

## Appendix C: Business Impacts Study Executive Summary - Roger Tym & Partners

### Introduction

- 1 The business impact study was concerned with the assessment of the impact of both congestion and road pricing options on the economic competitiveness of the West Midlands conurbation. The emphasis of the research was on a bottom-up analysis, designed to compliment the macro-economic analysis of agglomeration impacts (the benefits of businesses co-locating in a particular area) and provide a better understanding of the likely impacts of road pricing on different business sectors. An in depth consultation was undertaken with over 50 businesses located across the conurbation covering:
  - Three sub-areas – Birmingham/Solihull, the Black Country and Coventry;
  - Three broad business sectors – manufacturing, retail/leisure, and Financial and Business Services (FBS); and
  - Three size bands – small (less than 50 employees), medium (50 to 249 employees) and large 250 plus employees).
  
- 2 It is noted that this survey work tested attitudes to area wide road pricing, and not the TIF Developed Option as assessed in PRISM. In addition, three ‘Dummy Profiles’ have been prepared for the following sectors:
  - Financial & Business Services;
  - Manufacturing;
  - Leisure.

### National Context

- 3 The review of the national context has shown that:
  - the need for demand management in urban areas is seen as essential in the context of national economic policy;
  - there is a strong intellectual case, backed by the research findings of the Eddington report, that road pricing may reduce traffic levels and congestion costs whilst having a favourable impact on GDP;
  - the principle that transport users should meet in full all their external economic, social and environmental costs and that investment appraisal should take account of these external costs has the strong backing of Sir Rod Eddington; and that
  - the DfT now recognises that there are wider economic benefits and GDP impacts arising from reductions in transport costs that are not accounted for in conventional appraisal techniques.

### The Regional Context for Congestion Management

#### Economic Performance

- 4 Our review of the economy of the wider region has revealed a significant productivity gap with Southern England. Indeed, the West Midlands Region is below the national average in relation to:
  - the proportion of working population with no qualifications;
  - manufacturing net capital expenditure per employee;
  - the percentage of total population of working age;
  - the unemployment claimant count;
  - change in population from 1991 to 2001;
  - net migration from 1991 to 2001; and
  - percentage change in jobs from 1995 to 2005.
- 5 As a consequence, the West Midlands ranks 6<sup>th</sup> of the nine regions in England and it has a GVA (Gross Value Added) per head (£15,812 in 2005, Table 3.3) which is only 87 per cent of the GVA per head for England and 89 per cent of the GVA per head for the UK.
- 6 The conurbation accounts for approximately half of the region's population and half of its jobs. However, whilst the density of people and jobs should favour agglomeration externalities, the conurbation has not kept pace with the national economy. In terms of national averages the conurbation suffers from a weak skills profile, a weak entrepreneurial profile and a weak economic structure, particularly in the Black Country. Solihull is the most dynamic part of the conurbation and Birmingham is the key economic driver, accounting for around two-fifths of the conurbation's jobs and two-fifths of its people. Thus, there is a productivity gap between the northern and western parts of the conurbation which under-perform and the southern and eastern part of the conurbation which perform much better.

#### Transport Conditions

- 7 So far as transport conditions are concerned, we note, in particular, that:
  - the growth in traffic in the conurbation since 1994 has been less than the rate of traffic growth in the wider region which, in turn, has experienced less traffic growth than England;

- growth in traffic has been fastest in Solihull, which reflects the linkage with economic growth, with Solihull being the most dynamic part of the economy over the last decade; and that
- the West Midlands has the second highest rail patronage of the metropolitan Passenger Transport Executives (PTEs), but bus journeys have been declining represent ten times the number of journeys undertaken by train and Metro combined.

## The Regional Spatial Strategy (RSS)

- 8 The Regional Spatial Strategy (RPG11) seeks to reverse the decentralisation of people and jobs from the metropolitan area and to secure a step change in investment and regeneration. Improvements to transport services are a key component of the RSS and the latter acknowledges that congestion is already having unacceptable impacts on business productivity, on quality of life and on the environment. Indeed, paragraph 9.41 of RPG11 gives explicit recognition to the need for demand management. Moreover, the emphasis is on making more efficient use of the existing transport network and improving transport choices, with road building tending to be seen as a last resort.

## The Emerging Regional Economic Strategy (RES)

- 9 The emerging Regional Economic Strategy (RES) seeks to promote economic growth that supports improvements to quality of life, whilst breaking the link between growth and environmental degradation. The analysis which underpins the RES suggests that low rates of innovation and a poor record on skills are the primary sources of the region's productivity challenge. However, there is explicit recognition that congestion is having an adverse impact on productivity, with knock-on adverse impacts on air quality, health and the environment. Thus, there is a strong synergy between the RSS and the RES; both emphasise the need to break the linkages between economic growth and environmental degradation. On a priori grounds, therefore, it would seem that effective congestion management could make a significant contribution in delivering the objectives of the regional policy agenda.

## The Impact of Current Levels of Congestion

### General Views

- 10 Some 88 per cent of consultees agreed with the proposition that congestion is a problem in the conurbation. However, the proportion who agreed that it has adverse impacts on their business was rather lower, at 69 per cent. Consultees'

comments show that this finding reflects both their general tolerance of current levels of congestion (with notable exceptions among businesses making deliveries on any scale) and a view that it is someone else's problem.

