

Seeing Issues Clearly

Valuing Urban Realm

Report for Design for London

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Executive Summary

You'll look up and down streets. Look 'em over with care.

About some you will say, "I don't choose to go there."

With your head full of brains and your shoes full of feet,

You're too smart to go down any not-so-good street.

Dr Seuss, Oh, The Places You'll Go, 1990

Introduction

People like to be in nice places. They like to visit them, live in them, work and shop in them. The experience of a place largely results from the quality of its streets and public spaces. For any city urban realm is a key economic and social resource which contributes to making it a better, or worse, place to be.

Developing and maintaining a good quality urban realm can be expensive for both the public and private sectors. To justify the spending we need to understand the benefits that come from a good quality urban realm and who gets them. At a more detailed level we need to understand what things people value in the urban realm and how much they value them.

These questions are being considered in a structured way by Transport for London (TfL) and Design for London (DfL), who take responsibility for many of London's streets and spaces. In 2007 research was published by TfL which examined the value that members of the public place on improvements to the urban realm¹. That research found that **members of the public value high quality streets and places and are willing to pay for improvements.**

This paper presents the results of a further piece of work carried out for DfL by MVA Consultancy during 2008. This research has examined the value that some parts of the private sector and private property owners enjoy as a result of urban realm quality. It will be followed by a further study which will consider aggregate social benefits of quality places.

This study has examined the question of private benefits using a number of methods that are summarised below and reported on in full in the companion report to this paper. **We have found that there is positive, significant and consistent value added to private business by maintaining and improving the urban realm.**

Research Results

This study has considered four questions:

- What evidence is there that urban realm contributes to the value of private property?
- Can improvements to the urban realm increase the value of private property?
- What do key businesses – developers and retailers – think about urban realm?

¹ Accent Market Research, Valuing Urban Realm – Business Cases for Public Spaces, TfL, 2006

- How much do businesses value improvements to urban realm?

To consider quality and value we used measurements of urban realm quality in London taken from TfL's programme of PERS (Pedestrian Environment Review System) audits conducted from 2005-2008. This provided quality assessments of over 600 street sections in London. We compared quality with data on the sale prices of flats and the rental value of retail property on the same streets using a sample of over 28,000 flat sales and nearly 7,000 shops.

To allow for other things that may affect property values we also analyzed data on other factors including public transport accessibility; school performance; land-use type; deprivation; average income and household spend.

Our analysis found that, all other things being equal, **properties on high quality streets are more valuable than those on poorer streets**. The level of increased value is proportional to the difference in quality.

The elements of streets that most clearly add value to private property are:

- Personal security
- Lighting
- Quality of Environment
- Maintenance

For each measurable improvement in quality (using increments in PERS) in any of these aspects of a street, the sale price of flats increased by 1.62% and shop rental values increase by 1.22%. Based on the average prices of property in our sample, these percentages represent increases of £5,096 and £5.41/m² respectively for each quality improvement.

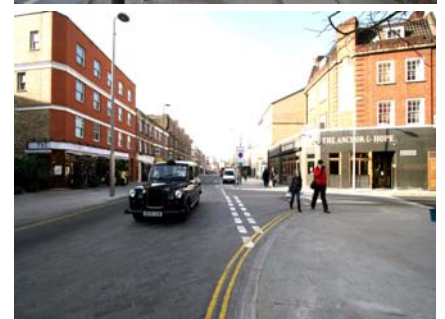
We applied these values to a recent improvement scheme in The Cut, in Southwark, which has been subject to a number of changes in 2007/08 at a cost of £3m, including:

- Widening and resurfacing of footways
- Improved lighting
- Planting trees
- New Pedestrian signs

Our analysis found that as a result of these changes, only valuing changes to the four elements that add most value, around £9.5m had been added to the value of private property in the area.

This example suggests that a publicly funded scheme can add significant value to the owners of private property.

The value added to private property in the example above remains theoretical however until the property is sold and is subject to other changes such as variation in market conditions.



To test whether real-world value is added by urban realm schemes we looked at the effects on actual sale prices of a small sample of 14 urban realm schemes from around England. These were all schemes which were completed after 2000 but for which flat sale records after completion were available. We analyzed data from before and after the schemes and compared it with the value of flats sold in other parts of the same towns which had not been subject to improvement.

This analysis found a wide range of results, with flats at two of the schemes growing in value at a slightly lower rate than nearby areas. Nevertheless the other twelve schemes appeared to add value to flats over and above the growth experienced by the control areas, by as much as 28% additional growth. Interestingly more complete rearrangements of street space in favour of pedestrians appeared to add more value than mostly cosmetic changes. All the schemes that took place in London contributed positive additional growth to flat prices, although this tended to be towards the lower end of the range, possibly reflecting issues of affordability.

It seems then that the people who buy flats and rent shops do appear to value quality in the urban realm and that improving the urban realm adds value to the assets of those who own affected properties. This suggests funding partnerships may be possible where the public and private sectors both contribute to urban realm improvements in order to gain benefits. For this approach to be viable however, the private sector needs to agree that value is added and be willing to contribute to securing it.

Another strand of our research considered this question. Initially this was based on discussion groups with developers and with retailers.

We found that developers did acknowledge the value of urban realm, particularly in branding and marketing a development as part of a lifestyle. They did not however have any clear approach to identifying how much value could be added and how much they should invest in improvements as a consequence.

Discussions with retailers supported this. Retailers generally acknowledged the importance of urban realm, particularly 'the basics' such as cleanliness, lighting and good footway surfaces to attract and keep customers. This reinforced the results of our data analysis. Retailers however, particularly smaller independent ones, were inclined to feel that they lacked the ability to pay for improvements and tended to the view that improvements should be funded from existing taxes.

To test this latter point, we used a Stated Preference questionnaire. We obtained 400 responses from the managers or owners of businesses in 15 high streets in London. Responses to this questionnaire confirmed the results of the discussions – a significant proportion of businesses were not prepared to pay more whatever the level of improvement and this was most pronounced among those who owned, rather than managed, the business.

Nevertheless, even taking these 'non payers' into account we found that on average businesses did value improvements to lighting, pavement surfaces and environmental quality and were willing to make a one-off payment equivalent to around 2.5% of their current annual business rate per m² for each increment of improvement on the PERS scale. This broadly conforms to the scale of increase to retail rental value that was found in the data analysis

Conclusions

Our analysis allows a number of conclusions to be drawn:

- Value is added to private property by a high quality urban realm
- There is a case for negotiation between the private and public sectors to jointly fund improvements in the quality of the urban realm
- The quality of the urban realm can be measured and related to added value
- Most value is gained by those who own properties rather than (necessarily) businesses that operate within them
- The wide variation in responses from retailers suggests that mechanisms such as Business Improvement Districts may help ensure fairness and transparency in funding urban realm schemes.

In drawing these conclusions we recognise that actual value added may not be matched by the private sector's ability or willingness to pay. The figures we have derived from our analysis are likely to form the beginning of a conversation between sectors.

We also stress that in identifying aspects of the urban realm that add value to business we do not suggest that other elements, for example tactile information, that provide support to particular users are without value.

In conclusion, we have considered the question of urban realm and value to business in a number of ways. The results of each strand of this research have tended to reinforce one another and confirm that **the private sector gains positive value from a high quality urban realm and this has been quantified and related to a system of measuring quality.**

1 Introduction

1.1 Introduction

- 1.1.1 Securing funding sources for improvements to urban realm schemes require the development of robust business cases that demonstrate that the benefits of investment outweigh the costs. There is a strong case for investment in urban realm improvements as they can improve the aesthetics of spaces, enhance the environment, increase usability of spaces, improve social interaction and promote regeneration in local communities. However, in order to best demonstrate the case for investment, it is important that benefits are assessed both quantitatively (for example monetary benefits) and qualitatively (user perception).
- 1.1.2 Streets provide a large proportion of the urban realm experienced by the public and this is as true of London as elsewhere in the UK. The quality of London's streets will to a significant extent influence residents and visitors in their impressions and experience of London as a place to live, work, shop, visit and do business. It follows then that the more attractive the streets, the more attractive the city. This apparently provides a compelling case for efforts to enhance and improve London's streets to provide a world class experience.
- 1.1.3 This simple proposition however raises a number of significant questions of policy and principle. Particular issues that must be considered concern:
- how much benefit really arises from urban realm improvements;
 - how the benefits compare to the capital and revenue investment required to deliver good quality;
 - the distribution of those benefits among individuals and businesses; and
 - the investment models that are required to bring benefits about.
- 1.1.4 The consideration of these questions has only recently come to be undertaken systematically. In the past streets and urban spaces have tended to be designed and managed largely with a view to maintaining the safe, efficient movement of motorized traffic. Street performance has been monitored primarily against those objectives. Latterly the importance of urban realm and streets in creating a sense of place and quality of life has come to be more widely recognised and there are now strong public policy commitments to improve place and design quality.
- 1.1.5 Even in acknowledging the importance of streets as places though, action to improve streets is complicated by the multiple functions they must fulfil; the range of owners involved; the number of actors who can affect streets; and the cross-cutting nature of the benefits that are claimed for improved streets, which make it difficult to identify a single appropriate source of funding for their improvement.
- 1.1.6 In order to begin to make the business case for investment in urban realm and streets it is necessary to clarify the nature and scale of benefits that can be achieved. A concomitant requirement is the need for a means of assessing what level of quality is offered and the relationship between measured quality and benefits.

1 Introduction

1.1.7 Transport for London (TfL) and Design for London (DfL) have begun to investigate the case for public investment in the urban realm in order to identify the beneficiaries and to develop the evidence for possible partnership funding approaches. Transport for London (TfL) commissioned Accent in association with Colin Buchanan to produce Valuing Urban Realm – Business Cases for Public Spaces in September 2006. That study considered the value placed by members of the public on the quality of the urban realm and identified some quantitative benefits.

1.1.8 This summary report is part of the same broad effort and moves on from individual benefits to reporting on benefits to business and property owners. It describes in particular the results of research carried out by MVA Consultancy from December 2007 to August 2008 into the relationship between street quality and a particular set of economic indicators, namely the value of residential and business properties on those streets.

1.1.9 In order to investigate this subject, we have considered four topics:

- the relationship between street quality, the sale price of flats and the rental value of retail premises;
- the uplift in property value that results from improvements to street quality;
- the attitude of private investors and businesses to urban realm quality; and
- the willingness of businesses to pay for improvements.

The results of our research into those topics are presented in this report.

1.1.10 In future Design for London also intends to research the wider public goods that can arise from improving the urban realm. This completes a suite of work that considers variously the benefits to citizens, business and society of a high quality urban realm.

1.2 Purpose of Study

The purpose of this study therefore has been to inform DfL, TfL and the GLA Family of the relationship between street quality and property value and to provide them with an understanding of the attitude of private sector stakeholders towards investing in improved quality.

1.3 This Report

This report has been written with a view to explaining the results of our research to the widest possible audience of stakeholders. Detailed exposition of our statistical analysis is included in technical appendices for reference; however the main focus of this report is on presenting our findings, their meaning and their potential application. This report is structured into the following chapters:

Chapter 1 Introduction

Chapter 2 Methodology

Chapter 3 Results

Chapter 4 Discussion and Conclusions

Technical Appendices

Appendix A Cross-sectional Analysis

Appendix B Longitudinal Analysis

Appendix C Discussion Groups

Appendix D Stated Preference Research

2 Methodology

2.1 Introduction

2.1.1 As discussed in the introductory Chapter, previous work has considered the value of urban realm to the individual. This study sought to extend that understanding to the value of urban realm to businesses. The four elements of this study have been:

- the relationship between street quality and the sale price of flats and the rental value of retail premises;
- the uplift in property value that results from improvements to street quality;
- the attitude of private investors and businesses to urban realm quality; and
- the willingness of businesses to pay for improvements.

2.1.2 In this Chapter we describe the methods by which each has been investigated. As noted in the previous Chapter, the first phase of this programme of work had investigated the value of urban realm to citizens. That study used the Pedestrian Environment Review System (PERS) as a tool for measuring street quality. In order to build on the first phase, this study has also used PERS in order to provide a common approach. In time this will potentially provide a tool by which urban realm can be assessed using PERS and then the value of improvements to different types of user can be estimated.

2.2 Quality and Property Value

2.2.1 This topic has been considered using cross-sectional analysis, i.e. looking at whether a relationship appears to exist at a point in time between two things, in this case street quality and property values. In order to research the relationship between street quality and property value, three types of data have been required:

- measures of street quality;
- property rental and sale price data;
- control data.

These are each described in more detail in this section.

Measures of street quality

2.2.2 An important requirement of this research is that it be statistically robust, moving beyond indicative relationships. Consequently the analysis required a consistent method of assessing street quality; a numerical measure of street quality, suitable for statistical analysis; and a sufficient sample of streets to enable reasonable confidence in the resulting analysis.

2.2.3 This research has drawn on the large set of data that have been gathered in a programme of reviews of streets in the Transport for London Road Network (TLRN) commissioned by TfL's Walking and Accessibility Team between 2005 and 2008. The reviews were conducted using the Pedestrian Environment Review System (PERS), described in more detail in below (2.2.4 onwards). The use of PERS as a tool for measuring street quality provides continuity with the first phase of this programme of research. The PERS data used in this study was pre-existing

as neither the timescale nor the budget would support the substantial fieldwork required to measure the quality of a large sample of streets from scratch. The disadvantage of this approach is that the data used are fixed and the analysis is limited to consideration of elements that are measured by PERS. Conversely the disconnection between the data gathering and the analysis may also offer some advantages, particularly in terms of reducing the likelihood of audit results being skewed by reviewers towards consideration of elements previously shown to increase property value.

- 2.2.4 PERS was developed by staff at the Transport Research Laboratory from 2002 to 2006 as a process to evaluate level of service for pedestrians and compare the relative performance of different facilities. PERS v2 has been adopted by TfL's Walking Team as a consistent method of collecting information on conditions for pedestrians. PERS divides street networks into types of facility (links, crossings, routes, public spaces, interchanges and bus/tram stops). Each of these types of facility is reviewed individually against a number of set criteria.
- 2.2.5 For the purposes of this study the PERS review framework for links is the most pertinent means of measuring quality. Links are streets, or sections of streets. They correspond approximately to footways, although the influence of frontages and carriageway activity on the pedestrian environment is also considered.
- 2.2.6 The framework within which links are reviewed in PERS is summarised in Table 2.1 below.

Table 2.1 PERS Link Review Criteria

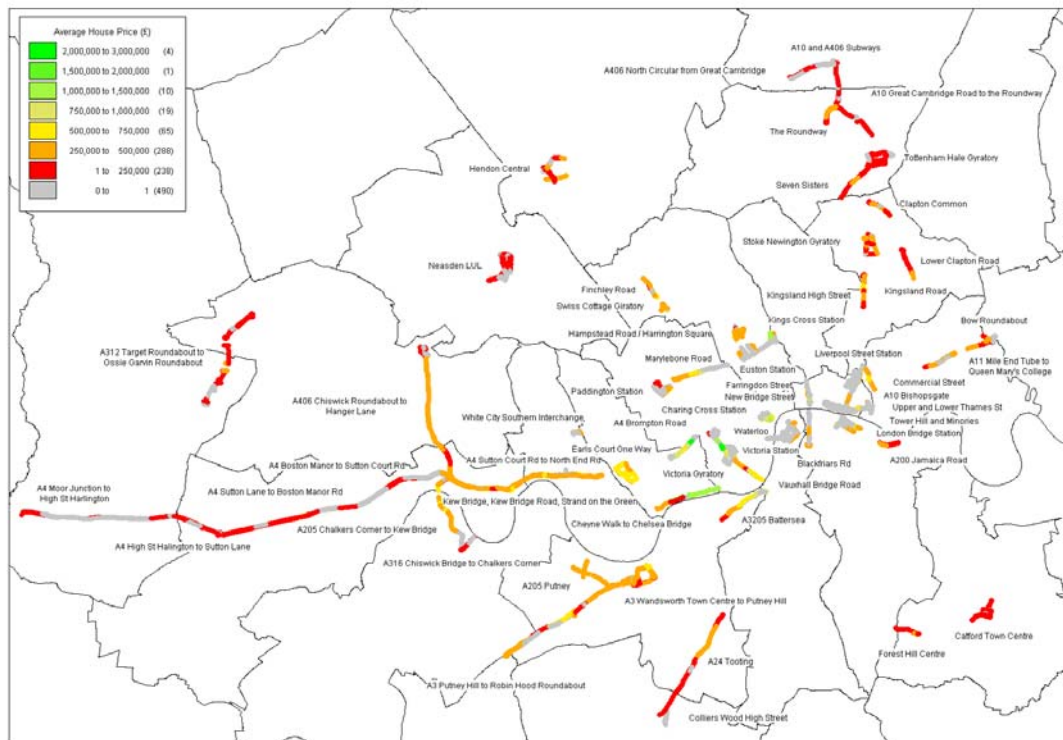
Criteria	Definition
Effective width	'Effective width' is the space within a link available for pedestrian movement.
Dropped kerbs	'Dropped kerbs' addresses the provision of adequate continual access along links which are interrupted by access roads or junctions with minor side roads (which are not subject to a separate crossing review).
Gradient	'Gradient' refers to the steepness or otherwise of a link, any crossfall on the link and the inclusion of features such as steps or ramps.
Obstructions	'Obstructions' are physical barriers to pedestrian flow or line of sight.
Permeability	'Permeability' is the extent to which pedestrians can make informal movements from the link across the adjacent carriageway in order to serve their own personal journey purposes.
Legibility	'Legibility' concerns the ability of pedestrians to orientate themselves in relation to their destinations. Legibility does not include consideration of tactile information since this is assessed separately.
Lighting	'Lighting' deals with the quality of lighting on a link, including regularity, intensity, colour and consistency.
Tactile information	'Tactile information' concerns the provision, accuracy and quality of surfaces that convey information to blind and partially sighted people.
Colour contrast	'Colour contrast' considers colour and tonal contrast as an aid to orientation and the protection of hazards to partially sighted pedestrians.
Personal security	'Personal security' deals with environmental features that relate to pedestrians' vulnerability to, or fear of, crime.
Surface quality	'Surface quality' deals with the evenness, absence of trip hazards and frictional qualities of surfaces on which pedestrians walk.
User conflict	'User Conflict' deals with hazards to pedestrians as a result of making conflicting movements with other users.
Quality of environment	'Quality of the environment' concerns the degree to which a link is pleasant to use. This category is concerned with the general ambience of a link and the features that contribute to that ambience.
Maintenance	'Maintenance' is related to environmental quality but more specifically reflects the effectiveness of the management of a facility. Damage to street furniture or other facilities, maintenance of planting, the accumulation of litter, fallen leaves, chewing gum or standing surface water can all affect pedestrians' perceptions of the environment.

Source: TRL, *PERS Review Handbook*, Crowthorne, 2006

2 Methodology

- 2.2.7 For each of these criteria on each link a summary score is given. The score is on a fixed seven-point scale from -3, indicating substantially inadequate provision, to +3, indicating very high quality provision. A score of zero is taken to represent an approximate average level of provision. The software allows for these scores to be weighted if required.
- 2.2.8 The data used within this study were collected by an experienced team of staff from the Transport Research Laboratory (TRL). All staff involved had received accreditation training. Additional measures applied by TRL to ensure consistency of scoring among reviewers included having reviewers working in pairs and having all studies quality reviewed.
- 2.2.9 The programme of reviews carried out by TRL covered 62 sites in Greater London. These were primarily on the TLRN, however some reviews have focussed on the network around major interchanges such as Waterloo Station, Victoria Station et al. Pooling the data from the sites gave 1088 link reviews in total.
- 2.2.10 Of those 1088 link reviews, only those for which property value data were available could be incorporated in the analysis. This meant that those which have no adjacent property or where there are no recorded property transactions had to be eliminated. The resultant set of data consisted of 619 links for which residential property data were available and 604 for which retail Zone A data were available.
- 2.2.11 The links which were incorporated into the analysis included those in inner, central and outer London. Figure 2.2 shows the links used for the residential analysis. The links in grey are those that do not contain any property information and hence were excluded.

Figure 2.1 Overview of Links used for Residential Analysis



- 2.2.12 In terms of the study requirement then, the PERS data provided a source of measurement that was consistent, numerical and of reasonable sample size. It also provided continuity with Phase 1 of this programme of study.

Property Data

- 2.2.13 The outcome with which this research is concerned is the relationship between urban realm quality and property values. In order to assess this, property value data for Greater London were required. Two types of property data were collected:

- Flat price data were gathered from Land Registry records. Flats were selected as being a type of property consistently represented across the links for which quality data were available and for which a large number of transaction records were available, giving the largest possible data set. Houses were present on some of the links, but tended to be in outer London, potentially skewing the results of the analysis.
- Rental data for retail Zone A. These data were gathered from the Valuation Office Agency

Data were collected for the period April 2000- December 2007 and then normalised to a common date of November 2007. Flat prices were factored to this date using Land Registry figures for property price growth. GLA growth factors were used to expand the 2001 Census data for jobs, population, household numbers etc to a 2007 estimate so that as far as possible, the datasets were comparable. A total of 28,399 flat purchases and 24,218 business premises (for which Zone A rental information was available for 6,895) were identified as being adjacent to links for which PERS review data were available.

Control Data

- 2.2.14 In carrying out a cross-sectional analysis of the relationship between street quality and property prices, it is clearly important to control for other factors that may affect property values. Data were therefore collected on the other factors that were thought likely to, or which previous research had shown would, affect property values in Greater London. These included:

- Access to public transport (Public Transport Accessibility Level);
- Performance (SATS Scores) of primary and GCSE results for secondary schools within whose catchments the property is located;
- Deprivation in the area (Indices of Multiple Deprivation);
- Household income and expenditure;
- Land use information (mix of domestic and non-domestic properties).

A full list of the control data and its sources is given in Appendix A.

- 2.2.15 The three types of data described above were used by MVA to carry out a statistical analysis that enabled the relationship of street quality, as measured by PERS and subsets of PERS criteria, to property values to be calculated while controlling for the influence of other factors likely to influence the value of property. The use of the PERS data allowed the analysis to consider the relationship between property value and

- aggregate performance of the link;
- any single PERS criterion; and
- subsets of PERS criteria.

This was designed to assist in identifying particular street features most likely to add value to properties.

2.3 Property Value Uplift from Urban realm Improvements

- 2.3.1 The element of the research described previously was designed to identify whether a relationship existed between the quality of a street and the value of properties on the street. To inform policy and investment decisions however it is important to understand whether that relationship is static or whether, through improvements in street quality, real value can be added to properties.
- 2.3.2 In order to investigate this question, the MVA team carried out a longitudinal study of the trend in property values before and after urban realm improvement schemes in case study locations where significant investment has been made. This required that schemes considered to be of high quality be identified.
- 2.3.3 In order to minimise the potential effect of large-scale economic trends on property values in the analysis it was also important that the schemes reviewed be from broadly similar times. The selection criteria for schemes were therefore that they should have been completed since 2000, that there be an adequate 'before' and 'after' period of data and that they be of good quality. In order to identify appropriate schemes discussions took place with Design for London, the Commission for Architecture and the Built Environment, with members of the Institution of Civil Engineer's 'Streets' discussion forum and with staff at the urban design practice Tribal Urban Studios.
- 2.3.4 A number of possible case study schemes were identified from which 14 were selected as suitable. The fourteen sites are a mixture of London sites and those in other parts of the UK. The nature of the improvements that were made were broadly classified according to their predominant features, although given the nature of the schemes, which frequently incorporated many elements, the classification is only approximate. The three classifications used were:
- Materials and fixtures: refurbishment of surfaces, street furniture, planting etc and their upgrading to better quality materials
 - Decluttering: removal of barriers to pedestrian movement and sightline, rationalisation of signing and street furniture
 - Pedestrian priority: action to reallocate space to pedestrians within the confines of the street and to change the balance of priority between pedestrians and vehicles using the street.
- 2.3.5 The sites and their approximate classification are summarised in Table 2.2.

Table 2.2 Longitudinal Case Studies

Site	Classification
High Street and Sadler Street, Wells	Materials and Fixtures
Piccadilly Gardens, Manchester	Materials and Fixtures
The Strand, London	Decluttering
Streatham High Road, London	Materials and Fixtures
Walthamstow High Street, London	Materials and Fixtures
Brindley Place, Main Square, Birmingham	Materials and Fixtures
Sutton High Street, London	Pedestrian Priority
Maid Marion Way, Nottingham	Pedestrian Priority
Devizes Market Place	Pedestrian Priority
Tooley Street, London	Materials and Fixtures
Bideford Quay	Materials and Fixtures
Kensington High Street, London	Decluttering
Fakenham Town Centre	Mixed
Blackett Street, Newcastle	Pedestrian Priority

- 2.3.6 As with the cross-sectional analysis, it was important that the review of property prices before and after the schemes were implemented was not skewed by other factors such as market trends, changes to accessibility of a town etc. Consequently control sites needed to be identified which were equivalent to the study sites in as many ways as possible, with the exception of the urban realm improvement. Given the complexity of attempting to match different parts of London or different towns with others that can credibly be considered equivalent, it was decided that the control data should be taken from other parts of the same town or district but which had not been directly subject to the urban realm scheme.
- 2.3.7 Accordingly, property data were collected for the site of the urban realm schemes and in concentric bands of 100m around them, up to 500m, considered to be the general limit of a given neighbourhood and beyond which other factors, such as different transport services etc. might reduce their validity as controls.
- 2.3.8 In order to consider the trend in property values, a number of data points in both the before and after period are required. These data were available for residential properties but retail data are only updated by the Valuation Office Agency on a 5 yearly basis. The analysis of

longitudinal effects therefore only considered the effect on flat prices using data collected by the Land Registry.

- 2.3.9 The analysis considered the trend in property prices prior to and after the implementation of the urban realm scheme in each of the 14 locations and control sites within the same town.
- 2.3.10 The analysis considered that changes to the trend in flat prices in the control sites after the schemes were implemented indicated what changes to the trend in flat prices might reasonably be assumed in those properties affected by the urban realm scheme in the after period had the scheme not taken place.
- 2.3.11 The analysis therefore attributed any trend of increase in flat prices at improvement sites which was greater than the 'before' trend and which exceeded the trend at the control sites, to the influence of the scheme.

2.4 Private Sector Attitude and Willingness to Pay

- 2.4.1 The preceding elements of the study were designed to establish what the influence of urban realm quality on property value may be and the extent to which investment in the urban realm adds value to private property.
- 2.4.2 In order to inform DfL's discussions with the developers, owners and operators of private property however it is important that their view of the relative importance of urban realm quality, and their willingness to invest in improving it, be clearly understood. The third element of this study therefore focussed on this issue.
- 2.4.3 The question was addressed by two means:
 - discussion groups with developers and retailers to give a qualitative understanding of their views; and
 - stated preference research to identify those elements of possible street improvement most valued by business operators and their willingness to contribute to improvements.
- 2.4.4 Discussion groups were held in February and March 2008. A total of six groups, of between two and eight participants, were held. Groups were composed of developers, retail businesses or were mixed. They were facilitated discussions which explored participants' attitudes and the circumstances in which they would or would not consider investment in the urban realm. The discussion groups also informed the design of the stated preference research.
- 2.4.5 A stated preference questionnaire was developed and three pilot surveys were carried out in March and June 2008 with the main fieldwork taking place in July 2008. The research targeted businesses in high streets across London. Recruitment and completion of the questionnaire was carried out face to face in one stage. A total of 400 complete responses were received from businesses in 15 high streets.
- 2.4.6 The questionnaire presented participants with combinations of possible improvements to streets. Participants were asked to identify the packages of improvements that they preferred and their willingness to make a one-off payment in exchange for the

2 Methodology

improvements. A full description of the Stated Preference method is given in Technical Appendix D.

3.1 Introduction

3.1.1 Chapter 2 has outlined the methodologies by which MVA carried out this research. This Chapter presents the results of the individual strands of research. It describes our findings from:

- a cross-sectional analysis that has assessed the relationship between street quality, as measured using PERS, and property values;
- a longitudinal analysis of the extent to which property values are lifted by improvements to the urban realm;
- an investigation into stakeholder attitudes towards the importance of the urban realm; and
- stated preference research into the willingness of high street businesses to pay to improve the urban realm.

3.1.2 Our results from these analyses are presented below.

3.2 Quality and Value

3.2.1 The analysis first assessed the relationship between each of our individual sources of data – PERS and the various control data – and the value of residential and retail property. Data were mapped and also analysed within a statistical software package (SPSS). The analysis enabled us to establish whether a relationship existed, whether the relationship was positive or negative (i.e. whether increases in the PERS or control data values caused an increase or a decrease in property value) and whether we could have statistical confidence in the relationship.

3.2.2 The unweighted PERS data set was found to best explain variations in property value. We initially used the aggregate score for each link (i.e. the sum of all the individual criterion scores).

3.2.3 For flat prices, the following relationships were found to exist:

- The higher the weekly expenditure of residents (either per person or per household), the higher the price of flats;
- The better the access to public transport, the higher the price of flats;
- The better performing both the primary and secondary schools were in an area, the higher the price of flats;
- The more deprived an area is, the lower the price of flats;
- The more households there are on a link (although the length of link varies), the higher the price of flats; and
- The higher the PERS score from all of the unweighted attributes, the higher the flat price.

3.2.4 For retail Zone A, the relationships that were found to exist were:

- The higher the total retail sales, the higher the price (based on 164 links or 13 audit sites);
- The better the access to public transport, the higher the price of retail Zone A space;
- The higher the percentage of non-domestic land use (i.e. the more businesses in an area), the higher the price of retail Zone A space;
- The higher the average weekly expenditure of residents / households, the higher the price of retail Zone A space;
- The higher the number of jobs per adult / the employment rate of residents, the higher the price of retail Zone A space;
- The more deprived an area is, the lower the price of retail Zone A space; and
- The higher the overall PERS score, the higher the price (although this is a very weak relationship).

