

# The Value of Station Investment

## Research on Regenerative Impacts

**REPORT**

November 2011





# Foreword

The rail network makes an unrivalled contribution to the sustainable growth of the UK economy, providing millions of people with access to jobs, goods and services. There is no more visible evidence of this contribution than that afforded by the role of railway stations in their communities.

Transport investment decisions are typically made through analysing the value of the investment to the user of the service. Yet stations play a broader role than providing a means of access to the rail network. They are increasingly the focal points of our towns and cities and can be centres of economic activity in their own right. Network Rail commissioned Steer Davies Gleave to research the value of station investment and take into account the wider regenerative impact. The research confirms that investing in stations can be an economic catalyst at a local and regional level in addition to delivering improvements for passengers.

Working with the industry we will use these findings to support the development of plans for stations. We hope that our stakeholders find this research useful and would like to thank those who helped in its preparation.

**Mike Goggin**

Director, Stations and Customer Service









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## **E** EXECUTIVE SUMMARY

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### **1** INTRODUCTION

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### **2** STATIONS AND THE ECONOMY

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## **E** Executive Summary

### CONTENTS:

- Introduction
- Improving Stations
- The Impact of Station Investment
- Key Findings and Implications

### INTRODUCTION

#### **Purpose of the study**

The impact of station investment is typically assessed in relatively narrow terms, based on a consideration of the specific transport benefits taken into account in conventional transport appraisal. However, it can make a much broader contribution to economic development, not least in our towns and cities. Network Rail is seeking a better understanding of this contribution in order to improve the prioritisation, planning and delivery of station improvement schemes.

Against this background, Network Rail commissioned Steer Davies Gleave to quantify, as robustly as possible, the impact of station investment on regeneration, other local impacts and wider economic development. This report sets out the results of an extensive programme of research on the role of stations in the economy and the impacts of recent investment at various stations over the last ten years. It also identifies a number of implications for future investment projects.

## Scope of Research

In undertaking the research, we have taken a different approach from conventional transport appraisal, which focuses on the value of ‘first order’ benefits to passengers, notably reductions in journey time. Instead, we have investigated the impact of investment on development, economic activity and land values in the local area and then estimated how this translates into jobs, investment and economic output. This enabled us to address a number of issues surrounding the rationale for station investment and how it can be directed in support of urban regeneration, in particular:

- How do stations contribute to economic development, particularly in towns and cities, and what impact has inadequate or poorly directed station investment had in practice?
- What specific improvements can be made and how should these be delivered in order to secure a better station environment and surrounding urban fabric while leveraging the commercial potential of stations to best effect?
- How have recent station improvements been delivered and how have they been integrated with wider improvement and regeneration schemes.

- What impact can station investment have in terms of improving the urban realm, encouraging development in the surrounding area and generating increased employment and economic activity?
- What are the implications for future station investment?

We have not, in this research, tried to quantify the conventional benefits nor the contribution that well-designed transport system and interchange can make to quality of life. Such research, while valuable in its own right, falls outside the scope of this research.

The study included a number of strands, namely a review of previous research, investigation of a number case study station improvement schemes agreed with Network Rail, an extensive programme of stakeholder interviews and analysis of property values and economic impacts resulting from the completion of major schemes. As a result of data limitations, and recognising the inherent complexity of the relationships investigated, our findings rely on both qualitative judgements based on the views of stakeholder as well as the results of quantitative analysis.

## STATIONS AND THE ECONOMY

### The Role of Stations in the Economy

Over the last thirty years there has been a substantial shift in the structure of the UK economy, from manufacturing to service-based activity. Many businesses providing services are located in city centres as this ensures better access to skilled labour, key markets and suppliers as well as strong connectivity with other parts of the country. As a consequence, larger cities such as London, Manchester, Leeds and others have experienced significant increases in city centre employment. In turn, this has contributed to the strong and sustained growth in rail demand experienced over the past fifteen years; demand growth for rail services operating between our larger cities significantly exceeded the average, with passenger flows to Birmingham, Leeds, Manchester and Sheffield increasing by 60-90% between 2001 and 2008.

Further, rail growth is forecast to continue to increase substantially, and accommodating additional demand will be essential if sustainable, city-led economic development is to continue. Given this context, we suggest that stations can support economic growth in a number of ways:

- **Providing connectivity:** the key purpose of stations is to provide access to the connectivity offered by the national rail network. The level of connectivity is largely dependent on the range and frequency of services available at the station, which will in turn depend on its size and configuration.
- **Providing capacity for growth:** stations can support a given level of passenger throughput before they become overcrowded or, ultimately, reach an absolute constraint. Providing station capacity that supports future demand can therefore have a direct impact on the level of residential and employment growth that a city can sustain.
- **Supporting Sustainable Economic Growth:** given sufficient connectivity and capacity, stations can support sustainable economic growth by helping to accommodate increasing travel demand and constrain private car use. They can be particularly effective in supporting high density development in the station vicinity, but can also enable a town or city as a whole to grow in a sustainable way over the long term.
- **Acting as a gateway:** stations are a key point of arrival and departure for many business travellers and other visitors, and the quality of the station environment forms part of peoples' overall perception of a town or city. A high quality, well designed station can improve the image of the location it serves, making it more attractive as a place to live, work and invest.
- **Offering development opportunities:** the presence of a station can encourage development on railway and / or adjacent land. In principle, land around stations is a natural focal point for additional development due to its inherent accessibility advantages and associated commercial potential.



- **Acting as a commercial or community centre:** some stations offer a range of facilities that cater not only for passengers, but also serve the wider community. For larger stations in particular, the concept of a station as a destination in its own right, offering a variety of high quality retail and leisure opportunities, is increasingly common.

Previous research evidence has generally borne out the view that stations have a major impact on the towns and cities that they serve. Much of the evidence focuses on land value impacts but, taken together with broader evidence on the effects of a high quality built environment and good design, tends to confirm that stations can support and encourage economic activity.

### **Stations as Barriers to Growth**

However, station development in the UK has not always kept pace with the demands of passengers and the needs of modern towns and cities, with the result that individual stations may have actually constrained economic development. The following links between poor station condition and design and the economy of the surrounding area appear to be particularly important as well as mutually reinforcing:



St. Helens



*Western view, Birmingham New Street Gateway*

- **Stations can restrict physical access across an urban area:** the alignment of railway tracks, restricted access through the station itself and the presence of at-grade car parks and fenced-off areas of railway land often create a physical barrier between different parts of a town or city. In these circumstances, the station becomes the point of delineation between what are often described as central area activities (offices, hotels and higher value retailing), and low density industrial, warehouse and lower quality retail establishments.
- **A poor quality environment in and around a station discourages investment:** where station buildings and facilities are in poor condition and the quality of the environment of the surrounding area is low, the resulting image of underdevelopment tends to depress developers' expectations of likely returns and discourage investment.
- **A poor station environment creates a poor impression of a town or city:** more generally, a legacy of underinvestment in a station can affect perceptions of a town or city as whole, even undermining the effect of improvements in the centre and other areas away from the immediate station vicinity.

These effects have been observed at a range of stations serving urban locations across the UK, varying significantly in terms of size and passenger profile, as discussed further below. A range of improvements may be needed to address them, reflecting operational and commercial considerations as well as the needs of passengers and other station users.



## IMPROVING STATIONS

### Types of Improvement

In principle, necessary improvements may be designed to address a limited number of operational constraints within the station boundary or involve much broader redevelopment, potentially extending to the surrounding area. The main types of station improvement undertaken in recent years can be summarised as follows:

- Investment in operational improvements may be required to ensure that a station functions more effectively. Such investment could involve changes to the number and / or configuration of platforms in order to increase the range and frequency of train services available at the station, as planned for London Bridge and Gatwick. Alternatively, operational changes may be designed to improve the flow of passengers around the station, for example by relieving capacity constraints at key locations.
- Investment may be directed to increasing the provision of a range of station facilities, for example with a view to reducing the average time spent waiting to purchase a ticket while extending the choice of retail and other services available to passengers. In practice, the scope of any improvement scheme will depend on passenger priorities as well as operational constraints.
- Various improvements can be made to a station with the aim of increasing passenger satisfaction with the station environment. These include changes designed to increase the level of natural light within the station building and below station canopies, measures to remove clutter and improve sightlines within and between the different areas of the station, and better signage to assist way finding. Such investment will invariably improve passengers' sense of well-being, making them feel more comfortable and, as discussed further below, potentially more inclined to use retail, catering and other facilities.
- Finally, improvements in access can be made, including a range of measures providing for better connections between a station and the surrounding area or quicker onward connections to other destinations. These may take the form of new pedestrian links, better way finding, improvements to transport interchanges and specific measures designed to increase accessibility for Persons with Restricted Mobility.

### **Exploiting Commercial Opportunities**

Effective exploitation of commercial opportunities in and around a station will generally have a direct impact on the level of economic activity in the area that it serves, stimulating investment as well as creating employment. In addition, some of the value created can be captured and used to defray investment costs, an increasingly important consideration in the current climate of constrained public funding. The two main sources of commercial opportunity are developing adjacent railway land and enhancing the retail offer within stations.

### **Developing railway land**

Land adjacent to stations is frequently underdeveloped and used for low value economic activity, particularly where there is a legacy of underinvestment in the station itself. In these circumstances, individual developers acting alone are unlikely to identify attractive investment opportunities, not least because of the risk that any new development would be isolated, located in an area otherwise blighted by poorly maintained land and buildings. However, where adjacent land forms part of the railway estate it may be possible to encourage development on a wider scale, allowing investors to secure higher returns than would otherwise be the case. There are a number of examples of recent development of this kind, for example on land in the vicinity of Kings Cross and adjacent to Manchester Victoria.

At the same time, experience with these and other projects has highlighted the challenges inherent in successfully integrating station improvement and the commercial development of adjacent railway land. These include:

- Ensuring that the respective roles of Network Rail, Train Operating Companies, Developers and other stakeholders are well-defined and understood, and that all parties are receptive to the vision and ideas put forward by others;
- Balancing commercial opportunities with the needs of an operational railway, which may sometimes conflict (for example, where adjacent land may be used for commercial development or to accommodate future growth in rail demand);
- The ongoing need to take account of planning issues, notwithstanding the scale of any regenerative impacts that a scheme is expected to have; and
- Reconciling tensions between the aspirations for a scheme in terms of regeneration and the commercial focus of developers.

### Enhancing the Retail Offer at Stations

The concentration of passengers at a station creates an attractive market for many retailers, and in recent months station-based retail businesses have been significantly outperforming high street shops. Network Rail data indicate that retail sales at stations increased by 5% in the full year to Q4 2010 as compared with a 0.4% increase on the high street.

However, in order to allow these opportunities to be exploited effectively, stations must meet at least two key criteria:

- They must have sufficient capacity to accommodate retail establishments without affecting efficient operation, in particular the flow of passengers around the station; and
- Passengers must be comfortable within the station environment such that they are willing to use the time between arriving at the station and catching their train (or other mode of transport), to make purchases.

In practice, constrained capacity at many older stations creates a conflict between enhancing the retail offer and improving passenger flows, but station investment can address this in a number of ways. At some stations, it may be possible to create additional space, for example by creating a separate concourse level, or reconfigure the layout so that there is a clear separation between retail and other areas. More generally, the provision of clear signing and consistent way finding within and beyond the station boundary, as well as the removal of clutter, can improve passenger flows and make passengers feel more relaxed.

In recent years, a number of major stations have been reconfigured with a view to increasing the retail and other services available. At London Paddington, the main retail offer is located off the main concourse, removed from the main passenger flow while remaining visible and accessible to both passengers and the non-travelling public. Similarly, at Manchester Piccadilly a number of retail outlets have been placed on a separate level, while others have been separated from the passenger circulation and waiting areas, and there are current plans for further improvement and expansion of the retail facilities at the upper concourse level. In some cases, the retail offer at the station has been transformed such that the station location is now a destination in its own right. The clearest example of this is St Pancras, where approximately one quarter of station users have no intention of catching a train and visit the station entirely for the shopping, cafes and restaurants. The same phenomenon can also be observed at major stations across continental Europe.



*St Pancras International*

## THE IMPACT OF STATION INVESTMENT

Over the last decade, there has been significant investment in stations across the GB rail network. This has included:

- Large-scale investment in the transformation of major stations such as St Pancras International, Kings Cross, Manchester Piccadilly, Sheffield and Liverpool Lime Street;
- Investment in stations from specific funds such as the £370 million 'Access for All' programme (making 200 stations fully accessible) and the £150 million National Stations Improvement Programme, which has funded improvements at the busiest medium sized stations; and
- Significant investment funded by Passenger Transport Executives and Train Operating Companies at many stations.

Substantial station investment totalling £3.2bn is being delivered in the course of the current Control Period 4 (2009/10 – 2013/14). We have sought to investigate the impact of such investment through a combination of stakeholder interviews and quantitative analysis. While the research has inevitably focused on completed schemes, since these have already had an impact on the local economy in question, all of the investment projects covered by the case studies provide some evidence of the effects that station investment can be expected to have.

### **Regeneration and Transformation**

We conducted some 60 interviews with a wide range of stakeholders with knowledge of our case study stations and/ or specialist expertise in a specific area such as property or regeneration. Stakeholders included promoting authorities, local councils, regeneration bodies, property agents, business groups and local community representatives. In the course of the interviews, we identified the following major themes concerning the potential benefits of station improvement in terms of regeneration and transformation.

### **Removal of Physical Barriers**

Several stakeholders noted the need to remove the physical constraints on movement resulting from the alignment of, and lack of access through, some stations. This was a particular concern in the case of Birmingham New Street, which had the effect of detaching the south side of Birmingham city centre from the commercial core. The expected effect of the Birmingham New Street Gateway project, as described in Birmingham City Council's 'Big City Plan', is a complete transformation of the south side.

There have been a number of indications of increased investor confidence since work on the Birmingham New Street Gateway station began. The commitment from John Lewis to invest in a new department store, which will provide the southern 'anchor' for the station and shopping centre, tends to confirm the commercial potential of stations highlighted above. In addition, the recent establishment of the Southside Business Improvement District, created in order to fund investment in the local community based on a 2% business rate levy, demonstrates the scope for station investment to help in leveraging new sources of funding.

Beneficial effects from improving accessibility, albeit considerably smaller in scale, can also be seen at other, smaller, stations. For example, at St Albans improvements to the station concourse and adjacent bus interchange have enabled passengers to make onward connections to a range of local destinations more easily. More generally, changes of this kind facilitate the development of smaller stations as multi-modal interchanges and improve their integration with the surrounding area.



Sheffield station

### Improving the Image of a Town or City

Many stakeholders emphasised the role of stations as gateways and the link between impressions of a station and perceptions of the town or city that it serves. Moreover, a number with particular responsibility for encouraging investment confirmed that this became considerably easier after the completion of a station redevelopment scheme. For example, in Sheffield one interviewee noted that ‘we’re not embarrassed to meet people off the train anymore and now include the station in any walking tour with prospective investors’. Similarly St Helens Central, recently redeveloped by Merseytravel, now presents a positive image of the town, having won awards for both design and regeneration.

### Station Investment as a Catalyst

The interviews also provided compelling evidence that station investment can be a catalyst for wider regeneration. For example, in the course of our interview programme the Chairman of the Piccadilly Partnership noted that the expected returns on speculative development around Manchester Piccadilly in 2000, prior to the station redevelopment, did not justify investment but that subsequently the improved image of, and confidence in, the area made such investment attractive. In the view of a number of stakeholders,



this perceived change in expected returns was key to securing the 650,000 square feet of new and refurbished office space and three new hotels delivered as part of the overall Piccadilly development.

At the planning stage, the Sheffield Station Gateway Project was similarly expected to help generate substantial investment beyond the station boundary, the vision for the project stating that it would ‘form part of the overall plan for the revitalisation of the Sheaf Valley as a key location for the creative and digital cluster’. In the event, the success of the new Digital Campus, which has attracted investment from Sky as well as a range of smaller businesses in the electronics and other high technology sectors, is partly attributed to the redevelopment of the station.

Both Manchester Piccadilly and Sheffield also provide evidence of a ‘ripple effect’, whereby initial development prompted partly by station improvements increases investor confidence and encourages further development across the city. The resulting virtuous circle substantially increases the level of economic activity in the surrounding area, providing a further stimulus to employment and incomes.

### Key Challenges

While confirming the effectiveness of station investment in supporting wider regeneration, the stakeholder interviews also highlighted a number of challenges, as follows:

- It is important for stakeholders to set realistic expectations from the outset, based on mutual recognition of operational and commercial considerations as well as regeneration objectives. This reinforces the need for different parties to be receptive to each other’s ideas and concerns while recognising key constraints.
- This, in turn, highlights the need for programme oversight and management arrangements that provide for effective engagement between stakeholders. Such engagement is particularly important in the case of major regeneration schemes with a wide range of interests and perspectives.
- Determining the scale of investment required to encourage further investment and establish a ripple effect may be difficult since it will depend on the perceptions of private sector developers as well as identification of any physical barriers to accessibility arising from the existing station design and layout.
- In future, it may be necessary to consider a range of untested options for funding, for example Tax Incremental Financing (which involves leveraging anticipated increases in rateable values resulting from the development) and additional train operator funding (potentially available following a move to longer franchises). At the same time, the greater the range of funding sources secured, the greater the tensions between the various stakeholder objectives are likely to be.



*Manchester Piccadilly*

### Property and Economic Analysis

Building on the stakeholder evidence discussed above, we have also undertaken quantitative analysis to determine the extent of any changes in property values and economic activity as a result of station investment. This aspect of the research focused on the Manchester Piccadilly and Sheffield improvement schemes as, in both cases, sufficient time has elapsed since project completion to allow some assessment of the impacts.

We were able to undertake detailed statistical analysis of property impacts in Sheffield using data sourced from the Valuation Office Agency (VOA) on line property database. We examined changes in Rateable Values within areas defined by 300m, 400m and 500m radii from Sheaf Square and compared these with the average change for the city as a whole, differentiating between different types of property and new and existing buildings. Within a 400m radius of the station, total rateable value (RV) rose from £8.7 million to £14.7 million between 2003 and 2008 (dates broadly corresponding to the start and completion of the Sheffield Station Gateway project), an increase of 67%. This is more than three times the corresponding increase for Sheffield as a whole and reflects the increase in both the quantity of commercial development and value per square foot.

Equivalent VOA data were not available for Manchester, but we were nevertheless able to assemble some evidence of the scale and value



of development following the station investment at Manchester Piccadilly. This indicates that the additional 650,000 square feet of new and refurbished office space accompanying the scheme has generated an increase in annual rental value of approximately £10 million. In addition, property agents interviewed in the course of the study suggested that property values in the vicinity of the station increased by some 33% following scheme completion.

In order to investigate how station investment has affected the local economy more generally in Sheffield and Manchester, we also used our Spatial Economic Consequences of Transport (SpECTra) model to estimate impacts on Gross Value Added<sup>1</sup> (GVA) and wider inward investment. The model enabled us to calculate the level of inward investment that would be needed to generate a given change. It also allowed us to estimate the impact of the inward investment on annual GVA.

In the case of Sheffield, we estimated the economic impact suggested by the change in property values in the areas immediately around the station to be equivalent to an inward investment of £74 million. This, in turn, could be expected to generate an uplift in annual GVA of £3.4 million. The corresponding values for Manchester were, respectively, £130 million and £6.6 million. In both cases, the estimated GVA impacts are between five and seven times those derived using conventional appraisal benefits.

<sup>1</sup> GVA is a measure of the value of the goods and services produced in the economy.



Sheffield station investment



*Liverpool Lime Street*

Finally, we investigated the direct impacts on employment of each station scheme. For Sheffield, the direct employment impact was estimated to be 185 additional jobs, while the increase in employment in areas around station developments following station investment for each of Sheffield and Manchester was estimated to be up to 3,000 jobs. While it is difficult to attribute employment impacts specifically to station investment, there was a clear view among stakeholders that, over the longer-term, improvements delivered by station investment and associated regeneration were key to supporting the overall growth of city centre economies and employment.

## KEY FINDINGS AND IMPLICATIONS

Our research provides strong evidence that station investment can have a major impact in terms of urban regeneration and transformation. The scale of any impact will clearly depend on the size and location of the station and its passenger profile, the legacy of investment and associated economic activity in the surrounding area and the overall economic climate. However, evidence from stakeholders suggests that station investment will generally result in significant benefits through one or more of the following mechanisms:

- Removing physical barriers to movement in and around the station, particularly in the case of large cities where the alignment of railway lines and other factors affecting accessibility can result in large urban areas being dislocated from the core;
- Improving the image of a station and hence perceptions of the town or city that it serves, thereby encouraging greater investment and making it more attractive as a place to live and work; and
- Leveraging wider development by providing a focus for investment in the surrounding area and increasing confidence among investors.

Our empirical analysis, which has focused on the larger implemented schemes, indicates that substantial station improvements can support increases in property values in the immediate vicinity of

a station of 30% or more. In the case of Manchester and Sheffield, observed changes in property values suggest an economic impact equivalent to inward investment of two or three times the cost of the station investment itself. The associated uplift in annual GVA is estimated to be between 10% and 15% of the investment cost.

We emphasise that these results must be seen in the context of the wider urban regeneration scheme developed in each case, but they nevertheless tend to support the view among many stakeholders that station investment has played a critical role in encouraging further development. We also note that investment at smaller stations, while it will tend to have less of an impact on the local economy, at least in absolute terms, can nevertheless play a significant role in supporting urban regeneration. The rebuilding of St Helens Central, at a relatively modest cost, has greatly improved the image of the town that it serves and played an important part in attracting new businesses to the surrounding area.

There appears to be no correlation between the success of a station improvement scheme and the source of the original initiative. In practice, rail industry-based initiatives will tend to be driven, at least initially, by operational and commercial objectives, while those initiated by local authorities are likely to be intended to improve the connectivity of a town or city and/or the quality of the built environment.

This highlights the need for different stakeholders to be receptive to ideas put forward by others and for all parties to recognise key operational and commercial considerations as well as wider economic and social objectives. The evidence from stakeholder interviews suggests that this is best achieved where:

- Stakeholders establish a shared vision for the station development and wider regeneration scheme;
- Expectations regarding what the scheme can achieve are realistic, particularly at a time of considerable economic uncertainty; and
- There is a clear understanding of the scale of investment needed, based on investigation of any physical barriers created by the existing station and of the factors preventing developers from investing in the surrounding area.

Going forward, current constraints on public sector funding will make it more difficult to secure investment in both station

improvements and related urban regeneration projects. Against this background, it will be increasingly important to articulate the case in terms of both conventional appraisal and wider regeneration benefits. At the same time, it will be necessary to investigate the scope for leveraging a wider range of funding sources.

There is substantial scope for exploiting commercial opportunities in and around stations, and we anticipate that there will be increasing pressure to ensure that, wherever possible, the revenues generated allow station improvement schemes to be self-financing. However, the implications of other potential funding sources, for example Tax Incremental Financing and investment from Train Operating Companies, need to be considered carefully. While the application of such funds could help to sustain levels of station investment over the coming years, it may also make the reconciliation of competing stakeholder objectives more challenging. In these circumstances, understanding the economic and commercial impact of station investment will become more, rather than less, important.



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**E** EXECUTIVE SUMMARY

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**1** INTRODUCTION

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**5** KEY FINDINGS AND IMPLICATIONS

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**A** APPENDICES

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# 1 Introduction

## CONTENTS:

- Purpose of the Report
- Approach
- Organisation of the Report

## PURPOSE OF THE REPORT

1.1 The impact of station investment is typically assessed in relatively narrow terms, based on a consideration of the specific transport benefits taken into account in conventional transport appraisal. However, it can make a much broader contribution to economic development, not least in our towns and cities. Network Rail is seeking a better understanding of this contribution in order to improve the prioritisation, planning and delivery of station improvement schemes. In particular, Network Rail wishes to:

- **Enhance the evidence base:** there is a need for further evidence to help inform the rail industry's understanding of how rail station investment can support the redevelopment of towns and cities and contribute to wider economic growth. By improving the evidence base on the links between such investment and economic development at the local and national level, Network Rail and other rail industry stakeholders will be better placed to identify and implement successful station improvement schemes in the future.
- **Develop an effective partnership approach:** the planning and implementation of station improvement schemes typically requires effective partnership between a range of stakeholders including Network Rail, Train Operating Companies, Local Authorities and private sector developers. It is important to understand how partnerships can be made to work effectively in practice in order to ensure that station improvements support wider planning, economic and social objectives while recognising the commercial focus of private sector stakeholders.

- **Leverage the widest possible range of funding sources:** in the current economic climate, public sector funding available for station and other improvements is seriously constrained. It will therefore be necessary to continue to leverage, wherever possible, the commercial potential of stations and adjacent land in order to secure additional funding sources and minimise the call on public sector resources.

1.2 Against this background, Network Rail commissioned Steer Davies Gleave to quantify, as robustly as possible, the impact of station investment on regeneration and wider economic development. This report sets out the results of an extensive programme of research on the role of stations in the economy and the impacts of recent investment at various stations over the last ten years. It also identifies a number of implications for future investment projects.



*Epsom station (planned)*

## APPROACH

### Relationship with Conventional Appraisal

- 1.3 In undertaking the research, we have therefore taken a different approach from conventional transport appraisal, which focuses on the value of ‘first order’ benefits to passengers, notably reductions in journey time. Instead, we have investigated the impact of investment on development, economic activity and land values in the local area and then estimated how this translates into jobs, investment and economic output. The focus of our work is illustrated in Figure 1.1.
- 1.4 This approach has enabled us to address a number of issues surrounding the rationale for station investment and how it can be directed in support of urban regeneration. More specifically, we have sought to answer the following questions:
- How do stations contribute to economic development, particularly in towns and cities, and what impact has inadequate or poorly directed station investment had in practice?
  - What specific improvements can be made and how should these be delivered in order to secure a better station environment and surrounding urban fabric while leveraging the commercial potential of stations to best effect?

