landscape. The longest and straight, unobstructed lines of sight are then modelled through this free space network. These are known as axial lines. These form an interconnected network of single straight lines. This axial model should now be reduced to a minimum line graph. This graph can now be interpreted in terms of nodes and edges, where each axial line is represented by a node and each edge implies a change in direction. This is used to

determine hierarchy in spatial organisation and be used to determine the integration values for each line. This value of integration, whether high or low, suggests the corresponding pedestrian movement flow along those lines. The spatial network prepared using the least number of axial lines is then analysed using *Depthmap* (software developed by UCL-now made open source) to apply different measures.

An axial analysis (Hillier and Hanson 1984) is performed to understand spatial 'Accessibility'. Accessibility is a measure based on the theory of 'natural movement', used to describe the effects of the spatial structure on pedestrian movement. It helps to measure the degree to which people choose a certain route over all other routes when moving from one point to another. This is represented in the form of a 2D model with colours indicating the degree of spatial accessibility of a route (Red to Blue - where red indicates high degree of accessibility and blue indicates low accessibility). Other measures include Local and Global spatial 'integration' which shows how close the space is to its immediate surroundings (up to 2 street depths) and its closeness to rest of the spaces in the urban system. Visual studies will be done by 'Visual graph analysis' (VGA) or an Isovist study. A Visual graph analysis helps understand the extent to which any point in a spatial network is visible from any other point and an Isovist (360 degrees) is the area of space visible to an observer standing at any point in a space when the visual angle is 360 degrees (Turner, Penn 1999). These will help understand visual accessibility and exposure of the space(s), issues of enclosure, visual control and visual accessibility. VGAs and Integration studies are useful methods to understand natural movement flows.

Case Study Limitations

The methodology adopted to investigate and address the gaps in current design practice discussed in the beginning of this chapter, has certain limitations, mostly related to constraints of time and resource. Whilst an ideal approach to test the hypothesis for this research would be to analyse the value added by an integrated approach across a few cases, one of the challenges in this research has been to find projects that demonstrate an ideal application of both evidence informed spatial analysis and engagement as part of an integrated design process. This has therefore led to investigating projects that have made attempts at using these methods to varying levels of application and integration, and through such an investigation to give form to a more integrated, complete process.

In order to analyse how the design process and approach used in each of the three studies adds value to urban design, the case study analysis focuses on how spatial analysis and engagement were used as part of a single integrated process. However, to assess the value added by the different levels of integration of the two approaches (engagement and space syntax or objective evidence based analysis) it is essential to analyse the post occupancy performance of these spaces. Whilst a post implementation study was conducted for the Wenlock Barn Estate project, there was no post implementation study or evaluation done for the Old Market Square in Nottingham. Aylesham, is an ongoing project and therefore whilst no post occupancy studies are possible here, a user feedback on the completed draft masterplan is analysed.

Information access in all three studies ranged from very challenging in the Nottingham study to a more transparent and cooperative Dover Council, Aylesham parish members and other individuals who worked on the project. Information access in the case of the Wenlock Barn Estate was challenging in terms of the difficulty of accessing people who were involved or had any knowledge of the project. Over the years and with the 2008

recession all members of staff who may have been related to the project were no longer working as part of the Trust and current officials at the Trust were unable to provide any details on the project either. Most of the information accessed has been through other project partners including MACE (project archives), Space Syntax Ltd and an interview with a former Trust official. The NGO '*Fourthland*' founder currently working at the Estate was also interviewed regarding the interventions that took place resulting from the 2008-09 physical improvements project.

In the case of the Nottingham project, several attempts at accessing information, data or meetings with those associated with the project on the council's side reached a dead end, including "Freedom of Information" requests which confirmed that "the requested information is no longer held" (Appendix 6). Only one individual at the council who has detailed knowledge of the project and documentation remains with the council over the years who was also not accessible.

Communication holds an important role in ensuring continued interest over time and in terms of dissemination of knowledge in practice and research, to avoid making the same mistakes and to enable the use of previous research to further develop and build future practice on. However, a fractured communication and documentation system is a serious roadblock to any research or practice that may want to understand or build on the approaches, process or any other aspect of a study, depriving further research such as this thesis and future design practices from learning from such real world projects.

The optimal approach to investigate the case studies would be to observe an ongoing design process, where the process, analysis, engagement and overall project progress can be documented. Following a project while ongoing would also allow interaction with the various participants across the different design stages. Given the uncertainty of real world projects, these were not feasible in terms of reaching completion during the course of this PhD. This however could have significant potential for further study.

This thesis does not explore the full range of spatial analysis methods or go into the details of the various participatory and communication techniques used in approaches combining spatial analysis and engagement. Spatial analysis in an evidence based approach can potentially include a wide range of methods. This empirical study focuses mainly on space syntax theories and methods. By focusing on one type of approach, the methodology maintains a consistent approach to study results that can be compared when other variables change, such as levels of engagement. Due to the scale of the projects and limitations of time and resource, the case study analysis relies mostly on observations made as part of the original design process (secondary data), with primary qualitative observations in all three studies and a select set of primary quantitative observations as in the case of Nottingham's old Market Square to evaluate the change in pedestrian flow at specific check points on the square.

Overall, the limitations in the case studies, in terms of the lack of availability of projects demonstrating an ideal integrated process or the varied levels of information access, represent a range that allows a comparison of unlikes. Therefore, allowing the findings to relate to a general design process instead of a specific type of space or context. Having application of both approaches (evidence based spatial analysis and participation) they demonstrate all three scenarios - an integrated approach; a more spatial and evidence based approach; and, a more user centric approach.

Case Study Analysis Methodology

This case study analysis methodology is partly shaped by the case study limitations. As discussed in the section above, none of the studies demonstrate an ideal integrated application of user engagement and spatial analysis. Therefore, this thesis evaluates the design processes used in each case study, aiming to derive best practices from the strengths of the varied application of these methods: high level of user engagement in

Aylesham; rigorous use of analytical tools and evidence in Nottingham; and a relatively balanced approach in Wenlock Barn Estate.

Each case study is organised into five sections - Project background; Understanding behaviour and Spatial use; User Involvement; Project outcomes, Process Analysis Table; and, Key Learnings. The first section is a contextual and brief historical background with an introductory outline of the overall approach. The second and third sections discuss the project in terms of the use of analytical tools and how the project addressed spatial use and user's perspectives through engagement. Behaviour through spatial analysis is analysed by examining the nature of spatial information and specifically, evidence base used to address the spatial behavioural dimension of the design process. Experience is analysed through the *four dimensions of community participation* (Wilson & Wilde 2003) to analyse the effectiveness of the process. The project outcomes are assessed through the same lens of behaviour and experiential evidence, by assessing the change in use and perceptions of the new scheme. The process analysis table illustrates the whole process by distilling it into 'actions' taken and 'methods' used to identify the role of the spatial analysis and engagement in the process with respect to each design phase.

The last section covers the key learnings from the case study discussed across the broad design phases identified earlier (Table 3.2) and presented through a Process Analysis Table (Table 3.3) comparing the role of spatial analysis and engagement methods in each of the broad design phases and actions taken. Based on an analysis of the strengths of each of the three design processes, principles are derived from each case study that contribute to giving shape to an integrated design process.

The three case study chapters are followed by a chapter that conducts a comparative analysis of the three studies, qualitatively evaluating the design process using the nine principles and quantitatively evaluating outcomes using the findings of the post implementation studies. The 'comparative analysis' chapter compares each stage (broad

design phase as shown in table 3.2) across all three case studies and each project against all the principles derived in the individual case study chapters, discussing what was done (in terms of actions taken/ methods used/ outcome achieved) and drawing conclusions on what should ideally be done as part of good participatory-evidence based design process. The chapter focuses on analysing how the various design phases across the three case studies addressed the principles discussed above. By doing so, the chapter develops an argument in how these principles contribute towards building an integrated participatory evidence based design process as demonstrated by the case studies. This is done by analysing how each set of principles identified from each study is addressed in the design phase across the other projects and the methods or activities used to address them. These principles are developed so as to contribute towards such an integrated approach in two ways: one to integrate spatial analysis and community involvement; and the other to ensure effective application of the engagement process.

Research Approach Summary

The methodological framework developed for the analysis of the case studies is based on three main ideas. First, a *Behaviour - Experience model* is developed as a conceptual framework for investigating how normative key theories related to spatial analysis and participation are each addressed in the case studies. Second, a Process Analysis Table is developed, structured around the design phases of a general design process model, to be used in each case study to understand the sequence of design activities performed, the methods of engagement and spatial analysis used, and their outcome. Finally, through the analysis of case studies as detailed above, the aim is to derive a set of *principles* that can collectively contribute to guide an integrated design process, bringing together the application of evidence based spatial analysis and community engagement as tools to capture and address 'behaviour in space' and 'experience of space'.

The thesis research approach proposes a selection of three case studies, representing a range of contexts and levels of application of evidence based spatial analysis and engagement methods, to assess the practical application of an integrated approach that employs both of these methods. The first case study (Aylesham) has a strong engagement process; the second case study (Nottingham Old Market Square) has a strong application of evidence based spatial analysis and limited engagement; while the third case study (Wenlock Barn Estate) has a more balanced application of both approaches. Having such a range helps in evaluating the value added by an engagement only driven process as seen in Aylesham; by a strong spatial and evidence informed project, as in the case of Nottingham's Market Square; and the value added by applying a more integrated approach as in the third case study.

In terms of investigation methods, data collected includes a mix of primary and secondary; and qualitative and quantitative data. Qualitative data is collected in each case for their design process details in terms of sequence of events; actions taken and methods used; details on nature of engagement sessions (documented and undocumented), participants attending, number of sessions, participant feedback received on process and outcome, types of spatial analysis, evidence collected through the design process, evidence used to address different phases of the design process, crime data for before and after implementation, spatial use data before and after implementation, user perception survey before and after. Data sources include semi structured and open ended interviews, documentation including planning applications and design statements, project reports and mass media such as credible websites.

The main limitations of the research methodology adopted, stem from the availability of suitable case studies which apply spatial analysis as part of an engagement driven approach, and access to information. An ideal approach would be to observe and study an ongoing project using such an integrated process, with information being directly

sourced and therefore more accurate and reliable, however identifying such projects proved challenging. In terms of the spatial analysis methods, this methodology does not explore the full range of spatial analysis methods or go into the details of the various participatory and communication techniques used in approaches combining spatial analysis and engagement. Despite these limitations, the selection criteria for the case studies is looking to ensure that sufficient evidence is available to allow a thorough analysis of both spatial analysis and engagement in their successes and failures, and through this investigation to allow a deeper understanding of how these methods could be deployed together in future practice.

Chapter 4 : Aylesham Village Extension, Kent

Project background

Aylesham village is situated in the rural parts of East Kent 10 miles north of Dover and 10 miles southeast of Canterbury in England. The village provided homes to the miners working in the Snowdown colliery (close to Aylesham) and their families. The colliery was closed down in 1986 by the Dover District Council (DDC), which had a significant impact on the mining communities. Aylesham village originally designed by Sir Patrick Abercrombie in 1928, aimed at providing dwellings and mixed community facilities for a population of up to 15000 people. However, with the economic crisis (the great depression) in 1929 going into the late 1930s, only 500 homes and a few community facilities got built and the Abercrombie vision for Aylesham remained incomplete. Over the years, while extensions were made to the village in terms of

Figure 4.1 (L) Abercrombie's 1928 Plan for Aylesham (Source: EDAW 2003a);(R) Aylesham New Town 1952

facilities, houses and road layouts, these were done in a piecemeal manner, resulting in

different architectural styles, losing the coherence of the Abercrombie plan.

Figure 4.2 Aylesham Village existing and extension site (Source: BBP Regeneration)

The village is centred around its market square comprising of a few shops, supermarket and a post office. A central open space spanning from the edge of the market square, across the village all the way to the train station forms the heart of the village along the East - West axis. This is a large open grassy space that acts as an important landmark in Aylesham. The South of the village houses a recreation ground with a number of sports pitches. The western side of the village is more industrial with a number of small businesses and warehouses and the Aylesham woods as a recreational ground. The overall character of the village is that of a mixed style from the 1930s to the 90s, and low-density dwellings.

The Dover District Local Plan adopted in 2002 identified Aylesham as a strategic location suitable for expansion. Key planning considerations were based on essential requirements towards: Creating a *balanced and sustainable community*; encouraging *pedestrian/cycle use*; meeting *accessibility needs of all*; and, bringing forward *improvements to the existing village*.

The Aylesham village development project was part of a joint program undertaken by South East England Development Agency (SEEDA) and the Prince's Foundation as one of two under the *creating quality places* program as a demonstration project to set an example for other communities to follow. The overarching vision of the Creating Quality Places program was community focussed, with community involvement at the heart of the regeneration scheme. The creating quality places partnership comprised of SEEDA, DDC, Kent City Council (KCC); English Partnerships; The Prince's Foundation; Aylesham Community Development Partnership; and Aylesham Parish Council. With the government's emphasis on public consultation for large developments, the Aylesham village Supplementary Planning Guidelines was guided by the Prince's Foundation through an '*Enquiry by Design*' (EbD) approach. The Enquiry by Design process, a type of charrette, is a planning tool for neighbourhood planning and regeneration schemes, which aims at building sustainable communities by involving all those affected by the scheme. It brings together key stakeholders in collaboration with the local authority, service providers and community representatives and any other interest group related to the development. The process equips the community "to assess a complex range of design requirements for the development site, with every issue tested by being drawn" (The Prince's Foundation 2016). It's highly interwoven approach targets equal direct involvement of professional experts and the users (local communities) in collaboration from the start and throughout the process making engagement core to the process of design development.

The Enquiry by Design consultation was covered in two main workshops with other supporting sessions with key stakeholders. The Enquiry by Design approach ensured that the team of experts (architects, transport engineers, service engineers) who were also selected in consultation with the key community representatives, were all collectively available at all sessions to answer questions and support the community throughout the Enquiry by Design process, at every stage of the project till the end of the planning stage (Head of Community Engagement, DDC Interview, Appendix 2).

The Aylesham Masterplan is currently underway its regeneration and expansion, which includes plans for 1200 new houses. This is a phased scheme, with five phases over a 10-year period (economy dependant). The developers began construction in June 2014, when construction in the Market Square started, and as of 2015 a new play area had been constructed and officially opened. The current stage of construction at Aylesham is completing its first phase.

This project has used community involvement as its main medium for developing the Aylesham village expansion masterplan. The methods of analysis have mostly been based on the experiences of the user community (i.e. their everyday use of the village). Whilst it is not possible to discuss the spatial analysis without discussing the community participant's role, the Spatial Analysis section focusses on the development of the proposal and the section on User Involvement focusses on the role, communication methods and influence of the end user. Since, these are not mutually exclusive, in order to discuss both aspects clearly, there will be some overlaps in the discussion of the two sections.

The Aylesham village development unlike the other two case studies did not involve space syntax methods to inform the design proposal. The design approach adopted for analysing the various spatial aspects (relationships, strengths, weaknesses, opportunities and potentials of the site) and developing the underlying principles of Aylesham's extension was led by an *Enquiry by Design* process in the form of two main workshops (Tables 4.4 and 4.5). The first workshop was held across four days in March 2003, and the second workshop was a few months later in June 2003. The first event focussed on identifying key issues and improvements needed in the existing village and designed conceptual proposals. The second event further refined the conceptual proposals for new development and improvements for the existing village. In addition to this, strategic principles were also prepared to develop a set of 'Design Codes' to guide all future development and to detail elements of Aylesham, in terms of architectural style, materials and colour. A final draft of the masterplan was prepared towards the end of 2003. The Masterplan Supplementary Planning Guidelines, was approved in 2005.

The DDC established a set of infrastructural principles prior to community engagement, which included, ensuring the required number of dwellings; alternative transport initiatives; provision of mixed densities; and a distinctive approach to architecture and design. These were used as a starting point for master planning process. While the Enquiry by Design process worked in collaboration with professional experts to guide the planning, the Kent Design Guide[1] (Kent Design Guide 2016) was also used to inform the development proposals and

[1] The Kent Design Guide was developed in partnership with Kent's local authorities; professional organisations; academic bodies; developers; builders; communities; and interest groups.

interpretation of the master plan in terms of decisions on highways, parking and design of streets and squares.

The process analysis table gives an overview of the various actions, methods and outcomes of each design phase in this project.

Process Analysis Table

Actions	Methods		Outcome
	Engagement	Spatial Analysis	
GETTING STARTED			
"Creating Quality Places" Development partnership established Masterplanning team appointed			Community engagement set as key agenda
CONTEXT			
Background Briefing			Setting out non-negotiables
Organised visits to other sites - Poundbury & Nonington	Group site visits		Residents developed a better understanding of good examples of towns like Aylesham
Enquiry by Design workshop 1 Day 1 - Scene setting: - Briefing - Q & A session - Walking tours - Group discussion - Open evening Day 2 - Exploring Issues - Brainstorming and visioning - Briefing - Group workshops and reporting back	- Briefing - Q & A session - Walking tours - Group discussion - Open evening - Brainstorming and Visioning	Qualitative visual observations	Identification of key issues New opportunity areas identified by the community

Table 4.1 Process Analysis Table 'Getting Started' and 'Context' phase (Source: Author)

Actions	Methods		Outcome
	Engagement	Spatial Analysis	
DESIGN			
Enquiry by Design workshop 1 Day 3 - Initial design concepts - Team working - Discussions with key stakeholders - Partnership briefing Day 4 - The emerging Masterplan - Producing drawings - open evening - Q&A	Collaborative design group workshop		Conceptual ideas formulated along with key design principles Masterplan detailing focus areas Optional proposals created
Key Professionals invited to address outstanding issues on masterplan		Group work amongst professionals	
Enquiry by Design workshop 2 Design Codes - Presentation of process - Open discussion - Presentation on design codes - Group workshop on design code aspects - Open evening with exhibition	- Group workshops - Technical training		Refined proposals reviewed Design Codes developed participatively
Draft Masterplan presentation at public meetings: On outstanding issues. - Presentation of Masterplan - Open discussion	Open discussion		
Public consultation on Draft Masterplan - Independent public consultation team appointed - Draft circulated to every household with questionnaire - Staffed exhibition - Face-to-face interviews - Statutory consultees Masterplan revised	-Questionnaire Interviews - Public exhibition		Consultation revealed 83% support from residents on draft masterplan Feedback from consultation implemented

Table 4.2 Process Analysis Table 'Design' phase (Source: Author)

Actions	Methods		Outcome
	Actions	Methods	
FOLLOW UP			
Measures taken to sustain community engagement: - Community Engagement Officer appointed on site - Online forums - Community events organised	- Community Engagement Officer - Online forums - Community events		
Evaluating outcome: - scheme submitted for independent design review			Issues raised relating to spatial layout of street network

Table 4.3 Process Analysis Table 'Follow up' phase (Source: Author)

Understanding Behaviour and Spatial Use – using *'Enquiry by Design'*

The spatial analysis for developing the masterplan due to the scale of intervention, was influenced not only by existing and desired movement and activity, but also land use and introducing new infrastructure and improving the old. Tables 4.4 and 4.5 list the various themes and aspects of the design development process along with the focus of each stage, progressing into the next. The first stage of the Enquiry by Design process of community led regeneration was setting the context, analysing the site (walking tour - Enquiry by Design workshop 1, Day 1) and developing an overarching vision (Day 2) for Aylesham village. A site analysis was done based on visual qualitative site observations all around Aylesham to identify issues, concerns and opportunities in the existing site. This was used to raise key issues (problems) with the existing site, improvements needed and opportunity sites for new development other than those allocated by the DDC's Local Plan (2002).

Figure 4.4 Opportunity sites (Source: EDAW 2003a)

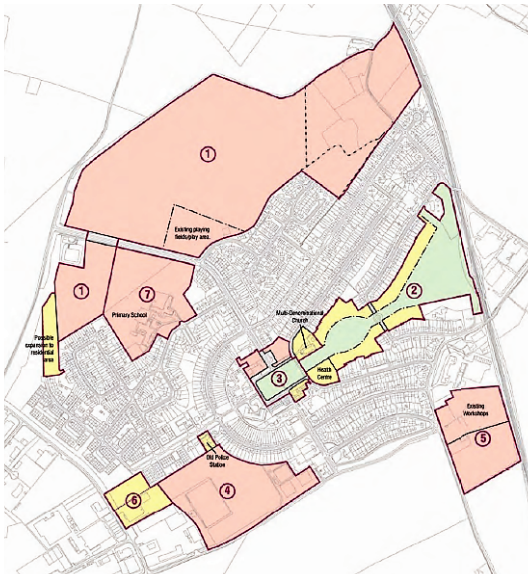


Figure 4.3 Opportunity areas identified by the DDC Local Plan (Pink) and those identified by the community in addition (Yellow).

Key issues discussed based on an initial site study included, improvements and interventions in the market square; streetscape and the local vernacular; housing types; expansion of existing community facilities and introducing new; employment areas; and open spaces. These were further developed as part of a brainstorming and visioning session the next day and structured under the categories following categories: *the market square; the northern parcel; the central open space; employment issues; community facilities; and youth provision.*

At an overall level, the preliminary site study and discussions that followed found accessibility to be a key concern for all of Aylesham. The need for strong pedestrian connections was at the forefront for all focus areas - market square, central open space and the new housing in the northern parcel. The existing market square was found to have weak pedestrian links from the station to the market square and existing shops, which were highlighted as critical. The existing shop fronts in the Market square were seen as unattractive and it was observed that while the market square is a focal point for the village, it did not have a clear identity. Questions regarding its potential for development and improvements of its appearance and materials were asked. In order to give the square a character that reflects its identity, the redevelopment of the whole square was considered including surrounding buildings and the green space in front. Other potential interventions discussed were improving and increasing retail and commercial landuse catering to the increase in population from the new development. The existing village did not have any cafes at the time, and it was suggested that more retail facilities and cafes would attract more people to Aylesham contributing towards its potential as a destination as in its current state the space offers people no reason to stay.

The community raised the streetscape of the village as a concern with reference to surveillance. The distance between the residential building edges and the street were highlighted as a concern from the perspective of natural surveillance. The long gardens visually disconnect the building front from the people on the street, making them more vulnerable. Good and bad examples of building street proximity in the existing layout were discussed. It was suggested that the new development be designed keeping this into account. Discussions on the new development in the northern parcel included debates on the existing imbalance in house types and sizes. Since all existing houses have 3-4 bedrooms, participating community members argued for the need for an 'intergenerational community', to accommodate single people and couples (without children) in the new housing. Traffic management was also raised as an important agenda.

Figure 4.5 Central Open Space - view from the station (EDAW 2003a).

There are many open green spaces in Aylesham, these were however, highlighted as underused assets. The community was very protective about these and especially the central open space. The central open space that is situated on the East-West axis was raised as an issue for the lack of seating facilities and play areas and its connection with the train station. Measures such as lighting and signage, seating facilities in play areas and a line of trees along the boundary (currently the open space is all mowed grass) were discussed. There was reduced pedestrian access between the green central open space and the surrounding buildings. The back gardens and garages along the edge of the central open space were seen as unattractive

and as contributors toward reduced natural surveillance. The open space is sacrosanct to the village, and all interventions suggested were with strong opinions that the openness of the space was not lost. However, keeping into account concerns about the back of houses facing the central open space, the possibility of adding a row of houses looking into the space was considered.

The site visits also led to discussions on the need for new community facilities and youth provisions and improvements to the existing infrastructure. The existing play field in the village was observed to be underutilised and hidden away. For natural surveillance, a need for clear visual links into public spaces was expressed. Further, there were discussions on the need for more number of play areas for children and spaces for teenagers with improved accessibility. In terms of employment areas, since the industrial park is the only employment area within the village, the need for more and a variety of employment uses was raised. The market square was seen as a potential for creating more employment opportunities. Questions regarding compatibility between residential and commercial were asked along with the possibility of live/work units.

While the DDC's local plan of 2002 identified certain areas as opportunity areas for development, the site visit and subsequent discussions resulting from the Enquiry by Design engagement workshops identified areas in addition that could be used for new development. These are shown below in Table 4.4 and 4.5

ENQUIRY BY DESIGN, WORKSHOP 1, March 2003	
Day 1	Visual site observations - Public Realm, Movement, Facilities, Opportunity areas
	Discussions of issues, concerns and opportunities
	Open exhibition - presentation by project partners, Q&A, opportunity for further discussion with public (community)
Day 2	Brainstorming and visioning - exploring issues identified on Day 1
	Technical briefing on constraints and opportunities
	Group work focussing on one theme per group Group 1: Transport and Movement Group 2: Open Space and Public Realm Group 3: Built Form Group 4: Community Services and Facilities Group 5: Ecology, Environment and Sustainability
Day 3	Preliminary design concepts developed based on the work from Day 2
Day 4	Emerging Masterplan - overall development of opportunity areas
	Residential development Market Square Central Open Space Transport & Movement Sustainability (SUDS and Ecology)
	Open Public Exhibition - presentation by project partners, Q&A, opportunity for further discussion with public (community)

Table 4.4 Enquiry by Design Workshop 1 Agenda (Source: Author).

ENQUIRY BY DESIGN, WORKSHOP 2, 30 June 2003	
Morning Session	Further detailing of the masterplan including: Residential development Abercrombie gardens Market Square Strategic movement and Local movement
Lunchtime Session	Group work focussing on one theme per group Group 1: Financial Viability Group 2: Market Square Group 3: Snowdown and Aylesham Group 4: Open Space Group 5: Transport
Afternoon Session	Introduction to importance of 'Design Codes' followed by group work Group 1: Streetscape and Parking Group 2: Materials and Residential Character Group 3: Open Space and Public Realm Group 4: Statutory Requirements
Evening Session	Open Public Exhibition - presentation by project partners, Q&A, opportunity for further discussion with public (community)
	Sample of residents visiting the exhibition interviewed

Table 4.5 Enquiry by Design Workshop 1 Agenda (Source: Author)

In order to develop this vision further to produce conceptual proposals for the masterplan, a technical briefing was given by the DDC, services and design professionals for an equal understanding across all participants regarding the site constraints and opportunities from a technical perspective. Based on this, conceptual plans were developed in groups to address the categories of *Transport and Movement; Open Space and the Public Realm; Built Form; Community Services and Facilities; and Ecological and Environmental Sustainability.* Figure 4.7 shows the conceptual plans developed for each of these categories and the key issues highlighted under each of these categories.

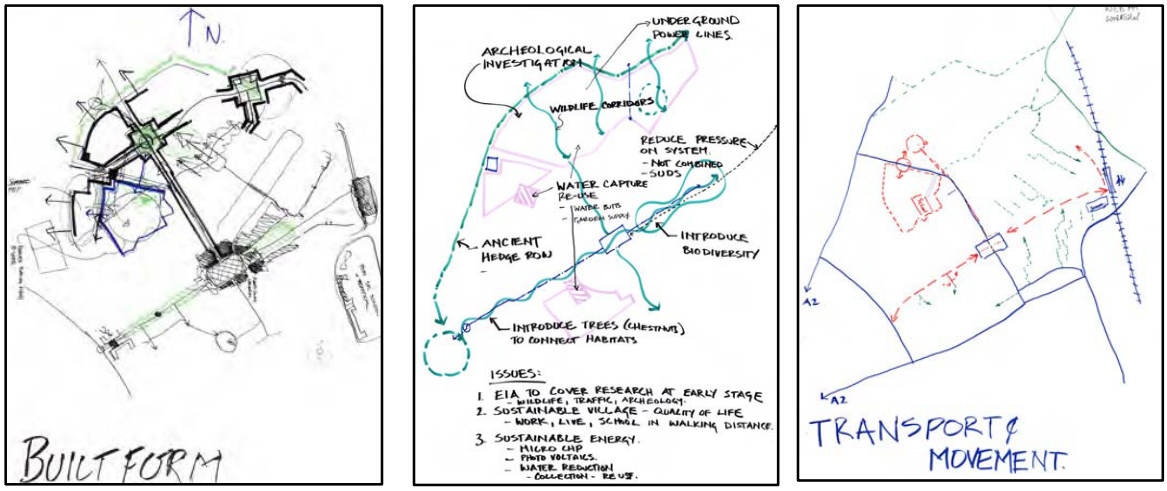


Figure 4.6 Conceptual Proposals prepared by participants in Workshop 1

The conceptual development under the above categorisation looked at an integrated movement and transport network linking the old and the new. This included prioritising pedestrian routes, home zones and traffic calming along with safe pedestrian and new cycling routes to school and community facilities. Currently Aylesham has restricted public transport. The transport and movement conceptual proposal included public transport as a key agenda along with well distributed parking.

The open and green spaces group reiterated the sanctity of the green spaces for the community and that any interventions are aimed at improving the existing to make them welcoming, safe and visually accessible for natural surveillance. Three recognizable 'gateways' were proposed in the conceptual sketch to become the key entry points into the village from the main movement lines skirting the village periphery.

The built form group focussed on connections between the old and new, which were emphasised to be a sequence of high quality open spaces, such as boulevards, that reflect the Abercrombie plan. The connections between the market square, train station, the central open space, the new northern development and the Aylesham woods were proposed for improvements in terms of legible, clear access and attractiveness. Additionally, the conceptual proposal also showed interventions were needed in the commercial facilities of the market square to emphasise it as the focus and heart of the village.

Broader concepts developed in the previous sessions by the community participants were reviewed by a small technical group led by the consultant team. Together with key stakeholders, the conceptual masterplan was further detailed. Additionally, existing proposals for facilities were reviewed for better integration with the rest of the masterplan. Based on this technical input and further consultation with the community the emerging masterplan detailed out the focus areas and a number of proposals were created for these. These included

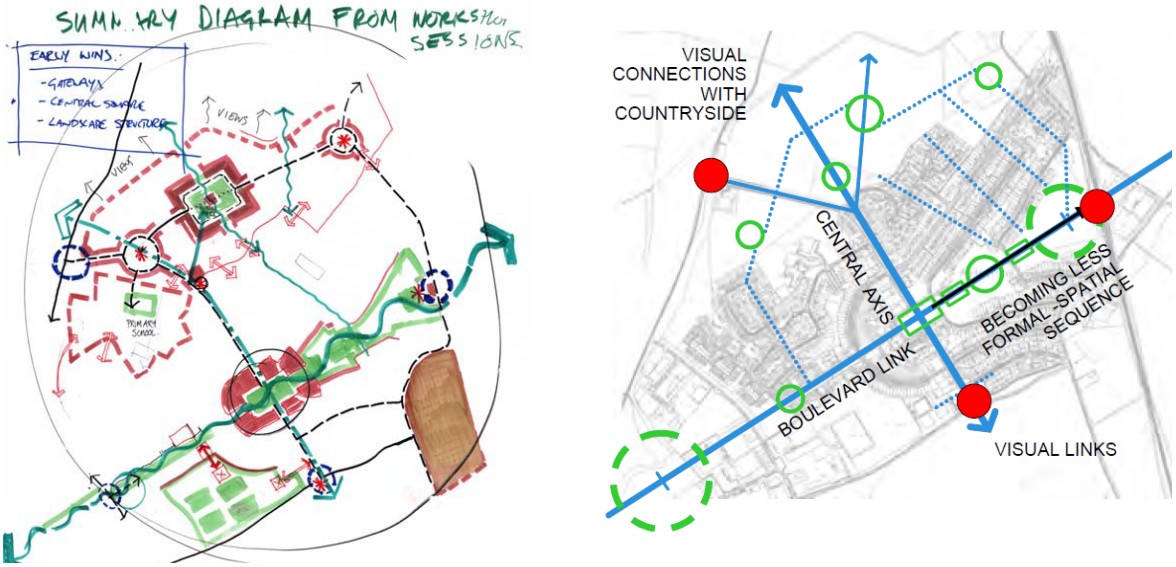


Figure 4.7 Preliminary concept sketch illustrating the key summary from session 1 (L); Conceptual sketch of principles prepared in workshop 1(R) (EDAW 2003a)

visualisation of the masterplan, views of a typical residential street, detailed plans for the central open space, and a series of diagrams illustrating proposals addressing the various issues identified.

The emerging masterplan defined the main accessibility links between key areas such as the train station and the market square through the central open space with a dominant axis connecting the eastern end to the western end (Industrial park and Aylesham Woods) of the village. The second most dominant axis was identified to be through the market square along the northern parcel (North-South). Key open spaces were proposed in the northern parcel new development, and an integrated transport network showed the connectivity of the new development with the existing. Three 'gateways' were identified as main entrances into the village from the outer main movement lines to help in orientation and wayfinding. The new housing was also proposed to look into the views of the countryside.

Figure 4.8 Illustrative masterplan prepared by the end of Enquiry by Design 2 (L).

Between this first workshop and the second workshop run by Enquiry by Design, four stakeholder workshops were held with 30 professional experts (DDC invited more than 200 professionals with specific interest in the areas and issues being looked at by the Aylesham masterplan), to review the detailed aspects of the masterplan. These issues included the residential layout and design of the new development; transport and movement; open space and community facilities; and land assembly and delivery. These were addressed and developed into a complete but tentative proposals subject to the community consultation on these in the second Enquiry by Design workshop. Additional material and information from the Southern Water, the Environment Agency and the Kent Rail Co-ordination Partnership was also used to address the complete masterplan.

Figure 4.9 Master plan refined from professional and stakeholder input (Source: EDAW 2003)

The second Enquiry by Design workshop was organised to introduce and review the refined proposals from the four stakeholder workshops; and to introduce the concept of 'Design Codes' in addressing future development of the village and develop these.

The final masterplan developed through user, stakeholder and professional (expert) contribution across different stages of the Enquiry by Design process evaluated and addressed all the key issues raised by the community. Based on the limitations of the existing village several suggestions were made as part of the Enquiry by Design sessions for the new residential development. These related to the lack of variety, character of the village, concerns of sufficient and distributed parking, imbalance in the street to build height ratio resulting in longer gardens that reduced natural surveillance. The new masterplan, now proposes a wider mix of house types (1 and 2 bedroom to 5 bedroom homes) including 20% affordable housing to accommodate all sizes of families, single and childless couples. These are a mix of terraces, detached and semi-detached and layout design will be matched to reflect the character of Aylesham.

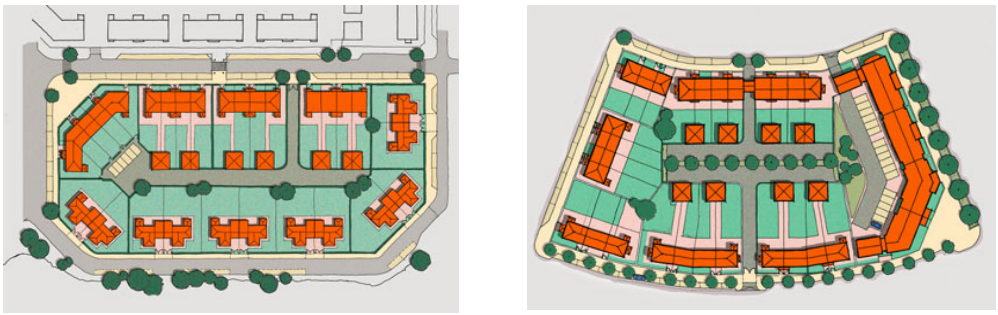


Figure 4.10 Housing block layout options (Source EDAW 2003b).

The central open space that was raised as an issue for accessibility, spatial use, surveillance and appearance has been linked to the train station and the market square along the central E-W axis in the new scheme. New pedestrian and cycling routes have also been introduced that connect to surrounding buildings and to the new development. Being the most central space in the village, the permeability is anticipated to increase connectivity across the different parts of the village. New seating, play areas and a selection of diverse vegetation is planned to create a sequence of experiences and greater attraction to increase staying times. Overall, the central open space is proposed to be developed to be used as an informal recreation space for all ages. A row of 80-100 houses have been proposed facing the open spaces to address the issues of existing backyards facing the open space and increasing natural surveillance. Additionally, a new entrance to the Aylesham train station has been proposed to give direct access.

The Market square, which forms the focal point and the commercial heart of Aylesham was highlighted as a primary concern for lacking identity and character reflecting its status as a focal point. The new masterplan has proposed a redevelopment of the whole of Market Square, firstly, in terms of providing pedestrian access and direct access to the central green space linking to the train station. Secondly, by using the vacant plots to add more retail; third, by improving shop fronts of existing shops and the parking in the area, in anticipation that this will create more opportunities for people from not only Aylesham but also nearby villages to visit. The masterplan also proposes apartments over shops to function as live-work units.

To address the need for sustainable transport solutions, a public transport route has been designed with transport interchange junctions. Since Aylesham is within 10 minutes walking and 5 minutes of cycling distance, in terms of local movement, the use of the public transport

facility along with the improved pedestrian routes are aimed at reducing the use of cars. Safe cycling and pedestrian ways for the School and community facility crossings have also been integrated in the planning proposal. Since concerns were raised regarding the use of 'jitties' (alleyways), lighting and signage has been integrated for these areas.

In summary, the spatial analysis for the Aylesham village expansion was done by the community members of Aylesham village together with key stakeholders, design and service professionals. Structured by the Enquiry by Design process in stages across two main workshops, the community, stakeholders and professionals worked closely towards gradually developing the strategic principles and conceptual proposals for the masterplan that were refined by the architects. The collaborative spatial study involved identifying issues, concerns and opportunities relating to different areas of the existing village and those for the new development in the northern parcel and potential sites in the existing village. Issues and concerns were raised based on the community's everyday experience of using the spaces in and around Aylesham. Opportunity sites were identified in addition to those allocated by the DDC Local Plan, 2002. Key issues were identified in terms of the public realm, strategic and local movement, and improvement/addition of facilities.

Understanding Experience through User Involvement

This section discusses the Enquiry by Design process with a specific focus on how the end user was involved in the process, their influence in decision making and the effectiveness of the process in terms of factors such as inclusivity, communication and their role in the process. Prior to the Enquiry by Design workshops, some of the members who participated in the workshop visited other sites to see examples of best practice. Poundbury in Dorset was observed as a good example of legible streets, while Nonington in Kent was seen to be a good case of local vernacular and character. Other design features studied were geometry, street width and layout. They also studied the relations between different types of spaces such as buildings, street and parks, in creating safe, welcoming and well used spaces.

Whilst the DDC started engaging with the community well before the Enquiry by Design engagement process began, “the real trigger was everyone going out and engaging through the Enquiry by Design” (Head of Community Engagement, DDC Interview, Appendix 2). The Enquiry by Design process in Aylesham worked in partnership between the DETR (Department of the Environment, Transport and the Regions), CPRE (Council for the Protection of Rural England), English Partnerships and The Prince’s Foundation. This approach enabled the direct involvement of all stakeholders in the production and development of strategies, ideas, frameworks and solutions, keeping the local community at the forefront including the assessment of all future planning applications. The approach was used in the expectation that “this should provide a sound basis for the ‘vision’ that Enquiry by Design participants will produce to be turned into reality.” (EDAW et al 2003; Section 1.3)

> "The aim is for Aylesham to be a demonstration project from which other communities in the region can learn about how collaborative working can deliver the aspirations of communities for quality places where physical, environmental, social and economic needs are met and where people want, and can choose to live, work and enjoy their leisure time." (EDAW et al 2003; Section 1.3)

Technical support through professional expertise was provided to guide participants through the process to ensure they were informed about all ground rules, site constraints and key planning guidelines. The Aylesham village design process aimed at wide and proactive engagement of the Aylesham community, not only at the planning and development stages of the extension, but also at its long-term management.

Figure 4.11 Briefing session Workshop day 1 (Source: EDAW 2003).

The Enquiry by Design process began with 'setting the scene' for the participating community members and introduction to the Enquiry by Design process. This was aimed to provide all participants with equal information on the issues that needed to be included in their

consideration during the workshop along with familiarising them with the concept and principles of placemaking. The project was introduced by the DDC and other members of the partnership followed by a more focussed presentation by EDAW on the Enquiry by Design process and its structure, aims and objectives and proposed outputs, as well as how it was proposed to be taken forward after the completion of the two workshops. This was followed by a Q&A session (Appendix 5). Questions were asked about how Aylesham could be a self-sufficient community?; if there was need for more employment land (other than the existing industrial park); and, how land would be phased for the overall development?

Comments were made regarding issues of sustainability and quality of the spaces developed, and how Aylesham could connect with nearby towns as opposed to being introverted; need for the impact of the new development to be considered on the central open space and in terms of traffic. Suggestions were made comparing existing facilities in Aylesham with those in other towns; better use of existing employment land; comments were also made on Aylesham being an integrated and welcoming community, however simultaneously people were worried about issues of increased crime and safety with outsiders coming into the village as part of the new development.

Figure 4.12 Walking tour site visit , Workshop 1 Day 1 (Source: EDAW 2003a)

Walking tours were organised in small groups of 7-12 people with a facilitator for each group, where the walking route was planned in advance. A prompt sheet (Appendix 4) was given to everyone highlighting things to look out for. The aim of the walk was to initiate debate on the principles of placemaking and how these related to the existing layout of Aylesham. These were discussed collectively with the other groups. "A lively discussion and debate was had and people started to formulate some ideas for how they could see the proposals developing." (EDAW 2003b, section 2.2). The issues raised from the walk included, the market Square; Streetscape and local vernacular; Housing types; Community Facilities; Employment Areas; Open Spaces. In addition to the points discussed in the last section, the discussion also focussed on how the community could be involved in all stages and aspects of the development of Aylesham; a balanced mix of uses; reflecting the inherent character and quality of the Aylesham vernacular

A summary of the issues discussed and suggestions proposed from the walking tour were presented to the broader public of the village as part of an open public exhibition. The community workshop members (part of the walking tour and earlier discussion group) were also present along with the project partners and EDAW, to answer any questions that the public might have. The exhibition was used to inform the wider public about the process and how the development would progress until the formulation of the masterplan. Presentations were made by the partners and EDAW similar to the earlier one from before the walk, which also had a session of question and answers and further discussions with the wider community. Questions were raised regarding DDC's commitment to the process and about who would make the final decision on the proposals? The impact of additional traffic "on an already overstretched road network" was also raised. Strong opinions were expressed about having a secondary school in the village. The subject of the secondary school led to a heated debated. While this was outside the realm of the project, the council and project partners brought this

into consideration but was subsequently excluded from the masterplan. Issues highlighted during the first day of the first Enquiry by Design workshop formed the basis of all further development.

Day 2 of the workshop involved brainstorming and visioning of the Aylesham masterplan. The workshop groups focussed on a wider discussion covering the issues from the previous day, also keeping into consideration the discussion and concerns raised by the larger public during the open evening.

The key areas of discussion were:

1. Market Square

2. Northern Development Parcel

3. Central Open Space

4. Employment issues

5. Community and cultural facilities

6. Youth provision/facilities

Following these discussions technical presentations were made by professionals to equip the workshop participants with an equal understanding of the opportunities and constraints of the Aylesham site and its surrounding context. In order to address the concerns, suggestions and discussions in a more structured and detailed way, the facilitators introduced a structure of headings or themes. These were *Transport and Movement; Open Space and Public Realm; Built*

Form; Community Services and Facilities; and, Ecology, Environment and Sustainability. The workshop participants were divided into groups and a facilitator in each. Each group worked on one of these themes to come up with proposals, optional ideas and comments and aspirations regarding their respective themes. The aim of this session was to formulate more detailed proposals for site specific areas and start to draw out physical elements of the masterplan relating to the issues discussed. This was a stepwise transition from verbal discussions to visual interpretations. The facilitators helped users to articulate their suggestions and comments into physical elements. Towards the end all groups presented their proposals and comments to the rest of the gathering.

Day 3 was led by a technical (smaller) group part of the consultant team, where more detailed discussions were held on issues about public transport routes and house layouts and making further improvements, which were reviewed by the community members on Day 4. Two new opportunity sites were also identified by the community, where interventions could be made. A series of detailed plans at different scales, street views and sketches were drawn up by the participating community members, which were displayed in the second open evening held to conclude the first Enquiry by Design workshop. This started with the public exhibition, where members of the working groups were present to answer questions about the proposed plans. A presentation on the proposals was also given along with a question and answer session allowing people to inquire about specific details or just know more. According to the Enquiry by Design event summary report, "the proposals were very well received with a significant number of people remaining after the presentation to look at the drawings and discuss any issues they had." (EDAW 2003b, Section 5.9)

Following the first Enquiry by Design workshop in March 2003, a set of four stakeholder workshops were run over two days. Professionals with an interest in the issues the masterplan was dealing with were invited to review the latest proposals developed by the community

participants. The proposals were refined, detailed and improved based on the conclusions from these four workshops.

The refined masterplan was presented to the community members in the second Enquiry by Design event for comments before being finalised. The second event also introduced the concept of 'design codes' to the community members present and updated the community and other stakeholders on the work that had been carried out over the previous 3 months (during and before the Enquiry by Design process). Two options of minimum and maximum intervention for each of the key spaces was discussed at length - residential development around the central open space and the space itself; typical block layout; and the market square. Design proposals were finalised at a pre-implementation strategy stage.

The development of the design codes was based on the principles generated during the Enquiry by Design process with the community. An exhibition was organised for the public, displaying the progress until this stage and the next steps planned, where the wider public was encouraged to interact, discuss and give their comments on the proposal.

A *mix of different communication methods* was used at two levels - during outreach, and during workshops to maximise interaction with the participants and the wider public of Aylesham. These included the use of photographs, extensive discussions, Q&A, exhibition displays, presentations, walking tour, physical marking of spaces on site (central open space), for the community to have a more accurate visual understanding of what the space might look like. Whilst the wider community was not involved in the workshops and proposal development, they were involved in interactive sessions including question answer sessions during the open evenings maximising participation at different levels.

In terms of different roles, the community was central to the development and progression of the project, in developing an overall vision for the project, raising issues potential for development in the existing and new development in addition to those identified by the DDC Local Plan. Informal meetings were held with project partners to keep them updated of progress. Workshops with key stakeholders were held to ensure their input addressed the key stages and detailing of proposals. The expertise of community services representatives such as transport officials was used to assess the viability of conceptual proposals in terms of more technical aspects such as transport routing, highway improvements to cater to the increased traffic, improvements on the proposals made. The role of the facilitators was critical in structuring discussions and helping the participating community members in better articulating their thoughts, ideas and suggestions. Professionals (Technical, design and other services) critiqued and reviewed the proposals for feasibility, and further refined and improved them. Maximum and minimum intervention alternatives were prepared by them in consultation with stakeholders and project partners. Design professionals were especially significant in preparing a range of visualisations for the community and partners to better understand the proposals.

While the wider community did not directly contribute to the proposals, they did have opportunities at all key stages (open evenings) to voice their opinions and concerns, which were considered during the next iteration of the proposals. At an overall level, the role of the professional and the DDC (client) were key in assisting the community with necessary resources, training and support to be able to participate with confidence, knowledge and essential information to ensure meaningful and authentic engagement.

In terms of *inclusion* in engagement and increasing accessibility and opportunities for the wider community to contribute, whilst, mining communities in Kent are familiar with public meetings "because that is the way their communities are run, but [the council] wanted to facilitate an Enquiry by Design process that was meaningful to all ages" (Ibid) to maximise involvement. One of the younger persons involved 10 years ago has recently been elected as a district councillor, who has till date been working with young people towards the development of the Aylesham community. Participants for the Enquiry by Design or other engagement sessions for the Aylesham development were welcomed as part of an open door policy that encouraged anyone interested in participating to join the wider community discussions. The DDC aimed at ensuring transparency and inclusion to all sections of the community, as opposed to being invited or selecting target groups.