3.2.5 This analysis suggests that there is a statistical relationship between street quality as measured by PERS and the value of residential and retail property.

3.2.6 As described in Chapter 2, the PERS link audit consists of 14 criteria and the analysis described above considered all these together. However, not all of these criteria are related to things that would be expected to influence property values. We therefore tested the relationship between each of the 14 individual criteria and property values.

3.2.7 The results of this analysis found that some PERS criteria appeared to have a significant influence on property values, e.g. environmental quality, while others, e.g. provision of tactile information, did not. Street features and attributes measured by PERS that were not found to influence property values, such as tactile information, are of significant value to users, this finding merely indicates that they do not directly affect the specific dependent variable with which we are concerned: the value of adjacent property.

3.2.8 This analysis was important as it began to give us an impression of the types of street attributes most likely to add value to properties and, hence, to begin to indicate how the results of this research could be interpreted into action. In order to explore this further, we tested the relationship between combinations of PERS criteria and property values. These combinations were partly arrived at through logic and experimentation but were also strongly informed by the contributions of developers and retailers in the discussion groups that formed part of this project.

3.2.9 The result of this second layer of analysis was that the strongest relationship that was found between PERS scores and property values was for a combination of the four PERS criteria:

- Personal security;
- Lighting;
- Quality of Environment; and
- Maintenance

This finding is interesting as it suggests that the most cost-effective way to add value to properties is to focus on getting these basics right.

- 3.2.10 It is helpful at this stage to give more detail on the meaning of these four PERS criteria and the scoring process. PERS auditors are fully trained in the use of the system. Those auditors used by TRL in gathering the PERS data used in this study are all experienced auditors who have been trained and accredited by TfL's Walking Team. The process of auditing by TRL requires each audit score to be developed using a minimum of two auditors. These auditors are provided with detailed prompts, checklists and information to ensure that their scoring is accurate. A summary of the scoring criteria for the four attributes described at 3.2.9 is provided in the boxed section.

Definitions of the Four Key PERS Criteria

Lighting and maintenance are relatively straightforward. Lighting is an assessment of the degree to which an area is well lit, consistently lit and does not feature areas of shading or low light levels. Additional benefits can include light that is whiter (allowing better recognition of other users) and is focussed on pedestrian areas (rather than on highways).

Maintenance is an assessment of the cleanliness of an area, the state of repair of surfaces, street furniture and planting, and the absence of litter, chewing gum etc.

Personal Security and Environmental Quality are less straightforward. It is clear from experience and evidence that both are important to pedestrians and yet people's assessment of these elements is based on a complex evaluation of a whole range of factors. There is not one single attribute that can be manipulated to increase levels of perceived personal security or environmental quality. Data analysis does not assist in this respect either, for example areas can be perceived as being risky in terms of personal security, without there being any recorded street crime, as a result of environmental features.

In terms of personal security then, PERS audits consider physical features or obvious types of street use that may contribute to security concerns. Prompts given to auditors include:

- What is the 'feel' of personal security along the link?
- Is there any sense of crime or intimidation to pedestrians?
- What types of street activity are present to provoke or calm safety fears?
- Does the fear of crime differ from day to night (if reviewed)?
- How suitable is the lighting for reducing safety fears?
- Is there any police or warden presence?
- What is the reputation of the area?
- What does information from surveys and police records imply regarding personal safety levels?
- Have there been any recent crime incidents of impact to the local area?
- Is CCTV provided?
- Does the link require the negotiation of tunnels/underpasses/dark locations?
- What is the visual appeal of the environment?

- What is the general level of visibility for the pedestrian?
- Are there significant flows of other pedestrians?
- Are there businesses that may attract antisocial behaviour, such as late night fast food outlets and large pubs catering for young drinkers?

Environmental Quality, like Personal Security, is the outcome of the complex interaction of a range of factors. Prompts given to reviewers are:

- Are there public spaces along the route and how effectively are they designed/maintained?
- Is there an excessive level of noise/traffic along the route?
- How pleasant is the route to walk along as a whole?
- What are the aesthetics of the area like?
- Does the area have planting?
- Have high quality materials been used to enhance the pedestrian environment?
- What is the quality of private frontages on the link?
- What is the quality of neighbouring commercial and private properties?
- Is there a sense of place along the link?
- Are there any distinctive features along the link which improve the quality of the environment?

For both of these latter categories then, reviewers need to exercise their experience and judgement to arrive at a summary score and a commentary that justifies their decision.

Source: PERS Reviewers Handbook

- 3.2.11 Although there may be some overlap between these criteria, e.g. between lighting and personal security at some times of the day, the combination of the four into an additive variable in our statistical analysis ensures that their influence is not double-counted.
- 3.2.12 The results of our preceding analysis were used to build linear regression models of flat prices and retail rental values. A regression model allows the influence of independent variables (e.g. public transport accessibility, street quality etc.) on a dependent variable (e.g. flat price) to be calculated.
- 3.2.13 The flat price model that provided the best explanation for variations in prices indicated that for flat prices the most significant independent variables were:
- Access to public transport (Average PTAL score);
 - Primary school performance (SAT score of schools within 1km);
 - Total number of households around the street (i.e. how densely developed and residential, as opposed to mixed use, is the street);
 - Combined scores of the four PERS criteria; and
 - Weekly average spend per person.

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- 3.2.14 This model explains around half of the variation in flat prices (see Appendix A for more details on the regression models). It would not be expected that it would explain 100% since data on factors that would also be expected to influence sale price such as condition of the property, size of the property, reputation of the area, availability of parking etc. were not available to be incorporated into the model.
- 3.2.15 The influence of quality of the street, as measured by the combined scores of the four PERS criteria, on flat prices can be calculated. The model assumes that these four criteria have an equal influence and indicates that a one-point increase in the PERS score of any one of the four criteria would add around value in the range of 1.57 - 1.68%, with a mid-point value of 1.62%, to each flat. This would represent £5,096, based on the price of an average flat in our sample. This is cumulative – a two-point increase in the score for one of the criteria would have double the influence and an increase in two for one criterion and of one in another would have treble the influence etc.
- 3.2.16 The retail Zone A rental price model that provided the best explanation for variations in prices indicated that for retail prices the most significant independent variables were:
- Average weekly spend per person;
 - Public transport accessibility (Average PTAL score);
 - % Non-domestic properties (which may be taken as a proxy for centrality within a retail area); and
 - Combined scores of the four PERS criteria.
- 3.2.17 This model explained around half of the variation in retail rental values. Again, 100% explanation would not be expected as data on footfall, business type, reputation, adjacent retail types, fashion and reputation of the area etc. were not available to be incorporated.
- 3.2.18 The influence of street quality, as measured by the four PERS criteria, on retail rental value was calculated. This found that a cumulative increase in value in the range 1.16% - 1.27%, with a mid-point of 1.22%, resulted. In terms of our sample an increase in the value of rental per square meter per annum of £5.41 would result from each one-point increase in any of the four PERS criteria scores.
- 3.2.19 The cross-sectional analysis indicates that, all other things being equal, a flat or a retail property on a high quality street will be worth more than one on a street of lesser quality and the aspects where improvement will add the most value are those that relate to personal security, lighting, environmental quality and maintenance.
- 3.2.20 The model results are cumulative and linear, i.e. without limit or diminishing returns. In practice it is not likely that value would continue to be added to properties ad infinitum, i.e. returns must begin to diminish at some point however we found no evidence that diminishing returns are experienced within the range of likely PERS increases.

3.3 Improved Street Quality and Property Value Uplift

- 3.3.1 The longitudinal analysis is designed to add another dimension to the results described thus far. While the relationship between street quality and value is important, the critical question is whether investment that improves street quality does result in increased value that can be

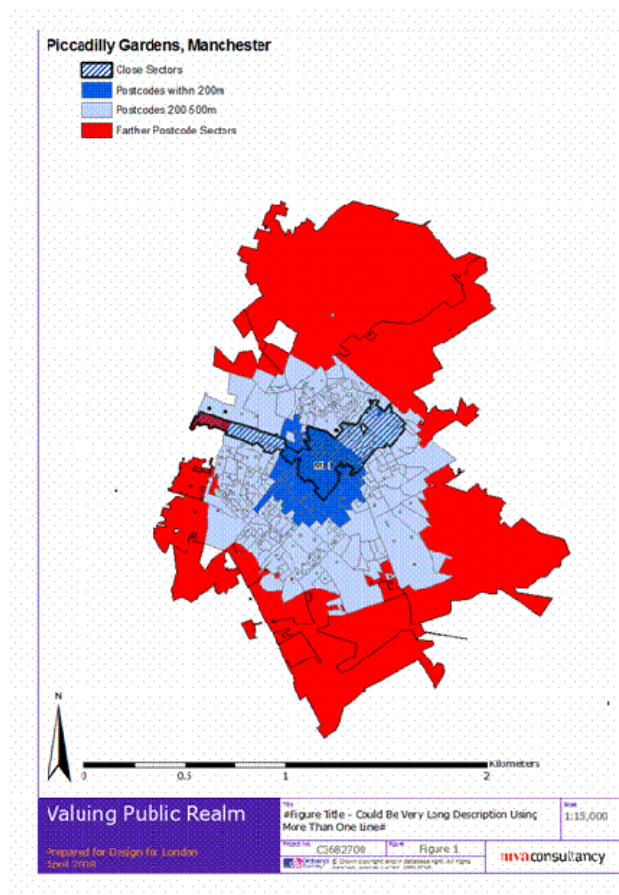
3 Results

realised in the marketplace. In order to test this, the MVA team gathered data on property price trends in 14 locations before and after the implementation of urban realm improvement schemes.

3.3.2 The detailed analysis of this strand of the research is described in full in Appendix B. This section presents the most significant findings.

3.3.3 Property value data were gathered for flats from 1995 to 2007 based on postcodes and postcode sectors, as detailed in Appendix B. They were collected for the site of the urban realm improvement itself and in 100m concentric bands around the site, up to 500m. Preliminary analysis of the data suggested that the 'sphere' of influence' of the scheme on prices tended to be around 200m (although this would probably vary by scale of scheme), therefore those properties within 200m of the scheme were classified as 'near' and those that fell between 200m and 500m were classified as 'far' and used as controls. Properties more than 500m away were deemed to be outside the commonly accepted range of a 'walkable neighbourhood' and therefore likely to be of potentially different character, served by different public transport routes etc. and therefore not a reliable comparator. An example of this classification is illustrated in Figure 3.1. The 'host' local authorities were contacted and, *as far as we were able to ascertain*, there were not additional significant schemes that would have affected the control samples.

Figure 3.1 Example Map of Postcodes (Manchester)



3.3.4 The analysis took the average flat price within 'near' and 'far' areas and compared:

- Prices in the earliest year for which data were available;
- Prices in the year at, or as close as possible to, the year in which the scheme construction was completed; and
- Prices for the most recent year for which data are available.

- 3.3.5 The analysis considered growth before and after the urban realm scheme for both the near and far area. The change in growth in the far area was assumed to represent the background trend in the town, which was applied to the near area to estimate what the growth would have been if there were no urban realm improvements.
- 3.3.6 The growth attributable to the urban realm improvements was calculated as the actual growth after the improvements at the near area minus the estimated growth without improvements.
- 3.3.7 The research found that prices in the near sector grew more than the prices in the far sector in 12 out of the 14 sites. The additional growth as a percentage of the before flat price in the 14 sites ranged from -4.3% to +28%. Across all the sites the average extra growth in the 'near sector' in the after period was 7% of the value of the properties at the time the scheme was completed.
- 3.3.8 At two of the schemes near properties experienced lower growth than at the far sites. This may be explained by impacts of construction or there may have been other local factors that influenced the relative growth of the two areas.
- 3.3.9 As noted in Chapter 2, the fourteen schemes were loosely classified by type. An analysis of the changes before and after the schemes found that the extra growth that the schemes stimulated varied according to the type of scheme:
- Materials and fixtures enhanced – 3% extra growth
 - Decluttering - 7% extra growth
 - Pedestrian priority schemes – 12% extra growth
- 3.3.10 This tentative finding should be taken with some caution for three reasons. Firstly the classification of schemes was loose since most schemes contain many different elements. They were classified according to their dominant features however there is a degree of arbitrariness at the margins. Secondly these figures are average increases and mask a wide variation in performance including some relative decreases in growth. Finally the overall sample of 14 schemes is too small for us to have statistical confidence in these findings.
- 3.3.11 Nevertheless, the different rate of growth in different types of scheme appears to suggest that those schemes that actively create priority for people on foot, that rebalance the use of the street in favour of pedestrians and that potentially change the way that space is allocated or used may add more value to properties than those that are primarily concerned with upgrading materials and street furniture.

3.4 Stakeholder Attitudes and Willingness to Pay

- 3.4.1 The analysis thus far suggests that there is a relationship between quality and value and that investment in increased quality of the urban realm will add value to private properties. The fact that this investment is often public and yet these beneficiaries are private raises fundamental issues of equity, fairness and appropriateness.
- 3.4.2 One means by which such investment can be generated is where it is made on a partnership basis by the public and private sector working jointly. This research strengthens the case for such an approach, particularly where significant schemes that may add high levels of value to private property are concerned. In order to make partnership funding viable however, it is necessary that private investors recognise the value that urban realm quality can add to their properties and be able, and willing, to invest. The final strand of this research then has focussed on key stakeholders, specifically developers, property owners and high street businesses for whom improved urban realm may add value to their property or, as a result of increased footfall, their business.
- 3.4.3 This aspect of the project was in two parts. Qualitative information was gathered via discussion groups. Following this a Stated Preference exercise focussed on high street businesses was conducted to identify which aspects of the urban realm are most valued by some potential investors and to what extent they would be willing to pay for their improvement.
- 3.4.4 A total of six discussion groups took place during February and March 2008. These consisted of:
- 2 groups of developers
 - 3 groups of retailers
 - 1 group of large retailers who are also property owners/developers
- 3.4.5 The key findings from these, which are interesting in themselves and which also informed the design of the Stated Preference research were:

Developers

- Urban realm was considered an important attribute in making investment decisions.
- Existing urban realm quality is more important for smaller schemes. Larger schemes generally create the opportunity to upgrade the urban realm as part of the scheme.
- Good quality urban realm was considered of more importance if the developer intended to sell the property.
- The relationship between urban realm, investment and prosperity was considered to be dynamic and interactive.
- Urban realm improvements are often incorporated as part of the branding and market positioning of a development.
- Other factors were also of great importance to investment decisions such as transport links, land costs, other land holdings nearby etc.

- There was an understanding of the benefits of partnership funding – using investment to lever further investment.
- Developers did not have any ‘scientific’ approach to investing in urban realm. It was decided on ‘gut feeling’.
- Developers tended to have a relatively fixed budget for schemes they develop, including allocations for urban realm, Section 106 funding etc. Once that allocation is spent they are not likely to commit more. Therefore they may cut urban realm spending if another element costs more than anticipated.
- Continuing maintenance, and an easily maintainable design, were considered critical to the willingness to invest. Developers suggested that the public sector did not always effectively maintain improvements they had funded.
- Developers were aware of a lag between investing in the urban realm and a concomitant increase in footfall and performance that would allow them to e.g. increase rents and other revenue.
- The detailed design of improvements is crucial – generic improvements were not considered effective.

Retailers

- Retailers felt that urban realm was important to supporting footfall and hence their turnover.
- Small retailers particularly argued that they operate at low margins and cannot necessarily afford in absolute terms or in terms of cashflow to contribute to improvements.
- Retailers tended to favour schemes such as security, decluttering and pedestrian priority that made access to their premises easier (although not all these attributes were positively valued in the subsequent Stated Preference exercises). They nevertheless wanted motorized access to be maintained and were ambivalent about initiatives such as street markets which they viewed as competitors.
- Retailers identified other issues of great importance to them such as public transport accessibility and parking.
- Retailers favoured improvements to the urban realm but did not necessarily expect this to lead to an immediate improvement in turnover. They cited other factors like demographics that would also need to change in order to attract more, or higher spending, customers as a consequence of the improvement.
- Particular attributes were identified as being critical to retailers, specifically Maintenance and Lighting, which match the results of the cross-sectional analysis.

3.5 Stated Preference

- 3.5.1 The Stated Preference research indicated that, in aggregate, high street businesses do recognise the value of urban realm to them and are willing to pay for its improvement.
- 3.5.2 This aggregate response however conceals significant levels of variation. A substantial proportion of our sample of respondents did not appear willing to pay anything for any urban

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realm improvement and consistently chose options within the questionnaire that resulted in no additional cost to themselves.

- 3.5.3 This to some extent reinforces the views stated in many of the discussion groups that many high street businesses, particularly independents, did not accept that they had the ability to pay even though they may acknowledge the benefits of urban realm improvements. Further, a number of the attributes tested, such as improved maintenance of footway surfaces and better cleansing of litter and graffiti, were considered by some discussion group participants to be core services which they already believed should be funded via existing business rates.
- 3.5.4 A reluctance to accept higher costs was most common among respondents who owned the business directly. It was not however confined to the independent sector, but was also prominently displayed by some respondents from high street chains. This may reflect current trading conditions or may indeed indicate that some respondents did not feel able to commit, however hypothetically, to any expenditure without higher authorisation.
- 3.5.5 The practical implication of this pattern of response for DfL is that when seeking to engage and negotiate with high street businesses to assemble funding packages a wide variation in responses is likely to be encountered with a significant proportion of businesses minded to refuse to cooperate. This suggests that frameworks such as Business Improvement Districts will be extremely important to encourage participation and to ensure transparency and fairness in the contributions of all commercial beneficiaries.
- 3.5.6 Notwithstanding the reluctance of some respondents to accept higher outgoings in exchange for improvements to urban realm, the net response, including all respondents, was a willingness to make a one-off payment in the range 1.03-4.15% of their existing business rate (mid point 2.59%) per metre squared of retail Zone A for each one-point increase in one of the four selected PERS attributes.
- 3.5.7 Relative to the base position this gives a cumulative willingness to pay for improvements to each attribute as summarised in Table 3.1, below.

Characteristic in PERS	-3	-2	-1	0	1	2	3
Lighting		0	185	370	566	762	
Obstructions			0	139	278	556	
Effective Width			0	255	511	766	874
Quality of environment			0	432	865	1184	
Maintenance		0	526	1053	1232	1411	1590
Surface Quality	0	536	1072	1608	2144	2680	3216

Table 3.1 Cumulative Willingness to Pay for improvements in selected PERS attributes. Unit=£s. N.B. attributes highlighted in blue indicate not included in the cross sectional analysis

- 3.5.8 This stated willingness to pay contrasts with a revealed willingness from the cross-sectional analysis of 1.22% increase in retail Zone A rental per annum for each one-point increase in one of the four selected PERS attributes.
- 3.5.9 This apparent over-valuation of benefits by respondents to the Stated Preference questionnaire is not entirely unusual in that respondents to SP often state a higher value than they are in fact willing to pay. It does however provide some indication that the values arising from the cross-sectional analysis are not above what high street businesses consider reasonable. Although it could be argued that the negotiating position taken by DfL with regard to the value of improvements should be at some intermediate point between the stated preference and the revealed preference (cross-sectional) values, we recommend that in practice the more conservative values arising from the cross-sectional analysis are likely to be more realistic and within the range of acceptability to businesses in aggregate, albeit not to the liking of those businesses not willing to make any payment to improve the urban realm.
- 3.5.10 Respondents from high street businesses did not equally value all the PERS attributes. The greatest value was attached to improvements in footway surface quality, maintenance and quality of the environment. Lower values were attributed to personal security and lighting, although this may reflect the fact that the survey respondents primarily operated during the daytime economy and the survey was carried out during the summer.
- 3.5.11 Respondents valued footway surface quality particularly highly in the SP options however this element was not identified in the cross-sectional model as offering particularly strong explanation for variations in prices. This suggests that while PERS disaggregates the pedestrian environments into discrete categories, they are related to other categories and do interact. Conversely it is possible that the SP respondents overstated their interest in this particular attribute, perhaps because physical conditions such as footway condition are easier to convey pictorially in an SP exercise than ambient conditions such as personal security.
- 3.5.12 Reflecting the ambivalence towards motorized traffic that was expressed by discussion group members, respondents gave split responses to attributes such as pedestrianisation and the introduction of 20mph limits. This may indicate high street businesses' perception of their reliance on motorized customers or, at the least, concern at losing even a marginal element of their business to competitors if motorized traffic was to be restricted.

4 Discussion and Conclusions

4.1 Discussion

- 4.1.1 This report has summarised the results of research into urban realm and property values. It has found some key relationships, which will be summarised below. It is important however that the findings be viewed in context. A number of factors may have influenced our findings and these are discussed in this section.
- 4.1.2 The cross-sectional analysis was conducted using data solely from Greater London. The longitudinal analysis used data from Greater London and from elsewhere in the UK. It seems from the longitudinal analysis that the level of extra growth delivered by urban realm schemes in London was lower on average than schemes outside London (although the longitudinal estimates have to be treated with caution due to the low sample size – this is an indicative result but may be due to random variation). If this is indeed the case it is important for two reasons:
- It may indicate that residential property in London has been at the limit of affordability and therefore people are not able to pay significantly higher prices for residential property, regardless of the nature of improvements; and
 - Values applied to proposed schemes in London for added value to residential properties may need to be at the lower end of the range we have found.
- 4.1.3 The cross-sectional analysis has researched the relationship between PERS scores and property values. PERS was not designed as a tool for analysis of the urban realm, it is a tool that assesses walkability. There are therefore some attributes which urban design theory suggests ought to affect street quality that are not explicitly tested in PERS, for example continuity and enclosure. As PERS does not capture information on these topics we have been unable to test their influence on property values. While we have found that some attributes particularly appear to affect property values then, this should not be considered an exhaustive list.
- 4.1.4 During the course of this study we have developed a PERS-style framework that is based around urban design principles and piloted its use at some of the longitudinal case-study sites. Initial findings suggest that this may capture more fully the urban design attributes, however significantly more development would be required to validate this approach and relate measurements of urban realm quality taken using this framework to property values.
- 4.1.5 The PERS data used in this analysis were pre-existing, having been commissioned by TfL to review conditions on the Transport for London Road Network, which is comprised of roads of strategic importance to transport in London. Consequently all of the links included in our analysis have tended to be ones carrying significant traffic. This has not allowed us to assess conditions in which traffic flows are lower to see if this attribute affects property values. The PERS heading Quality of Environment was found to be a significant contributor to property values and this includes some assessment of the environmental impacts of traffic, such as noise, air pollution, spray etc. Nevertheless, there would be merit in gathering PERS data on quieter roads in order to test whether traffic flow is correlated in any way with property value.

- 4.1.6 As explained in the introduction, this study sits within the context of a number of pieces of work carried out by Transport for London, Design for London and others to investigate the economic, social and personal benefits of better streets. We have identified some relationships between street quality and property values however further synthesis will be required in order to build a complete business case and model.

4.2 Key Findings

- 4.2.1 We set out to investigate the relationship between street quality and property value; the degree to which value is accessible to uplift by improvements in street quality; and the attitudes and willingness to pay for improvement of private sector stakeholders.

- 4.2.2 We believe our key findings to be:

- Property prices are higher where street quality is better.
- Improvements to street quality, particularly those that change the way in which the space is used, can add value to property
- PERS can be used as a means of measuring street quality that gives statistically robust results
- PERS can be used to predict schemes' ability to improve quality, and hence improve property values, all other things being equal
- There is a wide variation in individual high street business representatives' willingness to pay anything at all for improvements to the urban realm
- Nevertheless in aggregate high street businesses state a willingness to pay in excess of the values derived from the cross sectional analysis – i.e. they say they are willing to pay more than they currently do.
- There is a case for testing the willingness of residential property purchasers and investors to pay for urban realm improvements given that they are a significant beneficiary such investment.

4.3 Application

- 4.3.1 These findings provide a basis for Design for London and private stakeholders to engage in discussions regarding appropriate levels of partnership investment in the urban realm. We present in brief a worked example below indicating how our results may be applied to inform such discussions.

- 4.3.2 The Cut in London, which runs parallel to the River Thames, has recently undergone urban realm improvements, including the widening and repaving of footpaths, improved lighting, planting trees and new pedestrian signage. The photographs below provide an example of before and after the improvements.



Before



After

4.3.3 A PERS audit was undertaken following the urban realm improvements and an estimate of the previous PERS score derived from photographs and site plans. Table 4.1 shows the average PERS score across the four links into which the audit sectioned The Cut before and after the improvements.

Table 4.1 Before and After Average PERS Score

PERS Attribute	Before Score	After Score	Difference
Personal Security	-2	2	4
Lighting	-1	2	3
Quality of environment	-2	2	4
Maintenance	-3	3	6
Gradient	-1	2	3
Surface Quality	-3	2	5
User conflict	-1	1	2
Obstructions	-2	0	2
Dropped kerbs	-1	0	1
Permeability	-2	0	2
Colour contrast	-2	-1	1
Legibility	-1	1	2
Effective Width	-1	3	4
Tactile information	-1	1	2
Total	-23	18	41

- 4.3.4 Only the increases in the PERS attributes that are included in the cross-sectional model have been used to calculate the benefits to retail and residential property prices: Personal Security, Lighting, Quality of Environment and Maintenance. Therefore the difference in the PERS score to be used in the calculation of the benefits is 17 (4 + 3+ 4 + 6).
- 4.3.5 The data from the residential model showed that an increase in one PERS point would increase a residential flat price by 1.62%. Based on two flat sales in the last two years, the estimated price of a flat on The Cut is £287,500. This implies that each PERS point increase could mean an increase of £4,657. Therefore the 17 point increase indicates a potential one-off increase of £79,177 per property. According to the National Statistics website, there are approximately 120 flats in the output area surrounding The Cut. This would imply a benefit of £9.5 million to residential flat prices.
- 4.3.6 The final retail model gave an increase of 1.22% per square metre of retail Zone A space. The Valuation Office Agency website shows an average retail zone A value of £311 per square meter on The Cut. This would indicate that one PERS point increase could increase the value of Retail Zone A by £3.79/m² or £64/m² for the 17 point increase. From the VOA website there are approximately 26 business premises with Retail Zone A space, totalling 659/m². Therefore the urban realm improvements would indicate a c.£42,000 increase in the rental value of retail space and therefore a potential increased yield for the owners of those premises.
- 4.3.7 In the preceding study that considered the value of urban realm to individual members of the public, the decision was made to arbitrarily 'cap' the permissible increase in any one PERS attribute at 3 points in order to discourage over-estimation of benefits. If this principle is applied the example of The Cut it gives a revised increase in attributes of 12 (3+3+3+3). This gives more conservative values of £6.7 million added to the value of flats and £30,000 to Retail Zone A rental value.
- 4.3.8 As noted previously in this report, the benefit to high street businesses only represents a part of the total value of a urban realm improvement. From Phase 1, the SP results showed that individual members of the public's top four attributes for improvement were:
- Quality of Environment;
 - Personal Security;
 - Permeability; and
 - User Conflict.
- 4.3.9 The businesses showed that their priorities were the following (based on the top four average WTP across the PERS scores):
- Surface Quality;
 - Quality of Environment;
 - Maintenance; and
 - Effective Width.
- 4.3.10 This shows that individuals and businesses value different PERS aspects and therefore it is important fully audit streets and to take all beneficiaries into account when developing business cases for urban realm improvements. There is however, some overlap between the

attributes that businesses and individuals value compared with the attributes found most strongly to influence the market values of flat and retail properties: Personal security, Lighting, Quality of Environment and Maintenance.

- 4.3.11 A fuller assessment of the value of the scheme at The Cut can be developed by incorporating value added to the general public, using the values developed by Accent Market Research during Phase 1 of this programme. Based on flow counts of pedestrians taken during the off-peak we estimate 1,287,720 visitors per annum. The value of the 17 PERS point increases, according to the previous study (and assuming no diminishing returns) would be 73p per person per minute. Assuming a typical time of 5 minutes to walk the length of The Cut we can apply the value of 73p per person per minute and calculate a total of £4.7 million per annum of value to individual members of the public. This figure may over-value the ambience benefits to the individual and over-state their real willingness to pay, nevertheless, it is indicative of an order of effect.
- 4.3.12 This worked example is not presented as a business case, rather as an indicator of the scale and types of value that may arise from a particular scheme and a means of demonstrating how the results of this research, and the previous study, may be used to derive values that could support a fuller business case and a discussion with the private sector.

4.4 Conclusion

- 4.4.1 This study has confirmed the indicative results of previous studies that **street quality adds economic value**. Our analysis has added statistical analysis of market values to these previous findings and has identified values that we believe are credible and reasonable by which the effect of schemes can be assessed.
- 4.4.2 It is interesting that the PERS attributes most closely associated with higher property values are those that relate to basic and intrinsic qualities that make places pleasant, secure and enjoyable places to be.
- 4.4.3 In arriving at these conclusions it is important however to reiterate that this study has focussed on one set of outcomes: property values. PERS is intended to give a complete assessment of streets against a wide range of criteria and outcomes that extend beyond their influence on property values. A full PERS audit is usually required in order to identify the complete performance of a street for pedestrians, including compliance with good practice under the Disability Discrimination Act and functionality as part of the pedestrian network. In using PERS for the purpose of this study and identifying a subset of audit criteria as being of significance then there is a risk of overlooking the fuller assessment of streets that PERS offers and the value that high quality streets offer in other ways including:
- More active lifestyles leading to better public health
 - Stronger and more cohesive communities
 - Better chances for independent living for the vulnerable
 - A more inclusive society
 - Better quality of life
 - Potential modal shift leading to reduced CO2 emissions

- 4.4.4 It has been beyond the scope of our study to consider any of these, however this is not to overlook or reject their importance. It is possible, even probable, that some of the aspects of streets measured by PERS that we have not found significant in this study can directly contribute to some of the above outcomes and should be valued accordingly.