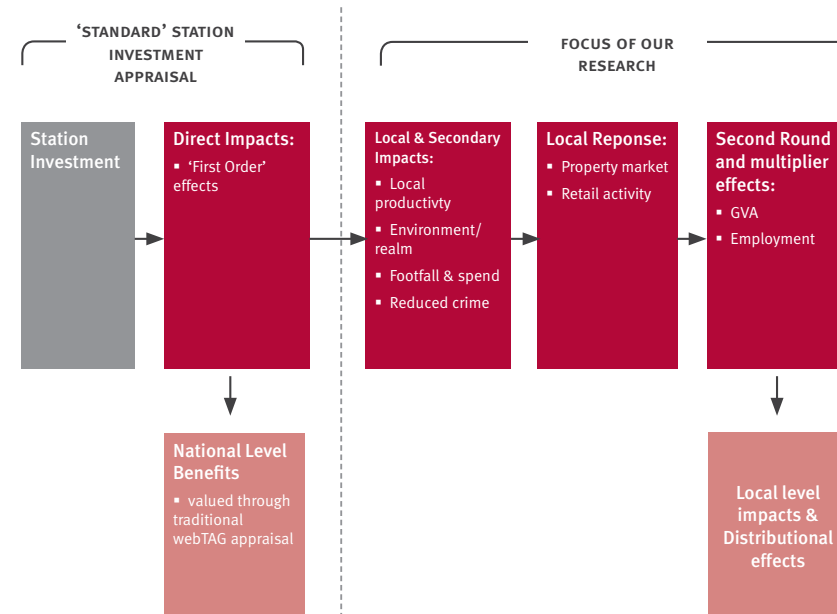


FIGURE 1.1 FOCUS OF OUR WORK



- How have recent station improvements been delivered and how have they been integrated with wider improvement and regeneration schemes?
- What impact can station investment have in terms of improving the urban realm, encouraging development in the surrounding area and generating increased employment and economic activity?
- What are the implications for future station investment?

1.5 In answering these questions, we have sought to complement existing appraisal techniques with a view to informing the prioritisation, planning and delivery of station investment schemes. Nothing in this report should be taken as a recommendation to replace or amend established economic appraisal guidance for station investment. Nevertheless, we believe this work should help of view of passengers and other potential users. Improvements to the configuration of a station designed to increase the range or level of train services available, while clearly important, have separate impacts on connectivity that are beyond the scope of the study.

### Scope of research

1.6 Our research included a number of strands, which can be summarised as follows:

- We undertook an extensive literature review in order to understand the role of stations in the economy of towns

and cities, and in particular the impact that station location can have on land use, land values and regeneration.

- Our study centred on a number of case studies where station improvements have been implemented, are currently being implemented or are planned. We undertook a range of interviews with key stakeholders, including with parties having particular knowledge of the individual case study stations in question who were able to explain the wider context in which the investment was undertaken. Interviewees included scheme promoters, local regeneration officers, local authority officers, developers and land-owners, property agents, architects and retailers.

- We carried out research into property prices and rateable values to understand whether station investment has had an impact on land values and the quantity and quality of land developed around stations.

- Finally, we also undertook economic analysis using bespoke economic modelling techniques to forecast the economic effects of station investment on broader development activity and Gross Value Added (GVA), using inputs derived from the property analysis and investigation of station improvement business cases.

1.7 Since the case study research was a core element of the overall work programme, we sought to select a representative range of case study examples in agreement with Network Rail. The following criteria were applied in making the selection:

	Implemented	Being Implemented	Planned or Proposed
Major city centre station	Manchester Piccadilly, Sheffield	Birmingham New Street, Nottingham Hub	Newcastle Central, Bristol Temple Meads
Larger urban/secondary station	Reading	Farringdon	Manchester Victoria, Clapham Junction
Smaller town/commuter/local station	St Helens, St Albans	Epsom, Walthamstow	

**TABLE 1.1** CASE STUDY STATIONS

- The sample should cover the main station types (major city termini, large stations and commuter / local stations);
- The sample should include stations where enhancements have been implemented and others where enhancements are planned;
- Each case study should provide sufficient information to support the analysis, particularly in the case of implemented schemes; and
- There should be a reasonable geographical spread of stations within the sample.

1.8 The selected stations are shown in table 1.1.

1.9 Note, however, that while we were able to obtain information about the improvement schemes at all these stations, we did not have access to a comprehensive business case in every case. In addition, we were only able to undertake detailed economic analysis in the case of the larger implemented schemes. Hence, our findings rely to some extent on qualitative judgements based on stakeholder interviews as well as on quantitative analysis. Nevertheless, while the evidence base should be further developed as new schemes are implemented and additional information becomes available, we consider that the overall research results presented here represent a compelling demonstration of the role of station investment in leveraging wider development and regeneration.

## ORGANISATION OF THE REPORT

1.10 The remainder of the report is organised as follows:

- Chapter 2 sets out the economic context for station investment, describing the role of stations in the economy and highlighting the problems to which inadequate station investment can give rise;
- Chapter 3 discusses the ways in which stations can be improved and how the commercial potential of a station and adjacent land can be exploited in order to fund investment;
- Chapter 4 discusses the impact that actual station improvements have had, or are expected to have, on economic development and regeneration, based on the case study evidence and economic and property analysis undertaken; and
- Chapter 5 summarises the findings and implications for future station investment.

1.11 Further information on a number of case study stations is presented in Appendix A and a list of stakeholders interviewed in the course of the study is provided in Appendix B. Appendix C discusses the findings from the literature review while Appendix D provides information on our Spatial and Economic Consequences of Transport (SpECTra) model, which was used to estimate the impact of specific station schemes in terms of inward investment and GVA.



Nottingham Hub (Planned)



*Blackfriars*





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## 2 Stations & the Economy

### CONTENTS:

- The Contribution of Stations to Economic Development
- Stations as Barriers to Growth
- The Need for Station Investment

### KEY QUESTIONS:

- How do stations contribute to economic development, particularly in towns and cities?
- What impact can inadequate or poorly directed station investment have in practice?

### THE CONTRIBUTION OF STATIONS TO ECONOMIC DEVELOPMENT

- 2.1 Over the last thirty years there has been a substantial shift in the structure of the UK economy, from manufacturing to service-based activity. The growth of sectors such as banking and finance, business services and the creative industries has been particularly strong and, while the recent financial crisis has prompted debate about the appropriate balance between sectors, future economic prosperity is likely to continue to depend on the growth of high value-added services.
- 2.2 Many businesses providing such services are located in city centres as this ensures better access to skilled labour, key markets and suppliers as well as strong connectivity with other parts of the country. These ‘agglomeration benefits’ mean that businesses are often located in city centres despite the additional cost that this entails, and city locations are increasingly the natural focus for many high value sectors. For example, Leeds has become a centre for legal and financial services, while Cambridge is now one of the most important centres of high technology research and manufacturing in the world.
- 2.3 Moreover, the effect of agglomeration is self-reinforcing; attracting more sector-specific activity to a particular location increases the productivity of the entire sector through increasing the ‘effective density’ of firms. As a consequence, larger cities such as London, Manchester, Leeds and others have experienced significant increases in city centre employment. Britain’s cities now account for 70% of private sector jobs<sup>1</sup>, with London alone accounting for 22.5% of UK GDP and the

<sup>1</sup> The Growth Conundrum: The Importance of Cities to Economic Growth in the UK – Centre for Cities, March 2011.

so-called Core Cities<sup>2</sup> and their wider urban areas contributing a further 27%. These effects are reflected in the level and structure of growth in the wider economy, with rapid growth focused on a number of cities and larger towns with an established competitive advantage in key sectors.

2.4 The increasing focus of service sector employment growth in cities has contributed to the strong and sustained growth in rail demand experienced over the past fifteen years. While rail demand overall increased by 37% between 2000 and 2010<sup>3</sup>, demand for rail services operating between our larger cities significantly exceeded this, with passenger flows to Birmingham, Leeds, Manchester and Sheffield increasing by 60-90% between 2001 and 2008<sup>4</sup>. Further, rail demand is forecast to continue to increase substantially, and accommodating additional demand will be essential if sustainable, city-led economic development is to continue.

2.5 Given this context, we suggest that stations can support economic growth in a number of ways:

- **Providing connectivity:** the key purpose of stations is to provide access to the connectivity offered by the national rail network. The level of connectivity is largely dependent on the range and frequency of services available at the station, which will in turn depend on its size and configuration. While connectivity is generally greatest at large city centre stations, local commuter and other stations are critical in providing access to major employment and commercial centres.

<sup>2</sup> The Core Cities Group comprise the Councils of the eight largest economies outside London - Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield.

<sup>3</sup> Sourced from the Association of Train Operating Companies.

<sup>4</sup> Understanding the Transport Infrastructure Requirements to Deliver Growth in England's Core Cities, Interim Report to Core Cities Group – Arup and Volterra, July 2011.



Liverpool South Parkway

- **Providing capacity for growth:** stations can support a given level of passenger throughput before they become overcrowded or, ultimately, reach an absolute constraint. In the event that station capacity constraints result in overcrowding, the town or city that the station serves may be seen as a less attractive place to live or work, and passengers may be discouraged from travelling. Providing station capacity that supports future demand can therefore have a direct impact on the level of residential and employment growth that a city can sustain, especially where local road or other transport links are congested<sup>5</sup>.
- **Supporting Sustainable Economic Growth:** given sufficient connectivity and capacity, stations can support sustainable economic growth by helping to accommodate increasing travel demand and constrain private car use. They can be particularly effective in supporting high density development in the station vicinity, but can also enable a town or city as a whole to grow in a sustainable way over the long term.

- **Acting as a gateway:** stations are a key point of arrival and departure for many business travellers and other visitors, and the quality of the station environment forms part of peoples' overall perception of a town or city. Hence, regardless of capacity, a high quality, well designed station can improve the image of the location it serves, making it more attractive as a place to live, work and invest.
- **Offering development opportunities:** the presence of a station can encourage development on railway and / or adjacent land. In principle, land around stations is a natural focal point for additional development due to its inherent accessibility advantages and associated commercial potential, although this has not always been realised for the reasons discussed further below.
- **Acting as a commercial or community centre:** some stations offer a range of facilities that cater not only for passengers, but also service the wider community. For larger stations in particular, the concept of a station as a destination in its own right, offering a variety of high quality retail and leisure opportunities, is increasingly common.

<sup>5</sup> The 'Network RUS – Stations', published by Network Rail in August 2011 provides an indication of where capacity driven interventions are likely in the next Control Period. A separate assessment of station capacity constraints (not part of the formal RUS) developed with its industry partners is also available.



2.6 Previous research evidence has generally borne out the view that stations have a major impact on the towns and cities that they serve. Much of the evidence focuses on land value impacts but, taken together with broader evidence on the effects of a high quality built environment and good design, tends to confirm that stations can support and encourage economic activity. We provide a detailed discussion of the research literature reviewed as part of this study in Appendix C but the main findings can be summarised as follows:

- **Land values tend to be higher around stations:** overall, the evidence suggests a strong relationship between the presence of stations and land values, although the nature of the relationship is different for residential<sup>6</sup> and commercial land. The impact of stations on residential land values can generally be seen across a relatively wide geographic area with a radius of up to three miles from the station location. By contrast, the impact on commercial property appears to be more confined, within walking distance or perhaps half a mile of the station<sup>7</sup>, although the scale of the impact tends to be greater as Figure 2.1 shows.

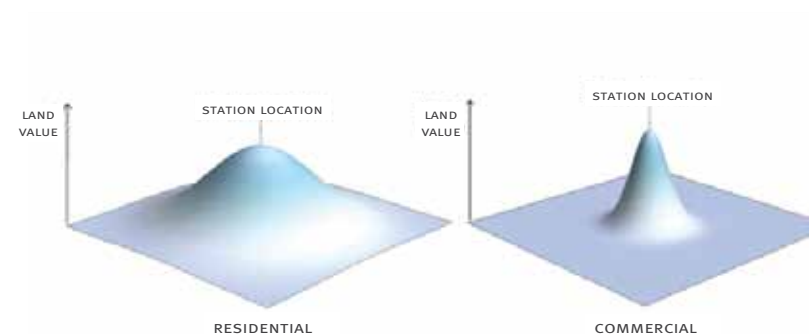
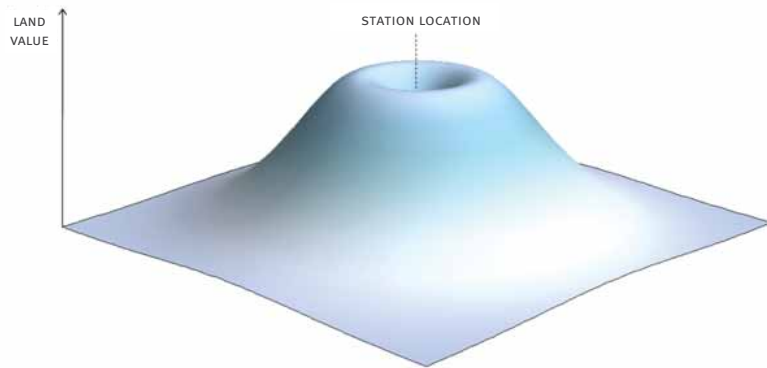


FIGURE 2.1 RESIDENTIAL VERSUS INDUSTRIAL LAND VALUE PATTERNS

6 A meta-analysis suggested that moving 250 metres closer to a station typically increases residential property values by around 2.4 per cent. The impact of railway stations on residential and commercial property value: A meta-analysis - Debrezion, D., Pels, E., & Rietveld, P., 2007.

7 Developing a methodology to capture land value uplift around transport facilities - GVA Grimley, 2004.



**FIGURE 2.2** VOLCANO-SHAPED LAND VALUE PATTERN

- **Employment growth and land use density are higher around stations:** a number of US studies have found particular concentrations of commercial and residential development emerging around stations<sup>8</sup>. There is also evidence from some US cities that stations promote employment growth up to two and a half times greater than in cities without stations<sup>9</sup>. Similar relationships have been observed in the UK, for example in London where the growth of the major office developments at Canary Wharf has been attributed in part to the Jubilee line extension<sup>10</sup>.
- **A poor quality station and built environment can depress land values:** while the evidence generally supports a positive relationship between the presence of stations on land values, in certain circumstances the noise from trains and station users, pollution and the general unsightliness of railway buildings can have a negative impact in the immediate station vicinity. This effect has been observed in US cities such as Atlanta<sup>11</sup>, and also chimes with evidence from our stakeholder interviews that an unattractive station tends to reinforce the tendency towards lower value economic activity, lack of investment and, in some cases, increased crime in the surrounding area. This evidence suggests that, where stations detract from the surrounding public realm, a possible ‘volcano’ shaped pattern of land values around stations can occur. This is illustrated in Figure 2.2.

<sup>8</sup> For example, Land value impacts of rail transit services in San Diego County - Cervero, R., & Duncan, M., 2002.

<sup>9</sup> Rail transit station area development: Small area modelling in Washington, DC - Green, R., & James, D., 1993.

<sup>10</sup> Property value study - Assessing the change in values attributable to the Jubilee Line Extension - AtisReal & Geofutures, 2005.

<sup>11</sup> Identifying the impacts of rail transit stations on residential property prices - Bowes, D., & Ihlandfeldt, K., 2001.

- **Striking, high quality design can improve perceptions of an area:** there is strong evidence that the perception and economic performance of an area can be enhanced by the presence of well-designed buildings<sup>12</sup>, and there is no reason why stations should be an exception. The literature points to positive links between good design and regeneration as a result of increased confidence among those living and working in the area. It also suggests a strong, positive relationship between good design and retail footfall and expenditure, supported by experience at major UK stations such as Manchester Piccadilly and St Pancras. There is also evidence of a positive link between ‘quality’ and value from public realm improvements. A study of London high streets showed that an achievable improvement in street design quality added an average of 5.2% to residential prices on the case study high streets and an average of 4.9% to retail rents<sup>13</sup>.

<sup>12</sup> The Value of Urban Design - CABE & DETR, 2001.

<sup>13</sup> Paved with gold: the real value of good street design – CABE, 2007.

## STATIONS AS BARRIERS TO GROWTH

- 2.7 This evidence highlights the potential for stations to make a positive contribution to economic growth while indicating that they can also have negative impacts on the surrounding area. In practice, station development in the UK has not always kept pace with the demands of passengers and the needs of modern towns and cities, with the result that individual stations have actually constrained economic development. This partly reflects the fact that many stations were constructed in the 19th or early 20th centuries, were often at the edge of what was then the urban area that they served, and are now located in the wrong place or lack the capacity to accommodate current and forecast levels of traffic. Elsewhere, old stations have been redeveloped and new stations built, but often according to design principles applied in the 1960s and 1970s that are now regarded as outdated and inappropriate.
- 2.8 In a number of towns and cities this legacy has often suppressed the level of economic activity, both in the immediate vicinity of the station and in the surrounding area. Such areas are frequently unattractive and characterised by low value economic activity. They may also be subject to relatively high levels of crime and consequently perceived as being unsafe. Moreover, these effects tend to be self-reinforcing since, in the absence of major, coordinated redevelopment of property around the station, there are generally few if any incentives for the private sector to invest.

2.9 We have sought to investigate the mechanisms underpinning this pattern of underdevelopment in more detail through the interviews with stakeholders. The following links between poor station condition and design and the economy of the surrounding area appear to be particularly important as well as mutually reinforcing:

- **Stations can restrict physical access across an urban area:** the alignment of railway tracks, restricted access through the station itself and the presence of at-grade car parks and fenced-off areas of railway land often create a physical barrier between different parts of a town or city. In these circumstances, the station becomes the point of delineation between what are often described as central area activities (offices, hotels and higher value retailing), and low density industrial, warehouse and lower quality retail establishments. A number of examples of this phenomenon were cited in the course of our stakeholder interviews, including London Waterloo, Birmingham New Street and (before their recent redevelopment) Reading Station and Manchester Piccadilly.
- **A poor quality environment in and around a station discourages investment:** where station buildings and facilities are in poor condition and the quality of the environment of the surrounding area is low, the resulting image of underdevelopment tends to discourage investment. This is because individual developers and

landowners considering investment opportunities in such an area are unlikely to identify specific investment projects with attractive commercial returns. While the problem arguably arises due to inadequate scale and co-ordination rather than a poor station environment in isolation, it highlights the role that station investment can play as a catalyst for wider development and regeneration.

- **A poor station environment creates a poor impression of a town or city:** more generally, a legacy of underinvestment in a station, or a failure of station planning and design to respond to, or keep pace with, wider urban developments, can affect perceptions of a town or city as whole, even undermining the effect of improvements in the centre and other areas away from the immediate station vicinity. Stations are gateways to the locations that they serve, and business passengers and other visitors often form an impression of a place based on the quality of the station environment, especially when they are visiting for the first time. The resulting impact is difficult to quantify, but a number of stakeholders expressed the view that prior to the redevelopment of their main stations, cities such as Manchester and Sheffield had found it more difficult to attract investment.

2.10 These effects have been seen at a range of stations serving urban locations across the UK, varying significantly in terms of size and passenger profile, as shown in Figures 2.3 to 2.5. While smaller

commuter stations tend to be less of a physical barrier to movement around an area and are less important destinations for business traffic than city centre stations, their role in creating a positive impression of the locations that they serve is nevertheless important. Various stakeholders highlighted the potential impact of smaller stations on the wider urban environment and the level of retail and other economic activity in town centres. This suggests that the size and primary purpose of a town or city station is not necessarily a guide to its potential role in supporting urban regeneration.



**FIGURE 2.3** EXAMPLE OF RESTRICTED PHYSICAL ACCESS – MANCHESTER PICCADILLY C. 1994



**FIGURE 2.4** EXAMPLE OF POOR QUALITY ENVIRONMENT AROUND STATION – SHEFFIELD C. 2004



**FIGURE 2.5** EXAMPLE OF POOR IMPRESSION CREATED BY STATION – ST. HELENS C. 2004

## THE NEED FOR STATION INVESTMENT

- 2.11 Since the constraints on economic development discussed above are at least partly the result of poor station condition and design, it follows that well-directed station investment can help to address them. In principle, by improving the station environment, broadly defined, such investment can help to generate development and increased economic activity in the surrounding area, increasing investor confidence as well as employment and income levels in the town or city as a whole. In some cases, it may also contribute to reductions in anti-social behaviour and crime. However, before examining the evidence for these effects in more detail, it is important to consider what improvements are needed and how these can be delivered.
- 2.12 In practice, many station investment projects are prompted by changing operational needs rather than pressure to improve the station environment. More generally, operational requirements and constraints must be taken into account in planning improvements to station facilities

or access to adjacent areas. At the same time, the scope for exploiting the commercial potential of a station and/or the surrounding land must be considered, not least in order to secure additional sources of funding against a background of constrained public sector investment. Hence, in many cases individual station projects will need to meet a number of objectives and must be planned accordingly, balancing operational and commercial considerations as well as broader concerns relating to the impact of the station on the surrounding built environment.

- 2.13 In the following chapter, we describe in more detail the different ways that stations can be improved and discuss how these can be leveraged to exploit the commercial potential of stations to best effect. We also outline a number of design principles, set out in more detail in Network Rail's *Guide to Station Planning and Design*<sup>14</sup>, which help align improvements with operational, passenger and commercial requirements.

<sup>14</sup> Available at <http://www.networkrail.co.uk/asp/6368.aspx>





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## 3 Improving Stations

### CONTENTS:

- Potential Station Improvements
- Exploiting Commercial Opportunities
- Design Principles

### KEY QUESTIONS:

- What kinds of improvement are typically needed?
- How can the commercial potential of stations be exploited?
- How can improvement schemes best meet operational, passenger and commercial requirements?

### POTENTIAL STATION IMPROVEMENTS

- 3.1 The scope for improving a station will depend on a number of factors including its size and location, the profile of passengers and others using it and the legacy of previous investment. In principle, necessary improvements may be designed to address a limited number of operational constraints within the station boundary or involve much broader redevelopment, potentially extending to the surrounding area. The main types of station improvement undertaken in recent years are summarised in the following sections.

#### Operational Improvements

- 3.2 Investment in operational improvements may be required to ensure that a station functions more effectively. Such investment could involve changes to the number and / or configuration of platforms in order to increase the range and frequency of train services available at the station, as at London Bridge and Gatwick. While this kind of improvement can clearly have a significant impact on the local economy by improving the connectivity of a town or city, this derives from the enhancement to the train service rather than the changes to the station itself and falls outside the scope of this study.
- 3.3 Alternatively, operational changes may be designed to improve the flow of passengers around the station, for example by relieving capacity constraints at key locations. As well as increasing the overall capacity of the station, investment of this kind can improve passenger perceptions of the station environment and encourage more frequent travel regardless of any changes to the train service<sup>15</sup>.

<sup>15</sup> This issue is explored further in the 'Network RUS – Stations'.

### Better Station Facilities

- 3.4 Stations typically provide a range of facilities including those directly related to the rail journey, such as ticket machines and information screens, and others providing services to a range of station users, such as retail and catering outlets. Investment may be directed to increasing the provision of a range of facilities, for example with a view to reducing the average time spent waiting to purchase a ticket while extending the choice of retail and other services available to passengers. In practice, the scope of any improvement scheme will depend on passenger priorities as well as operational constraints.
- 3.5 Figure 3.1<sup>16</sup> is based on National Passenger Survey (NPS) results for Network Rail managed stations and shows the relationship between passenger satisfaction with certain attributes and the importance that they attach to them. It is worth noting that ‘facilities and services at the station’, broadly defined and encompassing retail and other services, rank more highly than rail-specific attributes such as ‘ticket buying facilities’ and ‘provision of information about train times / platforms’. While these results may reflect the particular characteristics of the larger city centre stations managed directly by Network Rail, they nevertheless highlight the need to look beyond the narrow functionality of stations when planning improvements to facilities.



Retail outlets at Glasgow Central

<sup>16</sup> Source: Managed Stations: Analysis of customer satisfaction, Network Rail. 2010.

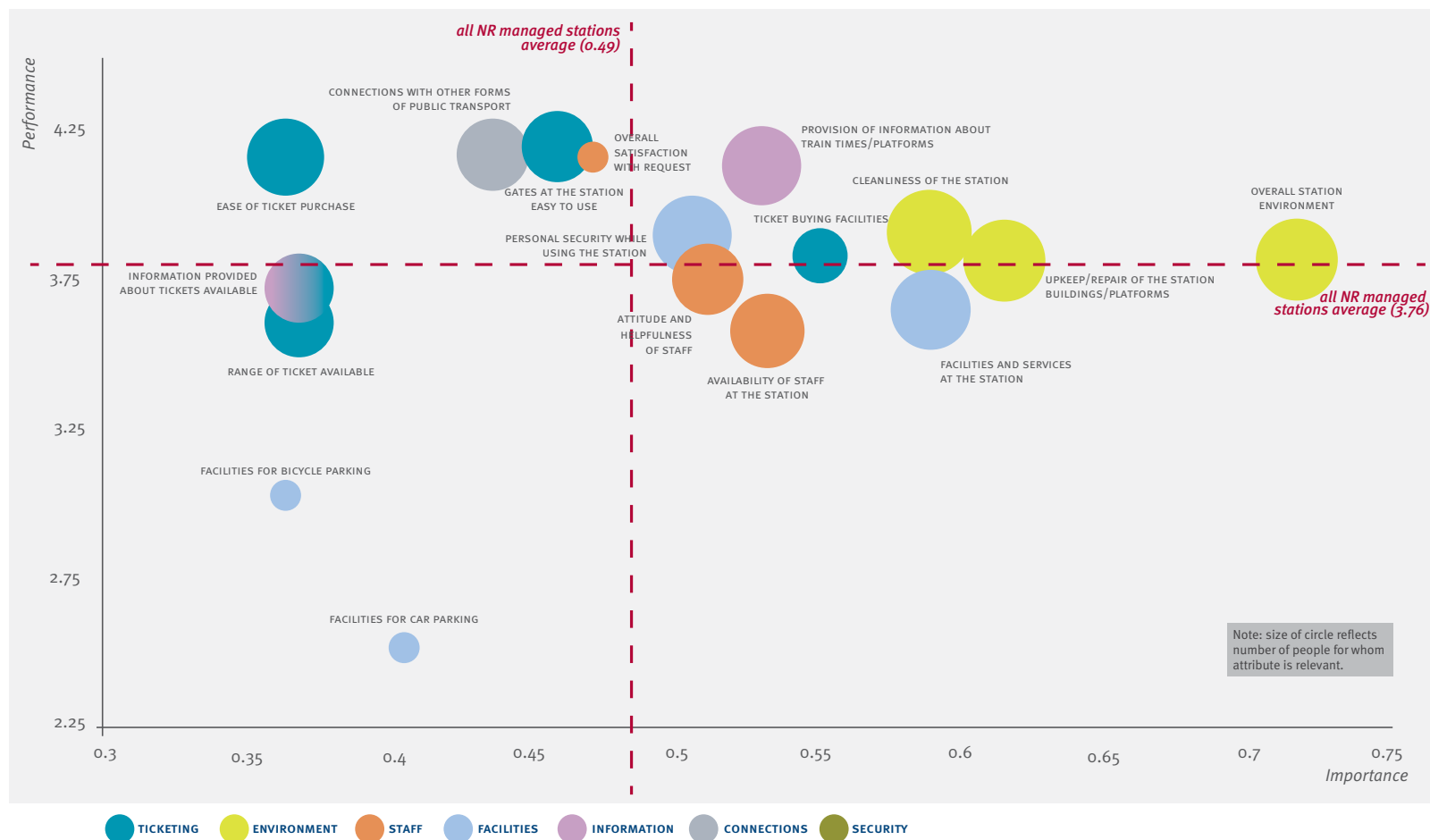


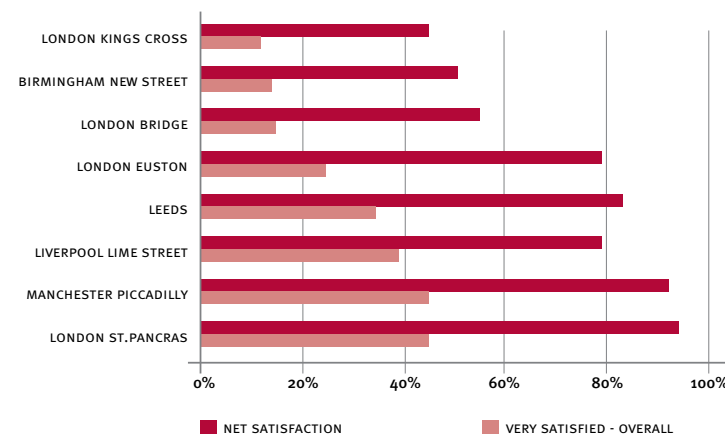
FIGURE 3.1 RELATIVE IMPORTANCE OF STATION ATTRIBUTES FOR NETWORK RAIL MANAGED STATIONS (AUTUMN 2010 SURVEY)

### Improving the Station Environment

3.6 Figure 3.1 also illustrates the importance of the ‘overall station environment’ for passengers and others using the station. At first sight, it is difficult to draw firm conclusions from this about the appropriate scope or design of an improvement scheme, not least because the station environment is difficult to define and perceptions of it are inherently subjective. Nevertheless, the fact that the passengers surveyed regard it as significantly more important than any individual attribute suggests that they see it as distinct, at least to some degree.