- 11 Nevertheless, 94 per cent of consultees agreed that congestion was likely to worsen. The extent to which the problem will continue to be perceived as one which can be '*managed*' is therefore uncertain

### Impacts of Agglomeration

- 12 Two-thirds of the consultees agreed with the general proposition that agglomeration benefits exist, but only 48 per cent considered that these agglomeration effects applied to their own business operation. As expected, however, a higher proportion of the firms located in the Birmingham/Solihull sub-area benefit from agglomeration externalities (60 per cent), whereas less than half of the consultees in the Black Country and Coventry sub-areas claimed to experience these benefits. The agglomeration benefits were most pronounced amongst the larger firms in the Financial and Business Sector (FBS) that are located in Birmingham city centre
- 13 Sixty per cent of consultees agree to the notion of technology spillovers, 50 per cent to the specific benefit of input market effects; and 64 per cent to the existence of labour market effects.

### Impact on Clients and Customers

- 14 Three-fifths of the consultees suggested that current levels of congestion cause problems for their clients/customers, but there was variation in the response across the broad sectors, with two-thirds of the consultees in the Manufacturing and Retail/Leisure sectors having this perception, as compared with a minority of FBS consultees.

### Effects of Congestion Reduction on Widening Firms' Customer Bases

- 15 Two-thirds of the consultees did not agree that a reduction in congestion would enable them to widen their customer bases, rising to 80 per cent in the Retail/Leisure sector, where customer catchments are determined by the location of competing stores and not just travel times.
- 16 Consultees in Coventry also took a more positive stance, with 50 per cent considering that customer catchments could be extended through a reduction in congestion.

### Difficulties in Travelling To Meet Clients

- 17 Almost four-fifths of consultees consider that the current levels of congestion cause some degree of difficulty in travelling to meet clients, rising to 90 per cent in the FBS sector. However, most consultees perceive that current levels of congestion can be 'worked around' by arranging meetings outside peak hours and by avoiding specific radial routes at particular times of the day.

### The Need to Allow for Extra Travel Time when Visiting Customers because of Journey Time Unreliability

- 18 The need to allow for extra time when visiting customers because of journey time unreliability is particularly prevalent in the FBS sector and in the Manufacturing sector where some firms face delivery issues that are particularly time sensitive.

### Specific Corridors where a Reduction in Congestion would be Beneficial

- 19 The same corridors tended to be mentioned, whether in relation to visits to customers, deliveries from suppliers, staff travelling to and from work, or deliveries to customers. Thus, the main motorway corridors, for which a reduction in congestion would assist business, are:
- the M6, particularly between Junctions 6 and 9 and in the vicinity of the intersection of the M6 with the M1/A14;
  - the M5, particularly between Junctions 1 and 4; and
  - the M42, particularly between Junctions 3a and 7.
- 20 However, it is perceived that the Birmingham Northern Relief Road has given some relief to the M6, albeit that the toll rates are considered to be expensive. It is also perceived that the management system introduced in respect of the M42 has helped to maintain the flow of traffic, albeit that speed limits have been lowered.
- 21 So far as the non-motorway routes are concerned, it is the radial routes that link the motorway network to Birmingham city centre which give rise to most concern, particularly, Hagley Road, Stratford Road and the A38M. Thus, the responses suggest that current levels of urban congestion are largely tolerated, and not perceived as a major problem, while congestion on the motorways is of much greater concern. This mismatch between perceptions and the reality of where the costs of congestion actually fall helps explain why road pricing charges have much greater salience among some consultees than the decongestion benefits, as the latter will arise, in part, in areas where there is limited perception of the problems.

### Effects of Congestion on Suppliers

- 22 Only one-third of consultees considered that congestion caused difficulties for their suppliers. In part, this finding reflects a lack of awareness of the problems faced by suppliers, rather than an absence of problems per se. Thus, as long as late deliveries did not create problems for the consultees themselves there was little appreciation of the issue for suppliers.
- 23 As expected, a higher proportion of manufacturers are concerned about the impact of current levels of congestion on their supplies, with two-thirds considering that late deliveries associated with congestion are already causing problems for their operations, as compared with 55 per cent of the Retail/Leisure consultees and only 11 per cent of the consultees in the FBS sector. Thus, there is a tension in the manufacturing sector between the need to keep stocks of components as low as possible, so as to reduce stock-holding costs, whilst not causing the risk of interruption to production if suppliers are late and components are run out.
- 24 Thus, most consultees in the Manufacturing and Retail/Leisure sectors already hold additional stock to cover the risk of supply delays under current levels of congestion, which is strongly suggestive of suppliers' problems. These businesses incur additional holding costs, although not always recognising that they do so.

### Would Access to a Wider Range of Suppliers Improve if Journey Times were Faster?

- 25 Less than one-fifth of consultees considered that improved journey times within the conurbation would enable them to widen their range of suppliers. This finding reflects the fact that multiple retailers tend to have their own national supply chains and that many manufacturers increasingly derive their supplies from national or even international sources so that local supply chains are relatively unimportant.

### Networking

- 26 Consultees did not, in the main, perceive themselves as being members of networks of fellow businesses, suppliers and customers, as is suggested in "cluster" theory. The consultations suggest that current levels of congestion have no material impact on business networking opportunities in the West Midlands conurbation.

### Congestion and Staff

- 27 Over 80 per cent of consultees reported that current levels of congestion create at least some difficulties for staff journeying to and from work and some consultees suggested that there were 'no-go areas' from which they could not recruit. All of

the consultees in the FBS and Manufacturing sectors reported some difficulties in relation to staff commuting, whereas only two-thirds of the consultees in the Retail/Leisure sector reported difficulties.