Appendices

Introduction

1 Introduction

- 1.1 The purpose of this study was to understand the relationship between street quality and property value and to provide an understanding of the attitude of private stakeholders towards investing in improved quality. This will provide evidence to support business cases for investment in street quality.
- 1.2 The study has been divided into three topics, which are discussed in more detail in Appendices A to E:
- The relationship between street quality and the sale price of flats and the rental value of retail premises;
 - The uplift in property value that results from improvements to street quality;
 - The attitude of private investors and businesses to public realm quality.

Appendix A – Relationship between Street Quality and Property prices

2 Introduction

2.1 This section describes the data collected and the methodology used to understand the relationship between street quality and the sale price of flats and the rental value of retail premises. It also presents the results from the statistical analysis.

3 Data Sources Collected

3.1 In order to understand the relationship between street quality and property value, three types of data have been collected:

- Measures of street quality;
- Property rental and sale price data;
- Socio-demographic data.

Measures of Street Quality

3.2 A key part of the work was to establish a measure of street quality that could be consistently used across the two phases of this programme of work. For this reason PERS was used, which provides a standardised method of assessing street quality.

3.3 PERS is the Pedestrian Environment Review System, developed for and in partnership with TfL, by staff at the Transport Research Laboratory from 2002 to 2006. It provides a score on a fixed seven point scale from -3, indicating substantially inadequate provision, to +3, indicating very high quality provision, for each of the attributes in Table A3.1. The PERS software applies weighting factors to scores given by Auditors. Either the weighted or unweighted scores may be used in analysis.

Table A3.1 Overview of PERS Attributes

Review Heading	Definition
Effective width	'Effective width' is the space within a link available for pedestrian movement.
Dropped kerbs	'Dropped kerbs' addresses the provision of adequate continual access along links which are interrupted by access roads or junctions with minor side roads (which are not subject to a separate crossing review). It is specifically concerned with the inconvenience and physical

Review Heading	Definition
	barrier that a lack of adequate dropped kerbs can present.
Gradient	'Gradient' refers to the steepness or otherwise of a link, any crossfall on the link and the inclusion of features such as steps or ramps.
Obstructions	'Obstructions' are physical barriers to pedestrian flow or line of sight.
Permeability	'Permeability' is the extent to which pedestrians can make informal movements from the link across the adjacent carriageway in order to serve their own personal journey purposes.
Legibility	'Legibility' concerns the ability of pedestrians to orientate themselves in relation to their destinations. Legibility does not include consideration of tactile information since this is assessed separately.
Lighting	'Lighting' deals with the quality of lighting on a link, including regularity, intensity, colour and consistency.
Tactile information	'Tactile information' concerns the provision, accuracy and quality of surfaces that convey information to blind and partially sighted people.
Colour contrast	'Colour contrast' requires consideration of colour and tonal contrast as an aid to orientation and the protection of hazards to partially sighted pedestrians.
Personal security	'Personal security' deals with environmental features that relate to pedestrians' vulnerability to, or fear of, crime.
Surface quality	'Surface quality' deals with the evenness, absence of trip hazards and frictional qualities of surfaces on which pedestrians walk.
User conflict	'User Conflict' deals with hazards to pedestrians as a result of making conflicting movements with other users.
Quality of environment	'Quality of the environment' concerns the degree to which a link is pleasant to use. This scoring category is concerned with the general ambience of a link.
Maintenance	'Maintenance' is related to environmental quality but more specifically reflects the effectiveness of the management of a facility. Damage to street furniture or other facilities, maintenance of planting, the accumulation of litter, fallen leaves, chewing gum or standing surface water can all affect pedestrians' perceptions of the environment.

- 3.4 PERS audits have been undertaken for Transport for London across 62 different London sites. Each audit site is divided into links, crossings and other types of environment such as public spaces. For each link (or section of street) a PERS score is provided for each individual

attribute and for the aggregate quality of the link. The link scoring framework forms the basis of the case studies that were used for this analysis.

Property Prices and Socio-demographic Data

- 3.5 Residential and business property prices depend on a wide range of factors; therefore it was important to collect as much information as possible about each of the PERS audit sites. The data used, sources and a description of the datasets are included in Table A3.2. Table A3.2 also describes how the data was used and any assumptions made when using the data.
- 3.6 The data collected varied by year of collection and geographical area. In order to make the data comparable it has been necessary to:
- *Factor the data to a common year*, for example, the property price data and the population information. The year chosen was November 2007, which was the date of the most recent PERS audit used in the analysis. Information about house price growth was obtained from the Land Registry to factor all of the property price data to November 2007. Information about the growth in jobs, population and households were obtained from the Greater London Authority (GLA);
 - *Estimate the data for the same geographical area*, the PERS audit link. The data for each PERS audit link has been calculated using a weighted approach. For example, if a link crossed two output areas 1 and 2 and 60% of the link is in area 1 and 40% in area 2. Then the population assumed to be living around link 1 is $60\% * \text{population 1} + 40\% * \text{population 2}$.

Table A3.2 Overview of Data Sources

Data Set	Area	Year	Source	Description	Use	Assumptions
Population Data						
Population and number of households in each area	Output Area	2001	Census 2001	The number of households and people in each output area.	Data used to calculate weighted averages of other quantities, or expenditure per person, etc.	
Household Tenure	Output Area	2001	Census 2001	The proportion of people owning or renting their houses in an area	Used directly in the residential property model.	Assumed that the household tenure in 2001 is representative of 2007.
Population changes since 2001 Census	Borough	2001 to 2007	Greater London Authority	Changes in population, households and jobs between 2001 and 2007.	This information was used to expand the 2001 population, household and jobs to 2007.	
Indices of Multiple Deprivation (IMD)	Super Output Areas	2004	Communities and Local Government website http://www.communities.gov.uk/archived/general-content/communities/indicesofdeprivation/216309/	Data is provided for each of the 7 domain indices (Income, Employment, Health Deprivation and Disability, Education Skills and Training, Barriers to Housing and Services, Crime, Living Environment) for each of the 32482 Super Output Areas in England.	The combined score for each Super Output Area was used in the residential property model as an estimate of the socio-demographics of an area.	Assumed that the indices of Multiple Deprivation in 2004 are representative of 2007.
Household Expenditure	Super Output	2001/02 and	Family Spending Reports: Expenditure & Food Surveys, National	Provides information on the expenditure on different goods	The data by income decile was used to estimate household expenditure by Super Output	

Data Set	Area	Year	Source	Description	Use	Assumptions
	Area	2005/06	Statistics website http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=361	by household.	Area. The IMD provides an income decile for each Lower-level Super Output Area which was matched with the income decile from the household expenditure data.	
Number of jobs	Output Area	2001	Census 2001	The 2001 Census provides the number of people travelling to an output area to work.	This information was used as a proxy for the number of jobs in an output area and factored to 2007 using the GLA growth rates.	
% Employed	Output Area	2001	Census 2001	Percentage of people who are in employment in each area.		Assumed that the employment rate in 2001 is representative of 2007.
Residential Property Information						
House prices	Full Postcode	2000 to 2007	Net house prices: http://www.nethouseprices.com/index.php?con=sold_prices	The website provides information on sales of residential properties, sourced from the Land Registry. The information includes, date of sale, price of sale and type of property.	Only flat prices were used in the residential property model as 75% of all properties sold in the specified postcodes were flats.	
House price growth	Borough	2000 - 2007	Land Registry website: www.landreg.gov.uk	The data extracted from this website were indices of	In order that the sale prices could be properly compared	

Data Set	Area	Year	Source	Description	Use	Assumptions
Business Property Information				average house prices, with April 2000 set at an index of 100, and the latest data at the time of collection being for October 2007. NB: Not broken down by type of property.	across different postcodes and, hence, audit sites, it was necessary to apply growth factors to the sale prices to provide estimates of what they <i>would have been</i> had they all been sold on the same date, November 2007.	
Rateable values and floorspace values	Postcode	2005	Valuation Office Agency website: http://ratinglists.voa.gov.uk/irl2k5/mainController?action=InitialiseApp&listYear=2005&lang=E	The value of Zone A non domestic floorspace in £/m ² .	The value of Zone A non-domestic floor space was used as the dependent variable in the regression modelling.	The data collected is at 2005 prices and has not been factored to 2007. This is because the rateable values have not changed between 2005 and 2007.
Amount of money spent by people in high street areas	High Street Areas	2004	GLA, http://www.london.gov.uk/mayor/planning/docs/towncentrehealthchecks2006_annex5_section3.pdf	Total money spent by all people in each town centre in all businesses, shops, restaurants and entertainment. Information only provided for a limited number of sites and roughly mapped between town centre and PERS audit site.		

Data Set	Area	Year	Source	Description	Use	Assumptions
Domestic / Non-Domestic land use splits	Output Area	2005	Office for National Statistics: http://www.neighbourhood.statistics.gov.uk/dissemination/datasetList.do?\$ph=60&updateRequired=true&step=1&CurrentTreeIndex=-1&Expand14=1#14	Provides data on the total area of different land types (for example, domestic, non-domestic, green space), by output area.	Used to identify what proportion of an area was domestic or non-domestic.	
Other Information						
PERS audit data	Street Level	2003-2007	Transport Research Laboratory Limited	The PERS data provides a standardised method of quantifying the quality of the street environment. TRL has undertaken 62 sites, with a total of 1,088 individually audited links, for Transport for London, and provided the unweighted scores from -3 to +3 that have been assigned to each of the 'link' categories within the PERS software.	The scores were aggregated and weighted in a number of different ways during the analysis and sensitivity tests undertaken as to the impact of these on the residential and retail property prices.	The PERS audits have taken place since 2005 and it is assumed that the audit results are representative of the current quality of the street. The majority of the PERS audits have taken place on strategic road networks or around major interchanges.
PTAL Data	PTAL Area	2007	Transport for London	Provides a score of how well served the area is for public transport		

Data Set	Area	Year	Source	Description	Use	Assumptions
School Performance Data	School	2007	http://www.dcsf.gov.uk/performancetables/	Provides the Key Stage 2 results for each Primary School in England and the proportion of pupils achieving 5 or more A*-C including English and maths for secondary schools..	School results for those within certain distance bands were averaged and used in the residential model.	
Reference Tables						
GIS boundaries of Output Areas	Output Area	2001	Census 2001			These were used to construct links between the PERS audit data and Census information.
GIS boundaries of postcode areas	Postcode and Output Area	N/A	CodePoint			These were used to construct links between postcode-level data, Census data and PERS audit information.

4 Overview of Data Analysis

4.1 The aim of the analysis is to understand the drivers behind house prices and business rents and the extent to which urban realm impacts upon the price of properties. The analysis consisted of a number of sections:

- Mapping key attributes to understand how they varied across the links and geographical areas (Section 4);
- Plotting each of the attributes by average flat price / retail zone A rent to understand the relationship between the attribute and price (Section 5);
- Developing models including multiple attributes to estimate the price of flats / retail zone A rent (Section 5 and 6);
- Calculating the effect a one increase in the total PERS score could potentially have on flat and retail rental prices (Section 6).

Maps of Key Attributes

PERS Audit Sites

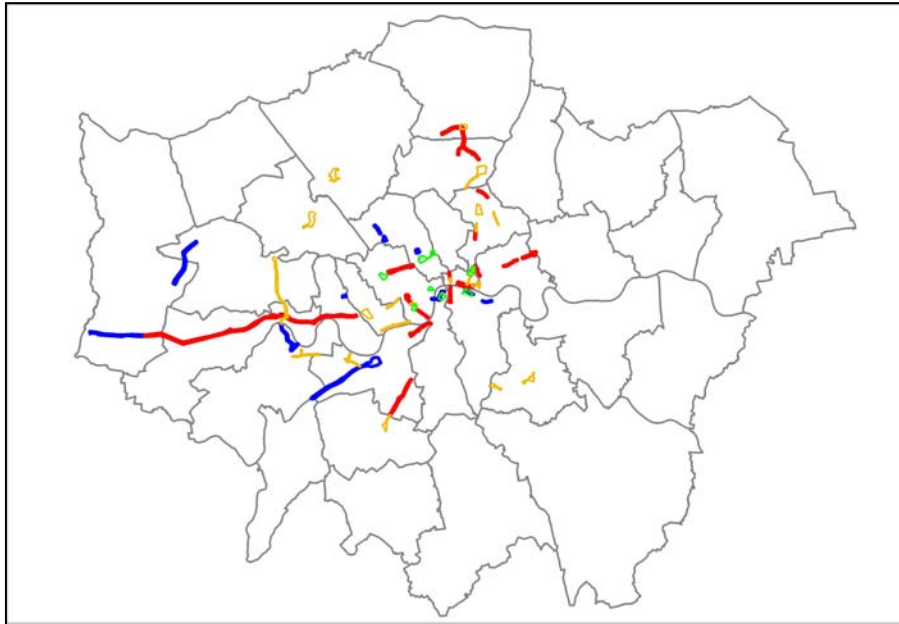
4.2 Figure A4.1 provides an overview of the geographical location of the PERS audit sites. The different colours represent the four phases of the PERS audits, which were phased according to the financial year in which TfL commissioned them:

- Yellow – Phase 1, 2005/06
- Red – Phase 2 2006/07
- Blue – Phase 3 2007/08
- Green – Interchange 2007/08

4.3 The majority of the PERS audits have been in the North and West of London and few audits have been undertaken in the South and East. All of the audits are strategic routes for London, either around key station interchanges, such as Victoria and Kings Cross or along the Transport for London Road Network (TLRN).

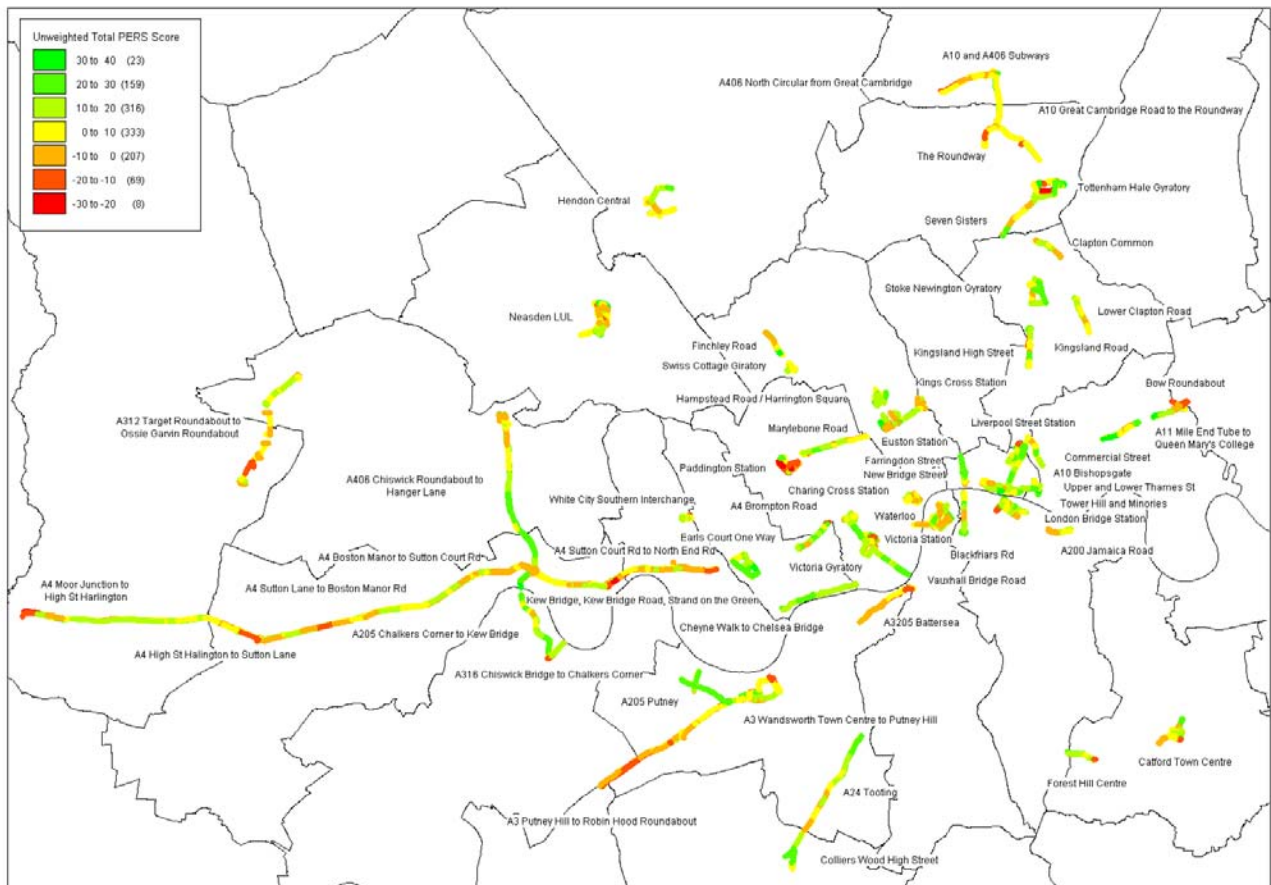
4.4 A total of 1088 link audits were available from the PERS Audit Programme.

Figure A4.1 Overview of PERS Audit Sites



4.5 Figure A4.2 shows a map of the sum of the unweighted PERS score by link, with the number of links included in each category shown in brackets in the key. The greener links represent the better quality street environments and the red links the poorer environments. Across the 62 sites there is a reasonable distribution of different street environments across London included in the analysis.

Figure A4.2 Map of Total Unweighted PERS Score by Link



Access to Public Transport

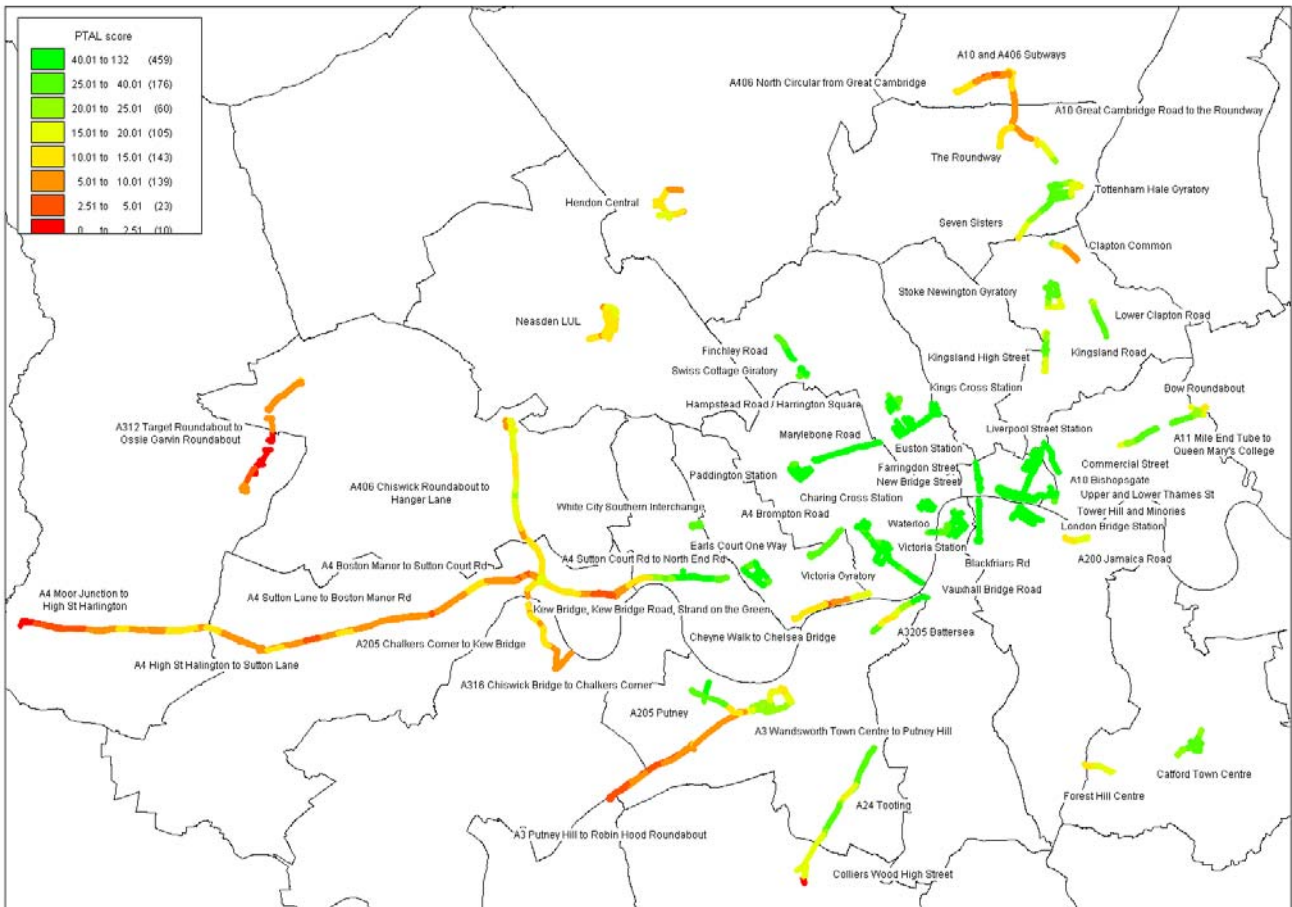
- 4.6 Transport for London provided a set of contours across London showing the level of public transport accessibility as a series of eight categories (PTAL score). In order to calculate an average for each PERS link, a mid-point for each PTAL category was used, as shown in Table A4.1.

Table A4.1 Mid-Point Assumed for each PTAL Score

Original PTAL Score	Lower Bound Value for PTAL Score	Upper Bound Value of PTAL Score	Implied Mid-Point (Used in Calculations)
1a	0.01	2.5	1.255
1b	2.51	5	3.755
2	5.01	10	7.505
3	10.01	15	12.505
4	15.01	20	17.505
5	20.01	25	22.505
6a	25.01	40	32.505
6b	40.01	132	86.005

- 4.7 Figure A4.3 shows a map of the average PTAL scores by link. The higher the PTAL score (indicated by green on the map), the greater accessibility a link has to public transport.

Figure A4.3 Map of Average PTAL Score by Link

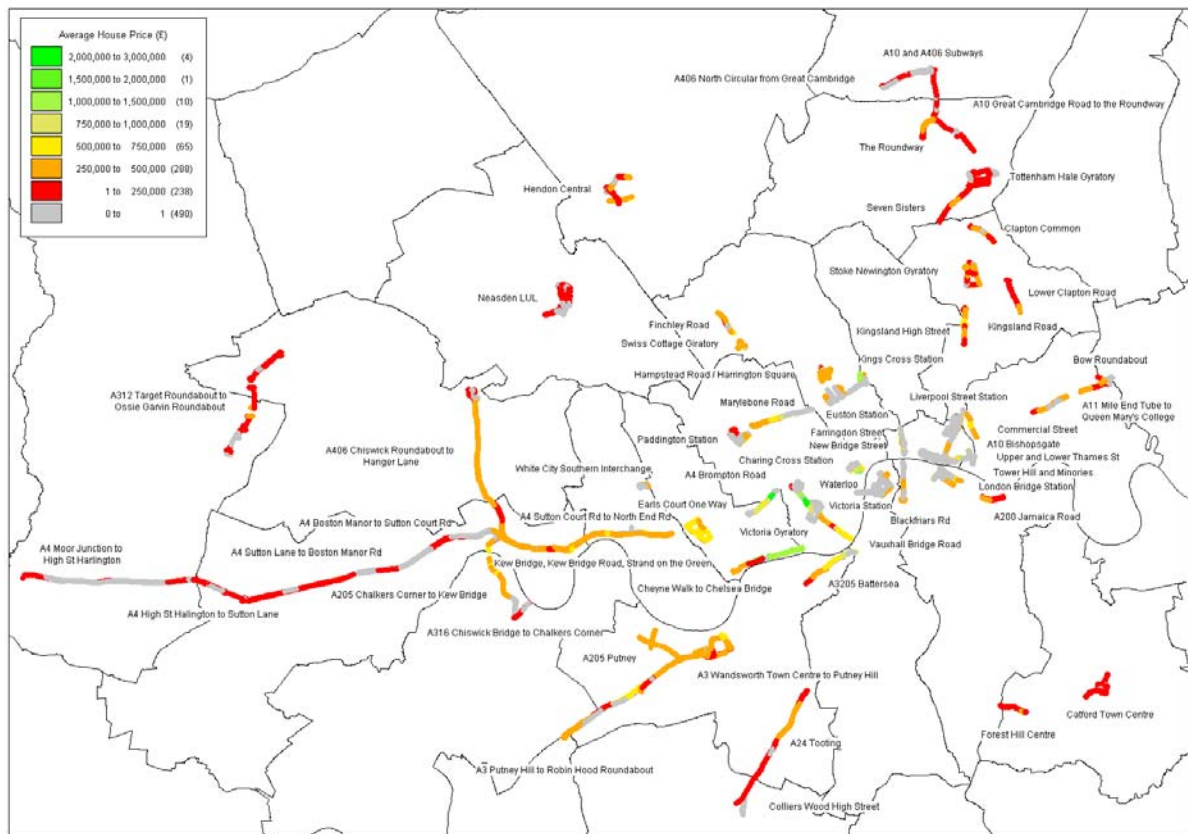


- 4.8 Not unsurprisingly, central London areas (those round Waterloo and Victoria Stations) have extremely good access to public transport compared with those on the far west of London, such as the links along the A4.

Residential Property Data

- 4.9 Not all of the postcodes intersected by links had property sales data available. With the exclusion of non-flat properties, property link-averaged data was obtained for 619 links out of the total of 1088. Each of the 62 audit sites is, however, crossed by at least one of these 619 links for which property values have been calculated.
- 4.10 Figure A3.4 shows the average flat price by link. The grey links indicate that there have been no flat sales in the area since April 2000, which are predominately centred on retail / business areas on main roads.
- 4.11 Red indicates the cheaper properties and the green the most expensive. Small areas of green are seen around the Victoria Station, Chelsea and Kensington areas.

Figure A4.4 Map of Average Flat Prices by Link

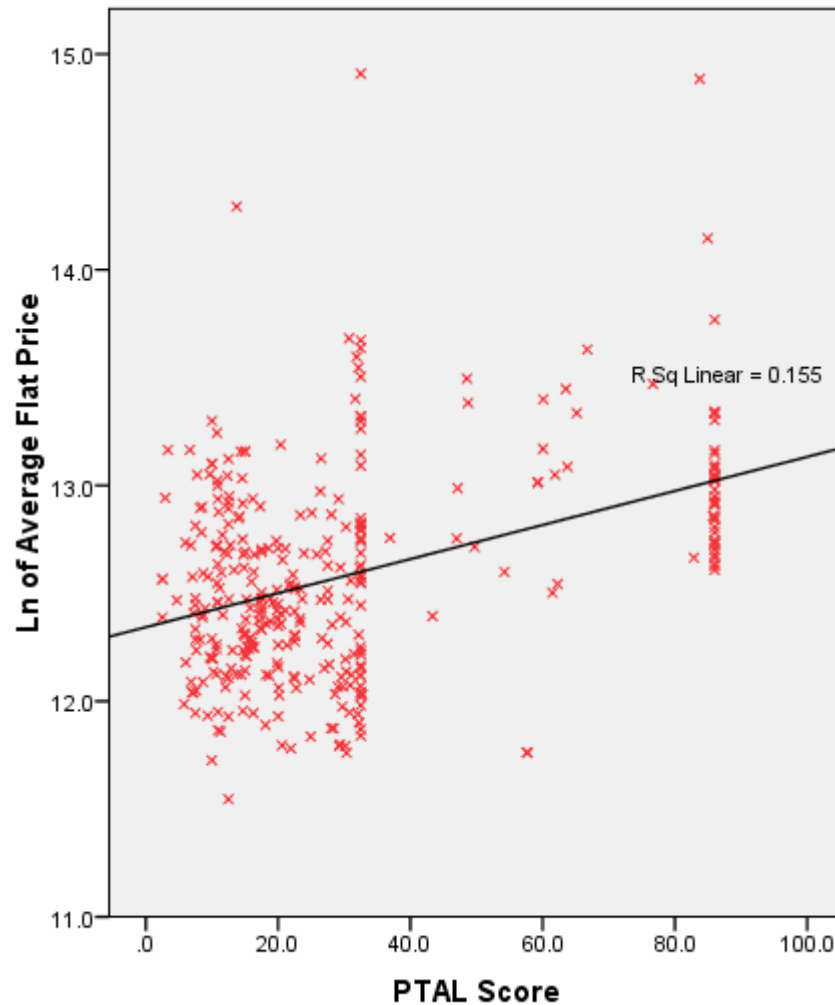


Retail Property Data

- 4.12 Data on floor space values was obtained from the Valuation Office Agency (VOA). The value of business premises, particularly retail premises, is calculated using a 'zoned' approach. It involves putting different values on the sales spaces in different zones within the premises. The most valuable zone (called Zone A) is the area closest to the shop front. The next zone (Zone B) is the area of sale space beyond Zone A and if the shop is large enough the remaining sales space is included in Zone C. In general, the depth of each zone is 6.1 metres, so the total amount of space within each zone depends on the width of the sales space (the value may also vary depending on the position and location of the shop).
- 4.13 Only the Retail Zone A data was used, as it is the most expensive and desirable of the retail spaces as well as having more data available. The data used was from 2005 and was not altered to another year's currency as no revaluation has taken place since 2005.
- 4.14 Of the 1,088 audited links, 604 had Retail Zone A space values. Figure A4.5 shows the average retail Zone A price per metre squared for each link. As with the property values, the grey links indicate that there was no retail Zone A information for these links. The green links indicate the most expensive areas and red, the cheapest.

PTAL scores. As this is increasing, there is a positive relationship between the PTAL score and flat price. E.g. as the access to public transport improves, the flat price increases. The R-square of 0.155 indicates that approximately 16% of the flat prices are explained by the PTAL score.