3.7 In principle, various improvements can be made to a station in order to increase passenger satisfaction with the environment. These include changes designed to increase the level of natural light within station building and below station canopies, measures to remove clutter and improve sightlines within and between the different areas of the station, and better signage to assist way finding. Such investment will invariably improve passengers’ sense of well-being, making them feel more comfortable and, as discussed further below, potentially more inclined to use retail, catering and other facilities. Further, in certain circumstances it may also encourage a ‘sense of place’, with the result that the station becomes a destination in its own right rather than a transitory stage in a journey.

3.8 The potential impact of this kind of improvement is illustrated in Figure 3.2<sup>17</sup>, which shows the percentage of passengers who were ‘very satisfied’ with the overall station environment at each Network



**FIGURE 3.2** SATISFACTION WITH ‘OVERALL STATION ENVIRONMENT’ AT SELECTED NETWORK RAIL MANAGED STATIONS (AUTUMN 2010 SURVEY)

<sup>17</sup> Source: Network Rail



Rail managed station, together with the corresponding net satisfaction score<sup>18</sup>. It indicates that those stations that have recently benefitted from substantial investment, in particular St Pancras and Manchester Piccadilly, received significantly higher satisfaction scores than older, more crowded stations such as Kings Cross and Birmingham New Street (both of which are now receiving large scale investment). While these results may reflect the more extensive facilities now available at some of the higher scoring stations, factors such as lighting levels and ease of way finding are also likely to have influenced passenger perceptions.

### Improved Access

- 3.9 Improvements in access can include a range of measures providing for better connections between a station and the surrounding area or quicker onward connections to other destinations. These may take the form of new pedestrian links, better way finding, improvements to transport interchanges and specific measures designed to increase accessibility for Persons with Restricted Mobility. Investment of this kind can reduce the journey time between the station and the final destination or point of origin, and their immediate impacts are therefore captured, at least in principle, by conventional appraisal. However, the effect of removing the physical barriers to movement around an urban area that stations can create, as discussed in the previous chapter, is generally not taken into account in business cases for station improvement schemes<sup>19</sup>.

<sup>18</sup> The percentage of passengers who were 'very' or 'fairly' satisfied minus the corresponding percentage of dissatisfied passengers.

<sup>19</sup> An evaluation of the benefits of 'Access for All' improvements has been undertaken on behalf of the Department for Transport (Access for All – Benefits Research, Steer Davies Gleave).

## EXPLOITING COMMERCIAL OPPORTUNITIES

- 3.10 Effective exploitation of commercial opportunities in and around a station will generally have a direct impact on the level of economic activity in the area that it serves, stimulating investment as well as creating employment. In addition, some of the value created can be captured and used to defray investment costs, an increasingly important consideration in the current climate of constrained public funding. Realising the commercial potential of a station can therefore result in a 'win-win' alignment of social, economic and commercial objectives, helping to ensure the deliverability and success of a station investment scheme.
- 3.11 We have identified two broad sources of commercial opportunity:
- Developments on railway land or land adjacent to a station, including major retail developments (as at Birmingham New Street), new offices (as at London Bridge), new housing (as at Epsom), mixed-use development (as at Walthamstow and Nottingham) and oversight development (as at Cannon Street); and
  - Enhancing the retail offer within stations, which can significantly increase their revenue generation potential.
- 3.12 Each raises different issues for station investment and we consider them in turn in the following sections.



### Developing Land

- 3.13 As discussed in the previous chapter, land adjacent to stations is frequently underdeveloped and used for low value economic activity, particularly where there is a legacy of underinvestment in the station itself. In these circumstances, individual developers acting alone are unlikely to identify attractive investment opportunities, not least because of the risk that any new development would be isolated, located in an area otherwise blighted by poorly maintained land and buildings. However, where adjacent land forms part of the railway estate it may be possible to encourage development on a wider scale, allowing investors to secure higher returns than would otherwise be the case.
- 3.14 There has been substantial redevelopment of railway land in recent years, and this is set to continue. Examples include:
- The current development of land in the vicinity of Kings Cross and proposals to develop the Fishdock site adjacent to Manchester Victoria;
  - Above station development, as at London Victoria and more recently at London Cannon Street;
  - Recent development of railway land close to smaller stations such as Epsom and Walthamstow, both of which are being delivered through the Solum Regeneration joint venture between Network Rail and Kier Property.



Cannon Street

- 3.15 In all cases, the development supported a parallel programme of station improvements, providing a key source of funding for investment. At the same time, experience with these and other projects has highlighted the challenges inherent in successfully integrating station improvement and the commercial development of adjacent railway land. In the course of the interview programme various stakeholders noted the following issues.

#### **The respective roles of Network Rail, developers and other stakeholders**

- 3.16 Our case studies highlighted a range of different arrangements for stakeholder participation. In some cases, such as the redevelopment of Manchester Piccadilly and Reading, the initiative for station improvements originally came from the rail industry, with local authorities becoming involved at a later stage once the potential for improvements to the wider urban environment had become apparent. Elsewhere, station investment was integral to a broader master plan for city regeneration from an early stage, as in the case of Sheffield and Nottingham Hub. Developers also participated in different ways, ranging from involvement in the overall programme management arrangements through to formal joint venture partnership with Network Rail. There is no clear correlation between the approach taken and the success of the project and hence no ‘one size fits all solution’. It is, however, important that each party is receptive to the vision and ideas put forward by the others.

#### **Balancing commercial opportunities and the needs of an operational railway**

- 3.17 Some stakeholders noted that exploiting commercial opportunities and the needs of the operational railway could sometimes conflict. This was particularly the case where parties identified competing uses for adjacent land. For example, while such land may offer scope for office or retail development generating attractive returns within relatively short timescales, there may also be a case for reserving it with a view to increasing station capacity in the future. The decision on the appropriate use will involve a trade-off between meeting more immediate economic or commercial objectives on the one hand, and planning to accommodate future growth in rail passenger demand on the other.

#### **Planning issues**

- 3.18 As in the case of many development projects, proposed station improvements and associated changes in land use can meet with different reactions from local community stakeholders. Some of the stakeholders interviewed were not supportive of specific aspects of particular projects, for example the scale of the adjacent mixed use developments at Walthamstow. This highlights the ongoing need to take account of planning issues, notwithstanding the scale of any regenerative impacts that a scheme is expected to have. Even where such impacts are likely to be large, scheme promoters should not assume they will necessarily outweigh other concerns.

### **Tensions between commercial and wider objectives**

- 3.19 There can also be tensions between the aspirations for a scheme in terms of regeneration and the commercial focus of developers. Some stakeholders commented that a station improvement scheme coupled with substantial adjacent development can be seen as a way of solving a wide range of issues with a single initiative, and that initial expectations were not always realistic. More generally, there can be conflicts between particular aspects of a scheme and more specific local authority objectives. For example, major developments may include the creation of substantial additional car parking space close to a town or city centre, often conflicting with other measures designed to discourage private car use and relieve congestion.

### **Enhancing the Retail Offer at Stations**

- 3.20 The concentration of passengers with time to spare at a station creates an attractive market for many retailers. This has been recognised for many years by a number of established retail organisations, notably W H Smith, which opened its first station-based outlets during the railway boom of the 1840s. Today, station-based retail businesses are significantly outperforming high street shops; recent Network Rail data indicate that retail sales at stations increased by 5% in the last quarter of 2010 as compared with a 0.4% increase on the high street. Food and drink outlets catering for rail travellers perform particularly well, with three of the top five Yo! Sushi and Wetherspoons outlets located at stations<sup>20</sup>.

- 3.21 While the potential for retail is clearly greatest at large, city centre stations, smaller stations also provide attractive markets. Commuter stations, for example, are frequented by experienced passengers who typically arrive at the station with minutes to spare, and represent a well-defined target market. The retail offer at such stations, while focused on the ‘grab and go’ offer of coffee, newspapers and other consumables to passengers, is invariably successful.
- 3.22 However, in order to allow these opportunities to be exploited effectively, stations must meet at least two key criteria:
- They must have sufficient capacity to accommodate retail establishments without affecting efficient operation, in particular the flow of passengers around the station; and
  - Passengers must be comfortable within the station environment such that they are willing to use the so-called ‘golden period’, between arriving at the station and catching their train (or other mode of transport), to make purchases.
- 3.23 In practice, constrained capacity at many older stations creates a conflict between enhancing the retail offer and improving passenger flows. Moreover, at some, attempts to resolve this conflict have created an impression of clutter, detracting from the travel experience and discouraging use of the limited retail facilities available.

20 Network Rail, based on 2010/11 sales figures.



**FIGURE 3.3** RETAIL PROVISION AT PADDINGTON



**FIGURE 3.4** RETAIL PROVISION AT MANCHESTER PICCADILLY

3.24 Station investment can address these issues in different ways. At some stations, it may be possible to create additional space, for example by creating a separate concourse level, or reconfigure the layout so that there is a clear separation between retail and other areas. More generally, the provision of clear signing and consistent way finding within and beyond the station boundary, as well as the removal of clutter, can improve passenger flows and make passengers feel more relaxed.

3.25 In recent years, a number of major stations have been reconfigured with a view to increasing the retail and other services available. At London Paddington, the main retail offer is located off the main concourse, removed from the main passenger flow while remaining accessible and visible to both passengers and the non-travelling public (Figure 3.3). Similarly, at Manchester Piccadilly a number of retail outlets have been placed on a separate level, while others have been separated from the passenger circulation and waiting areas, and there are current plans for further improvement and expansion of the retail facilities at the upper concourse level (Figure 3.4).



- 3.26 In some cases, the retail offer at the station has been transformed such that the station location is now a destination in its own right. The clearest example of this is St Pancras, where approximately one quarter of station users have no intention of catching a train and visit the station entirely for the shopping, cafes and restaurants (Figure 3.5). The current development of Birmingham New Street Gateway is similarly expected to create a major retail destination, with a 250,000 square foot John Lewis department store providing the focus for the revitalised and remodelled Pallasades shopping centre (Figure 3.6).
- 3.27 Exploitation of retail opportunities on this scale is clearly only possible at major termini and other city centre stations. However, recent developments at commuter and other stations also demonstrate the potential to leverage significant retail potential. Examples include St. Helens, St. Albans and the planned improvements at Epsom, where providing enhanced retail was a key part of the station improvement.



FIGURE 3.5 RETAIL PROVISION AT ST PANCRAS



FIGURE 3.6 PLANNED JOHN LEWIS STORE AT BIRMINGHAM GATEWAY



**FIGURE 3.7** STATION PLANNING AND DESIGN GUIDELINES

## DESIGN PRINCIPLES

- 3.28 Network Rail's Guide to Station Planning and Design provides a framework for balancing the core requirement of station investment to deliver improvements to passengers, and effective exploitation of commercial opportunities that can, directly or indirectly, help fund such improvements. The Guide is based on four design themes - Usability, Efficiency, Quality and Value, and sets out different user priorities (for station operators, different passenger types, retail operators, local authorities and so on), so that design can be tailored to the characteristics and user profile of a particular station.
- 3.29 The Guide is based on the principle that spatial management (appropriate location of passenger facilities, retail, platforms, information and clear sightlines) plays a fundamental role in facilitating ease of movement and making passengers feel comfortable.
- 3.30 Network Rail is also establishing overarching guidance for the implementation of trading activities at its managed stations. The National Retail Guidelines and accompanying Station Specific Design Requirements will help to establish station trading within the context of overall station priorities and needs and the specific design features of the station concerned.





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## 4 The Impact of Station Investment

### CONTENTS:

- The Pattern of Recent Station Investment
- Regeneration and Transformation
- Property and Economic Analysis

### KEY QUESTIONS:

- What investment in stations has been made over the last ten years?
- What effect has station investment had on the economy of our towns and cities?

### THE PATTERN OF RECENT STATION INVESTMENT

- 4.1 Over the last decade, there has been significant investment in stations across the GB rail network. This has included:
- Large-scale investment in the transformation of major stations such as St Pancras, Kings Cross, Manchester Piccadilly, Sheffield and Liverpool Lime Street;
  - Investment in stations from specific funds such as the £370 million ‘Access for All’ programme (making 200 stations fully accessible) and the £150 million National Stations Improvement Programme, which has targeted improvements at the busiest medium sized stations; and
  - Significant investment funded by Train Operating Companies and Passenger Transport Executives at many stations.
- 4.2 Table 4.1 shows the level and type of investment at our case study stations, together with a summary of the key stakeholders

involved in the promotion and delivery of each scheme (restricted to schemes that have been, or are currently being, implemented). It indicates a wide range of experience in terms of the type of station, scale of investment, and nature of stakeholder participation.

- 4.3 We have sought to investigate the impact of these schemes as far as possible through a combination of stakeholder interviews and quantitative analysis. While the research has inevitably focused on completed schemes, which have already had an impact on the local economy in question, all of the investment projects included in the table provide some evidence of the effects that station investment can be expected to have. Where relevant, we have also drawn on information about planned schemes, for which the available information is inevitably limited.



Paddinton station

Station	Cost of station improvement	Period of station development	Scope of improvement	Stakeholder participation
<b>MAJOR CITY CENTRE STATIONS</b>				
Manchester Piccadilly	£62m	Completed 2002	Major upgrade of Piccadilly Station (including new entrance, access, facilities.	Network Rail GMPT Manchester City Council
Sheffield	£25m	Completed 2005	Major station improvements to concourse, access and facilities. Part of area master plan.	Network Rail Sheffield City Council English Heritage Yorkshire Forward East Midlands Trains SYPT Department for Transport
Birmingham New Street	£550m	Completion planned 2015	Rebuilt and enlarged concourse and retail development. New access to platforms and through station	Network Rail Birmingham City Council Advantage West Midlands (AWM) Department for Transport
Nottingham Hub	£60m	Completion planned 2014	Major station improvements to concourse, access and facilities. Part of regeneration master plan.	Network Rail East Midlands Trains Nottingham City Council

TABLE 4.1 INVESTMENT AT CASE STUDY STATIONS

Station	Cost of station improvement	Period of station development	Scope of improvement	Stakeholder participation
<b>LARGER URBAN/SECONDARY STATIONS</b>				
Reading	£35m	Completion planned 2014	New northern station entrance and improvements to proposed southern entrance.	Reading Borough Council Network Rail
Farringdon	n/a	Under construction	Station redevelopment part of Thameslink and Crossrail works.	
St Helens	£6m	Completed 2007	Reconstructed station with new entrance.	Network Rail Merseytravel Merseyrail
St Albans	£5m	Completed 2009	Enlarged entrance, new retail and improved accessibility.	Network Rail First Capital Connect Linden Homes St Albans Council
Epsom	£4.5m	Completion planned for 2014	Improved station facilities and concourse. Improved entrance / access to town centre. Funded through development.	Network Rail / Kier Property (Solum Regeneration joint venture) Epsom & Ewell BC Southern Trains
Walthamstow	n/a	Completion planned for 2012	Improved public realm around station. Funded through development.	Network Rail / Kier Property (Solum Regeneration joint venture) LB Waltham Forest Council

## REGENERATION AND TRANSFORMATION

4.4 We conducted some 60 interviews with a wide range of stakeholders including promoting authorities, local councils, regeneration bodies, property agents, business groups and local community representatives. Appendix B provides a list of the organisations interviewed.

4.5 The interviews took the form of a structured, qualitative discussion about the economic and social context, the role of a station in the local economy and the need for, and impact of, station investment in the various locations covered by the case studies. We also asked a series of specific questions reflecting the particular expertise of individual interviewees, for example property development and prices in a given area. We used the information gathered to gain an understanding of the primary motivation for each station improvement project and of the impacts that stakeholders had identified or expected.

4.6 In the course of the interviews, we identified a number of major themes concerning the potential benefits of station improvement. These are summarised in the following sections.

### Removal of Physical Barriers

4.7 Several stakeholders noted the need to remove the physical constraints on movement resulting from the alignment of, and lack of access through, some stations. This was a particular concern in the case of Birmingham New Street, which had the effect of detaching

the south side of Birmingham city centre from the commercial core. Over time, this had resulted in major disparities in the level of economic activity and quality of the built environment on each side of the divide, and one stakeholder described the experience of travelling to the south side as ‘like dropping off the edge’.

4.8 The expected effect of the Birmingham New Street Gateway project, as described in Birmingham City Council’s ‘Big City Plan’, is a complete transformation of the south side. In effect, the project will allow the city centre to expand to the south, with major investment in both retail and office space. As already noted, the redeveloped Pallasades shopping centre will provide the focus for a substantially enhanced retail offer, and is expected to make the station a destination in its own right.

4.9 There have been a number of indications of increased investor confidence since work on the new station began, notwithstanding the difficult economic climate. The commitment from John Lewis to invest in a new department store, which will provide the southern ‘anchor’ for the station and shopping centre, tends to confirm the commercial potential of stations discussed in the previous chapter. In addition, the recent establishment of the Southside Business Improvement District, created in order to fund investment in the local community based on a 2% business rate levy, demonstrates the scope for station investment to help in leveraging new sources of funding.





Manchester Piccadilly

- 4.10 Similar effects can be seen at other major station locations, for example in Reading where an improvement to the station entrance will open up the potential for development to the north. As at Birmingham, station investment was key to improving access to the development site and unlocking major investment.
- 4.11 In the case of smaller stations, the barriers to movement that they create are generally less significant. Nevertheless, many older stations do not integrate well with the neighbouring town centre, and changes to the location of entrances and the layout of parking and drop-off areas can increase accessibility to local destinations as well as improving passenger flows in and around the station. For example, in the case of St Albans the historic city centre is not immediately accessible from the station due to its location, but improvements to the concourse and adjacent bus interchange now enable passengers to make onward connections to a range of local destinations more easily. More generally, changes of this kind facilitate the development of smaller stations as multi-modal interchanges and improve their integration with the surrounding area.

#### Improving the Image of a Town or City

- 4.12 Many stakeholders emphasised the role of stations as gateways and the link between impressions of a station and perceptions of the town or city that it serves. Prior to redevelopment, Manchester Piccadilly ‘said all the wrong things about the north’, while Birmingham New



Street regularly received accolades such as ‘the worst station in Britain’ and ‘the second most hated eyesore in Britain’. Evidence from the interviews suggests that these impressions had real impacts on investment and economic development in the cities concerned, with local authorities and others finding it increasingly difficult to secure investor interest in the city as a whole.

4.13 Equally, stakeholders with particular responsibility for encouraging investment confirmed that this became considerably easier after the station redevelopment had been completed. For example, in Sheffield one interviewee noted that ‘we’re not embarrassed to meet people off the train anymore and now include the station in any walking tour with prospective investors’. In the case of Manchester Piccadilly, stakeholders commented that the ‘sense of arrival’ imparted by the station had a significant impact on whether people chose to invest in the city.

4.14 Moreover, the role of the station as a gateway is equally important in smaller towns. Following recent investment by Merseytravel, St Helens Central, which was previously served by a pre-fabricated station constructed in 1961, now has a new station that is both distinctive and in keeping with the neighbouring George Street Quarter in terms of design. Local stakeholders noted that, as well as attracting a number of regeneration and design awards, the station has helped to attract several new businesses to the district. The image of St Helens Central is regularly included in promotional literature for the area.



*St Helens Central, view from Bickerstaffe Street*



*Nottingham Hub (planned)*

### Station Investment as a Catalyst

- 4.15 The interviews also provided compelling evidence that station investment can be a catalyst for wider regeneration. At nearly all of our case study stations, station investment was integral to a wider regeneration initiative. As already noted in the previous chapter, in some cases station improvements and wider development were jointly planned from an early stage, while in others initial plans prepared by rail industry parties were subsequently developed with local authorities and others to maximise the potential for regeneration. In all cases, the station investment was regarded as central to the delivery of the wider scheme, although the scale of the catalytic effect was generally greater in the case of the larger city centre stations.
- 4.16 The potential for station investment to act as a catalyst is demonstrated by a number of our case study examples. The improvement in investor confidence in Birmingham, mentioned above, echoes similar impacts at Manchester Piccadilly and Sheffield. For example, in the course of our interview programme the Chairman of the Piccadilly Partnership noted that the expected returns on speculative development around Manchester Piccadilly in 2000, prior to the station redevelopment, did not justify investment but that subsequently the improved image of, and confidence in, the area made such investment attractive. In the view of a number of stakeholders, this perceived change in expected returns was key to securing the 650,000 square feet of new and refurbished office space and three new hotels delivered as part of the overall Piccadilly development. Some also suggested that the quality of the development was higher as a direct result of the station improvement.

4.17 The Sheffield Station Gateway Project was similarly expected to help generate substantial investment beyond the station boundary. The vision for the project stated that it would ‘form part of the overall plan for the revitalisation of the Sheaf Valley as a key location for the creative and digital cluster’. The wider city master plan also provided for the commercial development of two sites to the north of the station following demolition of two pre-existing office buildings. In the event, the success of the new Digital Campus, which has attracted investment from Sky as well as a range of smaller businesses in the electronics and other high technology sectors, is partly attributed to the redevelopment of the station.

4.18 Both Manchester Piccadilly and Sheffield also provide evidence of a ‘ripple effect’, whereby initial development prompted partly by station improvements increases investor confidence and encourages further development across the city. The resulting virtuous circle, illustrated in Figure 4.1, substantially increases the level of economic activity in the surrounding area, providing a further stimulus to employment and incomes.

4.19 Similar effects are anticipated as a result of a number of station projects currently planned or being implemented, for example at Bristol Temple Meads, Farringdon and Newcastle. In practice, wider development may be partly if not mainly driven by an increase in connectivity rather than the station investment itself. This is particularly true of Farringdon, which will eventually serve both the upgraded Thameslink and new Crossrail

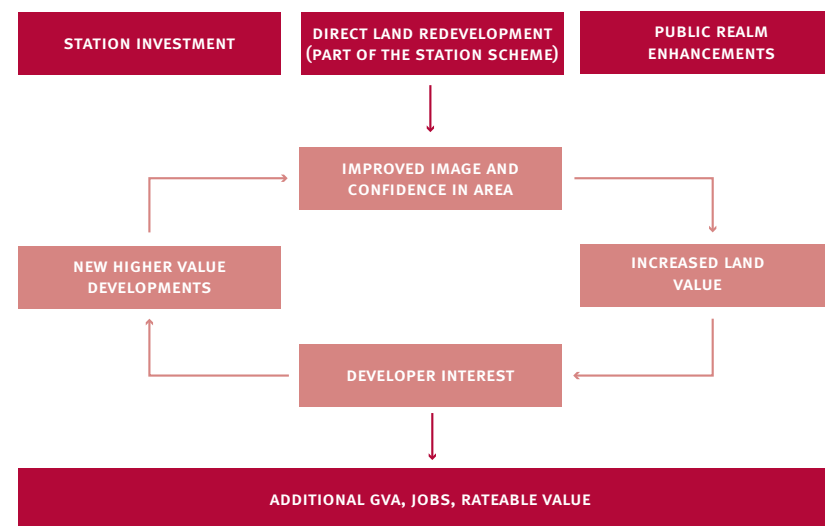


FIGURE 4.1 STATION INVESTMENT AND REGENERATION

routes. Nevertheless, in each case improvements of the kind described in the previous chapter, implemented according to established design principles, can be expected to enhance the image of the surrounding area and encourage development that would otherwise not occur.

### Key Challenges

4.20 While confirming the effectiveness of station investment in supporting wider regeneration, the stakeholder interviews also highlighted a number of challenges. Large developments, in particular, invariably raise complex issues, but the range of competing objectives peculiar to station-based projects can be especially difficult to reconcile. The following issues require careful consideration in planning station improvement schemes forming part of a wider regeneration initiative:

- **Setting realistic expectations:** we have already noted the risk that a station scheme, coupled with associated redevelopment of adjacent land, may be seen as a comprehensive solution to problems of urban blight and economic and social deprivation. It is therefore important for stakeholders to set realistic expectations from the outset, based on mutual recognition of operational and commercial considerations as well as regeneration objectives. Different parties therefore need to be receptive to each other's ideas and concerns.
- **Stakeholder participation:** this, in turn, highlights the need for programme oversight and management arrangements that provide for effective engagement between stakeholders. Such engagement is particularly important in the case of major regeneration schemes such

as the Sheffield Station Gateway Project, which involved Sheffield City Council, South Yorkshire Passenger Transport Executive, the Department for Transport, Yorkshire Forward and English Heritage. With such a wide range of interests and perspectives, it is essential to establish a shared vision for a station improvement project, taking account of the objectives of all parties, at an early stage.