- 28 There was no clear pattern in the grades and types of staff who are most affected by congestion. In the Manufacturing sector a high proportion of shopfloor workers tend to live locally and travel to work on foot, by cycling or by public transport and it tends to be the managers who are more reliant on cars and the motorway network.
- 29 Firms with large numbers of low-paid or part-time staff in the Retail/Leisure sector tend to be more concerned about the quality, frequency and reliability of public transport than they are with congestion, particularly, those with shift starting times which fall outside the peak periods.
- 30 Similarly, most of the city centre consultees in the FBS sector have high proportions of staff that are reliant on public transport, with parking spaces tending to be for senior staff only.

### **Reduced Journey to Work Times Giving Access to a Larger Labour Pool**

- 31 There was no clear view on whether reduced journey times arising from road pricing would enable businesses to benefit from access a larger labour pool; 45 per cent of consultees anticipated benefits, but 48 per cent did not, and the remainder had no comment or were undecided.

### **Reduced Journey Times Giving Access to a Wider Range of Skilled Staff**

- 32 Most consultees who had hard-to-fill posts for skilled staff did not think that congestion was an issue of great importance, as compared with more general labour market and training issues.

### **Effects of Reduced Journey Times on Staff Turnover**

- 33 Only a small proportion of consultees consider that they have high staff turnover rates and, of those that did, the majority did not consider that congestion was a factor.

### **Effects of Journey Times on Staff Attitudes and Productivity**

- 34 About two-thirds of consultees in the FBS and Manufacturing sectors reported that current journey times already impact on staff attitudes.

- 35 Nevertheless, the majority of FBS and Retail/Leisure consultees – 60 per cent and 70 per cent, respectively - did not perceive that current levels of congestion have an adverse impact on production and operating time. However, 71 per cent of manufacturers perceive that current levels of congestion do impact on production and operating time, although in some cases this appears to result from difficult journeys to work for managers, rather than shopfloor workers.
- 36 Thus, the overall perception seems to be that the benefits of reduced journey to work times are unlikely to take the form of significantly increased working time, so that these journey time savings will mostly be welfare benefits to staff through additional free time.

### Opinions in Relation to Congestion Management Measures

- 37 Most of the respondents had multiple recommendations as to how congestion in the West Midlands conurbation might be reduced. We have grouped these responses under five headings: public transport, traffic management, road building, lifestyle changes and other initiatives.

#### Public Transport Improvements - Rail

- 38 More than half of the respondents suggested better train services. There was, however, a marked variation by sector; thus whilst 71 per cent of the FBS consultees and 50 per cent of Retail/Leisure respondents suggested that better provision of train services could reduce congestion, only 22% of manufacturers shared this view, probably because their locations and working hours do not favour access by rail to the same degree as the other sectors.

#### Public Transport Improvements - Bus Services

- 39 Overall, 44 per cent of consultees mentioned better bus services as a means of reducing congestion, but again there was variation by sector and sub-area. Thus, only 22 per cent of manufacturers mentioned better bus services, as compared with 59 per cent of FBS consultees and 40 per cent of Retail/Leisure consultees. More than half (53 per cent ) of those consulted in the Black Country mentioned improvements to buses, while respondents from Coventry (33 per cent) were least likely to make this suggestion.
- 40 Suggestions for improvement focussed on the need to extend the bus network and improve the level of off-peak services, so as to meet the needs of shift workers in the manufacturing, retail and leisure sectors.

## Public Transport Improvements - Other

- 41 Other public transport improvements suggested are provision of more, strategically located park and ride facilities, with good levels of security, and better integration of ticketing across all forms of public transport.

## Traffic Management and 'Smart' Measures

- 42 Forty per cent of those consulted called for measures to improve traffic management. There was specific praise for the improved management of the M42 which involves use of the hard shoulder and a lowering of the speed limits to delivery a faster throughput of traffic. Other commonly mentioned measures were the introduction of more red routes; allowing left-hand turns at junction traffic lights; more effective control of illegal parking; better management and faster implementation of road maintenance; faster clearance of accidents; introduction of high occupancy vehicle lanes; and more extensive use of in-car Information Technology (IT) systems.

## More Road Capacity

- 43 A fifth of consultees suggested that increased road capacity was needed in order to reduce congestion with a greater propensity for road-building to be advocated by manufacturers and businesses located in the Black Country.

## Lifestyle Changes

- 44 The most frequently cited lifestyle changes relate to the higher levels of traffic experienced during school terms. Indeed, one in seven of the consultees had something to say about the so-called 'school run'.
- 45 Other lifestyle changes that were suggested to ease congestion were: higher levels of home-working and more widespread acceptance of flexible working hours; greater use of IT and video conferencing; and promotion of the culture of car sharing for work purposes and school deliveries.

## Effectiveness of Road Pricing in Reducing Congestion

- 46 A third of the consultees were unable to give a firm opinion as to whether or not road pricing would reduce congestion. However, three-quarters of those who did express a firm opinion considered that road pricing would be effective in reducing congestion, with some of these referring to the impact of the congestion charge in London. Consultees from the Birmingham/Solihull sub-area had a lesser propensity to anticipate that road pricing would be effective in reducing congestion.

### **The Level of Support for Road Pricing**

- 47 Overall, 29 per cent of consultees stated that they would support road pricing, 33 per cent said they would not and the remainder were undecided. Several consultees regarded road pricing as inevitable, or ultimately necessary, but not something that they welcomed. Several made comments along the lines, 'It may be necessary after everything else has been tried'.