> "In terms of transparency and empowerment, it wasn't our job to choose. People came forward and showed interest. Some took more interest than others. We never ever have a closed door session. It was always open door. Sometimes you'd get 50-100 people other times you'd get more. It was always about if you're free come along." (Ibid)

The *influence and level of user involvement in the Aylesham project was high*. In terms of Wulz's seven forms of participation, Aylesham lies on three of the seven (Dialogue, Alternatives and Co-decision). Whilst the community was part of the decision-making process, the final decision lay with the council and partners. This is evident in their decision to not include the secondary school in the final masterplan despite strong opposition from the community (in the workshops and the wider public). Aimed as a benchmark for community led regeneration, the community was inherent to the process of defining the design problems as well as working on the solutions. However, the DDC and project partners faced several challenges in achieving this

level of participation. The five biggest challenges discussed by the Head of Community Engagement for the Aylesham village expansion project at DDC were:

1. Community trust
2. Issue of integration of the old with the new village
3. Avoiding Tokenism
4. Economic recession of 2008
5. Diverse backgrounds, cultures and languages

The biggest challenge the council and its partners faced while working with them in the development of the project was that of 'trust'. The issues of trust between the council and the community, have been related to their fragile relationship since the closing of the Snowdown Colliery. However, over the course of the project the council has been able reduce those fears by increasing accessibility (to the council and project representatives), maximising transparency through open discussions and employing a community development officer based within the village. A majority of the village has worked with the council through the various engagement sessions before, during, and after the Enquiry by Design process. Additionally, the planning of the regeneration scheme was also envisioned such that employment opportunities could be created through it for local people, which has been well received by the Aylesham community.

The 2008 economic crisis was a major drawback for the Aylesham development program, which not only delayed the project but also affected the council-community relationship. There was a 6-7-year gap before the DDC laid its first bricks. The council appointed a

community development officer for 2 years soon after which the program went on a halt, which was a significant loss for the council.

> "...unfortunately the economy didn't support the development going forward i.e. we couldn't get a developer to take forward the opportunity... Would we do the same again? No absolutely not. We went out too early. We consulted too early. We didn't know that the economy wouldn't support the delivery... But what wasn't lost was all the hard work through the Enquiry by Design and all the people through that process of Enquiry by Design." (Ibid)

One of the other key challenges and concerns the council had from the conception of this project was about how the old and the new would be integrated. Because of Aylesham's history as an old mining community, it's been very insular. The council feared that the new development might result in two separate communities – existing and new. Therefore, by strengthening the focal point and the commercial heart of the village - the market square - and building around it, the council with the village community representatives, tried to create a single core in the centre of Aylesham.

> "It is important that integration is at the forefront of whatever we do. *We need to make sure that communities are still engaged with a process of the development as it continues to be delivered and share that*." (Head of Engagement, DDC Interview, Appendix 2)

This attempt at ensuring 'continued' engagement is seen in the council appointing a community development officer in 2008 and in 2015 as a conduit between the council, community and wider stakeholders, also as an opportunity to look at some of the existing problems that have been inherent from the mining days (Ibid). Such a position would also allow a close assessment of how the new development was fitting in the existing village and if any measures were needed to support this. "The main agenda of having a community development officer was that this regeneration was carried forward and delivered such that everyone had the opportunity to continue to be a part of community life" (Ibid). The first signs of this integration are visible in the existing members of the community buying houses in the new development, which is spreading the existing into the new.

The Aylesham village regeneration program started in 2002 and has been ongoing since that time. There were several time gaps in between when work was slow or stalled. Resultantly the length of the project has increased. The council found that over such a vast timeline there were often cases of some people saying 'you didn't consult us'. With the people who were represented the challenge was to ensure that the engagement exercises were not "all about tick boxes" (Head of Community Engagement, DDC, Interview, Appendix 2). The 'Creating Quality Places' program aimed at building a benchmark for community engagement led development. It was therefore essential that the engagement was used as a means to arrive at the proposal, where decisions were taken for the community and the community was asked to approve, but not a merely reactive role. In order to get maximum involvement, the council had to take efforts to maximise transparency. This also meant being transparent about what the council could or could not do, supported with reason.

Overall, in the DDC's view, the engagement process towards developing Aylesham involved a substantial investment of time, finance, resources and every participant's efforts. "It was extremely meaningful and hard work and intense. There were just a few documented (sessions) in terms of headlines but to get there was huge amounts of workshops, huge amounts of events, open days and people were very proactive - head teachers, youth clubs, young people very engaging" (Ibid). The process has resulted not only in developing a masterplan that is the community's vision of their village, it also "...changed the way that some local people viewed the village and the issues"[2]. Over and above, these were issues that were not covered by the council's Local Plan. While some of the proposals and discussions "made for contentious but better proposals." (Ibid)

In summary, the masterplanning of Aylesham for the Supplementary Planning Guidelines was carried out through an Enquiry by Design engagement led process that involved 120 people during the first workshop in March 2003, and 80-100 people during the second workshop in June 2003. The Creating Quality Places program played a critical role in maintaining the community as central to the design envisioning and development. The overall process involved the community as co-decision makers with professionals in the role of facilitators. In this redefined role, professionals structured the engagement process firstly by equipping the community with the training necessary for making informed decisions and secondly as facilitators providing support on more technical issues and to ensure that discussions stayed relevant to the agenda. With the influence and level of community involvement, most issues and concerns were addressed through the masterplan. However, certain issues persisted, such

[2](Forward Planning Manager, Dover District Council) Available at http://www.communityplanning.net/casestudies/casestudy001.php [Accessed 15 September 2016]

as the lack of a secondary school, which was a concern for members in the workshop as much as for the wider community. The engagement led process involved a mixture of direct and indirect communication methods including presentations, group discussions, reviews, visual (photographs, scaled drawings and street view sketches), practical (walking tour, discussions of central open space on the site itself by making physical markings), exhibitions, surveys, face to face interviews, community development officer as a conduit for those who wanted to reach out.

Project Outcomes

Since the Aylesham village expansion is an ongoing project, there has been no post occupancy studies to evaluate impact of the proposal. However, the proposed masterplan was sent to CABE for a design review in 2007 and again in 2009. Both times the reviewing panel reverted with dissatisfaction relating to the street and route layouts (CABE Website Archive 2011). Additionally, a community feedback survey was conducted as part of the masterplanning (follow up phase), which is analysed later in this section to conclude outcomes relating to user perception.

Whilst, the impact of the latest scheme cannot be measured in terms of spatial use behaviour, this research analysed spatial accessibility models and a legibility study for both existing and proposed layouts. These were done to understand issues that research-based evidence can highlight in the Aylesham village layout and how this could have contributed towards the design process.

In order to understand how a spatial model based on the theory of movement as a function of the larger urban system (configuration) interpret this new proposal, a spatial accessibility model was prepared that analysed both local movement (up to 2 street depths) and global movement within a 3km radius of Aylesham. Accessibility was analysed in terms of 'to movement' (local and global integration), 'through movement' (local and global choice measures) and legibility (intelligibility). The accessibility models for the new proposal were compared with those of the existing layout and the strategic movement plan proposed in the masterplan.

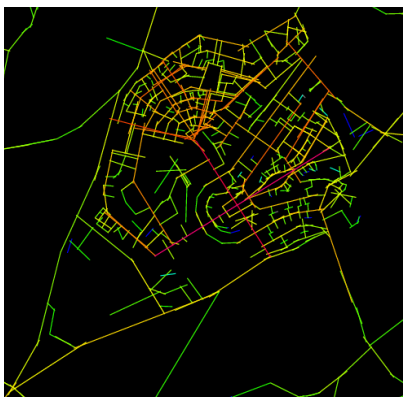


Figure 4.14 Local Integration (R2) [source: Author]

Figure 4.15 Global Integration (Rn).

Figure 4.13 Choice Global (Rn)

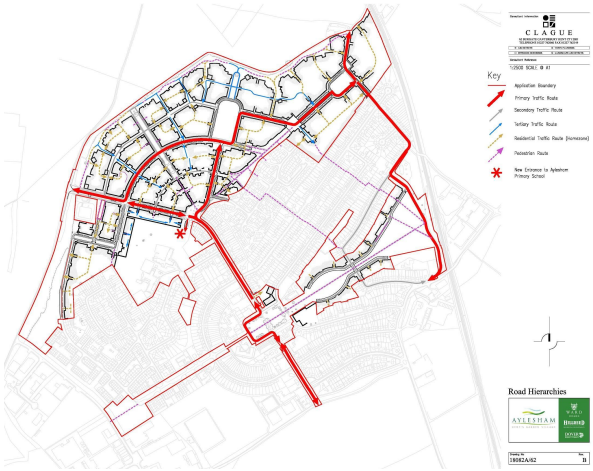


Figure 4.16 Proposed route hierarchy (Source EDAW 2003a)

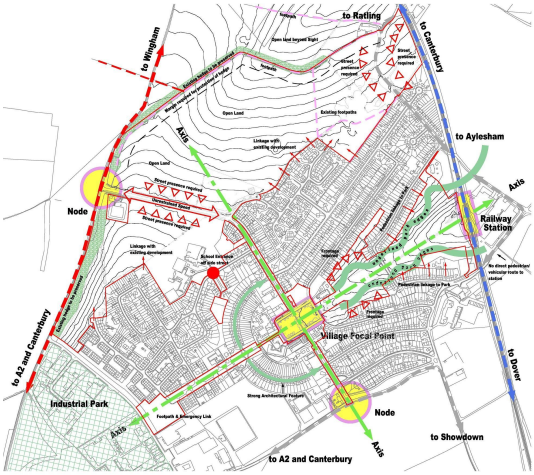


Figure 4.17 Proposed site nodes and connections (Ibid)

The spatial accessibility models confirmed that extending the N-S and E-W axis strengthens the market square, which the community wanted to reinforce as a visual and commercial focal point of the village. This is evident in both 'to' and 'through' movement. The models for through movement - Choice Rn and Normalised Choice Rn, also confirm the main nodes as gateways into the village, identified in the masterplan site analysis.

		Average - Aylesham	
Measure	Average - UK	Existing	Proposed
Intelligibility	0.232	0.06	0.13
Local Integration	2.148	1.57	1.76
Global Integration	0.720	0.34	0.40
Connectivity	3.713	2.76	3.14

Table 4.6 Comparing values of different measures of existing and proposed with average UK values

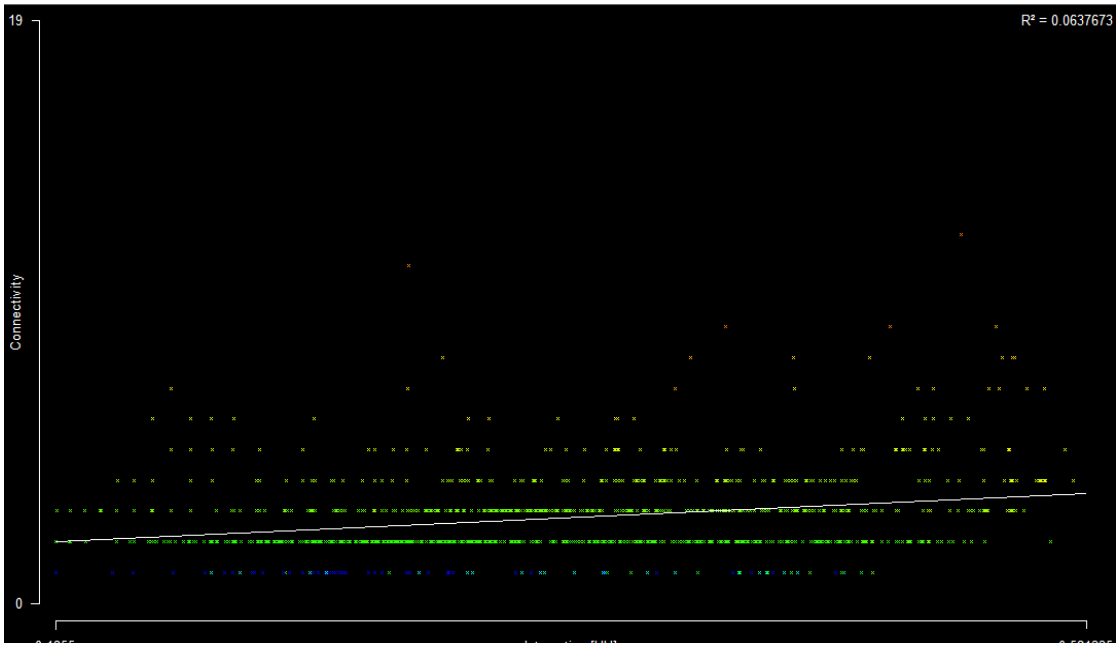


Figure 4.18 Intelligibility graph (Existing site) (Source: Author)

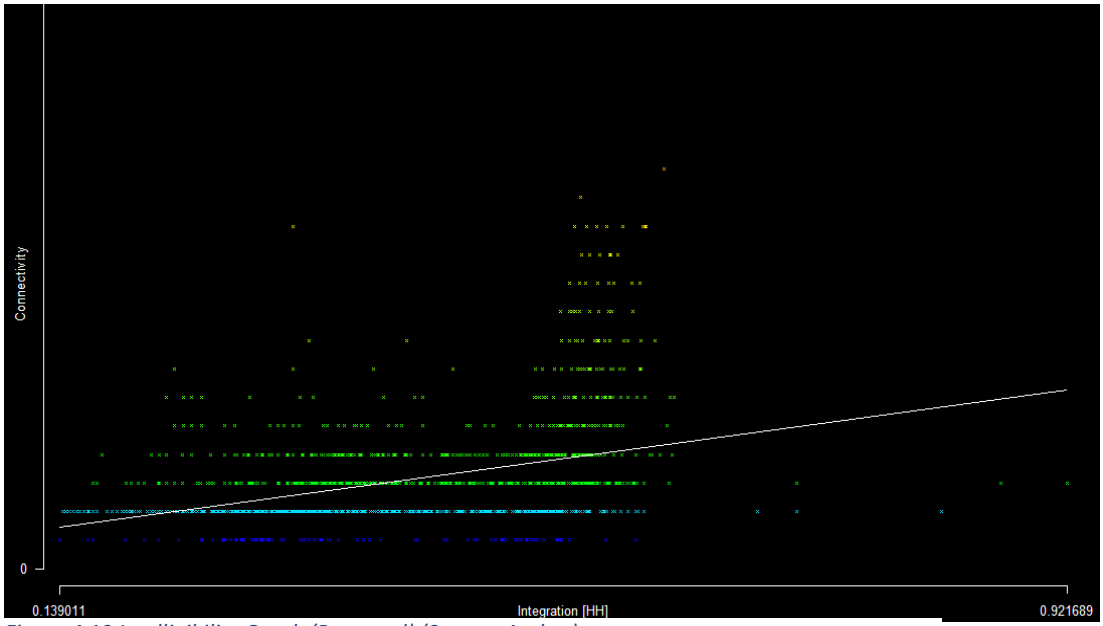


Figure 4.19 Intelligibility Graph (Proposed) (Source: Author)

The accessibility models and the intelligibility values of the existing compared with the proposed layouts of Aylesham confirm that the proposed scheme is an improvement over the existing in terms of its centre being better integrated with rest of Aylesham, overall connectivity and intelligibility of the street layout. However, while the legibility in the proposed scheme is higher than the existing, it is lower than the average intelligibility value of 0.232 of UK cities (Hillier 2001). Intelligibility is a correlation between connectivity (a local measure) and global integration.

The local integration model shows most of the streets in the northern parcel as highly integrated (i.e high potential for local 'to movement') in contrast to the street hierarchy proposed in the masterplan. Whilst, a high number of routes and integrated routes makes the site accessible, it has also reduced legibility, making pedestrian navigation difficult.

Evaluating user satisfaction

A post masterplan research survey was conducted for the Aylesham village extension project between the end of the first Enquiry by Design workshop (March 2003) until May 2003. In order to gauge the levels of community satisfaction, which was the main focus of the council and partners, a survey was conducted. This was done as a means to involve as many people as possible by conducting postal surveys, youth surveys and face to face interviews of residents in their homes. This was done with the objective of understanding the level of support from local residents and businesses, to identify any issues or concerns they may have and to be fed into the emerging masterplan as well as any suggestions or comments that needed attention. A total of 348 responses were recorded including postal surveys and face to face interviews about the new masterplan. This is from a population of 3885 (as per census 2001).

	Postal survey respondents %	Face-to-face respondents %	% of all survey respondents %	Aylesham population* %
Up to 20		7	3	3
20-34	17	33	24	32
35-49	27	33	30	27
50-64	30	14	22	19
65+	17	14	16	19
Not answered	9		5	-
Base	**186**	**162**	**348**	**3,885**

*Source: 2001 Census

Table 4.7 Survey responses to the masterplan proposal.

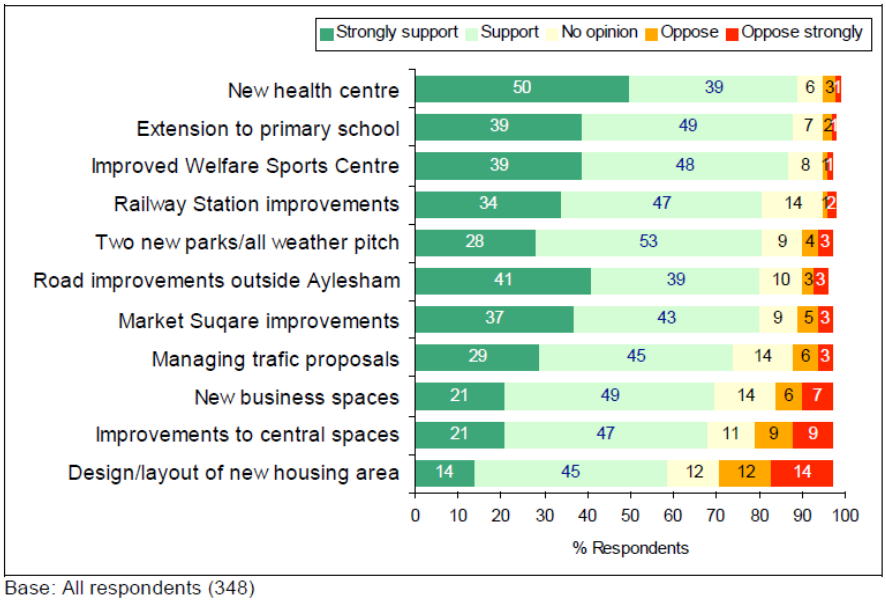
The research showed 83% of Aylesham residents supported the overall development of the masterplan, however 8% opposed to masterplan for reasons such as the lack of a secondary school and increased population from the new development, both of which had been pressing concerns from the start and persisted till after the completion of the masterplan.

The demographics of those who participated in the research showed that the elderly and retired were inclined to have stronger opinions than the younger, in either strongly supporting the proposal or strongly opposing. However, at an overall level change and improvements were welcomed by the community at large .

> 'I think Aylesham deserves an uplift and I think the idea of housing surrounding parkland is a wonderful idea and would enhance our village. The market square must be made beautiful to attract home buyers … The centre of our village is most important.' Male, 65+

> 'I do not and will not support the housing development in this area.' Male, 35-49

Eleven new interventions were proposed through the masterplan. The feedback received on these, showed the most popular interventions (new health centre; expansion of the primary school; improvements to the sports centre and the train station) and those that raised strong concerns (design and layout of the new housing area; improvements to the central space; and the new business spaces and work units).



Base: All respondents (348)

Figure 4.20 Level of support and opposition for the new proposals of the masterplan (Source: Accent Survey 2004)

In the context of the village as a whole, a significant proportion of the people were concerned that Aylesham may lose its village feel and turn into a town. This is evident in the lowest levels of support and highest levels of opposition to 'the design and layout of the new housing area'. The people of Aylesham as well as the DDC expressed the need to be sensitive to the village, and its existing community spirit. "We wish we could bottle it [community spirit] and sell it because if anyone needs help in the village they help themselves. The last thing we want is to

add a village in a village." (Head of Community Engagement, DDC, Interview). However, the post masterplan surveys and interviews show evidence of this to also be a strong reason for many residents opposing the proposal, who feel the proposed masterplan will make Aylesham a town with the overcrowding from the new housing.

> 'As much as I support the new proposals for Aylesham I somewhat feel that it would be turned from a close knit mining community (village) to a town.' Female, 20-34

> 'A build of this nature could bring big problems of overcrowding and remove the feel of village community. We want to be a village, not a town.' Female, 50-64

Issues that were of deep concern and conflicting views were given the time and resources in separate workshops such as the central open space. The council along with the community on board the Enquiry by Design engagement workshops proposed to build through the central open space to improve experience and natural surveillance. Since this was a conflicting issue, a separate day for discussion was dedicated. The proposed area for development was physically marked out on site with members of the partnership organization and key consultant team present. The resulting proposals were then discussed with an open community later in the day. However due to continued concerns with a proportion of those against and some in favour there were no conclusions drawn on this and was decided to be taken forward to the Supplementary Planning Guidelines stage and reviewed in further consultation at a later stage.

> 'Our house has currently a pleasant outlook. We strongly oppose that houses will be built overlooking our garden and house. We purchased this house because of its rural feel and feel that this will be lost once these houses are built.' Female, 20-34

Other issues raised, that were not primary concerns but echoed by a number of residents included the location of the new parks in the northern parcel; the maintenance of parks and open spaces. Parents were especially unhappy with the removal of existing play areas and introducing new play areas in the new housing and having them too close to the railway lines and traffic. Litter, graffiti and vandalism were pointed as some of the pressing issues relating to maintenance. Additonally, shop owners outside the market square felt that shops and businesses outside the market square had been overlooked in the planning process and asked to be considered in the final Supplementary Planning Guidelines.

> 'Although you are providing two new parks for the children, you are removing two, which are located more conveniently and used daily. The new parks are too far away for those children who already live in Aylesham.' Female, 20-34

> 'There is not a word of the eight shops in Cornwallis Avenue. A tiny bit has been slipped in about more shops and loads about the market Square, but not the existing businesses who already struggle to keep heads above water… remember us in your plans.' Female, 35-49

Since the Aylesham development is currently underway, with only 200 houses built of the 1200 planned, there is no evidence of spatial use to evaluate to assess the outcome of the process. This thesis relates to the study of an integrated approach towards evidence based spatial analysis and community engagement, therefore, spatial accessibility models were prepared (based on space syntax theories of natural movement) to assess the probability of movement related behaviour, in the proposed layout. The accessibility models for 'to movement' and 'through movement' in the proposed showed an improvement in accessibility and connectivity

over the existing scheme. The models confirmed that the extension of the N-S and E-W central axis improved and strengthened the market square as the village focal point.

Whilst accessibility and number of pedestrian links increased, these were in contrast with the road hierarchies planned in the masterplan proposal. The routes in the new proposal showed an over permeable network with low legibility. This was confirmed in the comparison of the intelligibility values of the existing, proposed and average intelligibility for cities in the UK (Hillier 2001).

Whilst spatial accessibility models was one of the methods used to analyse movement on site, an early adoption of behavioural evidence such as pedestrian flow and route choices across the village during early stages of the project could have provided additional data and information to correlate the spatial models and people's responses with. Nevertheless, the spatial models show that research-based evidence can highlight issues of a more complex scale, such as legibility in spatial networks as seen in Aylesham's case. Identifying such issues at an early stage can assist designers in being aware, cautious and respond to such issues early on in the process.

Key Learnings

The Aylesham case study is important to this research specifically with respect to the high levels of engagement with local communities. The project demonstrates how community engagement can be applied in almost every stage of the planning and design process for envisioning, planning, designing and preparing the guidelines for future development of the village, and how the community can meaningfully influence design decision making through hands-on, active engagement. The masterplanning process allowed for maximum outreach, involvement, follow up and support to the engaging interest groups and participants, including in the more technical and expertise driven stages of the project.

The Aylesham project successfully addressed all four of Wilson & Wilde's (2003) dimensions of community participation - Inclusivity, Influence, Communication, and Capacity, leading to achieving 83% support in terms of user satisfaction with its draft master plan.

In terms of community influence, Aylesham sits on the Dialogue and Co-decision rungs of Wulz's participation ladder (1987). Participants were given opportunities, invited and pursued for their opinions, views and concerns in the form of weekly surgeries, online forums, community development officer located on site, exhibitions and surveys. Such initiatives can be attributed to an overall project vision that ensured that the community was kept at the forefront, in terms of contribution, assessment, feedback and satisfaction and that community engagement was the main agenda and of foremost importance and not just an exercise.

The 'Creating Quality Places' program in its overall approach has attempted a significant shift in the user's role and resultantly in the professional's. The community's role here was that of a co-designer and co-decision maker. The professional here is not seen as the main decision maker, but participating in the process as a facilitator. The program addressed the role of the non-expert user, transforming it from a reactive one to hands on involvement in the entire

process. The Aylesham project demonstrates the importance of the initial project vision and governance structure in giving power to the community to influence decisions at various levels of the development of the project from the envisioning to the execution stage. The 'Creating Quality Places' program here was critical in its overall vision at two levels. First, it enabled the project to involve community participation as a key agenda based on the premise that this be a benchmark for other communities to follow. Second, the program called for a methodology that could not only engage with the community, but also equip them to participate as a confident and enabled community as part of an authentic engagement process, i.e. the 'Enquiry by Design' process. Engagement here was used as a means toward defining the design problem, identifying opportunities for development beyond those initially identified by the DDC Local Allocation Plan (2002), developing the strategic and local design principles and establish the principles of all future development of Aylesham.

The project addresses Wilson & Wilde's (2003) dimension of '*Inclusivity*' through its wide outreach to the community, before, during and after the 'Enquiry by Design' masterplanning process, targeting all potential age and interest groups. Outreach efforts included letter to residents, youth questionnaires and meetings with the community development officer.

A sense of pride and ownership is reflected in the high levels of community participation in both the workshop focus groups and public events. A sense of community ownership towards the masterplan is reflected in the involvement of community workshop members in the public evenings to answer questions about the new masterplan to the wider community. Such a setup made the community representatives feel *accountable* towards the wider community, which can be helpful in inducing a sense of ownership and responsibility, and reducing personal interest and related conflicts.

Capacity building, which is the third dimension in Wilson & Wilde's (2003) dimensions of community participation is central to the 'Enquiry by Design' process, which aims to engage and empower communities through a collaborative design process. While the DDC and project partners did establish the underpinning infrastructural principles, they also enabled the local community and participating groups to investigate these issues by providing training to facilitate an understanding of the principles of placemaking and sustainability. To allow for a broader vision of the development of Aylesham in relation to the best possible standards of quality spaces, site visits were organised to other villages considered good design examples. This overall structure of the workshop ensured the community was equipped with the necessary tools to develop informed opinions and ideas, while being navigated by the facilitators to not digress from the issue and ensure all aspects of each issue are covered in the discussions.

Communication in this process has been highly interactive, two-way communication that encouraged the community through the 'Enquiry by Design' process, but also outside the process through building community spirit, creating more transparency, and therefore trust between the council and the community. This was important since trust proved to be one of the biggest challenges in this project. The council and authorities working on the engagement and redevelopment of the Aylesham project have been transparent about the process, progress and challenges of the project to the community itself and anyone else interested in community-led design practice. The engagement-led development of the village went beyond questionnaires and feedback, with the community in a co-decision making role. The participants were trained for a better understanding of aspects of urban regeneration and other technical aspects of the project to be able to participate actively and directly and make better informed decisions. This sets this process apart from other general forms of participation that are consensus based, or purely consultation based.

This does not imply that the non-expert participants were or can be equipped with the same skills and analytical ability as that of the professionals, it however reduces the risk of uninformed opinion and introduces more clarity in the process, making the community's contribution more meaningful.

In addition to responding to the four dimensions of participation discussed above, this project also demonstrates another important element of participatory design: *continuity* in engagement. In terms of continuity, the Aylesham project has taken measures to maintain consistency and coherence of the vision and principles developed across a long time span of more than 16 years. The council's agenda for the Aylesham Village redevelopment was to ensure the new development could create and emulate the same sense of community spirit and pride that Aylesham has, where the design actually encourages people to remain or settle as part of the community. The value of community engagement and satisfaction is evident from the time and expenses that have gone into the project to maintain community interest even after the completion of the masterplan. The council acknowledges these costs, but has been putting all resources possible in place to continue supporting the process.

> "The consultation process wasn't cheap in anyway, it was doing the right thing for the right project… It was a massive expense for the project but we were in it from the start, so were the stakeholders and the Parish Council for that. The idea right from the beginning was to make sure we didn't just build the houses and then moved on". (Head of Engagement, DDC Interview, Appendix 2)

This case study also demonstrates the significance of contributions made at the early stage of the design process in influencing the overall design development, confirming the importance of the *Fuzzy Front End* (Design Council 2007) in design processes. The issues and concerns, as

well as the opportunities identified in the first days after the walking tour and the envisioning exercise remained core to the project, throughout the process. One of the biggest outcomes of the early stage exercises was the community members identifying opportunity sites in addition to those in the Local Allocation Plan based on the walking tour. The engagement process continued even after completion of the draft masterplan, with the council employing a community development officer to work on site as a conduit between the council and the village community, and through online forums to allow people to approach the council with issues whilst the development progresses.

The Aylsham design process was formally aimed to represent a benchmark for community participation (EDAW 2003), and therefore can be used as model for good participatory design practice. Based on analysing the case study in light of the four dimensions of participation - Inclusivity, Influence, Capacity and Communication - the findings show that addressing these across the various design stages is both possible and necessary in practice, and can lead to good project outcomes welcomed by the community, as evidenced by the 83% of community support received.

Since user engagement is the fundamental premise of a participatory, evidence-informed design process, this lesson can be incorporated into this process by directly using these four key dimensions of community participation to establish a primary set of guiding principles:

1. *Inclusivity* of all diverse interest groups;
2. Involve users in an *influential role*;
3. Develop community *capacity* for better informed participation;
4. Ensure effective *two-way communication* between users and professionals;

These four principles are detailed below:

Inclusivity of all diverse groups addresses issues of inclusion, accessibility and flexibility. This principle ensures that all user groups have been represented in equal and sufficient strength compared to traditional decision makers such as project partners and non-user stakeholders. It allows opportunities for new user participants to be part of the engagement and design process, and opportunity for open discussion with the willingness to consider and redefine the scope of the project should the responses and outcome of engagement require so.

Involving the user in an influential role, whilst discussed in the Wilson & Wide (2003) dimensions, has also been identified as a critical criteria by some of the earliest seminal works on engagement such as Arnstein's *Ladder of Participation* (Arnstein 1969), which was interpreted for engagement in architecture and design in Wulz's seven forms of participation (Wulz 1987). All of these emphasise the role of the community and the level of control they share in the engagement process. The level of influence is established or measured by the role allocated to the community in the design process at different stages.

Developing community capacity, ensures resources and tools are provided to the community for better participation. This principle aims to equip lay users with necessary resources and training to maximise their ability, confidence and willingness to participate.

Effective two-way communication between the user and the professional is fundamental to the concept of engagement. Transparency and mutual sharing of information, using a variety of

communication methods and media to seek, gather and respond to community input, allows for effective community contribution and helps build trust between the professionals and the participating community.

In addition to these four principles, this case study has also highlighted the importance of participation being applied meaningfully, continuously and consistently throughout the design process. As such, a further principle for a participatory, evidence-based process can be derived as “maintaining continuity throughout the process”

Continuity throughout the design process is meant to ensure that engagement is not a fragmented process that is applied at singular stages as an end in itself, but a tool that is used consistently across the various design phases, even if with varying levels of involvement. Of particular importance is that engagement continues in the later stages of design, as well as after the design is finalized, into the implementation phases of the project, to ensure that objectives and approaches agreed initially continue to be addressed throughout the project.

Chapter 5 : Old Market Square, Nottingham

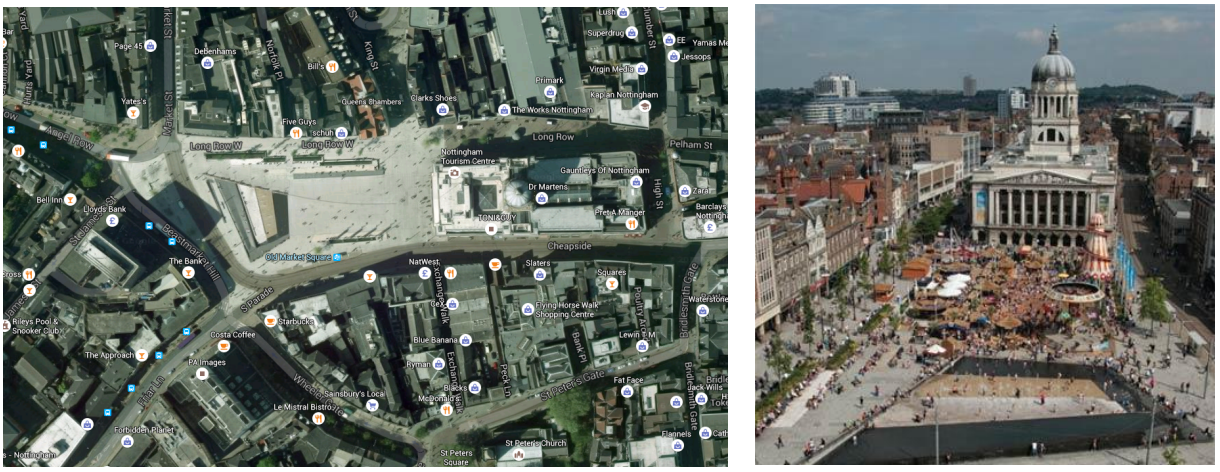


Figure 5.1 Old Market Square, Aerial view (L); view of the square looking towards the council house (R)

Project Background

The Nottingham old market square locally nicknamed as 'slab square' is located in the city centre of Nottingham. First founded as a market space by William Peveril, the builder of the Nottingham castle in the 11th century. The space functioned as a five and half acre large market area until 1928 when the Council House was being constructed. The market space was a place for the city's regular goose fairs, meat and butcher stalls and flower shops amongst many others. It was also a place for public floggings and dog races where animals were used as bait for the races before being butchered at the meat market. The area occupied by the meat market known as the Shambles, which was also used for storage of raw sewage was replaced by the Exchange building in 1724, to be redesigned in 1814-15 and eventually

replaced by the Council House in 1929. The Council House was designed to represent the "civic pride and civic dignity", an image of Nottingham. Having achieved the architectural expression of this image through the design of the Council House, the market space which set the background and context of the most important civic building in Nottingham, was seen as a misfit - "The market as is today is no credit to the City. The fine open space, instead of being a dignified and attractive centre, is nothing more than a conglomeration of unsightly stalls." (Beckett and Brand 2004, p. 32) The revitalisation of the market space was a response to the Council House as a processional way emphasising its hierarchy. In 1927, competition entries were invited for the market space development. In 1928, construction of the square began and was nicknamed slab square due to its grey flat slab like appearance. The market squares design was a large formal open space oriented in a sweeping way towards the Council House with widened surrounding roads and a large space fronting the entrance of the Council House. The redesigned square was well received and over the years it was used for numerous national events. However, by the 1970s, concerns were raised about the square losing its character. In the 90s, efforts were made to improve the square winning the Britain in Bloom best city title. With pop up events, hawkers and issues of public order especially during weekends with a somewhat riotous congregation (Ibid), the old market square was recognised as an undervalued asset by the council. Based on the findings of the 1999 report of the Urban Task Force (DETR 1998)[1], whose purpose was to "…identify causes of urban decline and establish a vision for cities in England, founded on the principles of design excellence, social well-being and environmental responsibility" *(Ibid),*the council decided to redesign the square. The publicity brochure for the Old Market Square, claimed it to be "a public space that will be a signature of our future aspirations for Nottingham and for our wider plans for the city's

[1] DETR (1998), Available at https://www.designingbuildings.co.uk/wiki/Urban_Task_Force [Accessed 7th November 2015]

development" (Beckett and Brand 2004, p. 55). The Nottingham council approached CABE (Commission for Architecture and Built Environment) for support on the project and with initiating a design competition. The brief was to "provide unhindered access for all, use high quality materials, provide new water features, introduce soft landscaping, integrate street furniture, create flexible performance space, allow people to linger, encourage 24-hour use, enable perimeter activity to spill out into the space, and attract pedestrians by virtue of its design. It also had to create a sense of place and reinforce the distinctive qualities and character of Nottingham" (Architonic 2016)[2]. A report supporting and recommending the revitalization of the square by local consultants Scott Wilson in 2001 estimated that a revitalised square could boost Nottingham's economy and generate more than 400 jobs. Leading on from this and a series of other reports, the Nottingham City Council with support from CABE initiated an international design competition for the redesign of the Nottingham Old Market Square. They also set up a publicly accessible website managed by the council that updated project progress. The design competition received hundreds of entries from which 6 teams were shortlisted through an evaluation panel that was appointed by the council. As part of the competition process, three opportunities were provided to the six teams for consultation with stakeholders and public before the final selection - *the interactive website; a stakeholder day with key stakeholders; and a public exhibition* (where their schemes would go on display). Following an online voting system, and the verdict from the evaluation panel Gustafson Porter Architects were commissioned the redesign of the Nottingham Old Market Square, which was completed in 2007.

[2] Architonic. (2016). Old Market Square, Nottingham by Gustafson Porter | Architonic. Available at: https://www.architonic.com/en/project/gustafson-porter-old-market-square-nottingham/5100108 [Accessed 20 Jun. 2016]

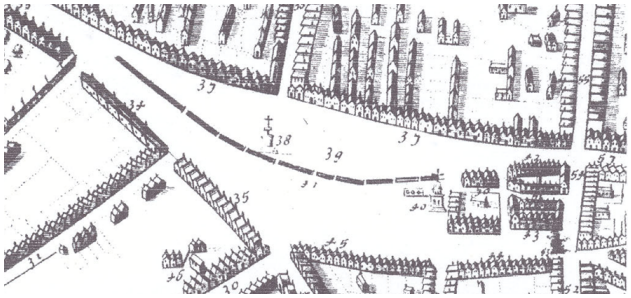


Figure 5.2 View from the square (Above left) and the old square (Above right) (Source: Gustafson Porter Architects)

On the left, historic map of the site showing the drainage line along the centre and the Shambles sitting where now the council house is

Gustafson Porter's competition winning entry involved both spatial network analysis methods (space syntax) and engagement. Space Syntax Ltd were hired by the architects to conduct a movement survey of the site, while the engagement sessions were organised by the Nottingham City Council.

The new design respects the site's historical background while simultaneously responding to its current urban context. The layout of the square is oriented towards the Council House, retaining the historical formal character and has retained the old drainage line that runs along the length and centre of the square becoming a significant feature of the design. It's expanse and free space supports its historic use as a market space and for congregations and in supporting activities resulting from the surrounding land use without aligning all movement towards the Council House in a processional way (as was the case with the earlier design). The land use around the redesigned square has very few residential buildings. It is primarily a multipurpose open space with surrounding commercial, retail and civic property, hosting art, cultural and political events ever so often. Two sides of the redesigned square sit next to the

pedestrian walkways and the other two sides next to busy vehicular and pedestrian movement routes. These have bus and tram stops and tend to become a transition spot that maintains the busyness of the place even when the square itself is quiet, which appears to sustain the liveliness of spaces inside and around the square. The positivity and liveliness of the square and its variety of uses is very clear on any day and at all times of the day. The redesigned square has gained credibility with the Urban Design Compendium and Design Council / CABE as a case study for good public space design and regeneration. CABE's involvement was also used to bring in further funding opportunities. The credibility of the design was one of the reasons for selecting this project as a potential study to see how evidence based spatial analysis and engagement methods may have influenced the performance of the square.

The following sections analyse the relationship between the design process and the outcome in terms of its spatial use and character, shedding light on how spatial network analysis and engagement made a direct impact on the design.

Process Analysis Table

Actions	Methods		Outcome
	Engagement	Spatial Analysis	
GETTING STARTED			
Preparatory work: - research studies establish the case for redesign - key stakeholder interest groups identified and consulted to elicit support - second level of consultation with transport, media, police, professionals and academics - economic impact study in favour of redesign - 6 options investigated: 'do nothing' to 'total redesign'	Explicit consultation agenda		Established case for redesign; Established key issues to be addressed
Design competition initiated: - competition brief based on council defined objectives - CABE appointed to oversee the process of design consultation **-** public interactive consultation website launched by the council	Public website		-
CONTEXT			
Spatial study as part of shortlisted design proposal by Gustafson Porter Architects: - key design issues extracted from brief: responding to historic context and improving accessibility and use. - historical analysis of the site to identify significant historical features; - observational qualitative assessment of the spatial characteristics of the square; study of green areas; circulation study; sun-shadow study - street furniture survey Findings presented to stakeholders to support of proposal		- brief review - qualitative observations - historical research - sun-shadow study - green areas study - circulation study - street furniture survey	Identifying key issues and design principles Objective evidence collected to inform approach Preliminary design proposal drafted based

Actions	Methods		Outcome
	Engagement	Spatial Analysis	
DESIGN			
Design shortlist selection: - Gustafson Porter Architects short listed as one of 6 entries through an evaluation panel.			
Design winner selection: - shortlisted proposals go through one day stakeholder consultation - public exhibition of proposals with feedback cards at three locations - public feedback gathered through 'have your say' comment sections on websites (BBC, Nottingham Post, OMS) - public voting on proposals through online voting system - analysis of feedback by independent researcher hired by council Evaluation panel selects Gustafson Porter Architects as winner	- stakeholder consultations - public exhibition - public online feedback - public online voting		Public feedback on conceptual schemes Issues and concerns critical to stakeholders identified and addressed Conceptual design proposal selected
Design elaboration through a stakeholder consultation process: - meetings with key interest group stakeholders - questionnaires for stakeholders - key issues were raised during consultations and addressed in design (i.e. planting)	Stakeholder consultations		Key issues from stakeholders identified and addressed

Table 5.1 Process Analysis Table - 'Getting Started', 'Context' and 'Design' phases (Source: Author)

Actions	Methods		Outcome
	Engagement	Spatial Analysis	
DESIGN (cont.)			
Spatial analysis of design proposal: Evidence based movement and public realm study commissioned by GP architects from Space Syntax Ltd: - Accessibility models - Pedestrian movement flow and route choices - Stationary activity: observed -Public realm survey: qualitative observations of quality of public realm - Visibility analysis models - Forecasting models Findings from the Space Syntax analysis presented to stakeholders in consultation sessions.		- accessibility models - pedestrian movement flow and route choices - stationary activity - public realm survey - visibility analysis models - forecasting models	Objective evidence to identify issues in the current scheme and show how they are addressed by new design.
Final consultation: - public exhibition with scaled model - display only with a feedback card - internal analysis of public consultation feedback - findings of consultation shows 67% support (members of the public and more than 100 stakeholders) - further development of the detailed design before going into Planning Application	Public exhibition		Confirmation of public support for final scheme (67%)
FOLLOW UP			
The project was assessed by independent design review panels after completion			Nominations and shortlisted for various awards.
Drawing competition launched: 'Pride of Nottingham'			

Table 5.2 Process Analysis Table - 'Design' and 'Follow up' phases (Source: Author)

Understanding Behaviour and Spatial Use

A spatial study of the square was conducted by Gustafson Porter architects in a general sense (i.e. no specific research methods or documented data used) following standard principles of urban and landscape design and qualitative site observations. These observations and the initial project brief in 2004 suggested that the west side of the square was more problematic, with low value properties, clubs and large pubs that seemed to contribute to the heavy drinking and antisocial behaviour in the square at night time (Gustafson Porter Interview).

The redesign approach was largely based on responding to the historic context of the site and improving accessibility and use (Full Design statement 2004). The scheme aimed at using natural lines of movement (movement naturally generated by the geometry and its immediate physical settings excluding the influence of the existing internal layout of the square) to maximise movement around and across the square. These would be emphasised by the new design to become the main movement lines feeding into and out of the square. Its past iconic status as a space for holding civic events in the past and its location was central to the design approach.

Figure 5.3 Square used as fairs and markets in the early 20th century. (Source: Gustafson Porter Architects)

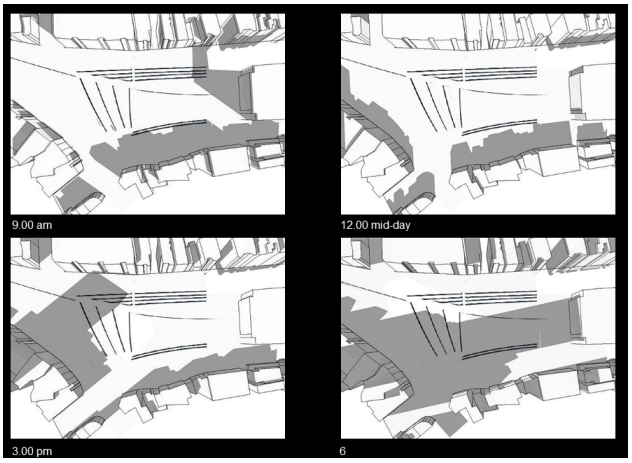


Figure 5.4 Sun shadow study (Source: Gustafson Porter Architects).

Figure 5.5 Visual Clutter at Eye and Sky level (Source: Space Syntax Limited)

The architects conducted a sun shadow study, where the shadow of the surrounding building and tower blocks were traced across different times of the day. It was observed that due to the large tower block on the south of the square the SW section of the square was cast in shade after 4pm but the southern edge of the square is almost always cast in shadow. This helped in deciding the seating of the large ergonomic steps on the northern edge of the square looking into the square.

Since movement and activity levels were key to the design brief, the design approach focussed on getting a detailed understanding of the movement around and across the square. Being familiar with the evidence based analysis methods of Space Syntax, Space Syntax consultants were brought on board to analyse the movement flows of the existing layout, while the architects prepared conceptual schemes. The role of space syntax here was more of a reassurance and confirmation that the design proposal respected the natural movement of the site and maximised movement through the square.

The Space Syntax study looked at existing movement in terms of spatial and visual accessibility, i.e. spaces that can be walked through and spaces that can be seen, within and across the site. Visual clutter and blocked sight lines by objects such as phone booths and advertisement boards were observed at eye level. Sky level views were observed to be obstructed by CCTVs, wires running across and other infrastructure affecting the potential openness of the square and blocking view across the square. Static activities were quantitatively observed by drawing 'Static Snapshots' of the square's spatial use (Figure 5.7). A static snapshot method is where pedestrian activity is observed during a very short period of time or 'snapshot'. Activities recorded were standing, sitting and talking. These observations show a measured distribution of activities and do not represent the total number of users. The snapshot observations showed a highly active use of the seating spaces in the square, which was inferred as an indication of the desire and need for more of such facilities.