Figure A5.1 Plot of PTAL Score against Average Flat Price for each PERS Audit Link



5.4 Table A5.1 shows a summary of the results from the plots using all of the links with residential flat prices, sorted by the attributes with the greatest explanatory power of flat prices. The following relationships between the data and residential flat prices were found:

- The higher the weekly expenditure of residents (either per person or per household), the higher the price of flats;
- The better the access to public transport, the higher the price of flats;
- The better performing both the primary and secondary schools were in an area, the higher the price of flats;
- The more deprived an area is, the lower the price of flats;
- The more households there are, the higher the price of flats; and

- The higher the total PERS score from all of the unweighted attributes, the higher the flat price.

Table A5.1 Summary of Plot Results against Natural Log of Residential Flat Prices

Attribute	Relationship	R-Square (all links)
Average spend per person per week	+	0.27
Average spend per household per week	+	0.21
PTAL Score	+	0.19
Average Score of Primary Schools 1km	+	0.08
Average Score of Secondary Schools 1km	+	0.08
Indices of Multiple Deprivation	-	0.08
Average Score of Primary Schools 0.5km	+	0.07
Total Households	+	0.06
% Employed	+	0.04
All unweighted PERS Score	+	0.02
Jobs per Adult	+	0.02
% owning property	-	0.01

- 5.5 A Semi-log model was developed, where the dependent variable is logged and the independent variables are linear. Semi-log models are common where there is a large spread of values in the dependent variable, such as house prices or earnings. A 'general to specific' regression approach was used, where all of the variables were used to start with and the insignificant variables removed one at a time to understand the effect they had on the predictive power of the model.
- 5.6 Links where the percentage of domestic land use (e.g. residential properties) is less than 10% were excluded from the analysis to ensure that a minimum amount of residential property was in the area. The model also excludes links where the average flat price is greater than £1m.
- 5.7 The correlation between the variables was also examined to ensure that highly correlated variables were not both included in the model. Table A5.2 shows the Pearson correlation matrix between the variables shown in Table A5.1, with the exception of Jobs per Adult and % owning property. Cells highlighted in grey indicate where the Pearson correlation coefficient is greater than $|0.45|$. The table suggests the following relationships:
- The higher the weekly spend per person, the less deprived an area is;
 - The higher the SAT Scores of the primary schools within one kilometre are, the less deprived an area is;

- The higher the percentage of people employed in an area, the lower the indices of multiple deprivation are.

Table A5.2 Correlation between Variables (Pearson Correlation Matrix)

	Weekly Average Spend per Person	PTAL Score	Sum of all Unweighted PERS Scores	Total Households	Average SAT Score of Primary Schools within 1km	Indices of Multiple Deprivation	Employment Rate
Weekly Average Spend per Person	1.000	-0.090	0.058	0.160	0.505	-0.727	0.000
PTAL Score		1.000	0.172	0.043	0.023	0.272	-0.000
Sum of all Unweighted PERS Scores			1.000	-0.024	-0.021	0.052	-0.000
Total Households				1.000	0.084	-0.006	0.000
Average SAT Score of Primary Schools within 1km					1.000	-0.595	0.000
Indices of Multiple Deprivation						1.000	-0.000
Employment Rate							1.000
Average % GCSE Grades in Secondary Schools within 1km							

5.8 The equation of the initial model shown in Table A5.3 is:

$$\ln(\text{Flat Prices}) = \alpha_{PTAL} \cdot \text{Av.PTALScore} + \alpha_{SAT} \cdot \text{SATScore1km} + \alpha_{hold} \cdot \text{TotalHHolds} + \alpha_{PERS} \cdot \text{UnweightedPERS} + \alpha_{spend} \cdot \text{Weeklyspendperperson} + \text{constant}$$

where AvPTAL Score, SATScore1km, TotalHHolds, UnweightedPERS, Weeklyspendperperson is the value of the attribute for a particular link. The parameters $\alpha_{PTAL}, \alpha_{SAT}, \alpha_{hold}, \alpha_{PERS}, \alpha_{>£1m}, \alpha_{spend}$ and constant are those to be estimated from the multiple regression model.

5.9 Table A5.3 shows the coefficient is the parameter to be used in the equation, the standard error provides an indication of the spread of the parameter and the t-statistic indicates whether the parameter is statistically different from zero. If the t-statistic is greater than 1.96, the parameter is significant at the 95% confidence level.

Table A5.3 Initial Model for Flat Residential Prices

Parameter		Coefficients	Standard. Error	T-Statistic	Average Values
(Constant)		8.762	0.546	16.051	
Average PTAL score	(α_{PTAL})	0.007	0.001	10.207	30
SAT score of primary schools 1km	(α_{SAT})	0.111	0.020	5.543	28
Total Number of Households	(α_{hhold})	0.002	0.001	2.407	137
Sum Unweighted PERS Attributes	(α_{PERS})	0.005	0.002	2.629	-1
Weekly average spend per person	(α_{spend})	8.762	0.546	16.051	£308

R² : 0.50. Number observations: 344

- 5.10 The model has an R-square of 0.5, indicating that 50% of the flat prices are explained by the variables contained in the model. All of the parameters are significant at the 95% confidence level. There is little correlation between the coefficients as all the values are less than 0.55.
- 5.11 The final column 'Average Value' shows the average value across the links for the different attributes. For example, the average unweighted PERS score across the links was -1.
- 5.12 The impact of an improvement in the urban realm can be calculated by using the coefficients presented in the table. As the equation uses the log of the flat prices, the exponential of the results must be taken to convert them into house price values. For example an increase of one PERS point (i.e. a one-point improvement in any of the attributes assessed by PERS) would provide the following percentage increase in residential flat prices:

$$(\text{Exp}(0.005))-1 = 0.52\%^2$$

- 5.13 The average flat price in the data, excluding the links in areas where the residential land use is less than 10% and excluding the £1m flats is £313,582. This implies that an increase of one PERS point would imply an increase of £1,619 on the average residential flat price.

Retail Rental Prices

- 5.14 As with the residential prices, the initial part of the retail model was to look at the influence that each individual attribute has on retail rental zone A values.
- 5.15 Table A5.4 shows a summary of the results from the plots, sorted by the attributes with the greatest explanatory power of retail rental prices. The following relationships between the data and retail rental Zone A prices were found:
- The higher the total sales, the higher the price (based on 164 links or 13 audit sites);
 - The better the access to public transport, the higher the price of retail Zone A space;

² Note figures are subject to rounding errors

- The higher the percentage of non-domestic land use (i.e. the more businesses in an area), the higher the price of retail Zone A space;
- The higher the average weekly expenditure of residents / households, the higher the price of retail Zone A space;
- The higher the number of jobs per adult / the employment rate of residents, the higher the price of retail Zone A space;
- The more deprived an area is, the lower the price of retail Zone A space; and
- The higher the total PERS score, the higher the price (although this is a very weak relationship).

Table A5.4 Summary of Plot Results against Natural Log of Retail Zone A Rental Prices

Attribute	Relationship	R-Square (all links)
Total Sales	+	0.487
PTAL Score	+	0.377
% Non-Domestic Land Use	+	0.334
Weekly Spend per person	+	0.321
Jobs per Adult	+	0.256
Weekly Spend per Household	+	0.21
Employment Rate	+	0.114
Indices multiple deprivation	-	0.107
All unweighted PERS attributes	+	0.007

- 5.16 The correlation between the variables was also examined. Table A5.5 shows the Pearson correlation matrix between the variables shown in Table A5.4, with the exception of weekly spend per household, which is similar to weekly spend per person. Cells highlighted in grey indicate where the Pearson correlation coefficient is greater than |0.45|.
- 5.17 The % domestic land use was used as an estimate of the purpose of an area. The retail price model excludes data from links where the percentage of non-domestic land use (e.g. business properties) is less than 10%. It also excludes businesses where the retail Zone A value is greater than £1,500 per square metre.
- 5.18 The table suggests the following relationships:
- Areas with greater access to public transport experience higher sales;
 - The better the access to public transport the higher the percentage of businesses (non-domestic properties);

- The higher the weekly average spend per week per resident, the higher the total sales in the businesses;
- The higher the number of jobs per adult, the greater the total sales in the businesses;
- The lower the weekly spend per person, the more deprived an area is; and
- The lower the employment rate, the more deprived an area is.

Table A5.5 Correlation between Retail Rental Variables (Pearson Correlation Matrix)

	Total Sales	PTAL Score	% Non-Domestic Land Use	Weekly Spend Person	No. Jobs per Adult	Employment Rate	Indices multiple deprivation	Unweighted PERS scores
Total Sales	1.000	0.804	-0.022	0.539	0.816	0.424	-0.205	0.010
PTAL Score		1.000	0.457	0.319	0.361	0.117	-0.164	0.062
% Non-Domestic Land Use			1.000	0.322	0.638	0.089	-0.224	0.028
Weekly Spend Person				1.000	0.522	0.384	-0.671	0.070
No. Jobs per Adult					1.000	0.321	-0.396	0.106
Employment Rate						1.000	-0.465	0.024
Indices multiple deprivation							1.000	-0.080
Unweighted PERS scores								1.000

5.19 A semi-log model was developed for the retail rental prices. The equation of the initial model shown in Table A5.6 is:

$$\ln(\text{Retail Prices}) = \alpha_{PTAL} \cdot \text{Av.PTALScore} + \alpha_{spend} \cdot \text{WeeklySpendPerson} + \alpha_{NonDom} \cdot \% \text{ NonDomestic} + \alpha_{pers} \cdot \text{UnweightedPERS} + \text{constant}$$

where AvPTAL Score, WeeklySpendPerson, %NonDomestic and UnweightedPERS are the values of the attribute for a particular link. The parameters α_{PTAL} , α_{spend} , α_{nondom} , α_{PERS} , $\alpha_{>\pounds 1500}$ and constant are those to be estimated from the regression model.

5.20 Table A5.6 shows the coefficient of the parameter to be used in the equation, the standard error provides an indication of the spread of the parameter and the t-statistic indicates whether the parameter is statistically different from zero. If the t-statistic is greater than 1.96, the parameter is significant at the 95% confidence level.

Table A5.6 Initial Model for Retail Rental Prices

Parameter		Coefficient	Standard . Error	T-Statistic	Average Value
(Constant)		5.005	0.054	92.250	
Average weekly spend per person	(α_{spend})	0.001	0.000	9.287	£207
Average PTAL Score	(α_{PTAL})	0.007	0.001	8.881	58
% Non-Domestic Properties	(α_{nondom})	0.010	0.002	4.805	26%
All unweighted PERS Attributes	(α_{PERS})	-0.001	0.002	-0.448	0

R²: 0.47. Number observations: 448

- 5.21 The parameter for the unweighted PERS attributes is not significant, indicating that the PERS score, including all of the attributes, does not influence the prices of retail Zone A rent.

6 Combinations of Urban Realm Improvements

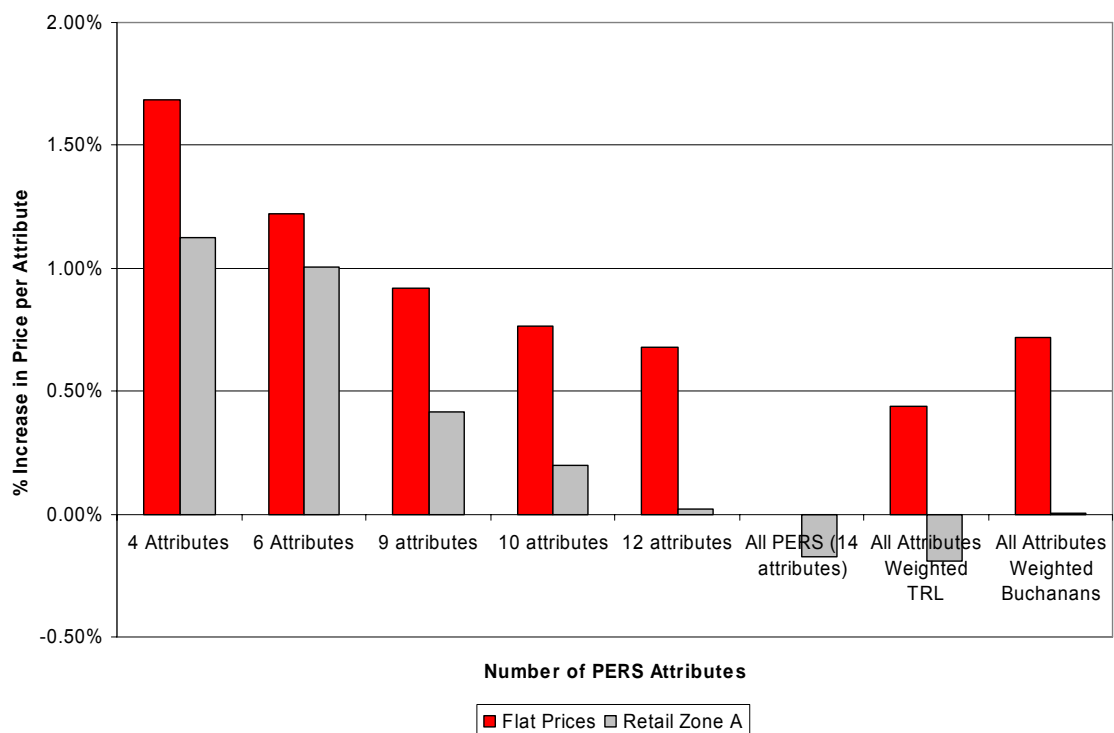
- 6.1 The initial models were developed using a combined score of all the PERS attributes. Findings from the discussion groups with businesses and developers suggested that certain urban realm attributes were more important than others to these particular user groups (although not necessarily to other user groups). For example, the aspects that were mentioned most frequently by developers and businesses were the need to maintain the environment (e.g. free from litter and graffiti) as well as the importance of good lighting.
- 6.2 Various sensitivity tests were undertaken on the initial models for the residential and retail prices using different combinations of the PERS attributes. The packages were selected using information obtained from the discussions with business managers and developers.
- 6.3 In addition to testing different combinations of attributes, two further tests were undertaken weighting the individual PERS attributes. Two weights were applied:
- Weights derived by TRL as part of the PERS package. This categorises different attributes into whether they are “baseline” attributes, “highly significant” or “critical” with weights of 1, 3 and 5 respectively;
 - Weights derived from a Stated Preference survey with individuals and used in the CABE publication “Paved with Gold” <http://www.cabe.org.uk/AssetLibrary/9868.pdf>. (Buchanans)
- 6.4 Figure A6.1 shows the individual PERS attributes included in each package.

Figure A6.1 PERS attributes included in each Package

	4 Attributes	6 Attributes	9 attributes	10 attributes	12 attributes	All PERS (14 attributes)
Personal Security	Y	Y	Y	Y	Y	Y
Lighting	Y	Y	Y	Y	Y	Y
Quality Environment	Y	Y	Y	Y	Y	Y
Maintenance	Y	Y	Y	Y	Y	Y
Gradient		Y	Y	Y	Y	Y
Surface Quality		Y	Y	Y	Y	Y
User conflict			Y	Y	Y	Y
Obstructions			Y	Y	Y	Y
Dropped kerbs			Y	Y	Y	Y
Permeability					Y	Y
Colour contrast						Y
Legibility					Y	Y
Effective Width				Y	Y	Y
Tactile information						Y

6.5 The initial models for the residential and businesses were run including each of the packages. Figure A6.2 shows the percentage increase in the price of a flat or square metre of retail zone A space an increase of one PERS score has. In both cases, the more attributes that were included in the package, the less the impact of an increase of one PERS score has on the prices.

Figure A6.2 Effect of Different Packages of PERS Attributes



- 6.6 The package that had the greatest influence on prices included only four attributes: personal security, lighting, quality environment, maintenance. These attributes highlight the importance of getting the basics right in the urban realm environment, which was also highlighted by developers and managers of businesses in the discussion groups.

Final Models

Residential Property Prices

- 6.7 Table A6.1 shows the final model for residential flat prices using the package of four PERS attributes unweighted and excluding data from links where the percentage of domestic land use is less than 10% and properties over £1m. The model has an R-Square value of 0.51, therefore explaining 51% of the residential property prices. All of the coefficients are significant at the 95% confidence level.
- 6.8 The four PERS attributes found to have the greatest effect on property values were personal security, lighting, quality of the environment and maintenance. Although the PERS system aims to minimise double-counting, there is nevertheless the possibility of some overlap in these categories. In order to circumvent the potential effects of this within our modelling, the four attributes have been combined into an additive variable.

Table A6.1 Final Model for Residential Property Prices

Parameter		Coefficient	Standard. Error	T-Statistic
(Constant)		8.611	0.546	15.758
Average PTAL score	(α_{PTAL})	0.007	0.001	9.003
SAT score of primary schools 1km	(α_{SAT})	0.118	0.020	5.879
Total Number of Households	(α_{hhold})	0.002	0.001	2.346
Sum of Four PERS Attributes	(α_{PERS})	0.016	0.005	3.334
Weekly average spend per person	(α_{spend})	8.611	0.546	15.758

R-Square: 0.51. Number observations: 344

- 6.9 The impact of an increase of one PERS score of any one of the four attributes included in the package (personal security, lighting, quality environment, maintenance) can be calculated from the model as:

$$(\text{Exp}(0.016))-1 = 1.62\%^3$$

³ Note figures are subject to rounding errors

- 6.10 Assuming an average flat price of £313,582, this implies that an increase of one PERS point would add £5,096 on the value of each flat.

Retail Rental Prices

- 6.11 Table A6.2 shows the final model for residential flat prices using the package of four PERS attributes unweighted. The model has an R-Square value of 0.47, therefore explaining 47% of the residential property prices. All of the coefficients are significant at the 95% confidence level, with the exception of the PERS package, which is significant at the 90% confidence level and almost significant at the 95% level. Table A6.2 shows the final model for retail rental values.

Table A6.2 Final Retail Rental Model

Parameter		Coefficients	Standard. Error	T-Statistic
(Constant)		5.034	0.056	90.629
Average weekly spend per person	(α_{spend})	0.001	0.000	8.616
Average PTAL Score	(α_{PTAL})	0.007	0.001	8.603
% Non-Domestic Properties	(α_{nondom})	0.009	0.002	4.739
Four PERS Attributes	(α_{PERS})	0.012	0.006	2.106

R-Square: 0.47. Number observations: 448

- 6.12 The impact of an increase of one PERS score of one of the attributes included in the package (personal security, lighting, quality environment, maintenance) can be calculated from the model as:

$$(\text{Exp}(0.012)) - 1 = 1.22\%^4$$

- 6.13 Assuming an average flat price of £445 per meter square of Retail Zone A, this implies that an increase of one PERS point would add £5.41 on the value of each square meter.

7 Example

- 7.1 In order to illustrate how the results from the models could be applied, an example is provided of a recent urban realm improvement scheme on The Cut in London. The Cut runs parallel to the River Thames and the borough boundary between Southwark and Lambeth divides the street.

⁴ Note figures are subject to rounding errors

7.2 The urban realm improvements included the widening and repaving of footpaths, improved lighting, planting trees and new pedestrian signage. The photographs below provide an example of before and after the improvements.



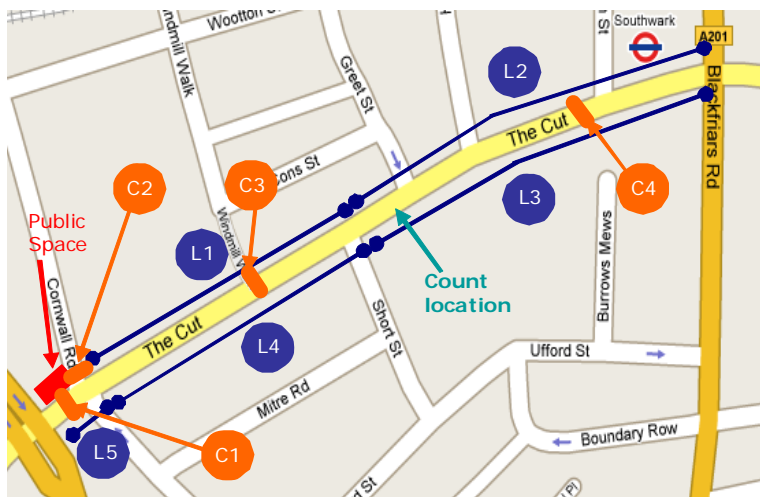
Before



After

7.3 An overview of the site is shown in Figure A7.1. The PERS audit links are shown in purple. The urban realm improvements occurred in links L1 to L4. L5 was not affected.

Figure A7.1 Overview of The Cut



7.4 A PERS audit was undertaken following the urban realm improvements and an estimate of the previous PERS score derived from photographs. Table A7.1 shows the average PERS score across the four links before and after the improvements.

Table A7.1 Before and After Average PERS Score

PERS Attribute	Before Score	After Score	Difference
Personal Security	-2	2	4
Lighting	-1	2	3
Quality of environment	-2	2	4
Maintenance	-3	3	6
Gradient	-1	2	3
Surface Quality	-3	2	5
User conflict	-1	1	2
Obstructions	-2	0	2
Dropped kerbs	-1	0	1
Permeability	-2	0	2
Colour contrast	-2	-1	1
Legibility	-1	1	2
Effective Width	-1	3	4
Tactile information	-1	1	2
Total	-23	18	41

- 7.5 Only the increases in the PERS attributes that are included in the PERS package can be used in calculating the benefits to retail and residential property prices: Personal Security, Lighting, Quality of Environment and Maintenance. Therefore the difference in the PERS score to be used in the calculation of the benefits is 17 (4 + 3 + 4 + 6).
- 7.6 The data from the residential model showed that an increase in one PERS point would increase a residential flat price by 1.62%. Based on two flat sales in the last two years, the estimated price of a flat on The Cut is £287,500. This implies that each PERS point increase could mean an increase of £4,657. Therefore the 17 point increase indicates a potential increase of £79,177 per property. According to the National Statistics website, there are approximately 120 flats in the output area surrounding The Cut. This would imply a benefit of c.£9.5 million to residential flat prices.
- 7.7 The final retail model gave an increase of 1.22% per square metre of retail Zone A space. The Valuation Office Agency website shows an average retail zone A value of £311 per square meter on The Cut. This would indicate that one PERS point increase could increase the value of

Retail Zone A by £3.79 or £64.43 for the 17 point increase. From the VOA website there are 26 business premises with Retail Zone A space, totalling 659m². Therefore the urban realm improvements would indicate a £42,459 benefit (64.43 * 659m).

- 7.7.1 In the preceding study that considered the value of urban realm to individual members of the public, the decision was made to arbitrarily 'cap' the permissible increase in any one PERS attribute at 3 points in order to discourage over-estimation of benefits. If this principle is applied the example of The Cut it gives a revised increase in attributes of 12 (3+3+3+3). This gives more conservative values of £6.7 million added to the value of flats and £30,000 to Retail Zone A rental value.
- 7.7.2 As noted previously in this report, the benefit to high street businesses only represents a part of the total value of an urban realm improvement. From Phase 1, the SP results showed that individual members of the public's top four attributes for improvement were:
- Quality of Environment;
 - Personal Security;
 - Permeability; and
 - User Conflict.
- 7.7.3 The businesses showed that their priorities were the following (based on the top four average WTP across the PERS scores):
- Surface Quality;
 - Quality of Environment;
 - Maintenance; and
 - Effective Width.
- 7.7.4 This shows that individuals and businesses value different PERS aspects and therefore it is important to fully audit streets and to take all beneficiaries into account when developing business cases for urban realm improvements. There is however, some overlap between the attributes that businesses and individuals value compared with the attributes found most strongly to influence the market values of flat and retail properties: Personal security, Lighting, Quality of Environment and Maintenance.
- 7.7.5 A fuller assessment of the value of the scheme at The Cut can be developed by incorporating value added to the general public, using the values developed by Accent Market Research during Phase 1 of this programme. Based on flow counts of pedestrians taken during the off-peak we estimate 1,287,720 (non-resident) visitors per annum. The value of the 17 PERS point increases, according to the previous study (and assuming no diminishing returns) would be 73p per person per minute. Assuming a typical time of 5 minutes to walk the length of The Cut we can apply the value of 73p per person per minute and calculate a total of £4.7 million per annum of value to individual members of the public. This figure may over-value the ambience benefits to the individual and over-state their real willingness to pay, nevertheless, it is indicative of an order of effect.
- 7.7.6 This worked example is not presented as a business case, rather as an indicator of the scale and types of value that may arise from a particular scheme and a means of demonstrating

how the results of this research, and the previous study, may be used to derive values that could support a fuller business case and a discussion with the private sector.

8 Conclusions

8.1 The results from the cross-sectional analysis indicate that a one PERS point increase in one of the following PERS attributes could result in a 1.62% increase in residential flat prices and a 1.22% increase in a meter squared of retail zone A space:

- Personal Security
- Lighting
- Quality of environment
- Maintenance

8.2 These results together with information about an area (such as number of flats, average prices, amount of Retail Zone A space and average price) can be used to calculate the potential impact of an urban realm scheme.

8.3 However, the following points should be noted when applying the results:

- The majority of the PERS audits were undertaken around major interchanges and strategic road routes. It is possible that the impact of urban realm improvements in more residential areas or on high streets differs to that found in the results;
- The results only take into account the impact on retail zone A rental prices. It is possible that other prices in the area, such as retail zone B and office space also increase;
- Improvements to the 'basic' four PERS attributes seem to have the highest effect on property prices and hence were only included in the final model. Therefore improvements to other attributes cannot be taken into account in the benefit calculations;
- The residential model assumes that a flat is consistent across the different links. It is likely that flat prices will also be influenced by the number of bedrooms the flat has, the character and state of repair of the property, inclusion or otherwise of parking etc. However, this information is not readily available;
- The PERS tool has been used to measure street quality and the urban realm. However, it was designed as a tool to assess walkability. Therefore some attributes which urban design theory suggests ought to affect street quality, such as Continuity and Enclosure have not been tested in our approach.

Appendix B Longitudinal Analysis

9 Introduction

- 9.1 The cross-sectional analysis described in Appendix A showed that there is strong evidence to suggest a relationship between the quality of a street and the value of properties on the street. However, to inform policy and investment decisions it is important to understand whether that relationship is static or whether, through improvements in street quality, real value can be added to properties.
- 9.1.1 The aim of the second topic of the research was to carry out a longitudinal study of the trend in property values before and after public realm improvement schemes in case study locations where significant investment has been made. By comparing the changes in property prices in the periods before and after the public realm improvement, for locations close to and farther from each site, we can acquire some evidence of how the changes to the public realm may have led to property price increases.

10 Methodology and Results

- 10.1 The methodology consisted of the following aspects:

- Selection of Case Studies;
- Site visits;
- Data collection;
- Analysis.

Selection of Case Studies

- 10.2 The following criteria were taken into account when selecting the case studies:

- In order to identify the impact on property prices the schemes had to be considered to be of high quality and significant investment so that a possible change in property prices could be identified;
- In order to minimise the potential effect of large-scale economic trends on property values in the analysis it was also important that the schemes reviewed be from broadly similar times;
- There had to be an adequate amount of data before and after the scheme was implemented;
- Across the case studies there should be a mixture of London and non-London schemes to determine if the impact across the two geographical areas is similar;
- Across the case studies there should be different types of schemes to understand if different types of urban realm improvements have different effects on prices.

- 10.3 In order to identify appropriate schemes discussions took place with Design for London, the Commission for Architecture and the Built Environment, with members of the Institution of

Civil Engineers 'Streets' discussion forum and with the urban design practice Tribal Urban Studios. A number of possible case study schemes were identified from which 14 were selected as suitable. The fourteen sites are a mixture of London sites and those in other parts of the UK. The nature of the improvements that were made were broadly classified, although given the nature of the schemes, which frequently incorporated many elements, the classification is only approximate.

- 10.4 Information about each of the case studies is shown in Table B10.1. This provides a summary of the types of improvements implemented at each site together with the overall classification of the scheme.

Table B10.1 List of Case Studies used in Longitudinal Analysis

Site Name	Location	Year	Scheme Cost	Materials and Features																		
				Lighting	Paving	Public Art	Tree Planting	Landscaping	Water feature	Seating	Pavement Widening	New Pedest. Crossings	Reduced Clutter	Removal of Guardrails	Creation of Public Space	New Cycle Stands	Reduced Car Speeds	Context/Setting	Flexible Space	Overall		
Sutton High Street	London	2005	£415,000	✓	✓		✓				✓							✓			Pedestrian priority	
Devizes Market Square	Wiltshire	2003	Unknown	✓															✓			Pedestrian priority
Blackett Street and Quayside	Newcastle-Upon-Tyne	2005	Unknown	✓	✓						✓						✓	✓	✓	✓		Pedestrian priority
Maid Marian Way	Nottingham	2004	£2.5m	✓			✓					✓	✓				✓	✓				Pedestrian priority
Kensington High Street	London	2003	£5m	✓	✓		✓				✓	✓	✓	✓						✓		Decluttering
High Street & Sadler Street	Wells, Somerset	2001/2002	Unknown		✓							✓								✓	✓	Materials & Features
Walthamstow Town Centre, Gardens and High Street	London	2004	£1.7m	✓	✓	✓	✓	✓										✓		✓		Materials & Features

Site Name	Materials and Features																			
	Location	Year	Scheme Cost	Lighting	Paving	Public Art	Tree Planting	Landscaping	Water feature	Seating	Space reallocation	Ped priority	Decluttering	Decluttering	Reallocation	Materials & Features	Ped priority	Materials & Features	Ped Priority	Overall
Bideford Quay	Devon	2005	£700,000	✓	✓	✓	✓			✓	✓	✓								Materials & Features
Streatham High Road	London	2004	Unknown		✓						✓	✓	✓	✓						Materials & Features
Tooley Street	London	2003 & 2005	Unknown																	
Piccadilly Gardens	Manchester	2002	£12.5m	✓	✓	✓	✓	✓	✓	✓		✓								Materials & Features
The Strand	London	pre-2005	Unknown		✓						✓			✓						Decluttering
Buchanan Street	Glasgow	2001	Unknown		✓															Materials & Features
Fakenham Town Centre	Norfolk	2000	£722,000	✓	✓	✓	✓	✓	.	✓					✓		✓			Mixed
Brindley Place	Birmingham	2004	Unknown					✓												Materials & Features

Site Visits

10.5 Site visits were undertaken at four case studies:

- Sutton High Street (London)
- Devizes Market Square (Wiltshire)
- Maid Marian Way (Nottingham)
- Blakett Street and Quayside (Newcastle)

10.6 The aim of the site visits was to:

- Gain a wider understanding of the urban realm improvements that were implemented;
- To assist with the classification of the schemes;
- To gauge the influence of other urban realm attributes not covered by the PERS system, such as use of space.