### **Conditions for Acceptability**

- 48 Almost half of the comments in relation to conditions of acceptability for road pricing, relate to the need for upfront investment in public transport before pricing is introduced. Other preconditions for acceptability included: the need for pricing to be at the minimum level required to be effective in reducing congestion, with several calling for discounts for regular commuters; offsetting tax cuts so that pricing payers saw no overall increase in tax; and national implementation of pricing, so that those conurbations introducing it were not disadvantaged.

### **Type of Road Pricing: Cordon or Time-Distance-Place (TDP)**

- 49 Of the consultees expressing a preference 58 per cent preferred a TDP regime compared to a cordon type approach because the former was seen as having greater economic efficiency, greater fairness and more easily applicable to disperse patterns of business travel.

### **The Anticipated Impact of Road Pricing on the Consultees Operations**

- 50 Only 20 of the 52 consultees felt confident in anticipating the likely impact of road pricing on their business operations. The level and limited nature of the responses from consultees underlines the need for more effective explanation of the potential wider economic impacts of road pricing.

### **Subsidies for Employees if Road Pricing Introduced**

- 51 Only 17 of the 52 consultees suggested that they would consider the introduction of subsidies for employees to compensate for the cost of road pricing.

### **Consultees' Overall Conclusions on Road Pricing**

- 52 Overall 40 per cent of consultees were positive in their appraisal of road pricing, but subject to pre-conditions. In contrast, 21 per cent took a negative stance, but the highest proportion of consultees – 38 per cent were genuinely uncertain as to the balance of costs and benefits of road pricing.

## Modelled Impact of Road Pricing

53 Based on the information supplied by a sub-set of the consultees, we have been able to use the PRISM model to suggest the following indicative scale of impacts in 2011:

- **Staff Commuting** – 8 per cent reduction in commuting times, which is equivalent to 20 hours per employee, per annum, with a welfare benefit in the range £110 to £177 per employee, per annum;
- **Business Travel** – a 3.3 per cent reduction in business trip time, which is equivalent to 6 minutes per return trip, with a value in the range £2.28 to £3.27 per trip;
- **Suppliers** – a 3.5 per cent reduction in delivery time for supplies, which is equivalent to a saving for suppliers of £1.05 per return trip, some of which will be passed on to the businesses and to consumers of products and services.

54 Labour Market Catchment/Employment Density – the introduction of RP would increase the size of the workforce in the 30 minute catchment by 19 per cent and the density of jobs in the 30 minute catchment by 20 per cent, so that there should be significant positive benefits for the conurbation through these agglomeration impacts.

55 Thus, the case studies have shown some reductions in travel times associated with road pricing which may seem small at the margin for each individual trip, but which in aggregate are significant for the conurbation as a whole.

56 It is important to recognise that the above time savings relate only to 2011, so that the benefits in relation to projected levels of congestion in the longer term are severely understated. Furthermore, we have not measured or factored in the improvements that road pricing will bring to journey time reliability. However, we would expect that this will provide further time and value savings for businesses and their employees.

## Congestion and Inward Investment

57 Advantage West Midlands do not have any evidence to suggest that congestion is affecting inward investment decisions, Nevertheless, AWM is concerned that increasing congestion in the future will have an impact on such investment decisions.

## Dummy Profiles

- 58 The following examples of 3 business enterprises examines in some depth likely reactions and responses to congestion as well as to a generalised road pricing scheme affecting the whole Metropolitan area.

## DUMMY PROFILE FOR AN HOTEL OPERATOR LOCATED NEAR TO THE NEC & BIRMINGHAM INTERNATIONAL AIRPORT

### Assumptions

#### What it Does

59 The company is the operator of a large four star hotel and is intended to represent the conurbation's leisure sector.

#### Location

60 The firm is located close to Junction 6 on the M42, near Birmingham International Airport and NEC. The hotel is in Bickenhill Ward, within the administrative area of Solihull. Bickenhill Ward accounts for 22 per cent of the employment in the administrative area of Solihull.

#### Employment Size

61 The dummy business has 500 employees and firms of this size, or larger, account for 46 per cent of employment in Bickenhill Ward, 25 per cent in Solihull and 20 per cent across the conurbation.

#### Occupational Profile

62 Three-fifths of the staff are employed in relatively low-skilled occupations as porters, chambermaids, kitchen assistants or bar staff, and a majority work part-time or in shifts. The other key occupations are in customer services (75 employees), managerial and office jobs (60) and skilled trades in the kitchen. The hotel also supports other jobs through maintenance and repair contracts.

### Travel Patterns

#### Staff

63 Most staff drive to work due to the location of the hotel near the motorway, the lack of public transport and the fact that shift work does not fit in well with bus service schedules (late nights, early mornings). For this reason, the hotel regularly resorts to the use of taxis to get staff home and this adds to its monthly operational costs. The journey to work modal split for the hotel is similar to that for Bickenhill Ward as a whole, with almost three-quarters of the Ward's employees reliant on cars or taxis.

- 64 Ninety per cent of the hotel's staff have a B postcode for their place of residence, indicating that they live in or near to Birmingham. The average travel to work time is around 20 minutes, which is a reflection of the fact that many of the lower-skilled and part-time workers are not paid enough to afford, or tolerate, long journeys and, by and large, it is only managers that are likely to live further afield. Thus, many staff live along the A45 corridor between the city centre and Junction 6 of the M42 and along the M6 to the north of the hotel.
- 65 The PRISM model demonstrates that commuting time savings in the conurbation's retail and leisure sectors are significantly lower than in the financial and business services (FBS) sectors.