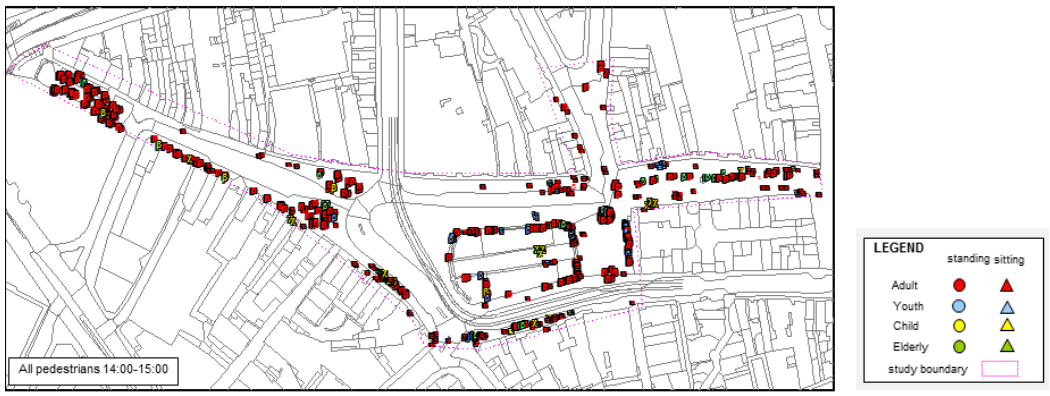


Figure 5.6 Static snaphots recording activity in the square showing activity types and user groups (Source: Space Syntax Ltd).

The existing water feature, although very low key and non-participatory was observed to be especially popular with the children. From its current observed use, an accessible water feature was recommended as a potential attractor that would enable more families to use the square.

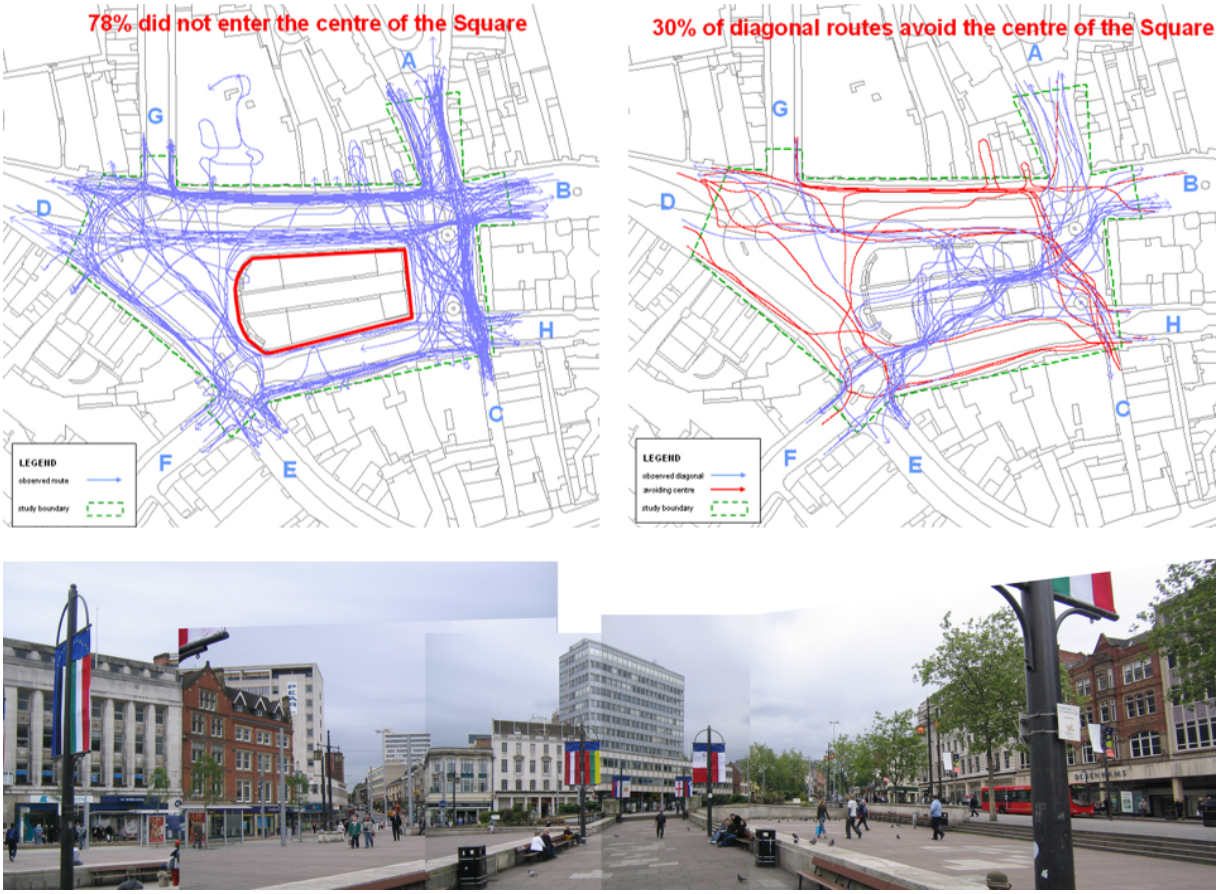


Figure 5.7 Pedestrian route traces in and around the existing square showing 78% of the people not entering the central space (Left); the ones that did 30% avoid the centre (Source: Space Syntax Ltd).

Of particular importance is the movement study that included pedestrian counts and the routes (pedestrian) people took to get to their destination from around and across the square on a weekday and weekend (observed time: 8am - 6pm). The pedestrian counts were based on secondary movement data provided by Nottingham Council and routes were observed by Space Syntax (primary data) by discreetly following randomly selected people (total of 187) from various entrances into the site until they left the site or stopped in the square for more than two minutes. The pedestrian route study showed that 78% of the people did not walk through the centre of the square, out of which, 8% were going to a destination diagonally

across the square, and 30% of the diagonal routes taken through the square avoided the centre.

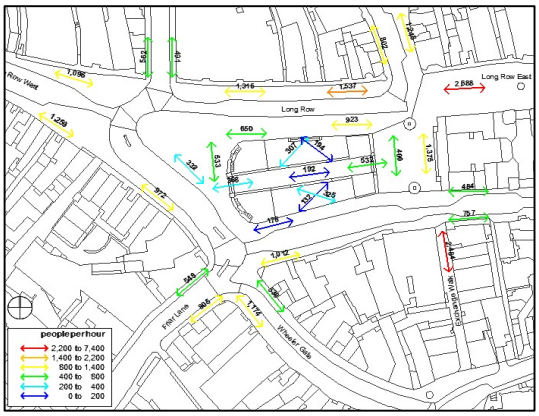


Figure 5.8 Pedestrian count per hour showing the busiest to least busy areas. (Source: Space Syntax Limited)

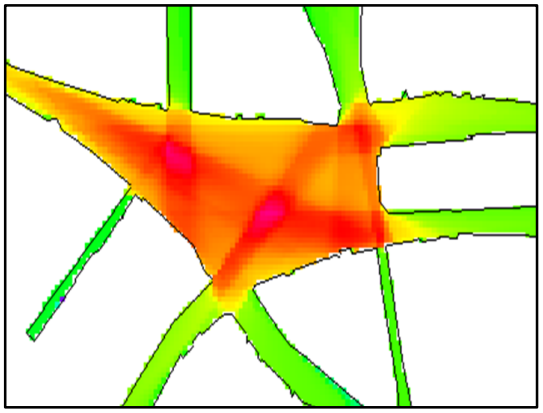


Figure 5.9 Visual Graph Analysis of the square highlighting the diagonals and the centre of the square as its visual core (Source: Space Syntax Limited).

The pedestrian movement of the existing square showed higher movement on the edges as compared to the centre. The pedestrian counts (Fig 5.9) are a count of the visitors on site at one time of the day. However, the pattern was found to be consistent through the rest of the day with the edges being better used than the centre. This is in contrast to the potential of the naturally visible core of the square as shown in the visual graph analysis (Fig 5.10)

In order to understand walkability, to and across the square, spatial accessibility models were generated (computer generated 2D models represented by a range of colours from red to blue, where red denotes high integration levels and blue shows lower integration and greater segregation).

Figure 5.10 Spatial accessibility (Local Integration)models showing a stronger core in the Proposed scheme (Bottom) (Source: Space Syntax Ltd)

The local integration space model showed movement lines along the perimeter and through the square to be among the highest in value, (indicated by their colour). It also showed numerous routes inside and through the centre of the square due to the fragmented layout, which further reduced legibility and created a fragmented use. The pedestrian flow and routes observed, confirmed the findings of the accessibility model, with the lowest pedestrian count in the centre and highest along the periphery of the square. The two figures (Fig 5.11) of spatial accessibility show how a shift in one line of movement through the square increases the potential for greater thorough movement and a more spread out use as opposed to skirting around the edges. Therefore, Space Syntax's recommendations included freeing the central space layout and strengthening the natural movement lines by channelling movement across these lines. Such interventions were proposed to firstly, increase the pedestrian movement

across the square, secondly, to increase the potential for more static activity and longer staying times and thirdly to increase natural surveillance that deters antisocial activity and 'undesirables' (Whyte 1988).

The Space Syntax movement study looked at spatial accessibility and stationary activity in the square through quantitative observations of 'static snapshots', 'pedestrian route study' and by using the council data on pedestrian movement, which were correlated with the spatial accessibility models. Since visual access attracts both movement and activity, the spatial study also analysed the square for visibility using visibility models. Qualitative observations as discussed earlier, revealed obstructions in sight lines at both eye and sky level that reduced the openness of the square.

A further analysis was conducted to evaluate visual accessibility by using visual graph analysis and an Isovist study. A visual graph analysis (Visual Graph Analysis) analyses the spatial structure and colours each grid location from red (more visually integrated) to blue (less visually integrated). Showing visual connectivity and accessibility across the square, the Visual Graph Analysis highlighted the most visually accessible axes indicating the natural orientations of movement across the square if the spatial layout did not obstruct movement. The difference in the existing movement and the natural movement flow was the weak centre breaking the naturally strong EW and NS connections. In order to strengthen the connection through the centre, the proposal used the historical drainage line as its reference with the water feature and seating areas organised around it in such a way that the centre and the space fronting the Town Hall was left open for free pedestrian movement and events.

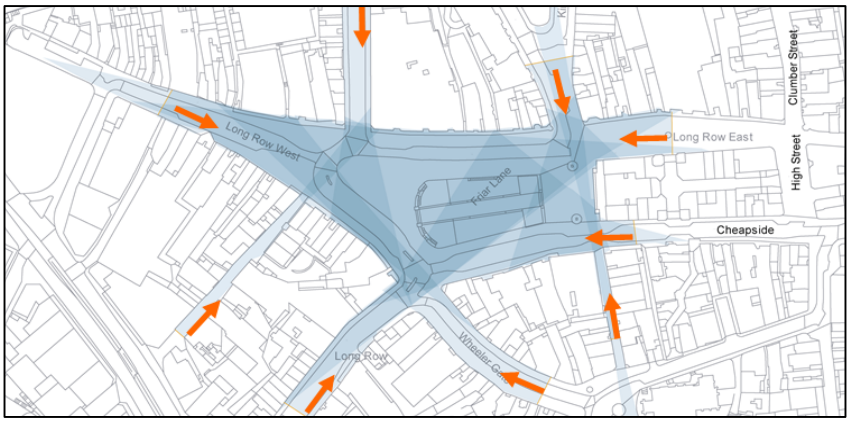


Figure 5.11 Isovists drawn from all entrances into the square highlight the most visually accessible parts of the square (Source: Space Syntax Limited)

The Isovist study traced the visual field from all the main entrances into the site confirming the Visual Graph Analysis findings by showing the main visual fields along the NS and EW and the SE diagonal of the square.

In summary, the spatial analysis for the Nottingham Old Market Square by the project architects consisted of a generic study, driven by standard urban design and landscaping principles. These involved qualitative observational assessment of the spatial characteristics of the square and a historical analysis of the site to identify significant features (drainage line running EW through the centre) and characteristics (the square's significance as a market place and congregation) reflecting the square's history. These were used as key reference in the design process. The architects also used a sun shadow study to understand the areas that would be shaded across different times of the day and relate this to static activities. The council's brief of providing accessibility, an integrated use, and to enable peripheral activities to spill into the space, were all indicative of the need for improving movement to and across the square, led to the design process of trying to collect evidence of existing movement patterns and use of forecasting models to support and justify the proposed spatial layout. The movement study applied a mixed methods approach that included qualitatively and

quantitatively studying the square for movement (footfall and route choice), activity and visibility. Movement observations and the existing square accessibility model revealed that the majority of people were not entering the square and from the few percentage who did cross the square, a significant proportion of these avoided the centre. The visual study using Isovists and a Visual Graph Analysis highlighted the visual connectivity from different entrances into the square, which was in contrast to the way movement was currently happening. The spatial layout for the new proposal was designed in alignment with the natural movement lines suggested by the visibility study and spatial accessibility models. The fragmented layout was therefore cleared to create a single large space with opportunity for static activity on the edges and the centre open for congregations.

Whilst the architects identified the natural movement lines through qualitative observations and conceptualised their proposed layout to reflect that, this was later confirmed by the spatial models and visibility studies. Thus, demonstrating the role of evidence as a tool to justify and support decision making.

Understanding Experience through User Involvement

One of the challenges in this case study was finding evidence of the nature of public engagement carried out in support of the redesign proposal for the Old Market Square. Whilst the application of public engagement is mentioned in project reports, CABE publications and media such as the BBC and architectural websites including *e-architect.co.uk* and *architonic.com*, there has been no formal documentation relating to the details of these sessions made available to the public.

In 2003, after the decision to proceed with plans for redesigning the Old Market Square, the Nottingham City Council liaised with CABE (now part of the Design Council) who became involved with organising the competition as well as assisting with the public engagement program. The program "included opportunities for the designers to consult directly with community stakeholders" (CABE 2011)[3] by appointing a CABE *enabler* overseeing the project.

[3] CABE National Archives (2011) (*http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/case-studies/old-market-square*) [Accessed 10 May 2016]

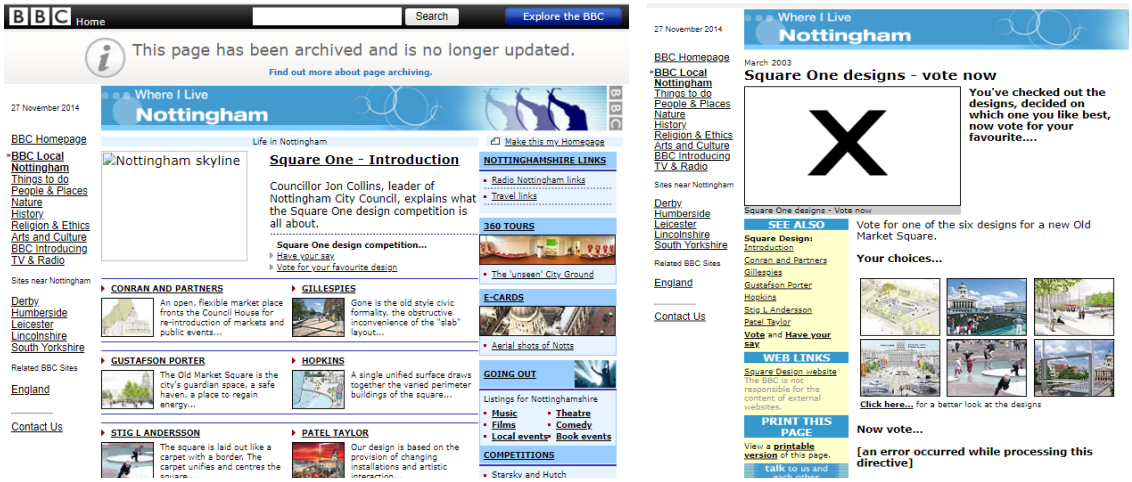


Figure 5.12 BBC news piece showing the six designs (L); with a Voting Link (R) (Source: BBC http://www.bbc.co.uk/nottingham/features/2004/03/old_market_square_designs_have_your_say.shtml)

As part of the competition process, the six teams were provided opportunities to interface with the stakeholders and public. There was direct consultation opportunity with key stakeholders shortlisted by the council as part of a stakeholder consultation day and indirect public consultation through *the interactive website and a public exhibition,* where the shortlisted schemes would be displayed. The website was made interactive by having a page to vote one of the six designs, as well as a 'Have your say' section, which allowed people to leave comments. However, there is no report that documents this and is made available to the public to for their knowledge of how these comments were taken into account. Following an online voting system and the verdict from the evaluation panel, Gustafson Porter Architects were commissioned for the project.

One of the requirements of the project as highlighted by CABE at the time of envisioning the project was public support and participation. Apart from the interactive website and exhibition, the general public and other stakeholders were also invited to assess the designs and record their views on feedback cards (Appendix 07), with a rating of the schemes (*Good, Average* or *Disappointing*) and a section to say if they had a favourite and why. A summary of these views was prepared by the council and given to the Evaluation Panel for the final judging

process. In addition to the website and online news pages with a voting link to the six teams (Fig 5.12), a financial report (Horne 2005) by the Corporate Director, City Development also discussed the public consultation that took place prior to the design's final approval. This is the only publicly available document on the project consultation found for the Old Market Square redesign. Other requests for details on the public engagement made to the Nottingham City Council; Design Council; the CABE Enabler who worked on the project; Disabilities group; Freedom of Information Office and the project coordinator at the Council itself for this case study research did not lead to any concrete outcomes.

The Corporate Director's report listed the events organised and participants at the consultation sessions. These included a *Members Seminar; Stakeholders Day in the Council House; Specific meetings with disabilities groups; Civic Society; Britain Bloom; Urban Design Forum and CABE; Ambassadors Event and a Public Exhibition at Broadmarsh Centre*. It also outlined the key issues raised during these consultation, which were - *robustness of design; high quality materials for easy cleaning and maintenance; lighting for attractive illumination for events and high visibility; safety of water features; and cleaning of the Council House*. The events and the participants listed by the report for these consultation sessions whilst representative of certain sections of user groups (disabled) suggest a narrow representation of everyday users and the general public. From all the events listed, the exhibition at Broadmarsh Centre shows an attempt at engaging with the general public. However, this only involved a display for the public without an opportunity for two-way communication (BBC 2004)[4]. The other events involved institutions, organisations and stakeholders without directly

4 BBC (2004) Old market square.
http://www.bbc.co.uk/nottingham/features/2004/03/old_market_square_designs_gustafson_porter.shtml [Accessed 15 September 2015]

engaging with everyday users such as shop owners, local residents and surrounding offices using the space. While the nature of issues raised by the selected participants are critical, they are limited by not responding to the larger section of user groups who were not involved. Further, the report also says that "[t]he design proposals were broadly welcomed. *67% of public expressed support for the scheme*. A number of issues were raised in the consultations and these have been addressed in the final designs" (Corporate Director Report, City Development 2005; p.2 Researcher's emphasis). Considering the selection of participants included a limited range of users, the use of the term *public* in this excerpt from the report is seen as misleading.

While community engagement has been portrayed as a part of the design process in the reports and publications (Horne 2005 and CABE's project description), an interview with one of the partners at Gustafson Porter Architects further confirmed that engagement was not a significant part of the process, but "a feeble attempt at participation" (Gustafson Porter interview). Including the exhibition display, the architects were part of a total of three events that took place with an open invite to the community to participate and was organised by the city council but not in collaboration with the architects. Questionnaires circulated were designed by the city authorities and were sent to the architects just before the event and remained devoid of any input from them. Held in a shopping centre (Broadmarsh Centre) these sessions "did not see many participants" (Gustafson Porter interview). A small core team of city officials followed close contact as the project progressed, consisting of maintenance, disability group, English Heritage and the Civic Trust. The concerns raised, as outlined in the financial report previously, were addressed in the design changes. These directly resulted from the feedback received from the sessions with the councillors and city officials. One such decision was the extensive use of plantation on the site, which changed the physical character by softening its edges with greens. The initial proposal was all grey and relatively barren. Whilst

the consultation that took place influenced design decision making, this study suggests that the range of representation in the consultation was limited.

Figure 5.13 Clay model used in stakeholder consultations (Source: Gustafson Porter Architects)

As part of the engagement sessions, the architects used a clay model, which is also part of their usual practice in client meetings and discussions. The model was developed and changed during the sessions as feedback was received. There is however, no documentation available of these models other than the Fig 5.13 above. The council was approached for questionnaires and documentation on the engagement process, however, no data was made available (Appendix 6). While the engagement sessions during design refinement involved stakeholders and civic bodies there is little evidence of direct interaction with *public* to influence design decisions. The role of the professional and paying client were that of decision makers, where there was dialogue and influence of stakeholders, as evident in the implementation of the greenery in the square. Whilst public exhibitions were organised by CABE and the council, these appear to be an attempt at 'informing' the public of the design which seems more of a lip service to engagement with no real opportunity for the public to participate and inform the design process.

These sessions included dialogue between the stakeholders, clients and architects in the form of discussions and feedback on the design proposal. The communication methods used included questionnaires designed by the council without any input from the architects; clay models used by the architects; and one-way communication through exhibition displays. All these stages of feedback were completely disconnected and were not feeding a continuous

chain of consultation-based design. In terms of role of the users, the end user was not inherent to the design process. Their role was reactive and mostly in the audience capacity.

In the consultation conducted for the Old Market Square project, the engagement process was strongly controlled by the Nottingham City Council with limited or no opportunity for real interaction with the general public/end users of the square to participate and effectively contribute.

Project Outcomes

A post occupancy study was conducted by the author to investigate the difference in movement within the square since redesign and to assess user experience. The study shows a positive impact. Ethnographic methods were used to capture movement data and interviews and questionnaire survey was conducted to evaluate user perception and experience.

Footfall data collected by counting the number of people crossing the centre of the square for 5 minutes at key times of the day to calculate a per hour rate and compare with the 2004 data reveals an almost three times increase (1056 people per hour) in pedestrian movement through the centre of the square (at lunch time) as compared to pedestrian count figures from 2004 (ranging from 130 to 300 people per hour for 'all day').

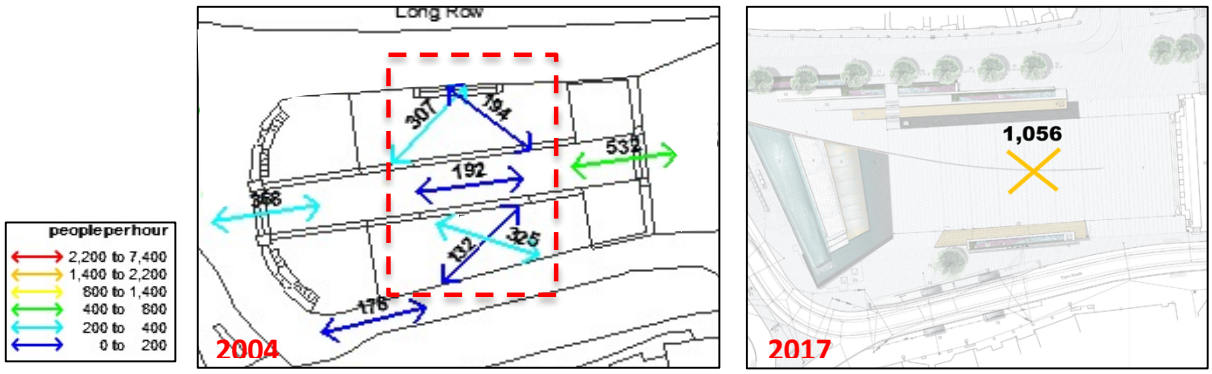


Figure 5.14 Pedestrian count in the centre of the square comparing 2004 and 2017 figures (Source: Author)

Data collected on pedestrian route traces of 130 people entering the site from the different entrances into the site boundary also shows that 12% increase in the percentage of people crossing centre in 2017 as compared to 2004. From all the diagonal routes observed, the percentage of diagonal routes avoiding the centres dropped from 30% to 26%. People were selected at random and followed for 2 minutes or until they left the site boundary to capture the percentage of diagonal routes that crossed the centre of the square.

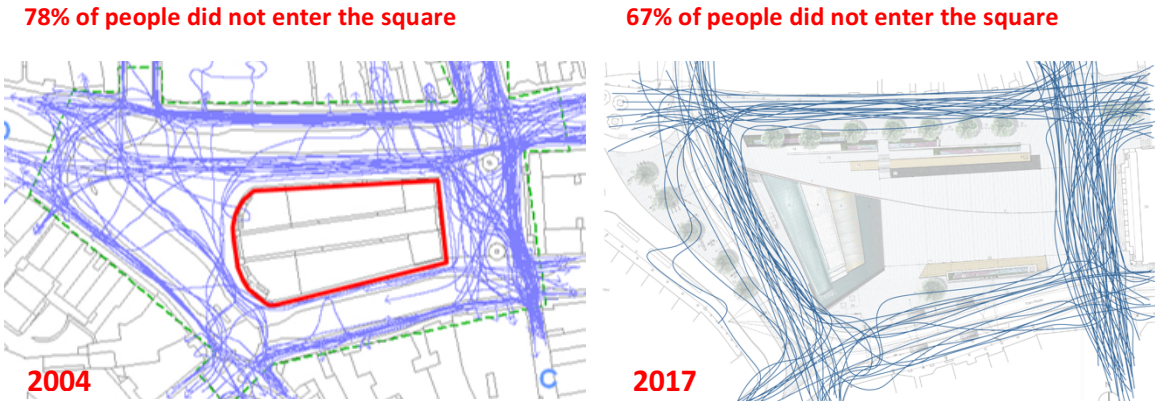


Figure 5.16 Pedestrian route traces showing a decrease in the proportion of routes avoiding the centre comparing data from 2004 with 2017 (Source: Author)

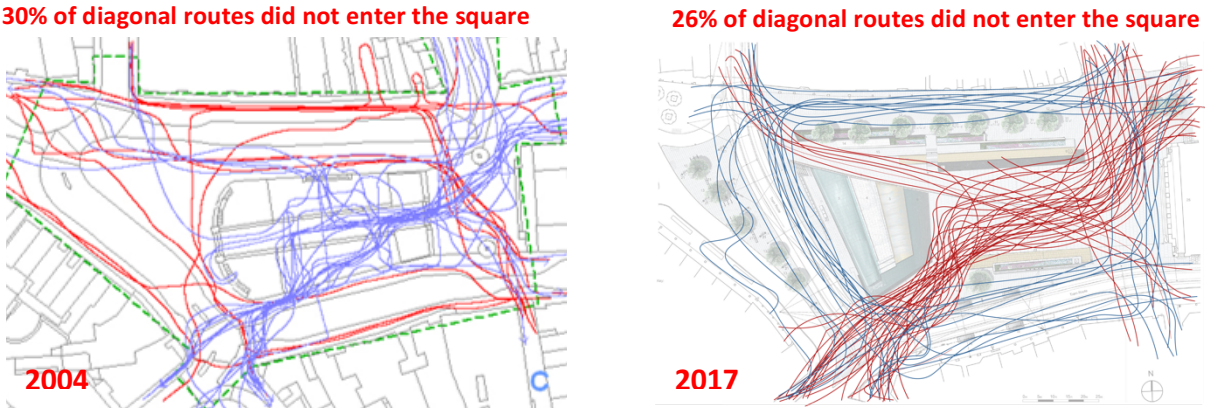


Figure 5.15 percentage of diagonal routes avoiding the centres dropped from 2004 to 2017 by 4% (Source: Author).

The user perception survey (Table 5.3) of 102 users at the square also reveals a generally positive experience with a majority of the users rating the square as 'Good'. However, issues such as the need for more greenery and colour (48%), need for improved seating (20%) and child friendly features (16%) surfaced as particularly significant.

Age group • Under 20 • 20-40 • 40-60 • 60+
Gender • Male • Female
How would you rate the Old Market Square: • Good • Average • Disappointing
What do you not like about the square and how can your experience of using the square be improved?
What do you like most about the square?
Have you seen the square before its redesign in 2007? If yes, which of the two do you prefer and why?

Table 5.3 Questionnaire survey to capture user experience and perception (Source: Author)

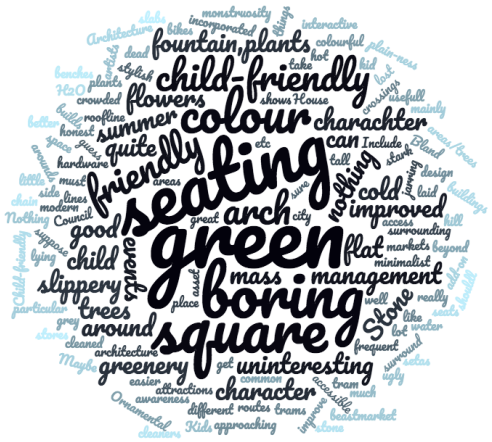


Figure 5.17 Word cloud generated from a user survey of 102 participants representing issues that they did not like about the square and can improve user experience (Source: Author)

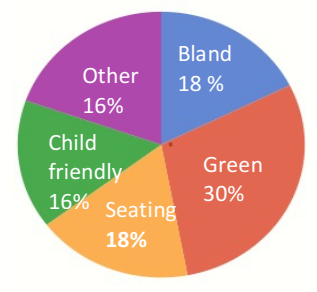


Figure 5.18 Most popular Improvements suggested by users (Source: Author)

The pedestrian movement along the northern edge walkway was observed to be denser than within the square, and spatial use of the square was found to be denser around the water fountains and on the seating spaces. As in most open public spaces in cold climates, the sun plays an important factor in attracting people but even more in retaining people in the square. A part of the square seating near the water fountains remains less used afternoon onward as anticipated by the architects due to a large shadow cast by the surrounding tower blocks. People in the evening seem to mostly move through the square, crossing through or walking around the edges instead of engaging in static activity in the square. A large proportion of those moving around the edges of the market square appeared to be getting on, off or making a transition in their journey (bus to another bus, tram to change to another bus or vice versa). User groups include all age groups, men, women, children, teenagers, individuals, couples, groups and families, tourists, people working in offices and banks around the square and those on wheelchairs. People of all age groups and abilities were found to engage with the space. A

number of mothers with buggies (11) and wheelchair (7) users were also observed moving or sitting along the edges of the large side seating (excluding the pedestrian walkway on the northern edge). A mix of 'optional' activities (such as recreation), 'necessary' use activities (such as use of the square by people working in the offices or shops immediately around) and 'resultant' activities (people going to a destination but stopping at the square, before resuming their journey) were observed in the square, demonstrating the flexibility and potential of the square to be suitable to a variety of user groups, demographically and in terms of a mix of static and dynamic activity types. This included standing, sitting, eating, people watching, talking, interacting with water feature, walking through, sitting/standing while talking on the phone, and tourists and non-tourists taking photographs. The seating and the water feature are strong attractors throughout the day. Stationary activity was found to conglomerate around these giant steps/seating areas and immediately by the water feature. While children tried to play with the water, adults were observed touching it and posing for photographs by it. People were observed to be sitting individually, in pairs or very small groups on the 0.75m high railing ledge by the water. 'People watching' (Fig 5.20) appears to be a particularly noticeable activity. The seating behind the water feature towards the western edge of the square was seen to be used by people on the phone, eating individually or in pairs and some who watched the square. This shows that certain parts of the square that are relatively segregated from the centre are valuable in these personal or more intimate activities.

Figure 5.19 People watching (Source: Author)

The location of the Council House and the historical significance of the site make the square an important civic, tourist and cultural centre. The new northern pedestrianised path in the new design (on the outer edge of the square) along with attractions such as the water feature, ongoing events in the square, seating and the openness of the square, emphasise the effect of the surrounding retail, as well as contribute towards activity around the edges by spilling pedestrian movement into the centre from these edges. Its proximity to the station and six trams and bus stops around ensures that people stop or cross the square giving the choice for people to pass by and occasionally spend time in the space.

Since the redesign, the square has been used for a large variety of uses. It is now being used more extensively as a space for public events.

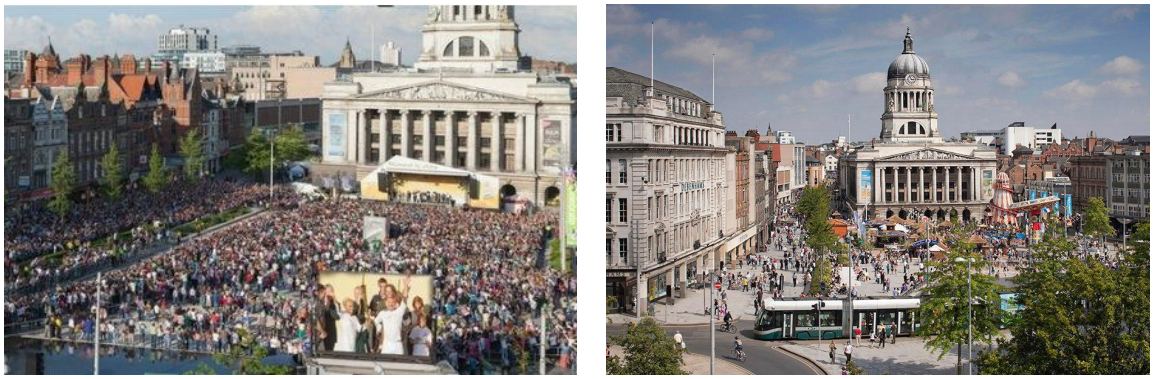


Figure 5.20 Square centre after redesign reflects a dense and multipurpose core (Source: AK Landzine)

Site observations (qualitative) revealed a spread out use of the space in front of the Council House and the central space of the square. A flow of people were observed moving from the pedestrian walkway through the square from the openings between the large stepped seating. In this sense, it fulfils the project brief requirement of allowing peripheral movement to spill into the square. The previously fragmented layout resultantly led to a fragmented use of the central space, which implied a large proportion of the square remained underutilised. Movement and activity in the new design, even when conglomerated along the peripheral seating is visually oriented towards the square centre, which correlates with the Visual Graph Analysis and Isovist study. This also contributes to the natural surveillance of the area. The images below show occupancy and activity spread in the new layout in comparison with the old at 1400 hrs, with highest recorded activity in the old square.

Figure 5.21 Comparing spatial use density of static snapshot from 2004 with photographs taken in 2015. Photographs show denser use in static activity in the square (Source: Author).

One of the key observations made by Gustafson Porter architects of the old site was the drinking and antisocial behaviour. The space at night time was observed to become popular with individuals drinking heavily. In order to assess the influence of the new design on the crime incidents and antisocial behaviour in the square, this study compared crime statistics obtained from the Nottinghamshire Police (Appendix 8) of the Old Market Square for different crime types and across the period from 2004 to 2014. Antisocial behaviour incidents ranged the highest at 240 incidents in 2005. The graph shows a steady decline in the number of antisocial behaviour incidents in the square to 53% in 2008 and15% in 2014.

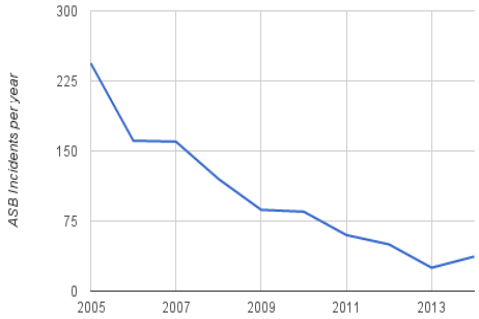


Figure 5.23 Anti Social Behaviour incidents per year (Source: Police UK stats)

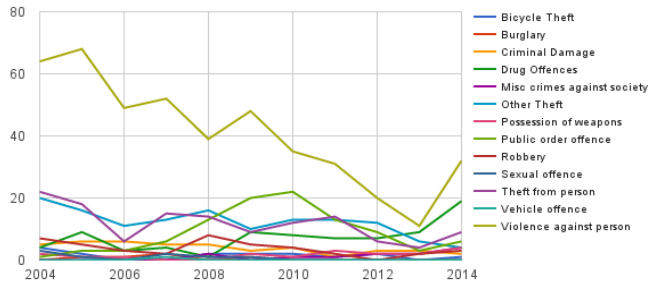


Figure 5.22 Trend in night time crime incident type per year. (Source: Police UK stats).

Amongst night time incidents, 'violence against a person' was the highest amongst the different crime types. This also shows a decline in the number of night time incidents per year from 63 in 2004 to 10 in 2013. This however, increased to 33 in 2014. In 2014 the Nottingham council passed the bill to ban public consumption of alcohol in public spaces of Nottingham including the Old Market Square as a measure to tackle crime and anti-social behaviour (Britton 2014).

In order to assess the evidence of design process influence on the outcome in terms of local and end user perceptions, experiences and concerns, various sources have been used. These

include semi-structured interviews by the researcher on the square, people's responses to the new design in blogs and newspapers, a user experience study of the redesigned market square by Lindsay Pussard (2011) and interviews of people on the square.

In 2008, soon after the square was completed, the redesigned square was studied by Lindsay Pussard (2011) exploring individual experiences of the redesigned market square involving 20 local students as participants and observers. The study examined if the square was as successful in its experience as its design statement (user's perspective) as a place of encounter. Descriptions of observers included: 'it is an attractive space for meeting, promenading and watching the world'; 'the seating areas provide good viewpoints … if you're just passing you can sit down and relax for a while [and] take in the view of … those in a hurry pass by…'. Another student observed the multiple ways people interacted in the space "... there was a busker sat on the flower bed edge facing the shopping arcades, whilst people wanting to interact privately tended to face the fountains. People waited for others by the Council House or opposite the Subway [sandwich shop] on the north east corner … before moving on or sitting near the fountains." (Ibid).

The researcher's observations of the square and conversations with people sitting in the square indicate a sense of safety, comfort and a space within the square for more sociable interactions as well as personal experiences such as being a spectator and watching other people and activities. Semi-structured interviews were conducted with 25 people selected at random in the square that showed mixed responses. A group of three elderly people sitting by the steps revealed that there has been an increase in use, with multiple experiences in the new design as compared to the older layout. Two locally living individuals criticised the design, for its all grey slabs. Local people felt that older design had a certain architectural character which the redesign has now lost, although the farmers market, beach and Christmas markets were

generally appreciated. Interviews of people in the square also revealed a need for better and recognisable seating - “The current space needs more recognisable seating. At the moment it's just stone. Right now the square is too modern and too boring at the same time.” (Interview 5, Ibid)

Other sources of people’s perception and thoughts on the market square in letters to newspapers and personal blogs on Nottingham refer to the square as boring in character as compared to the earlier design.

> *“Boring, boring, boring! I was not very keen on the new Market Square to begin with, but over a period of time I have come to acknowledge that it is not too bad and I do like the various activities and events which now take place there. However,.. I was very disappointed to see how drab it all looks. I expected it to be full of many brightly-coloured flowers and plants but most of what I could see was just boring greenery.” (Young local female)*[5]

Another local resident positively responded to the fountains in the new design, in her blog. Observations on site in both the old and redesigned square, as well as the semi structured interviews confirm that the water features of both layouts have been popular and work as attractors. However, she points to the lack of trees, and compares two photographs taken by her before and after the redesign of the square.

> *“Personally I like the new water feature and can see the benefits of having a large flat space for events. But I really miss the greenery of the old design. When I first came to*

5 (http://www.nottinghampost.com/brighten-city/story-12226776-detail/story.html)

> *Nottingham I was very impressed with the Old Market Square and the way it felt kind of like a garden in the middle of the City." (Female user blog post)*[6]

Overall the square addresses the key qualities of good public spaces (Project for Public Spaces 2016). The redesigned square shows good *accessibility* due to its strategic location and the number of transport links next to it. People are engaged in a *variety of activities*, which are a mix of static and dynamic, and vary in types and density across different times of the day, different days of the week and different times of the year depending on events and occasions. While the space is *comfortable*, interviews and user experience survey showed that although the use of green was suggested in stakeholder consultations and implemented to a certain extent, this was not sufficient, and suggest strong opinions regarding the need for more trees, colour and a sense of blandness with the extensive use of grey stone. (Appendix 09) In terms of the *image of the place*, the Old Market Square is generally appreciated for its overall design and as a sociable place to be in, where people not only meet people they know or visit as tourists but also 'watch' other people and the square itself.

6 https://nottgirl.wordpress.com/2009/06/18/is-old-market-square-boring/

Key Learnings

This case study is particularly important to learn from, since despite limited engagement, the redesigned square shows evidence of being a popular and successful public space, and has won recognition for its design excellence. The case study analysis has shown that while both public engagement and evidence based spatial analysis were employed, these were separate approaches. Engagement was used to respond to the outcome of design schemes and analytical findings with limited contribution to design, and spatial analysis was used to inform, validate and improve the architects' proposal without any exchange with the users or user representatives. In an interview, Gustafson Porter Architects confirmed that while they were able to infer the natural movement lines during initial site analysis, by involving Space Syntax the architects could further justify their design decisions using objective evaluation.

> "Space Syntax's analysis and design contribution helped unlock the scheme. The evidence they presented proved critical in promoting our design and convincing people that it would work." Neil Porter, Gustafson Porter Landscape Architects, Space Syntax website

The converging point for engagement and the spatial study in this project was during the stakeholder sessions where they discussed the design and expressed suggestions and concerns, which were later implemented. Although the design process was more expert and client driven with limited influence of the general public, characteristics of the square compare positively with the indicators of good public spaces (Project for Public Spaces 2016).

The approach taken to address the design process and the end design outcome of the Old Market Square redesign demonstrates a strong spatial study that was informed by multiple types of data and analyses, forming a strong objective evidence base. This was through a

preliminary spatial study to understand and validate the approach for the design competition proposal, and a subsequent spatial analysis using Space Syntax methods addressed the public realm, movement and static activities of the square, to inform and support with evidence the design solution through the refinement process.

The project outcomes gathered from the analysis of the Old Market Square redesign study shows an improved impact of the new design on movement and activity. Observed spatial use and evidence of users' perceptions and concerns shows an increased occupancy and more flexibly used space as compared to the old square. Activities in the new square are also seen to be more uniformly spread as compared to the old square which was mostly used around its peripheral edges. This is shown in the photographic evidence of different parts of the square from 2015 compared with the static snapshots from Space Syntax for the same time period. The strong pedestrian movement along the northern edge, conglomeration in front of the Council House, movement from the northern edge and NE corner of the square through the centre and orientation of activities such as 'people watching' (which is very prominent along the seating) are oriented towards the square centre. This confirms the findings of the visual analysis (Visual Graph Analysis and Isovist study) that identified the square centre as the visual core, and the qualitative visual study that suggested removal of objects such as unused phone booths, wires and posts to improve visibility.

The spatial study and analysis of the square addressing design was part of a multiple and mixed method approach. This involved the use of engagement to satisfy stakeholder requirement or brief and scientific models to simulate movement; movement flow, public realm surveys; visibility models; and a shadow study to inform the design proposal. Through the course of the design process these methods were related to each other to correlate and confirm findings.

Specifically, conducting a pedestrian movement survey of the square and its immediate context confirmed the strong diagonal visual line which was also anticipated by the architects in their conceptual study. However, these surveys were used in hindsight and were primarily useful in verifying the scheme and the Architect's hypothesis. A number of information types were used for analysis and correlation of findings. These included quantitative information on movement (pedestrian flow and routes) and activity (static snapshots) and qualitative information in the form of feedback and comments from stakeholders regarding material quality and greenery on the square. It involved stages of iteration based on client and stakeholder input.

In terms of engagement, the involvement of stakeholders and civic bodies was identified as key to the design process and was undertaken before and during the design process. However, the stakeholders did not include the end user. Although the end user was represented by organisations and civic bodies, such as the disabilities groups and Britain in Bloom, this was a narrow and limited representation. Participation of groups such as local shop owners, regular square users including those working in and around the square and the larger public that uses the square was restricted to the public exhibition without any opportunity for dialogue between the decision makers and the user. Although questionnaires were circulated for the stakeholder engagement, these were designed by the council without consultation with the designers. Therefore, whilst stakeholders and civic bodies were involved in a significant way, the engagement was controlled (by the paying client - the Nottingham City Council) and limited in representation of users. As such, in terms of Wulz's seven forms of participation, *end-user engagement* for this project is considered to sit only on the *Representation* rung.

The documentation, publications or media shows limited outreach to the wider public for participation and therefore the approach also ranks low in terms of inclusivity and accessibility

to the local users. Moreover, the application of Space Syntax methods and the use of models were the architect's initiative and not financially supported by the client. Although, in this particular case the designers have used these approaches to justify and support their proposal as part of a competition, such practice, without the financial support of the client and with limited budget and time, is a challenge.

The Nottingham case study is centred around the use of evidence in three ways - in identifying the key concern areas in the existing layout; in using historical research and scientific research (theories of natural movement) to derive key design principles; and in using evidence and research as a prognostic tool to assess the likely impact of the new design on pedestrian use and activity. Such use of evidence and research in addressing design decision making is the biggest strength of the Nottingham Old Market Square design process.

Based on the successful and improved use of the square and general levels of user satisfaction, this thesis identifies *use of objective evidence* as a critical part of an integrated participatory evidence based process. This will be further analysed as a principle for an integrated design process in the Comparative Analysis chapter (7).

The primary relevance of this case study is in demonstrating the value that spatial analysis can bring to design as an objective evidence based approach for decision making, as well as for assessing and communicating the rationale behind these decisions. While the aim of user engagement is to ultimately ensure that needs, desires and perceptions of the users are addressed, design is constrained and needs to be grounded in objective realities. To capture

this fundamental need, a further principle of participatory, evidence-based design is developed to address this - *Ground analysis in objective evidence.*

This principle ensures that the design process gathers and applies objective data and/or scientific research to analyse design problems, identify issues and incorporate this as part of the design methodology to derive solutions. This objective data/research implies the use of information that is a fact and can be confirmed through search, measuring, observation or analysis and can be evaluated.

Chapter 6 : Wenlock Barn Estate, London Borough of Hackney

Project Background

Wenlock Barn Estate is the largest housing estate in the Shoreditch area of central London (north of the City of London) within the London borough of Hackney. The first block of flats in the estate was built in 1949, and the earliest development in the area dates back to 1837. Historically part of the East End of London, Shoreditch has now become part of central London. Over the last three decades, it has undergone gentrification. Property values have gone up and the working class has been replaced by the creative and tech businesses. The warehouses that once existed are now art galleries, clubs, pubs, offices and residential flats. It has become an area bustling with crowds throughout the day and an active nightlife.

Wenlock Barn Estate is a large post-war housing comprising of smaller clusters of inward-looking social council housing courts (Bletchley court, Cropley court, Evelyn court, Sylvia court, Shaftesbury court, Wimbourne court, Bracklyn court, Napier court, Parr court, Alford court and Wenlock court). It is situated between City Road, a heavy traffic route, on the south (5 min walk from Wenlock Barn Estate); Regent's canal on its north; the New North Road a secondary road on it east with the Shoreditch park (Hoxton) abutting it.