10.7 At each site visit photographs were taken and information collected about the site, such as:

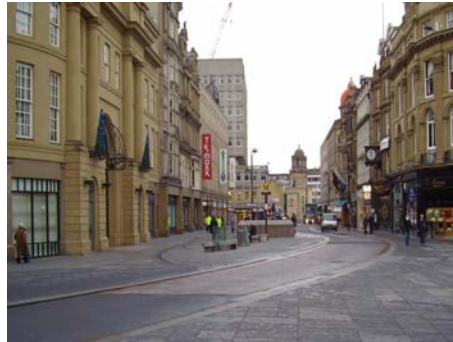
- The amount of space and priority given to pedestrians and cars;
- The use of the area (e.g. number and types of businesses);
- How well the space is maintained;
- How distinctive the area is, such as the quality of the architecture and surface materials;
- How safe the area feels both in terms of provision of street lighting and if well used by people.

10.8 Examples of the schemes are shown below.



Wells, Somerset

Materials and Features



Newcastle upon Tyne

Pedestrian Priority



Sutton High Street

Pedestrian Priority

Data Collection

10.9 As with the cross-sectional analysis, it was important that the review of property prices before and after the schemes were implemented was not skewed by other factors such as market trends, changes in accessibility etc. Consequently control sites needed to be

identified which were equivalent to the study sites in as many ways as possible, with the exception of the public realm improvement. Given the complexity of attempting to match different parts of London or different towns with others that can credibly be considered equivalent, it was decided that the control data should be taken from other parts of the same town or district which had not been directly subject to the public realm scheme.

- 10.10 Accordingly, property data were collected for the site of the public realm schemes and in concentric bands of 100m around them, up to 500m, considered to be the general limit of a distinct neighbourhood and beyond which factors such as transport accessibility, neighbourhood type etc. may change, rendering the site less satisfactory as a control. The set of postcodes for which property sales data were required were then obtained by finding those postcodes that lay within or were intersected by these bands.
- 10.11 In order to consider the trend in property values, a number of data points in both the before and after period are required. These data were available for residential properties but not for retail given that these data are only updated by the Valuation Office Agency on a five yearly basis. The analysis of longitudinal effects of public realm improvements therefore only considered the effect on flat prices using data collected by the Land Registry.
- 10.12 Data are available from the Land Registry's website for property sales from 1995. However, sales data between 1995 to 2000 are provided for postcode sectors only– e.g. for the postcode 'B11 4GF' the postcode sector is 'B11 4' – and only average sale prices and numbers of sales are provided within quarters of each year (for example, Jan-Mar 1996). However, the information is available by type of property and so only flat price information was considered as they were the largest available set to provide a reasonably homogeneous measure across each postcode sector, whereas houses were too small a sample size with too high a variance. Postcode level data was collected from 2001 to 2007.

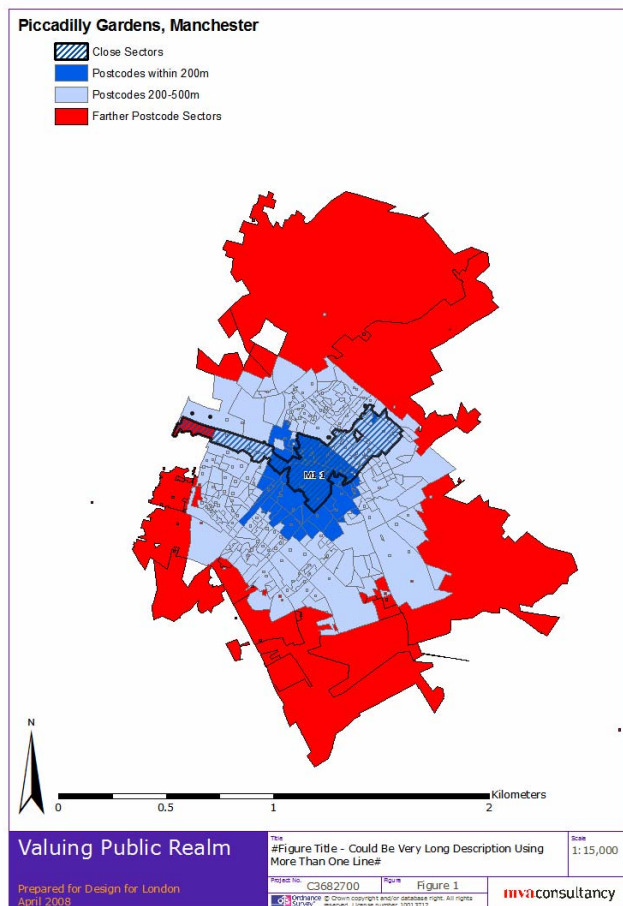
Summary of data collected

- 10.13 The 14 sites selected for the longitudinal analysis covered approximately 3,700 postcodes when considering the area out to 500m from each location.
- 10.14 These postcodes are located in approximately 110 postcode sectors, although it should be borne in mind that postcode sectors are large – there are 9,765 postcode sectors in the UK, but approximately 1.7 million individual postcodes – and so a given sector may only contain a very few postcodes in the area out to 500m from a site.
- 10.15 For each postcode sector, and for each year (from 1995 to 2000) and quarter needed, the average flat sale price and the number of flat sales were obtained. The equivalent calculations were carried out on all postcode-level data, aggregating the individual sales into years from 2001 to 2007.
- 10.16 We therefore obtained data to calculate average prices within a given year from 1995 to 2007. In order to keep the sales data at as fine-grained a level as possible over as long a time period as possible, postcode data was used from 2001 and postcode sector data for pre-2001.

Classification of sales data for use in calculations

- 10.17 The analysis considered the trend in property prices prior to and after the implementation of the public realm scheme in each of the 14 locations and associated control sites.
- 10.18 Therefore the property sales data was divided into two groups based on their geographical location either 'near to' (postcode level data at the 200m boundary) or 'farther from' (postcodes included in the 300-500m bands) each site⁵.
- 10.19 The postcode sector data are less straightforward to classify into the 'near' and 'far' groups because they are much larger than the areas covered by individual postcodes. In classifying the data at this geographic level the element of arbitrariness must necessarily increase.
- 10.20 For each site we have simply judged *by eye* (on the basis of the locations of the postcodes that have been classified as 'near') the sector or sectors for each site that will be included in the 'near' group. Figure B10.1 shows the postcode sectors classified as 'near' (within 200m) or 'far' (200-500m from the scheme) for Piccadilly Gardens in Manchester.

Figure B10.1 Example of Classification of Postcodes: Piccadilly Gardens, Manchester



⁵ Note that it is possible for a given postcode to be included in both groups, because part of it intersects both the 200m and 300m rings around the sites that we used to derive our list. Rather than remove these duplicated postcodes, our analysis simply includes their

Detailed methodology

10.21 In this section we will give full details of how we have calculated the changes in average flat prices for the 'near' and 'far' groups for each of the selected sites.

10.22 In brief, the essential idea is as follows:

- Calculate average annual flat price growth:
 - Before and after the public realm improvements
 - For both the 'near' and 'far' data
- Compare 'far' price growth before and after the improvements
 - Assume that the same relative change in growth would have occurred in the 'near' prices in absence of public realm improvement
 - Hence, derive 'expected' growth in the 'near' prices, based on the growth before improvements
 - Compare with actual 'near' growth after the improvements
- We can then derive our estimate of the additional percentage point growth in the 'near' group, after the improvements
- We will then try to derive some overall conclusions as to the apparent effect of the public realm improvements brought about by different types of development.

Note that the data for years 1995 to 2000, inclusive, are derived from postcode sector-level flat sales data, while those for 2001 and later are derived from the postcode-level data.

10.23 For some sites the year of the improvement was not clear. Table B10.2 shows the assumptions that we have made in determining the year.

Table B10.2: Assumptions of scheme years made for sites with inconclusive information collected

Site	Assumed Scheme Year	Comments
High St and Sadler St	2002	It is assumed that the specified time-frame of 2001/2002 indicated that improvement were not completed until 2002
Tooley Street	2003	Improvements are indicated as taking place in 2003 and 2005. Selecting the earliest time to work with will give more time for improvement effects to be

contributions to average flat prices in each group. This is done to simplify the calculations performed. A 200m band was used to ensure that there were sufficient house sales in the 'near' sector in order to calculate the average flat price.

		seen in property sales data
The Strand	2004 ⁶	Improvements took place prior to 2005. However, no postcode sector data were available so only years 2001-2007 used in analysis. Mid-point of time-frame chosen to permit sufficient data for calculation.

For the Fakenham Town Centre site the scheme year does not have any sales data available. Therefore average flat prices from the previous year were used in order to carry out the calculations.

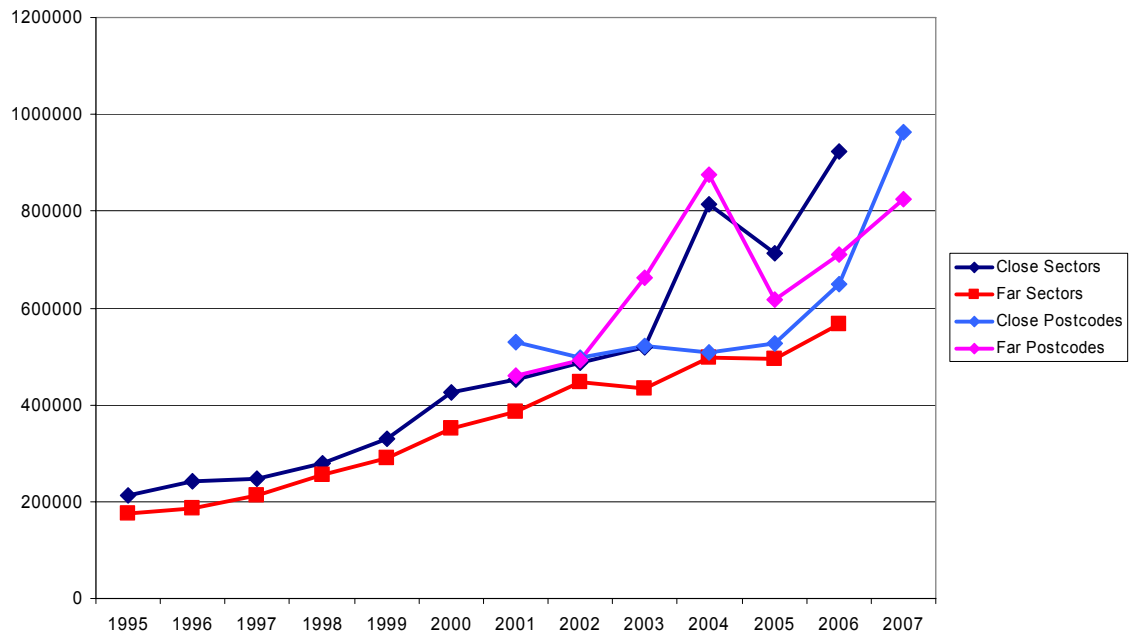
10.24 As an explicit example of the way in which the changes in average flat price growth are obtained, the calculation for the Kensington High Street site, are shown below:

- The public realm improvements at Kensington High Street took place in 2003. Flat sales data at both the postcode and sector levels for the 'near' and 'far' distance classifications was collected;
- As previously stated, sector-level data was used up to 2000, from which point postcode-level data was used. As an indication of the differences between these data sets, the figure below shows the average flat prices for the 'near' and 'far' classifications for both the postcode and the sector data.

As we can see, there is an upward trend in the prices calculated from all of the different data segmentations, but that the different sets do not match perfectly. This should be borne in mind when we consider the results of the calculations.

Figure B10.2 Postcode Level and Sector Flat Prices for Kensington High Street

⁶ From the data available we have assumed that the Strand scheme was completed in 2004. However, should it have been completed prior to this year then it will affect the results presented in TableB10.4



- For the two distance classifications, average sales price information was calculated for three points:
 - The *earliest year* for which data are available. For Kensington High Street this is **1995**.
 - The *scheme year*, or the year closest to that year if no data are available in the scheme year. For Kensington High Street this is **2003**.
 - The *latest year* for which data are available. For Kensington High Street this is **2007**.
- For each of the distance classifications we consider only the average flat prices in those years. Table B10.3 shows the information for Kensington High Street.

Table B10.3: Average flat prices for Kensington High Street site in different distance classifications

Year	Near data		Year	Far data	
	Avg. Price (£)	Annual growth		Avg. Price (£)	Annual Growth
1995	212,501	12%	1995	174,968	18%
2003	521,510	17%	2003	662,070	6%
2007	963,308		2007	824,781	

- Next, we consider the average annual price growth before and after the scheme year for both distance classifications.
- From the 'far' data we calculate the change in growth before and after the improvements. In the 8 years from 1995 to 2003, flat prices increased from £174968 to £662070, or an average of 18% p.a.. In the 4 years from 2003 to 2007, flat prices increased from £662070 to £824781, or an average of approximately 6% p.a.

We assume that the change of growth before and after the improvements reflects local changes to house prices, i.e. the growth has reduced by third (6%/18%).
- For the 'near' data the growth in flat prices before the improvements was 12% p.a. and 17% per year after the improvements.
- Assuming that we would expect the change in growth observed in the 'far' data to occur in the 'near' data we factor the before growth at the 'near' data site to reduce it to a third of the rate ($12\% * 1/3 = 4\%$). Therefore without the urban realm improvements we may have expected flat prices in the 'near' area to increase by 4% a year from 2003 to 2007.
- In reality flat prices have risen by 17% p.a. at the 'near' site, which is an additional 13 percentage points growth ($17 - 4$). This is the amount of growth that we assume is attributable to the urban realm improvements.

10.24.1 We have carried out this analysis for each site, and the results are summarised below. It is useful to consider the extra growth as a function of the type of scheme that was implemented, so this has been included as a field in the table. The entries in the table have been sorted into increasing order of the extra growth (in percentage points per year). Note that the areas where the 'near' growth is less than the 'far' growth are locations outside London (Wells and Manchester).

Table B10.4 Summary of Growth at Site

Site	Classification of improvements	Scheme Cost (£)	New extra Growth (% point per annum)
High Street & Sadler Street, Wells	Materials & Fixtures	tbc	-4.3
Piccadilly Gardens	Materials & Fixtures	12500000	-0.8
The Strand	Decluttering	tbc	0.9
Streatham High Road	Materials & Fixtures	tbc	1.0

Site	Classification of improvements	Scheme Cost (£)	New extra Growth (% point per annum)
Walthamstow High Street	Materials & Fixtures	1700000	2.0
Brindley Place, Main Square, Birmingham	Materials & Fixtures	tbc	4.0
Sutton High Street	Pedestrian priority	415000	4.0
Maid Marian Way, Nottingham	Pedestrian priority	2500000	8.0
Devizes Market Place	Pedestrian priority	tbc	8.4
Tooley Street, London	Materials & Fixtures	tbc	8.6
Bideford Quay	Materials & Fixtures	700000	10.6
Kensington High Street, London	Decluttering	5000000	12.9
Fakenham Town Centre	Mixed	722000	16.9
Blackett Street, Newcastle	Pedestrian priority	tbc	28.0

Conclusions

- 10.25 Overall, the results showed that the schemes had influenced property prices with an average increase of seven percentage points across the fourteen sites with a large range of -4.3% to 28%. The average percentage point growth differed by the scheme categories suggesting that improvements in pedestrian priority have a larger impact on property price growth than, say, improvements in materials and fixtures:
- Pedestrian Priority – 12% (4 sites)
 - Materials and fixtures – 3% (7 sites)
 - Decluttering – 7% (2 sites)
- 10.26 There was also a difference between London and non-London sites with an average of five percentage points in London and nine percentage points elsewhere.
- 10.27 The results are, however, derived from quite a small sample of sites, with associated caveats surrounding the way in which property price data from two different levels of geographical segmentation have been utilised.

Appendix C Discussion Groups with Developers and Business Owners

11 Introduction

- 11.1 The final topic of the research was to understand the attitude of private investors and businesses to public realm quality and their willingness to pay for improvements.
- 11.2 This was addressed by two means:
- discussion groups with developers and retailers to give a qualitative understanding of their views as well as testing the graphics and methodology to be used in the stated preference research; and
 - stated preference research to identify those elements of possible street improvement considered most valuable by business operators and their willingness to contribute to those improvements.
- 11.3 This appendix provides the results from the discussion groups with developers and retailers. Appendix D will describe the stated preference research.

12 Overview

- 12.1 Six discussion groups were undertaken with developers and decision makers of businesses. Three groups were with local businesses, which were predominately retail based in Ealing Broadway, Acton, Wimbledon, Sutton, Hampstead and Whitechapel. Three groups were held with property developers, which included large retail developers.
- 12.2 The key findings from the groups with developers were:
- When deciding where to invest, the key considerations were the existing transport infrastructure, socio-demographics, level of competition, the cost of land and if there were any particularly planning restrictions for the site. Accessibility to public services, such as healthcare and education, was also a key consideration for residential developments.
 - Although public realm was seen as important, it was felt that the use of the space is more important in determining how successful or otherwise an area is.
 - The amount spent on public realm improvements as part of the development was decided by using a 'gut feel' approach. In deciding on how much to invest, developers considered: the type of development, location, existing urban realm, the size of the scheme and the amount of land the developer owned in the surrounding areas.
 - Many participants talked about having a 'vision' for the development in terms of what they wanted to achieve, which in turn influenced the design and quality of the urban realm. Maintenance of the urban realm was vital

- Urban realm improvements were seen as a way of attracting businesses and developers to the area and therefore regenerating it. The improvements could lead to increased yield and rental values as well as increased footfall in retail areas.
- The participants suggested a number of ways of improving the way that urban realm improvements are implemented:
 - An organisation to oversee the investment in urban realm to ensure that a consistent approach is used across London as well as co-ordinating the finances between public and private investors;
 - Stricter rules for utility companies to ensure that they replaced the road / pavement with the same quality of materials after repairs;
 - For the public sector to encourage private investment by them investing in public realm first. Sheffield, Leeds and Manchester were cited as examples where this had occurred. London was seen as too transport orientated with limited public money available for urban realm improvements.

12.3 The key findings from the groups with retailers and high street businesses were:

- When deciding on the location of their store, business managers took into account socio-demographics, amount of parking in the vicinity, level of footfall, type and quality of shops in the area and access to public transport;
- Participants were asked to rate different urban realm improvements. The most important aspects were to have a clean, well maintained street with good lighting and a smooth even pavement. This again highlights the importance of 'getting the basics right';
- Participants had mixed feelings about pedestrianising a street with some saying that it would be detrimental to their business and others mentioning that it would create a nicer environment for people to shop in;
- To assist with the design of the SP questionnaire, participants were asked how improvements to the urban realm should be financed. Small retailers were reluctant to pay anything as they already felt that they paid too much in business rates and did not necessarily have the cash flow to contribute to improvements.

13 Discussion Groups with Developers and Large Retailers

13.1 Three discussion groups were undertaken with large developers and retailers:

- One was held on the 21st January at MVA Consultancy's London office. It was attended by six property developers who were involved in a mixture of residential and commercial developments. Several specialised in regeneration and attracting developers to town centres;
- Two discussion groups were held with large developers and retailers on the 28th February at MVA Consultancy's London office:
 - The first group was attended by four people from developers, housing associations with significant experience in housing, retail and commercial developers within London and across the UK;

- The second group was attended by two people, who had significant experience in developing retail establishments, planning and property development.

Understanding location choice of investment

13.2 Several different aspects were raised depending on the types of investments. Key considerations were:

- **Transport infrastructure.** Areas in London with good public transport links are high on the list of investment areas. Developers and retailers considered public transport links less important outside of London due to easier access by private vehicles;
- *Transport access to development.* For larger retailers, car access and the amount of space available for parking spaces was important as the majority of their customers drove to the store. For office developments and retail sites, particularly those in central London, access to public transport was important;
- *Socio-demographics.* For retail stores, in particular, they examined the potential catchment area of the store in terms of geographical area and the types of potential retail customers within the area. For office developments, it was more in terms of potential companies that may rent the space and a mix of macro considerations (the labour market in the area) and the attractiveness of the site (micro); therefore understanding the potential customer and their office requirements was important;
- *Local Competition.* Particularly for the large retail stores, it was important for them to understand what competition was in the area that could affect their profitability;
- *Cost of land.* Housing and Commercial developers looked for sites with the most return on their investment however, it was not as critical for larger retailers as they would look at the potential for future expansion;
- *Location.* Particularly for office developments, businesses wanted to buy a prestigious address (e.g. a street name that would be recognised by their clients). In some instances property overlooking say, Regent Street, would be given a Regent Street address even though the entrance to the building was on a side street;
- *Size of available land.* A large retailer had an idea of the size of the store they wanted to build in a particular location and therefore the land required; and for developers it was easier to get a return on their investment on larger areas of land;
- *Planning considerations.* What restrictions the local authority may have on the site and physical constraints of the site location (e.g. protected land or topography);
- *Accessibility to services* (e.g. schools and healthcare). This was particularly important for residential developments;
- *Capital investment for infrastructure.* Developers and retailers were more willing to invest and develop in areas where the government or local authority have committed delivery of major infrastructure;
- *Branding and marketing lifestyle.* Developers put investments in to improve public realm as part of branding/imaging (e.g. developer invested into marketing an undeveloped area to create an area to attract buyers to a certain waterfront lifestyle and properties increased from £200/sqm to £400/sqm).

13.3 The importance of urban realm differed by type of development. In general, it was agreed that the urban realm was important, as areas with good urban realm attracted businesses

and developers into the area. It was also considered a good indicator of whether or not a place was invested in and 'looked after' and how well managed the local authority was. However, it was felt that it is the use of the space that determines how successful or otherwise an area is. Urban realm can help to attract businesses and make the space attractive, but the design of the space and the use is important.

13.4 In comparison to other considerations urban realm was:

- usually a primary consideration for residential and small developments. For residential development (particularly dense housing developments) urban realm was considered to be the "number one thing, get this right and you get everything right". However get it wrong and you risk leaving a "bad legacy" and creating a "downward spiral of decline";
- often a secondary consideration for larger developments and commercial developments – despite this it was still described as a "key driver";
- undervalued by those making policy decisions – there was consensus that it brought about more benefits than the people making the decisions realised; and
- something that was the first thing to get "slashed" where viability assessments deemed investments too expensive.

13.5 Improving an area is often a 'chicken and egg' situation, where small public realm improvements can signal uplift in an area, which brings in key tenants (e.g. high quality restaurant) that in turn brings further uplift and justification for further urban realm improvements.

13.6 Examples were given where the urban realm is similar, but where the attractiveness in terms of an area to invest in is different depending on its use. For example, Piccadilly and Kingsway were considered to be two places in London that were the same in terms of urban realm, but Piccadilly is a more attractive investment place because it is a destination.

13.7 Putting in investment to get investment on bigger schemes for public realm was generally accepted. For example, developer commissioned design competition for the design of Milton Keynes shopping centre, Sheffield put public money into urban realm to attract private investors.

Implementation of Urban Realm Improvements in Developments

Amount Spent on Urban Realm

13.8 The amount spent on urban realm improvements was decided by using a '*gut feeling*' approach. In assessing the business case for the development, benefit was not assigned to urban realm improvements though both developers and large retailers saw a benefit to urban realm improvements to add value the cost invested depended on the site and location of the property. The cost of the improvements was looked at in conjunction with the rest of the development. In deciding on how much to spend on urban realm improvements a number of different aspects were mentioned:

- the type of development:
 - the large convenience retailer would not generally consider landscaping the area around stores unless specific planning requirements specified this – their main

attraction lay inside the store. Landscaping took away vital car parking spaces and took time and money to maintain however, adequate landscaping to make the carpark appear clean and well maintained was very important;

- Conversely, where comparison shopping is concerned, public realm becomes of greater importance, as part of the package attracting customers to the area; and
- for commercial developers the front entrances, particular for office developments, needed to be attractive to attract / retain employees and clients; and present quality of the development (branding);
- location. An example given was where a development was close to an Underground station. It was recognised that the majority of people accessing the new development would travel by public transport and therefore the link between the closest Underground station and the development was improved;
- existing urban realm. A number of examples were given where side entrances to offices were constructed and the urban realm on the side street was not as well maintained as that on the main street, which the office building fronted onto. Money was invested to ensure that the side street was a safe and attractive place to be to access the main entrance of the office building;
- size of the scheme. The larger the scheme, the more likely that urban realm improvements would be undertaken in the areas immediately surrounding the development. Developers saw urban realm improvements as part of the total cost of the scheme;
- amount of land that the developer owned in the surrounding areas. If the developer owned a large proportion of the land in the area, they felt a greater incentive to invest in the urban realm as they were likely to see the benefit to all of their properties as well as having control over maintaining the area; and
- Maintenance of urban realm. Developers and retailers wanted to invest in urban realm that would be easy to maintain and would be 'fit for purpose' (e.g. street furniture like patio furniture would be favoured because it is temporary and encourages people to use it and spend money in the cafes & shops whereas fixed benches were discouraged due to homeless persons using it to sleep on or youths skateboarding on them that creates opportunity for anti-social behaviour).

13.9 Examples where developers mentioned how much was spent on urban realm improvements included:

- The total cost of site around Liverpool Street Station was in the region of £3 billion and the amount being spent on urban realm improvements included £11 million on construction and £1 million on the design of the street, 0.4% of the total budget. This money was being spent on improving the street environment immediately outside the entrance to the development and the pedestrian link from the development to the nearest Underground station;
- A shopping centre development, totalling approximately £2 billion where £12-15 million is being spent on specific urban realm improvements (approximately 0.75% of the budget). The money was put towards improving the pedestrian environment around the shopping centre by creating a new high quality pedestrian street and also towards improving the

transport interchanges and the connection to the development and active uses to promote longer dwell time in the shopping centre.

Types of Urban Realm Improvements

13.10 Many participants talked about having a '*vision*' for the development in terms of what they wanted to achieve in terms of the look and feel of the development, which in turn influenced its design. Specific aspects that were mentioned as part of the design quality were the functional look of the building, the configuration of the inside of the building and surrounding space, the amount of space, activities taking place within the space, the design of spaces between buildings and the location.

13.11 Participants mentioned several types of improvements throughout the discussion, such as:

- *Quality of Street Materials.* Important to use good quality materials that are going to last. The issue of the use of consistent materials was also raised;
- *Visually attractive.* Public art was seen as attractive, providing a sense of identity to the area and making a place however, public art that had a double function was preferred e.g. steps used as a feature to use and as seating, or a visual piece of public art that is iconic and associated with a particular space;
- *Active street frontages* create a vibrant space, which is particularly important for comparison retailing e.g. high quality paving, restaurants and coffee shops help to activate space and make the space a nice place to be;
- *Quality of the architecture* used in designing the building. A well design building can attract the demands of customers in the creative field or legal professionals etc.;
- *Use of space.* The quality of the street environment is important, however, the use of the space is just, if not more important in terms of selling a development. In the last few years, developers had seen a shift from only office blocks to more mixed used developments with retail units on the ground floor and offices above. However, businesses only wanted a certain type of shop below their offices, as the type of shop impacted on the business brand (for example Starbucks was seen positively but McDonalds was not);
- *Personal safety.* Making the space feel safe and well looked after (see maintenance below); this included the used of guards, security persons or property management companies (especially in finance centres such as the City and Canary Wharf.); and
- *Maintenance.* The maintenance of the urban realm is vital and kept reoccurring throughout both discussions. Maintenance is easier if the developer is responsible for the maintenance afterwards, for example in the case of a large shopping centre development. Generally, developers thought that the public sector did not adequately maintain areas. Several schemes were quoted in London where it was felt that a huge initial invested by the public sector had been made, but where the maintenance was low, for example, the millennium bridge. However, in some cases where the borough maintenance was to a higher standard such as Queens Street in Westminster it attracted investors.

Landlords were addressing maintenance issues in different ways:

- one company went round at night and repainted the buildings or re-swept the street after the local authority had cleaned the street;
 - Problems with refuse collection, particularly for restaurants where grease from rubbish bags left on the road would soil the pavement. Land owners were addressing these particular issues by talking with the Local Authority and the restaurant owners to establish a way forward – including adding clauses when leases were renewed; and
 - Business rates used to be a way of collecting money, which would be used locally. Now the money is collected centrally and each area is given a budget. The money collected may not necessarily reflect the money spent in the area, so there is less of a relationship between increases in business rates and amount spent on improving the local area. BIDs were suggested as a way forward to coordinate funding for urban realm although it may not apply in some cases.
- 13.12 Benches were seen as a potential security risk by some participants with people loitering (although there is no evidence of actual security problems). However, steps around buildings were spaces where people could sit and eat lunch during warmer weather are attractive and make people stay in the area longer.
- 13.13 For the large comparison retail developments, such as shopping centres, the immediate area surrounding the entrance to the shopping centre is the first and last experience of the centre that a customer remembers. Therefore it is important that the street environment surrounding the entrance is of a good quality and well maintained to create the right impression.
- 13.14 The internal environment of the shopping centre has to be an attractive place to encourage the customer to spend more time in the centre and hopefully more money. Aspects mentioned were break-out places and food courts. It was also important to create the right brand and shopping centres by the same developer were often created with similar recognisable features, such as high quality stone finishing for the flooring to signify the quality of the development and for brand recognition.
- 13.15 Urban Realm without a purpose or created without a reason to be there or has a lack of maintenance and management does not work. For example, behind Tottenham Court Road, there is no purpose to stay there although high footfall and the route is instead used as a thoroughfare.