- **Determining the tipping point:** while the stakeholder evidence presented here demonstrates the potential for station investment to act as a catalyst for further development, the scale of investment required will vary case-by-case. In practice, this may be difficult to determine since it will depend on the perceptions of private sector developers as well as identification of any physical barriers to accessibility arising from the existing station design and layout.
- **Funding:** the current constraints on public sector funding will create pressure to secure funding from a range of other sources. As already discussed, there may be considerable scope to exploit commercial opportunities both within the station and on adjacent railway land. However, these may not be sufficient and it may be necessary to consider new types of funding arising from recent policy initiatives, for example Tax Incremental Financing (which involves leveraging anticipated increases in rateable values resulting from the development) and additional train operator funding (potentially available following a move to longer franchises). At the same time, the greater the range of funding sources secured, the greater the tensions between the various stakeholder objectives are likely to be.



## PROPERTY AND ECONOMIC ANALYSIS

4.21 Building on the stakeholder evidence discussed above, we have also undertaken quantitative analysis to determine the extent of any changes in property values and economic activity as a result of station investment. This aspect of the research focused on the Manchester Piccadilly and Sheffield improvement schemes as, in both cases, sufficient time has elapsed since project completion to allow some assessment of the impacts. In addition, stakeholder comments on these schemes highlighted a number of key propositions to test, in particular the link between station investment and property prices and the effect of station improvements on investment and economic activity in the surrounding area. The results of this analysis are discussed in more detail in Appendix B, but here we summarise the methodology used and set out the key findings.



*Kings Cross station and public square (planned)*

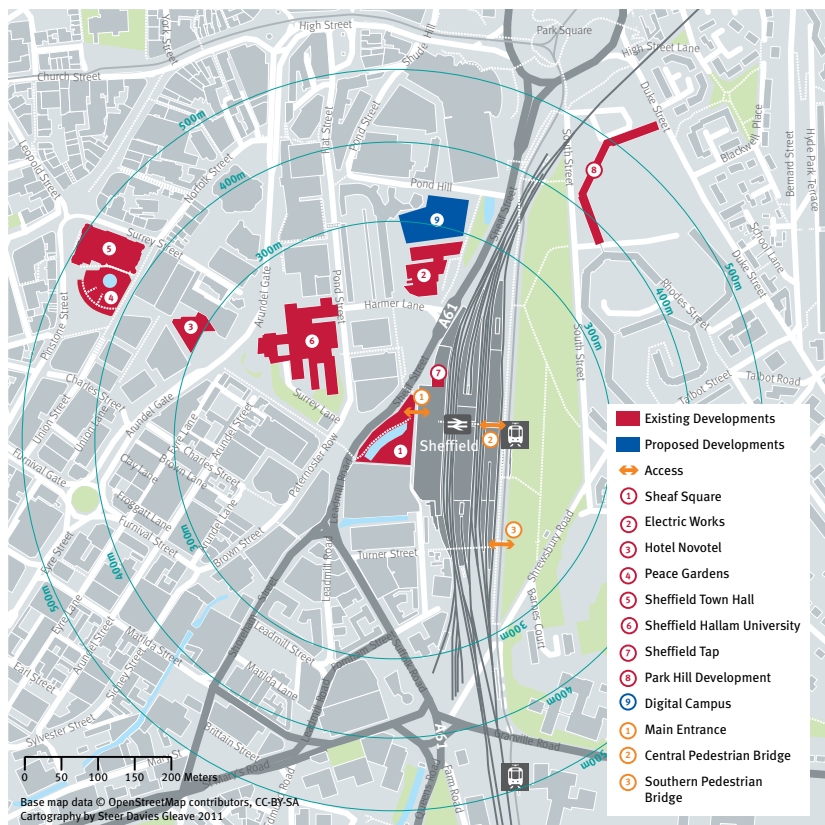


FIGURE 4.2 SHEFFIELD STATION AND NEARBY DEVELOPMENT

### The Impact of Station Investment on Property Values

- 4.22 We were able to undertake detailed statistical analysis of property impacts in Sheffield using data sourced from the Valuation Office Agency (VOA) on line property database. This contains the Rateable Value (RV)<sup>21</sup> of every property in the city, and allowed us to compare property values in the vicinity of Sheffield station in 2003 and 2008, dates broadly corresponding to the start and completion of the Sheffield Station Gateway project.
- 4.23 We examined changes in RV within areas defined by 300m, 400m and 500m radii from Sheaf Square (shown in Figure 4.2) and compared these with the average change for the city as a whole, differentiating between different types of property and new and existing buildings.

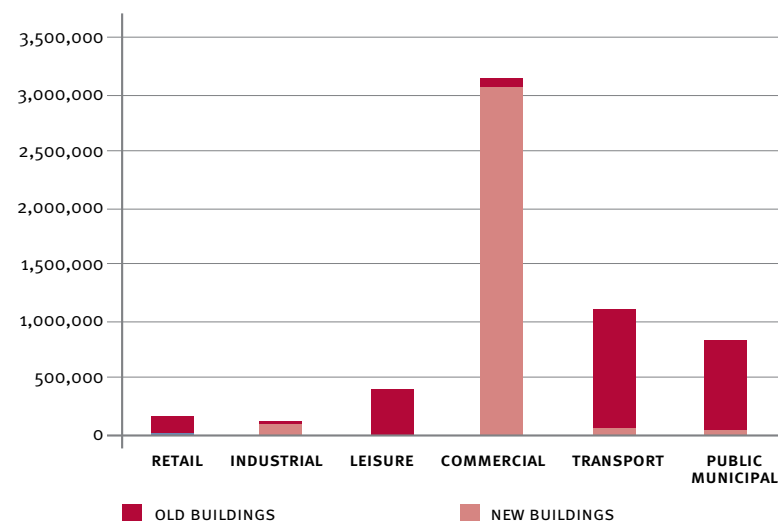
<sup>21</sup> Rateable Value is used by the Valuation Office Agency to set business rates for commercial property as well as council tax. It represents an estimate of the total annual rent that a property could be expected to achieve on a given date, taking account of all relevant factors including market demand and contractual details.



4.24 Within a 400m radius of the station, total RV rose from £8.7 million to £14.7 million between 2003 and 2008, an increase of 67%. This is more than three times the corresponding increase for Sheffield as a whole and reflects the increase in both the quantity of commercial development and value per square foot. Figure 4.3 shows the absolute increase in RV for different types of property within the 400m cordon and highlights the importance of commercial development in explaining the overall change.

4.25 Equivalent VOA data were not available for Manchester, but we were nevertheless able to assemble some evidence of the scale and value of development following the station investment at Manchester Piccadilly. This indicates that the additional 650,000 square feet of new and refurbished office space accompanying the scheme has generated an increase in annual rental value of approximately £10 million. In addition, property agents interviewed in the course of the study suggested that property values in the vicinity of the station increased by some 33% following scheme completion.

4.26 These findings are broadly in line with research on rental values around Birmingham New Street Station undertaken in 2006<sup>22</sup>. This showed that rents from the lower value property in the immediate vicinity of the old station were some 39% below those in the city centre. Office rents on the underdeveloped south side of the station were lower still.



**FIGURE 4.3** CHANGE IN RATEABLE VALUE (£), 2003 TO 2008  
Source: VOA, Sheffield Rating List 2005, 2010

22 Birmingham Gateway Business Case: Regional Economic Benefits Report – Steer Davies Gleave, 2006.

4.27 Taken together, the results of our research suggest that the redevelopment of major city centre stations can support increases in property values of 30% or more. Moreover, the impact will tend to be greater where there is a legacy of underinvestment in the station and its environs, with knock-on effects on the surrounding area of the kind described in Chapter 2. At the same time, these findings should be treated with caution, as observed changes in property values will reflect the impact of a regeneration scheme as whole rather than the station investment in isolation. Station investment must therefore be seen as an important, although not the only, element in a wider process of economic regeneration.

### Economic Impacts

4.28 In order to investigate how station investment has affected the local economy more generally in Sheffield and Manchester, we used our Spatial Economic Consequences of Transport (SpECTra) model, described in Appendix D, to estimate impacts on GVA and wider inward investment. SpECTra has been developed to be fully consistent with standard economic and appraisal principles, and forecasts how national level benefits (e.g. time savings) are used by economic actors within the local / regional economy, and how this is manifested in terms of changes to GVA.

4.29 Our initial application of the model involved estimating how the conventional transport benefits from each scheme, principally time savings and additional station footfall derived from the original business case, translated into increases in GVA. However, the relatively modest impacts suggested by this analysis (in the case of Manchester, an uplift in annual GVA of little more than £1 million), tend to underline the narrow focus of standard appraisal methodology and of the benefits typically included in rail business case analysis.

4.30 We therefore also used SpECTra to estimate the economic effects implied by the observed changes in property values reported in the previous section. The model enabled us to calculate these by determining the level of inward investment that would be needed to generate a given change. It also allowed us to estimate the impact if the inward investment on annual GVA.

4.31 In the case of Sheffield, we estimated the economic impact implied by the change in property values in the areas immediately around the station to be equivalent to an inward investment of £74 million, to be compared with station investment of £25m. This, in turn, could be expected to generate an uplift in annual GVA of £3.4 million. The corresponding values for Manchester were, respectively, £130 million and £6.6 million. In both cases, the estimated GVA impacts are between five and seven times those derived using conventional appraisal benefits.

- 4.32 Again, these results must be qualified, since they were based on changes in property values affected by the wider regeneration scheme as well as the station investment itself. However, taken together with the stakeholder evidence, they make a compelling case for station improvement as a means of encouraging substantial urban regeneration.
- 4.33 In order to complement the analysis we also examined the evidence on potential employment impacts at case study stations. The Sheffield Station Gateway project has directly generated around 185 jobs (gross), while employment in the area (LSOA) in which Sheffield Station is located has increased overall by 2,800<sup>23</sup>. The rate of employment growth within the station LSOA was 6.6% over the period 2003-08, compared with 3.3% city-wide. In Manchester, the employment associated with the new developments described earlier in this section could be up 3,000<sup>24</sup>, while it was estimated that Birmingham New Street Gateway would deliver between 2,000 and 3,000 additional jobs<sup>25</sup>. While it is difficult to attribute employment impacts specifically to station investment, there was a clear view among stakeholders that, over the longer-term, improvements delivered by station investment and associated regeneration were key to supporting the overall growth of city centre economies and employment.

<sup>23</sup> Steer Davies Gleave analysis as part of this commission.

<sup>24</sup> Steer Davies Gleave analysis based on relationship between commercial floorspace and jobs.

<sup>25</sup> Birmingham Gateway Business Case - Regional Economic Benefits Report, Steer Davies Gleave, 2006.



*London Bridge (illustration of planned improvements)*





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## 5 Key Findings and Implications

### CONTENTS:

- The Impact of Station Investment
- The Implications for Future Investment

### THE IMPACT OF STATION INVESTMENT

- 5.1 Our research provides strong evidence that station investment can have a major impact in terms of urban regeneration and transformation. In particular, such investment can unlock the development potential within and around the station boundary, increasing investment, employment and incomes. These effects are not generally captured by conventional appraisal methodology.
- 5.2 The scale of any impact will clearly depend on the size and location of the station and its passenger profile, the legacy of investment and associated economic activity in the surrounding area and the overall economic climate. However, evidence from stakeholders suggests that station investment will generally result in significant benefits through one or more of the following mechanisms:
- Removing physical barriers to movement in and around the station, particularly in the case of large cities where the alignment of railway lines and other factors affecting accessibility can result in large urban areas being dislocated from the core;
  - Improving the image of a station and hence perceptions of the town or city that it serves, thereby encouraging greater investment and making it more attractive as a place to live and work; and
  - Leveraging wider development by providing a focus for investment in the surrounding area and increasing confidence among investors.

- 5.3 Our empirical analysis, which has focused on the larger implemented schemes, indicates that substantial station improvements can support increases in property values in the immediate vicinity of a station of 30% or more. In the case of Manchester and Sheffield, observed changes in property values suggest an economic impact equivalent to inward investment of, respectively, £130 million and £74 million, two or three times the cost of the station investment itself. The associated uplift in annual GVA is estimated to be between 10% and 15% of the investment cost.
- 5.4 Again, we emphasise that these results must be seen in the context of the wider urban regeneration scheme developed in each case, but they nevertheless tend to support the view among many stakeholders that station investment has played a critical role in encouraging further development.
- 5.5 We also note that investment at smaller stations, while it will tend to have less of an impact on the local economy, at least in absolute terms, can nevertheless play a significant role in supporting urban regeneration. The rebuilding of St Helens Central, for example, at a relatively modest cost, has greatly improved the image of the town that it serves and played an important part in attracting new businesses to the surrounding area.

## THE IMPLICATIONS FOR FUTURE INVESTMENT

- 5.6 There appears to be no correlation between the success of a station improvement scheme and the source of the original initiative. As already noted, the Sheffield Station Gateway project was an integral part of a wider city master plan from an early stage, while the redevelopment of Manchester Piccadilly was originally driven by the need for operational improvements to the station. In practice, rail industry-based initiatives will tend to be driven, at least initially, by operational and commercial objectives, while those initiated by local authorities are likely to be intended to improve the connectivity of a town or city and / or the quality of the built environment.
- 5.7 This highlights the need for different stakeholders to be receptive to ideas put forward by others and for all parties to recognise key operational and commercial considerations as well as wider economic and social objectives. The evidence from stakeholder interviews suggests that this is best achieved where:
- The project development programme provides for effective engagement between stakeholders, allowing them to establish a shared vision for the station development and wider regeneration scheme;
  - Expectations regarding what the scheme can achieve are realistic, particularly at a time of considerable economic uncertainty; and
  - There is a clear understanding of the scale of investment needed, based on investigation of any physical barriers created by the existing station and of the factors preventing developers from investing in the surrounding area.

- 5.8 Going forward, current constraints on public sector funding will make it more difficult to secure investment in both station improvements and related urban regeneration projects. Against this background, it will be increasingly important to articulate the case in terms of both conventional appraisal and wider regeneration benefits. At the same time, it will be necessary to investigate the scope for leveraging a wider range of funding sources.
- 5.9 We have discussed the scope for exploiting commercial opportunities in and around stations, and we anticipate that there will be increasing pressure to ensure that, wherever possible, the revenues generated allow station improvement schemes to be self-financing. However, the implications of new potential funding sources, for example Tax Incremental Financing and investment from Train Operating Companies driven by expected returns over a fifteen year franchise, need to be considered carefully. While the application of such funds could help to sustain levels of station investment over the coming years, it may also make the reconciliation of competing stakeholder objectives more challenging. In these circumstances, understanding the economic and commercial impact of station investment will become more, rather than less, important.



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### APPENDIX A: CASE STUDIES

1. SHEFFIELD GATEWAY STATION
2. MANCHESTER PICADILLY
3. BIRMINGHAM NEW STREET GATEWAY
4. ST HELENS CENTRAL

### APPENDIX B: STAKEHOLDER INTERVIEWS

### APPENDIX C: LITERATURE REVIEW

### APPENDIX D: SPECTRA



# A Appendix A: Case Studies

## 1. Sheffield Station Gateway

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- Before the Investment
- The Scheme
- Stakeholder Evidence
- Property Analysis
- Economic Analysis
- Conclusions

### NOTES:

Sheffield Gateway provides an example of how investment in integrated rail station and public realm can change the perception of an area and help stimulate economic regeneration.

### BEFORE THE INVESTMENT

- A1.1 Sheffield station was first opened in 1870 and is a grade II listed building. The station was designed by Charles Trubshaw and has a number of significant historic Victorian architectural features. However, by the early 1990s it had become dilapidated and, while its innate architectural quality was recognised, was generally regarded as let down by poor facilities, bad lighting, a poorly maintained station frontage and poor accessibility for disabled users.
- A1.2 The integration of the station with the city centre was also poor. There was a busy taxi rank leading into the station entrance, and pedestrian access to and from the city centre required crossing a busy road. Much of the adjacent area was used as an open car park, which was also poorly maintained.
- A1.3 The station is overlooked by the Park Hill estate, a 1960s residential tower block built in the 'Brutalist' style on a hill to the north of the station. The estate became derelict and was planned for demolition until 1998 when it was awarded a grade II listing. It was served by pedestrian bridges across the rail tracks, which were secluded and poorly maintained and consequently considered unsafe, particularly at night.





**FIGURE 1.1** SHEFFIELD STATION & CAR PARK BEFORE THE INVESTMENT

A1.4 As a result of the poor quality of the environment in and around the station, it was considered to create a poor impression of the city among visitors and to discourage developer interest and investment. Stakeholder feedback indicates that the area was regarded as “chaotic”, “dilapidated” and “unappealing”.

### THE SCHEME

A1.5 In 2001 Sheffield City Council prepared a Masterplan to redevelop the city and support the transition from steel and manufacturing, in decline for a number of years, to a more modern service-based economy. Construction began in 2003 and the station elements were fully complete in 2005, with the official opening of Sheaf Square in December 2006. The total costs of the project were estimated at £81.9m in 2011 prices

### Masterplan

A1.6 The plan included an integrated transport strategy, a new retail quarter and a series of urban realm improvements such as the Peace and Winter Gardens in the city centre and the renovation of the grade II listed Park Hill flats to the north east of the station. The Sheffield Station Gateway project, a cornerstone of the Masterplan, was intended to improve the station environment, provide development space for future growth and help secure a better image of Sheffield.

A1.7 The project involved several partner groups including Sheffield Council, South Yorkshire Passenger Transport Executive (SYPT), East Midlands Trains, the Department for Transport (the Strategic Rail Authority in the period prior to its abolition), Yorkshire Forward and English Heritage. Finance was also provided from the European Regional Development Fund (ERDF) under the Objective One programme, which is intended to promote the development and structural adjustment of regions with income levels below the European average. The vision for the project was summarised as follows:

*“The project will transform the station environs and the link to the heart of the city to create a world-class gateway to Sheffield and South Yorkshire. The project also forms part of the overall plan for the revitalisation of the Sheaf Valley as a key location for the creative and digital cluster.”*

*(Sheffield One 2004, Project Summary)*

### Station Improvements

A1.8 Improvements to the station environment included the restoration of the station façade, expansion of the station concourse, improved surfacing and lighting, renovation of the platform canopies. Improved passenger facilities were provided through new waiting rooms and toilets, new retail facilities, a new travel centre for rail ticketing and automated ticketing machines and digital customer information screens.

A1.9 Access to the station was improved by measures including a new footbridge linked to the Sheffield Super Tram stop to the east of the station, and the relocation of the taxi rank away from the front of the station.

### Wider Improvements

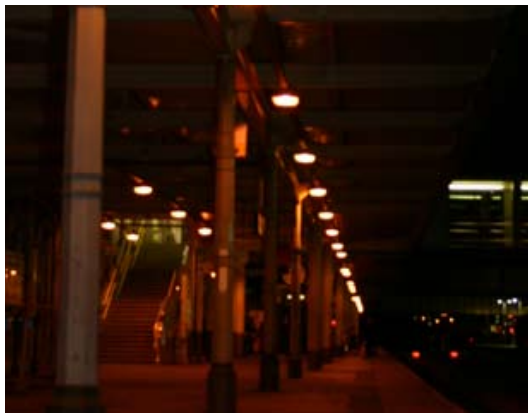
A1.10 The city Masterplan was also intended to improve the integration of the station into Sheffield city centre and improve pedestrian access, the physical environment and image and perceptions of Sheffield. It included plans for the provision of new development space in the surrounding area to accommodate economic growth. These wider improvements extended to:

- The creation of a new plaza outside the station following the removal of the Sheaf Square roundabout and the car parking in front of the concourse;
- The realignment of Sheaf Street and installation of a new pedestrian crossing;
- Public realm improvements on the routes leading into the station (on Howard Street);
- The relocation of the station tram stop;
- The provision of a new station car park with over 600 new spaces;

- The creation of a major new piece of public art on Sheaf Square, the “Cutting Edge”; and
- Two new commercial development sites delivered through the acquisition and demolition of two pre-existing office buildings, Sheaf House and Dyson House, to the north of the station.

A1.11 Figure 1.2 provides an illustration of the change in the station environment, showing ‘Before’ and ‘After’ images of key parts of the station. The changes in lighting quality, platform design and information provision achieved by the interior improvements are clearly visible. The improvement in the quality of the station frontage, the water feature and part of the ‘Cutting Edge’ can also be seen. The grade II listed Park Hill development is visible on the horizon above the station.

Before



After



**FIGURE 1.2** SHEFFIELD STATION BEFORE & AFTER  
*Source: (SYTPE & SCC n.d.), (SYTPE 2006) & (BBC 2011)*

## STAKEHOLDER EVIDENCE

**A1.12** Stakeholder comments on the impact of the station were positive, with individuals from SYTPE, Sheffield One, Sheffield Council, Yorkshire Forward and East Midlands Trains all commenting on the beneficial effects of the project. Illustrative comments are shown in Figure 1.3.

**A1.13** The stakeholder comments also confirmed the importance of the following improvements:

### Station Interior

- The provision of automated ticket machines has significantly reduced queuing times for many users and has been cited as one of the most beneficial aspects of the project in terms of station operations.
- New lighting has had a positive effect on the perceptions of crime & safety at the station.
- Feedback from disabled users on the station improvements has been particularly positive with the provision of new lifts, and platform surfaces improving disabled access and making the station DDA compliant.
- The improvement in the physical environment and retail offer at the station has made it a 'destination' for travellers and the public. The Sheffield Tap pub is regarded as a high quality venue in its own right, for example winning the English Heritage "Best Conversion to Pub" award.

*"We receive fantastic verbal feedback on the station on an almost daily basis."*

*"The station now has a real wow factor."*

*"The amount of commercial activity in the station has grown and there is the potential for more."*

*"New lighting is one of the most important improvements to the station. It feels much safer."*

*"Sheffield city centre compares favourably with Leeds. There is something about the overall feel of the place."*

*"People are impressed by the station."*

*"I don't think that the likes of Sky would have come to Sheffield without the benefits of the Station Gateway and Digital Campus redevelopment projects."*

*"We're not embarrassed to meet people off the train anymore and now include the station in any walking tour with respective investors".*

*"Persuading businesses and funders to invest in public realm has become much easier."*

**FIGURE 1.3** SHEFFIELD STATION QUOTES



### Station Exterior

- The public realm improvements have made a significant impact on the perceptions of the station and Sheffield in general.
- The new pedestrian bridge is “particularly valuable” for providing significantly improved access to the east side of Sheffield.
- Changes to the taxi rank have been important in improving the user experience, although the needs of taxi service providers have been taken into account.

### Wider Impacts

- The station is now regarded as a selling point for the city rather than an “embarrassment”. The impact of this effect is difficult to assess but many stakeholders felt that it was undoubtedly very positive for the city and there is evidence that it has played an important part in bringing in new investment. The impact of the recent recession would probably have been worse had the project not been undertaken.
- Many stakeholders felt that the station provided a positive example and encouraged private developers to invest in the quality of their own buildings. Sheffield Hallam University, for example, has improved its buildings significantly.
- There has been private investment in the station itself, for example the creation of the Sheffield Tap pub developed

within an old storeroom. This investment would not have taken place without the wider station redevelopment.

- The station has been compared favourably against other city stations including Leeds and Newcastle, which are regarded as having some of the same problems Sheffield had prior to the improvements; in particular, negative perceptions and poor integration with the city centre.
- Pedestrian access to adjacent areas of the city, and particularly to the Park Hill estate, has improved considerably. The importance of improved access has been highlighted by the significant level of public and official protest against plans by East Midlands Trains to put ticket barriers on the new pedestrian bridge, blocking access to the public without rail tickets.

A1.14 The project is widely cited as an example of effective improvement of the urban realm, and in recognition of this the station has won several awards including:

- The IHT / Mouchel Parkman Accessibility Award;
- The Network Rail Partnership Award;
- The Network Rail Project of the Year (2006);
- The Rail Station of the Year Award; and
- The National Railway Heritage Award.

**A1.15** Stakeholders also highlighted the positive impact on station usage. Total station entries and exists rose from 4.2m in 2003 to 7.5m in 2009<sup>1</sup>, an increase of 77%. This compares to a national increase of 42% over the same period.

### Perceptions

**A1.16** One of the key objectives of the project was to help create a positive image for the city of Sheffield, and stakeholder evidence suggests that this has been achieved. Several stakeholders noted that images of the station now form a core part of the marketing material used to advertise the city, and the number of project references and awards is likely to have had a significant positive effect on the perceptions of the city.

**A1.17** A recent detailed survey of business location perceptions across different cities in the UK (Cushman & Wakefield 2008) offers some evidence of the impact. The change in Sheffield's ranking against a number of business location questions between 2007 and 2008 is shown in Table 1.1. While it is not possible to identify the specific impact of the station investment, taken together with the stakeholder comments the survey results suggest that it has increased the likelihood of businesses locating key activities in the city.