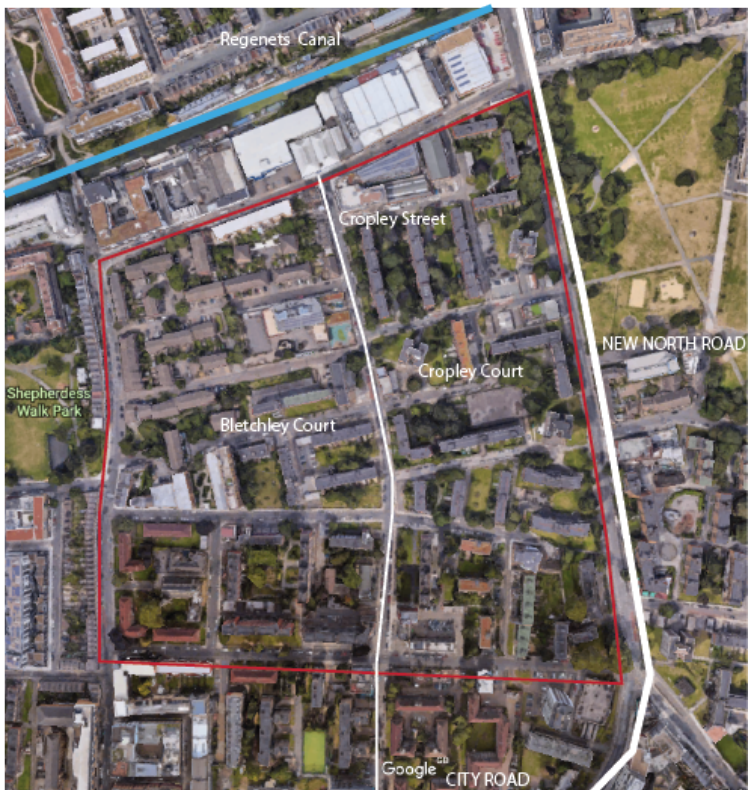


Figure 6.1 Wenlock Barn Estate in 2012 with site boundaries (Source: Google Earth)

The estate is nestled in a quiet neighbourhood, contrasting to the nature and levels of activity along City Road and Old Street on its southern side. At the time of its construction, the established nineteenth-century terrace housing was replaced with new modern housing blocks. While these new housing blocks were organised such that all flats received south sun, this was in contrast and countering with the traditional street structure. The new layout resulted in a large number of voids between these blocks and courts and it was the nature of activities within such spaces and their standard of maintenance that became a subject of concern for the residents of the area. As a result, in 2009, Wenlock Barn Estate was identified as a problematic zone by the Shoreditch Trust (Project Client). MACE Architects and Space Syntax Limited were commissioned as part of the design investigation team to understand how the estate's spatial design was related to the vulnerability of the area and how design interventions could help control such activities.

The commissioning of the Wenlock Barn Estate physical improvements was part of a much larger *New Deal for Communities* (NDC) scheme. In order to get a better understanding of the various political and logistical influences on the Wenlock Barn Estate improvements project, it is important to understand how the New Deal for Communities program and the Shoreditch Trust influenced the Wenlock Barn Estate improvements and the overall progress of the project. In 1998 the Labour government launched the New Deal for Communities regeneration program targeting the most deprived neighbourhoods in England. This was a central government regeneration initiative, where local community representatives and the council got together to submit a joint bid to the government for a 10-year community-led programme. As a part of this, Shoreditch, one of the most deprived neighbourhoods of London at the time, was granted a funding of £80.

The New Deal for Communities program was preceded by two years of community consultation and engagement. The engagement sessions prior to the funding were led by the council. These had a board of 12 people, majorly comprising oflocal residents, while the others wererepresentatives from community services and authorities who spent a lot of time liaising and negotiating with the Hackney council in the process of preparing for the bid. These formed The Shoreditch New Deal Trust which was incorporated as an independent charity organisation. The Shoreditch New Deal Trust, now known as the Shoreditch Trust along with the council, ran numerous documented and undocumented meetings and consultations with the residents to go into the bid. Being a priority for the local community, housing was an important part of the bid. Resultantly it became a priority as part of the New Deal for Communities fund which received its specific allocation of £22 million. Since its conception, the Shoreditch Trust has kept the local community at the centre of its agendas. Its core objective has been to engage local people and promote social inclusivity. Building on this, it has tried to ensure community engagement in all public interventions impacting the lives of

the local people, with an agenda "to empower the participants to be more active, engaged and connected within their communities" (Shoreditch Trust 2016)[1]

The New Deal for Communities program plan for Shoreditch was divided into five themes - education, health, housing, employment and community safety (which included issues around crime). Housing interventions focussed on three estates until 2008 - Fellows court (that looked at security indoors and entry systems, central heating, weekly surgeries, phone lines and a forum for the residents to express concerns); Buckland court (regenerated as a demo project to show the council how best to use communities and development, with works here including the exterior areas, facades and security systems); and Cranston Court (sustainable energy efforts). Wenlock Barn Estate improvements were not significant for housing interventions during the early years of the scheme until 2008. The engagement sessions early on in the program (2001) identified a lack of E-W connectivity in the Wenlock Barn Estate area as an important concern. This was part of the *housing* agenda for the estate and surrounding courts and high on priority for the community. All buses at the time were restricted to the N-S roads. Meetings with residents of the estate and representatives from the council and transport authorities led to organising a new bus service (route 394) connecting E-W across Wenlock Barn Estate.

> "We had an elderly woman who lived in Wenlock Barn Estate and her sister, who was housebound lived in Fellows court. Because of the bus routes, it meant three buses. She only visited her sister once a month paying for a taxi. When we introduced the bus service that took her door to door, she was able to visit her sister twice a week.. So it made a huge improvement in people's lives. And we also connected it to the Homerton hospital. So, it was the only bus service that took people in Shoreditch direct to the hospital, before that it would've been two or three buses. Everyone in Wenlock Barn Estate will remember the 394 bus. Not a housing project as such but it was a major achievement for local people. Surprisingly the Trust doesn't mention that on their website, even though that is the most popular project that the Shoreditch Trust did for

[1] Shoreditch Trust (2016). Shoreditch Trust | About Us. *Shoreditchtrust.org.uk*. http://www.shoreditchtrust.org.uk/About-Us/ , [Accessed 03rd May 2016]

> the local people. This was a direct outcome of the engagement sessions." (Former Deputy Chief, Shoreditch Trust, Appendix 1)

Through the course of the New Deal for Communities program, the Trust saw a political shift in the board and the office, which also resulted in a shift in priorities. The director of the program at a later stage was replaced by one of the project managers for *community safety*. With this change in leadership, attention and a large part of the remaining New Deal for Communities funds were directed towards addressing security issues. This was the stage at which the Wenlock Barn Estate improvements program was conceived to tackle safety and crime issues. It was only much later decided that safety was an issue that needed to be addressed via design. The funding for the New Deal for Communities program by this time (2008) was coming to an end. This meant that even if a design study was carried out and recommendations made, its execution was uncertain. A full design study was completed by MACE Architects in consultation with Space Syntax Limited in 2008. The end of the New Deal for Communities partnership and the onset of the 2008 economic crisis in the UK, adversely affected the Shoreditch Trust, reducing staff strength. While the Trust hasn't dissolved, none of the people who worked as part of the project remain at the Trust. This has made information access from the Trust or the estate a challenge. Remaining documentation is limited at the offices of MACE (MACE 2008) and Space Syntax (Rose et al 2009a; 2009b), and none is available at Glasshouse. The Wenlock Barn Estate Tenants Management Organisation was first established in 2006, well before the project was commissioned to Space Syntax and MACE, and have an active say in the day to day running and management of the housing estate. They claim no knowledge or any documentation about the improvements project. The interventions that have taken place other than those reported by Space Syntax are not known due to unavailability of members from the authorities, Trust and Tenants Management Organisation and Shoreditch Trust who might be informed about the project. This was the first roadblock faced by this study.

The co-founder of Fourthland who was interviewed in 2015 did not think of the estate as crime-prone or unsafe and found the 2008-09 report conclusions about crime in the area intriguing for the same reason, which “may have been true for the time but not currently” (Fourthland Co-founder, Interview, Jan 2015). The researcher’s observations of the three sites were similar. The estate did not feel unsafe, but it was quiet especially within and around Bletchley and Cropley court.

After much difficulty, contact was made with a former member of staff at the Shoreditch Trust who was part of the Trust board during the New Deal for Communities program, who was also the deputy chief at the Trust. Information regarding the program politics and engagement processes was largely obtained through them. Most of the spatial data, information and project progress was accessed through project reports and interviews with key members of staff at MACE and Space Syntax Limited, who worked as key consultants on the project.

Glasshouse along with the Shoreditch Trust was involved in consultations and engagement sessions as part of other schemes, before the commissioning of the project to MACE and Space Syntax Ltd. These sessions raised concerns about crime and safety. Space Syntax Limited offered its expertise in mapping and analysing movement in the estate to understand spatial use patterns for underlying spatial mechanisms contributing to the anti-social atmosphere. MACE was commissioned to produce a series of surveys and urban realm improvement projects in collaboration with Space Syntax who conducted the spatial analysis and made recommendations. The final proposal also had to be informed by a set of other research sources, including, Crime Opportunity Profile report that outlines the crimes committed with an area and the environmental factors that contribute to crimes, Crime Prevention Through Environmental Design (CPTED) principles, and in consultation with Hackney Council’s Street Scene Public Realm Design Guide. The Wenlock Barn Estate improvements were aimed to create a safer and more pleasant environment, improve residents’ perceptions of the area, and reduce the current fear of crime.

The three key organisations commissioned by the Trust (Glasshouse; MACE; Space Syntax Limited) were brought in at different stages of the project program. The Trust worked with Glasshouse and Space Syntax Limited in the earlier stages for engagement and mapping purposes, and results from these were to be incorporated in proposals prepared by MACE. Following the report prepared and design proposals suggested, there has been no documentation or evidence to suggest if these were implemented. The obscurity of the end result is mainly due to the near collapse of the Trust during the 2008 economic recession, when the Shoreditch Trust suffered a major breakdown and was on the verge of being dissolved, soon after the commissioning of the Wenlock Barn Estate improvements project.

As per Fourthland, some of the hidden green spaces considered unused and feeders for antisocial activity as deduced by the Space Syntax reports, are spaces that the residents consider important pockets they use and many of which have now been converted to allotments or small orchards. Many of the unused garage spaces have become attractive to developers who want to buy these.

In terms of the spatial structure of the site, the spaces on this site neither qualify as 'go to' spaces (discounting the school and houses) nor as ‘go through’ spaces, without any attraction in or around the site for which people might want to travel through the estate. The spine of the neighbourhood starts on City road where it connects with Old street and runs N-S right through to Provost Street which becomes Cropley Street where the Wenlock Barn Estate site begins. Cropley Street goes straight until it hits a warehouse abutting the canal behind it, with no access to the canal. Cropley Street (a secondary route) throughout its length branches out to connect into numerous tertiary residential roads that further divide to connect to the housing.

One of the ways to analyse the attractiveness of a set of spaces can be by studying its retail - shops, cafes (outdoor cafes) or any potential people attractors. In the case of the Wenlock Barn Estate, the variety and number of retail shops are very low. Being a primarily residential

neighbourhood, it is reasonable to not have a thriving square, market or plaza with shops and cafes, however, the Wenlock Barn Estate site offers no recreational spaces within the estate. Green spaces within the neighbourhood are in private courtyards of each building cluster, very small in size allow no more than one or two families to use and are few in number. Shoreditch Park is the only reasonably sized park, but is situated outside the estate. There are no sports, leisure or communal facilities that bring people together. A walk around the Wenlock Barn Estate area crossing towards other immediate wards such as Hoxton and Old Street showed a sudden shift in character. The layout in Hoxton is more open as compared to the estate housing layout which is inward facing and is not visually connected. There is a difference in the spatial layout of these neighbourhoods which might be playing a role in this shift in character and use. While areas around Wenlock Barn Estate such as Hoxton have a variety of facilities spread around. Wenlock Barn Estate has almost none.

The *Process Analysis Table* on the next page presents an overview of the actions taken as part of the process, analytical and engagement methods used and the outcomes, at each phase of the process. These are discussed in detail in the subsequent sections.

Process Analysis Table

Actions	Methods		Outcome
	Engagement	Spatial Analysis	
GETTING STARTED			
Community consultations towards joint bid to government's New Deal for Communities program			Engagement as agenda from the start
Steering committee appointed - Shoreditch Trust incorporated Initial consultation sessions as part of NDC			Governance setup Identified key issues (crime and safety)
Measures to encourage wide community engagement: - Neighbourhood photographing sessions; - Online forums, community phone lines, the Shoreditch magazine; - Neighbourhood Wardens organised	Community events and activities, online forums, phone lines, print media		Increased community awareness and support
Space Syntax Ltd commissioned to perform spatial study to identify the contributors to fear of crime and safety MACE architects appointed to propose improvements based on supporting evidence from space studies and other sources Principle of using research evidence and participatory sources to inform design established as part of commissioning	Participation as explicit agenda	Evidence-based design as explicit agenda	User engagement explicitly part of the project vision. Evidence based design approach established.

Table 6.1 Process Analysis Table - 'Getting Started' Phase

Actions	Methods		Outcome
	Engagement	Spatial Analysis	
CONTEXT			
Preliminary site analysis by MACE architects - historical evolution, street layout		Design research	Evidence on spatial issues contributing to fear of crime
Community driven research - photography walking tour with community researchers and residents - mapping of crime hotspots and a street audit by a crime prevention advisor (COPS report) - discussion with Residents and Tenant Management Organisation (TMO) members on findings	- Photography walking tour - Meetings with residents	-Visual site observations -Statistical data analysis	Objective and subjective evidence collected to identify three priority sites for improvement
Spatial analysis performed by Space Syntax Four studies on key themes: "Existing Spatial Structure" "Quality of Public Realm" "Existing use patterns" "Residents Perceptions": data collected by trained community researchers (305 people interviewed) Crime Investigation Study - relating crime data with findings from the movement study Spatial analysis report prepared to support urban improvements proposal	- Recruiting and training community researchers; - Resident researchers collecting data from residents	- accessibility models - pedestrian movement survey - pedestrian route survey - land use survey - open-built space survey - block size survey - building frontages survey - community questionnaire - demographics data collection - computer modelling	Design recommendations made based on correlations and overlaid evidence base (objective/subjective, qualitative/quantitative)

Table 6.2 Process Analysis Table - 'Context' Phase

Actions	Methods		Outcome
	Engagement	Spatial Analysis	
DESIGN			
Series of design improvement proposal sketches produced by MACE: - based on the spatial analysis report and other research sources (COPS report, user group consultations, etc.) specified by the Trust at commissioning User group consultations: - user group meetings with local planners. - Resident Consultations: free training for residents on Urban Design - 26 residents, majority of the TMO actively participated in the design process Final proposal options presented to client (Shoreditch Trust): an ideal scheme and a minimal intervention scheme	- User group meetings - Resident consultation meetings		Proposals elaborated through an ongoing consultation process
FOLLOW UP			
Series of landscape improvements carried out addressing part of the recommendations made			
Post implementation study carried out by Space Syntax applying same methods used previously		Space Syntax methods (as in pre-implementation)	Objective evidence on effectiveness of project outcome collected

Table 6.3 Process Analysis Table - 'Design' and 'Follow up' Phases

Understanding Behaviour and Spatial Use

Spatial analysis guiding the Wenlock Barn Estate design improvements proposals was carried out by both MACE and Space Syntax Ltd. The overall design schemes proposed by MACE were principally driven by a set of research sources. They involved an urban structure and footfall study; an analysis of the crime opportunities within the area; applying 'crime prevention through environmental design' principles; Hackney Council's *Streetscene Public Realm Design Guide*; and a Disability Discrimination Act general access guideline.

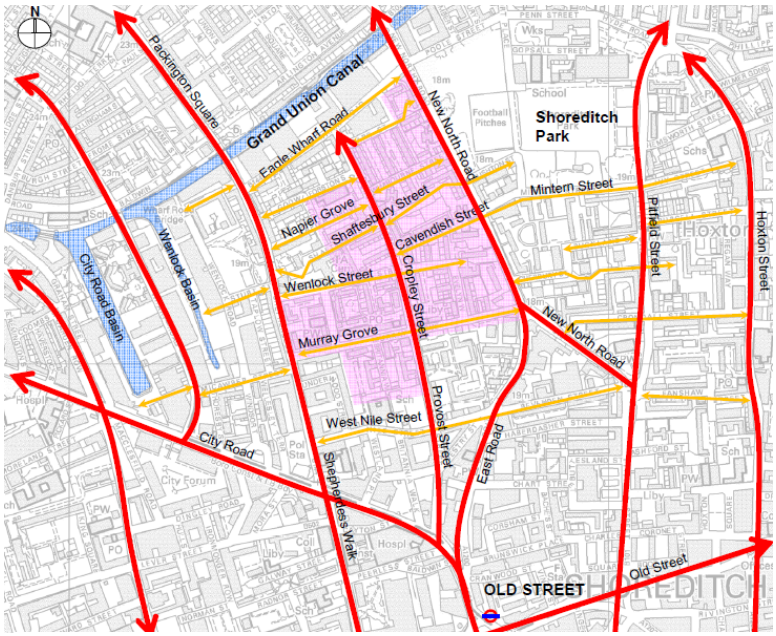


Figure 6.2 Primary and secondary movement lines around Wenlock Barn Estate

The 'urban structure and footfall study' documented and analysed the street structure and movement within the site. An analysis of the Crime Opportunities within the area (COPS report) and an analysis of the initial scheme locations, based on the crime statistics and experience was prepared by a police representative seconded to the Trust. Crime Prevention Through Environmental Design (CPTED) studies were used as a reference in the analysis of the

focus areas. The CPTED design principles provided methods to minimise future opportunities for crime and reduce any associated fears. Hackney Council's Streetscene Public Realm Design Guide, the Disability Discrimination Act and General Access Guidelines were referred as key throughout project development. The former to address the quality of public spaces and the latter to ensure wheelchair access can be accommodated throughout the site. The CPTED, Hackney council's Streetscene public realm design guide and DDA and Access Guides were used as guidelines and the movement study and crime opportunity analysis within the area were key drivers in the scheme recommendations.

The Space Syntax spatial analysis study was structured around four key themes - the *existing spatial structure* in how it responds to a larger urban grid; *quality of public realm*; existing *use patterns* and users; and *linking these three themes*. The study investigated how the existing spatial structure and public realm quality relate to the residents' perceptions of security and crime. The Space Syntax methodology followed an evidence informed design approach using a series of surveys and analyses based studies. Observation data were collected on site with the help of community researchers trained by Shoreditch Trust as part of the New Deal for Communities program.

To address the first theme of their design study, Space Syntax consultants conducted a spatial accessibility study. Based on the theory of natural movement, these studies are used to describe the effects of the spatial structure on pedestrian movement. Accessibility, is calculated by correlating two Space Syntax measures - Choice and Integration and helps to measure the degree to which people choose a certain route over all other routes when moving from one point to another. This is represented in the form of a 2D model, prepared using a software (Depthmap) with colours indicating the degree of spatial accessibility of a route (Red to Blue - where red indicates high and blue indicates lower levels).

Spatial accessibility for Wenlock Barn Estate was calculated at a local scale, to study the internal street layout; and a global or citywide accessibility model that showed the level of accessibility or probability to choose a route from anywhere in the city to get to anywhere else through the site.

Figure 6.3 Spatial Accessibility model for the estate shows the street network hierarchy (Source: Space Syntax Limited)

Figures 6.3 and 6.4 show the local and citywide levels of accessibility through Wenlock Barn Estate. This reflects the probability of a person immediately next to the site, choosing a route to go across the site when calculating local accessibility (Radius 1200m). In case of calculating this measure for the larger urban grid, it shows the possibility of using the estate as a thoroughfare. This is important from the perspective of natural surveillance, critical in preventing and controlling anti-social activity in streets.

The global accessibility model showed two key things. First, a weak E-W connection across the estate, connecting to other main movement lines that link the site to its wider city scale

context. Second, this model showed a sudden drop in the accessibility value from Cropley Street towards the canal. The first finding explains why the older transportation links (prior to 2001) were N-S connecting. Since these routes were naturally better connected and accessible, it meant that if anyone wanted to go outside the site, they would have to go up to these N-S roads. This issue was also raised by the community in engagement sessions.

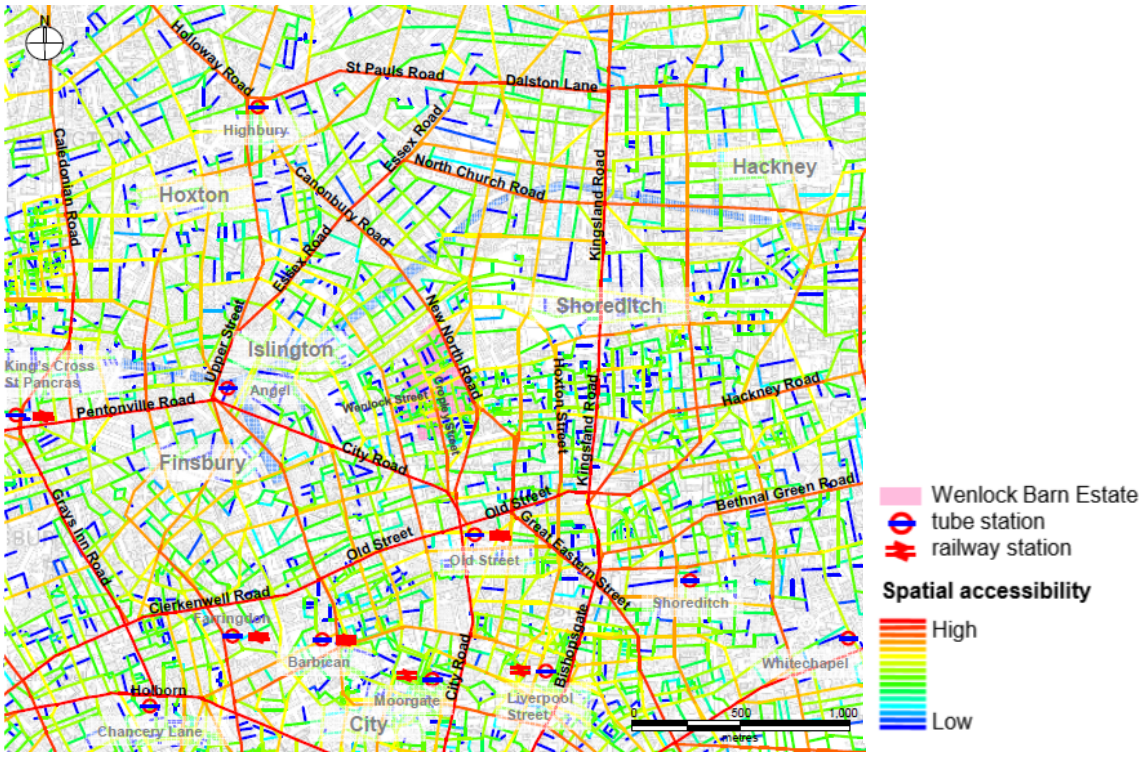


Figure 6.4 Spatial Accessibility at a City-wide scale (Source: Space Syntax Limited).

Local spatial accessibility model showed a weak internal street layout. The streets ranking the lowest in local accessibility are the ones that do not extend beyond the estate. The streets that continue beyond the edges of the site across, connecting to other movement lines ranked higher. This correlates with the pedestrian flow and pedestrian route study on these streets. From this, Space Syntax suggested that these routes that continued beyond the estate (Murray Grove; Cavendish Street; Eagle Wharf Road) be retained since they already form a natural movement line connecting to the main roads outside the site. In this way, these would allow greater through movement and resultantly greater natural surveillance. Further emphasising

these extended and more accessible routes encourages non-residents to use these too. These naturally more accessible routes identified by the spatial model was confirmed by the pedestrian flow, observed using ethnographic observations, conducted throughout the day over a weekday and a weekend. Movement on these routes was higher during the weekdays than the weekend.

Interestingly in both local and global accessibility models, the second half of Cropley Street towards the canal had very low values. (Fig 6.5)

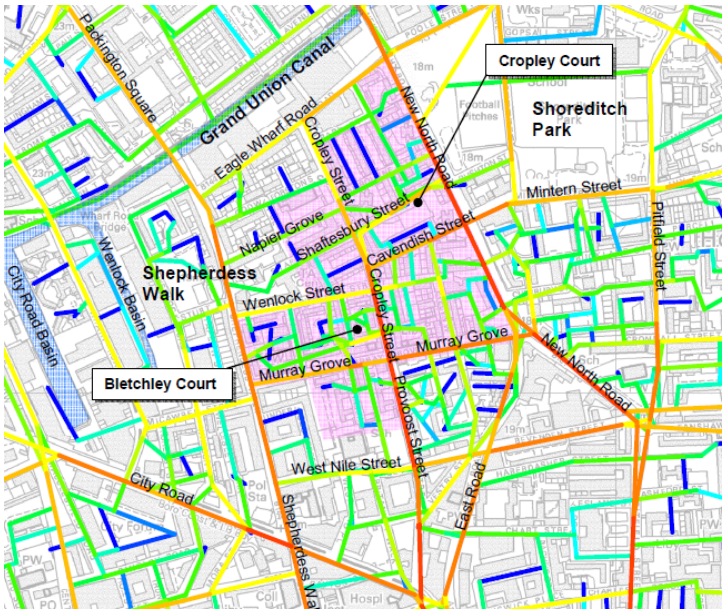


Figure 6.5 Zoomed in Local Accessibility model showing a drop in the second half of Cropley Street (Source: Space Syntax Limited)

Since maintenance of the public spaces was a key concern for the community, a public realm interface study was conducted. This was the second theme of the spatial analysis conducted by Space Syntax consultants. The study focused on the spatial characteristics of the open and built space on site and documenting and assessing the interfaces between public. The public realm study included surveying the land use; the open space analysis; building frontages and their interface with the public spaces and finally the block sizes. The land use survey revealed a large number of unused car parks and vacant garages which occupied 13% of the estate. The

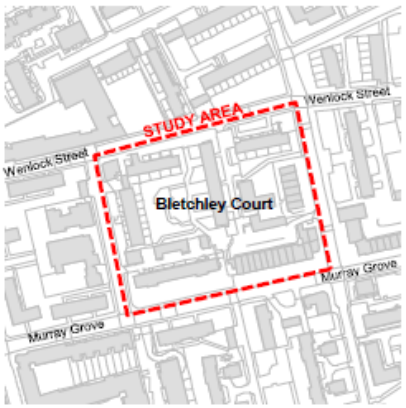
open space analysis revealed a large number of green spaces (58%) but these were poorly maintained or fenced off. The building frontages study revealed a large number of housing blocks facing away from public spaces and streets, where the entrances were found to open onto the street, these were visually blocked by tall vegetation, blank walls or fencing, reducing visibility and therefore natural surveillance. In terms of block sizes, the formal analysis of these courts indicated a difference in how these blocks were visually perceived by a pedestrian as compared to cars. Whilst the pedestrians could walk through the numerous narrow streets permeating these blocks, view from cars and other vehicles of the large blocks with narrow streets, such as those in Bletchley Court, was as one. It was inferred that such a difference in perception has implications on natural surveillance in two ways. First, due to the large block sizes, the walking distances for the pedestrian are longer. Second, since the cars passing by tend to go around the blocks instead of through the permeating streets that might be taken by a pedestrian, the possibility of being watched (natural surveillance) on a busy street where both pedestrians and regular traffic flow together, is diminished. The second half of Cropley Street also correlated with vehicle theft hot spots and the biggest vacant car park structure was found to correlate with the burglary hotspot from the COPS report.

Using the spatial accessibility model, accessible routes were differentiated from the isolated ones, these were then verified using ethnographic spatial observations. A footfall study was carried out to assess existing spatial use patterns, which included the type and number of users (pedestrian), a qualitative observation of the activity types and local movement across the site. Pedestrian flow analysis involved observing movement at various points across key areas of the site, by following people discretely from a given start point to their destination or exit point within the site. This provided a more accurate understanding of pedestrian flow during various points within a day and week as well highlighted the least and most used routes and the way these were being prioritised by the pedestrians. It also helped ascertain if people were stoppining, lingering or just passing through.

The last theme of Space Syntax's design investigation is particularly significant to this research. Whilst the earlier methods and analyses used by the Space Syntax team were technical, analytical and most of all quantitative; the last theme attempted to document existing perceptions using a qualitative method that involved observing people walking through the three focus areas (Bletchley court, Cropley court and Cropley street). Questionnaire surveys were carried out to gain a better understanding of spatial use by gaining insight into users' perspectives and experiences. These were conducted with the help of trained community researchers of a total sample of 305 people in Cropley Street, Bletchley court and Cropley court areas. The questionnaires aimed to understand how residents and other users felt about various aspects of the routes they used. These were used to analyse underlying spatial mechanisms that were contributing to an anti-social atmosphere. The survey was carried out in 2008 over a weekday and a weekend between 0800 hrs and 1800 hrs. A total of 305 people were interviewed (123 in Cropley Street, 99 in Bletchley Court and 83 in Cropley Court). The aim of these interviews was to identify people's perception of the quality and safety of the public realm of Bletchley Court, Cropley Court and the retail area along Cropley Street, and to understand why they use or avoid using the routes in the area. The interviews also collected demographic data such as age groups, gender, ethnic group, physical and mental condition and first language. People were also asked if they were local to the estate and resident at any of the three focus areas.

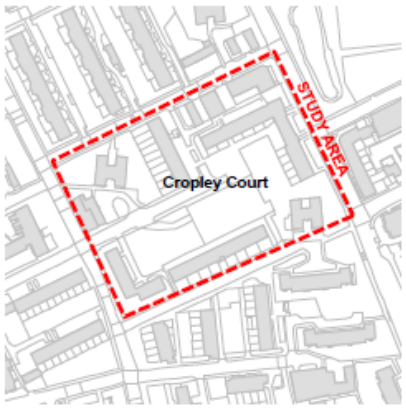
Cropley Street

- **123 persons** were interviewed in Cropley Street: 61 persons on Saturday and 62 persons on Tuesday.
- **69%** lived in the Wenlock Barn Estate area.



Bletchley Court

- **99 persons** were interviewed in Bletchley Court: 52 on Saturday and 47 on Tuesday.
- **79%** lived in the Wenlock Barn Estate area.



Cropley Court

- **83** persons were interviewed in Cropley Court: 40 on Saturday and 43 on Tuesday.
- **65%** lived in the Wenlock Barn Estate area.

Figure 6.6 Three focus areas of the estate, where questionnaire surveys were conducted. (Source: Space Syntax Limited).

The interviewed people were asked the following questions about the area that they were walking through:

1. What is the main reason that you are walking here today?

2. Why do you choose to walk here today rather than taking an alternative route?

3. Would you choose the same route during the night?

4. How often do you walk along this path?

5. How would you rate the overall quality of experience on this path today?

6. Do you have any other ideas/suggestions you would like to make about this path?

The survey responses showed that the poor quality of the public realm and their perception of safety made the public spaces in Wenlock Barn Estate unattractive and that people were keen to avoid where possible. Choosing to take a particular route was driven by convenience, familiarity or it being the shortest route rathr than being a preferred route. In terms of the quality of the paths, responses showed a general level of satisfaction and rated them as pedestrian friendly, easy to cross, well signed. This explains why these routes are an everyday use. However, most people commented on the absence of recreational outdoor spaces. The open spaces of Bletchley Court were rated better than those in and around Cropley Court and Cropley Street which were rated poorly for the unappealing building aesthetics, poor waste management, badly maintained fences and pavements. In terms of safety, most people avoided using the same routes in all three areas at night associated with fear of crime and anti-social activity. Safety of children in these spaces was also a major concern, which is noted in the lack of children present in the observation data. Bletchley court revealed to be of most concern during the day and night. This was also reflected by the crime data for robbery and assaults, reported in the COPS report. Comparatively and relatively, people found Cropley Street and court safer to use in the day. A common need expressed was that of a greater degree of police patrolling and CCTVs especially in Bletchley court.

A crime investigation study was carried out by using the data obtained from the COPS report about crime incidents on site in 2006-07 (numbers and type of crime). This data was related to the findings from the movement study (pedestrian flow, route traces and demographics) to find any correlation between the urban spatial structure and recorded patterns of crime. While the spatial structure was analysed using the software, the other questions were addressed using a mix of quantitative and qualitative data. This data was then collectively used as different layers of the data for analysis, overlaid on each other to draw correlations and conclusions between spatial design, use and crime (including the questionnaires and consultation feedback as a layer of qualitative data). Based on the spatial and movement study

together with the findings from the questionnaire survey conducted of all three areas (Bletchley Court, Cropley Street and Cropley Court) the Space Syntax report suggested a spatial layout restructuring and piecemeal rebuilding of the public realm interface. Improving the condition and quality of the public realm was strongly recommended in improving people's concern of safety in the Wenlock Barn Estate area. These recommendations were made to MACE and Shoreditch Trust.

MACE presented two alternative schemes to the Trust. First, was an optimum scheme with interventions in the street structure and extending beyond the agreed site area. Second, involved minimal intervention within the scope of the brief. In addition to the issues identified by the Space Syntax study, other built environment related concerns driven by the principles of CPTED were identified; these included low natural surveillance due to underused paths and layout issues (front of one housing block facing the back of another), overgrown vegetation and blank walls that blocked visibility, no clear definition of public and private spaces, poorly maintained open spaces and unused garage spaces. Cropley court and the adjacent New North-road are on different levels, connected by steps, with no wheelchair access this was highlighted as an accessibility concern.

The methods used to carry out the spatial study (in 2008) addressing the final scheme and interventions, were later repeated for a post-implementation study in 2009.

Understanding Experience through User Involvement

While the Wenlock Barn Estate improvements project began in 2008, the engagement process that influenced the process and the decision making began two years prior to the New Deal for Communities program and well before the improvements project was conceived (Former Deputy Chief, Shoreditch Trust, Appendix 1; Shoreditch Trust 2006; 2007; 2008) in 2000. Since the New Deal for Communities was a community-led initiative, the residents remained a strong influence throughout the length of the program. The New Deal for Communities structure helped provide a footing towards creating a stable opportunity for the community to lead and have an equal voice. The role of the community, though in a representative form was that of co-management. Estates such as Fellows Court and Cranston Court were the pilot projects in the New Deal for Communities program. A lot of the training that allowed the community to be more actively involved in the Wenlock Barn Estate project was initiated in these early stages. The Shoreditch Trust along with the council trained a group of local residents after finding the council's data on community provisions unreliable. A door to door survey was carried out by bilingual community researchers trained and existing residents to ensure maximum reach.

> "The housing survey was really important to establish the state of the housing as well as people's own priorities. In addition to that, there were a number of community engagement projects (in 2008), particularly for young people. There was a photography project where we asked young people to photograph their estate. We had a really good 'Jump Shoreditch' project …. where they jumped from roof to roof and they did a Jump Shoreditch project which was really good with young people because they loved that." (Former Deputy Chief, Shoreditch Trust, Appendix 1)

The first level of engagement ensured maximum inclusion and accessibility with its outreach program. The engagement was aimed at all age groups. Youth engagement programs such as the Shoreditch Jump project involving parkour or free running, later on became very popular with the young boys. Photography sessions where the younger groups took pictures of their

neighbourhood, what they liked and what they didn't, were among the many different initiatives by Shoreditch Trust. Neighbourhood wardens were appointed and paid by the Trust. Exercises such as photographing their neighbourhood and free running are useful in capacitating and creating greater awareness among the younger age groups in a fun and innovative way. Such initiatives facilitate communication, creating opportunities to start a dialogue. Online forums, community phone lines, the Shoreditch magazine *InShoreditch* (Shoreditch Trust 2006; 2007; 2008) were all means of staying connected with the community and ensuring that the Trust was seen as approachable, welcoming community involvement and social bonding between residents. Frequent meetings and employing local residents as paid community researchers to conduct surveys within their neighbourhood, was particularly valuable in creating a stronger bond within the community, making the community feel valued (by paying them) in contrast to involving unpaid volunteers.

Once commissioned, MACE and Space Syntax's work was aligned with Shoreditch Trust's core objectives of engaging with the local communities. This kick-started the second level of community involvement. The engagement approach for the Wenlock Barn Estate improvements project involved user group, residents and statutory consultations. User group consultations included ongoing user group meetings with representation from the Tenants Management Organisation (TMO), Hackney Council, Hackney Homes, Hackney Planners, Hoxton Safer Neighbourhoods Team, Shoreditch Trust, Space Syntax and MACE. Resident Consultations ran parallel to the improvements project. Shoreditch Trust in coordination with The Glasshouse, organised a series of courses on the Public Realm. The aim of this program was to allow a greater understanding of the way a city works, the processes that bring about its historical development and consequently an ability for graduates of the course to become involved in the design of the built environment. "It, therefore, seemed appropriate to draw upon the residents who had attended this course to take part in a consultation process." (MACE 2008) While this seemed like a logical approach, it raises questions regarding the

inclusion of those individuals who were not part of the training and were thus not brought on board to participate in the development of the plans. Statutory Consultations with these users developed in parallel with the local planners overseeing the development through the user group meetings.

Driven by Shoreditch Trust's core objectives, two fundamental principles underpinning the Space Syntax research for the project were effective community engagement and empowerment (Rose et al, 2009). As a result, local members of the community became one of the primary drivers of the investigation, which observed active responses from the participating community. Community representatives were used as conduits for collecting local information. They worked with Space Syntax staff in collecting data on pedestrian flow and carrying out the questionnaire survey, both of these were crucial to the study. A series of free training and engagement sessions were delivered to enhance the capacity of Tenants Management Organisation members. These were attended by 26 residents and the majority of the Tenants Management Organisation board. This was an opportunity for the community to have access to resources to equip themselves for a confident and meaningful engagement with the Trust, the council and other authorities. A photography exercise similar to the youth outreach exercise was conducted that involved community researchers along with other Wenlock Barn Estate residents, in documenting attractive and unattractive/vulnerable spaces. Crime hotspots were also mapped out on the site along with a Street Audit by the Crime Prevention Design Advisor from the Met Police that also highlighted public realm design and structure deficiencies. These were later presented to the residents and Tenants Management Organisation members. The immediate outcome of this exercise enabled the Trust to identify three priority problems on the site to focus on- Bletchley Court, Cropley Court and Cropley Street, which appeared to be hot spots for burglaries and other antisocial activities in the area. Using these sites as base studies, the project progressed here onward.

While the estate has undergone changes since 2008, these have mostly been landscape improvements. There are no noticeable structural changes, however, the estate continues to

observe proactive involvement of the community facilitated by the community leaders and organisations such as 'Fourthland', which have been working towards improving space use in the estate in collaboration with the residents and the Tenants Management Organisation since 2008. They, however, had no interaction or partnership on the project. There is no documentation available at Shoreditch Trust, Glasshouse or MACE that discusses these consultations in any detail. The information on Wenlock Barn Estate consultations has been collated from interviews with Space Syntax Limited and the former Deputy Director, Shoreditch Trust.

In summary, user involvement in Wenlock Barn Estate was at two levels - before the commissioning of the project (prior to 2008) and during its course (2008). Prior to 2008, the agenda of the New Deal for Communities program (as an overarching structure) required the forming of and overseeing body (Shoreditch Trust) that comprised of community residents making up a majority of the board. The role of these community representatives was that of co management and co-decision making. This created a strong platform to offer greater opportunities for the community to voice their opinions, suggestions and concerns. The Shoreditch Trust and the council became more *accessible. Inclusion* and outreach were maximised by using innovative and engaging methods of *communication* that targeted all age groups for wide *representation.* By offering training programs, the Trust offered *resources* and opportunities to increase their *competency or capacity to better participate.* By opening phone lines, community online forums, the local magazine (InShoreditch), organising community events, communication was aimed at maximum outreach and more importantly ensuring high level of interaction.

At the second level, with the commissioning of the Wenlock Barn Estate physical improvements project, more opportunities for training were provided, particularly to get a better understanding of the urban realm and design. Some of the exercises conducted during the earlier years of the New Deal for Communities program were done specifically for this project. The *role* of the board continued to remain as a co-manager or co-decision maker (Wulz

1986). Space Syntax's questionnaire survey was aimed at documenting the community's perceptions of the space they were passing through.

Project Outcomes

Conclusions of the study and recommendations made by Space Syntax Ltd suggested restructuring the over permeable and complex public route network and introducing a legible hierarchy of fewer routes. Being mainly residential areas, the urban blocks of Bletchley Court and Cropley Court were highlighted as being too permeable. Pedestrian paths suffering from low movement due to a lack of natural surveillance made them more vulnerable to crime and antisocial activity. Along with simplifying the routes, strengthening E-W routes was also suggested in order to facilitate more through movement making it lively and potentially reducing the perceived fear of crime for pedestrians using the streets in this area. Low natural surveillance was also evident by fenced neighbourhood windows, high fences around public spaces, poorly maintained greenery revealed in the public realm interfaces study. Some of the highlighted crime hotspots indicated in the crime statistics are around certain built features that make it easier for incidents to occur, for instance, blank walls and poor visual links between streets made some areas more vulnerable. With reduced visibility, such areas were easy to escape from.

In the initial formal analysis of the site by MACE, it became apparent that the post-war development of the estate had resulted in a fractured street pattern. The internal arrangement of the blocks was designed to ensure south sunlight into the main living spaces. This resulted in the front facades of some blocks facing the back of others, further undermining the traditional street patterns as well as reducing natural connectivity. The spaces between the blocks have over time become ill defined, poorly maintained, unused and incoherent.

Figure 6.7 Locations of improvements made on the Estate (Source: Space Syntax Ltd)

After receiving recommendations and suggestions made by MACE and Space Syntax, the Shoreditch Trust implemented some of the recommendations to improve the quality of the public realm of the estate. In order to improve visibility, a series of landscaping improvements were made throughout the estate at the beginning of 2009. The location of these changes is shown in the photographs in Figure above. The improvements as shown in the photos included, cutting down overgrown vegetation, replanting and refurbishing the children play area. One year from the time of the Wenlock Barn Estate improvements design study, a post-implementation study was conducted by Space Syntax to determine the impact of these

landscape improvements undertaken by Shoreditch Trust. The main question guiding the post-implementation study was the impact of the recent changes to the estate on activity levels and patterns, perceived quality of the public realm and safety.

In order to explore the impact of these changes Space Syntax followed its 2008 methodology and repeated the same methods of documentation and analysis of pedestrian movement (flow and routes) as well as the same questionnaire survey. The post-implementation study showed that the changes made in the public realm have made a positive impact on the Estate. There was a significant increase (23%) of pedestrian movement observed in the improved areas and a 12% increase in the number of women using the space. Women were also recorded using the route in front of the neighbourhood office in 2009, while they avoided that in 2008 (Fig 6.8) . Particular locations near Bletchley Court and Cropley Court saw higher pedestrian traffic in 2009 on both weekday and weekend.

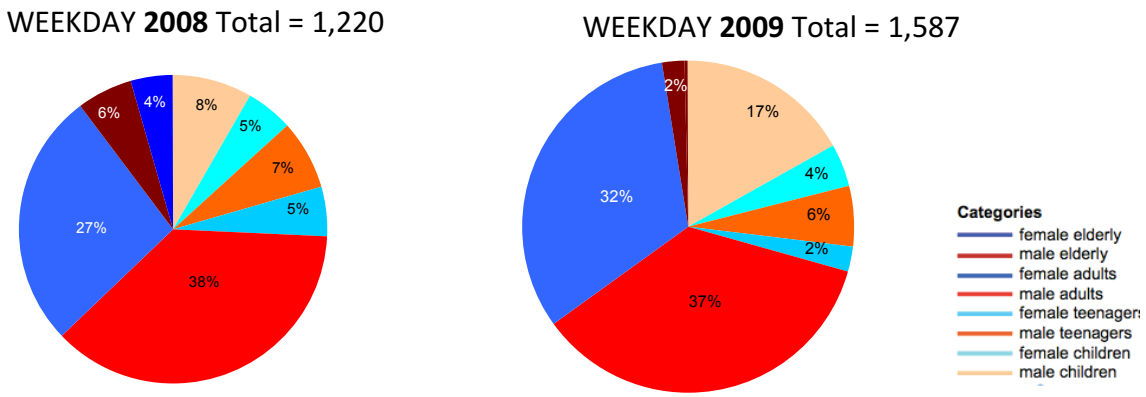


Figure 6.8 A 23% increase in pedestrian movement in 2009 (Source: Space Syntax Ltd)

The study observed a total of 2,573 people in the movement count survey, 325 in a pedestrian route survey and interviewed a total of 89 people across the two courts (Bletchley and Cropley court). Considerably, fewer people used the local shops in the area which might due to the change of retail profile, such as the local post office closing down in late 2008, and concerns

relating to the building fabric and street layout still remains. More people were observed in Cropley Court going out farther from the estate than last year which could also be the result of post office closure or an indication the estate being better integrated with the wider area.

More specifically, in terms of pedestrian routes, the 2009 study revealed a slightly different pattern of pedestrian movement from that observed in the previous year. The route in front of the neighbourhood office was more used as a transition space. It was used by women this year (7 female users), while they avoided that route completely in 2008. Crime statistics obtained from the London Met police (Appendix 10) show a near absence of crime incidents in Cropley Court and Bletchley Court starting 2009 onward. The first six years recorded 49 incidents in Cropley Court and 22 in Bletchley. Stats of 2009-2014 shows a total of 2 incidents over the next 6 years in the same area. This is a difference of 96% and 90% respectively (Fig 6.9). The statistics for Cropley Street saw a shallower drop of 33%. Considering the improvements made were only landscape improvements (the main recommendation of rerouting the spatial structure was not implemented), there could be other factors contributing to such a drastic fall.

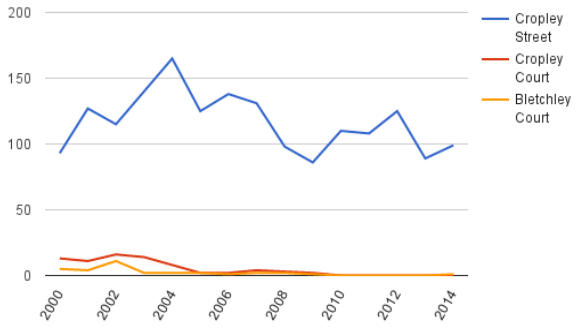


Figure 6.9 Hackney Crime Incidents: 2000-14 (Source Author; Police UK Stats).

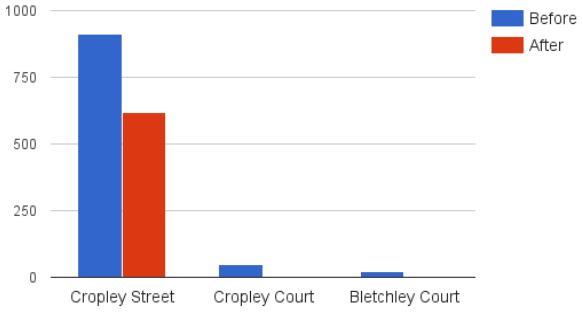


Figure 6.10 Crime incidents 6 years before and after the Improvements project (Source: Author; Police UK stats)

By correlating information and data from the public realm study with data from the movement study (using observations and movement models) and crime incidents (from COPS reports), relations between crime incidents and the spatial layout were deciphered. The low pedestrian movement flow across these inner streets was documented through the pedestrian flow study. The public realm interfaces study showed visually blocked building entrances (by fences or vegetation) and resultantly reduced natural surveillance of the area. Therefore, it was suggested that by reducing the number of inner streets and combining vehicular and pedestrian routes, issues of surveillance could be addressed. Such correlations were also made relating the second half of Cropley Street with the map of vehicle theft hot spot and between the vacant car park and garage spaces and burglary hotspot from the COPS report (Fig 6.11).