### Customers

- 66 Given its location near the Airport and Junction 6 of the M42, the hotel serves a national and international market. Moreover, the nearby NEC also generates a significant amount of customer patronage. The key difference for the leisure sector, however, is that customers visit the business, rather than vice versa.

### Suppliers

- 67 The hotel belongs to a multiple group and its supply chain is similar to that of a multiple retailer. Thus, a quarter of the suppliers are located in Birmingham, 20 per cent elsewhere in the conurbation and the remainder spread throughout the country. Thus, whilst a reduction in congestion would improve the reliability of supplies, it is unlikely that this would result in an extended network of suppliers. Indeed, as in the manufacturing sector the choice of supplier is dictated, in the main, by the price of the goods rather than the location of the supplier.
- 68 Nevertheless, the hotel encourages suppliers to deliver in off-peak periods so as to minimise the disruption caused by congestion. Thus, problems with late deliveries tend to coincide with problems on the motorway network, particularly, the M42 and M6. As a consequence, a typical hotel operator will carry additional stocks as an insurance against supply failures.

### Other Business Contacts

- 69 Although a typical hotel operator may be a member of the local Chamber of Commerce, there is much less interaction with other business than in the FBS sector. Thus, networking tends to be limited to occasional meetings with other hotel operators to discuss those issues which are common to all operators; congestion does not rank highly on the agenda.

## Reaction to Current Levels of Congestion

- 70 For a typical hotel operator, in an out-of-centre location, congestion is manageable and does not have a significant adverse impact on business unless there are major accidents and roadworks on the M6 and M42 motorways. Indeed, congestion in the city centre may even deflect some demand towards out-of-centre locations.
- 71 Thus, for an out-of-centre hotel operator, the main issue is the lack of quality public transport services in off-peak periods, at night and early in the morning. To palliate this situation, the hotel organises taxis, which is costly. Moreover, there is evidence that the lack of suitable, safe and reliable public transport services is having an adverse impact on recruitment and our dummy operator has complained of losing staff to city centre hotels. Moreover, those staff who are reliant on cars for travel to work purposes increasingly have to allow for longer journey times in order to arrive at work on time. As a consequence, current levels of congestion are already causing instances of tiredness, which have an adverse impact on productivity.
- 72 However, the cost of congestion falls, in the main, on the hotel's customers and suppliers so that there is little impact on overall profitability.

## The Impact of Road Pricing

### Commuting and Labour Market Impacts

- 73 The PRISM model reveals that a time-distance-place charging regime will have a lower impact on commuting timesavings in the retail and leisure sectors, compared to the FBS sector. However, the improved reliability of journey times will improve staff productivity at work. Moreover, the introduction of Road Pricing (RP) could be expected to cause some shift in mode of travel for those who currently rely on cars; this is because the value of time of unskilled workers in the leisure sector, as measured by earnings and output, is relatively low, so that the proportionate cost of RP is higher.
- 74 The PRISM model also reveals a 22 per cent increase in the working age population within a 30-minute travel time for a typical retail and leisure operator as a result of RP. However, the main labour market benefit of such an increase is more likely to be in terms of recruitment of managerial and skilled staff, rather than relatively unskilled workers.

### Suppliers

- 75 The introduction of RP will typically result in an increase in employment density, within 30 minutes, of 21 per cent. However, for an operator in a multiple group, there will be a limited impact on choice of suppliers, given the existence of a national supply chain for many goods and services. Nevertheless, our dummy operator generates over 4,000 supply trips per year and there is a projected saving

per trip of £1.30. Of more significance, however, will be the improvement in the reliability of travel times for suppliers, which will tend to have a beneficial impact on stockholding costs.

### Customers

- 76 For a hotel operator located near to the NEC, the introduction of RP will result in time savings for customers, but such savings are unlikely to materially increase the turnover or profitability of the hotel. Moreover, there is ample scope for customers to avoid the peak periods.

## Suggestions for Transport Improvements and Level of Support for Road

### Pricing

- 77 A hotel operator in an out-of-centre location will place strong emphasis on the need for an improvement in public transport services in off-peak periods. These improvements will include improved reliability of bus services, an extended route network for buses, more off-peak bus services, and improved comfort, security and cleanliness, particularly at night. Indeed, staff turnover in the leisure sector is clearly affected by the inadequacies of existing public transport services.
- 78 Thus, given the high proportion of relatively low paid and part-time workers in the leisure sector, the main concern of operators is with public transport services rather than congestion. Thus, support for RP is heavily dependent on revenues being spent on improved public transport services.
- 79 RP will improve journey time reliability, thus, having some beneficial impact on stockholding costs for hotel operators. However, improved reliability of journey times for hotel customers is unlikely to have any material impact on turnover and profitability.

## DUMMY PROFILE FOR A MANUFACTURER LOCATED NEAR WILLENHALL IN THE BLACK COUNTRY

### Assumptions

#### What it does

- 80 The firm operates in the manufacturing sector, which accounts for 11 per cent of all businesses in the West Midlands conurbation. More specifically, it manufactures roofing products for the commercial construction industry and it distributes its products to client sites throughout the UK.

#### Location

- 81 The firm is located in an industrial area midway between Walsall and Wolverhampton town centres, near Willenhall, within the administrative area of Walsall Metropolitan Borough Council. The manufacturing site is located in Willenhall South Ward, which accounts for 8.8 per cent of the businesses in Walsall Borough and 2.1 per cent of the businesses in the Black Country.