Impact of Urban Realm Improvements

- 13.16 Urban realm improvements attract businesses and developers to invest in the area and therefore help to regenerate it.
- 13.17 Several impacts were mentioned, depending on the different types of developments:
- Office developments:
 - Urban realm improvements could lead to a change of occupier, or the existing occupier being able to attract / retain more employees / customers;
 - Increase in yield (in terms of increased occupancy); and
 - Increase in rental values.

- Retail developments:
 - Increase in footfall and hence more people spending money in the shops;
 - Increases competitiveness of retail centre; and
 - Increase in rental values.

13.18 Specific examples that were quoted by participants:

- *Extending high rental values to surrounding areas.* For example, the retail rental values on Oxford Street range from £275 close to Oxford Circus to £200 per square metre further down Regent Street. By improving the urban realm along Regent Street, the developers hope to encourage people to walk further down the street and so increase the length of frontages with rental values closer to the £275 value. (It was noted that unlike a new development, improvements to the urban realm only does not prompt an instantaneous increase in rental values. There is an initial outlay to invest in the urban realm and then, following the improvements, the rental values can increase over time). The example was also given of extending high City of London rates into previously bordering areas;
- *Location comparisons:* look at similar areas elsewhere to understand the impact of developments and what they might be able to achieve in terms of rental value and increases in land value. For example, there is approximately £30 difference between the rental value in Victoria (at £70) and Croydon (at £40). By investing in Croydon, the developers hope that rental values can increase much closer to those experienced around Victoria, since many employees travel through Croydon to reach jobs in the Victoria area. The lower property prices also attract developers because of higher return on investment;
- *Increases in footfall:* the South Bank has had a huge investment in urban realm, attracting new businesses to the area. The footfall has increased dramatically and the area has the highest rental prices for restaurants in London; and
- *Generate additional investment,* which in turn improves the area and boosts the land and rental values. For example in Croydon, a 9 acre plot of land in the centre in being developed. The land is being opened up to the existing streets. Although the quality of the street environment and business is poor at the moment, it is hoped that the new development and providing high quality public realm encourages others to invest in the area and acts as a catalyst for improving the centre, thereby securing their investment.

13.19 Urban Realm improvement depended on several factors and varied in the London model in comparison to other parts of the UK. London's model is driven by development and urban realm improvements around transport infrastructure and in other parts of the UK urban realm investment would be supported by public investment to generate regeneration.

Policy Decisions

The role of the public sector

13.20 The participants suggested a number of aspects that could improve the way in which urban realm improvements are implemented:

- *Co-ordinated approach to investments.* Participants suggested that an organisation should be established. The organisation could:

- co-ordinate the investment between the public and private organisations. Particularly when there are several developers in one street, one organisation needs to take responsibility for the urban realm improvements to ensure that they are implemented; e.g. Business Improvement Districts (BIDs);
 - provide bridging funding to ensure that the scheme went ahead. For example if one street were to be improved, but donations had only been collected from half of the developers, the urban realm improvements could be implemented by using a fund from the public organisation and then additional money collected as the scheme was implemented; and
 - ensure that improvements are implemented consistently throughout the street, London borough and potentially across London.
- *Create stricter rules for utility companies.* Utility companies are allowed to dig up the pavement / road to undertake routine and emergency work. Whereas they are supposed to replace the pavement / road with similar materials, this was not always the case. It frustrated participants that they spent money on improving the urban realm and the utilities got away with replacing the area with cheaper materials.
 - *Encouraging investment.* Priority regeneration areas are identified by the Local Authorities, but these areas are not always areas that the developers feel will be successful investments. Participants also felt that the public sector may not deliver on their investments, based on previous experience. If the public sector were to invest first in urban realm, this would encourage developers to further invest. This is what is seen to happen in other areas across the UK, and several cities were cited as having significant urban realm improvements over the last couple of years that were funded by the public sector:
 - Sheffield
 - Leeds
 - Manchester
 - Birmingham

London was seen as very transport orientated. The public money available for urban realm improvements is only available through Transport for London, where improvements in the transport network were believed by participants to be a higher priority than improvements in urban realm.

Policy Restrictions

13.21 Several government policies were mentioned in being restrictive in terms of defining the budget for developments:

- *Affordable housing targets.* If the development is a certain size then a number of affordable houses need to be built. There is only so much money in the pot for development including money for urban realm; therefore there is choice between providing the urban realm improvements or the affordable houses. In terms of what the developers would like to provide it is the urban realm improvements because they see that they get more value out of improving the urban realm, but the government states that affordable houses are necessary; thus leaving little or no budget for urban realm improvements;

- *Retail Developments:* Large retailers commented on the need to provide mixed use developments even though they would normally only consider retail. If a proposed store is to provide 200 or more car parking spaces then they are required to provide affordable residential units and which restricts how much they have for urban realm; and
- *Section 106* agreements provide a mechanism for securing developer contributions to public infrastructure. Some participants saw it as a second tax (on top of business rates). They could understand providing urban realm improvements as part of the policy to benefit the community, however, it was harder to see the link between the direct benefits to their developments and general improvements to the community, such as providing a library. There was also a concern that, where developers improve public realm in the vicinity of their development, this is not offset against the monies that authorities seek to negotiate from developers.

Summary

- 13.22 Developers and large retailers value urban realm as an important aspect of developments to attract people to an area. In designing developments, many participants had a vision and market of what they wanted to create or target. Whereas improvements to the urban realm may help to attract businesses and developers to invest in the area it does not mean that improvements to the urban realm will necessarily improve the area. Participants viewed the use of the space in an area (such as the types of businesses) as being more influential in the success or otherwise of an area. However, without urban realm that was not achievable. Thus there needs to be an element of both 'the chicken and egg' scenario.
- 13.23 The extent that developers and large retailers will invest in urban realm improvements depended on a number of aspects, such as type, budget and size of development, location and existing urban realm. Examples provided showed that developers invested less than 1% of the total cost of the development on urban realm improvements although they knew it was important to invest in the urban realm.
- 13.24 Developers considered the cost of the urban realm improvements as part of the total development package. The amount spent on urban realm improvements was more of a gut-feeling or by instinct than a calculated cost-benefit analysis. Though, some would calculate the spend depending on how much their budget was and based on how much return they believed they would get on their spend on urban realm.
- 13.25 The benefits of urban realm improvements were increased yield and higher rental values. Several examples were mentioned, such as extending the existing prime retail area further or to compare areas where one is doing well and the other not so and try to bring the failing area to the standard of the more prosperous area or maintaining the competitiveness of an existing area from new developments or retail centres.

14 Discussion Groups with Business Decision Makers

Overview

- 14.1 During the week beginning 21st January 2008, three focus groups were held in London with business owners and business decision makers. The locations of these focus groups were Ealing Broadway, Wimbledon, and Kings Cross. Three key aims of the focus groups were to

understand how people decided where to locate their businesses, to understand to what extent urban realm was considered when choosing store locations, and to determine hypothetically how funds could be raised to implement urban realm improvements.

- 14.2 Participants at the Ealing Broadway focus group either owned or worked in businesses in Ealing or Acton. Five people attended this group.
- 14.3 The group in Wimbledon was attended by six participants who owned or worked in businesses in Wimbledon and Sutton.
- 14.4 The third group in Kings Cross had four participants who either owned or worked in businesses in Hampstead or Whitechapel.
- 14.5 Businesses ranged from specialist retailers to cafés to hair and beauty salons, and all were classed as small businesses.

Understanding Location Choice

- 14.6 Participants discussed their reasons for choosing the current location of their business. The most common responses were:
 - Demographics such as high income levels, for example one person had opened a second store in a different area to their first but had chosen a town with similar demographics because they believed this had been an important factor in the success of the first store. Another said they chose a particular street because “it was like the Bond Street of Hampstead”;
 - Parking was an important issue for all participants. They believed that without good parking facilities people were less likely to visit the town centre and therefore their stores. Parking was also an issue in terms of delivery drivers being able to access the stores. One participant commented that their window cleaner could only get access in the middle of the night when no one was around and even then he got a parking ticket because he was caught on camera;
 - Level of footfall was considered an important aspect to consider and high street locations were often preferred due to generally having good footfall levels and “passing trade”;
 - Type of shops in the area: there were some conflicting ideas as to whether competition was positive or not. For some people it was good because it meant people would specifically come to the area because they knew there were several similar shops that they could browse in for the best product. Some participants also liked the idea of having lots of independent shops in the area because they felt it brought more prosperous people to the area and because it made the area distinctive. Conversely some respondents were against the idea of nearby competitors offering similar goods and services;
 - Quality of other shops in the area: being located next door to ‘Pound Stretcher’ was not considered to be good. Participants wanted to be close to ‘nice’ shops such as Laura Ashley so as to attract a certain clientele. If there are not enough high quality shops in the area participants believed that people would go elsewhere to do their shopping. It was also considered to have a negative impact on business if there were empty premises in the area;

- Security and crime rate: participants were often concerned by 'youths' gathering together in the evenings near their stores. It was thought that lighting, cameras and visible policing were important for combating this;
- Developing areas and rising property prices; this was mentioned in terms of areas being 'on the up' and locating your store there before other top end stores of the same type came to the area. Also in terms of the area beginning to attract more affluent residents and visitors; and
- Access to public transport; the easier it is for people to access the town the more likely they are to come. However, parking was still more important to people than public transport accessibility.

Necessary Improvements

14.7 Participants mentioned many aspects that they thought would improve the areas that their businesses were located in. These included:

- Better parking facilities;
- Cleaner Streets; lack of rubbish collection and 'dumping' was a big issue for most participants;
- Better safety/ more security; it was suggested that this can be achieved through more policing, stopping youths from hanging around and behaving badly, and better lighting;
- Giving the town a 'soul' or community by having a more obvious town centre;
- Improve social cohesion; in one area in particular it was felt that there were a lot of short let properties and this meant local residents were not interested in the town centre nor interested in looking after it because they were not around for long;
- Pedestrianise the centre; it was thought that this would allow a safer, more family oriented, and more relaxed area; town centres should be for shoppers not vehicles;
- Incorporate greenery and flowers to make the area more visually attractive; and
- Having Christmas lights/ Christmas decorations.

Impact of Urban Realm

14.8 Participants were asked to look at four pictures, each apparently at the same high street location but with variations in aspects of urban realm. For example, in one picture there was litter on the footway (Package 2) and in another the street had lots of planting (Package 1). Participants were asked which their favourite picture was in terms of where they would be most likely to locate their business and which was their least favourite. They were also asked to give reasons for their choices.

14.9 In all three focus groups Package 1 was the preferred location for a business. People thought it was a more attractive location in general than the other images and they specifically mentioned the following:

- The fact that there were independent shops in the street;
- A café with tables outside where people could linger;
- The street was pedestrianised and quiet and so would be safer for and attract more mothers with children;

- Another benefit of having a pedestrianised street was that people would “explore” more; they would spend more time walking and looking around;
 - It was cleaner and better maintained than the other images;
 - The paving was well maintained;
 - It had plants; and
 - Generally it looked more prosperous than the other pictures.
- 14.10 An exception to the majority's choice was that one person felt it was better to have a business on a street that cars could access. He was the only person who felt this; the others preferred the pedestrianised street provided there were parking facilities close by.
- 14.11 We asked respondents what they thought the impact on their businesses would be if the improvements portrayed in Package 1 were made to the areas their stores were located in. Responses included footfall levels rising and a higher class of people with more spending power coming to the area. This in turn would mean that profitability would go up. However, it was pointed out that regeneration is not quick and simple - surrounding areas would also need to be improved and improvements should be thought of as a whole package including aspects such as the quality of housing and schools in the area.
- 14.12 Participants least liked Picture 2 and Picture 4. Issues with these images included barriers and bollards being unsafe and discouraging footfall, “barriers became a barrier to people shopping”, lack of road markings, graffiti and litter, and poor paving.

Importance of Urban Realm Improvements

- 14.13 Participants were asked to rate the importance of various aspects of urban realm in determining where to locate their businesses. They did this individually using a Worksheet (please see Table C14.1). For each aspect they had a choice of two options. Participants had to choose their preferred option and then give that option a score out of five⁷ to say how important it was, where five was very important.
- 14.14 The preferred options shown in Table C14.1 are the most common responses and the importance scores shown are average importance scores.
- 14.15 Results from this activity showed that having bright even lighting after dark received the highest importance score from participants, an average score of 4.9. Having public space used for street performers rather than being left empty received the lowest importance score, an average of 3.3. Reasons given for street performers not being so important were that they were not necessary and could detract attention away from the shops.
- 14.16 Other favoured aspects were having historic architecture to add character and having planting. Both of these scored 4.2 and were mentioned during the previous discussions as being important.
- 14.17 None of the participants said they had any trouble understanding what each of the attributes were, what the pictures were showing, or understanding the written descriptions provided.

⁷ Where 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important and 5 = very important.

Table C14.1 Worksheet 1

Attribute	Option 1	Option 2	Preferred option	Importance score
Amount of Street Furniture	Lamp post, railings and bins immediately outside	Clear pavement outside business	2	4.27
Vehicle Dominance	Continual traffic on road	No or little traffic on road	1	4
Speed Limit	30 mph	20 mph	2	4.09
Pedestrian Priority	Majority of street is road	Majority of street is for pedestrians	2	3.55
Use of pavement outside business	Pedestrians, cyclists and parked vehicles	Pedestrians only	1	3.85
Immediate surroundings	Pavement and road	Opposite small green public space	1	3.5
Immediate surroundings	Pavement and road	Within small public square	1	3.86
Pavement condition	Cracked, uneven pavement surface	Smooth, even pavement surface	2	4.71
Pavement Type	Tarmac surface	Paved surface	2	4
Type of architecture	Mix of architecture	Old architecture, with frontages sympathetic to surroundings	2	4.22
Type of architecture	Mix of architecture	All new buildings	1	3.64
Building frontages	Street level frontages blank (no windows or office windows only)	Street level frontages are active (shop window displays, cafes)	2	4.86
Lighting	Poor, patchy lighting after dark	Bright, even lighting after dark	2	4.93
Cleanliness of	Fly posting, graffiti	Street free from	2	5

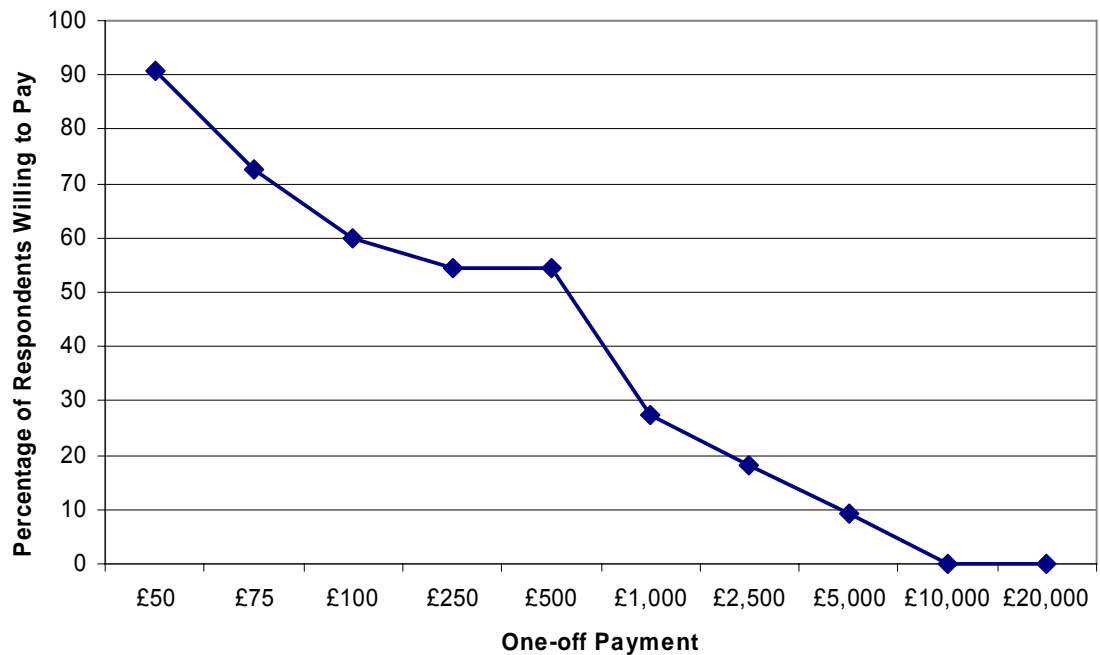
Attribute	Option 1	Option 2	Preferred option	Importance score
street	and litter on street	litter, graffiti and fly posters		
Plants and Tress	No plants or trees	Plants and trees alongside street in well chosen locations	2	4.21
Use of space	Space left empty	Space used for street performers	2	3.33
Use of space	Space left empty	Space used for Café / dining	2	4.08
Use of space	Space left empty	Space used for Public art	2	3.64
Use of space	Space left empty	Space used for Markets	1	4.33
Security	No street wardens	Street wardens	2	4.6

Payment mechanisms

- 14.18 We asked participants how they thought improvements should be funded. Almost all participants commented that they (small businesses) shouldn't have to pay. Most participants considered that improvements to current conditions are needed and should be funded out of existing business rates.
- 14.19 All the high street business groups agreed that the local authority should pay for the improvements. Several participants commented that improvements could be achieved based on existing levels of taxation if services were delivered more efficiently by local authorities. One group also commented that there was a lack of parking in their area and that new parking facilities should be provided and funded by hypothecating the resulting parking revenues.
- 14.20 None of the groups wanted to contribute financially to improvements, however when pressed as to payment mechanisms two of the three groups favoured a one-off payment. The third group refused to choose a payment mechanism as they rejected the idea that they should or could contribute.
- 14.21 The final activity involved identifying how much participants would be willing to pay for improvements to the urban realm. This exercise used the picture they had chosen as their favourite during the packages of improvement exercise and their preferred payment mechanism, in this case the one-off payment (only two of the groups completed this exercise). Participants were asked how much they would be willing to pay for their existing high-street to undergo the improvements presented in their preferred package.

14.22 Figure C14.1 shows the willingness to pay. Ninety one percent of the participants who took part in the final activity said they would be willing to pay a one-off payment of £50 for improvements to be made to the area that their businesses are located in. Not surprisingly this percentage dropped as the one-off payment amounts increased. Seventy three percent said they would pay £75, 60% said they would pay £100, 55% said they would pay £250, and 55% said they would pay £500. Less than half said they would pay £1,000 and above, and no-one was willing to pay £10,000 or above.

Figure C14.1 Willingness to Pay



Summary

- 14.23 In summary, most of the aspects of urban realm that we asked participants about were considered to be important. However, urban realm was not generally mentioned prior to prompting as a reason for choosing a business location.
- 14.24 Key issues that arose during the groups were the importance of parking to small high street businesses; and the need for easy accessibility for. Rubbish/ litter were also significant concerns among participants.
- 14.25 Having a community, in the true sense of the word, was also discussed and considered important. In relation to this it was also thought that improvements must encompass a huge array of other aspects, not just the urban environment of the high street, but also local housing and schools. Some participants considered that improving one small section of an area could cause harm because the improved area could draw people away from the remainder of the area.
- 14.26 In terms of how improvements could be paid for, none of the participants were very willing, if at all, to contribute. All our participants were from small businesses and largely believed

that they already pay significant amounts and expect better services than they currently felt they received.

Appendix D – Stated Preference Research

15 Introduction

- 15.1 The objective of the Stated Preference research was to determine how much business managers valued and would be willing to pay for street improvements in their local area. The benefits were quantified through the use of a Stated Preference (SP) questionnaire.
- 15.2 Stated preference is a market research technique that is used to understand people's valuations of public goods. It does this by giving people a series of choices varying by different attributes (such as street environment and price). By analysing people's preferred combination of attributes presented to them it is possible to understand the importance people place on each attribute and if money is one of the attributes, how much they are willing to pay for them.

16 Questionnaire Structure

- 16.1 The questionnaire was divided into three sections. Section 1 provided information about the respondents' decision to locate in the particular area (or what they would consider) and to what extent the street environment was taken into account. This section also asked the respondent, for each attribute included in the SP exercises, which level most closely matched their existing location.
- 16.2 Section 2 included three choice exercises: two looking at the willingness to pay for individual street improvements and exercise 3 that looked at the willingness to pay for a package of improvements.
- 16.3 Finally Section 3 asked questions about the respondents' business, such as type, size and opening hours.

SP Exercises

- 16.4 The SP exercises presented respondents with a choice between two street environments together with an associated one-off payment, which was based on the business's annual business rate. The first exercise was introduced as follows:

The public sector is looking to invest in the street environment in your local area, but would like local businesses to contribute to the improvements and maintenance. You will be shown a series of options. The options show different street environments for your existing location together with your one off-payment that would apply to each - this is based on your annual business rate. The options in this first exercise differ by:

- *Cleanliness of street*
- *Lighting*
- *Pavement condition*
- *Amount of street furniture*













■ *One-off payment*









Assuming that the public sector and other businesses would contribute a similar amount for the improvements as the local businesses, please say which option you prefer.

16.5 Exercises two and three were introduced in a similar manner but presenting different attributes.

16.6 All of the changes to the street environment were presented to respondents using descriptions and graphics. These descriptions and graphics were tested extensively during the focus groups with local businesses (see Appendix C) to ensure that respondents understood them. Table D16.1 shows the descriptions and graphics used to describe each of the levels of the attributes in exercises 1 and 2.









Table D16.1 Descriptions and Graphics for SP Attributes

Attribute	Option 1	Option 2	Option 3
Cleanliness of the street	 Lots of fly posting, graffiti and litter	 Some fly posting, graffiti and litter	 Street free from litter, graffiti and fly posing
Lighting	 Poor, patchy lighting after dark	 Bright, patchy lighting after dark	 Bright even lighting after dark
Pavement Condition	 Cracked uneven pavement surface	 Cracked, but even pavement surface	 Smooth, even pavement surface
Amount of street furniture	 Lots of lamp posts, railings and bins immediately outside business	 Some lamp posts and bins immediately outside business	 Clear pavement outside business

Attribute	Option 1	Option 2	Option 3
Plants and trees	 No plants or trees	 Plants and trees alongside street in well chosen locations	 Plants alongside street and public art in well chosen locations
Pedestrian Priority	 Majority of street is road	 Majority of street is for pedestrians	 Street is pedestrianised between 10am-4pm Monday-Saturday
Speed limit of traffic	 Speed limit is 30 mph	 Speed limit is 20 mph	Other







16.7 Respondents were shown eight choice cards in exercise 1 and four or five choice cards in exercise 2 and asked to choose their preferred option. An example of a choice card presented to respondents in exercise 1 and 2 is shown in Figure D16.1 and D16.2 respectively.

Figure D16.1 An example showcard from Exercise 1

B1.1		Option 1	Option 2	
		Lots of fly posting, graffiti & litter		No fly posting, graffiti or litter
		Bright, patchy lighting		Bright, patchy lighting
		Cracked, uneven pavement		Smooth, even pavement
		Lots of posts, railings & bins		Some posts, railings & bins
One-Off Payment	No Payment		50% annual business rate (Approx £6500)	

onsultancy

Figure D16.2 An example showcard from Exercise 2

A1.1	Option 1	Option 2
	 <p>Plants, trees & public art in well chosen locations</p>  <p>Street is pedestrianised between 10am-4pm Monday - Saturday</p>  <p>Speed limit is 30mph</p>	 <p>No plants or trees</p>  <p>Majority of street is road</p>  <p>Speed limit is 30mph</p>
	<p>One-Off Payment 30% annual business rate</p> <p>(Approx £ 975)</p>	<p>No Payment</p>

16.8 Exercise 3 presented respondents with a package of attributes of these presented in Exercises 1 and 2. The aim of Exercise 3 was to find the maximum respondents were willing to pay for a package of attributes as it is often found that the sum of the willingness to pay for individual attributes is greater than what people are willing to pay for a package of improvements. Therefore the results from Exercise 3 were used to 'scale down' the values obtained in exercises 1 and 2. An example of a choice card offered in Exercise 3 is shown in Figure D16.3.

Figure D16.3 An example showcard from Exercise 3

A1.1	Option 1	Option 2
	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Street Environment: Package A</p> <p>Lots of fly posting, graffiti & litter Poor, patchy lighting Cracked, uneven pavement Lots of posts, railings & bins</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Pedestrian Environment: Package A</p> <p>No plants or trees Majority of street is road 30 mph speed limit</p> </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Street Environment: Package C</p> <p>No fly posting, graffiti & litter Bright, even lighting Smooth, even pavement No posts, railings & bins</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Pedestrian Environment: Package B</p> <p>Plants & trees Pedestrianised 10am-4pm Mon.-Sat 20 mph speed limit</p> </div>
	<p>One-Off Payment No Payment</p>	<p>70% annual business rate</p> <p>(Approx £2275)</p>

16.9 There were three different versions of the SP questionnaire. These varied by the amount that businesses paid for their monthly business rate. The associated cost with each street environment was presented as a one-off payment based on a percentage of the businesses' annual business rate. As some respondents may not relate to percentages, an estimate of the one-off payment was calculated based on an annual business rate typical for that size of business. Three ranges were used and a mid-point used to calculate the implied one-off payment as shown below:

- Small Businesses: £50 - £599, midpoint £325
- Medium Businesses: £600 - £1,999, midpoint: £1,300
- Large Businesses: £2,000+, midpoint: £4,000¹

Fieldwork

Pilot Fieldwork

16.10 Prior to the main fieldwork, three pilot surveys were undertaken. The aim of the pilot surveys were to test:

- the fieldwork methodology;
- the recruitment process of respondents;
- whether the questions were understood by respondents;
- the range of costs presented in the SP exercises;
- the types of payment mechanism presented in the SP exercises; and
- the anticipated magnitude of the visual amenity benefits.

16.11 An overview of each pilot survey is provided below:

- Pilot 1: Self-completion questionnaire using the monthly business rate as a payment mechanism. The questionnaire was distributed to business managers who were responsible for strategic or financial decisions within businesses in Acton and Wimbledon on Thursday 28th February. 230 businesses were approached of which 30% were not willing to accept a questionnaire and of those distributed 11% were returned (18 questionnaires). The reasons for not completing the questionnaire included, the manager was not available or they did not have sufficient time to complete it (only four days). Due to the low response rate and because not all the relevant information was completed in the returned questionnaires, it was decided to explore other fieldwork methodologies that would provide a more robust dataset;
- Pilot 2: Telephone-post-Telephone and Face-to-Face fieldwork methodologies were tested between the 12th May and the 9th June. 154 people were recruited for the telephone-post-telephone questionnaire across Ealing Broadway, Camden, Hampstead and Kingston. Respondents were recruited face-to-face and then providing that they were willing to take part, posted an information pack containing the SP show material. This was followed by a telephone call where the interviewer completed the SP

¹ The midpoint for this category was based on the average monthly business rate for large businesses developed in Pilot 3.

questionnaire with the respondent. Despite 154 people specifying that they would be willing to take part in the questionnaire only 13 completed the telephone interview. The reasons for not completing the telephone interview included:

- insufficient time (the interview was generally taking about 30 minutes to complete);
- lack of interest (as there was a couple of days lag between the respondent being recruited and interviewed); and
- being unable to contact the person responsible for the business's strategic decisions.

To overcome some of the issues face-to-face interviews were undertaken at Kingston and Croydon, which resulted in 26 interviews being completed in two days. The recruitment criteria was also relaxed so that the person responsible for the day-to-day management of the business could also complete the questionnaire. Three different payment mechanisms were tested as part of Pilot 2: monthly rebate in exchange for a poorer quality of street environment, monthly increase in business rates and a one-off payment based on their annual business rate. Although insufficient responses were collected to thoroughly test the SP results for each of the different payment mechanisms, respondents' reactions were generally more positive towards the one-off payment mechanism where the public sector also contributed. The findings from the focus groups also supported the one-off payment mechanism rather than an increase / decrease in monthly business rates. The conclusions from Pilot 2 were to use a face-to-face fieldwork methodology, to reduce the length of the questionnaire and to allow duty-managers to complete the questionnaire; and

- Pilot 3: Face-to-Face interviews were undertaken on the 3rd/ 4th July in Lewisham and Richmond. The target number of interviews (40) was achieved. This allowed for the testing of the designs and payment mechanism (one-off payment). Some of the payment levels in the SP exercises were increased following pilot 3 prior to the main fieldwork as at least a quarter of the sample was always willing to pay the highest amount.

Main Fieldwork

16.12 The main fieldwork took place between the 17th and the 29th July. The following high-streets were targeted:

- Brent;
- Carnaby Street;
- Enfield;
- Hammersmith;
- Harrow;
- Ilford;
- Morden;
- Putney;
- Uxbridge;

- Walthamstow;
 - Fulham Broadway;
 - Greenwich; and
 - Islington
- 16.13 The information obtained in the main fieldwork was combined with the data from Pilot 3. 405 interviews were completed in total.
- 16.14 For each location, interviewers were provided with a map of the high street. They entered every business along the high-street and recorded key information about the business, even if the manager was not willing to take part in the questionnaire. The information included:
- Name and Type of Business (Bank, Estate Agent, Other service provider, Coffee shop / pub / restaurant, High Street retailer, Independent retailer, other);
 - Size of premises (large superstore, large store, medium, small);
 - Whether the business premises were owned or rented; and
 - If the business was not willing to take part in the research, the reason why.
- 16.15 The first three pieces of information provided information about the total sample of businesses in the area. The SP sample was then compared with the total sample of businesses to ensure that the SP sample was representative of the wider business population or where not, allowed the weighting of the SP sample as necessary.

17 Overview of Data Achieved

- 17.1 In total 405 interviews were achieved. However, 5 people have been excluded from the sample profile because they completed less than half of each of the SP exercises.
- 17.2 For the 400 interviews included in analysis, Table D17.1 shows how many of these interviews were achieved in each fieldwork location.