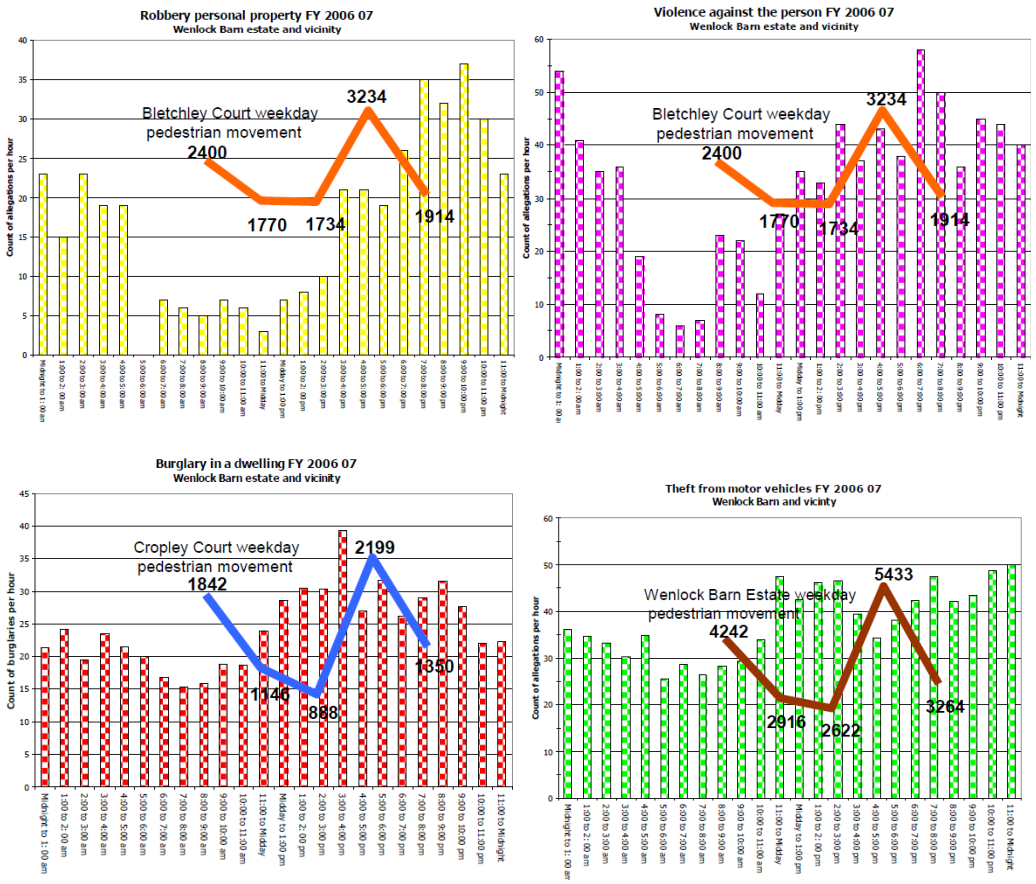


Figure 6.11 Comparing crime incidents to spatial data (pedestrian movement at different times of the day) (Source: Space Syntax Limited)

The aim of the questionnaire survey in 2009 was "to find out if there were any changes in people's perception on safety and quality of the public realm after recent public realm improvements on vegetation undertaken by Shoreditch Trust". The questionnaires included questions in addition to the ones in the 2008 survey asking if people had any comments on recent changes, why they used the route, its quality and daytime/night time experience. In comparison to 2008, the 2009 questionnaires' responses were less extreme with views, more opinionated for recommendations and higher expectations from public realm quality. ("remove fencing around greens, improve visibility in the internal court" were raised by the residents as the recommendations for improvement."). Negative statements, strong opinions and increased expectations were noted in responses. These are also indicative of better benchmarks and being more informed. An increased awareness and competency of their environment increases expectations. One third noticed changes and acknowledged the improvement of recent changes [Rose et al 2009].

> "Our study confirmed that the recent changes have improved visibility as compared to 2008. It also showed that although people intended to spend time out of doors, they still felt that they would not use the same paths during the night and the area was not safe for children to play in. Anti-social behaviour and fear of crime still stayed as the top reasons for not using the same path at night. The quality and maintenance of public realm seemed still to be below their expectations." (Ibid)

Collating the questionnaire survey results, it appears that while the change in attitude and perception is noticeable, there is a continuing and persistent fear of crime. As far as experiences and views on being part of engagement are concerned, no feedback has been documented.

In summary, the post-implementation study of the site showed a positive impact in terms of movement with a significant increase in overall pedestrian flow and a noticeable increase in women's movement and the beginnings of a more balanced gender use also seen in streets that observed no women prior to design implementation. The impact of these interventions

on how people experienced and perceived the three focus areas was less pronounced, though. Whilst the fear of crime persisted, people's responses in interviews were less extreme. Considering, only one-third of those interviewed had noticed the landscape improvements, it is inferred that since for a significant majority there has been no apparent change in their neighbourhood, resultantly their perceptions of these spaces remain unchanged. Therefore, whilst the approach used in this project added value in terms of the process and influence on the end outcome (evident in the observed movement behaviour), it did not entirely resolve the problem of perceived crime. A truer measure of the success of the approach taken would be after the implementation of key recommendations of restructuring the street layout of Wenlock Barn Estate.

Key Learnings

In Wenlock Barn Estate, the New Deal for Communities program played a critical role in addressing Wilson & Wilde's (2003) dimensions of community participation - *influence, inclusivity, capacity* and *communication*. By offering the New Deal for Communities scheme only to community led regeneration projects with the single most important agenda of engaging and empowering communities, the project identified community influence as critical. This is demonstrated by the formation of the Shoreditch Trust, comprising of a majority of local residents to oversee the development program along with stakeholders and representatives from community services and the council. Shoreditch Trust's vision of a strong community led development ensured that the different schemes under the New Deal for Communities program, including the Wenlock Barn Estate improvements, received the requisite resources needed to equip and support the community to be better informed and participate more meaningfully. In terms of, levels of influence, this case has a range that varies from information exchange and consultation with the wider community as seen in their contribution to identify the design issue and gathering evidence, to a much stronger influence in decision making by the community representative board members or Wulz's 'co-decision' making type of relationship between the community and the architects.

The integration of engagement and evidence based spatial analysis in the Wenlock Barn Estate improvements project was largely a result of the client brief, which emphasised the need to base design on a series of research and evidence, and to engage and empower the community through the process. This resulted in design experts (a) gathering experiential and perceptual evidence to inform design, (b) involving the community in collecting data for the spatial analysis, including training residents and community members to collect such data, and (c)

providing courses on urban design and public realm design for a better understanding of the context of the improvements and the design process.

The role of the architects remained that of designers, producing creative solutions to design problems. However, with a community led regeneration scheme, they were compelled to demonstrate, firstly, how they had accounted for the input from engagement sessions and secondly, how they used and responded to additional research evidence (crime reports and movement surveys by Space Syntax Limited).

The approach taken towards addressing the Wenlock Barn Estate physical improvements demonstrates the strengths of both community engagement and evidence based spatial analysis methods, and their collective contribution to the process and product. The post implementation study of the site showed a positive impact on site in terms of movement, with a significant increase in overall pedestrian flow and a noticeable increase in women's movement as well as a more balanced gender use in some streets that observed no women pedestrians prior to design implementation.

The benefit of engaging the community in directly contributing to the spatial study by means of involving residents in collecting data through surveys and interviews of other residents, not only contributed to the spatial study, but created *better communication channels,* and incentives for the community to stay involved and build trust. Employing trained local residents as researchers benefitted the project in four ways. First, it secured *reliable and accurate information* about the existing concerns and needs of the residents; second, it built a level of *trust and confidence* between Shoreditch Trust and residents, by demonstrating that the residents' concerns were central to them; third, employing bilingual local residents known

amongst the community created an honest outreach *minimising the risk of tokenism*; fourth, the process created temporary *employment opportunities* for some members of the community leading to an increased level of interest in participating.

Another method of making user experience part of the analysis and overall design improvements was collecting evidence of user perceptions and experience from the residents about the local streets they were using on a daily basis. This was aimed at validating and providing a stronger evidence base for the findings from the overall spatial analysis. This validation could not have happened without firstly, *asking relevant questions that directly influence the spatial analysis*, which could be a challenge for a non-architect conducting engagement sessions; and secondly, *correlating and triangulating 'experiences' with findings from the spatial structure analysis, public realm interface study, movement data and crime reports*.

Therefore, incorporating experiential evidence as seen in this case study helps provide another body of evidence to nuance and cross reference the analytical findings obtained from observations and modelling or simulation. Documenting and analysing user perceptions before and after implementation serves as a measure to assess the outcome of the process, and if these were accounted for. In the context of the larger engagement process, involving users in building out this experiential evidence base helps instil a stronger sense of confidence, responsibility and ownership, knowing their feedback has informed the design development.

This has been an integrated approach where residents and the community directly contributed to the spatial study and indirectly to the development of proposals.

The techniques and approach of Space Syntax Limited have often been criticised for being detached from the community. However, the Wenlock Barn Estate improvements project shows how such technical and analytical approaches can be made understood and accessible to lay users or communities. After having been part of the mapping and data collection process and the supplementary training provided by the Trust and Glasshouse about the public realm and urban design, the community's understanding of the applications and findings of such analytical data was improved. While space syntax methods are technical, objective and highly analytical, this project shows ways in which such methods can not only be used in a process to support design decisions, but directly engage and relate to a lay audience. When the Space Syntax team showed how a particular blank wall and its location correlated with the location of crime hotspots from the COPT reports prepared by a police representative, some community members proposed to break it down themselves. Eventually, this did not happen, but this event where community members were willing to actively take action in response to analytical findings, indicates that when presented in an accessible manner such findings can be very effective in involving and mobilising the community.

The Wenlock Barn Estate project demonstrates the application of the four dimensions of community participation (Wilson & Wilde 2003), as well as the principle of *grounding the process in objective evidence,* as found in Nottingham. In addition to these, the project identifies three other elements that explicitly bring together the application of evidence and spatial analysis with user engagement. These relate to firstly, using evidence that addresses user perceptions and experience, which is subjective in nature. Second, making the methodology understood by participating community members, through training programmes and graphic representation that simplifies complex spatial information. Third, by involving the community members to contribute directly to the analytical process and then involve them in understanding how such information addresses the scheme. Therefore, this case study

identifies the following three principles to integrate user involvement and evidence based analysis in design:

1. Incorporating *experiential evidence* in the process
2. *Engaging users directly* in analysis and evaluation
3. Making analysis and evaluation methods *user accessible* (user friendliness)

'Incorporating experiential evidence in the process' ensures that user input in terms of perceptions and experience is used as evidence to support design development and decision making. While behavioural evidence tells us what people do, it doesn't say anything about what they think or feel. This case study showed how the project applied 'user perception questionnaire' survey results and early photographic elicitation exercises, to identify specific problem areas and correlate these with other findings. Other projects may choose different methods to capture user perception such as digital tools or other forms of ethnographic methods.

'*Engaging users directly in analysis and evaluation*' as a principle, examines the potential involvement of the community and user groups in participating and contributing directly to the technical process of analysis and evaluation. These could be through providing and collecting evidence, as well as through its analysis and evaluation to assess the site and context in view of their specific concerns. As shown in this project, directly engaging with the spatial study of the site allows it to contribute meaningfully and instils the community with a greater sense of influence and ownership.

'Making analysis and evaluation methods user accessible' allows the community to better understand the analytical side of the design process and therefore make better informed contributions to the process. This also subsumes the dimension of fostering competence or developing community capacity. As shown in this study this is achieved through the various training and courses provided to the community members. Additionally, as discussed earlier in the criticisms of Space Syntax methods in chapter two, the reluctance in using such analytical and data heavy methods relates to the perceived difficulty in its theoretical and technical understanding and therefore, its application (Dine 2003). At the same time one of the major challenges in engagement is of communication. Therefore, in order to successfully integrate scientific and analytical methods, such as Space Syntax, or even normative approaches of spatial study, with engagement, it is essential that these are adapted to be understood by non-experts and laypeople.

Chapter 7 : Comparative Analysis of Case Studies

The three case studies discussed earlier, demonstrate real world projects that have attempted to bring together engagement and evidence based spatial analysis in their design processes. The studies showed a range of applications, challenges faced in each context from case to case, and common issues arising when combining the two approaches in the design process. Based on the strengths of the design process and methods applied as part of each approach, a set of principles were derived from each case study analysis. These principles were identified as critical elements that collaboratively guide the application of an integrated design process to result in added value for the design outcomes.

A total of nine principles were identified cumulatively across the three projects. These are:

1. *Inclusivity* of all diverse interest groups;
2. Involve users in an *influential role*;
3. Maintain *continuity* throughout the process;
4. Develop community *capacity* for better informed participation;
5. Ensure effective *two-way communication* between users and professionals;
6. Ground analysis in *objective evidence*;
7. Incorporate *experiential* evidence
8. Make analysis and evaluation methods *user accessible* (user friendliness)
9. *Engage users directly* in analysis and evaluation

Four principles - *influence, inclusivity, capacity, communication* – were derived from the successful application of engagement in the Aylesham village masterplanning process, to capture the importance of an effective engagement model which addresses all four dimensions of community participation (Wilson & Wilde 2003). In addition to these, the

analysis of the Aylesham case study led to a fifth principle - *continuity,* highlighting the importance of maintaining consistency in approaches throughout the process.

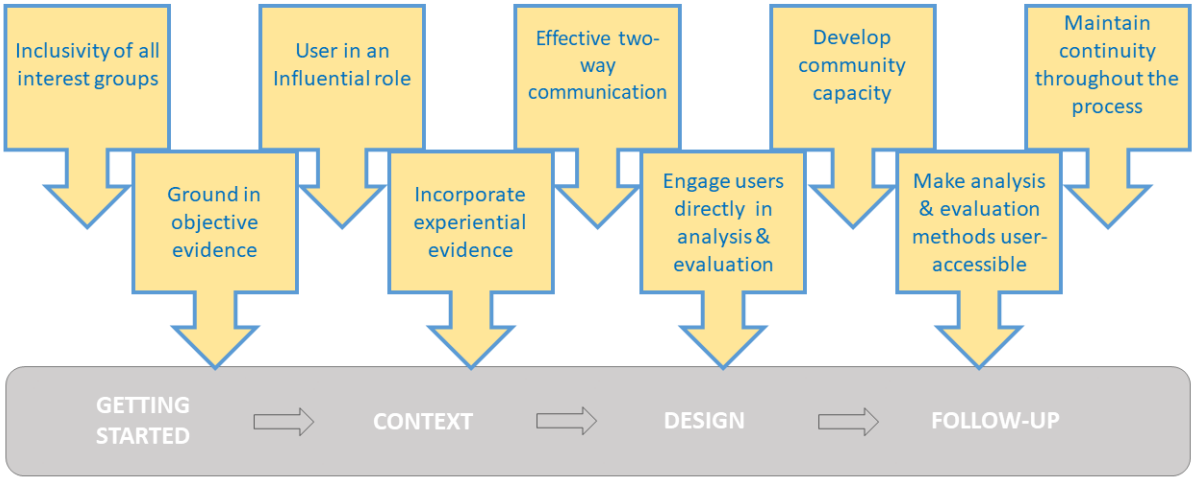


Figure 7.1: Principles for a 'Participatory Evidence Informed' integrated design model (Source: Author)

Further, the investigation of the Nottingham case study, showed how evidence captured and analysed through spatial analysis methods adds objectivity to the design process and decision making, leading to a sixth *principle - ground analysis in objective evidence.*

Finally, Wenlock Barn Estate's process showed how the use of objective evidence and formal analysis methods can be enhanced synergistically by adding a subjective, experiential dimension through direct engagement of users in design, developing an additional set of principles: *incorporate experiential evidence*; *make analysis methods user friendly; directly engage users in analysis.*

As such, the principles illustrated above have been derived from the strongest use of engagement and analytical methods as reviewed in the case study chapters, with the goal of providing an integrated and comprehensive approach to the design process, by emphasising the need for developing design from a strong research evidence base, with the direct contribution of the community as part of a comprehensive engagement process.

To obtain a better understanding how these principles would appear in practice, the next section re-evaluates the three case studies, this time for all the nine derived principles. In order to identify where in the design process does their application have maximum impact, this analysis is structured across the four broad design phases - *Getting Started, Context, Design, Follow Up* – at each design phase investigating how the principles have been realized through the application of user engagement and spatial analysis methods in each case study.

Comparative Analysis of the Application of the Design Process Principles in the Case Studies

The 'Getting Started' Phase

The '*Getting Started*' phase of the process is also the setting up phase of the design process. Mapped to the RIBA stages this is the 'Strategic Definition' stage involving a strategic appraisal of the project, setting out overall project vision, strategy and objectives, formation of the key teams steering the project and essentially establishing the overall governance of the project.

	Case 1: Aylesham	Case 2: Nottingham	Case 3: WBE
Inclusivity of all diverse interest groups			✔
Involve users in an influential role	✔	✔	✔
Maintain continuity throughout the process			
Develop community capacity for better informed participation	✔		✔
Ensure effective two-way communication between users and professionals			✔
Ground analysis in Objective evidence			
Incorporate Experiential evidence			
Make analysis and evaluation methods user accessible (user friendliness)			
Engage users directly in analysis and evaluation			

Table 7.1 Principles addressed by the three studies in the 'Getting Started' phase (Source: Author)

The earliest stage of a design project is its envisioning. While all three projects were defined as community led design projects, only two of the projects - Aylesham and Wenlock Barn Estate - identified community engagement as fundamental to its project vision. Aylesham's village extension was part of the 'Creating Quality Spaces' programme aimed at creating a benchmark of community led design for other communities to follow, while Wenlock Barn Estate was one of the New Deal for Communities programme aimed at the most deprived neighbourhoods in England. Both programmes targeted these areas for development due to their social and economic deprivation and had community engagement as a core factor on its agenda.

To ensure community participation from the beginning and throughout, both programmes required setting up an explicit community representative body as part of their governance structures. The 'Creating Quality Spaces' programme in Aylesham supported the project in building a core structure of community led development with the help of Prince's Foundation's *Enquiry by Design* approach, around which the project progressed. In the case of Wenlock Barn Estate, the New Deal for Communities programme sets out the formation of the Shoreditch Trust, to oversee the project development by ensuring a majority of residents on the trust board giving them control of approving any decisions being made and steps taken to fulfil the agenda, which was also set by the community representatives with support from the council, community services and professional experts.

The actors involved at this stage continued to be the key decision makers throughout the process - in the case of Aylesham and WBE, these were project partners and community representatives. As such, the high levels of engagement following throughout the project in Aylesham and Wenlock Barn Estate can be attributed to their early on engagement with end users, which were given an *influential role* from the beginning through their representation as part of the steering group of the projects, and by explicitly setting up the projects under a structured, community-led, process.

Unlike these projects, the Nottingham public square was not pivoting on or based on community or public engagement as a key agenda. In the case of Nottingham square project, the project vision was set out by the council and defined in their project brief outlined as part of the design competition invite. During this phase, consultation as an agenda was limited to identifying additional interest group key stakeholders to be consulted with later in the process and setting up of a project website that updated project progress as it happened for the public to see. In the Nottingham project this phase only involved the client, Nottingham city council, and CABE, a facilitator in a supporting role, and selected interest groups. Some of these interest groups can be seen to be representative of sections of end-users, which indicates some level of *influence* on their behalf**,** however the users themselves were not directly part of the decision making.

Aylesham and WBE also address principles of *developing community capacity* by beginning to provide the community with resources to get involved in the development of the design process. The Aylesham project does this by taking participating residents to see good examples of similar villages; and WBE starts to set up channels for the community members to reach out to the council regarding concerns through phone lines and online forums.

In addition to *capacity* and *user Influence*, the WBE project also starts to address the principle of *including* diverse interest groups and ensuring maximum outreach by targeting all age groups through a variety of engagement methods. These methods included young people's photography elicitation and parkour events to keep the younger members of the community engaged in ongoing activities and programmes.

Analysing the actions taken in the '*Getting started'* phase in the three projects, it becomes apparent that the specific approach or agenda for user engagement adopted as part of the initial project setup defines the levels of user engagement throughout the project. As can be seen in the following stages of the projects, Aylesham and WBE continue to make user engagement central to their process, while in the case of Nottingham the lack of end user representation in the decision making bodies will be felt in its restricted levels of public engagement throughout development.

The 'Context' Phase

	Case 1: Aylesham	Case 2: Nottingham	Case 3: Wenlock Barn Estate
Inclusivity of all diverse interest groups	✔		✔
Involve users in an influential role	✔	✔	✔
Maintain continuity throughout the process	✔		✔
Develop community capacity for better informed participation	✔		✔
Ensure effective two-way communication between users and professionals	✔	✔ (limited)	✔
Ground analysis in Objective evidence		✔	✔
Incorporate Experiential evidence			✔
Make analysis and evaluation methods user accessible (user friendliness)		✔	✔
Engage users directly in analysis and evaluation			✔

Table 7.2 Principles addressed by the three studies in the 'Context' phase (Source: Author)

Analysing the principles addressed at this stage, while all three projects made use of engagement, their approach differs significantly in how - as well as whether - engagement is combined with the use of objective and formal analysis methods. Moreover, while all three projects allowed explicitly for the users to *influence design*, the levels of *inclusivity of users* in terms of representation and diversity varied across the cases, this also being reflected in the varying level of efforts to ensure effective *communication* and build community *capacity*.

In the case of Aylesham, the influential role of users was ensured by the use of the 'Enquiry by Design' process. The process provided the opportunity for the community to directly contribute to the design envisioning, site assessment and issues identification in this phase, by allowing for interaction between the participating community members, stakeholders, project partners and the master planning team through the various stages within this phase. Interaction was also encouraged with the wider community through staffed events, with professionals and project partners present, Q&As and opportunity for debates, where concerns were raised and addressed over a series of workshops.

The open door sessions and exhibitions allowed for a wide range of user groups to get involved directly and indirectly, enabling anyone from the wider community to contribute and ensuring *inclusivity* of all user groups without limiting participation to select community representatives. The number and variety of interactive events and workshops organised reflect a variety of measures to ensure *continuity* in engagement at different stages within the phase. Additionally, the resources provided in the workshops, including briefings and presentations on 'place-making' and the Aylesham context, constitute tools to *develop community capacity*, and to help participating community members to better engage.

In the Nottingham case, stakeholder consultations was the agenda for this phase of the project as part of the design competition process, requiring conceptual design proposals to be reviewed and discussed with key stakeholders as part of a single consultation session. The competing proposals at this stage were required to respond to this session and reflect the feedback received in their final revisions. Following this, the winning scheme was selected through a system of public consultation involving a public exhibition, public vote, and feedback from other stakeholders. The final judgement was made by an evaluation panel

appointed by the council in view of the public and stakeholder feedback received. This approach allowed the public (end-user) to *exercise influence* over the process, however this influence was at all times mediated by the council, with little direct end-user involvement or direct contact with the architects.

In the WBE project, user *influence* continues to be exercised by the continued governance of the Shoreditch Trust (comprising of a majority of residents), and more specifically by the use of evidence and data on user perceptions to address spatial analysis findings. In the earlier '*Getting Started*' phase the Shoreditch Trust identified the need for *capacity building* programmes to better equip the users to participate. In this '*Context*' phase of the design process, training sessions were organised by the Trust for the community members who were then selected as paid community researchers to assist with the spatial study conducted by Space Syntax Limited. Resident consultations were also conducted that involved courses on public realm and urban design principle. Those who graduated through this course were drawn upon to participate in design development in the next phase.

The *Context* phase of the design process is where engagement and spatial analysis can be used together as effective tools to identify the key issues, and through consultation supported by the analysis of quantitative and qualitative evidence to start shaping the project *design principles, objectives, vision, and initial concept ideas* (Llewelyn Davies and REAL 2013).

In this regard, the Aylesham project stands apart. In contrast with the other two it did not explicitly make use of spatial analysis methods. Issue identification, data collection and analysis were all primarily engagement driven guided by professional support. Since this was done as part of a structured process – 'Enquiry by Design' - and as such it was particularly effective (as seen in the 83% of support received towards the draft masterplan), Aylesham is a useful example on how the community can contribute to and even drive this stage of the process with support from professionals.

The 'Enquiry by Design' methodology is built on the concept of collaborative design where stakeholders, communities and professionals work together from the conceptual stage

through to the delivery, strategy and management stages. Community representatives were involved in 'Brainstorming' and 'Visioning' sessions along with facilitators and support from the masterplanning team in exploring the opportunities and constraints of the site and raising issues based on their every-day experience of living in the village.

As part of the context appraisal and the workshop's early stages, with the facilitation of the masterplanning team, participating residents were taken for a walking tour around the site with a prompt sheet highlighting things to look out for during the walk, followed by discussions and concluding with summarising key issues raised by participating residents and stakeholders. An open event with Q&A sessions held in the evening aimed at capturing broader public input. This first open event was followed by introductions and discussions on the day's progress and a 'lively and heated discussion' based around strong community views. Other sessions included similar discussions and open evenings, but in addition these were also facilitated by professionals helping groups of participants. Technical support was offered to assist with informing and building proposals, understanding site constraints and any other aspects of design that they needed. This exercise contributed directly towards the site analysis and context appraisals to develop a type of SWOT analysis.

A direct outcome of these exercises and this phase was the identification of two new opportunity areas by the participants in addition to those in the local allocation plan. *Involving the community directly* in the process with professional support and taking measures to *develop community capacity* allowed residents to raise and discuss issues without going off-track the agenda, ensuring the discussions stays relevant and pragmatic, within the realm of what can and cannot be achieved, while allowing for new perspective from those directly affected by the site. Although the 'Enquiry by Design' approach did not involve formal evidence and data collection, or sophisticated analysis methods like Space Syntax, its reliance on the numerous hands-on sessions with community representatives as well as the larger Aylesham community through open-door events, means that qualitative *experiential evidence elicited through user engagement* has been a key factor in informing decision making.

Whilst as shown above, the Aylesham design process was engagement driven and supported by primarily qualitative, subjective input, the Nottingham and WBE studies involved a mix of

both objective and subjective evidence and research input to address this phase. Both Wenlock Barn Estate and Nottingham's old market square projects used Space Syntax methods, which are objective evidence based methods, to guide the design proposals; and both projects include stages of evidence data collection, however they approached the use of engagement differently in this phase.

In the WBE project, following community consultation which identified street crime as a primary concern for residents, additional engagement methods such as photographic elicitation and street audits were used, and supplemented with research based evidence such as crime opportunity reports, to identify three key priority sites of particular concern. These three priority areas then became the focus of the spatial study and design improvements scheme.

As part of the work commissioned to Space Syntax, WBE used engagement to contribute towards evidence gathering for the spatial analysis by training local residents as community researchers to collect data on spatial use and conduct questionnaires/interviews of other residents to capture user perceptions. This deeply integrated approach, involving the user at all steps from issue identification to data collection, helped provide the objective evidence base for analysis and decision making, while also ensuring through the *direct involvement of the community*, as both researchers and sources of evidence, that the experiences and subjective perceptions of the community are captured as an additional source of insight.

Following data collection and analysis, the Shoreditch Trust and the wider community were presented with the findings from the spatial analysis and COPS reports, highlighting the problematic areas, and detailing how the current spatial layout and existing design were contributing to the crime incidents in these areas. A concrete outcome of this was the community proposing themselves to bring down a blank wall that was identified as one such crime facilitating feature.

A remarkable factor in the success of these discussions were the *efforts to make spatial analysis accessible* to lay users. The use of graphical representation to simplify complex spatial data helped the community understand the meaning of the findings and the analysis

performed. In the case of Space Syntax tools this was done for example by visualisation methods (for example using colour gradation of red to blue, where red signifies a higher value ranging down to blue with the lowest value for the attribute being assessed). As discussed in the literature, one of the challenges in participatory design practice is communication barriers. Use of technical jargon, complex maps and raw data become a barrier in communication, which can be overcome through measures such as graphical visualisation, the use of images and the involvement of trained facilitators to act as a bridge between the community and the technical team. Such measures help make technical and analytical processes user friendly allowing the community to participate more confidently.

In the Nottingham project, Gustafson Porter Architects, in preparation of what will become the winning design entry in the competition, conducted a spatial study to be used as key reference during the design process. The evidence base included sun-shadow studies, qualitative visual observations and historical research on the square, which were important contributions towards forming the key design principles. During the single consultation session organised prior to selection of the winning scheme, findings from the preliminary study and conceptual ideas were presented to stakeholders helping communicate the rationale behind the proposal. This enabled a better informed feedback from stakeholders which helped to further refine the proposal.

While strong on the use of *objective evidence,* the spatial study did not seek to engage the end users directly, perhaps missing the opportunity of adding an experiential dimension to the data**.** During the single consultation session organised pre-selection, findings from the study were however presented to stakeholders, helping communicate and support with evidence the decisions made during the design process, and therefore providing a better understanding of the rationale behind the proposal. This enabled a better degree of informed feedback in response from stakeholders, leading to identifying additional issues, helping to further refine the proposal.

Having incorporated issues raised in this session, shortlisted proposals went for public consultation consisting of a public exhibition, an online 'have your say' section for people to leave comments and fill in choice based feedback forms, and questionnaires circulated to

participating stakeholders. A public vote, with a rating scale from 'good' to 'disappointing', was organised to select the preferred proposal. These can all be seen as attempts to capture and incorporate public opinion and perception, and as such *experiential evidence,* into the design. However, these initiatives were marked by a disconnect between the design process itself, proceeding as a completely separate process from the public consultation process, and it is not clear if there was a true opportunity to capture and incorporate such feedback in a timely and effective manner while the design was being developed.

Looking at this critical phase of the design process, the three case studies offer three different perspectives on how it can be approached. The 'Context' phase is where key issues are identified and the behavioural and experiential aspects of the context are meant to be understood and explored to inform conceptual design. The three case studies show three instances where evidence based spatial analysis methods have been used in conjunction with user engagement to different degrees to achieve this contextual understanding. Their particular approaches also determined how the application of these methods occurred in the next phase.

The 'Design' Phase

	Case 1: Aylesham	Case 2: Nottingham	Case 3: Wenlock Barn Estate
Inclusivity of all diverse interest groups	✔		
Involve users in an influential role	✔	✔	✔
Maintain continuity throughout the process	✔	✔	✔
Develop community capacity for better informed participation	✔	✔ (limited)	✔
Ensure effective two-way communication between users and professionals	✔	✔	✔
Ground analysis in Objective evidence			
Incorporate Experiential evidence			
Make analysis and evaluation methods user accessible (user friendliness)	✔	✔	✔
Engage users directly in analysis and evaluation	✔		

Table 7.3 Principles addressed by the three studies in the 'Design' phase (Source: Author)

The *'Design'* phase is primarily aimed at developing the design through an iterative process of refinement, consultation and revision, from conceptual proposal through to the final agreed detailed design. This phase maps across the 'Concept', 'Developed' and 'Technical Design' stages of the RIBA design process, and corresponds to the 'Creating the Urban Structure' and 'Detailing the Place' stages as defined by the Urban Design Compendium The outcomes of this phase include defining assessment criteria, draft proposals, evaluating options, establishing primary approach, design codes, visualisation, delivery and implementation strategy (Llewelyn Davies and REAL 2013).

In terms of methods and approach, this phase is typically a natural consequence of the process adopted in the previous phases. The level of involvement of the users continues to be largely determined by the initial governance setup of the project as defined in the 'Getting Started' phase, while the key issues and objectives identified, together with the body of evidence collected and the analysis performed in the 'Context phase', determine the aims and constraints of the design concept. As such, following on with the approach set out in the previous design phases, each of the case study projects continued to refine and elaborate on the conceptual design.

As one of the primarily community-led design projects, Aylesham continued its workshop based approach, by developing the various stages of the masterplan design through a series of facilitated sessions. This involved producing sketches in groups developing design principles and ideas from concept through to a draft version of the masterplan. Professional members of the masterplanning team together with occasionally invited technical experts reviewed these proposals to ensure they adhered to the requisite design and technical standards, and to address any outstanding issues.

To equip the participants to contribute effectively, concepts of urban design, as well as technical issues or constraints, and a framework within which to develop the ideas, such as selection of themes, were introduced and discussed at the beginning and end of each session. This assisted the participants to achieve a good understanding of the process of design refinement from the broad to the more detailed and complex aspects of the proposal. This

proved to be an effective approach towards *developing the capacity* of members of the community to directly contribute to forming design ideas.

Considering the hands-on, direct community involvement throughout, from developing design principles and ideas, through to design diagrams, and then design codes for future development, the role of the users in this case is *highly influential*. This is the only case study that made use of *direct user involvement* in spatial or design analysis during this design development phase.

The appointment of an independent public consultation team to assess the level of support for the final draft masterplan and identifying continuing outstanding concerns further emphasises the level of community contribution and the efforts to support it by professionals. The masterplan was assessed based on interviews and feedback from the wider public, with questionnaires being circulated to every household, as well as a staffed exhibition. The number and variety of methods with which community feedback was sought, with the specific aim to achieve maximum outreach, shows that this project strongly addresses the principle of *inclusivity* of all diverse groups.

As discussed previously, Aylesham did not make explicit use of spatial analysis methods, however aspects of it appeared informally during the design workshops with the community. The project used residents' experience of living and everyday use of the spaces and services in the village as qualitative experiential evidence, combined with professional support on urban design, place-making, transport and community services such as the Police. While the village spaces and features were analysed, and proposals were made based on user's perspective in light of the analysis conducted in the '*Context'* phase, some spatial analysis was also carried out in parallel by the masterplanning team and additionally invited technical experts, to ensure feasibility.

In the WBE project, *capacity development* programmes at this stage included courses for residents to learn about the public realm and urban design, with the graduates from this course being drawn upon to contribute to the design development. This design development involved design elaboration done through a series of design improvement proposal sketches

produced by MACE Architects, which were subject to review by the Trust members, comprising of community representatives and graduate residents from the course workshops.

The WBE project doesn't extend the involvement of the community to wider groups in this phase. The steering group with members of the Tenant Management Organisation assumes responsibility of representing the community, working closely with the architects and playing a key role in approving of design implementation decisions. The activities in this phase are mostly about implementing decisions taken through wider consultation and various spatial analysis and studies from previous stages, resulting in two final proposal options - an ideal scheme & a minimal intervention scheme - being presented to the client for selection.

Engagement, therefore continues through this phase in the form of community representatives reviewing the design progress, in terms of design analysis and inferences in how these get translated into design decisions.

In Nottingham, the design phase continued to develop as a process of consultation between the chosen architect - Gustafson Porter - and the client - Nottingham council, with the community and wider public continuing to be involved, however in a rather disconnected or 'arm's length' approach. This phase did however see the most number of consultation sessions in Nottingham, with consultations being part of the design development from the conceptual phase through to submission for planning application. The scheme developed early on was presented to various stakeholders at different occasions, to the CABE review panel and the council office, and was refined as per feedback received.

The public continued to be involved through the project website run by the council, which accepted further responses in the form of feedback forms and comments. A public exhibition was organised towards the completion of the detailed proposal and a scaled model was available to view. However, these sessions were again more reactive than interactive. Comments received were not made public and the feedback was analysed internally to assess responses to the design.

Further to their proposal being selected as the winning entry in the competition, Gustafson Porter commissioned Space Syntax Ltd. to conduct an evidence based movement and public

realm study to ensure the new design proposals respect the natural movement of the site and maximise movement through the square. A detailed movement and spatial use survey of the site including a footfall study and route choice, as well as a visual and physical accessibility analysis model was conducted to understand the natural movement lines. Other visual analysis methods used included studying visual exposure through Isovists.

These findings constitute a strong body of *objective evidence* which were used by Gustafson Porter architects to develop and support their design proposal and were presented to the stakeholders as part of ongoing consultations. However, again there was no direct consultation or involvement of the public in design discussions. Questionnaires distributed through these sessions were also designed by the council without input from the architects. The nature of issues identified[1] in the consultation sessions and questionnaires appear to relate more to the civic image of Nottingham. The post-implementation user experience study conducted (Appendix 9a), by the author, identified issues such as need for more colour and green in the square by almost 48% of the users interviewed, more and better seating (20%), as well the need to make the square more child friendly (16%). Feedback received from user interviews taken by the author at the redesigned square highlighted common concerns regarding the lack of toilets and the seating to be too cold to use in the winter. Had there been more opportunity for the public to engage directly with architects, this type of end-user insight could have perhaps been captured and addressed in the project design. Feedback received from user interviews taken by the author at the redesigned square highlighted common concerns regarding the lack of toilets and the seating to be too cold to use in the winter. Had there been more opportunity for the public to engage directly with architects, this type of end-user insight could have perhaps been captured and addressed in the project design.

In Nottingham, developing community *capacity* was limited to 'presenting' evidence of design decision making, and in that sense making the stakeholders aware of the approach being taken. For example, by presenting the findings of the movement and footfall study, the forecasting models and sun study, the stakeholders are able to understand the relationship

[1] Feedback in terms of 'robustness' or 'high quality materials for cleaning and maintenance' (Horne 2005) reflect the council's concern to uphold the square as an icon of Nottingham.

between these aspects and design decisions. However, there is no learning of new skills, unlike the other two case studies, where the participating community representatives acquire skills and knowledge about urban design and the city.

As in the context development phase, the Nottingham project continues to see an attempt at gathering *experiential evidence* in the form of questionnaires that were circulated to the participating stakeholders. Consultation feedback included 'robustness of design; high quality materials for easy cleaning and maintenance; lighting for attractive illumination for events and high visibility; safety of water features; and cleaning of the Council House' (Horne 2005 City Development Executive Report) which were addressed as part of the proposal. The need for more plantation and greenery was expressed strongly and directly implemented to the otherwise previously barren scheme. However, as discussed earlier, these were views of representatives from organisations. Public exhibitions organised were only for display with no opportunity to interact. This starts to raise the issue of level of *communication* in public engagement. Whilst opportunities were provided to make the public aware of the ongoing progress with the square, and feedback welcomed, its impact was restricted by the design of the communication channels used.

As discussed before, the 'Context' and 'Design' phases of the design process are most often not clearly separable, since they tend to consist of an iterative, cyclical process of design development and refinement, with multiple concurrent and recurrent activities occurring. As such, the use of participatory and evidence-based methods as part of these phases tends to follow a similar iterative process, from information gathering, to analysis, proposal development and assessment, to further refinement, with user engagement and spatial analysis having a potential role at each stage.

Two case studies - Aylesham and WBE - made use of deep user engagement in the process, having the user contributing directly to identifying key issues, gathering evidence, and providing local subjective insight. In the case of WBE, engagement was integrated with the use of spatial analysis which provided the formal tools to process these inputs and add objectivity to decision making. Users were involved directly in the process of data collection and analysis, and measures were taken to enable them to contribute effectively. This

approach is a possible example on how the two methods can be combined successfully to achieve a comprehensive understanding of the design context.

Aylesham did not explicitly make use of spatial analysis - albeit elements of it can be recognized informally - however its value as a case study lies primarily in showing how a well-structured community-led process, where the community with the guidance of experts directly participates in design development, can achieve positive results.

Nottingham made significant use of spatial analysis methods in its design development, however the engagement with users, while present at all stages, was rather disconnected from the design development itself, and may be judged to have missed opportunities to integrate and address valuable local insight.

The 'Follow Up' Phase

	Case 1: Aylesham	Case 2: Nottingham	Case 3: Wenlock Barn Estate
Inclusivity of all diverse interest groups			
Involve users in an influential role			
Maintain continuity throughout the process	✔	✔	✔
Develop community capacity for better informed participation			
Ensure effective two-way communication between users and professionals	✔		✔
Ground analysis in Objective evidence			✔
Incorporate Experiential evidence			✔
Make analysis and evaluation methods user accessible (user friendliness)			
Engage users directly in analysis and evaluation			

Table 7.4 Principles addressed by the three studies in the 'Follow Up' phase (Source: Author)

The '*Follow Up'* phase in the design process is everything that happens after the design proposals have been completed. This includes construction, handover and 'in use' stages of the project. This also includes assessment of the proposal or completed project to compare the process with outcome.

In terms of principles addressed, this phase of the design process saw some but varying levels of continuity in engagement in all three studies and use of both 'objective and subjective' evidence in the Wenlock Barn Estate study.

The '*Follow Up*' phase in the case of the Aylesham extension, comprises of mainly measures to sustain engagement between the long gap from the approval of the masterplan in 2005 to the start of its construction and continued development through to completion. Since 2005 until 2012 progress on the project stalled due to lack of funds. However, in 2013 the council appointed a community engagement officer based on site to engage and interact with the village community, as well as organised online forums and opportunities for the community to approach the council for any concerns. Such measures ensured that the community has not been cut away from the process after an initial consultation period or after the design decisions have been made. Even though the project saw a long period of no progress due to the economic recession, measures such as these reassure the community that their views, opinions and contributions have not been ignored and are valuable to the development process. These measures are essentially strong forms of *communication* between the council and the community. Comparing this with the other two studies, the issue of continuity in communication stands out at two levels - firstly, between the client and community through the design process; and, second, within the organisations and teams working on the project.

In spite of being in the doldrums for some years during the recession and doubts of the value of all the work done before the economic crisis, the community's involvement and awareness was not undermined. Steps were taken to ensure that the work done before was not lost. Young participants at the time, now adults, continue to participate towards the fulfilment of the project. Considering the ongoing communication flow across the organisation structure even with the complexity that accompanies multiple ownership (Dover District Council, Kent County Council, Shepherd Neame, Coal Industry Social Welfare Organisation, Cooperative

Society Ltd, Samuel Lewis Housing Trust, Aylesham & District Community Workshop owning parts of the land occupied by Aylesham village), across the user groups and in terms of documentation, Aylesham demonstrates clear and seamless communication.

Whilst the engagement in Aylesham has been strong and evident at every stage, the spatial analysis as discussed in the last phase was user driven. The completed 'draft' masterplan was sent to CABE for a design review in 2007 and again in 2009 (CABE Website Archive 2011). Both times, the panel responded with dissatisfaction pointing fundamental flaws in the masterplan. In order to understand how the proposal could have changed had a spatial forecast model been prepared, this study used the existing layout and the proposed masterplan to run an accessibility model. The spatial accessibility models show that in trying to make the village well connected, the linkages have become over-permeable. The legibility of the village route network, whilst has risen from the existing layout, it is still lower than the average UK intelligibility value. This indicates that Aylesham could have benefitted from a more formal application of Spatial Analysis methods, by integrating their use, in more accessible yet still formal approach, as part of the participatory design workshops.

In Nottingham's old market square project, the completion of the design stage and approval of planning permission was followed by several steps taken by the Nottingham City Council to sustain community interest in the project and support of the strategic vision of the redesign - to make the old market square an icon of Nottingham and civic pride. These included a drawing competition launched before the works on the square started, asking people what they were proud of in Nottingham and inviting local celebrities to talk about Nottingham as part of a 'proud of Nottingham' campaign. Whilst these were attempts at engaging the local community, to sustain interest and build community spirit, applying these at an earlier stage when defining the vision and developing the design may have been more beneficial.

Although completed in 2007, there has been no formal post implementation study or assessment done as part of the project. It however saw a series of independent design review panel assessments to assess design quality, leading up to several awards for good public space design (Gustafson Porter 2016). These panels included those from CABE, English Heritage and the full council.

As compared to the other two studies, the Old Market Square redesign was a much quicker process, spanning just over three years. However, the issue of continuity still arises, in terms of communication and documentation. The council has been unresponsive to all requests and attempts to access information and data, including 'Freedom of Information' requests which confirmed that 'the requested information is no longer held' (Appendix 6) or the people now working have no access to this information.

The Wenlock Barn Estate study, is the only case study of the three that continues to build an evidence base after implementation to assess the impact of the interventions made. A post implementation study carried out in 2009, exactly one year from the time of the original study, used the same methods of movement flow, pedestrian count and questionnaire survey that were applied in the 2008 study, to analyse the impact of the small scale interventions. Outcomes of the study were qualitatively and quantitatively evaluated and reflected a positive change. The 2009 study showed higher movement levels and a greater proportion of women pedestrians in areas than those recorded in 2008. Some areas where no women were observed at all in 2008, now saw women, although low in numbers. Moreover, people seemed more opinionated and critical with higher expectations in terms of the quality of the public realm.

Continuity in engagement is evident through the continued steering by the Shoreditch Trust and Tenant Management Organisation, that continued to oversee development of the area, engaging with residents by bringing in independent community organisations such as 'Fourthland' that worked with the community to use the neglected green open spaces for growing food and engage with other residents building community spirit.

The Wenlock Barn Estate physical improvements study and proposals by MACE and Space Syntax, were partly implemented in landscape improvements. During the course of this research it was found that neither the current Tenants Management Organisation nor the Shoreditch Trust had any information about the project. Such unawareness similar to the Nottingham case, points to a lack of continuity in *communication* over time within organisations and across user groups.

In summary, three key issues arise from analysing this phase across the three studies - continuity in engagement, continuity in communication, and assessment of process against the outcome.

Continuity presents a challenge at two levels. First, long timelines such as Aylesham (14 years and still ongoing) and Wenlock Barn Estate project (part of a 10 year long program), raise the issue of maintaining continued community interest and involvement. The second level is that of continuity in communication, where documentation and knowledge needs to be carried forward even if there is a change in the organisation structure. As seen in the case of Wenlock Barn Estate and the Nottingham projects, where over a period of time communication, documentation and knowledge were lost, this is often a symptom of deficiencies in the process structure and challenges arising from the socio-political context of the project.

Assessment of process against the outcome consists essentially of a post implementation study to assess the implications of the decisions made. Whilst this is effective in assessing the outcome against the process used, as seen in the case of Aylesham's long process timespan, this does not require a project to be complete and fully occupied, but can be checked through user feedback on stage completions.

An overall assessment of the application of principles in the design process

This thesis proposed nine key principles or criteria (Fig 7.1) that help integrate the two approaches of evidence based spatial analysis methods and engagement as part of a design process model in a mutually beneficial role, where both approaches inform and enhance each other. These are also proposed as a rough guideline for implementing such a process in real design practice.

The principles can be applied at different phases of the design process but show maximum impact particularly in the context development and design iteration stages of the design (Fig 7.2). Better integration requires that principles aimed at effective engagement and those regarding the use of evidence in the design process are applied in combination. It is proposed that more the number of principles from both sets that get addressed across the design phases, the stronger the integration in the approach.

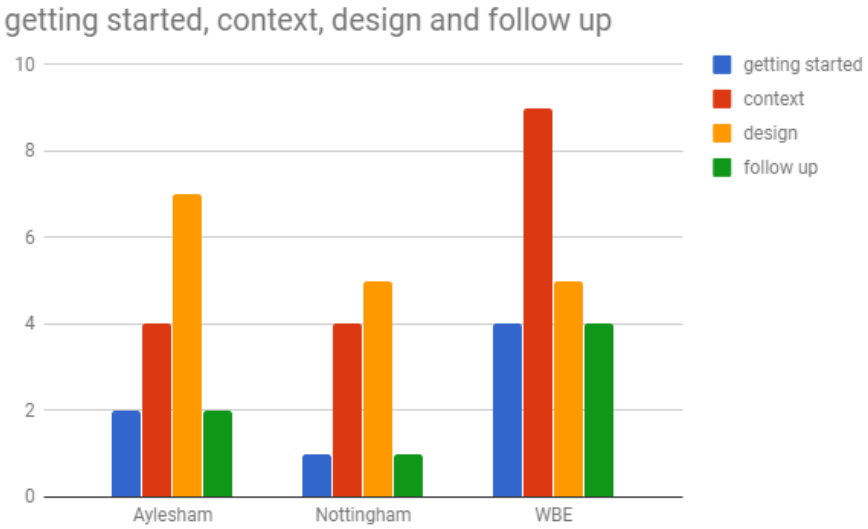


Figure 7.2 Number of principles addressed by the three projects across design phases (Source: Author)

As can be seen in Fig 7.5, the WBE project addresses more principles as compared to the other case studies in three out of the four design phases, and all principles in the 'Context' phase (Fig 7.2). This is also the only case study to use behavioural and experiential evidence in the 'Follow up' phase of the process (Table 7.4). As such, amongst the three case studies, WBE

can be considered the closest to an ideal implementation of an integrated application of user engagement and spatial analysis methods.