#### Employment Size

- 82 The dummy business has 200 employees and firms of this size, or larger, account for 29 per cent of employment in both Willenhall South Ward and in Walsall, and for 34 per cent of employment across the conurbation.

#### Occupational Profile

- 83 Some 140 staff (70 per cent) are operatives, working in production or maintenance; 30 (15 per cent) are involved in distribution; and 30 (15 per cent) cover management, administrative and support functions, company accounts, research and marketing.

### Travel Patterns

#### Staff

- 84 The majority of the dummy company's employees live within a 5 km radius and a fifth of the workforce walks to work. Most of those not able to walk to work are car drivers or car passengers, so that car-borne transport to work accounts for two-thirds of the workforce, with public transport accounting for just over one-tenth of the workforce. The relatively high car-borne modal share reflects the provision of plentiful free parking at, and close to, the firm's site. In contrast, the nearest

train station is several miles away, so that those using public transport tend to be reliant on buses, often involving interchanges and the use of more than one service. The journey to work modal split for the firm is very similar to that for Willenhall South Ward as a whole.

- 85 The average journey to work time is just over 10 minutes because the operatives, which account for 70 per cent of the workforce, are not paid enough to afford, or tolerate, long journeys and, by and large, it is only managers that have journeys of over 30 minutes, usually by car. As a consequence, journey to work difficulties are more common amongst managerial staff. Indeed, many of the shopfloor and maintenance workers who do travel by car escape the worst effects of congestion through early start times. In contrast, the typical hours for the white collar worker, is from 8.30am to 4.30pm and it is these workers who are most affected by congestion. Moreover, the early start time for the shopfloor workers militates against the use of public transport.
- 86 The PRISM model demonstrates that commuting time savings are least significant for the manufacturing sector and least significant in the Black Country generally.

### Customers

- 87 The firm's output is an intermediate product in the construction process and customers (builders and developers) are located throughout the UK. The company delivers its products to building sites and it estimates that annual delivery hours amount to around 14,000, which equates to a monetary sum for driver time alone of just over £300,000, using WebTAG guidance. Deliveries generally involve multi-drop trips and the bulky nature of the company's product (roofing materials for commercial buildings) means that clients rarely visit the company's manufacturing site, although some will pick up products to save on delivery charges.
- 88 For this Black Country manufacturer, it is congestion on the motorway network that causes the biggest problems for deliveries, particularly in the vicinity of the Junction 10 of the M6 and Junction 1 of the M5; the A34 between Birmingham and Walsall is also problematic.

### Suppliers

- 89 Supplies are sourced locally, regionally and nationally and the company receives, on average, eight deliveries per day. The choice of supplier is dictated, in the main, by the price of the input, rather than the location of the supplier, but the firm will favour local suppliers if they can match or better the price offered by competitor suppliers located further afield.

- 90 The company's production process does not operate on a just in time basis and so the requirement for additional stockholding costs to avoid any just in time failure is minimised. Nevertheless, a failure to meet delivery time slots may mean that there is a build up of supplier lorries on the manufacturing site, which can lead to the requirement for overtime payments. However, most of the cost of late deliveries is borne by the supplier.

### **Other Business Contacts**

- 91 Although a typical manufacturer will be a member of the local Chamber of Commerce, there is much less interaction with other businesses than in the financial and business services (FBS) sector. Furthermore, agglomeration benefits in general are less pronounced in the Black Country and in Coventry than in the Birmingham/Solihull area.

## **Reaction to Current Levels of Congestion**

### **Deliveries to Customers**

- 92 Many consultees in the manufacturing sector are concerned about the impact of current levels of congestion on their customers and they tend to place a high value on securing a reputation for delivering on time. The impact of unreliable journey times is particularly pronounced for those manufacturing businesses that make time sensitive deliveries. As a consequence, it is typical for manufacturers to send out part loaded lorries to ensure delivery on time, thus pushing up their own costs and adding to congestion. Indeed, the time sensitive manufacturer will often pay overtime so as to ensure delivery to customers outside the am peak and customers will often request deliveries at a time that is earlier than strictly necessary.

### **Receipt of Supplies**

- 93 The typical manufacturer will place more emphasis on the timely receipt of supplies than firms in the FBS sector. There is a tension in the manufacturing sector between the need to keep the stocks of components as low as possible, so as to reduce stockholding costs, whilst not causing the risk of interruption to production if suppliers are late and components and raw materials are run out. Thus, even if the manufacturing process is not on the just in time basis, the typical manufacturer will hold some additional stock to cover the risk of supply delays, thus incurring additional holding costs, even if they are not fully aware of such costs. However, the typical manufacturer will increasingly derive some supplies from national, or even, international sources, so that local supply chains are becoming less important.

### Staff

- 94 As stated earlier, current levels of congestion for a typical manufacturer in the Black Country have only a limited impact on travel to work for shopfloor and maintenance workers because many will live locally, and because of early shift times which avoid the worst of the morning peak. Thus, current levels of congestion in the Black Country rarely cause disruption to the overall manufacturing production process. However, management personnel in a typical Black Country manufacturing company will tend to reside further afield, so that management meetings are rarely scheduled before 9.30am.