Table D17.1 Number of interviews achieved by survey area

Fieldwork Location	Frequency	Percentage
Islington	28	7%
Walthamstow	28	7%
Morden	28	7%
Harrow	28	7%
Enfield	28	7%

Fieldwork Location	Frequency	Percentage
Hammersmith	28	7%
Uxbridge	28	7%
Fulham Broadway	28	7%
Brent/Wembley	28	7%
Putney	27	6.75%
Greenwich	27	6.75%
Lewisham	26	6.5%
Carnaby Street	25	6.25%
Ilford	23	5.75%
Richmond	20	5%
Base	400	100

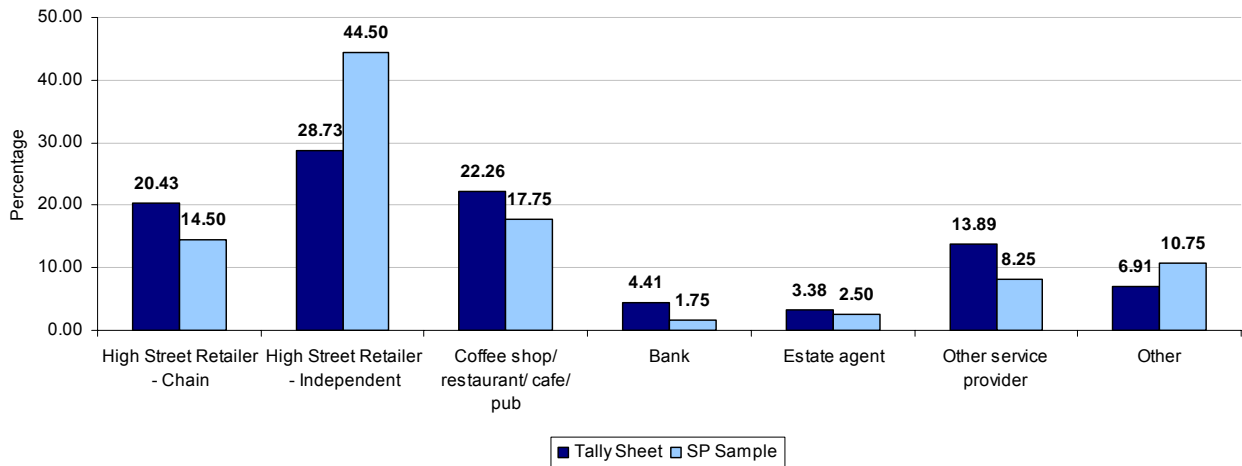
18 Sample Profile:

- 18.1 This section provides an overview of the sample of businesses completing the questionnaire and where data is available compares the SP sample with the characteristics of the total population of businesses approached on the high street.

Sample of Businesses

- 18.2 Figure D18.1 shows the types of businesses included in the SP sample and total population. The proportion of banks, estate agents and restaurant/ pub type businesses that completed the survey is similar to the proportions recorded by interviewers on a tally sheet as being situated in the survey areas. However, there were noticeable differences for the other business types. In particular, high street chain retailers were under-represented in the SP sample (SP sample=15% compared with Tally Sheet=20%) and independent high street retailers were over-represented (SP sample=45% compared with Tally Sheet=29%). Feedback from the interviewers suggested that this was partially due to the fact that people running the high street chain stores felt unable to answer these types of questions without referring the questionnaire to head office.

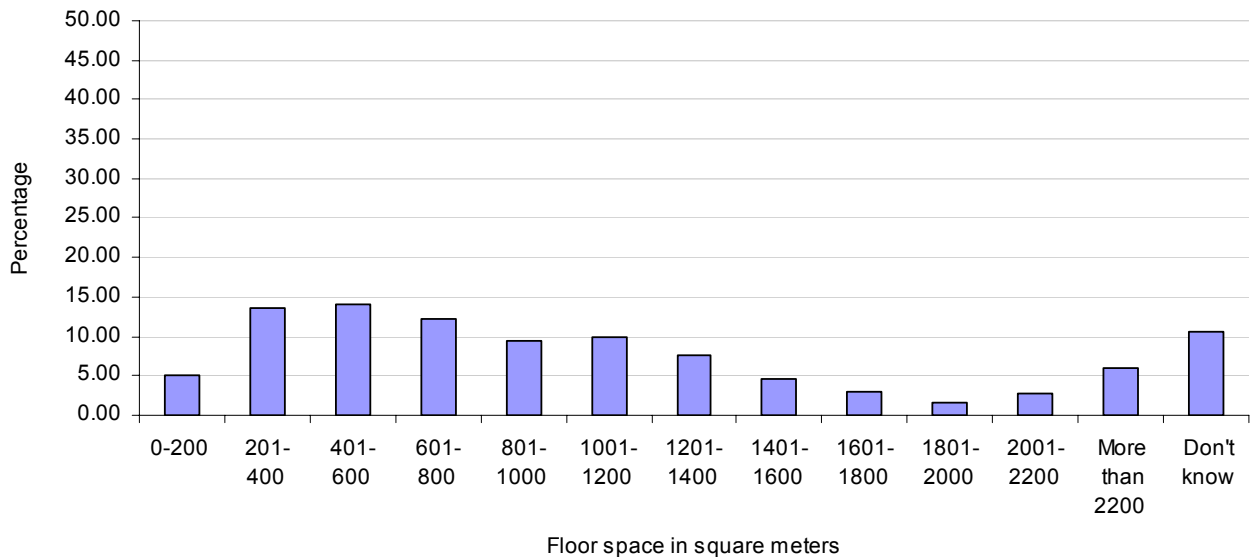
Figure D18.1 Types of businesses in the population compared to in the sample



18.3 Two thirds (67%) of the businesses included in the analysis of this survey were classified as 'local' businesses. This is a possible reflection of the high proportion of independent retailers in the sample. Almost a quarter (24%) of business said they were UK wide or international. Just 6% said they were regional and 4% said they were country wide.

18.4 Figure D18.2 shows the distribution of floor space for the business included in the sample for analysis. Over a quarter (28%) of business premises were between 201 and 600 square meters. However, the mean floor space size is 935.2 square meters.

Figure D18.2 Distribution of floor space



18.5 On the tally sheet interviewers were asked to record whether businesses were small, medium, or large. For the purpose of comparison with the Tally Sheet, we have classified small businesses as being 600 square meters or less, those between 601 and 2000 square meters as medium, and those above 2000 square meters as large. Table D18.1 shows that a similar proportion of interviewed businesses and businesses in the population were of medium size (54% and 53%), while a much higher percentage of small businesses were interviewed than situated in the survey areas (36% compared with 18%), and a much lower

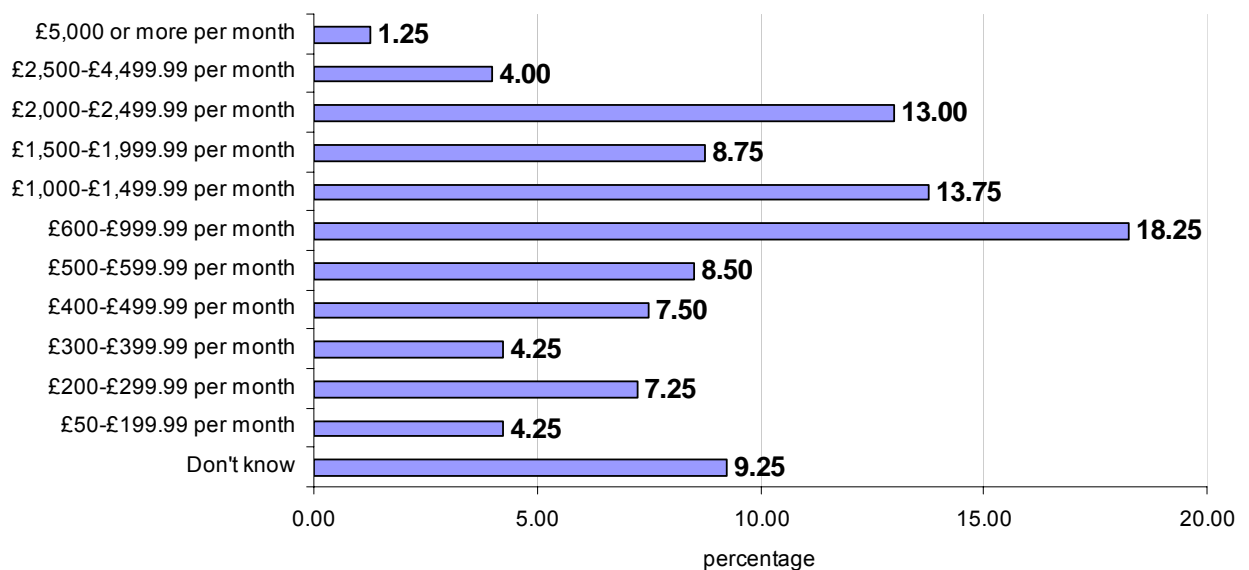
proportion of large business were interviewed that which are situated in the survey areas (10% compared with 29%).

Table D18.1 Sizes of businesses

Business Size	Population	SP Sample
Small	18%	36%
Medium	53%	54%
Large	29%	10%
Base	1348	358 ²

18.6 Figure D18.3 displays the distribution of business rates for our sample. Nearly a fifth (18%) of respondents said their monthly business rate was £600 - £999.99. However, the mean monthly business rate is £1229.82.

Figure D18.3 Distribution of business rates



18.7 Table D18.2 shows that the majority of all businesses are open between 7 am and 7 pm, in fact all (100%) banks that completed a survey were open between these times. Very few businesses were open before 7 am and none of the named business types were open before 4 am. At least some businesses were open after 10 pm for all business types except banks and estate agents.

² Excluding the respondents who did not know how large the businesses premises were.

Table D18.2 Percentage of businesses open by time of day

	High Street Retailer-chain	High Street Retailer-independent	Coffee shop/ cafe/ restaurant/ pub	Bank	Estate agent	Other service provider	Other
01:00-04:00	-	-	-	-	-	3	5
04:00-07:00	2	7	10	-	-	3	11
07:00-10:00	91	79	43	100	90	84	79
10:00-13:00	84	90	94	100	100	91	80
13:00-16:00	84	88	91	100	100	91	80
16:00-19:00	83	83	87	100	100	88	75
19:00-22:00	17	28	64	14	10	25	31
22:00-01:00	2	5	49	-	-	3	7

Sample of Respondents

18.8 Respondents were asked what their responsibilities are for the business (Table D18.3). As respondents were able to tick more than one option, the answers have been re-classified. The three categories used were: own / joint own the business; involved in strategic management of the store; and responsible for the day-to-day running of the store. It was assumed that these are in descending order of influence over the business. Nearly half of respondents (47%) said they owned or jointly owned the business and 39% said they were responsible for the day-to-day running of the store. Therefore despite relaxing the recruitment criteria to include people responsible for the day-to-day running of the store, there is a reasonably distribution of respondents who own the business or who are involved in its strategic management.

Table D18.3 Respondents' responsibilities for the business

Responsibilities	Percentage
I own/ joint own the business	47%
I am involved in the strategic management of the store	15%
I am responsible for the day-to-day running of the store	39%
Base	400

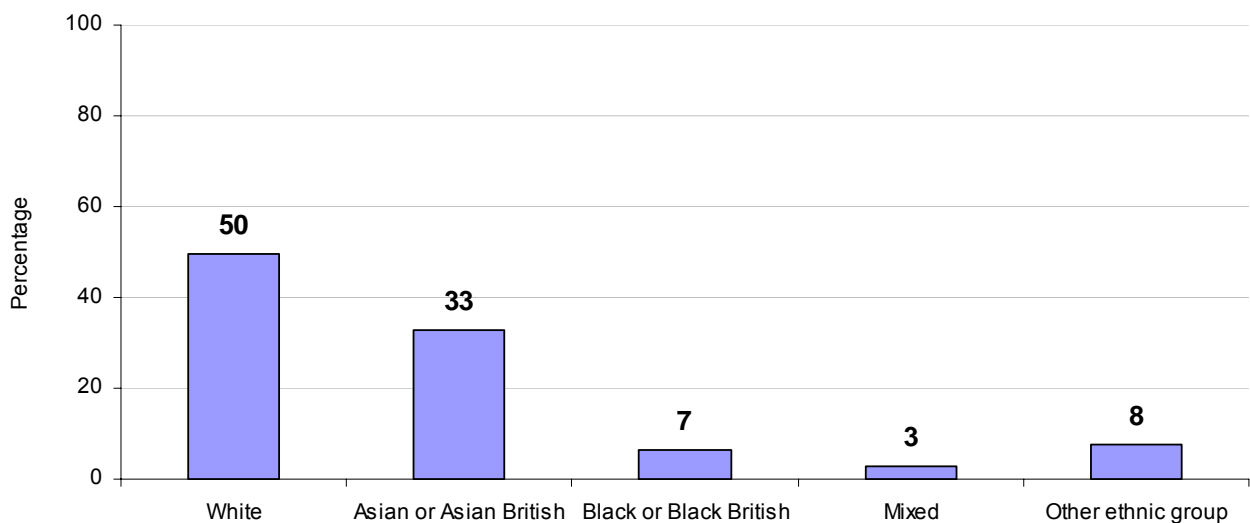
- 18.9 The majority (81%) of respondents said they rented their premises, a further 17% said they owned the premises and 2% did not know.
- 18.10 Almost two thirds (65%) of respondents were male and 61% were aged between 25 and 44 years old. Female respondents were slightly more likely to be under 35 years old than male respondents (43% compared with 37%).

Table D18.4 Breakdown of respondent age by gender

	Male	Female	Total %
Under 25 years old	7	8	7
25-34 years old	30	35	31
35-44 years old	31	29	30
45-54 years old	18	22	20
55-64 years old	11	5	9
65 years or older	3	2	3
Base	261	139	400

- 18.11 Half (50%) of the sample were of white ethnicity and a third (33%) were Asian/ Asian British. A further 7% were Black or Black British and 3% were of mixed ethnicity. Eight percent of respondents said they were of some other ethnicity.

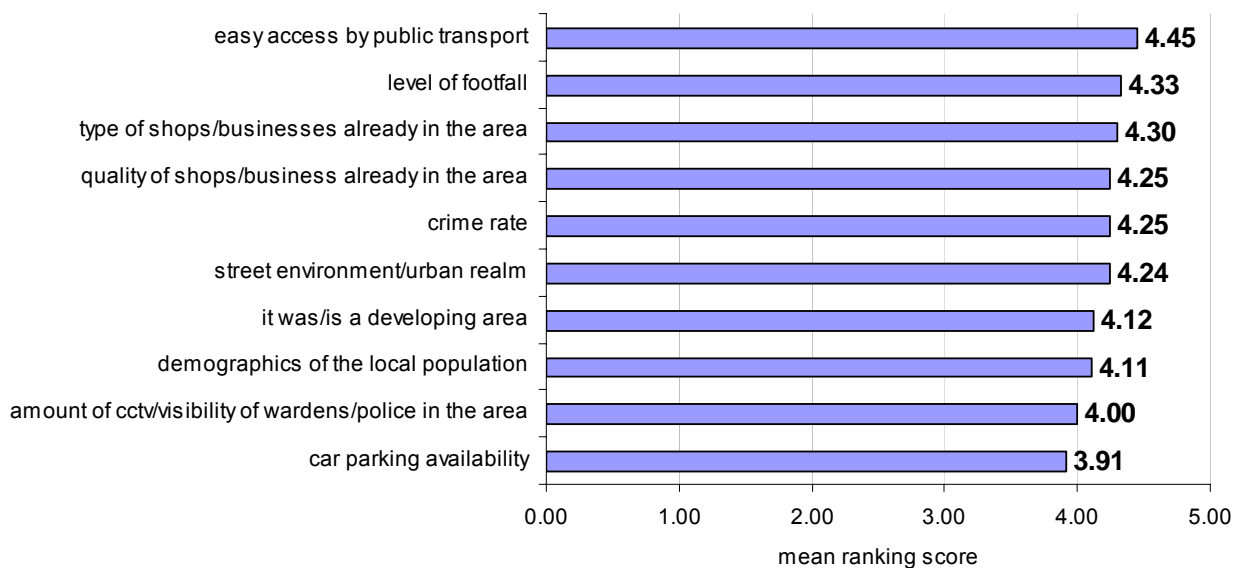
Figure D18.4 Ethnicity of respondents



Understanding the Existing Street Environment

- 18.12 Respondents were asked to rate a series of attributes in terms of the level of consideration they gave to each when deciding where to locate their business. They were asked to rate their level of consideration on a scale of 1 to 5 with 1 being very low consideration and 5 being very high consideration.
- 18.13 Ease of access to the business location by public transport achieved the highest mean ranking score (4.45) and car parking availability received the lowest mean ranking score (3.91). Street environment received a mean score of 4.24; ranking sixth out of the ten aspects.

Figure D18.5 Level of consideration given to various aspects when choosing where to locate business



- 18.14 The level of consideration given to each of the aspects varies by type of business. For example, banks and high street chain retailers had a mean ranking score of 3.86 and 3.98 respectively for street environment, while restaurant/ pub type businesses had a mean ranking score of 4.38 for street environment (this was the highest rating for street environment).
- 18.15 Most businesses rated ease of access by public transport as the aspect they would give the most consideration to (see table 4.5). However, independent retailers and 'other service providers' rated type of shops/ businesses already in the area as the aspect they would most consider (4.44 and 4.3 respectively). Restaurant and pub businesses rated level of footfall as the aspect they would most consider (4.46).
- 18.16 Table D18.5 shows the ranking given to each aspect by business owners compared to the ranking given by those people involved in strategic managements or who are responsible for the day to day running of the business. Cells highlighted in purple show the aspect each type of respondent gave the highest consideration to, and the cells highlighted in grey show the aspect each type of respondent gave the lowest consideration to.

Table D18.5 Level of consideration given to various aspects when choosing where to locate business by level of responsibility

	Responsibility for the business:	
	Own or joint own the business	Involved in strategic management or responsible for the day to day running of the business
type of shops/ businesses already in the area	4.37	4.24
easy access by public transport	4.34	4.54
street environment/ urban realm	4.28	4.22
level of footfall	4.24	4.39
quality of shops/ business already in the area	4.23	4.25
crime rate	4.23	4.27
demographics of the local population	4.07	4.15
it was/ is a developing area	4.07	4.17
amount of CCTV/ visibility of wardens/ police in the area	3.95	4.03
car parking availability	3.80	4.01

18.17 On average, types of shops and business already in the area was given the most consideration by respondents who owned their business, while ease of access by public transport was considered most important by those who did not own the business but were involved in strategic decision making or day to day management. Both respondent types gave car parking availability the least consideration. Despite this, those involved in strategic decision making or day to day management gave car parking availability more consideration than business owners did (4.01 compared with 3.80).

18.18 Table D18.6 shows the ranking of each aspect for each business type. Cells highlighted in purple show the aspect each type of business gave the highest consideration to, and the cells highlighted in grey show the aspect each type of business gave the lowest consideration to.

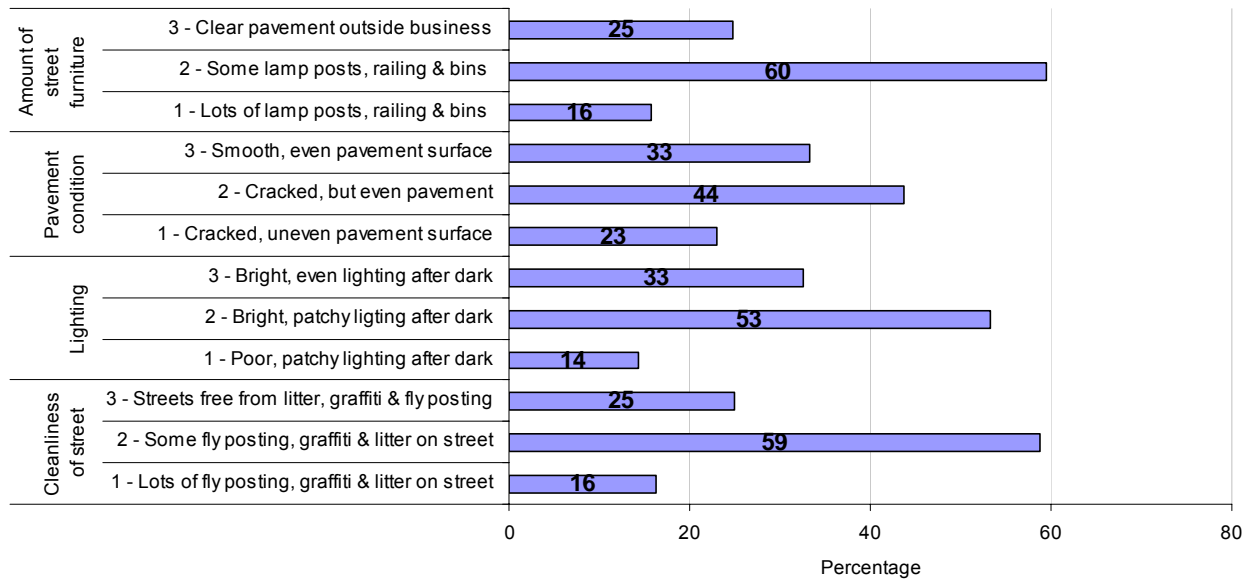
Table D18.6 Level of consideration given to various aspects when choosing where to locate business by type of business

Aspects to be ranked	High Street Retailer-Chain	High Street Retailer-Independent	Coffee shop/restaurant/cafe/pub	Bank	Estate agent	Other service provider	Other
easy access by public transport	4.59	4.40	4.44	4.86	4.60	4.24	4.53
level of footfall	4.38	4.43	4.46	4.00	4.10	3.94	4.02
amount of cctv/visibility of wardens/police in the area	4.21	4.02	3.94	4.14	4.00	3.70	3.95
quality of shops/business already in the area	4.16	4.33	4.34	4.00	4.00	4.18	4.07
it was/is a developing area	4.10	4.06	4.20	4.43	4.10	4.00	4.26
type of shops/businesses already in the area	4.09	4.44	4.34	3.43	3.80	4.30	4.21
demographics of the local population	4.07	4.11	4.08	4.43	4.20	4.12	4.14
car parking availability	3.98	4.03	3.59	3.43	4.50	4.15	3.60
crime rate	3.98	4.29	4.27	4.43	4.30	4.21	4.37
street environment/urban realm	3.98	4.30	4.38	3.86	4.30	4.21	4.19

18.19 Seven respondents mentioned other aspects which they had given high/ very high consideration to. These included cleaner streets, being in a residential area and employees needing parking facilities outside the business.

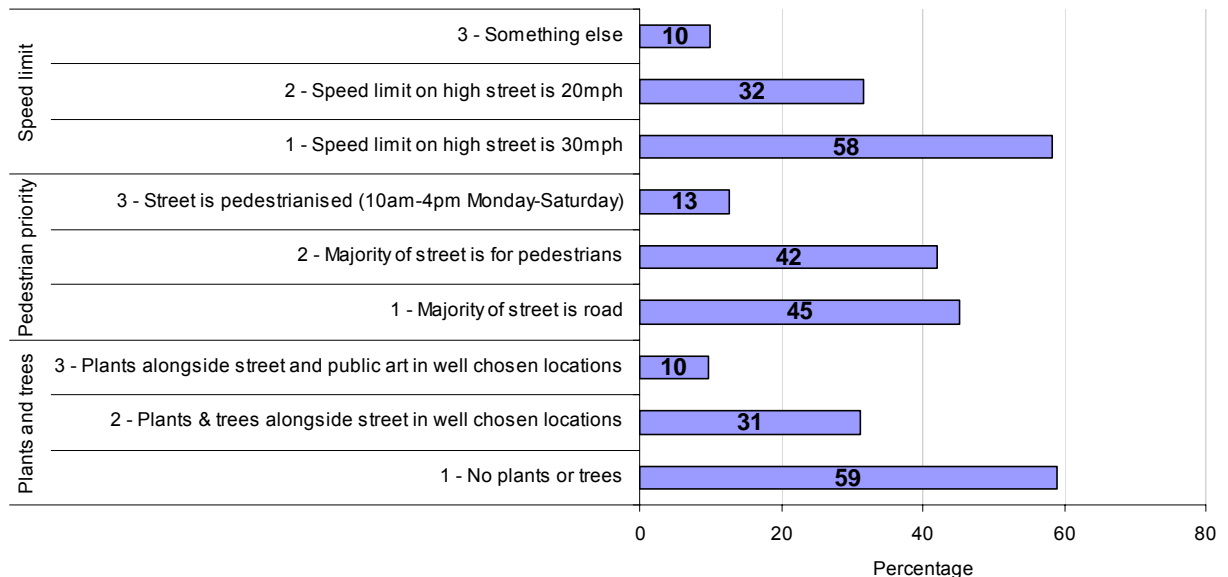
18.20 Respondents were also asked, for each of the attributes included in the SP exercises, which level most closely represented their existing street environment. Overall, the majority of respondents specified that the middle option of each attribute most closely represented the existing street environment for their current business location (see Figure D18.6).

Figure D18.6 Respondents' perceptions of the street environment in their businesses current locations



18.21 For the pedestrian environment, the majority of respondents specified that option 1 of each attribute most closely reflected their existing business location (see Figure D18.7).

Figure D18.7 Respondents' perceptions of the pedestrian environment in their businesses current locations



18.22 Finally respondents were asked what single improvement could be made to the street environment to benefit their business. Of the 398 who did respond, 43 said nothing could be/ needed to be improved, and 3 said they did not know. Of the 352 respondents who provided a comment, some respondents suggested more than one improvement (this means that percentages in Table D18.7 add up to more than 100%). The most common improvement suggested by respondents was 'Better access/ parking for road users' (28%). This was

followed by cleaner streets (14%), reduced crime (11%) and a higher police presence / community wardens (11%).

Table D18.7 The most important improvements needed to benefit respondents' businesses, suggested by respondents

Improvement	Percentage
Better access/ parking for road users	28%
Cleaner streets	14%
Reduce crime	11%
Higher police presence/ community wardens	11%
Better lighting	6%
Provide bins/ recycling bins and have regular collections	5%
Better traffic control	5%
CCTV/ improved security	5%
Better paving	5%
More plants/ trees	4%
Better quality shops	4%
Provision for loading and unloading/ pick ups	3%
Pedestrianise the street	3%
Respondent has issues with rates	3%
New development is needed	2%
Attract more people to the area	2%
Make the area better for pedestrians (pedestrian crossings/ wider pavements/ etc)	2%
Clear the pavement outside shop front	1%
Other	10%
Base	352

18.23 If we compare suggested improvements made by respondents who own their business and respondents who are involved in strategic or day to day management of the business we see there is little difference (see Table D18.8).

18.24 However, those who own their business were slightly more likely than those who were involved in strategic or day to day management to think the following two aspects should be improved:

- Lighting (8% compared with 5%); and
- Business rates (5% compared with 2%);

18.25 Those who were involved in strategic or day to day management were slightly more likely than those who own their business to think the following aspects should be improved:

- Crime (13% compared with 10%);
- Police/ community warden presence (12% compared with 9%); and
- Traffic control (7% compared with 3%).

Table D18.8 The most important improvements needed to benefit respondents' businesses, suggested by respondents who own their business and respondents who are involved in strategic management or day to day management

Improvements	Responsibility for the business	
	Own or joint own the business (%)	Involved in strategic management or responsible for the day to day running of the business (%)
Better access/ parking for road users	28%	29%
Cleaner streets	14%	14%
Reduce crime	10%	13%
Higher police presence/ community wardens	9%	12%
Better lighting	8%	5%
CCTV/ improved security	6%	4%
Respondent has issues with rates	5%	2%
Better quality shops	5%	3%
Provide bins/ recycling bins and have regular collections	5%	5%

Better paving	5%	6%
More plants/ trees	4%	4%
New development	3%	2%
Better traffic control	3%	7%
Provision for loading and unloading/ pick ups	3%	3%
Attract more people to the area	3%	2%
Pedestrianise the street	2%	3%
Clear the pavement outside shop front	2%	1%
Make the area better for pedestrians/ crossings/ wider pavements/ etc	2%	2%
Other	10%	9%
Base	150	192

19 Results of SP Exercises

19.1 This section provides the results from the SP exercises. There were three SP exercises in total. As the design for each exercise would have involved too many cards for a respondent to complete, each design was split into two. There were three versions of each design, differing only by the calculated one-off payment. Table D19.1 shows the number of respondents completing each of the six SP packs.

Table D19.1 Number of respondents who completed each version of the questionnaire

Questionnaire Version	Frequency	Percentage
A1	68	17%
A2	58	15%
B1	96	24%
B2	98	25%

Questionnaire Version	Frequency	Percentage
C1	45	11%
C2	35	9%
Base	400	400

19.2 The results from the SP exercises were analysed using the following methods:

- Trading analysis. This allows us to understand to what extent respondents are choosing different options during the exercise. Respondents are classified as non-traders if for all of the SP choices they always choose the option with no cost, or the option with a cost;
- Choice proportions or frequency count analysis considers the frequency that each option is chosen for each attribute level. We would expect that as the cost increases for each Option, the proportion of respondents choosing the Option decreases or as the level for each attribute improves, the proportion of respondents choosing that Option increases;
- Logit analysis. The answers from the SP exercise were analysed using discrete choice modelling, which aims to explain the choices of the individuals using the attributes presented to the respondents during the exercise, such as lighting, cleanliness, amount of street furniture and cost. From the logit analysis, one can calculate the amount that business managers are willing to pay for specific improvements to the street environment.

19.3 The results are presented separately for each exercise showing the final results only. All of the results presented for the logit analysis have been weighted by business type to reflect the distribution of business as determined from the tally sheet. The exercises consisted of two looking at the willingness to pay for individual street improvements and exercise 3 that looked at the willingness to pay for a package of improvements. They are described in more detail from 2.2-2.4, above.