Understanding the Value added by an Integrated participatory evidence-informed design process: An argument derived from real world design practice

The three case studies analysed in this thesis are design projects responding to different types of urban spaces, with different approaches to applying user engagement and evidence-based analytical methods: a predominantly user driven process; a predominantly spatial analysis based design process; and the combination of spatial analysis and engagement. The findings from this case studies research suggest context specific conclusions regarding the value added to the quality of the design outcome by integrating spatial analysis and user engagement as part of the design process.

The wider argument presented below critically discusses how the various elements of an integrated participatory evidence-based design approach, as apparent from the three case studies, result in added value to the design process, its outcome, and ultimately for the community involved. The analysis below looks to identify how these elements contributed to adding value where applied, while at the same time aiming to infer how the application of these methods could have been improved to achieve even better outcomes.

The previous chapters (two and three) proposed that an integrated participatory evidence-based design process can add value in three ways:

1. The use of objective evidence and formal spatial analysis methods, can rationalise the process of design, and when integrated as part of an engagement process can contribute to *grounding the participatory process in objective reality.*
2. Users engaging directly with the design process can bring *experiential insight* to augment and nuance behavioural information captured through formal analysis methods.
3. Enabling the users to engage in design with accessible analytical methods allows for more meaningful participation, an understanding of the rationalisation of decisions made, and a better understanding of the outcome of those decisions.

Together, these ultimately result in an enhanced sense of ownership for the community, over the process as well as its outcome.

The table below summarises the extent to which the case study projects add value to the design process through the integrated application of user engagement and spatial analysis, as further elaborated throughout this section:

	Aylesham	**Nottingham**	**WBE**
Project context	Mainly Residential	Public space	Residential
Use of participation	Comprehensive - structured participation process (EbD)	Limited - stakeholder consultations, public exhibitions and voting	Comprehensive - structured participation process
Spatial Analysis as source of *behavioural evidence*	Limited - informally as part of design workshops (mainly qualitative)	Comprehensive - spatial studies to inform and assess design (quantitative)	Comprehensive - spatial studies to inform and assess design, pre and post implementation
User Engagement as source of *experiential evidence*	Comprehensive - Structured collaborative design workshops	Limited - stakeholder consultation, public feedback	Comprehensive - users directly involved in gathering and providing experiential insight
Formal analysis methods as part of the engagement process	Limited - informally as part of design workshops	Very limited - findings of spatial analysis used to support proposals in stakeholder meetings	Comprehensive - users trained to participate in spatial analysis, gathering and analysing spatial, behavioural and experiential evidence

Table 7.5 Value adding aspects of participatory and analytical methods as used in the case studies (Source: Author)

Participation in current urban design practice is increasingly gaining recognition as a fundamental element of the design process, especially with the Localism Act 2011, which introduced public engagement as a mandatory requirement for urban design schemes.

While each of the three case studies applied engagement as part of its design process, the level of engagement varied, ranging from a user centric process as in the case of Aylesham where users co-managed design decisions, to a more controlled engagement in the Wenlock Barn Estate project, and to Nottingham's stakeholders-only consultation, with end-users involved only in a reactive, rather than interactive role.

It is notable that the projects with higher engagement - Aylesham and Wenlock Barn Estate - share a common context such as the residential land use and the economically deprived neighbourhoods, which led to them being established as part of explicitly *community-led structured programmes.* In both cases engagement initiatives started at the nascent stages of the project and engagement was an explicit goal as set out in the project vision.

Looking at the three case studies it seems imperative that through its project vision, the project is secured against vulnerabilities of time, cost and politics which could otherwise easily destabilise it. This however raises the issue of who should be involved in setting the project vision. While in an ideal engagement process the end-user would have a significant role, real world studies show this is not the case. The overall vision and boundaries are almost always set by the paying client. In the case Nottingham's Market Square this was the Nottingham City Council, in the case of Aylesham, Dover District Council and partners, and in Wenlock Barn Estate, Shoreditch Trust under the New Deals for Communities programme. Therefore, while the role of the architect and the user are important, the role of the paying client is particularly important in setting the ultimate goals and objectives. As in the case of Nottingham, even though the architects would have liked to contribute and engage with the users directly, not just partnering stakeholders selected by the council to participate, this was not up to them.

The value of a wide and structured approach to engagement, involving the entire community as part of well-defined process, is particularly shown by the Aylesham case study.

As a purposefully demonstrative project on the value of participation, the Aylesham case study succeeded in showing the value of participation not only as a means to achieve a design outcome, but also *as a process that enriches the community itself*. In bridging the gap between the user and the design process, by actively and consistently involving the community through every design stage, by giving them the opportunity to directly develop design in collaboration with the masterplanning team, (including the 'qualitative' spatial analysis for the site), by supporting the community in gaining an improved understanding of their built environment from an urban design perspective, it succeeded in building a strong and lasting *sense of ownership* over the design process and its outcome. This is reflective in the high levels of user satisfaction, as evident in the 83% (EDAW 2003b) of the support received by the wider community for the final draft masterplan.

While the benefits of direct user engagement for the community in Aylesham are evident, the process design outcomes were not as successful. While the spatial studies largely involved users (with support from the masterplanning team), some parts of the spatial analysis were also carried out independently by professionals, to address outstanding issues and weaknesses in the spatial planning and ensure feasibility of proposals. The completed 'draft' masterplan was sent twice to CABE for a design review (CABE Website Archive 2011) and was responded to both times with dissatisfaction regarding issues including the street layout, legibility and street hierarchy. Spatial accessibility models prepared by the author to understand the impact of street layout on potential movement show that in trying to make the village well connected, the linkages became over-permeable and the legibility of the village route network, although originating from the existing layout, it is still lower than the average UK intelligibility value. It is therefore argued that while the masterplan design process, by enabling the community to influence the design of their neighbourhood, resulted in a stronger sense of ownership as well as high user satisfaction, it somewhat lacked in dealing with the spatial complexity of the site successfully.

A possible approach to address this may have been to apply spatial analysis methods more formally during the process, while still allowing the community to fully participate in the process by providing it with adequate training to be able to be meaningfully involved in analysis, as well as by engaging the community through activities requiring less specialized skills, such as data gathering. Such involvement may have helped to identify and resolve in a

timely manner the key areas which post-design spatial analysis identified as issues - the town's central open space and the main connection between marketplace and station through the central open space. Performing objective analysis early enough to act on it would save time and project costs, but, more than that, professionals and users working together using objective analysis tools, where possible, may further strengthen the user, professional and design process connection. By allowing the community to analyse and propose improvements for these spaces in a more objective manner than based only on their user experience and basic training, it can improve the quality of its contributions, while at the same time, through its objective approach, this type of collaboration can also address issues of conflicting opinions, directly benefiting the participatory process.

The value of spatial analysis as an important source of objective evidence and rational decision making is illustrated in the Nottingham case. Here the architects used Space Syntax's findings from observed and modelled analytical evidence and forecasting models to identify both issues and possible solutions to inform their initial proposal, as well as to justify how their proposal addresses issues of spatial use, movement and activity. This has contributed to its successful design outcomes as evident by the design awards received since completion for a good public space (Gustafson Porter 2016); independent academic (Pussord 2011) reviews; statistical data on crime and anti-social behaviour (Appendix 8) before and after redesign showing a steady decline in crime incidents, as well as user satisfaction survey (Appendix 9a). As such, despite limited use of participation, the use of Spatial Analysis in Nottingham can be seen as essential in understanding and revealing underlying spatial mechanisms, and providing the basis for a rationalised design solution to the design brief, resulting in an improved design outcome.

It is apparent from the structure of the engagement process in Nottingham that the end-user did not hold real influence in decision making. However, in addition to addressing spatial and social complexity through applying a series of analytical, diagnostic and prognostic methods, the Nottingham project did derive useful experiential insight through a process of consultation with stakeholder and user representative bodies. Some of the feedback received

from stakeholder consultations was directly implemented in the scheme, for example the greater use of trees and greenery, which was also echoed by users (Appendix 9a). Other problems however have only been identified after implementation, such as a strong need for more greenery and colour, which was raised by 48% of the participants taking the survey. Improvements in seating areas in both number and material was another common issue amongst 18% of the participants. The use of 'stone' for benches was criticised for being unpleasant to sit on during cold and rainy days. 16% of the participants most of who were young mothers mentioned the need for the square to be more child friendly. These are examples of issues that end users might readily identify if given the opportunity, while they might escape project partners or stakeholder interactions, concerned with large issues of project delivery.

The limited user engagement in Nottingham, as well as the relatively successful outcome of the square despite it, could be attributed to the contextual conditions of the project. The land use of Nottingham's square as a public space is very different from the residential nature of the other two projects. This can be considered both a challenge for participatory design, as well as a justification for falling back on more traditional, professional and client driven approaches to design.

Residential sites have a high 'sense of place' (Tester et al., 2011), and the users of such sites are more permanent with a greater sense of association, attachment and ownership. This plays a major role in a greater desire to contribute to any changes to the neighbourhood and community that has a direct impact on their lives. Such projects also make it comparatively easier to identify and target participants due to their narrow user group. However, in contexts like that of Nottingham's market square, participation can become more difficult and high-level engagement with end users may not be as fitting, although space syntax like objective evidence informed methods remain a valuable tool. This is not to say that people do not share a sense of association or attachment to public spaces, but that attachment and connectedness increases when residents or more permanent users are engaged within these spaces (Smith 2009). With a lower proportion of residential land use, mostly consisting of council owned residential properties or those occupied by 'Educated young people privately renting in urban neighbourhoods' (Nottinghamshire, Insight Mapping website, Accessed June 2016), most of the land use is non-residential - retail, offices, tourism and the Council House.

This makes it more challenging to target a focus group. However, although challenging, tools such as community mapping tools, have been successfully used in public space design projects, allowing people to be engaged through sharing information and spatially located feedback.

WBE shows the deepest integration of user engagement and formal analysis methods. By engaging users pervasively at all stages, from key issue identification throughout data collection and analysis, WBE ensured that it captured as much objective and subjective information as possible in its design process.

The Wenlock project addressed *spatial complexity*, through a rigorous spatial investigation applying a series of methods to capture behavioural evidence by studying its spatial structure, public realm features as well as gathering spatial use data; and *social complexity* through a variety of methods involving a wide range of user groups using methods that were suitable to the social mix of the WBE context. These included a wide range of methods such photo elicitation exercises, online forums, weekly surgeries, consultations, courses, all very specifically focussing on 'user perceptions' and emotional responses relating to fear of crime and safety.

By explicitly seeking to achieve a wide evidence base and applying a participatory approach to gathering and using evidence through involving the local residents, this comprehensive approach contributed to the better understanding of the issues by the designers. Initial consultations along with other information such as COPS reports, helped the designers identify the priority areas to focus improvements. By collecting evidence of user perception through the preliminary photo elicitation exercises and later through the questionnaire interviews, the process allowed to identify experience related information, which when compared with the spatial surveys, found strong correlations. Lastly, by involving community members directly in gathering user evidence, especially interviews relating to user perception, it allowed for a more authentic interaction between the users being interviewed and the members interviewing, achieving a greater sense of trust and hence more openness and insight in their responses. These findings were corroborated with objective evidence resulting from applying Space Syntax methods, which, by identifying specific spatial relations

features and characteristics that were proven to contribute towards anti-social behaviour and curtail natural surveillance, helped the designers in validating the issue of fear of crime raised by the community. Additionally, a post implementation study, conducted using similarly corroborated research and data, assessed the outcomes of the process, finding that the interventions made resulted in a positive impact.

As such WBE can be considered a good model for applying engagement and analysis methods in an integrated fashion, by enabling the users to contribute directly and meaningfully. In retrospect, WBE however could have benefitted from a better defined community engagement process. While communication was pervasive during the project, mostly taking the form of meetings and group discussions, it tended to be unstructured and under documented. A better defined and structured process in terms of methods for engagement, such as the 'Enquiry by Design', used in Aylesham, could have allowed for a thorough participation driven process, while at the same time maintaining focus and coherence.

As such, as seen through this analysis, while none of these projects reflect an ideal application of the principles of evidence-based, participatory design, together they can be seen to illustrate complementary aspects of an ideal process as it might be achieved in practice, by combining the most successful elements of each project's methods and approaches.

Chapter 8 : Conclusion

This PhD thesis set out to demonstrate the extent to which the integration of participatory design and spatial analysis can contribute and improve process and outcomes of urban design through an evidence informed approach. This aim is a response to the gap between users and the design process, and the need to address the various complex socio-spatial components of the urban environment that influence design through design practice. The literature review situated this problem of urban design in a larger context of the city by discussing the city as a 'complex system' of spatial and social relations; analysing the role of information and evidence in the design process; and spatial analysis and engagement as design approaches to capture the necessary evidence to address these complexities of the environment.

Based on the theories of urban design (Jacobs 1961; Lynch 1960; Lefebvre 1974; Hillier 1984), two key properties define the built environment - spatial structure and socio-spatial use. Lefebvre (1974) notes that society influences space, and space influences society. Hillier's (2007) theory of configuration shows that social existence is a function of the spatial configuration, which has implicit social patterns, and the relation between the two is interdependent. It also argues that this interaction or communication between society and the environment is comprised of two parts - structural information or syntax (objective and factual information) and semantic information (subjective and meanings derived) (Portugali 2011).

As demonstrated in the literature review, at an individual level, the semantic interpretation of communication from the environment is dependent on the receiver's personal and social characteristics (desires, needs, personal preferences). At a collective level these characteristics become cultural patterns. If a person or collective is influencing space, then these meanings of culture are manifested in their spatial form in the environment. For the

environment to influence society, behaviour and people's experiences, the semantic information of the environment needs to be perceived and interpreted by society and users. For coherence between spatial environment and the users, there needs to be a coherence in their meanings (or semantic information). The meaning is specific to each individual and collective. Therefore, to design a space, the meaning of the spatial form requires responding to the needs, desires and perceptions of people using these spaces, to achieve a more unified relation between the two.

Theories of design as a process (Wodehouse and Ion 2010); past and present design practice; role of the professional and the user in design (Habraken 1986; Goodman 1972; Jacobs 1961) and the overarching perspective of cities as complex systems (Jacobs 1961; Portugali et al 2012) show that whilst current design practices attempt to address the various relationships between the environment and their use, the methods used to design have certain limitations. Three key gaps in current methods of design practice were identified. First, an overall disconnect between the process and the users and need for an effective participatory practice. Second, spatial analysis by itself is limited in how it addresses the experience and perceptual aspects of people's relationship with spaces**;** and third, complex systems such as public spaces in cities, need more sophisticated, accurate and credible analysis and rationalisation for design decision making.

This thesis has argued that these gaps can be addressed through an integrated approach involving both, spatial analysis and community engagement, in design in three ways (arguments elaborated with empirical evidence in the next section on 'Key Findings'):

- Firstly, by the application of objective evidence and formal analysis methods to rationalise the process of design, and when *integrated* as part of a user engagement design process contribute to grounding the participatory process in objective reality.
- Secondly, engaging users directly with the design process to bring *experiential insight* can help augment and nuance behavioural information captured through formal analysis methods.

- Lastly, making analytical methods more accessible and easily understood by lay participants for a clearer understanding of, the rationalisation of decisions made and the outcome of those decisions, ultimately results in allowing for more meaningful participation in an enhanced sense of ownership (for the community), over the process as well as its outcome.

In order to empirically test these conclusions about the relationship between design practice and the complex socio-spatial relations of urban environments, this thesis applied a framework based on the concepts of 'behaviour' and 'user experience', to analyse the case studies. This was built on the key properties of spatial structure and the social aspect of urban environments that contribute to spatial use which were identified earlier through the literature. Since the 'spatial' and 'social' form the duality of spatial environments (Lefebvre 1974), these cannot be analysed completely independent of each other. As discussed above, since space facilitates interaction and is also influenced by it, an analysis of the spatial structure includes analysing *spatial use patterns (movement and activity) and behaviour*. However, this is only part of the knowledge needed to understand socio-spatial relations that define urban space. The other part, relates to the social aspects of spatial use that are driven by perception and experiences of individuals and collectives. Since this thesis looks at space syntax theories as an example of research and evidence informed methods of spatial analysis, spatial structure was analysed using this methodology. In order to determine spatial use from the perspective of social relations, theories such as Krupat's (1985) model of human interaction and the Project for Public Spaces (2016) also established that user perceptions, emotions, associations, preferences, needs and desires also contributes towards how these spaces are used and experienced. These are not observable properties and therefore user engagement in design has been applied to study *user experience* of space.

A selection of three UK based case studies analysed the separate and collective application of analytical and user engagement methods in the design process, to analyse and investigate how spatial analysis in an engagement led process influences the end outcome.

These case studies varied in contextual backgrounds, kinds of evidence informing spatial analysis and levels of community engagement, i.e. use of space syntax methods with limited community engagement; space syntax methods in balance with community engagement; and, community engagement without space syntax methods.

Key Findings

The three concluding arguments presented earlier are explicitly discussed in this section in response to the three main research questions that were posed at the beginning of the thesis.

How can spatial analysis and user participation be deployed to best effect within the design process? What principles and related criteria can be used to evaluate this?

This thesis proposed *nine principles* or criteria (emerging from the case study best practice) for employing user engagement and spatial analysis tools in a way that contributes towards and enhances each other when applied as part of an integrated design process. These principles have been derived from theory and empirical evidence of best practice, by considering how engagement and spatial analysis methods were used in three different approaches to add value to the design process and design outcome. These principles are meant to be used as a guide for practitioners since they indicate the main concerns that such a process should address. These principles are also proposed as a *qualitative evaluation tool* to assess the effectiveness of this approach to the design process.

The principles are:

1. Inclusivity of all diverse interest groups;
2. Involve users in an influential role;
3. Maintain continuity throughout the process;
4. Develop community capacity for better informed participation;
5. Ensure effective two-way communication between users and professionals;
6. Ground analysis in objective evidence;

7. Incorporate experiential evidence
8. Make analysis and evaluation methods user accessible (user friendliness)
9. Engage users directly in analysis and evaluation

Beyond these broader principles, which have been extensively discussed and analysed as part of the Comparative Analysis chapter, a number of additional conclusions are drawn about specific aspects of the design process from the case studies, which appear as key to an effective application of an integrated approach. One of these aspects is explicitly incorporating this integrated *approach as part of an overarching project vision and structure* from the beginning. Another concerns the need for *targeted communication and facilitation tools* to allow for an effective implementation *adapted to the context* of the project. These points are further detailed below.

A structured programme that identifies engagement and the use of analytical approaches using evidence, as 'significant' to the project agenda, provides greater support and consistency towards applying these. As seen in two of the three case studies, the vision and agenda developed by the overarching programme structure (New Deal for Communities in WBE, and Creating Quality Places in Aylesham) for the project sets the course for a consistent and committed approach towards the methodology adopted. The participation agenda set out from the beginning determines the level of community influence throughout, and therefore it is essential that the project governance structure explicitly requires and creates the conditions for the user to have an influential and meaningful role, as shown in the Aylsham and WBE case studies. Similarly, the WBE case study shows that to achieve an integrated approach, it is also beneficial that the use of research and evidence in design development is made part of a project's implementation strategy from its earliest stages.

A strong argument for explicitly making user engagement and spatial analysis part of the agenda from the beginning, is that these tools are particularly *useful in identifying and defining issues*, and *in obtaining a better understanding of the constraints and opportunities* which shape the design problem. This finding also confirms the concept of the *Fuzzy Front End* (Rhea 2003; Design Council 2007) that presents this phase as that of discovering potential and defining problems and thereby, setting the course for rest of the process. Typically, engagement tools identify the key issues, which are then investigated analytically for their relationship with underlying spatial mechanisms that may be contributing to these issues. As can be seen in the Wenlock Barn Estate improvements, community engagement recognised crime as a key issue, which informed the choice of analytical tools and their application. In order to investigate the built environment related causes for the fear of crime as perceived by the community, Space Syntax Ltd. was brought on board and spatial accessibility models were analysed to identify if there was a correlation between the estate layout and crime related behaviour. Further the process benefitted from detailed engagement with the community (resident members and community service professionals) on the preliminary spatial study findings in identifying the most vulnerable spaces on the estate, which became the focus for design improvements.

The value of early stages of the process in identifying critical issues can also be seen in Aylesham, where a walking tour of the village was organised to understand the context of their site, in conjunction with site visits to other towns and villages to see examples of best practice. This helped the community participants, facilitated by a team of professionals, to get a better grasp of the site constraints and opportunities, as well as an understanding of the critical aspects of urban design. The issues identified during these activities, prior and during the first engagement workshops, such as better use of the central open space and more pedestrian access and improvements to the market square, became core to the design process. This included the identification of two new opportunity sites in addition to those identified by the allocation plans.

The use of evidence obtained through engagement and analytical tools, as shown in the case studies, is also useful *to assess proposals at each stage*. The Aylesham masterplanning process, assessed community support using effective communication strategies including public exhibitions with opportunities for feedback and interaction, open sessions as part of each workshop, and a series of household surveys and face to face interviews, to gather the most comprehensive feedback. Strong concerns raised were then addressed as part of a separate workshop sessions, collaboratively, with more resources if required. One such issues raised at the end of Workshop 1 by the wider community and particularly residents with houses along the central open space, was regarding the building of new houses in the central open space. The council with some of these community representatives physically marked out the site to 'see' where the development would sit in the open space with respect to the existing dwellings. This was supplemented with showing how building houses 'facing' the open space would increase natural surveillance and contribute towards making it child friendly.

Nottingham's market square project also demonstrates the evaluative role of spatial analysis through the use of analytical models and ethnographic observations to assess the impact of the proposed design scheme. The evidence from these analytical methods was presented to project partners and stakeholders to justify the proposed layout and how it addressed the issues raised in the design brief. The objective nature of the evidence used here, with easy to understand visual representations of the analysis and findings, allowed a clearer understanding.

The WBE study assessed the impacts of potential intervention, using objective analytical models combined with the subjective qualitative information gathered from the various sessions with the community representatives on the Trust board that was used to direct the focus of further spatial studies.

This thesis also shows that the effectiveness of an integrated participatory evidence-informed design process in equipping the community to 'understand' and 'contribute', relies significantly on the communication and facilitation tools used. Based on theories of best participatory practice (Wilson & Wilde 2003), challenges faced by current participatory practice and by analysing the process and methods used in the case studies, this thesis argues that communication tools used between the lay user and the professionals, need to perform three roles: first to enable *active engagement for a wide section of the community*; second to *effectively involve the community in the analytical process in a way that uses one to strengthen the other*, and third *to ensure sustained interest and continuity of engagement throughout the process.*

To be effective, the communication strategy applied needs to be adapted to the project context and the specific type of end-user targeted. For example, the WBE project employed a variety of communication methods and facilitation tools to create the opportunity for wide outreach to the larger community. Communication tools used to initiate interest and dialogue with maximum inclusion and accessibility, aimed at all age groups, included the use of games to physically interact with their environment, to better explore and be able to discuss it. For example, the 'Shoreditch Jump' project, which involved parkour or free running became popular with young boys and created greater awareness among the younger age groups in a fun and innovative way. Similarly, the photography sessions helped the community to engage with their neighbourhood spaces and communicate ideas about what they liked and what they didn't. This photographic elicitation exercise in combination with other research also contributed to identify the key design issues. Other examples of interacting with the wider community and creating opportunities to initiate dialogue were online forums, community phone lines, and community publications such as the Shoreditch magazine. Other methods were employed in Aylesham, such as walkabouts, Q&A sessions, and public exhibitions. As part of open exhibitions, the community members who participated directly in the "Enquiry by Design" workshops answered questions from the public. Nottingham, also used public exhibitions and an online platform to gather feedback from a wide audience.

As the case studies show, beyond wider outreach, the right tools need to be employed to sustain the interest and enable the engagement of the more focussed group of representative members which actively contributes to the design development process, allowing continued involvement from project initiation to post implementation. Of particular importance in this are communication tools that help make knowledge, concepts, methods and the process accessible and easy to understand. A wide variety of examples is again demonstrated in WBE, which employed methods such as: (1) interactive courses involving architects, project partners and facilitators to ensure effective transfer of knowledge from professionals to the community (2)involving community researchers as conduits to capture information, especially in gathering experiential evidence relating to user perceptions, which was particularly valuable in encouraging honesty and openness in responses and creating a sense of trust towards the process and the authorities overseeing the process (3) by reflecting the data gathered by the community as evidence in the analytical models which beyond the immediate informational benefit also helped the community recognise their contribution to the development process, and as such further contributed towards building greater trust in the process and the professionals. This initiative towards stronger communication of knowledge, methods and the process in a clear, accessible and easy to understand way is also demonstrated in Aylesham, where the community was offered workshops on concepts of urban design and masterplanning, design codes and support from professionals through the sessions to understand technical issues, and be able to participate effectively.

The case studies showed how communication tools aimed at the community can facilitate simplification of complex information and jargon. The WBE study shows the presentation of meaningful understandable information through graphical representation and visualisation tools in the use of colour gradations (from red to blue) indicating movement patterns across the site, allowing easier understanding of complex information depicted on a map. In addition to making formal methods more user friendly, less formal but easily

accessible methods such as walking tours and photography can be employed to capture and then analyse valuable evidence on user experience and perceptions.

The evidence in this thesis showed that measures also need to be taken to sustain engagement through the long timelines of projects and their implementation. In cases such as Aylesham, a project initiated in 2002 and still ongoing, methods employed in the follow up phase such as appointing a community development officer and maintaining an online presence, were important in enabling continued engagement with the village residents through the course of implementation.

What is the role of Spatial Analysis and User Engagement in capturing evidence, and how does the use of this evidence influence outcomes? How can the outcomes be evaluated?

This thesis argues that involving users in the design process and integrating their experience of perceiving the design issue with behavioural evidence derived from analytical approaches can effectively address the complexities of the urban environment. *User engagement* generates useful, localised, information and knowledge. However, since that can be qualitative and subjective in nature, *spatial analysis* methods are identified as a useful tool to rationalise the process and information gathered, through its objectively grounded approach. The use of research informed evidence can help identify of patterns in the local and larger urban structure with close accuracy, and *ethnographic spatial observations* can help document spatial use in terms of local activity patterns.

These three methods - *spatial movement analysis*, which is based on scientific theory and research requiring technical understanding; *ethnographic observations*, which do not require any technical understanding but document live events; and *public engagement* that is based on interaction between lay people and the expert - can work in concert to triangulate findings.

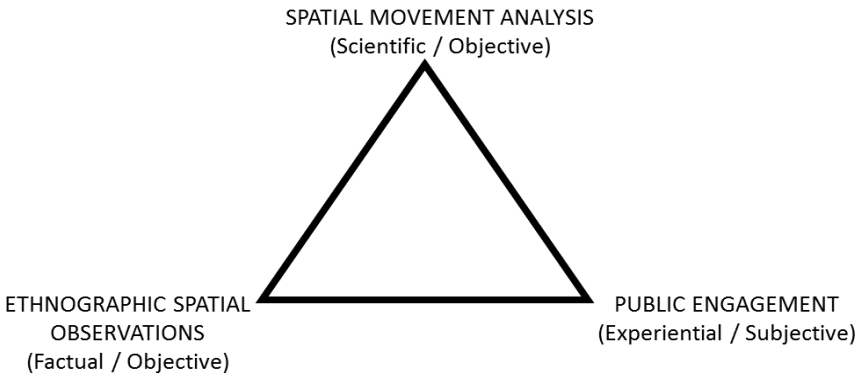


Figure 8.1 Conceptual diagram showing Spatial Analysis, Ethnographic Observations and User Engagement as sources of corroborated evidence (Source: Author)

Engagement is an effective tool to directly capture the user experience of living in and using an existing site. The users are best placed to understand the impact their urban environment has on their lives at the time it is used, and their needs and perceptions constitute valuable subjective evidence that is useful to identify, inform and nuance design issues. This can be seen for example in Aylesham, where the community identified the need for better pedestrian access routes and an improved central space to 'feel' more safe and secure, and the need to capture and address cultural aspects of 'identity of the place' through improvements to the market square. Identification of new opportunity sites was also a concrete outcome emerging from qualitative discussions. The positive outcome of using this evidence is seen in the 83% community support received, indicating a high level of satisfaction in terms of addressing community's needs and concerns.

Spatial analysis when conducted using multiple methods is useful to identify and understand spatial use patterns in existing layouts as can be seen in Nottingham, where a rigorous use of analytical methods based on overlaying various layers of objective data and evidence helped inform and justify design decision making. Methods such as ethnographic observations by Space Syntax professionals were used to capture behavioural evidence in terms of pedestrian movement (flow and routes taken) and activity (72% of the people crossing the square avoided the centre and most activities tended to happen around the edges). This was complemented by additional objective analysis methods: spatial and visual accessibility models (*visual graph analysis)* for connectivity and visual exposure (*Isovist studies)* to identify natural movement lines; and a public realm study using qualitative visual site observations. Findings from all these different methods all contributed to inform the proposals and the final design outcome, resulting in the Gustafson Porter Architects proposal winning the competition and eventually being recognized with design awards.

Whilst spatial analysis and user engagement methods, when deployed independently, each demonstrate their usefulness in capturing behavioural and experience related evidence respectively, their impact is wider when used in combination to complement and enhance each other. Corroborating findings obtained through an integrated approach leads to better informed decisions making. This is best shown in the Wenlock Barn project, which extensively made use of multiple types of evidence throughout the process.

First, engagement tools such as community photographic elicitations, street audit reports prepared by a Police representative and consultations with community representatives, were used to derive the key issue in the Wenlock Barn Estate (fear of crime), as well the three focus areas of the site.

Then, spatial analysis methods were used to draw relationships between the existing spatial structure, qualities of public realm and spatial use patterns and relate these to user perceptions of crime. These included: pedestrian counts and pedestrian route choices using quantitative site observations to understand use patterns; spatial accessibility model to understand the levels of connectivity, integration (closeness) and segregation of the existing street network (spatial structure); site observations including formal analysis of

block sizes, building entrances and public realm interfaces, to understand the quality of the public realm. Ethnographic methods such as questionnaire surveys were used to obtain a better understanding of user perceptions of crime in the different parts of the three focus areas. Additional objective evidence consisted of crime opportunity profile survey reports that highlighted the different types of crime and anti-social incidents in different parts of the estate. All these methods served to understand and support with evidence the key issues identified, and to inform the eventual design improvements to address them. As such, The Wenlock Barn Estate case study shows how a comprehensive evidence base can be developed to inform design, by combining evidence sourced from scientific, highly quantitative as well as qualitative yet objective methods, with qualitative and subjective evidence sourced from the community.

This combined evidence approach is useful beyond merely informing the design development itself, through its use as part of *post-occupancy evaluation* studies to assess the outcomes of design. These evaluations can rely on the use of both behavioural and experiential types of evidence using analytical models and ethnographic observations to objectively assess the developed design, and a variety of communication tools to capture the user experience of the new urban space. Academic and professional design reviews and awards, assessed by accredited panels such as CABE (Design Council), have established themselves as benchmarking bodies for quality in built environment design. This is a qualitative and 'peer reviewed' approach to evaluation that relies on the experience of the review panel. A post implementation study would include additional objective and quantitative evidence of spatial use, as well as valuable subjective feedback on user satisfaction, which can constitute particularly indicative measures on the successful performance of a place. Moreover, this can largely be conducted by the community themselves using ethnographic methods that do not require any technical expertise.

The WBE example shows that post implementation studies can be used to evaluate the outcomes of the integrated approach by applying the same or similar methods as were used during the initial design development, to capture evidence of both behavioural and experiential change brought by the design implementation. Findings were not only in terms

of the positive impact in terms of the increase or decrease of pedestrian counts but also a qualitative analysis of opinions indicating a more aware and informed community.

Similarly, in the Old Market Square project, a post occupancy study conducted by the author confirms the positive outcomes, evident in almost four times increase in pedestrian movement through of the centre of the square during one hour (12pm), as compared to the movement statistics for the whole day i.e 4hrs counted through the centre of the square in 2004. To assess user support, a survey of user perception and experience, conducted by the author, showed issues such as the need for more and better seating (20% of responses), more greenery and colour (48%), as well as need for the square to be more child friendly (16%).

What is the broader impact of the integrated use of spatial analysis and user engagement on the overall process? What additional benefits, limitations and challenges does this approach bring to the design process?

While the main goal of the design process is to produce successful design outcomes, a participatory design process can bring additional, broader benefits to the community involved. If the user engagement is meaningful, and the community can clearly identify its contribution to the end result, this helps create an increased sense of ownership towards the outcome, as well as a sense of responsibility and accountability amongst the participating community. This can be seen in Aylesham, where the community representatives were involved in critical decision making in all stages of design, as well as in presenting these developments to the larger community and answering questions other fellow community members may have. Or in the WBE case, where the community directly contributed to gathering analytical data, and then being able to see in the analysis how the

data ‘they’ collected influenced findings. The example of the community wanting to remove a design feature immediately serves to illustrate the level of commitment and the sense of ownership achievable if the community is meaningfully engaged in the process.

An additional potential benefit of a meaningful participation process is increased environmental competence of the community. This can be a result of specific training offered to users to be able to engage productively in the design process, but also simply a product of participation itself. This can be observed in both case studies where user engagement was substantial, Aylsham and WBE. Both case studies show that providing adequate training and involving local community representatives in the analytical process, from sourcing information through analysis and evaluation, and working closely with the professionals, not only results in more meaningful engagement but also equips the lay-users with a better general understanding of their own built environment.

Having acquired this training, knowledge, and experience the community is enabled to take charge of the future development and management of their space(s), introducing a sense of empowerment in the community that extends beyond the project. One of the most significant outcomes in Aylesham was the community identifying opportunity sites that were developed as part of the new masterplan in addition to those identified in the Dover District Council’s local allocation plans. Being better equipped with the necessary and requisite understanding of design and how it influences social and spatial use was significant in instilling the confidence in the community to assess their environment and raise critical issues. This sense of ownership and responsibility in WBE was reflected in the community’s attitude, on understanding the role of specific design features on site that were contributing towards creating conditions for crime, proposing to remove those features themselves.

In addition to the positive design outcomes of this approach to the design process, it is also worth considering its particular challenges and limitations. This approach relies on three types of specific activities, each of which require time to be organised and executed: community involvement, evidence collection, and evidence analysis through formal methods. This can result in *lengthier timelines, greater number of resources and higher cost than traditional processes*. Such a process requires selecting sources of evidence, designing the methodology – selecting the type of data and information to be collected, the data collection itself and its analysis to select the most useful and reliable evidence, and eventually applying these to make recommendations. To ensure effective participation, time needs to be accounted for organising and involving the community, including outreach, communication, agenda, organising a governance or steering committee(s) and then designing the overall implementation strategy. Beyond the additional time needed, resources also need to be allocated towards these activities, which inevitably increases project cost. An example of lengthy timelines and cost are seen in particular in Aylesham, a project which has been going on since 2002, where the masterplanning process took more than 10 years before planning permission was given. The project was also impacted by the recession, with periods of inactivity, when the process lost momentum and additional measures were needed to maintain continuity throughout the gaps, such as employing a community officer on site.

Another challenge is in applying end user engagement in the design of public spaces like squares and plazas, such as the Nottingham project. While traditional methods such as charrettes and workshops with face to face interaction are straightforward methods of engagement in contexts targeting a smaller, concentrated residential community, in public settings finding methods for direct and active end user engagement can be challenging due to the multiple stakeholders and varied types of end-user groups and the difficulty that comes with identifying a target community. However, perception and 'sense of place' (Smith 2009) in public squares could be addressed using digital and technological communication tools such as online collaborative spatial mapping, or indirect participation by gathering and analysing data collected through blogs, social media, photo sharing and other forms of public data sourced from the community. An attempt at capturing users'

impressions as part of a ‘Proud of Nottingham’ campaign and a drawing competition launched after the completion of the design process, if launched earlier would have been able to directly feed into the design, allowing for some measure of direct engagement in the transformation of the square while it was happening, and creating a better sense of ownership and municipal pride.

Contribution to Knowledge

The literature reviewed by thesis has revealed that the theoretical relationship between spatial analysis and community engagement as a design process tool has so far not been directly investigated in depth. While there have been attempts to make this connection in practice, as seen, explicitly in the case of Wenlock Barn and implicitly in Aylesham, neither was based on a proper theorization of the relationship. The framework and methodology adopted by this thesis, therefore, investigated the case studies first, to be able to theorize this relationship in the 'Comparative Analysis' chapter.

This thesis has analysed and examined the use of spatial analysis and community engagement as part of three real world case studies to understand the value an integrated application of these methods can bring to the urban design process. Each case reveals elements of best practice that collectively can contribute towards a more complete application of these methods as part of a unified design process.

To capture and distil these best practices, a number of principles or criteria were developed (from empirical evidence and in light of theory on the two approaches) for the practical implementation of the proposed integrated approach. These principles, are essentially to guide, as well as assess, the implementation of such a design process in future projects.

Areas for Further Study

This thesis uses Space Syntax and ethnographic spatial observations as methods of evidence in spatial analysis, and traditional methods of engagement. Therefore, the findings of this study are specific to these methods. However, use of other possible methods, such as urban informatics (use of online data openly shared by users such as

blogs, vlogs and images) that relate to trending technological advances and more relevant to the current society, should also be studied to capture behavioural and experiential evidence.

The empirical studies also raised issues and questions relating to the contingent nature of participatory processes, such as, the role of local authorities and funding agencies influence the effectiveness of participatory processes, and, what happens when the evidence based findings of spatial analysis conflict with or contradict findings from community engagement? These could not be addressed within the scope of this PhD but pave the way for future research.

The case studies analysed in this thesis show a representative group of the community participating through the design process. In the Nottingham case, these were a select group of stakeholders (not members of the general public). In the Wenlock Barn Estate, these were a group of residents who were trained and then became part of the participating group through design development and as community researchers. What happens when conflict and disagreements within the community arise relating to who participates and in which phases of the process?

The arguments advanced in this thesis have drawn on earlier studies (Jacobs 1961; Hillier 2007; Whyte 1980; Wilson & Wilde 2003;) and are based on the assumption that participation in the design of public spaces adds value. The Nottingham study showed that whilst, engagement was limited to stakeholders (excluding the general public everyday users of the square) the redesigned square is an improvement from the previous layout in terms of its spatial use and is a successful public space. This raises questions of wider application of participation, such as, who should be involved in what kind of projects (public/private/historic) and at what stages, and if the use of participation in public spaces such as public squares and plazas critical only at select stages as compared to semi-public (open spaces in housings)?

This thesis faced challenges in finding case studies that reflected an ideal integrated approach of these two methodologies (engagement and Space Syntax) in a single design process. From the ones where these were available, the documentation and data access was another challenge. The lack of access to knowledge and research of less conventional approaches such as the ones used in these studies, limits the potential for further research and future design practice.

Bibliography

- Ackoff, R. L. (1989). From data to wisdom. *Journal of Applied Systems Analysis,* 16(1), 3-9.
- Adams, E. & Ingham, S. (1998). *Changing Places*. London: Children's Society.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckman (Eds.), *Action-control: From cognition to behavior* (pp. 11-39). Heidelberg: Springer.
- Ajzen, I. (1987). Attitudes, traits, and actions: Dispositional prediction of behavior in personality and social psychology. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 1-63). New York: Academic Press.
- Ajzen, I. (1988). *Attitudes, personality, and behavior*. Milton-Keynes, England: Open University Press & Chicago, IL: Dorsey Press.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*, 179-211.
- Ajzen, I. (2002). Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior, Journal *of Applied Social Psychology, 32*, 665-683.
- Aldon D. Morris, *The Origins of the Civil Rights Movement: Black Communities Organizing for Change*, New York: The Free Press, 1984
- Alexander, C. (1964). *Notes on the synthesis of form*. Cambridge: Harvard University Press.
- American Planning Association (2016) *AICP Code of Ethics and Professional Conduct*. Available at:https://www.planning.org/ethics/ethicscode.htm [Accessed 28 Jul. 2016].
- Anon, (2016). In: 1st ed. [online] Available at: http://www.oed.com/view/Entry/95568?redirectedFrom=information [Accessed 13 Apr. 2016].

- Architonic. (2016). *Old Market Square, Nottingham by Gustafson Porter | Architonic*. Available at: https://www.architonic.com/en/project/gustafson-porter-old-market-square-nottingham/5100108 [Accessed 20 Jun. 2016].
- Arnstein, S. (1969). A Ladder Of Citizen Participation. *Journal of the American Institute of Planners*, 35(4), 216-224.
- Barthélemy, M. (2011). Spatial networks. *Physics Reports*, 499(1-3), pp.1-101.
- Batty, M. (2008). The Size, Scale, and Shape of Cities. *Science*, 319(5864), pp.769-771.
- Batty, M (2011). Lecture 1: Defining Complexity [lecture notes] *Spatial Complexity*. Available at: www.spatialcomplexity.info/files/2011/10/Spatial-Complexity-Lecture-1.pdf [Accessed 10 November 2016]
- Batty, M., Hudson-Smith, A., Neuhaus, F. & Gray, S. (2012). Geographic Analysis of Social Network Data, in: *Proceedings of the AGILE 2012 International Conference on Geographic Information Science*, (pp. 24–27).
- Bauman J, Biles R and Szylvian K [Ed] (2000) *From tenements to the Taylor homes*. University Park, Pa.: Pennsylvania State University Press
- Bayor, R. (1996). *Race and the shaping of twentieth-century Atlanta*. Chapel Hill: University of North Carolina Press.
- BBC News (2008) Row over 'street in sky' estate. *BBC News*. Available at: http://news.bbc.co.uk/1/hi/england/london/7281156.stm [Accessed 28 Jul. 2016].
- BBC (2003) *Nottingham features - history: Old market square*. Available at: http://www.bbc.co.uk/nottingham/features/2003/06/history_old_market_square.shtml (Accessed: 10 September 2016).
- Beckett J and Brand K (2004) *The Council House, Nottingham and Old Market Square*. Nottingham: Nottingham Civic Society Sales Limited
- Beckley,T., Parkins,J., and Sheppard,S. (2005). *Public participation in sustainable forest management: A reference guide.* Edmonton, Alberta, Canada: Sustainable Forest Management Network.

- Benedikt, M. L. (1979) To Take Hold of Space: Isovists and Isovist Fields. *Environment and Planning B*, 6(1) 47-65. pp. 47
- Bentley I (1993) *Community Development and Urban Design*. In Hayward and McGlynn (eds) (1993), pp 72-82
- Best, K. (2006). *Design Management*. Lausanne, Switzerland: AVA Academia.
- Bohme, K. (2002) Much ado about evidence: reflections from policy making in the European Union*, Planning Theory & Practice*, 3(1), pp. 98–101.
- Booth C and Reeder D (1984) *Charles Booth's descriptive map of London poverty, 1889; [introduction by David A. Reeder]*. London: London Topographical Society
- Britton A (2014) Street drinking banned in Nottingham, *Nottingham Post,* Published January 28, 2014 http://www.nottinghampost.com/council-moves-drive-drunks-streets/story-20510633-detail/story.html#1 [Accessed??].
- Broschart D, Zeile P, Architecture (2015): *Augmented Reality in Architecture and Urban Planning*, in: E. Buhmann (Ed.) Peer reviewed proceedings of digital landscape architecture 2015 at Anhalt University of Applied Sciences, Wichmann, Berlin, 2015, pp. 111-118
- CABE Website Archive (2011) *Aylesham Village Expansion (2)*. [ONLINE] Available at: http://webarchive.nationalarchives.gov.uk/20110118124917/http://www.cabe.org.uk/design-review/aylesham-village-expansion-2. [Accessed 13 March 2018].
- Cama R (2009) *Evidence-based healthcare design*. Hoboken, N.J.: John Wiley & Sons
- Cameron W (1963) *Informal sociology: A Casual Introduction to Sociological Thinking*. New York: Random House
- Campanella T (2011). "Jane Jacobs: Planners Best Frenemy." *Planning*, April: 15
- Campos B (1997) 'Strategic Space: Patterns of Use in Public Squares of the City of London' from Space Syntax-*First International Symposium Proceedings*, Volume 2
- Carmona, M. (2003). *Public places, urban spaces*. Oxford: Architectural Press.
- Carmona, M. (2014). *Explorations in Urban Design: An Urban Design Research Primer*. Ashgate Publishing Group.
- Cassidy, T. (1997). *Environmental Psychology*. Hove, East Sussex: Psychology Press.

- Chawla, L and Heft, H. (2002). Children's Competence and the ecology of communities: A Functional Approach to the Evaluation of Participation. *Journal of Environmental Psychology*
- Checkoway B and Patton C (1985) *The metropolitan Midwest*. Urbana: University of Illinois Press
- Cheshmehzangi, A. and Heat, T. (2012). Urban Identities: Influences on Socio-Environmental Values and Spatial Inter-Relations. *Procedia - Social and Behavioral Sciences.* 36 253-264. Available at http://www.sciencedirect.com/science/article/pii/S1877042812004958 [Accessed 10 Nov. 2016]
- Clarkson, J. and Eckert, C. (2005). *Design process improvement*. London [U.K.]: Springer.
- Conrads V (1970) *Programs and Manifestoes on 20th Century Architecture.* Cambridge: MIT Press, pp. 137-145.
- Cross, N. (1994). *Engineering design methods*. Chichester: Wiley.
- Cross, N. (2008). *Engineering Design Methods: Strategies For Product Design*. England: Wiley
- Cross, N. (2011). *Design Thinking*. Oxford: Berg.
- Curtis, P. (2011). *Reality check: were estates to blame for the riots?*. [online] the Guardian. Available at: https://www.theguardian.com/politics/reality-check-with-polly-curtis/2011/sep/15/reality-check-estates-riots [Accessed 10 Nov. 2016].
- D. Isaacs, D. Fitzgerald (1999) *Seven alternatives to evidence based medicine Br. Med. J*., 319 , p. 1618
- Davoudi, S. (2006) *Evidence-based planning: rhetoric and reality*, *DISP*, 165(2), pp. 14–24.
- Department for Infrastructure (2016), *PPS 1: General Principles. Planning Portal*. Available at: http://www.planningni.gov.uk/index/policy/planning_statements/pps01/pps01_approach/pps01_design_considerations.htm [Accessed 10 Nov. 2016]
- Dormer, Peter. (1993). *Design since 1945*. London: Thames and Hudson

- EDAW Alan Baxter and Associates Donaldsons (2003a) *Aylesham Creating Quality Places Project: Enquiry by Design, March 2003 Briefing papers*. Available at: http://www.communityplanning.net/casestudies/001/001docs/pdfs/0303%20EbD Briefing.pdf [Accessed: 10 September 2016]
- EDAW Alan Baxter and Associates Donaldsons (2003b) *Aylesham Creating Quality Places Project, Second Enquiry by Design, June 2003 Event: Summary Report*, Available at: http://www.communityplanning.net/casestudies/001/001docs/pdfs/0307%20EbD 2ReportRed.pdf [Accessed: 10 September 2016].
- Design Council (5th November 2007) Eleven lessons: Managing Design in Eleven Global Companies- Desk Research report; United Kingdom https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwiy7LuxyJ7QAhVnJsAKHXP8AQ4QFggiMAA&url=http%3A%2F%2Fwww.designcouncil.org.uk%2Fsites%2Fdefault%2Ffiles%2Fasset%2Fdocument%2FElevenLessons_DeskResearchReport_0.pdf&usg=AFQjCNG2-HHiZtpDhOWK0LD-Vl4nRlcNFg&sig2=alma4oI-mdARIfOTisChUg
- DETR (1998), Available at https://www.designingbuildings.co.uk/wiki/Urban_Task_Force [Accessed 7th November 2015]
- Evans G (2010) Accessibility and urban design - Knowledge matters. In M.Aboutorabi & A.Wesener (eds) *Urban Design Research: Method and Application* Birmingham City University Publication pp 26 -37 Available at: http://bura.brunel.ac.uk/handle/2438/6442 [Accessed 06 August 2016].
- Fein A (1964) Frederick Law Olmsted and American landscape architecture: the continuing democratic challenge. ASLA Keynote: 1.
- Fernandes L and Medeiros V (2012) The Configurational Performance of Four Civic Squares in Brazil. In: *Eighth International Space Syntax Symposium*. Santiago de Chile.
- Friedmann, J. (1973). The Public Interest And Community Participation: Toward A Reconstruction Of Public Philosophy. *Journal of the American Institute of Planners*, 39(1), 2-12.