## The Impact of Road Pricing

### Commuting and Labour Market Impacts

- 95 The PRISM model reveals a lower value of commuting time savings in the manufacturing sector compared to the FBS and retail/leisure sectors. However, the introduction of Road Pricing (RP) could be expected to cause a shift in the mode of travel to work for those shopfloor and maintenance staff who travel to and from work in peak periods. This is because their value of time, as measured by earnings and output, is lower than in the FBS sector, so that the proportionate cost of RP is higher for the manufacturing worker. Thus, many who currently drive to work – because of plentiful free parking – are likely to be diverted to public transport and walking modes, or persuaded to car share which is particularly suited in the manufacturing sector because shopfloor staff tend to live close to each other. Nevertheless, there is some concern that the introduction of RP may cause some pressure for wage inflation.
- 96 For the Black Country manufacturer the PRISM model reveals a substantial increase in the number of jobs and in the working age population within a 30 minute travel time, as a result of the time-distance-place charging regime. However, the labour market agglomeration benefits are least pronounced in the manufacturing sector because such a high proportion of the workforce tends to be resident within a 5 km radius.
- 97 Thus, although the introduction of RP will significantly increase the number of working age residents within a 30-minute travel time for Willenhall, the main labour market benefit for the Black Country manufacturer will be in terms of recruitment of managerial and administrative staff, rather than shopfloor or maintenance workers who already live locally.

### Suppliers

- 98 Similarly, the introduction of RP will cause a 66 per cent increase in the number of jobs located within 30 minutes of our Willenhall manufacturer, because RP would cause Birmingham city centre to become within 30 minutes of Willenhall,

whereas it is beyond 30 minutes under the do-minimum scenario. Thus, RP will help in improving access to services, although having only a limited impact on choice of suppliers raw materials and components, for which price is the main determinant and for which local sourcing networks are on the decline.

## Customers

- 99 RP will generate a time saving of 12 minutes per return delivery trip by 2011, equating to a value of £6.21 per return trip using WebTAG guidance. This does not include savings caused by improvements in journey time reliability for both deliveries and receipt of supplies.
- 100 Conversely, however, RP will cause a direct increase in delivery costs, although most of the increase is likely to be passed on to customers rather than representing a loss to the manufacturer.

## Suggestions for Transport Improvements and Level of Support for Road Pricing

- 101 The typical manufacturer places strong emphasis on road management and road building as the best means of reducing congestion, with most emphasis given to the need to widen the M6, improve the merger of the M5 and M6 and improve the M1/M6/A14 junction. Most finished goods and supplies are delivered by road and this focuses the manufacturers' concerns.
- 102 Commuting is less of a problem for manufacturers because many shopfloor and maintenance staff live locally. Thus, only a fifth of manufacturers place emphasis on the need to improve rail and bus services because many are not served by rail or because they have early shift times, which militate against the use of buses.
- 103 Manufacturers place strong emphasis, therefore, on the need for the revenue generated by RP to be hypothecated and spent on road improvements and new road building. Manufacturers appreciate that RP will have the benefits of reducing travel time and improving journey time reliability for both deliveries and supplies. However, support for RP tends to be conditional on the price level that is set, which should not be so high as to outweigh the value of the travel time savings and which should be at a level whereby the costs can be transferred to customers, rather than being borne by the manufacturing sector.
- 104 Thus, subject to the need for hypothecation of revenues for spending on road management and new road building and subject to pricing levels, there is likely to be a reasonable degree of support for RP from the manufacturing sector. As a consequence, it should be possible to minimise the risk of RP causing displacement of manufacturing activity.

**DUMMY PROFILE FOR AN OFFICE BASED FIRM IN THE FINANCIAL AND BUSINESS SERVICES SECTOR LOCATED IN BIRMINGHAM CITY CENTRE**

## **Assumptions**

### **What it Does**

- 105 The firm offers business and management consultancy services, which is a category that accounts for 15 per cent of businesses in the conurbation's FBS sector.

### **Location**

- 106 The firm is located in Ladywood ward and close to Snowhill Station. This ward accounts for 24 per cent of employees in the administrative area of Birmingham.

### **Employment Size**

- 107 The firm employs 300 persons and firms of this size, or larger, account for 29 per cent of employment in Ladywood ward.

### **Occupational Profile**

- 108 75 per cent of the employees in the dummy business are fee earners (i.e. 225 employees) and the remaining 75 employees cover administrative, financial, marketing and other back-office functions.

## **Travel Patterns**

### **Staff**

- 109 The firm supplies free parking spaces for 25 per cent of its staff (ie 75 spaces), with parking provision skewed towards more senior staff and with around one-third of employees travelling to work by car in total. In comparison, the 2001 Census showed that 45 per cent of all employees in Ladywood travelled to work by car, 18 per cent by train/metro and 27 per cent by bus.
- 110 The average employee travel to work time is 38 minutes, based on data derived from one of the FBS consultees. However, senior staff have a greater propensity to live outside the conurbation and only 60 per cent have a B postcode.