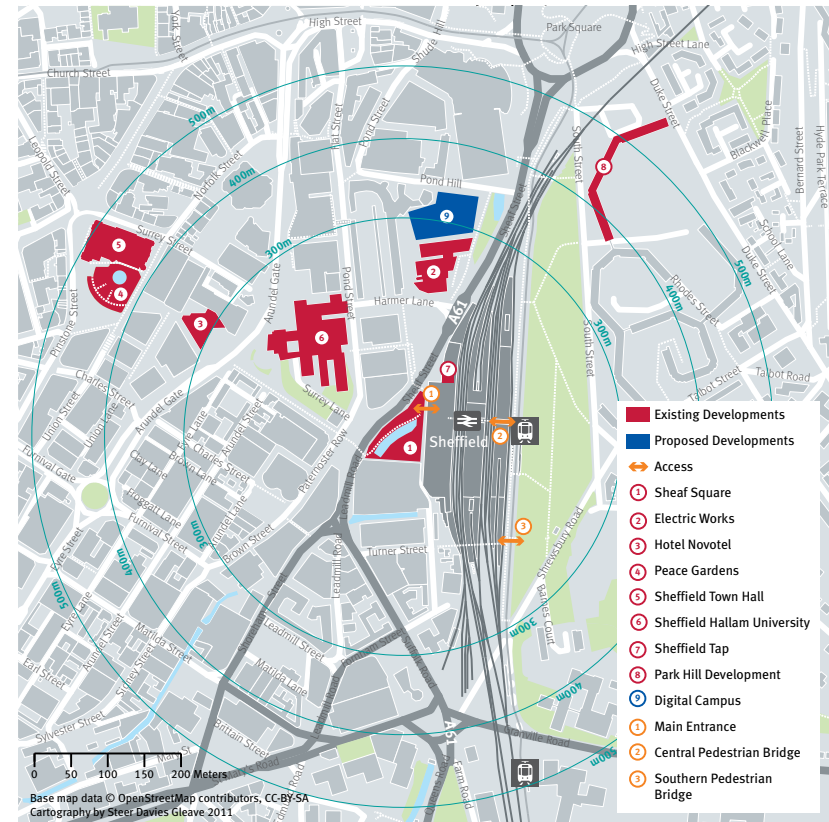
Criteria	2007	2008
Best cities to locate a business today	12	10
Best cities for a new headquarters	11	11
Best cities for a new back office function	12	3
Best cities for new call centre	14	4
Value for Money of Office Space	2	3
Availability of Office Space	7	5

**TABLE 1.1** SHEFFIELD CITY BUSINESS PERCEPTION RANKINGS  
Source: (Cushman & Wakefield 2008)

<sup>1</sup> Office for Rail Regulation, Station Usage data

## PROPERTY ANALYSIS

- A1.18** The property analysis sought to examine whether stations can have a positive impact on property values. We have examined the Valuation Office Agency (VOA) online property database to identify any change in value of buildings near to Sheffield station following the improvements. This data contains the Rateable Value<sup>2</sup> (RV) of every commercial property in the city and is used to set business rates.
- A1.19** The location of the station relative to the city centre is shown in Figure 1.4. The map also shows the position of some key buildings, including the Electric Works and planned Building 2.0 as well as Sheffield Hallam University, and the Winter and Peace Gardens. The map also shows 300m, 400m and 500m distance radii from Sheaf Square.
- A1.20** The station is located on the eastern edge of the city centre. Land to the east of the station mainly consists of high density residential buildings, such as the Park Hill estate. The rail tracks divide the city on a north south axis and the station forms an important physical bridging point, joining the east and west via the central and southern pedestrian bridges.



**FIGURE 1.4 SHEFFIELD STATION AND NEARBY DEVELOPMENT**  
Source: Steer Davies Gleave

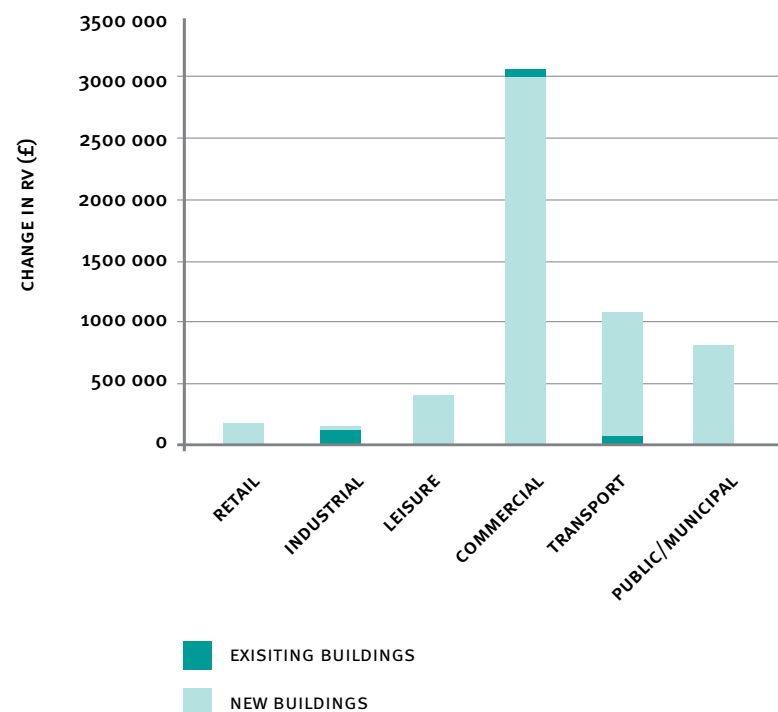
<sup>2</sup> Rateable Value (RV) is the value used by the Valuation Office Agency (VOA) to set business rates for commercial properties (and council tax). It represents the total annual rent that a property could be expected to achieve on a given date taking account of all relevant factors including market demand and contractual details.

## Land Value Impacts

**A1.21** Through interrogation of the VAO data we looked at the overall change in the rateable value (RV) for properties around the station, disaggregated by new and existing buildings.

**A1.22** Within a 400m radius of the station, total RV increased from £8.7m to £14.7m between 2003 and 2008, an increase of 68%. This is more than three times the average increase seen for Sheffield as a whole, suggesting that the station project had a significant effect. This change is attributable to new properties developed between 2003 and 2008 and increases in value for pre-existing properties. Figure 1.5 provides a breakdown of the total change in RV within the 400m cordon, showing the amount of change attributable to new and pre-existing buildings across different categories of land use.

**A1.23** The chart shows that within the 400m cordon the largest component of the increase in RV is related to new commercial development, which accounts for £3.1m of the total. The Electric Works alone accounts for £722,700 of this increase. Another notable new development within the cordon is the Department for Education building, which is valued at £1.3m.<sup>3</sup>



**FIGURE 1.5** CHANGE IN RATEABLE VALUE 2003 TO 2008  
Source: VOA, Sheffield Rating List 2005, 2010

<sup>3</sup> The Department for Education building is classified as commercial.



Sheffield

- A1.24** There has also been a substantial uplift in the value of other land and buildings, including existing transport land (car parks) and public and municipal facilities (Sheffield Hallam University has increased by 33%). The increase in RV of existing transport land is statistically significant ( $p$  value<sup>4</sup>  $< 0.01$ ), indicating that the Station Gateway project has had a particularly strong effect on this type of land.
- A1.25** Although not a major impact in terms of total values, the area within a 300m radius of the station has also seen a statistically significant impact on retail property values, which have increased by 20% against an average of 13% for Sheffield as a whole ( $p$  value  $= 0.01$ ).
- A1.26** We have also looked at the change in rateable value for a number of specific properties in the station vicinity. Table 1.2 provides a list of key examples showing the RV of specific properties around the station in 2003 and 2008 (dates which broadly correspond to the start and finish of the Sheffield Gateway project).
- A1.27** The Premier Inn, Ibis and Novotel hotels are all located close to the station and have been subject to increases in property value of between 54% and 32% over the period. This is significantly higher than average of 18% for Sheffield as a whole, and suggests that the improvement to the environment in and around the station (including other elements of the Masterplan such as the Peace and Winter Gardens) is likely to have been an important causal factor.

<sup>4</sup> The  $p$ -value gives the odds that an estimator is not significantly different from an alternative hypothesized value, in this case the average for Sheffield.



Building	2003 RV (£)	2008 RV (£)	Change (£)	% Change
Premier Inn	235,000	362,500	127,500	54%
Ibis	96,000	140,000	44,000	46%
Town Hall	302,500	420,000	117,500	39%
Novotel	320,000	422,500	102,500	32%
Sheffield Hallam - City Campus	1,650,000	2,140,000	490,000	30%
Business & Technology Centre	377,500	480,000	102,500	27%
Odeon Cinema	93,000	111,000	18,000	19%
Derwent House 150 (Offices)	490,000	575,000	85,000	17%
Crucible Theatre	85,000	98,500	13,500	16%
<b>Sheffield (Total Rateable Value)</b>	<b>443,669,594</b>	<b>532,355,618</b>	<b>88,686,024</b>	<b>20%</b>
<b>Sheffield (Total Floor Space m<sup>2</sup>)<sup>1</sup></b>	<b>6,270,845</b>	<b>6,397,380</b>	<b>126,535</b>	<b>2%</b>
<b>Sheffield (£/m<sup>2</sup>)<sup>2</sup></b>	<b>71</b>	<b>83</b>	<b>12</b>	<b>18%</b>

**TABLE 1.2 SHEFFIELD PROPERTY EXAMPLES**

Source: VOA, Sheffield Rating List 2005, 2010

<sup>1</sup> Not all data entries contain floorspace information, therefore this value is likely to underestimate the total amount of floorspace.

<sup>2</sup> This value includes all commercial property in Sheffield including car park spaces, public offices, work-shops, sports ground etc. The value is therefore not directly comparable with standard measures of office space value.

## ECONOMIC ANALYSIS

### Employment Impacts

- A1.28** There has been a marked increase in the level of commercial activity within the station. New retail units include a Costa Coffee and Marks & Spencer food shop. The Sheffield Tap has also generated employment. As a result of these new businesses, between 20-30 direct jobs have been created at the station.
- 1.29** The project has also had a major impact on the wider economy of Sheffield. The Electric Works building (part of the Digital Campus<sup>5</sup>) provides an incubator unit for companies in the digital and new media sector (which has been strategically targeted for its strong long term growth prospects and potential to assist Sheffield's economic transition). The Electric Works building provides 68 commercial units for small to mid-size businesses. At the time of writing, the building is approximately 50% occupied, which, based on the planned person allowances for the building, implies around 180 (gross) new jobs have been created, with capacity for a further 160.
- A1.29** The companies attracted to the Digital Campus are diverse, with a large number of small businesses and new start-ups. Most are in the “digital sector” including computer game developers, music technology, film and electronics. There have been a few major inward investors, including Sky, which is also the largest occupier of the building. The Electric Works and the quality of the surrounding station and public

realm improvements have been repeatedly cited as a key factor in the attraction of Sky and other inward investors into Sheffield.

- A1.30** The area surrounding the station has also seen a significant increase in employment. Table 1.3 shows the change in employment in the Lower Super Output Areas (LSOAs) surrounding the station, and for Sheffield as a whole.
- A1.31** The table shows that overall, the LSOAs containing and adjacent to the station saw a 2,799 net increase in jobs between 2003 and 2008, 34% of total employment growth in Sheffield. There has been a clear transition in sectors of employment – a loss of 1,496 manufacturing jobs, offset by major increases in Banking, Finance and Other, and Public Administration, Education and Health related employment. This reflects changes at the city level where growth in Public Administration, Education and Health employment has been particularly high.
- A1.32** The increases in Banking, Finance and Insurance employment within LSOA 31A appear to have been partially offset by declines in other areas (LSOA 042C). This implies that the Station Gateway may have generated a significant shift in the geographical distribution of employment focus, attracting new and existing employers towards the north east of the city. The other elements of the Masterplan located in the city centre are likely to have reinforced this effect. Figure 1.6 shows the total change in employment by LSOA area. Blue areas represent increasing employment and red areas decreasing employment between 2003 and 2008.

<sup>5</sup> The Digital Campus is the overall development project and incorporates the Electric Works is the first stage of the project to be followed by the planned Building 2.0. The project has aspirations for further developments around the station, however progress has stalled as a result of the recession.

LSOA / Sector	Agriculture and fishing	Energy and water	Manufacturing	Construction	Distribution, hotels and restaurants	Transport and communications	Banking, finance and insurance	Public administration, education & health	Other services	Total
035B (station)	0	0	0	0	-140	198	-145	1190	-206	897
031A (NW of station)	0	-28	-1177	33	-385	-57	2314	857	-376	1181
042C(SW of station)	-4	0	-410	-22	-520	53	-1926	1106	-113	-1836
035D (Digital Campus)	0	0	36	12	-177	356	1447	1016	-129	2561
035A (east of station)	0	0	55	0	18	0	-4	-11	-62	-4
Total	-4	-28	-1496	23	-1204	550	1686	4158	-886	2799
Sheffield Total	2421	109	-6335	1166	-3148	1087	5030	12280	-2285	8145

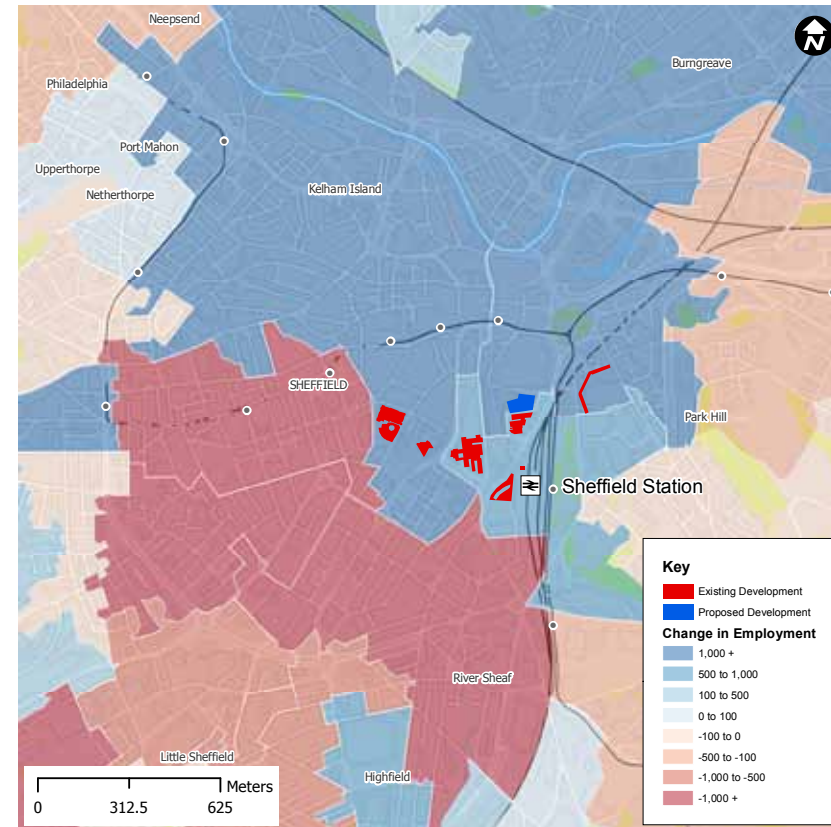
**TABLE 1.3** LSOA EMPLOYMENT CHANGE 2003 – 2008  
Source: Annual Business Inquiry

A1.33 The maps shows a major increase in employment in the north east of the city centre, surrounding the station, offset by declines in employment in the south west. This impact reflects the significant level of investment that has taken place in Sheffield city centre and around the station in particular, which is likely to have attracted new employment at the expense of some other areas.

### Economic Research

A1.34 We have also undertaken detailed economic analysis using our Spatial Economic Consequences of Transport, or SpECTra, modelling software. The software predicts how transport and other improvements translate into economic impacts at a sub-regional level. It takes account of the mechanisms through which travel time and cost savings are converted into productivity gains and cost savings to firms, and then into increased local economic activity.

A1.35 The Sheffield station Business Case suggests that direct transport benefits of the station scheme mainly involved walking time savings to business people and commuters resulting from the enhanced station layout and better linkages between the station and the city. In addition, the enhanced facilities have attracted increased footfall, resulting in higher retail expenditure in and around the station. The model indicates that these direct transport benefits have had relatively modest impact on the economy at large, increasing Sheffield's GVA by approximately £0.5m annually and resulting in a small shift in employment towards Sheffield city from its hinterland and the rest of the country.



**FIGURE 1.6** CHANGE IN EMPLOYMENT BY LSOA 2003- 2008  
Source: Annual Business Inquiry & Steer Davies Gleave

- A1.36 As this case study and other chapters make clear however, the economic benefits of station improvements go beyond the time savings and other benefits captured by conventional appraisal techniques. In Sheffield, the scheme has resulted in dramatic urban realm improvements for example, and the evidence points to it having attracted considerable inward investment, which is reflected in the increased property prices discussed earlier.
- A1.37 The SpECTra modelling framework allows us to estimate the amount of inward investment attracted by the station. It does this by comparing the evolution of property prices around the station to those of the city as a whole, and considering the level of investment that would be required to deliver these price changes. The results suggest that the station development gave rise to inward investment of around £74m, which compares favourably to the initial investment of £25m. This investment is estimated to have resulted, in turn, in an annual increase in GVA in Sheffield of £3.4m.

## CONCLUSIONS

- A1.38 The case study highlights the strong interplay between large city centre stations and economic development. The Station Gateway project has directly generated around 185 jobs (gross), provided a significant increase in development space and played a crucial role in the redevelopment of the city centre. It has also improved perceptions of the city, encouraging new development, and had a significant effect on property values.



## 2. Manchester Piccadilly

### CONTENTS:

- Before the Investment
- The Scheme
- The Impact
- Stakeholder Evidence
- Property Analysis
- Economic Analysis

### NOTES:

The example of Manchester Piccadilly demonstrates how a station improvement can, in conjunction with wider public realm initiatives, help to transform and regenerate the adjacent area.

### BEFORE THE INVESTMENT

#### Piccadilly Station

A2.1 Piccadilly Station had last been redeveloped in the 1960s and the station environment was described as:

*“Really oppressive... shabby, dark, dirty, out-dated and without scale or a retail offer. Diabolical. The station said all the wrong things about the North” (Peter Jenkins – BDP).*

A2.2 The entrance to the station was narrow, funnelling passengers between the station and a narrow footpath on the ramp (the incline up to the station entrance), where taxis would clutter the entrance and emit fumes. The main access into the city centre via London Road continued along a narrow footpath, alongside a road with heavy traffic including a high volume of buses. The main entrance and the secondary entrance from Fairfield Road via a dilapidated stairway is shown in Figure 2.1 and Figure 2.2.

A2.3 The internal configuration of the station also meant that passengers on Platforms 13 and 14 were disconnected from the main concourse, which they were required to access via a convoluted route. These platforms had no dedicated passenger facilities.



FIGURE 2.1 MAIN ENTRANCE TO MANCHESTER PICCADILLY (PRE-2002)



FIGURE 2.2 ENTRANCE TO MANCHESTER PICCADILLY FROM FAIRFIELD STREET (PRE-2002)

### The Piccadilly Area

- A2.4 The area around Piccadilly Station was extremely rundown and neglected. Opposite the station housed two at-grade car parks and a car hire outlet. The route towards the city centre along London Road was characterised by low value, cheap hotels, unattractive pubs, low grade retail outlets and plots of vacant land and ‘little or no office provision and nothing of any quality’.
- A2.5 There had been no real local investment in the Piccadilly area for 20 or 30 years. The overall effect was that the Piccadilly area suffered a ‘stigma’ and was seen to be an unattractive investment proposition.

### Key Drivers of Change

- A2.6 The requirement for the scheme was the need to cater for the forecast increase in passenger usage of the station following West Coast Route modernisation. This meant that both station capacity needed expanding, and that station access needed to be reconfigured. For example the predicted increase in the use of taxis, determined that the taxi location on the ramp could not accommodate future demand.
- A2.7 The stimulus for Manchester Station redevelopment and wider improvements was provided by the need to prepare for the Commonwealth Games in 2002. However, while the investment at the station was seen as critical by many stakeholders, the importance of other key factors in the regeneration of the area was repeatedly highlighted.

**A2.8** The pro-active role of Manchester City Council was cited by many stakeholders, who praised the council's leadership role at city-wide level, clear focus on regeneration of specific quarters, and recognition of the potential at Manchester Piccadilly. The specific role of the council as a member of key public-private partnerships, in particular CityCo (covering the whole city centre) and the Piccadilly Partnership was also identified as key to delivering some of the necessary wider public realm improvements in the area. The council and GMPTE (now TfGM) co-ordinated the land assembly and established the development brief for the Piccadilly Place development.

**A2.9** The role of Argent in taking developer risk on the Piccadilly Place was also mentioned by several stakeholders, reinforcing the notion that Piccadilly was, at the time, not considered an office location of choice. This followed the organisation's involvement in developing One Piccadilly Gardens, which was previously not considered part of the 'core' city centre.

## THE SCHEME

### Station Investment

**A2.10** Between 1998 and 2000, over £27m was spent modernising Manchester Piccadilly station. The money was invested on the restoration of train sheds, platform surfaces and signage and the construction of a brand new station roof over the platforms. This has transformed the platforms into a much brighter, drier and safer environment for customers

**A2.11** The separate station redevelopment project was completed in 2002 at a cost of around £62m. BDP designed the station redevelopment based on design brief to produce a 21st century image, improve visibility, circulation and accessibility for both pedestrians and vehicles and create a gateway to the city in time for the Commonwealth Games in 2002.

**A2.12** The station improvement included an expanded 75,000 sq. ft. concourse on two levels with a footprint, including 21,500 sq. ft. of high-quality retail space and an enlarged ticket office/travel centre. There was a new, fully reconfigured main station approach with widened pedestrian areas and vehicular access restricted to Metroshuttle bus services only, and a new secondary station entrance as part of the development of the south side of the station. Access to the station was improved through a dedicated pick-up/drop off for taxis and cars on the south side of the station off Fairfield Street and a 500 space multi-storey car park with a linking bridge removing traffic from the station approach. Accessibility within the station was also enhanced with the installation of lifts and escalators and travellators to platforms 13 and 14.

A2.13 Manchester Piccadilly following the station improvement is shown in Figure 2.3.

### Wider Public Realm Improvements

A2.14 Manchester City Council and GMPTE instigated the implementation of associated wider public realm and environmental improvements to complement the station investment. In particular, these included:

- The ramp to Piccadilly Place, which is a high quality design feature and landmark in its own right, and also opened up a new axis from Piccadilly Station via Piccadilly Place through to the Gay Quarter, Chinatown and towards Manchester Art Gallery and the Town Hall. This link was viewed by a number of stakeholders as critical to the overall arrival experience.
- Public realm improvements along London Road, including widened pavements providing for greater pedestrian footfall, and the removal of a number of bus services previously causing congestion and emissions and making the pedestrian axis through to Piccadilly Gardens less attractive. These changes, together with the removal of cars and taxis from the front of the station, mean that the pedestrian links from the station to the city centre are now considerably improved.



FIGURE 2.3 MANCHESTER PICCADILLY (AFTER INVESTMENTS)

## THE IMPACT

**A2.15** The redevelopment of Manchester Piccadilly Station is generally considered to have acted as a stimulus for the wider improvements in the surrounding urban environment and supported broader regeneration of the area. In the decade since the improvements, the area around Manchester Piccadilly has become a major focus for high value office and hotel development, and the station itself now acts not only as a transport hub but also as a major retail, food and entertainment centre available to local workers and residents. Here we summarise the evidence based on our stakeholder consultation, property analysis and economic analysis.

## STAKEHOLDER EVIDENCE

**A2.16** The station investment at Manchester Piccadilly was seen by many as being instrumental in enabling the transformation of the Piccadilly Area and helping enhance the overall image of Manchester as a whole.

### Improved Perception of the City

**A2.17** Many stakeholders confirmed the positive impact on the perception of Manchester following the redevelopment.

**A2.18** The role of Piccadilly as the Gateway to the city as a whole, and therefore as a key determinant of how the city is viewed by business people, visitors and investors was highlighted in a number of interviews. Stakeholders noted the importance of the ‘sense of arrival’ and the associated feelings of positivity or negativity it can engender. It was clear that many stakeholders experienced a sense of pride in the new station and the impression of Manchester it gave.

**A2.19** At the same time, the impact of the station as a gateway was not seen as a purely aesthetic issue. Several stakeholders emphasised that it could have tangible consequences in determining whether people chose to invest in the city.

### Expansion of the City Centre and The Ripple Effect

**A2.20** There was a widespread view that the redevelopment of Piccadilly had helped shift the city centre further southwards.

**A2.21** Historically, Piccadilly was not considered as part of the city centre but this began to change following Argent’s development at Piccadilly Gardens, which they acquired in 1999. The area became established as a prime location from the mid-2000s with the attraction of major occupiers such as the Bank of New York. There followed a ‘ripple effect’, with a number of other developments taking place along London Road and in the Piccadilly Basin. In addition, the increased quality of developments, and general increase in land values in the area, gave existing landowners and developer the commercial incentive (and perhaps the competitive imperative) to refurbish and upgrade their property.

**A2.22** The regeneration of the area has helped transform the character and value of the area surrounding the station, and the ‘Piccadilly’ brand is now adopted as a selling point and widely used to market developments and initiatives.

**A2.23** Rental values in Piccadilly still operate at a slight discount to the historic financial core of Spinningfields, but are in line with other established city centre locations. The aspiration of Manchester City Council is now to



extend development further through ‘focused expansion’ south, towards the Fire Station site and then beyond towards Manchester University.

A2.24 The role of the station itself was cited as key in helping underpin the increased rate of development around Piccadilly compared to other locations, for example the large area of available development land close to the inner ring road. The combination of public transport accessibility, proximity to the city centre and regeneration potential differentiated Piccadilly from more peripheral locations.

#### **Piccadilly Station as Destination**

A2.25 Piccadilly Station has a vital role as a destination in its own right, serving local workers and residents as well as passengers. .

A2.26 The quality of the retail facilities was highlighted, with office workers visiting M&S or Sainsbury’s during their lunch break or on their way home. The station also acts as a shopping centre for local catchment, in particular serving an area to the south of the station where the retail offer was previously considered poor. The station was described as ‘a nice place to be and relax’ and ‘akin to an airport terminal’

A2.27 This is supported by total station footfall, estimated to be 28m per annum compared to annual passenger demand of 19m, suggesting that around a third of people using the station do so for reasons other than travel. The attractiveness of Manchester Piccadilly is also reflected in the rate of spend per passenger, which is around 40% higher than the average for Network Rail managed stations.

#### **The Role of Piccadilly Station**

A2.28 The central question is the role the station had in helping bring forward this scale of development. While it is clear that the redevelopment of Manchester Piccadilly was not solely responsible for the changes in the area, many stakeholders viewed the station investment as a major catalyst for subsequent regeneration. There was a minority of respondents who were slightly more equivocal about the station’s impact on wider regeneration, viewing the station as comparatively marginal in businesses location decisions compared to issues such as rental prices.