- Fosmire, M. and Radcliffe, D. (2014). *Integrating Information into the Engineering Design Process*. Ashland: Purdue University Press.
- Friedmann, J(1973) *Retracking America: A Theory of Transactive Planning*. New York: Anchor Books.
- Gans HJ (1962) The Urban Villagers. Glencoe, Illinois: Free Press
- Gans HJ (1968) People and Plans: Essays on Urban Problems and Solutions. New York: Basic Books, pp. 231-248.
- Gehl J (2010) *Cities for people*. Washington, DC: Island Press
- Gehl J (2011) *Life between buildings*. Washington, DC: Island Press
- Gehl J and Svarre B (2013) *How to study public life*. Washington: Island Press
- Ghose, R (2003). Community Participation, Spatial Knowledge Production, and GIS Use in Inner-City Revitalization, *Journal of Urban Technology*, 10:1, 39-60
- Gleick, J. (2011) *The information: A History, a Theory, a Flood*. London: Harper Collins.
- Goodchild, M. (2007). Citizens as sensors: The world of volunteered Geography. *GeoJournal*, 69(4), pp.211-221.
- Goodman R (1972) *After the planners*. New York: Simon and Schuster
- Gorb P, Dumas A, (1987), *Silent Design*, Design Studies, Vol. 8 No. 3, July, p150-156;
- Gruen, Erich S. (1996). "The Expansion of the Empire Under Augustus". In Bowman A, Champlin E and Lintott A (1996) *The Augustan Empire, 43 B.C.-A.D. 69*. Cambridge: Cambridge University Press
- Gustafson Porter Architects (2016). *Old Market Square*. [ONLINE] Available at: http://www.gp-b.com/old-market-square. [Accessed 3 December 2017].
- Gutman R (1966) Site planning and social behavior. Jn Social Issues. 22:4:103.
- Habraken N (1972) *Supports: An Alternative to Mass Housing*. London: The Architectural Press
- Habraken N (1986) Towards a new professional role. *Design Studies*. 7 (3), 139-143.
- Hackney, R. the Good the Bad & the Ugly. Cities in crisis. Fredrick Muller, 1990
- Hall E (1959) *The silent language*. Garden City, N.Y.: Doubleday
- Hall, P. (1992). *Urban and regional planning*. London: Routledge.

- Hamilton, D.K. (2003). The four levels of evidence based practice. *Healthcare Design*,3, 18-26
- Hamilton, K. (2004). Four Levels of Evidence-Based Practice [Electronic Version]. *The AIA Journal of Architecture*. Available at: http://www.sereneview.com/pdf/4levels_ebd.pdf [Accessed 05 August 2016]
- Hanzl M (2007) Information technology as a tool for public participation in urban planning: a review of experiments and potentials. *Design Studies*. 28 (3), 289-307.
- Hellpach, W. (1911). *Geopsyche.* Leipzig: Engelmann
- Hester R (1975) Neighborhood Space. Stroudsburg, PA: Dowden, Hutchinson & Ross, 185-245.
- Hester, R. (1987). Participatory Design And Environmental Justice: Pas De Deux or Time to Change Partners? *Journal of Architectural and Planning Research, 4*(4), 289-300. Retrieved from http://www.jstor.org/stable/43028856
- Hill, J. (1998). *Occupying architecture: Between the architect and the user*. London, Routledge and New York.
- Hillier B (1984) *Mansion House Square Inquiry - Proof of Evidence*. London: Space Syntax Laboratory Report, University College London
- Hillier, B., Burdett, R., Peponis, J., Penn, A. (1987), *Creating Life: Or, Does Architecture Determine Anything? Architecture et Comportement/Architecture and Behaviour,* 3 (3) 233 – 250. pp.237
- Hillier, B., Penn, A., Hanson, J., Grajewski, T., and Xu, J. (1993), Natural Movement: or. Configuration and Attraction in Urban Pedestrian Movement. *Environment Planning B*, 20(1) 29-66
- Hillier B (1999) “The hidden geometry of deformed grids: or, why space syntax works, when it looks as though it shouldn't'' *Environment and Planning B: Planning and Design* 26. pp.169 - 191
- Hillier B (2007) *Space is the Machine: A Configurational Theory of Architecture*. London: Space Syntax Laboratory, UCL
- Hillier B, Stonor T, Major M D and Spende N, (1998) 'From Research to Design: Reengineering the Space of Trafalgar Square' in *Urban Design Quarterly*, Issue 68, October 1998, pp. 35-37

- Hillier, B; Burdett, R; Peponis, J; Penn, A; (1987) Creating Life: Or, Does Architecture Determine Anything?Architecture et Comportement/Architecture and Behaviour , 3 (3) pp. 233-250.
- Hillier, B; Hanson, J; (1987) Introduction: a second paradigm. Architecture et Comportement/Architecture and Behaviour , 3 (3) pp. 197-199
- Hillier, B; Leaman, A; (1974) How is design possible? Journal of Architectural and Planning Research, 3 (1) pp. 4-11.
- Hillier, B; Leaman, A; Stansall, P; Bedford, M; (1976) Space syntax. Environment and Planning B: Planning and Design, 3 (2) pp. 147-185
- Hirt, S. and Zahm, D. (2012). *The urban wisdom of Jane Jacobs*. London: Routledge.
- Howard, E. and Osborn, F. (1965). *Garden cities of to-morrow*. Cambridge, Mass.: M.I.T. Press.
- Howard, E., Hall, P., Hardy, D. and Ward, C. (2003). *To-morrow*. London: Routledge.
- Howard, T. (2008). *Information management for creative stimuli in engineering design.* Bath, UK: University of Bath
- International Association of Public Participation (IAP2) (2007). Core values. Available at: http://www.iap2.org/associations/4748/files/CoreValues.pdf [Accessed 10 April 2016]
- International Association of Public Participation (IAP2) (2010). Code of ethics. Available at: http://www.iap2.org/associations/4748/files/CodeofEthics.pdf [Accessed 10 Jan 2016]
- Jacobs, J. (1961). *The Death and Life of Great American Cities*. New York: Random House.
- Jacobs, J., Hirt, S. and Zahm, D. (2012). *The urban wisdom of Jane Jacobs*. London: Routledge.
- Jacobson, R. (1999). *Information design*. Cambridge, Mass.: MIT Press.
- James J. Glass (1979) Citizen Participation in Planning: The Relationship Between Objectives and Techniques, Journal of the American Planning Association, 45:2, 180-189
- Jencks C (1977) *The language of post-modern architecture*. New York: Rizzoli

- Johnson J (1963) There is No Compromise: Total Freedom or Total Oppression. *Negro digest. Chicago, Ill: Johnson Pub. Co.*. (12), 25-31.
- Jones J. C. 1992 *Design Methods* 2nd ed. New York: John Willy & Sons; Available at https://books.google.co.uk/books?id=IR7KZXa1Nl8C&printsec=frontcover#v=onepage&q&f=false [Accessed 05 September 2016]
- Kent Design Guide (2016) Available at : http://www.kent.gov.uk/about-the-council/strategies-and-policies/regeneration-policies/kent-design-guide# [Accessed 16 September 2016]
- Kitchin R (2006). Positivistic Geographies and spatial science. In S. Aitken & G. Valentine (Eds.), *Approaches to human geography* (pp. 20-29). London: Sage.
- Kraut, R (2007), 'Aristotle's Ethics', *The Stanford Encyclopedia of Philosophy (Fall 2007 Edition)*, Available at http://plato.stanford.edu/archives/fall2007/entries/aristotle-ethics/, [Accessed 05 August 2016].
- Krishnaswamy, A. (2009). Strategies and Tools. In: *ALTEX Proceedings, 1/12, Proceedings of WC8*. Burnaby: FORREX, pp.245-250.
- Krizek K, Forysth A and Slotterback C (2009) Is There a Role for Evidence-Based Practice in Urban Planning and Policy?. *Planning Theory & Practice*. 10 (4), 459-478.
- Krupat, E. (1985). *People In Cities*. Cambridge [Cambridgeshire]: Cambridge University Press.
- Kozinets, R. (2010). *Netnography*. Los Angeles, Calif.: SAGE.
- Lane, M. (2005). Public Participation in Planning: an intellectual history. *Australian Geographer*, 36(3), pp.283-299.
- Lawson, B. (1990). *How Designers Think*. *The Design Process Demystified* London: Butterworth Architecture.
- Lawson B (2001) *The language of space*. Oxford: Architectural Press
- Lefebvre, H. (1974). *The Production of Space*. Oxford: Blackwell.
- Lewin, K. (1935). *A Dynamic Theory Of Personality*. New York and London: McGraw-Hill Book Company, Inc.

- Linn K (1968) White solutions won't work in black neighborhoods. Land Arch 59:1:23.
- Llewelyn Davies Yeang and REAL, studio (2013) 'Urban design compendium [vols. 1 & 2]', The National Archives. Homes & Communities Agency [made available through the National Archives].
- Lynch K (1960) *The image of the city*. Cambridge, Mass.: MIT Press
- MACE (2008) *Shaftesbury Street, Cropley Street Shops and Bletchley Court: Environmental Improvement Scheme: Design Report,* London: MACE
- Maguire, D. J. (1991). An overview and definition of GIS. In D. J. Maguire, M. F. Goodchild, & D. W. Rhind (editors), *Geographical Information Systems: Principles and Applications* (Vol. 1). Harlow, UK: Longman Group. pp. 9-20.
- Manshel, A. (2016). *Enough With Jane Jacobs Already*. [online] WSJ. Available at: http://www.wsj.com/articles/SB10001424052748703691804575255000992679376 [Accessed 15 Apr. 2016].
- Markus, T A (1969) The role of building performance measurement and appraisal in design method, in G Broadbent and A. Ward (eds.) *Design Methods in Architecture,* Lund Humphries, London
- Marris, P. (1997) *Witnesses, Engineers, and Storytellers: Using Research for Social Policy and Action* (College Park, MD,University of Maryland Urban Studies and Planning Program).
- Maver T W (1970) Appraisal in the building design process, in G.T. Moror (ed) *Emerging Methods in Environmental Design and Planning*, M.I.T. Press, Cambridge, Mass
- Moses N (2012) *Environmental Psychology: Building with Feeling - The American Institute of Architects*. [Online] Available at: http://www.aia.org/practicing/AIAB096792 [accessed 08 August 2016].
- Moughtin, C. (2003). *Urban Design: Street and Square*. Oxford: Architectural Press.
- Mumford, L. (1928). *Towards a Rational Modernism*. [online] New Republic. Available at: https://newrepublic.com/article/101180/towards-rational-modernism [Accessed 16 Jul. 2016].

- Munro-Clark, M. (1992). *Citizen participation in government*. Sydney, NSW: Hale & Iremonger.
- Neufert E and Jones V (1994) *Neufert architects' data*. Oxford: BSP Professional books
- Newman, O. (1972). *Defensible Space*. New York: Macmillan.
- Oed.com. (1959). *Home: Oxford English Dictionary*. [online] Available at: http://www.oed.com/view/Entry/66521?rskey=Zx3uWU&result=2&isAdvanced=false#eid [Accessed 20 May 2016].
- Osborn, A. (1953). *Applied imagination*. New York: Scribner.
- Ostime, N. (2013). *Riba job book*. 9th ed. London: RIBA Publishing.
- Oyana, T. and Margai, F. (2016) *Spatial analysis: statistics, visualization, and computational methods*. Boca Raton, Fla. [u.a.]: CRC Press, Taylor et Francis Group.
- Oyc.yale.edu. (2016). *Open Yale Courses | Epidemics in Western Society Since 1600 | Lecture 11 - The Sanitary Movement and the "Filth Theory of Disease"*. [online] Available at: http://oyc.yale.edu/history/hist-234/lecture-11#transcrip t [Accessed 22 July 2016].
- Pahl-Wostl C and Hare M (2004) Processes of social learning in integrated resources management. *J. Community. Appl. Soc. Psychol.*. 14 (3), 193-206.
- Painter, M. (1992) 'Participation and power', in Munro-Clarke, M. (ed.) *Citizen participation in government,* Hale & Ironmonger, Sydney, pp. 21!/36.
- Pedersen D (1999) Dimensions of Environmental Competence. *Journal of Environmental Psychology*. 19 (3), 303-308.
- Perkins C (2007). Community Mapping.*The Cartographic Journal* Vol. 44 No. 2 pp. 127–137 ICA Special Issue 2007
- Pfeffer, J. & Sutton, R.I. (2006) Evidence-based management, Harvard Business Review, 84(7/8), p. 13.
- Phiri M (2015) *Design tools for evidence-based healthcare design*. Abingdon, Oxon; New York, NY: Routedge
- Piano, Renzo (1997), *Renzo Piano - mein Architektur-Logbuch, Publication for the exhibition 'Out of the blue' 1997* in Bonn (Ostfildern-Ruit: Hatje)

- Portugali, J. (2011). *Complexity, Cognition and The City*. Springer-Verlag Berlin Heidelberg.
- Portugali, J., Meyer, H., Stolk, E. and Tan, E. (2012). *Complexity theories of cities have come of age*. Berlin: Springer, pp.47-62.
- Project for Public Spaces (2016). What Makes a Successful Place?. Available from: http://www.pps.org/reference/grplacefeat/ . [Accessed 15 September 2016]
- Proshansky H, Ittelson W and Rivlin L (eds) (1970) *Environmental psychology: man and his physical setting*. New York: Holt, Rinehart Winston
- Rapoport, A. (1977). *Human Aspects Of Urban Form*. Oxford: Pergamon Press.
- Raford, N (2009). Social and Technical Challenges to the Use of Space Syntax Methodologies as a Planning Support System (PSS) in American Urban Design. *Proceedings of the 7th International Space Syntax Symposium*
- Report of Corporate Director, City Development (2005); Available at: http://committee.nottinghamcity.gov.uk/Data/Executive%20Board/20050118/Agenda/$smtoms071204%20-%20F21493.doc.pdf
- Rhea, D 2003 "*Bringing Clarity to the Fuzzy Front End*." In Design Research, ed. Brenda Laurel, Cambridge: MIT Press
- Rose, A., Zhang, J., Shayesteh, H., Thewissen, L., Grembi, G., (2009a) *Shoreditch Wenlock Barn Estate Improvements: Urban baseline study*. London: Space Syntax Limited
- Rose, A., Zhang, J., Shayesteh, H., Rygal, A., (2009b) *Shoreditch Wenlock Barn Estate Improvements: Post Implementation Study.* London: Space Syntax Limited
- Rosenberg W and Donald A (1995) Evidence based medicine: an approach to clinical problem-solving. *BMJ*. 310 (6987), 1122-1126.
- Rowe, H. A. (2011). "The Rise and Fall of Modernist Architecture." *Inquiries Journal/Student Pulse*, *3*(04). Available at: http://www.inquiriesjournal.com/a?id=515 [Accessed 26 Jul. 2016].
- *Rowley, J. (2007). The wisdom hierarchy: representations of the DIKW hierarchy. Journal of Information Science, 33(2),163-180.*
- Rubin, D. (2008). For Objective Causal Inference, Design Trumps Analysis. *Ann. Appl. Stat.*, 2(3), 808-840.

- RUDI (2016) Angell Town, Brixton, England | *RUDI - Resource for Urban Development International*. Available at: http://www.rudi.net/node/7941 [Accessed 28 Jul. 2016].
- Rydin Y (2007) Reexamining the role of knowledge within planning theory, *Planning Theory*, 6(1), pp. 52–68
- Sackett D, Rosenberg W, Gray J, Haynes R and Richardson W (1996) Evidence based medicine: what it is and what it isn't. *BMJ*. 312 (7023), 71-72.
- Sanders, E. (2005). Information, Inspiration and Co-creation. *6th International Conference of the European Academy of Design*, March 29-31 2005, University of the Arts, Bremen, Germany
- Sanoff, H. (1990). *Participatory Design: Theory And Techniques*. Raleigh, NC: Henry Sanoff.
- Sager, T. & Ravlum, I.A. (2005) The political relevance of planners' analysis: the case of a parliamentary standing committee, *Planning Theory*, 4(1), pp. 33–65.
- Sailer K, Andrew B, Nathan L and Alan P. (2007). Changing the Architectural Profession - Evidence-Based Design, the New Role of the User and a Process- Based Approach. In *Symposium 'Ethics and the Professional Culture*'. Cluj, Romania: available at: http://eprints.ucl.ac.uk/4828/1/4828.pdf [Accessed 25 July 2016]
- Sailer K, Andrew B, Nathan L and Alan P. (2008). Evidence-Based Design: Theoretical and Practical Reflections of an Emerging Approach in Office Architecture. *Design Research Society Conference*, 16-19 July 2008, Sheffield, UK
- Savic B (2015) *Community Engagement in Urban Planning and Development. [online] Churchill Fellowship 2014. Available at: https://www.wcmt.org.uk/sites/default/files/report-documents/Savic%20B%20Report%20%20Final.pdf [Accessed 10 Aug. 2018].*
- Sanoff H (2000) *Community participation methods in design and planning*. New York: Wiley
- Sinclair, D. (2013). RIBA plan of work 2013 overview.
- Schensul J and LeCompte M (1999) *Mapping social networks, spatial data & hidden populations*. Walnut Creek, Calif.: AltaMira Press

- Schensul S, Schensul J and LeCompte M (1999) *Essential ethnographic methods*. Walnut Creek, Calif.: AltaMira Press
- Schulz C (1997) *Intentions in architecture* (10th edition). Cambridge, Mass.: M.I.T. Press
- Scrivener, S., Ball, L. and Woodcock, A. (2000). *Collaborative design*. London: Springer.
- Seamon D (no date) *Book Review: Space is the machine* Available at: http://www.arch.ksu.edu/seamon/Hillier_machine.htm [Accessed 25th January 2016]
- Shannon C (1948) A Mathematical Theory of Communication. *Bell System Technical Journal*. 27 (3), 379-423.
- Shedroff, N. (1999). Information interaction design: An unified field theory of design. In. R.Jacobson, (Ed.). *Information Design*. (p.267-292). Cambridge, Mass.: MIT Press, 1999. Print.
- Sherry R. Arnstein (1969) A Ladder of Citizen Participation, Journal of the American Institute of Planners, 35:4, 216-224
- Shoreditch Trust (2016). Shoreditch Trust | About Us. *Shoreditchtrust.org.uk*. http://www.shoreditchtrust.org.uk/About-Us/ , [Accessed 03rd May 2016]
- Shoreditch Trust (2006). *inShoreditch*, (73). Autumn 2006
- Shoreditch Trust (2007). *inShoreditch*, (75). Spring 2007
- Shoreditch Trust (2008). *inShoreditch*, (79). Spring 2008
- Silverstein, M., & Jacobson,M. (1985). Restructuring the Hidden Program: Toward an Architecture of Social Change. In W.F.E Preiser (Ed.), *Programming the Built Environment* (pp. 7-26). New York: Van Nostrand.
- Simon, H. (2016). *The Science of Design: Creating the Artificial on JSTOR*. Jstor.org. Available at: https://www.jstor.org/stable/1511391?seq=2#page_scan_tab_contents [Accessed 18 Jul. 2016].
- Slavin T (2006) From rocky beginnings. *The Guardian,* 26 July 2006. Available at: https://www.theguardian.com/environment/2006/jul/26/communities.society [Accessed 28 Jul. 2016].

- Smith, A. (2009). *Ageing in urban neighborhoods: Place attachment and social exclusion*. Bristol: Policy.
- Snow, J. (1855). *On the mode of communication of cholera*. 2nd edition, much enlarged. London: J. Churchill.
-
- Strange, John H. 1972. Impact of citizen participation on public administration. Public Administration Review 33, September:457 -470
- Sullivan, Louis H. (1896). "The Tall Office Building Artistically Considered". *Lippincott's Magazine* (March 1896): 403–409
- Sullivan, Louis H (1986) The tall office building artistically considered. *Lippincott's Magazine*, March 1896 Available at: https://ocw.mit.edu/courses/architecture/4-205-analysis-of-contemporary-architecture-fall-2009/readings/MIT4_205F09_Sullivan.pdf [Accessed 10 November 2016]
- Suwa, M., Purcell, T., & Gero, J. (1998). *Macroscopic analysis of design processes based on a scheme for coding designers' cognitive actions*. *Design Studies*, *19*(4), 455-483.
- Syntax Laboratory, University College London, pp. 26.1-26.11[Accessed 14 September 2016]
- Tashakkori A and Teddlie C (2003) *Handbook of mixed methods in social & behavioral research*. Thousand Oaks, Calif.: SAGE Publications
- Tate, W. F. [Ed.] (2012). *Research on schools, neighborhoods, and communities: Toward civic responsibility*. Lanham, MD: Rowman and Littlefield.
- Tester, G., Ruel, E., Anderson, A., Reitzes, D. and Oakley, D. (2011). Sense of Place among Atlanta Public Housing Residents. *Journal of Urban Health*, 88(3), pp.436-453.
- Toker Z. (2007) "Recent Trends in Community Design: The Eminence of Participation" in Design Studies. 28.3, 309-323
- Trancik, R. (1986). *Finding lost space*. New York: Van Nostrand Reinhold.
- Tulving, E. (1983). *Elements of Episodic Memory*. Oxford [Oxfordshire]: Clarendon Press.

- Turner, A. (2001) “Depthmap: A programme to perform visibility graph analysis”, *Proceedings of the Third International Symposium on Space Syntax*, Atlanta, GA, pp 31.1
- Turner, A., Doxa, M., O'Sullivan, D., Penn, A. (2001). From Isovists to Visibility Graphs: A Methodology for the Analysis of Architectural Space. *Environment and Planning B: Planning and Design.* 28 (1), 103-121. Available at: http://epb.sagepub.com/content/28/1/103.abstract
- Ulrich, K. and Eppinger, S. (1995). *Product design and development*. New York: McGraw-Hill.
- Ulrich, K. and Eppinger, S. (2011). *Product design and development*. Johanneshov: TPB.
- Urban Design London. (2016). *Home - Urban Design London*. [online] Available at: http://www.urbandesignlondon.com/ [Accessed 25 Apr. 2016].
- Vaughan L and Geddes I (2009) Urban form and deprivation: A contemporary proxy for Charles Booth's analysis of poverty. *Radical Statistics*. (99).
- Vandenberg, M. (2008). *An Inclusive Environment*. Burlington: Elsevier.
- Von Hoffman, A. *Why They Built the Pruitt-Igoe Project.* Available: http://www.soc.iastate.edu/sapp/PruittIgoe.html [Accessed 06 June 2016]
- Wates N (2012) *community planning | methods a-z and featured methods*. Available at: http://www.communityplanning.net/methods/methods_a-z.php [Accessed 28 Jul. 2016].
- Wates N (2014) *The community planning handbook: how people can shape their cities, towns and villages in any part of the world* (2nd edition). Abingdon, Oxon; New York, NY: Routledge
- Wates, N. (2013). *Challenges of participation in design*.
- Watson G and Bentley I (2007) *Identity by design*. Amsterdam: Elsevier
- Weaver, Warren (1948). "Science and Complexity" (PDF). *American Scientist* 36 (4): 536–44. PMID 18882675. Retrieved 2007-11-21.
- Webster, G. (2011). *11 Oct 2011 - Understanding Movement - Urban Design London*. [online] Urban Design London. Available at:

http://www.urbandesignlondon.com/understanding-movement-summary-report-111011/ [Accessed 25 Apr. 2016].

- Whyte W (1988) *City*. New York: Doubleday
- Whyte, W. (1980). *The social life of small urban spaces*. Washington, D.C.: Conservation Foundation.
- Wilson, M. and Wilde, P. (2003). *Benchmarking community participation: Developing and implementing the active partners benchmarks* Joseph Rowntree Foundation York.
- Wodehouse, A.J., & Ion, W.J. (2010). Information use in conceptual design: Existing taxonomies and new approaches. *International Journal of Design, 4(3), 53-65. Available at: http://www.ijdesign.org/ojs/index.php/IJDesign/article/view/650/313 [Accessed 10 November 2016]*
- Wulz, F. (1986). The Concept Of Participation. *Design Studies*, 7(3), 153-162.
- Yorkshire Forward (2000) Active Partners – benchmarking community participation in regeneration, Leeds: Yorkshire Forward
- Zeisel, J. (1981). *Inquiry by design*. Monterey, Calif.: Brooks/Cole Pub. Co.
- Zeisel, J. (2006). *Inquiry by design: Environment/behavior/neuroscience in architecture, interiors, landscape, and planning* New York, NY, US: W W Norton & Co.
- Zimmerman J (1972) *The federated city*. New York: St. Martin's Press
- Zins, C. (2007). Conceptual approaches for defining data, information, and knowledge. *J. Am. Soc. Inf. Sci.*, 58(4), pp.479-493.

Appendices

Appendix 1: Transcribed Interview - Former Deputy Chief, Shoreditch Trust, March 2015

Former Deputy Chief: I didn't manage the housing program directly, that was the housing programme director. I managed the education, health, the environment and employment strands. I have a copy of the Shoreditch newsletter that was sent out quarterly. It has all the engagement stuff (she emailed me a copy). To put it in context.. we used to work across programs.

It was a 10 year new deal for communities programme, that ran from 2000-10, so it was funded as a major government regeneration programme under the labour government and so it always had a set timescale. The reason it was able to continue is that we invested in a number of properties and so there was a rental scheme that would enable to sustain the trust in the future, which is why it's still going but of course the mega millions was in the 10 year NDC programme and that was when the housing component was in there, because we got 22 million pounds from the government specifically for housing on top of the funding we already had for the rest of the programme. WBE, Hoxton and Haggerston.. Regents canal top, old street bottom, Iislington border to Queensbridge road was the area in Shoreditch that the housing grant was for. Most of the physical improvements that were done were not on Wenlock barn, it was on Fellows Court in Haggerston and a project in Buckland court. We also did a major combined heat and power programme in the Cranston estate, which is just before you get to Wenlock barn.

I left in 2009 as the trust was winding down its 10 year programme.. 2000-09

Researcher: 'Nobody seems to know about the project'

Former Deputy Chief : Speak to Clayeon McKensey - local councillor. But we didn't do any housing work in the WBE. I can see why people would say that the Trust did this and this but forget the small things that were done.

We did a new bus service 394 through Wenlock barn connecting E-W which was a major thing that people wanted because before that all major bus routes went N-S... buses used be along New North road... over here was Kingsland road (drawing over the map). We introduced a bus service that we funded and run ourselves for the 1st two years and then it got mainstreamed by London transport. It connects to Islington.. it comes down city road, up shepherdess walk.. it then loops around and comes across and ends up going that way and loops around.. it comes up Murray grove it comes up that part of Wenlock Barn and it connected them to the south.

We had something like an elderly woman who lived in WB and her sister was in Fellows court. Because of the bus routes, it meant 3 buses, she only visited her sister once a month paying for a taxi. When we introduced the bus service that took her door to door, she was able to visit her sister who was house bound, twice a week. So, it made a huge improvement to people's lives. And we also connected it to the Homerton hospital. So, it was the only bus service that took people in Shoreditch direct to the hospital, before that it would've been 2 or 3 buses.

Everyone in WBE will remember the 394 bus. Not a housing project as such but it was a major achievement for local people. Surprisingly the Trust doesn't mention that on their website, even though that is the most popular projects that the ST did for the local people. This was a direct outcome of the engagement sessions.

The NDC programme was preceded by 2 years of community consultation and engagement, because it was meant to be community led regeneration. There had been endless regeneration schemes, most of them were absolutely all rubbish. Lot of high powered consultants, staff being paid lot of money but the actual outcome has always been pretty bad. So much money wasted. So, when the labour government came in, introduced the NDC, where the community itself said what its priorities were. So the 2 years preceded with endless meetings and consultations, which the council had to lead on but the bid had up to 12 local people signing up to it at the start, and there were certain priorities in there. One of them was housing because that was such an important thing for local people. So the housing

programme was a huge priority for the 'local people' but it included that they wanted an East West bus route and included other programmes like the health one and education. A lot of it not very well defined, but it was all there in the programme and that was the bid that went to the government that got us the money. It was a competitive bidding process as these things are. and so from that point the trust had a board of local people. We always had the policy at the time that the majority of the people on the board (those who oversaw the project) should be the residents. There was a place for the local authority, a police representative, a place for the employment service, so certain services had a place. But the principle was always that the community had to be the majority on the board. We did change our name several times. It started with Shoreditch New Deal for Communities, then it became Shoreditch Our Way, which was shortened to ShOW, so a lot of people knew us as ShOW, and then we became Shoreditch Trust.

Researcher: I was told that the project started because there were concerns about crime and anti social activity.

Former Deputy Chief: No. No. It was based on poverty. So when we put in, it was targeting the most deprived areas in the country. I can't remember how many there were. I think there were 30 NDC throughout England. NDC was a government regeneration programme, so every government had a regeneration programme. So this was the labour government's flagship regeneration programme. And in London, I think there were 4. Newham, Islington Finsbury, Brent Kilburn, One on seven sisters in Tottenham and then Shoreditch.

Researcher: How was crime related to the project?

Former Deputy Chief: We had themes, and each theme had money allocated to it. Themes were - Housing, health, education, community safety, which includes issues around crime, employment. they were the big themes. And we also developed a theme around the environment, which in a way was linked to community safety but went beyond that. each of those had a theme manager. So they all had a project manager for that theme and that was the team and myself and the chief exec and admin staff. The housing when it was first set up, we were the only NDC that didn't have our housing allocation determined from the start

because it was seen as such a big project to get together. So the housing submission was made later not until late 2001 that it was confirmed that we would have £22 million additional money for the housing element.

Researcher: Quoted SSX and MACE's summary laying out crime as reason for project

Former Deputy Chief: This must be Jamie Eagels. By this time Anna Eagar had left the trust. This was just a token gesture to show we were doing something on housing, which we weren't. I wasn't even aware of this. This was a minor thing really. The person who commissioned it was the person who was in charge of community safety.

The researcher was then asked me to turn the reCorder off to talk off the record.

Part 2

Former Deputy Chief: There were three estates, where we actually did intensive work. In preparation for that, there was a heavy and imaginative community engagement program to identify needs that was a two levels program really. The housing team did a door to door housing survey. We had a peer education project with recent arrivals, which meant we already had a team of local people who were bilingual and we trained them up as community researchers, to do literally door to door, which means they could get on the estates because they knew people already. They were residents and they were paid to do this work - a survey for housing needs. One of the reasons that was important was because the council's own records of the state of its accommodation was so bad, it didn't even know which flats had central heating or not. The way they knew which blocks had central heating and which didn't was from who had paid for the annual gas check. The annual gas check had two rates, one for if it didn't have central heating, and a higher rate if they had central heating. So if the company charged a higher rate the council assumed they had central heating but of course the company realising that they could charge either rate and no one checked, was charging for central heating checks even where they didn't have central heating. So we were being told that blocks had central heating in, and when we spoke to residents they did not have heating.

So, the housing survey was really important to establish the state of the housing as well as people's own priorities. In addition to that there were a number of community engagement projects particularly for young people. There was a photography project where we asked young people to photograph their estate. We had a really good 'Jump Shoreditch' project which is in the Shoreditch magazine that I'll email to you, where they jumped about from roof to roof - Parkour, and they did a Jump Shoreditch project which was really really good with young people because they loved that.

There were a number of things. We did the housing survey, we did the youth engagement activity and out of that two major housing projects evolved. One was Fellows court, where they put in entry systems because before there was no entry systems. There was drug dealings, there was all the anti social behaviour you can imagine, so we put on security doors on door entry systems. We put in central heating and new windows. We put in a huge amount of work in Fellows court estate, as part of that they held weekly surgeries where anyone could come along to express concerns about the work. There was also a phone helpline which you could call anytime with queries. It was brilliantly managed. I don't think there was one complain. I cannot remember the figures of how many central heatings or doors were put in. The door entry systems were hugely successful in reducing crime in that area. There was also an environmental scheme with the community garden on Fellows court.

The second big one was Buckland Court. The exterior the courtyard the entry systems the security in Buckland court. They did a huge piece of work but I can't remember if they did anything in the flats. You can see it today, they have a beautiful panel as you go in and it really improved the block. And the aim was that it was a demonstration project to show the council what you could do if you were a bit more imaginative. So we wanted to show (a) how to manage a good housing scheme, where minimal disrupted residents and engaging residents. They were both by Levitt Bernstein.

The third housing project was a bit different. Because we realised that if you really want to tackle poverty, you looked at utility bills. Because if your rents and rates were paid through housing benefits in those circumstances, a big cost were utility bills. So Anna became a real

expert on combined heat and power, and they looked at the boiler on the Cranston Estate and they realised you could capture-recapture energy and this is where I go a bit blur...

But we paid to put in all the piles into the ground to enable the scheme to proceed and including the healthy living centre in Pitfield Street which is just over the road from Cranston. We put these piles and things in the ground.. whatever they were.. that would've taken the surplus energy that it would have generated to the healthy living centre in Pitfield street which was built as a birth centre that had birthing pools and the idea was that, that would get the free or minimal cost energy through the Cranston scheme. So that was a huge programme.

In all the other estates we had the housing survey and what was needed and what could be done. There were a number of initiatives from that. The only one I can remember in Wenlock Barn was that we put in a community allotment, cause one of the big itches? Was that all the grounds were just grassed off areas. And we put it in Napier Grove and we ran a healthy eating team. Field to Fork. And it was really fantastic community engagement, because people were getting together who had never met their neighbours. They were having bbqs. But these garden schemes were proving very popular. It could've led to something else if they had been allowed to develop, but they weren't. They were stopped. In WBE I don't think any physical improvements were done beyond the gardening service, the Trust went down a blind alley.... Recorder requested to be turned off

`

Appendix 2: Transcribed Interview – Head of Engagement, Dover District Council

An interview with Brinley Hill of the Dover District Council (DCC) was conducted in 2014. Brinley Hill has been involved in the project from the very envisioning stage to date. The current stage of construction at Aylesham is in its 1st phase part of a 10 year phased project (economy dependant). It has now built and sold 60 houses. Tenants have already started occupying the properties in the Market Square and the Northern Parcel.

It is important to understand the historical context of the Aylesham community before discussing the need and vision that arose for engagement to develop the village. Aylesham was built primarily for the Kent coalfield program community. Industry i.e coal was a catalyst for the communities being built. Aylesham was a mining community. The pits closed in the 1980s which had impacts on communities from Kent all the way to Scotland. It was a community that was very tight knit and proud, that went through a lot of hardship with not only the closure of the mines and the secondary school but also because of health issues and inequalities. In 2003 (year check) the DDC along with its other partners identified Aylesham as a potential development site. The biggest challenge for the council and its partners has been that of trust, in their attempts to take the community forward - *in terms of social economic regeneration, giving them the opportunity to shape their future to be a part of the design and as we can see today a community that can be part of the new build. Now, within the new development already there are existing members of the community buying these new houses, which helps integration and communication.*

The council's biggest challenge about building and maintaining the community's trust in them stems from historical events that have resulted in a fragile relationship. In the day of the mines' closing, it was the government who closed the mines and the school. It is therefore obviously concerning and suspicious for the communities as to who is the council then as another authority to come and say they want build within their community and expand it by another 1200 houses.*"There was always a challenge for us to be trusted and do it for the right*

reasons. In some parts of the community we still haven't gained that trust, because that's the way sometimes people are. Some people will see this as an opportunity and be a part of it, some will see it as opportunity to fight but that's only a very very small minority." The issues still relating to the coal field program are diminishing but it's still an issue. There are still parts of the community that has a benefit culture and this project will hopefully help to reduce that. The whole regeneration scheme has been visioned such that local people get jobs out of it. *"There's local people who are an apprentice or two. Most of that community are feeling it and are excited."* Any mining community up and down would always be familiar to public meetings, because that is the way their communities are run *"but we wanted to facilitate an EbD process that it was meaningful to all ages - from early age to middle age to elderly people."* 12 years ago there was huge amounts of effort and time energy put into EbD public consultation. After spending months on taking the project forward using the EbD process the project had to be stalled with the sudden massive fall in the economy. The council, partners and appointed agencies part of the regeneration team engaged with lots of members of the community *" who helped us help them redesign design the new build but unfortunately the economy didn't support the development going forward i.e we couldn't get a developer to take forward the opportunity."* At this point the development came to a standstill. *" But what wasn't lost was all the hard work through the EbD and all the people through that process of EbD."* There was a 6-7 year gap before the DCC laid its first bricks. However, currently the majority of the people see this as a fantastic opportunity of a community moving forward still holding their roots and heritage. *"We as a council don't want to create a community within a community or a gated community. so it's important that integration is at the forefront of whatever we do. We need to make sure that communities are still engaged with a process of the development as it continues to be delivered and share that."* The DCC recently appointed a community development officer to be the conduit between the council, the community and wider stakeholders. It is anticipated that this post will allow the project to move forward create communication but also use this project as a huge opportunity to look at some of the existing problems that are inherent from the mining days - poor health, low attainment, low aspirations. So that the whole social economic regeneration is carried out, carried forward and delivered such that everyone has the opportunity to continue to be a part of community life.

The DDC started engaging with the community well before the EbD engagement process began. However, *"the real trigger was everyone going out and engaging through the EbD."* These were very involved sessions where local people worked with consultants throughout the engagement with feedback. *"It was extremely meaningful and hard work and intense. There were just a few documented in terms of headlines but to get there was huge amounts of workshops, huge amounts of events, open days and people were very pro active - head teachers, youth clubs, young people very engaging."*

The Aylesham community has always been active and proactive in helping people, making sure agencies realise the challenges and the help that is needed in the community, community life i.e sports clubs, carnivals. There are no internal orgs like a TMO, it is all internally driven, reflecting a very high sense community spirit.

"The community as a whole is very active and very proud of their roots and their heritage that keeps them focused on making sure they're not forgotten about but not let anyone feel that they can come in and do what they want to them. Which is good. It keeps everyone on their toes."

English Partnerships recruited the Prince's Foundation. It was seen as a neutral body and a national charity that had the knowledge and expertise.

During and after the EbD sessions and the masterplan design, the residents of Aylesham raised a list of concerns with the masterplan.

Overcrowding/privacy: The council along with the community on board the engagement process planned to build through the central open space what many others who weren't part of the process considered an infringement of their privacy. The idea of building through the central open space was introduced by the Prince's Foundation addressing the Abercombie design. The houses facing the open space are the back of houses to design out crime and

making people feel safer. There is a small number of people today who don't approve of building on open spaces. The council has received an investment of £100,000 already for a new play area to build on open space. "*There will always be a concern about us building on open space but that wasn't really overcrowding. They may be concerned about making sure that they have the right infrastructure coming in"*. Since the EbD, Aylesham has had a £2.3 million sports centre built. It's had a new doctor's surgery and there are plans to expand the primary school.

Crime: The council has addressed concerns related to crime by ensuring that the appointed community development officer works with the police, PCSO and the parish council to reduce activities around crime. The statistics of Aylesham crime is very low (ref figures). *"I think it's more about perception than reported. It's about still understanding that, and continue to talk to people about their concerns."* The concerns around crime have been mostly related to young people*. "We need to look at how we break the cycle, one of perception and if there is a problem with young people of being around corners, street corners, gathering in small groups then we need to look at how we address it. But the sales of the houses is speaking for itself. If we had got this all wrong then why would people come and buy houses here? But that's not our complacent response, we need to deal with reality."* People who have bought houses are from inside and outside Aylesham.

Traffic has been a potentially ongoing program until such time we started traffic improvement schemes, which have started in the Northern parcel of the village in terms of speed ramps. The main concerns about traffic are related to the roads around the village - B2046 going out to A2, the road going into Wingham, there are country roads through Nonington. There is a big investment of traffic program improvements in the pipeline.

Village feel: The DDC has expressed its concerns for this. Aylesham has a huge community spirit. "*We wish we could bottle it and sell it because if anyone needs help in the village they help themselves. The last thing we want is to add a village on a village."* The existing members of the community buying and renting houses in the new development will greatly help with strengthening integration within. The council is trying to ensure that community hubs like the sports centre the social facilities in the village become a magnet for people to integrate. With the new build only beginning to get occupied some of the existing groups like the Aylesham

Tea Rooms (a volunteer group that are looking to expand and we are trying to secure some funding for that) have already seen new faces and continue welcoming people. Projects like this help minimize the impact of people feeling they're losing the community.

Sewage: There was an upgrade of the sewage facility through the open space. There was a concern at the very start when this was relatively new technology at the time (a big holding tank with a breather pipe to let the gases out). The facility was nevertheless installed without any reported problems and has no concerns were raised afterward. It has stopped the flooding of the whole sewer in the open space.

The new masterplan for Aylesham has received an overall positive response from the residents of Aylesham. *"Majority of the people are happy but there will always be some that are not."*

The participants for the EbD or other engagement sessions for the Aylesham development were welcomed as part of an open door policy. The DDC ensured maximum transparency.

"In terms of transparency and empowerment, it wasn't our job to choose. People come fwd they showed interest. some took more interest than others. so we never ever have a closed door session. it was always open door. sometimes you'd get 50-100 ppl other times you'd get more. it was always about if you're free come along."

Participants of all age groups were involved in the process.

"One of the younger persons who was involved 10 years ago has now just been elected as a district councillor. (COUNCILLOR TOMMY JOHNSON)" Tommy Johnson ten years ago and till date has been doing a lot of work behind the scenes with young people.

Challenges: In a project that can potentially take a generation people saying 'you didn't consult us' can happen. Another challenge is about making sure the project was not consultation or all about tick boxes. This also means being tactful about how do we engage and be honest with people about what the council can or cannot do supported with reason.

"That helps us as an organisation to be more open and transparent. TRUST IS THE BIGGEST CHALLENGE. Being trusted and to be able to see that people really believe in what you're advising them on. Also, it has to be us making sure that we as an organisation and partners embed and understand where people are coming from."

In all communities there is a large diversity, in the case of Aylesham there are people from Wales, Scotland, Newcastle and all parts of the country who were making these mining communities. People have all different backgrounds and different languages. *"A lot of the phrases they still use are very northern so for me as a council officer and engagement officer it's really important that I understand that."*

Stages of Engagement: The council and partners on the Aylesham project started engagement at a very early stage. *" Would we do the same again? No absolutely not. We went out too early. We consulted too early. We didn't know that the economy wouldn't support the delivery."* The council appointed a community development officer for 2 years soon after which the program went on a halt. *"The consultation process wasn't cheap in anyway, it was doing the right thing for the right project."*

Rationale behind the expense on consultation: *"The consultation was a massive expense for the project but we were in it from the start, so were the stakeholders and the Parish Council for that. My idea right from the beginning was to make sure we didn't just build the houses and then moved on".* The agenda was to ensure the new development could create and emulate the same sense of community spirit and pride that Aylesham has, where the design actually encourages people to go back into the existing community.

"So we created one community and that's around the market square - proper shops, post office, pharmacists, takeaways and tea rooms. The market square is now completed."

The consultation process began well before the architects came in and the team (architects + transport engineers+ service engineers etc) was formed as part of the EbD process. It was ensured that the team of experts was collectively available at all sessions to answer questions

and support the community throughout the EbD process, at every stage of the project till the very end of the planning stage. (Documentation available with DAVE ROBINSON) - number of people involved... and other... (retention policy is 5 years but he may have something he may not)...

Most effective stage of participation: Through any consultation people want to see delivery. Once people start delivering or when the project starts to deliver, people then will see the benefits of being involved. In terms of - the question is - you said we did - but the challenge we've had here are that some of the big key community champions are no longer around. They've either passed away or moved on but there are plenty of community key champions who are still around. "I played a part of that" . There were some challenges in the last couple of months with the central open space and there was a road going through the development and people saying that council didn't take our views into account and so on. But what's really nice is that some community champions from the very outset said that "we were a part of this over 10 years ago, where were you?.... We were a part of this with the Prince's Foundation and the English Partnerships at the time and the Parish Council... and we were talking about all the details, the issues and the impact and the opportunities."

For me as a council, yes we sometimes need to defend our actions and where we're coming from. But once you've empowered the community its really nice that the community as champions stand up and say, "no, we asked all these questions 10 years ago. where were you?" . That's not to create a bad feeling in the community, because that's the last thing we need to do. But through a development like this which could be taking potentially a generation, you can't say one minute 'why didn't that happen?' when everyone had the opportunity to be a part of it. Everyone had copies of the Aylesham booklets(red ones) had these in their letter boxes. But in terms of it's success, it speaks for itself. Local people buying houses... local people renting houses and local people being a part of that design

10 years of the coalfield program report.. The background of the coalfield programme will reinforce how the community are today. Coalfield regeneration trust website - report on

25years of the coal field.... and about the social economic impact. There's also a govt report commissioned by John Prescott as well as Sheffield Hallam University

Communication structure: The Aylesham community development partnership, a voluntary group created and facilitated by the council, aimed to provide independent secretarial support that allowed the communities (Aylesham and surrounding areas) to be able to continue to shape the future going forward but also a signing board for the community and council's views. This was also a platform for the agencies and stakeholders to update the community on progress being made and be held accountable for decisions. The Aylesham community development was closed soon after the project went on hold but will be relaunched by Christmas 2015. Once the community officer starts one of the agendas will be forming a new community vehicle that's representative of the whole development (different surrounding parishes). Minutes of meetings used to be sent out in the post to everyone. There wasn't digital communication at the time. In case of things liked plans... we would send the plans out in the post and then have a session on the plans. Aylesham and another project in Betsanger were seen as exemplar schemes for community participation and we were going around demonstrating how a community can get involved with their own destiny.

Kay Sutcliff - parish councillor... she was also the community development officer

60 houses in 1st phase now being built, 60 sold. It's a 10 year phase project - based on the economy. We are very pleased with the sales of the first stage. Tenants are already occupying- in the market square and the Northern Parcel. Brin Hill - involved in all the engagement stages.