- 111 Our consultations have shown that a typical city centre business in the FBS sector will suffer as a result of difficulties encountered by staff in travelling to and from work. There is concern, therefore, that difficult journeys to work will increase stress, frustration and fatigue amongst staff, to the detriment of their productivity, even if there is only a limited impact on overall hours worked. One FBS consultee estimated that each difficult journey resulted in a loss of productivity equating to 30 minutes. However, this firm also had employees who worked longer because of congestion by arriving early and leaving late.
- 112 The PRISM model demonstrates that staff working for a city centre business in the FBS sector will derive significantly greater benefits in terms of savings in commuting times as a result of the introduction of Road Pricing (RP) than staff in the manufacturing, retail and leisure sectors.
- 113 Furthermore, our consultations show that a higher proportion of the firms located in the Birmingham/Solihull area benefit from agglomeration externalities than those located in the Black Country or Coventry sub-areas. Moreover, the agglomeration benefits that arise from the geographic concentration of people and businesses are most pronounced amongst the larger firms in the FBS sector that are located in Birmingham city centre. However, the main agglomeration impact for a typical city centre business in the FBS sector is the positive labour market effect. Indeed, the introduction of a time-distance-place RP regime would increase the workforce located within 30 minutes of the city centre by 11.7 per cent by 2011, with a much greater impact anticipated by 2021. Thus, firms in the FBS sector are more likely to benefit from access to a larger labour pool and staff turnover is an issue for this sector. Technology spill-over is a less significant agglomeration impact for the FBS sector and input market effects are negligible given the limited supply inputs.

### **Business Travel to Customers**

- 114 Our dummy business operates throughout the UK and 40 per cent of its turnover is accounted for by customers located in the West Midlands conurbation.
- 115 Clients rarely visit the firm's Birmingham office and the firm's consultants usually travel to meet its clients. Indeed, for a typical firm in the FBS sector 5 per cent of fee earning time is spent in travelling to meetings. Much of this travel is by car unless the meetings are held in central Birmingham or London.
- 116 Only a minority of FBS consultees perceive that current levels of congestion cause problems for their clients; this is because a typical business in the FBS sector has a higher proportion of client contact through visits to customers rather than vice versa. Thus, a typical city centre business in the FBS sector is unlikely to be able to widen its customer base as a result of the decongestion benefits of RP.

- 117 Nevertheless, 90 per cent of the FBS consultees already have some degree of difficulty in travelling to meet clients under current levels of congestion and the typical firm will build in an allowance for additional travel time in meeting clients because of journey time unreliability. Typically, this contingency allowance will be 50 per cent of normal travel time. The unreliability of travel times is particularly stressful for business visits which involve the use of the motorway network, particularly the M6, because the potential difference between expectation (cruising at the speed limit) and reality (stop/start crawling) is most acute.
- 118 However, a typical firm in the FBS sector in Birmingham will not be able to quantify the costs of the delays when travelling to visit clients and there is considerable uncertainty as to who bears the cost of these delays - the business, the employee or the customer. In practice, the cost of the delay in travelling to meet clients is probably reflected in additional costs to all parties, but the division of these costs is almost impossible to establish.

### Suppliers

- 119 A typical city centre business in the FBS sector will not be affected by the impact of congestion on suppliers, but there may well be a hidden cost to such a business if the suppliers reflect the difficulties caused by congestion in the price of their products.
- 120 A city centre business in the FBS sector will place a lower importance on general supplies than firms in the retail, leisure and manufacturing sectors. However, they will place emphasis on the need for easy access to intermediaries, such as banks, lawyers and private equity firms.

## The Costs of Congestion and Modelled Impact of Road Pricing

### Staff

- 121 A time-distance-place pricing scheme will generate welfare benefits for employees of the FBS sector by reducing the amount of time spent commuting and giving them more leisure. However, the reduction in commuter journey times should also offer some productivity benefit for the FBS sector through reductions in stress levels. The PRISM model suggests that commuting times for employees in the FBS sector will reduce by around 9 per cent by 2011 as a result of a time-distance-place RP regime, equivalent to an annual welfare benefit in the range £100 to £400 per employee, depending on the value attributed to the travel time savings. Moreover, the model suggests that the RP regime will increase the size of the workforce that is resident within 30 minutes of Birmingham city centre by 11.7 per cent.

## Business Travel to Customers

- 122 The PRISM model suggests that RP will generate an average saving of 6 minutes per return business trip for which WebTAG guidance (Transport Analysis Guidance Website) suggests a value of approximately £6 per return trip. Thus, on the basis of one case study example, for which the average number of return business trips was 59 per annum, per staff member, the total annual saving for our dummy company with 225 fee earning employees is £79,650 by the year 2011. However, this excludes the value of improved journey time reliability that will be brought about by RP. Thus, given that contingency time amounts to approximately 50 per cent of estimated journey time, and given consultant charging rates at an average of £80 per hour, there can be a much higher cost saving. Thus, the benefits of reduced contingency time will pass to customers, to employees and to the FBS business itself.

## Suppliers

- 123 The PRISM model also shows a reduction in travel time for suppliers of around 3.5 per cent, which again equates to 6 minutes per return trip with a WebTag value of £1.05 per return trip. These supplier time savings are likely to benefit both the suppliers and the business consumer, but supplier savings in the FBS sector are of a lower order than for manufacturing and retailing.

## Suggested Traffic Management Measures and Level of Support for Road Pricing

- 124 A typical city centre firm in the FBS sector will place strong importance on the need to improve rail services, particularly in terms of improved reliability, safety and security. Such a firm will also place strong emphasis on the need to improve bus services through extension of the network, provision of more off-peak services and improved cleanliness and security. Such a firm is unlikely to support road building as a means of reducing congestion. It will, however, increasingly encourage higher levels of home working and flexible working hours, and make more use of video conferencing and other advances in information technology.
- 125 Consultees in Birmingham had a lesser propensity to anticipate that RP would be effective in reducing congestion and they placed greater emphasis on the role of improved public transport. Nevertheless, the level of support for RP is fairly evenly spread across the main business sectors and most car users in the FBS sector have senior positions with good salaries, so that the charges should be tolerable.