*“the redevelopment of the station was absolutely fundamental to regeneration of area ... I don’t believe there would have been the same impact without the station.”*

*Richard Lewis, Chair of the Piccadilly Partnership and Director of Town Centre Securities*

*“I don’t believe the wider redevelopment of the area would have happened without the redevelopment of the station.*

*The station was clearly the catalyst for Piccadilly Place Redevelopment” Andrew Purdon (Director CBRE)*

*“the redevelopment was not dependent on the station but provided better product than could have been achieved otherwise, and delivered at a faster rate” Mike Mellor, Head of Property at TfGM*

*“The station was clearly the catalyst for Piccadilly Place Redevelopment” Andrew Purdon (CBRE)*

A2.29 Some respondents explained the mechanism by which the station and wider improvements helped deliver development in more detail. Richard Lewis (Piccadilly Partnership and Director of Town Centre Securities) asserted that:

*“If we’d done a speculative development in 2000, it would have got £12-£14 per sq. ft, and at that level we just ‘couldn’t build it’ as we need £18 per sq. ft.”*

A2.30 This helps explain both the absence of commercial development around Piccadilly Station prior to 2000, and also introduces the idea that station and wider improvements can help ‘tilt the balance’ from one where commercial developments are financially unviable, to one where they make commercial sense.

A2.31 As Richard Lewis further explained:

*“The image improvement enables viability of development, and the station forms a major part of this.”*

A2.32 The same explanation was given by Mike Mellor (TfGM property) who noted that, while Piccadilly Place would probably have been developed in some form in the absence of wider improvements,

FIGURE 2.4 MANCHESTER STATION QUOTES

the higher-value conferred by the station investment means that the quality of development was of a much higher standard than could otherwise have been achieved.

A2.33 The quality of the developments underpins the success of Piccadilly, and its record in attracting high-value businesses. For example, Anne Dobie, partner at law firm Weightmans highlighted the importance of the quality of links and the office space:

A2.34 “Piccadilly is re-emerging as a vibrant area of growth. The transport links are excellent, making it an ideal place to work and do business. The building [Piccadilly Place] to which we re-located last year provides first class office accommodation and is ideally placed to be accessible to employees and clients alike<sup>6</sup>”

A2.35 BDP also chose to build their Manchester office in Piccadilly. Stephen Redfern, Director BDP told us that ‘would we be here if the station wasn’t here? – probably not’.

## PROPERTY ANALYSIS

### Development Impacts around Piccadilly

A2.36 There has been a significant impact on the scale and value of developments in the Piccadilly area since the new station was completed. A summary of major office and hotel developments since 2002 is provided in Table 2.1.

Development	Office - sq. ft	Description
Piccadilly Place	380,000	New development. Comprises three office buildings - including TfGM and Weightmans.
Square One	132,000	Complete refurbishment of formerly derelict building - developed by Brentwood, Network Rail tenant.
Piccadilly Basin	31,500	New BDP Head office (31,500 sq. ft), part of Piccadilly Basin Masterplan area of 370,000 sq. ft.
Piccadilly Gate	122,000	£27m Complete refurbishment of the old ‘Rail House’ to Grade A office accommodation.
Total	665,500	

TABLE 2.1 PICCADILLY MAJOR OFFICE DEVELOPMENTS

6 Piccadilly Partnership and Cityco Press Release 8 April 2010

**A2.37** There has also been a significant increase in the quantity and quality of hotel accommodation in the area since 2002. This reflects the increasing attractiveness of the area as a location for business travellers, taking advantage of its proximity to the station and the city centre. The key hotel developments are shown in Table 2.2.

**A2.38** In total, therefore, in excess of 400,000 square feet of new office space and at least 250,000 square feet of office space refurbished to Grade A standard, along with over 500 new high-end hotel rooms, has been created since the station redevelopment. The location of the major developments are shown in Figure 2.5.

Name	Beds	Description
Malmaison	167	New hotel development - London Road
Mint Hotel	285	New hotel development - One Piccadilly Place
Abohe Hotel	61	Refurbishment of Historic building
Total	513	

**TABLE 2.2** NEW HOTEL DEVELOPMENT

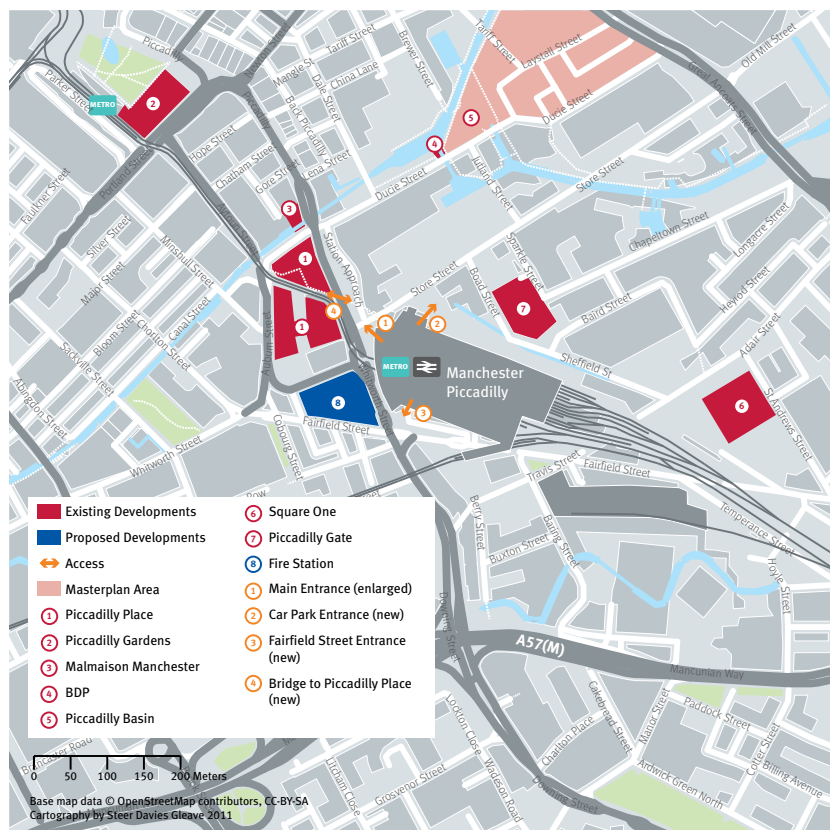


FIGURE 2.5 MAJOR DEVELOPMENTS AROUND PICCADILLY STATION

## ECONOMIC ANALYSIS

A2.39 As for Sheffield, we have performed economic analysis using our Spatial Economic Consequences of Transport, or SpECTra, modelling software. For the Manchester scheme, estimates of transport impacts are less well developed in business plans and other sources, and consequently the following analysis is associated with a greater degree of uncertainty. Nevertheless, the SpECTra modelling approach gives a broad indication of the economic impact of the station improvement.

A2.40 We have estimated that direct transport benefits, associated mainly with time savings for commuters and business people using the station, generate an annual increase in GVA in Manchester of approximately £1.3m, in current prices. At the same time, the results of our analysis suggest a small increase in jobs in the city, albeit at the expense of other districts in Greater Manchester.

A2.41 However, the transport benefits on which these estimates are based are likely to represent just one aspect of a much broader economic effect. In particular, the stakeholder evidence suggests that the Manchester scheme has attracted substantial investment to the station area, and the city as a whole.



A2.42 The SpECTra modelling framework also allows us to estimate the amount of inward investment attracted by the station. This involves comparing the evolution of property prices around the station to those of the city as a whole, and considering the level of investment that would be required to deliver these relative price changes. The results suggest that the development enabled by the station gave rise to investment of around £130m (current prices), which compares favourably with the £60m cost of the scheme itself. This investment in turn is estimated to have resulted in an annual increase in GVA in Manchester of approximately £6.6m, equivalent to roughly 4 times the direct transport benefit.

### 3. Birmingham New Street Gateway

#### CONTENTS:

- Before the Investment
- The Scheme
- The Impact
- Stakeholder Evidence
- Property Analysis
- Economic Analysis

#### NOTES:

The example of Birmingham New Street shows where a major station is deemed not only to adversely affect passengers, but is also a major constraint on economic growth and regeneration. The New Street Gateway scheme has been developed to address both passenger needs and to support wider regeneration objectives.

#### BEFORE THE INVESTMENT

##### The Station

- A3.1 Demand New Street Station significantly exceeded design capacity which resulted in acute crowding on platforms, accesses and waiting areas, safety issues and regular station closures.
- A3.2 The station also suffered from a number of accessibility problems. These included the following:
- Poor accessibility to the station, whether through the shopping centre or at concourse level;
  - Poor interchange for passengers either for other rail services or for other modes; and
  - Poor permeability through the station for pedestrians acting as a barrier to city centre movement.
- A3.3 The main 'barrier effect' was between the main city centre (to the north of New Street) and the south-side. Changes in 1960s forced people to walk through the Pallasades shopping centre via a number of levels and up and down escalators, and pedestrian flows conflicted with cars, including taxis, entering and leaving both the short stay and long stay car parks.



**FIGURE 3.1** STATION STREET EXIT SOUTH OF BIRMINGHAM NEW STREET STATION



**FIGURE 3.2** NEW STREET STATION HEADING SOUTH

A3.4 This route led to Station Street, immediately to the south of New Street Station, as depicted in Figure 3.1. The lack of continuity between the area immediately around the station and neighbouring roads is shown in Figure 3.2.

A3.5 The alternative to going through the station to the south was via the very circuitous routes of Hill Street to the west or High Street to the east.

### The Area

#### *South Side – ‘Like Dropping off the Edge’*

A3.6 The starkest adverse economic effects of New Street were felt to the area immediately south of the city centre. Despite its central location, the physical dislocation caused by New Street has resulted in underinvestment, and has been described as ‘like entering a black hole’.

A3.7 The quarter immediately south of New Street is relatively run down and low grade’ and ‘has been like that for 30 to 40 years’. It was ‘getting worse rather than better’ And ‘crying out for redevelopment’ but ‘developers were reluctant to put money in’ Chris Haynes BCC.

#### *A Negative Image of Birmingham*

A3.8 New Street station is generally considered to be very poorly designed, and has gained a number of dubious accolades including being voted the worst station in the country (Radio 5 Live listeners, August 2002); the second most hated eyesore in Britain (by readers of

Country Life magazine, November 2003), and the fifth horror of modern Britain by Radio 4 Today Programme listeners (2003).

A3.9 Numerous stakeholders identified the adverse economic consequences that this ‘dreadful architecture’ and ‘shocking visual arrival’ on investors’ impressions of Birmingham, and its impact in effectively blighting much of its immediate surrounds.

A3.10 In 2006 Jerry Blackett, then Chairman of the West Midlands Business Transport Group and policy director of the Birmingham Chamber of Commerce, lamented:

*“The present New Street station does not present the image of the conurbation which is attempting to sell itself as the ‘city of business’”*

A3.11 The unattractiveness of New Street also adversely affected some of the commercial space in the immediate vicinity, which is predominantly of 1960s vintage and of lower quality than that available in other areas of the city centre. Again, the lack of investment in office and commercial accommodation around the station was largely attributed to the poor image and blight imposed by New Street.

*“There was a limit to what investment could forward unless something was done about New Street due to its barrier effect and quality of built environment.” [Chris Haynes, former Head of Transport at Birmingham City Council]*

## THE SCHEME

A3.12 The construction of the £500m New Street Gateway project is underway, with the completion of Phase 1 (new station concourse) due for completion in 2012 and the full Phase 2 scheme in 2015.

### Scheme Background – Recognising the Regeneration Potential

A3.13 The development of New Street Gateway proposal was led by Birmingham City Council explicitly to maximise the wider economic development and regeneration potential that could be unlocked by the scheme. This followed from BCC’s view that an earlier scheme developed by the Strategic Rail Authority (SRA), while addressing the significant issues of station crowding and functionality, failed to address the wider context:

A3.14 The key focus of the BCC scheme development was to realise the land development potential, to exploit the land use and urban planning aspect to enhance the cohesion of the city, and to ensure that the scheme could act as catalyst to redevelopment of city centre, and in particular the south side.

### The Vision for the City and New Street

- A3.15 The scheme was developed within the context of the City's long-term vision for Birmingham, set out in the Big City Plan. The plan sets out a framework for the transformation and growth of the city centre, to support Birmingham's long-term growth and prosperity.
- A3.16 The need for the city centre to physically expand by addressing the constraints imposed by the 'concrete collar' of the inner ring road and the barrier of New Street underpinned this vision. Accordingly, five 'areas of transformation' were identified in the Plan, with New Street being one.
- A3.17 The redevelopment of New Street station is expected to have a profound impact on the whole of the city core, but in particular on the regeneration and development of the south-side of the station, which is currently isolated from the rest of the city centre by the barrier imposed by New Street, and therefore characterised by lower density, lower grade activities.
- A3.18 The current New Street Station and area to the south is shown in Figure 3.3, while the vision as set out in the Big City Plan is presented in Figure 3.4.



FIGURE 3.3 BIRMINGHAM NEW STREET – THE REALITY (C 2006)



FIGURE 3.4 BIRMINGHAM NEW STREET – THE VISION (FROM BIG CITY PLAN)



### New Street Gateway Scheme

A3.19 The scheme to redevelop of Birmingham New Street station was designed to create:

- A concourse with three and half times more space for passengers, enclosed by a giant light-filled atrium;
- More accessible, brighter and clearer platforms, reached by new escalators and new public lifts;
- A striking new station exterior, adding to Birmingham's growing reputation for good design;
- Better links to and through the station for pedestrians, with eight entrances; and
- A major stimulus for the physical regeneration of the areas surrounding the station.

A3.20 The redevelopment of New Street will be carried out by Network Rail alongside Mace, the principal contractor and delivery partner. The project is sponsored by Network Rail, Birmingham City Council, Advantage West Midlands, Centro and the Department for Transport.

A3.21 As part of the scheme Stephenson Tower is being dismantled to help accommodate a new southern entrance to the station. Designs for New Street Gateway are shown in Figure 3.5.



FIGURE 3.5 BIRMINGHAM NEW STREET GATEWAY

## THE IMPACT

A3.22 The station redevelopment started in 2010 and is due to be fully completed by 2015. It is clearly too early for many of the wider benefits to be manifested, but the stakeholder interviews and economic research provide some insight into the expected impact.

## STAKEHOLDER EVIDENCE

A3.23 Stakeholders were unanimous in the view that the scheme would help to transform the way the city functioned, through the improvements to connectivity in the city centre, the high quality design of the station improving the build environment and from the development taking place as part of the scheme, in particular the redevelopment of Pallasades shopping centre.

A3.24 There was a recognition that, given the scheme would not be complete until 2015, it will take time for the positive regeneration impacts to be seen 'on the ground'. Allied to this, Stakeholders

highlighted the difficulties faced by developers in the current economic climate, which meant that less speculative development was coming forward than in the late 1990s and 2000s.

A3.25 Despite this, there have been a number of clear positive signals pointing to increased investor confidence in the area. In particular, the commitment of John Lewis to opening a new store on the southern 'anchor' of the station was seen as enhancing not only the development, but the retail offer and image of Birmingham as a whole.

A3.26 Other signs on business confidence include the establishment of the Southside Business Improvement District<sup>7</sup> in April 2011, where businesses agreed to a 2% business rate levy to invest on behalf of the community. Other stakeholders pointed to the fact that a number of landowners and developers were developing plans for area to coordinate with the opportunities afforded by the New Street development, particularly on the south side of the city centre.

7 <http://www.southsidebid.co.uk/>

## PROPERTY ANALYSIS

A3.27 While the property impacts of the scheme will not be seen until sometime after the completion of the scheme, the adverse impact of the ‘old’ New Street on the economic geography of the city can nevertheless be seen in the differential quality and value of land between different parts of the city.

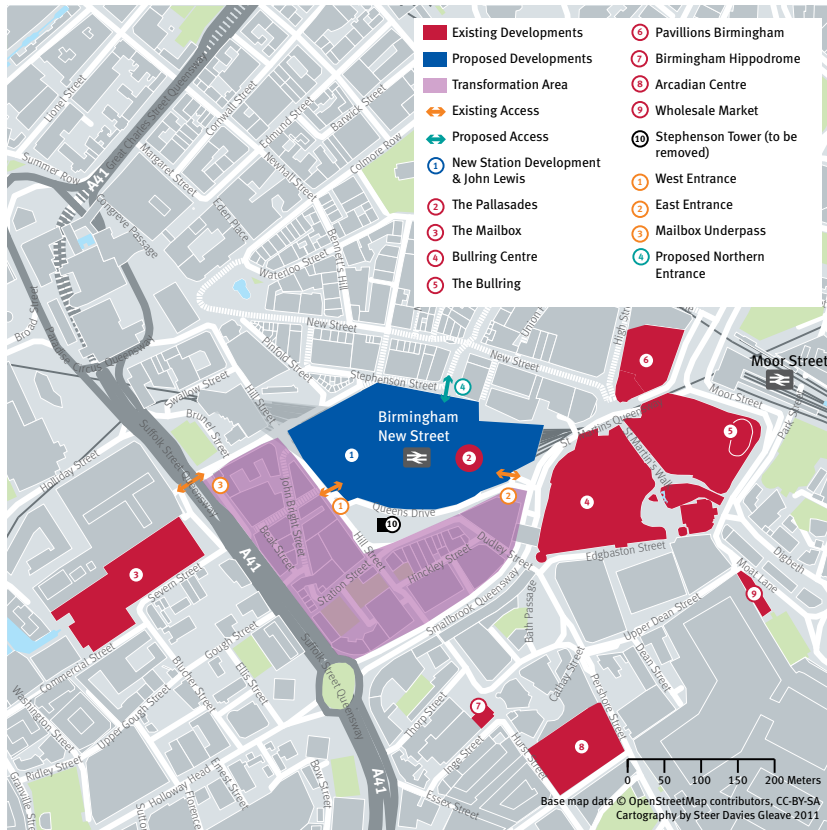
A3.28 Research into the Regional Economic Benefits<sup>8</sup> of the scheme was undertaken in 2006 by Steer Davies Gleave with support from Jones Lang Lasalle. This examined differential land values and property within the city, and the effect of New Street in explaining differences. The findings of that research have been corroborated by the evidence provided by our stakeholder interviews, including property consultants. Indeed, absolute rental values in 2011 broadly are similar to those in 2006 (although there was a period of higher rents up to 2008, followed by a reduction, reflecting the recent economic cycle).

A3.29 Rental values around the station, as reported following the 2006 research, can be summarised as follows:

- Prime rentals in the central area, around Colmore Row, are around £26-£28 per square foot for Grade A space.
- Around New Street station office accommodation tended to be of lower quality than in the centre, with many buildings from the 1950s and 1960s only minimally refurbished since they were built. Rents at One Queens Drive (Grade A space next to the station) are £18.50 per square foot, while Grade B8o space is around £14.50 per square foot.
- Office rents in areas south of the station drop off quickly to £10 per square foot, with the office accommodation of much lower quality (Grade C81 or lower).

A3.30 Around the time of this research, there was an excess of demand for high quality office space in the city, but the quality of the built environment and barrier effect nevertheless discouraged the use of space in the vicinity of the station.

8 Birmingham Gateway Business Case - Regional Economic Benefits Report, Steer Davies Gleave, 2006.



**FIGURE 3.6** DEVELOPMENTS AROUND BIRMINGHAM NEW STREET GATEWAY

**A3.31** A similar effect can be seen in the dislocation caused by the ‘concrete collar’ of the inner ring road, with rents in the Jewellery Quarter outside the inner ring road dropping to about £10 per square foot. By contrast, rents in Brindley Place where the access previously restricted by the inner-ring road has been improved, now attracts rentals of around £25 per square foot. This reinforces the notion that a ‘barrier’ effect can significantly constrain the development potential for land that is geographically close but physically disconnected from the urban core.

**A3.32** The location of New Street and of nearby current and planned developments is shown in Figure 3.6.

## ECONOMIC ANALYSIS

A3.33 The Regional Economic Benefits Report presented forecasts of anticipated economic impacts of the scheme.

A3.34 The main findings of this study are summarised below:

- There would be a transformation of the south-side – The scheme would result in the development of over 350,000 square feet of new development on the south-side of the station. The quality of the station redevelopment would translate positively towards improving the quality of office development coming forward, with the expectation that offices near the station would be suitable for headquarters and other key business organisation offices. This high value space would, in turn, make the redevelopment as a whole more viable.
- The Impact would be additional at the city-wide level - The research found that, due to the limited supply of high quality office provision in the city centre, the additional space provided would be additional rather displaced activity. The scale of development would help to drive critical mass / agglomeration benefits that would arise. The additional supply was forecast to result in a softening of office rents, but to a level such that Birmingham's rents were more in-line with other large cities<sup>9</sup>.
- The scheme would deliver an additional 2,200 to 3,200 jobs, depending on employment densities within the properties. There is a strong commonality between the findings of the 2006 study and stakeholder views about the nature of the impacts. The key difference relates to the timing of impacts, with the 2006 study undertaken when the economy (and hence demand for new office space) was strong, whereas the views of stakeholders are now tempered by the impact of the recent recession and fragile economic climate.

<sup>9</sup> Through the mid-2000s demand for high quality city-centre office space outstripped supply, with the effect that city centre rents were higher than the average for 'BIG 6' average.



## 4. St. Helens Central

### CONTENTS:

- Before the Investment
- The Scheme
- Stakeholder Evidence
- Property and Economic Analysis

### NOTES:

St. Helens Central station illustrates how a comparatively small station can be developed as part of a larger redevelopment scheme and how it can impact the local area.

### BEFORE THE INVESTMENT

A4.1 The station is located on the eastern side of St Helens town centre, approximately 200m from the bus station, and adjacent to the renewed George Street Quarter. The George Street Quarter covers approximately 6 hectares and consists of more than 70 buildings, many of which are historic, quality buildings. Consequently, a large portion of the quarter was declared a conservation area in 2000.

### The Station

A4.2 The old 1961 pre-fabricated station did not conform to the quality of buildings and style of redevelopment planned for the nearby George Street Quarter and did not provide an attractive gateway to St Helens. The station was characterised by poor passenger facilities, a failure to meet DDA requirements, poor car parking and cyclist facilities and a lack of integration between the railway station and bus station despite their proximity to one another.



**FIGURE 4.1** ST HELENS STATION BEFORE THE REDEVELOPMENT

A4.3 St Helens Metropolitan Borough Council (MBC) therefore undertook a comprehensive survey of station users on behalf of Merseytravel in 2004. The survey revealed major dissatisfaction with the quality of facilities; 59% of those asked considered the station facilities to be poor. In addition, the overall condition of the building was considered outdated, both externally and internally, and users were dissatisfied with the lack of facilities for people with mobility difficulties. 95% stated that the planned improvements were necessary<sup>10</sup>.

#### The Area

A4.4 The general consensus was that the appearance and condition of the station had an adverse impact on its immediate surroundings.

*“The station felt isolated with no real presence... The station seemed derelict, the buildings were rundown and there were low economic levels of activity with a lot of crime in the area” [John Waddelow - St Helens MBC]*

A4.5 The problems were highlighted by a feasibility study<sup>11</sup> focusing on the revitalisation of the town centre and its surroundings. The study highlighted a number of issues relating to the station, in particular its impression of being isolated although the station is actually close to the town centre, and the unattractive surrounding environment that created a poor image and substandard entry point into St Helens town centre.

<sup>10</sup> St. Helens Central Station Demand Assessment (May 2004).

<sup>11</sup> St. Helens Central Station Feasibility Study (September 2001)



**FIGURE 4.2** ST. HELENS STATION AND SURROUNDING AREA

## THE SCHEME

- A4.6 The development of the station was part of a package of measures, aimed at improving the integration of the station into the surrounding town centre by remodelling the local traffic flows, pedestrian accessibility and bus routes.
- A4.7 The ERDF Business Plan<sup>12</sup> laid out the more specific objectives underpinning the delivery of the broader vision:
- To provide a new glazed statement building within the George Street Quarter Conservation Area, at the gateway into St Helens town centre;
  - To deliver a 4% increase in passenger usage;
  - To provide for a better linked bus/rail interchange, through the realignment of the station building along the Bickerstaffe Street axis;
  - To ensure that the station is fully DDA compliant; and
  - To provide a safer, more secure station through the removal of the station underpass and replacement with an overhead bridge.
- A4.8 Merseytravel started planning the new station in 2002 and it was commissioned in 2005 through Network Rail, with SBS Architects as designers. A Project Steering group was established, comprised of Network Rail, Merseytravel, First North Western (subsequently replaced by Northern), St Helens Metropolitan Borough Council and St Helens Together (formerly Ravenhead Renaissance).

<sup>12</sup> ERDF Business Plan:- St. Helens Central Station Revitalisation (2005).

- A4.9 The scheme involved the demolition of the old station and the reconstruction of the new station building, a footbridge and lifts to the west of the old site. This would create a direct view into the town making the station seem closer to the town centre and therefore increasing accessibility.
- A4.10 The scheme was completed in the summer of 2007 at a cost of £6.2 million and the station was officially opened in December of that year. The iconic 21st Century design of the new Central Station is in keeping with the high class urban design and finishes used in the George Street Quarter. The design combines glass and copper-clad walls with spider glazing and an exposed structure, shown in Figure 9.3. The design was intended to ‘make a statement’ and relates to the Borough’s heritage of manufacturing and glass-making innovation, and considered to complement and enhance the neighbouring conservation area.



FIGURE 4.3 ST. HELENS CENTRAL STATION

- A4.11 The station now provides for an appropriate ‘sense of arrival’ for rail passengers disembarking in St Helens town centre. This is enhanced by the relocation of the station entrance, which now faces out along Bickerstaffe Street.
- A4.12 The two-storey station’s facilities have been improved with the inclusion of a new ticket hall, ticket office, toilets, double height waiting/retail space, increased retail offer, pedestrian bridge, and connected platform (with lift ensuring it is DDA compliant).
- A4.13 The external layout was designed to take into account the additional land made available by the removal of the old station building. This allowed for improved access to Corporation Street, a station car park that now provides parking for 70 vehicles, a drop-off area to the station front and a taxi rank and office.



**FIGURE 4.4** THE VIEW FROM BICKERSTAFFE STREET



## STAKEHOLDER EVIDENCE

A4.14 The regeneration programme as a whole was seen to have left an impressive stamp on the town and has helped to improve the perception of St. Helens. Stakeholders pointed to the attraction of several new businesses to the quarter including award-winning restaurants as evidence of increased activity in the area that resulted from the station investment.

*“The iconic structure acts as a catalyst for local regeneration and development” [Mark Cleave - Merseytravel]*

A4.15 There is evidence that the station has had a positive effect on the image of St Helens, its image being regularly used in all promotional material for the area. The station and associated improvements have transformed the George Street Quarter into a prosperous business, residential and leisure Quarter in St Helens.