Existing community of Aylesham - Aylesham was built primarily for the Kent coal field prog community. Industry i.e coal was a catalyst for the communities being built. Aylesham was a mining community. The pits closed in the 80s which had impacts on communities from Kent to Scotland. It was a community that was very tight knit and proud. It was community that went through a lot of hardship for the closure of the mines, closure of the secondary school but also the health and inequalities that create through the minds. Unfortunately some people see mining communities up and down the country as a very shielded community - sometimes with stigma. It was a known fact that miners worked hard and played hard. But

there was a huge sense of community pride and spirit within the communities. So, when the DCC went to the communities there was always a challenge of us(partners) being trusted to take the community forward. Forward in a way for social economic regeneration - give opportunity for community to shape their future, it gave opportunity for them to be a part of the design and as we can see today a community that can be part of the new build. Now, within the new development already there are existing members of the community buying these new houses, which helps integration and communication. So, going back 10-12 years ago, there was huge amounts of effort time energy put into EbD public consultation. Any mining community up and down would always be familiar to public meetings, because that is the way their communities are run but we wanted to facilitate an EbD process that it was meaningful to all ages - from early age to middle age to elderly people. So we spent weeks months if not years taking this project forward. Unfortunately from there, there was a massive recession. We had engaged with lots of members of the community. They helped us help them redesign design the new build but unfortunately the economy didn't support the development going forward i.e we couldn't get a developer to take forward the opportunity. So the development hit a wall in terms of a standstill. But what wasn't lost was all the hard work through the EbD and all the people through that process of EbD. There was a 6-7 year gap before we laid the first brick. Currently the majority of the people see this as a fantastic opportunity of a community moving forward with still holding their roots and heritage. We as a council don't want to create a community within a community or a gated community. so it's important that integration is at the forefront of whatever we do. We need to make sure that communities are still engaged with a process of the development as it continues to be delivered and share that. We've just appointed a community development officer to be the conduit between us as a council, the community and wider stakeholders (Una Milles). The post will allow the project to move forward create communication but also look at the ... this project brings huge opportunity to look at some of the existing problems that are inherent from the mining days - poor health, low attainment, low aspirations. So the whole social economic regeneration has still got be carried out carried forward and delivered. So everyone has the opportunity to continue to be a part of community life.

Trust issues - Brin's dad miner. In the day of the mine's closing, it was the govt who closed the mines and the school, so who is the council then to come in as another authority to come and

say we want build within your community and expand it by another 1200 houses. So, there was always a challenge for us to be trusted and do it for the right reasons. In some parts of the community we still haven't gained that trust, because thats the way sometimes people are. Some people will see this as an opportunity and be a part of it, some will see it as opportunity to fight but thats only a very very small minority. When I talk about the issues still relating to the coal field programe they are diminishing but its still an issue. There are still parts of the community that has a benefit culture and this post will hopefully help to reduce that. In terms of the whole regeneration scheme, there are local people who will get jobs out of it. There's local people who are an apprentice or two. Most of that community are feeling it and are excited.

There were pre-sessions before EbD but the real trigger was everyone going out and engaging through the EbD. These were very involved sessions. Local people working with consultants. Working groups feedback. It was extremely meaningful and hard work and intense. There were just a few documented in terms of headlines but to get there was huge amounts of workshops, huge amounts of events, open days and people were very pro active - head teachers, youth clubs, young people very engaging.

This is a community which is always active and pro active in helping people, making sure agencies realise the challenges and the help thats needed in the community, community life i.e sports clubs, carnivals. No internal orgs like TMO, its all internal. Very active carnival comm rugby club football club Ayl and comm District workshop trust that provides work units, training centre, conference centre. The community as a whole is very active and very proud of their roots and their heritage that keeps them focused on making sure they're not forgotten about but not let anyone feel that they can come in and do what they want to them. Which is good. It keeps everyone on their toes. EPartn recruited the Princes Found. The PF was then seen as a much more neutral body - a national charity that had huge amounts of expertise knowledge, right people - talking ppl through which they understood the process is that their role play in the design.

The mining communities in the country are very strong and very resilient but they don't always ask for the help they need.

Residents' concerns:

Overcrowding / Privacy: What we chose to do with the community on board was to potentially build through the central open space where people might think that's an infringement of their privacy but again for us that was not an idea of the council but an idea of the Prince's Foundation which said that, that would complete the Abercombie design in terms of the houses facing the open space are the back of houses to design out crime and making people feel safer. There are still a few people today who don't believe in building on parts of open spaces but we have had an investment already of a new play area of over 100,000 built on that open space. So there will always be a concern about us building on open space but that wasn't really overcrowding. They may be concerned about making sure that they have the right infrastructure coming in, but since the EbD Aylesham has had a £2.3 million sports centre built. It's had a new doctor's surgery. There are plans to expand the primary school.

On Crime: the community development officer will work with the police, PCSO and the parish council to reduce activities around crime. The statistics of Aylesham crime is very low, but I think it's more about perception than reported. It's about still understanding that and continue to talk to people about their concerns.

But they have been concerned? : It seems its more around young people. We need to look at how we break the cycle, one of perception and if there is a problem with young people of being around corners, street corners, gathering in small groups then we need to look at how we address it. But the sales of the houses is speaking for itself. If we had got this all wrong then why would people come and buy houses here? But that's not our complacent response, we need to deal with reality. People who have bought houses are from inside and outside Aylesham.

On Traffic: Its a potentially ongoing program until such time we started traffic improvement schemes, which have started in the Northern parcel of the village in terms of speed ramps. But I think its the roads around the village that people are concerned about - B2046 going out to A2, the road going into Wingham, there are country roads through Nonington but again there have been numerous traffic done and there's a big investment of traffic programe improvements to be done (in the pipeline).

On Village feel: This is one of our concerns as well. Aylesham has a huge community spirit. We wish we could bottle it and sell it because if any one needs help in the village they help themselves. The last thing we want is to add a village on a village. So, what's really reassuring is that existing members of the community are buying houses in the new development which helps immensely around integration. We will continue to make sure that community hubs like the sports centre the social facilities in the village become a magnet for people to integrate. The last thing we want as a council want to achieve is a commuting village/town, its about how we can encourage integration but what we do know already is that some of the existing groups in Aylesham like the Aylesham Tea Rooms (a volunteer group that are looking to expand and we are trying to secure some funding for that) have already seen new faces and welcoming people so projects like that really help to minimize the impact of people feeling they're losing the community. As people walk around the community you sometimes walk past people - In Aylesham people talk to each other when passing by, stop and say hello... so that's value in itself.

On Sewage: There was an upgrade of the sewage facility through the open space. There was a concern at the very start because it was new technology ten years ago (a big holding tank in and a breather pipe to let the gases out), but there was never a problem. it was a perception. It has stopped the flooding of the whole sewer in the open space.

Spatial Use: Managed open space, recreational open space.

Aylesham and Snowdown Welfare scheme that manages - Derek Garity 01304 842826

MP CABE - Dave Robinson

On Satisfaction: Positives easily outweigh the negatives. When we started the prog 10years ago there was no social media. SM could ask certain questions and sometimes its not always factual. Majority of the people are happy but there will always be some that are not.

Contacting people who were there in the workshops then and are still around - contact Brin

Post master planning stage saw no major tweaks.

Selection of participants - no selection. In terms of transparency and empowerment, it wasn't our job to choose. People come fwd they showed interest. some took more interest than others. so we never ever have a closed door session. it was always open door. sometimes you'd get 50-100 ppl other times you'd get more. it was always about if you're free come along.

Young people's involvement: One of the younger persons who was involved 10 years ago has now just been elected as a district councillor. (COUNCILLOR TOMMY JOHNSON)

DETAILS FROM BRIN

He was doing a lot of work behind the scenes with young people. Involvement has been all across the spectrum.

Planning questions - DAVE ROBINSON Aylesham project manager for the council and he also sits in the planning department. Can check interventions with him.

Most effective stage of participation: Through any consultation people want to see delivery. Once people start delivering or when the project starts to deliver, people then will see the benefits of being involved. In terms of - the question is - you said we did - but the challenge we've had here are that some of the big key community champions are no longer around. They've either passed away or moved on but there are plenty of community key champions who are still around. "I played a part of that" . There were some challenges in the last couple of months with the central open space and there was a road going through the development and people saying that council didn't take our views into account and so on. But what's really nice is that some community champions from the very outset said that "we were a part of this over 10 years ago, where were you?.... We were a part of this with the Prince's Foundation and the English Partnerships at the time and the Parish Council... and we were talking about all the details, the issues and the impact and the opportunities."

For me as a council, yes we sometimes need to defend our actions and where we're coming from. But once you've empowered the community its really nice that the community as champions stand up and say, "no, we asked all these questions 10 years ago. where were you?" . That's not to create a bad feeling in the community, because that's the last thing we need to do. But through a development like this which could be taking potentially a generation, you can't say one minute 'why didn't that happen?' when everyone had the opportunity to be a part of it. Everyone had copies of teh Aylesham booklets(red ones) had these in their letter boxes. But in terms of it's success, it speaks for itself. Local people buying houses... local people renting houses and local people being a part of that design.

One of the other challenges is ' people's language'. The council has a language, consultants have a language and it's about how do we make sure this project is not consultation or all

about tick box. Its about how do we engage and be honest with people that yes we are able to do that or no we can't because of this reason. That helps us as an organisation to be more open and transparent. TRUST IS THE BIGGEST CHALLENGE. Being trusted and to be able to see that people really believe in what you're advising them on. Also, it has to be us making sure that we as an organisation and partners embed and understand where people are coming from. In all communities there is a large diversity, in the case of Aylesham there are people from Wales.. scotland... newcastle ... from all parts of the country who were making these mining communities. People have all different backgrounds all different languages. A lot of the phrases they still use are very northern so for me as a council officer and engagement officer its really important that I understand that.

Stages of Engagement: Would we do the same again? No absolutely not. We went out too early. We consulted too early. We didn't know that the economy wouldn't support the delivery. We appointed a community development officer and we appointed too early. There was no action i.e no construction. We appointed someone then for 2 years but instead we should have appointed someone now for maybe 5 years. There's nothing wrong 12 years ago and it cost huge amounts of money. This consultation process wasn't cheap in anyway, it was doing the right thing for the right project.

The consultation was a massive expense for the project but we were in it from the start, so were the stakeholders and the Parish Council for that. My idea right from the beginning was to make sure we didn't just build the houses and then moved on. How do we make sure we create and emulate that sense of community spirit and pride that we've got now where the design actually encourages people to go back in to the existing community. So we created one community and that's around the market square - proper shops, post office, pharmacists, takeaways and tea rooms. The market square is now completed.

The consultation started well before the architects came in. The team (architects + transport engineers+ service engineers etc) was formed as part of the EbD process. We ensured that the team was available to answer questions in the EbD process. For us it demonstrated how

we wanted to supported the community and the community supported us going forward and the architects were involved in every step right till the end up to the planning the stage. (Documentation available with DAVE ROBINSON) - number of people involved... and other... (retention policy is 5 years but he may have something he may not)..

Appendix 3: Transcribed Interview with Dave Robinson, Planning Delivery Manager, Dover District Council

The intention was to finish this off taking the design of the original housing. Because of Aylesham's history, it's a very insular community. It's an old mining village. It's always felt that it has its back to the wall. Because it's isolated its always been a very closed community. There was a small development, off of here, not that many years ago. Even that struggled to be integrated with the rest of the community. The fear was here that we would be just building houses at the edge of an existing village, and, Aylesham the original village would continue as its always done, looking inward, and all this here (the new development) would look outward and go to Canterbury or Dover. It's actually as close to Canterbury as it is to Dover. The fear was, it would be two separate communities. So, as part of that community engagement, throughout the process and even now is one of the key drivers, is for that integration between the new and the old. Whilst we've had people already living in Aylesham who've bought properties in the new build, it's not going to be it's biggest selling point. We've got a lot of people from Canterbury now who also working in Canterbury.

I don't know if Brin told you about the work Una Milles was doing, who was the CDO. Her key role is to ensure that we get that integration. From an architectural point of view, the project has been trying to ensure that the village has a look and feel of Aylesham. It doesn't look like a new block of houses stuck on the edge, but more important, that it has the feel of just the one community, although it's going to be quite a large community. The development has paid for the improvements within the village as well. So that the village can see the benefits of having all these new houses around it. The contributions from the new development are going to education, landscaping, and play spaces within the village and the new development. It's

something just shy of £5m of contribution what come from this development that will be primarily sitting in the village.

Although the engagement and EbD happened in 2004-05, people even now go back and still mention the events they went to here. Whilst over the years a lot has happened and things have changed (since the 2005 application), the old community is still very much wedded to this original plan.

From the development perspective - when the housing market crashed this scheme was just not viable. The land value the developers agreed to was just going to kill the scheme. So, as a council, we renegotiated the scheme for what was most viable. The council wasn't making any money on the land particularly. We were not in it for what we could cream off the scheme. It was about what we could deliver by way of housing numbers. We've got quite an ambitious growth target in Dover and this is one of our key schemes. This is 1200 houses.

There are two ways of looking at housing numbers. On the one hand there's the government's requirement that you have a 5 year land supply. So every Local planning authority is meant to have a 5 year land supply, which is linked to their local plan. Not all councils have a local plan but they have been encouraged to have a local plan, and incentivised that local plan, and with that local plan to have identified sufficient sites to give you a realistic level of housing that your authority can deliver within 5 years. That dictates how much control you have over the use of land within your area. Because if you have a 5 year land supply, then you can point developers to that land supply that you have identified. So, on the one hand there's an exercise there that is based on how the government sees the planning system, but taking that aside, Dover was one of the few Kent authorities that embraced the growth agenda. The figures are between 12 and 15000 new homes in the district. So there's a significant growth. That's what drove this particular scheme and there's one across the road of Whitfield which is meant to be 6500, which is quite an ambitious growth target. Going back to my original point, we were keen on getting more houses built than maximise land value for ourselves. That took quite a bit to come to a deal with negotiations between us and the developers. That

was sorted, planning went through. It's got an outline for 1200 houses and detail for 191 i.e phase 1.

Two small builders won the bid who were local to the area, but they had a history of building local developments, but they were local companies. Now they have been taken over by national companies and are no longer a local company which we started with. This starts to give a different perspective to the whole thing.

I won't say everyone supports the scheme, but in the main it's been welcomed by the community. For us it's important that we ensure to keep that good relationship with the community and public engagement is something that is very close to the local parish council.

If you compare this to another site in Deal, by the same developers, I keep getting complaints afters complaints due to the lack of communication between the developer and the community. I think the problem with the big players (developers) is that a) they tend not to have much local connection to start with. They will have a plot of land, housing number targets and really the big players have a tendency to get it built and get out again. They miss a trick really, because spending sometime on good community ... the residents who are going to get impacted by the physical developments, when the lorries are coming and there's dust, noise and working over weekends. That can really upset a local community. It's often the fact that its done without any or little communication with the local residents. So, certainly battle lines are drawn. From a planning perspective I feel that if you can do that communication well you save yourself a lot of time in the long run and a lot of grief, and the reputation of your company is enhanced by good communication.

Why don't they do it? Partly I'm not sure they have a very good mechanism for it. You can enable engagement,but it all depends if you undertake a 'tickbox' exercise in engagement. In Deal we're not landowners, we only deal with complaints because we're the planning authority. but here, we have a much better level of engagement and a much better structure around engagement. But it doesn't want to be engagement that ticks the box so you can say,

I've done that, I've had a meeting in the local hall and this is what we've got to do. It's how you can develop that engagement throughout the process and not just in the beginning.

It's difficult from a developer's perspective because the chances are once a development starts the only people you're going to hear about are the people who don't like it. Now, some might have a genuine complaint, but from a developer's perspective, you will always get people who have got a campaign that they don't like the development, that they have plenty of time to object to the development and they will do what they want to stop it even though it's got planning permission. That type of engagement, with people like that can completely take over anybody whose role is to deal with that. So, I can see if developers are apprehensive in doing engagement, but it's a little short sighted. What you will find if you do good engagement is that you will get members of the community who can do your positive PR for you because we found

New Aylesham Garden Village FB page - set up by a person in Aylesham then went abroad but has nothing to do with the development, who has become kind of a figure head of anti development campaign. Even though this looks like a good scheme of communication it still has its problems.

When should engagement happen?
A developer would always be wise to have initial discussions with the local planning authorities first, because I think the local planning authority can give them some good advice on what's possible and what's not - even if it's on a draft online. because if you are going to get a negativity from the local community, it's no use having that debate if the local planning authority are never going to give you permission anyway. It's better to go to the local community with something that's been thought through. Even though they're experts have pre-application advice is always beneficial. The good thing with the planning authorities is that, we know the local community. So, having a conversation with us lets you have an idea of the site, and the community that is there. Then it's about engaging the right people and as

widely as possible. Parish councils are locally elected and therefore are good to engage with. The local community, when they have a problem are more likely to raise it with the parish council than with the district Councillor. People understand there is housing shortage and they will need to be built, but they'll also have concerns and its about being able to address those concerns. Because if you can address those concerns in the early stages, when it comes to your planning application, you can get less objections, more support from the locals. It's about keeping the community informed about what's happening. In the Aylesham project, it stalled for such a long time, that the view in the local community was that 'we can forget this because this will never happen'. Then suddenly construction started. We could have kept feeding a little information that the project hasn't died. Although, we were not 100% sure it didn't die.

If you can do it, it doesn't cost a big developer a lot, to get someone who can act as a liaison between the company and the community because if the local community feel that they can go to someone who they can raise concerns with, or just ask questions. We have always been there during all local parish council and other community meetings. And whenever we've been asked things, we've tried our best to respond. Communication between the parish council and DDC is almost weekly. But if DDC hadn't been the landowner, and I wasn't here and there wasn't a CDO they would have to go to the developers. The team on site (multiple contractors dealing with different services) are kent based and have an understanding of the community, so that's good but there are still issues about the time its going to impact. If there are issues involved, then if you can engage at an early stage then you can try to find a solution.
in the main the development will impact on people living near by one way or another. Regular communication (PR). DDC - to take over social media.. to build up a more timely and wider communication based delivery. But this communication structure is being driven by the local community seeking better and immediate communication, not because we want it.

Aylesham is not big enough to sustain a lot of retail. The community understands that the numbers of people coming into the village help sustain. It's got a sports centre now.

"CABE didn't like it.. CABE didn't like it. The community liked it."
"I suppose that's the question, if another organisation that has had no involvement

There have been cases like building two football pitches by the developers who have the planning permission to do so. They could have gone ahead and built them, But the local community have raised concerns about the location of one of these and that it won't be used very much and the other one is in a primary school which will be rebuilt at some point. Therefore we recently had a session with the community to say that the developers have decided not to build those pitches and have instead given us the cash to build new play spaces. These kinds of sessions are not all recorded but go on to keep the community informed.

With this community you don't need incentives to involve them. They complain when they feel they are not being involved and they are not being consulted. Crime has been an issue in Aylesham. With little for young people to do there is a tendency for anti social behaviour. Sometimes the community who feel its worse than it is.

Engagement is a professional thing but even more so a personal relationship building. In a scheme such as this one of 10 years, people come and go. If you start to lose the people who have that local connection, then that's the danger. The local community doesn't know who they're talking to, they don't know who to contact. You start to lose faith.

The sort of basis of the EbD process is something whilst we might not have exactly called it that, elements of it have continued to other schemes as well. May not have been quite formalised as that, but we've certainly understood the benefits of community involvement.

Appendix 4: Walking Tour Prompt Sheet Key Issues Tuesday March 25th

13.20 **South-eastern employment parcel**

This is allocated for employment - is this a good location for an employment site? Consider proximity to station, Aylesham Community Project, Snowdown Colliery future employment site, and route to A2(T).

13.30 **Clarendon Road 1930's housing**

Notice the relationship between the houses and the street with regards building height, street width, gardens, car parking and boundary treatment

13.45 **South-western sports field parcel**

Is this a good location for sports facilities/community facilities?

Consider proximity to houses (existing and new), road and school.

13.55 **Industrial Estate**

Notice the size of buildings, the space around the building, the cleanliness and tidiness, the traffic and business of the road, ease of pedestrian and cycle routes between houses and employment and type of employment activity.

14.14 **Boulevard Courrieres**

What is the role of the street now compared with Abercrombie's plan? Notice the relationship between the houses and the street with regards building height, street width, gardens, car parking and boundary treatment. Are there any features which identify the centre of the village?

14.30 **Crescent 1920's housing**

Notice the relationship between the houses and the street with regards building height, street width, gardens, car parking and boundary treatment

14.45 **Cornwallis Avenue new housing**

Notice the relationship between the houses and the street with regards building height, street width, gardens, car parking and boundary treatment. What do you think of cul-de-sacs?

14.55 **Northern housing parcel**

This is allocated for housing – is it a good location for housing? Consider how people move to school, work, shops and the A2(T)) and the countryside, is open space needed and where, and what type of homes are needed?

Western triangle parcel

This is allocated for the school extension, more housing and a petrol station – is it a good location for these uses? Consider how people move to school, work, shops, the A2(T) and the countryside, and is there a conflict between uses?

15.15 **Central retail parcels**

Are these parcels the appropriate locations for more shops? Consider whether they face onto Market Square, what sort of building and building height should they be and what type of shop or community facility?

15.20 **Market Square**

Is this the physical and/or functional focal point of the village? Does is feel like an attractive space? What doesn't work, i.e. pedestrian movement, parking, and a place for people to meet?

15.30 **Central open space to station**

Consider why it may not feel safe and why people/cars abuse it? What are the important routes within the space?

Appendix 5: Day One Open Evening Q&A Session

The following is a record of the community question and answer session held on the first evening.

Political process

Will Dover District Council go along with the proposed development at Aylesham?

Yes, DDC want this are very much behind it, and this is clearly illustrated by its commitment and direct involvement in the EbD process. However, community input will be key to its delivery.

Who makes the final decision?

The development is an iterative process. There are things that are, and others that are not deliverable. The EbD is the starting point, and as the process evolves, it is hoped that common ground is found along the way. This is why the partnership has been drawing on expertise to ensure that the best possible outcome is achieved.

Infrastructure

What is your opinion on infrastructure?

These are very early days in the proposed development, but in principle, the aim will be to improve sustainability in transport, for which public transport is a priority.

The impact of the development on the road network will also have an effect onto the surrounding villages, such as Adisham, for use as a 'rat run'. What measures will therefore be taken to alleviate this impact?

A traffic impact statement will be undertaken and no development will be possible without one.

The current state of roads in and around Aylesham is terrible. What is being done to alleviate the problem?

£2.4m from KCC has been allocated to resolving highway issues in the area.

Education

There is a need for a secondary school in Aylesham.

The number of houses proposed will generate an estimated 150 pupils of secondary school age, an insufficient figure to generate a minimum amount of children to justify the construction of a secondary school. At present, the number of children attending the primary school is falling, further reducing the justification for a secondary school. However, Kent County Council will continue to monitor the situation.

Would a secondary school not have a wider catchment area than that simply including the village?

Kent County Council has studied 3 and 5 mile radii around Aylesham. The previous pattern of parental choice however, was not for Aylesham. Other settlements closer to other state schools are also taking into account grammar and Roman Catholic secondary schools.

Why do children from Aylesham have to travel 10 miles to reach a secondary school when, with the proposed development complete, the village will be larger than Sandwich which has 2 schools? The reasons for the closure of the secondary school at Aylesham were political, and Sandwich is now also refusing to accept Aylesham children. In terms of primary education, an expansion is clearly planned for and required. For secondary education, the reality is that at present, permission would not be granted, although as stated previously, this will continually be reviewed.

A specialist technical school is wanted in Aylesham in order to attract people to come into the village from outside to benefit from what it has to offer. People in Aylesham will not buy into the proposed vision without the appropriate provision of education. We want a college of excellence and we want action, not simple monitoring. The new community trust receives a large number of visitors and delegates to courses because Aylesham is located at the centre of East Kent. This demand clearly illustrates that a secondary school is feasible.
KCC member Graham Gibbons (Canterbury) endorsed what was said and gave his word that KCC will continually monitor the needs.

Future growth
Aylesham is told that it should be a Market Town hub. That is what is necessary to benefit the village. However, we constantly see that Aylesham is too low in the priority for investment.
A community audit is needed to determine this. The whole village is being reviewed, but nothing can be guaranteed as to its position in the future.

Spatial Models for Aylesham's Existing Site and New Proposal

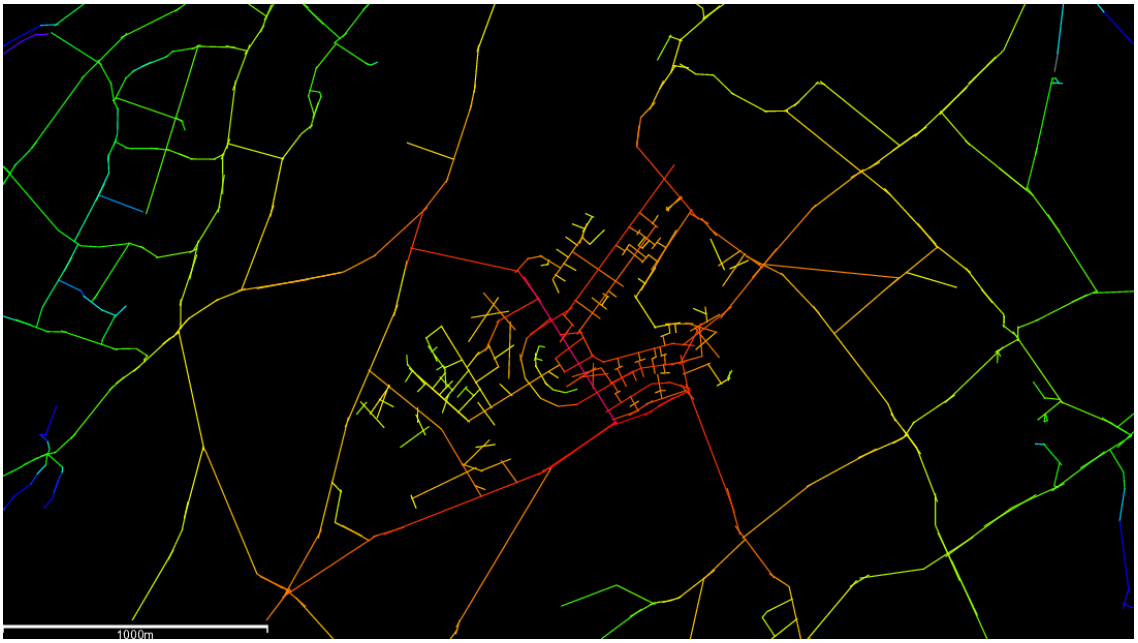


Fig 1: Existing Integration Global (Rn)

Figure 2: New proposal Integration Global (Rn)

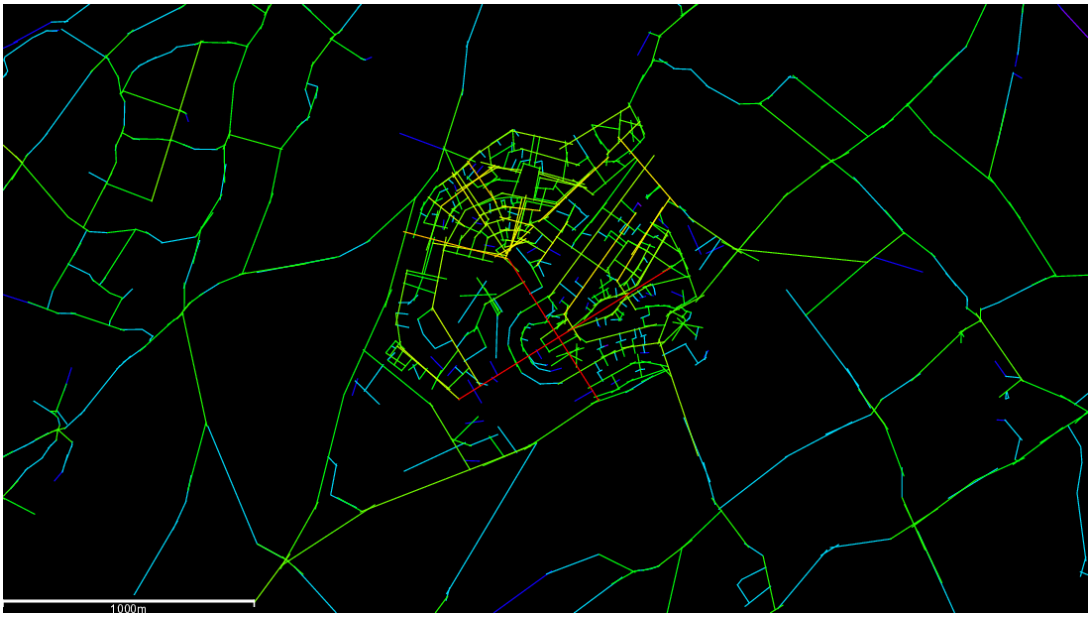


Figure 3: Existing proposal Integration Local (R2)

Appendix 6: Freedom of Information responses, Nottingham Old Market Square

My Ref: IG-6316
Your Ref:
Contact:
Email: information.governance@nottinghamcity.gov.uk

Nottingham City Council

Information Governance
Development
4th Floor
Loxley House
Station Street
Nottingham
NG2 3NG

Tel: 0115 876 3855
Email: information.governance@nottinghamcity.gov.uk

www.nottinghamcity.gov.uk

Requester

At contact address specified for request number above

19th October 2015

Dear Requester

Re: Request under the Freedom of Information Act 2000 (the Act)

The Authority has considered your request which was received on 21st September 2015 and our response to your questions is shown below.

During the design process (conception to execution) of the Nottingham Old Market Square redesigned by Gustafson Porter

1. How many engagement sessions were held from conception to execution stage and when (dates mm/yy)?
2. How many individuals were consulted in each session and who they were (for example residents or names of groups and organisations they represented)
3. The questionnaires that were used for the engagement sessions and the responses received.
4. Report(s) on the engagement process of the Nottingham old market square re-design project.
5. Contact information of the representatives of the residents and groups that were involved in the engagement sessions.

We confirm the requested information is no longer held, therefore under section 1 of the Act this information cannot be provided as it is not held by this authority.

You are free to use any information supplied for your own personal use. However, any other type of re-use, for example, by publishing the information or issuing copies to the public will require the permission of the copyright owner. If the copyright is owned by Nottingham City Council details of the conditions on re-use can be obtained by contacting this office.

If you are unhappy with the response provided or with the handling of your request, you can ask for an internal review by writing to the **Information Governance Specialist, Information Governance, 4th Floor, Loxley House, Station Street, Nottingham, NG2 3NG** stating the reasons for your dissatisfaction.

Safer, cleaner, ambitious
Nottingham
A city we're all proud of

Appendix 7: Feedback cards used in Public Exhibitions, Old Market Square

Now that you have seen the six new visions for Old Market Square we would like to know your views.

The Square One Evaluation Panel will be using a range of criteria to choose a winner to include:

- Meeting the needs of a range of users and roles
- Quality of design befitting an ambitious European City
- Practicality of design, durability of materials and ease of maintenance
- Sympathy to heritage issues - the setting and The Council House

Please take these into account when judging the designs yourself and then score each design as **Good**, **Average** or **Disappointing**

Your information is subject to our privacy policy

Please select a rating for each design.

Gillespies (Leeds)
Good ◯ Average ◯ Disappointing ◯

Patel Taylor
Good ◯ Average ◯ Disappointing ◯

Stig L. Andersson (SLA)
Good ◯ Average ◯ Disappointing ◯

Gustafson Porter
Good ◯ Average ◯ Disappointing ◯

Hopkins Architects
Good ◯ Average ◯ Disappointing ◯

Conran and Partners
Good ◯ Average ◯ Disappointing ◯

If there is one design that you think stands out as being far and away your favourite please let us know which design it is and why.

Favourite design

Reasons

Please tell us a little about yourself.

Gender
Male ◯ Female ◯

Age group
Under 16 ◯ 16-25 ◯ 26-35 ◯ 36-45 ◯ 46-55 ◯ Over 55 ◯

Postcode **Years lived in Nottingham**

Appendix 8: Old Market Square,Nottingham Crime Statistics (Nottinghamshire Police)

Number of Crime by HO Offence Group which happened in the Old Market Square from 2004

	2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014	
Row Labels	**Day**	**Night**	**Day**	**Night**	**Day**	**Night**	**Day**	**Night**	**Day**	**Night**	**Day**	**Night**	**Day**	**Night**	**Day**	**Night**	**Day**	**Night**	**Day**	**Night**	**Day**	**Night**
Bicycle Theft	11	4	11	2	2	0	3	0	3	2	1	2	1	2	2	1	8	2	2	0	2	1
Burglary	0	0	1	1	0	1	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Criminal Damage & Arson	2	5	3	6	2	6	0	5	3	5	0	3	0	4	0	1	0	3	0	3	1	2
Drug Offences	2	4	4	9	2	3	5	4	3	1	8	9	5	8	2	7	2	7	3	9	1	19
Fraud & Forgery	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Crimes against Society	1	0	1	0	0	0	1	0	1	2	0	0	2	1	2	1	0	2	1	0	1	0
Other Theft	23	20	17	16	20	11	24	13	25	16	17	10	19	13	5	13	6	12	12	6	15	4
Possession of weapons	0	2	1	1	0	1	0	0	1	0	1	2	0	1	1	3	0	2	2	2	0	4
Public order offences	0	1	2	3	1	3	3	6	14	13	11	20	12	22	4	13	4	9	7	3	5	6
Robbery	10	7	9	5	7	3	6	2	0	8	4	5	1	4	0	2	0	0	0	2	4	3
Sexual offences	1	3	1	1	1	0	3	2	2	1	4	1	2	0	2	0	0	0	3	0	1	0
Theft from person	22	22	25	18	22	6	22	15	25	14	21	9	19	12	13	14	12	6	13	4	10	9
Vehicle Offences	1	0	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Violence against the person	19	64	24	68	13	49	11	52	16	39	14	48	11	35	14	31	8	20	4	11	17	32
Grand Total	**92**	**132**	**100**	**130**	**72**	**83**	**79**	**102**	**94**	**101**	**82**	**110**	**72**	**102**	**45**	**86**	**40**	**63**	**47**	**40**	**57**	**80**

any co-ordinates attached, therefore we were not able to map these

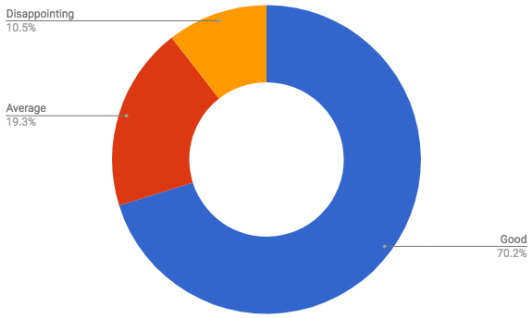
* Day 06:00:00 - 17:59:59

** Night 18:00:00 - 05:59:59 Please Note:: This data has been extracted from a live system and may be subject to change* Source-: Performance and Insight 16.01.2015

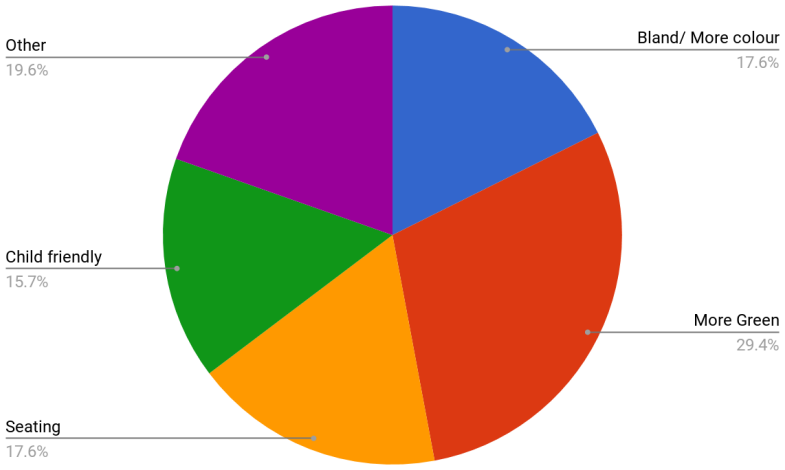
Appendix 9: Post Implementation - User Perception Study by Author, Old Market Square, Nottingham

Q1) How would you rate the Old Market Square (the same rating system as used by Nottingham City Council in 2003)

- GOOD
- AVERAGE
- DISAPPOINTING



5. What do you NOT like about the square? What can be improved in the square to improve your experience?

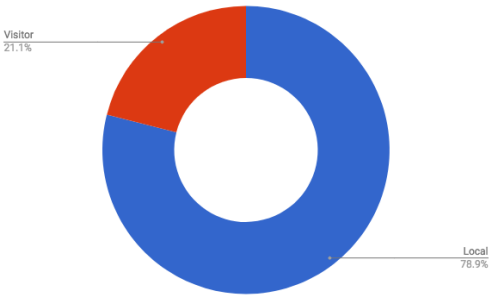


6. What do you like most about the square

7. Have you seen the old square before its redesign in 2007? If yes, which do you prefer and why?

Demographic Data:

1. Local or Visitng



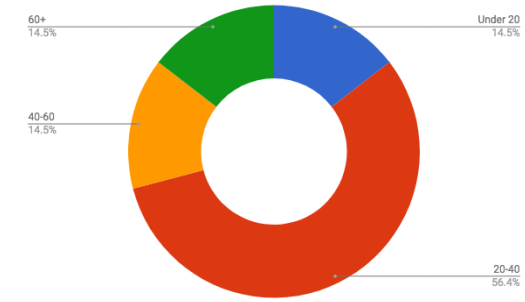
2. User Age Group:

a. Under 20

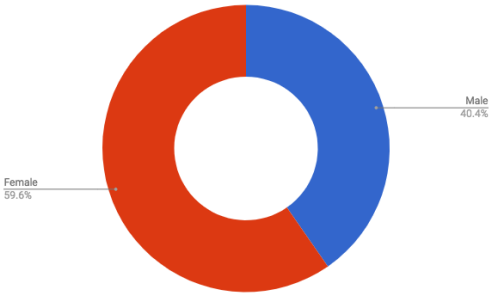
b. 20-40

c. 40-60

d. 60+



3. Gender

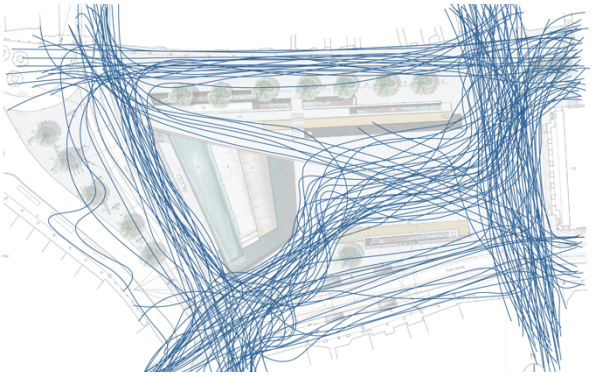


Appendix 10: Post Implementation – Pedestrian movement Study by Author, Old Market Square, Nottingham

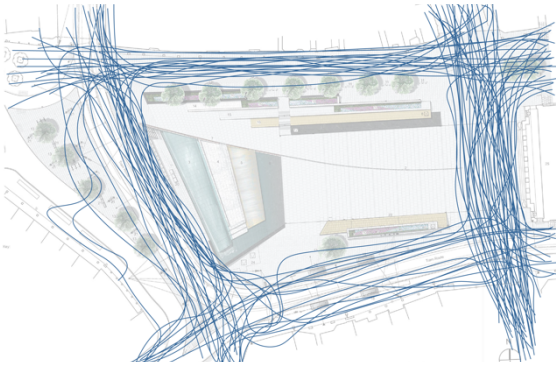
Pedestrian Route Traces

Pedestrian route traces showing a decrease in the proportion of routes avoiding the centre comparing data from 2004 with 2017

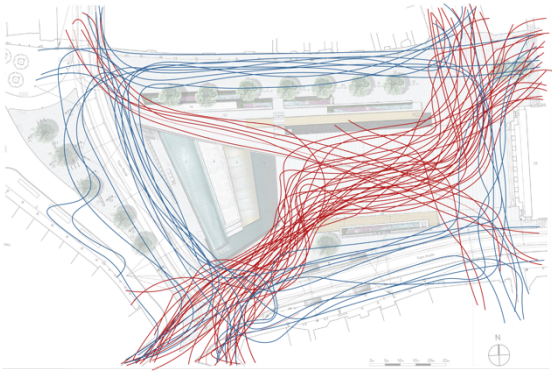
percentage of diagonal routes avoiding the centres dropped from 2004 to 2017 by 4%



All pedestrian route traces (130), All day, Weekday

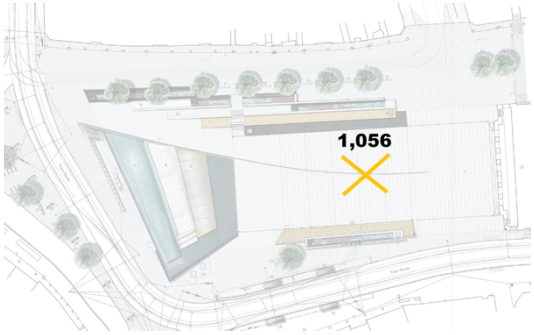


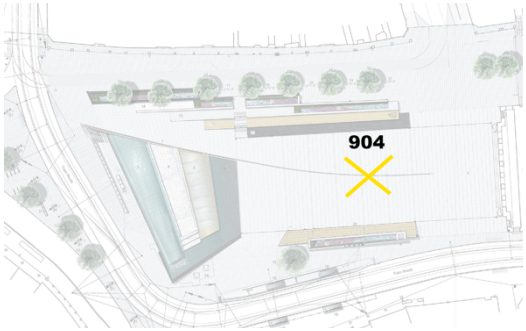
67% of people did not enter the square



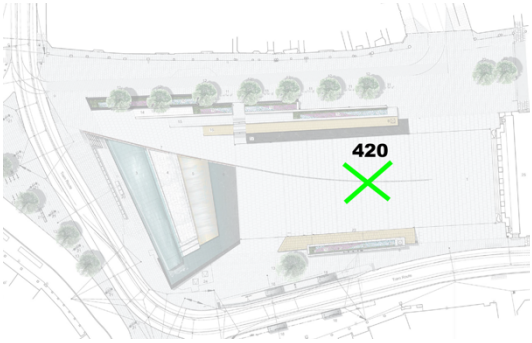
26% of diagonal routes did not enter the square

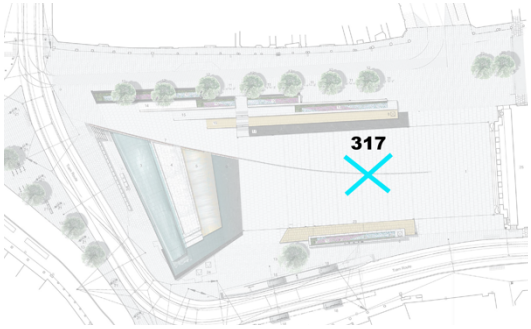
Pedestrian Count at the centre of the square

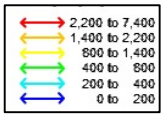




67% of people did not enter the square

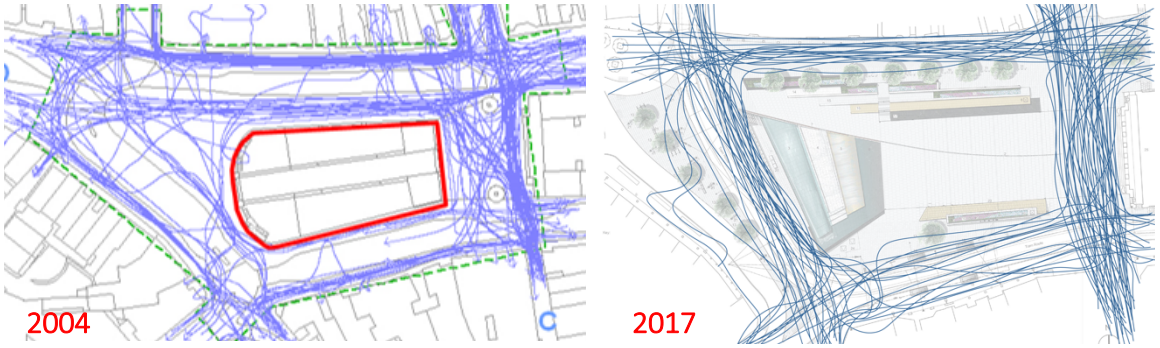






78% of people did not enter the square

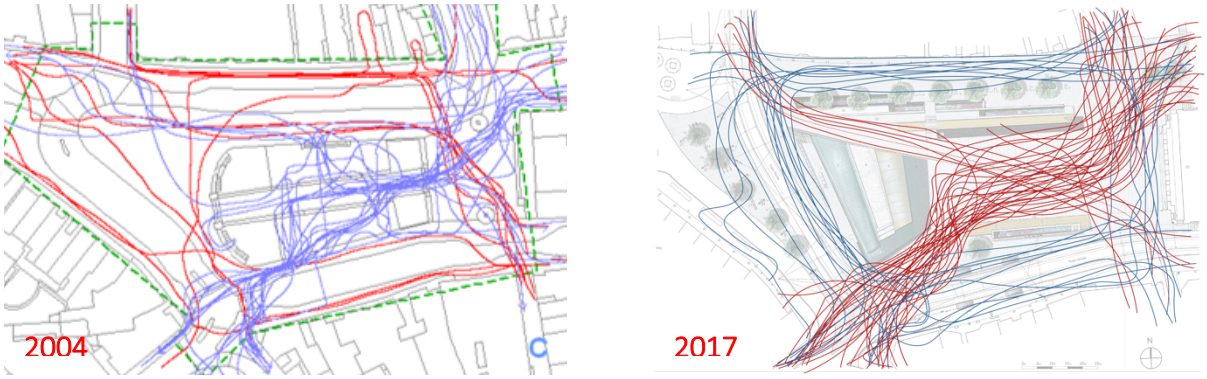
67% of people did not enter the square



Pedestrian route traces showing a decrease in the proportion of routes avoiding the centre comparing data from 2004 with 2017 (Source: Author)

30% of diagonal routes did not enter the square

26% of diagonal routes did not enter the square



Percentage of diagonal routes avoiding the centres dropped from 2004 to 2017 by 4% (Source: Author).

Appendix 11: Wenlock Barn Estate, Crime Stats, Metropolitan Police

METROPOLITAN POLICE TOTAL POLICING
MET HQ: PERFORMANCE & ASSURANCE

IMPORTANT: Please ensure that the Notes Page is read in conjunction with the data in this report to ensure that it is interpreted correctly.

Title

Hackney Crime Incidents: 2000-2015*				
Calendar Year	**Cropley Street**	**Cropley Court**	**Bletchley Court**	**Total**
2000	93	13	5	**111**
2001	127	11	4	**142**
2002	115	16	11	**142**
2003	140	14	2	**156**
2004	165	8	2	**175**
2005	125	2	2	**129**
2006	138	2	1	**141**
2007	131	4	2	**137**
2008	98	3	2	**103**
2009	86	2	1	**89**
2010	110	0	0	**110**
2011	108	0	0	**108**
2012	125	0	0	**125**
2013	89	0	0	**89**
2014	99	0	1	**100**
2015*	76	1	0	**77**
Total	**1,825**	**76**	**33**	**1,934**

Data Source: CRIS

* indicates crimes recorded up to and including 30 Sep 2015.

Last Refresh Date:
Ad-Hoc Req:

MetHQ Performance and Assurance- 783131
If you have any queries with this report, please contact the Helpdesk