Exercise 1

Trading Analysis: Exercise 1

19.4 The trading analysis results are shown for Exercise 1 in Table D19.2. Overall 52% of people traded, e.g. choose at least one option with and without a cost during the exercise. 33% of people always choose the option with no associated cost and 15% of respondents always chose the option with the cost. Feedback from the interviewers suggested that respondents already felt that they paid too much money in business rates and were not happy with the existing level of service they received. They therefore did not want to pay additional money for street improvements as they felt that this should be covered in what they currently paid.

Table D19.2 Trading Analysis of Exercise 1

Trading Analysis	A	B	C	Total
Traded	56%	45%	61%	52%
Always cost	13%	17%	15%	15%
Always no cost	31%	38%	24%	33%
Total	100%	100%	100%	100%

19.5 Analysis has also been undertaken to examine the likelihood to trade of those that own or joint own a business compared to those participants that are involved in strategic management or are responsible for the day to day running of the business.

19.6 This suggests that those that own their own business are more inclined to choose the 'no cost' option. This is not entirely surprising as they are directly spending their own money, as opposed to that of their employer. It may also indicate an inability to pay, particularly as owners/joint owners almost entirely represented small or medium businesses. This finding reinforces the message from the discussion groups that there is a significant resistance to payment among independent businesses, partly based on their belief that the types of improvement suggested should already be funded from existing business rates.

Table D19.3 Levels of trading for Exercise 1 by Responsibility for Business

Level of Trading	Responsibility for the business		Total
	Own / joint own the business	Involved in strategic management or day-to-day responsibility	
Traded	47%	57%	52%
Always cost	10%	20%	15%
Always no cost	43%	24%	33%
Total (%)	100%	100%	100%
Base	187	212	399

Choice Proportions: Exercise 1

- 19.7 The trading analysis showed that a high proportion of people were not willing to trade across the different options, despite this not being apparent in the pilot surveys. Due to the large amount of non-traders in Exercise 1 it has been necessary to exclude the non-traders from the SP logit analysis in order to produce significant results. In addition to this, a question was included for the interviewers to assess how well the respondent understood the SP exercise. Respondents who did not seem to understand the SP exercises or who gave rushed answers were excluded from the choice proportions and logit analysis: an additional 15 respondents. Table D19.4 shows the choice proportions for each attribute for the traders.

Table D19.4 Choice Proportions: Exercise 1

Attribute and Level	% People choosing the Improved Street Environment	% Increase from no change
Litter		
No change : Some-> Some	54%	
Lots of Litter / Graffiti -> Some Litter / Graffiti	64%	10%
Lots of Litter / Graffiti -> No Litter / Graffiti	59%	5%
Lighting		
No change: Patchy -> Patchy	58%	
Poor, dim lighting -> Bright, patchy lighting	58%	0%
Poor dim lighting -> Bright even lighting	62%	4%
Pavement condition		
No change: Even-> even	48%	
Cracked, uneven pavement-> Cracked, even pavement	60%	12%
Cracked uneven pavement -> smooth even pavement	67%	19%
Street Obstacles		
No change: Some -> some	55%	
Lots of street obstacles -> some street obstacles	59%	5%
Lots or street obstacles -> no street obstacles	62%	7%

Attribute and Level	% People choosing the Improved Street Environment	% Increase from no change
One off Payment: % Annual Business Rate		
15% (10%) ³	67%	
50% (30%)	56%	-11%
100% (60%)	45%	-22%

19.8 The choice proportions are generally as expected. The second column shows the proportion of people choosing that option when it was presented (e.g. choosing the option with the associated cost and improvement to the street environment). For example, 66% of respondents choose the smooth even pavement when presented compared with 59% of respondents choosing the cracked even pavement.

19.9 The third column shows the change in respondents choosing the attribute when the level changes. As expected, in general, as the attribute improves the percentage of respondents choosing the attribute increases. As the cost increases, the percentage of respondents choosing the option associated with an increased cost decreases. The exception to this is for litter / graffiti where the second level appears to be chosen more than the more improved level three.

Logit Analysis: Exercise 1

19.10 The answers from the SP exercise were analysed using discrete choice modelling, which aims to explain the choices of the individuals using the attributes presented to the respondents during the exercise. The utility equation for each of the street options for Exercise 1 is presented below:

$$V_{Street} = \alpha_{patchlight} \cdot PatchyLighting + \alpha_{brightlight} \cdot BrightLighting + \alpha_{somelit} \cdot SomeLitter + \alpha_{nolitter} \cdot NoLitter + \alpha_{cracked} \cdot CrackedEvenPavement + \alpha_{smooth} \cdot SmoothEvenPavement + \alpha_{someobs} \cdot SomeObstacles + \alpha_{noobs} \cdot NoObstacles + \alpha_{cost} \cdot Cost$$

where α_{xxx} are the parameters to be estimated from the logit analysis. *PatchyLighting* etc are dummy variables representing the change in the street environment. For example, *PatchyLighting* is one where there is a change from Poor Lighting -> Bright Patchy Lighting and zero otherwise. The *Cost* is the percentage cost of the annual business rate that will be paid as a one-off payment associated with the option.

³ The numbers in brackets show the payment levels shown for Pilot 3, the results of which were included in the main fieldwork sample. The results from pilot 3 indicated that the payment levels were too low and hence were increased for the main survey.

19.11 Table D19.5 shows the final results for Exercise 1. The coefficient is the parameter to be used in the above equation, the standard error provides an indication of the spread of the parameter and the t-statistic indicates whether the parameter is statistically different from zero. If the t-statistic is greater than 1.96, the parameter is significant at the 95% confidence level.

Table D19.5 Exercise 1: Final Results

Attribute	Coefficient	Standard Error	T-Statistic	WTP % Annual Business Rate
Poor->patchy lighting	0.094	0.122	0.769	8.5
Poor->bright lighting	0.211	0.108	1.960	19.3
Cracked, uneven -> cracked, even paving	0.578	0.116	5.008	52.7
Cracked uneven -> smooth, even paving	0.867	0.156	5.567	78.9
Lots -> Some litter / graffiti	0.471	0.162	2.901	42.9
Lots -> no litter / graffiti	0.242	0.129	1.874	22.0
Lots -> some obstacles	0.000	15.940	0.000	0.0
Lots -> no obstacles	0.225	0.107	2.098	20.5
cost	-0.011	0.002	-5.982	0.0

Number Individuals: 195, Final log-likelihood: -1101.76

19.12 The parameters are of the expected sign. The negative cost parameter indicates that people view increases in cost as a disbenefit. The parameters for the improvements in the street environment are positive, indicating that people view the improvements as beneficial.

19.13 The majority of parameters are significant at the 95% confidence level, with the exception of the following:

- Poor -> patchy lighting. It is possible that as the survey was undertaken during the summer when natural lighting is available, respondents may not have placed as much importance on lighting as might have been anticipated. It is possible that had the survey taken place during the winter, more value might have been given to lighting;
- Lots of litter -> no litter or graffiti. Although not significant, it is unlikely that respondents would place less value on having no litter or graffiti compared with some litter and graffiti, given the comments shown in Table 4.7. 19% of respondents mentioned cleaner streets or more regular litter collections as being the most important aspect to improve their street environment;

- Lots of street obstacles -> some street obstacles. Businesses do not seem to value removing a few street obstacles, but do place a value on providing a clear street rather than a cluttered one.

19.14 The willingness to pay value is calculated as the coefficient of the street environment divided by the % of annual business rate. From Exercise 1, the non-traders are willing to pay 19% of their annual business rate as a one-off payment to improve the street lighting from poor patchy lighting to bright even lighting.

Exercise 2

Trading Analysis: Exercise 2

19.15 The trading analysis results are shown for Exercise 2 in Table D19.6. Overall 41% of people traded, e.g. choose at least one option with and without a cost during the exercise. 44% of people always choose the option with no associated cost and 14% of respondents always chose the option with the cost.

Table D19.6 Trading Analysis of Exercise 2

	A	B	C	Total
Traded	42%	38%	49%	41%
Always cost	10%	14%	21%	14%
Always no cost	47%	48%	30%	44%
Total	100%	100%	100%	100%

Choice Proportions: Exercise 2

19.16 As with Exercise 1, the trading analysis for Exercise 2 showed that a high proportion of people were not willing to trade across the different options. Due to the large amount of non-traders in Exercise 2 it has been necessary to exclude the non-traders from the SP logit analysis in order to produce significant results. Table D19.7 shows the choice proportions for each attribute for the non-traders and those who understood the SP exercises.

Table D19.7 Choice Proportions: Exercise 2

Attribute and Level	% People choosing the Improved Street Environment	% Increase from no change
Plants and Public Art		
No change: Some-> Some	36%	

No plants or trees-> Plants and trees	52%	17%
No plants or trees -> Plants, trees and public art	55%	19%
Pedestrianisation		
No change: Majority of street is for pedestrians	42%	
Road -> street is pedestrianised between hours	49%	7%
Road-> majority street is for pedestrians	55%	13%
Speed limit		
30->30	53%	
30->20	44%	-9%
One of Payment: % Annual Business Rate		
10% (10%) ⁴	57%	
30% (30%)	46%	-11%
70% (60%)	37%	-20%

- 19.17 In general, the choice proportions are in-line with expectation in that as the attribute improves the percentage of respondents choosing the attribute increases. As the cost increases, the percentage of respondents choosing the option associated with an increased cost decreases. The exception to this is for pedestrianisation where respondents view having a wider pavement, but with vehicle access more positively than pedestrianising the street. In addition to this, respondents have viewed the reduction in the speed limit to 20mph as a disbenefit compared with a 30mph limit.

Logit Analysis: Exercise 2

- 19.18 The equation used in the logit analysis for exercise 2 is shown below:

$$V_{Street} = \alpha_{plants} \cdot Plants \& Trees + \alpha_{art} \cdot PlantsArt + \alpha_{largepavement} \cdot LargePavement + \alpha_{pedestrianised} \cdot Pedestrianised + \alpha_{20mph} \cdot SpeedLimit20mph + \alpha_{cost} \cdot Cost$$

where α_{xxx} are the parameters to be estimated from the logit analysis. *Plants&Trees* etc are dummy variables representing the change in the street environment. For example, *Plants&Trees* is one where there is a change from No Plants or Trees -> Plants and Trees and

⁴ The numbers in brackets show the payment levels shown for Pilot 3, the results of which were included in the main fieldwork sample. The results from pilot 3 indicated that the payment levels were too low and hence were increased for the main survey.

zero otherwise. The Cost is the percentage cost of the annual business rate that will be paid as a one-off payment associated with the option.

- 19.19 Table D19.8 shows the final results for Exercise 2. The coefficient is the parameter to be used in the equation, the standard error provides an indication of the spread of the parameter and the t-statistic indicates whether the parameter is statistically different from zero. If the t-statistic is greater than 1.96, the parameter is significant at the 95% confidence level.

Table D19.8 Logit Analysis: Exercise 2

Attribute	Coefficient	Standard Error	T-Statistic	WTP % Annual Business Rate
Street mainly road -> mainly pavement	0.55	0.18	3.10	29.7
Street mainly road -> pedestrianised	0.20	0.17	1.16	10.6
No plants or trees -> plants & trees	0.60	0.18	3.40	32.4
No plants or trees-> plants, trees & public art	0.87	0.21	4.18	47.0
Speed limit 30 ->20mph	-0.27	0.15	-1.81	-14.4
cost	-0.02	0.00	-5.01	

Number of Individuals: 157, Final log-likelihood: -468.988

- 19.20 The parameters are generally of the expected sign. The negative cost parameter indicates that people view increases in cost as a disbenefit. The parameters for the improvements in the street environment are generally positive, with the exception of the change in speed limit from 30 mph to 20mph. Although not significant at the 95% confidence interval, it indicates that people view a reduction in the speed limit as a disbenefit.
- 19.21 In addition to the reduction in the speed limit, the values for pedestrianisation of the street were not statistically significant at the 95% level. This possibly reflects mixed responses in terms of pedestrianising an area and is supported by reactions from the focus groups, which were ambivalent about pedestrianisation. Some respondents commented that they would like to see their location pedestrianised whereas some respondents during the focus groups viewed pedestrianisation as a disadvantage. This was particularly the case among respondents who believed they relied on passing trade from motorists or customers being able to pick-up goods.

Exercise 3

Trading Analysis: Exercise 3

- 19.22 The trading analysis results are shown for Exercise 3 in Table D19.9. Overall 35% of people traded, e.g. chose at least one option with and without a cost during the exercise. 41% of people always choose the option with no associated cost and 25% of respondents always chose the option with the cost.

Table D19.9 Trading Analysis: Exercise 3

	A	B	C	Total
Traded	40%	31%	34%	35%
Always cost	17%	24%	38%	25%
Always no cost	42%	45%	29%	41%
Total	100%	100%	100%	100%

Choice Proportions: Exercise 3

- 19.23 Despite the large amount of non-traders in Exercise 3, all respondents have been included, with the exception of those who were deemed not to have understood the SP exercise or who gave rushed answers. This ensures that respondents' reaction to cost (i.e. that a large proportion of people were not willing to pay for street improvements), is taken into account when scaling the results. Table D19.10 shows the choice proportions for Exercise 3.

Table D19.10 Choice Proportions: Exercise 3

Attribute and Level	% People choosing the Improved Street Environment	% Increase from no change
Street Environment		
No change: Medium -> Medium Package	23%	
Poor -> Medium Package	41%	18%
Poor -> High Package	45%	22%
Pedestrian Environment		
No change: Medium -> Medium Package	29%	
Poor -> Medium Package	39%	10%
Poor -> High Package	42%	13%
One of Payment: % Annual Business Rate		
15% (15%) ⁵	47%	
70% (60%)	38%	-9%
140% (120%)	24%	-23%

19.24 The choice proportions are in-line with expectation in that as the package of improvements increases, the percentage of respondents choosing the attribute increases. As the cost increases, the percentage of respondents choosing the option associated with an increased cost decreases.

Logit Analysis: Exercise 3

19.25 The equation used in the logit analysis for exercise 3 is shown below:

$$V_{Street} = \alpha_{medped} \cdot MediumPedestrian + \alpha_{highped} \cdot HighPedestrian + \alpha_{medenviro} \cdot MediumEnvironment + \alpha_{highenviro} \cdot HighEnvironment + \alpha_{cost} \cdot Cost$$

where α_{xxx} are the parameters to be estimated from the logit analysis. *MediumPedestrian* etc are dummy variables representing the change in the packages of the street environment.

⁵ The numbers in brackets show the payment levels shown for Pilot 3, the results of which were included in the main fieldwork sample. The results from pilot 3 indicated that the payment levels were too low and hence were increased for the main survey.

For example, *MediumPedestrian* is one where there is a change from Low package of pedestrian improvements to Medium package of pedestrian improvements and zero otherwise. The Cost is the percentage cost of the annual business rate that will be paid as a one-off payment associated with the option.

19.26 Table D19.11 shows the final results for Exercise 3. The coefficient is the parameter to be used in the equation, the standard error provides an indication of the spread of the parameter and the t-statistic indicates whether the parameter is statistically different from zero. If the t-statistic is greater than 1.96, the parameter is significant at the 95% confidence level.

Table D19.11 Logit Analysis: Exercise 3

Attribute	Coefficient	Standard Error	T-Statistic	WTP % Annual Business Rate	WTP £, One-Off Payment
Low -> Medium Package Pedestrian Improvements	0.17	0.097	1.75	13.7	£1,553
Low -> High Package Pedestrian Improvements	0.30	0.096	3.17	24.5	£2,788
Low -> Medium Package Environmental Improvements	0.51	0.109	4.72	41.5	£4,715
Low -> High Package Environmental Improvements	0.69	0.173	3.99	55.9	£6,350
cost	-0.01	0.001	-13.79		

Number of Individuals: 374, Final Log-Likelihood: -1059.34

19.27 The parameters are of the expected sign. The negative cost parameter indicates that people view increases in cost as a disbenefit. The parameters for the improvements in the street environment are positive. Pedestrianisation was included in the medium package of pedestrian improvements, which perhaps explains the lower t-statistic as there were mixed responses as to whether pedestrianisation was positive or negative.

19.28 The willingness to pay value is calculated as the coefficient of the street environment divided by the cost coefficient. From Exercise 3, respondents are willing to pay 24.5% of their annual business rate as a one-off payment to see the street environment improve from a low pedestrian environment to a high one. Using the average annual business rate across the sample of respondents included in the Exercise 3 analysis of £11,368 this equates to a one-off payment of £2,788 per business.

19.29 Table D19.12 shows the t-statistic and 95% confidence intervals associated with the willingness to pay percentage. The t-statistic of the willingness to pay is calculated as: 1 /

$\sqrt{(\text{var}X/(X*X)) + (\text{var}Y/(Y*Y)) - ((2*\text{cov}XY)/(X*Y))}$) and the variance of the willingness to pay is calculated as: $((X*X)/(Y*Y))*(((\text{Var}X/(X*X))+(\text{Var}Y/(Y*Y))-((2*\text{cov}XY)/(X*Y))))$ where X is the street environment attribute and Y is the cost.

Table D19.12 Confidence Intervals of Exercise 3

Name	% WTP	T-Statistic of % WTP	Lower CI %	Upper CI %	Lower WTP £	Upper WTP £
Low -> Medium Package Pedestrian Improvements	13.7	1.82	-1.1	28.4	-122	3,228
Low -> High Package Pedestrian Improvements	24.5	3.40	10.4	38.7	1,179	4,397
Low -> Medium Package Environmental Improvements	41.5	5.03	25.3	57.6	2,879	6,550
Low -> High Package Environmental Improvements	55.9	4.32	30.5	81.2	3,468	9,232

19.30 The t-statistic shows that all of the willingness to pay values for the packages are significant at the 95% level with the exception of the low->medium package of pedestrian improvements. The last two columns show the range of willingness to pay values using the average annual business rate of £11,368 across the Exercise 3 sample. For example, for a change from low to medium environmental improvements, the average willingness to pay value is £4,715. However, we can be 95% confident that the actual value lies within the £2,879 and £6,550.

Values for Individual Attributes

19.31 The results from Exercise 3 were used to scale back the results from the individual exercises (Exercises 1 and 2). For each package of attributes, the willingness to pay from Exercises 1 and 2 for the individual attributes were added together and compared with the willingness to pay for the overall package. A scaling factor was then calculated for each package as the package value divided by the sum of the individual values. The average scaling factor across the packages was then used to scale back the individual attributes. This process was repeated for the average package value and the upper and lower confidence intervals.

19.32 Table D19.13 shows the final values for each of the individual attributes, applying the average, lower and upper confidence interval scaling values shown in Table D19.12.

Table D19.13 Final Individual Values

Change in Street Environment	No. PERS Point Changes	Package	WTP, £: One-Off Value per Business (Average Value)	WTP, £: One-Off Value per Business (Lower Value)	WTP, £: One-Off Value per Business (Upper Value)
Poor->bright lighting	4	Environmental high	784	312	1256
Poor->patchy lighting	2	Environmental medium	348* ⁶	139	558
Lots -> no litter / graffiti	5	Environmental high	896*	357	1436
Lots -> some litter / graffiti	2	Environmental medium	1747	695	2798
Cracked uneven -> smooth, even paving	6	Environmental high	3215	1280	5150
Cracked, uneven -> cracked, even paving	4	Environmental medium	2146	854	3438
Lots -> no obstacles	3	Environmental high	835	332	1337
Lots -> some obstacles	2	Environmental medium	0*	0	0
No plants or trees-> plants, trees & public art	3	Pedestrian high	1913	761	3065
No plants or trees -> plants & trees	2	Pedestrian medium	1319	525	2113
Street mainly road -> pedestrianised	4	Pedestrian medium	432*	172	692
Street mainly road -> mainly pavement	3	Pedestrian high	1208	481	1935
Speed limit 30 ->20mph	2	Pedestrian high & medium	0*	0	0

19.33 From Table D19.13, the most important urban realm improvements to businesses are improvements to the pavement surface, as well as the provision of plants, trees and public art. These values would have to be used with caution in view of the wide confidence intervals.

⁶ * values are those that are not significant in the individual exercises and therefore are an estimate only.

Appendix E Comparison with Data Analysis

20 Introduction

20.1 This appendix provides a proposed methodology for converting the values obtained from the SP analysis so that they are comparable with the results found from the cross-sectional analysis.

21 Converting SP values to PERS Attributes

21.1 The average values from the SP results have been converted to the PERS attributes, as shown in Table E21.1. The first column is the SP attribute, the second, the corresponding PERS attribute. The 'Lower PERS Score' shows the PERS value of the base position using the images and descriptions presented to the respondent during the SP exercise. For example, a street that is mainly road would be assigned a -1 PERS score for effective width. The 'Upper PERS score' is the value of the improvement, for example for 'street mainly pavement' would be given a 2 point PERS score.

Table E21.1 Conversion between SP Attributes and PERS Attributes

Change in Street Environment	PERS Attribute	Lower PERS Score	Upper PERS Score	PERS Point Increases
Street mainly road -> pedestrianised	Effective Width	-1	3	4
Street mainly road -> mainly pavement	Effective Width	-1	2	3
Poor->bright lighting	Lighting	-2	2	4
Poor->patchy lighting	Lighting	-2	0	2
Lots -> no litter / graffiti	Maintenance	-2	3	5
Lots -> Some litter / graffiti	Maintenance	-2	0	2
Lots -> no obstacles	Obstructions	-1	2	3

Change in Street Environment	PERS Attribute	Lower PERS Score	Upper PERS Score	PERS Point Increases
Lots -> some obstacles	Obstructions	-1	1	2
No plants or trees-> plants, trees & public art	Quality of environment	-1	2	3
No plants or trees -> plants & trees	Quality of environment	-1	1	2
Speed limit 30 -> >20mph	Quality of environment	0	2	2
Cracked uneven -> smooth, even paving	Surface Quality	-3	3	6
Cracked, uneven -> cracked, even paving	Surface Quality	-3	1	4

21.2 Using the information from Table E21.1 together with the average values from the SP survey presented in Table D19.3 it is possible to ascertain a value for each of the PERS characteristics included in the SP exercises. The scores for the show material can then be interpolated, using an average increase per PERS point, to provide a value for the full scale of scores for each characteristic as included in the SP.

21.3 Table E21.2 provides the one-off payment each business would be willing to pay for an increase in the associated PERS points. The cells in grey were not covered by the SP attributes. For example for effective width, the lowest level tested was -1, hence this value is set to zero. If an improvement was made from -1 to 0 businesses in the area would be willing to pay a one-off payment of £409. If the improvement to effective width was from -1 to 2, businesses would be willing to pay a one-off payment of £1,227.

Table E21.2 Value per Business for Improvements (£ per one-off payment)

Characteristic in PERS	-3	-2	-1	0	1	2	3
Lighting		0	185	370	566	762	
Obstructions			0	139	278	556	
Effective Width			0	255	511	766	874

Characteristic in PERS	-3	-2	-1	0	1	2	3
Quality of environment			0	432	865	1184	
Maintenance		0	526	1053	1232	1411	1590
Surface Quality	0	536	1072	1608	2144	2680	3216

22 Comparison with Data Analysis

22.1 There are several comparisons to be undertaken both with the data analysis and the previous SP research that has been undertaken with individuals:

- Analysis 1: to compare the willingness to pay for businesses with the values obtained from the revealed preference data;
- Analysis 2: to estimate a capping equation from Exercise 3 in the SP questionnaire to be applied to the data analysis workstream;
- Analysis 3: to compare the relative values obtained from the business willingness to pay with the individual's willingness to pay as calculated from Phase 1.

Analysis 1: Compare SP Values with Data Analysis Values

22.2 The SP results provided the amount that businesses were willing to pay in terms of a one-off payment, based on the businesses' annual business rate, for a change in the street environment per business. The data analysis provided the increase in rateable value for an m2 of Zone A space for each PERS point increase.

22.3 In order to be able to compare the two values, it is necessary to convert the values to the same units, using information about the number of PERS points changes for each SP attribute, how the business rates are calculated and the average size of a business property.

PERS Points Changes for Each SP attribute

22.4 For each change assessed during the SP questionnaire, the associated number of PERS points was calculated. This allowed the WTP by businesses to be expressed in terms of WTP per PERS point increase for each attribute.

Calculation of Business Rates

22.5 The annual business rate is calculated as the rateable value multiplied by £0.462 (2008/09 multiplier). Therefore, for a business property rated at £10,000, the annual business rate would be £4,620, excluding any discounts or reductions that may be applicable. Monthly business rates are paid for ten months of the year, so the equivalent monthly amount would be £462.

22.6 If the business is a typical shop, the rateable value will be calculated from a series of zones. Zoning is based on the principle that the most valuable part of a shop per square metre is found at the front. In most cases zone A is the area at the front of the shop at pedestrian level. It is usually 6.1 metres deep. Zone B is usually the next 6.1 metres and is typically

half the value of zone A. Zone C, if there is one, is usually the next 6.1 metres and is typically one quarter the value of zone A. The remainder of the ground floor is calculated to show the area left after the zoning has been completed.

22.7 In order to compare the SP values with the values from the data analysis it is necessary to convert them to the same unit in terms of m2 of zone A.

Average Size of Business

22.8 Information about the size of businesses in the main fieldwork locations was downloaded from the VOA website. This gave for businesses in the study area, the amount of area that is classified as Zone A, B, C or other. For the fieldwork locations the average amount of each floor space was:

- Zone A:
- Zone B:
- Zone C:
- Other:

22.9 Using the average floor space information per business together with the rateable value information for each type of space, it is possible to estimate the percentage of the WTP from the SP that is attributable to the Zone A floor space. Table E22.1 shows how the factor to estimate the value attributable to Zone A floor space is calculated. The 'average space per business' column shows for each type of floor space, the average amount included in the businesses within the fieldwork locations. The 'Average Value (£) for each floor space' shows the average value per m2 of each type of floor space. For example for Retail Zone A within the fieldwork area, the average value was £503 per m2. 'Average Value per Business' is columns two and three multiplied together. The final column is the percentage of value attributable to each type of floor space. E.g. for Zone A this is $16,852 / 32,493 = 52\%$. Therefore 52% of the WTP value is estimated to be attributable to Zone A floor space.

Table E22.1 Factor to Estimate Zone A Value

Floor Space Type	Average Space per business (m2)	Average Value (£) for each floor space	Average Value per Business	% of Value
Zone A	34	503	16,852	52%
Zone B	30	254	7,625	23%
Zone C	28	149	4,196	13%
Zone Other	41	92	3,820	12%
Total	133	997	32,493	100%

22.10 This analysis was carried out for the SP attributes corresponding to PERS attributes included in the data analysis only. Table E22.2 shows an estimate of the willingness to pay per PERS point increase from the SP compared with an equivalent value calculated from the data

analysis results. The values have been calculated for the lower value, average and upper values for both the SP and RP.

22.11 Although there is a large variation in the willingness to pay for one PERS point increase in the SP, the estimates show that on average respondents were willing to pay 2.59% per PERS point increase per m2 of zone A as a one-off payment. This contrasts with 1.22% from the data analysis as an increase to the value per m2 of Zone A, which may apply indefinitely.

22.12 However, the average willingness to pay per PERS point increase from the SP ranged from 1.03% to 4.15% using the lower and upper values from Exercise 3. This range encompasses the average value of 1.22% per PERS point found from the data analysis.

Table E22.2 Comparison between the SP and RP Results

Change in Street Environment	Per PERS Point Increase (SP)	Per PERS Point Increase (SP)	Per PERS Point Increase (SP)	Per PERS Point Increase (RP)	Per PERS Point Increase (RP)	Per PERS Point Increase (RP)
	Lower Value	Average Value	Upper Value	Lower Value	Average Value	Upper Value
Speed limit 30 ->20mph*	0.0	0.0	0.0	5.4	5.7	5.9
Poor->patchy lighting*	2.3	5.8	9.3	5.4	5.7	5.9
No plants or trees -> plants & trees	8.8	22.1	35.4	5.4	5.7	5.9
Lots -> Some litter	11.6	29.2	46.8	5.4	5.7	5.9
No plants or trees-> plants, trees & public art	8.5	21.3	34.2	5.4	5.7	5.9
Poor->bright lighting	2.6	6.6	10.5	5.4	5.7	5.9
Lots -> no litter*	2.4	6.0	9.6	5.4	5.7	5.9
Total	5.2	13.0	20.8	5.4	5.7	5.9
Estimate per PERS Point increase per m2 Zone A	1.03%	2.59%	4.15%	1.07%	1.13%	1.18%

Analysis 2: Capping Equation

22.13 Exercise 3 of the questionnaire provided information about the maximum that business managers are willing to pay for improvements to the urban realm. Using a similar methodology as outlined in Analysis 1 it is possible to calculate an estimated comparable figure to the data analysis. Although this only provides four points, which is not sufficient enough to calibrate a robust capping equation, the results suggest that within the anticipated

likely range of PERS point improvements (12⁷), that the effect is linear and no capping should be applied. This however, may be different should more improvements be carried out.

Analysis 3: Comparison between Business and Individual's Willingness to Pay

- 22.14 From Phase 1, the SP results showed that the individual's top four attributes for improvement were:
- Quality of Environment;
 - Personal Security;
 - Permeability; and
 - User Conflict.
- 22.15 The businesses showed that their priorities were the following (based on the top four average WTP across the PERS scores):
- Surface Quality;
 - Quality of Environment;
 - Maintenance; and
 - Effective Width.
- 22.16 This shows that individuals and businesses value different PERS aspects and therefore it is important to take all beneficiaries into account when developing business cases for urban realm improvements. There is however, some overlap between the attributes that businesses and individuals value compared with the attributes found most strongly to influence flat and retail prices of: Personal security, Lighting, Quality of Environment and Maintenance.

⁷ Assuming four attributes from the data analysis: Personal Security, Lighting, Quality of Environment and Maintenance are not improved by more than three PERS points.

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