A4.16 The transformation of St Helens has been recognised by a number of regional and national awards, including the Royal Institute of Chartered Surveyors 2005 Town Centre Regeneration award and the Royal Town Planning Institute 2006 Town Centre Regeneration award. The Council has also recently been invited to submit the station design to the prestigious 2011 Brunel Awards as a candidate for the International Railway Design Competition.

## PROPERTY AND ECONOMIC ANALYSIS

A4.17 Jones Lang LaSalle carried out a Demand Assessment in 2004 to gauge the reaction to an improved station. They identified a strong view within the local community that the proposed station would have a positive effect on investor perceptions and would be likely to lead to further local developments and boost St Helen’s profile, conditional on the scheme providing good links to the town centre<sup>13</sup>.

A4.18 There have been a number of local developments in the area since the station redevelopment including:

- Nextdom office Development – 39,000 square feet of fully fitted commercial office space with 130 car park spaces and landscaping<sup>14</sup>;
- Countryside Properties Headquarters - one/two bedroom town centre apartments, planned and designed with modern urban living in mind<sup>15</sup>;
- Helena Partnerships Office – Pochin Construction is currently building a brand new eco-friendly office for the Merseyside housing association. The 23,000 square foot, three-storey glass-clad building is located in Corporation Street, very close to the station, and was previously home to a St Helens Glass production facility.

<sup>13</sup> EDRF Business Plan:- St. Helens Central Station Revitalisation (updated February 2005).

<sup>14</sup> <http://www.globeconstruction.co.uk/projects.commercial.php#>

<sup>15</sup> [http://www.brandnewsthelens.com/UserFiles/File/shc\\_devreview07\\_lores.pdf](http://www.brandnewsthelens.com/UserFiles/File/shc_devreview07_lores.pdf)

- A4.19 There is also evidence that the surrounding areas are now receiving attention, with the Hardshaw Centre receiving a new car park exit stairway into the George Street quarter.
- A4.20 The significant increase in passenger usage (station demand increased from 413,000 in 2006/7 to 685,000 in 2009/10<sup>16</sup>) lends support for the positive impact of the station in supporting increased local activity levels, although there is no direct evidence that the station alone led to other developments as many were already planned as part of the larger regeneration scheme.

<sup>16</sup> ORR data



## **E** EXECUTIVE SUMMARY

### **1** INTRODUCTION

### **2** STATIONS AND THE ECONOMY

### **3** IMPROVING STATIONS

### **4** THE IMPACT OF STATION INVESTMENT

### **5** KEY FINDINGS AND IMPLICATIONS

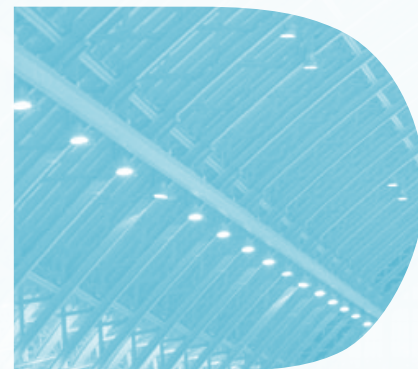
## **A** APPENDICES

APPENDIX A: CASE STUDIES

APPENDIX B: STAKEHOLDER INTERVIEWS

APPENDIX C: LITERATURE REVIEW

APPENDIX D: SPECTRA



## B Appendix B: Stakeholder Interviews

Name	Role	Company	Station
Martin Dyer	Associate Director, Development & Transportation Team	WSP	Birmingham New Street
Michele Wilby	BID Executive Director	Colmore Business District	Birmingham New Street
Alex Burrows	Head of Strategy	Centro	Birmingham New Street
Chris Haynes	Head of Transportation Strategy	Birmingham City Council (retired)	Birmingham New Street
Jeremy Collins	Property Director	John Lewis	Birmingham New Street
Sian Grieve	Community Press Officer	John Lewis	Birmingham New Street
Gareth Morgan	Property Agent (& Chair of the Business Strategy and Constitution Committee at Birmingham Future)	Jones Lang LaSalle	Birmingham New Street

Name	Role	Company	Station
Chris Hackett	Regeneration Policy Manager	Bristol City Council	Bristol Temple Meads
Cyril Richert	Chair	Clapham Junction Action Group	Clapham Junction
John Stone	Head of Forward Planning & Transportation	Wandsworth Council	Clapham Junction
Lorinda Freint	Town Centre Manager	Town Centre Partnership Board	Clapham Junction
Malcolm Page	Clapham Junction Station Sponsor	South West Trains	Clapham Junction
Steve Orne	Spokesperson	Upper St John's Hill Business Group	Clapham Junction
Pieter Wilke	Project Manager	Southern Trains	Epsom

Name	Role	Company	Station
Patrick Verwer	Managing Director - Rail Development	Go Ahead	Epsom
Steve Belfitt	Deputy BID Director	Go Ahead	Epsom
Linda Brosnan	Planner	Islington Borough Council	London Farringdon
Michael Colella	Head of Commercial	Crossrail	London Farringdon
Graham Botham	Farringdon Programme Sponsor	Network Rail	Manchester Piccadilly/Victoria
Stephen Redfern	Executive Director	BDP	Manchester Piccadilly/Victoria
Peter Jenkins	Architect Director	BDP	Nottingham & Manchester Piccadilly/Victoria
Clive Bartlam	Project Director	Argent Group	Manchester Piccadilly/Victoria
Andrew Purdon	Associate Director	CBRE	Manchester Piccadilly/Victoria

Name	Role	Company	Station
Richard Lewis	Director	Piccadilly Partnership	Manchester Piccadilly/Victoria
Stephen Clarke	Director of Rail	TfGM	Manchester Piccadilly/Victoria
Mike Mellor	Head of Property	TfGM	Manchester Piccadilly/Victoria
Pat Bartoli	Head of City Centre Regeneration Team	Manchester City Council	Manchester Piccadilly/Victoria
Mark Wilson	Transport Advisor	Newcastle City Council	Newcastle
Matthew Atkins	Senior Planning Officer	Newcastle City Council	Newcastle
John Watson	Chairman	Nottingham Hub	Nottingham
Chris Sinclair	Director	Innes England	Nottingham
Derek Brewer	Board Member	One Nottingham	Nottingham

Name	Role	Company	Station
Mike Taylor	Director	Nottingham Regeneration Ltd.	Nottingham
Lorraine Baggs	Inward Investment Manager	Invest in Nottingham	Nottingham
Tony Walker	Senior Commercial Scheme Sponsor	Network Rail	Reading
Alison Bell	Head of Planning	Reading Borough Council	Reading
David Wilson	Communications Manager	Network Rail	Reading
Ambrose White	Project Manager	SYPT	Sheffield
Jason Cocker	Station Manager	East Mid Trains	Sheffield

Name	Role	Company	Station
Jonathan Brown	Head of Transport	Yorkshire Forward	Sheffield
Mike Empsall	Client Liaison Officer	Sheffield City Council	Sheffield
Simon White	Assistant Director	Creative Sheffield	Sheffield
Tim Botrill	Property Agent	Knight Frank	Sheffield
Alissa Ede	Rail Officer	Hertfordshire County Council	St Albans City
Maria Cutler	Head of Economic Development	Hertfordshire County Council	St Albans City
Tony Blackburn	Land Director	Linden Homes	St Albans City



Name	Role	Company	Station
Larry Heyman	Integration and Partnership Manager	First Capital Connect	St Albans City
John Waddelow	Team Leader	St Helens Council	St Helens Central
Mark Cleave	Client Project Manager	Merseytravel	St Helens Central
Helen Lewis	Development Manager	Countryside Properties	St Helens Central
Sam Neal	Regeneration Programme Manager	Waltham Forest Council	Walthamstow
Neil Bullen	Transport Planning Manager	Waltham Forest Council	Walthamstow
Simon Rutter	Director	Solum Regeneration	Walthamstow

Name	Role	Company	Station
Malcolm Allen	Director	Colliers	General
Shilpa Bhatnagar	Senior Consultant	Colliers	General
Richard Jones	International Director	Jones Lang LaSalle	General
Nick Lambert	Director, Development Consulting	DTZ	General
Julian Clarke	Director - National Recoveries	Savills	General
Angus Irvine	Development Partner	Rapleys	General
James Leaver	Development and Regeneration Partner	Knight Frank	General
Stuart Kirkwood	Head of Development Sales	Network Rail	General
Gavin McKechnie	Head of Retail	Network Rail	General



*Clapham Junction*



## **E** EXECUTIVE SUMMARY

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### **2** STATIONS AND THE ECONOMY

### **3** IMPROVING STATIONS

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## C Appendix C: Literature Review

### Value of Investment in Rail Stations

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- Introduction and Main Findings
- Impact on Land values
- Other Impacts
- Impact on Station Owners and Operators
- Conclusion
- References

#### INTRODUCTION AND MAIN FINDINGS

This chapter presents a synthesis of the literature around the economic value of railway stations. In keeping with the rest of this study, a crucial aspect of this review is that it seeks to isolate the impact of stations as entities in their own right, abstracting from the accessibility benefits that they bestow as gateways to the railway network. This is a challenging task, since the literature rarely distinguishes between these different roles. However, by appealing to research from a number of areas – such as statistical analyses of stations’ impacts on property prices on the one hand, to case studies of the impact that good building design can have on the other – we are able to go a considerable way towards understanding the economic role of stations. Later chapters - which describe the case studies undertaken as part of this research, statistical analyses of land value impacts, and the results of economic modelling exercises – provide further evidence around the results found here, and supplement the current chapter where existing research is silent.

The review draws on academic analyses, government reports and consultancy studies. It appeals to literature from economics, planning, transport studies and sociology to ensure a complete and balanced portrait.



The main findings of the review can be summarised as follows:

- Whilst in principle, train stations can reduce as well as increase land values, the wealth of evidence suggests that stations tend to raise land values in the surrounding area. Typically, moving 250 metres closer to a station increases residential property values by around 2.4 per cent and commercial property values by 0.1 per cent.
- The impact of stations on land values tends to be manifested in a relatively large surrounding geographic area. Commercial property prices reflect the presence of stations in a much tighter area, but the impacts can often be very large.
- Different types of stations affect land values in different ways. The evidence suggests that commuter stations have the largest impact on residential land values, especially if they are a long distance from city centres.
- There is some evidence suggesting that land values in the immediate vicinity of stations can be depressed by increased crime, pollution, noise and so forth. This may create opportunities for station investment to overcome these problems and increase land values adjacent to stations.

- Whilst accessibility is an important reason why stations increase land values, other aspects, such as the improved facilities that they bring and the possibility that they improve the urban environment, are also significant.
- Beyond impacting land values, there is evidence that stations encourage development on nearby land, increase employment locally and provide other regeneration benefits.
- Station owners and managers are likely to benefit considerably from investment in improved stations. Well designed stations are likely to command higher rents and occupancy levels, especially among retailers; witness increased footfall; and experience reduced levels of crime.

The remainder of this chapter is structured as follows. The next section examines the impact of stations on land values, the issue that has received most attention in the research literature by far. It considers the theory behind the relationship between station location and property values, the evidence supporting the relationship, and some interesting subtleties. It then examines the extent to which the is due to stations themselves, as opposed to the accessibility advantages that they bring. The section after that examines the impact of stations on other important socioeconomic variables, including land use, employment, and crime among other issues. The final section examines the benefits of improved station design from the perspective of station owners and managers.

## IMPACT ON LAND VALUES

the abundance of research around the economic effects of railway stations relates to the impacts on residential and commercial land values (Banister, 2007). This is, perhaps, understandable. After all, land values are easily measured and the wealth of data available at very fine levels of geographic disaggregation means that defining the desired region around a station is relatively straightforward.

We begin by examining the theoretical mechanisms that have been proposed in the literature, through which proximity to stations can increase land values. These are:

- Accessibility – Proximity to railway stations increases land values because they provide admission points to the railway network which in turn provides access to markets and places of work. As such, the value associated with these improved economic opportunities – for example the monetised value of commuting time savings - will be added to, or in the jargon of the literature ‘capitalised’ into, the value of the real estate (Voith, 1993; Gatzlstaff and Smith, 1993).

Facilities – Stations can directly bring with them facilities such as parking and retail and can act as focal points for communities. They can also give rise to improved facilities indirectly. They can lead to pedestrian footfall that may not otherwise have occurred, and can concentrate footfall in particular locations. This can provoke the emergence of

improved facilities, especially retail establishments. Access to these improved facilities can increase economic actors’ willingness to pay for accommodation in the vicinity and increase real estate values as a result (Debrezion et al, 2004; Bowes and Ihlandfeldt, 2001).

- Environment – Stations can improve the urban environment, for example if they are aesthetically appealing and if they offer strong physical connectivity with and between the communities they serve. This can increase residential and commercial occupiers’ willingness to pay to be located near stations, resulting in higher land values (Debrezion et al, 2004, 2007; Doiron et al, 1992; Amion Consulting, 2007, 2009).

At the same time, the literature identifies a number of channels through which stations might tend to depress land values, particularly in their immediate vicinity and among residential units. Studies have cited noise from rolling stock and station users, pollution from trains and the station itself, increased crime and the general unsightliness of some railway buildings, as features of stations that may tend to reduce land values (Bowes and Ihlandfeldt, 2001; GVA Grimley, 2004).

In principle therefore, whether railway stations have an inflationary or deflationary impact on property values is ambiguous – it depends on the relative strengths of the factors just described. In practice, in order to establish both the sign and size of the effect of stations on land values, we must appeal to statistical evidence.



### Empirical Evidence

A large number of studies have been undertaken which have sought to investigate statistically the impact of railway stations on land values. Virtually all studies relate to urban and suburban railway systems, rather than major intercity links. This is to be expected, since it is mainly urban systems that have been established since this literature has become active, and because these systems typically contain sufficiently large numbers of stations so as to be able to generate statistically robust results. Most results relate to residential property, but a number of studies examine commercial real estate. Some studies relate specifically to the UK, although the bulk of research relates to transport interventions in North America. This is an interesting finding in itself. Whilst this partly reflects the maturity of the North American literature, it may also be indicative of the funding structures which have existed in the US for a many decades, and which have made headway in Canada recently. Specifically, many rail schemes – especially light rail programmes – have been funded through so called Tax Increment Financing (TIF) or similar mechanisms. Under such schemes, public authorities raise money for transport developments by borrowing against future increases in tax revenues that result from the improved transport links. The UK government has recently announced its intention to roll out similar schemes, with developments already having been improved in Scotland. The findings of the literature review are therefore likely to have strong and growing relevance in the UK context.

In North America, an early study by Damm et al (1980) of the Washington Metro suggests that halving the distance of residential property from a station results in an increase in values of between 6 per cent and 19 per cent. Qualitatively similar results have been produced by Bajic (1983) in Toronto, Voith (1993) in Philadelphia, Gatzlstaff and Smith (1993) in Miami, Armstrong (1994) in Boston, Dueker and Bianco (1999) in Portland, Bowes and Ihlandfeldt (2001) in Atlanta and Cervero and Duncan (2002a) in San Diego. As for commercial real estate, a number of studies have found strong impacts on property values. For example, Cervero and Duncan (2002b) found that commercial land within some 1,300 feet of stations in central San Jose was as much as 120 per cent more valuable than comparable land further away from stations (although stations appeared to have much less of an impact outside of the downtown area). GVA Grimley (2004) provides additional references.

It is worth mentioning that not all studies have found significant positive effects on land values of stations. For instance, in studies of San Francisco's Bay Area Rapid Transit system, Dornbusch & Company (1975) and Landis et al (1995) found a zero or even negative station premium.

The weight of evidence would appear to suggest a positive link between stations and land values. However, the literature contains a number of exceptions and the magnitude of the effect is unclear. An important contribution by Debrezion et al (2004, 2007), helps hone some more precise conclusions. The authors combine the North

American literature by means of a ‘meta-analysis’ – a statistical method for synthesising results of previous research. This approach has two important benefits. Firstly, it is able to establish the reasons that different studies arrive at divergent conclusions – for example because dissimilarities in the type of rail scheme considered, or because of methodological differences between studies. Secondly, it is able to summarise the North American experience by means of a rigorous and objective statistical procedure, rather than subjective judgements.

The results suggest that typically, moving 250 metres closer to a station increases residential property values by around 2.4 per cent. The impact on commercial values is estimated to be lower, at some 0.1 per cent. We return to the difference between residential and commercial property below. The overall conclusion from the North American literature must be that ‘despite differences in geographic location, economic circumstances, and local real estate market conditions, the presence of transit produced a measurable impact on surrounding properties’ (CTOD, 2008).

Outside of North America, Bae et al’s (2003) study in Seoul found that the opening of a new subway line resulted in a significant increase in housing values around stations. Interestingly, the impact was entirely anticipatory, with all of the effect having been realised prior to the line’s opening.

A number of studies relate specifically to the UK. Henneberry (1998) examined the impact of Sheffield’s £250m Supertram, completed in 1995. It found that residential prices actually fell in advance of the scheme’s completion – perhaps as a result of disruption during the construction phase - only to return to their original levels following its completion. Unfortunately, the study only considered prices four months after the full opening of the system, and it is possible that the full land value impacts of the scheme were not witnessed for some time afterwards.

Similarly, Du and Mulley (2007) present a statistical examination of the impact on residential land values of the extension of Tyne and Wear Metro to include Sunderland, which opened in 2002. The analysis effectively compares changes in house prices in Sunderland to carefully selected control areas. The study does not find any statistical evidence suggesting that the Metro expansion affected residential prices. However, the authors suggest that this need not imply that the extension has not affected house prices. Firstly, the study did not control for other factors that could have given rise to the observed trends. Secondly, the analysis considered prices a year after the opening of scheme, by which occasion the authors suggest that the full impact may not have been realised.

In contrast, a study of the residential impacts of Croydon’s Tramlink by ARW et al (2003) was able to find increases in land values, albeit

at a localised level. In London, the impact of the £3.5bn Jubilee line extension has been studied by AtisReal and Geofutures (2005). The authors suggest that the scheme resulted in an aggregate increase in property values of more than £2bn, the vast majority of which is a result of new builds occurring in response to the increased accessibility, chiefly at Canary Wharf. A recent ex-ante study by Colin Buchanan and Volterra (2009) examines the impact of High Speed 1, the 109km High Speed link between London St Pancras and the Channel Tunnel, which opened in 2009. It estimates that houses around stations will increase in value by some £1.5bn in present value terms over the course of 60 years, with some areas close to new stations in Kent experiencing increases in median house values in the £20,000 to £30,000 range.

Broadly speaking, the UK research into the impact of stations on real estate values is less developed than the equivalent North American literature. There are significantly fewer studies, and those studies that do exist tend not to be as rigorous as the American counterparts, especially when it comes to demonstrating that the link between stations and land values is genuinely causal rather than simple correlation. Nevertheless, the UK studies are entirely consistent with the story that railway stations are associated with positive and substantial increases in land values, in both the residential and commercial sectors.

### **Commercial Versus Residential Values**

The overriding conclusion from the literature is that station proximity tends to increase land values, a pattern that is observed in the residential and commercial arenas. However, evidence from a number of studies suggests that residential and commercial property values respond in somewhat different ways.

We saw earlier from Debrezion et al's (2004, 2007) study that moving 250 metres closer to a station typically increases residential property values by around 2.4 per cent, compared to just 0.1 per cent for commercial property. At first sight, this would seem to contrast sharply with the results of some authors, for example those of Damm et al (1980) and Cervero et al (2002b), which suggest find very large impacts of stations on commercial real estate values.

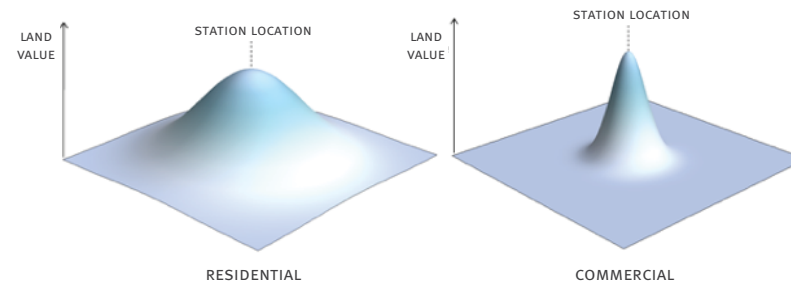
As it turns out, these patterns are not contradictory. Studies that examine impacts in a very tight geographic area around stations tend to display relatively large impacts among commercial properties, whilst studies that consider a wider geographic area, or distance per se, typically find a relatively large impact for residential property (Banister, 2007).

Therefore, it would seem that commercial property values tend to benefit when the property is very close to stations, within walking distance or half a mile perhaps (Scottish Executive, 2004), and this impact can often be very large. In contrast, residential prices will tend to benefit in a much wider area, perhaps up to three miles from stations, but by a smaller amount. These tendencies are confirmed by Debrezion et al's (2004, 2007) empirical results, and have been highlighted by Pharoah (2003), GVA Grimley (2004) and ODPM and DfT (2004). Figure 1 provides an illustration of these patterns.

### Station Characteristics and Local Context

We have already seen that residential and commercial property values appear to respond to stations in different ways. The literature also suggests that station characteristics and the local context too are important determinants of the extent to which stations are likely to affect property values.

Cervero and Duncan (2002a) examine the residential and commercial land value impacts of rail transit services in the San Diego region, a city which has been at the forefront of promoting transport-led economic development. They suggest that commuter stations have a relatively large impact on property values. This is a single study, and by itself cannot provide compelling evidence for such a pattern. However, the meta



**FIGURE 1** RESIDENTIAL VERSUS INDUSTRIAL LAND VALUE PATTERNS

analysis of Debrezion et al (2004) also suggests that commuter stations have a larger impact on property values than stations serving both light and heavy rail. This result, since it is ultimately based on a large number of rail case studies with very widely differing characteristics, provides fairly compelling evidence to support the suggestion that commuting stations have particularly large impacts on property values.

Bowes and Ihlandfeldt (2001) also find evidence suggesting that stations which lie further away from central business districts tend to give rise to larger effects on property values, all else equal. This, they suggest, is because the commuting time saving of rail compared to driving is larger further away from city centres. Therefore, workers living further away from the centre will be willing to pay more in order to live near a train station. This argument seems plausible, and the empirical results submitted by Bowes and Ihlandfeldt (2001) help lend credibility to this notion. Further research to strengthen the evidence base for this notion would be desirable.

Authors such as Nelson (1992) have found that stations located in less affluent areas command larger property price premia. This may be because poorer people are more reliant on public transport and as such

will be willing to pay more in proportion to their income to be closer to stations. On the other hand, Gatzlaff and Smith (1993) and Bowes and Ihlandfeldt (2003) find that the station premium is likely to be largest where prices are already high. Bowes and Ihlandfeldt (2001) suggest that this is because high earners attach a larger premium to transit access. Based on the state of the literature to date, it is not feasible to conclude whether stations have larger property impacts in richer or poorer areas. This is an important issue however, and merits further research.

### **Immediate Station Vicinity**

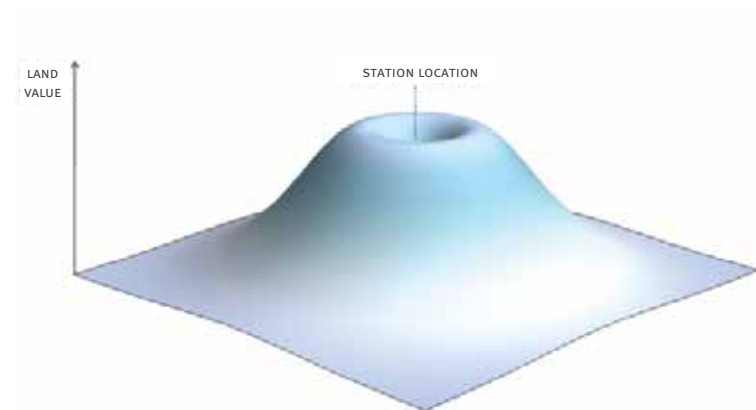
As we have seen, there is compelling evidence suggesting that stations have a positive overall impact on property prices in both the residential and commercial sectors. In turn, this suggests that the increased accessibility, enhanced environment and improved facilities that stations bestow dominate any negative aspects, such as higher pollution or crime, in aggregate. However, there is some evidence suggesting that this high-level relationship may mask subtleties at the very localised level.

An important and detailed study by Bowes and Ihlandfeldt (2001) examines the effect of stations on Atlanta's MARTA mass transit system. The authors submit evidence that housing values in the immediate

vicinity of stations (within a quarter of a mile) actually tend to be lower than those in the surrounding area, even though values in the broader surrounding area of the station appear substantially inflated. This implies a ‘volcano’ shaped pattern of housing values with all else equal, as illustrated in figure 2. This is likely to be a result of the negative impacts of stations - notably increased crime, pollution, noise and general unattractiveness – outweighing the benefits of station proximity in the area directly adjacent to the station. Further away from the station however, where these negative impacts are much weaker, the positive aspects dominate, thereby increasing real estate values.

This should not be read to mean that this pattern is always to be found around stations. It does raise a very interesting possibility however, and it would seem reasonable to expect that this pattern is most likely to be witnessed around stations which are particularly unattractive or ones in which crime is especially problematic.

We find evidence below that investment in station design can help tackle crime, and it is reasonable to expect that well targeted investment can help reduce other negative impacts like pollution, noise and especially any aesthetic grievances. Taken together, all of this evidence suggests that real opportunities may exist to increase land values in the immediate station vicinity via station investments that mitigate any undesirable features of the facility.



**FIGURE 2** VOLCANO-SHAPED LAND VALUE PATTERN



### **Distinguishing Between Accessibility, Facilities and Environment**

Three channels were identified earlier through which stations might give rise to higher land values: increased accessibility, enhanced facilities and an improved environment. The purpose of this study is to isolate the economic value of stations as entities in themselves – and particularly investment in station facilities – rather than their capacity as gateways to access the transport network. For the purposes of the current study therefore, an issue of paramount significance is the relative importance of each of these three mechanisms. Unfortunately, the literature is all but silent on this point. Nevertheless, by carefully interpreting some of the results described above, and appealing to related strands of literature, it is possible to go some way towards such an assessment.

Implicitly or otherwise, the econometric literature takes accessibility to be the means through which stations impact land values, with other possibilities rarely even discussed superficially, let alone investigated statistically. To be fair, it would seem that accessibility is a chief reason why stations tend to increase land values. This is clear from a number of papers, for example Bajic (1983), which find that the increase in property values is broadly equivalent to the savings in commuting costs, discounted appropriately over

time. That is to say, these papers find that accessibility benefits alone of stations are capitalised into property values.

However, evidence from other studies suggests that stations can increase property values in their own right, through the provision of further facilities and by enhancing the urban environment.

A small number of studies have explicitly investigated the roles of station facilities. Bowes and Ihlandfeldt's (2001) results suggest that stations with parking facilities have a larger positive impact – by around 5 per cent or so - on residential property values. It may be worth making the point here that parking facilities may well act as a proxy for the general level of quality of facilities at stations, and as such this result may reflect the impact of improved station facilities more universally. Whilst Damm et al (1980) were unable to detect an effect for enhanced facilities, the authors acknowledge that this was likely to be a problem of data limitations and not necessarily indicative of the absence of an effect.

It is more difficult to determine the role of stations insofar as they increase land values by enhancing an area's urban environment. There is no direct evidence in favour or against this hypothesis. However, evidence implies that good design in general does

indeed have a positive impact on the urban environment and land values. This suggests that stations, if well designed, can have positive impacts on surrounding land values.

To illustrate, one study by Tu and Eppli (1999) of housing in Washington DC found that houses in areas adhering to good design principles were around 12 per cent more expensive than comparable houses elsewhere. A study by CABI and DETR (2001) concluded from a number of case studies that occupiers accept that better quality environments can and should command increased rents and that good design tends to be mirrored in high rental levels and higher investment returns, especially in the medium and long terms. A recent study by Amion (2009) surveyed property agents in the North East of England. 71 per cent of surveyors felt that design was either important or very important with regard to overall market attractiveness. The results were even higher for the retail (90 per cent) and residential (79 per cent) markets. In an assessment of the value added by good design, Carmona et al (2002) consulted with investors, developers, designers, occupiers and local government. All developers questioned considered that high quality developments could induce higher adjacent property prices.

## OTHER IMPACTS

The research around the economic impact of stations has focussed very heavily on housing values. Even other property related variables, such location decisions, ownership patterns and density have been ignored to a considerable extent (Banister, 2007). That the empirical research has focussed so heavily on land values should not be taken to mean that other impacts of stations, and transportation linkages more generally, are unimportant. It is more likely to reflect the ease with which data pertaining to property values can be obtained at a very localised geographic area. Indeed, it is possible that stations impact on land values not only directly, but through other economic variables. To the extent that this is the case, higher land values around stations may well be the observable manifestations of much wider effects of stations on the local economy.

With this in mind, we now examine the rather limited research relating to the impact of stations on other economic outcomes. As with property values, the literature rarely distinguishes between the accessibility role that stations play versus any wider economic benefits that they bring.

### Land Use

A small number of studies have investigated the impact of stations on land use. These studies tend to rely more heavily on anecdotal evidence than detailed statistical analysis, but are nevertheless interesting. Gatzlaff and Smith (1993) have noted that high density commercial development has taken place around a number of stations on the Washington DC METRO. In a similar vein, Dvett et al (1979) found that

San Francisco's Bay Area Rapid Transit (BART) system had small but significant impacts in terms of increased office and housing construction around stations. In London, Atisreal and Geofutures (2005) attribute the emergence of the vast office developments at Canary Wharf to the presence of the Jubilee line extension. It would seem more prudent however to recognise the Jubilee line extension as an important, but by no means the only, aspect of a wide ranging intervention that permitted the emergence of what has become one of Europe's most impressive regeneration sites. Overall, whilst the evidence of the land use impacts of stations has only been documented in a relatively small number of studies, it would seem that these effects could be quite substantial.

### **Employment**

Cervero et al (1995) found evidence that employment growth in San Francisco was typically more rapid in areas with easy access to the city's BART rapid transit system. Similarly, Green and James (1993) studied Washington DC's METRO rapid transit system between 1972 and 1980. They found that, on average, zones with stations experienced employment growth two and a half times greater than those without stations. In contrast, Bollinger and Ihlandanfeldt's (1997) results indicate that Atlanta's MARTA had neither a positive or negative impact on employment in station areas, but that it tended to alter the composition of employment towards the public sector in areas of high commercial development. The latter impact occurs, the authors argue, as a result of the public sector targeting station locations to increase ridership and encourage private development.

### **Wider Regeneration**

A number of studies, for example Peters (2009) and Florio and Edwards (2001), point to the less tangible regeneration benefits of stations such as improved city perception, enhanced civic pride and a stronger sense of identity. Of course, the difficulty is that such regeneration benefits are difficult to quantify. As Peters (2009) puts it, 'How does one quantify the symbolic value of a "reborn" or newly built railway station full of architectural splendor [sic]?'". For this reason, the research around the general regeneration impacts of stations tends to be based on case studies and illustrations. Moreover, most studies relate to schemes that have involved capacity or accessibility enhancements so that it is difficult to disentangle these effects from impact of stations in themselves. The case studies presented in later chapters are more incisive in this regard, so the current discussion is kept deliberately concise.

Regeneris (2010) estimate the regeneration impact of Crossrail – a new rail line connecting Reading in the west with Gravesend in the east, via an underground link through central London. Whilst the project is chiefly about increasing capacity, it involves a number of station upgrades along the route. The link is expected to reinforce area identities and improve perceptions, especially those of peripheral areas. Regeneris also emphasise that the scheme is likely to improve the perception of the area amongst inward investors (for a recent case study of the importance to inward investors of good connectivity, see London City Airport (2011)). The wider regeneration benefits described as part of Crossrail echo the regeneration benefits associated with the extension of the Jubilee line. In

a study of the impact of France's high-speed TGV network, Turner (1996) suggests that stations can act as a catalyst for regeneration. The author suggests however that growth is not automatic, and other features such as the presence of universities, financial incentives and the provision of start-up facilities need to be present for the station to have the full effect. This view is echoed by Gatzlaff and Smith (1993), who state that the largest impact is seen when coordinated with other land use policies.

More generally, stations can bring about regeneration through good design. Amion (2007) suggest that the economic performance of an entire area, together with the area's image and external perception, can be enhanced by the presence of well designed buildings – there is no reason to think that stations are an exception. Similarly, CABE and DETR (2001) suggest that Found that good design can inspire physical regeneration in the nearby area by generating confidence. A survey of local authorities by Carmona et al (2002) found that many local governments considered strong design to be a chief means of meeting regeneration objectives. Many authorities considered that good design could set a standard and open up opportunities for further developments. The Scottish Executive (1999) suggests that the quality of the built environment can be a major attraction for inward investment.

## IMPACT ON STATION OWNERS AND OPERATORS

Some of the main beneficiaries of high quality station environments are likely to be the owners and managers of station buildings. Whilst there is little direct research relating to the impact of improved station environments to these parties, there is a substantial branch of literature examining the economic impact of investment in well designed buildings in general. The evidence suggests that the following benefits are likely to accrue to station owners and managers:

- Higher rental and capital values (especially among retail units);
- Increased occupancy and take-up levels;
- Increased footfall; and
- Reduced crime.

The literature points to a number of further benefits that may accrue to station owners and operators, although the evidence base around these is less well developed:

- Reduced total overheads;
- Higher staff productivity;
- Easier recruitment; and
- Improved staff health.

### Higher Rental and Capital Values

A number of studies – using formal statistical methods, case studies, surveys or a combination of these – have investigated the impact of building and environment quality on rental and capital values achieved.

The seminal study is that of Vandell and Lane (1989). They deploy an econometric approach, and find evidence that rents in office buildings within the top quintile for design (as judged by architects) achieve rents 22 per cent higher than those in the bottom quintile. The authors concede that their results suggest that on average investing in high quality design may not be profitable because of higher design costs. However, they point out that investing in good design is associated with a small chance of very high profitability, for example if the building achieves landmark status. Doiron et al (1992), conducted an econometric study of commercial properties in Baton Rouge, Louisiana, in which the presence of an atrium was used to proxy good design. They found that buildings possessing such features command a rental premium of 7 per cent. By modern standards, the econometric techniques employed in these studies are relatively primitive, and it is not clear that the results are truly indicative of a causal relationship. It is helpful therefore to examine some further evidence from case studies and surveys of property industry professionals and other stakeholders.

A study by CABI (2007) sought to establish the value of high quality public realm, through examining the relationship between ‘design quality’ and local property prices and retail rents. Design quality was measured through Transport for London’s pedestrian environment review system (PERS), a tool for measuring the quality of the pedestrian environment. Regression analysis was used to isolate the impact of the build environment on property prices and retail spend in ten case study high streets in London. The research shows that in London an achievable improvement in street design quality can add an average of 5.2 per cent to residential prices on the case study high streets and an average of 4.9 per cent to retail rents. These findings have a central role to play in justifying investment.

The Property Council of Australia (1999) points to well designed shopping facilities in Sydney that have achieved significant rental premia. A survey conducted by Carmona et al (2002) in the UK found that most investors and developers viewed design as a significant factor in increasing both sales and rental values. More tellingly perhaps, the study also found that occupiers agreed that better designed environments should command increased rents, albeit up to a point. Amion (2009) conducted a survey of property agents in the North West of England. Overall, three quarters of respondents stated that design was important or very important in determining rent and

capital values. A breakdown of the results is provided in figure 3. It is interesting that the figures for retail in particular, a chief commercial operation at many stations, are higher still. Of equal importance in the current economic climate, the balance of evidence suggests that the significance of investment in good design is no less during times or recession. This is illustrated in figure 4, and it is noteworthy that just one respondent in ten considered that design was less important during times of recession than it is otherwise in the retail sector.

The econometric, case study and survey evidence combine to create a rather compelling case suggesting that investment in good design can have a substantial impact on rental and capital values. Amion (2007) suggests that the premium might be as high as 15 to 20 per cent, which seems consistent with the literature reviewed in the present study. Whilst the evidence does not pertain directly to railway stations, it would seem reasonable to expect similar patterns at stations. And that this relationship appears to be especially acute in the retail sector is likely to be of special importance to station owners and managers.

### Occupancy and Take-Up Levels

Vandell and Lane's (1989) analysis provides some evidence suggesting that good quality design increases occupancy levels, although their results are not statistically significant. At the same time, Carmona et al (2002) find evidence that many occupiers consider design to be an important factor in determining their location decisions. Case

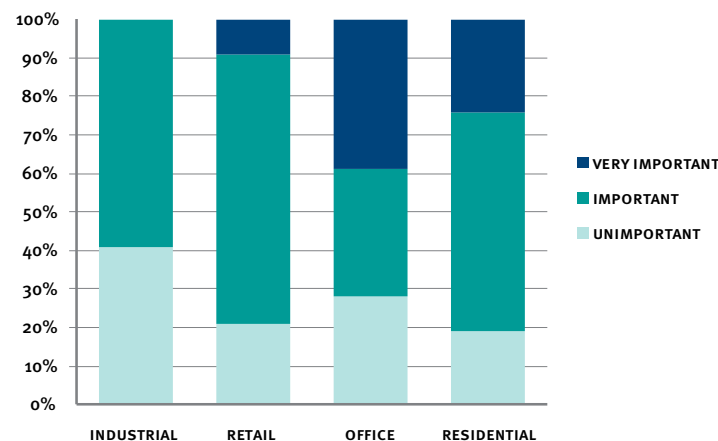


FIGURE 3 IMPACT OF DESIGN ON RENT AND CAPITAL VALUES (AMION, 2009)

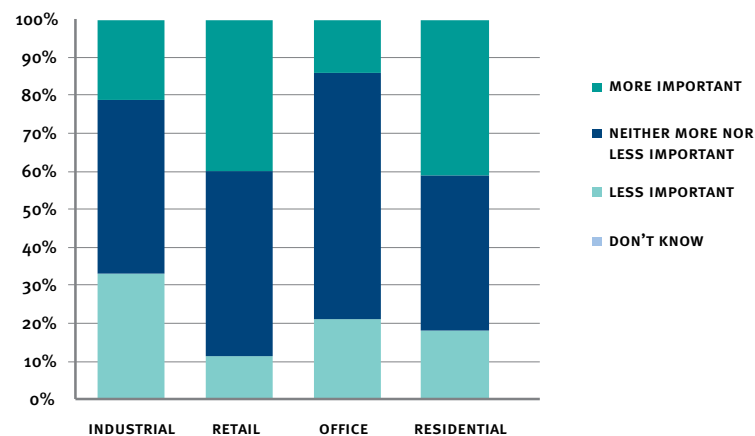


FIGURE 4 RELATIVE IMPORTANCE OF DESIGN DURING THE RECESSION (AMION, 2009)



studies undertaken by Amion (2009) in places such as Liverpool and St Helens found that design is particularly important in maintaining occupancy levels. Similarly, their survey of property agents found that the majority considered that good design was important or very important in maintaining occupancy rates across sectors. In the retail sector, almost 80 per cent of surveyors considered design to be an important determinant of occupancy, as illustrated in figure 5. CABA and DETR (2001) suggest that this is in spite of – not instead of – the tendency of good design to increase rental and capital values.

### Footfall

There is some evidence suggesting that good design can increase footfall, especially at retail destinations. For instance, Amion (2007) cites an example in Coventry where urban realm improvements are considered to have increased footfall by up to 25 per cent. Whilst this is anecdotal, and it is unclear as to whether the lesson can be applied in the context of stations, it does raise the possibility that improved station design may bring with it benefits in terms of higher patronage.

### Crime

CABA (2004), the New Zealand Ministry for the Environment (2005) and others argue that good design can drastically reduce crime. Hillier and Sabhaz (2008) and Glasson and Cozens (2011) provide modern and compelling overviews of the principal issues pertaining to design and crime levels. CABA (2004) points to an example in Birmingham where the City Council was able to reduce theft by 70 per cent by

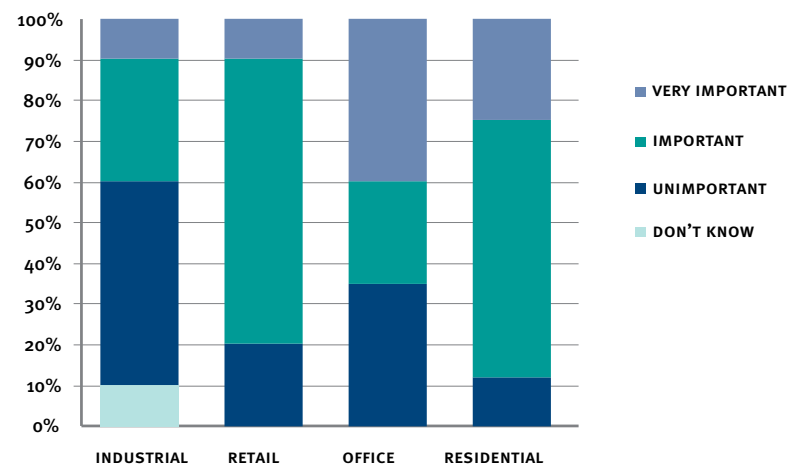


FIGURE 5 IMPACT OF DESIGN ON OCCUPANCY AND TAKE-UP RATES (AMION, 2009)

improving lighting and widening footpaths. Systematic academic studies by Taylor and Gottfredson (1986) and Minnery and Lim (2005) for example, are more cautious. Typically, they conclude that good design can have a significant, but not overpowering impact on crime.

### **Other Impacts**

The Scottish Executive (1999) states that ‘well designed and constructed buildings are economic to operate and minimise overheads. They are energy efficient, require only minimal maintenance and are easily adapted. An attractive and healthy work environment is vital for staff well-being and for productivity and recruitment’. Whilst the evidence is less well developed around these issues, they continue to merit consideration.

Many studies - including CABA and DETR (2001) and Amion (2007, 2009) – suggest that strong design can reduce costs, especially with respect to maintenance. Mechanisms promoting efficiency might

include reducing the area required for a particular function, improving energy efficiency and reducing resource requirements. Against this, studies including Vandell and Lane (1989) suggest that these savings may be offset by initially higher construction and design costs. Given the state of the evidence, it is not possible to make any steadfast conclusions around the impact of investment in good design on overall costs. Indeed, that the evidence is so mixed suggests that there may not be clear-cut rules in this regard, and that individual investments should be evaluated on their case-by-case merits.

The New Zealand Ministry of the Environment (2005) states that good design can help attract highly skilled and highly productive workers. Carmona et al’s (2002) case study analysis finds anecdotal evidence supporting this, together with suggestions that good design can improve employees’ health. Unfortunately, this research is very much in its infancy and further evidence would be most welcome.

## CONCLUSION

The literature suggests that the economic value of stations is substantial, and that they provide much more than mere gateways to the rail transport network. Nevertheless, existing research does not paint a complete picture of the role of stations, and especially investment in stations. The next chapters help complete the portrayal.

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## **E** EXECUTIVE SUMMARY

### **1** INTRODUCTION

### **2** STATIONS AND THE ECONOMY

### **3** IMPROVING STATIONS

### **4** THE IMPACT OF STATION INVESTMENT

### **5** KEY FINDINGS AND IMPLICATIONS

## **A** APPENDICES

APPENDIX A: CASE STUDIES

APPENDIX B: STAKEHOLDER INTERVIEWS

APPENDIX C: LITERATURE REVIEW

APPENDIX D: SPECTRA



## D Appendix D: SpECTra

### Spatial Economic Impacts of Transport (SpECTra)

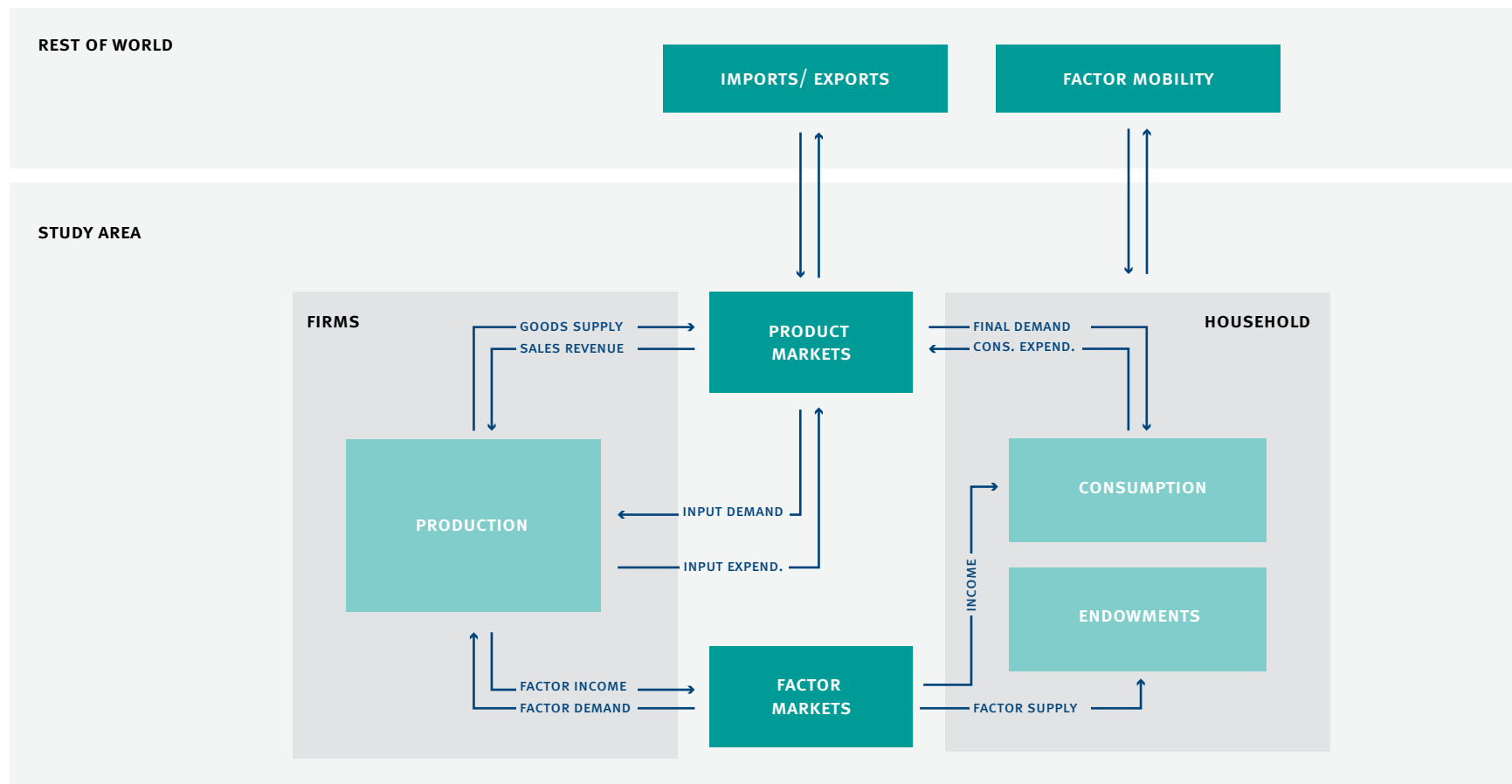
The economic assessment of transport projects is heavily focused on understanding the benefits of a project at a net national level. This approach does not permit a full understanding of the often substantial impacts investment can have on local and regional economies through encouraging or attracting economic development and impacts on key sectors.

The centralised nature of our appraisal framework has left a gap in the ability to predict how transport investment causes real economic impacts ‘on the ground’ and understanding impacts on employment, productivity, GDP, incomes and real estate values etc. will only become more important with current and forthcoming changes in UK policy, appraisal and funding environments.

This is a key issue for this study, where the need to distinguish between economic impacts at the city level is key, and where it is precisely the sub-national economic effects that are of interest. Steer Davies Gleave has developed an economic model specifically to address these issues, which we propose to employ for this commission.

SpECTra is a sub-regional economic model designed to help understand how the time and cost savings delivered by transport investment impact on local economies. SpECTra takes transport model outputs of cost and demand and simulates the consequences on market transactions between economic sectors and households (product markets, labour markets, real estate markets etc.) through changes in productivity, prices, wages, output and the use of labour.

The model builds upon input-output tables to provide a more advanced analysis of the economy. Figure 1 provides a diagram of the structure of the model, explaining the linkages between each of its components.



**FIGURE 1** SPECTRA MODEL STRUCTURE

The dark blue lines show the flow of goods and production inputs, between locations and economic agents including households, firms, and product and factor markets and between the study area and the ‘rest of the world’. The light red lines show the corresponding monetary flows.

SpECTra is based on economic theory and models the relationships that govern markets within an area. Technically it is a Computable General Equilibrium or CGE model, which is a practical application of what may be described as economists’ consensus of how the economy works. In the model, firms buy labour and other inputs and use these to produce goods and services, which are sold on to other firms or to households.

Households, in turn, receive income from labour and share ownership and purchase goods and services for consumption. Firms within the study area also trade with the rest of the country. Following economic principles, the transactions take place in markets, where prices and wages adjust to ensure demand equals supply, whilst each actor’s expenditure equals its income or revenue.

SpECTra is ‘calibrated’ to detailed observed economic transaction data in a base year and can be set up to cover any geographical area from the whole of the UK down to local authority districts (or groups thereof). The time and cost savings from a transport intervention to the study area are taken from cost benefit outputs. These direct impacts are used to create an intervention scenario in SpECTra with

time savings in the course of work resulting in increased labour productivity whilst vehicle operating cost savings result in reduced costs to firms and increased disposable incomes to households. It is also possible to represent the impact of revenue and capital expenditure as well as the effects of local funding through the public sector.

Through changing production costs, incomes, prices and wages the model predicts the final economic outcome in a scenario with the transport intervention, which when compared with the base enables an understanding of the implications for employment, income, productivity and output within the modelled area, as well as trade with the rest of the country. That the model is a ‘closed system’, where supply for goods and services always equals demand and expenditure always equals income / revenue, means that SpECTra produces outputs that are internally consistent.

The end outcome can therefore be explained through changes in economic variables, such as changes in production costs, product prices, wages, real estate prices, trade, labour supply etc. The outputs are also consistent with cost benefit analysis - productivity and income gains by sector and location aggregate to cost benefit values. Figure 2 provides an example of some of the analytical outputs showing the effects of a £100m business time saving on value added, wages and jobs across sectors in the Leeds City Region.

The chart shows how the impact of the transport cost reduction feeds through the economy generating additional GVA, and altering the demand for employment and wages in each sector based on inputs and outputs of labour, capital, land and other factors. Often, the result is that a transport improvement leads to a diversion of economic activity to the study area from the rest of the UK, but some of these effects are offset by negative impacts elsewhere, leaving net national impacts consistent with comparable outputs from CBA.

SpECTra offers a method of assessing the economic impacts of a transport intervention such as a reduction in tolls, on the economy across a range of sectors and variables fully taking account of multiplier, leakage, displacement and supply & demand effects. The model is fully consistent with conventional cost benefit analysis.

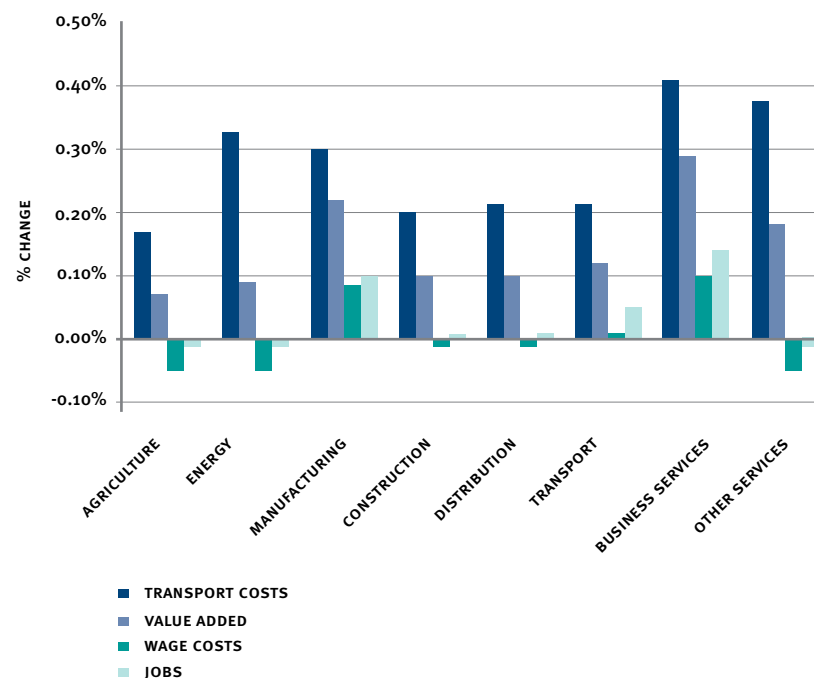


FIGURE 2 SPECTRA OUTPUTS



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